Annual Groundwater Monitoring and Corrective Action Report January 2023 - June 2023

for Compliance with the Coal Combustion Residuals (CCR) Rule and Consent Agreement No. RCRA-08-2022-0008

Comanche Station

Public Service Company of Colorado

July 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
GPS	Groundwater Protection Standard
LCL	lower confidence limit
LCS	Laboratory Control Samples
MCL	Maximum Contaminant Level
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
UTL	upper tolerance limit

Certification

January - June 2023 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.



Matthew Rohr, PE
Colorado PE License 0053467
License renewal date October 31, 2023
Signed July 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: 2023.07.31 13:54:55 -06'00'

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 Pond (Ceased receipt of waste 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.*	Assessment Monitoring Program and Evaluation of Potential Remedies	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 and Evaluation of Potential Remedies	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.*	• 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 (June 12, 2023) approved by EPA July 10, 2023
§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.*	• 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) and Revised June 2, 2023	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) 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 is to submit an annual groundwater monitoring and corrective action report (Annual Report) to EPA on a semiannual basis in January and July each year. This Annual Groundwater Monitoring Report presents the sampling and analysis completed and any monitoring well changes between January 1, 2023 and June 30, 2023:

- The status of the groundwater monitoring program for the Bottom Ash Pond is assessment monitoring and assessment of corrective measures.
- The status of the groundwater monitoring program for the landfill as of this report date is 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 continue 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 2025 and 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 all three 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 both 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 historical 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, with ash removal being initiated in Fall 2023. Between January and June 2023 PSCo has coordinated with engineers and contractors to plan for the ash removal, including the following topics:

- Dewatering planning including Bottom Ash Pond dewatering water treatment/disposal alternatives review
- Ash removal verification planning, including completion of soil background sampling and analysis and statistics for clay liner analytical background values used in ash removal verification
- Engineering design and implementation of pipe abandonment
- Geotechnical assessment of stability for the Bottom Ash Pond as it is dewatered and evaluation of liner removal

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. Groundwater under the site is present in the uppermost portion of the Pierre Shale, which is a weathered shale. 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 into unfractured, consolidated shale to confirm the consolidated (unfractured) Pierre 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 2023. Evaluating the groundwater elevations in wells screened in the weathered shale, a groundwater surface appears to flow south under the Bottom Ash Pond and southeast under the Landfill.

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

2.4 Monitoring Well System

PSCo installed seven additional wells between January and June 2023, which include the following wells installed during a phased investigation program:

- March 2023: W-19 and W-20
- April 2023: PTW and PZ-PT1
- June 2023: MW-10, MW-11, and PZ-12

Figure 2 displays the locations of these new wells. The GMS Certification was updated in July 2022 (HDR, 2022). A detailed description of how the monitoring system advanced in phases between 2020 and 2023 is provided in that document. There were no wells abandoned or modified in the first half of 2023. The monitoring well system changes in 2023 for each CCR unit are described in Sections 2.4.1 and 2.4.2 below.

Each time new wells were installed, the Well Installation Report was updated to provide the details for well construction, including the boring log, the well development, and slug test analyses (HDR, 2022a). **Appendix E** contains the following for wells installed between January and June 2023:

- Boring and well completion logs
- Field boring sheets
- Well development field sheets
- Slug test field sheets

Each time new wells were installed they were developed and sampled. Wells that became part of the monitoring system are sampled at a 5-week frequency to establish background as quickly

as practicable in each well per 257.94(b). The details of sampling between January and June 2023 are discussed in Section 3.

2.4.1 Landfill/ Ash Disposal Facility

For monitoring between January and June 2023 the certified monitoring system for the landfill includes the following wells (**Figure 2**):

- Background wells: MW-3, MW-4B, MW-6 and MW-9
- Downgradient compliance wells: MW-1B, MW-2B, MW-7
- Water level well: MW-5

Monitoring well MW-9 was installed in November 2022 for the Landfill Alternate Source Determination study. It will be retained in the monitoring program as a background well due to its upgradient location; however, data from this well is not currently pooled with the background data in the existing Landfill background threshold values. Monitoring wells MW-10, MW-11, and PZ-12 were installed June 2023. MW-10 and MW-11 were installed as downgradient wells in preparation for the landfill expanding further to the west. PZ-12 was installed at EPA's request to collect water levels to verify the groundwater flow direction along the northwestern section of the landfill. Given the recent dates of completion, well development is in progress and no water quality data is available for these wells.

2.4.2 Bottom Ash Pond

For monitoring between January and June 2023, 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, PZ-1

2.4.3 Additional Wells

The certified groundwater monitoring system includes additional nature and extent 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 (typically dry)
- Wells W-10A and W-10B: upgradient location monitored only for water levels, except well W-10B has been sampled for a period to evaluate against W-2C background concentrations.

When nature and extent wells are installed, they are sited in what is understood to be the general downgradient flow direction from the wells with SSLs. However, with further distance

from the SSL well, flow directions can vary, and each new well is used to refine the potentiometric surface. For example, after installation of well W-11, that location was observed to be too far west to be downgradient of the Bottom Ash Pond and wells W-13 and W-15 were found to be dry due to a bedrock high.

Monitoring wells W-19 and W-20 were installed March 8-9, 2023. Well W-19 was installed east of W-16 for offsite plume delineation purposes, and well W-20 was installed as a background well northeast of the Bottom Ash Pond to further evaluate background water quality.

Monitoring well W-21 was installed at an offsite property on June 12, 2023 southeast of W-16 for offsite plume delineation purposes. Given the recent date of completion, well development is in progress and no water quality data is available for this well.

Two additional wells, PTW and PZ-PT1, were installed in April 2023 in order to conduct a pump test. Well PTW was installed as the extraction well for the pump test and PZ-PT1 was installed as an observation well, plus existing well W-6B1 was also used as an observation well during the pump test.

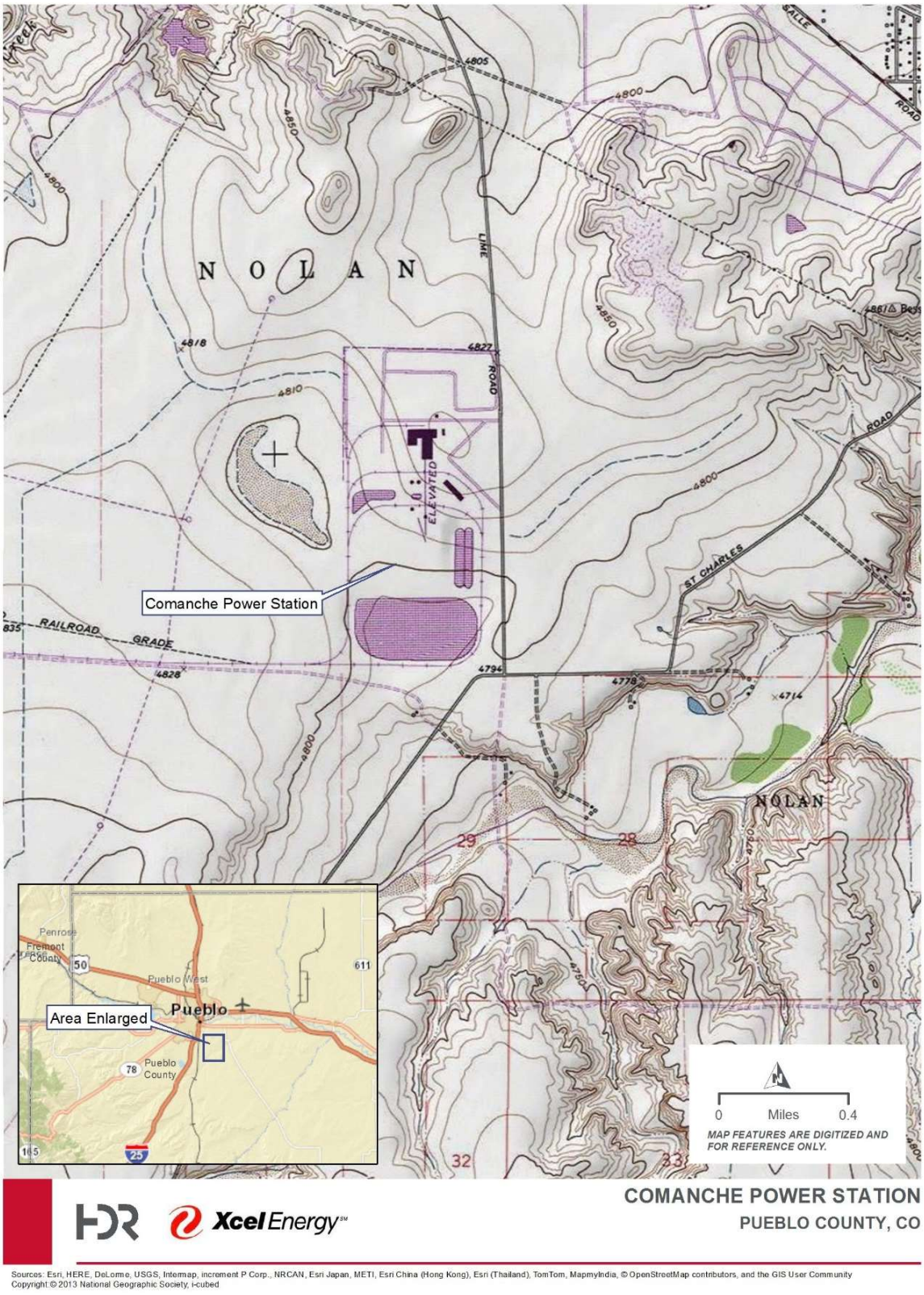


Figure 1. Vicinity Map for Comanche Station

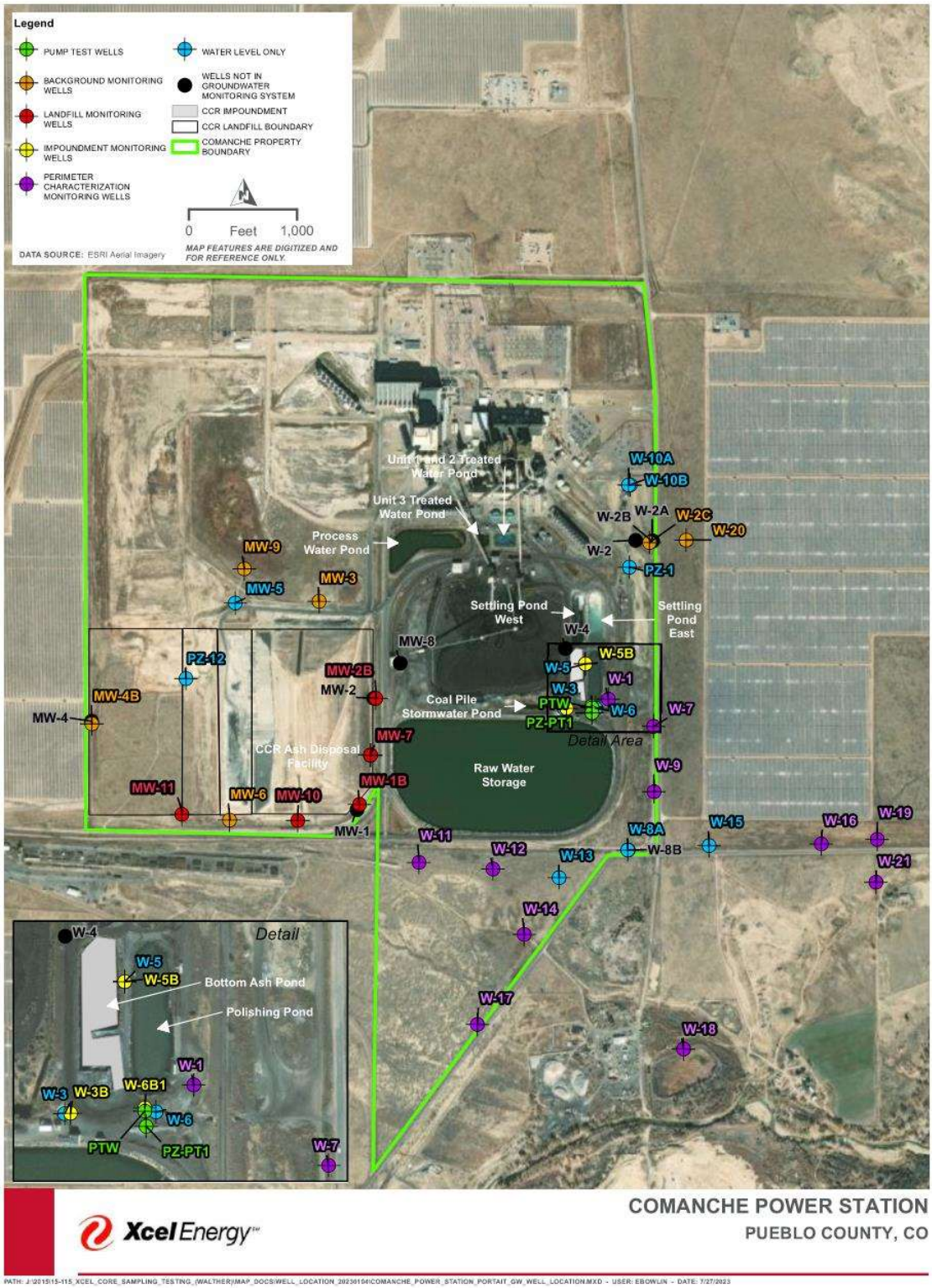


Figure 2. Comanche Station – CCR units and monitoring well location map

3.0 Monitoring

3.1 Frequency

3.1.1 Landfill/ Ash Disposal Facility

Detection monitoring continues semiannually 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 the first half of 2023, 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. After the initial eight sample events are completed, sampling aligns with the detection monitoring schedule. The official detection monitoring sample event in 2023 was in May.

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 (257.90(e)(3))			
Monitoring Well I.D.[1]	**Well Location**	**Dates Monitored**	**CCR Rule Monitoring Purpose**
MW-1B	Downgradient	May 4, 2023	Detection Monitoring
MW-2B	Downgradient	May 4, 2023	Detection Monitoring
MW-3	Upgradient/ Background	May 11, 2023	Detection Monitoring
MW-4B	Cross-gradient	May 8, 2023	Detection Monitoring
MW-5	Upgradient/ Background	May 1, 2023	Water Level
MW-6	Cross-gradient	May 4, 2023	Detection Monitoring
MW-7	Downgradient	May 5, 2023	Detection Monitoring
MW-8	ASD	March 1, 2023	ASD Sampling
		May 22, 2023	Detection Monitoring
MW-9	Upgradient / ASD	March 1, 2023	ASD Sampling
		May 23, 2023	Detection Monitoring
MW-10	Downgradient	N/A	Installed June 6, 2023
MW-11	Downgradient	N/A	Installed June 7, 2023
PZ-12	Downgradient	N/A	Installed June 9, 2023

Note: Data from wells sampled in June 2023 was not yet available at the time this report was written.

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 3** provides the well identification, number of samples collected, dates samples were collected in 2023, and the CCR Rule monitoring purpose. Beginning in February 2023, PSCo initiated assessment monitoring on a quarterly basis to have higher frequency data from which to evaluate anticipated changes to groundwater after the ash removal from the Bottom Ash Pond. The semiannual assessment monitoring sample event was in May 2023. Results from this event 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 Pond (257.90(e)(3))

Monitoring Well I.D.	Well Location	Dates Monitored	CCR Rule Monitoring Purpose
W-1	Perimeter/ Characterization Well	February 21, 2023	Quarterly Monitoring
		May 4, 2023	Semiannual Assessment Monitoring
W-2C	Upgradient / Background	February 14, 2023	Quarterly Monitoring
		May 1, 2023	Semiannual Assessment Monitoring
W-3	Downgradient	February 13, 2023 May 1, 2023	Water Level
W-3B	Downgradient	February 17, 2023	Quarterly Monitoring
		May 2, 2023	Semiannual Assessment Monitoring
W-5	Downgradient	February 13, 2023 May 2, 2023	Water Level
W-5B	Downgradient	February 14, 2023	Quarterly Monitoring
		May 2, 2023	Semiannual Assessment Monitoring
W-6	Downgradient	February 13, 2023 May 1, 2023	Water Level
W-6B1	Downgradient	February 15, 2023	Quarterly Monitoring
		May 3, 2023	Semiannual Assessment Monitoring
W-7	Perimeter/ Characterization Well	February 14, 2023	Quarterly Monitoring
		May 5, 2023	Semiannual Assessment Monitoring
W-8A	Perimeter/ Characterization Well (dry)	February 13, 2023* May 1, 2023*	Water Level
W-9	Perimeter/ Characterization Well	February 21, 2023	Quarterly Monitoring
		May 3, 2023	Semiannual Assessment Monitoring
W-10A	Perimeter/ Characterization Well (dry)	February 13, 2023* May 1, 2023*	Water Level
W-10B	Water Level	January 10, 2023 February 21, 2023 March 30, 2023	Background Monitoring
		May 2, 2023	Semiannual Assessment Monitoring
W-11	Perimeter/ Characterization Well	February 16, 2023	Quarterly Monitoring
		May 3, 2023	Semiannual Assessment Monitoring
W-12	Perimeter/ Characterization Well	February 16, 2023	Quarterly Monitoring
		May 4, 2023	Semiannual Assessment Monitoring

Table 3. Number and dates of groundwater samples collected for each well and the required monitoring programs for the Comanche Bottom Ash Pond (257.90(e)(3))

Monitoring Well I.D.	Well Location	Dates Monitored	CCR Rule Monitoring Purpose
W-13	Perimeter/ Characterization Well (dry)	May 1, 2023*	Water Level
W-14 (Installed February 28, 2022)	Perimeter/ Characterization Well	January 19, 2023	Background Monitoring
		February 21, 2023	Quarterly Monitoring
		May 3, 2023	Semiannual Assessment Monitoring
W-15	Perimeter/ Characterization Well (dry)	February 13, 2023*	Quarterly Monitoring
		May 2, 2023*	Semiannual Assessment Monitoring
W-16	Perimeter/ Characterization Well	January 20, 2023	Background Monitoring
		February 15, 2023	Quarterly Monitoring
		May 11, 2023	Semiannual Assessment Monitoring
PZ-1	Water Level	May 1, 2023	Water Level
W-17	Perimeter/ Characterization Well	February 22, 2023 March 30, 2023 May 3, 2023	Background Monitoring
W-18	Offsite Perimeter/ Characterization	January 9, 2023 February 20, 2023 March 29, 2023 May 2, 2023	Background Monitoring
W-19 (Installed March 8, 2023)	Offsite Perimeter/ Characterization	May 11, 2023	Background Monitoring
W-20 (Installed March 9, 2023)	Offsite Perimeter/ Characterization	June 2, 2023	Background Monitoring
W-21 (Installed June 12, 2023)	Offsite Perimeter/ Characterization	N/A	Installed June 12, 2023
PTW (Installed April 7, 2023)	Pump Test Well	May 3, 2023	Pump Test Well
PZ-PT1 (Installed April 5, 2023)	Pump Test	N/A	Pump Test Well

*Well was monitored and found to be dry, no sample could be collected.
Notes: Data from wells sampled in June 2023 was not yet available at the time this report was written. Based on water levels measured since installation, and as shown in the attached 2023 groundwater contour maps, W-11 is not downgradient of the Bottom Ash Pond.

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 Sampling and Analysis Plan (GSA) (HDR, 2022b). The water samples were collected using a bladder pump or bailer (only when water levels were too low in the well to use a bladder pump), 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, 2022b). Data validation was conducted to eliminate data that did not meet validation criteria and to 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 for 2023 are in **Appendix B**.

Table 4. Data Validation Summary for 2023

QC Type	2023 (*through June 2023)
Field duplicate RPD	January – lead (1) March – Rad-226 (1), Rad-228 (1), combined radium (1), cadmium (1) May – TDS (1), TSS (2)
Lab duplicate RPD	None
LCS recoveries	January – Rad-228 (5), combined radium (5)
LCS/LCSD RPD	None
MS recoveries	January – dissolved lithium (1) February – dissolved calcium (2), fluoride (2), sulfate (1), sodium (1) March – calcium (1), magnesium (1), potassium (1), selenium (1), sodium (1) May – calcium (1), chloride (1), fluoride (1), lithium (1), magnesium (1), potassium (1), selenium (1), sodium (1), sulfate (1),
MS/MSD RPD	February – sodium (1), potassium (1)

*Data from wells sampled in June 2023 was not yet available at the time this report was written.

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 in

February and May 2023 (**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 2023

Well ID	TOC Elevation (ft amsl)	CCR Unit	Groundwater Elevations (ft amsl)				
			Week of 1/9/2023	Week of 2/13/2023	Week of 3/1/2023	Week of 3/29/2023	Week of 5/1/2023
MW-1	4806.73	Water Level	NM	NM	NM	NM	Dry
MW-1B	4807.72	Landfill	NM	NM	NM	NM	4776.12
MW-2	4800.45	Water Level	NM	NM	NM	NM	Dry
MW-2B	4801.72	Landfill	NM	NM	NM	NM	4783.15
MW-3	4798.45	Landfill	NM	NM	NM	NM	4788.76
MW-4	4826.47	Water Level	NM	NM	NM	NM	Dry
MW-4B	4826.41	Landfill	NM	NM	NM	NM	4788.36
MW-5	4806.97	Water Level	NM	NM	NM	NM	4779.94
MW-6	4823.08	Landfill	NM	NM	NM	NM	4791.32
MW-7	4803.20	Landfill	NM	NM	NM	NM	4782.31
MW-8	4813.69	Landfill	NM	NM	4781.37	NM	4782.99
MW-9	4797.58	Landfill	NM	NM	4791.13	NM	4790.76
MW-10	Note 1	Landfill	NM	NM	NM	NM	NM
MW-11	Note 1	Landfill	NM	NM	NM	NM	NM
PZ-12	Note 1	Water Level	NM	NM	NM	NM	NM
W-1	4801.37	Perimeter/ Characterization	NM	4789.39	NM	NM	4789.52
W-2C	4827.78	Bottom Ash Pond	NM	4799.90	NM	NM	4799.27
W-3	4807.41	Water Level	NM	4792.69	NM	NM	4793.46
W-3B	4810.29	Bottom Ash Pond	NM	4793.59	NM	NM	4792.99
W-5	4811.89	Water Level	NM	4799.05	NM	NM	4797.57
W-5B	4810.62	Bottom Ash Pond	NM	4798.65	NM	NM	4797.24
W-6B1	4807.47	Bottom Ash Pond	NM	4792.37	NM	NM	4791.62
W-7	4797.54	Perimeter/ Characterization	NM	4789.30	NM	NM	4788.46
W-8A	4804.26	Water Level	NM	4773.21	NM	NM	4773.22
W-9	4801.78	Perimeter/ Characterization	NM	4766.16	NM	NM	4766.04
W-10A	4835.21	Water Level	NM	NM	NM	NM	Dry
W-10B	4835.22	Water Level	4807.47	4807.42	NM	4806.90	4807.01
W-11	4795.99	Perimeter/ Characterization	NM	4772.68	NM	NM	4772.22
W-12	4791.65	Perimeter/ Characterization	NM	4769.68	NM	NM	4769.52
W-13	4801.96	Water Level	NM	4772.26	NM	NM	4772.41
W-14	4775.99	Perimeter/ Characterization	4737.26	4737.50	NM	NM	4737.31
W-15	4793.36	Water Level	NM	NM	NM	NM	Dry

Table 5. Groundwater Elevations Measured in 2023							
Well ID	**TOC Elevation (ft amsl)**	**CCR Unit**	**Groundwater Elevations (ft amsl)**				
			Week of 1/9/2023	**Week of 2/13/2023**	**Week of 3/1/2023**	**Week of 3/29/2023**	**Week of 5/1/2023**
W-16	4788.90	Perimeter/ Characterization	4751.37	4751.83	NM	NM	4751.44
PZ-1	4825.44	Water Level	NM	4800.69	NM	NM	4799.84
W-17	4762.57	Perimeter/ Characterization	NM	4737.49	NM	4736.62	4736.69
W-18	Note 1	Perimeter/ Characterization	4724.68	4724.74	NM	4724.59	4724.76
W-19	Note 1	Perimeter/ Characterization	NM	NM	NM	NM	Note 1
W-20	Note 1	Perimeter/ Characterization	NM	NM	NM	NM	Note 1

NM - Not Measured
Note 1 – Survey data was not available at the time this report was written.
Based on water levels measured since installation, and as shown in the attached 2023 groundwater contour maps, W-11 is not downgradient of the Bottom Ash Pond. W-21 still in development, so no static water level yet.

4.2 Water Quality

All water quality laboratory reports for 2023 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 October 28, 2022 letter from PSCo to EPA, *Comanche Station Notification of Updated Groundwater Background Values Statistically Significant Increases and Concentration Exceedances*, chloride was shown to have a SSI over the BTV (upper prediction limit) at three wells (HDR, 2021a). The SSI triggered the requirement to either initiate assessment monitoring program or complete an Alternative Source Demonstration (ASD). An ASD was completed on February 17, 2023 and revised on June 8, 2023 that showed the chloride SSI was naturally occurring and not from the landfill, and EPA approved the ASD on July 10, 2023.

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

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
pH (field), UPL	su	66	0	0%	Nonparametric	1	7.55
Sulfate (as SO4)	mg/l	68	0	0%	Nonparametric	1	48,000
Total Dissolved Solids	mg/l	68	0	0%	Nonparametric	1	77,000

2023 Detection Monitoring - May

The May 2023 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-2B (**Table 7**). Laboratory reports are included in **Appendix B**.

Table 7. Appendix III COIs with SSIs over Background for Landfill Detection Monitoring Event May 2023

Appendix III Constituent		Chloride (mg/L)
BTV (UPL)*		390
Monitoring Well May 2022 Detection Monitoring Event	MW-2B	590

*Background Statistics completed October 2022.

The MW-2B chloride concentration in May 2023 is consistent with the prior SSIs data at MW-2B (e.g. 2022 chloride concentrations measured at MW-2B were 560 and 600 mg/L) that was attributed to the naturally occurring source of chloride as described and approved in the June 8, 2023 Landfill ASD. The chloride concentrations in groundwater in several locations around the landfill are from the topographic low immediately north of the landfill that accumulates stormwater runoff. Evaporative salts from long-term evaporation of shallow perched water and intermittent stormwater along with subsequent stormwater infiltration dissolve and transport these surface salts and naturally occurring salts in the colluvial deposits to the groundwater. This May 2023 SSI falls under the same ASD and therefore the Landfill will remain in detection monitoring.

4.2.2 Bottom Ash Pond

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 upper tolerance limit (UTL) values for assessment monitoring and established GPS are provided in **Table 8**.

Table 8. 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

Table 8. 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**
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.

2023 Background Monitoring Events - January, March/April, and June

Between January and June 2023, there were background sample events for the Bottom Ash Pond in January, February/March, March/April, and June. These “Background Events” are conducted after a new well is installed at a 5-week frequency 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 monitoring events, concentrations of cobalt were observed over the GPS in two wells in January 2023, as summarized in **Table 9.** EPA is routinely notified of concentration exceedances, per Paragraph 95(d)(i) of the Consent Agreement.

Table 9. Bottom Ash Pond Wells with Concentrations over Groundwater Protection Standards During 2023 Background Monitoring Events		
Appendix IV Parameters with Concentration Exceedances	**Sample Date**	**Cobalt (mg/L)**
GPS (Based on Well W-2C)		0.0092
W-14	January 2023	0.011
W-16	January 2023	0.019

The complete laboratory report and data validation from the one well sampled in June 2023 were not yet available at the time this report was written.

2023 Assessment Monitoring Events – February and May 2023

In addition to the background sample events, PSCo sampled quarterly in February and May 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 an 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. Wells W-17 through W-21 do not yet have the minimum 8 sample events to complete statistical analysis. **Table 10** provides the installation date and sampling dates 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 10. 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 February 2023 Assessment Monitoring Event? (Yes or No)	8 or more samples collected as of May 2023 Assessment Monitoring Event? (Yes or No)
W-1	May 20, 1997	March – December 2020	Yes	Yes
W-2C	November 2021	December 2021 - August 2022	Yes	Yes
W-3B				
W-5B	December 2020	January – May 2022	Yes	Yes
W-6B/W-6B1	November 2021	December 2021 – September 2022	Yes	Yes
W-7	August 2020	August – December 2020	Yes	Yes
W-9	December 2020	January – May 2022	Yes	Yes
W-11				
W-12				
W-13				
W-14	February – March 2022	March - January 2023	Yes	Yes
W-15				
W-16				
W-17	August 10, 2022	5 events November 2022 - May 2023	No	No
W-18	December 13, 2022	4 events January – June 2023	No	No
W-19	March 8, 2023	1 event in May 2023	No	No

Table 10. 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 February 2023 Assessment Monitoring Event? (Yes or No)**	**8 or more samples collected as of May 2023 Assessment Monitoring Event? (Yes or No)**
W-20	March 9, 2023	1 event in June 2023	No	No
W-21	June 12, 2023	No samples in June 2023	No	No

In accordance with CCR Rule 257.95(e), downgradient well concentrations were compared against BTVs (based on well W-2C) 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 February and May 2023 sample events (**Table 11**). LCLs were calculated for comparison against GPS. The wells with LCL values that exceed GPS are provided in **Table 12**. The LCL values provided in Table 12 include data collected from each well through the May 2023 sample event. Statistical outputs are provided in **Appendix D**.

Table 11. Bottom Ash Pond Wells with Concentrations over Groundwater Protection Standards During 2023 Assessment Monitoring Events					
Appendix IV Parameters with Concentration Exceedances	**Sample Date**	**Cadmium (mg/L)**	**Cobalt (mg/L)**	**Molybdenum (mg/L)**	**Radium 226/228 (pCi/L)**
GPS		0.0063	0.0092	0.1	8.15
Monitoring Wells with GPS Concentration Exceedances					
W-3B	February 2023	0.018	0.12	--	10.6
	May 2023	0.018	0.11	--	11.7
W-6B1	February 2023	0.010	0.11	--	--
	May 2023	0.011	0.060	--	--
W-7	February 2023	--	0.021	--	--
	May 2023	--	0.020	--	--
W-12	February 2023	--	0.030	--	--
	May 2023	--	0.029	--	--
W-14	February 2023	--	0.010	--	--
	May 2023	--	0.0098	--	--
W-16	February 2023	Not analyzed	0.018	--	Not analyzed
	May 2023	--	0.021	--	--
W-17	February 2023	--		0.28	--

Table 12. Bottom Ash Pond Monitoring Wells with Lower Confidence Limits through May 2023 that Exceed GPS

Monitoring Well	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	0.10	10.0
W-6B	LCL	0.0090	0.076	--
W-7	LCL	--	0.018	--
W-12	LCL	--	0.024	--
W-14	LCL	--	0.010	--
W-16	LCL	--	0.014	--

Well W-11 also had concentrations of cobalt that would have exceeded the Bottom Ash Pond GPS, and these concentrations were identified in monthly reports, but W-11 is not downgradient of the Bottom Ash Pond and therefore the concentrations are not considered exceedances of the GPS When W-11 was installed it was unclear if groundwater at that location was downgradient of the Bottom Ash Pond based upon the groundwater flow direction mapped from the existing well network. However, based on water levels measured since installation, and as shown in the attached 2023 groundwater contour maps, W-11 is not downgradient of the Bottom Ash Pond. Therefore, it is not appropriate to compare the results to the Bottom Ash Pond GPS, and W-11 is not included in the exceedance tables.

5.0 Remedy Selection Progress Update

The section below provides the semiannual 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, following a public meeting.

Between January and June 2023, PSCo has made significant progress towards closure planning for the Bottom Ash Pond as well as progress in groundwater corrective measures assessment and plume delineation. PSCo completed the *Assessment of Corrective Measures for CCR Impoundment* (ACM) 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 remediation of groundwater impacted by the impoundment: hydraulic containment and treatment (pump and treat), monitored natural attenuation (MNA), in-situ treatment, in-situ flushing and slurry wall. Source removal (bottom ash pond closure by removal of CCR) is a common element of all five options evaluated. The EPA provided comments on the ACM on February 3, 2023. PSCo submitted a Summary Plan for Comanche ACM Revisions to EPA, dated March 21, 2023, and the Revised ACM was submitted to the EPA on June 2, 2023. After approval of the ACM by EPA, PSCo will host a public meeting, anticipated to be in the Fall of 2023 to describe the corrective measures considered and a recommended remedy for the site.

PSCo is proceeding forward with source removal to close the Bottom Ash Pond, and all of the groundwater measures evaluated in the ACM assumed the impoundment would be excavated and all source removed in conjunction with implementation of any groundwater measures. As discussed in the ACM, to select a groundwater remedy, additional data collection and analyses is ongoing to understand both the feasibility of corrective measures and the off-site cobalt plume extent. Two private drinking water wells were identified as potential receptors and were evaluated. The risk to private drinking water wells is considered very low due to their location in a separate and disconnected alluvial groundwater system than the groundwater under Comanche Station, among other reasons. The additional offsite groundwater monitoring wells required to delineate the cobalt plume required private landowner agreements, which took significant time to obtain, but offsite groundwater wells have now been installed to delineate offsite conditions.

For cobalt plume delineation, well W-19 was drilled in March 2023 offsite to the east of W-16 (**Figure 2**). The cobalt concentrations observed in W-19 have been below GPS indicating that the plume is delineated in the eastward direction. In May 2023, landowner agreement was received for one offsite location southeast of W-16, and that monitoring well (well W-21) was installed immediately thereafter in June 2023 (**Figure 2**). The boring for W-21 was initially dry when it was drilled, and a well was installed to monitor whether water would appear in the future or seasonally. A few feet of water was subsequently observed and well development was initiated. Once developed, well W-21 will be sampled. In order to evaluate if the background values from W-2C are fully representative of background water quality, an additional background well (W-20) was installed March 9, 2023 (**Figure 2**).

5.1 Bottom Ash Pond Closure / Source Removal

PSCo has continued to prepare for physical closure of the Bottom Ash Pond this summer. The pipe between the Bottom Ash Pond and the Polishing Pond was grouted on February 10, 2023. Subsequently, minor seepage has been observed near the pipe, but does not appear to be coming through the grouted pipe. Based on water levels in adjacent monitoring wells, it may be a combination of ash pore water and groundwater. An implementation and operations plan (IOP) is being developed to remove residual water in the bottom ash pond and manage groundwater during bottom ash removal/physical closure. Additionally, project drawings and technical specifications have been developed for the Bottom Ash Pond closure and the work is expected to go out for bid in August. PSCo also has completed an evaluation for the treatment and disposal of dewatering water, such as the existing Westech system, evaporators, treatment and discharge to the Polishing Pond, use as scrubber makeup, and/or use as landfill dust control. This resulted in a memorandum, *Treatment/Disposal Options for Bottom Ash Pond Dewatering Water Memorandum*, dated June 16, 2023. A combination of onsite reuse for dust control in the active area of the landfill is the preferred option, followed by use as scrubber makeup water, or discharge to the Westech system.

Additionally, PSCo has been developing the ash removal verification Plan, which provides the procedures to verify that ash was removed from the Bottom Ash Pond. The Plan includes sampling and analysis of the base of the excavation, which requires background values for the

material that is anticipated to be encountered at the base of the excavation after ash removal, which will be the clay liner. PSCo completed background sampling at the site on June 14, 2023. Eight borings were completed to collect samples of clay liner outside of the limits of the polishing pond. Clay samples were submitted to a laboratory for chemical analysis of Appendix III and IV total metals. Statistical analysis will be completed on the background soils to develop background values for comparison against verification samples from the bottom of the excavation once visual ash removal is certified by a Professional Engineer.

PSCo is working to procure and bring under contract a general contractor for ash removal for the pond cleanout work with the goal of beginning final ash removal in Fall 2023 and completing removal end of 2023, followed by verification testing and site grading/stabilization.

5.2 Groundwater Extraction and Treatment and MNA Potential Remedy Progress

Remedial Investigation Work Plans

Between January and June 2023, remedial investigation work plans were developed to support assessment and design of an extraction and treatment system and enhanced with MNA as part of a potential remedy for the Bottom Ash Pond. These Work Plans included the following procedures and tasks to perform onsite testing and data collection for the extraction and treatment system:

- Aquifer testing procedures to evaluate potential pumping rates and capture zones, which included:
    - Extraction well siting and design and monitoring well siting and design.
    - Pump test at one location near the Bottom Ash Pond. Step drawdown and constant rate tests were planned, and drawdown and recovery was to be measured and analyzed.
- Coordination with drilling companies.

MNA will potentially be a component of the remediation strategy primarily in offsite areas or areas on-site where concentrations are very close to the GPS in addition to extraction and treatment remedies. Therefore, these Work Plans included data collection to assess potential performance and reliability of MNA. Soil property data and additional groundwater monitoring parameters are needed to identify attenuation mechanisms at the site, the capacity for attenuation, and to support estimating the time required to achieve remediation objectives. These Work Plans included the following procedures and tasks to perform onsite testing and data collection for the MNA study:

- Sediment sampling and analysis at up to eight borings to collect core samples:
    - Samples will be analyzed for contaminant concentrations in aquifer solids (COCs include boron, chloride, lithium, selenium, sulfate). Mineralogy of the weathered shale will be identified (clay mineralogy, Fe-Mn-Al oxides, carbonate minerals, sulfides), as well as cation exchange capacity (CEC). Batch attenuation testing for COCs will be completed at a laboratory, which include chemical extractions to

determine probable range of partition coefficient values (K_d) that suggest attenuation is taking place.
- Coordination with drilling companies.
- Groundwater sampling and analysis procedures specific to MNA evaluation.

The EPA's tiered approach to MNA requires that information is collected as necessary to identify attenuation mechanisms at the site, the capacity for attenuation, and the estimated time to achieve corrective action objectives. Demonstrating attenuation mechanisms and capacity can be time consuming and take up to 24 months.

Pump Test

In order to evaluate the feasibility of the groundwater extraction and treatment remedial alternative and to support redial design, a pump test was conducted south of the Bottom Ash Pond. The pump test activities included installation of one extraction well (PTW) and one observation well (PZ-PT1) (**Figure 2**). Wells were installed from April 4-6, 2023 and the pump test was performed May 1-2, 2023.

An overview of the pump test results is provided below.

- Drawdown of the water level in the pumping well continued until the well was purged dry (after six hours) at a pumping rate as low as 0.1 gallons per minute.
- During the pumping and recovery at PTW, no response was observed at either of the observation wells (PZ-PT1 and W-6B1). The estimated capture zone for each well was estimated to be 5 feet.
- Using graphical calculation methods, the transmissivity based on the drawdown and recovery test results in pumping well PTW was 2.4 gallons per day/foot (0.32 $feet^2$/day). The transmissivity value equates to a hydraulic conductivity of 0.0247 feet/day (8.71e-6 centimeters/second). This is consistent with literature values associated with shale (Freeze and Cherry, 1979).

The pump test results will be used in the ongoing evaluation of corrective measures alternatives and design.

MNA Sampling

Four boreholes were drilled between June 15-19, 2023 for MNA sediment sampling. Due to limits on drill availability, not all MNA samples were collected and additional drilling for the MNA sample collection is planned for Fall 2023. Following data collection, the sediment chemical characterization, mineralogy, and attenuation testing will advance the evaluation of MNA.

5.3 Remedy Selection Next Steps

PSCo continues to proceed diligently through the process of evaluating specific remedial design data gaps prior to remedy selection, consistent with best practices and professional judgment. The following activities are anticipated to be completed or initiated in the next 6-month period for the Bottom Ash Pond, but are subject to change based upon the iterative nature of data collection and uncertainty about the results of each step:

- Hold a public meeting in Fall of 2023 to present the alternatives considered and recommended remedial approach.
- Procure and bring under contract a general contractor ash removal with the goal of beginning in Fall 2023 and completing removal at the end of 2023, followed by verification testing and site grading/stabilization.
- Continue to implement the work plan to fill the data gaps for remedial design, including MNA sampling and analysis.
- Initiate ex-situ treatment testing for treatment design.
- Coordinate with the State, County, and City regarding the remedial plans and for any necessary permit approvals.
- Complete and submit the Remedy Selection Plan.
- Continue quarterly groundwater assessment monitoring.
- Continued evaluation of COC concentrations relative to GPS and background and general trends.
- In accordance with 257.97(a), PSCo will complete semiannual progress reporting to document additional work completed towards remedy selection and design.

6.0 Summary

As of the end of June 2023, the monitoring status at the landfill is detection monitoring and at the Bottom Ash Pond is assessment monitoring and evaluation of potential remedies. The following summarizes the CCR Rule compliance monitoring program tasks and observations between January and June 2023:

Landfill

- The detection monitoring event was in May 2023.
- Three new wells, MW-10, MW-11, and PZ-12 were installed in June 2023.
- One well, MW-2B, had an SSI for chloride in May 2023; however, it was consistent with the findings associated with the approved ASD for the Landfill. PSCo will continue detection monitoring at the landfill.

Bottom Ash Pond

- Sampling was conducted in January, February, March, May, and June 2023. Quarterly assessment monitoring was completed in February and May. Additional dates were for background monitoring associated with newer wells.
- Revised an existing access agreement and completed a second access agreement for a separate property to allow installation of additional off-site wells.
- Two perimeter characterization wells (W-19 and W-21) were also installed in response to the SSLs over GPS.
- One background well (W-20) was also installed to further evaluate background water quality.
- Wells PTW, and PZ-PT1 were installed to support the pump test.
- The pump test found that the wells purge dry at a low pumping rate of 0.1 gpm, the calculated transmissivity was found to be 2.4 gpd/ft, and the hydraulic conductivity was

found to be 0.0247 feet/day. The estimated capture zone for each well was estimated to be 5 ft.

- Assessment monitoring resulted in SSLs of cobalt at on-site wells W-3B, W-6B1, W-7, W-12, and W-14 and offsite well W-16, SSLs of cadmium at on-site wells W-3B and W-6B1, and an SSL of Radium 226/228 at on-site well W-3B.
- PSCo completed the Revision to the ACM June 2, 2023.
- PSCo collected MNA samples for evaluate the potential for attenuation onsite.
- Engineering design for pond closure and structural stability was completed, including bid support documents.
- Execution of planning for pond dewatering, including development of the IOP and treatment alternatives study.
- PSCo collected background samples from unimpacted clay liner outside of the limits of the polishing pond for use in pond closure verification.
- In the second half of 2023, PSCo will complete the eight rounds of monitoring at new monitoring wells and will continue quarterly assessment monitoring at the Bottom Ash Pond.

7.0 References

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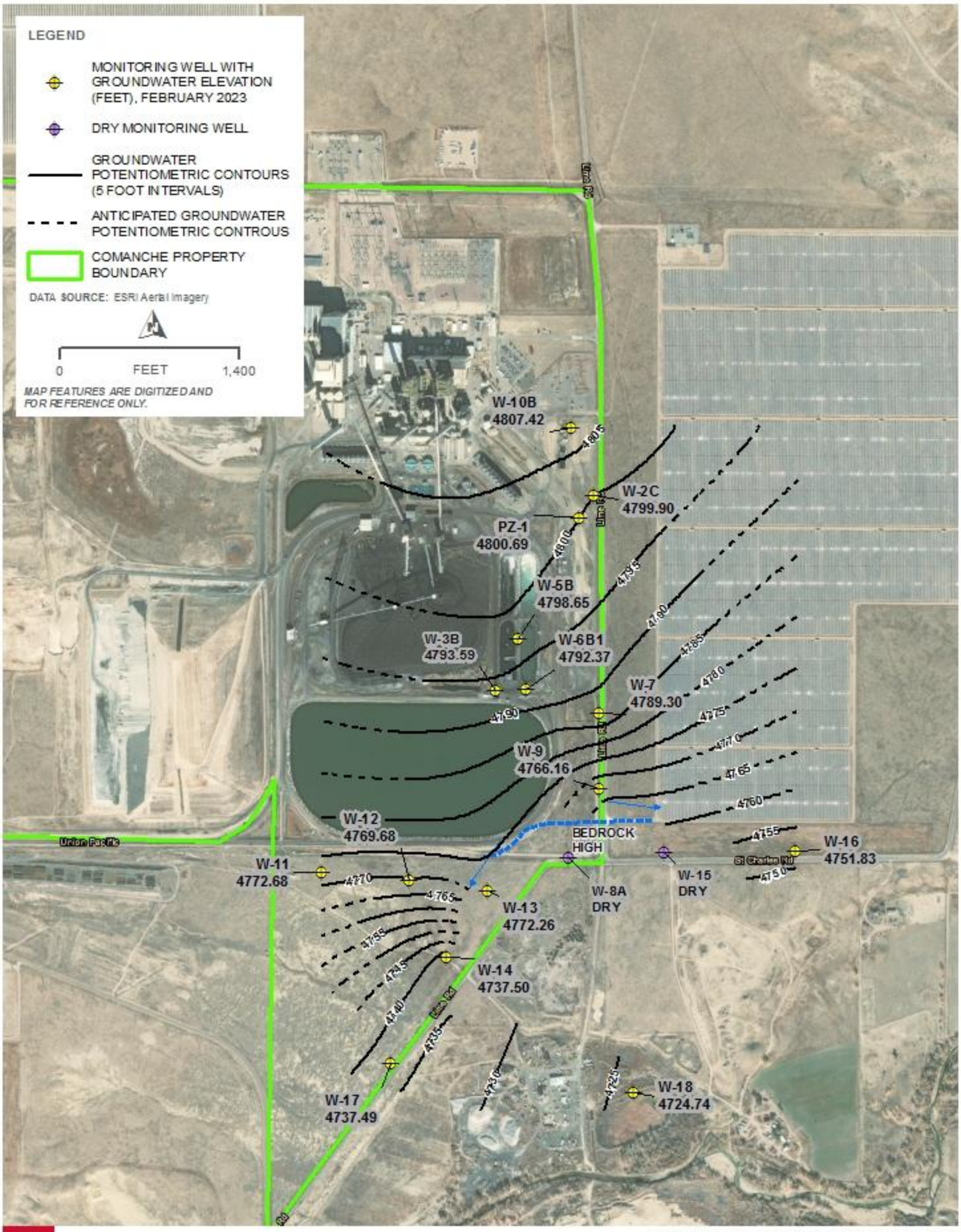
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Appendix A

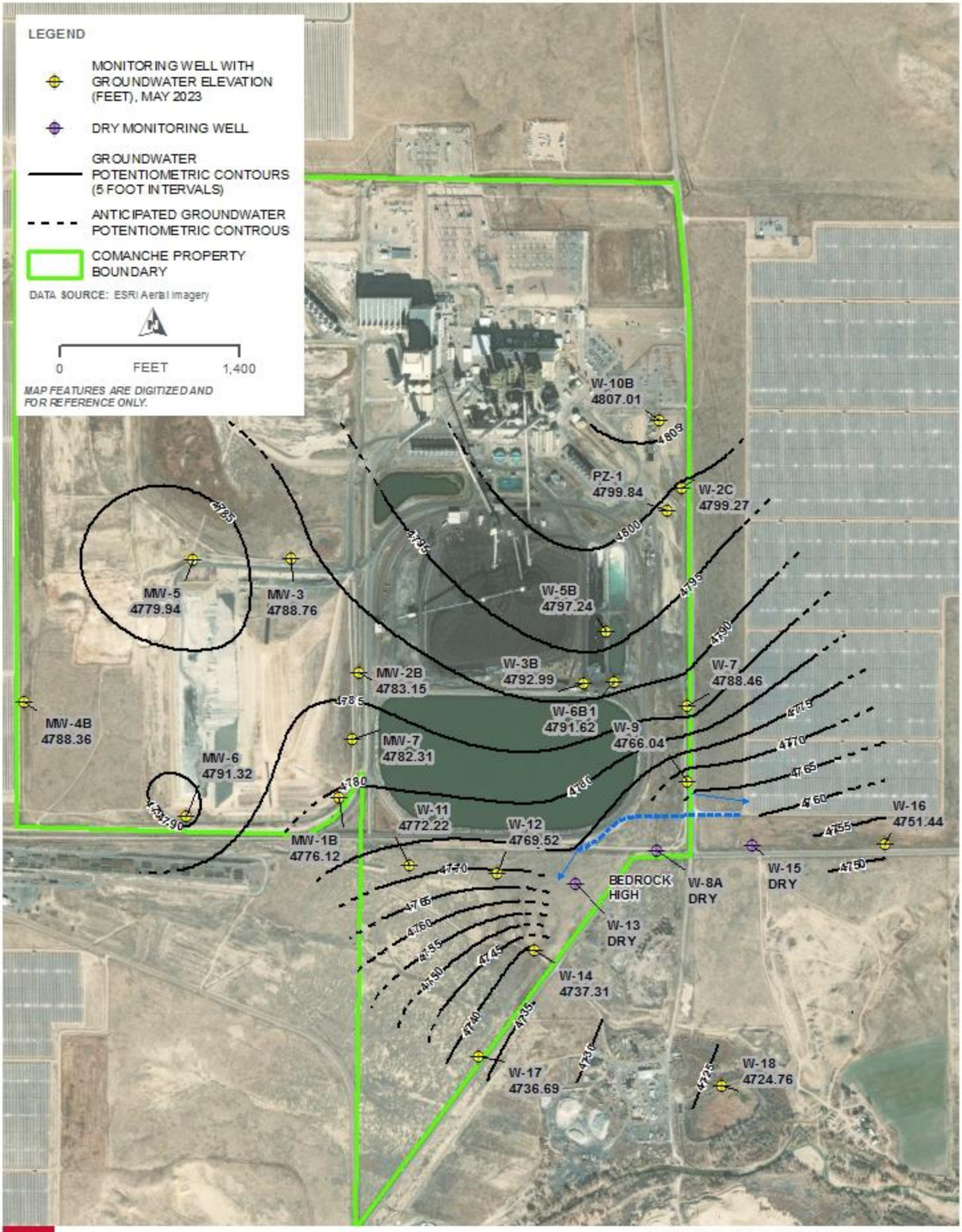
Potentiometric Surface Maps



Xcel Energy™

COMANCHE POWER STATION

PUEBLO COUNTY, CO



Xcel Energy™

COMANCHE POWER STATION

PUEBLO COUNTY, CO

Appendix B

Laboratory Reports and Data Validation Reports

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Molly Reeves
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Generated 1/24/2023 12:43:22 PM

JOB DESCRIPTION

Xcel Energy GW CCR Monitoring - Comanche

JOB NUMBER

280-171192-1

Eurofins Denver
4955 Yarrow Street
Arvada CO 80002

See page two for job notes and contact information.

my EOL

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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Definitions/Glossary

Client: HDR Inc
Job ID: 280-171192-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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.
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
E	Result exceeded calibration range.
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

Job ID: 280-171192-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-171192-1

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 1/10/2023 3:43 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 1.1º C.

DISSOLVED METALS

Sample W-10B (280-171192-3) was analyzed for Dissolved Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 01/19/2023 and analyzed on 01/20/2023.

Lithium failed the recovery criteria low for the MS of sample W-10BMS (280-171192-3) in batch 280-600055.

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 280-599681, 280-599615 and 280-599719 and analytical batch 280-600055 were outside control limits for one or more analytes. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Sample W-10B (280-171192-3)[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.

TOTAL RECOVERABLE METALS

Samples W-18 (280-171192-1), WK-10B (280-171192-2) and W-10B (280-171192-3) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 01/13/2023 and 01/18/2023 and analyzed on 01/16/2023, 01/19/2023 and 01/20/2023.

Boron failed the recovery criteria low for the MS of sample W-10BMS (280-171192-3) in batch 280-600055.

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 280-599681, 280-599615 and 280-599719 and analytical batch 280-600055 were outside control limits for one or more analytes. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Job ID: 280-171192-1 (Continued)

Laboratory: Eurofins Denver (Continued)

Sample W-10B (280-171192-3)[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.

DISSOLVED METALS (ICP/MS)
Sample W-10B (280-171192-3) was analyzed for Dissolved Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 01/19/2023 and analyzed on 01/19/2023 and 01/20/2023.

Arsenic, Chromium and Cobalt failed the recovery criteria low for the MS of sample 280-171252-1 in batch 280-599948. Arsenic, Chromium and Cobalt failed the recovery criteria low for the MSD of sample 280-171252-1 in batch 280-599948.

Sample W-10B (280-171192-3)[50X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 280-599681 and 280-599715 and analytical batch 280-599948 were outside control limits for one or more analytes, see QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

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-18 (280-171192-1), WK-10B (280-171192-2) and W-10B (280-171192-3) were analyzed for Total Recoverable Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 01/12/2023 and analyzed on 01/16/2023, 01/17/2023, 01/18/2023 and 01/23/2023.

Potassium was detected in method blank MB 280-599293/1-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 failed the recovery criteria low for the MS of sample 160-48374-6 in batch 280-599721. Calcium and Magnesium failed the recovery criteria high. Cobalt failed the recovery criteria low for the MSD of sample 160-48374-6 in batch 280-599721. Calcium and Magnesium failed the recovery criteria high.

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 280-599293 and analytical batch 280-599721 were outside control limits for one or more analytes. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Samples W-18 (280-171192-1)[50X], W-10B (280-171192-3)[100X] and W-10B (280-171192-3)[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.

DISSOLVED MERCURY
Sample W-10B (280-171192-3) was analyzed for dissolved mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 01/20/2023.

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

TOTAL MERCURY
Samples W-18 (280-171192-1), WK-10B (280-171192-2) and W-10B (280-171192-3) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 01/12/2023.

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

ALKALINITY
Samples W-18 (280-171192-1), WK-10B (280-171192-2) and W-10B (280-171192-3) were analyzed for Alkalinity in accordance with SM20

Job ID: 280-171192-1 (Continued)

Laboratory: Eurofins Denver (Continued)

2320B. The samples were analyzed on 01/12/2023.

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

TOTAL DISSOLVED SOLIDS
Samples W-18 (280-171192-1), WK-10B (280-171192-2) and W-10B (280-171192-3) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 01/16/2023 and 01/17/2023.

Reanalysis of the following sample was performed outside of the analytical holding time due to over residue in the initial analysis. The following sample in batch 599631 is over range: W-10B (280-171192-3). The sample was reanalyzed out of hold within range and with confirming results; therefore, original in hold results are being reported.

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

TOTAL SUSPENDED SOLIDS
Samples W-18 (280-171192-1), WK-10B (280-171192-2) and W-10B (280-171192-3) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 01/16/2023 and 01/17/2023.

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

CORROSIVITY (PH)
Samples W-18 (280-171192-1), WK-10B (280-171192-2) and W-10B (280-171192-3) were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 01/12/2023 and 01/16/2023.

Sample WK-10B (280-171192-2) 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)
Samples W-18 (280-171192-1), WK-10B (280-171192-2) and W-10B (280-171192-3) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A (28 Days). The samples were analyzed on 01/17/2023 and 01/20/2023.

Fluoride failed the recovery criteria low for the MS of sample 280-171066-1 in batch 280-599641. Fluoride failed the recovery criteria low for the MSD of sample 280-171066-1 in batch 280-599641.

The matrix spike (MS) recoveries for analytical batch 280-599641 were outside control limits for fluoride. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

The matrix spike duplicate (MSD) recoveries for analytical batch 280-599641 were outside control limits for bromide and fluoride. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Samples W-18 (280-171192-1)[100X], W-18 (280-171192-1)[5X], W-10B (280-171192-3)[100X] and W-10B (280-171192-3)[1000X] 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
Job ID: 280-171192-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-18 — Lab Sample ID: 280-171192-1

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	2.0		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Antimony	0.00040	J	0.0020	0.00040	mg/L	1		6020B	Total Recoverable
Magnesium	1000		10	0.21	mg/L	50		6020B	Total Recoverable
Arsenic	0.0012	J	0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Sodium	2400		50	3.7	mg/L	50		6020B	Total Recoverable
Barium	0.018		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Potassium	21	B	1.0	0.052	mg/L	1		6020B	Total Recoverable
Cobalt	0.0057		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Molybdenum	0.043		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Selenium	1.5		0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Thallium	0.00025	J	0.0010	0.00021	mg/L	1		6020B	Total Recoverable
Calcium	430		10	1.6	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	23.7	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	290		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	1.8		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	10000		500	100	mg/L	100		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)	11000		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: WK-10B — Lab Sample ID: 280-171192-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.0037	J	0.10	0.0015	mg/L	1		6010C	Total Recoverable
Magnesium	0.013	J	0.20	0.0042	mg/L	1		6020B	Total Recoverable
Sodium	0.36	J	1.0	0.073	mg/L	1		6020B	Total Recoverable
Calcium	0.086	J	0.20	0.032	mg/L	1		6020B	Total Recoverable
pH adj. to 25 deg C	6.6	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	24.1	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Alkalinity	5.0	J	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	5.0	J	10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	5.0	J	10	4.7	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: HDR Inc
Job ID: 280-171192-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-10B
Lab Sample ID: 280-171192-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.1	F1	0.50	0.0073	mg/L	5		6010C	Total Recoverable
Lithium	5.9		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Boron	1.1		0.50	0.0073	mg/L	5		6010C	Dissolved
Lithium	3.3	F1	0.10	0.046	mg/L	5		6010C	Dissolved
Magnesium	10000		20	0.42	mg/L	100		6020B	Total Recoverable
Arsenic	0.00098	J	0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Sodium	5900		100	7.3	mg/L	100		6020B	Total Recoverable
Barium	0.017		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Potassium	86	B	1.0	0.052	mg/L	1		6020B	Total Recoverable
Cadmium	0.00027	J	0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Chromium	0.00075	J	0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.0024		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Lead	0.00035	J	0.0010	0.00023	mg/L	1		6020B	Total Recoverable
Molybdenum	0.0030		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Selenium	5.2		0.25	0.050	mg/L	50		6020B	Total Recoverable
Thallium	0.0094		0.0010	0.00021	mg/L	1		6020B	Total Recoverable
Calcium	510		10	1.6	mg/L	50		6020B	Total Recoverable
Arsenic	0.0026	J	0.0050	0.00050	mg/L	1		6020B	Dissolved
Barium	0.016		0.0030	0.00038	mg/L	1		6020B	Dissolved
Cadmium	0.00022	J	0.0010	0.00019	mg/L	1		6020B	Dissolved
Chromium	0.00050	J	0.0030	0.00050	mg/L	1		6020B	Dissolved
Cobalt	0.0023		0.0010	0.00033	mg/L	1		6020B	Dissolved
Calcium	470		10	1.6	mg/L	50		6020B	Dissolved
Molybdenum	0.0029		0.0020	0.00037	mg/L	1		6020B	Dissolved
Selenium	5.3		0.25	0.050	mg/L	50		6020B	Dissolved
Thallium	0.0089		0.0010	0.00021	mg/L	1		6020B	Dissolved
pH adj. to 25 deg C	7.1	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	23.5	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1100		300	100	mg/L	100		9056A	Total/NA
Sulfate	69000		5000	1000	mg/L	1000		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)	81000	E	10	4.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	25		4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-171192-1
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: 280-171192-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-171192-1	W-18	Water	01/09/23 12:05	01/10/23 15:43
280-171192-2	WK-10B	Water	01/09/23 13:00	01/10/23 15:43
280-171192-3	W-10B	Water	01/10/23 09:30	01/10/23 15:43

Method: SW846 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: W-18
Date Collected: 01/09/23 12:05
Date Received: 01/10/23 15:43
Lab Sample ID: 280-171192-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.64**		0.10	0.0015	mg/L		01/13/23 09:03	01/16/23 23:16	1
Lithium	**2.0**		0.020	0.0091	mg/L		01/13/23 09:03	01/16/23 23:16	1

Client Sample ID: WK-10B
Date Collected: 01/09/23 13:00
Date Received: 01/10/23 15:43
Lab Sample ID: 280-171192-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.0037**	**J**	0.10	0.0015	mg/L		01/13/23 09:03	01/16/23 23:21	1
Lithium	ND		0.020	0.0091	mg/L		01/13/23 09:03	01/16/23 23:21	1

Client Sample ID: W-10B
Date Collected: 01/10/23 09:30
Date Received: 01/10/23 15:43
Lab Sample ID: 280-171192-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**1.1**	**F1**	0.50	0.0073	mg/L		01/18/23 08:28	01/20/23 16:46	5
Lithium	**5.9**		0.020	0.0091	mg/L		01/18/23 08:28	01/19/23 16:12	1

Method: SW846 6010C - Metals (ICP) - Dissolved

Client Sample ID: W-10B
Date Collected: 01/10/23 09:30
Date Received: 01/10/23 15:43
Lab Sample ID: 280-171192-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**1.1**		0.50	0.0073	mg/L		01/19/23 08:45	01/20/23 14:58	5
Lithium	**3.3**	**F1**	0.10	0.046	mg/L		01/19/23 08:45	01/20/23 14:58	5

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

Client Sample ID: W-18
Date Collected: 01/09/23 12:05
Date Received: 01/10/23 15:43
Lab Sample ID: 280-171192-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.00040**	**J**	0.0020	0.00040	mg/L		01/12/23 16:05	01/16/23 17:31	1
Magnesium	**1000**		10	0.21	mg/L		01/12/23 16:05	01/17/23 12:03	50
Arsenic	**0.0012**	**J**	0.0050	0.00050	mg/L		01/12/23 16:05	01/16/23 17:31	1
Sodium	**2400**		50	3.7	mg/L		01/12/23 16:05	01/17/23 12:03	50
Barium	**0.018**		0.0030	0.00038	mg/L		01/12/23 16:05	01/16/23 17:31	1
Potassium	**21**	**B**	1.0	0.052	mg/L		01/12/23 16:05	01/18/23 14:01	1
Beryllium	ND		0.0010	0.00030	mg/L		01/12/23 16:05	01/16/23 17:31	1
Cadmium	ND		0.0010	0.00019	mg/L		01/12/23 16:05	01/16/23 17:31	1
Chromium	ND		0.0030	0.00050	mg/L		01/12/23 16:05	01/16/23 17:31	1
Cobalt	**0.0057**		0.0010	0.00033	mg/L		01/12/23 16:05	01/16/23 17:31	1
Lead	ND		0.0010	0.00023	mg/L		01/12/23 16:05	01/16/23 17:31	1
Molybdenum	**0.043**		0.0020	0.00037	mg/L		01/12/23 16:05	01/16/23 17:31	1
Selenium	**1.5**		0.0050	0.0010	mg/L		01/12/23 16:05	01/16/23 17:31	1
Thallium	**0.00025**	**J**	0.0010	0.00021	mg/L		01/12/23 16:05	01/16/23 17:31	1
Calcium	**430**		10	1.6	mg/L		01/12/23 16:05	01/17/23 12:03	50

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

Client Sample ID: WK-10B
Date Collected: 01/09/23 13:00
Date Received: 01/10/23 15:43
Lab Sample ID: 280-171192-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		01/12/23 16:05	01/16/23 17:33	1
Magnesium	**0.013**	**J**	0.20	0.0042	mg/L		01/12/23 16:05	01/17/23 12:01	1
Arsenic	ND		0.0050	0.00050	mg/L		01/12/23 16:05	01/16/23 17:33	1
Sodium	**0.36**	**J**	1.0	0.073	mg/L		01/12/23 16:05	01/17/23 12:01	1
Barium	ND		0.0030	0.00038	mg/L		01/12/23 16:05	01/16/23 17:33	1
Potassium	ND		1.0	0.052	mg/L		01/12/23 16:05	01/18/23 14:04	1
Beryllium	ND		0.0010	0.00030	mg/L		01/12/23 16:05	01/16/23 17:33	1
Cadmium	ND		0.0010	0.00019	mg/L		01/12/23 16:05	01/16/23 17:33	1
Chromium	ND		0.0030	0.00050	mg/L		01/12/23 16:05	01/16/23 17:33	1
Cobalt	ND		0.0010	0.00033	mg/L		01/12/23 16:05	01/16/23 17:33	1
Lead	ND		0.0010	0.00023	mg/L		01/12/23 16:05	01/16/23 17:33	1
Molybdenum	ND		0.0020	0.00037	mg/L		01/12/23 16:05	01/16/23 17:33	1
Selenium	ND		0.0050	0.0010	mg/L		01/12/23 16:05	01/16/23 17:33	1
Thallium	ND		0.0010	0.00021	mg/L		01/12/23 16:05	01/16/23 17:33	1
Calcium	**0.086**	**J**	0.20	0.032	mg/L		01/12/23 16:05	01/17/23 12:01	1

Client Sample ID: W-10B
Date Collected: 01/10/23 09:30
Date Received: 01/10/23 15:43
Lab Sample ID: 280-171192-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		01/12/23 16:05	01/16/23 17:35	1
Magnesium	**10000**		20	0.42	mg/L		01/12/23 16:05	01/23/23 11:40	100
Arsenic	**0.00098**	**J**	0.0050	0.00050	mg/L		01/12/23 16:05	01/16/23 17:35	1
Sodium	**5900**		100	7.3	mg/L		01/12/23 16:05	01/18/23 16:19	100
Barium	**0.017**		0.0030	0.00038	mg/L		01/12/23 16:05	01/16/23 17:35	1
Potassium	**86**	**B**	1.0	0.052	mg/L		01/12/23 16:05	01/18/23 14:08	1
Beryllium	ND		0.0010	0.00030	mg/L		01/12/23 16:05	01/16/23 17:35	1
Cadmium	**0.00027**	**J**	0.0010	0.00019	mg/L		01/12/23 16:05	01/16/23 17:35	1
Chromium	**0.00075**	**J**	0.0030	0.00050	mg/L		01/12/23 16:05	01/16/23 17:35	1
Cobalt	**0.0024**		0.0010	0.00033	mg/L		01/12/23 16:05	01/16/23 17:35	1
Lead	**0.00035**	**J**	0.0010	0.00023	mg/L		01/12/23 16:05	01/16/23 17:35	1
Molybdenum	**0.0030**		0.0020	0.00037	mg/L		01/12/23 16:05	01/16/23 17:35	1
Selenium	**5.2**		0.25	0.050	mg/L		01/12/23 16:05	01/17/23 12:05	50
Thallium	**0.0094**		0.0010	0.00021	mg/L		01/12/23 16:05	01/16/23 17:35	1
Calcium	**510**		10	1.6	mg/L		01/12/23 16:05	01/17/23 12:05	50

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

Client Sample ID: W-10B
Date Collected: 01/10/23 09:30
Date Received: 01/10/23 15:43
Lab Sample ID: 280-171192-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		01/19/23 08:10	01/19/23 19:09	1
Arsenic	**0.0026**	**J**	0.0050	0.00050	mg/L		01/19/23 08:10	01/19/23 19:09	1
Barium	**0.016**		0.0030	0.00038	mg/L		01/19/23 08:10	01/19/23 19:09	1
Beryllium	ND		0.0010	0.00030	mg/L		01/19/23 08:10	01/19/23 19:09	1
Cadmium	**0.00022**	**J**	0.0010	0.00019	mg/L		01/19/23 08:10	01/19/23 19:09	1
Chromium	**0.00050**	**J**	0.0030	0.00050	mg/L		01/19/23 08:10	01/19/23 19:09	1
Cobalt	**0.0023**		0.0010	0.00033	mg/L		01/19/23 08:10	01/19/23 19:09	1
Lead	ND		0.0010	0.00023	mg/L		01/19/23 08:10	01/19/23 19:09	1

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

Client Sample ID: W-10B
Date Collected: 01/10/23 09:30
Date Received: 01/10/23 15:43
Lab Sample ID: 280-171192-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	470		10	1.6	mg/L		01/19/23 08:10	01/20/23 13:02	50
Molybdenum	0.0029		0.0020	0.00037	mg/L		01/19/23 08:10	01/19/23 19:09	1
Selenium	5.3		0.25	0.050	mg/L		01/19/23 08:10	01/20/23 13:02	50
Thallium	0.0089		0.0010	0.00021	mg/L		01/19/23 08:10	01/19/23 19:09	1

Method: SW846 7470A - Mercury (CVAA)

Client Sample ID: W-18
Date Collected: 01/09/23 12:05
Date Received: 01/10/23 15:43
Lab Sample ID: 280-171192-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		01/12/23 12:50	01/12/23 18:42	1

Client Sample ID: WK-10B
Date Collected: 01/09/23 13:00
Date Received: 01/10/23 15:43
Lab Sample ID: 280-171192-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		01/12/23 12:50	01/12/23 18:45	1

Client Sample ID: W-10B
Date Collected: 01/10/23 09:30
Date Received: 01/10/23 15:43
Lab Sample ID: 280-171192-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		01/12/23 12:50	01/12/23 18:47	1

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

Client Sample ID: W-10B
Date Collected: 01/10/23 09:30
Date Received: 01/10/23 15:43
Lab Sample ID: 280-171192-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		01/20/23 13:00	01/20/23 16:44	1

General Chemistry

Client Sample ID: W-18
Date Collected: 01/09/23 12:05
Date Received: 01/10/23 15:43
Lab Sample ID: 280-171192-1
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			01/12/23 16:30	1
Temperature (SW846 9040B)	23.7	HF	1.0	1.0	Degrees C			01/12/23 16:30	1
Chloride (SW846 9056A)	290		15	5.1	mg/L			01/17/23 18:02	5
Fluoride (SW846 9056A)	1.8		0.50	0.17	mg/L			01/17/23 17:14	1
Sulfate (SW846 9056A)	10000		500	100	mg/L			01/17/23 18:18	100
Alkalinity (SM 2320B)	590		10	3.1	mg/L			01/12/23 14:37	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	590		10	3.1	mg/L			01/12/23 14:37	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			01/12/23 14:37	1
Total Dissolved Solids (TDS) (SM 2540C)	11000		1000	470	mg/L			01/16/23 14:48	1

General Chemistry (Continued)

Client Sample ID: W-18
Date Collected: 01/09/23 12:05
Date Received: 01/10/23 15:43
Lab Sample ID: 280-171192-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	**1.6**	**J**	4.0	1.1	mg/L			01/16/23 17:18	1

Client Sample ID: WK-10B
Date Collected: 01/09/23 13:00
Date Received: 01/10/23 15:43
Lab Sample ID: 280-171192-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C (SW846 9040B)	**6.6**	**HF**	0.1	0.1	SU			01/16/23 16:25	1
Temperature (SW846 9040B)	**24.1**	**HF**	1.0	1.0	Degrees C			01/16/23 16:25	1
Chloride (SW846 9056A)	ND		3.0	1.0	mg/L			01/17/23 18:34	1
Fluoride (SW846 9056A)	ND		0.50	0.17	mg/L			01/17/23 18:34	1
Sulfate (SW846 9056A)	ND		5.0	1.0	mg/L			01/17/23 18:34	1
Alkalinity (SM 2320B)	**5.0**	**J**	10	3.1	mg/L			01/12/23 14:28	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**5.0**	**J**	10	3.1	mg/L			01/12/23 14:28	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			01/12/23 14:28	1
Total Dissolved Solids (TDS) (SM 2540C)	**5.0**	**J**	10	4.7	mg/L			01/16/23 14:48	1
Total Suspended Solids (SM 2540D)	ND		4.0	1.1	mg/L			01/16/23 17:18	1

Client Sample ID: W-10B
Date Collected: 01/10/23 09:30
Date Received: 01/10/23 15:43
Lab Sample ID: 280-171192-3
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			01/12/23 16:40	1
Temperature (SW846 9040B)	**23.5**	**HF**	1.0	1.0	Degrees C			01/12/23 16:40	1
Chloride (SW846 9056A)	**1100**		300	100	mg/L			01/17/23 19:06	100
Fluoride (SW846 9056A)	ND		0.50	0.17	mg/L			01/20/23 04:13	1
Sulfate (SW846 9056A)	**69000**		5000	1000	mg/L			01/20/23 04:45	1000
Alkalinity (SM 2320B)	**980**		10	3.1	mg/L			01/12/23 14:50	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**980**		10	3.1	mg/L			01/12/23 14:50	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			01/12/23 14:50	1
Total Dissolved Solids (TDS) (SM 2540C)	**81000**	**E**	10	4.7	mg/L			01/17/23 11:43	1
Total Suspended Solids (SM 2540D)	**25**		4.0	1.1	mg/L			01/17/23 17:07	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-599209/1-A
Matrix: Water
Analysis Batch: 599581

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 599209

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.0015	mg/L		01/13/23 09:03	01/16/23 21:26	1
Lithium	ND		0.020	0.0091	mg/L		01/13/23 09:03	01/16/23 21:26	1

Lab Sample ID: LCS 280-599209/2-A
Matrix: Water
Analysis Batch: 599581

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 599209

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	2.08		mg/L		104	86 - 110
Lithium	1.00	0.941		mg/L		94	90 - 112

Lab Sample ID: LCSD 280-599209/3-A
Matrix: Water
Analysis Batch: 599581

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 599209

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	2.00	2.05		mg/L		103	86 - 110	1	20
Lithium	1.00	0.920		mg/L		92	90 - 112	2	20

Lab Sample ID: MB 280-599615/1-A
Matrix: Water
Analysis Batch: 599952

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 599615

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.0015	mg/L		01/18/23 08:28	01/19/23 16:04	1
Lithium	ND		0.020	0.0091	mg/L		01/18/23 08:28	01/19/23 16:04	1

Lab Sample ID: LCS 280-599615/2-A
Matrix: Water
Analysis Batch: 599952

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 599615

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	2.11		mg/L		106	86 - 110
Lithium	1.00	0.973		mg/L		97	90 - 112

Lab Sample ID: 280-171192-3 MS
Matrix: Water
Analysis Batch: 599952

Client Sample ID: W-10B
Prep Type: Total Recoverable
Prep Batch: 599615

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Lithium	5.9		1.00	6.95	4	mg/L		108	89 - 114

Lab Sample ID: 280-171192-3 MS
Matrix: Water
Analysis Batch: 600055

Client Sample ID: W-10B
Prep Type: Total Recoverable
Prep Batch: 599615

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	1.1	F1	2.00	2.76	F1	mg/L		82	87 - 113

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 280-171192-3 MSD
Matrix: Water
Analysis Batch: 599952
Client Sample ID: W-10B
Prep Type: Total Recoverable
Prep Batch: 599615

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Lithium	5.9		1.00	6.92	4	mg/L		105	89 - 114	0	20

Lab Sample ID: 280-171192-3 MSD
Matrix: Water
Analysis Batch: 600055
Client Sample ID: W-10B
Prep Type: Total Recoverable
Prep Batch: 599615

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	1.1	F1	2.00	3.16		mg/L		102	87 - 113	14	20

Lab Sample ID: MB 280-599681/1-C
Matrix: Water
Analysis Batch: 599979
Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 599719

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.0015	mg/L		01/19/23 08:45	01/20/23 06:32	1
Lithium	ND		0.020	0.0091	mg/L		01/19/23 08:45	01/20/23 06:32	1

Lab Sample ID: LCS 280-599681/2-C
Matrix: Water
Analysis Batch: 599979
Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 599719

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	2.17		mg/L		108	86 - 110
Lithium	1.00	0.917		mg/L		92	90 - 112

Lab Sample ID: 280-171192-3 MS
Matrix: Water
Analysis Batch: 600055
Client Sample ID: W-10B
Prep Type: Dissolved
Prep Batch: 599719

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	1.1		2.00	3.02		mg/L		95	87 - 113
Lithium	3.3	F1	1.00	3.47	F1	mg/L		16	89 - 114

Lab Sample ID: 280-171192-3 MSD
Matrix: Water
Analysis Batch: 600055
Client Sample ID: W-10B
Prep Type: Dissolved
Prep Batch: 599719

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	1.1		2.00	2.97		mg/L		93	87 - 113	2	20
Lithium	3.3	F1	1.00	4.22		mg/L		91	89 - 114	20	20

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-599293/1-A
Matrix: Water
Analysis Batch: 599572
Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 599293

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		01/12/23 16:05	01/16/23 17:08	1
Arsenic	ND		0.0050	0.00050	mg/L		01/12/23 16:05	01/16/23 17:08	1

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

Lab Sample ID: MB 280-599293/1-A
Matrix: Water
Analysis Batch: 599572

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 599293

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND		0.0030	0.00038	mg/L		01/12/23 16:05	01/16/23 17:08	1
Beryllium	ND		0.0010	0.00030	mg/L		01/12/23 16:05	01/16/23 17:08	1
Cadmium	ND		0.0010	0.00019	mg/L		01/12/23 16:05	01/16/23 17:08	1
Chromium	ND		0.0030	0.00050	mg/L		01/12/23 16:05	01/16/23 17:08	1
Cobalt	ND		0.0010	0.00033	mg/L		01/12/23 16:05	01/16/23 17:08	1
Lead	ND		0.0010	0.00023	mg/L		01/12/23 16:05	01/16/23 17:08	1
Molybdenum	ND		0.0020	0.00037	mg/L		01/12/23 16:05	01/16/23 17:08	1
Selenium	ND		0.0050	0.0010	mg/L		01/12/23 16:05	01/16/23 17:08	1
Thallium	ND		0.0010	0.00021	mg/L		01/12/23 16:05	01/16/23 17:08	1

Lab Sample ID: MB 280-599293/1-A
Matrix: Water
Analysis Batch: 599721

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 599293

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	ND		200	4.2	ug/L		01/12/23 16:05	01/17/23 11:58	1
Sodium	ND		1000	73	ug/L		01/12/23 16:05	01/17/23 11:58	1
Calcium	ND		0.20	0.032	mg/L		01/12/23 16:05	01/17/23 11:58	1

Lab Sample ID: MB 280-599293/1-A
Matrix: Water
Analysis Batch: 599827

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 599293

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium	0.0624	J	1.0	0.052	mg/L		01/12/23 16:05	01/18/23 13:23	1

Lab Sample ID: LCS 280-599293/2-A
Matrix: Water
Analysis Batch: 599572

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 599293

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0386		mg/L		97	85 - 115
Arsenic	0.0400	0.0376		mg/L		94	85 - 117
Barium	0.0400	0.0398		mg/L		99	85 - 118
Beryllium	0.0400	0.0402		mg/L		100	80 - 125
Cadmium	0.0400	0.0383		mg/L		96	85 - 115
Chromium	0.0400	0.0388		mg/L		97	84 - 121
Cobalt	0.0400	0.0378		mg/L		94	85 - 120
Lead	0.0400	0.0394		mg/L		98	85 - 118
Molybdenum	0.0400	0.0380		mg/L		95	85 - 119
Selenium	0.0400	0.0382		mg/L		96	77 - 122
Thallium	0.0400	0.0393		mg/L		98	85 - 118

Lab Sample ID: LCS 280-599293/2-A
Matrix: Water
Analysis Batch: 599721

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 599293

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Magnesium	800	765		ug/L		96	80 - 120
Sodium	800	839	J	ug/L		105	80 - 120

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

Lab Sample ID: LCS 280-599293/2-A
Matrix: Water
Analysis Batch: 599721

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 599293

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	0.800	0.829		mg/L		104	80 - 120

Lab Sample ID: LCS 280-599293/2-A
Matrix: Water
Analysis Batch: 599827

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 599293

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Potassium	0.800	0.900	J	mg/L		112	80 - 120

Lab Sample ID: MB 280-599681/1-B
Matrix: Water
Analysis Batch: 599948

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 599715

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		01/19/23 08:10	01/19/23 18:53	1
Arsenic	ND		0.0050	0.00050	mg/L		01/19/23 08:10	01/19/23 18:53	1
Barium	ND		0.0030	0.00038	mg/L		01/19/23 08:10	01/19/23 18:53	1
Beryllium	ND		0.0010	0.00030	mg/L		01/19/23 08:10	01/19/23 18:53	1
Cadmium	ND		0.0010	0.00019	mg/L		01/19/23 08:10	01/19/23 18:53	1
Chromium	ND		0.0030	0.00050	mg/L		01/19/23 08:10	01/19/23 18:53	1
Cobalt	ND		0.0010	0.00033	mg/L		01/19/23 08:10	01/19/23 18:53	1
Lead	ND		0.0010	0.00023	mg/L		01/19/23 08:10	01/19/23 18:53	1
Molybdenum	ND		0.0020	0.00037	mg/L		01/19/23 08:10	01/19/23 18:53	1
Selenium	ND		0.0050	0.0010	mg/L		01/19/23 08:10	01/19/23 18:53	1
Calcium	ND		0.20	0.032	mg/L		01/19/23 08:10	01/19/23 18:53	1
Thallium	ND		0.0010	0.00021	mg/L		01/19/23 08:10	01/19/23 18:53	1

Lab Sample ID: MB 280-599681/1-B
Matrix: Water
Analysis Batch: 600076

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 599715

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.0050	0.0010	mg/L		01/19/23 08:10	01/20/23 12:58	1
Calcium	ND		0.20	0.032	mg/L		01/19/23 08:10	01/20/23 12:58	1

Lab Sample ID: LCS 280-599681/2-B
Matrix: Water
Analysis Batch: 599948

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 599715

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0389		mg/L		97	85 - 115
Arsenic	0.0400	0.0366		mg/L		92	85 - 117
Barium	0.0400	0.0402		mg/L		101	85 - 118
Beryllium	0.0400	0.0359		mg/L		90	80 - 125
Cadmium	0.0400	0.0370		mg/L		92	85 - 115
Chromium	0.0400	0.0373		mg/L		93	84 - 121
Cobalt	0.0400	0.0378		mg/L		94	85 - 120
Lead	0.0400	0.0380		mg/L		95	85 - 118
Molybdenum	0.0400	0.0378		mg/L		94	85 - 119
Selenium	0.0400	0.0407		mg/L		102	77 - 122

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

Lab Sample ID: LCS 280-599681/2-B
Matrix: Water
Analysis Batch: 599948

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 599715

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	0.800	0.824		mg/L		103	80 - 120
Thallium	0.0400	0.0376		mg/L		94	85 - 118

Lab Sample ID: LCS 280-599681/2-B
Matrix: Water
Analysis Batch: 600076

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 599715

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Selenium	0.0400	0.0411		mg/L		103	77 - 122
Calcium	0.800	0.825		mg/L		103	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-599236/1-A
Matrix: Water
Analysis Batch: 599322

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 599236

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		01/12/23 12:50	01/12/23 18:12	1

Lab Sample ID: LCS 280-599236/2-A
Matrix: Water
Analysis Batch: 599322

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 599236

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00508		mg/L		102	84 - 120

Lab Sample ID: LCSD 280-599236/3-A
Matrix: Water
Analysis Batch: 599322

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 599236

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	0.00500	0.00498		mg/L		100	84 - 120	2	15

Lab Sample ID: MB 280-599681/1-D
Matrix: Water
Analysis Batch: 600092

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 599980

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		01/20/23 13:00	01/20/23 16:39	1

Lab Sample ID: LCS 280-599681/2-D
Matrix: Water
Analysis Batch: 600092

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 599980

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00490		mg/L		98	84 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-599312/32
Matrix: Water
Analysis Batch: 599312

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 280-599573/6
Matrix: Water
Analysis Batch: 599573

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 280-599641/6
Matrix: Water
Analysis Batch: 599641

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			01/17/23 14:34	1
Fluoride	ND		0.50	0.17	mg/L			01/17/23 14:34	1
Sulfate	ND		5.0	1.0	mg/L			01/17/23 14:34	1

Lab Sample ID: LCS 280-599641/4
Matrix: Water
Analysis Batch: 599641

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	48.2		mg/L		96	90 - 110
Fluoride	2.50	2.64		mg/L		106	90 - 110
Sulfate	50.0	46.5		mg/L		93	90 - 110

Lab Sample ID: LCSD 280-599641/5
Matrix: Water
Analysis Batch: 599641

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	48.0		mg/L		96	90 - 110	0	10
Fluoride	2.50	2.60		mg/L		104	90 - 110	2	10
Sulfate	50.0	46.2		mg/L		92	90 - 110	1	10

Lab Sample ID: MRL 280-599641/3
Matrix: Water
Analysis Batch: 599641

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	2.31	J	mg/L		92	50 - 150
Fluoride	0.250	0.270	J	mg/L		108	50 - 150
Sulfate	2.50	2.07	J	mg/L		83	50 - 150

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

Lab Sample ID: MB 280-599890/6
Matrix: Water
Analysis Batch: 599890

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			01/19/23 16:22	1
Sulfate	ND		5.0	1.0	mg/L			01/19/23 16:22	1

Lab Sample ID: LCS 280-599890/4
Matrix: Water
Analysis Batch: 599890

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	2.52		mg/L		101	90 - 110
Sulfate	50.0	45.3		mg/L		91	90 - 110

Lab Sample ID: LCSD 280-599890/5
Matrix: Water
Analysis Batch: 599890

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	2.53		mg/L		101	90 - 110	0	10
Sulfate	50.0	46.2		mg/L		92	90 - 110	2	10

Lab Sample ID: MRL 280-599890/3
Matrix: Water
Analysis Batch: 599890

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	0.259	J	mg/L		103	50 - 150
Sulfate	2.50	1.98	J	mg/L		79	50 - 150

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-599311/32
Matrix: Water
Analysis Batch: 599311

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			01/12/23 13:38	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			01/12/23 13:38	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			01/12/23 13:38	1

Lab Sample ID: LCS 280-599311/31
Matrix: Water
Analysis Batch: 599311

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 280-599524/1
Matrix: Water
Analysis Batch: 599524

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			01/16/23 14:48	1

Lab Sample ID: LCS 280-599524/2
Matrix: Water
Analysis Batch: 599524

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	460		mg/L		92	88 - 114

Lab Sample ID: LCSD 280-599524/3
Matrix: Water
Analysis Batch: 599524

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	482		mg/L		96	88 - 114	5	20

Lab Sample ID: MB 280-599631/1
Matrix: Water
Analysis Batch: 599631

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			01/17/23 11:40	1

Lab Sample ID: LCS 280-599631/2
Matrix: Water
Analysis Batch: 599631

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	490		mg/L		98	88 - 114

Lab Sample ID: LCSD 280-599631/3
Matrix: Water
Analysis Batch: 599631

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	458		mg/L		92	88 - 114	7	20

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

Lab Sample ID: MB 280-599554/3
Matrix: Water
Analysis Batch: 599554

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			01/16/23 17:18	1

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

Lab Sample ID: LCS 280-599554/1
Matrix: Water
Analysis Batch: 599554

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	456		mg/L		91	79 - 114		

Lab Sample ID: LCSD 280-599554/2
Matrix: Water
Analysis Batch: 599554

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	490		mg/L		98	79 - 114	7	20

Lab Sample ID: MB 280-599686/2
Matrix: Water
Analysis Batch: 599686

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			01/17/23 17:07	1

Lab Sample ID: LCS 280-599686/1
Matrix: Water
Analysis Batch: 599686

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	460		mg/L		92	79 - 114		

Metals

Prep Batch: 599209

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171192-1	W-18	Total Recoverable	Water	3005A	
280-171192-2	WK-10B	Total Recoverable	Water	3005A	
MB 280-599209/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-599209/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCSD 280-599209/3-A	Lab Control Sample Dup	Total Recoverable	Water	3005A	

Prep Batch: 599236

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171192-1	W-18	Total/NA	Water	7470A	
280-171192-2	WK-10B	Total/NA	Water	7470A	
280-171192-3	W-10B	Total/NA	Water	7470A	
MB 280-599236/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-599236/2-A	Lab Control Sample	Total/NA	Water	7470A	
LCSD 280-599236/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	

Prep Batch: 599293

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171192-1	W-18	Total Recoverable	Water	3005A	
280-171192-2	WK-10B	Total Recoverable	Water	3005A	
280-171192-3	W-10B	Total Recoverable	Water	3005A	
MB 280-599293/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-599293/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 599322

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171192-1	W-18	Total/NA	Water	7470A	599236
280-171192-2	WK-10B	Total/NA	Water	7470A	599236
280-171192-3	W-10B	Total/NA	Water	7470A	599236
MB 280-599236/1-A	Method Blank	Total/NA	Water	7470A	599236
LCS 280-599236/2-A	Lab Control Sample	Total/NA	Water	7470A	599236
LCSD 280-599236/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	599236

Analysis Batch: 599572

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171192-1	W-18	Total Recoverable	Water	6020B	599293
280-171192-2	WK-10B	Total Recoverable	Water	6020B	599293
280-171192-3	W-10B	Total Recoverable	Water	6020B	599293
MB 280-599293/1-A	Method Blank	Total Recoverable	Water	6020B	599293
LCS 280-599293/2-A	Lab Control Sample	Total Recoverable	Water	6020B	599293

Analysis Batch: 599581

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171192-1	W-18	Total Recoverable	Water	6010C	599209
280-171192-2	WK-10B	Total Recoverable	Water	6010C	599209
MB 280-599209/1-A	Method Blank	Total Recoverable	Water	6010C	599209
LCS 280-599209/2-A	Lab Control Sample	Total Recoverable	Water	6010C	599209
LCSD 280-599209/3-A	Lab Control Sample Dup	Total Recoverable	Water	6010C	599209

Prep Batch: 599615

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171192-3	W-10B	Total Recoverable	Water	3005A	

Metals (Continued)

Prep Batch: 599615 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-599615/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-599615/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-171192-3 MS	W-10B	Total Recoverable	Water	3005A	
280-171192-3 MSD	W-10B	Total Recoverable	Water	3005A	

Filtration Batch: 599681

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171192-3	W-10B	Dissolved	Water	FILTRATION	
MB 280-599681/1-B	Method Blank	Dissolved	Water	FILTRATION	
MB 280-599681/1-C	Method Blank	Dissolved	Water	FILTRATION	
MB 280-599681/1-D	Method Blank	Dissolved	Water	FILTRATION	
LCS 280-599681/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 280-599681/2-C	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 280-599681/2-D	Lab Control Sample	Dissolved	Water	FILTRATION	
280-171192-3 MS	W-10B	Dissolved	Water	FILTRATION	
280-171192-3 MSD	W-10B	Dissolved	Water	FILTRATION	

Prep Batch: 599715

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171192-3	W-10B	Dissolved	Water	3005A	599681
MB 280-599681/1-B	Method Blank	Dissolved	Water	3005A	599681
LCS 280-599681/2-B	Lab Control Sample	Dissolved	Water	3005A	599681

Prep Batch: 599719

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171192-3	W-10B	Dissolved	Water	3005A	599681
MB 280-599681/1-C	Method Blank	Dissolved	Water	3005A	599681
LCS 280-599681/2-C	Lab Control Sample	Dissolved	Water	3005A	599681
280-171192-3 MS	W-10B	Dissolved	Water	3005A	599681
280-171192-3 MSD	W-10B	Dissolved	Water	3005A	599681

Analysis Batch: 599721

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171192-1	W-18	Total Recoverable	Water	6020B	599293
280-171192-2	WK-10B	Total Recoverable	Water	6020B	599293
280-171192-3	W-10B	Total Recoverable	Water	6020B	599293
MB 280-599293/1-A	Method Blank	Total Recoverable	Water	6020B	599293
LCS 280-599293/2-A	Lab Control Sample	Total Recoverable	Water	6020B	599293

Analysis Batch: 599826

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171192-3	W-10B	Total Recoverable	Water	6020B	599293

Analysis Batch: 599827

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171192-1	W-18	Total Recoverable	Water	6020B	599293
280-171192-2	WK-10B	Total Recoverable	Water	6020B	599293
280-171192-3	W-10B	Total Recoverable	Water	6020B	599293
MB 280-599293/1-A	Method Blank	Total Recoverable	Water	6020B	599293
LCS 280-599293/2-A	Lab Control Sample	Total Recoverable	Water	6020B	599293

QC Association Summary

Client: HDR Inc
Job ID: 280-171192-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Metals

Analysis Batch: 599948

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171192-3	W-10B	Dissolved	Water	6020B	599715
MB 280-599681/1-B	Method Blank	Dissolved	Water	6020B	599715
LCS 280-599681/2-B	Lab Control Sample	Dissolved	Water	6020B	599715

Analysis Batch: 599952

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171192-3	W-10B	Total Recoverable	Water	6010C	599615
MB 280-599615/1-A	Method Blank	Total Recoverable	Water	6010C	599615
LCS 280-599615/2-A	Lab Control Sample	Total Recoverable	Water	6010C	599615
280-171192-3 MS	W-10B	Total Recoverable	Water	6010C	599615
280-171192-3 MSD	W-10B	Total Recoverable	Water	6010C	599615

Analysis Batch: 599979

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-599681/1-C	Method Blank	Dissolved	Water	6010C	599719
LCS 280-599681/2-C	Lab Control Sample	Dissolved	Water	6010C	599719

Prep Batch: 599980

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171192-3	W-10B	Dissolved	Water	7470A	599681
MB 280-599681/1-D	Method Blank	Dissolved	Water	7470A	599681
LCS 280-599681/2-D	Lab Control Sample	Dissolved	Water	7470A	599681

Analysis Batch: 600055

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171192-3	W-10B	Dissolved	Water	6010C	599719
280-171192-3	W-10B	Total Recoverable	Water	6010C	599615
280-171192-3 MS	W-10B	Dissolved	Water	6010C	599719
280-171192-3 MS	W-10B	Total Recoverable	Water	6010C	599615
280-171192-3 MSD	W-10B	Dissolved	Water	6010C	599719
280-171192-3 MSD	W-10B	Total Recoverable	Water	6010C	599615

Analysis Batch: 600076

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171192-3	W-10B	Dissolved	Water	6020B	599715
MB 280-599681/1-B	Method Blank	Dissolved	Water	6020B	599715
LCS 280-599681/2-B	Lab Control Sample	Dissolved	Water	6020B	599715

Analysis Batch: 600092

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171192-3	W-10B	Dissolved	Water	7470A	599980
MB 280-599681/1-D	Method Blank	Dissolved	Water	7470A	599980
LCS 280-599681/2-D	Lab Control Sample	Dissolved	Water	7470A	599980

Analysis Batch: 600127

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171192-3	W-10B	Total Recoverable	Water	6020B	599293

QC Association Summary

Client: HDR Inc
Job ID: 280-171192-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

General Chemistry

Analysis Batch: 599311

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171192-1	W-18	Total/NA	Water	SM 2320B	
280-171192-2	WK-10B	Total/NA	Water	SM 2320B	
280-171192-3	W-10B	Total/NA	Water	SM 2320B	
MB 280-599311/32	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-599311/31	Lab Control Sample	Total/NA	Water	SM 2320B	

Analysis Batch: 599312

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171192-1	W-18	Total/NA	Water	9040B	
280-171192-3	W-10B	Total/NA	Water	9040B	
LCS 280-599312/32	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 599524

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171192-1	W-18	Total/NA	Water	SM 2540C	
280-171192-2	WK-10B	Total/NA	Water	SM 2540C	
MB 280-599524/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-599524/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-599524/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 599554

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171192-1	W-18	Total/NA	Water	SM 2540D	
280-171192-2	WK-10B	Total/NA	Water	SM 2540D	
MB 280-599554/3	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-599554/1	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-599554/2	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 599573

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171192-2	WK-10B	Total/NA	Water	9040B	
LCS 280-599573/6	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 599631

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171192-3	W-10B	Total/NA	Water	SM 2540C	
MB 280-599631/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-599631/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-599631/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 599641

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171192-1	W-18	Total/NA	Water	9056A	
280-171192-1	W-18	Total/NA	Water	9056A	
280-171192-1	W-18	Total/NA	Water	9056A	
280-171192-2	WK-10B	Total/NA	Water	9056A	
280-171192-3	W-10B	Total/NA	Water	9056A	
MB 280-599641/6	Method Blank	Total/NA	Water	9056A	
LCS 280-599641/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-599641/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-599641/3	Lab Control Sample	Total/NA	Water	9056A	

QC Association Summary

Client: HDR Inc
Job ID: 280-171192-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

General Chemistry

Analysis Batch: 599686

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171192-3	W-10B	Total/NA	Water	SM 2540D	
MB 280-599686/2	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-599686/1	Lab Control Sample	Total/NA	Water	SM 2540D	

Analysis Batch: 599890

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171192-3	W-10B	Total/NA	Water	9056A	
280-171192-3	W-10B	Total/NA	Water	9056A	
MB 280-599890/6	Method Blank	Total/NA	Water	9056A	
LCS 280-599890/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-599890/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-599890/3	Lab Control Sample	Total/NA	Water	9056A	

Lab Chronicle

Client: HDR Inc
Job ID: 280-171192-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-18
Lab Sample ID: 280-171192-1
Date Collected: 01/09/23 12:05
Matrix: Water
Date Received: 01/10/23 15:43

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	599209	01/13/23 09:03	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			599581	01/16/23 23:16	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	599293	01/12/23 16:05	DNM	EET DEN
Total Recoverable	Analysis	6020B		1			599827	01/18/23 14:01	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	599293	01/12/23 16:05	DNM	EET DEN
Total Recoverable	Analysis	6020B		1			599572	01/16/23 17:31	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	599293	01/12/23 16:05	DNM	EET DEN
Total Recoverable	Analysis	6020B		50			599721	01/17/23 12:03	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	599236	01/12/23 12:50	KMS	EET DEN
Total/NA	Analysis	7470A		1			599322	01/12/23 18:42	KMS	EET DEN
Total/NA	Analysis	9040B		1			599312	01/12/23 16:30	KEG	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	599641	01/17/23 17:14	EJS	EET DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	599641	01/17/23 18:02	EJS	EET DEN
Total/NA	Analysis	9056A		100	5 mL	5 mL	599641	01/17/23 18:18	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			599311	01/12/23 14:37	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	599524	01/16/23 14:48	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	599554	01/16/23 17:18	MCR	EET DEN

Client Sample ID: WK-10B
Lab Sample ID: 280-171192-2
Date Collected: 01/09/23 13:00
Matrix: Water
Date Received: 01/10/23 15:43

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	599209	01/13/23 09:03	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			599581	01/16/23 23:21	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	599293	01/12/23 16:05	DNM	EET DEN
Total Recoverable	Analysis	6020B		1			599827	01/18/23 14:04	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	599293	01/12/23 16:05	DNM	EET DEN
Total Recoverable	Analysis	6020B		1			599572	01/16/23 17:33	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	599293	01/12/23 16:05	DNM	EET DEN
Total Recoverable	Analysis	6020B		1			599721	01/17/23 12:01	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	599236	01/12/23 12:50	KMS	EET DEN
Total/NA	Analysis	7470A		1			599322	01/12/23 18:45	KMS	EET DEN
Total/NA	Analysis	9040B		1			599573	01/16/23 16:25	KEG	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	599641	01/17/23 18:34	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			599311	01/12/23 14:28	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	599524	01/16/23 14:48	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	599554	01/16/23 17:18	MCR	EET DEN

Lab Chronicle

Client: HDR Inc
Job ID: 280-171192-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-10B
Date Collected: 01/10/23 09:30
Date Received: 01/10/23 15:43

Lab Sample ID: 280-171192-3
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	599681	01/17/23 16:16	LJS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	599719	01/19/23 08:45	LJS	EET DEN
Dissolved	Analysis	6010C		5			600055	01/20/23 14:58	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	599615	01/18/23 08:28	KMS	EET DEN
Total Recoverable	Analysis	6010C		1			599952	01/19/23 16:12	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	599615	01/18/23 08:28	KMS	EET DEN
Total Recoverable	Analysis	6010C		5			600055	01/20/23 16:46	KRP	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	599681	01/17/23 16:16	LJS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	599715	01/19/23 08:10	LJS	EET DEN
Dissolved	Analysis	6020B		1			599948	01/19/23 19:09	LMT	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	599681	01/17/23 16:16	LJS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	599715	01/19/23 08:10	LJS	EET DEN
Dissolved	Analysis	6020B		50			600076	01/20/23 13:02	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	599293	01/12/23 16:05	DNM	EET DEN
Total Recoverable	Analysis	6020B		1			599827	01/18/23 14:08	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	599293	01/12/23 16:05	DNM	EET DEN
Total Recoverable	Analysis	6020B		1			599572	01/16/23 17:35	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	599293	01/12/23 16:05	DNM	EET DEN
Total Recoverable	Analysis	6020B		50			599721	01/17/23 12:05	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	599293	01/12/23 16:05	DNM	EET DEN
Total Recoverable	Analysis	6020B		100			599826	01/18/23 16:19	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	599293	01/12/23 16:05	DNM	EET DEN
Total Recoverable	Analysis	6020B		100			600127	01/23/23 11:40	LMT	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	599681	01/17/23 16:16	LJS	EET DEN
Dissolved	Prep	7470A			30 mL	50 mL	599980	01/20/23 13:00	PFM	EET DEN
Dissolved	Analysis	7470A		1			600092	01/20/23 16:44	PFM	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	599236	01/12/23 12:50	KMS	EET DEN
Total/NA	Analysis	7470A		1			599322	01/12/23 18:47	KMS	EET DEN
Total/NA	Analysis	9040B		1			599312	01/12/23 16:40	KEG	EET DEN
Total/NA	Analysis	9056A		100	5 mL	5 mL	599641	01/17/23 19:06	EJS	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	599890	01/20/23 04:13	EJS	EET DEN
Total/NA	Analysis	9056A		1000	5 mL	5 mL	599890	01/20/23 04:45	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			599311	01/12/23 14:50	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	599631	01/17/23 11:43	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	599686	01/17/23 17:07	MCR	EET DEN

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

Accreditation/Certification Summary

Client: HDR Inc
Job ID: 280-171192-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

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Client Information	Sampler	Lab PM	Carrier Tracking No(s)	COC No
	F. Davis Ray	Ryan, Nicole C		280-123984-34657 2
Client Contact	**Phone**	**E-Mail**	**State of Origin**	**Page**
Ms Sierra Schupp	(720) 298-3594	Nicole Ryan@ET eurofinsus com	CO	Page 2 of 2
Company	**PWSID**			**Job #**
HDR Inc				
Address	**Due Date Requested:**			
1670 Broadway Suite 3400				
City	**TAT Requested (days):**			
Denver				
State, Zip	**Compliance Project:** Δ Yes Δ No			
CO, 80202				
Phone	**PO #**			
734-263-7138(Tel)	DEN-021			
Email	**WO #**			
Sierra Schupp@hdrinc.com				
Project Name	**Project #**			
Xcel Energy GW CCR Monitoring - Comanche	28014376			
Site Colorado	**SSOW#**			
On-Site Wells				

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:

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)

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	App III and IV Metals: Ba, Ca, Sb, As, Be, Cd, Cr, Co, Pb, Li, Mo, Se, Tl	Total Mercury	Additional Metals: Mg, Na, K	9056 Anions: Chloride, Fluoride, Sulfate	2540C: TDS	2540D: TSS	9040 pH	2320 Alkalinity	RAD: Ra226, Ra228, Ra226+228	Dissolved Metals (Lab Filter)	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	D	D	D	N	N	N	N	N	D	N		
W-18	1/9/23	1205	G	W			X	X	X	X	X	X	X	X	X		6	
WK-10B	1/9/23	1300	G	W			X	X	X	X	X	X	X	X	X		6	
W-10B	1/10/23	0930	G	W			X	X	X	X	X	X	X	X	X	X	7	+250mL ump. for DM

280-171192 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		Date:		Time		Method of Shipment	
Relinquished by	F. Davis Ray	Date/Time 1/10/23 1543	Company HDR	Received by		Date/Time 01/10/2023 1543	Company ET/DEN
Relinquished by		Date/Time	Company	Received by		Date/Time	Company
Relinquished by		Date/Time	Company	Received by		Date/Time	Company

Custody Seals Intact Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 1.1/2.CF0.0

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-171192-1

Login Number: 171192
List Number: 1
Creator: Roehsner, Karen P

List Source: Eurofins Denver

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.	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 <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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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

280-171588-1

Eurofins Denver
4955 Yarrow Street
Arvada CO 80002

See page two for job notes and contact information.

my EOL

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
Nicole.Ryan@ET.eurofinsus.com
(303)736-0100

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Definitions/Glossary

Client: HDR Inc
Job ID: 280-171588-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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.

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.
¤	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

Job ID: 280-171588-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-171588-1

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 1/20/2023 1:43 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 3.2º C.

TOTAL RECOVERABLE METALS
Sample W-16 (280-171588-1) was analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 01/26/2023 and analyzed on 01/27/2023.

Boron failed the recovery criteria high for the MSD of sample 280-170988-11 in batch 280-600587. Boron exceeded the RPD limit.

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 W-16 (280-171588-1) was analyzed for Total Recoverable Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 01/24/2023 and analyzed on 01/24/2023 and 01/25/2023.

Sodium failed the recovery criteria low for the MS of sample 280-170988-13 in batch 280-600448. Calcium failed the recovery criteria high.

Sodium failed the recovery criteria low for the MSD of sample 280-170988-13 in batch 280-600448. Calcium and Magnesium failed the recovery criteria high.

Sample W-16 (280-171588-1)[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 (280-171588-1) was analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 01/24/2023.

Alkalinity was detected in method blank MB 280-600312/6 at a level that was above the method detection limit but below the reporting limit.

Job ID: 280-171588-1 (Continued)

Laboratory: Eurofins Denver (Continued)

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

Sample W-16 (280-171588-1) was analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 01/25/2023.

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

TOTAL SUSPENDED SOLIDS

Sample W-16 (280-171588-1) was analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 01/26/2023.

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

CORROSIVITY (PH)

Sample W-16 (280-171588-1) was analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 02/01/2023.

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

ANIONS (28 DAYS)

Sample W-16 (280-171588-1) was analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A (28 Days). The samples were analyzed on 01/26/2023.

Samples W-16 (280-171588-1)[10X] and W-16 (280-171588-1)[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
Job ID: 280-171588-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-16
Lab Sample ID: 280-171588-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.79		0.10	0.0015	mg/L	1		6010C	Total Recoverable
Calcium	450		10	1.6	mg/L	50		6020B	Total Recoverable
Cobalt	0.019		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Magnesium	2200		10	0.21	mg/L	50		6020B	Total Recoverable
Sodium	1700		50	3.7	mg/L	50		6020B	Total Recoverable
Potassium	31		1.0	0.052	mg/L	1		6020B	Total Recoverable
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	24.2	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	240		30	10	mg/L	10		9056A	Total/NA
Sulfate	12000		1000	210	mg/L	200		9056A	Total/NA
Alkalinity	900	B	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)	16000		1000	470	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-171588-1
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
Job ID: 280-171588-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-171588-1	W-16	Water	01/20/23 10:00	01/20/23 13:43

Method: SW846 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: W-16
Date Collected: 01/20/23 10:00
Date Received: 01/20/23 13:43

Lab Sample ID: 280-171588-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.79**		0.10	0.0015	mg/L		01/26/23 09:20	01/27/23 02:26	1

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

Client Sample ID: W-16
Date Collected: 01/20/23 10:00
Date Received: 01/20/23 13:43

Lab Sample ID: 280-171588-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**450**		10	1.6	mg/L		01/24/23 08:00	01/25/23 16:09	50
Cobalt	**0.019**		0.0010	0.00033	mg/L		01/24/23 08:00	01/24/23 19:09	1
Magnesium	**2200**		10	0.21	mg/L		01/24/23 08:00	01/25/23 16:09	50
Sodium	**1700**		50	3.7	mg/L		01/24/23 08:00	01/25/23 16:09	50
Potassium	**31**		1.0	0.052	mg/L		01/24/23 08:00	01/24/23 19:09	1

General Chemistry

Client Sample ID: W-16
Date Collected: 01/20/23 10:00
Date Received: 01/20/23 13:43

Lab Sample ID: 280-171588-1
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			02/01/23 15:41	1
Temperature (SW846 9040B)	**24.2**	**HF**	1.0	1.0	Degrees C			02/01/23 15:41	1
Chloride (SW846 9056A)	**240**		30	10	mg/L			01/26/23 22:31	10
Sulfate (SW846 9056A)	**12000**		1000	210	mg/L			01/26/23 22:23	200
Alkalinity (SM 2320B)	**900**	**B**	10	3.1	mg/L			01/24/23 13:06	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**900**		10	3.1	mg/L			01/24/23 13:06	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			01/24/23 13:06	1
Total Dissolved Solids (TDS) (SM 2540C)	**16000**		1000	470	mg/L			01/25/23 13:33	1
Total Suspended Solids (SM 2540D)	ND		4.0	1.1	mg/L			01/26/23 13:27	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-600244/1-A
Matrix: Water
Analysis Batch: 600587

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 600244

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.0015	mg/L		01/26/23 09:20	01/27/23 01:53	1

Lab Sample ID: LCS 280-600244/2-A
Matrix: Water
Analysis Batch: 600587

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 600244

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	2.15		mg/L		108	86 - 110

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-600128/1-A
Matrix: Water
Analysis Batch: 600316

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 600128

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		0.20	0.032	mg/L		01/24/23 08:00	01/24/23 18:57	1
Cobalt	ND		0.0010	0.00033	mg/L		01/24/23 08:00	01/24/23 18:57	1
Magnesium	ND		0.20	0.0042	mg/L		01/24/23 08:00	01/24/23 18:57	1
Potassium	ND		1.0	0.052	mg/L		01/24/23 08:00	01/24/23 18:57	1

Lab Sample ID: MB 280-600128/1-A
Matrix: Water
Analysis Batch: 600448

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 600128

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	ND		1.0	0.073	mg/L		01/24/23 08:00	01/25/23 16:01	1

Lab Sample ID: LCS 280-600128/2-A
Matrix: Water
Analysis Batch: 600316

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 600128

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	0.800	0.856		mg/L		107	80 - 120
Cobalt	0.0400	0.0412		mg/L		103	85 - 120
Magnesium	0.800	0.747		mg/L		93	80 - 120
Potassium	0.800	0.746	J	mg/L		93	80 - 120

Lab Sample ID: LCS 280-600128/2-A
Matrix: Water
Analysis Batch: 600448

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 600128

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sodium	0.800	0.820	J	mg/L		103	80 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-601066/7
Matrix: Water
Analysis Batch: 601066

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 280-600527/42
Matrix: Water
Analysis Batch: 600527

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			01/26/23 21:51	1
Sulfate	ND		5.0	1.0	mg/L			01/26/23 21:51	1

Lab Sample ID: LCS 280-600527/40
Matrix: Water
Analysis Batch: 600527

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	50.0		mg/L		100	90 - 110
Sulfate	50.0	48.7		mg/L		97	90 - 110

Lab Sample ID: LCSD 280-600527/41
Matrix: Water
Analysis Batch: 600527

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	50.0		mg/L		100	90 - 110	0	10
Sulfate	50.0	48.4		mg/L		97	90 - 110	1	10

Lab Sample ID: MRL 280-600527/3
Matrix: Water
Analysis Batch: 600527

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	2.19	J	mg/L		88	50 - 150
Sulfate	2.50	2.14	J	mg/L		86	50 - 150

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-600312/6
Matrix: Water
Analysis Batch: 600312

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	3.97	J	10	3.1	mg/L			01/24/23 11:10	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			01/24/23 11:10	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			01/24/23 11:10	1

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: LCS 280-600312/4
Matrix: Water
Analysis Batch: 600312

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

Lab Sample ID: LCSD 280-600312/5
Matrix: Water
Analysis Batch: 600312

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	0	10

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

Lab Sample ID: MB 280-600381/1
Matrix: Water
Analysis Batch: 600381

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			01/25/23 13:33	1

Lab Sample ID: LCS 280-600381/2
Matrix: Water
Analysis Batch: 600381

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	445		mg/L		89	88 - 114

Lab Sample ID: LCSD 280-600381/3
Matrix: Water
Analysis Batch: 600381

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	453		mg/L		91	88 - 114	2	20

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

Lab Sample ID: MB 280-600524/3
Matrix: Water
Analysis Batch: 600524

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			01/26/23 13:27	1

Lab Sample ID: LCS 280-600524/1
Matrix: Water
Analysis Batch: 600524

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	490		mg/L		98	79 - 114

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

Lab Sample ID: LCSD 280-600524/2
Matrix: Water
Analysis Batch: 600524

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	519		mg/L		104	79 - 114	6	20

QC Association Summary

Client: HDR Inc
Job ID: 280-171588-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Metals

Prep Batch: 600128

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171588-1	W-16	Total Recoverable	Water	3005A	
MB 280-600128/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-600128/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 600244

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171588-1	W-16	Total Recoverable	Water	3005A	
MB 280-600244/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-600244/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 600316

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171588-1	W-16	Total Recoverable	Water	6020B	600128
MB 280-600128/1-A	Method Blank	Total Recoverable	Water	6020B	600128
LCS 280-600128/2-A	Lab Control Sample	Total Recoverable	Water	6020B	600128

Analysis Batch: 600448

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171588-1	W-16	Total Recoverable	Water	6020B	600128
MB 280-600128/1-A	Method Blank	Total Recoverable	Water	6020B	600128
LCS 280-600128/2-A	Lab Control Sample	Total Recoverable	Water	6020B	600128

Analysis Batch: 600587

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171588-1	W-16	Total Recoverable	Water	6010C	600244
MB 280-600244/1-A	Method Blank	Total Recoverable	Water	6010C	600244
LCS 280-600244/2-A	Lab Control Sample	Total Recoverable	Water	6010C	600244

General Chemistry

Analysis Batch: 600312

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171588-1	W-16	Total/NA	Water	SM 2320B	
MB 280-600312/6	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-600312/4	Lab Control Sample	Total/NA	Water	SM 2320B	
LCSD 280-600312/5	Lab Control Sample Dup	Total/NA	Water	SM 2320B	

Analysis Batch: 600381

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171588-1	W-16	Total/NA	Water	SM 2540C	
MB 280-600381/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-600381/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-600381/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 600524

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171588-1	W-16	Total/NA	Water	SM 2540D	
MB 280-600524/3	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-600524/1	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-600524/2	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

QC Association Summary

Client: HDR Inc
Job ID: 280-171588-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

General Chemistry

Analysis Batch: 600527

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171588-1	W-16	Total/NA	Water	9056A	
280-171588-1	W-16	Total/NA	Water	9056A	
MB 280-600527/42	Method Blank	Total/NA	Water	9056A	
LCS 280-600527/40	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-600527/41	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-600527/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 601066

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171588-1	W-16	Total/NA	Water	9040B	
LCS 280-601066/7	Lab Control Sample	Total/NA	Water	9040B	

Lab Chronicle

Client: HDR Inc
Job ID: 280-171588-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-16
Date Collected: 01/20/23 10:00
Date Received: 01/20/23 13:43

Lab Sample ID: 280-171588-1
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	600244	01/26/23 09:20	MSM	EET DEN
Total Recoverable	Analysis	6010C		1			600587	01/27/23 02:26	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	600128	01/24/23 08:00	MSM	EET DEN
Total Recoverable	Analysis	6020B		1			600316	01/24/23 19:09	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	600128	01/24/23 08:00	MSM	EET DEN
Total Recoverable	Analysis	6020B		50			600448	01/25/23 16:09	LMT	EET DEN
Total/NA	Analysis	9040B		1			601066	02/01/23 15:41	KEG	EET DEN
Total/NA	Analysis	9056A		200	5 mL	5 mL	600527	01/26/23 22:23	MEC	EET DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	600527	01/26/23 22:31	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			600312	01/24/23 13:06	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	600381	01/25/23 13:33	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	600524	01/26/23 13:27	ABW	EET DEN

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

Accreditation/Certification Summary

Client: HDR Inc
Job ID: 280-171588-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

eurofins | Environment Testing America

Client Information	Sampler: F. Davis Ray	Lab PM: Ryan, Nicole C	Carrier Tracking No(s):	COC No: 280-123984-34657.2
Client Contact: Ms. Sierra Schupp	Phone: (720) 298-3594	E-Mail: Nicole.Ryan@ET.eurofinsus.com	State of Origin: CO	Page: Page 2 of 2
Company: HDR Inc	PWSID:			Job #:
Address: 1670 Broadway Suite 3400	Due Date Requested:			
City: Denver	TAT Requested (days):			
State, Zip: CO, 80202	Compliance Project: Δ Yes Δ No			
Phone: 734-263-7138(Tel)	PO #: DEN-021			
Email: Sierra.Schupp@hdrinc.com	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Comanche	Project #: 28014376			
Site: Colorado Off-Site	SSOW#:			

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:
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)

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Metals: Co, Mg, Ca, Na, K, Bo	2540D: TSS	9056 Anions: Chloride, Sulfate	9040 pH	2540C TDS	2320 Alkalinity: Bicarb, Carb	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	N	N	N	N		
W-16	1/20/23	1000	G	W			X	X	X	X	X	X	3	



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:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Davis Ray	1/20/23 1343	HDR		1/20/23 1343	ESTADEN
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 3.2 CF 0.0 IR2

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-171588-1

Login Number: 171588
List Number: 1
Creator: Roehsner, Karen P

List Source: Eurofins Denver

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.	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 <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing

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

280-171574-1

Eurofins Denver
4955 Yarrow Street
Arvada CO 80002

See page two for job notes and contact information.

my EOL

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
Nicole.Ryan@ET.eurofinsus.com
(303)736-0100

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Definitions/Glossary

Client: HDR Inc
Job ID: 280-171574-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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
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.
¤	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

Job ID: 280-171574-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-171574-1

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 1/20/2023 1:43 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 0.6º C.

Receipt Exceptions
The reference method requires samples to have a pH of 2. The following samples were received with a pH of 6. The samples were adjusted to the appropriate pH in the laboratory: 280-171574-1-A and B, 280-171574-2-A and B.

TOTAL RECOVERABLE METALS
Samples W-14 (280-171574-1) and WT-14 (280-171574-2) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 01/26/2023 and analyzed on 01/27/2023.

Boron and Lithium failed the recovery criteria high for the MSD of sample 280-170988-11 in batch 280-600587. Boron and Lithium exceeded the RPD limit.

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 (280-171574-1) and WT-14 (280-171574-2) were analyzed for Total Recoverable Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 01/24/2023 and analyzed on 01/24/2023 and 01/25/2023.

Lead was detected in method blank MB 280-600128/1-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.

Calcium and Sodium failed the recovery criteria low for the MS of sample 280-170988-13 in batch 280-600448.

Calcium and Sodium failed the recovery criteria low for the MSD of sample 280-170988-13 in batch 280-600448. Magnesium failed the recovery criteria high.

Job ID: 280-171574-1 (Continued)

Laboratory: Eurofins Denver (Continued)

Samples W-14 (280-171574-1)[50X] and WT-14 (280-171574-2)[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.

TOTAL MERCURY
Samples W-14 (280-171574-1) and WT-14 (280-171574-2) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 01/30/2023.

Mercury was detected in method blank MB 280-600739/1-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.

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

ALKALINITY
Samples W-14 (280-171574-1) and WT-14 (280-171574-2) were analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 01/24/2023.

Alkalinity was detected in method blank MB 280-600312/6 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-14 (280-171574-1) and WT-14 (280-171574-2) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 01/24/2023.

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

TOTAL SUSPENDED SOLIDS
Samples W-14 (280-171574-1) and WT-14 (280-171574-2) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 01/24/2023.

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

CORROSIVITY (PH)
Samples W-14 (280-171574-1) and WT-14 (280-171574-2) were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 01/26/2023.

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

ANIONS (28 DAYS)
Samples W-14 (280-171574-1) and WT-14 (280-171574-2) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A (28 Days). The samples were analyzed on 01/26/2023 and 01/27/2023.

Due to the high concentration of Sulfate, the matrix spike / matrix spike duplicate (MS/MSD) for analytical batch 280-600650 could not be evaluated for accuracy and precision. The associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) met acceptance criteria.

Samples W-14 (280-171574-1)[10X], W-14 (280-171574-1)[500X], WT-14 (280-171574-2)[10X] and WT-14 (280-171574-2)[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.

Job ID: 280-171574-1 (Continued)

Laboratory: Eurofins Denver (Continued)

Detection Summary

Client: HDR Inc
Job ID: 280-171574-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-14
Lab Sample ID: 280-171574-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.69		0.10	0.0015	mg/L	1		6010C	Total Recoverable
Lithium	3.5		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Antimony	0.00055	J	0.0020	0.00040	mg/L	1		6020B	Total Recoverable
Magnesium	1500		10	0.21	mg/L	50		6020B	Total Recoverable
Arsenic	0.00065	J	0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Sodium	5000		50	3.7	mg/L	50		6020B	Total Recoverable
Barium	0.014		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Potassium	38		1.0	0.052	mg/L	1		6020B	Total Recoverable
Cadmium	0.0011		0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Chromium	0.00070	J	0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.011		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Molybdenum	0.018		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Selenium	1.1		0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Thallium	0.0023		0.0010	0.00021	mg/L	1		6020B	Total Recoverable
Calcium	420		10	1.6	mg/L	50		6020B	Total Recoverable
Mercury	0.000086	J B	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	24.3	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	710		30	10	mg/L	10		9056A	Total/NA
Sulfate	17000		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)	23000		1000	470	mg/L	1		SM 2540C	Total/NA

Client Sample ID: WT-14
Lab Sample ID: 280-171574-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.65		0.10	0.0015	mg/L	1		6010C	Total Recoverable
Lithium	3.4		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Antimony	0.00048	J	0.0020	0.00040	mg/L	1		6020B	Total Recoverable
Magnesium	1600		10	0.21	mg/L	50		6020B	Total Recoverable
Arsenic	0.00070	J	0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Sodium	5200		50	3.7	mg/L	50		6020B	Total Recoverable
Barium	0.014		0.0030	0.00038	mg/L	1		6020B	Total Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Client Sample ID: WT-14 (Continued)
Lab Sample ID: 280-171574-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Potassium	39		1.0	0.052	mg/L	1		6020B	Total Recoverable
Cadmium	0.0010		0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Chromium	0.00074	J	0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.011		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Lead	0.00027	J B	0.0010	0.00023	mg/L	1		6020B	Total Recoverable
Molybdenum	0.017		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Selenium	1.1		0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Thallium	0.0023		0.0010	0.00021	mg/L	1		6020B	Total Recoverable
Calcium	430		10	1.6	mg/L	50		6020B	Total Recoverable
Mercury	0.000088	J B	0.00020	0.000061	mg/L	1		7470A	Total/NA
pH adj. to 25 deg C	7.4	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	24.4	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	580		30	10	mg/L	10		9056A	Total/NA
Sulfate	18000		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)	23000		1000	470	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-171574-1
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
Job ID: 280-171574-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-171574-1	W-14	Water	01/19/23 13:45	01/20/23 13:43
280-171574-2	WT-14	Water	01/19/23 14:15	01/20/23 13:43

Method: SW846 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: W-14
Date Collected: 01/19/23 13:45
Date Received: 01/20/23 13:43
Lab Sample ID: 280-171574-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.69		0.10	0.0015	mg/L		01/26/23 09:20	01/27/23 02:02	1
Lithium	3.5		0.020	0.0091	mg/L		01/26/23 09:20	01/27/23 02:02	1

Client Sample ID: WT-14
Date Collected: 01/19/23 14:15
Date Received: 01/20/23 13:43
Lab Sample ID: 280-171574-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.65		0.10	0.0015	mg/L		01/26/23 09:20	01/27/23 02:22	1
Lithium	3.4		0.020	0.0091	mg/L		01/26/23 09:20	01/27/23 02:22	1

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

Client Sample ID: W-14
Date Collected: 01/19/23 13:45
Date Received: 01/20/23 13:43
Lab Sample ID: 280-171574-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00055	J	0.0020	0.00040	mg/L		01/24/23 08:00	01/24/23 19:05	1
Magnesium	1500		10	0.21	mg/L		01/24/23 08:00	01/25/23 16:05	50
Arsenic	0.00065	J	0.0050	0.00050	mg/L		01/24/23 08:00	01/24/23 19:05	1
Sodium	5000		50	3.7	mg/L		01/24/23 08:00	01/25/23 16:05	50
Barium	0.014		0.0030	0.00038	mg/L		01/24/23 08:00	01/24/23 19:05	1
Potassium	38		1.0	0.052	mg/L		01/24/23 08:00	01/24/23 19:05	1
Beryllium	ND		0.0010	0.00030	mg/L		01/24/23 08:00	01/24/23 19:05	1
Cadmium	0.0011		0.0010	0.00019	mg/L		01/24/23 08:00	01/24/23 19:05	1
Chromium	0.00070	J	0.0030	0.00050	mg/L		01/24/23 08:00	01/24/23 19:05	1
Cobalt	0.011		0.0010	0.00033	mg/L		01/24/23 08:00	01/24/23 19:05	1
Lead	ND		0.0010	0.00023	mg/L		01/24/23 08:00	01/24/23 19:05	1
Molybdenum	0.018		0.0020	0.00037	mg/L		01/24/23 08:00	01/24/23 19:05	1
Selenium	1.1		0.0050	0.0010	mg/L		01/24/23 08:00	01/24/23 19:05	1
Thallium	0.0023		0.0010	0.00021	mg/L		01/24/23 08:00	01/24/23 19:05	1
Calcium	420		10	1.6	mg/L		01/24/23 08:00	01/25/23 16:05	50

Client Sample ID: WT-14
Date Collected: 01/19/23 14:15
Date Received: 01/20/23 13:43
Lab Sample ID: 280-171574-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00048	J	0.0020	0.00040	mg/L		01/24/23 08:00	01/24/23 19:07	1
Magnesium	1600		10	0.21	mg/L		01/24/23 08:00	01/25/23 16:07	50
Arsenic	0.00070	J	0.0050	0.00050	mg/L		01/24/23 08:00	01/24/23 19:07	1
Sodium	5200		50	3.7	mg/L		01/24/23 08:00	01/25/23 16:07	50
Barium	0.014		0.0030	0.00038	mg/L		01/24/23 08:00	01/24/23 19:07	1
Potassium	39		1.0	0.052	mg/L		01/24/23 08:00	01/24/23 19:07	1
Beryllium	ND		0.0010	0.00030	mg/L		01/24/23 08:00	01/24/23 19:07	1
Cadmium	0.0010		0.0010	0.00019	mg/L		01/24/23 08:00	01/24/23 19:07	1
Chromium	0.00074	J	0.0030	0.00050	mg/L		01/24/23 08:00	01/24/23 19:07	1
Cobalt	0.011		0.0010	0.00033	mg/L		01/24/23 08:00	01/24/23 19:07	1
Lead	0.00027	J B	0.0010	0.00023	mg/L		01/24/23 08:00	01/24/23 19:07	1
Molybdenum	0.017		0.0020	0.00037	mg/L		01/24/23 08:00	01/24/23 19:07	1
Selenium	1.1		0.0050	0.0010	mg/L		01/24/23 08:00	01/24/23 19:07	1
Thallium	0.0023		0.0010	0.00021	mg/L		01/24/23 08:00	01/24/23 19:07	1

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

Client Sample ID: WT-14
Date Collected: 01/19/23 14:15
Date Received: 01/20/23 13:43
Lab Sample ID: 280-171574-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**430**		10	1.6	mg/L		01/24/23 08:00	01/25/23 16:07	50

Method: SW846 7470A - Mercury (CVAA)

Client Sample ID: W-14
Date Collected: 01/19/23 13:45
Date Received: 01/20/23 13:43
Lab Sample ID: 280-171574-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.000086**	**J B**	0.00020	0.000061	mg/L		01/30/23 12:14	01/30/23 19:55	1

Client Sample ID: WT-14
Date Collected: 01/19/23 14:15
Date Received: 01/20/23 13:43
Lab Sample ID: 280-171574-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.000088**	**J B**	0.00020	0.000061	mg/L		01/30/23 12:14	01/30/23 19:58	1

General Chemistry

Client Sample ID: W-14
Date Collected: 01/19/23 13:45
Date Received: 01/20/23 13:43
Lab Sample ID: 280-171574-1
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			01/26/23 18:01	1
Temperature (SW846 9040B)	**24.3**	**HF**	1.0	1.0	Degrees C			01/26/23 18:01	1
Chloride (SW846 9056A)	**710**		30	10	mg/L			01/27/23 20:46	10
Fluoride (SW846 9056A)	ND		0.50	0.17	mg/L			01/27/23 00:22	1
Sulfate (SW846 9056A)	**17000**		2500	520	mg/L			01/27/23 00:14	500
Alkalinity (SM 2320B)	**1100**	**B**	10	3.1	mg/L			01/24/23 13:20	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**1100**		10	3.1	mg/L			01/24/23 13:20	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			01/24/23 13:20	1
Total Dissolved Solids (TDS) (SM 2540C)	**23000**		1000	470	mg/L			01/24/23 13:47	1
Total Suspended Solids (SM 2540D)	ND		4.0	1.1	mg/L			01/24/23 14:22	1

Client Sample ID: WT-14
Date Collected: 01/19/23 14:15
Date Received: 01/20/23 13:43
Lab Sample ID: 280-171574-2
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			01/26/23 18:06	1
Temperature (SW846 9040B)	**24.4**	**HF**	1.0	1.0	Degrees C			01/26/23 18:06	1
Chloride (SW846 9056A)	**580**		30	10	mg/L			01/26/23 23:58	10
Fluoride (SW846 9056A)	ND		0.50	0.17	mg/L			01/27/23 00:06	1
Sulfate (SW846 9056A)	**18000**		2500	520	mg/L			01/27/23 21:03	500
Alkalinity (SM 2320B)	**1100**	**B**	10	3.1	mg/L			01/24/23 13:33	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**1100**		10	3.1	mg/L			01/24/23 13:33	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			01/24/23 13:33	1
Total Dissolved Solids (TDS) (SM 2540C)	**23000**		1000	470	mg/L			01/24/23 13:47	1

Client: HDR Inc
Job ID: 280-171574-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

General Chemistry (Continued)

Client Sample ID: WT-14
Date Collected: 01/19/23 14:15
Date Received: 01/20/23 13:43

Lab Sample ID: 280-171574-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	ND		4.0	1.1	mg/L			01/24/23 14:22	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-600244/1-A
Matrix: Water
Analysis Batch: 600587

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 600244

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.0015	mg/L		01/26/23 09:20	01/27/23 01:53	1
Lithium	ND		0.020	0.0091	mg/L		01/26/23 09:20	01/27/23 01:53	1

Lab Sample ID: LCS 280-600244/2-A
Matrix: Water
Analysis Batch: 600587

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 600244

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	2.15		mg/L		108	86 - 110
Lithium	1.00	0.977		mg/L		98	90 - 112

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-600128/1-A
Matrix: Water
Analysis Batch: 600316

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 600128

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		01/24/23 08:00	01/24/23 18:57	1
Magnesium	ND		200	4.2	ug/L		01/24/23 08:00	01/24/23 18:57	1
Arsenic	ND		0.0050	0.00050	mg/L		01/24/23 08:00	01/24/23 18:57	1
Barium	ND		0.0030	0.00038	mg/L		01/24/23 08:00	01/24/23 18:57	1
Potassium	ND		1000	52	ug/L		01/24/23 08:00	01/24/23 18:57	1
Beryllium	ND		0.0010	0.00030	mg/L		01/24/23 08:00	01/24/23 18:57	1
Cadmium	ND		0.0010	0.00019	mg/L		01/24/23 08:00	01/24/23 18:57	1
Chromium	ND		0.0030	0.00050	mg/L		01/24/23 08:00	01/24/23 18:57	1
Cobalt	ND		0.0010	0.00033	mg/L		01/24/23 08:00	01/24/23 18:57	1
Lead	0.000489	J	0.0010	0.00023	mg/L		01/24/23 08:00	01/24/23 18:57	1
Molybdenum	ND		0.0020	0.00037	mg/L		01/24/23 08:00	01/24/23 18:57	1
Selenium	ND		0.0050	0.0010	mg/L		01/24/23 08:00	01/24/23 18:57	1
Thallium	ND		0.0010	0.00021	mg/L		01/24/23 08:00	01/24/23 18:57	1

Lab Sample ID: MB 280-600128/1-A
Matrix: Water
Analysis Batch: 600448

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 600128

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	ND		1000	73	ug/L		01/24/23 08:00	01/25/23 16:01	1
Calcium	ND		0.20	0.032	mg/L		01/24/23 08:00	01/25/23 16:01	1

Lab Sample ID: LCS 280-600128/2-A
Matrix: Water
Analysis Batch: 600316

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 600128

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0393		mg/L		98	85 - 115
Magnesium	800	747		ug/L		93	80 - 120
Arsenic	0.0400	0.0399		mg/L		100	85 - 117
Barium	0.0400	0.0396		mg/L		99	85 - 118
Potassium	800	746	J	ug/L		93	80 - 120

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

Lab Sample ID: LCS 280-600128/2-A
Matrix: Water
Analysis Batch: 600316

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 600128

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Beryllium	0.0400	0.0382		mg/L		96	80 - 125
Cadmium	0.0400	0.0387		mg/L		97	85 - 115
Chromium	0.0400	0.0417		mg/L		104	84 - 121
Cobalt	0.0400	0.0412		mg/L		103	85 - 120
Lead	0.0400	0.0401		mg/L		100	85 - 118
Molybdenum	0.0400	0.0400		mg/L		100	85 - 119
Selenium	0.0400	0.0412		mg/L		103	77 - 122
Thallium	0.0400	0.0405		mg/L		101	85 - 118

Lab Sample ID: LCS 280-600128/2-A
Matrix: Water
Analysis Batch: 600448

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 600128

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sodium	800	820	J	ug/L		103	80 - 120
Calcium	0.800	0.819		mg/L		102	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-600739/1-A
Matrix: Water
Analysis Batch: 600840

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 600739

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0000850	J	0.00020	0.000061	mg/L		01/30/23 12:14	01/30/23 19:37	1

Lab Sample ID: LCS 280-600739/2-A
Matrix: Water
Analysis Batch: 600840

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 600739

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00500		mg/L		100	84 - 120

Lab Sample ID: 280-171574-2 MS
Matrix: Water
Analysis Batch: 600840

Client Sample ID: WT-14
Prep Type: Total/NA
Prep Batch: 600739

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.000088	J B	0.00500	0.00452		mg/L		89	75 - 125

Lab Sample ID: 280-171574-2 MSD
Matrix: Water
Analysis Batch: 600840

Client Sample ID: WT-14
Prep Type: Total/NA
Prep Batch: 600739

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	0.000088	J B	0.00500	0.00445		mg/L		87	75 - 125	2	20

Method: 9040B - pH

Lab Sample ID: LCS 280-600601/33
Matrix: Water
Analysis Batch: 600601

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 280-600527/42
Matrix: Water
Analysis Batch: 600527

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			01/26/23 21:51	1
Fluoride	ND		0.50	0.17	mg/L			01/26/23 21:51	1
Sulfate	ND		5.0	1.0	mg/L			01/26/23 21:51	1

Lab Sample ID: LCS 280-600527/40
Matrix: Water
Analysis Batch: 600527

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	50.0		mg/L		100	90 - 110
Fluoride	2.50	2.62		mg/L		105	90 - 110
Sulfate	50.0	48.7		mg/L		97	90 - 110

Lab Sample ID: LCSD 280-600527/41
Matrix: Water
Analysis Batch: 600527

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	50.0		mg/L		100	90 - 110	0	10
Fluoride	2.50	2.63		mg/L		105	90 - 110	1	10
Sulfate	50.0	48.4		mg/L		97	90 - 110	1	10

Lab Sample ID: MRL 280-600527/3
Matrix: Water
Analysis Batch: 600527

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	2.19	J	mg/L		88	50 - 150
Fluoride	0.250	0.233	J	mg/L		93	50 - 150
Sulfate	2.50	2.14	J	mg/L		86	50 - 150

Lab Sample ID: MB 280-600650/6
Matrix: Water
Analysis Batch: 600650

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			01/27/23 14:32	1
Sulfate	ND		5.0	1.0	mg/L			01/27/23 14:32	1

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

Lab Sample ID: LCS 280-600650/4
Matrix: Water
Analysis Batch: 600650

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	48.2		mg/L		96	90 - 110
Sulfate	50.0	49.0		mg/L		98	90 - 110

Lab Sample ID: LCSD 280-600650/5
Matrix: Water
Analysis Batch: 600650

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	48.3		mg/L		97	90 - 110	0	10
Sulfate	50.0	49.1		mg/L		98	90 - 110	0	10

Lab Sample ID: MRL 280-600650/3
Matrix: Water
Analysis Batch: 600650

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	2.65	J	mg/L		106	50 - 150
Fluoride	0.250	0.258	J	mg/L		103	50 - 150
Sulfate	2.50	2.32	J	mg/L		93	50 - 150

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-600312/6
Matrix: Water
Analysis Batch: 600312

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	3.97	J	10	3.1	mg/L			01/24/23 11:10	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			01/24/23 11:10	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			01/24/23 11:10	1

Lab Sample ID: LCS 280-600312/4
Matrix: Water
Analysis Batch: 600312

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

Lab Sample ID: LCSD 280-600312/5
Matrix: Water
Analysis Batch: 600312

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	0	10

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

Lab Sample ID: MB 280-600261/1
Matrix: Water
Analysis Batch: 600261

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			01/24/23 13:47	1

Lab Sample ID: LCS 280-600261/2
Matrix: Water
Analysis Batch: 600261

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	487		mg/L		97	88 - 114

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

Lab Sample ID: MB 280-600268/2
Matrix: Water
Analysis Batch: 600268

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			01/24/23 14:22	1

Lab Sample ID: LCS 280-600268/1
Matrix: Water
Analysis Batch: 600268

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	468		mg/L		93	79 - 114

QC Association Summary

Client: HDR Inc
Job ID: 280-171574-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Metals

Prep Batch: 600128

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171574-1	W-14	Total Recoverable	Water	3005A	
280-171574-2	WT-14	Total Recoverable	Water	3005A	
MB 280-600128/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-600128/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 600244

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171574-1	W-14	Total Recoverable	Water	3005A	
280-171574-2	WT-14	Total Recoverable	Water	3005A	
MB 280-600244/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-600244/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 600316

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171574-1	W-14	Total Recoverable	Water	6020B	600128
280-171574-2	WT-14	Total Recoverable	Water	6020B	600128
MB 280-600128/1-A	Method Blank	Total Recoverable	Water	6020B	600128
LCS 280-600128/2-A	Lab Control Sample	Total Recoverable	Water	6020B	600128

Analysis Batch: 600448

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171574-1	W-14	Total Recoverable	Water	6020B	600128
280-171574-2	WT-14	Total Recoverable	Water	6020B	600128
MB 280-600128/1-A	Method Blank	Total Recoverable	Water	6020B	600128
LCS 280-600128/2-A	Lab Control Sample	Total Recoverable	Water	6020B	600128

Analysis Batch: 600587

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171574-1	W-14	Total Recoverable	Water	6010C	600244
280-171574-2	WT-14	Total Recoverable	Water	6010C	600244
MB 280-600244/1-A	Method Blank	Total Recoverable	Water	6010C	600244
LCS 280-600244/2-A	Lab Control Sample	Total Recoverable	Water	6010C	600244

Prep Batch: 600739

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171574-1	W-14	Total/NA	Water	7470A	
280-171574-2	WT-14	Total/NA	Water	7470A	
MB 280-600739/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-600739/2-A	Lab Control Sample	Total/NA	Water	7470A	
280-171574-2 MS	WT-14	Total/NA	Water	7470A	
280-171574-2 MSD	WT-14	Total/NA	Water	7470A	

Analysis Batch: 600840

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171574-1	W-14	Total/NA	Water	7470A	600739
280-171574-2	WT-14	Total/NA	Water	7470A	600739
MB 280-600739/1-A	Method Blank	Total/NA	Water	7470A	600739
LCS 280-600739/2-A	Lab Control Sample	Total/NA	Water	7470A	600739
280-171574-2 MS	WT-14	Total/NA	Water	7470A	600739
280-171574-2 MSD	WT-14	Total/NA	Water	7470A	600739

QC Association Summary

Client: HDR Inc
Job ID: 280-171574-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

General Chemistry

Analysis Batch: 600261

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171574-1	W-14	Total/NA	Water	SM 2540C	
280-171574-2	WT-14	Total/NA	Water	SM 2540C	
MB 280-600261/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-600261/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 600268

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171574-1	W-14	Total/NA	Water	SM 2540D	
280-171574-2	WT-14	Total/NA	Water	SM 2540D	
MB 280-600268/2	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-600268/1	Lab Control Sample	Total/NA	Water	SM 2540D	

Analysis Batch: 600312

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171574-1	W-14	Total/NA	Water	SM 2320B	
280-171574-2	WT-14	Total/NA	Water	SM 2320B	
MB 280-600312/6	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-600312/4	Lab Control Sample	Total/NA	Water	SM 2320B	
LCSD 280-600312/5	Lab Control Sample Dup	Total/NA	Water	SM 2320B	

Analysis Batch: 600527

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171574-1	W-14	Total/NA	Water	9056A	
280-171574-1	W-14	Total/NA	Water	9056A	
280-171574-2	WT-14	Total/NA	Water	9056A	
280-171574-2	WT-14	Total/NA	Water	9056A	
MB 280-600527/42	Method Blank	Total/NA	Water	9056A	
LCS 280-600527/40	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-600527/41	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-600527/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 600601

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171574-1	W-14	Total/NA	Water	9040B	
280-171574-2	WT-14	Total/NA	Water	9040B	
LCS 280-600601/33	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 600650

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171574-1	W-14	Total/NA	Water	9056A	
280-171574-2	WT-14	Total/NA	Water	9056A	
MB 280-600650/6	Method Blank	Total/NA	Water	9056A	
LCS 280-600650/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-600650/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-600650/3	Lab Control Sample	Total/NA	Water	9056A	

Lab Chronicle

Client: HDR Inc
Job ID: 280-171574-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-14
Lab Sample ID: 280-171574-1
Date Collected: 01/19/23 13:45
Matrix: Water
Date Received: 01/20/23 13:43

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	600244	01/26/23 09:20	MSM	EET DEN
Total Recoverable	Analysis	6010C		1			600587	01/27/23 02:02	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	600128	01/24/23 08:00	MSM	EET DEN
Total Recoverable	Analysis	6020B		1			600316	01/24/23 19:05	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	600128	01/24/23 08:00	MSM	EET DEN
Total Recoverable	Analysis	6020B		50			600448	01/25/23 16:05	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	600739	01/30/23 12:14	PFM	EET DEN
Total/NA	Analysis	7470A		1			600840	01/30/23 19:55	PFM	EET DEN
Total/NA	Analysis	9040B		1			600601	01/26/23 18:01	KEG	EET DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	600650	01/27/23 20:46	MEC	EET DEN
Total/NA	Analysis	9056A		500	5 mL	5 mL	600527	01/27/23 00:14	MEC	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	600527	01/27/23 00:22	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			600312	01/24/23 13:20	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	600261	01/24/23 13:47	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	600268	01/24/23 14:22	MCR	EET DEN

Client Sample ID: WT-14
Lab Sample ID: 280-171574-2
Date Collected: 01/19/23 14:15
Matrix: Water
Date Received: 01/20/23 13:43

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	600244	01/26/23 09:20	MSM	EET DEN
Total Recoverable	Analysis	6010C		1			600587	01/27/23 02:22	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	600128	01/24/23 08:00	MSM	EET DEN
Total Recoverable	Analysis	6020B		1			600316	01/24/23 19:07	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	600128	01/24/23 08:00	MSM	EET DEN
Total Recoverable	Analysis	6020B		50			600448	01/25/23 16:07	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	600739	01/30/23 12:14	PFM	EET DEN
Total/NA	Analysis	7470A		1			600840	01/30/23 19:58	PFM	EET DEN
Total/NA	Analysis	9040B		1			600601	01/26/23 18:06	KEG	EET DEN
Total/NA	Analysis	9056A		500	5 mL	5 mL	600650	01/27/23 21:03	MEC	EET DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	600527	01/26/23 23:58	MEC	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	600527	01/27/23 00:06	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			600312	01/24/23 13:33	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	600261	01/24/23 13:47	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	600268	01/24/23 14:22	MCR	EET DEN

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

Accreditation/Certification Summary

Client: HDR Inc
Job ID: 280-171574-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

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Client Information	Sampler	Lab PM	Carrier Tracking No(s)	COC No
Client Contact: Ms Sierra Schupp	F. Davis Ray	Ryan, Nicole C		280-123984-34657 2
Company: HDR Inc	Phone: (720) 298-3594	E-Mail: Nicole Ryan@ET eurofinsus com	State of Origin: CO	Page: Page 2 of 2
Address: 1670 Broadway Suite 3400	PWSID			Job #
City: Denver	Due Date Requested:			
State, Zip: CO, 80202	TAT Requested (days):			
Phone: 734-263-7138(Tel)	Compliance Project: Δ Yes Δ No			
Email: Sierra Schupp@hdrinc.com	PO #: DEN-021			
Project Name: Xcel Energy GW CCR Monitonng - Comanche	WO #:			
Site: Colorado On-Site Wells	Project #: 28014376			
	SSOW#:			

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	App III and IV Metals: Bo, Ca, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Mo, Se, Tl	Total Mercury	Additional Metals: Mg, Na, K	9056 Anions: Chloride, Fluoride, Sulfate	2540C: TDs	2540D: TSS	9040 pH	2320 Alkalinity	RAD: Ra226, Ra228, Ra226+228	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D	D	N	N	N	N	N	D		
W-14	1/19/23	1345	G	W			X	X	X	X	X	X	X	X	X	6	
WT-14	1/19/23	1415	G	W			X	X	X	X	X	X	X	X	X	6	

280-171574 Chain of Custody

Preservation Codes:

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 Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Y - Trizma
Other:	Z - other (specify)

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		Date:		Time		Method of Shipment	
Relinquished by: F. Davis Ray	Date/Time: 1/20/23 1343	Company: HDR	Received by: [signature]	Date/Time: 1/20/23 1343	Company: ET DEN		
Relinquished by	Date/Time	Company	Received by: [signature]	Date/Time: 1/20/23 1343	Company: [illegible]		
Relinquished by	Date/Time	Company	Received by	Date/Time	Company		

Custody Seals Intact	Custody Seal No..	Cooler Temperature(s) °C and Other Remarks
Δ Yes Δ No		0.6, IR12 CF0.2

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-171574-1

Login Number: 171574
List Number: 1
Creator: Held, Wesley

List Source: Eurofins Denver

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

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ANALYTICAL REPORT

PREPARED FOR

Attn: Molly Reeves
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Generated 2/9/2023 11:10:55 AM

JOB DESCRIPTION

Xcel Energy GW CCR Monitoring - Comanche

JOB NUMBER

280-171192-2

Eurofins Denver
4955 Yarrow Street
Arvada CO 80002

See page two for job notes and contact information.

my EOL

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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2/9/2023 11:10:55 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
Job ID: 280-171192-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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.
¤	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

Job ID: 280-171192-2

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-171192-2

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 1/10/2023 3:43 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 1.1º C.

RADIUM-226 (GFPC)
Samples W-18 (280-171192-1), WK-10B (280-171192-2) and W-10B (280-171192-3) were analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 01/16/2023 and analyzed on 02/07/2023.

The following samples were prepared at a reduced aliquot due to Matrix: W-18 (280-171192-1) and W-10B (280-171192-3). 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-18 (280-171192-1), WK-10B (280-171192-2) and W-10B (280-171192-3) were analyzed for Radium-228 in accordance with 9320. The samples were prepared on 01/16/2023 and analyzed on 01/23/2023.

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-10B (280-171192-3). Analytical results are reported with the detection limit achieved.

The LCS recovered at (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.

The following samples were prepared at a reduced aliquot due to Matrix: W-18 (280-171192-1) and W-10B (280-171192-3). 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-226/RADIUM-228 (GFPC)

Job ID: 280-171192-2 (Continued)

Laboratory: Eurofins Denver (Continued)

Samples W-18 (280-171192-1), WK-10B (280-171192-2) and W-10B (280-171192-3) were analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on 02/08/2023.

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

Detection Summary

Client: HDR Inc
Job ID: 280-171192-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-18 — Lab Sample ID: 280-171192-1

No Detections.

Client Sample ID: WK-10B — Lab Sample ID: 280-171192-2

No Detections.

Client Sample ID: W-10B — Lab Sample ID: 280-171192-3

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Method Summary

Client: HDR Inc
Job ID: 280-171192-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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: 280-171192-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-171192-1	W-18	Water	01/09/23 12:05	01/10/23 15:43
280-171192-2	WK-10B	Water	01/09/23 13:00	01/10/23 15:43
280-171192-3	W-10B	Water	01/10/23 09:30	01/10/23 15:43

Method: SW846 9315 - Radium-226 (GFPC)

Client Sample ID: W-18
Date Collected: 01/09/23 12:05
Date Received: 01/10/23 15:43

Lab Sample ID: 280-171192-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.158**		0.0998	0.101	1.00	0.125	pCi/L	01/16/23 10:13	02/07/23 08:23	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*69.8*		*30 - 110*	*01/16/23 10:13*	*02/07/23 08:23*	*1*

Client Sample ID: WK-10B
Date Collected: 01/09/23 13:00
Date Received: 01/10/23 15:43

Lab Sample ID: 280-171192-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.00914	U	0.0472	0.0472	1.00	0.0929	pCi/L	01/16/23 10:13	02/07/23 08:23	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.6*		*30 - 110*	*01/16/23 10:13*	*02/07/23 08:23*	*1*

Client Sample ID: W-10B
Date Collected: 01/10/23 09:30
Date Received: 01/10/23 15:43

Lab Sample ID: 280-171192-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.725**		0.253	0.261	1.00	0.248	pCi/L	01/16/23 10:13	02/07/23 08:23	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*65.9*		*30 - 110*	*01/16/23 10:13*	*02/07/23 08:23*	*1*

Method: SW846 9320 - Radium-228 (GFPC)

Client Sample ID: W-18
Date Collected: 01/09/23 12:05
Date Received: 01/10/23 15:43

Lab Sample ID: 280-171192-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.828**		0.559	0.564	1.00	0.828	pCi/L	01/16/23 11:42	01/23/23 12:02	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*69.8*		*30 - 110*	*01/16/23 11:42*	*01/23/23 12:02*	*1*
Y Carrier	*87.1*		*30 - 110*	*01/16/23 11:42*	*01/23/23 12:02*	*1*

Client Sample ID: WK-10B
Date Collected: 01/09/23 13:00
Date Received: 01/10/23 15:43

Lab Sample ID: 280-171192-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.287	U	0.299	0.300	1.00	0.483	pCi/L	01/16/23 11:42	01/23/23 11:55	1

Method: SW846 9320 - Radium-228 (GFPC) (Continued)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	91.6		30 - 110	01/16/23 11:42	01/23/23 11:55	1
Y Carrier	85.6		30 - 110	01/16/23 11:42	01/23/23 11:55	1

Client Sample ID: W-10B
Date Collected: 01/10/23 09:30
Date Received: 01/10/23 15:43
Lab Sample ID: 280-171192-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**2.60**	**G**	1.10	1.12	1.00	1.41	pCi/L	01/16/23 11:42	01/23/23 11:55	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	65.9		30 - 110	01/16/23 11:42	01/23/23 11:55	1
Y Carrier	82.2		30 - 110	01/16/23 11:42	01/23/23 11:55	1

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

Client Sample ID: W-18
Date Collected: 01/09/23 12:05
Date Received: 01/10/23 15:43
Lab Sample ID: 280-171192-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.986**		0.568	0.573	5.00	0.828	pCi/L		02/08/23 19:22	1

Client Sample ID: WK-10B
Date Collected: 01/09/23 13:00
Date Received: 01/10/23 15:43
Lab Sample ID: 280-171192-2
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	0.303	0.304	5.00	0.483	pCi/L		02/08/23 19:22	1

Client Sample ID: W-10B
Date Collected: 01/10/23 09:30
Date Received: 01/10/23 15:43
Lab Sample ID: 280-171192-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**3.33**		1.13	1.15	5.00	1.41	pCi/L		02/08/23 19:22	1

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-597059/1-A
Matrix: Water
Analysis Batch: 599492

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 597059

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.008679	U	0.0579	0.0579	1.00	0.119	pCi/L	01/16/23 10:13	02/07/23 18:40	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.2*		*30 - 110*	*01/16/23 10:13*	*02/07/23 18:40*	*1*

Lab Sample ID: LCS 160-597059/2-A
Matrix: Water
Analysis Batch: 599492

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 597059

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-226			11.3	11.60		1.18	1.00	0.0908	pCi/L	102	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*92.7*		*30 - 110*

Lab Sample ID: LCSD 160-597059/3-A
Matrix: Water
Analysis Batch: 599492

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 597059

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-226			11.3	12.06		1.22	1.00	0.0970	pCi/L	106	75 - 125	0.19	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*91.6*		*30 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-597074/1-A
Matrix: Water
Analysis Batch: 597939

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 597074

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.3130	U	0.322	0.323	1.00	0.519	pCi/L	01/16/23 11:42	01/23/23 12:01	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.2*		*30 - 110*	*01/16/23 11:42*	*01/23/23 12:01*	*1*
Y Carrier	*84.5*		*30 - 110*	*01/16/23 11:42*	*01/23/23 12:01*	*1*

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

Lab Sample ID: LCS 160-597074/2-A
Matrix: Water
Analysis Batch: 597939

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 597074

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-228			8.25	10.40		1.36	1.00	0.476	pCi/L	126	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*92.7*		*30 - 110*
Y Carrier	*85.6*		*30 - 110*

Lab Sample ID: LCSD 160-597074/3-A
Matrix: Water
Analysis Batch: 597939

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 597074

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-228			8.25	9.387		1.28	1.00	0.496	pCi/L	114	75 - 125	0.38	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*91.6*		*30 - 110*
Y Carrier	*83.4*		*30 - 110*

QC Association Summary

Client: HDR Inc
Job ID: 280-171192-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Rad

Prep Batch: 597059

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171192-1	W-18	Total/NA	Water	PrecSep-21	
280-171192-2	WK-10B	Total/NA	Water	PrecSep-21	
280-171192-3	W-10B	Total/NA	Water	PrecSep-21	
MB 160-597059/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-597059/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-597059/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 597074

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171192-1	W-18	Total/NA	Water	PrecSep_0	
280-171192-2	WK-10B	Total/NA	Water	PrecSep_0	
280-171192-3	W-10B	Total/NA	Water	PrecSep_0	
MB 160-597074/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-597074/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-597074/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: HDR Inc
Job ID: 280-171192-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-18
Lab Sample ID: 280-171192-1
Date Collected: 01/09/23 12:05
Matrix: Water
Date Received: 01/10/23 15:43

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			743.09 mL	1.0 g	597059	01/16/23 10:13	DJP	EET SL
Total/NA	Analysis	9315		1			599522	02/07/23 08:23	SCB	EET SL
Total/NA	Prep	PrecSep_0			743.09 mL	1.0 g	597074	01/16/23 11:42	DJP	EET SL
Total/NA	Analysis	9320		1			597939	01/23/23 12:02	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			599766	02/08/23 19:22	EMH	EET SL

Client Sample ID: WK-10B
Lab Sample ID: 280-171192-2
Date Collected: 01/09/23 13:00
Matrix: Water
Date Received: 01/10/23 15:43

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			993.79 mL	1.0 g	597059	01/16/23 10:13	DJP	EET SL
Total/NA	Analysis	9315		1			599522	02/07/23 08:23	SCB	EET SL
Total/NA	Prep	PrecSep_0			993.79 mL	1.0 g	597074	01/16/23 11:42	DJP	EET SL
Total/NA	Analysis	9320		1			597756	01/23/23 11:55	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			599766	02/08/23 19:22	EMH	EET SL

Client Sample ID: W-10B
Lab Sample ID: 280-171192-3
Date Collected: 01/10/23 09:30
Matrix: Water
Date Received: 01/10/23 15:43

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			498.79 mL	1.0 g	597059	01/16/23 10:13	DJP	EET SL
Total/NA	Analysis	9315		1			599522	02/07/23 08:23	SCB	EET SL
Total/NA	Prep	PrecSep_0			498.79 mL	1.0 g	597074	01/16/23 11:42	DJP	EET SL
Total/NA	Analysis	9320		1			597756	01/23/23 11:55	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			599766	02/08/23 19:22	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
Job ID: 280-171192-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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	12-31-23
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
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

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Client Information	Sampler	Lab PM	Carrier Tracking No(s)	COC No
	F. Davis Ray	Ryan, Nicole C		280-123984-34657 2
Client Contact	**Phone**	**E-Mail**	**State of Origin**	**Page**
Ms Sierra Schupp	(720) 298-3594	Nicole Ryan@ET eurofinsus com	CO	Page 2 of 2
Company	**PWSID**			**Job #**
HDR Inc				

Address 1670 Broadway Suite 3400	**Due Date Requested:**	
City Denver	**TAT Requested (days):**	
State, Zip CO, 80202	**Compliance Project:** Δ Yes Δ No	
Phone 734-263-7138(Tel)	**PO #** DEN-021	
Email Sierra Schupp@hdrinc.com	**WO #**	
Project Name Xcel Energy GW CCR Monitoring - Comanche	**Project #** 28014376	
Site Colorado On-Site Wells	**SSOW#**	

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:
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)

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	App III and IV Metals: Ba, Ca, Sb, As, Be, Cd, Cr, Co, Pb, Li, Mo, Se, Tl	Total Mercury	Additional Metals: Mg, Na, K	9056 Anions: Chloride, Fluoride, Sulfate	2540C: TDs	2540D: TSS	9040 pH	2320 Alkalinity	RAD: Ra226, Ra228, Ra226+228	Dissolved Metals (Lab Filter)	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	D	D	D	N	N	N	N	N	D	N		
W-18	1/9/23	1205	G	W			X	X	X	X	X	X	X	X	X		6	
WK-10B	1/9/23	1300	G	W			X	X	X	X	X	X	X	X	X		6	
W-10B	1/10/23	0930	G	W			X	X	X	X	X	X	X	X	X	X	7	+250mL ump. for DM

280-171192 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		Date:		Time		Method of Shipment	
Relinquished by	F. Davis Ray	Date/Time 1/10/23 1543	Company HDR	Received by		Date/Time 01/10/2023 1543	Company ET/DEN
Relinquished by		Date/Time	Company	Received by		Date/Time	Company
Relinquished by		Date/Time	Company	Received by		Date/Time	Company

Custody Seals Intact Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 1.1/2.CF0.0

Ver: 01/16/2019

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone: 303-736-0100 Fax: 303-431-7171

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Ryan, Nicole C	Carrier Tracking No(s):	COC No: 280-642205.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Nicole.Ryan@ET.eurofinsus.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-171192-2
Address: 13715 Rider Trail North, ,	Due Date Requested: 2/8/2023			
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#:			

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, 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)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	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_GFPC/ Ra226/RA228 Calc (3/3) - SUB	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
W-18 (280-171192-1)	1/9/23	12:05 Mountain		Water			X	X	X	2	
WK-10B (280-171192-2)	1/9/23	13:00 Mountain		Water			X	X	X	2	
W-10B (280-171192-3)	1/10/23	09:30 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/tests/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:	Date/Time:	Company	Received by:	Date/Time	Company
	1/12/23 14:41	ETADEN	FEDEX		
Relinquished by: FEDEX	Date/Time:	Company	Received by: B Lopez	Date/Time: 1/13/23 900	Company ETASTL
Relinquished by:	Date/Time:	Company	Received by:	Date/Time	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-171192-2

Login Number: 171192
List Number: 1
Creator: Roehsner, Karen P

List Source: Eurofins Denver

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.	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 <6mm (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: 280-171192-2

Login Number: 171192
List Number: 2
Creator: Sharkey-Gonzalez, Briana L

List Source: Eurofins St. Louis
List Creation: 01/13/23 03:31 PM

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.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: HDR Inc
Job ID: 280-171192-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Method: 9315 - Radium-226 (GFPC)

Matrix: Water
Prep Type: Total/NA

		Percent Yield (Acceptance Limits)
		Ba
Lab Sample ID	Client Sample ID	(30-110)
280-171192-1	W-18	69.8
280-171192-2	WK-10B	91.6
280-171192-3	W-10B	65.9
LCS 160-597059/2-A	Lab Control Sample	92.7
LCSD 160-597059/3-A	Lab Control Sample Dup	91.6
MB 160-597059/1-A	Method Blank	87.2

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	(30-110)	(30-110)
280-171192-1	W-18	69.8	87.1
280-171192-2	WK-10B	91.6	85.6
280-171192-3	W-10B	65.9	82.2
LCS 160-597074/2-A	Lab Control Sample	92.7	85.6
LCSD 160-597074/3-A	Lab Control Sample Dup	91.6	83.4
MB 160-597074/1-A	Method Blank	87.2	84.5

Tracer/Carrier Legend

Ba = Ba Carrier
Y = Y Carrier

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ANALYTICAL REPORT

PREPARED FOR

Attn: Molly Reeves
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Generated 2/17/2023 2:50:08 PM

JOB DESCRIPTION

Xcel Energy GW CCR Monitoring - Comanche

JOB NUMBER

280-171574-2

Eurofins Denver
4955 Yarrow Street
Arvada CO 80002

See page two for job notes and contact information.

my EOL

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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2/17/2023 2:50:08 PM

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
Job ID: 280-171574-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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.
¤	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

Job ID: 280-171574-2

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-171574-2

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 1/20/2023 1:43 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 0.6º C.

Receipt Exceptions
The reference method requires samples to have a pH of 2. The following samples were received with a pH of 6. The samples were adjusted to the appropriate pH in the laboratory: 280-171574-1, 280-171574-2.

RADIUM-226 (GFPC)
Samples W-14 (280-171574-1) and WT-14 (280-171574-2) were analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 01/26/2023 and analyzed on 02/17/2023.

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

RADIUM-228
Samples W-14 (280-171574-1) and WT-14 (280-171574-2) were analyzed for Radium-228 in accordance with 9320. The samples were prepared on 01/26/2023 and analyzed on 01/31/2023.

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 (280-171574-1) and WT-14 (280-171574-2). Analytical results are reported with the detection limit achieved.

The LCS recovered at (145%). 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 160-598271/2-A

No 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 (280-171574-1) and WT-14 (280-171574-2) were analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on 02/17/2023.

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

Job ID: 280-171574-2 (Continued)

Laboratory: Eurofins Denver (Continued)

Detection Summary

Client: HDR Inc
Job ID: 280-171574-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-14
Lab Sample ID: 280-171574-1

No Detections.

Client Sample ID: WT-14
Lab Sample ID: 280-171574-2

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-171574-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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: 280-171574-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-171574-1	W-14	Water	01/19/23 13:45	01/20/23 13:43
280-171574-2	WT-14	Water	01/19/23 14:15	01/20/23 13:43

Method: SW846 9315 - Radium-226 (GFPC)

Client Sample ID: W-14
Date Collected: 01/19/23 13:45
Date Received: 01/20/23 13:43

Lab Sample ID: 280-171574-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**1.62**		0.301	0.334	1.00	0.194	pCi/L	01/26/23 09:03	02/17/23 09:48	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.6*		*30 - 110*	*01/26/23 09:03*	*02/17/23 09:48*	*1*

Client Sample ID: WT-14
Date Collected: 01/19/23 14:15
Date Received: 01/20/23 13:43

Lab Sample ID: 280-171574-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**1.67**		0.309	0.343	1.00	0.196	pCi/L	01/26/23 09:03	02/17/23 09:48	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.7*		*30 - 110*	*01/26/23 09:03*	*02/17/23 09:48*	*1*

Method: SW846 9320 - Radium-228 (GFPC)

Client Sample ID: W-14
Date Collected: 01/19/23 13:45
Date Received: 01/20/23 13:43

Lab Sample ID: 280-171574-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.876	U G	0.692	0.697	1.00	1.07	pCi/L	01/26/23 09:26	01/31/23 11:59	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.6*		*30 - 110*	*01/26/23 09:26*	*01/31/23 11:59*	*1*
Y Carrier	*82.2*		*30 - 110*	*01/26/23 09:26*	*01/31/23 11:59*	*1*

Client Sample ID: WT-14
Date Collected: 01/19/23 14:15
Date Received: 01/20/23 13:43

Lab Sample ID: 280-171574-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**1.21**	**G**	0.723	0.731	1.00	1.06	pCi/L	01/26/23 09:26	01/31/23 12:00	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.7*		*30 - 110*	*01/26/23 09:26*	*01/31/23 12:00*	*1*
Y Carrier	*86.4*		*30 - 110*	*01/26/23 09:26*	*01/31/23 12:00*	*1*

Client Sample Results

Client: HDR Inc
Job ID: 280-171574-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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

Client Sample ID: W-14
Date Collected: 01/19/23 13:45
Date Received: 01/20/23 13:43

Lab Sample ID: 280-171574-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.50		0.755	0.773	5.00	1.07	pCi/L		02/17/23 14:47	1

Client Sample ID: WT-14
Date Collected: 01/19/23 14:15
Date Received: 01/20/23 13:43

Lab Sample ID: 280-171574-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.88		0.786	0.807	5.00	1.06	pCi/L		02/17/23 14:47	1

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-598270/1-A
Matrix: Water
Analysis Batch: 600725

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 598270

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.03771	U	0.0468	0.0469	1.00	0.0769	pCi/L	01/26/23 09:03	02/17/23 09:50	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*96.9*		*30 - 110*	*01/26/23 09:03*	*02/17/23 09:50*	*1*

Lab Sample ID: LCS 160-598270/2-A
Matrix: Water
Analysis Batch: 600725

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 598270

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-226			11.3	11.08		1.13	1.00	0.115	pCi/L	98	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*95.7*		*30 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-598271/1-A
Matrix: Water
Analysis Batch: 598850

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 598271

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1534	U	0.259	0.259	1.00	0.270	pCi/L	01/26/23 09:26	01/31/23 11:54	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*96.9*		*30 - 110*	*01/26/23 09:26*	*01/31/23 11:54*	*1*
Y Carrier	*87.5*		*30 - 110*	*01/26/23 09:26*	*01/31/23 11:54*	*1*

Lab Sample ID: LCS 160-598271/2-A
Matrix: Water
Analysis Batch: 598850

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 598271

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-228			8.23	11.92		1.50	1.00	0.305	pCi/L	145	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*95.7*		*30 - 110*
Y Carrier	*85.2*		*30 - 110*

QC Association Summary

Client: HDR Inc
Job ID: 280-171574-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Rad

Prep Batch: 598270

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171574-1	W-14	Total/NA	Water	PrecSep-21	
280-171574-2	WT-14	Total/NA	Water	PrecSep-21	
MB 160-598270/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-598270/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 598271

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-171574-1	W-14	Total/NA	Water	PrecSep_0	
280-171574-2	WT-14	Total/NA	Water	PrecSep_0	
MB 160-598271/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-598271/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: HDR Inc
Job ID: 280-171574-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-14
Lab Sample ID: 280-171574-1
Date Collected: 01/19/23 13:45
Matrix: Water
Date Received: 01/20/23 13:43

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	598270	01/26/23 09:03	DJP	EET SL
Total/NA	Analysis	9315		1			600728	02/17/23 09:48	FLC	EET SL
Total/NA	Prep	PrecSep_0			503.63 mL	1.0 g	598271	01/26/23 09:26	DJP	EET SL
Total/NA	Analysis	9320		1			598846	01/31/23 11:59	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			600740	02/17/23 14:47	EMH	EET SL

Client Sample ID: WT-14
Lab Sample ID: 280-171574-2
Date Collected: 01/19/23 14:15
Matrix: Water
Date Received: 01/20/23 13:43

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			501.49 mL	1.0 g	598270	01/26/23 09:03	DJP	EET SL
Total/NA	Analysis	9315		1			600728	02/17/23 09:48	FLC	EET SL
Total/NA	Prep	PrecSep_0			501.49 mL	1.0 g	598271	01/26/23 09:26	DJP	EET SL
Total/NA	Analysis	9320		1			598846	01/31/23 12:00	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			600740	02/17/23 14:47	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
Job ID: 280-171574-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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	12-31-23
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 Carolina (DW)	State	29700	07-31-23
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
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

eurofins | Environment Testing America

Client Information	Sampler	Lab PM	Carrier Tracking No(s)	COC No
Client Contact: Ms Sierra Schupp	F. Davis Ray	Ryan, Nicole C		280-123984-34657 2
Company: HDR Inc	Phone: (720) 298-3594	E-Mail: Nicole Ryan@ET eurofinsus com	State of Origin: CO	Page: Page 2 of 2
Address: 1670 Broadway Suite 3400	PWSID			Job #
City: Denver	Due Date Requested:			
State, Zip: CO, 80202	TAT Requested (days):			
Phone: 734-263-7138(Tel)	Compliance Project: Δ Yes Δ No			
Email: Sierra Schupp@hdrinc.com	PO #: DEN-021			
Project Name: Xcel Energy GW CCR Monitonng - Comanche	WO #:			
Site: Colorado On-Site Wells	Project #: 28014376			
	SSOW#:			

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	App III and IV Metals: Bo, Ca, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Mo, Se, Tl	Total Mercury	Additional Metals: Mg, Na, K	9056 Anions: Chloride, Fluoride, Sulfate	2540C: TDs	2540D: TSS	9040 pH	2320 Alkalinity	RAD: Ra226, Ra228, Ra226+228	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D	D	N	N	N	N	N	D		
W-14	1/19/23	1345	G	W			X	X	X	X	X	X	X	X	X	6	
WT-14	1/19/23	1415	G	W			X	X	X	X	X	X	X	X	X	6	

280-171574 Chain of Custody

Preservation Codes:

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 Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Y - Trizma
Other:	Z - other (specify)

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	Date:	Time	Method of Shipment

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	Davis Ray	1/20/23 1343	HDR		1/20/23 1343	ET DEN
2					1/20/23 1343	
3						

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 0.6, IR12 (TO-17)

Ver: 01/16/2019

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone: 303-736-0100 Fax: 303-431-7171

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Ryan, Nicole C	Carrier Tracking No(s):	COC No: 280-642996.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Nicole.Ryan@ET.eurofinsus.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-171574-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 2/2/2023			
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#:			

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, 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)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	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_GFPC/ Ra226/RA228 Calc (3/3) - SUB	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
W-14 (280-171574-1)	1/19/23	13:45 Mountain		Water			X	X	X	2	
WT-14 (280-171574-2)	1/19/23	14:15 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/tests/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:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	1/23/23 15:18	ETADEN	FEDEX		
2	Relinquished by: FEDEX	Date/Time:	Company	Received by: Briana Sharkey - Gonzalez	Date/Time: 1/24/23 8:50am	Company ETASTL
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-171574-2

Login Number: 171574
List Number: 1
Creator: Held, Wesley

List Source: Eurofins Denver

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

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-171574-2

Login Number: 171574
List Number: 2
Creator: Sharkey-Gonzalez, Briana L

List Source: Eurofins St. Louis
List Creation: 01/24/23 11:53 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.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: HDR Inc
Job ID: 280-171574-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Method: 9315 - Radium-226 (GFPC)

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

		Percent Yield (Acceptance Limits)
		Ba
Lab Sample ID	Client Sample ID	(30-110)
280-171574-1	W-14	94.6
280-171574-2	WT-14	91.7
LCS 160-598270/2-A	Lab Control Sample	95.7
MB 160-598270/1-A	Method Blank	96.9

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	(30-110)	(30-110)
280-171574-1	W-14	94.6	82.2
280-171574-2	WT-14	91.7	86.4
LCS 160-598271/2-A	Lab Control Sample	95.7	85.2
MB 160-598271/1-A	Method Blank	96.9	87.5

Tracer/Carrier Legend

Ba = Ba Carrier

Y = Y Carrier

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ANALYTICAL REPORT

PREPARED FOR

Attn: Molly Reeves
HDR Inc
1670 Broadway
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Denver, Colorado 80202

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JOB DESCRIPTION

Xcel Energy GW CCR Monitoring - Comanche

JOB NUMBER

280-172629-1

Eurofins Denver
4955 Yarrow Street
Arvada CO 80002

See page two for job notes and contact information.

my EOL

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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Definitions/Glossary

Client: HDR Inc
Job ID: 280-172629-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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
E	Result exceeded calibration range.
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

Job ID: 280-172629-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-172629-1

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 2/17/2023 3:10 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 2.7º C, 3.3º C and 4.6º C.

TOTAL RECOVERABLE METALS
Sample W-16 (280-172629-1) was analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 02/21/2023 and analyzed on 02/23/2023.

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 (280-172629-1) was analyzed for Total Recoverable Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 02/21/2023 and analyzed on 02/22/2023.

Calcium and Magnesium were detected in method blank MB 280-602720/1-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 280-172589-5 in batch 280-603088. Magnesium and Sodium failed the recovery criteria high.

Calcium failed the recovery criteria low for the MSD of sample 280-172589-5 in batch 280-603088. Magnesium failed the recovery criteria high.

Sample W-16 (280-172629-1)[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

Job ID: 280-172629-1 (Continued)

Laboratory: Eurofins Denver (Continued)

Sample W-16 (280-172629-1) was analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 02/22/2023.

Alkalinity was detected in method blank MB 280-603089/6 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 (280-172629-1) was analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 02/22/2023.

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

TOTAL SUSPENDED SOLIDS

Sample W-16 (280-172629-1) was analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 02/21/2023.

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

CORROSIVITY (PH)

Sample W-16 (280-172629-1) was analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 02/23/2023.

pH adj. to 25 deg C exceeded the RPD limit for the duplicate of sample 280-172439-1. 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 (280-172629-1) was analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A (28 Days). The samples were analyzed on 03/01/2023 and 03/02/2023.

Chloride failed the recovery criteria low for the MS and MSD of sample 280-172855-1 in batch 280-603681.

Samples W-16 (280-172629-1)[20X] and W-16 (280-172629-1)[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
Job ID: 280-172629-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-16
Lab Sample ID: 280-172629-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.69		0.10	0.0015	mg/L	1		6010C	Total Recoverable
Calcium	480	B	10	1.6	mg/L	50		6020B	Total Recoverable
Cobalt	0.018		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Magnesium	2200	B	10	0.21	mg/L	50		6020B	Total Recoverable
Sodium	1900		50	3.7	mg/L	50		6020B	Total Recoverable
Potassium	30		1.0	0.052	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	23.1	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	240		60	20	mg/L	20		9056A	Total/NA
Sulfate	13000		1000	210	mg/L	200		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
Total Dissolved Solids (TDS)	12000		1000	470	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-172629-1
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
Job ID: 280-172629-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-172629-1	W-16	Water	02/15/23 12:20	02/17/23 15:10

Method: SW846 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: W-16
Date Collected: 02/15/23 12:20
Date Received: 02/17/23 15:10

Lab Sample ID: 280-172629-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.69		0.10	0.0015	mg/L		02/21/23 15:35	02/23/23 05:07	1

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

Client Sample ID: W-16
Date Collected: 02/15/23 12:20
Date Received: 02/17/23 15:10

Lab Sample ID: 280-172629-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	480	B	10	1.6	mg/L		02/21/23 15:35	02/22/23 17:54	50
Cobalt	0.018		0.0010	0.00033	mg/L		02/21/23 15:35	02/22/23 00:49	1
Magnesium	2200	B	10	0.21	mg/L		02/21/23 15:35	02/22/23 17:54	50
Sodium	1900		50	3.7	mg/L		02/21/23 15:35	02/22/23 17:54	50
Potassium	30		1.0	0.052	mg/L		02/21/23 15:35	02/22/23 00:49	1

General Chemistry

Client Sample ID: W-16
Date Collected: 02/15/23 12:20
Date Received: 02/17/23 15:10

Lab Sample ID: 280-172629-1
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			02/23/23 14:20	1
Temperature (SW846 9040B)	23.1	HF	1.0	1.0	Degrees C			02/23/23 14:20	1
Chloride (SW846 9056A)	240		60	20	mg/L			03/01/23 16:08	20
Sulfate (SW846 9056A)	13000		1000	210	mg/L			03/02/23 14:48	200
Alkalinity (SM 2320B)	990		10	3.1	mg/L			02/22/23 22:10	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	990		10	3.1	mg/L			02/22/23 22:10	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			02/22/23 22:10	1
Total Dissolved Solids (TDS) (SM 2540C)	12000		1000	470	mg/L			02/22/23 13:29	1
Total Suspended Solids (SM 2540D)	ND		4.0	1.1	mg/L			02/21/23 11:41	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-602727/1-A
Matrix: Water
Analysis Batch: 603128

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 602727

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.0015	mg/L		02/21/23 15:35	02/23/23 02:44	1

Lab Sample ID: LCS 280-602727/2-A
Matrix: Water
Analysis Batch: 603128

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 602727

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	1.98		mg/L		99	86 - 110

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-602720/1-A
Matrix: Water
Analysis Batch: 602933

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 602720

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	ND		0.0010	0.00033	mg/L		02/21/23 15:35	02/22/23 00:33	1
Potassium	ND		1.0	0.052	mg/L		02/21/23 15:35	02/22/23 00:33	1

Lab Sample ID: MB 280-602720/1-A
Matrix: Water
Analysis Batch: 603088

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 602720

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	0.0487	J	0.20	0.032	mg/L		02/21/23 15:35	02/22/23 17:36	1
Magnesium	0.00589	J	0.20	0.0042	mg/L		02/21/23 15:35	02/22/23 17:36	1
Sodium	ND		1.0	0.073	mg/L		02/21/23 15:35	02/22/23 17:36	1

Lab Sample ID: LCS 280-602720/2-A
Matrix: Water
Analysis Batch: 602933

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 602720

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cobalt	0.0400	0.0393		mg/L		98	85 - 120
Potassium	0.800	0.910	J	mg/L		114	80 - 120

Lab Sample ID: LCS 280-602720/2-A
Matrix: Water
Analysis Batch: 603088

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 602720

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	0.800	0.918		mg/L		115	80 - 120
Magnesium	0.800	0.755		mg/L		94	80 - 120
Sodium	0.800	0.837	J	mg/L		105	80 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-603212/7
Matrix: Water
Analysis Batch: 603212

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 280-603681/6
Matrix: Water
Analysis Batch: 603681

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			03/01/23 12:28	1

Lab Sample ID: LCS 280-603681/4
Matrix: Water
Analysis Batch: 603681

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	48.1		mg/L		96	90 - 110

Lab Sample ID: LCSD 280-603681/5
Matrix: Water
Analysis Batch: 603681

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	48.1		mg/L		96	90 - 110	0	10

Lab Sample ID: MRL 280-603681/3
Matrix: Water
Analysis Batch: 603681

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	2.34	J	mg/L		94	50 - 150

Lab Sample ID: MB 280-603825/6
Matrix: Water
Analysis Batch: 603825

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			03/02/23 13:26	1

Lab Sample ID: LCS 280-603825/4
Matrix: Water
Analysis Batch: 603825

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	54.2		mg/L		108	90 - 110

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

Lab Sample ID: LCSD 280-603825/5
Matrix: Water
Analysis Batch: 603825

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	54.2		mg/L		108	90 - 110	0	10

Lab Sample ID: MRL 280-603825/3
Matrix: Water
Analysis Batch: 603825

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	2.67	J	mg/L		107	50 - 150		

Lab Sample ID: 280-172629-1 MS
Matrix: Water
Analysis Batch: 603825

Client Sample ID: W-16
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Sulfate	13000		10000	24500	E	mg/L		114	80 - 120		

Lab Sample ID: 280-172629-1 MSD
Matrix: Water
Analysis Batch: 603825

Client Sample ID: W-16
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	13000		10000	23700	E	mg/L		106	80 - 120	3	20

Lab Sample ID: 280-172629-1 DU
Matrix: Water
Analysis Batch: 603825

Client Sample ID: W-16
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Sulfate	13000			13400		mg/L				2	15

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-603089/59
Matrix: Water
Analysis Batch: 603089

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			02/22/23 18:04	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			02/22/23 18:04	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			02/22/23 18:04	1

Lab Sample ID: MB 280-603089/6
Matrix: Water
Analysis Batch: 603089

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	3.88	J	10	3.1	mg/L			02/22/23 11:44	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			02/22/23 11:44	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			02/22/23 11:44	1

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: MB 280-603089/85
Matrix: Water
Analysis Batch: 603089

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			02/22/23 21:02	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			02/22/23 21:02	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			02/22/23 21:02	1

Lab Sample ID: LCS 280-603089/84
Matrix: Water
Analysis Batch: 603089

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	200	204		mg/L		102	89 - 109

Lab Sample ID: LCSD 280-603089/32
Matrix: Water
Analysis Batch: 603089

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	202		mg/L		101	89 - 109	0	10

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

Lab Sample ID: MB 280-603024/1
Matrix: Water
Analysis Batch: 603024

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			02/22/23 13:27	1

Lab Sample ID: LCS 280-603024/2
Matrix: Water
Analysis Batch: 603024

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	466		mg/L		93	88 - 114

Lab Sample ID: LCSD 280-603024/3
Matrix: Water
Analysis Batch: 603024

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	443		mg/L		88	88 - 114	5	20

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

Lab Sample ID: MB 280-602828/2
Matrix: Water
Analysis Batch: 602828

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			02/21/23 11:41	1

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

Lab Sample ID: LCS 280-602828/1
Matrix: Water
Analysis Batch: 602828

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	508	449		mg/L		88	79 - 114

QC Association Summary

Client: HDR Inc
Job ID: 280-172629-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Metals

Prep Batch: 602720

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172629-1	W-16	Total Recoverable	Water	3005A	
MB 280-602720/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-602720/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 602727

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172629-1	W-16	Total Recoverable	Water	3005A	
MB 280-602727/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-602727/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 602933

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172629-1	W-16	Total Recoverable	Water	6020B	602720
MB 280-602720/1-A	Method Blank	Total Recoverable	Water	6020B	602720
LCS 280-602720/2-A	Lab Control Sample	Total Recoverable	Water	6020B	602720

Analysis Batch: 603088

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172629-1	W-16	Total Recoverable	Water	6020B	602720
MB 280-602720/1-A	Method Blank	Total Recoverable	Water	6020B	602720
LCS 280-602720/2-A	Lab Control Sample	Total Recoverable	Water	6020B	602720

Analysis Batch: 603128

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172629-1	W-16	Total Recoverable	Water	6010C	602727
MB 280-602727/1-A	Method Blank	Total Recoverable	Water	6010C	602727
LCS 280-602727/2-A	Lab Control Sample	Total Recoverable	Water	6010C	602727

General Chemistry

Analysis Batch: 602828

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172629-1	W-16	Total/NA	Water	SM 2540D	
MB 280-602828/2	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-602828/1	Lab Control Sample	Total/NA	Water	SM 2540D	

Analysis Batch: 603024

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172629-1	W-16	Total/NA	Water	SM 2540C	
MB 280-603024/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-603024/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-603024/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 603089

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172629-1	W-16	Total/NA	Water	SM 2320B	
MB 280-603089/59	Method Blank	Total/NA	Water	SM 2320B	
MB 280-603089/6	Method Blank	Total/NA	Water	SM 2320B	
MB 280-603089/85	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-603089/84	Lab Control Sample	Total/NA	Water	SM 2320B	
LCSD 280-603089/32	Lab Control Sample Dup	Total/NA	Water	SM 2320B	

QC Association Summary

Client: HDR Inc
Job ID: 280-172629-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

General Chemistry

Analysis Batch: 603212

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172629-1	W-16	Total/NA	Water	9040B	
LCS 280-603212/7	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 603681

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172629-1	W-16	Total/NA	Water	9056A	
MB 280-603681/6	Method Blank	Total/NA	Water	9056A	
LCS 280-603681/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-603681/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-603681/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 603825

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172629-1	W-16	Total/NA	Water	9056A	
MB 280-603825/6	Method Blank	Total/NA	Water	9056A	
LCS 280-603825/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-603825/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-603825/3	Lab Control Sample	Total/NA	Water	9056A	
280-172629-1 MS	W-16	Total/NA	Water	9056A	
280-172629-1 MSD	W-16	Total/NA	Water	9056A	
280-172629-1 DU	W-16	Total/NA	Water	9056A	

Lab Chronicle

Client: HDR Inc
Job ID: 280-172629-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-16
Lab Sample ID: 280-172629-1
Date Collected: 02/15/23 12:20
Matrix: Water
Date Received: 02/17/23 15:10

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	602727	02/21/23 15:35	PFM	EET DEN
Total Recoverable	Analysis	6010C		1			603128	02/23/23 05:07	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	602720	02/21/23 15:35	PFM	EET DEN
Total Recoverable	Analysis	6020B		1			602933	02/22/23 00:49	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	602720	02/21/23 15:35	PFM	EET DEN
Total Recoverable	Analysis	6020B		50	1.0 mL	1.0 mL	603088	02/22/23 17:54	LMT	EET DEN
Total/NA	Analysis	9040B		1			603212	02/23/23 14:20	KEG	EET DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	603681	03/01/23 16:08	EJS	EET DEN
Total/NA	Analysis	9056A		200	5 mL	5 mL	603825	03/02/23 14:48	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			603089	02/22/23 22:10	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	603024	02/22/23 13:29	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	602828	02/21/23 11:41	MCR	EET DEN

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

Accreditation/Certification Summary

Client: HDR Inc
Job ID: 280-172629-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

eurofins | Environment Testing America

Client Information	Sampler: Francis Li	Lab PM: Ryan, Nicole C	Carrier Tracking No(s):	COC No: 280-123984-34657.2
Client Contact: Ms. Sierra Schupp	Phone: 720-261-5222	E-Mail: Nicole.Ryan@ET.eurofinsus.com	State of Origin:	Page: Page 2 of 2
Company: HDR Inc	PWSID:			Job #:

Address: 1670 Broadway Suite 3400	Due Date Requested:
City: Denver	TAT Requested (days):
State, Zip: CO, 80202	Compliance Project: Δ Yes Δ No
Phone: 734-263-7138(Tel)	PO #: DEN-021
Email: Sierra.Schupp@hdrinc.com	WO #:
Project Name: Xcel Energy GW CCR Monitoring - Comanche	Project #: 28014376
Site: Colorado Off-Site	SSOW#:

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:

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)

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Metals: Co, Mg, Ca, Na, K, Bo	2540D: TSS	9056 Anions: Chloride, Sulfate	9040 pH	2540C TDS	2320 Alkalinity: Bicarb, Carb	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	N	N	N	N		
W-16	02/15/23	1220	G	W	N	N	X	X	X	X	X	X	3	

280-172629 Chain of Custody

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:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
FLi	2/17/23 1510	HDR	RLN	2/17/23 1510	ETADEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 2.7, 4.6, 5.3 IR12CF0

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-172629-1

Login Number: 172629
List Number: 1
Creator: Held, Wesley

List Source: Eurofins Denver

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

eurofins | Environment Testing

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

280-172593-1

Eurofins Denver
4955 Yarrow Street
Arvada CO 80002

See page two for job notes and contact information.

my EOL

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
Nicole.Ryan@ET.eurofinsus.com
(303)736-0100

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Definitions/Glossary

Client: HDR Inc
Job ID: 280-172593-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Qualifiers

Metals

Qualifier	Qualifier Description
^3+	Reporting Limit Check Standard 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
^-	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.
E	Result exceeded calibration range.
F1	MS and/or MSD recovery exceeds control limits.
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

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 280-172593-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-172593-1

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 2/17/2023 3:10 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 2.7º C, 3.3º C and 4.6º C.

DISSOLVED METALS
Samples W-2C (280-172593-1), W-7 (280-172593-2), W-5B (280-172593-3), W-6BI (280-172593-4), WT-6BI (280-172593-5), W-11 (280-172593-6), W-12 (280-172593-7) and W-3B (280-172593-8) were analyzed for Dissolved Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 02/22/2023 and analyzed on 02/25/2023 and 02/28/2023.

Lithium failed the recovery criteria low for the MS of sample W-2CMS (280-172593-1) in batch 280-603359.

Lithium failed the recovery criteria high for the MSD of sample W-2CMSD (280-172593-1) in batch 280-603359.

Samples W-2C (280-172593-1)[5X], W-7 (280-172593-2)[5X], W-6BI (280-172593-4)[5X], WT-6BI (280-172593-5)[5X] and W-3B (280-172593-8)[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.

TOTAL RECOVERABLE METALS
Samples W-2C (280-172593-1), W-7 (280-172593-2), W-5B (280-172593-3), W-6BI (280-172593-4), WT-6BI (280-172593-5), W-11 (280-172593-6), W-12 (280-172593-7) and W-3B (280-172593-8) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared and analyzed on 02/21/2023.

Boron was detected in method blank MB 280-602696/1-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.

Samples W-7 (280-172593-2)[10X], W-6BI (280-172593-4)[5X], WT-6BI (280-172593-5)[5X] and W-3B (280-172593-8)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Job ID: 280-172593-1 (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 METALS (ICP/MS)

Samples W-2C (280-172593-1), W-7 (280-172593-2), W-5B (280-172593-3), W-6BI (280-172593-4), WT-6BI (280-172593-5), W-11 (280-172593-6), W-12 (280-172593-7) and W-3B (280-172593-8) were analyzed for Dissolved Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 02/22/2023 and 02/28/2023 and analyzed on 02/23/2023, 02/24/2023, 03/01/2023 and 03/02/2023.

The interference check standard solution (ICSA) associated with batch 280-603251 had results for one or more elements at a level greater than 1/2 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 instrument blank (CCB) for analytical batch 280-603251 contained Mg, Na greater than one-half the reporting limit (RL), and were not re-analyzed because associated sample results were greater than 10X the value found in the blank. The data have been qualified and reported.

Chromium was detected in method blank MB 280-602881/1-F 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.

Calcium failed the recovery criteria low for the MS of sample W-5BMS (280-172593-3) in batch 280-603851.

Calcium failed the recovery criteria low for the MSD of sample W-5BMSD (280-172593-3) in batch 280-603851. Calcium exceeded the RPD limit.

Cadmium failed the recovery criteria low for the MS of sample W-3BMS (280-172593-8) in batch 280-603251. Calcium failed the recovery criteria high.

Cadmium failed the recovery criteria low for the MSD of sample W-3BMSD (280-172593-8) in batch 280-603251. Calcium failed the recovery criteria high.

Sample W-5B (280-172593-3)[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-2C (280-172593-1), W-7 (280-172593-2), W-5B (280-172593-3), W-6BI (280-172593-4), WT-6BI (280-172593-5), W-11 (280-172593-6), W-12 (280-172593-7) and W-3B (280-172593-8) were analyzed for Total Recoverable Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 02/21/2023 and 02/23/2023 and analyzed on 02/21/2023, 02/22/2023, 02/23/2023 and 03/03/2023.

The interference check standard solution (ICSA) associated with batch 280-603251 had results for one or more elements at a level greater than 1/2 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 instrument blank for analytical batch 280-602932 contained 317 ug/L Mg greater than the reporting limit (RL) of 200 ug/L, and were not reanalyzed because sample (MS/MSD) was within control limit.The data have been qualified and reported.

The instrument blank for analytical batch 280-602932 contained 656 ug/L Na greater than one-half the reporting limit (RL) of 1,000 ug/L, and were not re-analyzed because sample (MS/MSD) was within control limit. The data have been qualified and reported.

The instrument blank (CCB) for analytical batch 280-603251 contained Mg, Na greater than one-half the reporting limit (RL), and were not re-analyzed because associated sample results were greater than 10X the value found in the blank. The data have been qualified and reported.

Job ID: 280-172593-1 (Continued)

Laboratory: Eurofins Denver (Continued)

Potassium was detected in method blank MB 280-602618/1-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. Sodium was detected in method blank MB 280-602618/1-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. Barium and Sodium were detected in method blank MB 280-602720/1-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 high for the MS of sample 280-172589-5 in batch 280-603020.

Calcium and Magnesium failed the recovery criteria low for the MSD of sample 280-172589-5 in batch 280-603020. Sodium failed the recovery criteria high.

Calcium and Magnesium failed the recovery criteria low for the MS of sample 280-172656-7 in batch 280-603251.

Calcium, Magnesium and Sodium failed the recovery criteria low for the MSD of sample 280-172656-7 in batch 280-603251.

Samples W-2C (280-172593-1)[50X], W-7 (280-172593-2)[50X], W-5B (280-172593-3)[50X], W-6BI (280-172593-4)[50X], W-6BI (280-172593-4)[500X], WT-6BI (280-172593-5)[50X], WT-6BI (280-172593-5)[500X], W-11 (280-172593-6)[50X], W-12 (280-172593-7)[50X], W-3B (280-172593-8)[50X] and W-3B (280-172593-8)[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-2C (280-172593-1), W-7 (280-172593-2), W-5B (280-172593-3), W-6BI (280-172593-4), WT-6BI (280-172593-5), W-11 (280-172593-6), W-12 (280-172593-7) and W-3B (280-172593-8) were analyzed for dissolved mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 02/24/2023.

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

TOTAL MERCURY

Samples W-2C (280-172593-1), W-7 (280-172593-2), W-5B (280-172593-3), W-6BI (280-172593-4), WT-6BI (280-172593-5), W-11 (280-172593-6), W-12 (280-172593-7) and W-3B (280-172593-8) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 02/22/2023.

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

ALKALINITY

Samples W-2C (280-172593-1), W-7 (280-172593-2), W-5B (280-172593-3), W-6BI (280-172593-4), WT-6BI (280-172593-5), W-11 (280-172593-6), W-12 (280-172593-7) and W-3B (280-172593-8) were analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 02/21/2023.

Alkalinity was detected in method blank MB 280-602927/31 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 280-602927/31 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 280-602927/5 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 (280-172593-1), W-7 (280-172593-2), W-5B (280-172593-3), W-6BI (280-172593-4), WT-6BI (280-172593-5), W-11

Job ID: 280-172593-1 (Continued)

Laboratory: Eurofins Denver (Continued)

(280-172593-6), W-12 (280-172593-7) and W-3B (280-172593-8) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 02/20/2023 and 02/22/2023.

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

TOTAL SUSPENDED SOLIDS

Samples W-2C (280-172593-1), W-7 (280-172593-2), W-5B (280-172593-3), W-6BI (280-172593-4), WT-6BI (280-172593-5), W-11 (280-172593-6), W-12 (280-172593-7) and W-3B (280-172593-8) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 02/20/2023, 02/21/2023 and 02/23/2023.

Total Suspended Solids exceeded the RPD limit for the duplicate of sample W-12DU (280-172593-7). 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 W-2C (280-172593-1), W-7 (280-172593-2), W-5B (280-172593-3), W-6BI (280-172593-4), WT-6BI (280-172593-5), W-11 (280-172593-6), W-12 (280-172593-7) and W-3B (280-172593-8) were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 02/21/2023.

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

ANIONS (28 DAYS)

Samples W-2C (280-172593-1), W-7 (280-172593-2), W-5B (280-172593-3), W-6BI (280-172593-4), WT-6BI (280-172593-5), W-11 (280-172593-6), W-12 (280-172593-7) and W-3B (280-172593-8) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A (28 Days). The samples were analyzed on 03/01/2023, 03/02/2023 and 03/08/2023.

The following samples have an extremely high concentration of sulfate: W-2C (280-172593-1), W-7 (280-172593-2), W-5B (280-172593-3), W-6BI (280-172593-4), WT-6BI (280-172593-5), W-11 (280-172593-6), W-12 (280-172593-7) and W-3B (280-172593-8). The concentration is high enough to consume the fluoride peak at low dilutions and in contrast fluoride has a non-detect result at slightly higher dilutions. The result of non-detect at a 1x dilution is being qualified and reported.

The following samples are contained in an analytical batch that experienced a high quality control failure on the closing continuing calibration verification (CCV 280-604271/100) for fluoride: W-2C (280-172593-1), W-7 (280-172593-2), W-6BI (280-172593-4), (CCB 280-604271/101), (CCV 280-604271/100), (LCS 280-604271/91), (LCSD 280-604271/92), (MB 280-604271/93), (280-172593-D-2 DU), (280-172593-D-2 MS) and (280-172593-D-2 MSD). The acceptance criteria for the CCV is 90-110% recovery and the quality control CCV sample had a result of 112% recovery for fluoride. The samples associated with that CCV produced results of non-detect. Due to the CCV failing high we can confidently quantify and report these results as non-detect. All other associated quality control samples passed within the acceptance criteria.

The following samples are contained in an analytical batch that experienced a high quality control failure on the closing continuing calibration verification (CCV 280-604271/100) for fluoride: W-2C (280-172593-1), W-7 (280-172593-2), W-6BI (280-172593-4), (CCV 280-604271/1), (CCV 280-604271/100), (CCV 280-604271/89), (LCS 280-604271/4), (LCS 280-604271/91), (LCSD 280-604271/5), (LCSD 280-604271/92), (MB 280-604271/93) and (MRL 280-604271/3). The acceptance criteria for a CCV is 90-110% recovery and the CCV that failed quality control had a result of 112% recovery for fluoride. If the difference (2%) between the high quality control failure on the CCV (112%) and the highest limit of the acceptance criteria (110%) is subtracted from any other associated quality control sample, the QC samples would still fall into the range of acceptance.

The following samples are contained in an analytical batch that experienced quality control failures for fluoride: W-5B (280-172593-3), WT-6BI (280-172593-5), W-11 (280-172593-6) and W-12 (280-172593-7). The data from this batch is being used to confirm that these samples still produce a non-detect result at a higher dilution in which sulfate does not augment the fluoride peak so the results are being qualified and reported.

Sulfate was detected in method blank MB 280-603886/6 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.

Job ID: 280-172593-1 (Continued)

Laboratory: Eurofins Denver (Continued)

Fluoride failed the recovery criteria low for the MS of sample W-7MS (280-172593-2) in batch 280-604271.

Fluoride failed the recovery criteria low for the MSD of sample W-7MSD (280-172593-2) in batch 280-604271.

Fluoride and Sulfate failed the recovery criteria low for the MS of sample W-5BMS (280-172593-3) in batch 280-603886.

Fluoride and Sulfate failed the recovery criteria low for the MSD of sample W-5BMSD (280-172593-3) in batch 280-603886.

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 280-603681 were outside control limits for fluoride, see QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Samples W-2C (280-172593-1)[10X], W-2C (280-172593-1)[1000X], W-2C (280-172593-1)[50X], W-7 (280-172593-2)[10X], W-7 (280-172593-2)[1000X], W-7 (280-172593-2)[50X], W-5B (280-172593-3)[10X], W-5B (280-172593-3)[100X], W-5B (280-172593-3)[5X], W-6BI (280-172593-4)[10X], W-6BI (280-172593-4)[100X], W-6BI (280-172593-4)[500X], WT-6BI (280-172593-5)[10X], WT-6BI (280-172593-5)[1000X], WT-6BI (280-172593-5)[20X], W-11 (280-172593-6)[10X], W-11 (280-172593-6)[20X], W-11 (280-172593-6)[200X], W-12 (280-172593-7)[10X], W-12 (280-172593-7)[200X], W-12 (280-172593-7)[50X], W-3B (280-172593-8)[10X], W-3B (280-172593-8)[1000X] and W-3B (280-172593-8)[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.

Detection Summary

Client: HDR Inc
Job ID: 280-172593-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-2C
Lab Sample ID: 280-172593-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.7	B	0.10	0.0015	mg/L	1		6010C	Total Recoverable
Lithium	3.4		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Boron	1.9		0.50	0.0073	mg/L	5		6010C	Dissolved
Lithium	3.4	F1	0.020	0.0091	mg/L	1		6010C	Dissolved
Magnesium	6500		10	0.21	mg/L	50		6020B	Total Recoverable
Arsenic	0.00058	J	0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Sodium	4800	B	50	3.7	mg/L	50		6020B	Total Recoverable
Barium	0.018		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Potassium	49	B	1.0	0.052	mg/L	1		6020B	Total Recoverable
Cadmium	0.0058		0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Chromium	0.0018	J	0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.0042		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Lead	0.00040	J	0.0010	0.00023	mg/L	1		6020B	Total Recoverable
Molybdenum	0.0035		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Selenium	2.6		0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Thallium	0.0041		0.0010	0.00021	mg/L	1		6020B	Total Recoverable
Calcium	450		10	1.6	mg/L	50		6020B	Total Recoverable
Arsenic	0.00068	J	0.0050	0.00050	mg/L	1		6020B	Dissolved
Barium	0.014		0.0030	0.00038	mg/L	1		6020B	Dissolved
Cadmium	0.0048		0.0010	0.00019	mg/L	1		6020B	Dissolved
Chromium	0.00056	J B	0.0030	0.00050	mg/L	1		6020B	Dissolved
Cobalt	0.0034		0.0010	0.00033	mg/L	1		6020B	Dissolved
Lead	0.00036	J	0.0010	0.00023	mg/L	1		6020B	Dissolved
Calcium	400		10	1.6	mg/L	50		6020B	Dissolved
Molybdenum	0.0029		0.0020	0.00037	mg/L	1		6020B	Dissolved
Selenium	2.1		0.0050	0.0010	mg/L	1		6020B	Dissolved
Thallium	0.0034		0.0010	0.00021	mg/L	1		6020B	Dissolved
pH adj. to 25 deg C	6.9	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	23.2	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	860		150	51	mg/L	50		9056A	Total/NA
Sulfate	37000		5000	1000	mg/L	1000		9056A	Total/NA
Alkalinity	580	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	580	B	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	3.6	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: HDR Inc
Job ID: 280-172593-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-7
Lab Sample ID: 280-172593-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.0	B	1.0	0.015	mg/L	10		6010C	Total Recoverable
Lithium	4.5		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Boron	1.1		0.50	0.0073	mg/L	5		6010C	Dissolved
Lithium	5.1		0.020	0.0091	mg/L	1		6010C	Dissolved
Antimony	0.00047	J	0.0020	0.00040	mg/L	1		6020B	Total Recoverable
Magnesium	7600		10	0.21	mg/L	50		6020B	Total Recoverable
Arsenic	0.0016	J	0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Sodium	8000		50	3.7	mg/L	50		6020B	Total Recoverable
Barium	0.015		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Potassium	62		1.0	0.052	mg/L	1		6020B	Total Recoverable
Cadmium	0.0057		0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Chromium	0.0021	J	0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.021		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Lead	0.0011		0.0010	0.00023	mg/L	1		6020B	Total Recoverable
Molybdenum	0.0053		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Selenium	1.7		0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Thallium	0.0060		0.0010	0.00021	mg/L	1		6020B	Total Recoverable
Calcium	490		10	1.6	mg/L	50		6020B	Total Recoverable
Arsenic	0.0010	J	0.0050	0.00050	mg/L	1		6020B	Dissolved
Barium	0.013		0.0030	0.00038	mg/L	1		6020B	Dissolved
Cadmium	0.0060		0.0010	0.00019	mg/L	1		6020B	Dissolved
Chromium	0.0013	J B	0.0030	0.00050	mg/L	1		6020B	Dissolved
Cobalt	0.020		0.0010	0.00033	mg/L	1		6020B	Dissolved
Lead	0.00091	J	0.0010	0.00023	mg/L	1		6020B	Dissolved
Calcium	460		10	1.6	mg/L	50		6020B	Dissolved
Molybdenum	0.0046		0.0020	0.00037	mg/L	1		6020B	Dissolved
Selenium	1.7		0.0050	0.0010	mg/L	1		6020B	Dissolved
Thallium	0.0059		0.0010	0.00021	mg/L	1		6020B	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	740		150	51	mg/L	50		9056A	Total/NA
Sulfate	51000		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	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	48000		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

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: HDR Inc
Job ID: 280-172593-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-5B
Lab Sample ID: 280-172593-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.3	B	0.10	0.0015	mg/L	1		6010C	Total Recoverable
Lithium	0.29		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Boron	1.3		0.10	0.0015	mg/L	1		6010C	Dissolved
Lithium	0.29		0.020	0.0091	mg/L	1		6010C	Dissolved
Magnesium	260		10	0.21	mg/L	50		6020B	Total Recoverable
Arsenic	0.00059	J	0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Sodium	690	B	50	3.7	mg/L	50		6020B	Total Recoverable
Barium	0.018		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Potassium	16	B	1.0	0.052	mg/L	1		6020B	Total Recoverable
Cadmium	0.00082	J	0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Chromium	0.00077	J	0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.0026		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Lead	0.00024	J	0.0010	0.00023	mg/L	1		6020B	Total Recoverable
Molybdenum	0.0021		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Selenium	0.0011	J	0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Thallium	0.00074	J	0.0010	0.00021	mg/L	1		6020B	Total Recoverable
Calcium	470		10	1.6	mg/L	50		6020B	Total Recoverable
Barium	0.015		0.0030	0.00038	mg/L	1		6020B	Dissolved
Cadmium	0.00048	J	0.0010	0.00019	mg/L	1		6020B	Dissolved
Chromium	0.00071	J B	0.0030	0.00050	mg/L	1		6020B	Dissolved
Cobalt	0.0021		0.0010	0.00033	mg/L	1		6020B	Dissolved
Calcium	500	F2 B	10	1.6	mg/L	50		6020B	Dissolved
Molybdenum	0.0019	J	0.0020	0.00037	mg/L	1		6020B	Dissolved
Thallium	0.00072	J	0.0010	0.00021	mg/L	1		6020B	Dissolved
pH adj. to 25 deg C	7.4	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	120		15	5.1	mg/L	5		9056A	Total/NA
Sulfate	3700		500	100	mg/L	100		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)	5000		40	19	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-6BI
Lab Sample ID: 280-172593-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.1	B	0.50	0.0073	mg/L	5		6010C	Total Recoverable
Lithium	3.2		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Boron	1.2		0.50	0.0073	mg/L	5		6010C	Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Client Sample ID: W-6BI (Continued)
Lab Sample ID: 280-172593-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lithium	3.6		0.020	0.0091	mg/L	1		6010C	Dissolved
Antimony	0.00066	J	0.0020	0.00040	mg/L	1		6020B	Total Recoverable
Magnesium	5700		10	0.21	mg/L	50		6020B	Total Recoverable
Arsenic	0.0015	J	0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Sodium	6900	^3+	500	37	mg/L	500		6020B	Total Recoverable
Barium	0.020	B	0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Potassium	48		1.0	0.052	mg/L	1		6020B	Total Recoverable
Cadmium	0.010		0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Chromium	0.0019	J	0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.11		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Lead	0.00063	J	0.0010	0.00023	mg/L	1		6020B	Total Recoverable
Molybdenum	0.0036		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Selenium	0.0028	J	0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Thallium	0.0021		0.0010	0.00021	mg/L	1		6020B	Total Recoverable
Calcium	530		10	1.6	mg/L	50		6020B	Total Recoverable
Antimony	0.00049	J	0.0020	0.00040	mg/L	1		6020B	Dissolved
Arsenic	0.00070	J	0.0050	0.00050	mg/L	1		6020B	Dissolved
Barium	0.018		0.0030	0.00038	mg/L	1		6020B	Dissolved
Cadmium	0.0099		0.0010	0.00019	mg/L	1		6020B	Dissolved
Cobalt	0.11		0.0010	0.00033	mg/L	1		6020B	Dissolved
Calcium	460		10	1.6	mg/L	50		6020B	Dissolved
Molybdenum	0.0034		0.0020	0.00037	mg/L	1		6020B	Dissolved
Selenium	0.0029	J	0.0050	0.0010	mg/L	1		6020B	Dissolved
Thallium	0.0022		0.0010	0.00021	mg/L	1		6020B	Dissolved
pH adj. to 25 deg C	6.9	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	1300		300	100	mg/L	100		9056A	Total/NA
Sulfate	48000		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)	50000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	16		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: WT-6BI
Lab Sample ID: 280-172593-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.1	B	0.50	0.0073	mg/L	5		6010C	Total Recoverable
Lithium	3.1		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Boron	1.1		0.50	0.0073	mg/L	5		6010C	Dissolved

This Detection Summary does not include radiochemical test results.

Client Sample ID: WT-6BI (Continued)
Lab Sample ID: 280-172593-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lithium	3.7		0.020	0.0091	mg/L	1		6010C	Dissolved
Antimony	0.00056	J	0.0020	0.00040	mg/L	1		6020B	Total Recoverable
Magnesium	5600		10	0.21	mg/L	50		6020B	Total Recoverable
Arsenic	0.0017	J	0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Sodium	6000	^3+	500	37	mg/L	500		6020B	Total Recoverable
Barium	0.020	B	0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Potassium	49		1.0	0.052	mg/L	1		6020B	Total Recoverable
Cadmium	0.011		0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Chromium	0.0018	J	0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.12		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Lead	0.00093	J	0.0010	0.00023	mg/L	1		6020B	Total Recoverable
Molybdenum	0.0036		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Selenium	0.0032	J	0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Thallium	0.0025		0.0010	0.00021	mg/L	1		6020B	Total Recoverable
Calcium	520		10	1.6	mg/L	50		6020B	Total Recoverable
Antimony	0.00059	J	0.0020	0.00040	mg/L	1		6020B	Dissolved
Arsenic	0.00061	J	0.0050	0.00050	mg/L	1		6020B	Dissolved
Barium	0.019		0.0030	0.00038	mg/L	1		6020B	Dissolved
Cadmium	0.011		0.0010	0.00019	mg/L	1		6020B	Dissolved
Cobalt	0.12		0.0010	0.00033	mg/L	1		6020B	Dissolved
Calcium	480		10	1.6	mg/L	50		6020B	Dissolved
Molybdenum	0.0032		0.0020	0.00037	mg/L	1		6020B	Dissolved
Selenium	0.0027	J	0.0050	0.0010	mg/L	1		6020B	Dissolved
Thallium	0.0025		0.0010	0.00021	mg/L	1		6020B	Dissolved
pH adj. to 25 deg C	6.9	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	1200		60	20	mg/L	20		9056A	Total/NA
Sulfate	56000		5000	1000	mg/L	1000		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)	43000		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-11
Lab Sample ID: 280-172593-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.66	B	0.10	0.0015	mg/L	1		6010C	Total Recoverable
Lithium	3.5		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Boron	0.66		0.10	0.0015	mg/L	1		6010C	Dissolved

This Detection Summary does not include radiochemical test results.

Client Sample ID: W-11 (Continued)
Lab Sample ID: 280-172593-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lithium	3.7		0.020	0.0091	mg/L	1		6010C	Dissolved
Magnesium	1700		10	0.21	mg/L	50		6020B	Total Recoverable
Arsenic	0.00068	J	0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Sodium	4000	B	50	3.7	mg/L	50		6020B	Total Recoverable
Barium	0.016	B	0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Potassium	45		1.0	0.052	mg/L	1		6020B	Total Recoverable
Cadmium	0.0015		0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Chromium	0.0028	J	0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.020		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Lead	0.0010		0.0010	0.00023	mg/L	1		6020B	Total Recoverable
Molybdenum	0.0041		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Selenium	2.8		0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Thallium	0.0043		0.0010	0.00021	mg/L	1		6020B	Total Recoverable
Calcium	490		10	1.6	mg/L	50		6020B	Total Recoverable
Arsenic	0.00051	J	0.0050	0.00050	mg/L	1		6020B	Dissolved
Barium	0.013		0.0030	0.00038	mg/L	1		6020B	Dissolved
Cadmium	0.0012		0.0010	0.00019	mg/L	1		6020B	Dissolved
Chromium	0.00091	J B	0.0030	0.00050	mg/L	1		6020B	Dissolved
Cobalt	0.018		0.0010	0.00033	mg/L	1		6020B	Dissolved
Lead	0.00039	J	0.0010	0.00023	mg/L	1		6020B	Dissolved
Calcium	440		10	1.6	mg/L	50		6020B	Dissolved
Molybdenum	0.0038		0.0020	0.00037	mg/L	1		6020B	Dissolved
Selenium	2.7		0.0050	0.0010	mg/L	1		6020B	Dissolved
Thallium	0.0041		0.0010	0.00021	mg/L	1		6020B	Dissolved
pH adj. to 25 deg C	7.2	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	360		60	20	mg/L	20		9056A	Total/NA
Fluoride	2.4		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	13000		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)	15000		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-12
Lab Sample ID: 280-172593-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.73	B	0.10	0.0015	mg/L	1		6010C	Total Recoverable
Lithium	2.3		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Boron	0.74		0.10	0.0015	mg/L	1		6010C	Dissolved

This Detection Summary does not include radiochemical test results.

Client Sample ID: W-12 (Continued)
Lab Sample ID: 280-172593-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lithium	2.6		0.020	0.0091	mg/L	1		6010C	Dissolved
Antimony	0.00073	J	0.0020	0.00040	mg/L	1		6020B	Total Recoverable
Magnesium	1200		10	0.21	mg/L	50		6020B	Total Recoverable
Arsenic	0.0016	J	0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Sodium	6100	B	50	3.7	mg/L	50		6020B	Total Recoverable
Barium	0.034	B	0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Potassium	40		1.0	0.052	mg/L	1		6020B	Total Recoverable
Cadmium	0.0013		0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Chromium	0.0042		0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.030		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Lead	0.0044		0.0010	0.00023	mg/L	1		6020B	Total Recoverable
Molybdenum	0.0044		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Selenium	0.018		0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Thallium	0.0044		0.0010	0.00021	mg/L	1		6020B	Total Recoverable
Calcium	460		10	1.6	mg/L	50		6020B	Total Recoverable
Antimony	0.00078	J	0.0020	0.00040	mg/L	1		6020B	Dissolved
Arsenic	0.00071	J	0.0050	0.00050	mg/L	1		6020B	Dissolved
Barium	0.015		0.0030	0.00038	mg/L	1		6020B	Dissolved
Cadmium	0.0012		0.0010	0.00019	mg/L	1		6020B	Dissolved
Cobalt	0.028		0.0010	0.00033	mg/L	1		6020B	Dissolved
Lead	0.0012		0.0010	0.00023	mg/L	1		6020B	Dissolved
Calcium	440		10	1.6	mg/L	50		6020B	Dissolved
Molybdenum	0.0047		0.0020	0.00037	mg/L	1		6020B	Dissolved
Selenium	0.018		0.0050	0.0010	mg/L	1		6020B	Dissolved
Thallium	0.0040		0.0010	0.00021	mg/L	1		6020B	Dissolved
pH adj. to 25 deg C	7.2	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	940		150	51	mg/L	50		9056A	Total/NA
Sulfate	17000		1000	210	mg/L	200		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)	18000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	440		10	2.8	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-3B
Lab Sample ID: 280-172593-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.1	B	0.50	0.0073	mg/L	5		6010C	Total Recoverable
Lithium	2.9		0.020	0.0091	mg/L	1		6010C	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: W-3B (Continued)
Lab Sample ID: 280-172593-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.1		0.50	0.0073	mg/L	5		6010C	Dissolved
Lithium	3.2		0.020	0.0091	mg/L	1		6010C	Dissolved
Magnesium	5800		10	0.21	mg/L	50		6020B	Total Recoverable
Arsenic	0.00079	J	0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Sodium	7100	^3+	500	37	mg/L	500		6020B	Total Recoverable
Barium	0.016	B	0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Potassium	40		1.0	0.052	mg/L	1		6020B	Total Recoverable
Cadmium	0.018		0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Chromium	0.0016	J	0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.12		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Lead	0.0016		0.0010	0.00023	mg/L	1		6020B	Total Recoverable
Molybdenum	0.0017	J	0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Selenium	0.0048	J	0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Thallium	0.0036		0.0010	0.00021	mg/L	1		6020B	Total Recoverable
Calcium	560		10	1.6	mg/L	50		6020B	Total Recoverable
Arsenic	0.00060	J	0.0050	0.00050	mg/L	1		6020B	Dissolved
Barium	0.014		0.0030	0.00038	mg/L	1		6020B	Dissolved
Cadmium	0.017	F1	0.0010	0.00019	mg/L	1		6020B	Dissolved
Cobalt	0.11		0.0010	0.00033	mg/L	1		6020B	Dissolved
Calcium	460		10	1.6	mg/L	50		6020B	Dissolved
Molybdenum	0.0016	J	0.0020	0.00037	mg/L	1		6020B	Dissolved
Selenium	0.0036	J	0.0050	0.0010	mg/L	1		6020B	Dissolved
Thallium	0.0036		0.0010	0.00021	mg/L	1		6020B	Dissolved
pH adj. to 25 deg C	6.9	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	1200		150	51	mg/L	50		9056A	Total/NA
Sulfate	59000		5000	1000	mg/L	1000		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)	58000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	29		4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-172593-1
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: 280-172593-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-172593-1	W-2C	Water	02/14/23 11:20	02/17/23 15:10
280-172593-2	W-7	Water	02/14/23 14:00	02/17/23 15:10
280-172593-3	W-5B	Water	02/14/23 16:25	02/17/23 15:10
280-172593-4	W-6BI	Water	02/15/23 16:40	02/17/23 15:10
280-172593-5	WT-6BI	Water	02/15/23 17:20	02/17/23 15:10
280-172593-6	W-11	Water	02/16/23 12:55	02/17/23 15:10
280-172593-7	W-12	Water	02/16/23 16:35	02/17/23 15:10
280-172593-8	W-3B	Water	02/17/23 10:20	02/17/23 15:10

Method: SW846 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: W-2C
Date Collected: 02/14/23 11:20
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.7	B	0.10	0.0015	mg/L		02/21/23 08:15	02/21/23 21:27	1
Lithium	3.4		0.020	0.0091	mg/L		02/21/23 08:15	02/21/23 21:27	1

Client Sample ID: W-7
Date Collected: 02/14/23 14:00
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.0	B	1.0	0.015	mg/L		02/21/23 08:15	02/21/23 21:36	10
Lithium	4.5		0.020	0.0091	mg/L		02/21/23 08:15	02/21/23 21:32	1

Client Sample ID: W-5B
Date Collected: 02/14/23 16:25
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.3	B	0.10	0.0015	mg/L		02/21/23 08:15	02/21/23 21:41	1
Lithium	0.29		0.020	0.0091	mg/L		02/21/23 08:15	02/21/23 21:41	1

Client Sample ID: W-6BI
Date Collected: 02/15/23 16:40
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.1	B	0.50	0.0073	mg/L		02/21/23 08:15	02/21/23 21:50	5
Lithium	3.2		0.020	0.0091	mg/L		02/21/23 08:15	02/21/23 21:45	1

Client Sample ID: WT-6BI
Date Collected: 02/15/23 17:20
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.1	B	0.50	0.0073	mg/L		02/21/23 08:15	02/21/23 22:16	5
Lithium	3.1		0.020	0.0091	mg/L		02/21/23 08:15	02/21/23 22:11	1

Client Sample ID: W-11
Date Collected: 02/16/23 12:55
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.66	B	0.10	0.0015	mg/L		02/21/23 08:15	02/21/23 22:20	1
Lithium	3.5		0.020	0.0091	mg/L		02/21/23 08:15	02/21/23 22:20	1

Client Sample ID: W-12
Date Collected: 02/16/23 16:35
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.73	B	0.10	0.0015	mg/L		02/21/23 08:15	02/21/23 22:29	1
Lithium	2.3		0.020	0.0091	mg/L		02/21/23 08:15	02/21/23 22:29	1

Client Sample ID: W-3B
Date Collected: 02/17/23 10:20
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.1	B	0.50	0.0073	mg/L		02/21/23 08:15	02/21/23 22:42	5
Lithium	2.9		0.020	0.0091	mg/L		02/21/23 08:15	02/21/23 22:37	1

Method: SW846 6010C - Metals (ICP) - Dissolved

Client Sample ID: W-2C
Date Collected: 02/14/23 11:20
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.9		0.50	0.0073	mg/L		02/22/23 15:09	02/28/23 17:32	5
Lithium	3.4	F1	0.020	0.0091	mg/L		02/22/23 15:09	02/25/23 02:37	1

Client Sample ID: W-7
Date Collected: 02/14/23 14:00
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.1		0.50	0.0073	mg/L		02/22/23 15:09	02/28/23 17:54	5
Lithium	5.1		0.020	0.0091	mg/L		02/22/23 15:09	02/25/23 03:00	1

Client Sample ID: W-5B
Date Collected: 02/14/23 16:25
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.3		0.10	0.0015	mg/L		02/22/23 15:09	02/25/23 03:21	1
Lithium	0.29		0.020	0.0091	mg/L		02/22/23 15:09	02/25/23 03:21	1

Client Sample ID: W-6BI
Date Collected: 02/15/23 16:40
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.2		0.50	0.0073	mg/L		02/22/23 15:09	02/28/23 17:59	5
Lithium	3.6		0.020	0.0091	mg/L		02/22/23 15:09	02/25/23 03:26	1

Client Sample ID: WT-6BI
Date Collected: 02/15/23 17:20
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.1		0.50	0.0073	mg/L		02/22/23 15:09	02/28/23 18:21	5
Lithium	3.7		0.020	0.0091	mg/L		02/22/23 15:09	02/25/23 03:30	1

Client Sample ID: W-11
Date Collected: 02/16/23 12:55
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.66		0.10	0.0015	mg/L		02/22/23 15:09	02/25/23 03:35	1
Lithium	3.7		0.020	0.0091	mg/L		02/22/23 15:09	02/25/23 03:35	1

Client Sample ID: W-12
Date Collected: 02/16/23 16:35
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.74		0.10	0.0015	mg/L		02/22/23 15:09	02/25/23 03:40	1
Lithium	2.6		0.020	0.0091	mg/L		02/22/23 15:09	02/25/23 03:40	1

Client Sample ID: W-3B
Date Collected: 02/17/23 10:20
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.1		0.50	0.0073	mg/L		02/22/23 15:09	02/28/23 18:25	5
Lithium	3.2		0.020	0.0091	mg/L		02/22/23 15:09	02/25/23 03:44	1

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

Client Sample ID: W-2C
Date Collected: 02/14/23 11:20
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		02/21/23 08:15	02/21/23 23:34	1
Magnesium	**6500**		10	0.21	mg/L		02/21/23 08:15	02/22/23 11:42	50
Arsenic	**0.00058**	**J**	0.0050	0.00050	mg/L		02/21/23 08:15	02/21/23 23:34	1
Sodium	**4800**	**B**	50	3.7	mg/L		02/21/23 08:15	02/22/23 11:42	50
Barium	**0.018**		0.0030	0.00038	mg/L		02/21/23 08:15	02/21/23 23:34	1
Potassium	**49**	**B**	1.0	0.052	mg/L		02/21/23 08:15	02/21/23 23:34	1
Beryllium	ND		0.0010	0.00030	mg/L		02/21/23 08:15	02/21/23 23:34	1
Cadmium	**0.0058**		0.0010	0.00019	mg/L		02/21/23 08:15	02/21/23 23:34	1
Chromium	**0.0018**	**J**	0.0030	0.00050	mg/L		02/21/23 08:15	02/21/23 23:34	1
Cobalt	**0.0042**		0.0010	0.00033	mg/L		02/21/23 08:15	02/21/23 23:34	1
Lead	**0.00040**	**J**	0.0010	0.00023	mg/L		02/21/23 08:15	02/21/23 23:34	1
Molybdenum	**0.0035**		0.0020	0.00037	mg/L		02/21/23 08:15	02/21/23 23:34	1
Selenium	**2.6**		0.0050	0.0010	mg/L		02/21/23 08:15	02/21/23 23:34	1
Thallium	**0.0041**		0.0010	0.00021	mg/L		02/21/23 08:15	02/21/23 23:34	1
Calcium	**450**		10	1.6	mg/L		02/21/23 08:15	02/22/23 11:42	50

Client Sample ID: W-7
Date Collected: 02/14/23 14:00
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.00047**	**J**	0.0020	0.00040	mg/L		02/23/23 08:04	02/23/23 22:34	1
Magnesium	**7600**		10	0.21	mg/L		02/23/23 08:04	02/23/23 22:36	50
Arsenic	**0.0016**	**J**	0.0050	0.00050	mg/L		02/23/23 08:04	02/23/23 22:34	1
Sodium	**8000**		50	3.7	mg/L		02/23/23 08:04	02/23/23 22:36	50
Barium	**0.015**		0.0030	0.00038	mg/L		02/23/23 08:04	02/23/23 22:34	1
Potassium	**62**		1.0	0.052	mg/L		02/23/23 08:04	02/23/23 22:34	1
Beryllium	ND		0.0010	0.00030	mg/L		02/23/23 08:04	02/23/23 22:34	1
Cadmium	**0.0057**		0.0010	0.00019	mg/L		02/23/23 08:04	02/23/23 22:34	1
Chromium	**0.0021**	**J**	0.0030	0.00050	mg/L		02/23/23 08:04	02/23/23 22:34	1
Cobalt	**0.021**		0.0010	0.00033	mg/L		02/23/23 08:04	02/23/23 22:34	1
Lead	**0.0011**		0.0010	0.00023	mg/L		02/23/23 08:04	02/23/23 22:34	1
Molybdenum	**0.0053**		0.0020	0.00037	mg/L		02/23/23 08:04	02/23/23 22:34	1
Selenium	**1.7**		0.0050	0.0010	mg/L		02/23/23 08:04	02/23/23 22:34	1
Thallium	**0.0060**		0.0010	0.00021	mg/L		02/23/23 08:04	02/23/23 22:34	1
Calcium	**490**		10	1.6	mg/L		02/23/23 08:04	02/23/23 22:36	50

Client Sample ID: W-5B
Date Collected: 02/14/23 16:25
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		02/21/23 08:15	02/21/23 23:36	1
Magnesium	**260**		10	0.21	mg/L		02/21/23 08:15	02/22/23 11:44	50
Arsenic	**0.00059**	**J**	0.0050	0.00050	mg/L		02/21/23 08:15	02/21/23 23:36	1
Sodium	**690**	**B**	50	3.7	mg/L		02/21/23 08:15	02/22/23 11:44	50
Barium	**0.018**		0.0030	0.00038	mg/L		02/21/23 08:15	02/21/23 23:36	1
Potassium	**16**	**B**	1.0	0.052	mg/L		02/21/23 08:15	02/21/23 23:36	1
Beryllium	ND		0.0010	0.00030	mg/L		02/21/23 08:15	02/21/23 23:36	1
Cadmium	**0.00082**	**J**	0.0010	0.00019	mg/L		02/21/23 08:15	02/21/23 23:36	1
Chromium	**0.00077**	**J**	0.0030	0.00050	mg/L		02/21/23 08:15	02/21/23 23:36	1
Cobalt	**0.0026**		0.0010	0.00033	mg/L		02/21/23 08:15	02/21/23 23:36	1

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

Client Sample ID: W-5B
Date Collected: 02/14/23 16:25
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.00024	J	0.0010	0.00023	mg/L		02/21/23 08:15	02/21/23 23:36	1
Molybdenum	0.0021		0.0020	0.00037	mg/L		02/21/23 08:15	02/21/23 23:36	1
Selenium	0.0011	J	0.0050	0.0010	mg/L		02/21/23 08:15	02/21/23 23:36	1
Thallium	0.00074	J	0.0010	0.00021	mg/L		02/21/23 08:15	02/21/23 23:36	1
Calcium	470		10	1.6	mg/L		02/21/23 08:15	02/22/23 11:44	50

Client Sample ID: W-6BI
Date Collected: 02/15/23 16:40
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00066	J	0.0020	0.00040	mg/L		02/21/23 15:35	02/22/23 12:32	1
Magnesium	5700		10	0.21	mg/L		02/21/23 15:35	02/22/23 17:45	50
Arsenic	0.0015	J	0.0050	0.00050	mg/L		02/21/23 15:35	02/22/23 00:37	1
Sodium	6900	^3+	500	37	mg/L		02/21/23 15:35	03/03/23 08:37	500
Barium	0.020	B	0.0030	0.00038	mg/L		02/21/23 15:35	02/22/23 12:32	1
Potassium	48		1.0	0.052	mg/L		02/21/23 15:35	02/22/23 00:37	1
Beryllium	ND		0.0010	0.00030	mg/L		02/21/23 15:35	02/22/23 00:37	1
Cadmium	0.010		0.0010	0.00019	mg/L		02/21/23 15:35	02/22/23 00:37	1
Chromium	0.0019	J	0.0030	0.00050	mg/L		02/21/23 15:35	02/22/23 00:37	1
Cobalt	0.11		0.0010	0.00033	mg/L		02/21/23 15:35	02/22/23 00:37	1
Lead	0.00063	J	0.0010	0.00023	mg/L		02/21/23 15:35	02/22/23 00:37	1
Molybdenum	0.0036		0.0020	0.00037	mg/L		02/21/23 15:35	02/22/23 00:37	1
Selenium	0.0028	J	0.0050	0.0010	mg/L		02/21/23 15:35	02/22/23 00:37	1
Thallium	0.0021		0.0010	0.00021	mg/L		02/21/23 15:35	02/22/23 00:37	1
Calcium	530		10	1.6	mg/L		02/21/23 15:35	02/22/23 17:45	50

Client Sample ID: WT-6BI
Date Collected: 02/15/23 17:20
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00056	J	0.0020	0.00040	mg/L		02/21/23 15:35	02/22/23 12:34	1
Magnesium	5600		10	0.21	mg/L		02/21/23 15:35	02/22/23 17:47	50
Arsenic	0.0017	J	0.0050	0.00050	mg/L		02/21/23 15:35	02/22/23 00:38	1
Sodium	6000	^3+	500	37	mg/L		02/21/23 15:35	03/03/23 08:39	500
Barium	0.020	B	0.0030	0.00038	mg/L		02/21/23 15:35	02/22/23 12:34	1
Potassium	49		1.0	0.052	mg/L		02/21/23 15:35	02/22/23 00:38	1
Beryllium	ND		0.0010	0.00030	mg/L		02/21/23 15:35	02/22/23 00:38	1
Cadmium	0.011		0.0010	0.00019	mg/L		02/21/23 15:35	02/22/23 00:38	1
Chromium	0.0018	J	0.0030	0.00050	mg/L		02/21/23 15:35	02/22/23 00:38	1
Cobalt	0.12		0.0010	0.00033	mg/L		02/21/23 15:35	02/22/23 00:38	1
Lead	0.00093	J	0.0010	0.00023	mg/L		02/21/23 15:35	02/22/23 00:38	1
Molybdenum	0.0036		0.0020	0.00037	mg/L		02/21/23 15:35	02/22/23 00:38	1
Selenium	0.0032	J	0.0050	0.0010	mg/L		02/21/23 15:35	02/22/23 00:38	1
Thallium	0.0025		0.0010	0.00021	mg/L		02/21/23 15:35	02/22/23 00:38	1
Calcium	520		10	1.6	mg/L		02/21/23 15:35	02/22/23 17:47	50

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

Client Sample ID: W-11
Date Collected: 02/16/23 12:55
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		02/21/23 15:35	02/22/23 12:36	1
Magnesium	1700		10	0.21	mg/L		02/21/23 15:35	02/22/23 17:49	50
Arsenic	0.00068	J	0.0050	0.00050	mg/L		02/21/23 15:35	02/22/23 00:40	1
Sodium	4000	B	50	3.7	mg/L		02/21/23 15:35	02/22/23 17:49	50
Barium	0.016	B	0.0030	0.00038	mg/L		02/21/23 15:35	02/22/23 12:36	1
Potassium	45		1.0	0.052	mg/L		02/21/23 15:35	02/22/23 00:40	1
Beryllium	ND		0.0010	0.00030	mg/L		02/21/23 15:35	02/22/23 00:40	1
Cadmium	0.0015		0.0010	0.00019	mg/L		02/21/23 15:35	02/22/23 00:40	1
Chromium	0.0028	J	0.0030	0.00050	mg/L		02/21/23 15:35	02/22/23 00:40	1
Cobalt	0.020		0.0010	0.00033	mg/L		02/21/23 15:35	02/22/23 00:40	1
Lead	0.0010		0.0010	0.00023	mg/L		02/21/23 15:35	02/22/23 00:40	1
Molybdenum	0.0041		0.0020	0.00037	mg/L		02/21/23 15:35	02/22/23 00:40	1
Selenium	2.8		0.0050	0.0010	mg/L		02/21/23 15:35	02/22/23 00:40	1
Thallium	0.0043		0.0010	0.00021	mg/L		02/21/23 15:35	02/22/23 00:40	1
Calcium	490		10	1.6	mg/L		02/21/23 15:35	02/22/23 17:49	50

Client Sample ID: W-12
Date Collected: 02/16/23 16:35
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00073	J	0.0020	0.00040	mg/L		02/21/23 15:35	02/22/23 12:38	1
Magnesium	1200		10	0.21	mg/L		02/21/23 15:35	02/22/23 17:51	50
Arsenic	0.0016	J	0.0050	0.00050	mg/L		02/21/23 15:35	02/22/23 00:42	1
Sodium	6100	B	50	3.7	mg/L		02/21/23 15:35	02/22/23 17:51	50
Barium	0.034	B	0.0030	0.00038	mg/L		02/21/23 15:35	02/22/23 12:38	1
Potassium	40		1.0	0.052	mg/L		02/21/23 15:35	02/22/23 00:42	1
Beryllium	ND		0.0010	0.00030	mg/L		02/21/23 15:35	02/22/23 00:42	1
Cadmium	0.0013		0.0010	0.00019	mg/L		02/21/23 15:35	02/22/23 00:42	1
Chromium	0.0042		0.0030	0.00050	mg/L		02/21/23 15:35	02/22/23 00:42	1
Cobalt	0.030		0.0010	0.00033	mg/L		02/21/23 15:35	02/22/23 00:42	1
Lead	0.0044		0.0010	0.00023	mg/L		02/21/23 15:35	02/22/23 00:42	1
Molybdenum	0.0044		0.0020	0.00037	mg/L		02/21/23 15:35	02/22/23 00:42	1
Selenium	0.018		0.0050	0.0010	mg/L		02/21/23 15:35	02/22/23 00:42	1
Thallium	0.0044		0.0010	0.00021	mg/L		02/21/23 15:35	02/22/23 00:42	1
Calcium	460		10	1.6	mg/L		02/21/23 15:35	02/22/23 17:51	50

Client Sample ID: W-3B
Date Collected: 02/17/23 10:20
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		02/21/23 15:35	02/22/23 12:40	1
Magnesium	5800		10	0.21	mg/L		02/21/23 15:35	02/22/23 17:52	50
Arsenic	0.00079	J	0.0050	0.00050	mg/L		02/21/23 15:35	02/22/23 00:44	1
Sodium	7100	^3+	500	37	mg/L		02/21/23 15:35	03/03/23 08:40	500
Barium	0.016	B	0.0030	0.00038	mg/L		02/21/23 15:35	02/22/23 12:40	1
Potassium	40		1.0	0.052	mg/L		02/21/23 15:35	02/22/23 00:44	1
Beryllium	ND		0.0010	0.00030	mg/L		02/21/23 15:35	02/22/23 00:44	1
Cadmium	0.018		0.0010	0.00019	mg/L		02/21/23 15:35	02/22/23 00:44	1
Chromium	0.0016	J	0.0030	0.00050	mg/L		02/21/23 15:35	02/22/23 00:44	1
Cobalt	0.12		0.0010	0.00033	mg/L		02/21/23 15:35	02/22/23 00:44	1

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

Client Sample ID: W-3B
Date Collected: 02/17/23 10:20
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.0016		0.0010	0.00023	mg/L		02/21/23 15:35	02/22/23 00:44	1
Molybdenum	0.0017	J	0.0020	0.00037	mg/L		02/21/23 15:35	02/22/23 00:44	1
Selenium	0.0048	J	0.0050	0.0010	mg/L		02/21/23 15:35	02/22/23 00:44	1
Thallium	0.0036		0.0010	0.00021	mg/L		02/21/23 15:35	02/22/23 00:44	1
Calcium	560		10	1.6	mg/L		02/21/23 15:35	02/22/23 17:52	50

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

Client Sample ID: W-2C
Date Collected: 02/14/23 11:20
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		02/22/23 15:09	02/24/23 00:27	1
Arsenic	0.00068	J	0.0050	0.00050	mg/L		02/22/23 15:09	02/24/23 00:27	1
Barium	0.014		0.0030	0.00038	mg/L		02/22/23 15:09	02/24/23 00:27	1
Beryllium	ND		0.0010	0.00030	mg/L		02/22/23 15:09	02/24/23 00:27	1
Cadmium	0.0048		0.0010	0.00019	mg/L		02/22/23 15:09	02/24/23 00:27	1
Chromium	0.00056	J B	0.0030	0.00050	mg/L		02/22/23 15:09	02/24/23 00:27	1
Cobalt	0.0034		0.0010	0.00033	mg/L		02/22/23 15:09	02/24/23 00:27	1
Lead	0.00036	J	0.0010	0.00023	mg/L		02/22/23 15:09	02/24/23 00:27	1
Calcium	400		10	1.6	mg/L		02/22/23 15:09	02/23/23 23:58	50
Molybdenum	0.0029		0.0020	0.00037	mg/L		02/22/23 15:09	02/24/23 00:27	1
Selenium	2.1		0.0050	0.0010	mg/L		02/22/23 15:09	02/24/23 00:27	1
Thallium	0.0034		0.0010	0.00021	mg/L		02/22/23 15:09	02/24/23 00:27	1

Client Sample ID: W-7
Date Collected: 02/14/23 14:00
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		02/22/23 15:09	02/24/23 00:31	1
Arsenic	0.0010	J	0.0050	0.00050	mg/L		02/22/23 15:09	02/24/23 00:31	1
Barium	0.013		0.0030	0.00038	mg/L		02/22/23 15:09	02/24/23 00:31	1
Beryllium	ND		0.0010	0.00030	mg/L		02/22/23 15:09	02/24/23 00:31	1
Cadmium	0.0060		0.0010	0.00019	mg/L		02/22/23 15:09	02/24/23 00:31	1
Chromium	0.0013	J B	0.0030	0.00050	mg/L		02/22/23 15:09	02/24/23 00:31	1
Cobalt	0.020		0.0010	0.00033	mg/L		02/22/23 15:09	02/24/23 00:31	1
Lead	0.00091	J	0.0010	0.00023	mg/L		02/22/23 15:09	02/24/23 00:31	1
Calcium	460		10	1.6	mg/L		02/22/23 15:09	02/24/23 00:00	50
Molybdenum	0.0046		0.0020	0.00037	mg/L		02/22/23 15:09	02/24/23 00:31	1
Selenium	1.7		0.0050	0.0010	mg/L		02/22/23 15:09	02/24/23 00:31	1
Thallium	0.0059		0.0010	0.00021	mg/L		02/22/23 15:09	02/24/23 00:31	1

Client Sample ID: W-5B
Date Collected: 02/14/23 16:25
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		02/28/23 15:00	03/01/23 17:28	1
Arsenic	ND		0.0050	0.00050	mg/L		02/28/23 15:00	03/01/23 17:28	1
Barium	0.015		0.0030	0.00038	mg/L		02/28/23 15:00	03/01/23 17:28	1
Beryllium	ND		0.0010	0.00030	mg/L		02/28/23 15:00	03/01/23 17:28	1

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

Client Sample ID: W-5B
Date Collected: 02/14/23 16:25
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	0.00048	J	0.0010	0.00019	mg/L		02/28/23 15:00	03/01/23 17:28	1
Chromium	0.00071	J B	0.0030	0.00050	mg/L		02/28/23 15:00	03/01/23 17:28	1
Cobalt	0.0021		0.0010	0.00033	mg/L		02/28/23 15:00	03/01/23 17:28	1
Lead	ND		0.0010	0.00023	mg/L		02/28/23 15:00	03/01/23 17:28	1
Calcium	500	F2 B	10	1.6	mg/L		02/28/23 15:00	03/02/23 13:09	50
Molybdenum	0.0019	J	0.0020	0.00037	mg/L		02/28/23 15:00	03/01/23 17:28	1
Selenium	ND		0.0050	0.0010	mg/L		02/28/23 15:00	03/01/23 17:28	1
Thallium	0.00072	J	0.0010	0.00021	mg/L		02/28/23 15:00	03/01/23 17:28	1

Client Sample ID: W-6BI
Date Collected: 02/15/23 16:40
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00049	J	0.0020	0.00040	mg/L		02/22/23 15:09	02/24/23 00:38	1
Arsenic	0.00070	J	0.0050	0.00050	mg/L		02/22/23 15:09	02/24/23 00:38	1
Barium	0.018		0.0030	0.00038	mg/L		02/22/23 15:09	02/24/23 00:38	1
Beryllium	ND		0.0010	0.00030	mg/L		02/22/23 15:09	02/24/23 00:38	1
Cadmium	0.0099		0.0010	0.00019	mg/L		02/22/23 15:09	02/24/23 00:38	1
Chromium	ND		0.0030	0.00050	mg/L		02/22/23 15:09	02/24/23 00:38	1
Cobalt	0.11		0.0010	0.00033	mg/L		02/22/23 15:09	02/24/23 00:38	1
Lead	ND		0.0010	0.00023	mg/L		02/22/23 15:09	02/24/23 00:38	1
Calcium	460		10	1.6	mg/L		02/22/23 15:09	02/24/23 00:04	50
Molybdenum	0.0034		0.0020	0.00037	mg/L		02/22/23 15:09	02/24/23 00:38	1
Selenium	0.0029	J	0.0050	0.0010	mg/L		02/22/23 15:09	02/24/23 00:38	1
Thallium	0.0022		0.0010	0.00021	mg/L		02/22/23 15:09	02/24/23 00:38	1

Client Sample ID: WT-6BI
Date Collected: 02/15/23 17:20
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00059	J	0.0020	0.00040	mg/L		02/22/23 15:09	02/24/23 00:41	1
Arsenic	0.00061	J	0.0050	0.00050	mg/L		02/22/23 15:09	02/24/23 00:41	1
Barium	0.019		0.0030	0.00038	mg/L		02/22/23 15:09	02/24/23 00:41	1
Beryllium	ND		0.0010	0.00030	mg/L		02/22/23 15:09	02/24/23 00:41	1
Cadmium	0.011		0.0010	0.00019	mg/L		02/22/23 15:09	02/24/23 00:41	1
Chromium	ND		0.0030	0.00050	mg/L		02/22/23 15:09	02/24/23 00:41	1
Cobalt	0.12		0.0010	0.00033	mg/L		02/22/23 15:09	02/24/23 00:41	1
Lead	ND		0.0010	0.00023	mg/L		02/22/23 15:09	02/24/23 00:41	1
Calcium	480		10	1.6	mg/L		02/22/23 15:09	02/24/23 00:06	50
Molybdenum	0.0032		0.0020	0.00037	mg/L		02/22/23 15:09	02/24/23 00:41	1
Selenium	0.0027	J	0.0050	0.0010	mg/L		02/22/23 15:09	02/24/23 00:41	1
Thallium	0.0025		0.0010	0.00021	mg/L		02/22/23 15:09	02/24/23 00:41	1

Client Sample ID: W-11
Date Collected: 02/16/23 12:55
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		02/22/23 15:09	02/24/23 00:49	1
Arsenic	0.00051	J	0.0050	0.00050	mg/L		02/22/23 15:09	02/24/23 00:49	1
Barium	0.013		0.0030	0.00038	mg/L		02/22/23 15:09	02/24/23 00:49	1

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

Client Sample ID: W-11
Date Collected: 02/16/23 12:55
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.0010	0.00030	mg/L		02/22/23 15:09	02/24/23 00:49	1
Cadmium	**0.0012**		0.0010	0.00019	mg/L		02/22/23 15:09	02/24/23 00:49	1
Chromium	**0.00091**	**J B**	0.0030	0.00050	mg/L		02/22/23 15:09	02/24/23 00:49	1
Cobalt	**0.018**		0.0010	0.00033	mg/L		02/22/23 15:09	02/24/23 00:49	1
Lead	**0.00039**	**J**	0.0010	0.00023	mg/L		02/22/23 15:09	02/24/23 00:49	1
Calcium	**440**		10	1.6	mg/L		02/22/23 15:09	02/24/23 00:07	50
Molybdenum	**0.0038**		0.0020	0.00037	mg/L		02/22/23 15:09	02/24/23 00:49	1
Selenium	**2.7**		0.0050	0.0010	mg/L		02/22/23 15:09	02/24/23 00:49	1
Thallium	**0.0041**		0.0010	0.00021	mg/L		02/22/23 15:09	02/24/23 00:49	1

Client Sample ID: W-12
Date Collected: 02/16/23 16:35
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.00078**	**J**	0.0020	0.00040	mg/L		02/22/23 15:09	02/24/23 00:52	1
Arsenic	**0.00071**	**J**	0.0050	0.00050	mg/L		02/22/23 15:09	02/24/23 00:52	1
Barium	**0.015**		0.0030	0.00038	mg/L		02/22/23 15:09	02/24/23 00:52	1
Beryllium	ND		0.0010	0.00030	mg/L		02/22/23 15:09	02/24/23 00:52	1
Cadmium	**0.0012**		0.0010	0.00019	mg/L		02/22/23 15:09	02/24/23 00:52	1
Chromium	ND		0.0030	0.00050	mg/L		02/22/23 15:09	02/24/23 00:52	1
Cobalt	**0.028**		0.0010	0.00033	mg/L		02/22/23 15:09	02/24/23 00:52	1
Lead	**0.0012**		0.0010	0.00023	mg/L		02/22/23 15:09	02/24/23 00:52	1
Calcium	**440**		10	1.6	mg/L		02/22/23 15:09	02/24/23 00:09	50
Molybdenum	**0.0047**		0.0020	0.00037	mg/L		02/22/23 15:09	02/24/23 00:52	1
Selenium	**0.018**		0.0050	0.0010	mg/L		02/22/23 15:09	02/24/23 00:52	1
Thallium	**0.0040**		0.0010	0.00021	mg/L		02/22/23 15:09	02/24/23 00:52	1

Client Sample ID: W-3B
Date Collected: 02/17/23 10:20
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		02/22/23 15:09	02/24/23 00:56	1
Arsenic	**0.00060**	**J**	0.0050	0.00050	mg/L		02/22/23 15:09	02/24/23 00:56	1
Barium	**0.014**		0.0030	0.00038	mg/L		02/22/23 15:09	02/24/23 00:56	1
Beryllium	ND		0.0010	0.00030	mg/L		02/22/23 15:09	02/24/23 00:56	1
Cadmium	**0.017**	**F1**	0.0010	0.00019	mg/L		02/22/23 15:09	02/24/23 00:56	1
Chromium	ND		0.0030	0.00050	mg/L		02/22/23 15:09	02/24/23 00:56	1
Cobalt	**0.11**		0.0010	0.00033	mg/L		02/22/23 15:09	02/24/23 00:56	1
Lead	ND		0.0010	0.00023	mg/L		02/22/23 15:09	02/24/23 00:56	1
Calcium	**460**		10	1.6	mg/L		02/22/23 15:09	02/24/23 00:14	50
Molybdenum	**0.0016**	**J**	0.0020	0.00037	mg/L		02/22/23 15:09	02/24/23 00:56	1
Selenium	**0.0036**	**J**	0.0050	0.0010	mg/L		02/22/23 15:09	02/24/23 00:56	1
Thallium	**0.0036**		0.0010	0.00021	mg/L		02/22/23 15:09	02/24/23 00:56	1

Method: SW846 7470A - Mercury (CVAA)

Client Sample ID: W-2C
Date Collected: 02/14/23 11:20
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		02/22/23 14:00	02/22/23 19:24	1

Client Sample ID: W-7
Date Collected: 02/14/23 14:00
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		02/22/23 14:00	02/22/23 19:27	1

Client Sample ID: W-5B
Date Collected: 02/14/23 16:25
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		02/22/23 14:00	02/22/23 19:29	1

Client Sample ID: W-6BI
Date Collected: 02/15/23 16:40
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		02/22/23 14:00	02/22/23 19:32	1

Client Sample ID: WT-6BI
Date Collected: 02/15/23 17:20
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		02/22/23 14:00	02/22/23 19:34	1

Client Sample ID: W-11
Date Collected: 02/16/23 12:55
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		02/22/23 14:00	02/22/23 19:37	1

Client Sample ID: W-12
Date Collected: 02/16/23 16:35
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		02/22/23 14:00	02/22/23 19:39	1

Client Sample ID: W-3B
Date Collected: 02/17/23 10:20
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		02/22/23 14:00	02/22/23 19:42	1

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

Client Sample ID: W-2C
Date Collected: 02/14/23 11:20
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		02/24/23 13:20	02/24/23 19:35	1

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

Client Sample ID: W-7
Date Collected: 02/14/23 14:00
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		02/24/23 13:20	02/24/23 19:38	1

Client Sample ID: W-5B
Date Collected: 02/14/23 16:25
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		02/24/23 13:20	02/24/23 19:40	1

Client Sample ID: W-6BI
Date Collected: 02/15/23 16:40
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		02/24/23 13:20	02/24/23 19:43	1

Client Sample ID: WT-6BI
Date Collected: 02/15/23 17:20
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		02/24/23 13:20	02/24/23 19:45	1

Client Sample ID: W-11
Date Collected: 02/16/23 12:55
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		02/24/23 13:20	02/24/23 19:48	1

Client Sample ID: W-12
Date Collected: 02/16/23 16:35
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00040	0.00012	mg/L		02/24/23 13:20	02/24/23 19:51	1

Client Sample ID: W-3B
Date Collected: 02/17/23 10:20
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		02/24/23 13:20	02/24/23 19:53	1

General Chemistry

Client Sample ID: W-2C
Date Collected: 02/14/23 11:20
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-1
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			02/21/23 15:59	1
Temperature (SW846 9040B)	**23.2**	**HF**	1.0	1.0	Degrees C			02/21/23 15:59	1
Chloride (SW846 9056A)	**860**		150	51	mg/L			03/01/23 07:25	50
Fluoride (SW846 9056A)	ND		0.50	0.17	mg/L			03/01/23 16:16	1
Fluoride (SW846 9056A)	ND	^+	5.0	1.7	mg/L			03/08/23 03:35	10
Sulfate (SW846 9056A)	**37000**		5000	1000	mg/L			03/01/23 07:42	1000
Alkalinity (SM 2320B)	**580**	**B**	10	3.1	mg/L			02/21/23 19:44	1

General Chemistry (Continued)

Client Sample ID: W-2C
Date Collected: 02/14/23 11:20
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**580**	**B**	10	3.1	mg/L			02/21/23 19:44	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			02/21/23 19:44	1
Total Dissolved Solids (TDS) (SM 2540C)	**34000**		1000	470	mg/L			02/20/23 14:48	1
Total Suspended Solids (SM 2540D)	**3.6**	**J**	4.0	1.1	mg/L			02/20/23 16:02	1

Client Sample ID: W-7
Date Collected: 02/14/23 14:00
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-2
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			02/21/23 16:03	1
Temperature (SW846 9040B)	**23.3**	**HF**	1.0	1.0	Degrees C			02/21/23 16:03	1
Chloride (SW846 9056A)	**740**		150	51	mg/L			03/01/23 07:59	50
Fluoride (SW846 9056A)	ND		0.50	0.17	mg/L			03/01/23 16:24	1
Fluoride (SW846 9056A)	ND	^+ F1	5.0	1.7	mg/L			03/08/23 03:43	10
Sulfate (SW846 9056A)	**51000**		5000	1000	mg/L			03/01/23 08:16	1000
Alkalinity (SM 2320B)	**1000**	**B**	10	3.1	mg/L			02/21/23 19:57	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**1000**	**B**	10	3.1	mg/L			02/21/23 19:57	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			02/21/23 19:57	1
Total Dissolved Solids (TDS) (SM 2540C)	**48000**		1000	470	mg/L			02/20/23 14:48	1
Total Suspended Solids (SM 2540D)	**9.6**		4.0	1.1	mg/L			02/20/23 16:02	1

Client Sample ID: W-5B
Date Collected: 02/14/23 16:25
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-3
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			02/21/23 16:06	1
Temperature (SW846 9040B)	**23.5**	**HF**	1.0	1.0	Degrees C			02/21/23 16:06	1
Chloride (SW846 9056A)	**120**		15	5.1	mg/L			03/01/23 08:33	5
Fluoride (SW846 9056A)	ND	F1	0.50	0.17	mg/L			03/01/23 16:32	1
Fluoride (SW846 9056A)	ND	^-	5.0	1.7	mg/L			03/02/23 19:56	10
Sulfate (SW846 9056A)	**3700**		500	100	mg/L			03/01/23 08:50	100
Alkalinity (SM 2320B)	**200**	**B**	10	3.1	mg/L			02/21/23 20:04	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**200**	**B**	10	3.1	mg/L			02/21/23 20:04	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			02/21/23 20:04	1
Total Dissolved Solids (TDS) (SM 2540C)	**5000**		40	19	mg/L			02/20/23 14:48	1
Total Suspended Solids (SM 2540D)	**1.6**	**J**	4.0	1.1	mg/L			02/20/23 16:02	1

General Chemistry

Client Sample ID: W-6BI
Date Collected: 02/15/23 16:40
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-4
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			02/21/23 16:10	1
Temperature (SW846 9040B)	23.7	HF	1.0	1.0	Degrees C			02/21/23 16:10	1
Chloride (SW846 9056A)	1300		300	100	mg/L			03/01/23 09:08	100
Fluoride (SW846 9056A)	ND		0.50	0.17	mg/L			03/01/23 17:20	1
Fluoride (SW846 9056A)	ND	^+	5.0	1.7	mg/L			03/08/23 04:14	10
Sulfate (SW846 9056A)	48000		2500	520	mg/L			03/01/23 09:25	500
Alkalinity (SM 2320B)	910	B	10	3.1	mg/L			02/21/23 20:16	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	910	B	10	3.1	mg/L			02/21/23 20:16	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			02/21/23 20:16	1
Total Dissolved Solids (TDS) (SM 2540C)	50000		1000	470	mg/L			02/20/23 14:48	1
Total Suspended Solids (SM 2540D)	16		4.0	1.1	mg/L			02/20/23 16:02	1

Client Sample ID: WT-6BI
Date Collected: 02/15/23 17:20
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-5
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			02/21/23 16:14	1
Temperature (SW846 9040B)	23.6	HF	1.0	1.0	Degrees C			02/21/23 16:14	1
Chloride (SW846 9056A)	1200		60	20	mg/L			03/01/23 09:42	20
Fluoride (SW846 9056A)	ND		0.50	0.17	mg/L			03/01/23 17:28	1
Fluoride (SW846 9056A)	ND	^-	5.0	1.7	mg/L			03/02/23 21:16	10
Sulfate (SW846 9056A)	56000		5000	1000	mg/L			03/01/23 17:36	1000
Alkalinity (SM 2320B)	910	B	10	3.1	mg/L			02/21/23 20:28	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	910	B	10	3.1	mg/L			02/21/23 20:28	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			02/21/23 20:28	1
Total Dissolved Solids (TDS) (SM 2540C)	43000		1000	470	mg/L			02/20/23 14:48	1
Total Suspended Solids (SM 2540D)	14		4.0	1.1	mg/L			02/21/23 11:41	1

Client Sample ID: W-11
Date Collected: 02/16/23 12:55
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-6
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			02/21/23 16:18	1
Temperature (SW846 9040B)	23.6	HF	1.0	1.0	Degrees C			02/21/23 16:18	1
Chloride (SW846 9056A)	360		60	20	mg/L			03/01/23 10:50	20
Fluoride (SW846 9056A)	2.4		0.50	0.17	mg/L			03/01/23 17:44	1
Fluoride (SW846 9056A)	ND	^-	5.0	1.7	mg/L			03/02/23 21:32	10
Sulfate (SW846 9056A)	13000		1000	210	mg/L			03/01/23 11:07	200
Alkalinity (SM 2320B)	1100	B	10	3.1	mg/L			02/21/23 20:42	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	1100	B	10	3.1	mg/L			02/21/23 20:42	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			02/21/23 20:42	1
Total Dissolved Solids (TDS) (SM 2540C)	15000		1000	470	mg/L			02/22/23 13:29	1

General Chemistry (Continued)

Client Sample ID: W-11
Date Collected: 02/16/23 12:55
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	**6.4**		4.0	1.1	mg/L			02/21/23 11:41	1

Client Sample ID: W-12
Date Collected: 02/16/23 16:35
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-7
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			02/21/23 16:21	1
Temperature (SW846 9040B)	**23.6**	**HF**	1.0	1.0	Degrees C			02/21/23 16:21	1
Chloride (SW846 9056A)	**940**		150	51	mg/L			03/01/23 11:24	50
Fluoride (SW846 9056A)	ND		0.50	0.17	mg/L			03/01/23 17:52	1
Fluoride (SW846 9056A)	ND	^-	5.0	1.7	mg/L			03/02/23 21:48	10
Sulfate (SW846 9056A)	**17000**		1000	210	mg/L			03/01/23 11:41	200
Alkalinity (SM 2320B)	**1400**	**B**	10	3.1	mg/L			02/21/23 20:57	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**1400**	**B**	10	3.1	mg/L			02/21/23 20:57	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			02/21/23 20:57	1
Total Dissolved Solids (TDS) (SM 2540C)	**18000**		1000	470	mg/L			02/22/23 15:48	1
Total Suspended Solids (SM 2540D)	**440**		10	2.8	mg/L			02/23/23 11:36	1

Client Sample ID: W-3B
Date Collected: 02/17/23 10:20
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-8
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			02/21/23 16:25	1
Temperature (SW846 9040B)	**23.5**	**HF**	1.0	1.0	Degrees C			02/21/23 16:25	1
Chloride (SW846 9056A)	**1200**		150	51	mg/L			03/01/23 11:58	50
Fluoride (SW846 9056A)	ND		0.50	0.17	mg/L			03/01/23 18:00	1
Fluoride (SW846 9056A)	ND	^-	5.0	1.7	mg/L			03/02/23 22:36	10
Sulfate (SW846 9056A)	**59000**		5000	1000	mg/L			03/01/23 12:15	1000
Alkalinity (SM 2320B)	**910**	**B**	10	3.1	mg/L			02/21/23 21:10	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**910**	**B**	10	3.1	mg/L			02/21/23 21:10	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			02/21/23 21:10	1
Total Dissolved Solids (TDS) (SM 2540C)	**58000**		1000	470	mg/L			02/22/23 15:48	1
Total Suspended Solids (SM 2540D)	**29**		4.0	1.1	mg/L			02/21/23 11:41	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-602696/1-A
Matrix: Water
Analysis Batch: 602936

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 602696

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.00176	J	0.10	0.0015	mg/L		02/21/23 08:15	02/21/23 20:14	1
Lithium	ND		0.020	0.0091	mg/L		02/21/23 08:15	02/21/23 20:14	1

Lab Sample ID: LCS 280-602696/2-A
Matrix: Water
Analysis Batch: 602936

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 602696

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	2.14		mg/L		107	86 - 110
Lithium	1.00	0.955		mg/L		95	90 - 112

Lab Sample ID: MB 280-602881/1-D
Matrix: Water
Analysis Batch: 603359

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 602943

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.0015	mg/L		02/22/23 15:09	02/25/23 02:29	1
Lithium	ND		0.020	0.0091	mg/L		02/22/23 15:09	02/25/23 02:29	1

Lab Sample ID: LCS 280-602881/2-D
Matrix: Water
Analysis Batch: 603359

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 602943

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	2.17		mg/L		108	86 - 110
Lithium	1.00	0.998		mg/L		100	90 - 112

Lab Sample ID: 280-172593-1 MS
Matrix: Water
Analysis Batch: 603359

Client Sample ID: W-2C
Prep Type: Dissolved
Prep Batch: 602943

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Lithium	3.4	F1	1.00	4.19	F1	mg/L		75	89 - 114

Lab Sample ID: 280-172593-1 MS
Matrix: Water
Analysis Batch: 603645

Client Sample ID: W-2C
Prep Type: Dissolved
Prep Batch: 602943

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	1.9		2.00	3.89		mg/L		98	87 - 113

Lab Sample ID: 280-172593-1 MSD
Matrix: Water
Analysis Batch: 603359

Client Sample ID: W-2C
Prep Type: Dissolved
Prep Batch: 602943

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Lithium	3.4	F1	1.00	4.94	F1	mg/L		150	89 - 114	16	20

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 280-172593-1 MSD
Matrix: Water
Analysis Batch: 603645

Client Sample ID: W-2C
Prep Type: Dissolved
Prep Batch: 602943

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	1.9		2.00	4.08		mg/L		108	87 - 113	5	20

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-602618/1-A
Matrix: Water
Analysis Batch: 602932

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 602618

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		02/21/23 08:15	02/21/23 22:41	1
Magnesium	ND		200	4.2	ug/L		02/21/23 08:15	02/21/23 22:41	1
Arsenic	ND		0.0050	0.00050	mg/L		02/21/23 08:15	02/21/23 22:41	1
Sodium	219	J	1000	73	ug/L		02/21/23 08:15	02/21/23 22:41	1
Barium	ND		0.0030	0.00038	mg/L		02/21/23 08:15	02/21/23 22:41	1
Potassium	71.7	J	1000	52	ug/L		02/21/23 08:15	02/21/23 22:41	1
Beryllium	ND		0.0010	0.00030	mg/L		02/21/23 08:15	02/21/23 22:41	1
Cadmium	ND		0.0010	0.00019	mg/L		02/21/23 08:15	02/21/23 22:41	1
Chromium	ND		0.0030	0.00050	mg/L		02/21/23 08:15	02/21/23 22:41	1
Cobalt	ND		0.0010	0.00033	mg/L		02/21/23 08:15	02/21/23 22:41	1
Lead	ND		0.0010	0.00023	mg/L		02/21/23 08:15	02/21/23 22:41	1
Molybdenum	ND		0.0020	0.00037	mg/L		02/21/23 08:15	02/21/23 22:41	1
Selenium	ND		0.0050	0.0010	mg/L		02/21/23 08:15	02/21/23 22:41	1
Calcium	ND		0.20	0.032	mg/L		02/21/23 08:15	02/21/23 22:41	1
Thallium	ND		0.0010	0.00021	mg/L		02/21/23 08:15	02/21/23 22:41	1

Lab Sample ID: LCS 280-602618/2-A
Matrix: Water
Analysis Batch: 602932

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 602618

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0414		mg/L		104	85 - 115
Magnesium	800	768		ug/L		96	80 - 120
Arsenic	0.0400	0.0387		mg/L		97	85 - 117
Barium	0.0400	0.0426		mg/L		106	85 - 118
Potassium	800	889	J	ug/L		111	80 - 120
Beryllium	0.0400	0.0397		mg/L		99	80 - 125
Cadmium	0.0400	0.0394		mg/L		98	85 - 115
Chromium	0.0400	0.0417		mg/L		104	84 - 121
Cobalt	0.0400	0.0413		mg/L		103	85 - 120
Lead	0.0400	0.0414		mg/L		103	85 - 118
Molybdenum	0.0400	0.0400		mg/L		100	85 - 119
Selenium	0.0400	0.0431		mg/L		108	77 - 122
Calcium	0.800	0.867		mg/L		108	80 - 120
Thallium	0.0400	0.0407		mg/L		102	85 - 118

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

Lab Sample ID: LCS 280-602618/2-A
Matrix: Water
Analysis Batch: 603020

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 602618

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sodium	800	819	J	ug/L		102	80 - 120

Lab Sample ID: MB 280-602720/1-A
Matrix: Water
Analysis Batch: 602933

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 602720

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.00050	mg/L		02/21/23 15:35	02/22/23 00:33	1
Potassium	ND		1000	52	ug/L		02/21/23 15:35	02/22/23 00:33	1
Beryllium	ND		0.0010	0.00030	mg/L		02/21/23 15:35	02/22/23 00:33	1
Cadmium	ND		0.0010	0.00019	mg/L		02/21/23 15:35	02/22/23 00:33	1
Chromium	ND		0.0030	0.00050	mg/L		02/21/23 15:35	02/22/23 00:33	1
Cobalt	ND		0.0010	0.00033	mg/L		02/21/23 15:35	02/22/23 00:33	1
Lead	ND		0.0010	0.00023	mg/L		02/21/23 15:35	02/22/23 00:33	1
Molybdenum	ND		0.0020	0.00037	mg/L		02/21/23 15:35	02/22/23 00:33	1
Selenium	ND		0.0050	0.0010	mg/L		02/21/23 15:35	02/22/23 00:33	1
Thallium	ND		0.0010	0.00021	mg/L		02/21/23 15:35	02/22/23 00:33	1

Lab Sample ID: MB 280-602720/1-A
Matrix: Water
Analysis Batch: 603020

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 602720

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		02/21/23 15:35	02/22/23 12:11	1
Magnesium	ND		200	4.2	ug/L		02/21/23 15:35	02/22/23 12:11	1
Sodium	89.3	J	1000	73	ug/L		02/21/23 15:35	02/22/23 12:11	1
Barium	0.000714	J	0.0030	0.00038	mg/L		02/21/23 15:35	02/22/23 12:11	1
Calcium	ND		0.20	0.032	mg/L		02/21/23 15:35	02/22/23 12:11	1

Lab Sample ID: LCS 280-602720/2-A
Matrix: Water
Analysis Batch: 602933

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 602720

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	0.0400	0.0389		mg/L		97	85 - 117
Potassium	800	910	J	ug/L		114	80 - 120
Beryllium	0.0400	0.0373		mg/L		93	80 - 125
Cadmium	0.0400	0.0401		mg/L		100	85 - 115
Chromium	0.0400	0.0392		mg/L		98	84 - 121
Cobalt	0.0400	0.0393		mg/L		98	85 - 120
Lead	0.0400	0.0414		mg/L		104	85 - 118
Molybdenum	0.0400	0.0401		mg/L		100	85 - 119
Selenium	0.0400	0.0425		mg/L		106	77 - 122
Thallium	0.0400	0.0407		mg/L		102	85 - 118

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

Lab Sample ID: LCS 280-602720/2-A
Matrix: Water
Analysis Batch: 603020

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 602720

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0388		mg/L		97	85 - 115
Magnesium	800	758		ug/L		95	80 - 120
Sodium	800	932	J	ug/L		117	80 - 120
Barium	0.0400	0.0399		mg/L		100	85 - 118
Calcium	0.800	0.777		mg/L		97	80 - 120

Lab Sample ID: MB 280-603040/1-A
Matrix: Water
Analysis Batch: 603251

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 603040

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		02/23/23 08:04	02/23/23 22:07	1
Magnesium	ND		200	4.2	ug/L		02/23/23 08:04	02/23/23 22:07	1
Arsenic	ND		0.0050	0.00050	mg/L		02/23/23 08:04	02/23/23 22:07	1
Sodium	ND		1000	73	ug/L		02/23/23 08:04	02/23/23 22:07	1
Barium	ND		0.0030	0.00038	mg/L		02/23/23 08:04	02/23/23 22:07	1
Potassium	ND		1000	52	ug/L		02/23/23 08:04	02/23/23 22:07	1
Beryllium	ND		0.0010	0.00030	mg/L		02/23/23 08:04	02/23/23 22:07	1
Cadmium	ND		0.0010	0.00019	mg/L		02/23/23 08:04	02/23/23 22:07	1
Chromium	ND		0.0030	0.00050	mg/L		02/23/23 08:04	02/23/23 22:07	1
Cobalt	ND		0.0010	0.00033	mg/L		02/23/23 08:04	02/23/23 22:07	1
Lead	ND		0.0010	0.00023	mg/L		02/23/23 08:04	02/23/23 22:07	1
Molybdenum	ND		0.0020	0.00037	mg/L		02/23/23 08:04	02/23/23 22:07	1
Selenium	ND		0.0050	0.0010	mg/L		02/23/23 08:04	02/23/23 22:07	1
Calcium	ND		0.20	0.032	mg/L		02/23/23 08:04	02/23/23 22:07	1
Thallium	ND		0.0010	0.00021	mg/L		02/23/23 08:04	02/23/23 22:07	1

Lab Sample ID: LCS 280-603040/2-A
Matrix: Water
Analysis Batch: 603251

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 603040

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0395		mg/L		99	85 - 115
Magnesium	800	783		ug/L		98	80 - 120
Arsenic	0.0400	0.0402		mg/L		101	85 - 117
Sodium	800	902	J	ug/L		113	80 - 120
Barium	0.0400	0.0406		mg/L		101	85 - 118
Potassium	800	849	J	ug/L		106	80 - 120
Beryllium	0.0400	0.0409		mg/L		102	80 - 125
Cadmium	0.0400	0.0402		mg/L		101	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	0.0396		mg/L		99	85 - 118
Molybdenum	0.0400	0.0404		mg/L		101	85 - 119
Selenium	0.0400	0.0401		mg/L		100	77 - 122
Calcium	0.800	0.881		mg/L		110	80 - 120
Thallium	0.0400	0.0392		mg/L		98	85 - 118

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

Lab Sample ID: LCSD 280-603040/3-A
Matrix: Water
Analysis Batch: 603251

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 603040

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony			0.0400	0.0401		mg/L		100	85 - 115	2	9
Magnesium			800	774		ug/L		97	80 - 120	1	20
Arsenic			0.0400	0.0398		mg/L		99	85 - 117	1	10
Sodium			800	937	J	ug/L		117	80 - 120	4	20
Barium			0.0400	0.0406		mg/L		102	85 - 118	0	11
Potassium			800	858	J	ug/L		107	80 - 120	1	20
Beryllium			0.0400	0.0401		mg/L		100	80 - 125	2	22
Cadmium			0.0400	0.0400		mg/L		100	85 - 115	1	7
Chromium			0.0400	0.0407		mg/L		102	84 - 121	2	8
Cobalt			0.0400	0.0408		mg/L		102	85 - 120	0	7
Lead			0.0400	0.0390		mg/L		97	85 - 118	1	7
Molybdenum			0.0400	0.0395		mg/L		99	85 - 119	2	8
Selenium			0.0400	0.0414		mg/L		103	77 - 122	3	9
Calcium			0.800	0.871		mg/L		109	80 - 120	1	20
Thallium			0.0400	0.0392		mg/L		98	85 - 118	0	5

Lab Sample ID: 280-172593-8 MS
Matrix: Water
Analysis Batch: 603251

Client Sample ID: W-3B
Prep Type: Dissolved
Prep Batch: 602943

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Calcium	460		0.800	465	4	mg/L		612	80 - 120		

Lab Sample ID: 280-172593-8 MS
Matrix: Water
Analysis Batch: 603251

Client Sample ID: W-3B
Prep Type: Dissolved
Prep Batch: 602943

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Antimony	ND		0.0400	0.0401		mg/L		100	80 - 111		
Arsenic	0.00060	J	0.0400	0.0389		mg/L		96	92 - 112		
Barium	0.014		0.0400	0.0541		mg/L		100	92 - 117		
Beryllium	ND		0.0400	0.0422		mg/L		106	87 - 118		
Cadmium	0.017	F1	0.0400	0.0516	F1	mg/L		86	91 - 114		
Chromium	ND		0.0400	0.0373	B	mg/L		93	91 - 114		
Cobalt	0.11		0.0400	0.152		mg/L		94	94 - 115		
Lead	ND		0.0400	0.0394		mg/L		99	95 - 116		
Molybdenum	0.0016	J	0.0400	0.0412		mg/L		99	84 - 117		
Selenium	0.0036	J	0.0400	0.0458		mg/L		105	90 - 115		
Thallium	0.0036		0.0400	0.0430		mg/L		99	94 - 115		

Lab Sample ID: 280-172593-8 MSD
Matrix: Water
Analysis Batch: 603251

Client Sample ID: W-3B
Prep Type: Dissolved
Prep Batch: 602943

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	460		0.800	492	4	mg/L		4037	80 - 120	6	20

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

Lab Sample ID: 280-172593-8 MSD
Matrix: Water
Analysis Batch: 603251

Client Sample ID: W-3B
Prep Type: Dissolved
Prep Batch: 602943

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	0.00060	J	0.0400	0.0393		mg/L		97	92 - 112	1	20
Barium	0.014		0.0400	0.0548		mg/L		102	92 - 117	1	20
Beryllium	ND		0.0400	0.0450		mg/L		112	87 - 118	6	20
Cadmium	0.017	F1	0.0400	0.0523	F1	mg/L		87	91 - 114	1	20
Chromium	ND		0.0400	0.0385	B	mg/L		96	91 - 114	3	20
Cobalt	0.11		0.0400	0.157		mg/L		107	94 - 115	4	20
Lead	ND		0.0400	0.0412		mg/L		103	95 - 116	5	20
Molybdenum	0.0016	J	0.0400	0.0419		mg/L		101	84 - 117	2	20
Selenium	0.0036	J	0.0400	0.0465		mg/L		107	90 - 115	2	20
Thallium	0.0036		0.0400	0.0445		mg/L		102	94 - 115	3	20

Lab Sample ID: MB 280-602881/1-F
Matrix: Water
Analysis Batch: 603789

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 603510

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		02/28/23 15:00	03/01/23 17:25	1
Arsenic	ND		0.0050	0.00050	mg/L		02/28/23 15:00	03/01/23 17:25	1
Barium	ND		0.0030	0.00038	mg/L		02/28/23 15:00	03/01/23 17:25	1
Beryllium	ND		0.0010	0.00030	mg/L		02/28/23 15:00	03/01/23 17:25	1
Cadmium	ND		0.0010	0.00019	mg/L		02/28/23 15:00	03/01/23 17:25	1
Chromium	0.000637	J	0.0030	0.00050	mg/L		02/28/23 15:00	03/01/23 17:25	1
Cobalt	ND		0.0010	0.00033	mg/L		02/28/23 15:00	03/01/23 17:25	1
Lead	ND		0.0010	0.00023	mg/L		02/28/23 15:00	03/01/23 17:25	1
Molybdenum	ND		0.0020	0.00037	mg/L		02/28/23 15:00	03/01/23 17:25	1
Selenium	ND		0.0050	0.0010	mg/L		02/28/23 15:00	03/01/23 17:25	1
Calcium	ND		0.20	0.032	mg/L		02/28/23 15:00	03/01/23 17:25	1
Thallium	ND		0.0010	0.00021	mg/L		02/28/23 15:00	03/01/23 17:25	1

Lab Sample ID: LCS 280-602881/2-F
Matrix: Water
Analysis Batch: 603789

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 603510

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0387		mg/L		97	85 - 115
Arsenic	0.0400	0.0393		mg/L		98	85 - 117
Barium	0.0400	0.0387		mg/L		97	85 - 118
Beryllium	0.0400	0.0391		mg/L		98	80 - 125
Cadmium	0.0400	0.0379		mg/L		95	85 - 115
Chromium	0.0400	0.0392		mg/L		98	84 - 121
Cobalt	0.0400	0.0393		mg/L		98	85 - 120
Lead	0.0400	0.0379		mg/L		95	85 - 118
Molybdenum	0.0400	0.0387		mg/L		97	85 - 119
Selenium	0.0400	0.0402		mg/L		100	77 - 122
Calcium	0.800	0.805		mg/L		101	80 - 120
Thallium	0.0400	0.0388		mg/L		97	85 - 118

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

Lab Sample ID: 280-172593-3 MS
Matrix: Water
Analysis Batch: 603789

Client Sample ID: W-5B
Prep Type: Dissolved
Prep Batch: 603510

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	ND		0.0400	0.0396		mg/L		99	80 - 111
Arsenic	ND		0.0400	0.0403		mg/L		101	92 - 112
Barium	0.015		0.0400	0.0570		mg/L		106	92 - 117
Beryllium	ND		0.0400	0.0384		mg/L		96	87 - 118
Cadmium	0.00048	J	0.0400	0.0386		mg/L		95	91 - 114
Chromium	0.00071	J B	0.0400	0.0400		mg/L		98	91 - 114
Cobalt	0.0021		0.0400	0.0409		mg/L		97	94 - 115
Lead	ND		0.0400	0.0389		mg/L		97	95 - 116
Molybdenum	0.0019	J	0.0400	0.0431		mg/L		103	84 - 117
Selenium	ND		0.0400	0.0421		mg/L		105	90 - 115
Thallium	0.00072	J	0.0400	0.0401		mg/L		98	94 - 115

Lab Sample ID: 280-172593-3 MS
Matrix: Water
Analysis Batch: 603851

Client Sample ID: W-5B
Prep Type: Dissolved
Prep Batch: 603510

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	500	F2 B	0.800	388	4	mg/L		-1363 0	80 - 120

Lab Sample ID: 280-172593-3 MSD
Matrix: Water
Analysis Batch: 603789

Client Sample ID: W-5B
Prep Type: Dissolved
Prep Batch: 603510

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	ND		0.0400	0.0390		mg/L		97	80 - 111	2	20
Arsenic	ND		0.0400	0.0423		mg/L		106	92 - 112	5	20
Barium	0.015		0.0400	0.0572		mg/L		106	92 - 117	0	20
Beryllium	ND		0.0400	0.0399		mg/L		100	87 - 118	4	20
Cadmium	0.00048	J	0.0400	0.0393		mg/L		97	91 - 114	2	20
Chromium	0.00071	J B	0.0400	0.0412		mg/L		101	91 - 114	3	20
Cobalt	0.0021		0.0400	0.0419		mg/L		99	94 - 115	2	20
Lead	ND		0.0400	0.0395		mg/L		99	95 - 116	1	20
Molybdenum	0.0019	J	0.0400	0.0428		mg/L		102	84 - 117	1	20
Selenium	ND		0.0400	0.0430		mg/L		107	90 - 115	2	20
Thallium	0.00072	J	0.0400	0.0406		mg/L		100	94 - 115	1	20

Lab Sample ID: 280-172593-3 MSD
Matrix: Water
Analysis Batch: 603851

Client Sample ID: W-5B
Prep Type: Dissolved
Prep Batch: 603510

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	500	F2 B	0.800	497	4 F2	mg/L		-32	80 - 120	25	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-603002/1-A
Matrix: Water
Analysis Batch: 603114

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 603002

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		02/22/23 14:00	02/22/23 19:19	1

Lab Sample ID: LCS 280-603002/2-A
Matrix: Water
Analysis Batch: 603114

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 603002

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 280-602881/1-E
Matrix: Water
Analysis Batch: 603373

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 603260

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		02/24/23 13:20	02/24/23 19:30	1

Lab Sample ID: LCS 280-602881/2-E
Matrix: Water
Analysis Batch: 603373

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 603260

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00529		mg/L		106	84 - 120

Lab Sample ID: 280-172593-8 MS
Matrix: Water
Analysis Batch: 603373

Client Sample ID: W-3B
Prep Type: Dissolved
Prep Batch: 603260

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		0.00500	0.00394		mg/L		79	75 - 125

Lab Sample ID: 280-172593-8 MSD
Matrix: Water
Analysis Batch: 603373

Client Sample ID: W-3B
Prep Type: Dissolved
Prep Batch: 603260

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		0.00500	0.00389		mg/L		78	75 - 125	1	20

Method: 9040B - pH

Lab Sample ID: LCS 280-602926/33
Matrix: Water
Analysis Batch: 602926

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 280-603522/66
Matrix: Water
Analysis Batch: 603522

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			03/01/23 05:26	1
Sulfate	ND		5.0	1.0	mg/L			03/01/23 05:26	1

Lab Sample ID: LCS 280-603522/64
Matrix: Water
Analysis Batch: 603522

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	48.4		mg/L		97	90 - 110
Sulfate	50.0	49.8		mg/L		100	90 - 110

Lab Sample ID: LCSD 280-603522/65
Matrix: Water
Analysis Batch: 603522

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	48.4		mg/L		97	90 - 110	0	10
Sulfate	50.0	49.5		mg/L		99	90 - 110	1	10

Lab Sample ID: MRL 280-603522/3
Matrix: Water
Analysis Batch: 603522

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	3.03		mg/L		121	50 - 150
Sulfate	2.50	2.77	J	mg/L		111	50 - 150

Lab Sample ID: MB 280-603681/6
Matrix: Water
Analysis Batch: 603681

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			03/01/23 12:28	1

Lab Sample ID: LCS 280-603681/4
Matrix: Water
Analysis Batch: 603681

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	50.6		mg/L		101	90 - 110

Lab Sample ID: LCSD 280-603681/5
Matrix: Water
Analysis Batch: 603681

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	50.6		mg/L		101	90 - 110	0	10

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

Lab Sample ID: MRL 280-603681/3
Matrix: Water
Analysis Batch: 603681

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	2.37	J	mg/L		95	50 - 150		

Lab Sample ID: 280-172593-3 MS
Matrix: Water
Analysis Batch: 603681

Client Sample ID: W-5B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Fluoride	ND	F1	5.00	3.23	F1	mg/L		65	80 - 120		

Lab Sample ID: 280-172593-3 MSD
Matrix: Water
Analysis Batch: 603681

Client Sample ID: W-5B
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	F1	5.00	3.24	F1	mg/L		65	80 - 120	0	20

Lab Sample ID: 280-172593-3 DU
Matrix: Water
Analysis Batch: 603681

Client Sample ID: W-5B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Fluoride	ND	F1	0.263	J	mg/L		NC	15

Lab Sample ID: MB 280-603886/6
Matrix: Water
Analysis Batch: 603886

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			03/02/23 19:08	1
Fluoride	ND	^-	0.50	0.17	mg/L			03/02/23 19:08	1
Sulfate	1.04	J	5.0	1.0	mg/L			03/02/23 19:08	1

Lab Sample ID: LCS 280-603886/4
Matrix: Water
Analysis Batch: 603886

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	2.29	^-	mg/L		92	90 - 110		
Sulfate			50.0	49.9		mg/L		100	90 - 110		

Lab Sample ID: LCSD 280-603886/5
Matrix: Water
Analysis Batch: 603886

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	2.32	^-	mg/L		93	90 - 110	1	10
Sulfate			50.0	49.9		mg/L		100	90 - 110	0	10

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

Lab Sample ID: MRL 280-603886/3
Matrix: Water
Analysis Batch: 603886

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	0.259	J	mg/L		104	50 - 150		
Sulfate			2.50	2.44	J	mg/L		98	50 - 150		

Lab Sample ID: 280-172593-3 MS
Matrix: Water
Analysis Batch: 603886

Client Sample ID: W-5B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Fluoride	ND	^-	50.0	51.0	E ^-	mg/L		102	80 - 120		
Sulfate	3900	E B	500	4020	E 4	mg/L		17	80 - 120		

Lab Sample ID: 280-172593-3 MSD
Matrix: Water
Analysis Batch: 603886

Client Sample ID: W-5B
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	^-	50.0	50.4	E ^-	mg/L		101	80 - 120	1	20
Sulfate	3900	E B	500	3970	E 4	mg/L		8	80 - 120	1	20

Lab Sample ID: 280-172593-3 DU
Matrix: Water
Analysis Batch: 603886

Client Sample ID: W-5B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Fluoride	ND	^-		ND	^-	mg/L				NC	15
Sulfate	3900	E B		3880	E	mg/L				1	15

Lab Sample ID: MB 280-604271/6
Matrix: Water
Analysis Batch: 604271

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			03/07/23 15:12	1
Fluoride	ND		0.50	0.17	mg/L			03/07/23 15:12	1
Sulfate	ND		5.0	1.0	mg/L			03/07/23 15:12	1

Lab Sample ID: MB 280-604271/93
Matrix: Water
Analysis Batch: 604271

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			03/08/23 03:27	1
Fluoride	ND	^+	0.50	0.17	mg/L			03/08/23 03:27	1
Sulfate	ND		5.0	1.0	mg/L			03/08/23 03:27	1

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

Lab Sample ID: LCS 280-604271/4
Matrix: Water
Analysis Batch: 604271

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	47.3		mg/L		95	90 - 110		
Fluoride			2.50	2.40		mg/L		96	90 - 110		
Sulfate			50.0	48.4		mg/L		97	90 - 110		

Lab Sample ID: LCS 280-604271/91
Matrix: Water
Analysis Batch: 604271

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	50.9		mg/L		102	90 - 110		
Fluoride			2.50	2.64	^+	mg/L		106	90 - 110		
Sulfate			50.0	52.6		mg/L		105	90 - 110		

Lab Sample ID: LCSD 280-604271/5
Matrix: Water
Analysis Batch: 604271

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	47.5		mg/L		95	90 - 110	1	10
Fluoride			2.50	2.44		mg/L		98	90 - 110	2	10
Sulfate			50.0	48.7		mg/L		97	90 - 110	1	10

Lab Sample ID: LCSD 280-604271/92
Matrix: Water
Analysis Batch: 604271

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	51.2		mg/L		102	90 - 110	1	10
Fluoride			2.50	2.66	^+	mg/L		107	90 - 110	1	10
Sulfate			50.0	52.9		mg/L		106	90 - 110	1	10

Lab Sample ID: MRL 280-604271/3
Matrix: Water
Analysis Batch: 604271

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	2.31	J	mg/L		92	50 - 150		
Fluoride			0.250	0.209	J	mg/L		84	50 - 150		
Sulfate			2.50	2.30	J	mg/L		92	50 - 150		

Lab Sample ID: 280-172593-2 MS
Matrix: Water
Analysis Batch: 604271

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Fluoride	ND	^+ F1	50.0	26.5	F1 ^+	mg/L		53	80 - 120		

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

Lab Sample ID: 280-172593-2 MSD
Matrix: Water
Analysis Batch: 604271

Client Sample ID: W-7
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	^+ F1	50.0	27.0	F1 ^+	mg/L		54	80 - 120	2	20

Lab Sample ID: 280-172593-2 DU
Matrix: Water
Analysis Batch: 604271

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

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Fluoride	ND	^+ F1	ND	^+	mg/L		NC	15

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-602927/31
Matrix: Water
Analysis Batch: 602927

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	3.38	J	10	3.1	mg/L			02/21/23 18:02	1
Bicarbonate Alkalinity as CaCO3	3.38	J	10	3.1	mg/L			02/21/23 18:02	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			02/21/23 18:02	1

Lab Sample ID: MB 280-602927/5
Matrix: Water
Analysis Batch: 602927

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	3.98	J	10	3.1	mg/L			02/21/23 14:42	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			02/21/23 14:42	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			02/21/23 14:42	1

Lab Sample ID: LCS 280-602927/30
Matrix: Water
Analysis Batch: 602927

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		101	89 - 109

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

Lab Sample ID: MB 280-602718/1
Matrix: Water
Analysis Batch: 602718

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			02/20/23 14:43	1

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

Lab Sample ID: LCS 280-602718/2
Matrix: Water
Analysis Batch: 602718

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	509		mg/L		101	88 - 114		

Lab Sample ID: MB 280-603024/1
Matrix: Water
Analysis Batch: 603024

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			02/22/23 13:27	1

Lab Sample ID: LCS 280-603024/2
Matrix: Water
Analysis Batch: 603024

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	466		mg/L		93	88 - 114		

Lab Sample ID: LCSD 280-603024/3
Matrix: Water
Analysis Batch: 603024

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	443		mg/L		88	88 - 114	5	20

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

Lab Sample ID: MB 280-602725/3
Matrix: Water
Analysis Batch: 602725

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			02/20/23 16:00	1

Lab Sample ID: LCS 280-602725/1
Matrix: Water
Analysis Batch: 602725

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	456		mg/L		91	79 - 114		

Lab Sample ID: LCSD 280-602725/2
Matrix: Water
Analysis Batch: 602725

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	490		mg/L		97	79 - 114	7	20

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

Lab Sample ID: MB 280-602828/2
Matrix: Water
Analysis Batch: 602828

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			02/21/23 11:41	1

Lab Sample ID: LCS 280-602828/1
Matrix: Water
Analysis Batch: 602828

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	508	449		mg/L		88	79 - 114

Lab Sample ID: MB 280-603129/2
Matrix: Water
Analysis Batch: 603129

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			02/23/23 11:34	1

Lab Sample ID: LCS 280-603129/1
Matrix: Water
Analysis Batch: 603129

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	506	526		mg/L		104	79 - 114

Lab Sample ID: 280-172593-7 DU
Matrix: Water
Analysis Batch: 603129

Client Sample ID: W-12
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	440		376	F3	mg/L		15	10

Metals

Prep Batch: 602618

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172593-1	W-2C	Total Recoverable	Water	3005A	
280-172593-3	W-5B	Total Recoverable	Water	3005A	
MB 280-602618/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-602618/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 602696

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172593-1	W-2C	Total Recoverable	Water	3005A	
280-172593-2	W-7	Total Recoverable	Water	3005A	
280-172593-3	W-5B	Total Recoverable	Water	3005A	
280-172593-4	W-6BI	Total Recoverable	Water	3005A	
280-172593-5	WT-6BI	Total Recoverable	Water	3005A	
280-172593-6	W-11	Total Recoverable	Water	3005A	
280-172593-7	W-12	Total Recoverable	Water	3005A	
280-172593-8	W-3B	Total Recoverable	Water	3005A	
MB 280-602696/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-602696/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 602720

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172593-4	W-6BI	Total Recoverable	Water	3005A	
280-172593-5	WT-6BI	Total Recoverable	Water	3005A	
280-172593-6	W-11	Total Recoverable	Water	3005A	
280-172593-7	W-12	Total Recoverable	Water	3005A	
280-172593-8	W-3B	Total Recoverable	Water	3005A	
MB 280-602720/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-602720/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Filtration Batch: 602881

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172593-1	W-2C	Dissolved	Water	FILTRATION	
280-172593-2	W-7	Dissolved	Water	FILTRATION	
280-172593-3	W-5B	Dissolved	Water	FILTRATION	
280-172593-4	W-6BI	Dissolved	Water	FILTRATION	
280-172593-5	WT-6BI	Dissolved	Water	FILTRATION	
280-172593-6	W-11	Dissolved	Water	FILTRATION	
280-172593-7	W-12	Dissolved	Water	FILTRATION	
280-172593-8	W-3B	Dissolved	Water	FILTRATION	
MB 280-602881/1-D	Method Blank	Dissolved	Water	FILTRATION	
MB 280-602881/1-E	Method Blank	Dissolved	Water	FILTRATION	
MB 280-602881/1-F	Method Blank	Dissolved	Water	FILTRATION	
LCS 280-602881/2-D	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 280-602881/2-E	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 280-602881/2-F	Lab Control Sample	Dissolved	Water	FILTRATION	
280-172593-1 MS	W-2C	Dissolved	Water	FILTRATION	
280-172593-1 MSD	W-2C	Dissolved	Water	FILTRATION	
280-172593-3 MS	W-5B	Dissolved	Water	FILTRATION	
280-172593-3 MSD	W-5B	Dissolved	Water	FILTRATION	
280-172593-8 MS	W-3B	Dissolved	Water	FILTRATION	
280-172593-8 MSD	W-3B	Dissolved	Water	FILTRATION	

Metals

Analysis Batch: 602932

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172593-1	W-2C	Total Recoverable	Water	6020B	602618
280-172593-3	W-5B	Total Recoverable	Water	6020B	602618
MB 280-602618/1-A	Method Blank	Total Recoverable	Water	6020B	602618
LCS 280-602618/2-A	Lab Control Sample	Total Recoverable	Water	6020B	602618

Analysis Batch: 602933

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172593-4	W-6BI	Total Recoverable	Water	6020B	602720
280-172593-5	WT-6BI	Total Recoverable	Water	6020B	602720
280-172593-6	W-11	Total Recoverable	Water	6020B	602720
280-172593-7	W-12	Total Recoverable	Water	6020B	602720
280-172593-8	W-3B	Total Recoverable	Water	6020B	602720
MB 280-602720/1-A	Method Blank	Total Recoverable	Water	6020B	602720
LCS 280-602720/2-A	Lab Control Sample	Total Recoverable	Water	6020B	602720

Analysis Batch: 602936

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172593-1	W-2C	Total Recoverable	Water	6010C	602696
280-172593-2	W-7	Total Recoverable	Water	6010C	602696
280-172593-2	W-7	Total Recoverable	Water	6010C	602696
280-172593-3	W-5B	Total Recoverable	Water	6010C	602696
280-172593-4	W-6BI	Total Recoverable	Water	6010C	602696
280-172593-4	W-6BI	Total Recoverable	Water	6010C	602696
280-172593-5	WT-6BI	Total Recoverable	Water	6010C	602696
280-172593-5	WT-6BI	Total Recoverable	Water	6010C	602696
280-172593-6	W-11	Total Recoverable	Water	6010C	602696
280-172593-7	W-12	Total Recoverable	Water	6010C	602696
280-172593-8	W-3B	Total Recoverable	Water	6010C	602696
280-172593-8	W-3B	Total Recoverable	Water	6010C	602696
MB 280-602696/1-A	Method Blank	Total Recoverable	Water	6010C	602696
LCS 280-602696/2-A	Lab Control Sample	Total Recoverable	Water	6010C	602696

Prep Batch: 602943

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172593-1	W-2C	Dissolved	Water	3005A	602881
280-172593-2	W-7	Dissolved	Water	3005A	602881
280-172593-3	W-5B	Dissolved	Water	3005A	602881
280-172593-4	W-6BI	Dissolved	Water	3005A	602881
280-172593-5	WT-6BI	Dissolved	Water	3005A	602881
280-172593-6	W-11	Dissolved	Water	3005A	602881
280-172593-7	W-12	Dissolved	Water	3005A	602881
280-172593-8	W-3B	Dissolved	Water	3005A	602881
MB 280-602881/1-D	Method Blank	Dissolved	Water	3005A	602881
LCS 280-602881/2-D	Lab Control Sample	Dissolved	Water	3005A	602881
280-172593-1 MS	W-2C	Dissolved	Water	3005A	602881
280-172593-1 MSD	W-2C	Dissolved	Water	3005A	602881
280-172593-8 MS	W-3B	Dissolved	Water	3005A	602881
280-172593-8 MSD	W-3B	Dissolved	Water	3005A	602881

Metals

Prep Batch: 603002

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172593-1	W-2C	Total/NA	Water	7470A	
280-172593-2	W-7	Total/NA	Water	7470A	
280-172593-3	W-5B	Total/NA	Water	7470A	
280-172593-4	W-6BI	Total/NA	Water	7470A	
280-172593-5	WT-6BI	Total/NA	Water	7470A	
280-172593-6	W-11	Total/NA	Water	7470A	
280-172593-7	W-12	Total/NA	Water	7470A	
280-172593-8	W-3B	Total/NA	Water	7470A	
MB 280-603002/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-603002/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 603020

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172593-1	W-2C	Total Recoverable	Water	6020B	602618
280-172593-3	W-5B	Total Recoverable	Water	6020B	602618
280-172593-4	W-6BI	Total Recoverable	Water	6020B	602720
280-172593-5	WT-6BI	Total Recoverable	Water	6020B	602720
280-172593-6	W-11	Total Recoverable	Water	6020B	602720
280-172593-7	W-12	Total Recoverable	Water	6020B	602720
280-172593-8	W-3B	Total Recoverable	Water	6020B	602720
MB 280-602720/1-A	Method Blank	Total Recoverable	Water	6020B	602720
LCS 280-602618/2-A	Lab Control Sample	Total Recoverable	Water	6020B	602618
LCS 280-602720/2-A	Lab Control Sample	Total Recoverable	Water	6020B	602720

Prep Batch: 603040

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172593-2	W-7	Total Recoverable	Water	3005A	
MB 280-603040/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-603040/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCSD 280-603040/3-A	Lab Control Sample Dup	Total Recoverable	Water	3005A	

Analysis Batch: 603088

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172593-4	W-6BI	Total Recoverable	Water	6020B	602720
280-172593-5	WT-6BI	Total Recoverable	Water	6020B	602720
280-172593-6	W-11	Total Recoverable	Water	6020B	602720
280-172593-7	W-12	Total Recoverable	Water	6020B	602720
280-172593-8	W-3B	Total Recoverable	Water	6020B	602720

Analysis Batch: 603114

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172593-1	W-2C	Total/NA	Water	7470A	603002
280-172593-2	W-7	Total/NA	Water	7470A	603002
280-172593-3	W-5B	Total/NA	Water	7470A	603002
280-172593-4	W-6BI	Total/NA	Water	7470A	603002
280-172593-5	WT-6BI	Total/NA	Water	7470A	603002
280-172593-6	W-11	Total/NA	Water	7470A	603002
280-172593-7	W-12	Total/NA	Water	7470A	603002
280-172593-8	W-3B	Total/NA	Water	7470A	603002
MB 280-603002/1-A	Method Blank	Total/NA	Water	7470A	603002
LCS 280-603002/2-A	Lab Control Sample	Total/NA	Water	7470A	603002

Metals

Analysis Batch: 603251

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172593-1	W-2C	Dissolved	Water	6020B	602943
280-172593-1	W-2C	Dissolved	Water	6020B	602943
280-172593-2	W-7	Dissolved	Water	6020B	602943
280-172593-2	W-7	Dissolved	Water	6020B	602943
280-172593-2	W-7	Total Recoverable	Water	6020B	603040
280-172593-2	W-7	Total Recoverable	Water	6020B	603040
280-172593-4	W-6BI	Dissolved	Water	6020B	602943
280-172593-4	W-6BI	Dissolved	Water	6020B	602943
280-172593-5	WT-6BI	Dissolved	Water	6020B	602943
280-172593-5	WT-6BI	Dissolved	Water	6020B	602943
280-172593-6	W-11	Dissolved	Water	6020B	602943
280-172593-6	W-11	Dissolved	Water	6020B	602943
280-172593-7	W-12	Dissolved	Water	6020B	602943
280-172593-7	W-12	Dissolved	Water	6020B	602943
280-172593-8	W-3B	Dissolved	Water	6020B	602943
280-172593-8	W-3B	Dissolved	Water	6020B	602943
MB 280-603040/1-A	Method Blank	Total Recoverable	Water	6020B	603040
LCS 280-603040/2-A	Lab Control Sample	Total Recoverable	Water	6020B	603040
LCSD 280-603040/3-A	Lab Control Sample Dup	Total Recoverable	Water	6020B	603040
280-172593-8 MS	W-3B	Dissolved	Water	6020B	602943
280-172593-8 MS	W-3B	Dissolved	Water	6020B	602943
280-172593-8 MSD	W-3B	Dissolved	Water	6020B	602943
280-172593-8 MSD	W-3B	Dissolved	Water	6020B	602943

Prep Batch: 603260

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172593-1	W-2C	Dissolved	Water	7470A	602881
280-172593-2	W-7	Dissolved	Water	7470A	602881
280-172593-3	W-5B	Dissolved	Water	7470A	602881
280-172593-4	W-6BI	Dissolved	Water	7470A	602881
280-172593-5	WT-6BI	Dissolved	Water	7470A	602881
280-172593-6	W-11	Dissolved	Water	7470A	602881
280-172593-7	W-12	Dissolved	Water	7470A	602881
280-172593-8	W-3B	Dissolved	Water	7470A	602881
MB 280-602881/1-E	Method Blank	Dissolved	Water	7470A	602881
LCS 280-602881/2-E	Lab Control Sample	Dissolved	Water	7470A	602881
280-172593-8 MS	W-3B	Dissolved	Water	7470A	602881
280-172593-8 MSD	W-3B	Dissolved	Water	7470A	602881

Analysis Batch: 603359

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172593-1	W-2C	Dissolved	Water	6010C	602943
280-172593-2	W-7	Dissolved	Water	6010C	602943
280-172593-3	W-5B	Dissolved	Water	6010C	602943
280-172593-4	W-6BI	Dissolved	Water	6010C	602943
280-172593-5	WT-6BI	Dissolved	Water	6010C	602943
280-172593-6	W-11	Dissolved	Water	6010C	602943
280-172593-7	W-12	Dissolved	Water	6010C	602943
280-172593-8	W-3B	Dissolved	Water	6010C	602943
MB 280-602881/1-D	Method Blank	Dissolved	Water	6010C	602943
LCS 280-602881/2-D	Lab Control Sample	Dissolved	Water	6010C	602943

Metals (Continued)

Analysis Batch: 603359 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172593-1 MS	W-2C	Dissolved	Water	6010C	602943
280-172593-1 MSD	W-2C	Dissolved	Water	6010C	602943

Analysis Batch: 603373

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172593-1	W-2C	Dissolved	Water	7470A	603260
280-172593-2	W-7	Dissolved	Water	7470A	603260
280-172593-3	W-5B	Dissolved	Water	7470A	603260
280-172593-4	W-6BI	Dissolved	Water	7470A	603260
280-172593-5	WT-6BI	Dissolved	Water	7470A	603260
280-172593-6	W-11	Dissolved	Water	7470A	603260
280-172593-7	W-12	Dissolved	Water	7470A	603260
280-172593-8	W-3B	Dissolved	Water	7470A	603260
MB 280-602881/1-E	Method Blank	Dissolved	Water	7470A	603260
LCS 280-602881/2-E	Lab Control Sample	Dissolved	Water	7470A	603260
280-172593-8 MS	W-3B	Dissolved	Water	7470A	603260
280-172593-8 MSD	W-3B	Dissolved	Water	7470A	603260

Prep Batch: 603510

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172593-3	W-5B	Dissolved	Water	3005A	602881
MB 280-602881/1-F	Method Blank	Dissolved	Water	3005A	602881
LCS 280-602881/2-F	Lab Control Sample	Dissolved	Water	3005A	602881
280-172593-3 MS	W-5B	Dissolved	Water	3005A	602881
280-172593-3 MSD	W-5B	Dissolved	Water	3005A	602881

Analysis Batch: 603645

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172593-1	W-2C	Dissolved	Water	6010C	602943
280-172593-2	W-7	Dissolved	Water	6010C	602943
280-172593-4	W-6BI	Dissolved	Water	6010C	602943
280-172593-5	WT-6BI	Dissolved	Water	6010C	602943
280-172593-8	W-3B	Dissolved	Water	6010C	602943
280-172593-1 MS	W-2C	Dissolved	Water	6010C	602943
280-172593-1 MSD	W-2C	Dissolved	Water	6010C	602943

Analysis Batch: 603789

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172593-3	W-5B	Dissolved	Water	6020B	603510
MB 280-602881/1-F	Method Blank	Dissolved	Water	6020B	603510
LCS 280-602881/2-F	Lab Control Sample	Dissolved	Water	6020B	603510
280-172593-3 MS	W-5B	Dissolved	Water	6020B	603510
280-172593-3 MSD	W-5B	Dissolved	Water	6020B	603510

Analysis Batch: 603851

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172593-3	W-5B	Dissolved	Water	6020B	603510
280-172593-3 MS	W-5B	Dissolved	Water	6020B	603510
280-172593-3 MSD	W-5B	Dissolved	Water	6020B	603510

QC Association Summary

Client: HDR Inc
Job ID: 280-172593-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Metals

Analysis Batch: 603931

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172593-4	W-6BI	Total Recoverable	Water	6020B	602720
280-172593-5	WT-6BI	Total Recoverable	Water	6020B	602720
280-172593-8	W-3B	Total Recoverable	Water	6020B	602720

General Chemistry

Analysis Batch: 602718

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172593-1	W-2C	Total/NA	Water	SM 2540C	
280-172593-2	W-7	Total/NA	Water	SM 2540C	
280-172593-3	W-5B	Total/NA	Water	SM 2540C	
280-172593-4	W-6BI	Total/NA	Water	SM 2540C	
280-172593-5	WT-6BI	Total/NA	Water	SM 2540C	
MB 280-602718/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-602718/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 602725

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172593-1	W-2C	Total/NA	Water	SM 2540D	
280-172593-2	W-7	Total/NA	Water	SM 2540D	
280-172593-3	W-5B	Total/NA	Water	SM 2540D	
280-172593-4	W-6BI	Total/NA	Water	SM 2540D	
MB 280-602725/3	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-602725/1	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-602725/2	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 602828

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172593-5	WT-6BI	Total/NA	Water	SM 2540D	
280-172593-6	W-11	Total/NA	Water	SM 2540D	
280-172593-8	W-3B	Total/NA	Water	SM 2540D	
MB 280-602828/2	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-602828/1	Lab Control Sample	Total/NA	Water	SM 2540D	

Analysis Batch: 602926

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172593-1	W-2C	Total/NA	Water	9040B	
280-172593-2	W-7	Total/NA	Water	9040B	
280-172593-3	W-5B	Total/NA	Water	9040B	
280-172593-4	W-6BI	Total/NA	Water	9040B	
280-172593-5	WT-6BI	Total/NA	Water	9040B	
280-172593-6	W-11	Total/NA	Water	9040B	
280-172593-7	W-12	Total/NA	Water	9040B	
280-172593-8	W-3B	Total/NA	Water	9040B	
LCS 280-602926/33	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 602927

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172593-1	W-2C	Total/NA	Water	SM 2320B	
280-172593-2	W-7	Total/NA	Water	SM 2320B	
280-172593-3	W-5B	Total/NA	Water	SM 2320B	

General Chemistry (Continued)

Analysis Batch: 602927 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172593-4	W-6BI	Total/NA	Water	SM 2320B	
280-172593-5	WT-6BI	Total/NA	Water	SM 2320B	
280-172593-6	W-11	Total/NA	Water	SM 2320B	
280-172593-7	W-12	Total/NA	Water	SM 2320B	
280-172593-8	W-3B	Total/NA	Water	SM 2320B	
MB 280-602927/31	Method Blank	Total/NA	Water	SM 2320B	
MB 280-602927/5	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-602927/30	Lab Control Sample	Total/NA	Water	SM 2320B	

Analysis Batch: 603024

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172593-6	W-11	Total/NA	Water	SM 2540C	
280-172593-7	W-12	Total/NA	Water	SM 2540C	
280-172593-8	W-3B	Total/NA	Water	SM 2540C	
MB 280-603024/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-603024/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-603024/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 603129

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172593-7	W-12	Total/NA	Water	SM 2540D	
MB 280-603129/2	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-603129/1	Lab Control Sample	Total/NA	Water	SM 2540D	
280-172593-7 DU	W-12	Total/NA	Water	SM 2540D	

Analysis Batch: 603522

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172593-1	W-2C	Total/NA	Water	9056A	
280-172593-1	W-2C	Total/NA	Water	9056A	
280-172593-2	W-7	Total/NA	Water	9056A	
280-172593-2	W-7	Total/NA	Water	9056A	
280-172593-3	W-5B	Total/NA	Water	9056A	
280-172593-3	W-5B	Total/NA	Water	9056A	
280-172593-4	W-6BI	Total/NA	Water	9056A	
280-172593-4	W-6BI	Total/NA	Water	9056A	
280-172593-5	WT-6BI	Total/NA	Water	9056A	
280-172593-6	W-11	Total/NA	Water	9056A	
280-172593-6	W-11	Total/NA	Water	9056A	
280-172593-7	W-12	Total/NA	Water	9056A	
280-172593-7	W-12	Total/NA	Water	9056A	
280-172593-8	W-3B	Total/NA	Water	9056A	
280-172593-8	W-3B	Total/NA	Water	9056A	
MB 280-603522/66	Method Blank	Total/NA	Water	9056A	
LCS 280-603522/64	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-603522/65	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-603522/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 603681

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172593-1	W-2C	Total/NA	Water	9056A	
280-172593-2	W-7	Total/NA	Water	9056A	

General Chemistry (Continued)

Analysis Batch: 603681 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172593-3	W-5B	Total/NA	Water	9056A	
280-172593-4	W-6BI	Total/NA	Water	9056A	
280-172593-5	WT-6BI	Total/NA	Water	9056A	
280-172593-5	WT-6BI	Total/NA	Water	9056A	
280-172593-6	W-11	Total/NA	Water	9056A	
280-172593-7	W-12	Total/NA	Water	9056A	
280-172593-8	W-3B	Total/NA	Water	9056A	
MB 280-603681/6	Method Blank	Total/NA	Water	9056A	
LCS 280-603681/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-603681/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-603681/3	Lab Control Sample	Total/NA	Water	9056A	
280-172593-3 MS	W-5B	Total/NA	Water	9056A	
280-172593-3 MSD	W-5B	Total/NA	Water	9056A	
280-172593-3 DU	W-5B	Total/NA	Water	9056A	

Analysis Batch: 603886

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172593-3	W-5B	Total/NA	Water	9056A	
280-172593-5	WT-6BI	Total/NA	Water	9056A	
280-172593-6	W-11	Total/NA	Water	9056A	
280-172593-7	W-12	Total/NA	Water	9056A	
280-172593-8	W-3B	Total/NA	Water	9056A	
MB 280-603886/6	Method Blank	Total/NA	Water	9056A	
LCS 280-603886/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-603886/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-603886/3	Lab Control Sample	Total/NA	Water	9056A	
280-172593-3 MS	W-5B	Total/NA	Water	9056A	
280-172593-3 MSD	W-5B	Total/NA	Water	9056A	
280-172593-3 DU	W-5B	Total/NA	Water	9056A	

Analysis Batch: 604271

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172593-1	W-2C	Total/NA	Water	9056A	
280-172593-2	W-7	Total/NA	Water	9056A	
280-172593-4	W-6BI	Total/NA	Water	9056A	
MB 280-604271/6	Method Blank	Total/NA	Water	9056A	
MB 280-604271/93	Method Blank	Total/NA	Water	9056A	
LCS 280-604271/4	Lab Control Sample	Total/NA	Water	9056A	
LCS 280-604271/91	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-604271/5	Lab Control Sample Dup	Total/NA	Water	9056A	
LCSD 280-604271/92	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-604271/3	Lab Control Sample	Total/NA	Water	9056A	
280-172593-2 MS	W-7	Total/NA	Water	9056A	
280-172593-2 MSD	W-7	Total/NA	Water	9056A	
280-172593-2 DU	W-7	Total/NA	Water	9056A	

Client Sample ID: W-2C
Lab Sample ID: 280-172593-1

Date Collected: 02/14/23 11:20
Matrix: Water
Date Received: 02/17/23 15:10

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	602881	02/21/23 17:35	LJS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	602943	02/22/23 15:09	LJS	EET DEN
Dissolved	Analysis	6010C		1			603359	02/25/23 02:37	KRP	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	602881	02/21/23 17:35	LJS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	602943	02/22/23 15:09	LJS	EET DEN
Dissolved	Analysis	6010C		5			603645	02/28/23 17:32	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	602696	02/21/23 08:15	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			602936	02/21/23 21:27	KRP	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	602881	02/21/23 17:35	LJS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	602943	02/22/23 15:09	LJS	EET DEN
Dissolved	Analysis	6020B		50			603251	02/23/23 23:58	LMT	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	602881	02/21/23 17:35	LJS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	602943	02/22/23 15:09	LJS	EET DEN
Dissolved	Analysis	6020B		1			603251	02/24/23 00:27	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	602618	02/21/23 08:15	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			602932	02/21/23 23:34	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	602618	02/21/23 08:15	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			603020	02/22/23 11:42	LMT	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	602881	02/21/23 17:35	LJS	EET DEN
Dissolved	Prep	7470A			30 mL	50 mL	603260	02/24/23 13:20	KMS	EET DEN
Dissolved	Analysis	7470A		1			603373	02/24/23 19:35	KMS	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	603002	02/22/23 14:00	KMS	EET DEN
Total/NA	Analysis	7470A		1			603114	02/22/23 19:24	KMS	EET DEN
Total/NA	Analysis	9040B		1			602926	02/21/23 15:59	KEG	EET DEN
Total/NA	Analysis	9056A		50	5 mL	5 mL	603522	03/01/23 07:25	EJS	EET DEN
Total/NA	Analysis	9056A		1000	5 mL	5 mL	603522	03/01/23 07:42	EJS	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	603681	03/01/23 16:16	EJS	EET DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	604271	03/08/23 03:35	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			602927	02/21/23 19:44	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	602718	02/20/23 14:48	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	602725	02/20/23 16:02	MCR	EET DEN

Client Sample ID: W-7
Lab Sample ID: 280-172593-2

Date Collected: 02/14/23 14:00
Matrix: Water
Date Received: 02/17/23 15:10

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	602881	02/21/23 17:35	LJS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	602943	02/22/23 15:09	LJS	EET DEN
Dissolved	Analysis	6010C		1			603359	02/25/23 03:00	KRP	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	602881	02/21/23 17:35	LJS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	602943	02/22/23 15:09	LJS	EET DEN
Dissolved	Analysis	6010C		5			603645	02/28/23 17:54	ADL	EET DEN

Client Sample ID: W-7
Lab Sample ID: 280-172593-2

Date Collected: 02/14/23 14:00
Matrix: Water
Date Received: 02/17/23 15:10

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	602696	02/21/23 08:15	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			602936	02/21/23 21:32	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	602696	02/21/23 08:15	LJS	EET DEN
Total Recoverable	Analysis	6010C		10			602936	02/21/23 21:36	KRP	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	602881	02/21/23 17:35	LJS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	602943	02/22/23 15:09	LJS	EET DEN
Dissolved	Analysis	6020B		50			603251	02/24/23 00:00	LMT	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	602881	02/21/23 17:35	LJS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	602943	02/22/23 15:09	LJS	EET DEN
Dissolved	Analysis	6020B		1			603251	02/24/23 00:31	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	603040	02/23/23 08:04	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			603251	02/23/23 22:34	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	603040	02/23/23 08:04	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			603251	02/23/23 22:36	LMT	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	602881	02/21/23 17:35	LJS	EET DEN
Dissolved	Prep	7470A			30 mL	50 mL	603260	02/24/23 13:20	KMS	EET DEN
Dissolved	Analysis	7470A		1			603373	02/24/23 19:38	KMS	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	603002	02/22/23 14:00	KMS	EET DEN
Total/NA	Analysis	7470A		1			603114	02/22/23 19:27	KMS	EET DEN
Total/NA	Analysis	9040B		1			602926	02/21/23 16:03	KEG	EET DEN
Total/NA	Analysis	9056A		50	5 mL	5 mL	603522	03/01/23 07:59	EJS	EET DEN
Total/NA	Analysis	9056A		1000	5 mL	5 mL	603522	03/01/23 08:16	EJS	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	603681	03/01/23 16:24	EJS	EET DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	604271	03/08/23 03:43	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			602927	02/21/23 19:57	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	602718	02/20/23 14:48	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	602725	02/20/23 16:02	MCR	EET DEN

Client Sample ID: W-5B
Lab Sample ID: 280-172593-3

Date Collected: 02/14/23 16:25
Matrix: Water
Date Received: 02/17/23 15:10

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	602881	02/21/23 17:35	LJS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	602943	02/22/23 15:09	LJS	EET DEN
Dissolved	Analysis	6010C		1			603359	02/25/23 03:21	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	602696	02/21/23 08:15	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			602936	02/21/23 21:41	KRP	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	602881	02/21/23 17:35	LJS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	603510	02/28/23 15:00	LJS	EET DEN
Dissolved	Analysis	6020B		1			603789	03/01/23 17:28	LMT	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	602881	02/21/23 17:35	LJS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	603510	02/28/23 15:00	LJS	EET DEN
Dissolved	Analysis	6020B		50			603851	03/02/23 13:09	LMT	EET DEN

Client Sample ID: W-5B
Lab Sample ID: 280-172593-3

Date Collected: 02/14/23 16:25
Matrix: Water
Date Received: 02/17/23 15:10

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	602618	02/21/23 08:15	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			602932	02/21/23 23:36	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	602618	02/21/23 08:15	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			603020	02/22/23 11:44	LMT	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	602881	02/21/23 17:35	LJS	EET DEN
Dissolved	Prep	7470A			30 mL	50 mL	603260	02/24/23 13:20	KMS	EET DEN
Dissolved	Analysis	7470A		1			603373	02/24/23 19:40	KMS	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	603002	02/22/23 14:00	KMS	EET DEN
Total/NA	Analysis	7470A		1			603114	02/22/23 19:29	KMS	EET DEN
Total/NA	Analysis	9040B		1			602926	02/21/23 16:06	KEG	EET DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	603886	03/02/23 19:56	EJS	EET DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	603522	03/01/23 08:33	EJS	EET DEN
Total/NA	Analysis	9056A		100	5 mL	5 mL	603522	03/01/23 08:50	EJS	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	603681	03/01/23 16:32	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			602927	02/21/23 20:04	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	602718	02/20/23 14:48	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	602725	02/20/23 16:02	MCR	EET DEN

Client Sample ID: W-6BI
Lab Sample ID: 280-172593-4

Date Collected: 02/15/23 16:40
Matrix: Water
Date Received: 02/17/23 15:10

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	602881	02/21/23 17:35	LJS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	602943	02/22/23 15:09	LJS	EET DEN
Dissolved	Analysis	6010C		1			603359	02/25/23 03:26	KRP	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	602881	02/21/23 17:35	LJS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	602943	02/22/23 15:09	LJS	EET DEN
Dissolved	Analysis	6010C		5			603645	02/28/23 17:59	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	602696	02/21/23 08:15	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			602936	02/21/23 21:45	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	602696	02/21/23 08:15	LJS	EET DEN
Total Recoverable	Analysis	6010C		5			602936	02/21/23 21:50	KRP	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	602881	02/21/23 17:35	LJS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	602943	02/22/23 15:09	LJS	EET DEN
Dissolved	Analysis	6020B		50			603251	02/24/23 00:04	LMT	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	602881	02/21/23 17:35	LJS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	602943	02/22/23 15:09	LJS	EET DEN
Dissolved	Analysis	6020B		1			603251	02/24/23 00:38	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	602720	02/21/23 15:35	PFM	EET DEN
Total Recoverable	Analysis	6020B		1			602933	02/22/23 00:37	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	602720	02/21/23 15:35	PFM	EET DEN
Total Recoverable	Analysis	6020B		1			603020	02/22/23 12:32	LMT	EET DEN

Lab Chronicle

Client: HDR Inc
Job ID: 280-172593-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-6BI
Lab Sample ID: 280-172593-4
Date Collected: 02/15/23 16:40
Matrix: Water
Date Received: 02/17/23 15:10

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	602720	02/21/23 15:35	PFM	EET DEN
Total Recoverable	Analysis	6020B		50	1.0 mL	1.0 mL	603088	02/22/23 17:45	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	602720	02/21/23 15:35	PFM	EET DEN
Total Recoverable	Analysis	6020B		500			603931	03/03/23 08:37	LMT	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	602881	02/21/23 17:35	LJS	EET DEN
Dissolved	Prep	7470A			30 mL	50 mL	603260	02/24/23 13:20	KMS	EET DEN
Dissolved	Analysis	7470A		1			603373	02/24/23 19:43	KMS	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	603002	02/22/23 14:00	KMS	EET DEN
Total/NA	Analysis	7470A		1			603114	02/22/23 19:32	KMS	EET DEN
Total/NA	Analysis	9040B		1			602926	02/21/23 16:10	KEG	EET DEN
Total/NA	Analysis	9056A		100	5 mL	5 mL	603522	03/01/23 09:08	EJS	EET DEN
Total/NA	Analysis	9056A		500	5 mL	5 mL	603522	03/01/23 09:25	EJS	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	603681	03/01/23 17:20	EJS	EET DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	604271	03/08/23 04:14	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			602927	02/21/23 20:16	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	602718	02/20/23 14:48	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	602725	02/20/23 16:02	MCR	EET DEN

Client Sample ID: WT-6BI
Lab Sample ID: 280-172593-5
Date Collected: 02/15/23 17:20
Matrix: Water
Date Received: 02/17/23 15:10

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	602881	02/21/23 17:35	LJS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	602943	02/22/23 15:09	LJS	EET DEN
Dissolved	Analysis	6010C		1			603359	02/25/23 03:30	KRP	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	602881	02/21/23 17:35	LJS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	602943	02/22/23 15:09	LJS	EET DEN
Dissolved	Analysis	6010C		5			603645	02/28/23 18:21	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	602696	02/21/23 08:15	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			602936	02/21/23 22:11	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	602696	02/21/23 08:15	LJS	EET DEN
Total Recoverable	Analysis	6010C		5			602936	02/21/23 22:16	KRP	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	602881	02/21/23 17:35	LJS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	602943	02/22/23 15:09	LJS	EET DEN
Dissolved	Analysis	6020B		50			603251	02/24/23 00:06	LMT	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	602881	02/21/23 17:35	LJS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	602943	02/22/23 15:09	LJS	EET DEN
Dissolved	Analysis	6020B		1			603251	02/24/23 00:41	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	602720	02/21/23 15:35	PFM	EET DEN
Total Recoverable	Analysis	6020B		1			602933	02/22/23 00:38	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	602720	02/21/23 15:35	PFM	EET DEN
Total Recoverable	Analysis	6020B		1			603020	02/22/23 12:34	LMT	EET DEN

Client Sample ID: WT-6BI
Lab Sample ID: 280-172593-5

Date Collected: 02/15/23 17:20
Matrix: Water
Date Received: 02/17/23 15:10

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	602720	02/21/23 15:35	PFM	EET DEN
Total Recoverable	Analysis	6020B		50	1.0 mL	1.0 mL	603088	02/22/23 17:47	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	602720	02/21/23 15:35	PFM	EET DEN
Total Recoverable	Analysis	6020B		500			603931	03/03/23 08:39	LMT	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	602881	02/21/23 17:35	LJS	EET DEN
Dissolved	Prep	7470A			30 mL	50 mL	603260	02/24/23 13:20	KMS	EET DEN
Dissolved	Analysis	7470A		1			603373	02/24/23 19:45	KMS	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	603002	02/22/23 14:00	KMS	EET DEN
Total/NA	Analysis	7470A		1			603114	02/22/23 19:34	KMS	EET DEN
Total/NA	Analysis	9040B		1			602926	02/21/23 16:14	KEG	EET DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	603886	03/02/23 21:16	EJS	EET DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	603522	03/01/23 09:42	EJS	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	603681	03/01/23 17:28	EJS	EET DEN
Total/NA	Analysis	9056A		1000	5 mL	5 mL	603681	03/01/23 17:36	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			602927	02/21/23 20:28	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	602718	02/20/23 14:48	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	602828	02/21/23 11:41	MCR	EET DEN

Client Sample ID: W-11
Lab Sample ID: 280-172593-6

Date Collected: 02/16/23 12:55
Matrix: Water
Date Received: 02/17/23 15:10

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	602881	02/21/23 17:35	LJS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	602943	02/22/23 15:09	LJS	EET DEN
Dissolved	Analysis	6010C		1			603359	02/25/23 03:35	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	602696	02/21/23 08:15	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			602936	02/21/23 22:20	KRP	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	602881	02/21/23 17:35	LJS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	602943	02/22/23 15:09	LJS	EET DEN
Dissolved	Analysis	6020B		50			603251	02/24/23 00:07	LMT	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	602881	02/21/23 17:35	LJS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	602943	02/22/23 15:09	LJS	EET DEN
Dissolved	Analysis	6020B		1			603251	02/24/23 00:49	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	602720	02/21/23 15:35	PFM	EET DEN
Total Recoverable	Analysis	6020B		1			602933	02/22/23 00:40	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	602720	02/21/23 15:35	PFM	EET DEN
Total Recoverable	Analysis	6020B		1			603020	02/22/23 12:36	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	602720	02/21/23 15:35	PFM	EET DEN
Total Recoverable	Analysis	6020B		50	1.0 mL	1.0 mL	603088	02/22/23 17:49	LMT	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	602881	02/21/23 17:35	LJS	EET DEN
Dissolved	Prep	7470A			30 mL	50 mL	603260	02/24/23 13:20	KMS	EET DEN
Dissolved	Analysis	7470A		1			603373	02/24/23 19:48	KMS	EET DEN

Client Sample ID: W-11
Lab Sample ID: 280-172593-6

Date Collected: 02/16/23 12:55
Matrix: Water
Date Received: 02/17/23 15:10

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	603002	02/22/23 14:00	KMS	EET DEN
Total/NA	Analysis	7470A		1			603114	02/22/23 19:37	KMS	EET DEN
Total/NA	Analysis	9040B		1			602926	02/21/23 16:18	KEG	EET DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	603886	03/02/23 21:32	EJS	EET DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	603522	03/01/23 10:50	EJS	EET DEN
Total/NA	Analysis	9056A		200	5 mL	5 mL	603522	03/01/23 11:07	EJS	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	603681	03/01/23 17:44	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			602927	02/21/23 20:42	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	603024	02/22/23 13:29	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	602828	02/21/23 11:41	MCR	EET DEN

Client Sample ID: W-12
Lab Sample ID: 280-172593-7

Date Collected: 02/16/23 16:35
Matrix: Water
Date Received: 02/17/23 15:10

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	602881	02/21/23 17:35	LJS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	602943	02/22/23 15:09	LJS	EET DEN
Dissolved	Analysis	6010C		1			603359	02/25/23 03:40	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	602696	02/21/23 08:15	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			602936	02/21/23 22:29	KRP	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	602881	02/21/23 17:35	LJS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	602943	02/22/23 15:09	LJS	EET DEN
Dissolved	Analysis	6020B		50			603251	02/24/23 00:09	LMT	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	602881	02/21/23 17:35	LJS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	602943	02/22/23 15:09	LJS	EET DEN
Dissolved	Analysis	6020B		1			603251	02/24/23 00:52	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	602720	02/21/23 15:35	PFM	EET DEN
Total Recoverable	Analysis	6020B		1			602933	02/22/23 00:42	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	602720	02/21/23 15:35	PFM	EET DEN
Total Recoverable	Analysis	6020B		1			603020	02/22/23 12:38	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	602720	02/21/23 15:35	PFM	EET DEN
Total Recoverable	Analysis	6020B		50	1.0 mL	1.0 mL	603088	02/22/23 17:51	LMT	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	602881	02/21/23 17:35	LJS	EET DEN
Dissolved	Prep	7470A			15 mL	50 mL	603260	02/24/23 13:20	KMS	EET DEN
Dissolved	Analysis	7470A		1			603373	02/24/23 19:51	KMS	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	603002	02/22/23 14:00	KMS	EET DEN
Total/NA	Analysis	7470A		1			603114	02/22/23 19:39	KMS	EET DEN
Total/NA	Analysis	9040B		1			602926	02/21/23 16:21	KEG	EET DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	603886	03/02/23 21:48	EJS	EET DEN
Total/NA	Analysis	9056A		50	5 mL	5 mL	603522	03/01/23 11:24	EJS	EET DEN
Total/NA	Analysis	9056A		200	5 mL	5 mL	603522	03/01/23 11:41	EJS	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	603681	03/01/23 17:52	EJS	EET DEN

Lab Chronicle

Client: HDR Inc
Job ID: 280-172593-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-12
Lab Sample ID: 280-172593-7
Date Collected: 02/16/23 16:35
Matrix: Water
Date Received: 02/17/23 15:10

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			602927	02/21/23 20:57	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	603024	02/22/23 15:48	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	100 mL	250 mL	603129	02/23/23 11:36	MCR	EET DEN

Client Sample ID: W-3B
Lab Sample ID: 280-172593-8
Date Collected: 02/17/23 10:20
Matrix: Water
Date Received: 02/17/23 15:10

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	602881	02/21/23 17:35	LJS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	602943	02/22/23 15:09	LJS	EET DEN
Dissolved	Analysis	6010C		1			603359	02/25/23 03:44	KRP	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	602881	02/21/23 17:35	LJS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	602943	02/22/23 15:09	LJS	EET DEN
Dissolved	Analysis	6010C		5			603645	02/28/23 18:25	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	602696	02/21/23 08:15	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			602936	02/21/23 22:37	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	602696	02/21/23 08:15	LJS	EET DEN
Total Recoverable	Analysis	6010C		5			602936	02/21/23 22:42	KRP	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	602881	02/21/23 17:35	LJS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	602943	02/22/23 15:09	LJS	EET DEN
Dissolved	Analysis	6020B		50			603251	02/24/23 00:14	LMT	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	602881	02/21/23 17:35	LJS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	602943	02/22/23 15:09	LJS	EET DEN
Dissolved	Analysis	6020B		1			603251	02/24/23 00:56	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	602720	02/21/23 15:35	PFM	EET DEN
Total Recoverable	Analysis	6020B		1			602933	02/22/23 00:44	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	602720	02/21/23 15:35	PFM	EET DEN
Total Recoverable	Analysis	6020B		1			603020	02/22/23 12:40	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	602720	02/21/23 15:35	PFM	EET DEN
Total Recoverable	Analysis	6020B		50	1.0 mL	1.0 mL	603088	02/22/23 17:52	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	602720	02/21/23 15:35	PFM	EET DEN
Total Recoverable	Analysis	6020B		500			603931	03/03/23 08:40	LMT	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	602881	02/21/23 17:35	LJS	EET DEN
Dissolved	Prep	7470A			30 mL	50 mL	603260	02/24/23 13:20	KMS	EET DEN
Dissolved	Analysis	7470A		1			603373	02/24/23 19:53	KMS	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	603002	02/22/23 14:00	KMS	EET DEN
Total/NA	Analysis	7470A		1			603114	02/22/23 19:42	KMS	EET DEN
Total/NA	Analysis	9040B		1			602926	02/21/23 16:25	KEG	EET DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	603886	03/02/23 22:36	EJS	EET DEN
Total/NA	Analysis	9056A		50	5 mL	5 mL	603522	03/01/23 11:58	EJS	EET DEN
Total/NA	Analysis	9056A		1000	5 mL	5 mL	603522	03/01/23 12:15	EJS	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	603681	03/01/23 18:00	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			602927	02/21/23 21:10	KEG	EET DEN

Lab Chronicle

Client: HDR Inc
Job ID: 280-172593-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-3B
Lab Sample ID: 280-172593-8
Date Collected: 02/17/23 10:20
Matrix: Water
Date Received: 02/17/23 15:10

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	603024	02/22/23 15:48	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	602828	02/21/23 11:41	MCR	EET DEN

Laboratory References:

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

Accreditation/Certification Summary

Client: HDR Inc
Job ID: 280-172593-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

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Client Information	Sampler: Francis Li	Lab PM: Ryan, Nicole C	Carrier Tracking No(s):	COC No: 280-123984-34657.2
Client Contact: Ms. Sierra Schupp	Phone: 720-261-5222	E-Mail: Nicole.Ryan@ET.eurofinsus.com	State of Origin:	Page: Page 2 of 2
Company: HDR Inc	PWSID:			Job #
Address: 1670 Broadway Suite 3400	Due Date Requested:			
City: Denver	TAT Requested (days):			
State, Zip: CO, 80202	Compliance Project: Δ Yes Δ No			
Phone: 734-263-7138(Tel)	PO #: DEN-021			
Email: Sierra.Schupp@hdrinc.com	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Comanche	Project #: 28014376			
Site: Colorado On-Site Wells	SSOW#:			

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:
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)

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	App III and IV Metals: Bo, Ca, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Mo, Se, Tl	Total Mercury	Additional Metals: Mg, Na, K	9056 Anions: Chloride, Fluoride, Sulfate	2540C: TDs	2540D: TSS	9040 pH	2320 Alkalinity	RAD: Ra226, Ra228, Ra226+228	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D	D	N	N	N	N	N	D		
W-2C	02/14/23	1120	G	W	N	N	X	X	X	X	X	X	X	X	X	6	
W-7	02/14/23	1400	G	W	N	N	X	X	X	X	X	X	X	X	X	6	
W-5B	02/14/23	1625	G	W	N	N	X	X	X	X	X	X	X	X	X	6	
02/17/23 W-16	02/15/23	1220	G	W	N	N											
W-6B1	02/15/23	1640	G	W	N	N	X	X	X	X	X	X	X	X	X	6	
WT-6B1	02/15/23	1720	G	W	N	N	X	X	X	X	X	X	X	X	X	6	
W-11	02/16/23	1255	G	W	N	N	X	X	X	X	X	X	X	X	X	6	
W-12	02/16/23	1635	G	W	N	N	X	X	X	X	X	X	X	X	X	6	
W-3B	02/17/23	1020	G	W	N	N	X	X	X	X	X	X	X	X	X	6	

280-172593 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:	Date:	Time:	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
	[signature]	02/17/23 1510	HDR	[signature]	2/17/23 1510	ETHDEN
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time	Company
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 2.7 IR12 CF0.0, #1; 4.6 IR12 CF0.0, #2; 3.3 IR12 #3

Ver: 01/16/2019 CF 0.0

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-172593-1

Login Number: 172593
List Number: 1
Creator: Roehsner, Karen P

List Source: Eurofins Denver

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.	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 <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

PREPARED FOR

Attn: Molly Reeves
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Generated 3/9/2023 10:20:55 AM

JOB DESCRIPTION

Xcel Energy GW CCR Monitoring - Comanche

JOB NUMBER

280-172755-1

Eurofins Denver
4955 Yarrow Street
Arvada CO 80002

See page two for job notes and contact information.

my EOL

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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Definitions/Glossary

Client: HDR Inc
Job ID: 280-172755-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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.
^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.
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.
¤	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

Job ID: 280-172755-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-172755-1

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 2/23/2023 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 0.3°C and 0.6°C

Receipt Exceptions
All of the sample containers received are partially frozen: WK-10B (280-172755-1), W-10B (280-172755-2), W-18 (280-172755-3), W-17 (280-172755-4), W-14 (280-172755-5), W-9 (280-172755-6) and W-1 (280-172755-7)

Per note on the COC, all W-1 samples were logged as one. The earliest sampled time and date was used for the sample.

TOTAL RECOVERABLE METALS
Samples WK-10B (280-172755-1), W-10B (280-172755-2), W-18 (280-172755-3), W-17 (280-172755-4), W-14 (280-172755-5) and W-9 (280-172755-6) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 02/27/2023 and analyzed on 03/01/2023, 03/02/2023 and 03/03/2023.

Sample W-10B (280-172755-2)[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.

TOTAL RECOVERABLE METALS (ICP/MS)
Samples WK-10B (280-172755-1), W-10B (280-172755-2), W-18 (280-172755-3), W-17 (280-172755-4), W-14 (280-172755-5) and W-9 (280-172755-6) were analyzed for Total Recoverable Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 02/27/2023 and analyzed on 02/27/2023, 02/28/2023, 03/01/2023 and 03/02/2023.

While re-running the following samples, the analyst accidentally put 13 sample between CCV: WK-10B (280-172755-1), (280-172755-E-1-E MS), (280-172755-E-1-F MSD), (280-172755-E-1-D PDS) and (280-172755-E-1-D SD ^5). All CCVs were acceptable.

The instrument blank for analytical batch 280-603633 contained Na greater than the reporting limit (RL), and were not reanalyzed because the sample was <RL. The data have been qualified and reported.

Job ID: 280-172755-1 (Continued)

Laboratory: Eurofins Denver (Continued)

The continuing calibration verification (CCV) associated with batch 280-603493 recovered 115% 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: WK-10B (280-172755-1), W-10B (280-172755-2), W-18 (280-172755-3), W-17 (280-172755-4), W-14 (280-172755-5), W-9 (280-172755-6), (CCV 280-603493/126), (280-172755-E-1-E MS), (280-172755-E-1-F MSD), (280-172755-E-1-D PDS) and (280-172755-E-1-D SD ^5).

Sodium failed the recovery criteria low for the MS of sample WK-10BMS (280-172755-1) in batch 280-603633.

Sodium failed the recovery criteria low for the MSD of sample WK-10BMSD (280-172755-1) in batch 280-603633. Potassium and Sodium exceeded the RPD limit.

Samples W-10B (280-172755-2)[50X], W-18 (280-172755-3)[50X], W-17 (280-172755-4)[50X], W-14 (280-172755-5)[50X] and W-9 (280-172755-6)[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 WK-10B (280-172755-1), W-10B (280-172755-2), W-18 (280-172755-3), W-17 (280-172755-4), W-14 (280-172755-5) and W-9 (280-172755-6) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 03/01/2023.

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

ALKALINITY

Samples WK-10B (280-172755-1), W-10B (280-172755-2), W-18 (280-172755-3), W-17 (280-172755-4), W-14 (280-172755-5), W-9 (280-172755-6) and W-1 (280-172755-7) were analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 02/24/2023.

Alkalinity and Bicarbonate Alkalinity as CaCO3 were detected in method blank MB 280-603665/32 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.

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

TOTAL DISSOLVED SOLIDS

Samples WK-10B (280-172755-1), W-10B (280-172755-2), W-18 (280-172755-3), W-17 (280-172755-4), W-14 (280-172755-5), W-9 (280-172755-6) and W-1 (280-172755-7) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 02/24/2023.

Total Dissolved Solids (TDS) exceeded the RPD limit for the duplicate of sample 280-172765-8. 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 SUSPENDED SOLIDS

Samples WK-10B (280-172755-1), W-10B (280-172755-2), W-18 (280-172755-3), W-17 (280-172755-4), W-14 (280-172755-5), W-9 (280-172755-6) and W-1 (280-172755-7) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 02/24/2023.

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

CORROSIVITY (PH)

Samples WK-10B (280-172755-1), W-10B (280-172755-2), W-18 (280-172755-3), W-17 (280-172755-4), W-14 (280-172755-5), W-9 (280-172755-6) and W-1 (280-172755-7) were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 03/07/2023 and 03/08/2023.

Job ID: 280-172755-1 (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 WK-10B (280-172755-1), W-10B (280-172755-2), W-18 (280-172755-3), W-17 (280-172755-4), W-14 (280-172755-5), W-9 (280-172755-6) and W-1 (280-172755-7) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A (28 Days). The samples were analyzed on 03/02/2023, 03/03/2023 and 03/06/2023.

The following sample has a concentration of sulfate that is high enough to heavily augment the fluoride peak at a 1x dilution given the concentration of fluoride in the sample is very low: W-14 (280-172755-5). The sample was run at a 5x dilution to decrease the concentration of sulfate so that the peaks properly elute. The result of non-detect has been confirmed with further dilutions so the data is being qualified and reported at a 5x dilution.

The following sample has a concentration of sulfate that is high enough to heavily augment the fluoride peak at a 1x dilution given the concentration of fluoride in the sample is very low: W-10B (280-172755-2). The sample was run at a 5x dilution to decrease the concentration of sulfate so that the peaks properly elute. The sample had a detect that is higher than the minimum detection limit (MDL) but lower than the reporting limit (RL). The data is being qualified and reported at a 5x dilution.

Samples W-10B (280-172755-2)[1000X], W-10B (280-172755-2)[5X], W-10B (280-172755-2)[50X], W-18 (280-172755-3)[10X], W-18 (280-172755-3)[200X], W-17 (280-172755-4)[100X], W-14 (280-172755-5)[20X], W-14 (280-172755-5)[200X], W-14 (280-172755-5)[5X], W-9 (280-172755-6)[10X], W-9 (280-172755-6)[200X], W-1 (280-172755-7)[10X], W-1 (280-172755-7)[1000X] and W-1 (280-172755-7)[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.

Detection Summary

Client: HDR Inc
Job ID: 280-172755-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: WK-10B — Lab Sample ID: 280-172755-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.0045	J	0.10	0.0015	mg/L	1		6010C	Total Recoverable
Magnesium	0.017	J	0.20	0.0042	mg/L	1		6020B	Total Recoverable
Sodium	0.15	J ^2	1.0	0.073	mg/L	1		6020B	Total Recoverable
Calcium	0.036	J	0.20	0.032	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	21.8	HF	1.0	1.0	Degrees C	1		9040B	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: 280-172755-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.2		0.50	0.0073	mg/L	5		6010C	Total Recoverable
Lithium	6.2		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Magnesium	11000		10	0.21	mg/L	50		6020B	Total Recoverable
Arsenic	0.0015	J	0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Sodium	6800		50	3.7	mg/L	50		6020B	Total Recoverable
Barium	0.016		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Potassium	83		50	2.6	mg/L	50		6020B	Total Recoverable
Cadmium	0.00035	J	0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Chromium	0.011		0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.0027		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Lead	0.00073	J	0.0010	0.00023	mg/L	1		6020B	Total Recoverable
Molybdenum	0.0041		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Selenium	4.6		0.25	0.050	mg/L	50		6020B	Total Recoverable
Thallium	0.0074		0.0010	0.00021	mg/L	1		6020B	Total Recoverable
Calcium	490		10	1.6	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	20.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1100		150	51	mg/L	50		9056A	Total/NA
Fluoride	0.91	J	2.5	0.83	mg/L	5		9056A	Total/NA
Sulfate	63000		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	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	82000		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

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: HDR Inc
Job ID: 280-172755-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-18
Lab Sample ID: 280-172755-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.59		0.10	0.0015	mg/L	1		6010C	Total Recoverable
Lithium	2.0		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Antimony	0.00082	J	0.0020	0.00040	mg/L	1		6020B	Total Recoverable
Magnesium	1100		10	0.21	mg/L	50		6020B	Total Recoverable
Arsenic	0.0011	J	0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Sodium	2700		50	3.7	mg/L	50		6020B	Total Recoverable
Barium	0.015		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Potassium	21		1.0	0.052	mg/L	1		6020B	Total Recoverable
Chromium	0.00081	J	0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.0051		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Molybdenum	0.041		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Selenium	1.3		0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Thallium	0.00022	J	0.0010	0.00021	mg/L	1		6020B	Total Recoverable
Calcium	470		10	1.6	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	21.1	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	270		30	10	mg/L	10		9056A	Total/NA
Fluoride	0.74		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	11000		1000	210	mg/L	200		9056A	Total/NA
Alkalinity	590	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	590	B	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	2.0	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-17
Lab Sample ID: 280-172755-4

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
Lithium	0.71		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Antimony	0.0052		0.0020	0.00040	mg/L	1		6020B	Total Recoverable
Magnesium	700		10	0.21	mg/L	50		6020B	Total Recoverable
Arsenic	0.0013	J	0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Sodium	1100		50	3.7	mg/L	50		6020B	Total Recoverable
Barium	0.013		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Potassium	17		1.0	0.052	mg/L	1		6020B	Total Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Client Sample ID: W-17 (Continued) — Lab Sample ID: 280-172755-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cadmium	0.0039		0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Chromium	0.0019	J	0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.0063		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Molybdenum	0.28		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Selenium	2.6		0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Thallium	0.0017		0.0010	0.00021	mg/L	1		6020B	Total Recoverable
Calcium	510		10	1.6	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	20.4	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	78		3.0	1.0	mg/L	1		9056A	Total/NA
Sulfate	5600		500	100	mg/L	100		9056A	Total/NA
Alkalinity	730	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	730	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	8700		100	47	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-14 — Lab Sample ID: 280-172755-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.66		0.10	0.0015	mg/L	1		6010C	Total Recoverable
Lithium	3.4		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Antimony	0.00042	J	0.0020	0.00040	mg/L	1		6020B	Total Recoverable
Magnesium	1600		10	0.21	mg/L	50		6020B	Total Recoverable
Arsenic	0.00051	J	0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Sodium	5200		50	3.7	mg/L	50		6020B	Total Recoverable
Barium	0.012		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Potassium	41		1.0	0.052	mg/L	1		6020B	Total Recoverable
Cadmium	0.00088	J	0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Chromium	0.00086	J	0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.010		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Molybdenum	0.015		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Selenium	1.0		0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Thallium	0.0022		0.0010	0.00021	mg/L	1		6020B	Total Recoverable
Calcium	400		10	1.6	mg/L	50		6020B	Total Recoverable
pH adj. to 25 deg C	7.4	HF	0.1	0.1	SU	1		9040B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: W-14 (Continued) — Lab Sample ID: 280-172755-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Temperature	20.1	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	600		60	20	mg/L	20		9056A	Total/NA
Sulfate	17000		1000	210	mg/L	200		9056A	Total/NA
Alkalinity	810	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	810	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	27000		1000	470	mg/L	1		SM 2540C	Total/NA

Client Sample ID: W-9 — Lab Sample ID: 280-172755-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	2.0		0.10	0.0015	mg/L	1		6010C	Total Recoverable
Lithium	1.2		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Magnesium	1400		10	0.21	mg/L	50		6020B	Total Recoverable
Arsenic	0.00087	J	0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Sodium	2900		50	3.7	mg/L	50		6020B	Total Recoverable
Barium	0.024		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Potassium	23		1.0	0.052	mg/L	1		6020B	Total Recoverable
Cadmium	0.0012		0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Chromium	0.0037		0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.00098	J	0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Lead	0.00044	J	0.0010	0.00023	mg/L	1		6020B	Total Recoverable
Molybdenum	0.0032		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Selenium	0.0034	J	0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Thallium	0.00064	J	0.0010	0.00021	mg/L	1		6020B	Total Recoverable
Calcium	470		10	1.6	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	20.8	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	180		30	10	mg/L	10		9056A	Total/NA
Sulfate	12000		1000	210	mg/L	200		9056A	Total/NA
Alkalinity	440	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	440	B	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	3.6	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-1 — Lab Sample ID: 280-172755-7

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	20.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	640		30	10	mg/L	10		9056A	Total/NA
Fluoride	2.8		2.5	0.83	mg/L	5		9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: W-1 (Continued)
Lab Sample ID: 280-172755-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	35000		5000	1000	mg/L	1000		9056A	Total/NA
Alkalinity	600	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	600	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

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-172755-1
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
Job ID: 280-172755-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-172755-1	WK-10B	Water	02/21/23 12:35	02/23/23 15:35
280-172755-2	W-10B	Water	02/21/23 10:03	02/23/23 15:35
280-172755-3	W-18	Water	02/20/23 15:35	02/23/23 15:35
280-172755-4	W-17	Water	02/22/23 11:55	02/23/23 15:35
280-172755-5	W-14	Water	02/21/23 16:40	02/23/23 15:35
280-172755-6	W-9	Water	02/21/23 14:00	02/23/23 15:35
280-172755-7	W-1	Water	02/21/23 15:15	02/23/23 15:35

Method: SW846 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: WK-10B
Date Collected: 02/21/23 12:35
Date Received: 02/23/23 15:35
Lab Sample ID: 280-172755-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.0045**	**J**	0.10	0.0015	mg/L		02/27/23 08:00	03/01/23 20:19	1
Lithium	ND		0.020	0.0091	mg/L		02/27/23 08:00	03/02/23 15:14	1

Client Sample ID: W-10B
Date Collected: 02/21/23 10:03
Date Received: 02/23/23 15:35
Lab Sample ID: 280-172755-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**1.2**		0.50	0.0073	mg/L		02/27/23 08:00	03/03/23 15:11	5
Lithium	**6.2**		0.020	0.0091	mg/L		02/27/23 08:00	03/02/23 15:35	1

Client Sample ID: W-18
Date Collected: 02/20/23 15:35
Date Received: 02/23/23 15:35
Lab Sample ID: 280-172755-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.59**		0.10	0.0015	mg/L		02/27/23 08:00	03/01/23 21:03	1
Lithium	**2.0**		0.020	0.0091	mg/L		02/27/23 08:00	03/02/23 15:40	1

Client Sample ID: W-17
Date Collected: 02/22/23 11:55
Date Received: 02/23/23 15:35
Lab Sample ID: 280-172755-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.72**		0.10	0.0015	mg/L		02/27/23 08:00	03/01/23 21:07	1
Lithium	**0.71**		0.020	0.0091	mg/L		02/27/23 08:00	03/02/23 15:45	1

Client Sample ID: W-14
Date Collected: 02/21/23 16:40
Date Received: 02/23/23 15:35
Lab Sample ID: 280-172755-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.66**		0.10	0.0015	mg/L		02/27/23 08:00	03/01/23 21:11	1
Lithium	**3.4**		0.020	0.0091	mg/L		02/27/23 08:00	03/02/23 16:06	1

Client Sample ID: W-9
Date Collected: 02/21/23 14:00
Date Received: 02/23/23 15:35
Lab Sample ID: 280-172755-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**2.0**		0.10	0.0015	mg/L		02/27/23 08:00	03/01/23 21:16	1
Lithium	**1.2**		0.020	0.0091	mg/L		02/27/23 08:00	03/02/23 16:11	1

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

Client Sample ID: WK-10B
Date Collected: 02/21/23 12:35
Date Received: 02/23/23 15:35
Lab Sample ID: 280-172755-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		02/27/23 08:00	02/27/23 18:46	1
Magnesium	**0.017**	**J**	0.20	0.0042	mg/L		02/27/23 08:00	03/02/23 12:49	1
Arsenic	ND		0.0050	0.00050	mg/L		02/27/23 08:00	02/27/23 18:46	1
Sodium	**0.15**	**J ^2**	1.0	0.073	mg/L		02/27/23 08:00	02/28/23 18:01	1
Barium	ND		0.0030	0.00038	mg/L		02/27/23 08:00	02/27/23 18:46	1
Potassium	ND		1.0	0.052	mg/L		02/27/23 08:00	02/27/23 18:46	1
Beryllium	ND	^+	0.0010	0.00030	mg/L		02/27/23 08:00	02/27/23 18:46	1

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

Client Sample ID: WK-10B
Date Collected: 02/21/23 12:35
Date Received: 02/23/23 15:35
Lab Sample ID: 280-172755-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.0010	0.00019	mg/L		02/27/23 08:00	02/27/23 18:46	1
Chromium	ND		0.0030	0.00050	mg/L		02/27/23 08:00	02/27/23 18:46	1
Cobalt	ND		0.0010	0.00033	mg/L		02/27/23 08:00	02/27/23 18:46	1
Lead	ND		0.0010	0.00023	mg/L		02/27/23 08:00	02/27/23 18:46	1
Molybdenum	ND		0.0020	0.00037	mg/L		02/27/23 08:00	02/27/23 18:46	1
Selenium	ND		0.0050	0.0010	mg/L		02/27/23 08:00	02/28/23 18:01	1
Thallium	ND		0.0010	0.00021	mg/L		02/27/23 08:00	02/27/23 18:46	1
Calcium	**0.036**	**J**	0.20	0.032	mg/L		02/27/23 08:00	02/28/23 18:01	1

Client Sample ID: W-10B
Date Collected: 02/21/23 10:03
Date Received: 02/23/23 15:35
Lab Sample ID: 280-172755-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		02/27/23 08:00	02/27/23 18:55	1
Magnesium	**11000**		10	0.21	mg/L		02/27/23 08:00	03/01/23 18:46	50
Arsenic	**0.0015**	**J**	0.0050	0.00050	mg/L		02/27/23 08:00	02/27/23 18:55	1
Sodium	**6800**		50	3.7	mg/L		02/27/23 08:00	03/01/23 18:46	50
Barium	**0.016**		0.0030	0.00038	mg/L		02/27/23 08:00	02/27/23 18:55	1
Potassium	**83**		50	2.6	mg/L		02/27/23 08:00	03/01/23 18:46	50
Beryllium	ND	^- ^+	0.0010	0.00030	mg/L		02/27/23 08:00	02/27/23 18:55	1
Cadmium	**0.00035**	**J**	0.0010	0.00019	mg/L		02/27/23 08:00	02/27/23 18:55	1
Chromium	**0.011**		0.0030	0.00050	mg/L		02/27/23 08:00	02/27/23 18:55	1
Cobalt	**0.0027**		0.0010	0.00033	mg/L		02/27/23 08:00	02/27/23 18:55	1
Lead	**0.00073**	**J**	0.0010	0.00023	mg/L		02/27/23 08:00	02/27/23 18:55	1
Molybdenum	**0.0041**		0.0020	0.00037	mg/L		02/27/23 08:00	02/27/23 18:55	1
Selenium	**4.6**		0.25	0.050	mg/L		02/27/23 08:00	03/02/23 11:33	50
Thallium	**0.0074**		0.0010	0.00021	mg/L		02/27/23 08:00	02/27/23 18:55	1
Calcium	**490**		10	1.6	mg/L		02/27/23 08:00	03/02/23 11:33	50

Client Sample ID: W-18
Date Collected: 02/20/23 15:35
Date Received: 02/23/23 15:35
Lab Sample ID: 280-172755-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.00082**	**J**	0.0020	0.00040	mg/L		02/27/23 08:00	02/27/23 18:56	1
Magnesium	**1100**		10	0.21	mg/L		02/27/23 08:00	03/01/23 18:48	50
Arsenic	**0.0011**	**J**	0.0050	0.00050	mg/L		02/27/23 08:00	02/27/23 18:56	1
Sodium	**2700**		50	3.7	mg/L		02/27/23 08:00	03/01/23 18:48	50
Barium	**0.015**		0.0030	0.00038	mg/L		02/27/23 08:00	02/27/23 18:56	1
Potassium	**21**		1.0	0.052	mg/L		02/27/23 08:00	02/27/23 18:56	1
Beryllium	ND	^+	0.0010	0.00030	mg/L		02/27/23 08:00	02/27/23 18:56	1
Cadmium	ND		0.0010	0.00019	mg/L		02/27/23 08:00	02/27/23 18:56	1
Chromium	**0.00081**	**J**	0.0030	0.00050	mg/L		02/27/23 08:00	02/27/23 18:56	1
Cobalt	**0.0051**		0.0010	0.00033	mg/L		02/27/23 08:00	02/27/23 18:56	1
Lead	ND		0.0010	0.00023	mg/L		02/27/23 08:00	02/27/23 18:56	1
Molybdenum	**0.041**		0.0020	0.00037	mg/L		02/27/23 08:00	02/27/23 18:56	1
Selenium	**1.3**		0.0050	0.0010	mg/L		02/27/23 08:00	02/28/23 18:12	1
Thallium	**0.00022**	**J**	0.0010	0.00021	mg/L		02/27/23 08:00	02/27/23 18:56	1
Calcium	**470**		10	1.6	mg/L		02/27/23 08:00	03/02/23 11:34	50

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

Client Sample ID: W-17
Date Collected: 02/22/23 11:55
Date Received: 02/23/23 15:35
Lab Sample ID: 280-172755-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0052		0.0020	0.00040	mg/L		02/27/23 08:00	02/27/23 18:58	1
Magnesium	700		10	0.21	mg/L		02/27/23 08:00	03/01/23 18:50	50
Arsenic	0.0013	J	0.0050	0.00050	mg/L		02/27/23 08:00	02/27/23 18:58	1
Sodium	1100		50	3.7	mg/L		02/27/23 08:00	03/01/23 18:50	50
Barium	0.013		0.0030	0.00038	mg/L		02/27/23 08:00	02/27/23 18:58	1
Potassium	17		1.0	0.052	mg/L		02/27/23 08:00	02/27/23 18:58	1
Beryllium	ND	^+	0.0010	0.00030	mg/L		02/27/23 08:00	02/27/23 18:58	1
Cadmium	0.0039		0.0010	0.00019	mg/L		02/27/23 08:00	02/27/23 18:58	1
Chromium	0.0019	J	0.0030	0.00050	mg/L		02/27/23 08:00	02/27/23 18:58	1
Cobalt	0.0063		0.0010	0.00033	mg/L		02/27/23 08:00	02/27/23 18:58	1
Lead	ND		0.0010	0.00023	mg/L		02/27/23 08:00	02/27/23 18:58	1
Molybdenum	0.28		0.0020	0.00037	mg/L		02/27/23 08:00	02/27/23 18:58	1
Selenium	2.6		0.0050	0.0010	mg/L		02/27/23 08:00	02/28/23 18:14	1
Thallium	0.0017		0.0010	0.00021	mg/L		02/27/23 08:00	02/27/23 18:58	1
Calcium	510		10	1.6	mg/L		02/27/23 08:00	03/02/23 11:36	50

Client Sample ID: W-14
Date Collected: 02/21/23 16:40
Date Received: 02/23/23 15:35
Lab Sample ID: 280-172755-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00042	J	0.0020	0.00040	mg/L		02/27/23 08:00	02/27/23 19:04	1
Magnesium	1600		10	0.21	mg/L		02/27/23 08:00	03/01/23 21:24	50
Arsenic	0.00051	J	0.0050	0.00050	mg/L		02/27/23 08:00	02/27/23 19:04	1
Sodium	5200		50	3.7	mg/L		02/27/23 08:00	03/01/23 21:24	50
Barium	0.012		0.0030	0.00038	mg/L		02/27/23 08:00	02/27/23 19:04	1
Potassium	41		1.0	0.052	mg/L		02/27/23 08:00	02/27/23 19:04	1
Beryllium	ND	^+	0.0010	0.00030	mg/L		02/27/23 08:00	02/27/23 19:04	1
Cadmium	0.00088	J	0.0010	0.00019	mg/L		02/27/23 08:00	02/27/23 19:04	1
Chromium	0.00086	J	0.0030	0.00050	mg/L		02/27/23 08:00	02/27/23 19:04	1
Cobalt	0.010		0.0010	0.00033	mg/L		02/27/23 08:00	02/27/23 19:04	1
Lead	ND		0.0010	0.00023	mg/L		02/27/23 08:00	02/27/23 19:04	1
Molybdenum	0.015		0.0020	0.00037	mg/L		02/27/23 08:00	02/27/23 19:04	1
Selenium	1.0		0.0050	0.0010	mg/L		02/27/23 08:00	02/28/23 18:20	1
Thallium	0.0022		0.0010	0.00021	mg/L		02/27/23 08:00	02/27/23 19:04	1
Calcium	400		10	1.6	mg/L		02/27/23 08:00	03/01/23 21:24	50

Client Sample ID: W-9
Date Collected: 02/21/23 14:00
Date Received: 02/23/23 15:35
Lab Sample ID: 280-172755-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		02/27/23 08:00	02/27/23 19:05	1
Magnesium	1400		10	0.21	mg/L		02/27/23 08:00	03/01/23 21:26	50
Arsenic	0.00087	J	0.0050	0.00050	mg/L		02/27/23 08:00	02/27/23 19:05	1
Sodium	2900		50	3.7	mg/L		02/27/23 08:00	03/01/23 21:26	50
Barium	0.024		0.0030	0.00038	mg/L		02/27/23 08:00	02/27/23 19:05	1
Potassium	23		1.0	0.052	mg/L		02/27/23 08:00	02/27/23 19:05	1
Beryllium	ND	^+	0.0010	0.00030	mg/L		02/27/23 08:00	02/27/23 19:05	1
Cadmium	0.0012		0.0010	0.00019	mg/L		02/27/23 08:00	02/27/23 19:05	1
Chromium	0.0037		0.0030	0.00050	mg/L		02/27/23 08:00	02/27/23 19:05	1
Cobalt	0.00098	J	0.0010	0.00033	mg/L		02/27/23 08:00	02/27/23 19:05	1

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

Client Sample ID: W-9
Date Collected: 02/21/23 14:00
Date Received: 02/23/23 15:35
Lab Sample ID: 280-172755-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.00044	J	0.0010	0.00023	mg/L		02/27/23 08:00	02/27/23 19:05	1
Molybdenum	0.0032		0.0020	0.00037	mg/L		02/27/23 08:00	02/27/23 19:05	1
Selenium	0.0034	J	0.0050	0.0010	mg/L		02/27/23 08:00	02/28/23 18:21	1
Thallium	0.00064	J	0.0010	0.00021	mg/L		02/27/23 08:00	02/27/23 19:05	1
Calcium	470		10	1.6	mg/L		02/27/23 08:00	03/01/23 21:26	50

Method: SW846 7470A - Mercury (CVAA)

Client Sample ID: WK-10B
Date Collected: 02/21/23 12:35
Date Received: 02/23/23 15:35
Lab Sample ID: 280-172755-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		03/01/23 13:13	03/01/23 18:39	1

Client Sample ID: W-10B
Date Collected: 02/21/23 10:03
Date Received: 02/23/23 15:35
Lab Sample ID: 280-172755-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		03/01/23 13:13	03/01/23 18:47	1

Client Sample ID: W-18
Date Collected: 02/20/23 15:35
Date Received: 02/23/23 15:35
Lab Sample ID: 280-172755-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		03/01/23 13:13	03/01/23 18:49	1

Client Sample ID: W-17
Date Collected: 02/22/23 11:55
Date Received: 02/23/23 15:35
Lab Sample ID: 280-172755-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		03/01/23 13:13	03/01/23 18:52	1

Client Sample ID: W-14
Date Collected: 02/21/23 16:40
Date Received: 02/23/23 15:35
Lab Sample ID: 280-172755-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		03/01/23 13:13	03/01/23 18:55	1

Client Sample ID: W-9
Date Collected: 02/21/23 14:00
Date Received: 02/23/23 15:35
Lab Sample ID: 280-172755-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		03/01/23 13:13	03/01/23 18:57	1

General Chemistry

Client Sample ID: WK-10B
Date Collected: 02/21/23 12:35
Date Received: 02/23/23 15:35
Lab Sample ID: 280-172755-1
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			03/08/23 14:39	1
Temperature (SW846 9040B)	21.8	HF	1.0	1.0	Degrees C			03/08/23 14:39	1

General Chemistry (Continued)

Client Sample ID: WK-10B
Date Collected: 02/21/23 12:35
Date Received: 02/23/23 15:35
Lab Sample ID: 280-172755-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	ND		3.0	1.0	mg/L			03/02/23 00:05	1
Fluoride (SW846 9056A)	ND		0.50	0.17	mg/L			03/02/23 00:05	1
Sulfate (SW846 9056A)	ND		5.0	1.0	mg/L			03/02/23 00:05	1
Alkalinity (SM 2320B)	ND		10	3.1	mg/L			02/24/23 17:51	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			02/24/23 17:51	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			02/24/23 17:51	1
Total Dissolved Solids (TDS) (SM 2540C)	ND		10	4.7	mg/L			02/24/23 12:49	1
Total Suspended Solids (SM 2540D)	**1.2**	**J**	4.0	1.1	mg/L			02/24/23 15:17	1

Client Sample ID: W-10B
Date Collected: 02/21/23 10:03
Date Received: 02/23/23 15:35
Lab Sample ID: 280-172755-2
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			03/07/23 15:58	1
Temperature (SW846 9040B)	**20.6**	**HF**	1.0	1.0	Degrees C			03/07/23 15:58	1
Chloride (SW846 9056A)	**1100**		150	51	mg/L			03/02/23 00:21	50
Fluoride (SW846 9056A)	**0.91**	**J**	2.5	0.83	mg/L			03/06/23 18:31	5
Sulfate (SW846 9056A)	**63000**		5000	1000	mg/L			03/02/23 00:29	1000
Alkalinity (SM 2320B)	**1000**	**B**	10	3.1	mg/L			02/24/23 18:04	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**1000**	**B**	10	3.1	mg/L			02/24/23 18:04	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			02/24/23 18:04	1
Total Dissolved Solids (TDS) (SM 2540C)	**82000**		1000	470	mg/L			02/24/23 12:49	1
Total Suspended Solids (SM 2540D)	**5.6**		4.0	1.1	mg/L			02/24/23 15:17	1

Client Sample ID: W-18
Date Collected: 02/20/23 15:35
Date Received: 02/23/23 15:35
Lab Sample ID: 280-172755-3
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			03/07/23 16:02	1
Temperature (SW846 9040B)	**21.1**	**HF**	1.0	1.0	Degrees C			03/07/23 16:02	1
Chloride (SW846 9056A)	**270**		30	10	mg/L			03/02/23 00:45	10
Fluoride (SW846 9056A)	**0.74**		0.50	0.17	mg/L			03/02/23 00:37	1
Sulfate (SW846 9056A)	**11000**		1000	210	mg/L			03/02/23 00:53	200
Alkalinity (SM 2320B)	**590**	**B**	10	3.1	mg/L			02/24/23 18:33	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**590**	**B**	10	3.1	mg/L			02/24/23 18:33	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			02/24/23 18:33	1
Total Dissolved Solids (TDS) (SM 2540C)	**16000**		1000	470	mg/L			02/24/23 12:53	1
Total Suspended Solids (SM 2540D)	**2.0**	**J**	4.0	1.1	mg/L			02/24/23 15:17	1

General Chemistry

Client Sample ID: W-17
Date Collected: 02/22/23 11:55
Date Received: 02/23/23 15:35
Lab Sample ID: 280-172755-4
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			03/07/23 16:06	1
Temperature (SW846 9040B)	20.4	HF	1.0	1.0	Degrees C			03/07/23 16:06	1
Chloride (SW846 9056A)	78		3.0	1.0	mg/L			03/02/23 01:01	1
Fluoride (SW846 9056A)	ND		0.50	0.17	mg/L			03/02/23 01:01	1
Sulfate (SW846 9056A)	5600		500	100	mg/L			03/03/23 20:12	100
Alkalinity (SM 2320B)	730	B	10	3.1	mg/L			02/24/23 18:44	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	730	B	10	3.1	mg/L			02/24/23 18:44	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			02/24/23 18:44	1
Total Dissolved Solids (TDS) (SM 2540C)	8700		100	47	mg/L			02/24/23 12:49	1
Total Suspended Solids (SM 2540D)	9.2		4.0	1.1	mg/L			02/24/23 15:17	1

Client Sample ID: W-14
Date Collected: 02/21/23 16:40
Date Received: 02/23/23 15:35
Lab Sample ID: 280-172755-5
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			03/07/23 16:10	1
Temperature (SW846 9040B)	20.1	HF	1.0	1.0	Degrees C			03/07/23 16:10	1
Chloride (SW846 9056A)	600		60	20	mg/L			03/02/23 01:41	20
Fluoride (SW846 9056A)	ND		2.5	0.83	mg/L			03/06/23 18:38	5
Sulfate (SW846 9056A)	17000		1000	210	mg/L			03/03/23 20:44	200
Alkalinity (SM 2320B)	810	B	10	3.1	mg/L			02/24/23 18:55	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	810	B	10	3.1	mg/L			02/24/23 18:55	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			02/24/23 18:55	1
Total Dissolved Solids (TDS) (SM 2540C)	27000		1000	470	mg/L			02/24/23 12:49	1
Total Suspended Solids (SM 2540D)	ND		4.0	1.1	mg/L			02/24/23 15:17	1

Client Sample ID: W-9
Date Collected: 02/21/23 14:00
Date Received: 02/23/23 15:35
Lab Sample ID: 280-172755-6
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			03/07/23 16:25	1
Temperature (SW846 9040B)	20.8	HF	1.0	1.0	Degrees C			03/07/23 16:25	1
Chloride (SW846 9056A)	180		30	10	mg/L			03/02/23 01:57	10
Fluoride (SW846 9056A)	ND		0.50	0.17	mg/L			03/02/23 01:49	1
Sulfate (SW846 9056A)	12000		1000	210	mg/L			03/02/23 02:05	200
Alkalinity (SM 2320B)	440	B	10	3.1	mg/L			02/24/23 19:04	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	440	B	10	3.1	mg/L			02/24/23 19:04	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			02/24/23 19:04	1
Total Dissolved Solids (TDS) (SM 2540C)	19000		1000	470	mg/L			02/24/23 12:49	1
Total Suspended Solids (SM 2540D)	3.6	J	4.0	1.1	mg/L			02/24/23 15:17	1

Client: HDR Inc
Job ID: 280-172755-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

General Chemistry

Client Sample ID: W-1
Date Collected: 02/21/23 15:15
Date Received: 02/23/23 15:35

Lab Sample ID: 280-172755-7
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			03/07/23 16:30	1
Temperature (SW846 9040B)	**20.6**	**HF**	1.0	1.0	Degrees C			03/07/23 16:30	1
Chloride (SW846 9056A)	**640**		30	10	mg/L			03/02/23 02:21	10
Fluoride (SW846 9056A)	**2.8**		2.5	0.83	mg/L			03/06/23 18:46	5
Sulfate (SW846 9056A)	**35000**		5000	1000	mg/L			03/02/23 02:28	1000
Alkalinity (SM 2320B)	**600**	**B**	10	3.1	mg/L			02/24/23 19:14	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**600**	**B**	10	3.1	mg/L			02/24/23 19:14	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			02/24/23 19:14	1
Total Dissolved Solids (TDS) (SM 2540C)	**41000**		1000	470	mg/L			02/24/23 12:49	1
Total Suspended Solids (SM 2540D)	ND		4.0	1.1	mg/L			02/24/23 15:17	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-603249/1-A
Matrix: Water
Analysis Batch: 603765

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 603249

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.0015	mg/L		02/27/23 08:00	03/01/23 20:11	1

Lab Sample ID: MB 280-603249/1-A
Matrix: Water
Analysis Batch: 603927

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 603249

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.020	0.0091	mg/L		02/27/23 08:00	03/02/23 15:05	1

Lab Sample ID: LCS 280-603249/2-A
Matrix: Water
Analysis Batch: 603765

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 603249

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	2.10		mg/L		105	86 - 110

Lab Sample ID: LCS 280-603249/2-A
Matrix: Water
Analysis Batch: 603927

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 603249

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Lithium	1.00	0.998		mg/L		100	90 - 112

Lab Sample ID: 280-172755-1 MS
Matrix: Water
Analysis Batch: 603765

Client Sample ID: WK-10B
Prep Type: Total Recoverable
Prep Batch: 603249

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	0.0045	J	2.00	2.14		mg/L		107	87 - 113

Lab Sample ID: 280-172755-1 MS
Matrix: Water
Analysis Batch: 603927

Client Sample ID: WK-10B
Prep Type: Total Recoverable
Prep Batch: 603249

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Lithium	ND		1.00	1.01		mg/L		101	89 - 114

Lab Sample ID: 280-172755-1 MSD
Matrix: Water
Analysis Batch: 603765

Client Sample ID: WK-10B
Prep Type: Total Recoverable
Prep Batch: 603249

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	0.0045	J	2.00	2.14		mg/L		107	87 - 113	0	20

Lab Sample ID: 280-172755-1 MSD
Matrix: Water
Analysis Batch: 603927

Client Sample ID: WK-10B
Prep Type: Total Recoverable
Prep Batch: 603249

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Lithium	ND		1.00	1.01		mg/L		101	89 - 114	1	20

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-603249/1-A
Matrix: Water
Analysis Batch: 603493

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 603249

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		02/27/23 08:00	02/27/23 18:42	1
Arsenic	ND		0.0050	0.00050	mg/L		02/27/23 08:00	02/27/23 18:42	1
Barium	ND		0.0030	0.00038	mg/L		02/27/23 08:00	02/27/23 18:42	1
Cadmium	ND		0.0010	0.00019	mg/L		02/27/23 08:00	02/27/23 18:42	1
Chromium	ND		0.0030	0.00050	mg/L		02/27/23 08:00	02/27/23 18:42	1
Cobalt	ND		0.0010	0.00033	mg/L		02/27/23 08:00	02/27/23 18:42	1
Lead	ND		0.0010	0.00023	mg/L		02/27/23 08:00	02/27/23 18:42	1
Molybdenum	ND		0.0020	0.00037	mg/L		02/27/23 08:00	02/27/23 18:42	1
Thallium	ND		0.0010	0.00021	mg/L		02/27/23 08:00	02/27/23 18:42	1

Lab Sample ID: MB 280-603249/1-A
Matrix: Water
Analysis Batch: 603633

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 603249

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.0050	0.0010	mg/L		02/27/23 08:00	02/28/23 17:58	1
Calcium	ND		0.20	0.032	mg/L		02/27/23 08:00	02/28/23 17:58	1

Lab Sample ID: MB 280-603249/1-A
Matrix: Water
Analysis Batch: 603789

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 603249

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	ND		200	4.2	ug/L		02/27/23 08:00	03/01/23 18:33	1
Sodium	ND		1000	73	ug/L		02/27/23 08:00	03/01/23 18:33	1
Potassium	ND		1000	52	ug/L		02/27/23 08:00	03/01/23 18:33	1
Beryllium	ND		0.0010	0.00030	mg/L		02/27/23 08:00	03/01/23 18:33	1

Lab Sample ID: LCS 280-603249/19-A
Matrix: Water
Analysis Batch: 603493

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 603249

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0412		mg/L		103	85 - 115
Arsenic	0.0400	0.0411		mg/L		103	85 - 117
Barium	0.0400	0.0416		mg/L		104	85 - 118
Cadmium	0.0400	0.0418		mg/L		104	85 - 115
Chromium	0.0400	0.0424		mg/L		106	84 - 121
Cobalt	0.0400	0.0419		mg/L		105	85 - 120
Lead	0.0400	0.0425		mg/L		106	85 - 118
Molybdenum	0.0400	0.0419		mg/L		105	85 - 119
Thallium	0.0400	0.0425		mg/L		106	85 - 118

Lab Sample ID: LCS 280-603249/19-A
Matrix: Water
Analysis Batch: 603633

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 603249

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Selenium	0.0400	0.0408		mg/L		102	77 - 122

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

Lab Sample ID: LCS 280-603249/19-A
Matrix: Water
Analysis Batch: 603633

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 603249

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	0.800	0.888		mg/L		111	80 - 120

Lab Sample ID: LCS 280-603249/19-A
Matrix: Water
Analysis Batch: 603789

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 603249

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Magnesium	800	780		ug/L		97	80 - 120
Sodium	800	918	J	ug/L		115	80 - 120
Potassium	800	851	J	ug/L		106	80 - 120
Beryllium	0.0400	0.0402		mg/L		100	80 - 125

Lab Sample ID: 280-172755-1 MS
Matrix: Water
Analysis Batch: 603493

Client Sample ID: WK-10B
Prep Type: Total Recoverable
Prep Batch: 603249

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	ND		0.0400	0.0405		mg/L		101	80 - 111
Arsenic	ND		0.0400	0.0389		mg/L		97	92 - 112
Barium	ND		0.0400	0.0407		mg/L		102	92 - 117
Potassium	ND		0.800	0.869	J	mg/L		109	80 - 120
Beryllium	ND	^+	0.0400	0.0415	^+	mg/L		104	87 - 118
Cadmium	ND		0.0400	0.0410		mg/L		102	91 - 114
Chromium	ND		0.0400	0.0410		mg/L		102	91 - 114
Cobalt	ND		0.0400	0.0409		mg/L		102	94 - 115
Lead	ND		0.0400	0.0412		mg/L		103	95 - 116
Molybdenum	ND		0.0400	0.0400		mg/L		100	84 - 117
Thallium	ND		0.0400	0.0412		mg/L		103	94 - 115

Lab Sample ID: 280-172755-1 MS
Matrix: Water
Analysis Batch: 603633

Client Sample ID: WK-10B
Prep Type: Total Recoverable
Prep Batch: 603249

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Sodium	150	J B *+ ^2	0.800	0.997	J 4	mg/L		-1857 6	80 - 120
Selenium	ND		0.0400	0.0421		mg/L		105	90 - 115
Calcium	0.036	J	0.800	0.913		mg/L		110	80 - 120

Lab Sample ID: 280-172755-1 MS
Matrix: Water
Analysis Batch: 603842

Client Sample ID: WK-10B
Prep Type: Total Recoverable
Prep Batch: 603249

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Magnesium	17	J	800	747		ug/L		91	80 - 120

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

Lab Sample ID: 280-172755-1 MSD
Matrix: Water
Analysis Batch: 603493

Client Sample ID: WK-10B
Prep Type: Total Recoverable
Prep Batch: 603249

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	ND		0.0400	0.0406		mg/L		101	80 - 111	0	20
Arsenic	ND		0.0400	0.0422		mg/L		106	92 - 112	8	20
Barium	ND		0.0400	0.0415		mg/L		104	92 - 117	2	20
Potassium	ND		0.800	0.869	J F2	mg/L		109	80 - 120	200	20
Beryllium	ND	^+	0.0400	0.0418	^+	mg/L		105	87 - 118	1	20
Cadmium	ND		0.0400	0.0408		mg/L		102	91 - 114	0	20
Chromium	ND		0.0400	0.0423		mg/L		106	91 - 114	3	20
Cobalt	ND		0.0400	0.0412		mg/L		103	94 - 115	1	20
Lead	ND		0.0400	0.0406		mg/L		102	95 - 116	1	20
Molybdenum	ND		0.0400	0.0404		mg/L		101	84 - 117	1	20
Thallium	ND		0.0400	0.0410		mg/L		102	94 - 115	1	20

Lab Sample ID: 280-172755-1 MSD
Matrix: Water
Analysis Batch: 603633

Client Sample ID: WK-10B
Prep Type: Total Recoverable
Prep Batch: 603249

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sodium	150	J B *+ ^2	0.800	1.05	4 F2	mg/L		-18569	80 - 120	200	20
Selenium	ND		0.0400	0.0392		mg/L		98	90 - 115	7	20
Calcium	0.036	J	0.800	0.948		mg/L		114	80 - 120	4	20

Lab Sample ID: 280-172755-1 MSD
Matrix: Water
Analysis Batch: 603842

Client Sample ID: WK-10B
Prep Type: Total Recoverable
Prep Batch: 603249

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Magnesium	17	J	800	778		ug/L		95	80 - 120	4	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-603662/1-A
Matrix: Water
Analysis Batch: 603794

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 603662

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		03/01/23 13:13	03/01/23 18:06	1

Lab Sample ID: LCS 280-603662/2-A
Matrix: Water
Analysis Batch: 603794

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 603662

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury			0.00500	0.00494		mg/L		99	84 - 120		

Method: 9040B - pH

Lab Sample ID: LCS 280-604372/7
Matrix: Water
Analysis Batch: 604372

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 280-604491/7
Matrix: Water
Analysis Batch: 604491

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 280-603681/76
Matrix: Water
Analysis Batch: 603681

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			03/01/23 23:10	1
Fluoride	ND		0.50	0.17	mg/L			03/01/23 23:10	1
Sulfate	ND		5.0	1.0	mg/L			03/01/23 23:10	1

Lab Sample ID: LCS 280-603681/74
Matrix: Water
Analysis Batch: 603681

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	49.3		mg/L		99	90 - 110
Fluoride	2.50	2.36		mg/L		95	90 - 110
Sulfate	50.0	52.1		mg/L		104	90 - 110

Lab Sample ID: LCSD 280-603681/75
Matrix: Water
Analysis Batch: 603681

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	49.4		mg/L		99	90 - 110	0	10
Fluoride	2.50	2.37		mg/L		95	90 - 110	0	10
Sulfate	50.0	52.1		mg/L		104	90 - 110	0	10

Lab Sample ID: MRL 280-603681/3
Matrix: Water
Analysis Batch: 603681

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	2.34	J	mg/L		94	50 - 150
Fluoride	0.250	0.184	J	mg/L		73	50 - 150
Sulfate	2.50	2.37	J	mg/L		95	50 - 150

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

Lab Sample ID: MB 280-603997/6
Matrix: Water
Analysis Batch: 603997

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			03/03/23 16:28	1

Lab Sample ID: LCS 280-603997/4
Matrix: Water
Analysis Batch: 603997

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	49.5		mg/L		99	90 - 110

Lab Sample ID: LCSD 280-603997/5
Matrix: Water
Analysis Batch: 603997

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 280-603997/3
Matrix: Water
Analysis Batch: 603997

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	2.37	J	mg/L		95	50 - 150

Lab Sample ID: MB 280-604169/13
Matrix: Water
Analysis Batch: 604169

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			03/06/23 18:15	1

Lab Sample ID: LCS 280-604169/11
Matrix: Water
Analysis Batch: 604169

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	2.42		mg/L		97	90 - 110

Lab Sample ID: LCSD 280-604169/12
Matrix: Water
Analysis Batch: 604169

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	2.54		mg/L		102	90 - 110	5	10

Lab Sample ID: MRL 280-604169/10
Matrix: Water
Analysis Batch: 604169

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	0.270	J	mg/L		108	50 - 150

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-603665/32
Matrix: Water
Analysis Batch: 603665

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	3.11	J	10	3.1	mg/L			02/24/23 16:40	1
Bicarbonate Alkalinity as CaCO3	3.11	J	10	3.1	mg/L			02/24/23 16:40	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			02/24/23 16:40	1

Lab Sample ID: LCS 280-603665/31
Matrix: Water
Analysis Batch: 603665

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 280-603278/1
Matrix: Water
Analysis Batch: 603278

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			02/24/23 12:48	1

Lab Sample ID: LCS 280-603278/2
Matrix: Water
Analysis Batch: 603278

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 280-603278/3
Matrix: Water
Analysis Batch: 603278

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	496		mg/L		99	88 - 114	1	20

Lab Sample ID: MB 280-603279/1
Matrix: Water
Analysis Batch: 603279

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			02/24/23 12:52	1

Lab Sample ID: LCS 280-603279/2
Matrix: Water
Analysis Batch: 603279

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	498		mg/L		99	88 - 114

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

Lab Sample ID: LCSD 280-603279/3
Matrix: Water
Analysis Batch: 603279

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	505		mg/L		101	88 - 114	1	20

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

Lab Sample ID: MB 280-603310/3
Matrix: Water
Analysis Batch: 603310

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			02/24/23 15:17	1

Lab Sample ID: LCS 280-603310/1
Matrix: Water
Analysis Batch: 603310

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			506	470		mg/L		93	79 - 114		

Lab Sample ID: LCSD 280-603310/2
Matrix: Water
Analysis Batch: 603310

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			506	457		mg/L		90	79 - 114	3	20

Metals

Prep Batch: 603249

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172755-1	WK-10B	Total Recoverable	Water	3005A	
280-172755-1	WK-10B	Total Recoverable	Water	3005A	
280-172755-2	W-10B	Total Recoverable	Water	3005A	
280-172755-3	W-18	Total Recoverable	Water	3005A	
280-172755-4	W-17	Total Recoverable	Water	3005A	
280-172755-5	W-14	Total Recoverable	Water	3005A	
280-172755-6	W-9	Total Recoverable	Water	3005A	
MB 280-603249/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-603249/19-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 280-603249/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-172755-1 MS	WK-10B	Total Recoverable	Water	3005A	
280-172755-1 MS	WK-10B	Total Recoverable	Water	3005A	
280-172755-1 MSD	WK-10B	Total Recoverable	Water	3005A	
280-172755-1 MSD	WK-10B	Total Recoverable	Water	3005A	

Analysis Batch: 603493

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172755-1	WK-10B	Total Recoverable	Water	6020B	603249
280-172755-2	W-10B	Total Recoverable	Water	6020B	603249
280-172755-3	W-18	Total Recoverable	Water	6020B	603249
280-172755-4	W-17	Total Recoverable	Water	6020B	603249
280-172755-5	W-14	Total Recoverable	Water	6020B	603249
280-172755-6	W-9	Total Recoverable	Water	6020B	603249
MB 280-603249/1-A	Method Blank	Total Recoverable	Water	6020B	603249
LCS 280-603249/19-A	Lab Control Sample	Total Recoverable	Water	6020B	603249
280-172755-1 MS	WK-10B	Total Recoverable	Water	6020B	603249
280-172755-1 MSD	WK-10B	Total Recoverable	Water	6020B	603249

Analysis Batch: 603633

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172755-1	WK-10B	Total Recoverable	Water	6020B	603249
280-172755-3	W-18	Total Recoverable	Water	6020B	603249
280-172755-4	W-17	Total Recoverable	Water	6020B	603249
280-172755-5	W-14	Total Recoverable	Water	6020B	603249
280-172755-6	W-9	Total Recoverable	Water	6020B	603249
MB 280-603249/1-A	Method Blank	Total Recoverable	Water	6020B	603249
LCS 280-603249/19-A	Lab Control Sample	Total Recoverable	Water	6020B	603249
280-172755-1 MS	WK-10B	Total Recoverable	Water	6020B	603249
280-172755-1 MSD	WK-10B	Total Recoverable	Water	6020B	603249

Prep Batch: 603662

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172755-1	WK-10B	Total/NA	Water	7470A	
280-172755-2	W-10B	Total/NA	Water	7470A	
280-172755-3	W-18	Total/NA	Water	7470A	
280-172755-4	W-17	Total/NA	Water	7470A	
280-172755-5	W-14	Total/NA	Water	7470A	
280-172755-6	W-9	Total/NA	Water	7470A	
MB 280-603662/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-603662/2-A	Lab Control Sample	Total/NA	Water	7470A	

Metals

Analysis Batch: 603765

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172755-1	WK-10B	Total Recoverable	Water	6010C	603249
280-172755-3	W-18	Total Recoverable	Water	6010C	603249
280-172755-4	W-17	Total Recoverable	Water	6010C	603249
280-172755-5	W-14	Total Recoverable	Water	6010C	603249
280-172755-6	W-9	Total Recoverable	Water	6010C	603249
MB 280-603249/1-A	Method Blank	Total Recoverable	Water	6010C	603249
LCS 280-603249/2-A	Lab Control Sample	Total Recoverable	Water	6010C	603249
280-172755-1 MS	WK-10B	Total Recoverable	Water	6010C	603249
280-172755-1 MSD	WK-10B	Total Recoverable	Water	6010C	603249

Analysis Batch: 603789

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172755-2	W-10B	Total Recoverable	Water	6020B	603249
280-172755-3	W-18	Total Recoverable	Water	6020B	603249
280-172755-4	W-17	Total Recoverable	Water	6020B	603249
280-172755-5	W-14	Total Recoverable	Water	6020B	603249
280-172755-6	W-9	Total Recoverable	Water	6020B	603249
MB 280-603249/1-A	Method Blank	Total Recoverable	Water	6020B	603249
LCS 280-603249/19-A	Lab Control Sample	Total Recoverable	Water	6020B	603249

Analysis Batch: 603794

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172755-1	WK-10B	Total/NA	Water	7470A	603662
280-172755-2	W-10B	Total/NA	Water	7470A	603662
280-172755-3	W-18	Total/NA	Water	7470A	603662
280-172755-4	W-17	Total/NA	Water	7470A	603662
280-172755-5	W-14	Total/NA	Water	7470A	603662
280-172755-6	W-9	Total/NA	Water	7470A	603662
MB 280-603662/1-A	Method Blank	Total/NA	Water	7470A	603662
LCS 280-603662/2-A	Lab Control Sample	Total/NA	Water	7470A	603662

Analysis Batch: 603842

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172755-1	WK-10B	Total Recoverable	Water	6020B	603249
280-172755-2	W-10B	Total Recoverable	Water	6020B	603249
280-172755-3	W-18	Total Recoverable	Water	6020B	603249
280-172755-4	W-17	Total Recoverable	Water	6020B	603249
280-172755-1 MS	WK-10B	Total Recoverable	Water	6020B	603249
280-172755-1 MSD	WK-10B	Total Recoverable	Water	6020B	603249

Analysis Batch: 603927

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172755-1	WK-10B	Total Recoverable	Water	6010C	603249
280-172755-2	W-10B	Total Recoverable	Water	6010C	603249
280-172755-3	W-18	Total Recoverable	Water	6010C	603249
280-172755-4	W-17	Total Recoverable	Water	6010C	603249
280-172755-5	W-14	Total Recoverable	Water	6010C	603249
280-172755-6	W-9	Total Recoverable	Water	6010C	603249
MB 280-603249/1-A	Method Blank	Total Recoverable	Water	6010C	603249
LCS 280-603249/2-A	Lab Control Sample	Total Recoverable	Water	6010C	603249
280-172755-1 MS	WK-10B	Total Recoverable	Water	6010C	603249

Metals (Continued)

Analysis Batch: 603927 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172755-1 MSD	WK-10B	Total Recoverable	Water	6010C	603249

Analysis Batch: 604060

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172755-2	W-10B	Total Recoverable	Water	6010C	603249

General Chemistry

Analysis Batch: 603278

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172755-1	WK-10B	Total/NA	Water	SM 2540C	
280-172755-2	W-10B	Total/NA	Water	SM 2540C	
280-172755-4	W-17	Total/NA	Water	SM 2540C	
280-172755-5	W-14	Total/NA	Water	SM 2540C	
280-172755-6	W-9	Total/NA	Water	SM 2540C	
280-172755-7	W-1	Total/NA	Water	SM 2540C	
MB 280-603278/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-603278/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-603278/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 603279

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172755-3	W-18	Total/NA	Water	SM 2540C	
MB 280-603279/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-603279/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-603279/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 603310

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172755-1	WK-10B	Total/NA	Water	SM 2540D	
280-172755-2	W-10B	Total/NA	Water	SM 2540D	
280-172755-3	W-18	Total/NA	Water	SM 2540D	
280-172755-4	W-17	Total/NA	Water	SM 2540D	
280-172755-5	W-14	Total/NA	Water	SM 2540D	
280-172755-6	W-9	Total/NA	Water	SM 2540D	
280-172755-7	W-1	Total/NA	Water	SM 2540D	
MB 280-603310/3	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-603310/1	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-603310/2	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 603665

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172755-1	WK-10B	Total/NA	Water	SM 2320B	
280-172755-2	W-10B	Total/NA	Water	SM 2320B	
280-172755-3	W-18	Total/NA	Water	SM 2320B	
280-172755-4	W-17	Total/NA	Water	SM 2320B	
280-172755-5	W-14	Total/NA	Water	SM 2320B	
280-172755-6	W-9	Total/NA	Water	SM 2320B	
280-172755-7	W-1	Total/NA	Water	SM 2320B	
MB 280-603665/32	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-603665/31	Lab Control Sample	Total/NA	Water	SM 2320B	

General Chemistry

Analysis Batch: 603681

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172755-1	WK-10B	Total/NA	Water	9056A	
280-172755-2	W-10B	Total/NA	Water	9056A	
280-172755-2	W-10B	Total/NA	Water	9056A	
280-172755-3	W-18	Total/NA	Water	9056A	
280-172755-3	W-18	Total/NA	Water	9056A	
280-172755-3	W-18	Total/NA	Water	9056A	
280-172755-4	W-17	Total/NA	Water	9056A	
280-172755-5	W-14	Total/NA	Water	9056A	
280-172755-6	W-9	Total/NA	Water	9056A	
280-172755-6	W-9	Total/NA	Water	9056A	
280-172755-6	W-9	Total/NA	Water	9056A	
280-172755-7	W-1	Total/NA	Water	9056A	
280-172755-7	W-1	Total/NA	Water	9056A	
MB 280-603681/76	Method Blank	Total/NA	Water	9056A	
LCS 280-603681/74	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-603681/75	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-603681/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 603997

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172755-4	W-17	Total/NA	Water	9056A	
280-172755-5	W-14	Total/NA	Water	9056A	
MB 280-603997/6	Method Blank	Total/NA	Water	9056A	
LCS 280-603997/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-603997/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-603997/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 604169

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172755-2	W-10B	Total/NA	Water	9056A	
280-172755-5	W-14	Total/NA	Water	9056A	
280-172755-7	W-1	Total/NA	Water	9056A	
MB 280-604169/13	Method Blank	Total/NA	Water	9056A	
LCS 280-604169/11	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-604169/12	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-604169/10	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 604372

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172755-2	W-10B	Total/NA	Water	9040B	
280-172755-3	W-18	Total/NA	Water	9040B	
280-172755-4	W-17	Total/NA	Water	9040B	
280-172755-5	W-14	Total/NA	Water	9040B	
280-172755-6	W-9	Total/NA	Water	9040B	
280-172755-7	W-1	Total/NA	Water	9040B	
LCS 280-604372/7	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 604491

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172755-1	WK-10B	Total/NA	Water	9040B	
LCS 280-604491/7	Lab Control Sample	Total/NA	Water	9040B	

Lab Chronicle

Client: HDR Inc
Job ID: 280-172755-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: WK-10B
Lab Sample ID: 280-172755-1
Date Collected: 02/21/23 12:35
Matrix: Water
Date Received: 02/23/23 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	603249	02/27/23 08:00	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			603765	03/01/23 20:19	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	603249	02/27/23 08:00	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			603927	03/02/23 15:14	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	603249	02/27/23 08:00	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			603493	02/27/23 18:46	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	603249	02/27/23 08:00	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			603633	02/28/23 18:01	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	603249	02/27/23 08:00	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			603842	03/02/23 12:49	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	603662	03/01/23 13:13	PFM	EET DEN
Total/NA	Analysis	7470A		1			603794	03/01/23 18:39	PFM	EET DEN
Total/NA	Analysis	9040B		1			604491	03/08/23 14:39	KEG	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	603681	03/02/23 00:05	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			603665	02/24/23 17:51	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	603278	02/24/23 12:49	ABW	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	603310	02/24/23 15:17	ABW	EET DEN

Client Sample ID: W-10B
Lab Sample ID: 280-172755-2
Date Collected: 02/21/23 10:03
Matrix: Water
Date Received: 02/23/23 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	603249	02/27/23 08:00	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			603927	03/02/23 15:35	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	603249	02/27/23 08:00	LJS	EET DEN
Total Recoverable	Analysis	6010C		5			604060	03/03/23 15:11	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	603249	02/27/23 08:00	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			603493	02/27/23 18:55	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	603249	02/27/23 08:00	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			603789	03/01/23 18:46	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	603249	02/27/23 08:00	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			603842	03/02/23 11:33	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	603662	03/01/23 13:13	PFM	EET DEN
Total/NA	Analysis	7470A		1			603794	03/01/23 18:47	PFM	EET DEN
Total/NA	Analysis	9040B		1			604372	03/07/23 15:58	KEG	EET DEN
Total/NA	Analysis	9056A		50	5 mL	5 mL	603681	03/02/23 00:21	EJS	EET DEN
Total/NA	Analysis	9056A		1000	5 mL	5 mL	603681	03/02/23 00:29	EJS	EET DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	604169	03/06/23 18:31	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			603665	02/24/23 18:04	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	603278	02/24/23 12:49	ABW	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	603310	02/24/23 15:17	ABW	EET DEN

Client Sample ID: W-18
Date Collected: 02/20/23 15:35
Date Received: 02/23/23 15:35

Lab Sample ID: 280-172755-3
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	603249	02/27/23 08:00	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			603765	03/01/23 21:03	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	603249	02/27/23 08:00	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			603927	03/02/23 15:40	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	603249	02/27/23 08:00	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			603493	02/27/23 18:56	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	603249	02/27/23 08:00	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			603633	02/28/23 18:12	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	603249	02/27/23 08:00	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			603789	03/01/23 18:48	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	603249	02/27/23 08:00	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			603842	03/02/23 11:34	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	603662	03/01/23 13:13	PFM	EET DEN
Total/NA	Analysis	7470A		1			603794	03/01/23 18:49	PFM	EET DEN
Total/NA	Analysis	9040B		1			604372	03/07/23 16:02	KEG	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	603681	03/02/23 00:37	EJS	EET DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	603681	03/02/23 00:45	EJS	EET DEN
Total/NA	Analysis	9056A		200	5 mL	5 mL	603681	03/02/23 00:53	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			603665	02/24/23 18:33	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	603279	02/24/23 12:53	ABW	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	603310	02/24/23 15:17	ABW	EET DEN

Client Sample ID: W-17
Date Collected: 02/22/23 11:55
Date Received: 02/23/23 15:35

Lab Sample ID: 280-172755-4
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	603249	02/27/23 08:00	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			603765	03/01/23 21:07	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	603249	02/27/23 08:00	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			603927	03/02/23 15:45	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	603249	02/27/23 08:00	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			603493	02/27/23 18:58	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	603249	02/27/23 08:00	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			603633	02/28/23 18:14	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	603249	02/27/23 08:00	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			603789	03/01/23 18:50	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	603249	02/27/23 08:00	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			603842	03/02/23 11:36	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	603662	03/01/23 13:13	PFM	EET DEN
Total/NA	Analysis	7470A		1			603794	03/01/23 18:52	PFM	EET DEN
Total/NA	Analysis	9040B		1			604372	03/07/23 16:06	KEG	EET DEN
Total/NA	Analysis	9056A		100	5 mL	5 mL	603997	03/03/23 20:12	EJS	EET DEN

Client Sample ID: W-17
Lab Sample ID: 280-172755-4

Date Collected: 02/22/23 11:55
Matrix: Water
Date Received: 02/23/23 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	9056A		1	5 mL	5 mL	603681	03/02/23 01:01	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			603665	02/24/23 18:44	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	603278	02/24/23 12:49	ABW	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	603310	02/24/23 15:17	ABW	EET DEN

Client Sample ID: W-14
Lab Sample ID: 280-172755-5

Date Collected: 02/21/23 16:40
Matrix: Water
Date Received: 02/23/23 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	603249	02/27/23 08:00	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			603765	03/01/23 21:11	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	603249	02/27/23 08:00	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			603927	03/02/23 16:06	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	603249	02/27/23 08:00	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			603493	02/27/23 19:04	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	603249	02/27/23 08:00	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			603633	02/28/23 18:20	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	603249	02/27/23 08:00	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			603789	03/01/23 21:24	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	603662	03/01/23 13:13	PFM	EET DEN
Total/NA	Analysis	7470A		1			603794	03/01/23 18:55	PFM	EET DEN
Total/NA	Analysis	9040B		1			604372	03/07/23 16:10	KEG	EET DEN
Total/NA	Analysis	9056A		200	5 mL	5 mL	603997	03/03/23 20:44	EJS	EET DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	603681	03/02/23 01:41	EJS	EET DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	604169	03/06/23 18:38	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			603665	02/24/23 18:55	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	603278	02/24/23 12:49	ABW	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	603310	02/24/23 15:17	ABW	EET DEN

Client Sample ID: W-9
Lab Sample ID: 280-172755-6

Date Collected: 02/21/23 14:00
Matrix: Water
Date Received: 02/23/23 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	603249	02/27/23 08:00	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			603765	03/01/23 21:16	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	603249	02/27/23 08:00	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			603927	03/02/23 16:11	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	603249	02/27/23 08:00	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			603493	02/27/23 19:05	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	603249	02/27/23 08:00	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			603633	02/28/23 18:21	LMT	EET DEN

Lab Chronicle

Client: HDR Inc
Job ID: 280-172755-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-9
Lab Sample ID: 280-172755-6
Date Collected: 02/21/23 14:00
Matrix: Water
Date Received: 02/23/23 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	603249	02/27/23 08:00	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			603789	03/01/23 21:26	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	603662	03/01/23 13:13	PFM	EET DEN
Total/NA	Analysis	7470A		1			603794	03/01/23 18:57	PFM	EET DEN
Total/NA	Analysis	9040B		1			604372	03/07/23 16:25	KEG	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	603681	03/02/23 01:49	EJS	EET DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	603681	03/02/23 01:57	EJS	EET DEN
Total/NA	Analysis	9056A		200	5 mL	5 mL	603681	03/02/23 02:05	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			603665	02/24/23 19:04	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	603278	02/24/23 12:49	ABW	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	603310	02/24/23 15:17	ABW	EET DEN

Client Sample ID: W-1
Lab Sample ID: 280-172755-7
Date Collected: 02/21/23 15:15
Matrix: Water
Date Received: 02/23/23 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	9040B		1			604372	03/07/23 16:30	KEG	EET DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	603681	03/02/23 02:21	EJS	EET DEN
Total/NA	Analysis	9056A		1000	5 mL	5 mL	603681	03/02/23 02:28	EJS	EET DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	604169	03/06/23 18:46	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			603665	02/24/23 19:14	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	603278	02/24/23 12:49	ABW	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	603310	02/24/23 15:17	ABW	EET DEN

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

Accreditation/Certification Summary

Client: HDR Inc
Job ID: 280-172755-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

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Client Information	Sampler: Francis Li	Lab PM: Ryan, Nicole C	Carrier Tracking No(s):	COC No: 280-113124-32494.1
Client Contact: ~~Molly Reeves~~ Sierra Schupp	Phone: 720-261-5222	E-Mail: Nicole.Ryan@ET.EurofinsUS.com	State of Origin:	Page: Page 1 of 1
Company: HDR Inc	PWSID:			Job #:
Address: 1670 Broadway Suite 3400	Due Date Requested:			
City: Denver	TAT Requested (days):			
State, Zip: CO, 80202	Compliance Project: Δ Yes Δ No			
Phone: 734-263-7138(Tel)	PO #: DEN-021			
Email: Molly.Reeves@hdrinc.com	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - ~~Valmont~~ Comanche	Project #: ~~28014376~~ 28014376			
Site: Colorado On Site Wells	SSOW#:			

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, 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:

280-172755 Chain of Custody

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	App III and IV Metals: Bo, Ca, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Mo, Se, Tl	Total Mercury	Additional Metals: Mg, Na, K	9056 Anions: Chloride, Fluoride, Sulfate	2540C TDS	2540D TSS	9040 pH	2320 Alkalinity	RAD: Rad 226, Rad 228. Rad 226+228	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	D	D	D	N	N	N	N	N	D		
WK-10B	2/21/23	1235	G	W	N	N	X	X	X	X	X	X	X	X	X	6	
W-10B	2/21/23	1003	G	W	N	N	X	X	X	X	X	X	X	X	X	6	
W-18	2/20/23	1535	G	W	N	N	X	X	X	X	X	X	X	X	X	6	
W-17	2/22/23	1155	G	W	N	N	X	X	X	X	X	X	X	X	X	6	
W-14	2/21/23	1640	G	W	N	N	X	X	X	X	X	X	X	X	X	6	
W-9	2/21/23	1400	G	W	N	N	X	X	X	X	X	X	X	X	X	6	
W-1	2/21/23	1515	G	W	N	N						X		X	X	4	Please treat all "W-1"
W-1	2/22/23	0835	G	W	N	N									X	4	bottles as one sample set. Still
W-1	2/22/23	1935	G	W	N	N				X	X		X			4	Incomplete, will drop off final
																	1L total for metals next week

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:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	FLi	02/23/23 1535	HDR		2-23-23 1535	EHDEN
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 0.3 0.C IR12 CF00

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-172755-1

Login Number: 172755
List Number: 1
Creator: Roehsner, Karen P

List Source: Eurofins Denver

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.	False	Refer to Job Narrative for details.
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 <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

PREPARED FOR

Attn: Molly Reeves
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Generated 3/21/2023 2:07:04 PM

JOB DESCRIPTION

Xcel Energy GW CCR Monitoring - Comanche

JOB NUMBER

280-172593-2

Eurofins Denver
4955 Yarrow Street
Arvada CO 80002

See page two for job notes and contact information.

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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3/21/2023 2:07:04 PM

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
Job ID: 280-172593-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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.
¤	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

Job ID: 280-172593-2

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-172593-2

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 2/17/2023 3:10 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 2.7º C, 3.3º C and 4.6º C.

RADIUM-226 (GFPC)
Samples W-2C (280-172593-1), W-7 (280-172593-2), W-5B (280-172593-3), W-6BI (280-172593-4), WT-6BI (280-172593-5), W-11 (280-172593-6), W-12 (280-172593-7) and W-3B (280-172593-8) were analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 02/22/2023 and analyzed on 03/17/2023.

The following samples were prepared at a reduced aliquot due to Matrix: W-2C (280-172593-1), W-7 (280-172593-2), W-5B (280-172593-3), W-6BI (280-172593-4), WT-6BI (280-172593-5), W-11 (280-172593-6), W-12 (280-172593-7) and W-3B (280-172593-8). 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-2C (280-172593-1), W-7 (280-172593-2), W-5B (280-172593-3), W-6BI (280-172593-4), WT-6BI (280-172593-5), W-11 (280-172593-6), W-12 (280-172593-7) and W-3B (280-172593-8) were analyzed for Radium-228 in accordance with 9320. The samples were prepared on 02/22/2023 and analyzed on 03/01/2023.

The following sample(s) did not meet the requested limit (RL) due to the reduced sample volume attributed to the presence of matrix interference: W-7 (280-172593-2) and W-3B (280-172593-8). During preparation the analyst visually noted matrix effects. The data have been reported with this narrative.

The following samples were prepared at a reduced aliquot due to Matrix: W-2C (280-172593-1), W-7 (280-172593-2), W-5B (280-172593-3), W-6BI (280-172593-4), WT-6BI (280-172593-5), W-11 (280-172593-6), W-12 (280-172593-7) and W-3B (280-172593-8). 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.

Job ID: 280-172593-2 (Continued)

Laboratory: Eurofins Denver (Continued)

RADIUM-226/RADIUM-228 (GFPC)

Samples W-2C (280-172593-1), W-7 (280-172593-2), W-5B (280-172593-3), W-6BI (280-172593-4), WT-6BI (280-172593-5), W-11 (280-172593-6), W-12 (280-172593-7) and W-3B (280-172593-8) were analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on 03/21/2023.

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

Detection Summary

Client: HDR Inc
Job ID: 280-172593-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-2C — Lab Sample ID: 280-172593-1

No Detections.

Client Sample ID: W-7 — Lab Sample ID: 280-172593-2

No Detections.

Client Sample ID: W-5B — Lab Sample ID: 280-172593-3

No Detections.

Client Sample ID: W-6BI — Lab Sample ID: 280-172593-4

No Detections.

Client Sample ID: WT-6BI — Lab Sample ID: 280-172593-5

No Detections.

Client Sample ID: W-11 — Lab Sample ID: 280-172593-6

No Detections.

Client Sample ID: W-12 — Lab Sample ID: 280-172593-7

No Detections.

Client Sample ID: W-3B — Lab Sample ID: 280-172593-8

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-172593-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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: 280-172593-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-172593-1	W-2C	Water	02/14/23 11:20	02/17/23 15:10
280-172593-2	W-7	Water	02/14/23 14:00	02/17/23 15:10
280-172593-3	W-5B	Water	02/14/23 16:25	02/17/23 15:10
280-172593-4	W-6BI	Water	02/15/23 16:40	02/17/23 15:10
280-172593-5	WT-6BI	Water	02/15/23 17:20	02/17/23 15:10
280-172593-6	W-11	Water	02/16/23 12:55	02/17/23 15:10
280-172593-7	W-12	Water	02/16/23 16:35	02/17/23 15:10
280-172593-8	W-3B	Water	02/17/23 10:20	02/17/23 15:10

Method: SW846 9315 - Radium-226 (GFPC)

Client Sample ID: W-2C
Date Collected: 02/14/23 11:20
Date Received: 02/17/23 15:10

Lab Sample ID: 280-172593-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.91		0.259	0.311	1.00	0.117	pCi/L	02/22/23 13:06	03/17/23 13:41	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	94.0		30 - 110	02/22/23 13:06	03/17/23 13:41	1

Client Sample ID: W-7
Date Collected: 02/14/23 14:00
Date Received: 02/17/23 15:10

Lab Sample ID: 280-172593-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	2.10		0.354	0.401	1.00	0.168	pCi/L	02/22/23 13:06	03/17/23 13:43	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	80.3		30 - 110	02/22/23 13:06	03/17/23 13:43	1

Client Sample ID: W-5B
Date Collected: 02/14/23 16:25
Date Received: 02/17/23 15:10

Lab Sample ID: 280-172593-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.729		0.162	0.174	1.00	0.103	pCi/L	02/22/23 13:06	03/17/23 13:43	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	97.1		30 - 110	02/22/23 13:06	03/17/23 13:43	1

Client Sample ID: W-6BI
Date Collected: 02/15/23 16:40
Date Received: 02/17/23 15:10

Lab Sample ID: 280-172593-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	2.66		0.301	0.384	1.00	0.0864	pCi/L	02/22/23 13:06	03/17/23 13:43	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	96.3		30 - 110	02/22/23 13:06	03/17/23 13:43	1

Client Sample ID: WT-6BI
Date Collected: 02/15/23 17:20
Date Received: 02/17/23 15:10

Lab Sample ID: 280-172593-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	2.69		0.304	0.389	1.00	0.0945	pCi/L	02/22/23 13:06	03/17/23 13:43	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	92.0		30 - 110	02/22/23 13:06	03/17/23 13:43	1

Method: SW846 9315 - Radium-226 (GFPC)

Client Sample ID: W-11
Date Collected: 02/16/23 12:55
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.84		0.314	0.355	1.00	0.159	pCi/L	02/22/23 13:06	03/17/23 13:43	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	94.9		30 - 110	02/22/23 13:06	03/17/23 13:43	1

Client Sample ID: W-12
Date Collected: 02/16/23 16:35
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.864		0.235	0.248	1.00	0.199	pCi/L	02/22/23 13:06	03/17/23 13:43	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	90.9		30 - 110	02/22/23 13:06	03/17/23 13:43	1

Client Sample ID: W-3B
Date Collected: 02/17/23 10:20
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	3.76		0.442	0.557	1.00	0.158	pCi/L	02/22/23 13:06	03/17/23 13:43	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	94.0		30 - 110	02/22/23 13:06	03/17/23 13:43	1

Method: SW846 9320 - Radium-228 (GFPC)

Client Sample ID: W-2C
Date Collected: 02/14/23 11:20
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	3.01		0.655	0.711	1.00	0.631	pCi/L	02/22/23 13:33	03/01/23 12:11	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	94.0		30 - 110	02/22/23 13:33	03/01/23 12:11	1
Y Carrier	92.3		30 - 110	02/22/23 13:33	03/01/23 12:11	1

Client Sample ID: W-7
Date Collected: 02/14/23 14:00
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.70	G	0.890	0.903	1.00	1.27	pCi/L	02/22/23 13:33	03/01/23 12:11	1

Method: SW846 9320 - Radium-228 (GFPC) (Continued)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	80.3		30 - 110	02/22/23 13:33	03/01/23 12:11	1
Y Carrier	87.1		30 - 110	02/22/23 13:33	03/01/23 12:11	1

Client Sample ID: W-5B
Date Collected: 02/14/23 16:25
Date Received: 02/17/23 15:10

Lab Sample ID: 280-172593-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.738		0.370	0.376	1.00	0.488	pCi/L	02/22/23 13:33	03/01/23 12:11	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	97.1		30 - 110	02/22/23 13:33	03/01/23 12:11	1
Y Carrier	95.0		30 - 110	02/22/23 13:33	03/01/23 12:11	1

Client Sample ID: W-6BI
Date Collected: 02/15/23 16:40
Date Received: 02/17/23 15:10

Lab Sample ID: 280-172593-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.79		0.660	0.709	1.00	0.666	pCi/L	02/22/23 13:33	03/01/23 12:11	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	96.3		30 - 110	02/22/23 13:33	03/01/23 12:11	1
Y Carrier	86.4		30 - 110	02/22/23 13:33	03/01/23 12:11	1

Client Sample ID: WT-6BI
Date Collected: 02/15/23 17:20
Date Received: 02/17/23 15:10

Lab Sample ID: 280-172593-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	5.12		0.829	0.954	1.00	0.681	pCi/L	02/22/23 13:33	03/01/23 11:56	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	92.0		30 - 110	02/22/23 13:33	03/01/23 11:56	1
Y Carrier	89.7		30 - 110	02/22/23 13:33	03/01/23 11:56	1

Client Sample ID: W-11
Date Collected: 02/16/23 12:55
Date Received: 02/17/23 15:10

Lab Sample ID: 280-172593-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.63		0.804	0.840	1.00	0.904	pCi/L	02/22/23 13:33	03/01/23 11:56	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	94.9		30 - 110	02/22/23 13:33	03/01/23 11:56	1
Y Carrier	87.9		30 - 110	02/22/23 13:33	03/01/23 11:56	1

Method: SW846 9320 - Radium-228 (GFPC)

Client Sample ID: W-12
Date Collected: 02/16/23 16:35
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	3.78		0.953	1.01	1.00	0.977	pCi/L	02/22/23 13:33	03/01/23 11:59	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.9*		*30 - 110*	*02/22/23 13:33*	*03/01/23 11:59*	*1*
Y Carrier	*87.5*		*30 - 110*	*02/22/23 13:33*	*03/01/23 11:59*	*1*

Client Sample ID: W-3B
Date Collected: 02/17/23 10:20
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	6.86	G	1.21	1.36	1.00	1.10	pCi/L	02/22/23 13:33	03/01/23 11:59	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.0*		*30 - 110*	*02/22/23 13:33*	*03/01/23 11:59*	*1*
Y Carrier	*87.9*		*30 - 110*	*02/22/23 13:33*	*03/01/23 11:59*	*1*

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

Client Sample ID: W-2C
Date Collected: 02/14/23 11:20
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	4.92		0.704	0.776	5.00	0.631	pCi/L		03/21/23 13:06	1

Client Sample ID: W-7
Date Collected: 02/14/23 14:00
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	3.80		0.958	0.988	5.00	1.27	pCi/L		03/21/23 13:06	1

Client Sample ID: W-5B
Date Collected: 02/14/23 16:25
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.47		0.404	0.414	5.00	0.488	pCi/L		03/21/23 13:06	1

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

Client Sample ID: W-6BI
Date Collected: 02/15/23 16:40
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	5.45		0.725	0.806	5.00	0.666	pCi/L		03/21/23 13:06	1

Client Sample ID: WT-6BI
Date Collected: 02/15/23 17:20
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	7.82		0.883	1.03	5.00	0.681	pCi/L		03/21/23 13:06	1

Client Sample ID: W-11
Date Collected: 02/16/23 12:55
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	4.46		0.863	0.912	5.00	0.904	pCi/L		03/21/23 13:06	1

Client Sample ID: W-12
Date Collected: 02/16/23 16:35
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	4.64		0.982	1.04	5.00	0.977	pCi/L		03/21/23 13:06	1

Client Sample ID: W-3B
Date Collected: 02/17/23 10:20
Date Received: 02/17/23 15:10
Lab Sample ID: 280-172593-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	10.6		1.29	1.47	5.00	1.10	pCi/L		03/21/23 13:06	1

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-601196/1-A
Matrix: Water
Analysis Batch: 604013

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 601196

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.03884	U	0.0459	0.0460	1.00	0.0744	pCi/L	02/22/23 13:06	03/17/23 13:40	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.7*		*30 - 110*	*02/22/23 13:06*	*03/17/23 13:40*	*1*

Lab Sample ID: LCS 160-601196/2-A
Matrix: Water
Analysis Batch: 604013

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 601196

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-226			11.3	10.81		1.10	1.00	0.0798	pCi/L	95	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*94.3*		*30 - 110*

Lab Sample ID: LCSD 160-601196/3-A
Matrix: Water
Analysis Batch: 604013

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 601196

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-226			11.3	12.19		1.23	1.00	0.121	pCi/L	108	75 - 125	0.59	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*96.0*		*30 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-601199/1-A
Matrix: Water
Analysis Batch: 602069

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 601199

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1932	U	0.263	0.264	1.00	0.442	pCi/L	02/22/23 13:33	03/01/23 12:16	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.7*		*30 - 110*	*02/22/23 13:33*	*03/01/23 12:16*	*1*
Y Carrier	*89.7*		*30 - 110*	*02/22/23 13:33*	*03/01/23 12:16*	*1*

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

Lab Sample ID: LCS 160-601199/2-A
Matrix: Water
Analysis Batch: 602069

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 601199

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-228			8.15	8.759		1.19	1.00	0.464	pCi/L	107	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*94.3*		*30 - 110*
Y Carrier	*89.0*		*30 - 110*

Lab Sample ID: LCSD 160-601199/3-A
Matrix: Water
Analysis Batch: 602069

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 601199

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-228			8.15	8.763		1.21	1.00	0.482	pCi/L	107	75 - 125	0	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*96.0*		*30 - 110*
Y Carrier	*83.4*		*30 - 110*

Rad

Prep Batch: 601196

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172593-1	W-2C	Total/NA	Water	PrecSep-21	
280-172593-2	W-7	Total/NA	Water	PrecSep-21	
280-172593-3	W-5B	Total/NA	Water	PrecSep-21	
280-172593-4	W-6BI	Total/NA	Water	PrecSep-21	
280-172593-5	WT-6BI	Total/NA	Water	PrecSep-21	
280-172593-6	W-11	Total/NA	Water	PrecSep-21	
280-172593-7	W-12	Total/NA	Water	PrecSep-21	
280-172593-8	W-3B	Total/NA	Water	PrecSep-21	
MB 160-601196/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-601196/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-601196/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 601199

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172593-1	W-2C	Total/NA	Water	PrecSep_0	
280-172593-2	W-7	Total/NA	Water	PrecSep_0	
280-172593-3	W-5B	Total/NA	Water	PrecSep_0	
280-172593-4	W-6BI	Total/NA	Water	PrecSep_0	
280-172593-5	WT-6BI	Total/NA	Water	PrecSep_0	
280-172593-6	W-11	Total/NA	Water	PrecSep_0	
280-172593-7	W-12	Total/NA	Water	PrecSep_0	
280-172593-8	W-3B	Total/NA	Water	PrecSep_0	
MB 160-601199/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-601199/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-601199/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: HDR Inc
Job ID: 280-172593-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-2C
Lab Sample ID: 280-172593-1
Date Collected: 02/14/23 11:20
Matrix: Water
Date Received: 02/17/23 15:10

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			748.21 mL	1.0 g	601196	02/22/23 13:06	DJP	EET SL
Total/NA	Analysis	9315		1			604013	03/17/23 13:41	FLC	EET SL
Total/NA	Prep	PrecSep_0			748.21 mL	1.0 g	601199	02/22/23 13:33	DJP	EET SL
Total/NA	Analysis	9320		1			602060	03/01/23 12:11	SCB	EET SL
Total/NA	Analysis	Ra226_Ra228		1			604474	03/21/23 13:06	MLK	EET SL

Client Sample ID: W-7
Lab Sample ID: 280-172593-2
Date Collected: 02/14/23 14:00
Matrix: Water
Date Received: 02/17/23 15:10

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			505.63 mL	1.0 g	601196	02/22/23 13:06	DJP	EET SL
Total/NA	Analysis	9315		1			604013	03/17/23 13:43	FLC	EET SL
Total/NA	Prep	PrecSep_0			505.63 mL	1.0 g	601199	02/22/23 13:33	DJP	EET SL
Total/NA	Analysis	9320		1			602060	03/01/23 12:11	SCB	EET SL
Total/NA	Analysis	Ra226_Ra228		1			604474	03/21/23 13:06	MLK	EET SL

Client Sample ID: W-5B
Lab Sample ID: 280-172593-3
Date Collected: 02/14/23 16:25
Matrix: Water
Date Received: 02/17/23 15:10

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			742.86 mL	1.0 g	601196	02/22/23 13:06	DJP	EET SL
Total/NA	Analysis	9315		1			604013	03/17/23 13:43	FLC	EET SL
Total/NA	Prep	PrecSep_0			742.86 mL	1.0 g	601199	02/22/23 13:33	DJP	EET SL
Total/NA	Analysis	9320		1			602060	03/01/23 12:11	SCB	EET SL
Total/NA	Analysis	Ra226_Ra228		1			604474	03/21/23 13:06	MLK	EET SL

Client Sample ID: W-6BI
Lab Sample ID: 280-172593-4
Date Collected: 02/15/23 16:40
Matrix: Water
Date Received: 02/17/23 15:10

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			755.57 mL	1.0 g	601196	02/22/23 13:06	DJP	EET SL
Total/NA	Analysis	9315		1			604013	03/17/23 13:43	FLC	EET SL
Total/NA	Prep	PrecSep_0			755.57 mL	1.0 g	601199	02/22/23 13:33	DJP	EET SL
Total/NA	Analysis	9320		1			602060	03/01/23 12:11	SCB	EET SL
Total/NA	Analysis	Ra226_Ra228		1			604474	03/21/23 13:06	MLK	EET SL

Lab Chronicle

Client: HDR Inc
Job ID: 280-172593-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: WT-6BI
Lab Sample ID: 280-172593-5
Date Collected: 02/15/23 17:20
Matrix: Water
Date Received: 02/17/23 15:10

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			757.67 mL	1.0 g	601196	02/22/23 13:06	DJP	EET SL
Total/NA	Analysis	9315		1			604013	03/17/23 13:43	FLC	EET SL
Total/NA	Prep	PrecSep_0			757.67 mL	1.0 g	601199	02/22/23 13:33	DJP	EET SL
Total/NA	Analysis	9320		1			602057	03/01/23 11:56	SCB	EET SL
Total/NA	Analysis	Ra226_Ra228		1			604474	03/21/23 13:06	MLK	EET SL

Client Sample ID: W-11
Lab Sample ID: 280-172593-6
Date Collected: 02/16/23 12:55
Matrix: Water
Date Received: 02/17/23 15:10

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			501.36 mL	1.0 g	601196	02/22/23 13:06	DJP	EET SL
Total/NA	Analysis	9315		1			604013	03/17/23 13:43	FLC	EET SL
Total/NA	Prep	PrecSep_0			501.36 mL	1.0 g	601199	02/22/23 13:33	DJP	EET SL
Total/NA	Analysis	9320		1			602057	03/01/23 11:56	SCB	EET SL
Total/NA	Analysis	Ra226_Ra228		1			604474	03/21/23 13:06	MLK	EET SL

Client Sample ID: W-12
Lab Sample ID: 280-172593-7
Date Collected: 02/16/23 16:35
Matrix: Water
Date Received: 02/17/23 15:10

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			494.30 mL	1.0 g	601196	02/22/23 13:06	DJP	EET SL
Total/NA	Analysis	9315		1			604013	03/17/23 13:43	FLC	EET SL
Total/NA	Prep	PrecSep_0			494.30 mL	1.0 g	601199	02/22/23 13:33	DJP	EET SL
Total/NA	Analysis	9320		1			602057	03/01/23 11:59	SCB	EET SL
Total/NA	Analysis	Ra226_Ra228		1			604474	03/21/23 13:06	MLK	EET SL

Client Sample ID: W-3B
Lab Sample ID: 280-172593-8
Date Collected: 02/17/23 10:20
Matrix: Water
Date Received: 02/17/23 15:10

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			502.29 mL	1.0 g	601196	02/22/23 13:06	DJP	EET SL
Total/NA	Analysis	9315		1			604013	03/17/23 13:43	FLC	EET SL
Total/NA	Prep	PrecSep_0			502.29 mL	1.0 g	601199	02/22/23 13:33	DJP	EET SL
Total/NA	Analysis	9320		1			602057	03/01/23 11:59	SCB	EET SL
Total/NA	Analysis	Ra226_Ra228		1			604474	03/21/23 13:06	MLK	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
Job ID: 280-172593-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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	12-31-23
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 Carolina (DW)	State	29700	07-31-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-24
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	06-11-23
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
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

eurofins | Environment Testing America

Client Information	Sampler: Francis Li	Lab PM: Ryan, Nicole C	Carrier Tracking No(s):	COC No: 280-123984-34657.2
Client Contact: Ms. Sierra Schupp	Phone: 720-261-5222	E-Mail: Nicole.Ryan@ET.eurofinsus.com	State of Origin:	Page: Page 2 of 2
Company: HDR Inc	PWSID:			Job #
Address: 1670 Broadway Suite 3400	Due Date Requested:			
City: Denver	TAT Requested (days):			
State, Zip: CO, 80202	Compliance Project: Δ Yes Δ No			
Phone: 734-263-7138(Tel)	PO #: DEN-021			
Email: Sierra.Schupp@hdrinc.com	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Comanche	Project #: 28014376			
Site: Colorado On-Site Wells	SSOW#:			

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:
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)

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	App III and IV Metals: Bo, Ca, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Mo, Se, Tl	Total Mercury	Additional Metals: Mg, Na, K	9056 Anions: Chloride, Fluoride, Sulfate	2540C: TDs	2540D: TSS	9040 pH	2320 Alkalinity	RAD: Ra226, Ra228, Ra226+228	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D	D	N	N	N	N	N	D		
W-2C	02/14/23	1120	G	W	N	N	X	X	X	X	X	X	X	X	X	6	
W-7	02/14/23	1400	G	W	N	N	X	X	X	X	X	X	X	X	X	6	
W-5B	02/14/23	1625	G	W	N	N	X	X	X	X	X	X	X	X	X	6	
02/17/23 W-16	02/15/23	1220	G	W	N	N											
W-6B1	02/15/23	1640	G	W	N	N	X	X	X	X	X	X	X	X	X	6	
WT-6B1	02/15/23	1720	G	W	N	N	X	X	X	X	X	X	X	X	X	6	
W-11	02/16/23	1255	G	W	N	N	X	X	X	X	X	X	X	X	X	6	
W-12	02/16/23	1635	G	W	N	N	X	X	X	X	X	X	X	X	X	6	
W-3B	02/17/23	1020	G	W	N	N	X	X	X	X	X	X	X	X	X	6	

280-172593 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:	Date:	Time:	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
	[signature]	02/17/23 1510	HDR	[signature]	2/17/23 1510	ETHDEN
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time	Company
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 2.7 IR12 CF0.0, #1; 4.6 IR12 CF0.0, #2; 3.3 IR12 #3

Ver: 01/16/2019 CF 0.0

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone: 303-736-0100 Fax: 303-431-7171

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Ryan, Nicole C	Carrier Tracking No(s):	COC No: 280-645706.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Nicole.Ryan@ET.eurofinsus.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-172593-2
Address: 13715 Rider Trail North,	Due Date Requested: 3/20/2023			
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#:			

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, 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)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	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_GFPC/ Ra226/RA228 Calc (3/3) - SUB	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
W-2C (280-172593-1)	2/14/23	11:20 Mountain		Water			X	X	X	2	
W-7 (280-172593-2)	2/14/23	14:00 Mountain		Water			X	X	X	2	
W-5B (280-172593-3)	2/14/23	16:25 Mountain		Water			X	X	X	2	
W-6BI (280-172593-4)	2/15/23	16:40 Mountain		Water			X	X	X	2	
WT-6BI (280-172593-5)	2/15/23	17:20 Mountain		Water			X	X	X	2	
W-11 (280-172593-6)	2/16/23	12:55 Mountain		Water			X	X	X	2	
W-12 (280-172593-7)	2/16/23	16:35 Mountain		Water			X	X	X	2	
W-3B (280-172593-8)	2/17/23	10:20 Mountain		Water			X	X	X	2	
										16	

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/tests/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	Date/Time	Company	Received by	Date/Time	Company
1		2/20/23 15:10	ETADEN	FEDEX		
2	FEDEX			Briana Sharkey-Gonzales	2/21/23 0850	ET45TC
3						

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-172593-2

Login Number: 172593
List Number: 1
Creator: Roehsner, Karen P

List Source: Eurofins Denver

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.	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 <6mm (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: 280-172593-2

Login Number: 172593
List Number: 2
Creator: Sharkey-Gonzalez, Briana L

List Source: Eurofins St. Louis
List Creation: 02/21/23 02:07 PM

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.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: HDR Inc
Job ID: 280-172593-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Method: 9315 - Radium-226 (GFPC)

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

		Percent Yield (Acceptance Limits)
		Ba
Lab Sample ID	Client Sample ID	(30-110)
280-172593-1	W-2C	94.0
280-172593-2	W-7	80.3
280-172593-3	W-5B	97.1
280-172593-4	W-6BI	96.3
280-172593-5	WT-6BI	92.0
280-172593-6	W-11	94.9
280-172593-7	W-12	90.9
280-172593-8	W-3B	94.0
LCS 160-601196/2-A	Lab Control Sample	94.3
LCSD 160-601196/3-A	Lab Control Sample Dup	96.0
MB 160-601196/1-A	Method Blank	99.7

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	(30-110)	(30-110)
280-172593-1	W-2C	94.0	92.3
280-172593-2	W-7	80.3	87.1
280-172593-3	W-5B	97.1	95.0
280-172593-4	W-6BI	96.3	86.4
280-172593-5	WT-6BI	92.0	89.7
280-172593-6	W-11	94.9	87.9
280-172593-7	W-12	90.9	87.5
280-172593-8	W-3B	94.0	87.9
LCS 160-601199/2-A	Lab Control Sample	94.3	89.0
LCSD 160-601199/3-A	Lab Control Sample Dup	96.0	83.4
MB 160-601199/1-A	Method Blank	99.7	89.7

Tracer/Carrier Legend

Ba = Ba Carrier
Y = Y Carrier

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ANALYTICAL REPORT

PREPARED FOR

Attn: Molly Reeves
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Generated 3/30/2023 10:12:58 AM

JOB DESCRIPTION

Xcel Energy GW CCR Monitoring - Comanche

JOB NUMBER

280-172755-2

Eurofins Denver
4955 Yarrow Street
Arvada CO 80002

See page two for job notes and contact information.

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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Definitions/Glossary

Client: HDR Inc
Job ID: 280-172755-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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.
¤	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

Job ID: 280-172755-2

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-172755-2

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 2/23/2023 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 0.3º C and 0.6º C.

Receipt Exceptions
All of the sample containers received are partially frozen. Affected samples: WK-10B (280-172755-1), W-10B (280-172755-2), W-18 (280-172755-3), W-17 (280-172755-4), W-14 (280-172755-5), W-9 (280-172755-6) and W-1 (280-172755-7).

Per note on the COC, all W-1 samples were logged as one. The earliest sampled time and date was used for the sample.

RADIUM-226 (GFPC)
Samples WK-10B (280-172755-1), W-10B (280-172755-2), W-18 (280-172755-3), W-17 (280-172755-4), W-14 (280-172755-5), W-9 (280-172755-6) and W-1 (280-172755-7) were analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 03/01/2023 and analyzed on 03/28/2023.

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

RADIUM-228
Samples WK-10B (280-172755-1), W-10B (280-172755-2), W-18 (280-172755-3), W-17 (280-172755-4), W-14 (280-172755-5), W-9 (280-172755-6) and W-1 (280-172755-7) were analyzed for Radium-228 in accordance with 9320. The samples were prepared on 03/01/2023 and analyzed on 03/09/2023.

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-10B (280-172755-2) and W-9 (280-172755-6). 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.

RADIUM-226/RADIUM-228 (GFPC)
Samples WK-10B (280-172755-1), W-10B (280-172755-2), W-18 (280-172755-3), W-17 (280-172755-4), W-14 (280-172755-5), W-9 (280-172755-6) and W-1 (280-172755-7) were analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on 03/30/2023.

Job ID: 280-172755-2 (Continued)

Laboratory: Eurofins Denver (Continued)

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

Detection Summary

Client: HDR Inc
Job ID: 280-172755-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: WK-10B — Lab Sample ID: 280-172755-1

No Detections.

Client Sample ID: W-10B — Lab Sample ID: 280-172755-2

No Detections.

Client Sample ID: W-18 — Lab Sample ID: 280-172755-3

No Detections.

Client Sample ID: W-17 — Lab Sample ID: 280-172755-4

No Detections.

Client Sample ID: W-14 — Lab Sample ID: 280-172755-5

No Detections.

Client Sample ID: W-9 — Lab Sample ID: 280-172755-6

No Detections.

Client Sample ID: W-1 — Lab Sample ID: 280-172755-7

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-172755-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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: 280-172755-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-172755-1	WK-10B	Water	02/21/23 12:35	02/23/23 15:35
280-172755-2	W-10B	Water	02/21/23 10:03	02/23/23 15:35
280-172755-3	W-18	Water	02/20/23 15:35	02/23/23 15:35
280-172755-4	W-17	Water	02/22/23 11:55	02/23/23 15:35
280-172755-5	W-14	Water	02/21/23 16:40	02/23/23 15:35
280-172755-6	W-9	Water	02/21/23 14:00	02/23/23 15:35
280-172755-7	W-1	Water	02/21/23 15:15	02/23/23 15:35

Method: SW846 9315 - Radium-226 (GFPC)

Client Sample ID: WK-10B
Date Collected: 02/21/23 12:35
Date Received: 02/23/23 15:35
Lab Sample ID: 280-172755-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0137	U	0.0571	0.0572	1.00	0.109	pCi/L	03/01/23 10:36	03/28/23 08:38	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*81.4*		*30 - 110*	*03/01/23 10:36*	*03/28/23 08:38*	*1*

Client Sample ID: W-10B
Date Collected: 02/21/23 10:03
Date Received: 02/23/23 15:35
Lab Sample ID: 280-172755-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.729**		0.205	0.215	1.00	0.196	pCi/L	03/01/23 10:36	03/28/23 08:39	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*66.1*		*30 - 110*	*03/01/23 10:36*	*03/28/23 08:39*	*1*

Client Sample ID: W-18
Date Collected: 02/20/23 15:35
Date Received: 02/23/23 15:35
Lab Sample ID: 280-172755-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.110	U	0.106	0.107	1.00	0.164	pCi/L	03/01/23 10:36	03/28/23 08:39	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*62.1*		*30 - 110*	*03/01/23 10:36*	*03/28/23 08:39*	*1*

Client Sample ID: W-17
Date Collected: 02/22/23 11:55
Date Received: 02/23/23 15:35
Lab Sample ID: 280-172755-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.416**		0.147	0.151	1.00	0.142	pCi/L	03/01/23 10:36	03/28/23 08:39	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*71.5*		*30 - 110*	*03/01/23 10:36*	*03/28/23 08:39*	*1*

Client Sample ID: W-14
Date Collected: 02/21/23 16:40
Date Received: 02/23/23 15:35
Lab Sample ID: 280-172755-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**1.79**		0.269	0.314	1.00	0.157	pCi/L	03/01/23 10:36	03/28/23 15:38	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*78.2*		*30 - 110*	*03/01/23 10:36*	*03/28/23 15:38*	*1*

Method: SW846 9315 - Radium-226 (GFPC)

Client Sample ID: W-9
Date Collected: 02/21/23 14:00
Date Received: 02/23/23 15:35

Lab Sample ID: 280-172755-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.637**		0.213	0.221	1.00	0.224	pCi/L	03/01/23 10:36	03/28/23 15:38	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*55.1*		*30 - 110*	*03/01/23 10:36*	*03/28/23 15:38*	*1*

Client Sample ID: W-1
Date Collected: 02/21/23 15:15
Date Received: 02/23/23 15:35

Lab Sample ID: 280-172755-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.173	U	0.124	0.125	1.00	0.176	pCi/L	03/01/23 10:36	03/28/23 15:38	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*61.3*		*30 - 110*	*03/01/23 10:36*	*03/28/23 15:38*	*1*

Method: SW846 9320 - Radium-228 (GFPC)

Client Sample ID: WK-10B
Date Collected: 02/21/23 12:35
Date Received: 02/23/23 15:35

Lab Sample ID: 280-172755-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.173	U	0.309	0.310	1.00	0.535	pCi/L	03/01/23 11:14	03/09/23 11:53	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*81.4*		*30 - 110*	*03/01/23 11:14*	*03/09/23 11:53*	*1*
Y Carrier	*80.7*		*30 - 110*	*03/01/23 11:14*	*03/09/23 11:53*	*1*

Client Sample ID: W-10B
Date Collected: 02/21/23 10:03
Date Received: 02/23/23 15:35

Lab Sample ID: 280-172755-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**1.95**	**G**	0.794	0.814	1.00	1.04	pCi/L	03/01/23 11:14	03/09/23 11:54	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*66.1*		*30 - 110*	*03/01/23 11:14*	*03/09/23 11:54*	*1*
Y Carrier	*81.1*		*30 - 110*	*03/01/23 11:14*	*03/09/23 11:54*	*1*

Client Sample ID: W-18
Date Collected: 02/20/23 15:35
Date Received: 02/23/23 15:35

Lab Sample ID: 280-172755-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**1.47**	**G**	0.761	0.773	1.00	1.07	pCi/L	03/01/23 11:14	03/09/23 11:54	1

Method: SW846 9320 - Radium-228 (GFPC) (Continued)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	62.1		30 - 110	03/01/23 11:14	03/09/23 11:54	1
Y Carrier	84.1		30 - 110	03/01/23 11:14	03/09/23 11:54	1

Client Sample ID: W-17
Date Collected: 02/22/23 11:55
Date Received: 02/23/23 15:35

Lab Sample ID: 280-172755-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.647	U	0.533	0.537	1.00	0.826	pCi/L	03/01/23 11:14	03/09/23 11:54	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	71.5		30 - 110	03/01/23 11:14	03/09/23 11:54	1
Y Carrier	83.7		30 - 110	03/01/23 11:14	03/09/23 11:54	1

Client Sample ID: W-14
Date Collected: 02/21/23 16:40
Date Received: 02/23/23 15:35

Lab Sample ID: 280-172755-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**1.92**		0.621	0.645	1.00	0.687	pCi/L	03/01/23 11:14	03/09/23 11:54	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	78.2		30 - 110	03/01/23 11:14	03/09/23 11:54	1
Y Carrier	85.6		30 - 110	03/01/23 11:14	03/09/23 11:54	1

Client Sample ID: W-9
Date Collected: 02/21/23 14:00
Date Received: 02/23/23 15:35

Lab Sample ID: 280-172755-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**1.17**	**G**	0.755	0.763	1.00	1.11	pCi/L	03/01/23 11:14	03/09/23 11:54	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	55.1		30 - 110	03/01/23 11:14	03/09/23 11:54	1
Y Carrier	84.5		30 - 110	03/01/23 11:14	03/09/23 11:54	1

Client Sample ID: W-1
Date Collected: 02/21/23 15:15
Date Received: 02/23/23 15:35

Lab Sample ID: 280-172755-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.719	U	0.600	0.603	1.00	0.927	pCi/L	03/01/23 11:14	03/09/23 11:57	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	61.3		30 - 110	03/01/23 11:14	03/09/23 11:57	1
Y Carrier	84.1		30 - 110	03/01/23 11:14	03/09/23 11:57	1

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

Client Sample ID: WK-10B
Date Collected: 02/21/23 12:35
Date Received: 02/23/23 15:35
Lab Sample ID: 280-172755-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.187	U	0.314	0.315	5.00	0.535	pCi/L		03/30/23 00:22	1

Client Sample ID: W-10B
Date Collected: 02/21/23 10:03
Date Received: 02/23/23 15:35
Lab Sample ID: 280-172755-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**2.68**		0.820	0.842	5.00	1.04	pCi/L		03/30/23 00:22	1

Client Sample ID: W-18
Date Collected: 02/20/23 15:35
Date Received: 02/23/23 15:35
Lab Sample ID: 280-172755-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**1.58**		0.768	0.780	5.00	1.07	pCi/L		03/30/23 00:22	1

Client Sample ID: W-17
Date Collected: 02/22/23 11:55
Date Received: 02/23/23 15:35
Lab Sample ID: 280-172755-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**1.06**		0.553	0.558	5.00	0.826	pCi/L		03/30/23 00:22	1

Client Sample ID: W-14
Date Collected: 02/21/23 16:40
Date Received: 02/23/23 15:35
Lab Sample ID: 280-172755-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**3.71**		0.677	0.717	5.00	0.687	pCi/L		03/30/23 00:22	1

Client Sample ID: W-9
Date Collected: 02/21/23 14:00
Date Received: 02/23/23 15:35
Lab Sample ID: 280-172755-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**1.80**		0.784	0.794	5.00	1.11	pCi/L		03/30/23 00:22	1

Client: HDR Inc
Job ID: 280-172755-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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

Client Sample ID: W-1
Lab Sample ID: 280-172755-7
Date Collected: 02/21/23 15:15
Matrix: Water
Date Received: 02/23/23 15:35

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.892	U	0.613	0.616	5.00	0.927	pCi/L		03/30/23 00:22	1

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-602039/1-A
Matrix: Water
Analysis Batch: 605277

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 602039

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.02688	U	0.0423	0.0423	1.00	0.100	pCi/L	03/01/23 10:36	03/28/23 08:38	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.5*		*30 - 110*	*03/01/23 10:36*	*03/28/23 08:38*	*1*

Lab Sample ID: LCS 160-602039/2-A
Matrix: Water
Analysis Batch: 605277

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 602039

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-226			11.3	11.79		1.18	1.00	0.0931	pCi/L	104	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*91.0*		*30 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-602041/1-A
Matrix: Water
Analysis Batch: 602892

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 602041

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.4786	U	0.346	0.349	1.00	0.525	pCi/L	03/01/23 11:14	03/09/23 11:53	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.5*		*30 - 110*	*03/01/23 11:14*	*03/09/23 11:53*	*1*
Y Carrier	*81.9*		*30 - 110*	*03/01/23 11:14*	*03/09/23 11:53*	*1*

Lab Sample ID: LCS 160-602041/2-A
Matrix: Water
Analysis Batch: 602892

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 602041

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-228			8.13	9.678		1.32	1.00	0.493	pCi/L	119	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*91.0*		*30 - 110*
Y Carrier	*80.7*		*30 - 110*

QC Association Summary

Client: HDR Inc
Job ID: 280-172755-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Rad

Prep Batch: 602039

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172755-1	WK-10B	Total/NA	Water	PrecSep-21	
280-172755-2	W-10B	Total/NA	Water	PrecSep-21	
280-172755-3	W-18	Total/NA	Water	PrecSep-21	
280-172755-4	W-17	Total/NA	Water	PrecSep-21	
280-172755-5	W-14	Total/NA	Water	PrecSep-21	
280-172755-6	W-9	Total/NA	Water	PrecSep-21	
280-172755-7	W-1	Total/NA	Water	PrecSep-21	
MB 160-602039/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-602039/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 602041

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-172755-1	WK-10B	Total/NA	Water	PrecSep_0	
280-172755-2	W-10B	Total/NA	Water	PrecSep_0	
280-172755-3	W-18	Total/NA	Water	PrecSep_0	
280-172755-4	W-17	Total/NA	Water	PrecSep_0	
280-172755-5	W-14	Total/NA	Water	PrecSep_0	
280-172755-6	W-9	Total/NA	Water	PrecSep_0	
280-172755-7	W-1	Total/NA	Water	PrecSep_0	
MB 160-602041/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-602041/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: HDR Inc
Job ID: 280-172755-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: WK-10B
Lab Sample ID: 280-172755-1
Date Collected: 02/21/23 12:35
Matrix: Water
Date Received: 02/23/23 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			1004.93 mL	1.0 g	602039	03/01/23 10:36	DJP	EET SL
Total/NA	Analysis	9315		1			605277	03/28/23 08:38	FLC	EET SL
Total/NA	Prep	PrecSep_0			1004.93 mL	1.0 g	602041	03/01/23 11:14	DJP	EET SL
Total/NA	Analysis	9320		1			602892	03/09/23 11:53	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			605594	03/30/23 00:22	EMH	EET SL

Client Sample ID: W-10B
Lab Sample ID: 280-172755-2
Date Collected: 02/21/23 10:03
Matrix: Water
Date Received: 02/23/23 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			752.26 mL	1.0 g	602039	03/01/23 10:36	DJP	EET SL
Total/NA	Analysis	9315		1			605277	03/28/23 08:39	FLC	EET SL
Total/NA	Prep	PrecSep_0			752.26 mL	1.0 g	602041	03/01/23 11:14	DJP	EET SL
Total/NA	Analysis	9320		1			602892	03/09/23 11:54	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			605594	03/30/23 00:22	EMH	EET SL

Client Sample ID: W-18
Lab Sample ID: 280-172755-3
Date Collected: 02/20/23 15:35
Matrix: Water
Date Received: 02/23/23 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			756.65 mL	1.0 g	602039	03/01/23 10:36	DJP	EET SL
Total/NA	Analysis	9315		1			605277	03/28/23 08:39	FLC	EET SL
Total/NA	Prep	PrecSep_0			756.65 mL	1.0 g	602041	03/01/23 11:14	DJP	EET SL
Total/NA	Analysis	9320		1			602892	03/09/23 11:54	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			605594	03/30/23 00:22	EMH	EET SL

Client Sample ID: W-17
Lab Sample ID: 280-172755-4
Date Collected: 02/22/23 11:55
Matrix: Water
Date Received: 02/23/23 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			759.57 mL	1.0 g	602039	03/01/23 10:36	DJP	EET SL
Total/NA	Analysis	9315		1			605277	03/28/23 08:39	FLC	EET SL
Total/NA	Prep	PrecSep_0			759.57 mL	1.0 g	602041	03/01/23 11:14	DJP	EET SL
Total/NA	Analysis	9320		1			602892	03/09/23 11:54	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			605594	03/30/23 00:22	EMH	EET SL

Lab Chronicle

Client: HDR Inc
Job ID: 280-172755-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-14
Lab Sample ID: 280-172755-5
Date Collected: 02/21/23 16:40
Matrix: Water
Date Received: 02/23/23 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			752.05 mL	1.0 g	602039	03/01/23 10:36	DJP	EET SL
Total/NA	Analysis	9315		1			605277	03/28/23 15:38	FLC	EET SL
Total/NA	Prep	PrecSep_0			752.05 mL	1.0 g	602041	03/01/23 11:14	DJP	EET SL
Total/NA	Analysis	9320		1			602892	03/09/23 11:54	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			605594	03/30/23 00:22	EMH	EET SL

Client Sample ID: W-9
Lab Sample ID: 280-172755-6
Date Collected: 02/21/23 14:00
Matrix: Water
Date Received: 02/23/23 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			745.54 mL	1.0 g	602039	03/01/23 10:36	DJP	EET SL
Total/NA	Analysis	9315		1			605277	03/28/23 15:38	FLC	EET SL
Total/NA	Prep	PrecSep_0			745.54 mL	1.0 g	602041	03/01/23 11:14	DJP	EET SL
Total/NA	Analysis	9320		1			602892	03/09/23 11:54	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			605594	03/30/23 00:22	EMH	EET SL

Client Sample ID: W-1
Lab Sample ID: 280-172755-7
Date Collected: 02/21/23 15:15
Matrix: Water
Date Received: 02/23/23 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			750.97 mL	1.0 g	602039	03/01/23 10:36	DJP	EET SL
Total/NA	Analysis	9315		1			605277	03/28/23 15:38	FLC	EET SL
Total/NA	Prep	PrecSep_0			750.97 mL	1.0 g	602041	03/01/23 11:14	DJP	EET SL
Total/NA	Analysis	9320		1			602892	03/09/23 11:57	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			605594	03/30/23 00:22	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
Job ID: 280-172755-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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	12-31-23
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 Carolina (DW)	State	29700	07-31-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-24
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	06-11-23
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 TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

eurofins | Environment Testing America

Client Information	Sampler: Francis Li	Lab PM: Ryan, Nicole C	Carrier Tracking No(s):	COC No: 280-113124-32494.1
Client Contact: ~~Molly Reeves~~ Sierra Schupp	Phone: 720-261-5222	E-Mail: Nicole.Ryan@ET.EurofinsUS.com	State of Origin:	Page: Page 1 of 1
Company: HDR Inc	PWSID:			Job #:

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 - ~~Valmont~~ Comanche
Site: Colorado On Site Wells

Due Date Requested:
TAT Requested (days):
Compliance Project: Δ Yes Δ No
PO #: DEN-021
WO #:
Project #: ~~28014376~~ 28014376
SSOW#:

280-172755 Chain of Custody

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	App III and IV Metals: Bo, Ca, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Mo, Se, Tl	Total Mercury	Additional Metals: Mg, Na, K	9056 Anions: Chloride, Fluoride, Sulfate	2540C TDS	2540D TSS	9040 pH	2320 Alkalinity	RAD: Rad 226, Rad 228. Rad 226+228	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D	D	N	N	N	N	N	D		
WK-10B	2/21/23	1235	G	W	N	N	X	X	X	X	X	X	X	X	X	6	
W-10B	2/21/23	1003	G	W	N	N	X	X	X	X	X	X	X	X	X	6	
W-18	2/20/23	1535	G	W	N	N	X	X	X	X	X	X	X	X	X	6	
W-17	2/22/23	1155	G	W	N	N	X	X	X	X	X	X	X	X	X	6	
W-14	2/21/23	1640	G	W	N	N	X	X	X	X	X	X	X	X	X	6	
W-9	2/21/23	1400	G	W	N	N	X	X	X	X	X	X	X	X	X	6	
W-1	2/21/23	1515	G	W	N	N						X		X	X	4	Please treat all "W-1"
W-1	2/22/23	0835	G	W	N	N									X	4	bottles as one sample set. Still
W-1	2/22/23	1935	G	W	N	N				X	X		X			4	Incomplete, will drop off final
																	1L total for metals next week

Preservation Codes:

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 Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

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:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	FLi	02/23/23 1535	HDR		2-23-23 1535	EDEN
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 0.3 0.6 IR12 CF00

Ver: 01/16/2019

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone: 303-736-0100 Fax: 303-431-7171

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Ryan, Nicole C	Carrier Tracking No(s):	COC No: 280-646225.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Nicole.Ryan@ET.eurofinsus.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-172755-2
Address: 13715 Rider Trail North,	Due Date Requested: 3/29/2023			
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#:			

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 - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)

Other:

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	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_GFPC/ Ra226/RA228 Calc (3/3) - SUB	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
WK-10B (280-172755-1)	2/21/23	12:35 Mountain		Water			X	X	X	2	
W-10B (280-172755-2)	2/21/23	10:03 Mountain		Water			X	X	X	2	
W-18 (280-172755-3)	2/20/23	15:35 Mountain		Water			X	X	X	2	
W-17 (280-172755-4)	2/22/23	11:55 Mountain		Water			X	X	X	2	
W-14 (280-172755-5)	2/21/23	16:40 Mountain		Water			X	X	X	2	
W-9 (280-172755-6)	2/21/23	14:00 Mountain		Water			X	X	X	2	
W-1 (280-172755-7)	2/21/23	15:15 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/tests/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:	Date/Time:	Company	Received by:	Date/Time:	Company
1	William Carnahan FED EX	2/21/23 1500	ET Fee	FED EX		
2	Relinquished by:	Date/Time:	Company	Received by: Sierra Worthington	Date/Time: FEB 2 7 2023 0855	Company ETAST
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-172755-2

Login Number: 172755
List Number: 1
Creator: Roehsner, Karen P

List Source: Eurofins Denver

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.	False	Refer to Job Narrative for details.
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 <6mm (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: 280-172755-2

Login Number: 172755
List Number: 2
Creator: Worthington, Sierra M

List Source: Eurofins St. Louis
List Creation: 02/28/23 12:35 PM

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.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: HDR Inc
Job ID: 280-172755-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Method: 9315 - Radium-226 (GFPC)

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

		Percent Yield (Acceptance Limits)
		Ba
Lab Sample ID	Client Sample ID	(30-110)
280-172755-1	WK-10B	81.4
280-172755-2	W-10B	66.1
280-172755-3	W-18	62.1
280-172755-4	W-17	71.5
280-172755-5	W-14	78.2
280-172755-6	W-9	55.1
280-172755-7	W-1	61.3
LCS 160-602039/2-A	Lab Control Sample	91.0
MB 160-602039/1-A	Method Blank	91.5

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	(30-110)	(30-110)
280-172755-1	WK-10B	81.4	80.7
280-172755-2	W-10B	66.1	81.1
280-172755-3	W-18	62.1	84.1
280-172755-4	W-17	71.5	83.7
280-172755-5	W-14	78.2	85.6
280-172755-6	W-9	55.1	84.5
280-172755-7	W-1	61.3	84.1
LCS 160-602041/2-A	Lab Control Sample	91.0	80.7
MB 160-602041/1-A	Method Blank	91.5	81.9

Tracer/Carrier Legend

Ba = Ba Carrier
Y = Y Carrier

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Molly Reeves
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Generated 3/15/2023 11:10:38 AM

JOB DESCRIPTION

Xcel Energy GW CCR Monitoring - Comanche

JOB NUMBER

280-173023-1

Eurofins Denver
4955 Yarrow Street
Arvada CO 80002

See page two for job notes and contact information.

my EOL

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
Job ID: 280-173023-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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
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.
¤	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

Job ID: 280-173023-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-173023-1

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 3/2/2023 9:40 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 0.9º C.

TOTAL RECOVERABLE METALS
Samples MW-9 (280-173023-1), MW-8 (280-173023-2) and W-1 (280-173023-3) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 03/03/2023 and 03/06/2023 and analyzed on 03/07/2023, 03/08/2023 and 03/09/2023.

Boron was detected in method blank MB 280-604065/1-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 of sample W-1MS (280-173023-3) in batch 280-604207.

Boron failed the recovery criteria high for the MSD of sample W-1MSD (280-173023-3) in batch 280-604207.

Sample MW-8 (280-173023-2)[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.

TOTAL RECOVERABLE METALS (ICP/MS)
Samples MW-9 (280-173023-1), MW-8 (280-173023-2) and W-1 (280-173023-3) were analyzed for Total Recoverable Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 03/03/2023 and 03/06/2023 and analyzed on 03/07/2023, 03/08/2023 and 03/09/2023.

Potassium was detected in method blank MB 280-603903/1-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. Sodium was detected in method blank MB 280-603903/1-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

Job ID: 280-173023-1 (Continued)

Laboratory: Eurofins Denver (Continued)

the associated sample reported a result above the MDL and/or RL, the result has been flagged. Lead was detected in method blank MB 280-604071/1-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.

Calcium failed the recovery criteria low for the MS of sample 280-173032-1 in batch 280-604535. Magnesium failed the recovery criteria high.

Calcium failed the recovery criteria low for the MSD of sample 280-173032-1 in batch 280-604535. Magnesium failed the recovery criteria high.

Selenium, Calcium, Potassium and Sodium failed the recovery criteria low for the MS of sample 280-173088-1 in batch 280-604536. Barium failed the recovery criteria high.

Selenium, Calcium and Sodium failed the recovery criteria low for the MSD of sample 280-173088-1 in batch 280-604536. Barium failed the recovery criteria high.

Samples MW-9 (280-173023-1)[10X], MW-9 (280-173023-1)[50X], MW-8 (280-173023-2)[10X], MW-8 (280-173023-2)[50X] and W-1 (280-173023-3)[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-9 (280-173023-1), MW-8 (280-173023-2) and W-1 (280-173023-3) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 03/09/2023.

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

ALKALINITY

Samples MW-9 (280-173023-1) and MW-8 (280-173023-2) were analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 03/07/2023.

Alkalinity was detected in method blank MB 280-604200/110 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 280-604200/110 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-9 (280-173023-1) and MW-8 (280-173023-2) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 03/07/2023.

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

TOTAL SUSPENDED SOLIDS

Samples MW-9 (280-173023-1) and MW-8 (280-173023-2) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 03/03/2023.

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

CORROSIVITY (PH)

Samples MW-9 (280-173023-1) and MW-8 (280-173023-2) were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 03/14/2023.

Job ID: 280-173023-1 (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 MW-9 (280-173023-1) and MW-8 (280-173023-2) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A (28 Days). The samples were analyzed on 03/09/2023 and 03/10/2023.

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 280-604445 were outside control limits for sulfate, see QC Sample Results for detail. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Fluoride failed the recovery criteria low for the MS of sample 280-173284-10 in batch 280-604627.

Fluoride failed the recovery criteria low for the MSD of sample 280-173284-10 in batch 280-604627.

Samples MW-9 (280-173023-1)[50X], MW-9 (280-173023-1)[500X], MW-8 (280-173023-2)[1000X] and MW-8 (280-173023-2)[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.

Detection Summary

Client: HDR Inc
Job ID: 280-173023-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: MW-9
Lab Sample ID: 280-173023-1

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 Recoverable
Lithium	0.93		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Antimony	0.00067	J	0.0020	0.00040	mg/L	1		6020B	Total Recoverable
Magnesium	1200		2.0	0.042	mg/L	10		6020B	Total Recoverable
Arsenic	0.0017	J	0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Sodium	7900	B	50	3.7	mg/L	50		6020B	Total Recoverable
Barium	0.012		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Potassium	24		10	0.52	mg/L	10		6020B	Total Recoverable
Cadmium	0.00058	J	0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Chromium	0.0010	J	0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.0093		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Lead	0.0017	B	0.0010	0.00023	mg/L	1		6020B	Total Recoverable
Molybdenum	0.0050		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Selenium	0.0011	J	0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Thallium	0.0016		0.0010	0.00021	mg/L	1		6020B	Total Recoverable
Calcium	490		2.0	0.32	mg/L	10		6020B	Total Recoverable
pH adj. to 25 deg C	7.3	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	1400		150	51	mg/L	50		9056A	Total/NA
Sulfate	20000		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)	33000		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-8
Lab Sample ID: 280-173023-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.0	B	0.50	0.0073	mg/L	5		6010C	Total Recoverable
Lithium	3.3		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Antimony	0.00087	J	0.0020	0.00040	mg/L	1		6020B	Total Recoverable
Magnesium	5300		10	0.21	mg/L	50		6020B	Total Recoverable
Arsenic	0.0015	J	0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Sodium	6200	B	50	3.7	mg/L	50		6020B	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-8 (Continued) — Lab Sample ID: 280-173023-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.015		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Potassium	45		10	0.52	mg/L	10		6020B	Total Recoverable
Cadmium	0.00093	J	0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Chromium	0.0014	J	0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.027		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Lead	0.0021	B	0.0010	0.00023	mg/L	1		6020B	Total Recoverable
Molybdenum	0.012		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Selenium	1.6		0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Thallium	0.0066		0.0010	0.00021	mg/L	1		6020B	Total Recoverable
Calcium	520		2.0	0.32	mg/L	10		6020B	Total Recoverable
pH adj. to 25 deg C	7.1	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	560		60	20	mg/L	20		9056A	Total/NA
Sulfate	34000		5000	1000	mg/L	1000		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)	41000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	34		20	5.5	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-1 — Lab Sample ID: 280-173023-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	3.6	F1	0.10	0.0015	mg/L	1		6010C	Total Recoverable
Lithium	2.0		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Magnesium	3100		10	0.21	mg/L	50		6020B	Total Recoverable
Arsenic	0.0014	J	0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Sodium	6500	B	50	3.7	mg/L	50		6020B	Total Recoverable
Barium	0.015		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Potassium	9.5	B	1.0	0.052	mg/L	1		6020B	Total Recoverable
Cadmium	0.00047	J	0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Chromium	0.0025	J	0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.00043	J	0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Lead	0.00028	J	0.0010	0.00023	mg/L	1		6020B	Total Recoverable
Molybdenum	0.027		0.0020	0.00037	mg/L	1		6020B	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: W-1 (Continued)
Lab Sample ID: 280-173023-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Selenium	0.63		0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Calcium	480		10	1.6	mg/L	50		6020B	Total Recoverable

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-173023-1
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
Job ID: 280-173023-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-173023-1	MW-9	Water	03/01/23 13:55	03/02/23 09:40
280-173023-2	MW-8	Water	03/01/23 16:55	03/02/23 09:40
280-173023-3	W-1	Water	03/01/23 11:30	03/02/23 09:40

Method: SW846 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: MW-9
Date Collected: 03/01/23 13:55
Date Received: 03/02/23 09:40
Lab Sample ID: 280-173023-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.0	B	0.10	0.0015	mg/L		03/06/23 15:58	03/08/23 00:05	1
Lithium	0.93		0.020	0.0091	mg/L		03/06/23 15:58	03/08/23 00:05	1

Client Sample ID: MW-8
Date Collected: 03/01/23 16:55
Date Received: 03/02/23 09:40
Lab Sample ID: 280-173023-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.0	B	0.50	0.0073	mg/L		03/06/23 15:58	03/09/23 06:01	5
Lithium	3.3		0.020	0.0091	mg/L		03/06/23 15:58	03/08/23 00:10	1

Client Sample ID: W-1
Date Collected: 03/01/23 11:30
Date Received: 03/02/23 09:40
Lab Sample ID: 280-173023-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	3.6	F1	0.10	0.0015	mg/L		03/03/23 15:35	03/07/23 06:03	1
Lithium	2.0		0.020	0.0091	mg/L		03/03/23 15:35	03/07/23 06:03	1

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

Client Sample ID: MW-9
Date Collected: 03/01/23 13:55
Date Received: 03/02/23 09:40
Lab Sample ID: 280-173023-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00067	J	0.0020	0.00040	mg/L		03/06/23 15:45	03/07/23 20:18	1
Magnesium	1200		2.0	0.042	mg/L		03/06/23 15:45	03/08/23 22:07	10
Arsenic	0.0017	J	0.0050	0.00050	mg/L		03/06/23 15:45	03/07/23 20:18	1
Sodium	7900	B	50	3.7	mg/L		03/06/23 15:45	03/09/23 09:05	50
Barium	0.012		0.0030	0.00038	mg/L		03/06/23 15:45	03/07/23 20:18	1
Potassium	24		10	0.52	mg/L		03/06/23 15:45	03/08/23 22:07	10
Beryllium	ND		0.0010	0.00030	mg/L		03/06/23 15:45	03/09/23 09:13	1
Cadmium	0.00058	J	0.0010	0.00019	mg/L		03/06/23 15:45	03/07/23 20:18	1
Chromium	0.0010	J	0.0030	0.00050	mg/L		03/06/23 15:45	03/07/23 20:18	1
Cobalt	0.0093		0.0010	0.00033	mg/L		03/06/23 15:45	03/07/23 20:18	1
Lead	0.0017	B	0.0010	0.00023	mg/L		03/06/23 15:45	03/07/23 20:18	1
Molybdenum	0.0050		0.0020	0.00037	mg/L		03/06/23 15:45	03/07/23 20:18	1
Selenium	0.0011	J	0.0050	0.0010	mg/L		03/06/23 15:45	03/07/23 20:18	1
Thallium	0.0016		0.0010	0.00021	mg/L		03/06/23 15:45	03/07/23 20:18	1
Calcium	490		2.0	0.32	mg/L		03/06/23 15:45	03/08/23 22:07	10

Client Sample ID: MW-8
Date Collected: 03/01/23 16:55
Date Received: 03/02/23 09:40
Lab Sample ID: 280-173023-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00087	J	0.0020	0.00040	mg/L		03/06/23 15:45	03/07/23 20:23	1
Magnesium	5300		10	0.21	mg/L		03/06/23 15:45	03/09/23 09:07	50
Arsenic	0.0015	J	0.0050	0.00050	mg/L		03/06/23 15:45	03/07/23 20:23	1
Sodium	6200	B	50	3.7	mg/L		03/06/23 15:45	03/09/23 09:07	50
Barium	0.015		0.0030	0.00038	mg/L		03/06/23 15:45	03/07/23 20:23	1
Potassium	45		10	0.52	mg/L		03/06/23 15:45	03/08/23 22:09	10
Beryllium	ND		0.0010	0.00030	mg/L		03/06/23 15:45	03/09/23 09:14	1
Cadmium	0.00093	J	0.0010	0.00019	mg/L		03/06/23 15:45	03/07/23 20:23	1

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

Client Sample ID: MW-8
Date Collected: 03/01/23 16:55
Date Received: 03/02/23 09:40
Lab Sample ID: 280-173023-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	0.0014	J	0.0030	0.00050	mg/L		03/06/23 15:45	03/07/23 20:23	1
Cobalt	0.027		0.0010	0.00033	mg/L		03/06/23 15:45	03/07/23 20:23	1
Lead	0.0021	B	0.0010	0.00023	mg/L		03/06/23 15:45	03/07/23 20:23	1
Molybdenum	0.012		0.0020	0.00037	mg/L		03/06/23 15:45	03/07/23 20:23	1
Selenium	1.6		0.0050	0.0010	mg/L		03/06/23 15:45	03/07/23 20:23	1
Thallium	0.0066		0.0010	0.00021	mg/L		03/06/23 15:45	03/07/23 20:23	1
Calcium	520		2.0	0.32	mg/L		03/06/23 15:45	03/08/23 22:09	10

Client Sample ID: W-1
Date Collected: 03/01/23 11:30
Date Received: 03/02/23 09:40
Lab Sample ID: 280-173023-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		03/03/23 15:43	03/08/23 00:48	1
Magnesium	3100		10	0.21	mg/L		03/03/23 15:43	03/08/23 23:59	50
Arsenic	0.0014	J	0.0050	0.00050	mg/L		03/03/23 15:43	03/08/23 00:48	1
Sodium	6500	B	50	3.7	mg/L		03/03/23 15:43	03/08/23 23:59	50
Barium	0.015		0.0030	0.00038	mg/L		03/03/23 15:43	03/08/23 00:48	1
Potassium	9.5	B	1.0	0.052	mg/L		03/03/23 15:43	03/09/23 00:19	1
Beryllium	ND		0.0010	0.00030	mg/L		03/03/23 15:43	03/09/23 00:19	1
Cadmium	0.00047	J	0.0010	0.00019	mg/L		03/03/23 15:43	03/08/23 00:48	1
Chromium	0.0025	J	0.0030	0.00050	mg/L		03/03/23 15:43	03/08/23 00:48	1
Cobalt	0.00043	J	0.0010	0.00033	mg/L		03/03/23 15:43	03/08/23 00:48	1
Lead	0.00028	J	0.0010	0.00023	mg/L		03/03/23 15:43	03/09/23 00:19	1
Molybdenum	0.027		0.0020	0.00037	mg/L		03/03/23 15:43	03/08/23 00:48	1
Selenium	0.63		0.0050	0.0010	mg/L		03/03/23 15:43	03/08/23 00:48	1
Thallium	ND		0.0010	0.00021	mg/L		03/03/23 15:43	03/08/23 00:48	1
Calcium	480		10	1.6	mg/L		03/03/23 15:43	03/08/23 23:59	50

Method: SW846 7470A - Mercury (CVAA)

Client Sample ID: MW-9
Date Collected: 03/01/23 13:55
Date Received: 03/02/23 09:40
Lab Sample ID: 280-173023-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		03/09/23 13:30	03/09/23 18:46	1

Client Sample ID: MW-8
Date Collected: 03/01/23 16:55
Date Received: 03/02/23 09:40
Lab Sample ID: 280-173023-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		03/09/23 13:30	03/09/23 18:49	1

Client Sample ID: W-1
Date Collected: 03/01/23 11:30
Date Received: 03/02/23 09:40
Lab Sample ID: 280-173023-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		03/09/23 13:30	03/09/23 18:56	1

General Chemistry

Client Sample ID: MW-9
Date Collected: 03/01/23 13:55
Date Received: 03/02/23 09:40

Lab Sample ID: 280-173023-1
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			03/14/23 10:38	1
Temperature (SW846 9040B)	21.2	HF	1.0	1.0	Degrees C			03/14/23 10:38	1
Chloride (SW846 9056A)	1400		150	51	mg/L			03/09/23 05:17	50
Fluoride (SW846 9056A)	ND		0.50	0.17	mg/L			03/10/23 21:41	1
Sulfate (SW846 9056A)	20000		2500	520	mg/L			03/10/23 00:04	500
Alkalinity (SM 2320B)	1400	B	10	3.1	mg/L			03/07/23 03:38	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	1400	B	10	3.1	mg/L			03/07/23 03:38	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			03/07/23 03:38	1
Total Dissolved Solids (TDS) (SM 2540C)	33000		1000	470	mg/L			03/07/23 12:47	1
Total Suspended Solids (SM 2540D)	15		4.0	1.1	mg/L			03/03/23 16:27	1

Client Sample ID: MW-8
Date Collected: 03/01/23 16:55
Date Received: 03/02/23 09:40

Lab Sample ID: 280-173023-2
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			03/14/23 10:42	1
Temperature (SW846 9040B)	20.4	HF	1.0	1.0	Degrees C			03/14/23 10:42	1
Chloride (SW846 9056A)	560		60	20	mg/L			03/10/23 06:34	20
Fluoride (SW846 9056A)	ND		0.50	0.17	mg/L			03/09/23 19:54	1
Sulfate (SW846 9056A)	34000		5000	1000	mg/L			03/10/23 06:19	1000
Alkalinity (SM 2320B)	1400	B	10	3.1	mg/L			03/07/23 03:54	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	1400	B	10	3.1	mg/L			03/07/23 03:54	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			03/07/23 03:54	1
Total Dissolved Solids (TDS) (SM 2540C)	41000		1000	470	mg/L			03/07/23 12:47	1
Total Suspended Solids (SM 2540D)	34		20	5.5	mg/L			03/03/23 16:27	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-603935/1-A
Matrix: Water
Analysis Batch: 604207

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 603935

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.0015	mg/L		03/03/23 15:35	03/07/23 05:33	1
Lithium	ND		0.020	0.0091	mg/L		03/03/23 15:35	03/07/23 05:33	1

Lab Sample ID: LCS 280-603935/2-A
Matrix: Water
Analysis Batch: 604207

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 603935

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	2.13		mg/L		106	86 - 110
Lithium	1.00	0.962		mg/L		96	90 - 112

Lab Sample ID: 280-173023-3 MS
Matrix: Water
Analysis Batch: 604207

Client Sample ID: W-1
Prep Type: Total Recoverable
Prep Batch: 603935

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	3.6	F1	2.00	5.86	F1	mg/L		114	87 - 113
Lithium	2.0		1.00	2.99		mg/L		101	89 - 114

Lab Sample ID: 280-173023-3 MSD
Matrix: Water
Analysis Batch: 604207

Client Sample ID: W-1
Prep Type: Total Recoverable
Prep Batch: 603935

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	3.6	F1	2.00	5.88	F1	mg/L		115	87 - 113	0	20
Lithium	2.0		1.00	3.01		mg/L		103	89 - 114	1	20

Lab Sample ID: MB 280-604065/1-A
Matrix: Water
Analysis Batch: 604406

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 604065

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.00494	J	0.10	0.0015	mg/L		03/06/23 15:58	03/07/23 23:53	1
Lithium	ND		0.020	0.0091	mg/L		03/06/23 15:58	03/07/23 23:53	1

Lab Sample ID: LCS 280-604065/2-A
Matrix: Water
Analysis Batch: 604406

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 604065

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	2.06		mg/L		103	86 - 110
Lithium	1.00	0.964		mg/L		96	90 - 112

Lab Sample ID: LCSD 280-604065/3-A
Matrix: Water
Analysis Batch: 604406

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 604065

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	2.00	2.09		mg/L		104	86 - 110	1	20
Lithium	1.00	0.974		mg/L		97	90 - 112	1	20

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-603903/1-A
Matrix: Water
Analysis Batch: 604368

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 603903

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		03/03/23 15:43	03/08/23 00:35	1
Arsenic	ND		0.0050	0.00050	mg/L		03/03/23 15:43	03/08/23 00:35	1
Barium	ND		0.0030	0.00038	mg/L		03/03/23 15:43	03/08/23 00:35	1
Cadmium	ND		0.0010	0.00019	mg/L		03/03/23 15:43	03/08/23 00:35	1
Chromium	ND		0.0030	0.00050	mg/L		03/03/23 15:43	03/08/23 00:35	1
Cobalt	ND		0.0010	0.00033	mg/L		03/03/23 15:43	03/08/23 00:35	1
Molybdenum	ND		0.0020	0.00037	mg/L		03/03/23 15:43	03/08/23 00:35	1
Selenium	ND		0.0050	0.0010	mg/L		03/03/23 15:43	03/08/23 00:35	1
Thallium	ND		0.0010	0.00021	mg/L		03/03/23 15:43	03/08/23 00:35	1

Lab Sample ID: MB 280-603903/1-A
Matrix: Water
Analysis Batch: 604535

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 603903

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	ND		200	4.2	ug/L		03/03/23 15:43	03/08/23 23:56	1
Sodium	149	J	1000	73	ug/L		03/03/23 15:43	03/08/23 23:56	1
Potassium	156	J	1000	52	ug/L		03/03/23 15:43	03/08/23 23:56	1
Beryllium	ND		0.0010	0.00030	mg/L		03/03/23 15:43	03/08/23 23:56	1
Lead	ND		0.0010	0.00023	mg/L		03/03/23 15:43	03/08/23 23:56	1
Calcium	ND		0.20	0.032	mg/L		03/03/23 15:43	03/08/23 23:56	1

Lab Sample ID: LCS 280-603903/2-A
Matrix: Water
Analysis Batch: 604368

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 603903

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0415		mg/L		104	85 - 115
Arsenic	0.0400	0.0396		mg/L		99	85 - 117
Barium	0.0400	0.0413		mg/L		103	85 - 118
Cadmium	0.0400	0.0405		mg/L		101	85 - 115
Chromium	0.0400	0.0413		mg/L		103	84 - 121
Cobalt	0.0400	0.0414		mg/L		103	85 - 120
Molybdenum	0.0400	0.0418		mg/L		104	85 - 119
Selenium	0.0400	0.0414		mg/L		104	77 - 122
Thallium	0.0400	0.0406		mg/L		102	85 - 118

Lab Sample ID: LCS 280-603903/2-A
Matrix: Water
Analysis Batch: 604535

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 603903

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Magnesium	800	816		ug/L		102	80 - 120
Beryllium	0.0400	0.0428		mg/L		107	80 - 125
Lead	0.0400	0.0403		mg/L		101	85 - 118
Calcium	0.800	0.911		mg/L		114	80 - 120

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

Lab Sample ID: LCS 280-603903/2-A
Matrix: Water
Analysis Batch: 604580

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 603903

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sodium	800	921	J	ug/L		115	80 - 120
Potassium	800	859	J	ug/L		107	80 - 120

Lab Sample ID: MB 280-604071/1-A
Matrix: Water
Analysis Batch: 604367

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 604071

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		03/06/23 15:45	03/07/23 20:03	1
Arsenic	ND		0.0050	0.00050	mg/L		03/06/23 15:45	03/07/23 20:03	1
Barium	ND		0.0030	0.00038	mg/L		03/06/23 15:45	03/07/23 20:03	1
Cadmium	ND		0.0010	0.00019	mg/L		03/06/23 15:45	03/07/23 20:03	1
Chromium	ND		0.0030	0.00050	mg/L		03/06/23 15:45	03/07/23 20:03	1
Cobalt	ND		0.0010	0.00033	mg/L		03/06/23 15:45	03/07/23 20:03	1
Lead	0.000256	J	0.0010	0.00023	mg/L		03/06/23 15:45	03/07/23 20:03	1
Molybdenum	ND		0.0020	0.00037	mg/L		03/06/23 15:45	03/07/23 20:03	1
Selenium	ND		0.0050	0.0010	mg/L		03/06/23 15:45	03/07/23 20:03	1
Thallium	ND		0.0010	0.00021	mg/L		03/06/23 15:45	03/07/23 20:03	1

Lab Sample ID: MB 280-604071/1-A
Matrix: Water
Analysis Batch: 604536

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 604071

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	ND		1000	73	ug/L		03/06/23 15:45	03/08/23 21:47	1
Potassium	ND		1000	52	ug/L		03/06/23 15:45	03/08/23 21:47	1
Calcium	ND		0.20	0.032	mg/L		03/06/23 15:45	03/08/23 21:47	1

Lab Sample ID: LCS 280-604071/2-A
Matrix: Water
Analysis Batch: 604367

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 604071

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0412		mg/L		103	85 - 115
Arsenic	0.0400	0.0425		mg/L		106	85 - 117
Barium	0.0400	0.0412		mg/L		103	85 - 118
Cadmium	0.0400	0.0402		mg/L		101	85 - 115
Chromium	0.0400	0.0418		mg/L		105	84 - 121
Cobalt	0.0400	0.0422		mg/L		105	85 - 120
Lead	0.0400	0.0410		mg/L		102	85 - 118
Molybdenum	0.0400	0.0422		mg/L		105	85 - 119
Selenium	0.0400	0.0446		mg/L		112	77 - 122
Thallium	0.0400	0.0405		mg/L		101	85 - 118

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

Lab Sample ID: LCS 280-604071/2-A
Matrix: Water
Analysis Batch: 604536

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 604071

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sodium	800	865	J	ug/L		108	80 - 120
Potassium	800	846	J	ug/L		106	80 - 120
Calcium	0.800	0.920		mg/L		115	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-604562/1-A
Matrix: Water
Analysis Batch: 604781

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604562

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		03/09/23 13:30	03/09/23 18:26	1

Lab Sample ID: LCS 280-604562/2-A
Matrix: Water
Analysis Batch: 604781

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604562

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00501		mg/L		100	84 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-605123/7
Matrix: Water
Analysis Batch: 605123

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 280-604445/52
Matrix: Water
Analysis Batch: 604445

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			03/09/23 04:29	1

Lab Sample ID: MB 280-604445/6
Matrix: Water
Analysis Batch: 604445

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			03/08/23 14:17	1

Lab Sample ID: LCS 280-604445/4
Matrix: Water
Analysis Batch: 604445

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	49.1		mg/L		98	90 - 110

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: LCS 280-604445/50
Matrix: Water
Analysis Batch: 604445

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		

Lab Sample ID: LCSD 280-604445/5
Matrix: Water
Analysis Batch: 604445

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	49.4		mg/L		99	90 - 110	1	10

Lab Sample ID: LCSD 280-604445/51
Matrix: Water
Analysis Batch: 604445

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	50.1		mg/L		100	90 - 110	0	10

Lab Sample ID: MRL 280-604445/3
Matrix: Water
Analysis Batch: 604445

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		

Lab Sample ID: MB 280-604608/50
Matrix: Water
Analysis Batch: 604608

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			03/10/23 03:04	1
Sulfate	ND		5.0	1.0	mg/L			03/10/23 03:04	1

Lab Sample ID: MB 280-604608/6
Matrix: Water
Analysis Batch: 604608

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			03/09/23 15:17	1

Lab Sample ID: LCS 280-604608/4
Matrix: Water
Analysis Batch: 604608

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	50.0		mg/L		100	90 - 110		

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

Lab Sample ID: LCS 280-604608/48
Matrix: Water
Analysis Batch: 604608

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
Sulfate	50.0	50.4		mg/L		101	90 - 110

Lab Sample ID: LCSD 280-604608/49
Matrix: Water
Analysis Batch: 604608

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
Sulfate	50.0	50.5		mg/L		101	90 - 110	0	10

Lab Sample ID: LCSD 280-604608/5
Matrix: Water
Analysis Batch: 604608

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	50.0		mg/L		100	90 - 110	0	10

Lab Sample ID: MRL 280-604608/3
Matrix: Water
Analysis Batch: 604608

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
Sulfate	2.50	2.35	J	mg/L		94	50 - 150

Lab Sample ID: MB 280-604627/13
Matrix: Water
Analysis Batch: 604627

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			03/09/23 16:52	1

Lab Sample ID: LCS 280-604627/11
Matrix: Water
Analysis Batch: 604627

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	2.44		mg/L		98	90 - 110

Lab Sample ID: LCSD 280-604627/12
Matrix: Water
Analysis Batch: 604627

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	2.49		mg/L		99	90 - 110	2	10

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

Lab Sample ID: MRL 280-604627/10
Matrix: Water
Analysis Batch: 604627

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	0.328	J	mg/L		131	50 - 150

Lab Sample ID: MB 280-604744/6
Matrix: Water
Analysis Batch: 604744

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			03/10/23 16:47	1

Lab Sample ID: LCS 280-604744/4
Matrix: Water
Analysis Batch: 604744

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	2.28		mg/L		91	90 - 110

Lab Sample ID: LCSD 280-604744/5
Matrix: Water
Analysis Batch: 604744

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	2.30		mg/L		92	90 - 110	1	10

Lab Sample ID: MRL 280-604744/3
Matrix: Water
Analysis Batch: 604744

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	0.232	J	mg/L		93	50 - 150

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-604200/110
Matrix: Water
Analysis Batch: 604200

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	3.42	J	10	3.1	mg/L			03/07/23 00:20	1
Bicarbonate Alkalinity as CaCO3	3.42	J	10	3.1	mg/L			03/07/23 00:20	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			03/07/23 00:20	1

Lab Sample ID: LCS 280-604200/109
Matrix: Water
Analysis Batch: 604200

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	200	208		mg/L		104	89 - 109

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

Lab Sample ID: MB 280-604273/1
Matrix: Water
Analysis Batch: 604273

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			03/07/23 12:47	1

Lab Sample ID: LCS 280-604273/2
Matrix: Water
Analysis Batch: 604273

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	474		mg/L		95	88 - 114		

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

Lab Sample ID: MB 280-604025/3
Matrix: Water
Analysis Batch: 604025

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			03/03/23 16:27	1

Lab Sample ID: LCS 280-604025/1
Matrix: Water
Analysis Batch: 604025

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			505	411		mg/L		81	79 - 114		

Lab Sample ID: LCSD 280-604025/2
Matrix: Water
Analysis Batch: 604025

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			505	410		mg/L		81	79 - 114	0	20

Metals

Prep Batch: 603903

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-173023-3	W-1	Total Recoverable	Water	3005A	
MB 280-603903/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-603903/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 603935

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-173023-3	W-1	Total Recoverable	Water	3005A	
MB 280-603935/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-603935/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-173023-3 MS	W-1	Total Recoverable	Water	3005A	
280-173023-3 MSD	W-1	Total Recoverable	Water	3005A	

Prep Batch: 604065

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-173023-1	MW-9	Total Recoverable	Water	3005A	
280-173023-2	MW-8	Total Recoverable	Water	3005A	
MB 280-604065/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-604065/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCSD 280-604065/3-A	Lab Control Sample Dup	Total Recoverable	Water	3005A	

Prep Batch: 604071

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-173023-1	MW-9	Total Recoverable	Water	3005A	
280-173023-2	MW-8	Total Recoverable	Water	3005A	
MB 280-604071/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-604071/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 604207

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-173023-3	W-1	Total Recoverable	Water	6010C	603935
MB 280-603935/1-A	Method Blank	Total Recoverable	Water	6010C	603935
LCS 280-603935/2-A	Lab Control Sample	Total Recoverable	Water	6010C	603935
280-173023-3 MS	W-1	Total Recoverable	Water	6010C	603935
280-173023-3 MSD	W-1	Total Recoverable	Water	6010C	603935

Analysis Batch: 604367

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-173023-1	MW-9	Total Recoverable	Water	6020B	604071
280-173023-2	MW-8	Total Recoverable	Water	6020B	604071
MB 280-604071/1-A	Method Blank	Total Recoverable	Water	6020B	604071
LCS 280-604071/2-A	Lab Control Sample	Total Recoverable	Water	6020B	604071

Analysis Batch: 604368

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-173023-3	W-1	Total Recoverable	Water	6020B	603903
MB 280-603903/1-A	Method Blank	Total Recoverable	Water	6020B	603903
LCS 280-603903/2-A	Lab Control Sample	Total Recoverable	Water	6020B	603903

Analysis Batch: 604406

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-173023-1	MW-9	Total Recoverable	Water	6010C	604065

Metals (Continued)

Analysis Batch: 604406 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-173023-2	MW-8	Total Recoverable	Water	6010C	604065
MB 280-604065/1-A	Method Blank	Total Recoverable	Water	6010C	604065
LCS 280-604065/2-A	Lab Control Sample	Total Recoverable	Water	6010C	604065
LCSD 280-604065/3-A	Lab Control Sample Dup	Total Recoverable	Water	6010C	604065

Analysis Batch: 604535

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-173023-3	W-1	Total Recoverable	Water	6020B	603903
280-173023-3	W-1	Total Recoverable	Water	6020B	603903
MB 280-603903/1-A	Method Blank	Total Recoverable	Water	6020B	603903
LCS 280-603903/2-A	Lab Control Sample	Total Recoverable	Water	6020B	603903

Analysis Batch: 604536

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-173023-1	MW-9	Total Recoverable	Water	6020B	604071
280-173023-2	MW-8	Total Recoverable	Water	6020B	604071
MB 280-604071/1-A	Method Blank	Total Recoverable	Water	6020B	604071
LCS 280-604071/2-A	Lab Control Sample	Total Recoverable	Water	6020B	604071

Prep Batch: 604562

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-173023-1	MW-9	Total/NA	Water	7470A	
280-173023-2	MW-8	Total/NA	Water	7470A	
280-173023-3	W-1	Total/NA	Water	7470A	
MB 280-604562/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-604562/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 604580

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-173023-1	MW-9	Total Recoverable	Water	6020B	604071
280-173023-1	MW-9	Total Recoverable	Water	6020B	604071
280-173023-2	MW-8	Total Recoverable	Water	6020B	604071
280-173023-2	MW-8	Total Recoverable	Water	6020B	604071
LCS 280-603903/2-A	Lab Control Sample	Total Recoverable	Water	6020B	603903

Analysis Batch: 604632

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-173023-2	MW-8	Total Recoverable	Water	6010C	604065

Analysis Batch: 604781

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-173023-1	MW-9	Total/NA	Water	7470A	604562
280-173023-2	MW-8	Total/NA	Water	7470A	604562
280-173023-3	W-1	Total/NA	Water	7470A	604562
MB 280-604562/1-A	Method Blank	Total/NA	Water	7470A	604562
LCS 280-604562/2-A	Lab Control Sample	Total/NA	Water	7470A	604562

General Chemistry

Analysis Batch: 604025

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-173023-1	MW-9	Total/NA	Water	SM 2540D	
280-173023-2	MW-8	Total/NA	Water	SM 2540D	
MB 280-604025/3	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-604025/1	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-604025/2	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 604200

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-173023-1	MW-9	Total/NA	Water	SM 2320B	
280-173023-2	MW-8	Total/NA	Water	SM 2320B	
MB 280-604200/110	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-604200/109	Lab Control Sample	Total/NA	Water	SM 2320B	

Analysis Batch: 604273

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-173023-1	MW-9	Total/NA	Water	SM 2540C	
280-173023-2	MW-8	Total/NA	Water	SM 2540C	
MB 280-604273/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-604273/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 604445

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-173023-1	MW-9	Total/NA	Water	9056A	
MB 280-604445/52	Method Blank	Total/NA	Water	9056A	
MB 280-604445/6	Method Blank	Total/NA	Water	9056A	
LCS 280-604445/4	Lab Control Sample	Total/NA	Water	9056A	
LCS 280-604445/50	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-604445/5	Lab Control Sample Dup	Total/NA	Water	9056A	
LCSD 280-604445/51	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-604445/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 604608

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-173023-1	MW-9	Total/NA	Water	9056A	
280-173023-2	MW-8	Total/NA	Water	9056A	
280-173023-2	MW-8	Total/NA	Water	9056A	
MB 280-604608/50	Method Blank	Total/NA	Water	9056A	
MB 280-604608/6	Method Blank	Total/NA	Water	9056A	
LCS 280-604608/4	Lab Control Sample	Total/NA	Water	9056A	
LCS 280-604608/48	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-604608/49	Lab Control Sample Dup	Total/NA	Water	9056A	
LCSD 280-604608/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-604608/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 604627

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-173023-2	MW-8	Total/NA	Water	9056A	
MB 280-604627/13	Method Blank	Total/NA	Water	9056A	
LCS 280-604627/11	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-604627/12	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-604627/10	Lab Control Sample	Total/NA	Water	9056A	

QC Association Summary

Client: HDR Inc
Job ID: 280-173023-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

General Chemistry

Analysis Batch: 604744

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-173023-1	MW-9	Total/NA	Water	9056A	
MB 280-604744/6	Method Blank	Total/NA	Water	9056A	
LCS 280-604744/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-604744/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-604744/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 605123

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-173023-1	MW-9	Total/NA	Water	9040B	
280-173023-2	MW-8	Total/NA	Water	9040B	
LCS 280-605123/7	Lab Control Sample	Total/NA	Water	9040B	

Client Sample ID: MW-9
Date Collected: 03/01/23 13:55
Date Received: 03/02/23 09:40

Lab Sample ID: 280-173023-1
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	604065	03/06/23 15:58	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			604406	03/08/23 00:05	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	604071	03/06/23 15:45	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			604367	03/07/23 20:18	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	604071	03/06/23 15:45	LJS	EET DEN
Total Recoverable	Analysis	6020B		10			604536	03/08/23 22:07	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	604071	03/06/23 15:45	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			604580	03/09/23 09:05	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	604071	03/06/23 15:45	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			604580	03/09/23 09:13	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	604562	03/09/23 13:30	KMS	EET DEN
Total/NA	Analysis	7470A		1			604781	03/09/23 18:46	KMS	EET DEN
Total/NA	Analysis	9040B		1			605123	03/14/23 10:38	KEG	EET DEN
Total/NA	Analysis	9056A		500	5 mL	5 mL	604608	03/10/23 00:04	MEC	EET DEN
Total/NA	Analysis	9056A		50	5 mL	5 mL	604445	03/09/23 05:17	MEC	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	604744	03/10/23 21:41	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			604200	03/07/23 03:38	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	604273	03/07/23 12:47	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	604025	03/03/23 16:27	MCR	EET DEN

Client Sample ID: MW-8
Date Collected: 03/01/23 16:55
Date Received: 03/02/23 09:40

Lab Sample ID: 280-173023-2
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	604065	03/06/23 15:58	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			604406	03/08/23 00:10	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	604065	03/06/23 15:58	LJS	EET DEN
Total Recoverable	Analysis	6010C		5			604632	03/09/23 06:01	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	604071	03/06/23 15:45	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			604367	03/07/23 20:23	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	604071	03/06/23 15:45	LJS	EET DEN
Total Recoverable	Analysis	6020B		10			604536	03/08/23 22:09	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	604071	03/06/23 15:45	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			604580	03/09/23 09:07	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	604071	03/06/23 15:45	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			604580	03/09/23 09:14	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	604562	03/09/23 13:30	KMS	EET DEN
Total/NA	Analysis	7470A		1			604781	03/09/23 18:49	KMS	EET DEN
Total/NA	Analysis	9040B		1			605123	03/14/23 10:42	KEG	EET DEN
Total/NA	Analysis	9056A		1000	5 mL	5 mL	604608	03/10/23 06:19	MEC	EET DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	604608	03/10/23 06:34	MEC	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	604627	03/09/23 19:54	MEC	EET DEN

Lab Chronicle

Client: HDR Inc
Job ID: 280-173023-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: MW-8
Lab Sample ID: 280-173023-2
Date Collected: 03/01/23 16:55
Matrix: Water
Date Received: 03/02/23 09:40

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			604200	03/07/23 03:54	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	604273	03/07/23 12:47	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	50 mL	250 mL	604025	03/03/23 16:27	MCR	EET DEN

Client Sample ID: W-1
Lab Sample ID: 280-173023-3
Date Collected: 03/01/23 11:30
Matrix: Water
Date Received: 03/02/23 09:40

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	603935	03/03/23 15:35	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			604207	03/07/23 06:03	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	603903	03/03/23 15:43	MSM	EET DEN
Total Recoverable	Analysis	6020B		1			604368	03/08/23 00:48	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	603903	03/03/23 15:43	MSM	EET DEN
Total Recoverable	Analysis	6020B		50			604535	03/08/23 23:59	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	603903	03/03/23 15:43	MSM	EET DEN
Total Recoverable	Analysis	6020B		1			604535	03/09/23 00:19	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	604562	03/09/23 13:30	KMS	EET DEN
Total/NA	Analysis	7470A		1			604781	03/09/23 18:56	KMS	EET DEN

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

Accreditation/Certification Summary

Client: HDR Inc
Job ID: 280-173023-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

eurofins | Environment Testing America

Client Information	Sampler: Francis Li	Lab PM: Ryan, Nicole C	Carrier Tracking No(s):	COC No: 280-123984-34657.2
Client Contact: Ms Sierra Schupp	Phone: 720-261-5222	E-Mail: Nicole.Ryan@ET.eurofinsus.com	State of Origin:	Page: Page 2 of 2
Company: HDR Inc	PWSID:			Job #:
Address: 1670 Broadway Suite 3400	Due Date Requested:			
City: Denver	TAT Requested (days):			
State, Zip: CO, 80202	Compliance Project: Δ Yes Δ No			
Phone: 734-263-7138(Tel)	PO #: DEN-021			
Email: Sierra.Schupp@hdrinc.com	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Comanche	Project #: 28014376			
Site: Colorado On-Site Wells	SSOW#:			

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:
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)

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	App III and IV Metals: Bo, Ca, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Mo, Se, Tl	Total Mercury	Additional Metals: Mg, Na, K	9056 Anions: Chloride, Fluoride, Sulfate	2540C: TDs	2540D: TSS	9040 pH	2320 Alkalinity	RAD: Ra226, Ra228, Ra226+228	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	D	D	D	N	N	N	N	N	D		
MW-9	03/01/23	1355	G	W	N	N	X	X	X	X	X	X	X	X	X	6	
MW-8	03/01/23	1655	G	W	N	N	X	X	X	X	X	X	X	X	X	6	
W-1	03/01/23	1130	G	W	N	N	X	X	X							2	Please treat W-1 as the completion of "W-1" sample set dropped of 02/23/23. There was not enough volume to fill all bottles previously.

280-173023 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:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		03/02/23 0940	HDR		3/2/23 0940	
2		Date/Time:	Company	Received by:	Date/Time:	Company
					3/2/23 0955	EA Dra
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 0.5 / 4 / TO.1

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-173023-1

Login Number: 173023
List Number: 1
Creator: Roehsner, Karen P

List Source: Eurofins Denver

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.	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 <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Molly Reeves
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Generated 4/3/2023 10:29:54 AM

JOB DESCRIPTION

Xcel Energy GW CCR Monitoring - Comanche

JOB NUMBER

280-173023-2

Eurofins Denver
4955 Yarrow Street
Arvada CO 80002

See page two for job notes and contact information.

my EOL

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
Nicole.Ryan@ET.eurofinsus.com
(303)736-0100

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Definitions/Glossary

Client: HDR Inc
Job ID: 280-173023-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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.
¤	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

Job ID: 280-173023-2

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-173023-2

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 3/2/2023 9:40 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 0.9º C.

RADIUM-226 (GFPC)
Samples MW-9 (280-173023-1) and MW-8 (280-173023-2) were analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 03/07/2023 and analyzed on 03/30/2023.

The following samples were prepared at a reduced aliquot due to Matrix: MW-9 (280-173023-1) and MW-8 (280-173023-2). 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 MW-9 (280-173023-1) and MW-8 (280-173023-2) were analyzed for Radium-228 in accordance with 9320. The samples were prepared on 03/07/2023 and analyzed on 03/17/2023.

The following samples were prepared at a reduced aliquot due to Matrix: MW-9 (280-173023-1) and MW-8 (280-173023-2). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

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-9 (280-173023-1) and MW-8 (280-173023-2). Analytical results are reported with the detection limit achieved.

The LCS recovered at (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

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

RADIUM-226/RADIUM-228 (GFPC)

Job ID: 280-173023-2 (Continued)

Laboratory: Eurofins Denver (Continued)

Samples MW-9 (280-173023-1) and MW-8 (280-173023-2) were analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on 03/29/2023 and 03/31/2023.

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

Detection Summary

Client: HDR Inc
Job ID: 280-173023-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: MW-9 — Lab Sample ID: 280-173023-1

No Detections.

Client Sample ID: MW-8 — Lab Sample ID: 280-173023-2

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-173023-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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: 280-173023-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-173023-1	MW-9	Water	03/01/23 13:55	03/02/23 09:40
280-173023-2	MW-8	Water	03/01/23 16:55	03/02/23 09:40

Method: SW846 9315 - Radium-226 (GFPC)

Client Sample ID: MW-9
Date Collected: 03/01/23 13:55
Date Received: 03/02/23 09:40

Lab Sample ID: 280-173023-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.56		0.335	0.363	1.00	0.236	pCi/L	03/07/23 08:39	03/30/23 09:53	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*48.3*		*30 - 110*	*03/07/23 08:39*	*03/30/23 09:53*	*1*

Client Sample ID: MW-8
Date Collected: 03/01/23 16:55
Date Received: 03/02/23 09:40

Lab Sample ID: 280-173023-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.861		0.322	0.331	1.00	0.304	pCi/L	03/07/23 08:39	03/30/23 09:53	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*46.3*		*30 - 110*	*03/07/23 08:39*	*03/30/23 09:53*	*1*

Method: SW846 9320 - Radium-228 (GFPC)

Client Sample ID: MW-9
Date Collected: 03/01/23 13:55
Date Received: 03/02/23 09:40

Lab Sample ID: 280-173023-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	3.83	G	1.24	1.29	1.00	1.54	pCi/L	03/07/23 08:55	03/17/23 12:05	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*48.3*		*30 - 110*	*03/07/23 08:55*	*03/17/23 12:05*	*1*
Y Carrier	*82.6*		*30 - 110*	*03/07/23 08:55*	*03/17/23 12:05*	*1*

Client Sample ID: MW-8
Date Collected: 03/01/23 16:55
Date Received: 03/02/23 09:40

Lab Sample ID: 280-173023-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	5.41	G	1.66	1.73	1.00	1.89	pCi/L	03/07/23 08:55	03/17/23 12:05	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*46.3*		*30 - 110*	*03/07/23 08:55*	*03/17/23 12:05*	*1*
Y Carrier	*86.7*		*30 - 110*	*03/07/23 08:55*	*03/17/23 12:05*	*1*

Client Sample Results

Client: HDR Inc
Job ID: 280-173023-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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

Client Sample ID: MW-9
Date Collected: 03/01/23 13:55
Date Received: 03/02/23 09:40

Lab Sample ID: 280-173023-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	5.39		1.28	1.34	5.00	1.54	pCi/L		03/29/23 19:31	1

Client Sample ID: MW-8
Date Collected: 03/01/23 16:55
Date Received: 03/02/23 09:40

Lab Sample ID: 280-173023-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	6.27		1.69	1.76	5.00	1.89	pCi/L		03/31/23 11:12	1

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-602673/1-A
Matrix: Water
Analysis Batch: 605623

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 602673

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.01715	U	0.0523	0.0524	1.00	0.114	pCi/L	03/07/23 08:39	03/30/23 09:50	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.0*		*30 - 110*	*03/07/23 08:39*	*03/30/23 09:50*	*1*

Lab Sample ID: LCS 160-602673/2-A
Matrix: Water
Analysis Batch: 605623

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 602673

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-226			11.3	11.83		1.21	1.00	0.0803	pCi/L	104	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*88.4*		*30 - 110*

Lab Sample ID: LCSD 160-602673/3-A
Matrix: Water
Analysis Batch: 605623

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 602673

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-226			11.3	10.69		1.12	1.00	0.103	pCi/L	94	75 - 125	0.49	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*76.8*		*30 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-602674/1-A
Matrix: Water
Analysis Batch: 604013

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 602674

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.02164	U	0.271	0.271	1.00	0.512	pCi/L	03/07/23 08:55	03/17/23 11:58	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.0*		*30 - 110*	*03/07/23 08:55*	*03/17/23 11:58*	*1*
Y Carrier	*77.8*		*30 - 110*	*03/07/23 08:55*	*03/17/23 11:58*	*1*

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

Lab Sample ID: LCS 160-602674/2-A
Matrix: Water
Analysis Batch: 604013

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 602674

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-228			8.11	10.24		1.36	1.00	0.546	pCi/L	126	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*88.4*		*30 - 110*
Y Carrier	*85.2*		*30 - 110*

Lab Sample ID: LCSD 160-602674/3-A
Matrix: Water
Analysis Batch: 604013

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 602674

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-228			8.11	9.570		1.38	1.00	0.565	pCi/L	118	75 - 125	0.24	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*76.8*		*30 - 110*
Y Carrier	*78.1*		*30 - 110*

QC Association Summary

Client: HDR Inc
Job ID: 280-173023-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Rad

Prep Batch: 602673

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-173023-1	MW-9	Total/NA	Water	PrecSep-21	
280-173023-2	MW-8	Total/NA	Water	PrecSep-21	
MB 160-602673/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-602673/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-602673/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 602674

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-173023-1	MW-9	Total/NA	Water	PrecSep_0	
280-173023-2	MW-8	Total/NA	Water	PrecSep_0	
MB 160-602674/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-602674/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-602674/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: HDR Inc
Job ID: 280-173023-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: MW-9
Lab Sample ID: 280-173023-1
Date Collected: 03/01/23 13:55
Matrix: Water
Date Received: 03/02/23 09:40

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			742.83 mL	1.0 g	602673	03/07/23 08:39	DJP	EET SL
Total/NA	Analysis	9315		1			605623	03/30/23 09:53	FLC	EET SL
Total/NA	Prep	PrecSep_0			742.83 mL	1.0 g	602674	03/07/23 08:55	DJP	EET SL
Total/NA	Analysis	9320		1			604030	03/17/23 12:05	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			605403	03/29/23 19:31	MLK	EET SL

Client Sample ID: MW-8
Lab Sample ID: 280-173023-2
Date Collected: 03/01/23 16:55
Matrix: Water
Date Received: 03/02/23 09:40

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			499.10 mL	1.0 g	602673	03/07/23 08:39	DJP	EET SL
Total/NA	Analysis	9315		1			605623	03/30/23 09:53	FLC	EET SL
Total/NA	Prep	PrecSep_0			499.10 mL	1.0 g	602674	03/07/23 08:55	DJP	EET SL
Total/NA	Analysis	9320		1	1.0 mL	1.0 mL	604030	03/17/23 12:05	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			605403	03/31/23 11:12	MLK	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
Job ID: 280-173023-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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	12-31-23
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	03-31-24
North Carolina (DW)	State	29700	07-31-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-24
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	06-11-23
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
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

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Client Information	Sampler: Francis Li	Lab PM: Ryan, Nicole C	Carrier Tracking No(s):	COC No: 280-123984-34657.2
Client Contact: Ms Sierra Schupp	Phone: 720-261-5222	E-Mail: Nicole.Ryan@ET.eurofinsus.com	State of Origin:	Page: Page 2 of 2
Company: HDR Inc	PWSID:			Job #:
Address: 1670 Broadway Suite 3400	Due Date Requested:			
City: Denver	TAT Requested (days):			
State, Zip: CO, 80202	Compliance Project: Δ Yes Δ No			
Phone: 734-263-7138(Tel)	PO #: DEN-021			
Email: Sierra.Schupp@hdrinc.com	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Comanche	Project #: 28014376			
Site: Colorado On-Site Wells	SSOW#:			

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, 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), Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	App III and IV Metals: Bo, Ca, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Mo, Se, Tl	Total Mercury	Additional Metals: Mg, Na, K	9056 Anions: Chloride, Fluoride, Sulfate	2540C: TDs	2540D: TSS	9040 pH	2320 Alkalinity	RAD: Ra226, Ra228, Ra226+228	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D	D	N	N	N	N	N	D		
MW-9	03/01/23	1355	G	W	N	N	X	X	X	X	X	X	X	X	X	6	
MW-8	03/01/23	1655	G	W	N	N	X	X	X	X	X	X	X	X	X	6	
W-1	03/01/23	1130	G	W	N	N	X	X	X							2	Please treat W-1 as the completion of "W-1" sample set dropped of 02/23/23. There was not enough volume to fill all bottles previously.

280-173023 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:	Date:	Time:	Method of Shipment:
Relinquished by:	Date/Time: 03/02/23 0940	Company HDR	Received by:	Date/Time: 3/2/23 0940	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 3/2/23 0955	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 0.5 / 4 / TO.1

Ver: 01/16/2019

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone: 303-736-0100 Fax: 303-431-7171

Chain of Custody Record

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Client Information (Sub Contract Lab)	Sampler:	Lab PM: Ryan, Nicole C	Carrier Tracking No(s):	COC No: 280-646854.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Nicole.Ryan@ET.eurofinsus.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-173023-2
Address: 13715 Rider Trail North, ,	Due Date Requested: 4/3/2023			
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#:			

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 - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify), Other:

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	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_GFPC/ Ra226/RA228 Calc (3/3) - SUB	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-9 (280-173023-1)	3/1/23	13:55 Mountain		Water			X	X	X	2	
MW-8 (280-173023-2)	3/1/23	16:55 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/tests/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:	Date/Time: 3/3/23 15:40	Company: ETHDEN	Received by: [illegible]
Relinquished by:	Date/Time:	Company	Received by: [illegible] Date/Time: Company
Relinquished by: FEDEX	Date/Time:	Company	Received by: Briana Sharkey-Gonzalez Date/Time: 3/6/23 0900 Company: ETAT

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: 280-173023-2

Login Number: 173023
List Number: 1
Creator: Roehsner, Karen P

List Source: Eurofins Denver

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.	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 <6mm (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: 280-173023-2

Login Number: 173023
List Number: 2
Creator: Sharkey-Gonzalez, Briana L

List Source: Eurofins St. Louis
List Creation: 03/06/23 02:06 PM

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.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: HDR Inc
Job ID: 280-173023-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Method: 9315 - Radium-226 (GFPC)

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

		Percent Yield (Acceptance Limits)
		Ba
Lab Sample ID	Client Sample ID	(30-110)
280-173023-1	MW-9	48.3
280-173023-2	MW-8	46.3
LCS 160-602673/2-A	Lab Control Sample	88.4
LCSD 160-602673/3-A	Lab Control Sample Dup	76.8
MB 160-602673/1-A	Method Blank	87.0

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	(30-110)	(30-110)
280-173023-1	MW-9	48.3	82.6
280-173023-2	MW-8	46.3	86.7
LCS 160-602674/2-A	Lab Control Sample	88.4	85.2
LCSD 160-602674/3-A	Lab Control Sample Dup	76.8	78.1
MB 160-602674/1-A	Method Blank	87.0	77.8

Tracer/Carrier Legend

Ba = Ba Carrier
Y = Y Carrier

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ANALYTICAL REPORT

PREPARED FOR

Attn: Molly Reeves
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Generated 4/13/2023 3:40:51 PM

JOB DESCRIPTION

Xcel Energy GW CCR Monitoring - Comanche

JOB NUMBER

280-174404-1

Eurofins Denver
4955 Yarrow Street
Arvada CO 80002

See page two for job notes and contact information.

my EOL

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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4/13/2023 3:40:51 PM

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
Job ID: 280-174404-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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.
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
^1+	Initial Calibration Verification (ICV) is outside acceptance limits, high biased.
^3-	Reporting Limit Check Standard is outside acceptance limits, low 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.
¤	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

Job ID: 280-174404-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-174404-1

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 3/31/2023 4:30 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 2.0º C and 2.2º C.

DISSOLVED METALS
Sample W-10B (280-174404-3) was analyzed for Dissolved Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 04/05/2023 and analyzed on 04/11/2023.

Boron was detected in method blank MB 280-607549/1-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 W-10B (280-174404-3)[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.

TOTAL RECOVERABLE METALS
Samples W-18 (280-174404-1), WT-18 (280-174404-2), W-10B (280-174404-3), WK-10B (280-174404-4) and W-17 (280-174404-5) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 04/04/2023 and analyzed on 04/07/2023, 04/08/2023 and 04/10/2023.

Boron failed the recovery criteria high for the MS of sample W-18MS (280-174404-1) in batch 280-608050.

Boron failed the recovery criteria high for the MSD of sample W-18MSD (280-174404-1) in batch 280-608050.

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

DISSOLVED METALS (ICP/MS)
Sample W-10B (280-174404-3) was analyzed for Dissolved Metals (ICP/MS) in accordance with SW846 6020B. The samples were

Job ID: 280-174404-1 (Continued)

Laboratory: Eurofins Denver (Continued)

prepared on 04/05/2023 and analyzed on 04/06/2023 and 04/10/2023.

Barium and Calcium were detected in method blank MB 280-607549/1-B 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.

Sample W-10B (280-174404-3)[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-18 (280-174404-1), WT-18 (280-174404-2), W-10B (280-174404-3), WK-10B (280-174404-4) and W-17 (280-174404-5) were analyzed for Total Recoverable Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 04/04/2023 and analyzed on 04/04/2023 and 04/05/2023.

Calcium, Chromium and Sodium were detected in method blank MB 280-607307/1-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.

Lead and Potassium failed the recovery criteria low for the MS of sample W-18MS (280-174404-1) in batch 280-607599. Calcium, Magnesium, Sodium and Selenium failed the recovery criteria high.

Cadmium and Potassium failed the recovery criteria low for the MSD of sample W-18MSD (280-174404-1) in batch 280-607599. Calcium, Magnesium, Sodium and Selenium failed the recovery criteria high.

Samples W-18 (280-174404-1)[50X], WT-18 (280-174404-2)[100X], WT-18 (280-174404-2)[50X], W-10B (280-174404-3)[100X], W-10B (280-174404-3)[50X] and W-17 (280-174404-5)[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.

DISSOLVED MERCURY

Sample W-10B (280-174404-3) was analyzed for dissolved mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 04/10/2023.

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

TOTAL MERCURY

Samples W-18 (280-174404-1), WT-18 (280-174404-2), W-10B (280-174404-3), WK-10B (280-174404-4) and W-17 (280-174404-5) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 04/10/2023.

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

ALKALINITY

Samples W-18 (280-174404-1), WT-18 (280-174404-2), W-10B (280-174404-3), WK-10B (280-174404-4) and W-17 (280-174404-5) were analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 04/03/2023.

Alkalinity was detected in method blank MB 280-607436/32 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 280-607436/32 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 280-607436/58 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 280-607436/58 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.

Job ID: 280-174404-1 (Continued)

Laboratory: Eurofins Denver (Continued)

Alkalinity was detected in method blank MB 280-607436/6 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.

Alkalinity exceeded the RPD limit for the duplicate of sample 280-174366-15. 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-18 (280-174404-1), WT-18 (280-174404-2), W-10B (280-174404-3), WK-10B (280-174404-4) and W-17 (280-174404-5) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 04/03/2023 and 04/04/2023.

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

TOTAL SUSPENDED SOLIDS

Samples W-18 (280-174404-1), WT-18 (280-174404-2), W-10B (280-174404-3), WK-10B (280-174404-4) and W-17 (280-174404-5) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 04/03/2023 and 04/04/2023.

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

CORROSIVITY (PH)

Samples W-18 (280-174404-1), WT-18 (280-174404-2), W-10B (280-174404-3), WK-10B (280-174404-4) and W-17 (280-174404-5) were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 04/06/2023 and 04/07/2023.

The following sample did not equilibrate to within 0.05 pH units after three measurements: WK-10B (280-174404-4). 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)

Samples W-18 (280-174404-1), WT-18 (280-174404-2), W-10B (280-174404-3), WK-10B (280-174404-4) and W-17 (280-174404-5) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A (28 Days). The samples were analyzed on 04/10/2023 and 04/11/2023.

Fluoride failed the recovery criteria low for MRL 280-608268/3. Refer to the QC report for details.

Due to the concentration of chloride in the spiked sample, the matrix spike/ matrix spike duplicate result was higher than the highest calibration point for this analyte. The parent sample result is within calibration range and has been qualified and reported. (160-49299-A-11 MS) and (160-49299-A-11 MSD).

Due to the concentration of sulfate in the spiked sample, the matrix spike/ matrix spike duplicate result was higher than the highest calibration point for this analyte. The parent sample result is within calibration range and has been qualified and reported. (160-49299-A-11 MS) and (160-49299-A-11 MSD).

Samples W-18 (280-174404-1)[10X], W-18 (280-174404-1)[200X], WT-18 (280-174404-2)[10X], WT-18 (280-174404-2)[200X], W-10B (280-174404-3)[1000X], W-10B (280-174404-3)[50X] and W-17 (280-174404-5)[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
Job ID: 280-174404-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-18
Lab Sample ID: 280-174404-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.62	F1	0.10	0.0015	mg/L	1		6010C	Total Recoverable
Lithium	2.1		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Antimony	0.00083	J	0.0020	0.00040	mg/L	1		6020B	Total Recoverable
Magnesium	1100		10	0.21	mg/L	50		6020B	Total Recoverable
Arsenic	0.00093	J	0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Sodium	2500	B	50	3.7	mg/L	50		6020B	Total Recoverable
Barium	0.016		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Potassium	19		1.0	0.052	mg/L	1		6020B	Total Recoverable
Chromium	0.0017	J B	0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.0051		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Molybdenum	0.041		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Selenium	1.3		0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Calcium	450	B	10	1.6	mg/L	50		6020B	Total Recoverable
pH adj. to 25 deg C	7.6	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	23.8	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	270		30	10	mg/L	10		9056A	Total/NA
Fluoride	15		5.0	1.7	mg/L	10		9056A	Total/NA
Sulfate	10000		1000	210	mg/L	200		9056A	Total/NA
Alkalinity	600	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	600	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	14000		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: WT-18
Lab Sample ID: 280-174404-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.62		0.10	0.0015	mg/L	1		6010C	Total Recoverable
Lithium	2.1		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Antimony	0.00079	J	0.0020	0.00040	mg/L	1		6020B	Total Recoverable
Magnesium	1200		20	0.42	mg/L	100		6020B	Total Recoverable
Arsenic	0.0012	J	0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Sodium	2900	B	50	3.7	mg/L	50		6020B	Total Recoverable
Barium	0.018		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Potassium	19		1.0	0.052	mg/L	1		6020B	Total Recoverable
Cadmium	0.00023	J	0.0010	0.00019	mg/L	1		6020B	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: WT-18 (Continued) — Lab Sample ID: 280-174404-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	0.0021	J B	0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.0049		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Lead	0.00025	J	0.0010	0.00023	mg/L	1		6020B	Total Recoverable
Molybdenum	0.041		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Selenium	1.3		0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Calcium	450	B	10	1.6	mg/L	50		6020B	Total Recoverable
pH adj. to 25 deg C	7.6	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	23.8	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	280		30	10	mg/L	10		9056A	Total/NA
Fluoride	17		5.0	1.7	mg/L	10		9056A	Total/NA
Sulfate	9700		1000	210	mg/L	200		9056A	Total/NA
Alkalinity	590	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	590	B	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	9.2		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-10B — Lab Sample ID: 280-174404-3

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
Lithium	6.2		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Boron	1.2	B	0.50	0.0073	mg/L	5		6010C	Dissolved
Lithium	5.0		0.10	0.046	mg/L	5		6010C	Dissolved
Magnesium	10000		20	0.42	mg/L	100		6020B	Total Recoverable
Arsenic	0.00090	J	0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Sodium	7100	B	50	3.7	mg/L	50		6020B	Total Recoverable
Barium	0.014		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Potassium	68		1.0	0.052	mg/L	1		6020B	Total Recoverable
Cadmium	0.00023	J	0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Chromium	0.0028	J B	0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.0024		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Lead	0.00041	J	0.0010	0.00023	mg/L	1		6020B	Total Recoverable
Molybdenum	0.0030		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Selenium	5.1		0.25	0.050	mg/L	50		6020B	Total Recoverable
Thallium	0.0079		0.0010	0.00021	mg/L	1		6020B	Total Recoverable
Calcium	500	B	10	1.6	mg/L	50		6020B	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: W-10B (Continued) — Lab Sample ID: 280-174404-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0011	J	0.0050	0.00050	mg/L	1		6020B	Dissolved
Barium	0.017	B	0.0030	0.00038	mg/L	1		6020B	Dissolved
Cadmium	0.00033	J	0.0010	0.00019	mg/L	1		6020B	Dissolved
Chromium	0.0023	J	0.0030	0.00050	mg/L	1		6020B	Dissolved
Cobalt	0.0027		0.0010	0.00033	mg/L	1		6020B	Dissolved
Lead	0.00081	J	0.0010	0.00023	mg/L	1		6020B	Dissolved
Calcium	480	B	2.0	0.32	mg/L	10		6020B	Dissolved
Molybdenum	0.0034		0.0020	0.00037	mg/L	1		6020B	Dissolved
Selenium	5.1		0.050	0.010	mg/L	10		6020B	Dissolved
Thallium	0.0067		0.0010	0.00021	mg/L	1		6020B	Dissolved
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	23.8	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1100		150	51	mg/L	50		9056A	Total/NA
Fluoride	65		25	8.3	mg/L	50		9056A	Total/NA
Sulfate	52000		5000	1000	mg/L	1000		9056A	Total/NA
Alkalinity	990	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	990	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	7000		100	47	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: WK-10B — Lab Sample ID: 280-174404-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.0040	J	0.10	0.0015	mg/L	1		6010C	Total Recoverable
Magnesium	0.085	J	0.20	0.0042	mg/L	1		6020B	Total Recoverable
Sodium	0.17	J B	1.0	0.073	mg/L	1		6020B	Total Recoverable
Potassium	0.14	J	1.0	0.052	mg/L	1		6020B	Total Recoverable
Chromium	0.00071	J B	0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Selenium	0.0020	J	0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Calcium	0.047	J B	0.20	0.032	mg/L	1		6020B	Total Recoverable
pH adj. to 25 deg C	6.7	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	24.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Alkalinity	4.0	J B	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	4.0	J B	10	3.1	mg/L	1		SM 2320B	Total/NA
Total Suspended Solids	7.6		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-17 — Lab Sample ID: 280-174404-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.66		0.10	0.0015	mg/L	1		6010C	Total Recoverable
Lithium	0.68		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Antimony	0.0013	J	0.0020	0.00040	mg/L	1		6020B	Total Recoverable
Magnesium	900		10	0.21	mg/L	50		6020B	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: W-17 (Continued)
Lab Sample ID: 280-174404-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00061	J	0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Sodium	940	B	50	3.7	mg/L	50		6020B	Total Recoverable
Barium	0.012		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Potassium	16		1.0	0.052	mg/L	1		6020B	Total Recoverable
Cadmium	0.0020		0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Chromium	0.0016	J B	0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.0021		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Molybdenum	0.016		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Selenium	3.5		0.25	0.050	mg/L	50		6020B	Total Recoverable
Thallium	0.0030		0.0010	0.00021	mg/L	1		6020B	Total Recoverable
Calcium	460	B	10	1.6	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	23.8	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	85		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	1.8		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	5000		500	100	mg/L	100		9056A	Total/NA
Alkalinity	700	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	700	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	77000		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.

Method Summary

Client: HDR Inc
Job ID: 280-174404-1
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: 280-174404-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-174404-1	W-18	Water	03/29/23 11:35	03/31/23 16:30
280-174404-2	WT-18	Water	03/29/23 13:00	03/31/23 16:30
280-174404-3	W-10B	Water	03/30/23 10:10	03/31/23 16:30
280-174404-4	WK-10B	Water	03/30/23 11:10	03/31/23 16:30
280-174404-5	W-17	Water	03/30/23 13:20	03/31/23 16:30

Method: SW846 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: W-18
Date Collected: 03/29/23 11:35
Date Received: 03/31/23 16:30
Lab Sample ID: 280-174404-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.62	F1	0.10	0.0015	mg/L		04/04/23 07:58	04/07/23 16:10	1
Lithium	2.1		0.020	0.0091	mg/L		04/04/23 07:58	04/10/23 14:46	1

Client Sample ID: WT-18
Date Collected: 03/29/23 13:00
Date Received: 03/31/23 16:30
Lab Sample ID: 280-174404-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.62		0.10	0.0015	mg/L		04/04/23 07:58	04/07/23 16:34	1
Lithium	2.1		0.020	0.0091	mg/L		04/04/23 07:58	04/10/23 15:07	1

Client Sample ID: W-10B
Date Collected: 03/30/23 10:10
Date Received: 03/31/23 16:30
Lab Sample ID: 280-174404-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.1		0.10	0.0015	mg/L		04/04/23 07:58	04/10/23 15:11	1
Lithium	6.2		0.020	0.0091	mg/L		04/04/23 07:58	04/10/23 15:11	1

Client Sample ID: WK-10B
Date Collected: 03/30/23 11:10
Date Received: 03/31/23 16:30
Lab Sample ID: 280-174404-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.0040	J	0.10	0.0015	mg/L		04/04/23 07:58	04/07/23 16:43	1
Lithium	ND		0.020	0.0091	mg/L		04/04/23 07:58	04/10/23 15:15	1

Client Sample ID: W-17
Date Collected: 03/30/23 13:20
Date Received: 03/31/23 16:30
Lab Sample ID: 280-174404-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.66		0.10	0.0015	mg/L		04/04/23 07:58	04/08/23 03:10	1
Lithium	0.68		0.020	0.0091	mg/L		04/04/23 07:58	04/10/23 15:43	1

Method: SW846 6010C - Metals (ICP) - Dissolved

Client Sample ID: W-10B
Date Collected: 03/30/23 10:10
Date Received: 03/31/23 16:30
Lab Sample ID: 280-174404-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.2	B	0.50	0.0073	mg/L		04/05/23 14:50	04/11/23 16:44	5
Lithium	5.0		0.10	0.046	mg/L		04/05/23 14:50	04/11/23 16:44	5

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

Client Sample ID: W-18
Date Collected: 03/29/23 11:35
Date Received: 03/31/23 16:30
Lab Sample ID: 280-174404-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00083	J	0.0020	0.00040	mg/L		04/04/23 07:58	04/04/23 18:19	1
Magnesium	1100		10	0.21	mg/L		04/04/23 07:58	04/04/23 17:56	50
Arsenic	0.00093	J	0.0050	0.00050	mg/L		04/04/23 07:58	04/04/23 18:19	1
Sodium	2500	B	50	3.7	mg/L		04/04/23 07:58	04/04/23 17:56	50
Barium	0.016		0.0030	0.00038	mg/L		04/04/23 07:58	04/04/23 18:19	1

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

Client Sample ID: W-18
Date Collected: 03/29/23 11:35
Date Received: 03/31/23 16:30
Lab Sample ID: 280-174404-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium	**19**		1.0	0.052	mg/L		04/04/23 07:58	04/04/23 18:19	1
Beryllium	ND		0.0010	0.00030	mg/L		04/04/23 07:58	04/04/23 18:19	1
Cadmium	ND	F1	0.0010	0.00019	mg/L		04/04/23 07:58	04/04/23 18:19	1
Chromium	**0.0017**	**J B**	0.0030	0.00050	mg/L		04/04/23 07:58	04/04/23 18:19	1
Cobalt	**0.0051**		0.0010	0.00033	mg/L		04/04/23 07:58	04/04/23 18:19	1
Lead	ND	F1	0.0010	0.00023	mg/L		04/04/23 07:58	04/04/23 18:19	1
Molybdenum	**0.041**		0.0020	0.00037	mg/L		04/04/23 07:58	04/04/23 18:19	1
Selenium	**1.3**		0.0050	0.0010	mg/L		04/04/23 07:58	04/04/23 18:19	1
Thallium	ND		0.0010	0.00021	mg/L		04/04/23 07:58	04/04/23 18:19	1
Calcium	**450**	**B**	10	1.6	mg/L		04/04/23 07:58	04/04/23 17:56	50

Client Sample ID: WT-18
Date Collected: 03/29/23 13:00
Date Received: 03/31/23 16:30
Lab Sample ID: 280-174404-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.00079**	**J**	0.0020	0.00040	mg/L		04/04/23 07:58	04/04/23 18:28	1
Magnesium	**1200**		20	0.42	mg/L		04/04/23 07:58	04/05/23 15:48	100
Arsenic	**0.0012**	**J**	0.0050	0.00050	mg/L		04/04/23 07:58	04/04/23 18:28	1
Sodium	**2900**	**B**	50	3.7	mg/L		04/04/23 07:58	04/05/23 10:56	50
Barium	**0.018**		0.0030	0.00038	mg/L		04/04/23 07:58	04/04/23 18:28	1
Potassium	**19**		1.0	0.052	mg/L		04/04/23 07:58	04/04/23 18:28	1
Beryllium	ND		0.0010	0.00030	mg/L		04/04/23 07:58	04/04/23 18:28	1
Cadmium	**0.00023**	**J**	0.0010	0.00019	mg/L		04/04/23 07:58	04/04/23 18:28	1
Chromium	**0.0021**	**J B**	0.0030	0.00050	mg/L		04/04/23 07:58	04/04/23 18:28	1
Cobalt	**0.0049**		0.0010	0.00033	mg/L		04/04/23 07:58	04/04/23 18:28	1
Lead	**0.00025**	**J**	0.0010	0.00023	mg/L		04/04/23 07:58	04/04/23 18:28	1
Molybdenum	**0.041**		0.0020	0.00037	mg/L		04/04/23 07:58	04/04/23 18:28	1
Selenium	**1.3**		0.0050	0.0010	mg/L		04/04/23 07:58	04/04/23 18:28	1
Thallium	ND		0.0010	0.00021	mg/L		04/04/23 07:58	04/04/23 18:28	1
Calcium	**450**	**B**	10	1.6	mg/L		04/04/23 07:58	04/04/23 18:08	50

Client Sample ID: W-10B
Date Collected: 03/30/23 10:10
Date Received: 03/31/23 16:30
Lab Sample ID: 280-174404-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		04/04/23 07:58	04/04/23 18:30	1
Magnesium	**10000**		20	0.42	mg/L		04/04/23 07:58	04/05/23 15:50	100
Arsenic	**0.00090**	**J**	0.0050	0.00050	mg/L		04/04/23 07:58	04/04/23 18:30	1
Sodium	**7100**	**B**	50	3.7	mg/L		04/04/23 07:58	04/05/23 10:58	50
Barium	**0.014**		0.0030	0.00038	mg/L		04/04/23 07:58	04/04/23 18:30	1
Potassium	**68**		1.0	0.052	mg/L		04/04/23 07:58	04/04/23 18:30	1
Beryllium	ND		0.0010	0.00030	mg/L		04/04/23 07:58	04/04/23 18:30	1
Cadmium	**0.00023**	**J**	0.0010	0.00019	mg/L		04/04/23 07:58	04/04/23 18:30	1
Chromium	**0.0028**	**J B**	0.0030	0.00050	mg/L		04/04/23 07:58	04/04/23 18:30	1
Cobalt	**0.0024**		0.0010	0.00033	mg/L		04/04/23 07:58	04/04/23 18:30	1
Lead	**0.00041**	**J**	0.0010	0.00023	mg/L		04/04/23 07:58	04/04/23 18:30	1
Molybdenum	**0.0030**		0.0020	0.00037	mg/L		04/04/23 07:58	04/04/23 18:30	1
Selenium	**5.1**		0.25	0.050	mg/L		04/04/23 07:58	04/04/23 18:10	50
Thallium	**0.0079**		0.0010	0.00021	mg/L		04/04/23 07:58	04/04/23 18:30	1
Calcium	**500**	**B**	10	1.6	mg/L		04/04/23 07:58	04/04/23 18:10	50

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

Client Sample ID: WK-10B
Date Collected: 03/30/23 11:10
Date Received: 03/31/23 16:30
Lab Sample ID: 280-174404-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		04/04/23 07:58	04/04/23 18:32	1
Magnesium	**0.085**	**J**	0.20	0.0042	mg/L		04/04/23 07:58	04/05/23 10:59	1
Arsenic	ND		0.0050	0.00050	mg/L		04/04/23 07:58	04/04/23 18:32	1
Sodium	**0.17**	**J B**	1.0	0.073	mg/L		04/04/23 07:58	04/05/23 10:59	1
Barium	ND		0.0030	0.00038	mg/L		04/04/23 07:58	04/04/23 18:32	1
Potassium	**0.14**	**J**	1.0	0.052	mg/L		04/04/23 07:58	04/04/23 18:32	1
Beryllium	ND		0.0010	0.00030	mg/L		04/04/23 07:58	04/04/23 18:32	1
Cadmium	ND		0.0010	0.00019	mg/L		04/04/23 07:58	04/04/23 18:32	1
Chromium	**0.00071**	**J B**	0.0030	0.00050	mg/L		04/04/23 07:58	04/04/23 18:32	1
Cobalt	ND		0.0010	0.00033	mg/L		04/04/23 07:58	04/04/23 18:32	1
Lead	ND		0.0010	0.00023	mg/L		04/04/23 07:58	04/04/23 18:32	1
Molybdenum	ND		0.0020	0.00037	mg/L		04/04/23 07:58	04/04/23 18:32	1
Selenium	**0.0020**	**J**	0.0050	0.0010	mg/L		04/04/23 07:58	04/04/23 18:32	1
Thallium	ND		0.0010	0.00021	mg/L		04/04/23 07:58	04/04/23 18:32	1
Calcium	**0.047**	**J B**	0.20	0.032	mg/L		04/04/23 07:58	04/04/23 18:32	1

Client Sample ID: W-17
Date Collected: 03/30/23 13:20
Date Received: 03/31/23 16:30
Lab Sample ID: 280-174404-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.0013**	**J**	0.0020	0.00040	mg/L		04/04/23 07:58	04/04/23 18:34	1
Magnesium	**900**		10	0.21	mg/L		04/04/23 07:58	04/05/23 11:01	50
Arsenic	**0.00061**	**J**	0.0050	0.00050	mg/L		04/04/23 07:58	04/04/23 18:34	1
Sodium	**940**	**B**	50	3.7	mg/L		04/04/23 07:58	04/05/23 11:01	50
Barium	**0.012**		0.0030	0.00038	mg/L		04/04/23 07:58	04/04/23 18:34	1
Potassium	**16**		1.0	0.052	mg/L		04/04/23 07:58	04/04/23 18:34	1
Beryllium	ND		0.0010	0.00030	mg/L		04/04/23 07:58	04/04/23 18:34	1
Cadmium	**0.0020**		0.0010	0.00019	mg/L		04/04/23 07:58	04/04/23 18:34	1
Chromium	**0.0016**	**J B**	0.0030	0.00050	mg/L		04/04/23 07:58	04/04/23 18:34	1
Cobalt	**0.0021**		0.0010	0.00033	mg/L		04/04/23 07:58	04/04/23 18:34	1
Lead	ND		0.0010	0.00023	mg/L		04/04/23 07:58	04/04/23 18:34	1
Molybdenum	**0.016**		0.0020	0.00037	mg/L		04/04/23 07:58	04/04/23 18:34	1
Selenium	**3.5**		0.25	0.050	mg/L		04/04/23 07:58	04/04/23 18:14	50
Thallium	**0.0030**		0.0010	0.00021	mg/L		04/04/23 07:58	04/04/23 18:34	1
Calcium	**460**	**B**	10	1.6	mg/L		04/04/23 07:58	04/04/23 18:14	50

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

Client Sample ID: W-10B
Date Collected: 03/30/23 10:10
Date Received: 03/31/23 16:30
Lab Sample ID: 280-174404-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		04/05/23 14:50	04/06/23 01:57	1
Arsenic	**0.0011**	**J**	0.0050	0.00050	mg/L		04/05/23 14:50	04/06/23 01:57	1
Barium	**0.017**	**B**	0.0030	0.00038	mg/L		04/05/23 14:50	04/06/23 01:57	1
Beryllium	ND		0.0010	0.00030	mg/L		04/05/23 14:50	04/10/23 12:18	1
Cadmium	**0.00033**	**J**	0.0010	0.00019	mg/L		04/05/23 14:50	04/10/23 12:18	1
Chromium	**0.0023**	**J**	0.0030	0.00050	mg/L		04/05/23 14:50	04/10/23 12:18	1
Cobalt	**0.0027**		0.0010	0.00033	mg/L		04/05/23 14:50	04/06/23 01:57	1
Lead	**0.00081**	**J**	0.0010	0.00023	mg/L		04/05/23 14:50	04/06/23 01:57	1

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

Client Sample ID: W-10B
Date Collected: 03/30/23 10:10
Date Received: 03/31/23 16:30
Lab Sample ID: 280-174404-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	480	B	2.0	0.32	mg/L		04/05/23 14:50	04/06/23 01:59	10
Molybdenum	0.0034		0.0020	0.00037	mg/L		04/05/23 14:50	04/06/23 01:57	1
Selenium	5.1		0.050	0.010	mg/L		04/05/23 14:50	04/06/23 01:59	10
Thallium	0.0067		0.0010	0.00021	mg/L		04/05/23 14:50	04/06/23 01:57	1

Method: SW846 7470A - Mercury (CVAA)

Client Sample ID: W-18
Date Collected: 03/29/23 11:35
Date Received: 03/31/23 16:30
Lab Sample ID: 280-174404-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		04/10/23 13:50	04/10/23 20:57	1

Client Sample ID: WT-18
Date Collected: 03/29/23 13:00
Date Received: 03/31/23 16:30
Lab Sample ID: 280-174404-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		04/10/23 13:50	04/10/23 20:59	1

Client Sample ID: W-10B
Date Collected: 03/30/23 10:10
Date Received: 03/31/23 16:30
Lab Sample ID: 280-174404-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		04/10/23 13:50	04/10/23 21:02	1

Client Sample ID: WK-10B
Date Collected: 03/30/23 11:10
Date Received: 03/31/23 16:30
Lab Sample ID: 280-174404-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		04/10/23 13:50	04/10/23 21:04	1

Client Sample ID: W-17
Date Collected: 03/30/23 13:20
Date Received: 03/31/23 16:30
Lab Sample ID: 280-174404-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		04/10/23 13:50	04/10/23 21:07	1

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

Client Sample ID: W-10B
Date Collected: 03/30/23 10:10
Date Received: 03/31/23 16:30
Lab Sample ID: 280-174404-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		04/10/23 13:50	04/10/23 22:00	1

General Chemistry

Client Sample ID: W-18
Date Collected: 03/29/23 11:35
Date Received: 03/31/23 16:30
Lab Sample ID: 280-174404-1
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			04/06/23 15:37	1

General Chemistry (Continued)

Client Sample ID: W-18
Date Collected: 03/29/23 11:35
Date Received: 03/31/23 16:30

Lab Sample ID: 280-174404-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Temperature (SW846 9040B)	23.8	HF	1.0	1.0	Degrees C			04/06/23 15:37	1
Chloride (SW846 9056A)	270		30	10	mg/L			04/10/23 20:48	10
Fluoride (SW846 9056A)	15		5.0	1.7	mg/L			04/10/23 20:48	10
Sulfate (SW846 9056A)	10000		1000	210	mg/L			04/10/23 21:00	200
Alkalinity (SM 2320B)	600	B	10	3.1	mg/L			04/03/23 22:13	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	600	B	10	3.1	mg/L			04/03/23 22:13	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			04/03/23 22:13	1
Total Dissolved Solids (TDS) (SM 2540C)	14000		1000	470	mg/L			04/03/23 15:35	1
Total Suspended Solids (SM 2540D)	6.4		4.0	1.1	mg/L			04/03/23 16:41	1

Client Sample ID: WT-18
Date Collected: 03/29/23 13:00
Date Received: 03/31/23 16:30

Lab Sample ID: 280-174404-2
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			04/06/23 15:41	1
Temperature (SW846 9040B)	23.8	HF	1.0	1.0	Degrees C			04/06/23 15:41	1
Chloride (SW846 9056A)	280		30	10	mg/L			04/10/23 21:24	10
Fluoride (SW846 9056A)	17		5.0	1.7	mg/L			04/10/23 21:24	10
Sulfate (SW846 9056A)	9700		1000	210	mg/L			04/10/23 22:00	200
Alkalinity (SM 2320B)	590	B	10	3.1	mg/L			04/03/23 22:37	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	590	B	10	3.1	mg/L			04/03/23 22:37	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			04/03/23 22:37	1
Total Dissolved Solids (TDS) (SM 2540C)	12000		1000	470	mg/L			04/03/23 15:35	1
Total Suspended Solids (SM 2540D)	9.2		4.0	1.1	mg/L			04/03/23 16:41	1

Client Sample ID: W-10B
Date Collected: 03/30/23 10:10
Date Received: 03/31/23 16:30

Lab Sample ID: 280-174404-3
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			04/06/23 15:46	1
Temperature (SW846 9040B)	23.8	HF	1.0	1.0	Degrees C			04/06/23 15:46	1
Chloride (SW846 9056A)	1100		150	51	mg/L			04/10/23 22:24	50
Fluoride (SW846 9056A)	65		25	8.3	mg/L			04/10/23 22:24	50
Sulfate (SW846 9056A)	52000		5000	1000	mg/L			04/11/23 22:25	1000
Alkalinity (SM 2320B)	990	B	10	3.1	mg/L			04/03/23 22:49	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	990	B	10	3.1	mg/L			04/03/23 22:49	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			04/03/23 22:49	1
Total Dissolved Solids (TDS) (SM 2540C)	7000		100	47	mg/L			04/04/23 12:24	1
Total Suspended Solids (SM 2540D)	17		4.0	1.1	mg/L			04/04/23 13:40	1

General Chemistry

Client Sample ID: WK-10B
Date Collected: 03/30/23 11:10
Date Received: 03/31/23 16:30

Lab Sample ID: 280-174404-4
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			04/07/23 15:41	1
Temperature (SW846 9040B)	24.0	HF	1.0	1.0	Degrees C			04/07/23 15:41	1
Chloride (SW846 9056A)	ND		3.0	1.0	mg/L			04/10/23 22:36	1
Fluoride (SW846 9056A)	ND		0.50	0.17	mg/L			04/10/23 22:36	1
Sulfate (SW846 9056A)	ND		5.0	1.0	mg/L			04/10/23 22:36	1
Alkalinity (SM 2320B)	4.0	J B	10	3.1	mg/L			04/03/23 22:55	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	4.0	J B	10	3.1	mg/L			04/03/23 22:55	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			04/03/23 22:55	1
Total Dissolved Solids (TDS) (SM 2540C)	ND		10	4.7	mg/L			04/04/23 12:24	1
Total Suspended Solids (SM 2540D)	7.6		4.0	1.1	mg/L			04/04/23 13:40	1

Client Sample ID: W-17
Date Collected: 03/30/23 13:20
Date Received: 03/31/23 16:30

Lab Sample ID: 280-174404-5
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			04/06/23 15:59	1
Temperature (SW846 9040B)	23.8	HF	1.0	1.0	Degrees C			04/06/23 15:59	1
Chloride (SW846 9056A)	85		3.0	1.0	mg/L			04/10/23 22:48	1
Fluoride (SW846 9056A)	1.8		0.50	0.17	mg/L			04/11/23 21:50	1
Sulfate (SW846 9056A)	5000		500	100	mg/L			04/10/23 23:11	100
Alkalinity (SM 2320B)	700	B	10	3.1	mg/L			04/03/23 23:05	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	700	B	10	3.1	mg/L			04/03/23 23:05	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			04/03/23 23:05	1
Total Dissolved Solids (TDS) (SM 2540C)	77000		1000	470	mg/L			04/04/23 12:24	1
Total Suspended Solids (SM 2540D)	17		4.0	1.1	mg/L			04/04/23 13:40	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-607307/1-A
Matrix: Water
Analysis Batch: 608050

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 607307

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.0015	mg/L		04/04/23 07:58	04/07/23 15:58	1

Lab Sample ID: MB 280-607307/1-A
Matrix: Water
Analysis Batch: 608211

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 607307

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.020	0.0091	mg/L		04/04/23 07:58	04/10/23 14:38	1

Lab Sample ID: LCS 280-607307/2-A
Matrix: Water
Analysis Batch: 608050

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 607307

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	2.18		mg/L		109	86 - 110

Lab Sample ID: LCS 280-607307/2-A
Matrix: Water
Analysis Batch: 608211

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 607307

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Lithium	1.00	0.985		mg/L		98	90 - 112

Lab Sample ID: 280-174404-1 MS
Matrix: Water
Analysis Batch: 608050

Client Sample ID: W-18
Prep Type: Total Recoverable
Prep Batch: 607307

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	0.62	F1	2.00	2.90	F1	mg/L		114	87 - 113

Lab Sample ID: 280-174404-1 MS
Matrix: Water
Analysis Batch: 608211

Client Sample ID: W-18
Prep Type: Total Recoverable
Prep Batch: 607307

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Lithium	2.1		1.00	3.15		mg/L		109	89 - 114

Lab Sample ID: 280-174404-1 MSD
Matrix: Water
Analysis Batch: 608050

Client Sample ID: W-18
Prep Type: Total Recoverable
Prep Batch: 607307

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	0.62	F1	2.00	2.91	F1	mg/L		114	87 - 113	0	20

Lab Sample ID: 280-174404-1 MSD
Matrix: Water
Analysis Batch: 608211

Client Sample ID: W-18
Prep Type: Total Recoverable
Prep Batch: 607307

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Lithium	2.1		1.00	3.12		mg/L		106	89 - 114	1	20

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-607549/1-B
Matrix: Water
Analysis Batch: 608401

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 607567

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.00343	J	0.10	0.0015	mg/L		04/05/23 14:50	04/11/23 16:36	1
Lithium	ND		0.020	0.0091	mg/L		04/05/23 14:50	04/11/23 16:36	1

Lab Sample ID: LCS 280-607549/2-B
Matrix: Water
Analysis Batch: 608401

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 607567

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	2.09		mg/L		105	86 - 110
Lithium	1.00	0.960		mg/L		96	90 - 112

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-607307/1-A
Matrix: Water
Analysis Batch: 607599

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 607307

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		04/04/23 07:58	04/04/23 17:52	1
Magnesium	ND		0.20	0.0042	mg/L		04/04/23 07:58	04/04/23 17:52	1
Arsenic	ND		0.0050	0.00050	mg/L		04/04/23 07:58	04/04/23 17:52	1
Sodium	0.0817	J	1.0	0.073	mg/L		04/04/23 07:58	04/04/23 17:52	1
Barium	ND		0.0030	0.00038	mg/L		04/04/23 07:58	04/04/23 17:52	1
Potassium	ND		1.0	0.052	mg/L		04/04/23 07:58	04/04/23 17:52	1
Beryllium	ND		0.0010	0.00030	mg/L		04/04/23 07:58	04/04/23 17:52	1
Cadmium	ND		0.0010	0.00019	mg/L		04/04/23 07:58	04/04/23 17:52	1
Chromium	0.000976	J	0.0030	0.00050	mg/L		04/04/23 07:58	04/04/23 17:52	1
Cobalt	ND		0.0010	0.00033	mg/L		04/04/23 07:58	04/04/23 17:52	1
Lead	ND		0.0010	0.00023	mg/L		04/04/23 07:58	04/04/23 17:52	1
Molybdenum	ND		0.0020	0.00037	mg/L		04/04/23 07:58	04/04/23 17:52	1
Selenium	ND		0.0050	0.0010	mg/L		04/04/23 07:58	04/04/23 17:52	1
Calcium	0.0478	J	0.20	0.032	mg/L		04/04/23 07:58	04/04/23 17:52	1
Thallium	ND		0.0010	0.00021	mg/L		04/04/23 07:58	04/04/23 17:52	1

Lab Sample ID: LCS 280-607307/22-A
Matrix: Water
Analysis Batch: 607599

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 607307

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0396		mg/L		99	85 - 115
Magnesium	0.800	0.724		mg/L		90	80 - 120
Arsenic	0.0400	0.0405		mg/L		101	85 - 117
Sodium	0.800	0.770	J	mg/L		96	80 - 120
Barium	0.0400	0.0398		mg/L		100	85 - 118
Potassium	0.800	0.843	J	mg/L		105	80 - 120
Beryllium	0.0400	0.0409		mg/L		102	80 - 125
Cadmium	0.0400	0.0396		mg/L		99	85 - 115
Chromium	0.0400	0.0421		mg/L		105	84 - 121
Cobalt	0.0400	0.0411		mg/L		103	85 - 120

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

Lab Sample ID: LCS 280-607307/22-A
Matrix: Water
Analysis Batch: 607599

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 607307

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Lead	0.0400	0.0392		mg/L		98	85 - 118
Molybdenum	0.0400	0.0391		mg/L		98	85 - 119
Selenium	0.0400	0.0396		mg/L		99	77 - 122
Calcium	0.800	0.847		mg/L		106	80 - 120
Thallium	0.0400	0.0397		mg/L		99	85 - 118

Lab Sample ID: 280-174404-1 MS
Matrix: Water
Analysis Batch: 607599

Client Sample ID: W-18
Prep Type: Total Recoverable
Prep Batch: 607307

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Magnesium	1100		0.800	1100	4	mg/L		6316	80 - 120
Sodium	2500	B	0.800	2540	4	mg/L		7388	80 - 120
Calcium	450	B	0.800	469	4	mg/L		2100	80 - 120

Lab Sample ID: 280-174404-1 MS
Matrix: Water
Analysis Batch: 607599

Client Sample ID: W-18
Prep Type: Total Recoverable
Prep Batch: 607307

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.00083	J	0.0400	0.0381		mg/L		93	80 - 111
Arsenic	0.00093	J	0.0400	0.0390		mg/L		95	92 - 112
Barium	0.016		0.0400	0.0561		mg/L		100	92 - 117
Potassium	19		0.800	19.8	4	mg/L		44	80 - 120
Beryllium	ND		0.0400	0.0424		mg/L		106	87 - 118
Cadmium	ND	F1	0.0400	0.0369		mg/L		92	91 - 114
Chromium	0.0017	J B	0.0400	0.0408		mg/L		98	91 - 114
Cobalt	0.0051		0.0400	0.0433		mg/L		96	94 - 115
Lead	ND	F1	0.0400	0.0377	F1	mg/L		94	95 - 116
Molybdenum	0.041		0.0400	0.0800		mg/L		97	84 - 117
Selenium	1.3		0.0400	1.38	4	mg/L		234	90 - 115
Thallium	ND		0.0400	0.0377		mg/L		94	94 - 115

Lab Sample ID: 280-174404-1 MSD
Matrix: Water
Analysis Batch: 607599

Client Sample ID: W-18
Prep Type: Total Recoverable
Prep Batch: 607307

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Magnesium	1100		0.800	1080	4	mg/L		4145	80 - 120	2	20
Sodium	2500	B	0.800	2530	4	mg/L		6290	80 - 120	0	20
Calcium	450	B	0.800	455	4	mg/L		431	80 - 120	3	20

Lab Sample ID: 280-174404-1 MSD
Matrix: Water
Analysis Batch: 607599

Client Sample ID: W-18
Prep Type: Total Recoverable
Prep Batch: 607307

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	0.00083	J	0.0400	0.0391		mg/L		96	80 - 111	2	20
Arsenic	0.00093	J	0.0400	0.0401		mg/L		98	92 - 112	3	20
Barium	0.016		0.0400	0.0569		mg/L		102	92 - 117	2	20

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

Lab Sample ID: 280-174404-1 MSD
Matrix: Water
Analysis Batch: 607599

Client Sample ID: W-18
Prep Type: Total Recoverable
Prep Batch: 607307

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Potassium	19		0.800	19.9	4	mg/L		62	80 - 120	1	20
Beryllium	ND		0.0400	0.0433		mg/L		108	87 - 118	2	20
Cadmium	ND	F1	0.0400	0.0355	F1	mg/L		89	91 - 114	4	20
Chromium	0.0017	J B	0.0400	0.0419		mg/L		100	91 - 114	3	20
Cobalt	0.0051		0.0400	0.0443		mg/L		98	94 - 115	2	20
Lead	ND	F1	0.0400	0.0381		mg/L		95	95 - 116	1	20
Molybdenum	0.041		0.0400	0.0806		mg/L		99	84 - 117	1	20
Selenium	1.3		0.0400	1.38	4	mg/L		242	90 - 115	0	20
Thallium	ND		0.0400	0.0389		mg/L		97	94 - 115	3	20

Lab Sample ID: MB 280-607549/1-B
Matrix: Water
Analysis Batch: 607761

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 607567

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		04/05/23 14:50	04/06/23 01:28	1
Arsenic	ND		0.0050	0.00050	mg/L		04/05/23 14:50	04/06/23 01:28	1
Barium	0.000611	J	0.0030	0.00038	mg/L		04/05/23 14:50	04/06/23 01:28	1
Cadmium	ND		0.0010	0.00019	mg/L		04/05/23 14:50	04/06/23 01:28	1
Cobalt	ND		0.0010	0.00033	mg/L		04/05/23 14:50	04/06/23 01:28	1
Lead	ND		0.0010	0.00023	mg/L		04/05/23 14:50	04/06/23 01:28	1
Molybdenum	ND		0.0020	0.00037	mg/L		04/05/23 14:50	04/06/23 01:28	1
Selenium	ND		0.0050	0.0010	mg/L		04/05/23 14:50	04/06/23 01:28	1
Calcium	0.0590	J	0.20	0.032	mg/L		04/05/23 14:50	04/06/23 01:28	1
Thallium	ND		0.0010	0.00021	mg/L		04/05/23 14:50	04/06/23 01:28	1

Lab Sample ID: MB 280-607549/1-B
Matrix: Water
Analysis Batch: 608160

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 607567

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.0010	0.00030	mg/L		04/05/23 14:50	04/10/23 12:09	1
Cadmium	ND		0.0010	0.00019	mg/L		04/05/23 14:50	04/10/23 12:09	1
Chromium	ND		0.0030	0.00050	mg/L		04/05/23 14:50	04/10/23 12:09	1

Lab Sample ID: LCS 280-607549/2-C
Matrix: Water
Analysis Batch: 607761

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 607567

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0397		mg/L		99	85 - 115
Arsenic	0.0400	0.0397		mg/L		99	85 - 117
Barium	0.0400	0.0415		mg/L		104	85 - 118
Cadmium	0.0400	0.0386		mg/L		96	85 - 115
Cobalt	0.0400	0.0383		mg/L		96	85 - 120
Lead	0.0400	0.0366		mg/L		92	85 - 118
Molybdenum	0.0400	0.0381		mg/L		95	85 - 119
Selenium	0.0400	0.0415		mg/L		104	77 - 122
Calcium	0.800	0.850		mg/L		106	80 - 120

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

Lab Sample ID: LCS 280-607549/2-C
Matrix: Water
Analysis Batch: 607761

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 607567

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Thallium	0.0400	0.0369		mg/L		92	85 - 118

Lab Sample ID: LCS 280-607549/2-C
Matrix: Water
Analysis Batch: 608160

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 607567

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Beryllium	0.0400	0.0465		mg/L		116	80 - 125
Cadmium	0.0400	0.0439		mg/L		110	85 - 115
Chromium	0.0400	0.0453		mg/L		113	84 - 121

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-608105/1-A
Matrix: Water
Analysis Batch: 608239

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 608105

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		04/10/23 13:50	04/10/23 20:36	1

Lab Sample ID: LCS 280-608105/2-A
Matrix: Water
Analysis Batch: 608239

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 608105

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00483		mg/L		97	84 - 120

Lab Sample ID: MB 280-607549/1-D
Matrix: Water
Analysis Batch: 608239

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 608108

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		04/10/23 13:50	04/10/23 21:55	1

Lab Sample ID: LCS 280-607549/2-E
Matrix: Water
Analysis Batch: 608239

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 608108

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00482		mg/L		96	84 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-607897/33
Matrix: Water
Analysis Batch: 607897

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: 9040B - pH (Continued)

Lab Sample ID: LCS 280-608066/31
Matrix: Water
Analysis Batch: 608066

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 280-608162/52
Matrix: Water
Analysis Batch: 608162

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			04/10/23 23:47	1
Fluoride	ND		0.50	0.17	mg/L			04/10/23 23:47	1
Sulfate	ND		5.0	1.0	mg/L			04/10/23 23:47	1

Lab Sample ID: MB 280-608162/6
Matrix: Water
Analysis Batch: 608162

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			04/10/23 14:12	1
Fluoride	ND		0.50	0.17	mg/L			04/10/23 14:12	1
Sulfate	ND		5.0	1.0	mg/L			04/10/23 14:12	1

Lab Sample ID: LCS 280-608162/4
Matrix: Water
Analysis Batch: 608162

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	48.0		mg/L		96	90 - 110
Fluoride	2.50	2.51		mg/L		100	90 - 110
Sulfate	50.0	48.0		mg/L		96	90 - 110

Lab Sample ID: LCS 280-608162/50
Matrix: Water
Analysis Batch: 608162

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	48.1		mg/L		96	90 - 110
Fluoride	2.50	2.51		mg/L		100	90 - 110
Sulfate	50.0	49.9		mg/L		100	90 - 110

Lab Sample ID: LCSD 280-608162/5
Matrix: Water
Analysis Batch: 608162

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	48.0		mg/L		96	90 - 110	0	10
Fluoride	2.50	2.47		mg/L		99	90 - 110	1	10
Sulfate	50.0	48.5		mg/L		97	90 - 110	1	10

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

Lab Sample ID: LCSD 280-608162/51
Matrix: Water
Analysis Batch: 608162

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	48.0		mg/L		96	90 - 110	0	10
Fluoride	2.50	2.49		mg/L		100	90 - 110	1	10
Sulfate	50.0	49.4		mg/L		99	90 - 110	1	10

Lab Sample ID: MRL 280-608162/3
Matrix: Water
Analysis Batch: 608162

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	2.10	J	mg/L		84	50 - 150
Fluoride	0.250	0.284	J	mg/L		113	50 - 150
Sulfate	2.50	2.19	J	mg/L		88	50 - 150

Lab Sample ID: MB 280-608268/6
Matrix: Water
Analysis Batch: 608268

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			04/11/23 14:04	1

Lab Sample ID: LCS 280-608268/4
Matrix: Water
Analysis Batch: 608268

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 280-608268/5
Matrix: Water
Analysis Batch: 608268

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	48.8		mg/L		98	90 - 110	0	10

Lab Sample ID: MRL 280-608268/3
Matrix: Water
Analysis Batch: 608268

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	ND	^1+ ^3-	mg/L		0	50 - 150
Sulfate	2.50	2.22	J	mg/L		89	50 - 150

Lab Sample ID: MB 280-608276/6
Matrix: Water
Analysis Batch: 608276

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			04/11/23 12:55	1

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

Lab Sample ID: LCS 280-608276/4
Matrix: Water
Analysis Batch: 608276

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	2.41		mg/L		97	90 - 110

Lab Sample ID: LCSD 280-608276/5
Matrix: Water
Analysis Batch: 608276

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	2.47		mg/L		99	90 - 110	2	10

Lab Sample ID: MRL 280-608276/3
Matrix: Water
Analysis Batch: 608276

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	0.231	J	mg/L		93	50 - 150

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-607436/32
Matrix: Water
Analysis Batch: 607436

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	3.70	J	10	3.1	mg/L			04/03/23 16:54	1
Bicarbonate Alkalinity as CaCO3	3.36	J	10	3.1	mg/L			04/03/23 16:54	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			04/03/23 16:54	1

Lab Sample ID: MB 280-607436/58
Matrix: Water
Analysis Batch: 607436

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	3.77	J	10	3.1	mg/L			04/03/23 20:55	1
Bicarbonate Alkalinity as CaCO3	3.30	J	10	3.1	mg/L			04/03/23 20:55	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			04/03/23 20:55	1

Lab Sample ID: MB 280-607436/6
Matrix: Water
Analysis Batch: 607436

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	3.87	J	10	3.1	mg/L			04/03/23 13:25	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			04/03/23 13:25	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			04/03/23 13:25	1

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: LCS 280-607436/57
Matrix: Water
Analysis Batch: 607436

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 - 110

Lab Sample ID: LCSD 280-607436/5
Matrix: Water
Analysis Batch: 607436

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		100	89 - 110	1	10

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

Lab Sample ID: MB 280-607392/1
Matrix: Water
Analysis Batch: 607392

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			04/03/23 15:35	1

Lab Sample ID: LCS 280-607392/2
Matrix: Water
Analysis Batch: 607392

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	475		mg/L		94	88 - 114

Lab Sample ID: LCSD 280-607392/3
Matrix: Water
Analysis Batch: 607392

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	471		mg/L		93	88 - 114	1	20

Lab Sample ID: MB 280-607499/1
Matrix: Water
Analysis Batch: 607499

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			04/04/23 12:23	1

Lab Sample ID: LCS 280-607499/2
Matrix: Water
Analysis Batch: 607499

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	484		mg/L		96	88 - 114

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

Lab Sample ID: 280-174404-4 DU
Matrix: Water
Analysis Batch: 607499

Client Sample ID: WK-10B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids (TDS)	ND			ND		mg/L				NC	10

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

Lab Sample ID: MB 280-607403/3
Matrix: Water
Analysis Batch: 607403

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			04/03/23 16:41	1

Lab Sample ID: LCS 280-607403/1
Matrix: Water
Analysis Batch: 607403

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	472		mg/L		94	79 - 114		

Lab Sample ID: LCSD 280-607403/2
Matrix: Water
Analysis Batch: 607403

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	461		mg/L		92	79 - 114	2	20

Lab Sample ID: MB 280-607512/2
Matrix: Water
Analysis Batch: 607512

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			04/04/23 13:40	1

Lab Sample ID: LCS 280-607512/1
Matrix: Water
Analysis Batch: 607512

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			504	498		mg/L		99	79 - 114		

Lab Sample ID: 280-174404-4 DU
Matrix: Water
Analysis Batch: 607512

Client Sample ID: WK-10B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Suspended Solids	7.6			7.60		mg/L				0	10

Metals

Prep Batch: 607307

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-174404-1	W-18	Total Recoverable	Water	3005A	
280-174404-1	W-18	Total Recoverable	Water	3005A	
280-174404-2	WT-18	Total Recoverable	Water	3005A	
280-174404-3	W-10B	Total Recoverable	Water	3005A	
280-174404-4	WK-10B	Total Recoverable	Water	3005A	
280-174404-5	W-17	Total Recoverable	Water	3005A	
MB 280-607307/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-607307/22-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 280-607307/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-174404-1 MS	W-18	Total Recoverable	Water	3005A	
280-174404-1 MS	W-18	Total Recoverable	Water	3005A	
280-174404-1 MSD	W-18	Total Recoverable	Water	3005A	
280-174404-1 MSD	W-18	Total Recoverable	Water	3005A	

Filtration Batch: 607549

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-174404-3	W-10B	Dissolved	Water	FILTRATION	
MB 280-607549/1-B	Method Blank	Dissolved	Water	FILTRATION	
MB 280-607549/1-D	Method Blank	Dissolved	Water	FILTRATION	
LCS 280-607549/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 280-607549/2-C	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 280-607549/2-E	Lab Control Sample	Dissolved	Water	FILTRATION	

Prep Batch: 607567

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-174404-3	W-10B	Dissolved	Water	3005A	607549
MB 280-607549/1-B	Method Blank	Dissolved	Water	3005A	607549
LCS 280-607549/2-B	Lab Control Sample	Dissolved	Water	3005A	607549
LCS 280-607549/2-C	Lab Control Sample	Dissolved	Water	3005A	607549

Analysis Batch: 607599

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-174404-1	W-18	Total Recoverable	Water	6020B	607307
280-174404-1	W-18	Total Recoverable	Water	6020B	607307
280-174404-2	WT-18	Total Recoverable	Water	6020B	607307
280-174404-2	WT-18	Total Recoverable	Water	6020B	607307
280-174404-3	W-10B	Total Recoverable	Water	6020B	607307
280-174404-3	W-10B	Total Recoverable	Water	6020B	607307
280-174404-4	WK-10B	Total Recoverable	Water	6020B	607307
280-174404-5	W-17	Total Recoverable	Water	6020B	607307
280-174404-5	W-17	Total Recoverable	Water	6020B	607307
MB 280-607307/1-A	Method Blank	Total Recoverable	Water	6020B	607307
LCS 280-607307/22-A	Lab Control Sample	Total Recoverable	Water	6020B	607307
280-174404-1 MS	W-18	Total Recoverable	Water	6020B	607307
280-174404-1 MS	W-18	Total Recoverable	Water	6020B	607307
280-174404-1 MSD	W-18	Total Recoverable	Water	6020B	607307
280-174404-1 MSD	W-18	Total Recoverable	Water	6020B	607307

Analysis Batch: 607655

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-174404-2	WT-18	Total Recoverable	Water	6020B	607307

Metals (Continued)

Analysis Batch: 607655 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-174404-3	W-10B	Total Recoverable	Water	6020B	607307
280-174404-4	WK-10B	Total Recoverable	Water	6020B	607307
280-174404-5	W-17	Total Recoverable	Water	6020B	607307

Analysis Batch: 607759

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-174404-2	WT-18	Total Recoverable	Water	6020B	607307
280-174404-3	W-10B	Total Recoverable	Water	6020B	607307

Analysis Batch: 607761

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-174404-3	W-10B	Dissolved	Water	6020B	607567
280-174404-3	W-10B	Dissolved	Water	6020B	607567
MB 280-607549/1-B	Method Blank	Dissolved	Water	6020B	607567
LCS 280-607549/2-C	Lab Control Sample	Dissolved	Water	6020B	607567

Analysis Batch: 608050

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-174404-1	W-18	Total Recoverable	Water	6010C	607307
280-174404-2	WT-18	Total Recoverable	Water	6010C	607307
280-174404-4	WK-10B	Total Recoverable	Water	6010C	607307
280-174404-5	W-17	Total Recoverable	Water	6010C	607307
MB 280-607307/1-A	Method Blank	Total Recoverable	Water	6010C	607307
LCS 280-607307/2-A	Lab Control Sample	Total Recoverable	Water	6010C	607307
280-174404-1 MS	W-18	Total Recoverable	Water	6010C	607307
280-174404-1 MSD	W-18	Total Recoverable	Water	6010C	607307

Prep Batch: 608105

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-174404-1	W-18	Total/NA	Water	7470A	
280-174404-2	WT-18	Total/NA	Water	7470A	
280-174404-3	W-10B	Total/NA	Water	7470A	
280-174404-4	WK-10B	Total/NA	Water	7470A	
280-174404-5	W-17	Total/NA	Water	7470A	
MB 280-608105/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-608105/2-A	Lab Control Sample	Total/NA	Water	7470A	

Prep Batch: 608108

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-174404-3	W-10B	Dissolved	Water	7470A	607549
MB 280-607549/1-D	Method Blank	Dissolved	Water	7470A	607549
LCS 280-607549/2-E	Lab Control Sample	Dissolved	Water	7470A	607549

Analysis Batch: 608160

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-174404-3	W-10B	Dissolved	Water	6020B	607567
MB 280-607549/1-B	Method Blank	Dissolved	Water	6020B	607567
LCS 280-607549/2-C	Lab Control Sample	Dissolved	Water	6020B	607567

QC Association Summary

Client: HDR Inc
Job ID: 280-174404-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Metals

Analysis Batch: 608211

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-174404-1	W-18	Total Recoverable	Water	6010C	607307
280-174404-2	WT-18	Total Recoverable	Water	6010C	607307
280-174404-3	W-10B	Total Recoverable	Water	6010C	607307
280-174404-4	WK-10B	Total Recoverable	Water	6010C	607307
280-174404-5	W-17	Total Recoverable	Water	6010C	607307
MB 280-607307/1-A	Method Blank	Total Recoverable	Water	6010C	607307
LCS 280-607307/2-A	Lab Control Sample	Total Recoverable	Water	6010C	607307
280-174404-1 MS	W-18	Total Recoverable	Water	6010C	607307
280-174404-1 MSD	W-18	Total Recoverable	Water	6010C	607307

Analysis Batch: 608239

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-174404-1	W-18	Total/NA	Water	7470A	608105
280-174404-2	WT-18	Total/NA	Water	7470A	608105
280-174404-3	W-10B	Dissolved	Water	7470A	608108
280-174404-3	W-10B	Total/NA	Water	7470A	608105
280-174404-4	WK-10B	Total/NA	Water	7470A	608105
280-174404-5	W-17	Total/NA	Water	7470A	608105
MB 280-607549/1-D	Method Blank	Dissolved	Water	7470A	608108
MB 280-608105/1-A	Method Blank	Total/NA	Water	7470A	608105
LCS 280-607549/2-E	Lab Control Sample	Dissolved	Water	7470A	608108
LCS 280-608105/2-A	Lab Control Sample	Total/NA	Water	7470A	608105

Analysis Batch: 608401

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-174404-3	W-10B	Dissolved	Water	6010C	607567
MB 280-607549/1-B	Method Blank	Dissolved	Water	6010C	607567
LCS 280-607549/2-B	Lab Control Sample	Dissolved	Water	6010C	607567

General Chemistry

Analysis Batch: 607392

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-174404-1	W-18	Total/NA	Water	SM 2540C	
280-174404-2	WT-18	Total/NA	Water	SM 2540C	
MB 280-607392/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-607392/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-607392/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 607403

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-174404-1	W-18	Total/NA	Water	SM 2540D	
280-174404-2	WT-18	Total/NA	Water	SM 2540D	
MB 280-607403/3	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-607403/1	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-607403/2	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 607436

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-174404-1	W-18	Total/NA	Water	SM 2320B	
280-174404-2	WT-18	Total/NA	Water	SM 2320B	

General Chemistry (Continued)

Analysis Batch: 607436 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-174404-3	W-10B	Total/NA	Water	SM 2320B	
280-174404-4	WK-10B	Total/NA	Water	SM 2320B	
280-174404-5	W-17	Total/NA	Water	SM 2320B	
MB 280-607436/32	Method Blank	Total/NA	Water	SM 2320B	
MB 280-607436/58	Method Blank	Total/NA	Water	SM 2320B	
MB 280-607436/6	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-607436/57	Lab Control Sample	Total/NA	Water	SM 2320B	
LCSD 280-607436/5	Lab Control Sample Dup	Total/NA	Water	SM 2320B	

Analysis Batch: 607499

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-174404-3	W-10B	Total/NA	Water	SM 2540C	
280-174404-4	WK-10B	Total/NA	Water	SM 2540C	
280-174404-5	W-17	Total/NA	Water	SM 2540C	
MB 280-607499/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-607499/2	Lab Control Sample	Total/NA	Water	SM 2540C	
280-174404-4 DU	WK-10B	Total/NA	Water	SM 2540C	

Analysis Batch: 607512

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-174404-3	W-10B	Total/NA	Water	SM 2540D	
280-174404-4	WK-10B	Total/NA	Water	SM 2540D	
280-174404-5	W-17	Total/NA	Water	SM 2540D	
MB 280-607512/2	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-607512/1	Lab Control Sample	Total/NA	Water	SM 2540D	
280-174404-4 DU	WK-10B	Total/NA	Water	SM 2540D	

Analysis Batch: 607897

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-174404-1	W-18	Total/NA	Water	9040B	
280-174404-2	WT-18	Total/NA	Water	9040B	
280-174404-3	W-10B	Total/NA	Water	9040B	
280-174404-5	W-17	Total/NA	Water	9040B	
LCS 280-607897/33	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 608066

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-174404-4	WK-10B	Total/NA	Water	9040B	
LCS 280-608066/31	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 608162

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-174404-1	W-18	Total/NA	Water	9056A	
280-174404-1	W-18	Total/NA	Water	9056A	
280-174404-2	WT-18	Total/NA	Water	9056A	
280-174404-2	WT-18	Total/NA	Water	9056A	
280-174404-3	W-10B	Total/NA	Water	9056A	
280-174404-4	WK-10B	Total/NA	Water	9056A	
280-174404-5	W-17	Total/NA	Water	9056A	
280-174404-5	W-17	Total/NA	Water	9056A	
MB 280-608162/52	Method Blank	Total/NA	Water	9056A	

General Chemistry (Continued)

Analysis Batch: 608162 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-608162/6	Method Blank	Total/NA	Water	9056A	
LCS 280-608162/4	Lab Control Sample	Total/NA	Water	9056A	
LCS 280-608162/50	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-608162/5	Lab Control Sample Dup	Total/NA	Water	9056A	
LCSD 280-608162/51	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-608162/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 608268

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-174404-3	W-10B	Total/NA	Water	9056A	
MB 280-608268/6	Method Blank	Total/NA	Water	9056A	
LCS 280-608268/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-608268/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-608268/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 608276

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-174404-5	W-17	Total/NA	Water	9056A	
MB 280-608276/6	Method Blank	Total/NA	Water	9056A	
LCS 280-608276/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-608276/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-608276/3	Lab Control Sample	Total/NA	Water	9056A	

Lab Chronicle

Client: HDR Inc
Job ID: 280-174404-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-18
Lab Sample ID: 280-174404-1
Date Collected: 03/29/23 11:35
Matrix: Water
Date Received: 03/31/23 16:30

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	607307	04/04/23 07:58	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			608211	04/10/23 14:46	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	607307	04/04/23 07:58	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			608050	04/07/23 16:10	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	607307	04/04/23 07:58	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			607599	04/04/23 17:56	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	607307	04/04/23 07:58	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			607599	04/04/23 18:19	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	608105	04/10/23 13:50	PFM	EET DEN
Total/NA	Analysis	7470A		1			608239	04/10/23 20:57	PFM	EET DEN
Total/NA	Analysis	9040B		1			607897	04/06/23 15:37	KEG	EET DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	608162	04/10/23 20:48	EJS	EET DEN
Total/NA	Analysis	9056A		200	5 mL	5 mL	608162	04/10/23 21:00	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			607436	04/03/23 22:13	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	607392	04/03/23 15:35	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	607403	04/03/23 16:41	MCR	EET DEN

Client Sample ID: WT-18
Lab Sample ID: 280-174404-2
Date Collected: 03/29/23 13:00
Matrix: Water
Date Received: 03/31/23 16:30

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	607307	04/04/23 07:58	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			608211	04/10/23 15:07	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	607307	04/04/23 07:58	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			608050	04/07/23 16:34	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	607307	04/04/23 07:58	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			607599	04/04/23 18:08	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	607307	04/04/23 07:58	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			607599	04/04/23 18:28	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	607307	04/04/23 07:58	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			607655	04/05/23 10:56	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	607307	04/04/23 07:58	LJS	EET DEN
Total Recoverable	Analysis	6020B		100			607759	04/05/23 15:48	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	608105	04/10/23 13:50	PFM	EET DEN
Total/NA	Analysis	7470A		1			608239	04/10/23 20:59	PFM	EET DEN
Total/NA	Analysis	9040B		1			607897	04/06/23 15:41	KEG	EET DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	608162	04/10/23 21:24	EJS	EET DEN
Total/NA	Analysis	9056A		200	5 mL	5 mL	608162	04/10/23 22:00	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			607436	04/03/23 22:37	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	607392	04/03/23 15:35	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	607403	04/03/23 16:41	MCR	EET DEN

Client Sample ID: W-10B
Lab Sample ID: 280-174404-3

Date Collected: 03/30/23 10:10
Matrix: Water
Date Received: 03/31/23 16:30

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	607549	04/04/23 16:46	PFM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	607567	04/05/23 14:50	MSM	EET DEN
Dissolved	Analysis	6010C		5			608401	04/11/23 16:44	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	607307	04/04/23 07:58	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			608211	04/10/23 15:11	KRP	EET DEN
Dissolved	Filtration	FILTRATION			200 mL	200 mL	607549	04/04/23 16:46	PFM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	607567	04/05/23 14:50	MSM	EET DEN
Dissolved	Analysis	6020B		1			607761	04/06/23 01:57	LMT	EET DEN
Dissolved	Filtration	FILTRATION			200 mL	200 mL	607549	04/04/23 16:46	PFM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	607567	04/05/23 14:50	MSM	EET DEN
Dissolved	Analysis	6020B		10			607761	04/06/23 01:59	LMT	EET DEN
Dissolved	Filtration	FILTRATION			200 mL	200 mL	607549	04/04/23 16:46	PFM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	607567	04/05/23 14:50	MSM	EET DEN
Dissolved	Analysis	6020B		1			608160	04/10/23 12:18	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	607307	04/04/23 07:58	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			607599	04/04/23 18:10	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	607307	04/04/23 07:58	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			607599	04/04/23 18:30	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	607307	04/04/23 07:58	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			607655	04/05/23 10:58	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	607307	04/04/23 07:58	LJS	EET DEN
Total Recoverable	Analysis	6020B		100			607759	04/05/23 15:50	LMT	EET DEN
Dissolved	Filtration	FILTRATION			200 mL	200 mL	607549	04/04/23 16:46	PFM	EET DEN
Dissolved	Prep	7470A			30 mL	50 mL	608108	04/10/23 13:50	PFM	EET DEN
Dissolved	Analysis	7470A		1			608239	04/10/23 22:00	PFM	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	608105	04/10/23 13:50	PFM	EET DEN
Total/NA	Analysis	7470A		1			608239	04/10/23 21:02	PFM	EET DEN
Total/NA	Analysis	9040B		1			607897	04/06/23 15:46	KEG	EET DEN
Total/NA	Analysis	9056A		1000	10 mL	10 mL	608268	04/11/23 22:25	EJS	EET DEN
Total/NA	Analysis	9056A		50	5 mL	5 mL	608162	04/10/23 22:24	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			607436	04/03/23 22:49	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	607499	04/04/23 12:24	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	607512	04/04/23 13:40	MCR	EET DEN

Client Sample ID: WK-10B
Lab Sample ID: 280-174404-4

Date Collected: 03/30/23 11:10
Matrix: Water
Date Received: 03/31/23 16:30

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	607307	04/04/23 07:58	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			608211	04/10/23 15:15	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	607307	04/04/23 07:58	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			608050	04/07/23 16:43	ADL	EET DEN

Lab Chronicle

Client: HDR Inc
Job ID: 280-174404-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: WK-10B
Lab Sample ID: 280-174404-4
Date Collected: 03/30/23 11:10
Matrix: Water
Date Received: 03/31/23 16:30

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	607307	04/04/23 07:58	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			607599	04/04/23 18:32	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	607307	04/04/23 07:58	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			607655	04/05/23 10:59	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	608105	04/10/23 13:50	PFM	EET DEN
Total/NA	Analysis	7470A		1			608239	04/10/23 21:04	PFM	EET DEN
Total/NA	Analysis	9040B		1			608066	04/07/23 15:41	KEG	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	608162	04/10/23 22:36	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			607436	04/03/23 22:55	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	607499	04/04/23 12:24	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	607512	04/04/23 13:40	MCR	EET DEN

Client Sample ID: W-17
Lab Sample ID: 280-174404-5
Date Collected: 03/30/23 13:20
Matrix: Water
Date Received: 03/31/23 16:30

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	607307	04/04/23 07:58	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			608211	04/10/23 15:43	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	607307	04/04/23 07:58	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			608050	04/08/23 03:10	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	607307	04/04/23 07:58	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			607599	04/04/23 18:14	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	607307	04/04/23 07:58	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			607599	04/04/23 18:34	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	607307	04/04/23 07:58	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			607655	04/05/23 11:01	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	608105	04/10/23 13:50	PFM	EET DEN
Total/NA	Analysis	7470A		1			608239	04/10/23 21:07	PFM	EET DEN
Total/NA	Analysis	9040B		1			607897	04/06/23 15:59	KEG	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	608162	04/10/23 22:48	EJS	EET DEN
Total/NA	Analysis	9056A		100	5 mL	5 mL	608162	04/10/23 23:11	EJS	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	608276	04/11/23 21:50	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			607436	04/03/23 23:05	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	607499	04/04/23 12:24	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	607512	04/04/23 13:40	MCR	EET DEN

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

Accreditation/Certification Summary

Client: HDR Inc
Job ID: 280-174404-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Phone (303) 431 7171

Chain of Custody Record

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Client Information	Sampler: F Davis Ray	Lab PM: Ryan Nicole C	Carrier Tracking No(s):	COC No: 280-123984-34657.2
Client Contact: Ms. Sierra Schupp	Phone: (720) 298-3594	E-Mail: Nicole.Ryan@ET.eurofinsus.com	State of Origin: CO	Page: Page 2 of 2
Company: HDR Inc	PWSID:			Job #:
Address: 1670 Broadway Suite 3400	Due Date Requested:			
City: Denver	TAT Requested (days):			
State, Zip: CO, 80202	Compliance Project: Δ Yes Δ No			
Phone: 734-263-7138(Tel)	PO #: DEN-021			
Email: Sierra.Schupp@hdrinc.com	WO #:			
Project Name: Xcel Energy GW CCR Monitoring Comanche	Project #: 28014376			
Site: Colorado On-Site Wells	SSOW#:			

Analysis Requested

Preservation Codes

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 Dodecahydrate
I	Ice	U	Acetone
J	DI Water	V	MCAA
K	EDTA	W	pH 4-5
L	EDA	Y	Trizma
		Z	other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water S=solid, O=waste/oil BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	App III and IV Metals: Bo, Ca, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Mo, Se, Tl	Total Mercury	Additional Metals: Mg, Na, K	9056 Anions: Chloride, Fluoride, Sulfate	2540C: TDs	2540D: TSS	9040 pH	2320 Alkalinity	RAD: Ra226, Ra228, Ra226+228	Dissolved Metals (Lab Filter)	Total Number of containers	Special Instructions/Note:
			Preservation Code				D	D	D	N	N	N	N	N	D	N		
W-18	3/29/23	1135	G	W	N		X	X	X	X	X	X	X	X	X		6	
WT-18	3/29/23	1200	G	W	N		X	X	X	X	X	X	X	X	X		6	
W-10B	3/30/23	1010	G	W	N		X	X	X	X	X	X	X	X	X	X	7	+ Diss. Metals (250mL) ump
WK-10B	3/30/23	1110	G	W	N		X	X	X	X	X	X	X	X	X		6	
W-17	3/30/23	1320	G	W	N		X	X	X	X	X	X	X	X	X		6	

280-174404 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:	Date:	Time	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Davis Ray	3/31/23 1630	HDR		3.31.23 1630	ETADEN
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No	Cooler Temperature(s) °C and Other Remarks:	Ver: 01/16/2019
		2.1, 1.9 CF 0.1 IR14	

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-174404-1

Login Number: 174404
List Number: 1
Creator: Roehsner, Karen P

List Source: Eurofins Denver

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.	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 <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

PREPARED FOR

Attn: Molly Reeves
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Generated 4/20/2023 4:04:05 PM

JOB DESCRIPTION

Xcel Energy GW CCR Monitoring - Comanche

JOB NUMBER

280-174759-1

Eurofins Denver
4955 Yarrow Street
Arvada CO 80002

See page two for job notes and contact information.

my EOL

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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4/20/2023 4:04:05 PM

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
Job ID: 280-174759-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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.

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

Job ID: 280-174759-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-174759-1

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 4/7/2023 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 5.5º C.

METALS (ICP)
Sample PTW 30-35 (280-174759-1) was analyzed for Metals (ICP) in accordance with SW 846 6010D. The samples were prepared on 04/13/2023 and analyzed on 04/15/2023 and 04/18/2023.

Cadmium and Manganese failed the recovery criteria low for the MS of sample PTW 30-35MS (280-174759-1) in batch 280-609110. Aluminum, Calcium, Magnesium and Iron failed the recovery criteria high.

Cadmium and Manganese failed the recovery criteria low for the MSD of sample PTW 30-35MSD (280-174759-1) in batch 280-609110. Aluminum, Calcium, Magnesium and Iron failed the recovery criteria high.

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

TOTAL ORGANIC CARBON
Sample PTW 30-35 (280-174759-1) was analyzed for total organic carbon in accordance with EPA SW-846 Method 9060A. The samples were analyzed on 04/17/2023.

Sample PTW 30-35 (280-174759-1)[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
Job ID: 280-174759-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: PTW 30-35
Lab Sample ID: 280-174759-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	9200		7.2	1.1	mg/Kg	1		6010D	Total/NA
Calcium	12000		36	10	mg/Kg	1		6010D	Total/NA
Cadmium	1.4	F1	0.36	0.029	mg/Kg	1		6010D	Total/NA
Cobalt	4.3		0.72	0.049	mg/Kg	1		6010D	Total/NA
Iron	13000		14	5.9	mg/Kg	1		6010D	Total/NA
Potassium	2600		220	29	mg/Kg	1		6010D	Total/NA
Magnesium	9400	F1	14	5.7	mg/Kg	1		6010D	Total/NA
Manganese	82	F1	0.72	0.072	mg/Kg	1		6010D	Total/NA
Sodium	2000		360	21	mg/Kg	1		6010D	Total/NA
Total Organic Carbon	130000		20000	4500	mg/Kg	5	☼	9060A	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-174759-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Method	Method Description	Protocol	Laboratory
6010D	Metals (ICP)	SW846	EET DEN
9060A	Organic Carbon, Total (TOC)	SW846	EET DEN
3050B	Preparation, Metals	SW846	EET DEN

Protocol References:

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: 280-174759-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-174759-1	PTW 30-35	Solid	04/06/23 14:50	04/07/23 14:13

Client: HDR Inc
Job ID: 280-174759-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Method: SW846 6010D - Metals (ICP)

Client Sample ID: PTW 30-35
Date Collected: 04/06/23 14:50
Date Received: 04/07/23 14:13

Lab Sample ID: 280-174759-1
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	9200		7.2	1.1	mg/Kg		04/13/23 14:53	04/15/23 11:38	1
Calcium	12000		36	10	mg/Kg		04/13/23 14:53	04/15/23 11:38	1
Cadmium	1.4	F1	0.36	0.029	mg/Kg		04/13/23 14:53	04/15/23 11:38	1
Cobalt	4.3		0.72	0.049	mg/Kg		04/13/23 14:53	04/15/23 11:38	1
Iron	13000		14	5.9	mg/Kg		04/13/23 14:53	04/18/23 02:27	1
Potassium	2600		220	29	mg/Kg		04/13/23 14:53	04/15/23 11:38	1
Magnesium	9400	F1	14	5.7	mg/Kg		04/13/23 14:53	04/15/23 11:38	1
Manganese	82	F1	0.72	0.072	mg/Kg		04/13/23 14:53	04/15/23 11:38	1
Sodium	2000		360	21	mg/Kg		04/13/23 14:53	04/18/23 02:27	1

General Chemistry

Client Sample ID: PTW 30-35
Date Collected: 04/06/23 14:50
Date Received: 04/07/23 14:13

Lab Sample ID: 280-174759-1
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon (SW846 9060A)	130000		20000	4500	mg/Kg	☼		04/17/23 16:52	5

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 280-608345/1-A
Matrix: Solid
Analysis Batch: 608866

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 608345

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		10	1.6	mg/Kg		04/13/23 14:53	04/15/23 11:30	1
Calcium	ND		50	14	mg/Kg		04/13/23 14:53	04/15/23 11:30	1
Cadmium	ND		0.50	0.041	mg/Kg		04/13/23 14:53	04/15/23 11:30	1
Cobalt	ND		1.0	0.068	mg/Kg		04/13/23 14:53	04/15/23 11:30	1
Potassium	ND		300	41	mg/Kg		04/13/23 14:53	04/15/23 11:30	1
Magnesium	ND		20	7.9	mg/Kg		04/13/23 14:53	04/15/23 11:30	1
Manganese	ND		1.0	0.10	mg/Kg		04/13/23 14:53	04/15/23 11:30	1

Lab Sample ID: MB 280-608345/1-A
Matrix: Solid
Analysis Batch: 609110

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 608345

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		20	8.3	mg/Kg		04/13/23 14:53	04/18/23 02:19	1
Sodium	ND		500	29	mg/Kg		04/13/23 14:53	04/18/23 02:19	1

Lab Sample ID: LCS 280-608345/2-A
Matrix: Solid
Analysis Batch: 608866

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 608345

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	100	92.7		mg/Kg		93	82 - 116
Calcium	1000	928		mg/Kg		93	82 - 114
Cadmium	100	89.4		mg/Kg		89	87 - 110
Cobalt	100	92.9		mg/Kg		93	87 - 110
Potassium	10000	9400		mg/Kg		94	89 - 110
Magnesium	4000	3690		mg/Kg		92	90 - 110
Manganese	100	89.4		mg/Kg		89	88 - 110

Lab Sample ID: LCS 280-608345/2-A
Matrix: Solid
Analysis Batch: 609110

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 608345

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Iron	500	483		mg/Kg		97	87 - 120
Sodium	5000	4760		mg/Kg		95	90 - 112

Lab Sample ID: 280-174759-1 MS
Matrix: Solid
Analysis Batch: 608866

Client Sample ID: PTW 30-35
Prep Type: Total/NA
Prep Batch: 608345

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	9200		72.3	19900	4	mg/Kg		14751	75 - 125
Calcium	12000		723	13700	4	mg/Kg		173	75 - 125
Cadmium	1.4	F1	72.3	54.8	F1	mg/Kg		74	75 - 125
Cobalt	4.3		72.3	59.2		mg/Kg		76	75 - 106
Potassium	2600		7230	10700		mg/Kg		113	75 - 125
Magnesium	9400	F1	2890	13300	F1	mg/Kg		132	75 - 125
Manganese	82	F1	72.3	125	F1	mg/Kg		58	75 - 125

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: 280-174759-1 MS
Matrix: Solid
Analysis Batch: 609110

Client Sample ID: PTW 30-35
Prep Type: Total/NA
Prep Batch: 608345

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Iron	13000		362	15400	4	mg/Kg		598	75 - 125		
Sodium	2000		3620	5120		mg/Kg		86	78 - 111		

Lab Sample ID: 280-174759-1 MSD
Matrix: Solid
Analysis Batch: 608866

Client Sample ID: PTW 30-35
Prep Type: Total/NA
Prep Batch: 608345

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Aluminum	9200		72.7	21000	4	mg/Kg		16233	75 - 125	6	20
Calcium	12000		727	13600	4	mg/Kg		147	75 - 125	1	20
Cadmium	1.4	F1	72.7	55.2	F1	mg/Kg		74	75 - 125	1	20
Cobalt	4.3		72.7	59.4		mg/Kg		76	75 - 106	0	20
Potassium	2600		7270	11000		mg/Kg		116	75 - 125	3	20
Magnesium	9400	F1	2910	13300	F1	mg/Kg		135	75 - 125	1	20
Manganese	82	F1	72.7	130	F1	mg/Kg		65	75 - 125	4	20

Lab Sample ID: 280-174759-1 MSD
Matrix: Solid
Analysis Batch: 609110

Client Sample ID: PTW 30-35
Prep Type: Total/NA
Prep Batch: 608345

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Iron	13000		363	15600	4	mg/Kg		653	75 - 125	1	20
Sodium	2000		3630	5220		mg/Kg		88	78 - 111	2	20

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

Lab Sample ID: MB 280-609029/4
Matrix: Solid
Analysis Batch: 609029

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		4000	900	mg/Kg	☼		04/17/23 16:09	1

Lab Sample ID: LCS 280-609029/3
Matrix: Solid
Analysis Batch: 609029

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Organic Carbon			5790	4460		mg/Kg	☼	77	46 - 130		

QC Association Summary

Client: HDR Inc
Job ID: 280-174759-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Metals

Prep Batch: 608345

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-174759-1	PTW 30-35	Total/NA	Solid	3050B	
MB 280-608345/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 280-608345/2-A	Lab Control Sample	Total/NA	Solid	3050B	
280-174759-1 MS	PTW 30-35	Total/NA	Solid	3050B	
280-174759-1 MSD	PTW 30-35	Total/NA	Solid	3050B	

Analysis Batch: 608866

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-174759-1	PTW 30-35	Total/NA	Solid	6010D	608345
MB 280-608345/1-A	Method Blank	Total/NA	Solid	6010D	608345
LCS 280-608345/2-A	Lab Control Sample	Total/NA	Solid	6010D	608345
280-174759-1 MS	PTW 30-35	Total/NA	Solid	6010D	608345
280-174759-1 MSD	PTW 30-35	Total/NA	Solid	6010D	608345

Analysis Batch: 609110

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-174759-1	PTW 30-35	Total/NA	Solid	6010D	608345
MB 280-608345/1-A	Method Blank	Total/NA	Solid	6010D	608345
LCS 280-608345/2-A	Lab Control Sample	Total/NA	Solid	6010D	608345
280-174759-1 MS	PTW 30-35	Total/NA	Solid	6010D	608345
280-174759-1 MSD	PTW 30-35	Total/NA	Solid	6010D	608345

General Chemistry

Analysis Batch: 609029

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-174759-1	PTW 30-35	Total/NA	Solid	9060A	
MB 280-609029/4	Method Blank	Total/NA	Solid	9060A	
LCS 280-609029/3	Lab Control Sample	Total/NA	Solid	9060A	

Lab Chronicle

Client: HDR Inc
Job ID: 280-174759-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: PTW 30-35
Date Collected: 04/06/23 14:50
Date Received: 04/07/23 14:13

Lab Sample ID: 280-174759-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.394 g	100 mL	608345	04/13/23 14:53	MSM	EET DEN
Total/NA	Analysis	6010D		1			609110	04/18/23 02:27	ADL	EET DEN
Total/NA	Prep	3050B			1.394 g	100 mL	608345	04/13/23 14:53	MSM	EET DEN
Total/NA	Analysis	6010D		1			608866	04/15/23 11:38	ADL	EET DEN
Total/NA	Analysis	9060A		5	20.0 mg	20.0 mg	609029	04/17/23 16:52	ABW	EET DEN

Laboratory References:

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

Accreditation/Certification Summary

Client: HDR Inc
Job ID: 280-174759-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

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Client Information	Sampler: K Malone	Lab PM: Ryan, Nicole C	Carrier Tracking No(s):	COC No: 280-129127-35717.1
Client Contact: Ms. Sierra Schupp	Phone:	E-Mail: Nicole.Ryan@ET.eurofinsus.com	State of Origin:	Page: Page 1 of 1
Company: HDR Inc	PWSID:			Job #:
Address: 1670 Broadway Suite 3400	Due Date Requested:			
City: Denver	TAT Requested (days):			
State, Zip: CO, 80202	Compliance Project: Δ Yes Δ No			
Phone: 734-263-7138(Tel)	PO #: DEN-021			
Email: Sierra.Schupp@hdrinc.com	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Comanche	Project #: 28014376			
Site: Colorado	SSOW#:			

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, 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)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010D - Total Metals	9060A- TOC	Rad 226, 228	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	N		
PTW 30-35	4/6/23	1450	G	Solid			X	X	X		

280-174759 Chain of Custody

Possible Hazard Identification
X 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 X Disposal By Lab ☐ Archive For _____ Months

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

Special Instructions/QC Requirements:

Empty Kit Relinquished by: | Date: | Time: | Method of Shipment:

	Date/Time	Company		Date/Time	Company
Relinquished by: Kelly Ma	4/7/23 1413	HDR	Received by: KM	4/7/23 1413	ETAPEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: 5.0 & 5.1 IR14

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-174759-1

Login Number: 174759
List Number: 1
Creator: Roehsner, Karen P

List Source: Eurofins Denver

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.	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 <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

PREPARED FOR

Attn: Molly Reeves
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Generated 5/12/2023 1:45:55 PM

JOB DESCRIPTION

Xcel Energy GW CCR Monitoring - Comanche

JOB NUMBER

280-174404-2

Eurofins Denver
4955 Yarrow Street
Arvada CO 80002

See page two for job notes and contact information.

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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5/12/2023 1:45:55 PM

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
Job ID: 280-174404-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Qualifiers

Rad

Qualifier	Qualifier Description
F	MS/MSD Recovery and/or RPD exceeds the control limits
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.
¤	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

Job ID: 280-174404-2

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-174404-2

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 3/31/2023 4:30 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 2.0º C and 2.2º C.

RADIUM-226 (GFPC)
Samples W-18 (280-174404-1), WT-18 (280-174404-2), W-10B (280-174404-3), WK-10B (280-174404-4) and W-17 (280-174404-5) were analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 04/19/2023 and analyzed on 05/11/2023.

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: WT-18 (280-174404-2). 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.

RADIUM-228
Samples W-18 (280-174404-1), WT-18 (280-174404-2), W-10B (280-174404-3), WK-10B (280-174404-4) and W-17 (280-174404-5) were analyzed for Radium-228 in accordance with 9320. The samples were prepared on 04/19/2023 and analyzed on 05/11/2023.

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-18 (280-174404-1), WT-18 (280-174404-2), W-10B (280-174404-3) and W-17 (280-174404-5). 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)
Samples W-18 (280-174404-1), WT-18 (280-174404-2), W-10B (280-174404-3), WK-10B (280-174404-4) and W-17 (280-174404-5) were analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on 05/12/2023.

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

Job ID: 280-174404-2 (Continued)

Laboratory: Eurofins Denver (Continued)

Detection Summary

Client: HDR Inc
Job ID: 280-174404-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-18 — Lab Sample ID: 280-174404-1

No Detections.

Client Sample ID: WT-18 — Lab Sample ID: 280-174404-2

No Detections.

Client Sample ID: W-10B — Lab Sample ID: 280-174404-3

No Detections.

Client Sample ID: WK-10B — Lab Sample ID: 280-174404-4

No Detections.

Client Sample ID: W-17 — Lab Sample ID: 280-174404-5

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Method Summary

Client: HDR Inc
Job ID: 280-174404-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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: 280-174404-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-174404-1	W-18	Water	03/29/23 11:35	03/31/23 16:30
280-174404-2	WT-18	Water	03/29/23 13:00	03/31/23 16:30
280-174404-3	W-10B	Water	03/30/23 10:10	03/31/23 16:30
280-174404-4	WK-10B	Water	03/30/23 11:10	03/31/23 16:30
280-174404-5	W-17	Water	03/30/23 13:20	03/31/23 16:30

Method: SW846 9315 - Radium-226 (GFPC)

Client Sample ID: W-18
Date Collected: 03/29/23 11:35
Date Received: 03/31/23 16:30
Lab Sample ID: 280-174404-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.230	U	0.395	0.396	1.00	0.697	pCi/L	04/19/23 13:18	05/11/23 19:41	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*47.7*		*30 - 110*	*04/19/23 13:18*	*05/11/23 19:41*	*1*

Client Sample ID: WT-18
Date Collected: 03/29/23 13:00
Date Received: 03/31/23 16:30
Lab Sample ID: 280-174404-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.108	U G	0.580	0.580	1.00	1.11	pCi/L	04/19/23 13:18	05/11/23 19:41	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*40.3*		*30 - 110*	*04/19/23 13:18*	*05/11/23 19:41*	*1*

Client Sample ID: W-10B
Date Collected: 03/30/23 10:10
Date Received: 03/31/23 16:30
Lab Sample ID: 280-174404-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**1.04**		0.657	0.664	1.00	0.893	pCi/L	04/19/23 13:18	05/11/23 19:41	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*44.5*		*30 - 110*	*04/19/23 13:18*	*05/11/23 19:41*	*1*

Client Sample ID: WK-10B
Date Collected: 03/30/23 11:10
Date Received: 03/31/23 16:30
Lab Sample ID: 280-174404-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.00760	U	0.168	0.168	1.00	0.357	pCi/L	04/19/23 13:18	05/11/23 19:41	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*75.9*		*30 - 110*	*04/19/23 13:18*	*05/11/23 19:41*	*1*

Client Sample ID: W-17
Date Collected: 03/30/23 13:20
Date Received: 03/31/23 16:30
Lab Sample ID: 280-174404-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.524	U	0.498	0.500	1.00	0.773	pCi/L	04/19/23 13:18	05/11/23 19:41	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*48.9*		*30 - 110*	*04/19/23 13:18*	*05/11/23 19:41*	*1*

Method: SW846 9320 - Radium-228 (GFPC)

Client Sample ID: W-18
Date Collected: 03/29/23 11:35
Date Received: 03/31/23 16:30
Lab Sample ID: 280-174404-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.998	U F G	0.840	0.845	1.00	1.31	pCi/L	04/19/23 14:02	05/11/23 13:03	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*47.7*		*30 - 110*	*04/19/23 14:02*	*05/11/23 13:03*	*1*
Y Carrier	*84.1*		*30 - 110*	*04/19/23 14:02*	*05/11/23 13:03*	*1*

Client Sample ID: WT-18
Date Collected: 03/29/23 13:00
Date Received: 03/31/23 16:30
Lab Sample ID: 280-174404-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.446	U F G	0.716	0.717	1.00	1.23	pCi/L	04/19/23 14:02	05/11/23 13:03	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*40.3*		*30 - 110*	*04/19/23 14:02*	*05/11/23 13:03*	*1*
Y Carrier	*87.1*		*30 - 110*	*04/19/23 14:02*	*05/11/23 13:03*	*1*

Client Sample ID: W-10B
Date Collected: 03/30/23 10:10
Date Received: 03/31/23 16:30
Lab Sample ID: 280-174404-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**4.30**	**F G**	1.27	1.33	1.00	1.41	pCi/L	04/19/23 14:02	05/11/23 13:14	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*44.5*		*30 - 110*	*04/19/23 14:02*	*05/11/23 13:14*	*1*
Y Carrier	*82.6*		*30 - 110*	*04/19/23 14:02*	*05/11/23 13:14*	*1*

Client Sample ID: WK-10B
Date Collected: 03/30/23 11:10
Date Received: 03/31/23 16:30
Lab Sample ID: 280-174404-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0287	U F	0.338	0.338	1.00	0.641	pCi/L	04/19/23 14:02	05/11/23 13:03	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*75.9*		*30 - 110*	*04/19/23 14:02*	*05/11/23 13:03*	*1*
Y Carrier	*84.9*		*30 - 110*	*04/19/23 14:02*	*05/11/23 13:03*	*1*

Client Sample ID: W-17
Date Collected: 03/30/23 13:20
Date Received: 03/31/23 16:30
Lab Sample ID: 280-174404-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.183	U F G	0.690	0.690	1.00	1.35	pCi/L	04/19/23 14:02	05/11/23 13:09	1

Method: SW846 9320 - Radium-228 (GFPC) (Continued)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	48.9		30 - 110	04/19/23 14:02	05/11/23 13:09	1
Y Carrier	80.4		30 - 110	04/19/23 14:02	05/11/23 13:09	1

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

Client Sample ID: W-18
Date Collected: 03/29/23 11:35
Date Received: 03/31/23 16:30
Lab Sample ID: 280-174404-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.23	U	0.928	0.933	5.00	1.31	pCi/L		05/12/23 11:39	1

Client Sample ID: WT-18
Date Collected: 03/29/23 13:00
Date Received: 03/31/23 16:30
Lab Sample ID: 280-174404-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.554	U	0.921	0.922	5.00	1.23	pCi/L		05/12/23 11:39	1

Client Sample ID: W-10B
Date Collected: 03/30/23 10:10
Date Received: 03/31/23 16:30
Lab Sample ID: 280-174404-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**5.35**		1.43	1.49	5.00	1.41	pCi/L		05/12/23 11:39	1

Client Sample ID: WK-10B
Date Collected: 03/30/23 11:10
Date Received: 03/31/23 16:30
Lab Sample ID: 280-174404-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.0363	U	0.377	0.377	5.00	0.641	pCi/L		05/12/23 11:39	1

Client Sample ID: W-17
Date Collected: 03/30/23 13:20
Date Received: 03/31/23 16:30
Lab Sample ID: 280-174404-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.342	U	0.851	0.852	5.00	1.35	pCi/L		05/12/23 11:39	1

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-608150/1-A
Matrix: Water
Analysis Batch: 611049

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 608150

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.1271	U	0.180	0.181	1.00	0.306	pCi/L	04/19/23 13:18	05/11/23 19:40	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.1*		*30 - 110*	*04/19/23 13:18*	*05/11/23 19:40*	*1*

Lab Sample ID: LCS 160-608150/2-A
Matrix: Water
Analysis Batch: 611049

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 608150

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-226			11.3	10.45		1.32	1.00	0.298	pCi/L	92	75 - 113		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*102*		*30 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-608160/1-A
Matrix: Water
Analysis Batch: 611047

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 608160

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1838	U	0.308	0.308	1.00	0.525	pCi/L	04/19/23 14:02	05/11/23 13:02	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.1*		*30 - 110*	*04/19/23 14:02*	*05/11/23 13:02*	*1*
Y Carrier	*86.0*		*30 - 110*	*04/19/23 14:02*	*05/11/23 13:02*	*1*

Lab Sample ID: LCS 160-608160/2-A
Matrix: Water
Analysis Batch: 611047

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 608160

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-228			7.96	7.915		1.06	1.00	0.437	pCi/L	99	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*102*		*30 - 110*
Y Carrier	*93.1*		*30 - 110*

QC Association Summary

Client: HDR Inc
Job ID: 280-174404-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Rad

Prep Batch: 608150

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-174404-1	W-18	Total/NA	Water	PrecSep-21	
280-174404-2	WT-18	Total/NA	Water	PrecSep-21	
280-174404-3	W-10B	Total/NA	Water	PrecSep-21	
280-174404-4	WK-10B	Total/NA	Water	PrecSep-21	
280-174404-5	W-17	Total/NA	Water	PrecSep-21	
MB 160-608150/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-608150/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 608160

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-174404-1	W-18	Total/NA	Water	PrecSep_0	
280-174404-2	WT-18	Total/NA	Water	PrecSep_0	
280-174404-3	W-10B	Total/NA	Water	PrecSep_0	
280-174404-4	WK-10B	Total/NA	Water	PrecSep_0	
280-174404-5	W-17	Total/NA	Water	PrecSep_0	
MB 160-608160/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-608160/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: HDR Inc
Job ID: 280-174404-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-18
Lab Sample ID: 280-174404-1
Date Collected: 03/29/23 11:35
Matrix: Water
Date Received: 03/31/23 16:30

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			751.44 mL	1.0 g	608150	04/19/23 13:18	KAC	EET SL
Total/NA	Analysis	9315		1			611049	05/11/23 19:41	FLC	EET SL
Total/NA	Prep	PrecSep_0			751.44 mL	1.0 g	608160	04/19/23 14:02	KAC	EET SL
Total/NA	Analysis	9320		1			611047	05/11/23 13:03	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			611295	05/12/23 11:39	SCB	EET SL

Client Sample ID: WT-18
Lab Sample ID: 280-174404-2
Date Collected: 03/29/23 13:00
Matrix: Water
Date Received: 03/31/23 16:30

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			749.75 mL	1.0 g	608150	04/19/23 13:18	KAC	EET SL
Total/NA	Analysis	9315		1			611049	05/11/23 19:41	FLC	EET SL
Total/NA	Prep	PrecSep_0			749.75 mL	1.0 g	608160	04/19/23 14:02	KAC	EET SL
Total/NA	Analysis	9320		1			611047	05/11/23 13:03	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			611295	05/12/23 11:39	SCB	EET SL

Client Sample ID: W-10B
Lab Sample ID: 280-174404-3
Date Collected: 03/30/23 10:10
Matrix: Water
Date Received: 03/31/23 16:30

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			750.81 mL	1.0 g	608150	04/19/23 13:18	KAC	EET SL
Total/NA	Analysis	9315		1			611049	05/11/23 19:41	FLC	EET SL
Total/NA	Prep	PrecSep_0			750.81 mL	1.0 g	608160	04/19/23 14:02	KAC	EET SL
Total/NA	Analysis	9320		1			611117	05/11/23 13:14	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			611295	05/12/23 11:39	SCB	EET SL

Client Sample ID: WK-10B
Lab Sample ID: 280-174404-4
Date Collected: 03/30/23 11:10
Matrix: Water
Date Received: 03/31/23 16:30

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			1005.13 mL	1.0 g	608150	04/19/23 13:18	KAC	EET SL
Total/NA	Analysis	9315		1			611049	05/11/23 19:41	FLC	EET SL
Total/NA	Prep	PrecSep_0			1005.13 mL	1.0 g	608160	04/19/23 14:02	KAC	EET SL
Total/NA	Analysis	9320		1			611047	05/11/23 13:03	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			611295	05/12/23 11:39	SCB	EET SL

Lab Chronicle

Client: HDR Inc
Job ID: 280-174404-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-17
Date Collected: 03/30/23 13:20
Date Received: 03/31/23 16:30

Lab Sample ID: 280-174404-5
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			750.35 mL	1.0 g	608150	04/19/23 13:18	KAC	EET SL
Total/NA	Analysis	9315		1			611049	05/11/23 19:41	FLC	EET SL
Total/NA	Prep	PrecSep_0			750.35 mL	1.0 g	608160	04/19/23 14:02	KAC	EET SL
Total/NA	Analysis	9320		1			611117	05/11/23 13:09	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			611295	05/12/23 11:39	SCB	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
Job ID: 280-174404-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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
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	12-31-23
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	03-31-24
North Carolina (DW)	State	29700	07-31-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-24
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	06-11-23
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-23
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-23

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

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Phone (303) 431 7171

Chain of Custody Record

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Client Information	Sampler: F Davis Ray	Lab PM: Ryan Nicole C	Carrier Tracking No(s):	COC No: 280-123984-34657.2
Client Contact: Ms. Sierra Schupp	Phone: (720) 298-3594	E-Mail: Nicole.Ryan@ET.eurofinsus.com	State of Origin: CO	Page: Page 2 of 2
Company: HDR Inc	PWSID:			Job #:
Address: 1670 Broadway Suite 3400	Due Date Requested:			
City: Denver	TAT Requested (days):			
State, Zip: CO, 80202	Compliance Project: Δ Yes Δ No			
Phone: 734-263-7138(Tel)	PO #: DEN-021			
Email: Sierra.Schupp@hdrinc.com	WO #:			
Project Name: Xcel Energy GW CCR Monitoring Comanche	Project #: 28014376			
Site: Colorado On-Site Wells	SSOW#:			

Analysis Requested

Preservation Codes

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 Dodecahydrate
I	Ice	U	Acetone
J	DI Water	V	MCAA
K	EDTA	W	pH 4-5
L	EDA	Y	Trizma
		Z	other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water S=solid, O=waste/oil BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	App III and IV Metals: Bo, Ca, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Mo, Se, Tl	Total Mercury	Additional Metals: Mg, Na, K	9056 Anions: Chloride, Fluoride, Sulfate	2540C: TDs	2540D: TSS	9040 pH	2320 Alkalinity	RAD: Ra226, Ra228, Ra226+228	Dissolved Metals (Lab Filter)				Total Number of containers	Special Instructions/Note:
			Preservation Code				D	D	D	N	N	N	N	N	D	N					
W-18	3/29/23	1135	G	W	N		X	X	X	X	X	X	X	X	X					6	
WT-18	3/29/23	1200	G	W	N		X	X	X	X	X	X	X	X	X					6	
W-10B	3/30/23	1010	G	W	N		X	X	X	X	X	X	X	X	X	X				7	+ Diss. Metals (250mL) ump
WK-10B	3/30/23	1110	G	W	N		X	X	X	X	X	X	X	X	X					6	
W-17	3/30/23	1320	G	W	N		X	X	X	X	X	X	X	X	X					6	

280-174404 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:	Date:	Time	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Davis Ray	3/31/23 1630	HDR		3.31.23 1630	ETADEN
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No

Cooler Temperature(s) °C and Other Remarks: 2.1, 1.9 cr 0.1 IR14

Ver: 01/16/2019

5/12/2023

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone: 303-736-0100 Fax: 303-431-7171

Chain of Custody Record

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Client Information (Sub Contract Lab)	Sampler:	Lab PM: Ryan, Nicole C	Carrier Tracking No(s):	COC No: 280-650509.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Nicole.Ryan@ET.eurofinsus.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-174404-2
Address: 13715 Rider Trail North,	Due Date Requested: 5/1/2023			
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#:			

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, 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)
Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	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_GFPC/ Ra226/RA228 Calc (3/3) - SUB	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
W-18 (280-174404-1)	3/29/23	11:35 Mountain		Water			X	X	X	2	
WT-18 (280-174404-2)	3/29/23	13:00 Mountain		Water			X	X	X	2	
W-10B (280-174404-3)	3/30/23	10:10 Mountain		Water			X	X	X	2	
WK-10B (280-174404-4)	3/30/23	11:10 Mountain		Water			X	X	X	2	
W-17 (280-174404-5)	3/30/23	13:20 Mountain		Water			X	X	X	2	

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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/tests/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:	Date/Time: 4/10/23 1502	Company: ETHDEN	Received by: fedex	Date/Time:	Company	
Relinquished by: fedex	Date/Time:	Company	Received by: Brianna Shanbery - Hampton	Date/Time: 4/12/23 0920	Company ETAST	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company	

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-174404-2

Login Number: 174404
List Number: 1
Creator: Roehsner, Karen P

List Source: Eurofins Denver

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.	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 <6mm (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: 280-174404-2

Login Number: 174404
List Number: 2
Creator: Sharkey-Gonzalez, Briana L

List Source: Eurofins St. Louis
List Creation: 04/12/23 06:38 PM

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.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: HDR Inc
Job ID: 280-174404-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Method: 9315 - Radium-226 (GFPC)

Matrix: Water
Prep Type: Total/NA

		Percent Yield (Acceptance Limits)
		Ba
Lab Sample ID	Client Sample ID	(30-110)
280-174404-1	W-18	47.7
280-174404-2	WT-18	40.3
280-174404-3	W-10B	44.5
280-174404-4	WK-10B	75.9
280-174404-5	W-17	48.9
LCS 160-608150/2-A	Lab Control Sample	102
MB 160-608150/1-A	Method Blank	95.1

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	(30-110)	(30-110)
280-174404-1	W-18	47.7	84.1
280-174404-2	WT-18	40.3	87.1
280-174404-3	W-10B	44.5	82.6
280-174404-4	WK-10B	75.9	84.9
280-174404-5	W-17	48.9	80.4
LCS 160-608160/2-A	Lab Control Sample	102	93.1
MB 160-608160/1-A	Method Blank	95.1	86.0

Tracer/Carrier Legend

Ba = Ba Carrier
Y = Y Carrier

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

ANALYTICAL REPORT

PREPARED FOR

Attn: Molly Reeves
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Generated 5/18/2023 2:14:42 PM

JOB DESCRIPTION

Xcel Energy GW CCR Monitoring - Comanche

JOB NUMBER

280-176013-1

Eurofins Denver
4955 Yarrow Street
Arvada CO 80002

See page two for job notes and contact information.

my EOL

Job Notes

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

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

Authorization



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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
Job ID: 280-176013-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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.
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
B	Compound was found in the blank and sample.
E	Result exceeded calibration range.
F1	MS and/or MSD recovery exceeds control limits.
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

Job ID: 280-176013-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-176013-1

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 5/4/2023 11:25 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 1.0º C, 1.0º C, 1.7º C and 2.3º C.

DISSOLVED METALS
Samples W-6B1 (280-176013-10) and W-11 (280-176013-13) were analyzed for Dissolved Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 05/11/2023 and analyzed on 05/15/2023.

The continuing low level calibration verification (CCVL) associated with batch 280-612613 recovered above the upper control limit for Li. The samples associated with this CCVL were QC and all passing for the affected analytes; therefore, the data have been reported. The associated samples are impacted: (CCVL 280-612613/18), (LCS 280-612017/2-B), (MB 280-612017/1-B), (280-175951-B-1-D), (280-175951-B-1-E MS), (280-175951-B-1-F MSD), (280-175951-B-1-D PDS) and (280-175951-B-1-D SD ^5). The client sample had passing bracketing CCVL's.

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

TOTAL RECOVERABLE METALS
Samples W-2C (280-176013-1), W-3B (280-176013-2), WT-3B (280-176013-3), W-5B (280-176013-4), W-10B (280-176013-5), WK-10B (280-176013-6), W-18 (280-176013-7), W-14 (280-176013-8), W-17 (280-176013-9), W-6B1 (280-176013-10), W-7 (280-176013-11), W-9 (280-176013-12) and W-11 (280-176013-13) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 05/08/2023 and analyzed on 05/11/2023 and 05/12/2023.

Lithium failed the recovery criteria high for the MS of sample W-2CMS (280-176013-1) in batch 280-612417.

Lithium failed the recovery criteria high for the MSD of sample W-2CMSD (280-176013-1) in batch 280-612417.

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

DISSOLVED METALS (ICP/MS)

Job ID: 280-176013-1 (Continued)

Laboratory: Eurofins Denver (Continued)

Samples W-6B1 (280-176013-10) and W-11 (280-176013-13) were analyzed for Dissolved Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 05/11/2023 and analyzed on 05/12/2023 and 05/13/2023.

Samples W-6B1 (280-176013-10)[100X], W-6B1 (280-176013-10)[50X] and W-11 (280-176013-13)[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 (280-176013-1), W-3B (280-176013-2), WT-3B (280-176013-3), W-5B (280-176013-4), W-10B (280-176013-5), WK-10B (280-176013-6), W-18 (280-176013-7), W-14 (280-176013-8), W-17 (280-176013-9), W-6B1 (280-176013-10), W-7 (280-176013-11), W-9 (280-176013-12) and W-11 (280-176013-13) were analyzed for Total Recoverable Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 05/08/2023 and analyzed on 05/09/2023, 05/10/2023, 05/11/2023 and 05/12/2023.

Cadmium and Calcium were detected in method blank MB 280-611306/1-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 instrument blank for analytical batch 280-611882 contained Cd greater than one-half the reporting limit (RL), and were not re-analyzed because the samples were < RL. or > 10x the blank. The data have been qualified and reported.

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 280-611306 and analytical batch 280-612202 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 280-611306 and analytical batch 280-612052 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 280-611306 and analytical batch 280-611882 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Samples W-2C (280-176013-1)[50X], W-3B (280-176013-2)[100X], W-3B (280-176013-2)[50X], WT-3B (280-176013-3)[100X], WT-3B (280-176013-3)[50X], W-5B (280-176013-4)[50X], W-10B (280-176013-5)[100X], W-10B (280-176013-5)[50X], W-18 (280-176013-7)[50X], W-14 (280-176013-8)[50X], W-17 (280-176013-9)[50X], W-6B1 (280-176013-10)[100X], W-6B1 (280-176013-10)[50X], W-7 (280-176013-11)[50X], W-9 (280-176013-12)[50X] and W-11 (280-176013-13)[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

Samples W-6B1 (280-176013-10) and W-11 (280-176013-13) were analyzed for dissolved mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 05/12/2023.

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

TOTAL MERCURY

Samples W-2C (280-176013-1), W-3B (280-176013-2), WT-3B (280-176013-3), W-5B (280-176013-4), W-10B (280-176013-5), WK-10B (280-176013-6), W-18 (280-176013-7), W-14 (280-176013-8), W-17 (280-176013-9), W-6B1 (280-176013-10), W-7 (280-176013-11), W-9 (280-176013-12) and W-11 (280-176013-13) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 05/15/2023.

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

Job ID: 280-176013-1 (Continued)

Laboratory: Eurofins Denver (Continued)

ALKALINITY

Samples W-2C (280-176013-1), W-3B (280-176013-2), WT-3B (280-176013-3), W-5B (280-176013-4), W-10B (280-176013-5), WK-10B (280-176013-6), W-18 (280-176013-7), W-14 (280-176013-8), W-17 (280-176013-9), W-6B1 (280-176013-10), W-7 (280-176013-11), W-9 (280-176013-12) and W-11 (280-176013-13) were analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 05/08/2023 and 05/09/2023.

Alkalinity was detected in method blank MB 280-611721/57 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. Alkalinity was detected in method blank MB 280-611721/83 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 (280-176013-1), W-3B (280-176013-2), WT-3B (280-176013-3), W-5B (280-176013-4), W-10B (280-176013-5), WK-10B (280-176013-6), W-18 (280-176013-7), W-14 (280-176013-8), W-17 (280-176013-9), W-6B1 (280-176013-10), W-7 (280-176013-11), W-9 (280-176013-12) and W-11 (280-176013-13) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 05/05/2023, 05/08/2023 and 05/09/2023.

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

TOTAL SUSPENDED SOLIDS

Samples W-2C (280-176013-1), W-3B (280-176013-2), WT-3B (280-176013-3), W-5B (280-176013-4), W-10B (280-176013-5), WK-10B (280-176013-6), W-18 (280-176013-7), W-14 (280-176013-8), W-17 (280-176013-9), W-6B1 (280-176013-10), W-7 (280-176013-11), W-9 (280-176013-12) and W-11 (280-176013-13) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 05/08/2023 and 05/09/2023.

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

CORROSIVITY (PH)

Samples W-2C (280-176013-1), W-3B (280-176013-2), WT-3B (280-176013-3), W-5B (280-176013-4), W-10B (280-176013-5), WK-10B (280-176013-6), W-18 (280-176013-7), W-14 (280-176013-8), W-17 (280-176013-9), W-6B1 (280-176013-10), W-7 (280-176013-11), W-9 (280-176013-12) and W-11 (280-176013-13) were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 05/11/2023 and 05/15/2023.

The following sample did not equilibrate to within 0.05 pH units after three measurements: WK-10B (280-176013-6). This was observed in a previous analysis thus the sample was not rerun.

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

ANIONS (28 DAYS)

Samples W-2C (280-176013-1), W-3B (280-176013-2), WT-3B (280-176013-3), W-5B (280-176013-4), W-10B (280-176013-5), WK-10B (280-176013-6), W-18 (280-176013-7), W-14 (280-176013-8), W-17 (280-176013-9), W-6B1 (280-176013-10), W-7 (280-176013-11), W-9 (280-176013-12) and W-11 (280-176013-13) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A (28 Days). The samples were analyzed on 05/15/2023, 05/16/2023, 05/17/2023 and 05/18/2023.

These samples contain an unknown analyte that shares a retention time with fluoride. The interference is large enough at a lower dilution to greatly increase the result for fluoride. The results for fluoride at a higher dilution are without considerable interference so that data is the most representative for fluoride. The results of non-detect at an increased dilution are being qualified and reported due to interference. W-3B (280-176013-2), WT-3B (280-176013-3) and W-10B (280-176013-5)

Due to sample matrix interference the fluoride result for this sample at a 1x does not correlate with the results at a 2x dilution. The 2x dilution result is being qualified and reported as it is the most reliable result, despite being below the RL: W-2C (280-176013-1).

Due to the concentration of fluoride in the spiked sample and the matrix spike reagent, the matrix spike/ matrix spike duplicate result was

Job ID: 280-176013-1 (Continued)

Laboratory: Eurofins Denver (Continued)

higher than the highest calibration point for this analyte. Non-homogeneity/ sample matrix interference is suspected as the % recoveries are not within % recovery limits.WK-10B (280-176013-6), (280-176013-D-6 MS) and (280-176013-D-6 MSD)

The concentration of the matrix spike reagent caused the results for the matrix spike and matrix spike duplicate (MS/MSD) to be above the highest point of the calibration range for sulfate. The results for the MS/MSD are still within the standard control limits of 80-120%. (280-175988-F-1 MS) and (280-175988-F-1 MSD)

Chloride, Fluoride and Sulfate failed the recovery criteria high for the MS of sample WK-10BMS (280-176013-6) in batch 280-612676.

Chloride, Fluoride and Sulfate failed the recovery criteria high for the MSD of sample WK-10BMSD (280-176013-6) in batch 280-612676.

Samples W-2C (280-176013-1)[2X], W-2C (280-176013-1)[20X], W-3B (280-176013-2)[10X], W-3B (280-176013-2)[50X], W-3B (280-176013-2)[500X], WT-3B (280-176013-3)[10X], WT-3B (280-176013-3)[50X], WT-3B (280-176013-3)[500X], W-5B (280-176013-4)[2X], W-5B (280-176013-4)[50X], W-10B (280-176013-5)[10X], W-10B (280-176013-5)[1000X], W-10B (280-176013-5)[50X], W-18 (280-176013-7)[10X], W-14 (280-176013-8)[10X], W-17 (280-176013-9)[10X], W-6B1 (280-176013-10)[1000X], W-6B1 (280-176013-10)[20X], W-7 (280-176013-11)[1000X], W-7 (280-176013-11)[20X], W-9 (280-176013-12)[200X], W-9 (280-176013-12)[5X], W-11 (280-176013-13)[200X] and W-11 (280-176013-13)[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.

Detection Summary

Client: HDR Inc
Job ID: 280-176013-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-2C
Lab Sample ID: 280-176013-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.5		0.10	0.0015	mg/L	1		6010C	Total Recoverable
Lithium	3.6	F1	0.020	0.0091	mg/L	1		6010C	Total Recoverable
Barium	0.013		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Cadmium	0.0072	F1 B	0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Chromium	0.0048		0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.0036	F1	0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Lead	0.00087	J F1	0.0010	0.00023	mg/L	1		6020B	Total Recoverable
Molybdenum	0.0026		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Selenium	2.3		0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Thallium	0.0045	F1	0.0010	0.00021	mg/L	1		6020B	Total Recoverable
Calcium	470	B	10	1.6	mg/L	50		6020B	Total Recoverable
Sodium	4400		50	3.7	mg/L	50		6020B	Total Recoverable
Potassium	42		1.0	0.052	mg/L	1		6020B	Total Recoverable
Magnesium	6200		10	0.21	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	960		60	20	mg/L	20		9056A	Total/NA
Fluoride	0.95	J	1.0	0.33	mg/L	2		9056A	Total/NA
Sulfate	1600		100	21	mg/L	20		9056A	Total/NA
Alkalinity	590	B	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)	46000		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-3B
Lab Sample ID: 280-176013-2

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	3.3		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Arsenic	0.00058	J	0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Barium	0.014		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Cadmium	0.018	B	0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Chromium	0.00080	J	0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.11		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Lead	0.0011		0.0010	0.00023	mg/L	1		6020B	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: W-3B (Continued)
Lab Sample ID: 280-176013-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Molybdenum	0.0016	J	0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Selenium	0.0048	J	0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Thallium	0.0028		0.0010	0.00021	mg/L	1		6020B	Total Recoverable
Calcium	420	B	10	1.6	mg/L	50		6020B	Total Recoverable
Sodium	12000		100	7.3	mg/L	100		6020B	Total Recoverable
Potassium	37		1.0	0.052	mg/L	1		6020B	Total Recoverable
Magnesium	5100		10	0.21	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	21.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1100		150	51	mg/L	50		9056A	Total/NA
Sulfate	43000		2500	520	mg/L	500		9056A	Total/NA
Alkalinity	900	B	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)	61000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	36		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: WT-3B
Lab Sample ID: 280-176013-3

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	3.2		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Arsenic	0.00079	J	0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Barium	0.014		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Cadmium	0.018	B	0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Chromium	0.0011	J	0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.11		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Lead	0.0011		0.0010	0.00023	mg/L	1		6020B	Total Recoverable
Molybdenum	0.0015	J	0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Selenium	0.0038	J	0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Thallium	0.0030		0.0010	0.00021	mg/L	1		6020B	Total Recoverable
Calcium	440	B	10	1.6	mg/L	50		6020B	Total Recoverable
Sodium	12000		100	7.3	mg/L	100		6020B	Total Recoverable
Potassium	38		1.0	0.052	mg/L	1		6020B	Total Recoverable
Magnesium	5000		10	0.21	mg/L	50		6020B	Total Recoverable
pH adj. to 25 deg C	6.9	HF	0.1	0.1	SU	1		9040B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: WT-3B (Continued) — Lab Sample ID: 280-176013-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Temperature	22.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1100		150	51	mg/L	50		9056A	Total/NA
Sulfate	45000		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		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	54000		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-5B — Lab Sample ID: 280-176013-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.2		0.10	0.0015	mg/L	1		6010C	Total Recoverable
Lithium	0.29		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Antimony	0.0078		0.0020	0.00040	mg/L	1		6020B	Total Recoverable
Arsenic	0.00052	J	0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Barium	0.016		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Cadmium	0.0012	B	0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Cobalt	0.0023		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Lead	0.00045	J	0.0010	0.00023	mg/L	1		6020B	Total Recoverable
Molybdenum	0.0091		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Thallium	0.00057	J	0.0010	0.00021	mg/L	1		6020B	Total Recoverable
Calcium	480	B	10	1.6	mg/L	50		6020B	Total Recoverable
Sodium	750		50	3.7	mg/L	50		6020B	Total Recoverable
Potassium	14		1.0	0.052	mg/L	1		6020B	Total Recoverable
Magnesium	270		10	0.21	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	21.7	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	120		6.0	2.0	mg/L	2		9056A	Total/NA
Fluoride	0.30	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	4100		250	52	mg/L	50		9056A	Total/NA
Alkalinity	210	B	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)	4600		40	19	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-10B — Lab Sample ID: 280-176013-5

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	5.9		0.020	0.0091	mg/L	1		6010C	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: W-10B (Continued)
Lab Sample ID: 280-176013-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00061	J	0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Barium	0.015		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Cadmium	0.00032	J B	0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Chromium	0.00079	J	0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.0026		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Lead	0.00044	J	0.0010	0.00023	mg/L	1		6020B	Total Recoverable
Molybdenum	0.0037		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Selenium	4.8		0.25	0.050	mg/L	50		6020B	Total Recoverable
Thallium	0.0071		0.0010	0.00021	mg/L	1		6020B	Total Recoverable
Calcium	460	B	10	1.6	mg/L	50		6020B	Total Recoverable
Sodium	6300		50	3.7	mg/L	50		6020B	Total Recoverable
Potassium	79		50	2.6	mg/L	50		6020B	Total Recoverable
Magnesium	10000		20	0.42	mg/L	100		6020B	Total Recoverable
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	1100		150	51	mg/L	50		9056A	Total/NA
Sulfate	50000		5000	1000	mg/L	1000		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
Total Dissolved Solids (TDS)	76000		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: WK-10B
Lab Sample ID: 280-176013-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.00068	J	0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Selenium	0.0014	J	0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Calcium	0.21	B	0.20	0.032	mg/L	1		6020B	Total Recoverable
Sodium	0.61	J	1.0	0.073	mg/L	1		6020B	Total Recoverable
Potassium	0.10	J	1.0	0.052	mg/L	1		6020B	Total Recoverable
Magnesium	0.094	J	0.20	0.0042	mg/L	1		6020B	Total Recoverable
pH adj. to 25 deg C	8.7	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	19.4	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Fluoride	0.30	J	0.50	0.17	mg/L	1		9056A	Total/NA
Alkalinity	3.8	J	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	3.8	J	10	3.1	mg/L	1		SM 2320B	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: HDR Inc
Job ID: 280-176013-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-18
Lab Sample ID: 280-176013-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.66		0.10	0.0015	mg/L	1		6010C	Total Recoverable
Lithium	2.1		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Antimony	0.00077	J	0.0020	0.00040	mg/L	1		6020B	Total Recoverable
Arsenic	0.00092	J	0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Barium	0.016		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Cadmium	0.00020	J B	0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Chromium	0.0014	J	0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.0047		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Lead	0.00028	J	0.0010	0.00023	mg/L	1		6020B	Total Recoverable
Molybdenum	0.041		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Selenium	1.3		0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Calcium	450	B	10	1.6	mg/L	50		6020B	Total Recoverable
Sodium	2800		50	3.7	mg/L	50		6020B	Total Recoverable
Potassium	20		1.0	0.052	mg/L	1		6020B	Total Recoverable
Magnesium	1200		10	0.21	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	20.7	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	290		30	10	mg/L	10		9056A	Total/NA
Fluoride	0.28	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	780		50	10	mg/L	10		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)	7200		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: 280-176013-8

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	3.4		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Barium	0.011		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Cadmium	0.0010	B	0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Chromium	0.0025	J	0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.0098		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Molybdenum	0.014		0.0020	0.00037	mg/L	1		6020B	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: W-14 (Continued)
Lab Sample ID: 280-176013-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Selenium	0.93		0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Thallium	0.0017		0.0010	0.00021	mg/L	1		6020B	Total Recoverable
Calcium	420	B	10	1.6	mg/L	50		6020B	Total Recoverable
Sodium	5200		50	3.7	mg/L	50		6020B	Total Recoverable
Potassium	35		1.0	0.052	mg/L	1		6020B	Total Recoverable
Magnesium	1600		10	0.21	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	21.8	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	600		30	10	mg/L	10		9056A	Total/NA
Fluoride	4.3		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	820		50	10	mg/L	10		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)	22000		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

Client Sample ID: W-17
Lab Sample ID: 280-176013-9

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	0.69		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Antimony	0.0019	J	0.0020	0.00040	mg/L	1		6020B	Total Recoverable
Arsenic	0.0011	J	0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Barium	0.018		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Cadmium	0.0027	B	0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Chromium	0.0041		0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.0027		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Lead	0.00074	J	0.0010	0.00023	mg/L	1		6020B	Total Recoverable
Molybdenum	0.043		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Selenium	3.7		0.25	0.050	mg/L	50		6020B	Total Recoverable
Thallium	0.0029		0.0010	0.00021	mg/L	1		6020B	Total Recoverable
Calcium	500	B	10	1.6	mg/L	50		6020B	Total Recoverable
Sodium	940		50	3.7	mg/L	50		6020B	Total Recoverable
Potassium	17		1.0	0.052	mg/L	1		6020B	Total Recoverable
Magnesium	820		10	0.21	mg/L	50		6020B	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: W-17 (Continued)
Lab Sample ID: 280-176013-9

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	21.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	82		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.33	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	520		50	10	mg/L	10		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)	6700		100	47	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-6B1
Lab Sample ID: 280-176013-10

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	3.5		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Lithium	3.7		0.020	0.0091	mg/L	1		6010C	Dissolved
Boron	1.1		0.10	0.0015	mg/L	1		6010C	Dissolved
Antimony	0.00049	J	0.0020	0.00040	mg/L	1		6020B	Total Recoverable
Arsenic	0.0021	J	0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Barium	0.024		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Cadmium	0.011	B	0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Chromium	0.0029	J	0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.060		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Lead	0.0022		0.0010	0.00023	mg/L	1		6020B	Total Recoverable
Molybdenum	0.0034		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Selenium	0.0049	J	0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Thallium	0.0012		0.0010	0.00021	mg/L	1		6020B	Total Recoverable
Calcium	440	B	10	1.6	mg/L	50		6020B	Total Recoverable
Sodium	11000		100	7.3	mg/L	100		6020B	Total Recoverable
Potassium	50		1.0	0.052	mg/L	1		6020B	Total Recoverable
Magnesium	4900		20	0.42	mg/L	100		6020B	Total Recoverable
Antimony	0.00084	J	0.0020	0.00040	mg/L	1		6020B	Dissolved
Arsenic	0.00062	J	0.0050	0.00050	mg/L	1		6020B	Dissolved
Barium	0.021		0.0030	0.00038	mg/L	1		6020B	Dissolved
Cadmium	0.0052		0.0010	0.00019	mg/L	1		6020B	Dissolved
Chromium	0.00058	J	0.0030	0.00050	mg/L	1		6020B	Dissolved
Cobalt	0.053		0.0010	0.00033	mg/L	1		6020B	Dissolved
Magnesium	4800		10	0.21	mg/L	50		6020B	Dissolved
Molybdenum	0.0041		0.0020	0.00037	mg/L	1		6020B	Dissolved

This Detection Summary does not include radiochemical test results.

Client Sample ID: W-6B1 (Continued)
Lab Sample ID: 280-176013-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Potassium	50		1.0	0.052	mg/L	1		6020B	Dissolved
Selenium	0.0023	J	0.0050	0.0010	mg/L	1		6020B	Dissolved
Sodium	11000		100	7.3	mg/L	100		6020B	Dissolved
Thallium	0.00087	J	0.0010	0.00021	mg/L	1		6020B	Dissolved
Calcium	480		10	1.6	mg/L	50		6020B	Dissolved
pH adj. to 25 deg C	7.2	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
Sulfate	45000		5000	1000	mg/L	1000		9056A	Total/NA
Alkalinity	940		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	940		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	270		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-7
Lab Sample ID: 280-176013-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.92		0.10	0.0015	mg/L	1		6010C	Total Recoverable
Lithium	4.8		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Barium	0.013		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Cadmium	0.0057	B	0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Chromium	0.0014	J	0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.020		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Lead	0.0014		0.0010	0.00023	mg/L	1		6020B	Total Recoverable
Molybdenum	0.0047		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Selenium	1.6		0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Thallium	0.0049		0.0010	0.00021	mg/L	1		6020B	Total Recoverable
Calcium	430	B	10	1.6	mg/L	50		6020B	Total Recoverable
Sodium	7500		50	3.7	mg/L	50		6020B	Total Recoverable
Potassium	57		1.0	0.052	mg/L	1		6020B	Total Recoverable
Magnesium	7200		10	0.21	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	20.2	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	740		60	20	mg/L	20		9056A	Total/NA
Sulfate	44000		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)	64000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	19		4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: HDR Inc
Job ID: 280-176013-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-9
Lab Sample ID: 280-176013-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	2.0		0.10	0.0015	mg/L	1		6010C	Total Recoverable
Lithium	1.2		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Barium	0.017		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Cadmium	0.00069	J B	0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Chromium	0.0020	J	0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.0012		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Molybdenum	0.0025		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Selenium	0.0030	J	0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Thallium	0.00024	J	0.0010	0.00021	mg/L	1		6020B	Total Recoverable
Calcium	420	B	10	1.6	mg/L	50		6020B	Total Recoverable
Sodium	2900		50	3.7	mg/L	50		6020B	Total Recoverable
Potassium	22		1.0	0.052	mg/L	1		6020B	Total Recoverable
Magnesium	1400		10	0.21	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	20.8	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	370		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	0.59		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	12000		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)	14000		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-11
Lab Sample ID: 280-176013-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.66		0.10	0.0015	mg/L	1		6010C	Total Recoverable
Lithium	3.6		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Lithium	3.6		0.020	0.0091	mg/L	1		6010C	Dissolved
Boron	0.60		0.10	0.0015	mg/L	1		6010C	Dissolved
Antimony	0.00048	J	0.0020	0.00040	mg/L	1		6020B	Total Recoverable
Arsenic	0.0021	J	0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Barium	0.024		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Cadmium	0.0017	B	0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Chromium	0.0033		0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.019		0.0010	0.00033	mg/L	1		6020B	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: W-11 (Continued)
Lab Sample ID: 280-176013-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	0.0027		0.0010	0.00023	mg/L	1		6020B	Total Recoverable
Molybdenum	0.0046		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Selenium	2.6		0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Thallium	0.0038		0.0010	0.00021	mg/L	1		6020B	Total Recoverable
Calcium	420	B	10	1.6	mg/L	50		6020B	Total Recoverable
Sodium	3800		50	3.7	mg/L	50		6020B	Total Recoverable
Potassium	45		1.0	0.052	mg/L	1		6020B	Total Recoverable
Magnesium	1600		10	0.21	mg/L	50		6020B	Total Recoverable
Barium	0.013		0.0030	0.00038	mg/L	1		6020B	Dissolved
Cadmium	0.0013		0.0010	0.00019	mg/L	1		6020B	Dissolved
Chromium	0.00069	J	0.0030	0.00050	mg/L	1		6020B	Dissolved
Cobalt	0.019		0.0010	0.00033	mg/L	1		6020B	Dissolved
Magnesium	1600		10	0.21	mg/L	50		6020B	Dissolved
Molybdenum	0.0038		0.0020	0.00037	mg/L	1		6020B	Dissolved
Potassium	42		1.0	0.052	mg/L	1		6020B	Dissolved
Selenium	2.7		0.25	0.050	mg/L	50		6020B	Dissolved
Sodium	3700		50	3.7	mg/L	50		6020B	Dissolved
Thallium	0.0038		0.0010	0.00021	mg/L	1		6020B	Dissolved
Calcium	440		10	1.6	mg/L	50		6020B	Dissolved
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	350		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	0.60		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	12000		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	120		4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-176013-1
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: 280-176013-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-176013-1	W-2C	Water	05/01/23 16:25	05/04/23 11:25
280-176013-2	W-3B	Water	05/02/23 10:35	05/04/23 11:25
280-176013-3	WT-3B	Water	05/02/23 10:55	05/04/23 11:25
280-176013-4	W-5B	Water	05/02/23 13:25	05/04/23 11:25
280-176013-5	W-10B	Water	05/02/23 10:15	05/04/23 11:25
280-176013-6	WK-10B	Water	05/02/23 15:20	05/04/23 11:25
280-176013-7	W-18	Water	05/02/23 14:05	05/04/23 11:25
280-176013-8	W-14	Water	05/03/23 10:40	05/04/23 11:25
280-176013-9	W-17	Water	05/03/23 12:40	05/04/23 11:25
280-176013-10	W-6B1	Water	05/03/23 17:10	05/04/23 11:25
280-176013-11	W-7	Water	05/03/23 09:20	05/04/23 11:25
280-176013-12	W-9	Water	05/03/23 11:40	05/04/23 11:25
280-176013-13	W-11	Water	05/03/23 16:35	05/04/23 11:25

Method: SW846 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: W-2C
Date Collected: 05/01/23 16:25
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.5		0.10	0.0015	mg/L		05/08/23 14:50	05/11/23 17:53	1
Lithium	3.6	F1	0.020	0.0091	mg/L		05/08/23 14:50	05/12/23 18:26	1

Client Sample ID: W-3B
Date Collected: 05/02/23 10:35
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.0	B	0.10	0.0015	mg/L		05/08/23 14:50	05/12/23 18:46	1
Lithium	3.3		0.020	0.0091	mg/L		05/08/23 14:50	05/12/23 18:46	1

Client Sample ID: WT-3B
Date Collected: 05/02/23 10:55
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.0	B	0.10	0.0015	mg/L		05/08/23 14:50	05/12/23 18:50	1
Lithium	3.2		0.020	0.0091	mg/L		05/08/23 14:50	05/12/23 18:50	1

Client Sample ID: W-5B
Date Collected: 05/02/23 13:25
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.2		0.10	0.0015	mg/L		05/08/23 14:50	05/11/23 18:47	1
Lithium	0.29		0.020	0.0091	mg/L		05/08/23 14:50	05/12/23 18:54	1

Client Sample ID: W-10B
Date Collected: 05/02/23 10:15
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.1	B	0.10	0.0015	mg/L		05/08/23 14:50	05/12/23 19:15	1
Lithium	5.9		0.020	0.0091	mg/L		05/08/23 14:50	05/12/23 19:15	1

Client Sample ID: WK-10B
Date Collected: 05/02/23 15:20
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.0015	mg/L		05/08/23 14:50	05/11/23 18:56	1
Lithium	ND		0.020	0.0091	mg/L		05/08/23 14:50	05/12/23 19:19	1

Client Sample ID: W-18
Date Collected: 05/02/23 14:05
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.66		0.10	0.0015	mg/L		05/08/23 14:50	05/11/23 19:00	1
Lithium	2.1		0.020	0.0091	mg/L		05/08/23 14:50	05/12/23 19:23	1

Client Sample ID: W-14
Date Collected: 05/03/23 10:40
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.67		0.10	0.0015	mg/L		05/08/23 14:50	05/11/23 19:04	1
Lithium	3.4		0.020	0.0091	mg/L		05/08/23 14:50	05/12/23 19:27	1

Method: SW846 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: W-17
Date Collected: 05/03/23 12:40
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.64		0.10	0.0015	mg/L		05/08/23 14:50	05/11/23 19:30	1
Lithium	0.69		0.020	0.0091	mg/L		05/08/23 14:50	05/12/23 19:31	1

Client Sample ID: W-6B1
Date Collected: 05/03/23 17:10
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.1	B	0.10	0.0015	mg/L		05/08/23 14:50	05/12/23 19:35	1
Lithium	3.5		0.020	0.0091	mg/L		05/08/23 14:50	05/12/23 19:35	1

Client Sample ID: W-7
Date Collected: 05/03/23 09:20
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.92		0.10	0.0015	mg/L		05/08/23 14:50	05/11/23 19:39	1
Lithium	4.8		0.020	0.0091	mg/L		05/08/23 14:50	05/12/23 19:39	1

Client Sample ID: W-9
Date Collected: 05/03/23 11:40
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	2.0		0.10	0.0015	mg/L		05/08/23 14:50	05/11/23 19:43	1
Lithium	1.2		0.020	0.0091	mg/L		05/08/23 14:50	05/12/23 19:43	1

Client Sample ID: W-11
Date Collected: 05/03/23 16:35
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.66		0.10	0.0015	mg/L		05/08/23 14:50	05/11/23 19:48	1
Lithium	3.6		0.020	0.0091	mg/L		05/08/23 14:50	05/12/23 19:47	1

Method: SW846 6010C - Metals (ICP) - Dissolved

Client Sample ID: W-6B1
Date Collected: 05/03/23 17:10
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	3.7		0.020	0.0091	mg/L		05/11/23 14:30	05/15/23 14:39	1
Boron	1.1		0.10	0.0015	mg/L		05/11/23 14:30	05/15/23 14:39	1

Client Sample ID: W-11
Date Collected: 05/03/23 16:35
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	3.6		0.020	0.0091	mg/L		05/11/23 14:30	05/15/23 14:43	1
Boron	0.60		0.10	0.0015	mg/L		05/11/23 14:30	05/15/23 14:43	1

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

Client Sample ID: W-2C
Date Collected: 05/01/23 16:25
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/08/23 14:50	05/09/23 21:43	1
Arsenic	ND		0.0050	0.00050	mg/L		05/08/23 14:50	05/09/23 21:43	1
Barium	**0.013**		0.0030	0.00038	mg/L		05/08/23 14:50	05/09/23 21:43	1
Beryllium	ND		0.0010	0.00030	mg/L		05/08/23 14:50	05/11/23 01:48	1
Cadmium	**0.0072**	**F1 B**	0.0010	0.00019	mg/L		05/08/23 14:50	05/09/23 21:43	1
Chromium	**0.0048**		0.0030	0.00050	mg/L		05/08/23 14:50	05/09/23 21:43	1
Cobalt	**0.0036**	**F1**	0.0010	0.00033	mg/L		05/08/23 14:50	05/09/23 21:43	1
Lead	**0.00087**	**J F1**	0.0010	0.00023	mg/L		05/08/23 14:50	05/11/23 01:48	1
Molybdenum	**0.0026**		0.0020	0.00037	mg/L		05/08/23 14:50	05/09/23 21:43	1
Selenium	**2.3**		0.0050	0.0010	mg/L		05/08/23 14:50	05/09/23 21:43	1
Thallium	**0.0045**	**F1**	0.0010	0.00021	mg/L		05/08/23 14:50	05/09/23 21:43	1
Calcium	**470**	**B**	10	1.6	mg/L		05/08/23 14:50	05/10/23 18:32	50
Sodium	**4400**		50	3.7	mg/L		05/08/23 14:50	05/11/23 19:41	50
Potassium	**42**		1.0	0.052	mg/L		05/08/23 14:50	05/09/23 21:43	1
Magnesium	**6200**		10	0.21	mg/L		05/08/23 14:50	05/11/23 19:41	50

Client Sample ID: W-3B
Date Collected: 05/02/23 10:35
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/08/23 14:50	05/09/23 21:52	1
Arsenic	**0.00058**	**J**	0.0050	0.00050	mg/L		05/08/23 14:50	05/09/23 21:52	1
Barium	**0.014**		0.0030	0.00038	mg/L		05/08/23 14:50	05/09/23 21:52	1
Beryllium	ND		0.0010	0.00030	mg/L		05/08/23 14:50	05/11/23 01:57	1
Cadmium	**0.018**	**B**	0.0010	0.00019	mg/L		05/08/23 14:50	05/09/23 21:52	1
Chromium	**0.00080**	**J**	0.0030	0.00050	mg/L		05/08/23 14:50	05/09/23 21:52	1
Cobalt	**0.11**		0.0010	0.00033	mg/L		05/08/23 14:50	05/09/23 21:52	1
Lead	**0.0011**		0.0010	0.00023	mg/L		05/08/23 14:50	05/11/23 01:57	1
Molybdenum	**0.0016**	**J**	0.0020	0.00037	mg/L		05/08/23 14:50	05/09/23 21:52	1
Selenium	**0.0048**	**J**	0.0050	0.0010	mg/L		05/08/23 14:50	05/09/23 21:52	1
Thallium	**0.0028**		0.0010	0.00021	mg/L		05/08/23 14:50	05/09/23 21:52	1
Calcium	**420**	**B**	10	1.6	mg/L		05/08/23 14:50	05/10/23 18:41	50
Sodium	**12000**		100	7.3	mg/L		05/08/23 14:50	05/12/23 19:52	100
Potassium	**37**		1.0	0.052	mg/L		05/08/23 14:50	05/09/23 21:52	1
Magnesium	**5100**		10	0.21	mg/L		05/08/23 14:50	05/11/23 19:50	50

Client Sample ID: WT-3B
Date Collected: 05/02/23 10:55
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/08/23 14:50	05/09/23 21:54	1
Arsenic	**0.00079**	**J**	0.0050	0.00050	mg/L		05/08/23 14:50	05/09/23 21:54	1
Barium	**0.014**		0.0030	0.00038	mg/L		05/08/23 14:50	05/09/23 21:54	1
Beryllium	ND		0.0010	0.00030	mg/L		05/08/23 14:50	05/11/23 01:59	1
Cadmium	**0.018**	**B**	0.0010	0.00019	mg/L		05/08/23 14:50	05/09/23 21:54	1
Chromium	**0.0011**	**J**	0.0030	0.00050	mg/L		05/08/23 14:50	05/09/23 21:54	1
Cobalt	**0.11**		0.0010	0.00033	mg/L		05/08/23 14:50	05/09/23 21:54	1
Lead	**0.0011**		0.0010	0.00023	mg/L		05/08/23 14:50	05/11/23 01:59	1
Molybdenum	**0.0015**	**J**	0.0020	0.00037	mg/L		05/08/23 14:50	05/09/23 21:54	1
Selenium	**0.0038**	**J**	0.0050	0.0010	mg/L		05/08/23 14:50	05/09/23 21:54	1

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

Client Sample ID: WT-3B
Date Collected: 05/02/23 10:55
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	0.0030		0.0010	0.00021	mg/L		05/08/23 14:50	05/09/23 21:54	1
Calcium	440	B	10	1.6	mg/L		05/08/23 14:50	05/10/23 18:43	50
Sodium	12000		100	7.3	mg/L		05/08/23 14:50	05/12/23 19:57	100
Potassium	38		1.0	0.052	mg/L		05/08/23 14:50	05/09/23 21:54	1
Magnesium	5000		10	0.21	mg/L		05/08/23 14:50	05/11/23 19:52	50

Client Sample ID: W-5B
Date Collected: 05/02/23 13:25
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0078		0.0020	0.00040	mg/L		05/08/23 14:50	05/09/23 21:59	1
Arsenic	0.00052	J	0.0050	0.00050	mg/L		05/08/23 14:50	05/09/23 21:59	1
Barium	0.016		0.0030	0.00038	mg/L		05/08/23 14:50	05/09/23 21:59	1
Beryllium	ND		0.0010	0.00030	mg/L		05/08/23 14:50	05/11/23 02:00	1
Cadmium	0.0012	B	0.0010	0.00019	mg/L		05/08/23 14:50	05/09/23 21:59	1
Chromium	ND		0.0030	0.00050	mg/L		05/08/23 14:50	05/09/23 21:59	1
Cobalt	0.0023		0.0010	0.00033	mg/L		05/08/23 14:50	05/09/23 21:59	1
Lead	0.00045	J	0.0010	0.00023	mg/L		05/08/23 14:50	05/11/23 02:00	1
Molybdenum	0.0091		0.0020	0.00037	mg/L		05/08/23 14:50	05/09/23 21:59	1
Selenium	ND		0.0050	0.0010	mg/L		05/08/23 14:50	05/09/23 21:59	1
Thallium	0.00057	J	0.0010	0.00021	mg/L		05/08/23 14:50	05/09/23 21:59	1
Calcium	480	B	10	1.6	mg/L		05/08/23 14:50	05/10/23 18:45	50
Sodium	750		50	3.7	mg/L		05/08/23 14:50	05/11/23 19:58	50
Potassium	14		1.0	0.052	mg/L		05/08/23 14:50	05/09/23 21:59	1
Magnesium	270		10	0.21	mg/L		05/08/23 14:50	05/11/23 19:58	50

Client Sample ID: W-10B
Date Collected: 05/02/23 10:15
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/08/23 14:50	05/09/23 22:01	1
Arsenic	0.00061	J	0.0050	0.00050	mg/L		05/08/23 14:50	05/09/23 22:01	1
Barium	0.015		0.0030	0.00038	mg/L		05/08/23 14:50	05/09/23 22:01	1
Beryllium	ND		0.0010	0.00030	mg/L		05/08/23 14:50	05/11/23 02:06	1
Cadmium	0.00032	J B	0.0010	0.00019	mg/L		05/08/23 14:50	05/09/23 22:01	1
Chromium	0.00079	J	0.0030	0.00050	mg/L		05/08/23 14:50	05/09/23 22:01	1
Cobalt	0.0026		0.0010	0.00033	mg/L		05/08/23 14:50	05/09/23 22:01	1
Lead	0.00044	J	0.0010	0.00023	mg/L		05/08/23 14:50	05/11/23 02:06	1
Molybdenum	0.0037		0.0020	0.00037	mg/L		05/08/23 14:50	05/09/23 22:01	1
Selenium	4.8		0.25	0.050	mg/L		05/08/23 14:50	05/11/23 20:04	50
Thallium	0.0071		0.0010	0.00021	mg/L		05/08/23 14:50	05/09/23 22:01	1
Calcium	460	B	10	1.6	mg/L		05/08/23 14:50	05/10/23 18:53	50
Sodium	6300		50	3.7	mg/L		05/08/23 14:50	05/11/23 20:04	50
Potassium	79		50	2.6	mg/L		05/08/23 14:50	05/11/23 20:04	50
Magnesium	10000		20	0.42	mg/L		05/08/23 14:50	05/12/23 19:59	100

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

Client Sample ID: WK-10B
Date Collected: 05/02/23 15:20
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/08/23 14:50	05/09/23 22:03	1
Arsenic	ND		0.0050	0.00050	mg/L		05/08/23 14:50	05/09/23 22:03	1
Barium	**0.00068**	**J**	0.0030	0.00038	mg/L		05/08/23 14:50	05/09/23 22:03	1
Beryllium	ND		0.0010	0.00030	mg/L		05/08/23 14:50	05/11/23 02:08	1
Cadmium	ND		0.0010	0.00019	mg/L		05/08/23 14:50	05/09/23 22:03	1
Chromium	ND		0.0030	0.00050	mg/L		05/08/23 14:50	05/09/23 22:03	1
Cobalt	ND		0.0010	0.00033	mg/L		05/08/23 14:50	05/09/23 22:03	1
Lead	ND		0.0010	0.00023	mg/L		05/08/23 14:50	05/11/23 02:08	1
Molybdenum	ND		0.0020	0.00037	mg/L		05/08/23 14:50	05/09/23 22:03	1
Selenium	**0.0014**	**J**	0.0050	0.0010	mg/L		05/08/23 14:50	05/09/23 22:03	1
Thallium	ND		0.0010	0.00021	mg/L		05/08/23 14:50	05/09/23 22:03	1
Calcium	**0.21**	**B**	0.20	0.032	mg/L		05/08/23 14:50	05/11/23 02:08	1
Sodium	**0.61**	**J**	1.0	0.073	mg/L		05/08/23 14:50	05/11/23 20:05	1
Potassium	**0.10**	**J**	1.0	0.052	mg/L		05/08/23 14:50	05/09/23 22:03	1
Magnesium	**0.094**	**J**	0.20	0.0042	mg/L		05/08/23 14:50	05/11/23 20:05	1

Client Sample ID: W-18
Date Collected: 05/02/23 14:05
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.00077**	**J**	0.0020	0.00040	mg/L		05/08/23 14:50	05/09/23 22:04	1
Arsenic	**0.00092**	**J**	0.0050	0.00050	mg/L		05/08/23 14:50	05/09/23 22:04	1
Barium	**0.016**		0.0030	0.00038	mg/L		05/08/23 14:50	05/09/23 22:04	1
Beryllium	ND		0.0010	0.00030	mg/L		05/08/23 14:50	05/11/23 02:09	1
Cadmium	**0.00020**	**J B**	0.0010	0.00019	mg/L		05/08/23 14:50	05/09/23 22:04	1
Chromium	**0.0014**	**J**	0.0030	0.00050	mg/L		05/08/23 14:50	05/09/23 22:04	1
Cobalt	**0.0047**		0.0010	0.00033	mg/L		05/08/23 14:50	05/09/23 22:04	1
Lead	**0.00028**	**J**	0.0010	0.00023	mg/L		05/08/23 14:50	05/11/23 02:09	1
Molybdenum	**0.041**		0.0020	0.00037	mg/L		05/08/23 14:50	05/09/23 22:04	1
Selenium	**1.3**		0.0050	0.0010	mg/L		05/08/23 14:50	05/09/23 22:04	1
Thallium	ND		0.0010	0.00021	mg/L		05/08/23 14:50	05/09/23 22:04	1
Calcium	**450**	**B**	10	1.6	mg/L		05/08/23 14:50	05/10/23 18:57	50
Sodium	**2800**		50	3.7	mg/L		05/08/23 14:50	05/11/23 20:07	50
Potassium	**20**		1.0	0.052	mg/L		05/08/23 14:50	05/09/23 22:04	1
Magnesium	**1200**		10	0.21	mg/L		05/08/23 14:50	05/11/23 20:07	50

Client Sample ID: W-14
Date Collected: 05/03/23 10:40
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/08/23 14:50	05/09/23 22:06	1
Arsenic	ND		0.0050	0.00050	mg/L		05/08/23 14:50	05/09/23 22:06	1
Barium	**0.011**		0.0030	0.00038	mg/L		05/08/23 14:50	05/09/23 22:06	1
Beryllium	ND		0.0010	0.00030	mg/L		05/08/23 14:50	05/11/23 02:11	1
Cadmium	**0.0010**	**B**	0.0010	0.00019	mg/L		05/08/23 14:50	05/09/23 22:06	1
Chromium	**0.0025**	**J**	0.0030	0.00050	mg/L		05/08/23 14:50	05/09/23 22:06	1
Cobalt	**0.0098**		0.0010	0.00033	mg/L		05/08/23 14:50	05/09/23 22:06	1
Lead	ND		0.0010	0.00023	mg/L		05/08/23 14:50	05/11/23 02:11	1
Molybdenum	**0.014**		0.0020	0.00037	mg/L		05/08/23 14:50	05/09/23 22:06	1
Selenium	**0.93**		0.0050	0.0010	mg/L		05/08/23 14:50	05/09/23 22:06	1

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

Client Sample ID: W-14
Date Collected: 05/03/23 10:40
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	0.0017		0.0010	0.00021	mg/L		05/08/23 14:50	05/09/23 22:06	1
Calcium	420	B	10	1.6	mg/L		05/08/23 14:50	05/10/23 18:59	50
Sodium	5200		50	3.7	mg/L		05/08/23 14:50	05/11/23 20:09	50
Potassium	35		1.0	0.052	mg/L		05/08/23 14:50	05/09/23 22:06	1
Magnesium	1600		10	0.21	mg/L		05/08/23 14:50	05/11/23 20:09	50

Client Sample ID: W-17
Date Collected: 05/03/23 12:40
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0019	J	0.0020	0.00040	mg/L		05/08/23 14:50	05/09/23 22:08	1
Arsenic	0.0011	J	0.0050	0.00050	mg/L		05/08/23 14:50	05/09/23 22:08	1
Barium	0.018		0.0030	0.00038	mg/L		05/08/23 14:50	05/09/23 22:08	1
Beryllium	ND		0.0010	0.00030	mg/L		05/08/23 14:50	05/11/23 02:13	1
Cadmium	0.0027	B	0.0010	0.00019	mg/L		05/08/23 14:50	05/09/23 22:08	1
Chromium	0.0041		0.0030	0.00050	mg/L		05/08/23 14:50	05/09/23 22:08	1
Cobalt	0.0027		0.0010	0.00033	mg/L		05/08/23 14:50	05/09/23 22:08	1
Lead	0.00074	J	0.0010	0.00023	mg/L		05/08/23 14:50	05/11/23 02:13	1
Molybdenum	0.043		0.0020	0.00037	mg/L		05/08/23 14:50	05/09/23 22:08	1
Selenium	3.7		0.25	0.050	mg/L		05/08/23 14:50	05/11/23 20:11	50
Thallium	0.0029		0.0010	0.00021	mg/L		05/08/23 14:50	05/09/23 22:08	1
Calcium	500	B	10	1.6	mg/L		05/08/23 14:50	05/10/23 19:00	50
Sodium	940		50	3.7	mg/L		05/08/23 14:50	05/11/23 20:11	50
Potassium	17		1.0	0.052	mg/L		05/08/23 14:50	05/09/23 22:08	1
Magnesium	820		10	0.21	mg/L		05/08/23 14:50	05/11/23 20:11	50

Client Sample ID: W-6B1
Date Collected: 05/03/23 17:10
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00049	J	0.0020	0.00040	mg/L		05/08/23 14:50	05/09/23 22:10	1
Arsenic	0.0021	J	0.0050	0.00050	mg/L		05/08/23 14:50	05/09/23 22:10	1
Barium	0.024		0.0030	0.00038	mg/L		05/08/23 14:50	05/09/23 22:10	1
Beryllium	ND		0.0010	0.00030	mg/L		05/08/23 14:50	05/11/23 02:15	1
Cadmium	0.011	B	0.0010	0.00019	mg/L		05/08/23 14:50	05/09/23 22:10	1
Chromium	0.0029	J	0.0030	0.00050	mg/L		05/08/23 14:50	05/09/23 22:10	1
Cobalt	0.060		0.0010	0.00033	mg/L		05/08/23 14:50	05/09/23 22:10	1
Lead	0.0022		0.0010	0.00023	mg/L		05/08/23 14:50	05/11/23 02:15	1
Molybdenum	0.0034		0.0020	0.00037	mg/L		05/08/23 14:50	05/09/23 22:10	1
Selenium	0.0049	J	0.0050	0.0010	mg/L		05/08/23 14:50	05/09/23 22:10	1
Thallium	0.0012		0.0010	0.00021	mg/L		05/08/23 14:50	05/09/23 22:10	1
Calcium	440	B	10	1.6	mg/L		05/08/23 14:50	05/10/23 19:02	50
Sodium	11000		100	7.3	mg/L		05/08/23 14:50	05/11/23 20:13	100
Potassium	50		1.0	0.052	mg/L		05/08/23 14:50	05/09/23 22:10	1
Magnesium	4900		20	0.42	mg/L		05/08/23 14:50	05/11/23 20:13	100

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

Client Sample ID: W-7
Date Collected: 05/03/23 09:20
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/08/23 14:50	05/09/23 22:12	1
Arsenic	ND		0.0050	0.00050	mg/L		05/08/23 14:50	05/09/23 22:12	1
Barium	**0.013**		0.0030	0.00038	mg/L		05/08/23 14:50	05/09/23 22:12	1
Beryllium	ND		0.0010	0.00030	mg/L		05/08/23 14:50	05/11/23 02:16	1
Cadmium	**0.0057**	**B**	0.0010	0.00019	mg/L		05/08/23 14:50	05/09/23 22:12	1
Chromium	**0.0014**	**J**	0.0030	0.00050	mg/L		05/08/23 14:50	05/09/23 22:12	1
Cobalt	**0.020**		0.0010	0.00033	mg/L		05/08/23 14:50	05/09/23 22:12	1
Lead	**0.0014**		0.0010	0.00023	mg/L		05/08/23 14:50	05/11/23 02:16	1
Molybdenum	**0.0047**		0.0020	0.00037	mg/L		05/08/23 14:50	05/09/23 22:12	1
Selenium	**1.6**		0.0050	0.0010	mg/L		05/08/23 14:50	05/09/23 22:12	1
Thallium	**0.0049**		0.0010	0.00021	mg/L		05/08/23 14:50	05/09/23 22:12	1
Calcium	**430**	**B**	10	1.6	mg/L		05/08/23 14:50	05/10/23 19:04	50
Sodium	**7500**		50	3.7	mg/L		05/08/23 14:50	05/11/23 20:14	50
Potassium	**57**		1.0	0.052	mg/L		05/08/23 14:50	05/09/23 22:12	1
Magnesium	**7200**		10	0.21	mg/L		05/08/23 14:50	05/11/23 20:14	50

Client Sample ID: W-9
Date Collected: 05/03/23 11:40
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/08/23 14:50	05/09/23 22:13	1
Arsenic	ND		0.0050	0.00050	mg/L		05/08/23 14:50	05/09/23 22:13	1
Barium	**0.017**		0.0030	0.00038	mg/L		05/08/23 14:50	05/09/23 22:13	1
Beryllium	ND		0.0010	0.00030	mg/L		05/08/23 14:50	05/11/23 02:18	1
Cadmium	**0.00069**	**J B**	0.0010	0.00019	mg/L		05/08/23 14:50	05/09/23 22:13	1
Chromium	**0.0020**	**J**	0.0030	0.00050	mg/L		05/08/23 14:50	05/09/23 22:13	1
Cobalt	**0.0012**		0.0010	0.00033	mg/L		05/08/23 14:50	05/09/23 22:13	1
Lead	ND		0.0010	0.00023	mg/L		05/08/23 14:50	05/11/23 02:18	1
Molybdenum	**0.0025**		0.0020	0.00037	mg/L		05/08/23 14:50	05/09/23 22:13	1
Selenium	**0.0030**	**J**	0.0050	0.0010	mg/L		05/08/23 14:50	05/09/23 22:13	1
Thallium	**0.00024**	**J**	0.0010	0.00021	mg/L		05/08/23 14:50	05/09/23 22:13	1
Calcium	**420**	**B**	10	1.6	mg/L		05/08/23 14:50	05/10/23 19:06	50
Sodium	**2900**		50	3.7	mg/L		05/08/23 14:50	05/11/23 20:16	50
Potassium	**22**		1.0	0.052	mg/L		05/08/23 14:50	05/09/23 22:13	1
Magnesium	**1400**		10	0.21	mg/L		05/08/23 14:50	05/11/23 20:16	50

Client Sample ID: W-11
Date Collected: 05/03/23 16:35
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.00048**	**J**	0.0020	0.00040	mg/L		05/08/23 14:50	05/09/23 22:15	1
Arsenic	**0.0021**	**J**	0.0050	0.00050	mg/L		05/08/23 14:50	05/09/23 22:15	1
Barium	**0.024**		0.0030	0.00038	mg/L		05/08/23 14:50	05/09/23 22:15	1
Beryllium	ND		0.0010	0.00030	mg/L		05/08/23 14:50	05/11/23 02:20	1
Cadmium	**0.0017**	**B**	0.0010	0.00019	mg/L		05/08/23 14:50	05/09/23 22:15	1
Chromium	**0.0033**		0.0030	0.00050	mg/L		05/08/23 14:50	05/09/23 22:15	1
Cobalt	**0.019**		0.0010	0.00033	mg/L		05/08/23 14:50	05/09/23 22:15	1
Lead	**0.0027**		0.0010	0.00023	mg/L		05/08/23 14:50	05/11/23 02:20	1
Molybdenum	**0.0046**		0.0020	0.00037	mg/L		05/08/23 14:50	05/09/23 22:15	1
Selenium	**2.6**		0.0050	0.0010	mg/L		05/08/23 14:50	05/09/23 22:15	1

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

Client Sample ID: W-11
Date Collected: 05/03/23 16:35
Date Received: 05/04/23 11:25

Lab Sample ID: 280-176013-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	0.0038		0.0010	0.00021	mg/L		05/08/23 14:50	05/09/23 22:15	1
Calcium	420	B	10	1.6	mg/L		05/08/23 14:50	05/10/23 19:08	50
Sodium	3800		50	3.7	mg/L		05/08/23 14:50	05/11/23 20:18	50
Potassium	45		1.0	0.052	mg/L		05/08/23 14:50	05/09/23 22:15	1
Magnesium	1600		10	0.21	mg/L		05/08/23 14:50	05/11/23 20:18	50

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

Client Sample ID: W-6B1
Date Collected: 05/03/23 17:10
Date Received: 05/04/23 11:25

Lab Sample ID: 280-176013-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00084	J	0.0020	0.00040	mg/L		05/11/23 14:30	05/13/23 03:07	1
Arsenic	0.00062	J	0.0050	0.00050	mg/L		05/11/23 14:30	05/13/23 03:07	1
Barium	0.021		0.0030	0.00038	mg/L		05/11/23 14:30	05/13/23 03:07	1
Beryllium	ND		0.0010	0.00030	mg/L		05/11/23 14:30	05/13/23 03:07	1
Cadmium	0.0052		0.0010	0.00019	mg/L		05/11/23 14:30	05/13/23 03:07	1
Chromium	0.00058	J	0.0030	0.00050	mg/L		05/11/23 14:30	05/13/23 03:07	1
Cobalt	0.053		0.0010	0.00033	mg/L		05/11/23 14:30	05/13/23 03:07	1
Lead	ND		0.0010	0.00023	mg/L		05/11/23 14:30	05/13/23 03:07	1
Magnesium	4800		10	0.21	mg/L		05/11/23 14:30	05/12/23 22:58	50
Molybdenum	0.0041		0.0020	0.00037	mg/L		05/11/23 14:30	05/13/23 03:07	1
Potassium	50		1.0	0.052	mg/L		05/11/23 14:30	05/13/23 03:07	1
Selenium	0.0023	J	0.0050	0.0010	mg/L		05/11/23 14:30	05/13/23 03:07	1
Sodium	11000		100	7.3	mg/L		05/11/23 14:30	05/12/23 23:00	100
Thallium	0.00087	J	0.0010	0.00021	mg/L		05/11/23 14:30	05/13/23 03:07	1
Calcium	480		10	1.6	mg/L		05/11/23 14:30	05/12/23 22:58	50

Client Sample ID: W-11
Date Collected: 05/03/23 16:35
Date Received: 05/04/23 11:25

Lab Sample ID: 280-176013-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/11/23 14:30	05/13/23 03:11	1
Arsenic	ND		0.0050	0.00050	mg/L		05/11/23 14:30	05/13/23 03:11	1
Barium	0.013		0.0030	0.00038	mg/L		05/11/23 14:30	05/13/23 03:11	1
Beryllium	ND		0.0010	0.00030	mg/L		05/11/23 14:30	05/13/23 03:11	1
Cadmium	0.0013		0.0010	0.00019	mg/L		05/11/23 14:30	05/13/23 03:11	1
Chromium	0.00069	J	0.0030	0.00050	mg/L		05/11/23 14:30	05/13/23 03:11	1
Cobalt	0.019		0.0010	0.00033	mg/L		05/11/23 14:30	05/13/23 03:11	1
Lead	ND		0.0010	0.00023	mg/L		05/11/23 14:30	05/13/23 03:11	1
Magnesium	1600		10	0.21	mg/L		05/11/23 14:30	05/12/23 23:05	50
Molybdenum	0.0038		0.0020	0.00037	mg/L		05/11/23 14:30	05/13/23 03:11	1
Potassium	42		1.0	0.052	mg/L		05/11/23 14:30	05/13/23 03:11	1
Selenium	2.7		0.25	0.050	mg/L		05/11/23 14:30	05/12/23 23:05	50
Sodium	3700		50	3.7	mg/L		05/11/23 14:30	05/12/23 23:05	50
Thallium	0.0038		0.0010	0.00021	mg/L		05/11/23 14:30	05/13/23 03:11	1
Calcium	440		10	1.6	mg/L		05/11/23 14:30	05/12/23 23:05	50

Method: SW846 7470A - Mercury (CVAA)

Client Sample ID: W-2C
Date Collected: 05/01/23 16:25
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/15/23 14:30	05/15/23 19:37	1

Client Sample ID: W-3B
Date Collected: 05/02/23 10:35
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/15/23 14:30	05/15/23 19:40	1

Client Sample ID: WT-3B
Date Collected: 05/02/23 10:55
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/15/23 14:30	05/15/23 19:47	1

Client Sample ID: W-5B
Date Collected: 05/02/23 13:25
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/15/23 14:30	05/15/23 19:50	1

Client Sample ID: W-10B
Date Collected: 05/02/23 10:15
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/15/23 14:30	05/15/23 19:53	1

Client Sample ID: WK-10B
Date Collected: 05/02/23 15:20
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/15/23 14:30	05/15/23 19:55	1

Client Sample ID: W-18
Date Collected: 05/02/23 14:05
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/15/23 14:30	05/15/23 19:58	1

Client Sample ID: W-14
Date Collected: 05/03/23 10:40
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/15/23 14:30	05/15/23 20:00	1

Client Sample ID: W-17
Date Collected: 05/03/23 12:40
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/15/23 14:30	05/15/23 20:03	1

Method: SW846 7470A - Mercury (CVAA)

Client Sample ID: W-6B1
Date Collected: 05/03/23 17:10
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/15/23 14:30	05/15/23 20:05	1

Client Sample ID: W-7
Date Collected: 05/03/23 09:20
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/15/23 14:30	05/15/23 20:08	1

Client Sample ID: W-9
Date Collected: 05/03/23 11:40
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/15/23 14:30	05/15/23 22:27	1

Client Sample ID: W-11
Date Collected: 05/03/23 16:35
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/15/23 14:30	05/15/23 22:30	1

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

Client Sample ID: W-6B1
Date Collected: 05/03/23 17:10
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/12/23 14:29	05/12/23 19:32	1

Client Sample ID: W-11
Date Collected: 05/03/23 16:35
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/12/23 14:29	05/12/23 19:44	1

General Chemistry

Client Sample ID: W-2C
Date Collected: 05/01/23 16:25
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-1
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			05/11/23 14:31	1
Temperature (SW846 9040B)	**20.7**	**HF**	1.0	1.0	Degrees C			05/11/23 14:31	1
Chloride (SW846 9056A)	**960**		60	20	mg/L			05/17/23 07:02	20
Fluoride (SW846 9056A)	**0.95**	**J**	1.0	0.33	mg/L			05/17/23 06:50	2
Sulfate (SW846 9056A)	**1600**		100	21	mg/L			05/17/23 07:02	20
Alkalinity (SM 2320B)	**590**	**B**	10	3.1	mg/L			05/08/23 23:27	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**590**		10	3.1	mg/L			05/08/23 23:27	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			05/08/23 23:27	1
Total Dissolved Solids (TDS) (SM 2540C)	**46000**		1000	470	mg/L			05/05/23 15:17	1

General Chemistry (Continued)

Client Sample ID: W-2C
Date Collected: 05/01/23 16:25
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	38		4.0	1.1	mg/L			05/08/23 19:01	1

Client Sample ID: W-3B
Date Collected: 05/02/23 10:35
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-2
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			05/11/23 14:34	1
Temperature (SW846 9040B)	21.0	HF	1.0	1.0	Degrees C			05/11/23 14:34	1
Chloride (SW846 9056A)	1100		150	51	mg/L			05/17/23 07:26	50
Fluoride (SW846 9056A)	ND		5.0	1.7	mg/L			05/18/23 02:17	10
Sulfate (SW846 9056A)	43000		2500	520	mg/L			05/18/23 02:40	500
Alkalinity (SM 2320B)	900	B	10	3.1	mg/L			05/08/23 23:38	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	900		10	3.1	mg/L			05/08/23 23:38	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			05/08/23 23:38	1
Total Dissolved Solids (TDS) (SM 2540C)	61000		1000	470	mg/L			05/05/23 15:17	1
Total Suspended Solids (SM 2540D)	36		4.0	1.1	mg/L			05/09/23 17:44	1

Client Sample ID: WT-3B
Date Collected: 05/02/23 10:55
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-3
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			05/11/23 14:38	1
Temperature (SW846 9040B)	22.0	HF	1.0	1.0	Degrees C			05/11/23 14:38	1
Chloride (SW846 9056A)	1100		150	51	mg/L			05/17/23 07:49	50
Fluoride (SW846 9056A)	ND		5.0	1.7	mg/L			05/18/23 03:04	10
Sulfate (SW846 9056A)	45000		2500	520	mg/L			05/18/23 03:28	500
Alkalinity (SM 2320B)	910	B	10	3.1	mg/L			05/08/23 23:50	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	910		10	3.1	mg/L			05/08/23 23:50	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			05/08/23 23:50	1
Total Dissolved Solids (TDS) (SM 2540C)	54000		1000	470	mg/L			05/08/23 16:47	1
Total Suspended Solids (SM 2540D)	20		4.0	1.1	mg/L			05/09/23 17:44	1

Client Sample ID: W-5B
Date Collected: 05/02/23 13:25
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-4
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			05/11/23 14:42	1
Temperature (SW846 9040B)	21.7	HF	1.0	1.0	Degrees C			05/11/23 14:42	1
Chloride (SW846 9056A)	120		6.0	2.0	mg/L			05/17/23 08:01	2
Fluoride (SW846 9056A)	0.30	J	0.50	0.17	mg/L			05/16/23 03:22	1
Sulfate (SW846 9056A)	4100		250	52	mg/L			05/17/23 08:13	50
Alkalinity (SM 2320B)	210	B	10	3.1	mg/L			05/08/23 23:56	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	210		10	3.1	mg/L			05/08/23 23:56	1

General Chemistry (Continued)

Client Sample ID: W-5B
Date Collected: 05/02/23 13:25
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-4
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			05/08/23 23:56	1
Total Dissolved Solids (TDS) (SM 2540C)	**4600**		40	19	mg/L			05/08/23 16:47	1
Total Suspended Solids (SM 2540D)	**3.2**	**J**	4.0	1.1	mg/L			05/09/23 17:44	1

Client Sample ID: W-10B
Date Collected: 05/02/23 10:15
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-5
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			05/11/23 14:46	1
Temperature (SW846 9040B)	**21.2**	**HF**	1.0	1.0	Degrees C			05/11/23 14:46	1
Chloride (SW846 9056A)	**1100**		150	51	mg/L			05/17/23 09:01	50
Fluoride (SW846 9056A)	ND		5.0	1.7	mg/L			05/18/23 03:52	10
Sulfate (SW846 9056A)	**50000**		5000	1000	mg/L			05/18/23 04:52	1000
Alkalinity (SM 2320B)	**990**		10	3.1	mg/L			05/09/23 00:37	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**990**		10	3.1	mg/L			05/09/23 00:37	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			05/09/23 00:37	1
Total Dissolved Solids (TDS) (SM 2540C)	**76000**		1000	470	mg/L			05/08/23 16:47	1
Total Suspended Solids (SM 2540D)	**20**		4.0	1.1	mg/L			05/09/23 17:44	1

Client Sample ID: WK-10B
Date Collected: 05/02/23 15:20
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C (SW846 9040B)	**8.7**	**HF**	0.1	0.1	SU			05/15/23 18:11	1
Temperature (SW846 9040B)	**19.4**	**HF**	1.0	1.0	Degrees C			05/15/23 18:11	1
Chloride (SW846 9056A)	ND		3.0	1.0	mg/L			05/16/23 03:45	1
Fluoride (SW846 9056A)	**0.30**	**J**	0.50	0.17	mg/L			05/16/23 03:45	1
Sulfate (SW846 9056A)	ND	F1	5.0	1.0	mg/L			05/17/23 09:13	1
Alkalinity (SM 2320B)	**3.8**	**J**	10	3.1	mg/L			05/09/23 00:56	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**3.8**	**J**	10	3.1	mg/L			05/09/23 00:56	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			05/09/23 00:56	1
Total Dissolved Solids (TDS) (SM 2540C)	ND		10	4.7	mg/L			05/08/23 16:47	1
Total Suspended Solids (SM 2540D)	ND		4.0	1.1	mg/L			05/09/23 17:44	1

Client Sample ID: W-18
Date Collected: 05/02/23 14:05
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-7
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			05/11/23 14:56	1
Temperature (SW846 9040B)	**20.7**	**HF**	1.0	1.0	Degrees C			05/11/23 14:56	1
Chloride (SW846 9056A)	**290**		30	10	mg/L			05/17/23 10:01	10
Fluoride (SW846 9056A)	**0.28**	**J**	0.50	0.17	mg/L			05/16/23 03:57	1
Sulfate (SW846 9056A)	**780**		50	10	mg/L			05/17/23 10:01	10

General Chemistry (Continued)

Client Sample ID: W-18
Date Collected: 05/02/23 14:05
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity (SM 2320B)	600		10	3.1	mg/L			05/09/23 01:05	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	600		10	3.1	mg/L			05/09/23 01:05	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			05/09/23 01:05	1
Total Dissolved Solids (TDS) (SM 2540C)	7200		1000	470	mg/L			05/08/23 16:47	1
Total Suspended Solids (SM 2540D)	11		4.0	1.1	mg/L			05/09/23 17:44	1

Client Sample ID: W-14
Date Collected: 05/03/23 10:40
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-8
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			05/11/23 15:20	1
Temperature (SW846 9040B)	21.8	HF	1.0	1.0	Degrees C			05/11/23 15:20	1
Chloride (SW846 9056A)	600		30	10	mg/L			05/17/23 10:13	10
Fluoride (SW846 9056A)	4.3		0.50	0.17	mg/L			05/16/23 04:09	1
Sulfate (SW846 9056A)	820		50	10	mg/L			05/17/23 10:13	10
Alkalinity (SM 2320B)	1100		10	3.1	mg/L			05/09/23 01:18	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	1100		10	3.1	mg/L			05/09/23 01:18	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			05/09/23 01:18	1
Total Dissolved Solids (TDS) (SM 2540C)	22000		1000	470	mg/L			05/09/23 15:08	1
Total Suspended Solids (SM 2540D)	4.8		4.0	1.1	mg/L			05/09/23 17:44	1

Client Sample ID: W-17
Date Collected: 05/03/23 12:40
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-9
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			05/11/23 15:27	1
Temperature (SW846 9040B)	21.0	HF	1.0	1.0	Degrees C			05/11/23 15:27	1
Chloride (SW846 9056A)	82		3.0	1.0	mg/L			05/16/23 04:21	1
Fluoride (SW846 9056A)	0.33	J	0.50	0.17	mg/L			05/16/23 04:21	1
Sulfate (SW846 9056A)	520		50	10	mg/L			05/17/23 10:24	10
Alkalinity (SM 2320B)	670		10	3.1	mg/L			05/09/23 01:28	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	670		10	3.1	mg/L			05/09/23 01:28	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			05/09/23 01:28	1
Total Dissolved Solids (TDS) (SM 2540C)	6700		100	47	mg/L			05/09/23 15:08	1
Total Suspended Solids (SM 2540D)	12		4.0	1.1	mg/L			05/09/23 17:44	1

Client Sample ID: W-6B1
Date Collected: 05/03/23 17:10
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-10
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			05/11/23 15:31	1

General Chemistry (Continued)

Client Sample ID: W-6B1
Date Collected: 05/03/23 17:10
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Temperature (SW846 9040B)	20.8	HF	1.0	1.0	Degrees C			05/11/23 15:31	1
Chloride (SW846 9056A)	1100		60	20	mg/L			05/15/23 16:40	20
Fluoride (SW846 9056A)	ND		0.50	0.17	mg/L			05/15/23 16:24	1
Sulfate (SW846 9056A)	45000		5000	1000	mg/L			05/15/23 16:56	1000
Alkalinity (SM 2320B)	940		10	3.1	mg/L			05/09/23 01:39	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	940		10	3.1	mg/L			05/09/23 01:39	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			05/09/23 01:39	1
Total Dissolved Solids (TDS) (SM 2540C)	66000		1000	470	mg/L			05/09/23 15:08	1
Total Suspended Solids (SM 2540D)	270		4.0	1.1	mg/L			05/09/23 17:44	1

Client Sample ID: W-7
Date Collected: 05/03/23 09:20
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-11
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			05/11/23 15:33	1
Temperature (SW846 9040B)	20.2	HF	1.0	1.0	Degrees C			05/11/23 15:33	1
Chloride (SW846 9056A)	740		60	20	mg/L			05/15/23 17:28	20
Fluoride (SW846 9056A)	ND		0.50	0.17	mg/L			05/15/23 17:12	1
Sulfate (SW846 9056A)	44000		5000	1000	mg/L			05/15/23 17:44	1000
Alkalinity (SM 2320B)	1000		10	3.1	mg/L			05/09/23 01:52	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	1000		10	3.1	mg/L			05/09/23 01:52	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			05/09/23 01:52	1
Total Dissolved Solids (TDS) (SM 2540C)	64000		1000	470	mg/L			05/09/23 15:08	1
Total Suspended Solids (SM 2540D)	19		4.0	1.1	mg/L			05/09/23 17:44	1

Client Sample ID: W-9
Date Collected: 05/03/23 11:40
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-12
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			05/11/23 15:37	1
Temperature (SW846 9040B)	20.8	HF	1.0	1.0	Degrees C			05/11/23 15:37	1
Chloride (SW846 9056A)	370		15	5.1	mg/L			05/15/23 18:16	5
Fluoride (SW846 9056A)	0.59		0.50	0.17	mg/L			05/15/23 18:00	1
Sulfate (SW846 9056A)	12000		1000	210	mg/L			05/15/23 18:32	200
Alkalinity (SM 2320B)	680		10	3.1	mg/L			05/09/23 02:02	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	680		10	3.1	mg/L			05/09/23 02:02	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			05/09/23 02:02	1
Total Dissolved Solids (TDS) (SM 2540C)	14000		1000	470	mg/L			05/09/23 15:08	1
Total Suspended Solids (SM 2540D)	4.4		4.0	1.1	mg/L			05/09/23 17:44	1

General Chemistry

Client Sample ID: W-11
Date Collected: 05/03/23 16:35
Date Received: 05/04/23 11:25

Lab Sample ID: 280-176013-13
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			05/11/23 15:41	1
Temperature (SW846 9040B)	**21.0**	**HF**	1.0	1.0	Degrees C			05/11/23 15:41	1
Chloride (SW846 9056A)	**350**		15	5.1	mg/L			05/15/23 19:36	5
Fluoride (SW846 9056A)	**0.60**		0.50	0.17	mg/L			05/15/23 18:48	1
Sulfate (SW846 9056A)	**12000**		1000	210	mg/L			05/15/23 19:52	200
Alkalinity (SM 2320B)	**1100**		10	3.1	mg/L			05/09/23 02:14	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**1100**		10	3.1	mg/L			05/09/23 02:14	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			05/09/23 02:14	1
Total Dissolved Solids (TDS) (SM 2540C)	**20000**		1000	470	mg/L			05/09/23 15:08	1
Total Suspended Solids (SM 2540D)	**120**		4.0	1.1	mg/L			05/09/23 17:44	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-611306/1-A
Matrix: Water
Analysis Batch: 612224
Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 611306

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.0015	mg/L		05/08/23 14:50	05/11/23 17:42	1

Lab Sample ID: MB 280-611306/1-A
Matrix: Water
Analysis Batch: 612417
Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 611306

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.020	0.0091	mg/L		05/08/23 14:50	05/12/23 18:18	1

Lab Sample ID: LCS 280-611306/2-A
Matrix: Water
Analysis Batch: 612224
Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 611306

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	2.09		mg/L		104	86 - 110

Lab Sample ID: LCS 280-611306/2-A
Matrix: Water
Analysis Batch: 612417
Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 611306

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Lithium	1.00	0.958		mg/L		96	90 - 112

Lab Sample ID: 280-176013-1 MS
Matrix: Water
Analysis Batch: 612224
Client Sample ID: W-2C
Prep Type: Total Recoverable
Prep Batch: 611306

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	1.5		2.00	3.70		mg/L		112	87 - 113

Lab Sample ID: 280-176013-1 MS
Matrix: Water
Analysis Batch: 612417
Client Sample ID: W-2C
Prep Type: Total Recoverable
Prep Batch: 611306

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Lithium	3.6	F1	1.00	4.86	F1	mg/L		121	89 - 114

Lab Sample ID: 280-176013-1 MSD
Matrix: Water
Analysis Batch: 612224
Client Sample ID: W-2C
Prep Type: Total Recoverable
Prep Batch: 611306

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	1.5		2.00	3.67		mg/L		111	87 - 113	1	20

Lab Sample ID: 280-176013-1 MSD
Matrix: Water
Analysis Batch: 612417
Client Sample ID: W-2C
Prep Type: Total Recoverable
Prep Batch: 611306

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Lithium	3.6	F1	1.00	4.86	F1	mg/L		121	89 - 114	0	20

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-612017/1-B
Matrix: Water
Analysis Batch: 612613

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 612059

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND	^+	0.020	0.0091	mg/L		05/11/23 14:30	05/15/23 13:27	1
Boron	ND		0.10	0.0015	mg/L		05/11/23 14:30	05/15/23 13:27	1

Lab Sample ID: LCS 280-612017/2-B
Matrix: Water
Analysis Batch: 612613

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 612059

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Lithium	1.00	0.978	^+	mg/L		98	90 - 112
Boron	2.00	2.05		mg/L		103	86 - 110

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-611306/1-A
Matrix: Water
Analysis Batch: 611882

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 611306

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/08/23 14:50	05/09/23 21:39	1
Arsenic	ND		0.0050	0.00050	mg/L		05/08/23 14:50	05/09/23 21:39	1
Barium	ND		0.0030	0.00038	mg/L		05/08/23 14:50	05/09/23 21:39	1
Cadmium	0.000241	J	0.0010	0.00019	mg/L		05/08/23 14:50	05/09/23 21:39	1
Chromium	ND		0.0030	0.00050	mg/L		05/08/23 14:50	05/09/23 21:39	1
Cobalt	ND		0.0010	0.00033	mg/L		05/08/23 14:50	05/09/23 21:39	1
Molybdenum	ND		0.0020	0.00037	mg/L		05/08/23 14:50	05/09/23 21:39	1
Selenium	ND		0.0050	0.0010	mg/L		05/08/23 14:50	05/09/23 21:39	1
Thallium	ND		0.0010	0.00021	mg/L		05/08/23 14:50	05/09/23 21:39	1
Potassium	ND		1.0	0.052	mg/L		05/08/23 14:50	05/09/23 21:39	1

Lab Sample ID: MB 280-611306/1-A
Matrix: Water
Analysis Batch: 612052

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 611306

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.0010	0.00030	mg/L		05/08/23 14:50	05/10/23 15:56	1
Lead	ND		0.0010	0.00023	mg/L		05/08/23 14:50	05/10/23 15:56	1
Calcium	0.0628	J	0.20	0.032	mg/L		05/08/23 14:50	05/10/23 15:56	1

Lab Sample ID: MB 280-611306/1-A
Matrix: Water
Analysis Batch: 612202

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 611306

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	ND		1.0	0.073	mg/L		05/08/23 14:50	05/11/23 19:38	1
Magnesium	ND		0.20	0.0042	mg/L		05/08/23 14:50	05/11/23 19:38	1

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

Lab Sample ID: LCS 280-611306/18-A
Matrix: Water
Analysis Batch: 611882

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 611306

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	0.0374		mg/L		93	85 - 117
Barium	0.0400	0.0388		mg/L		97	85 - 118
Cadmium	0.0400	0.0391		mg/L		98	85 - 115
Chromium	0.0400	0.0380		mg/L		95	84 - 121
Cobalt	0.0400	0.0375		mg/L		94	85 - 120
Molybdenum	0.0400	0.0384		mg/L		96	85 - 119
Selenium	0.0400	0.0383		mg/L		96	77 - 122
Thallium	0.0400	0.0378		mg/L		94	85 - 118
Potassium	1.00	0.802	J	mg/L		80	80 - 120

Lab Sample ID: LCS 280-611306/18-A
Matrix: Water
Analysis Batch: 612052

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 611306

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Beryllium	0.0400	0.0364		mg/L		91	80 - 125
Lead	0.0400	0.0387		mg/L		97	85 - 118
Calcium	1.00	0.986		mg/L		99	80 - 120

Lab Sample ID: LCS 280-611306/18-A
Matrix: Water
Analysis Batch: 612202

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 611306

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sodium	1.00	1.07		mg/L		107	80 - 120
Magnesium	1.00	0.989		mg/L		99	80 - 120

Lab Sample ID: 280-176013-1 MS
Matrix: Water
Analysis Batch: 611882

Client Sample ID: W-2C
Prep Type: Total Recoverable
Prep Batch: 611306

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	ND		0.0400	0.0414		mg/L		104	80 - 111
Arsenic	ND		0.0400	0.0399		mg/L		100	92 - 112
Barium	0.013		0.0400	0.0523		mg/L		98	92 - 117
Cadmium	0.0072	F1 B	0.0400	0.0458		mg/L		97	91 - 114
Chromium	0.0048		0.0400	0.0445		mg/L		99	91 - 114
Cobalt	0.0036	F1	0.0400	0.0405	F1	mg/L		92	94 - 115
Molybdenum	0.0026		0.0400	0.0446		mg/L		105	84 - 117
Selenium	2.3		0.0400	2.43	4	mg/L		200	90 - 115
Thallium	0.0045	F1	0.0400	0.0435		mg/L		98	94 - 115
Potassium	42		1.00	45.7	4	mg/L		340	80 - 120

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

Lab Sample ID: 280-176013-1 MS
Matrix: Water
Analysis Batch: 612052

Client Sample ID: W-2C
Prep Type: Total Recoverable
Prep Batch: 611306

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	470	B	1.00	435	4	mg/L		-3398	80 - 120

Lab Sample ID: 280-176013-1 MS
Matrix: Water
Analysis Batch: 612052

Client Sample ID: W-2C
Prep Type: Total Recoverable
Prep Batch: 611306

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Beryllium	ND		0.0400	0.0406		mg/L		102	87 - 118
Lead	0.00087	J F1	0.0400	0.0384	F1	mg/L		94	95 - 116

Lab Sample ID: 280-176013-1 MS
Matrix: Water
Analysis Batch: 612202

Client Sample ID: W-2C
Prep Type: Total Recoverable
Prep Batch: 611306

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Sodium	4400		1.00	4140	4	mg/L		-27096	80 - 120
Magnesium	6200		1.00	5820	4	mg/L		-38595	80 - 120

Lab Sample ID: 280-176013-1 MSD
Matrix: Water
Analysis Batch: 611882

Client Sample ID: W-2C
Prep Type: Total Recoverable
Prep Batch: 611306

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	ND		0.0400	0.0393		mg/L		98	80 - 111	5	20
Arsenic	ND		0.0400	0.0384		mg/L		96	92 - 112	4	20
Barium	0.013		0.0400	0.0514		mg/L		95	92 - 117	2	20
Cadmium	0.0072	F1 B	0.0400	0.0422	F1	mg/L		88	91 - 114	8	20
Chromium	0.0048		0.0400	0.0411		mg/L		91	91 - 114	8	20
Cobalt	0.0036	F1	0.0400	0.0378	F1	mg/L		86	94 - 115	7	20
Molybdenum	0.0026		0.0400	0.0424		mg/L		100	84 - 117	5	20
Selenium	2.3		0.0400	2.40	4	mg/L		117	90 - 115	1	20
Thallium	0.0045	F1	0.0400	0.0402	F1	mg/L		89	94 - 115	8	20
Potassium	42		1.00	43.2	4	mg/L		87	80 - 120	6	20

Lab Sample ID: 280-176013-1 MSD
Matrix: Water
Analysis Batch: 612052

Client Sample ID: W-2C
Prep Type: Total Recoverable
Prep Batch: 611306

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	470	B	1.00	440	4	mg/L		-2939	80 - 120	1	20

Lab Sample ID: 280-176013-1 MSD
Matrix: Water
Analysis Batch: 612052

Client Sample ID: W-2C
Prep Type: Total Recoverable
Prep Batch: 611306

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Beryllium	ND		0.0400	0.0406		mg/L		102	87 - 118	0	20
Lead	0.00087	J F1	0.0400	0.0396		mg/L		97	95 - 116	3	20

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

Lab Sample ID: 280-176013-1 MSD
Matrix: Water
Analysis Batch: 612202

Client Sample ID: W-2C
Prep Type: Total Recoverable
Prep Batch: 611306

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sodium	4400		1.00	4290	4	mg/L		-11886	80 - 120	4	20
Magnesium	6200		1.00	5950	4	mg/L		-25903	80 - 120	2	20

Lab Sample ID: MB 280-612017/1-B
Matrix: Water
Analysis Batch: 612407

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 612059

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/11/23 14:30	05/12/23 22:26	1
Arsenic	ND		0.0050	0.00050	mg/L		05/11/23 14:30	05/12/23 22:26	1
Barium	ND		0.0030	0.00038	mg/L		05/11/23 14:30	05/12/23 22:26	1
Beryllium	ND		0.0010	0.00030	mg/L		05/11/23 14:30	05/12/23 22:26	1
Cadmium	ND		0.0010	0.00019	mg/L		05/11/23 14:30	05/12/23 22:26	1
Chromium	ND		0.0030	0.00050	mg/L		05/11/23 14:30	05/12/23 22:26	1
Cobalt	ND		0.0010	0.00033	mg/L		05/11/23 14:30	05/12/23 22:26	1
Lead	ND		0.0010	0.00023	mg/L		05/11/23 14:30	05/12/23 22:26	1
Molybdenum	ND		0.0020	0.00037	mg/L		05/11/23 14:30	05/12/23 22:26	1
Selenium	ND		0.0050	0.0010	mg/L		05/11/23 14:30	05/12/23 22:26	1
Sodium	ND		1.0	0.073	mg/L		05/11/23 14:30	05/12/23 22:26	1
Thallium	ND		0.0010	0.00021	mg/L		05/11/23 14:30	05/12/23 22:26	1
Potassium	ND		1.0	0.052	mg/L		05/11/23 14:30	05/12/23 22:26	1
Calcium	ND		0.20	0.032	mg/L		05/11/23 14:30	05/12/23 22:26	1
Magnesium	ND		0.20	0.0042	mg/L		05/11/23 14:30	05/12/23 22:26	1

Lab Sample ID: LCS 280-612017/2-C
Matrix: Water
Analysis Batch: 612407

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 612059

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0413		mg/L		103	85 - 115
Arsenic	0.0400	0.0416		mg/L		104	85 - 117
Barium	0.0400	0.0406		mg/L		101	85 - 118
Beryllium	0.0400	0.0409		mg/L		102	80 - 125
Cadmium	0.0400	0.0412		mg/L		103	85 - 115
Chromium	0.0400	0.0422		mg/L		105	84 - 121
Cobalt	0.0400	0.0415		mg/L		104	85 - 120
Lead	0.0400	0.0394		mg/L		98	85 - 118
Molybdenum	0.0400	0.0407		mg/L		102	85 - 119
Selenium	0.0400	0.0411		mg/L		103	77 - 122
Sodium	1.00	0.970	J	mg/L		97	80 - 120
Thallium	0.0400	0.0389		mg/L		97	85 - 118
Potassium	1.00	0.922	J	mg/L		92	80 - 120
Calcium	1.00	1.06		mg/L		106	80 - 120
Magnesium	1.00	0.976		mg/L		98	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-612478/1-A
Matrix: Water
Analysis Batch: 612627
Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 612478

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/15/23 14:30	05/15/23 18:47	1

Lab Sample ID: LCS 280-612478/2-A
Matrix: Water
Analysis Batch: 612627
Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 612478

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00489		mg/L		98	84 - 120

Lab Sample ID: LCSD 280-612478/3-A
Matrix: Water
Analysis Batch: 612627
Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 612478

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	0.00500	0.00479		mg/L		96	84 - 120	2	15

Lab Sample ID: MB 280-612490/1-A
Matrix: Water
Analysis Batch: 612627
Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 612490

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/15/23 14:30	05/15/23 21:37	1

Lab Sample ID: LCS 280-612490/2-A
Matrix: Water
Analysis Batch: 612627
Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 612490

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00470		mg/L		94	84 - 120

Lab Sample ID: MB 280-611842/1-C
Matrix: Water
Analysis Batch: 612459
Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 612290

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/12/23 14:29	05/12/23 19:21	1

Lab Sample ID: LCS 280-611842/2-D
Matrix: Water
Analysis Batch: 612459
Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 612290

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: 280-176013-10 MS
Matrix: Water
Analysis Batch: 612459
Client Sample ID: W-6B1
Prep Type: Dissolved
Prep Batch: 612290

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		0.00500	0.00415		mg/L		83	75 - 125

Method: 7470A - Mercury (CVAA)

Lab Sample ID: 280-176013-10 MSD
Matrix: Water
Analysis Batch: 612459

Client Sample ID: W-6B1
Prep Type: Dissolved
Prep Batch: 612290

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		0.00500	0.00422		mg/L		84	75 - 125	2	20

Method: 9040B - pH

Lab Sample ID: LCS 280-612289/31
Matrix: Water
Analysis Batch: 612289

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 280-612289/5
Matrix: Water
Analysis Batch: 612289

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: 280-176013-8 DU
Matrix: Water
Analysis Batch: 612289

Client Sample ID: W-14
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		0.8	5
Temperature	21.8	HF	21.6		Degrees C		0.9	10

Lab Sample ID: LCS 280-612726/5
Matrix: Water
Analysis Batch: 612726

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 280-612529/6
Matrix: Water
Analysis Batch: 612529

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			05/15/23 22:13	1
Fluoride	ND		0.50	0.17	mg/L			05/15/23 22:13	1

Lab Sample ID: LCS 280-612529/4
Matrix: Water
Analysis Batch: 612529

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	50.9		mg/L		102	90 - 110
Fluoride	2.50	2.65		mg/L		106	90 - 110

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

Lab Sample ID: LCSD 280-612529/5
Matrix: Water
Analysis Batch: 612529

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	50.9		mg/L		102	90 - 110	0	10
Fluoride	2.50	2.64		mg/L		106	90 - 110	1	10

Lab Sample ID: MRL 280-612529/3
Matrix: Water
Analysis Batch: 612529

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	0.295	J	mg/L		118	50 - 150

Lab Sample ID: MB 280-612540/6
Matrix: Water
Analysis Batch: 612540

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			05/15/23 16:08	1
Fluoride	ND		0.50	0.17	mg/L			05/15/23 16:08	1
Sulfate	ND		5.0	1.0	mg/L			05/15/23 16:08	1

Lab Sample ID: LCS 280-612540/4
Matrix: Water
Analysis Batch: 612540

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	2.44		mg/L		98	90 - 110
Sulfate	50.0	47.9		mg/L		96	90 - 110

Lab Sample ID: LCSD 280-612540/5
Matrix: Water
Analysis Batch: 612540

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	2.44		mg/L		98	90 - 110	0	10
Sulfate	50.0	47.9		mg/L		96	90 - 110	0	10

Lab Sample ID: MRL 280-612540/3
Matrix: Water
Analysis Batch: 612540

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	2.37	J	mg/L		95	50 - 150
Fluoride	0.250	0.232	J	mg/L		93	50 - 150
Sulfate	2.50	2.02	J	mg/L		81	50 - 150

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

Lab Sample ID: MB 280-612676/50
Matrix: Water
Analysis Batch: 612676

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			05/17/23 05:38	1
Fluoride	ND		0.50	0.17	mg/L			05/17/23 05:38	1
Sulfate	ND		5.0	1.0	mg/L			05/17/23 05:38	1

Lab Sample ID: LCS 280-612676/48
Matrix: Water
Analysis Batch: 612676

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	50.1		mg/L		100	90 - 110
Fluoride	2.50	2.56		mg/L		102	90 - 110
Sulfate	50.0	50.9		mg/L		102	90 - 110

Lab Sample ID: LCSD 280-612676/49
Matrix: Water
Analysis Batch: 612676

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	50.1		mg/L		100	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	2	10

Lab Sample ID: MRL 280-612676/3
Matrix: Water
Analysis Batch: 612676

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	2.48	J	mg/L		99	50 - 150
Fluoride	0.250	0.275	J	mg/L		110	50 - 150
Sulfate	2.50	2.51	J	mg/L		100	50 - 150

Lab Sample ID: 280-176013-6 MS
Matrix: Water
Analysis Batch: 612676

Client Sample ID: WK-10B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	ND	F1	50.0	75.5	F1	mg/L		151	80 - 120
Fluoride	0.35	J F1	5.00	7.21	E F1	mg/L		137	80 - 120
Sulfate	ND	F1	50.0	73.0	F1	mg/L		146	80 - 120

Lab Sample ID: 280-176013-6 MSD
Matrix: Water
Analysis Batch: 612676

Client Sample ID: WK-10B
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	50.0	74.5	F1	mg/L		149	80 - 120	1	20
Fluoride	0.35	J F1	5.00	7.27	E F1	mg/L		139	80 - 120	1	20
Sulfate	ND	F1	50.0	72.1	F1	mg/L		144	80 - 120	1	20

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

Lab Sample ID: 280-176013-6 DU
Matrix: Water
Analysis Batch: 612676

Client Sample ID: WK-10B
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
Fluoride	0.35	J F1	0.346	J	mg/L		0.1	15
Sulfate	ND	F1	ND		mg/L		NC	15

Lab Sample ID: MB 280-612835/6
Matrix: Water
Analysis Batch: 612835

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			05/17/23 21:01	1
Sulfate	ND		5.0	1.0	mg/L			05/17/23 21:01	1

Lab Sample ID: LCS 280-612835/4
Matrix: Water
Analysis Batch: 612835

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	2.49		mg/L		100	90 - 110
Sulfate	50.0	49.7		mg/L		99	90 - 110

Lab Sample ID: LCSD 280-612835/5
Matrix: Water
Analysis Batch: 612835

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	2.48		mg/L		99	90 - 110	1	10
Sulfate	50.0	49.6		mg/L		99	90 - 110	0	10

Lab Sample ID: MRL 280-612835/3
Matrix: Water
Analysis Batch: 612835

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	0.209	J	mg/L		84	50 - 150
Sulfate	2.50	2.43	J	mg/L		97	50 - 150

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-611721/109
Matrix: Water
Analysis Batch: 611721

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			05/09/23 00:25	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/09/23 00:25	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/09/23 00:25	1

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: MB 280-611721/57
Matrix: Water
Analysis Batch: 611721

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	3.23	J	10	3.1	mg/L			05/08/23 17:59	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/08/23 17:59	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/08/23 17:59	1

Lab Sample ID: MB 280-611721/83
Matrix: Water
Analysis Batch: 611721

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	3.46	J	10	3.1	mg/L			05/08/23 21:23	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/08/23 21:23	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/08/23 21:23	1

Lab Sample ID: LCS 280-611721/108
Matrix: Water
Analysis Batch: 611721

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Alkalinity			200	200		mg/L		100	89 - 110		

Lab Sample ID: LCS 280-611721/82
Matrix: Water
Analysis Batch: 611721

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Alkalinity			200	196		mg/L		98	89 - 110		

Lab Sample ID: 280-176013-5 DU
Matrix: Water
Analysis Batch: 611721

Client Sample ID: W-10B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Alkalinity	990			1010		mg/L				1	10
Bicarbonate Alkalinity as CaCO3	990			1010		mg/L				1	20
Carbonate Alkalinity as CaCO3	ND			ND		mg/L				NC	20

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

Lab Sample ID: MB 280-611454/1
Matrix: Water
Analysis Batch: 611454

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			05/05/23 15:17	1

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

Lab Sample ID: LCS 280-611454/2
Matrix: Water
Analysis Batch: 611454

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	496		mg/L		98	88 - 114

Lab Sample ID: LCSD 280-611454/3
Matrix: Water
Analysis Batch: 611454

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	464		mg/L		92	88 - 114	7	20

Lab Sample ID: MB 280-611677/1
Matrix: Water
Analysis Batch: 611677

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			05/08/23 16:47	1

Lab Sample ID: LCS 280-611677/2
Matrix: Water
Analysis Batch: 611677

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	457		mg/L		91	88 - 114

Lab Sample ID: LCSD 280-611677/3
Matrix: Water
Analysis Batch: 611677

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	456		mg/L		91	88 - 114	0	20

Lab Sample ID: MB 280-611825/1
Matrix: Water
Analysis Batch: 611825

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			05/09/23 15:08	1

Lab Sample ID: LCS 280-611825/2
Matrix: Water
Analysis Batch: 611825

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	468		mg/L		93	88 - 114

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

Lab Sample ID: MB 280-611693/3
Matrix: Water
Analysis Batch: 611693

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			05/08/23 19:01	1

Lab Sample ID: LCS 280-611693/1
Matrix: Water
Analysis Batch: 611693

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	512		mg/L		102	79 - 114

Lab Sample ID: LCSD 280-611693/2
Matrix: Water
Analysis Batch: 611693

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	510		mg/L		102	79 - 114	0	20

Lab Sample ID: MB 280-611857/3
Matrix: Water
Analysis Batch: 611857

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			05/09/23 17:44	1

Lab Sample ID: LCS 280-611857/1
Matrix: Water
Analysis Batch: 611857

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	465		mg/L		93	79 - 114

Lab Sample ID: LCSD 280-611857/2
Matrix: Water
Analysis Batch: 611857

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	494		mg/L		99	79 - 114	6	20

Metals

Prep Batch: 611306

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176013-1	W-2C	Total Recoverable	Water	3005A	
280-176013-1	W-2C	Total Recoverable	Water	3005A	
280-176013-2	W-3B	Total Recoverable	Water	3005A	
280-176013-3	WT-3B	Total Recoverable	Water	3005A	
280-176013-4	W-5B	Total Recoverable	Water	3005A	
280-176013-5	W-10B	Total Recoverable	Water	3005A	
280-176013-6	WK-10B	Total Recoverable	Water	3005A	
280-176013-7	W-18	Total Recoverable	Water	3005A	
280-176013-8	W-14	Total Recoverable	Water	3005A	
280-176013-9	W-17	Total Recoverable	Water	3005A	
280-176013-10	W-6B1	Total Recoverable	Water	3005A	
280-176013-11	W-7	Total Recoverable	Water	3005A	
280-176013-12	W-9	Total Recoverable	Water	3005A	
280-176013-13	W-11	Total Recoverable	Water	3005A	
MB 280-611306/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-611306/18-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 280-611306/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-176013-1 MS	W-2C	Total Recoverable	Water	3005A	
280-176013-1 MS	W-2C	Total Recoverable	Water	3005A	
280-176013-1 MSD	W-2C	Total Recoverable	Water	3005A	
280-176013-1 MSD	W-2C	Total Recoverable	Water	3005A	

Filtration Batch: 611842

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-611842/1-C	Method Blank	Dissolved	Water	FILTRATION	
LCS 280-611842/2-D	Lab Control Sample	Dissolved	Water	FILTRATION	

Analysis Batch: 611882

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176013-1	W-2C	Total Recoverable	Water	6020B	611306
280-176013-2	W-3B	Total Recoverable	Water	6020B	611306
280-176013-3	WT-3B	Total Recoverable	Water	6020B	611306
280-176013-4	W-5B	Total Recoverable	Water	6020B	611306
280-176013-5	W-10B	Total Recoverable	Water	6020B	611306
280-176013-6	WK-10B	Total Recoverable	Water	6020B	611306
280-176013-7	W-18	Total Recoverable	Water	6020B	611306
280-176013-8	W-14	Total Recoverable	Water	6020B	611306
280-176013-9	W-17	Total Recoverable	Water	6020B	611306
280-176013-10	W-6B1	Total Recoverable	Water	6020B	611306
280-176013-11	W-7	Total Recoverable	Water	6020B	611306
280-176013-12	W-9	Total Recoverable	Water	6020B	611306
280-176013-13	W-11	Total Recoverable	Water	6020B	611306
MB 280-611306/1-A	Method Blank	Total Recoverable	Water	6020B	611306
LCS 280-611306/18-A	Lab Control Sample	Total Recoverable	Water	6020B	611306
280-176013-1 MS	W-2C	Total Recoverable	Water	6020B	611306
280-176013-1 MSD	W-2C	Total Recoverable	Water	6020B	611306

Filtration Batch: 612017

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176013-10	W-6B1	Dissolved	Water	FILTRATION	
280-176013-13	W-11	Dissolved	Water	FILTRATION	

Metals (Continued)

Filtration Batch: 612017 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-612017/1-B	Method Blank	Dissolved	Water	FILTRATION	
LCS 280-612017/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 280-612017/2-C	Lab Control Sample	Dissolved	Water	FILTRATION	
280-176013-10 MS	W-6B1	Dissolved	Water	FILTRATION	
280-176013-10 MSD	W-6B1	Dissolved	Water	FILTRATION	

Analysis Batch: 612052

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176013-1	W-2C	Total Recoverable	Water	6020B	611306
280-176013-1	W-2C	Total Recoverable	Water	6020B	611306
280-176013-2	W-3B	Total Recoverable	Water	6020B	611306
280-176013-2	W-3B	Total Recoverable	Water	6020B	611306
280-176013-3	WT-3B	Total Recoverable	Water	6020B	611306
280-176013-3	WT-3B	Total Recoverable	Water	6020B	611306
280-176013-4	W-5B	Total Recoverable	Water	6020B	611306
280-176013-4	W-5B	Total Recoverable	Water	6020B	611306
280-176013-5	W-10B	Total Recoverable	Water	6020B	611306
280-176013-5	W-10B	Total Recoverable	Water	6020B	611306
280-176013-6	WK-10B	Total Recoverable	Water	6020B	611306
280-176013-7	W-18	Total Recoverable	Water	6020B	611306
280-176013-7	W-18	Total Recoverable	Water	6020B	611306
280-176013-8	W-14	Total Recoverable	Water	6020B	611306
280-176013-8	W-14	Total Recoverable	Water	6020B	611306
280-176013-9	W-17	Total Recoverable	Water	6020B	611306
280-176013-9	W-17	Total Recoverable	Water	6020B	611306
280-176013-10	W-6B1	Total Recoverable	Water	6020B	611306
280-176013-10	W-6B1	Total Recoverable	Water	6020B	611306
280-176013-11	W-7	Total Recoverable	Water	6020B	611306
280-176013-11	W-7	Total Recoverable	Water	6020B	611306
280-176013-12	W-9	Total Recoverable	Water	6020B	611306
280-176013-12	W-9	Total Recoverable	Water	6020B	611306
280-176013-13	W-11	Total Recoverable	Water	6020B	611306
280-176013-13	W-11	Total Recoverable	Water	6020B	611306
MB 280-611306/1-A	Method Blank	Total Recoverable	Water	6020B	611306
LCS 280-611306/18-A	Lab Control Sample	Total Recoverable	Water	6020B	611306
280-176013-1 MS	W-2C	Total Recoverable	Water	6020B	611306
280-176013-1 MS	W-2C	Total Recoverable	Water	6020B	611306
280-176013-1 MSD	W-2C	Total Recoverable	Water	6020B	611306
280-176013-1 MSD	W-2C	Total Recoverable	Water	6020B	611306

Prep Batch: 612059

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176013-10	W-6B1	Dissolved	Water	3005A	612017
280-176013-13	W-11	Dissolved	Water	3005A	612017
MB 280-612017/1-B	Method Blank	Dissolved	Water	3005A	612017
LCS 280-612017/2-B	Lab Control Sample	Dissolved	Water	3005A	612017
LCS 280-612017/2-C	Lab Control Sample	Dissolved	Water	3005A	612017

Analysis Batch: 612202

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176013-1	W-2C	Total Recoverable	Water	6020B	611306

Metals (Continued)

Analysis Batch: 612202 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176013-2	W-3B	Total Recoverable	Water	6020B	611306
280-176013-3	WT-3B	Total Recoverable	Water	6020B	611306
280-176013-4	W-5B	Total Recoverable	Water	6020B	611306
280-176013-5	W-10B	Total Recoverable	Water	6020B	611306
280-176013-6	WK-10B	Total Recoverable	Water	6020B	611306
280-176013-7	W-18	Total Recoverable	Water	6020B	611306
280-176013-8	W-14	Total Recoverable	Water	6020B	611306
280-176013-9	W-17	Total Recoverable	Water	6020B	611306
280-176013-10	W-6B1	Total Recoverable	Water	6020B	611306
280-176013-11	W-7	Total Recoverable	Water	6020B	611306
280-176013-12	W-9	Total Recoverable	Water	6020B	611306
280-176013-13	W-11	Total Recoverable	Water	6020B	611306
MB 280-611306/1-A	Method Blank	Total Recoverable	Water	6020B	611306
LCS 280-611306/18-A	Lab Control Sample	Total Recoverable	Water	6020B	611306
280-176013-1 MS	W-2C	Total Recoverable	Water	6020B	611306
280-176013-1 MSD	W-2C	Total Recoverable	Water	6020B	611306

Analysis Batch: 612224

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176013-1	W-2C	Total Recoverable	Water	6010C	611306
280-176013-4	W-5B	Total Recoverable	Water	6010C	611306
280-176013-6	WK-10B	Total Recoverable	Water	6010C	611306
280-176013-7	W-18	Total Recoverable	Water	6010C	611306
280-176013-8	W-14	Total Recoverable	Water	6010C	611306
280-176013-9	W-17	Total Recoverable	Water	6010C	611306
280-176013-11	W-7	Total Recoverable	Water	6010C	611306
280-176013-12	W-9	Total Recoverable	Water	6010C	611306
280-176013-13	W-11	Total Recoverable	Water	6010C	611306
MB 280-611306/1-A	Method Blank	Total Recoverable	Water	6010C	611306
LCS 280-611306/2-A	Lab Control Sample	Total Recoverable	Water	6010C	611306
280-176013-1 MS	W-2C	Total Recoverable	Water	6010C	611306
280-176013-1 MSD	W-2C	Total Recoverable	Water	6010C	611306

Prep Batch: 612290

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176013-10	W-6B1	Dissolved	Water	7470A	612017
280-176013-13	W-11	Dissolved	Water	7470A	612017
MB 280-611842/1-C	Method Blank	Dissolved	Water	7470A	611842
LCS 280-611842/2-D	Lab Control Sample	Dissolved	Water	7470A	611842
280-176013-10 MS	W-6B1	Dissolved	Water	7470A	612017
280-176013-10 MSD	W-6B1	Dissolved	Water	7470A	612017

Analysis Batch: 612407

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176013-2	W-3B	Total Recoverable	Water	6020B	611306
280-176013-3	WT-3B	Total Recoverable	Water	6020B	611306
280-176013-5	W-10B	Total Recoverable	Water	6020B	611306
280-176013-10	W-6B1	Dissolved	Water	6020B	612059
280-176013-10	W-6B1	Dissolved	Water	6020B	612059
280-176013-10	W-6B1	Dissolved	Water	6020B	612059
280-176013-13	W-11	Dissolved	Water	6020B	612059

Metals (Continued)

Analysis Batch: 612407 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176013-13	W-11	Dissolved	Water	6020B	612059
MB 280-612017/1-B	Method Blank	Dissolved	Water	6020B	612059
LCS 280-612017/2-C	Lab Control Sample	Dissolved	Water	6020B	612059

Analysis Batch: 612417

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176013-1	W-2C	Total Recoverable	Water	6010C	611306
280-176013-2	W-3B	Total Recoverable	Water	6010C	611306
280-176013-3	WT-3B	Total Recoverable	Water	6010C	611306
280-176013-4	W-5B	Total Recoverable	Water	6010C	611306
280-176013-5	W-10B	Total Recoverable	Water	6010C	611306
280-176013-6	WK-10B	Total Recoverable	Water	6010C	611306
280-176013-7	W-18	Total Recoverable	Water	6010C	611306
280-176013-8	W-14	Total Recoverable	Water	6010C	611306
280-176013-9	W-17	Total Recoverable	Water	6010C	611306
280-176013-10	W-6B1	Total Recoverable	Water	6010C	611306
280-176013-11	W-7	Total Recoverable	Water	6010C	611306
280-176013-12	W-9	Total Recoverable	Water	6010C	611306
280-176013-13	W-11	Total Recoverable	Water	6010C	611306
MB 280-611306/1-A	Method Blank	Total Recoverable	Water	6010C	611306
LCS 280-611306/2-A	Lab Control Sample	Total Recoverable	Water	6010C	611306
280-176013-1 MS	W-2C	Total Recoverable	Water	6010C	611306
280-176013-1 MSD	W-2C	Total Recoverable	Water	6010C	611306

Analysis Batch: 612459

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176013-10	W-6B1	Dissolved	Water	7470A	612290
280-176013-13	W-11	Dissolved	Water	7470A	612290
MB 280-611842/1-C	Method Blank	Dissolved	Water	7470A	612290
LCS 280-611842/2-D	Lab Control Sample	Dissolved	Water	7470A	612290
280-176013-10 MS	W-6B1	Dissolved	Water	7470A	612290
280-176013-10 MSD	W-6B1	Dissolved	Water	7470A	612290

Prep Batch: 612478

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176013-1	W-2C	Total/NA	Water	7470A	
280-176013-2	W-3B	Total/NA	Water	7470A	
280-176013-3	WT-3B	Total/NA	Water	7470A	
280-176013-4	W-5B	Total/NA	Water	7470A	
280-176013-5	W-10B	Total/NA	Water	7470A	
280-176013-6	WK-10B	Total/NA	Water	7470A	
280-176013-7	W-18	Total/NA	Water	7470A	
280-176013-8	W-14	Total/NA	Water	7470A	
280-176013-9	W-17	Total/NA	Water	7470A	
280-176013-10	W-6B1	Total/NA	Water	7470A	
280-176013-11	W-7	Total/NA	Water	7470A	
MB 280-612478/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-612478/2-A	Lab Control Sample	Total/NA	Water	7470A	
LCSD 280-612478/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	

Metals

Prep Batch: 612490

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176013-12	W-9	Total/NA	Water	7470A	
280-176013-13	W-11	Total/NA	Water	7470A	
MB 280-612490/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-612490/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 612613

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176013-10	W-6B1	Dissolved	Water	6010C	612059
280-176013-13	W-11	Dissolved	Water	6010C	612059
MB 280-612017/1-B	Method Blank	Dissolved	Water	6010C	612059
LCS 280-612017/2-B	Lab Control Sample	Dissolved	Water	6010C	612059

Analysis Batch: 612627

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176013-1	W-2C	Total/NA	Water	7470A	612478
280-176013-2	W-3B	Total/NA	Water	7470A	612478
280-176013-3	WT-3B	Total/NA	Water	7470A	612478
280-176013-4	W-5B	Total/NA	Water	7470A	612478
280-176013-5	W-10B	Total/NA	Water	7470A	612478
280-176013-6	WK-10B	Total/NA	Water	7470A	612478
280-176013-7	W-18	Total/NA	Water	7470A	612478
280-176013-8	W-14	Total/NA	Water	7470A	612478
280-176013-9	W-17	Total/NA	Water	7470A	612478
280-176013-10	W-6B1	Total/NA	Water	7470A	612478
280-176013-11	W-7	Total/NA	Water	7470A	612478
280-176013-12	W-9	Total/NA	Water	7470A	612490
280-176013-13	W-11	Total/NA	Water	7470A	612490
MB 280-612478/1-A	Method Blank	Total/NA	Water	7470A	612478
MB 280-612490/1-A	Method Blank	Total/NA	Water	7470A	612490
LCS 280-612478/2-A	Lab Control Sample	Total/NA	Water	7470A	612478
LCS 280-612490/2-A	Lab Control Sample	Total/NA	Water	7470A	612490
LCSD 280-612478/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	612478

General Chemistry

Analysis Batch: 611454

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176013-1	W-2C	Total/NA	Water	SM 2540C	
280-176013-2	W-3B	Total/NA	Water	SM 2540C	
MB 280-611454/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-611454/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-611454/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 611677

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176013-3	WT-3B	Total/NA	Water	SM 2540C	
280-176013-4	W-5B	Total/NA	Water	SM 2540C	
280-176013-5	W-10B	Total/NA	Water	SM 2540C	
280-176013-6	WK-10B	Total/NA	Water	SM 2540C	
280-176013-7	W-18	Total/NA	Water	SM 2540C	
MB 280-611677/1	Method Blank	Total/NA	Water	SM 2540C	

General Chemistry (Continued)

Analysis Batch: 611677 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 280-611677/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-611677/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 611693

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176013-1	W-2C	Total/NA	Water	SM 2540D	
MB 280-611693/3	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-611693/1	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-611693/2	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 611721

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176013-1	W-2C	Total/NA	Water	SM 2320B	
280-176013-2	W-3B	Total/NA	Water	SM 2320B	
280-176013-3	WT-3B	Total/NA	Water	SM 2320B	
280-176013-4	W-5B	Total/NA	Water	SM 2320B	
280-176013-5	W-10B	Total/NA	Water	SM 2320B	
280-176013-6	WK-10B	Total/NA	Water	SM 2320B	
280-176013-7	W-18	Total/NA	Water	SM 2320B	
280-176013-8	W-14	Total/NA	Water	SM 2320B	
280-176013-9	W-17	Total/NA	Water	SM 2320B	
280-176013-10	W-6B1	Total/NA	Water	SM 2320B	
280-176013-11	W-7	Total/NA	Water	SM 2320B	
280-176013-12	W-9	Total/NA	Water	SM 2320B	
280-176013-13	W-11	Total/NA	Water	SM 2320B	
MB 280-611721/109	Method Blank	Total/NA	Water	SM 2320B	
MB 280-611721/57	Method Blank	Total/NA	Water	SM 2320B	
MB 280-611721/83	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-611721/108	Lab Control Sample	Total/NA	Water	SM 2320B	
LCS 280-611721/82	Lab Control Sample	Total/NA	Water	SM 2320B	
280-176013-5 DU	W-10B	Total/NA	Water	SM 2320B	

Analysis Batch: 611825

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176013-8	W-14	Total/NA	Water	SM 2540C	
280-176013-9	W-17	Total/NA	Water	SM 2540C	
280-176013-10	W-6B1	Total/NA	Water	SM 2540C	
280-176013-11	W-7	Total/NA	Water	SM 2540C	
280-176013-12	W-9	Total/NA	Water	SM 2540C	
280-176013-13	W-11	Total/NA	Water	SM 2540C	
MB 280-611825/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-611825/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 611857

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176013-2	W-3B	Total/NA	Water	SM 2540D	
280-176013-3	WT-3B	Total/NA	Water	SM 2540D	
280-176013-4	W-5B	Total/NA	Water	SM 2540D	
280-176013-5	W-10B	Total/NA	Water	SM 2540D	
280-176013-6	WK-10B	Total/NA	Water	SM 2540D	
280-176013-7	W-18	Total/NA	Water	SM 2540D	

General Chemistry (Continued)

Analysis Batch: 611857 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176013-8	W-14	Total/NA	Water	SM 2540D	
280-176013-9	W-17	Total/NA	Water	SM 2540D	
280-176013-10	W-6B1	Total/NA	Water	SM 2540D	
280-176013-11	W-7	Total/NA	Water	SM 2540D	
280-176013-12	W-9	Total/NA	Water	SM 2540D	
280-176013-13	W-11	Total/NA	Water	SM 2540D	
MB 280-611857/3	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-611857/1	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-611857/2	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 612289

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176013-1	W-2C	Total/NA	Water	9040B	
280-176013-2	W-3B	Total/NA	Water	9040B	
280-176013-3	WT-3B	Total/NA	Water	9040B	
280-176013-4	W-5B	Total/NA	Water	9040B	
280-176013-5	W-10B	Total/NA	Water	9040B	
280-176013-7	W-18	Total/NA	Water	9040B	
280-176013-8	W-14	Total/NA	Water	9040B	
280-176013-9	W-17	Total/NA	Water	9040B	
280-176013-10	W-6B1	Total/NA	Water	9040B	
280-176013-11	W-7	Total/NA	Water	9040B	
280-176013-12	W-9	Total/NA	Water	9040B	
280-176013-13	W-11	Total/NA	Water	9040B	
LCS 280-612289/31	Lab Control Sample	Total/NA	Water	9040B	
LCS 280-612289/5	Lab Control Sample	Total/NA	Water	9040B	
280-176013-8 DU	W-14	Total/NA	Water	9040B	

Analysis Batch: 612529

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176013-4	W-5B	Total/NA	Water	9056A	
280-176013-6	WK-10B	Total/NA	Water	9056A	
280-176013-7	W-18	Total/NA	Water	9056A	
280-176013-8	W-14	Total/NA	Water	9056A	
280-176013-9	W-17	Total/NA	Water	9056A	
MB 280-612529/6	Method Blank	Total/NA	Water	9056A	
LCS 280-612529/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-612529/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-612529/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 612540

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176013-10	W-6B1	Total/NA	Water	9056A	
280-176013-10	W-6B1	Total/NA	Water	9056A	
280-176013-10	W-6B1	Total/NA	Water	9056A	
280-176013-11	W-7	Total/NA	Water	9056A	
280-176013-11	W-7	Total/NA	Water	9056A	
280-176013-11	W-7	Total/NA	Water	9056A	
280-176013-12	W-9	Total/NA	Water	9056A	
280-176013-12	W-9	Total/NA	Water	9056A	
280-176013-12	W-9	Total/NA	Water	9056A	

General Chemistry (Continued)

Analysis Batch: 612540 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176013-13	W-11	Total/NA	Water	9056A	
280-176013-13	W-11	Total/NA	Water	9056A	
280-176013-13	W-11	Total/NA	Water	9056A	
MB 280-612540/6	Method Blank	Total/NA	Water	9056A	
LCS 280-612540/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-612540/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-612540/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 612676

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176013-1	W-2C	Total/NA	Water	9056A	
280-176013-1	W-2C	Total/NA	Water	9056A	
280-176013-2	W-3B	Total/NA	Water	9056A	
280-176013-3	WT-3B	Total/NA	Water	9056A	
280-176013-4	W-5B	Total/NA	Water	9056A	
280-176013-4	W-5B	Total/NA	Water	9056A	
280-176013-5	W-10B	Total/NA	Water	9056A	
280-176013-6	WK-10B	Total/NA	Water	9056A	
280-176013-7	W-18	Total/NA	Water	9056A	
280-176013-8	W-14	Total/NA	Water	9056A	
280-176013-9	W-17	Total/NA	Water	9056A	
MB 280-612676/50	Method Blank	Total/NA	Water	9056A	
LCS 280-612676/48	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-612676/49	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-612676/3	Lab Control Sample	Total/NA	Water	9056A	
280-176013-6 MS	WK-10B	Total/NA	Water	9056A	
280-176013-6 MSD	WK-10B	Total/NA	Water	9056A	
280-176013-6 DU	WK-10B	Total/NA	Water	9056A	

Analysis Batch: 612726

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176013-6	WK-10B	Total/NA	Water	9040B	
LCS 280-612726/5	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 612835

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176013-2	W-3B	Total/NA	Water	9056A	
280-176013-2	W-3B	Total/NA	Water	9056A	
280-176013-3	WT-3B	Total/NA	Water	9056A	
280-176013-3	WT-3B	Total/NA	Water	9056A	
280-176013-5	W-10B	Total/NA	Water	9056A	
280-176013-5	W-10B	Total/NA	Water	9056A	
MB 280-612835/6	Method Blank	Total/NA	Water	9056A	
LCS 280-612835/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-612835/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-612835/3	Lab Control Sample	Total/NA	Water	9056A	

Client Sample ID: W-2C
Lab Sample ID: 280-176013-1

Date Collected: 05/01/23 16:25
Matrix: Water
Date Received: 05/04/23 11:25

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	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			612417	05/12/23 18:26	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			612224	05/11/23 17:53	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			611882	05/09/23 21:43	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			612052	05/10/23 18:32	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			612052	05/11/23 01:48	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			612202	05/11/23 19:41	LRD	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	612478	05/15/23 14:30	KMS	EET DEN
Total/NA	Analysis	7470A		1			612627	05/15/23 19:37	KMS	EET DEN
Total/NA	Analysis	9040B		1			612289	05/11/23 14:31	KEG	EET DEN
Total/NA	Analysis	9056A		2	5 mL	5 mL	612676	05/17/23 06:50	MEC	EET DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	612676	05/17/23 07:02	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			611721	05/08/23 23:27	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	611454	05/05/23 15:17	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	611693	05/08/23 19:01	MCR	EET DEN

Client Sample ID: W-3B
Lab Sample ID: 280-176013-2

Date Collected: 05/02/23 10:35
Matrix: Water
Date Received: 05/04/23 11:25

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	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			612417	05/12/23 18:46	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			611882	05/09/23 21:52	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			612052	05/10/23 18:41	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			612052	05/11/23 01:57	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			612202	05/11/23 19:50	LRD	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		100			612407	05/12/23 19:52	LRD	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	612478	05/15/23 14:30	KMS	EET DEN
Total/NA	Analysis	7470A		1			612627	05/15/23 19:40	KMS	EET DEN
Total/NA	Analysis	9040B		1			612289	05/11/23 14:34	KEG	EET DEN
Total/NA	Analysis	9056A		50	5 mL	5 mL	612676	05/17/23 07:26	MEC	EET DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	612835	05/18/23 02:17	EJS	EET DEN

Client Sample ID: W-3B
Lab Sample ID: 280-176013-2

Date Collected: 05/02/23 10:35
Matrix: Water
Date Received: 05/04/23 11:25

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	5 mL	5 mL	612835	05/18/23 02:40	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			611721	05/08/23 23:38	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	611454	05/05/23 15:17	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	611857	05/09/23 17:44	MCR	EET DEN

Client Sample ID: WT-3B
Lab Sample ID: 280-176013-3

Date Collected: 05/02/23 10:55
Matrix: Water
Date Received: 05/04/23 11:25

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	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			612417	05/12/23 18:50	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			611882	05/09/23 21:54	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			612052	05/10/23 18:43	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			612052	05/11/23 01:59	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			612202	05/11/23 19:52	LRD	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		100			612407	05/12/23 19:57	LRD	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	612478	05/15/23 14:30	KMS	EET DEN
Total/NA	Analysis	7470A		1			612627	05/15/23 19:47	KMS	EET DEN
Total/NA	Analysis	9040B		1			612289	05/11/23 14:38	KEG	EET DEN
Total/NA	Analysis	9056A		50	5 mL	5 mL	612676	05/17/23 07:49	MEC	EET DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	612835	05/18/23 03:04	EJS	EET DEN
Total/NA	Analysis	9056A		500	5 mL	5 mL	612835	05/18/23 03:28	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			611721	05/08/23 23:50	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	611677	05/08/23 16:47	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	611857	05/09/23 17:44	MCR	EET DEN

Client Sample ID: W-5B
Lab Sample ID: 280-176013-4

Date Collected: 05/02/23 13:25
Matrix: Water
Date Received: 05/04/23 11:25

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	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			612417	05/12/23 18:54	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			612224	05/11/23 18:47	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			611882	05/09/23 21:59	LMT	EET DEN

Lab Chronicle

Client: HDR Inc
Job ID: 280-176013-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-5B
Lab Sample ID: 280-176013-4
Date Collected: 05/02/23 13:25
Matrix: Water
Date Received: 05/04/23 11:25

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	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			612052	05/10/23 18:45	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			612052	05/11/23 02:00	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			612202	05/11/23 19:58	LRD	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	612478	05/15/23 14:30	KMS	EET DEN
Total/NA	Analysis	7470A		1			612627	05/15/23 19:50	KMS	EET DEN
Total/NA	Analysis	9040B		1			612289	05/11/23 14:42	KEG	EET DEN
Total/NA	Analysis	9056A		2	5 mL	5 mL	612676	05/17/23 08:01	MEC	EET DEN
Total/NA	Analysis	9056A		50	5 mL	5 mL	612676	05/17/23 08:13	MEC	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	612529	05/16/23 03:22	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			611721	05/08/23 23:56	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	611677	05/08/23 16:47	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	611857	05/09/23 17:44	MCR	EET DEN

Client Sample ID: W-10B
Lab Sample ID: 280-176013-5
Date Collected: 05/02/23 10:15
Matrix: Water
Date Received: 05/04/23 11:25

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	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			612417	05/12/23 19:15	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			611882	05/09/23 22:01	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			612052	05/10/23 18:53	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			612052	05/11/23 02:06	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			612202	05/11/23 20:04	LRD	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		100			612407	05/12/23 19:59	LRD	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	612478	05/15/23 14:30	KMS	EET DEN
Total/NA	Analysis	7470A		1			612627	05/15/23 19:53	KMS	EET DEN
Total/NA	Analysis	9040B		1			612289	05/11/23 14:46	KEG	EET DEN
Total/NA	Analysis	9056A		50	5 mL	5 mL	612676	05/17/23 09:01	MEC	EET DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	612835	05/18/23 03:52	EJS	EET DEN
Total/NA	Analysis	9056A		1000	5 mL	5 mL	612835	05/18/23 04:52	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			611721	05/09/23 00:37	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	611677	05/08/23 16:47	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	611857	05/09/23 17:44	MCR	EET DEN

Client Sample ID: WK-10B
Date Collected: 05/02/23 15:20
Date Received: 05/04/23 11:25

Lab Sample ID: 280-176013-6
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	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			612417	05/12/23 19:19	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			612224	05/11/23 18:56	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			611882	05/09/23 22:03	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			612052	05/11/23 02:08	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			612202	05/11/23 20:05	LRD	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	612478	05/15/23 14:30	KMS	EET DEN
Total/NA	Analysis	7470A		1			612627	05/15/23 19:55	KMS	EET DEN
Total/NA	Analysis	9040B		1			612726	05/15/23 18:11	KEG	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	612676	05/17/23 09:13	MEC	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	612529	05/16/23 03:45	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			611721	05/09/23 00:56	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	611677	05/08/23 16:47	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	611857	05/09/23 17:44	MCR	EET DEN

Client Sample ID: W-18
Date Collected: 05/02/23 14:05
Date Received: 05/04/23 11:25

Lab Sample ID: 280-176013-7
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	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			612417	05/12/23 19:23	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			612224	05/11/23 19:00	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			611882	05/09/23 22:04	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			612052	05/10/23 18:57	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			612052	05/11/23 02:09	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			612202	05/11/23 20:07	LRD	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	612478	05/15/23 14:30	KMS	EET DEN
Total/NA	Analysis	7470A		1			612627	05/15/23 19:58	KMS	EET DEN
Total/NA	Analysis	9040B		1			612289	05/11/23 14:56	KEG	EET DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	612676	05/17/23 10:01	MEC	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	612529	05/16/23 03:57	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			611721	05/09/23 01:05	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	611677	05/08/23 16:47	MCR	EET DEN

Client Sample ID: W-18
Lab Sample ID: 280-176013-7
Date Collected: 05/02/23 14:05
Matrix: Water
Date Received: 05/04/23 11:25

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	611857	05/09/23 17:44	MCR	EET DEN

Client Sample ID: W-14
Lab Sample ID: 280-176013-8
Date Collected: 05/03/23 10:40
Matrix: Water
Date Received: 05/04/23 11:25

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	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			612417	05/12/23 19:27	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			612224	05/11/23 19:04	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			611882	05/09/23 22:06	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			612052	05/10/23 18:59	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			612052	05/11/23 02:11	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			612202	05/11/23 20:09	LRD	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	612478	05/15/23 14:30	KMS	EET DEN
Total/NA	Analysis	7470A		1			612627	05/15/23 20:00	KMS	EET DEN
Total/NA	Analysis	9040B		1			612289	05/11/23 15:20	KEG	EET DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	612676	05/17/23 10:13	MEC	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	612529	05/16/23 04:09	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			611721	05/09/23 01:18	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	611825	05/09/23 15:08	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	611857	05/09/23 17:44	MCR	EET DEN

Client Sample ID: W-17
Lab Sample ID: 280-176013-9
Date Collected: 05/03/23 12:40
Matrix: Water
Date Received: 05/04/23 11:25

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	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			612417	05/12/23 19:31	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			612224	05/11/23 19:30	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			611882	05/09/23 22:08	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			612052	05/10/23 19:00	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			612052	05/11/23 02:13	LMT	EET DEN

Client Sample ID: W-17
Lab Sample ID: 280-176013-9

Date Collected: 05/03/23 12:40
Matrix: Water
Date Received: 05/04/23 11:25

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	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			612202	05/11/23 20:11	LRD	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	612478	05/15/23 14:30	KMS	EET DEN
Total/NA	Analysis	7470A		1			612627	05/15/23 20:03	KMS	EET DEN
Total/NA	Analysis	9040B		1			612289	05/11/23 15:27	KEG	EET DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	612676	05/17/23 10:24	MEC	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	612529	05/16/23 04:21	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			611721	05/09/23 01:28	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	611825	05/09/23 15:08	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	611857	05/09/23 17:44	MCR	EET DEN

Client Sample ID: W-6B1
Lab Sample ID: 280-176013-10

Date Collected: 05/03/23 17:10
Matrix: Water
Date Received: 05/04/23 11:25

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	612017	05/10/23 16:35	KMS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612059	05/11/23 14:30	LJS	EET DEN
Dissolved	Analysis	6010C		1			612613	05/15/23 14:39	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			612417	05/12/23 19:35	ADL	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	612017	05/10/23 16:35	KMS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612059	05/11/23 14:30	LJS	EET DEN
Dissolved	Analysis	6020B		50			612407	05/12/23 22:58	LRD	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	612017	05/10/23 16:35	KMS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612059	05/11/23 14:30	LJS	EET DEN
Dissolved	Analysis	6020B		100			612407	05/12/23 23:00	LRD	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	612017	05/10/23 16:35	KMS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612059	05/11/23 14:30	LJS	EET DEN
Dissolved	Analysis	6020B		1			612407	05/13/23 03:07	LRD	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			611882	05/09/23 22:10	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			612052	05/10/23 19:02	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			612052	05/11/23 02:15	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		100			612202	05/11/23 20:13	LRD	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	612017	05/10/23 16:35	KMS	EET DEN
Dissolved	Prep	7470A			30 mL	50 mL	612290	05/12/23 14:29	PFM	EET DEN
Dissolved	Analysis	7470A		1			612459	05/12/23 19:32	PFM	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	612478	05/15/23 14:30	KMS	EET DEN
Total/NA	Analysis	7470A		1			612627	05/15/23 20:05	KMS	EET DEN
Total/NA	Analysis	9040B		1			612289	05/11/23 15:31	KEG	EET DEN

Client Sample ID: W-6B1
Lab Sample ID: 280-176013-10
Date Collected: 05/03/23 17:10
Matrix: Water
Date Received: 05/04/23 11:25

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	612540	05/15/23 16:24	MEC	EET DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	612540	05/15/23 16:40	MEC	EET DEN
Total/NA	Analysis	9056A		1000	5 mL	5 mL	612540	05/15/23 16:56	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			611721	05/09/23 01:39	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	611825	05/09/23 15:08	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	611857	05/09/23 17:44	MCR	EET DEN

Client Sample ID: W-7
Lab Sample ID: 280-176013-11
Date Collected: 05/03/23 09:20
Matrix: Water
Date Received: 05/04/23 11:25

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	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			612417	05/12/23 19:39	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			612224	05/11/23 19:39	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			611882	05/09/23 22:12	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			612052	05/10/23 19:04	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			612052	05/11/23 02:16	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			612202	05/11/23 20:14	LRD	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	612478	05/15/23 14:30	KMS	EET DEN
Total/NA	Analysis	7470A		1			612627	05/15/23 20:08	KMS	EET DEN
Total/NA	Analysis	9040B		1			612289	05/11/23 15:33	KEG	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	612540	05/15/23 17:12	MEC	EET DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	612540	05/15/23 17:28	MEC	EET DEN
Total/NA	Analysis	9056A		1000	5 mL	5 mL	612540	05/15/23 17:44	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			611721	05/09/23 01:52	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	611825	05/09/23 15:08	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	611857	05/09/23 17:44	MCR	EET DEN

Client Sample ID: W-9
Lab Sample ID: 280-176013-12
Date Collected: 05/03/23 11:40
Matrix: Water
Date Received: 05/04/23 11:25

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	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			612417	05/12/23 19:43	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			612224	05/11/23 19:43	ADL	EET DEN

Client Sample ID: W-9
Lab Sample ID: 280-176013-12

Date Collected: 05/03/23 11:40
Matrix: Water
Date Received: 05/04/23 11:25

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	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			611882	05/09/23 22:13	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			612052	05/10/23 19:06	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			612052	05/11/23 02:18	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			612202	05/11/23 20:16	LRD	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	612490	05/15/23 14:30	KMS	EET DEN
Total/NA	Analysis	7470A		1			612627	05/15/23 22:27	KMS	EET DEN
Total/NA	Analysis	9040B		1			612289	05/11/23 15:37	KEG	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	612540	05/15/23 18:00	MEC	EET DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	612540	05/15/23 18:16	MEC	EET DEN
Total/NA	Analysis	9056A		200	5 mL	5 mL	612540	05/15/23 18:32	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			611721	05/09/23 02:02	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	611825	05/09/23 15:08	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	611857	05/09/23 17:44	MCR	EET DEN

Client Sample ID: W-11
Lab Sample ID: 280-176013-13

Date Collected: 05/03/23 16:35
Matrix: Water
Date Received: 05/04/23 11:25

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	612017	05/10/23 16:35	KMS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612059	05/11/23 14:30	LJS	EET DEN
Dissolved	Analysis	6010C		1			612613	05/15/23 14:43	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			612417	05/12/23 19:47	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			612224	05/11/23 19:48	ADL	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	612017	05/10/23 16:35	KMS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612059	05/11/23 14:30	LJS	EET DEN
Dissolved	Analysis	6020B		50			612407	05/12/23 23:05	LRD	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	612017	05/10/23 16:35	KMS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612059	05/11/23 14:30	LJS	EET DEN
Dissolved	Analysis	6020B		1			612407	05/13/23 03:11	LRD	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			611882	05/09/23 22:15	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			612052	05/10/23 19:08	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			612052	05/11/23 02:20	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611306	05/08/23 14:50	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			612202	05/11/23 20:18	LRD	EET DEN

Lab Chronicle

Client: HDR Inc
Job ID: 280-176013-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-11
Date Collected: 05/03/23 16:35
Date Received: 05/04/23 11:25

Lab Sample ID: 280-176013-13
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	612017	05/10/23 16:35	KMS	EET DEN
Dissolved	Prep	7470A			30 mL	50 mL	612290	05/12/23 14:29	PFM	EET DEN
Dissolved	Analysis	7470A		1			612459	05/12/23 19:44	PFM	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	612490	05/15/23 14:30	KMS	EET DEN
Total/NA	Analysis	7470A		1			612627	05/15/23 22:30	KMS	EET DEN
Total/NA	Analysis	9040B		1			612289	05/11/23 15:41	KEG	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	612540	05/15/23 18:48	MEC	EET DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	612540	05/15/23 19:36	MEC	EET DEN
Total/NA	Analysis	9056A		200	5 mL	5 mL	612540	05/15/23 19:52	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			611721	05/09/23 02:14	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	611825	05/09/23 15:08	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	611857	05/09/23 17:44	MCR	EET DEN

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

Accreditation/Certification Summary

Client: HDR Inc
Job ID: 280-176013-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

eurofins | Environment Testing America

Client Information	Sampler: MHB / FL	Lab FM: Ryan, Nicole C	Carrier Tracking No(s):	COC No: 280-123984-34653
Client Contact: Ms. Sierra Schupp	Phone: 720 - 261 - 5222	E-Mail: Nicole.Ryan@ET.eurofinsus.com	State of Origin:	Page: Page 1 of 2
Company: HDR Inc	PWSID:			Job #:
Address: 1670 Broadway Suite 3400	Due Date Requested:			
City: Denver	TAT Requested (days):			
State, Zip: CO, 80202	Compliance Project: Δ Yes Δ No			
Phone: 734-263-7138(Tel)	PO #: DEN-021			
Email: Sierra.Schupp@hdrinc.com	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Comanche	Project #: 28014376			
Site: Colorado On-Site Wells	SSOW#:			

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
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)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	App III and IV Metals: B, Ca, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Mo, Se, Tl	Total Mercury	Additional Metals: Mg, Na, K	9056 Anions: Chloride, Fluoride, Sulfate	2540C: TDs	2540D: TSS	9040 pH	2320 Alkalinity	Ra226, Ra228, Ra226+228	Dissolved Metals (App. III + IV, Hg, Mg, K, Na)				Total Number of containers	Special Instructions/Note:
Preservation Code:					N	N	D	D	D	N	N	N	N	N	D	D						
W-2C	05/01/23	1625	G	W	N	N	X	X	X	X	X	X	X	X	X					5	
W-3B	05/02/23	1035	G	W	N	N	X	X	X	X	X	X	X	X	X					5	
WT-3B	05/02/23	1055	G	W	N	N	X	X	X	X	X	X	X	X	X					5	
W-5B	05/02/23	1325	G	W	N	N	X	X	X	X	X	X	X	X	X					5	
W-10B	05/02/23	1015	G	W	N	N	X	X	X	X	X	X	X	X	X					5	
WK-10B	05/02/23	1520	G	W	N	N	X	X	X	X	X	X	X	X	X					5	
W-18	05/02/23	1405	G	W	N	N	X	X	X	X	X	X	X	X	X					5	
W-14	05/03/23	1040	G	W	N	N	X	X	X	X	X	X	X	X	X					5	
W-17	05/03/23	1240	G	W	N	N	X	X	X	X	X	X	X	X	X					5	
W-6B1	05/03/23	1710	G	W	N	N	X	X	X	X	X	X	X	X	X	X				6	
W-7	05/03/23	0920	G	W	N	N	X	X	X	X	X	X	X	X	X					5	

280-176013 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:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Mattison Barickman	05/04/2023, 1125	HDR Inc.		5/4/23 1125	EADGV
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 0.9, 1.6, 0.9, 2.2 CF +0.1 IR14

Ver: 01/16/2019

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5/18/2023

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

eurofins | Environment Testing America

Client Information	Sampler: MHB/FL	Lab PM: Ryan, Nicole C	Carrier Tracking No(s):	COC No: 280-123984-34653
Client Contact: Ms. Sierra Schupp	Phone: 720-261-5222	E-Mail: Nicole.Ryan@ET.eurofinsus.com	State of Origin:	Page: Page 2 of 2
Company: HDR Inc	PWSID:			Job #:

Address: 1670 Broadway Suite 3400	Due Date Requested:
City: Denver	TAT Requested (days):
State, Zip: CO, 80202	Compliance Project: Δ Yes Δ No
Phone: 734-263-7138(Tel)	PO #: DEN-021
Email: Sierra.Schupp@hdrinc.com	WO #:
Project Name: Xcel Energy GW CCR Monitoring - Comanche	Project #: 28014376
Site: Colorado On-Site Wells	SSOW#:

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, 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)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	App III and IV Metals: B, Ca, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Mo, Se, Tl	Total Mercury	Additional Metals: Mg, Na, K	9056 Anions: Chloride, Fluoride, Sulfate	2540C: TDs	2540D: TSS	9040 pH	2320 Alkalinity	Ra226, Ra228, Ra226+228	Dissolved Metals (App. III + IV, Hg, Mg, K, Na)				Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D	D	N	N	N	N	N	D	D						
W-9	05/03/23	1140	G	W	N	N	x	x	x	x	x	x	x	x	x					5	
W-11	05/03/23	1635	G	W	N	N	x	x	x	x	x	x	x	x	x	x				6	

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:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Mattison Barickman	05/04/2023, 1125	HDR Inc.		5/4/23 1125	ETAO
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

5/18/2023

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-176013-1

Login Number: 176013
List Number: 1
Creator: Cannon, Charles D

List Source: Eurofins Denver

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.	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 <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

PREPARED FOR

Attn: Molly Reeves
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Generated 5/19/2023 1:10:43 PM

JOB DESCRIPTION

Xcel Energy GW CCR Monitoring - Comanche

JOB NUMBER

280-176082-1

Eurofins Denver
4955 Yarrow Street
Arvada CO 80002

See page two for job notes and contact information.

my EOL

Job Notes

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

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

Authorization



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5/19/2023 1:10:43 PM

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
Job ID: 280-176082-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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.

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

Job ID: 280-176082-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-176082-1

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 5/5/2023 11:25 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.7º C and 2.0º C.

TOTAL RECOVERABLE METALS

Samples W-12 (280-176082-1) and W-1 (280-176082-2) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 05/08/2023 and analyzed on 05/15/2023 and 05/18/2023.

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

TOTAL RECOVERABLE METALS (ICP/MS)

Samples W-12 (280-176082-1) and W-1 (280-176082-2) were analyzed for Total Recoverable Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 05/08/2023 and analyzed on 05/09/2023 and 05/10/2023.

The instrument blank for analytical batch 280-611838 contained Na greater than the reporting limit (RL), and were not reanalyze because only the MB and LCS are being reported and they are within limits. The data have been qualified and reported.

Samples W-12 (280-176082-1)[100X] and W-1 (280-176082-2)[100X] 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 MERCURY

Samples W-12 (280-176082-1) and W-1 (280-176082-2) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 05/16/2023.

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

ALKALINITY

Job ID: 280-176082-1 (Continued)

Laboratory: Eurofins Denver (Continued)

Samples W-12 (280-176082-1) and W-1 (280-176082-2) were analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 05/10/2023.

Alkalinity and Carbonate Alkalinity as CaCO3 were detected in method blank MB 280-612064/5 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.

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

TOTAL DISSOLVED SOLIDS

Samples W-12 (280-176082-1) and W-1 (280-176082-2) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 05/09/2023 and 05/10/2023.

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

TOTAL SUSPENDED SOLIDS

Samples W-12 (280-176082-1) and W-1 (280-176082-2) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 05/09/2023 and 05/11/2023.

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

CORROSIVITY (PH)

Samples W-12 (280-176082-1) and W-1 (280-176082-2) were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 05/11/2023.

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

ANIONS (28 DAYS)

Samples W-12 (280-176082-1) and W-1 (280-176082-2) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A (28 Days). The samples were analyzed on 05/13/2023 and 05/17/2023.

Samples W-12 (280-176082-1)[200X], W-1 (280-176082-2)[10X] and W-1 (280-176082-2)[1000X] 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
Job ID: 280-176082-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-12 — Lab Sample ID: 280-176082-1

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
Lithium	2.7		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Antimony	0.00087	J	0.0020	0.00040	mg/L	1		6020B	Total Recoverable
Arsenic	0.00054	J	0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Barium	0.018		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Cadmium	0.0012		0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Calcium	460		20	3.2	mg/L	100		6020B	Total Recoverable
Chromium	0.0046		0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.029		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Lead	0.00072	J	0.0010	0.00023	mg/L	1		6020B	Total Recoverable
Magnesium	1200		20	0.42	mg/L	100		6020B	Total Recoverable
Molybdenum	0.0041		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Potassium	45		1.0	0.052	mg/L	1		6020B	Total Recoverable
Selenium	0.020		0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Sodium	6100		100	7.3	mg/L	100		6020B	Total Recoverable
Thallium	0.0038		0.0010	0.00021	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	21.7	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	710		600	200	mg/L	200		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)	23000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	60		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-1 — Lab Sample ID: 280-176082-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	3.5		0.10	0.0015	mg/L	1		6010C	Total Recoverable
Lithium	2.4		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Arsenic	0.0012	J	0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Barium	0.011		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Cadmium	0.00034	J	0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Calcium	470		20	3.2	mg/L	100		6020B	Total Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Client Sample ID: W-1 (Continued)
Lab Sample ID: 280-176082-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	0.00095	J	0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Lead	0.00040	J	0.0010	0.00023	mg/L	1		6020B	Total Recoverable
Magnesium	3200		20	0.42	mg/L	100		6020B	Total Recoverable
Molybdenum	0.020		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Potassium	11		1.0	0.052	mg/L	1		6020B	Total Recoverable
Selenium	0.82		0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Sodium	6500		100	7.3	mg/L	100		6020B	Total Recoverable
pH adj. to 25 deg C	7.6	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	680		30	10	mg/L	10		9056A	Total/NA
Fluoride	8.2		5.0	1.7	mg/L	10		9056A	Total/NA
Sulfate	23000		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)	35000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	11		4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-176082-1
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
Job ID: 280-176082-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-176082-1	W-12	Water	05/04/23 11:08	05/05/23 11:25
280-176082-2	W-1	Water	05/03/23 14:38	05/05/23 11:25

Method: SW846 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: W-12
Date Collected: 05/04/23 11:08
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176082-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.72		0.10	0.0015	mg/L		05/08/23 07:49	05/15/23 14:51	1
Lithium	2.7		0.020	0.0091	mg/L		05/08/23 07:49	05/18/23 19:03	1

Client Sample ID: W-1
Date Collected: 05/03/23 14:38
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176082-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	3.5		0.10	0.0015	mg/L		05/08/23 07:49	05/15/23 14:56	1
Lithium	2.4		0.020	0.0091	mg/L		05/08/23 07:49	05/18/23 19:07	1

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

Client Sample ID: W-12
Date Collected: 05/04/23 11:08
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176082-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00087	J	0.0020	0.00040	mg/L		05/08/23 07:49	05/09/23 01:05	1
Arsenic	0.00054	J	0.0050	0.00050	mg/L		05/08/23 07:49	05/09/23 01:05	1
Barium	0.018		0.0030	0.00038	mg/L		05/08/23 07:49	05/09/23 01:05	1
Beryllium	ND		0.0010	0.00030	mg/L		05/08/23 07:49	05/09/23 01:05	1
Cadmium	0.0012		0.0010	0.00019	mg/L		05/08/23 07:49	05/09/23 01:05	1
Calcium	460		20	3.2	mg/L		05/08/23 07:49	05/10/23 17:46	100
Chromium	0.0046		0.0030	0.00050	mg/L		05/08/23 07:49	05/09/23 01:05	1
Cobalt	0.029		0.0010	0.00033	mg/L		05/08/23 07:49	05/09/23 01:05	1
Lead	0.00072	J	0.0010	0.00023	mg/L		05/08/23 07:49	05/09/23 01:05	1
Magnesium	1200		20	0.42	mg/L		05/08/23 07:49	05/10/23 17:46	100
Molybdenum	0.0041		0.0020	0.00037	mg/L		05/08/23 07:49	05/09/23 01:05	1
Potassium	45		1.0	0.052	mg/L		05/08/23 07:49	05/09/23 01:05	1
Selenium	0.020		0.0050	0.0010	mg/L		05/08/23 07:49	05/09/23 01:05	1
Sodium	6100		100	7.3	mg/L		05/08/23 07:49	05/10/23 17:46	100
Thallium	0.0038		0.0010	0.00021	mg/L		05/08/23 07:49	05/09/23 01:05	1

Client Sample ID: W-1
Date Collected: 05/03/23 14:38
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176082-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/08/23 07:49	05/09/23 01:09	1
Arsenic	0.0012	J	0.0050	0.00050	mg/L		05/08/23 07:49	05/09/23 01:09	1
Barium	0.011		0.0030	0.00038	mg/L		05/08/23 07:49	05/09/23 01:09	1
Beryllium	ND		0.0010	0.00030	mg/L		05/08/23 07:49	05/09/23 01:09	1
Cadmium	0.00034	J	0.0010	0.00019	mg/L		05/08/23 07:49	05/09/23 01:09	1
Calcium	470		20	3.2	mg/L		05/08/23 07:49	05/10/23 17:49	100
Chromium	0.00095	J	0.0030	0.00050	mg/L		05/08/23 07:49	05/09/23 01:09	1
Cobalt	ND		0.0010	0.00033	mg/L		05/08/23 07:49	05/09/23 01:09	1
Lead	0.00040	J	0.0010	0.00023	mg/L		05/08/23 07:49	05/09/23 01:09	1
Magnesium	3200		20	0.42	mg/L		05/08/23 07:49	05/10/23 17:49	100
Molybdenum	0.020		0.0020	0.00037	mg/L		05/08/23 07:49	05/09/23 01:09	1
Potassium	11		1.0	0.052	mg/L		05/08/23 07:49	05/09/23 01:09	1
Selenium	0.82		0.0050	0.0010	mg/L		05/08/23 07:49	05/09/23 01:09	1
Sodium	6500		100	7.3	mg/L		05/08/23 07:49	05/10/23 17:49	100

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

Client Sample ID: W-1
Date Collected: 05/03/23 14:38
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176082-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	ND		0.0010	0.00021	mg/L		05/08/23 07:49	05/09/23 01:09	1

Method: SW846 7470A - Mercury (CVAA)

Client Sample ID: W-12
Date Collected: 05/04/23 11:08
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176082-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/16/23 13:45	05/16/23 22:03	1

Client Sample ID: W-1
Date Collected: 05/03/23 14:38
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176082-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/16/23 13:45	05/16/23 22:05	1

General Chemistry

Client Sample ID: W-12
Date Collected: 05/04/23 11:08
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176082-1
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			05/11/23 15:48	1
Temperature (SW846 9040B)	**21.7**	**HF**	1.0	1.0	Degrees C			05/11/23 15:48	1
Chloride (SW846 9056A)	**710**		600	200	mg/L			05/17/23 00:50	200
Fluoride (SW846 9056A)	ND		0.50	0.17	mg/L			05/13/23 00:42	1
Sulfate (SW846 9056A)	**17000**		1000	210	mg/L			05/17/23 00:50	200
Alkalinity (SM 2320B)	**1400**		10	3.1	mg/L			05/10/23 19:37	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**1400**		10	3.1	mg/L			05/10/23 19:37	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			05/10/23 19:37	1
Total Dissolved Solids (TDS) (SM 2540C)	**23000**		1000	470	mg/L			05/10/23 12:30	1
Total Suspended Solids (SM 2540D)	**60**		4.0	1.1	mg/L			05/11/23 13:43	1

Client Sample ID: W-1
Date Collected: 05/03/23 14:38
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176082-2
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			05/11/23 15:52	1
Temperature (SW846 9040B)	**22.4**	**HF**	1.0	1.0	Degrees C			05/11/23 15:52	1
Chloride (SW846 9056A)	**680**		30	10	mg/L			05/17/23 01:02	10
Fluoride (SW846 9056A)	**8.2**		5.0	1.7	mg/L			05/17/23 01:02	10
Sulfate (SW846 9056A)	**23000**		5000	1000	mg/L			05/17/23 01:13	1000
Alkalinity (SM 2320B)	**680**		10	3.1	mg/L			05/10/23 19:47	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**680**		10	3.1	mg/L			05/10/23 19:47	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			05/10/23 19:47	1
Total Dissolved Solids (TDS) (SM 2540C)	**35000**		1000	470	mg/L			05/09/23 15:08	1

Client: HDR Inc
Job ID: 280-176082-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

General Chemistry (Continued)

Client Sample ID: W-1
Lab Sample ID: 280-176082-2
Date Collected: 05/03/23 14:38
Matrix: Water
Date Received: 05/05/23 11:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	11		4.0	1.1	mg/L			05/09/23 17:44	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-611310/1-A
Matrix: Water
Analysis Batch: 612611
Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 611310

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.0015	mg/L		05/08/23 07:49	05/15/23 14:21	1

Lab Sample ID: MB 280-611310/1-A
Matrix: Water
Analysis Batch: 613121
Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 611310

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.020	0.0091	mg/L		05/08/23 07:49	05/18/23 18:42	1

Lab Sample ID: LCS 280-611310/2-A
Matrix: Water
Analysis Batch: 612611
Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 611310

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	2.11		mg/L		105	86 - 110

Lab Sample ID: LCS 280-611310/2-A
Matrix: Water
Analysis Batch: 613121
Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 611310

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Lithium	1.00	1.04		mg/L		104	90 - 112

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-611310/1-A
Matrix: Water
Analysis Batch: 611838
Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 611310

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/08/23 07:49	05/09/23 00:40	1
Arsenic	ND		0.0050	0.00050	mg/L		05/08/23 07:49	05/09/23 00:40	1
Barium	ND		0.0030	0.00038	mg/L		05/08/23 07:49	05/09/23 00:40	1
Beryllium	ND		0.0010	0.00030	mg/L		05/08/23 07:49	05/09/23 00:40	1
Cadmium	ND		0.0010	0.00019	mg/L		05/08/23 07:49	05/09/23 00:40	1
Chromium	ND		0.0030	0.00050	mg/L		05/08/23 07:49	05/09/23 00:40	1
Cobalt	ND		0.0010	0.00033	mg/L		05/08/23 07:49	05/09/23 00:40	1
Lead	ND		0.0010	0.00023	mg/L		05/08/23 07:49	05/09/23 00:40	1
Magnesium	ND		0.20	0.0042	mg/L		05/08/23 07:49	05/09/23 00:40	1
Molybdenum	ND		0.0020	0.00037	mg/L		05/08/23 07:49	05/09/23 00:40	1
Potassium	ND		1.0	0.052	mg/L		05/08/23 07:49	05/09/23 00:40	1
Selenium	ND		0.0050	0.0010	mg/L		05/08/23 07:49	05/09/23 00:40	1
Thallium	ND		0.0010	0.00021	mg/L		05/08/23 07:49	05/09/23 00:40	1

Lab Sample ID: MB 280-611310/1-A
Matrix: Water
Analysis Batch: 612054
Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 611310

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		0.20	0.032	mg/L		05/08/23 07:49	05/10/23 19:26	1

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

Lab Sample ID: MB 280-611310/1-A
Matrix: Water
Analysis Batch: 612054

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 611310

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	ND		1.0	0.073	mg/L		05/08/23 07:49	05/10/23 19:26	1

Lab Sample ID: LCS 280-611310/19-A
Matrix: Water
Analysis Batch: 611838

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 611310

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0439		mg/L		110	85 - 115
Arsenic	0.0400	0.0400		mg/L		100	85 - 117
Barium	0.0400	0.0441		mg/L		110	85 - 118
Beryllium	0.0400	0.0428		mg/L		107	80 - 125
Cadmium	0.0400	0.0409		mg/L		102	85 - 115
Chromium	0.0400	0.0405		mg/L		101	84 - 121
Cobalt	0.0400	0.0409		mg/L		102	85 - 120
Lead	0.0400	0.0421		mg/L		105	85 - 118
Magnesium	0.800	0.783		mg/L		98	80 - 120
Molybdenum	0.0400	0.0399		mg/L		100	85 - 119
Potassium	0.800	0.864	J	mg/L		108	80 - 120
Selenium	0.0400	0.0422		mg/L		106	77 - 122
Thallium	0.0400	0.0413		mg/L		103	85 - 118

Lab Sample ID: LCS 280-611310/19-A
Matrix: Water
Analysis Batch: 612054

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 611310

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	0.800	0.907		mg/L		113	80 - 120
Sodium	0.800	0.799	J	mg/L		100	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-612644/1-A
Matrix: Water
Analysis Batch: 612854

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 612644

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/16/23 13:45	05/16/23 21:55	1

Lab Sample ID: LCS 280-612644/2-A
Matrix: Water
Analysis Batch: 612854

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 612644

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00498		mg/L		100	84 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-612289/31
Matrix: Water
Analysis Batch: 612289

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 280-612326/39
Matrix: Water
Analysis Batch: 612326

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			05/12/23 22:30	1
Fluoride	ND		0.50	0.17	mg/L			05/12/23 22:30	1
Sulfate	ND		5.0	1.0	mg/L			05/12/23 22:30	1

Lab Sample ID: LCS 280-612326/37
Matrix: Water
Analysis Batch: 612326

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	47.0		mg/L		94	90 - 110
Fluoride	2.50	2.42		mg/L		97	90 - 110
Sulfate	50.0	49.9		mg/L		100	90 - 110

Lab Sample ID: LCSD 280-612326/38
Matrix: Water
Analysis Batch: 612326

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	46.8		mg/L		94	90 - 110	0	10
Fluoride	2.50	2.34		mg/L		94	90 - 110	3	10
Sulfate	50.0	50.2		mg/L		100	90 - 110	1	10

Lab Sample ID: MRL 280-612326/3
Matrix: Water
Analysis Batch: 612326

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	2.04	J	mg/L		81	50 - 150
Fluoride	0.250	0.210	J	mg/L		84	50 - 150
Sulfate	2.50	2.23	J	mg/L		89	50 - 150

Lab Sample ID: MB 280-612674/48
Matrix: Water
Analysis Batch: 612674

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			05/17/23 00:38	1
Fluoride	ND		0.50	0.17	mg/L			05/17/23 00:38	1
Sulfate	ND		5.0	1.0	mg/L			05/17/23 00:38	1

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

Lab Sample ID: MB 280-612674/6
Matrix: Water
Analysis Batch: 612674

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			05/16/23 13:47	1
Fluoride	ND		0.50	0.17	mg/L			05/16/23 13:47	1
Sulfate	ND		5.0	1.0	mg/L			05/16/23 13:47	1

Lab Sample ID: LCS 280-612674/4
Matrix: Water
Analysis Batch: 612674

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	46.6		mg/L		93	90 - 110
Fluoride	2.50	2.32		mg/L		93	90 - 110
Sulfate	50.0	48.6		mg/L		97	90 - 110

Lab Sample ID: LCS 280-612674/46
Matrix: Water
Analysis Batch: 612674

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	46.6		mg/L		93	90 - 110
Fluoride	2.50	2.35		mg/L		94	90 - 110
Sulfate	50.0	48.8		mg/L		98	90 - 110

Lab Sample ID: LCSD 280-612674/47
Matrix: Water
Analysis Batch: 612674

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	46.7		mg/L		93	90 - 110	0	10
Fluoride	2.50	2.30		mg/L		92	90 - 110	2	10
Sulfate	50.0	48.7		mg/L		97	90 - 110	0	10

Lab Sample ID: LCSD 280-612674/5
Matrix: Water
Analysis Batch: 612674

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	46.8		mg/L		94	90 - 110	0	10
Fluoride	2.50	2.32		mg/L		93	90 - 110	0	10
Sulfate	50.0	48.4		mg/L		97	90 - 110	0	10

Lab Sample ID: MRL 280-612674/3
Matrix: Water
Analysis Batch: 612674

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	2.17	J	mg/L		87	50 - 150
Fluoride	0.250	0.231	J	mg/L		92	50 - 150
Sulfate	2.50	2.16	J	mg/L		86	50 - 150

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-612064/31
Matrix: Water
Analysis Batch: 612064

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			05/10/23 17:23	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/10/23 17:23	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/10/23 17:23	1

Lab Sample ID: MB 280-612064/5
Matrix: Water
Analysis Batch: 612064

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	4.07	J	10	3.1	mg/L			05/10/23 13:45	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/10/23 13:45	1
Carbonate Alkalinity as CaCO3	3.66	J	10	3.1	mg/L			05/10/23 13:45	1

Lab Sample ID: LCS 280-612064/30
Matrix: Water
Analysis Batch: 612064

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	200	194		mg/L		97	89 - 110

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

Lab Sample ID: MB 280-611825/1
Matrix: Water
Analysis Batch: 611825

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			05/09/23 15:08	1

Lab Sample ID: LCS 280-611825/2
Matrix: Water
Analysis Batch: 611825

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	468		mg/L		93	88 - 114

Lab Sample ID: 280-176082-2 DU
Matrix: Water
Analysis Batch: 611825

Client Sample ID: W-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids (TDS)	35000		34400		mg/L		0.9	10

Lab Sample ID: MB 280-611958/1
Matrix: Water
Analysis Batch: 611958

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			05/10/23 12:29	1

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

Lab Sample ID: LCS 280-611958/2
Matrix: Water
Analysis Batch: 611958

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	465		mg/L		93	88 - 114		

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

Lab Sample ID: MB 280-611857/3
Matrix: Water
Analysis Batch: 611857

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			05/09/23 17:44	1

Lab Sample ID: LCS 280-611857/1
Matrix: Water
Analysis Batch: 611857

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	465		mg/L		93	79 - 114		

Lab Sample ID: LCSD 280-611857/2
Matrix: Water
Analysis Batch: 611857

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	494		mg/L		99	79 - 114	6	20

Lab Sample ID: MB 280-612149/2
Matrix: Water
Analysis Batch: 612149

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			05/11/23 13:43	1

Lab Sample ID: LCS 280-612149/1
Matrix: Water
Analysis Batch: 612149

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	436		mg/L		87	79 - 114		

Metals

Prep Batch: 611310

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176082-1	W-12	Total Recoverable	Water	3005A	
280-176082-2	W-1	Total Recoverable	Water	3005A	
MB 280-611310/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-611310/19-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 280-611310/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 611838

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176082-1	W-12	Total Recoverable	Water	6020B	611310
280-176082-2	W-1	Total Recoverable	Water	6020B	611310
MB 280-611310/1-A	Method Blank	Total Recoverable	Water	6020B	611310
LCS 280-611310/19-A	Lab Control Sample	Total Recoverable	Water	6020B	611310

Analysis Batch: 612054

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176082-1	W-12	Total Recoverable	Water	6020B	611310
280-176082-2	W-1	Total Recoverable	Water	6020B	611310
MB 280-611310/1-A	Method Blank	Total Recoverable	Water	6020B	611310
LCS 280-611310/19-A	Lab Control Sample	Total Recoverable	Water	6020B	611310

Analysis Batch: 612611

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176082-1	W-12	Total Recoverable	Water	6010C	611310
280-176082-2	W-1	Total Recoverable	Water	6010C	611310
MB 280-611310/1-A	Method Blank	Total Recoverable	Water	6010C	611310
LCS 280-611310/2-A	Lab Control Sample	Total Recoverable	Water	6010C	611310

Prep Batch: 612644

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176082-1	W-12	Total/NA	Water	7470A	
280-176082-2	W-1	Total/NA	Water	7470A	
MB 280-612644/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-612644/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 612854

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176082-1	W-12	Total/NA	Water	7470A	612644
280-176082-2	W-1	Total/NA	Water	7470A	612644
MB 280-612644/1-A	Method Blank	Total/NA	Water	7470A	612644
LCS 280-612644/2-A	Lab Control Sample	Total/NA	Water	7470A	612644

Analysis Batch: 613121

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176082-1	W-12	Total Recoverable	Water	6010C	611310
280-176082-2	W-1	Total Recoverable	Water	6010C	611310
MB 280-611310/1-A	Method Blank	Total Recoverable	Water	6010C	611310
LCS 280-611310/2-A	Lab Control Sample	Total Recoverable	Water	6010C	611310

General Chemistry

Analysis Batch: 611825

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176082-2	W-1	Total/NA	Water	SM 2540C	
MB 280-611825/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-611825/2	Lab Control Sample	Total/NA	Water	SM 2540C	
280-176082-2 DU	W-1	Total/NA	Water	SM 2540C	

Analysis Batch: 611857

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176082-2	W-1	Total/NA	Water	SM 2540D	
MB 280-611857/3	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-611857/1	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-611857/2	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 611958

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176082-1	W-12	Total/NA	Water	SM 2540C	
MB 280-611958/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-611958/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 612064

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176082-1	W-12	Total/NA	Water	SM 2320B	
280-176082-2	W-1	Total/NA	Water	SM 2320B	
MB 280-612064/31	Method Blank	Total/NA	Water	SM 2320B	
MB 280-612064/5	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-612064/30	Lab Control Sample	Total/NA	Water	SM 2320B	

Analysis Batch: 612149

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176082-1	W-12	Total/NA	Water	SM 2540D	
MB 280-612149/2	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-612149/1	Lab Control Sample	Total/NA	Water	SM 2540D	

Analysis Batch: 612289

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176082-1	W-12	Total/NA	Water	9040B	
280-176082-2	W-1	Total/NA	Water	9040B	
LCS 280-612289/31	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 612326

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176082-1	W-12	Total/NA	Water	9056A	
MB 280-612326/39	Method Blank	Total/NA	Water	9056A	
LCS 280-612326/37	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-612326/38	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-612326/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 612674

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176082-1	W-12	Total/NA	Water	9056A	
280-176082-2	W-1	Total/NA	Water	9056A	
280-176082-2	W-1	Total/NA	Water	9056A	

General Chemistry (Continued)

Analysis Batch: 612674 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-612674/48	Method Blank	Total/NA	Water	9056A	
MB 280-612674/6	Method Blank	Total/NA	Water	9056A	
LCS 280-612674/4	Lab Control Sample	Total/NA	Water	9056A	
LCS 280-612674/46	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-612674/47	Lab Control Sample Dup	Total/NA	Water	9056A	
LCSD 280-612674/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-612674/3	Lab Control Sample	Total/NA	Water	9056A	

Lab Chronicle

Client: HDR Inc
Job ID: 280-176082-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-12
Lab Sample ID: 280-176082-1
Date Collected: 05/04/23 11:08
Matrix: Water
Date Received: 05/05/23 11:25

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	611310	05/08/23 07:49	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			613121	05/18/23 19:03	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611310	05/08/23 07:49	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			612611	05/15/23 14:51	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611310	05/08/23 07:49	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			611838	05/09/23 01:05	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611310	05/08/23 07:49	LJS	EET DEN
Total Recoverable	Analysis	6020B		100			612054	05/10/23 17:46	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	612644	05/16/23 13:45	KMS	EET DEN
Total/NA	Analysis	7470A		1			612854	05/16/23 22:03	KMS	EET DEN
Total/NA	Analysis	9040B		1			612289	05/11/23 15:48	KEG	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	612326	05/13/23 00:42	EJS	EET DEN
Total/NA	Analysis	9056A		200	5 mL	5 mL	612674	05/17/23 00:50	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			612064	05/10/23 19:37	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	611958	05/10/23 12:30	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	612149	05/11/23 13:43	MCR	EET DEN

Client Sample ID: W-1
Lab Sample ID: 280-176082-2
Date Collected: 05/03/23 14:38
Matrix: Water
Date Received: 05/05/23 11:25

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	611310	05/08/23 07:49	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			613121	05/18/23 19:07	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611310	05/08/23 07:49	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			612611	05/15/23 14:56	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611310	05/08/23 07:49	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			611838	05/09/23 01:09	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611310	05/08/23 07:49	LJS	EET DEN
Total Recoverable	Analysis	6020B		100			612054	05/10/23 17:49	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	612644	05/16/23 13:45	KMS	EET DEN
Total/NA	Analysis	7470A		1			612854	05/16/23 22:05	KMS	EET DEN
Total/NA	Analysis	9040B		1			612289	05/11/23 15:52	KEG	EET DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	612674	05/17/23 01:02	EJS	EET DEN
Total/NA	Analysis	9056A		1000	5 mL	5 mL	612674	05/17/23 01:13	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			612064	05/10/23 19:47	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	611825	05/09/23 15:08	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	611857	05/09/23 17:44	MCR	EET DEN

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

Accreditation/Certification Summary

Client: HDR Inc
Job ID: 280-176082-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

eurofins | Environment Testing America

Client Information	Sampler: Francis Li	Lab PM: Ryan, Nicole C	Carrier Tracking No(s):	COC No: 280-123984-34653
Client Contact: Ms. Sierra Schupp	Phone: 720 - 261 - 5222	E-Mail: Nicole.Ryan@ET.eurofinsus.com	State of Origin:	Page: Page 1 of 1
Company: HDR Inc	PWSID:			Job #:

Address: 1670 Broadway Suite 3400	Due Date Requested:
City: Denver	TAT Requested (days):
State, Zip: CO, 80202	Compliance Project: Δ Yes Δ No
Phone: 734-263-7138(Tel)	PO #: DEN-021
Email: Sierra.Schupp@hdrinc.com	WO #:
Project Name: Xcel Energy GW CCR Monitoring - Comanche	Project #: 28014376
Site: Colorado On-Site Wells	SSOW#:

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, 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)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	App III and IV Metals: B, Ca, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Mo, Se, Tl	Total Mercury	Additional Metals: Mg, Na, K	9056 Anions: Chloride, Fluoride, Sulfate	2540C: TDs	2540D: TSS	9040 pH	2320 Alkalinity	Ra226, Ra228, Ra226+228	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D	D	N	N	N	N	N	D		
W-12	05/04/23	1108	G	W	N	N	X	X	X	X	X	X	X	X	X	5	
W-1	05/03/23	~~1348~~ 1438	G	W	N	N	X	X	X	X	X	X	X	X	X	2	Additional volume collected below
W-1	05/04/23	0845	G	W	N	N	X	X	X	X	X	X	X	X	X	2	All "W-1" part of 1 sampling event,
W-1	05/05/23	0755	G	W	N	N	X	X	X	X	X	X	X	X	X	1	had to return multiple days to collect sufficient volume

280-176082 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:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Mattison Barickman	05/05/2023, 1125	HDR Inc.		5/5/23 1125	EHDEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1.9°C 1.6°C cf# IR14

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-176082-1

Login Number: 176082
List Number: 1
Creator: Roehsner, Karen P

List Source: Eurofins Denver

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.	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 <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Molly Reeves
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Generated 5/19/2023 11:14:40 AM

JOB DESCRIPTION

Xcel Energy GW CCR Monitoring - Comanche

JOB NUMBER

280-176104-1

Eurofins Denver
4955 Yarrow Street
Arvada CO 80002

See page two for job notes and contact information.

my EOL

Job Notes

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

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

Authorization



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5/19/2023 11:14:40 AM

Authorized for release by
Nicole Ryan, Project Manager I
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Definitions/Glossary

Client: HDR Inc
Job ID: 280-176104-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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.

General Chemistry

Qualifier	Qualifier Description
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. This does not meet regulatory requirements.
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

Job ID: 280-176104-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-176104-1

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 5/5/2023 11:25 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.7º C and 2.0º C.

DISSOLVED METALS
Samples MW-6 (280-176104-1), MWT-6 (280-176104-2), MW-1B (280-176104-3) and MW-2B (280-176104-4) were analyzed for Dissolved Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 05/12/2023 and analyzed on 05/13/2023.

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

DISSOLVED METALS (ICP/MS)
Samples MW-6 (280-176104-1), MWT-6 (280-176104-2), MW-1B (280-176104-3) and MW-2B (280-176104-4) were analyzed for Dissolved Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 05/12/2023 and analyzed on 05/16/2023.

Samples MW-6 (280-176104-1)[50X], MWT-6 (280-176104-2)[50X], MW-1B (280-176104-3)[100X] and MW-2B (280-176104-4)[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.

ALKALINITY
Samples MW-6 (280-176104-1), MWT-6 (280-176104-2), MW-1B (280-176104-3) and MW-2B (280-176104-4) were analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 05/09/2023.

Alkalinity was detected in method blank MB 280-611910/32 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. 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.

Job ID: 280-176104-1 (Continued)

Laboratory: Eurofins Denver (Continued)

ANIONS (48 HOURS)

Samples MW-6 (280-176104-1), MWT-6 (280-176104-2), MW-1B (280-176104-3) and MW-2B (280-176104-4) were analyzed for anions (48 hours) in accordance with EPA SW-846 Method 9056 (48 Hours). The samples were analyzed on 05/05/2023 and 05/08/2023.

Reanalysis of the following samples was performed outside of the analytical holding time due to the samples requiring a higher dilution for nitrate. The out of hold data produced through re-analysis is with ±10% of the initial in hold data: MW-1B (280-176104-3) and MW-2B (280-176104-4).

The concentration of the matrix spike reagent caused the results for the matrix spike and matrix spike duplicate (MS/MSD) to be above the highest point of the calibration range for nitrate. The results for the MS/MSD are still within the standard control limits of 80-120%. (280-176104-A-1 MS) and (280-176104-A-1 MSD).

Samples MW-6 (280-176104-1)[10X], MWT-6 (280-176104-2)[10X], MW-1B (280-176104-3)[20X], MW-1B (280-176104-3)[50X], MW-2B (280-176104-4)[100X] and MW-2B (280-176104-4)[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.

Detection Summary

Client: HDR Inc
Job ID: 280-176104-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: MW-6 — Lab Sample ID: 280-176104-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	2200		100	1.5	ug/L	1		6010C	Dissolved
Arsenic	0.00056	J	0.0050	0.00050	mg/L	1		6020B	Dissolved
Barium	0.0069		0.0030	0.00038	mg/L	1		6020B	Dissolved
Calcium	460000		10000	1600	ug/L	50		6020B	Dissolved
Chromium	0.00072	J	0.0030	0.00050	mg/L	1		6020B	Dissolved
Magnesium	340000		10000	210	ug/L	50		6020B	Dissolved
Selenium	0.98		0.0050	0.0010	mg/L	1		6020B	Dissolved
Sodium	950000		50000	3700	ug/L	50		6020B	Dissolved
Copper	0.80	J	2.0	0.71	ug/L	1		6020B	Dissolved
Potassium	9400		1000	52	ug/L	1		6020B	Dissolved
Nickel	1.6	J	3.0	0.83	ug/L	1		6020B	Dissolved
Nitrate as N	49		5.0	0.90	mg/L	10		9056	Total/NA
Alkalinity	140	B	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

Client Sample ID: MWT-6 — Lab Sample ID: 280-176104-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	2100		100	1.5	ug/L	1		6010C	Dissolved
Arsenic	0.00053	J	0.0050	0.00050	mg/L	1		6020B	Dissolved
Barium	0.0070		0.0030	0.00038	mg/L	1		6020B	Dissolved
Calcium	470000		10000	1600	ug/L	50		6020B	Dissolved
Chromium	0.00066	J	0.0030	0.00050	mg/L	1		6020B	Dissolved
Magnesium	350000		10000	210	ug/L	50		6020B	Dissolved
Selenium	1.0		0.0050	0.0010	mg/L	1		6020B	Dissolved
Sodium	970000		50000	3700	ug/L	50		6020B	Dissolved
Copper	0.83	J	2.0	0.71	ug/L	1		6020B	Dissolved
Potassium	9600		1000	52	ug/L	1		6020B	Dissolved
Nickel	1.5	J	3.0	0.83	ug/L	1		6020B	Dissolved
Zinc	2.2	J	10	2.0	ug/L	1		6020B	Dissolved
Nitrate as N	49		5.0	0.90	mg/L	10		9056	Total/NA
Alkalinity	140	B	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

Client Sample ID: MW-1B — Lab Sample ID: 280-176104-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	750		100	1.5	ug/L	1		6010C	Dissolved
Antimony	0.00044	J	0.0020	0.00040	mg/L	1		6020B	Dissolved
Silver	0.38	J	1.0	0.045	ug/L	1		6020B	Dissolved
Barium	0.012		0.0030	0.00038	mg/L	1		6020B	Dissolved
Cadmium	0.0028		0.0010	0.00019	mg/L	1		6020B	Dissolved
Calcium	460000		20000	3200	ug/L	100		6020B	Dissolved
Chromium	0.0051		0.0030	0.00050	mg/L	1		6020B	Dissolved
Cobalt	0.049		0.0010	0.00033	mg/L	1		6020B	Dissolved
Lead	0.00030	J	0.0010	0.00023	mg/L	1		6020B	Dissolved
Magnesium	2700000		20000	420	ug/L	100		6020B	Dissolved
Selenium	0.62		0.0050	0.0010	mg/L	1		6020B	Dissolved
Sodium	4000000		100000	7300	ug/L	100		6020B	Dissolved
Thallium	0.0031		0.0010	0.00021	mg/L	1		6020B	Dissolved
Copper	49		2.0	0.71	ug/L	1		6020B	Dissolved
Potassium	34000		1000	52	ug/L	1		6020B	Dissolved

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-1B (Continued)
Lab Sample ID: 280-176104-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Nickel	280		3.0	0.83	ug/L	1		6020B	Dissolved
Vanadium	1.5	J	5.0	1.1	ug/L	1		6020B	Dissolved
Zinc	37		10	2.0	ug/L	1		6020B	Dissolved
Nitrate as N	110	E	10	1.8	mg/L	20		9056	Total/NA
Nitrate as N	120	H	25	4.5	mg/L	50		9056	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

Client Sample ID: MW-2B
Lab Sample ID: 280-176104-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	780		100	1.5	ug/L	1		6010C	Dissolved
Silver	0.19	J	1.0	0.045	ug/L	1		6020B	Dissolved
Barium	0.011		0.0030	0.00038	mg/L	1		6020B	Dissolved
Cadmium	0.0011		0.0010	0.00019	mg/L	1		6020B	Dissolved
Calcium	450000		20000	3200	ug/L	100		6020B	Dissolved
Cobalt	0.034		0.0010	0.00033	mg/L	1		6020B	Dissolved
Lead	0.00030	J	0.0010	0.00023	mg/L	1		6020B	Dissolved
Magnesium	3900000		20000	420	ug/L	100		6020B	Dissolved
Selenium	2.2		0.0050	0.0010	mg/L	1		6020B	Dissolved
Sodium	7700000		100000	7300	ug/L	100		6020B	Dissolved
Thallium	0.013		0.0010	0.00021	mg/L	1		6020B	Dissolved
Copper	30		2.0	0.71	ug/L	1		6020B	Dissolved
Potassium	69000		1000	52	ug/L	1		6020B	Dissolved
Nickel	220		3.0	0.83	ug/L	1		6020B	Dissolved
Vanadium	1.4	J	5.0	1.1	ug/L	1		6020B	Dissolved
Zinc	21		10	2.0	ug/L	1		6020B	Dissolved
Nitrate as N	300	E	10	1.8	mg/L	20		9056	Total/NA
Nitrate as N	290	H	50	9.0	mg/L	100		9056	Total/NA
Alkalinity	1800	B	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

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-176104-1
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
9056	Anions, Ion Chromatography	SW846	EET DEN
SM 2320B	Alkalinity	SM	EET DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	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: 280-176104-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-176104-1	MW-6	Water	05/04/23 16:30	05/05/23 11:25
280-176104-2	MWT-6	Water	05/04/23 16:30	05/05/23 11:25
280-176104-3	MW-1B	Water	05/04/23 16:35	05/05/23 11:25
280-176104-4	MW-2B	Water	05/04/23 17:45	05/05/23 11:25

Method: SW846 6010C - Metals (ICP) - Dissolved

Client Sample ID: MW-6
Date Collected: 05/04/23 16:30
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176104-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**2200**		100	1.5	ug/L		05/12/23 14:25	05/13/23 17:24	1

Client Sample ID: MWT-6
Date Collected: 05/04/23 16:30
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176104-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**2100**		100	1.5	ug/L		05/12/23 14:25	05/13/23 17:28	1

Client Sample ID: MW-1B
Date Collected: 05/04/23 16:35
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176104-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**750**		100	1.5	ug/L		05/12/23 14:25	05/13/23 17:32	1

Client Sample ID: MW-2B
Date Collected: 05/04/23 17:45
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176104-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**780**		100	1.5	ug/L		05/12/23 14:25	05/13/23 17:36	1

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

Client Sample ID: MW-6
Date Collected: 05/04/23 16:30
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176104-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/12/23 14:25	05/16/23 03:55	1
Silver	ND		1.0	0.045	ug/L		05/12/23 14:25	05/16/23 03:55	1
Arsenic	**0.00056**	**J**	0.0050	0.00050	mg/L		05/12/23 14:25	05/16/23 03:55	1
Barium	**0.0069**		0.0030	0.00038	mg/L		05/12/23 14:25	05/16/23 03:55	1
Beryllium	ND		0.0010	0.00030	mg/L		05/12/23 14:25	05/16/23 03:55	1
Cadmium	ND		0.0010	0.00019	mg/L		05/12/23 14:25	05/16/23 03:55	1
Calcium	**460000**		10000	1600	ug/L		05/12/23 14:25	05/16/23 01:29	50
Chromium	**0.00072**	**J**	0.0030	0.00050	mg/L		05/12/23 14:25	05/16/23 03:55	1
Cobalt	ND		0.0010	0.00033	mg/L		05/12/23 14:25	05/16/23 03:55	1
Lead	ND		0.0010	0.00023	mg/L		05/12/23 14:25	05/16/23 03:55	1
Magnesium	**340000**		10000	210	ug/L		05/12/23 14:25	05/16/23 01:29	50
Selenium	**0.98**		0.0050	0.0010	mg/L		05/12/23 14:25	05/16/23 03:55	1
Sodium	**950000**		50000	3700	ug/L		05/12/23 14:25	05/16/23 01:29	50
Thallium	ND		0.0010	0.00021	mg/L		05/12/23 14:25	05/16/23 03:55	1
Copper	**0.80**	**J**	2.0	0.71	ug/L		05/12/23 14:25	05/16/23 03:55	1
Potassium	**9400**		1000	52	ug/L		05/12/23 14:25	05/16/23 03:55	1
Nickel	**1.6**	**J**	3.0	0.83	ug/L		05/12/23 14:25	05/16/23 03:55	1
Vanadium	ND		5.0	1.1	ug/L		05/12/23 14:25	05/16/23 03:55	1
Zinc	ND		10	2.0	ug/L		05/12/23 14:25	05/16/23 03:55	1

Client Sample ID: MWT-6
Date Collected: 05/04/23 16:30
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176104-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/12/23 14:25	05/16/23 03:59	1

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

Client Sample ID: MWT-6
Date Collected: 05/04/23 16:30
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176104-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.045	ug/L		05/12/23 14:25	05/16/23 03:59	1
Arsenic	**0.00053**	**J**	0.0050	0.00050	mg/L		05/12/23 14:25	05/16/23 03:59	1
Barium	**0.0070**		0.0030	0.00038	mg/L		05/12/23 14:25	05/16/23 03:59	1
Beryllium	ND		0.0010	0.00030	mg/L		05/12/23 14:25	05/16/23 03:59	1
Cadmium	ND		0.0010	0.00019	mg/L		05/12/23 14:25	05/16/23 03:59	1
Calcium	**470000**		10000	1600	ug/L		05/12/23 14:25	05/16/23 01:31	50
Chromium	**0.00066**	**J**	0.0030	0.00050	mg/L		05/12/23 14:25	05/16/23 03:59	1
Cobalt	ND		0.0010	0.00033	mg/L		05/12/23 14:25	05/16/23 03:59	1
Lead	ND		0.0010	0.00023	mg/L		05/12/23 14:25	05/16/23 03:59	1
Magnesium	**350000**		10000	210	ug/L		05/12/23 14:25	05/16/23 01:31	50
Selenium	**1.0**		0.0050	0.0010	mg/L		05/12/23 14:25	05/16/23 03:59	1
Sodium	**970000**		50000	3700	ug/L		05/12/23 14:25	05/16/23 01:31	50
Thallium	ND		0.0010	0.00021	mg/L		05/12/23 14:25	05/16/23 03:59	1
Copper	**0.83**	**J**	2.0	0.71	ug/L		05/12/23 14:25	05/16/23 03:59	1
Potassium	**9600**		1000	52	ug/L		05/12/23 14:25	05/16/23 03:59	1
Nickel	**1.5**	**J**	3.0	0.83	ug/L		05/12/23 14:25	05/16/23 03:59	1
Vanadium	ND		5.0	1.1	ug/L		05/12/23 14:25	05/16/23 03:59	1
Zinc	**2.2**	**J**	10	2.0	ug/L		05/12/23 14:25	05/16/23 03:59	1

Client Sample ID: MW-1B
Date Collected: 05/04/23 16:35
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176104-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.00044**	**J**	0.0020	0.00040	mg/L		05/12/23 14:25	05/16/23 04:02	1
Silver	**0.38**	**J**	1.0	0.045	ug/L		05/12/23 14:25	05/16/23 04:02	1
Arsenic	ND		0.0050	0.00050	mg/L		05/12/23 14:25	05/16/23 04:02	1
Barium	**0.012**		0.0030	0.00038	mg/L		05/12/23 14:25	05/16/23 04:02	1
Beryllium	ND		0.0010	0.00030	mg/L		05/12/23 14:25	05/16/23 04:02	1
Cadmium	**0.0028**		0.0010	0.00019	mg/L		05/12/23 14:25	05/16/23 04:02	1
Calcium	**460000**		20000	3200	ug/L		05/12/23 14:25	05/16/23 01:33	100
Chromium	**0.0051**		0.0030	0.00050	mg/L		05/12/23 14:25	05/16/23 04:02	1
Cobalt	**0.049**		0.0010	0.00033	mg/L		05/12/23 14:25	05/16/23 04:02	1
Lead	**0.00030**	**J**	0.0010	0.00023	mg/L		05/12/23 14:25	05/16/23 04:02	1
Magnesium	**2700000**		20000	420	ug/L		05/12/23 14:25	05/16/23 01:33	100
Selenium	**0.62**		0.0050	0.0010	mg/L		05/12/23 14:25	05/16/23 04:02	1
Sodium	**4000000**		100000	7300	ug/L		05/12/23 14:25	05/16/23 01:33	100
Thallium	**0.0031**		0.0010	0.00021	mg/L		05/12/23 14:25	05/16/23 04:02	1
Copper	**49**		2.0	0.71	ug/L		05/12/23 14:25	05/16/23 04:02	1
Potassium	**34000**		1000	52	ug/L		05/12/23 14:25	05/16/23 04:02	1
Nickel	**280**		3.0	0.83	ug/L		05/12/23 14:25	05/16/23 04:02	1
Vanadium	**1.5**	**J**	5.0	1.1	ug/L		05/12/23 14:25	05/16/23 04:02	1
Zinc	**37**		10	2.0	ug/L		05/12/23 14:25	05/16/23 04:02	1

Client Sample ID: MW-2B
Date Collected: 05/04/23 17:45
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176104-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/12/23 14:25	05/16/23 04:06	1
Silver	**0.19**	**J**	1.0	0.045	ug/L		05/12/23 14:25	05/16/23 04:06	1
Arsenic	ND		0.0050	0.00050	mg/L		05/12/23 14:25	05/16/23 04:06	1

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

Client Sample ID: MW-2B
Date Collected: 05/04/23 17:45
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176104-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.011**		0.0030	0.00038	mg/L		05/12/23 14:25	05/16/23 04:06	1
Beryllium	ND		0.0010	0.00030	mg/L		05/12/23 14:25	05/16/23 04:06	1
Cadmium	**0.0011**		0.0010	0.00019	mg/L		05/12/23 14:25	05/16/23 04:06	1
Calcium	**450000**		20000	3200	ug/L		05/12/23 14:25	05/16/23 01:35	100
Chromium	ND		0.0030	0.00050	mg/L		05/12/23 14:25	05/16/23 04:06	1
Cobalt	**0.034**		0.0010	0.00033	mg/L		05/12/23 14:25	05/16/23 04:06	1
Lead	**0.00030**	**J**	0.0010	0.00023	mg/L		05/12/23 14:25	05/16/23 04:06	1
Magnesium	**3900000**		20000	420	ug/L		05/12/23 14:25	05/16/23 01:35	100
Selenium	**2.2**		0.0050	0.0010	mg/L		05/12/23 14:25	05/16/23 04:06	1
Sodium	**7700000**		100000	7300	ug/L		05/12/23 14:25	05/16/23 01:35	100
Thallium	**0.013**		0.0010	0.00021	mg/L		05/12/23 14:25	05/16/23 04:06	1
Copper	**30**		2.0	0.71	ug/L		05/12/23 14:25	05/16/23 04:06	1
Potassium	**69000**		1000	52	ug/L		05/12/23 14:25	05/16/23 04:06	1
Nickel	**220**		3.0	0.83	ug/L		05/12/23 14:25	05/16/23 04:06	1
Vanadium	**1.4**	**J**	5.0	1.1	ug/L		05/12/23 14:25	05/16/23 04:06	1
Zinc	**21**		10	2.0	ug/L		05/12/23 14:25	05/16/23 04:06	1

General Chemistry

Client Sample ID: MW-6
Date Collected: 05/04/23 16:30
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176104-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N (SW846 9056)	**49**		5.0	0.90	mg/L			05/05/23 16:51	10
Alkalinity (SM 2320B)	**140**	**B**	10	3.1	mg/L			05/09/23 16:29	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**140**		10	3.1	mg/L			05/09/23 16:29	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			05/09/23 16:29	1

Client Sample ID: MWT-6
Date Collected: 05/04/23 16:30
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176104-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N (SW846 9056)	**49**		5.0	0.90	mg/L			05/05/23 17:55	10
Alkalinity (SM 2320B)	**140**	**B**	10	3.1	mg/L			05/09/23 16:36	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**140**		10	3.1	mg/L			05/09/23 16:36	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			05/09/23 16:36	1

Client Sample ID: MW-1B
Date Collected: 05/04/23 16:35
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176104-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N (SW846 9056)	**110**	**E**	10	1.8	mg/L			05/05/23 18:11	20
Nitrate as N (SW846 9056)	**120**	**H**	25	4.5	mg/L			05/08/23 15:52	50
Alkalinity (SM 2320B)	**1400**	**B**	10	3.1	mg/L			05/09/23 16:50	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**1400**		10	3.1	mg/L			05/09/23 16:50	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			05/09/23 16:50	1

Client: HDR Inc
Job ID: 280-176104-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

General Chemistry

Client Sample ID: MW-2B
Date Collected: 05/04/23 17:45
Date Received: 05/05/23 11:25

Lab Sample ID: 280-176104-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N (SW846 9056)	**300**	**E**	10	1.8	mg/L			05/05/23 18:27	20
Nitrate as N (SW846 9056)	**290**	**H**	50	9.0	mg/L			05/08/23 15:39	100
Alkalinity (SM 2320B)	**1800**	**B**	10	3.1	mg/L			05/09/23 17:08	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**1800**		10	3.1	mg/L			05/09/23 17:08	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			05/09/23 17:08	1

QC Sample Results

Client: HDR Inc
Job ID: 280-176104-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-612180/1-C
Matrix: Water
Analysis Batch: 612420

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 612213

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		100	1.5	ug/L		05/12/23 14:25	05/13/23 16:23	1

Lab Sample ID: LCS 280-612180/2-C
Matrix: Water
Analysis Batch: 612420

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 612213

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2000	2080		ug/L		104	86 - 110

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-612180/1-B
Matrix: Water
Analysis Batch: 612609

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 612211

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/12/23 14:25	05/16/23 01:09	1
Silver	ND		1.0	0.045	ug/L		05/12/23 14:25	05/16/23 01:09	1
Arsenic	ND		0.0050	0.00050	mg/L		05/12/23 14:25	05/16/23 01:09	1
Barium	ND		0.0030	0.00038	mg/L		05/12/23 14:25	05/16/23 01:09	1
Beryllium	ND		0.0010	0.00030	mg/L		05/12/23 14:25	05/16/23 01:09	1
Cadmium	ND		0.0010	0.00019	mg/L		05/12/23 14:25	05/16/23 01:09	1
Calcium	ND		200	32	ug/L		05/12/23 14:25	05/16/23 01:09	1
Chromium	ND		0.0030	0.00050	mg/L		05/12/23 14:25	05/16/23 01:09	1
Cobalt	ND		0.0010	0.00033	mg/L		05/12/23 14:25	05/16/23 01:09	1
Lead	ND		0.0010	0.00023	mg/L		05/12/23 14:25	05/16/23 01:09	1
Magnesium	ND		200	4.2	ug/L		05/12/23 14:25	05/16/23 01:09	1
Selenium	ND		0.0050	0.0010	mg/L		05/12/23 14:25	05/16/23 01:09	1
Sodium	ND		1000	73	ug/L		05/12/23 14:25	05/16/23 01:09	1
Thallium	ND		0.0010	0.00021	mg/L		05/12/23 14:25	05/16/23 01:09	1
Copper	ND		2.0	0.71	ug/L		05/12/23 14:25	05/16/23 01:09	1
Potassium	ND		1000	52	ug/L		05/12/23 14:25	05/16/23 01:09	1
Nickel	ND		3.0	0.83	ug/L		05/12/23 14:25	05/16/23 01:09	1
Vanadium	ND		5.0	1.1	ug/L		05/12/23 14:25	05/16/23 01:09	1
Zinc	ND		10	2.0	ug/L		05/12/23 14:25	05/16/23 01:09	1

Lab Sample ID: LCS 280-612180/2-B
Matrix: Water
Analysis Batch: 612609

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 612211

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0413		mg/L		103	85 - 115
Silver	40.0	39.3		ug/L		98	85 - 115
Arsenic	0.0400	0.0415		mg/L		104	85 - 117
Barium	0.0400	0.0397		mg/L		99	85 - 118
Beryllium	0.0400	0.0435		mg/L		109	80 - 125
Cadmium	0.0400	0.0396		mg/L		99	85 - 115
Calcium	1000	1070		ug/L		107	80 - 120
Chromium	0.0400	0.0400		mg/L		100	84 - 121

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

Lab Sample ID: LCS 280-612180/2-B
Matrix: Water
Analysis Batch: 612609

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 612211

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cobalt	0.0400	0.0398		mg/L		99	85 - 120
Lead	0.0400	0.0411		mg/L		103	85 - 118
Magnesium	1000	955		ug/L		96	80 - 120
Selenium	0.0400	0.0402		mg/L		101	77 - 122
Sodium	1000	934	J	ug/L		93	80 - 120
Thallium	0.0400	0.0403		mg/L		101	85 - 118
Copper	40.0	38.9		ug/L		97	85 - 119
Potassium	1000	976	J	ug/L		98	80 - 120
Nickel	40.0	38.4		ug/L		96	85 - 119
Vanadium	40.0	40.8		ug/L		102	85 - 120
Zinc	40.0	37.4		ug/L		93	83 - 122

Method: 9056 - Anions, Ion Chromatography

Lab Sample ID: MB 280-611385/6
Matrix: Water
Analysis Batch: 611385

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.50	0.090	mg/L			05/05/23 11:30	1

Lab Sample ID: LCS 280-611385/4
Matrix: Water
Analysis Batch: 611385

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate as N	2.50	2.34		mg/L		93	90 - 110

Lab Sample ID: LCSD 280-611385/5
Matrix: Water
Analysis Batch: 611385

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
Nitrate as N	2.50	2.34		mg/L		94	90 - 110	0	10

Lab Sample ID: MRL 280-611385/3
Matrix: Water
Analysis Batch: 611385

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate as N	0.250	0.234	J	mg/L		94	50 - 150

Lab Sample ID: 280-176104-1 MS
Matrix: Water
Analysis Batch: 611385

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
Nitrate as N	49		50.0	98.5	E	mg/L		98	80 - 120

Method: 9056 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 280-176104-1 MSD
Matrix: Water
Analysis Batch: 611385

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
Nitrate as N	49		50.0	98.8	E	mg/L		99	80 - 120	0	20

Lab Sample ID: 280-176104-1 DU
Matrix: Water
Analysis Batch: 611385

Client Sample ID: MW-6
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Nitrate as N	49		48.2		mg/L		2	15

Lab Sample ID: MB 280-611595/6
Matrix: Water
Analysis Batch: 611595

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.50	0.090	mg/L			05/08/23 11:19	1

Lab Sample ID: LCS 280-611595/4
Matrix: Water
Analysis Batch: 611595

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate as N	2.50	2.42		mg/L		97	90 - 110

Lab Sample ID: LCSD 280-611595/5
Matrix: Water
Analysis Batch: 611595

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
Nitrate as N	2.50	2.43		mg/L		97	90 - 110	1	10

Lab Sample ID: MRL 280-611595/3
Matrix: Water
Analysis Batch: 611595

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate as N	0.250	0.244	J	mg/L		98	50 - 150

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-611910/32
Matrix: Water
Analysis Batch: 611910

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	3.14	J	10	3.1	mg/L			05/09/23 14:44	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/09/23 14:44	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/09/23 14:44	1

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: LCS 280-611910/31
Matrix: Water
Analysis Batch: 611910

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		96	89 - 110

Metals

Filtration Batch: 612180

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176104-1	MW-6	Dissolved	Water	FILTRATION	
280-176104-2	MWT-6	Dissolved	Water	FILTRATION	
280-176104-3	MW-1B	Dissolved	Water	FILTRATION	
280-176104-4	MW-2B	Dissolved	Water	FILTRATION	
MB 280-612180/1-B	Method Blank	Dissolved	Water	FILTRATION	
MB 280-612180/1-C	Method Blank	Dissolved	Water	FILTRATION	
LCS 280-612180/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 280-612180/2-C	Lab Control Sample	Dissolved	Water	FILTRATION	

Prep Batch: 612211

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176104-1	MW-6	Dissolved	Water	3005A	612180
280-176104-2	MWT-6	Dissolved	Water	3005A	612180
280-176104-3	MW-1B	Dissolved	Water	3005A	612180
280-176104-4	MW-2B	Dissolved	Water	3005A	612180
MB 280-612180/1-B	Method Blank	Dissolved	Water	3005A	612180
LCS 280-612180/2-B	Lab Control Sample	Dissolved	Water	3005A	612180

Prep Batch: 612213

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176104-1	MW-6	Dissolved	Water	3005A	612180
280-176104-2	MWT-6	Dissolved	Water	3005A	612180
280-176104-3	MW-1B	Dissolved	Water	3005A	612180
280-176104-4	MW-2B	Dissolved	Water	3005A	612180
MB 280-612180/1-C	Method Blank	Dissolved	Water	3005A	612180
LCS 280-612180/2-C	Lab Control Sample	Dissolved	Water	3005A	612180

Analysis Batch: 612420

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176104-1	MW-6	Dissolved	Water	6010C	612213
280-176104-2	MWT-6	Dissolved	Water	6010C	612213
280-176104-3	MW-1B	Dissolved	Water	6010C	612213
280-176104-4	MW-2B	Dissolved	Water	6010C	612213
MB 280-612180/1-C	Method Blank	Dissolved	Water	6010C	612213
LCS 280-612180/2-C	Lab Control Sample	Dissolved	Water	6010C	612213

Analysis Batch: 612609

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176104-1	MW-6	Dissolved	Water	6020B	612211
280-176104-1	MW-6	Dissolved	Water	6020B	612211
280-176104-2	MWT-6	Dissolved	Water	6020B	612211
280-176104-2	MWT-6	Dissolved	Water	6020B	612211
280-176104-3	MW-1B	Dissolved	Water	6020B	612211
280-176104-3	MW-1B	Dissolved	Water	6020B	612211
280-176104-4	MW-2B	Dissolved	Water	6020B	612211
280-176104-4	MW-2B	Dissolved	Water	6020B	612211
MB 280-612180/1-B	Method Blank	Dissolved	Water	6020B	612211
LCS 280-612180/2-B	Lab Control Sample	Dissolved	Water	6020B	612211

QC Association Summary

Client: HDR Inc
Job ID: 280-176104-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

General Chemistry

Analysis Batch: 611385

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176104-1	MW-6	Total/NA	Water	9056	
280-176104-2	MWT-6	Total/NA	Water	9056	
280-176104-3	MW-1B	Total/NA	Water	9056	
280-176104-4	MW-2B	Total/NA	Water	9056	
MB 280-611385/6	Method Blank	Total/NA	Water	9056	
LCS 280-611385/4	Lab Control Sample	Total/NA	Water	9056	
LCSD 280-611385/5	Lab Control Sample Dup	Total/NA	Water	9056	
MRL 280-611385/3	Lab Control Sample	Total/NA	Water	9056	
280-176104-1 MS	MW-6	Total/NA	Water	9056	
280-176104-1 MSD	MW-6	Total/NA	Water	9056	
280-176104-1 DU	MW-6	Total/NA	Water	9056	

Analysis Batch: 611595

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176104-3	MW-1B	Total/NA	Water	9056	
280-176104-4	MW-2B	Total/NA	Water	9056	
MB 280-611595/6	Method Blank	Total/NA	Water	9056	
LCS 280-611595/4	Lab Control Sample	Total/NA	Water	9056	
LCSD 280-611595/5	Lab Control Sample Dup	Total/NA	Water	9056	
MRL 280-611595/3	Lab Control Sample	Total/NA	Water	9056	

Analysis Batch: 611910

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176104-1	MW-6	Total/NA	Water	SM 2320B	
280-176104-2	MWT-6	Total/NA	Water	SM 2320B	
280-176104-3	MW-1B	Total/NA	Water	SM 2320B	
280-176104-4	MW-2B	Total/NA	Water	SM 2320B	
MB 280-611910/32	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-611910/31	Lab Control Sample	Total/NA	Water	SM 2320B	

Lab Chronicle

Client: HDR Inc
Job ID: 280-176104-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: MW-6
Lab Sample ID: 280-176104-1
Date Collected: 05/04/23 16:30
Matrix: Water
Date Received: 05/05/23 11:25

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	612180	05/11/23 17:07	KMS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612213	05/12/23 14:25	LJS	EET DEN
Dissolved	Analysis	6010C		1			612420	05/13/23 17:24	ADL	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	612180	05/11/23 17:07	KMS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612211	05/12/23 14:25	LJS	EET DEN
Dissolved	Analysis	6020B		50			612609	05/16/23 01:29	LRD	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	612180	05/11/23 17:07	KMS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612211	05/12/23 14:25	LJS	EET DEN
Dissolved	Analysis	6020B		1			612609	05/16/23 03:55	LRD	EET DEN
Total/NA	Analysis	9056		10	5 mL	5 mL	611385	05/05/23 16:51	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			611910	05/09/23 16:29	KEG	EET DEN

Client Sample ID: MWT-6
Lab Sample ID: 280-176104-2
Date Collected: 05/04/23 16:30
Matrix: Water
Date Received: 05/05/23 11:25

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	612180	05/11/23 17:07	KMS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612213	05/12/23 14:25	LJS	EET DEN
Dissolved	Analysis	6010C		1			612420	05/13/23 17:28	ADL	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	612180	05/11/23 17:07	KMS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612211	05/12/23 14:25	LJS	EET DEN
Dissolved	Analysis	6020B		50			612609	05/16/23 01:31	LRD	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	612180	05/11/23 17:07	KMS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612211	05/12/23 14:25	LJS	EET DEN
Dissolved	Analysis	6020B		1			612609	05/16/23 03:59	LRD	EET DEN
Total/NA	Analysis	9056		10	5 mL	5 mL	611385	05/05/23 17:55	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			611910	05/09/23 16:36	KEG	EET DEN

Client Sample ID: MW-1B
Lab Sample ID: 280-176104-3
Date Collected: 05/04/23 16:35
Matrix: Water
Date Received: 05/05/23 11:25

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	612180	05/11/23 17:07	KMS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612213	05/12/23 14:25	LJS	EET DEN
Dissolved	Analysis	6010C		1			612420	05/13/23 17:32	ADL	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	612180	05/11/23 17:07	KMS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612211	05/12/23 14:25	LJS	EET DEN
Dissolved	Analysis	6020B		100			612609	05/16/23 01:33	LRD	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	612180	05/11/23 17:07	KMS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612211	05/12/23 14:25	LJS	EET DEN
Dissolved	Analysis	6020B		1			612609	05/16/23 04:02	LRD	EET DEN
Total/NA	Analysis	9056		20	5 mL	5 mL	611385	05/05/23 18:11	EJS	EET DEN
Total/NA	Analysis	9056		50	5 mL	5 mL	611595	05/08/23 15:52	EJS	EET DEN

Lab Chronicle

Client: HDR Inc
Job ID: 280-176104-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: MW-1B
Lab Sample ID: 280-176104-3
Date Collected: 05/04/23 16:35
Matrix: Water
Date Received: 05/05/23 11:25

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			611910	05/09/23 16:50	KEG	EET DEN

Client Sample ID: MW-2B
Lab Sample ID: 280-176104-4
Date Collected: 05/04/23 17:45
Matrix: Water
Date Received: 05/05/23 11:25

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	612180	05/11/23 17:07	KMS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612213	05/12/23 14:25	LJS	EET DEN
Dissolved	Analysis	6010C		1			612420	05/13/23 17:36	ADL	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	612180	05/11/23 17:07	KMS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612211	05/12/23 14:25	LJS	EET DEN
Dissolved	Analysis	6020B		100			612609	05/16/23 01:35	LRD	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	612180	05/11/23 17:07	KMS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612211	05/12/23 14:25	LJS	EET DEN
Dissolved	Analysis	6020B		1			612609	05/16/23 04:06	LRD	EET DEN
Total/NA	Analysis	9056		20	5 mL	5 mL	611385	05/05/23 18:27	EJS	EET DEN
Total/NA	Analysis	9056		100	5 mL	5 mL	611595	05/08/23 15:39	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			611910	05/09/23 17:08	KEG	EET DEN

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

Accreditation/Certification Summary

Client: HDR Inc
Job ID: 280-176104-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

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Client Information	Sampler: MHB + FL	Lab PM: Ryan, Nicole C	Carrier Tracking No(s):	COC No: 280-129982-35989.1
Client Contact: Molly Reeves	Phone: (720)385-4021	E-Mail: Nicole.Ryan@ET.eurofinsus.com	State of Origin:	Page: Page 1 of 1
Company: HDR Inc	PWSID:			Job #:
Address: 1670 Broadway Suite 3400	Due Date Requested:			
City: Denver	TAT Requested (days):			
State, Zip: CO, 80202	Compliance Project: Δ Yes Δ No			
Phone: 734-263-7138(Tel)	PO #: DEN-021			
Email: Molly.Reeves@hdrinc.com	WO #:			
Project Name: Xcel Energy GW Monitoring - Comanche	Project #: 28014376			
Site: Comanche Landfill State Parameters	SSOW#:			

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
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)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	2320B Alkalinity, 9056_48HR Nitrate Nitrite	6010C, 6020B Dissolved Metals - State list	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N		
MW-6	05/04/2023	1630	G	W	N	N	X	X	2	
MWT-6	05/04/2023	1630	G	W	N	N	X	X	2	
MW-1B	05/04/2023	1635	G	W	N	N	X	X	2	
MW-2B	05/04/2023	1745	G	W	N	N	X	X	2	

280-176104 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:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Mattison Barickman	05/05/2023, 1125	HDR Inc		5/5/23 1125	ETADEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1.9c 1.6c CF 0.1 IR14

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-176104-1

Login Number: 176104
List Number: 1
Creator: Held, Wesley

List Source: Eurofins Denver

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.	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 <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

PREPARED FOR

Attn: Molly Reeves
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Generated 5/22/2023 11:42:38 AM

JOB DESCRIPTION

Xcel Energy GW CCR Monitoring - Comanche

JOB NUMBER

280-176105-1

Eurofins Denver
4955 Yarrow Street
Arvada CO 80002

See page two for job notes and contact information.

my EOL

Job Notes

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

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

Authorization



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5/22/2023 11:42:38 AM

Authorized for release by
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Nicole.Ryan@ET.eurofinsus.com
(303)736-0100

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Definitions/Glossary

Client: HDR Inc
Job ID: 280-176105-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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.

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.
¤	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

Job ID: 280-176105-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-176105-1

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 5/5/2023 11:25 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.7º C and 2.0º C.

TOTAL RECOVERABLE METALS
Samples MW-6 (280-176105-1), MWT-6 (280-176105-2), MW-1B (280-176105-3) and MW-2B (280-176105-4) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 05/10/2023 and analyzed on 05/18/2023 and 05/19/2023.

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-6 (280-176105-1), MWT-6 (280-176105-2), MW-1B (280-176105-3) and MW-2B (280-176105-4) were analyzed for Total Recoverable Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 05/10/2023 and analyzed on 05/10/2023 and 05/11/2023.

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 280-611462 and analytical batch 280-612052 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

The instrument blank for analytical batch 280-612052 contained 500.2 ug/L Na greater than one-half the reporting limit (RL) of 1,000 ug/L , and were not re-analyzed because sample > 10x the blank. The data have been qualified and reported.

Samples MW-6 (280-176105-1)[10X], MWT-6 (280-176105-2)[10X], MW-1B (280-176105-3)[50X] and MW-2B (280-176105-4)[50X] 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 MERCURY
Samples MW-6 (280-176105-1), MWT-6 (280-176105-2), MW-1B (280-176105-3) and MW-2B (280-176105-4) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 05/16/2023.

Job ID: 280-176105-1 (Continued)

Laboratory: Eurofins Denver (Continued)

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

ALKALINITY
Samples MW-6 (280-176105-1), MWT-6 (280-176105-2), MW-1B (280-176105-3) and MW-2B (280-176105-4) were analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 05/09/2023.

Alkalinity was detected in method blank MB 280-611910/32 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. 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-6 (280-176105-1), MWT-6 (280-176105-2), MW-1B (280-176105-3) and MW-2B (280-176105-4) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 05/10/2023.

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

TOTAL SUSPENDED SOLIDS
Samples MW-6 (280-176105-1), MWT-6 (280-176105-2), MW-1B (280-176105-3) and MW-2B (280-176105-4) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 05/11/2023.

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

CORROSIVITY (PH)
Samples MW-6 (280-176105-1), MWT-6 (280-176105-2), MW-1B (280-176105-3) and MW-2B (280-176105-4) were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 05/09/2023.

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

ANIONS (28 DAYS)
Samples MW-6 (280-176105-1), MWT-6 (280-176105-2), MW-1B (280-176105-3) and MW-2B (280-176105-4) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A (28 Days). The samples were analyzed on 05/17/2023 and 05/18/2023.

This sample contains multiple unidentified analytes that share a similar retention time with fluoride. The interference at a lower dilution would cause a considerable and unrepresentative increase to the fluoride result. The result of non-detect at a slightly increased dilution is where the most representative data is produced so the result is being qualified and reported. MW-1B (280-176105-3).

Samples MW-6 (280-176105-1)[5X], MWT-6 (280-176105-2)[5X], MW-1B (280-176105-3)[10X], MW-1B (280-176105-3)[5X], MW-2B (280-176105-4)[10X] and MW-2B (280-176105-4)[500X] 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
Job ID: 280-176105-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: MW-6
Lab Sample ID: 280-176105-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	2.3		0.10	0.0015	mg/L	1		6010C	Total Recoverable
Lithium	0.24		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Arsenic	0.00067	J	0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Barium	0.0075		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Calcium	510		2.0	0.32	mg/L	10		6020B	Total Recoverable
Chromium	0.0015	J	0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Magnesium	370000		2000	42	ug/L	10		6020B	Total Recoverable
Molybdenum	0.011		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Potassium	9500		1000	52	ug/L	1		6020B	Total Recoverable
Selenium	1.1		0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Sodium	1000000		10000	730	ug/L	10		6020B	Total Recoverable
pH adj. to 25 deg C	7.4	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.8	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	220		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	0.53		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	250		25	5.2	mg/L	5		9056A	Total/NA
Alkalinity	150	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	150		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	2900		40	19	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MWT-6
Lab Sample ID: 280-176105-2

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
Lithium	0.23		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Arsenic	0.00066	J	0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Barium	0.0068		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Calcium	500		2.0	0.32	mg/L	10		6020B	Total Recoverable
Chromium	0.0011	J	0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Magnesium	360000		2000	42	ug/L	10		6020B	Total Recoverable
Molybdenum	0.010		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Potassium	9000		1000	52	ug/L	1		6020B	Total Recoverable
Selenium	0.97		0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Sodium	960000		10000	730	ug/L	10		6020B	Total Recoverable
pH adj. to 25 deg C	7.6	HF	0.1	0.1	SU	1		9040B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Client Sample ID: MWT-6 (Continued) — Lab Sample ID: 280-176105-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Temperature	21.4	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	220		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	0.53		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	250		25	5.2	mg/L	5		9056A	Total/NA
Alkalinity	150	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	150		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	1.2	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-1B — Lab Sample ID: 280-176105-3

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
Lithium	3.5		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Antimony	0.00071	J	0.0020	0.00040	mg/L	1		6020B	Total Recoverable
Arsenic	0.00050	J	0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Barium	0.012		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Cadmium	0.0030		0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Calcium	460		10	1.6	mg/L	50		6020B	Total Recoverable
Chromium	0.0054		0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.052		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Lead	0.00074	J	0.0010	0.00023	mg/L	1		6020B	Total Recoverable
Magnesium	2900000		10000	210	ug/L	50		6020B	Total Recoverable
Molybdenum	0.0043		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Potassium	35000		1000	52	ug/L	1		6020B	Total Recoverable
Selenium	0.64		0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Sodium	4200000		50000	3700	ug/L	50		6020B	Total Recoverable
Thallium	0.0035		0.0010	0.00021	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	20.7	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	380		15	5.1	mg/L	5		9056A	Total/NA
Sulfate	710		50	10	mg/L	10		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)	27000		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

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: HDR Inc
Job ID: 280-176105-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: MW-2B
Lab Sample ID: 280-176105-4

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
Lithium	6.0		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Antimony	0.00058	J	0.0020	0.00040	mg/L	1		6020B	Total Recoverable
Arsenic	0.00087	J	0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Barium	0.012		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Cadmium	0.0011		0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Calcium	460		10	1.6	mg/L	50		6020B	Total Recoverable
Chromium	0.00087	J	0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.037		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Lead	0.00060	J	0.0010	0.00023	mg/L	1		6020B	Total Recoverable
Magnesium	4100000		10000	210	ug/L	50		6020B	Total Recoverable
Molybdenum	0.0079		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Potassium	70000		1000	52	ug/L	1		6020B	Total Recoverable
Selenium	2.3		0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Sodium	8300000		50000	3700	ug/L	50		6020B	Total Recoverable
Thallium	0.014		0.0010	0.00021	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	21.2	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	590		30	10	mg/L	10		9056A	Total/NA
Fluoride	8.0		5.0	1.7	mg/L	10		9056A	Total/NA
Sulfate	35000		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)	46000		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.

Method Summary

Client: HDR Inc
Job ID: 280-176105-1
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
Job ID: 280-176105-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-176105-1	MW-6	Water	05/04/23 16:30	05/05/23 11:25
280-176105-2	MWT-6	Water	05/04/23 16:30	05/05/23 11:25
280-176105-3	MW-1B	Water	05/04/23 16:35	05/05/23 11:25
280-176105-4	MW-2B	Water	05/04/23 17:45	05/05/23 11:25

Method: SW846 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: MW-6
Date Collected: 05/04/23 16:30
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176105-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**2.3**		0.10	0.0015	mg/L		05/10/23 07:41	05/19/23 16:09	1
Lithium	**0.24**		0.020	0.0091	mg/L		05/10/23 07:41	05/19/23 16:09	1

Client Sample ID: MWT-6
Date Collected: 05/04/23 16:30
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176105-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**2.2**		0.10	0.0015	mg/L		05/10/23 07:41	05/19/23 16:13	1
Lithium	**0.23**		0.020	0.0091	mg/L		05/10/23 07:41	05/19/23 16:13	1

Client Sample ID: MW-1B
Date Collected: 05/04/23 16:35
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176105-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.80**		0.10	0.0015	mg/L		05/10/23 07:41	05/19/23 16:17	1
Lithium	**3.5**		0.020	0.0091	mg/L		05/10/23 07:41	05/19/23 16:17	1

Client Sample ID: MW-2B
Date Collected: 05/04/23 17:45
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176105-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.84**		0.10	0.0015	mg/L		05/10/23 07:41	05/18/23 10:01	1
Lithium	**6.0**		0.020	0.0091	mg/L		05/10/23 07:41	05/19/23 16:22	1

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

Client Sample ID: MW-6
Date Collected: 05/04/23 16:30
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176105-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/10/23 07:41	05/10/23 21:22	1
Arsenic	**0.00067**	**J**	0.0050	0.00050	mg/L		05/10/23 07:41	05/10/23 21:22	1
Barium	**0.0075**		0.0030	0.00038	mg/L		05/10/23 07:41	05/10/23 21:22	1
Beryllium	ND		0.0010	0.00030	mg/L		05/10/23 07:41	05/10/23 21:22	1
Cadmium	ND		0.0010	0.00019	mg/L		05/10/23 07:41	05/10/23 21:22	1
Calcium	**510**		2.0	0.32	mg/L		05/10/23 07:41	05/11/23 20:25	10
Chromium	**0.0015**	**J**	0.0030	0.00050	mg/L		05/10/23 07:41	05/10/23 21:22	1
Cobalt	ND		0.0010	0.00033	mg/L		05/10/23 07:41	05/10/23 21:22	1
Lead	ND		0.0010	0.00023	mg/L		05/10/23 07:41	05/10/23 21:22	1
Magnesium	**370000**		2000	42	ug/L		05/10/23 07:41	05/11/23 20:25	10
Molybdenum	**0.011**		0.0020	0.00037	mg/L		05/10/23 07:41	05/10/23 21:22	1
Potassium	**9500**		1000	52	ug/L		05/10/23 07:41	05/10/23 21:22	1
Selenium	**1.1**		0.0050	0.0010	mg/L		05/10/23 07:41	05/10/23 21:22	1
Sodium	**1000000**		10000	730	ug/L		05/10/23 07:41	05/11/23 20:25	10
Thallium	ND		0.0010	0.00021	mg/L		05/10/23 07:41	05/10/23 21:22	1

Client Sample ID: MWT-6
Date Collected: 05/04/23 16:30
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176105-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/10/23 07:41	05/10/23 21:24	1

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

Client Sample ID: MWT-6
Date Collected: 05/04/23 16:30
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176105-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00066	J	0.0050	0.00050	mg/L		05/10/23 07:41	05/10/23 21:24	1
Barium	0.0068		0.0030	0.00038	mg/L		05/10/23 07:41	05/10/23 21:24	1
Beryllium	ND		0.0010	0.00030	mg/L		05/10/23 07:41	05/10/23 21:24	1
Cadmium	ND		0.0010	0.00019	mg/L		05/10/23 07:41	05/10/23 21:24	1
Calcium	500		2.0	0.32	mg/L		05/10/23 07:41	05/11/23 20:27	10
Chromium	0.0011	J	0.0030	0.00050	mg/L		05/10/23 07:41	05/10/23 21:24	1
Cobalt	ND		0.0010	0.00033	mg/L		05/10/23 07:41	05/10/23 21:24	1
Lead	ND		0.0010	0.00023	mg/L		05/10/23 07:41	05/10/23 21:24	1
Magnesium	360000		2000	42	ug/L		05/10/23 07:41	05/11/23 20:27	10
Molybdenum	0.010		0.0020	0.00037	mg/L		05/10/23 07:41	05/10/23 21:24	1
Potassium	9000		1000	52	ug/L		05/10/23 07:41	05/10/23 21:24	1
Selenium	0.97		0.0050	0.0010	mg/L		05/10/23 07:41	05/10/23 21:24	1
Sodium	960000		10000	730	ug/L		05/10/23 07:41	05/11/23 20:27	10
Thallium	ND		0.0010	0.00021	mg/L		05/10/23 07:41	05/10/23 21:24	1

Client Sample ID: MW-1B
Date Collected: 05/04/23 16:35
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176105-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00071	J	0.0020	0.00040	mg/L		05/10/23 07:41	05/10/23 21:29	1
Arsenic	0.00050	J	0.0050	0.00050	mg/L		05/10/23 07:41	05/10/23 21:29	1
Barium	0.012		0.0030	0.00038	mg/L		05/10/23 07:41	05/10/23 21:29	1
Beryllium	ND		0.0010	0.00030	mg/L		05/10/23 07:41	05/10/23 21:29	1
Cadmium	0.0030		0.0010	0.00019	mg/L		05/10/23 07:41	05/10/23 21:29	1
Calcium	460		10	1.6	mg/L		05/10/23 07:41	05/10/23 21:31	50
Chromium	0.0054		0.0030	0.00050	mg/L		05/10/23 07:41	05/10/23 21:29	1
Cobalt	0.052		0.0010	0.00033	mg/L		05/10/23 07:41	05/10/23 21:29	1
Lead	0.00074	J	0.0010	0.00023	mg/L		05/10/23 07:41	05/10/23 21:29	1
Magnesium	2900000		10000	210	ug/L		05/10/23 07:41	05/10/23 21:31	50
Molybdenum	0.0043		0.0020	0.00037	mg/L		05/10/23 07:41	05/10/23 21:29	1
Potassium	35000		1000	52	ug/L		05/10/23 07:41	05/10/23 21:29	1
Selenium	0.64		0.0050	0.0010	mg/L		05/10/23 07:41	05/10/23 21:29	1
Sodium	4200000		50000	3700	ug/L		05/10/23 07:41	05/10/23 21:31	50
Thallium	0.0035		0.0010	0.00021	mg/L		05/10/23 07:41	05/10/23 21:29	1

Client Sample ID: MW-2B
Date Collected: 05/04/23 17:45
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176105-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00058	J	0.0020	0.00040	mg/L		05/10/23 07:41	05/10/23 21:33	1
Arsenic	0.00087	J	0.0050	0.00050	mg/L		05/10/23 07:41	05/10/23 21:33	1
Barium	0.012		0.0030	0.00038	mg/L		05/10/23 07:41	05/10/23 21:33	1
Beryllium	ND		0.0010	0.00030	mg/L		05/10/23 07:41	05/10/23 21:33	1
Cadmium	0.0011		0.0010	0.00019	mg/L		05/10/23 07:41	05/10/23 21:33	1
Calcium	460		10	1.6	mg/L		05/10/23 07:41	05/10/23 21:35	50
Chromium	0.00087	J	0.0030	0.00050	mg/L		05/10/23 07:41	05/10/23 21:33	1
Cobalt	0.037		0.0010	0.00033	mg/L		05/10/23 07:41	05/10/23 21:33	1
Lead	0.00060	J	0.0010	0.00023	mg/L		05/10/23 07:41	05/10/23 21:33	1
Magnesium	4100000		10000	210	ug/L		05/10/23 07:41	05/10/23 21:35	50
Molybdenum	0.0079		0.0020	0.00037	mg/L		05/10/23 07:41	05/10/23 21:33	1

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

Client Sample ID: MW-2B
Date Collected: 05/04/23 17:45
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176105-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium	**70000**		1000	52	ug/L		05/10/23 07:41	05/10/23 21:33	1
Selenium	**2.3**		0.0050	0.0010	mg/L		05/10/23 07:41	05/10/23 21:33	1
Sodium	**8300000**		50000	3700	ug/L		05/10/23 07:41	05/10/23 21:35	50
Thallium	**0.014**		0.0010	0.00021	mg/L		05/10/23 07:41	05/10/23 21:33	1

Method: SW846 7470A - Mercury (CVAA)

Client Sample ID: MW-6
Date Collected: 05/04/23 16:30
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176105-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/16/23 13:45	05/16/23 22:46	1

Client Sample ID: MWT-6
Date Collected: 05/04/23 16:30
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176105-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/16/23 13:45	05/16/23 22:49	1

Client Sample ID: MW-1B
Date Collected: 05/04/23 16:35
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176105-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/16/23 13:45	05/16/23 22:56	1

Client Sample ID: MW-2B
Date Collected: 05/04/23 17:45
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176105-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/16/23 13:45	05/16/23 22:59	1

General Chemistry

Client Sample ID: MW-6
Date Collected: 05/04/23 16:30
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176105-1
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			05/09/23 15:03	1
Temperature (SW846 9040B)	**21.8**	**HF**	1.0	1.0	Degrees C			05/09/23 15:03	1
Chloride (SW846 9056A)	**220**		15	5.1	mg/L			05/18/23 09:26	5
Fluoride (SW846 9056A)	**0.53**		0.50	0.17	mg/L			05/18/23 09:14	1
Sulfate (SW846 9056A)	**250**		25	5.2	mg/L			05/18/23 09:26	5
Alkalinity (SM 2320B)	**150**	**B**	10	3.1	mg/L			05/09/23 17:15	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**150**		10	3.1	mg/L			05/09/23 17:15	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			05/09/23 17:15	1
Total Dissolved Solids (TDS) (SM 2540C)	**2900**		40	19	mg/L			05/10/23 12:34	1
Total Suspended Solids (SM 2540D)	ND		4.0	1.1	mg/L			05/11/23 13:43	1

General Chemistry

Client Sample ID: MWT-6
Date Collected: 05/04/23 16:30
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176105-2
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			05/09/23 15:11	1
Temperature (SW846 9040B)	21.4	HF	1.0	1.0	Degrees C			05/09/23 15:11	1
Chloride (SW846 9056A)	220		15	5.1	mg/L			05/18/23 09:50	5
Fluoride (SW846 9056A)	0.53		0.50	0.17	mg/L			05/18/23 09:38	1
Sulfate (SW846 9056A)	250		25	5.2	mg/L			05/18/23 09:50	5
Alkalinity (SM 2320B)	150	B	10	3.1	mg/L			05/09/23 17:21	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	150		10	3.1	mg/L			05/09/23 17:21	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			05/09/23 17:21	1
Total Dissolved Solids (TDS) (SM 2540C)	5900		40	19	mg/L			05/10/23 12:34	1
Total Suspended Solids (SM 2540D)	1.2	J	4.0	1.1	mg/L			05/11/23 13:43	1

Client Sample ID: MW-1B
Date Collected: 05/04/23 16:35
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176105-3
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			05/09/23 15:13	1
Temperature (SW846 9040B)	20.7	HF	1.0	1.0	Degrees C			05/09/23 15:13	1
Chloride (SW846 9056A)	380		15	5.1	mg/L			05/18/23 10:02	5
Fluoride (SW846 9056A)	ND		2.5	0.83	mg/L			05/18/23 10:02	5
Sulfate (SW846 9056A)	710		50	10	mg/L			05/18/23 10:14	10
Alkalinity (SM 2320B)	1400	B	10	3.1	mg/L			05/09/23 17:36	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	1400		10	3.1	mg/L			05/09/23 17:36	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			05/09/23 17:36	1
Total Dissolved Solids (TDS) (SM 2540C)	27000		1000	470	mg/L			05/10/23 12:34	1
Total Suspended Solids (SM 2540D)	2.4	J	4.0	1.1	mg/L			05/11/23 13:43	1

Client Sample ID: MW-2B
Date Collected: 05/04/23 17:45
Date Received: 05/05/23 11:25
Lab Sample ID: 280-176105-4
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			05/09/23 15:17	1
Temperature (SW846 9040B)	21.2	HF	1.0	1.0	Degrees C			05/09/23 15:17	1
Chloride (SW846 9056A)	590		30	10	mg/L			05/17/23 05:00	10
Fluoride (SW846 9056A)	8.0		5.0	1.7	mg/L			05/17/23 05:00	10
Sulfate (SW846 9056A)	35000		2500	520	mg/L			05/17/23 05:12	500
Alkalinity (SM 2320B)	1700	B	10	3.1	mg/L			05/09/23 17:53	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	1700		10	3.1	mg/L			05/09/23 17:53	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			05/09/23 17:53	1
Total Dissolved Solids (TDS) (SM 2540C)	46000		1000	470	mg/L			05/10/23 12:34	1
Total Suspended Solids (SM 2540D)	4.0		4.0	1.1	mg/L			05/11/23 13:43	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-611462/1-A
Matrix: Water
Analysis Batch: 613254

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 611462

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.0015	mg/L		05/10/23 07:41	05/19/23 16:01	1
Lithium	ND		0.020	0.0091	mg/L		05/10/23 07:41	05/19/23 16:01	1

Lab Sample ID: LCS 280-611462/2-A
Matrix: Water
Analysis Batch: 613254

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 611462

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	2.14		mg/L		107	86 - 110
Lithium	1.00	0.974		mg/L		97	90 - 112

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-611462/1-A
Matrix: Water
Analysis Batch: 612052

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 611462

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/10/23 07:41	05/10/23 21:04	1
Arsenic	ND		0.0050	0.00050	mg/L		05/10/23 07:41	05/10/23 21:04	1
Barium	ND		0.0030	0.00038	mg/L		05/10/23 07:41	05/10/23 21:04	1
Beryllium	ND		0.0010	0.00030	mg/L		05/10/23 07:41	05/10/23 21:04	1
Cadmium	ND		0.0010	0.00019	mg/L		05/10/23 07:41	05/10/23 21:04	1
Calcium	ND		0.20	0.032	mg/L		05/10/23 07:41	05/10/23 21:04	1
Chromium	ND		0.0030	0.00050	mg/L		05/10/23 07:41	05/10/23 21:04	1
Cobalt	ND		0.0010	0.00033	mg/L		05/10/23 07:41	05/10/23 21:04	1
Lead	ND		0.0010	0.00023	mg/L		05/10/23 07:41	05/10/23 21:04	1
Magnesium	ND		200	4.2	ug/L		05/10/23 07:41	05/10/23 21:04	1
Molybdenum	ND		0.0020	0.00037	mg/L		05/10/23 07:41	05/10/23 21:04	1
Potassium	ND		1000	52	ug/L		05/10/23 07:41	05/10/23 21:04	1
Selenium	ND		0.0050	0.0010	mg/L		05/10/23 07:41	05/10/23 21:04	1
Sodium	ND		1000	73	ug/L		05/10/23 07:41	05/10/23 21:04	1
Thallium	ND		0.0010	0.00021	mg/L		05/10/23 07:41	05/10/23 21:04	1

Lab Sample ID: LCS 280-611462/22-A
Matrix: Water
Analysis Batch: 612052

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 611462

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0407		mg/L		102	85 - 115
Arsenic	0.0400	0.0425		mg/L		106	85 - 117
Barium	0.0400	0.0410		mg/L		103	85 - 118
Beryllium	0.0400	0.0403		mg/L		101	80 - 125
Cadmium	0.0400	0.0409		mg/L		102	85 - 115
Calcium	1.00	1.07		mg/L		107	80 - 120
Chromium	0.0400	0.0417		mg/L		104	84 - 121
Cobalt	0.0400	0.0416		mg/L		104	85 - 120
Lead	0.0400	0.0414		mg/L		104	85 - 118
Magnesium	1000	996		ug/L		100	80 - 120

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

Lab Sample ID: LCS 280-611462/22-A
Matrix: Water
Analysis Batch: 612052

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 611462

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Molybdenum	0.0400	0.0408		mg/L		102	85 - 119
Potassium	1000	966	J	ug/L		97	80 - 120
Selenium	0.0400	0.0406		mg/L		101	77 - 122
Sodium	1000	1010		ug/L		101	80 - 120
Thallium	0.0400	0.0410		mg/L		102	85 - 118

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-612644/1-A
Matrix: Water
Analysis Batch: 612854

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 612644

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/16/23 13:45	05/16/23 21:55	1

Lab Sample ID: LCS 280-612644/2-A
Matrix: Water
Analysis Batch: 612854

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 612644

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00498		mg/L		100	84 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-611909/31
Matrix: Water
Analysis Batch: 611909

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		99	99 - 101

Lab Sample ID: 280-176105-1 DU
Matrix: Water
Analysis Batch: 611909

Client Sample ID: MW-6
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH adj. to 25 deg C	7.4	HF	7.5		SU		1	5
Temperature	21.8	HF	21.6		Degrees C		0.9	10

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-612674/48
Matrix: Water
Analysis Batch: 612674

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			05/17/23 00:38	1
Fluoride	ND		0.50	0.17	mg/L			05/17/23 00:38	1
Sulfate	ND		5.0	1.0	mg/L			05/17/23 00:38	1

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

Lab Sample ID: LCS 280-612674/46
Matrix: Water
Analysis Batch: 612674

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	46.6		mg/L		93	90 - 110		
Fluoride			2.50	2.35		mg/L		94	90 - 110		
Sulfate			50.0	48.8		mg/L		98	90 - 110		

Lab Sample ID: LCSD 280-612674/47
Matrix: Water
Analysis Batch: 612674

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	46.7		mg/L		93	90 - 110	0	10
Fluoride			2.50	2.30		mg/L		92	90 - 110	2	10
Sulfate			50.0	48.7		mg/L		97	90 - 110	0	10

Lab Sample ID: MRL 280-612674/3
Matrix: Water
Analysis Batch: 612674

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	2.17	J	mg/L		87	50 - 150		
Fluoride			0.250	0.231	J	mg/L		92	50 - 150		
Sulfate			2.50	2.16	J	mg/L		86	50 - 150		

Lab Sample ID: MB 280-612835/52
Matrix: Water
Analysis Batch: 612835

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			05/18/23 08:39	1
Fluoride	ND		0.50	0.17	mg/L			05/18/23 08:39	1
Sulfate	ND		5.0	1.0	mg/L			05/18/23 08:39	1

Lab Sample ID: LCS 280-612835/50
Matrix: Water
Analysis Batch: 612835

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	49.8		mg/L		100	90 - 110		
Fluoride			2.50	2.46		mg/L		98	90 - 110		
Sulfate			50.0	49.3		mg/L		99	90 - 110		

Lab Sample ID: LCSD 280-612835/51
Matrix: Water
Analysis Batch: 612835

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	49.8		mg/L		100	90 - 110	0	10
Fluoride			2.50	2.44		mg/L		98	90 - 110	1	10
Sulfate			50.0	49.4		mg/L		99	90 - 110	0	10

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

Lab Sample ID: MRL 280-612835/3
Matrix: Water
Analysis Batch: 612835

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	0.209	J	mg/L		84	50 - 150
Sulfate	2.50	2.43	J	mg/L		97	50 - 150

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-611910/32
Matrix: Water
Analysis Batch: 611910

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	3.14	J	10	3.1	mg/L			05/09/23 14:44	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/09/23 14:44	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/09/23 14:44	1

Lab Sample ID: LCS 280-611910/31
Matrix: Water
Analysis Batch: 611910

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		96	89 - 110

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

Lab Sample ID: MB 280-611960/1
Matrix: Water
Analysis Batch: 611960

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			05/10/23 12:34	1

Lab Sample ID: LCS 280-611960/2
Matrix: Water
Analysis Batch: 611960

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	490		mg/L		98	88 - 114

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

Lab Sample ID: MB 280-612149/2
Matrix: Water
Analysis Batch: 612149

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			05/11/23 13:43	1

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

Lab Sample ID: LCS 280-612149/1
Matrix: Water
Analysis Batch: 612149

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	436		mg/L		87	79 - 114

Metals

Prep Batch: 611462

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176105-1	MW-6	Total Recoverable	Water	3005A	
280-176105-2	MWT-6	Total Recoverable	Water	3005A	
280-176105-3	MW-1B	Total Recoverable	Water	3005A	
280-176105-4	MW-2B	Total Recoverable	Water	3005A	
MB 280-611462/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-611462/22-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 280-611462/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 612052

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176105-1	MW-6	Total Recoverable	Water	6020B	611462
280-176105-2	MWT-6	Total Recoverable	Water	6020B	611462
280-176105-3	MW-1B	Total Recoverable	Water	6020B	611462
280-176105-3	MW-1B	Total Recoverable	Water	6020B	611462
280-176105-4	MW-2B	Total Recoverable	Water	6020B	611462
280-176105-4	MW-2B	Total Recoverable	Water	6020B	611462
MB 280-611462/1-A	Method Blank	Total Recoverable	Water	6020B	611462
LCS 280-611462/22-A	Lab Control Sample	Total Recoverable	Water	6020B	611462

Analysis Batch: 612202

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176105-1	MW-6	Total Recoverable	Water	6020B	611462
280-176105-2	MWT-6	Total Recoverable	Water	6020B	611462

Prep Batch: 612644

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176105-1	MW-6	Total/NA	Water	7470A	
280-176105-2	MWT-6	Total/NA	Water	7470A	
280-176105-3	MW-1B	Total/NA	Water	7470A	
280-176105-4	MW-2B	Total/NA	Water	7470A	
MB 280-612644/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-612644/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 612854

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176105-1	MW-6	Total/NA	Water	7470A	612644
280-176105-2	MWT-6	Total/NA	Water	7470A	612644
280-176105-3	MW-1B	Total/NA	Water	7470A	612644
280-176105-4	MW-2B	Total/NA	Water	7470A	612644
MB 280-612644/1-A	Method Blank	Total/NA	Water	7470A	612644
LCS 280-612644/2-A	Lab Control Sample	Total/NA	Water	7470A	612644

Analysis Batch: 613111

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176105-4	MW-2B	Total Recoverable	Water	6010C	611462

Analysis Batch: 613254

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176105-1	MW-6	Total Recoverable	Water	6010C	611462
280-176105-2	MWT-6	Total Recoverable	Water	6010C	611462
280-176105-3	MW-1B	Total Recoverable	Water	6010C	611462

Metals (Continued)

Analysis Batch: 613254 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176105-4	MW-2B	Total Recoverable	Water	6010C	611462
MB 280-611462/1-A	Method Blank	Total Recoverable	Water	6010C	611462
LCS 280-611462/2-A	Lab Control Sample	Total Recoverable	Water	6010C	611462

General Chemistry

Analysis Batch: 611909

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176105-1	MW-6	Total/NA	Water	9040B	
280-176105-2	MWT-6	Total/NA	Water	9040B	
280-176105-3	MW-1B	Total/NA	Water	9040B	
280-176105-4	MW-2B	Total/NA	Water	9040B	
LCS 280-611909/31	Lab Control Sample	Total/NA	Water	9040B	
280-176105-1 DU	MW-6	Total/NA	Water	9040B	

Analysis Batch: 611910

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176105-1	MW-6	Total/NA	Water	SM 2320B	
280-176105-2	MWT-6	Total/NA	Water	SM 2320B	
280-176105-3	MW-1B	Total/NA	Water	SM 2320B	
280-176105-4	MW-2B	Total/NA	Water	SM 2320B	
MB 280-611910/32	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-611910/31	Lab Control Sample	Total/NA	Water	SM 2320B	

Analysis Batch: 611960

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176105-1	MW-6	Total/NA	Water	SM 2540C	
280-176105-2	MWT-6	Total/NA	Water	SM 2540C	
280-176105-3	MW-1B	Total/NA	Water	SM 2540C	
280-176105-4	MW-2B	Total/NA	Water	SM 2540C	
MB 280-611960/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-611960/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 612149

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176105-1	MW-6	Total/NA	Water	SM 2540D	
280-176105-2	MWT-6	Total/NA	Water	SM 2540D	
280-176105-3	MW-1B	Total/NA	Water	SM 2540D	
280-176105-4	MW-2B	Total/NA	Water	SM 2540D	
MB 280-612149/2	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-612149/1	Lab Control Sample	Total/NA	Water	SM 2540D	

Analysis Batch: 612674

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176105-4	MW-2B	Total/NA	Water	9056A	
280-176105-4	MW-2B	Total/NA	Water	9056A	
MB 280-612674/48	Method Blank	Total/NA	Water	9056A	
LCS 280-612674/46	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-612674/47	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-612674/3	Lab Control Sample	Total/NA	Water	9056A	

QC Association Summary

Client: HDR Inc
Job ID: 280-176105-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

General Chemistry

Analysis Batch: 612835

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176105-1	MW-6	Total/NA	Water	9056A	
280-176105-1	MW-6	Total/NA	Water	9056A	
280-176105-2	MWT-6	Total/NA	Water	9056A	
280-176105-2	MWT-6	Total/NA	Water	9056A	
280-176105-3	MW-1B	Total/NA	Water	9056A	
280-176105-3	MW-1B	Total/NA	Water	9056A	
MB 280-612835/52	Method Blank	Total/NA	Water	9056A	
LCS 280-612835/50	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-612835/51	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-612835/3	Lab Control Sample	Total/NA	Water	9056A	

Lab Chronicle

Client: HDR Inc
Job ID: 280-176105-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: MW-6
Lab Sample ID: 280-176105-1
Date Collected: 05/04/23 16:30
Matrix: Water
Date Received: 05/05/23 11:25

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	611462	05/10/23 07:41	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			613254	05/19/23 16:09	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611462	05/10/23 07:41	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			612052	05/10/23 21:22	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611462	05/10/23 07:41	LJS	EET DEN
Total Recoverable	Analysis	6020B		10			612202	05/11/23 20:25	LRD	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	612644	05/16/23 13:45	KMS	EET DEN
Total/NA	Analysis	7470A		1			612854	05/16/23 22:46	KMS	EET DEN
Total/NA	Analysis	9040B		1			611909	05/09/23 15:03	KEG	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	612835	05/18/23 09:14	EJS	EET DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	612835	05/18/23 09:26	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			611910	05/09/23 17:15	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	611960	05/10/23 12:34	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	612149	05/11/23 13:43	MCR	EET DEN

Client Sample ID: MWT-6
Lab Sample ID: 280-176105-2
Date Collected: 05/04/23 16:30
Matrix: Water
Date Received: 05/05/23 11:25

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	611462	05/10/23 07:41	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			613254	05/19/23 16:13	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611462	05/10/23 07:41	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			612052	05/10/23 21:24	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611462	05/10/23 07:41	LJS	EET DEN
Total Recoverable	Analysis	6020B		10			612202	05/11/23 20:27	LRD	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	612644	05/16/23 13:45	KMS	EET DEN
Total/NA	Analysis	7470A		1			612854	05/16/23 22:49	KMS	EET DEN
Total/NA	Analysis	9040B		1			611909	05/09/23 15:11	KEG	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	612835	05/18/23 09:38	EJS	EET DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	612835	05/18/23 09:50	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			611910	05/09/23 17:21	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	611960	05/10/23 12:34	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	612149	05/11/23 13:43	MCR	EET DEN

Client Sample ID: MW-1B
Lab Sample ID: 280-176105-3
Date Collected: 05/04/23 16:35
Matrix: Water
Date Received: 05/05/23 11:25

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	611462	05/10/23 07:41	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			613254	05/19/23 16:17	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611462	05/10/23 07:41	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			612052	05/10/23 21:29	LMT	EET DEN

Lab Chronicle

Client: HDR Inc
Job ID: 280-176105-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: MW-1B
Lab Sample ID: 280-176105-3
Date Collected: 05/04/23 16:35
Matrix: Water
Date Received: 05/05/23 11:25

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	611462	05/10/23 07:41	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			612052	05/10/23 21:31	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	612644	05/16/23 13:45	KMS	EET DEN
Total/NA	Analysis	7470A		1			612854	05/16/23 22:56	KMS	EET DEN
Total/NA	Analysis	9040B		1			611909	05/09/23 15:13	KEG	EET DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	612835	05/18/23 10:02	EJS	EET DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	612835	05/18/23 10:14	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			611910	05/09/23 17:36	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	611960	05/10/23 12:34	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	612149	05/11/23 13:43	MCR	EET DEN

Client Sample ID: MW-2B
Lab Sample ID: 280-176105-4
Date Collected: 05/04/23 17:45
Matrix: Water
Date Received: 05/05/23 11:25

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	611462	05/10/23 07:41	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			613254	05/19/23 16:22	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611462	05/10/23 07:41	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			613111	05/18/23 10:01	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611462	05/10/23 07:41	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			612052	05/10/23 21:33	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611462	05/10/23 07:41	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			612052	05/10/23 21:35	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	612644	05/16/23 13:45	KMS	EET DEN
Total/NA	Analysis	7470A		1			612854	05/16/23 22:59	KMS	EET DEN
Total/NA	Analysis	9040B		1			611909	05/09/23 15:17	KEG	EET DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	612674	05/17/23 05:00	EJS	EET DEN
Total/NA	Analysis	9056A		500	5 mL	5 mL	612674	05/17/23 05:12	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			611910	05/09/23 17:53	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	611960	05/10/23 12:34	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	612149	05/11/23 13:43	MCR	EET DEN

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

Accreditation/Certification Summary

Client: HDR Inc
Job ID: 280-176105-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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

Eurofins Denver
Arvada, CO 80002
Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

eurofins | Environment Testing

Client Information	Sampler: MHB + FL	Lab PM: Ryan, Nicole C	Carrier Tracking No(s):	COC No: 280-129981-35988.1
Client Contact: Molly Reeves	Phone: (720) 385-4021	E-Mail: Nicole.Ryan@ET.eurofinsus.com	State of Origin:	Page: Page 1 of 1
Company: HDR Inc	PWSID:			Job #:

Address: 1670 Broadway Suite 3400	Due Date Requested:
City: Denver	TAT Requested (days):
State, Zip: CO, 80202	Compliance Project: Δ Yes Δ No
Phone: 734-263-7138(Tel)	PO #: DEN-021
Email: Molly.Reeves@hdrinc.com	WO #:
Project Name: Xcel Energy GW Monitoring - Comanche	Project #: 28014376
Site: Comanche Landfill CCR App III + TSS + Alk + Mg + Na + K	SSOW#:

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, 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)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	2320B Alkalinity, 9040B pH, 9056A_28D Cl Fl SO4	6010C, 6020B - App III Metals + Mg + Na + K	2540C_Calcd TDS, 2540D TSS	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	D	N		
MW-6	05/04/2023	1630	G	W	N	N	X	X	X	3	
MWT-6	05/04/2023	1630	G	W	N	N	X	X	X	3	
MW-1B	05/04/2023	1635	G	W	N	N	X	X	X	3	
MW-2B	05/04/2023	1345	G	W	N	N	X	X	X	3	

280-176105 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:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Mattison Barickman	05/05/2023, 1125	HDR Inc.		5/5/23 1125	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1.9°C 1.6°C CF all IR14

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-176105-1

Login Number: 176105
List Number: 1
Creator: Held, Wesley

List Source: Eurofins Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	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 <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Molly Reeves
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Generated 5/24/2023 10:37:14 AM

JOB DESCRIPTION

Xcel Energy GW CCR Monitoring - Comanche

JOB NUMBER

280-176191-1

Eurofins Denver
4955 Yarrow Street
Arvada CO 80002

See page two for job notes and contact information.

my EOL

Job Notes

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

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

Authorization



Generated
5/24/2023 10:37:14 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
Job ID: 280-176191-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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
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.
¤	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

Job ID: 280-176191-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-176191-1

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 5/9/2023 9:20 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 0.2º C.

TOTAL RECOVERABLE METALS
Samples MW-4B (280-176191-1) and MW-7 (280-176191-2) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 05/10/2023 and analyzed on 05/16/2023.

Boron was detected in method blank MB 280-611651/1-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.

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-4B (280-176191-1) and MW-7 (280-176191-2) were analyzed for Total Recoverable Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 05/10/2023 and analyzed on 05/10/2023, 05/11/2023 and 05/12/2023.

Calcium was detected in method blank MB 280-611651/1-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. Magnesium was detected in method blank MB 280-611651/1-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.

Samples MW-4B (280-176191-1)[50X] and MW-7 (280-176191-2)[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.

ALKALINITY

Job ID: 280-176191-1 (Continued)

Laboratory: Eurofins Denver (Continued)

Samples MW-4B (280-176191-1) and MW-7 (280-176191-2) were analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 05/10/2023.

Alkalinity was detected in method blank MB 280-612064/5 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. Carbonate Alkalinity as CaCO3 was detected in method blank MB 280-612064/5 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.

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

TOTAL DISSOLVED SOLIDS

Samples MW-4B (280-176191-1) and MW-7 (280-176191-2) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 05/12/2023.

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

TOTAL SUSPENDED SOLIDS

Samples MW-4B (280-176191-1) and MW-7 (280-176191-2) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 05/11/2023.

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

CORROSIVITY (PH)

Samples MW-4B (280-176191-1) and MW-7 (280-176191-2) were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 05/11/2023.

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

ANIONS (28 DAYS)

Samples MW-4B (280-176191-1) and MW-7 (280-176191-2) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A (28 Days). The samples were analyzed on 05/18/2023.

Samples MW-4B (280-176191-1)[5X], MW-4B (280-176191-1)[50X], MW-7 (280-176191-2)[200X] and MW-7 (280-176191-2)[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.

Detection Summary

Client: HDR Inc
Job ID: 280-176191-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: MW-4B
Lab Sample ID: 280-176191-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.51	B	0.10	0.0015	mg/L	1		6010C	Total Recoverable
Calcium	580000	B	10000	1600	ug/L	50		6020B	Total Recoverable
Potassium	22000		1000	52	ug/L	1		6020B	Total Recoverable
Sodium	930000		50000	3700	ug/L	50		6020B	Total Recoverable
Magnesium	320000	B	10000	210	ug/L	50		6020B	Total Recoverable
pH adj. to 25 deg C	7.1	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	190		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	2.4		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	1400		250	52	mg/L	50		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)	5800		40	19	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	1.2	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-7
Lab Sample ID: 280-176191-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.72	B	0.10	0.0015	mg/L	1		6010C	Total Recoverable
Calcium	420000	B	10000	1600	ug/L	50		6020B	Total Recoverable
Potassium	30000		1000	52	ug/L	1		6020B	Total Recoverable
Sodium	2600000		50000	3700	ug/L	50		6020B	Total Recoverable
Magnesium	970000	B	10000	210	ug/L	50		6020B	Total Recoverable
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	22.3	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	310		15	5.1	mg/L	5		9056A	Total/NA
Sulfate	8400		1000	210	mg/L	200		9056A	Total/NA
Alkalinity	760	B	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)	11000		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

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-176191-1
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
Job ID: 280-176191-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-176191-1	MW-4B	Water	05/08/23 12:00	05/09/23 09:20
280-176191-2	MW-7	Water	05/08/23 14:45	05/09/23 09:20

Method: SW846 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: MW-4B
Date Collected: 05/08/23 12:00
Date Received: 05/09/23 09:20
Lab Sample ID: 280-176191-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.51	B	0.10	0.0015	mg/L		05/10/23 07:41	05/16/23 01:09	1

Client Sample ID: MW-7
Date Collected: 05/08/23 14:45
Date Received: 05/09/23 09:20
Lab Sample ID: 280-176191-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.72	B	0.10	0.0015	mg/L		05/10/23 07:41	05/16/23 01:14	1

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

Client Sample ID: MW-4B
Date Collected: 05/08/23 12:00
Date Received: 05/09/23 09:20
Lab Sample ID: 280-176191-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	580000	B	10000	1600	ug/L		05/10/23 07:41	05/10/23 22:53	50
Potassium	22000		1000	52	ug/L		05/10/23 07:41	05/11/23 01:00	1
Sodium	930000		50000	3700	ug/L		05/10/23 07:41	05/12/23 20:16	50
Magnesium	320000	B	10000	210	ug/L		05/10/23 07:41	05/12/23 20:16	50

Client Sample ID: MW-7
Date Collected: 05/08/23 14:45
Date Received: 05/09/23 09:20
Lab Sample ID: 280-176191-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	420000	B	10000	1600	ug/L		05/10/23 07:41	05/10/23 22:55	50
Potassium	30000		1000	52	ug/L		05/10/23 07:41	05/11/23 01:02	1
Sodium	2600000		50000	3700	ug/L		05/10/23 07:41	05/12/23 20:18	50
Magnesium	970000	B	10000	210	ug/L		05/10/23 07:41	05/12/23 20:18	50

General Chemistry

Client Sample ID: MW-4B
Date Collected: 05/08/23 12:00
Date Received: 05/09/23 09:20
Lab Sample ID: 280-176191-1
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			05/11/23 16:23	1
Temperature (SW846 9040B)	21.4	HF	1.0	1.0	Degrees C			05/11/23 16:23	1
Chloride (SW846 9056A)	190		15	5.1	mg/L			05/18/23 15:06	5
Fluoride (SW846 9056A)	2.4		0.50	0.17	mg/L			05/18/23 14:54	1
Sulfate (SW846 9056A)	1400		250	52	mg/L			05/18/23 15:17	50
Alkalinity (SM 2320B)	770	B	10	3.1	mg/L			05/10/23 15:59	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	770		10	3.1	mg/L			05/10/23 15:59	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			05/10/23 15:59	1
Total Dissolved Solids (TDS) (SM 2540C)	5800		40	19	mg/L			05/12/23 16:14	1
Total Suspended Solids (SM 2540D)	1.2	J	4.0	1.1	mg/L			05/11/23 13:43	1

Client: HDR Inc
Job ID: 280-176191-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

General Chemistry

Client Sample ID: MW-7
Date Collected: 05/08/23 14:45
Date Received: 05/09/23 09:20

Lab Sample ID: 280-176191-2
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			05/11/23 16:27	1
Temperature (SW846 9040B)	**22.3**	**HF**	1.0	1.0	Degrees C			05/11/23 16:27	1
Chloride (SW846 9056A)	**310**		15	5.1	mg/L			05/18/23 15:41	5
Fluoride (SW846 9056A)	ND		0.50	0.17	mg/L			05/18/23 15:29	1
Sulfate (SW846 9056A)	**8400**		1000	210	mg/L			05/18/23 15:53	200
Alkalinity (SM 2320B)	**760**	**B**	10	3.1	mg/L			05/10/23 16:09	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**760**		10	3.1	mg/L			05/10/23 16:09	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			05/10/23 16:09	1
Total Dissolved Solids (TDS) (SM 2540C)	**11000**		1000	470	mg/L			05/12/23 16:14	1
Total Suspended Solids (SM 2540D)	**6.0**		4.0	1.1	mg/L			05/11/23 13:43	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-611651/1-A
Matrix: Water
Analysis Batch: 612677

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 611651

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.00168	J	0.10	0.0015	mg/L		05/10/23 07:41	05/15/23 23:12	1

Lab Sample ID: LCS 280-611651/2-A
Matrix: Water
Analysis Batch: 612677

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 611651

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 280-611651/1-A
Matrix: Water
Analysis Batch: 612052

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 611651

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	34.5	J	200	32	ug/L		05/10/23 07:41	05/10/23 22:05	1
Potassium	ND		1000	52	ug/L		05/10/23 07:41	05/10/23 22:05	1

Lab Sample ID: MB 280-611651/1-A
Matrix: Water
Analysis Batch: 612407

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 611651

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	ND		1000	73	ug/L		05/10/23 07:41	05/12/23 20:04	1
Magnesium	5.55	J	200	4.2	ug/L		05/10/23 07:41	05/12/23 20:04	1

Lab Sample ID: LCS 280-611651/20-A
Matrix: Water
Analysis Batch: 612052

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 611651

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	1000	1080		ug/L		108	80 - 120
Potassium	1000	989	J	ug/L		99	80 - 120

Lab Sample ID: LCS 280-611651/20-A
Matrix: Water
Analysis Batch: 612407

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 611651

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sodium	1000	1150		ug/L		115	80 - 120
Magnesium	1000	1070		ug/L		107	80 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-612289/31
Matrix: Water
Analysis Batch: 612289

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 280-612987/6
Matrix: Water
Analysis Batch: 612987

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			05/18/23 14:42	1
Fluoride	ND		0.50	0.17	mg/L			05/18/23 14:42	1
Sulfate	ND		5.0	1.0	mg/L			05/18/23 14:42	1

Lab Sample ID: LCS 280-612987/4
Matrix: Water
Analysis Batch: 612987

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	2.44		mg/L		97	90 - 110
Sulfate	50.0	48.9		mg/L		98	90 - 110

Lab Sample ID: LCSD 280-612987/5
Matrix: Water
Analysis Batch: 612987

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	46.4		mg/L		93	90 - 110	0	10
Fluoride	2.50	2.43		mg/L		97	90 - 110	0	10
Sulfate	50.0	48.2		mg/L		96	90 - 110	2	10

Lab Sample ID: MRL 280-612987/3
Matrix: Water
Analysis Batch: 612987

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	2.04	J	mg/L		82	50 - 150
Fluoride	0.250	0.234	J	mg/L		94	50 - 150
Sulfate	2.50	2.26	J	mg/L		91	50 - 150

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-612064/5
Matrix: Water
Analysis Batch: 612064

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	4.07	J	10	3.1	mg/L			05/10/23 13:45	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/10/23 13:45	1
Carbonate Alkalinity as CaCO3	3.66	J	10	3.1	mg/L			05/10/23 13:45	1

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: LCS 280-612064/4
Matrix: Water
Analysis Batch: 612064

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Alkalinity			200	194		mg/L		97	89 - 110		

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

Lab Sample ID: MB 280-612352/1
Matrix: Water
Analysis Batch: 612352

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			05/12/23 16:14	1

Lab Sample ID: LCS 280-612352/2
Matrix: Water
Analysis Batch: 612352

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	494		mg/L		98	88 - 114		

Lab Sample ID: LCSD 280-612352/3
Matrix: Water
Analysis Batch: 612352

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	456		mg/L		91	88 - 114	8	20

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

Lab Sample ID: MB 280-612149/2
Matrix: Water
Analysis Batch: 612149

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			05/11/23 13:43	1

Lab Sample ID: LCS 280-612149/1
Matrix: Water
Analysis Batch: 612149

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	436		mg/L		87	79 - 114		

QC Association Summary

Client: HDR Inc
Job ID: 280-176191-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Metals

Prep Batch: 611651

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176191-1	MW-4B	Total Recoverable	Water	3005A	
280-176191-2	MW-7	Total Recoverable	Water	3005A	
MB 280-611651/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-611651/20-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 280-611651/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 612052

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176191-1	MW-4B	Total Recoverable	Water	6020B	611651
280-176191-1	MW-4B	Total Recoverable	Water	6020B	611651
280-176191-2	MW-7	Total Recoverable	Water	6020B	611651
280-176191-2	MW-7	Total Recoverable	Water	6020B	611651
MB 280-611651/1-A	Method Blank	Total Recoverable	Water	6020B	611651
LCS 280-611651/20-A	Lab Control Sample	Total Recoverable	Water	6020B	611651

Analysis Batch: 612407

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176191-1	MW-4B	Total Recoverable	Water	6020B	611651
280-176191-2	MW-7	Total Recoverable	Water	6020B	611651
MB 280-611651/1-A	Method Blank	Total Recoverable	Water	6020B	611651
LCS 280-611651/20-A	Lab Control Sample	Total Recoverable	Water	6020B	611651

Analysis Batch: 612677

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176191-1	MW-4B	Total Recoverable	Water	6010C	611651
280-176191-2	MW-7	Total Recoverable	Water	6010C	611651
MB 280-611651/1-A	Method Blank	Total Recoverable	Water	6010C	611651
LCS 280-611651/2-A	Lab Control Sample	Total Recoverable	Water	6010C	611651

General Chemistry

Analysis Batch: 612064

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176191-1	MW-4B	Total/NA	Water	SM 2320B	
280-176191-2	MW-7	Total/NA	Water	SM 2320B	
MB 280-612064/5	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-612064/4	Lab Control Sample	Total/NA	Water	SM 2320B	

Analysis Batch: 612149

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176191-1	MW-4B	Total/NA	Water	SM 2540D	
280-176191-2	MW-7	Total/NA	Water	SM 2540D	
MB 280-612149/2	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-612149/1	Lab Control Sample	Total/NA	Water	SM 2540D	

Analysis Batch: 612289

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176191-1	MW-4B	Total/NA	Water	9040B	
280-176191-2	MW-7	Total/NA	Water	9040B	
LCS 280-612289/31	Lab Control Sample	Total/NA	Water	9040B	

QC Association Summary

Client: HDR Inc
Job ID: 280-176191-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

General Chemistry

Analysis Batch: 612352

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176191-1	MW-4B	Total/NA	Water	SM 2540C	
280-176191-2	MW-7	Total/NA	Water	SM 2540C	
MB 280-612352/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-612352/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-612352/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 612987

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176191-1	MW-4B	Total/NA	Water	9056A	
280-176191-1	MW-4B	Total/NA	Water	9056A	
280-176191-1	MW-4B	Total/NA	Water	9056A	
280-176191-2	MW-7	Total/NA	Water	9056A	
280-176191-2	MW-7	Total/NA	Water	9056A	
280-176191-2	MW-7	Total/NA	Water	9056A	
MB 280-612987/6	Method Blank	Total/NA	Water	9056A	
LCS 280-612987/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-612987/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-612987/3	Lab Control Sample	Total/NA	Water	9056A	

Lab Chronicle

Client: HDR Inc
Job ID: 280-176191-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: MW-4B
Date Collected: 05/08/23 12:00
Date Received: 05/09/23 09:20

Lab Sample ID: 280-176191-1
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	611651	05/10/23 07:41	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			612677	05/16/23 01:09	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611651	05/10/23 07:41	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			612052	05/10/23 22:53	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611651	05/10/23 07:41	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			612052	05/11/23 01:00	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611651	05/10/23 07:41	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			612407	05/12/23 20:16	LRD	EET DEN
Total/NA	Analysis	9040B		1			612289	05/11/23 16:23	KEG	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	612987	05/18/23 14:54	MEC	EET DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	612987	05/18/23 15:06	MEC	EET DEN
Total/NA	Analysis	9056A		50	5 mL	5 mL	612987	05/18/23 15:17	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			612064	05/10/23 15:59	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	612352	05/12/23 16:14	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	612149	05/11/23 13:43	MCR	EET DEN

Client Sample ID: MW-7
Date Collected: 05/08/23 14:45
Date Received: 05/09/23 09:20

Lab Sample ID: 280-176191-2
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	611651	05/10/23 07:41	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			612677	05/16/23 01:14	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611651	05/10/23 07:41	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			612052	05/10/23 22:55	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611651	05/10/23 07:41	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			612052	05/11/23 01:02	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611651	05/10/23 07:41	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			612407	05/12/23 20:18	LRD	EET DEN
Total/NA	Analysis	9040B		1			612289	05/11/23 16:27	KEG	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	612987	05/18/23 15:29	MEC	EET DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	612987	05/18/23 15:41	MEC	EET DEN
Total/NA	Analysis	9056A		200	5 mL	5 mL	612987	05/18/23 15:53	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			612064	05/10/23 16:09	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	612352	05/12/23 16:14	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	612149	05/11/23 13:43	MCR	EET DEN

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

Accreditation/Certification Summary

Client: HDR Inc
Job ID: 280-176191-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

eurofins | Environment Testing

Client Information	Sampler: Mattison Barickman	Lab PM: Ryan, Nicole C	Carrier Tracking No(s):	COC No: 280-129981-35988.1
Client Contact: Molly Reeves	Phone: (720) 385-4021	E-Mail: Nicole.Ryan@ET.eurofinsus.com	State of Origin:	Page: Page 1 of 1
Company: HDR Inc	PWSID:			Job #:

Address: 1670 Broadway Suite 3400	Due Date Requested:	
City: Denver	TAT Requested (days):	
State, Zip: CO, 80202	Compliance Project: Δ Yes Δ No	
Phone: 734-263-7138(Tel)	PO #: DEN-021	
Email: Molly.Reeves@hdrinc.com	WO #:	
Project Name: Xcel Energy GW Monitoring - Comanche	Project #: 28014376	
Site: Comanche Landfill CCR App III + TSS + Alk + Mg + Na + K	SSOW#:	

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
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)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	2320B Alkalinity, 9040B pH, 9056A_28D Cl Fl SO4	6010C, 6020B - App III Metals + Mg + Na + K	2540C_Calcd TDS, 2540D TSS	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	D	N		
MW-48	05/08/2023	1200	G	W	N	N	X	X	X	3	
MW-7	06/08/2023	1445	G	W	N	N	X	X	X	3	

280-176191 Chain of Custody

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:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Mattison Barickman	05/08/2023, 1825	HDR Inc.	F Li	05/08/2023 1825	HDR
2	F Li	05/09/23 0920	HDR		5/09/23 0920	ETADEN
3						

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: a.l.c CFal IR14

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-176191-1

Login Number: 176191
List Number: 1
Creator: Roehsner, Karen P

List Source: Eurofins Denver

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.	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 <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Molly Reeves
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Generated 5/24/2023 7:59:13 AM

JOB DESCRIPTION

Xcel Energy GW CCR Monitoring - Comanche

JOB NUMBER

280-176224-1

Eurofins Denver
4955 Yarrow Street
Arvada CO 80002

See page two for job notes and contact information.

my EOL

Job Notes

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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 Eurofins TestAmerica Project Manager.

Authorization



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Definitions/Glossary

Client: HDR Inc
Job ID: 280-176224-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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
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.

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

Job ID: 280-176224-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-176224-1

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 5/9/2023 9:20 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 0.2º C.

DISSOLVED METALS
Samples MW-5 (280-176224-1), MW-4B (280-176224-2) and MW-7 (280-176224-3) were analyzed for Dissolved Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared and analyzed on 05/22/2023.

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

DISSOLVED METALS (ICP/MS)
Samples MW-5 (280-176224-1), MW-4B (280-176224-2) and MW-7 (280-176224-3) were analyzed for Dissolved Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 05/17/2023 and analyzed on 05/17/2023 and 05/18/2023.

Sodium and Zinc were detected in method blank MB 280-612647/1-C 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.

Samples MW-5 (280-176224-1)[100X], MW-4B (280-176224-2)[100X] and MW-7 (280-176224-3)[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.

ALKALINITY
Samples MW-5 (280-176224-1), MW-4B (280-176224-2) and MW-7 (280-176224-3) were analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 05/10/2023.

The method blank (MB) and/or continuing calibration blank (CCB) for analytical batch 280-612064 contained Alkalinity, Bicarbonate Alkalinity as CaCO3 and Carbonate Alkalinity as CaCO3 above the method detection limit. This target analyte concentration was less than

Job ID: 280-176224-1 (Continued)

Laboratory: Eurofins Denver (Continued)

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.

ANIONS (48 HOURS)

Samples MW-5 (280-176224-1), MW-4B (280-176224-2) and MW-7 (280-176224-3) were analyzed for anions (48 hours) in accordance with EPA SW-846 Method 9056 (48 Hours). The samples were analyzed on 05/09/2023 and 05/10/2023.

Samples MW-5 (280-176224-1)[20X], MW-4B (280-176224-2)[100X] and MW-7 (280-176224-3)[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.

Detection Summary

Client: HDR Inc
Job ID: 280-176224-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: MW-5
Lab Sample ID: 280-176224-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	850		100	1.5	ug/L	1		6010C	Dissolved
Antimony	0.00071	J	0.0020	0.00040	mg/L	1		6020B	Dissolved
Silver	0.077	J	1.0	0.045	ug/L	1		6020B	Dissolved
Arsenic	0.0012	J	0.0050	0.00050	mg/L	1		6020B	Dissolved
Barium	0.024		0.0030	0.00038	mg/L	1		6020B	Dissolved
Cadmium	0.00057	J	0.0010	0.00019	mg/L	1		6020B	Dissolved
Calcium	490000		20000	3200	ug/L	100		6020B	Dissolved
Chromium	0.0066		0.0030	0.00050	mg/L	1		6020B	Dissolved
Cobalt	0.00035	J	0.0010	0.00033	mg/L	1		6020B	Dissolved
Magnesium	2300000		20000	420	ug/L	100		6020B	Dissolved
Selenium	0.19		0.0050	0.0010	mg/L	1		6020B	Dissolved
Sodium	5200000	B	100000	7300	ug/L	100		6020B	Dissolved
Thallium	0.0026		0.0010	0.00021	mg/L	1		6020B	Dissolved
Copper	25		2.0	0.71	ug/L	1		6020B	Dissolved
Potassium	41000	^+	1000	52	ug/L	1		6020B	Dissolved
Nickel	52		3.0	0.83	ug/L	1		6020B	Dissolved
Vanadium	3.8	J	5.0	1.1	ug/L	1		6020B	Dissolved
Zinc	32	B	10	2.0	ug/L	1		6020B	Dissolved
Nitrate as N	23		10	1.8	mg/L	20		9056	Total/NA
Alkalinity	1300	B	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

Client Sample ID: MW-4B
Lab Sample ID: 280-176224-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	520		100	1.5	ug/L	1		6010C	Dissolved
Antimony	0.00075	J	0.0020	0.00040	mg/L	1		6020B	Dissolved
Silver	0.069	J	1.0	0.045	ug/L	1		6020B	Dissolved
Barium	0.016		0.0030	0.00038	mg/L	1		6020B	Dissolved
Beryllium	0.00093	J	0.0010	0.00030	mg/L	1		6020B	Dissolved
Cadmium	0.00035	J	0.0010	0.00019	mg/L	1		6020B	Dissolved
Calcium	620000		20000	3200	ug/L	100		6020B	Dissolved
Cobalt	0.0078		0.0010	0.00033	mg/L	1		6020B	Dissolved
Magnesium	310000		20000	420	ug/L	100		6020B	Dissolved
Selenium	1.2		0.0050	0.0010	mg/L	1		6020B	Dissolved
Sodium	900000	B	100000	7300	ug/L	100		6020B	Dissolved
Thallium	0.00089	J	0.0010	0.00021	mg/L	1		6020B	Dissolved
Copper	47		2.0	0.71	ug/L	1		6020B	Dissolved
Potassium	24000	^+	1000	52	ug/L	1		6020B	Dissolved
Nickel	110		3.0	0.83	ug/L	1		6020B	Dissolved
Vanadium	1.4	J	5.0	1.1	ug/L	1		6020B	Dissolved
Zinc	18	B	10	2.0	ug/L	1		6020B	Dissolved
Nitrate as N	140		50	9.0	mg/L	100		9056	Total/NA
Alkalinity	770		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

Client Sample ID: MW-7
Lab Sample ID: 280-176224-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	760		100	1.5	ug/L	1		6010C	Dissolved
Barium	0.0089		0.0030	0.00038	mg/L	1		6020B	Dissolved
Cadmium	0.00082	J	0.0010	0.00019	mg/L	1		6020B	Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Job ID: 280-176224-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: MW-7 (Continued)
Lab Sample ID: 280-176224-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	460000		20000	3200	ug/L	100		6020B	Dissolved
Cobalt	0.0090		0.0010	0.00033	mg/L	1		6020B	Dissolved
Magnesium	920000		20000	420	ug/L	100		6020B	Dissolved
Selenium	0.33		0.0050	0.0010	mg/L	1		6020B	Dissolved
Sodium	2500000	B	100000	7300	ug/L	100		6020B	Dissolved
Thallium	0.0017		0.0010	0.00021	mg/L	1		6020B	Dissolved
Copper	7.3		2.0	0.71	ug/L	1		6020B	Dissolved
Potassium	33000	^+	1000	52	ug/L	1		6020B	Dissolved
Nickel	69		3.0	0.83	ug/L	1		6020B	Dissolved
Zinc	12	B	10	2.0	ug/L	1		6020B	Dissolved
Nitrate as N	34		25	4.5	mg/L	50		9056	Total/NA
Alkalinity	750		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	750		10	3.1	mg/L	1		SM 2320B	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-176224-1
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
9056	Anions, Ion Chromatography	SW846	EET DEN
SM 2320B	Alkalinity	SM	EET DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	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: 280-176224-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-176224-1	MW-5	Water	05/08/23 10:30	05/09/23 09:20
280-176224-2	MW-4B	Water	05/08/23 12:00	05/09/23 09:20
280-176224-3	MW-7	Water	05/08/23 14:45	05/09/23 09:20

Method: SW846 6010C - Metals (ICP) - Dissolved

Client Sample ID: MW-5
Date Collected: 05/08/23 10:30
Date Received: 05/09/23 09:20
Lab Sample ID: 280-176224-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	850		100	1.5	ug/L		05/22/23 11:28	05/22/23 17:32	1

Client Sample ID: MW-4B
Date Collected: 05/08/23 12:00
Date Received: 05/09/23 09:20
Lab Sample ID: 280-176224-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	520		100	1.5	ug/L		05/22/23 11:28	05/22/23 17:37	1

Client Sample ID: MW-7
Date Collected: 05/08/23 14:45
Date Received: 05/09/23 09:20
Lab Sample ID: 280-176224-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	760		100	1.5	ug/L		05/22/23 11:28	05/22/23 17:41	1

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

Client Sample ID: MW-5
Date Collected: 05/08/23 10:30
Date Received: 05/09/23 09:20
Lab Sample ID: 280-176224-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00071	J	0.0020	0.00040	mg/L		05/17/23 07:53	05/18/23 02:57	1
Silver	0.077	J	1.0	0.045	ug/L		05/17/23 07:53	05/18/23 02:57	1
Arsenic	0.0012	J	0.0050	0.00050	mg/L		05/17/23 07:53	05/18/23 02:57	1
Barium	0.024		0.0030	0.00038	mg/L		05/17/23 07:53	05/18/23 02:57	1
Beryllium	ND		0.0010	0.00030	mg/L		05/17/23 07:53	05/18/23 02:57	1
Cadmium	0.00057	J	0.0010	0.00019	mg/L		05/17/23 07:53	05/18/23 02:57	1
Calcium	490000		20000	3200	ug/L		05/17/23 07:53	05/17/23 22:29	100
Chromium	0.0066		0.0030	0.00050	mg/L		05/17/23 07:53	05/18/23 02:57	1
Cobalt	0.00035	J	0.0010	0.00033	mg/L		05/17/23 07:53	05/18/23 02:57	1
Lead	ND		0.0010	0.00023	mg/L		05/17/23 07:53	05/18/23 02:57	1
Magnesium	2300000		20000	420	ug/L		05/17/23 07:53	05/17/23 22:29	100
Selenium	0.19		0.0050	0.0010	mg/L		05/17/23 07:53	05/18/23 02:57	1
Sodium	5200000	B	100000	7300	ug/L		05/17/23 07:53	05/17/23 22:29	100
Thallium	0.0026		0.0010	0.00021	mg/L		05/17/23 07:53	05/18/23 02:57	1
Copper	25		2.0	0.71	ug/L		05/17/23 07:53	05/18/23 02:57	1
Potassium	41000	^+	1000	52	ug/L		05/17/23 07:53	05/18/23 02:57	1
Nickel	52		3.0	0.83	ug/L		05/17/23 07:53	05/18/23 02:57	1
Vanadium	3.8	J	5.0	1.1	ug/L		05/17/23 07:53	05/18/23 02:57	1
Zinc	32	B	10	2.0	ug/L		05/17/23 07:53	05/18/23 02:57	1

Client Sample ID: MW-4B
Date Collected: 05/08/23 12:00
Date Received: 05/09/23 09:20
Lab Sample ID: 280-176224-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00075	J	0.0020	0.00040	mg/L		05/17/23 07:53	05/18/23 03:01	1
Silver	0.069	J	1.0	0.045	ug/L		05/17/23 07:53	05/18/23 03:01	1
Arsenic	ND		0.0050	0.00050	mg/L		05/17/23 07:53	05/18/23 03:01	1
Barium	0.016		0.0030	0.00038	mg/L		05/17/23 07:53	05/18/23 03:01	1
Beryllium	0.00093	J	0.0010	0.00030	mg/L		05/17/23 07:53	05/18/23 03:01	1
Cadmium	0.00035	J	0.0010	0.00019	mg/L		05/17/23 07:53	05/18/23 03:01	1
Calcium	620000		20000	3200	ug/L		05/17/23 07:53	05/17/23 22:31	100

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

Client Sample ID: MW-4B
Date Collected: 05/08/23 12:00
Date Received: 05/09/23 09:20
Lab Sample ID: 280-176224-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	ND		0.0030	0.00050	mg/L		05/17/23 07:53	05/18/23 03:01	1
Cobalt	**0.0078**		0.0010	0.00033	mg/L		05/17/23 07:53	05/18/23 03:01	1
Lead	ND		0.0010	0.00023	mg/L		05/17/23 07:53	05/18/23 03:01	1
Magnesium	**310000**		20000	420	ug/L		05/17/23 07:53	05/17/23 22:31	100
Selenium	**1.2**		0.0050	0.0010	mg/L		05/17/23 07:53	05/18/23 03:01	1
Sodium	**900000**	**B**	100000	7300	ug/L		05/17/23 07:53	05/17/23 22:31	100
Thallium	**0.00089**	**J**	0.0010	0.00021	mg/L		05/17/23 07:53	05/18/23 03:01	1
Copper	**47**		2.0	0.71	ug/L		05/17/23 07:53	05/18/23 03:01	1
Potassium	**24000**	**^+**	1000	52	ug/L		05/17/23 07:53	05/18/23 03:01	1
Nickel	**110**		3.0	0.83	ug/L		05/17/23 07:53	05/18/23 03:01	1
Vanadium	**1.4**	**J**	5.0	1.1	ug/L		05/17/23 07:53	05/18/23 03:01	1
Zinc	**18**	**B**	10	2.0	ug/L		05/17/23 07:53	05/18/23 03:01	1

Client Sample ID: MW-7
Date Collected: 05/08/23 14:45
Date Received: 05/09/23 09:20
Lab Sample ID: 280-176224-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/17/23 07:53	05/18/23 03:04	1
Silver	ND		1.0	0.045	ug/L		05/17/23 07:53	05/18/23 03:04	1
Arsenic	ND		0.0050	0.00050	mg/L		05/17/23 07:53	05/18/23 03:04	1
Barium	**0.0089**		0.0030	0.00038	mg/L		05/17/23 07:53	05/18/23 03:04	1
Beryllium	ND		0.0010	0.00030	mg/L		05/17/23 07:53	05/18/23 03:04	1
Cadmium	**0.00082**	**J**	0.0010	0.00019	mg/L		05/17/23 07:53	05/18/23 03:04	1
Calcium	**460000**		20000	3200	ug/L		05/17/23 07:53	05/17/23 22:33	100
Chromium	ND		0.0030	0.00050	mg/L		05/17/23 07:53	05/18/23 03:04	1
Cobalt	**0.0090**		0.0010	0.00033	mg/L		05/17/23 07:53	05/18/23 03:04	1
Lead	ND		0.0010	0.00023	mg/L		05/17/23 07:53	05/18/23 03:04	1
Magnesium	**920000**		20000	420	ug/L		05/17/23 07:53	05/17/23 22:33	100
Selenium	**0.33**		0.0050	0.0010	mg/L		05/17/23 07:53	05/18/23 03:04	1
Sodium	**2500000**	**B**	100000	7300	ug/L		05/17/23 07:53	05/17/23 22:33	100
Thallium	**0.0017**		0.0010	0.00021	mg/L		05/17/23 07:53	05/18/23 03:04	1
Copper	**7.3**		2.0	0.71	ug/L		05/17/23 07:53	05/18/23 03:04	1
Potassium	**33000**	**^+**	1000	52	ug/L		05/17/23 07:53	05/18/23 03:04	1
Nickel	**69**		3.0	0.83	ug/L		05/17/23 07:53	05/18/23 03:04	1
Vanadium	ND		5.0	1.1	ug/L		05/17/23 07:53	05/18/23 03:04	1
Zinc	**12**	**B**	10	2.0	ug/L		05/17/23 07:53	05/18/23 03:04	1

General Chemistry

Client Sample ID: MW-5
Date Collected: 05/08/23 10:30
Date Received: 05/09/23 09:20
Lab Sample ID: 280-176224-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N (SW846 9056)	**23**		10	1.8	mg/L			05/09/23 22:09	20
Alkalinity (SM 2320B)	**1300**	**B**	10	3.1	mg/L			05/10/23 16:54	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**1300**		10	3.1	mg/L			05/10/23 16:54	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			05/10/23 16:54	1

General Chemistry

Client Sample ID: MW-4B
Date Collected: 05/08/23 12:00
Date Received: 05/09/23 09:20

Lab Sample ID: 280-176224-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N (SW846 9056)	**140**		50	9.0	mg/L			05/10/23 02:25	100
Alkalinity (SM 2320B)	**770**		10	3.1	mg/L			05/10/23 17:33	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**770**		10	3.1	mg/L			05/10/23 17:33	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			05/10/23 17:33	1

Client Sample ID: MW-7
Date Collected: 05/08/23 14:45
Date Received: 05/09/23 09:20

Lab Sample ID: 280-176224-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N (SW846 9056)	**34**		25	4.5	mg/L			05/10/23 06:09	50
Alkalinity (SM 2320B)	**750**		10	3.1	mg/L			05/10/23 17:54	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**750**		10	3.1	mg/L			05/10/23 17:54	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			05/10/23 17:54	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-612647/1-C
Matrix: Water
Analysis Batch: 613111

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 612700

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		100	1.5	ug/L		05/17/23 07:53	05/18/23 15:40	1

Lab Sample ID: LCS 280-612647/2-D
Matrix: Water
Analysis Batch: 613111

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 612700

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2000	2060		ug/L		103	86 - 110

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-612647/1-C
Matrix: Water
Analysis Batch: 612911

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 612700

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/17/23 07:53	05/17/23 22:13	1
Silver	ND		1.0	0.045	ug/L		05/17/23 07:53	05/17/23 22:13	1
Arsenic	ND		0.0050	0.00050	mg/L		05/17/23 07:53	05/17/23 22:13	1
Barium	ND		0.0030	0.00038	mg/L		05/17/23 07:53	05/17/23 22:13	1
Beryllium	ND		0.0010	0.00030	mg/L		05/17/23 07:53	05/17/23 22:13	1
Cadmium	ND		0.0010	0.00019	mg/L		05/17/23 07:53	05/17/23 22:13	1
Calcium	ND		200	32	ug/L		05/17/23 07:53	05/17/23 22:13	1
Chromium	ND		0.0030	0.00050	mg/L		05/17/23 07:53	05/17/23 22:13	1
Cobalt	ND		0.0010	0.00033	mg/L		05/17/23 07:53	05/17/23 22:13	1
Lead	ND		0.0010	0.00023	mg/L		05/17/23 07:53	05/17/23 22:13	1
Magnesium	ND		200	4.2	ug/L		05/17/23 07:53	05/17/23 22:13	1
Selenium	ND		0.0050	0.0010	mg/L		05/17/23 07:53	05/17/23 22:13	1
Sodium	86.6	J	1000	73	ug/L		05/17/23 07:53	05/17/23 22:13	1
Thallium	ND		0.0010	0.00021	mg/L		05/17/23 07:53	05/17/23 22:13	1
Copper	ND		2.0	0.71	ug/L		05/17/23 07:53	05/17/23 22:13	1
Potassium	ND		1000	52	ug/L		05/17/23 07:53	05/17/23 22:13	1
Nickel	ND		3.0	0.83	ug/L		05/17/23 07:53	05/17/23 22:13	1
Vanadium	ND		5.0	1.1	ug/L		05/17/23 07:53	05/17/23 22:13	1
Zinc	2.09	J	10	2.0	ug/L		05/17/23 07:53	05/17/23 22:13	1

Lab Sample ID: LCS 280-612647/2-E
Matrix: Water
Analysis Batch: 612911

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 612700

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0426		mg/L		107	85 - 115
Silver	40.0	40.0		ug/L		100	85 - 115
Arsenic	0.0400	0.0420		mg/L		105	85 - 117
Barium	0.0400	0.0431		mg/L		108	85 - 118
Beryllium	0.0400	0.0420		mg/L		105	80 - 125
Cadmium	0.0400	0.0421		mg/L		105	85 - 115
Calcium	1000	1130		ug/L		113	80 - 120
Chromium	0.0400	0.0421		mg/L		105	84 - 121

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

Lab Sample ID: LCS 280-612647/2-E
Matrix: Water
Analysis Batch: 612911

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 612700

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cobalt	0.0400	0.0420		mg/L		105	85 - 120
Lead	0.0400	0.0414		mg/L		104	85 - 118
Magnesium	1000	1040		ug/L		104	80 - 120
Selenium	0.0400	0.0437		mg/L		109	77 - 122
Sodium	1000	1050		ug/L		105	80 - 120
Thallium	0.0400	0.0416		mg/L		104	85 - 118
Copper	40.0	41.7		ug/L		104	85 - 119
Potassium	1000	1040		ug/L		104	80 - 120
Nickel	40.0	43.0		ug/L		107	85 - 119
Vanadium	40.0	42.7		ug/L		107	85 - 120
Zinc	40.0	42.8		ug/L		107	83 - 122

Method: 9056 - Anions, Ion Chromatography

Lab Sample ID: MB 280-611756/47
Matrix: Water
Analysis Batch: 611756

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.50	0.090	mg/L			05/10/23 03:09	1

Lab Sample ID: MB 280-611756/6
Matrix: Water
Analysis Batch: 611756

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.50	0.090	mg/L			05/09/23 13:16	1

Lab Sample ID: LCS 280-611756/4
Matrix: Water
Analysis Batch: 611756

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate as N	2.50	2.32		mg/L		93	90 - 110

Lab Sample ID: LCS 280-611756/45
Matrix: Water
Analysis Batch: 611756

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate as N	2.50	2.32		mg/L		93	90 - 110

Lab Sample ID: LCSD 280-611756/46
Matrix: Water
Analysis Batch: 611756

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
Nitrate as N	2.50	2.32		mg/L		93	90 - 110	0	10

Method: 9056 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 280-611756/5
Matrix: Water
Analysis Batch: 611756

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
Nitrate as N	2.50	2.32		mg/L		93	90 - 110	0	10

Lab Sample ID: MRL 280-611756/3
Matrix: Water
Analysis Batch: 611756

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate as N	0.250	0.223	J	mg/L		89	50 - 150

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-612064/31
Matrix: Water
Analysis Batch: 612064

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			05/10/23 17:23	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/10/23 17:23	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/10/23 17:23	1

Lab Sample ID: MB 280-612064/5
Matrix: Water
Analysis Batch: 612064

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	4.07	J	10	3.1	mg/L			05/10/23 13:45	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/10/23 13:45	1
Carbonate Alkalinity as CaCO3	3.66	J	10	3.1	mg/L			05/10/23 13:45	1

Lab Sample ID: LCS 280-612064/30
Matrix: Water
Analysis Batch: 612064

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	200	194		mg/L		97	89 - 110

Lab Sample ID: LCS 280-612064/4
Matrix: Water
Analysis Batch: 612064

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	200	194		mg/L		97	89 - 110

Lab Sample ID: 280-176224-2 DU
Matrix: Water
Analysis Batch: 612064

Client Sample ID: MW-4B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity	770		775		mg/L		0.8	10
Bicarbonate Alkalinity as CaCO3	770		775		mg/L		0.8	20

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: 280-176224-2 DU
Client Sample ID: MW-4B
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 612064

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Carbonate Alkalinity as CaCO3	ND			ND		mg/L				NC	20

Metals

Filtration Batch: 612647

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176224-1	MW-5	Dissolved	Water	FILTRATION	
280-176224-2	MW-4B	Dissolved	Water	FILTRATION	
280-176224-3	MW-7	Dissolved	Water	FILTRATION	
MB 280-612647/1-C	Method Blank	Dissolved	Water	FILTRATION	
LCS 280-612647/2-D	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 280-612647/2-E	Lab Control Sample	Dissolved	Water	FILTRATION	

Prep Batch: 612700

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176224-1	MW-5	Dissolved	Water	3005A	612647
280-176224-1	MW-5	Dissolved	Water	3005A	612647
280-176224-2	MW-4B	Dissolved	Water	3005A	612647
280-176224-2	MW-4B	Dissolved	Water	3005A	612647
280-176224-3	MW-7	Dissolved	Water	3005A	612647
280-176224-3	MW-7	Dissolved	Water	3005A	612647
MB 280-612647/1-C	Method Blank	Dissolved	Water	3005A	612647
LCS 280-612647/2-D	Lab Control Sample	Dissolved	Water	3005A	612647
LCS 280-612647/2-E	Lab Control Sample	Dissolved	Water	3005A	612647

Analysis Batch: 612911

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176224-1	MW-5	Dissolved	Water	6020B	612700
280-176224-1	MW-5	Dissolved	Water	6020B	612700
280-176224-2	MW-4B	Dissolved	Water	6020B	612700
280-176224-2	MW-4B	Dissolved	Water	6020B	612700
280-176224-3	MW-7	Dissolved	Water	6020B	612700
280-176224-3	MW-7	Dissolved	Water	6020B	612700
MB 280-612647/1-C	Method Blank	Dissolved	Water	6020B	612700
LCS 280-612647/2-E	Lab Control Sample	Dissolved	Water	6020B	612700

Analysis Batch: 613111

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-612647/1-C	Method Blank	Dissolved	Water	6010C	612700
LCS 280-612647/2-D	Lab Control Sample	Dissolved	Water	6010C	612700

Analysis Batch: 613454

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176224-1	MW-5	Dissolved	Water	6010C	612700
280-176224-2	MW-4B	Dissolved	Water	6010C	612700
280-176224-3	MW-7	Dissolved	Water	6010C	612700

General Chemistry

Analysis Batch: 611756

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176224-1	MW-5	Total/NA	Water	9056	
280-176224-2	MW-4B	Total/NA	Water	9056	
280-176224-3	MW-7	Total/NA	Water	9056	
MB 280-611756/47	Method Blank	Total/NA	Water	9056	
MB 280-611756/6	Method Blank	Total/NA	Water	9056	
LCS 280-611756/4	Lab Control Sample	Total/NA	Water	9056	

General Chemistry (Continued)

Analysis Batch: 611756 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 280-611756/45	Lab Control Sample	Total/NA	Water	9056	
LCSD 280-611756/46	Lab Control Sample Dup	Total/NA	Water	9056	
LCSD 280-611756/5	Lab Control Sample Dup	Total/NA	Water	9056	
MRL 280-611756/3	Lab Control Sample	Total/NA	Water	9056	

Analysis Batch: 612064

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176224-1	MW-5	Total/NA	Water	SM 2320B	
280-176224-2	MW-4B	Total/NA	Water	SM 2320B	
280-176224-3	MW-7	Total/NA	Water	SM 2320B	
MB 280-612064/31	Method Blank	Total/NA	Water	SM 2320B	
MB 280-612064/5	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-612064/30	Lab Control Sample	Total/NA	Water	SM 2320B	
LCS 280-612064/4	Lab Control Sample	Total/NA	Water	SM 2320B	
280-176224-2 DU	MW-4B	Total/NA	Water	SM 2320B	

Lab Chronicle

Client: HDR Inc
Job ID: 280-176224-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: MW-5
Date Collected: 05/08/23 10:30
Date Received: 05/09/23 09:20

Lab Sample ID: 280-176224-1
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	200 mL	612647	05/16/23 11:01	PFM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612700	05/22/23 11:28	LJS	EET DEN
Dissolved	Analysis	6010C		1			613454	05/22/23 17:32	ADL	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	200 mL	612647	05/16/23 11:01	PFM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612700	05/17/23 07:53	LJS	EET DEN
Dissolved	Analysis	6020B		100			612911	05/17/23 22:29	LRD	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	200 mL	612647	05/16/23 11:01	PFM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612700	05/17/23 07:53	LJS	EET DEN
Dissolved	Analysis	6020B		1			612911	05/18/23 02:57	LRD	EET DEN
Total/NA	Analysis	9056		20	10 mL	10 mL	611756	05/09/23 22:09	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			612064	05/10/23 16:54	KEG	EET DEN

Client Sample ID: MW-4B
Date Collected: 05/08/23 12:00
Date Received: 05/09/23 09:20

Lab Sample ID: 280-176224-2
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	200 mL	612647	05/16/23 11:01	PFM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612700	05/22/23 11:28	LJS	EET DEN
Dissolved	Analysis	6010C		1			613454	05/22/23 17:37	ADL	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	200 mL	612647	05/16/23 11:01	PFM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612700	05/17/23 07:53	LJS	EET DEN
Dissolved	Analysis	6020B		100			612911	05/17/23 22:31	LRD	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	200 mL	612647	05/16/23 11:01	PFM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612700	05/17/23 07:53	LJS	EET DEN
Dissolved	Analysis	6020B		1			612911	05/18/23 03:01	LRD	EET DEN
Total/NA	Analysis	9056		100	10 mL	10 mL	611756	05/10/23 02:25	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			612064	05/10/23 17:33	KEG	EET DEN

Client Sample ID: MW-7
Date Collected: 05/08/23 14:45
Date Received: 05/09/23 09:20

Lab Sample ID: 280-176224-3
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	200 mL	612647	05/16/23 11:01	PFM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612700	05/22/23 11:28	LJS	EET DEN
Dissolved	Analysis	6010C		1			613454	05/22/23 17:41	ADL	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	200 mL	612647	05/16/23 11:01	PFM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612700	05/17/23 07:53	LJS	EET DEN
Dissolved	Analysis	6020B		100			612911	05/17/23 22:33	LRD	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	200 mL	612647	05/16/23 11:01	PFM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612700	05/17/23 07:53	LJS	EET DEN
Dissolved	Analysis	6020B		1			612911	05/18/23 03:04	LRD	EET DEN
Total/NA	Analysis	9056		50	10 mL	10 mL	611756	05/10/23 06:09	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			612064	05/10/23 17:54	KEG	EET DEN

Lab Chronicle

Client: HDR Inc
Job ID: 280-176224-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Laboratory References:

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

Accreditation/Certification Summary

Client: HDR Inc
Job ID: 280-176224-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

eurofins | Environment Testing

Client Information	Sampler: Mattison Barickman	Lab PM: Ryan, Nicole C	Carrier Tracking No(s):	COC No: 280-129982-35989.1
Client Contact: Molly Reeves	Phone: (720) 385-4021	E-Mail: Nicole.Ryan@ET.eurofinsus.com	State of Origin:	Page: Page 1 of 1
Company: HDR Inc	PWSID:			Job #:
Address: 1670 Broadway Suite 3400	Due Date Requested:			
City: Denver	TAT Requested (days):			
State, Zip: CO, 80202	Compliance Project: Δ Yes Δ No			
Phone: 734-263-7138(Tel)	PO #: DEN-021			
Email: Molly.Reeves@hdrinc.com	WO #:			
Project Name: Xcel Energy GW Monitoring - Comanche	Project #: 28014376			
Site: Comanche Landfill State Parameters	SSOW#:			

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, 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)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	2320B Alkalinity, 9056_48HR Nitrate Nitrite	6010C, 6020B Dissolved Metals - State list	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N		
MW-5	05/08/2023	1030	G	W	N	N	X	X	2	
MW-4B	05/08/2023	1200	G	W	N	N	X	X	2	
MW-7	05/08/2023	1445	G	W	N	N	X	X	2	

280-176224 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:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Mattison Barickman	05/08/2023, 1825	HDR Inc.	F Li	05/08/23, 1825	HDR
2	F Li	5/9/23 0920	HDR		5/09/23 0920	ETADEN
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 0.1c cF 0.1 IR14

Ver: 01/16/2019

Page 23 of 24

5/24/2023

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-176224-1

Login Number: 176224
List Number: 1
Creator: Held, Wesley

List Source: Eurofins Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	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 <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Molly Reeves
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Generated 6/6/2023 9:23:14 AM Revision 1

JOB DESCRIPTION

Xcel Energy GW CCR Monitoring - Comanche

JOB NUMBER

280-176246-1

Eurofins Denver
4955 Yarrow Street
Arvada CO 80002

See page two for job notes and contact information.

myEOL

Job Notes

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

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

Authorization



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6/6/2023 9:23:14 AM
Revision 1

Authorized for release by
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Definitions/Glossary

Client: HDR Inc
Job ID: 280-176246-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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
*-	LCS and/or LCSD is outside acceptance limits, low biased.
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

Job ID: 280-176246-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-176246-1

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, June 5, 2023
This report has been revised to include total and dissolved Mn for all samples per the clients request.

Receipt
The samples were received on 5/9/2023 4:15 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 0.3º C, 0.8º C and 1.5º C.

DISSOLVED METALS (ICP)
Samples BAP-NW (280-176246-1), BAP-NE (280-176246-2) and BAP-NW1 (280-176246-3) were analyzed for Dissolved Metals (ICP) in accordance with EPA SW846 6010D. The samples were prepared on 05/17/2023 and analyzed on 05/18/2023, 05/22/2023 and 05/23/2023.

Iron and Sodium were detected in method blank MB 280-612647/1-C 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 and Sodium failed the recovery criteria low for the MS of sample BAP-NWMS (280-176246-1) in batch 280-613604.

Calcium and Sodium failed the recovery criteria low for the MSD of sample BAP-NWMSD (280-176246-1) in batch 280-613604.

Samples BAP-NW (280-176246-1)[20X], BAP-NW (280-176246-1)[5X], BAP-NE (280-176246-2)[20X], BAP-NE (280-176246-2)[5X], BAP-NW1 (280-176246-3)[20X] and BAP-NW1 (280-176246-3)[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.

TOTAL METALS (ICP)
Samples BAP-NW (280-176246-1), BAP-NE (280-176246-2) and BAP-NW1 (280-176246-3) were analyzed for Total Metals (ICP) in accordance with EPA SW846 6010D. The samples were prepared on 05/10/2023 and analyzed on 05/18/2023 and 05/23/2023.

Job ID: 280-176246-1 (Continued)

Laboratory: Eurofins Denver (Continued)

Boron, Calcium and Magnesium were detected in method blank MB 280-611818/1-A at levels exceeding the reporting limit. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Iron was detected in method blank MB 280-611818/1-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.

Samples BAP-NW (280-176246-1)[20X], BAP-NE (280-176246-2)[20X] and BAP-NW1 (280-176246-3)[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.

DISSOLVED METALS (ICP/MS)
Samples BAP-NW (280-176246-1), BAP-NE (280-176246-2) and BAP-NW1 (280-176246-3) were analyzed for Dissolved Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 05/17/2023 and analyzed on 05/17/2023 and 05/18/2023.

Zinc was detected in method blank MB 280-612647/1-C 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.

Strontium failed the recovery criteria low for the MS of sample BAP-NWMS (280-176246-1) in batch 280-613118.

Strontium failed the recovery criteria low for the MSD of sample BAP-NWMSD (280-176246-1) in batch 280-613118.

Samples BAP-NW (280-176246-1)[5X], BAP-NE (280-176246-2)[5X] and BAP-NW1 (280-176246-3)[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.

POTENTIALLY DISSOLVED METALS
Samples BAP-NW (280-176246-1), BAP-NE (280-176246-2) and BAP-NW1 (280-176246-3) were analyzed for Potentially Dissolved Metals in accordance with SW846 6020B. The samples were prepared on 05/15/2023 and analyzed on 05/16/2023.

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

TOTAL METALS (ICP/MS)
Samples BAP-NW (280-176246-1), BAP-NE (280-176246-2) and BAP-NW1 (280-176246-3) were analyzed for Total Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 05/10/2023 and analyzed on 05/11/2023 and 05/12/2023.

Barium was detected in method blank MB 280-611818/1-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.

Samples BAP-NW (280-176246-1)[50X], BAP-NE (280-176246-2)[50X] and BAP-NW1 (280-176246-3)[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.

HEXAVALENT CHROMIUM
Samples BAP-NW (280-176246-1), BAP-NE (280-176246-2) and BAP-NW1 (280-176246-3) were analyzed for hexavalent chromium in accordance with EPA SW-846 Method 7196A. The samples were analyzed on 05/09/2023.

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

DISSOLVED MERCURY
Samples BAP-NW (280-176246-1), BAP-NE (280-176246-2) and BAP-NW1 (280-176246-3) were analyzed for dissolved mercury in

Job ID: 280-176246-1 (Continued)

Laboratory: Eurofins Denver (Continued)

accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 05/18/2023.

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

TOTAL MERCURY
Samples BAP-NW (280-176246-1), BAP-NE (280-176246-2) and BAP-NW1 (280-176246-3) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 05/16/2023.

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

OIL AND GREASE (HEM)
Samples BAP-NW (280-176246-1), BAP-NE (280-176246-2) and BAP-NW1 (280-176246-3) were analyzed for oil and grease (HEM) in accordance with 1664B. The samples were prepared and analyzed on 05/15/2023.

This sample was completely filtered. The total volume of the contained sample was 796mL. The result of this sample is an estimation of the concentration of Hexane Extractable Materials(HEMs) in a 1 liter(1000mL) sample assuming complete homogeneity of the parent sample: (160-49940-A-1-A).

This sample was completely filtered. The total volume of the contained sample was 777mL. The result of this sample is an estimation of the concentration of Hexane Extractable Materials(HEMs) in a 1 liter(1000mL) sample assuming complete homogeneity of the parent sample: (160-49940-A-1-B DU).

Analysis for Hexane Extractable Material (HEM) was performed for the following samples: BAP-NW (280-176246-1), BAP-NE (280-176246-2), BAP-NW1 (280-176246-3), (160-49940-A-1-A), (160-49940-A-1-B DU) and (280-176287-F-1-A). Since the HEM result(s) was below the reporting limit (RL), the result(s) for Silica Gel Treated - Hexane Extractable Material (SGT-HEM) was reported as a non-detect. All HEM quality control criteria were met.

SGT-HEM (Total Petroleum Hydrocarbons) failed the recovery criteria low for LCS 280-612462/1-A. SGT-HEM (Total Petroleum Hydrocarbons) failed the recovery criteria low for LCSD 280-612462/2-A. Refer to the QC report for details.

SGT-HEM (Total Petroleum Hydrocarbons) failed the recovery criteria low for the MSD of sample 280-176287-1 in batch 280-612557.

SGT-HEM (Total Petroleum Hydrocarbons) failed the recovery criteria low for the MS of sample 280-176287-1 in batch 280-612557.

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

ALKALINITY
Samples BAP-NW (280-176246-1), BAP-NE (280-176246-2) and BAP-NW1 (280-176246-3) were analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 05/10/2023.

Alkalinity, Total was detected in method blank MB 280-612064/5 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 BAP-NW (280-176246-1), BAP-NE (280-176246-2) and BAP-NW1 (280-176246-3) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 05/15/2023 and 05/16/2023.

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

TOTAL SUSPENDED SOLIDS
Samples BAP-NW (280-176246-1), BAP-NE (280-176246-2) and BAP-NW1 (280-176246-3) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 05/11/2023.

Job ID: 280-176246-1 (Continued)

Laboratory: Eurofins Denver (Continued)

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

AMMONIA
Samples BAP-NW (280-176246-1), BAP-NE (280-176246-2) and BAP-NW1 (280-176246-3) were analyzed for ammonia in accordance with EPA Method 350.1. The samples were analyzed on 05/17/2023.

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

TOTAL PHOSPHORUS
Samples BAP-NW (280-176246-1), BAP-NE (280-176246-2) and BAP-NW1 (280-176246-3) were analyzed for total phosphorus in accordance with EPA Method 365.1. The samples were prepared and analyzed on 05/13/2023.

Total Phosphorus as PO4 failed the recovery criteria low for the MS of sample 580-126801-1 in batch 280-612409.

Total Phosphorus as PO4 failed the recovery criteria low for the MSD of sample 580-126801-1 in batch 280-612409.

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

ORTHOPHOSPHATE
Samples BAP-NW (280-176246-1), BAP-NE (280-176246-2) and BAP-NW1 (280-176246-3) were analyzed for orthophosphate in accordance with 365.1. The samples were analyzed on 05/09/2023.

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

WEAK ACID DISSOCIABLE CYANIDE
Samples BAP-NW (280-176246-1), BAP-NE (280-176246-2) and BAP-NW1 (280-176246-3) were analyzed for Weak Acid Dissociable Cyanide in accordance with 4500_CN_I. The samples were analyzed on 05/18/2023.

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

TRIVALENT CHROMIUM
Samples BAP-NW (280-176246-1), BAP-NE (280-176246-2) and BAP-NW1 (280-176246-3) were analyzed for Trivalent chromium in accordance with SW-846 7196A_CR3. The samples were analyzed on 05/19/2023.

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

CORROSIVITY (PH)
Samples BAP-NW (280-176246-1), BAP-NE (280-176246-2) and BAP-NW1 (280-176246-3) were analyzed for Corrosivity (pH) in accordance with EPA SW-846 9040C. The samples were analyzed on 05/11/2023.

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

SPECIFIC CONDUCTIVITY
Samples BAP-NW (280-176246-1), BAP-NE (280-176246-2) and BAP-NW1 (280-176246-3) were analyzed for specific conductivity in accordance with SW846 9050A. The samples were analyzed on 05/18/2023.

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

ANIONS (28 DAYS)
Samples BAP-NW (280-176246-1), BAP-NE (280-176246-2) and BAP-NW1 (280-176246-3) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A (28 Days). The samples were analyzed on 05/18/2023.

Due to the concentration of sulfate in the spiked sample, the matrix spike/ matrix spike duplicate result was higher than the highest calibration point for this analyte. Non-homogeneity/ sample matrix interference is suspected as the % recoveries are not within % recovery limits. (280-176228-G-1), (280-176228-G-1 MS) and (280-176228-G-1 MSD).

Job ID: 280-176246-1 (Continued)

Laboratory: Eurofins Denver (Continued)

Due to the concentration of chloride in the spiked sample, the matrix spike/ matrix spike duplicate result was higher than the highest calibration point for this analyte. The % recoveries were within % recovery limits so the results have been qualified and reported. (280-175967-C-12), (280-175967-C-12 MS) and (280-175967-C-12 MSD).

Due to the concentration of sulfate in the spiked sample, the matrix spike/ matrix spike duplicate result was higher than the highest calibration point for this analyte. The % recoveries were within % recovery limits so the results have been qualified and reported. (280-175967-C-12), (280-175967-C-12 MS) and (280-175967-C-12 MSD)

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 280-611757 were outside control limits for sulfate. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Samples BAP-NW (280-176246-1)[2X], BAP-NW (280-176246-1)[50X], BAP-NE (280-176246-2)[2X], BAP-NE (280-176246-2)[50X], BAP-NW1 (280-176246-3)[2X] and BAP-NW1 (280-176246-3)[50X] 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.

ANIONS (48 HOURS)

Samples BAP-NW (280-176246-1), BAP-NE (280-176246-2) and BAP-NW1 (280-176246-3) were analyzed for anions (48 hours) in accordance with EPA SW-846 Method 9056A (48 Hours). The samples were analyzed on 05/10/2023.

Due to the concentration of nitrate in the spiked sample, the matrix spike/ matrix spike duplicate result was higher than the highest calibration point for this analyte. The % recoveries were within % recovery limits so the results have been qualified and reported. (280-176228-G-1), (280-176228-G-1 MS) and (280-176228-G-1 MSD).

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

SULFIDE

Samples BAP-NW (280-176246-1), BAP-NE (280-176246-2) and BAP-NW1 (280-176246-3) were analyzed for sulfide in accordance with SM20 4500 S2 D. The samples were analyzed on 05/15/2023.

Sulfide failed the recovery criteria low for the MS of sample 280-176257-16 in batch 280-612537.

Sulfide failed the recovery criteria low for the MSD of sample 280-176257-16 in batch 280-612537.

Sulfide failed the recovery criteria low for the MS of sample 280-176296-3 in batch 280-612537.

Sulfide failed the recovery criteria low for the MSD of sample 280-176296-3 in batch 280-612537.

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

HYDROGEN SULFIDE

Samples BAP-NW (280-176246-1), BAP-NE (280-176246-2) and BAP-NW1 (280-176246-3) were analyzed for Hydrogen Sulfide in accordance with SM20 4500 S2 H. The samples were analyzed on 05/19/2023.

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

Detection Summary

Client: HDR Inc
Job ID: 280-176246-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: BAP-NW
Lab Sample ID: 280-176246-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	550		100	18	ug/L	1		6010D	Total/NA
Boron	2000	B	100	1.5	ug/L	1		6010D	Total/NA
Calcium	710000	B	200	24	ug/L	1		6010D	Total/NA
Iron	220	B	100	9.1	ug/L	1		6010D	Total/NA
Potassium	27000		3000	240	ug/L	1		6010D	Total/NA
Magnesium	160000	B	200	4.2	ug/L	1		6010D	Total/NA
Sodium	580000		20000	1900	ug/L	20		6010D	Total/NA
Silicon	3400		500	16	ug/L	1		6010D	Total/NA
SiO2, Silica	7200		1100	34	ug/L	1		6010D	Total/NA
Aluminum	270		100	18	ug/L	1		6010D	Dissolved
Boron	2100		100	1.5	ug/L	1		6010D	Dissolved
Calcium	790000		1000	120	ug/L	5		6010D	Dissolved
Iron	28	J B	100	9.1	ug/L	1		6010D	Dissolved
Potassium	28000		3000	240	ug/L	1		6010D	Dissolved
Magnesium	170000		200	4.2	ug/L	1		6010D	Dissolved
Sodium	640000	B	20000	1900	ug/L	20		6010D	Dissolved
Silicon	3200		500	16	ug/L	1		6010D	Dissolved
SiO2, Silica	6800		1100	34	ug/L	1		6010D	Dissolved
Arsenic	1.3	J	5.0	0.50	ug/L	1		6020B	Total/NA
Barium	55	B	3.0	0.38	ug/L	1		6020B	Total/NA
Molybdenum	30		2.0	0.37	ug/L	1		6020B	Total/NA
Strontium	10000		500	35	ug/L	50		6020B	Total/NA
Zinc	9.0	J	10	2.0	ug/L	1		6020B	Total/NA
Manganese	210	B	3.0	0.51	ug/L	1		6020B	Total/NA
Arsenic	1.5	J	5.0	0.50	ug/L	1		6020B	Dissolved
Barium	54		3.0	0.38	ug/L	1		6020B	Dissolved
Molybdenum	37		2.0	0.37	ug/L	1		6020B	Dissolved
Strontium	13000		50	3.5	ug/L	5		6020B	Dissolved
Zinc	4.3	J B	10	2.0	ug/L	1		6020B	Dissolved
Manganese	230		3.0	0.51	ug/L	1		6020B	Dissolved
Zinc	13		10	2.0	ug/L	1		6020B	Potentially Dissolved
Ammonia as N	0.87		0.10	0.029	mg/L	1		350.1	Total/NA
pH adj. to 25 deg C	8.3	HF	0.1	0.1	SU	1		9040C	Total/NA
Temperature	22.4	HF	1.0	1.0	Degrees C	1		9040C	Total/NA
Specific Conductance	5600		2.0	2.0	umhos/cm	1		9050A	Total/NA
Chloride	110		6.0	2.0	mg/L	2		9056A	Total/NA
Fluoride	1.2		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	3600		250	52	mg/L	50		9056A	Total/NA
Alkalinity, Total	91		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	4800		40	19	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	21		4.0	1.1	mg/L	1		SM 2540D	Total/NA
Field pH	8.3		1.0	1.0	SU	1		SM4500 S2 H	Total/NA
Field Temperature	22		1.0	1.0	Celsius	1		SM4500 S2 H	Total/NA
Specific Conductance	5600		2.0	2.0	umhos/cm	1		SM4500 S2 H	Total/NA
ortho-Phosphate	0.032	J	0.050	0.018	mg/L	1		365.1	Dissolved
Field pH	8.33				SU	1		Field Sampling	Total/NA
Field Temperature	22.2				Degrees C	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: HDR Inc
Job ID: 280-176246-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: BAP-NE
Lab Sample ID: 280-176246-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	3200		100	18	ug/L	1		6010D	Total/NA
Boron	2000	B	100	1.5	ug/L	1		6010D	Total/NA
Calcium	560000	B	200	24	ug/L	1		6010D	Total/NA
Iron	1800	B	100	9.1	ug/L	1		6010D	Total/NA
Potassium	14000		3000	240	ug/L	1		6010D	Total/NA
Magnesium	280000	B	200	4.2	ug/L	1		6010D	Total/NA
Sodium	570000		20000	1900	ug/L	20		6010D	Total/NA
Silicon	6500		500	16	ug/L	1		6010D	Total/NA
SiO2, Silica	14000		1100	34	ug/L	1		6010D	Total/NA
Aluminum	120		100	18	ug/L	1		6010D	Dissolved
Boron	2000		100	1.5	ug/L	1		6010D	Dissolved
Calcium	620000		1000	120	ug/L	5		6010D	Dissolved
Iron	20	J B	100	9.1	ug/L	1		6010D	Dissolved
Potassium	14000		3000	240	ug/L	1		6010D	Dissolved
Magnesium	290000		200	4.2	ug/L	1		6010D	Dissolved
Sodium	540000	B	20000	1900	ug/L	20		6010D	Dissolved
Silicon	1900		500	16	ug/L	1		6010D	Dissolved
SiO2, Silica	4000		1100	34	ug/L	1		6010D	Dissolved
Arsenic	1.4	J	5.0	0.50	ug/L	1		6020B	Total/NA
Barium	150	B	3.0	0.38	ug/L	1		6020B	Total/NA
Chromium	2.4	J	3.0	0.50	ug/L	1		6020B	Total/NA
Molybdenum	36		2.0	0.37	ug/L	1		6020B	Total/NA
Strontium	7700		500	35	ug/L	50		6020B	Total/NA
Zinc	37		10	2.0	ug/L	1		6020B	Total/NA
Manganese	470	B	3.0	0.51	ug/L	1		6020B	Total/NA
Arsenic	0.76	J	5.0	0.50	ug/L	1		6020B	Dissolved
Barium	42		3.0	0.38	ug/L	1		6020B	Dissolved
Molybdenum	39		2.0	0.37	ug/L	1		6020B	Dissolved
Strontium	9200		50	3.5	ug/L	5		6020B	Dissolved
Zinc	5.7	J B	10	2.0	ug/L	1		6020B	Dissolved
Manganese	470		3.0	0.51	ug/L	1		6020B	Dissolved
Zinc	28		10	2.0	ug/L	1		6020B	Potentially Dissolved
Ammonia as N	0.41		0.10	0.029	mg/L	1		350.1	Total/NA
Total Phosphorus as PO4	0.36		0.15	0.059	mg/L	1		365.1	Total/NA
pH adj. to 25 deg C	8.3	HF	0.1	0.1	SU	1		9040C	Total/NA
Temperature	22.1	HF	1.0	1.0	Degrees C	1		9040C	Total/NA
Specific Conductance	5500		2.0	2.0	umhos/cm	1		9050A	Total/NA
Chloride	100		6.0	2.0	mg/L	2		9056A	Total/NA
Fluoride	1.1		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	3900		250	52	mg/L	50		9056A	Total/NA
Alkalinity, Total	110		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	5000		40	19	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	88		4.0	1.1	mg/L	1		SM 2540D	Total/NA
Field pH	8.4		1.0	1.0	SU	1		SM4500 S2 H	Total/NA
Field Temperature	22		1.0	1.0	Celsius	1		SM4500 S2 H	Total/NA
Specific Conductance	5500		2.0	2.0	umhos/cm	1		SM4500 S2 H	Total/NA
ortho-Phosphate	0.067		0.050	0.018	mg/L	1		365.1	Dissolved
Field pH	8.41				SU	1		Field Sampling	Total/NA
Field Temperature	21.7				Degrees C	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: HDR Inc
Job ID: 280-176246-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: BAP-NW1
Lab Sample ID: 280-176246-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	1000		100	18	ug/L	1		6010D	Total/NA
Boron	2100	B	100	1.5	ug/L	1		6010D	Total/NA
Calcium	720000	B	200	24	ug/L	1		6010D	Total/NA
Iron	440	B	100	9.1	ug/L	1		6010D	Total/NA
Potassium	27000		3000	240	ug/L	1		6010D	Total/NA
Magnesium	170000	B	200	4.2	ug/L	1		6010D	Total/NA
Sodium	620000		20000	1900	ug/L	20		6010D	Total/NA
Silicon	4200		500	16	ug/L	1		6010D	Total/NA
SiO2, Silica	8900		1100	34	ug/L	1		6010D	Total/NA
Aluminum	290		100	18	ug/L	1		6010D	Dissolved
Boron	2200		100	1.5	ug/L	1		6010D	Dissolved
Calcium	810000		1000	120	ug/L	5		6010D	Dissolved
Iron	15	J B	100	9.1	ug/L	1		6010D	Dissolved
Potassium	30000		3000	240	ug/L	1		6010D	Dissolved
Magnesium	180000		200	4.2	ug/L	1		6010D	Dissolved
Sodium	640000	B	20000	1900	ug/L	20		6010D	Dissolved
Silicon	3200		500	16	ug/L	1		6010D	Dissolved
SiO2, Silica	6800		1100	34	ug/L	1		6010D	Dissolved
Arsenic	1.7	J	5.0	0.50	ug/L	1		6020B	Total/NA
Barium	88	B	3.0	0.38	ug/L	1		6020B	Total/NA
Chromium	0.59	J	3.0	0.50	ug/L	1		6020B	Total/NA
Molybdenum	35		2.0	0.37	ug/L	1		6020B	Total/NA
Strontium	12000		500	35	ug/L	50		6020B	Total/NA
Zinc	22		10	2.0	ug/L	1		6020B	Total/NA
Manganese	290	B	3.0	0.51	ug/L	1		6020B	Total/NA
Arsenic	1.4	J	5.0	0.50	ug/L	1		6020B	Dissolved
Barium	53		3.0	0.38	ug/L	1		6020B	Dissolved
Molybdenum	37		2.0	0.37	ug/L	1		6020B	Dissolved
Strontium	14000		50	3.5	ug/L	5		6020B	Dissolved
Zinc	3.7	J B	10	2.0	ug/L	1		6020B	Dissolved
Manganese	160		3.0	0.51	ug/L	1		6020B	Dissolved
Zinc	72		10	2.0	ug/L	1		6020B	Potentially Dissolved
Ammonia as N	0.81		0.10	0.029	mg/L	1		350.1	Total/NA
Total Phosphorus as PO4	0.55		0.15	0.059	mg/L	1		365.1	Total/NA
pH adj. to 25 deg C	8.4	HF	0.1	0.1	SU	1		9040C	Total/NA
Temperature	22.3	HF	1.0	1.0	Degrees C	1		9040C	Total/NA
Specific Conductance	5700		2.0	2.0	umhos/cm	1		9050A	Total/NA
Chloride	110		6.0	2.0	mg/L	2		9056A	Total/NA
Fluoride	1.4		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	3800		250	52	mg/L	50		9056A	Total/NA
Alkalinity, Total	89		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	5000		40	19	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	50		4.0	1.1	mg/L	1		SM 2540D	Total/NA
Field pH	8.5		1.0	1.0	SU	1		SM4500 S2 H	Total/NA
Field Temperature	29		1.0	1.0	Celsius	1		SM4500 S2 H	Total/NA
Specific Conductance	5700		2.0	2.0	umhos/cm	1		SM4500 S2 H	Total/NA
ortho-Phosphate	0.063		0.050	0.018	mg/L	1		365.1	Dissolved
Field pH	8.50				SU	1		Field Sampling	Total/NA
Field Temperature	29.2				Degrees C	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-176246-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Method	Method Description	Protocol	Laboratory
6010D	Metals (ICP)	SW846	EET DEN
6020B	Metals (ICP/MS)	SW846	EET DEN
7470A	Mercury (CVAA)	SW846	EET DEN
1664B	HEM and SGT-HEM	1664B	EET DEN
350.1	Nitrogen, Ammonia	EPA	EET DEN
365.1	Phosphorus, Ortho	EPA	EET DEN
365.1	Phosphorus, Total	EPA	EET DEN
7196A	Chromium, Hexavalent	SW846	EET DEN
7196A	Chromium, Trivalent (Colorimetric)	SW846	EET DEN
9040C	pH	SW846	EET DEN
9050A	Specific Conductance	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
SM 4500 CN I	Cyanide, Weak Acid Dissociable	SM	EET DEN
SM 4500 S2 D	Sulfide, Total	SM	EET DEN
SM4500 S2 H	Unionized Hydrogen Sulfide	SM	EET DEN
Field Sampling	Field Sampling	EPA	EET DEN
1664B	HEM and SGT-HEM (SPE)	1664B	EET DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET DEN
3010A	Preparation, Total Metals	SW846	EET DEN
3020A	Preparation, Total Metals	SW846	EET DEN
365.2/365.3/365	Phosphorus, Total	EPA	EET DEN
7470A	Preparation, Mercury	SW846	EET DEN
FILTRATION	Sample Filtration	None	EET DEN
Poten_Diss_Met	Filtration for Potentially Dissolved Metals	EPA	EET DEN

Protocol References:

1664B = EPA-821-98-002
EPA = US Environmental Protection Agency
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

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

Sample Summary

Client: HDR Inc
Job ID: 280-176246-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-176246-1	BAP-NW	Water	05/09/23 10:45	05/09/23 16:15
280-176246-2	BAP-NE	Water	05/09/23 11:30	05/09/23 16:15
280-176246-3	BAP-NW1	Water	05/09/23 12:30	05/09/23 16:15

Method: SW846 6010D - Metals (ICP)

Client Sample ID: BAP-NW
Date Collected: 05/09/23 10:45
Date Received: 05/09/23 16:15
Lab Sample ID: 280-176246-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	550		100	18	ug/L		05/10/23 14:35	05/18/23 20:16	1
Boron	2000	B	100	1.5	ug/L		05/10/23 14:35	05/18/23 20:16	1
Calcium	710000	B	200	24	ug/L		05/10/23 14:35	05/18/23 20:16	1
Iron	220	B	100	9.1	ug/L		05/10/23 14:35	05/18/23 20:16	1
Potassium	27000		3000	240	ug/L		05/10/23 14:35	05/18/23 20:16	1
Magnesium	160000	B	200	4.2	ug/L		05/10/23 14:35	05/18/23 20:16	1
Sodium	580000		20000	1900	ug/L		05/10/23 14:35	05/23/23 15:09	20
Silicon	3400		500	16	ug/L		05/10/23 14:35	05/18/23 20:16	1
SiO2, Silica	7200		1100	34	ug/L		05/10/23 14:35	05/18/23 20:16	1

Client Sample ID: BAP-NE
Date Collected: 05/09/23 11:30
Date Received: 05/09/23 16:15
Lab Sample ID: 280-176246-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	3200		100	18	ug/L		05/10/23 14:35	05/18/23 20:36	1
Boron	2000	B	100	1.5	ug/L		05/10/23 14:35	05/18/23 20:36	1
Calcium	560000	B	200	24	ug/L		05/10/23 14:35	05/18/23 20:36	1
Iron	1800	B	100	9.1	ug/L		05/10/23 14:35	05/18/23 20:36	1
Potassium	14000		3000	240	ug/L		05/10/23 14:35	05/18/23 20:36	1
Magnesium	280000	B	200	4.2	ug/L		05/10/23 14:35	05/18/23 20:36	1
Sodium	570000		20000	1900	ug/L		05/10/23 14:35	05/23/23 15:14	20
Silicon	6500		500	16	ug/L		05/10/23 14:35	05/18/23 20:36	1
SiO2, Silica	14000		1100	34	ug/L		05/10/23 14:35	05/18/23 20:36	1

Client Sample ID: BAP-NW1
Date Collected: 05/09/23 12:30
Date Received: 05/09/23 16:15
Lab Sample ID: 280-176246-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	1000		100	18	ug/L		05/10/23 14:35	05/18/23 20:40	1
Boron	2100	B	100	1.5	ug/L		05/10/23 14:35	05/18/23 20:40	1
Calcium	720000	B	200	24	ug/L		05/10/23 14:35	05/18/23 20:40	1
Iron	440	B	100	9.1	ug/L		05/10/23 14:35	05/18/23 20:40	1
Potassium	27000		3000	240	ug/L		05/10/23 14:35	05/18/23 20:40	1
Magnesium	170000	B	200	4.2	ug/L		05/10/23 14:35	05/18/23 20:40	1
Sodium	620000		20000	1900	ug/L		05/10/23 14:35	05/23/23 15:18	20
Silicon	4200		500	16	ug/L		05/10/23 14:35	05/18/23 20:40	1
SiO2, Silica	8900		1100	34	ug/L		05/10/23 14:35	05/18/23 20:40	1

Method: SW846 6010D - Metals (ICP) - Dissolved

Client Sample ID: BAP-NW
Date Collected: 05/09/23 10:45
Date Received: 05/09/23 16:15
Lab Sample ID: 280-176246-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	270		100	18	ug/L		05/17/23 07:53	05/18/23 15:49	1
Boron	2100		100	1.5	ug/L		05/17/23 07:53	05/18/23 15:49	1
Calcium	790000		1000	120	ug/L		05/17/23 07:53	05/22/23 16:54	5
Iron	28	J B	100	9.1	ug/L		05/17/23 07:53	05/18/23 15:49	1
Potassium	28000		3000	240	ug/L		05/17/23 07:53	05/18/23 15:49	1
Magnesium	170000		200	4.2	ug/L		05/17/23 07:53	05/18/23 15:49	1

Method: SW846 6010D - Metals (ICP) - Dissolved (Continued)

Client Sample ID: BAP-NW
Date Collected: 05/09/23 10:45
Date Received: 05/09/23 16:15
Lab Sample ID: 280-176246-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	640000	B	20000	1900	ug/L		05/17/23 07:53	05/23/23 15:42	20
Silicon	3200		500	16	ug/L		05/17/23 07:53	05/18/23 15:49	1
SiO2, Silica	6800		1100	34	ug/L		05/17/23 07:53	05/18/23 15:49	1

Client Sample ID: BAP-NE
Date Collected: 05/09/23 11:30
Date Received: 05/09/23 16:15
Lab Sample ID: 280-176246-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	120		100	18	ug/L		05/17/23 07:53	05/18/23 16:28	1
Boron	2000		100	1.5	ug/L		05/17/23 07:53	05/18/23 16:28	1
Calcium	620000		1000	120	ug/L		05/17/23 07:53	05/22/23 17:07	5
Iron	20	J B	100	9.1	ug/L		05/17/23 07:53	05/18/23 16:28	1
Potassium	14000		3000	240	ug/L		05/17/23 07:53	05/18/23 16:28	1
Magnesium	290000		200	4.2	ug/L		05/17/23 07:53	05/18/23 16:28	1
Sodium	540000	B	20000	1900	ug/L		05/17/23 07:53	05/23/23 16:02	20
Silicon	1900		500	16	ug/L		05/17/23 07:53	05/18/23 16:28	1
SiO2, Silica	4000		1100	34	ug/L		05/17/23 07:53	05/18/23 16:28	1

Client Sample ID: BAP-NW1
Date Collected: 05/09/23 12:30
Date Received: 05/09/23 16:15
Lab Sample ID: 280-176246-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	290		100	18	ug/L		05/17/23 07:53	05/18/23 16:32	1
Boron	2200		100	1.5	ug/L		05/17/23 07:53	05/18/23 16:32	1
Calcium	810000		1000	120	ug/L		05/17/23 07:53	05/22/23 17:28	5
Iron	15	J B	100	9.1	ug/L		05/17/23 07:53	05/18/23 16:32	1
Potassium	30000		3000	240	ug/L		05/17/23 07:53	05/18/23 16:32	1
Magnesium	180000		200	4.2	ug/L		05/17/23 07:53	05/18/23 16:32	1
Sodium	640000	B	20000	1900	ug/L		05/17/23 07:53	05/23/23 16:07	20
Silicon	3200		500	16	ug/L		05/17/23 07:53	05/18/23 16:32	1
SiO2, Silica	6800		1100	34	ug/L		05/17/23 07:53	05/18/23 16:32	1

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

Client Sample ID: BAP-NW
Date Collected: 05/09/23 10:45
Date Received: 05/09/23 16:15
Lab Sample ID: 280-176246-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.3	J	5.0	0.50	ug/L		05/10/23 14:35	05/12/23 01:16	1
Barium	55	B	3.0	0.38	ug/L		05/10/23 14:35	05/12/23 01:16	1
Chromium	ND		3.0	0.50	ug/L		05/10/23 14:35	05/12/23 01:16	1
Molybdenum	30		2.0	0.37	ug/L		05/10/23 14:35	05/12/23 01:16	1
Strontium	10000		500	35	ug/L		05/10/23 14:35	05/11/23 23:30	50
Zinc	9.0	J	10	2.0	ug/L		05/10/23 14:35	05/12/23 01:16	1
Manganese	210	B	3.0	0.51	ug/L		05/10/23 14:35	05/12/23 01:16	1

Client Sample ID: BAP-NE
Date Collected: 05/09/23 11:30
Date Received: 05/09/23 16:15
Lab Sample ID: 280-176246-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.4	J	5.0	0.50	ug/L		05/10/23 14:35	05/12/23 01:20	1

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

Client Sample ID: BAP-NE
Date Collected: 05/09/23 11:30
Date Received: 05/09/23 16:15
Lab Sample ID: 280-176246-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	150	B	3.0	0.38	ug/L		05/10/23 14:35	05/12/23 01:20	1
Chromium	2.4	J	3.0	0.50	ug/L		05/10/23 14:35	05/12/23 01:20	1
Molybdenum	36		2.0	0.37	ug/L		05/10/23 14:35	05/12/23 01:20	1
Strontium	7700		500	35	ug/L		05/10/23 14:35	05/11/23 23:32	50
Zinc	37		10	2.0	ug/L		05/10/23 14:35	05/12/23 01:20	1
Manganese	470	B	3.0	0.51	ug/L		05/10/23 14:35	05/12/23 01:20	1

Client Sample ID: BAP-NW1
Date Collected: 05/09/23 12:30
Date Received: 05/09/23 16:15
Lab Sample ID: 280-176246-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.7	J	5.0	0.50	ug/L		05/10/23 14:35	05/12/23 01:29	1
Barium	88	B	3.0	0.38	ug/L		05/10/23 14:35	05/12/23 01:29	1
Chromium	0.59	J	3.0	0.50	ug/L		05/10/23 14:35	05/12/23 01:29	1
Molybdenum	35		2.0	0.37	ug/L		05/10/23 14:35	05/12/23 01:29	1
Strontium	12000		500	35	ug/L		05/10/23 14:35	05/11/23 23:34	50
Zinc	22		10	2.0	ug/L		05/10/23 14:35	05/12/23 01:29	1
Manganese	290	B	3.0	0.51	ug/L		05/10/23 14:35	05/12/23 01:29	1

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

Client Sample ID: BAP-NW
Date Collected: 05/09/23 10:45
Date Received: 05/09/23 16:15
Lab Sample ID: 280-176246-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.5	J	5.0	0.50	ug/L		05/17/23 07:53	05/17/23 22:17	1
Barium	54		3.0	0.38	ug/L		05/17/23 07:53	05/17/23 22:17	1
Chromium	ND		3.0	0.50	ug/L		05/17/23 07:53	05/17/23 22:17	1
Molybdenum	37		2.0	0.37	ug/L		05/17/23 07:53	05/17/23 22:17	1
Strontium	13000		50	3.5	ug/L		05/17/23 07:53	05/18/23 22:31	5
Zinc	4.3	J B	10	2.0	ug/L		05/17/23 07:53	05/17/23 22:17	1
Manganese	230		3.0	0.51	ug/L		05/17/23 07:53	05/17/23 22:17	1

Client Sample ID: BAP-NE
Date Collected: 05/09/23 11:30
Date Received: 05/09/23 16:15
Lab Sample ID: 280-176246-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.76	J	5.0	0.50	ug/L		05/17/23 07:53	05/17/23 22:34	1
Barium	42		3.0	0.38	ug/L		05/17/23 07:53	05/17/23 22:34	1
Chromium	ND		3.0	0.50	ug/L		05/17/23 07:53	05/17/23 22:34	1
Molybdenum	39		2.0	0.37	ug/L		05/17/23 07:53	05/17/23 22:34	1
Strontium	9200		50	3.5	ug/L		05/17/23 07:53	05/18/23 22:40	5
Zinc	5.7	J B	10	2.0	ug/L		05/17/23 07:53	05/17/23 22:34	1
Manganese	470		3.0	0.51	ug/L		05/17/23 07:53	05/17/23 22:34	1

Client Sample ID: BAP-NW1
Date Collected: 05/09/23 12:30
Date Received: 05/09/23 16:15
Lab Sample ID: 280-176246-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.4	J	5.0	0.50	ug/L		05/17/23 07:53	05/17/23 22:36	1
Barium	53		3.0	0.38	ug/L		05/17/23 07:53	05/17/23 22:36	1

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

Client Sample ID: BAP-NW1
Date Collected: 05/09/23 12:30
Date Received: 05/09/23 16:15
Lab Sample ID: 280-176246-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	ND		3.0	0.50	ug/L		05/17/23 07:53	05/17/23 22:36	1
Molybdenum	**37**		2.0	0.37	ug/L		05/17/23 07:53	05/17/23 22:36	1
Strontium	**14000**		50	3.5	ug/L		05/17/23 07:53	05/18/23 22:41	5
Zinc	**3.7**	**J B**	10	2.0	ug/L		05/17/23 07:53	05/17/23 22:36	1
Manganese	**160**		3.0	0.51	ug/L		05/17/23 07:53	05/17/23 22:36	1

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

Client Sample ID: BAP-NW
Date Collected: 05/09/23 10:45
Date Received: 05/09/23 16:15
Lab Sample ID: 280-176246-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	**13**		10	2.0	ug/L		05/15/23 14:55	05/16/23 03:41	1

Client Sample ID: BAP-NE
Date Collected: 05/09/23 11:30
Date Received: 05/09/23 16:15
Lab Sample ID: 280-176246-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	**28**		10	2.0	ug/L		05/15/23 14:55	05/16/23 03:44	1

Client Sample ID: BAP-NW1
Date Collected: 05/09/23 12:30
Date Received: 05/09/23 16:15
Lab Sample ID: 280-176246-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	**72**		10	2.0	ug/L		05/15/23 14:55	05/16/23 03:48	1

Method: SW846 7470A - Mercury (CVAA)

Client Sample ID: BAP-NW
Date Collected: 05/09/23 10:45
Date Received: 05/09/23 16:15
Lab Sample ID: 280-176246-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.061	ug/L		05/16/23 13:45	05/16/23 21:20	1

Client Sample ID: BAP-NE
Date Collected: 05/09/23 11:30
Date Received: 05/09/23 16:15
Lab Sample ID: 280-176246-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.061	ug/L		05/16/23 13:45	05/16/23 21:22	1

Client Sample ID: BAP-NW1
Date Collected: 05/09/23 12:30
Date Received: 05/09/23 16:15
Lab Sample ID: 280-176246-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.061	ug/L		05/16/23 13:45	05/16/23 21:25	1

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

Client Sample ID: BAP-NW
Date Collected: 05/09/23 10:45
Date Received: 05/09/23 16:15
Lab Sample ID: 280-176246-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.061	ug/L		05/18/23 14:10	05/18/23 22:15	1

Client Sample ID: BAP-NE
Date Collected: 05/09/23 11:30
Date Received: 05/09/23 16:15
Lab Sample ID: 280-176246-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.061	ug/L		05/18/23 14:10	05/18/23 22:23	1

Client Sample ID: BAP-NW1
Date Collected: 05/09/23 12:30
Date Received: 05/09/23 16:15
Lab Sample ID: 280-176246-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.061	ug/L		05/18/23 14:10	05/18/23 22:26	1

General Chemistry

Client Sample ID: BAP-NW
Date Collected: 05/09/23 10:45
Date Received: 05/09/23 16:15
Lab Sample ID: 280-176246-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil and Grease) (1664B)	ND		4.9	1.6	mg/L		05/15/23 09:54	05/15/23 15:34	1
SGT-HEM (Total Petroleum Hydrocarbons) (1664B)	ND	*-	5.9	2.7	mg/L		05/15/23 09:54	05/15/23 15:34	1
Ammonia as N (EPA 350.1)	**0.87**		0.10	0.029	mg/L			05/17/23 16:37	1
Total Phosphorus as PO4 (EPA 365.1)	ND		0.15	0.059	mg/L		05/13/23 11:41	05/13/23 16:35	1
Chromium, hexavalent (SW846 7196A)	ND		0.020	0.0040	mg/L			05/09/23 18:25	1
Chromium, trivalent (SW846 7196A)	ND		20	20	ug/L			05/19/23 13:57	1
Chromium (SW846 7196A)	ND		20	20	ug/L			05/19/23 13:57	1
Chromium, hexavalent (SW846 7196A)	ND		20	20	ug/L			05/19/23 13:57	1
pH adj. to 25 deg C (SW846 9040C)	**8.3**	**HF**	0.1	0.1	SU			05/11/23 16:31	1
Temperature (SW846 9040C)	**22.4**	**HF**	1.0	1.0	Degrees C			05/11/23 16:31	1
Specific Conductance (SW846 9050A)	**5600**		2.0	2.0	umhos/cm			05/18/23 11:56	1
Chloride (SW846 9056A)	**110**		6.0	2.0	mg/L			05/18/23 16:17	2
Nitrate as N (SW846 9056A)	ND		0.50	0.090	mg/L			05/10/23 07:25	1
Fluoride (SW846 9056A)	**1.2**		0.50	0.17	mg/L			05/18/23 16:05	1
Sulfate (SW846 9056A)	**3600**		250	52	mg/L			05/18/23 16:29	50
Alkalinity, Total (SM 2320B)	**91**		10	3.1	mg/L			05/10/23 18:08	1
Total Dissolved Solids (TDS) (SM 2540C)	**4800**		40	19	mg/L			05/16/23 10:57	1
Total Suspended Solids (SM 2540D)	**21**		4.0	1.1	mg/L			05/11/23 13:45	1
Cyanide, Weak Acid Dissociable (SM 4500 CN I)	ND		0.010	0.0050	mg/L			05/18/23 09:46	1
Cyanide, Free (SM 4500 CN I)	ND		0.010	0.0050	mg/L			05/18/23 09:46	1
Sulfide (SM 4500 S2 D)	ND		0.050	0.022	mg/L			05/15/23 13:38	1
Un-ionized Hydrogen Sulfide (SM4500 S2 H)	ND		1.0	1.0	mg/L			05/19/23 13:28	1
Field pH (SM4500 S2 H)	**8.3**		1.0	1.0	SU			05/19/23 13:28	1
Field Temperature (SM4500 S2 H)	**22**		1.0	1.0	Celsius			05/19/23 13:28	1

General Chemistry (Continued)

Client Sample ID: BAP-NW
Date Collected: 05/09/23 10:45
Date Received: 05/09/23 16:15
Lab Sample ID: 280-176246-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance (SM4500 S2 H)	**5600**		2.0	2.0	umhos/cm			05/19/23 13:28	1
Sulfide (SM4500 S2 H)	ND		1.0	1.0	mg/L			05/19/23 13:28	1

Client Sample ID: BAP-NE
Date Collected: 05/09/23 11:30
Date Received: 05/09/23 16:15
Lab Sample ID: 280-176246-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil and Grease) (1664B)	ND		4.9	1.6	mg/L		05/15/23 09:54	05/15/23 15:34	1
SGT-HEM (Total Petroleum Hydrocarbons) (1664B)	ND	*-	5.9	2.7	mg/L		05/15/23 09:54	05/15/23 15:34	1
Ammonia as N (EPA 350.1)	**0.41**		0.10	0.029	mg/L			05/17/23 16:40	1
Total Phosphorus as PO4 (EPA 365.1)	**0.36**		0.15	0.059	mg/L		05/13/23 11:41	05/13/23 16:35	1
Chromium, hexavalent (SW846 7196A)	ND		0.020	0.0040	mg/L			05/09/23 18:28	1
Chromium, trivalent (SW846 7196A)	ND		20	20	ug/L			05/19/23 13:57	1
Chromium (SW846 7196A)	ND		20	20	ug/L			05/19/23 13:57	1
Chromium, hexavalent (SW846 7196A)	ND		20	20	ug/L			05/19/23 13:57	1
pH adj. to 25 deg C (SW846 9040C)	**8.3**	**HF**	0.1	0.1	SU			05/11/23 16:35	1
Temperature (SW846 9040C)	**22.1**	**HF**	1.0	1.0	Degrees C			05/11/23 16:35	1
Specific Conductance (SW846 9050A)	**5500**		2.0	2.0	umhos/cm			05/18/23 11:56	1
Chloride (SW846 9056A)	**100**		6.0	2.0	mg/L			05/18/23 17:17	2
Nitrate as N (SW846 9056A)	ND		0.50	0.090	mg/L			05/10/23 07:40	1
Fluoride (SW846 9056A)	**1.1**		0.50	0.17	mg/L			05/18/23 16:41	1
Sulfate (SW846 9056A)	**3900**		250	52	mg/L			05/18/23 17:29	50
Alkalinity, Total (SM 2320B)	**110**		10	3.1	mg/L			05/10/23 18:14	1
Total Dissolved Solids (TDS) (SM 2540C)	**5000**		40	19	mg/L			05/16/23 10:57	1
Total Suspended Solids (SM 2540D)	**88**		4.0	1.1	mg/L			05/11/23 13:45	1
Cyanide, Weak Acid Dissociable (SM 4500 CN I)	ND		0.010	0.0050	mg/L			05/18/23 09:48	1
Cyanide, Free (SM 4500 CN I)	ND		0.010	0.0050	mg/L			05/18/23 09:48	1
Sulfide (SM 4500 S2 D)	ND		0.050	0.022	mg/L			05/15/23 13:38	1
Un-ionized Hydrogen Sulfide (SM4500 S2 H)	ND		1.0	1.0	mg/L			05/19/23 13:28	1
Field pH (SM4500 S2 H)	**8.4**		1.0	1.0	SU			05/19/23 13:28	1
Field Temperature (SM4500 S2 H)	**22**		1.0	1.0	Celsius			05/19/23 13:28	1
Specific Conductance (SM4500 S2 H)	**5500**		2.0	2.0	umhos/cm			05/19/23 13:28	1
Sulfide (SM4500 S2 H)	ND		1.0	1.0	mg/L			05/19/23 13:28	1

Client Sample ID: BAP-NW1
Date Collected: 05/09/23 12:30
Date Received: 05/09/23 16:15
Lab Sample ID: 280-176246-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil and Grease) (1664B)	ND		4.9	1.5	mg/L		05/15/23 09:54	05/15/23 15:34	1
SGT-HEM (Total Petroleum Hydrocarbons) (1664B)	ND	*-	5.8	2.7	mg/L		05/15/23 09:54	05/15/23 15:34	1
Ammonia as N (EPA 350.1)	**0.81**		0.10	0.029	mg/L			05/17/23 16:42	1

General Chemistry (Continued)

Client Sample ID: BAP-NW1
Date Collected: 05/09/23 12:30
Date Received: 05/09/23 16:15
Lab Sample ID: 280-176246-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Phosphorus as PO4 (EPA 365.1)	**0.55**		0.15	0.059	mg/L		05/13/23 11:41	05/13/23 16:35	1
Chromium, hexavalent (SW846 7196A)	ND		0.020	0.0040	mg/L			05/09/23 18:29	1
Chromium, trivalent (SW846 7196A)	ND		20	20	ug/L			05/19/23 13:57	1
Chromium (SW846 7196A)	ND		20	20	ug/L			05/19/23 13:57	1
Chromium, hexavalent (SW846 7196A)	ND		20	20	ug/L			05/19/23 13:57	1
pH adj. to 25 deg C (SW846 9040C)	**8.4**	**HF**	0.1	0.1	SU			05/11/23 16:40	1
Temperature (SW846 9040C)	**22.3**	**HF**	1.0	1.0	Degrees C			05/11/23 16:40	1
Specific Conductance (SW846 9050A)	**5700**		2.0	2.0	umhos/cm			05/18/23 11:56	1
Chloride (SW846 9056A)	**110**		6.0	2.0	mg/L			05/18/23 17:53	2
Nitrate as N (SW846 9056A)	ND		0.50	0.090	mg/L			05/10/23 07:55	1
Fluoride (SW846 9056A)	**1.4**		0.50	0.17	mg/L			05/18/23 17:41	1
Sulfate (SW846 9056A)	**3800**		250	52	mg/L			05/18/23 18:05	50
Alkalinity, Total (SM 2320B)	**89**		10	3.1	mg/L			05/10/23 18:21	1
Total Dissolved Solids (TDS) (SM 2540C)	**5000**		40	19	mg/L			05/15/23 13:24	1
Total Suspended Solids (SM 2540D)	**50**		4.0	1.1	mg/L			05/11/23 13:45	1
Cyanide, Weak Acid Dissociable (SM 4500 CN I)	ND		0.010	0.0050	mg/L			05/18/23 09:51	1
Cyanide, Free (SM 4500 CN I)	ND		0.010	0.0050	mg/L			05/18/23 09:51	1
Sulfide (SM 4500 S2 D)	ND		0.050	0.022	mg/L			05/15/23 13:34	1
Un-ionized Hydrogen Sulfide (SM4500 S2 H)	ND		1.0	1.0	mg/L			05/19/23 13:28	1
Field pH (SM4500 S2 H)	**8.5**		1.0	1.0	SU			05/19/23 13:28	1
Field Temperature (SM4500 S2 H)	**29**		1.0	1.0	Celsius			05/19/23 13:28	1
Specific Conductance (SM4500 S2 H)	**5700**		2.0	2.0	umhos/cm			05/19/23 13:28	1
Sulfide (SM4500 S2 H)	ND		1.0	1.0	mg/L			05/19/23 13:28	1

General Chemistry - Dissolved

Client Sample ID: BAP-NW
Date Collected: 05/09/23 10:45
Date Received: 05/09/23 16:15
Lab Sample ID: 280-176246-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate (EPA 365.1)	**0.032**	**J**	0.050	0.018	mg/L			05/09/23 17:45	1

Client Sample ID: BAP-NE
Date Collected: 05/09/23 11:30
Date Received: 05/09/23 16:15
Lab Sample ID: 280-176246-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate (EPA 365.1)	**0.067**		0.050	0.018	mg/L			05/09/23 17:45	1

Client Sample ID: BAP-NW1
Date Collected: 05/09/23 12:30
Date Received: 05/09/23 16:15
Lab Sample ID: 280-176246-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate (EPA 365.1)	**0.063**		0.050	0.018	mg/L			05/09/23 17:45	1

Method: EPA Field Sampling - Field Sampling

Client Sample ID: BAP-NW
Date Collected: 05/09/23 10:45
Date Received: 05/09/23 16:15
Lab Sample ID: 280-176246-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	8.33				SU			05/09/23 10:45	1
Field Temperature	22.2				Degrees C			05/09/23 10:45	1

Client Sample ID: BAP-NE
Date Collected: 05/09/23 11:30
Date Received: 05/09/23 16:15
Lab Sample ID: 280-176246-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	8.41				SU			05/09/23 11:30	1
Field Temperature	21.7				Degrees C			05/09/23 11:30	1

Client Sample ID: BAP-NW1
Date Collected: 05/09/23 12:30
Date Received: 05/09/23 16:15
Lab Sample ID: 280-176246-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	8.50				SU			05/09/23 12:30	1
Field Temperature	29.2				Degrees C			05/09/23 12:30	1

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 280-611818/1-A
Matrix: Water
Analysis Batch: 613151

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 611818

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		100	18	ug/L		05/10/23 14:35	05/18/23 19:11	1
Boron	5.32	J	100	1.5	ug/L		05/10/23 14:35	05/18/23 19:11	1
Calcium	278		200	24	ug/L		05/10/23 14:35	05/18/23 19:11	1
Iron	73.6	J	100	9.1	ug/L		05/10/23 14:35	05/18/23 19:11	1
Potassium	ND		3000	240	ug/L		05/10/23 14:35	05/18/23 19:11	1
Magnesium	610		200	4.2	ug/L		05/10/23 14:35	05/18/23 19:11	1
Silicon	ND		500	16	ug/L		05/10/23 14:35	05/18/23 19:11	1
SiO2, Silica	ND		1100	34	ug/L		05/10/23 14:35	05/18/23 19:11	1

Lab Sample ID: MB 280-611818/1-A
Matrix: Water
Analysis Batch: 613604

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 611818

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	ND		1000	97	ug/L		05/10/23 14:35	05/23/23 14:41	1

Lab Sample ID: LCS 280-611818/2-A
Matrix: Water
Analysis Batch: 613151

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 611818

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	10000	9920		ug/L		99	87 - 111
Boron	2000	2080		ug/L		104	86 - 110
Calcium	50000	51000		ug/L		102	90 - 111
Iron	10000	10300		ug/L		103	89 - 115
Potassium	50000	50900		ug/L		102	89 - 114
Magnesium	50000	51300		ug/L		103	90 - 113
Silicon	10000	9600		ug/L		96	80 - 110
SiO2, Silica	21400	20600		ug/L		96	80 - 110

Lab Sample ID: LCS 280-611818/2-A
Matrix: Water
Analysis Batch: 613604

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 611818

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sodium	50000	51900		ug/L		104	90 - 115

Lab Sample ID: MB 280-612647/1-C
Matrix: Water
Analysis Batch: 613111

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 612700

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		100	18	ug/L		05/17/23 07:53	05/18/23 15:40	1
Boron	ND		100	1.5	ug/L		05/17/23 07:53	05/18/23 15:40	1
Calcium	ND		200	24	ug/L		05/17/23 07:53	05/18/23 15:40	1
Iron	29.3	J	100	9.1	ug/L		05/17/23 07:53	05/18/23 15:40	1
Potassium	ND		3000	240	ug/L		05/17/23 07:53	05/18/23 15:40	1
Magnesium	ND		200	4.2	ug/L		05/17/23 07:53	05/18/23 15:40	1
Silicon	ND		500	16	ug/L		05/17/23 07:53	05/18/23 15:40	1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: MB 280-612647/1-C
Matrix: Water
Analysis Batch: 613111

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 612700

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
SiO2, Silica	ND		1100	34	ug/L		05/17/23 07:53	05/18/23 15:40	1

Lab Sample ID: MB 280-612647/1-C
Matrix: Water
Analysis Batch: 613604

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 612700

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	135	J	1000	97	ug/L		05/17/23 07:53	05/23/23 15:34	1

Lab Sample ID: LCS 280-612647/2-D
Matrix: Water
Analysis Batch: 613111

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 612700

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	10000	9830		ug/L		98	87 - 111
Boron	2000	2060		ug/L		103	86 - 110
Calcium	50000	49800		ug/L		100	90 - 111
Iron	10000	10100		ug/L		101	89 - 115
Potassium	50000	48100		ug/L		96	89 - 114
Magnesium	50000	50800		ug/L		102	90 - 113
Silicon	10000	9630		ug/L		96	80 - 110
SiO2, Silica	21400	20600		ug/L		96	80 - 110

Lab Sample ID: LCS 280-612647/2-D
Matrix: Water
Analysis Batch: 613604

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 612700

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sodium	50000	53200		ug/L		106	90 - 115

Lab Sample ID: 280-176246-1 MS
Matrix: Water
Analysis Batch: 613111

Client Sample ID: BAP-NW
Prep Type: Dissolved
Prep Batch: 612700

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	270		10000	10700		ug/L		104	83 - 119
Boron	2100		2000	4320		ug/L		111	87 - 113
Iron	28	J B	10000	10300		ug/L		103	75 - 125
Potassium	28000		50000	83300		ug/L		110	76 - 125
Magnesium	170000		50000	223000		ug/L		101	75 - 125
Silicon	3200		10000	13500		ug/L		103	79 - 125
SiO2, Silica	6800		21400	28900		ug/L		103	75 - 125

Lab Sample ID: 280-176246-1 MS
Matrix: Water
Analysis Batch: 613454

Client Sample ID: BAP-NW
Prep Type: Dissolved
Prep Batch: 612700

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	790000		50000	825000	4	ug/L		66	75 - 125

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: 280-176246-1 MS
Matrix: Water
Analysis Batch: 613604

Client Sample ID: BAP-NW
Prep Type: Dissolved
Prep Batch: 612700

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Sodium	640000	B	50000	649000	4	ug/L		23	75 - 125

Lab Sample ID: 280-176246-1 MSD
Matrix: Water
Analysis Batch: 613111

Client Sample ID: BAP-NW
Prep Type: Dissolved
Prep Batch: 612700

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Aluminum	270		10000	10700		ug/L		104	83 - 119	0	20
Boron	2100		2000	4290		ug/L		109	87 - 113	1	20
Iron	28	J B	10000	10300		ug/L		103	75 - 125	0	20
Potassium	28000		50000	82400		ug/L		109	76 - 125	1	20
Magnesium	170000		50000	220000		ug/L		96	75 - 125	1	20
Silicon	3200		10000	13400		ug/L		102	79 - 125	1	20
SiO2, Silica	6800		21400	28600		ug/L		102	75 - 125	1	20

Lab Sample ID: 280-176246-1 MSD
Matrix: Water
Analysis Batch: 613454

Client Sample ID: BAP-NW
Prep Type: Dissolved
Prep Batch: 612700

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	790000		50000	821000	4	ug/L		59	75 - 125	0	20

Lab Sample ID: 280-176246-1 MSD
Matrix: Water
Analysis Batch: 613604

Client Sample ID: BAP-NW
Prep Type: Dissolved
Prep Batch: 612700

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sodium	640000	B	50000	619000	4	ug/L		-37	75 - 125	5	20

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-611818/1-A
Matrix: Water
Analysis Batch: 612202

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 611818

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		5.0	0.50	ug/L		05/10/23 14:35	05/11/23 22:58	1
Barium	0.731	J	3.0	0.38	ug/L		05/10/23 14:35	05/11/23 22:58	1
Chromium	ND		3.0	0.50	ug/L		05/10/23 14:35	05/11/23 22:58	1
Molybdenum	ND		2.0	0.37	ug/L		05/10/23 14:35	05/11/23 22:58	1
Strontium	ND		10	0.69	ug/L		05/10/23 14:35	05/11/23 22:58	1
Zinc	ND		10	2.0	ug/L		05/10/23 14:35	05/11/23 22:58	1
Manganese	0.723	J	3.0	0.51	ug/L		05/10/23 14:35	05/11/23 22:58	1

Lab Sample ID: LCS 280-611818/18-A
Matrix: Water
Analysis Batch: 612202

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 611818

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	40.0	39.3		ug/L		98	85 - 117

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

Lab Sample ID: LCS 280-611818/18-A
Matrix: Water
Analysis Batch: 612202

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 611818

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Barium	40.0	40.5		ug/L		101	85 - 118
Chromium	40.0	39.6		ug/L		99	84 - 121
Molybdenum	40.0	40.4		ug/L		101	85 - 119
Strontium	80.0	80.6		ug/L		101	85 - 117
Zinc	40.0	40.4		ug/L		101	83 - 122
Manganese	40.0	41.8		ug/L		105	85 - 117

Lab Sample ID: MB 280-612647/1-C
Matrix: Water
Analysis Batch: 612911

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 612700

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		5.0	0.50	ug/L		05/17/23 07:53	05/17/23 22:13	1
Barium	ND		3.0	0.38	ug/L		05/17/23 07:53	05/17/23 22:13	1
Chromium	ND		3.0	0.50	ug/L		05/17/23 07:53	05/17/23 22:13	1
Molybdenum	ND		2.0	0.37	ug/L		05/17/23 07:53	05/17/23 22:13	1
Strontium	ND		10	0.69	ug/L		05/17/23 07:53	05/17/23 22:13	1
Zinc	2.09	J	10	2.0	ug/L		05/17/23 07:53	05/17/23 22:13	1
Manganese	ND		3.0	0.51	ug/L		05/17/23 07:53	05/17/23 22:13	1

Lab Sample ID: LCS 280-612647/2-E
Matrix: Water
Analysis Batch: 612911

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 612700

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	40.0	42.0		ug/L		105	85 - 117
Barium	40.0	43.1		ug/L		108	85 - 118
Chromium	40.0	42.1		ug/L		105	84 - 121
Molybdenum	40.0	40.9		ug/L		102	85 - 119
Strontium	80.0	84.6		ug/L		106	85 - 117
Zinc	40.0	42.8		ug/L		107	83 - 122
Manganese	40.0	42.5		ug/L		106	85 - 117

Lab Sample ID: 280-176246-1 MS
Matrix: Water
Analysis Batch: 612911

Client Sample ID: BAP-NW
Prep Type: Dissolved
Prep Batch: 612700

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	1.5	J	40.0	44.1		ug/L		106	92 - 112
Barium	54		40.0	95.5		ug/L		104	92 - 117
Chromium	ND		40.0	42.6		ug/L		106	91 - 114
Molybdenum	37		40.0	79.7		ug/L		107	84 - 117
Zinc	4.3	J B	40.0	45.4		ug/L		103	86 - 120
Manganese	230		40.0	277	4	ug/L		108	89 - 119

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

Lab Sample ID: 280-176246-1 MS
Matrix: Water
Analysis Batch: 613118

Client Sample ID: BAP-NW
Prep Type: Dissolved
Prep Batch: 612700

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Strontium	13000		80.0	13000	4	ug/L		-322	85 - 117

Lab Sample ID: 280-176246-1 MSD
Matrix: Water
Analysis Batch: 612911

Client Sample ID: BAP-NW
Prep Type: Dissolved
Prep Batch: 612700

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	1.5	J	40.0	45.8		ug/L		111	92 - 112	4	20
Barium	54		40.0	96.3		ug/L		106	92 - 117	1	20
Chromium	ND		40.0	44.0		ug/L		110	91 - 114	3	20
Molybdenum	37		40.0	79.4		ug/L		106	84 - 117	0	20
Zinc	4.3	J B	40.0	46.0		ug/L		104	86 - 120	1	20
Manganese	230		40.0	275	4	ug/L		103	89 - 119	1	20

Lab Sample ID: 280-176246-1 MSD
Matrix: Water
Analysis Batch: 613118

Client Sample ID: BAP-NW
Prep Type: Dissolved
Prep Batch: 612700

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Strontium	13000		80.0	13200	4	ug/L		-142	85 - 117	1	20

Lab Sample ID: MB 280-612179/1-B
Matrix: Water
Analysis Batch: 612609

Client Sample ID: Method Blank
Prep Type: Potentially Dissolved
Prep Batch: 612430

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	ND		10	2.0	ug/L		05/15/23 14:55	05/16/23 00:18	1

Lab Sample ID: LCS 280-612179/2-B
Matrix: Water
Analysis Batch: 612609

Client Sample ID: Lab Control Sample
Prep Type: Potentially Dissolved
Prep Batch: 612430

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Zinc	40.0	40.8		ug/L		102	83 - 122

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-612648/1-A
Matrix: Water
Analysis Batch: 612854

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 612648

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.061	ug/L		05/16/23 13:45	05/16/23 20:34	1

Lab Sample ID: LCS 280-612648/2-A
Matrix: Water
Analysis Batch: 612854

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 612648

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	5.00	4.97		ug/L		99	84 - 120

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

Lab Sample ID: MB 280-612647/1-D
Matrix: Water
Analysis Batch: 613199

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 612965

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.061	ug/L		05/18/23 14:10	05/18/23 22:10	1

Lab Sample ID: LCS 280-612647/2-F
Matrix: Water
Analysis Batch: 613199

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 612965

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	5.00	5.10		ug/L		102	84 - 120

Lab Sample ID: 280-176246-1 MS
Matrix: Water
Analysis Batch: 613199

Client Sample ID: BAP-NW
Prep Type: Dissolved
Prep Batch: 612965

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		5.00	4.79		ug/L		96	75 - 125

Lab Sample ID: 280-176246-1 MSD
Matrix: Water
Analysis Batch: 613199

Client Sample ID: BAP-NW
Prep Type: Dissolved
Prep Batch: 612965

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		5.00	4.88		ug/L		98	75 - 125	2	20

Method: 1664B - HEM and SGT-HEM

Lab Sample ID: MB 280-612462/3-A
Matrix: Water
Analysis Batch: 612557

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 612462

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil and Grease)	ND		5.0	1.6	mg/L		05/15/23 09:54	05/15/23 15:34	1
SGT-HEM (Total Petroleum Hydrocarbons)	ND		6.0	2.8	mg/L		05/15/23 09:54	05/15/23 15:34	1

Lab Sample ID: LCS 280-612462/1-A
Matrix: Water
Analysis Batch: 612557

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 612462

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
HEM (Oil and Grease)	40.0	39.40		mg/L		99	78 - 114
SGT-HEM (Total Petroleum Hydrocarbons)	20.0	ND	*-	mg/L		0	64 - 132

Lab Sample ID: LCSD 280-612462/2-A
Matrix: Water
Analysis Batch: 612557

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 612462

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
HEM (Oil and Grease)	40.0	38.60		mg/L		96	78 - 114	2	18
SGT-HEM (Total Petroleum Hydrocarbons)	20.0	ND	*-	mg/L		0	64 - 132	NaN	34

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 280-612948/178
Matrix: Water
Analysis Batch: 612948

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	ND		0.10	0.029	mg/L			05/17/23 16:13	1

Lab Sample ID: LCS 280-612948/177
Matrix: Water
Analysis Batch: 612948

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Ammonia as N			2.50	2.73		mg/L		109	90 - 110		

Method: 365.1 - Phosphorus, Ortho

Lab Sample ID: MB 280-611860/21
Matrix: Water
Analysis Batch: 611860

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
ortho-Phosphate	ND		0.050	0.018	mg/L			05/09/23 17:45	1

Lab Sample ID: LCS 280-611860/19
Matrix: Water
Analysis Batch: 611860

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
ortho-Phosphate			0.500	0.547		mg/L		109	90 - 110		

Method: 365.1 - Phosphorus, Total

Lab Sample ID: MB 280-612403/5-A
Matrix: Water
Analysis Batch: 612409

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 612403

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Phosphorus as PO4	ND		0.15	0.059	mg/L		05/13/23 11:41	05/13/23 16:33	1

Lab Sample ID: LCS 280-612403/3-A
Matrix: Water
Analysis Batch: 612409

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 612403

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Phosphorus as PO4			1.53	1.51		mg/L		99	90 - 110		

Lab Sample ID: LCSD 280-612403/4-A
Matrix: Water
Analysis Batch: 612409

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 612403

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Phosphorus as PO4			1.53	1.50		mg/L		98	90 - 110	1	10

Method: 7196A - Chromium, Hexavalent

Lab Sample ID: MB 280-611862/10
Matrix: Water
Analysis Batch: 611862

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		0.020	0.0040	mg/L			05/09/23 18:23	1

Lab Sample ID: LCS 280-611862/8
Matrix: Water
Analysis Batch: 611862

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chromium, hexavalent			0.100	0.106		mg/L		106	85 - 115		

Lab Sample ID: LCSD 280-611862/9
Matrix: Water
Analysis Batch: 611862

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
Chromium, hexavalent			0.100	0.109		mg/L		109	85 - 115	3	20

Lab Sample ID: 280-176246-1 MS
Matrix: Water
Analysis Batch: 611862

Client Sample ID: BAP-NW
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chromium, hexavalent	ND		0.100	0.104		mg/L		104	85 - 115		

Lab Sample ID: 280-176246-1 MSD
Matrix: Water
Analysis Batch: 611862

Client Sample ID: BAP-NW
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chromium, hexavalent	ND		0.100	0.108		mg/L		108	85 - 115	3	20

Lab Sample ID: 280-176246-1 DU
Matrix: Water
Analysis Batch: 611862

Client Sample ID: BAP-NW
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Chromium, hexavalent	ND			0.00608	J	mg/L				NC	20

Method: 9040C - pH

Lab Sample ID: LCS 280-612289/31
Matrix: Water
Analysis Batch: 612289

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: 9050A - Specific Conductance

Lab Sample ID: MB 280-612967/5
Matrix: Water
Analysis Batch: 612967

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	ND		2.0	2.0	umhos/cm			05/18/23 11:56	1

Lab Sample ID: LCS 280-612967/4
Matrix: Water
Analysis Batch: 612967

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Specific Conductance	1410	1490		umhos/cm		106	90 - 110

Lab Sample ID: 280-176246-1 DU
Matrix: Water
Analysis Batch: 612967

Client Sample ID: BAP-NW
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Specific Conductance	5600		5610		umhos/cm		0.5	10

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-611756/47
Matrix: Water
Analysis Batch: 611756

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.50	0.090	mg/L			05/10/23 03:09	1

Lab Sample ID: LCS 280-611756/45
Matrix: Water
Analysis Batch: 611756

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate as N	2.50	2.32		mg/L		93	90 - 110

Lab Sample ID: LCSD 280-611756/46
Matrix: Water
Analysis Batch: 611756

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
Nitrate as N	2.50	2.32		mg/L		93	90 - 110	0	10

Lab Sample ID: MRL 280-611756/3
Matrix: Water
Analysis Batch: 611756

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate as N	0.250	0.223	J	mg/L		89	50 - 150

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

Lab Sample ID: MB 280-612987/6
Matrix: Water
Analysis Batch: 612987

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			05/18/23 14:42	1
Fluoride	ND		0.50	0.17	mg/L			05/18/23 14:42	1
Sulfate	ND		5.0	1.0	mg/L			05/18/23 14:42	1

Lab Sample ID: LCS 280-612987/4
Matrix: Water
Analysis Batch: 612987

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	2.44		mg/L		97	90 - 110
Sulfate	50.0	48.9		mg/L		98	90 - 110

Lab Sample ID: LCSD 280-612987/5
Matrix: Water
Analysis Batch: 612987

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	46.4		mg/L		93	90 - 110	0	10
Fluoride	2.50	2.43		mg/L		97	90 - 110	0	10
Sulfate	50.0	48.2		mg/L		96	90 - 110	2	10

Lab Sample ID: MRL 280-612987/3
Matrix: Water
Analysis Batch: 612987

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	2.04	J	mg/L		82	50 - 150
Fluoride	0.250	0.234	J	mg/L		94	50 - 150
Sulfate	2.50	2.26	J	mg/L		91	50 - 150

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-612064/31
Matrix: Water
Analysis Batch: 612064

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	ND		10	3.1	mg/L			05/10/23 17:23	1

Lab Sample ID: MB 280-612064/5
Matrix: Water
Analysis Batch: 612064

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	4.07	J	10	3.1	mg/L			05/10/23 13:45	1

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: LCS 280-612064/30
Matrix: Water
Analysis Batch: 612064

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Alkalinity, Total			200	194		mg/L		97	89 - 110		

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

Lab Sample ID: MB 280-612519/1
Matrix: Water
Analysis Batch: 612519

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			05/15/23 13:24	1

Lab Sample ID: LCS 280-612519/2
Matrix: Water
Analysis Batch: 612519

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	453		mg/L		90	88 - 114		

Lab Sample ID: MB 280-612646/1
Matrix: Water
Analysis Batch: 612646

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			05/16/23 10:56	1

Lab Sample ID: LCS 280-612646/2
Matrix: Water
Analysis Batch: 612646

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	447		mg/L		89	88 - 114		

Lab Sample ID: LCSD 280-612646/3
Matrix: Water
Analysis Batch: 612646

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	448		mg/L		89	88 - 114	0	20

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

Lab Sample ID: MB 280-612150/2
Matrix: Water
Analysis Batch: 612150

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			05/11/23 13:45	1

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

Lab Sample ID: LCS 280-612150/1
Matrix: Water
Analysis Batch: 612150

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	400		mg/L		80	79 - 114

Method: SM 4500 CN I - Cyanide, Weak Acid Dissociable

Lab Sample ID: MB 280-613207/20
Matrix: Water
Analysis Batch: 613207

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Weak Acid Dissociable	ND		0.010	0.0050	mg/L			05/18/23 09:35	1
Cyanide, Free	ND		0.010	0.0050	mg/L			05/18/23 09:35	1

Lab Sample ID: HLCS 280-613207/17
Matrix: Water
Analysis Batch: 613207

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

Analyte	Spike Added	HLCS Result	HLCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Weak Acid Dissociable	0.350	0.353		mg/L		101	75 - 120
Cyanide, Free	0.350	0.353		mg/L		101	75 - 120

Lab Sample ID: LCS 280-613207/19
Matrix: Water
Analysis Batch: 613207

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Weak Acid Dissociable	0.100	0.0913		mg/L		91	75 - 120
Cyanide, Free	0.100	0.0913		mg/L		91	75 - 120

Lab Sample ID: LLCS 280-613207/18
Matrix: Water
Analysis Batch: 613207

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

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Weak Acid Dissociable	0.100	0.0985		mg/L		99	90 - 110
Cyanide, Free	0.100	0.0985		mg/L		99	90 - 110

Method: SM 4500 S2 D - Sulfide, Total

Lab Sample ID: MB 280-612537/30
Matrix: Water
Analysis Batch: 612537

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.022	mg/L			05/15/23 13:26	1

Method: SM 4500 S2 D - Sulfide, Total (Continued)

Lab Sample ID: MB 280-612537/51
Matrix: Water
Analysis Batch: 612537

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.022	mg/L			05/15/23 13:36	1

Lab Sample ID: LCS 280-612537/28
Matrix: Water
Analysis Batch: 612537

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfide	0.500	0.482		mg/L		96	81 - 122

Lab Sample ID: LCS 280-612537/50
Matrix: Water
Analysis Batch: 612537

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfide	0.500	0.473		mg/L		95	81 - 122

Lab Sample ID: LCSD 280-612537/29
Matrix: Water
Analysis Batch: 612537

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
Sulfide	0.500	0.486		mg/L		97	81 - 122	1	10

Method: SM4500 S2 H - Unionized Hydrogen Sulfide

Lab Sample ID: MB 280-613176/1
Matrix: Water
Analysis Batch: 613176

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Un-ionized Hydrogen Sulfide	ND		1.0	1.0	mg/L			05/19/23 13:28	1
Field pH	ND		1.0	1.0	SU			05/19/23 13:28	1
Field Temperature	ND		1.0	1.0	Celsius			05/19/23 13:28	1
Specific Conductance	ND		2.0	2.0	umhos/cm			05/19/23 13:28	1
Sulfide	ND		1.0	1.0	mg/L			05/19/23 13:28	1

Metals

Prep Batch: 611818

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176246-1	BAP-NW	Total/NA	Water	3020A	
280-176246-2	BAP-NE	Total/NA	Water	3020A	
280-176246-3	BAP-NW1	Total/NA	Water	3020A	
MB 280-611818/1-A	Method Blank	Total/NA	Water	3005A	
LCS 280-611818/18-A	Lab Control Sample	Total/NA	Water	3005A	
LCS 280-611818/2-A	Lab Control Sample	Total/NA	Water	3005A	

Filtration Batch: 612179

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-612179/1-B	Method Blank	Potentially Dissolvec	Water	Poten_Diss_Met	
LCS 280-612179/2-B	Lab Control Sample	Potentially Dissolvec	Water	Poten_Diss_Met	

Analysis Batch: 612202

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176246-1	BAP-NW	Total/NA	Water	6020B	611818
280-176246-1	BAP-NW	Total/NA	Water	6020B	611818
280-176246-2	BAP-NE	Total/NA	Water	6020B	611818
280-176246-2	BAP-NE	Total/NA	Water	6020B	611818
280-176246-3	BAP-NW1	Total/NA	Water	6020B	611818
280-176246-3	BAP-NW1	Total/NA	Water	6020B	611818
MB 280-611818/1-A	Method Blank	Total/NA	Water	6020B	611818
LCS 280-611818/18-A	Lab Control Sample	Total/NA	Water	6020B	611818

Filtration Batch: 612331

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176246-1	BAP-NW	Potentially Dissolvec	Water	Poten_Diss_Met	
280-176246-2	BAP-NE	Potentially Dissolvec	Water	Poten_Diss_Met	
280-176246-3	BAP-NW1	Potentially Dissolvec	Water	Poten_Diss_Met	

Prep Batch: 612430

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176246-1	BAP-NW	Potentially Dissolvec	Water	3005A	612331
280-176246-2	BAP-NE	Potentially Dissolvec	Water	3005A	612331
280-176246-3	BAP-NW1	Potentially Dissolvec	Water	3005A	612331
MB 280-612179/1-B	Method Blank	Potentially Dissolvec	Water	3005A	612179
LCS 280-612179/2-B	Lab Control Sample	Potentially Dissolvec	Water	3005A	612179

Analysis Batch: 612609

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176246-1	BAP-NW	Potentially Dissolvec	Water	6020B	612430
280-176246-2	BAP-NE	Potentially Dissolvec	Water	6020B	612430
280-176246-3	BAP-NW1	Potentially Dissolvec	Water	6020B	612430
MB 280-612179/1-B	Method Blank	Potentially Dissolvec	Water	6020B	612430
LCS 280-612179/2-B	Lab Control Sample	Potentially Dissolvec	Water	6020B	612430

Filtration Batch: 612647

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176246-1	BAP-NW	Dissolved	Water	FILTRATION	
280-176246-2	BAP-NE	Dissolved	Water	FILTRATION	
280-176246-3	BAP-NW1	Dissolved	Water	FILTRATION	
MB 280-612647/1-C	Method Blank	Dissolved	Water	FILTRATION	

Metals (Continued)

Filtration Batch: 612647 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-612647/1-D	Method Blank	Dissolved	Water	FILTRATION	
LCS 280-612647/2-D	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 280-612647/2-E	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 280-612647/2-F	Lab Control Sample	Dissolved	Water	FILTRATION	
280-176246-1 MS	BAP-NW	Dissolved	Water	FILTRATION	
280-176246-1 MSD	BAP-NW	Dissolved	Water	FILTRATION	

Prep Batch: 612648

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176246-1	BAP-NW	Total/NA	Water	7470A	
280-176246-2	BAP-NE	Total/NA	Water	7470A	
280-176246-3	BAP-NW1	Total/NA	Water	7470A	
MB 280-612648/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-612648/2-A	Lab Control Sample	Total/NA	Water	7470A	

Prep Batch: 612700

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176246-1	BAP-NW	Dissolved	Water	3005A	612647
280-176246-1	BAP-NW	Dissolved	Water	3005A	612647
280-176246-2	BAP-NE	Dissolved	Water	3005A	612647
280-176246-3	BAP-NW1	Dissolved	Water	3005A	612647
MB 280-612647/1-C	Method Blank	Dissolved	Water	3005A	612647
LCS 280-612647/2-D	Lab Control Sample	Dissolved	Water	3005A	612647
LCS 280-612647/2-E	Lab Control Sample	Dissolved	Water	3005A	612647
280-176246-1 MS	BAP-NW	Dissolved	Water	3005A	612647
280-176246-1 MS	BAP-NW	Dissolved	Water	3005A	612647
280-176246-1 MSD	BAP-NW	Dissolved	Water	3005A	612647
280-176246-1 MSD	BAP-NW	Dissolved	Water	3005A	612647

Analysis Batch: 612854

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176246-1	BAP-NW	Total/NA	Water	7470A	612648
280-176246-2	BAP-NE	Total/NA	Water	7470A	612648
280-176246-3	BAP-NW1	Total/NA	Water	7470A	612648
MB 280-612648/1-A	Method Blank	Total/NA	Water	7470A	612648
LCS 280-612648/2-A	Lab Control Sample	Total/NA	Water	7470A	612648

Analysis Batch: 612911

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176246-1	BAP-NW	Dissolved	Water	6020B	612700
280-176246-2	BAP-NE	Dissolved	Water	6020B	612700
280-176246-3	BAP-NW1	Dissolved	Water	6020B	612700
MB 280-612647/1-C	Method Blank	Dissolved	Water	6020B	612700
LCS 280-612647/2-E	Lab Control Sample	Dissolved	Water	6020B	612700
280-176246-1 MS	BAP-NW	Dissolved	Water	6020B	612700
280-176246-1 MSD	BAP-NW	Dissolved	Water	6020B	612700

Prep Batch: 612965

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176246-1	BAP-NW	Dissolved	Water	7470A	612647
280-176246-2	BAP-NE	Dissolved	Water	7470A	612647

Metals (Continued)

Prep Batch: 612965 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176246-3	BAP-NW1	Dissolved	Water	7470A	612647
MB 280-612647/1-D	Method Blank	Dissolved	Water	7470A	612647
LCS 280-612647/2-F	Lab Control Sample	Dissolved	Water	7470A	612647
280-176246-1 MS	BAP-NW	Dissolved	Water	7470A	612647
280-176246-1 MSD	BAP-NW	Dissolved	Water	7470A	612647

Analysis Batch: 613111

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176246-1	BAP-NW	Dissolved	Water	6010D	612700
280-176246-2	BAP-NE	Dissolved	Water	6010D	612700
280-176246-3	BAP-NW1	Dissolved	Water	6010D	612700
MB 280-612647/1-C	Method Blank	Dissolved	Water	6010D	612700
LCS 280-612647/2-D	Lab Control Sample	Dissolved	Water	6010D	612700
280-176246-1 MS	BAP-NW	Dissolved	Water	6010D	612700
280-176246-1 MSD	BAP-NW	Dissolved	Water	6010D	612700

Analysis Batch: 613118

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176246-1	BAP-NW	Dissolved	Water	6020B	612700
280-176246-2	BAP-NE	Dissolved	Water	6020B	612700
280-176246-3	BAP-NW1	Dissolved	Water	6020B	612700
280-176246-1 MS	BAP-NW	Dissolved	Water	6020B	612700
280-176246-1 MSD	BAP-NW	Dissolved	Water	6020B	612700

Analysis Batch: 613151

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176246-1	BAP-NW	Total/NA	Water	6010D	611818
280-176246-2	BAP-NE	Total/NA	Water	6010D	611818
280-176246-3	BAP-NW1	Total/NA	Water	6010D	611818
MB 280-611818/1-A	Method Blank	Total/NA	Water	6010D	611818
LCS 280-611818/2-A	Lab Control Sample	Total/NA	Water	6010D	611818

Analysis Batch: 613199

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176246-1	BAP-NW	Dissolved	Water	7470A	612965
280-176246-2	BAP-NE	Dissolved	Water	7470A	612965
280-176246-3	BAP-NW1	Dissolved	Water	7470A	612965
MB 280-612647/1-D	Method Blank	Dissolved	Water	7470A	612965
LCS 280-612647/2-F	Lab Control Sample	Dissolved	Water	7470A	612965
280-176246-1 MS	BAP-NW	Dissolved	Water	7470A	612965
280-176246-1 MSD	BAP-NW	Dissolved	Water	7470A	612965

Analysis Batch: 613454

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176246-1	BAP-NW	Dissolved	Water	6010D	612700
280-176246-2	BAP-NE	Dissolved	Water	6010D	612700
280-176246-3	BAP-NW1	Dissolved	Water	6010D	612700
280-176246-1 MS	BAP-NW	Dissolved	Water	6010D	612700
280-176246-1 MSD	BAP-NW	Dissolved	Water	6010D	612700

QC Association Summary

Client: HDR Inc
Job ID: 280-176246-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Metals

Analysis Batch: 613604

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176246-1	BAP-NW	Dissolved	Water	6010D	612700
280-176246-1	BAP-NW	Total/NA	Water	6010D	611818
280-176246-2	BAP-NE	Dissolved	Water	6010D	612700
280-176246-2	BAP-NE	Total/NA	Water	6010D	611818
280-176246-3	BAP-NW1	Dissolved	Water	6010D	612700
280-176246-3	BAP-NW1	Total/NA	Water	6010D	611818
MB 280-611818/1-A	Method Blank	Total/NA	Water	6010D	611818
MB 280-612647/1-C	Method Blank	Dissolved	Water	6010D	612700
LCS 280-611818/2-A	Lab Control Sample	Total/NA	Water	6010D	611818
LCS 280-612647/2-D	Lab Control Sample	Dissolved	Water	6010D	612700
280-176246-1 MS	BAP-NW	Dissolved	Water	6010D	612700
280-176246-1 MSD	BAP-NW	Dissolved	Water	6010D	612700

General Chemistry

Analysis Batch: 611756

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176246-1	BAP-NW	Total/NA	Water	9056A	
280-176246-2	BAP-NE	Total/NA	Water	9056A	
280-176246-3	BAP-NW1	Total/NA	Water	9056A	
MB 280-611756/47	Method Blank	Total/NA	Water	9056A	
LCS 280-611756/45	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-611756/46	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-611756/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 611860

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176246-1	BAP-NW	Dissolved	Water	365.1	
280-176246-2	BAP-NE	Dissolved	Water	365.1	
280-176246-3	BAP-NW1	Dissolved	Water	365.1	
MB 280-611860/21	Method Blank	Total/NA	Water	365.1	
LCS 280-611860/19	Lab Control Sample	Total/NA	Water	365.1	

Analysis Batch: 611862

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176246-1	BAP-NW	Total/NA	Water	7196A	
280-176246-2	BAP-NE	Total/NA	Water	7196A	
280-176246-3	BAP-NW1	Total/NA	Water	7196A	
MB 280-611862/10	Method Blank	Total/NA	Water	7196A	
LCS 280-611862/8	Lab Control Sample	Total/NA	Water	7196A	
LCSD 280-611862/9	Lab Control Sample Dup	Total/NA	Water	7196A	
280-176246-1 MS	BAP-NW	Total/NA	Water	7196A	
280-176246-1 MSD	BAP-NW	Total/NA	Water	7196A	
280-176246-1 DU	BAP-NW	Total/NA	Water	7196A	

Analysis Batch: 612064

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176246-1	BAP-NW	Total/NA	Water	SM 2320B	
280-176246-2	BAP-NE	Total/NA	Water	SM 2320B	
280-176246-3	BAP-NW1	Total/NA	Water	SM 2320B	
MB 280-612064/31	Method Blank	Total/NA	Water	SM 2320B	

General Chemistry (Continued)

Analysis Batch: 612064 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-612064/5	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-612064/30	Lab Control Sample	Total/NA	Water	SM 2320B	

Analysis Batch: 612150

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176246-1	BAP-NW	Total/NA	Water	SM 2540D	
280-176246-2	BAP-NE	Total/NA	Water	SM 2540D	
280-176246-3	BAP-NW1	Total/NA	Water	SM 2540D	
MB 280-612150/2	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-612150/1	Lab Control Sample	Total/NA	Water	SM 2540D	

Analysis Batch: 612289

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176246-1	BAP-NW	Total/NA	Water	9040C	
280-176246-2	BAP-NE	Total/NA	Water	9040C	
280-176246-3	BAP-NW1	Total/NA	Water	9040C	
LCS 280-612289/31	Lab Control Sample	Total/NA	Water	9040C	

Prep Batch: 612403

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176246-1	BAP-NW	Total/NA	Water	365.2/365.3/365	
280-176246-2	BAP-NE	Total/NA	Water	365.2/365.3/365	
280-176246-3	BAP-NW1	Total/NA	Water	365.2/365.3/365	
MB 280-612403/5-A	Method Blank	Total/NA	Water	365.2/365.3/365	
LCS 280-612403/3-A	Lab Control Sample	Total/NA	Water	365.2/365.3/365	
LCSD 280-612403/4-A	Lab Control Sample Dup	Total/NA	Water	365.2/365.3/365	

Analysis Batch: 612409

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176246-1	BAP-NW	Total/NA	Water	365.1	612403
280-176246-2	BAP-NE	Total/NA	Water	365.1	612403
280-176246-3	BAP-NW1	Total/NA	Water	365.1	612403
MB 280-612403/5-A	Method Blank	Total/NA	Water	365.1	612403
LCS 280-612403/3-A	Lab Control Sample	Total/NA	Water	365.1	612403
LCSD 280-612403/4-A	Lab Control Sample Dup	Total/NA	Water	365.1	612403

Prep Batch: 612462

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176246-1	BAP-NW	Total/NA	Water	1664B	
280-176246-2	BAP-NE	Total/NA	Water	1664B	
280-176246-3	BAP-NW1	Total/NA	Water	1664B	
MB 280-612462/3-A	Method Blank	Total/NA	Water	1664B	
LCS 280-612462/1-A	Lab Control Sample	Total/NA	Water	1664B	
LCSD 280-612462/2-A	Lab Control Sample Dup	Total/NA	Water	1664B	

Analysis Batch: 612519

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176246-3	BAP-NW1	Total/NA	Water	SM 2540C	
MB 280-612519/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-612519/2	Lab Control Sample	Total/NA	Water	SM 2540C	

General Chemistry

Analysis Batch: 612537

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176246-1	BAP-NW	Total/NA	Water	SM 4500 S2 D	
280-176246-2	BAP-NE	Total/NA	Water	SM 4500 S2 D	
280-176246-3	BAP-NW1	Total/NA	Water	SM 4500 S2 D	
MB 280-612537/30	Method Blank	Total/NA	Water	SM 4500 S2 D	
MB 280-612537/51	Method Blank	Total/NA	Water	SM 4500 S2 D	
LCS 280-612537/28	Lab Control Sample	Total/NA	Water	SM 4500 S2 D	
LCS 280-612537/50	Lab Control Sample	Total/NA	Water	SM 4500 S2 D	
LCSD 280-612537/29	Lab Control Sample Dup	Total/NA	Water	SM 4500 S2 D	

Analysis Batch: 612557

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176246-1	BAP-NW	Total/NA	Water	1664B	612462
280-176246-2	BAP-NE	Total/NA	Water	1664B	612462
280-176246-3	BAP-NW1	Total/NA	Water	1664B	612462
MB 280-612462/3-A	Method Blank	Total/NA	Water	1664B	612462
LCS 280-612462/1-A	Lab Control Sample	Total/NA	Water	1664B	612462
LCSD 280-612462/2-A	Lab Control Sample Dup	Total/NA	Water	1664B	612462

Analysis Batch: 612646

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176246-1	BAP-NW	Total/NA	Water	SM 2540C	
280-176246-2	BAP-NE	Total/NA	Water	SM 2540C	
MB 280-612646/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-612646/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-612646/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 612948

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176246-1	BAP-NW	Total/NA	Water	350.1	
280-176246-2	BAP-NE	Total/NA	Water	350.1	
280-176246-3	BAP-NW1	Total/NA	Water	350.1	
MB 280-612948/178	Method Blank	Total/NA	Water	350.1	
LCS 280-612948/177	Lab Control Sample	Total/NA	Water	350.1	

Analysis Batch: 612967

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176246-1	BAP-NW	Total/NA	Water	9050A	
280-176246-2	BAP-NE	Total/NA	Water	9050A	
280-176246-3	BAP-NW1	Total/NA	Water	9050A	
MB 280-612967/5	Method Blank	Total/NA	Water	9050A	
LCS 280-612967/4	Lab Control Sample	Total/NA	Water	9050A	
280-176246-1 DU	BAP-NW	Total/NA	Water	9050A	

Analysis Batch: 612987

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176246-1	BAP-NW	Total/NA	Water	9056A	
280-176246-1	BAP-NW	Total/NA	Water	9056A	
280-176246-1	BAP-NW	Total/NA	Water	9056A	
280-176246-2	BAP-NE	Total/NA	Water	9056A	
280-176246-2	BAP-NE	Total/NA	Water	9056A	
280-176246-2	BAP-NE	Total/NA	Water	9056A	

General Chemistry (Continued)

Analysis Batch: 612987 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176246-3	BAP-NW1	Total/NA	Water	9056A	
280-176246-3	BAP-NW1	Total/NA	Water	9056A	
280-176246-3	BAP-NW1	Total/NA	Water	9056A	
MB 280-612987/6	Method Blank	Total/NA	Water	9056A	
LCS 280-612987/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-612987/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-612987/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 613176

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176246-1	BAP-NW	Total/NA	Water	SM4500 S2 H	
280-176246-2	BAP-NE	Total/NA	Water	SM4500 S2 H	
280-176246-3	BAP-NW1	Total/NA	Water	SM4500 S2 H	
MB 280-613176/1	Method Blank	Total/NA	Water	SM4500 S2 H	

Analysis Batch: 613177

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176246-1	BAP-NW	Total/NA	Water	7196A	
280-176246-2	BAP-NE	Total/NA	Water	7196A	
280-176246-3	BAP-NW1	Total/NA	Water	7196A	

Analysis Batch: 613207

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176246-1	BAP-NW	Total/NA	Water	SM 4500 CN I	
280-176246-2	BAP-NE	Total/NA	Water	SM 4500 CN I	
280-176246-3	BAP-NW1	Total/NA	Water	SM 4500 CN I	
MB 280-613207/20	Method Blank	Total/NA	Water	SM 4500 CN I	
HLCS 280-613207/17	Lab Control Sample	Total/NA	Water	SM 4500 CN I	
LCS 280-613207/19	Lab Control Sample	Total/NA	Water	SM 4500 CN I	
LLCS 280-613207/18	Lab Control Sample	Total/NA	Water	SM 4500 CN I	

Field Service / Mobile Lab

Analysis Batch: 613547

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176246-1	BAP-NW	Total/NA	Water	Field Sampling	
280-176246-2	BAP-NE	Total/NA	Water	Field Sampling	
280-176246-3	BAP-NW1	Total/NA	Water	Field Sampling	

Lab Chronicle

Client: HDR Inc
Job ID: 280-176246-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: BAP-NW
Date Collected: 05/09/23 10:45
Date Received: 05/09/23 16:15

Lab Sample ID: 280-176246-1
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	200 mL	612647	05/16/23 11:01	PFM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612700	05/17/23 07:53	LJS	EET DEN
Dissolved	Analysis	6010D		20			613604	05/23/23 15:42	ADL	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	200 mL	612647	05/16/23 11:01	PFM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612700	05/17/23 07:53	LJS	EET DEN
Dissolved	Analysis	6010D		1			613111	05/18/23 15:49	ADL	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	200 mL	612647	05/16/23 11:01	PFM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612700	05/17/23 07:53	LJS	EET DEN
Dissolved	Analysis	6010D		5			613454	05/22/23 16:54	ADL	EET DEN
Total/NA	Prep	3020A			50 mL	50 mL	611818	05/10/23 14:35	MSM	EET DEN
Total/NA	Analysis	6010D		1			613151	05/18/23 20:16	ADL	EET DEN
Total/NA	Prep	3020A			50 mL	50 mL	611818	05/10/23 14:35	MSM	EET DEN
Total/NA	Analysis	6010D		20			613604	05/23/23 15:09	ADL	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	200 mL	612647	05/16/23 11:01	PFM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612700	05/17/23 07:53	LJS	EET DEN
Dissolved	Analysis	6020B		1			612911	05/17/23 22:17	LRD	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	200 mL	612647	05/16/23 11:01	PFM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612700	05/17/23 07:53	LJS	EET DEN
Dissolved	Analysis	6020B		5			613118	05/18/23 22:31	LRD	EET DEN
Potentially Dissolvec	Filtration	Poten_Diss_Met			250 mL	250 mL	612331	05/12/23 14:59	KMS	EET DEN
Potentially Dissolvec	Prep	3005A			50 mL	50 mL	612430	05/15/23 14:55	LJS	EET DEN
Potentially Dissolvec	Analysis	6020B		1			612609	05/16/23 03:41	LRD	EET DEN
Total/NA	Prep	3020A			50 mL	50 mL	611818	05/10/23 14:35	MSM	EET DEN
Total/NA	Analysis	6020B		50			612202	05/11/23 23:30	LRD	EET DEN
Total/NA	Prep	3020A			50 mL	50 mL	611818	05/10/23 14:35	MSM	EET DEN
Total/NA	Analysis	6020B		1			612202	05/12/23 01:16	LRD	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	200 mL	612647	05/16/23 11:01	PFM	EET DEN
Dissolved	Prep	7470A			30 mL	50 mL	612965	05/18/23 14:10	KMS	EET DEN
Dissolved	Analysis	7470A		1			613199	05/18/23 22:15	KMS	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	612648	05/16/23 13:45	KMS	EET DEN
Total/NA	Analysis	7470A		1			612854	05/16/23 21:20	KMS	EET DEN
Total/NA	Prep	1664B			1022 mL	1000 mL	612462	05/15/23 09:54	LL	EET DEN
Total/NA	Analysis	1664B		1			612557	05/15/23 15:34	LL	EET DEN
Total/NA	Analysis	350.1		1	10 mL	10 mL	612948	05/17/23 16:37	MMP	EET DEN
Dissolved	Analysis	365.1		1	2 mL	2 mL	611860	05/09/23 17:45	LBR	EET DEN
Total/NA	Prep	365.2/365.3/365			50 mL	50 mL	612403	05/13/23 11:41	LBR	EET DEN
Total/NA	Analysis	365.1		1	2 mL	2 mL	612409	05/13/23 16:35	LBR	EET DEN
Total/NA	Analysis	7196A		1			613177	05/19/23 13:57	RMS	EET DEN
Total/NA	Analysis	7196A		1	2 mL	2 mL	611862	05/09/23 18:25	LBR	EET DEN
Total/NA	Analysis	9040C		1			612289	05/11/23 16:31	KEG	EET DEN
Total/NA	Analysis	9050A		1			612967	05/18/23 11:56	KEG	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	611756	05/10/23 07:25	MEC	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	612987	05/18/23 16:05	MEC	EET DEN
Total/NA	Analysis	9056A		2	5 mL	5 mL	612987	05/18/23 16:17	MEC	EET DEN

Client Sample ID: BAP-NW
Date Collected: 05/09/23 10:45
Date Received: 05/09/23 16:15

Lab Sample ID: 280-176246-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		50	5 mL	5 mL	612987	05/18/23 16:29	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			612064	05/10/23 18:08	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	612646	05/16/23 10:57	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	612150	05/11/23 13:45	MCR	EET DEN
Total/NA	Analysis	SM 4500 CN I		1	10 mL	10 mL	613207	05/18/23 09:46	MMP	EET DEN
Total/NA	Analysis	SM 4500 S2 D		1	2 mL	2 mL	612537	05/15/23 13:38	SL	EET DEN
Total/NA	Analysis	SM4500 S2 H		1			613176	05/19/23 13:28	ZPM	EET DEN
Total/NA	Analysis	Field Sampling		1			613547	05/09/23 10:45	NCR	EET DEN

Client Sample ID: BAP-NE
Date Collected: 05/09/23 11:30
Date Received: 05/09/23 16:15

Lab Sample ID: 280-176246-2
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	200 mL	612647	05/16/23 11:01	PFM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612700	05/17/23 07:53	LJS	EET DEN
Dissolved	Analysis	6010D		20			613604	05/23/23 16:02	ADL	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	200 mL	612647	05/16/23 11:01	PFM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612700	05/17/23 07:53	LJS	EET DEN
Dissolved	Analysis	6010D		1			613111	05/18/23 16:28	ADL	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	200 mL	612647	05/16/23 11:01	PFM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612700	05/17/23 07:53	LJS	EET DEN
Dissolved	Analysis	6010D		5			613454	05/22/23 17:07	ADL	EET DEN
Total/NA	Prep	3020A			50 mL	50 mL	611818	05/10/23 14:35	MSM	EET DEN
Total/NA	Analysis	6010D		1			613151	05/18/23 20:36	ADL	EET DEN
Total/NA	Prep	3020A			50 mL	50 mL	611818	05/10/23 14:35	MSM	EET DEN
Total/NA	Analysis	6010D		20			613604	05/23/23 15:14	ADL	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	200 mL	612647	05/16/23 11:01	PFM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612700	05/17/23 07:53	LJS	EET DEN
Dissolved	Analysis	6020B		1			612911	05/17/23 22:34	LRD	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	200 mL	612647	05/16/23 11:01	PFM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612700	05/17/23 07:53	LJS	EET DEN
Dissolved	Analysis	6020B		5			613118	05/18/23 22:40	LRD	EET DEN
Potentially Dissolvec	Filtration	Poten_Diss_Met			250 mL	250 mL	612331	05/12/23 14:59	KMS	EET DEN
Potentially Dissolvec	Prep	3005A			50 mL	50 mL	612430	05/15/23 14:55	LJS	EET DEN
Potentially Dissolvec	Analysis	6020B		1			612609	05/16/23 03:44	LRD	EET DEN
Total/NA	Prep	3020A			50 mL	50 mL	611818	05/10/23 14:35	MSM	EET DEN
Total/NA	Analysis	6020B		50			612202	05/11/23 23:32	LRD	EET DEN
Total/NA	Prep	3020A			50 mL	50 mL	611818	05/10/23 14:35	MSM	EET DEN
Total/NA	Analysis	6020B		1			612202	05/12/23 01:20	LRD	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	200 mL	612647	05/16/23 11:01	PFM	EET DEN
Dissolved	Prep	7470A			30 mL	50 mL	612965	05/18/23 14:10	KMS	EET DEN
Dissolved	Analysis	7470A		1			613199	05/18/23 22:23	KMS	EET DEN

Client Sample ID: BAP-NE
Date Collected: 05/09/23 11:30
Date Received: 05/09/23 16:15

Lab Sample ID: 280-176246-2
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	7470A			30 mL	50 mL	612648	05/16/23 13:45	KMS	EET DEN
Total/NA	Analysis	7470A		1			612854	05/16/23 21:22	KMS	EET DEN
Total/NA	Prep	1664B			1022 mL	1000 mL	612462	05/15/23 09:54	LL	EET DEN
Total/NA	Analysis	1664B		1			612557	05/15/23 15:34	LL	EET DEN
Total/NA	Analysis	350.1		1	10 mL	10 mL	612948	05/17/23 16:40	MMP	EET DEN
Dissolved	Analysis	365.1		1	2 mL	2 mL	611860	05/09/23 17:45	LBR	EET DEN
Total/NA	Prep	365.2/365.3/365			50 mL	50 mL	612403	05/13/23 11:41	LBR	EET DEN
Total/NA	Analysis	365.1		1	2 mL	2 mL	612409	05/13/23 16:35	LBR	EET DEN
Total/NA	Analysis	7196A		1			613177	05/19/23 13:57	RMS	EET DEN
Total/NA	Analysis	7196A		1	2 mL	2 mL	611862	05/09/23 18:28	LBR	EET DEN
Total/NA	Analysis	9040C		1			612289	05/11/23 16:35	KEG	EET DEN
Total/NA	Analysis	9050A		1			612967	05/18/23 11:56	KEG	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	611756	05/10/23 07:40	MEC	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	612987	05/18/23 16:41	MEC	EET DEN
Total/NA	Analysis	9056A		2	5 mL	5 mL	612987	05/18/23 17:17	MEC	EET DEN
Total/NA	Analysis	9056A		50	5 mL	5 mL	612987	05/18/23 17:29	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			612064	05/10/23 18:14	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	612646	05/16/23 10:57	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	612150	05/11/23 13:45	MCR	EET DEN
Total/NA	Analysis	SM 4500 CN I		1	10 mL	10 mL	613207	05/18/23 09:48	MMP	EET DEN
Total/NA	Analysis	SM 4500 S2 D		1	2 mL	2 mL	612537	05/15/23 13:38	SL	EET DEN
Total/NA	Analysis	SM4500 S2 H		1			613176	05/19/23 13:28	ZPM	EET DEN
Total/NA	Analysis	Field Sampling		1			613547	05/09/23 11:30	NCR	EET DEN

Client Sample ID: BAP-NW1
Date Collected: 05/09/23 12:30
Date Received: 05/09/23 16:15

Lab Sample ID: 280-176246-3
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	200 mL	612647	05/16/23 11:01	PFM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612700	05/17/23 07:53	LJS	EET DEN
Dissolved	Analysis	6010D		20			613604	05/23/23 16:07	ADL	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	200 mL	612647	05/16/23 11:01	PFM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612700	05/17/23 07:53	LJS	EET DEN
Dissolved	Analysis	6010D		1			613111	05/18/23 16:32	ADL	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	200 mL	612647	05/16/23 11:01	PFM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612700	05/17/23 07:53	LJS	EET DEN
Dissolved	Analysis	6010D		5			613454	05/22/23 17:28	ADL	EET DEN
Total/NA	Prep	3020A			50 mL	50 mL	611818	05/10/23 14:35	MSM	EET DEN
Total/NA	Analysis	6010D		1			613151	05/18/23 20:40	ADL	EET DEN
Total/NA	Prep	3020A			50 mL	50 mL	611818	05/10/23 14:35	MSM	EET DEN
Total/NA	Analysis	6010D		20			613604	05/23/23 15:18	ADL	EET DEN

Lab Chronicle

Client: HDR Inc
Job ID: 280-176246-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: BAP-NW1
Date Collected: 05/09/23 12:30
Date Received: 05/09/23 16:15

Lab Sample ID: 280-176246-3
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	200 mL	612647	05/16/23 11:01	PFM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612700	05/17/23 07:53	LJS	EET DEN
Dissolved	Analysis	6020B		1			612911	05/17/23 22:36	LRD	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	200 mL	612647	05/16/23 11:01	PFM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612700	05/17/23 07:53	LJS	EET DEN
Dissolved	Analysis	6020B		5			613118	05/18/23 22:41	LRD	EET DEN
Potentially Dissolvec	Filtration	Poten_Diss_Met			250 mL	250 mL	612331	05/12/23 14:59	KMS	EET DEN
Potentially Dissolvec	Prep	3005A			50 mL	50 mL	612430	05/15/23 14:55	LJS	EET DEN
Potentially Dissolvec	Analysis	6020B		1			612609	05/16/23 03:48	LRD	EET DEN
Total/NA	Prep	3020A			50 mL	50 mL	611818	05/10/23 14:35	MSM	EET DEN
Total/NA	Analysis	6020B		50			612202	05/11/23 23:34	LRD	EET DEN
Total/NA	Prep	3020A			50 mL	50 mL	611818	05/10/23 14:35	MSM	EET DEN
Total/NA	Analysis	6020B		1			612202	05/12/23 01:29	LRD	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	200 mL	612647	05/16/23 11:01	PFM	EET DEN
Dissolved	Prep	7470A			30 mL	50 mL	612965	05/18/23 14:10	KMS	EET DEN
Dissolved	Analysis	7470A		1			613199	05/18/23 22:26	KMS	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	612648	05/16/23 13:45	KMS	EET DEN
Total/NA	Analysis	7470A		1			612854	05/16/23 21:25	KMS	EET DEN
Total/NA	Prep	1664B			1029 mL	1000 mL	612462	05/15/23 09:54	LL	EET DEN
Total/NA	Analysis	1664B		1			612557	05/15/23 15:34	LL	EET DEN
Total/NA	Analysis	350.1		1	10 mL	10 mL	612948	05/17/23 16:42	MMP	EET DEN
Dissolved	Analysis	365.1		1	2 mL	2 mL	611860	05/09/23 17:45	LBR	EET DEN
Total/NA	Prep	365.2/365.3/365			50 mL	50 mL	612403	05/13/23 11:41	LBR	EET DEN
Total/NA	Analysis	365.1		1	2 mL	2 mL	612409	05/13/23 16:35	LBR	EET DEN
Total/NA	Analysis	7196A		1			613177	05/19/23 13:57	RMS	EET DEN
Total/NA	Analysis	7196A		1	2 mL	2 mL	611862	05/09/23 18:29	LBR	EET DEN
Total/NA	Analysis	9040C		1			612289	05/11/23 16:40	KEG	EET DEN
Total/NA	Analysis	9050A		1			612967	05/18/23 11:56	KEG	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	611756	05/10/23 07:55	MEC	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	612987	05/18/23 17:41	MEC	EET DEN
Total/NA	Analysis	9056A		2	5 mL	5 mL	612987	05/18/23 17:53	MEC	EET DEN
Total/NA	Analysis	9056A		50	5 mL	5 mL	612987	05/18/23 18:05	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			612064	05/10/23 18:21	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	612519	05/15/23 13:24	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	612150	05/11/23 13:45	MCR	EET DEN
Total/NA	Analysis	SM 4500 CN I		1	10 mL	10 mL	613207	05/18/23 09:51	MMP	EET DEN
Total/NA	Analysis	SM 4500 S2 D		1	2 mL	2 mL	612537	05/15/23 13:34	SL	EET DEN
Total/NA	Analysis	SM4500 S2 H		1			613176	05/19/23 13:28	ZPM	EET DEN
Total/NA	Analysis	Field Sampling		1			613547	05/09/23 12:30	NCR	EET DEN

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

Accreditation/Certification Summary

Client: HDR Inc
Job ID: 280-176246-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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
365.1		Water	ortho-Phosphate
7196A		Water	Chromium
7196A		Water	Chromium, trivalent
9040C		Water	Temperature
Field Sampling		Water	Field pH
Field Sampling		Water	Field Temperature
SM 4500 CN I		Water	Cyanide, Free
SM 4500 CN I		Water	Cyanide, Weak Acid Dissociable
SM4500 S2 H		Water	Field pH
SM4500 S2 H		Water	Field Temperature
SM4500 S2 H		Water	Specific Conductance
SM4500 S2 H		Water	Sulfide
SM4500 S2 H		Water	Un-ionized Hydrogen Sulfide

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

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Client Information	Sampler: Mattison Barickman	Lab PM: Ryan, Nicole C	Carrier Tracking No(s):	COC No: 280-130059-36020.1
Client Contact: Ms. Sierra Schupp	Phone: (720) 385-4021	E-Mail: Nicole.Ryan@ET.eurofinsus.com	State of Origin: CO	Page: Page 1 of 1
Company: HDR Inc	PWSID:			Job #:
Address: 1670 Broadway Suite 3400	Due Date Requested:			
City: Denver	TAT Requested (days):			
State, Zip: CO, 80202	Compliance Project: Δ Yes Δ No			
Phone: 734-263-7138(Tel)	PO #: DEN-021			
Email: Sierra.Schupp@hdrinc.com	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Comanche	Project #: 28014376			
Site: Colorado	SSOW#:			

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, 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)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010D, 6020B, 7470A: Total Ca, Mg, K, Na, Fe, SiO2,Al,B,Si, Ba, Zn, As, Cr, Mo, Sr, Hg	6020B -Potentially Dissolved Zn	365.1_Ortho: Ortho-phosphate	2540C, 2320, 9040, 9050: TDS, Alkalinity, pH, Specific Conductance	2540D, 9056, 7196A: TSS, Anions (Chloride, Fluoride, Sulfate, Nitrate), Hexavalent Cr	1664B - Oil and Grease	350.1, 365.1-Ammonia, Phosphate	4500_CN_I_NP - WAD Cyanide	SM4500_S2_D - Sulfide	6010D, 7470A: Dissolved Ca, Mg, K, Na, Fe, SiO2, Al, B, Si, Ba, Zn, As, Cr, Mo, Sr, Hg	7196A: Trivalent Cr (Calc)	SM4500_S2_H: Hydrogen Sulfide (calc)		Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D	N	N	N	S	S	B	CB	N	N	N			
BAP-NW	05/09/2023	1045	G	W	N	N	X	X	X	X	X	X	X	X	X	X	X	X		12	
BAP-NE	05/09/2023	1130	G	W	N	N	X	X	X	X	X	X	X	X	X	X	X	X		12	
BAP-NW1	05/09/2023	1230	G	W	N	N	X	X	X	X	X	X	X	X	X	X	X	X		12	

280-176246 Chain of Custody

For Login: Please log full Extended List Analysis Group

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:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Mattison Barickman	05/09/2023, 1615	HDR Inc.		5/9/23 1615	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 0.2 0.7 1.4 IR14 CF0.0

Ver: 01/16/2019

6/6/2023 (Rev. 1)

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-176246-1

Login Number: 176246
List Number: 1
Creator: Cannon, Charles D

List Source: Eurofins Denver

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.	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 <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

PREPARED FOR

Attn: Molly Reeves
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Generated 5/31/2023 8:58:54 AM

JOB DESCRIPTION

Xcel Energy GW CCR Monitoring - Comanche

JOB NUMBER

280-176412-1

Eurofins Denver
4955 Yarrow Street
Arvada CO 80002

See page two for job notes and contact information.

my EOL

Job Notes

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

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

Authorization



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5/31/2023 8:58:54 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
Job ID: 280-176412-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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
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.

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

Job ID: 280-176412-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-176412-1

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 5/12/2023 11:05 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 1.5º C.

DISSOLVED METALS
Samples MW-3 (280-176412-1) and MWK-3 (280-176412-2) were analyzed for Dissolved Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 05/18/2023 and analyzed on 05/19/2023.

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

DISSOLVED METALS (ICP/MS)
Samples MW-3 (280-176412-1) and MWK-3 (280-176412-2) were analyzed for Dissolved Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 05/18/2023 and analyzed on 05/20/2023, 05/23/2023 and 05/26/2023.

The continuing calibration verification (CCV) associated with batch 280-613260 recovered above the upper control limit for Be. The samples associated with this CCV (MB and LCS) were within limits; therefore, the data have been reported. The associated samples are impacted: (CCV 280-613260/169), (LCS 280-612875/2-C) and (MB 280-612875/1-B).

The instrument blank for analytical batch 280-613262 contained 158 ug/L Mg greater than one-half the reporting limit (RL) of 200 ug/L, and were not re-analyzed because sample > 10x the blank. The data have been qualified and reported.

Samples MW-3 (280-176412-1)[100X] and MW-3 (280-176412-1)[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
Samples MW-3 (280-176412-1) and MWK-3 (280-176412-2) were analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 05/17/2023.

Job ID: 280-176412-1 (Continued)

Laboratory: Eurofins Denver (Continued)

Alkalinity and Carbonate Alkalinity as CaCO3 were detected in method blank MB 280-612947/6 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.

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

ANIONS (48 HOURS)

Samples MW-3 (280-176412-1) and MWK-3 (280-176412-2) were analyzed for anions (48 hours) in accordance with EPA SW-846 Method 9056 (48 Hours). The samples were analyzed on 05/13/2023.

Sample MW-3 (280-176412-1)[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.

Detection Summary

Client: HDR Inc
Job ID: 280-176412-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: MW-3
Lab Sample ID: 280-176412-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	500		100	1.5	ug/L	1		6010C	Dissolved
Silver	0.29	J	1.0	0.045	ug/L	1		6020B	Dissolved
Arsenic	0.00051	J	0.0050	0.00050	mg/L	1		6020B	Dissolved
Barium	0.011		0.0030	0.00038	mg/L	1		6020B	Dissolved
Cadmium	0.0021		0.0010	0.00019	mg/L	1		6020B	Dissolved
Calcium	490000		10000	1600	ug/L	50		6020B	Dissolved
Chromium	0.0023	J	0.0030	0.00050	mg/L	1		6020B	Dissolved
Cobalt	0.0077		0.0010	0.00033	mg/L	1		6020B	Dissolved
Magnesium	5200000		20000	420	ug/L	100		6020B	Dissolved
Selenium	0.34		0.0050	0.0010	mg/L	1		6020B	Dissolved
Sodium	6000000		100000	7300	ug/L	100		6020B	Dissolved
Thallium	0.0011		0.0010	0.00021	mg/L	1		6020B	Dissolved
Copper	25		2.0	0.71	ug/L	1		6020B	Dissolved
Potassium	46000		1000	52	ug/L	1		6020B	Dissolved
Nickel	99		3.0	0.83	ug/L	1		6020B	Dissolved
Vanadium	1.5	J	5.0	1.1	ug/L	1		6020B	Dissolved
Zinc	3.8	J	10	2.0	ug/L	1		6020B	Dissolved
Nitrate as N	6.9		2.5	0.45	mg/L	5		9056	Total/NA
Alkalinity	780	B	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

Client Sample ID: MWK-3
Lab Sample ID: 280-176412-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.00080	J	0.0030	0.00038	mg/L	1		6020B	Dissolved
Calcium	170	J	200	32	ug/L	1		6020B	Dissolved
Magnesium	840		200	4.2	ug/L	1		6020B	Dissolved
Sodium	2800		1000	73	ug/L	1		6020B	Dissolved

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-176412-1
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
9056	Anions, Ion Chromatography	SW846	EET DEN
SM 2320B	Alkalinity	SM	EET DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	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: 280-176412-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-176412-1	MW-3	Water	05/11/23 14:25	05/12/23 11:05
280-176412-2	MWK-3	Water	05/11/23 14:55	05/12/23 11:05

Method: SW846 6010C - Metals (ICP) - Dissolved

Client Sample ID: MW-3
Date Collected: 05/11/23 14:25
Date Received: 05/12/23 11:05
Lab Sample ID: 280-176412-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**500**		100	1.5	ug/L		05/18/23 14:27	05/19/23 17:10	1

Client Sample ID: MWK-3
Date Collected: 05/11/23 14:55
Date Received: 05/12/23 11:05
Lab Sample ID: 280-176412-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		100	1.5	ug/L		05/18/23 14:27	05/19/23 17:14	1

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

Client Sample ID: MW-3
Date Collected: 05/11/23 14:25
Date Received: 05/12/23 11:05
Lab Sample ID: 280-176412-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/18/23 14:27	05/20/23 06:42	1
Silver	**0.29**	**J**	1.0	0.045	ug/L		05/18/23 14:27	05/20/23 06:42	1
Arsenic	**0.00051**	**J**	0.0050	0.00050	mg/L		05/18/23 14:27	05/20/23 06:42	1
Barium	**0.011**		0.0030	0.00038	mg/L		05/18/23 14:27	05/20/23 06:42	1
Beryllium	ND		0.0010	0.00030	mg/L		05/18/23 14:27	05/20/23 06:42	1
Cadmium	**0.0021**		0.0010	0.00019	mg/L		05/18/23 14:27	05/20/23 06:42	1
Calcium	**490000**		10000	1600	ug/L		05/18/23 14:27	05/23/23 09:02	50
Chromium	**0.0023**	**J**	0.0030	0.00050	mg/L		05/18/23 14:27	05/20/23 06:42	1
Cobalt	**0.0077**		0.0010	0.00033	mg/L		05/18/23 14:27	05/20/23 06:42	1
Lead	ND		0.0010	0.00023	mg/L		05/18/23 14:27	05/20/23 06:42	1
Magnesium	**5200000**		20000	420	ug/L		05/18/23 14:27	05/20/23 00:26	100
Selenium	**0.34**		0.0050	0.0010	mg/L		05/18/23 14:27	05/20/23 06:42	1
Sodium	**6000000**		100000	7300	ug/L		05/18/23 14:27	05/20/23 00:26	100
Thallium	**0.0011**		0.0010	0.00021	mg/L		05/18/23 14:27	05/20/23 06:42	1
Copper	**25**		2.0	0.71	ug/L		05/18/23 14:27	05/20/23 06:42	1
Potassium	**46000**		1000	52	ug/L		05/18/23 14:27	05/20/23 06:42	1
Nickel	**99**		3.0	0.83	ug/L		05/18/23 14:27	05/20/23 06:42	1
Vanadium	**1.5**	**J**	5.0	1.1	ug/L		05/18/23 14:27	05/20/23 06:42	1
Zinc	**3.8**	**J**	10	2.0	ug/L		05/18/23 14:27	05/20/23 06:42	1

Client Sample ID: MWK-3
Date Collected: 05/11/23 14:55
Date Received: 05/12/23 11:05
Lab Sample ID: 280-176412-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/18/23 14:27	05/20/23 06:44	1
Silver	ND		1.0	0.045	ug/L		05/18/23 14:27	05/20/23 06:44	1
Arsenic	ND		0.0050	0.00050	mg/L		05/18/23 14:27	05/20/23 06:44	1
Barium	**0.00080**	**J**	0.0030	0.00038	mg/L		05/18/23 14:27	05/20/23 06:44	1
Beryllium	ND		0.0010	0.00030	mg/L		05/18/23 14:27	05/20/23 06:44	1
Cadmium	ND		0.0010	0.00019	mg/L		05/18/23 14:27	05/20/23 06:44	1
Calcium	**170**	**J**	200	32	ug/L		05/18/23 14:27	05/20/23 06:44	1
Chromium	ND		0.0030	0.00050	mg/L		05/18/23 14:27	05/20/23 06:44	1
Cobalt	ND		0.0010	0.00033	mg/L		05/18/23 14:27	05/20/23 06:44	1
Lead	ND		0.0010	0.00023	mg/L		05/18/23 14:27	05/20/23 06:44	1
Magnesium	**840**		200	4.2	ug/L		05/18/23 14:27	05/26/23 13:50	1
Selenium	ND		0.0050	0.0010	mg/L		05/18/23 14:27	05/20/23 06:44	1

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

Client Sample ID: MWK-3
Date Collected: 05/11/23 14:55
Date Received: 05/12/23 11:05

Lab Sample ID: 280-176412-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	**2800**		1000	73	ug/L		05/18/23 14:27	05/26/23 13:50	1
Thallium	ND		0.0010	0.00021	mg/L		05/18/23 14:27	05/20/23 06:44	1
Copper	ND		2.0	0.71	ug/L		05/18/23 14:27	05/20/23 06:44	1
Potassium	ND		1000	52	ug/L		05/18/23 14:27	05/20/23 06:44	1
Nickel	ND		3.0	0.83	ug/L		05/18/23 14:27	05/20/23 06:44	1
Vanadium	ND		5.0	1.1	ug/L		05/18/23 14:27	05/20/23 06:44	1
Zinc	ND		10	2.0	ug/L		05/18/23 14:27	05/20/23 06:44	1

General Chemistry

Client Sample ID: MW-3
Date Collected: 05/11/23 14:25
Date Received: 05/12/23 11:05

Lab Sample ID: 280-176412-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N (SW846 9056)	**6.9**		2.5	0.45	mg/L			05/13/23 01:11	5
Alkalinity (SM 2320B)	**780**	**B**	10	3.1	mg/L			05/17/23 16:22	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**780**		10	3.1	mg/L			05/17/23 16:22	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			05/17/23 16:22	1

Client Sample ID: MWK-3
Date Collected: 05/11/23 14:55
Date Received: 05/12/23 11:05

Lab Sample ID: 280-176412-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N (SW846 9056)	ND		0.50	0.090	mg/L			05/13/23 01:26	1
Alkalinity (SM 2320B)	ND		10	3.1	mg/L			05/17/23 16:29	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			05/17/23 16:29	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			05/17/23 16:29	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-612875/1-B
Matrix: Water
Analysis Batch: 613254

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 612880

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		100	1.5	ug/L		05/18/23 14:27	05/19/23 17:02	1

Lab Sample ID: LCS 280-612875/2-B
Matrix: Water
Analysis Batch: 613254

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 612880

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2000	2040		ug/L		102	86 - 110

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-612875/1-B
Matrix: Water
Analysis Batch: 613260

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 612880

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/18/23 14:27	05/20/23 00:13	1
Silver	ND		1.0	0.045	ug/L		05/18/23 14:27	05/20/23 00:13	1
Arsenic	ND		0.0050	0.00050	mg/L		05/18/23 14:27	05/20/23 00:13	1
Barium	ND		0.0030	0.00038	mg/L		05/18/23 14:27	05/20/23 00:13	1
Beryllium	ND	^+	0.0010	0.00030	mg/L		05/18/23 14:27	05/20/23 00:13	1
Cadmium	ND		0.0010	0.00019	mg/L		05/18/23 14:27	05/20/23 00:13	1
Calcium	ND		200	32	ug/L		05/18/23 14:27	05/20/23 00:13	1
Chromium	ND		0.0030	0.00050	mg/L		05/18/23 14:27	05/20/23 00:13	1
Cobalt	ND		0.0010	0.00033	mg/L		05/18/23 14:27	05/20/23 00:13	1
Lead	ND		0.0010	0.00023	mg/L		05/18/23 14:27	05/20/23 00:13	1
Magnesium	ND		200	4.2	ug/L		05/18/23 14:27	05/20/23 00:13	1
Selenium	ND		0.0050	0.0010	mg/L		05/18/23 14:27	05/20/23 00:13	1
Sodium	ND		1000	73	ug/L		05/18/23 14:27	05/20/23 00:13	1
Thallium	ND		0.0010	0.00021	mg/L		05/18/23 14:27	05/20/23 00:13	1
Copper	ND		2.0	0.71	ug/L		05/18/23 14:27	05/20/23 00:13	1
Potassium	ND		1000	52	ug/L		05/18/23 14:27	05/20/23 00:13	1
Nickel	ND		3.0	0.83	ug/L		05/18/23 14:27	05/20/23 00:13	1
Vanadium	ND		5.0	1.1	ug/L		05/18/23 14:27	05/20/23 00:13	1
Zinc	ND		10	2.0	ug/L		05/18/23 14:27	05/20/23 00:13	1

Lab Sample ID: LCS 280-612875/2-C
Matrix: Water
Analysis Batch: 613260

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 612880

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0386		mg/L		97	85 - 115
Silver	40.0	37.9		ug/L		95	85 - 115
Arsenic	0.0400	0.0377		mg/L		94	85 - 117
Barium	0.0400	0.0380		mg/L		95	85 - 118
Beryllium	0.0400	0.0394	^+	mg/L		99	80 - 125
Cadmium	0.0400	0.0384		mg/L		96	85 - 115
Calcium	1000	986		ug/L		99	80 - 120
Chromium	0.0400	0.0375		mg/L		94	84 - 121

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

Lab Sample ID: LCS 280-612875/2-C
Matrix: Water
Analysis Batch: 613260

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 612880

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cobalt	0.0400	0.0369		mg/L		92	85 - 120
Lead	0.0400	0.0376		mg/L		94	85 - 118
Magnesium	1000	991		ug/L		99	80 - 120
Selenium	0.0400	0.0377		mg/L		94	77 - 122
Sodium	1000	970	J	ug/L		97	80 - 120
Thallium	0.0400	0.0373		mg/L		93	85 - 118
Copper	40.0	36.6		ug/L		91	85 - 119
Potassium	1000	952	J	ug/L		95	80 - 120
Nickel	40.0	37.3		ug/L		93	85 - 119
Vanadium	40.0	37.8		ug/L		95	85 - 120
Zinc	40.0	34.7		ug/L		87	83 - 122

Method: 9056 - Anions, Ion Chromatography

Lab Sample ID: MB 280-612321/6
Matrix: Water
Analysis Batch: 612321

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.50	0.090	mg/L			05/12/23 15:53	1

Lab Sample ID: LCS 280-612321/4
Matrix: Water
Analysis Batch: 612321

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate as N	2.50	2.47		mg/L		99	90 - 110

Lab Sample ID: LCSD 280-612321/5
Matrix: Water
Analysis Batch: 612321

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
Nitrate as N	2.50	2.47		mg/L		99	90 - 110	0	10

Lab Sample ID: MRL 280-612321/3
Matrix: Water
Analysis Batch: 612321

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate as N	0.250	0.260	J	mg/L		104	50 - 150

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-612947/6
Matrix: Water
Analysis Batch: 612947

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	3.38	J	10	3.1	mg/L			05/17/23 14:03	1

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: MB 280-612947/6
Matrix: Water
Analysis Batch: 612947

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			05/17/23 14:03	1
Carbonate Alkalinity as CaCO3	3.28	J	10	3.1	mg/L			05/17/23 14:03	1

Lab Sample ID: LCS 280-612947/4
Matrix: Water
Analysis Batch: 612947

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		101	89 - 110		

Lab Sample ID: LCSD 280-612947/5
Matrix: Water
Analysis Batch: 612947

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	202		mg/L		101	89 - 110	0	10

Metals

Filtration Batch: 612875

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176412-1	MW-3	Dissolved	Water	FILTRATION	
280-176412-2	MWK-3	Dissolved	Water	FILTRATION	
MB 280-612875/1-B	Method Blank	Dissolved	Water	FILTRATION	
LCS 280-612875/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 280-612875/2-C	Lab Control Sample	Dissolved	Water	FILTRATION	

Prep Batch: 612880

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176412-1	MW-3	Dissolved	Water	3005A	612875
280-176412-2	MWK-3	Dissolved	Water	3005A	612875
MB 280-612875/1-B	Method Blank	Dissolved	Water	3005A	612875
LCS 280-612875/2-B	Lab Control Sample	Dissolved	Water	3005A	612875
LCS 280-612875/2-C	Lab Control Sample	Dissolved	Water	3005A	612875

Analysis Batch: 613254

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176412-1	MW-3	Dissolved	Water	6010C	612880
280-176412-2	MWK-3	Dissolved	Water	6010C	612880
MB 280-612875/1-B	Method Blank	Dissolved	Water	6010C	612880
LCS 280-612875/2-B	Lab Control Sample	Dissolved	Water	6010C	612880

Analysis Batch: 613260

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176412-1	MW-3	Dissolved	Water	6020B	612880
MB 280-612875/1-B	Method Blank	Dissolved	Water	6020B	612880
LCS 280-612875/2-C	Lab Control Sample	Dissolved	Water	6020B	612880

Analysis Batch: 613262

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176412-1	MW-3	Dissolved	Water	6020B	612880
280-176412-2	MWK-3	Dissolved	Water	6020B	612880

Analysis Batch: 613485

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176412-1	MW-3	Dissolved	Water	6020B	612880

Analysis Batch: 614192

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176412-2	MWK-3	Dissolved	Water	6020B	612880

General Chemistry

Analysis Batch: 612321

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176412-1	MW-3	Total/NA	Water	9056	
280-176412-2	MWK-3	Total/NA	Water	9056	
MB 280-612321/6	Method Blank	Total/NA	Water	9056	
LCS 280-612321/4	Lab Control Sample	Total/NA	Water	9056	
LCSD 280-612321/5	Lab Control Sample Dup	Total/NA	Water	9056	
MRL 280-612321/3	Lab Control Sample	Total/NA	Water	9056	

QC Association Summary

Client: HDR Inc
Job ID: 280-176412-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

General Chemistry

Analysis Batch: 612947

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176412-1	MW-3	Total/NA	Water	SM 2320B	
280-176412-2	MWK-3	Total/NA	Water	SM 2320B	
MB 280-612947/6	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-612947/4	Lab Control Sample	Total/NA	Water	SM 2320B	
LCSD 280-612947/5	Lab Control Sample Dup	Total/NA	Water	SM 2320B	

Lab Chronicle

Client: HDR Inc
Job ID: 280-176412-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: MW-3
Lab Sample ID: 280-176412-1
Date Collected: 05/11/23 14:25
Matrix: Water
Date Received: 05/12/23 11:05

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	612875	05/17/23 17:55	PFM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612880	05/18/23 14:27	PFM	EET DEN
Dissolved	Analysis	6010C		1			613254	05/19/23 17:10	ADL	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	612875	05/17/23 17:55	PFM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612880	05/18/23 14:27	PFM	EET DEN
Dissolved	Analysis	6020B		100			613260	05/20/23 00:26	LRD	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	612875	05/17/23 17:55	PFM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612880	05/18/23 14:27	PFM	EET DEN
Dissolved	Analysis	6020B		1			613262	05/20/23 06:42	LRD	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	612875	05/17/23 17:55	PFM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612880	05/18/23 14:27	PFM	EET DEN
Dissolved	Analysis	6020B		50			613485	05/23/23 09:02	LMT	EET DEN
Total/NA	Analysis	9056		5	10 mL	10 mL	612321	05/13/23 01:11	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			612947	05/17/23 16:22	KEG	EET DEN

Client Sample ID: MWK-3
Lab Sample ID: 280-176412-2
Date Collected: 05/11/23 14:55
Matrix: Water
Date Received: 05/12/23 11:05

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	612875	05/17/23 17:55	PFM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612880	05/18/23 14:27	PFM	EET DEN
Dissolved	Analysis	6010C		1			613254	05/19/23 17:14	ADL	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	612875	05/17/23 17:55	PFM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612880	05/18/23 14:27	PFM	EET DEN
Dissolved	Analysis	6020B		1			613262	05/20/23 06:44	LRD	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	612875	05/17/23 17:55	PFM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	612880	05/18/23 14:27	PFM	EET DEN
Dissolved	Analysis	6020B		1			614192	05/26/23 13:50	LMT	EET DEN
Total/NA	Analysis	9056		1	10 mL	10 mL	612321	05/13/23 01:26	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			612947	05/17/23 16:29	KEG	EET DEN

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

Accreditation/Certification Summary

Client: HDR Inc
Job ID: 280-176412-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

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Client Information	Sampler: Madison Barickman	Lab PM: Ryan, Nicole C	Carrier Tracking No(s):	COC No: 280-129982-35989.1
Client Contact: Molly Reeves	Phone: (720) 385-4021	E-Mail: Nicole.Ryan@ET.eurofinsus.com	State of Origin:	Page: Page 1 of 1
Company: HDR Inc	PWSID:			Job #:

Address: 1670 Broadway Suite 3400	Due Date Requested:
City: Denver	TAT Requested (days):
State, Zip: CO, 80202	Compliance Project: Δ Yes Δ No
Phone: 734-263-7138(Tel)	PO #: DEN-021
Email: Molly.Reeves@hdrinc.com	WO #:
Project Name: Xcel Energy GW Monitoring - Comanche	Project #: 28014376
Site: Comanche Landfill State Parameters	SSOW#:

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, 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)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	2320B Alkalinity, 9056_48HR Nitrate Nitrite	6010C, 6020B Dissolved Metals - State list	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N		
MW-3	05/11/2023	1425	G	W	N	N	X	X	2	
MWK-3	05/11/2023	1455	G	W	N	N	X	X	2	

280-176412 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:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Madison Barickman	05/12/2023, 1105	HDR Inc.		5-12-23 1105	ETADEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1.4 IR14 CF0.1

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-176412-1

Login Number: 176412
List Number: 1
Creator: Rystrom, Joshua R

List Source: Eurofins Denver

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.	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 <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

PREPARED FOR

Attn: Molly Reeves
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Generated 5/26/2023 10:06:41 AM

JOB DESCRIPTION

Xcel Energy GW CCR Monitoring - Comanche

JOB NUMBER

280-176414-1

Eurofins Denver
4955 Yarrow Street
Arvada CO 80002

See page two for job notes and contact information.

my EOL

Job Notes

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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 Eurofins TestAmerica Project Manager.

Authorization



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5/26/2023 10:06:41 AM

Authorized for release by
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(303)736-0100

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Definitions/Glossary

Client: HDR Inc
Job ID: 280-176414-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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

Job ID: 280-176414-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-176414-1

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 5/12/2023 11:05 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 1.5º C.

TOTAL RECOVERABLE METALS
Samples MW-3 (280-176414-1) and MWK-3 (280-176414-2) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 05/16/2023 and analyzed on 05/24/2023.

Boron was detected in method blank MB 280-612373/1-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.

Samples MW-3 (280-176414-1)[10X] and MWK-3 (280-176414-2)[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 MW-3 (280-176414-1) and MWK-3 (280-176414-2) were analyzed for Total Recoverable Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 05/15/2023 and analyzed on 05/16/2023 and 05/17/2023.

The instrument blank for analytical batch 280-612777 contained Na greater than one-half the reporting limit (RL), and were not re-analyzed because Na is a common lab contaminant and is controlled up to the RL. The data have been qualified and reported.

Sample MW-3 (280-176414-1)[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.

ALKALINITY
Samples MW-3 (280-176414-1) and MWK-3 (280-176414-2) were analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 05/17/2023.

Job ID: 280-176414-1 (Continued)

Laboratory: Eurofins Denver (Continued)

Alkalinity was detected in method blank MB 280-612947/6 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. Carbonate Alkalinity as CaCO3 was detected in method blank MB 280-612947/6 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-3 (280-176414-1) and MWK-3 (280-176414-2) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 05/18/2023.

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

TOTAL SUSPENDED SOLIDS

Samples MW-3 (280-176414-1) and MWK-3 (280-176414-2) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 05/18/2023.

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

CORROSIVITY (PH)

Samples MW-3 (280-176414-1) and MWK-3 (280-176414-2) were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 05/17/2023 and 05/19/2023.

The following sample did not equilibrate to within 0.05 pH units after three measurements: MWK-3 (280-176414-2). This was observed in a previous analysis thus the sample was not rerun.

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

ANIONS (28 DAYS)

Samples MW-3 (280-176414-1) and MWK-3 (280-176414-2) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A (28 Days). The samples were analyzed on 05/23/2023.

Samples MW-3 (280-176414-1)[1000X] and MW-3 (280-176414-1)[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
Job ID: 280-176414-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: MW-3 — Lab Sample ID: 280-176414-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.58	J B	1.0	0.015	mg/L	10		6010C	Total Recoverable
Calcium	430000		20000	3200	ug/L	100		6020B	Total Recoverable
Manganese	510		3.0	0.51	ug/L	1		6020B	Total Recoverable
Potassium	50000		1000	52	ug/L	1		6020B	Total Recoverable
Sodium	6300000		100000	7300	ug/L	100		6020B	Total Recoverable
pH adj. to 25 deg C	7.3	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	410		15	5.1	mg/L	5		9056A	Total/NA
Sulfate	39000		5000	1000	mg/L	1000		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)	40000		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: MWK-3 — Lab Sample ID: 280-176414-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.024	J B	1.0	0.015	mg/L	10		6010C	Total Recoverable
Calcium	160	J	200	32	ug/L	1		6020B	Total Recoverable
Manganese	0.58	J	3.0	0.51	ug/L	1		6020B	Total Recoverable
Potassium	89	J	1000	52	ug/L	1		6020B	Total Recoverable
Sodium	2000		1000	73	ug/L	1		6020B	Total Recoverable
pH adj. to 25 deg C	8.1	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.5	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Fluoride	0.29	J	0.50	0.17	mg/L	1		9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-176414-1
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
Job ID: 280-176414-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-176414-1	MW-3	Water	05/11/23 14:25	05/12/23 11:05
280-176414-2	MWK-3	Water	05/11/23 14:55	05/12/23 11:05

Method: SW846 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: MW-3
Date Collected: 05/11/23 14:25
Date Received: 05/12/23 11:05
Lab Sample ID: 280-176414-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.58**	**J B**	1.0	0.015	mg/L		05/16/23 08:11	05/24/23 17:49	10

Client Sample ID: MWK-3
Date Collected: 05/11/23 14:55
Date Received: 05/12/23 11:05
Lab Sample ID: 280-176414-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.024**	**J B**	1.0	0.015	mg/L		05/16/23 08:11	05/24/23 17:53	10

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

Client Sample ID: MW-3
Date Collected: 05/11/23 14:25
Date Received: 05/12/23 11:05
Lab Sample ID: 280-176414-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**430000**		20000	3200	ug/L		05/15/23 14:55	05/16/23 22:58	100
Manganese	**510**		3.0	0.51	ug/L		05/15/23 14:55	05/17/23 04:06	1
Potassium	**50000**		1000	52	ug/L		05/15/23 14:55	05/17/23 04:06	1
Sodium	**6300000**		100000	7300	ug/L		05/15/23 14:55	05/16/23 22:58	100

Client Sample ID: MWK-3
Date Collected: 05/11/23 14:55
Date Received: 05/12/23 11:05
Lab Sample ID: 280-176414-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**160**	**J**	200	32	ug/L		05/15/23 14:55	05/17/23 04:10	1
Manganese	**0.58**	**J**	3.0	0.51	ug/L		05/15/23 14:55	05/17/23 04:10	1
Potassium	**89**	**J**	1000	52	ug/L		05/15/23 14:55	05/17/23 04:10	1
Sodium	**2000**		1000	73	ug/L		05/15/23 14:55	05/17/23 04:10	1

General Chemistry

Client Sample ID: MW-3
Date Collected: 05/11/23 14:25
Date Received: 05/12/23 11:05
Lab Sample ID: 280-176414-1
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			05/17/23 15:43	1
Temperature (SW846 9040B)	**20.8**	**HF**	1.0	1.0	Degrees C			05/17/23 15:43	1
Chloride (SW846 9056A)	**410**		15	5.1	mg/L			05/23/23 16:06	5
Fluoride (SW846 9056A)	ND		0.50	0.17	mg/L			05/23/23 15:54	1
Sulfate (SW846 9056A)	**39000**		5000	1000	mg/L			05/23/23 16:18	1000
Alkalinity (SM 2320B)	**780**		10	3.1	mg/L			05/17/23 17:18	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**780**		10	3.1	mg/L			05/17/23 17:18	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			05/17/23 17:18	1
Total Dissolved Solids (TDS) (SM 2540C)	**40000**		1000	470	mg/L			05/18/23 19:35	1
Total Suspended Solids (SM 2540D)	**12**		4.0	1.1	mg/L			05/18/23 21:08	1

Client: HDR Inc
Job ID: 280-176414-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

General Chemistry

Client Sample ID: MWK-3
Date Collected: 05/11/23 14:55
Date Received: 05/12/23 11:05

Lab Sample ID: 280-176414-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C (SW846 9040B)	**8.1**	**HF**	0.1	0.1	SU			05/19/23 17:59	1
Temperature (SW846 9040B)	**20.5**	**HF**	1.0	1.0	Degrees C			05/19/23 17:59	1
Chloride (SW846 9056A)	ND		3.0	1.0	mg/L			05/23/23 16:54	1
Fluoride (SW846 9056A)	**0.29**	**J**	0.50	0.17	mg/L			05/23/23 16:54	1
Sulfate (SW846 9056A)	ND		5.0	1.0	mg/L			05/23/23 16:54	1
Alkalinity (SM 2320B)	ND		10	3.1	mg/L			05/17/23 17:02	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			05/17/23 17:02	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			05/17/23 17:02	1
Total Dissolved Solids (TDS) (SM 2540C)	ND		10	4.7	mg/L			05/18/23 19:35	1
Total Suspended Solids (SM 2540D)	ND		4.0	1.1	mg/L			05/18/23 21:08	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-612373/1-A
Matrix: Water
Analysis Batch: 613753

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 612373

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.00395	J	0.10	0.0015	mg/L		05/16/23 08:11	05/24/23 17:41	1

Lab Sample ID: LCS 280-612373/2-A
Matrix: Water
Analysis Batch: 613753

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 612373

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	2.10		mg/L		105	86 - 110

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-612237/1-A
Matrix: Water
Analysis Batch: 612777

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 612237

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		200	32	ug/L		05/15/23 14:55	05/16/23 21:33	1
Manganese	ND		3.0	0.51	ug/L		05/15/23 14:55	05/16/23 21:33	1
Potassium	ND		1000	52	ug/L		05/15/23 14:55	05/16/23 21:33	1
Sodium	ND		1000	73	ug/L		05/15/23 14:55	05/16/23 21:33	1

Lab Sample ID: LCS 280-612237/2-A
Matrix: Water
Analysis Batch: 612777

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 612237

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	1000	1050		ug/L		105	80 - 120
Manganese	40.0	41.2		ug/L		103	85 - 117
Potassium	1000	1030		ug/L		103	80 - 120
Sodium	1000	980	J	ug/L		98	80 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-612946/5
Matrix: Water
Analysis Batch: 612946

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 280-613264/31
Matrix: Water
Analysis Batch: 613264

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 280-613477/6
Matrix: Water
Analysis Batch: 613477

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			05/23/23 13:03	1
Fluoride	ND		0.50	0.17	mg/L			05/23/23 13:03	1
Sulfate	ND		5.0	1.0	mg/L			05/23/23 13:03	1

Lab Sample ID: LCS 280-613477/4
Matrix: Water
Analysis Batch: 613477

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	46.1		mg/L		92	90 - 110
Fluoride	2.50	2.31		mg/L		92	90 - 110
Sulfate	50.0	49.0		mg/L		98	90 - 110

Lab Sample ID: LCSD 280-613477/5
Matrix: Water
Analysis Batch: 613477

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	46.1		mg/L		92	90 - 110	0	10
Fluoride	2.50	2.33		mg/L		93	90 - 110	1	10
Sulfate	50.0	49.4		mg/L		99	90 - 110	1	10

Lab Sample ID: MRL 280-613477/3
Matrix: Water
Analysis Batch: 613477

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	1.96	J	mg/L		78	50 - 150
Fluoride	0.250	0.199	J	mg/L		80	50 - 150
Sulfate	2.50	2.14	J	mg/L		86	50 - 150

Lab Sample ID: 280-176414-2 MS
Matrix: Water
Analysis Batch: 613477

Client Sample ID: MWK-3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	ND		50.0	51.6		mg/L		103	80 - 120
Fluoride	0.29	J	5.00	4.99		mg/L		94	80 - 120
Sulfate	ND		50.0	57.3		mg/L		115	80 - 120

Lab Sample ID: 280-176414-2 MSD
Matrix: Water
Analysis Batch: 613477

Client Sample ID: MWK-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	ND		50.0	49.8		mg/L		100	80 - 120	3	20
Fluoride	0.29	J	5.00	4.89		mg/L		92	80 - 120	2	20
Sulfate	ND		50.0	55.3		mg/L		111	80 - 120	4	20

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

Lab Sample ID: 280-176414-2 DU
Matrix: Water
Analysis Batch: 613477

Client Sample ID: MWK-3
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	0.29	J		0.309	J	mg/L				5	15
Sulfate	ND			ND		mg/L				NC	15

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-612947/32
Matrix: Water
Analysis Batch: 612947

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			05/17/23 16:57	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/17/23 16:57	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/17/23 16:57	1

Lab Sample ID: MB 280-612947/6
Matrix: Water
Analysis Batch: 612947

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	3.38	J	10	3.1	mg/L			05/17/23 14:03	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/17/23 14:03	1
Carbonate Alkalinity as CaCO3	3.28	J	10	3.1	mg/L			05/17/23 14:03	1

Lab Sample ID: LCS 280-612947/31
Matrix: Water
Analysis Batch: 612947

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 - 110		

Lab Sample ID: LCSD 280-612947/5
Matrix: Water
Analysis Batch: 612947

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	202		mg/L		101	89 - 110	0	10

Lab Sample ID: 280-176414-2 DU
Matrix: Water
Analysis Batch: 612947

Client Sample ID: MWK-3
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

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

Lab Sample ID: MB 280-613056/1
Matrix: Water
Analysis Batch: 613056

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			05/18/23 19:34	1

Lab Sample ID: LCS 280-613056/2
Matrix: Water
Analysis Batch: 613056

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		96	88 - 114

Lab Sample ID: LCSD 280-613056/3
Matrix: Water
Analysis Batch: 613056

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	444		mg/L		89	88 - 114	8	20

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

Lab Sample ID: MB 280-613061/3
Matrix: Water
Analysis Batch: 613061

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			05/18/23 21:08	1

Lab Sample ID: LCS 280-613061/1
Matrix: Water
Analysis Batch: 613061

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	502	457		mg/L		91	79 - 114

Lab Sample ID: LCSD 280-613061/2
Matrix: Water
Analysis Batch: 613061

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	502	458		mg/L		91	79 - 114	0	20

Metals

Prep Batch: 612237

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176414-1	MW-3	Total Recoverable	Water	3005A	
280-176414-2	MWK-3	Total Recoverable	Water	3005A	
MB 280-612237/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-612237/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 612373

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176414-1	MW-3	Total Recoverable	Water	3005A	
280-176414-2	MWK-3	Total Recoverable	Water	3005A	
MB 280-612373/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-612373/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 612777

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176414-1	MW-3	Total Recoverable	Water	6020B	612237
280-176414-1	MW-3	Total Recoverable	Water	6020B	612237
280-176414-2	MWK-3	Total Recoverable	Water	6020B	612237
MB 280-612237/1-A	Method Blank	Total Recoverable	Water	6020B	612237
LCS 280-612237/2-A	Lab Control Sample	Total Recoverable	Water	6020B	612237

Analysis Batch: 613753

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176414-1	MW-3	Total Recoverable	Water	6010C	612373
280-176414-2	MWK-3	Total Recoverable	Water	6010C	612373
MB 280-612373/1-A	Method Blank	Total Recoverable	Water	6010C	612373
LCS 280-612373/2-A	Lab Control Sample	Total Recoverable	Water	6010C	612373

General Chemistry

Analysis Batch: 612946

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176414-1	MW-3	Total/NA	Water	9040B	
LCS 280-612946/5	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 612947

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176414-1	MW-3	Total/NA	Water	SM 2320B	
280-176414-2	MWK-3	Total/NA	Water	SM 2320B	
MB 280-612947/32	Method Blank	Total/NA	Water	SM 2320B	
MB 280-612947/6	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-612947/31	Lab Control Sample	Total/NA	Water	SM 2320B	
LCSD 280-612947/5	Lab Control Sample Dup	Total/NA	Water	SM 2320B	
280-176414-2 DU	MWK-3	Total/NA	Water	SM 2320B	

Analysis Batch: 613056

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176414-1	MW-3	Total/NA	Water	SM 2540C	
280-176414-2	MWK-3	Total/NA	Water	SM 2540C	
MB 280-613056/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-613056/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-613056/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

QC Association Summary

Client: HDR Inc
Job ID: 280-176414-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

General Chemistry

Analysis Batch: 613061

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176414-1	MW-3	Total/NA	Water	SM 2540D	
280-176414-2	MWK-3	Total/NA	Water	SM 2540D	
MB 280-613061/3	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-613061/1	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-613061/2	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 613264

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176414-2	MWK-3	Total/NA	Water	9040B	
LCS 280-613264/31	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 613477

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176414-1	MW-3	Total/NA	Water	9056A	
280-176414-1	MW-3	Total/NA	Water	9056A	
280-176414-1	MW-3	Total/NA	Water	9056A	
280-176414-2	MWK-3	Total/NA	Water	9056A	
MB 280-613477/6	Method Blank	Total/NA	Water	9056A	
LCS 280-613477/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-613477/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-613477/3	Lab Control Sample	Total/NA	Water	9056A	
280-176414-2 MS	MWK-3	Total/NA	Water	9056A	
280-176414-2 MSD	MWK-3	Total/NA	Water	9056A	
280-176414-2 DU	MWK-3	Total/NA	Water	9056A	

Lab Chronicle

Client: HDR Inc
Job ID: 280-176414-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: MW-3
Lab Sample ID: 280-176414-1
Date Collected: 05/11/23 14:25
Matrix: Water
Date Received: 05/12/23 11:05

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	612373	05/16/23 08:11	LJS	EET DEN
Total Recoverable	Analysis	6010C		10			613753	05/24/23 17:49	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	612237	05/15/23 14:55	LJS	EET DEN
Total Recoverable	Analysis	6020B		100			612777	05/16/23 22:58	LRD	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	612237	05/15/23 14:55	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			612777	05/17/23 04:06	LRD	EET DEN
Total/NA	Analysis	9040B		1			612946	05/17/23 15:43	KEG	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	613477	05/23/23 15:54	MEC	EET DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	613477	05/23/23 16:06	MEC	EET DEN
Total/NA	Analysis	9056A		1000	5 mL	5 mL	613477	05/23/23 16:18	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			612947	05/17/23 17:18	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	613056	05/18/23 19:35	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	613061	05/18/23 21:08	MCR	EET DEN

Client Sample ID: MWK-3
Lab Sample ID: 280-176414-2
Date Collected: 05/11/23 14:55
Matrix: Water
Date Received: 05/12/23 11:05

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	612373	05/16/23 08:11	LJS	EET DEN
Total Recoverable	Analysis	6010C		10			613753	05/24/23 17:53	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	612237	05/15/23 14:55	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			612777	05/17/23 04:10	LRD	EET DEN
Total/NA	Analysis	9040B		1			613264	05/19/23 17:59	KEG	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	613477	05/23/23 16:54	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			612947	05/17/23 17:02	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	613056	05/18/23 19:35	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	613061	05/18/23 21:08	MCR	EET DEN

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

Accreditation/Certification Summary

Client: HDR Inc
Job ID: 280-176414-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

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Client Information	Sampler: Mattison Barickman	Lab PM: Ryan, Nicole C	Carrier Tracking No(s):	COC No: 280-129981-35988.1
Client Contact: Molly Reeves	Phone: (720) 385-4021	E-Mail: Nicole.Ryan@ET.eurofinsus.com	State of Origin:	Page: Page 1 of 1
Company: HDR Inc	PWSID:			Job #:
Address: 1670 Broadway Suite 3400	Due Date Requested:			
City: Denver	TAT Requested (days):			
State, Zip: CO, 80202	Compliance Project: Δ Yes Δ No			
Phone: 734-263-7138(Tel)	PO #: DEN-021			
Email: Molly.Reeves@hdrinc.com	WO #:			
Project Name: Xcel Energy GW Monitoring - Comanche	Project #: 28014376			
Site: Comanche Landfill CCR App III + TSS + Alk + Mg + Na + K	SSOW#:			

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, 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)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	2320B Alkalinity, 9040B pH, 9056A_28D Cl Fl SO4	6010C, 6020B - App III Metals + Mg + Na + K	2540C_Calcd TDS, 2540D TSS	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	D	N		
MW-3	05/11/2023	1425	G	W	N	N	X	X	X	3	
MWK-3	05/11/2023	1455	G	W	N	N	X	X	X	3	

280-176414 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:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Mattison Barickman	05/12/2023, 1105	HDR Inc.	MH	5.12.23 1105	ETADEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 1.4 IR4 CF0.1

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-176414-1

Login Number: 176414
List Number: 1
Creator: Rystrom, Joshua R

List Source: Eurofins Denver

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.	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 <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

PREPARED FOR

Attn: Molly Reeves
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Generated 5/26/2023 10:22:40 AM

JOB DESCRIPTION

Xcel Energy GW CCR Monitoring - Comanche

JOB NUMBER

280-176416-1

Eurofins Denver
4955 Yarrow Street
Arvada CO 80002

See page two for job notes and contact information.

myEOL

Job Notes

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

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

Authorization



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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
Job ID: 280-176416-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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

Job ID: 280-176416-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-176416-1

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 5/12/2023 11:05 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 1.5º C.

TOTAL RECOVERABLE METALS
Samples W-16 (280-176416-1) and W-19 (280-176416-2) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 05/16/2023 and analyzed on 05/24/2023.

Boron was detected in method blank MB 280-612373/1-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.

Samples W-16 (280-176416-1)[10X] and W-19 (280-176416-2)[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-16 (280-176416-1) and W-19 (280-176416-2) were analyzed for Total Recoverable Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 05/15/2023 and analyzed on 05/16/2023, 05/17/2023 and 05/20/2023.

The instrument blank for analytical batch 280-612777 contained Na greater than one-half the reporting limit (RL), and were not re-analyzed because Na is a common lab contaminant and is controlled up to the RL. The data have been qualified and reported.

Samples W-16 (280-176416-1)[100X] and W-19 (280-176416-2)[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.

TOTAL MERCURY
Samples W-16 (280-176416-1) and W-19 (280-176416-2) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 05/18/2023.

Job ID: 280-176416-1 (Continued)

Laboratory: Eurofins Denver (Continued)

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

ALKALINITY
Samples W-16 (280-176416-1) and W-19 (280-176416-2) were analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 05/17/2023.

Alkalinity was detected in method blank MB 280-612947/6 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. Carbonate Alkalinity as CaCO3 was detected in method blank MB 280-612947/6 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 W-16 (280-176416-1) and W-19 (280-176416-2) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 05/18/2023.

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

TOTAL SUSPENDED SOLIDS
Samples W-16 (280-176416-1) and W-19 (280-176416-2) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 05/18/2023.

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

CORROSIVITY (PH)
Samples W-16 (280-176416-1) and W-19 (280-176416-2) were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 05/17/2023.

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

ANIONS (28 DAYS)
Samples W-16 (280-176416-1) and W-19 (280-176416-2) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A (28 Days). The samples were analyzed on 05/24/2023.

Samples W-16 (280-176416-1)[200X], W-16 (280-176416-1)[5X], W-19 (280-176416-2)[200X] and W-19 (280-176416-2)[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
Job ID: 280-176416-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-16 — Lab Sample ID: 280-176416-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.75	J B	1.0	0.015	mg/L	10		6010C	Total Recoverable
Lithium	1.8		0.20	0.091	mg/L	10		6010C	Total Recoverable
Barium	0.012		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Cadmium	0.0023		0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Calcium	460		20	3.2	mg/L	100		6020B	Total Recoverable
Cobalt	0.021		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Magnesium	2200000		20000	420	ug/L	100		6020B	Total Recoverable
Molybdenum	0.0038		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Potassium	32000		1000	52	ug/L	1		6020B	Total Recoverable
Selenium	0.10		0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Sodium	1800000		100000	7300	ug/L	100		6020B	Total Recoverable
Thallium	0.0051		0.0010	0.00021	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	20.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	230		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	0.20	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	12000		1000	210	mg/L	200		9056A	Total/NA
Alkalinity	950		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	950		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	18		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-19 — Lab Sample ID: 280-176416-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.0	B	1.0	0.015	mg/L	10		6010C	Total Recoverable
Lithium	2.6		0.20	0.091	mg/L	10		6010C	Total Recoverable
Barium	0.012		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Cadmium	0.00075	J	0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Calcium	430		10	1.6	mg/L	50		6020B	Total Recoverable
Chromium	0.00078	J	0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.0029		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Magnesium	2500000		10000	210	ug/L	50		6020B	Total Recoverable
Molybdenum	0.0024		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Potassium	31000		1000	52	ug/L	1		6020B	Total Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Client Sample ID: W-19 (Continued)
Lab Sample ID: 280-176416-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Selenium	0.14		0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Sodium	2200000		50000	3700	ug/L	50		6020B	Total Recoverable
Thallium	0.0031		0.0010	0.00021	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	20.7	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	270		15	5.1	mg/L	5		9056A	Total/NA
Sulfate	15000		1000	210	mg/L	200		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)	18000		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.

Method Summary

Client: HDR Inc
Job ID: 280-176416-1
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
Job ID: 280-176416-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-176416-1	W-16	Water	05/11/23 10:05	05/12/23 11:05
280-176416-2	W-19	Water	05/11/23 11:50	05/12/23 11:05

Method: SW846 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: W-16
Date Collected: 05/11/23 10:05
Date Received: 05/12/23 11:05
Lab Sample ID: 280-176416-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.75**	**J B**	1.0	0.015	mg/L		05/16/23 08:11	05/24/23 17:57	10
Lithium	**1.8**		0.20	0.091	mg/L		05/16/23 08:11	05/24/23 17:57	10

Client Sample ID: W-19
Date Collected: 05/11/23 11:50
Date Received: 05/12/23 11:05
Lab Sample ID: 280-176416-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**1.0**	**B**	1.0	0.015	mg/L		05/16/23 08:11	05/24/23 18:01	10
Lithium	**2.6**		0.20	0.091	mg/L		05/16/23 08:11	05/24/23 18:01	10

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

Client Sample ID: W-16
Date Collected: 05/11/23 10:05
Date Received: 05/12/23 11:05
Lab Sample ID: 280-176416-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/15/23 14:55	05/17/23 04:13	1
Arsenic	ND		0.0050	0.00050	mg/L		05/15/23 14:55	05/17/23 04:13	1
Barium	**0.012**		0.0030	0.00038	mg/L		05/15/23 14:55	05/17/23 04:13	1
Beryllium	ND		0.0010	0.00030	mg/L		05/15/23 14:55	05/20/23 06:06	1
Cadmium	**0.0023**		0.0010	0.00019	mg/L		05/15/23 14:55	05/17/23 04:13	1
Calcium	**460**		20	3.2	mg/L		05/15/23 14:55	05/16/23 23:02	100
Chromium	ND		0.0030	0.00050	mg/L		05/15/23 14:55	05/17/23 04:13	1
Cobalt	**0.021**		0.0010	0.00033	mg/L		05/15/23 14:55	05/17/23 04:13	1
Lead	ND		0.0010	0.00023	mg/L		05/15/23 14:55	05/17/23 04:13	1
Magnesium	**2200000**		20000	420	ug/L		05/15/23 14:55	05/16/23 23:02	100
Molybdenum	**0.0038**		0.0020	0.00037	mg/L		05/15/23 14:55	05/17/23 04:13	1
Potassium	**32000**		1000	52	ug/L		05/15/23 14:55	05/17/23 04:13	1
Selenium	**0.10**		0.0050	0.0010	mg/L		05/15/23 14:55	05/17/23 04:13	1
Sodium	**1800000**		100000	7300	ug/L		05/15/23 14:55	05/16/23 23:02	100
Thallium	**0.0051**		0.0010	0.00021	mg/L		05/15/23 14:55	05/17/23 04:13	1

Client Sample ID: W-19
Date Collected: 05/11/23 11:50
Date Received: 05/12/23 11:05
Lab Sample ID: 280-176416-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/15/23 14:55	05/17/23 04:17	1
Arsenic	ND		0.0050	0.00050	mg/L		05/15/23 14:55	05/17/23 04:17	1
Barium	**0.012**		0.0030	0.00038	mg/L		05/15/23 14:55	05/17/23 04:17	1
Beryllium	ND		0.0010	0.00030	mg/L		05/15/23 14:55	05/20/23 06:10	1
Cadmium	**0.00075**	**J**	0.0010	0.00019	mg/L		05/15/23 14:55	05/17/23 04:17	1
Calcium	**430**		10	1.6	mg/L		05/15/23 14:55	05/16/23 23:05	50
Chromium	**0.00078**	**J**	0.0030	0.00050	mg/L		05/15/23 14:55	05/17/23 04:17	1
Cobalt	**0.0029**		0.0010	0.00033	mg/L		05/15/23 14:55	05/17/23 04:17	1
Lead	ND		0.0010	0.00023	mg/L		05/15/23 14:55	05/17/23 04:17	1
Magnesium	**2500000**		10000	210	ug/L		05/15/23 14:55	05/16/23 23:05	50
Molybdenum	**0.0024**		0.0020	0.00037	mg/L		05/15/23 14:55	05/17/23 04:17	1
Potassium	**31000**		1000	52	ug/L		05/15/23 14:55	05/17/23 04:17	1
Selenium	**0.14**		0.0050	0.0010	mg/L		05/15/23 14:55	05/17/23 04:17	1
Sodium	**2200000**		50000	3700	ug/L		05/15/23 14:55	05/16/23 23:05	50

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

Client Sample ID: W-19
Date Collected: 05/11/23 11:50
Date Received: 05/12/23 11:05
Lab Sample ID: 280-176416-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	**0.0031**		0.0010	0.00021	mg/L		05/15/23 14:55	05/17/23 04:17	1

Method: SW846 7470A - Mercury (CVAA)

Client Sample ID: W-16
Date Collected: 05/11/23 10:05
Date Received: 05/12/23 11:05
Lab Sample ID: 280-176416-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/18/23 14:10	05/18/23 21:55	1

Client Sample ID: W-19
Date Collected: 05/11/23 11:50
Date Received: 05/12/23 11:05
Lab Sample ID: 280-176416-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/18/23 14:10	05/18/23 22:03	1

General Chemistry

Client Sample ID: W-16
Date Collected: 05/11/23 10:05
Date Received: 05/12/23 11:05
Lab Sample ID: 280-176416-1
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			05/17/23 16:03	1
Temperature (SW846 9040B)	**20.6**	**HF**	1.0	1.0	Degrees C			05/17/23 16:03	1
Chloride (SW846 9056A)	**230**		15	5.1	mg/L			05/24/23 06:24	5
Fluoride (SW846 9056A)	**0.20**	**J**	0.50	0.17	mg/L			05/24/23 06:12	1
Sulfate (SW846 9056A)	**12000**		1000	210	mg/L			05/24/23 15:09	200
Alkalinity (SM 2320B)	**950**		10	3.1	mg/L			05/17/23 17:30	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**950**		10	3.1	mg/L			05/17/23 17:30	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			05/17/23 17:30	1
Total Dissolved Solids (TDS) (SM 2540C)	**16000**		1000	470	mg/L			05/18/23 19:35	1
Total Suspended Solids (SM 2540D)	**18**		4.0	1.1	mg/L			05/18/23 21:08	1

Client Sample ID: W-19
Date Collected: 05/11/23 11:50
Date Received: 05/12/23 11:05
Lab Sample ID: 280-176416-2
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			05/17/23 16:06	1
Temperature (SW846 9040B)	**20.7**	**HF**	1.0	1.0	Degrees C			05/17/23 16:06	1
Chloride (SW846 9056A)	**270**		15	5.1	mg/L			05/24/23 07:00	5
Fluoride (SW846 9056A)	ND		0.50	0.17	mg/L			05/24/23 06:48	1
Sulfate (SW846 9056A)	**15000**		1000	210	mg/L			05/24/23 15:21	200
Alkalinity (SM 2320B)	**900**		10	3.1	mg/L			05/17/23 17:43	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**900**		10	3.1	mg/L			05/17/23 17:43	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			05/17/23 17:43	1
Total Dissolved Solids (TDS) (SM 2540C)	**18000**		1000	470	mg/L			05/18/23 19:35	1

Client: HDR Inc
Job ID: 280-176416-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

General Chemistry (Continued)

Client Sample ID: W-19
Date Collected: 05/11/23 11:50
Date Received: 05/12/23 11:05

Lab Sample ID: 280-176416-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	6.8		4.0	1.1	mg/L			05/18/23 21:08	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-612373/1-A
Matrix: Water
Analysis Batch: 613753

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 612373

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.00395	J	0.10	0.0015	mg/L		05/16/23 08:11	05/24/23 17:41	1
Lithium	ND		0.020	0.0091	mg/L		05/16/23 08:11	05/24/23 17:41	1

Lab Sample ID: LCS 280-612373/2-A
Matrix: Water
Analysis Batch: 613753

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 612373

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	2.10		mg/L		105	86 - 110
Lithium	1.00	1.01		mg/L		101	90 - 112

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-612237/1-A
Matrix: Water
Analysis Batch: 612777

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 612237

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/15/23 14:55	05/16/23 21:33	1
Arsenic	ND		0.0050	0.00050	mg/L		05/15/23 14:55	05/16/23 21:33	1
Barium	ND		0.0030	0.00038	mg/L		05/15/23 14:55	05/16/23 21:33	1
Beryllium	ND		0.0010	0.00030	mg/L		05/15/23 14:55	05/16/23 21:33	1
Cadmium	ND		0.0010	0.00019	mg/L		05/15/23 14:55	05/16/23 21:33	1
Calcium	ND		0.20	0.032	mg/L		05/15/23 14:55	05/16/23 21:33	1
Chromium	ND		0.0030	0.00050	mg/L		05/15/23 14:55	05/16/23 21:33	1
Cobalt	ND		0.0010	0.00033	mg/L		05/15/23 14:55	05/16/23 21:33	1
Lead	ND		0.0010	0.00023	mg/L		05/15/23 14:55	05/16/23 21:33	1
Magnesium	ND		200	4.2	ug/L		05/15/23 14:55	05/16/23 21:33	1
Molybdenum	ND		0.0020	0.00037	mg/L		05/15/23 14:55	05/16/23 21:33	1
Potassium	ND		1000	52	ug/L		05/15/23 14:55	05/16/23 21:33	1
Selenium	ND		0.0050	0.0010	mg/L		05/15/23 14:55	05/16/23 21:33	1
Sodium	ND		1000	73	ug/L		05/15/23 14:55	05/16/23 21:33	1
Thallium	ND		0.0010	0.00021	mg/L		05/15/23 14:55	05/16/23 21:33	1

Lab Sample ID: LCS 280-612237/2-A
Matrix: Water
Analysis Batch: 612777

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 612237

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0420		mg/L		105	85 - 115
Arsenic	0.0400	0.0405		mg/L		101	85 - 117
Barium	0.0400	0.0421		mg/L		105	85 - 118
Beryllium	0.0400	0.0429		mg/L		107	80 - 125
Cadmium	0.0400	0.0413		mg/L		103	85 - 115
Calcium	1.00	1.05		mg/L		105	80 - 120
Chromium	0.0400	0.0406		mg/L		102	84 - 121
Cobalt	0.0400	0.0403		mg/L		101	85 - 120
Lead	0.0400	0.0400		mg/L		100	85 - 118
Magnesium	1000	987		ug/L		99	80 - 120

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

Lab Sample ID: LCS 280-612237/2-A
Matrix: Water
Analysis Batch: 612777

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 612237

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Molybdenum	0.0400	0.0400		mg/L		100	85 - 119
Potassium	1000	1030		ug/L		103	80 - 120
Selenium	0.0400	0.0393		mg/L		98	77 - 122
Sodium	1000	980	J	ug/L		98	80 - 120
Thallium	0.0400	0.0399		mg/L		100	85 - 118

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-612963/1-A
Matrix: Water
Analysis Batch: 613199

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 612963

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/18/23 14:10	05/18/23 21:02	1

Lab Sample ID: LCS 280-612963/2-A
Matrix: Water
Analysis Batch: 613199

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 612963

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00479		mg/L		96	84 - 120

Lab Sample ID: LCSD 280-612963/3-A
Matrix: Water
Analysis Batch: 613199

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 612963

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	0.00500	0.00505		mg/L		101	84 - 120	5	15

Method: 9040B - pH

Lab Sample ID: LCS 280-612946/5
Matrix: Water
Analysis Batch: 612946

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 280-613479/6
Matrix: Water
Analysis Batch: 613479

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			05/23/23 19:01	1
Fluoride	ND		0.50	0.17	mg/L			05/23/23 19:01	1
Sulfate	ND		5.0	1.0	mg/L			05/23/23 19:01	1

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

Lab Sample ID: MB 280-613479/63
Matrix: Water
Analysis Batch: 613479

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			05/24/23 07:48	1
Sulfate	ND		5.0	1.0	mg/L			05/24/23 07:48	1

Lab Sample ID: LCS 280-613479/4
Matrix: Water
Analysis Batch: 613479

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	50.1		mg/L		100	90 - 110
Fluoride	2.50	2.42		mg/L		97	90 - 110
Sulfate	50.0	49.5		mg/L		99	90 - 110

Lab Sample ID: LCS 280-613479/61
Matrix: Water
Analysis Batch: 613479

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
Sulfate	50.0	49.5		mg/L		99	90 - 110

Lab Sample ID: LCSD 280-613479/5
Matrix: Water
Analysis Batch: 613479

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	50.1		mg/L		100	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 280-613479/62
Matrix: Water
Analysis Batch: 613479

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
Sulfate	50.0	49.6		mg/L		99	90 - 110	0	10

Lab Sample ID: MRL 280-613479/3
Matrix: Water
Analysis Batch: 613479

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	2.32	J	mg/L		93	50 - 150
Fluoride	0.250	0.187	J	mg/L		75	50 - 150
Sulfate	2.50	2.23	J	mg/L		89	50 - 150

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

Lab Sample ID: MB 280-613623/6
Matrix: Water
Analysis Batch: 613623

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			05/24/23 13:15	1

Lab Sample ID: LCS 280-613623/4
Matrix: Water
Analysis Batch: 613623

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 280-613623/5
Matrix: Water
Analysis Batch: 613623

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 280-613623/3
Matrix: Water
Analysis Batch: 613623

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	2.12	J	mg/L		85	50 - 150

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-612947/32
Matrix: Water
Analysis Batch: 612947

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			05/17/23 16:57	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/17/23 16:57	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/17/23 16:57	1

Lab Sample ID: MB 280-612947/6
Matrix: Water
Analysis Batch: 612947

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	3.38	J	10	3.1	mg/L			05/17/23 14:03	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/17/23 14:03	1
Carbonate Alkalinity as CaCO3	3.28	J	10	3.1	mg/L			05/17/23 14:03	1

Lab Sample ID: LCS 280-612947/31
Matrix: Water
Analysis Batch: 612947

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 - 110

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: LCSD 280-612947/5
Matrix: Water
Analysis Batch: 612947

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	202		mg/L		101	89 - 110	0	10

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

Lab Sample ID: MB 280-613056/1
Matrix: Water
Analysis Batch: 613056

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			05/18/23 19:34	1

Lab Sample ID: LCS 280-613056/2
Matrix: Water
Analysis Batch: 613056

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		96	88 - 114		

Lab Sample ID: LCSD 280-613056/3
Matrix: Water
Analysis Batch: 613056

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	444		mg/L		89	88 - 114	8	20

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

Lab Sample ID: MB 280-613061/3
Matrix: Water
Analysis Batch: 613061

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			05/18/23 21:08	1

Lab Sample ID: LCS 280-613061/1
Matrix: Water
Analysis Batch: 613061

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			502	457		mg/L		91	79 - 114		

Lab Sample ID: LCSD 280-613061/2
Matrix: Water
Analysis Batch: 613061

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			502	458		mg/L		91	79 - 114	0	20

Metals

Prep Batch: 612237

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176416-1	W-16	Total Recoverable	Water	3005A	
280-176416-2	W-19	Total Recoverable	Water	3005A	
MB 280-612237/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-612237/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 612373

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176416-1	W-16	Total Recoverable	Water	3005A	
280-176416-2	W-19	Total Recoverable	Water	3005A	
MB 280-612373/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-612373/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 612777

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176416-1	W-16	Total Recoverable	Water	6020B	612237
280-176416-1	W-16	Total Recoverable	Water	6020B	612237
280-176416-2	W-19	Total Recoverable	Water	6020B	612237
280-176416-2	W-19	Total Recoverable	Water	6020B	612237
MB 280-612237/1-A	Method Blank	Total Recoverable	Water	6020B	612237
LCS 280-612237/2-A	Lab Control Sample	Total Recoverable	Water	6020B	612237

Prep Batch: 612963

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176416-1	W-16	Total/NA	Water	7470A	
280-176416-2	W-19	Total/NA	Water	7470A	
MB 280-612963/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-612963/2-A	Lab Control Sample	Total/NA	Water	7470A	
LCSD 280-612963/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	

Analysis Batch: 613199

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176416-1	W-16	Total/NA	Water	7470A	612963
280-176416-2	W-19	Total/NA	Water	7470A	612963
MB 280-612963/1-A	Method Blank	Total/NA	Water	7470A	612963
LCS 280-612963/2-A	Lab Control Sample	Total/NA	Water	7470A	612963
LCSD 280-612963/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	612963

Analysis Batch: 613262

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176416-1	W-16	Total Recoverable	Water	6020B	612237
280-176416-2	W-19	Total Recoverable	Water	6020B	612237

Analysis Batch: 613753

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176416-1	W-16	Total Recoverable	Water	6010C	612373
280-176416-2	W-19	Total Recoverable	Water	6010C	612373
MB 280-612373/1-A	Method Blank	Total Recoverable	Water	6010C	612373
LCS 280-612373/2-A	Lab Control Sample	Total Recoverable	Water	6010C	612373

General Chemistry

Analysis Batch: 612946

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176416-1	W-16	Total/NA	Water	9040B	
280-176416-2	W-19	Total/NA	Water	9040B	
LCS 280-612946/5	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 612947

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176416-1	W-16	Total/NA	Water	SM 2320B	
280-176416-2	W-19	Total/NA	Water	SM 2320B	
MB 280-612947/32	Method Blank	Total/NA	Water	SM 2320B	
MB 280-612947/6	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-612947/31	Lab Control Sample	Total/NA	Water	SM 2320B	
LCSD 280-612947/5	Lab Control Sample Dup	Total/NA	Water	SM 2320B	

Analysis Batch: 613056

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176416-1	W-16	Total/NA	Water	SM 2540C	
280-176416-2	W-19	Total/NA	Water	SM 2540C	
MB 280-613056/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-613056/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-613056/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 613061

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176416-1	W-16	Total/NA	Water	SM 2540D	
280-176416-2	W-19	Total/NA	Water	SM 2540D	
MB 280-613061/3	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-613061/1	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-613061/2	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 613479

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176416-1	W-16	Total/NA	Water	9056A	
280-176416-1	W-16	Total/NA	Water	9056A	
280-176416-2	W-19	Total/NA	Water	9056A	
280-176416-2	W-19	Total/NA	Water	9056A	
MB 280-613479/6	Method Blank	Total/NA	Water	9056A	
MB 280-613479/63	Method Blank	Total/NA	Water	9056A	
LCS 280-613479/4	Lab Control Sample	Total/NA	Water	9056A	
LCS 280-613479/61	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-613479/5	Lab Control Sample Dup	Total/NA	Water	9056A	
LCSD 280-613479/62	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-613479/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 613623

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176416-1	W-16	Total/NA	Water	9056A	
280-176416-2	W-19	Total/NA	Water	9056A	
MB 280-613623/6	Method Blank	Total/NA	Water	9056A	
LCS 280-613623/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-613623/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-613623/3	Lab Control Sample	Total/NA	Water	9056A	

Lab Chronicle

Client: HDR Inc
Job ID: 280-176416-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-16
Lab Sample ID: 280-176416-1
Date Collected: 05/11/23 10:05
Matrix: Water
Date Received: 05/12/23 11:05

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	612373	05/16/23 08:11	LJS	EET DEN
Total Recoverable	Analysis	6010C		10			613753	05/24/23 17:57	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	612237	05/15/23 14:55	LJS	EET DEN
Total Recoverable	Analysis	6020B		100			612777	05/16/23 23:02	LRD	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	612237	05/15/23 14:55	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			612777	05/17/23 04:13	LRD	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	612237	05/15/23 14:55	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			613262	05/20/23 06:06	LRD	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	612963	05/18/23 14:10	KMS	EET DEN
Total/NA	Analysis	7470A		1			613199	05/18/23 21:55	KMS	EET DEN
Total/NA	Analysis	9040B		1			612946	05/17/23 16:03	KEG	EET DEN
Total/NA	Analysis	9056A		200	5 mL	5 mL	613623	05/24/23 15:09	MEC	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	613479	05/24/23 06:12	MEC	EET DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	613479	05/24/23 06:24	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			612947	05/17/23 17:30	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	613056	05/18/23 19:35	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	613061	05/18/23 21:08	MCR	EET DEN

Client Sample ID: W-19
Lab Sample ID: 280-176416-2
Date Collected: 05/11/23 11:50
Matrix: Water
Date Received: 05/12/23 11:05

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	612373	05/16/23 08:11	LJS	EET DEN
Total Recoverable	Analysis	6010C		10			613753	05/24/23 18:01	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	612237	05/15/23 14:55	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			612777	05/16/23 23:05	LRD	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	612237	05/15/23 14:55	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			612777	05/17/23 04:17	LRD	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	612237	05/15/23 14:55	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			613262	05/20/23 06:10	LRD	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	612963	05/18/23 14:10	KMS	EET DEN
Total/NA	Analysis	7470A		1			613199	05/18/23 22:03	KMS	EET DEN
Total/NA	Analysis	9040B		1			612946	05/17/23 16:06	KEG	EET DEN
Total/NA	Analysis	9056A		200	5 mL	5 mL	613623	05/24/23 15:21	MEC	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	613479	05/24/23 06:48	MEC	EET DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	613479	05/24/23 07:00	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			612947	05/17/23 17:43	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	613056	05/18/23 19:35	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	613061	05/18/23 21:08	MCR	EET DEN

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

Accreditation/Certification Summary

Client: HDR Inc
Job ID: 280-176416-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

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Client Information	Sampler: Mattison Barickman	Lab PM: Ryan, Nicole C	Carrier Tracking No(s):	COC No: 280-130006-35998.1
Client Contact: Molly Reeves	Phone: (720) 385-4021	E-Mail: Nicole.Ryan@ET.eurofinsus.com	State of Origin:	Page: Page 1 of 1
Company: HDR Inc	PWSID:			Job #:

Address: 1670 Broadway Suite 3400	Due Date Requested:
City: Denver	TAT Requested (days):
State, Zip: CO, 80202	Compliance Project: Δ Yes Δ No
Phone: 734-263-7138(Tel)	PO #: DEN-021
Email: Molly.Reeves@hdrinc.com	WO #:
Project Name: Xcel Energy GW Monitoring - Comanche	Project #: 28014376
Site: Comanche Offsite - App. III & IV + TSS + Alk + Mg + Na + K	SSOW#:

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, 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)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226 , 9320_Ra228, Combined Ra226 Ra228	2320B Alk, 9040B pH, 9056A_28D Cl Fl SO4	6010C, 6020B, 7470A Total Metals App. III & IV + Mg+ Na+ K	2540C_Calcd TDS, 2540D TSS	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	D	N		
W-16	05/11/2023	1005	G	W	N	N	X	X	X	X	5	
W-19	05/11/2023	1150	G	W	N	N	X	X	X	X	5	

280-176416 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:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Mattison Barickman	05/12/2023, 1105	HDR Inc.	MH	5.12.23 1105	ETADEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1.4 IR14 LFO

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-176416-1

Login Number: 176416
List Number: 1
Creator: Rystrom, Joshua R

List Source: Eurofins Denver

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.	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 <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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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

280-176894-1

Eurofins Denver
4955 Yarrow Street
Arvada CO 80002

See page two for job notes and contact information.

my EOL

Job Notes

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

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

Authorization



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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
Job ID: 280-176894-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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
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.
¤	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

Job ID: 280-176894-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-176894-1

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 5/23/2023 2:55 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 2.5º C.

TOTAL RECOVERABLE METALS
Samples MW-9 (280-176894-1) and MW-8 (280-176894-2) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 05/25/2023 and analyzed on 05/27/2023 and 05/31/2023.

Boron was detected in method blank MB 280-613572/1-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.

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-9 (280-176894-1) and MW-8 (280-176894-2) were analyzed for Total Recoverable Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 05/25/2023 and analyzed on 05/25/2023 and 05/26/2023.

Samples MW-9 (280-176894-1)[50X] and MW-8 (280-176894-2)[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.

TOTAL MERCURY
Samples MW-9 (280-176894-1) and MW-8 (280-176894-2) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared on 06/01/2023 and analyzed on 06/02/2023.

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

Job ID: 280-176894-1 (Continued)

Laboratory: Eurofins Denver (Continued)

ALKALINITY
Samples MW-9 (280-176894-1) and MW-8 (280-176894-2) were analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 05/26/2023.

Alkalinity was detected in method blank MB 280-614136/32 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 280-614136/32 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. 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-9 (280-176894-1) and MW-8 (280-176894-2) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 05/25/2023 and 05/26/2023.

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

TOTAL SUSPENDED SOLIDS
Samples MW-9 (280-176894-1) and MW-8 (280-176894-2) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 05/26/2023.

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

CORROSIVITY (PH)
Samples MW-9 (280-176894-1) and MW-8 (280-176894-2) were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 05/30/2023.

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

ANIONS (28 DAYS)
Samples MW-9 (280-176894-1) and MW-8 (280-176894-2) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A (28 Days). The samples were analyzed on 05/27/2023 and 05/31/2023.

Samples MW-9 (280-176894-1)[10X], MW-9 (280-176894-1)[20X], MW-9 (280-176894-1)[50X], MW-9 (280-176894-1)[500X], MW-8 (280-176894-2)[10X] and MW-8 (280-176894-2)[1000X] 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
Job ID: 280-176894-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: MW-9
Lab Sample ID: 280-176894-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.93	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	0.00085	J	0.0020	0.00040	mg/L	1		6020B	Total Recoverable
Arsenic	0.0038	J	0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Barium	0.031		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Cadmium	0.00098	J	0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Chromium	0.0052		0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.0091		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Lead	0.0049		0.0010	0.00023	mg/L	1		6020B	Total Recoverable
Molybdenum	0.0055		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Selenium	0.0078		0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Thallium	0.0015		0.0010	0.00021	mg/L	1		6020B	Total Recoverable
Calcium	440		10	1.6	mg/L	50		6020B	Total Recoverable
Mercury	0.00010	J	0.00020	0.000061	mg/L	1		7470A	Total/NA
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	1300		150	51	mg/L	50		9056A	Total/NA
Fluoride	29		5.0	1.7	mg/L	10		9056A	Total/NA
Fluoride	21		10	3.3	mg/L	20		9056A	Total/NA
Sulfate	18000		2500	520	mg/L	500		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)	30000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	290		9.3	2.5	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-8
Lab Sample ID: 280-176894-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	3.0	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	0.0069		0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Barium	0.072		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Cadmium	0.0020		0.0010	0.00019	mg/L	1		6020B	Total Recoverable
Chromium	0.0094		0.0030	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.0060		0.0010	0.00033	mg/L	1		6020B	Total Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Client Sample ID: MW-8 (Continued)
Lab Sample ID: 280-176894-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	0.0085		0.0010	0.00023	mg/L	1		6020B	Total Recoverable
Molybdenum	0.0081		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Selenium	1.5		0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Thallium	0.0021		0.0010	0.00021	mg/L	1		6020B	Total Recoverable
Calcium	450		10	1.6	mg/L	50		6020B	Total Recoverable
Mercury	0.000079	J	0.00020	0.000061	mg/L	1		7470A	Total/NA
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	240		30	10	mg/L	10		9056A	Total/NA
Fluoride	0.31	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	9700		5000	1000	mg/L	1000		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)	18000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	310		8.8	2.4	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-176894-1
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
Job ID: 280-176894-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-176894-1	MW-9	Water	05/23/23 12:20	05/23/23 14:55
280-176894-2	MW-8	Water	05/22/23 14:50	05/23/23 14:55

Method: SW846 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: MW-9
Date Collected: 05/23/23 12:20
Date Received: 05/23/23 14:55
Lab Sample ID: 280-176894-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.93	B	0.10	0.0015	mg/L		05/25/23 07:28	05/27/23 05:23	1
Lithium	1.0		0.020	0.0091	mg/L		05/25/23 07:28	05/31/23 11:50	1

Client Sample ID: MW-8
Date Collected: 05/22/23 14:50
Date Received: 05/23/23 14:55
Lab Sample ID: 280-176894-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	3.0	B	0.10	0.0015	mg/L		05/25/23 07:28	05/27/23 05:28	1
Lithium	1.0		0.020	0.0091	mg/L		05/25/23 07:28	05/31/23 11:54	1

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

Client Sample ID: MW-9
Date Collected: 05/23/23 12:20
Date Received: 05/23/23 14:55
Lab Sample ID: 280-176894-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00085	J	0.0020	0.00040	mg/L		05/25/23 07:28	05/25/23 20:37	1
Arsenic	0.0038	J	0.0050	0.00050	mg/L		05/25/23 07:28	05/25/23 20:37	1
Barium	0.031		0.0030	0.00038	mg/L		05/25/23 07:28	05/25/23 20:37	1
Beryllium	ND		0.0010	0.00030	mg/L		05/25/23 07:28	05/26/23 13:15	1
Cadmium	0.00098	J	0.0010	0.00019	mg/L		05/25/23 07:28	05/25/23 20:37	1
Chromium	0.0052		0.0030	0.00050	mg/L		05/25/23 07:28	05/25/23 20:37	1
Cobalt	0.0091		0.0010	0.00033	mg/L		05/25/23 07:28	05/25/23 20:37	1
Lead	0.0049		0.0010	0.00023	mg/L		05/25/23 07:28	05/25/23 20:37	1
Molybdenum	0.0055		0.0020	0.00037	mg/L		05/25/23 07:28	05/25/23 20:37	1
Selenium	0.0078		0.0050	0.0010	mg/L		05/25/23 07:28	05/25/23 20:37	1
Thallium	0.0015		0.0010	0.00021	mg/L		05/25/23 07:28	05/25/23 20:37	1
Calcium	440		10	1.6	mg/L		05/25/23 07:28	05/25/23 20:30	50

Client Sample ID: MW-8
Date Collected: 05/22/23 14:50
Date Received: 05/23/23 14:55
Lab Sample ID: 280-176894-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0013	J	0.0020	0.00040	mg/L		05/25/23 07:28	05/25/23 20:39	1
Arsenic	0.0069		0.0050	0.00050	mg/L		05/25/23 07:28	05/25/23 20:39	1
Barium	0.072		0.0030	0.00038	mg/L		05/25/23 07:28	05/25/23 20:39	1
Beryllium	ND		0.0010	0.00030	mg/L		05/25/23 07:28	05/26/23 13:25	1
Cadmium	0.0020		0.0010	0.00019	mg/L		05/25/23 07:28	05/25/23 20:39	1
Chromium	0.0094		0.0030	0.00050	mg/L		05/25/23 07:28	05/25/23 20:39	1
Cobalt	0.0060		0.0010	0.00033	mg/L		05/25/23 07:28	05/25/23 20:39	1
Lead	0.0085		0.0010	0.00023	mg/L		05/25/23 07:28	05/25/23 20:39	1
Molybdenum	0.0081		0.0020	0.00037	mg/L		05/25/23 07:28	05/25/23 20:39	1
Selenium	1.5		0.0050	0.0010	mg/L		05/25/23 07:28	05/25/23 20:39	1
Thallium	0.0021		0.0010	0.00021	mg/L		05/25/23 07:28	05/25/23 20:39	1
Calcium	450		10	1.6	mg/L		05/25/23 07:28	05/25/23 20:32	50

Method: SW846 7470A - Mercury (CVAA)

Client Sample ID: MW-9
Date Collected: 05/23/23 12:20
Date Received: 05/23/23 14:55
Lab Sample ID: 280-176894-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00010	J	0.00020	0.000061	mg/L		06/01/23 15:00	06/02/23 13:04	1

Client Sample ID: MW-8
Date Collected: 05/22/23 14:50
Date Received: 05/23/23 14:55
Lab Sample ID: 280-176894-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000079	J	0.00020	0.000061	mg/L		06/01/23 15:00	06/02/23 13:06	1

General Chemistry

Client Sample ID: MW-9
Date Collected: 05/23/23 12:20
Date Received: 05/23/23 14:55
Lab Sample ID: 280-176894-1
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			05/30/23 16:07	1
Temperature (SW846 9040B)	21.1	HF	1.0	1.0	Degrees C			05/30/23 16:07	1
Chloride (SW846 9056A)	1300		150	51	mg/L			05/27/23 16:27	50
Fluoride (SW846 9056A)	29		5.0	1.7	mg/L			05/31/23 17:30	10
Fluoride (SW846 9056A)	21		10	3.3	mg/L			05/31/23 17:42	20
Sulfate (SW846 9056A)	18000		2500	520	mg/L			05/27/23 16:39	500
Alkalinity (SM 2320B)	1300	B	10	3.1	mg/L			05/26/23 17:23	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	1300	B	10	3.1	mg/L			05/26/23 17:23	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			05/26/23 17:23	1
Total Dissolved Solids (TDS) (SM 2540C)	30000		1000	470	mg/L			05/26/23 13:20	1
Total Suspended Solids (SM 2540D)	290		9.3	2.5	mg/L			05/26/23 17:59	1

Client Sample ID: MW-8
Date Collected: 05/22/23 14:50
Date Received: 05/23/23 14:55
Lab Sample ID: 280-176894-2
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			05/30/23 16:11	1
Temperature (SW846 9040B)	21.0	HF	1.0	1.0	Degrees C			05/30/23 16:11	1
Chloride (SW846 9056A)	240		30	10	mg/L			05/27/23 17:02	10
Fluoride (SW846 9056A)	0.31	J	0.50	0.17	mg/L			05/27/23 16:50	1
Sulfate (SW846 9056A)	9700		5000	1000	mg/L			05/27/23 17:14	1000
Alkalinity (SM 2320B)	680	B	10	3.1	mg/L			05/26/23 17:33	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	680	B	10	3.1	mg/L			05/26/23 17:33	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			05/26/23 17:33	1
Total Dissolved Solids (TDS) (SM 2540C)	18000		1000	470	mg/L			05/25/23 12:00	1
Total Suspended Solids (SM 2540D)	310		8.8	2.4	mg/L			05/26/23 17:59	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-613572/1-A
Matrix: Water
Analysis Batch: 614079

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 613572

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.00302	J	0.10	0.0015	mg/L		05/25/23 07:28	05/27/23 05:10	1

Lab Sample ID: MB 280-613572/1-A
Matrix: Water
Analysis Batch: 614468

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 613572

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.020	0.0091	mg/L		05/25/23 07:28	05/31/23 11:42	1

Lab Sample ID: LCS 280-613572/2-A
Matrix: Water
Analysis Batch: 614079

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 613572

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	2.13		mg/L		106	86 - 110

Lab Sample ID: LCS 280-613572/2-A
Matrix: Water
Analysis Batch: 614468

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 613572

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Lithium	1.00	0.964		mg/L		96	90 - 112

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-613570/1-A
Matrix: Water
Analysis Batch: 613910

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 613570

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/25/23 07:28	05/25/23 20:17	1
Arsenic	ND		0.0050	0.00050	mg/L		05/25/23 07:28	05/25/23 20:17	1
Barium	ND		0.0030	0.00038	mg/L		05/25/23 07:28	05/25/23 20:17	1
Cadmium	ND		0.0010	0.00019	mg/L		05/25/23 07:28	05/25/23 20:17	1
Chromium	ND		0.0030	0.00050	mg/L		05/25/23 07:28	05/25/23 20:17	1
Cobalt	ND		0.0010	0.00033	mg/L		05/25/23 07:28	05/25/23 20:17	1
Lead	ND		0.0010	0.00023	mg/L		05/25/23 07:28	05/25/23 20:17	1
Molybdenum	ND		0.0020	0.00037	mg/L		05/25/23 07:28	05/25/23 20:17	1
Selenium	ND		0.0050	0.0010	mg/L		05/25/23 07:28	05/25/23 20:17	1
Thallium	ND		0.0010	0.00021	mg/L		05/25/23 07:28	05/25/23 20:17	1
Calcium	ND		0.20	0.032	mg/L		05/25/23 07:28	05/25/23 20:17	1

Lab Sample ID: MB 280-613570/1-A
Matrix: Water
Analysis Batch: 614192

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 613570

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.0010	0.00030	mg/L		05/25/23 07:28	05/26/23 13:00	1

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

Lab Sample ID: LCS 280-613570/2-A
Matrix: Water
Analysis Batch: 613910

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 613570

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0413		mg/L		103	85 - 115
Arsenic	0.0400	0.0398		mg/L		99	85 - 117
Barium	0.0400	0.0419		mg/L		105	85 - 118
Cadmium	0.0400	0.0395		mg/L		99	85 - 115
Chromium	0.0400	0.0425		mg/L		106	84 - 121
Cobalt	0.0400	0.0427		mg/L		107	85 - 120
Lead	0.0400	0.0419		mg/L		105	85 - 118
Molybdenum	0.0400	0.0406		mg/L		101	85 - 119
Selenium	0.0400	0.0408		mg/L		102	77 - 122
Thallium	0.0400	0.0421		mg/L		105	85 - 118
Calcium	1.00	1.12		mg/L		112	80 - 120

Lab Sample ID: LCS 280-613570/2-A
Matrix: Water
Analysis Batch: 614192

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 613570

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Beryllium	0.0400	0.0387		mg/L		97	80 - 125

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-614529/1-A
Matrix: Water
Analysis Batch: 614765

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 614529

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		06/01/23 15:00	06/02/23 12:54	1

Lab Sample ID: LCS 280-614529/2-A
Matrix: Water
Analysis Batch: 614765

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 614529

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00420		mg/L		84	84 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-614293/31
Matrix: Water
Analysis Batch: 614293

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 280-613988/92
Matrix: Water
Analysis Batch: 613988

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			05/27/23 14:03	1
Fluoride	ND		0.50	0.17	mg/L			05/27/23 14:03	1
Sulfate	ND		5.0	1.0	mg/L			05/27/23 14:03	1

Lab Sample ID: LCS 280-613988/88
Matrix: Water
Analysis Batch: 613988

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	50.4		mg/L		101	90 - 110
Fluoride	2.50	2.49		mg/L		99	90 - 110
Sulfate	50.0	50.2		mg/L		100	90 - 110

Lab Sample ID: LCSD 280-613988/91
Matrix: Water
Analysis Batch: 613988

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	50.4		mg/L		101	90 - 110	0	10
Fluoride	2.50	2.43		mg/L		97	90 - 110	2	10
Sulfate	50.0	50.1		mg/L		100	90 - 110	0	10

Lab Sample ID: MRL 280-613988/3
Matrix: Water
Analysis Batch: 613988

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	0.203	J	mg/L		81	50 - 150
Sulfate	2.50	2.32	J	mg/L		93	50 - 150

Lab Sample ID: MB 280-614357/6
Matrix: Water
Analysis Batch: 614357

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			05/31/23 14:16	1

Lab Sample ID: LCS 280-614357/4
Matrix: Water
Analysis Batch: 614357

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	2.37		mg/L		95	90 - 110

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

Lab Sample ID: LCSD 280-614357/5
Matrix: Water
Analysis Batch: 614357

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	2.32		mg/L		93	90 - 110	2	10

Lab Sample ID: MRL 280-614357/3
Matrix: Water
Analysis Batch: 614357

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	0.240	J	mg/L		96	50 - 150

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-614136/32
Matrix: Water
Analysis Batch: 614136

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	3.73	J	10	3.1	mg/L			05/26/23 16:14	1
Bicarbonate Alkalinity as CaCO3	3.73	J	10	3.1	mg/L			05/26/23 16:14	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/26/23 16:14	1

Lab Sample ID: LCS 280-614136/31
Matrix: Water
Analysis Batch: 614136

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 - 110

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

Lab Sample ID: MB 280-613797/1
Matrix: Water
Analysis Batch: 613797

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			05/25/23 12:00	1

Lab Sample ID: LCS 280-613797/2
Matrix: Water
Analysis Batch: 613797

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	491		mg/L		98	88 - 114

Lab Sample ID: LCSD 280-613797/3
Matrix: Water
Analysis Batch: 613797

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	494		mg/L		99	88 - 114	1	20

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

Lab Sample ID: MB 280-613990/1
Matrix: Water
Analysis Batch: 613990

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			05/26/23 13:20	1

Lab Sample ID: LCS 280-613990/2
Matrix: Water
Analysis Batch: 613990

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	493		mg/L		98	88 - 114

Lab Sample ID: LCSD 280-613990/3
Matrix: Water
Analysis Batch: 613990

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	506		mg/L		101	88 - 114	3	20

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

Lab Sample ID: MB 280-614024/3
Matrix: Water
Analysis Batch: 614024

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			05/26/23 17:59	1

Lab Sample ID: LCS 280-614024/1
Matrix: Water
Analysis Batch: 614024

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	436		mg/L		87	79 - 114

Lab Sample ID: LCSD 280-614024/2
Matrix: Water
Analysis Batch: 614024

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	457		mg/L		91	79 - 114	5	20

Metals

Prep Batch: 613570

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176894-1	MW-9	Total Recoverable	Water	3005A	
280-176894-2	MW-8	Total Recoverable	Water	3005A	
MB 280-613570/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-613570/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 613572

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176894-1	MW-9	Total Recoverable	Water	3005A	
280-176894-2	MW-8	Total Recoverable	Water	3005A	
MB 280-613572/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-613572/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 613910

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176894-1	MW-9	Total Recoverable	Water	6020B	613570
280-176894-1	MW-9	Total Recoverable	Water	6020B	613570
280-176894-2	MW-8	Total Recoverable	Water	6020B	613570
280-176894-2	MW-8	Total Recoverable	Water	6020B	613570
MB 280-613570/1-A	Method Blank	Total Recoverable	Water	6020B	613570
LCS 280-613570/2-A	Lab Control Sample	Total Recoverable	Water	6020B	613570

Analysis Batch: 614079

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176894-1	MW-9	Total Recoverable	Water	6010C	613572
280-176894-2	MW-8	Total Recoverable	Water	6010C	613572
MB 280-613572/1-A	Method Blank	Total Recoverable	Water	6010C	613572
LCS 280-613572/2-A	Lab Control Sample	Total Recoverable	Water	6010C	613572

Analysis Batch: 614192

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176894-1	MW-9	Total Recoverable	Water	6020B	613570
280-176894-2	MW-8	Total Recoverable	Water	6020B	613570
MB 280-613570/1-A	Method Blank	Total Recoverable	Water	6020B	613570
LCS 280-613570/2-A	Lab Control Sample	Total Recoverable	Water	6020B	613570

Analysis Batch: 614468

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176894-1	MW-9	Total Recoverable	Water	6010C	613572
280-176894-2	MW-8	Total Recoverable	Water	6010C	613572
MB 280-613572/1-A	Method Blank	Total Recoverable	Water	6010C	613572
LCS 280-613572/2-A	Lab Control Sample	Total Recoverable	Water	6010C	613572

Prep Batch: 614529

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176894-1	MW-9	Total/NA	Water	7470A	
280-176894-2	MW-8	Total/NA	Water	7470A	
MB 280-614529/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-614529/2-A	Lab Control Sample	Total/NA	Water	7470A	

Metals

Analysis Batch: 614765

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176894-1	MW-9	Total/NA	Water	7470A	614529
280-176894-2	MW-8	Total/NA	Water	7470A	614529
MB 280-614529/1-A	Method Blank	Total/NA	Water	7470A	614529
LCS 280-614529/2-A	Lab Control Sample	Total/NA	Water	7470A	614529

General Chemistry

Analysis Batch: 613797

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176894-2	MW-8	Total/NA	Water	SM 2540C	
MB 280-613797/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-613797/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-613797/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 613988

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176894-1	MW-9	Total/NA	Water	9056A	
280-176894-1	MW-9	Total/NA	Water	9056A	
280-176894-2	MW-8	Total/NA	Water	9056A	
280-176894-2	MW-8	Total/NA	Water	9056A	
280-176894-2	MW-8	Total/NA	Water	9056A	
MB 280-613988/92	Method Blank	Total/NA	Water	9056A	
LCS 280-613988/88	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-613988/91	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-613988/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 613990

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176894-1	MW-9	Total/NA	Water	SM 2540C	
MB 280-613990/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-613990/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-613990/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 614024

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176894-1	MW-9	Total/NA	Water	SM 2540D	
280-176894-2	MW-8	Total/NA	Water	SM 2540D	
MB 280-614024/3	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-614024/1	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-614024/2	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 614136

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176894-1	MW-9	Total/NA	Water	SM 2320B	
280-176894-2	MW-8	Total/NA	Water	SM 2320B	
MB 280-614136/32	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-614136/31	Lab Control Sample	Total/NA	Water	SM 2320B	

Analysis Batch: 614293

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176894-1	MW-9	Total/NA	Water	9040B	

General Chemistry (Continued)

Analysis Batch: 614293 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176894-2	MW-8	Total/NA	Water	9040B	
LCS 280-614293/31	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 614357

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176894-1	MW-9	Total/NA	Water	9056A	
280-176894-1	MW-9	Total/NA	Water	9056A	
MB 280-614357/6	Method Blank	Total/NA	Water	9056A	
LCS 280-614357/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-614357/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-614357/3	Lab Control Sample	Total/NA	Water	9056A	

Client Sample ID: MW-9
Lab Sample ID: 280-176894-1

Date Collected: 05/23/23 12:20
Matrix: Water
Date Received: 05/23/23 14:55

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	613572	05/25/23 07:28	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			614468	05/31/23 11:50	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	613572	05/25/23 07:28	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			614079	05/27/23 05:23	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	613570	05/25/23 07:28	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			613910	05/25/23 20:30	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	613570	05/25/23 07:28	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			613910	05/25/23 20:37	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	613570	05/25/23 07:28	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			614192	05/26/23 13:15	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	614529	06/01/23 15:00	KMS	EET DEN
Total/NA	Analysis	7470A		1			614765	06/02/23 13:04	KMS	EET DEN
Total/NA	Analysis	9040B		1			614293	05/30/23 16:07	KEG	EET DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	614357	05/31/23 17:30	EJS	EET DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	614357	05/31/23 17:42	EJS	EET DEN
Total/NA	Analysis	9056A		50	5 mL	5 mL	613988	05/27/23 16:27	EJS	EET DEN
Total/NA	Analysis	9056A		500	5 mL	5 mL	613988	05/27/23 16:39	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			614136	05/26/23 17:23	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	613990	05/26/23 13:20	ABW	EET DEN
Total/NA	Analysis	SM 2540D		1	108 mL	250 mL	614024	05/26/23 17:59	ABW	EET DEN

Client Sample ID: MW-8
Lab Sample ID: 280-176894-2

Date Collected: 05/22/23 14:50
Matrix: Water
Date Received: 05/23/23 14:55

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	613572	05/25/23 07:28	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			614468	05/31/23 11:54	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	613572	05/25/23 07:28	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			614079	05/27/23 05:28	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	613570	05/25/23 07:28	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			613910	05/25/23 20:32	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	613570	05/25/23 07:28	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			613910	05/25/23 20:39	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	613570	05/25/23 07:28	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			614192	05/26/23 13:25	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	614529	06/01/23 15:00	KMS	EET DEN
Total/NA	Analysis	7470A		1			614765	06/02/23 13:06	KMS	EET DEN
Total/NA	Analysis	9040B		1			614293	05/30/23 16:11	KEG	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	613988	05/27/23 16:50	EJS	EET DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	613988	05/27/23 17:02	EJS	EET DEN
Total/NA	Analysis	9056A		1000	5 mL	5 mL	613988	05/27/23 17:14	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			614136	05/26/23 17:33	KEG	EET DEN

Lab Chronicle

Client: HDR Inc
Job ID: 280-176894-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: MW-8
Date Collected: 05/22/23 14:50
Date Received: 05/23/23 14:55

Lab Sample ID: 280-176894-2
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 2540C		1	1 mL	100 mL	613797	05/25/23 12:00	ABW	EET DEN
Total/NA	Analysis	SM 2540D		1	114 mL	250 mL	614024	05/26/23 17:59	ABW	EET DEN

Laboratory References:

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

Accreditation/Certification Summary

Client: HDR Inc
Job ID: 280-176894-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Laboratory: Eurofins Denver

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

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-23
A2LA	ISO/IEC 17025	2907.01	10-31-23
Alabama	State Program	40730	09-30-12 *
Alaska (UST)	State	18-001	02-08-24
Arizona	State	AZ0713	12-20-24
Arkansas DEQ	State	19-047-0	05-31-23 *
California	State	2513	01-08-24
Connecticut	State	PH-0686	09-30-24
Florida	NELAP	E87667-57	06-30-23
Georgia	State	4025-011	01-08-24
Illinois	NELAP	2000172019-1	04-30-24
Iowa	State	IA#370	12-01-24
Kansas	NELAP	E-10166	04-30-24
Kentucky (WW)	State	KY98047	12-31-23
Louisiana	NELAP	30785	06-30-14 *
Louisiana	NELAP	30785	06-30-23
Louisiana (All)	NELAP	30785	06-30-23
Minnesota	NELAP	1788752	12-31-23
Nevada	State	CO000262020-1	07-31-23
New Hampshire	NELAP	205319	04-28-24
New Jersey	NELAP	190002	06-30-23
New York	NELAP	59923	03-31-24
North Carolina (WW/SW)	State	358	12-31-23
North Dakota	State	R-034	01-08-24
Oklahoma	NELAP	8614	08-31-23
Oklahoma	State	2018-006	08-31-23
Oregon	NELAP	4025-011	01-10-24
Pennsylvania	NELAP	013	07-31-23
South Carolina	State	72002001	01-08-24
Texas	NELAP	TX104704183-08-TX	09-30-09 *
Texas	NELAP	T104704183-21-19	09-30-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-20-00065	12-19-25
Utah	NELAP	QUAN5	06-30-13 *
Utah	NELAP	CO000262019-11	07-31-23
Virginia	NELAP	12037	06-14-23
Washington	State	C583-19	08-03-23
West Virginia DEP	State	354	11-30-23
Wisconsin	State	999615430	08-31-23
Wyoming (UST)	A2LA	2907.01	10-31-22 *

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

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

eurofins | Environment Testing

Client Information	Sampler:	Lab PM: Ryan, Nicole C	Carrier Tracking No(s):	COC No: 280-130006-35998.1
Client Contact: Molly Reeves	Phone:	E-Mail: Nicole.Ryan@ET.eurofinsus.com	State of Origin:	Page: Page ____ of ____
Company: HDR Inc	PWSID:			Job #:

Address: 1670 Broadway Suite 3400	Due Date Requested:
City: Denver	TAT Requested (days):
State, Zip: CO, 80202	Compliance Project: Δ Yes Δ No
Phone: 734-263-7138(Tel)	PO #: DEN-021
Email: Molly.Reeves@hdrinc.com	WO #:
Project Name: Xcel Energy GW Monitoring - Comanche	Project #: 28014376
Site: Comanche Offsite - App. III & IV + TSS + Alk + Mg + Na + K	SSOW#:

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
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)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226 , 9320_Ra228, Combined Ra226 Ra228	2320B Alk, 9040B pH, 9056A_28D Cl Fl SO4	6010C, 6020B, 7470A Total Metals App. III & IV + Mg+ Na+ K	2540C_Calcd TDS, 2540D TSS	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	D	N		
[redacted] MW-9	5/23/23	[redacted]	G	W			X	X	X	X		
MW-8	5/22/23	[redacted] 1450	G	W			X	X	X	X		

280-176894 Chain of Custody

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:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Kella	5/23/23 1455		1455	5.23.23	ETADEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 2.4 CF 0.1 IR14

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-176894-1

Login Number: 176894
List Number: 1
Creator: Cannon, Charles D

List Source: Eurofins Denver

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.	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	
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 <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

ANALYTICAL REPORT

PREPARED FOR

Attn: Molly Reeves
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Generated 6/7/2023 1:33:48 PM

JOB DESCRIPTION

Xcel Energy GW CCR Monitoring - Comanche

JOB NUMBER

280-176013-2

Eurofins Denver
4955 Yarrow Street
Arvada CO 80002

See page two for job notes and contact information.

my EOL

Job Notes

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

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

Authorization



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Authorized for release by
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(303)736-0100

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Definitions/Glossary

Client: HDR Inc
Job ID: 280-176013-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Qualifiers

Rad

Qualifier	Qualifier Description
G	The Sample MDC is greater than the requested RL.
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)
TNTC	Too Numerous To Count

Job ID: 280-176013-2

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-176013-2

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 5/4/2023 11:25 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 1.0º C, 1.0º C, 1.7º C and 2.3º C.

RADIUM-226 (GFPC)
Samples W-2C (280-176013-1), W-3B (280-176013-2), WT-3B (280-176013-3), W-5B (280-176013-4), W-10B (280-176013-5), WK-10B (280-176013-6), W-18 (280-176013-7), W-14 (280-176013-8), W-17 (280-176013-9), W-6B1 (280-176013-10), W-7 (280-176013-11), W-9 (280-176013-12) and W-11 (280-176013-13) were analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 05/10/2023 and 05/15/2023 and analyzed on 06/02/2023 and 06/07/2023.

The following samples in prep batch 160-611031 were prepared at a reduced aliquot due to matrix: W-10B (280-176013-5), W-18 (280-176013-7), W-14 (280-176013-8), W-6B1 (280-176013-10), W-7 (280-176013-11), W-9 (280-176013-12) and W-11 (280-176013-13). 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 in prep batch 160-611496 were prepared at a reduced aliquot due to matrix: W-10B (280-176013-5), W-18 (280-176013-7), W-14 (280-176013-8), W-6B1 (280-176013-10), W-7 (280-176013-11), W-9 (280-176013-12) and W-11 (280-176013-13). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

The detection goal was not met for the following sample(s) in batch 611496. Samples were prepped at a reduced volume due to the presence of matrix interferences: W-18 (280-176013-7), W-14 (280-176013-8), W-6B1 (280-176013-10) and W-11 (280-176013-13). Analytical results are reported with the detection limit achieved.

The Ba Carrier recovery is outside the lower control limit (30%) for the following samples in batch 611496: W-18 (280-176013-7) and W-14 (280-176013-8). There was physical evidence of matrix interference apparent during the initial preparation of the sample. The QC samples associated with the batch have acceptable carrier recovery indicating the presence of matrix interference.

Insufficient sample volume was available to perform a sample duplicate for the following samples in prep batch 160-611031: W-10B (280-176013-5), WK-10B (280-176013-6), W-18 (280-176013-7), W-14 (280-176013-8), W-17 (280-176013-9), W-6B1 (280-176013-10), W-7 (280-176013-11), W-9 (280-176013-12) and W-11 (280-176013-13). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Job ID: 280-176013-2 (Continued)

Laboratory: Eurofins Denver (Continued)

Insufficient sample volume was available to perform a sample duplicate for the following samples in prep batch 160-611496: WK-10B (280-176013-6) and W-17 (280-176013-9). 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-2C (280-176013-1), W-3B (280-176013-2), WT-3B (280-176013-3), W-5B (280-176013-4), W-10B (280-176013-5), WK-10B (280-176013-6), W-18 (280-176013-7), W-14 (280-176013-8), W-17 (280-176013-9), W-6B1 (280-176013-10), W-7 (280-176013-11), W-9 (280-176013-12) and W-11 (280-176013-13) were analyzed for Radium-228 in accordance with 9320. The samples were prepared on 05/11/2023 and 05/15/2023 and analyzed on 06/01/2023 and 06/06/2023.

The following samples in prep batch 160-611042 were prepared at a reduced aliquot due to matrix: W-10B (280-176013-5), W-18 (280-176013-7), W-14 (280-176013-8), W-6B1 (280-176013-10), W-7 (280-176013-11), W-9 (280-176013-12) and W-11 (280-176013-13). 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 in prep batch 160-611496 were prepared at a reduced aliquot due to Matrix: W-10B (280-176013-5), W-18 (280-176013-7), W-14 (280-176013-8), W-6B1 (280-176013-10), W-7 (280-176013-11), W-9 (280-176013-12) and W-11 (280-176013-13). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

The detection goal was not met for the following sample(s) in batch 611041. Sample was prepped at a reduced volume due to the presence of matrix interferences: W-2C (280-176013-1). Analytical results are reported with the detection limit achieved.

The detection goal was not met for the following sample(s) in batch 611507. Samples were prepped at a reduced volume due to the presence of matrix interferences: W-10B (280-176013-5), W-18 (280-176013-7), W-14 (280-176013-8), W-6B1 (280-176013-10), W-7 (280-176013-11), W-9 (280-176013-12) and W-11 (280-176013-13). Analytical results are reported with the detection limit achieved.

The LCS recovered at (126%) in batch 611507. 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.

The Ba Carrier recovery is outside the lower control limit (30%) for the following samples in batch 611507: W-18 (280-176013-7) and W-14 (280-176013-8). There was physical evidence of matrix interference apparent during the initial preparation of the sample. The QC samples associated with the batch have acceptable carrier recovery indicating the presence of matrix interference.

The following sample in prep batch 160-611507 did not meet the requested limit (RL) due to the reduced sample volume attributed to limited volume available for analysis: W-17 (280-176013-9). The data have been reported with this narrative.

Insufficient sample volume was available to perform a sample duplicate for the following samples in prep batch 160-611042: W-10B (280-176013-5), WK-10B (280-176013-6), W-18 (280-176013-7), W-14 (280-176013-8), W-17 (280-176013-9), W-6B1 (280-176013-10), W-7 (280-176013-11), W-9 (280-176013-12) and W-11 (280-176013-13). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Insufficient sample volume was available to perform a sample duplicate for the following samples in prep batch 160-611496: WK-10B (280-176013-6) and W-17 (280-176013-9). 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-226/RADIUM-228 (GFPC)

Samples W-2C (280-176013-1), W-3B (280-176013-2), WT-3B (280-176013-3), W-5B (280-176013-4), W-10B (280-176013-5), WK-10B (280-176013-6), W-18 (280-176013-7), W-14 (280-176013-8), W-17 (280-176013-9), W-6B1 (280-176013-10), W-7 (280-176013-11), W-9

Job ID: 280-176013-2 (Continued)

Laboratory: Eurofins Denver (Continued)

(280-176013-12) and W-11 (280-176013-13) were analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on 06/05/2023 and 06/07/2023.

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

Detection Summary

Client: HDR Inc
Job ID: 280-176013-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-2C — Lab Sample ID: 280-176013-1

No Detections.

Client Sample ID: W-3B — Lab Sample ID: 280-176013-2

No Detections.

Client Sample ID: WT-3B — Lab Sample ID: 280-176013-3

No Detections.

Client Sample ID: W-5B — Lab Sample ID: 280-176013-4

No Detections.

Client Sample ID: W-10B — Lab Sample ID: 280-176013-5

No Detections.

Client Sample ID: WK-10B — Lab Sample ID: 280-176013-6

No Detections.

Client Sample ID: W-18 — Lab Sample ID: 280-176013-7

No Detections.

Client Sample ID: W-14 — Lab Sample ID: 280-176013-8

No Detections.

Client Sample ID: W-17 — Lab Sample ID: 280-176013-9

No Detections.

Client Sample ID: W-6B1 — Lab Sample ID: 280-176013-10

No Detections.

Client Sample ID: W-7 — Lab Sample ID: 280-176013-11

No Detections.

Client Sample ID: W-9 — Lab Sample ID: 280-176013-12

No Detections.

Client Sample ID: W-11 — Lab Sample ID: 280-176013-13

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Method Summary

Client: HDR Inc
Job ID: 280-176013-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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: 280-176013-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-176013-1	W-2C	Water	05/01/23 16:25	05/04/23 11:25
280-176013-2	W-3B	Water	05/02/23 10:35	05/04/23 11:25
280-176013-3	WT-3B	Water	05/02/23 10:55	05/04/23 11:25
280-176013-4	W-5B	Water	05/02/23 13:25	05/04/23 11:25
280-176013-5	W-10B	Water	05/02/23 10:15	05/04/23 11:25
280-176013-6	WK-10B	Water	05/02/23 15:20	05/04/23 11:25
280-176013-7	W-18	Water	05/02/23 14:05	05/04/23 11:25
280-176013-8	W-14	Water	05/03/23 10:40	05/04/23 11:25
280-176013-9	W-17	Water	05/03/23 12:40	05/04/23 11:25
280-176013-10	W-6B1	Water	05/03/23 17:10	05/04/23 11:25
280-176013-11	W-7	Water	05/03/23 09:20	05/04/23 11:25
280-176013-12	W-9	Water	05/03/23 11:40	05/04/23 11:25
280-176013-13	W-11	Water	05/03/23 16:35	05/04/23 11:25

Method: SW846 9315 - Radium-226 (GFPC)

Client Sample ID: W-2C
Date Collected: 05/01/23 16:25
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.56		0.588	0.605	1.00	0.671	pCi/L	05/10/23 18:58	06/02/23 08:11	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	54.0		30 - 110	05/10/23 18:58	06/02/23 08:11	1

Client Sample ID: W-3B
Date Collected: 05/02/23 10:35
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	4.11		0.658	0.755	1.00	0.368	pCi/L	05/10/23 18:58	06/02/23 08:11	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	89.1		30 - 110	05/10/23 18:58	06/02/23 08:11	1

Client Sample ID: WT-3B
Date Collected: 05/02/23 10:55
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	3.85		0.692	0.774	1.00	0.446	pCi/L	05/10/23 18:58	06/02/23 08:12	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	73.7		30 - 110	05/10/23 18:58	06/02/23 08:12	1

Client Sample ID: W-5B
Date Collected: 05/02/23 13:25
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.593		0.307	0.312	1.00	0.384	pCi/L	05/10/23 18:58	06/02/23 08:12	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	84.7		30 - 110	05/10/23 18:58	06/02/23 08:12	1

Client Sample ID: W-10B
Date Collected: 05/02/23 10:15
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.07		0.465	0.475	1.00	0.528	pCi/L	05/15/23 11:54	06/07/23 06:54	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	58.3		30 - 110	05/15/23 11:54	06/07/23 06:54	1

Method: SW846 9315 - Radium-226 (GFPC)

Client Sample ID: WK-10B
Date Collected: 05/02/23 15:20
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.00194	U	0.147	0.147	1.00	0.300	pCi/L	05/15/23 11:54	06/07/23 06:34	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*83.3*		*30 - 110*	*05/15/23 11:54*	*06/07/23 06:34*	*1*

Client Sample ID: W-18
Date Collected: 05/02/23 14:05
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.115	U G	0.507	0.507	1.00	1.01	pCi/L	05/15/23 11:54	06/07/23 06:38	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*24.8*	*X*	*30 - 110*	*05/15/23 11:54*	*06/07/23 06:38*	*1*

Client Sample ID: W-14
Date Collected: 05/03/23 10:40
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**2.05**	**G**	1.18	1.20	1.00	1.61	pCi/L	05/15/23 11:54	06/07/23 06:49	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*21.5*	*X*	*30 - 110*	*05/15/23 11:54*	*06/07/23 06:49*	*1*

Client Sample ID: W-17
Date Collected: 05/03/23 12:40
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.365	U	0.333	0.334	1.00	0.512	pCi/L	05/15/23 11:54	06/07/23 06:48	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*68.0*		*30 - 110*	*05/15/23 11:54*	*06/07/23 06:48*	*1*

Client Sample ID: W-6B1
Date Collected: 05/03/23 17:10
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-10
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.01	U G	0.739	0.745	1.00	1.03	pCi/L	05/15/23 11:54	06/07/23 06:48	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*40.3*		*30 - 110*	*05/15/23 11:54*	*06/07/23 06:48*	*1*

Method: SW846 9315 - Radium-226 (GFPC)

Client Sample ID: W-7
Date Collected: 05/03/23 09:20
Date Received: 05/04/23 11:25

Lab Sample ID: 280-176013-11
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**2.27**		0.669	0.699	1.00	0.573	pCi/L	05/15/23 11:54	06/07/23 06:48	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*80.5*		*30 - 110*	*05/15/23 11:54*	*06/07/23 06:48*	*1*

Client Sample ID: W-9
Date Collected: 05/03/23 11:40
Date Received: 05/04/23 11:25

Lab Sample ID: 280-176013-12
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.373	U	0.511	0.513	1.00	0.862	pCi/L	05/15/23 11:54	06/07/23 06:47	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*33.0*		*30 - 110*	*05/15/23 11:54*	*06/07/23 06:47*	*1*

Client Sample ID: W-11
Date Collected: 05/03/23 16:35
Date Received: 05/04/23 11:25

Lab Sample ID: 280-176013-13
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.73	U G	1.21	1.22	1.00	1.74	pCi/L	05/15/23 11:54	06/07/23 06:47	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*31.0*		*30 - 110*	*05/15/23 11:54*	*06/07/23 06:47*	*1*

Method: SW846 9320 - Radium-228 (GFPC)

Client Sample ID: W-2C
Date Collected: 05/01/23 16:25
Date Received: 05/04/23 11:25

Lab Sample ID: 280-176013-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**3.53**	**G**	1.03	1.08	1.00	1.16	pCi/L	05/11/23 08:46	06/01/23 12:25	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*54.0*		*30 - 110*	*05/11/23 08:46*	*06/01/23 12:25*	*1*
Y Carrier	*85.7*		*30 - 110*	*05/11/23 08:46*	*06/01/23 12:25*	*1*

Client Sample ID: W-3B
Date Collected: 05/02/23 10:35
Date Received: 05/04/23 11:25

Lab Sample ID: 280-176013-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**7.58**		1.06	1.27	1.00	0.775	pCi/L	05/11/23 08:46	06/01/23 12:25	1

Method: SW846 9320 - Radium-228 (GFPC) (Continued)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	89.1		30 - 110	05/11/23 08:46	06/01/23 12:25	1
Y Carrier	82.9		30 - 110	05/11/23 08:46	06/01/23 12:25	1

Client Sample ID: WT-3B
Date Collected: 05/02/23 10:55
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	8.48		1.19	1.42	1.00	0.802	pCi/L	05/11/23 08:46	06/01/23 12:25	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	73.7		30 - 110	05/11/23 08:46	06/01/23 12:25	1
Y Carrier	84.8		30 - 110	05/11/23 08:46	06/01/23 12:25	1

Client Sample ID: W-5B
Date Collected: 05/02/23 13:25
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.972		0.550	0.557	1.00	0.782	pCi/L	05/11/23 08:46	06/01/23 12:26	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	84.7		30 - 110	05/11/23 08:46	06/01/23 12:26	1
Y Carrier	82.3		30 - 110	05/11/23 08:46	06/01/23 12:26	1

Client Sample ID: W-10B
Date Collected: 05/02/23 10:15
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	3.35	G	1.01	1.06	1.00	1.15	pCi/L	05/15/23 13:17	06/06/23 13:07	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	58.3		30 - 110	05/15/23 13:17	06/06/23 13:07	1
Y Carrier	79.8		30 - 110	05/15/23 13:17	06/06/23 13:07	1

Client Sample ID: WK-10B
Date Collected: 05/02/23 15:20
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.347	U	0.382	0.384	1.00	0.624	pCi/L	05/15/23 13:17	06/06/23 13:08	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	83.3		30 - 110	05/15/23 13:17	06/06/23 13:08	1
Y Carrier	81.5		30 - 110	05/15/23 13:17	06/06/23 13:08	1

Method: SW846 9320 - Radium-228 (GFPC)

Client Sample ID: W-18
Date Collected: 05/02/23 14:05
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.84	U G	1.58	1.59	1.00	2.46	pCi/L	05/15/23 13:17	06/06/23 13:08	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*24.8*	*X*	*30 - 110*	*05/15/23 13:17*	*06/06/23 13:08*	*1*
Y Carrier	*80.6*		*30 - 110*	*05/15/23 13:17*	*06/06/23 13:08*	*1*

Client Sample ID: W-14
Date Collected: 05/03/23 10:40
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.60	U G	1.91	1.93	1.00	2.90	pCi/L	05/15/23 13:17	06/06/23 13:08	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*21.5*	*X*	*30 - 110*	*05/15/23 13:17*	*06/06/23 13:08*	*1*
Y Carrier	*83.4*		*30 - 110*	*05/15/23 13:17*	*06/06/23 13:08*	*1*

Client Sample ID: W-17
Date Collected: 05/03/23 12:40
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**1.28**	**G**	0.742	0.752	1.00	1.08	pCi/L	05/15/23 13:17	06/06/23 13:08	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*68.0*		*30 - 110*	*05/15/23 13:17*	*06/06/23 13:08*	*1*
Y Carrier	*79.5*		*30 - 110*	*05/15/23 13:17*	*06/06/23 13:08*	*1*

Client Sample ID: W-6B1
Date Collected: 05/03/23 17:10
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-10
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.33	U G	1.83	1.84	1.00	2.84	pCi/L	05/15/23 13:17	06/06/23 13:08	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*40.3*		*30 - 110*	*05/15/23 13:17*	*06/06/23 13:08*	*1*
Y Carrier	*76.4*		*30 - 110*	*05/15/23 13:17*	*06/06/23 13:08*	*1*

Client Sample ID: W-7
Date Collected: 05/03/23 09:20
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-11
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**3.27**	**G**	1.07	1.12	1.00	1.17	pCi/L	05/15/23 13:17	06/06/23 13:08	1

Method: SW846 9320 - Radium-228 (GFPC) (Continued)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	80.5		30 - 110	05/15/23 13:17	06/06/23 13:08	1
Y Carrier	69.7		30 - 110	05/15/23 13:17	06/06/23 13:08	1

Client Sample ID: W-9
Date Collected: 05/03/23 11:40
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-12
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.95	G	1.63	1.65	1.00	2.31	pCi/L	05/15/23 13:17	06/06/23 13:08	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	33.0		30 - 110	05/15/23 13:17	06/06/23 13:08	1
Y Carrier	71.1		30 - 110	05/15/23 13:17	06/06/23 13:08	1

Client Sample ID: W-11
Date Collected: 05/03/23 16:35
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-13
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.898	U G	2.30	2.30	1.00	4.06	pCi/L	05/15/23 13:17	06/06/23 13:14	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	31.0		30 - 110	05/15/23 13:17	06/06/23 13:14	1
Y Carrier	65.4		30 - 110	05/15/23 13:17	06/06/23 13:14	1

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

Client Sample ID: W-2C
Date Collected: 05/01/23 16:25
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	5.09		1.19	1.24	5.00	1.16	pCi/L		06/05/23 17:55	1

Client Sample ID: W-3B
Date Collected: 05/02/23 10:35
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	11.7		1.25	1.48	5.00	0.775	pCi/L		06/05/23 17:55	1

Client Sample ID: WT-3B
Date Collected: 05/02/23 10:55
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	12.3		1.38	1.62	5.00	0.802	pCi/L		06/05/23 17:55	1

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

Client Sample ID: W-5B
Date Collected: 05/02/23 13:25
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.56		0.630	0.638	5.00	0.782	pCi/L		06/05/23 17:55	1

Client Sample ID: W-10B
Date Collected: 05/02/23 10:15
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	4.42		1.11	1.16	5.00	1.15	pCi/L		06/07/23 11:57	1

Client Sample ID: WK-10B
Date Collected: 05/02/23 15:20
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.346	U	0.409	0.411	5.00	0.624	pCi/L		06/07/23 11:57	1

Client Sample ID: W-18
Date Collected: 05/02/23 14:05
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.95	U	1.66	1.67	5.00	2.46	pCi/L		06/07/23 11:57	1

Client Sample ID: W-14
Date Collected: 05/03/23 10:40
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	4.65		2.25	2.27	5.00	2.90	pCi/L		06/07/23 11:57	1

Client Sample ID: W-17
Date Collected: 05/03/23 12:40
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.64		0.813	0.823	5.00	1.08	pCi/L		06/07/23 11:57	1

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

Client Sample ID: W-6B1
Date Collected: 05/03/23 17:10
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-10
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**3.34**		1.97	1.99	5.00	2.84	pCi/L		06/07/23 11:57	1

Client Sample ID: W-7
Date Collected: 05/03/23 09:20
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-11
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**5.54**		1.26	1.32	5.00	1.17	pCi/L		06/07/23 11:57	1

Client Sample ID: W-9
Date Collected: 05/03/23 11:40
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-12
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**3.32**		1.71	1.73	5.00	2.31	pCi/L		06/07/23 11:57	1

Client Sample ID: W-11
Date Collected: 05/03/23 16:35
Date Received: 05/04/23 11:25
Lab Sample ID: 280-176013-13
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.62	U	2.60	2.60	5.00	4.06	pCi/L		06/07/23 11:57	1

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-611032/1-A
Matrix: Water
Analysis Batch: 614273

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 611032

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.09226	U	0.149	0.149	1.00	0.261	pCi/L	05/10/23 18:58	06/02/23 08:06	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*80.3*		*30 - 110*	*05/10/23 18:58*	*06/02/23 08:06*	*1*

Lab Sample ID: LCS 160-611032/2-A
Matrix: Water
Analysis Batch: 614273

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 611032

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-226			11.3	9.327		1.18	1.00	0.247	pCi/L	82	75 - 113		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*92.7*		*30 - 110*

Lab Sample ID: MB 160-611496/1-A
Matrix: Water
Analysis Batch: 614731

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 611496

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.02874	U	0.173	0.173	1.00	0.357	pCi/L	05/15/23 11:54	06/07/23 06:54	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*77.3*		*30 - 110*	*05/15/23 11:54*	*06/07/23 06:54*	*1*

Lab Sample ID: LCS 160-611496/2-A
Matrix: Water
Analysis Batch: 614731

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 611496

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-226			11.3	9.314		1.20	1.00	0.303	pCi/L	82	75 - 113		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*82.3*		*30 - 110*

Lab Sample ID: LCSD 160-611496/3-A
Matrix: Water
Analysis Batch: 614731

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 611496

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-226			11.3	11.37		1.43	1.00	0.330	pCi/L	100	75 - 113	0.78	1

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

Lab Sample ID: LCSD 160-611496/3-A
Matrix: Water
Analysis Batch: 614731

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 611496

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	72.5		30 - 110

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-611041/1-A
Matrix: Water
Analysis Batch: 614157

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 611041

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.4222	U	0.337	0.340	1.00	0.514	pCi/L	05/11/23 08:46	06/01/23 12:21	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	80.3		30 - 110	05/11/23 08:46	06/01/23 12:21	1
Y Carrier	83.4		30 - 110	05/11/23 08:46	06/01/23 12:21	1

Lab Sample ID: LCS 160-611041/2-A
Matrix: Water
Analysis Batch: 614157

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 611041

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-228			8.15	10.07		1.34	1.00	0.452	pCi/L	124	75 - 125		

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	92.7		30 - 110
Y Carrier	83.4		30 - 110

Lab Sample ID: MB 160-611507/1-A
Matrix: Water
Analysis Batch: 614547

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 611507

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1895	U	0.393	0.394	1.00	0.683	pCi/L	05/15/23 13:17	06/06/23 13:06	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	77.3		30 - 110	05/15/23 13:17	06/06/23 13:06	1
Y Carrier	80.1		30 - 110	05/15/23 13:17	06/06/23 13:06	1

Lab Sample ID: LCS 160-611507/2-A
Matrix: Water
Analysis Batch: 614547

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 611507

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-228			8.14	10.25		1.43	1.00	0.654	pCi/L	126	75 - 125		

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

Lab Sample ID: LCS 160-611507/2-A
Matrix: Water
Analysis Batch: 614547

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 611507

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	82.3		30 - 110
Y Carrier	78.9		30 - 110

Lab Sample ID: LCSD 160-611507/3-A
Matrix: Water
Analysis Batch: 614547

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 611507

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-228			8.14	9.754		1.42	1.00	0.680	pCi/L	120	75 - 125	0.18	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	72.5		30 - 110
Y Carrier	82.6		30 - 110

QC Association Summary

Client: HDR Inc
Job ID: 280-176013-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Rad

Prep Batch: 611032

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176013-1	W-2C	Total/NA	Water	PrecSep-21	
280-176013-2	W-3B	Total/NA	Water	PrecSep-21	
280-176013-3	WT-3B	Total/NA	Water	PrecSep-21	
280-176013-4	W-5B	Total/NA	Water	PrecSep-21	
MB 160-611032/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-611032/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 611041

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176013-1	W-2C	Total/NA	Water	PrecSep_0	
280-176013-2	W-3B	Total/NA	Water	PrecSep_0	
280-176013-3	WT-3B	Total/NA	Water	PrecSep_0	
280-176013-4	W-5B	Total/NA	Water	PrecSep_0	
MB 160-611041/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-611041/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Prep Batch: 611496

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176013-5	W-10B	Total/NA	Water	PrecSep-21	
280-176013-6	WK-10B	Total/NA	Water	PrecSep-21	
280-176013-7	W-18	Total/NA	Water	PrecSep-21	
280-176013-8	W-14	Total/NA	Water	PrecSep-21	
280-176013-9	W-17	Total/NA	Water	PrecSep-21	
280-176013-10	W-6B1	Total/NA	Water	PrecSep-21	
280-176013-11	W-7	Total/NA	Water	PrecSep-21	
280-176013-12	W-9	Total/NA	Water	PrecSep-21	
280-176013-13	W-11	Total/NA	Water	PrecSep-21	
MB 160-611496/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-611496/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-611496/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 611507

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176013-5	W-10B	Total/NA	Water	PrecSep_0	
280-176013-6	WK-10B	Total/NA	Water	PrecSep_0	
280-176013-7	W-18	Total/NA	Water	PrecSep_0	
280-176013-8	W-14	Total/NA	Water	PrecSep_0	
280-176013-9	W-17	Total/NA	Water	PrecSep_0	
280-176013-10	W-6B1	Total/NA	Water	PrecSep_0	
280-176013-11	W-7	Total/NA	Water	PrecSep_0	
280-176013-12	W-9	Total/NA	Water	PrecSep_0	
280-176013-13	W-11	Total/NA	Water	PrecSep_0	
MB 160-611507/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-611507/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-611507/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: HDR Inc
Job ID: 280-176013-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-2C
Lab Sample ID: 280-176013-1
Date Collected: 05/01/23 16:25
Matrix: Water
Date Received: 05/04/23 11:25

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			747.49 mL	1.0 g	611032	05/10/23 18:58	REV	EET SL
Total/NA	Analysis	9315		1			614272	06/02/23 08:11	SCB	EET SL
Total/NA	Prep	PrecSep_0			747.49 mL	1.0 g	611041	05/11/23 08:46	BMP	EET SL
Total/NA	Analysis	9320		1			614158	06/01/23 12:25	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			614505	06/05/23 17:55	SCB	EET SL

Client Sample ID: W-3B
Lab Sample ID: 280-176013-2
Date Collected: 05/02/23 10:35
Matrix: Water
Date Received: 05/04/23 11:25

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			748.49 mL	1.0 g	611032	05/10/23 18:58	REV	EET SL
Total/NA	Analysis	9315		1			614272	06/02/23 08:11	SCB	EET SL
Total/NA	Prep	PrecSep_0			748.49 mL	1.0 g	611041	05/11/23 08:46	BMP	EET SL
Total/NA	Analysis	9320		1			614158	06/01/23 12:25	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			614505	06/05/23 17:55	SCB	EET SL

Client Sample ID: WT-3B
Lab Sample ID: 280-176013-3
Date Collected: 05/02/23 10:55
Matrix: Water
Date Received: 05/04/23 11:25

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			752.38 mL	1.0 g	611032	05/10/23 18:58	REV	EET SL
Total/NA	Analysis	9315		1			614272	06/02/23 08:12	SCB	EET SL
Total/NA	Prep	PrecSep_0			752.38 mL	1.0 g	611041	05/11/23 08:46	BMP	EET SL
Total/NA	Analysis	9320		1			614158	06/01/23 12:25	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			614505	06/05/23 17:55	SCB	EET SL

Client Sample ID: W-5B
Lab Sample ID: 280-176013-4
Date Collected: 05/02/23 13:25
Matrix: Water
Date Received: 05/04/23 11:25

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			750.76 mL	1.0 g	611032	05/10/23 18:58	REV	EET SL
Total/NA	Analysis	9315		1			614271	06/02/23 08:12	SCB	EET SL
Total/NA	Prep	PrecSep_0			750.76 mL	1.0 g	611041	05/11/23 08:46	BMP	EET SL
Total/NA	Analysis	9320		1			614158	06/01/23 12:26	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			614505	06/05/23 17:55	SCB	EET SL

Lab Chronicle

Client: HDR Inc
Job ID: 280-176013-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-10B
Lab Sample ID: 280-176013-5
Date Collected: 05/02/23 10:15
Matrix: Water
Date Received: 05/04/23 11:25

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			752.46 mL	1.0 g	611496	05/15/23 11:54	KAC	EET SL
Total/NA	Analysis	9315		1			614731	06/07/23 06:54	FLC	EET SL
Total/NA	Prep	PrecSep_0			752.46 mL	1.0 g	611507	05/15/23 13:17	KAC	EET SL
Total/NA	Analysis	9320		1			614547	06/06/23 13:07	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			614752	06/07/23 11:57	SCB	EET SL

Client Sample ID: WK-10B
Lab Sample ID: 280-176013-6
Date Collected: 05/02/23 15:20
Matrix: Water
Date Received: 05/04/23 11:25

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			1001.27 mL	1.0 g	611496	05/15/23 11:54	KAC	EET SL
Total/NA	Analysis	9315		1			614732	06/07/23 06:34	FLC	EET SL
Total/NA	Prep	PrecSep_0			1001.27 mL	1.0 g	611507	05/15/23 13:17	KAC	EET SL
Total/NA	Analysis	9320		1			614547	06/06/23 13:08	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			614752	06/07/23 11:57	SCB	EET SL

Client Sample ID: W-18
Lab Sample ID: 280-176013-7
Date Collected: 05/02/23 14:05
Matrix: Water
Date Received: 05/04/23 11:25

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			752.54 mL	1.0 g	611496	05/15/23 11:54	KAC	EET SL
Total/NA	Analysis	9315		1			614732	06/07/23 06:38	FLC	EET SL
Total/NA	Prep	PrecSep_0			752.54 mL	1.0 g	611507	05/15/23 13:17	KAC	EET SL
Total/NA	Analysis	9320		1			614547	06/06/23 13:08	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			614752	06/07/23 11:57	SCB	EET SL

Client Sample ID: W-14
Lab Sample ID: 280-176013-8
Date Collected: 05/03/23 10:40
Matrix: Water
Date Received: 05/04/23 11:25

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			752.81 mL	1.0 g	611496	05/15/23 11:54	KAC	EET SL
Total/NA	Analysis	9315		1			614733	06/07/23 06:49	FLC	EET SL
Total/NA	Prep	PrecSep_0			752.81 mL	1.0 g	611507	05/15/23 13:17	KAC	EET SL
Total/NA	Analysis	9320		1			614547	06/06/23 13:08	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			614752	06/07/23 11:57	SCB	EET SL

Client Sample ID: W-17
Lab Sample ID: 280-176013-9
Date Collected: 05/03/23 12:40
Matrix: Water
Date Received: 05/04/23 11:25

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			743.57 mL	1.0 g	611496	05/15/23 11:54	KAC	EET SL
Total/NA	Analysis	9315		1			614733	06/07/23 06:48	FLC	EET SL
Total/NA	Prep	PrecSep_0			743.57 mL	1.0 g	611507	05/15/23 13:17	KAC	EET SL
Total/NA	Analysis	9320		1			614547	06/06/23 13:08	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			614752	06/07/23 11:57	SCB	EET SL

Client Sample ID: W-6B1
Lab Sample ID: 280-176013-10
Date Collected: 05/03/23 17:10
Matrix: Water
Date Received: 05/04/23 11:25

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			499.99 mL	1.0 g	611496	05/15/23 11:54	KAC	EET SL
Total/NA	Analysis	9315		1			614733	06/07/23 06:48	FLC	EET SL
Total/NA	Prep	PrecSep_0			499.99 mL	1.0 g	611507	05/15/23 13:17	KAC	EET SL
Total/NA	Analysis	9320		1			614547	06/06/23 13:08	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			614752	06/07/23 11:57	SCB	EET SL

Client Sample ID: W-7
Lab Sample ID: 280-176013-11
Date Collected: 05/03/23 09:20
Matrix: Water
Date Received: 05/04/23 11:25

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			492.16 mL	1.0 g	611496	05/15/23 11:54	KAC	EET SL
Total/NA	Analysis	9315		1			614733	06/07/23 06:48	FLC	EET SL
Total/NA	Prep	PrecSep_0			492.16 mL	1.0 g	611507	05/15/23 13:17	KAC	EET SL
Total/NA	Analysis	9320		1			614547	06/06/23 13:08	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			614752	06/07/23 11:57	SCB	EET SL

Client Sample ID: W-9
Lab Sample ID: 280-176013-12
Date Collected: 05/03/23 11:40
Matrix: Water
Date Received: 05/04/23 11:25

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			747.12 mL	1.0 g	611496	05/15/23 11:54	KAC	EET SL
Total/NA	Analysis	9315		1			614733	06/07/23 06:47	FLC	EET SL
Total/NA	Prep	PrecSep_0			747.12 mL	1.0 g	611507	05/15/23 13:17	KAC	EET SL
Total/NA	Analysis	9320		1			614547	06/06/23 13:08	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			614752	06/07/23 11:57	SCB	EET SL

Lab Chronicle

Client: HDR Inc
Job ID: 280-176013-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-11
Date Collected: 05/03/23 16:35
Date Received: 05/04/23 11:25

Lab Sample ID: 280-176013-13
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			494.32 mL	1.0 g	611496	05/15/23 11:54	KAC	EET SL
Total/NA	Analysis	9315		1			614733	06/07/23 06:47	FLC	EET SL
Total/NA	Prep	PrecSep_0			494.32 mL	1.0 g	611507	05/15/23 13:17	KAC	EET SL
Total/NA	Analysis	9320		1			614548	06/06/23 13:14	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			614752	06/07/23 11:57	SCB	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
Job ID: 280-176013-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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
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	12-31-23
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	03-31-24
North Carolina (DW)	State	29700	07-31-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-24
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	05-18-26
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-23
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-23

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

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

eurofins | Environment Testing America

Client Information	Sampler: MHB / FL	Lab FM: Ryan, Nicole C	Carrier Tracking No(s):	COC No: 280-123984-34653
Client Contact: Ms. Sierra Schupp	Phone: 720 - 261 - 5222	E-Mail: Nicole.Ryan@ET.eurofinsus.com	State of Origin:	Page: Page 1 of 2
Company: HDR Inc	PWSID:			Job #:
Address: 1670 Broadway Suite 3400	Due Date Requested:			
City: Denver	TAT Requested (days):			
State, Zip: CO, 80202	Compliance Project: Δ Yes Δ No			
Phone: 734-263-7138(Tel)	PO #: DEN-021			
Email: Sierra.Schupp@hdrinc.com	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Comanche	Project #: 28014376			
Site: Colorado On-Site Wells	SSOW#:			

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
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)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	App III and IV Metals: B, Ca, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Mo, Se, Tl	Total Mercury	Additional Metals: Mg, Na, K	9056 Anions: Chloride, Fluoride, Sulfate	2540C: TDs	2540D: TSS	9040 pH	2320 Alkalinity	Ra226, Ra228, Ra226+228	Dissolved Metals (App. III + IV, Hg, Mg, K, Na)				Total Number of containers	Special Instructions/Note:
Preservation Code:							D	D	D	N	N	N	N	N	D	D						
W-2C	05/01/23	1625	G	W	N	N	X	X	X	X	X	X	X	X	X					5	
W-3B	05/02/23	1035	G	W	N	N	X	X	X	X	X	X	X	X	X					5	
WT-3B	05/02/23	1055	G	W	N	N	X	X	X	X	X	X	X	X	X					5	
W-5B	05/02/23	1325	G	W	N	N	X	X	X	X	X	X	X	X	X					5	
W-10B	05/02/23	1015	G	W	N	N	X	X	X	X	X	X	X	X	X					5	
WK-10B	05/02/23	1520	G	W	N	N	X	X	X	X	X	X	X	X	X					5	
W-18	05/02/23	1405	G	W	N	N	X	X	X	X	X	X	X	X	X					5	
W-14	05/03/23	1040	G	W	N	N	X	X	X	X	X	X	X	X	X					5	
W-17	05/03/23	1240	G	W	N	N	X	X	X	X	X	X	X	X	X					5	
W-6B	05/03/23	1710	G	W	N	N	X	X	X	X	X	X	X	X	X	X				6	
W-7	05/03/23	0920	G	W	N	N	X	X	X	X	X	X	X	X	X					5	

280-176013 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:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Mattison Barickman	05/04/2023, 1125	HDR Inc.		5/4/23 1125	EADGV
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 0.9, 1.6, 0.9, 2.2 CF +0.1 IR14

Ver: 01/16/2019

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

eurofins | Environment Testing America

Client Information	Sampler: MHB/FL	Lab PM: Ryan, Nicole C	Carrier Tracking No(s):	COC No: 280-123984-34653
Client Contact: Ms. Sierra Schupp	Phone: 720-261-5222	E-Mail: Nicole.Ryan@ET.eurofinsus.com	State of Origin:	Page: Page 2 of 2
Company: HDR Inc	PWSID:			Job #:

Address: 1670 Broadway Suite 3400	Due Date Requested:
City: Denver	TAT Requested (days):
State, Zip: CO, 80202	Compliance Project: Δ Yes Δ No
Phone: 734-263-7138(Tel)	PO #: DEN-021
Email: Sierra.Schupp@hdrinc.com	WO #:
Project Name: Xcel Energy GW CCR Monitoring - Comanche	Project #: 28014376
Site: Colorado On-Site Wells	SSOW#:

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, 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)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	App III and IV Metals: B, Ca, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Mo, Se, Tl	Total Mercury	Additional Metals: Mg, Na, K	9056 Anions: Chloride, Fluoride, Sulfate	2540C: TDs	2540D: TSS	9040 pH	2320 Alkalinity	Ra226, Ra228, Ra226+228	Dissolved Metals (App. III + IV, Ha, Mg, K, Na)				Total Number of containers	Special Instructions/Note:
Preservation Code:							D	D	D	N	N	N	N	N	D	D						
W-9	05/03/23	1140	G	W	N	N	x	x	x	x	x	x	x	x	x					5	
W-11	05/03/23	1635	G	W	N	N	x	x	x	x	x	x	x	x	x	x				6	

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:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Mattison Barickman	05/04/2023, 1125	HDR Inc.		5/4/23 1125	ET ADEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

6/7/2023

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone: 303-736-0100 Fax: 303-431-7171

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Ryan, Nicole C	Carrier Tracking No(s):	COC No: 280-654780.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Nicole.Ryan@ET.eurofinsus.com	State of Origin: Colorado	Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-176013-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 5/17/2023			
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#:			

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, 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)
Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	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_GFPC/ Ra226/RA228 Calc (3/3) - SUB	Total Number of containers	Special Instructions/Note:
Preservation Code:											
W-2C (280-176013-1)	5/1/23	16:25 Mountain		Water			X	X	X	2	
W-3B (280-176013-2)	5/2/23	10:35 Mountain		Water			X	X	X	2	
WT-3B (280-176013-3)	5/2/23	10:55 Mountain		Water			X	X	X	2	
W-5B (280-176013-4)	5/2/23	13:25 Mountain		Water			X	X	X	2	
W-10B (280-176013-5)	5/2/23	10:15 Mountain		Water			X	X	X	2	
WK-10B (280-176013-6)	5/2/23	15:20 Mountain		Water			X	X	X	2	
W-18 (280-176013-7)	5/2/23	14:05 Mountain		Water			X	X	X	2	
W-14 (280-176013-8)	5/3/23	10:40 Mountain		Water			X	X	X	2	
W-17 (280-176013-9)	5/3/23	12:40 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/tests/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*	***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) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	5/5/2023 1500	ETA Denver	Fedex		
2	Fedex			Conor Boswell	0910 May 8 2023	ETA STL
3						

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone: 303-736-0100 Fax: 303-431-7171

Chain of Custody Record

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Client Information (Sub Contract Lab)	Sampler:	Lab PM: Ryan, Nicole C	Carrier Tracking No(s):	COC No: 280-654780.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: Nicole.Ryan@ET.eurofinsus.com	State of Origin: Colorado	Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-176013-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 5/17/2023			
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#:			

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 - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)

Other:

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	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_GFPC/ Ra226/RA228 Calc (3/3) - SUB	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
W-6B1 (280-176013-10)	5/3/23	17:10 Mountain		Water			X	X	X	2	
W-7 (280-176013-11)	5/3/23	09:20 Mountain		Water			X	X	X	2	
W-9 (280-176013-12)	5/3/23	11:40 Mountain		Water			X	X	X	2	
W-11 (280-176013-13)	5/3/23	16:35 Mountain		Water			X	X	X	2	

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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/tests/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:	Date/Time	Company	Received by:	Date/Time:	Company
1	[signature]	5/5/2023 1500	ETA Denver	Fedex		
2	Fedex			[signature]	0810 May 8 2023	ETA STL
3						

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-176013-2

Login Number: 176013
List Number: 1
Creator: Cannon, Charles D

List Source: Eurofins Denver

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.	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 <6mm (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: 280-176013-2

Login Number: 176013
List Number: 2
Creator: Farrell, Conor P

List Source: Eurofins St. Louis
List Creation: 05/08/23 01:05 PM

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.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: HDR Inc
Job ID: 280-176013-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Method: 9315 - Radium-226 (GFPC)

Matrix: Water
Prep Type: Total/NA

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	Ba (30-110)
280-176013-1	W-2C	54.0
280-176013-2	W-3B	89.1
280-176013-3	WT-3B	73.7
280-176013-4	W-5B	84.7
280-176013-5	W-10B	58.3
280-176013-6	WK-10B	83.3
280-176013-7	W-18	24.8 X
280-176013-8	W-14	21.5 X
280-176013-9	W-17	68.0
280-176013-10	W-6B1	40.3
280-176013-11	W-7	80.5
280-176013-12	W-9	33.0
280-176013-13	W-11	31.0
LCS 160-611032/2-A	Lab Control Sample	92.7
LCS 160-611496/2-A	Lab Control Sample	82.3
LCSD 160-611496/3-A	Lab Control Sample Dup	72.5
MB 160-611032/1-A	Method Blank	80.3
MB 160-611496/1-A	Method Blank	77.3

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 (30-110)	Y (30-110)
280-176013-1	W-2C	54.0	85.7
280-176013-2	W-3B	89.1	82.9
280-176013-3	WT-3B	73.7	84.8
280-176013-4	W-5B	84.7	82.3
280-176013-5	W-10B	58.3	79.8
280-176013-6	WK-10B	83.3	81.5
280-176013-7	W-18	24.8 X	80.6
280-176013-8	W-14	21.5 X	83.4
280-176013-9	W-17	68.0	79.5
280-176013-10	W-6B1	40.3	76.4
280-176013-11	W-7	80.5	69.7
280-176013-12	W-9	33.0	71.1
280-176013-13	W-11	31.0	65.4
LCS 160-611041/2-A	Lab Control Sample	92.7	83.4
LCS 160-611507/2-A	Lab Control Sample	82.3	78.9
LCSD 160-611507/3-A	Lab Control Sample Dup	72.5	82.6
MB 160-611041/1-A	Method Blank	80.3	83.4
MB 160-611507/1-A	Method Blank	77.3	80.1

Tracer/Carrier Legend

Ba = Ba Carrier
Y = Y Carrier

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ANALYTICAL REPORT

PREPARED FOR

Attn: Molly Reeves
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Generated 6/8/2023 4:32:03 PM

JOB DESCRIPTION

Xcel Energy GW CCR Monitoring - Comanche

JOB NUMBER

280-176082-2

Eurofins Denver
4955 Yarrow Street
Arvada CO 80002

See page two for job notes and contact information.

my EOL

Eurofins Denver

Job Notes

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

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

Authorization



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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
Job ID: 280-176082-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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.
¤	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

Job ID: 280-176082-2

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-176082-2

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 5/5/2023 11:25 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.7º C and 2.0º C.

Receipt Exceptions
The reference method requires samples to have a pH of 2. The following samples were received with a pH of 6: 280-176082-1 and 280-176082-2, The samples were adjusted to the appropriate pH in the laboratory.

RADIUM-226 (GFPC)
Samples W-12 (280-176082-1) and W-1 (280-176082-2) were analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 05/15/2023 and analyzed on 06/07/2023.

The LCSD recovered at (70%). 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 LCSD are not from this agency and are therefore held to our in-house statistical limits of (70-125%) per method requirements. The LCS passes, no further action is required: (LCSD 160-611470/3-A).

The following sample was prepared at a reduced aliquot due to Matrix: W-12 (280-176082-1). 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-1 (280-176082-2). 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-12 (280-176082-1) and W-1 (280-176082-2) were analyzed for Radium-228 in accordance with 9320. The samples were prepared on 05/15/2023 and analyzed on 06/07/2023.

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-12 (280-176082-1). Analytical results are reported with the detection limit achieved.

The following sample was prepared at a reduced aliquot due to Matrix: W-12 (280-176082-1). A laboratory control sample/ laboratory

Job ID: 280-176082-2 (Continued)

Laboratory: Eurofins Denver (Continued)

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-1 (280-176082-2). 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-226/RADIUM-228 (GFPC)

Samples W-12 (280-176082-1) and W-1 (280-176082-2) were analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on 06/08/2023.

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

Detection Summary

Client: HDR Inc
Job ID: 280-176082-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-12
Lab Sample ID: 280-176082-1

No Detections.

Client Sample ID: W-1
Lab Sample ID: 280-176082-2

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-176082-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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: 280-176082-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-176082-1	W-12	Water	05/04/23 11:08	05/05/23 11:25
280-176082-2	W-1	Water	05/03/23 14:38	05/05/23 11:25

Method: SW846 9315 - Radium-226 (GFPC)

Client Sample ID: W-12
Date Collected: 05/04/23 11:08
Date Received: 05/05/23 11:25

Lab Sample ID: 280-176082-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.901		0.523	0.529	1.00	0.641	pCi/L	05/15/23 10:22	06/07/23 20:13	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	72.0		30 - 110	05/15/23 10:22	06/07/23 20:13	1

Client Sample ID: W-1
Date Collected: 05/03/23 14:38
Date Received: 05/05/23 11:25

Lab Sample ID: 280-176082-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.380		0.268	0.270	1.00	0.359	pCi/L	05/15/23 10:22	06/07/23 20:13	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	88.3		30 - 110	05/15/23 10:22	06/07/23 20:13	1

Method: SW846 9320 - Radium-228 (GFPC)

Client Sample ID: W-12
Date Collected: 05/04/23 11:08
Date Received: 05/05/23 11:25

Lab Sample ID: 280-176082-1
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	1.34	1.00	1.54	pCi/L	05/15/23 12:32	06/07/23 10:55	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	72.0		30 - 110	05/15/23 12:32	06/07/23 10:55	1
Y Carrier	76.1		30 - 110	05/15/23 12:32	06/07/23 10:55	1

Client Sample ID: W-1
Date Collected: 05/03/23 14:38
Date Received: 05/05/23 11:25

Lab Sample ID: 280-176082-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.991		0.577	0.584	1.00	0.827	pCi/L	05/15/23 12:32	06/07/23 10:55	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	88.3		30 - 110	05/15/23 12:32	06/07/23 10:55	1
Y Carrier	74.2		30 - 110	05/15/23 12:32	06/07/23 10:55	1

Client Sample Results

Client: HDR Inc
Job ID: 280-176082-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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

Client Sample ID: W-12
Date Collected: 05/04/23 11:08
Date Received: 05/05/23 11:25

Lab Sample ID: 280-176082-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	4.74		1.39	1.44	5.00	1.54	pCi/L		06/08/23 11:59	1

Client Sample ID: W-1
Date Collected: 05/03/23 14:38
Date Received: 05/05/23 11:25

Lab Sample ID: 280-176082-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.37		0.636	0.643	5.00	0.827	pCi/L		06/08/23 11:59	1

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-611470/1-A
Matrix: Water
Analysis Batch: 614733

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 611470

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.1530	U	0.163	0.164	1.00	0.394	pCi/L	05/15/23 10:22	06/07/23 18:28	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.3*		*30 - 110*	*05/15/23 10:22*	*06/07/23 18:28*	*1*

Lab Sample ID: LCS 160-611470/2-A
Matrix: Water
Analysis Batch: 614733

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 611470

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-226			11.3	8.745		1.18	1.00	0.292	pCi/L	77	75 - 113		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*95.5*		*30 - 110*

Lab Sample ID: LCSD 160-611470/3-A
Matrix: Water
Analysis Batch: 614733

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 611470

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-226			11.3	7.915		1.09	1.00	0.287	pCi/L	70	75 - 113	0.37	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*97.0*		*30 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-611498/1-A
Matrix: Water
Analysis Batch: 614768

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 611498

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1460	U	0.319	0.319	1.00	0.557	pCi/L	05/15/23 12:32	06/07/23 10:59	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.3*		*30 - 110*	*05/15/23 12:32*	*06/07/23 10:59*	*1*
Y Carrier	*82.0*		*30 - 110*	*05/15/23 12:32*	*06/07/23 10:59*	*1*

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

Lab Sample ID: LCS 160-611498/2-A
Matrix: Water
Analysis Batch: 614768

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 611498

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-228			8.14	8.723		1.22	1.00	0.479	pCi/L	107	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*95.5*		*30 - 110*
Y Carrier	*83.4*		*30 - 110*

Lab Sample ID: LCSD 160-611498/3-A
Matrix: Water
Analysis Batch: 614768

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 611498

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-228			8.14	9.260		1.26	1.00	0.507	pCi/L	114	75 - 125	0.22	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*97.0*		*30 - 110*
Y Carrier	*83.1*		*30 - 110*

QC Association Summary

Client: HDR Inc
Job ID: 280-176082-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Rad

Prep Batch: 611470

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176082-1	W-12	Total/NA	Water	PrecSep-21	
280-176082-2	W-1	Total/NA	Water	PrecSep-21	
MB 160-611470/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-611470/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-611470/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 611498

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176082-1	W-12	Total/NA	Water	PrecSep_0	
280-176082-2	W-1	Total/NA	Water	PrecSep_0	
MB 160-611498/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-611498/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-611498/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: HDR Inc
Job ID: 280-176082-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-12
Lab Sample ID: 280-176082-1
Date Collected: 05/04/23 11:08
Matrix: Water
Date Received: 05/05/23 11:25

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			491.17 mL	1.0 g	611470	05/15/23 10:22	KAC	EET SL
Total/NA	Analysis	9315		1			614732	06/07/23 20:13	FLC	EET SL
Total/NA	Prep	PrecSep_0			491.17 mL	1.0 g	611498	05/15/23 12:32	KAC	EET SL
Total/NA	Analysis	9320		1			614731	06/07/23 10:55	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			615026	06/08/23 11:59	SCB	EET SL

Client Sample ID: W-1
Lab Sample ID: 280-176082-2
Date Collected: 05/03/23 14:38
Matrix: Water
Date Received: 05/05/23 11:25

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			743.79 mL	1.0 g	611470	05/15/23 10:22	KAC	EET SL
Total/NA	Analysis	9315		1			614732	06/07/23 20:13	FLC	EET SL
Total/NA	Prep	PrecSep_0			743.79 mL	1.0 g	611498	05/15/23 12:32	KAC	EET SL
Total/NA	Analysis	9320		1			614731	06/07/23 10:55	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			615026	06/08/23 11:59	SCB	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
Job ID: 280-176082-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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
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	12-31-23
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	03-31-24
North Carolina (DW)	State	29700	07-31-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-24
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	05-18-26
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-23
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-23

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

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

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Client Information	Sampler: Francis Li	Lab PM: Ryan, Nicole C	Carrier Tracking No(s):	COC No: 280-123984-34653
Client Contact: Ms. Sierra Schupp	Phone: 720 - 261 - 5222	E-Mail: Nicole.Ryan@ET.eurofinsus.com	State of Origin:	Page: Page 1 of 1
Company: HDR Inc	PWSID:			Job #:

Address: 1670 Broadway Suite 3400	Due Date Requested:
City: Denver	TAT Requested (days):
State, Zip: CO, 80202	Compliance Project: Δ Yes Δ No
Phone: 734-263-7138(Tel)	PO #: DEN-021
Email: Sierra.Schupp@hdrinc.com	WO #:
Project Name: Xcel Energy GW CCR Monitoring - Comanche	Project #: 28014376
Site: Colorado On-Site Wells	SSOW#:

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, 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)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	App III and IV Metals: B, Ca, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Mo, Se, Tl	Total Mercury	Additional Metals: Mg, Na, K	9056 Anions: Chloride, Fluoride, Sulfate	2540C: TDs	2540D: TSS	9040 pH	2320 Alkalinity	Ra226, Ra228, Ra226+228	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D	D	N	N	N	N	N	D		
W-12	05/04/23	1108	G	W	N	N	X	X	X	X	X	X	X	X	X	5	
W-1	05/03/23	~~1348~~ 1438	G	W	N	N	X	X	X	X	X	X	X	X	X	2	Additional volume collected below
W-1	05/04/23	0845	G	W	N	N	X	X	X	X	X	X	X	X	X	2	All "W-1" part of 1 sampling event,
W-1	05/05/23	0755	G	W	N	N	X	X	X	X	X	X	X	X	X	1	had to return multiple days to collect sufficient volume

280-176082 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:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Mattison Barricman	05/05/2023, 1125	HDR Inc.		5/5/23 1125	EHDEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1.9°C 1.6°C cf# IR14

Ver: 01/16/2019

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone: 303-736-0100 Fax: 303-431-7171

Chain of Custody Record

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Client Information (Sub Contract Lab)	Sampler:	Lab PM: Ryan, Nicole C	Carrier Tracking No(s):	COC No: 280-655115.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Nicole.Ryan@ET.eurofinsus.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-176082-2
Address: 13715 Rider Trail North, ,	Due Date Requested: 6/6/2023			Preservation Codes:
City: Earth City	TAT Requested (days):			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, Y - Trizma, Z - other (specify)
State, Zip: MO, 63045				Other:
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#:			

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	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_GFPC/ Ra226/RA228 Calc (3/3) - SUB	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
W-12 (280-176082-1)	5/4/23	11:08 Mountain		Water			X	X	X	2	
W-1 (280-176082-2)	5/3/23	14:38 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/tests/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
Empty Kit Relinquished by:	Date: Time:
Relinquished by:	Date/Time: 5/9/23 1635 Company: ETAS EN
Relinquished by: fedex	Date/Time: Company
Relinquished by:	Date/Time: Company
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:

Special Instructions/QC Requirements:

Method of Shipment:

Received by	Date/Time	Company
fedex		
Received by: Diana Sharkey - Hamaker	Date/Time: 5/10/23 0850	Company: ETAS EN
Received by:	Date/Time:	Company

Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-176082-2

Login Number: 176082
List Number: 1
Creator: Roehsner, Karen P

List Source: Eurofins Denver

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.	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 <6mm (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: 280-176082-2

Login Number: 176082
List Number: 2
Creator: Sharkey-Gonzalez, Briana L

List Source: Eurofins St. Louis
List Creation: 05/10/23 03:00 PM

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.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: HDR Inc
Job ID: 280-176082-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Method: 9315 - Radium-226 (GFPC)

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

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	Ba (30-110)
280-176082-1	W-12	72.0
280-176082-2	W-1	88.3
LCS 160-611470/2-A	Lab Control Sample	95.5
LCSD 160-611470/3-A	Lab Control Sample Dup	97.0
MB 160-611470/1-A	Method Blank	92.3

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 (30-110)	Y (30-110)
280-176082-1	W-12	72.0	76.1
280-176082-2	W-1	88.3	74.2
LCS 160-611498/2-A	Lab Control Sample	95.5	83.4
LCSD 160-611498/3-A	Lab Control Sample Dup	97.0	83.1
MB 160-611498/1-A	Method Blank	92.3	82.0

Tracer/Carrier Legend

Ba = Ba Carrier
Y = Y Carrier

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ANALYTICAL REPORT

PREPARED FOR

Attn: Molly Reeves
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Generated 6/13/2023 5:26:38 PM

JOB DESCRIPTION

Xcel Energy GW CCR Monitoring - Comanche

JOB NUMBER

280-176416-2

Eurofins Denver
4955 Yarrow Street
Arvada CO 80002

See page two for job notes and contact information.

my EOL

Job Notes

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

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

Authorization



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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
Job ID: 280-176416-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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.
¤	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

Job ID: 280-176416-2

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-176416-2

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 5/12/2023 11:05 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 1.5º C.

RADIUM-226 (GFPC)
Samples W-16 (280-176416-1) and W-19 (280-176416-2) were analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 05/18/2023 and analyzed on 06/13/2023.

The following samples were prepared at a reduced aliquot due to Matrix: W-16 (280-176416-1) and W-19 (280-176416-2). 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-16 (280-176416-1) and W-19 (280-176416-2) were analyzed for Radium-228 in accordance with 9320. The samples were prepared on 05/18/2023 and analyzed on 06/12/2023.

The following samples were prepared at a reduced aliquot due to Matrix: W-16 (280-176416-1) and W-19 (280-176416-2). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

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-16 (280-176416-1). 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.

RADIUM-226/RADIUM-228 (GFPC)
Samples W-16 (280-176416-1) and W-19 (280-176416-2) were analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on 06/13/2023.

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

Job ID: 280-176416-2 (Continued)

Laboratory: Eurofins Denver (Continued)

Detection Summary

Client: HDR Inc
Job ID: 280-176416-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-16
Lab Sample ID: 280-176416-1

No Detections.

Client Sample ID: W-19
Lab Sample ID: 280-176416-2

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-176416-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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: 280-176416-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-176416-1	W-16	Water	05/11/23 10:05	05/12/23 11:05
280-176416-2	W-19	Water	05/11/23 11:50	05/12/23 11:05

Method: SW846 9315 - Radium-226 (GFPC)

Client Sample ID: W-16
Date Collected: 05/11/23 10:05
Date Received: 05/12/23 11:05

Lab Sample ID: 280-176416-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.644	U	0.490	0.494	1.00	0.710	pCi/L	05/18/23 11:17	06/13/23 08:44	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*41.0*		*30 - 110*	*05/18/23 11:17*	*06/13/23 08:44*	*1*

Client Sample ID: W-19
Date Collected: 05/11/23 11:50
Date Received: 05/12/23 11:05

Lab Sample ID: 280-176416-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.315	U	0.294	0.296	1.00	0.453	pCi/L	05/18/23 11:17	06/13/23 08:44	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*67.3*		*30 - 110*	*05/18/23 11:17*	*06/13/23 08:44*	*1*

Method: SW846 9320 - Radium-228 (GFPC)

Client Sample ID: W-16
Date Collected: 05/11/23 10:05
Date Received: 05/12/23 11:05

Lab Sample ID: 280-176416-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.35	U G	0.960	0.968	1.00	1.44	pCi/L	05/18/23 12:35	06/12/23 12:27	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*41.0*		*30 - 110*	*05/18/23 12:35*	*06/12/23 12:27*	*1*
Y Carrier	*82.6*		*30 - 110*	*05/18/23 12:35*	*06/12/23 12:27*	*1*

Client Sample ID: W-19
Date Collected: 05/11/23 11:50
Date Received: 05/12/23 11:05

Lab Sample ID: 280-176416-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.778	U	0.601	0.605	1.00	0.922	pCi/L	05/18/23 12:35	06/12/23 12:27	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*67.3*		*30 - 110*	*05/18/23 12:35*	*06/12/23 12:27*	*1*
Y Carrier	*84.8*		*30 - 110*	*05/18/23 12:35*	*06/12/23 12:27*	*1*

Client Sample Results

Client: HDR Inc
Job ID: 280-176416-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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

Client Sample ID: W-16
Date Collected: 05/11/23 10:05
Date Received: 05/12/23 11:05

Lab Sample ID: 280-176416-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.99		1.08	1.09	5.00	1.44	pCi/L		06/13/23 15:44	1

Client Sample ID: W-19
Date Collected: 05/11/23 11:50
Date Received: 05/12/23 11:05

Lab Sample ID: 280-176416-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.09		0.669	0.674	5.00	0.922	pCi/L		06/13/23 15:44	1

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-612140/1-A
Matrix: Water
Analysis Batch: 615739

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 612140

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.04785	U	0.0795	0.0796	1.00	0.218	pCi/L	05/18/23 11:17	06/13/23 08:44	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.5*		*30 - 110*	*05/18/23 11:17*	*06/13/23 08:44*	*1*

Lab Sample ID: LCS 160-612140/2-A
Matrix: Water
Analysis Batch: 615739

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 612140

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-226			11.3	10.38		1.26	1.00	0.187	pCi/L	92	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*93.8*		*30 - 110*

Lab Sample ID: LCSD 160-612140/23-A
Matrix: Water
Analysis Batch: 615740

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 612140

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-226			11.3	11.23		1.39	1.00	0.311	pCi/L	99	75 - 125	0.32	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*79.3*		*30 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-612148/1-A
Matrix: Water
Analysis Batch: 615670

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 612148

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1220	U	0.313	0.313	1.00	0.552	pCi/L	05/18/23 12:35	06/12/23 12:26	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.5*		*30 - 110*	*05/18/23 12:35*	*06/12/23 12:26*	*1*
Y Carrier	*82.6*		*30 - 110*	*05/18/23 12:35*	*06/12/23 12:26*	*1*

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

Lab Sample ID: LCS 160-612148/2-A
Matrix: Water
Analysis Batch: 615670

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 612148

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-228			8.13	7.528		1.09	1.00	0.467	pCi/L	93	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*93.8*		*30 - 110*
Y Carrier	*83.4*		*30 - 110*

Lab Sample ID: LCSD 160-612148/23-A
Matrix: Water
Analysis Batch: 615670

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 612148

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-228			8.13	8.857		1.28	1.00	0.595	pCi/L	109	75 - 125	0.56	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*79.3*		*30 - 110*
Y Carrier	*86.2*		*30 - 110*

QC Association Summary

Client: HDR Inc
Job ID: 280-176416-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Rad

Prep Batch: 612140

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176416-1	W-16	Total/NA	Water	PrecSep-21	
280-176416-2	W-19	Total/NA	Water	PrecSep-21	
MB 160-612140/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-612140/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-612140/23-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 612148

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176416-1	W-16	Total/NA	Water	PrecSep_0	
280-176416-2	W-19	Total/NA	Water	PrecSep_0	
MB 160-612148/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-612148/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-612148/23-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: HDR Inc
Job ID: 280-176416-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: W-16
Lab Sample ID: 280-176416-1
Date Collected: 05/11/23 10:05
Matrix: Water
Date Received: 05/12/23 11:05

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			750.91 mL	1.0 g	612140	05/18/23 11:17	KAC	EET SL
Total/NA	Analysis	9315		1			615739	06/13/23 08:44	FLC	EET SL
Total/NA	Prep	PrecSep_0			750.91 mL	1.0 g	612148	05/18/23 12:35	KAC	EET SL
Total/NA	Analysis	9320		1			615670	06/12/23 12:27	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			615790	06/13/23 15:44	SCB	EET SL

Client Sample ID: W-19
Lab Sample ID: 280-176416-2
Date Collected: 05/11/23 11:50
Matrix: Water
Date Received: 05/12/23 11:05

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			744.09 mL	1.0 g	612140	05/18/23 11:17	KAC	EET SL
Total/NA	Analysis	9315		1			615739	06/13/23 08:44	FLC	EET SL
Total/NA	Prep	PrecSep_0			744.09 mL	1.0 g	612148	05/18/23 12:35	KAC	EET SL
Total/NA	Analysis	9320		1			615670	06/12/23 12:27	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			615790	06/13/23 15:44	SCB	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
Job ID: 280-176416-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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	03-31-25
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	12-31-23
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	03-31-24
North Carolina (DW)	State	29700	07-31-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-24
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	05-18-26
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-23
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-23

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

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

eurofins | Environment Testing

Client Information	Sampler: Mattison Barickman	Lab PM: Ryan, Nicole C	Carrier Tracking No(s):	COC No: 280-130006-35998.1
Client Contact: Molly Reeves	Phone: (720) 385-4021	E-Mail: Nicole.Ryan@ET.eurofinsus.com	State of Origin:	Page: Page 1 of 1
Company: HDR Inc	PWSID:			Job #:

Address: 1670 Broadway Suite 3400	Due Date Requested:
City: Denver	TAT Requested (days):
State, Zip: CO, 80202	Compliance Project: Δ Yes Δ No
Phone: 734-263-7138(Tel)	PO #: DEN-021
Email: Molly.Reeves@hdrinc.com	WO #:
Project Name: Xcel Energy GW Monitoring - Comanche	Project #: 28014376
Site: Comanche Offsite - App. III & IV + TSS + Alk + Mg + Na + K	SSOW#:

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, 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)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226 , 9320_Ra228, Combined Ra226 Ra228	2320B Alk, 9040B pH, 9056A_28D Cl Fl SO4	6010C, 6020B, 7470A Total Metals App. III & IV + Mg+ Na+ K	2540C_Calcd TDS, 2540D TSS	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	D	N		
W-16	05/11/2023	1005	G	W	N	N	X	X	X	X	5	
W-19	05/11/2023	1150	G	W	N	N	X	X	X	X	5	

280-176416 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:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Mattison Barickman	05/12/2023, 1105	HDR Inc.	MH	5.12.23 1105	ETADEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1.4 IR14 LFO

Ver: 01/16/2019

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone: 303-736-0100 Fax: 303-431-7171

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Ryan, Nicole C	Carrier Tracking No(s):	COC No: 280-656049.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Nicole.Ryan@ET.eurofinsus.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-176416-2
Address: 13715 Rider Trail North, ,	Due Date Requested: 5/25/2023			
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#:			

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, 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)
Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	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_GFPC/ Ra226/RA228 Calc (3/3) - SUB	Total Number of containers	Special Instructions/Note:
W-16 (280-176416-1)	5/11/23	10:05 Mountain		Water			X	X	X	3	
W-19 (280-176416-2)	5/11/23	11:50 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/tests/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	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) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	5/15/23 1625	ETADEN	Fedex		
2	Fedex			Leon Fossett	0840 MAY 17 2023	ETA STL
3						

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-176416-2

Login Number: 176416
List Number: 1
Creator: Rystrom, Joshua R

List Source: Eurofins Denver

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.	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 <6mm (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: 280-176416-2

Login Number: 176416
List Number: 2
Creator: Farrell, Conor P

List Source: Eurofins St. Louis
List Creation: 05/17/23 12:40 PM

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.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: HDR Inc
Job ID: 280-176416-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Method: 9315 - Radium-226 (GFPC)

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

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	Ba (30-110)
280-176416-1	W-16	41.0
280-176416-2	W-19	67.3
LCS 160-612140/2-A	Lab Control Sample	93.8
LCSD 160-612140/23-A	Lab Control Sample Dup	79.3
MB 160-612140/1-A	Method Blank	88.5

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 (30-110)	Y (30-110)
280-176416-1	W-16	41.0	82.6
280-176416-2	W-19	67.3	84.8
LCS 160-612148/2-A	Lab Control Sample	93.8	83.4
LCSD 160-612148/23-A	Lab Control Sample Dup	79.3	86.2
MB 160-612148/1-A	Method Blank	88.5	82.6

Tracer/Carrier Legend

Ba = Ba Carrier
Y = Y Carrier

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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

280-176894-2

Eurofins Denver
4955 Yarrow Street
Arvada CO 80002

See page two for job notes and contact information.

my EOL

Job Notes

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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 Eurofins TestAmerica Project Manager.

Authorization



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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
Job ID: 280-176894-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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.
¤	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

Job ID: 280-176894-2

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-176894-2

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 5/23/2023 2:55 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 2.5º C

Receipt Exceptions
The reference method requires samples to have a pH of 2. The following sample was received with a pH of 6: 280-176894-1. The sample was adjusted to the appropriate pH in the laboratory.

RADIUM-226 & OTHER GAMMA EMITTERS (GS)
Samples MW-9 (280-176894-1) and MW-8 (280-176894-2) were analyzed for Radium-226 & Other Gamma Emitters (GS) in accordance with EPA 901.1. The samples were prepared on 05/30/2023 and analyzed on 06/20/2023.

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from	Reported to Analyte
Th-234	Pa-234
Th-234	U-238
Pb-210	Po-210
Pb-210	Bi-210
Cs-137	Ba-137m
Pb-212	Po-216
Xe-131m	Xe-131
Sb-125	Te-125m
Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228
Pb-212	Ra-224
U-235	Th-231
Ac-228	Th-232
Ac-228	Ra-228
Th-227	Ra-223

Job ID: 280-176894-2 (Continued)

Laboratory: Eurofins Denver (Continued)

Th-227	Ac-227
Th-227	Bi-211
Th-227	Pb-211
Bi-214	Ra-226

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Radium-226 was detected in method blank MB 160-613828/1-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 of 50 pCi/L was not met for Ra226 for the following sample: MW-8 (280-176894-2). An elevated MDC can occur when higher background counts are applied to a peak ROI. This is due to the relatively small size of the peak or subsequent “force-fit” of the non-existent peak which resulted in higher than normal background counts due to statistical fluctuations in the Compton baseline. The laboratory does not believe this adversely affects the data, the Ra226 is well below the RL and MDC.

Cesium-137 and Cobalt-60 exceeded the RPD limit for the duplicate of sample MW-9DU (280-176894-1). 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.

Detection Summary

Client: HDR Inc
Job ID: 280-176894-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: MW-9
Lab Sample ID: 280-176894-1

No Detections.

Client Sample ID: MW-8
Lab Sample ID: 280-176894-2

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-176894-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Method	Method Description	Protocol	Laboratory
901.1	Radium-226 & Other Gamma Emitters (GS)	EPA	EET SL
Fill_Geo-21	Fill Geometry, 21-Day In-Growth	None	EET SL

Protocol References:

EPA = US Environmental Protection Agency

None = None

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: 280-176894-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-176894-1	MW-9	Water	05/23/23 12:20	05/23/23 14:55
280-176894-2	MW-8	Water	05/22/23 14:50	05/23/23 14:55

Client: HDR Inc
Job ID: 280-176894-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Method: EPA 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: MW-9
Date Collected: 05/23/23 12:20
Date Received: 05/23/23 14:55

Lab Sample ID: 280-176894-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**44.7**		23.3	23.9	50.0	24.6	pCi/L	05/30/23 17:44	06/20/23 11:16	1
Radium-228	**31.7**		22.4	22.7	50.0	29.2	pCi/L	05/30/23 17:44	06/20/23 11:16	1
Combined Radium 226 + 228	**76.5**		32.3	33.0		29.2	pCi/L	05/30/23 17:44	06/20/23 11:16	1

Client Sample ID: MW-8
Date Collected: 05/22/23 14:50
Date Received: 05/23/23 14:55

Lab Sample ID: 280-176894-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	9.62	U G	5.80	5.91	50.0	66.2	pCi/L	05/30/23 17:44	06/20/23 12:55	1
Radium-228	19.3	U	31.6	31.6	50.0	45.8	pCi/L	05/30/23 17:44	06/20/23 12:55	1
Combined Radium 226 + 228	29.0	U	32.1	32.1		66.2	pCi/L	05/30/23 17:44	06/20/23 12:55	1

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-613828/1-A
Matrix: Water
Analysis Batch: 617538

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 613828

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	47.54		24.1	24.8	50.0	27.8	pCi/L	05/30/23 17:44	06/23/23 13:52	1
Radium-228	0.4775	U G	1.41	1.41	50.0	55.2	pCi/L	05/30/23 17:44	06/23/23 13:52	1
Combined Radium 226 + 228	48.02	U	24.1	24.8		55.2	pCi/L	05/30/23 17:44	06/23/23 13:52	1

Lab Sample ID: LCS 160-613828/2-A
Matrix: Water
Analysis Batch: 616934

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 613828

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Americium-241			135000	136300		16200		435	pCi/L	101	75 - 125		
Cesium-137			40600	41360		4930		106	pCi/L	102	75 - 125		
Cobalt-60			17300	18160		2170		52.3	pCi/L	105	75 - 125		

Lab Sample ID: 280-176894-1 DU
Matrix: Water
Analysis Batch: 616933

Client Sample ID: MW-9
Prep Type: Total/NA
Prep Batch: 613828

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Radium-226	44.7			34.25		20.8	50.0	28.0	pCi/L			0.23	1
Radium-228	31.7			26.39	U G	39.2	50.0	52.3	pCi/L			0.09	1
Combined Radium 226 + 228	76.5			60.65		44.4		52.3	pCi/L			0.20	1

QC Association Summary

Client: HDR Inc
Job ID: 280-176894-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Rad

Prep Batch: 613828

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176894-1	MW-9	Total/NA	Water	Fill_Geo-21	
280-176894-2	MW-8	Total/NA	Water	Fill_Geo-21	
MB 160-613828/1-A	Method Blank	Total/NA	Water	Fill_Geo-21	
LCS 160-613828/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-21	
280-176894-1 DU	MW-9	Total/NA	Water	Fill_Geo-21	

Lab Chronicle

Client: HDR Inc
Job ID: 280-176894-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: MW-9
Lab Sample ID: 280-176894-1
Date Collected: 05/23/23 12:20
Matrix: Water
Date Received: 05/23/23 14:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Fill_Geo-21			1000 mL	1.0 g	613828	05/30/23 17:44	SRE	EET SL
Total/NA	Analysis	901.1		1			616932	06/20/23 11:16	CAH	EET SL

Client Sample ID: MW-8
Lab Sample ID: 280-176894-2
Date Collected: 05/22/23 14:50
Matrix: Water
Date Received: 05/23/23 14:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Fill_Geo-21			1000 mL	1.0 g	613828	05/30/23 17:44	SRE	EET SL
Total/NA	Analysis	901.1		1			616931	06/20/23 12:55	CAH	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
Job ID: 280-176894-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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	03-31-25
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	12-31-23
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	03-31-24
North Carolina (DW)	State	29700	07-31-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-24
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	05-18-26
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
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

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Client Information	Sampler:	Lab PM: Ryan, Nicole C	Carrier Tracking No(s):	COC No: 280-130006-35998.1
Client Contact: Molly Reeves	Phone:	E-Mail: Nicole.Ryan@ET.eurofinsus.com	State of Origin:	Page: Page ____ of ____
Company: HDR Inc	PWSID:			Job #:

Address: 1670 Broadway Suite 3400	Due Date Requested:
City: Denver	TAT Requested (days):
State, Zip: CO, 80202	Compliance Project: Δ Yes Δ No
Phone: 734-263-7138(Tel)	PO #: DEN-021
Email: Molly.Reeves@hdrinc.com	WO #:
Project Name: Xcel Energy GW Monitoring - Comanche	Project #: 28014376
Site: Comanche Offsite - App. III & IV + TSS + Alk + Mg + Na + K	SSOW#:

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
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)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226 , 9320_Ra228, Combined Ra226 Ra228	2320B Alk, 9040B pH, 9056A_28D Cl Fl SO4	6010C, 6020B, 7470A Total Metals App. III & IV + Mg+ Na+ K	2540C_Calcd TDS, 2540D TSS	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	D	N		
~~MW-22~~ MW-9	5/23/23	~~1520~~ 1450	G	W			X	X	X	X		
MW-8	5/22/23	~~1450~~ 1450	G	W			X	X	X	X		

280-176894 Chain of Custody

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:	Date:	Time:	Method of Shipment:

Relinquished by: Kelly	Date/Time: 5/23/23 1455	Company	Received by: [signature] 1455	Date/Time: 5.23.23	Company ETADEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 2.4 CF 0.1 IR14

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-176894-2

Login Number: 176894
List Number: 1
Creator: Cannon, Charles D

List Source: Eurofins Denver

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.	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	
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 <6mm (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: 280-176894-2

Login Number: 176894
List Number: 2
Creator: Farrell, Conor P

List Source: Eurofins St. Louis
List Creation: 05/25/23 01:41 PM

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.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

PREPARED FOR

Attn: Molly Reeves
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Generated 7/5/2023 11:55:25 AM Revision 1

JOB DESCRIPTION

Xcel Energy GW CCR Monitoring - Comanche

JOB NUMBER

280-175944-1

Eurofins Denver
4955 Yarrow Street
Arvada CO 80002

See page two for job notes and contact information.

my EOL

Job Notes

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Authorization



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Authorized for release by
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Definitions/Glossary

Client: HDR Inc
Job ID: 280-175944-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Qualifiers

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
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
^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.
¤	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

Job ID: 280-175944-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-175944-1

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, July 5, 2023
This report has been revised to report Total Cd for all samples per the clients request.

Receipt
The sample was received on 5/3/2023 1:08 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 3.6º C.

TOTAL RECOVERABLE METALS
Sample PTW (280-175944-1) was analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 05/04/2023 and analyzed on 05/06/2023 and 05/12/2023.

Boron was detected in method blank MB 280-611131/1-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.

Sample PTW (280-175944-1)[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.

TOTAL RECOVERABLE METALS (ICP/MS)
Sample PTW (280-175944-1) was analyzed for Total Recoverable Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 05/04/2023 and analyzed on 05/05/2023, 05/08/2023, 05/09/2023 and 05/16/2023.

Iron was detected in method blank MB 280-611131/1-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. Refer to the QC report for details.

Samples PTW (280-175944-1)[100X] and PTW (280-175944-1)[50X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Job ID: 280-175944-1 (Continued)

Laboratory: Eurofins Denver (Continued)

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

ALKALINITY
Sample PTW (280-175944-1) was analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 05/06/2023.

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

HARDNESS
Sample PTW (280-175944-1) was analyzed for hardness in accordance with SM20 2340C. The samples were analyzed on 05/12/2023.

Hardness as calcium carbonate was detected in method blank MB 280-612328/3 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 PTW (280-175944-1)[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 DISSOLVED SOLIDS
Sample PTW (280-175944-1) was analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 05/10/2023.

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

TOTAL SUSPENDED SOLIDS
Sample PTW (280-175944-1) was analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 05/09/2023.

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

CORROSIVITY (PH)
Sample PTW (280-175944-1) was analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 05/05/2023.

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

ANIONS (48 HOURS)
Sample PTW (280-175944-1) was analyzed for anions (48 hours) in accordance with EPA SW-846 Method 9056 (48 Hours). The samples were analyzed on 05/04/2023.

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

ANIONS (28 DAYS)
Sample PTW (280-175944-1) was analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A (28 Days). The samples were analyzed on 05/10/2023 and 05/12/2023.

Samples PTW (280-175944-1)[1000X] and PTW (280-175944-1)[50X] 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 ORGANIC CARBON
Sample PTW (280-175944-1) was analyzed for total organic carbon in accordance with SM20 5310B. The samples were analyzed on 05/13/2023.

Job ID: 280-175944-1 (Continued)

Laboratory: Eurofins Denver (Continued)

Sample PTW (280-175944-1)[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.

Detection Summary

Client: HDR Inc
Job ID: 280-175944-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: PTW
Lab Sample ID: 280-175944-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.2	B	0.10	0.0015	mg/L	1		6010C	Total Recoverable
Lithium	3.4		0.10	0.046	mg/L	5		6010C	Total Recoverable
Aluminum	5.2		0.20	0.0083	mg/L	1		6020B	Total Recoverable
Magnesium	5000		10	0.21	mg/L	50		6020B	Total Recoverable
Arsenic	0.0088		0.0050	0.00050	mg/L	1		6020B	Total Recoverable
Sodium	11000	E	100	7.3	mg/L	100		6020B	Total Recoverable
Barium	0.057		0.0030	0.00038	mg/L	1		6020B	Total Recoverable
Potassium	46		1.0	0.052	mg/L	1		6020B	Total Recoverable
Beryllium	0.00034	J	0.0010	0.00030	mg/L	1		6020B	Total Recoverable
Calcium	510		10	1.6	mg/L	50		6020B	Total Recoverable
Cobalt	0.086		0.0010	0.00033	mg/L	1		6020B	Total Recoverable
Molybdenum	0.013		0.0020	0.00037	mg/L	1		6020B	Total Recoverable
Selenium	0.0087		0.0050	0.0010	mg/L	1		6020B	Total Recoverable
Iron	12	B	0.20	0.0087	mg/L	1		6020B	Total Recoverable
Cadmium	0.017		0.0010	0.00019	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	1200		150	51	mg/L	50		9056A	Total/NA
Fluoride	35		25	8.3	mg/L	50		9056A	Total/NA
Sulfate	45000		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
Hardness as calcium carbonate	18000	B	150	15	mg/L	50		SM 2340C	Total/NA
Total Dissolved Solids (TDS)	58000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	170		4.0	1.1	mg/L	1		SM 2540D	Total/NA
TOC Result 1	95		2.0	0.69	mg/L	2	☼	SM 5310B	Total/NA
TOC Result 2	95		2.0	0.69	mg/L	2	☼	SM 5310B	Total/NA
TOC Result 3	95		2.0	0.69	mg/L	2	☼	SM 5310B	Total/NA
TOC Result 4	96		2.0	0.69	mg/L	2	☼	SM 5310B	Total/NA
Total Organic Carbon - Quad	95		2.0	0.69	mg/L	2	☼	SM 5310B	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-175944-1
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
9056	Anions, Ion Chromatography	SW846	EET DEN
9056A	Anions, Ion Chromatography	SW846	EET DEN
SM 2320B	Alkalinity	SM	EET DEN
SM 2340C	Hardness, Total (mg/l as CaC03)	SM	EET DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET DEN
SM 2540D	Solids, Total Suspended (TSS)	SM	EET DEN
SM 5310B	Organic Carbon, Total (TOC)	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
Job ID: 280-175944-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-175944-1	PTW	Water	05/03/23 08:40	05/03/23 13:08

Method: SW846 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: PTW
Date Collected: 05/03/23 08:40
Date Received: 05/03/23 13:08

Lab Sample ID: 280-175944-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.2	B	0.10	0.0015	mg/L		05/04/23 14:45	05/06/23 21:14	1
Lithium	3.4		0.10	0.046	mg/L		05/04/23 14:45	05/12/23 20:55	5

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

Client Sample ID: PTW
Date Collected: 05/03/23 08:40
Date Received: 05/03/23 13:08

Lab Sample ID: 280-175944-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	5.2		0.20	0.0083	mg/L		05/04/23 14:45	05/05/23 21:41	1
Magnesium	5000		10	0.21	mg/L		05/04/23 14:45	05/09/23 16:50	50
Arsenic	0.0088		0.0050	0.00050	mg/L		05/04/23 14:45	05/05/23 21:41	1
Sodium	11000	E	100	7.3	mg/L		05/04/23 14:45	05/16/23 18:17	100
Barium	0.057		0.0030	0.00038	mg/L		05/04/23 14:45	05/05/23 21:41	1
Potassium	46		1.0	0.052	mg/L		05/04/23 14:45	05/05/23 21:41	1
Beryllium	0.00034	J	0.0010	0.00030	mg/L		05/04/23 14:45	05/05/23 21:41	1
Calcium	510		10	1.6	mg/L		05/04/23 14:45	05/09/23 16:50	50
Cobalt	0.086		0.0010	0.00033	mg/L		05/04/23 14:45	05/05/23 21:41	1
Molybdenum	0.013		0.0020	0.00037	mg/L		05/04/23 14:45	05/05/23 21:41	1
Selenium	0.0087		0.0050	0.0010	mg/L		05/04/23 14:45	05/05/23 21:41	1
Iron	12	B	0.20	0.0087	mg/L		05/04/23 14:45	05/08/23 17:30	1
Cadmium	0.017		0.0010	0.00019	mg/L		05/04/23 14:45	05/08/23 17:30	1

General Chemistry

Client Sample ID: PTW
Date Collected: 05/03/23 08:40
Date Received: 05/03/23 13:08

Lab Sample ID: 280-175944-1
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			05/05/23 18:18	1
Temperature (SW846 9040B)	22.6	HF	1.0	1.0	Degrees C			05/05/23 18:18	1
Nitrate as N (SW846 9056)	ND		0.50	0.090	mg/L			05/04/23 07:03	1
Chloride (SW846 9056A)	1200		150	51	mg/L			05/10/23 23:55	50
Fluoride (SW846 9056A)	35		25	8.3	mg/L			05/10/23 23:55	50
Sulfate (SW846 9056A)	45000		5000	1000	mg/L			05/12/23 10:04	1000
Alkalinity (SM 2320B)	1000		10	3.1	mg/L			05/06/23 06:20	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	1000		10	3.1	mg/L			05/06/23 06:20	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			05/06/23 06:20	1
Hardness as calcium carbonate (SM 2340C)	18000	B	150	15	mg/L			05/12/23 14:43	50
Total Dissolved Solids (TDS) (SM 2540C)	58000		1000	470	mg/L			05/10/23 12:30	1
Total Suspended Solids (SM 2540D)	170		4.0	1.1	mg/L			05/09/23 17:30	1
TOC Result 1 (SM 5310B)	95		2.0	0.69	mg/L	☼		05/13/23 13:31	2
TOC Result 2 (SM 5310B)	95		2.0	0.69	mg/L	☼		05/13/23 13:31	2
TOC Result 3 (SM 5310B)	95		2.0	0.69	mg/L	☼		05/13/23 13:31	2
TOC Result 4 (SM 5310B)	96		2.0	0.69	mg/L	☼		05/13/23 13:31	2
Total Organic Carbon - Quad (SM 5310B)	95		2.0	0.69	mg/L	☼		05/13/23 13:31	2

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-611131/1-A
Matrix: Water
Analysis Batch: 611538

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 611131

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.00215	J	0.10	0.0015	mg/L		05/04/23 14:45	05/06/23 20:35	1

Lab Sample ID: MB 280-611131/1-A
Matrix: Water
Analysis Batch: 612414

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 611131

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.020	0.0091	mg/L		05/04/23 14:45	05/12/23 20:30	1

Lab Sample ID: LCS 280-611131/2-A
Matrix: Water
Analysis Batch: 611538

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 611131

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	2.12		mg/L		106	86 - 110

Lab Sample ID: LCS 280-611131/2-A
Matrix: Water
Analysis Batch: 612414

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 611131

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Lithium	1.00	0.939		mg/L		94	90 - 112

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-611131/1-A
Matrix: Water
Analysis Batch: 611536

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 611131

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		200	8.3	ug/L		05/04/23 14:45	05/05/23 21:17	1
Arsenic	ND		5.0	0.50	ug/L		05/04/23 14:45	05/05/23 21:17	1
Sodium	ND		1.0	0.073	mg/L		05/04/23 14:45	05/05/23 21:17	1
Barium	ND		3.0	0.38	ug/L		05/04/23 14:45	05/05/23 21:17	1
Potassium	ND		1.0	0.052	mg/L		05/04/23 14:45	05/05/23 21:17	1
Beryllium	ND		1.0	0.30	ug/L		05/04/23 14:45	05/05/23 21:17	1
Calcium	ND		200	32	ug/L		05/04/23 14:45	05/05/23 21:17	1
Cobalt	ND		1.0	0.33	ug/L		05/04/23 14:45	05/05/23 21:17	1
Molybdenum	ND		2.0	0.37	ug/L		05/04/23 14:45	05/05/23 21:17	1
Selenium	ND		5.0	1.0	ug/L		05/04/23 14:45	05/05/23 21:17	1
Iron	74.2	J	200	8.7	ug/L		05/04/23 14:45	05/05/23 21:17	1

Lab Sample ID: MB 280-611131/1-A
Matrix: Water
Analysis Batch: 611729

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 611131

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	ND		0.20	0.0042	mg/L		05/04/23 14:45	05/08/23 17:06	1
Cadmium	ND		1.0	0.19	ug/L		05/04/23 14:45	05/08/23 17:06	1

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

Lab Sample ID: LCS 280-611131/25-A
Matrix: Water
Analysis Batch: 611536

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 611131

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	800	769		ug/L		96	80 - 120
Arsenic	40.0	37.5		ug/L		94	85 - 117
Sodium	0.800	0.746	J	mg/L		93	80 - 120
Barium	40.0	39.2		ug/L		98	85 - 118
Potassium	0.800	0.776	J	mg/L		97	80 - 120
Beryllium	40.0	39.6		ug/L		99	80 - 125
Calcium	800	816		ug/L		102	80 - 120
Cobalt	40.0	39.5		ug/L		99	85 - 120
Molybdenum	40.0	37.9		ug/L		95	85 - 119
Selenium	40.0	41.3		ug/L		103	77 - 122
Iron	800	806		ug/L		101	80 - 120

Lab Sample ID: LCS 280-611131/25-A
Matrix: Water
Analysis Batch: 611729

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 611131

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Magnesium	0.800	0.814		mg/L		102	80 - 120
Cadmium	40.0	41.3		ug/L		103	85 - 115

Method: 9040B - pH

Lab Sample ID: LCS 280-611556/31
Matrix: Water
Analysis Batch: 611556

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: 9056 - Anions, Ion Chromatography

Lab Sample ID: MB 280-611038/43
Matrix: Water
Analysis Batch: 611038

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.50	0.090	mg/L			05/03/23 20:32	1

Lab Sample ID: LCS 280-611038/39
Matrix: Water
Analysis Batch: 611038

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate as N	2.50	2.38		mg/L		95	90 - 110

Method: 9056 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 280-611038/40
Matrix: Water
Analysis Batch: 611038

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
Nitrate as N	2.50	2.38		mg/L		95	90 - 110	0	10

Lab Sample ID: MRL 280-611038/3
Matrix: Water
Analysis Batch: 611038

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate as N	0.250	0.256	J	mg/L		103	50 - 150

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-611953/6
Matrix: Water
Analysis Batch: 611953

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			05/10/23 12:40	1
Fluoride	ND		0.50	0.17	mg/L			05/10/23 12:40	1

Lab Sample ID: LCS 280-611953/4
Matrix: Water
Analysis Batch: 611953

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	47.0		mg/L		94	90 - 110
Fluoride	2.50	2.41		mg/L		96	90 - 110

Lab Sample ID: LCSD 280-611953/5
Matrix: Water
Analysis Batch: 611953

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	47.0		mg/L		94	90 - 110	0	10
Fluoride	2.50	2.40		mg/L		96	90 - 110	0	10

Lab Sample ID: MRL 280-611953/3
Matrix: Water
Analysis Batch: 611953

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	2.00	J	mg/L		80	50 - 150
Fluoride	0.250	0.212	J	mg/L		85	50 - 150

Lab Sample ID: MB 280-612114/50
Matrix: Water
Analysis Batch: 612114

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			05/12/23 09:47	1
Sulfate	ND		5.0	1.0	mg/L			05/12/23 09:47	1

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

Lab Sample ID: LCS 280-612114/48
Matrix: Water
Analysis Batch: 612114

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	54.2		mg/L		108	90 - 110		
Sulfate			50.0	51.9		mg/L		104	90 - 110		

Lab Sample ID: LCSD 280-612114/49
Matrix: Water
Analysis Batch: 612114

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	54.0		mg/L		108	90 - 110	0	10
Sulfate			50.0	51.9		mg/L		104	90 - 110	0	10

Lab Sample ID: MRL 280-612114/3
Matrix: Water
Analysis Batch: 612114

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	2.74	J	mg/L		110	50 - 150		
Fluoride			0.250	ND	^1+	mg/L		51	50 - 150		
Sulfate			2.50	2.19	J	mg/L		88	50 - 150		

Lab Sample ID: 280-175944-1 MS
Matrix: Water
Analysis Batch: 612114

Client Sample ID: PTW
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Sulfate	45000		50000	94600		mg/L		100	80 - 120		

Lab Sample ID: 280-175944-1 MSD
Matrix: Water
Analysis Batch: 612114

Client Sample ID: PTW
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	45000		50000	97000		mg/L		105	80 - 120	3	20

Lab Sample ID: 280-175944-1 DU
Matrix: Water
Analysis Batch: 612114

Client Sample ID: PTW
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Sulfate	45000			44500		mg/L				0.3	15

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-611558/110
Matrix: Water
Analysis Batch: 611558

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			05/06/23 03:05	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/06/23 03:05	1

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: MB 280-611558/110
Matrix: Water
Analysis Batch: 611558

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			05/06/23 03:05	1

Lab Sample ID: LCS 280-611558/109
Matrix: Water
Analysis Batch: 611558

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 - 110

Method: SM 2340C - Hardness, Total (mg/l as CaC03)

Lab Sample ID: MB 280-612328/3
Matrix: Water
Analysis Batch: 612328

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	1.61	J	3.0	0.30	mg/L			05/12/23 14:43	1

Lab Sample ID: LCS 280-612328/1
Matrix: Water
Analysis Batch: 612328

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Hardness as calcium carbonate	398	414		mg/L		104	90 - 110

Lab Sample ID: LCSD 280-612328/2
Matrix: Water
Analysis Batch: 612328

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
Hardness as calcium carbonate	398	413		mg/L		104	90 - 110	0	10

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

Lab Sample ID: MB 280-611958/1
Matrix: Water
Analysis Batch: 611958

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			05/10/23 12:29	1

Lab Sample ID: LCS 280-611958/2
Matrix: Water
Analysis Batch: 611958

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	465		mg/L		93	88 - 114

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

Lab Sample ID: 280-175944-1 DU
Matrix: Water
Analysis Batch: 611958

Client Sample ID: PTW
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids (TDS)	58000			58400		mg/L				0.3	10

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

Lab Sample ID: MB 280-611855/2
Matrix: Water
Analysis Batch: 611855

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			05/09/23 17:30	1

Lab Sample ID: LCS 280-611855/1
Matrix: Water
Analysis Batch: 611855

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	437		mg/L		87	79 - 114		

Method: SM 5310B - Organic Carbon, Total (TOC)

Lab Sample ID: MB 280-612498/35
Matrix: Water
Analysis Batch: 612498

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	ND		1.0	0.35	mg/L	☼		05/13/23 05:47	1
TOC Result 2	ND		1.0	0.35	mg/L	☼		05/13/23 05:47	1
TOC Result 3	ND		1.0	0.35	mg/L	☼		05/13/23 05:47	1
TOC Result 4	ND		1.0	0.35	mg/L	☼		05/13/23 05:47	1
Total Organic Carbon - Quad	ND		1.0	0.35	mg/L	☼		05/13/23 05:47	1

Lab Sample ID: LCS 280-612498/34
Matrix: Water
Analysis Batch: 612498

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
TOC Result 1			25.0	25.7		mg/L	☼	103	88 - 112		
TOC Result 2			25.0	24.7		mg/L	☼	99	88 - 112		
TOC Result 3			25.0	24.9		mg/L	☼	100	88 - 112		
TOC Result 4			25.0	25.4		mg/L	☼	102	88 - 112		
Total Organic Carbon - Quad			25.0	25.2		mg/L	☼	101	88 - 112		

QC Association Summary

Client: HDR Inc
Job ID: 280-175944-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Metals

Prep Batch: 611131

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-175944-1	PTW	Total Recoverable	Water	3005A	
MB 280-611131/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-611131/25-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 280-611131/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 611536

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-175944-1	PTW	Total Recoverable	Water	6020B	611131
MB 280-611131/1-A	Method Blank	Total Recoverable	Water	6020B	611131
LCS 280-611131/25-A	Lab Control Sample	Total Recoverable	Water	6020B	611131

Analysis Batch: 611538

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-175944-1	PTW	Total Recoverable	Water	6010C	611131
MB 280-611131/1-A	Method Blank	Total Recoverable	Water	6010C	611131
LCS 280-611131/2-A	Lab Control Sample	Total Recoverable	Water	6010C	611131

Analysis Batch: 611729

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-175944-1	PTW	Total Recoverable	Water	6020B	611131
MB 280-611131/1-A	Method Blank	Total Recoverable	Water	6020B	611131
LCS 280-611131/25-A	Lab Control Sample	Total Recoverable	Water	6020B	611131

Analysis Batch: 611881

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-175944-1	PTW	Total Recoverable	Water	6020B	611131

Analysis Batch: 612414

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-175944-1	PTW	Total Recoverable	Water	6010C	611131
MB 280-611131/1-A	Method Blank	Total Recoverable	Water	6010C	611131
LCS 280-611131/2-A	Lab Control Sample	Total Recoverable	Water	6010C	611131

Analysis Batch: 612777

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-175944-1	PTW	Total Recoverable	Water	6020B	611131

General Chemistry

Analysis Batch: 611038

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-175944-1	PTW	Total/NA	Water	9056	
MB 280-611038/43	Method Blank	Total/NA	Water	9056	
LCS 280-611038/39	Lab Control Sample	Total/NA	Water	9056	
LCSD 280-611038/40	Lab Control Sample Dup	Total/NA	Water	9056	
MRL 280-611038/3	Lab Control Sample	Total/NA	Water	9056	

Analysis Batch: 611556

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-175944-1	PTW	Total/NA	Water	9040B	
LCS 280-611556/31	Lab Control Sample	Total/NA	Water	9040B	

General Chemistry

Analysis Batch: 611558

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-175944-1	PTW	Total/NA	Water	SM 2320B	
MB 280-611558/110	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-611558/109	Lab Control Sample	Total/NA	Water	SM 2320B	

Analysis Batch: 611855

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-175944-1	PTW	Total/NA	Water	SM 2540D	
MB 280-611855/2	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-611855/1	Lab Control Sample	Total/NA	Water	SM 2540D	

Analysis Batch: 611953

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-175944-1	PTW	Total/NA	Water	9056A	
MB 280-611953/6	Method Blank	Total/NA	Water	9056A	
LCS 280-611953/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-611953/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-611953/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 611958

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-175944-1	PTW	Total/NA	Water	SM 2540C	
MB 280-611958/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-611958/2	Lab Control Sample	Total/NA	Water	SM 2540C	
280-175944-1 DU	PTW	Total/NA	Water	SM 2540C	

Analysis Batch: 612114

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-175944-1	PTW	Total/NA	Water	9056A	
MB 280-612114/50	Method Blank	Total/NA	Water	9056A	
LCS 280-612114/48	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-612114/49	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-612114/3	Lab Control Sample	Total/NA	Water	9056A	
280-175944-1 MS	PTW	Total/NA	Water	9056A	
280-175944-1 MSD	PTW	Total/NA	Water	9056A	
280-175944-1 DU	PTW	Total/NA	Water	9056A	

Analysis Batch: 612328

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-175944-1	PTW	Total/NA	Water	SM 2340C	
MB 280-612328/3	Method Blank	Total/NA	Water	SM 2340C	
LCS 280-612328/1	Lab Control Sample	Total/NA	Water	SM 2340C	
LCSD 280-612328/2	Lab Control Sample Dup	Total/NA	Water	SM 2340C	

Analysis Batch: 612498

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-175944-1	PTW	Total/NA	Water	SM 5310B	
MB 280-612498/35	Method Blank	Total/NA	Water	SM 5310B	
LCS 280-612498/34	Lab Control Sample	Total/NA	Water	SM 5310B	

Lab Chronicle

Client: HDR Inc
Job ID: 280-175944-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: PTW
Date Collected: 05/03/23 08:40
Date Received: 05/03/23 13:08

Lab Sample ID: 280-175944-1
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	611131	05/04/23 14:45	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			611538	05/06/23 21:14	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611131	05/04/23 14:45	LJS	EET DEN
Total Recoverable	Analysis	6010C		5			612414	05/12/23 20:55	ADL	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611131	05/04/23 14:45	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			611536	05/05/23 21:41	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611131	05/04/23 14:45	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			611729	05/08/23 17:30	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611131	05/04/23 14:45	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			611881	05/09/23 16:50	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	611131	05/04/23 14:45	LJS	EET DEN
Total Recoverable	Analysis	6020B		100			612777	05/16/23 18:17	LRD	EET DEN
Total/NA	Analysis	9040B		1			611556	05/05/23 18:18	KEG	EET DEN
Total/NA	Analysis	9056		1	10 mL	10 mL	611038	05/04/23 07:03	MEC	EET DEN
Total/NA	Analysis	9056A		1000	10 mL	10 mL	612114	05/12/23 10:04	EJS	EET DEN
Total/NA	Analysis	9056A		50	5 mL	5 mL	611953	05/10/23 23:55	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			611558	05/06/23 06:20	KEG	EET DEN
Total/NA	Analysis	SM 2340C		50	25 mL	25 mL	612328	05/12/23 14:43	CAI	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	611958	05/10/23 12:30	MCR	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	611855	05/09/23 17:30	MCR	EET DEN
Total/NA	Analysis	SM 5310B		2	20 mL	20 mL	612498	05/13/23 13:31	ABW	EET DEN

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

Accreditation/Certification Summary

Client: HDR Inc
Job ID: 280-175944-1
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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
SM 5310B		Water	TOC Result 1
SM 5310B		Water	TOC Result 2
SM 5310B		Water	TOC Result 3
SM 5310B		Water	TOC Result 4
SM 5310B		Water	Total Organic Carbon - Quad

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

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Client Information	Sampler: Kelly Malone	Lab PM: Ryan, Nicole C	Carrier Tracking No(s):	COC No: 280-129931-35956.1
Client Contact: Ms. Sierra Schupp	Phone: 713 703-8585	E-Mail: Nicole.Ryan@ET.eurofinsus.com	State of Origin:	Page: Page 1 of 1
Company: HDR Inc	PWSID:			Job #:
Address: 1670 Broadway Suite 3400	Due Date Requested: standard			
City: Denver	TAT Requested (days): standard			
State, Zip: CO, 80202	Compliance Project: Δ Yes Δ No			
Phone: 734-263-7138(Tel)	PO #: DEN-021			
Email: Sierra.Schupp@hdrinc.com	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Comanche	Project #: 28014376			
Site: Colorado	SSOW#:			

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; 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)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SM5310B -TOC	2540C_Calcd - TDS	2540D - TSS	RAD226. RAD228, Combined RAD 226/228	6010, 6020, 2340: Total Al, As, Ba, Be, B, Ca, Co, Fe, Li, Mg, Mo, K, Se, Na/Hardness	9040: pH	9056 Anions: Chloride, Fluoride, Sulfate, Nitrate	2320:Alkalinity	Total Number of containers	Special Instructions/Note:
			Preservation Code:				S	N	N	D	D	N	N	N		
PTW	5/3/23	0840	G	W	N		X	X	X	X	X	X	X	X	7	

280-175944 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:		Date:	Time:	Method of Shipment:		
Relinquished by: Kelly	Date/Time: 5/3/23 1308	Company HDR	Received by: FedEx	Date/Time: 5/3/23 1308	Company FEDEX
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 3.5C cF0.1 IR14

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-175944-1

Login Number: 175944
List Number: 1
Creator: Roehsner, Karen P

List Source: Eurofins Denver

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.	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 <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

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

280-175944-2

Eurofins Denver
4955 Yarrow Street
Arvada CO 80002

See page two for job notes and contact information.

my EOL

Job Notes

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

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

Authorization



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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
Job ID: 280-175944-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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.
¤	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

Job ID: 280-175944-2

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-175944-2

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 sample was received on 5/3/2023 1:08 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 3.6º C.

RADIUM-226 (GFPC)
Sample PTW (280-175944-1) was analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 05/16/2023 and analyzed on 06/09/2023.

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

RADIUM-228
Sample PTW (280-175944-1) was analyzed for Radium-228 in accordance with 9320. The samples were prepared on 05/16/2023 and analyzed on 06/08/2023.

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: PTW (280-175944-1) and (500-233429-I-4-B). 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.

RADIUM-226/RADIUM-228 (GFPC)
Sample PTW (280-175944-1) was analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on 06/09/2023.

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

Detection Summary

Client: HDR Inc
Job ID: 280-175944-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: PTW
Lab Sample ID: 280-175944-1

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Job ID: 280-175944-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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: 280-175944-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-175944-1	PTW	Water	05/03/23 08:40	05/03/23 13:08

Method: SW846 9315 - Radium-226 (GFPC)

Client Sample ID: PTW
Date Collected: 05/03/23 08:40
Date Received: 05/03/23 13:08

Lab Sample ID: 280-175944-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	5.60		1.12	1.23	1.00	0.774	pCi/L	05/16/23 09:52	06/09/23 12:10	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*54.3*		*30 - 110*	*05/16/23 09:52*	*06/09/23 12:10*	*1*

Method: SW846 9320 - Radium-228 (GFPC)

Client Sample ID: PTW
Date Collected: 05/03/23 08:40
Date Received: 05/03/23 13:08

Lab Sample ID: 280-175944-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	5.15	G	1.48	1.55	1.00	1.58	pCi/L	05/16/23 15:55	06/08/23 10:54	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*54.3*		*30 - 110*	*05/16/23 15:55*	*06/08/23 10:54*	*1*
Y Carrier	*86.2*		*30 - 110*	*05/16/23 15:55*	*06/08/23 10:54*	*1*

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

Client Sample ID: PTW
Date Collected: 05/03/23 08:40
Date Received: 05/03/23 13:08

Lab Sample ID: 280-175944-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	10.8		1.86	1.98	5.00	1.58	pCi/L		06/09/23 18:51	1

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-611696/1-A
Matrix: Water
Analysis Batch: 615291

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 611696

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.04470	U	0.0970	0.0971	1.00	0.235	pCi/L	05/16/23 09:52	06/09/23 12:07	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*85.3*		*30 - 110*	*05/16/23 09:52*	*06/09/23 12:07*	*1*

Lab Sample ID: LCS 160-611696/2-A
Matrix: Water
Analysis Batch: 615291

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 611696

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-226			11.3	10.80		1.32	1.00	0.215	pCi/L	95	75 - 113		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*83.3*		*30 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-611862/1-A
Matrix: Water
Analysis Batch: 615047

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 611862

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.2112	U	0.324	0.324	1.00	0.549	pCi/L	05/16/23 15:55	06/08/23 10:52	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*85.3*		*30 - 110*	*05/16/23 15:55*	*06/08/23 10:52*	*1*
Y Carrier	*88.2*		*30 - 110*	*05/16/23 15:55*	*06/08/23 10:52*	*1*

Lab Sample ID: LCS 160-611862/2-A
Matrix: Water
Analysis Batch: 615047

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 611862

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-228			8.14	7.806		1.15	1.00	0.515	pCi/L	96	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*83.3*		*30 - 110*
Y Carrier	*87.1*		*30 - 110*

QC Association Summary

Client: HDR Inc
Job ID: 280-175944-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Rad

Prep Batch: 611696

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-175944-1	PTW	Total/NA	Water	PrecSep-21	
MB 160-611696/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-611696/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 611862

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-175944-1	PTW	Total/NA	Water	PrecSep_0	
MB 160-611862/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-611862/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: HDR Inc
Job ID: 280-175944-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Client Sample ID: PTW
Date Collected: 05/03/23 08:40
Date Received: 05/03/23 13:08

Lab Sample ID: 280-175944-1
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			503.02 mL	1.0 g	611696	05/16/23 09:52	KAC	EET SL
Total/NA	Analysis	9315		1			615292	06/09/23 12:10	SCB	EET SL
Total/NA	Prep	PrecSep_0			503.02 mL	1.0 g	611862	05/16/23 15:55	KAC	EET SL
Total/NA	Analysis	9320		1			615047	06/08/23 10:54	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			615288	06/09/23 18:51	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
Job ID: 280-175944-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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
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	12-31-23
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	03-31-24
North Carolina (DW)	State	29700	07-31-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-24
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	05-18-26
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-23
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-23

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

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

eurofins | Environment Testing

Client Information	Sampler: Kelly Malone	Lab PM: Ryan, Nicole C	Carrier Tracking No(s):	COC No: 280-129931-35956.1
Client Contact: Ms. Sierra Schupp	Phone: 713 703-8585	E-Mail: Nicole.Ryan@ET.eurofinsus.com	State of Origin:	Page: Page 1 of 1
Company: HDR Inc	PWSID:			Job #:
Address: 1670 Broadway Suite 3400	Due Date Requested: standard			
City: Denver	TAT Requested (days): standard			
State, Zip: CO, 80202	Compliance Project: Δ Yes Δ No			
Phone: 734-263-7138(Tel)	PO #: DEN-021			
Email: Sierra.Schupp@hdrinc.com	WO #:			
Project Name: Xcel Energy GW CCR Monitoring - Comanche	Project #: 28014376			
Site: Colorado	SSOW#:			

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; 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)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SM5310B -TOC	2540C_Calcd - TDS	2540D - TSS	RAD226. RAD228, Combined RAD 226/228	6010, 6020, 2340: Total Al, As, Ba, Be, B, Ca, Co, Fe, Li, Mg, Mo, K, Se, Na/Hardness	9040: pH	9056 Anions: Chloride, Fluoride, Sulfate, Nitrate	2320:Alkalinity	Total Number of containers	Special Instructions/Note:
			Preservation Code:				S	N	N	D	D	N	N	N		
PTW	5/3/23	0840	G	W	N		X	X	X	X	X	X	X	X	7	

280-175944 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:		Date:	Time:	Method of Shipment:		
Relinquished by: Kelly M	Date/Time: 5/3/23 1308	Company HDR	Received by: FedEx	Date/Time: 5/3/23 1308	Company FEDEX
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 3.5C cF0.1 IR14

Ver: 01/16/2019

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone: 303-736-0100 Fax: 303-431-7171

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Ryan, Nicole C	Carrier Tracking No(s):	COC No: 280-654663.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Nicole.Ryan@ET.eurofinsus.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): DoD - A2LA		Job #: 280-175944-2
Address: 13715 Rider Trail North, ,	Due Date Requested: 6/7/2023			
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#:			

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, 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)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	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_GFPC/ Ra226/RA228 Calc (3/3) - SUB	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
PTW (280-175944-1)	5/3/23	08:40 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/tests/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:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	5/4/23 1550	EHAIDEN	FedEx		
2	FedEx			[signature]	May 5 2023	ETA SLC
3						

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021

6/12/2023

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-175944-2

Login Number: 175944
List Number: 1
Creator: Roehsner, Karen P

List Source: Eurofins Denver

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.	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 <6mm (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: 280-175944-2

Login Number: 175944
List Number: 2
Creator: Farrell, Conor P

List Source: Eurofins St. Louis
List Creation: 05/05/23 01:38 PM

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.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: HDR Inc
Job ID: 280-175944-2
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Method: 9315 - Radium-226 (GFPC)

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

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	Ba (30-110)
280-175944-1	PTW	54.3
LCS 160-611696/2-A	Lab Control Sample	83.3
MB 160-611696/1-A	Method Blank	85.3

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 (30-110)	Y (30-110)
280-175944-1	PTW	54.3	86.2
LCS 160-611862/2-A	Lab Control Sample	83.3	87.1
MB 160-611862/1-A	Method Blank	85.3	88.2

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
Alkalinity by Standard Method SM2320B

Project: Xcel Energy Coal Combustion Residuals (CCR) Project – Comanche – January 2023

Project/Task Number: 10217175-908

Sample Data Package: 280-171192-1, 280-171192-2, 280-171574-1, 280-171574-2, 280-171588-1
Lab Report Dates: 1/24/23, 2/9/23, 2/2/23, 2/17/23, 2/2/23
Data Validation Report Date: 2/24/23

Laboratory: TestAmerica Denver, Arvada, Colorado (metals, anions, TDS, TSS, pH, alkalinity);
TestAmerica Saint Louis, Earth City, Missouri (radiochem)

Sample Matrix: Groundwater

Sampling Dates: January 9-20, 2023

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
W-10B	GW	280-171192-3	01/10/2023	X	X	X	X	X	X
W-14	GW	280-171574-1	01/19/2023	X	X	X	X	X	
W-16*	GW	280-171588-1	01/20/2023	X	X	X		X	
W-18	GW	280-171192-1	01/09/2023	X	X	X	X	X	
WK-10B	QC	280-171192-2	01/09/2023	X	X	X	X	X	
WT-14	QC	280-171574-2	01/19/2023	X	X	X	X	X	

*W-16 was analyzed for a limited list of constituents

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 0.6°C, 1.1°C, 3.2°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 except W-10B, WK-10B, and W-18, which required qualification as estimated (J).

TSS: Samples were analyzed within 7 days of collection except W-10B, WK-10B, and W-18, which required qualification as estimated (J or UJ if non-detect).

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 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.

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 and EB as indicated below.

Method Blank or Equipment Blank	Analyte	Result (mg/L)	Affected Samples	Qualifier
MB 280-5992931-A	Potassium	0.0624	W-10B, WK-10B, W-18	UJ WK-10B only, other sample results much higher
MB 280-6001281-A	Lead	0.000489	W-14, WT-14	W-14 UJ WT-14 J+
WK-10B	Boron	0.0037	W-10B	None (samples results much higher)
WK-10B	Calcium	0.086	W-10B	None (samples results much higher)
WK-10B	Magnesium	0.013	W-10B	None (samples results much higher)
WK-10B	Sodium	0.39	W-10B	None (samples results much higher)

Mercury: Mercury was detected in MB 280-6007391-A at 0.000085 mg/L. Samples W-14 and WT-14 required qualification as estimated with high bias (J+). Mercury was not detected in the EB.

Anions: Anions were not detected in the MBs or the EB. No qualification was required.

Alkalinity: Bicarbonate and alkalinity were detected in the MBs and the EB as indicated below.

Method Blank or Equipment Blank	Analyte	Result (mg/L)	Affected Samples	Qualifier
MB 280-6003126	Alkalinity	3.97	W-14, WT-14	None (samples results much higher)
WK-10B	Alkalinity and bicarbonate	5	W-10B	None (samples results much higher)

TDS: TDS was not detected in the MBs. TDS was detected in EB WK-10B at 5 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 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
Boron	CCB 280-599952/20	None	0.00390	None
	CCB 280-600055/20	W-10B (D)	0.00433	None (sample results much higher)
Magnesium	CCB 280-600316/87	None	0.0493	None
	CCB 280-600316/98		0.0186	

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 the ICBs or CCBs as indicated below:

Analyte	ICB or CCB	Associated Samples	Result (mg/L)	Qualification
Alkalinity and bicarbonate	CCB 600312/18	W-14, WT-14	3.51	None (sample results much higher)
	CCB 600312/28		3.44	

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 160-5970742-A and LCS 160-5982712-A had recoveries of 126% and 145%, respectively. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. Rad-228 and combined radium in samples W-14, WT-14, W-10B, WK-10B, and W-18 required qualification as estimated (J or UJ if non-detect).

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 total and dissolved boron and lithium in sample W-10B from this project. Results were within control limits except dissolved lithium recovered low. Dissolved lithium in W-10B required qualification as estimated (J).

Results of laboratory-generated MS/MSD analyses were within control limits except as noted below:

- [Dissolved] Lithium and total boron failed the recovery criteria low for the MS of sample W-10BMS (280-171192-3) in batch 280-600055.
- The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 280-599681, 280-599615 and 280-599719 and analytical batch 280-600055 were outside control limits for one or more analytes (dissolved and total). Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.
- Arsenic, Chromium and Cobalt failed the recovery criteria low for the MS of sample 280-171252-1 in batch 280-599948. Arsenic, Chromium and Cobalt failed the recovery criteria low for the MSD of sample 280-171252-1 in batch 280-599948.
- The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 280-599681 and 280-599715 and analytical batch 280-599948 were outside control limits for one or more analytes, see QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.
- Potassium was detected in method blank MB 280-599293/1-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 failed the recovery criteria low for the MS of sample 160-48374-6 in batch 280-599721. Calcium and Magnesium failed the recovery criteria high. Cobalt failed the recovery criteria

low for the MSD of sample 160-48374-6 in batch 280-599721. Calcium and Magnesium failed the recovery criteria high.

- The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 280-599293 and analytical batch 280-599721 were outside control limits for one or more analytes. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.
- Boron and Lithium failed the recovery criteria high for the MSD of sample 280-170988-11 in batch 280-600587. Boron and Lithium exceeded the RPD limit.
- Calcium and Sodium failed the recovery criteria low for the MS and MSD of sample 280-170988-13 in batch 280-600448. Magnesium failed the recovery criteria high for the MSD.

These samples were not associated with project samples, so no qualification was required.

Mercury: The lab spiked sample WT-14 from this project for mercury. The results 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:

- Fluoride failed the recovery criteria low for the MS of sample 280-171066-1 in batch 280-599641. Fluoride failed the recovery criteria low for the MSD of sample 280-171066-1 in batch 280-599641.
- The matrix spike (MS) recoveries for analytical batch 280-599641 were outside control limits for fluoride. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.
- The matrix spike duplicate (MSD) recoveries for analytical batch 280-599641 were outside control limits for bromide and fluoride. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits. These samples were not associated with project samples and no qualification was required.
- Due to the high concentration of Sulfate, the matrix spike / matrix spike duplicate (MS/MSD) for analytical batch 280-600650 could not be evaluated for accuracy and precision. The associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) met acceptance criteria.

These samples were not associated with project samples, so no qualification was required.

VII. DUPLICATES

FIELD DUPLICATES

Sample WT-14 was collected as a field duplicate of W-14.

Metals: FD results were within control limits except lead required qualification as estimated but not detected (UJ) in the parent sample W-14 and estimated with high bias (J+) in WT-14.

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.

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 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 boron. 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 boron, calcium, cobalt, lithium, magnesium, potassium, selenium, and sodium. 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 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, 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.

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: Reanalysis of the following sample was performed outside of the analytical holding time due to over residue in the initial analysis. The following sample in batch 599631 is over range: W-10B (280-171192-3). The sample was reanalyzed out of hold within range and with confirming results; therefore, original in hold results are being reported.

TSS: No issues.

Rad-226: No issues.

Rad-228: No issues.

pH: Sample WK-10B (280-171192-2) 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. Lab duplicates, LCS/LCSD, and MS/MSD RPDs were within control limits.

Field precision goals were nearly met in that field duplicate/parent pair RPDs were within control limits except lead.

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 dissolved 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;
- TDS and TSS in three samples required qualification as estimated (J or UJ) due to analysis past the holding time;
- Potassium in one sample required qualification as estimated but not detected (UJ) due to detection in a MB;
- Lead in two samples required qualification as estimated (J+ or UJ if non-detect) due to detection in a MB;
- Mercury in two samples required qualification as estimated with high bias (J+) due to detection in a MB;
- Rad-228 and combined radium in five samples required qualification as estimated (J or UJ if non-detect due to LCS recoveries outside control limits;
- Dissolved lithium in one sample required qualification as estimated (J) due to MS recovery outside control limits;

- Lead 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.

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 planned wells were sampled.

Lab completeness goals were met. No data were rejected. Of the planned six samples for analysis, all 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 ≤ 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 – February 2023
Project/Task Number:	10217175-908
Sample Data Package:	280-172593-1, 280-172593-2, 280-172629-1 Lab Report Dates: 3/8/23, 3/21/23, 3/3/23 Data Validation Report Date: 4/5/23
Laboratory:	TestAmerica Denver, Arvada, Colorado (metals, anions, TDS, TSS, pH, alkalinity); TestAmerica Saint Louis, Earth City, Missouri (radiochem)
Sample Matrix:	Groundwater
Sampling Dates:	February 14-17, 2023
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*
W-2C	GW	280-172593-1	02/14/2023	X	X	X	X	X	
W-3B	GW	280-172593-8	02/17/2023	X	X	X	X	X	
W-5B	GW	280-172593-3	02/14/2023	X	X	X	X	X	
W-6BI	GW	280-172593-4	02/15/2023	X	X	X	X	X	
W-7	GW	280-172593-2	02/14/2023	X	X	X	X	X	
W-11	GW	280-172593-6	02/16/2023	X	X	X	X	X	
W-12	GW	280-172593-7	02/16/2023	X	X	X	X	X	
W-16*	GW	280-172629-1	02/15/2023	X	X	X		X	
WT-6BI	QC	280-172593-5	02/14/2023	X	X	X	X	X	

*W-16 was analyzed for a limited list of constituents.
Dissolved metals were analyzed without being requested. W-6BI and W-11 required dissolved metals analysis due to turbidity < 10 NTU.

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 2.7°C, 3.3°C, and 4.6°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 except W-16, which required qualification as estimated (J).

TSS: Samples were analyzed within 7 days of collection except W-12, 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 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 except fluoride. As reported in the case narrative, "The following samples are contained in an analytical batch that experienced a high quality control failure on the closing continuing calibration verification (CCV 280-604271/100) for fluoride: W-2C (280-172593-1), W-7 (280-172593-2), W-6BI (280-172593-4), (CCB 280-604271/101), (CCV 280-604271/100), (LCS 280-604271/91), (LCSD 280-604271/92), (MB 280-604271/93), (280-172593-D-2 DU), (280-172593-D-2 MS) and (280-172593-D-2 MSD). The acceptance criteria for the CCV is 90-110% recovery and the quality control CCV sample had a result of 112% recovery for fluoride. The samples associated with that CCV produced results of non-detect. Due to the CCV failing high we can confidently quantify and report these results as non-detect. All other associated quality control samples passed within the acceptance criteria." Fluoride in samples W-2C, W-6BI, and W-7 required qualification as estimated but not detected (UJ).

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)

See February 2023 Data Validation and Usability Report "Part 2" for evaluation of the equipment blank representing this event.

Metals: Metals were detected in the MBs as indicated below.

Method Blank or Equipment Blank	Analyte	Result (mg/L)	Affected Samples	Qualifier
MB 280-6027201-A	Barium	0.000714	W-3B, W-6BI, WT-6BI, W-11, W-12	J+
MB 280-6026961-A	Boron	0.00176	W-2C, W-3B, W-5B, W-6BI, WT-6BI, W-7, W-11, W-12	None (sample results much higher)
MB 280-6027201-A	Calcium	0.0487	W-3B, W-6BI, WT-6BI, W-11, W-12	None (sample results much higher)
MB 280-6028811-F	Chromium (dissolved)	0.000637	W-2C, W-3B, W-5B, W-6BI, WT-6BI, W-7, W-11, W-12	J+ (or UJ if non-detect)
MB 280-6027201-A	Magnesium	0.00589	W-3B, W-6BI, WT-6BI, W-11, W-12	None (sample results much higher)
MB 280-6026181-A	Potassium	0.0717	W-2C, W-5B	None (sample results much higher)
MB 280-6026181-A	Sodium	0.2190	W-2C, W-5B	None (sample results much higher)
MB 280-6027201-A	Sodium	0.0893	W-3B, W-6BI, WT-6BI, W-11, W-12	None (sample results much higher)

Mercury: Mercury was not detected in the MBs. No qualification was required.

Anions: Sulfate was detected in MB 280-6038866 at 1.04 mg/L. Associated sample W-3B, W-5B, WT-6BI, W-11, and W-12 results were much higher. No qualification was required.

Alkalinity: Bicarbonate and alkalinity were detected in the MBs as indicated below.

Method Blank or Equipment Blank	Analyte	Result (mg/L)	Affected Samples	Qualifier
MB 280-6029275	Alkalinity	3.98	W-2C, W-3B, W-5B, W-6BI, WT-6BI, W-7, W-11, W-12	None (sample results much higher)
MB 280-6030896	Alkalinity	3.88	W-16	None (sample results much higher)
MB 280-60292731	Alkalinity and bicarbonate	3.38	W-2C, W-3B, W-5B, W-6BI, WT-6BI, W-7, W-11, W-12	None (sample results much higher)

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 or the EB. No qualification was required.

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
Boron (total)	CCB 280-602936/92	W-2C, W-3B, W-5B, W-6BI, WT-6BI, W-7, W-11, W-12	0.00170	None (sample results >100x higher)
	CCB 280-603128/55	W-16	0.00389	None (sample results >100x higher)
	CCB 280-603128/69		0.00271	
	CCB 280-603128/83		0.00275	
Boron (dissolved)	CCB 280-603359/24	W-2C, W-3B, W-5B, W-6BI, WT-6BI, W-7, W-11, W-12	0.00168	None (sample results >100x higher)
	CCB 280-603359/36		0.00253	
	CCB 280-603359/50		0.00184	
	CCB 280-603645/52	W-2C, W-3B, W-6BI, WT-6BI, W-7	0.00151	None (sample results >100x higher)
	CCB 280-603645/66		0.00224	
Calcium	CCB 280-602932/114	W-2C, W-5B	0.066	None (sample results >100x higher)
	CCB 280-603020/140	W-2C, W-3B, W-5B, W-6BI, WT-6BI, W-11, W-12	0.0574	None (sample results >100x higher)
	CCB 280-603251/249	Dissolved: W-2C, W-3B, W-5B, W-	0.0577	None (sample results >100x
	CCB 280-603251/259		0.0333	

Analyte	ICB or CCB	Associated Samples	Result (mg/L)	Qualification
	CCB 280-603251/267	6BI, WT-6BI, W-7, W-11, W-12	0.0396	higher)
Chromium (total)	CCB 280-602932/80	W-2C, W-5B	0.000788	J+
	CCB 280-602932/92		0.000965	
	CCB 280-602932/103		0.000698	
	CCB 280-602932/114		0.000598	
	CCB 280-602933/49	W-3B, W-6BI, WT-6BI, W-11, W-12	0.000532	J+
	CCB 280-602933/61		0.000638	
Chromium (dissolved)	CCB 280-603789/55	None	0.00105	None
	CCB 280-603789/66		0.000726	
Lead (dissolved)	CCB 280-603789/55	W-5B	0.000288	UJ
Lithium	CCB 280-602936/106	W-2C, W-3B, W-5B, W-6BI, WT-6BI, W-7, W-11, W-12	0.00999	J+ (W-5B only, other results >100x higher)
Magnesium	CCB 280-602932/80	W-2C, W-5B	0.0171	None (sample results >100x higher)
	CCB 280-602932/114		0.317	
	CCB 280-603088/17	W-16	0.00814	None (sample results >100x higher)
	CCB 280-603088/30		0.00520	
	CCB 280-603088/38		0.0134	
	CCB 280-603251/180	Dissolved: W-2C, W-3B, W-5B, W-6BI, WT-6BI, W-7, W-11, W-12	0.133	None (sample results >100x higher)
Potassium	CCB 280-602932/80	W-2C, W-5B	0.0773	None (sample results >100x higher)
	CCB 280-602932/92		0.0729	
	CCB 280-602932/103		0.0748	
	CCB 280-602932/114		0.0775	
	CCB 280-602933/49	W-3B, W-6BI, WT-6BI, W-11, W-12	0.0569	None (sample results >100x higher)
	CCB 280-602933/61		0.130	
	CCB 280-602933/71		0.0862	
Sodium	CCB 280-602932/80	W-2C, W-5B	0.309	None (sample results >100x higher)
	CCB 280-602932/92		0.139	
	CCB 280-602932/103		0.0919	
	CCB 280-602932/114		0.656	
	CCB 280-603251/180	Dissolved: W-2C, W-3B, W-5B, W-6BI, WT-6BI, W-7, W-11, W-12	0.611	None (sample results >100x higher)

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 the ICBs or CCBs as indicated below:

Analyte	ICB or CCB	Associated Samples	Result (mg/L)	Qualification
Alkalinity and bicarbonate	CCB 602927/29	W-2C, W-3B, W-5B, W-6BI, WT-6BI, W-7, W-11, W-12	3.24	None (sample results much higher)
	CCB 602927/43		3.29	
	CCB 602927/55		3.54	
	CCB 603089/18	W-16	3.34	None (sample results much higher)
	CCB 603089/30		3.19	
	CCB 603089/45		3.20	
Alkalinity	CCB 602927/17	W-2C, W-3B, W-5B, W-6BI, WT-6BI, W-7, W-11, W-12 Total: W-7	3.68	None (sample results much higher)

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 dissolved boron and lithium in sample W-2C from this project and other dissolved metals in samples W-3B and W-5B. Results were within control limits except recoveries for dissolved calcium in W-3B and W-5B were greater than 4 times the spike amount and accuracy could not be verified. Dissolved calcium in W-3B and W-5B required qualification as estimated (J). Dissolved calcium in W-5B had RPD outside control limits.

Results of laboratory-generated MS/MSD analyses were within control limits except as noted below:

- Calcium failed the recovery criteria high for the MS of sample 280-172589-5 in batch 280-603020.
- Calcium and Magnesium failed the recovery criteria low for the MSD of sample 280-172589-5 in batch 280-603020. Sodium failed the recovery criteria high.
- Calcium and Magnesium failed the recovery criteria low for the MS of sample 280-172656-7 in batch 280-603251.
- Calcium, Magnesium and Sodium failed the recovery criteria low for the MSD of sample 280-172656-7 in batch 280-603251.

These samples were not associated with project samples, so no qualification was required.

Mercury: The lab spiked sample W-3B from this project for dissolved mercury. The results were within the control limits and no qualification was required.

Anions: The lab spiked samples W-5B, W-7, and W-16 from this project for anions. Recoveries were outside control limits for fluoride and sulfate in W-5B and fluoride in W-7. Fluoride and sulfate in W-5B and fluoride in W-7 required qualification as estimated (J) or UJ if non-detect.

VII. DUPLICATES

FIELD DUPLICATES

Sample WT-6BI was collected as a field duplicate of W-6BI.

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 within control limits. No qualification was required.

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 W-5B, W-7, and W-16 from this project for anions. Results 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 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 performed on sample W-12 from this project for TSS. Results were within control limits and no qualification was required. 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 except 280-172439-B-1-DU. The lab-generated duplicate was not associated with project samples; 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 280-172593-3 PDS. 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, cadmium, calcium, cobalt, lithium, magnesium, potassium, selenium, and sodium. 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: "The interference check standard solution (ICSA) associated with batch 280-603251 had results for one or more elements at a level greater than 1/2 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 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, 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	0.0005	0.010 (MCL)	Zero	0.21	0.014
Barium	0.003	0.00038	2 (MCL)	2	0.037	2
Beryllium	0.001	0.0003	0.004 (MCL)	0.004	0.0046	0.004
Boron	0.1	0.0015	Not Listed	Not Listed	6.9	None
Cadmium	0.001	0.00019	0.005 (MCL)	0.005	0.025	0.0063
Calcium	10	1.6	Not Listed	Not Listed	630	None
Chromium	0.003	0.0005	0.1 (MCL)	0.1	0.059	0.1
Cobalt	0.001	0.00033	Not Listed	Not Listed	0.051	0.0092
Lead	0.001	0.00023	0.015 (AL)	Zero	0.0092	0.015
Lithium	0.02	0.0091	Not Listed	Not Listed	6.3	7.2
Molybdenum	0.002	0.00037	Not Listed	Not Listed	0.017	0.1
Selenium	0.005	0.001	0.05 (MCL)	0.05	2.9	4.0
Thallium	0.001	0.00021	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.

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 nearly met. Lab duplicates, LCS/LCSD, and MS/MSD RPDs were within control limits except dissolved calcium.

Field precision goals were met in that field duplicate/parent pair RPDs were within control limits.

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 dissolved calcium, fluoride, 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;
- TDS in one sample 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;
- Fluoride in three samples required qualification as estimated but not detected (UJ) due to CCV outside control limits;
- Barium in five samples required qualification as estimated with high bias (J+) due to detection in a MB;
- Dissolved chromium in eight samples required qualification as estimated (J+ or UJ if non-detect) due to detection in a MB;
- Total chromium in seven samples required qualification as estimated with high bias (J+) due to detection in a CCB;

- Dissolved lead in one sample required qualification as estimated but not detected (UJ) due to detection in a CCB;

- Dissolved calcium in two samples required qualification as estimated (J) due to MS recoveries outside control limits;

- Fluoride in two samples and sulfate in one sample required qualification as estimated (J or UJ if non-detect) due to MS recoveries 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 planned wells were sampled.

Lab completeness goals were met. No data were rejected. Of the planned nine samples for analysis, all 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 ≤ 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 – February 2023

Project/Task Number: 10217175-908

Sample Data Package: 280-172755-1, 280-172755-2, 280-173023-1, 280-173023-2
Lab Report Dates: 3/9/23, 3/30/23, 3/15/23, 4/3/23
Data Validation Report Date: 4/7/23

Laboratory: TestAmerica Denver, Arvada, Colorado (metals, anions, TDS, TSS, pH, alkalinity);
TestAmerica Saint Louis, Earth City, Missouri (radiochem)

Sample Matrix: Groundwater

Sampling Dates: February 20-22 and March 1, 2023

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
W-1*	GW	280-172755-7	02/21/2023		X	X	X	X	
		280-173023-3	03/01/2023	X					
W-9	GW	280-172755-6	02/21/2023	X	X	X	X	X	Note 1
W-10B	GW	280-172755-2	02/21/2023	X	X	X	X	X	
W-14	GW	280-172755-5	02/21/2023	X	X	X	X	X	
W-17	GW	280-172755-4	02/22/2023	X	X	X	X	X	
W-18	GW	280-172755-3	02/20/2023	X	X	X	X	X	
MW-8	GW	280-173023-2	03/01/2023	X	X	X	X	X	
MW-9	GW	280-173023-1	03/01/2023	X	X	X	X	X	
WK-10B	QC	280-172755-1	02/21/2023	X	X	X	X	X	

*W-1 ran dry; metals sample was collected after a recharge period
Note 1: W-9 turbidity > 10 NTU but sample volume was limited. Dissolved metals were not requested.

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 0.3°C, 0.6°C, and 0.9°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.

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 met except beryllium in CCV 280-603493/126 had a %D of 13%. Beryllium in samples W-9, W-10B, WK-10B, W-14, W-17, and W-18 required qualification as estimated (J or UJ if non-detect).

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 with this sample event.

Metals: Metals were detected in the MBs as indicated below.

Method Blank or Equipment Blank	Analyte	Result (mg/L)	Affected Samples	Qualifier
MB 280-6040651-A	Boron	0.00494	MW-8, MW-9	None (sample results >100x higher)
WK-10B	Boron	0.0045	W-10B	None (sample results >100x higher)
WK-10B	Calcium	0.036	W-10B	None (sample results >100x higher)
MB 280-6040711-A	Lead	0.000256	MW-8, MW-9	J+
WK-10B	Magnesium	0.017	W-10B	None (sample results >100x higher)
MB 280-6039031-A	Potassium	0.156	W-1	J+
MB 280-6039031-A	Sodium	0.149	W-1	None (sample results >100x higher)
WK-10B	Sodium	0.15	W-10B	None (sample results >100x 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: Bicarbonate and alkalinity were detected in the MBs as indicated below. Alkalinity was not detected in the EB.

Method Blank or Equipment Blank	Analyte	Result (mg/L)	Affected Samples	Qualifier
MB 280-60366532	Alkalinity and bicarbonate	3.11	W-1, W-9, W-10B, WK-10B, W-14, W-17, W-18	UJ - WK-10B only (other sample results >100x higher)
MB 280-604200110	Alkalinity and bicarbonate	3.42	MW-8, MW-9	None (sample results >100x 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 WK-10B at 1.2 mg/L. Parent sample W-10B required qualification as estimated with high bias (J+).

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 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
Boron	CCB 280-604060/20	W-10B	0.00781	None (sample results >100x higher)
	CCB 280-604060/34		0.00202	
	CCB 280-604406/60	MW-8, MW-9	0.00177	None (sample results >100x higher)
	CCB 280-604406/88		0.00302	
	CCB 280-604632/24	MW-8	0.00218	None (sample results >100x higher)
	CCB 280-604632/36		0.00363	
Cadmium	CCB 280-604367/108	MW-8, MW-9	0.000244	J+
Calcium	CCB 280-603633/94	W-9, W-10B, WK-10B, W-14, W-17, W-18	0.0527	J+ WK-10B only (other sample results >100x higher)
	CCB 280-603633/107		0.116	
Lead	CCB 280-604367/108	MW-8, MW-9	0.000443	J+
	CCB 280-604367/120		0.000358	
Lithium	CCB 280-604207/122	W-1	0.0115	None (sample results >100x higher)
Magnesium	CCB 280-603789/91	W-9, W-10B, W-14, W-17, W-18	0.00426	None (sample results >100x higher)
	CCB 280-603789/103		0.00661	
	CCB 280-603789/131		0.00426	
	CCB 280-603842/83	W-10B, WK-10B W-17, W-18	0.00444	J+ WK-10B only (other sample results >100x higher)
	CCB 280-604535/69	W-1	0.0191	None (sample results >100x higher)
	CCB 280-604580/40	MW-8, MW-9	0.00602	None (sample results >100x higher)
	CCB 280-604580/47		0.0288	
	CCB 280-604580/51		0.00451	
Potassium	CCB 280-604535/56	W-1	0.201	J+
	CCB 280-604535/69		0.166	
	CCB 280-604535/81		0.227	
Selenium	CCB 280-603633/107	W-9, W-10B, WK-10B, W-14, W-17, W-18	0.00102	W-9 J+, WK-10B UJ (other sample results >100x higher)
Sodium	CCB 280-603633/94	W-9, W-10B, WK-10B, W-14,	0.283	J+ WK-10B only (other sample
	CCB 280-603633/107		1.240	

Analyte	ICB or CCB	Associated Samples	Result (mg/L)	Qualification
	CCB 280-603633/119	W-17, W-18	0.362	results >100x higher)
	CCB 280-603789/91	W-9, W-10B, W-14, W-17, W-18	0.0939	None (sample results >100x higher)
	CCB 280-603789/103		0.0862	
	CCB 280-604535/56	W-1	0.188	None (sample results >100x higher)
	CCB 280-604535/69		0.139	
	CCB 280-604535/81		0.429	
	CCB 280-604536/120	MW-8, MW-9	0.0767	None (sample results >100x higher)
	CCB 280-604580/35	MW-8, MW-9	0.0925	None (sample results >100x higher)
	CCB 280-604580/40		0.0982	
	CCB 280-604580/47		0.0842	
	CCB 280-604580/51		0.0814	

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 the ICBs or CCBs as indicated below:

Analyte	ICB or CCB	Associated Samples	Result (mg/L)	Qualification
Alkalinity and bicarbonate	CCB 604200/108	MW-8, MW-9	3.35	None (sample results much higher)
	CCB 604200/122		3.32	

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 160-6026742-A had a recovery of 126%. 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 passes, 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 boron and lithium in sample W-1 from this project and all metals in sample WK-10B. Results were within control limits except recoveries for sodium in WK-10B were greater than 4 times the spike amount and accuracy could not be verified. RPDs were within control limits except sodium and potassium in WK-10B. Sodium and potassium in WK-10B required qualification as estimated (J).

Results of laboratory-generated MS/MSD analyses were within control limits except as noted below:

- Calcium failed the recovery criteria low for the MS and MSD of sample 280-173032-1 in batch 280-604535. Magnesium failed the recovery criteria high.
- Selenium, Calcium, Potassium and Sodium failed the recovery criteria low for the MS of sample 280-173088-1 in batch 280-604536. Barium failed the recovery criteria high.
- Selenium, Calcium and Sodium failed the recovery criteria low for the MSD of sample 280-173088-1 in batch 280-604536. Barium failed the recovery criteria high.

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. Laboratory-generated results were within the control limits and no qualification was required.

Anions: The lab did not spike samples from this project for anions. Results of laboratory-generated MS/MSD analyses were within control limits except as noted below:

- The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 280-604445 were outside control limits for sulfate, see QC Sample Results for detail. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.
- Fluoride failed the recovery criteria low for the MS of sample 280-173284-10 in batch 280-604627.
- Fluoride failed the recovery criteria low for the MSD of sample 280-173284-10 in batch 280-604627.

These samples were not associated with project samples, so no qualification was required.

VII. DUPLICATES

FIELD DUPLICATES

See February 2023 Data Validation and Usability Report "Part 1" for evaluation of the field duplicate representing this event.

LABORATORY DUPLICATES

Metals: Lab duplicate analysis was not performed for metals.

Anions: Lab duplicate analysis was not performed on samples 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 samples 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 except 280-172439-B-1-DU. The lab-generated duplicate was not associated with project samples; 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 280-172755-1 PDS. 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 boron, calcium, cobalt, lithium, magnesium, molybdenum, potassium, selenium, and sodium. 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 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, 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	0.0005	0.010 (MCL)	Zero	0.21	0.014
Barium	0.003	0.00038	2 (MCL)	2	0.037	2
Beryllium	0.001	0.0003	0.004 (MCL)	0.004	0.0046	0.004
Boron	0.1	0.0015	Not Listed	Not Listed	6.9	None
Cadmium	0.001	0.00019	0.005 (MCL)	0.005	0.025	0.0063
Calcium	10	1.6	Not Listed	Not Listed	630	None
Chromium	0.003	0.0005	0.1 (MCL)	0.1	0.059	0.1
Cobalt	0.001	0.00033	Not Listed	Not Listed	0.051	0.0092
Lead	0.001	0.00023	0.015 (AL)	Zero	0.0092	0.015
Lithium	0.02	0.0091	Not Listed	Not Listed	6.3	7.2
Molybdenum	0.002	0.00037	Not Listed	Not Listed	0.017	0.1
Selenium	0.005	0.001	0.05 (MCL)	0.05	2.9	4.0
Thallium	0.001	0.00021	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.

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: Notes from the case narrative:

- The following sample has a concentration of sulfate that is high enough to heavily augment the fluoride peak at a 1x dilution given the concentration of fluoride in the sample is very low: W-14 (280-172755-5). The sample was run at a 5x dilution to decrease the concentration of sulfate so that the peaks properly elute. The result of non-detect has been confirmed with further dilutions so the data is being qualified and reported at a 5x dilution.
- The following sample has a concentration of sulfate that is high enough to heavily augment the fluoride peak at a 1x dilution given the concentration of fluoride in the sample is very low: W-10B (280-172755-2). The sample was run at a 5x dilution to decrease the concentration of sulfate so that the peaks properly elute. The sample had a detect that is higher than the minimum detection limit (MDL) but lower than the reporting limit (RL). The data is being qualified and reported at a 5x dilution.

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 nearly met. Lab duplicates, LCS/LCSD, and MS/MSD RPDs were within control limits except sodium and potassium MS/MSD RPDs.

Field precision goals were assessed in the Data Validation and Usability Report for February 2023 Part 1.

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 sodium.

Lab accuracy goals were met in that LCS/LCSD recoveries were within control limits 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;
- Beryllium in six samples required qualification as estimated (J or UJ if non-detect) due to CCV outside control limits;
- Lead in two samples required qualification as estimated with high bias (J+) due to detection in a MB;
- Potassium in one sample required qualification as estimated with high bias (J+) due to detection in a MB;
- Alkalinity and bicarbonate in one sample required qualification as estimated but not detected (UJ) due to detection in a MB;
- TSS in one sample required qualification as estimated with high bias (J+) due to detection in the EB;
- Cadmium in two samples required qualification as estimated with high bias (J+) due to detection in a CCB;
- Calcium in one sample required qualification as estimated with high bias (J+) due to detection in a CCB;
- Lead in two samples required qualification as estimated with high bias (J+) due to detection

in a CCB;

- Magnesium, potassium, and sodium in one sample required qualification as estimated with high bias (J+) due to detection in a CCB;

- Selenium in two samples required qualification as estimated (J or UJ if non-detct) due to detection in a CCB;

- Sodium in one sample required qualification as estimated (J) due to MS/MSD recoveries outside control limits;

- Sodium and potassium in one sample required qualification as estimated (J) due to MS/MSD 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 planned wells were sampled.

Lab completeness goals were met. No data were rejected. Of the planned nine samples for analysis, all 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 ≤ 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 – March 2023
Project/Task Number: 10217175-908
Sample Data Package: 280-174404-1, 280-174404-2
Lab Report Dates: 4/13/23, 5/12/23
Data Validation Report Date: 5/20/23
Laboratory: TestAmerica Denver, Arvada, Colorado (metals, anions, TDS, TSS, pH, alkalinity);
TestAmerica Saint Louis, Earth City, Missouri (radiochem)
Sample Matrix: Groundwater
Sampling Dates: March 29-30, 2023
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*
W-10B	GW	280-174404-3	03/30/2023	X	X	X	X	X	X
W-17	GW	280-174404-5	03/30/2023	X	X	X	X	X	
W-18	GW	280-174404-1	03/29/2023	X	X	X	X	X	
WT-18	QC	280-174404-2	03/29/2023	X	X	X	X	X	
WK-10B	QC	280-174404-4	03/30/2023	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 2.0°C and 2.2°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.

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 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.

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 and EB as indicated below.

Method Blank or Equipment Blank	Analyte	Result (mg/L)	Affected Samples	Qualifier
MB 280-6073071-A	Calcium	0.0478	W-10B, WK-10B, W-17, W-18, WT-18	J+ WK-10B only (other sample results >100x higher)
MB 280-6073071-A	Chromium	0.000976	W-10B, WK-10B, W-17, W-18, WT-18	J+
MB 280-6073071-A	Sodium	0.0817	W-10B, WK-10B, W-17, W-18, WT-18	J+ WK-10B only (other sample results >100x higher)
MB 280-6075491-B	Barium (D)	0.000611	W-10B	J+
MB 280-6075491-B	Boron (D)	0.00343	W-10B	None (sample results >100x higher)
MB 280-6075491-B	Calcium (D)	0.059	W-10B	None (sample results >100x higher)
WK-10B	Boron	0.004	W-10B	None (sample results >100x higher)
WK-10B	Calcium	0.047	W-10B	None (sample results >100x higher)
WK-10B	Chromium	0.00071	W-10B	J+
WK-10B	Magnesium	0.085	W-10B	None (sample results >100x higher)
WK-10B	Potassium	0.14	W-10B	None (sample results >100x higher)
WK-10B	Selenium	0.002	W-10B	None (sample results >100x higher)
WK-10B	Sodium	0.17	W-10B	None (sample results >100x 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: Bicarbonate and alkalinity were detected in the MBs and the EB as indicated below.

Method Blank or Equipment Blank	Analyte	Result (mg/L)	Affected Samples	Qualifier
MB 280-60743632	Alkalinity	3.7	W-10B, WK-10B, W-17, W-18, WT-18	J+ WK-10B only (other sample results >100x higher)
MB 280-60743632	Bicarbonate alkalinity	3.36	W-10B, WK-10B, W-17, W-18, WT-18	J+ WK-10B only (other sample results >100x higher)
MB 280-60743658	Alkalinity	3.77	W-10B, WK-10B, W-17, W-18, WT-18	J+ WK-10B only (other sample results >100x higher)
MB 280-60743658	Bicarbonate alkalinity	3.3	W-10B, WK-10B, W-17, W-18, WT-18	J+ WK-10B only (other sample results >100x higher)
MB 280-6074366	Alkalinity	3.87	W-10B, WK-10B, W-17, W-18, WT-18	J+ WK-10B only (other sample results >100x higher)
WK-10B	Alkalinity and bicarbonate	4	W-10B	J+ WK-10B only (other sample results >100x 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 the EB at 7.6 mg/L. W-10B required qualification as estimated with high bias (J+).

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 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
Boron	CCB 280-608211/18	W-10B, WK-10B, W-17, W-18, WT-18	0.00739	None
	CCB 280-608401/18	W-10B (D)	0.00637	None (sample results >100x higher)
	ICB 280-608050/13	WK-10B, W-17, W-18, WT-18	0.00291	J+ WK-10B only (other sample results >100x
	CCB 280-608050/24		0.00264	
	CCB 280-608050/38		0.00330	

Analyte	ICB or CCB	Associated Samples	Result (mg/L)	Qualification
	CCB 280-608050/42		0.00218	higher)
	CCB 280-608050/56		0.00490	
Chromium	CCB 280-607599/87	W-10B, WK-10B, W-17, W-18, WT-18	0.00110	J+
	CCB 280-607599/96		0.000738	
	CCB 280-607599/102		0.000513	
	CCB 280-607599/113		0.000575	
Magnesium	CCB 280-607599/113	W-10B, WK-10B, W-17, W-18, WT-18	0.0101	J+ WK-10B only (other sample results >100x higher)
	CCB 280-607655/85	W-10B, WK-10B, W-17, WT-18	0.00637	J+ WK-10B only (other sample results >100x higher)
	CCB 280-607655/94		0.00544	
	CCB 280-607759/50	W-10B, WT-18	0.0435	None (sample results >100x higher)
Potassium	CCB 280-607599/113	W-10B, WK-10B, W-17, W-18, WT-18	0.124	J+ WK-10B only (other sample results >100x higher)
Sodium	CCB 280-607599/87	W-10B, WK-10B, W-17, W-18, WT-18	0.142	J+ WK-10B only (other sample results >100x higher)
	CCB 280-607599/96		0.124	
	CCB 280-607599/102		0.129	
	CCB 280-607599/113		0.739	
	CCB 280-607655/85	W-10B, WK-10B, W-17, WT-18	0.158	J+ WK-10B only (other sample results >100x higher)
	CCB 280-607655/94		0.0798	

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 the ICBs or CCBs as indicated below:

Analyte	ICB or CCB	Associated Samples	Result (mg/L)	Qualification
Alkalinity and bicarbonate	CCB 607436/44	W-10B, WK-10B, W-17, W-18, WT-18	3.14	J+ WK-10B only (other sample results >100x higher)
	CCB 607436/56		3.67	
	CCB 607436/76		3.32	
Alkalinity	CCB 607436/18	W-10B, WK-10B, W-17, W-18, WT-18	3.57	J+ WK-10B only (other sample results >100x higher)
	CCB 607436/56		3.79	
Bicarbonate	CCB 607436/18	W-10B, WK-10B, W-17, W-18, WT-18	3.34	J+ WK-10B only (other sample results >100x higher)
	CCB 607436/56		3.73	

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 W-18 from this project for metals. Results were within control limits except recoveries for calcium, magnesium, potassium, selenium, and sodium were greater than 4

times the spike amount and accuracy could not be verified. Calcium, magnesium, potassium, selenium, and sodium results in W-18 required qualification as estimated (J). RPDs were within control limits.

Results of laboratory-generated MS/MSD analyses were within control limits. No qualification was required.

Mercury: The lab did not spike samples from this project for mercury. Laboratory-generated MS/MSD results were within the control limits and no qualification was required.

Anions: The lab did not spike samples from this project for anions. Laboratory-generated MS/MSD results were within control limits except chloride, fluoride, and sulfate associated with batch 608162. These analyses were not associated with project samples, so no qualification was required.

VII. DUPLICATES

FIELD DUPLICATES

Sample WT-18 was collected as a field duplicate of W-18.

Metals: FD results were within control limits except cadmium and lead were detected in WT-18 and non-detect in parent sample W-18. Cadmium and lead required qualification as estimated but not detected (UJ) in W-18 and estimated with high bias (J+) in WT-18.

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.

Rad-226: FD results were outside control limits at a combined radium RPD of 38%. Rad-226 and combined radium required qualification as estimated with high bias (J+) in parent sample W-18 and as estimated with low bias (J-) in field duplicate WT-18. Since results were below the RL, qualification was reduced to estimated but not detected (UJ).

Rad-228: FD results were outside control limits at a combined radium RPD of 38%. Rad-228 and combined radium required qualification as estimated with high bias (J+) in parent sample W-18 and as estimated with low bias (J-) in field duplicate WT-18. Since results were below the RL, qualification was reduced to estimated but not detected (UJ).

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 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 performed on sample WK-10B from this project for TDS. Results were within control limits and no qualification was required. The laboratory-generated duplicate results were also within control limits and no qualification was required.

TSS: Lab duplicate analysis was performed on sample W-10B from this project for TSS. Results were within control limits and no qualification was required. The laboratory-generated duplicate results were also 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 280-174233-D-5-G PDS. 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 boron, calcium, lithium, magnesium, molybdenum, potassium, selenium, and sodium. 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 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, 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	0.0005	0.010 (MCL)	Zero	0.21	0.014
Barium	0.003	0.00038	2 (MCL)	2	0.037	2
Beryllium	0.001	0.0003	0.004 (MCL)	0.004	0.0046	0.004
Boron	0.1	0.0015	Not Listed	Not Listed	6.9	None
Cadmium	0.001	0.00019	0.005 (MCL)	0.005	0.025	0.0063
Calcium	10	1.6	Not Listed	Not Listed	630	None
Chromium	0.003	0.0005	0.1 (MCL)	0.1	0.059	0.1
Cobalt	0.001	0.00033	Not Listed	Not Listed	0.051	0.0092
Lead	0.001	0.00023	0.015 (AL)	Zero	0.0092	0.015
Lithium	0.02	0.0091	Not Listed	Not Listed	6.3	7.2
Molybdenum	0.002	0.00037	Not Listed	Not Listed	0.017	0.1
Selenium	0.005	0.001	0.05 (MCL)	0.05	2.9	4.0
Thallium	0.001	0.00021	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.

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: WT-18 (280-174404-2). 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 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-18 (280-174404-1), WT-18 (280-174404-2), W-10B (280-174404-3) and W-17 (280-174404-5). 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: No issues.

TDS: No issues.

TSS: No issues.

Rad-226: No issues.

Rad-228: No issues.

pH: The following sample did not equilibrate to within 0.05 pH units after three measurements: WK-10B (280-174404-4). 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. Lab duplicates, LCS/LCSD, and MS/MSD RPDs were within control

limits.

Field precision goals were nearly met in that field duplicate/parent pair RPDs were within control limits except cadmium and lead.

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, potassium, selenium, and sodium, whose accuracy could not be 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;
- Calcium and sodium in one sample required qualification as estimated with high bias (J+) due to detection in a MB;
- Chromium in five samples required qualification as estimated with high bias (J+) due to detection in a MB;
- Dissolved barium in one sample required qualification as estimated with high bias (J+) due to detection in a MB;
- Chromium in one sample required qualification as estimated with high bias (J+) due to detection in the EB;
- Alkalinity and bicarbonate in one sample required qualification as estimated with high bias (J+) due to detection in a MB;
- Alkalinity and bicarbonate in one sample required qualification as estimated with high bias (J+) due to detection in the EB;
- TSS in one sample required qualification as estimated with high bias (J+) due to detection in the EB;
- Boron, magnesium, potassium, and sodium in one sample required qualification as estimated with high bias (J+) due to detection in a CCB;

- Chromium in five samples required qualification as estimated with high bias (J+) due to detection in a CCB;

- Calcium, magnesium, potassium, selenium, and sodium in one sample required qualification as estimated (J) due to MS recoveries outside control limits;

- Alkalinity and bicarbonate in one sample required qualification as estimated with high bias (J+) due to detection in a CCB;

- Cadmium and lead 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 RPD outside control limits in the parent/field duplicate pair.

- Rad-226, Rad-228, and combined radium required qualification as estimated but not detected (UJ) in the parent sample and field duplicate due to RPD outside control limits in the 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 met. All planned wells were sampled.

Lab completeness goals were met. No data were rejected. Of the planned five samples for analysis, all 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 ≤ 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
pH by USEPA SW-846 Method 9040B
Alkalinity by Standard Method SM2320B

Project:	Xcel Energy Coal Combustion Residuals (CCR) Project – Comanche – May 2023
Project/Task Number:	10279361-100
Sample Data Package:	280-176105-1, 280-176191-1, 280-176412-1 Lab Report Dates: 5/22/23, 5/24/23, 5/26/23 Data Validation Report Date: 7/5/23
Laboratory:	TestAmerica Denver, Arvada, Colorado (metals, anions, TDS, TSS, pH, alkalinity);
Sample Matrix:	Groundwater
Sampling Dates:	May 4, 8, 11, 2023
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:	Andrew Byks, HDR

Sample ID	Matrix	Lab ID	Date Collected	Metals Mercury	Anions	TDS TSS	RA-226 RA-228	Alkalinity Mg, K, Na	Dissolved Metals
MW-6	GW	280-176105-1	5/4/2023	X	X	X		X	
MWT-6	GW	280-176105-2	5/4/2023	X	X	X		X	
MW-1B	GW	280-176105-3	5/4/2023	X	X	X		X	
MW-2B	GW	280-176105-4	5/4/2023	X	X	X		X	
MW-4B	GW	280-176191-1	5/8/2023	X	X	X		X	
MW-7	GW	280-176191-2	5/8/2023	X	X	X		X	
MW-3	GW	280-176414-1	5/11/2023	X	X	X		X	
MWK-3	GW	280-176414-2	5/11/2023	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 between 0.2°C and 2.0°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 for samples MW-1B, MW-2B, MW-T-6, and MW-3 which required qualification as estimated (J), and samples MW-6 and MWK-3 which required qualification as estimated but not detected (UJ).

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. No qualification was required.

Mercury: Initial calibration criteria were met. 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.

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%. 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 EB as indicated below.

Method Blank or Equipment Blank	Analyte	Result (mg/L)	Affected Samples	Qualifier
MB 280-612677/87	Boron	0.00168	MW-4B, MW-7	None (sample results >100x higher)
MB 280-612373/1-A		0.00395	MW-3, MWK-3	J+ (MWK-3 only, other sample results >100x higher)
MWK-3		0.024	MW-3	J+

Method Blank or Equipment Blank	Analyte	Result (mg/L)	Affected Samples	Qualifier
MB 280-611651/1-A	Calcium	0.0345	MW-4B, MW-7	None (sample results >100x higher)
MWK-3		0.160	MW-3	None (sample results >100x higher)
MB 280-611651/1-A	Magnesium	0.00555	MW-4B, MW-7	None (sample results >100x higher)
MWK-3	Manganese	0.00058	MW-3	None (sample results >100x higher)
MWK-3	Magnesium	0.300	MW-3	None (sample results >100x higher)
MWK-3	Potassium	0.089	MW-3	None (sample results >100x higher)
MWK-3	Sodium	0.200	MW-3	None (sample results >100x higher)

Mercury: Mercury was not detected in the MBs or EB. No qualification was required.

Anions: Anions were not detected in the MBs. Fluoride was detected in EB MWK-3 at 0.29 mg/L. Fluoride in affected sample MW-3 required qualification as estimated but not detected (UJ).

Alkalinity: Carbonate 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 280-611910/32	Alkalinity	4.07	MW-6, MWT-6, MW-1B, MW-2B	J+ (MW-6, MWT-6 only, other sample results >100x higher)
MB 280-612064/5		4.07	MW-4B, MW-7	None (sample results >100x higher)
MB 280-612947/6		3.28	MW-3, MWK-3	UJ (MWK-3 only, other sample results >100x higher)
MB 280-612064/5	Carbonate Alkalinity as CaCO3	3.66	MW-4B, MW-7	None (sample results >100x higher)
MB 280-612947/6		3.28	MW-3, MWK-3	UJ (MWK-3 only, other sample results >100x higher)

TDS: TDS was not detected in the MBs or EB. No qualification was required.

TSS: TSS was not detected in the MBs or 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
Boron	CCB 280-613254/17	MW-6, MWT-6, MW-1B, MW-2B	0.00392	None (sample results >100x higher)
	CCB 280-6133111/31	MW-2B	0.00314	None (sample results >100x higher)
	CCB 280-613111/38		0.00194	
	CCB 280-612677/87	MW-4B, MW-7	0.00231	None (sample results >100x higher)
	CCB 280-613753/17	MW-3, MWK-3	0.00605	J+
	CCB 280-613753/31		0.00202	
	CCB 280-613753/44		0.00162	
Calcium	CCB 280-612052/216	MW-6, MWT-6, MW-1B, MW-2B	0.089	None (sample results >100x higher)
	CCB 280-612777/317	MW-3, MWK-3	0.0408	J+ (MWK-3 only, other sample results >100x higher)
	CCB 280-612777/327		0.0407	
Magnesium	CCB 280-612052/216	MW-6, MWT-6, MW-1B, MW-2B	0.00587	None (sample results >100x higher)
	CCB 280-612052/227		0.0542	
	CCB 280-612777/135	MW-3, MWK-3	0.00738	J+ (MWK-3 only, other sample results >100x higher)
	CCB 280-612777/145		0.0125	
	CCB 280-612777/317		0.0420	
	CCB 280-612777/327		0.146	
Manganese	CCB 280-612777/145	MW-3, MWK-3	0.000596	J+ (MWK-3 only, other sample results >100x higher)
Potassium	CCB 280-612777/135	MW-3, MWK-3	0.0653	J+ (MWK-3 only, other sample results >100x higher)
	CCB 280-612777/145		0.108	
	CCB 280-612777/154		0.0808	
	CCB 280-612777/317		0.111	
	CCB 280-612777/327		0.101	
Sodium .	CCB 280-612052/216	MW-6, MWT-6, MW-1B, MW-2B	0.280	None (sample results >100x higher)
	CCB 280-612052/227		0.500	
	CCB 280-612202/44	MW-6, MWT-6	0.0991	
	CCB 280-612777/135	MW-3, MWK-3	0.357	J+ (MWK-3 only, other sample results >100x higher)
	CCB 280-612777/145		0.235	
	CCB 280-612777/154		0.0744	
	CCB 280-612777/317		0.842	

	CCB 280-612777/327		0.578	

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.

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 not within the project control limits of 75-125%. From the case narrative: “The LCSD recovered at (70%). 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 LCSD are not from this agency and are therefore held to our in-house statistical limits of (70-125%) per method requirements. The LCS passes, no further action is required: (LCSD 160-611470/3-A).” 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 did not spike samples from this project for metals. Laboratory generated MS/MSD were within the control limits and no qualification was required.

Mercury: The lab did not spike samples from this project for mercury. Laboratory generated MS/MSD were within the control limits and no qualification was required.

Anions: The lab did not spike samples from this project for anions. Laboratory generated MS/MSD were within the control limits and no qualification was required.

VII. DUPLICATES

FIELD DUPLICATES

Sample MWT-6 was collected as a field duplicate of MW-6.

Metals: FD results were within control limits. No qualification was required.

Mercury: 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: The RPD for TDS between MW-6 and MWT-6 was 34.09%. Parent sample MW-6 required qualification as estimated with low bias (J-) and field duplicate MWT-6 required qualification as estimated with high bias (J+).

TSS: TSS was not detected in parent sample MW-6 but detected in field duplicate MWT-6. TSS in parent sample MW-6 required qualification as estimated but not detected (UJ) and in field duplicate MWT-6 as estimated with high bias (J+).

LABORATORY DUPLICATES

Metals: Lab duplicate analysis was not performed for metals.

Mercury: Lab duplicate analysis was not performed for mercury.

Anions: Lab duplicate analysis was performed on sample MWK-3 from this project for all three anions. Results were within control limits and no qualification was required. The laboratory generated duplicate results were also within control limits and no additional qualification was required.

Alkalinity: Lab duplicate analysis was performed on sample MWK-3 from this project for alkalinity. Results were within control limits and no qualification was required. The laboratory generated duplicate results were also within control limits and no additional qualification was required.

TDS: Lab duplicate analysis was not performed on samples from this project for TDS. The laboratory-generated duplicate results were within the control limits and no qualification was required.

TSS: Lab duplicate was not performed on samples from this project for TSS. The laboratory-generated duplicate results were within the control limits and no qualification was required.

pH: Lab duplicate analysis was performed on sample MW-6 from this project for pH. Results were within control limits and no qualification was required. The laboratory generated duplicate results were also within control limits except for in report 280-176414-1 batch 280-176363-B-2. Samples were not associated with project samples and no additional 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.

IX. POST DIGESTION SPIKE AND DILUTION TEST

Serial dilution tests were performed for Method 6020A metals. The dilution tests were not applicable unless sample results were greater than 50 times the MDL. Dilution tests were performed on several samples.

Metals: Post-digestion spike (PDS) analyses were within the control limits. 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 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, 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. Samples requiring dilution prior to analysis have had their reporting limits adjusted accordingly.

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	0.0005	0.010 (MCL)	Zero	0.21	0.014
Barium	0.003	0.00038	2 (MCL)	2	0.037	2
Beryllium	0.001	0.0003	0.004 (MCL)	0.004	0.0046	0.004
Boron	0.1	0.0015	Not Listed	Not Listed	6.9	None
Cadmium	0.001	0.00019	0.005 (MCL)	0.005	0.025	0.0063
Calcium	20	3.2	Not Listed	Not Listed	630	None
Chromium	0.003	0.0005	0.1 (MCL)	0.1	0.059	0.1
Cobalt	0.001	0.00033	Not Listed	Not Listed	0.051	0.0092
Lead	0.001	0.00023	0.015 (AL)	Zero	0.0092	0.015
Lithium	0.02	0.0091	Not Listed	Not Listed	6.3	7.2
Molybdenum	0.002	0.00037	Not Listed	Not Listed	0.017	0.1
Selenium	0.005	0.001	0.05 (MCL)	0.05	2.9	4.0
Thallium	0.001	0.00021	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.

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.

Metals: No issues.

Mercury: No issues.

Anions: No issues.

Alkalinity: No issues.

TDS: No issues.

TSS: 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).

Field precision goals were nearly met in that parent/field duplicate pair RPDs were within control limits except for TSS and TDS.

Lab precision goals were met. Lab duplicates, LCS/LCSD, and MS/MSD RPDs were within control limits.

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 in that MS/MSD recoveries were within control limits.

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 six samples required qualification as estimated (J) due to analysis past the holding time;
- Boron in sample MWK-3 required qualification as estimated with high bias (J+) due to detection in a MB;
- Boron in sample MW-3 required qualification as estimated with high bias (J+) due to detection in an EB;
- Fluoride in sample MW-3 required qualification as estimated but not detected due to detection in an EB;
- Alkalinity in three samples required qualification as estimated with high bias (J+) or as estimated but not detected (UJ) due to detection in a MB;
- Carbonate alkalinity as CaCO3 required qualification as estimated but not detected (UJ) due to detection in a MB;
- Boron in two samples required qualification as estimated with high bias (J+) due to detection in a CCB;
- Calcium, Magnesium, Manganese, Potassium, and Sodium in sample MWK-3 required qualification as estimated with high bias (J+) due to detection in a CCB;
- The RPD for TDS between MW-6 and MWT-6 was 34.09%. Parent sample MW-6 required qualification as estimated with low bias (J-) and field duplicate MWT-6 required qualification as estimated with high bias (J+);
- TSS was not detected in parent sample MW-6 but detected in field duplicate MWT-6. TSS in parent sample MW-6 required qualification as estimated but not detected (UJ) and in field duplicate MWT-6 as estimated with high bias (J+).

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 planned wells were sampled.

Lab completeness goals were nearly met. No data were rejected. Of the planned six samples for analysis, all 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 ≤ one-half the RLs except for pH. 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. 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.

pH: No data were rejected. Data required minimal qualification. 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 2023

Project/Task Number: 10279361-100

Sample Data Package: 280-176013-1, 280-176013-1
Lab Report Dates: 5/18/23, 6/7/23
Data Validation Report Date: 6/20/23

Laboratory: TestAmerica Denver, Arvada, Colorado (metals, anions, TDS, TSS, pH, alkalinity);
TestAmerica Saint Louis, Earth City, Missouri (radiochem)

Sample Matrix: Groundwater

Sampling Dates: May 1-3, 2023

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: Andrew Byks, HDR

Sample ID	Matrix	Lab ID	Date Collected	Metals Mercury	Anions	TDS TSS	RA-226 RA-228	Alkalinity Mg, K, Na	Dissolved Metals
W-2C	GW	280-176013-1	5/1/2023	X	X	X	X	X	
W-3B	GW	280-176013-2	5/2/2023	X	X	X	X	X	
WT-3B	GW	280-176013-3	5/2/2023	X	X	X	X	X	
W-5B	GW	280-176013-4	5/2/2023	X	X	X	X	X	
W-10B	GW	280-176013-5	5/2/2023	X	X	X	X	X	
WK-10B	GW	280-176013-6	5/2/2023	X	X	X	X	X	
W-18	GW	280-176013-7	5/2/2023	X	X	X	X	X	
W-14	GW	280-176013-8	5/3/2023	X	X	X	X	X	
W-17	GW	280-176013-9	5/3/2023	X	X	X	X	X	
W-6B1	GW	280-176013-10	5/3/2023	X	X	X	X	X	X
W-7	GW	280-176013-11	5/3/2023	X	X	X	X	X	
W-9	GW	280-176013-12	5/3/2023	X	X	X	X	X	
W-11	GW	280-176013-13	5/3/2023	X	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 between 1.0°C and 2.3°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 for samples W-10B, W-18, W-2C, W-3B, W-5B, WK-10B, and WT-3B which required qualification as estimated (J) or estimated but not detected (UJ).

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. No qualification was required.

Mercury: Initial calibration criteria were met. 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.

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 and EB as indicated below.

Method Blank or Equipment Blank	Analyte	Result (mg/L)	Affected Samples	Qualifier
MB-280-611306/1-A	Cadmium (total)	0.000241	W-2C, W-3B, WT-3B, W-5B, W-10B, WK-10B, W-18, W-14, W-17, W-6B1, W-7, W-9, W-11	J+ or UJ if non detect
MB-280-611306/1-A	Calcium (total)	0.0628	W-2C, W-3B, WT-3B, W-5B, W-10B, WK-10B, W-18, W-14, W-17, W-6B1, W-7, W-9, W-11	J+ WK-10B only (other sample results >100x higher) or UJ if non detect
WK-10B	Barium (total)	0.00068	W-10B	J+
WK-10B	Selenium (total)	0.0014	W-10B	None (sample results >100x higher)
WK-10B	Calcium (total)	0.21	W-10B	None (sample results >100x higher)
WK-10B	Sodium (total)	0.61	W-10B	None (sample results >100x higher)
WK-10B	Potassium (total)	0.1	W-10B	None (sample results >100x higher)
WK-10B	Magnesium (total)	0.094	W-10B	None (sample results >100x higher)

Mercury: Mercury was not detected in the MBs or the EB. No qualification was required.

Anions: Anions were not detected in the MBs. Fluoride was detected in the EB WK-10B at a concentration of 0.3 mg/L. Fluoride in the affected sample W-10B required qualification as estimated but not detected (UJ).

Alkalinity: Bicarbonate and alkalinity were detected in the MBs and the EB as indicated below.

Method Blank or Equipment Blank	Analyte	Result (mg/L)	Affected Samples	Qualifier
MB 280-611721/57	Alkalinity	3.23	W-2C, W-3B, WT-3B, W-5B, W-10B, WK-10B, W-18, W-	J+ WK-10B and W-5B only (other sample

Method Blank or Equipment Blank	Analyte	Result (mg/L)	Affected Samples	Qualifier
			14, W-17, W-6B1, W-7, W-9, W-11	results >100x higher)
MB 280-611721/83	Alkalinity	3.46	W-2C, W-3B, WT-3B, W-5B, W-10B, WK-10B, W-18, W-14, W-17, W-6B1, W-7, W-9, W-11	J+ WK-10B and W-5B only (other sample results >100x higher)
WK-10B	Alkalinity	3.8	W-10B	None (sample results >100x higher)

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 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
Boron (total)	CCB 280-612417/17	W-2C, W-3B, WT-3B, W-5B, W-10B, WK-10B, W-18, W-14, W-17, W-6B1, W-7, W-9, W-11	0.00442	None (sample results >100x higher) or UJ if non detect
Boron (dissolved)	ICB 280-612613/10	W-6B1, W-11	0.00151	None (sample results >100x higher)
	CCB 280-612613/17		0.00575	
Cadmium (total)	CCB 280-611882/81	W-2C, W-3B, WT-3B, W-5B, W-10B, WK-10B, W-18, W-14, W-17, W-6B1, W-7, W-9, W-11	0.000711	J+ or UJ if non detect
Potassium (total)	CCB 280-611882/81	W-2C, W-3B, WT-3B, W-5B, W-10B, WK-10B, W-18, W-14, W-17, W-6B1, W-7, W-9, W-11	0.0809	J+ WK-10B and W-5B only (other sample results >100x higher)
	CCB 280-611882/105		0.153	
Calcium (total)	CCB 280-612052/336	W-2C, W-3B, WT-3B, W-5B, W-10B, WK-10B, W-18, W-14, W-17,	0.0371	J+ WK-10B only (other sample results >100x higher)
	CCB 280-612052/377		0.0409	

		W-6B1, W-7, W-9, W-11		
Sodium (total)	CCB 280-612202/33 CCB 280-612202/44	W-2C, W-3B, WT-3B, W-5B, W-10B, WK-10B, W-18, W-14, W-17, W-6B1, W-7, W-9, W-11	0.0821 0.0991	J+ WK-10B only (other sample results >100x higher) or UJ if non detect
Magnesium (dissolved)	CCB 280-612407/242 CCB 280-612407/253	W-6B1, W-11	0.00536 0.0890	None (sample results >100x higher)
Potassium (dissolved)	CCB 280-612407/253	W-6B1, W-11	0.0684	None (sample results >100x higher)
Sodium (dissolved)	CCB 280-612407/242 CCB 280-612407/253	W-6B1, W-11	0.174 0.941	None (sample results >100x higher)

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 the ICBs or CCBs as indicated below:

Analyte	ICB or CCB	Associated Samples	Result (mg/L)	Qualification
Alkalinity	CCB 611721/55 CCB 611721/69 CCB 611721/95	W-2C, W-3B, WT-3B, W-5B, W-10B, WK-10B, W-18, W-14, W-17, W-6B1, W-7, W-9, W-11	3.14 3.22 3.32	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 W-2C from this project for metals. Lithium failed the recovery criteria high for the MS/MSD of sample W-2C. Other results were within control limits except recoveries for selenium, sodium, potassium, calcium, and magnesium were greater than 4 times the spike amount and accuracy could not be verified. Lithium, selenium, sodium, potassium, calcium, and magnesium results in W-2C required qualification as estimated (J). RPDs were within control limits.

Laboratory generated MS/MSD analyses were outside control limits as noted on the case narrative:

- "The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 280-611306 and analytical batch 280-612202 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits."
- "The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 280-611306 and analytical batch 280-612052 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits."
- "The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 280-611306 and analytical batch 280-611882 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are

suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits."

Samples were not associated with project samples; no qualification was required.

Mercury: The lab spike sample W-6B1 from this project for dissolved mercury. Laboratory-generated MS/MSD results were within the control limits and no qualification was required.

Anions: The lab spiked sample WK-10B from this project for anions. Results were outside of control limits for recoveries for chloride, fluoride, and sulfate. Chloride, fluoride, and sulfate results in WK-10B required qualification as estimated (J). RPDs were within control limits.

Laboratory generated MS/MSD analyses were outside control limits as noted on the case narrative:

- "The concentration of the matrix spike reagent caused the results for the matrix spike and matrix spike duplicate (MS/MSD) to be above the highest point of the calibration range for sulfate. The results for the MS/MSD are still within the standard control limits of 80-120%. (280-175988-F-1 MS) and (280-175988-F-1 MSD)."

Samples were not associated with project samples; 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 WT-3B was collected as a field duplicate of W-3B.

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 a RPD of 28.57%. TSS required qualification as estimated with high bias (J+) in parent sample W-3B and as estimated with low bias (J-) in field duplicate was WT-3B.

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.

Mercury: Lab duplicate analysis was not performed for mercury.

Anions: Lab duplicate analysis was performed on sample WK-10B from this project for anions. Results 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 performed on sample WK-10B from this project for alkalinity. Results were within control limits and no qualification was required. The laboratory-generated duplicate results were within control limits and no qualification was required.

TDS: Lab duplicate analysis was not performed for TDS.

TSS: Lab duplicate analysis was not performed for TSS.

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-14 from this project for pH. Results were within control limits and no qualification was required. The laboratory generated duplicate results were also within control limits and no additional 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 except for as noted in the case narrative: “The Ba Carrier recovery is outside the lower control limit (30%) for the following samples in batch 611496: W-18 (280-176013-7) and W-14 (280-176013-8). There was physical evidence of matrix interference apparent during the initial preparation of the sample. The QC samples associated with the batch have acceptable carrier recovery indicating the presence of matrix interference.” Therefore, Rad-226 and combined radium in samples W-18 and W-14 have been qualified as estimated (J).

Radium-228: Tracer recoveries in all samples were within limits except for as noted in the case narrative: The Ba Carrier recovery is outside the lower control limit (30%) for the following samples in batch 611507: W-18 (280-176013-7) and W-14 (280-176013-8). There was physical evidence of matrix interference apparent during the initial preparation of the sample. The QC samples associated with the batch have acceptable carrier recovery indicating the presence of matrix interference.” Therefore, Rad-228 and combined radium in samples W-18 and W-14 have been qualified as estimated (J).

IX. POST DIGESTION SPIKE AND DILUTION TEST

Serial dilution tests were performed for Method 6020A metals. The dilution tests were not applicable unless sample results were greater than 50 times the MDL. Dilution tests were performed on several samples.

Metals: Post-digestion spike (PDS) analyses were outside control limits for multiple analytes, however the acceptable LCS data indicates that no corrective action was necessary, 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 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, 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. Samples requiring dilution prior to analysis have had their reporting limits adjusted accordingly.

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	0.0005	0.010 (MCL)	Zero	0.21	0.014
Barium	0.003	0.00038	2 (MCL)	2	0.037	2
Beryllium	0.001	0.0003	0.004 (MCL)	0.004	0.0046	0.004
Boron	0.1	0.0015	Not Listed	Not Listed	6.9	None
Cadmium	0.001	0.00019	0.005 (MCL)	0.005	0.025	0.0063
Calcium	10	1.6	Not Listed	Not Listed	630	None
Chromium	0.003	0.0005	0.1 (MCL)	0.1	0.059	0.1
Cobalt	0.001	0.00033	Not Listed	Not Listed	0.051	0.0092
Lead	0.001	0.00023	0.015 (AL)	Zero	0.0092	0.015
Lithium	0.02	0.0091	Not Listed	Not Listed	6.3	7.2
Molybdenum	0.002	0.00037	Not Listed	Not Listed	0.017	0.1
Selenium	0.005	0.001	0.05 (MCL)	0.05	2.9	4.0
Thallium	0.001	0.00021	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.

From the case narrative: "The detection goal was not met for the following sample(s) in batch 611496. Samples were prepped at a reduced volume due to the presence of matrix interferences: W-18 (280-176013-7), W-14 (280-176013-8), W-6B1 (280-176013-10) and W-11 (280-176013-13). 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.

From the case narrative:

- "The detection goal was not met for the following sample(s) in batch 611041. Sample was prepped at a reduced volume due to the presence of matrix interferences: W-2C (280-176013-1). Analytical results are reported with the detection limit achieved."
- "The detection goal was not met for the following sample(s) in batch 611507. Samples were prepped at a reduced volume due to the presence of matrix interferences: W-10B (280-176013-5), W-18 (280-176013-7), W-14 (280-176013-8), W-6B1 (280-176013-10), W-7 (280-176013-11), W-9 (280-176013-12) and W-11 (280-176013-13). Analytical results are reported with the detection limit achieved."
- "The following sample in prep batch 160-611507 did not meet the requested limit (RL) due to the reduced sample volume attributed to limited volume available for analysis: W-17 (280-176013-9). 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.

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: The following sample did not equilibrate to within 0.05 pH units after three measurements: WK-10B (280-174404-4). 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. Lab duplicates, LCS/LCSD, and MS/MSD RPDs were within control limits.

Field precision goals were nearly met in that field duplicate/parent pair RPDs were within control limits except 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 lithium, whose accuracy required qualification as estimated with high bias (J+), and calcium, magnesium, potassium, selenium, and sodium, whose accuracy could not be 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;
- TSS in seven samples required qualification as estimated (J) or estimated but non detect (UJ) due to analysis past the holding time;

- Cadmium in thirteen samples required qualification as estimated with high bias (J+) or estimated but non detect (UJ) due to detection in a MB;

- Calcium in sample WK-10B required qualification as estimated with high bias (J+) due to detection in a MB;

- Barium in sample W-10B required qualification as estimated with high bias (J+) due to detection in an EB;

- Fluoride in sample W-10B required qualification as estimated with high bias (J+) due to detection in an EB;

- Alkalinity in two samples required qualification as estimated with high bias (J+) due to detection in a MB;

- Cadmium in thirteen samples required qualification as estimated with high bias (J+) or estimated but non detect (UJ) due to detection in a CCB;

- Potassium in two samples required qualification as estimated with high bias (J+) due to detection in a CCB;

- Calcium and sodium in sample WK-10B required qualification as estimated with high bias (J+) due to detection in a CCB;

- Alkalinity in thirteen samples required qualification as estimated with high bias (J+) due to detection in a CCB;

- Lithium, selenium, sodium, potassium, calcium, and magnesium in sample W-2C required qualification as estimated (J) due to MS/MSD recoveries outside of control limits;

- Chloride, fluoride, and sulfate in sample WK-10B required qualification as estimated (J) due to MS/MSD recoveries outside of control limits;

- TSS required qualification as estimated with high bias (J+) in sample W-3B and as estimated with low bias (J-) in sample WT-3B due to RPDs outside of control limits in the parent/field duplicate pairing;

- Rad-226, Rad-228, and combined radium in samples W-18 and W-14 required qualification as estimated (J) or as estimated but non detect (UJ) due to Ba Carrier recovery outside of control limits;

- Fluoride in four samples required qualification as estimated (J) or as estimated but non detect (UJ) due to the following from the case narrative: “These samples contain an unknown analyte that shares retention time with fluoride. The interference is large enough at a lower dilution to greatly increase the result for fluoride. The results for fluoride at a higher dilution are without considerable interference so that data is the most representative for fluoride. The results of non-detect at an increased dilution are being qualified and reported due to interference. W-3B (280-176013-2), WT-3B (280-176013-3) and W-10B (280-176013-5). Due to sample matrix interference the fluoride result for this sample at a 1x does not correlate with the results at a 2x dilution. The 2x dilution result is being qualified and reported as it is the most reliable result, despite being below the RL: W-2C (280-176013-1).”

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 planned wells were sampled.

Lab completeness goals were met. No data were rejected. Of the planned thirteen samples for analysis, all 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 ≤ 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. 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. 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. Data required minimal qualification. 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 2023
Project/Task Number:	10279361-100
Sample Data Package:	280-176082-1, 280-176082-2 Lab Report Dates: 5/19/23, 6/8/23 Data Validation Report Date: 6/21/23
Laboratory:	TestAmerica Denver, Arvada, Colorado (metals, anions, TDS, TSS, pH, alkalinity); TestAmerica Saint Louis, Earth City, Missouri (radiochem)
Sample Matrix:	Groundwater
Sampling Dates:	May 3-4, 2023
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:	Andrew Byks, HDR

Sample ID	Matrix	Lab ID	Date Collected	Metals Mercury	Anions	TDS TSS	RA-226 RA-228	Alkalinity Mg, K, Na	Dissolved Metals
W-12	GW	280-176082-1	5/4/2023	X	X	X	X	X	
W-1	GW	280-176082-2	5/3/2023	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 between 1.0°C and 2.3°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 for sample W-12 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. No qualification was required.

Mercury: Initial calibration criteria were met. 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.

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)

Metals: Metals were not detected in the MBs. No qualification was required.

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: Carbonate and alkalinity were detected in the MBs as indicated below.

Method Blank or Equipment Blank	Analyte	Result (mg/L)	Affected Samples	Qualifier
MB 280-612064/5	Alkalinity	4.07	W-12, W-1	None (sample results >100x higher)
MB 280-612064/5	Carbonate Alkalinity as CaCO3	3.66	W-12, W-1	UJ

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
Magnesium	CCB 280-611838/42	W-12, W-1	0.00690	None (sample results >100x higher)
	CCB 280-611838/54		0.0631	
	CCB 280-611838/75		0.00754	
	CCB 280-611838/81		0.00880	
	CCB 280-611838/92		0.00716	
	CCB 280-612054/71		0.00434	
	CCB 280-612054/85		0.0109	
	CCB 280-612054/89		0.0145	
	CCB 280-612054/99		0.00725	
Molybdenum	CCB 280-611838/81	W-12, W-1	0.000458	J+
Potassium	CCB 280-611838/75	W-12, W-1	0.0524	None (sample results >100x higher)
	CCB 280-611838/92		0.0529	
Sodium	CCB 280-611838/54	W-12, W-1	1.2	None (sample results >100x higher)
	CCB 280-612054/62		0.0998	

From the case narrative: “The instrument blank for analytical batch 280-611838 contained Na

greater than the reporting limit (RL), and were not reanalyze because only the MB and LCS are being reported and they are within limits. 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 not detected in the ICBs or CCBs. No qualification was required.

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 not within the project control limits of 75-125%. From the case narrative: "The LCSD recovered at (70%). 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 LCSD are not from this agency and are therefore held to our in-house statistical limits of (70-125%) per method requirements. The LCS passes, no further action is required: (LCSD 160-611470/3-A)." 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 did not spike samples from this project for metals. Laboratory generated MS/MSD were within the control limits and no qualification was required.

Mercury: The lab did not spike samples from this project for mercury. Laboratory generated MS/MSD were within the control limits and no qualification was required.

Anions: The lab did not spike samples from this project for anions. Laboratory generated MS/MSD were within the 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

See the Data Validation and Usability Report for Comanche May 2023 including lab reports 280-176013-1 and 280-176013-2 for evaluation of the Field Duplicate associated with this sampling event.

LABORATORY DUPLICATES

Metals: Lab duplicate analysis was not performed for metals.

Mercury: Lab duplicate analysis was not performed for mercury.

Anions: Lab duplicate analysis was not performed on samples 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 samples 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-1 from this project for TDS. Results were within control limits and no qualification was required. The laboratory generated duplicate results were also within control limits and no additional qualification was required.

TSS: Lab duplicate was not performed on samples from this project for TSS. The laboratory-generated duplicate results were within the control limits and no 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 not performed on samples 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

Serial dilution tests were performed for Method 6020A metals. The dilution tests were not applicable unless sample results were greater than 50 times the MDL. Dilution tests were performed on several samples.

Metals: Post-digestion spike (PDS) analyses were within the control limits. 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 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, 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. Samples requiring dilution prior to analysis have had their reporting limits adjusted accordingly.

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	0.0005	0.010 (MCL)	Zero	0.21	0.014
Barium	0.003	0.00038	2 (MCL)	2	0.037	2
Beryllium	0.001	0.0003	0.004 (MCL)	0.004	0.0046	0.004
Boron	0.1	0.0015	Not Listed	Not Listed	6.9	None
Cadmium	0.001	0.00019	0.005 (MCL)	0.005	0.025	0.0063
Calcium	20	3.2	Not Listed	Not Listed	630	None
Chromium	0.003	0.0005	0.1 (MCL)	0.1	0.059	0.1
Cobalt	0.001	0.00033	Not Listed	Not Listed	0.051	0.0092
Lead	0.001	0.00023	0.015 (AL)	Zero	0.0092	0.015
Lithium	0.02	0.0091	Not Listed	Not Listed	6.3	7.2
Molybdenum	0.002	0.00037	Not Listed	Not Listed	0.017	0.1
Selenium	0.005	0.001	0.05 (MCL)	0.05	2.9	4.0
Thallium	0.001	0.00021	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.

From the case narrative: “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-12 (280-176082-1). 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.

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

See the Data Validation and Usability Report for Comanche May 2023 including lab reports 280-176013-1 and 280-176013-2 for evaluation of the Field Duplicate associated with this sampling event.

Lab precision goals were met. Lab duplicates, LCS/LCSD, and MS/MSD RPDs were within control limits.

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 in that MS/MSD recoveries were within control limits.

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 sample W-12 required qualification as estimated (J) due to analysis past the holding time;
- Carbonate alkalinity as CaCO3 required qualification as estimated but not detected (UJ) due to detection in a MB;
- Molybdenum in two samples required qualification as estimated with high bias (J+) due to detection in a CCB;

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 planned wells were sampled.

Lab completeness goals were met. No data were rejected. Of the planned two samples for analysis, all 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 ≤ 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. All data are usable as qualified.

Anions: No data were rejected. 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. 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. All data are usable as qualified.

Rad-228: No data were rejected. All data are usable as qualified.

pH: No data were rejected. Data required minimal qualification. 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 2023
Project/Task Number:	10279361-100
Sample Data Package:	280-176416-1, 280-176416-2 Lab Report Dates: 5/26/2023, 6/13/2023 Data Validation Report Date: 7/5/2023
Laboratory:	TestAmerica Denver, Arvada, Colorado (metals, anions, TDS, TSS, pH, alkalinity); TestAmerica Saint Louis, Earth City, Missouri (radiochem)
Sample Matrix:	Groundwater
Sampling Dates:	May 11, 2023
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:	Andrew Byks, HDR

Sample ID	Matrix	Lab ID	Date Collected	Metals Mercury	Anions	TDS TSS	RA-226 RA-228	Alkalinity Mg, K, Na	Dissolved Metals
W-16	GW	280-176416-1	5/11/2023	X	X	X	X	X	
W-19	GW	280-176416-2	5/11/2023	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 1.5°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 more than 7 days after collection. The method states the samples are to be analyzed within 7 days of collection. All sample results have been qualified 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. No qualification was required.

Mercury: Initial calibration criteria were met. 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.

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)

Metals: Metals were detected in the MBs as indicated below.

Method Blank or Equipment Blank	Analyte	Result (mg/L)	Affected Samples	Qualifier
MB 280-612373/1-A	Boron	0.00395	W-16, W-19	None (sample results >100x higher)

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: Carbonate and alkalinity were detected in the MBs as indicated below.

Method Blank or Equipment Blank	Analyte	Result (mg/L)	Affected Samples	Qualifier
MB 280-612947/6	Alkalinity and Carbonate Alkalinity as CaCO3	3.28	W-16, W-19	None (sample results >100x higher)

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
Boron	CCB 280-613753/17	W-16, W-19	0.00605	None (sample results >100x higher)
	CCB 280-613753/31		0.00202	
	CCB 280-613753/44		0.00162	
Calcium	CCB 280-612777/317	W-16, W-19	0.0408	None (sample results >100x higher)
	CCB 280-612777/327		0.0407	
Magnesium	CCB 280-612777/135	W-16, W-19	0.00738	None (sample results >100x higher)
	CCB 280-612777/145		0.0125	
	CCB 280-612777/317		0.0420	
	CCB 280-612777/327		0.146	
Potassium	CCB 280-612777/135	W-16, W-19	0.0653	None (sample results >100x higher)
	CCB 280-612777/145		0.108	
	CCB 280-612777/154		0.0808	

	CCB 280-612777/317		0.111	
	CCB 280-612777/327		0.101	
Sodium	CCB 280-612777/135	W-16, W-19	0.357	None (sample results >100x higher)
	CCB 280-612777/145		0.235	
	CCB 280-612777/154		0.0744	
	CCB 280-612777/317		0.842	
	CCB 280-612777/327		0.578	

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	CCB 280-612947/30	W-16, W-19	3.19	None (sample results >100x higher)
	CCB 280-612947/44		3.10	

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 did not spike samples from this project for metals. Laboratory generated MS/MSD were within the control limits and no qualification was required.

Mercury: The lab did not spike samples from this project for mercury. Laboratory generated MS/MSD were within the control limits and no qualification was required.

Anions: The lab did not spike samples from this project for anions. Laboratory generated MS/MSD were within the 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

See the Data Validation and Usability Report for Comanche May 2023 including lab reports 280-176013-1 and 280-176013-2 for evaluation of the Field Duplicate associated with this sampling event.

LABORATORY DUPLICATES

Metals: Lab duplicate analysis was not performed for metals.

Mercury: Lab duplicate analysis was not performed for mercury.

Anions: Lab duplicate analysis was not performed on samples 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 samples 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 samples 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 samples from this project for TSS. The laboratory-generated duplicate results were within the control limits and no 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 not performed on samples 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

Serial dilution tests were performed for Method 6020A metals. The dilution tests were not applicable unless sample results were greater than 50 times the MDL. Dilution tests were performed on several samples.

Metals: Post-digestion spike (PDS) analyses were within the control limits. 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 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, 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. Samples requiring dilution prior to analysis have had their reporting limits adjusted accordingly.

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	0.0005	0.010 (MCL)	Zero	0.21	0.014
Barium	0.003	0.00038	2 (MCL)	2	0.037	2
Beryllium	0.001	0.0003	0.004 (MCL)	0.004	0.0046	0.004
Boron	0.1	0.0015	Not Listed	Not Listed	6.9	None
Cadmium	0.001	0.00019	0.005 (MCL)	0.005	0.025	0.0063
Calcium	20	3.2	Not Listed	Not Listed	630	None
Chromium	0.003	0.0005	0.1 (MCL)	0.1	0.059	0.1
Cobalt	0.001	0.00033	Not Listed	Not Listed	0.051	0.0092
Lead	0.001	0.00023	0.015 (AL)	Zero	0.0092	0.015
Lithium	0.02	0.0091	Not Listed	Not Listed	6.3	7.2
Molybdenum	0.002	0.00037	Not Listed	Not Listed	0.017	0.1
Selenium	0.005	0.001	0.05 (MCL)	0.05	2.9	4.0
Thallium	0.001	0.00021	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.

From the case narrative: “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-12 (280-176082-1). 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.

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

See the Data Validation and Usability Report for Comanche May 2023 including lab reports 280-176013-1 and 280-176013-2 for evaluation of the Field Duplicate associated with this sampling event.

Lab precision goals were met. Lab duplicates, LCS/LCSD, and MS/MSD RPDs were within control limits.

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 in that MS/MSD recoveries were within control limits.

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 two samples required qualification as estimated (J) due to analysis past the holding time.

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 planned wells were sampled.

Lab completeness goals were met. No data were rejected. Of the planned two samples for analysis, all 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 ≤ 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. All data are usable as qualified.

Mercury: No data were rejected. All data are usable as qualified.

Anions: No data were rejected. All data are usable as qualified.

Alkalinity: No data were rejected. All data are usable as qualified.

TDS: No data were rejected. 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. All data are usable as qualified.

Rad-228: No data were rejected. All data are usable as qualified.

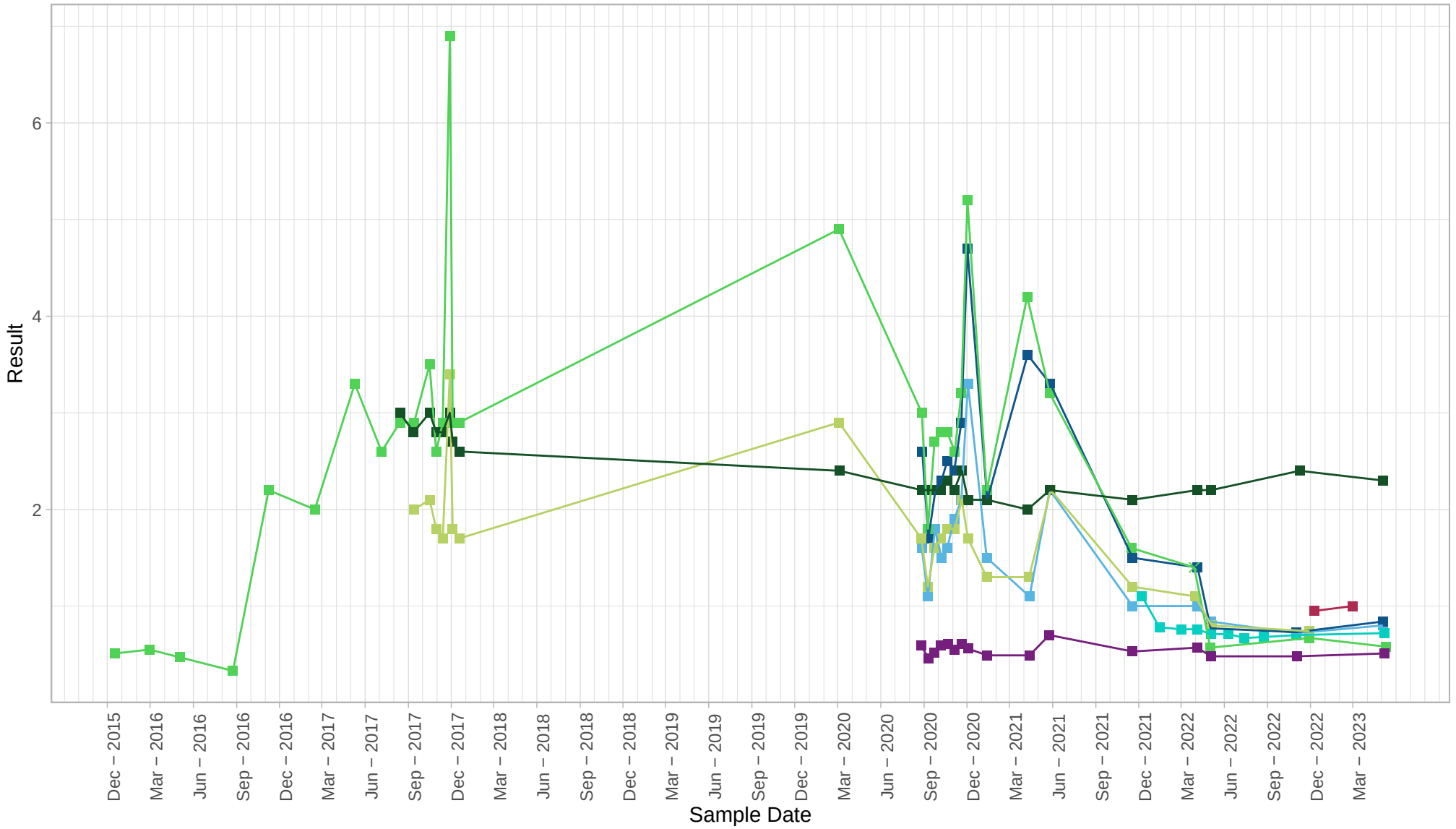
pH: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Appendix C

Graphs of Appendix III Trends

Comanche − Landfill Wells

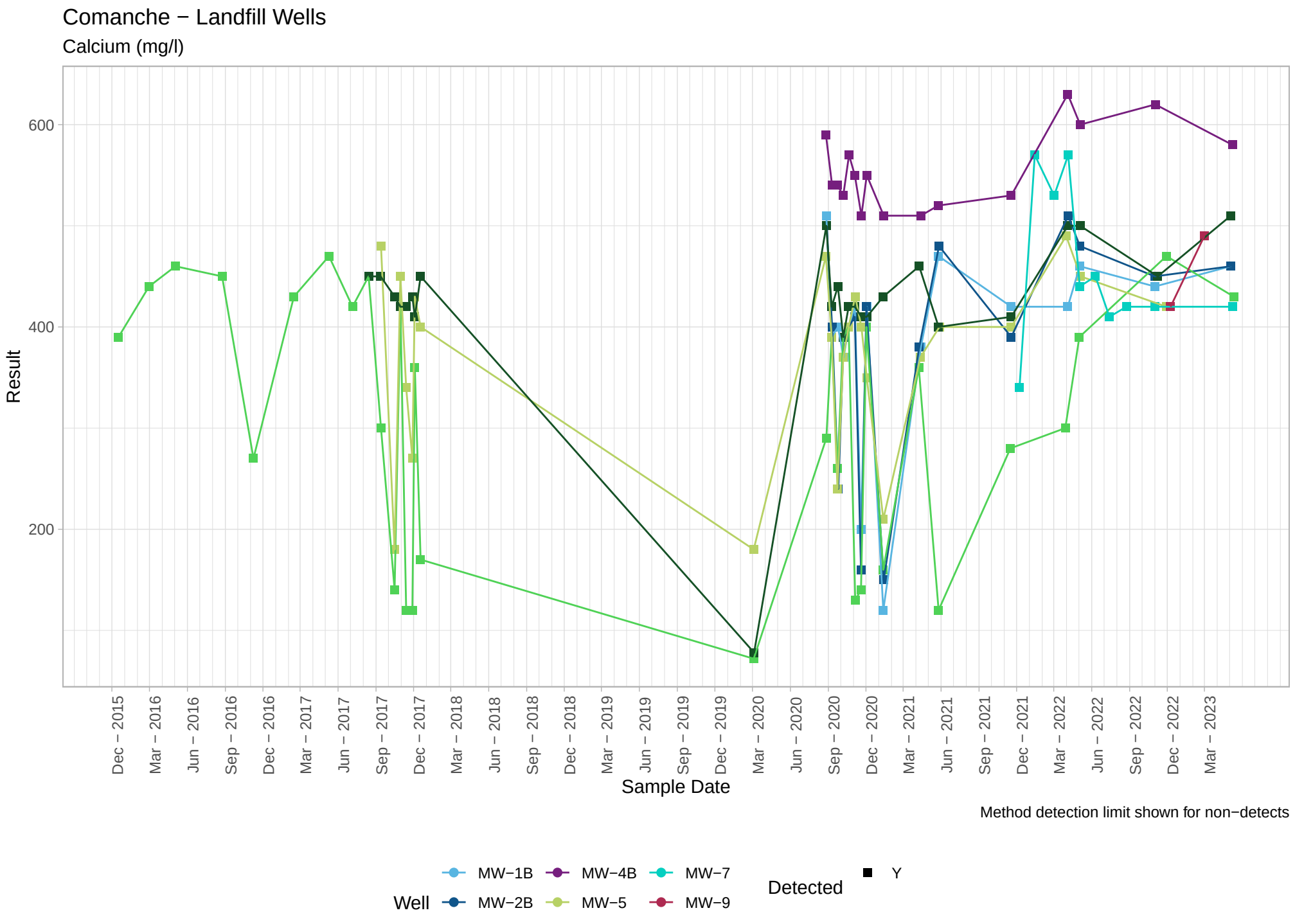
Boron (mg/l)

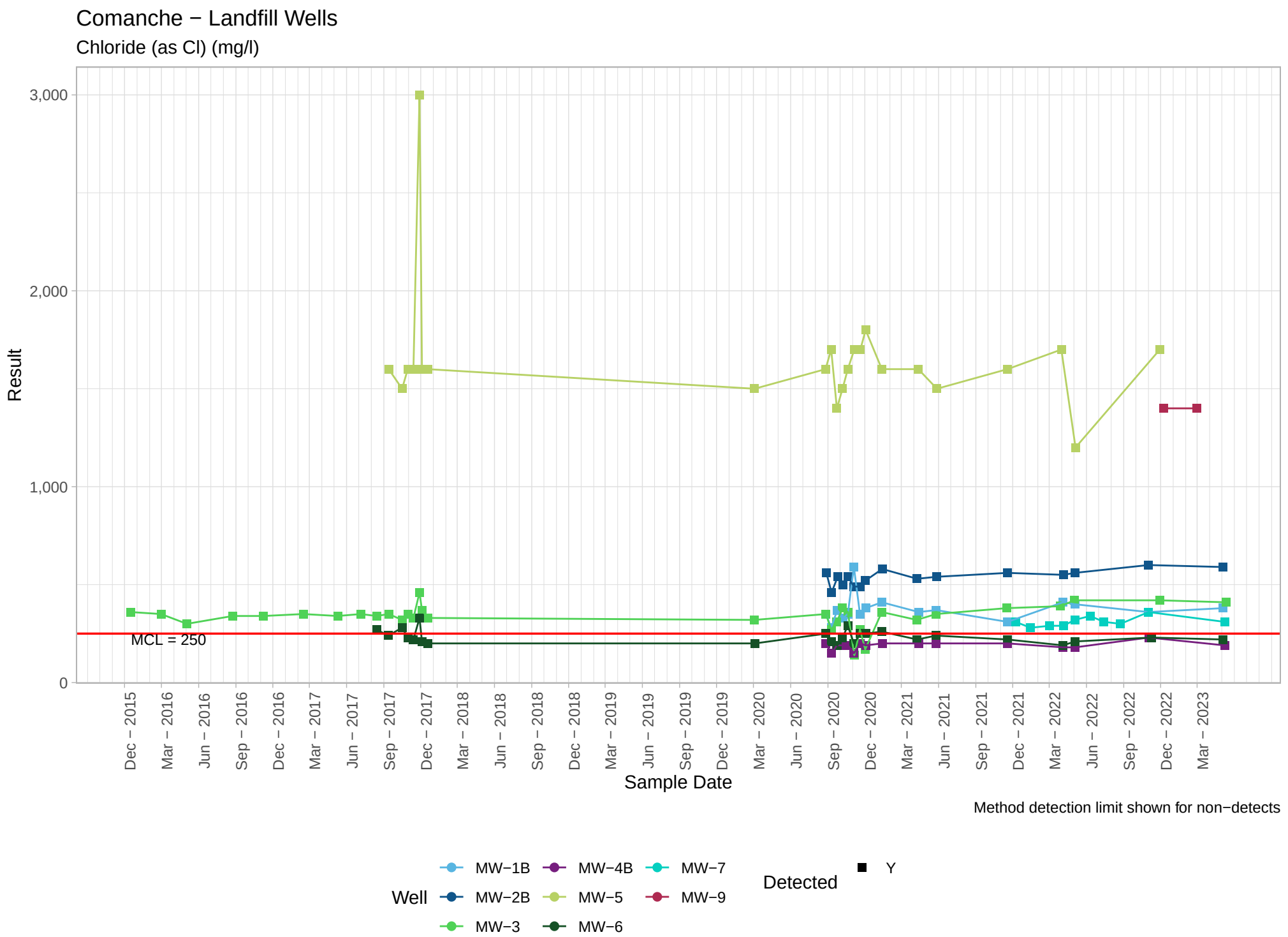


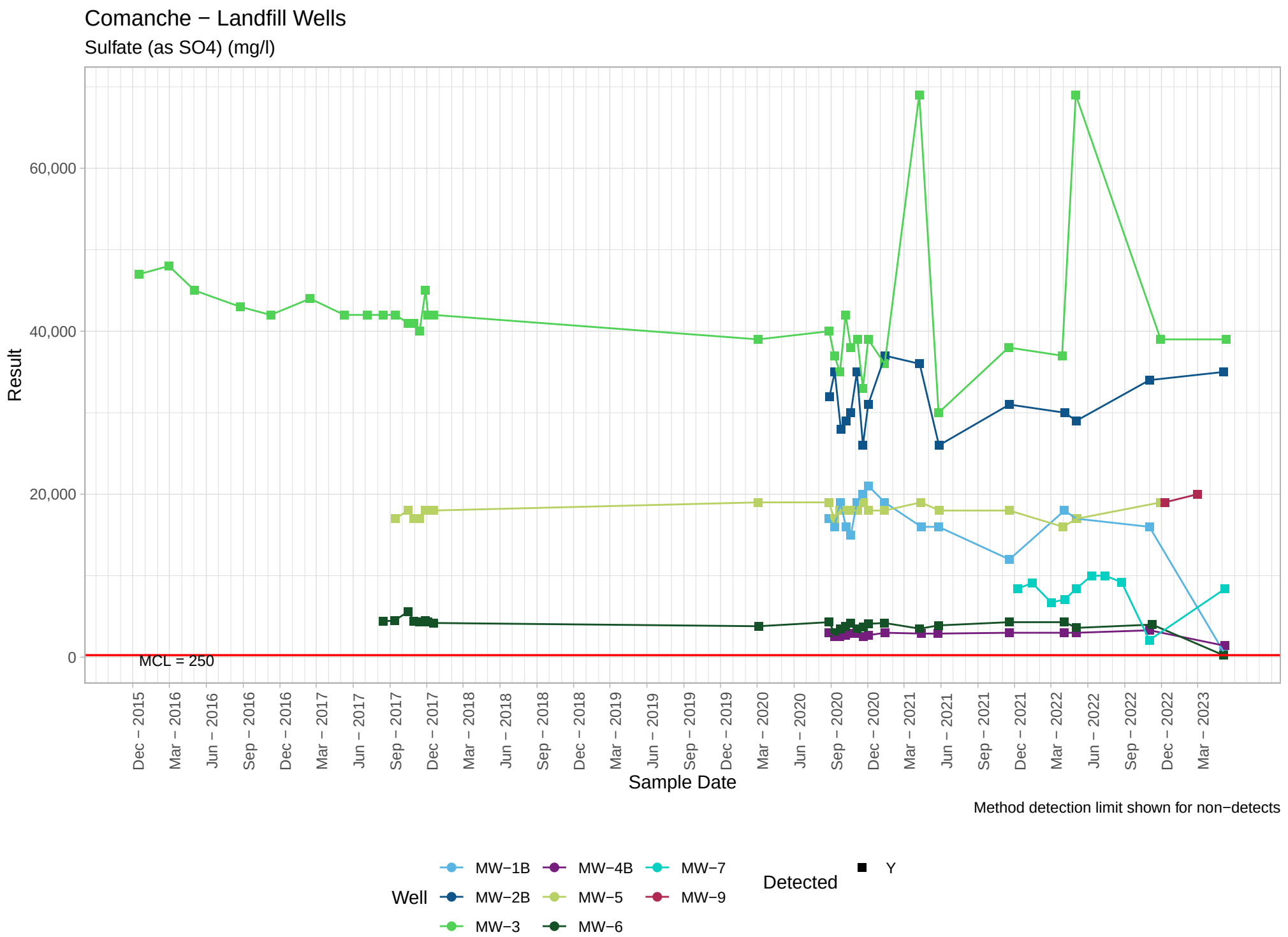
Method detection limit shown for non−detects

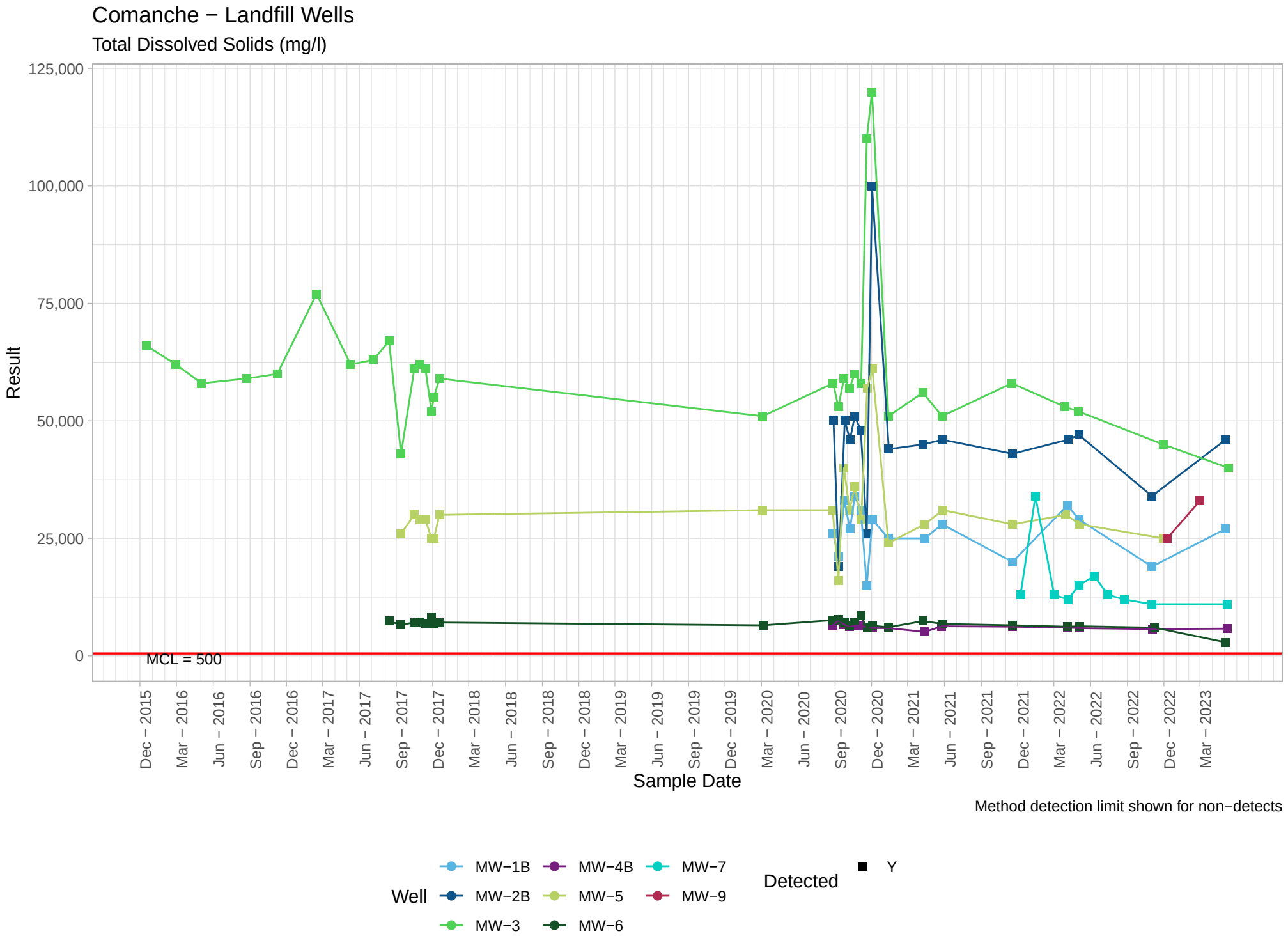
Well: MW−1B, MW−2B, MW−3, MW−4B, MW−5, MW−6, MW−7, MW−9

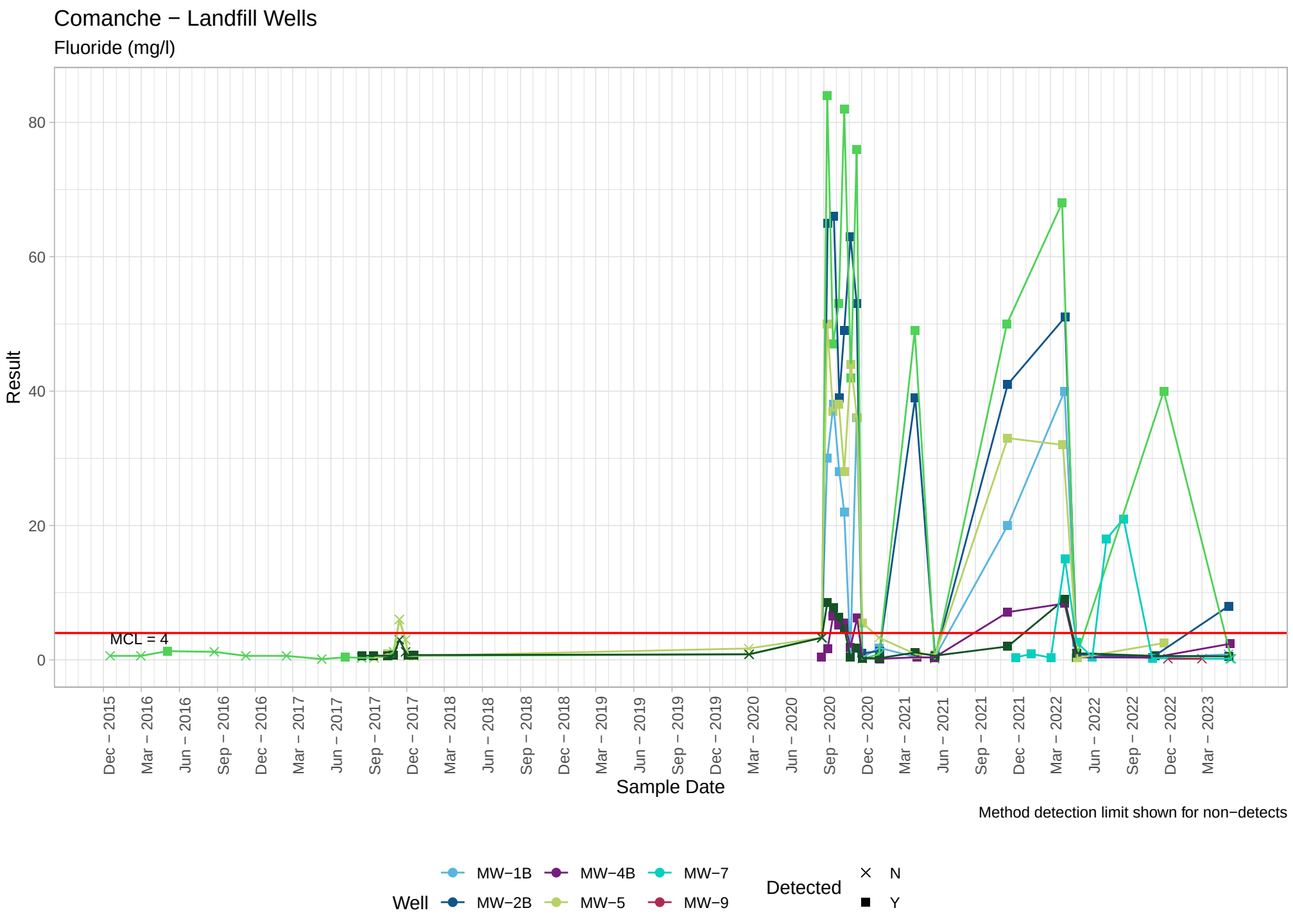
Detected: N, Y

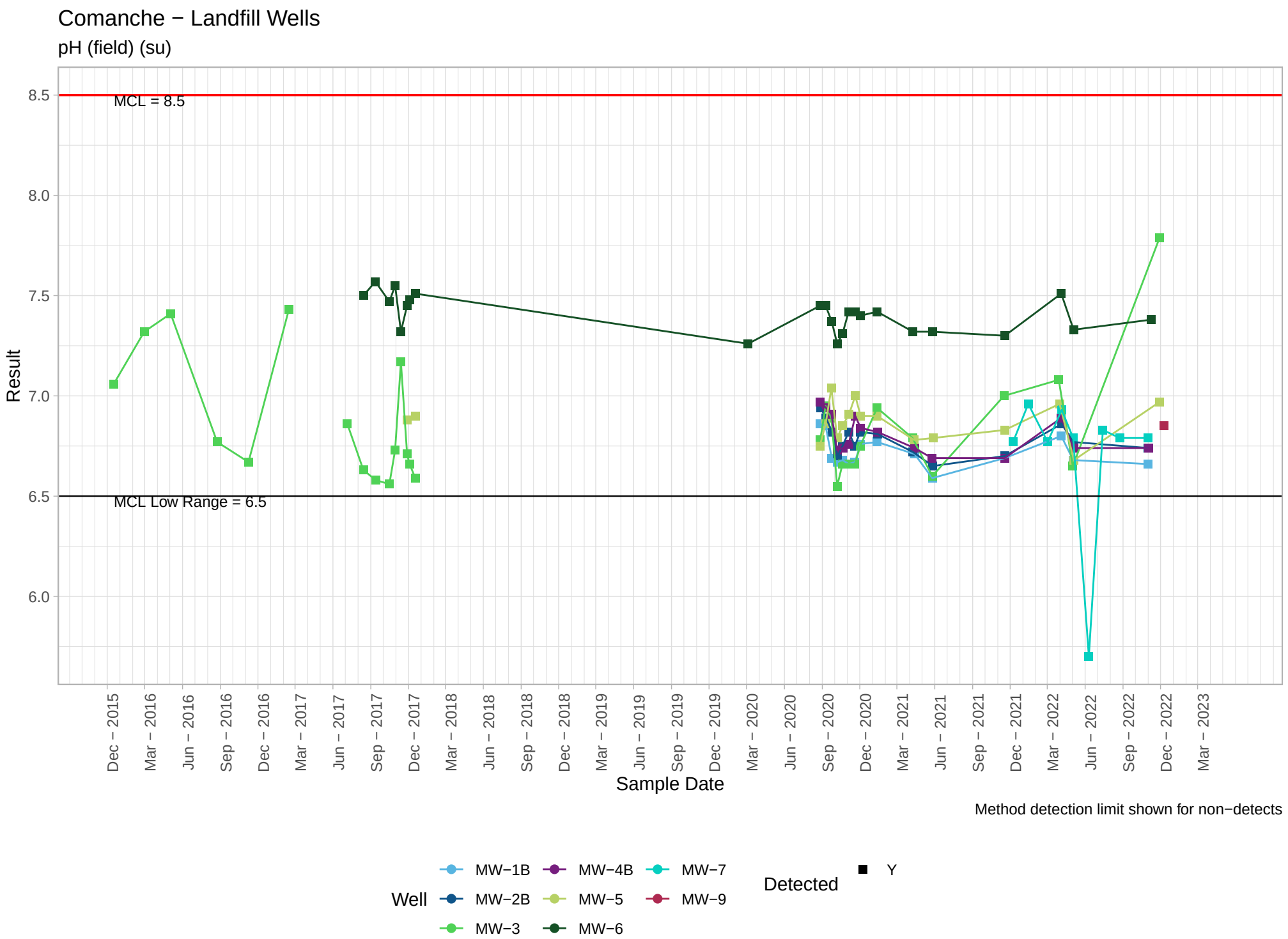

Comanche − Landfill Wells
Calcium (mg/l)
Result
600
400
200
Dec – 2015
Mar – 2016
Jun – 2016
Sep – 2016
Dec – 2016
Mar – 2017
Jun – 2017
Sep – 2017
Dec – 2017
Mar – 2018
Jun – 2018
Sep – 2018
Dec – 2018
Mar – 2019
Jun – 2019
Sep – 2019
Dec – 2019
Mar – 2020
Jun – 2020
Sep – 2020
Dec – 2020
Mar – 2021
Jun – 2021
Sep – 2021
Dec – 2021
Mar – 2022
Jun – 2022
Sep – 2022
Dec – 2022
Mar – 2023
Sample Date
Method detection limit shown for non−detects
Well
MW−1B
MW−2B
MW−3
MW−4B
MW−5
MW−6
MW−7
MW−9
Detected
Y

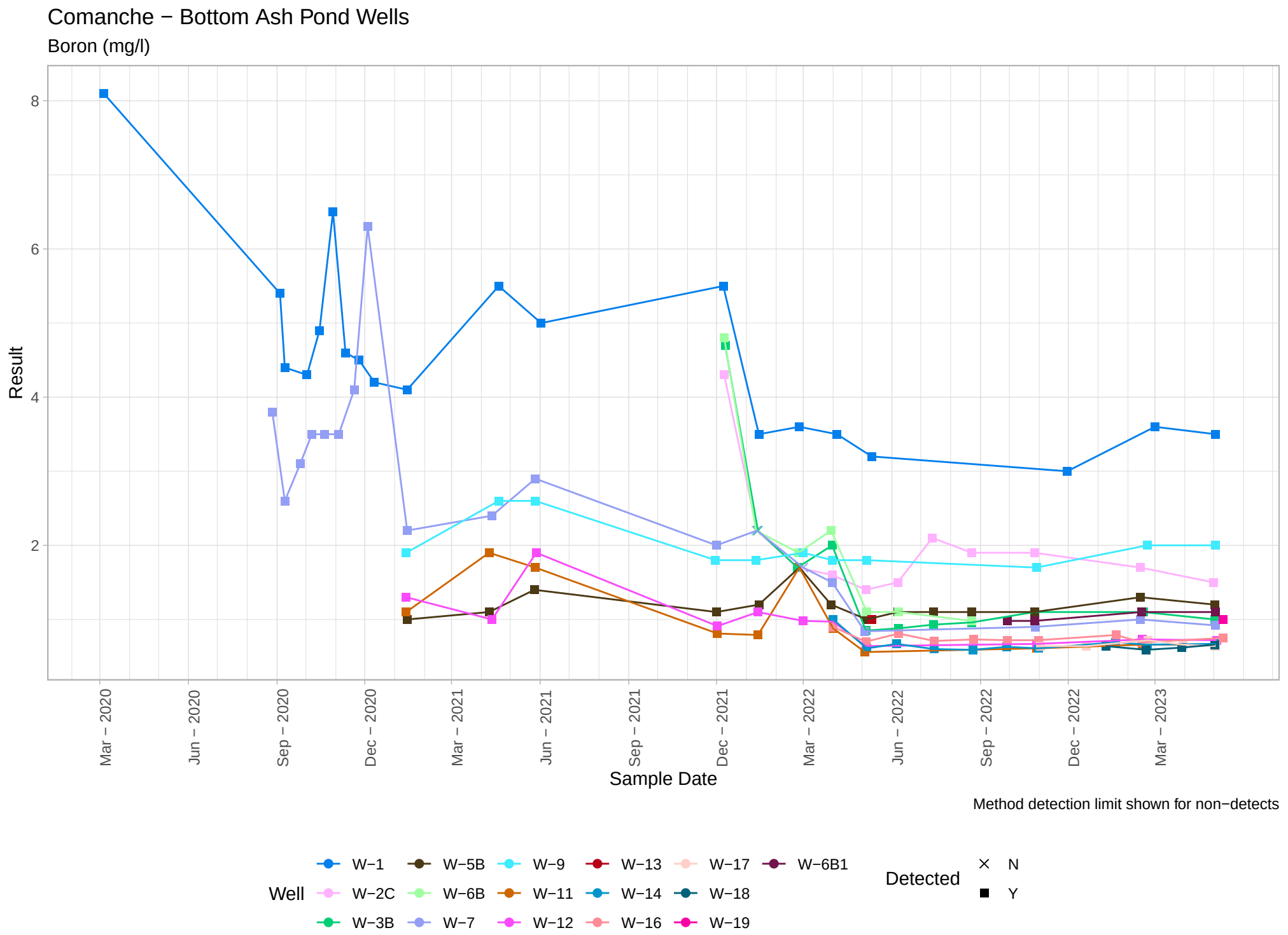

Comanche − Landfill Wells
Chloride (as Cl) (mg/l)
Result
3,000
2,000
1,000
0
MCL = 250
Dec – 2015
Mar – 2016
Jun – 2016
Sep – 2016
Dec – 2016
Mar – 2017
Jun – 2017
Sep – 2017
Dec – 2017
Mar – 2018
Jun – 2018
Sep – 2018
Dec – 2018
Mar – 2019
Jun – 2019
Sep – 2019
Dec – 2019
Mar – 2020
Jun – 2020
Sep – 2020
Dec – 2020
Mar – 2021
Jun – 2021
Sep – 2021
Dec – 2021
Mar – 2022
Jun – 2022
Sep – 2022
Dec – 2022
Mar – 2023
Sample Date
Method detection limit shown for non−detects
Well
MW−1B
MW−2B
MW−3
MW−4B
MW−5
MW−6
MW−7
MW−9
Detected
Y


Comanche − Landfill Wells
Sulfate (as SO4) (mg/l)
Result
60,000
40,000
20,000
0
MCL = 250
Dec − 2015
Mar − 2016
Jun − 2016
Sep − 2016
Dec − 2016
Mar − 2017
Jun − 2017
Sep − 2017
Dec − 2017
Mar − 2018
Jun − 2018
Sep − 2018
Dec − 2018
Mar − 2019
Jun − 2019
Sep − 2019
Dec − 2019
Mar − 2020
Jun − 2020
Sep − 2020
Dec − 2020
Mar − 2021
Jun − 2021
Sep − 2021
Dec − 2021
Mar − 2022
Jun − 2022
Sep − 2022
Dec − 2022
Mar − 2023
Sample Date
Method detection limit shown for non−detects
Well
MW−1B
MW−2B
MW−3
MW−4B
MW−5
MW−6
MW−7
MW−9
Detected
Y


Comanche − Landfill Wells
Total Dissolved Solids (mg/l)
125,000
100,000
75,000
50,000
25,000
0
Result
MCL = 500
Dec – 2015
Mar – 2016
Jun – 2016
Sep – 2016
Dec – 2016
Mar – 2017
Jun – 2017
Sep – 2017
Dec – 2017
Mar – 2018
Jun – 2018
Sep – 2018
Dec – 2018
Mar – 2019
Jun – 2019
Sep – 2019
Dec – 2019
Mar – 2020
Jun – 2020
Sep – 2020
Dec – 2020
Mar – 2021
Jun – 2021
Sep – 2021
Dec – 2021
Mar – 2022
Jun – 2022
Sep – 2022
Dec – 2022
Mar – 2023
Sample Date
Method detection limit shown for non−detects
Well
MW−1B
MW−2B
MW−3
MW−4B
MW−5
MW−6
MW−7
MW−9
Detected
Y

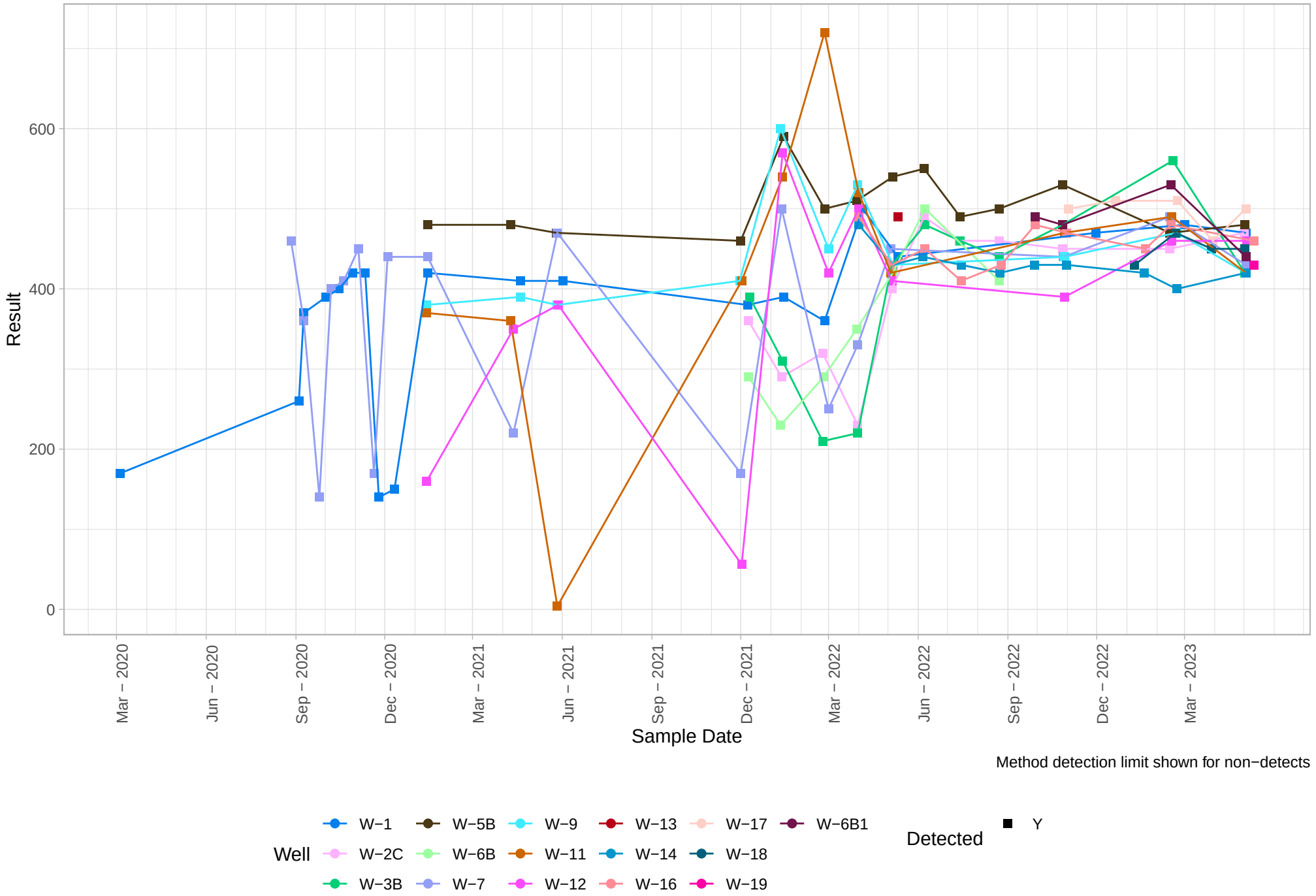

Comanche − Landfill Wells
Fluoride (mg/l)
Result
80
60
40
20
0
MCL = 4
Dec – 2015
Mar – 2016
Jun – 2016
Sep – 2016
Dec – 2016
Mar – 2017
Jun – 2017
Sep – 2017
Dec – 2017
Mar – 2018
Jun – 2018
Sep – 2018
Dec – 2018
Mar – 2019
Jun – 2019
Sep – 2019
Dec – 2019
Mar – 2020
Jun – 2020
Sep – 2020
Dec – 2020
Mar – 2021
Jun – 2021
Sep – 2021
Dec – 2021
Mar – 2022
Jun – 2022
Sep – 2022
Dec – 2022
Mar – 2023
Sample Date
Method detection limit shown for non−detects
Well
MW−1B
MW−2B
MW−3
MW−4B
MW−5
MW−6
MW−7
MW−9
Detected
N
Y


Comanche − Landfill Wells
pH (field) (su)
MCL = 8.5
MCL Low Range = 6.5
Result
8.5
8.0
7.5
7.0
6.5
6.0
Dec – 2015
Mar – 2016
Jun – 2016
Sep – 2016
Dec – 2016
Mar – 2017
Jun – 2017
Sep – 2017
Dec – 2017
Mar – 2018
Jun – 2018
Sep – 2018
Dec – 2018
Mar – 2019
Jun – 2019
Sep – 2019
Dec – 2019
Mar – 2020
Jun – 2020
Sep – 2020
Dec – 2020
Mar – 2021
Jun – 2021
Sep – 2021
Dec – 2021
Mar – 2022
Jun – 2022
Sep – 2022
Dec – 2022
Mar – 2023
Sample Date
Method detection limit shown for non−detects
Well
MW−1B
MW−2B
MW−3
MW−4B
MW−5
MW−6
MW−7
MW−9
Detected
Y


Comanche − Bottom Ash Pond Wells
Boron (mg/l)
Result
8
6
4
2
Mar – 2020
Jun – 2020
Sep – 2020
Dec – 2020
Mar – 2021
Jun – 2021
Sep – 2021
Dec – 2021
Mar – 2022
Jun – 2022
Sep – 2022
Dec – 2022
Mar – 2023
Sample Date
Method detection limit shown for non−detects
Well
W−1
W−2C
W−3B
W−5B
W−6B
W−7
W−9
W−11
W−12
W−13
W−14
W−16
W−17
W−18
W−19
W−6B1
Detected
N
Y

Comanche − Bottom Ash Pond Wells

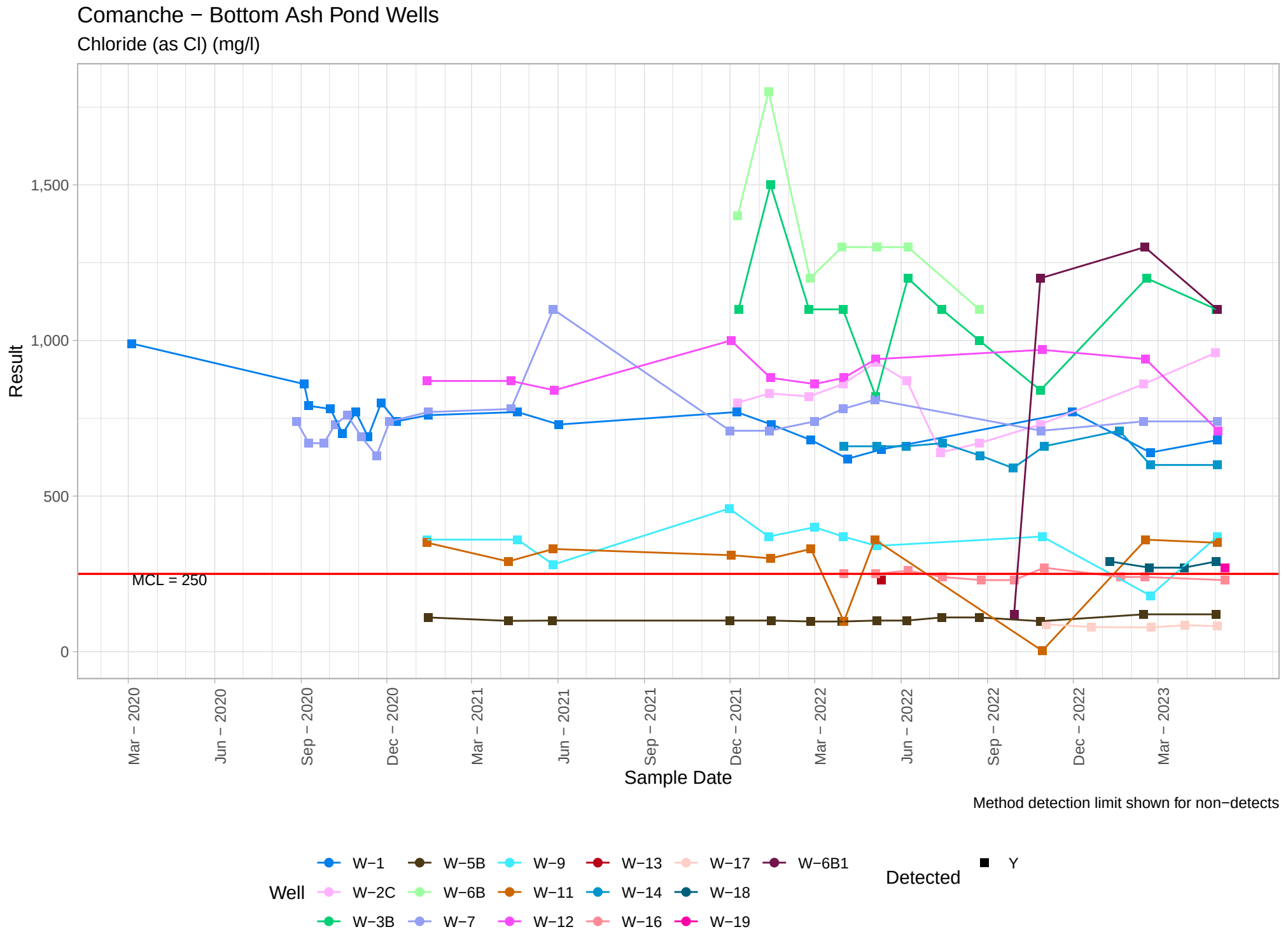
Calcium (mg/l)



Method detection limit shown for non−detects

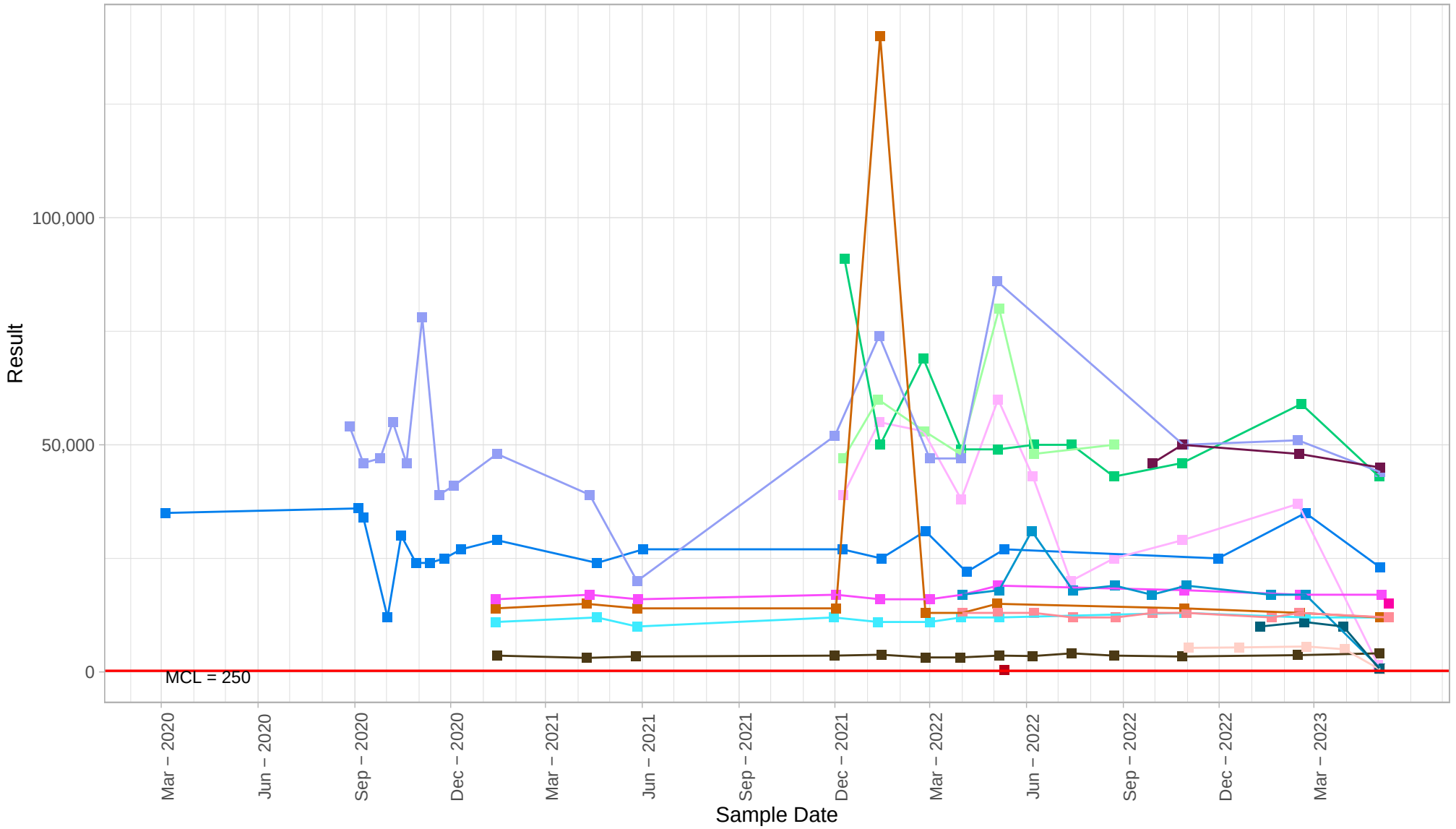
Well: W−1, W−2C, W−3B, W−5B, W−6B, W−7, W−9, W−11, W−12, W−13, W−14, W−16, W−17, W−18, W−19, W−6B1

Detected: Y


Comanche − Bottom Ash Pond Wells
Chloride (as Cl) (mg/l)
Result
1,500
1,000
500
0
MCL = 250
Mar – 2020
Jun – 2020
Sep – 2020
Dec – 2020
Mar – 2021
Jun – 2021
Sep – 2021
Dec – 2021
Mar – 2022
Jun – 2022
Sep – 2022
Dec – 2022
Mar – 2023
Sample Date
Method detection limit shown for non−detects
Well
W−1
W−2C
W−3B
W−5B
W−6B
W−7
W−9
W−11
W−12
W−13
W−14
W−16
W−17
W−18
W−19
W−6B1
Detected
Y

Comanche − Bottom Ash Pond Wells

Sulfate (as SO4) (mg/l)



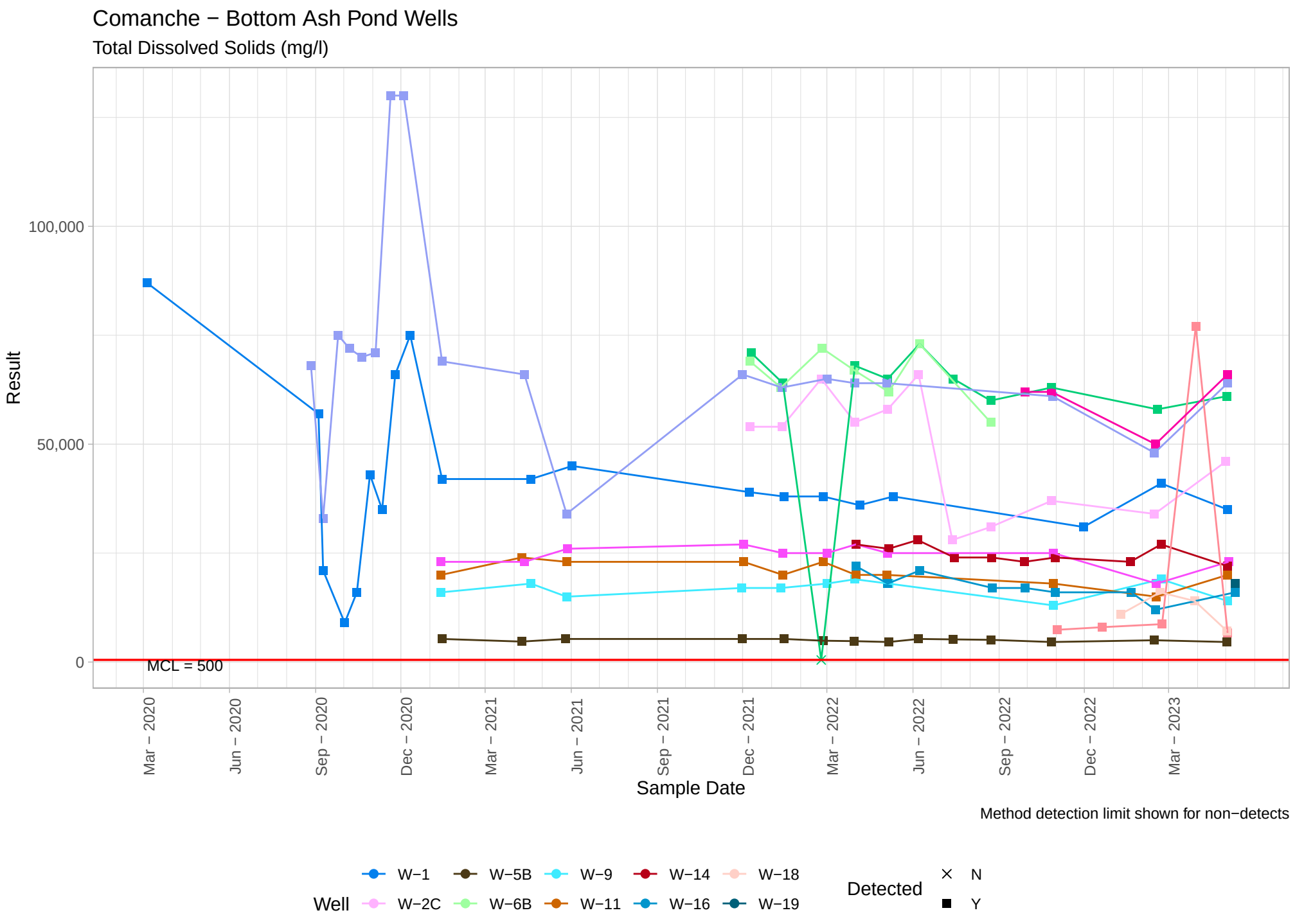
Method detection limit shown for non−detects

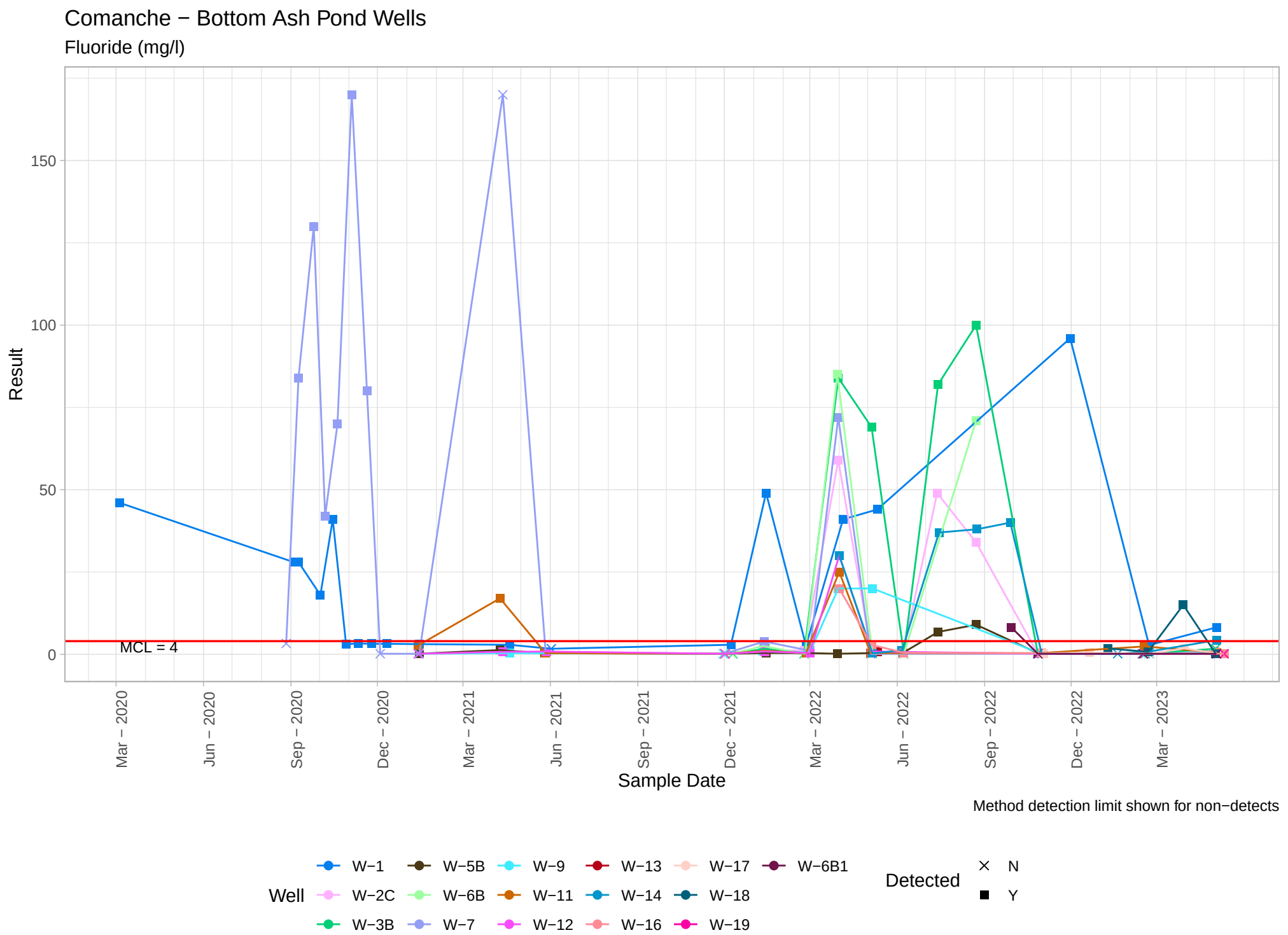
Well

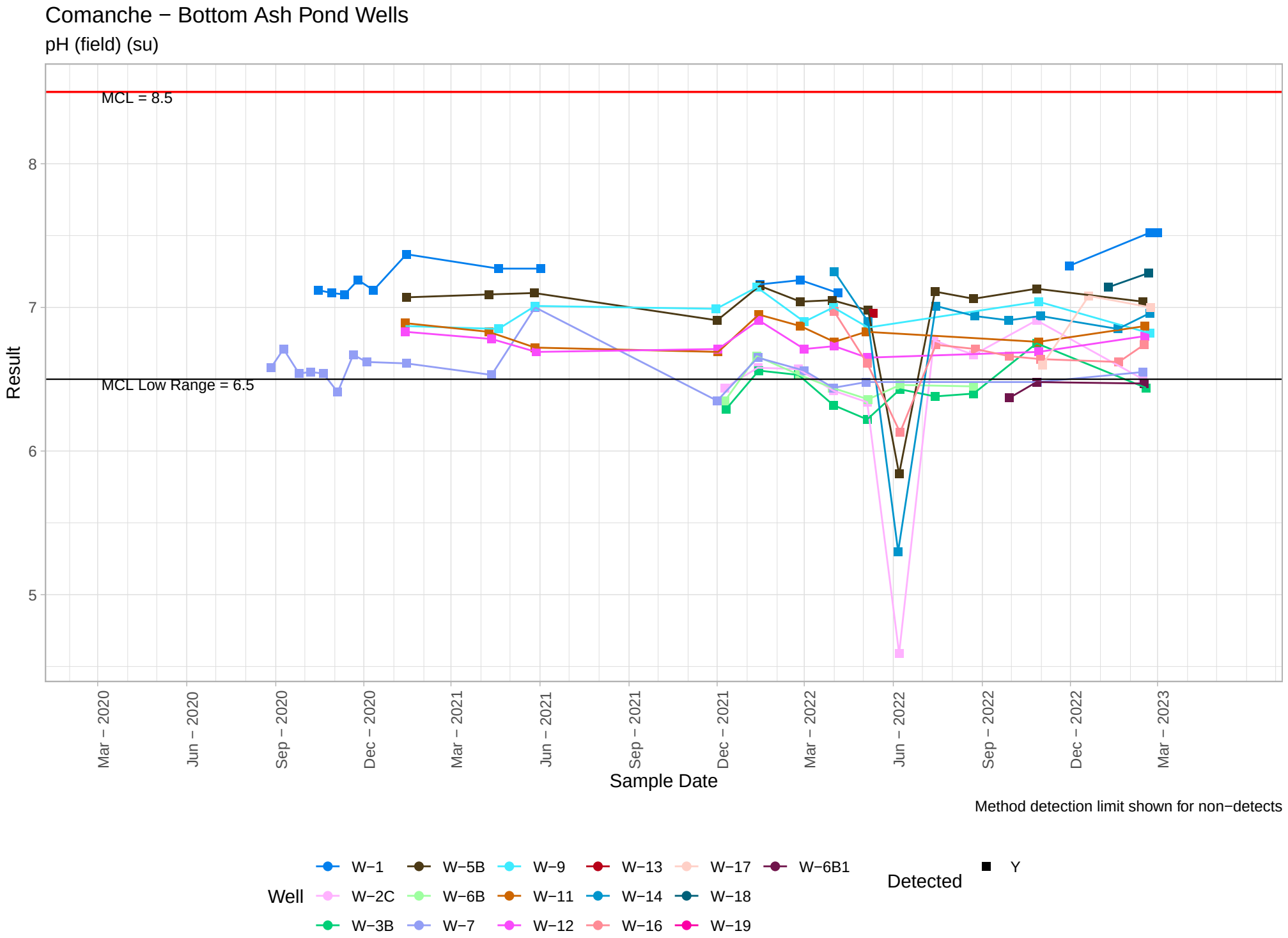
W−1 W−2C W−3B W−5B W−6B W−7 W−9 W−11 W−12 W−13 W−14 W−16 W−17 W−18 W−19 W−6B1

Detected

Y


Comanche − Bottom Ash Pond Wells
Total Dissolved Solids (mg/l)
Result
100,000
50,000
0
MCL = 500
Mar – 2020
Jun – 2020
Sep – 2020
Dec – 2020
Mar – 2021
Jun – 2021
Sep – 2021
Dec – 2021
Mar – 2022
Jun – 2022
Sep – 2022
Dec – 2022
Mar – 2023
Sample Date
Method detection limit shown for non−detects
Well
W−1
W−2C
W−3B
W−5B
W−6B
W−7
W−9
W−11
W−12
W−14
W−16
W−17
W−18
W−19
W−6B1
Detected
N
Y


Comanche − Bottom Ash Pond Wells
Fluoride (mg/l)
Result
150
100
50
0
MCL = 4
Mar − 2020
Jun − 2020
Sep − 2020
Dec − 2020
Mar − 2021
Jun − 2021
Sep − 2021
Dec − 2021
Mar − 2022
Jun − 2022
Sep − 2022
Dec − 2022
Mar − 2023
Sample Date
Method detection limit shown for non−detects
Well
W−1
W−2C
W−3B
W−5B
W−6B
W−7
W−9
W−11
W−12
W−13
W−14
W−16
W−17
W−18
W−19
W−6B1
Detected
N
Y


Comanche − Bottom Ash Pond Wells
pH (field) (su)
MCL = 8.5
MCL Low Range = 6.5
Result
8
7
6
5
Mar – 2020
Jun – 2020
Sep – 2020
Dec – 2020
Mar – 2021
Jun – 2021
Sep – 2021
Dec – 2021
Mar – 2022
Jun – 2022
Sep – 2022
Dec – 2022
Mar – 2023
Sample Date
Method detection limit shown for non−detects
Well
W−1
W−2C
W−3B
W−5B
W−6B
W−7
W−9
W−11
W−12
W−13
W−14
W−16
W−17
W−18
W−19
W−6B1
Detected
Y

Appendix D

Statistical Output Report

Comanche BAP – Lower Confidence Limits for Assessment Monitoring

Code	Well	Type	Constituent	Unit	n	% NDs	UTL*	Range of Sampling Period	Method	LCL
10_2_101	W-6B	Appendix IV	Antimony	mg/l	11	36%	0.00052	2021-12-09 to 2023-05-03	Nonparametric LCL around the Median	0.00049
10_2_102	W-6B	Appendix IV	Arsenic	mg/l	11	27%	0.014	2021-12-09 to 2023-05-03	Normal MLE LCL	0.00089
10_2_103	W-6B	Appendix IV	Barium	mg/l	11	9%	0.020	2021-12-09 to 2023-05-03	Normal MLE LCL	0.018
10_2_104	W-6B	Appendix IV	Beryllium	mg/l	11	64%	0.00014	2021-12-09 to 2023-05-03	Nonparametric LCL around the Median	0.00028
10_2_106	W-6B	Appendix IV	Cadmium	mg/l	11	0%	0.0063	2021-12-09 to 2023-05-03	Nonparametric LCL around the Median	0.0090
10_2_109	W-6B	Appendix IV	Chromium, Total	mg/l	11	45%	0.0029	2021-12-09 to 2023-05-03	Normal MLE LCL	0.00087
10_2_110	W-6B	Appendix IV	Cobalt	mg/l	11	0%	0.0092	2021-12-09 to 2023-05-03	Normal LCL	0.076
10_2_112	W-6B	Appendix IV	Fluoride (App IV)	mg/l	11	64%	105	2021-12-09 to 2023-05-03	Nonparametric LCL around the Median	0.17
10_2_113	W-6B	Appendix IV	Lead	mg/l	11	36%	0.00063	2021-12-09 to 2023-05-03	Gamma MLE Bootstrap LCL	0.00049
10_2_114	W-6B	Appendix IV	Lithium	mg/l	11	0%	7.2	2021-12-09 to 2023-05-03	Normal LCL	3.4
10_2_115	W-6B	Appendix IV	Mercury	mg/l	11	100%	0.00015	2021-12-09 to 2023-05-03	Nonparametric LCL around the Median	0.000061
10_2_116	W-6B	Appendix IV	Molybdenum	mg/l	11	27%	0.0097	2021-12-09 to 2023-05-03	Normal MLE LCL	0.0039
10_2_120	W-6B	Appendix IV	Radium-226+228	pci/l	11	0%	8.1	2021-12-09 to 2023-05-03	Normal LCL	7.1
10_2_122	W-6B	Appendix IV	Selenium	mg/l	11	18%	4.0	2021-12-09 to 2023-05-03	Normal MLE LCL	0.0037
10_2_126	W-6B	Appendix IV	Thallium	mg/l	11	9%	0.0062	2021-12-09 to 2023-05-03	Normal MLE LCL	0.0023
11_2_101	W-7	Appendix IV	Antimony	mg/l	19	74%	0.00052	2020-08-27 to 2023-05-03	Nonparametric LCL around the Median	0.00057
11_2_102	W-7	Appendix IV	Arsenic	mg/l	19	16%	0.014	2020-08-27 to 2023-05-03	Gamma MLE Bootstrap LCL	0.0068
11_2_103	W-7	Appendix IV	Barium	mg/l	19	21%	0.020	2020-08-27 to 2023-05-03	Nonparametric LCL around the Median	0.014
11_2_104	W-7	Appendix IV	Beryllium	mg/l	18	89%	0.00014	2020-08-27 to 2023-05-03	Nonparametric LCL around the Median	0.00031
11_2_106	W-7	Appendix IV	Cadmium	mg/l	19	0%	0.0063	2020-08-27 to 2023-05-03	Nonparametric LCL around the Median	0.0057
11_2_109	W-7	Appendix IV	Chromium, Total	mg/l	19	47%	0.0029	2020-08-27 to 2023-05-03	Gamma MLE Bootstrap LCL	0.0016
11_2_110	W-7	Appendix IV	Cobalt	mg/l	19	0%	0.0092	2020-08-27 to 2023-05-03	Lognormal H-LCL	0.018
11_2_112	W-7	Appendix IV	Fluoride (App IV)	mg/l	19	47%	105	2020-08-27 to 2023-05-03	Nonparametric LCL around the Median	0.17
11_2_113	W-7	Appendix IV	Lead	mg/l	19	42%	0.00063	2020-08-27 to 2023-05-03	Nonparametric LCL around the Median	0.00090
11_2_114	W-7	Appendix IV	Lithium	mg/l	19	0%	7.2	2020-08-27 to 2023-05-03	Normal LCL	3.7
11_2_115	W-7	Appendix IV	Mercury	mg/l	18	67%	0.00015	2020-08-27 to 2023-05-03	Nonparametric LCL around the Median	0.00011
11_2_116	W-7	Appendix IV	Molybdenum	mg/l	19	37%	0.0097	2020-08-27 to 2023-05-03	Nonparametric LCL around the Median	0.0052
11_2_120	W-7	Appendix IV	Radium-226+228	pci/l	17	0%	8.1	2020-08-27 to 2023-05-03	Normal LCL	4.3
11_2_122	W-7	Appendix IV	Selenium	mg/l	19	0%	4.0	2020-08-27 to 2023-05-03	Normal LCL	1.6
11_2_126	W-7	Appendix IV	Thallium	mg/l	19	5%	0.0062	2020-08-27 to 2023-05-03	Nonparametric LCL around the Median	0.0047
12_2_101	W-9	Appendix IV	Antimony	mg/l	11	55%	0.00052	2021-01-13 to 2023-05-03	Nonparametric LCL around the Median	0.00047
12_2_102	W-9	Appendix IV	Arsenic	mg/l	11	45%	0.014	2021-01-13 to 2023-05-03	Normal MLE LCL	0.00061
12_2_103	W-9	Appendix IV	Barium	mg/l	11	9%	0.020	2021-01-13 to 2023-05-03	Normal MLE LCL	0.017
12_2_104	W-9	Appendix IV	Beryllium	mg/l	10	100%	0.00014	2021-01-13 to 2023-05-03	Nonparametric LCL around the Median	0.000080
12_2_106	W-9	Appendix IV	Cadmium	mg/l	11	45%	0.0063	2021-01-13 to 2023-05-03	Normal MLE LCL	0.00051
12_2_109	W-9	Appendix IV	Chromium, Total	mg/l	11	55%	0.0029	2021-01-13 to 2023-05-03	Nonparametric LCL around the Median	0.0013
12_2_110	W-9	Appendix IV	Cobalt	mg/l	11	9%	0.0092	2021-01-13 to 2023-05-03	Normal MLE LCL	0.0017
12_2_112	W-9	Appendix IV	Fluoride (App IV)	mg/l	11	27%	105	2021-01-13 to 2023-05-03	Nonparametric LCL around the Median	0.17
12_2_113	W-9	Appendix IV	Lead	mg/l	11	73%	0.00063	2021-01-13 to 2023-05-03	Nonparametric LCL around the Median	0.00024
12_2_114	W-9	Appendix IV	Lithium	mg/l	11	0%	7.2	2021-01-13 to 2023-05-03	Nonparametric LCL around the Median	1.0
12_2_115	W-9	Appendix IV	Mercury	mg/l	10	100%	0.00015	2021-01-13 to 2023-05-03	Nonparametric LCL around the Median	0.000061
12_2_116	W-9	Appendix IV	Molybdenum	mg/l	11	27%	0.0097	2021-01-13 to 2023-05-03	Normal MLE LCL	0.0036
12_2_120	W-9	Appendix IV	Radium-226+228	pci/l	10	10%	8.1	2021-01-13 to 2023-05-03	Normal MLE LCL	1.6
12_2_122	W-9	Appendix IV	Selenium	mg/l	11	9%	4.0	2021-01-13 to 2023-05-03	Normal MLE LCL	0.0039
12_2_126	W-9	Appendix IV	Thallium	mg/l	11	45%	0.0062	2021-01-13 to 2023-05-03	Normal MLE LCL	0.00025
1_2_101	W-1	Appendix IV	Antimony	mg/l	20	75%	0.00052	2020-03-05 to 2023-05-03	Nonparametric LCL around the Median	0.00057
1_2_102	W-1	Appendix IV	Arsenic	mg/l	20	15%	0.014	2020-03-05 to 2023-05-03	Normal MLE LCL	0.0048
1_2_103	W-1	Appendix IV	Barium	mg/l	20	15%	0.020	2020-03-05 to 2023-05-03	Nonparametric LCL around the Median	0.015
1_2_104	W-1	Appendix IV	Beryllium	mg/l	19	89%	0.00014	2020-03-05 to 2023-05-03	Nonparametric LCL around the Median	0.00031
1_2_106	W-1	Appendix IV	Cadmium	mg/l	20	45%	0.0063	2020-03-05 to 2023-05-03	Normal MLE LCL	0.00035
1_2_109	W-1	Appendix IV	Chromium, Total	mg/l	20	40%	0.0029	2020-03-05 to 2023-05-03	Gamma MLE Bootstrap LCL	0.0026
1_2_110	W-1	Appendix IV	Cobalt	mg/l	20	40%	0.0092	2020-03-05 to 2023-05-03	Normal MLE LCL	0.00063
1_2_112	W-1	Appendix IV	Fluoride (App IV)	mg/l	20	5%	105	2020-03-05 to 2023-05-03	Nonparametric LCL around the Median	3.1
1_2_113	W-1	Appendix IV	Lead	mg/l	20	45%	0.00063	2020-03-05 to 2023-05-03	Gamma MLE Bootstrap LCL	0.00081
1_2_114	W-1	Appendix IV	Lithium	mg/l	20	0%	7.2	2020-03-05 to 2023-05-03	Normal LCL	2.0
1_2_115	W-1	Appendix IV	Mercury	mg/l	19	100%	0.00015	2020-03-05 to 2023-05-03	Nonparametric LCL around the Median	0.00011
1_2_116	W-1	Appendix IV	Molybdenum	mg/l	20	5%	0.0097	2020-03-05 to 2023-05-03	Normal MLE LCL	0.019
1_2_120	W-1	Appendix IV	Radium-226+228	pci/l	20	5%	8.1	2020-03-24 to 2023-05-03	Gamma MLE Bootstrap LCL	1.7
1_2_122	W-1	Appendix IV	Selenium	mg/l	20	0%	4.0	2020-03-05 to 2023-05-03	Adjusted Gamma LCL	0.78
1_2_126	W-1	Appendix IV	Thallium	mg/l	20	65%	0.0062	2020-03-05 to 2023-05-03	Nonparametric LCL around the Median	0.00021
2_2_101	W-11	Appendix IV	Antimony	mg/l	11	73%	0.00052	2021-01-13 to 2023-05-03	Nonparametric LCL around the Median	0.00040
2_2_102	W-11	Appendix IV	Arsenic	mg/l	11	27%	0.014	2021-01-13 to 2023-05-03	Gamma MLE Bootstrap LCL	0.0022
2_2_103	W-11	Appendix IV	Barium	mg/l	11	9%	0.020	2021-01-13 to 2023-05-03	Nonparametric LCL around the Median	0.013
2_2_104	W-11	Appendix IV	Beryllium	mg/l	10	80%	0.00014	2021-01-13 to 2023-05-03	Nonparametric LCL around the Median	0.00016
2_2_106	W-11	Appendix IV	Cadmium	mg/l	11	18%	0.0063	2021-01-13 to 2023-05-03	Normal MLE LCL	0.0010
2_2_109	W-11	Appendix IV	Chromium, Total	mg/l	11	45%	0.0029	2021-01-13 to 2023-05-03	Normal MLE LCL	0.0010
2_2_110	W-11	Appendix IV	Cobalt	mg/l	11	9%	0.0092	2021-01-13 to 2023-05-03	Normal MLE LCL	0.011
2_2_112	W-11	Appendix IV	Fluoride (App IV)	mg/l	11	9%	105	2021-01-13 to 2023-05-03	Gamma MLE Bootstrap LCL	0.99
2_2_113	W-11	Appendix IV	Lead	mg/l	11	64%	0.00063	2021-01-13 to 2023-05-03	Nonparametric LCL around the Median	0.00045
2_2_114	W-11	Appendix IV	Lithium	mg/l	11	0%	7.2	2021-01-13 to 2023-05-03	Nonparametric LCL around the Median	3.2
2_2_115	W-11	Appendix IV	Mercury	mg/l	10	100%	0.00015	2021-01-13 to 2023-05-03	Nonparametric LCL around the Median	0.000061
2_2_116	W-11	Appendix IV	Molybdenum	mg/l	11	45%	0.0097	2021-01-13 to 2023-05-03	Normal MLE LCL	0.0041
2_2_120	W-11	Appendix IV	Radium-226+228	pci/l	10	10%	8.1	2021-01-13 to 2023-05-03	Normal MLE LCL	3.2
2_2_122	W-11	Appendix IV	Selenium	mg/l	11	9%	4.0	2021-01-13 to 2023-05-03	Normal MLE LCL	2.6

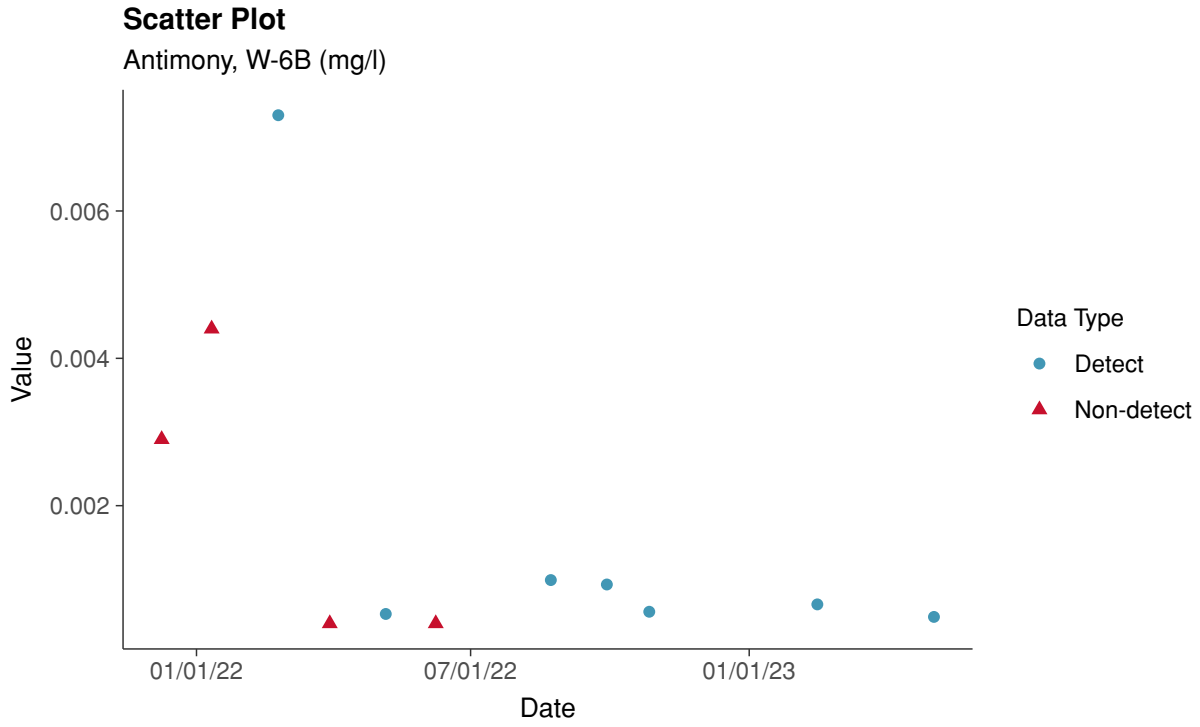
2_2_126	W-11	Appendix IV	Thallium	mg/l	11	18%	0.0062	2021-01-13 to 2023-05-03	Gamma MLE Bootstrap LCL	0.0029
3_2_101	W-12	Appendix IV	Antimony	mg/l	11	27%	0.00052	2021-01-13 to 2023-05-04	Normal MLE LCL	0.00064
3_2_102	W-12	Appendix IV	Arsenic	mg/l	11	73%	0.014	2021-01-13 to 2023-05-04	Nonparametric LCL around the Median	0.00035
3_2_103	W-12	Appendix IV	Barium	mg/l	11	9%	0.020	2021-01-13 to 2023-05-04	Gamma MLE Bootstrap LCL	0.015
3_2_104	W-12	Appendix IV	Beryllium	mg/l	10	80%	0.00014	2021-01-13 to 2023-05-04	Nonparametric LCL around the Median	0.00025
3_2_106	W-12	Appendix IV	Cadmium	mg/l	11	18%	0.0063	2021-01-13 to 2023-05-04	Nonparametric LCL around the Median	0.0011
3_2_109	W-12	Appendix IV	Chromium, Total	mg/l	11	45%	0.0029	2021-01-13 to 2023-05-04	Normal MLE LCL	0.00060
3_2_110	W-12	Appendix IV	Cobalt	mg/l	11	0%	0.0092	2021-01-13 to 2023-05-04	Normal LCL	0.024
3_2_112	W-12	Appendix IV	Fluoride (App IV)	mg/l	11	36%	105	2021-01-13 to 2023-05-04	Nonparametric LCL around the Median	0.17
3_2_113	W-12	Appendix IV	Lead	mg/l	11	82%	0.00063	2021-01-13 to 2023-05-04	Nonparametric LCL around the Median	0.00045
3_2_114	W-12	Appendix IV	Lithium	mg/l	11	0%	7.2	2021-01-13 to 2023-05-04	Normal LCL	2.0
3_2_115	W-12	Appendix IV	Mercury	mg/l	10	100%	0.00015	2021-01-13 to 2023-05-04	Nonparametric LCL around the Median	0.000061
3_2_116	W-12	Appendix IV	Molybdenum	mg/l	11	36%	0.0097	2021-01-13 to 2023-05-04	Normal MLE LCL	0.0034
3_2_120	W-12	Appendix IV	Radium-226+228	pci/l	10	0%	8.1	2021-01-13 to 2023-05-04	Normal LCL	2.5
3_2_122	W-12	Appendix IV	Selenium	mg/l	11	9%	4.0	2021-01-13 to 2023-05-04	Normal MLE LCL	0.019
3_2_126	W-12	Appendix IV	Thallium	mg/l	11	9%	0.0062	2021-01-13 to 2023-05-04	Gamma MLE Bootstrap LCL	0.0036
4_2_101	W-14	Appendix IV	Antimony	mg/l	10	10%	0.00052	2022-04-01 to 2023-05-03	Normal MLE LCL	0.00045
4_2_102	W-14	Appendix IV	Arsenic	mg/l	10	20%	0.014	2022-04-01 to 2023-05-03	Normal MLE LCL	0.00040
4_2_103	W-14	Appendix IV	Barium	mg/l	10	10%	0.020	2022-04-01 to 2023-05-03	Normal MLE LCL	0.013
4_2_104	W-14	Appendix IV	Beryllium	mg/l	10	60%	0.00014	2022-04-01 to 2023-05-03	Nonparametric LCL around the Median	0.000080
4_2_106	W-14	Appendix IV	Cadmium	mg/l	10	0%	0.0063	2022-04-01 to 2023-05-03	Normal LCL	0.0010
4_2_109	W-14	Appendix IV	Chromium, Total	mg/l	10	10%	0.0029	2022-04-01 to 2023-05-03	Normal MLE LCL	0.00091
4_2_110	W-14	Appendix IV	Cobalt	mg/l	10	0%	0.0092	2022-04-01 to 2023-05-03	Normal LCL	0.010
4_2_112	W-14	Appendix IV	Fluoride (App IV)	mg/l	10	20%	105	2022-04-01 to 2023-05-03	Gamma MLE Bootstrap LCL	6.5
4_2_113	W-14	Appendix IV	Lead	mg/l	10	80%	0.00063	2022-04-01 to 2023-05-03	Nonparametric LCL around the Median	0.00018
4_2_114	W-14	Appendix IV	Lithium	mg/l	10	0%	7.2	2022-04-01 to 2023-05-03	Normal LCL	3.4
4_2_115	W-14	Appendix IV	Mercury	mg/l	10	90%	0.00015	2022-04-01 to 2023-05-03	Nonparametric LCL around the Median	0.000061
4_2_116	W-14	Appendix IV	Molybdenum	mg/l	10	10%	0.0097	2022-04-01 to 2023-05-03	Normal MLE LCL	0.015
4_2_120	W-14	Appendix IV	Radium-226+228	pci/l	10	0%	8.1	2022-04-01 to 2023-05-03	Normal LCL	2.8
4_2_122	W-14	Appendix IV	Selenium	mg/l	10	0%	4.0	2022-04-01 to 2023-05-03	Normal LCL	1.1
4_2_126	W-14	Appendix IV	Thallium	mg/l	10	10%	0.0062	2022-04-01 to 2023-05-03	Normal MLE LCL	0.0020
5_2_101	W-16	Appendix IV	Antimony	mg/l	5	60%	0.00052	2022-04-01 to 2023-05-11	Nonparametric LCL around the Median	0.00040
5_2_102	W-16	Appendix IV	Arsenic	mg/l	5	60%	0.014	2022-04-01 to 2023-05-11	Nonparametric LCL around the Median	0.00033
5_2_103	W-16	Appendix IV	Barium	mg/l	5	20%	0.020	2022-04-01 to 2023-05-11	Nonparametric LCL around the Median	0.012
5_2_104	W-16	Appendix IV	Beryllium	mg/l	5	80%	0.00014	2022-04-01 to 2023-05-11	Nonparametric LCL around the Median	0.000080
5_2_106	W-16	Appendix IV	Cadmium	mg/l	5	20%	0.0063	2022-04-01 to 2023-05-11	Nonparametric LCL around the Median	0.0021
5_2_109	W-16	Appendix IV	Chromium, Total	mg/l	5	100%	0.0029	2022-04-01 to 2023-05-11	Nonparametric LCL around the Median	0.00050
5_2_110	W-16	Appendix IV	Cobalt	mg/l	10	10%	0.0092	2022-04-01 to 2023-05-11	Normal MLE LCL	0.014
5_2_112	W-16	Appendix IV	Fluoride (App IV)	mg/l	5	0%	105	2022-04-01 to 2023-05-11	Nonparametric LCL around the Median	0.20
5_2_113	W-16	Appendix IV	Lead	mg/l	5	60%	0.00063	2022-04-01 to 2023-05-11	Nonparametric LCL around the Median	0.00018
5_2_114	W-16	Appendix IV	Lithium	mg/l	5	0%	7.2	2022-04-01 to 2023-05-11	Nonparametric LCL around the Median	1.8
5_2_115	W-16	Appendix IV	Mercury	mg/l	5	100%	0.00015	2022-04-01 to 2023-05-11	Nonparametric LCL around the Median	0.000061
5_2_116	W-16	Appendix IV	Molybdenum	mg/l	5	20%	0.0097	2022-04-01 to 2023-05-11	Nonparametric LCL around the Median	0.0032
5_2_120	W-16	Appendix IV	Radium-226+228	pci/l	5	0%	8.1	2022-04-01 to 2023-05-11	Nonparametric LCL around the Median	1.7
5_2_122	W-16	Appendix IV	Selenium	mg/l	5	0%	4.0	2022-04-01 to 2023-05-11	Nonparametric LCL around the Median	0.098
5_2_126	W-16	Appendix IV	Thallium	mg/l	5	20%	0.0062	2022-04-01 to 2023-05-11	Nonparametric LCL around the Median	0.0048
6_2_101	W-17	Appendix IV	Antimony	mg/l	5	0%	0.00052	2022-11-02 to 2023-05-03	Nonparametric LCL around the Median	0.0013
6_2_102	W-17	Appendix IV	Arsenic	mg/l	5	0%	0.014	2022-11-02 to 2023-05-03	Nonparametric LCL around the Median	0.00061
6_2_103	W-17	Appendix IV	Barium	mg/l	5	0%	0.020	2022-11-02 to 2023-05-03	Nonparametric LCL around the Median	0.012
6_2_104	W-17	Appendix IV	Beryllium	mg/l	5	100%	0.00014	2022-11-02 to 2023-05-03	Nonparametric LCL around the Median	0.000080
6_2_106	W-17	Appendix IV	Cadmium	mg/l	5	0%	0.0063	2022-11-02 to 2023-05-03	Nonparametric LCL around the Median	0.0020
6_2_109	W-17	Appendix IV	Chromium, Total	mg/l	5	0%	0.0029	2022-11-02 to 2023-05-03	Nonparametric LCL around the Median	0.0016
6_2_110	W-17	Appendix IV	Cobalt	mg/l	5	0%	0.0092	2022-11-02 to 2023-05-03	Nonparametric LCL around the Median	0.0021
6_2_112	W-17	Appendix IV	Fluoride (App IV)	mg/l	5	20%	105	2022-11-02 to 2023-05-03	Nonparametric LCL around the Median	0.17
6_2_113	W-17	Appendix IV	Lead	mg/l	5	40%	0.00063	2022-11-02 to 2023-05-03	Nonparametric LCL around the Median	0.00023
6_2_114	W-17	Appendix IV	Lithium	mg/l	5	0%	7.2	2022-11-02 to 2023-05-03	Nonparametric LCL around the Median	0.64
6_2_115	W-17	Appendix IV	Mercury	mg/l	5	100%	0.00015	2022-11-02 to 2023-05-03	Nonparametric LCL around the Median	0.000061
6_2_116	W-17	Appendix IV	Molybdenum	mg/l	5	0%	0.0097	2022-11-02 to 2023-05-03	Nonparametric LCL around the Median	0.016
6_2_120	W-17	Appendix IV	Radium-226+228	pci/l	5	20%	8.1	2022-11-02 to 2023-05-03	Nonparametric LCL around the Median	0.83
6_2_122	W-17	Appendix IV	Selenium	mg/l	5	0%	4.0	2022-11-02 to 2023-05-03	Nonparametric LCL around the Median	2.2
6_2_126	W-17	Appendix IV	Thallium	mg/l	5	0%	0.0062	2022-11-02 to 2023-05-03	Nonparametric LCL around the Median	0.0017
7_2_101	W-18	Appendix IV	Antimony	mg/l	4	0%	0.00052	2023-01-09 to 2023-05-02	Nonparametric LCL around the Median	0.00040
7_2_102	W-18	Appendix IV	Arsenic	mg/l	4	0%	0.014	2023-01-09 to 2023-05-02	Nonparametric LCL around the Median	0.00092
7_2_103	W-18	Appendix IV	Barium	mg/l	4	0%	0.020	2023-01-09 to 2023-05-02	Nonparametric LCL around the Median	0.015
7_2_104	W-18	Appendix IV	Beryllium	mg/l	4	100%	0.00014	2023-01-09 to 2023-05-02	Nonparametric LCL around the Median	0.00030
7_2_106	W-18	Appendix IV	Cadmium	mg/l	4	75%	0.0063	2023-01-09 to 2023-05-02	Nonparametric LCL around the Median	0.00019
7_2_109	W-18	Appendix IV	Chromium, Total	mg/l	4	25%	0.0029	2023-01-09 to 2023-05-02	Nonparametric LCL around the Median	0.00050
7_2_110	W-18	Appendix IV	Cobalt	mg/l	4	0%	0.0092	2023-01-09 to 2023-05-02	Nonparametric LCL around the Median	0.0047
7_2_112	W-18	Appendix IV	Fluoride (App IV)	mg/l	4	0%	105	2023-01-09 to 2023-05-02	Nonparametric LCL around the Median	0.28
7_2_113	W-18	Appendix IV	Lead	mg/l	4	75%	0.00063	2023-01-09 to 2023-05-02	Nonparametric LCL around the Median	0.00023
7_2_114	W-18	Appendix IV	Lithium	mg/l	4	0%	7.2	2023-01-09 to 2023-05-02	Nonparametric LCL around the Median	2.0
7_2_115	W-18	Appendix IV	Mercury	mg/l	4	100%	0.00015	2023-01-09 to 2023-05-02	Nonparametric LCL around the Median	0.000061
7_2_116	W-18	Appendix IV	Molybdenum	mg/l	4	0%	0.0097	2023-01-09 to 2023-05-02	Nonparametric LCL around the Median	0.041
7_2_120	W-18	Appendix IV	Radium-226+228	pci/l	4	50%	8.1	2023-01-09 to 2023-05-02	Nonparametric LCL around the Median	0.99
7_2_122	W-18	Appendix IV	Selenium	mg/l	4	0%	4.0	2023-01-09 to 2023-05-02	Nonparametric LCL around the Median	1.3
7_2_126	W-18	Appendix IV	Thallium	mg/l	4	50%	0.0062	2023-01-09 to 2023-05-02	Nonparametric LCL around the Median	0.00021
8_2_101	W-3B	Appendix IV	Antimony	mg/l	10	60%	0.00052	2021-12-10 to 2023-05-02	Nonparametric LCL around the Median	0.00040
8_2_102	W-3B	Appendix IV	Arsenic	mg/l	10	30%	0.014	2021-12-10 to 2023-05-02	Normal MLE LCL	0.00067

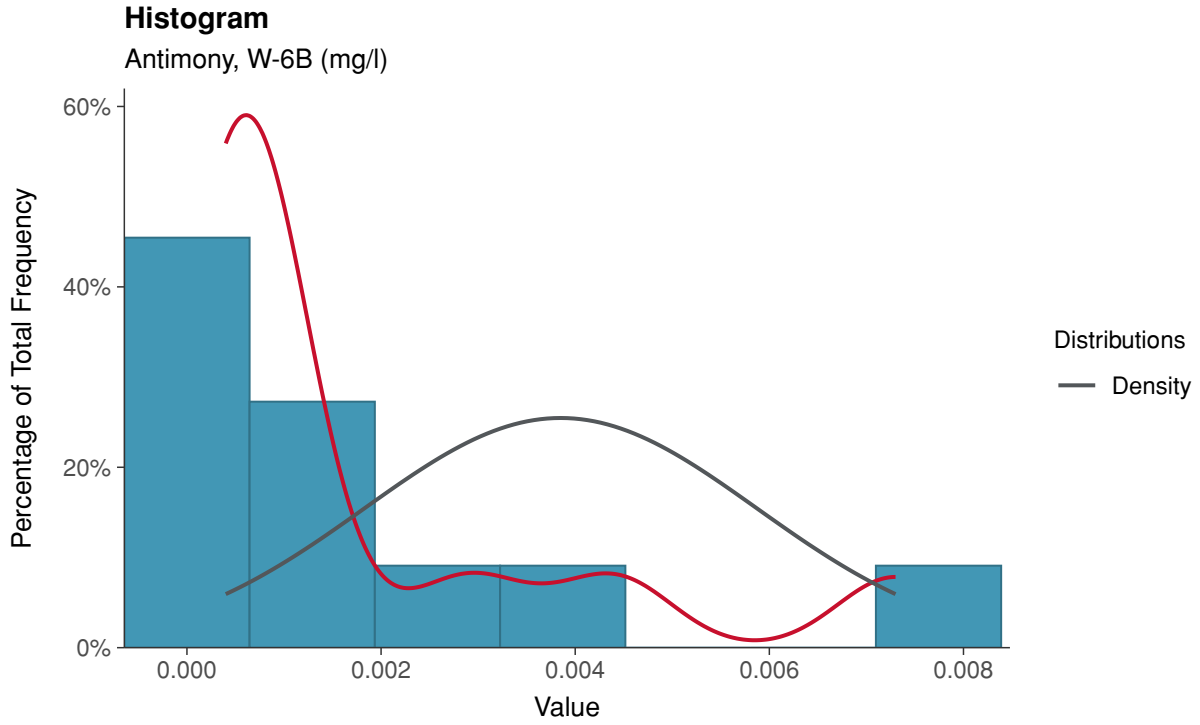
8_2_103	W-3B	Appendix IV	Barium	mg/l	11	9%	0.020	2021-12-10 to 2023-05-02	Normal MLE LCL	0.014
8_2_104	W-3B	Appendix IV	Beryllium	mg/l	11	73%	0.00014	2021-12-10 to 2023-05-02	Nonparametric LCL around the Median	0.00012
8_2_106	W-3B	Appendix IV	Cadmium	mg/l	11	0%	0.0063	2021-12-10 to 2023-05-02	Nonparametric LCL around the Median	0.017
8_2_109	W-3B	Appendix IV	Chromium, Total	mg/l	11	36%	0.0029	2021-12-10 to 2023-05-02	Gamma MLE Bootstrap LCL	0.00063
8_2_110	W-3B	Appendix IV	Cobalt	mg/l	11	0%	0.0092	2021-12-10 to 2023-05-02	Nonparametric LCL around the Median	0.10
8_2_112	W-3B	Appendix IV	Fluoride (App IV)	mg/l	11	64%	105	2021-12-10 to 2023-05-02	Nonparametric LCL around the Median	0.17
8_2_113	W-3B	Appendix IV	Lead	mg/l	11	36%	0.00063	2021-12-10 to 2023-05-02	Normal MLE LCL	0.00056
8_2_114	W-3B	Appendix IV	Lithium	mg/l	11	0%	7.2	2021-12-10 to 2023-05-02	Normal LCL	3.0
8_2_115	W-3B	Appendix IV	Mercury	mg/l	11	100%	0.00015	2021-12-10 to 2023-05-02	Nonparametric LCL around the Median	0.000061
8_2_116	W-3B	Appendix IV	Molybdenum	mg/l	11	27%	0.0097	2021-12-10 to 2023-05-02	Nonparametric LCL around the Median	0.0017
8_2_120	W-3B	Appendix IV	Radium-226+228	pci/l	11	0%	8.1	2021-12-10 to 2023-05-02	Normal LCL	10
8_2_122	W-3B	Appendix IV	Selenium	mg/l	11	9%	4.0	2021-12-10 to 2023-05-02	Gamma MLE Bootstrap LCL	0.0064
8_2_126	W-3B	Appendix IV	Thallium	mg/l	11	9%	0.0062	2021-12-10 to 2023-05-02	Normal MLE LCL	0.0028
9_2_101	W-5B	Appendix IV	Antimony	mg/l	14	86%	0.00052	2021-01-14 to 2023-05-02	Nonparametric LCL around the Median	0.00040
9_2_102	W-5B	Appendix IV	Arsenic	mg/l	14	57%	0.014	2021-01-14 to 2023-05-02	Nonparametric LCL around the Median	0.00035
9_2_103	W-5B	Appendix IV	Barium	mg/l	14	7%	0.020	2021-01-14 to 2023-05-02	Normal MLE LCL	0.017
9_2_104	W-5B	Appendix IV	Beryllium	mg/l	13	85%	0.00014	2021-01-14 to 2023-05-02	Nonparametric LCL around the Median	0.000094
9_2_106	W-5B	Appendix IV	Cadmium	mg/l	14	14%	0.0063	2021-01-14 to 2023-05-02	Gamma MLE Bootstrap LCL	0.00082
9_2_109	W-5B	Appendix IV	Chromium, Total	mg/l	14	86%	0.0029	2021-01-14 to 2023-05-02	Nonparametric LCL around the Median	0.00050
9_2_110	W-5B	Appendix IV	Cobalt	mg/l	14	0%	0.0092	2021-01-14 to 2023-05-02	Normal LCL	0.0027
9_2_112	W-5B	Appendix IV	Fluoride (App IV)	mg/l	14	14%	105	2021-01-14 to 2023-05-02	Nonparametric LCL around the Median	0.19
9_2_113	W-5B	Appendix IV	Lead	mg/l	14	57%	0.00063	2021-01-14 to 2023-05-02	Nonparametric LCL around the Median	0.00023
9_2_114	W-5B	Appendix IV	Lithium	mg/l	14	0%	7.2	2021-01-14 to 2023-05-02	Normal LCL	0.26
9_2_115	W-5B	Appendix IV	Mercury	mg/l	13	100%	0.00015	2021-01-14 to 2023-05-02	Nonparametric LCL around the Median	0.000061
9_2_116	W-5B	Appendix IV	Molybdenum	mg/l	14	29%	0.0097	2021-01-14 to 2023-05-02	Nonparametric LCL around the Median	0.0018
9_2_120	W-5B	Appendix IV	Radium-226+228	pci/l	13	0%	8.1	2021-01-14 to 2023-05-02	Adjusted Gamma LCL	1.7
9_2_122	W-5B	Appendix IV	Selenium	mg/l	14	43%	4.0	2021-01-14 to 2023-05-02	Gamma MLE Bootstrap LCL	0.00077
9_2_126	W-5B	Appendix IV	Thallium	mg/l	14	29%	0.0062	2021-01-14 to 2023-05-02	Normal MLE LCL	0.00071

* UTLs developed from December 2021 to August 2022 background samples from well W-2C

Appendix IV: Antimony, W-6B

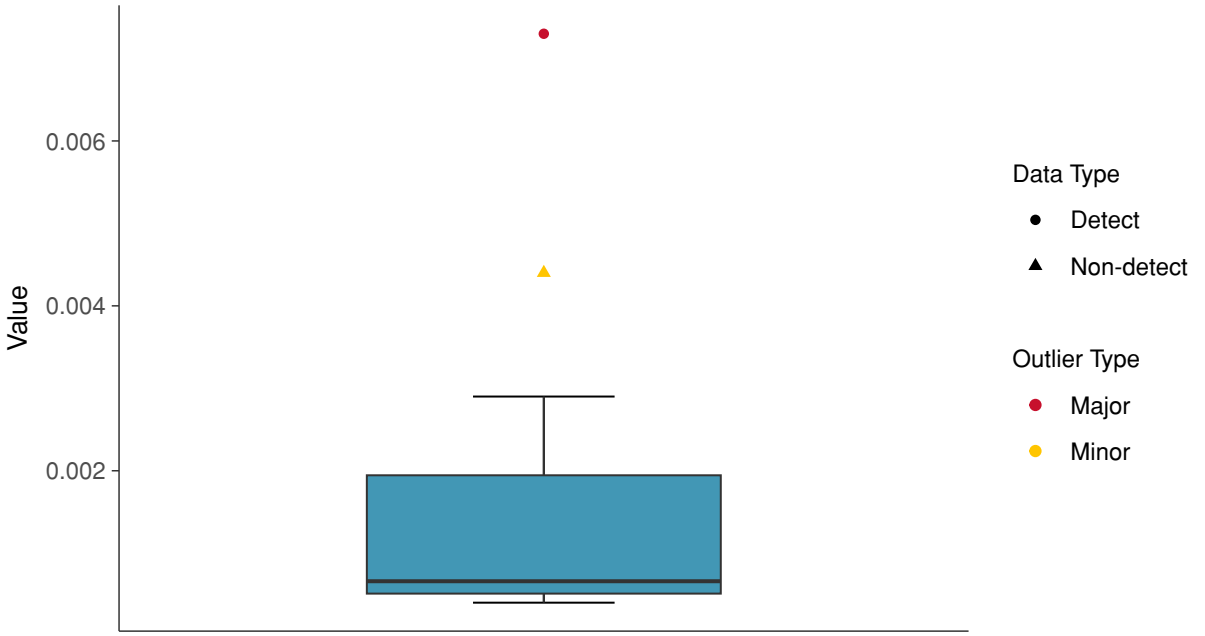
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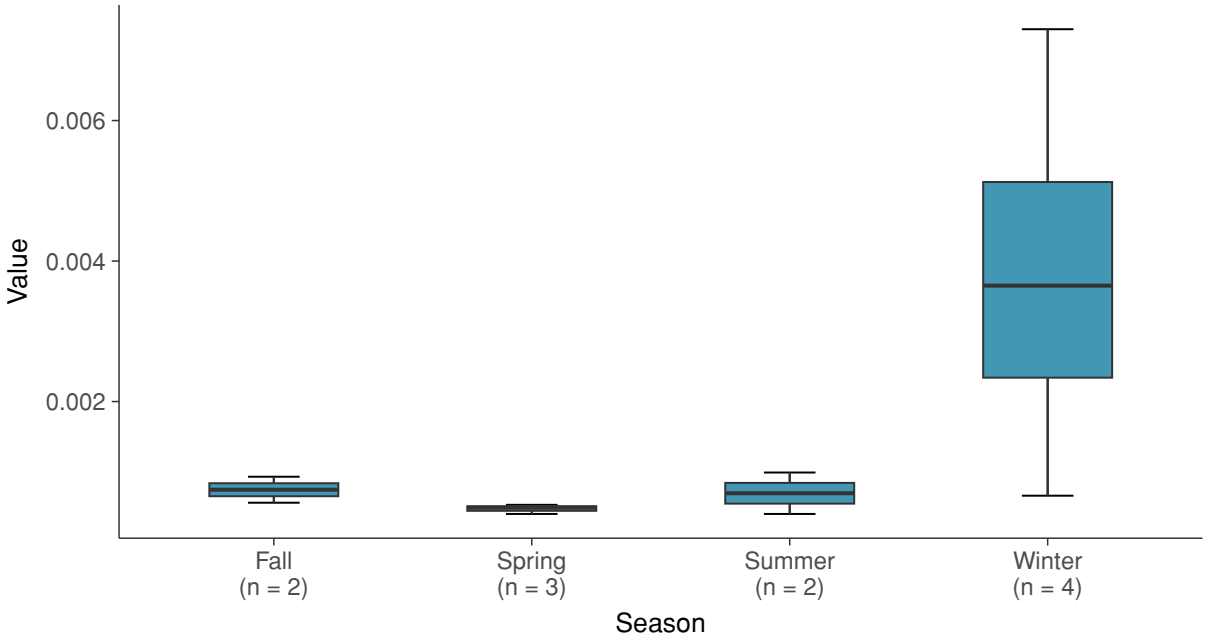
Boxplot

Antimony, W-6B (mg/l)



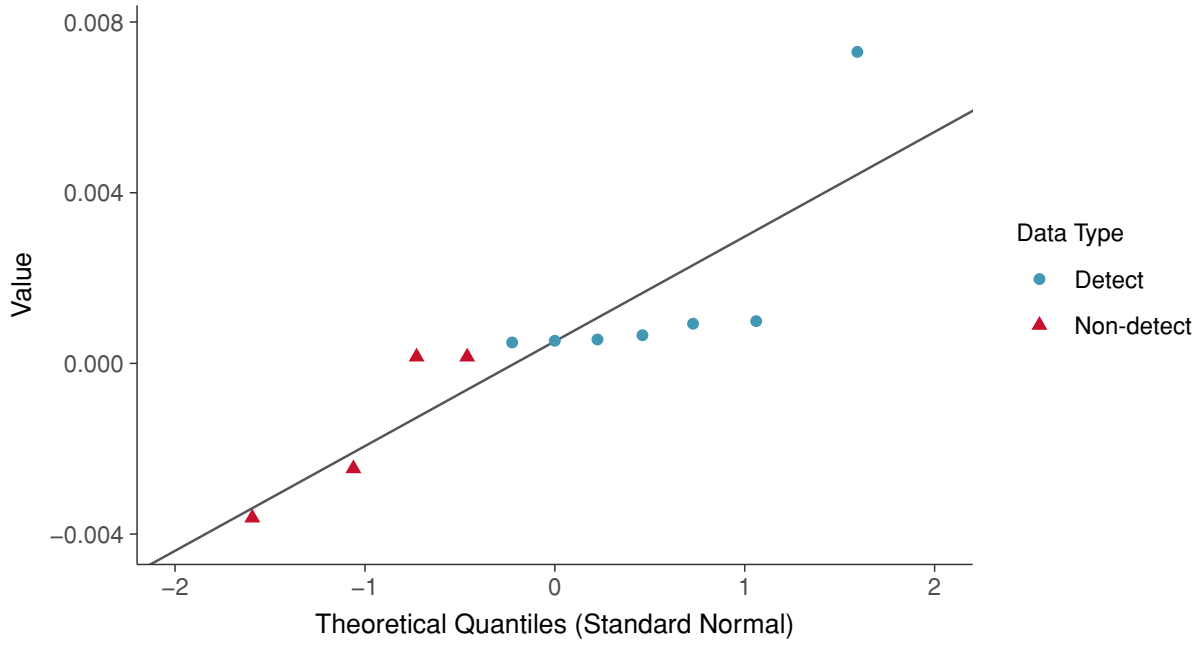
Boxplot by Season

Antimony, W-6B (mg/l)



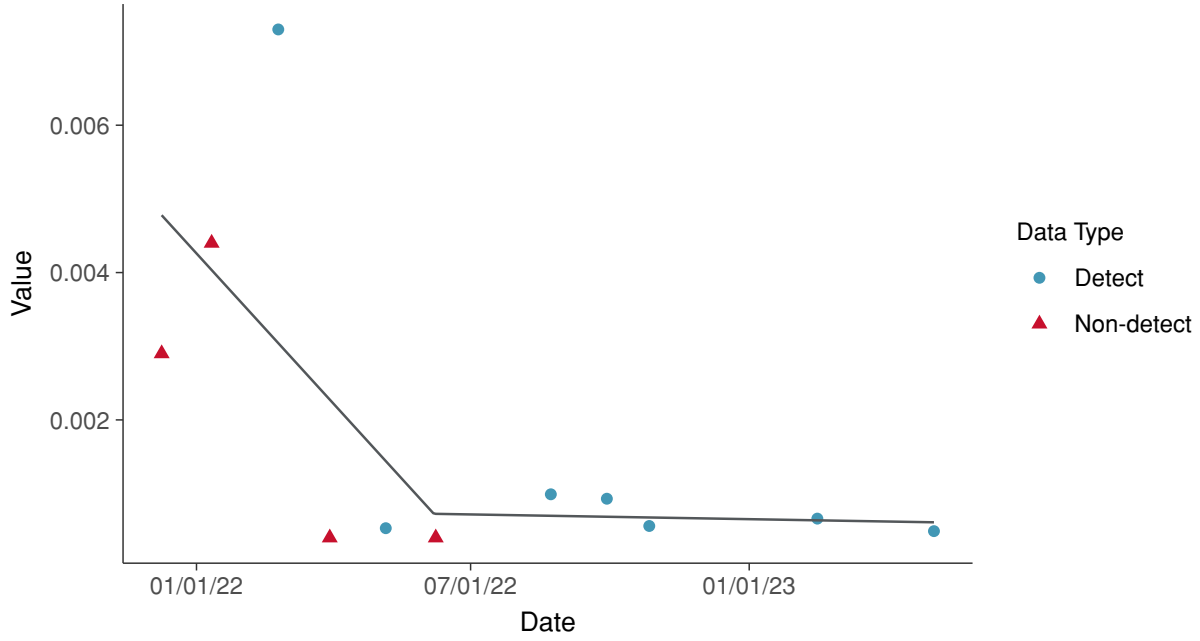
Normal Q-Q plot using ROS Imputed Estimates

Antimony, W-6B (mg/l)



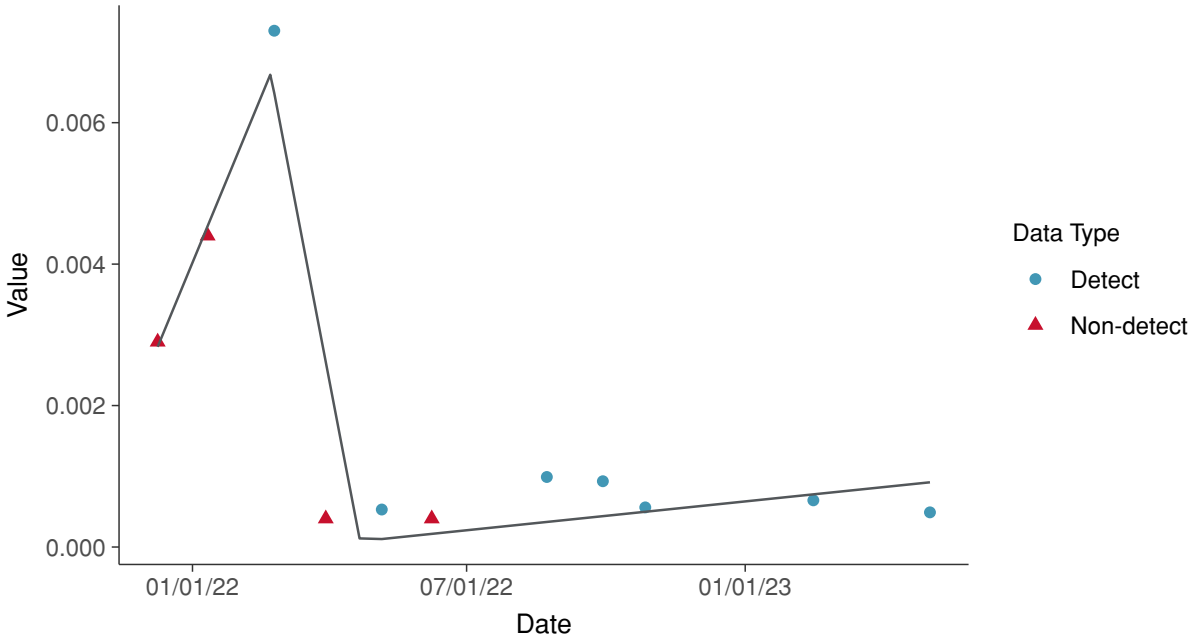
Trend Regression: Piecewise Linear-Linear

Antimony, W-6B (mg/l)



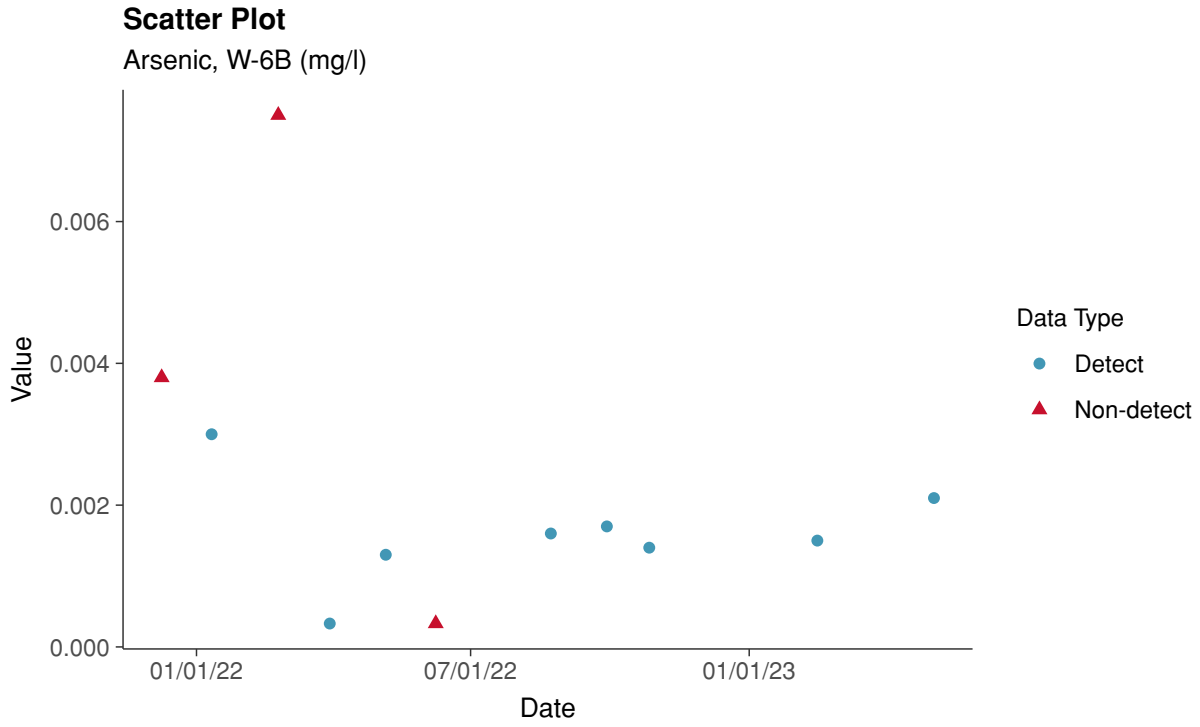
Trend Regression: Piecewise Linear-Linear-Linear

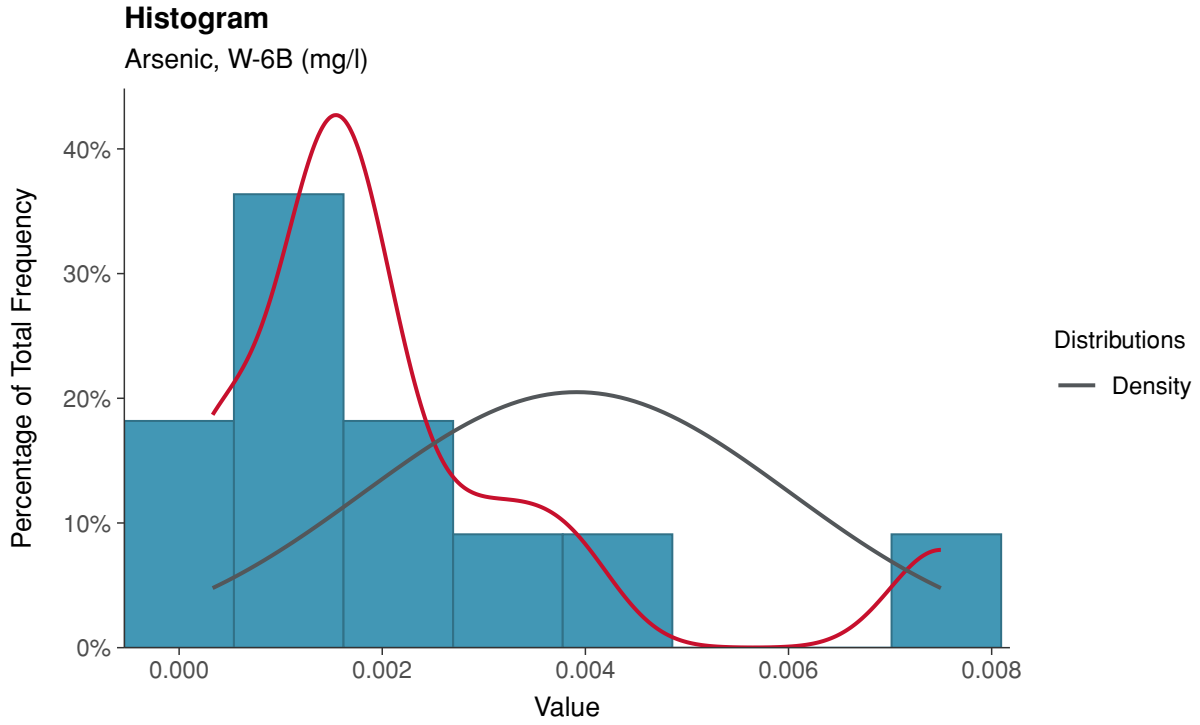
Antimony, W-6B (mg/l)



Appendix IV: Arsenic, W-6B

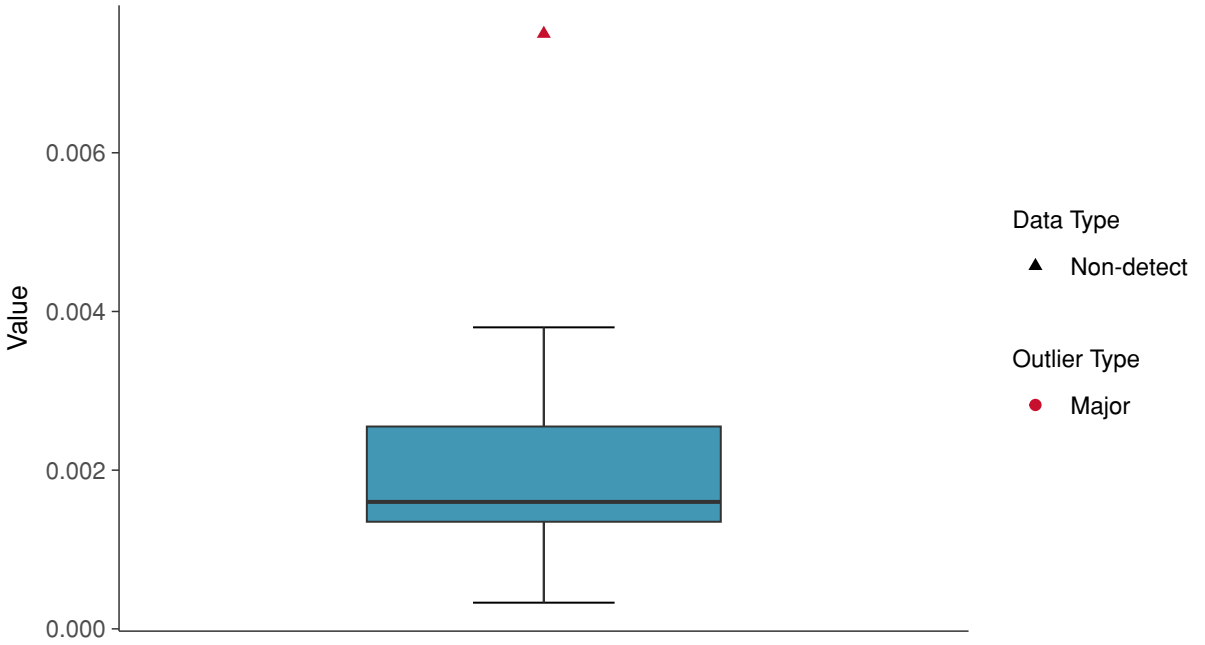
ID: 10_2_102





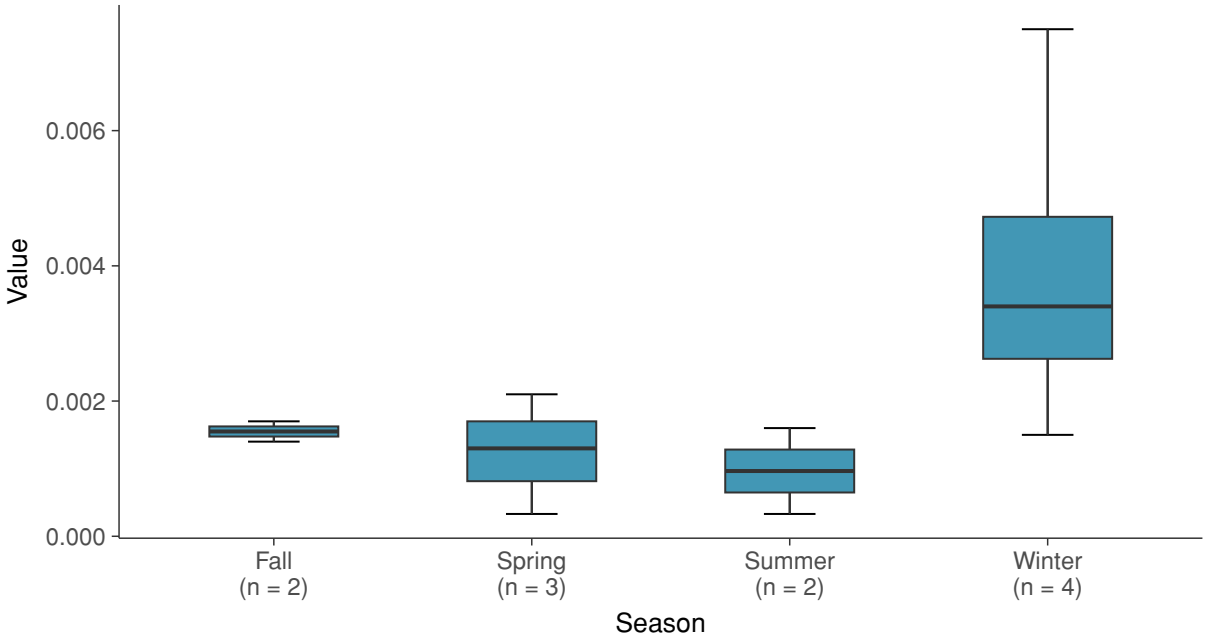
Boxplot

Arsenic, W-6B (mg/l)



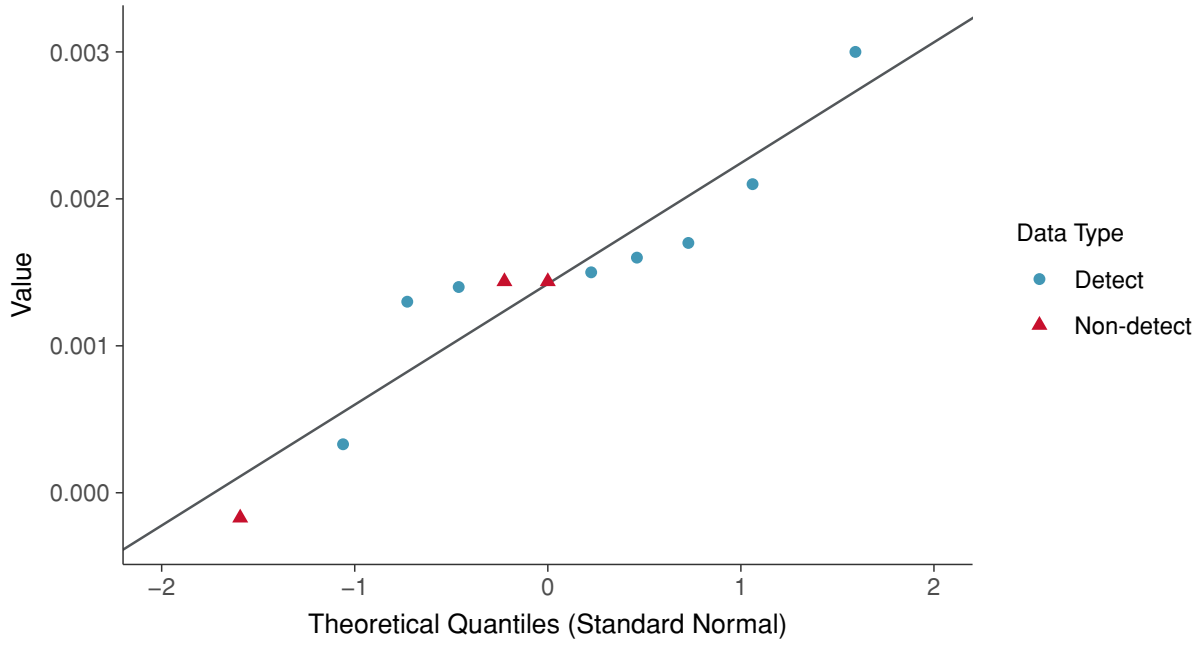
Boxplot by Season

Arsenic, W-6B (mg/l)



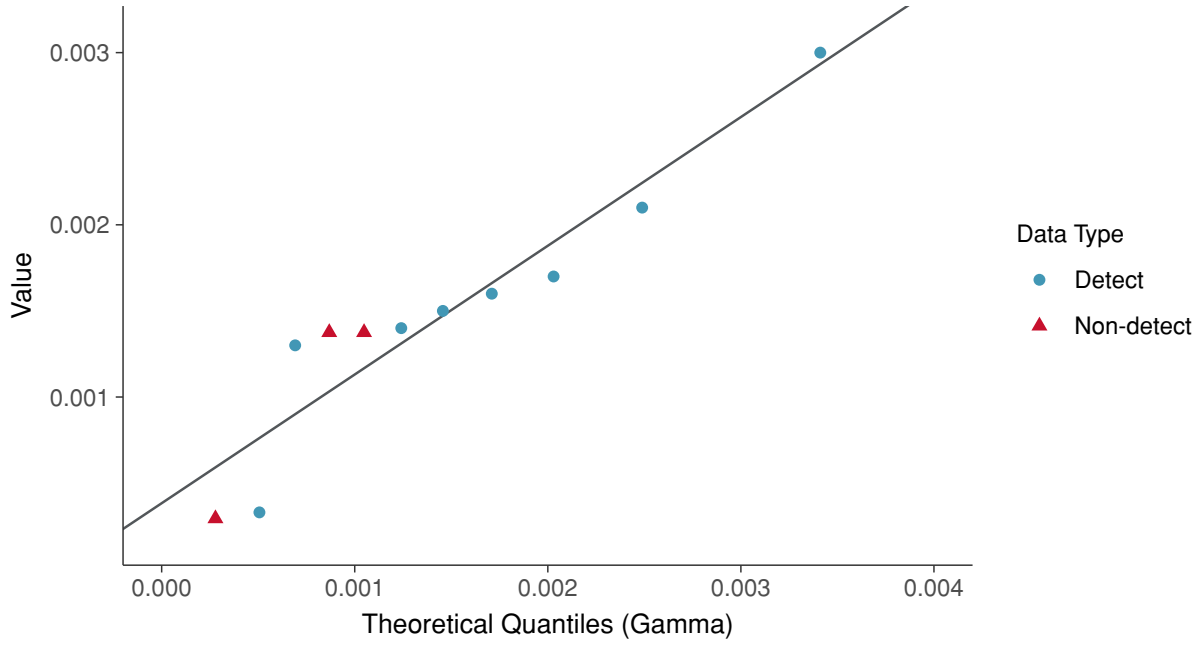
Normal Q-Q plot using ROS Imputed Estimates

Arsenic, W-6B (mg/l)



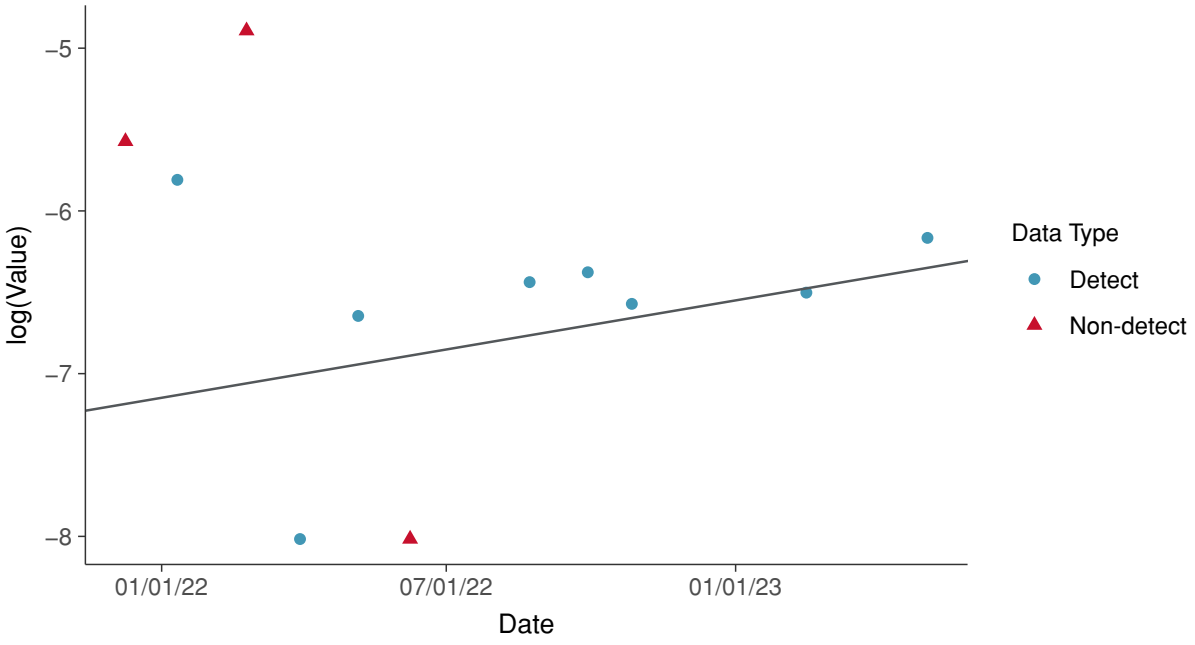
Gamma Q-Q plot using ROS Imputed Estimates

Arsenic, W-6B (mg/l)



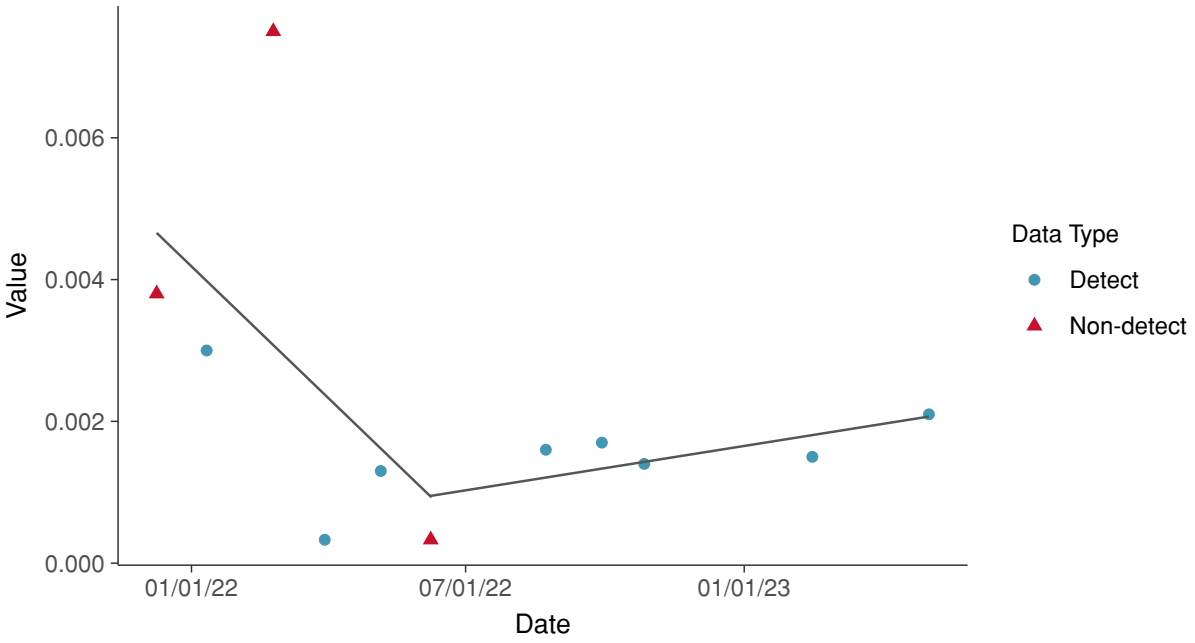
Trend Regression: Lognormal MLE

Arsenic, W-6B (mg/l)



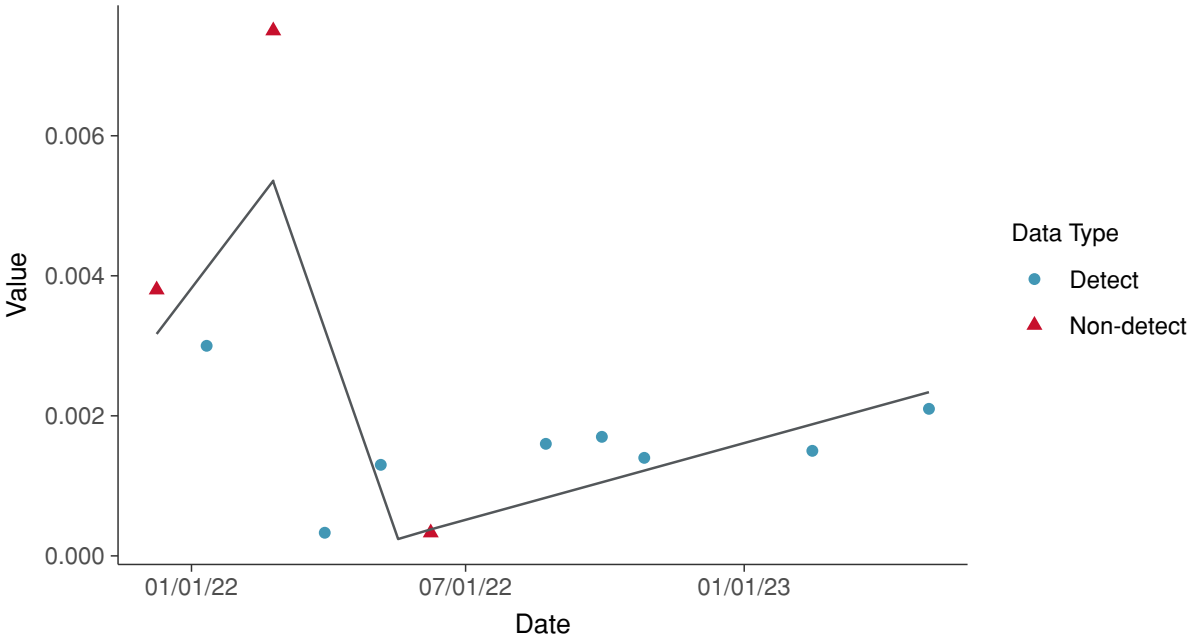
Trend Regression: Piecewise Linear-Linear

Arsenic, W-6B (mg/l)



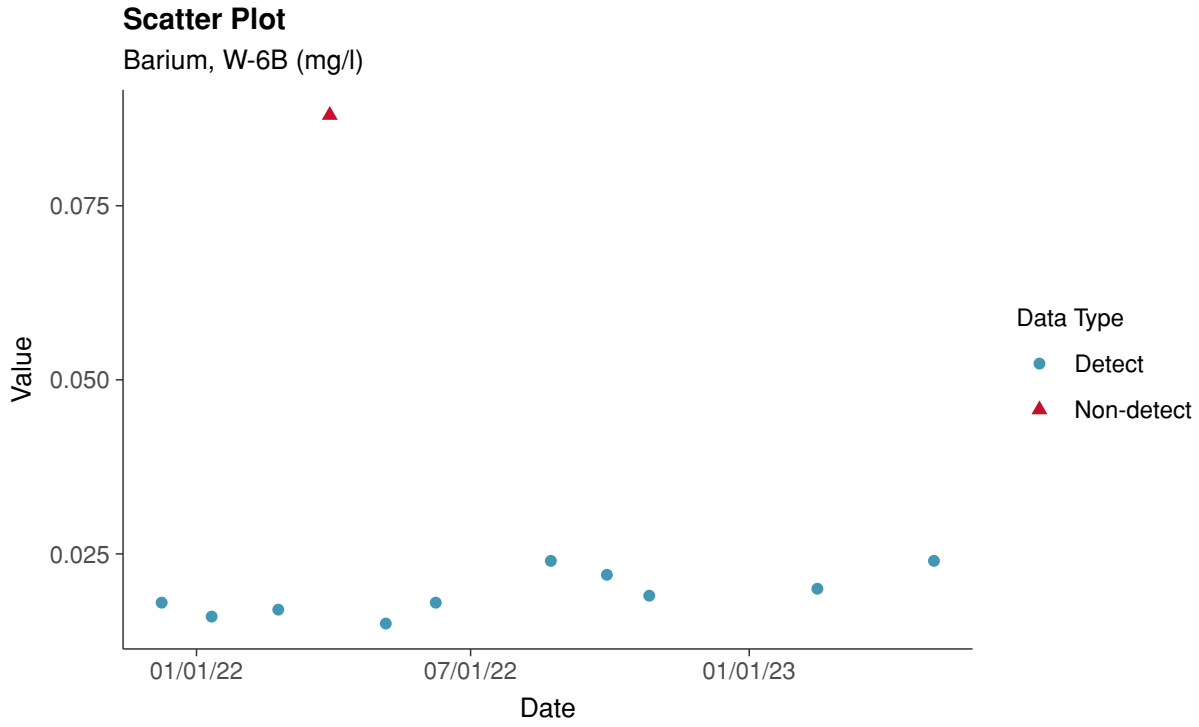
Trend Regression: Piecewise Linear-Linear-Linear

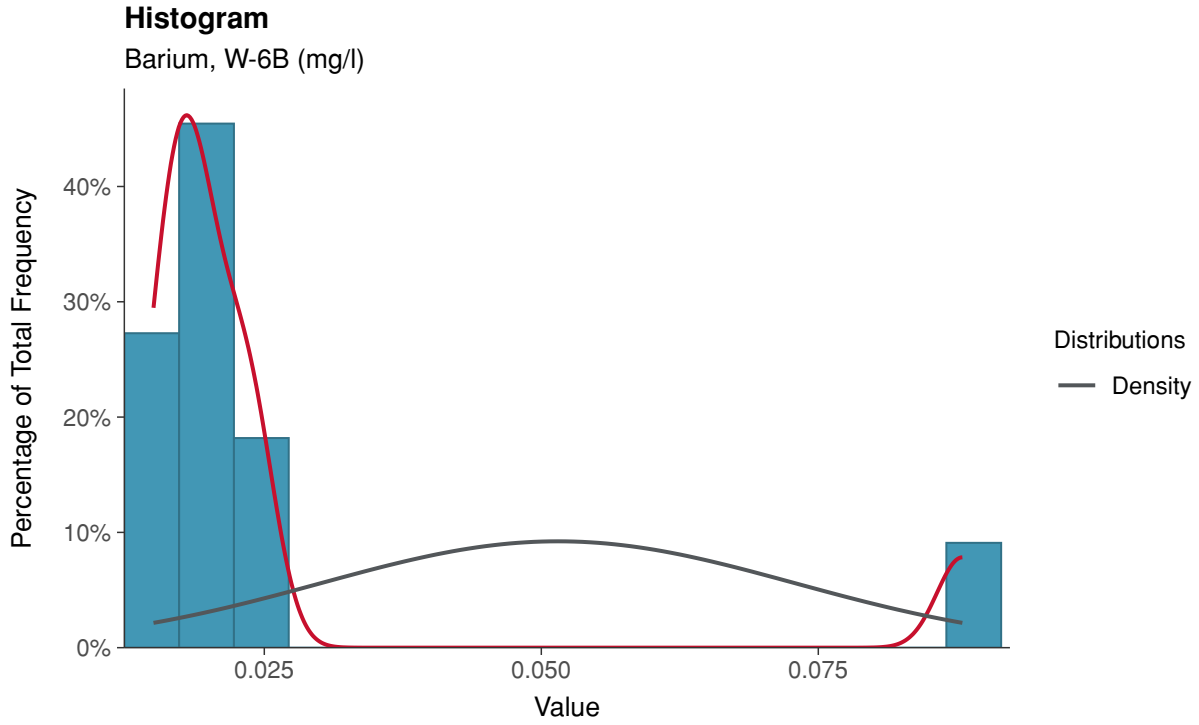
Arsenic, W-6B (mg/l)



Appendix IV: Barium, W-6B

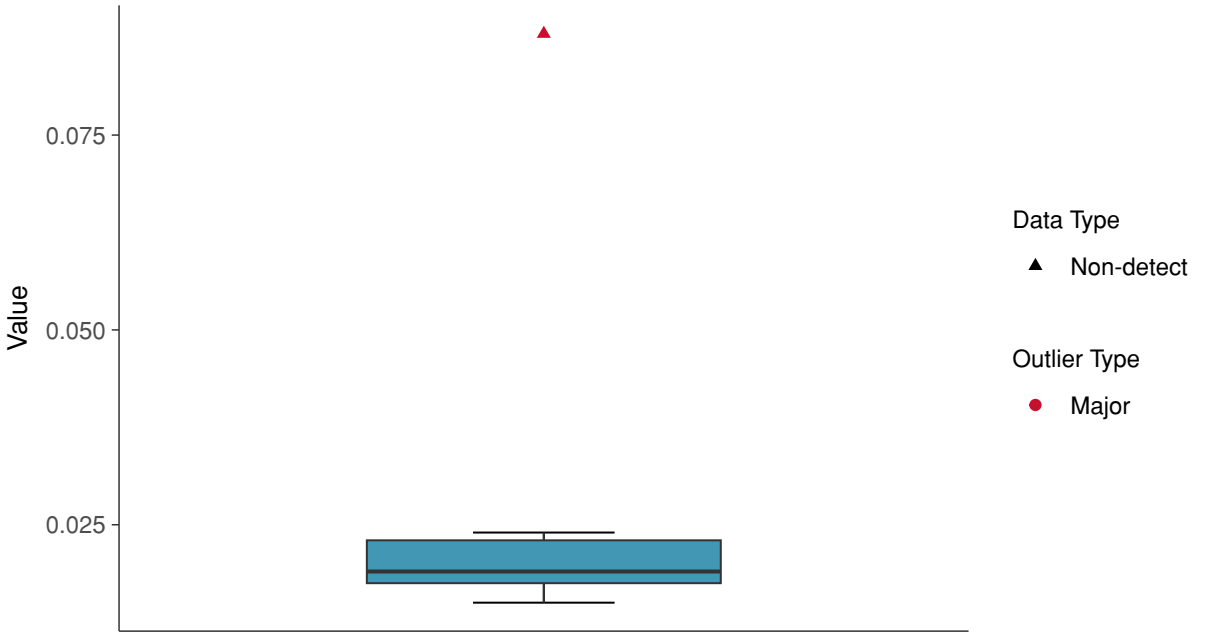
ID: 10_2_103





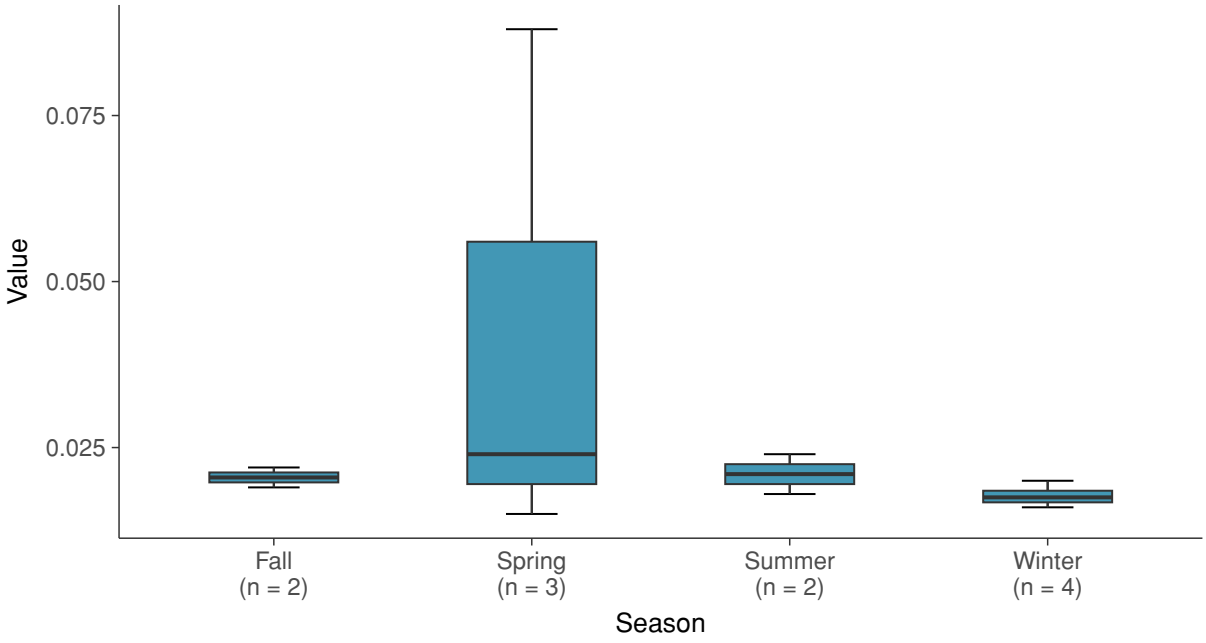
Boxplot

Barium, W-6B (mg/l)



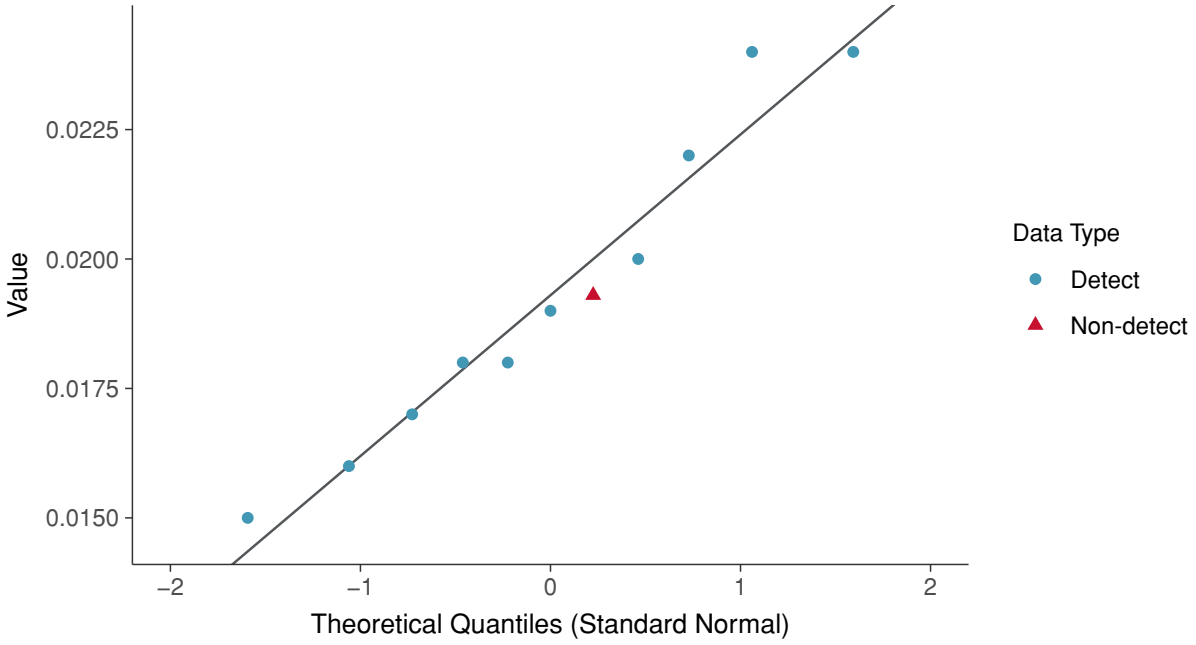
Boxplot by Season

Barium, W-6B (mg/l)



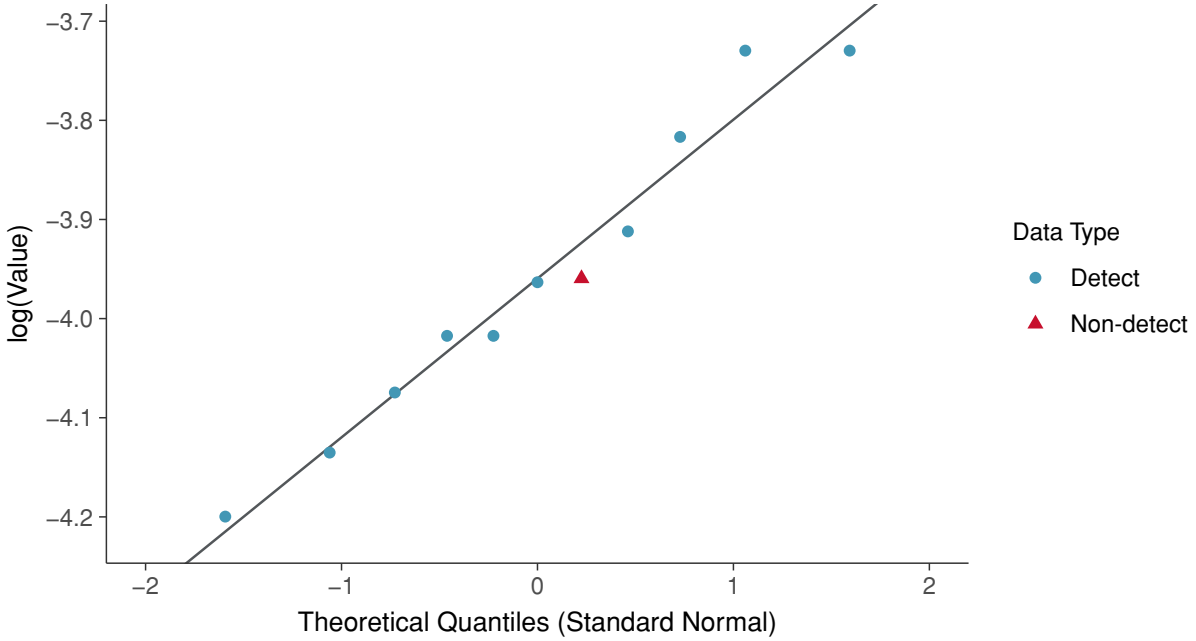
Normal Q-Q plot using ROS Imputed Estimates

Barium, W-6B (mg/l)



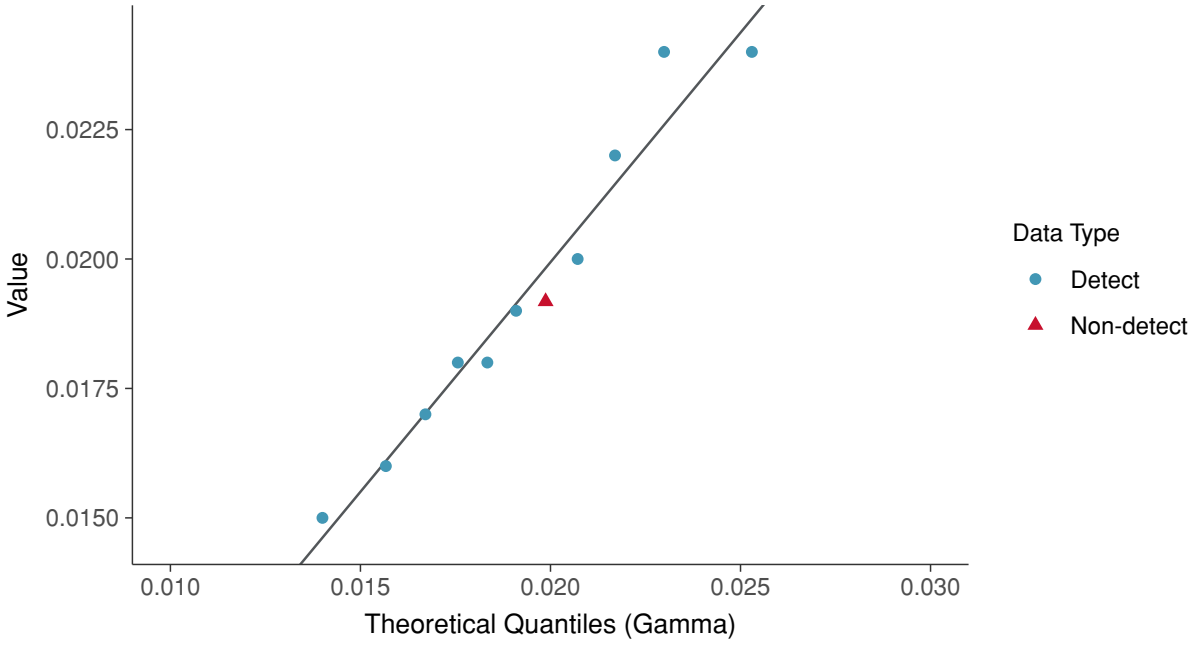
Lognormal Q-Q plot using ROS Imputed Estimates

Barium, W-6B (mg/l)



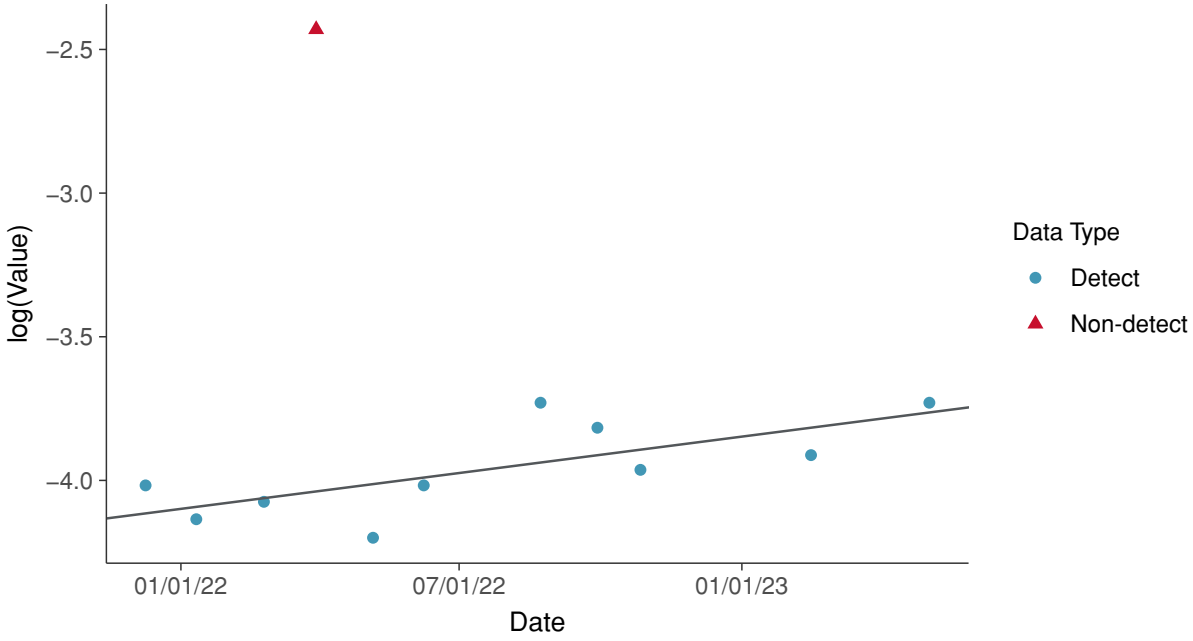
Gamma Q-Q plot using ROS Imputed Estimates

Barium, W-6B (mg/l)



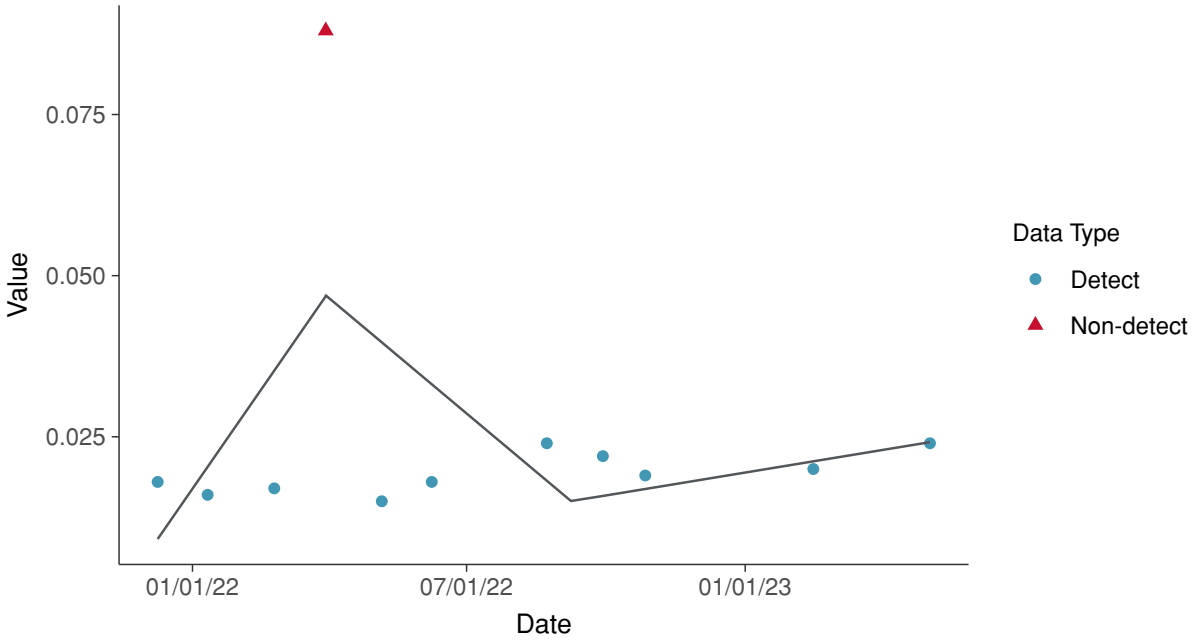
Trend Regression: Lognormal MLE

Barium, W-6B (mg/l)



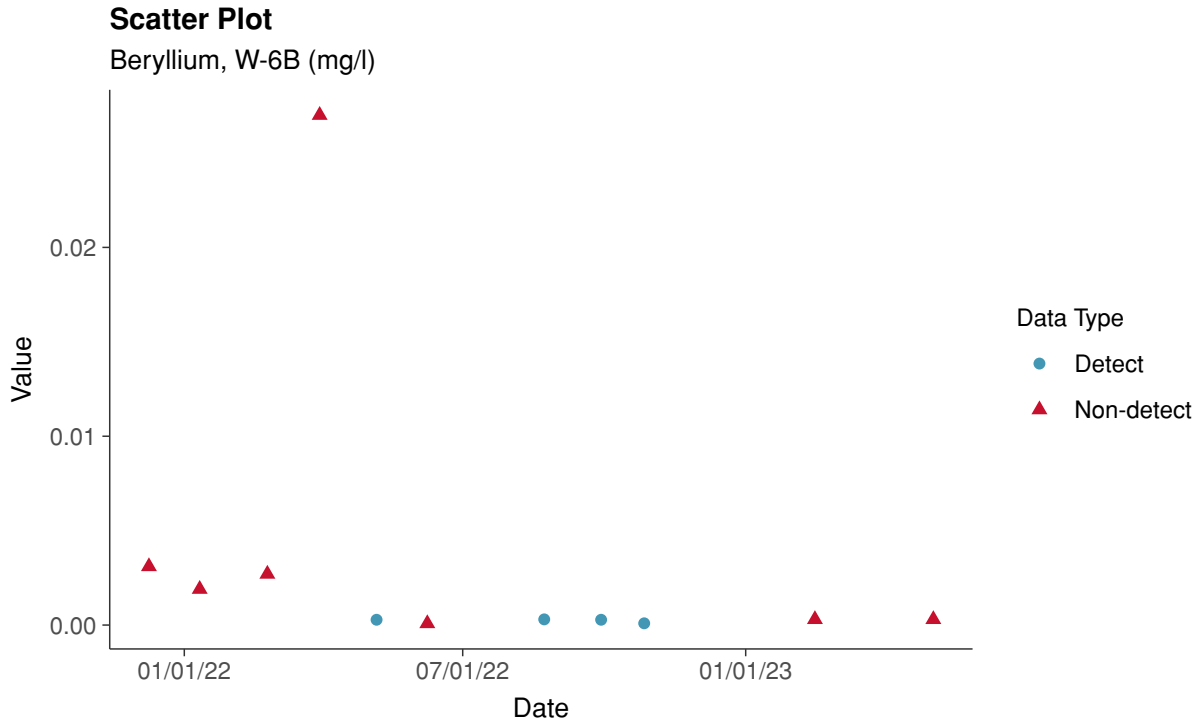
Trend Regression: Piecewise Linear-Linear-Linear

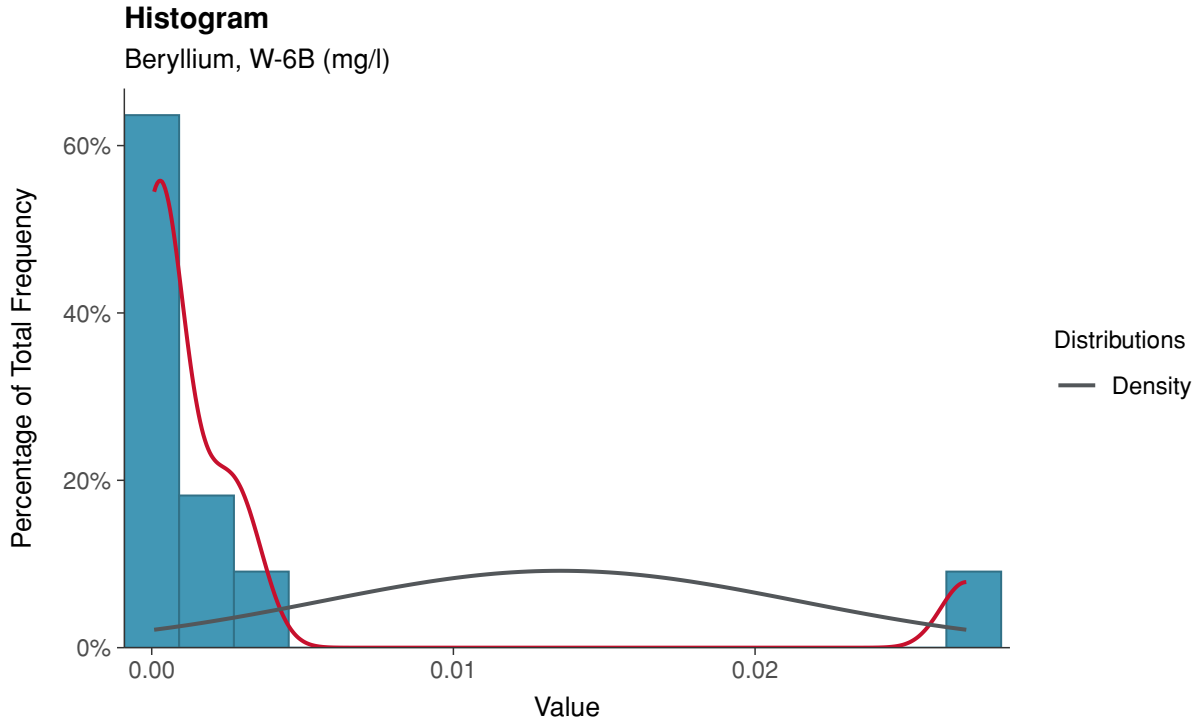
Barium, W-6B (mg/l)



Appendix IV: Beryllium, W-6B

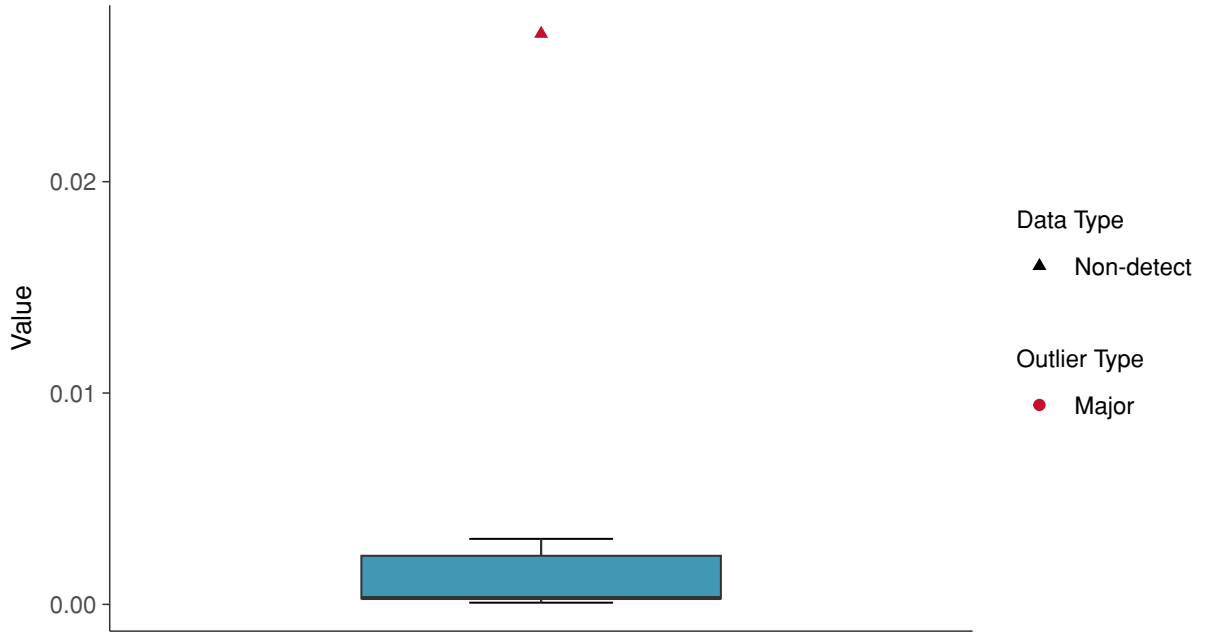
ID: 10_2_104





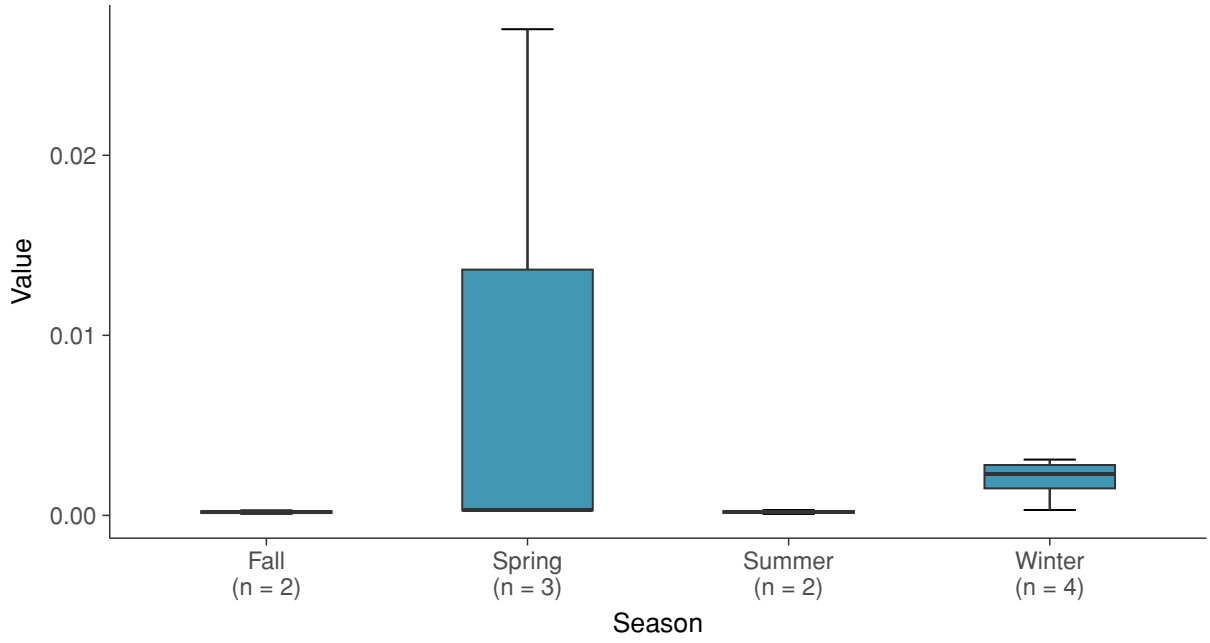
Boxplot

Beryllium, W-6B (mg/l)



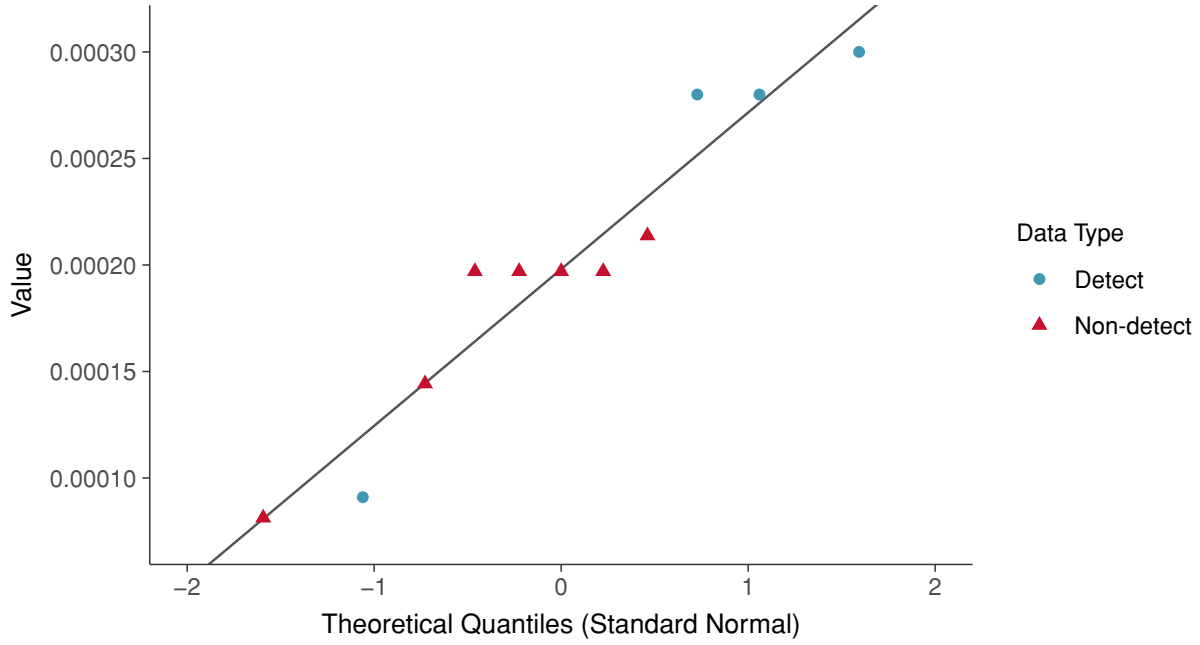
Boxplot by Season

Beryllium, W-6B (mg/l)



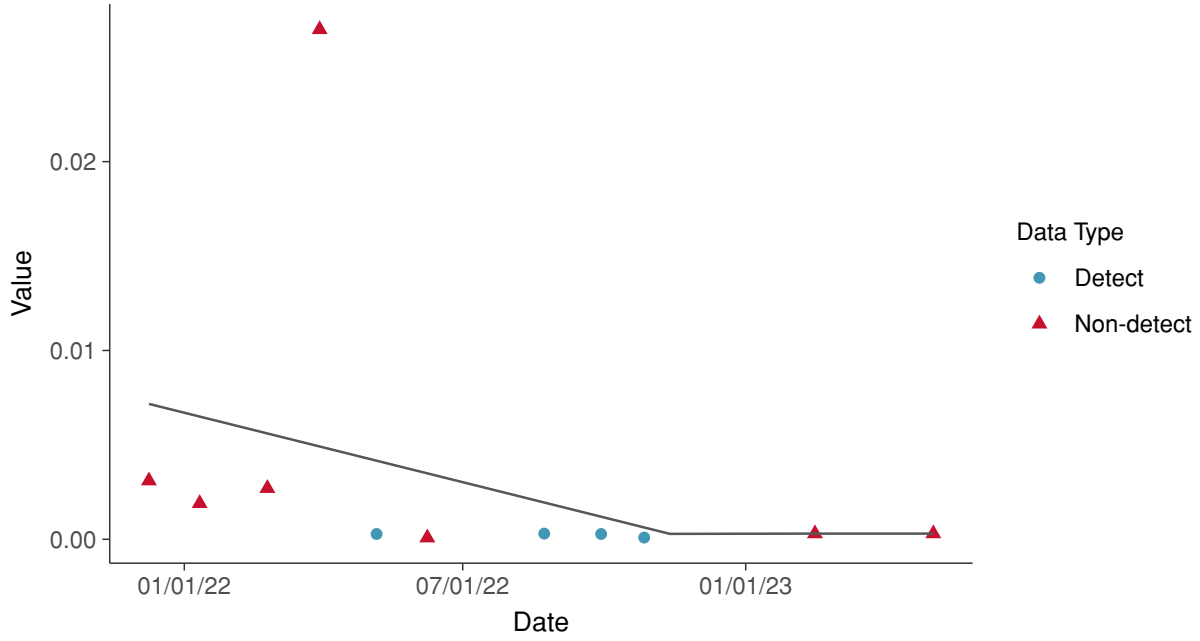
Normal Q-Q plot using ROS Imputed Estimates

Beryllium, W-6B (mg/l)



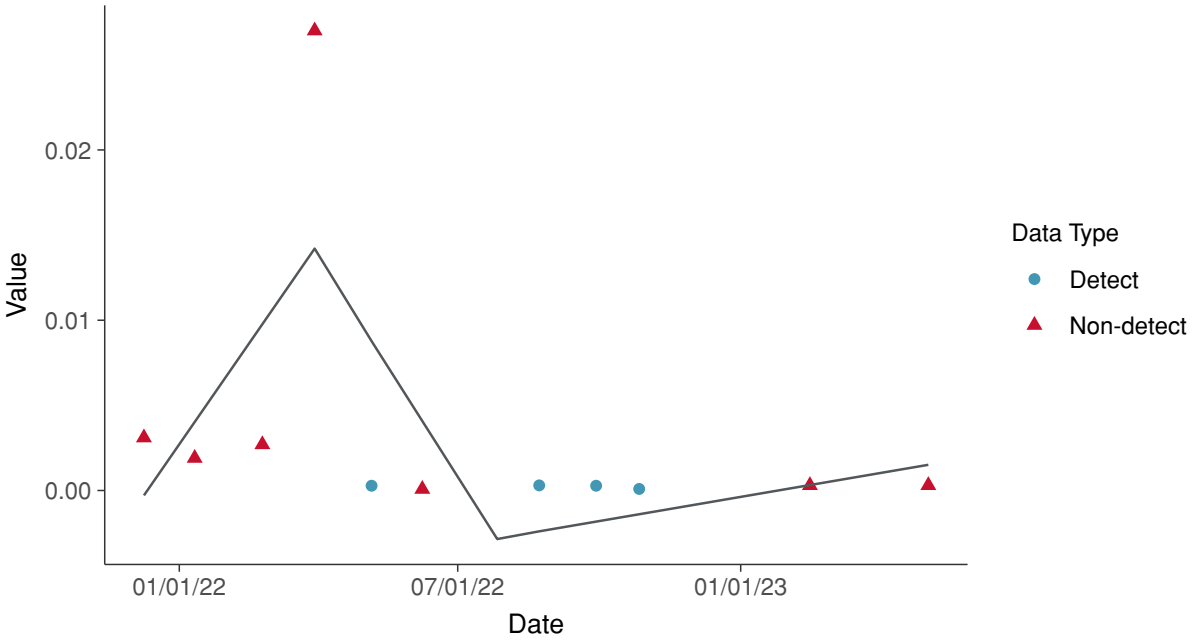
Trend Regression: Piecewise Linear-Linear

Beryllium, W-6B (mg/l)



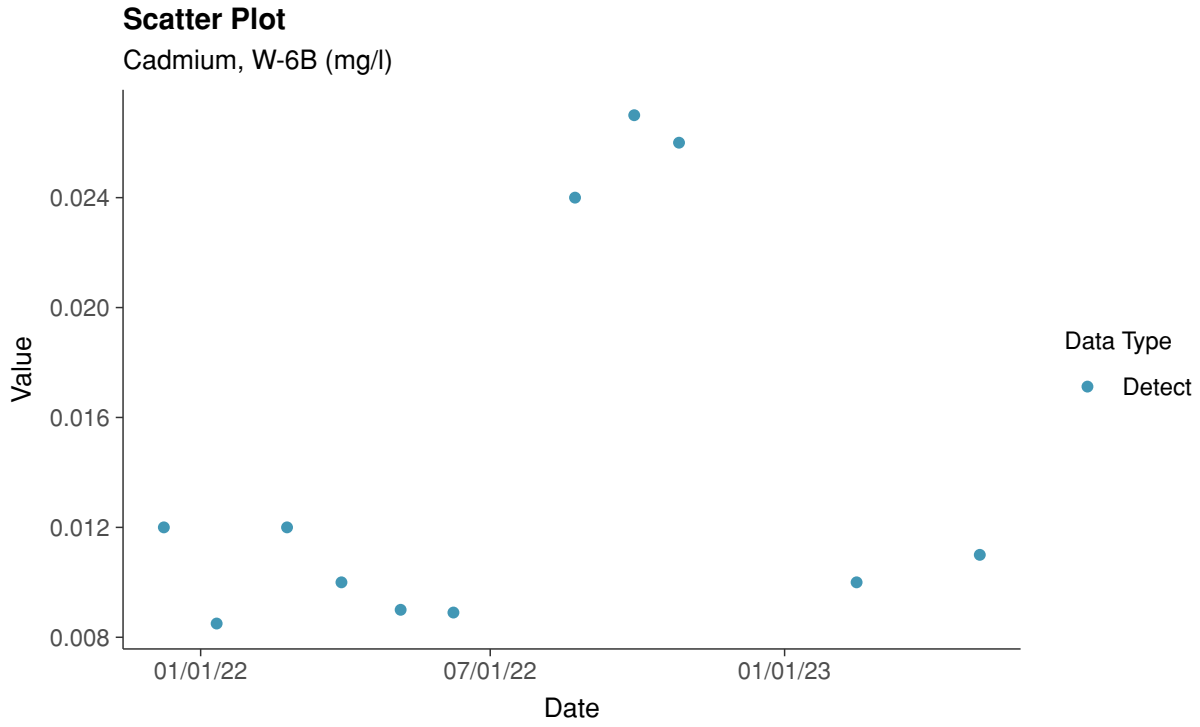
Trend Regression: Piecewise Linear-Linear-Linear

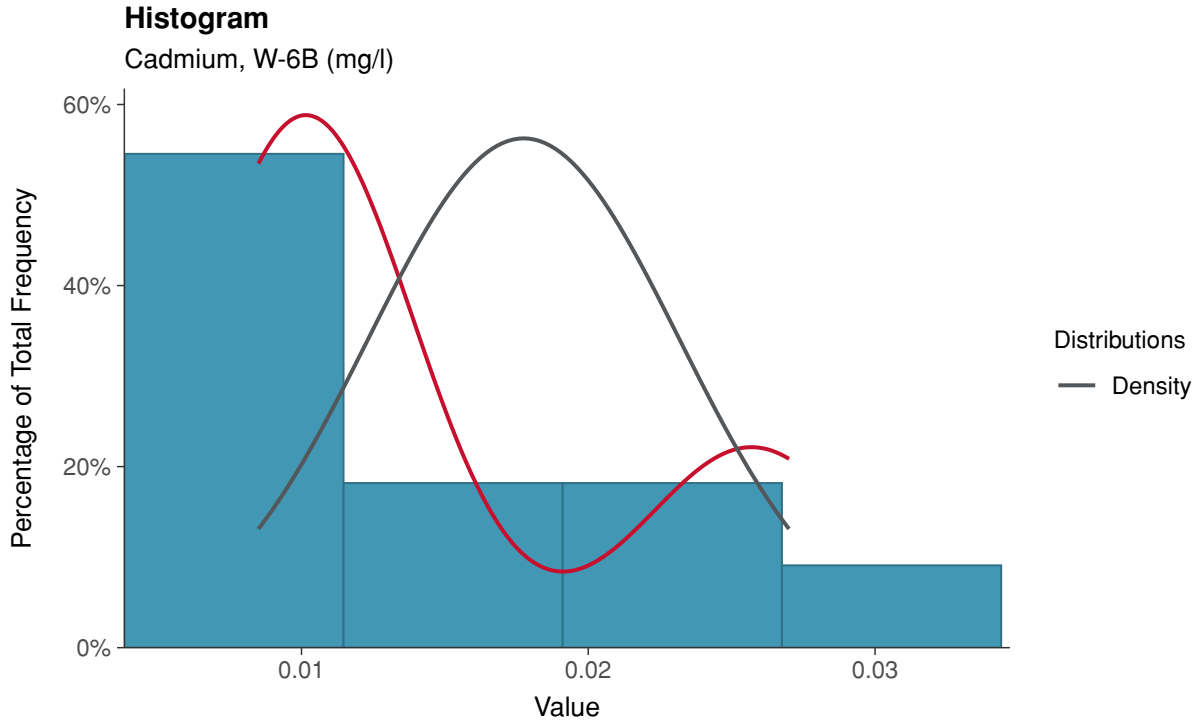
Beryllium, W-6B (mg/l)



Appendix IV: Cadmium, W-6B

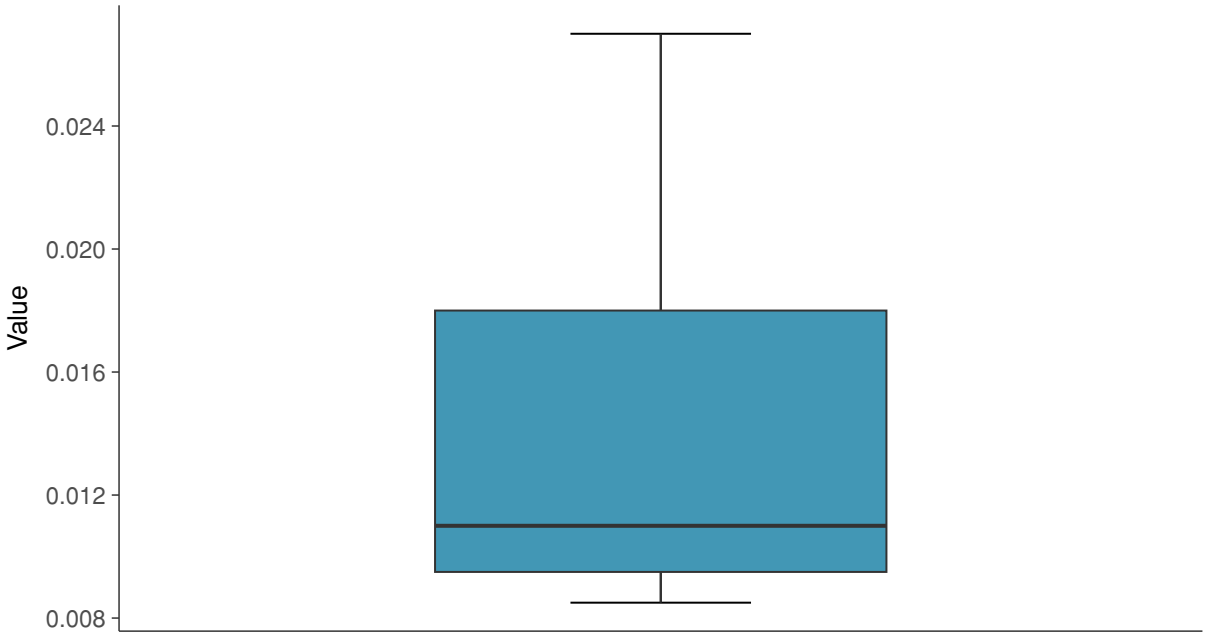
ID: 10_2_106





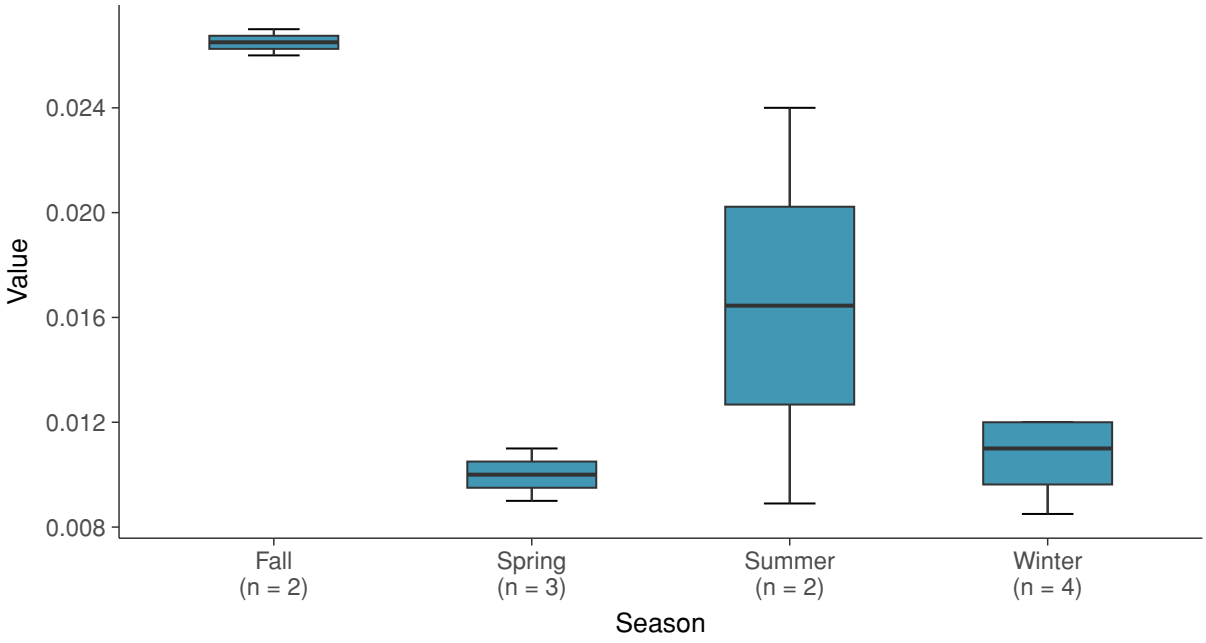
Boxplot

Cadmium, W-6B (mg/l)



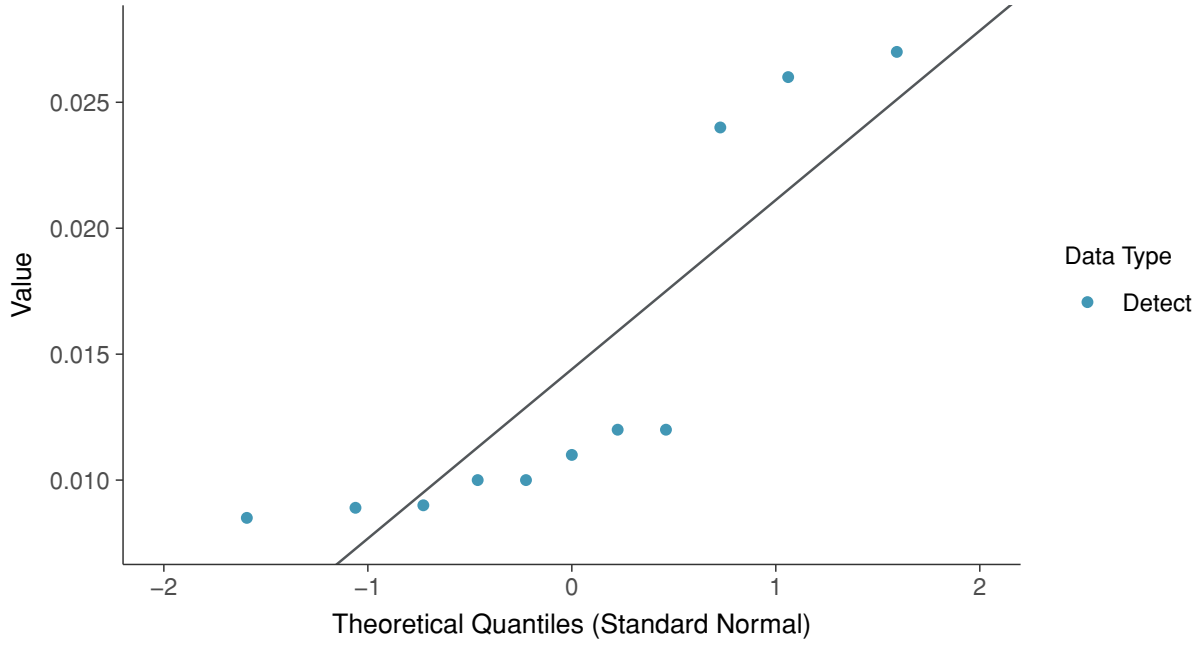
Boxplot by Season

Cadmium, W-6B (mg/l)



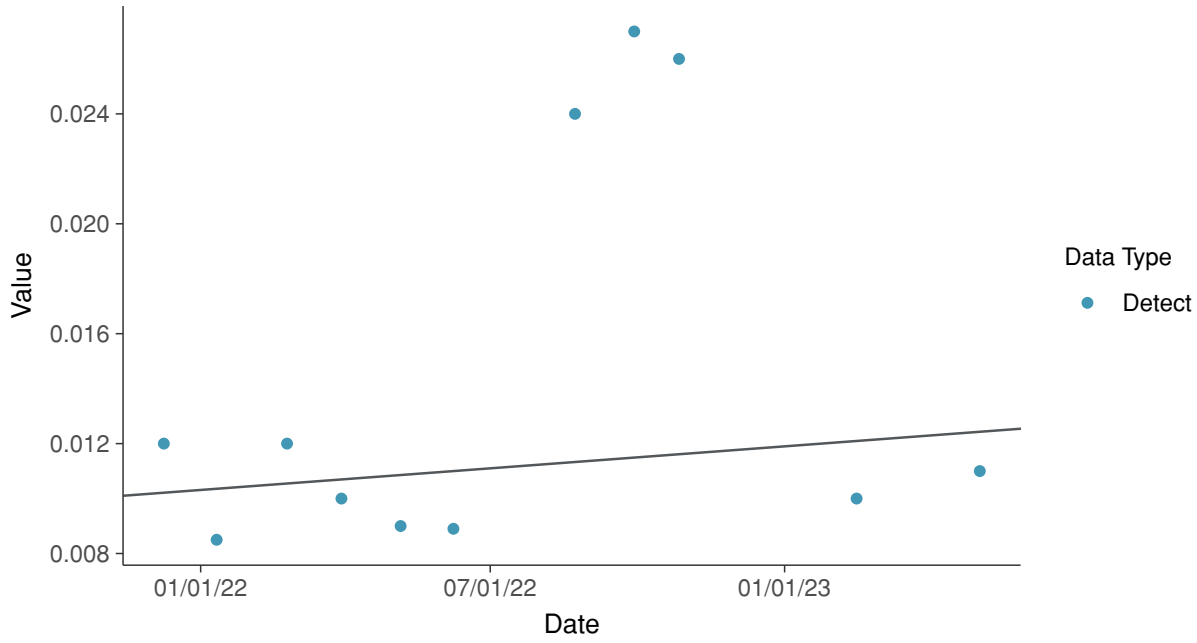
Normal Q-Q plot

Cadmium, W-6B (mg/l)



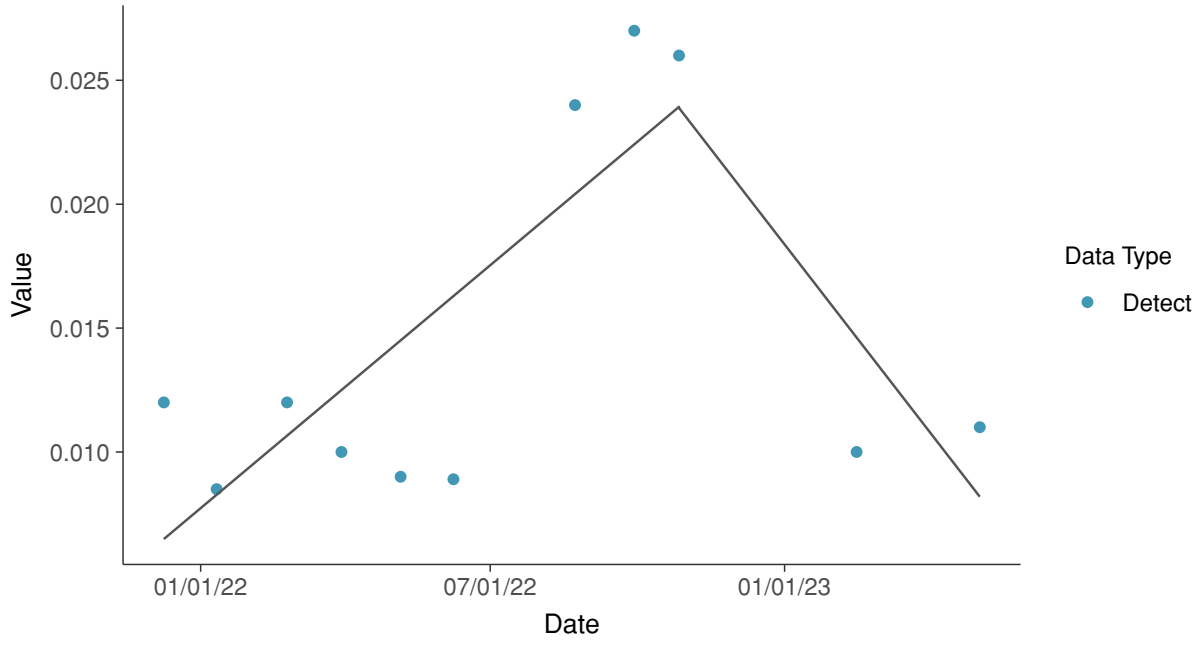
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Cadmium, W-6B (mg/l)



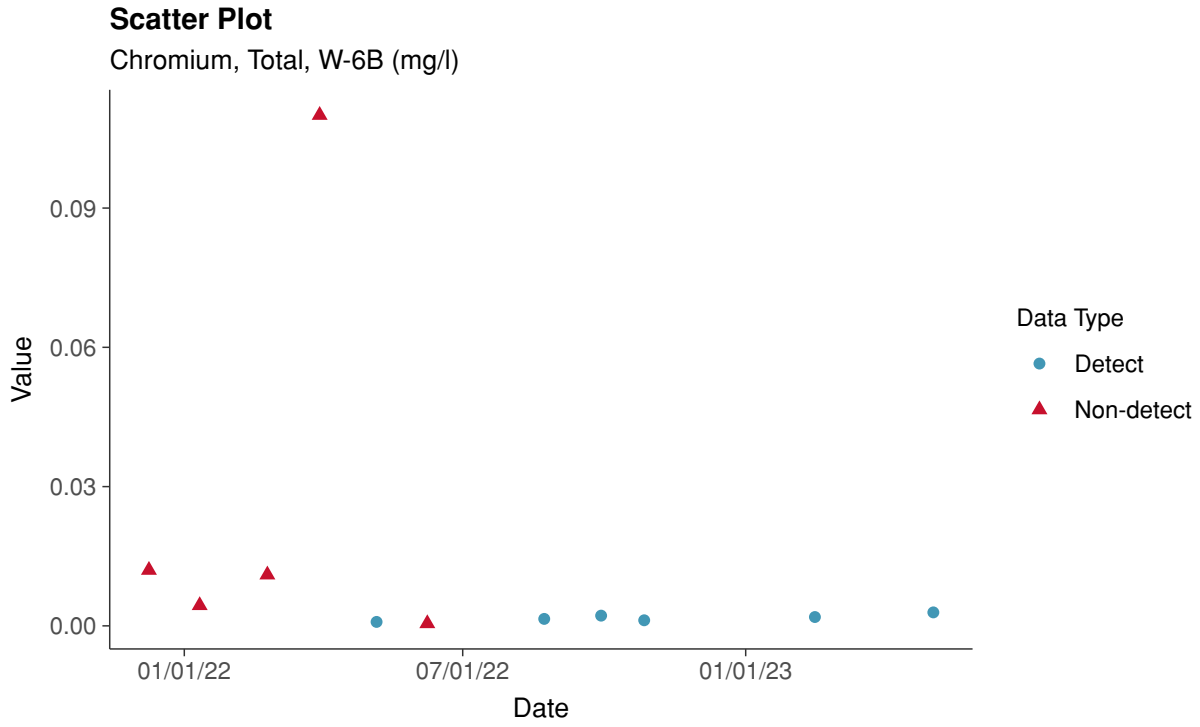
Trend Regression: Piecewise Linear-Linear

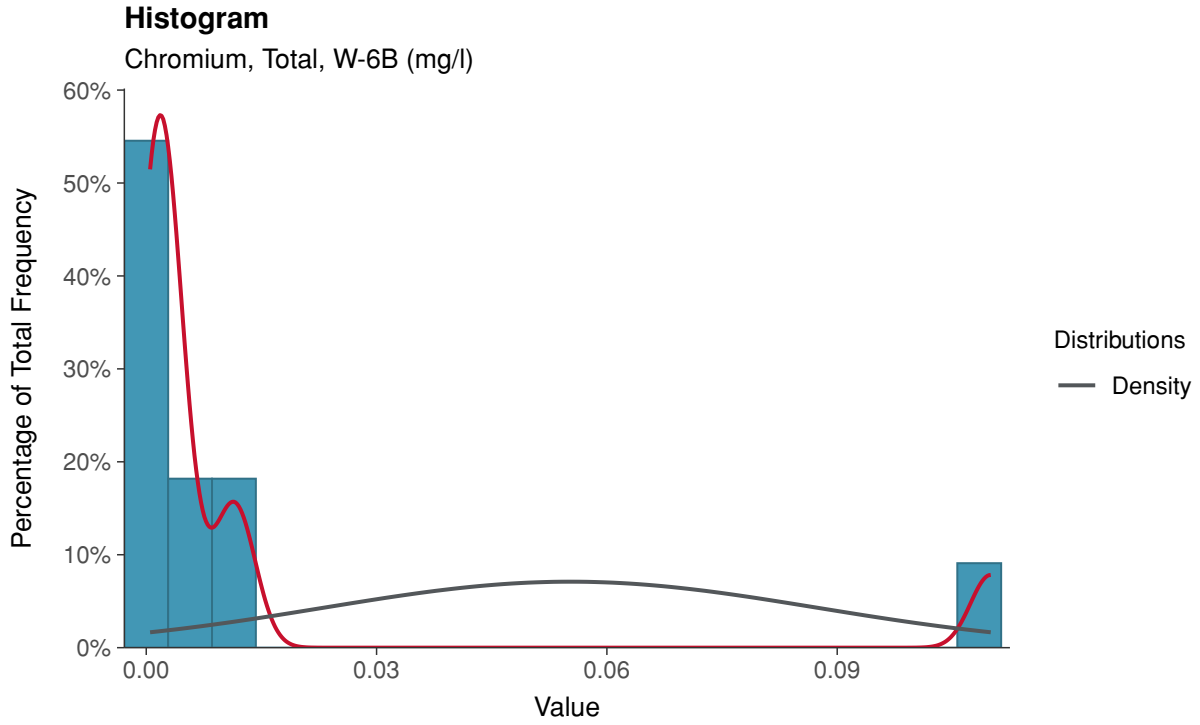
Cadmium, W-6B (mg/l)



Appendix IV: Chromium, Total, W-6B

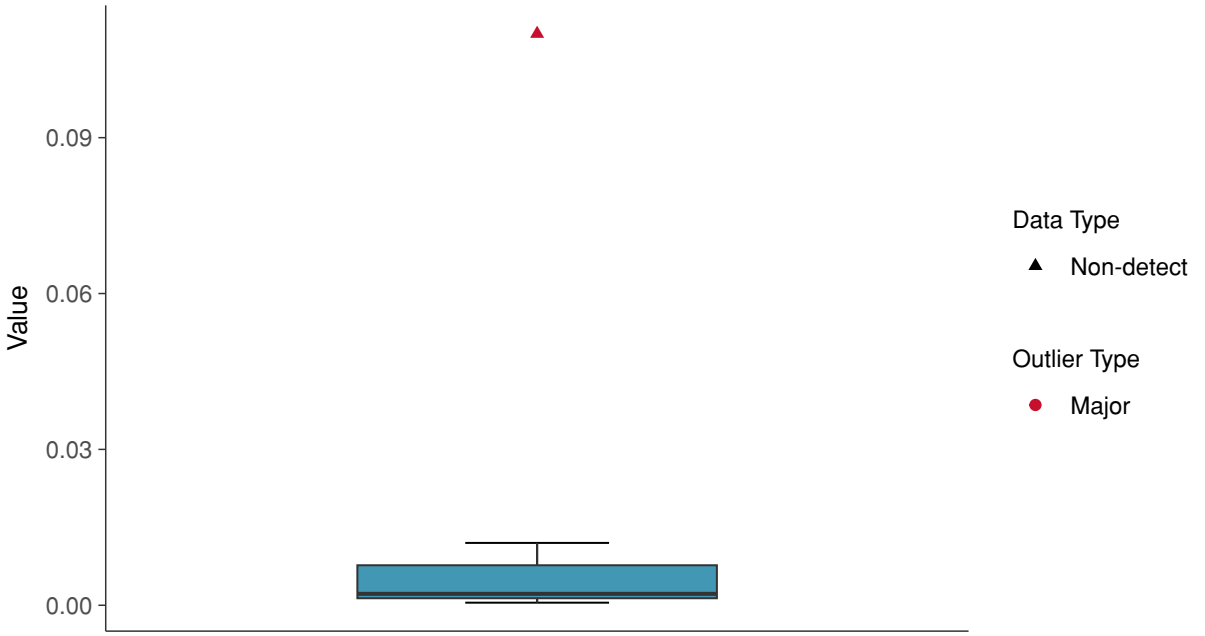
ID: 10_2_109





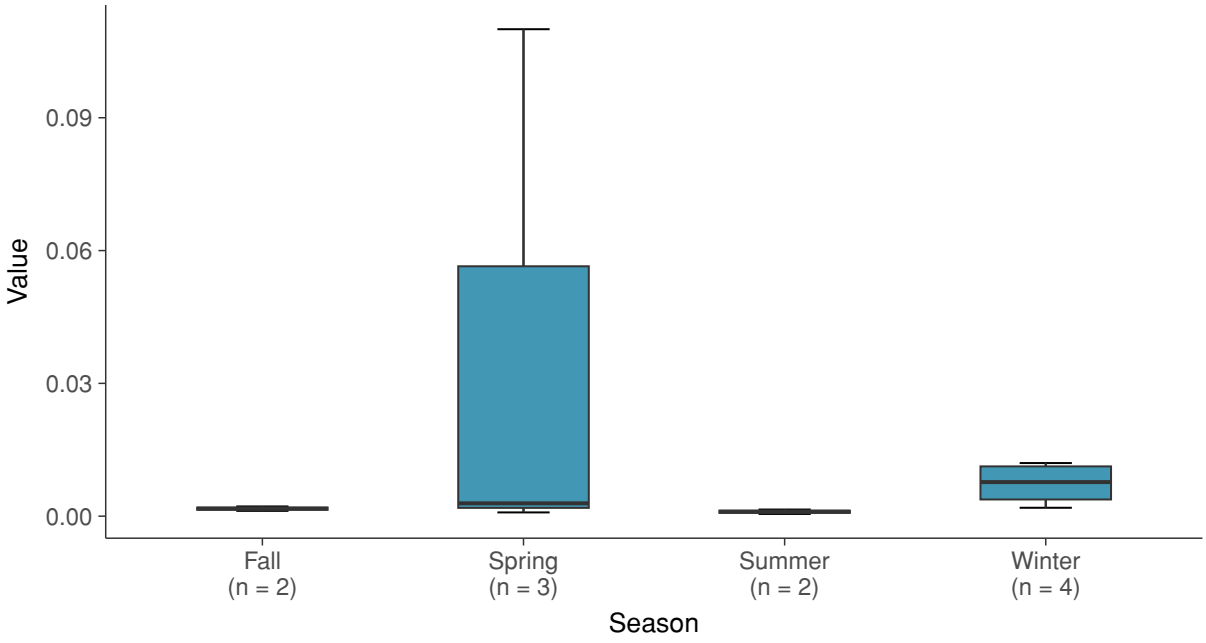
Boxplot

Chromium, Total, W-6B (mg/l)



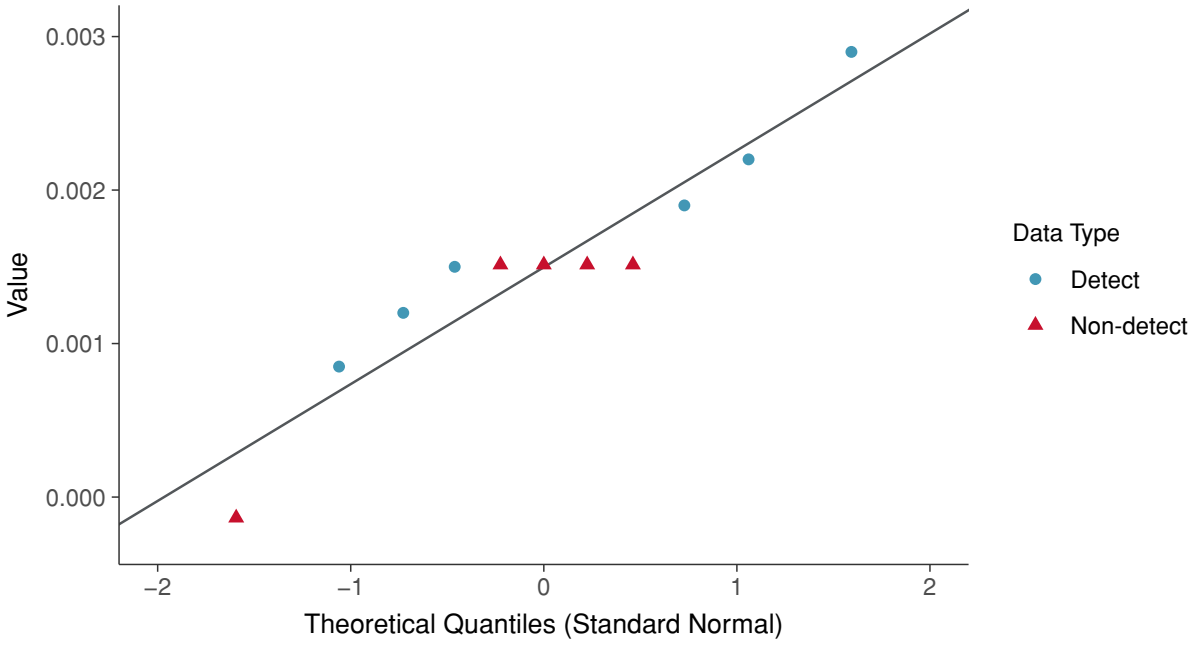
Boxplot by Season

Chromium, Total, W-6B (mg/l)



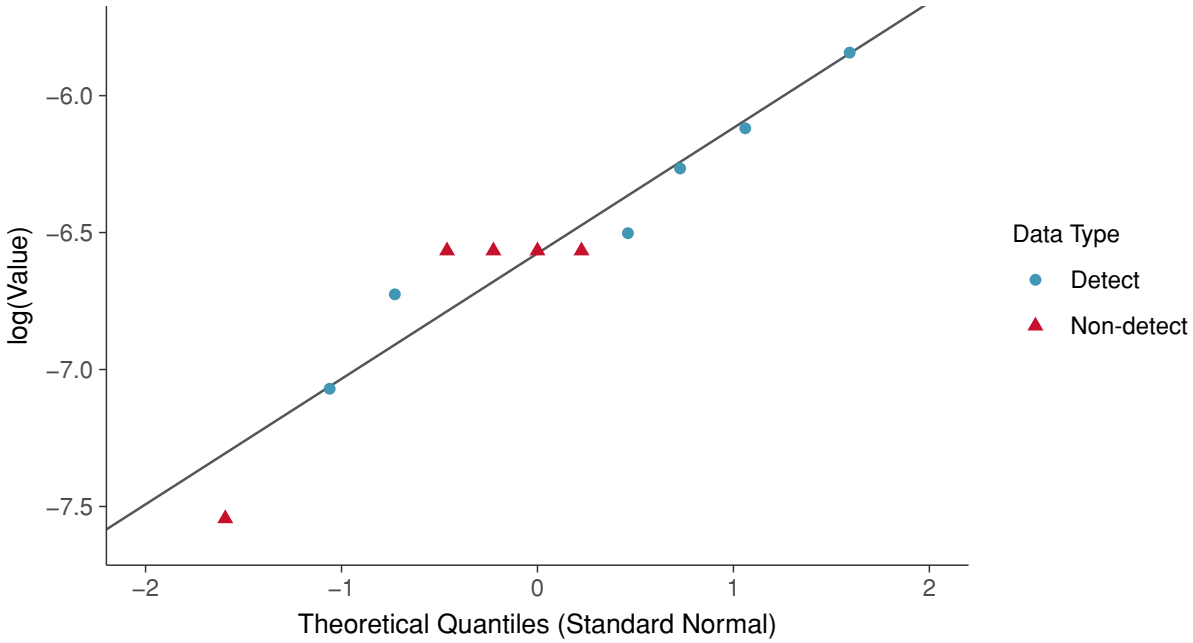
Normal Q-Q plot using ROS Imputed Estimates

Chromium, Total, W-6B (mg/l)



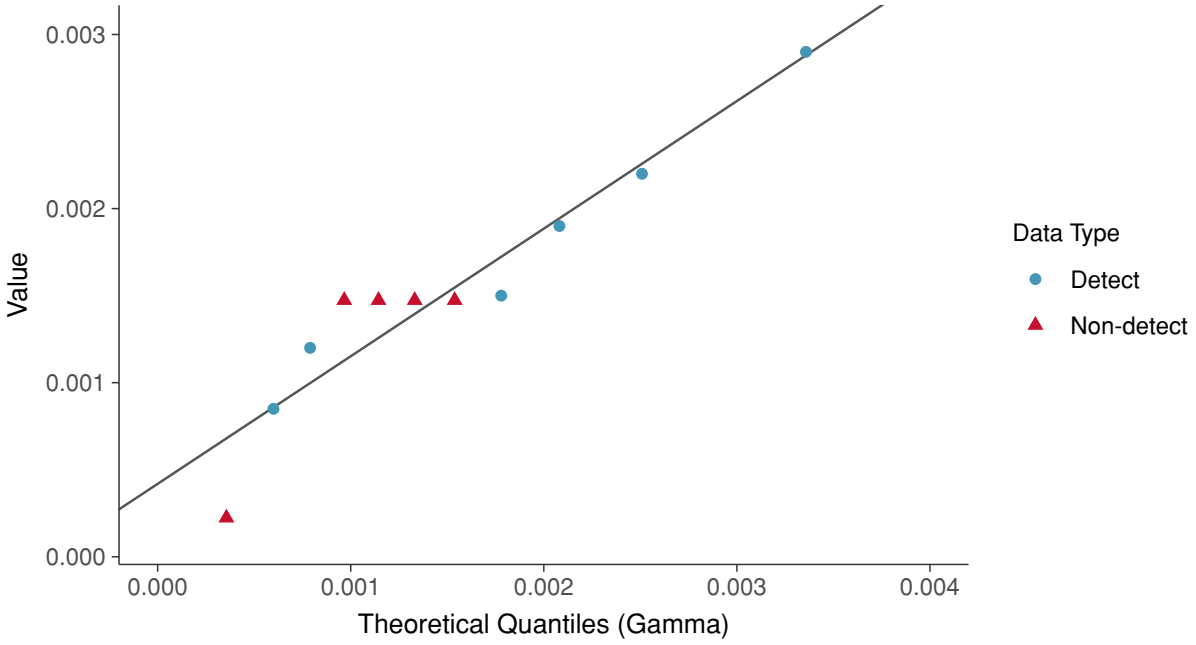
Lognormal Q-Q plot using ROS Imputed Estimates

Chromium, Total, W-6B (mg/l)



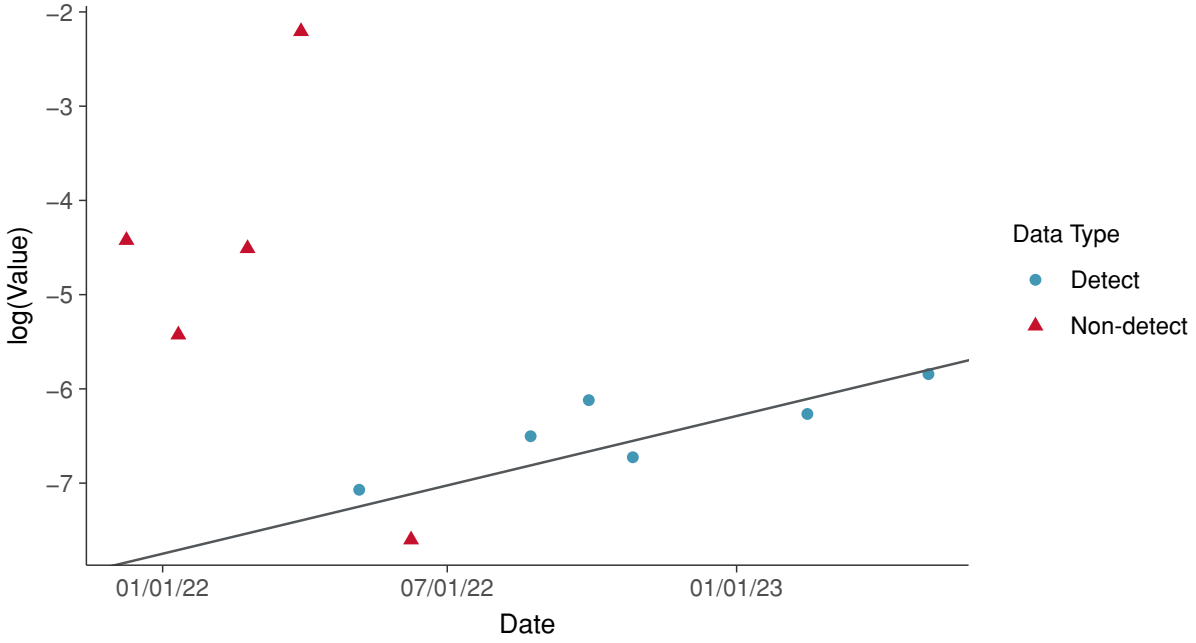
Gamma Q-Q plot using ROS Imputed Estimates

Chromium, Total, W-6B (mg/l)



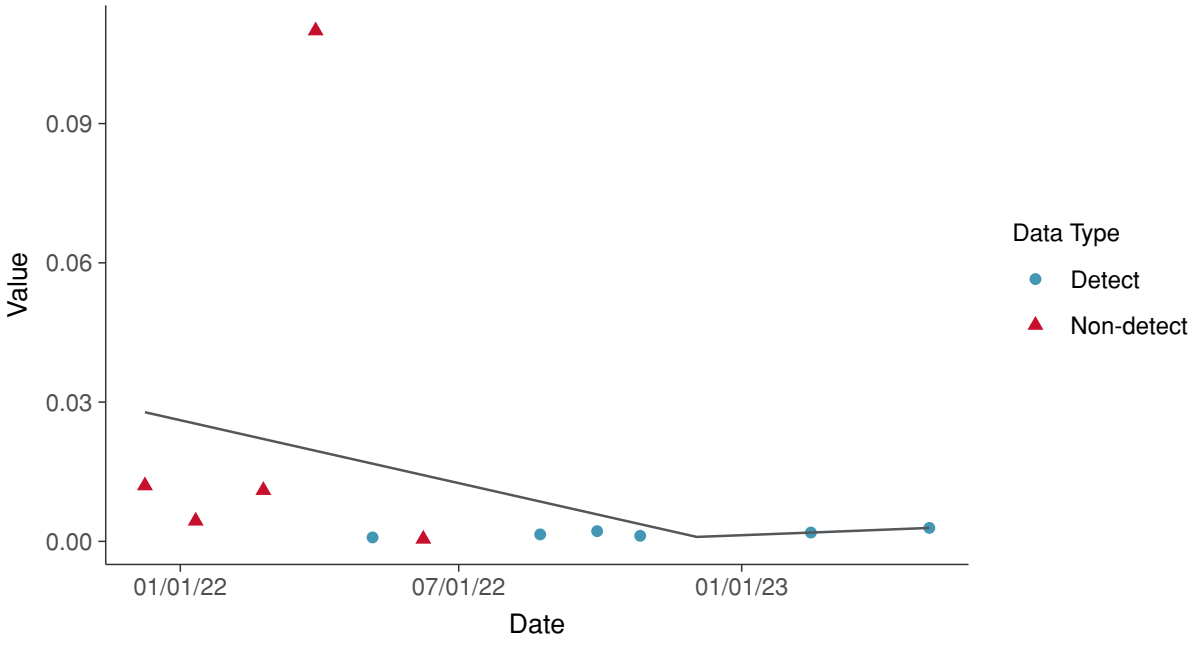
Trend Regression: Lognormal MLE

Chromium, Total, W-6B (mg/l)



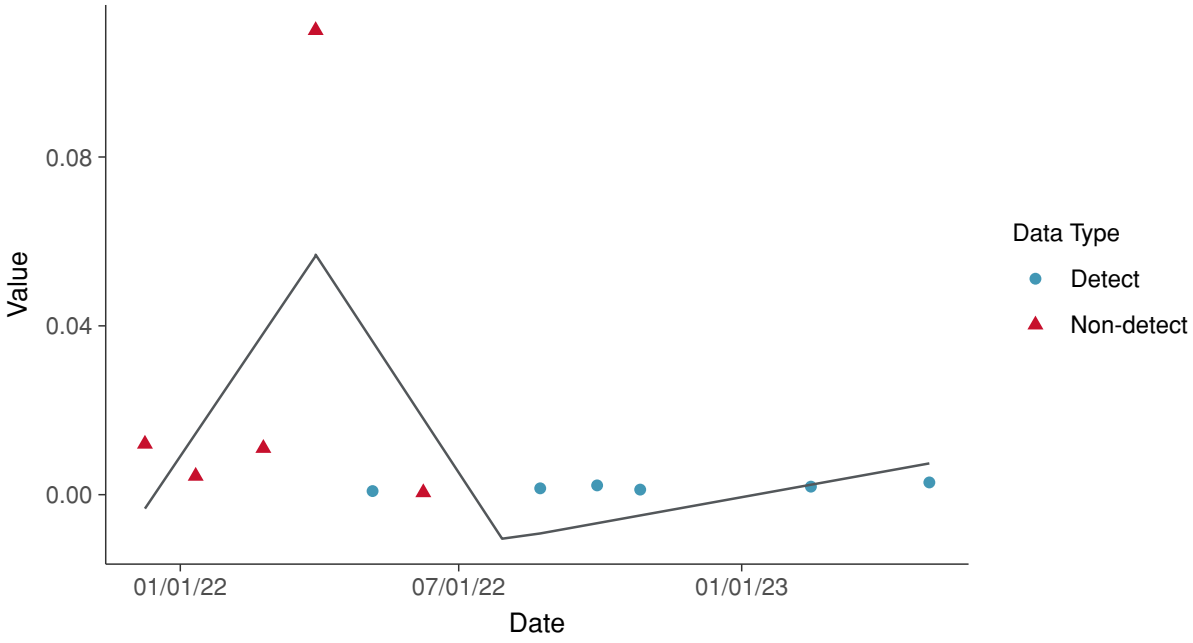
Trend Regression: Piecewise Linear-Linear

Chromium, Total, W-6B (mg/l)



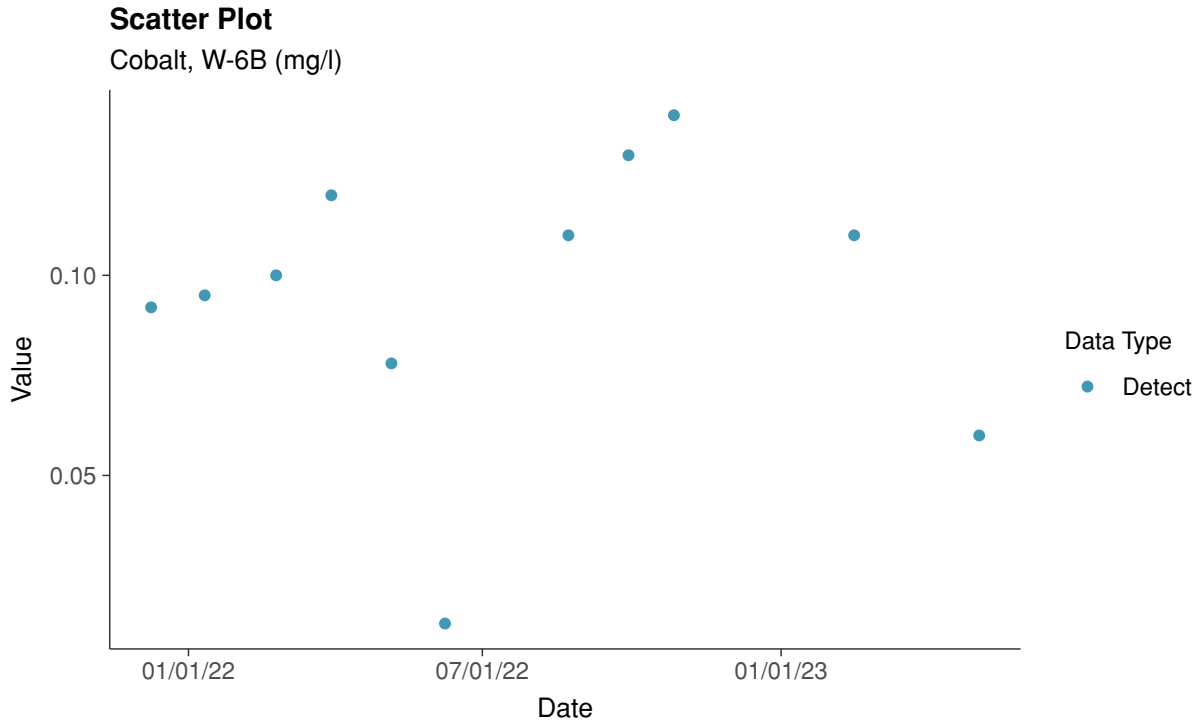
Trend Regression: Piecewise Linear-Linear-Linear

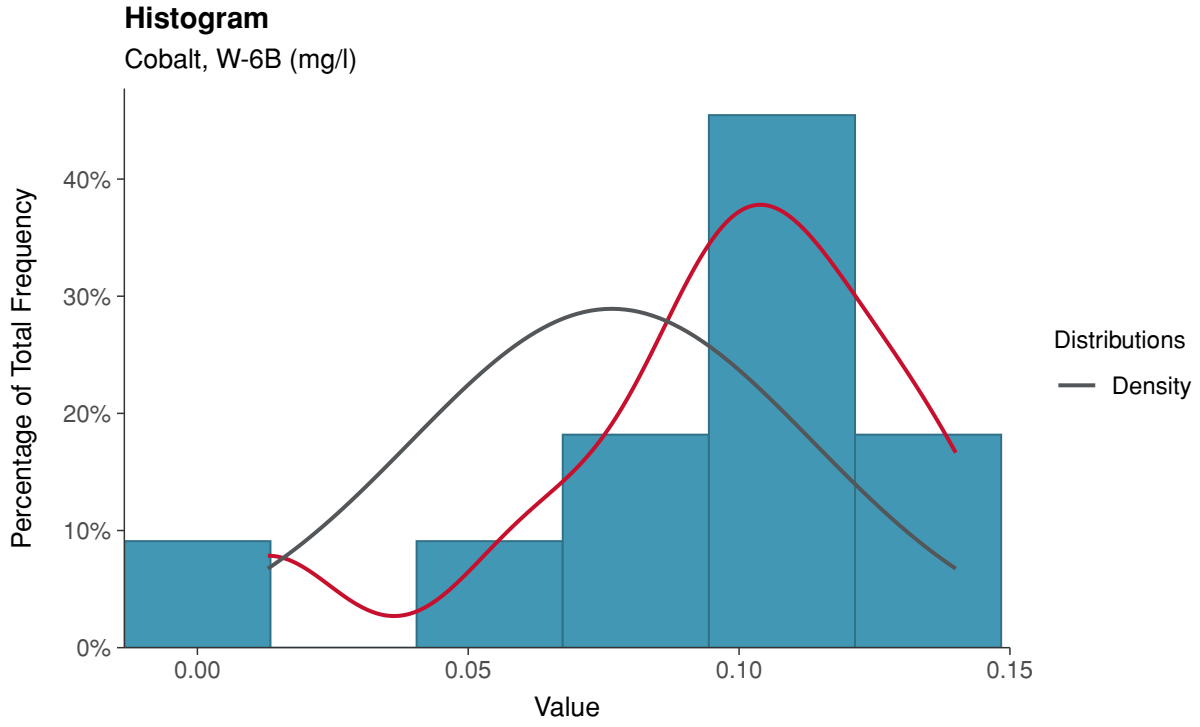
Chromium, Total, W-6B (mg/l)



Appendix IV: Cobalt, W-6B

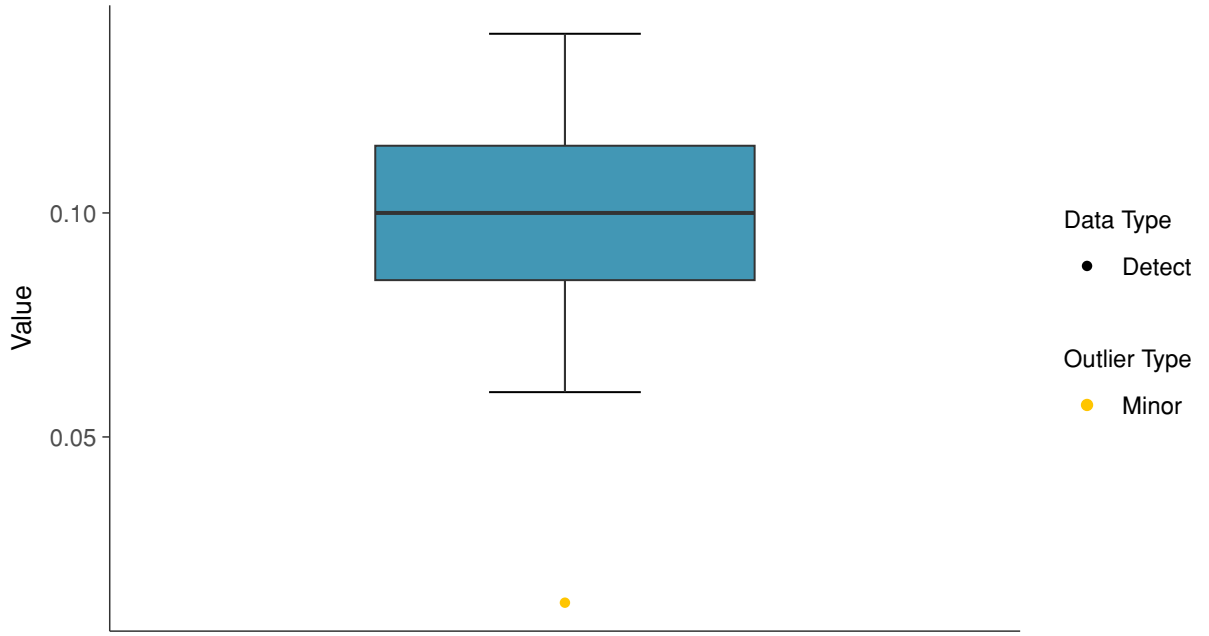
ID: 10_2_110





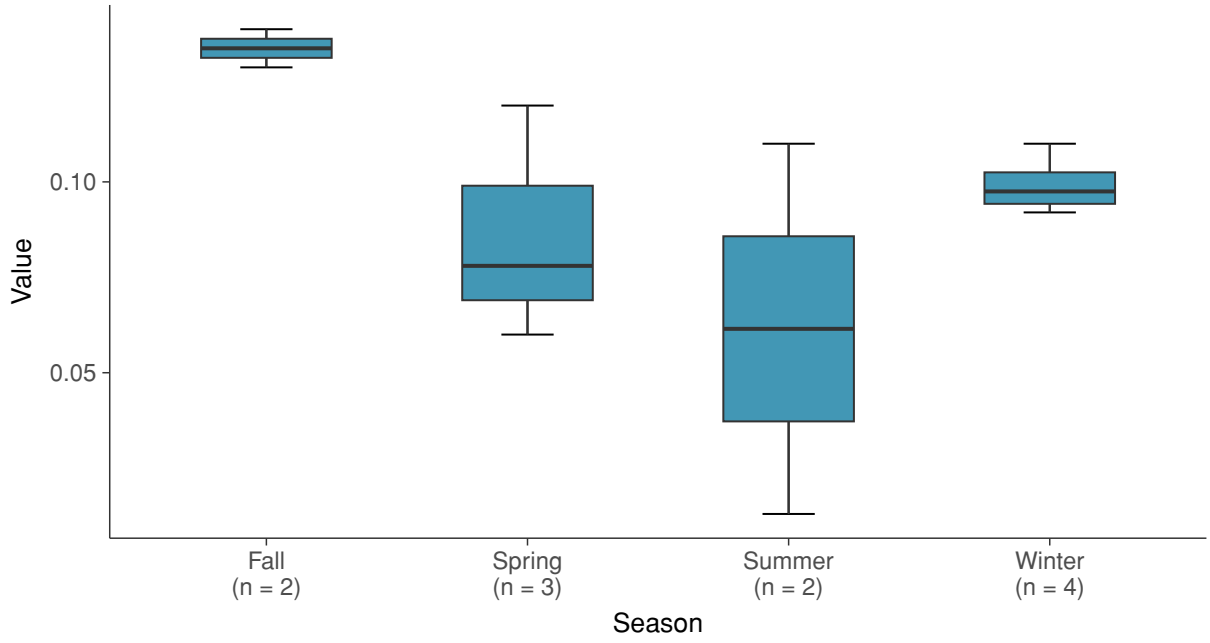
Boxplot

Cobalt, W-6B (mg/l)



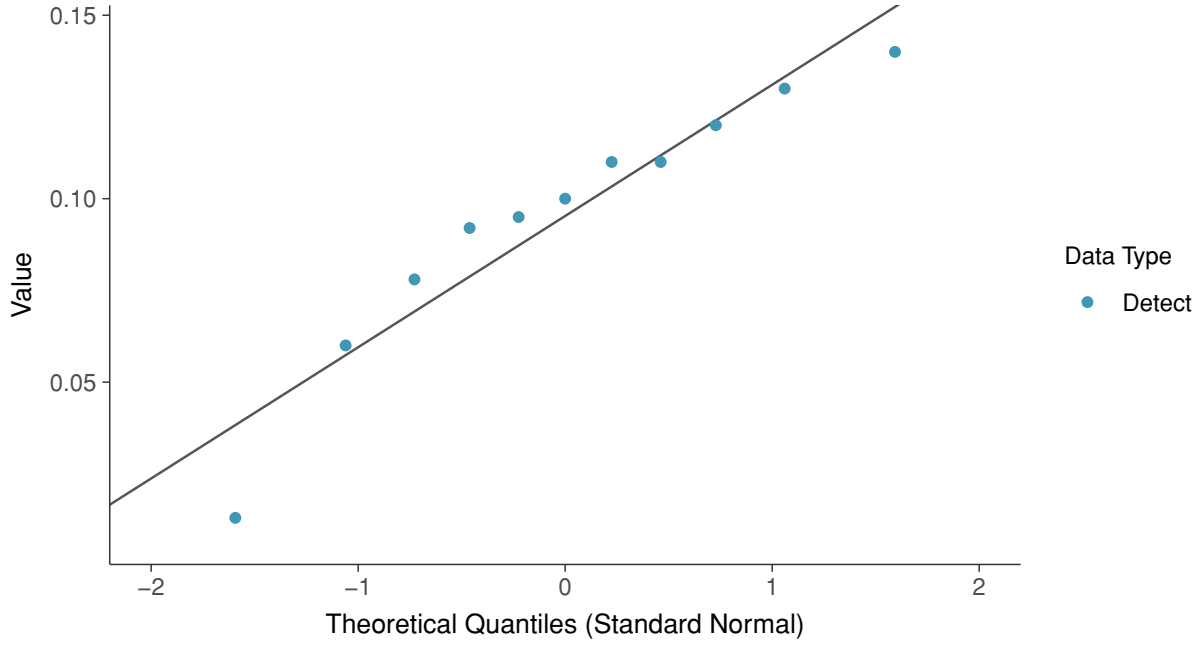
Boxplot by Season

Cobalt, W-6B (mg/l)



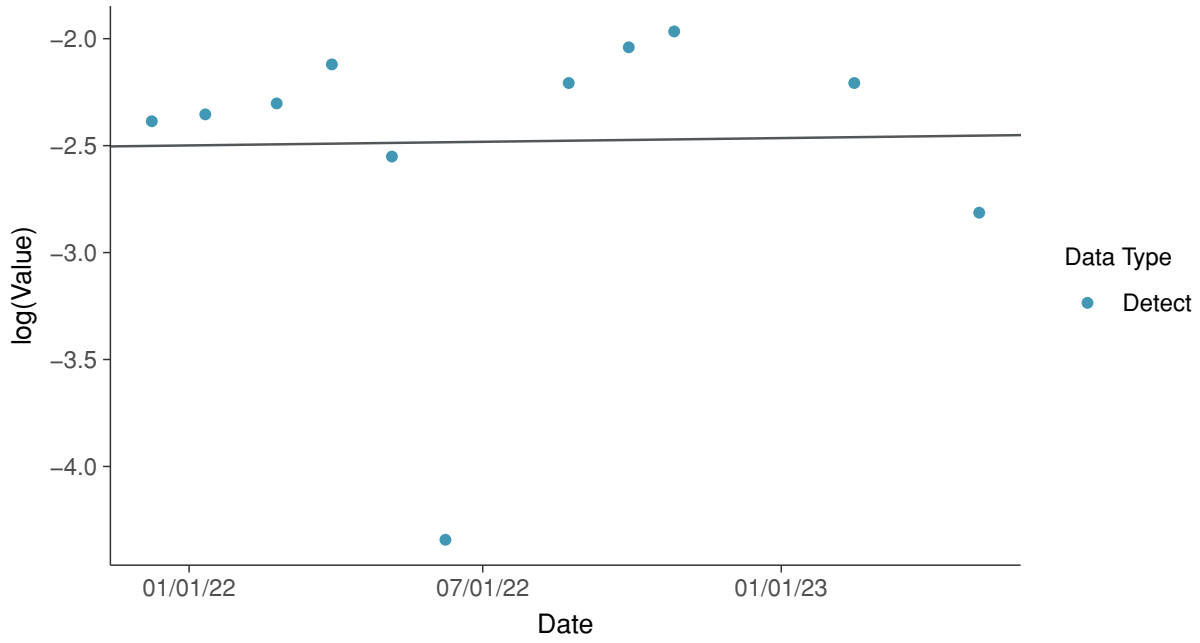
Normal Q-Q plot

Cobalt, W-6B (mg/l)



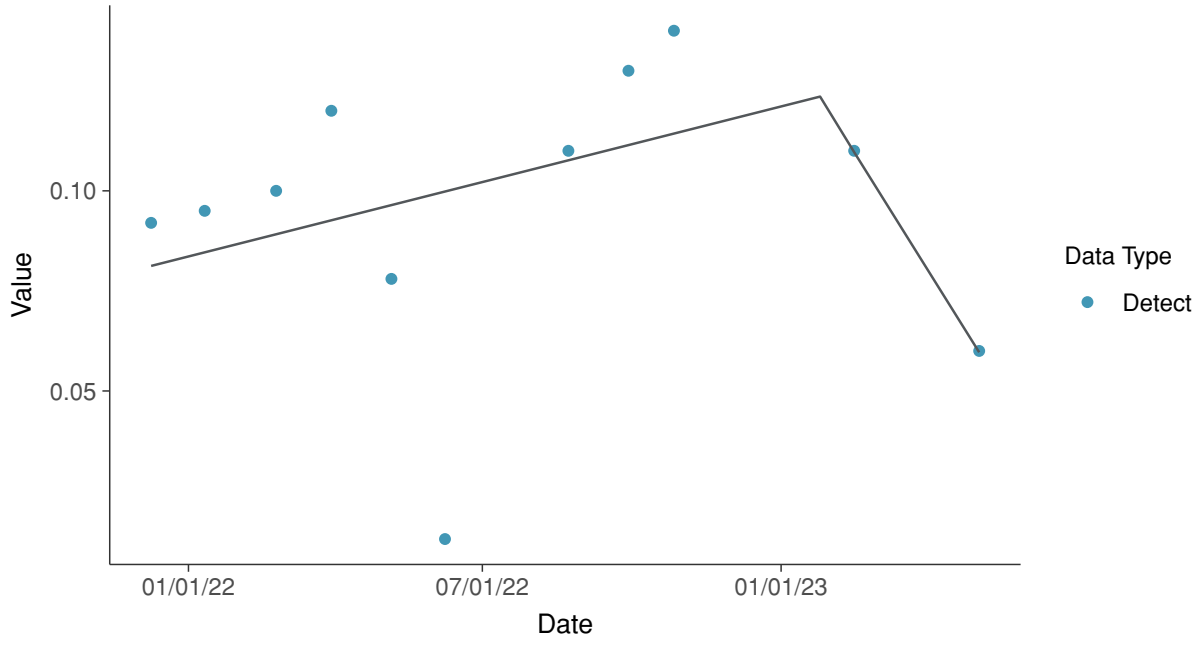
Trend Regression: Lognormal MLE

Cobalt, W-6B (mg/l)



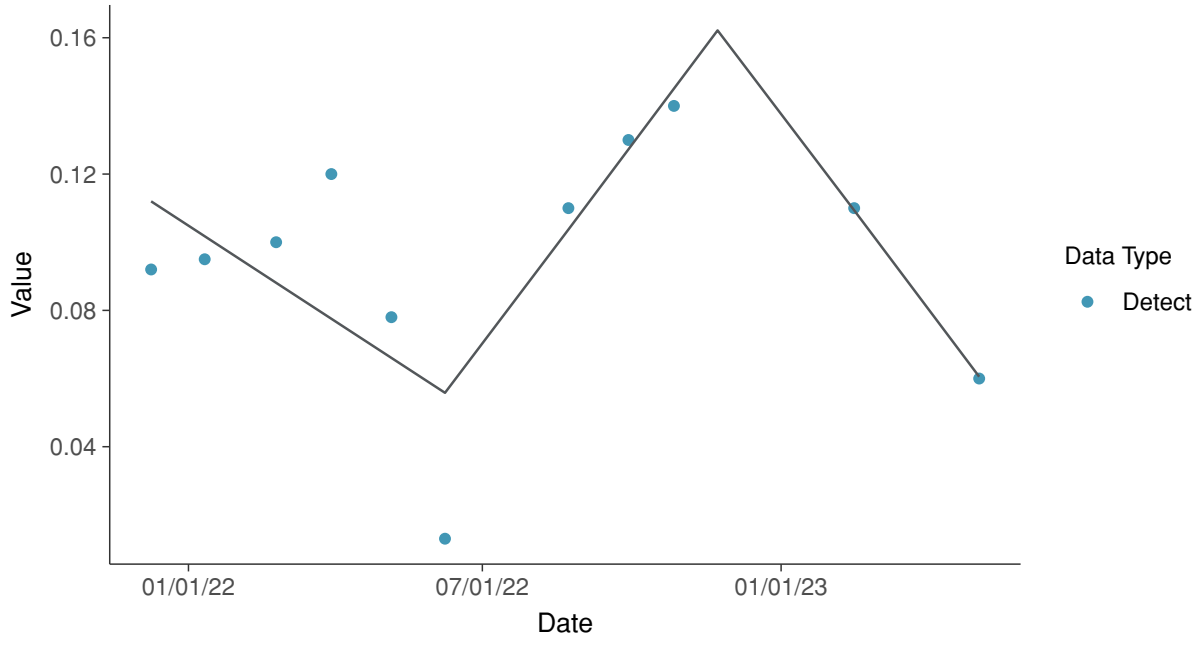
Trend Regression: Piecewise Linear-Linear

Cobalt, W-6B (mg/l)



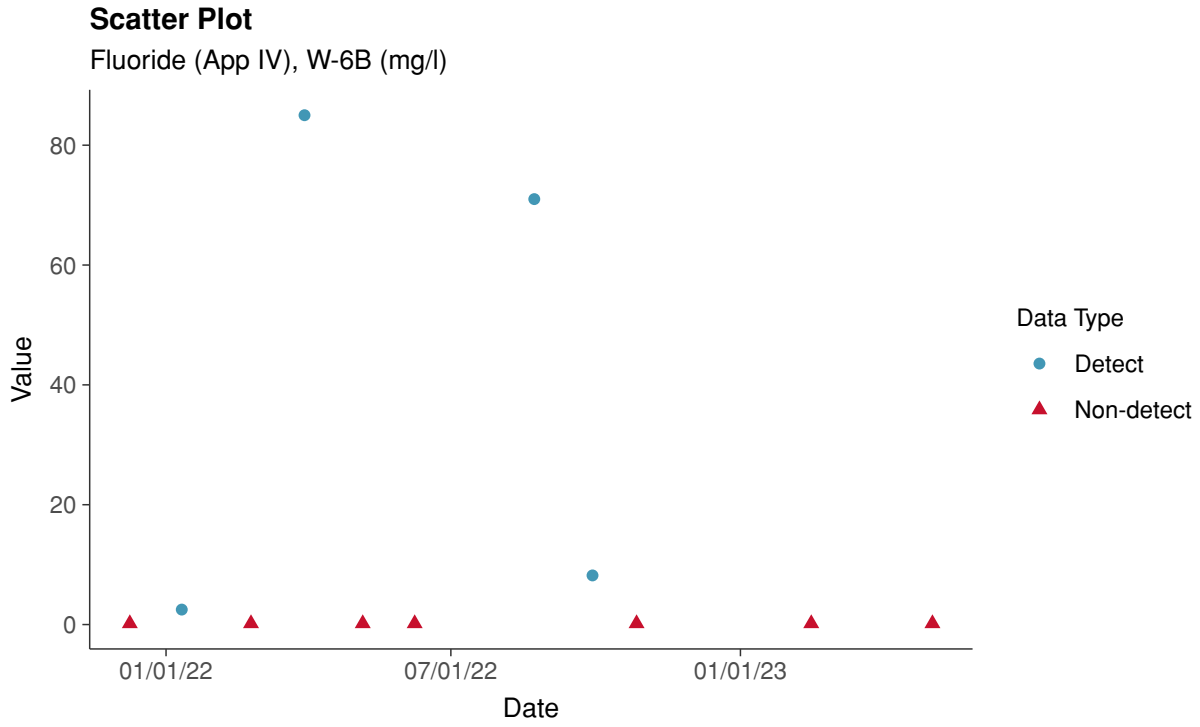
Trend Regression: Piecewise Linear-Linear-Linear

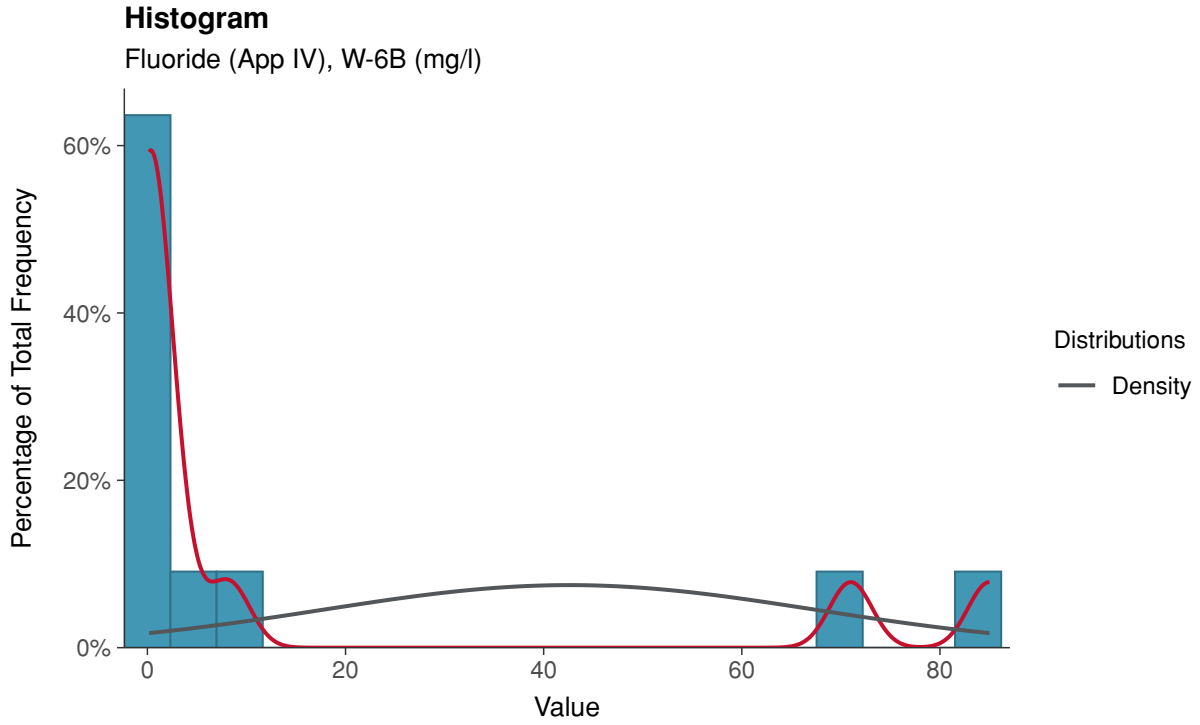
Cobalt, W-6B (mg/l)



Appendix IV: Fluoride (App IV), W-6B

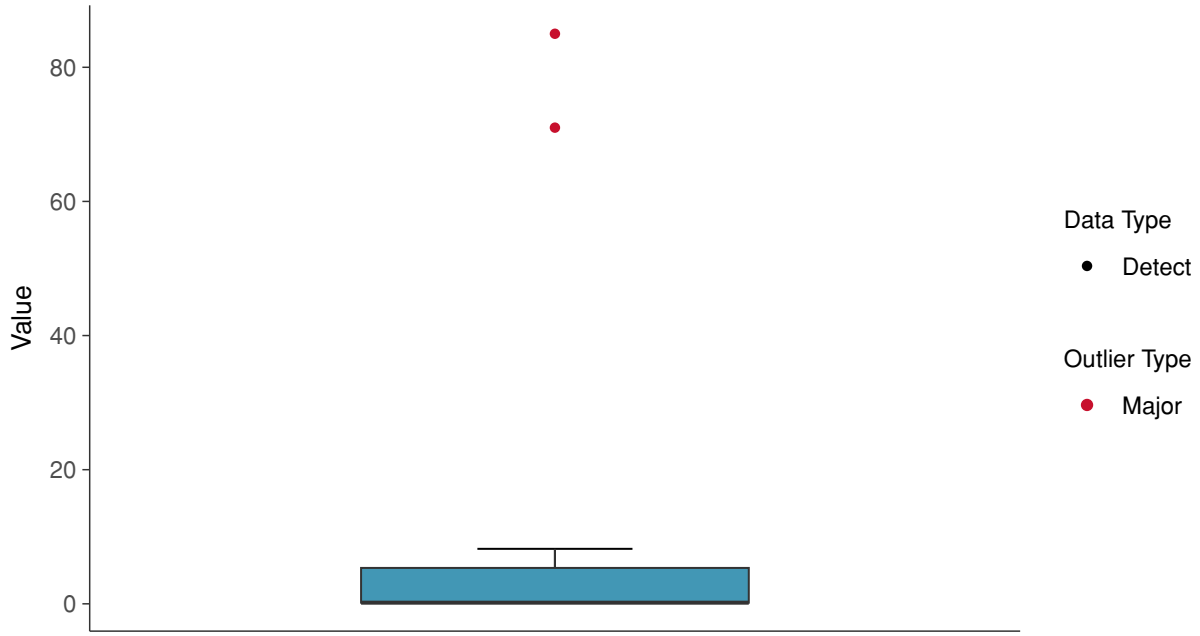
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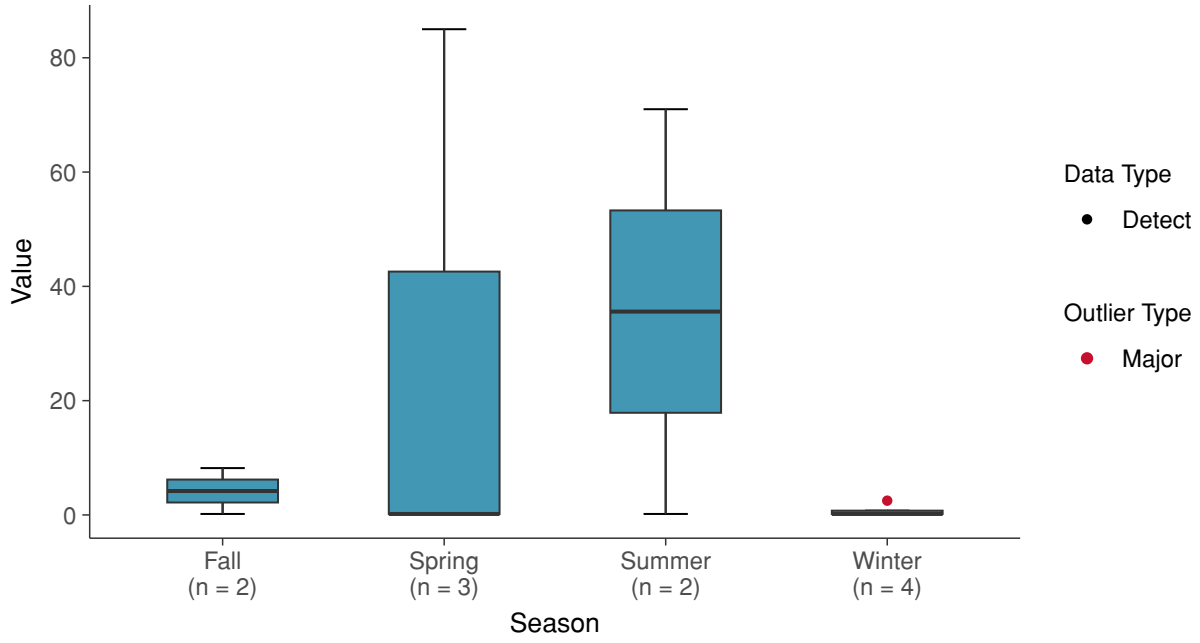
Boxplot

Fluoride (App IV), W-6B (mg/l)



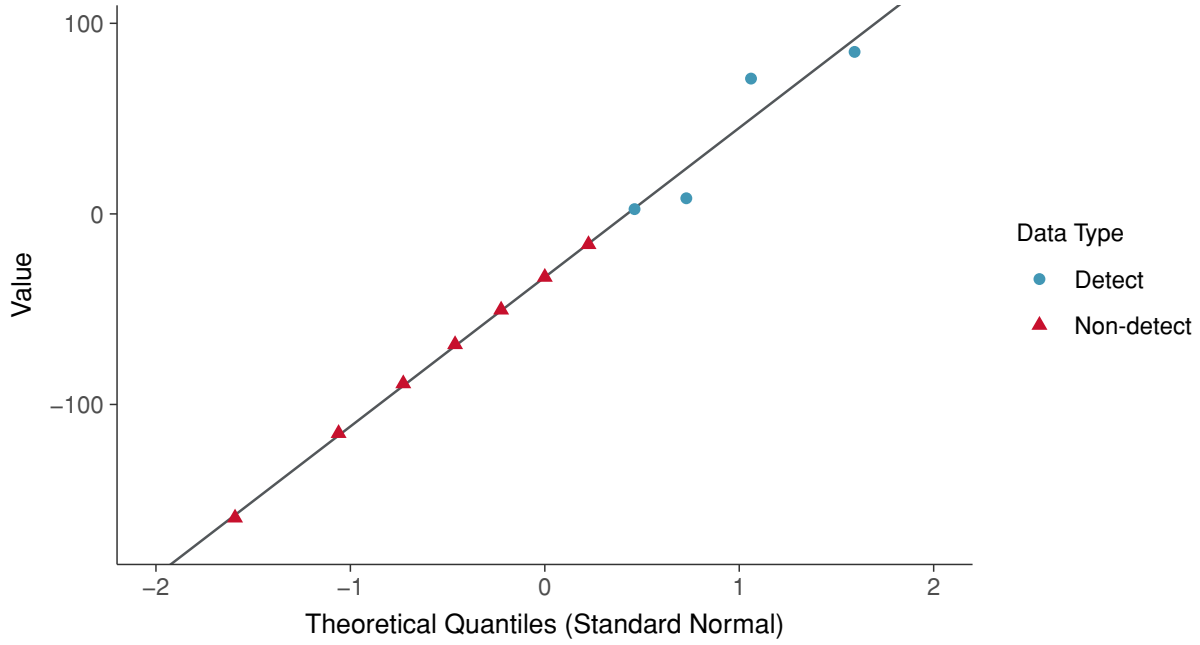
Boxplot by Season

Fluoride (App IV), W-6B (mg/l)



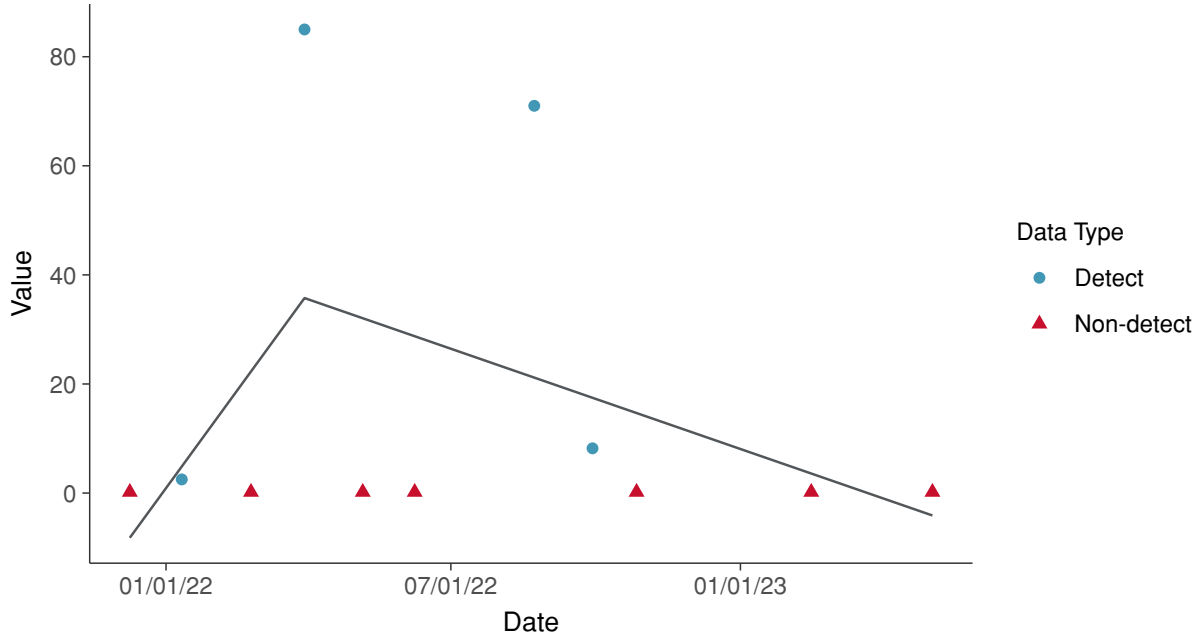
Normal Q-Q plot using ROS Imputed Estimates

Fluoride (App IV), W-6B (mg/l)



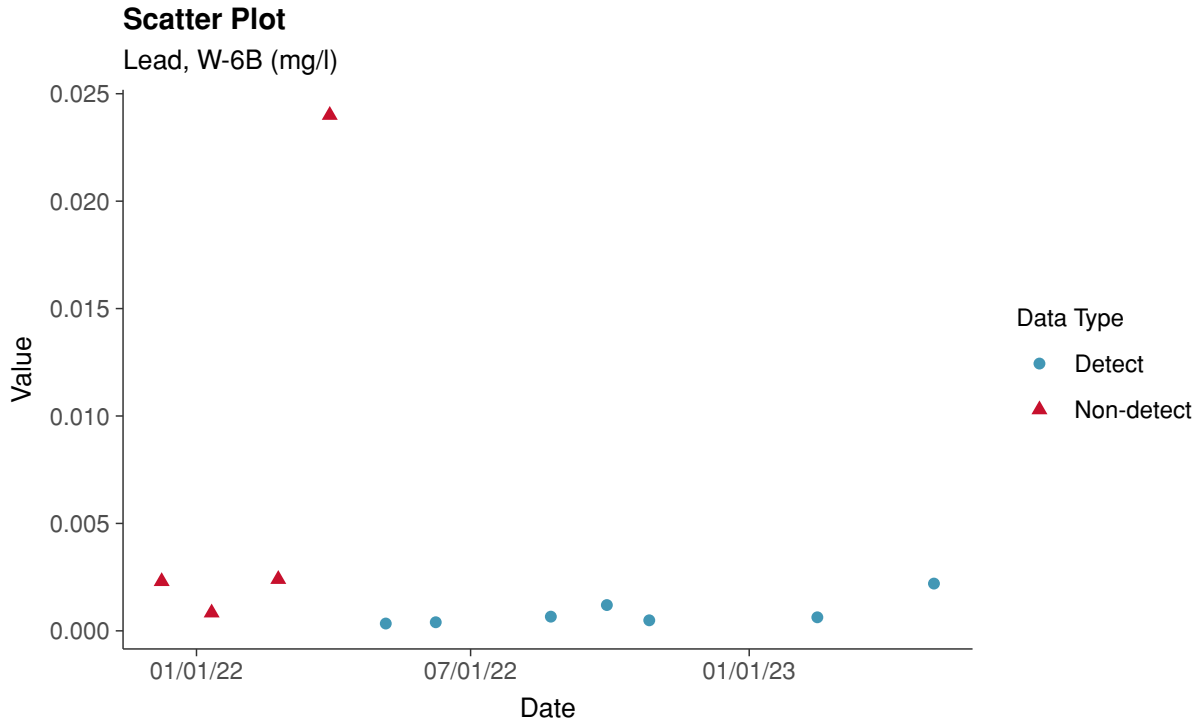
Trend Regression: Piecewise Linear-Linear

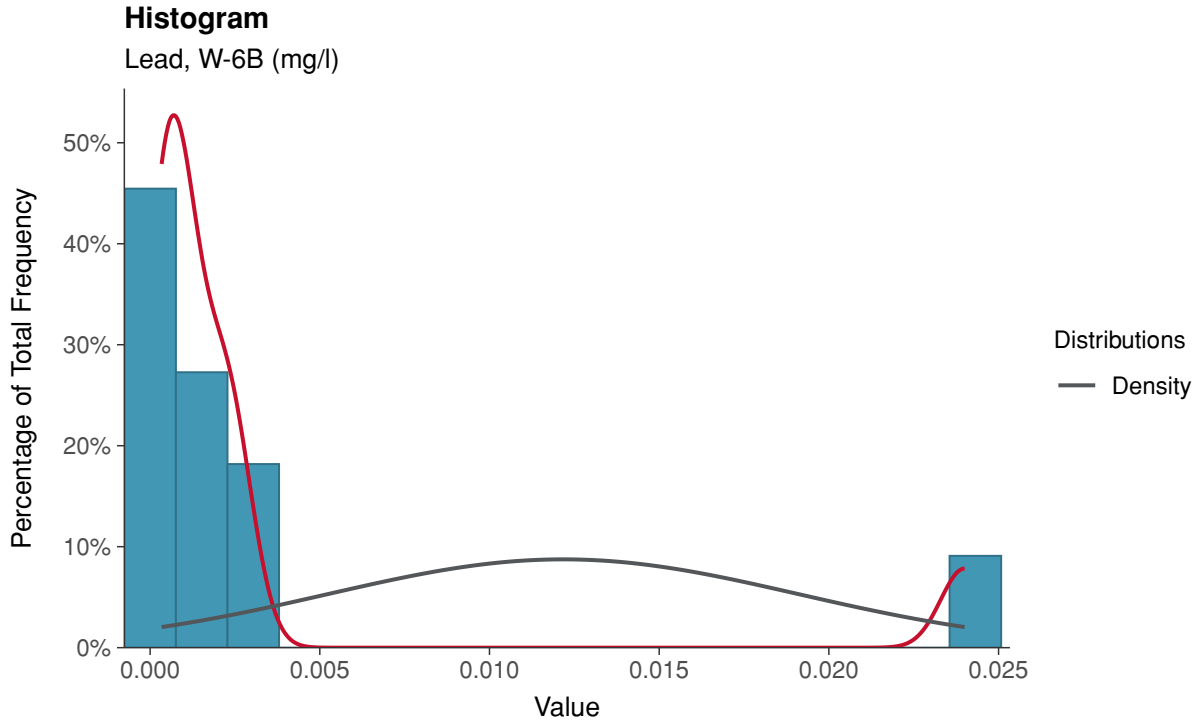
Fluoride (App IV), W-6B (mg/l)



Appendix IV: Lead, W-6B

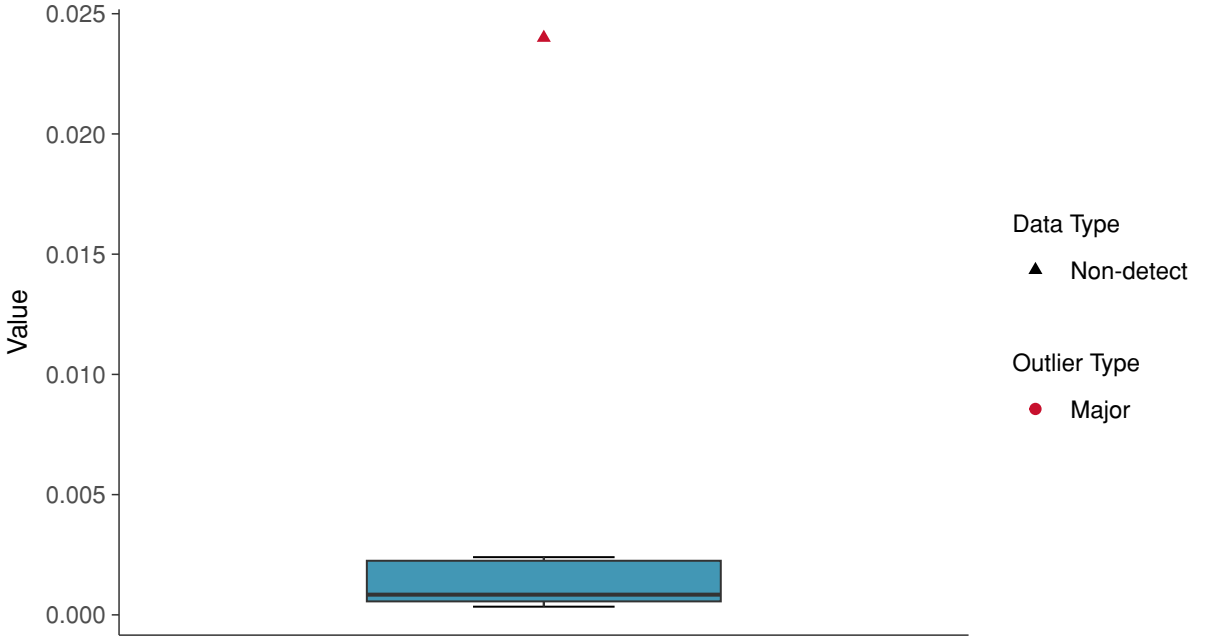
ID: 10_2_113





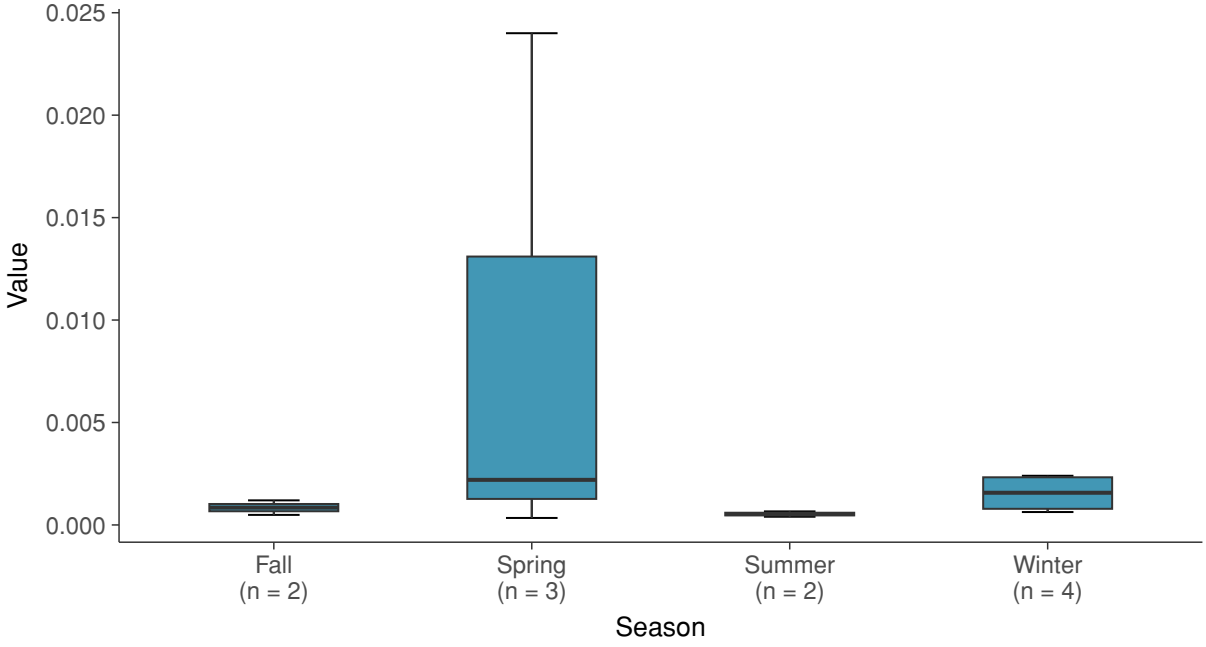
Boxplot

Lead, W-6B (mg/l)



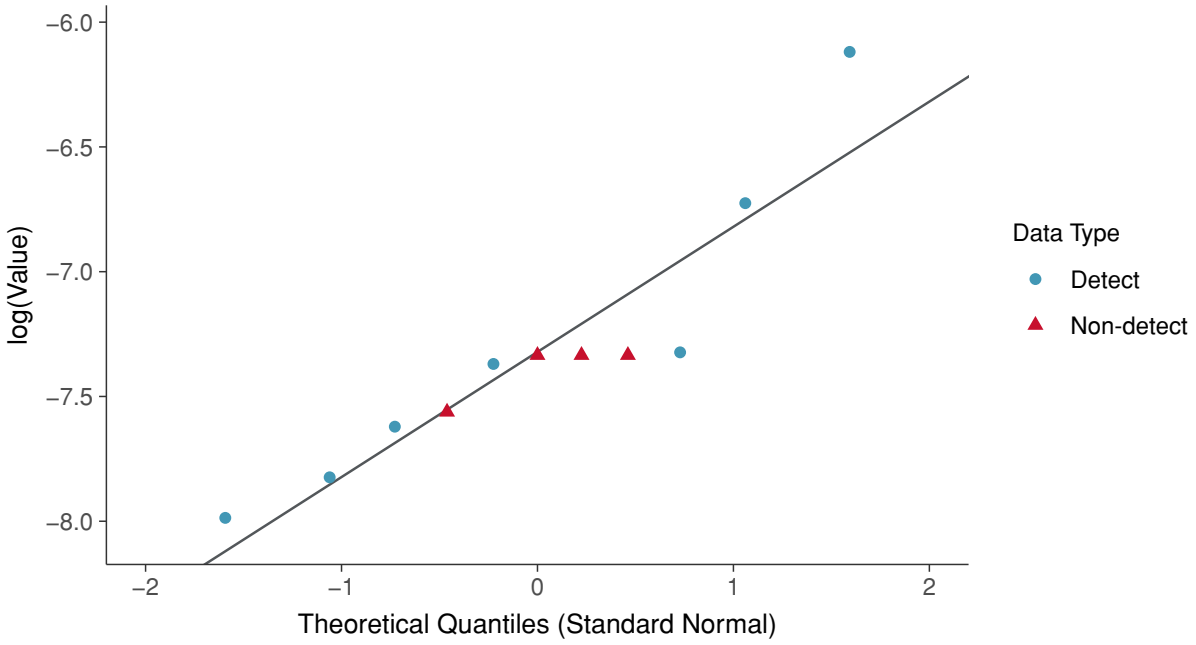
Boxplot by Season

Lead, W-6B (mg/l)



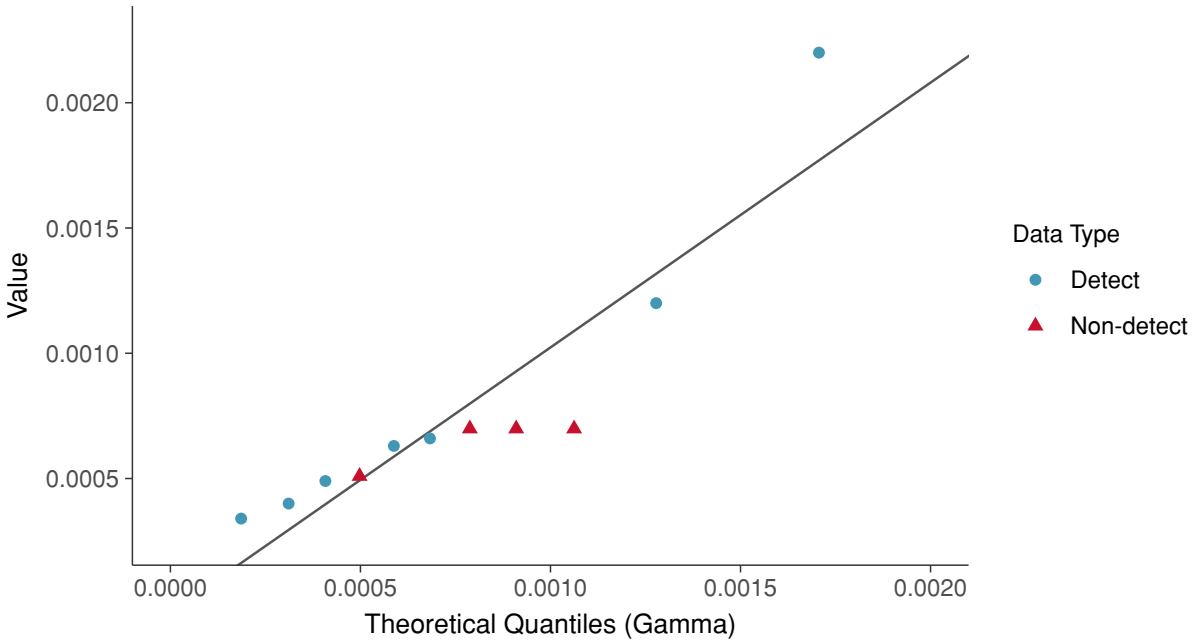
Lognormal Q-Q plot using ROS Imputed Estimates

Lead, W-6B (mg/l)



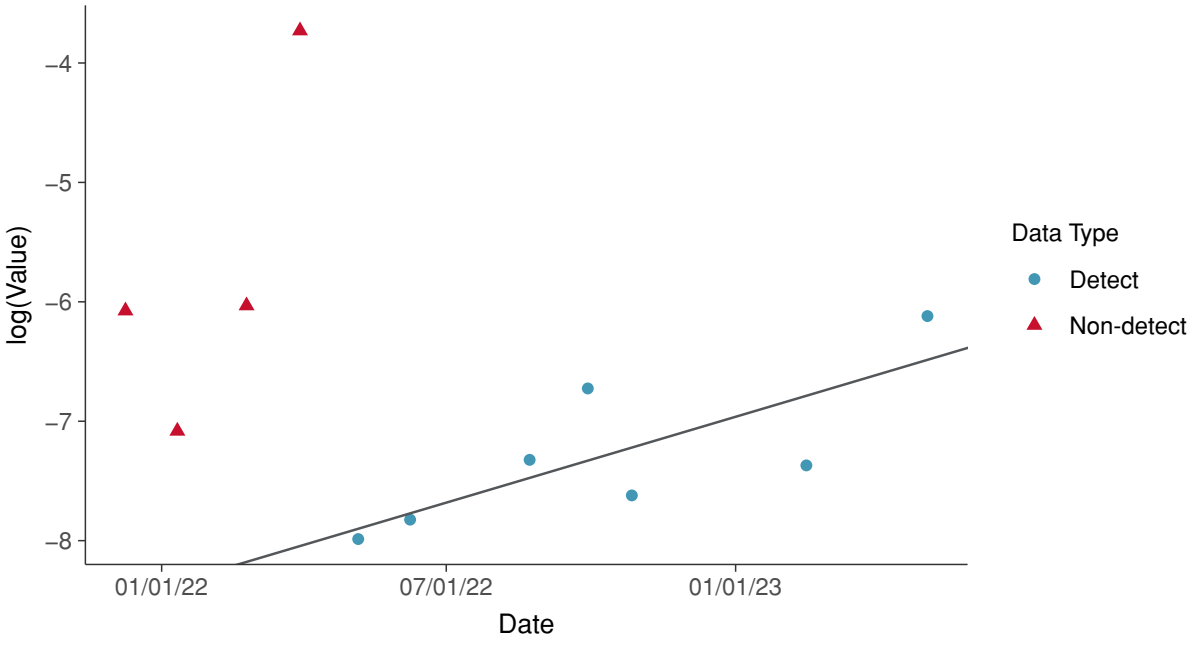
Gamma Q-Q plot using ROS Imputed Estimates

Lead, W-6B (mg/l)



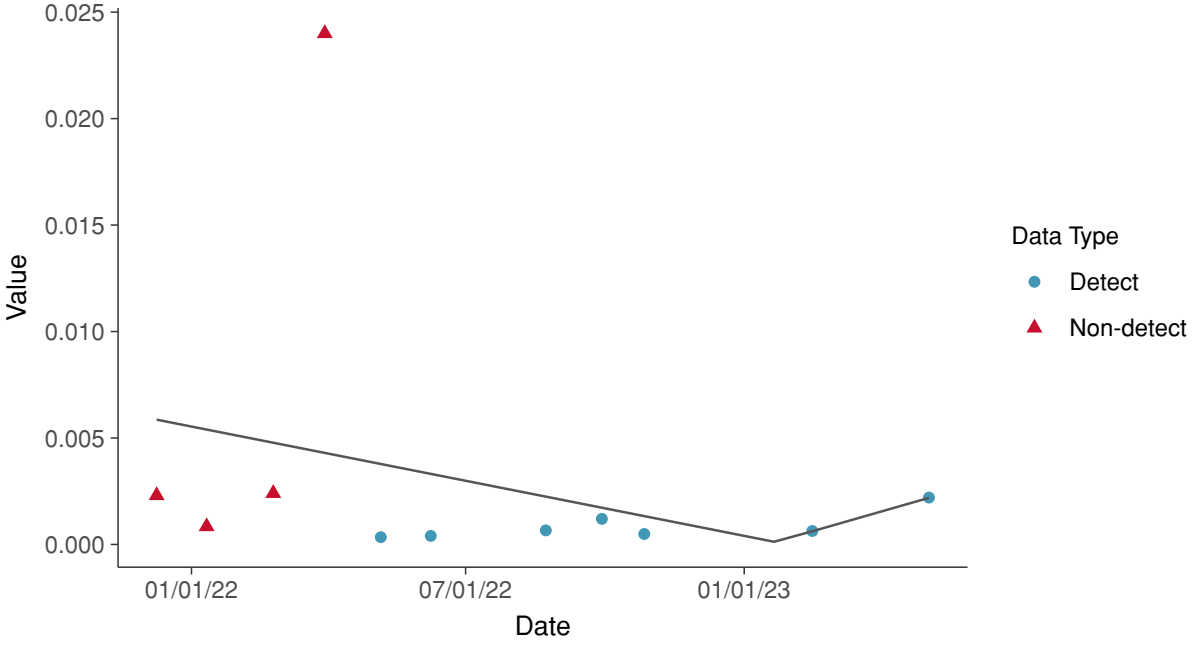
Trend Regression: Lognormal MLE

Lead, W-6B (mg/l)



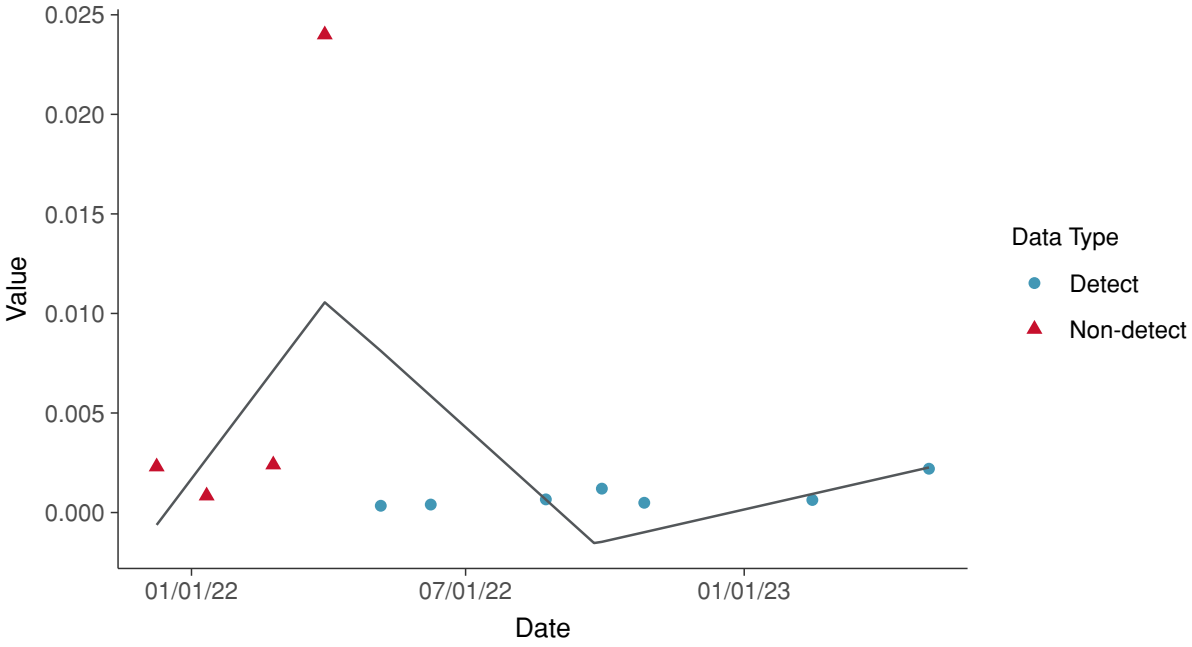
Trend Regression: Piecewise Linear-Linear

Lead, W-6B (mg/l)



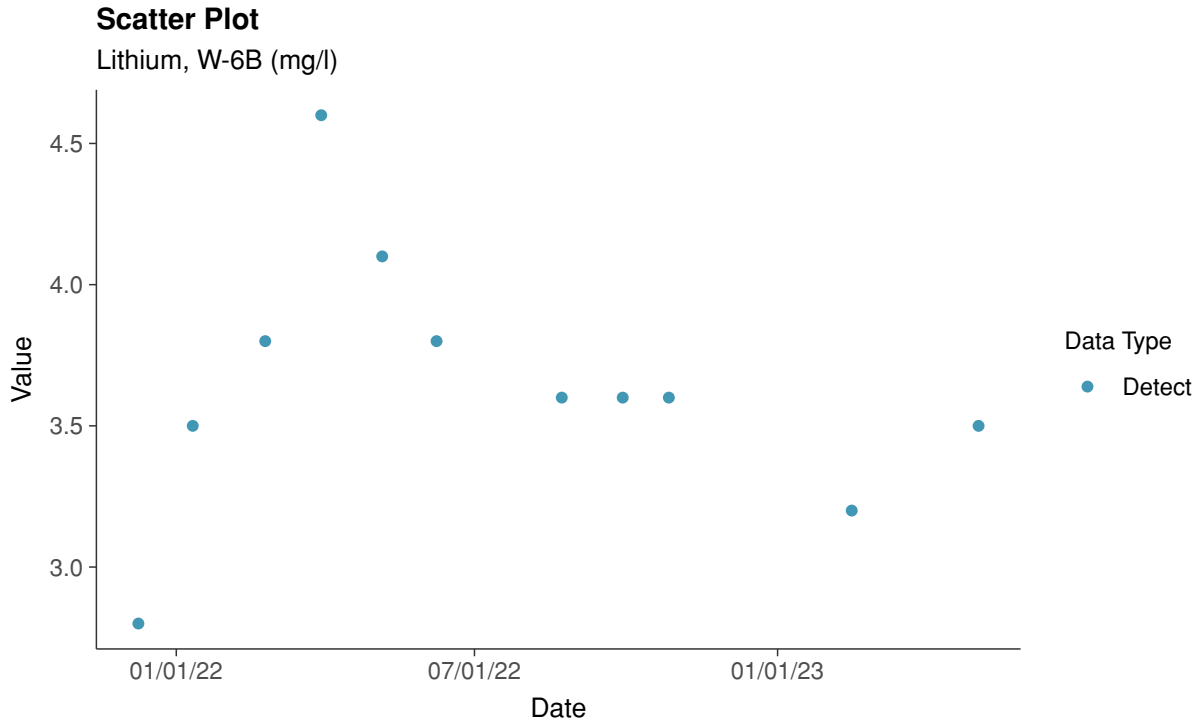
Trend Regression: Piecewise Linear-Linear-Linear

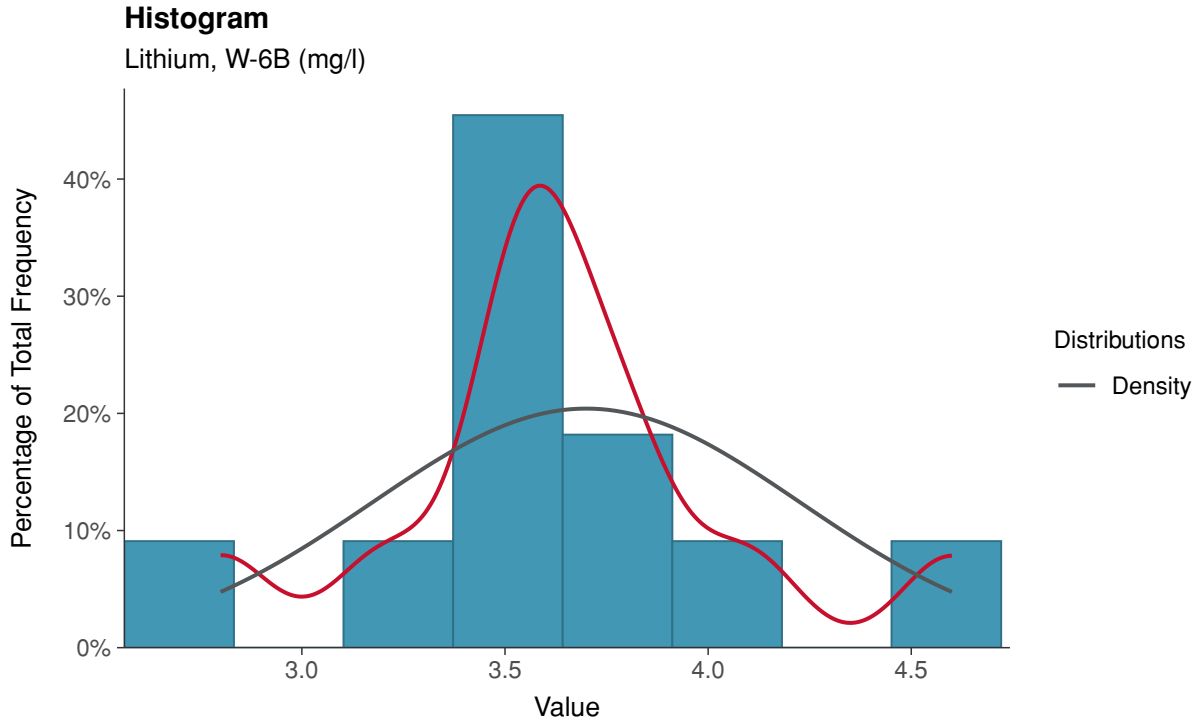
Lead, W-6B (mg/l)



Appendix IV: Lithium, W-6B

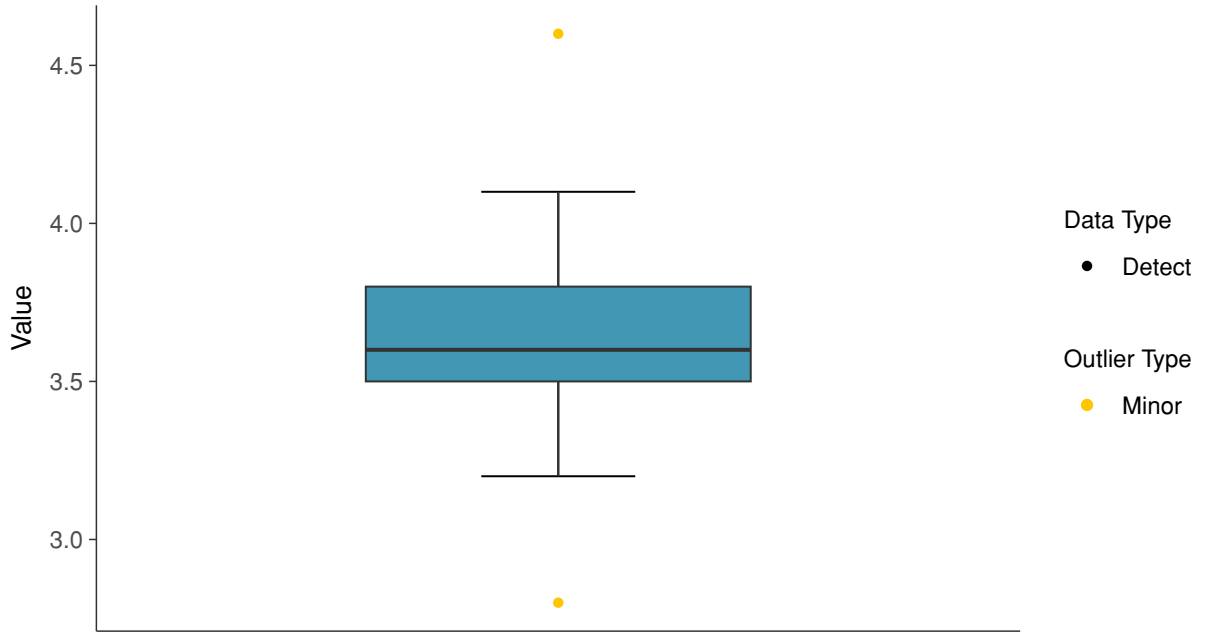
ID: 10_2_114





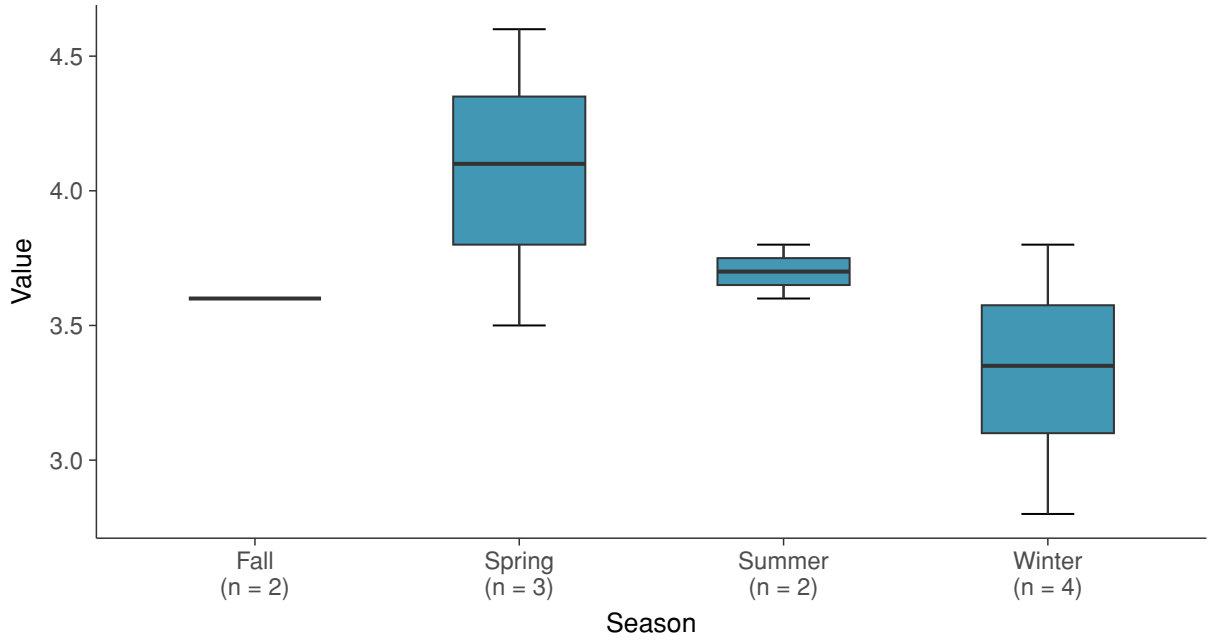
Boxplot

Lithium, W-6B (mg/l)



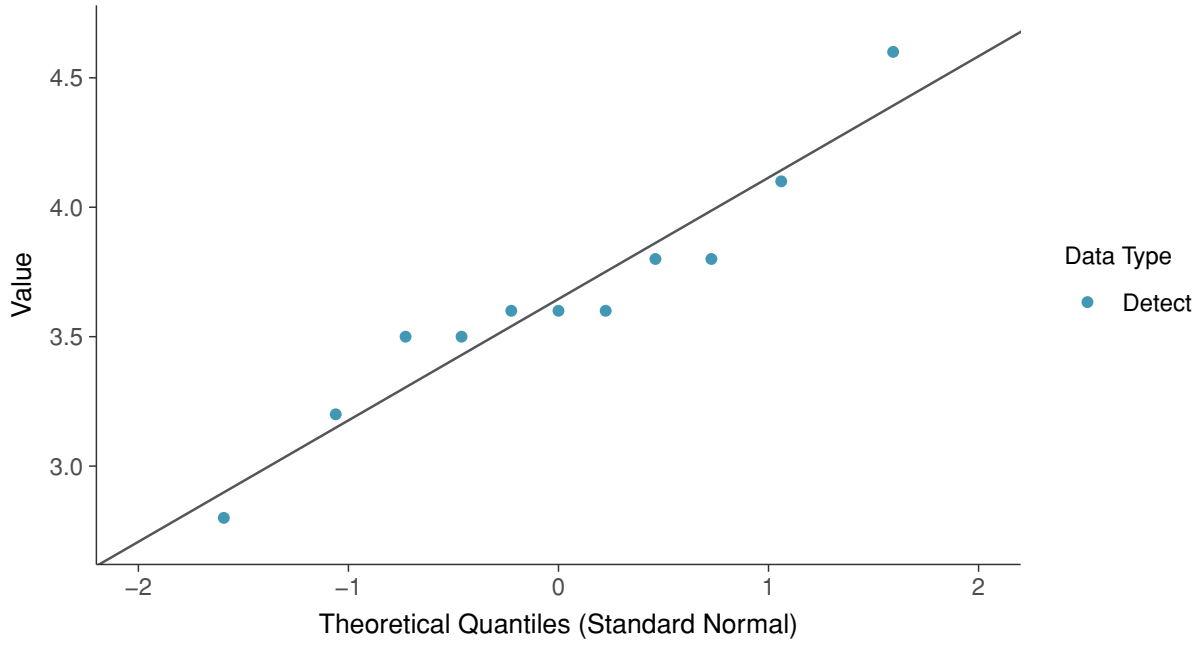
Boxplot by Season

Lithium, W-6B (mg/l)



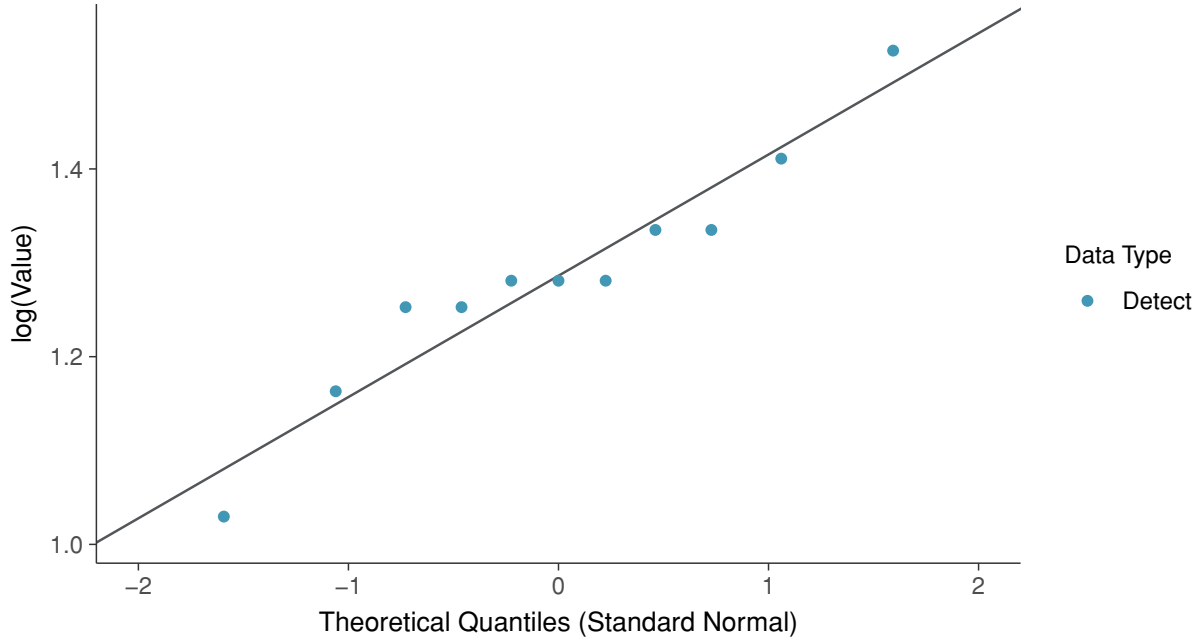
Normal Q-Q plot

Lithium, W-6B (mg/l)



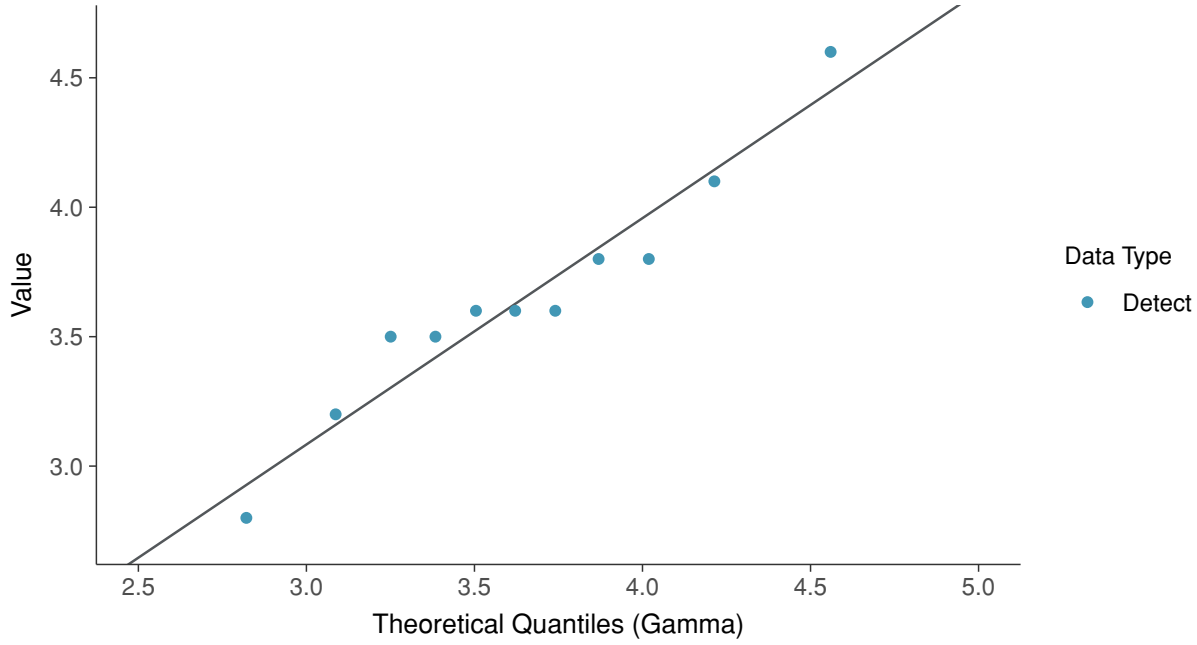
Lognormal Q-Q plot

Lithium, W-6B (mg/l)



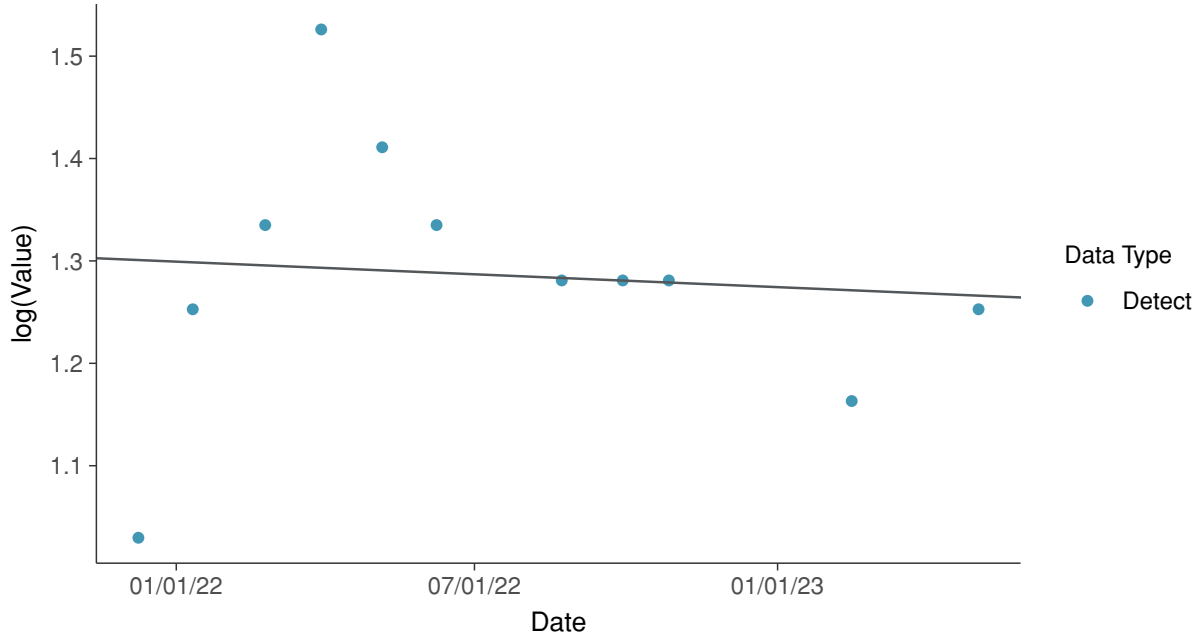
Gamma Q-Q plot

Lithium, W-6B (mg/l)



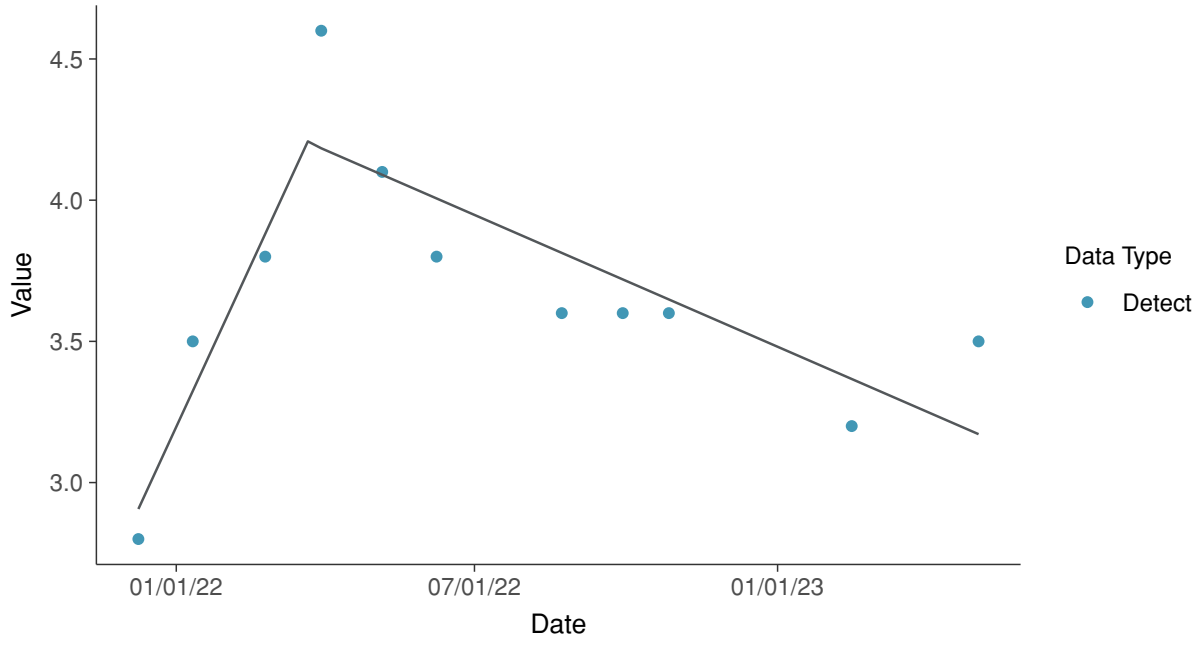
Trend Regression: Lognormal MLE

Lithium, W-6B (mg/l)



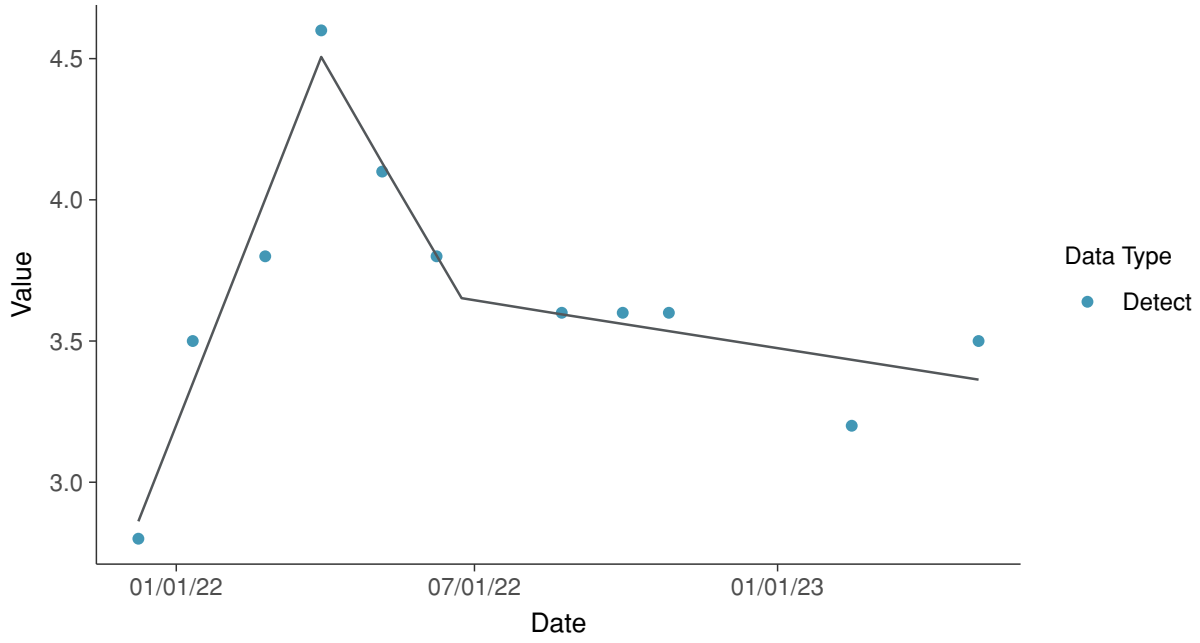
Trend Regression: Piecewise Linear-Linear

Lithium, W-6B (mg/l)



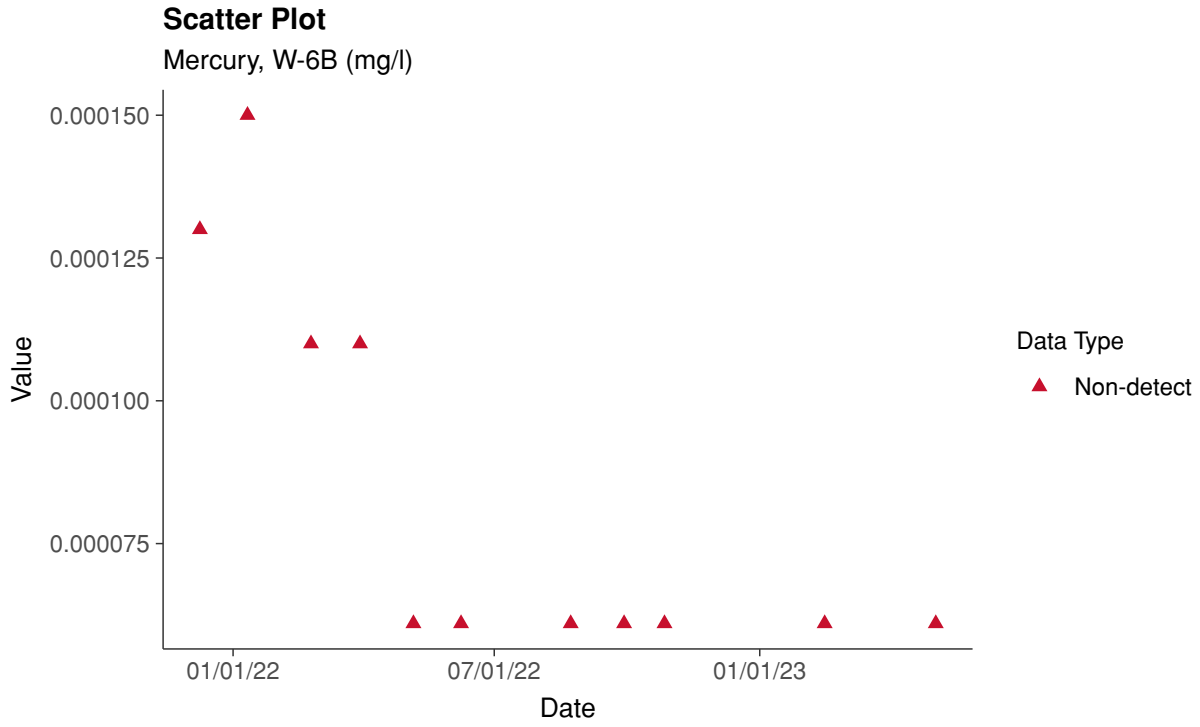
Trend Regression: Piecewise Linear-Linear-Linear

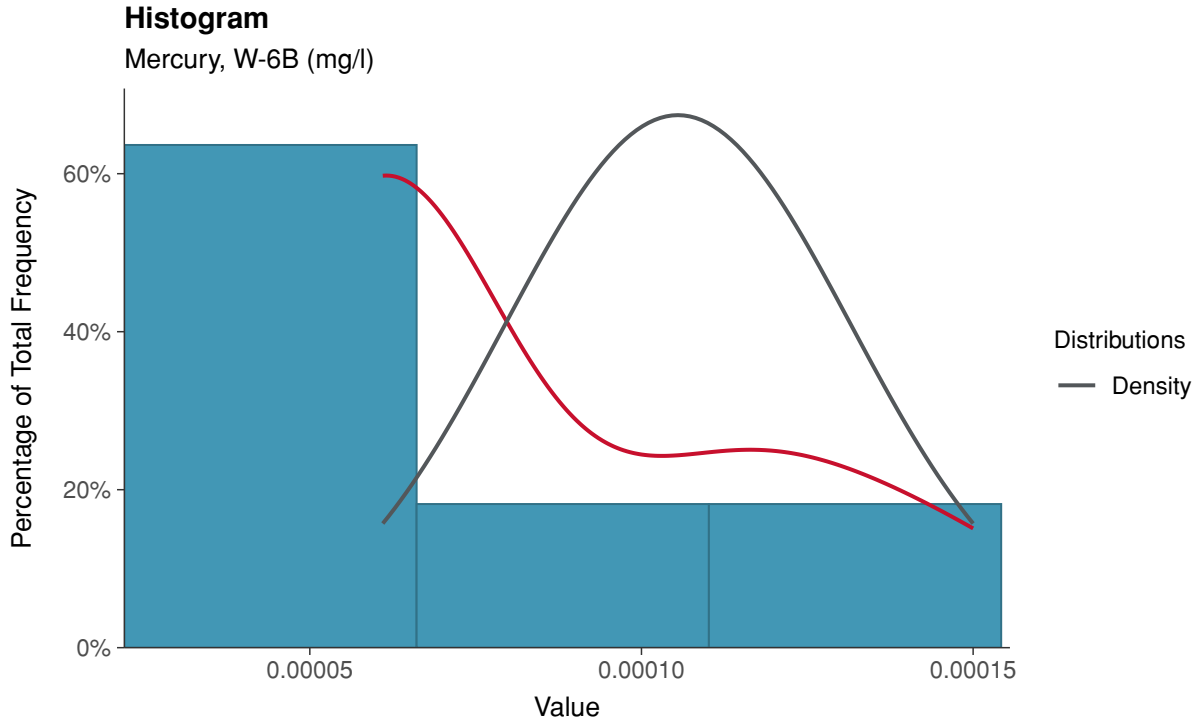
Lithium, W-6B (mg/l)



Appendix IV: Mercury, W-6B

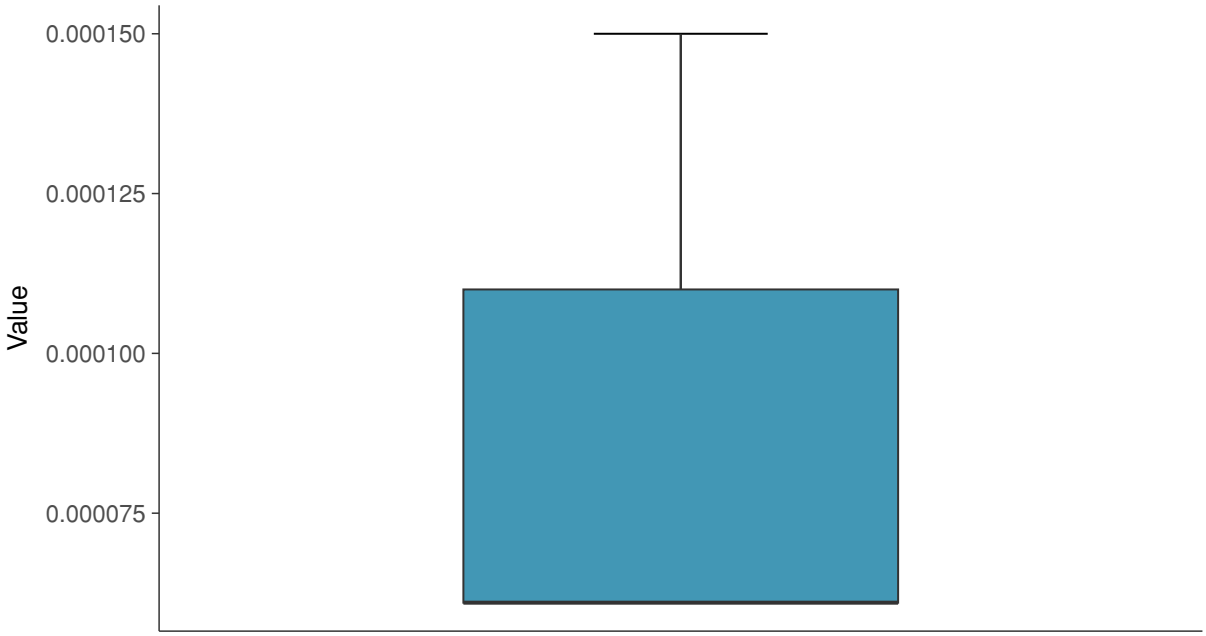
ID: 10_2_115





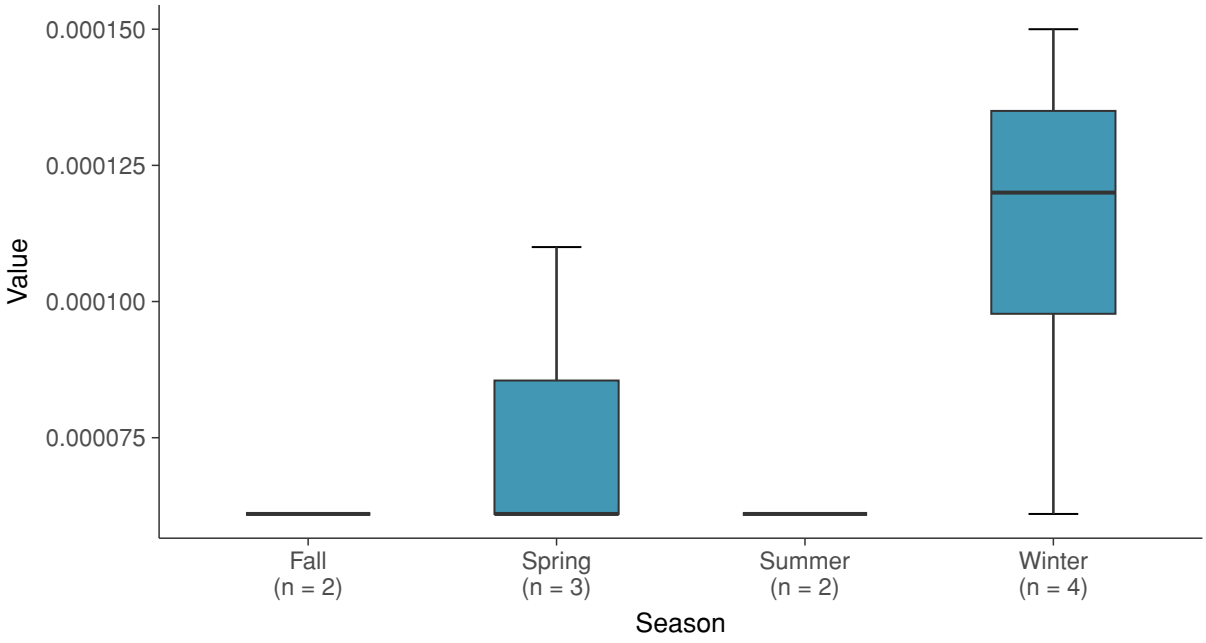
Boxplot

Mercury, W-6B (mg/l)



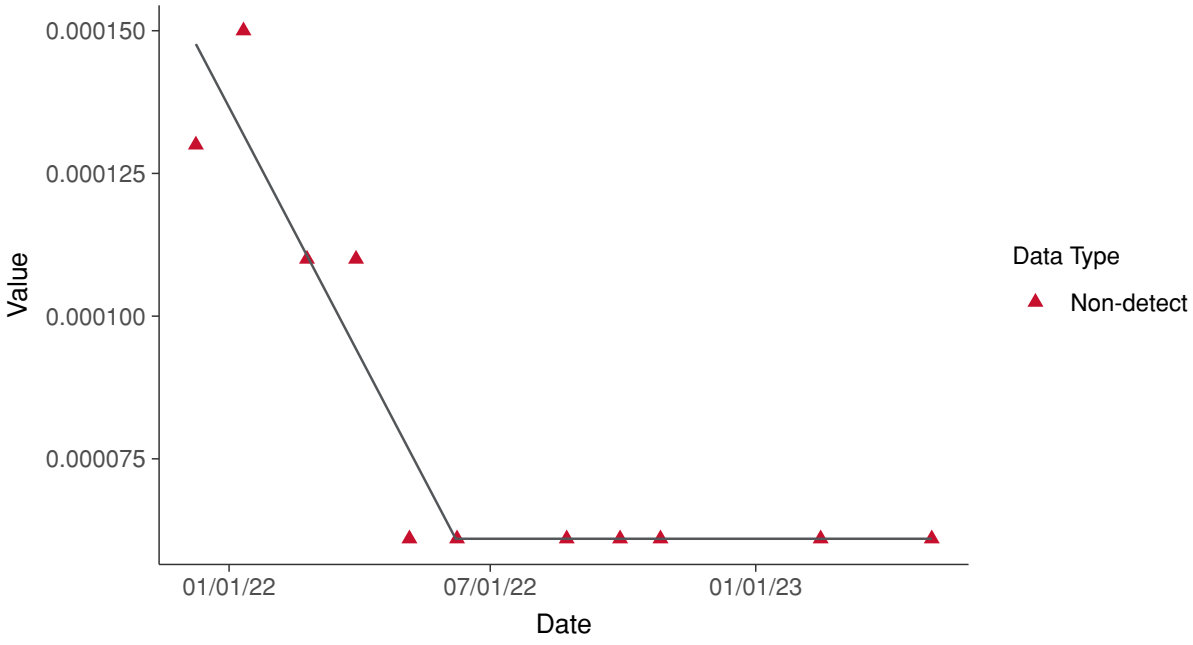
Boxplot by Season

Mercury, W-6B (mg/l)



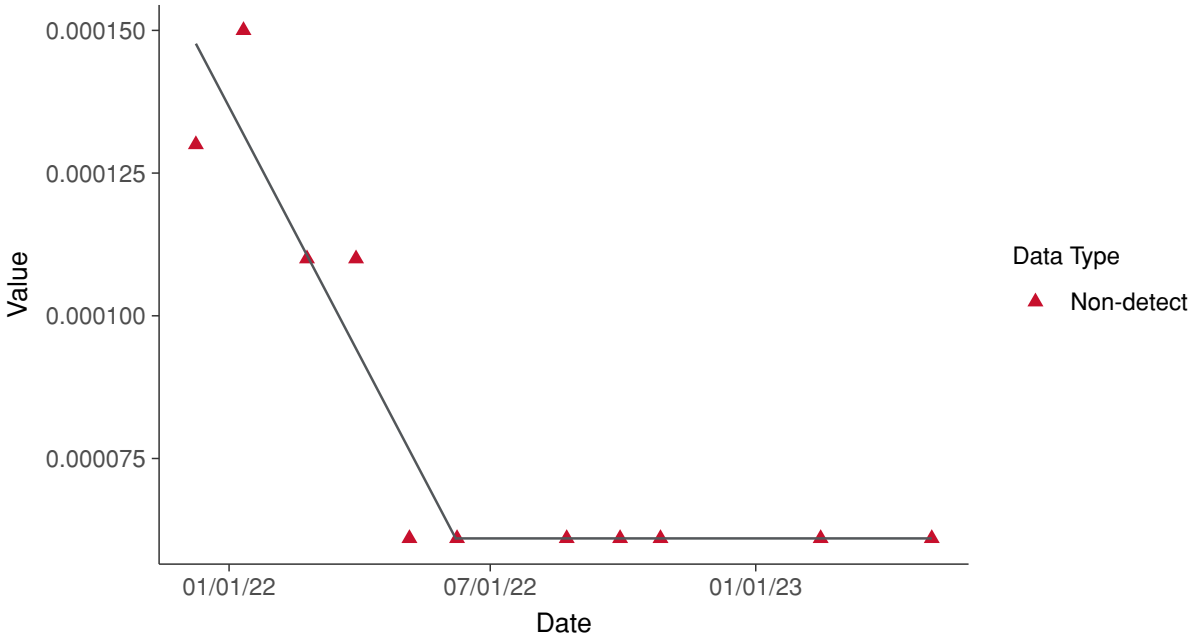
Trend Regression: Piecewise Linear-Linear

Mercury, W-6B (mg/l)



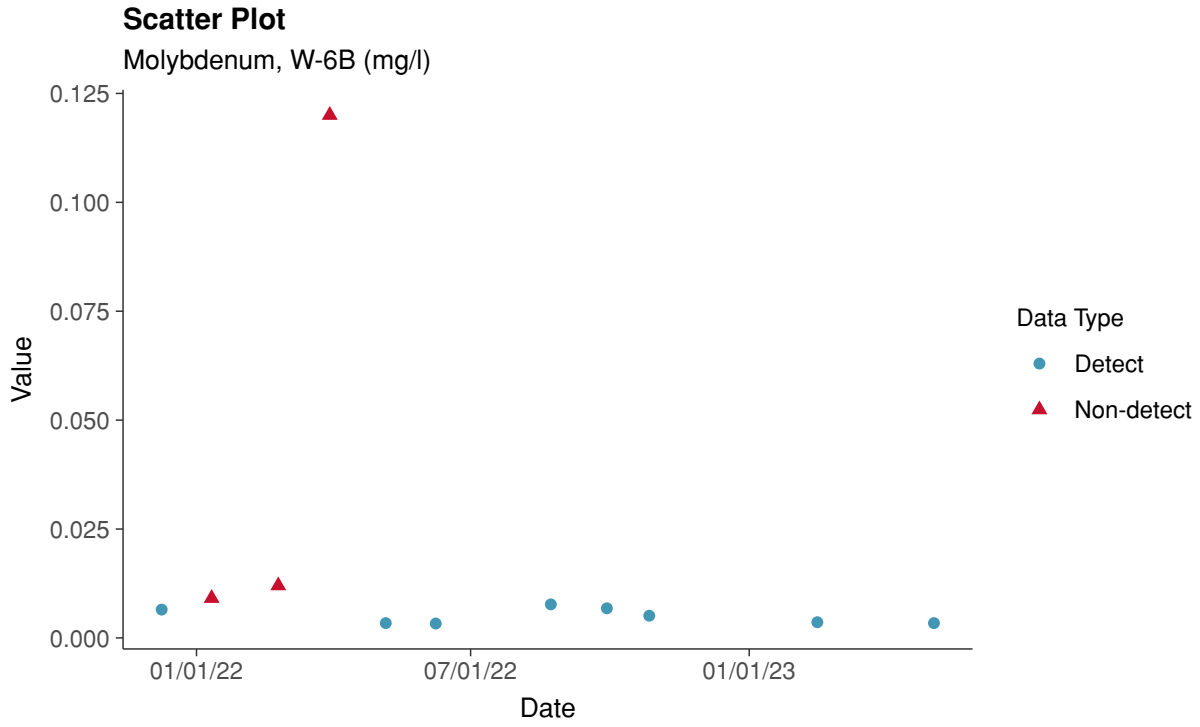
Trend Regression: Piecewise Linear-Linear-Linear

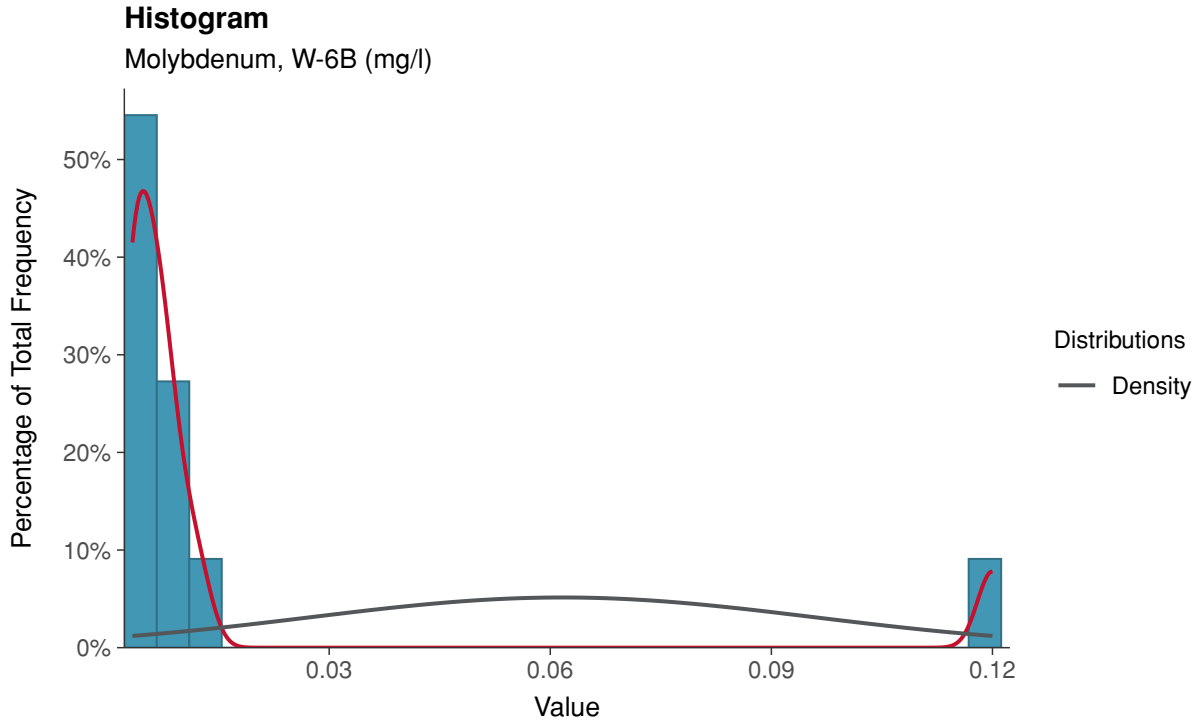
Mercury, W-6B (mg/l)



Appendix IV: Molybdenum, W-6B

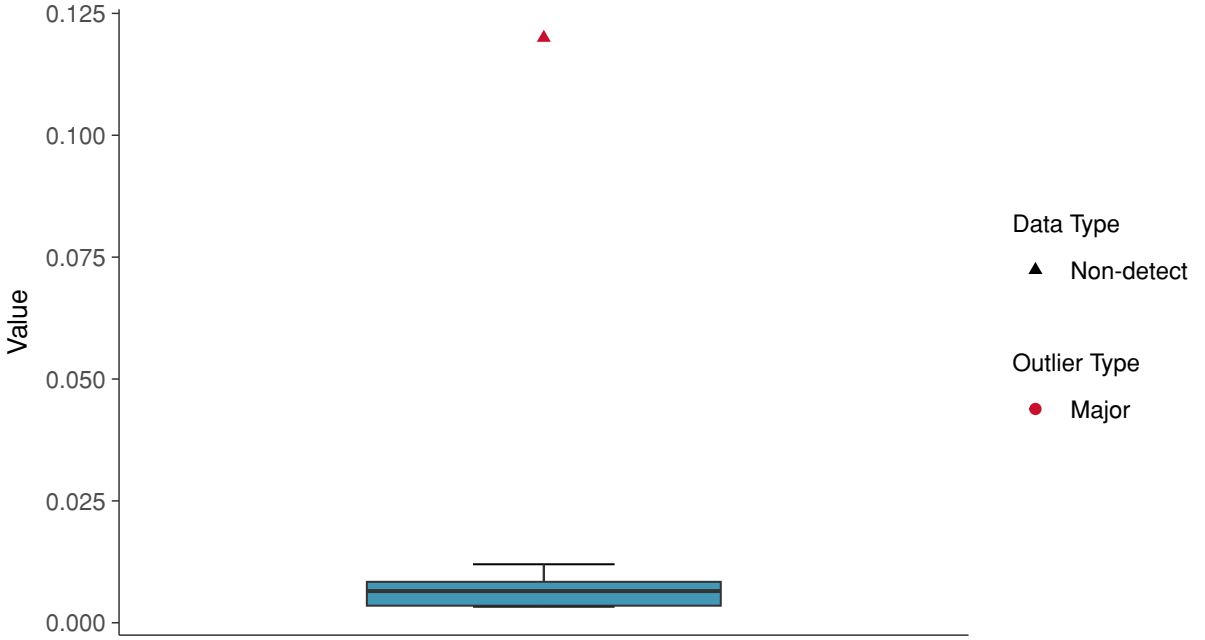
ID: 10_2_116





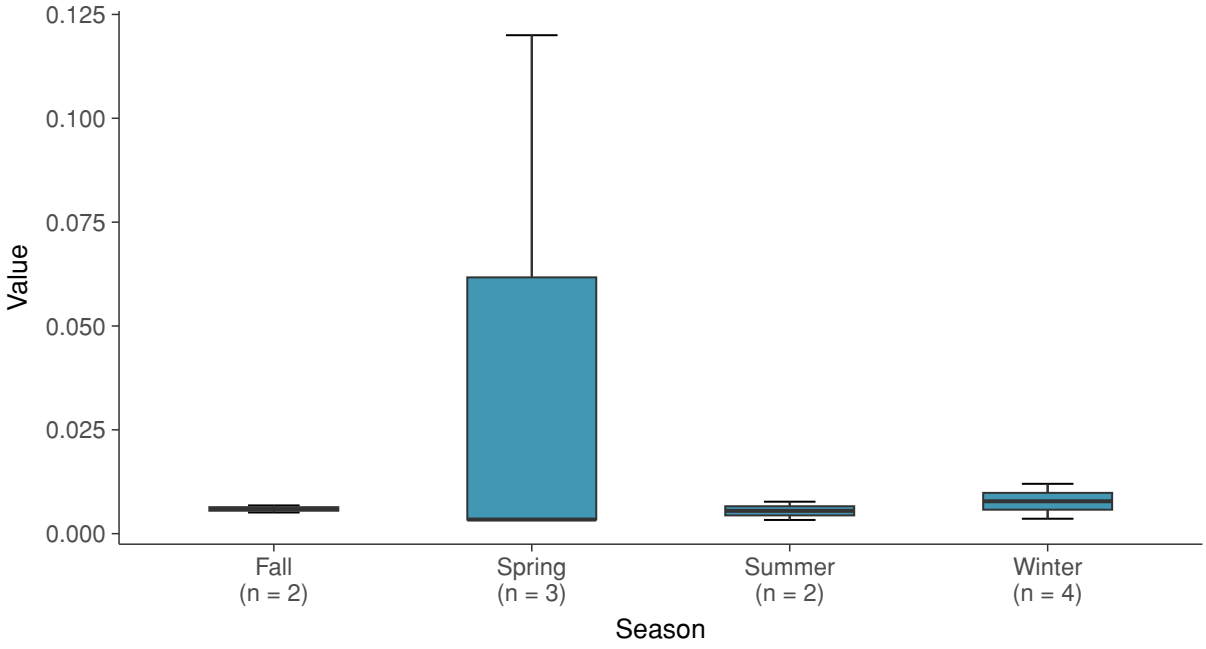
Boxplot

Molybdenum, W-6B (mg/l)



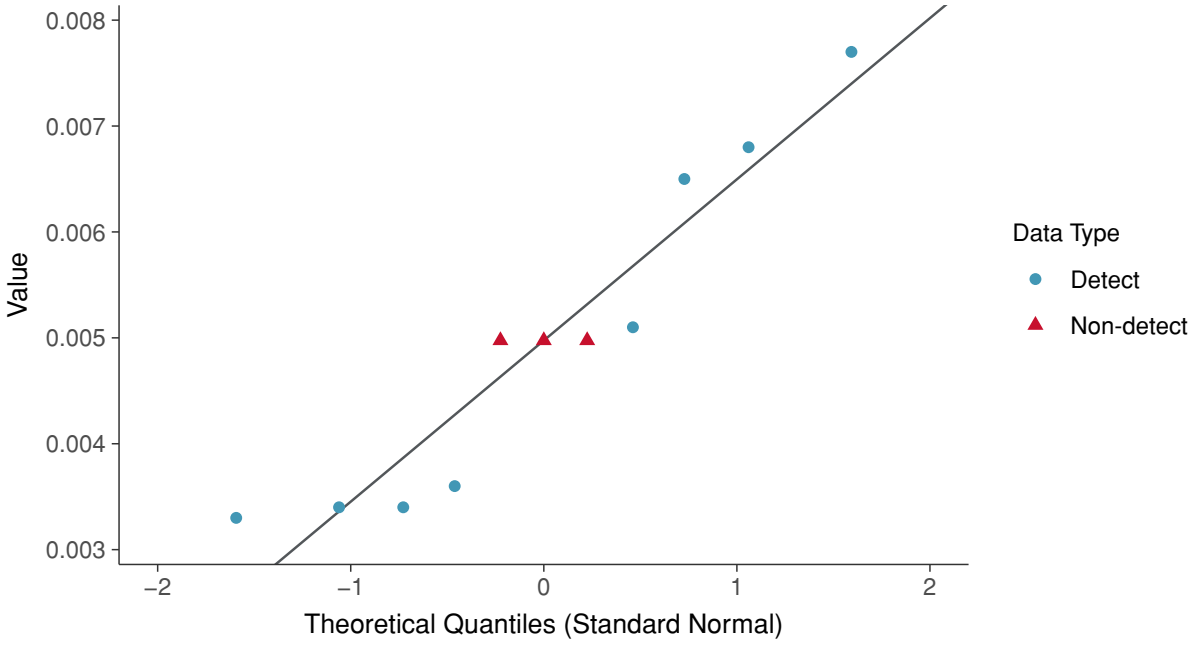
Boxplot by Season

Molybdenum, W-6B (mg/l)



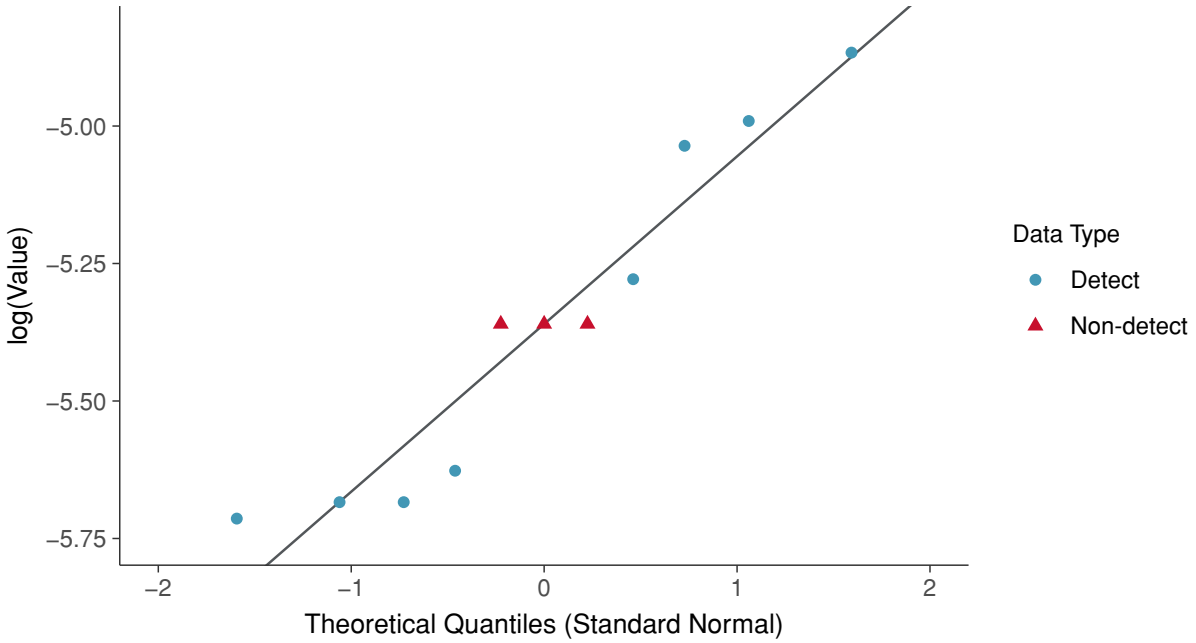
Normal Q-Q plot using ROS Imputed Estimates

Molybdenum, W-6B (mg/l)



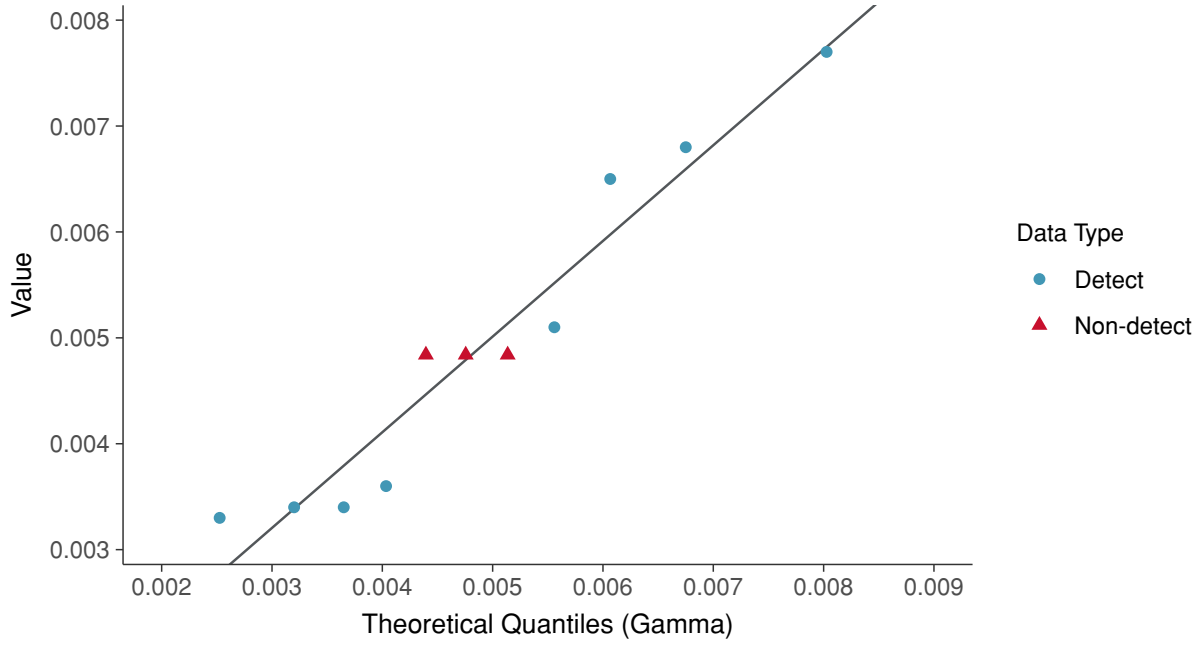
Lognormal Q-Q plot using ROS Imputed Estimates

Molybdenum, W-6B (mg/l)



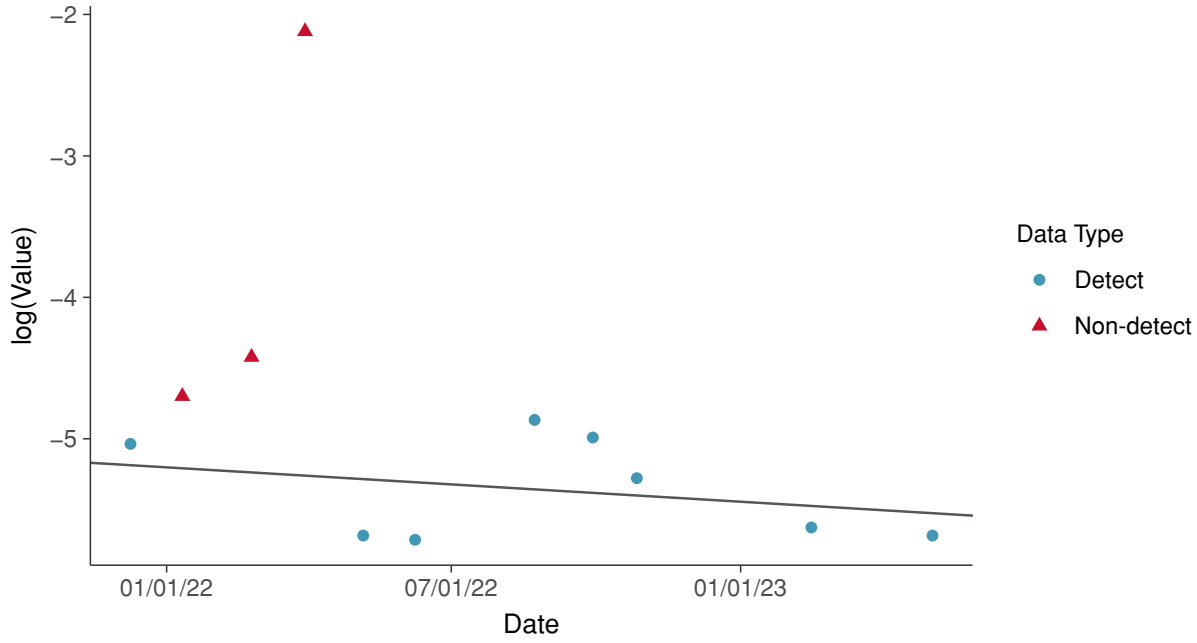
Gamma Q-Q plot using ROS Imputed Estimates

Molybdenum, W-6B (mg/l)



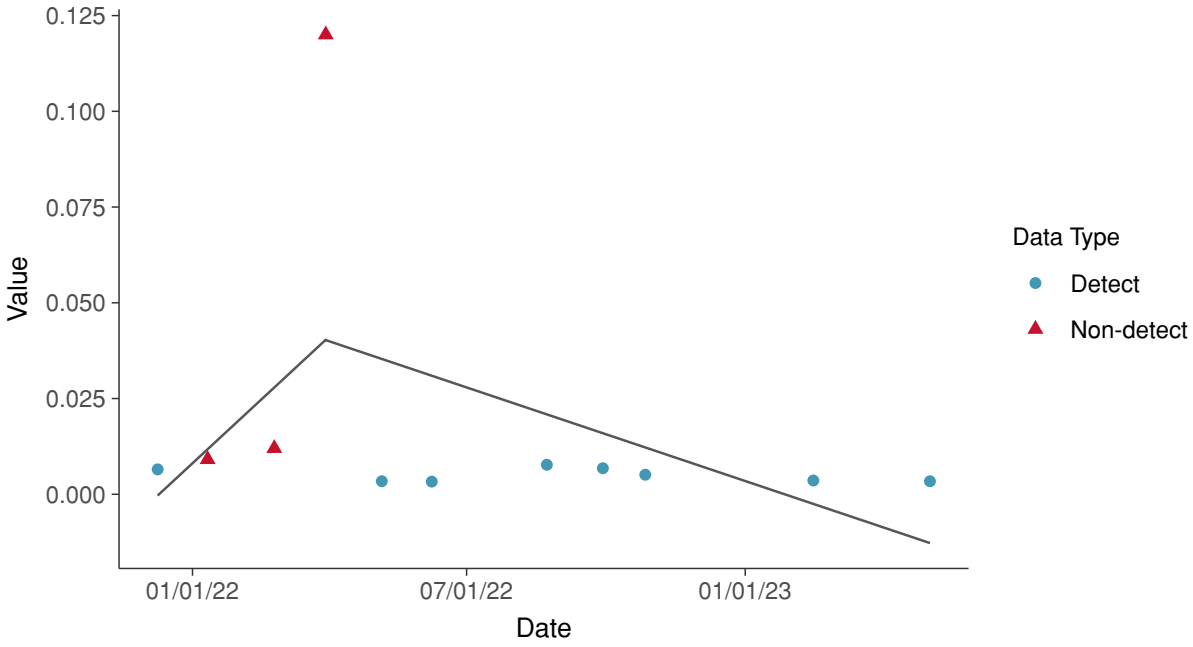
Trend Regression: Lognormal MLE

Molybdenum, W-6B (mg/l)



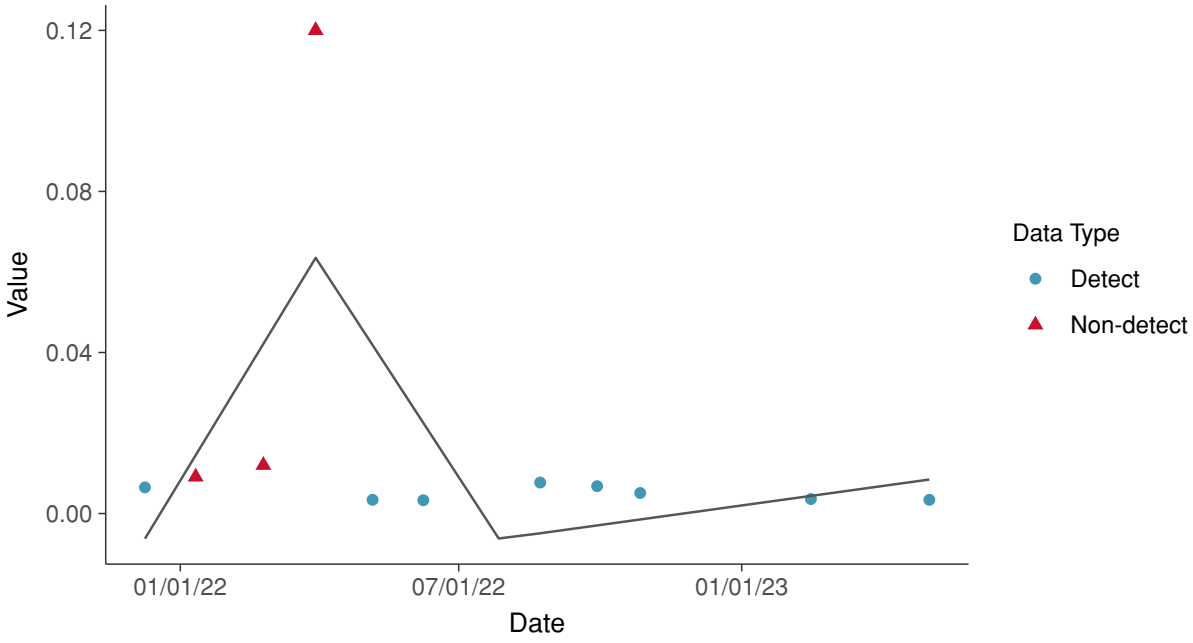
Trend Regression: Piecewise Linear-Linear

Molybdenum, W-6B (mg/l)



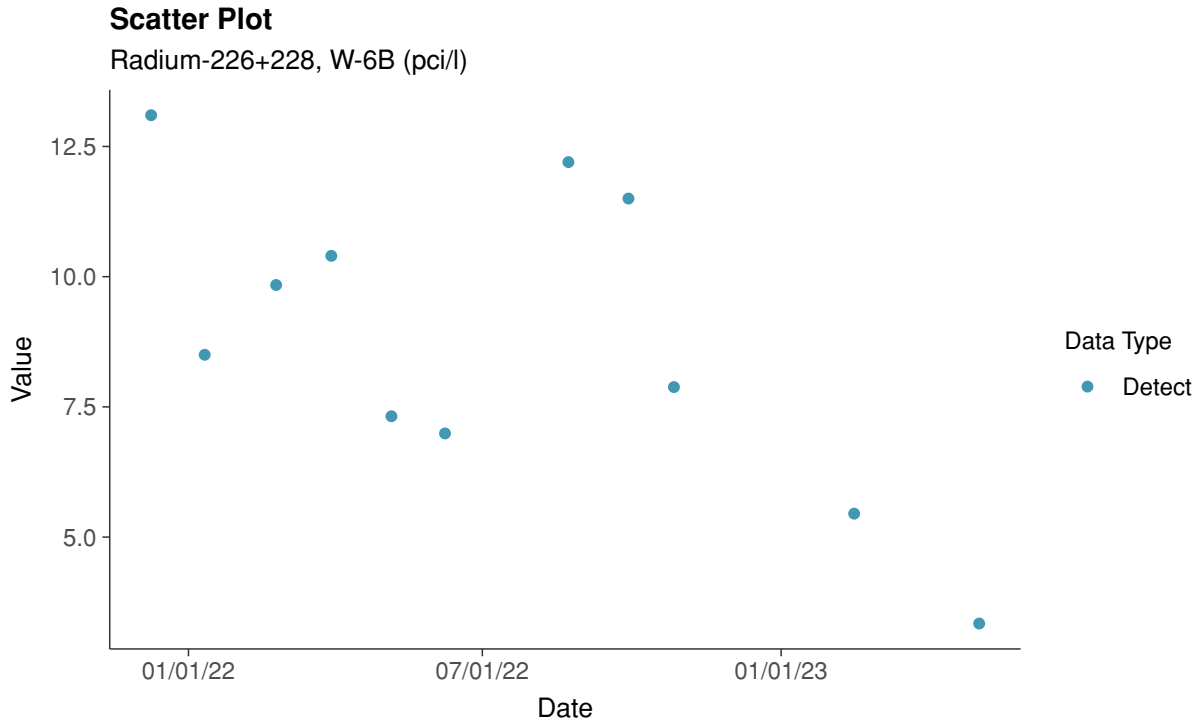
Trend Regression: Piecewise Linear-Linear-Linear

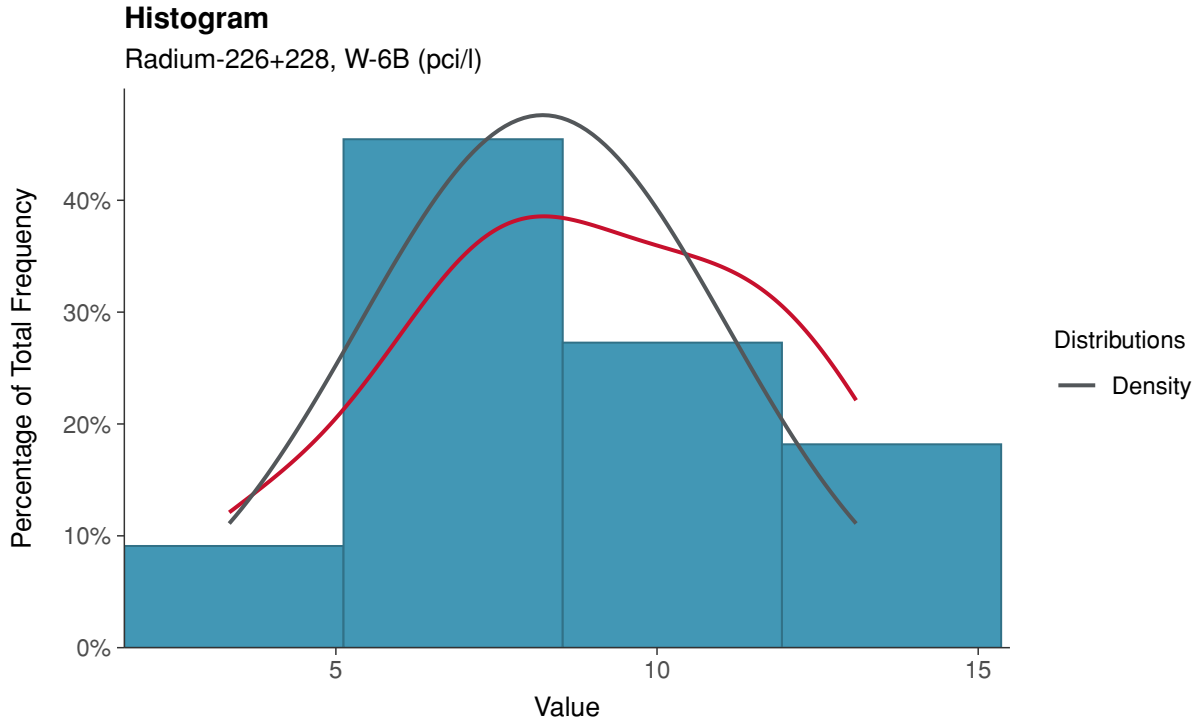
Molybdenum, W-6B (mg/l)



Appendix IV: Radium-226+228, W-6B

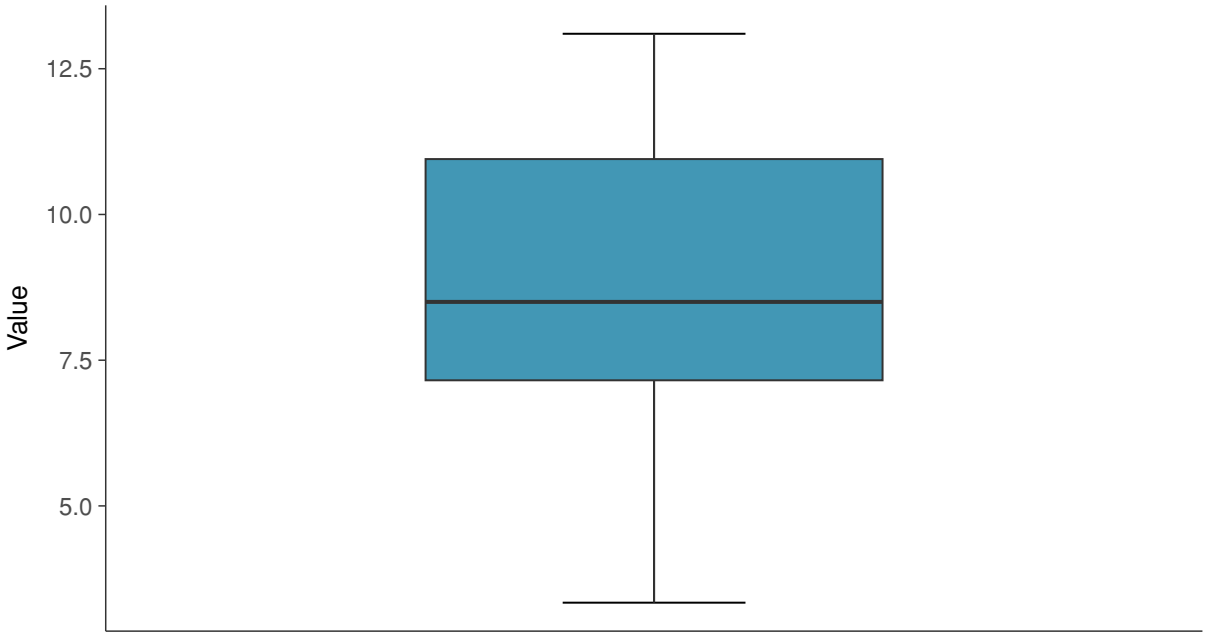
ID: 10_2_120





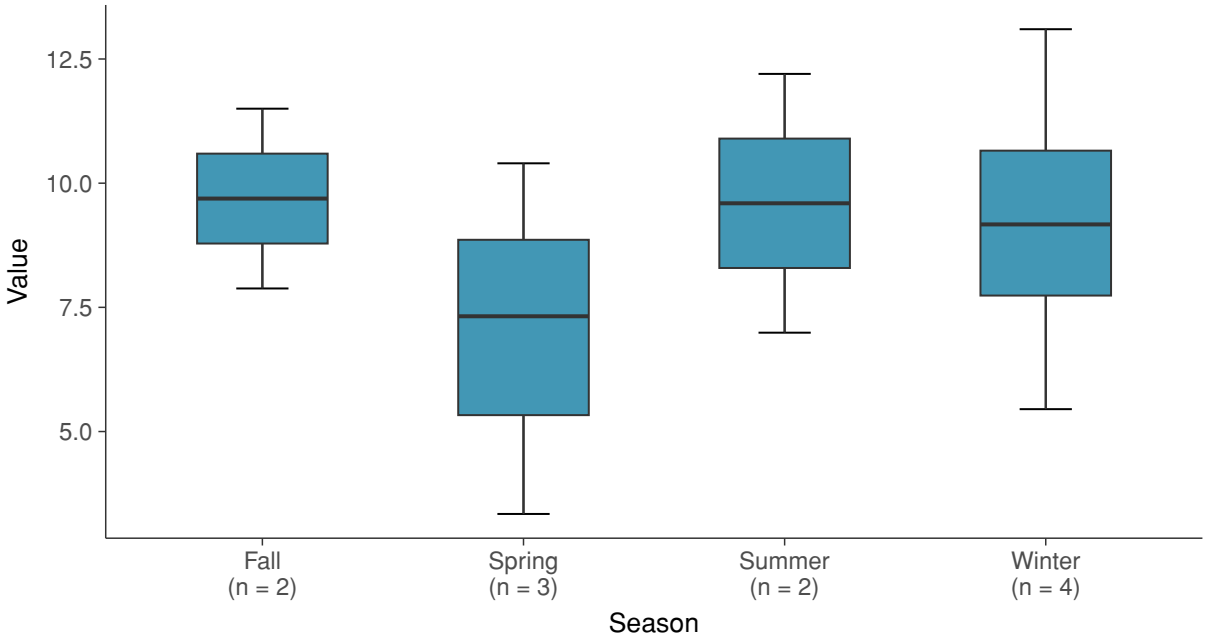
Boxplot

Radium-226+228, W-6B (pci/l)



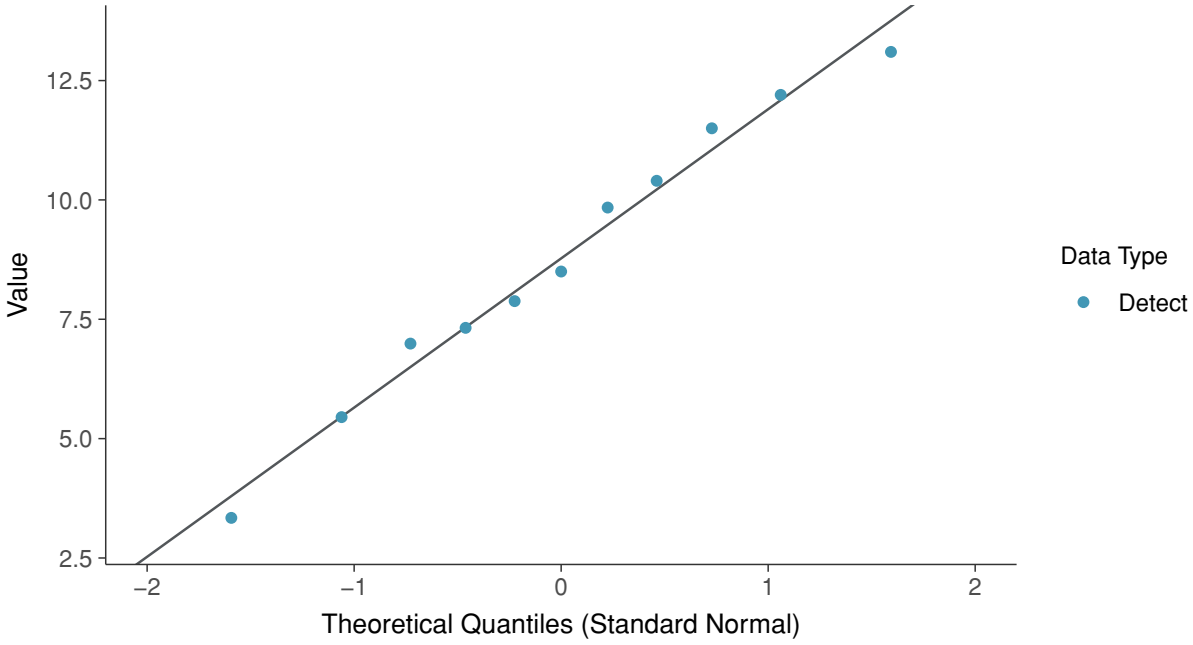
Boxplot by Season

Radium-226+228, W-6B (pci/l)



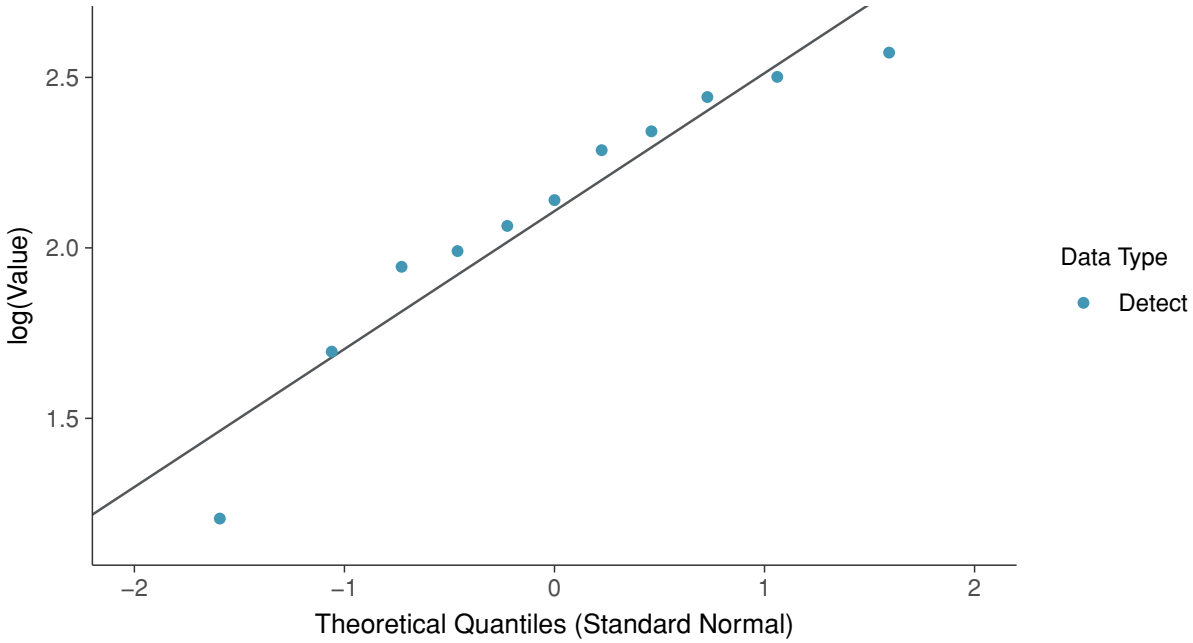
Normal Q-Q plot

Radium-226+228, W-6B (pci/l)



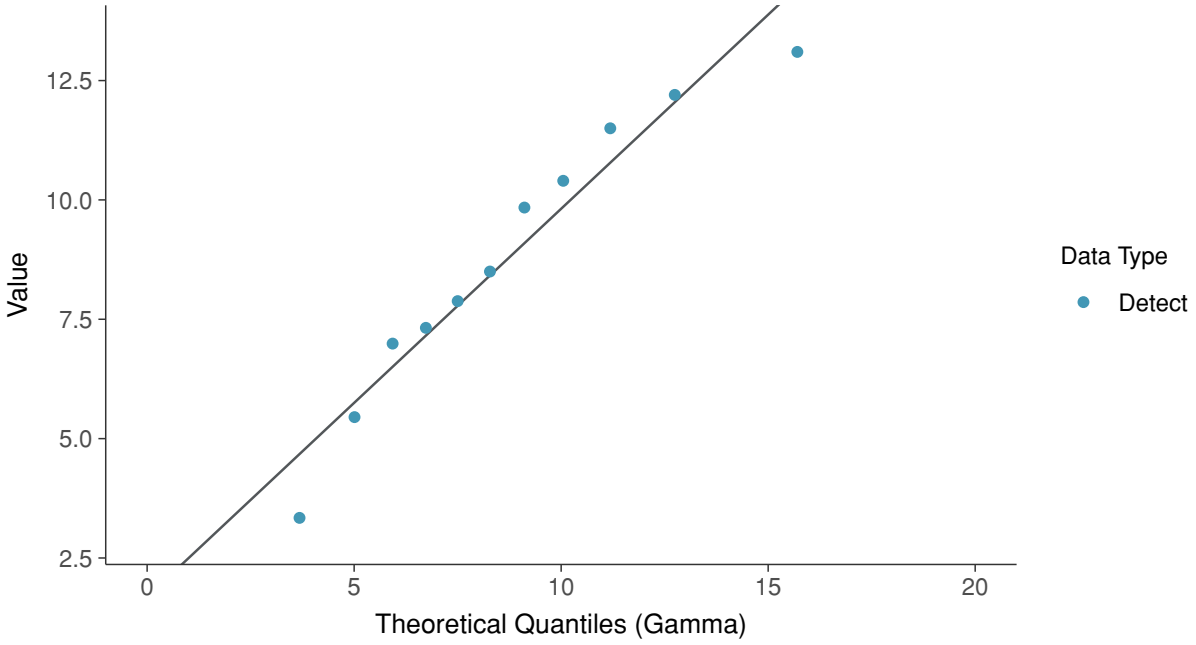
Lognormal Q-Q plot

Radium-226+228, W-6B (pci/l)



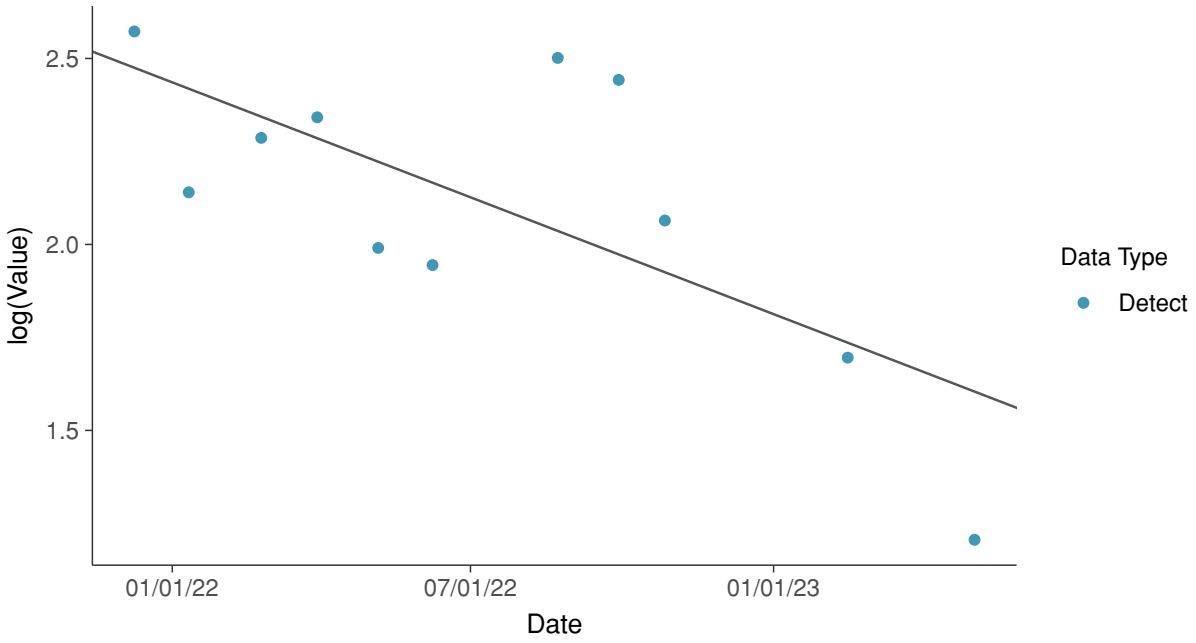
Gamma Q-Q plot

Radium-226+228, W-6B (pci/l)



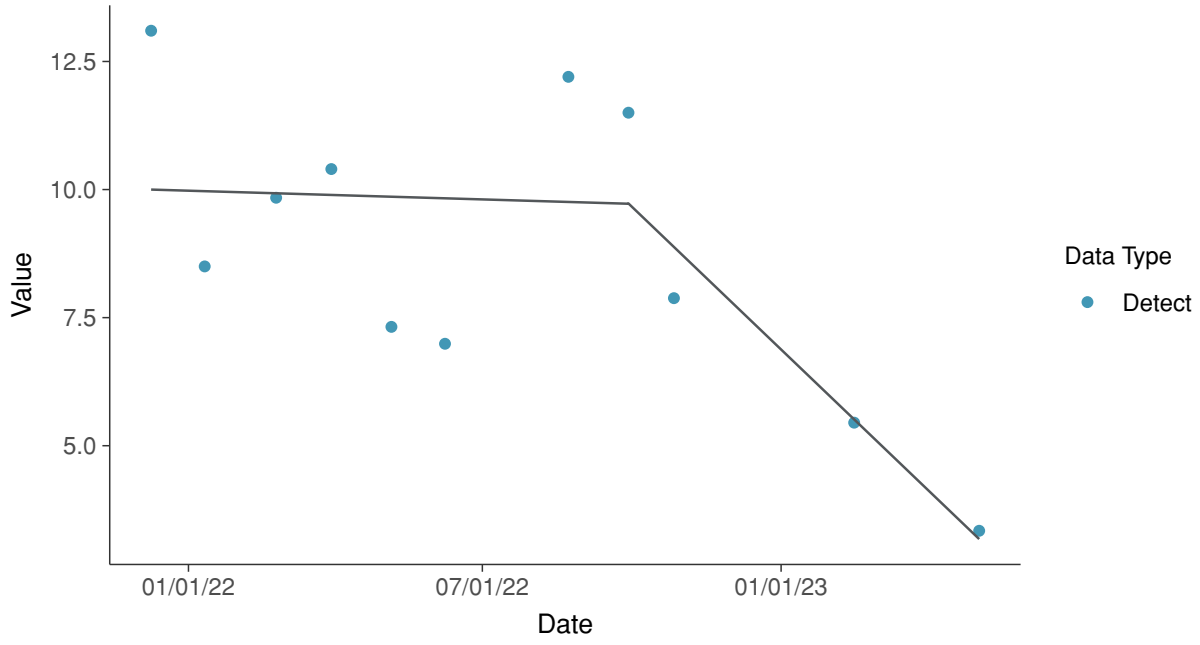
Trend Regression: Lognormal MLE

Radium-226+228, W-6B (pci/l)



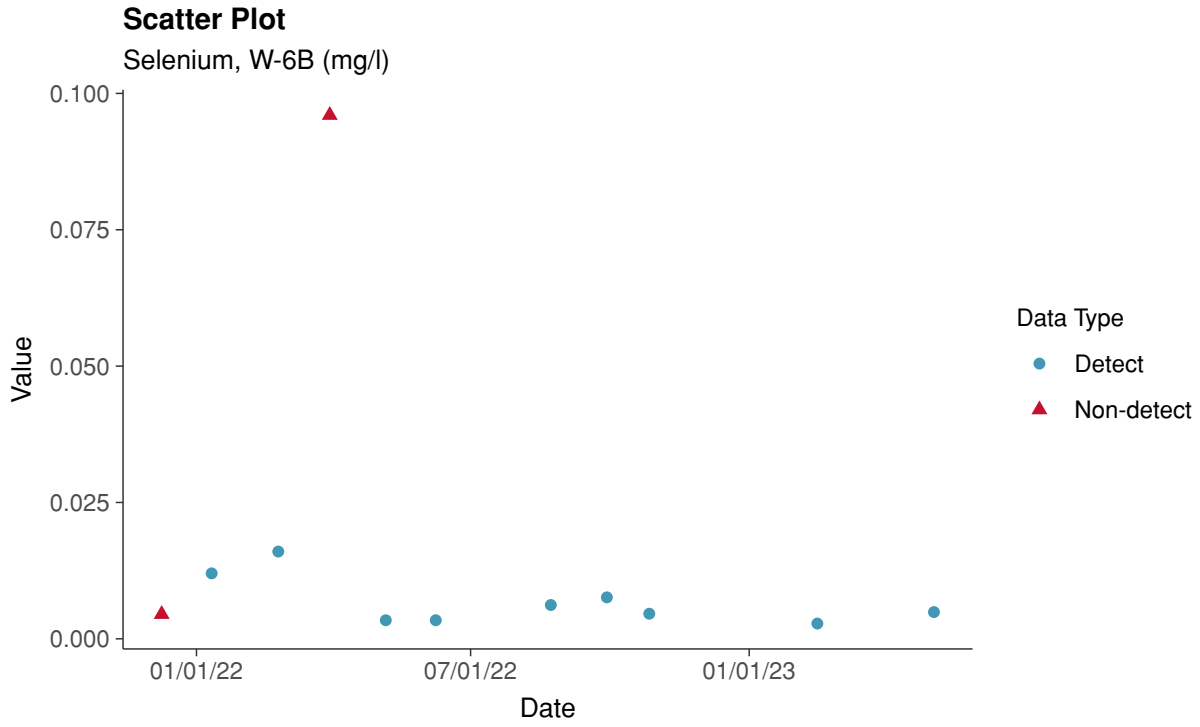
Trend Regression: Piecewise Linear-Linear

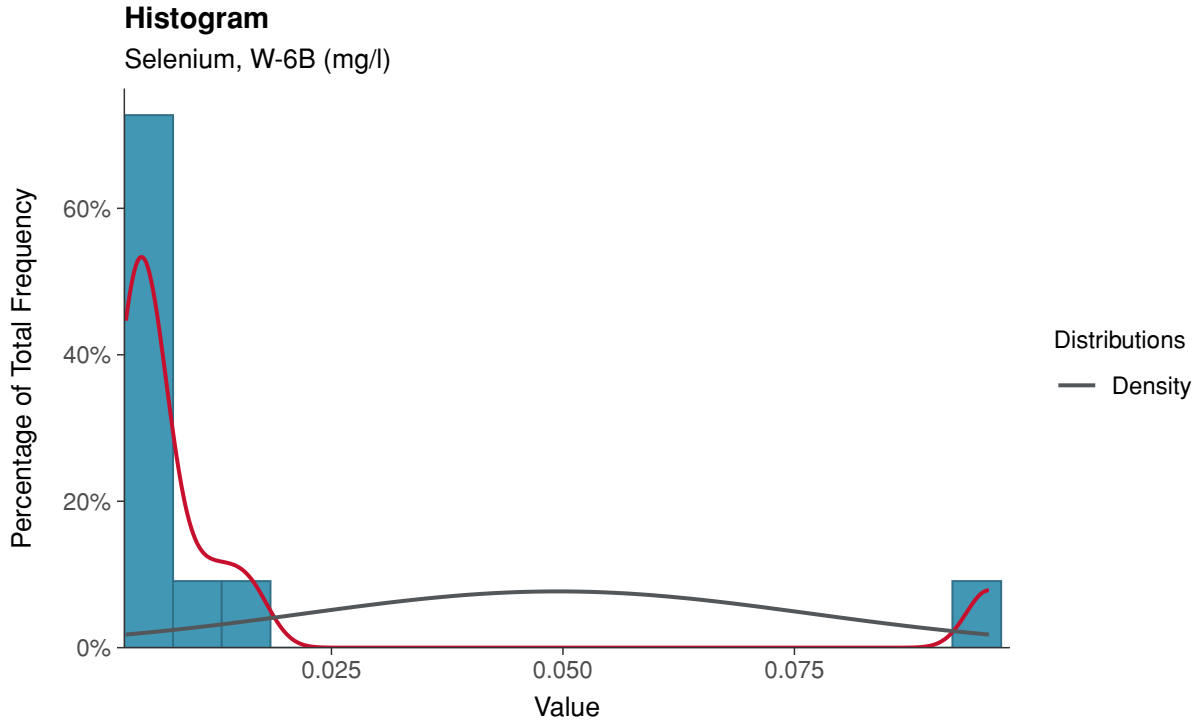
Radium-226+228, W-6B (pci/l)



Appendix IV: Selenium, W-6B

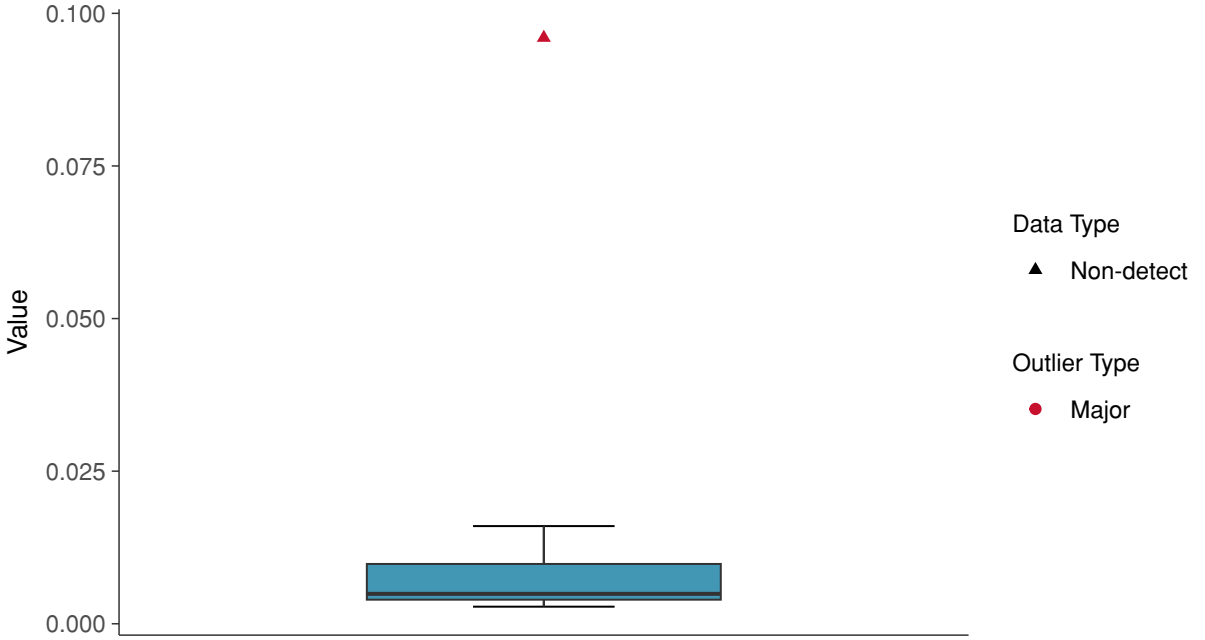
ID: 10_2_122





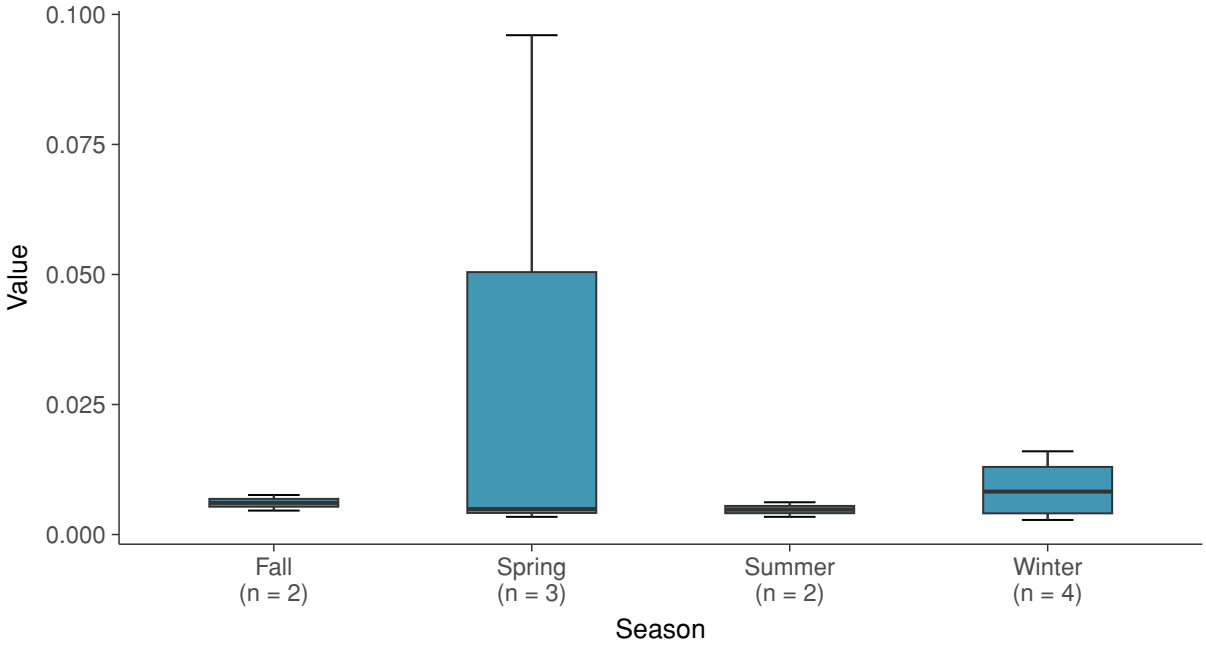
Boxplot

Selenium, W-6B (mg/l)



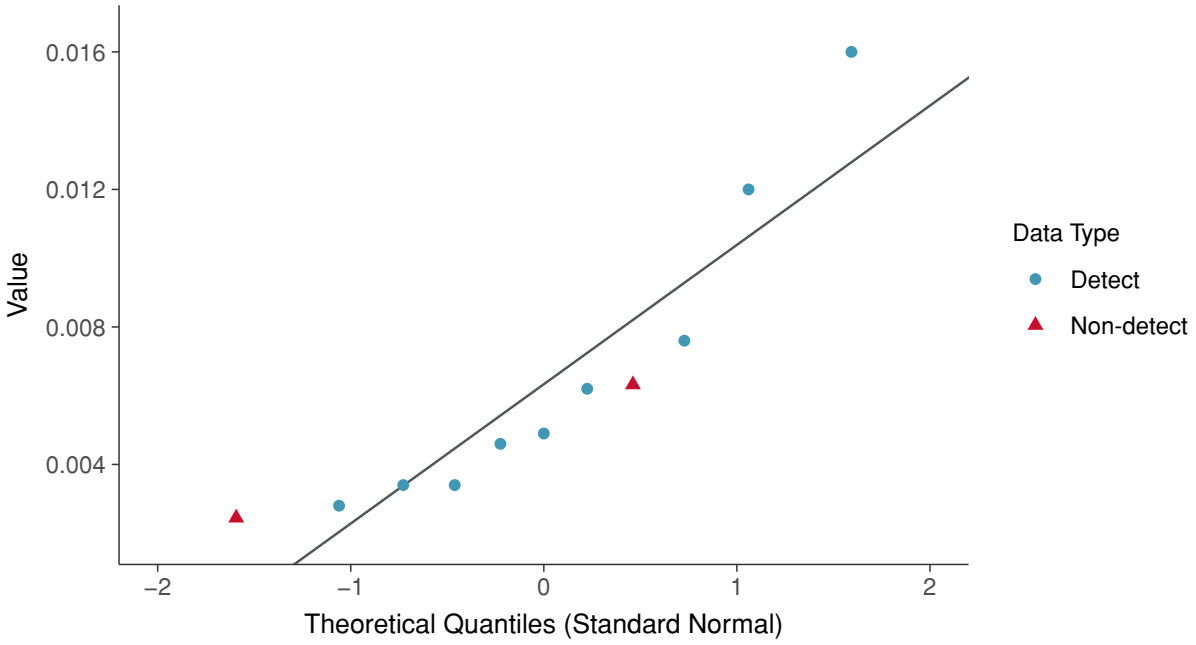
Boxplot by Season

Selenium, W-6B (mg/l)



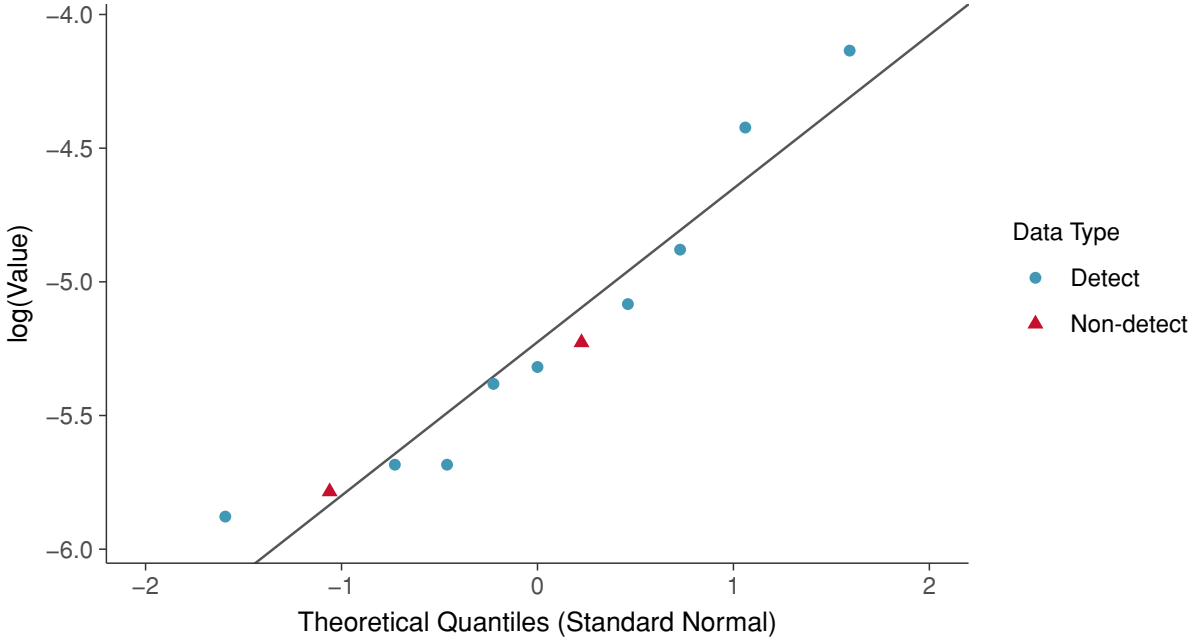
Normal Q-Q plot using ROS Imputed Estimates

Selenium, W-6B (mg/l)



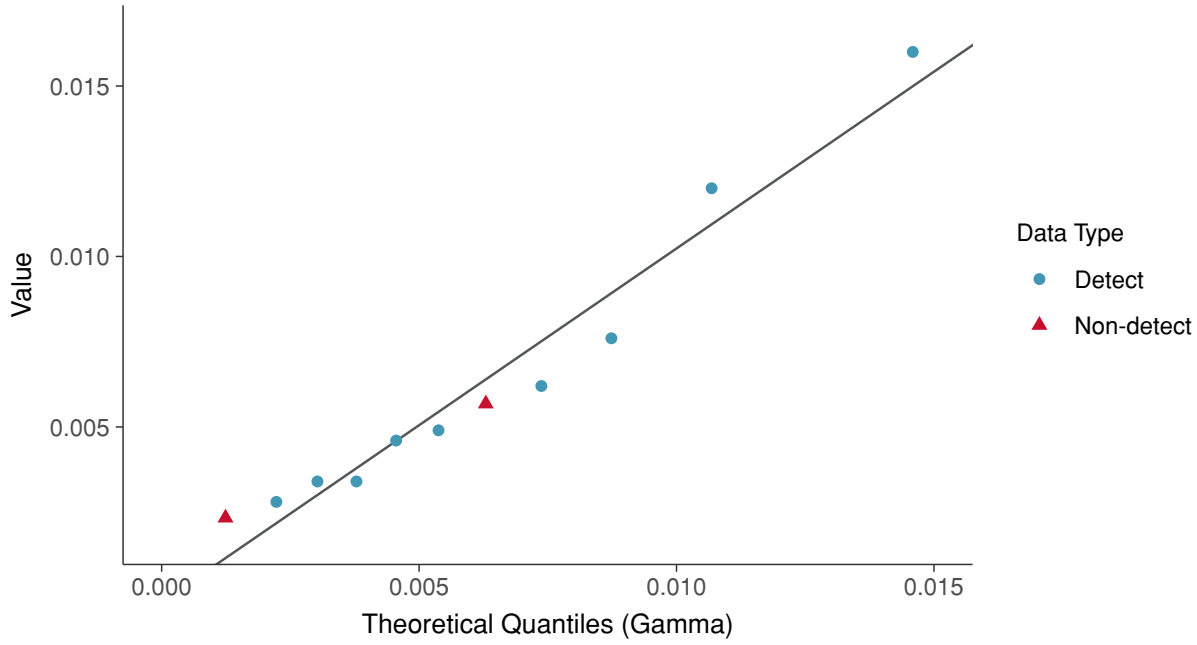
Lognormal Q-Q plot using ROS Imputed Estimates

Selenium, W-6B (mg/l)



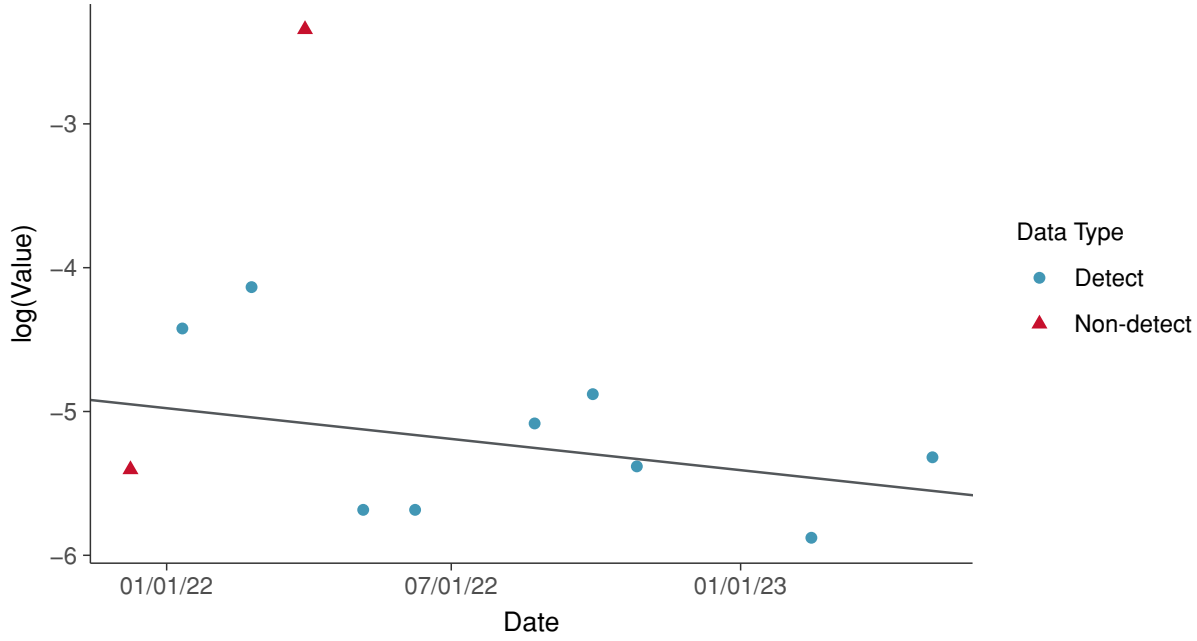
Gamma Q-Q plot using ROS Imputed Estimates

Selenium, W-6B (mg/l)



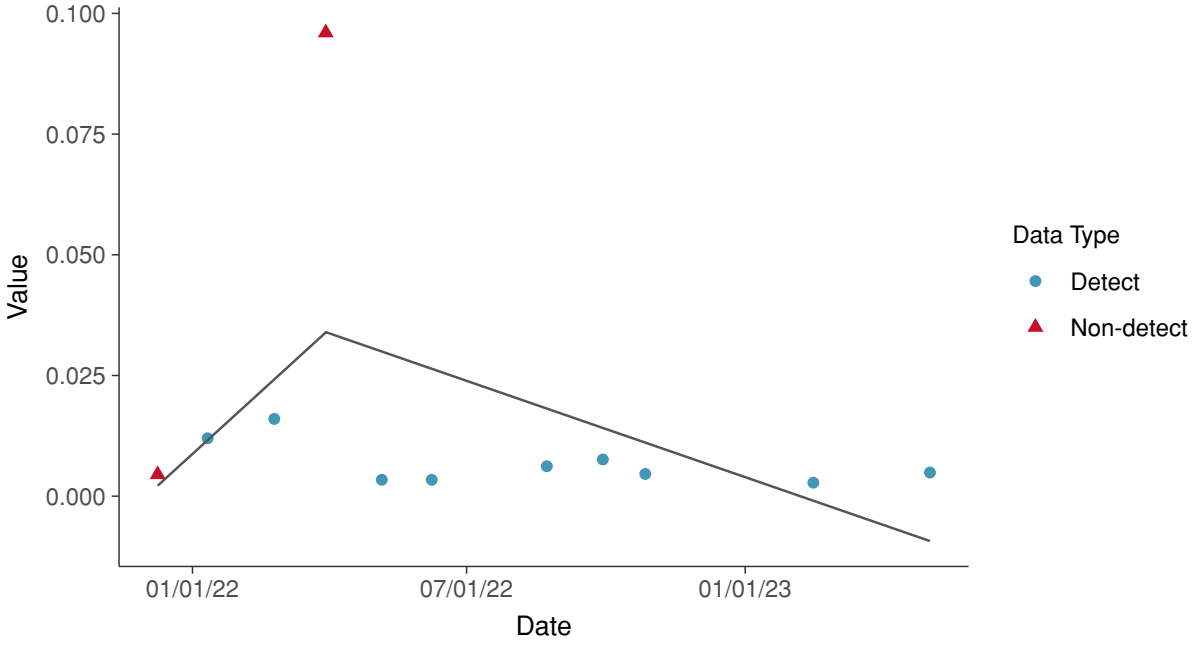
Trend Regression: Lognormal MLE

Selenium, W-6B (mg/l)



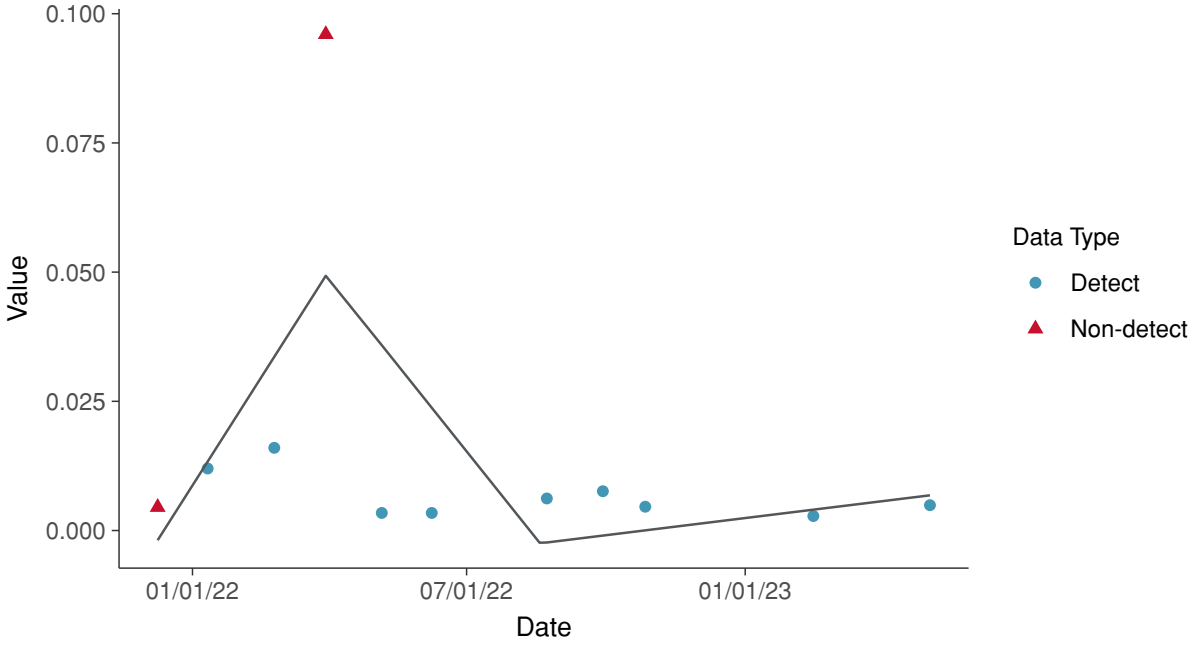
Trend Regression: Piecewise Linear-Linear

Selenium, W-6B (mg/l)



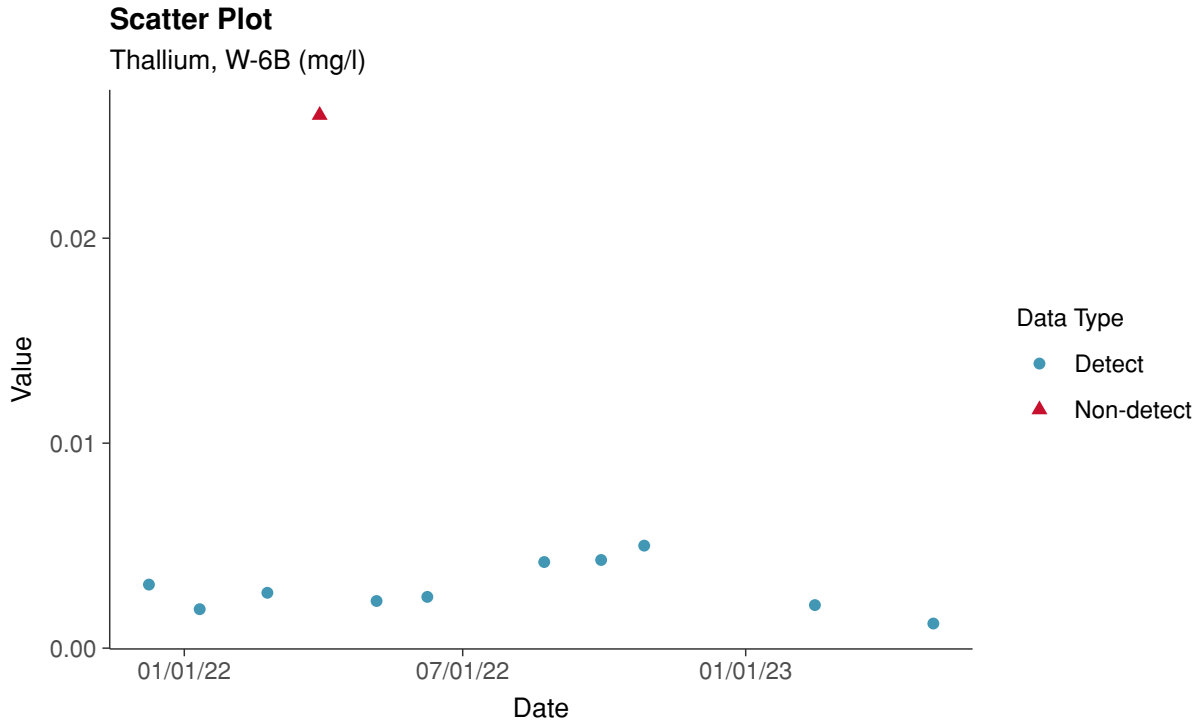
Trend Regression: Piecewise Linear-Linear-Linear

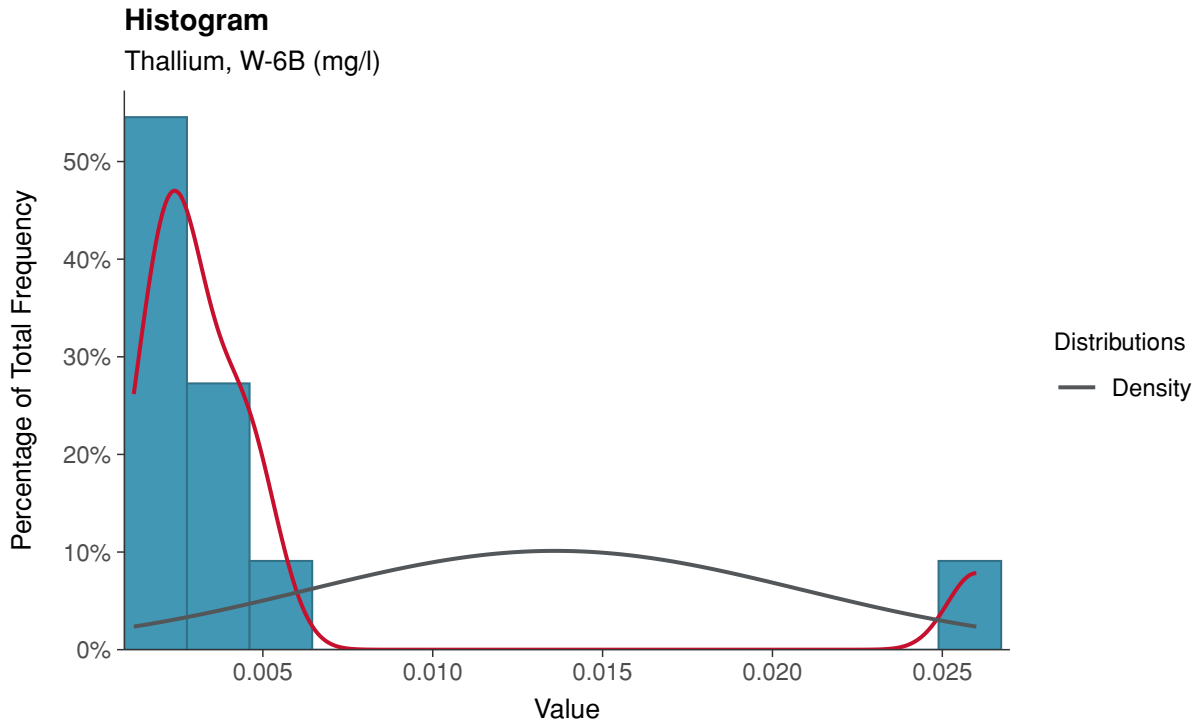
Selenium, W-6B (mg/l)



Appendix IV: Thallium, W-6B

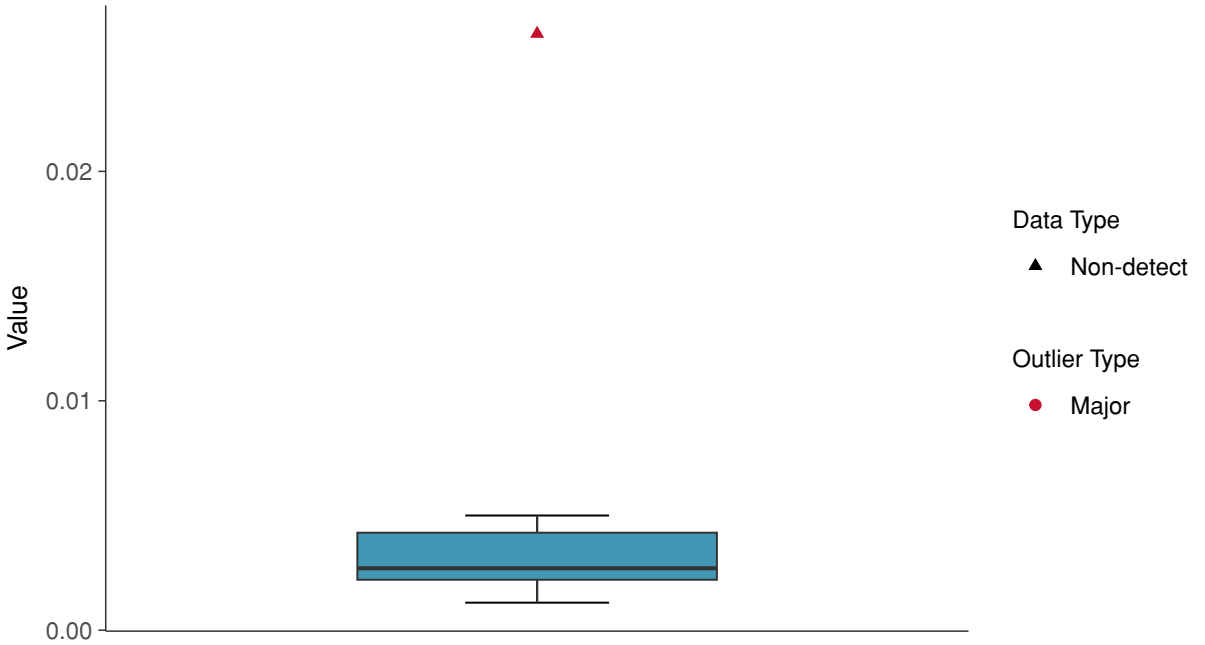
ID: 10_2_126





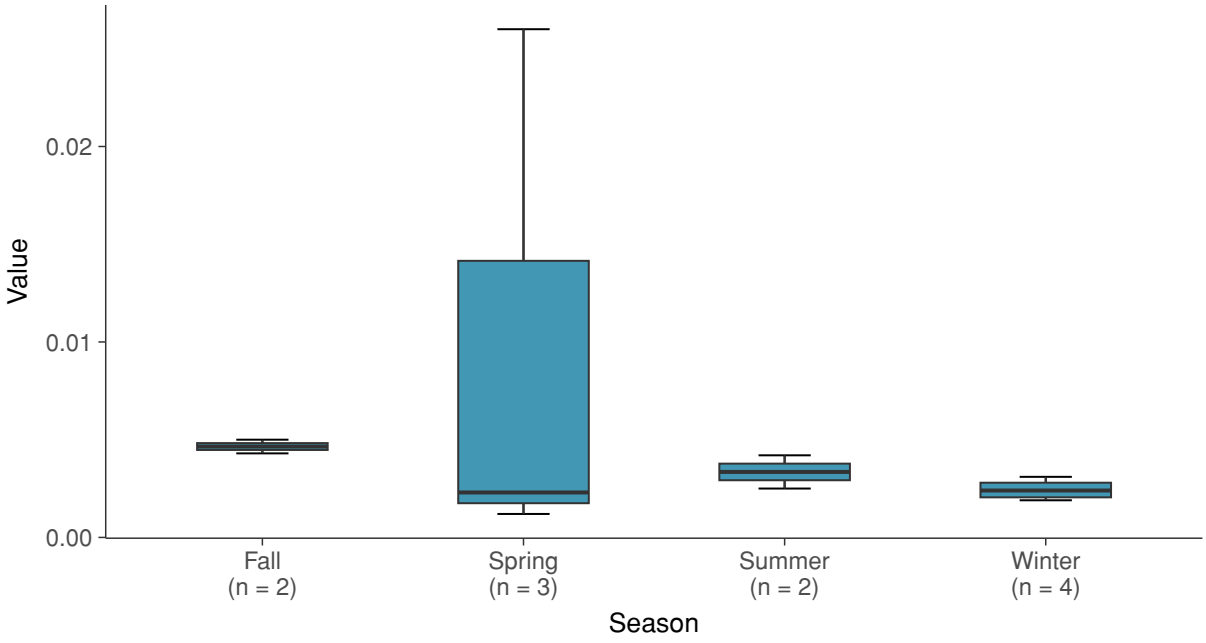
Boxplot

Thallium, W-6B (mg/l)



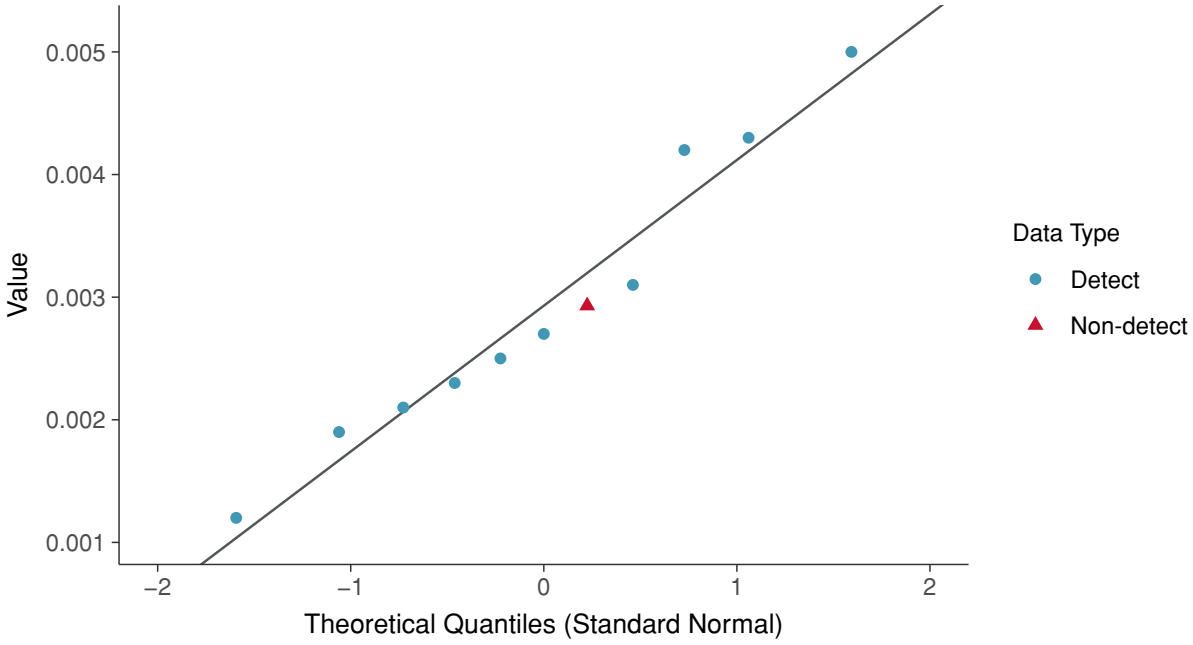
Boxplot by Season

Thallium, W-6B (mg/l)



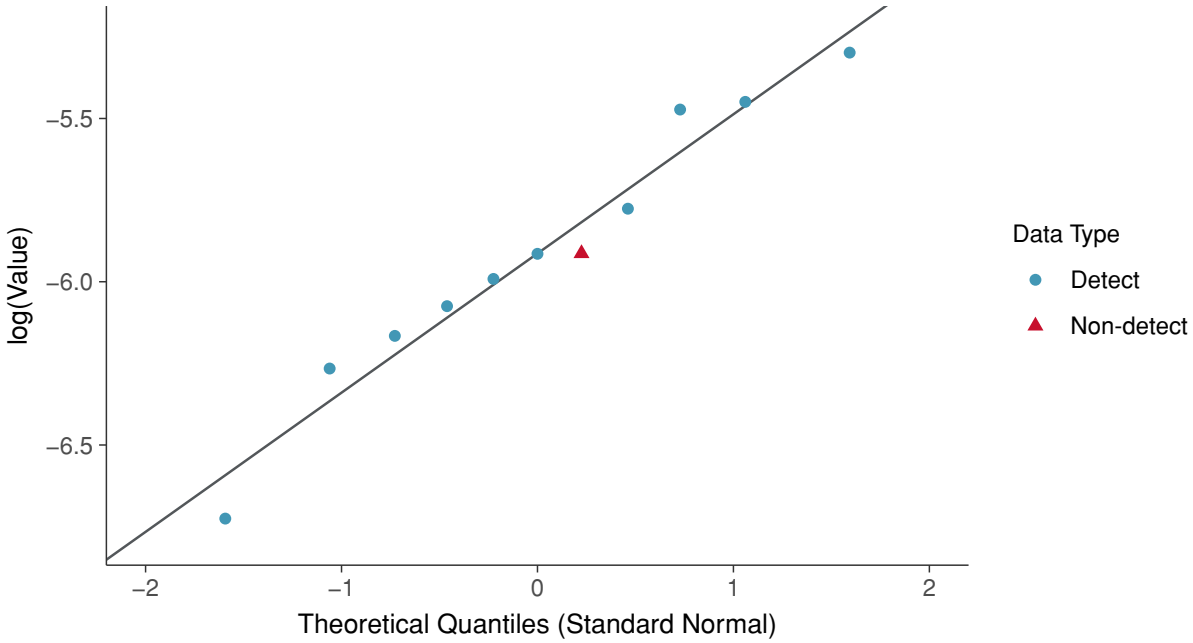
Normal Q-Q plot using ROS Imputed Estimates

Thallium, W-6B (mg/l)



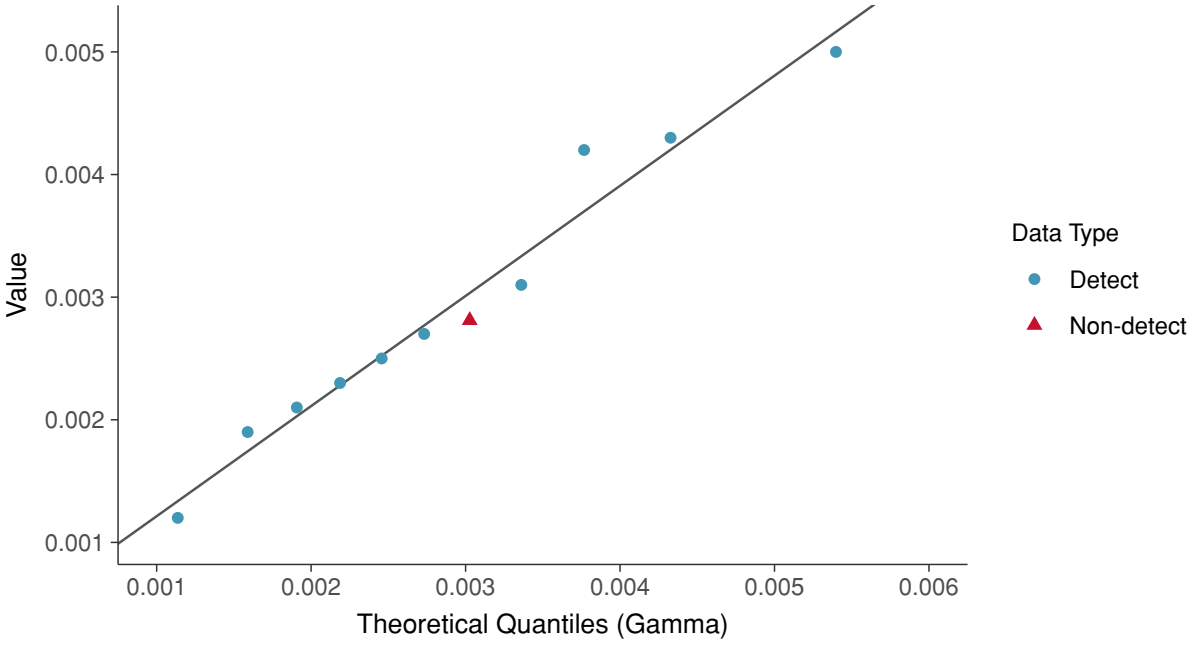
Lognormal Q-Q plot using ROS Imputed Estimates

Thallium, W-6B (mg/l)



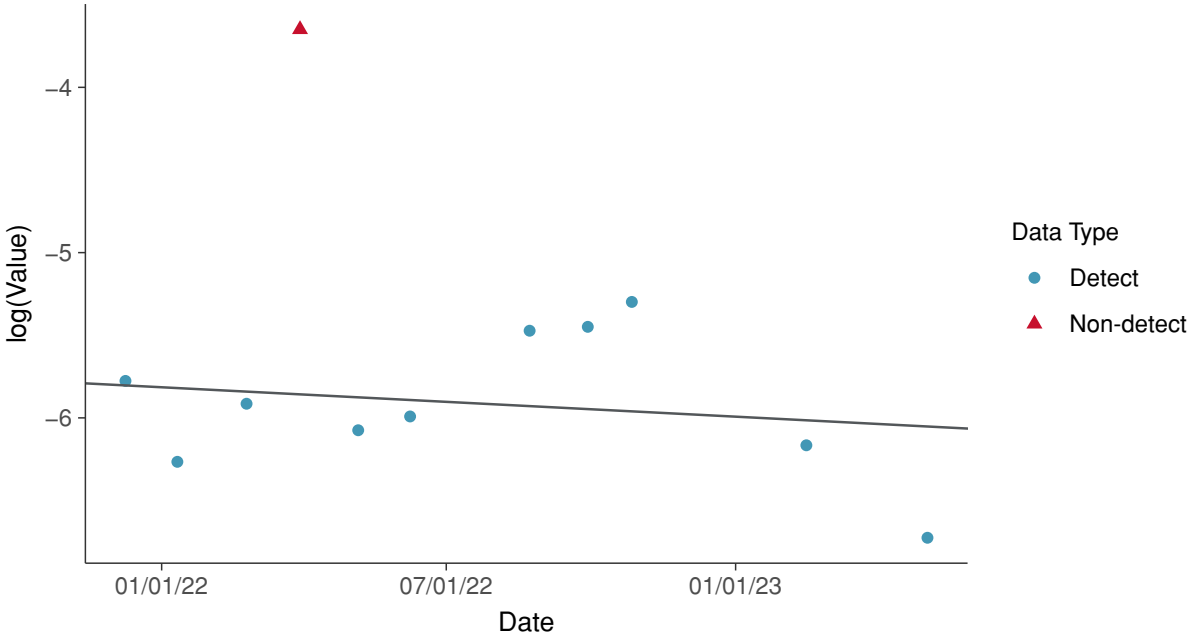
Gamma Q-Q plot using ROS Imputed Estimates

Thallium, W-6B (mg/l)



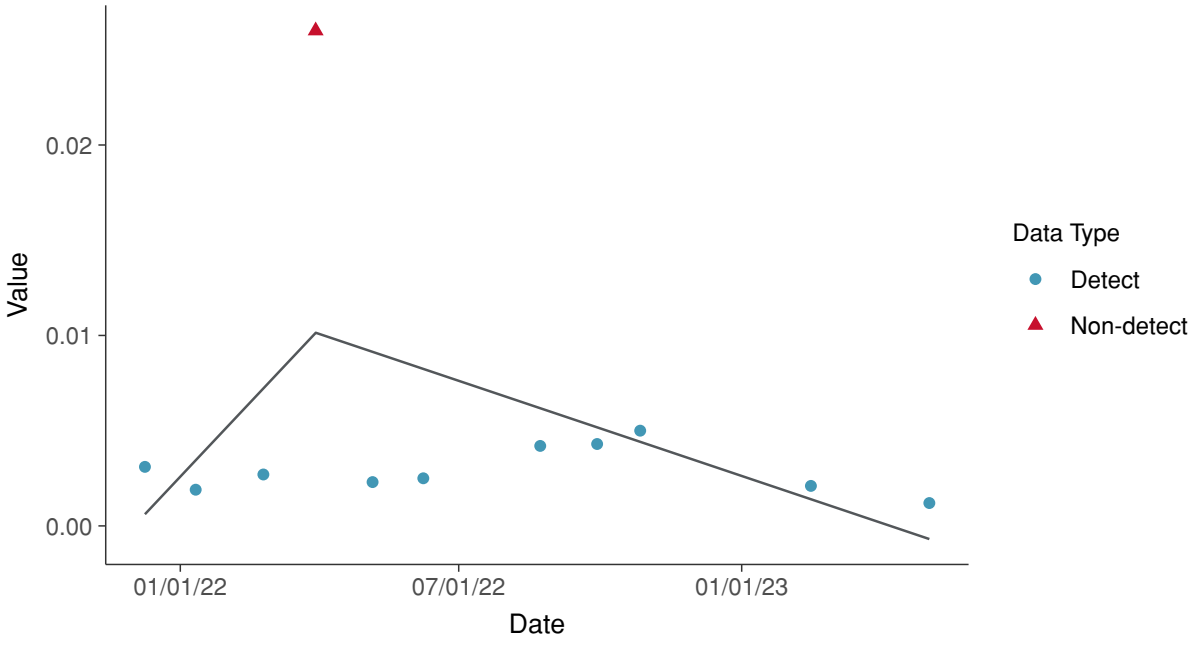
Trend Regression: Lognormal MLE

Thallium, W-6B (mg/l)



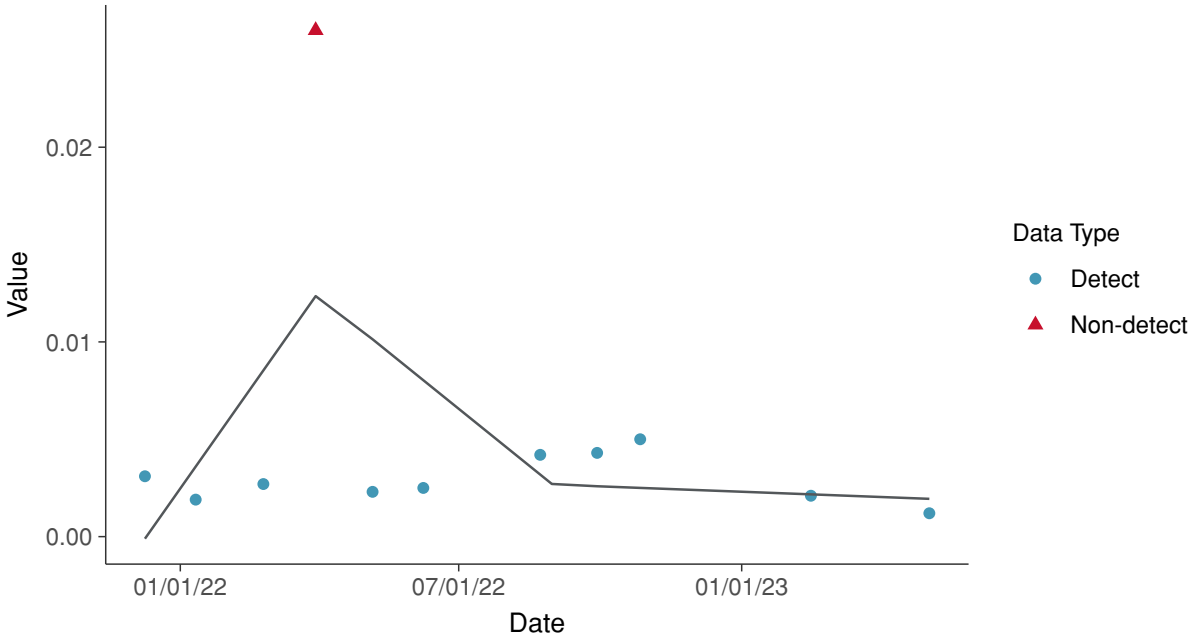
Trend Regression: Piecewise Linear-Linear

Thallium, W-6B (mg/l)



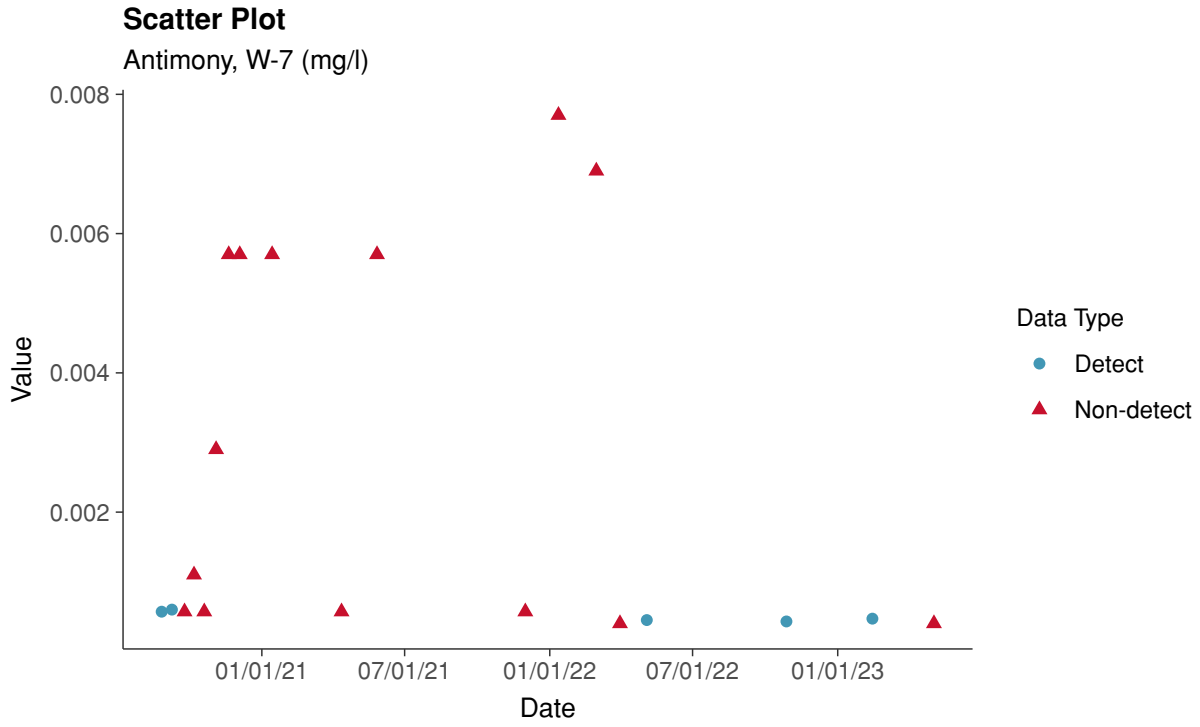
Trend Regression: Piecewise Linear-Linear-Linear

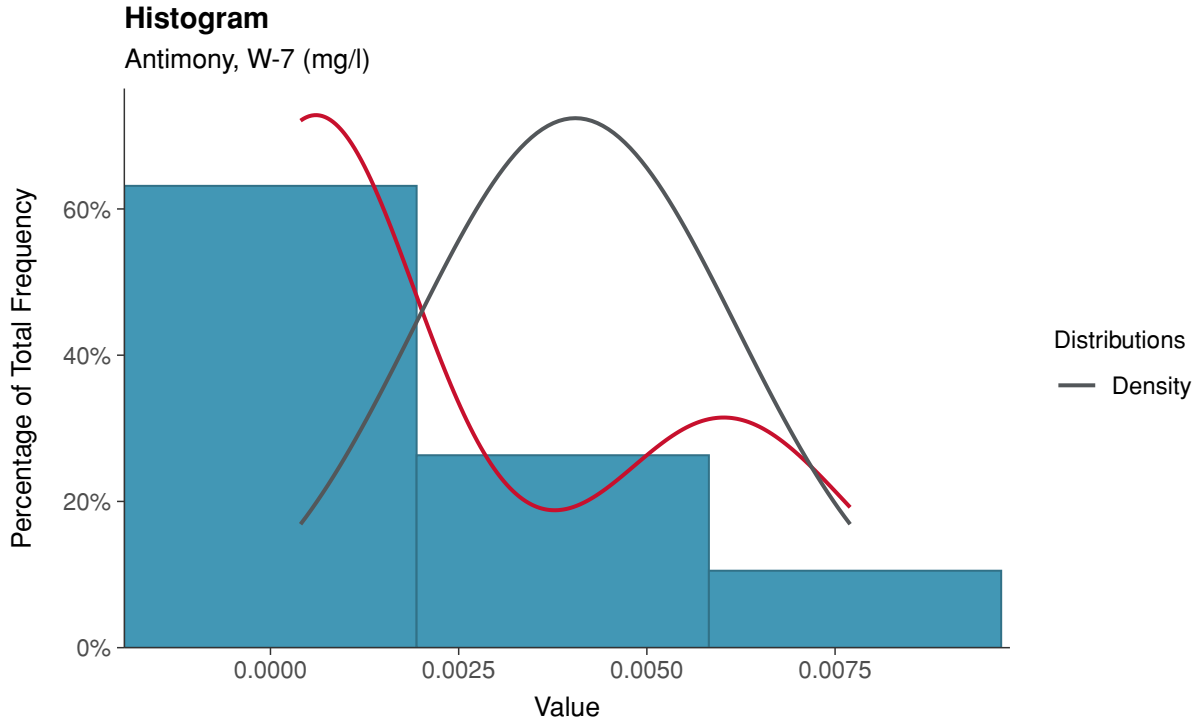
Thallium, W-6B (mg/l)



Appendix IV: Antimony, W-7

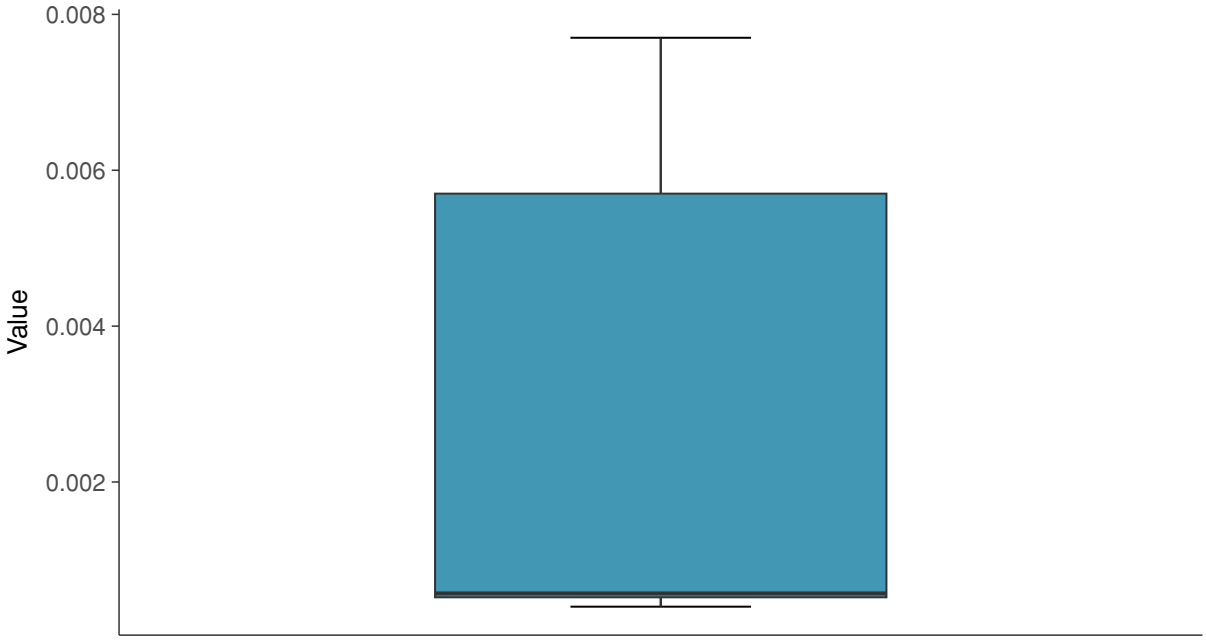
ID: 11_2_101





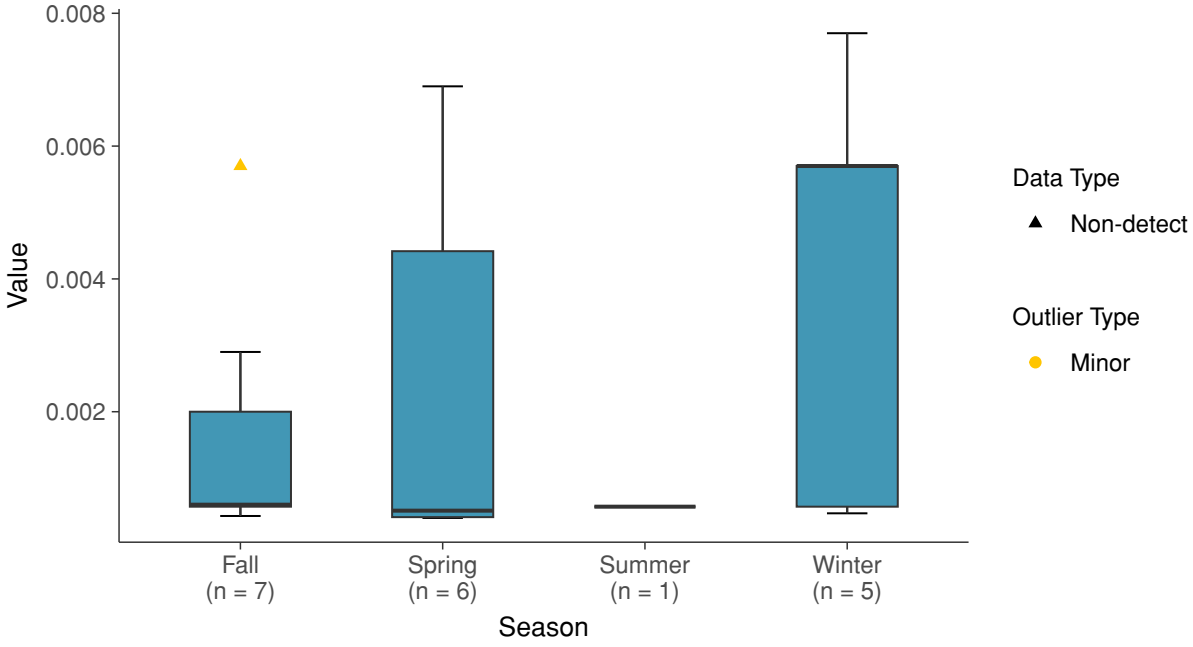
Boxplot

Antimony, W-7 (mg/l)



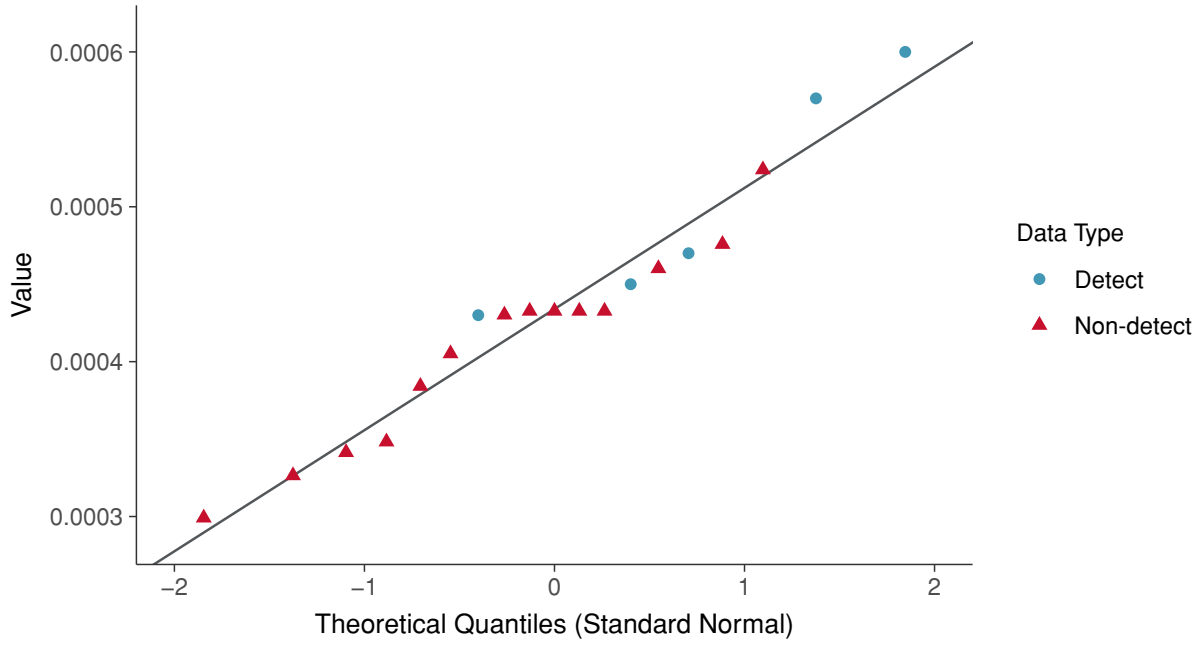
Boxplot by Season

Antimony, W-7 (mg/l)



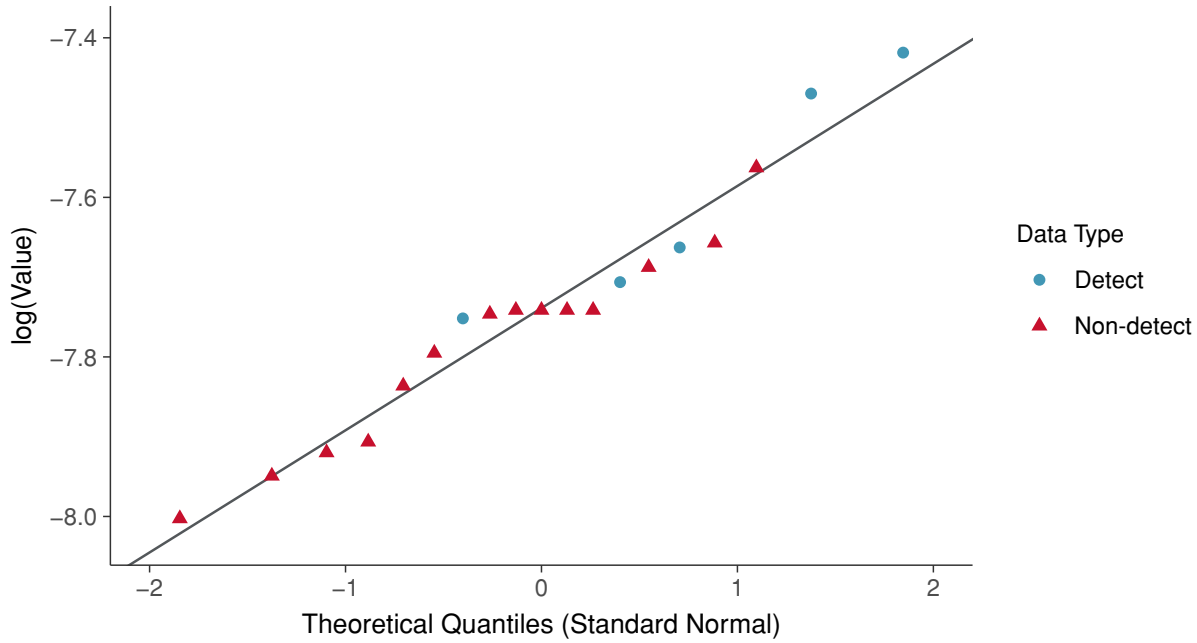
Normal Q-Q plot using ROS Imputed Estimates

Antimony, W-7 (mg/l)



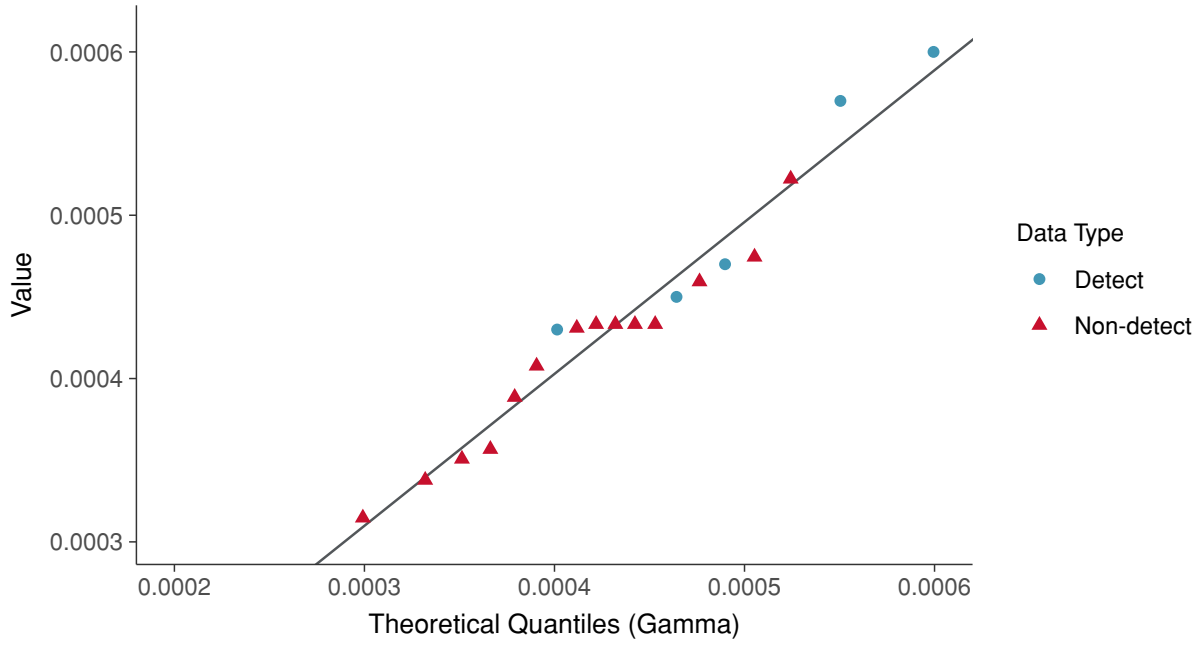
Lognormal Q-Q plot using ROS Imputed Estimates

Antimony, W-7 (mg/l)



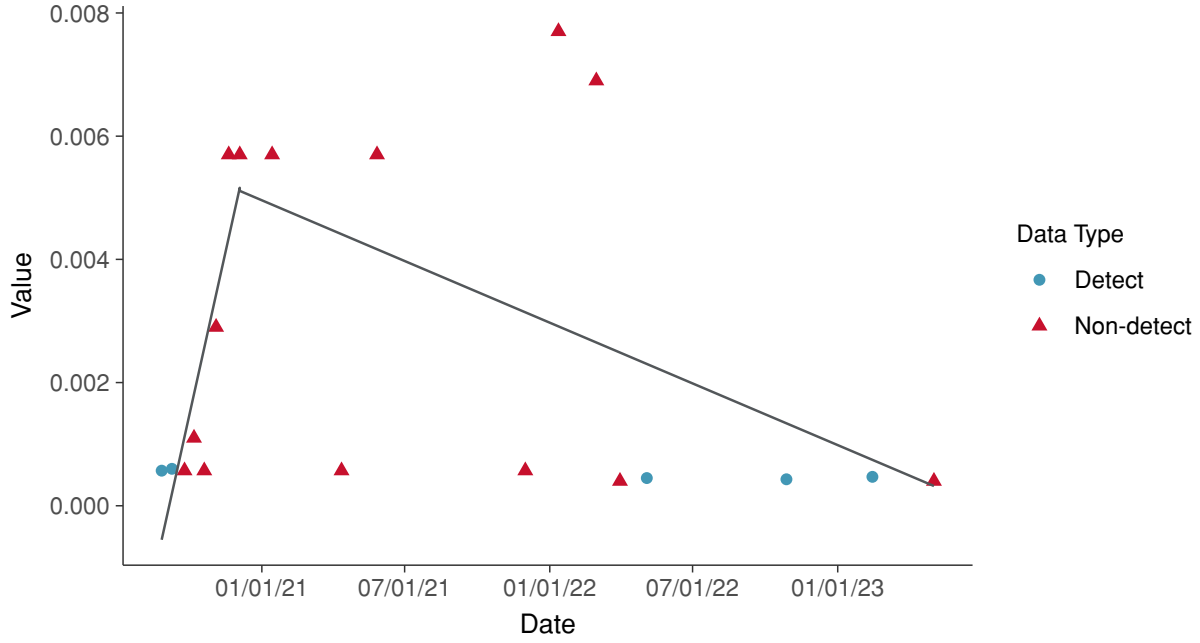
Gamma Q-Q plot using ROS Imputed Estimates

Antimony, W-7 (mg/l)



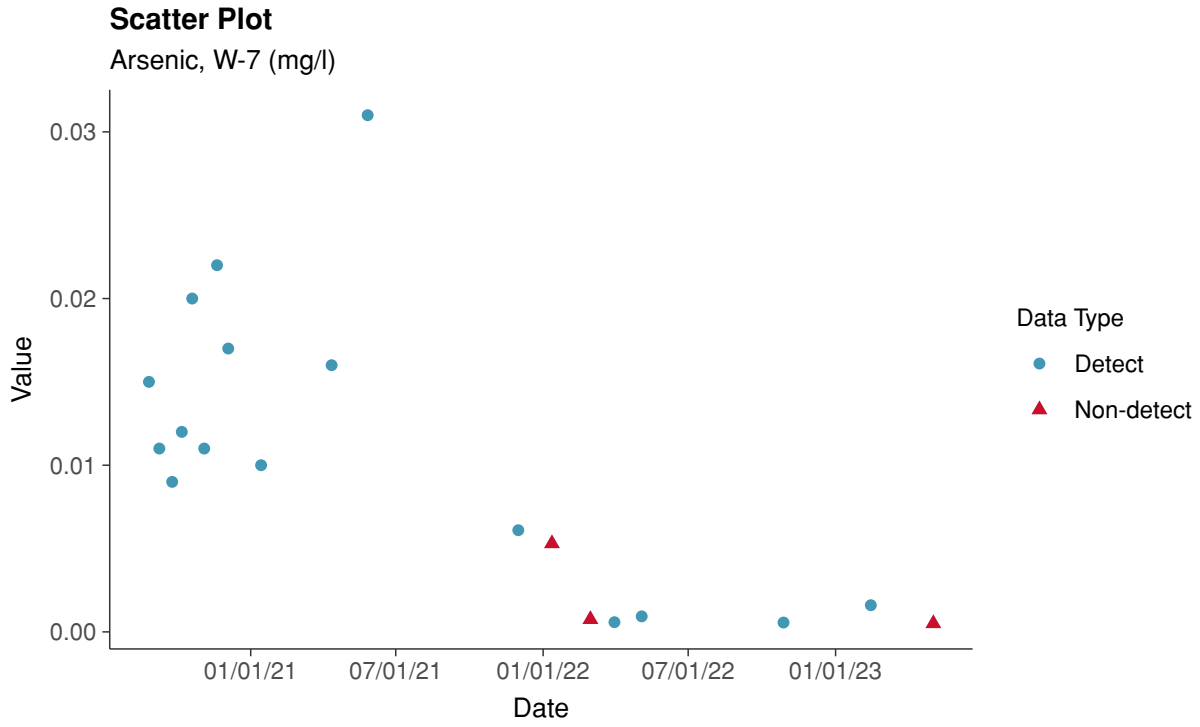
Trend Regression: Piecewise Linear-Linear

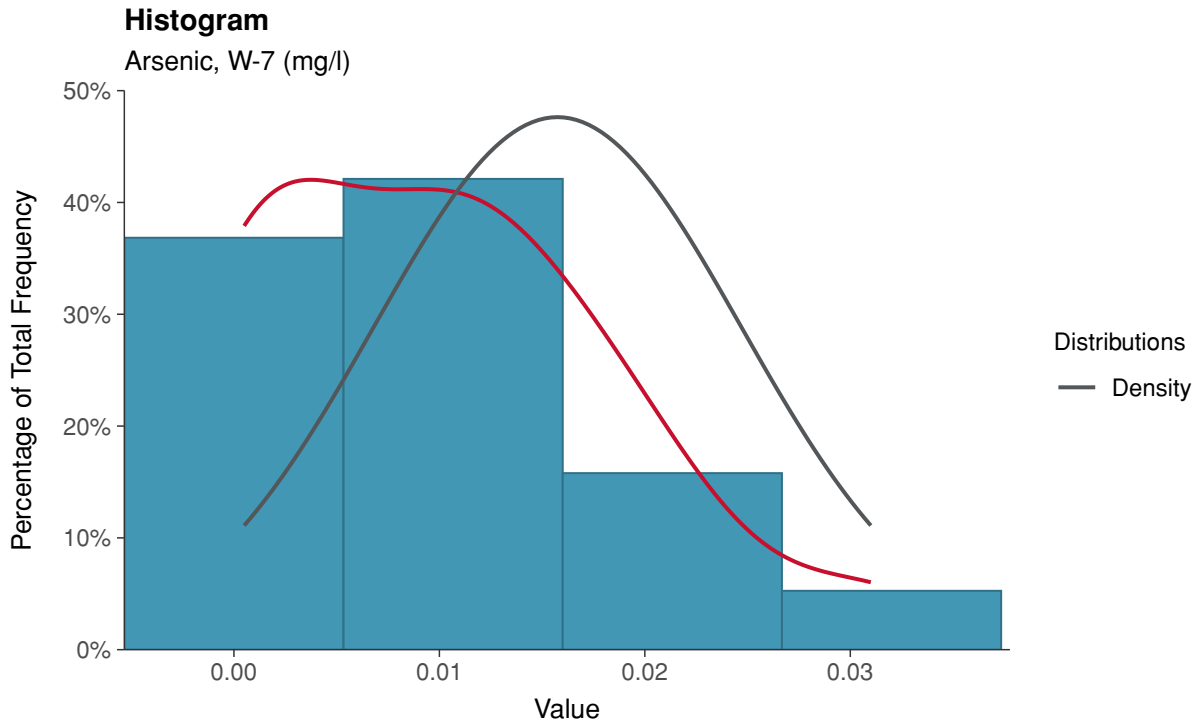
Antimony, W-7 (mg/l)



Appendix IV: Arsenic, W-7

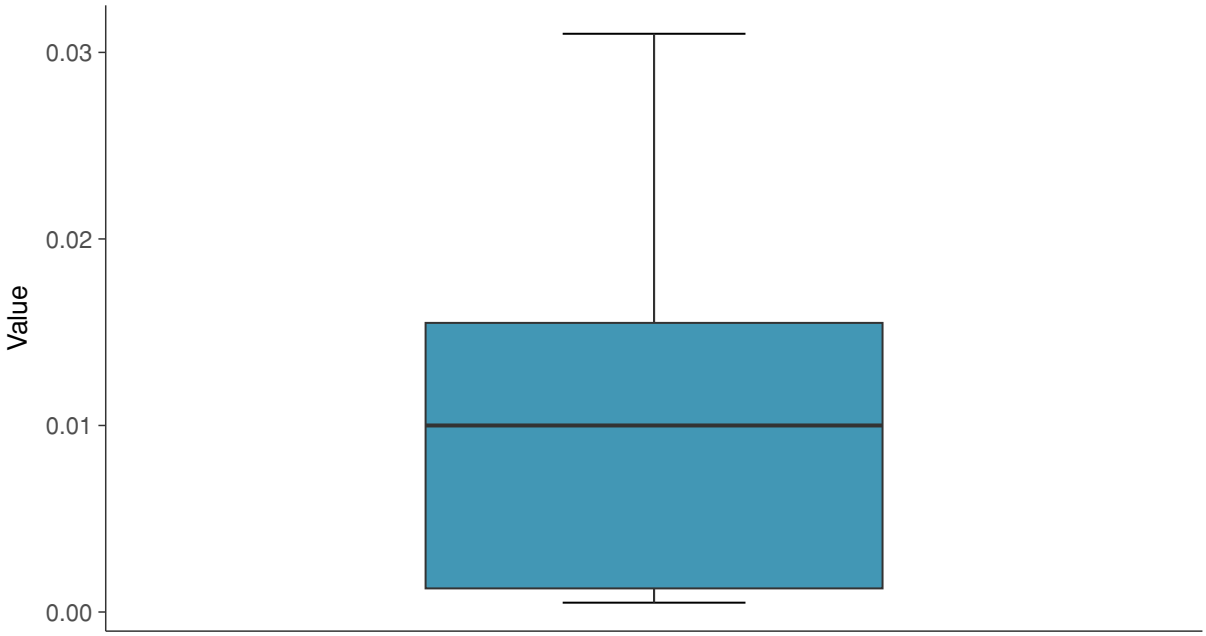
ID: 11_2_102





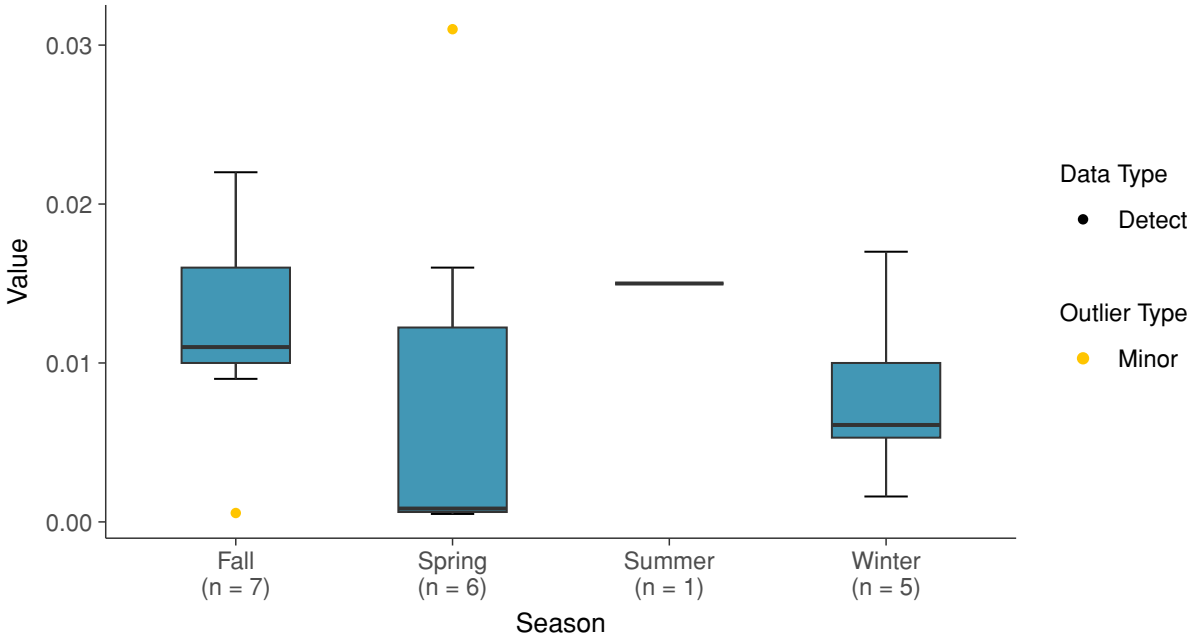
Boxplot

Arsenic, W-7 (mg/l)



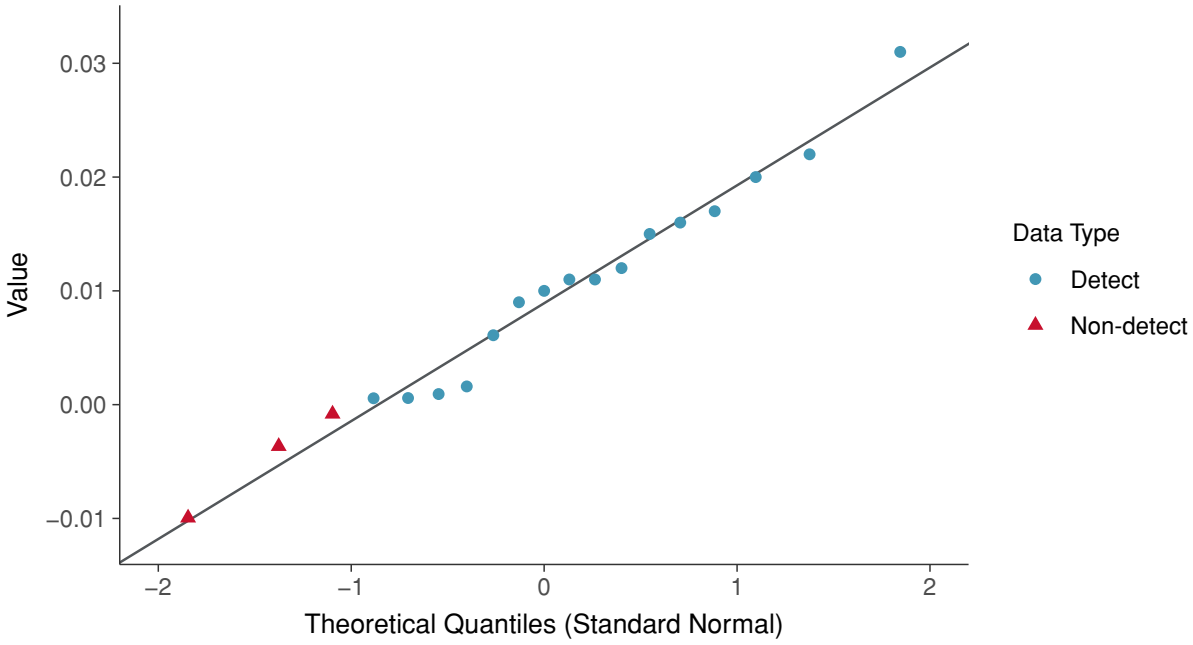
Boxplot by Season

Arsenic, W-7 (mg/l)



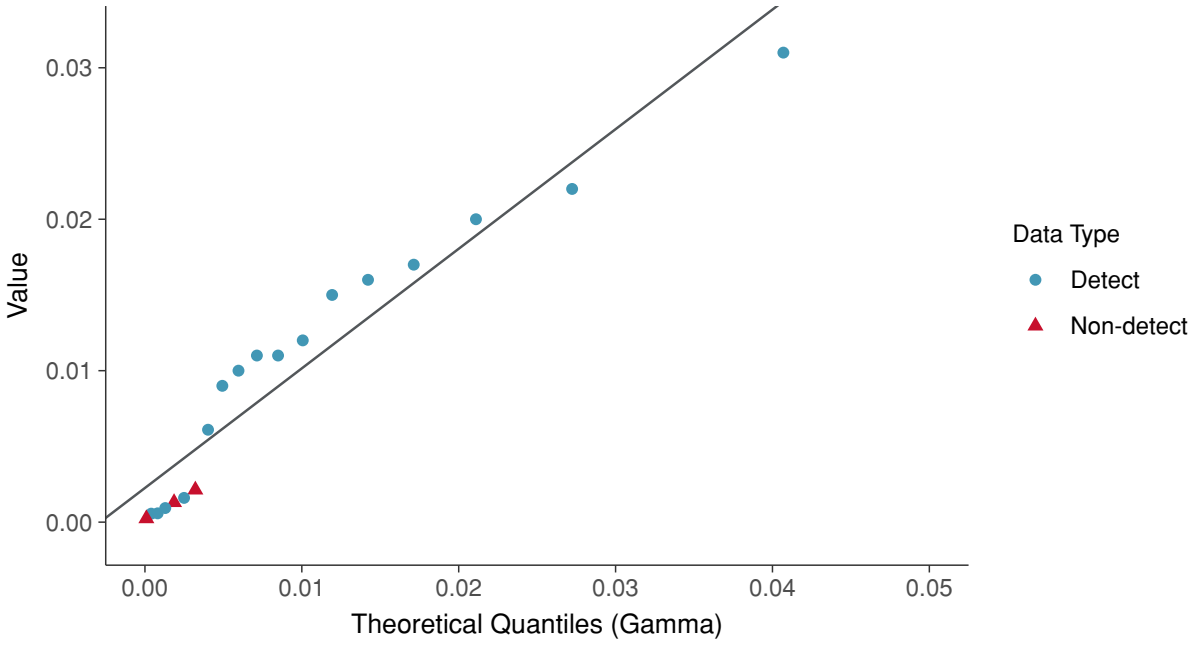
Normal Q-Q plot using ROS Imputed Estimates

Arsenic, W-7 (mg/l)



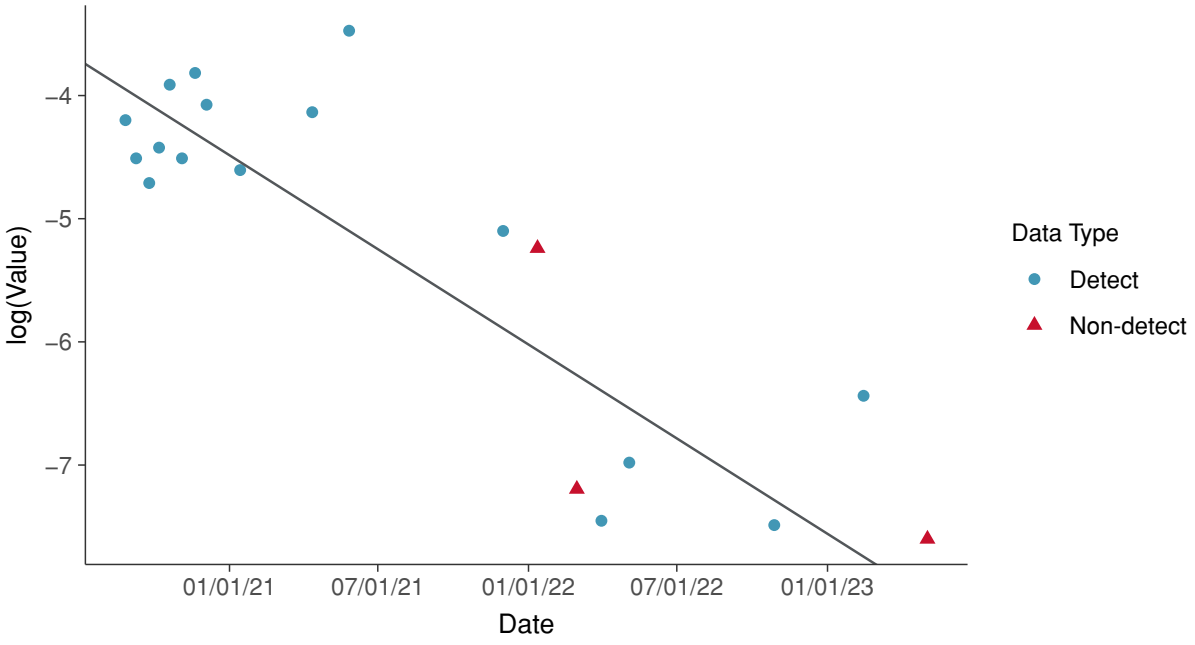
Gamma Q-Q plot using ROS Imputed Estimates

Arsenic, W-7 (mg/l)



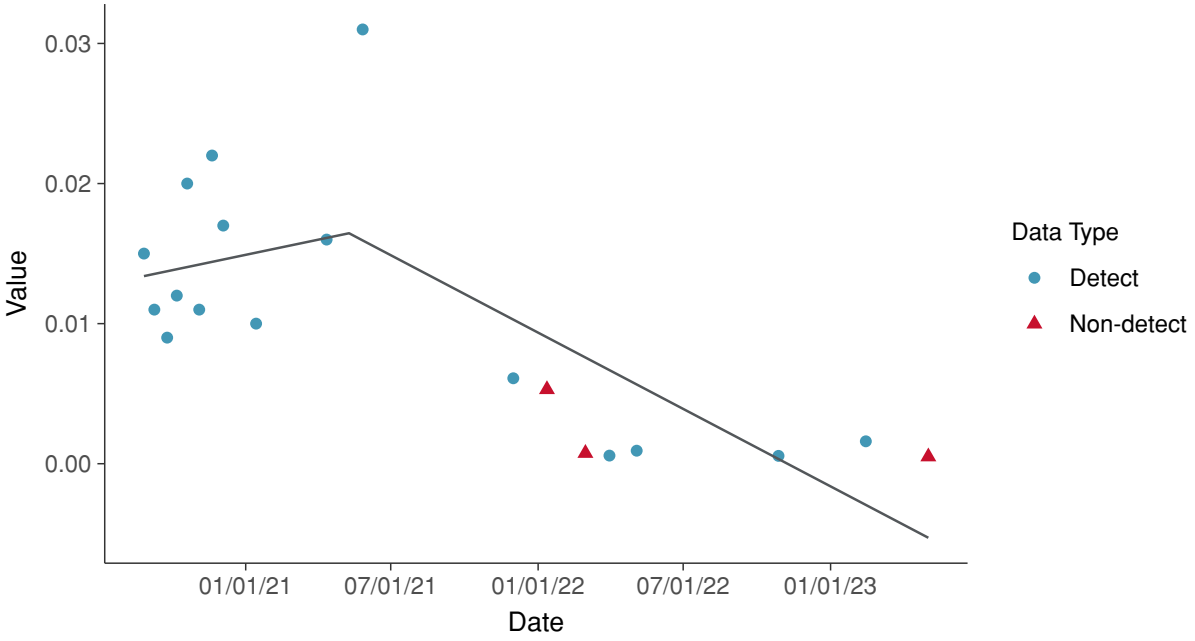
Trend Regression: Lognormal MLE

Arsenic, W-7 (mg/l)



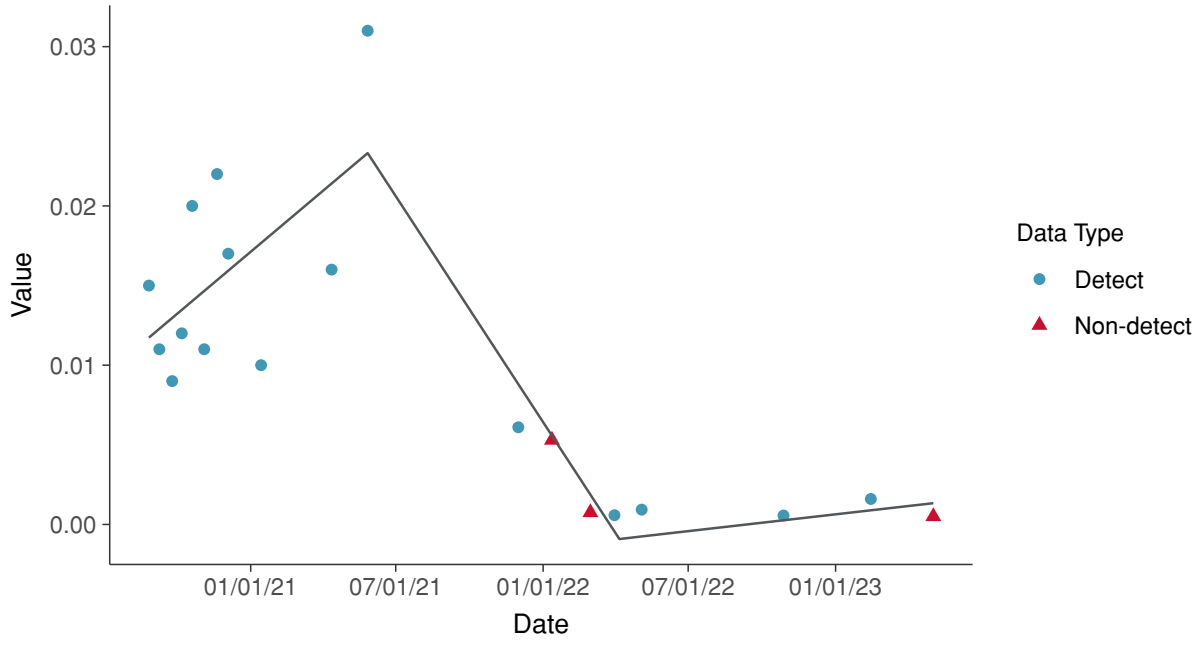
Trend Regression: Piecewise Linear-Linear

Arsenic, W-7 (mg/l)



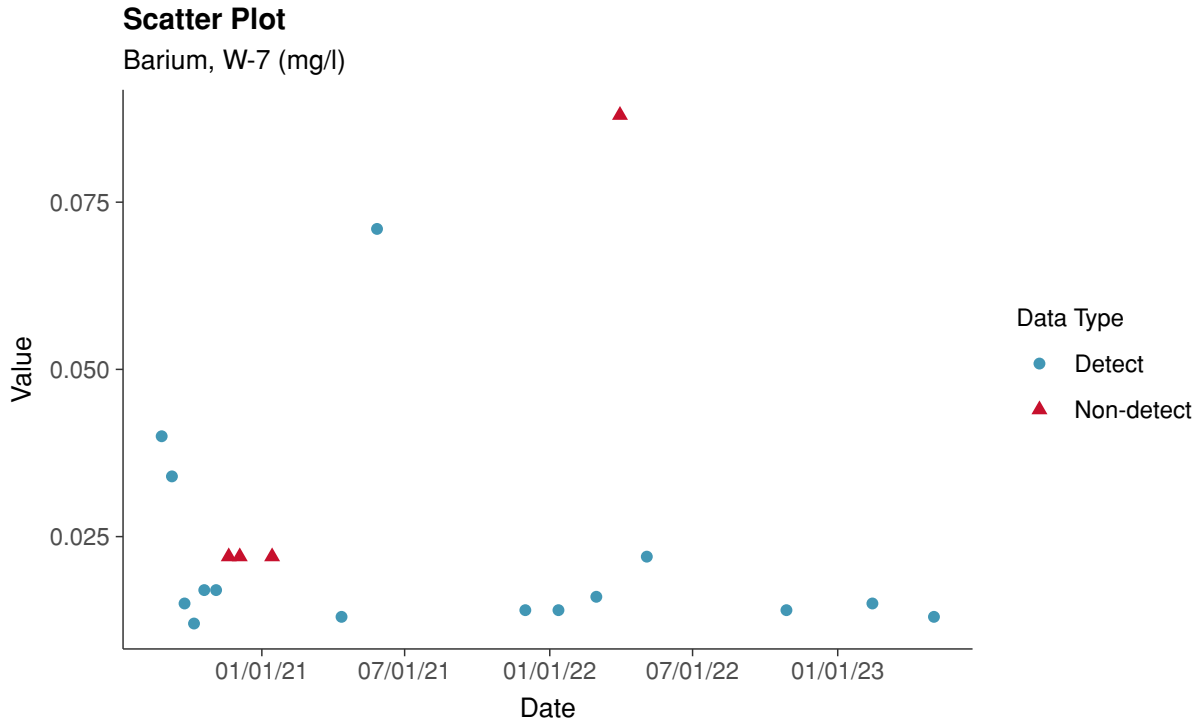
Trend Regression: Piecewise Linear-Linear-Linear

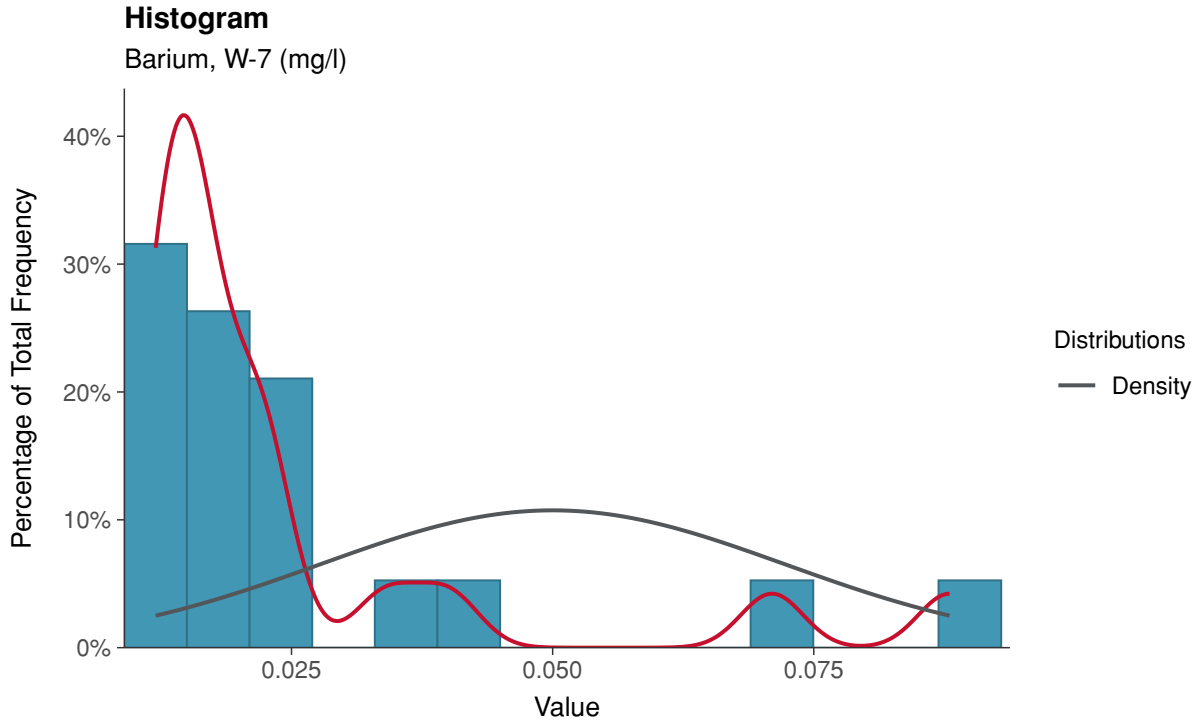
Arsenic, W-7 (mg/l)



Appendix IV: Barium, W-7

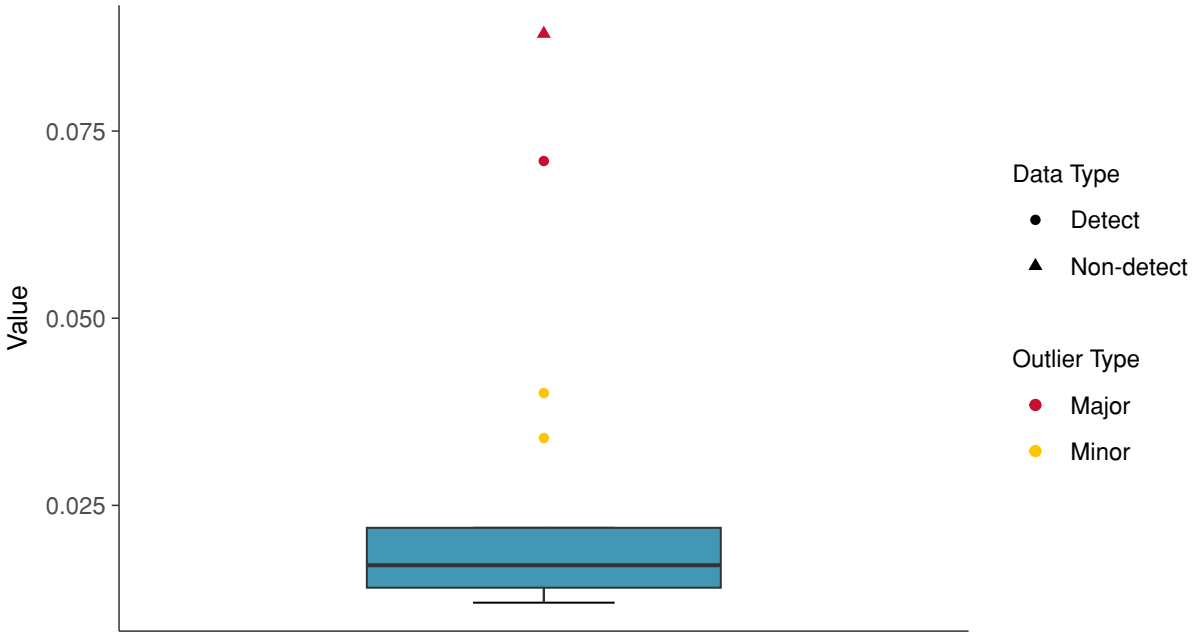
ID: 11_2_103





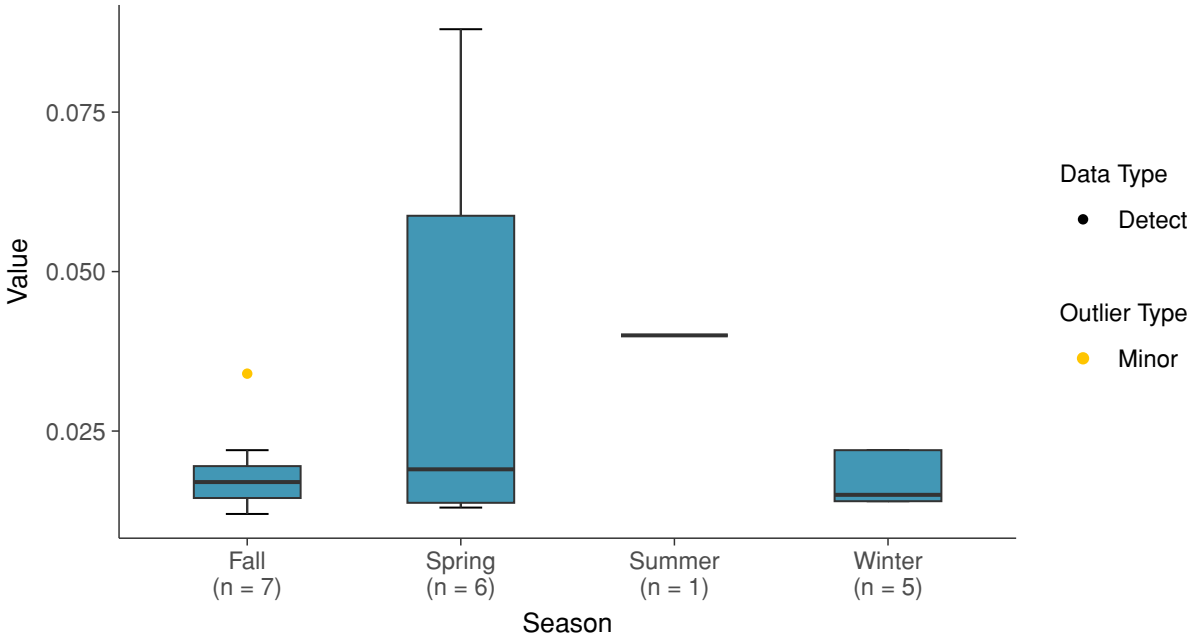
Boxplot

Barium, W-7 (mg/l)



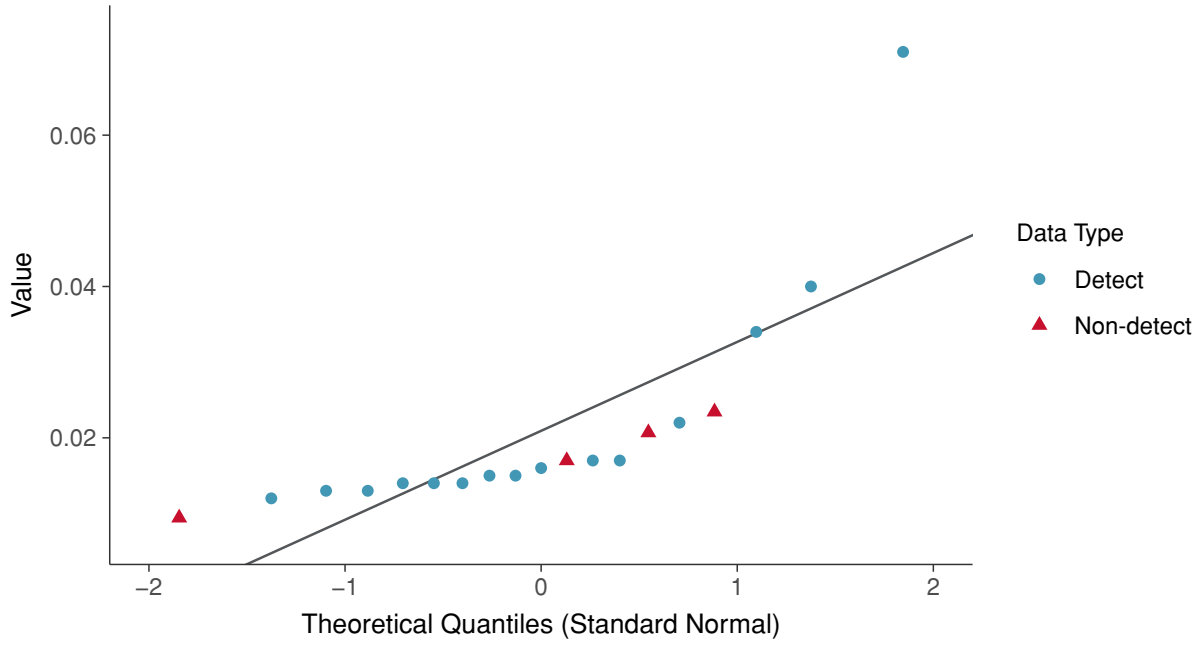
Boxplot by Season

Barium, W-7 (mg/l)



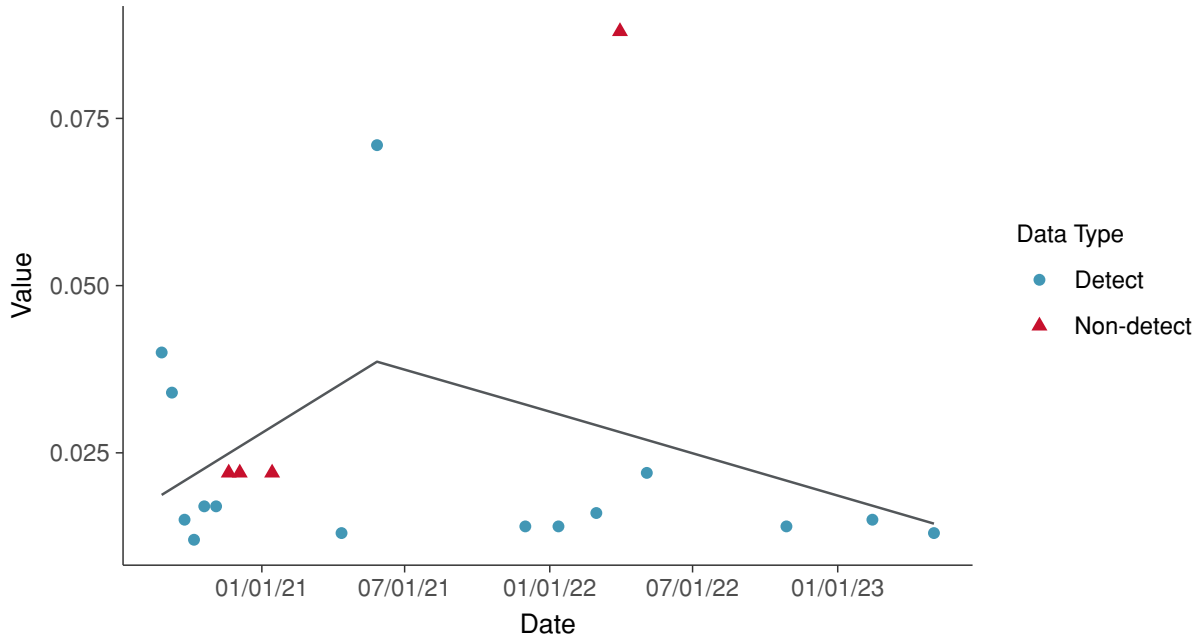
Normal Q-Q plot using ROS Imputed Estimates

Barium, W-7 (mg/l)



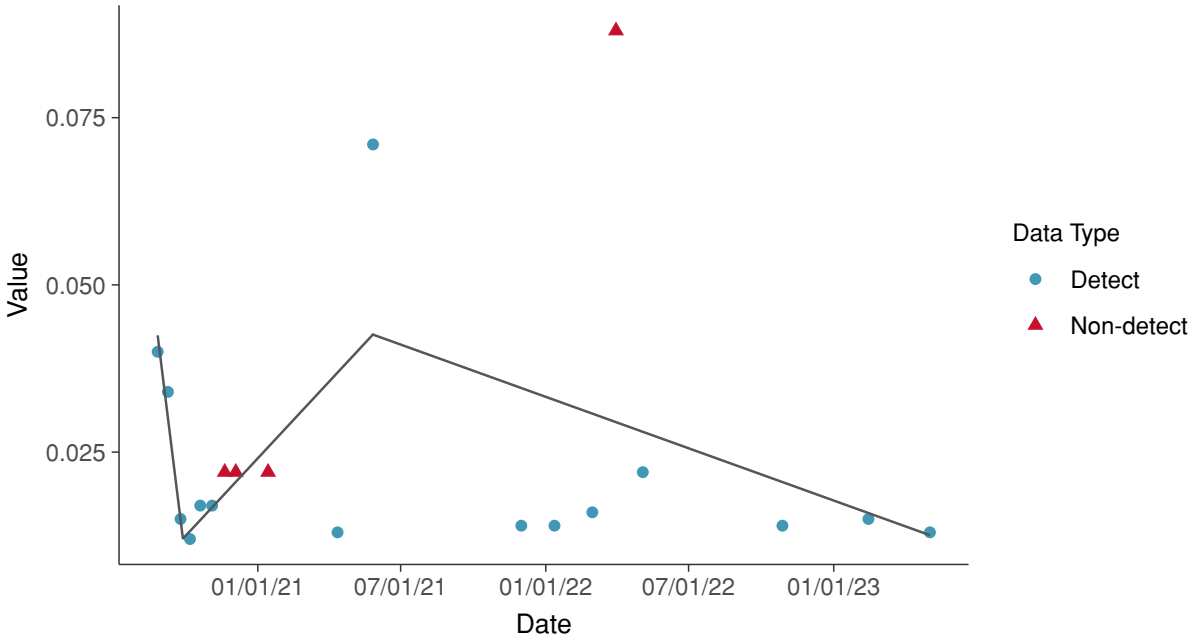
Trend Regression: Piecewise Linear-Linear

Barium, W-7 (mg/l)



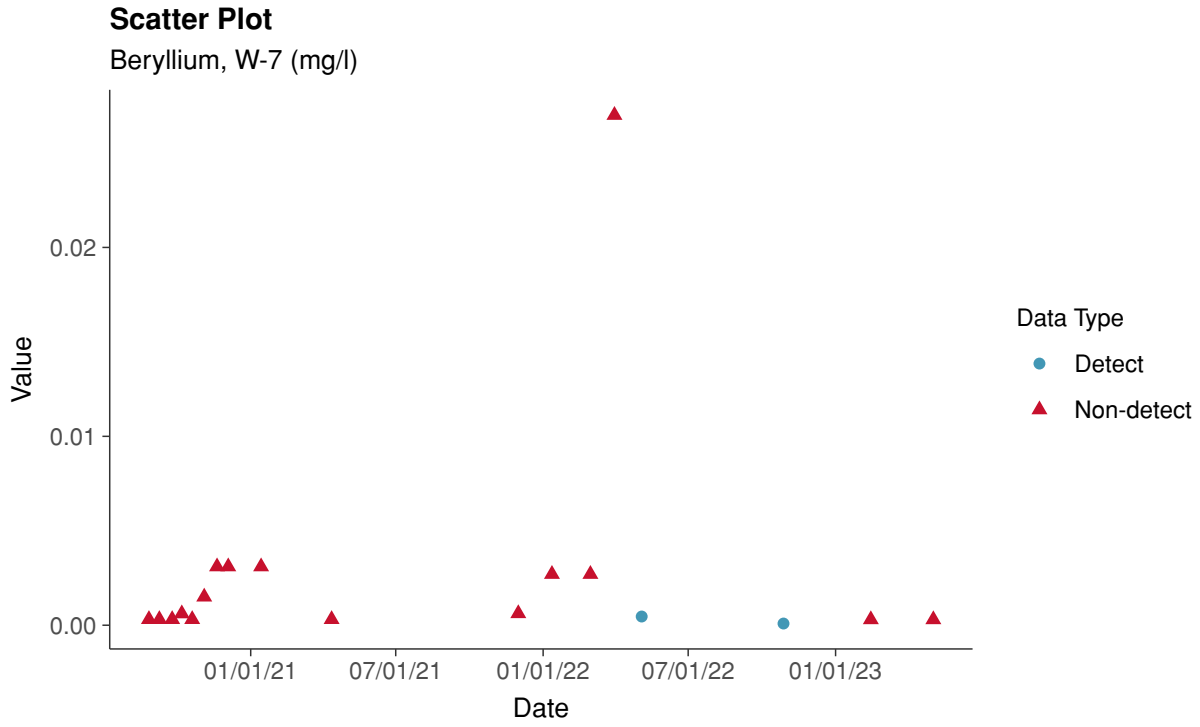
Trend Regression: Piecewise Linear-Linear-Linear

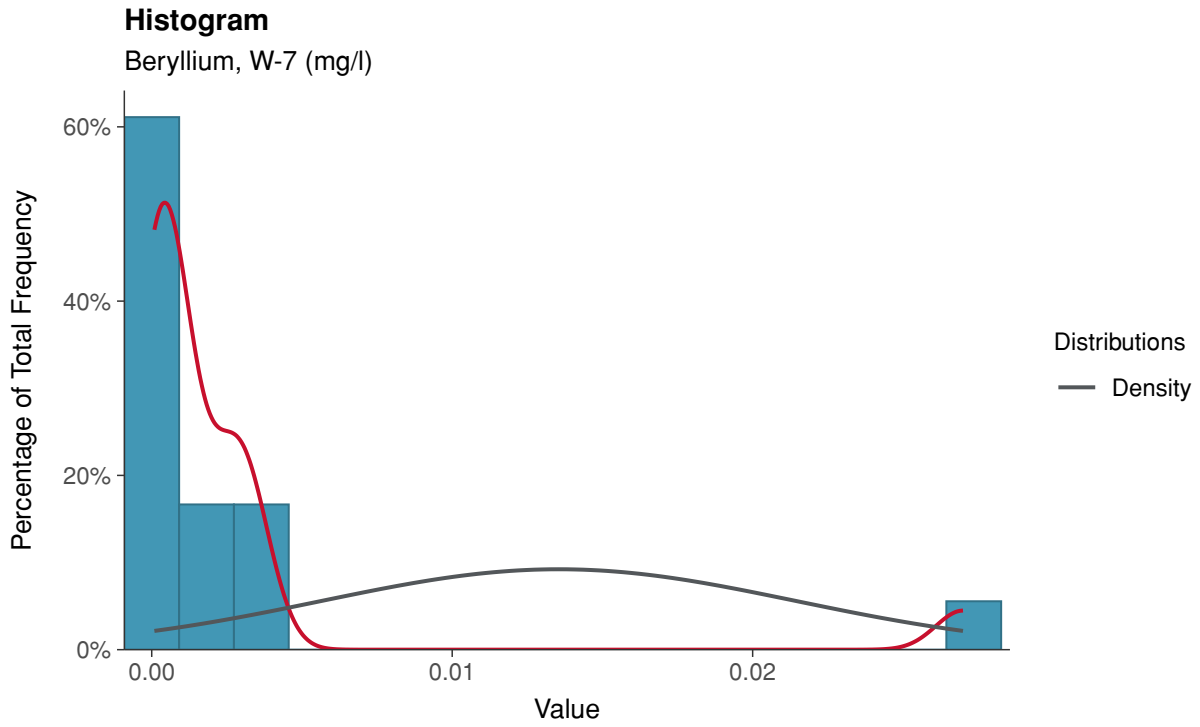
Barium, W-7 (mg/l)



Appendix IV: Beryllium, W-7

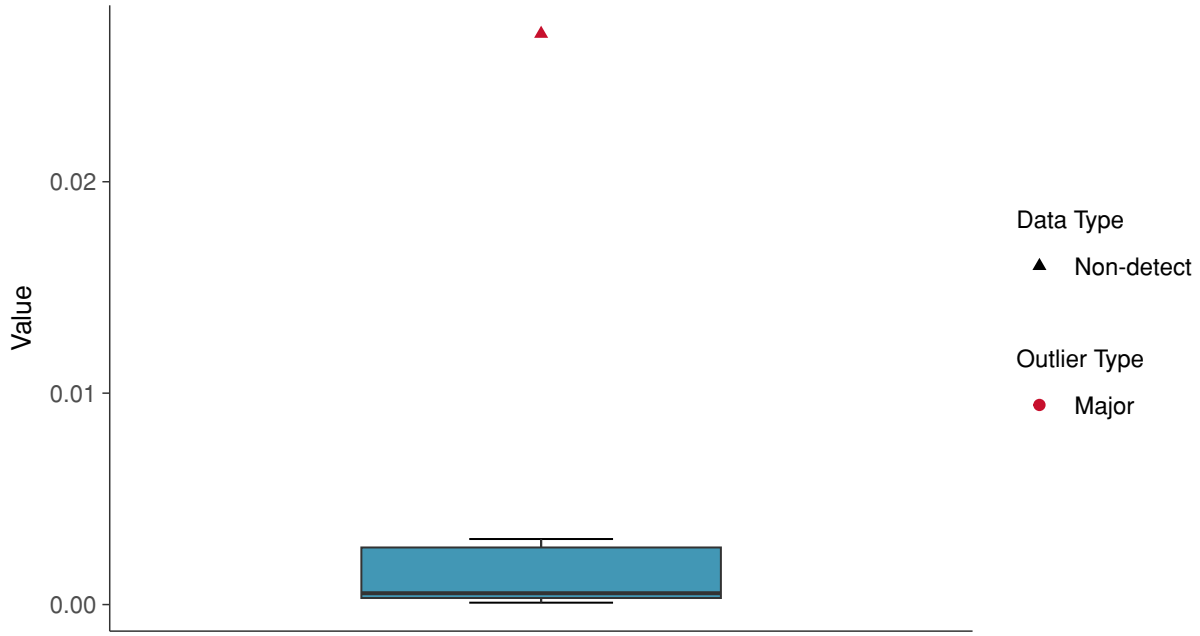
ID: 11_2_104





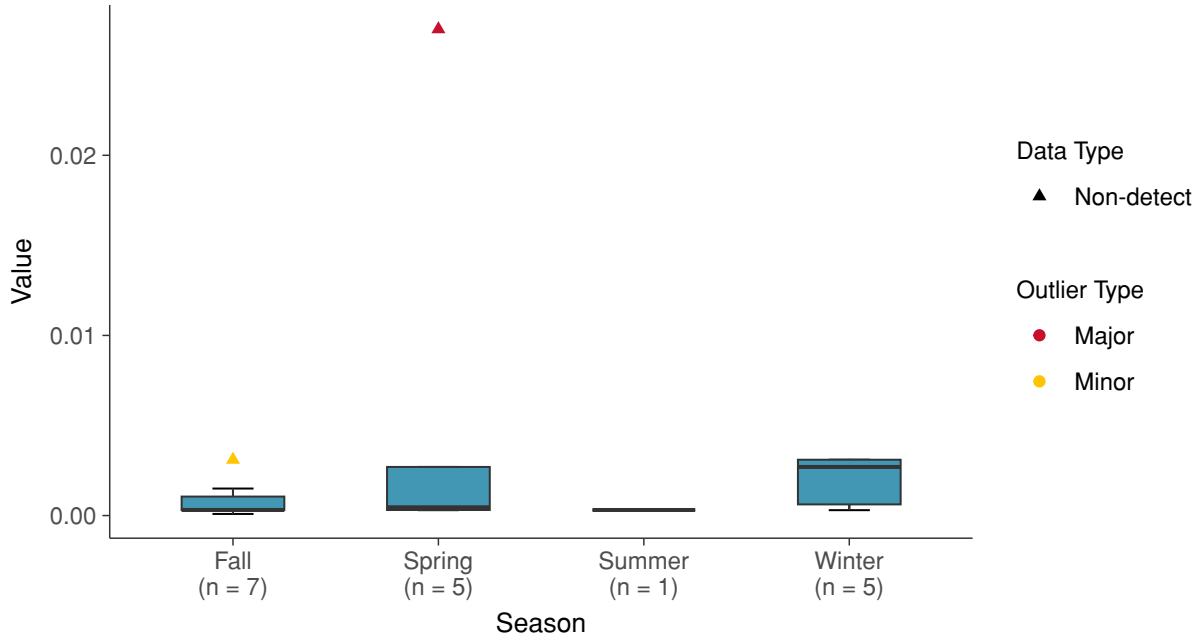
Boxplot

Beryllium, W-7 (mg/l)



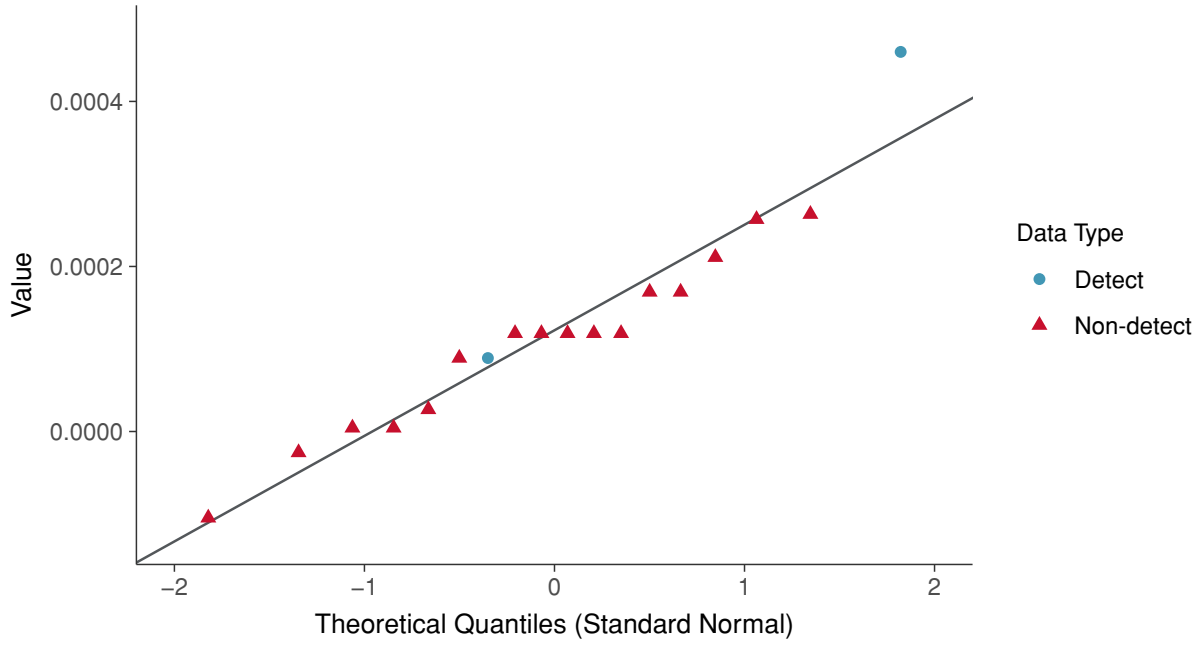
Boxplot by Season

Beryllium, W-7 (mg/l)



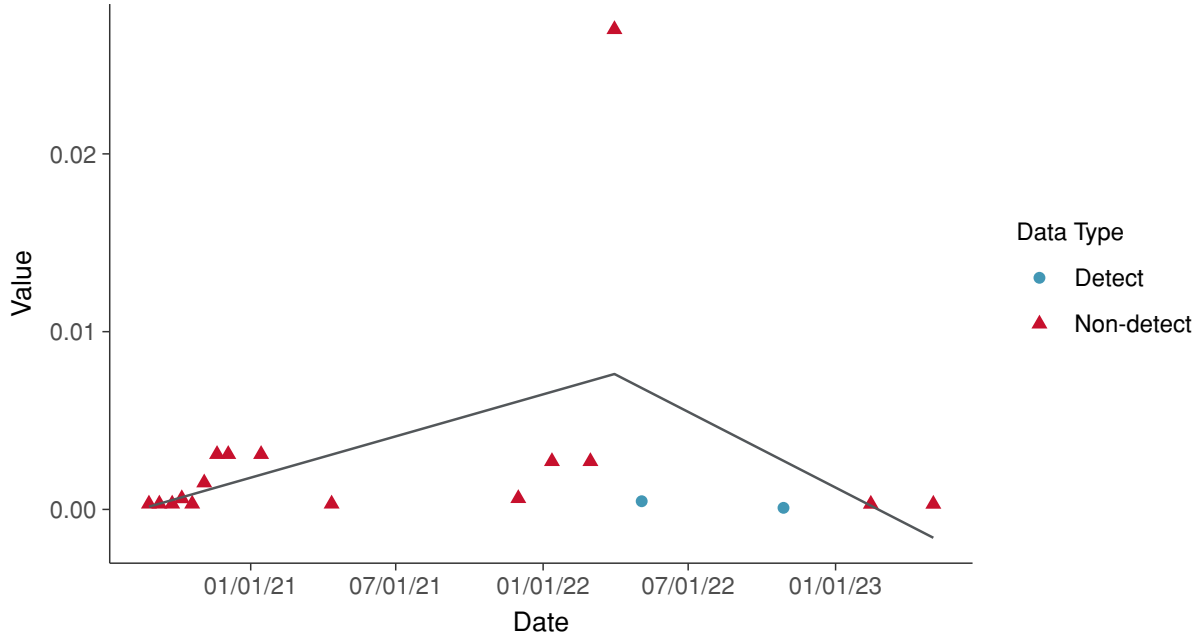
Normal Q-Q plot using ROS Imputed Estimates

Beryllium, W-7 (mg/l)



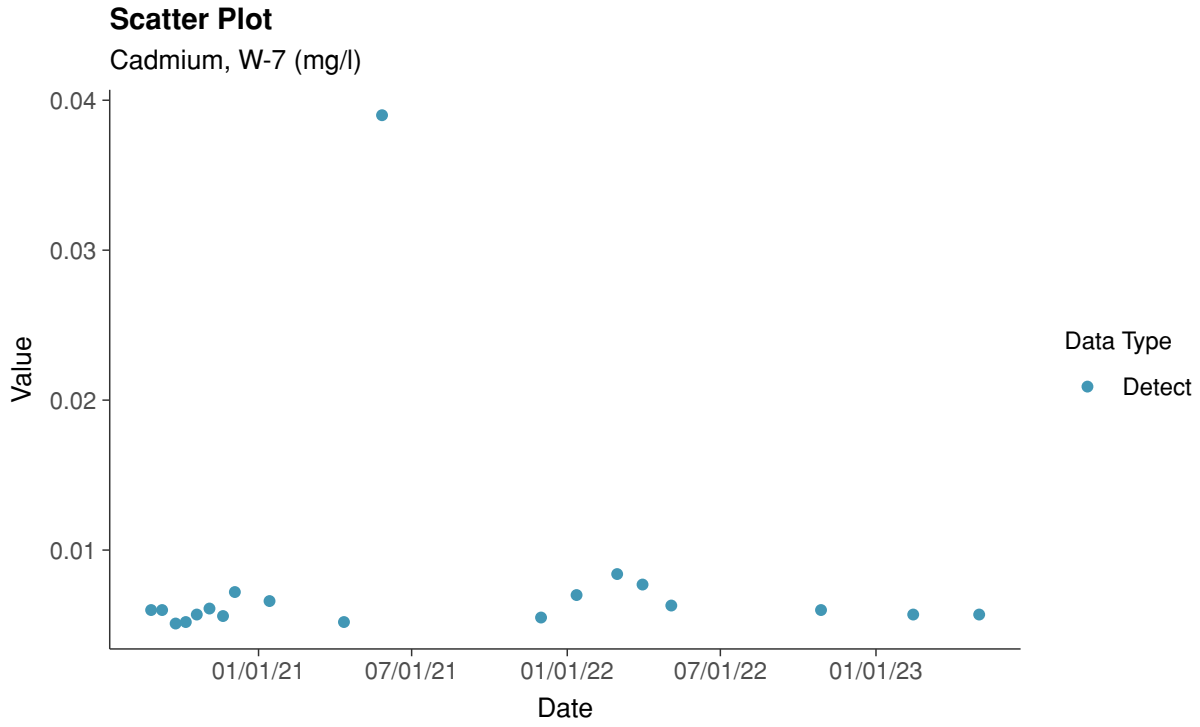
Trend Regression: Piecewise Linear-Linear

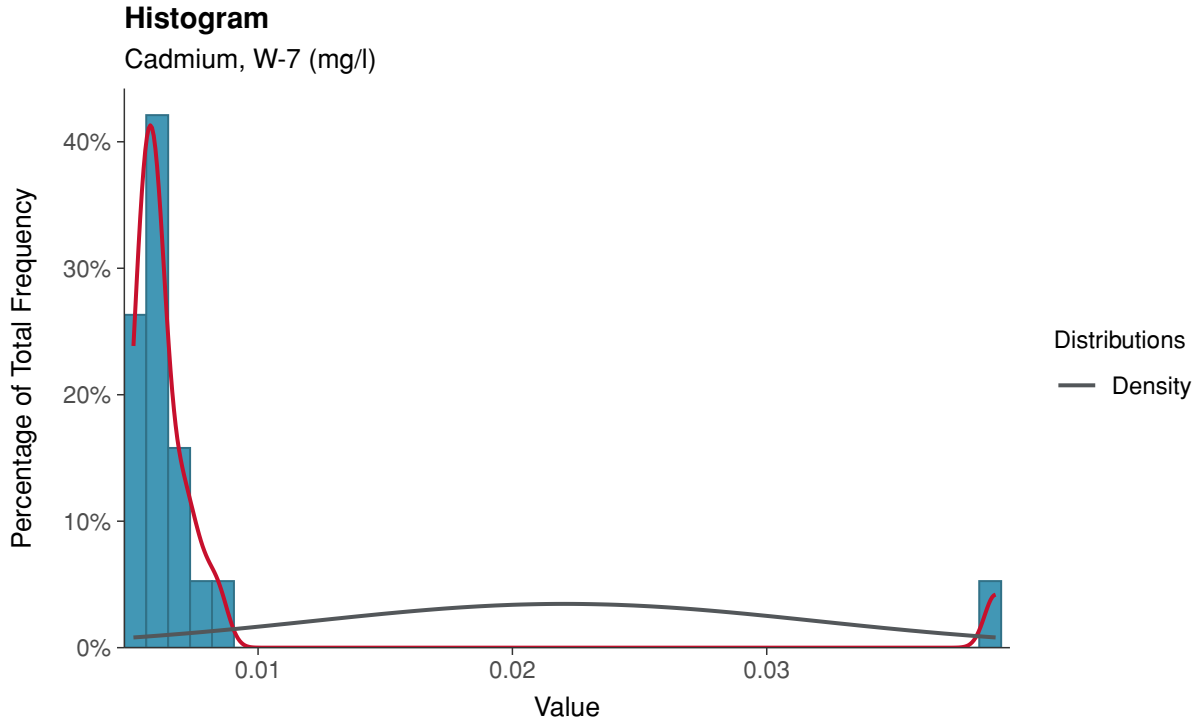
Beryllium, W-7 (mg/l)



Appendix IV: Cadmium, W-7

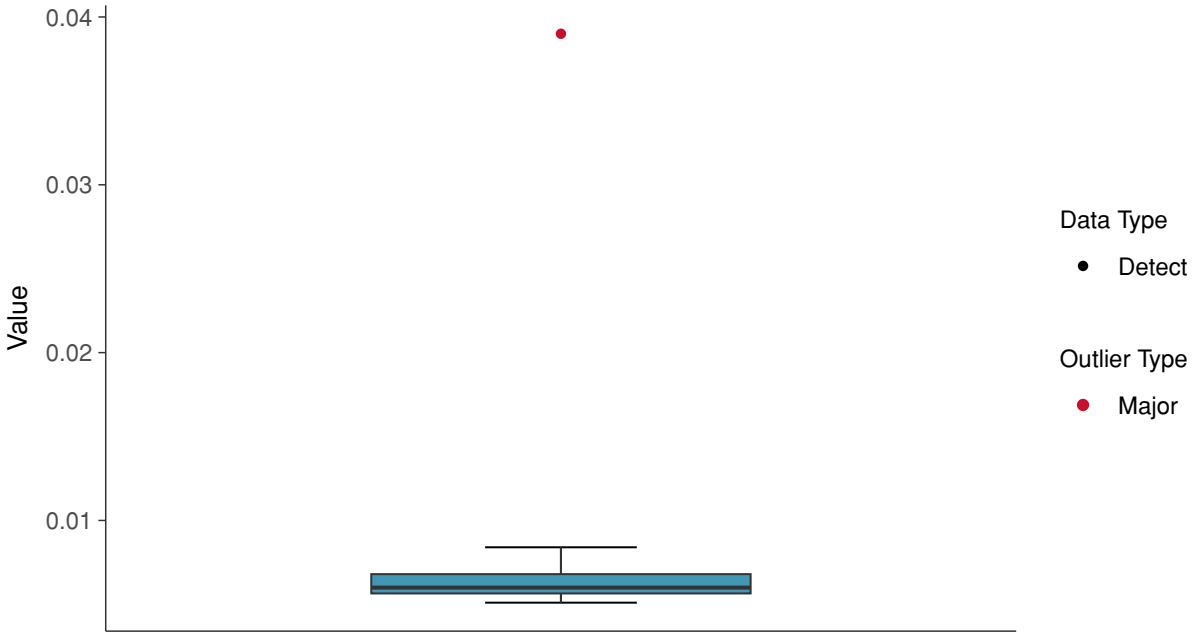
ID: 11_2_106





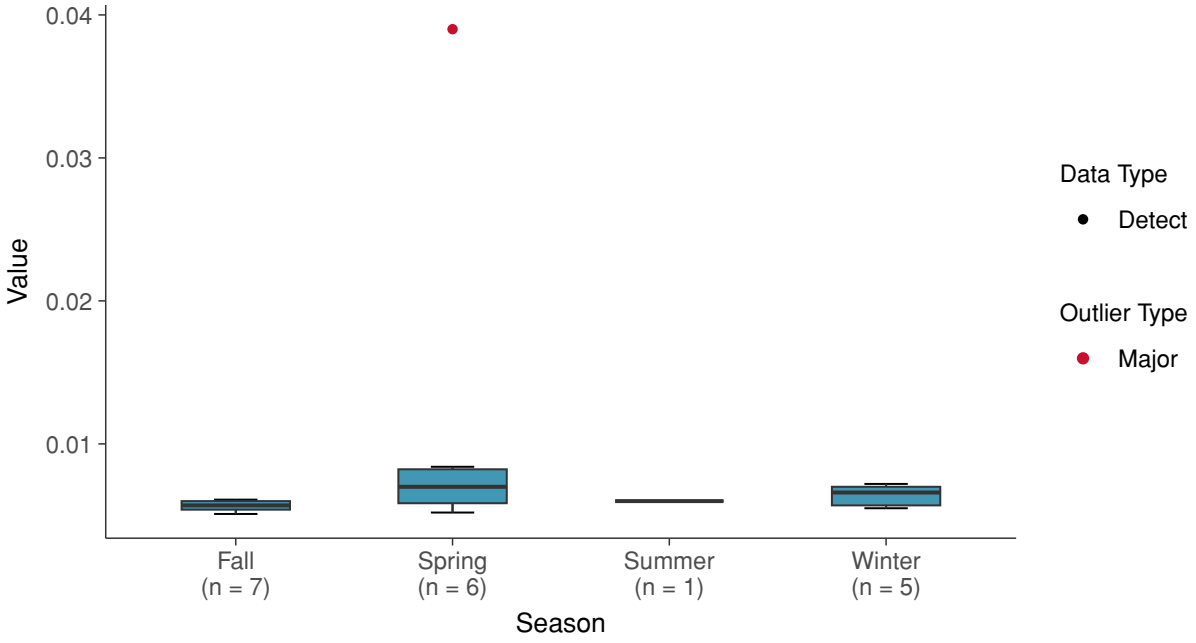
Boxplot

Cadmium, W-7 (mg/l)



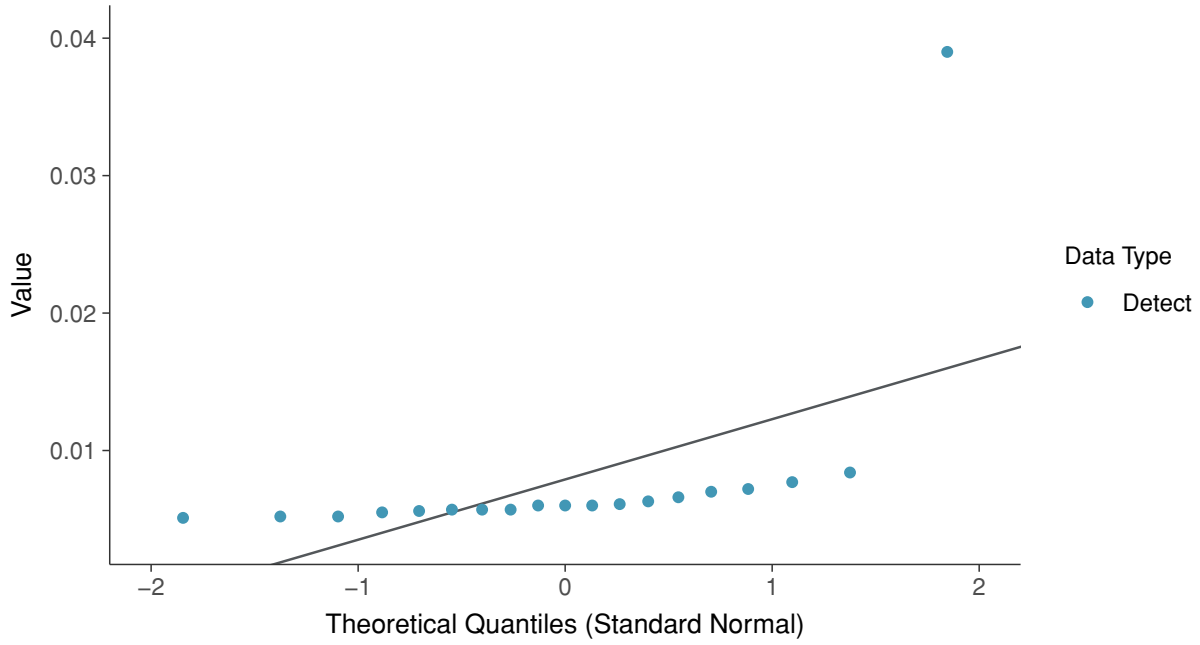
Boxplot by Season

Cadmium, W-7 (mg/l)



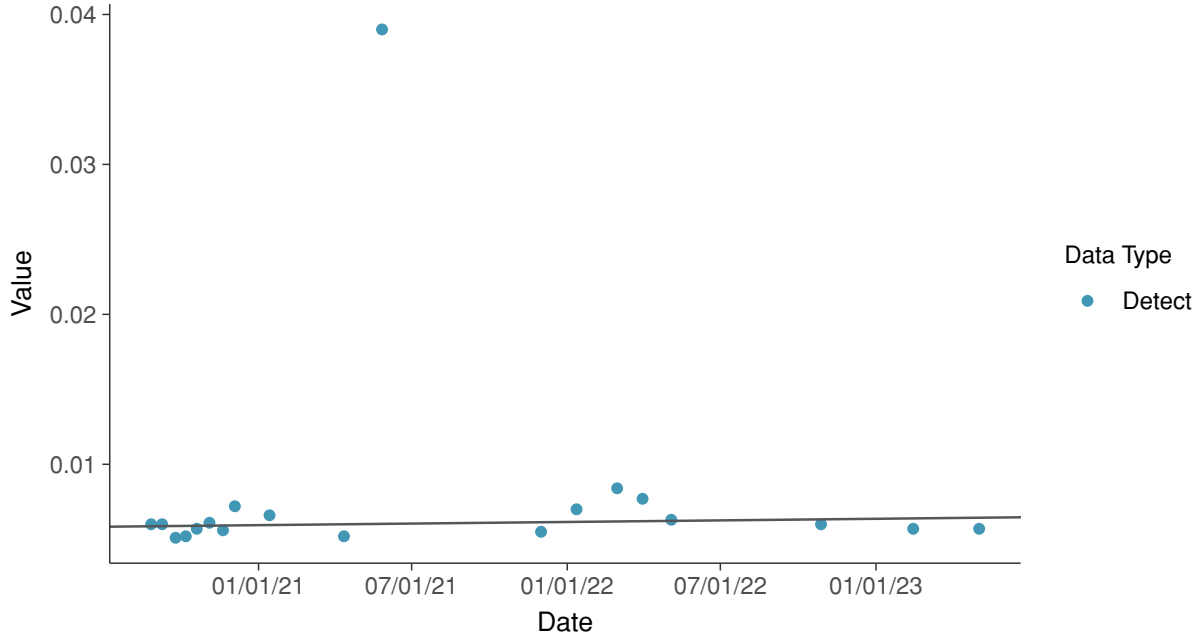
Normal Q-Q plot

Cadmium, W-7 (mg/l)



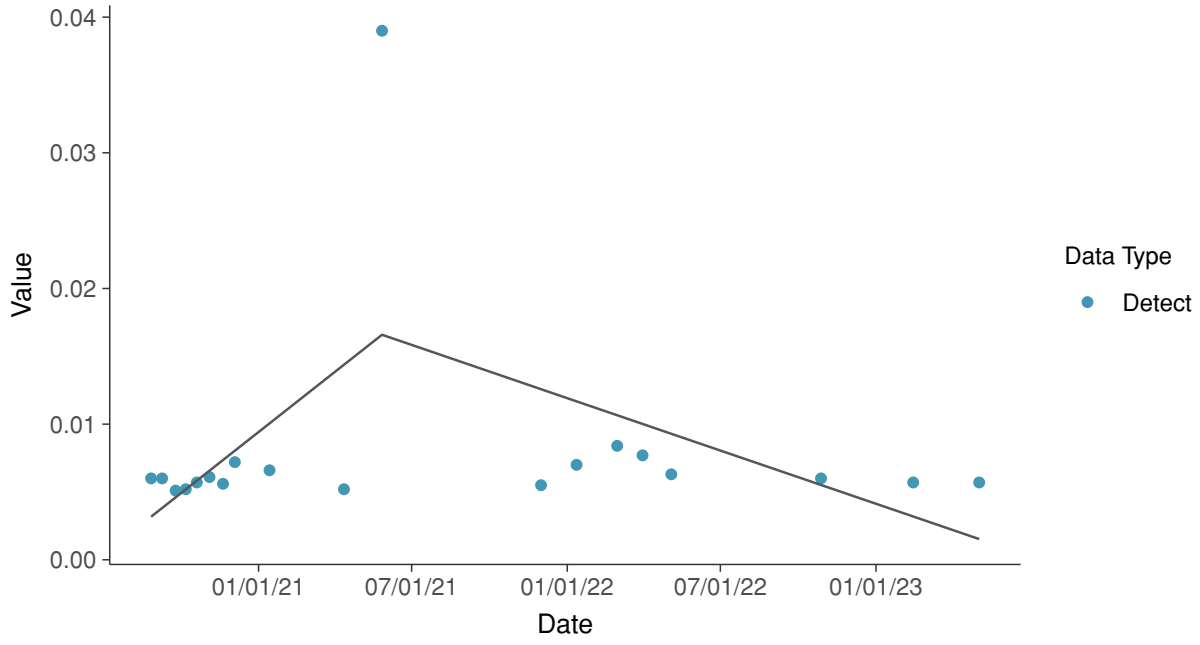
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Cadmium, W-7 (mg/l)



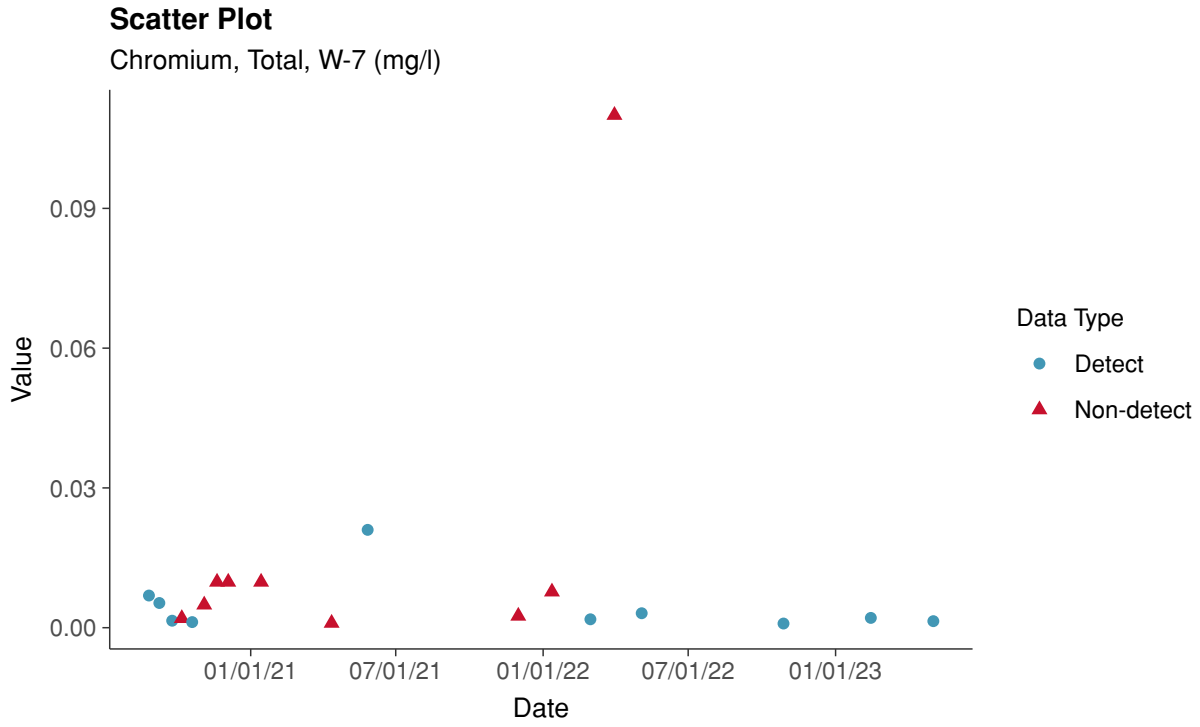
Trend Regression: Piecewise Linear-Linear

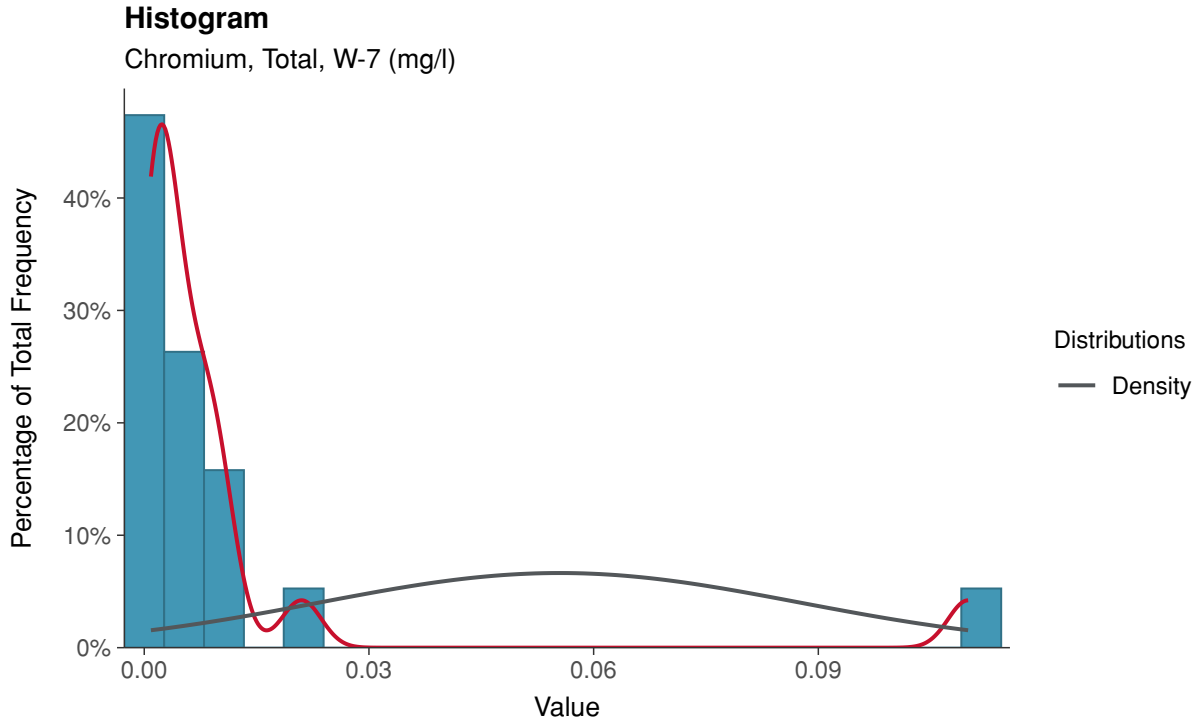
Cadmium, W-7 (mg/l)



Appendix IV: Chromium, Total, W-7

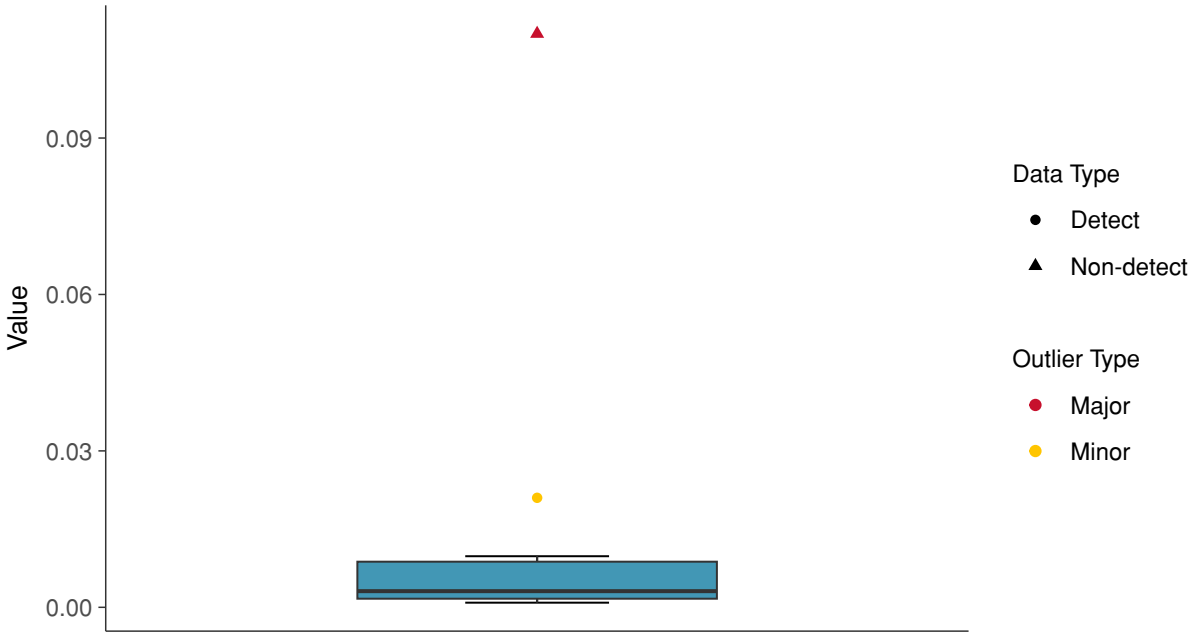
ID: 11_2_109





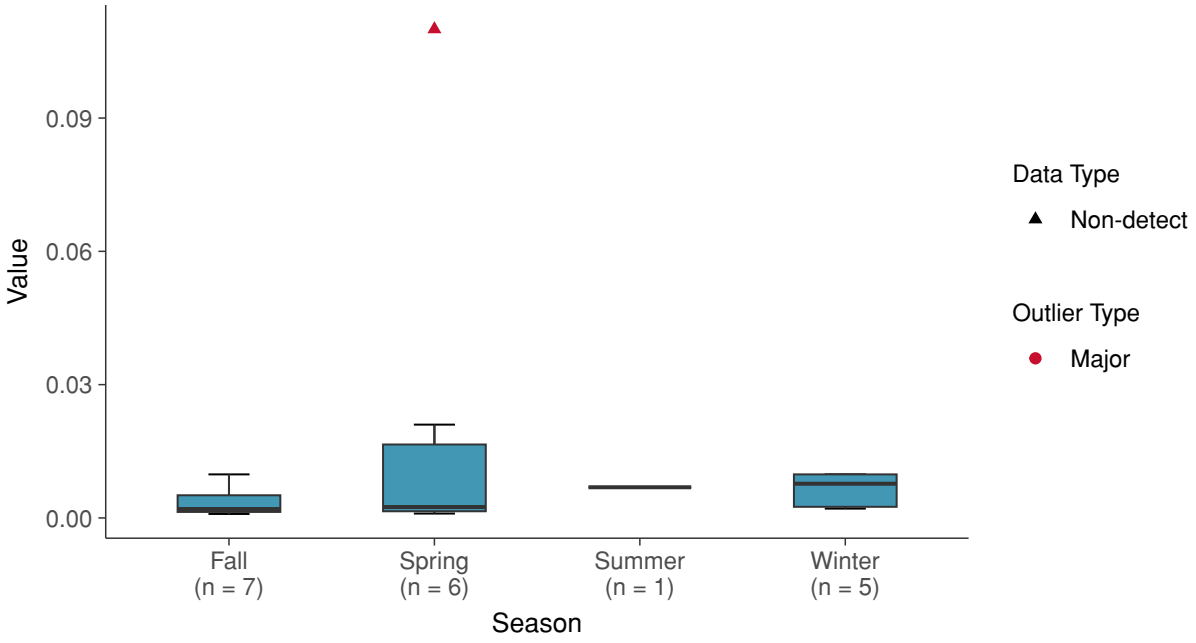
Boxplot

Chromium, Total, W-7 (mg/l)



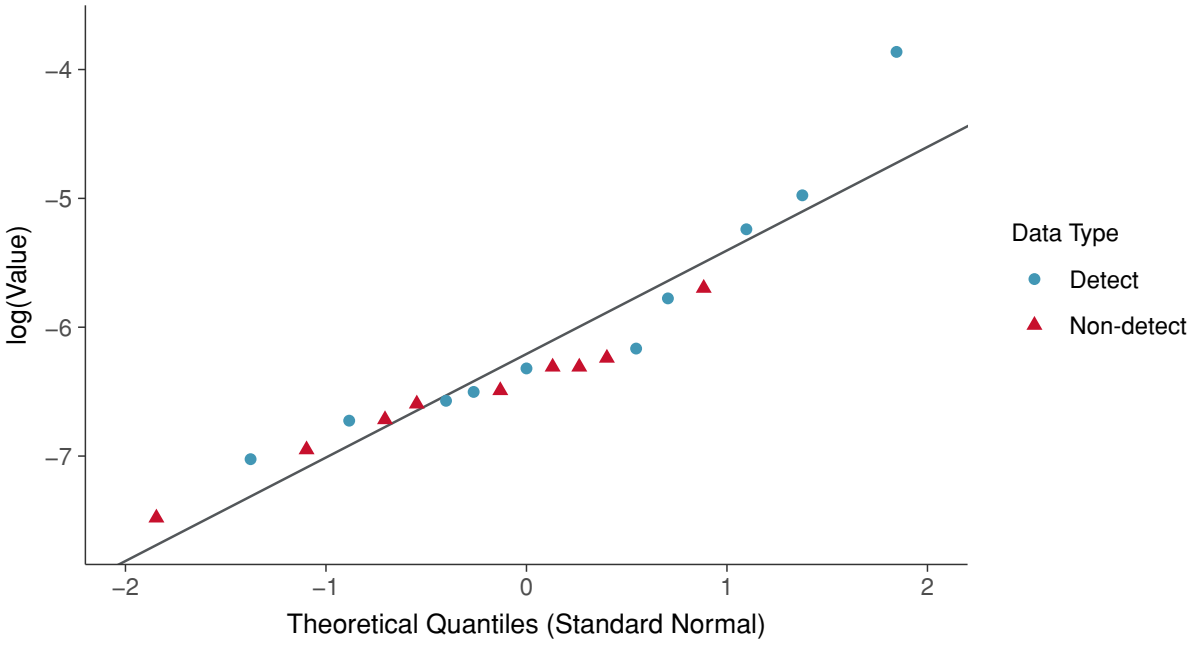
Boxplot by Season

Chromium, Total, W-7 (mg/l)



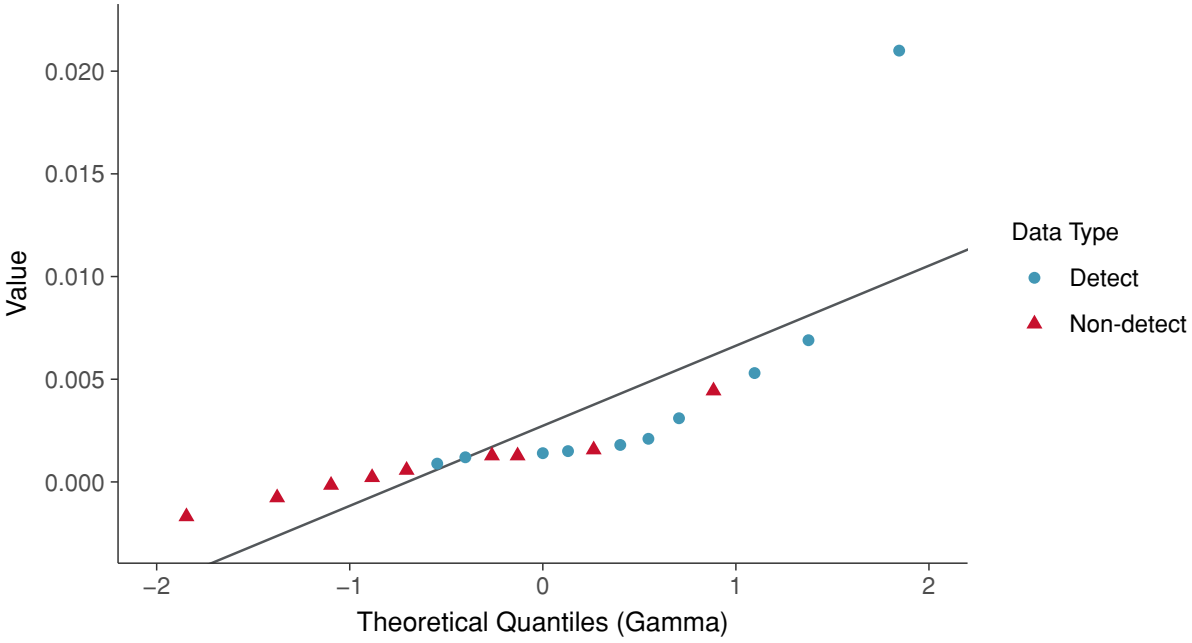
Lognormal Q-Q plot using ROS Imputed Estimates

Chromium, Total, W-7 (mg/l)



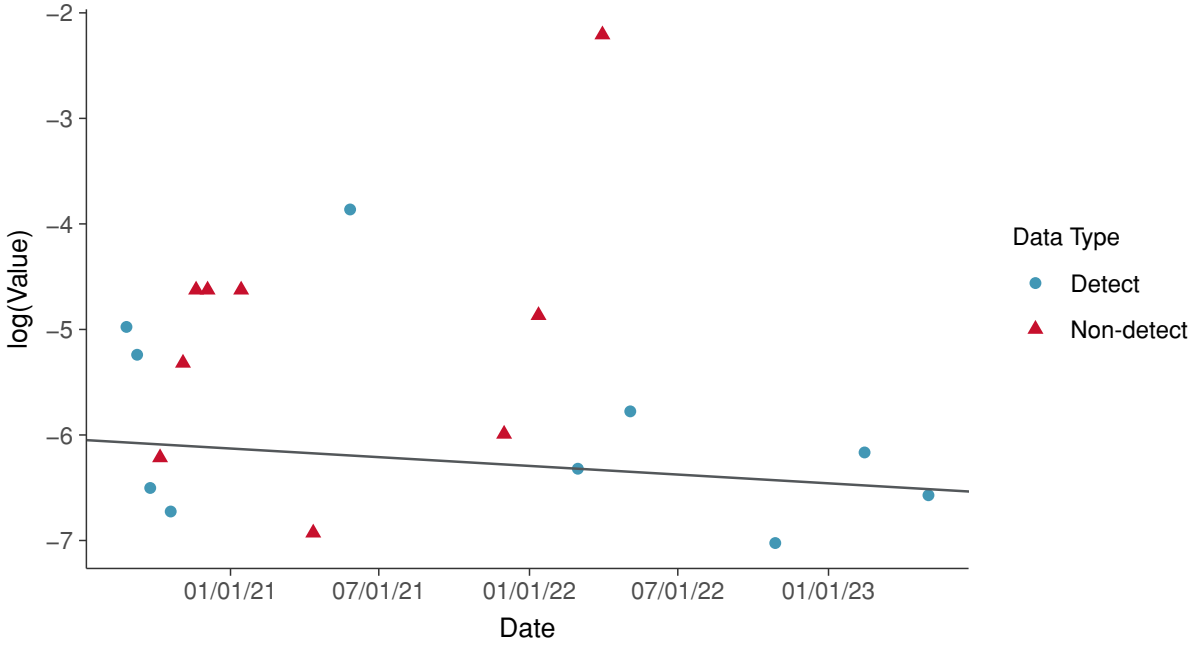
Gamma Q-Q plot using ROS Imputed Estimates

Chromium, Total, W-7 (mg/l)



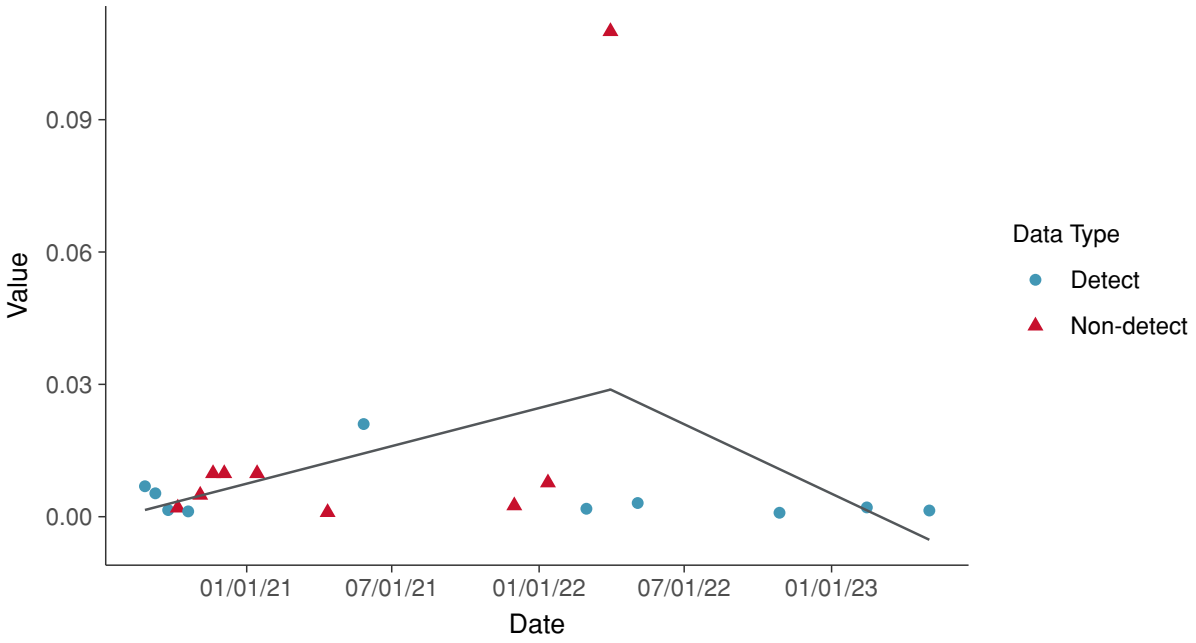
Trend Regression: Lognormal MLE

Chromium, Total, W-7 (mg/l)



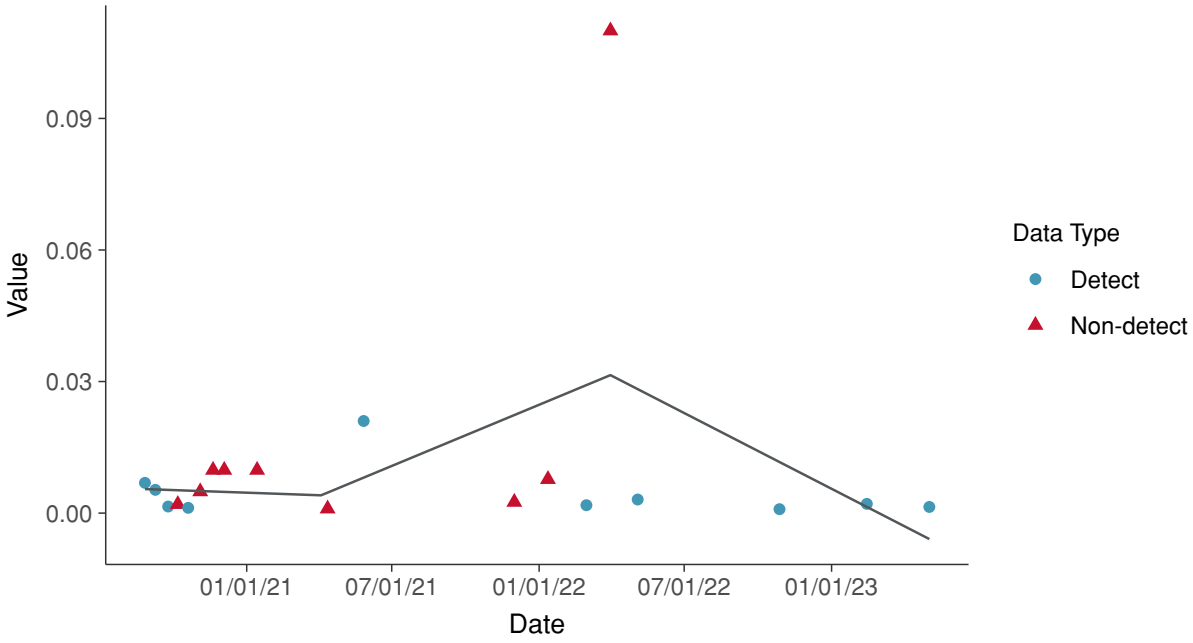
Trend Regression: Piecewise Linear-Linear

Chromium, Total, W-7 (mg/l)



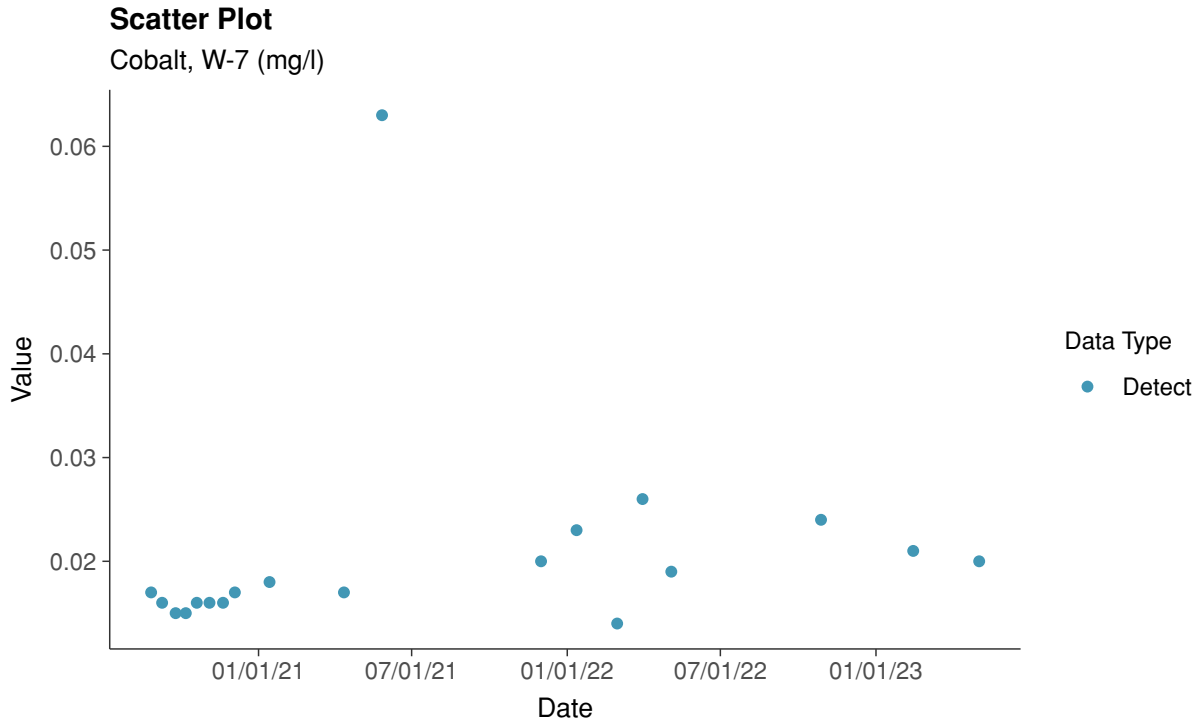
Trend Regression: Piecewise Linear-Linear-Linear

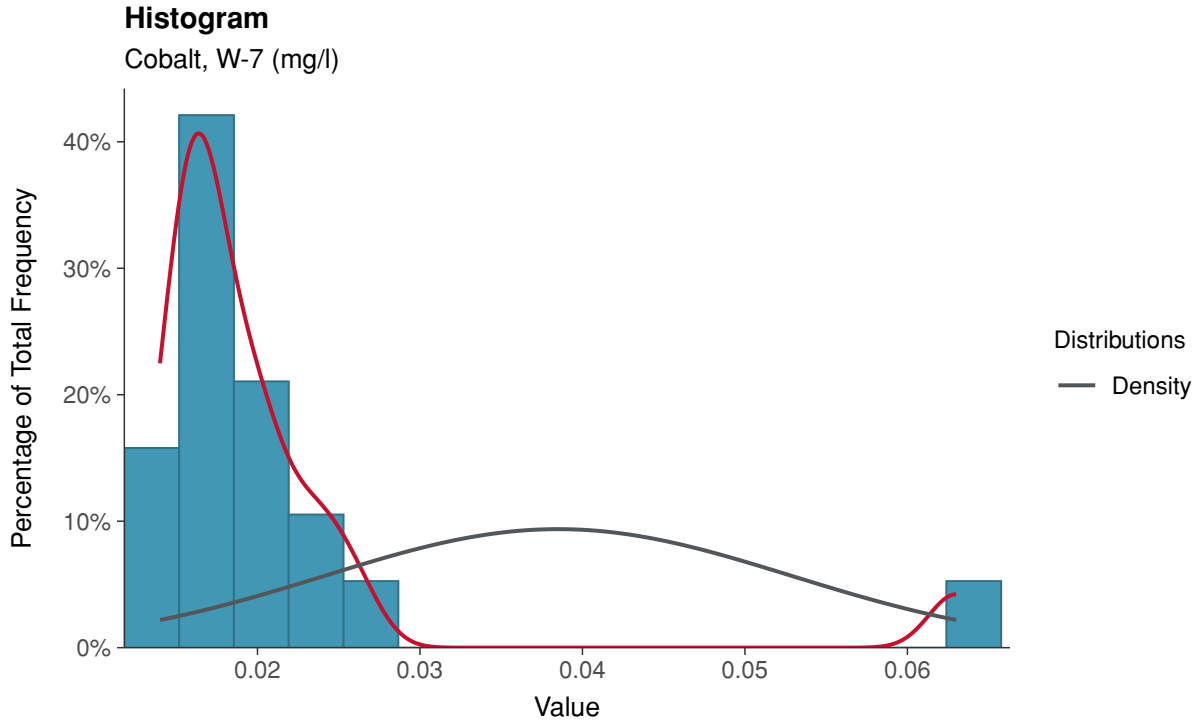
Chromium, Total, W-7 (mg/l)



Appendix IV: Cobalt, W-7

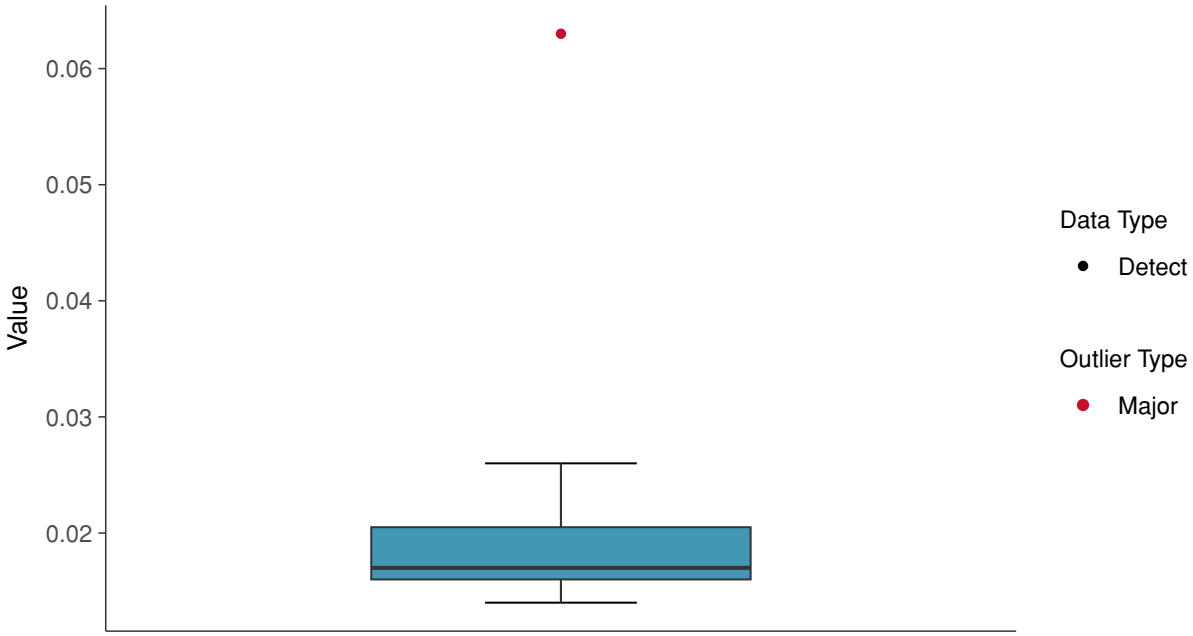
ID: 11_2_110





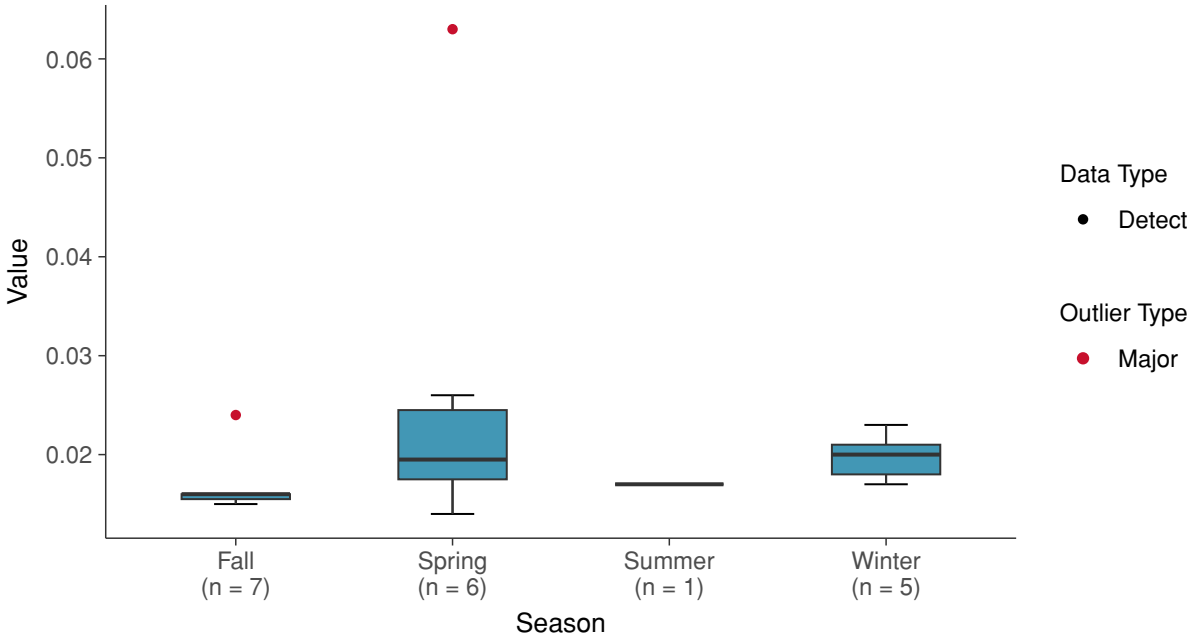
Boxplot

Cobalt, W-7 (mg/l)



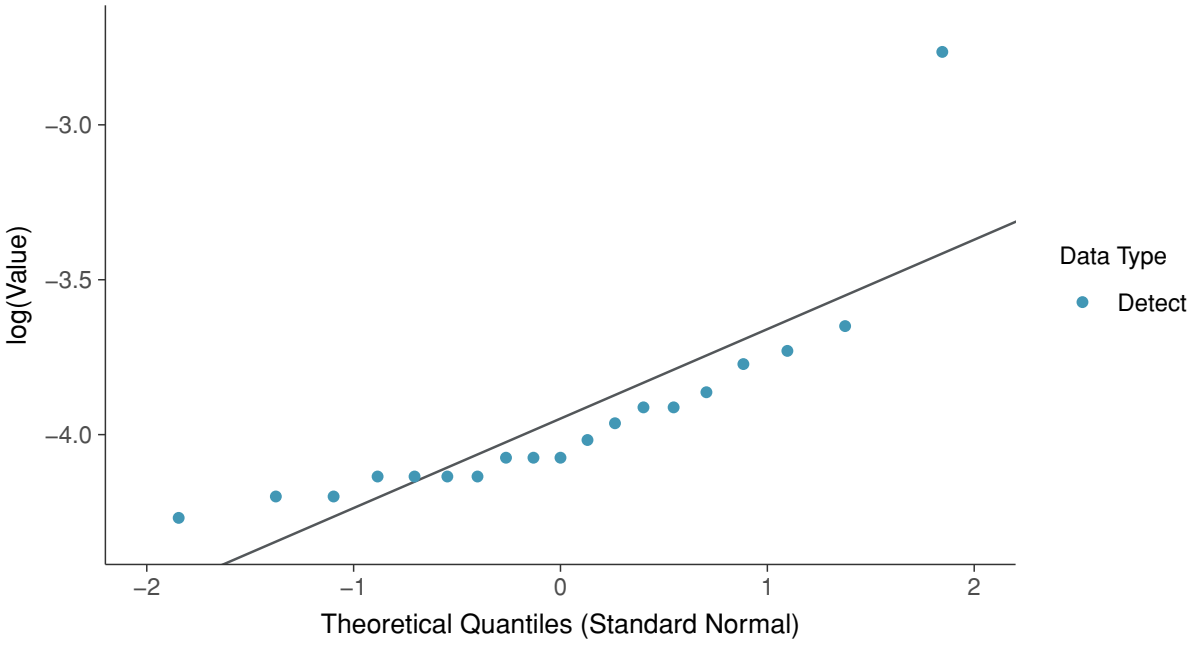
Boxplot by Season

Cobalt, W-7 (mg/l)



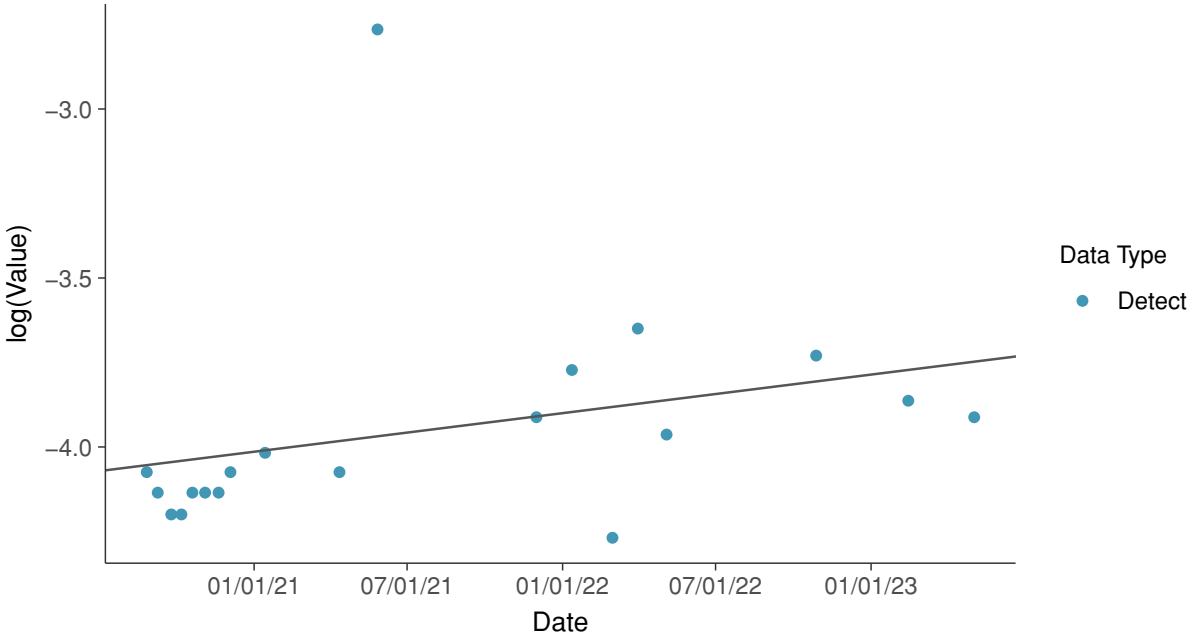
Lognormal Q-Q plot

Cobalt, W-7 (mg/l)



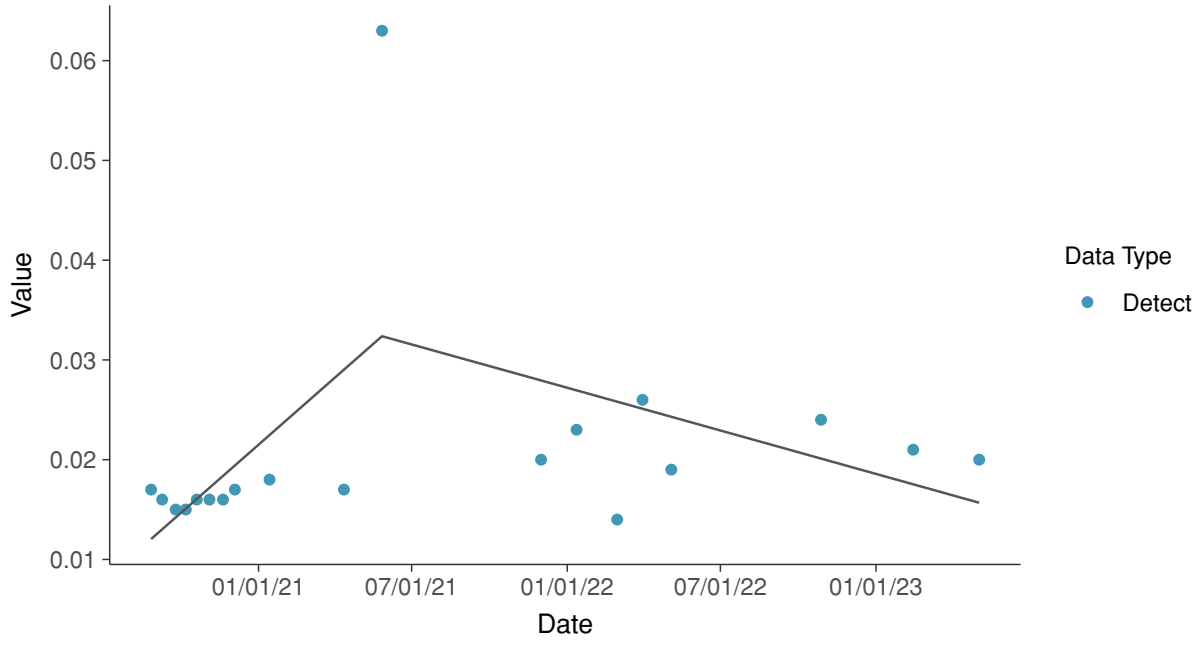
Trend Regression: Lognormal MLE

Cobalt, W-7 (mg/l)



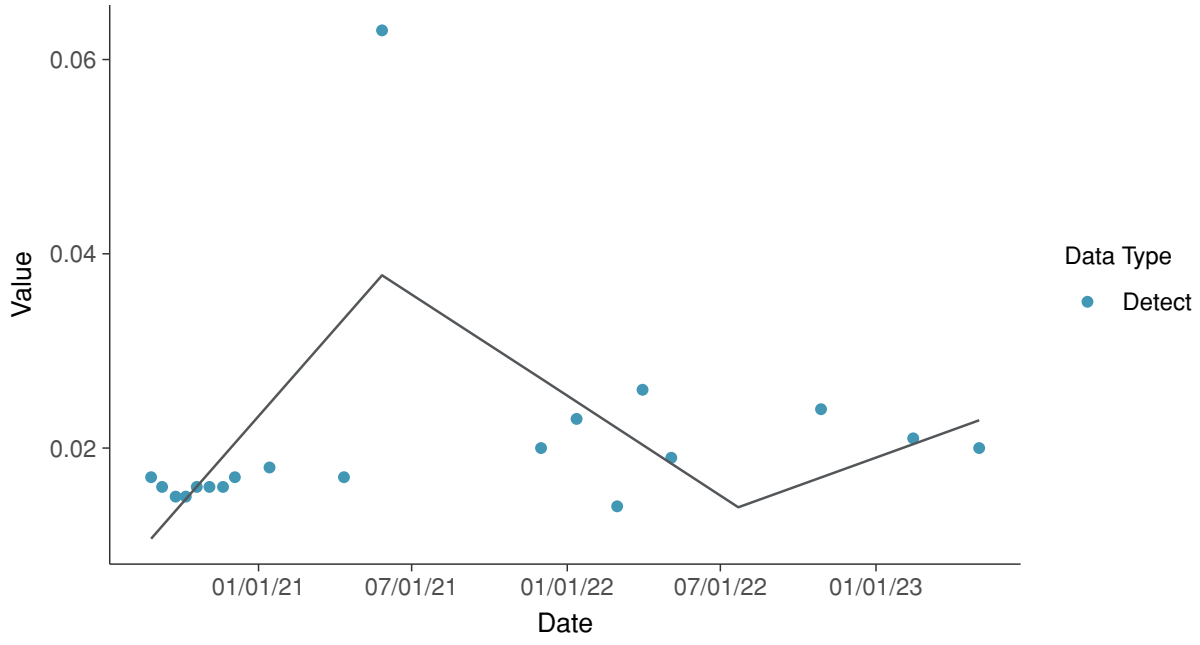
Trend Regression: Piecewise Linear-Linear

Cobalt, W-7 (mg/l)



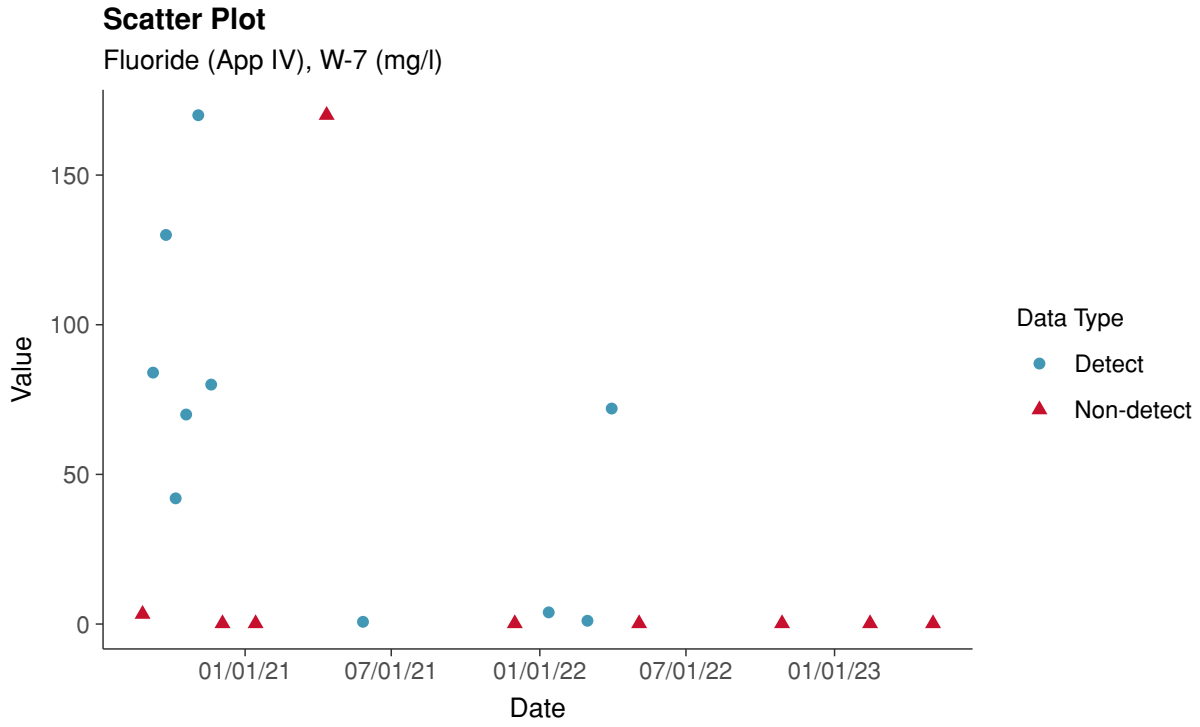
Trend Regression: Piecewise Linear-Linear-Linear

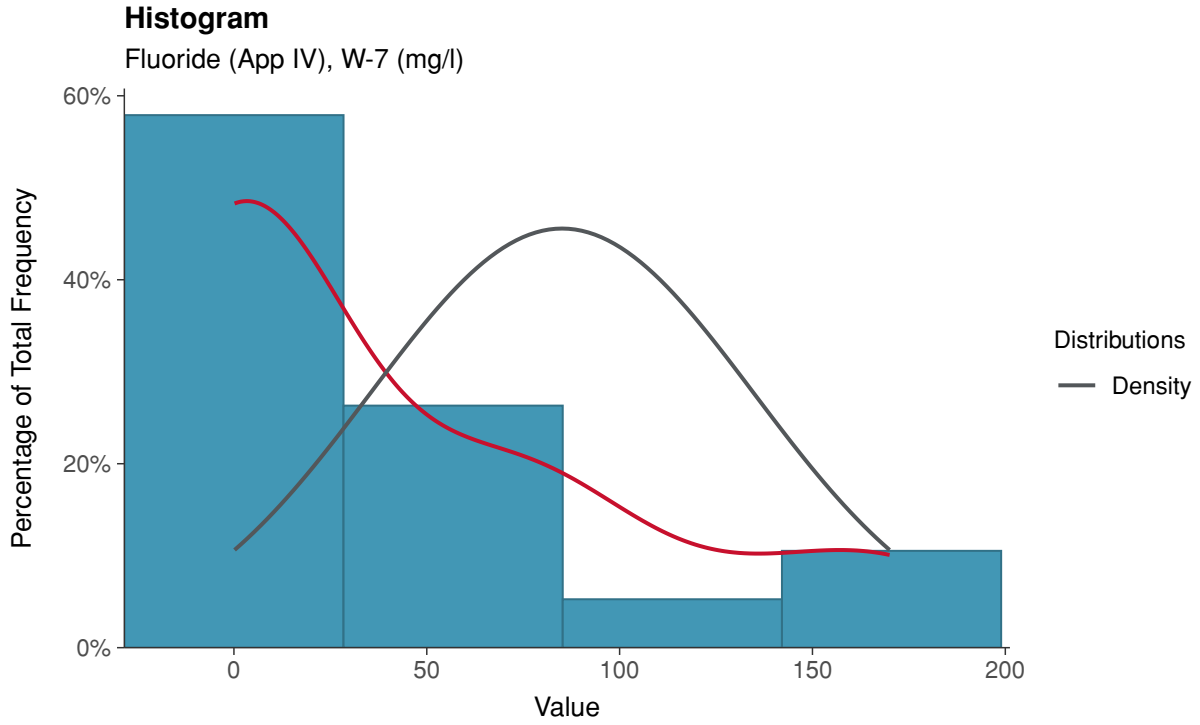
Cobalt, W-7 (mg/l)



Appendix IV: Fluoride (App IV), W-7

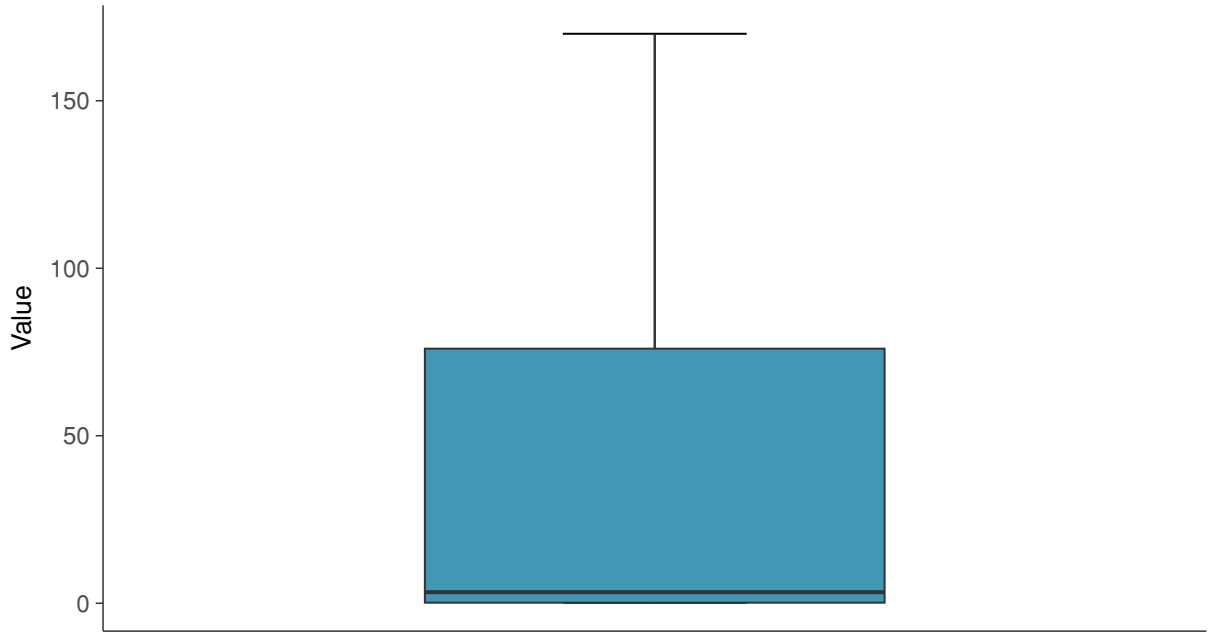
ID: 11_2_112





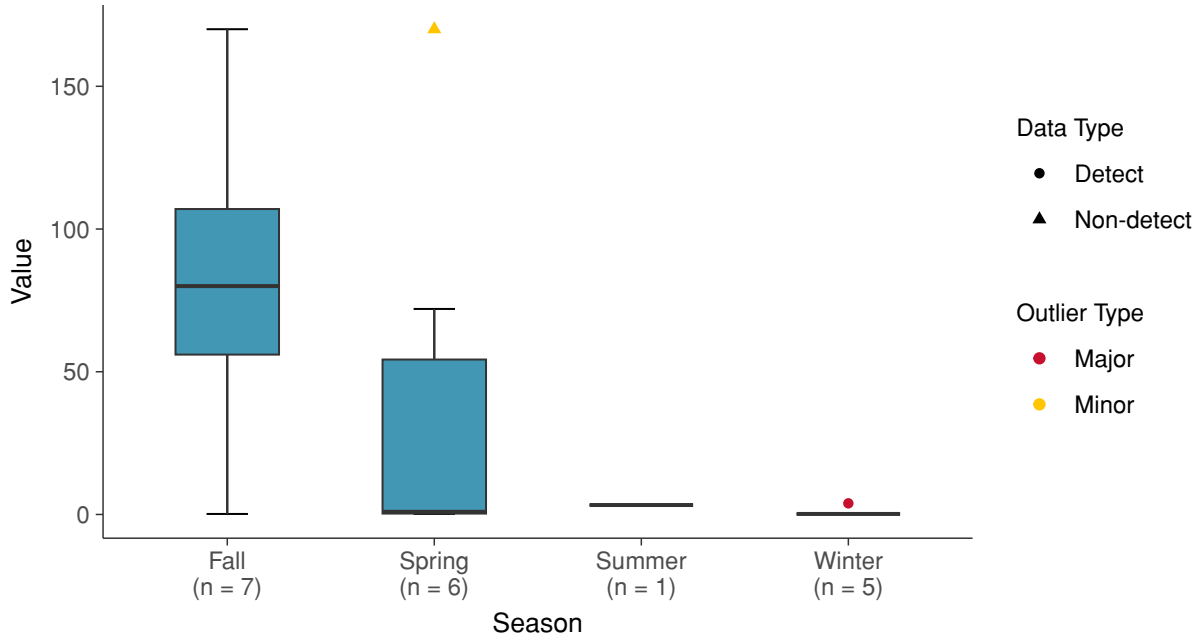
Boxplot

Fluoride (App IV), W-7 (mg/l)



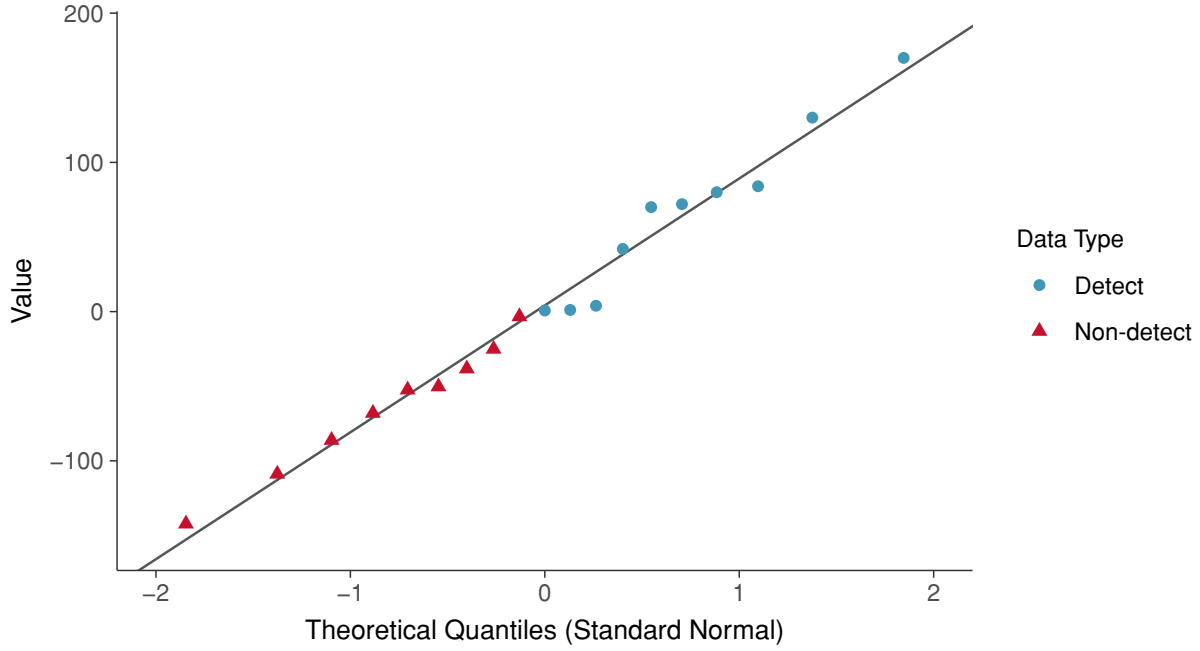
Boxplot by Season

Fluoride (App IV), W-7 (mg/l)



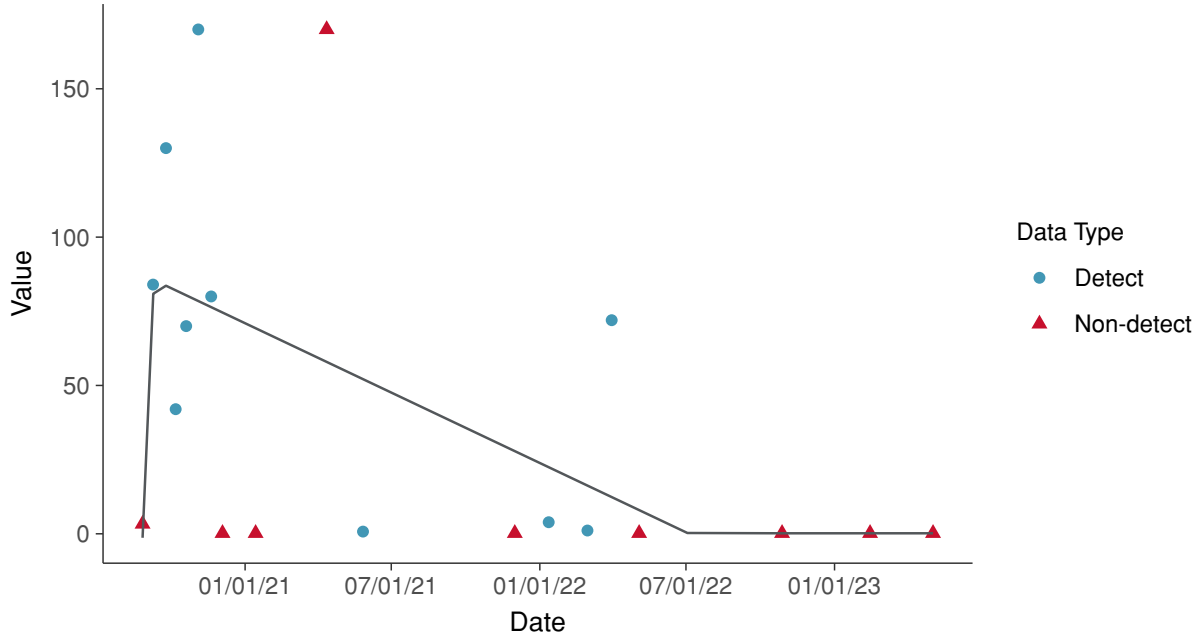
Normal Q-Q plot using ROS Imputed Estimates

Fluoride (App IV), W-7 (mg/l)



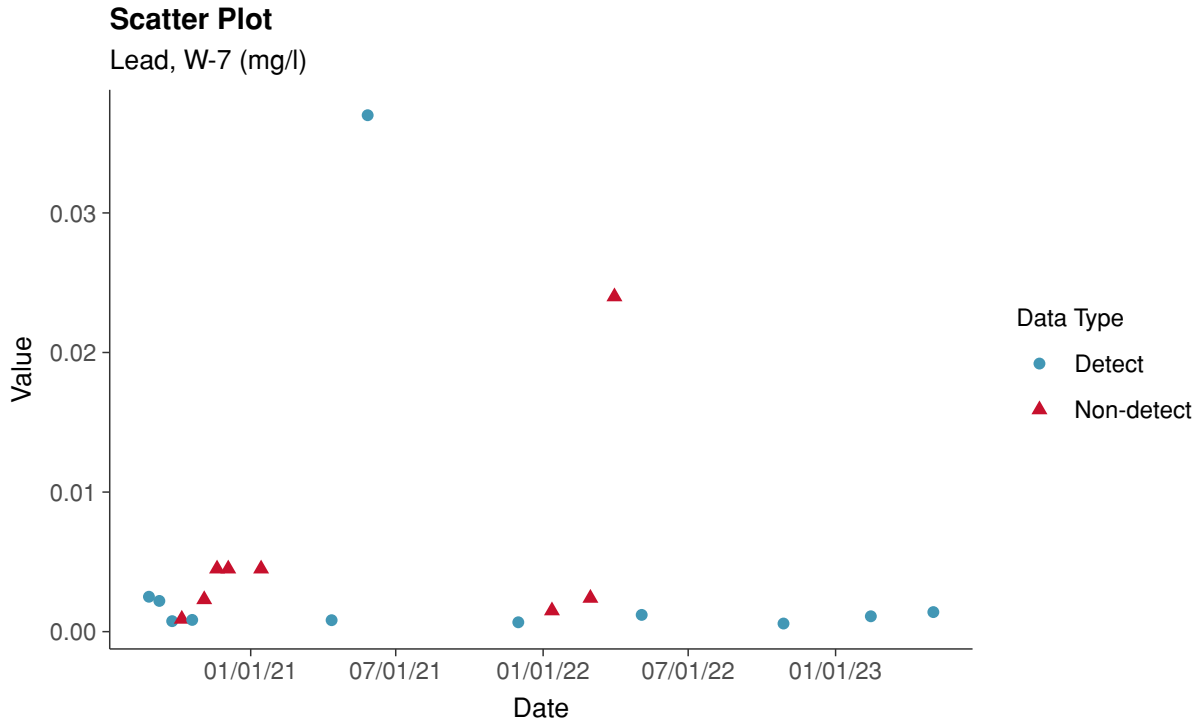
Trend Regression: Piecewise Linear-Linear-Linear

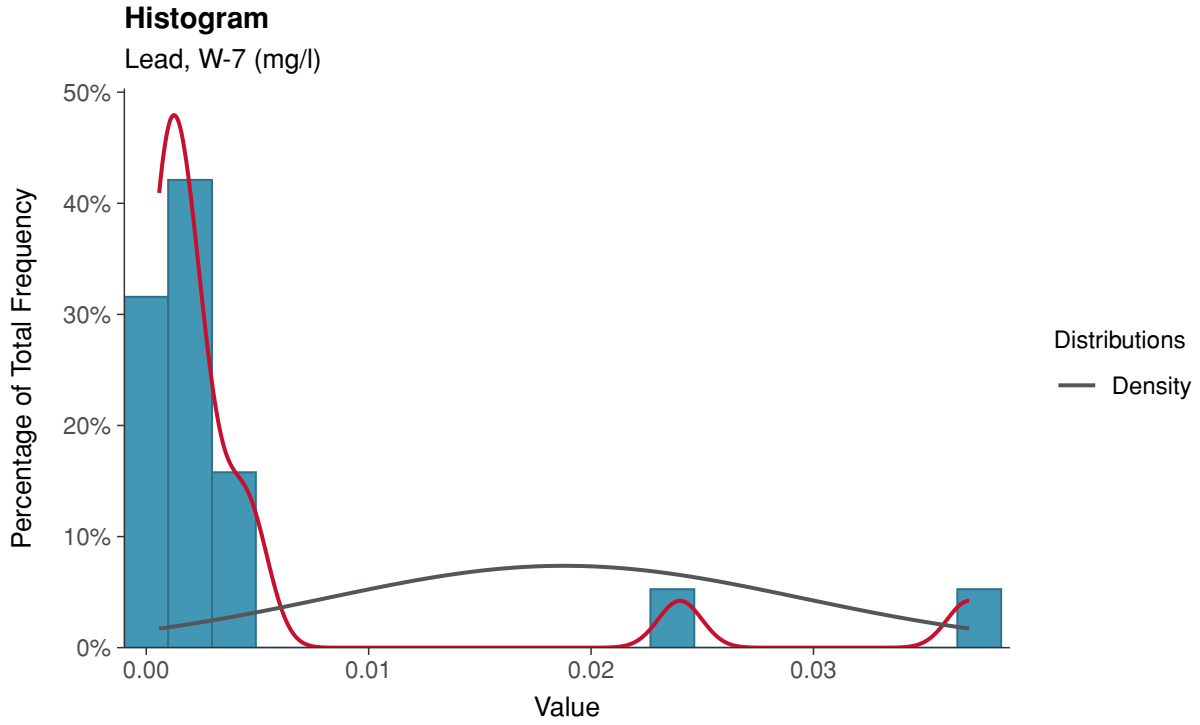
Fluoride (App IV), W-7 (mg/l)



Appendix IV: Lead, W-7

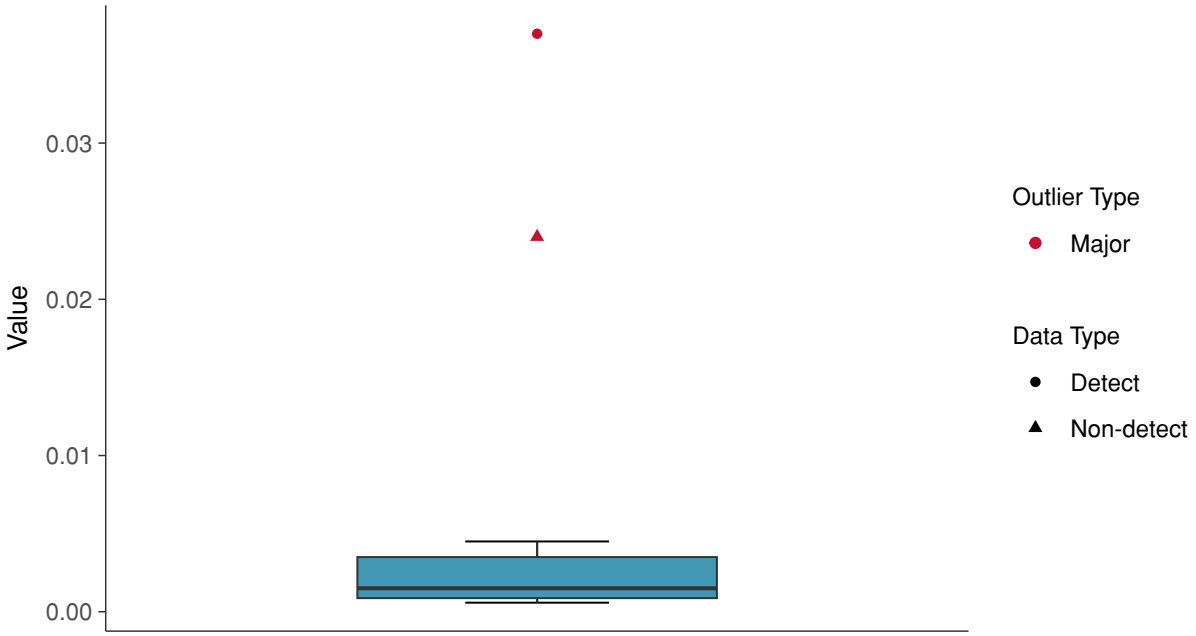
ID: 11_2_113





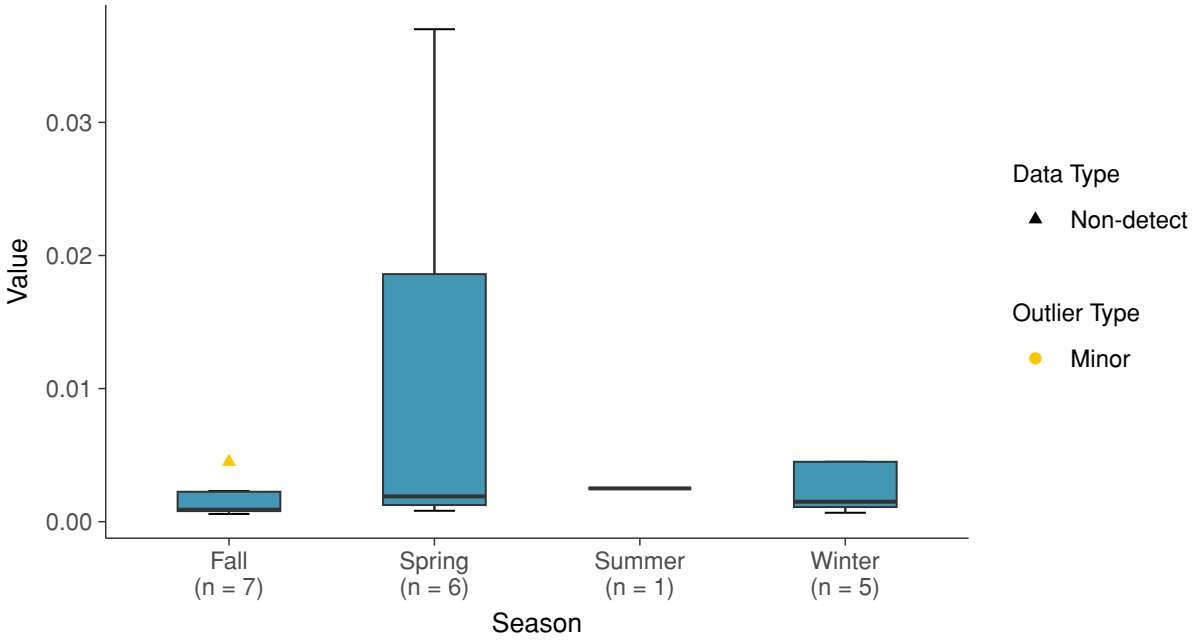
Boxplot

Lead, W-7 (mg/l)



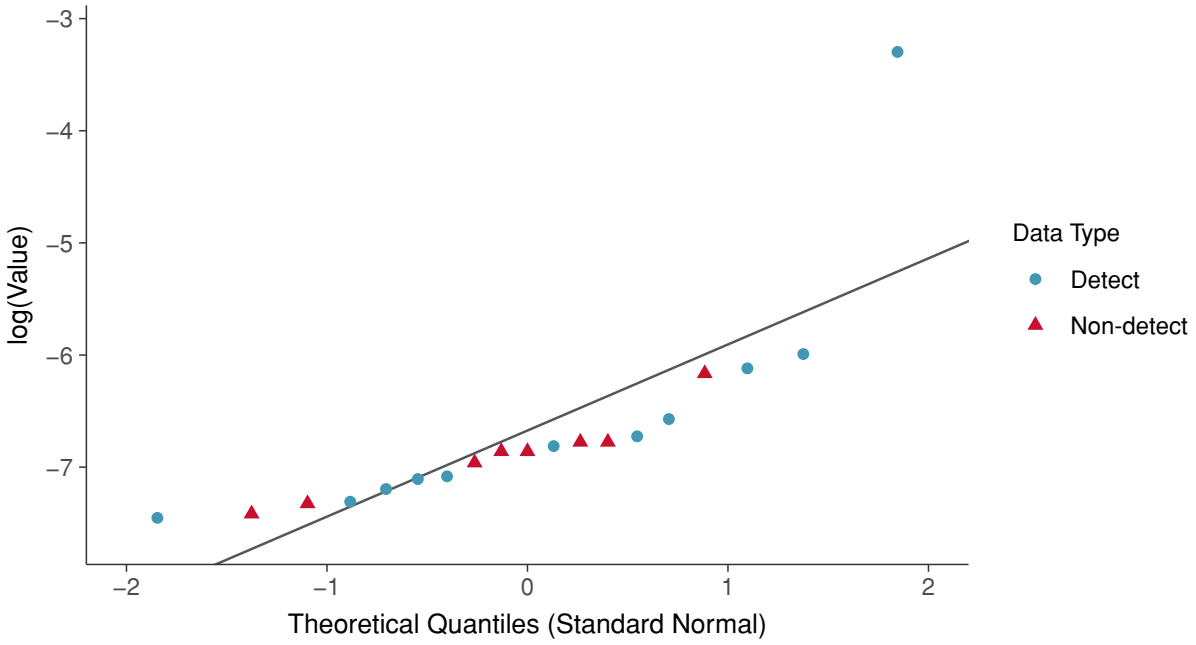
Boxplot by Season

Lead, W-7 (mg/l)



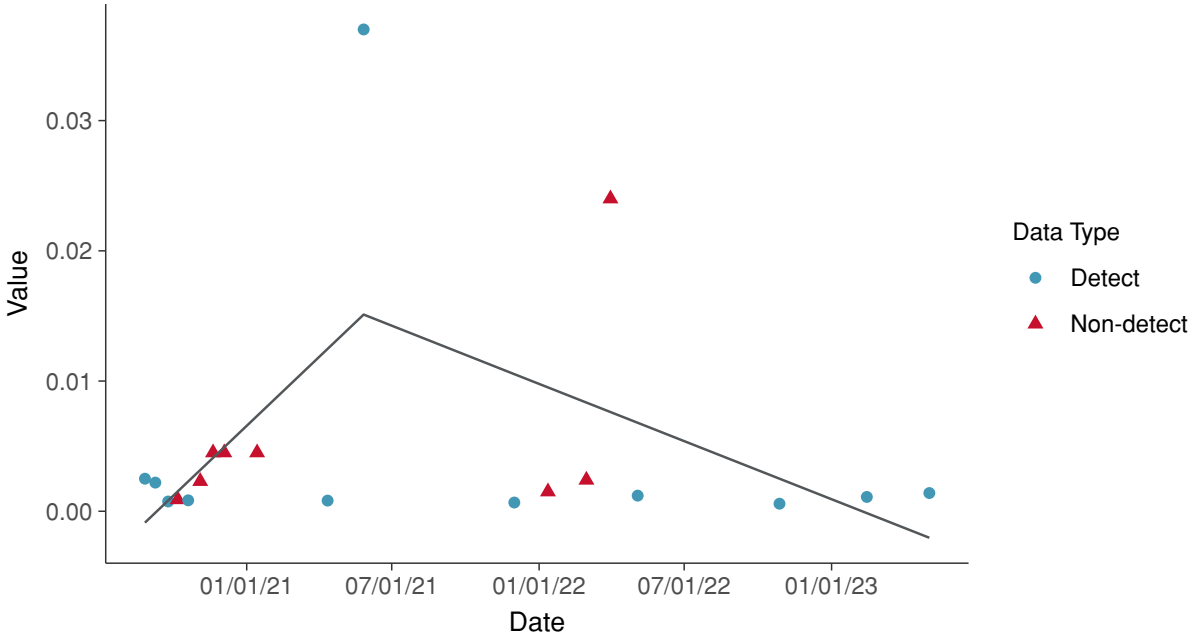
Lognormal Q-Q plot using ROS Imputed Estimates

Lead, W-7 (mg/l)



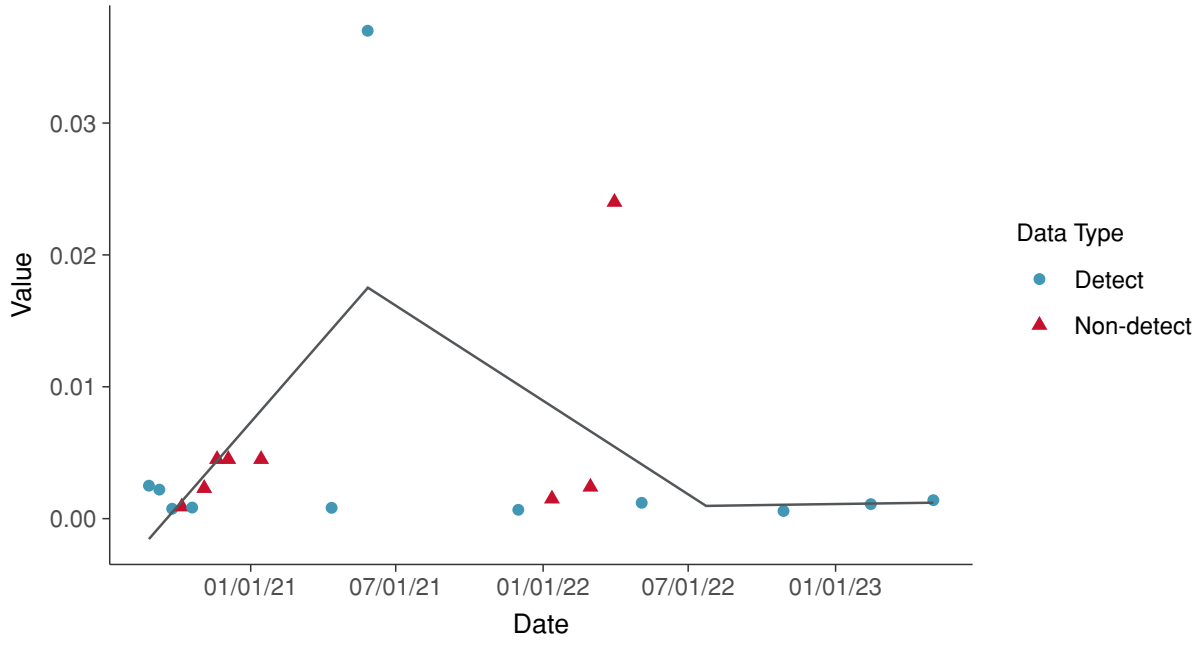
Trend Regression: Piecewise Linear-Linear

Lead, W-7 (mg/l)



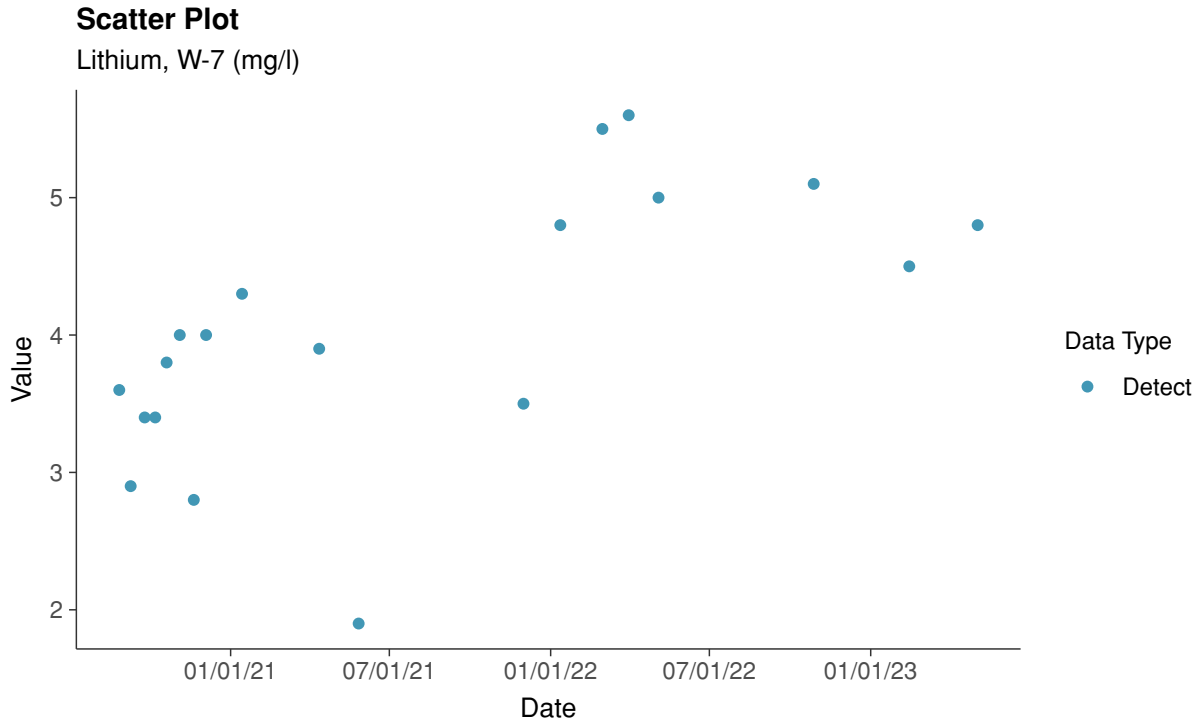
Trend Regression: Piecewise Linear-Linear-Linear

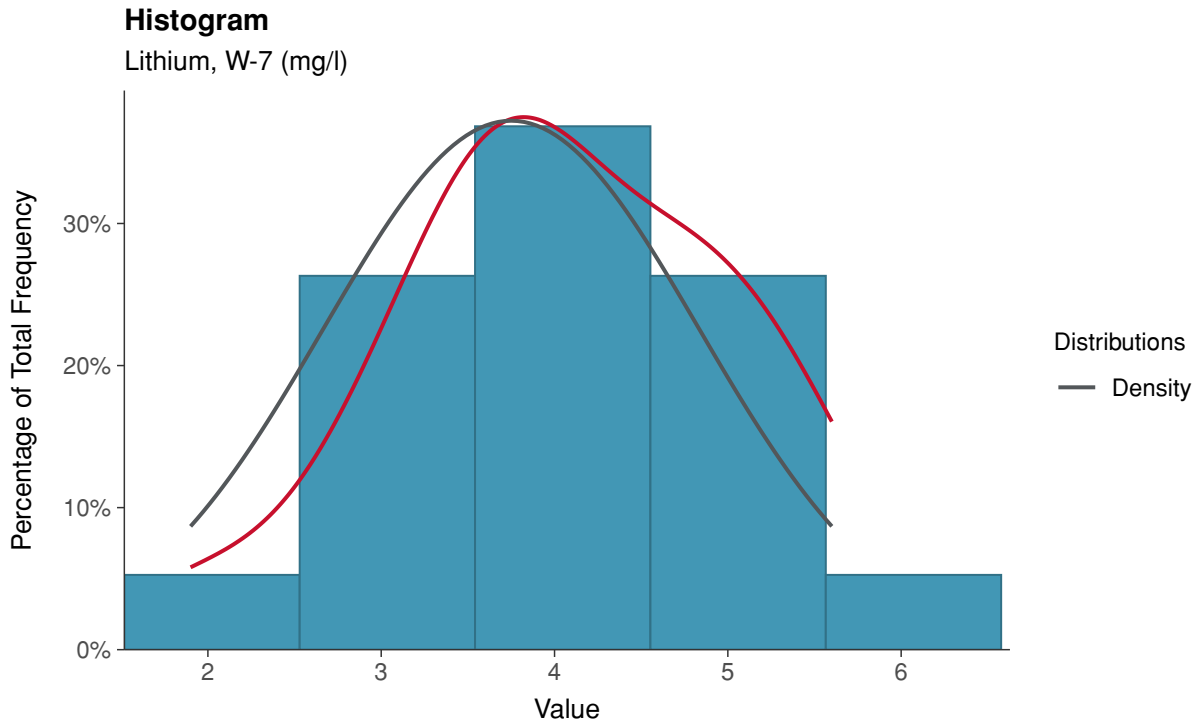
Lead, W-7 (mg/l)



Appendix IV: Lithium, W-7

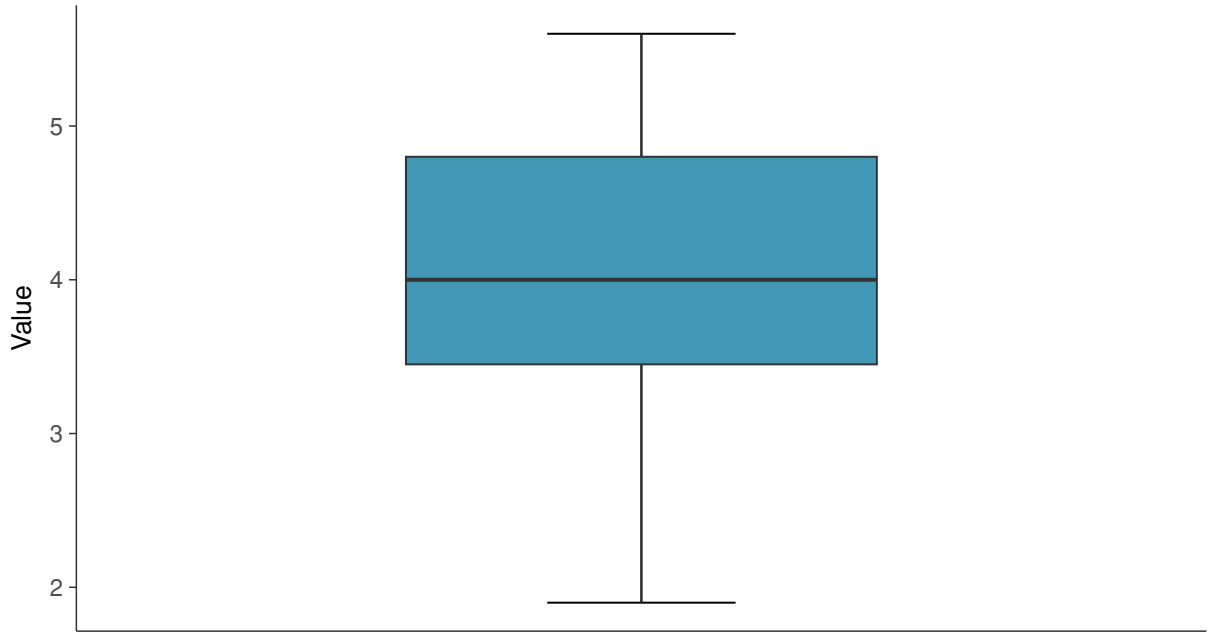
ID: 11_2_114





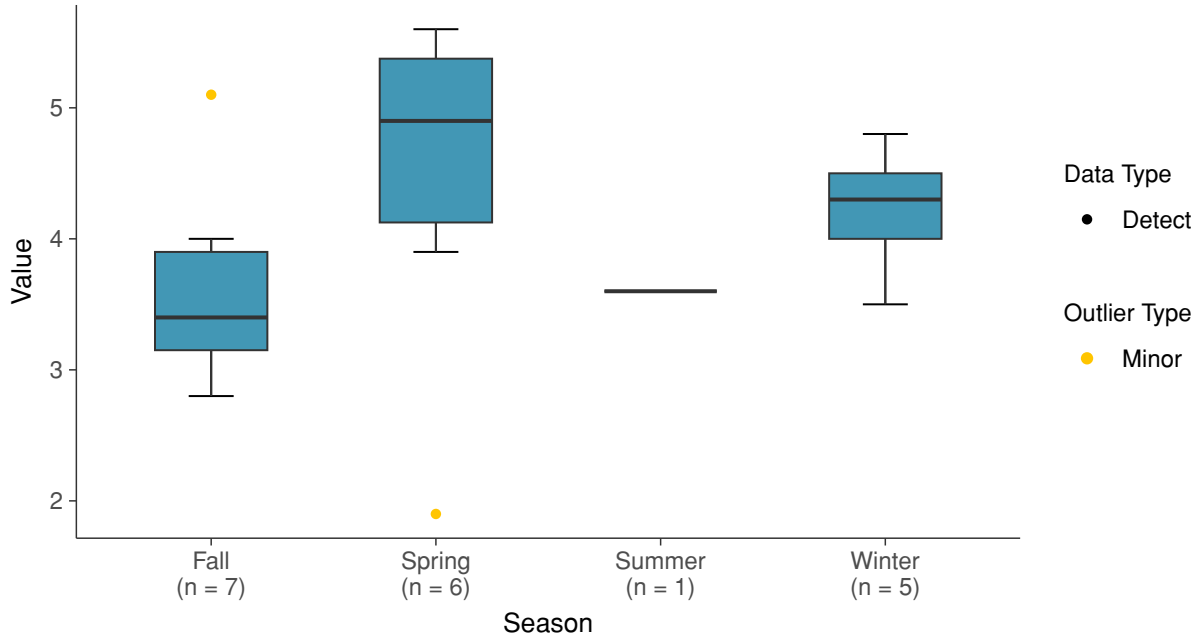
Boxplot

Lithium, W-7 (mg/l)



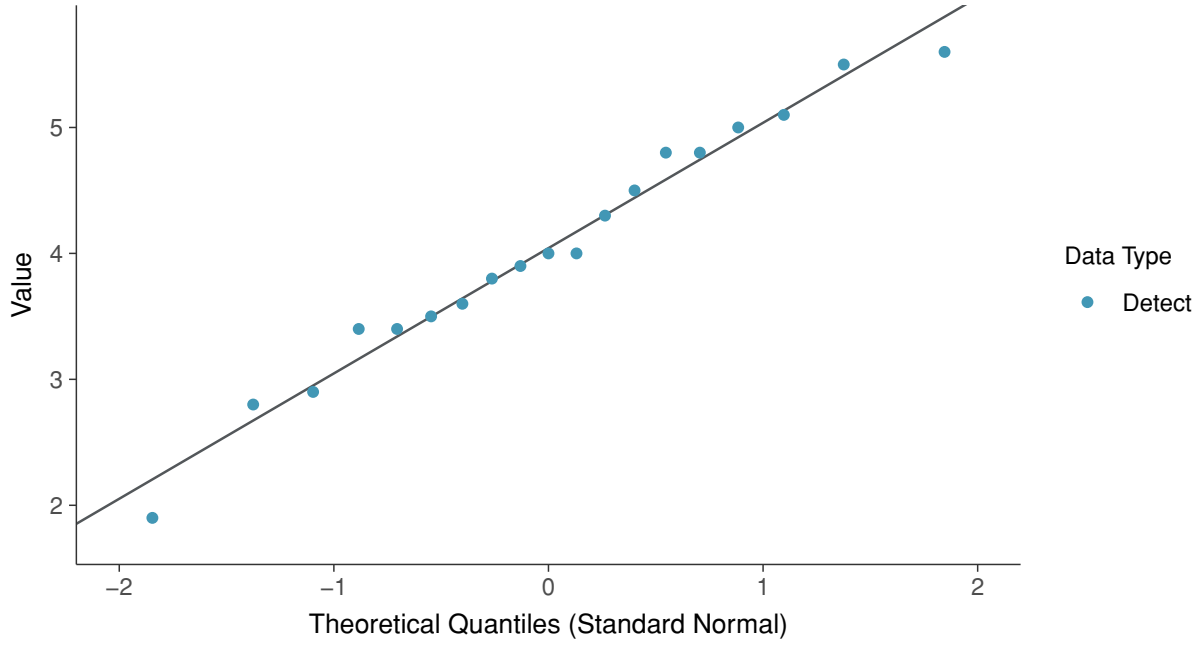
Boxplot by Season

Lithium, W-7 (mg/l)



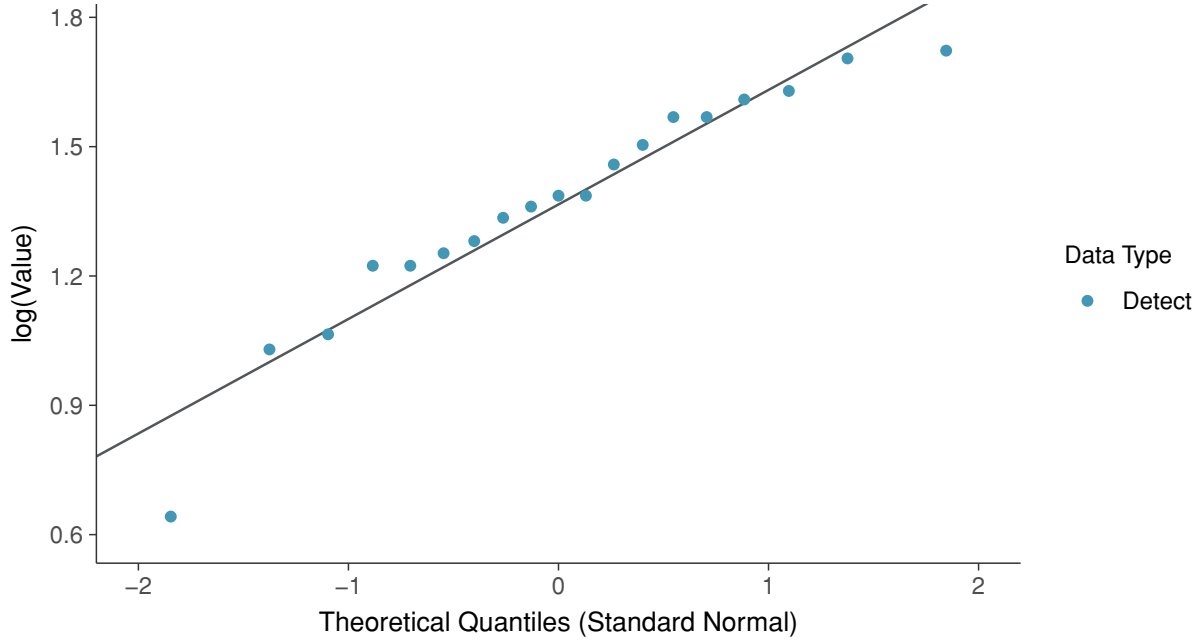
Normal Q-Q plot

Lithium, W-7 (mg/l)



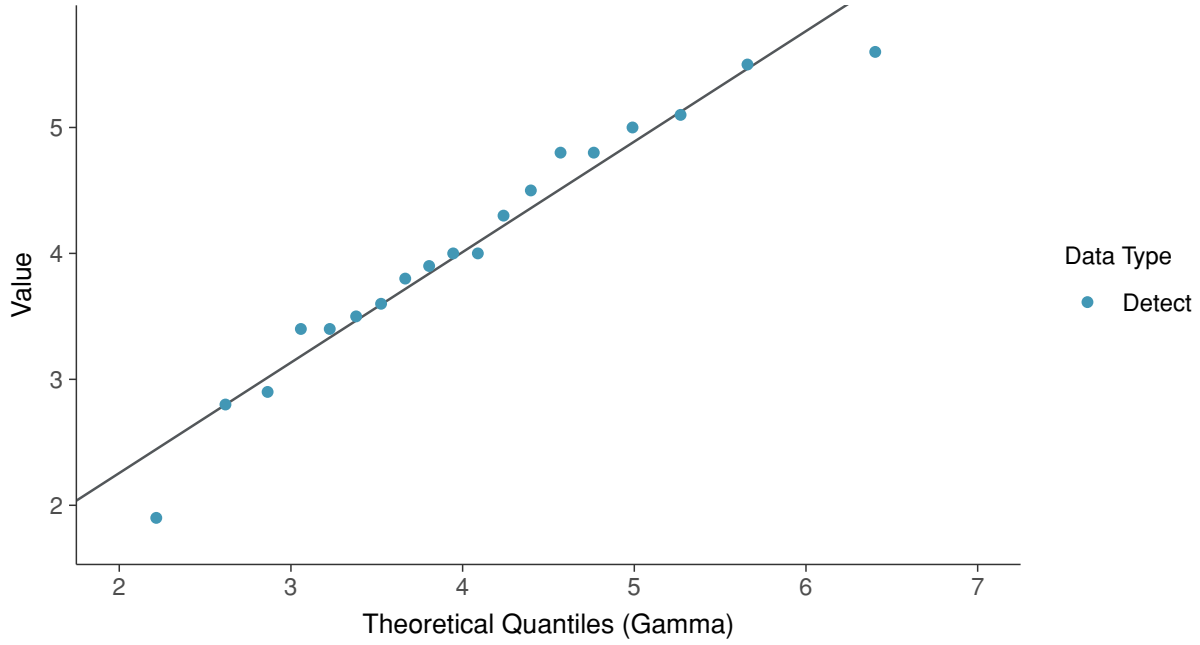
Lognormal Q-Q plot

Lithium, W-7 (mg/l)



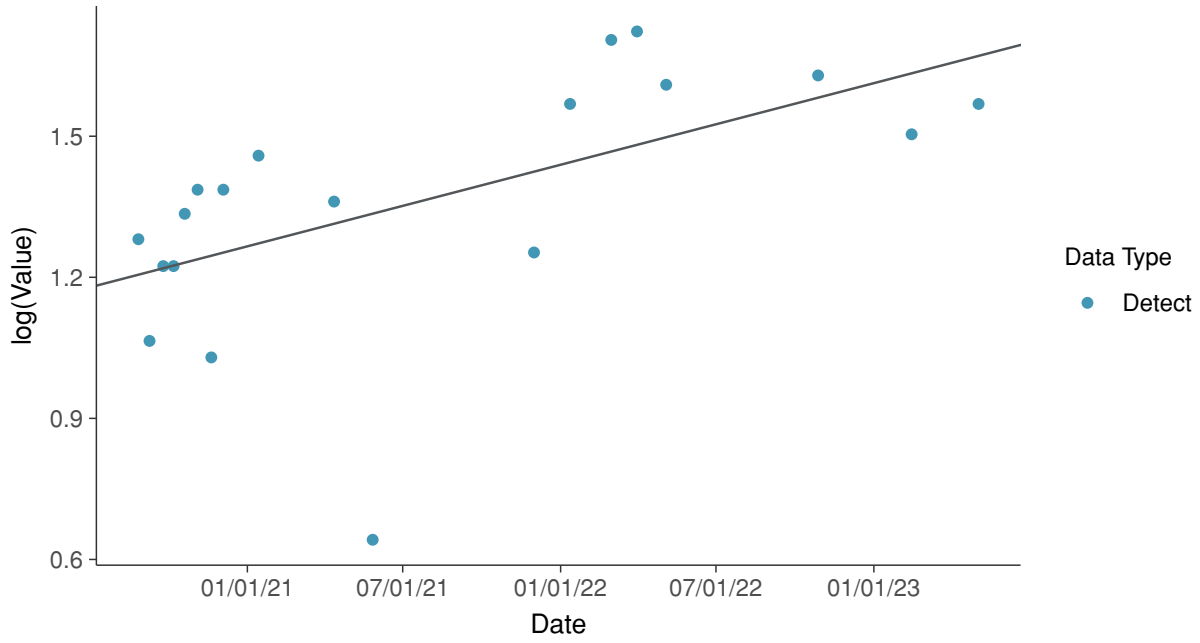
Gamma Q-Q plot

Lithium, W-7 (mg/l)



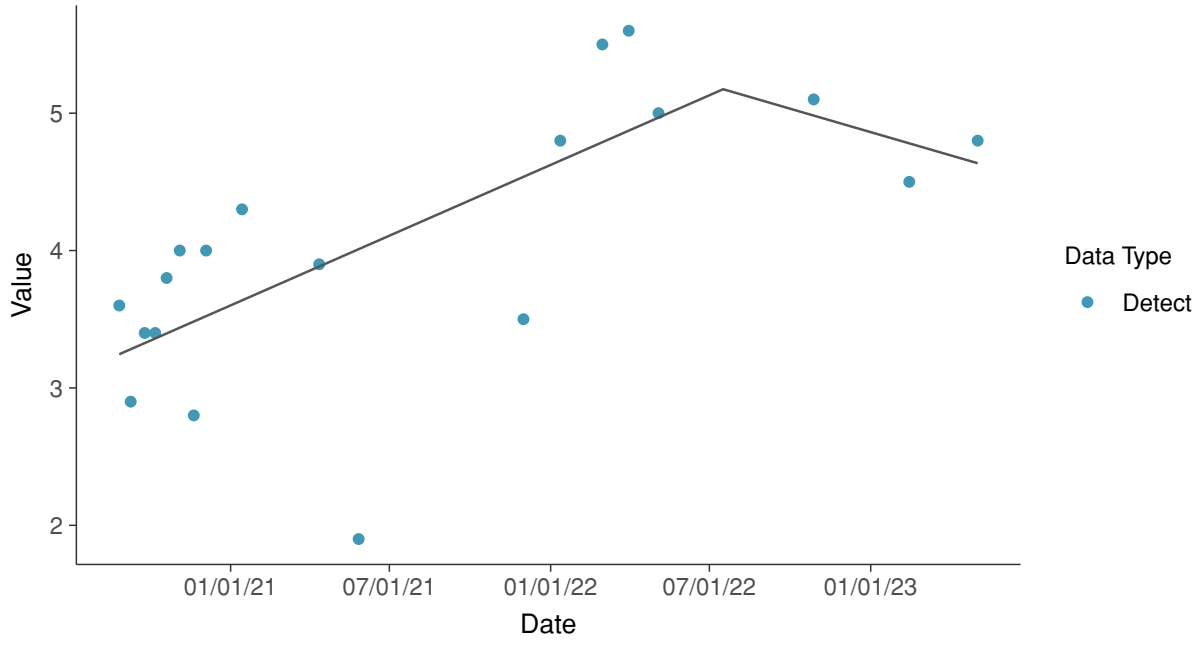
Trend Regression: Lognormal MLE

Lithium, W-7 (mg/l)



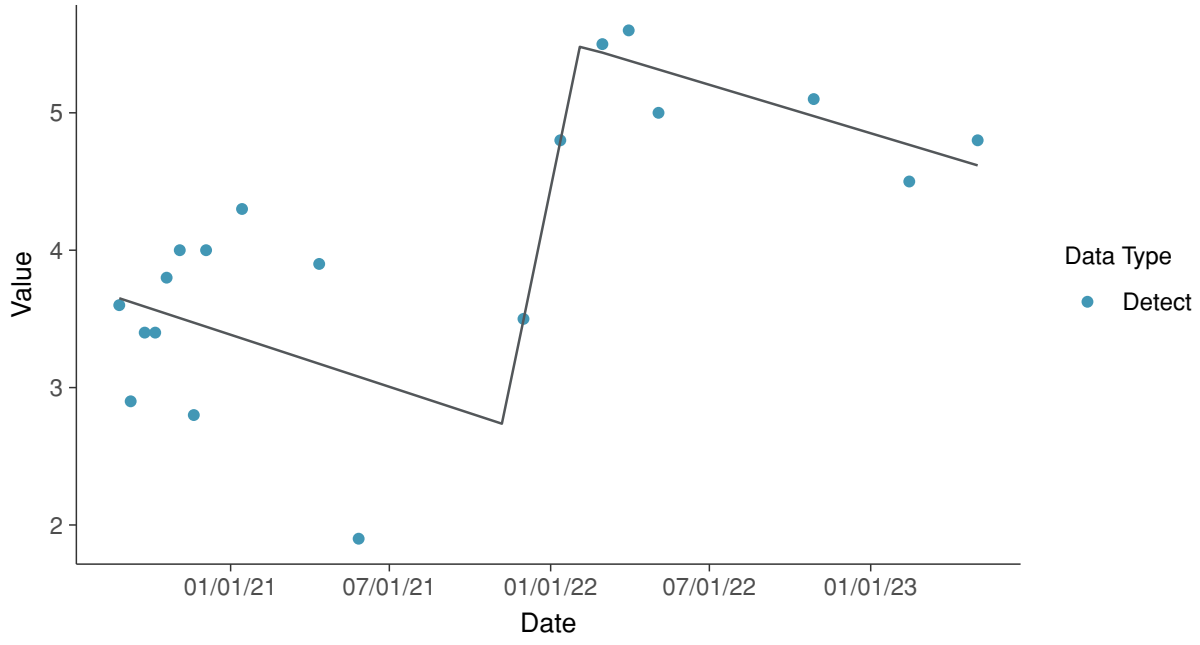
Trend Regression: Piecewise Linear-Linear

Lithium, W-7 (mg/l)



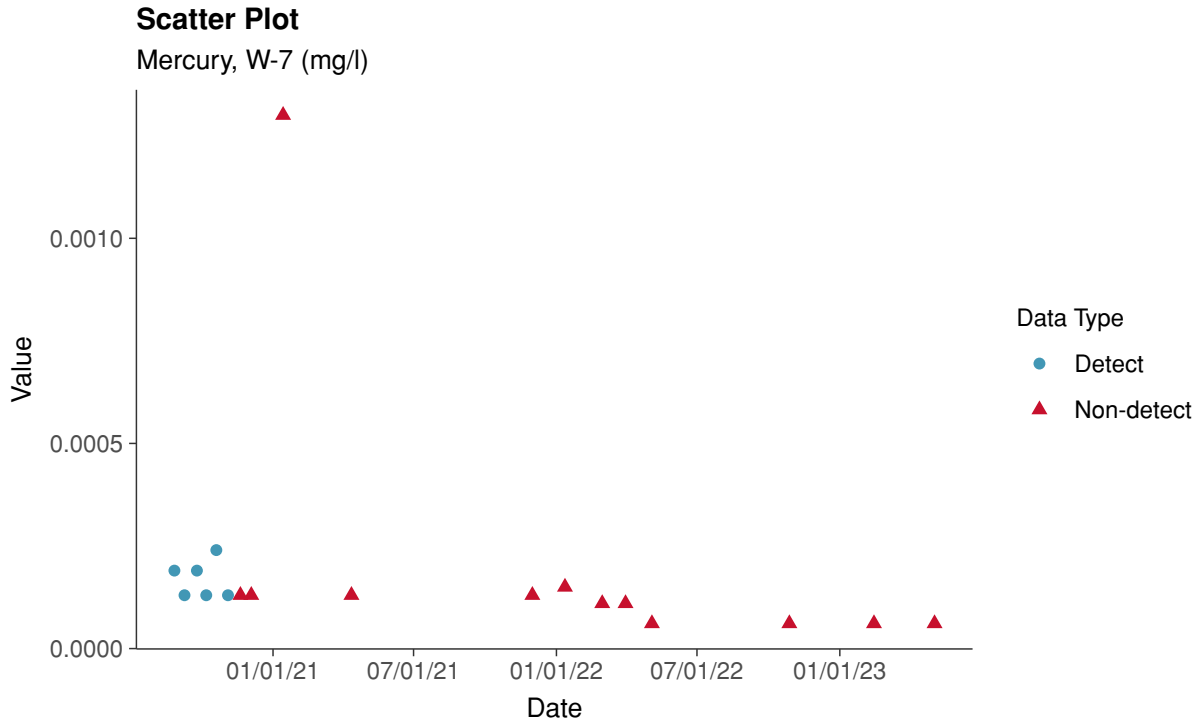
Trend Regression: Piecewise Linear-Linear-Linear

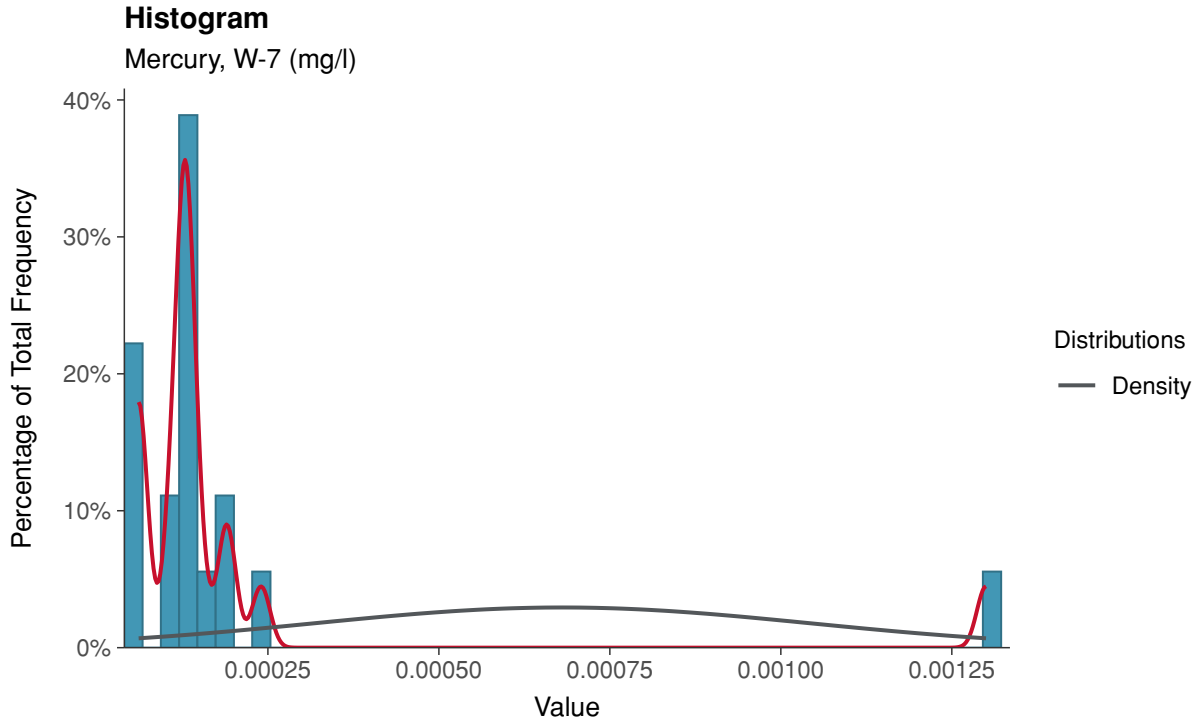
Lithium, W-7 (mg/l)



Appendix IV: Mercury, W-7

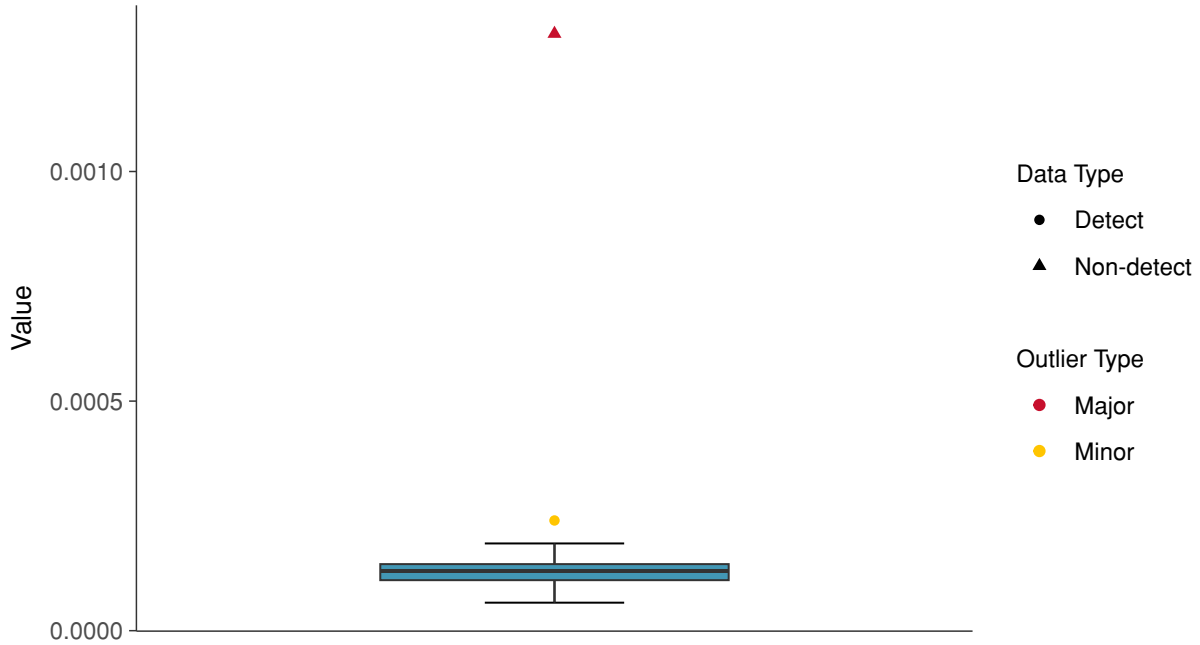
ID: 11_2_115





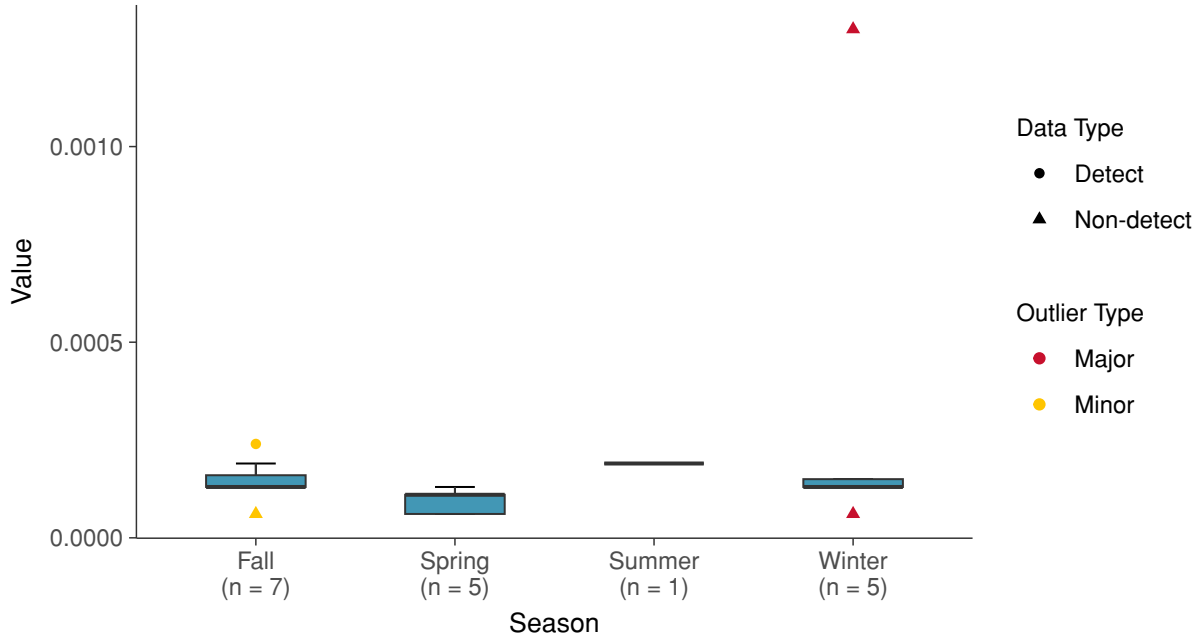
Boxplot

Mercury, W-7 (mg/l)



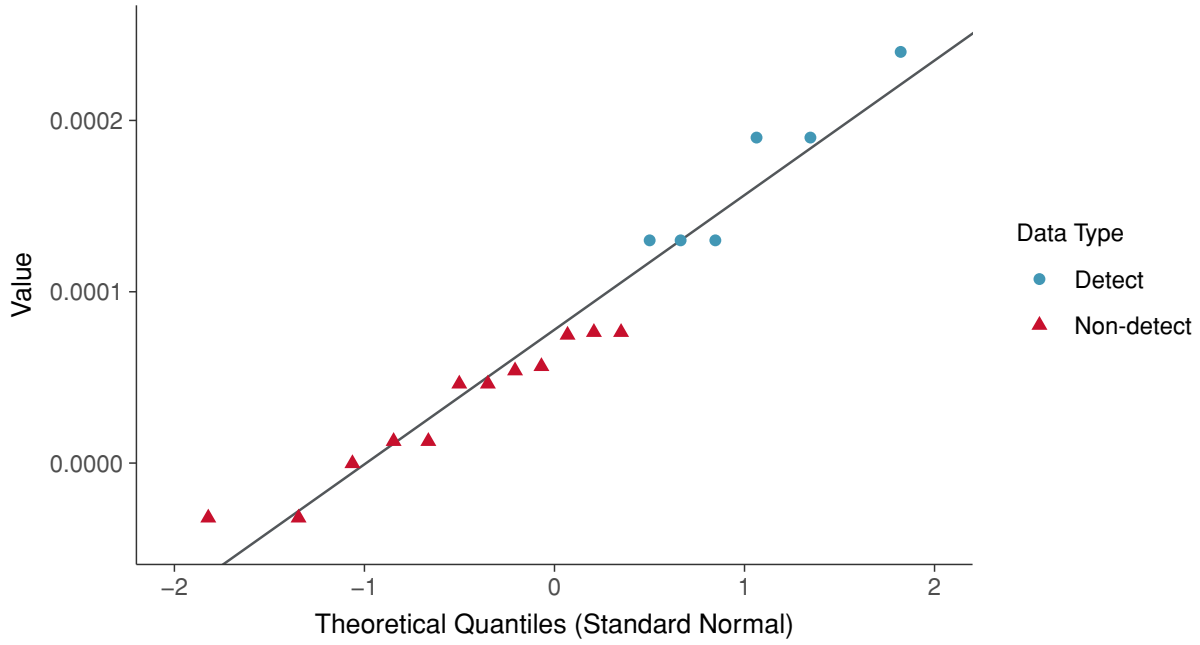
Boxplot by Season

Mercury, W-7 (mg/l)



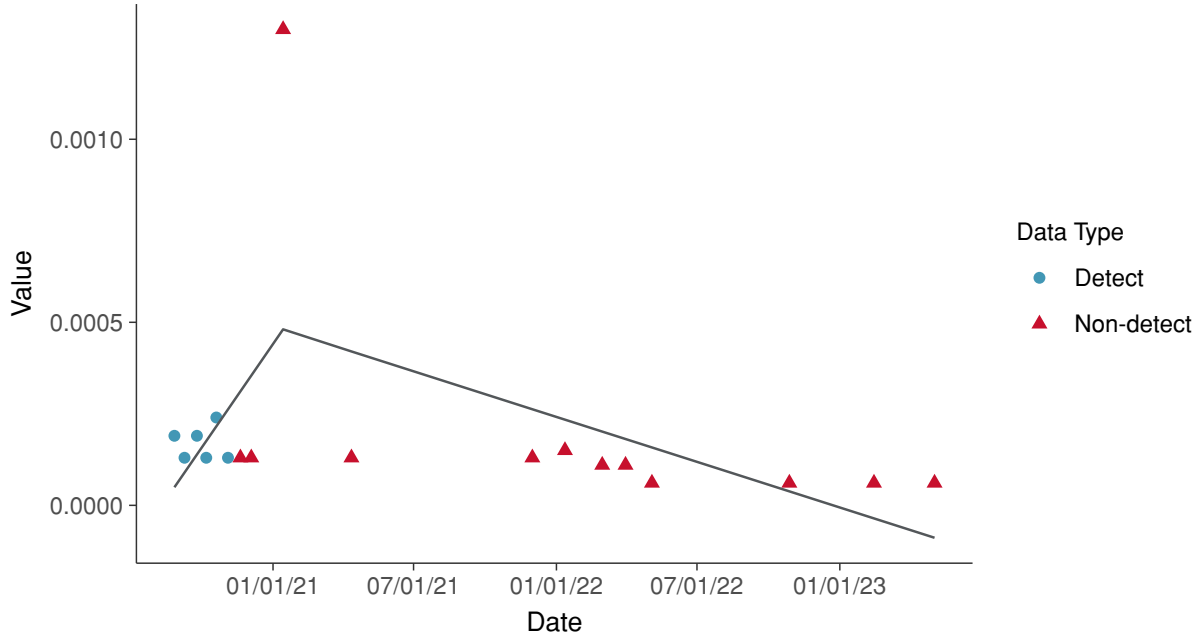
Normal Q-Q plot using ROS Imputed Estimates

Mercury, W-7 (mg/l)



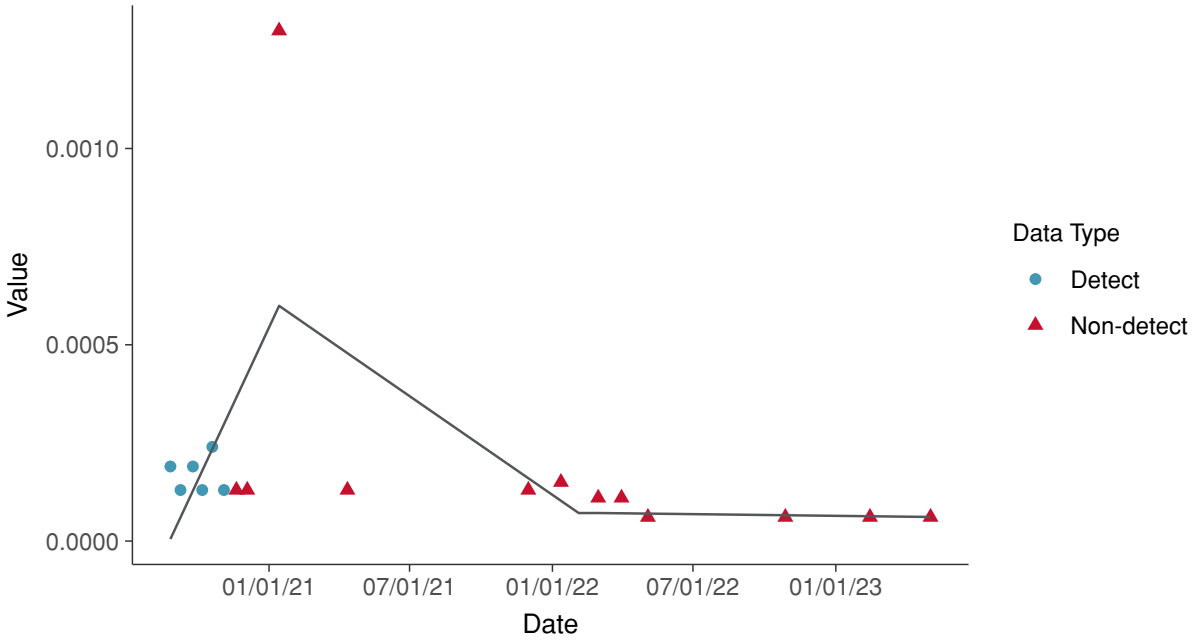
Trend Regression: Piecewise Linear-Linear

Mercury, W-7 (mg/l)



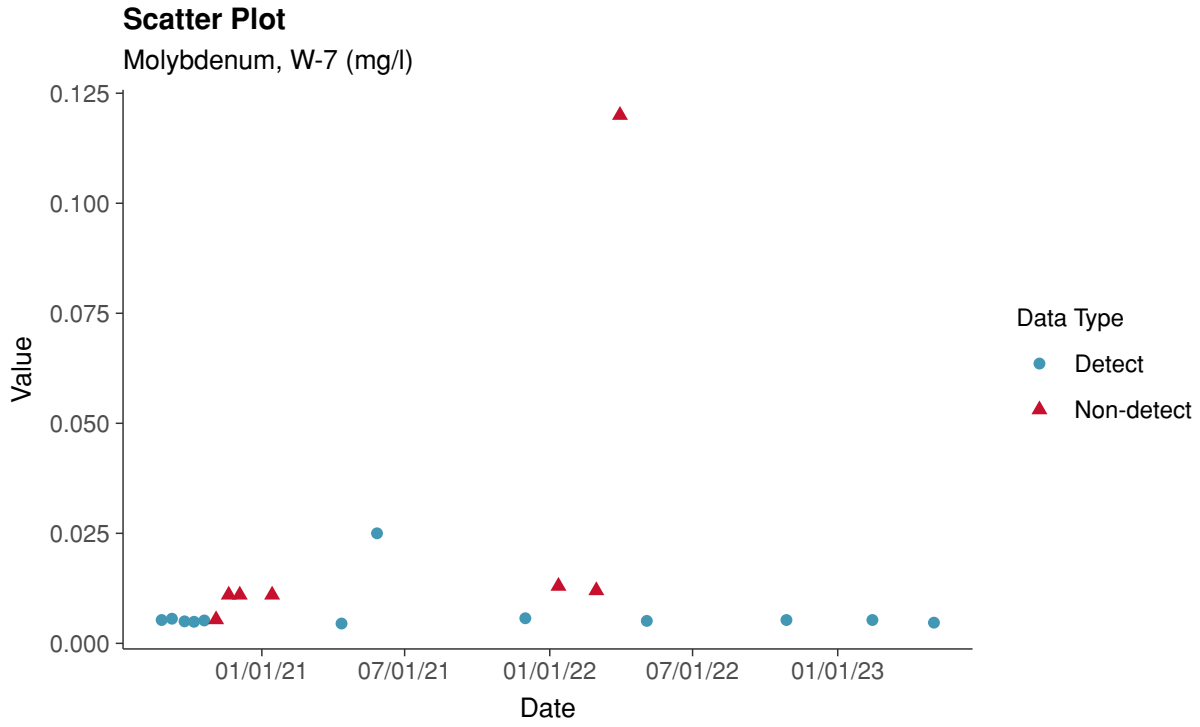
Trend Regression: Piecewise Linear-Linear-Linear

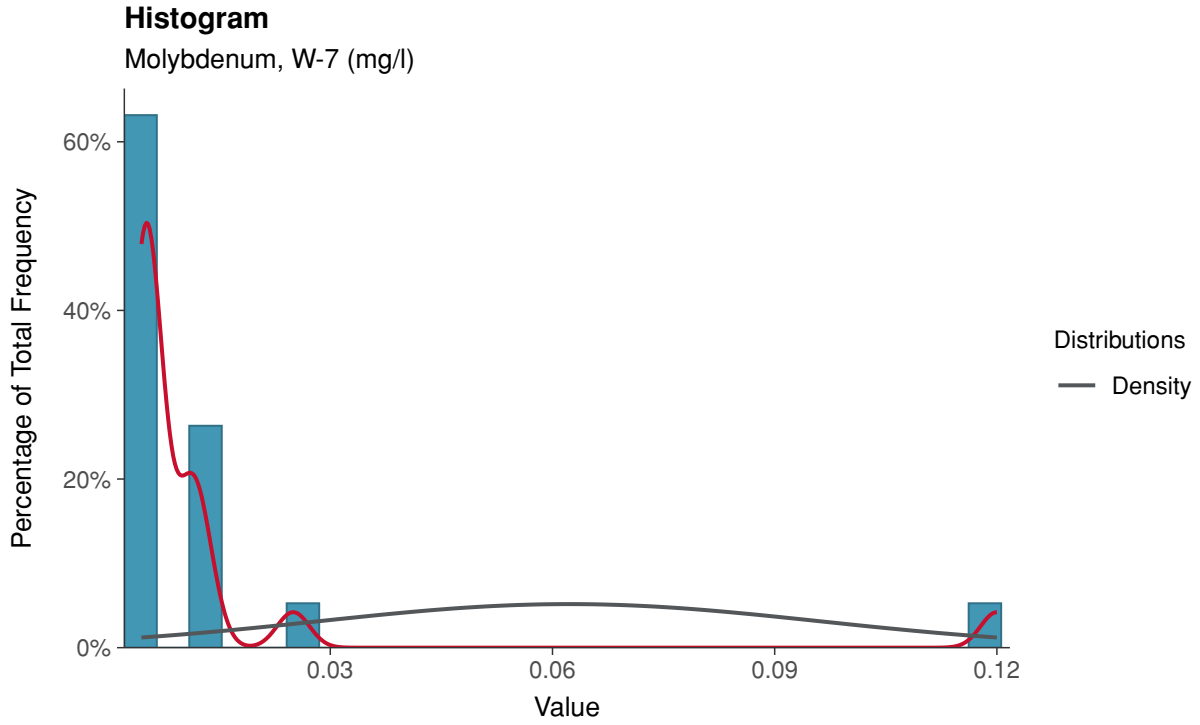
Mercury, W-7 (mg/l)



Appendix IV: Molybdenum, W-7

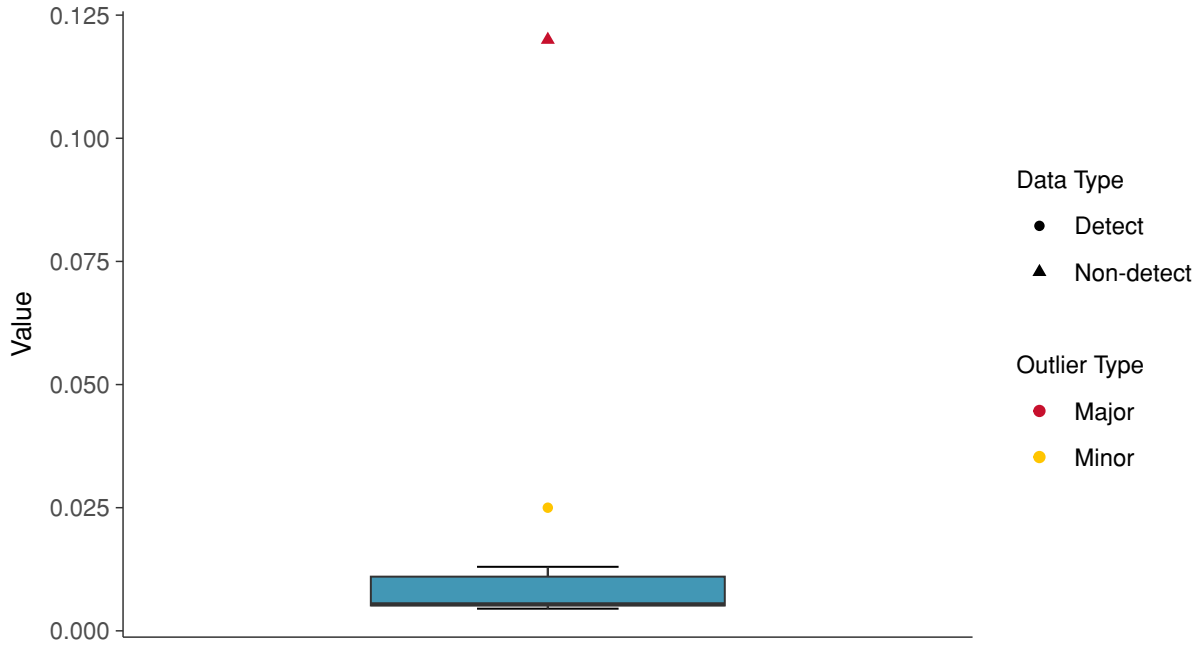
ID: 11_2_116





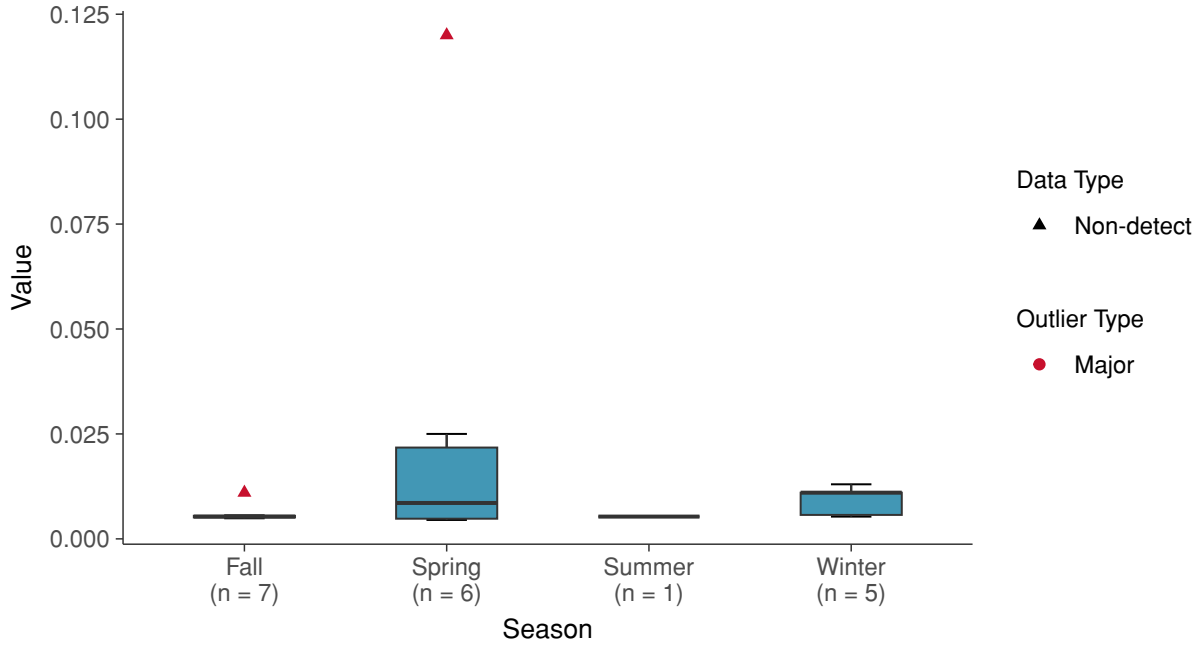
Boxplot

Molybdenum, W-7 (mg/l)



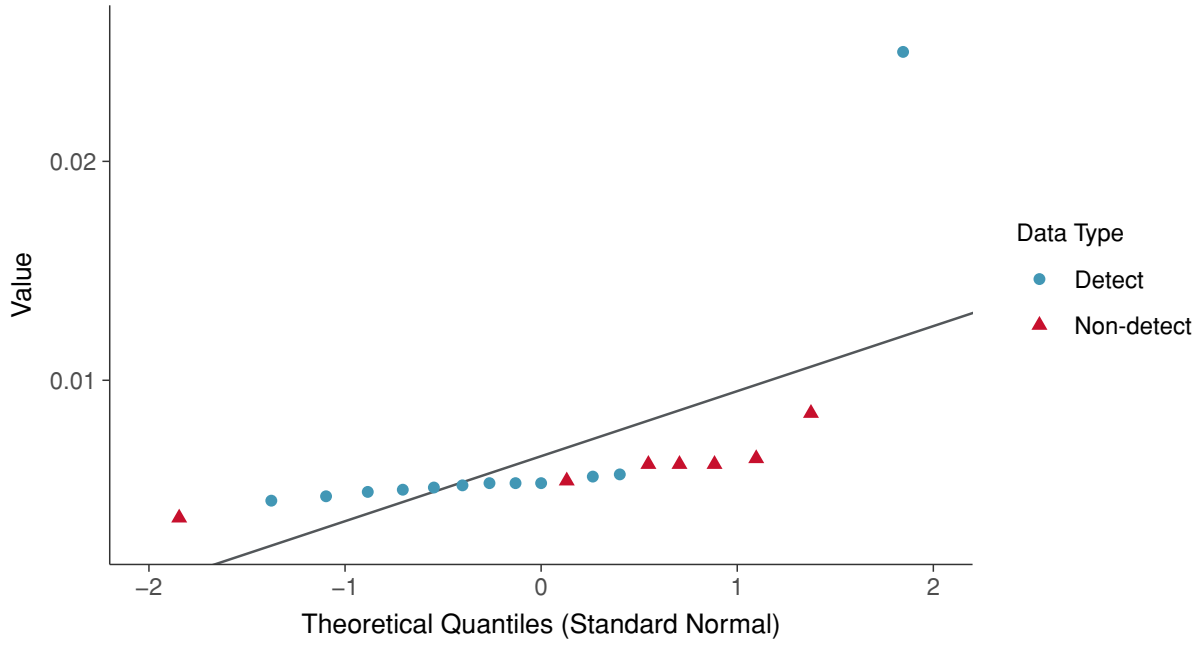
Boxplot by Season

Molybdenum, W-7 (mg/l)



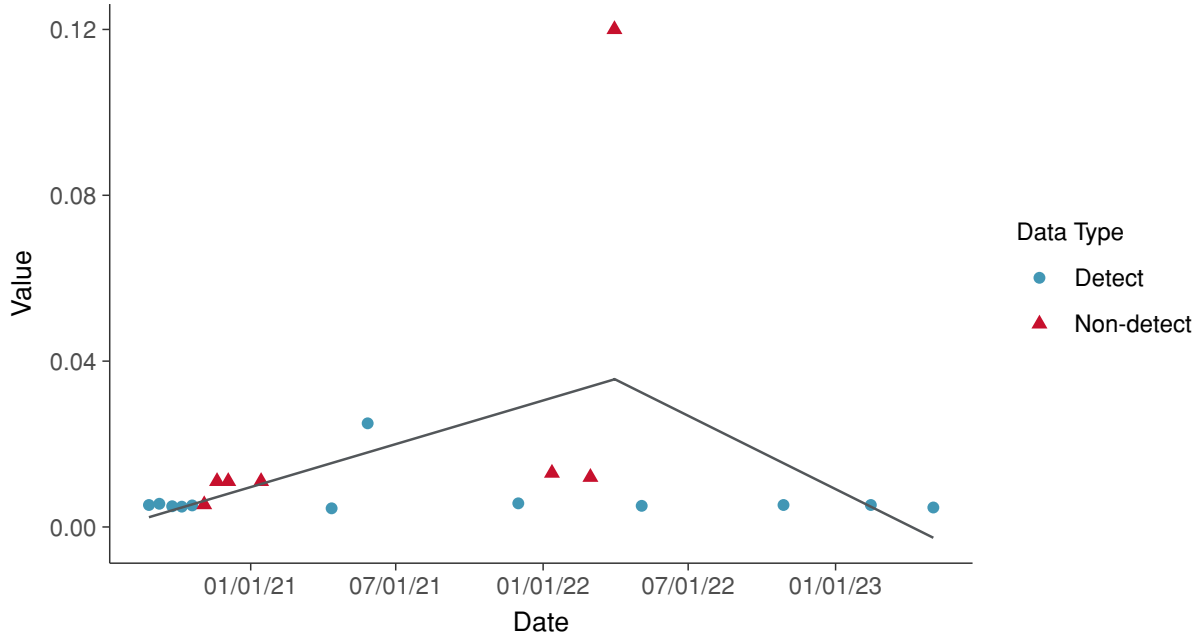
Normal Q-Q plot using ROS Imputed Estimates

Molybdenum, W-7 (mg/l)



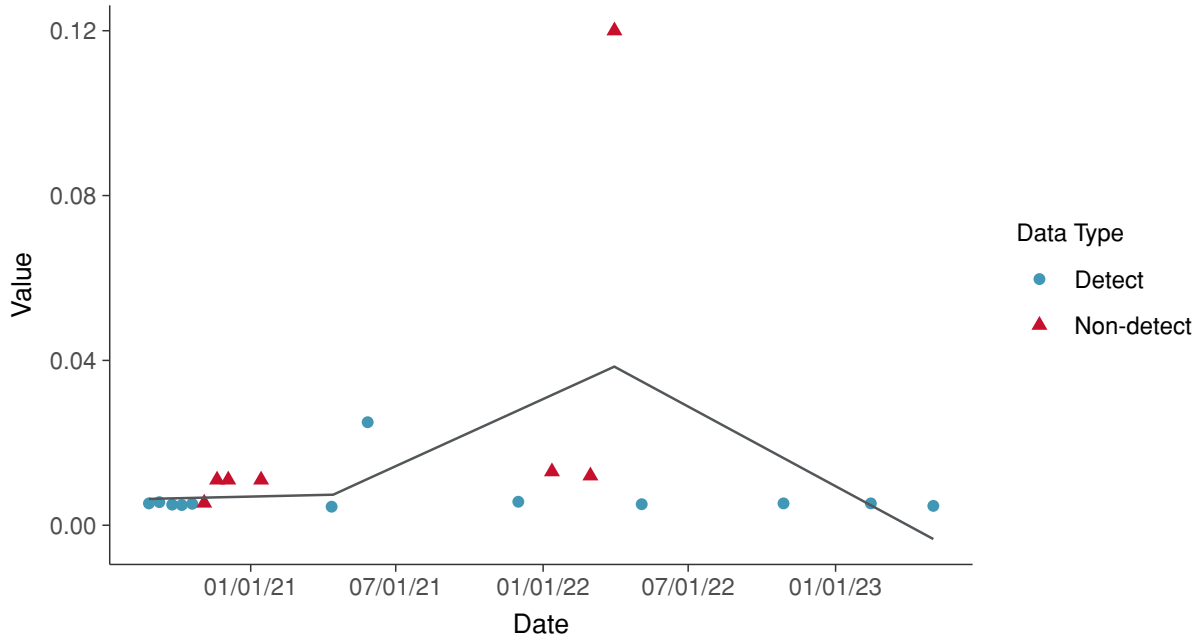
Trend Regression: Piecewise Linear-Linear

Molybdenum, W-7 (mg/l)



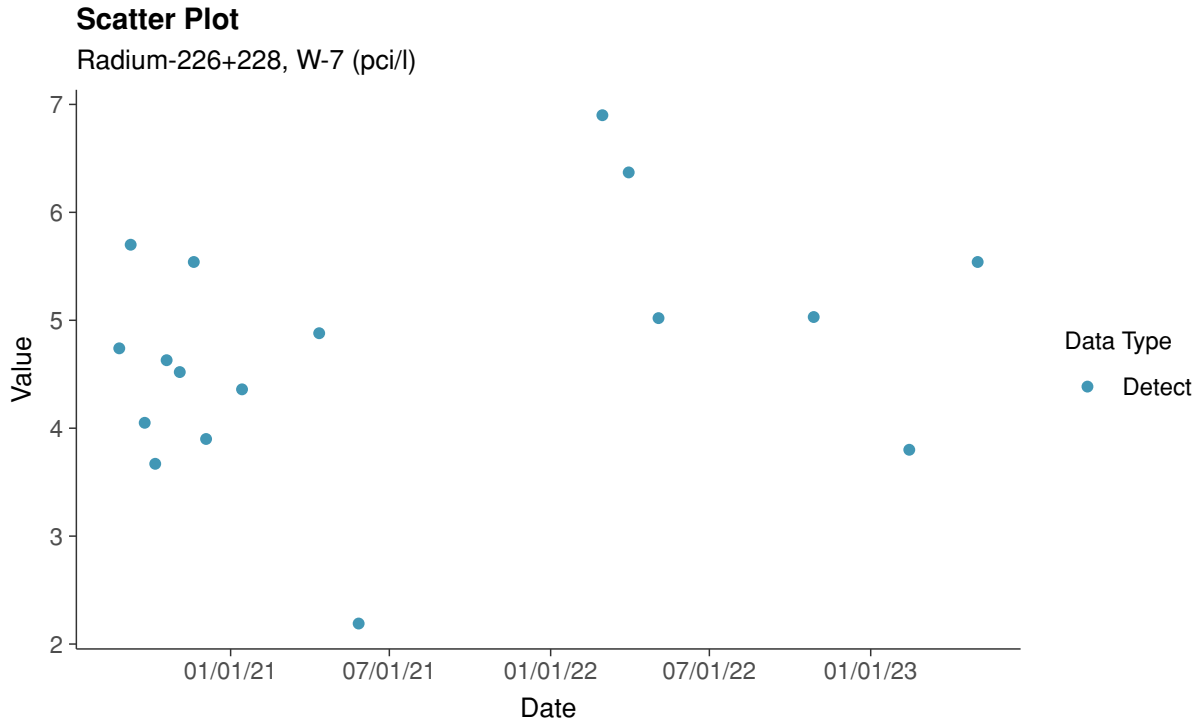
Trend Regression: Piecewise Linear-Linear-Linear

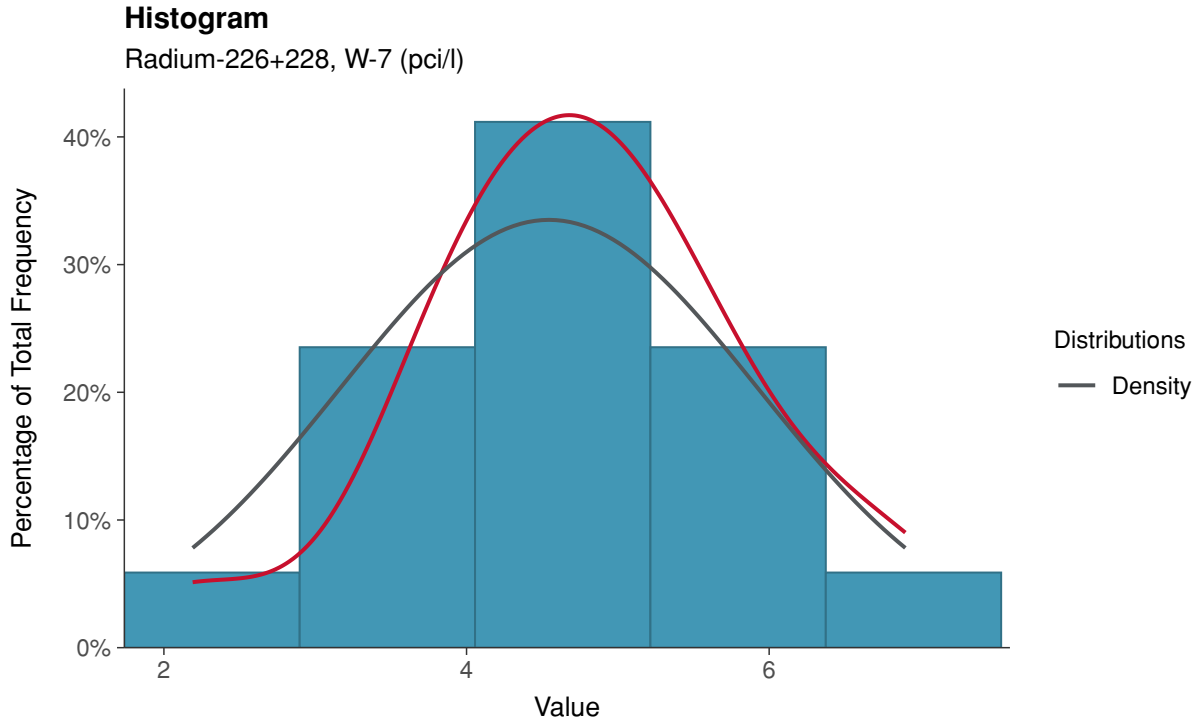
Molybdenum, W-7 (mg/l)



Appendix IV: Radium-226+228, W-7

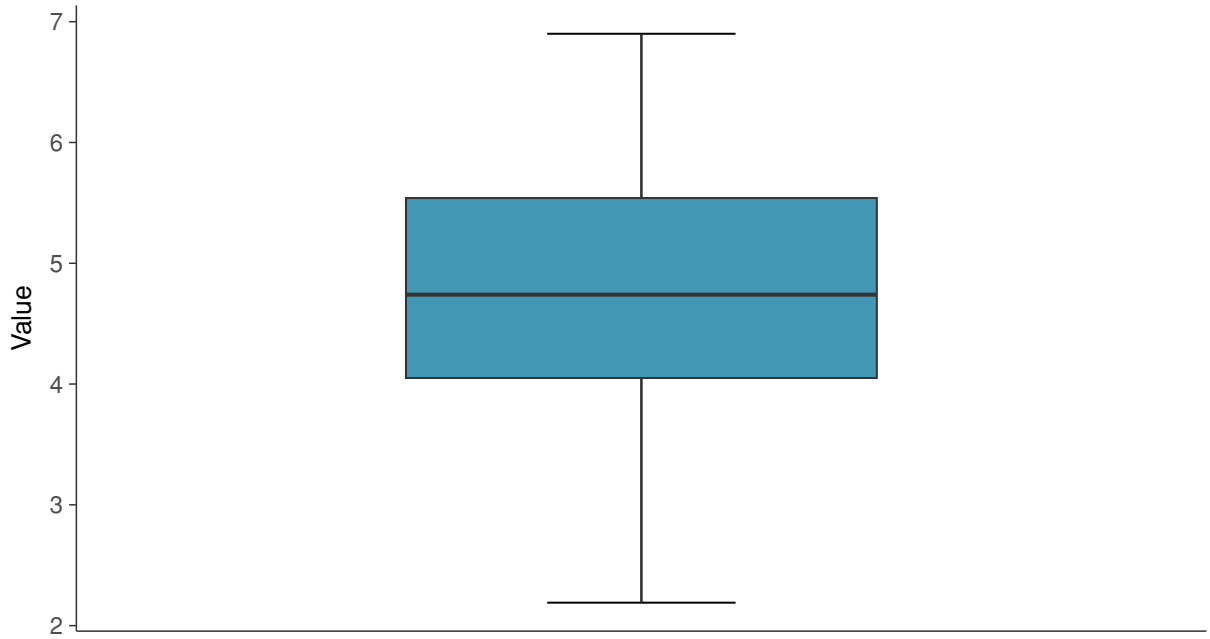
ID: 11_2_120





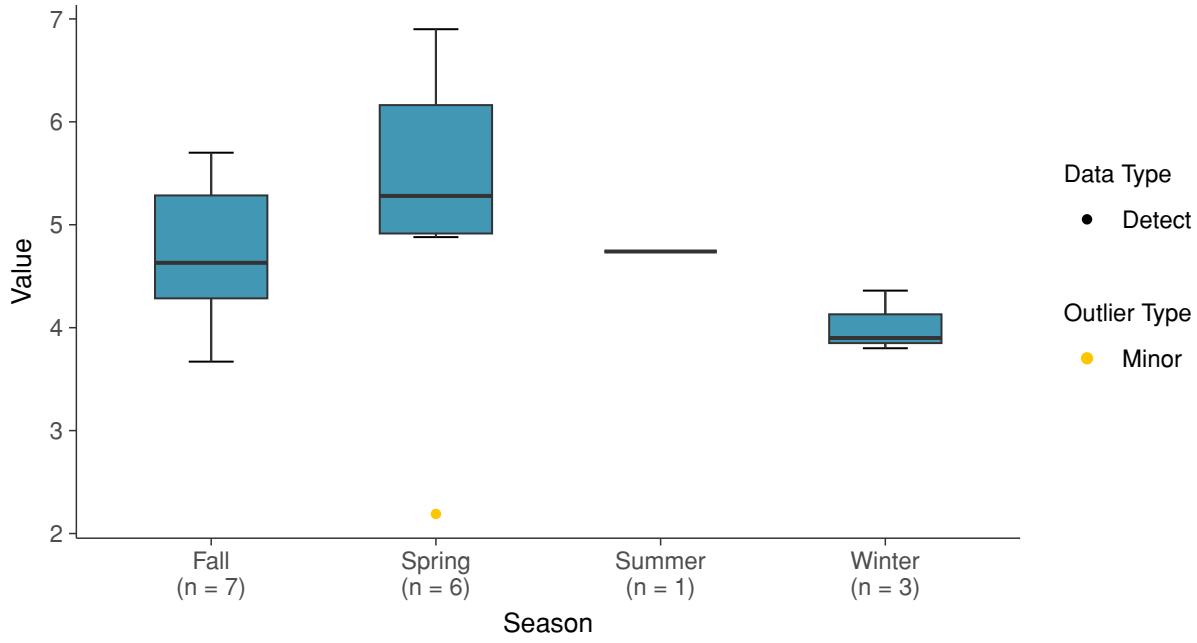
Boxplot

Radium-226+228, W-7 (pci/l)



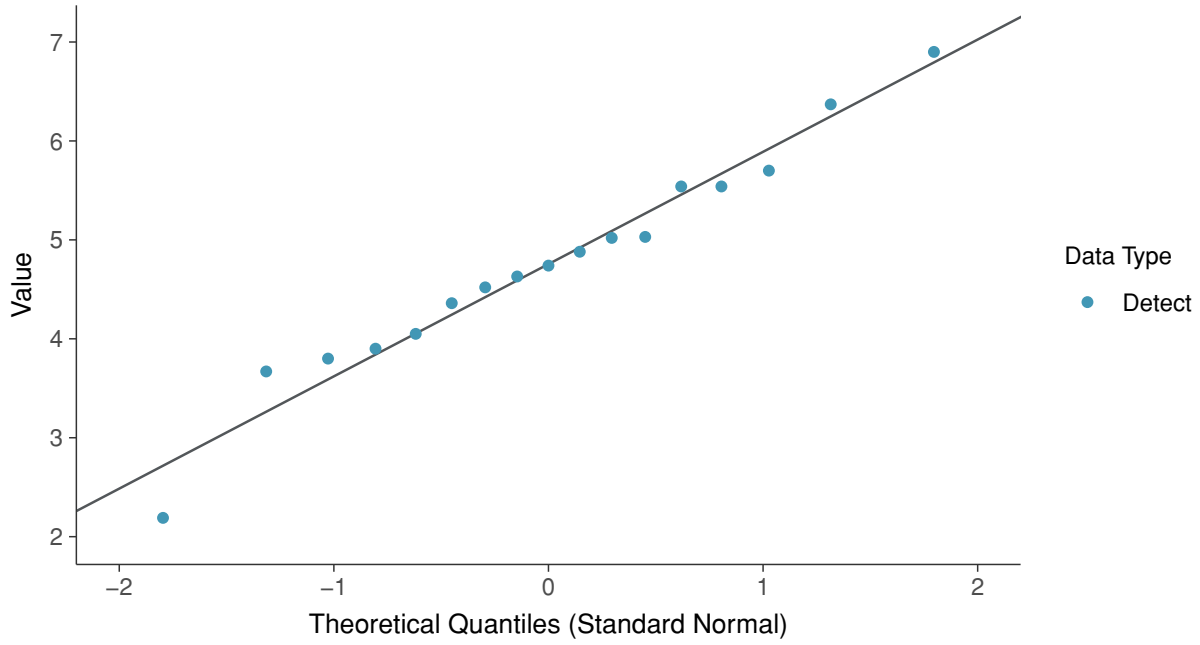
Boxplot by Season

Radium-226+228, W-7 (pci/l)



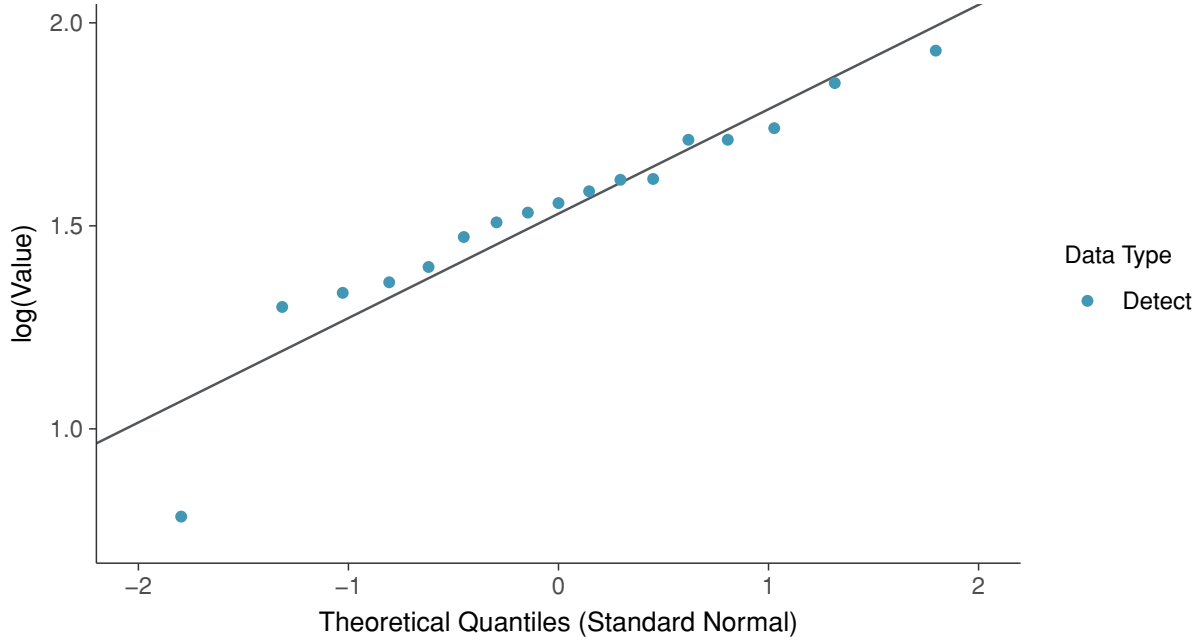
Normal Q-Q plot

Radium-226+228, W-7 (pci/l)



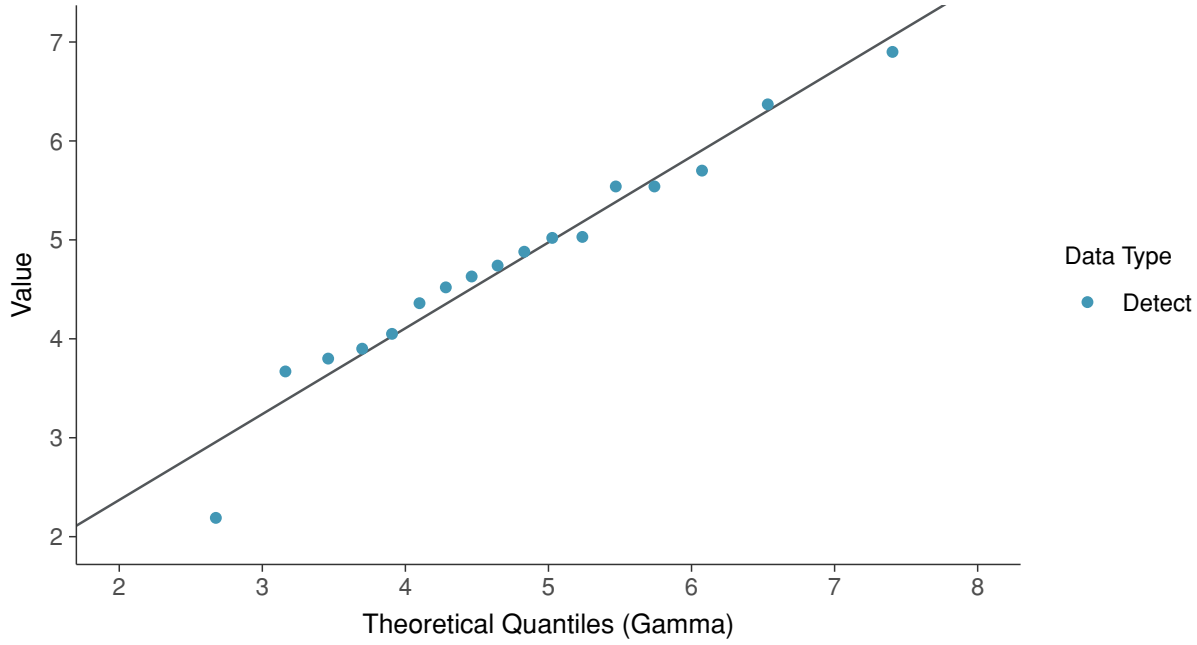
Lognormal Q-Q plot

Radium-226+228, W-7 (pci/l)



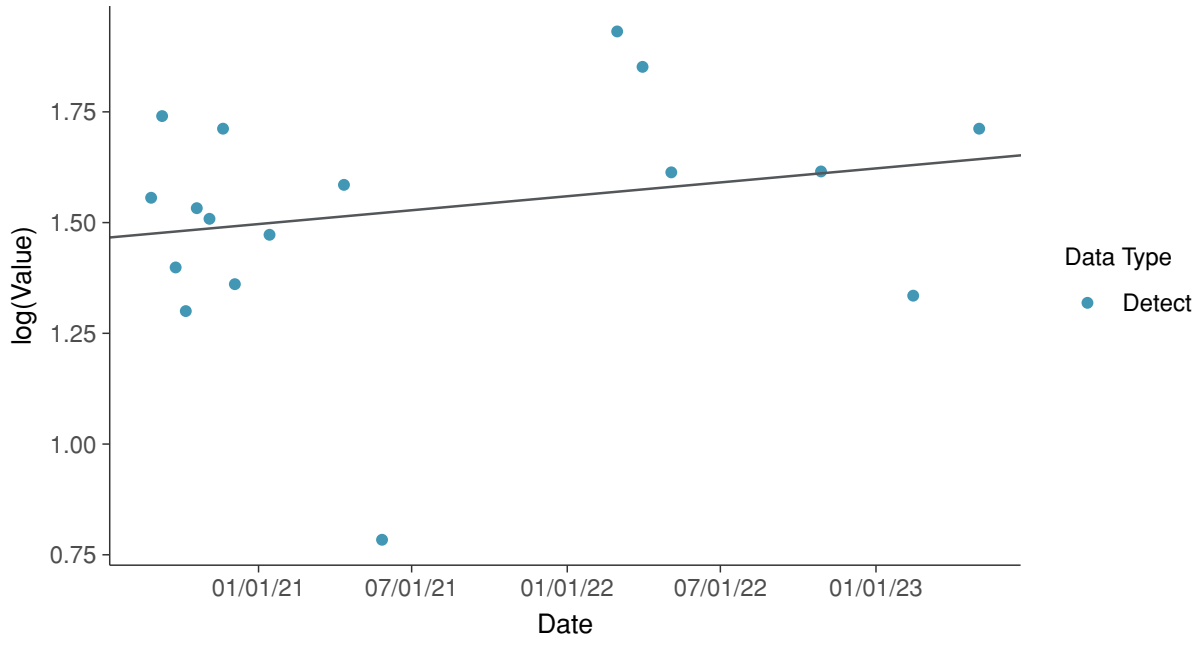
Gamma Q-Q plot

Radium-226+228, W-7 (pci/l)



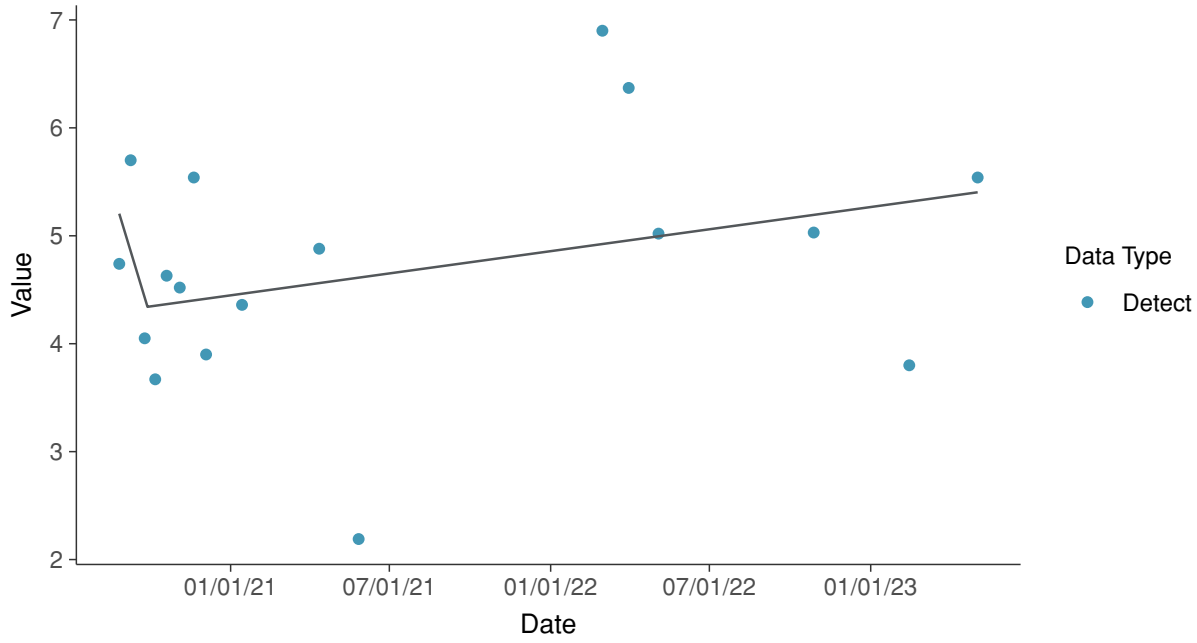
Trend Regression: Lognormal MLE

Radium-226+228, W-7 (pci/l)



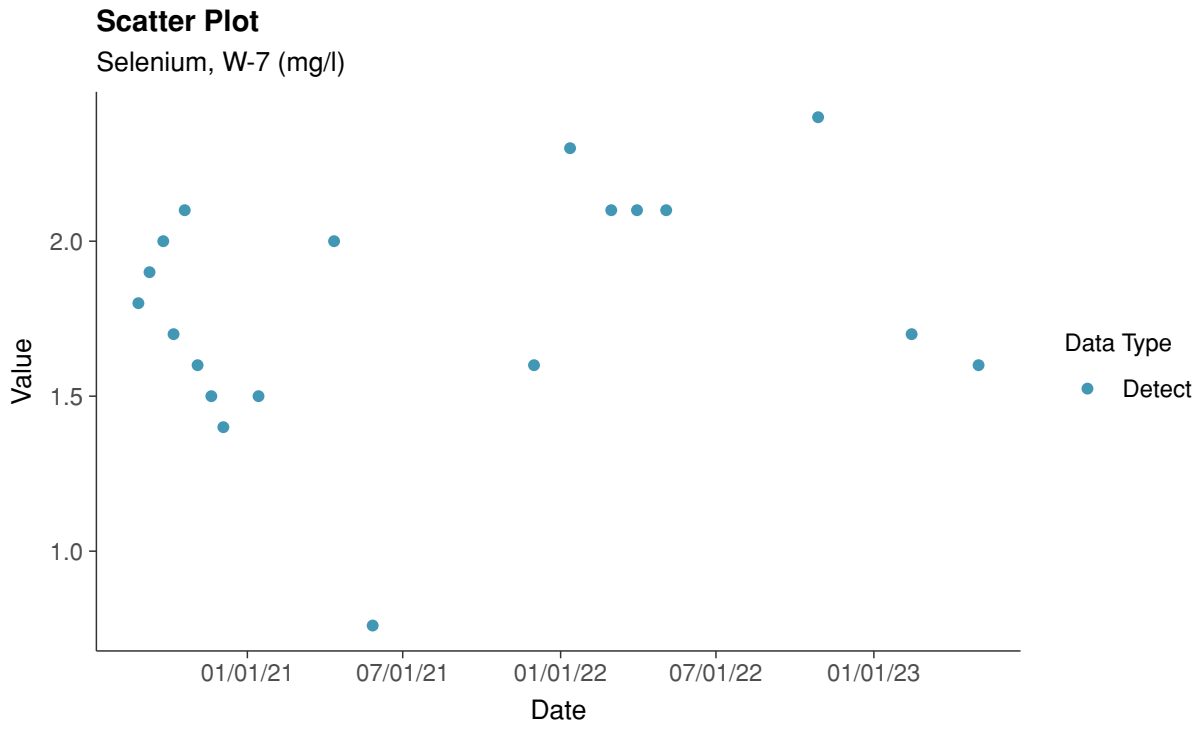
Trend Regression: Piecewise Linear-Linear

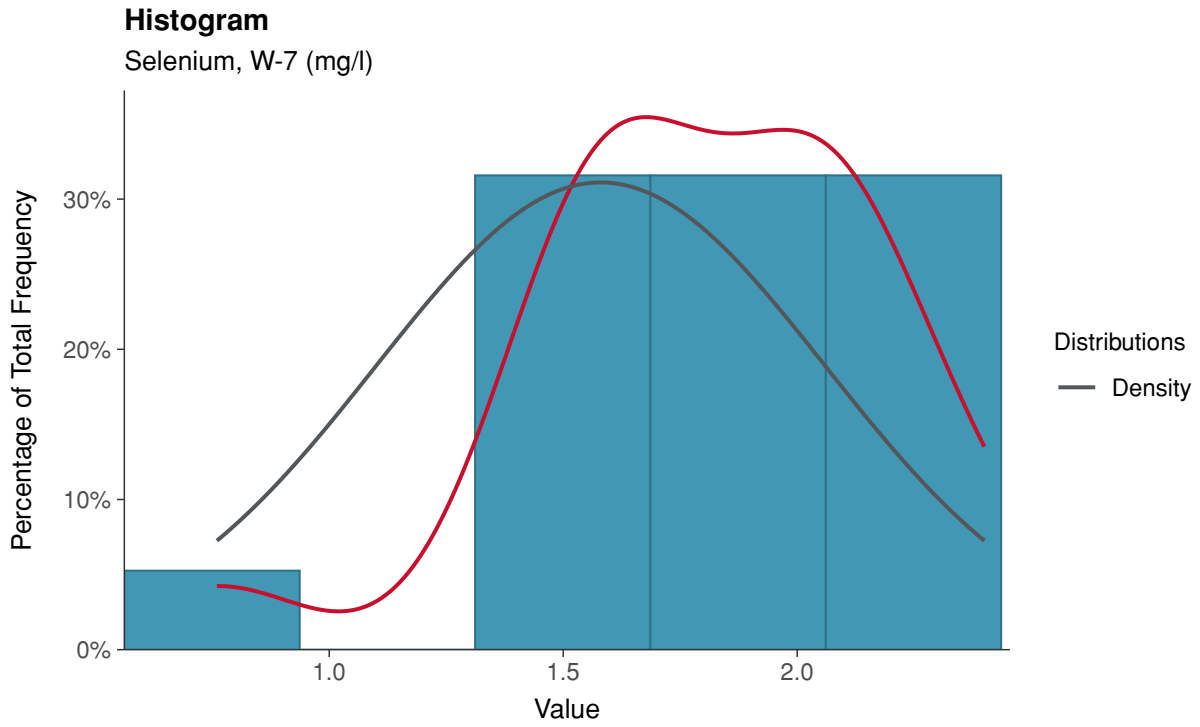
Radium-226+228, W-7 (pci/l)



Appendix IV: Selenium, W-7

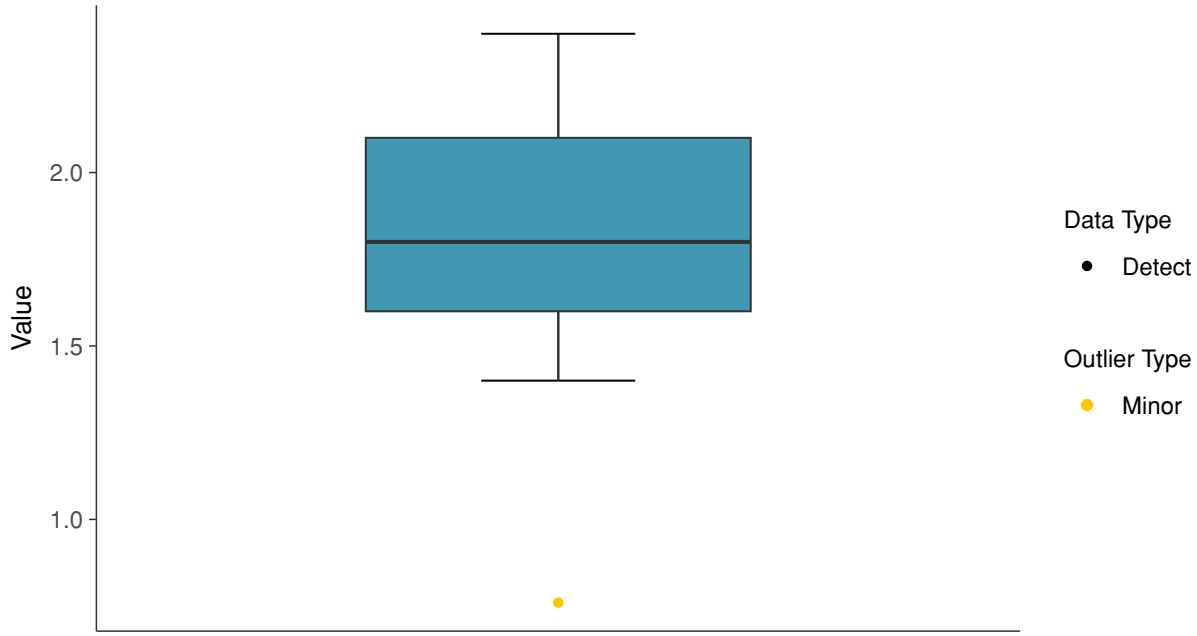
ID: 11_2_122





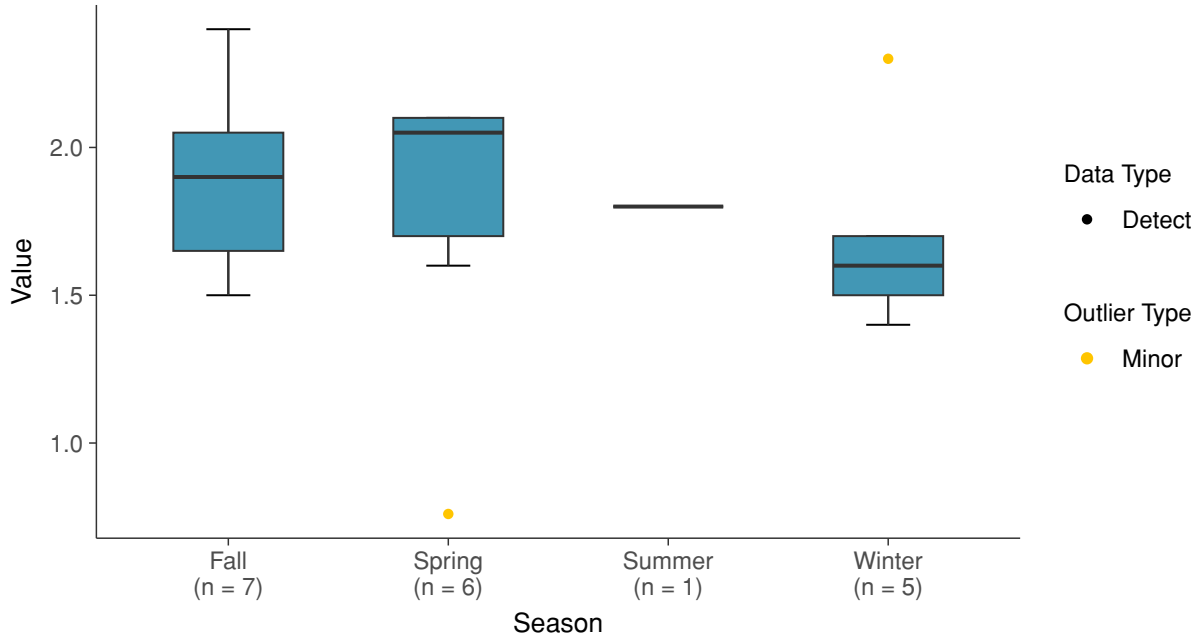
Boxplot

Selenium, W-7 (mg/l)



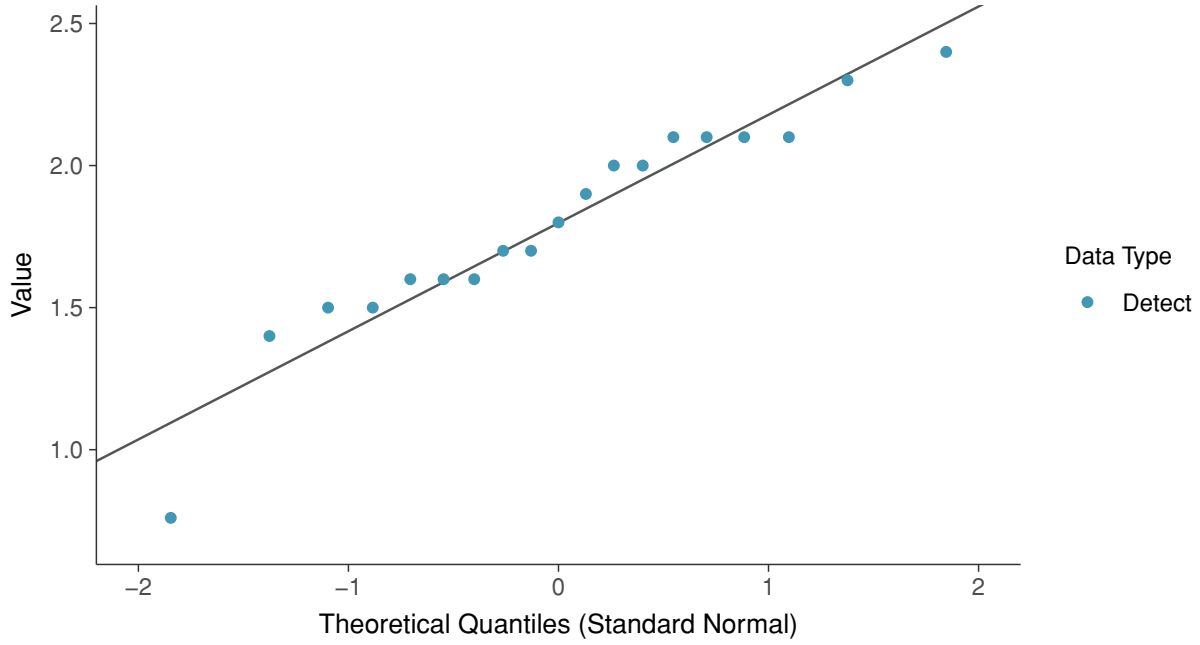
Boxplot by Season

Selenium, W-7 (mg/l)



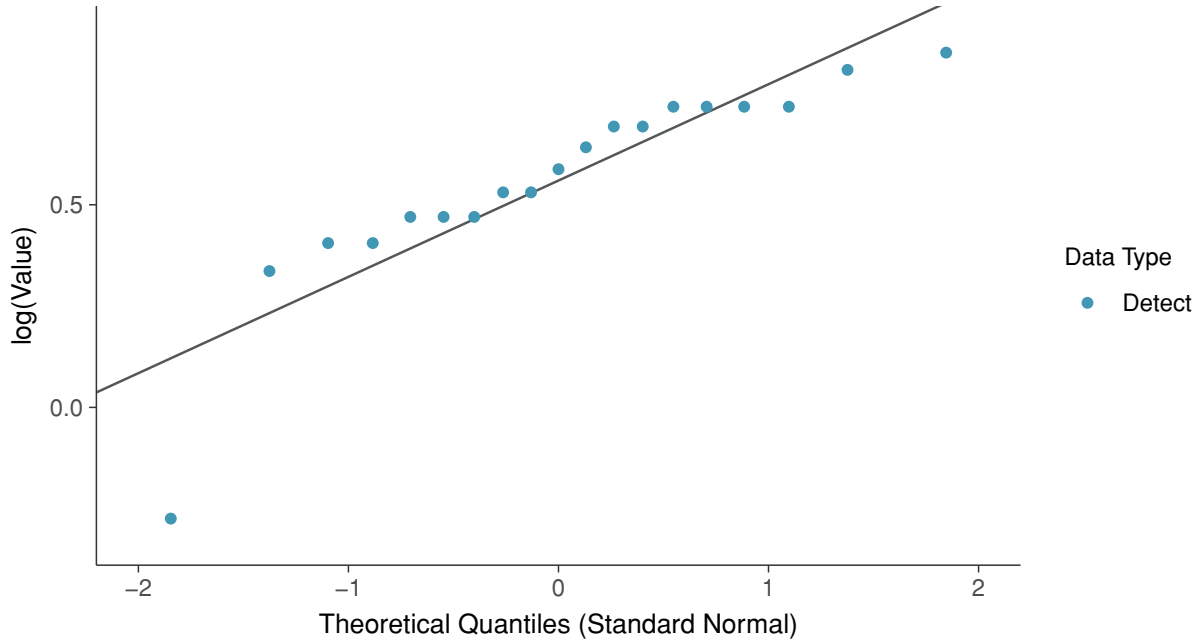
Normal Q-Q plot

Selenium, W-7 (mg/l)



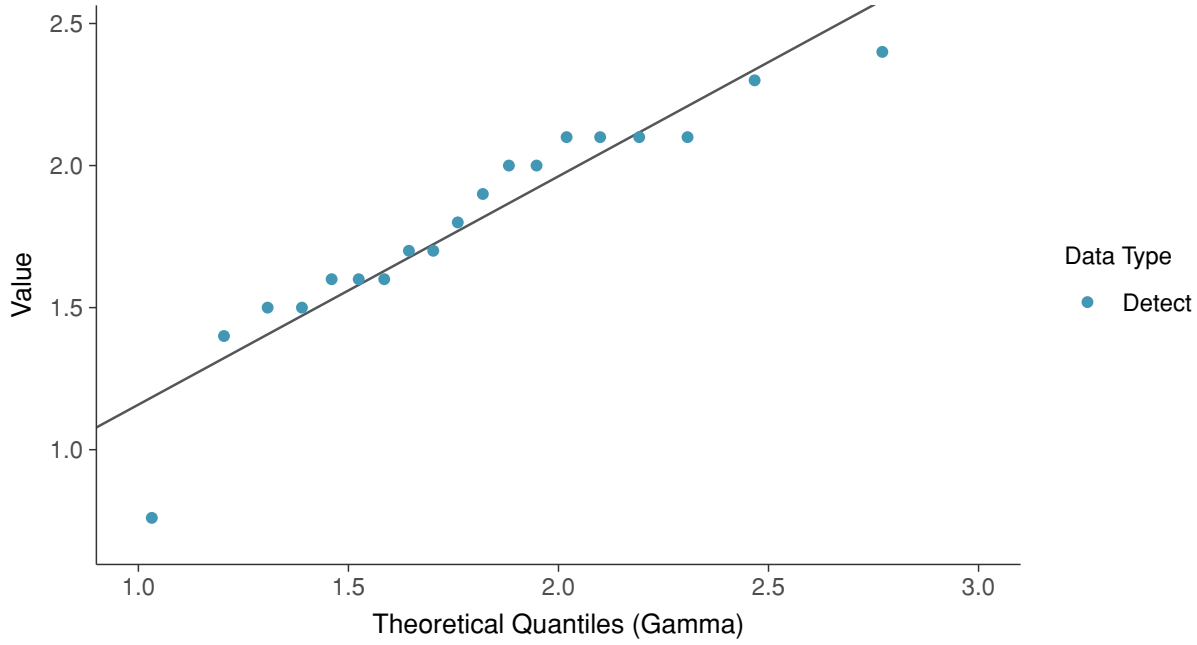
Lognormal Q-Q plot

Selenium, W-7 (mg/l)



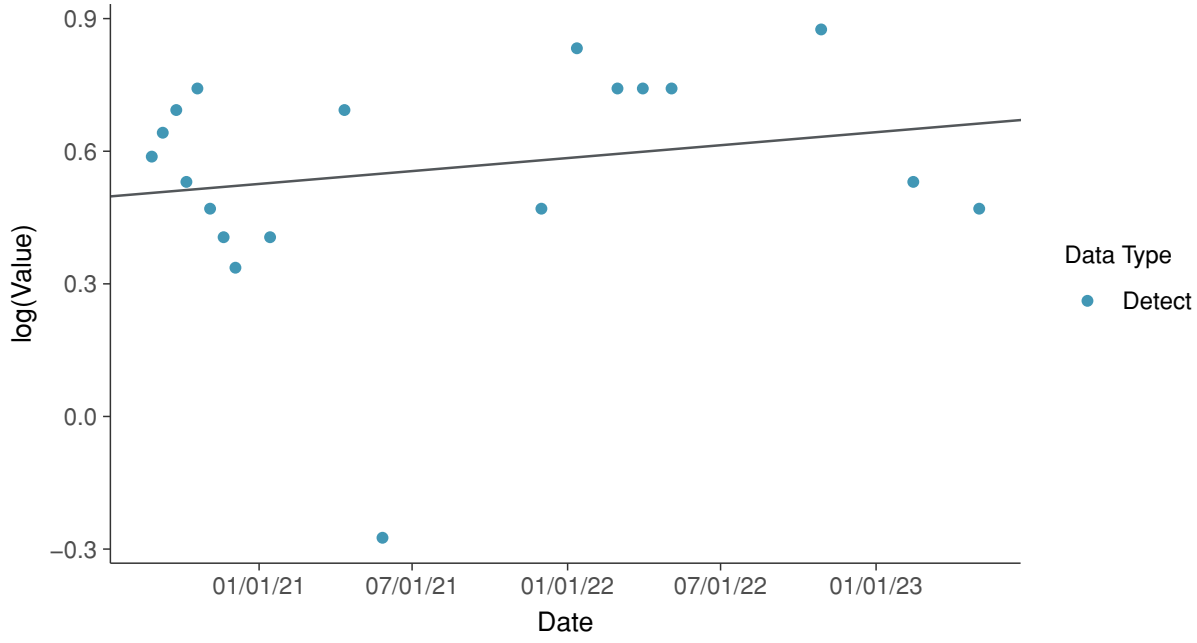
Gamma Q-Q plot

Selenium, W-7 (mg/l)



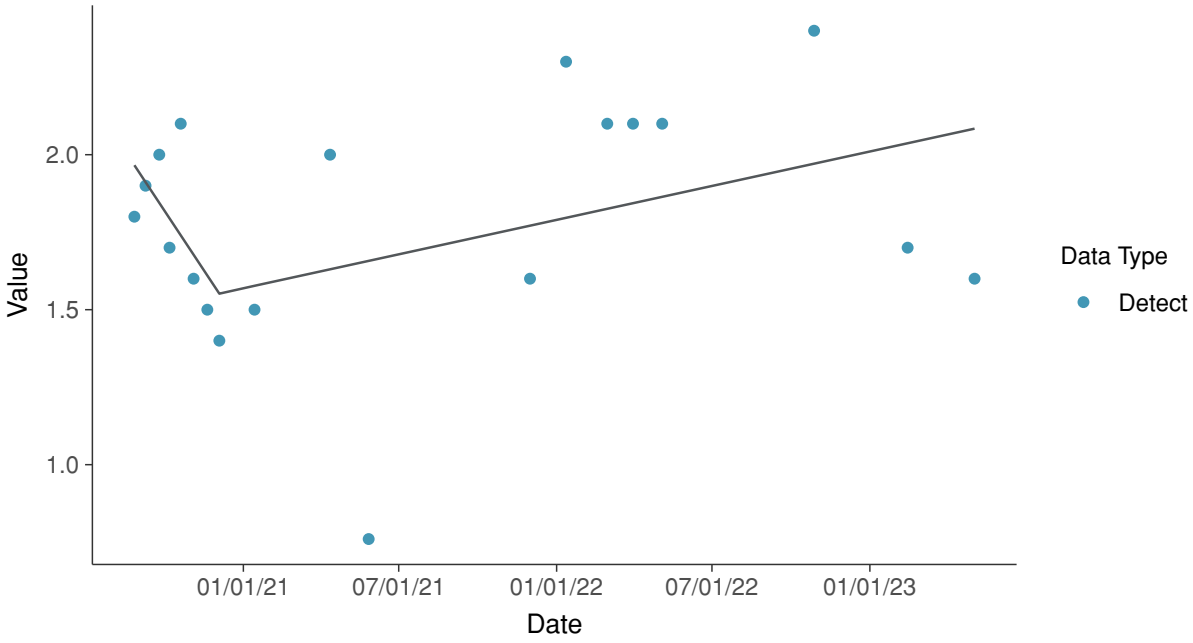
Trend Regression: Lognormal MLE

Selenium, W-7 (mg/l)



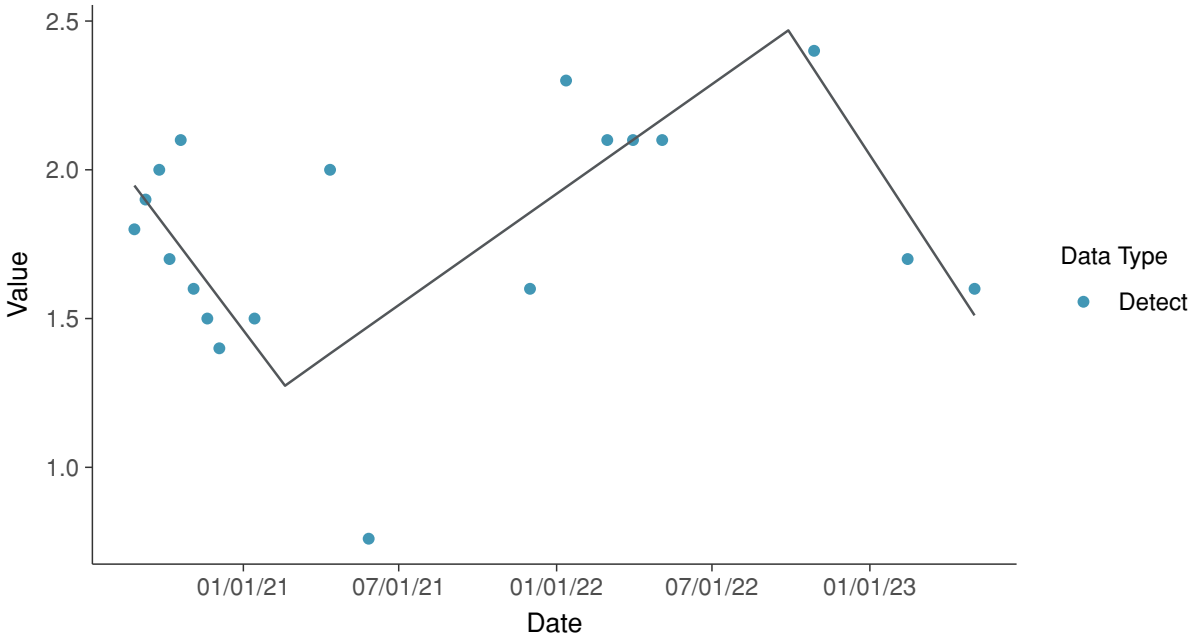
Trend Regression: Piecewise Linear-Linear

Selenium, W-7 (mg/l)



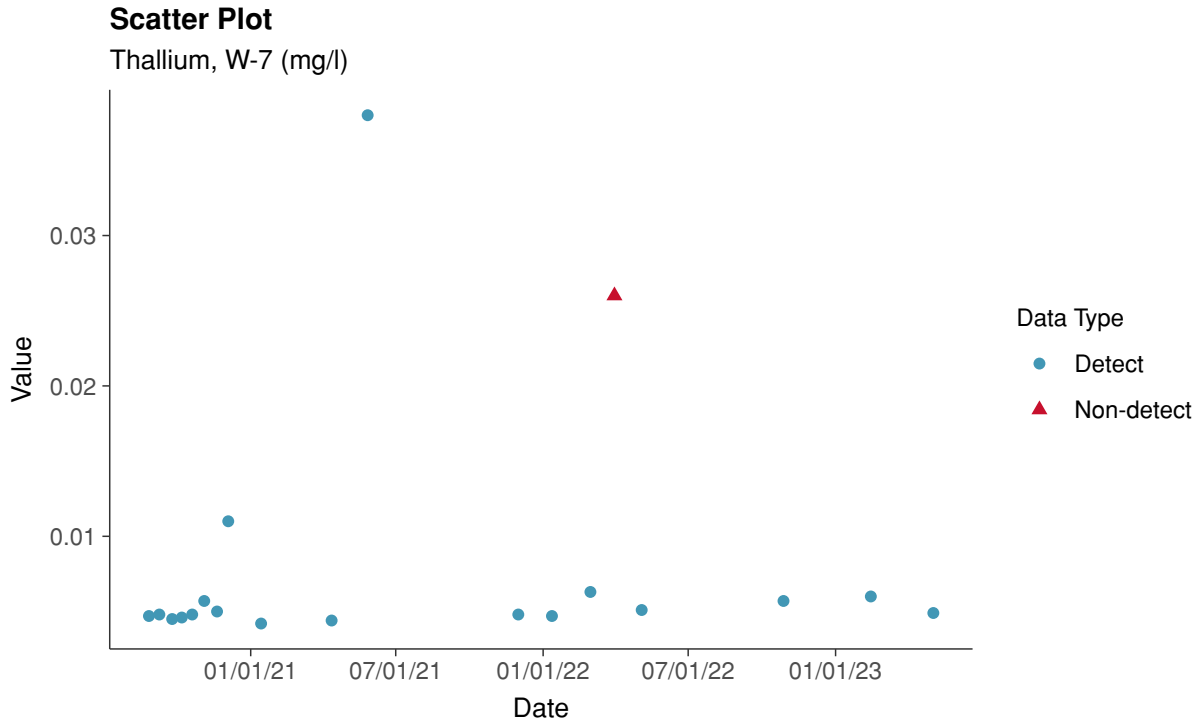
Trend Regression: Piecewise Linear-Linear-Linear

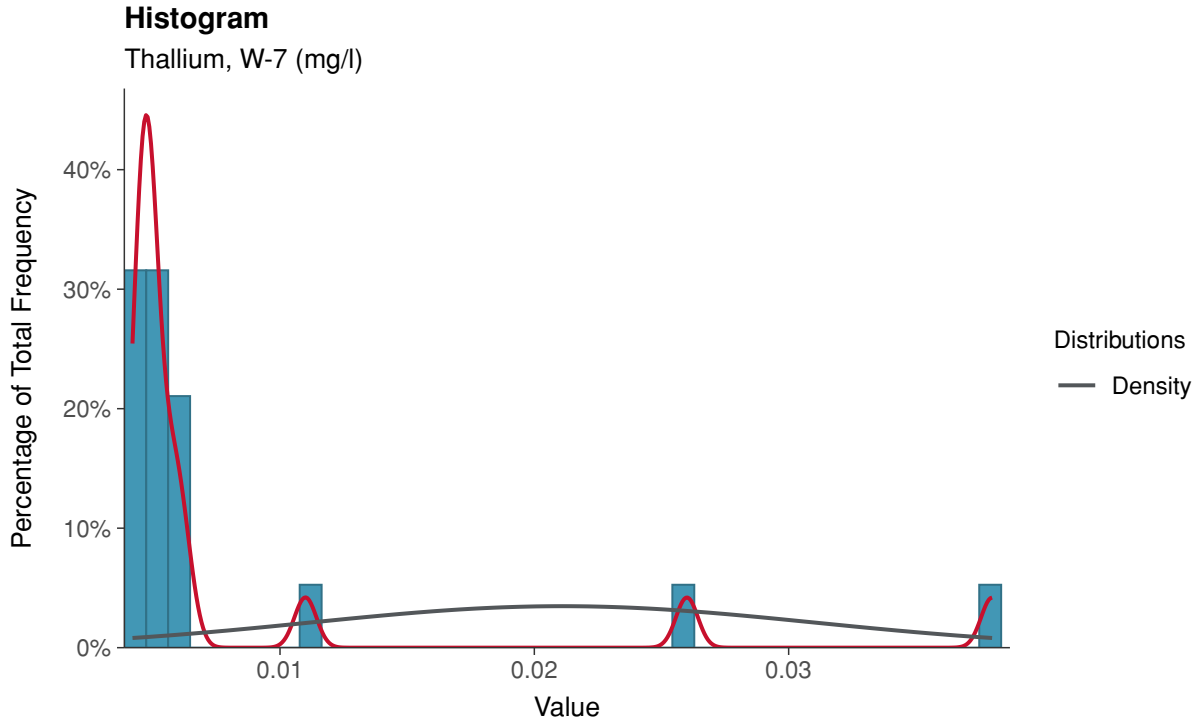
Selenium, W-7 (mg/l)



Appendix IV: Thallium, W-7

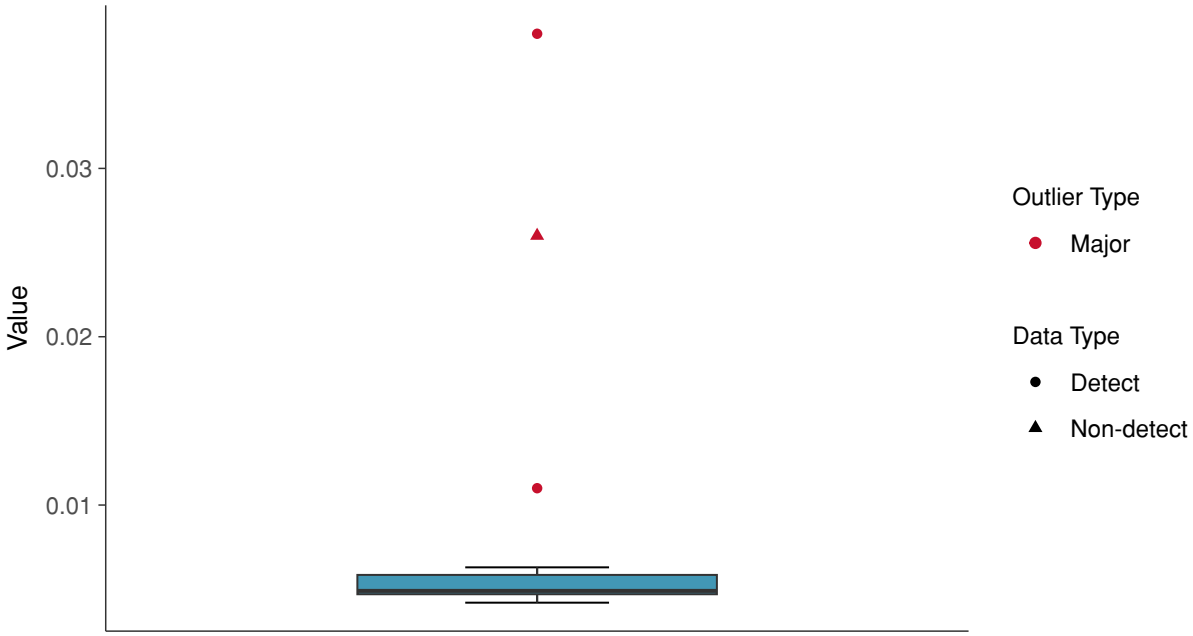
ID: 11_2_126





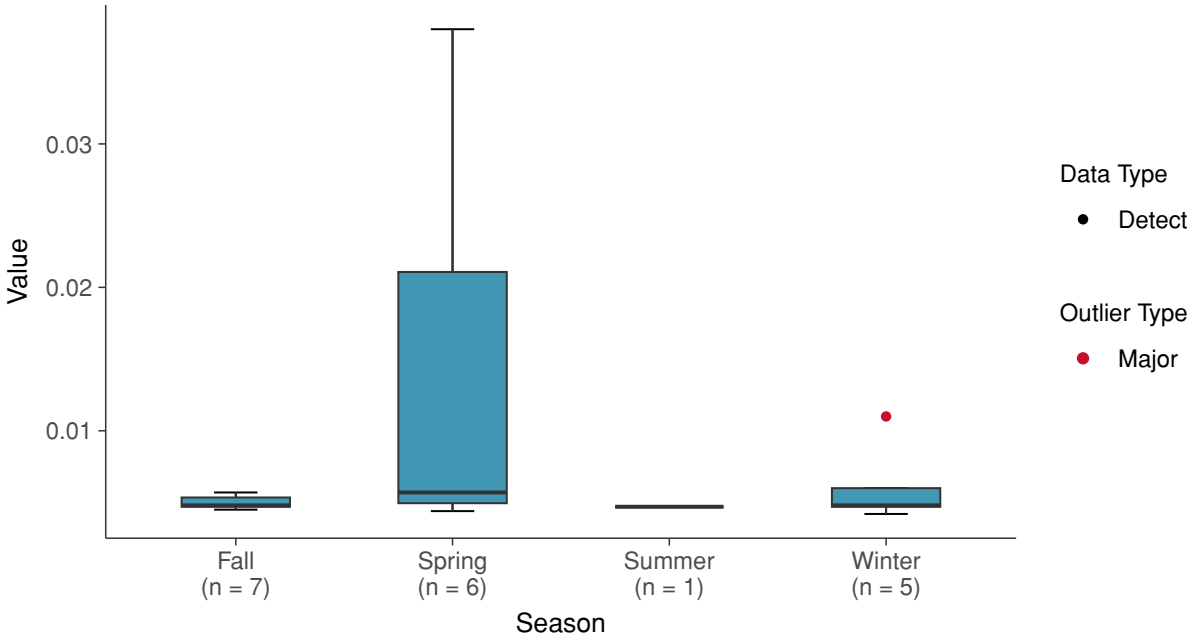
Boxplot

Thallium, W-7 (mg/l)



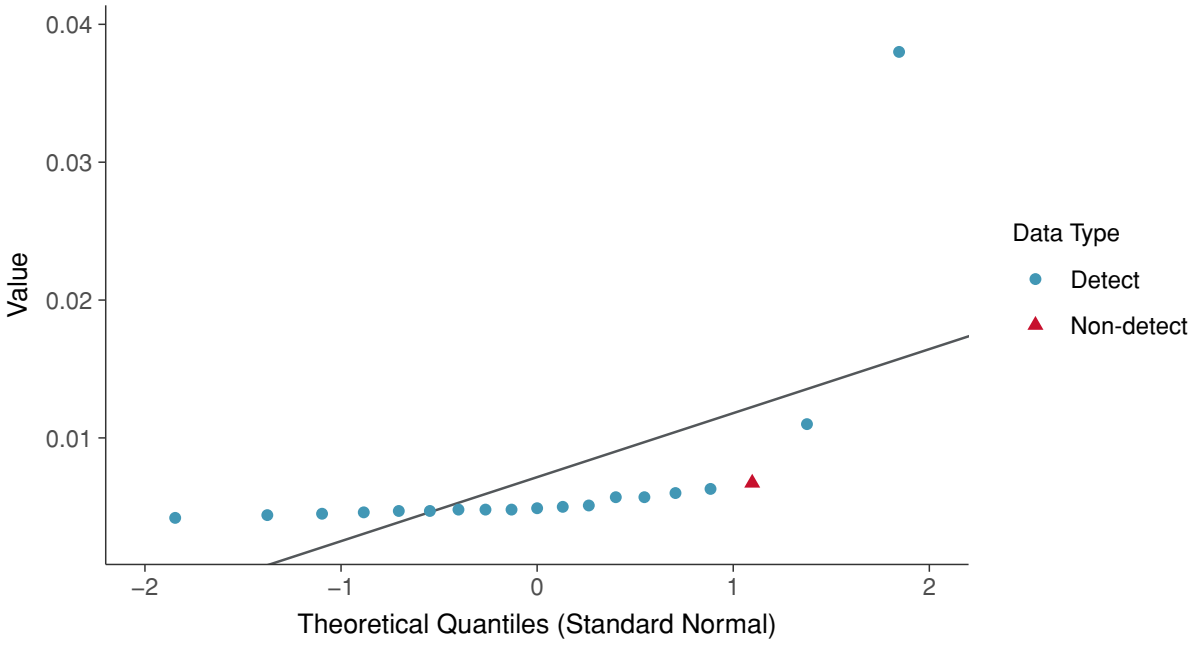
Boxplot by Season

Thallium, W-7 (mg/l)



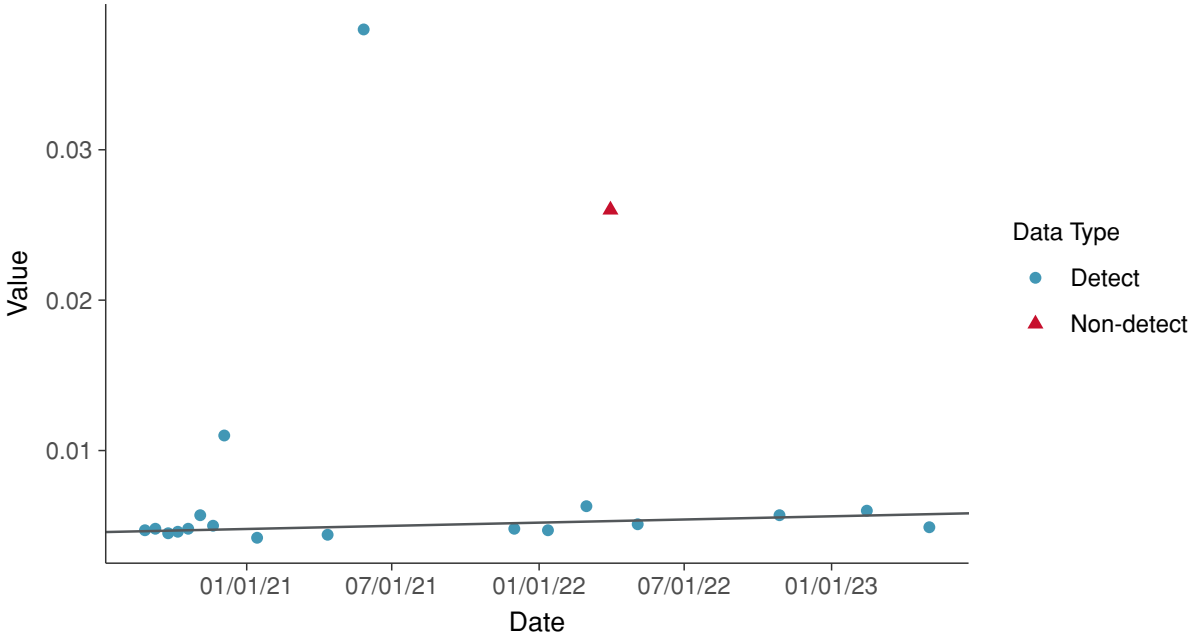
Normal Q-Q plot using ROS Imputed Estimates

Thallium, W-7 (mg/l)



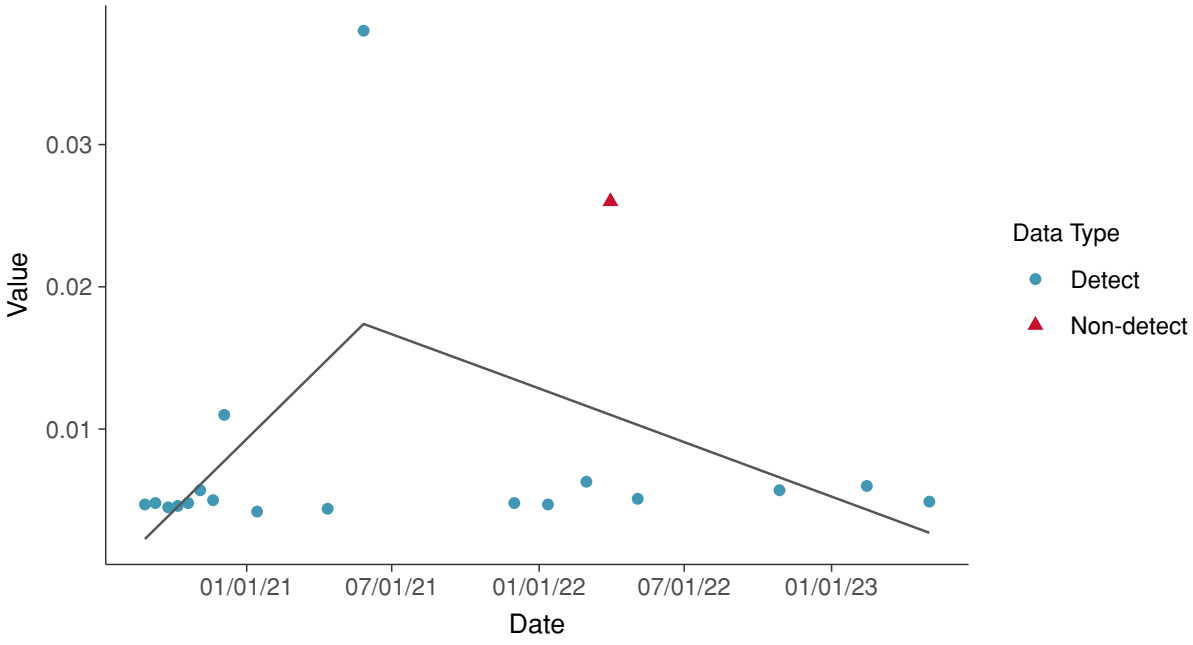
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Thallium, W-7 (mg/l)



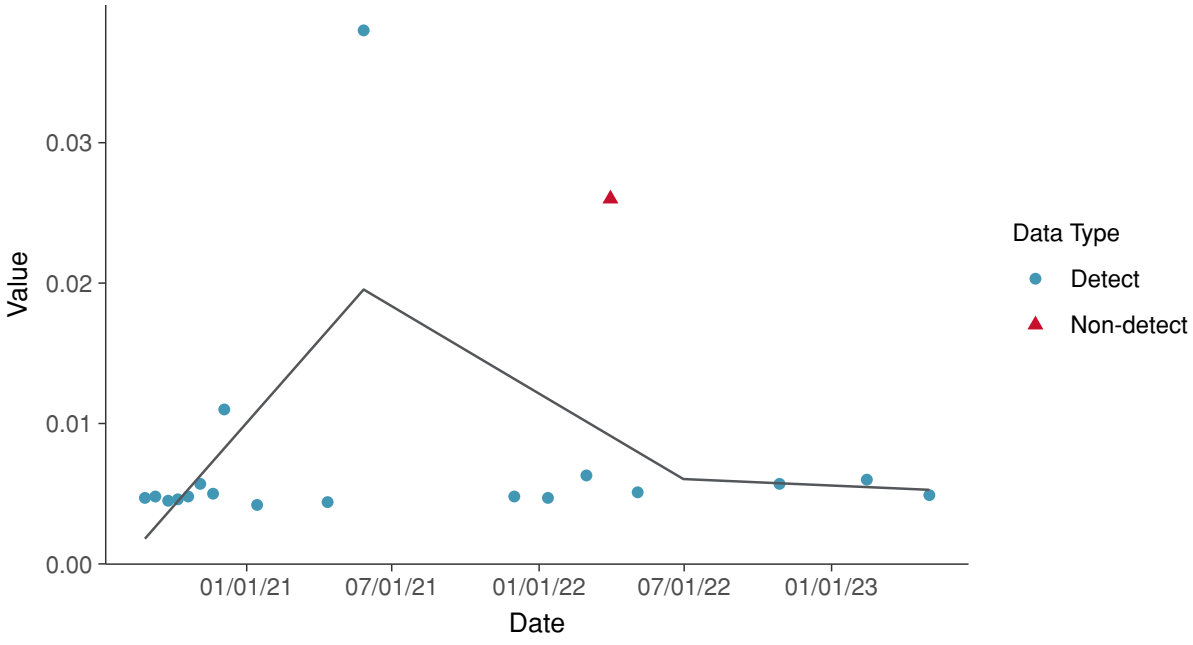
Trend Regression: Piecewise Linear-Linear

Thallium, W-7 (mg/l)



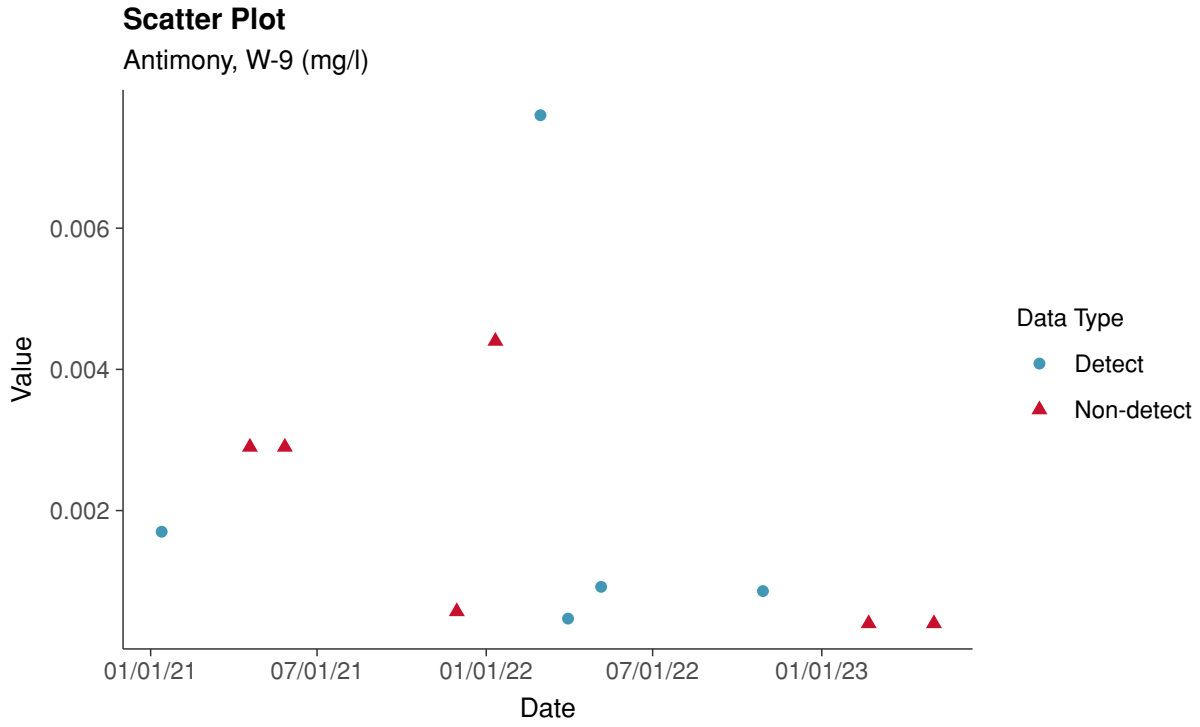
Trend Regression: Piecewise Linear-Linear-Linear

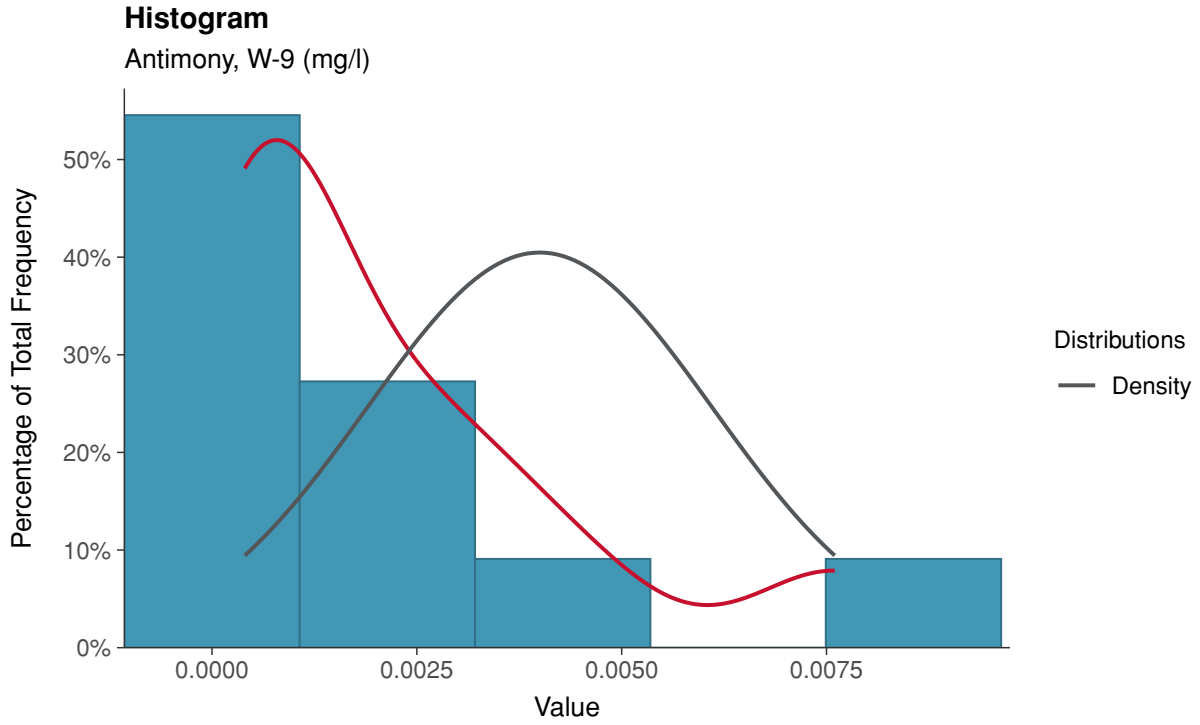
Thallium, W-7 (mg/l)



Appendix IV: Antimony, W-9

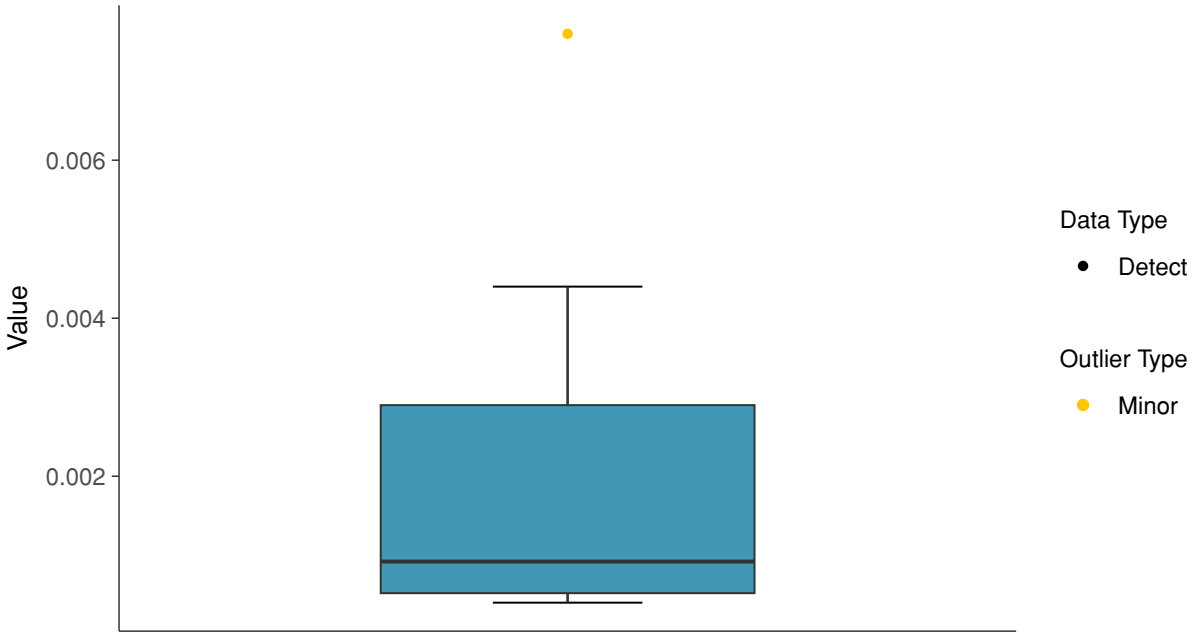
ID: 12_2_101





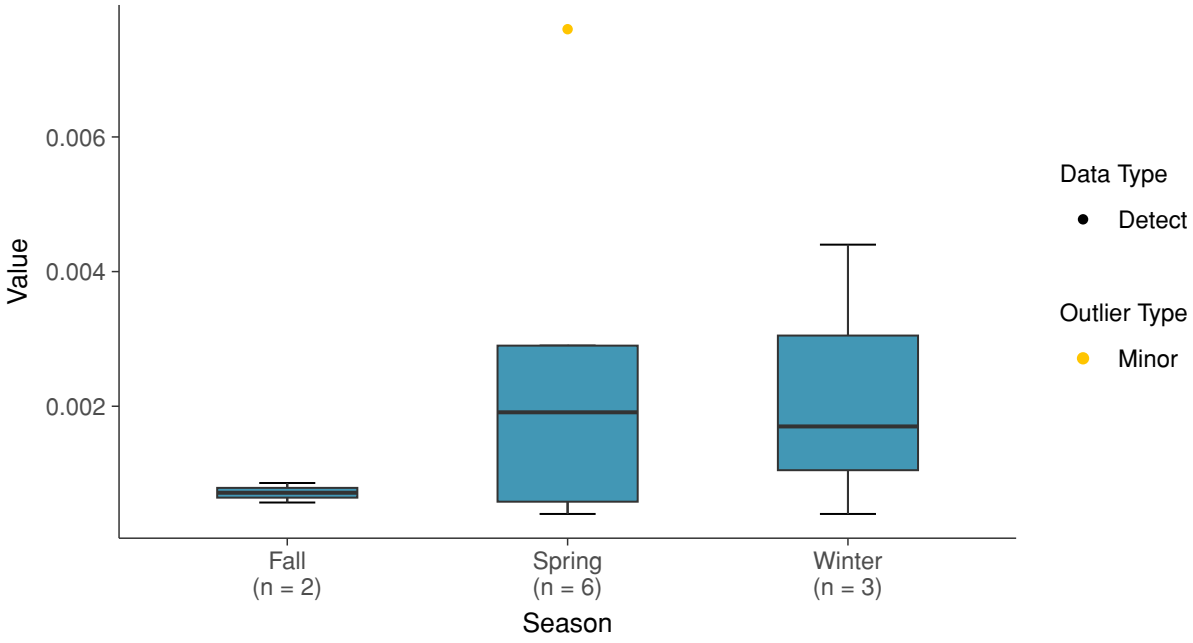
Boxplot

Antimony, W-9 (mg/l)



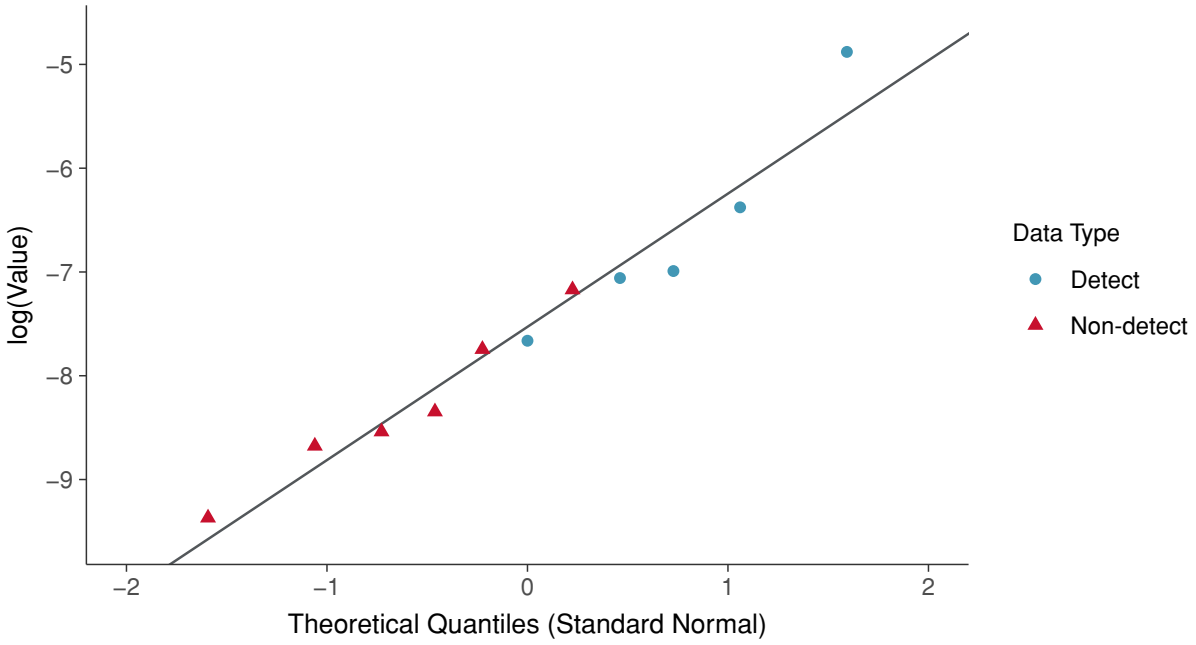
Boxplot by Season

Antimony, W-9 (mg/l)



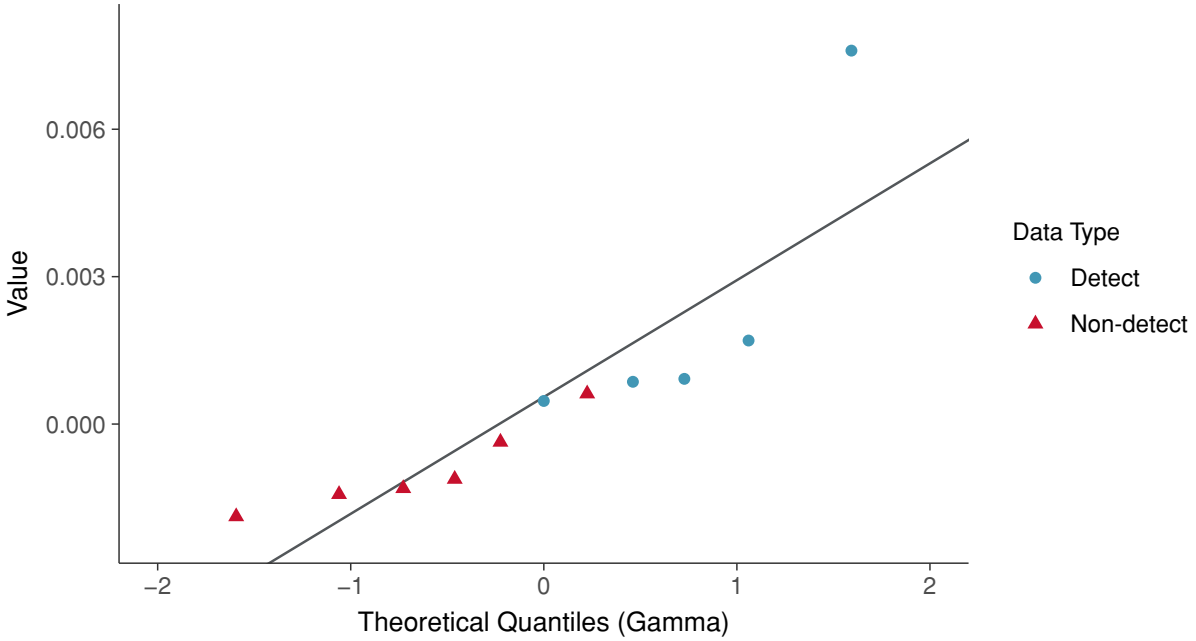
Lognormal Q-Q plot using ROS Imputed Estimates

Antimony, W-9 (mg/l)



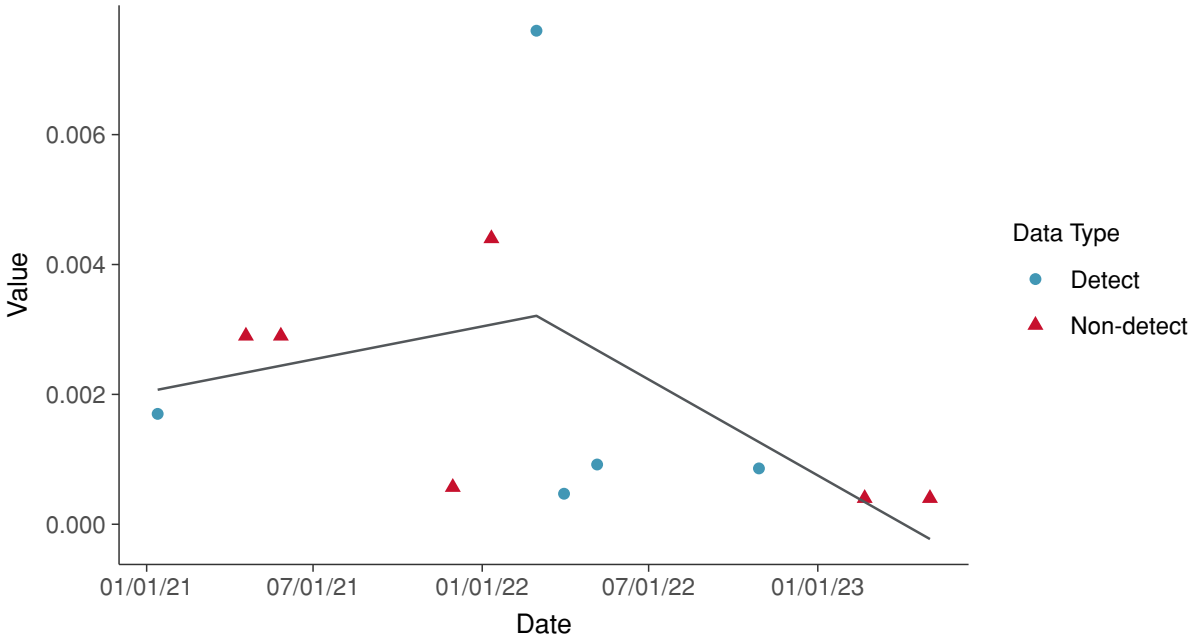
Gamma Q-Q plot using ROS Imputed Estimates

Antimony, W-9 (mg/l)



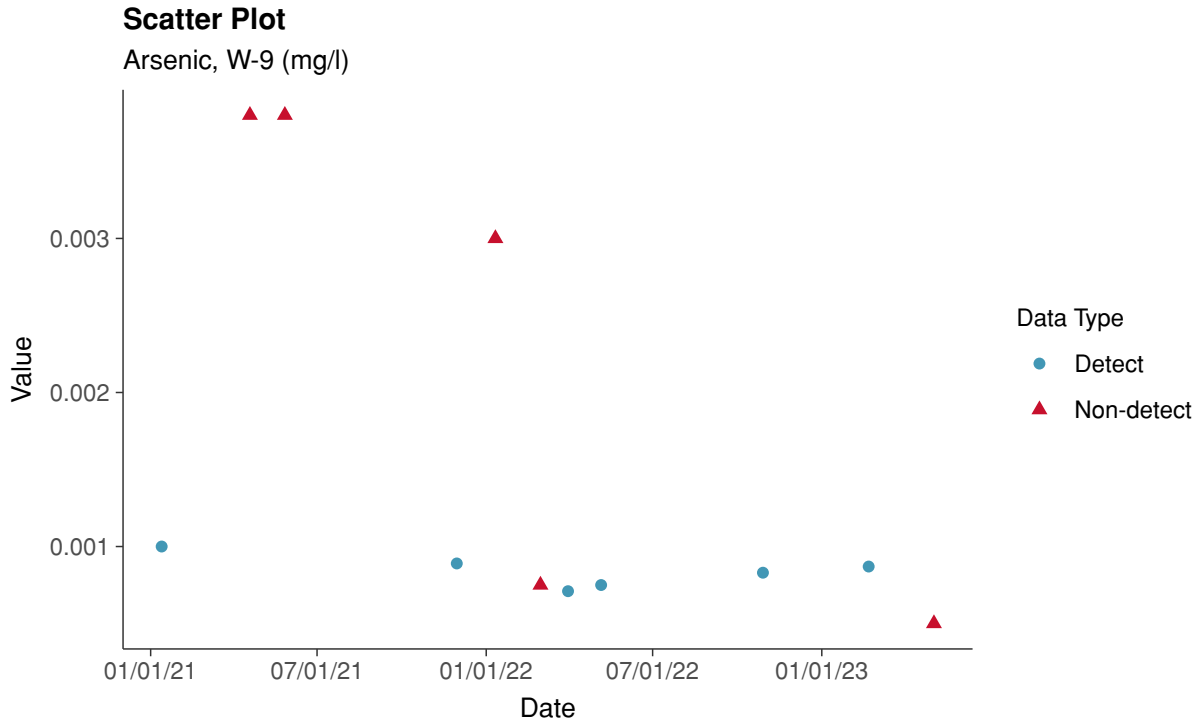
Trend Regression: Piecewise Linear-Linear

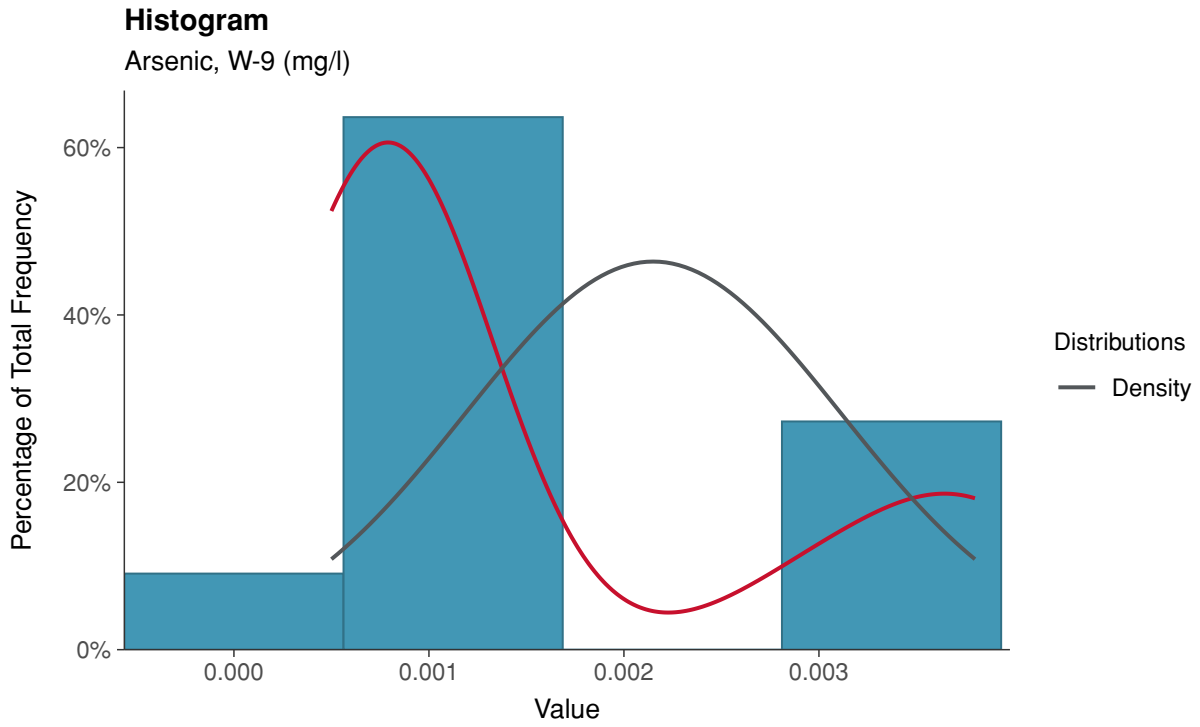
Antimony, W-9 (mg/l)



Appendix IV: Arsenic, W-9

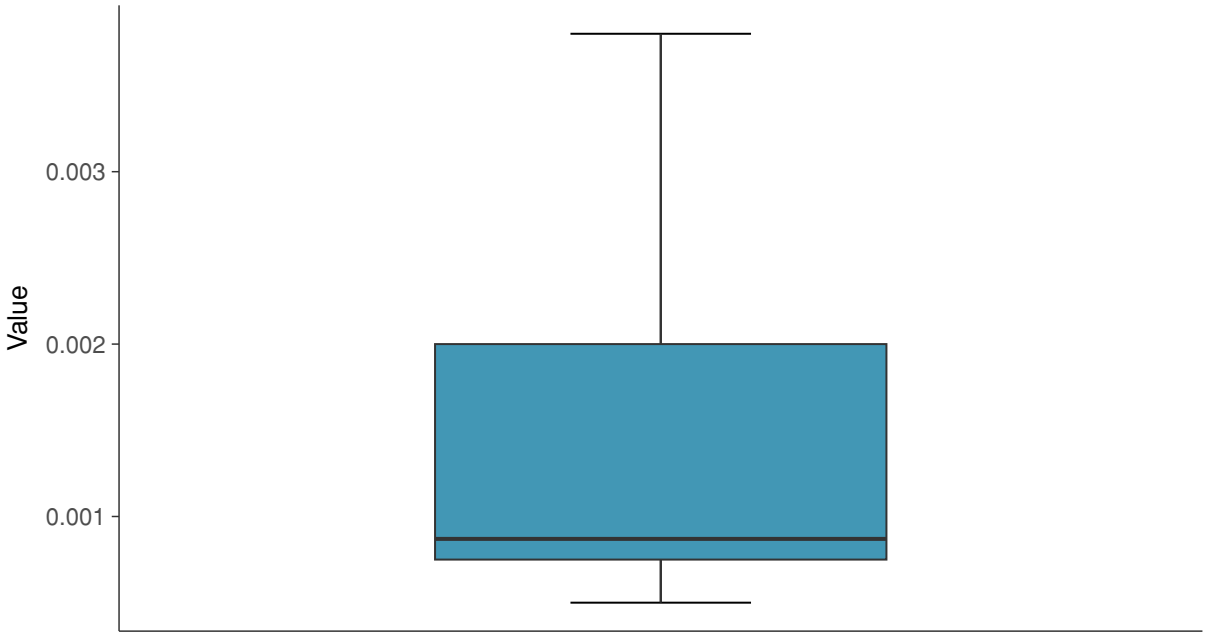
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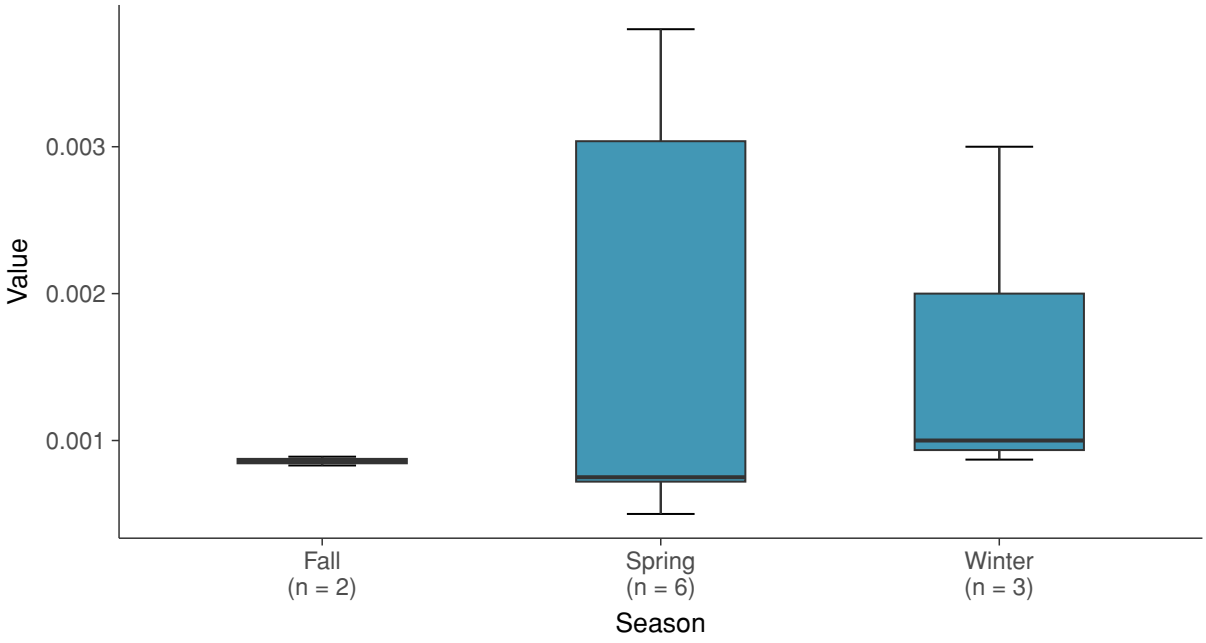
Boxplot

Arsenic, W-9 (mg/l)



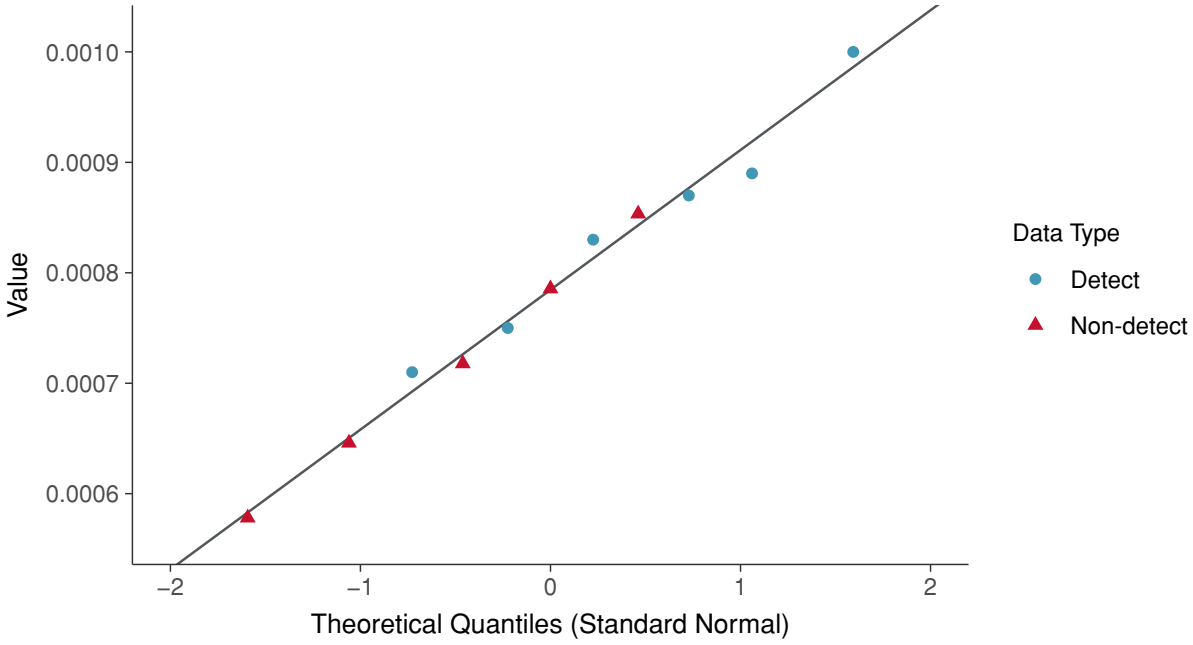
Boxplot by Season

Arsenic, W-9 (mg/l)



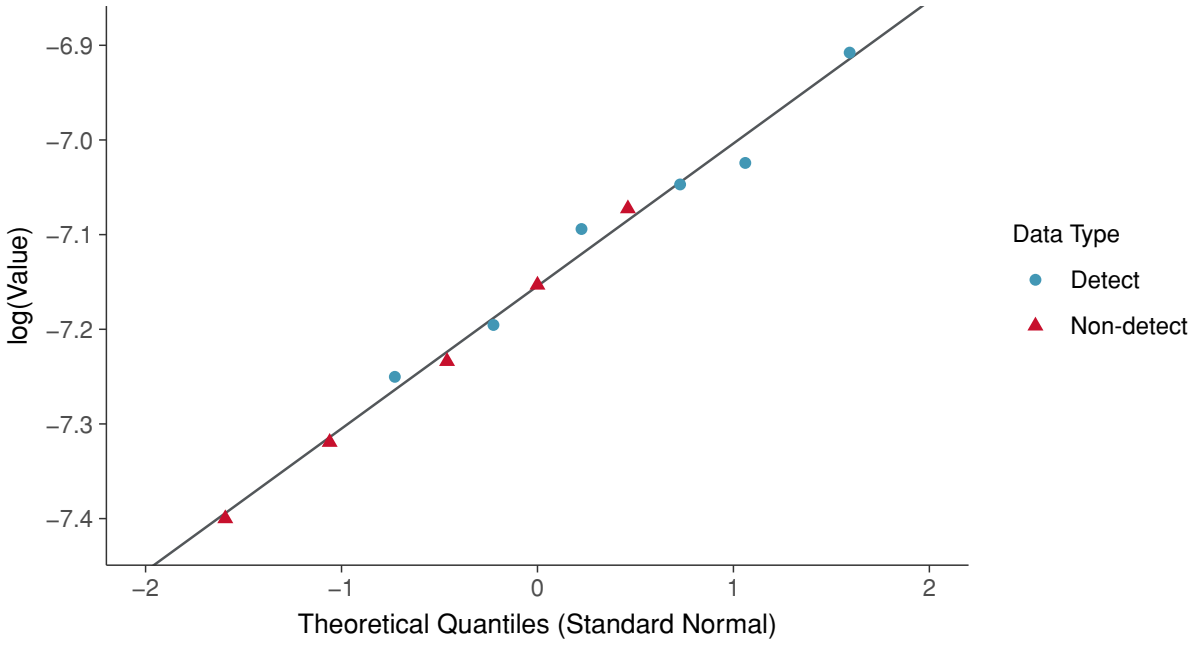
Normal Q-Q plot using ROS Imputed Estimates

Arsenic, W-9 (mg/l)



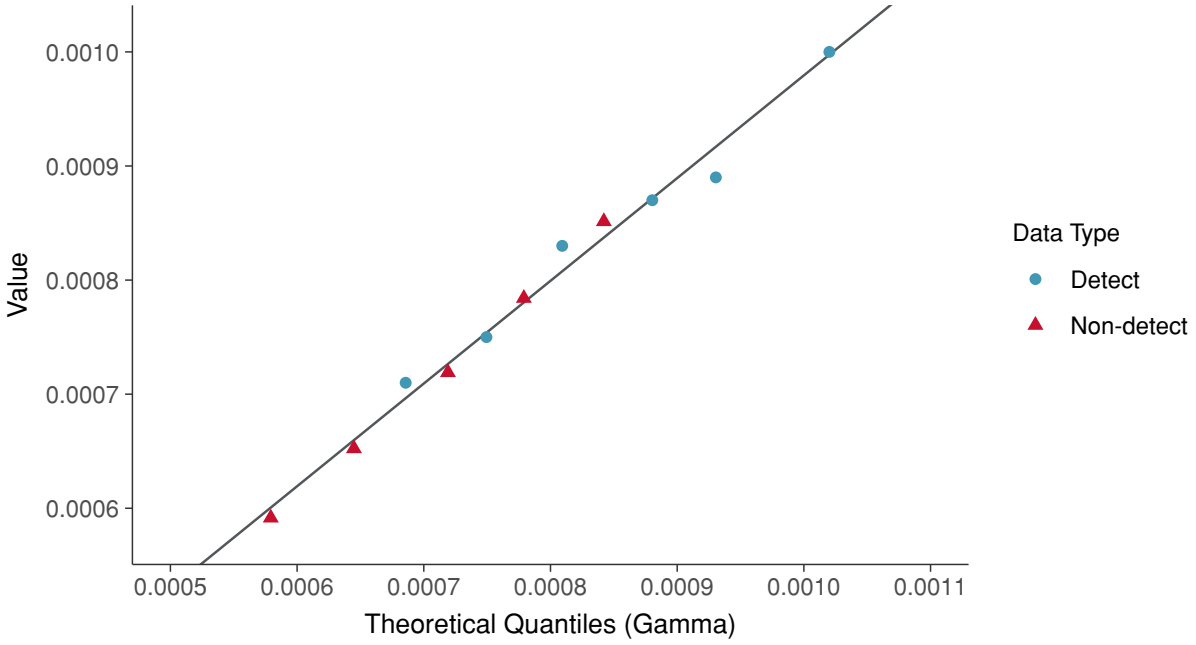
Lognormal Q-Q plot using ROS Imputed Estimates

Arsenic, W-9 (mg/l)



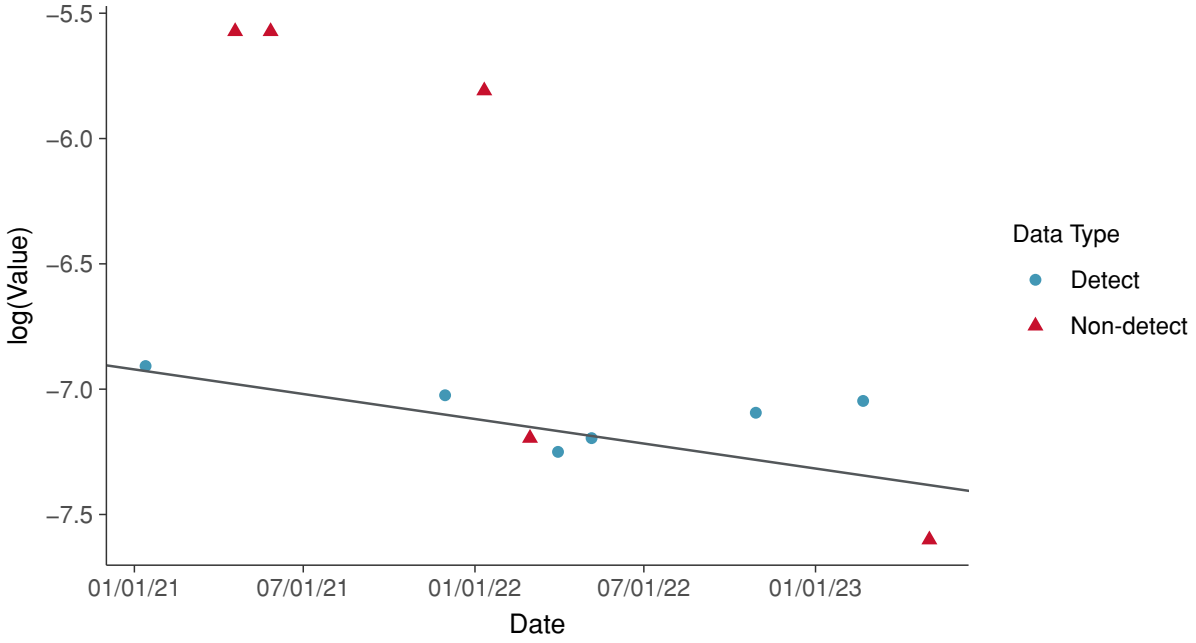
Gamma Q-Q plot using ROS Imputed Estimates

Arsenic, W-9 (mg/l)



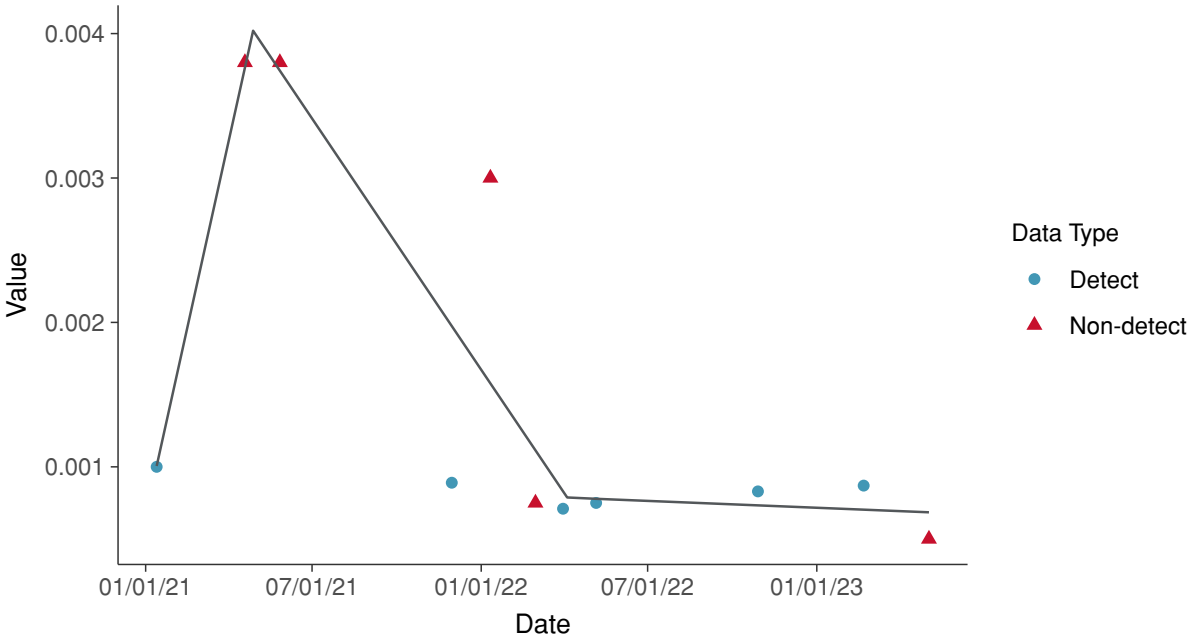
Trend Regression: Lognormal MLE

Arsenic, W-9 (mg/l)



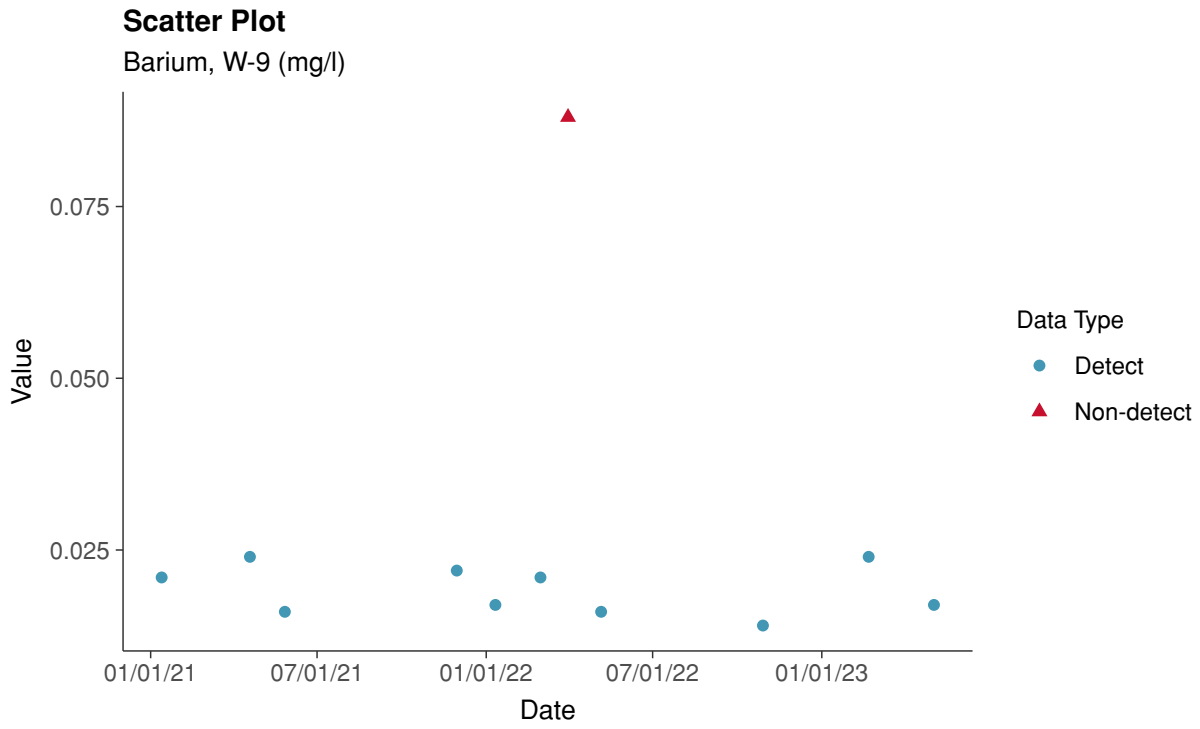
Trend Regression: Piecewise Linear-Linear-Linear

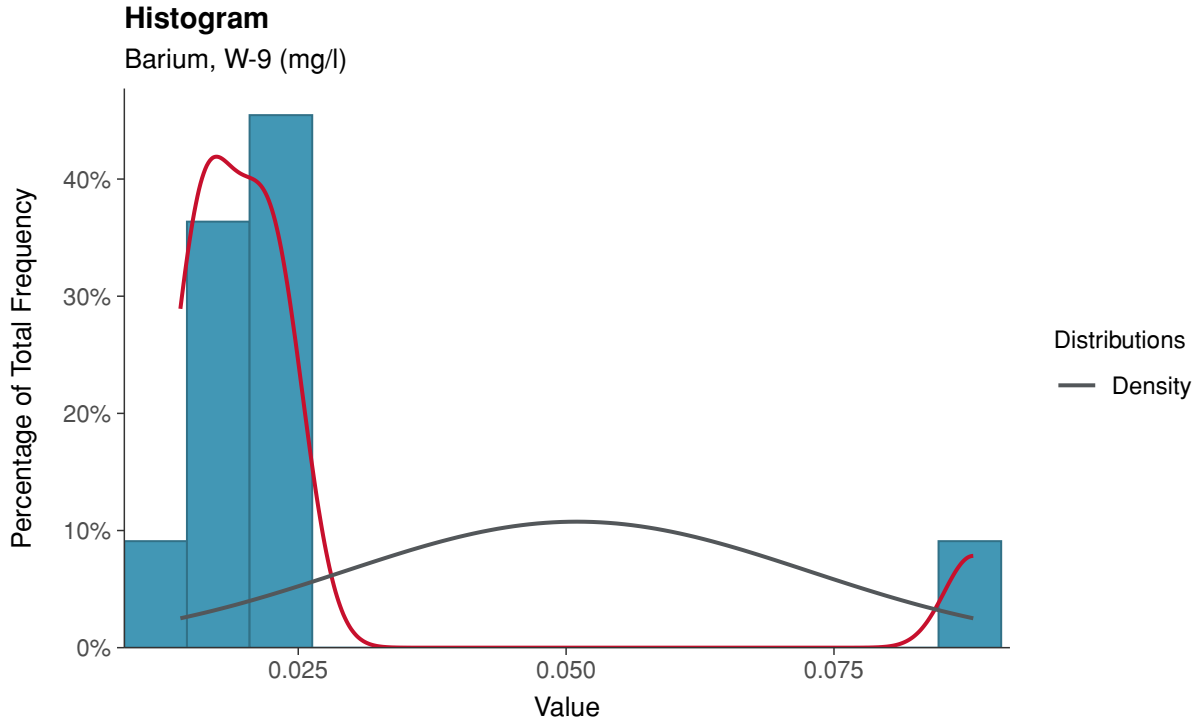
Arsenic, W-9 (mg/l)



Appendix IV: Barium, W-9

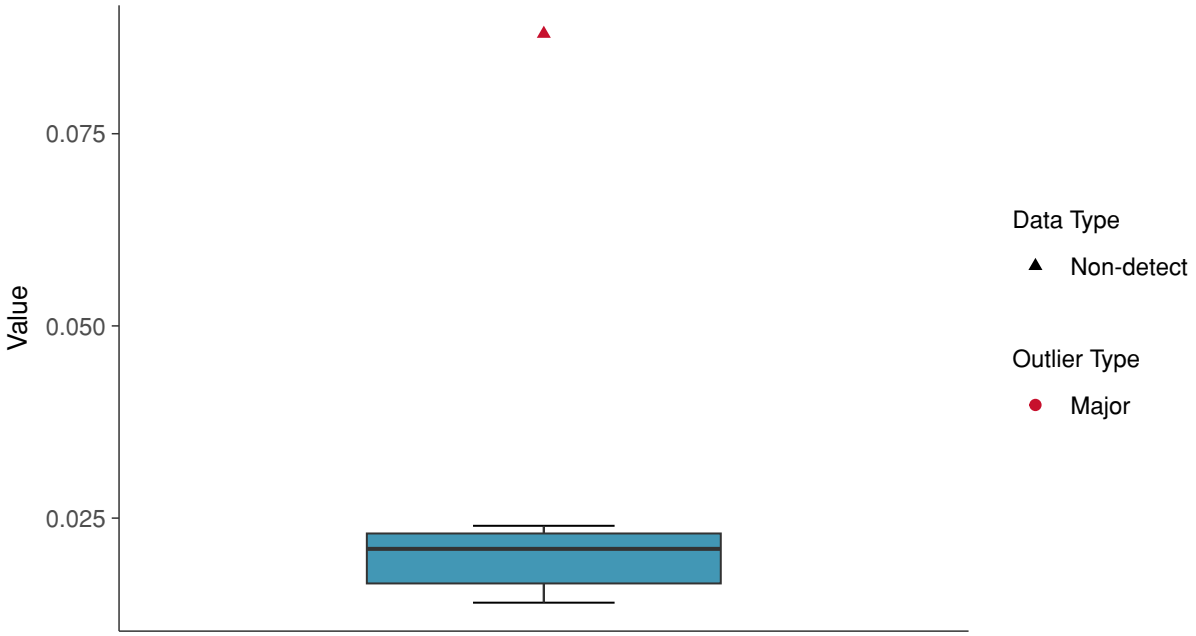
ID: 12_2_103





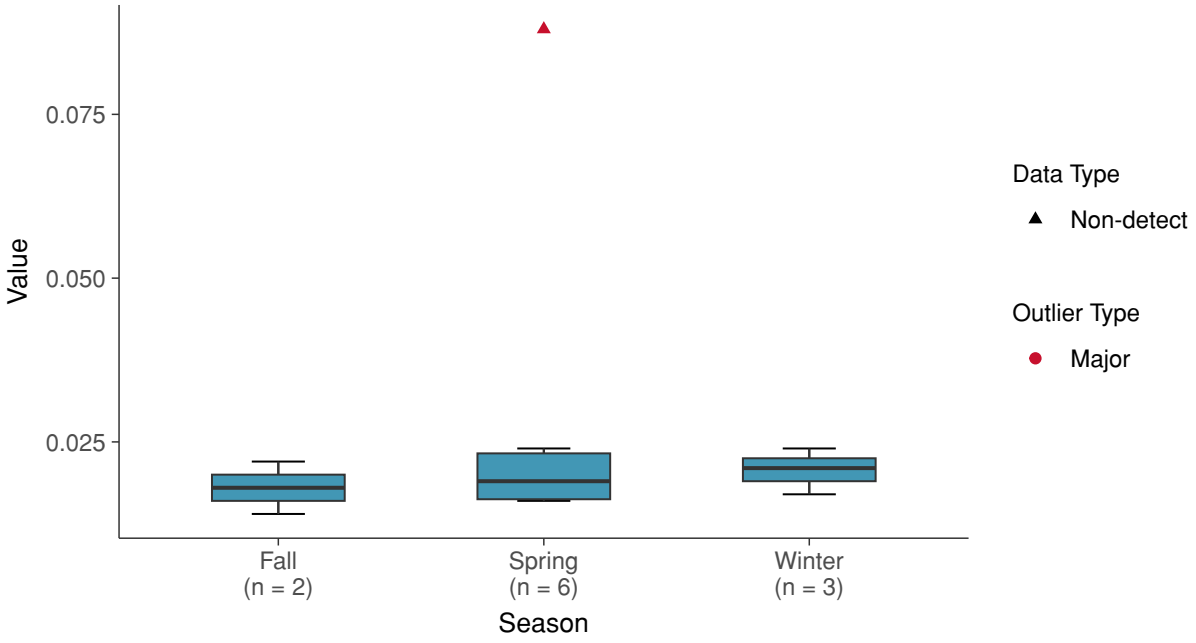
Boxplot

Barium, W-9 (mg/l)



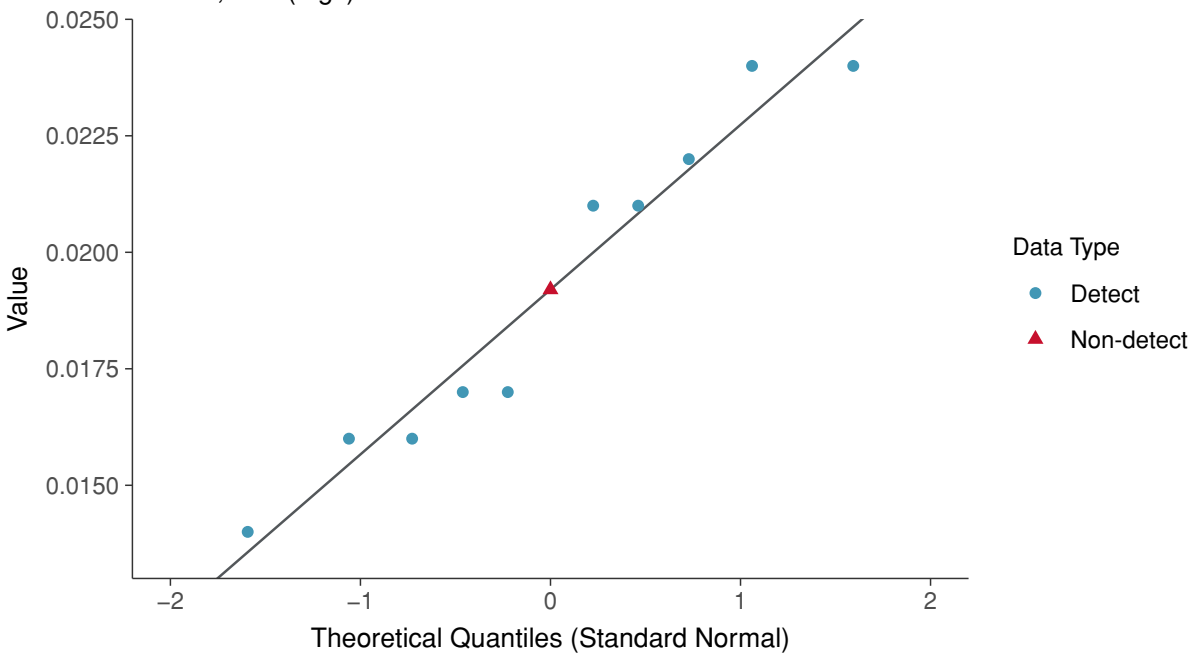
Boxplot by Season

Barium, W-9 (mg/l)



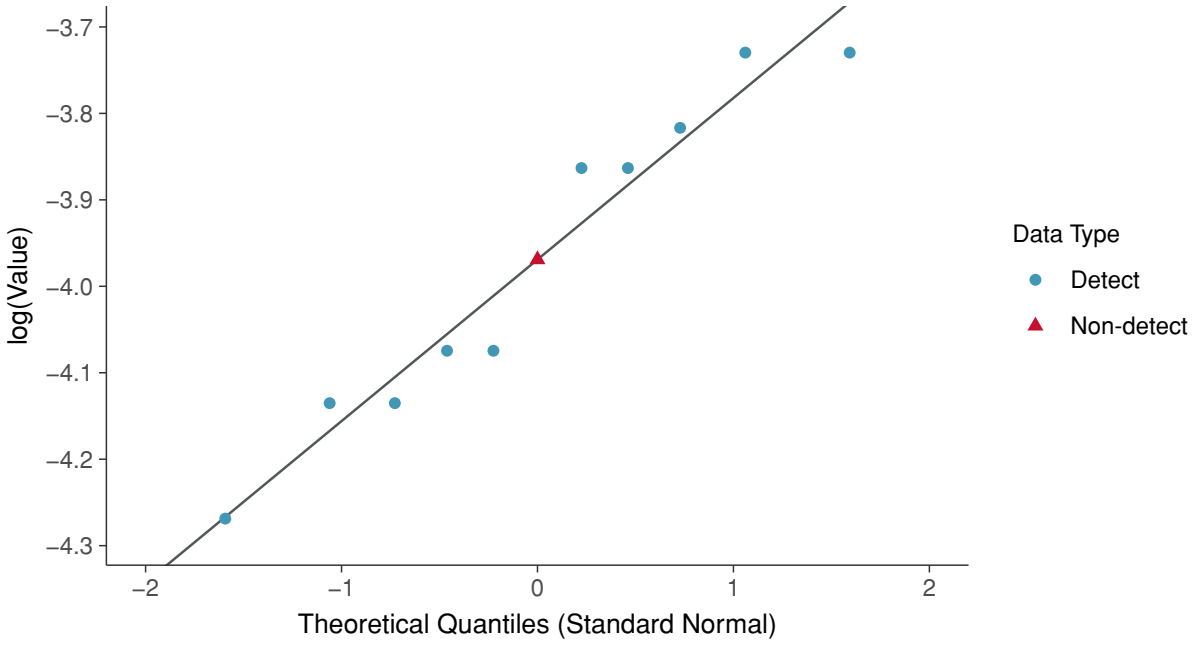
Normal Q-Q plot using ROS Imputed Estimates

Barium, W-9 (mg/l)



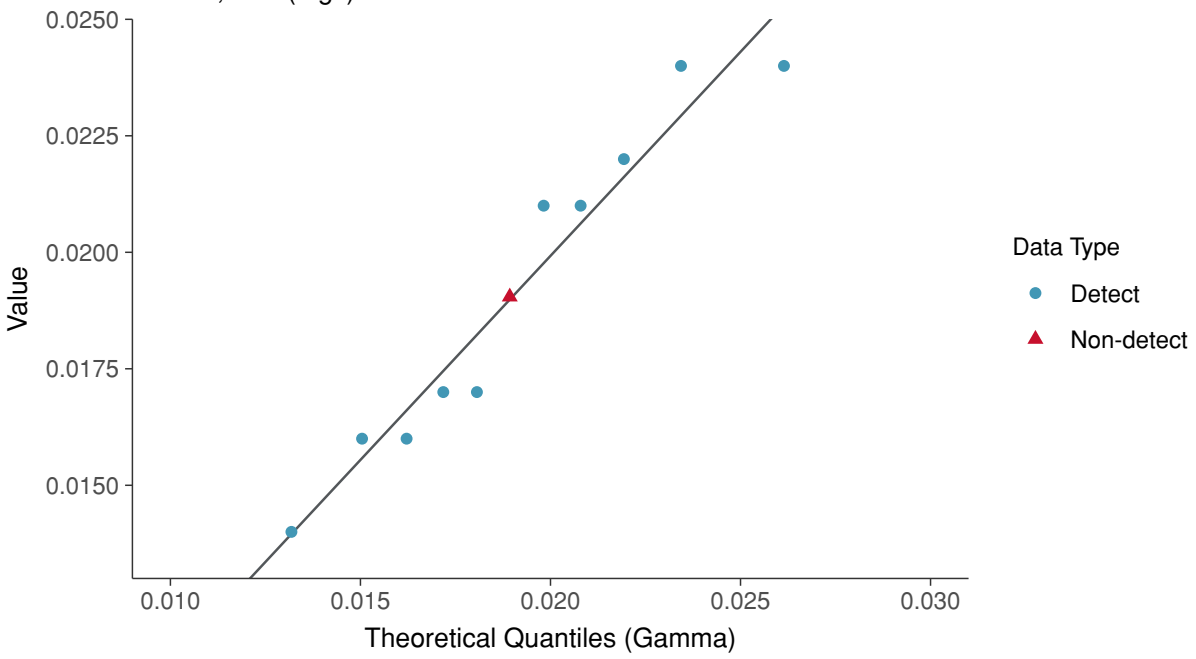
Lognormal Q-Q plot using ROS Imputed Estimates

Barium, W-9 (mg/l)



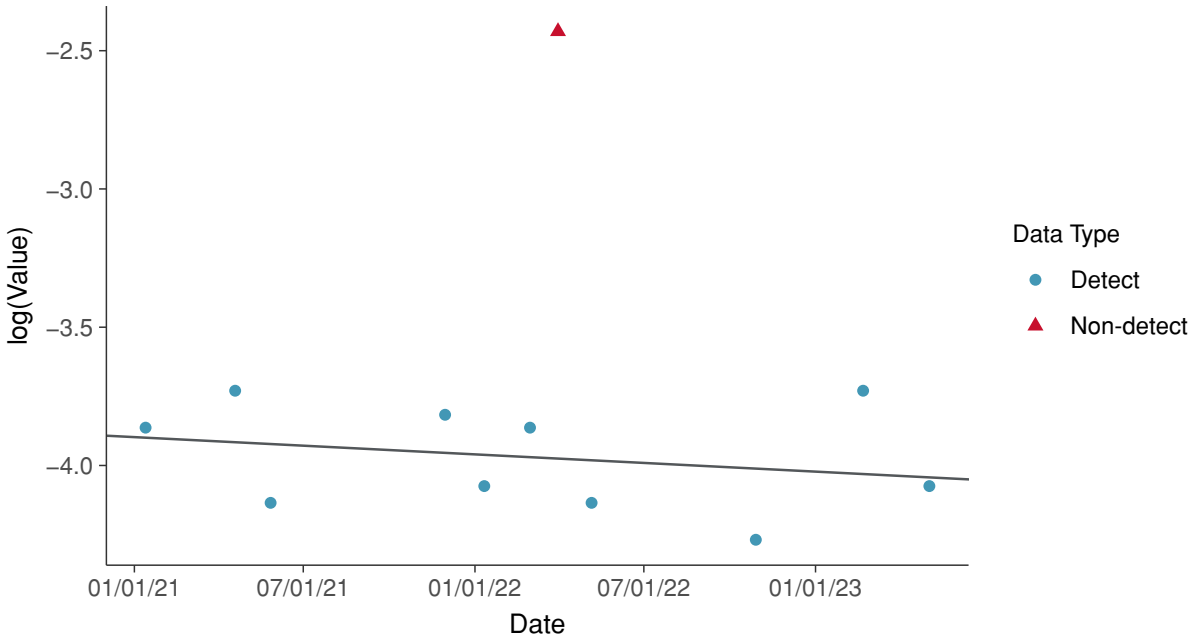
Gamma Q-Q plot using ROS Imputed Estimates

Barium, W-9 (mg/l)



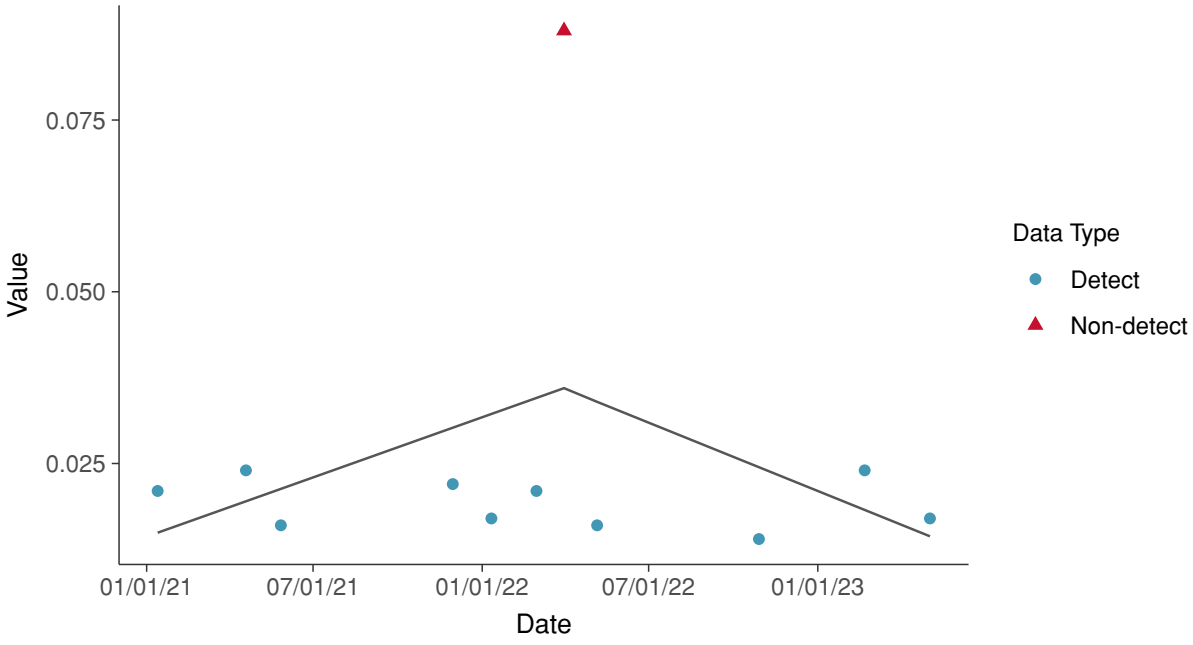
Trend Regression: Lognormal MLE

Barium, W-9 (mg/l)



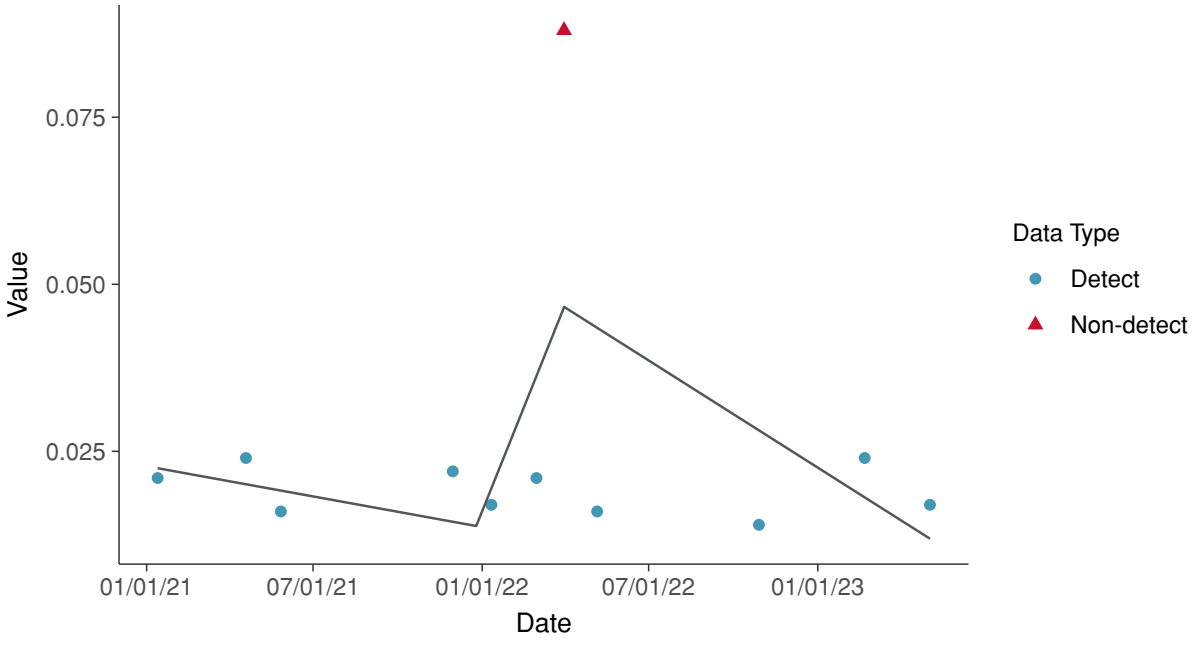
Trend Regression: Piecewise Linear-Linear

Barium, W-9 (mg/l)



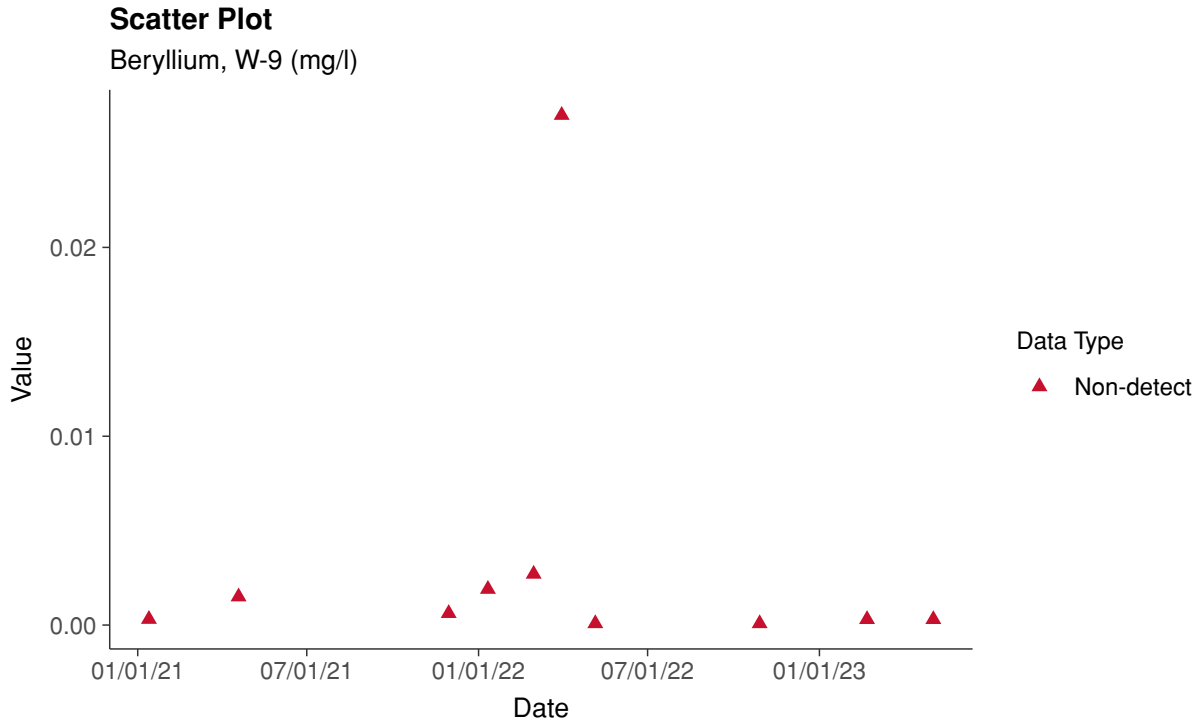
Trend Regression: Piecewise Linear-Linear-Linear

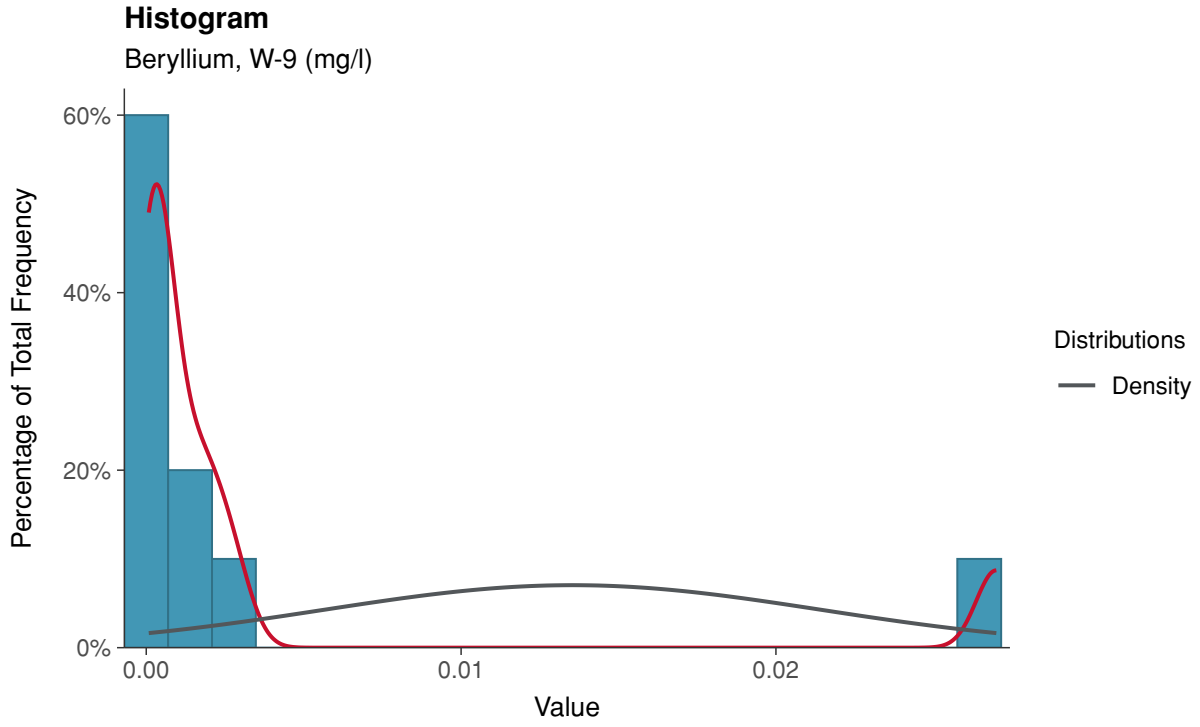
Barium, W-9 (mg/l)



Appendix IV: Beryllium, W-9

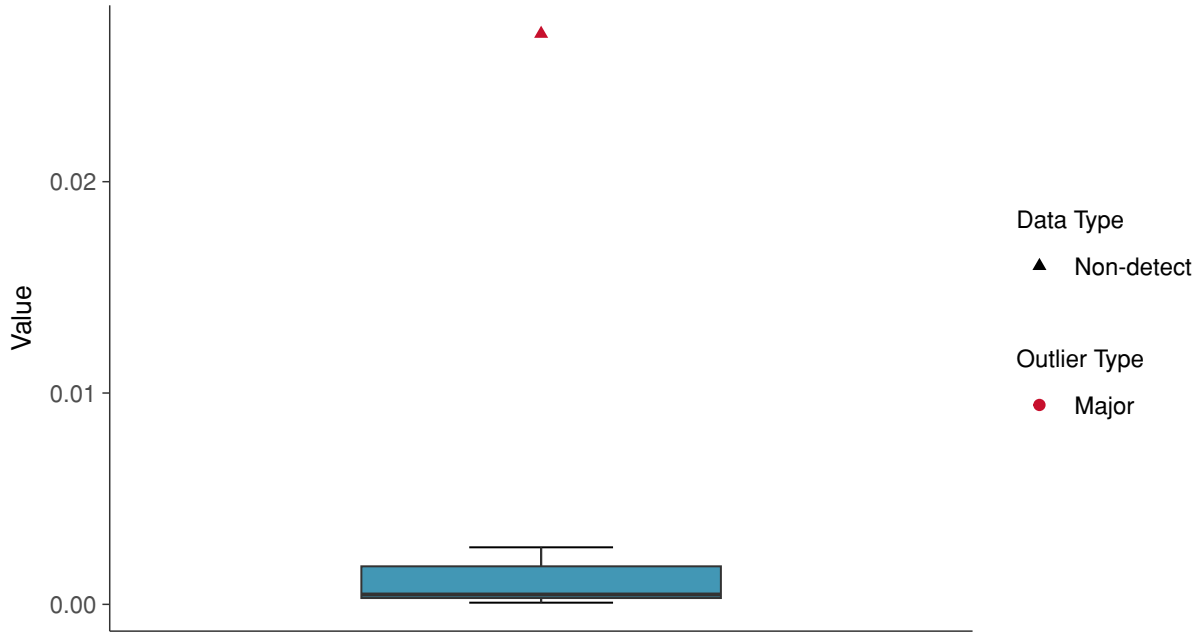
ID: 12_2_104





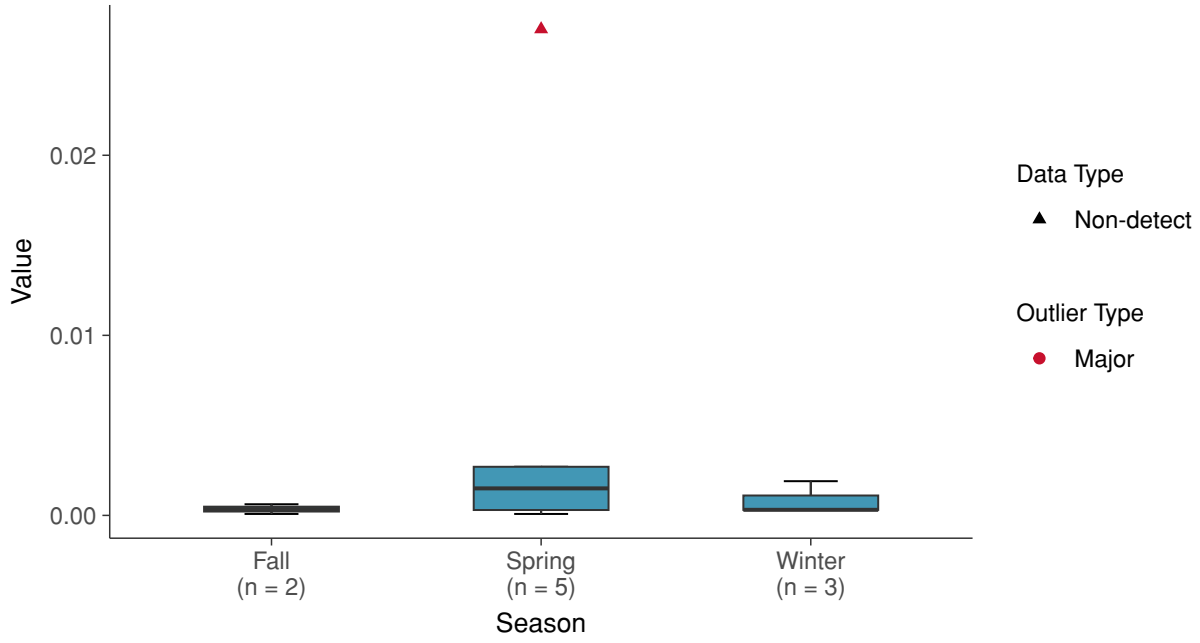
Boxplot

Beryllium, W-9 (mg/l)



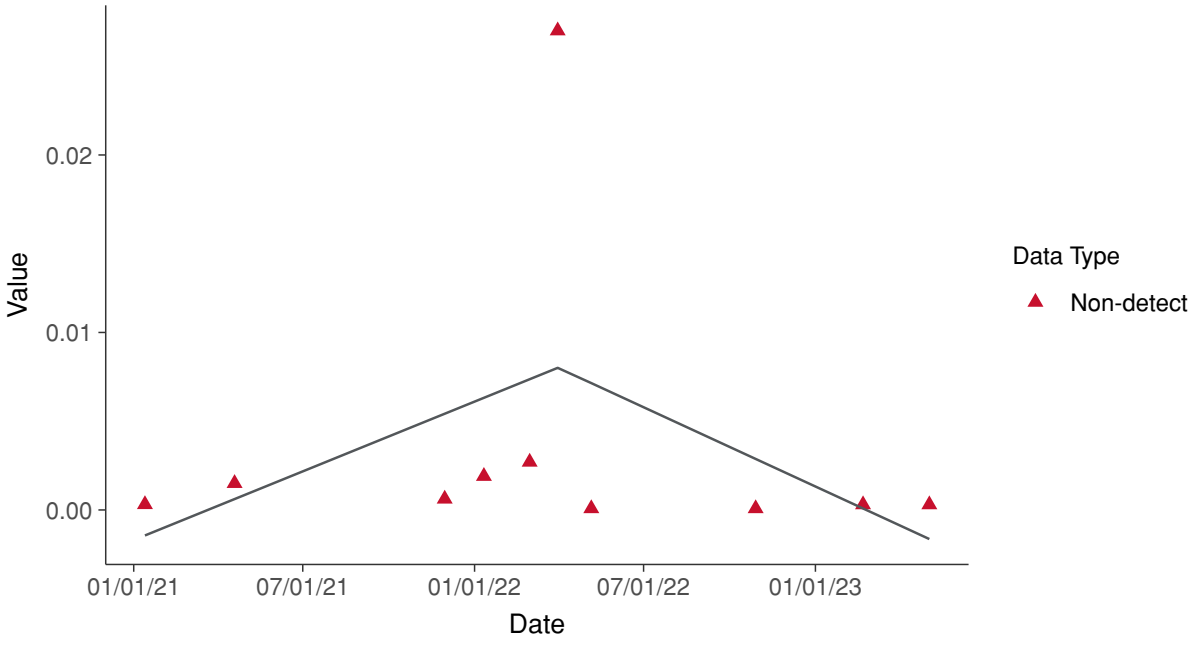
Boxplot by Season

Beryllium, W-9 (mg/l)



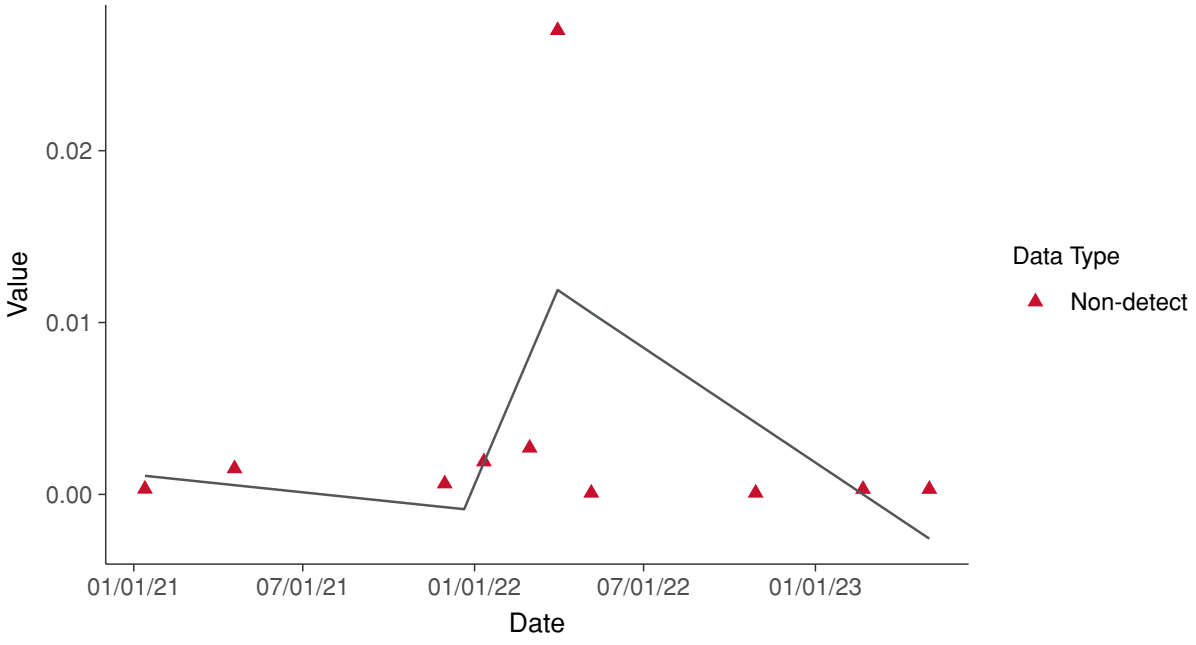
Trend Regression: Piecewise Linear-Linear

Beryllium, W-9 (mg/l)



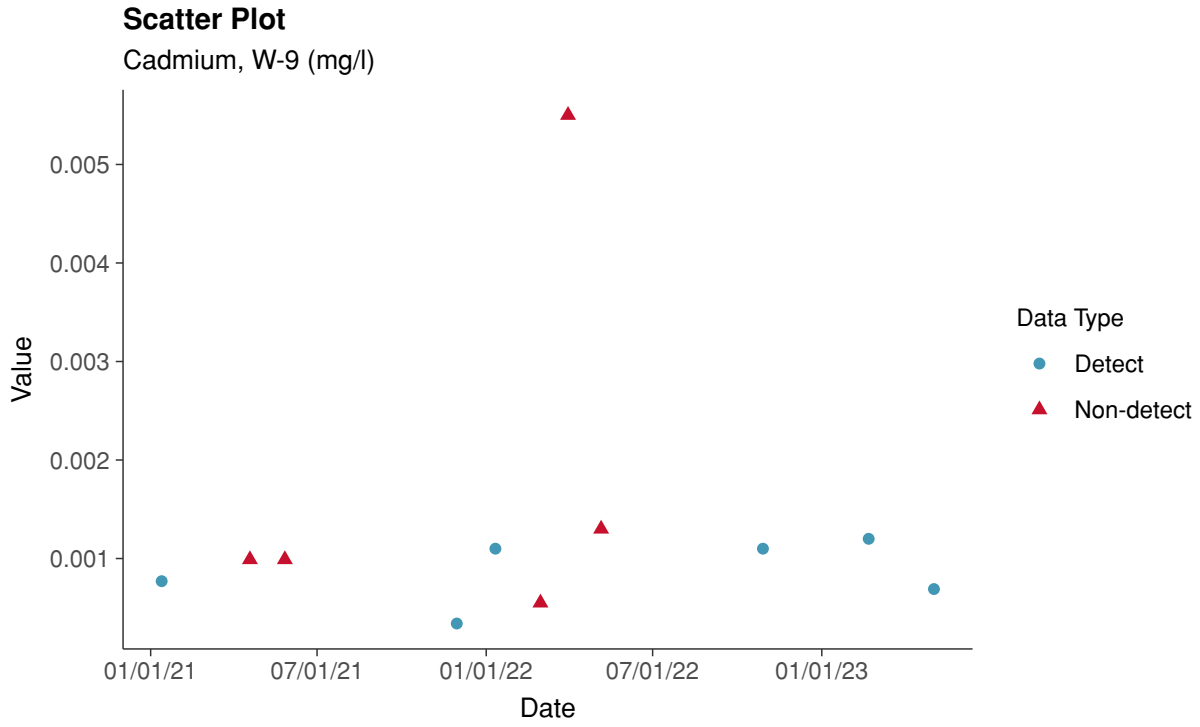
Trend Regression: Piecewise Linear-Linear-Linear

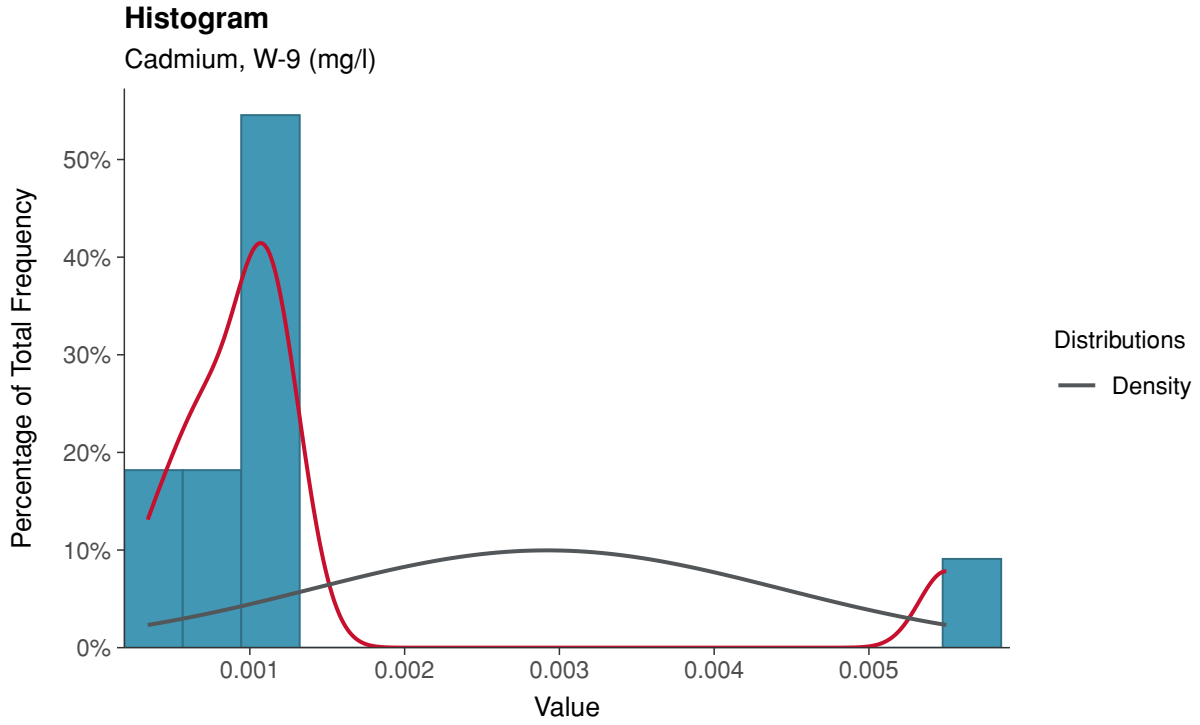
Beryllium, W-9 (mg/l)



Appendix IV: Cadmium, W-9

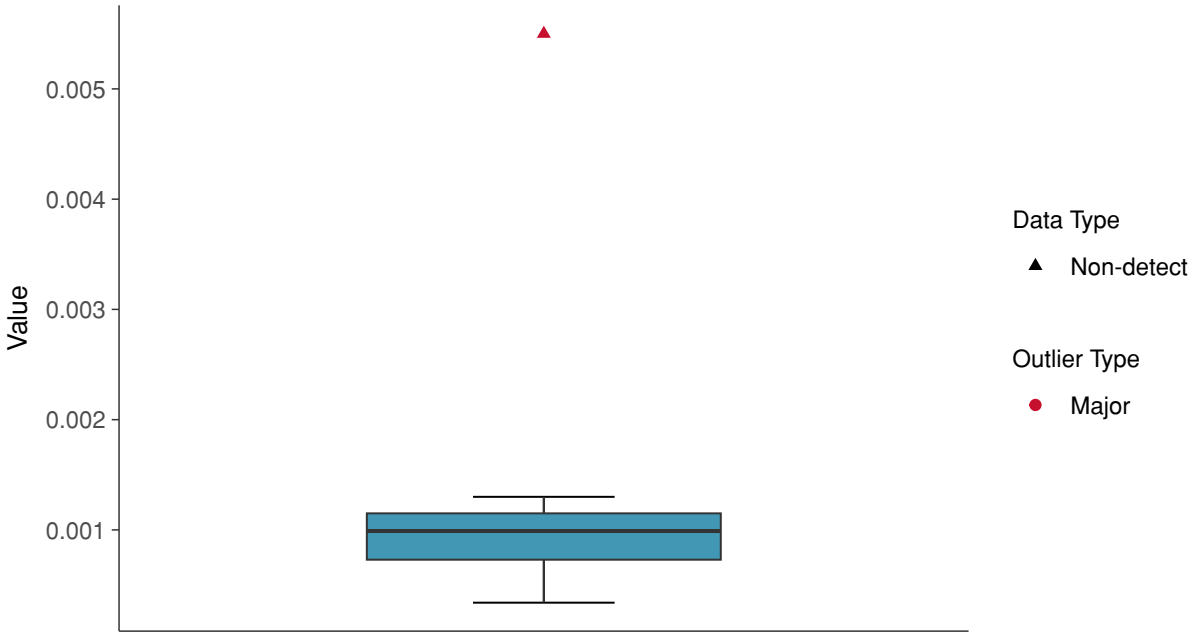
ID: 12_2_106





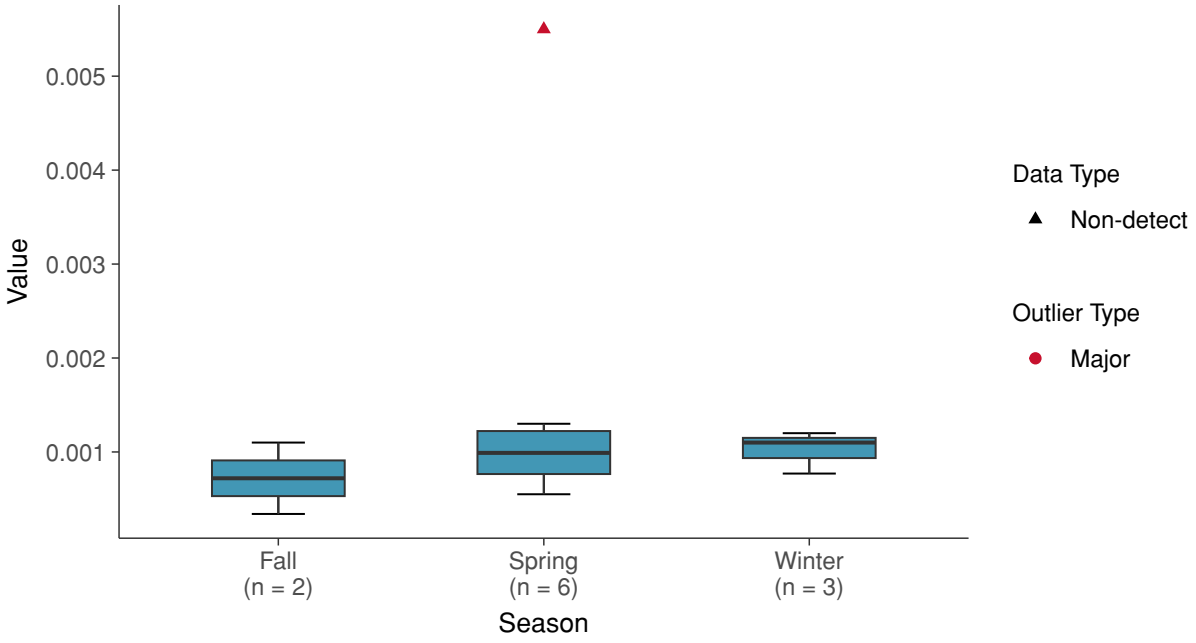
Boxplot

Cadmium, W-9 (mg/l)



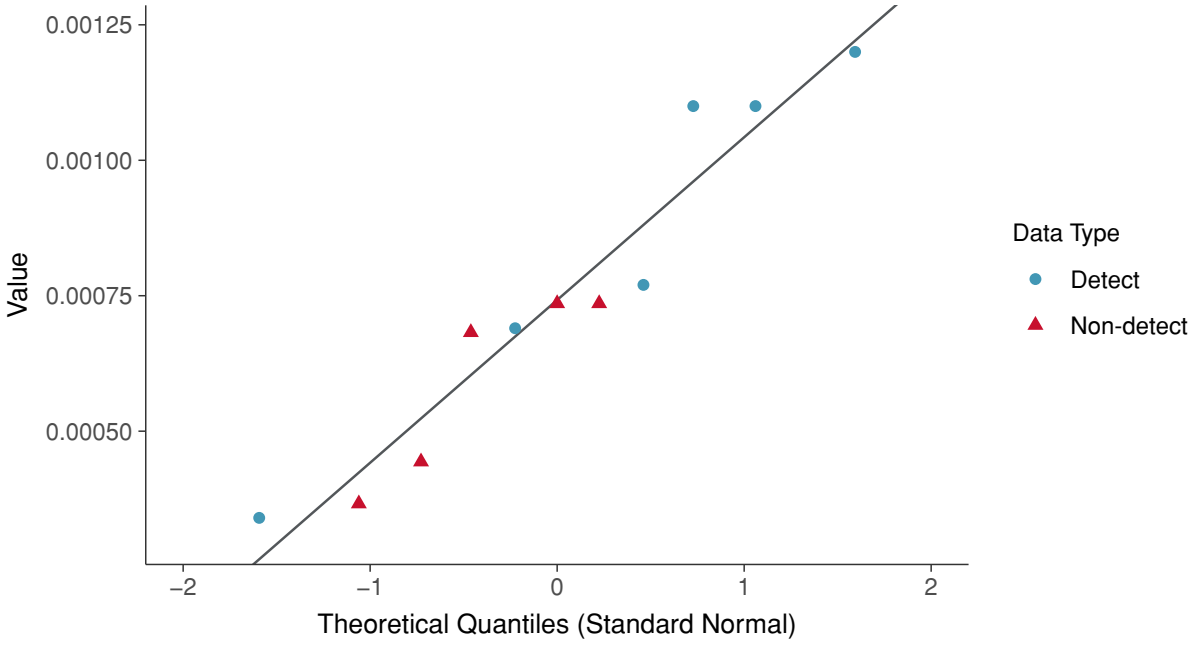
Boxplot by Season

Cadmium, W-9 (mg/l)



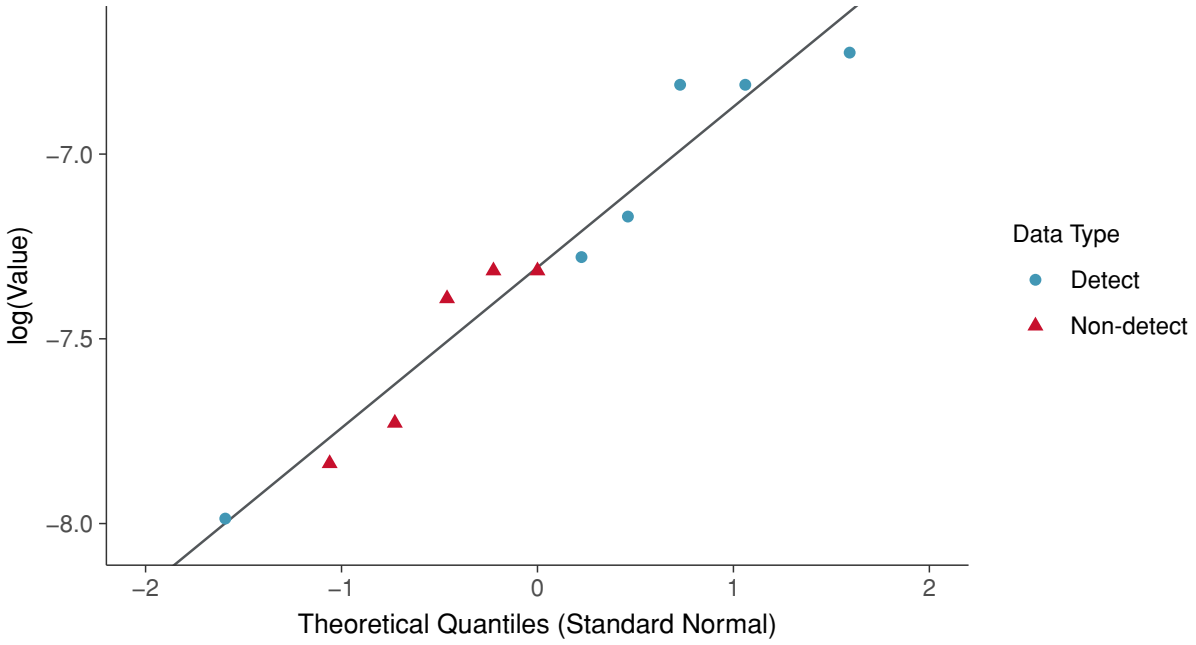
Normal Q-Q plot using ROS Imputed Estimates

Cadmium, W-9 (mg/l)



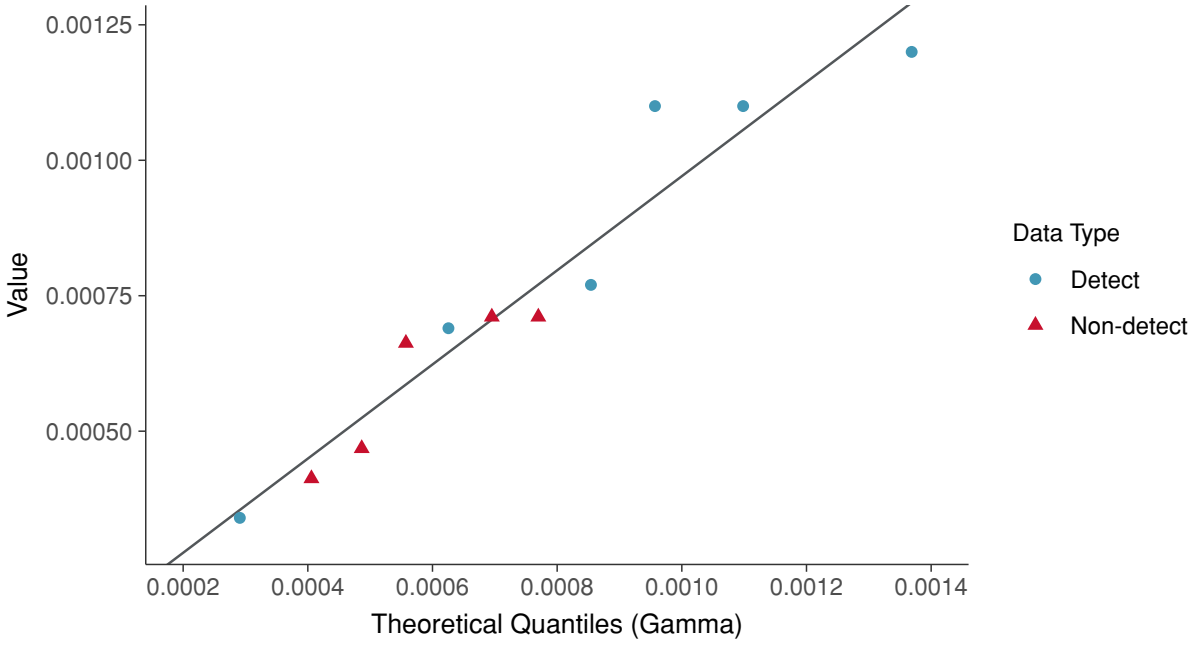
Lognormal Q-Q plot using ROS Imputed Estimates

Cadmium, W-9 (mg/l)



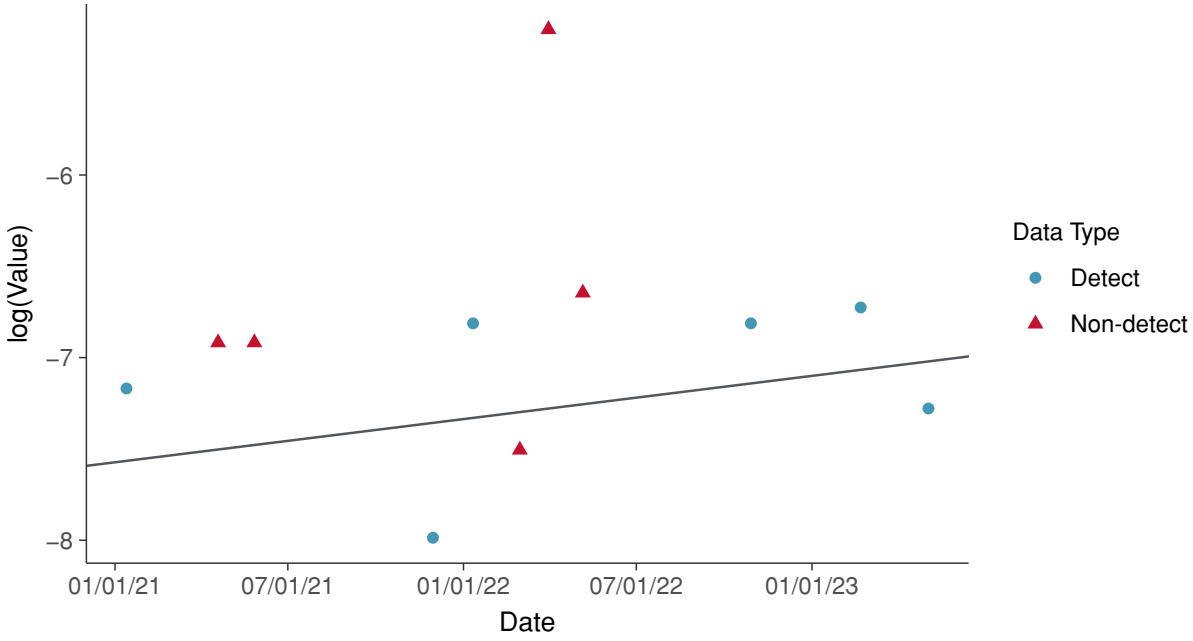
Gamma Q-Q plot using ROS Imputed Estimates

Cadmium, W-9 (mg/l)



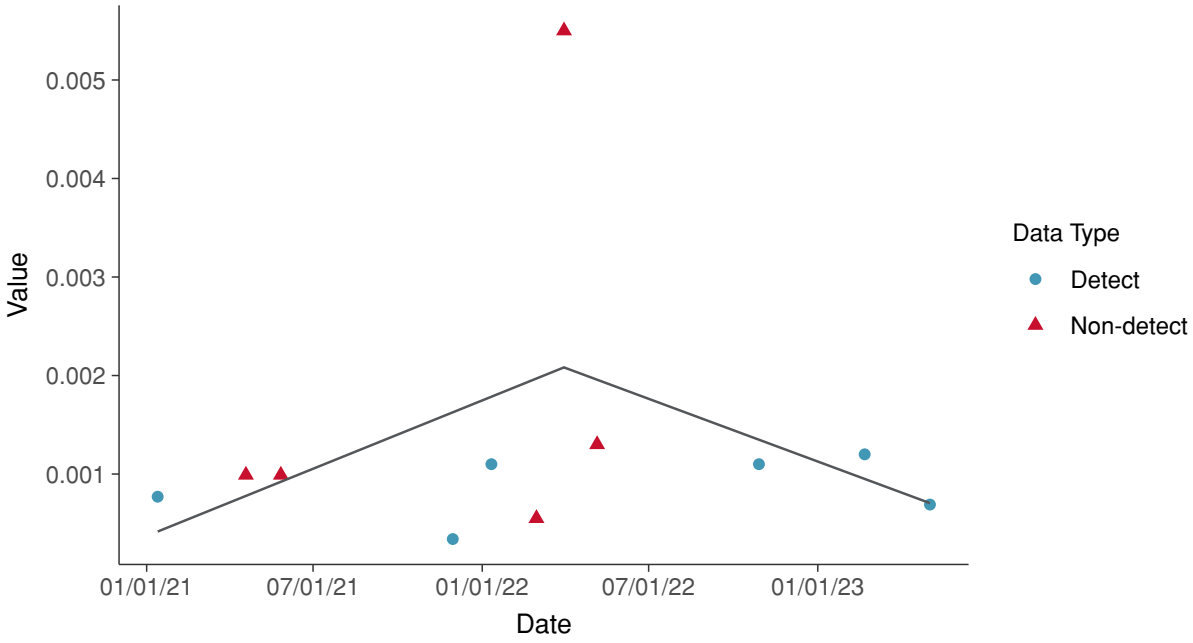
Trend Regression: Lognormal MLE

Cadmium, W-9 (mg/l)



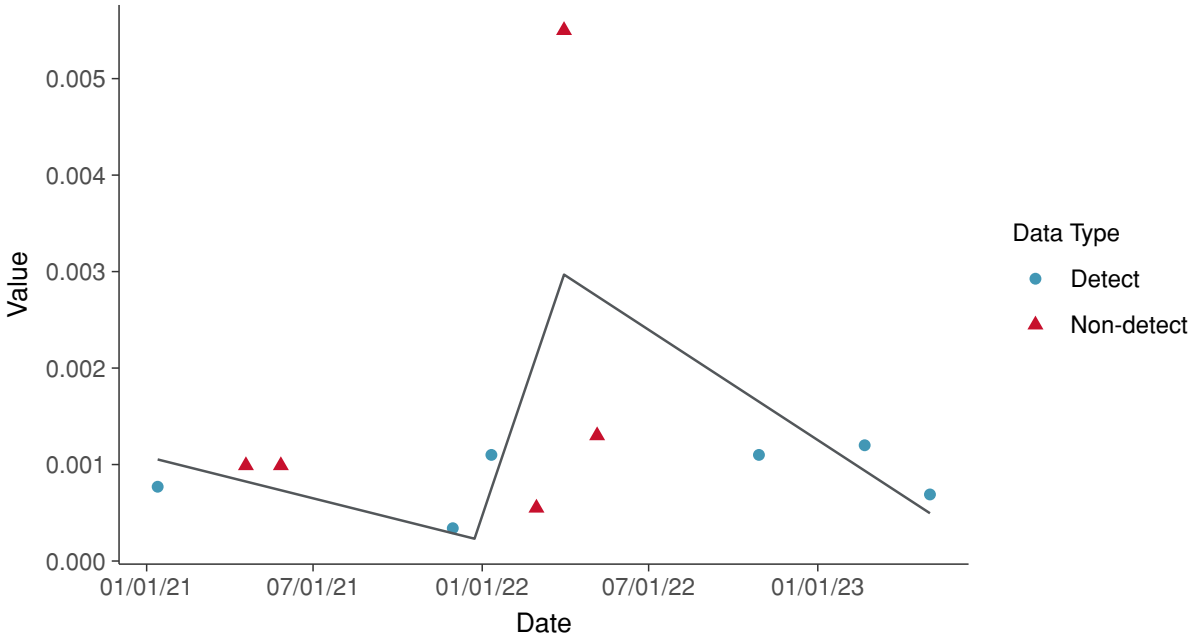
Trend Regression: Piecewise Linear-Linear

Cadmium, W-9 (mg/l)



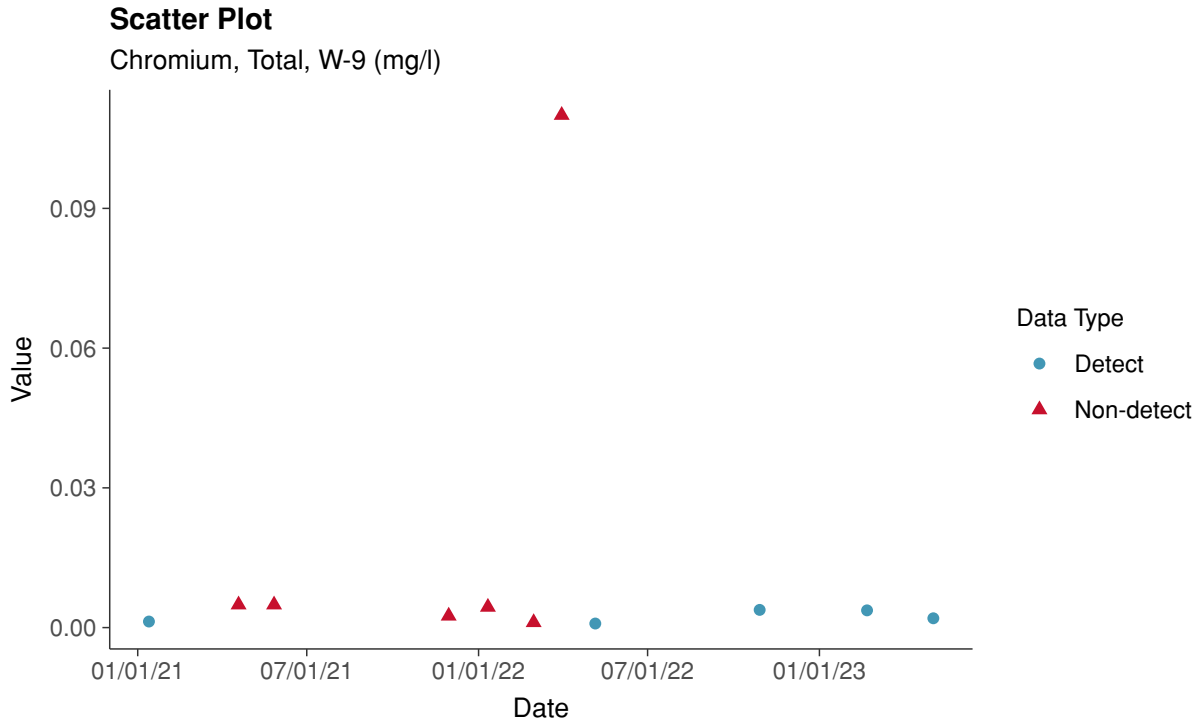
Trend Regression: Piecewise Linear-Linear-Linear

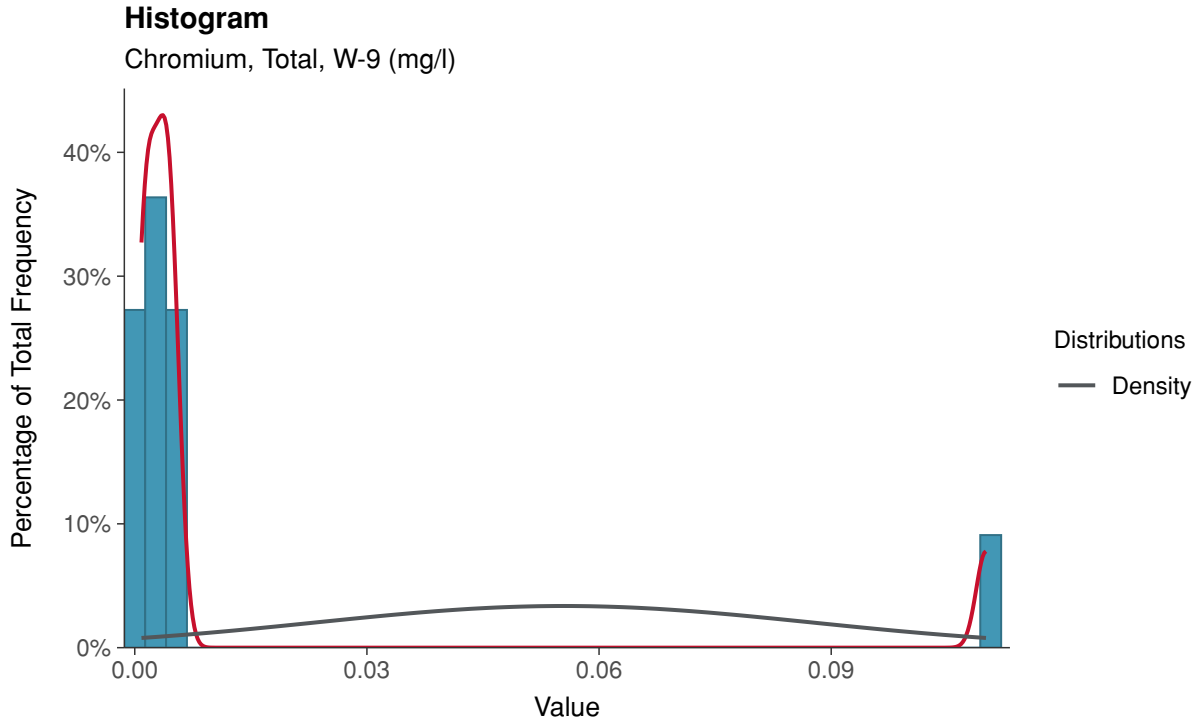
Cadmium, W-9 (mg/l)



Appendix IV: Chromium, Total, W-9

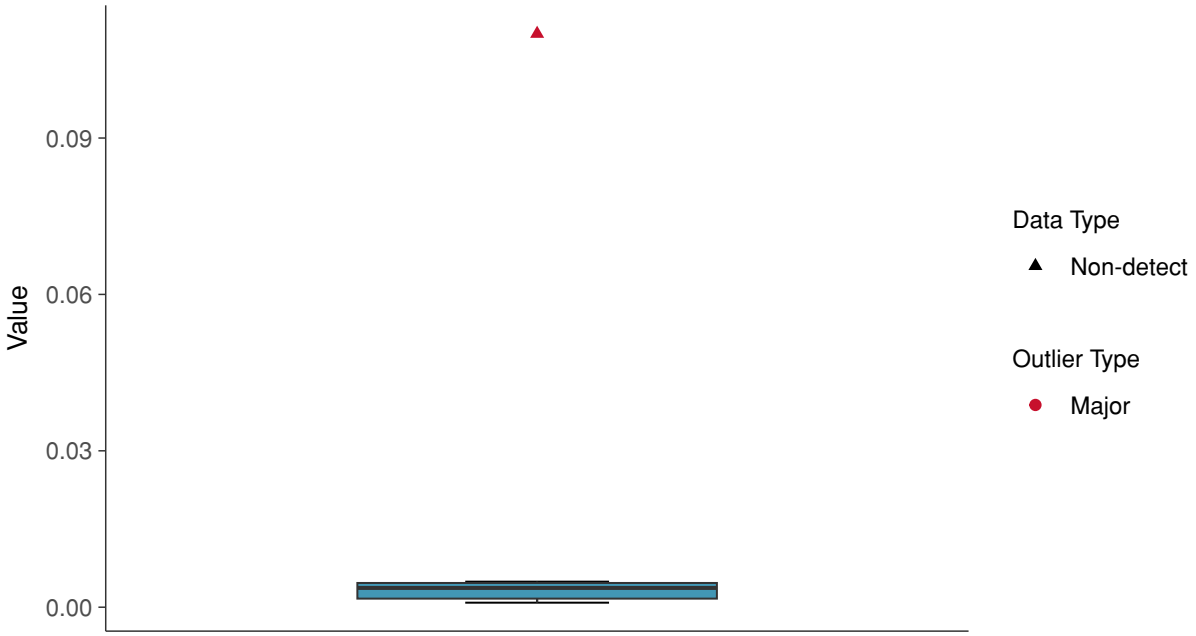
ID: 12_2_109





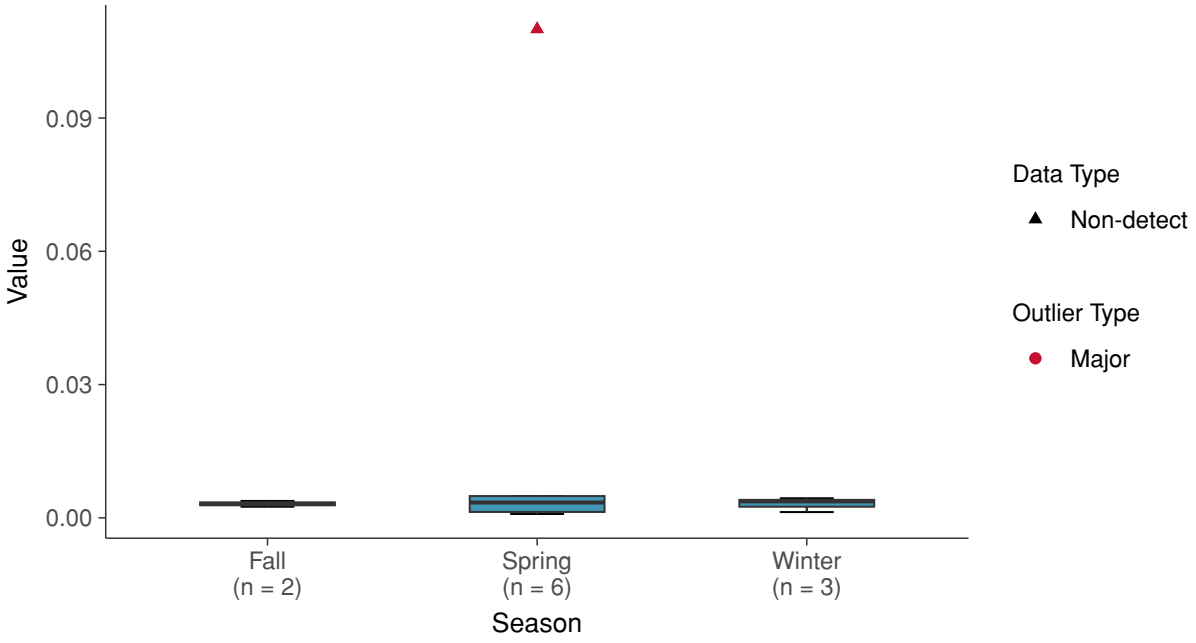
Boxplot

Chromium, Total, W-9 (mg/l)



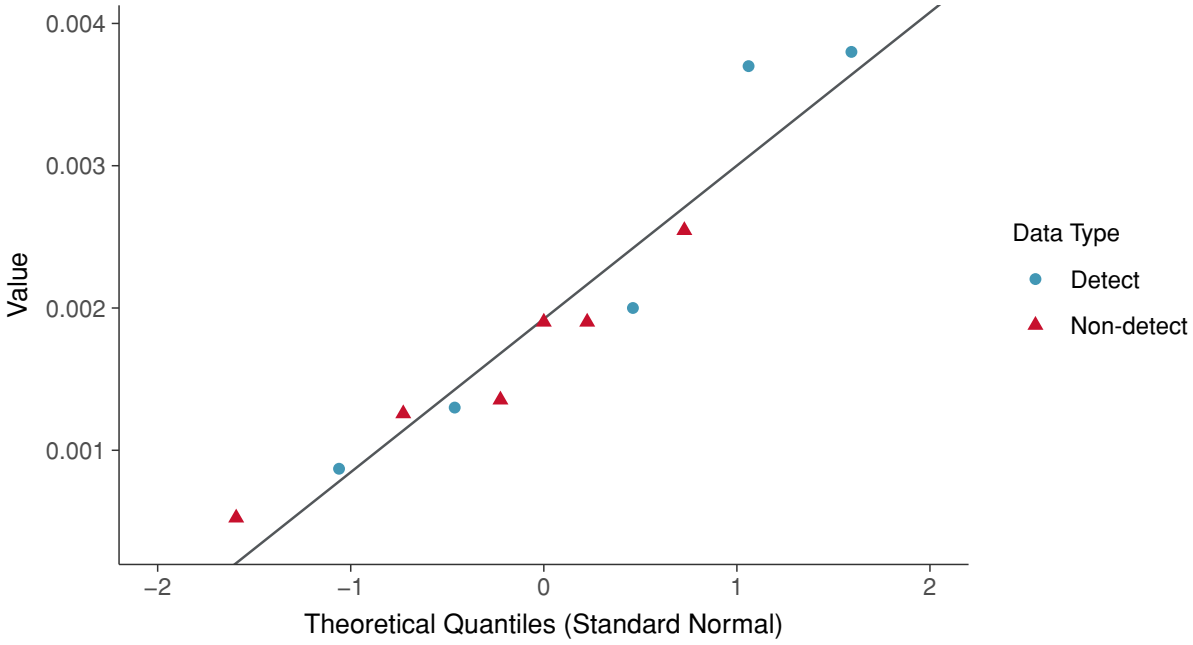
Boxplot by Season

Chromium, Total, W-9 (mg/l)



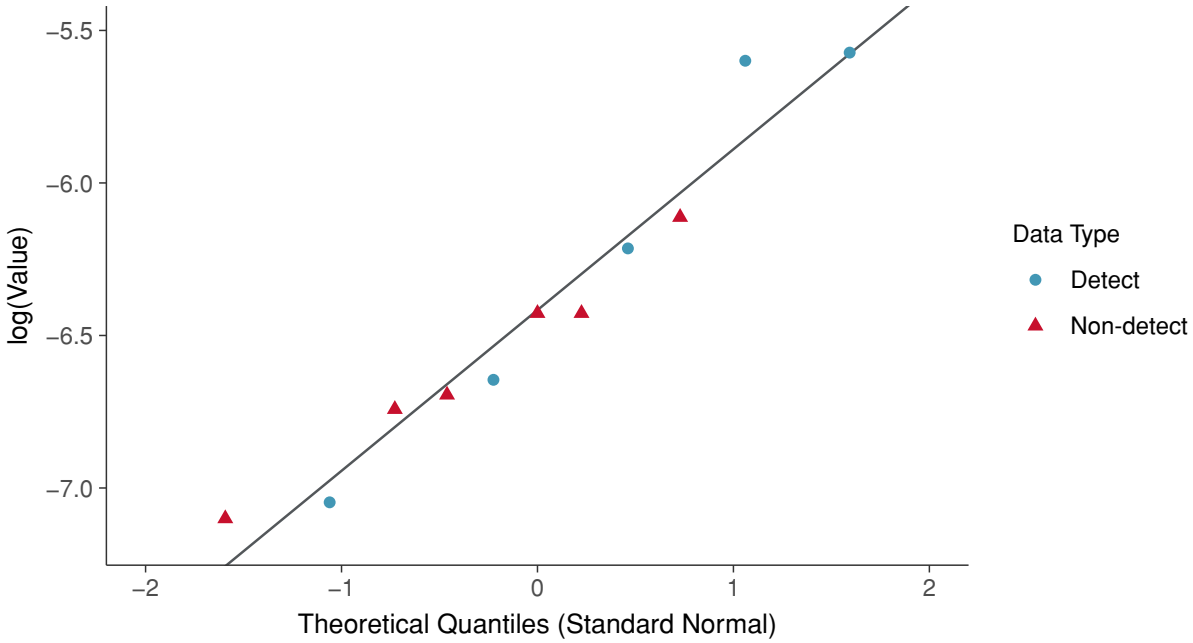
Normal Q-Q plot using ROS Imputed Estimates

Chromium, Total, W-9 (mg/l)



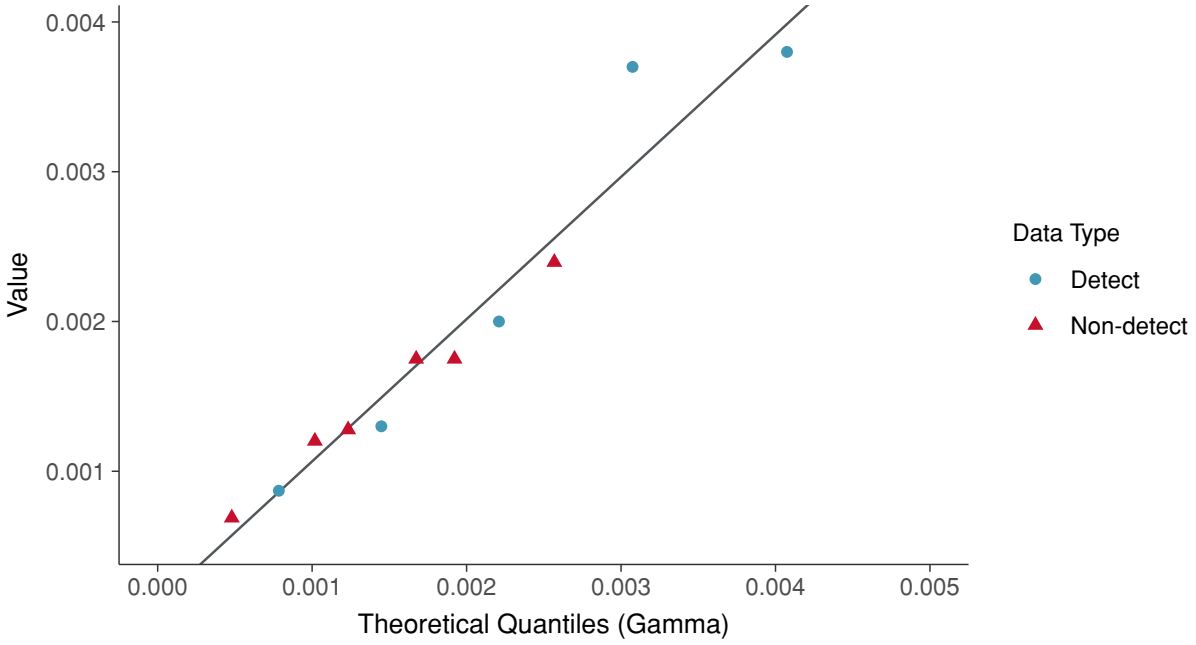
Lognormal Q-Q plot using ROS Imputed Estimates

Chromium, Total, W-9 (mg/l)



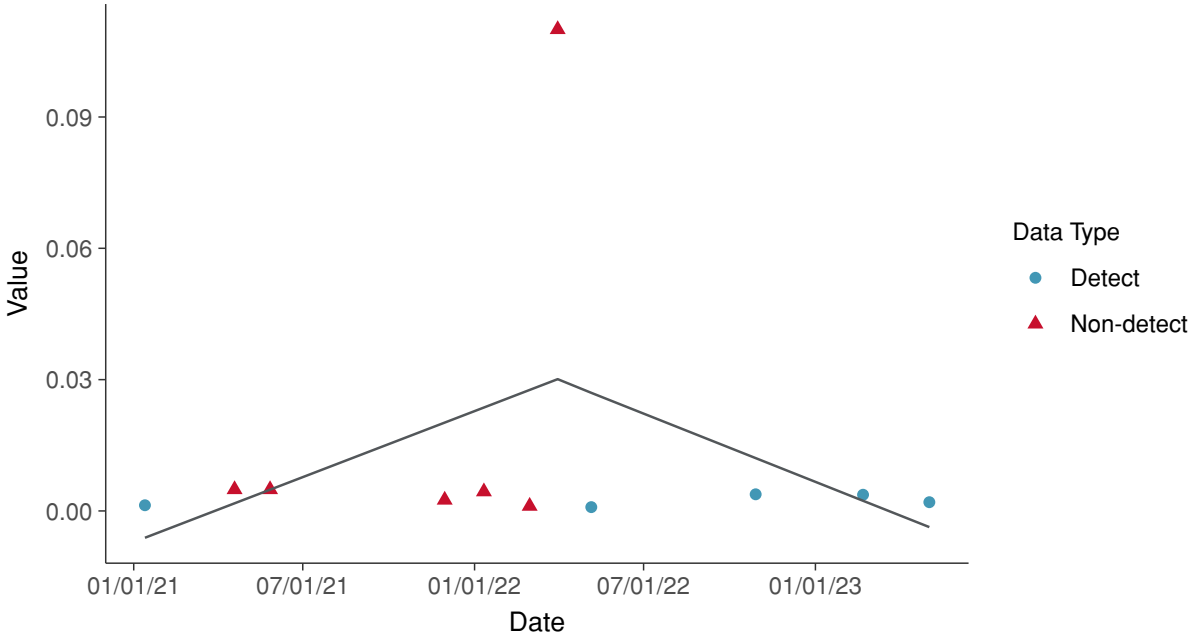
Gamma Q-Q plot using ROS Imputed Estimates

Chromium, Total, W-9 (mg/l)



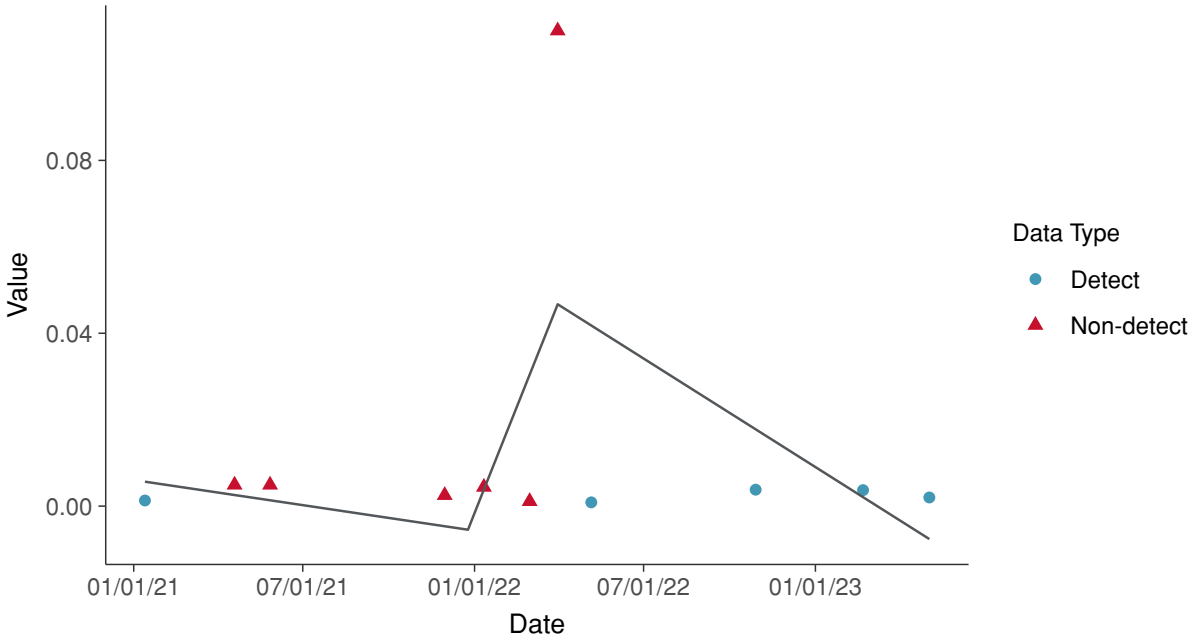
Trend Regression: Piecewise Linear-Linear

Chromium, Total, W-9 (mg/l)



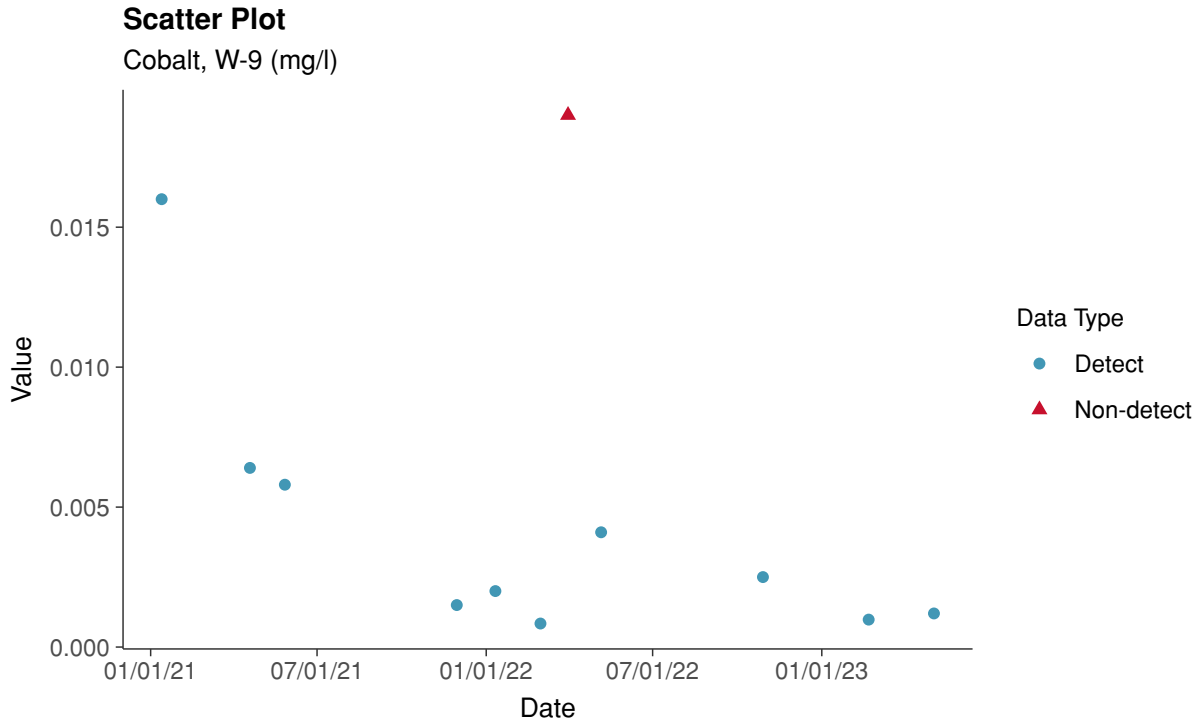
Trend Regression: Piecewise Linear-Linear-Linear

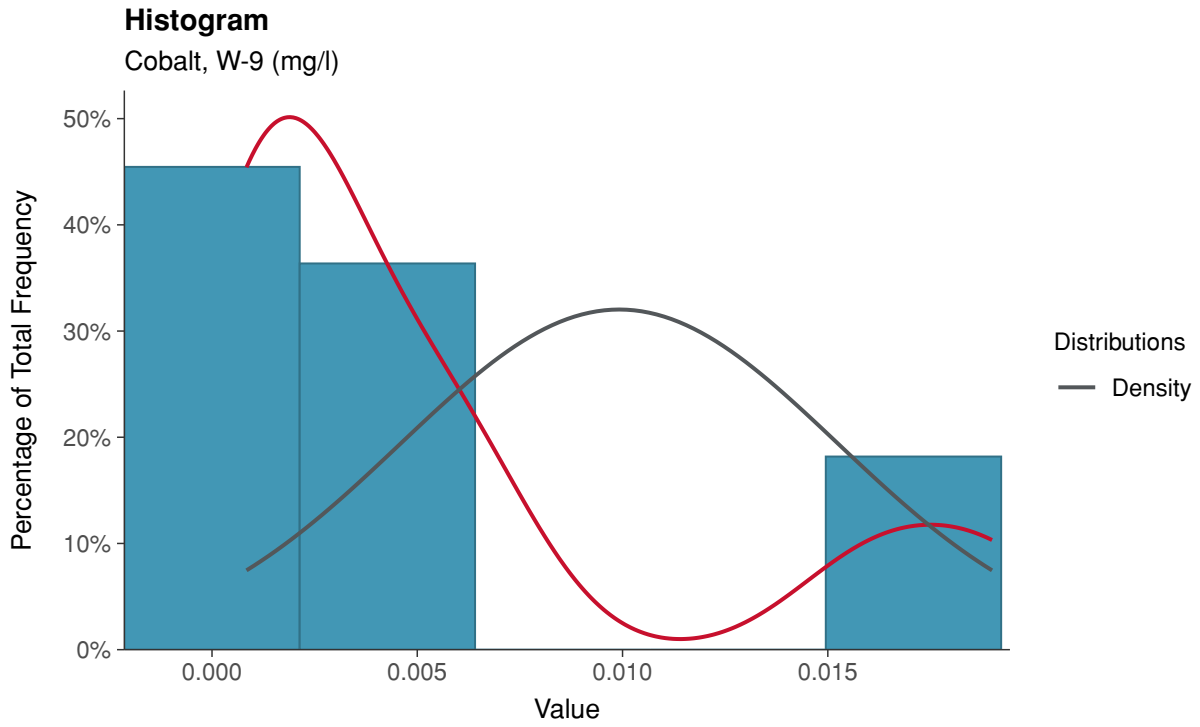
Chromium, Total, W-9 (mg/l)



Appendix IV: Cobalt, W-9

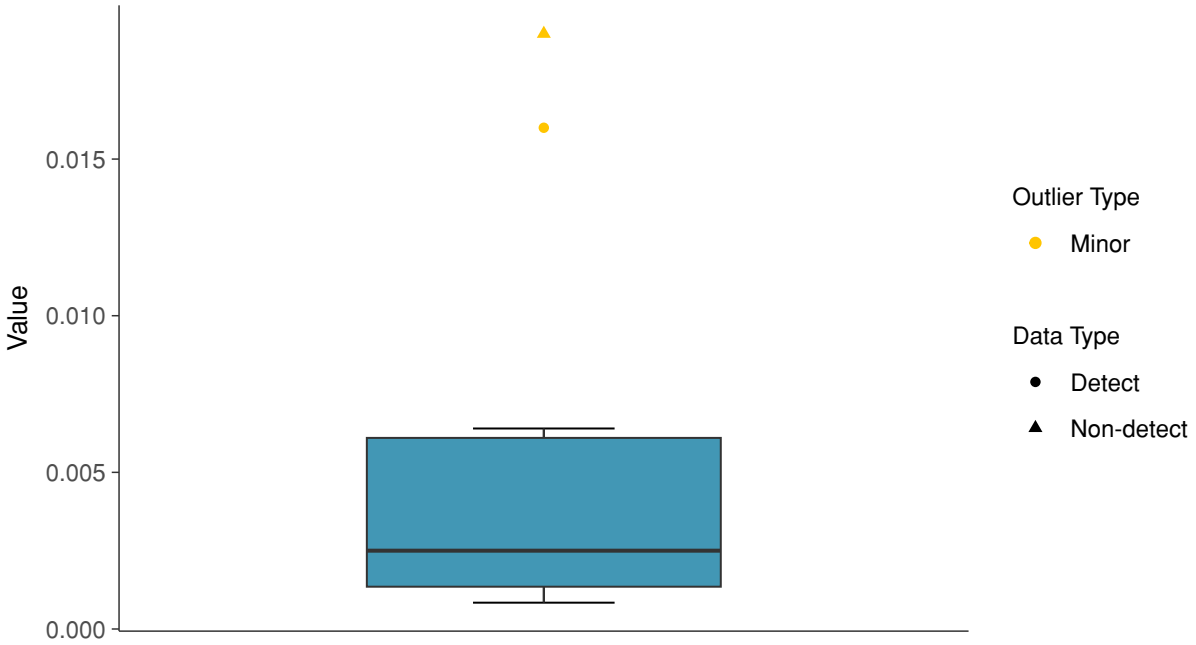
ID: 12_2_110





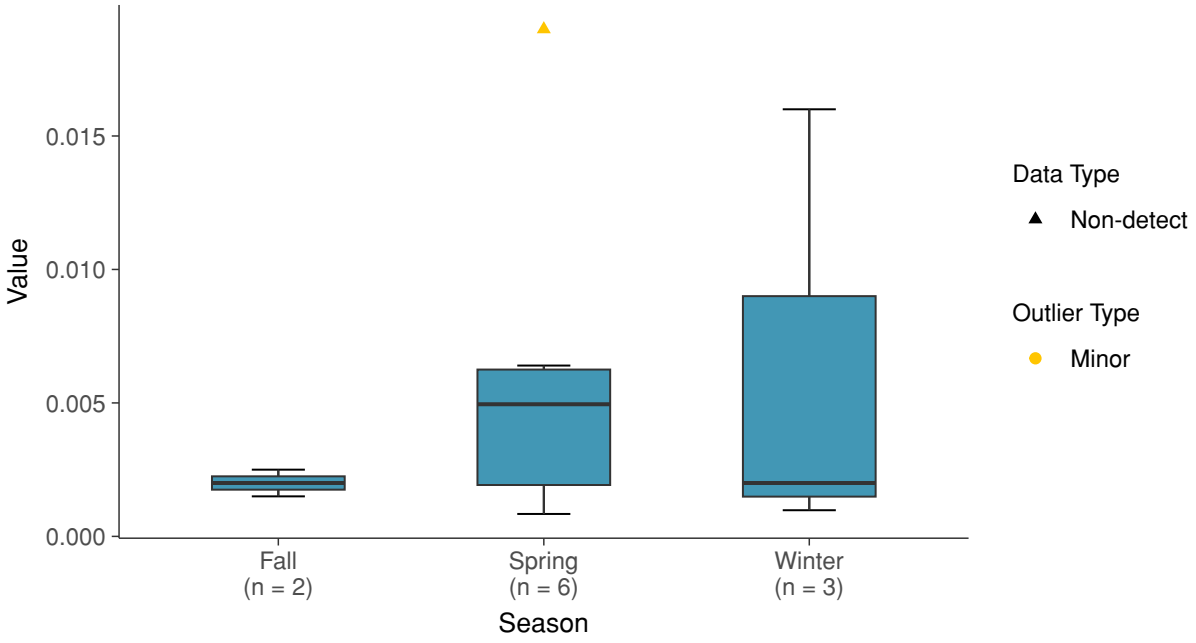
Boxplot

Cobalt, W-9 (mg/l)



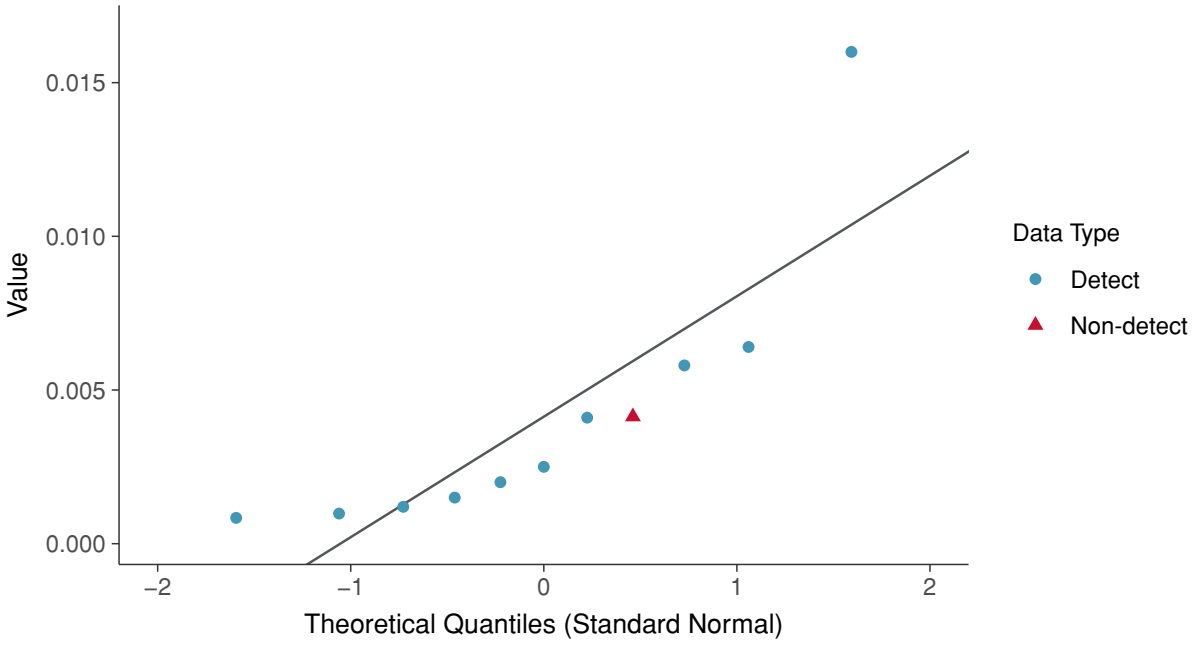
Boxplot by Season

Cobalt, W-9 (mg/l)



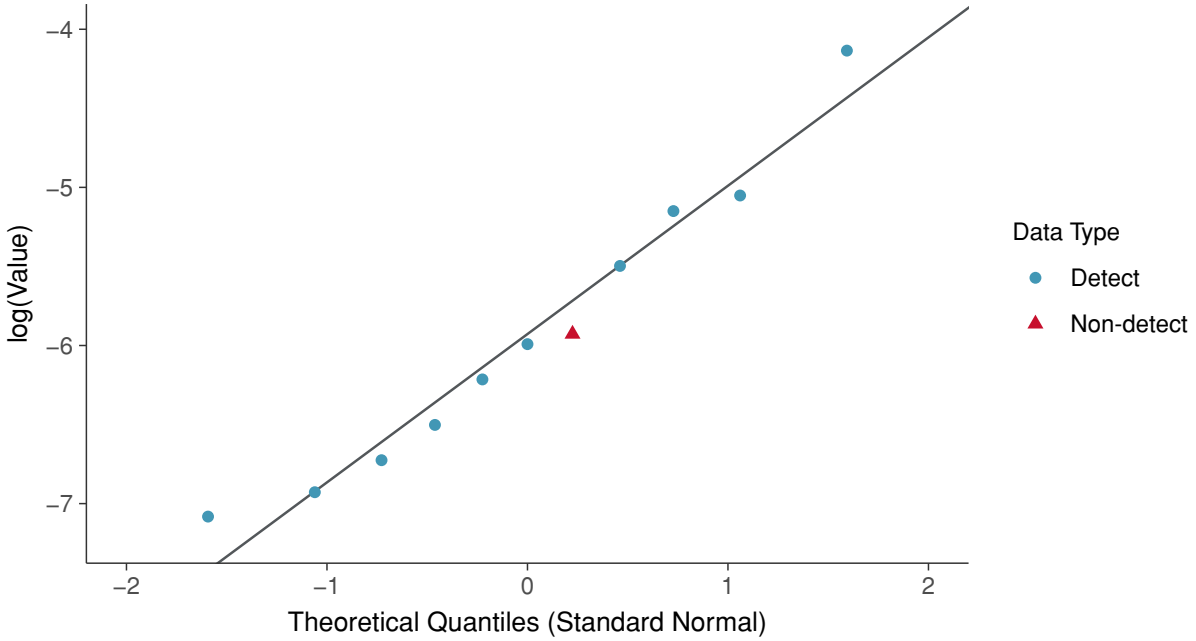
Normal Q-Q plot using ROS Imputed Estimates

Cobalt, W-9 (mg/l)



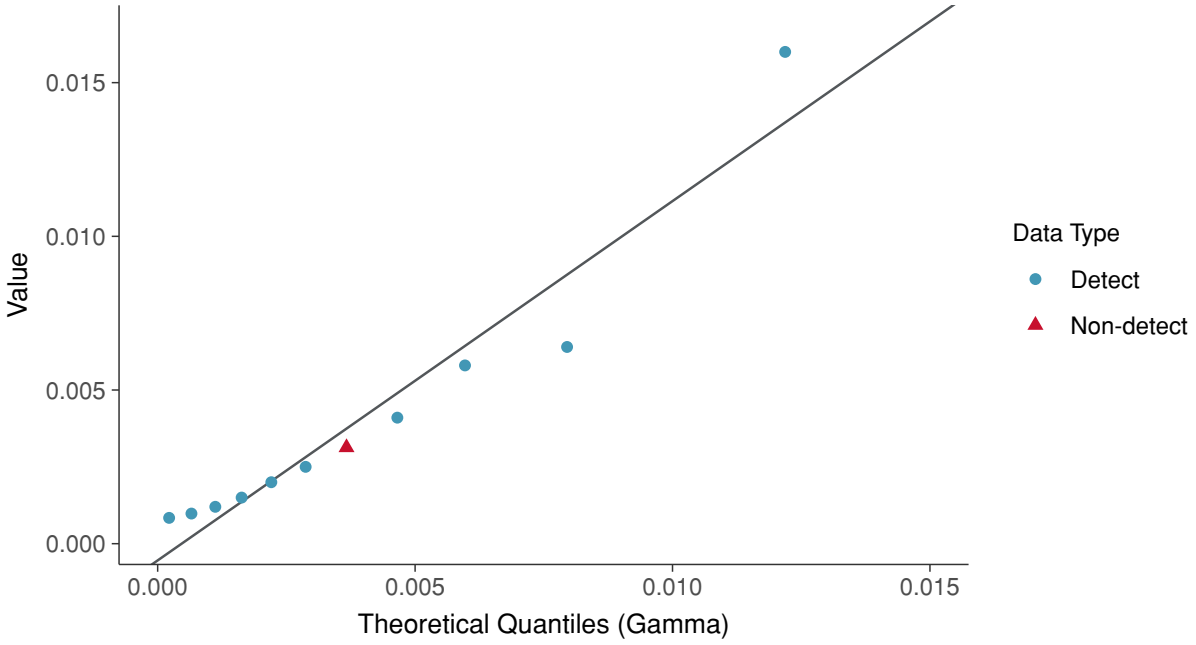
Lognormal Q-Q plot using ROS Imputed Estimates

Cobalt, W-9 (mg/l)



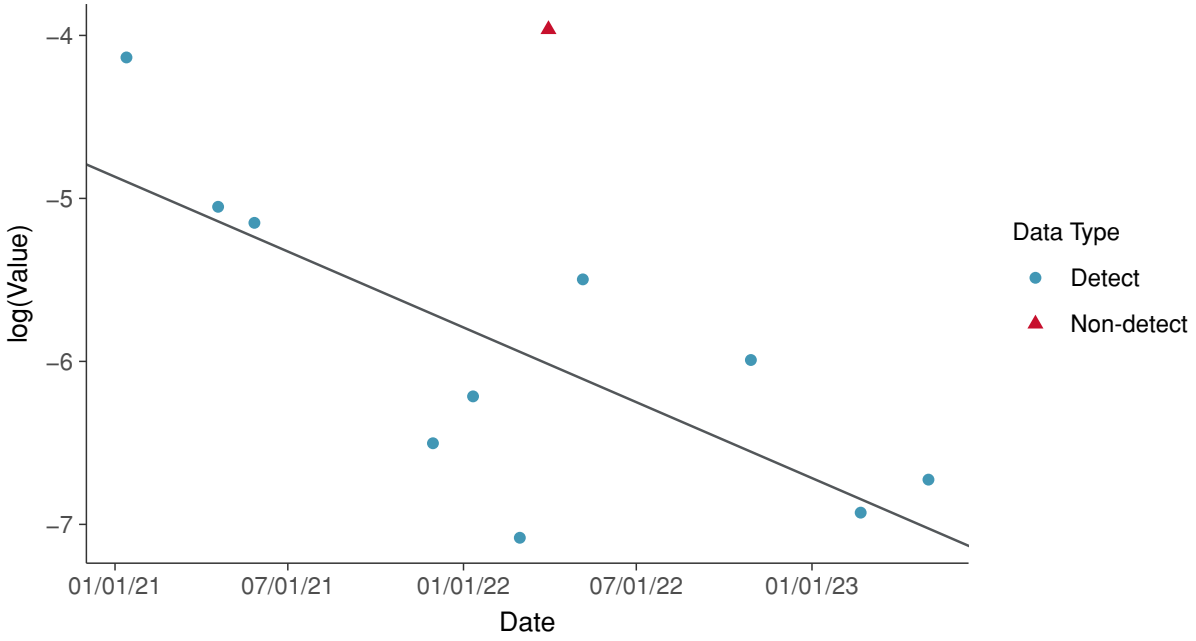
Gamma Q-Q plot using ROS Imputed Estimates

Cobalt, W-9 (mg/l)



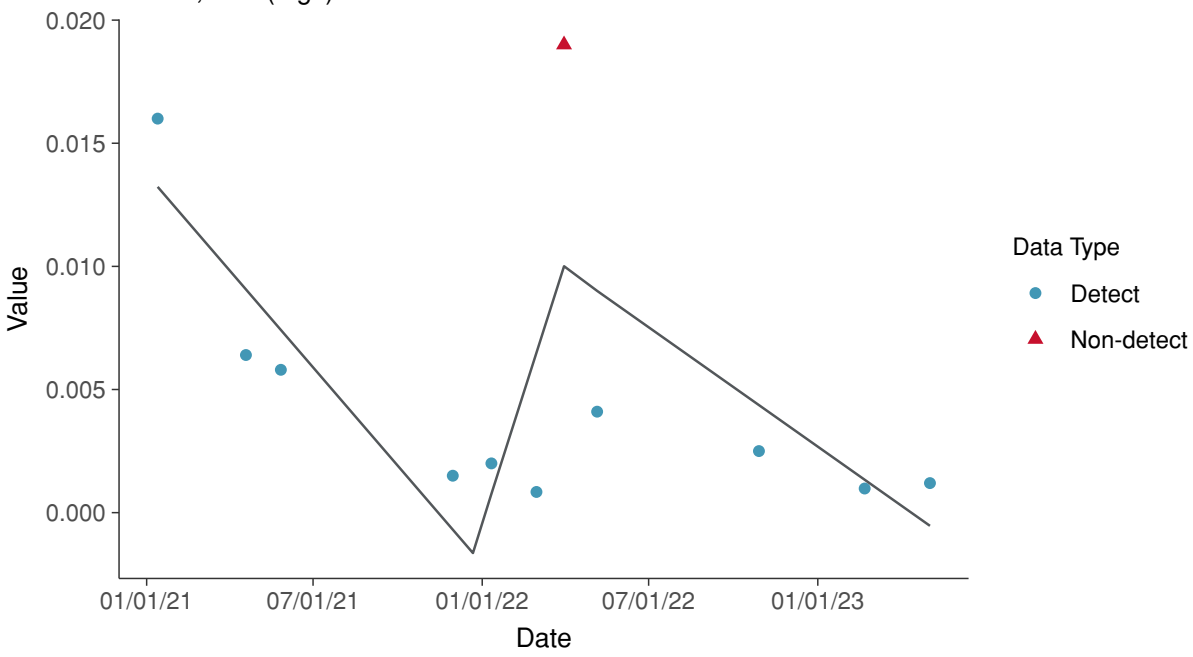
Trend Regression: Lognormal MLE

Cobalt, W-9 (mg/l)



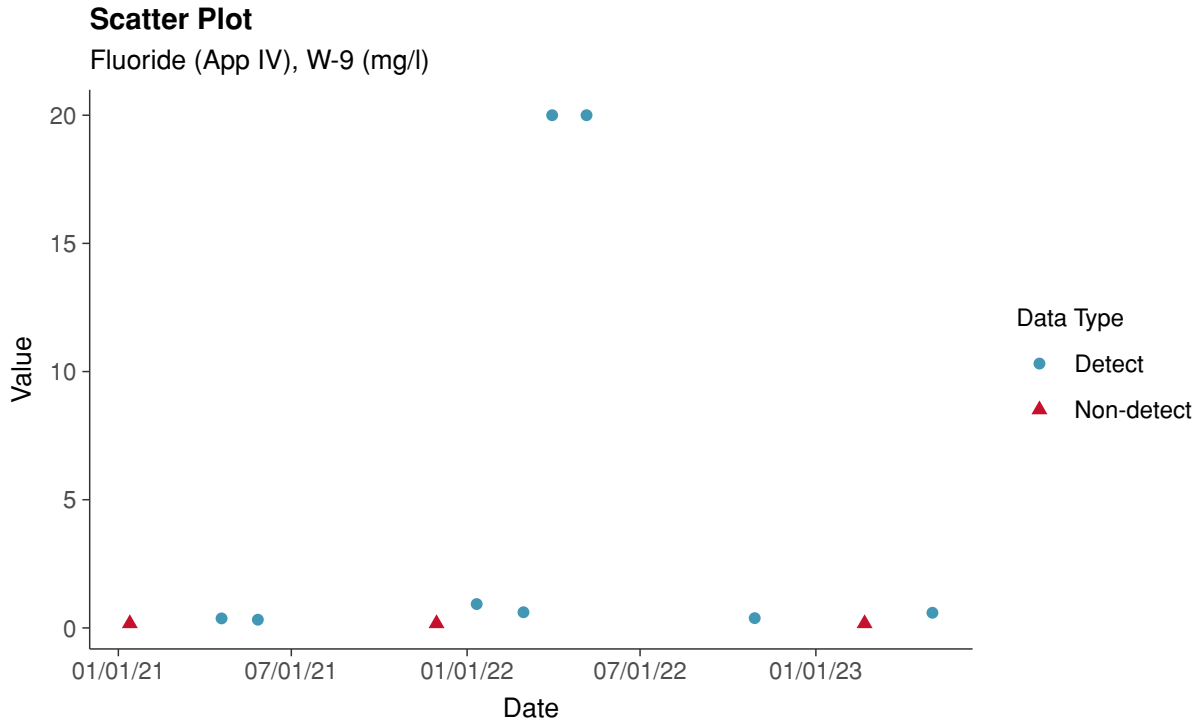
Trend Regression: Piecewise Linear-Linear-Linear

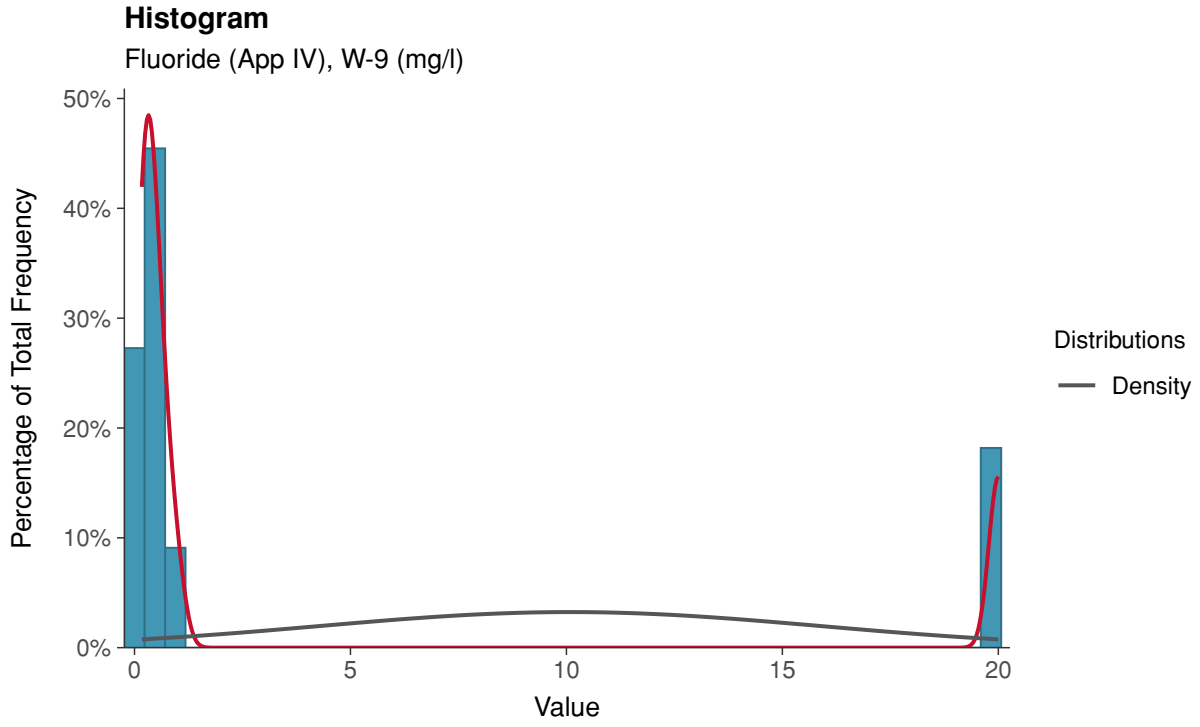
Cobalt, W-9 (mg/l)



Appendix IV: Fluoride (App IV), W-9

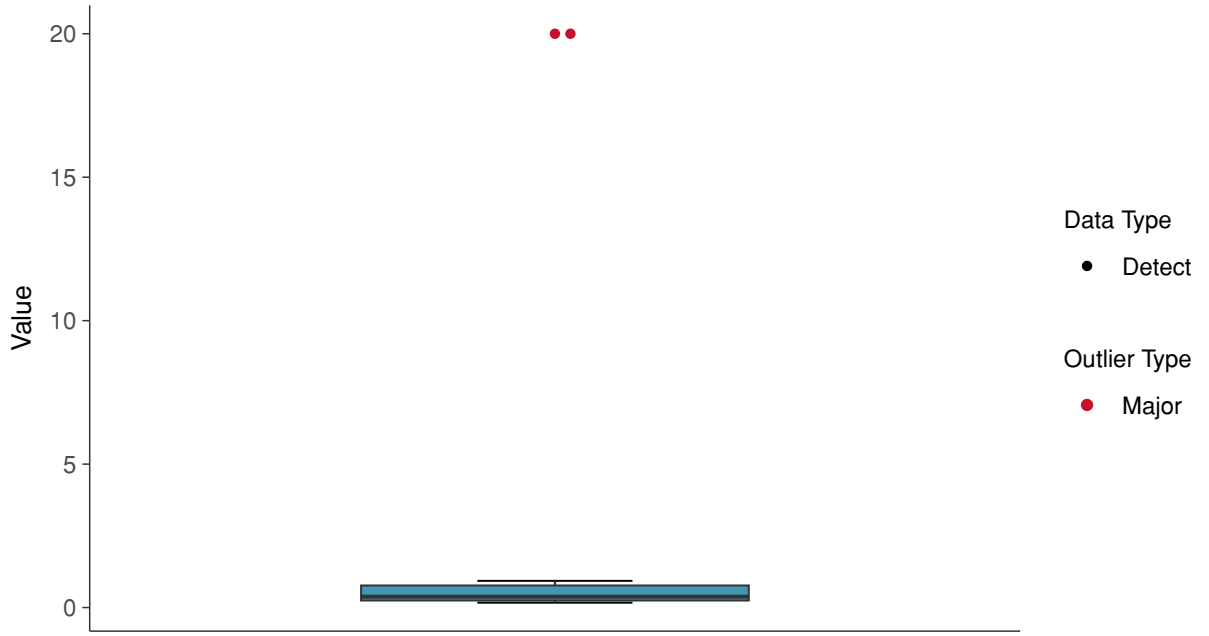
ID: 12_2_112





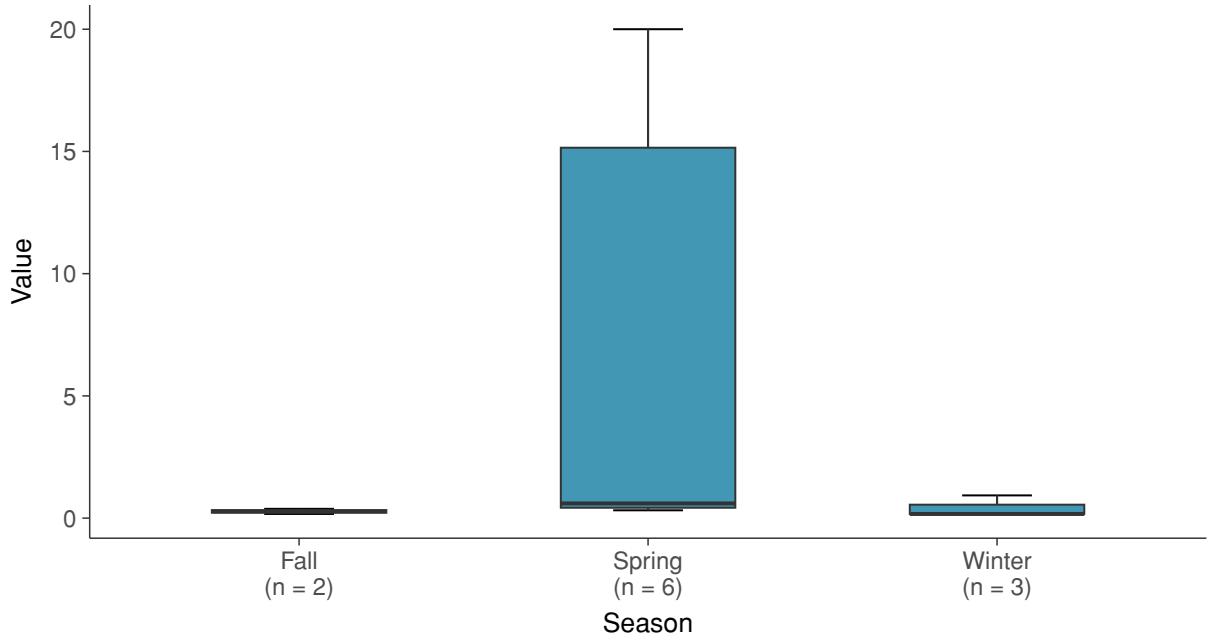
Boxplot

Fluoride (App IV), W-9 (mg/l)



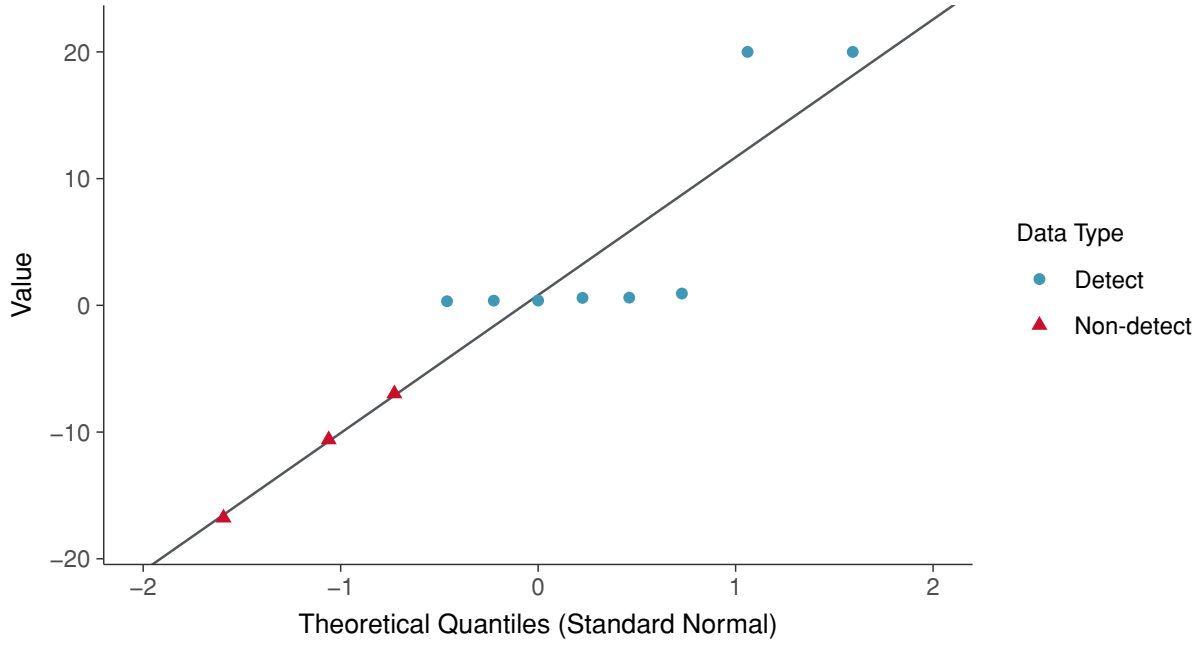
Boxplot by Season

Fluoride (App IV), W-9 (mg/l)



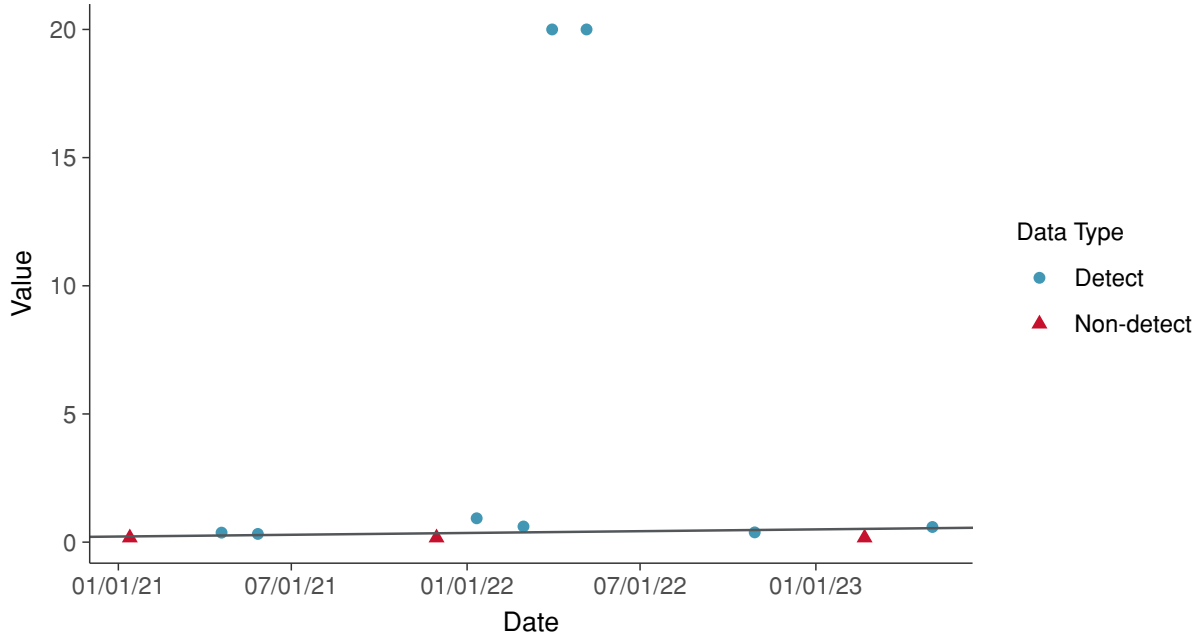
Normal Q-Q plot using ROS Imputed Estimates

Fluoride (App IV), W-9 (mg/l)



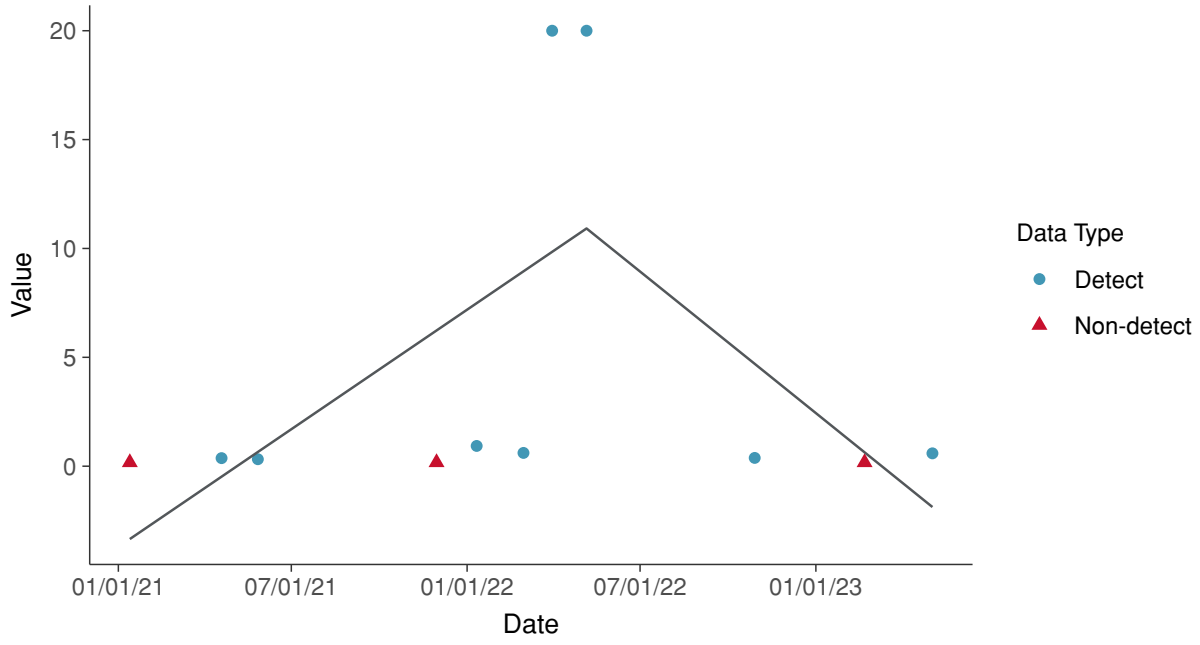
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Fluoride (App IV), W-9 (mg/l)



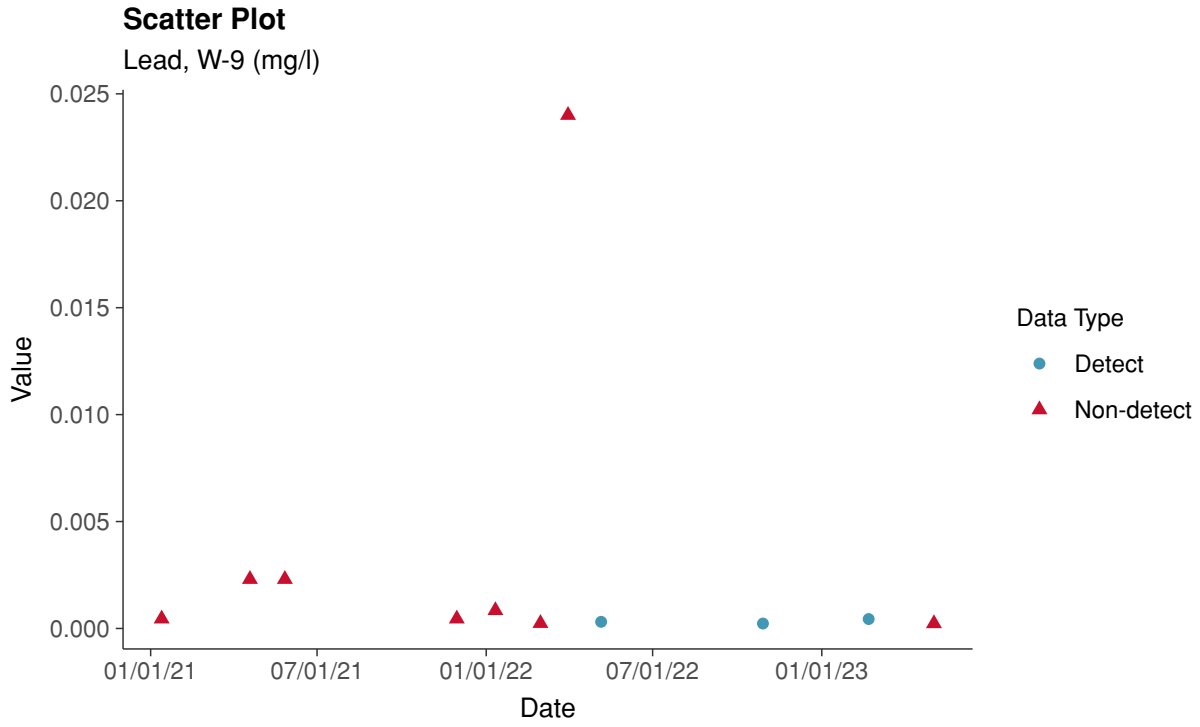
Trend Regression: Piecewise Linear-Linear

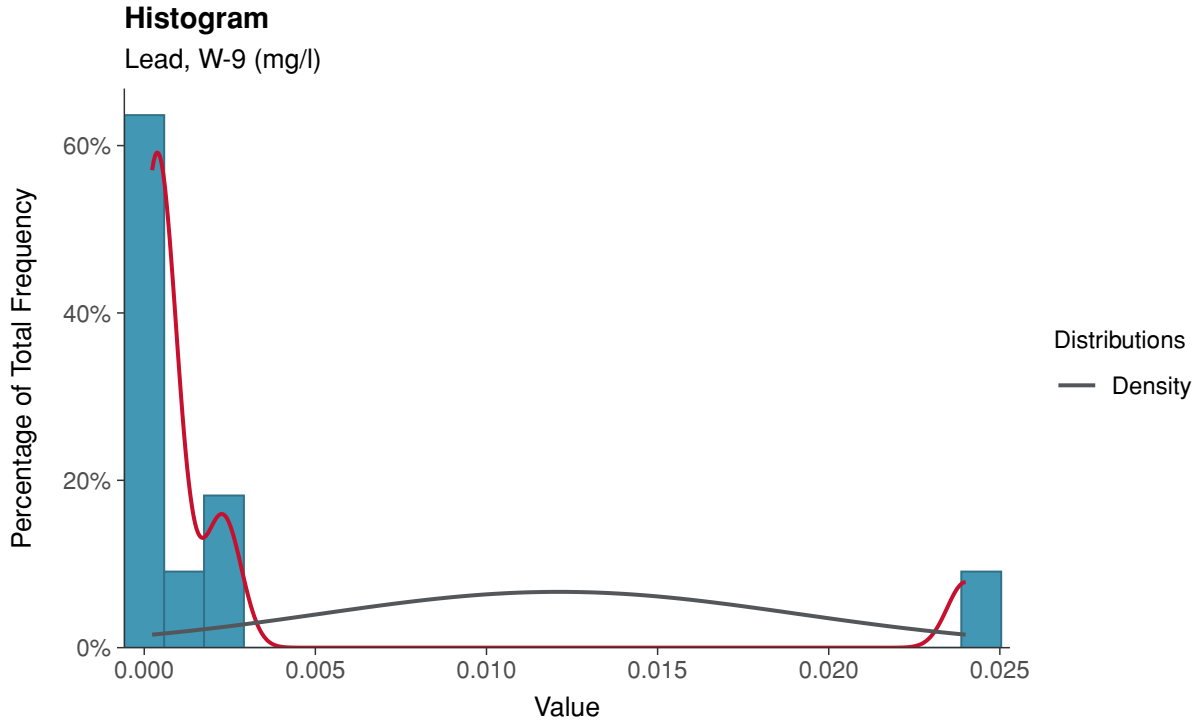
Fluoride (App IV), W-9 (mg/l)



Appendix IV: Lead, W-9

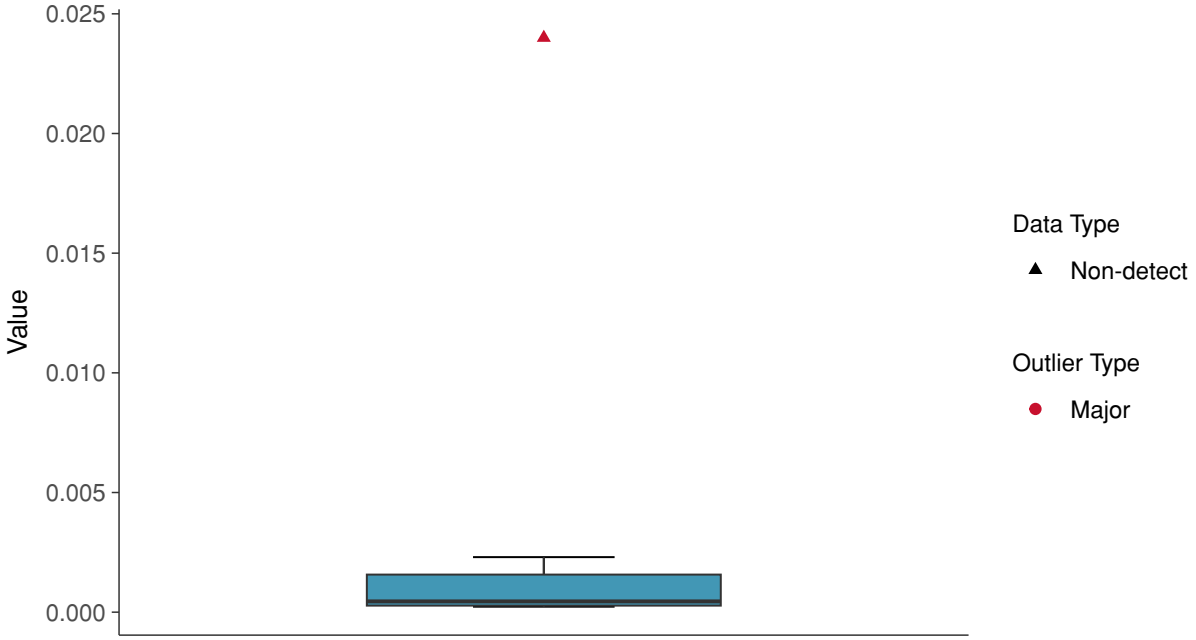
ID: 12_2_113





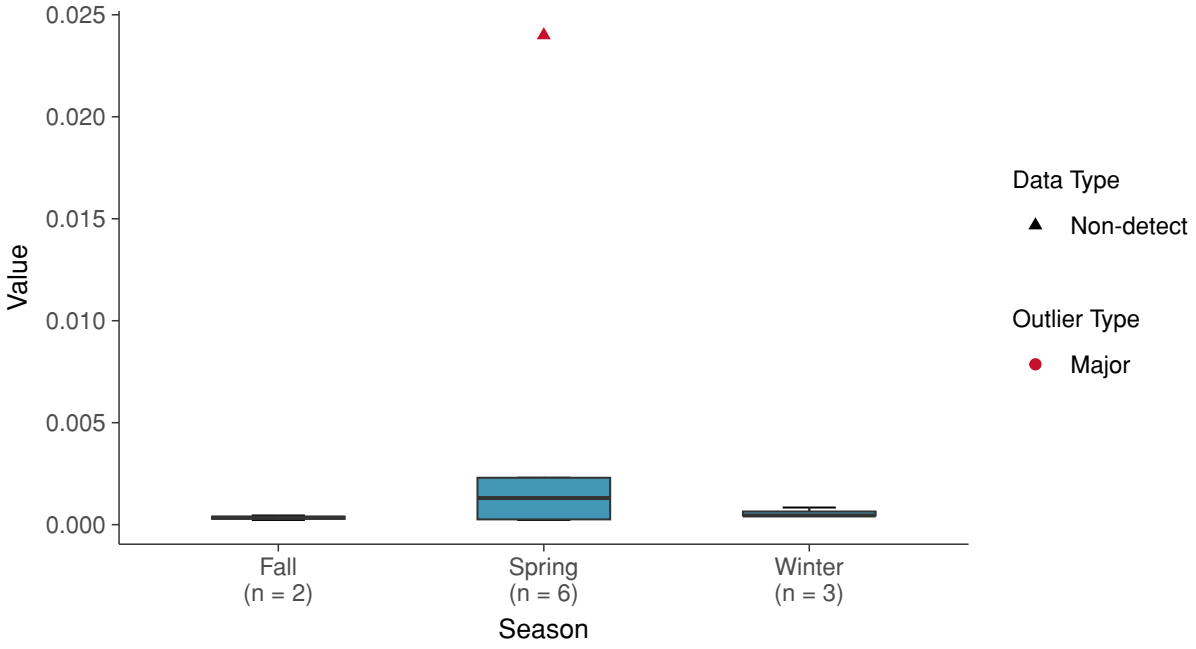
Boxplot

Lead, W-9 (mg/l)



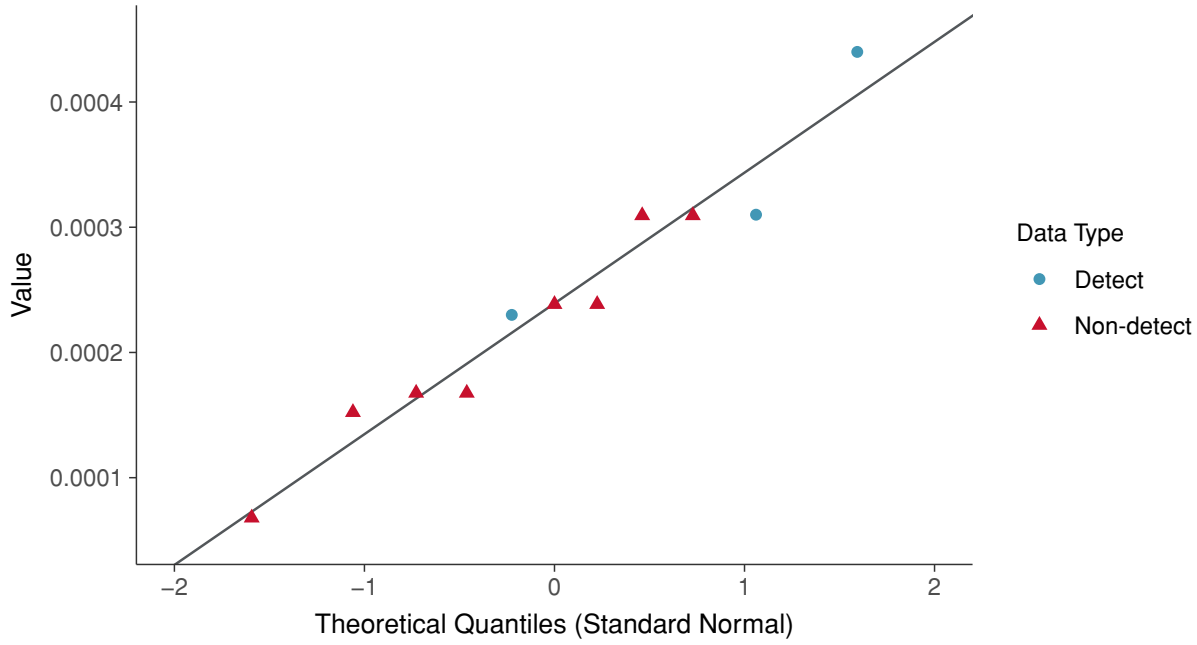
Boxplot by Season

Lead, W-9 (mg/l)



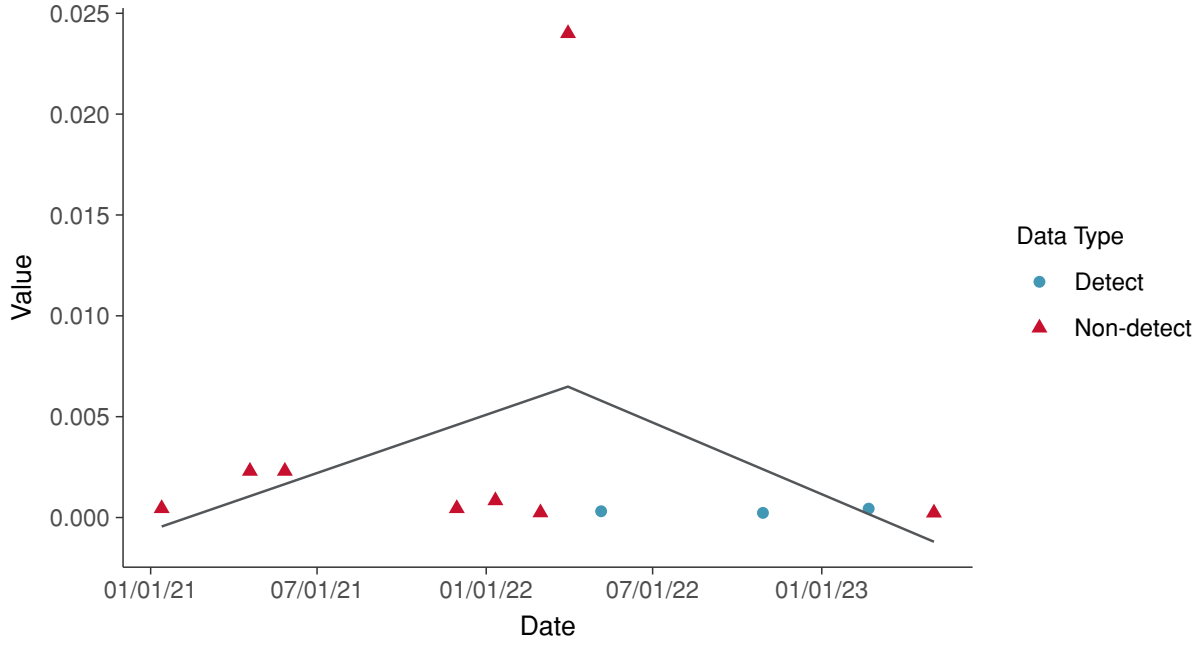
Normal Q-Q plot using ROS Imputed Estimates

Lead, W-9 (mg/l)



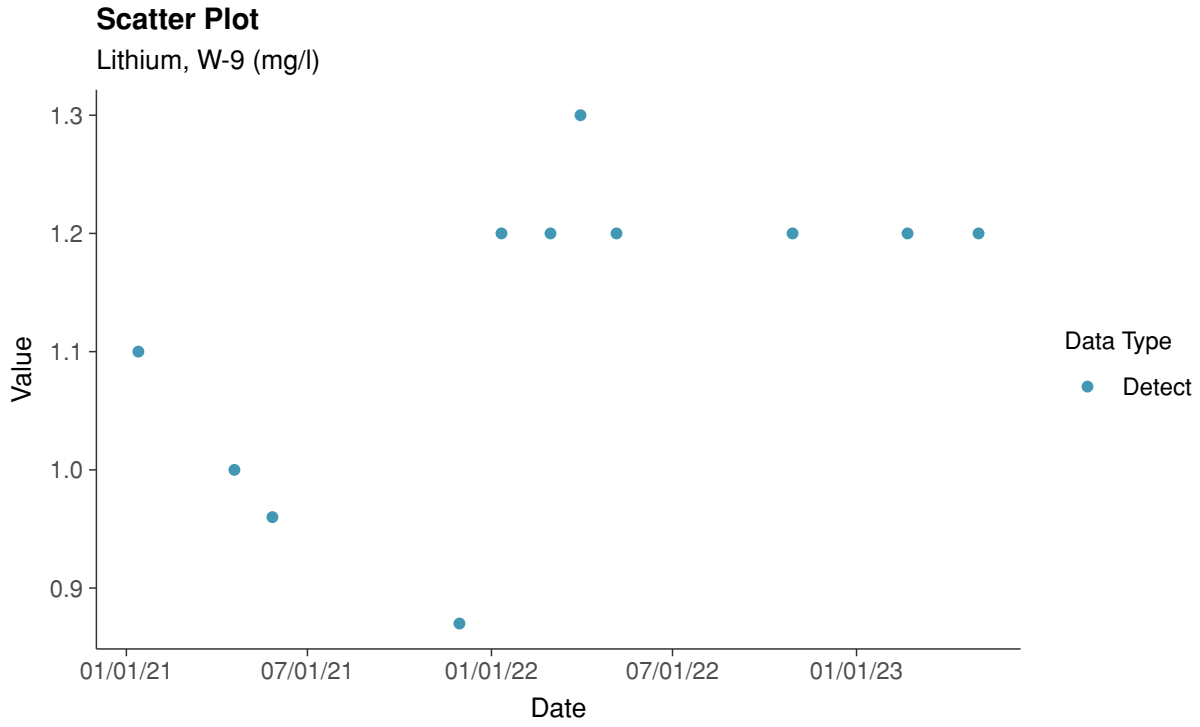
Trend Regression: Piecewise Linear-Linear

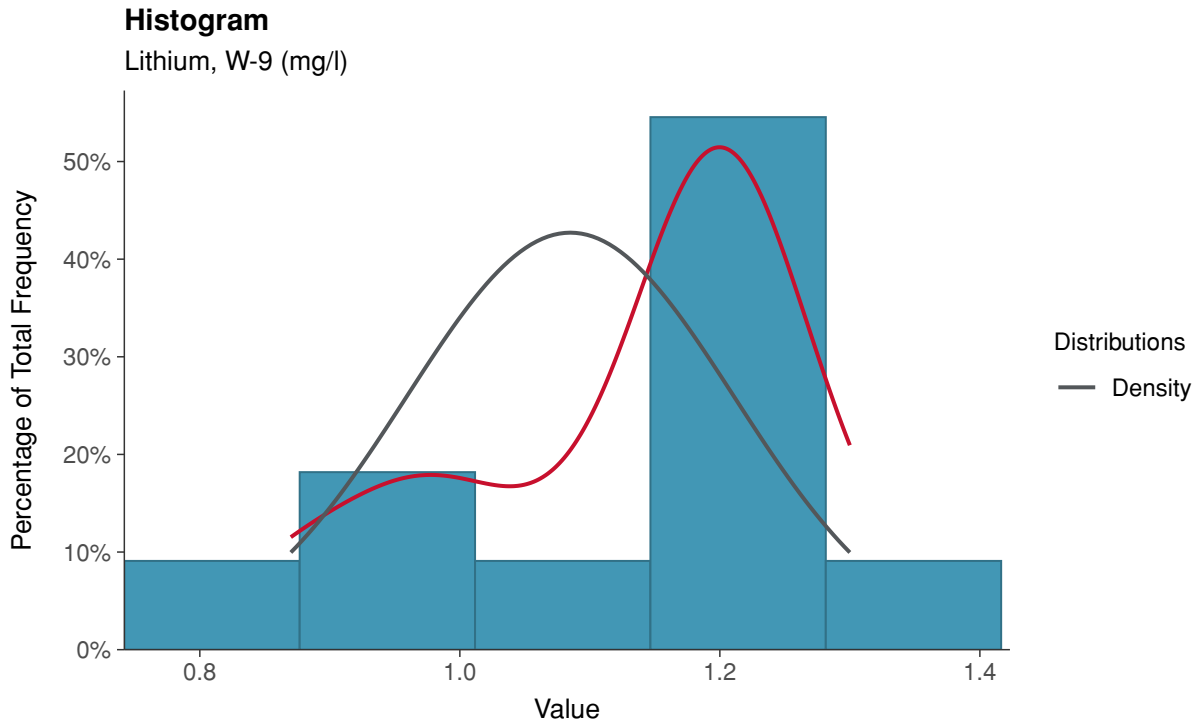
Lead, W-9 (mg/l)



Appendix IV: Lithium, W-9

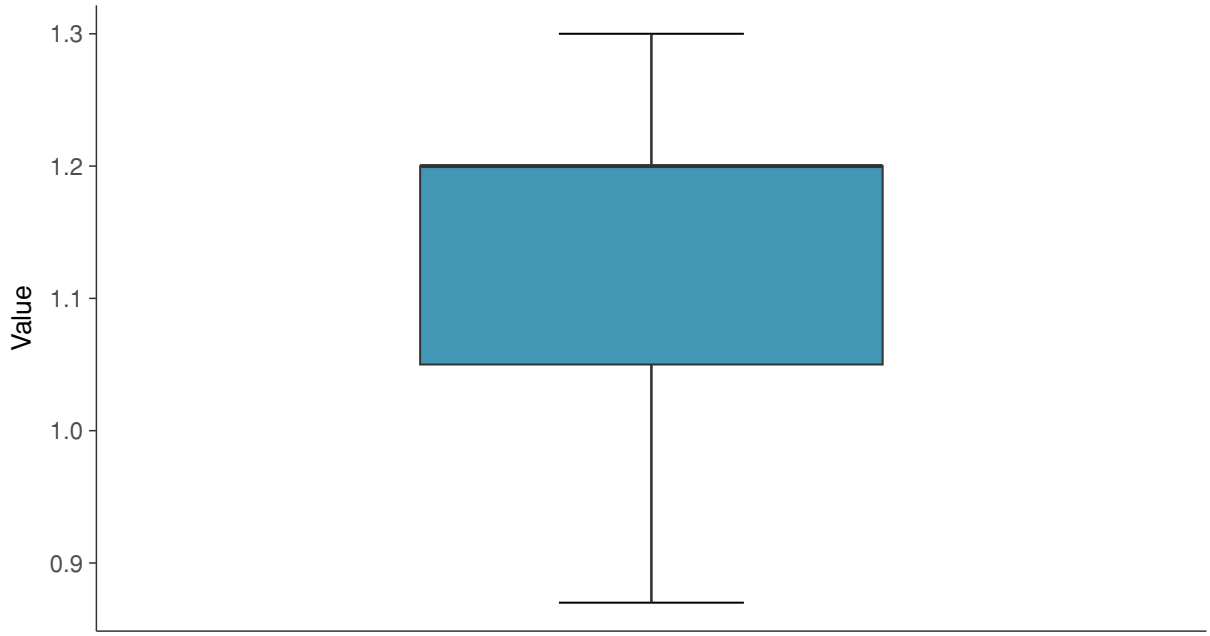
ID: 12_2_114





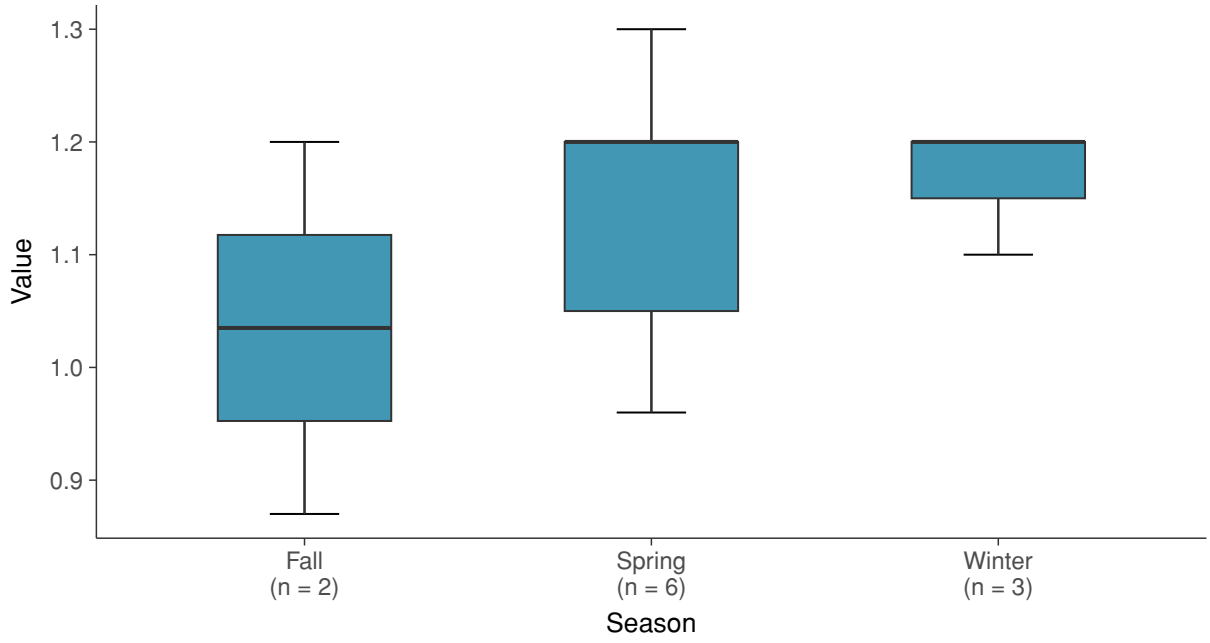
Boxplot

Lithium, W-9 (mg/l)



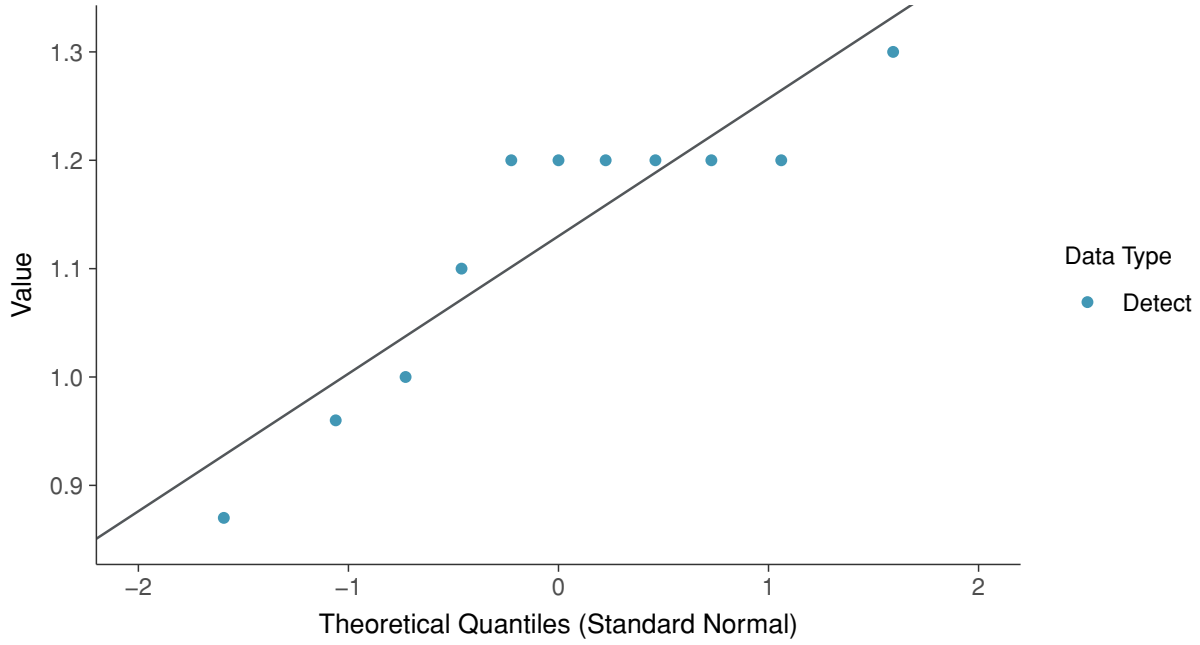
Boxplot by Season

Lithium, W-9 (mg/l)



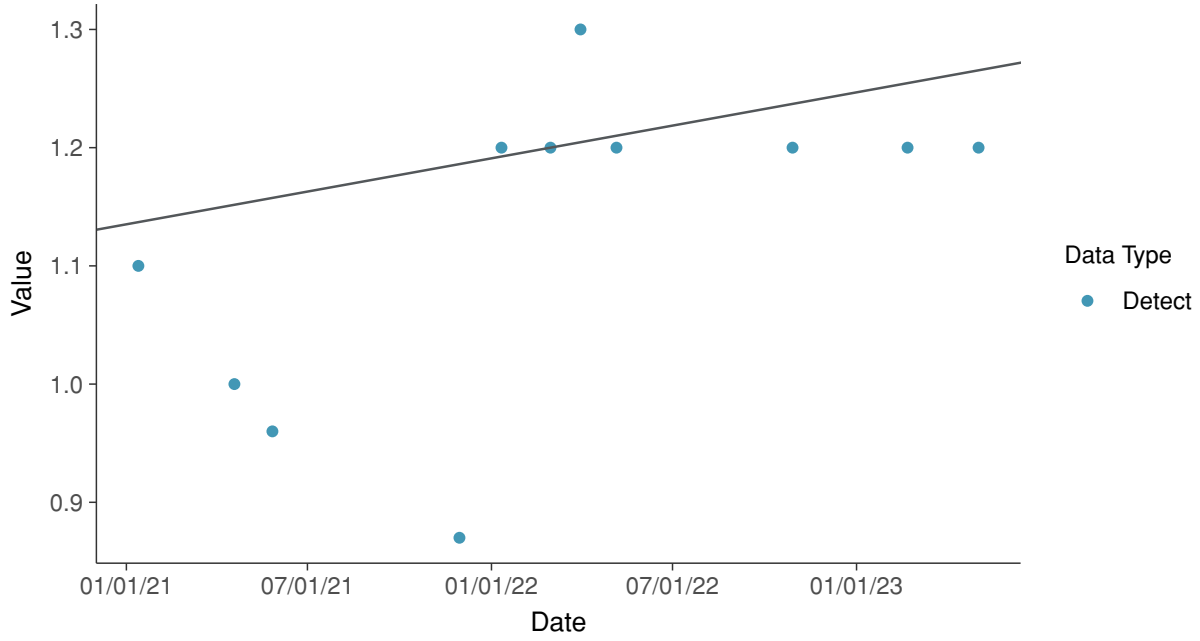
Normal Q-Q plot

Lithium, W-9 (mg/l)



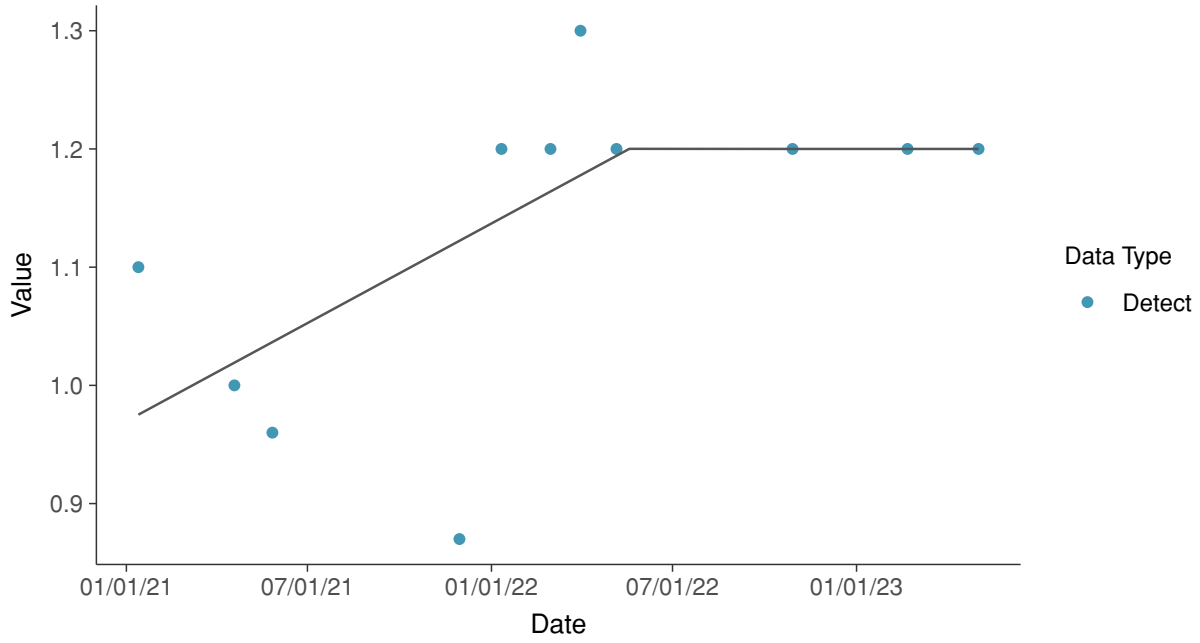
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Lithium, W-9 (mg/l)



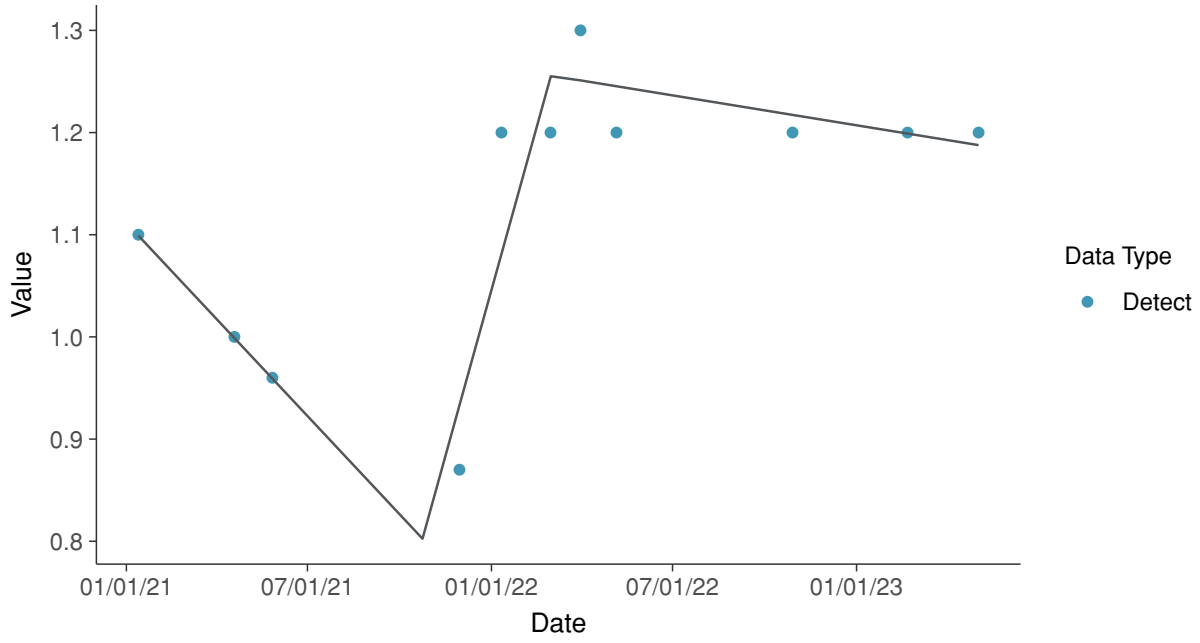
Trend Regression: Piecewise Linear-Linear

Lithium, W-9 (mg/l)



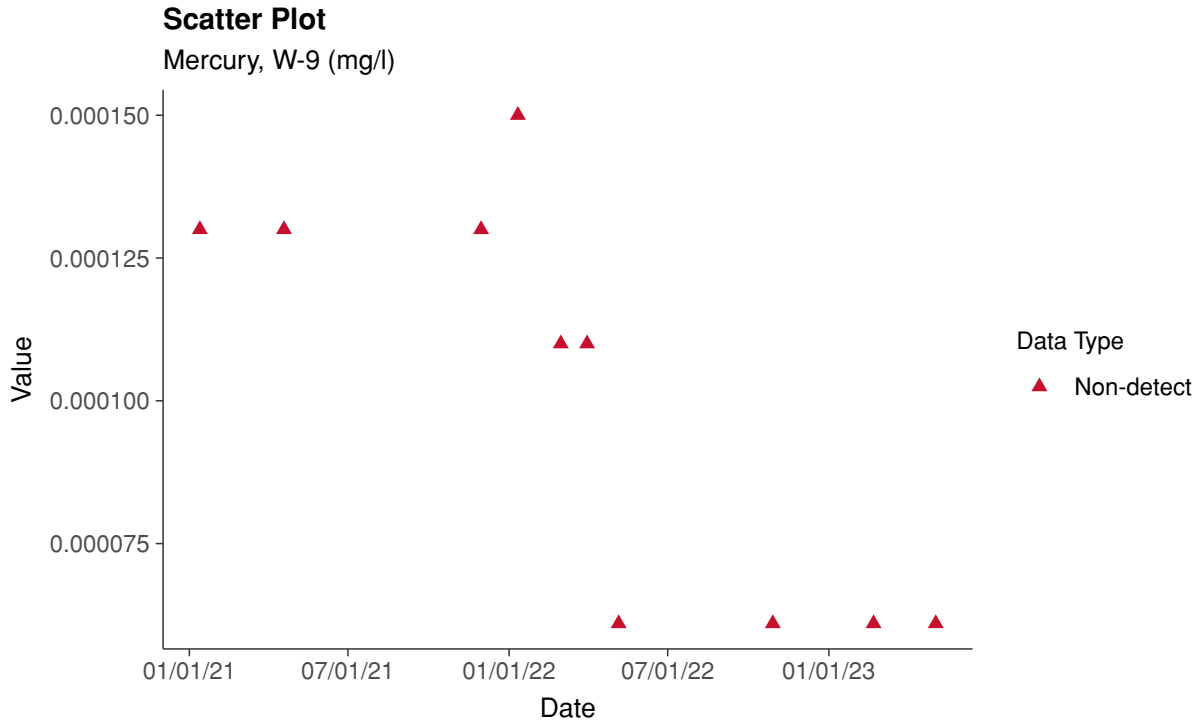
Trend Regression: Piecewise Linear-Linear-Linear

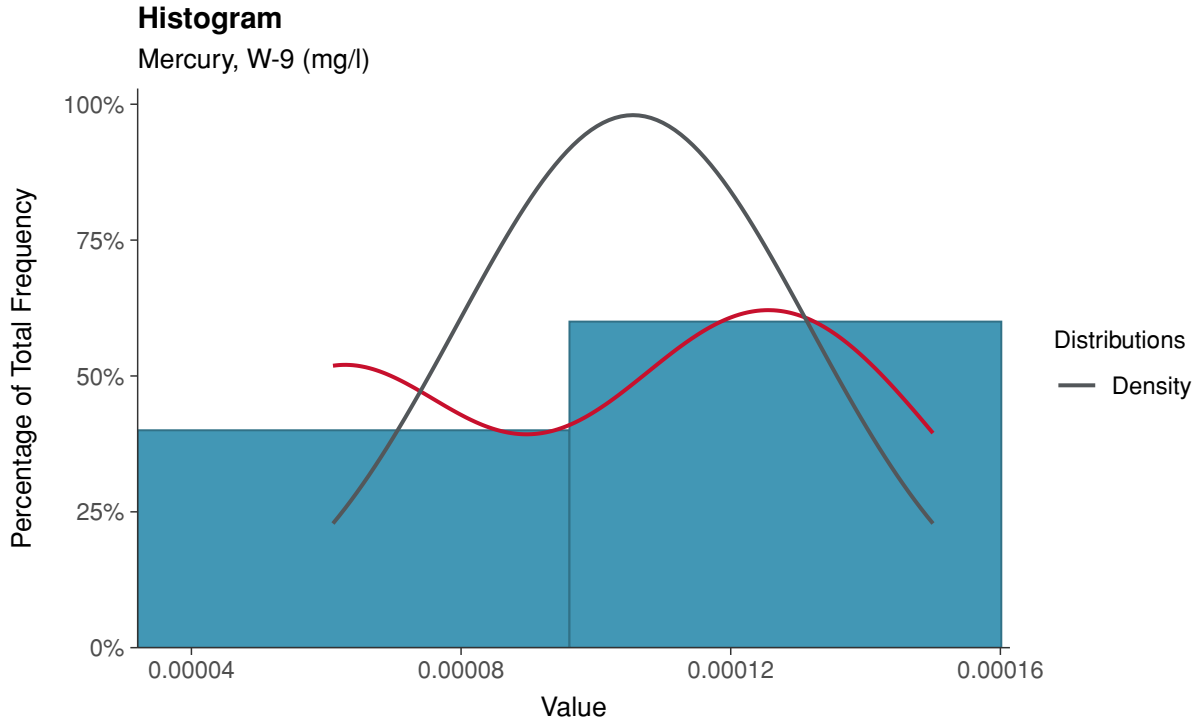
Lithium, W-9 (mg/l)



Appendix IV: Mercury, W-9

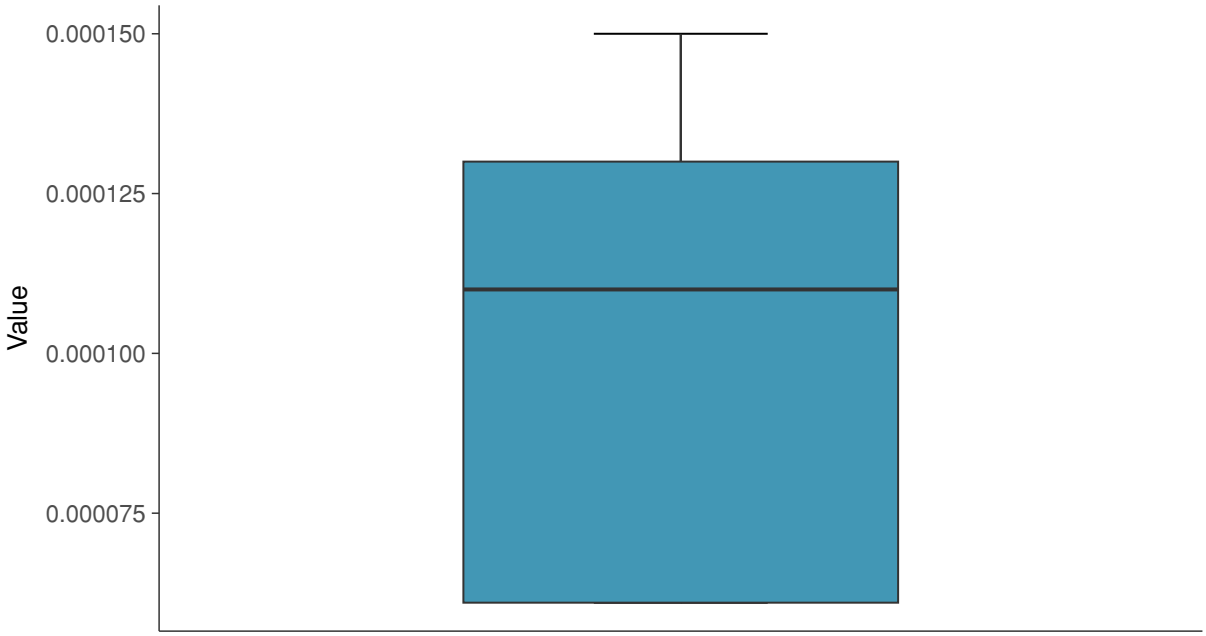
ID: 12_2_115





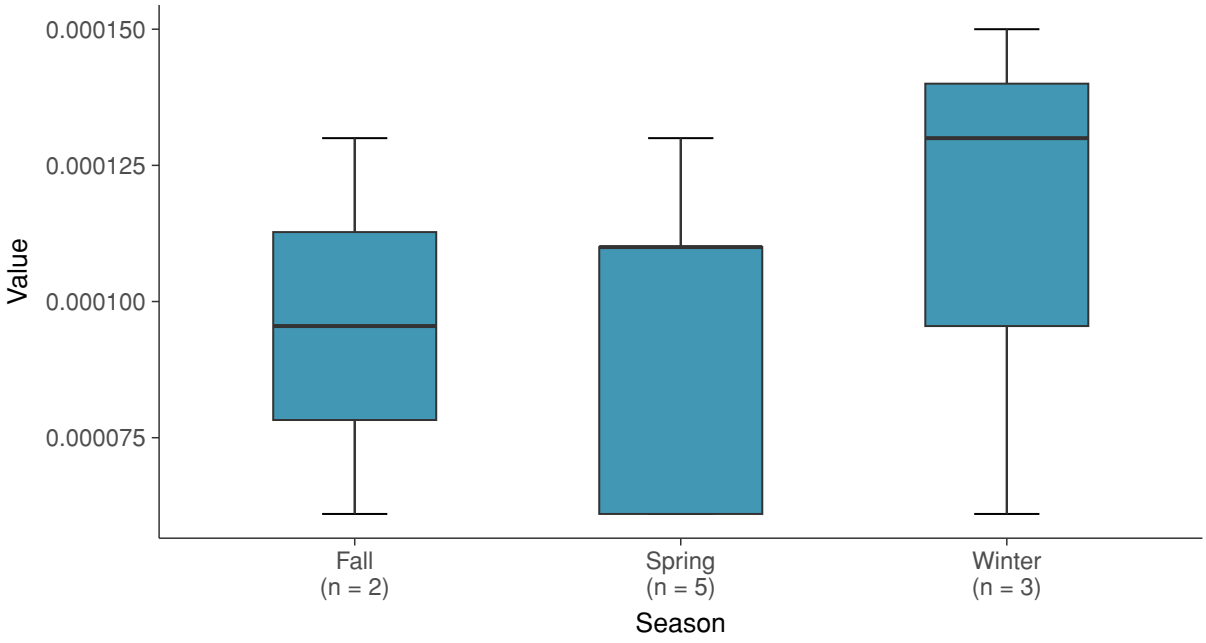
Boxplot

Mercury, W-9 (mg/l)



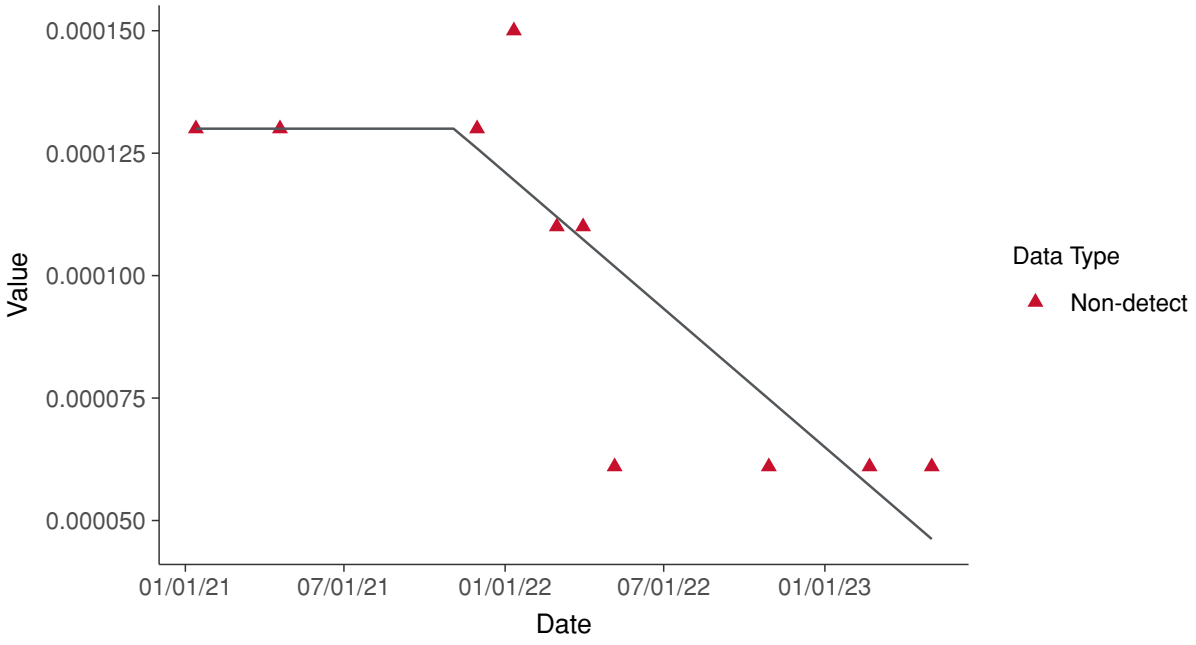
Boxplot by Season

Mercury, W-9 (mg/l)



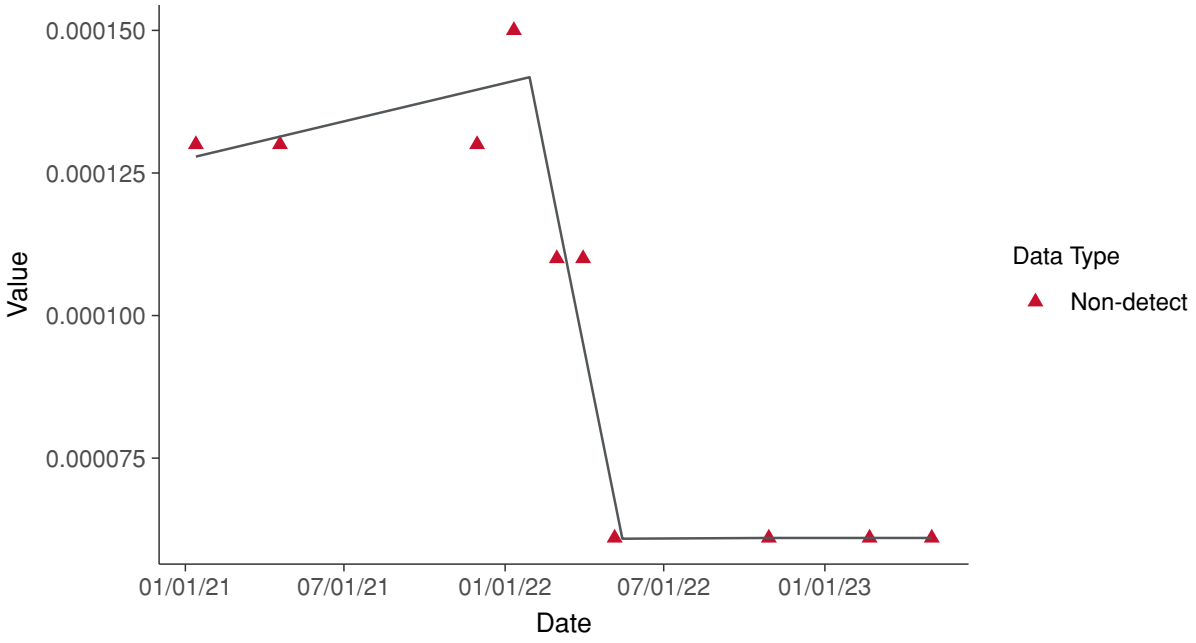
Trend Regression: Piecewise Linear-Linear

Mercury, W-9 (mg/l)



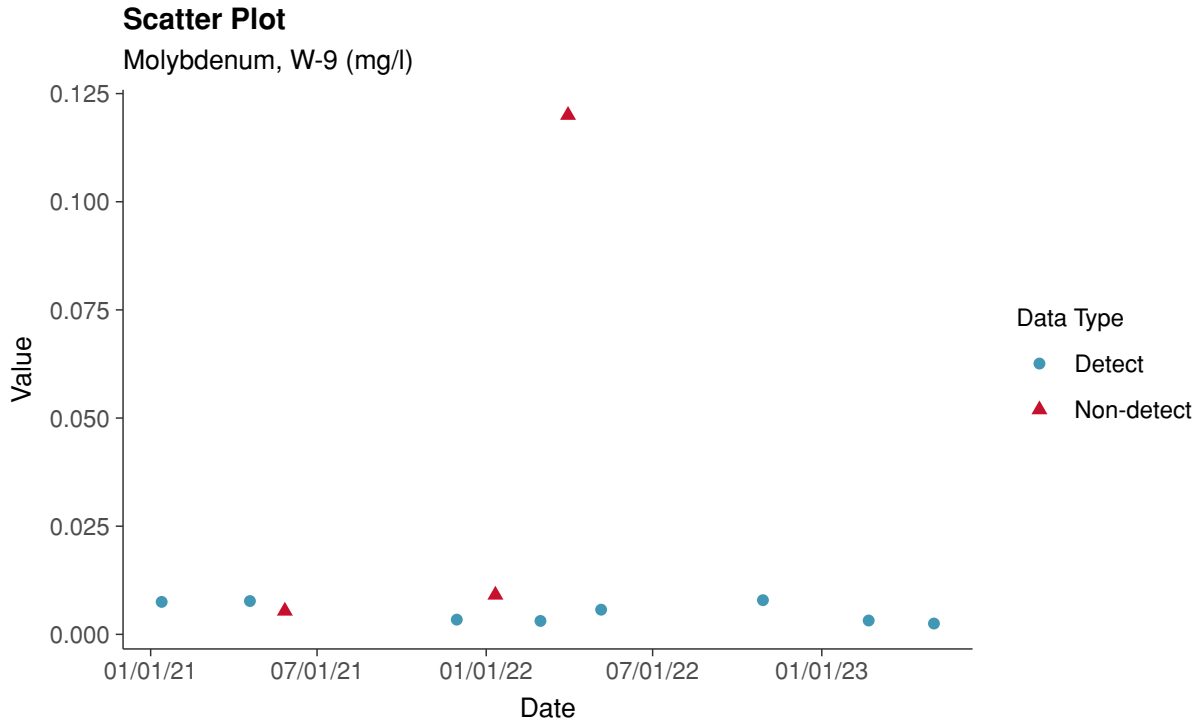
Trend Regression: Piecewise Linear-Linear-Linear

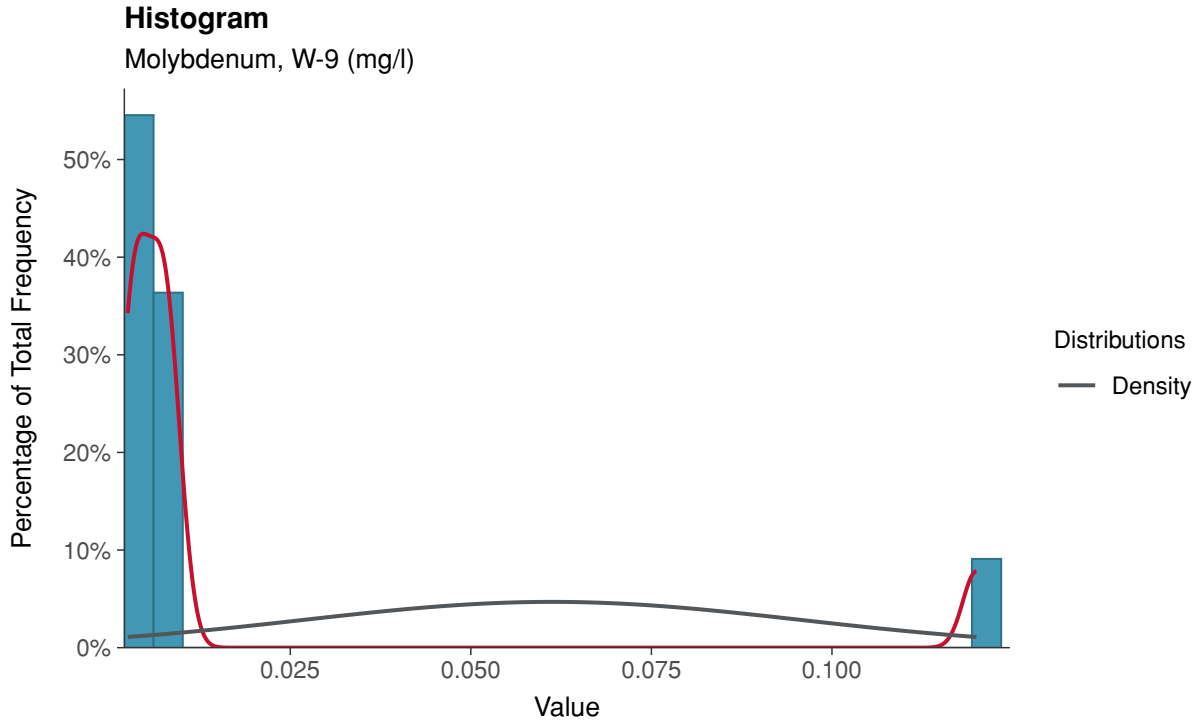
Mercury, W-9 (mg/l)



Appendix IV: Molybdenum, W-9

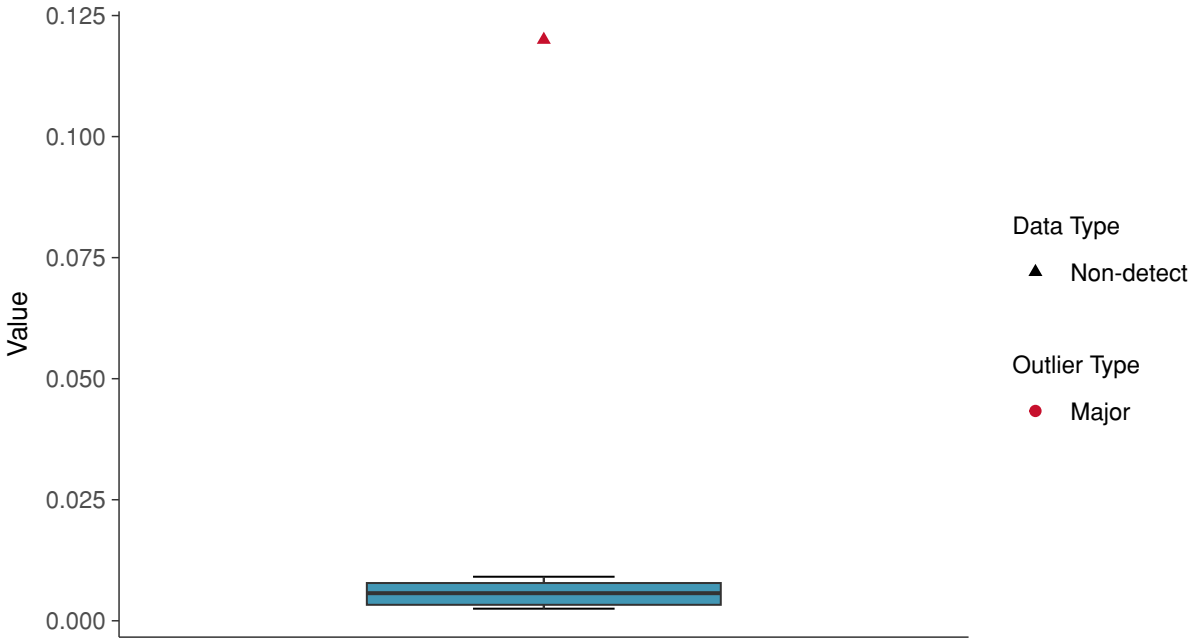
ID: 12_2_116





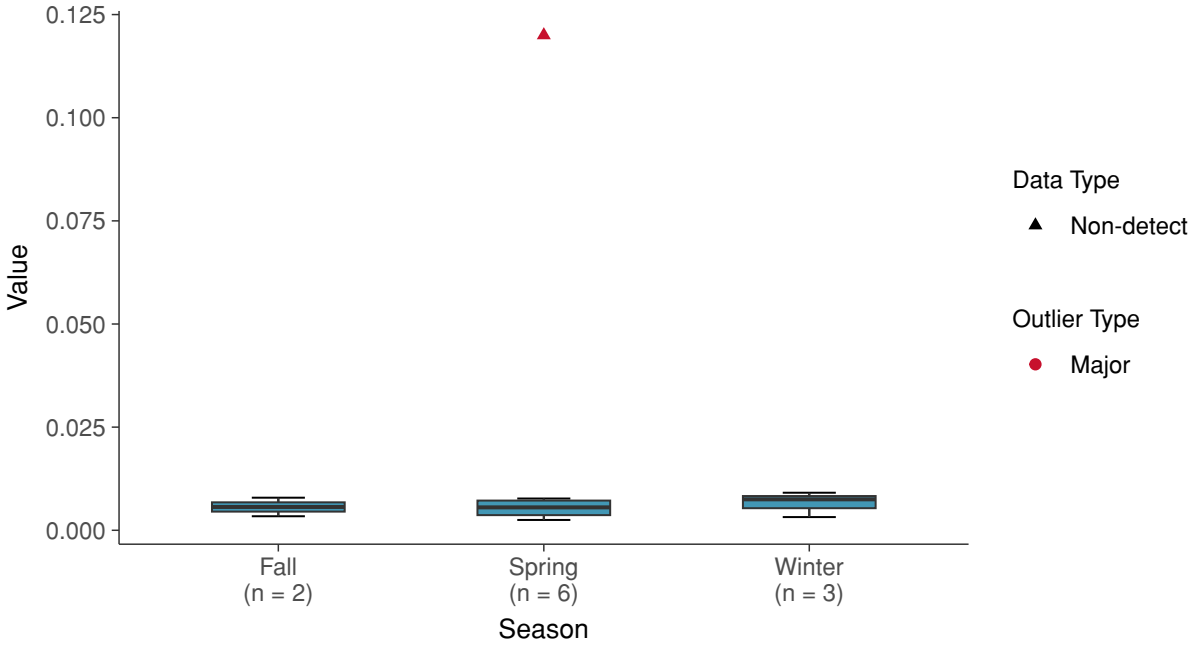
Boxplot

Molybdenum, W-9 (mg/l)



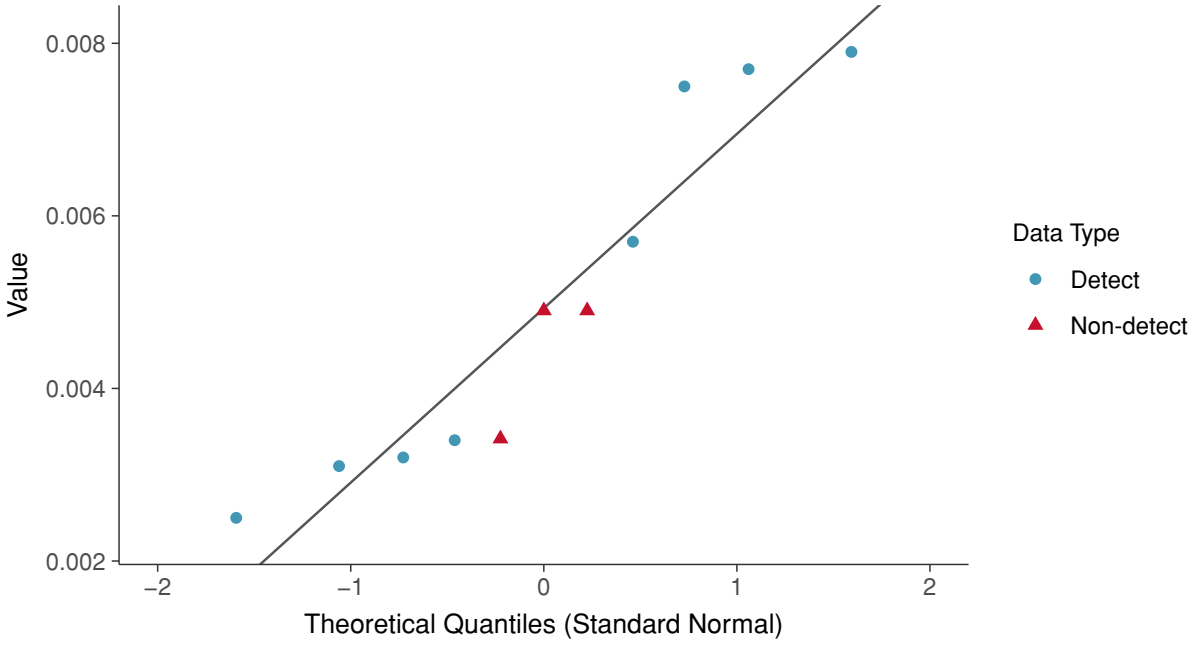
Boxplot by Season

Molybdenum, W-9 (mg/l)



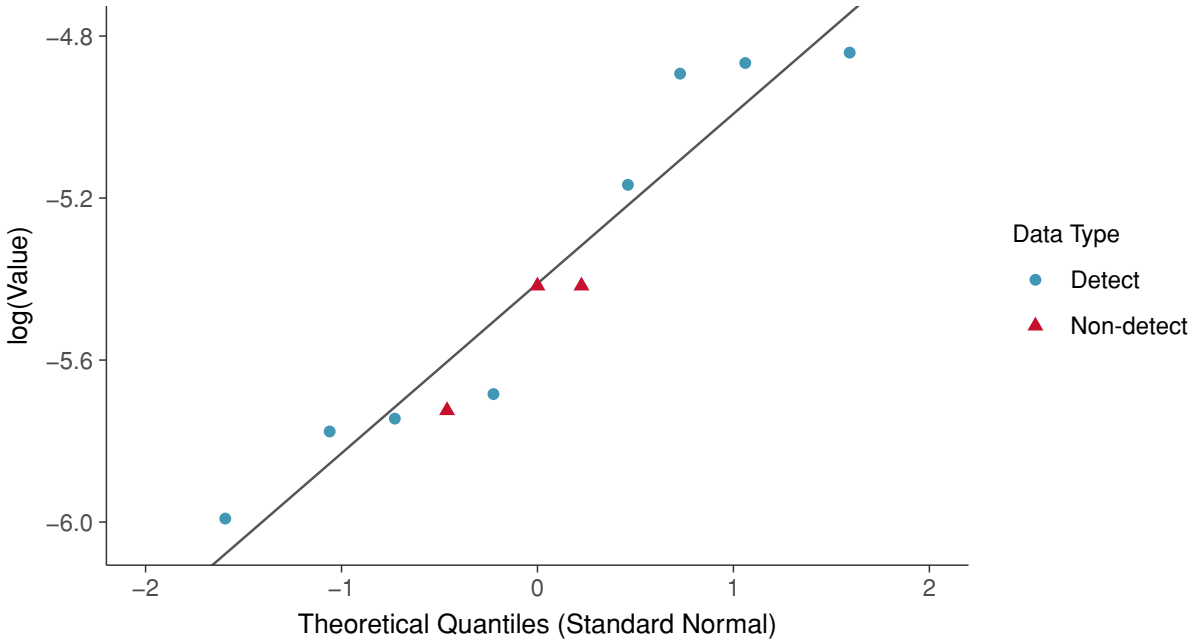
Normal Q-Q plot using ROS Imputed Estimates

Molybdenum, W-9 (mg/l)



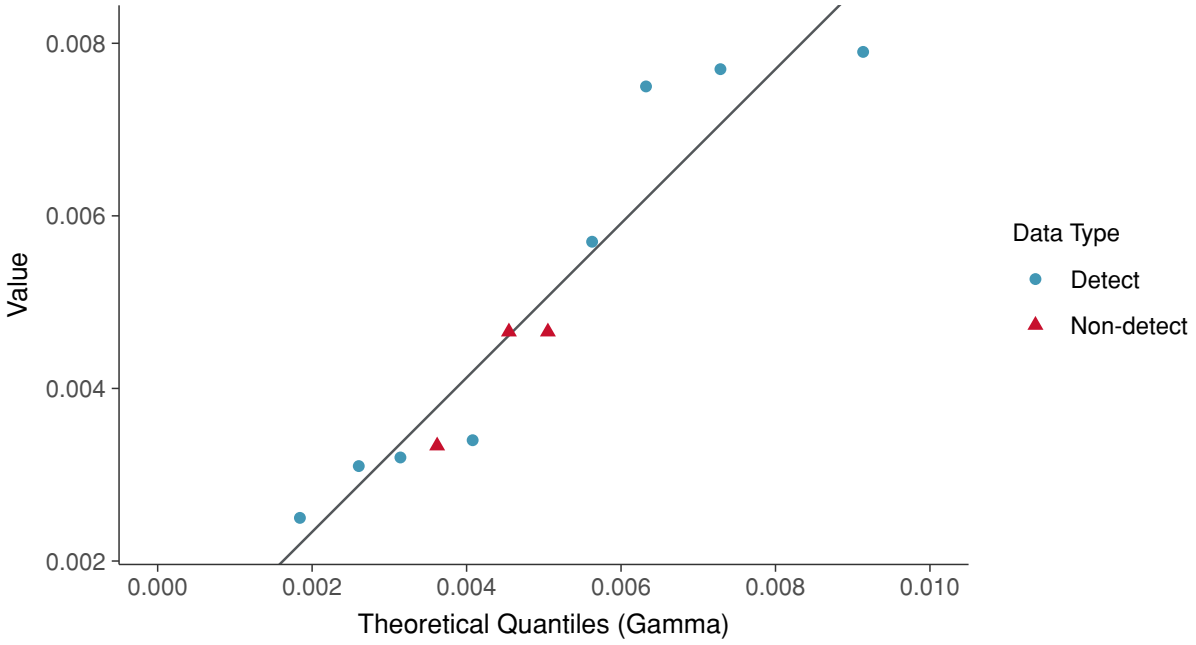
Lognormal Q-Q plot using ROS Imputed Estimates

Molybdenum, W-9 (mg/l)



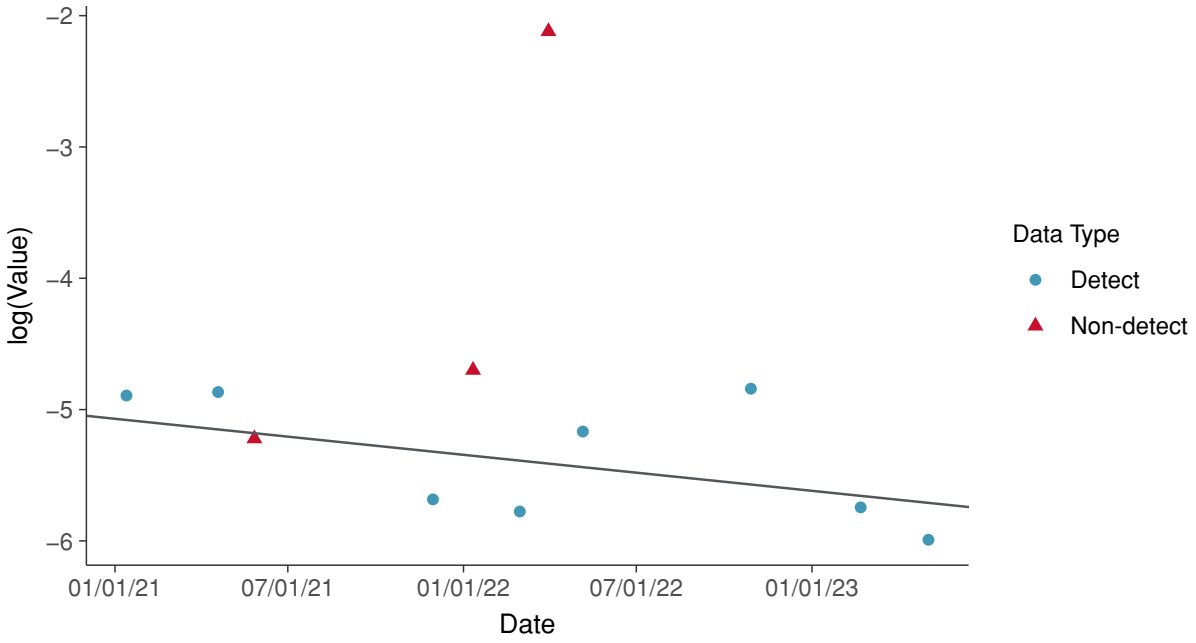
Gamma Q-Q plot using ROS Imputed Estimates

Molybdenum, W-9 (mg/l)



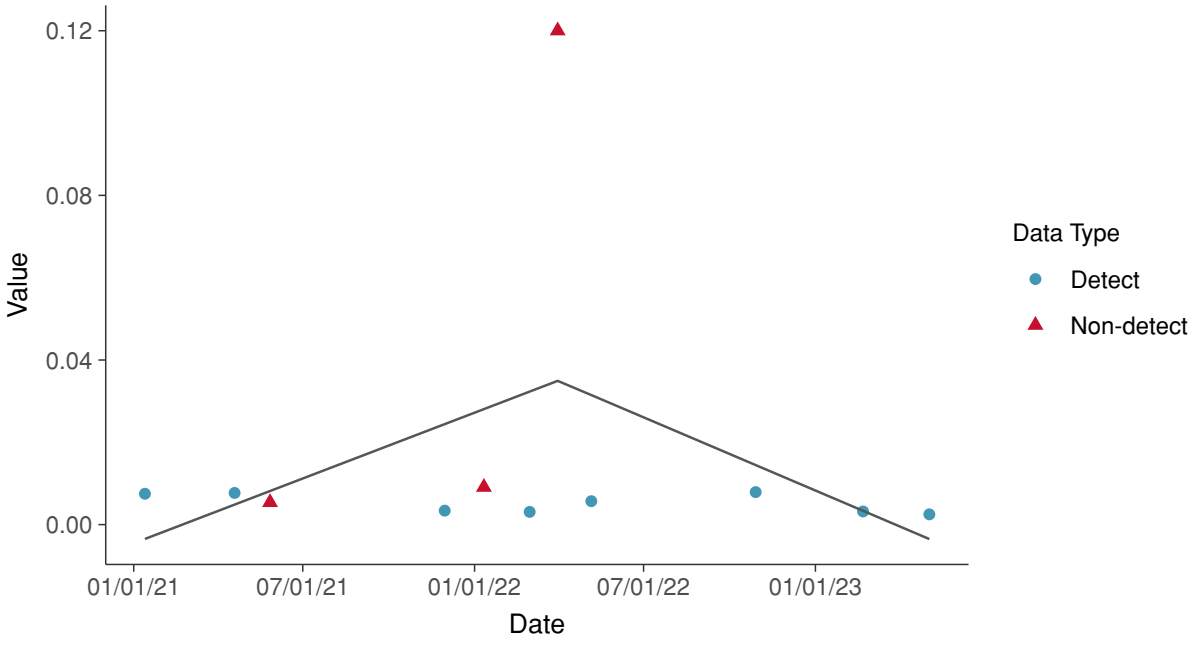
Trend Regression: Lognormal MLE

Molybdenum, W-9 (mg/l)



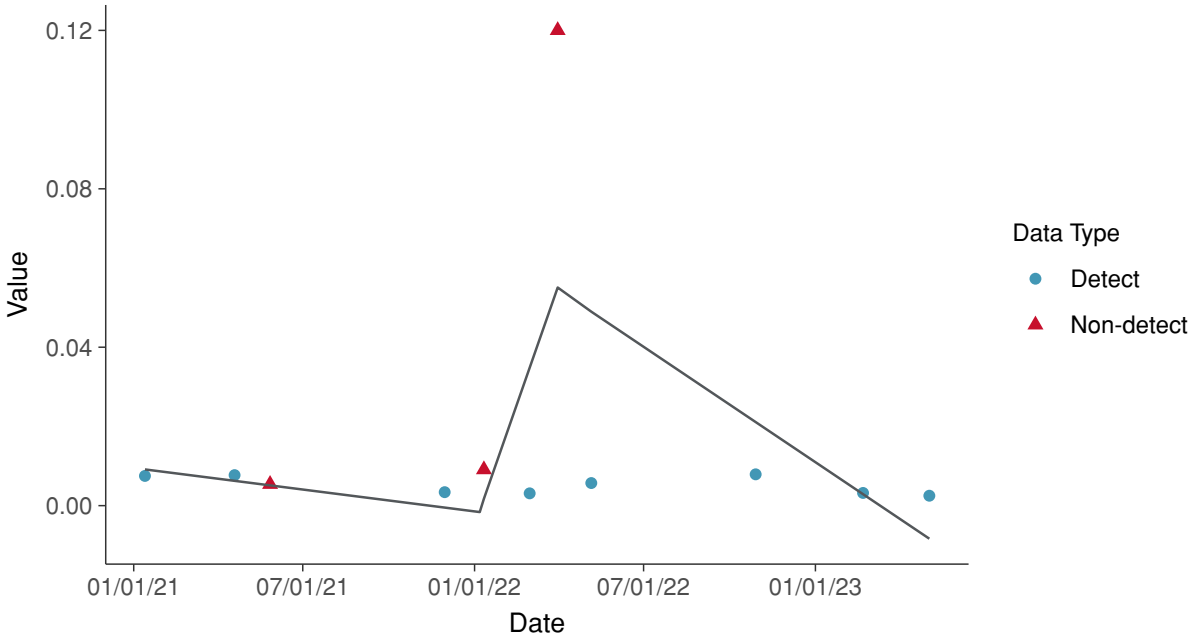
Trend Regression: Piecewise Linear-Linear

Molybdenum, W-9 (mg/l)



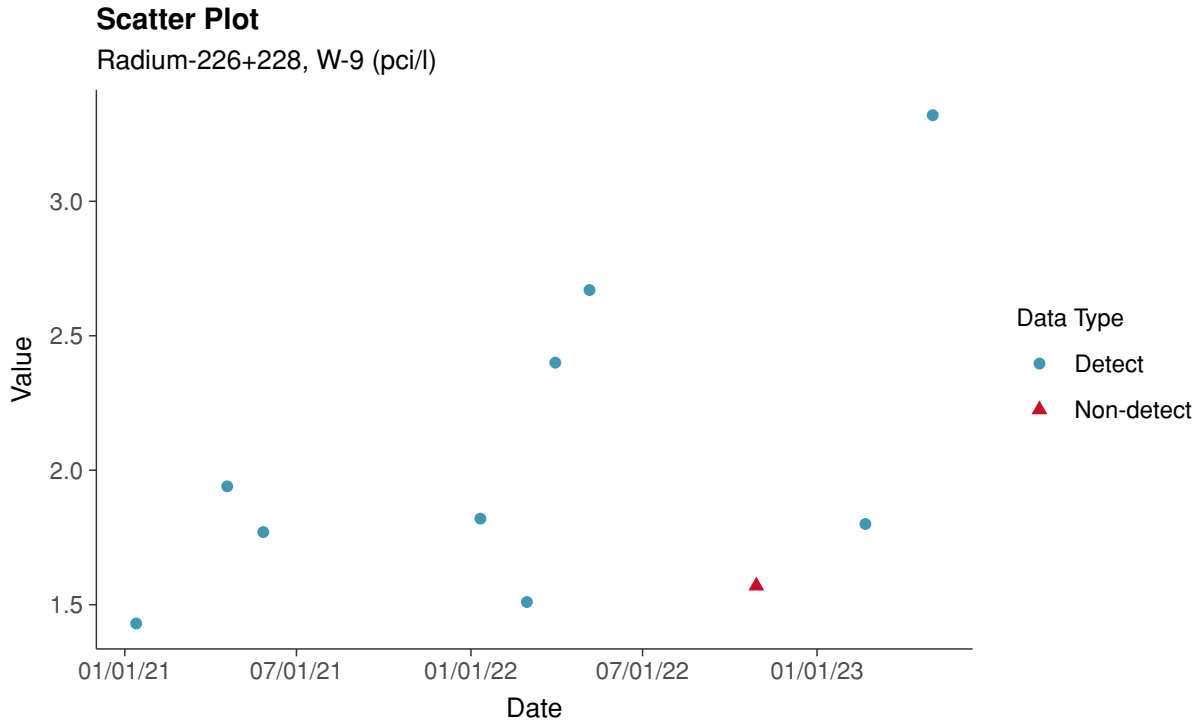
Trend Regression: Piecewise Linear-Linear-Linear

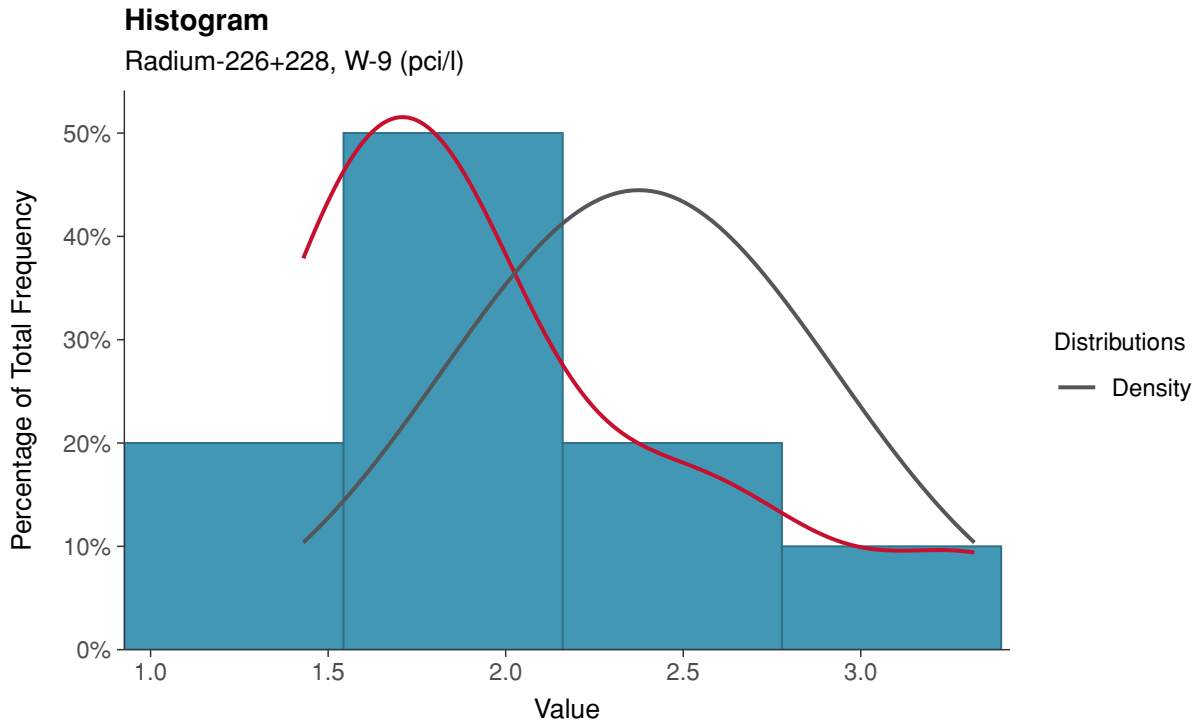
Molybdenum, W-9 (mg/l)



Appendix IV: Radium-226+228, W-9

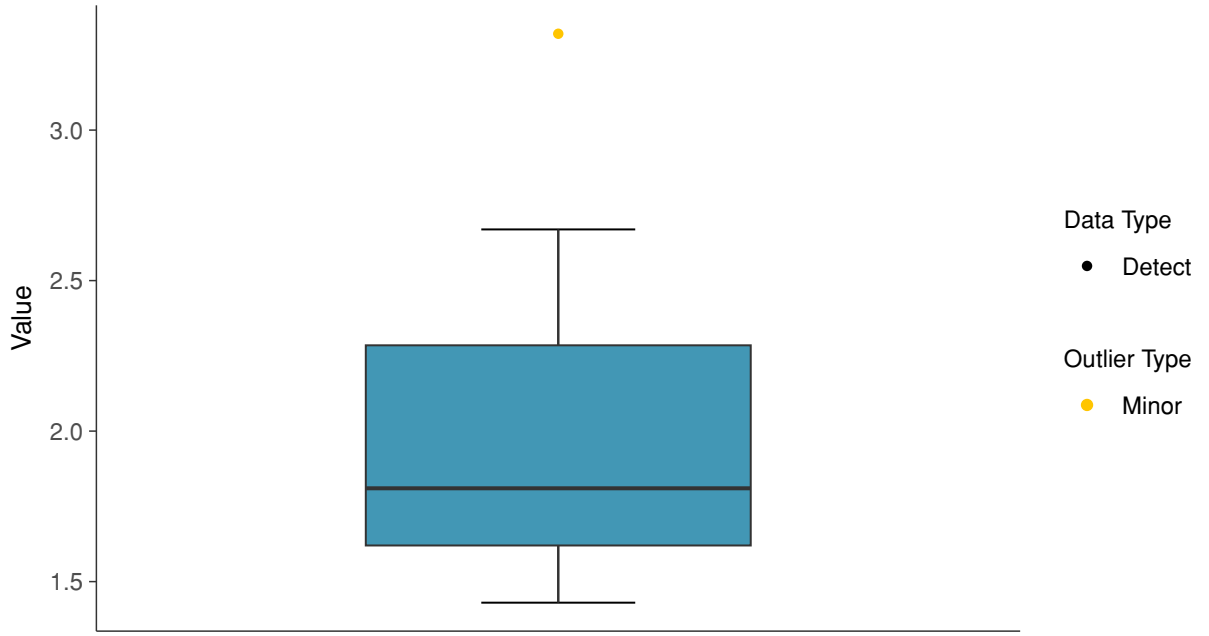
ID: 12_2_120





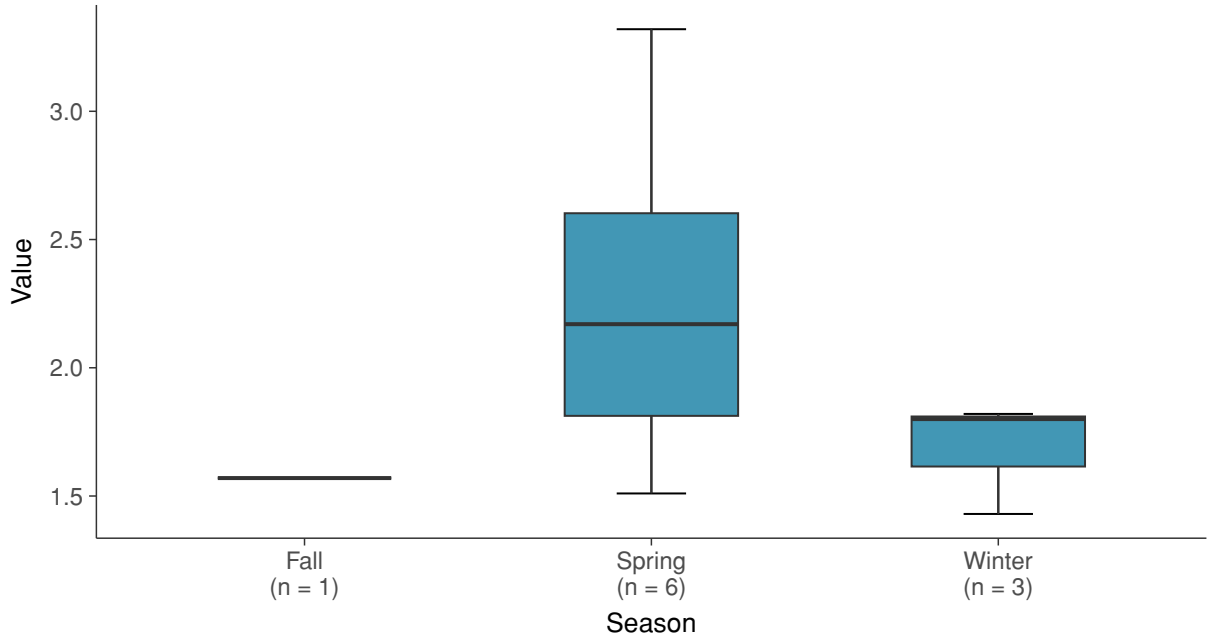
Boxplot

Radium-226+228, W-9 (pci/l)



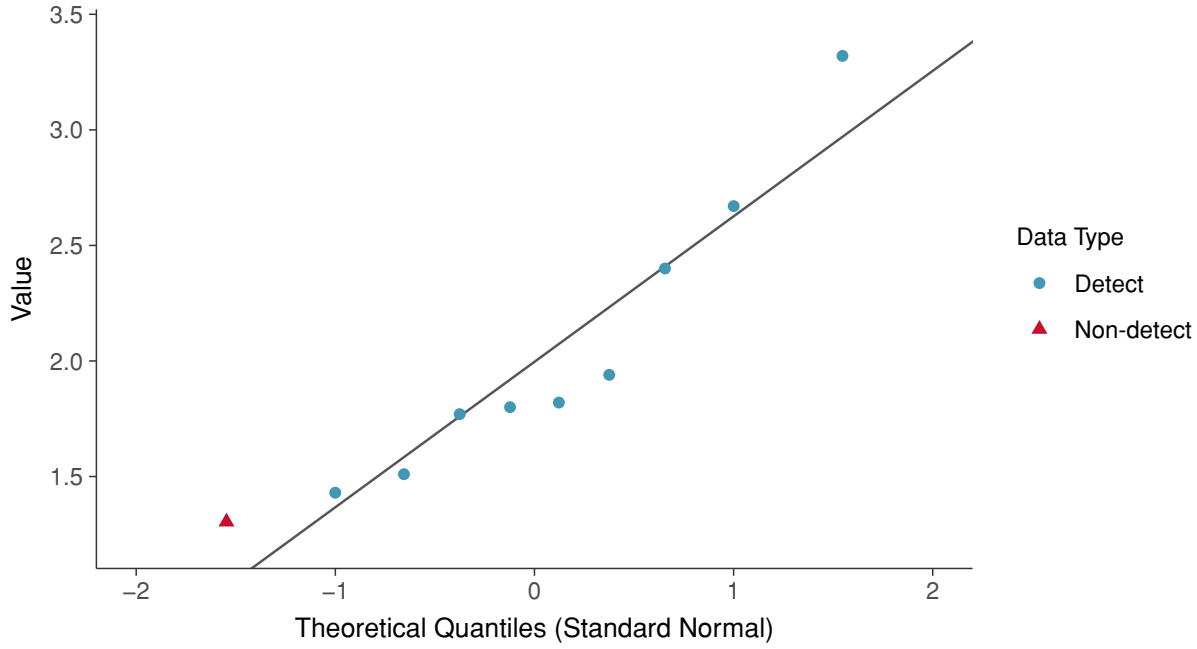
Boxplot by Season

Radium-226+228, W-9 (pci/l)



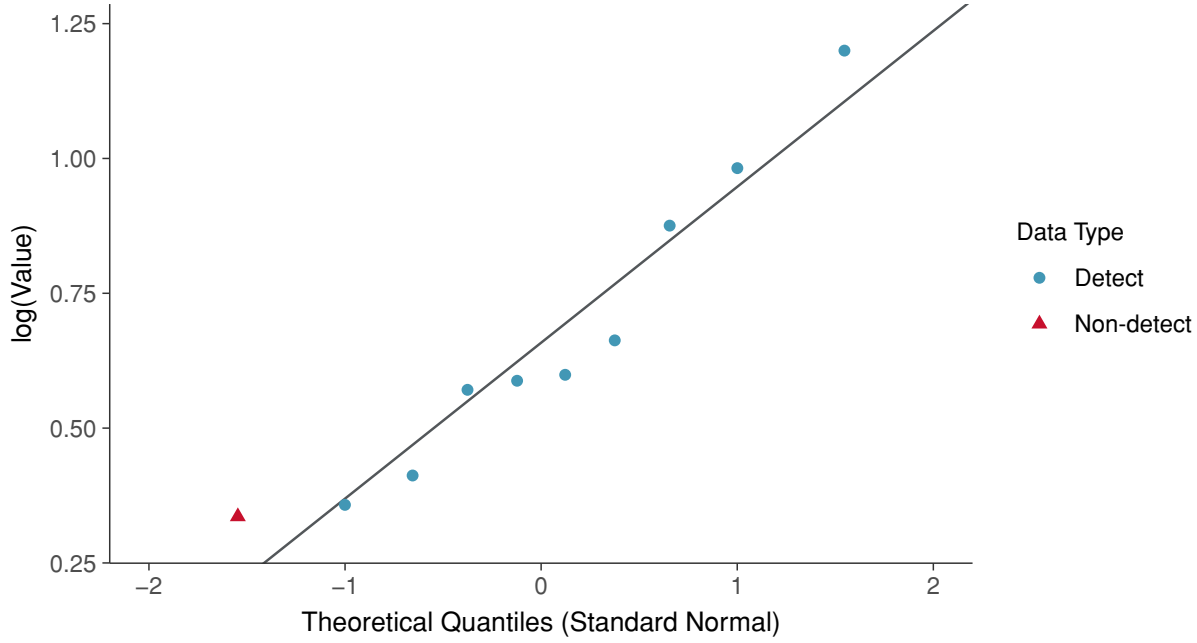
Normal Q-Q plot using ROS Imputed Estimates

Radium-226+228, W-9 (pci/l)



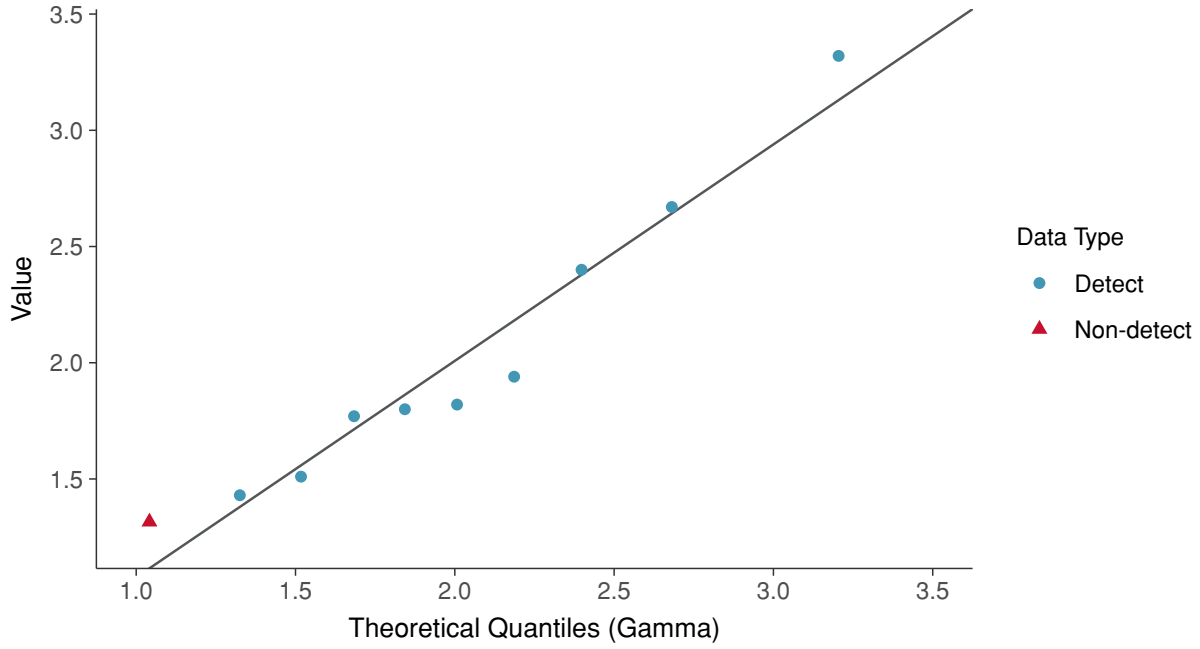
Lognormal Q-Q plot using ROS Imputed Estimates

Radium-226+228, W-9 (pci/l)



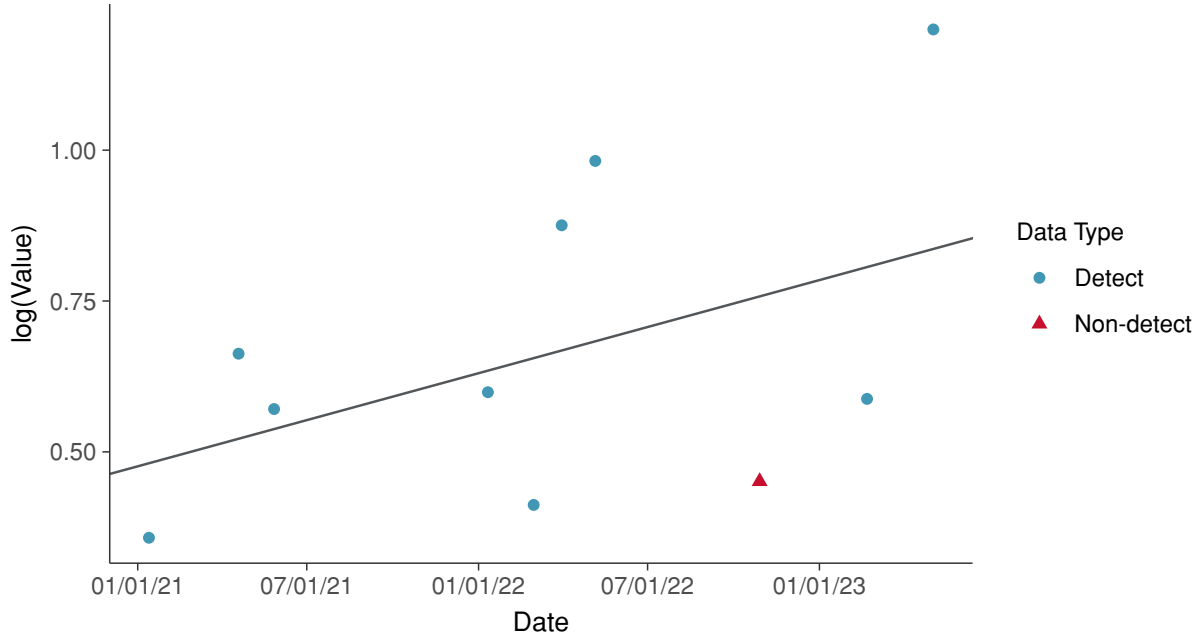
Gamma Q-Q plot using ROS Imputed Estimates

Radium-226+228, W-9 (pci/l)



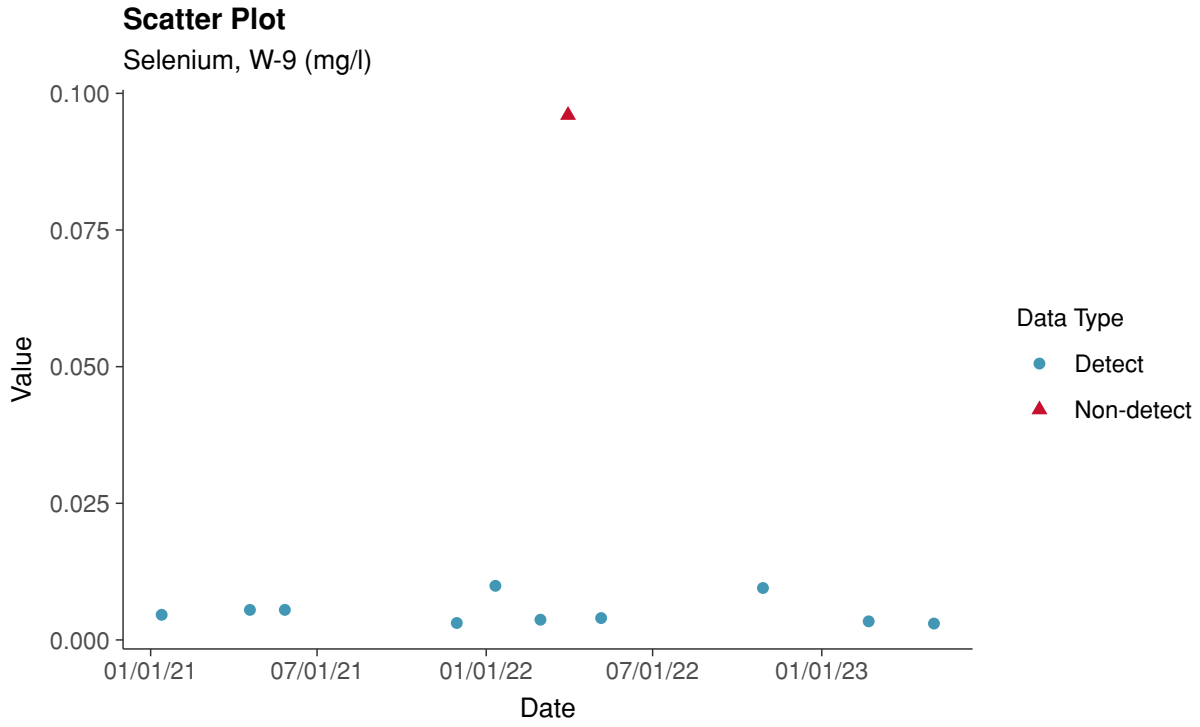
Trend Regression: Lognormal MLE

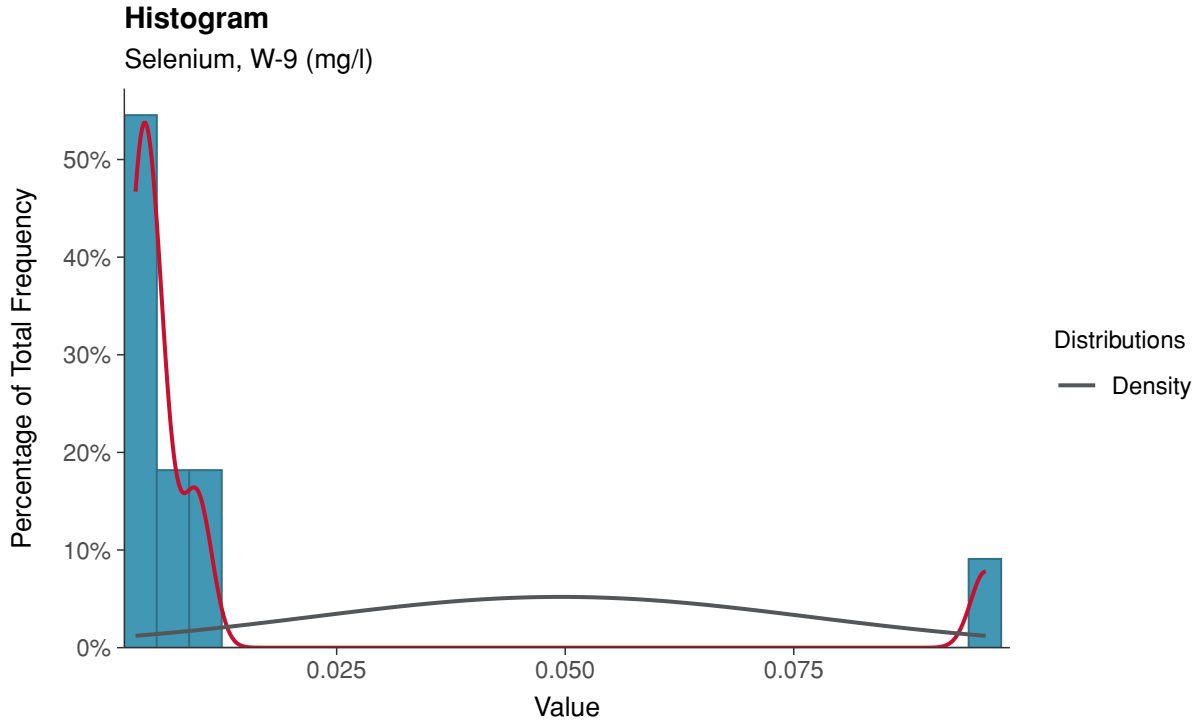
Radium-226+228, W-9 (pci/l)



Appendix IV: Selenium, W-9

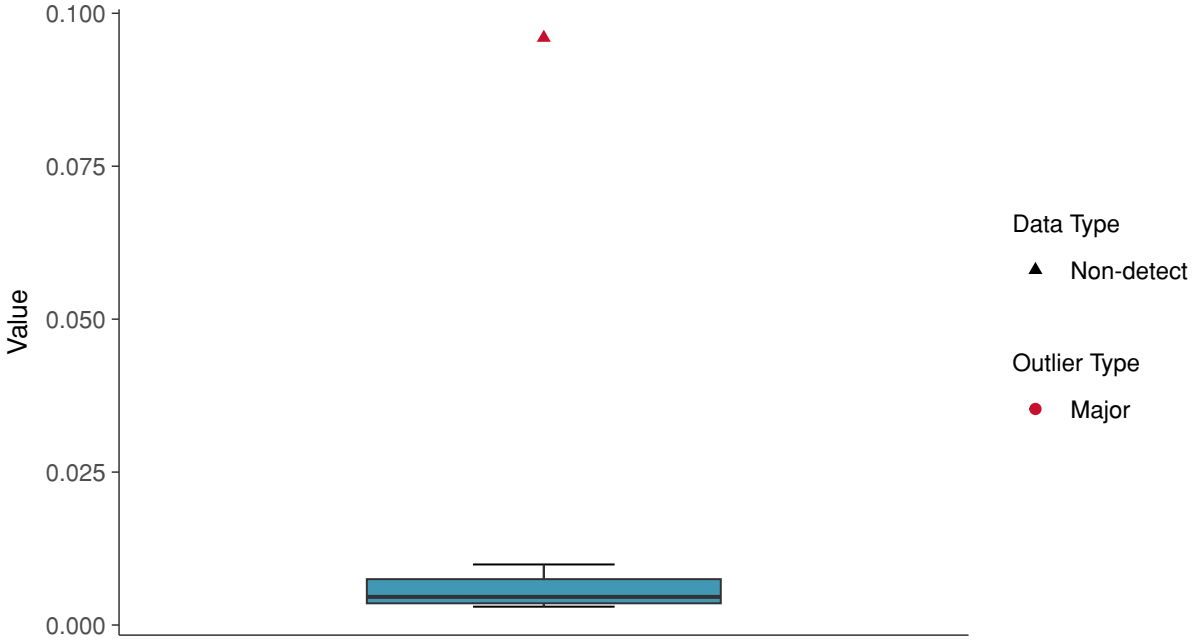
ID: 12_2_122





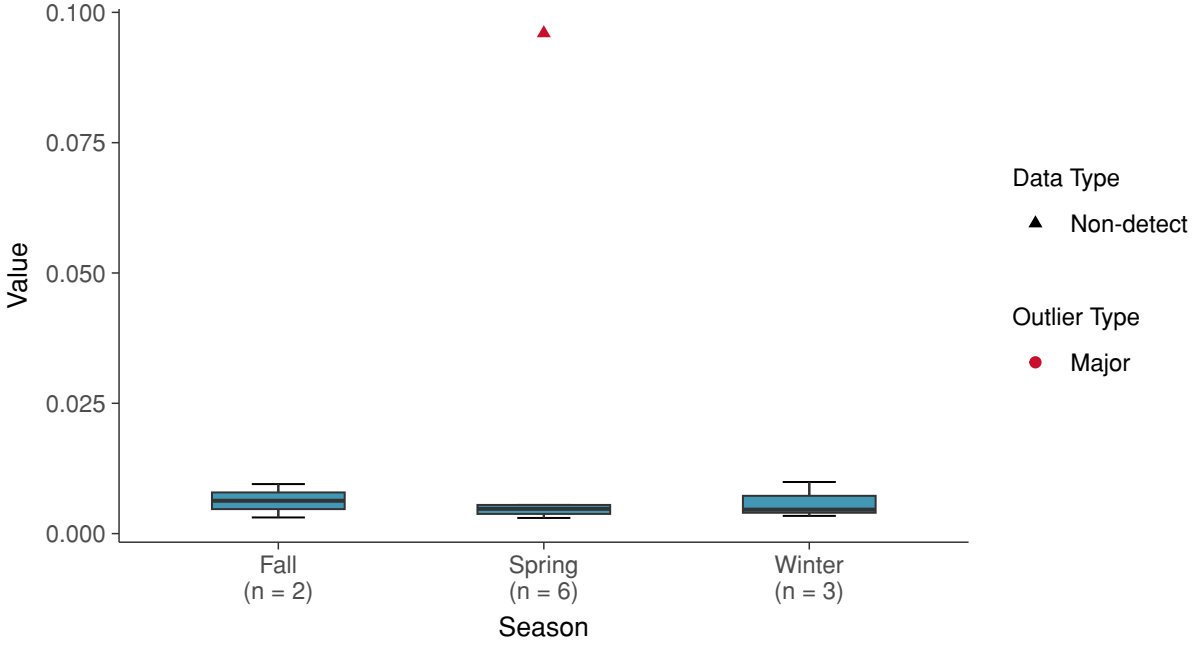
Boxplot

Selenium, W-9 (mg/l)



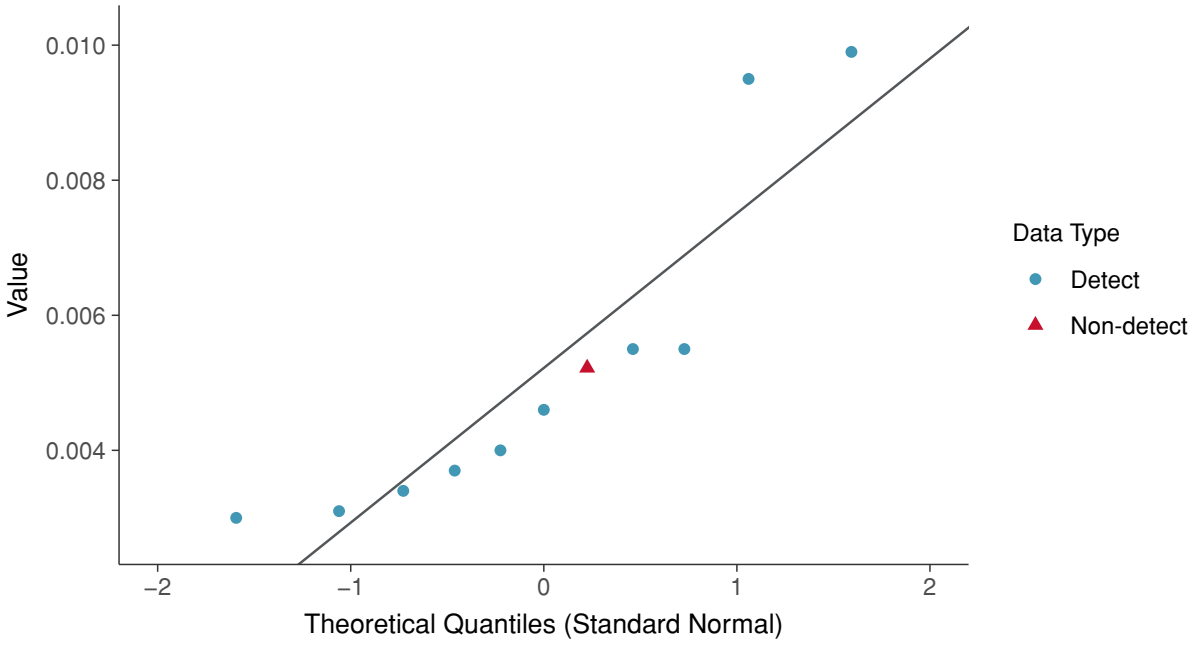
Boxplot by Season

Selenium, W-9 (mg/l)



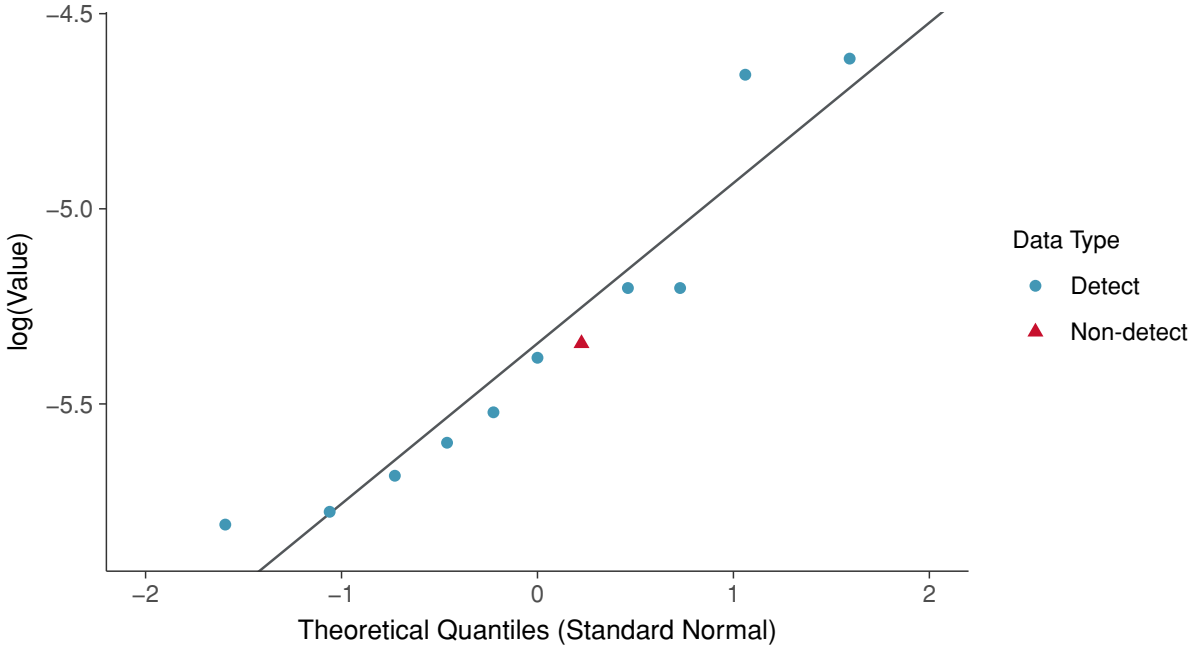
Normal Q-Q plot using ROS Imputed Estimates

Selenium, W-9 (mg/l)



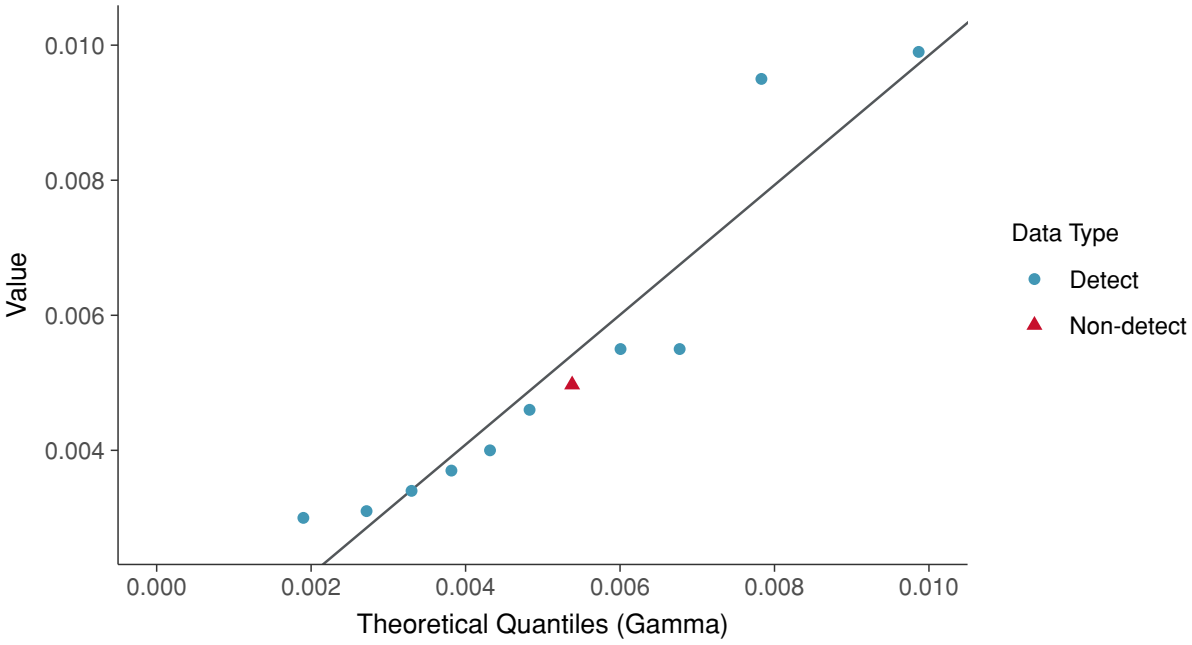
Lognormal Q-Q plot using ROS Imputed Estimates

Selenium, W-9 (mg/l)



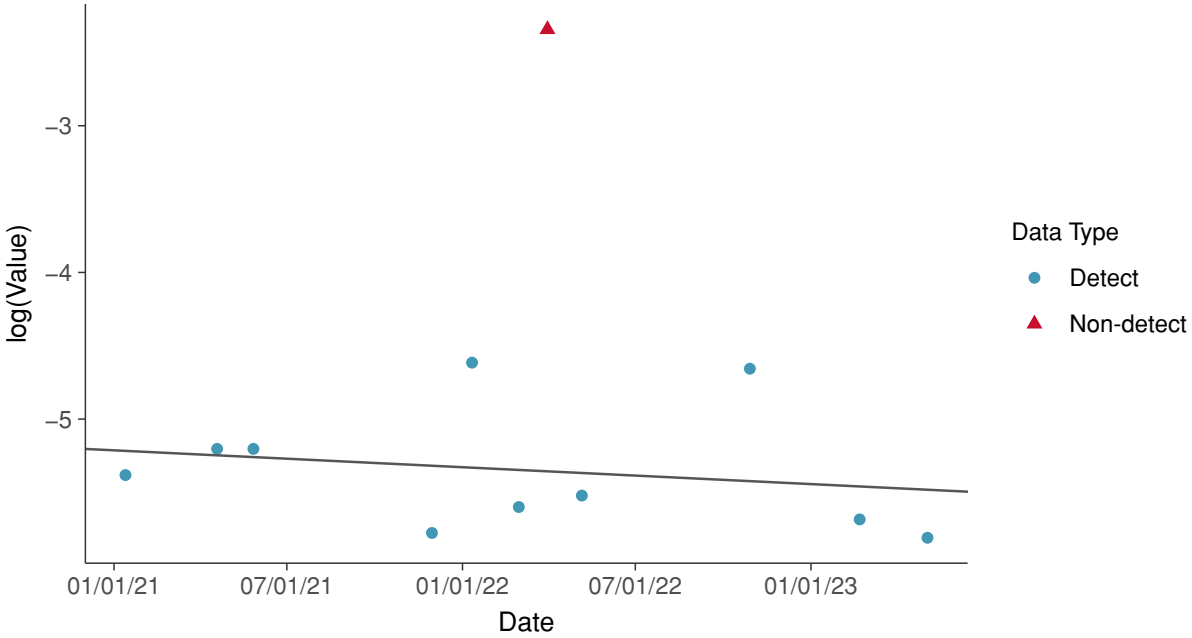
Gamma Q-Q plot using ROS Imputed Estimates

Selenium, W-9 (mg/l)



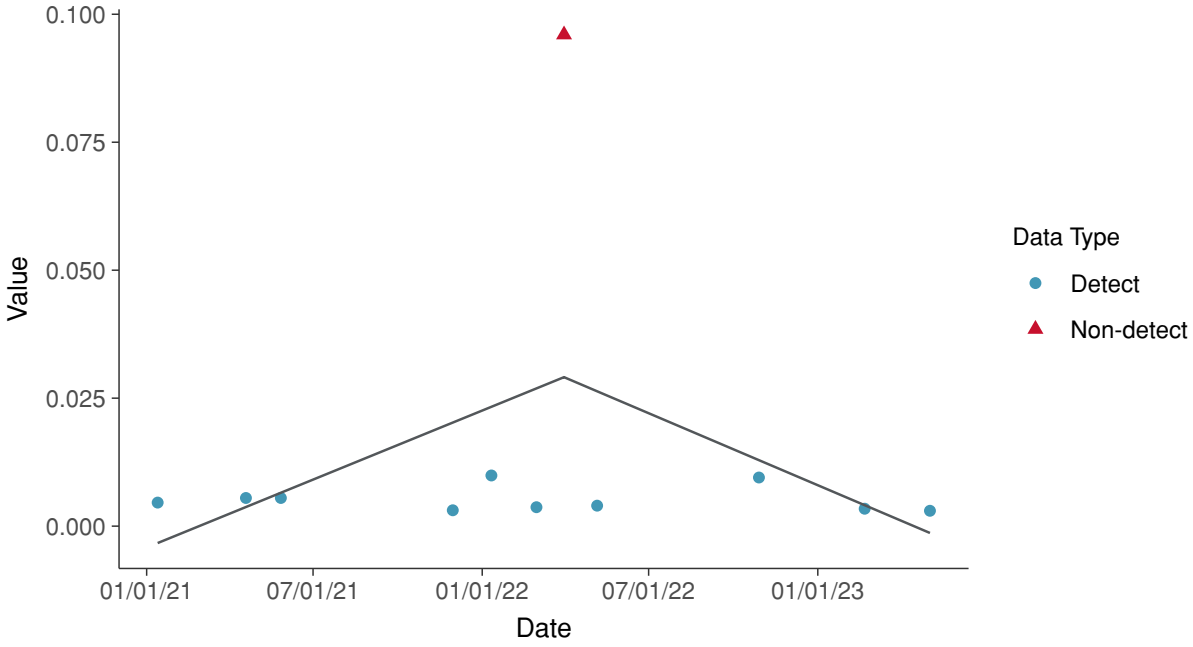
Trend Regression: Lognormal MLE

Selenium, W-9 (mg/l)



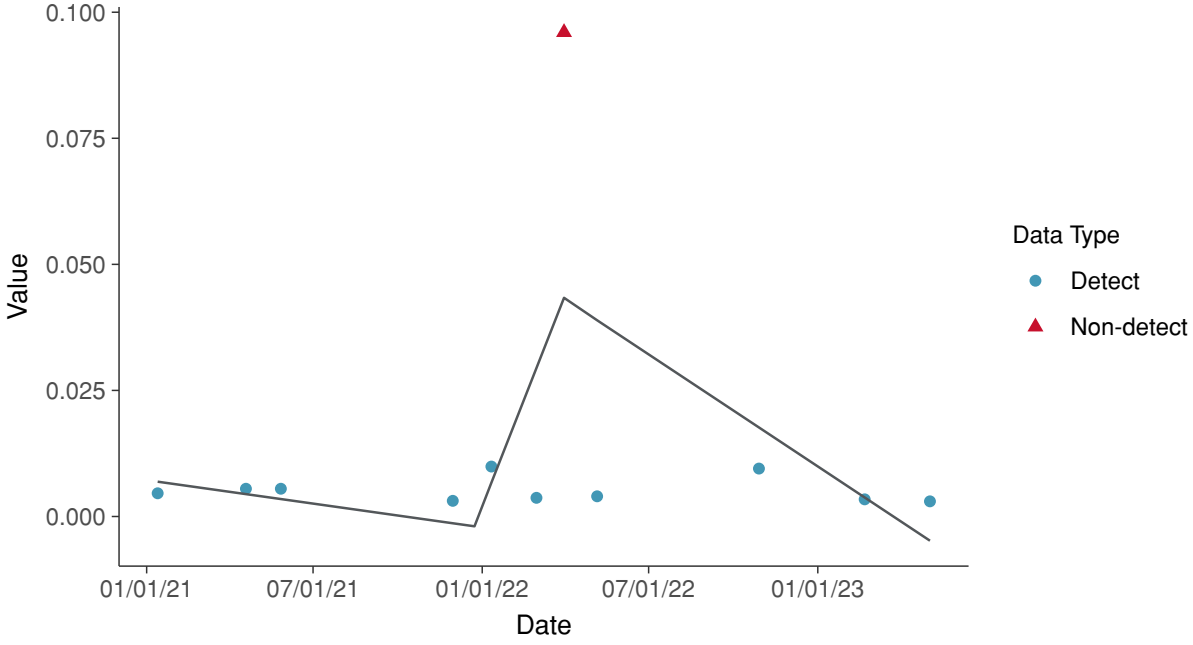
Trend Regression: Piecewise Linear-Linear

Selenium, W-9 (mg/l)



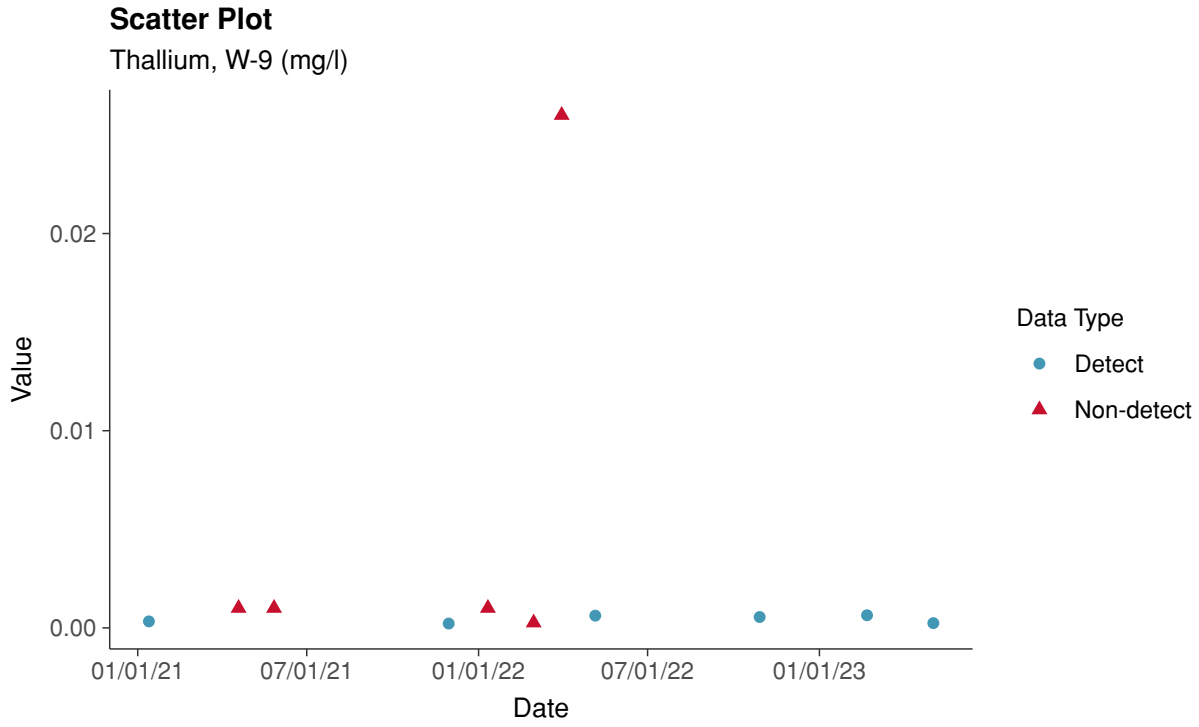
Trend Regression: Piecewise Linear-Linear-Linear

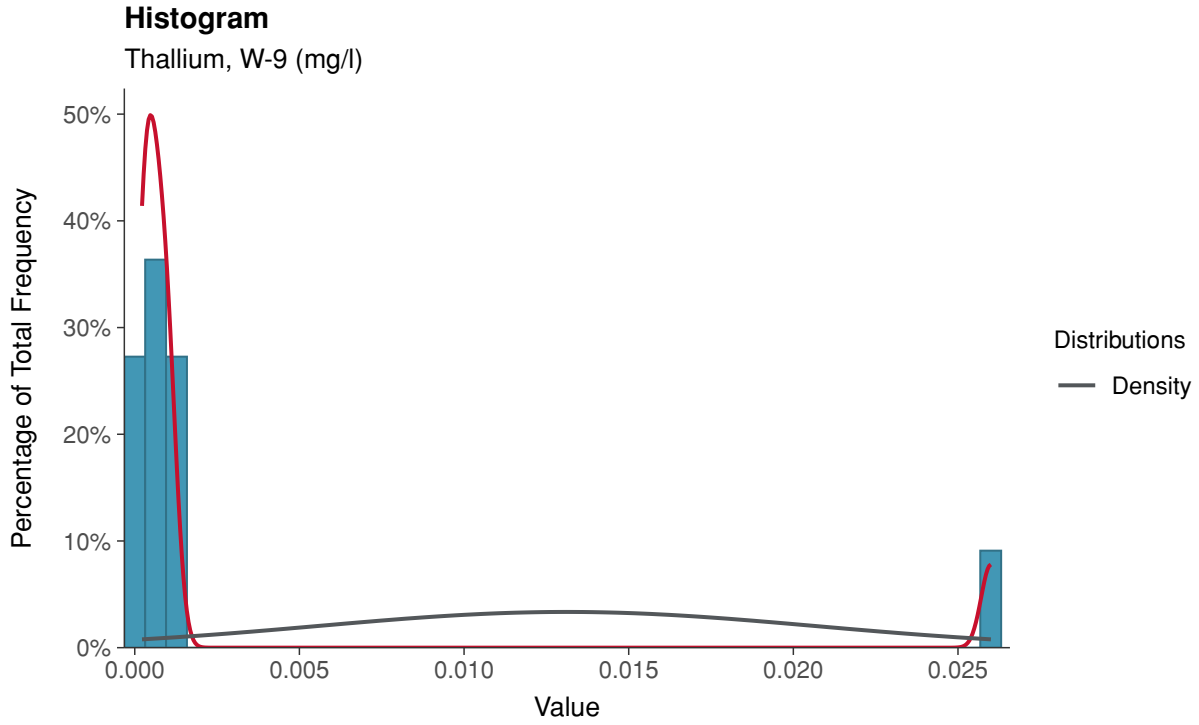
Selenium, W-9 (mg/l)



Appendix IV: Thallium, W-9

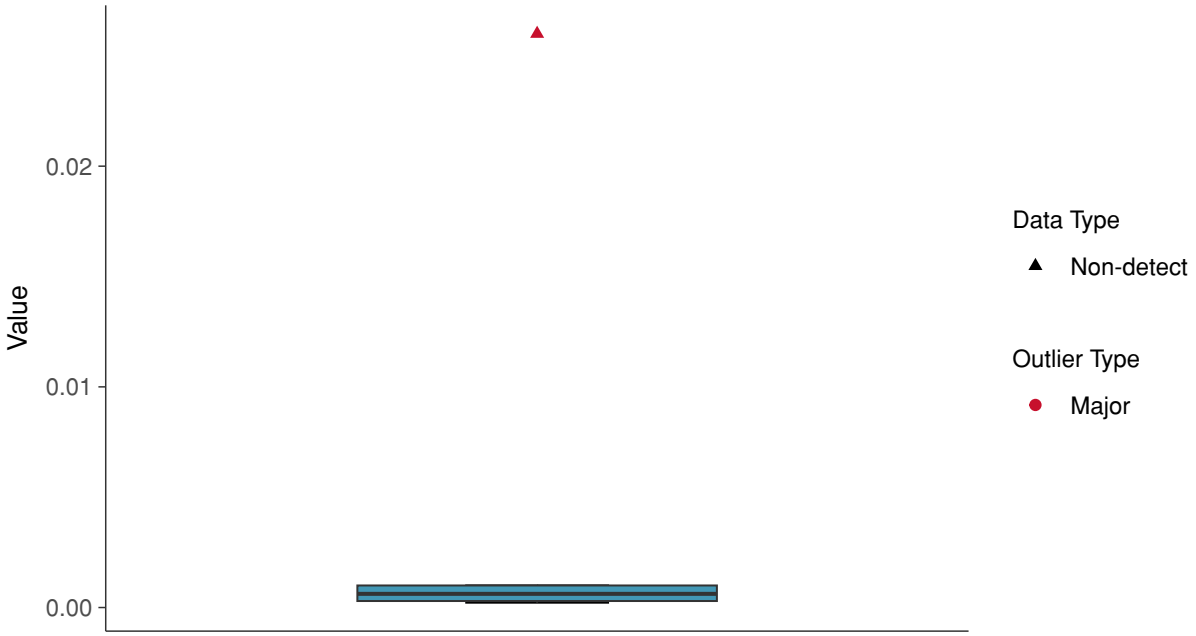
ID: 12_2_126





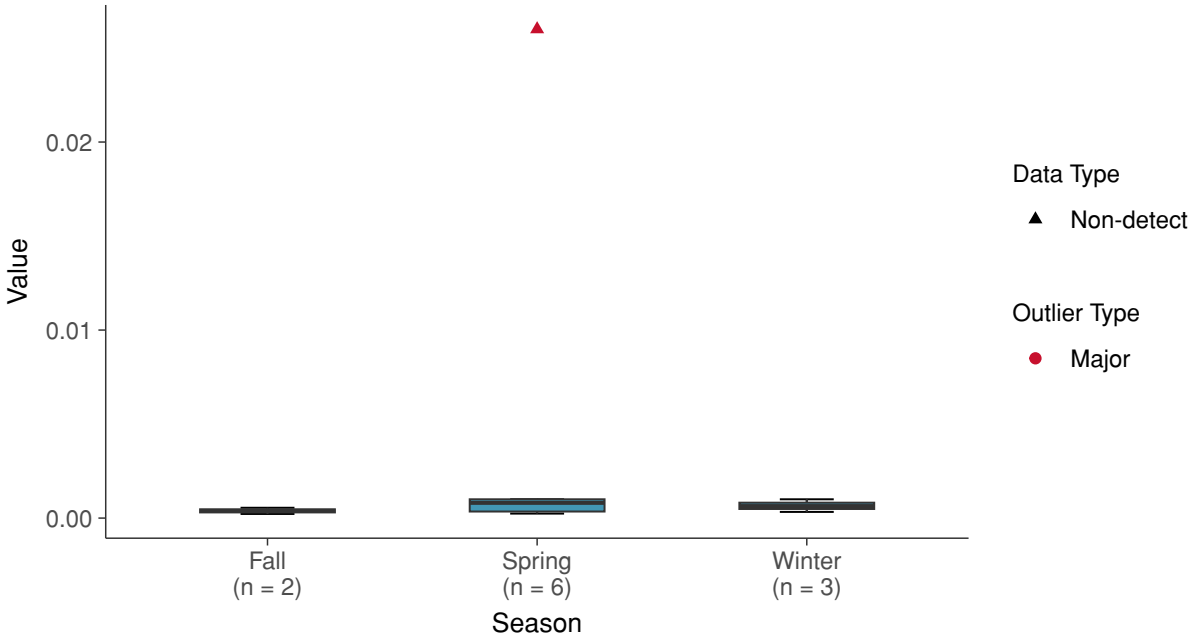
Boxplot

Thallium, W-9 (mg/l)



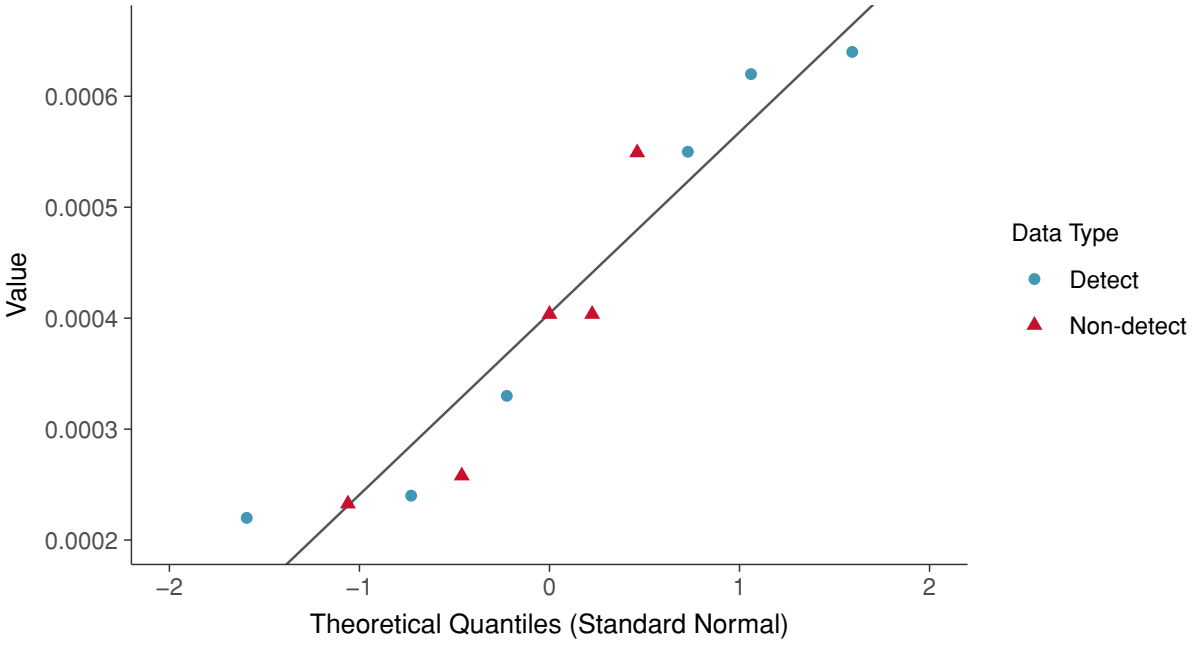
Boxplot by Season

Thallium, W-9 (mg/l)



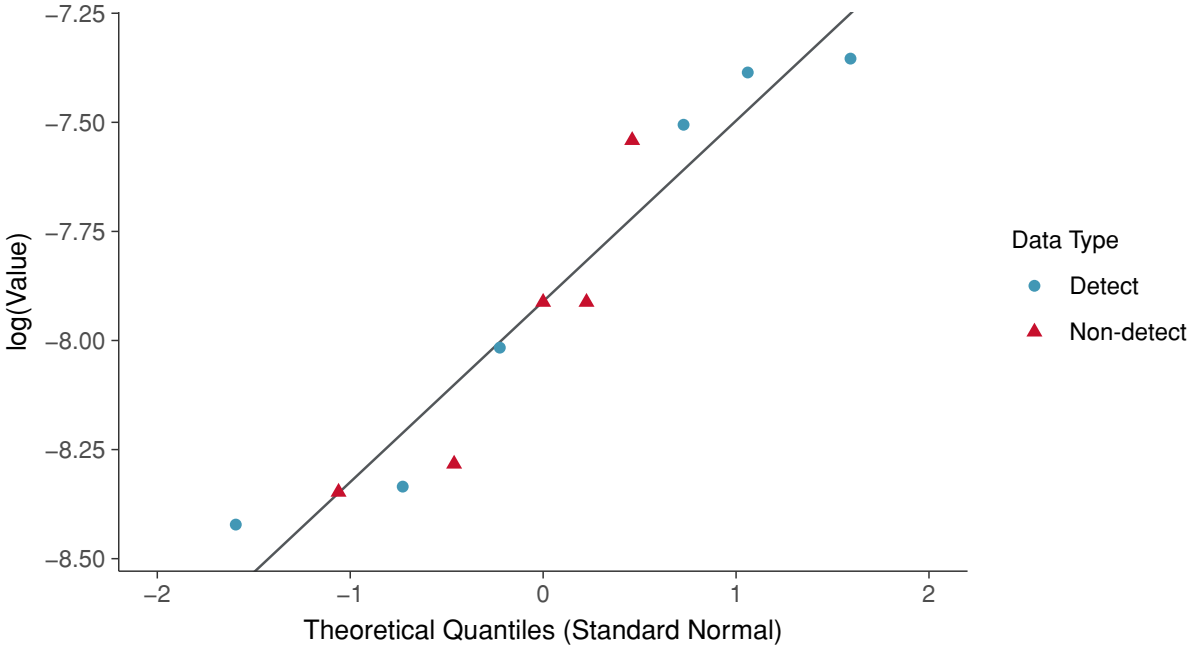
Normal Q-Q plot using ROS Imputed Estimates

Thallium, W-9 (mg/l)



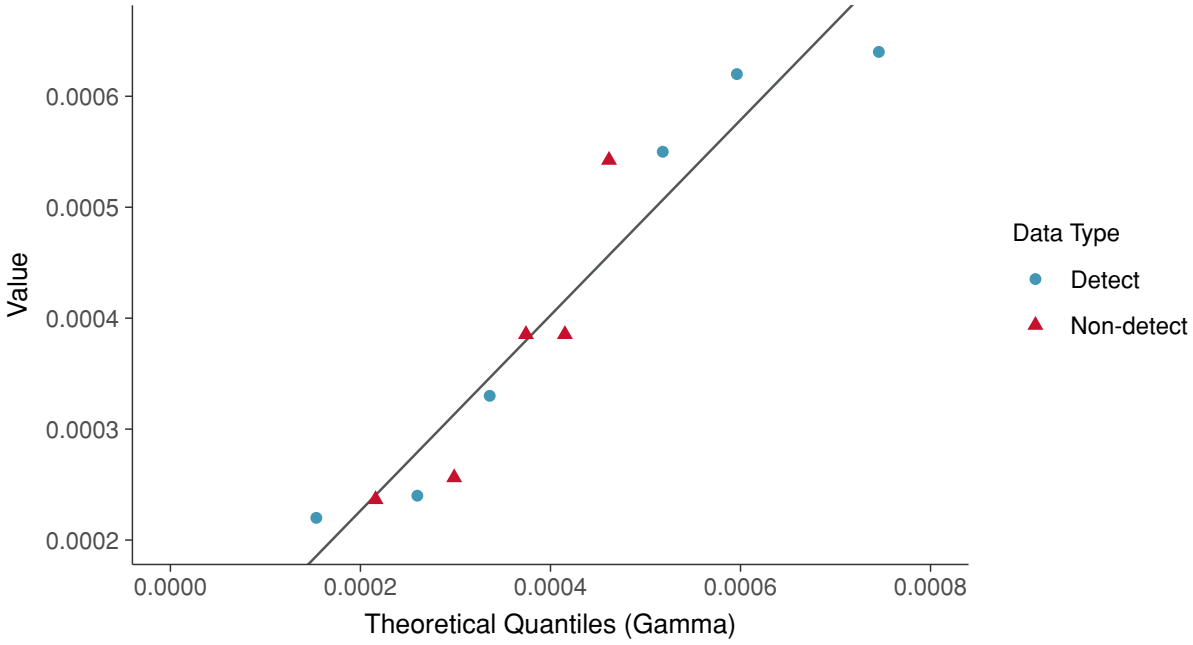
Lognormal Q-Q plot using ROS Imputed Estimates

Thallium, W-9 (mg/l)



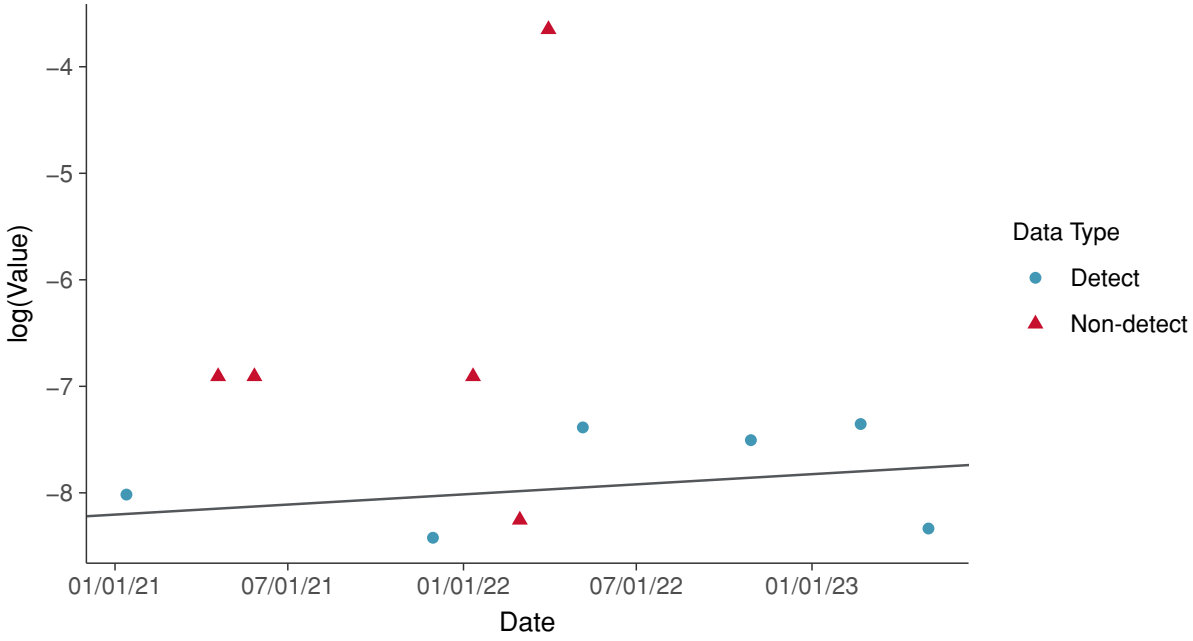
Gamma Q-Q plot using ROS Imputed Estimates

Thallium, W-9 (mg/l)



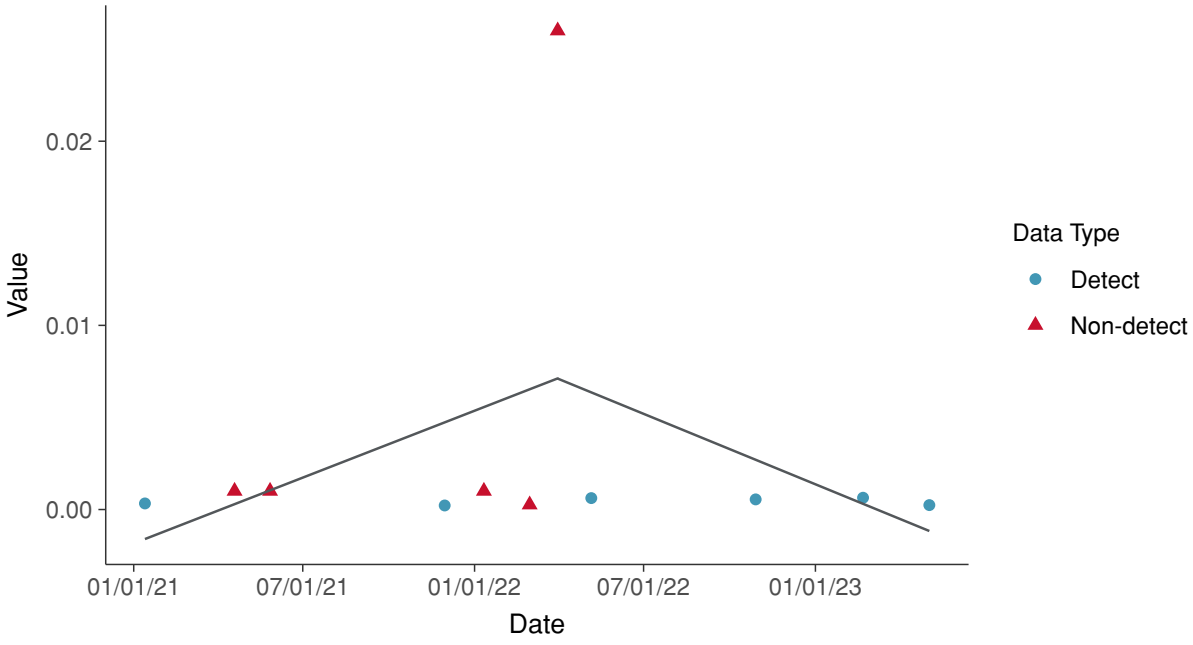
Trend Regression: Lognormal MLE

Thallium, W-9 (mg/l)



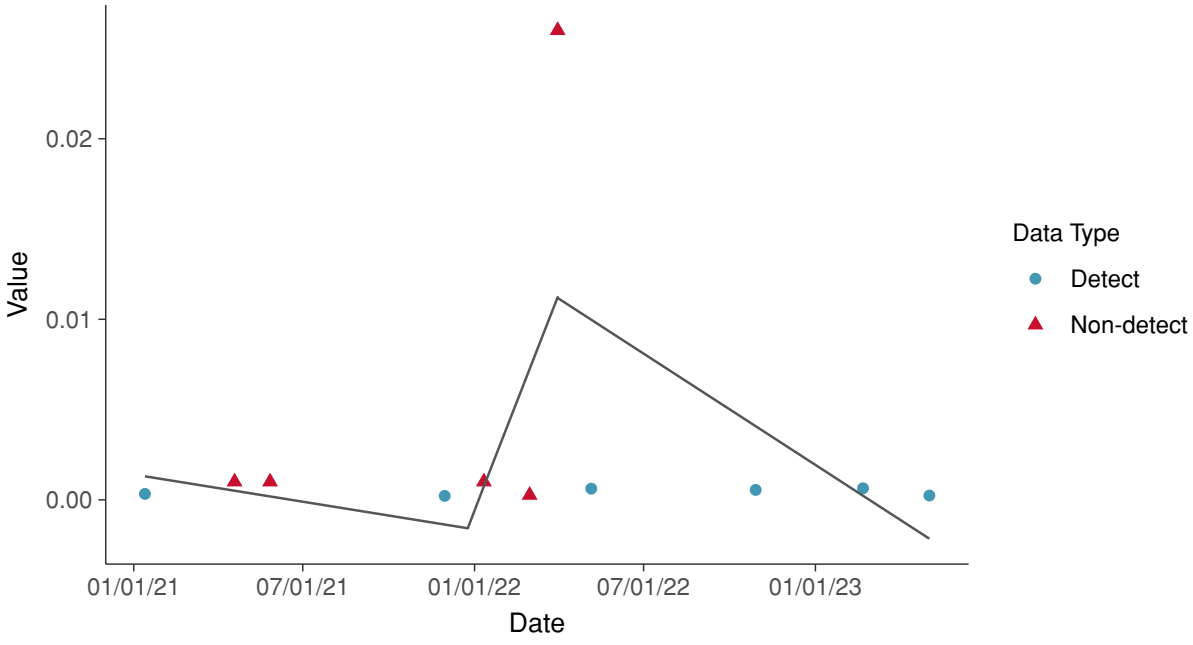
Trend Regression: Piecewise Linear-Linear

Thallium, W-9 (mg/l)



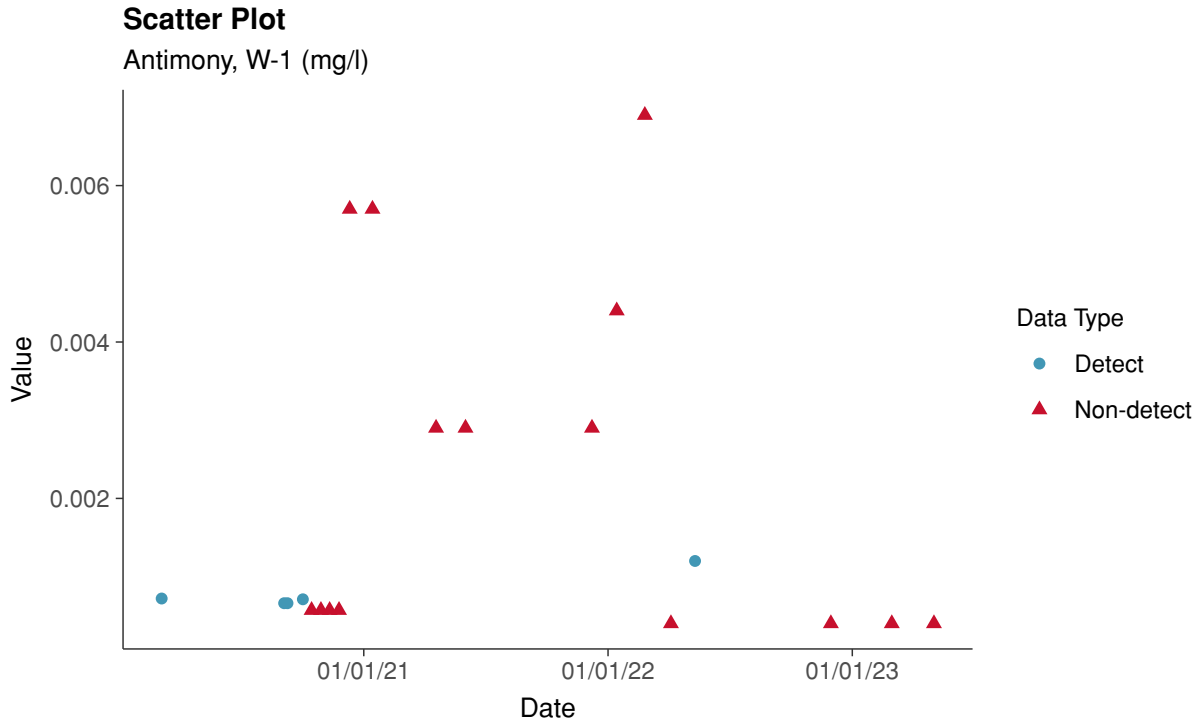
Trend Regression: Piecewise Linear-Linear-Linear

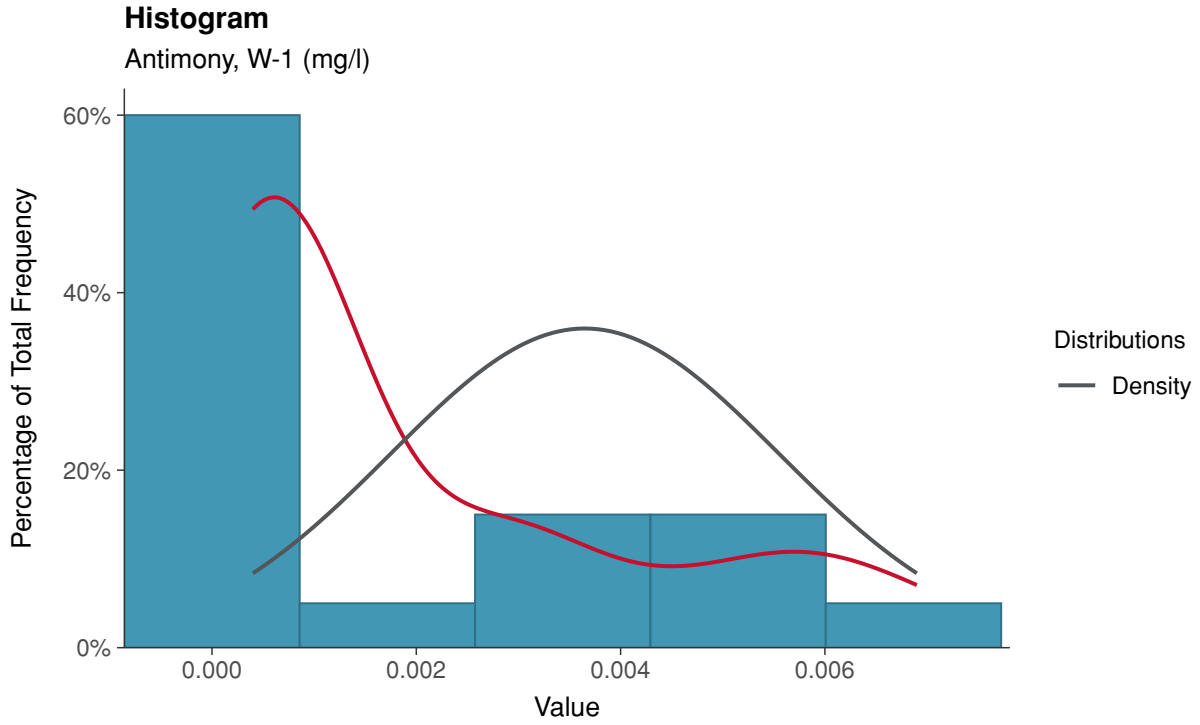
Thallium, W-9 (mg/l)



Appendix IV: Antimony, W-1

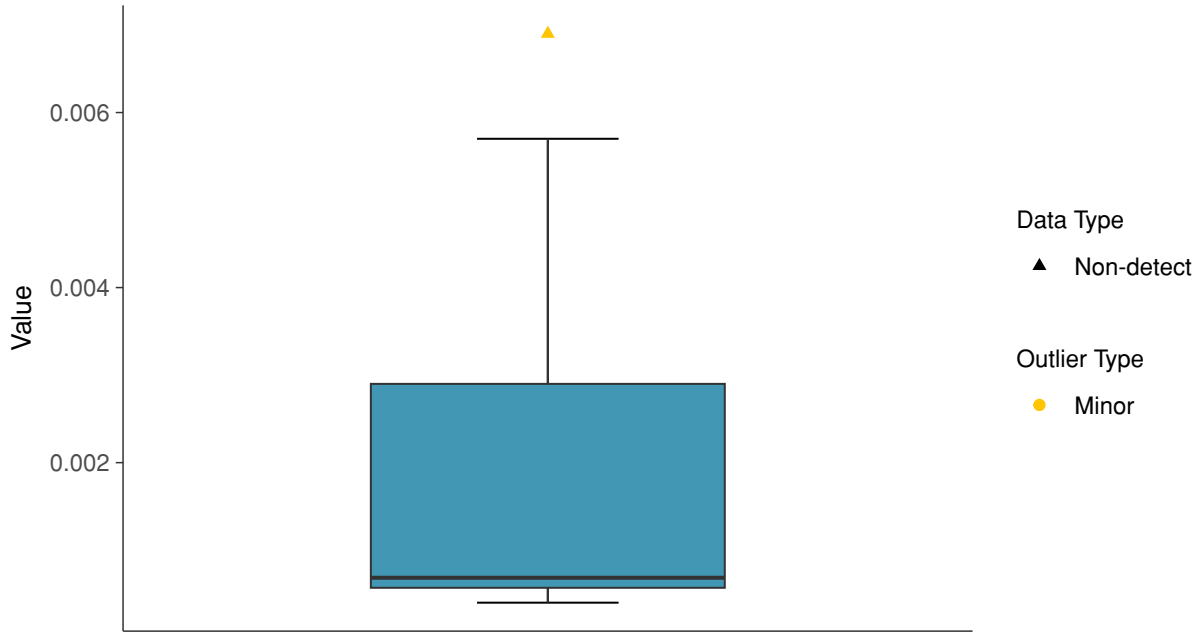
ID: 1_2_101





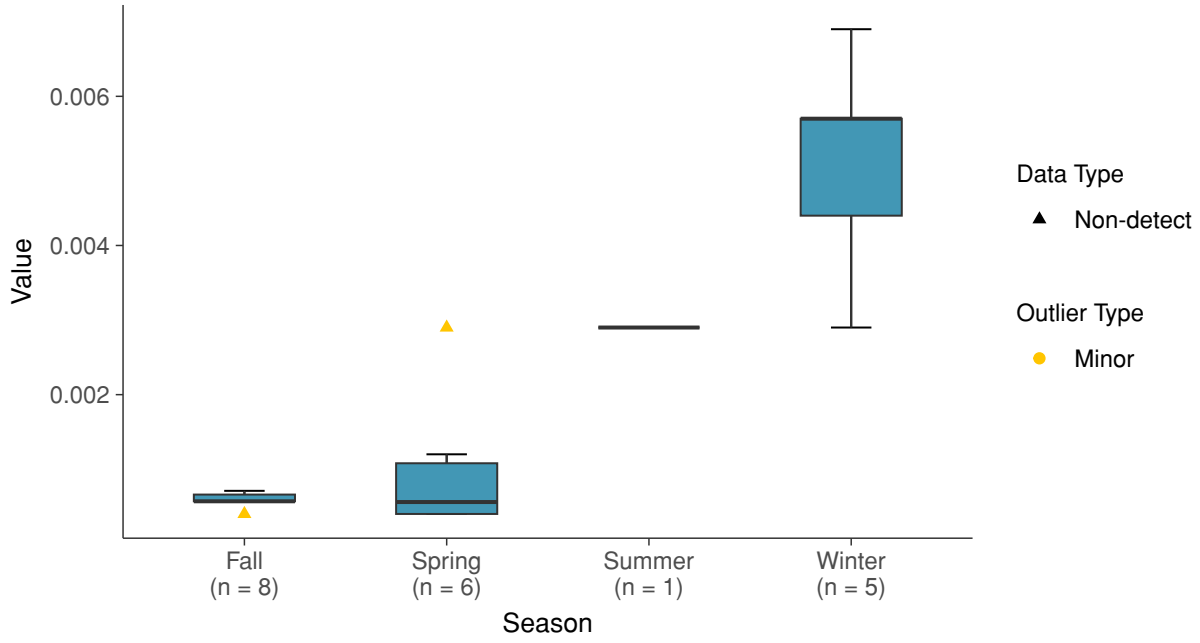
Boxplot

Antimony, W-1 (mg/l)



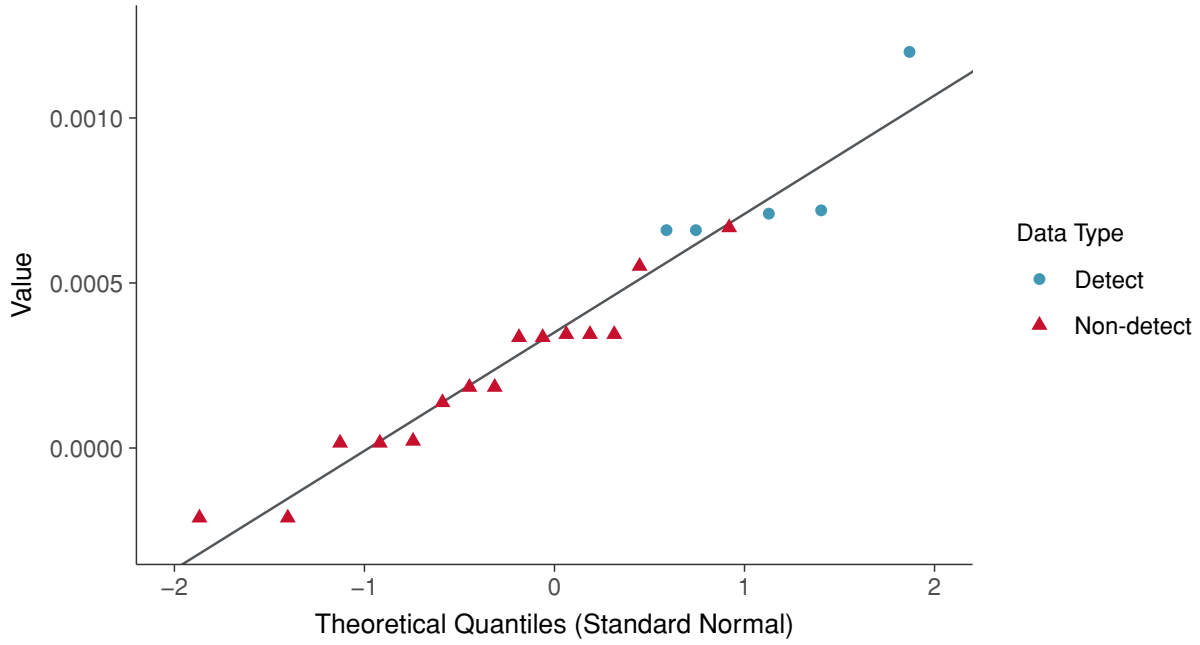
Boxplot by Season

Antimony, W-1 (mg/l)



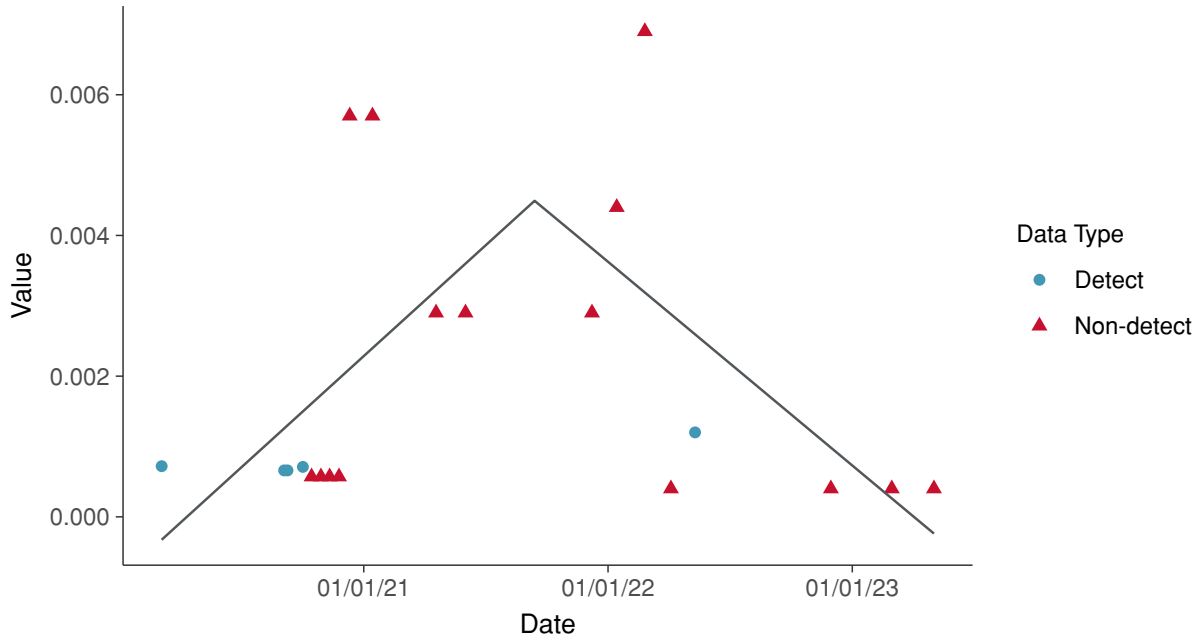
Normal Q-Q plot using ROS Imputed Estimates

Antimony, W-1 (mg/l)



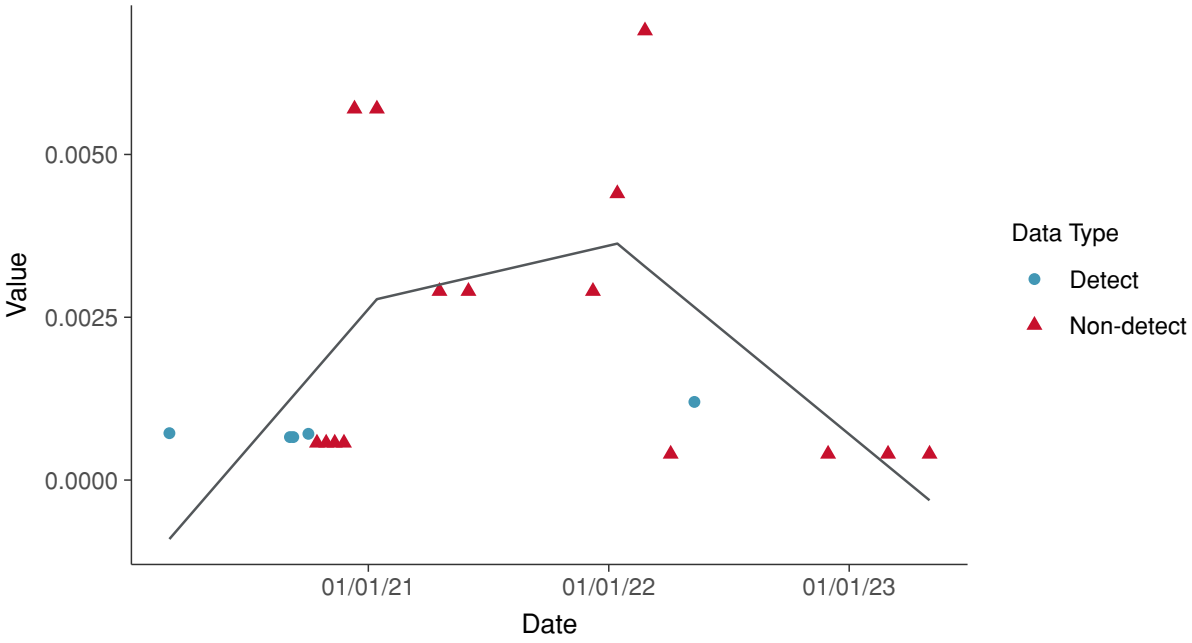
Trend Regression: Piecewise Linear-Linear

Antimony, W-1 (mg/l)



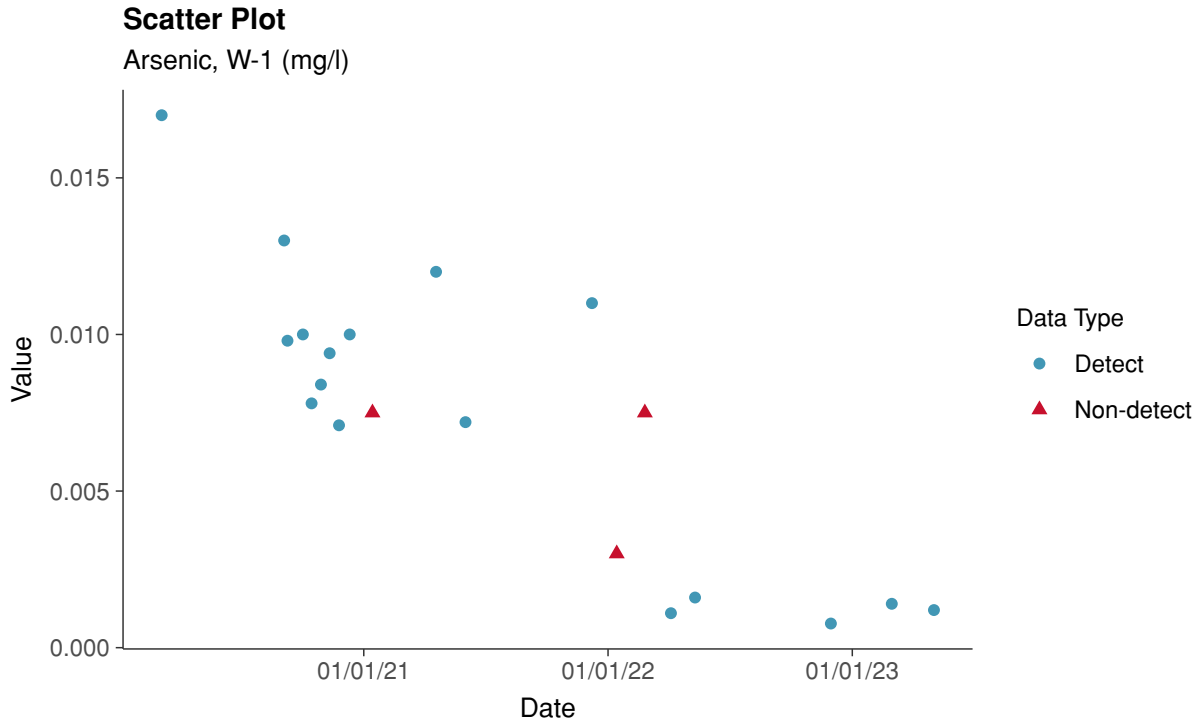
Trend Regression: Piecewise Linear-Linear-Linear

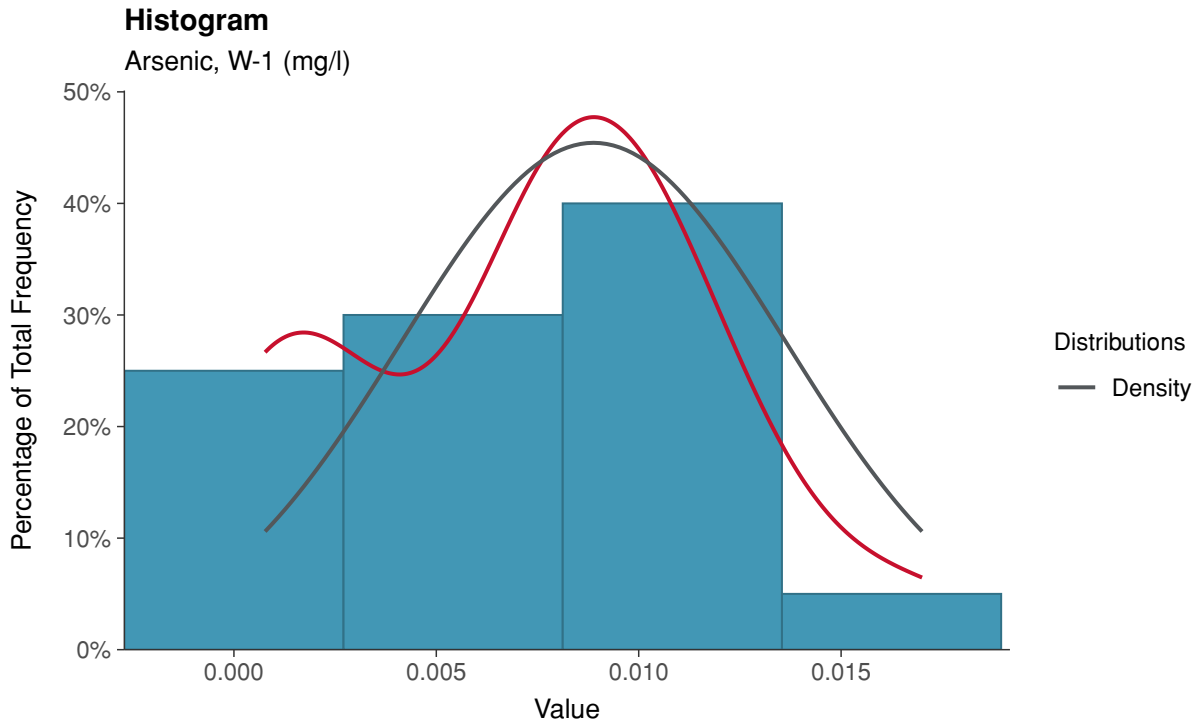
Antimony, W-1 (mg/l)



Appendix IV: Arsenic, W-1

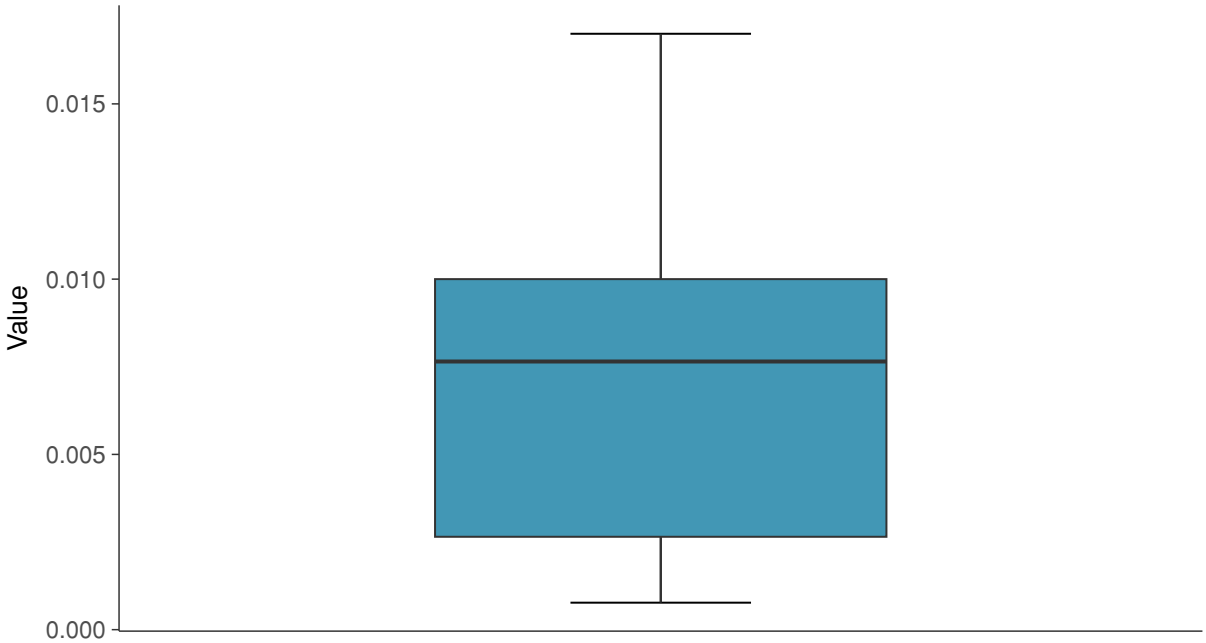
ID: 1_2_102





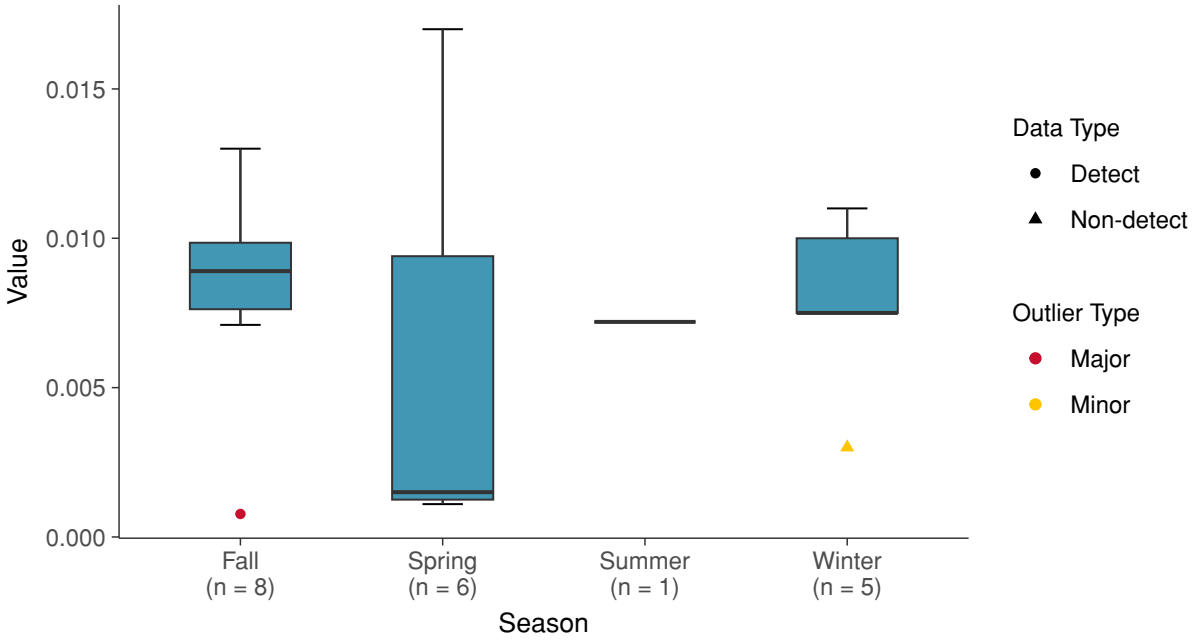
Boxplot

Arsenic, W-1 (mg/l)



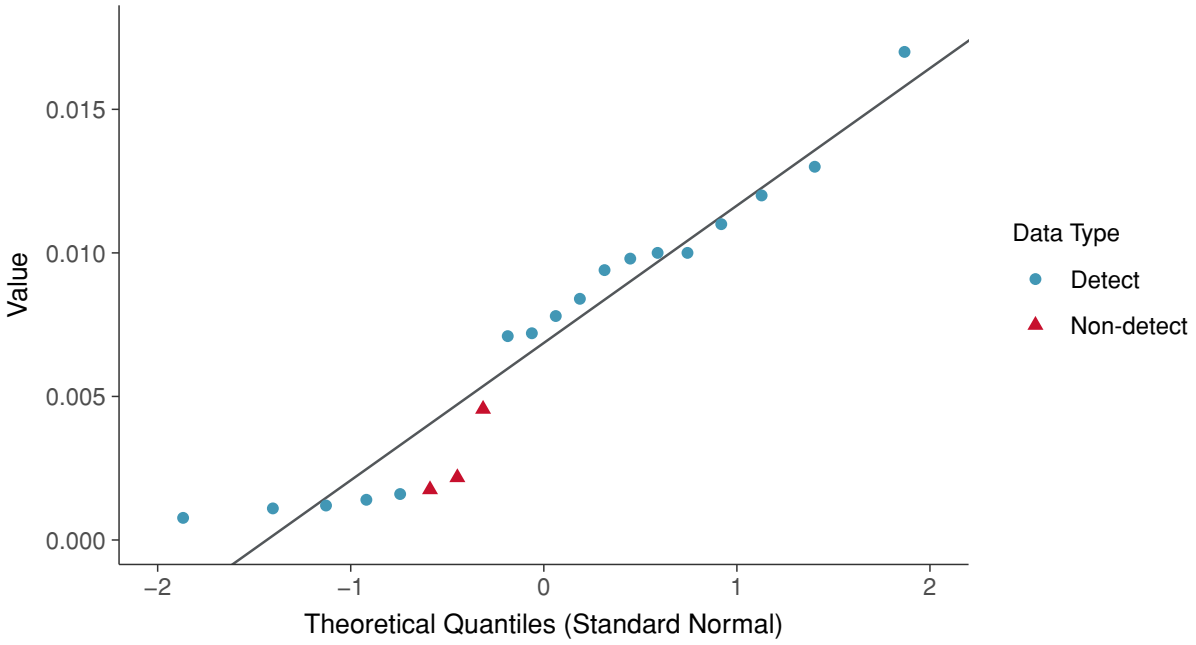
Boxplot by Season

Arsenic, W-1 (mg/l)



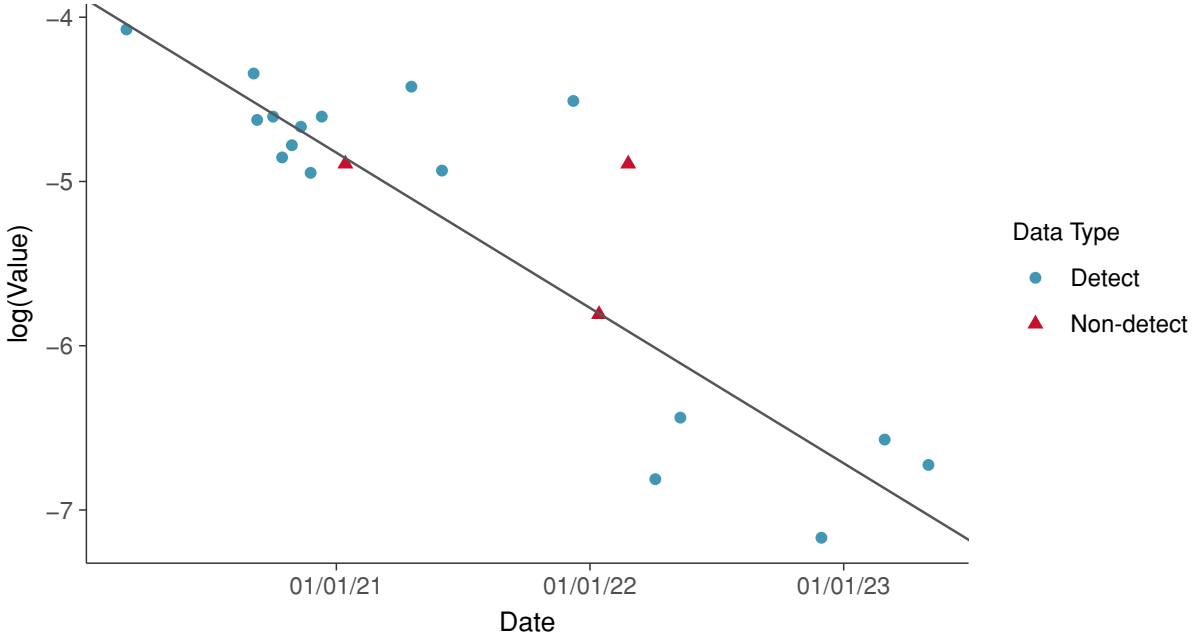
Normal Q-Q plot using ROS Imputed Estimates

Arsenic, W-1 (mg/l)



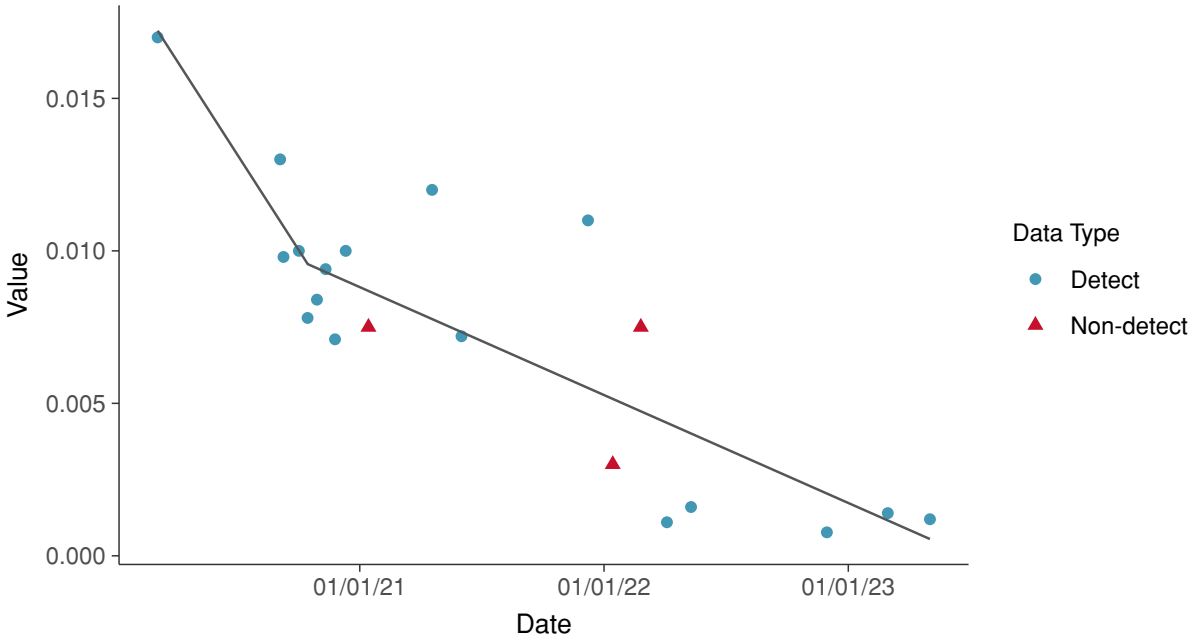
Trend Regression: Lognormal MLE

Arsenic, W-1 (mg/l)



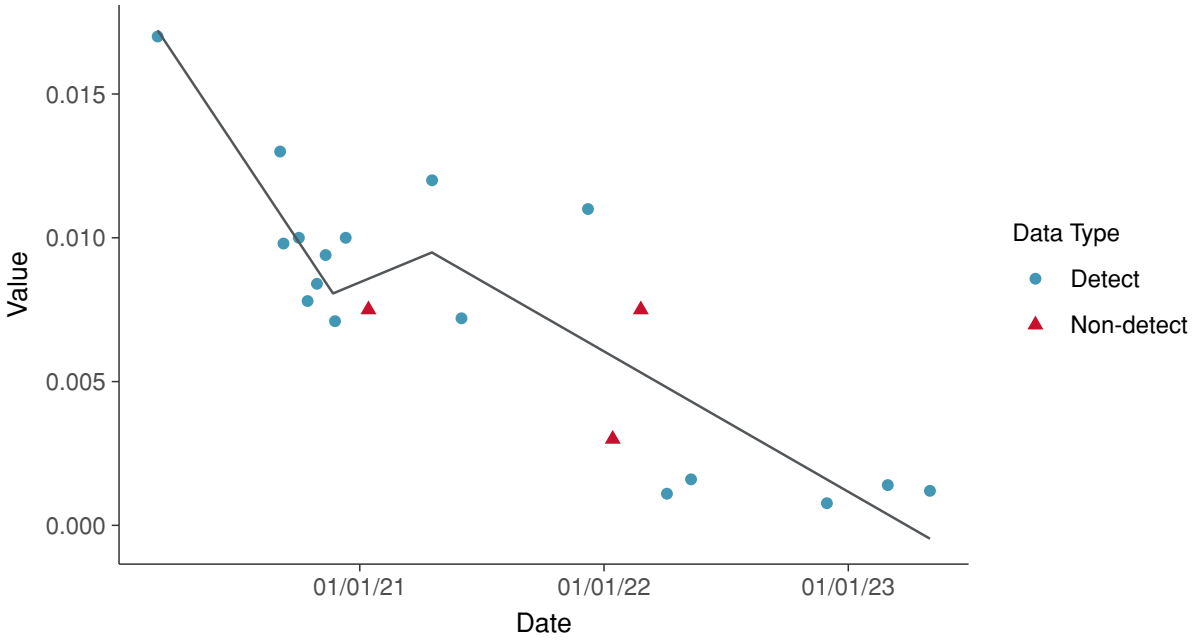
Trend Regression: Piecewise Linear-Linear

Arsenic, W-1 (mg/l)



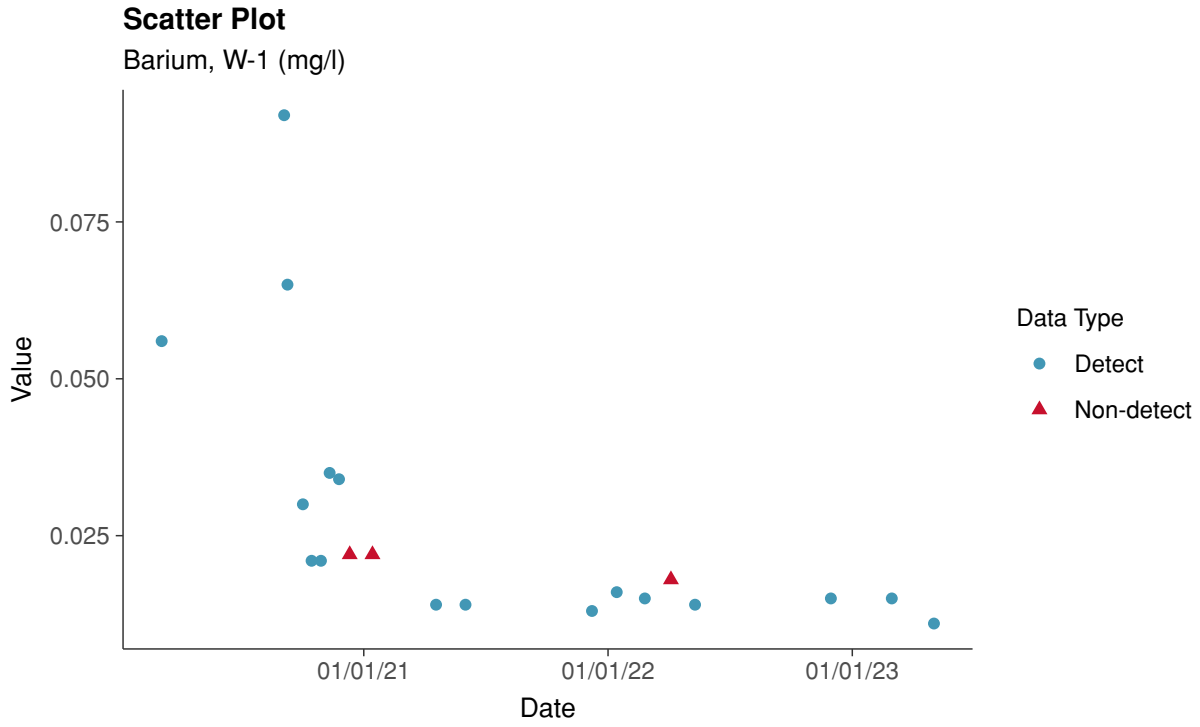
Trend Regression: Piecewise Linear-Linear-Linear

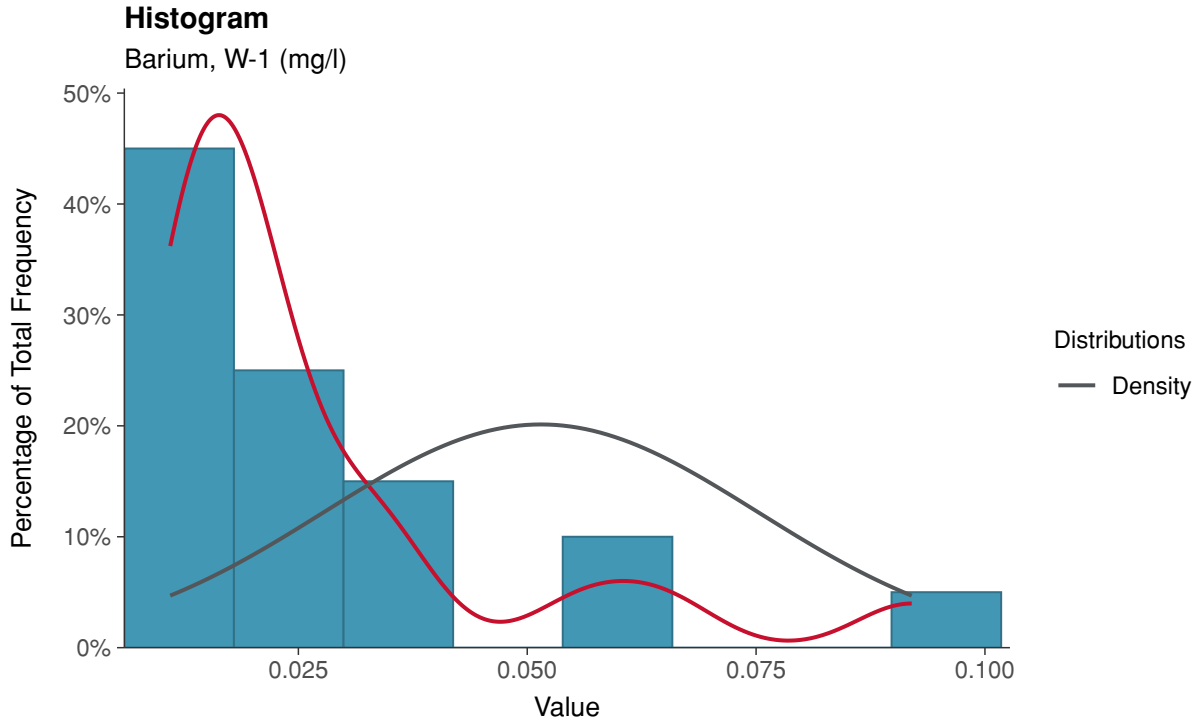
Arsenic, W-1 (mg/l)



Appendix IV: Barium, W-1

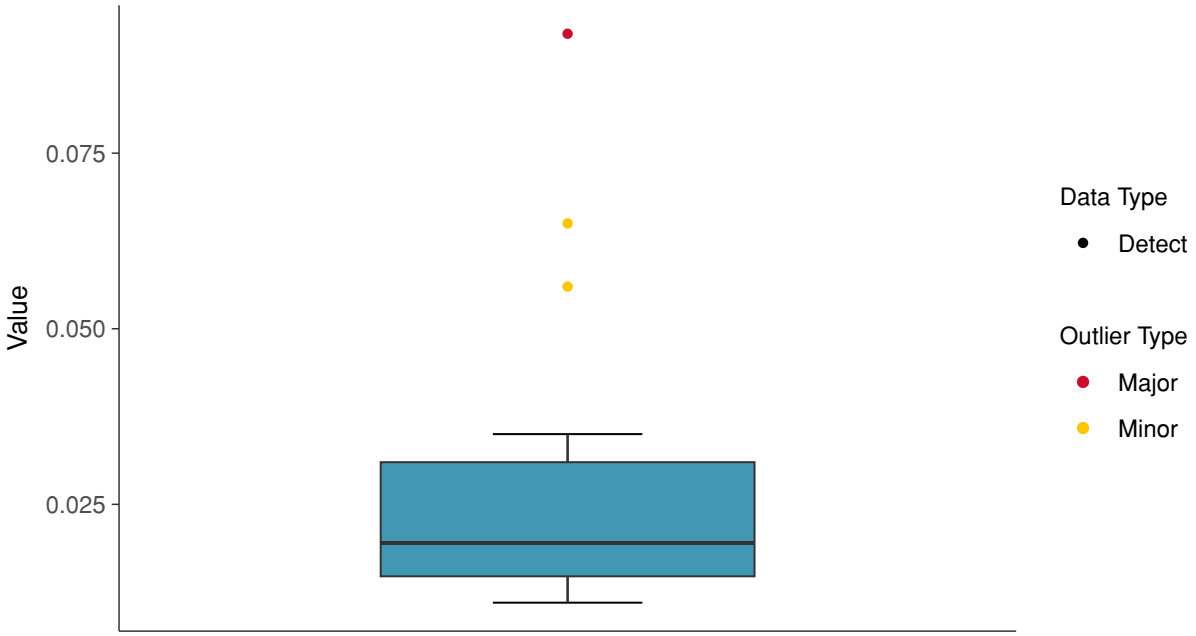
ID: 1_2_103





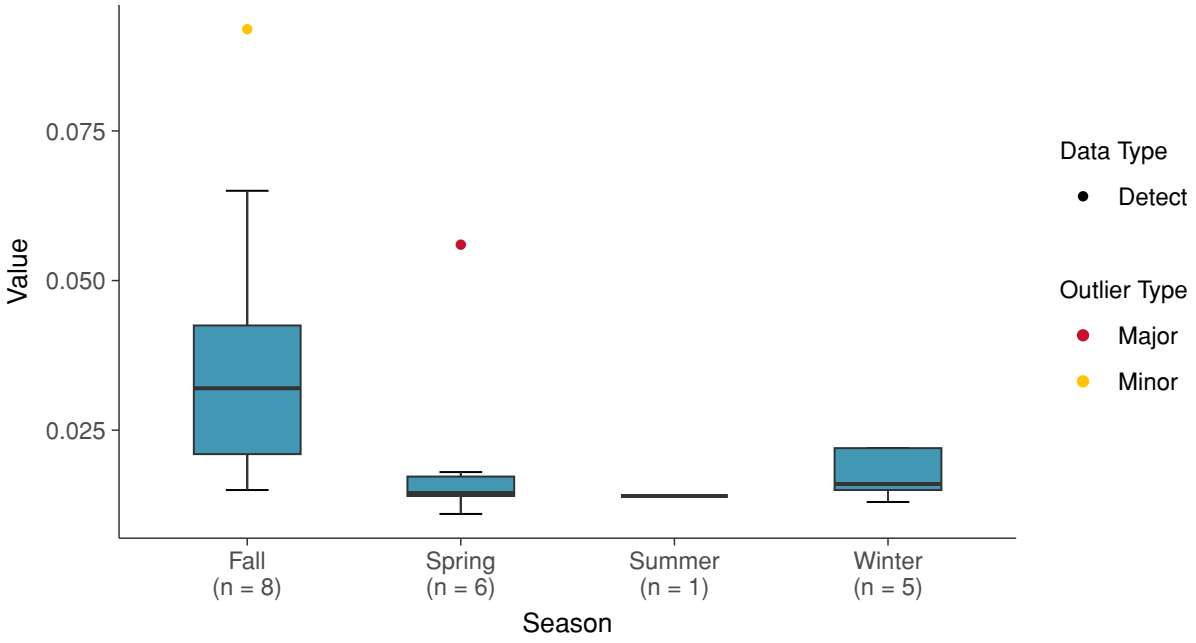
Boxplot

Barium, W-1 (mg/l)



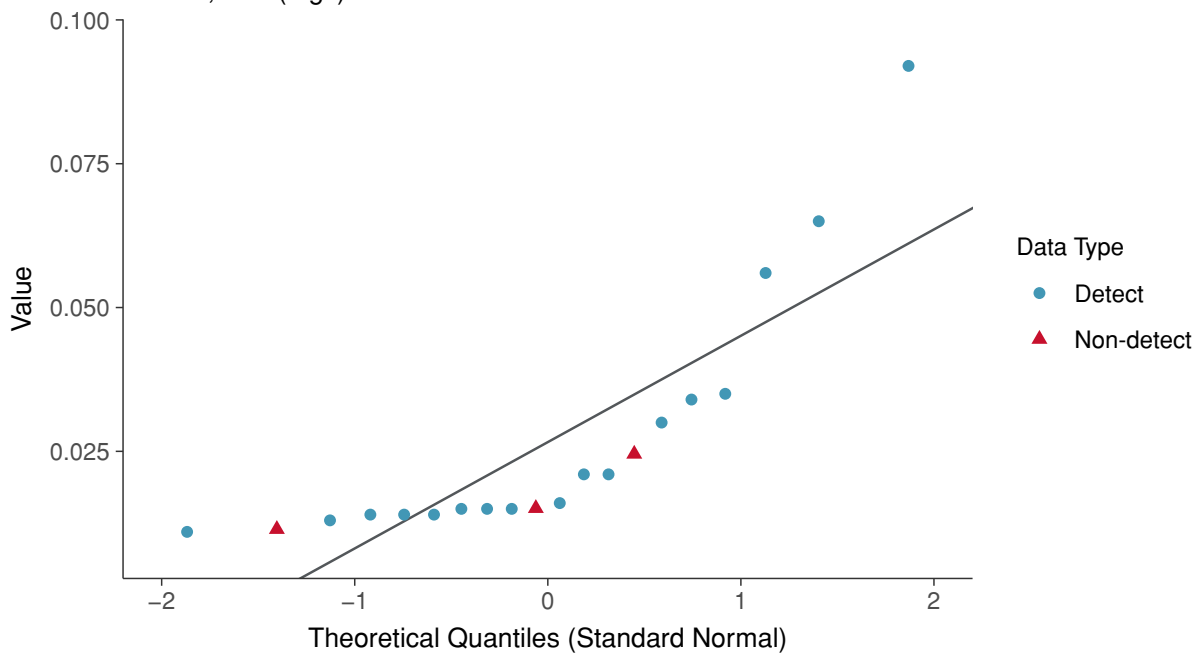
Boxplot by Season

Barium, W-1 (mg/l)



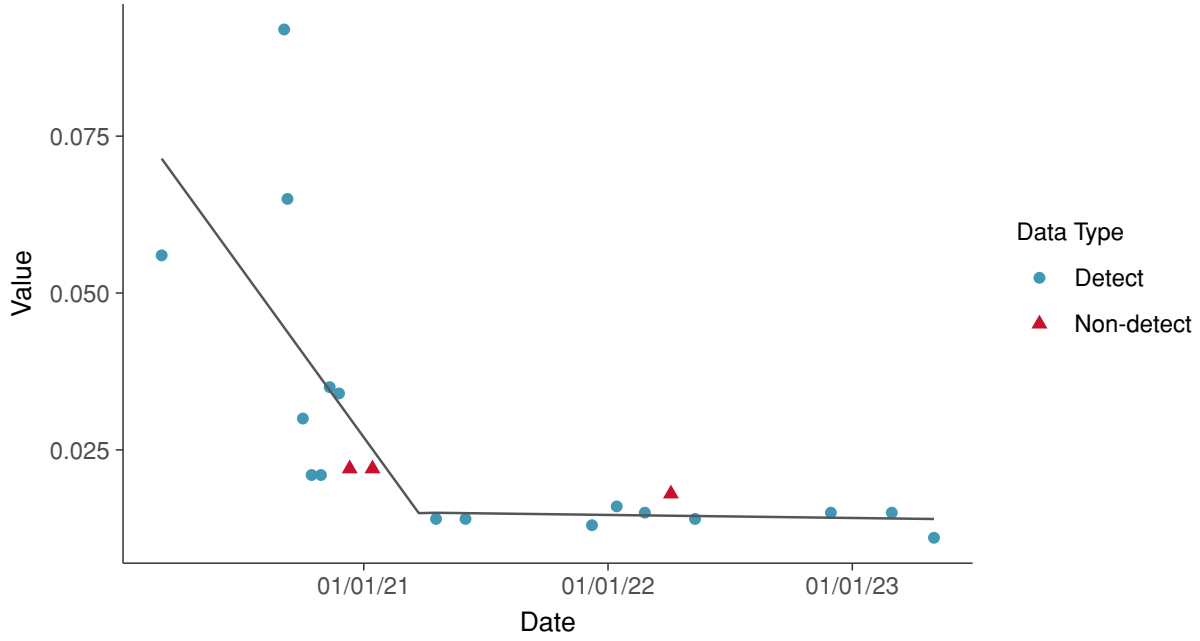
Normal Q-Q plot using ROS Imputed Estimates

Barium, W-1 (mg/l)



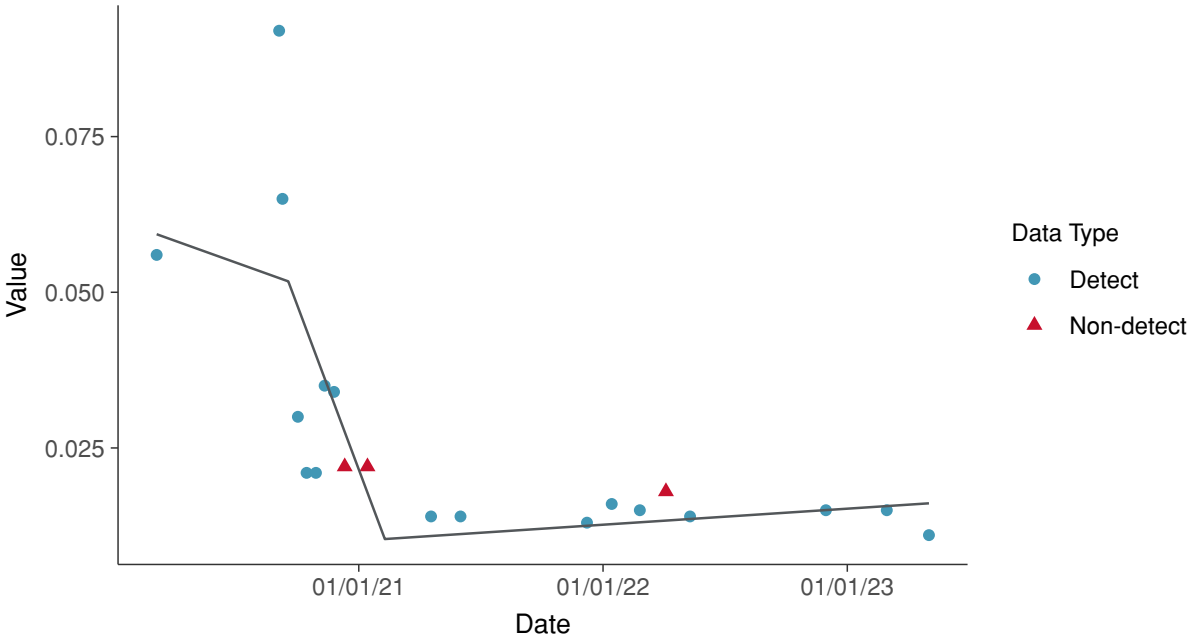
Trend Regression: Piecewise Linear-Linear

Barium, W-1 (mg/l)



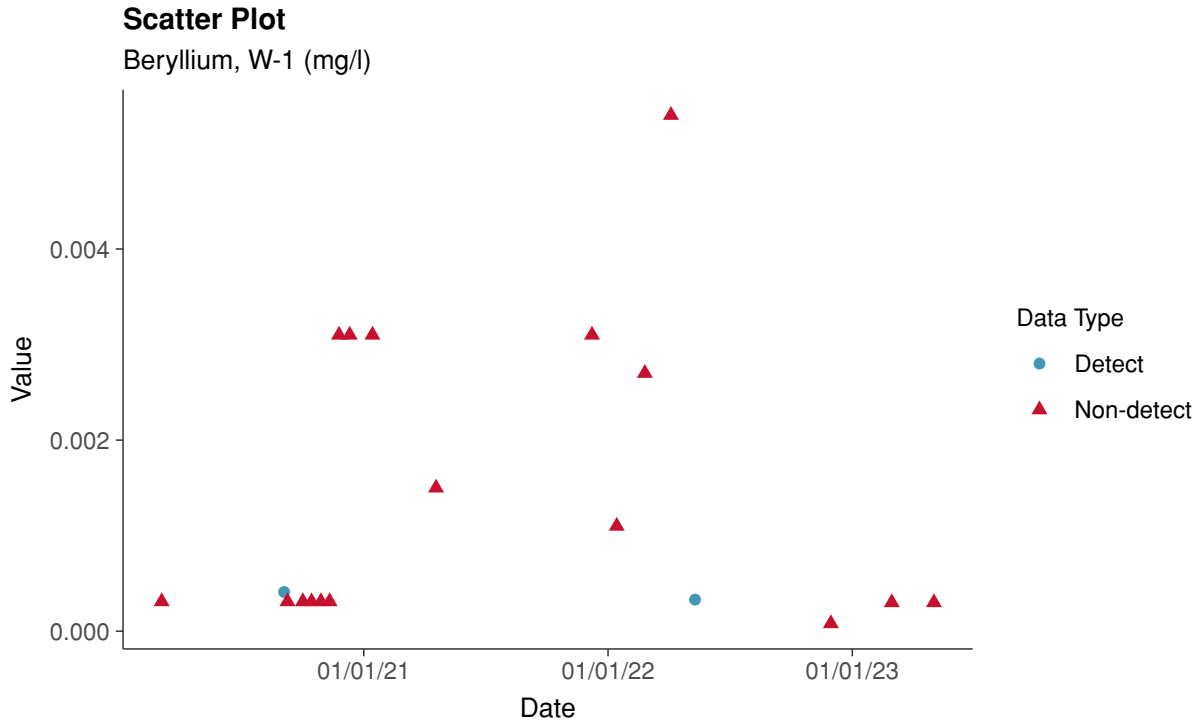
Trend Regression: Piecewise Linear-Linear-Linear

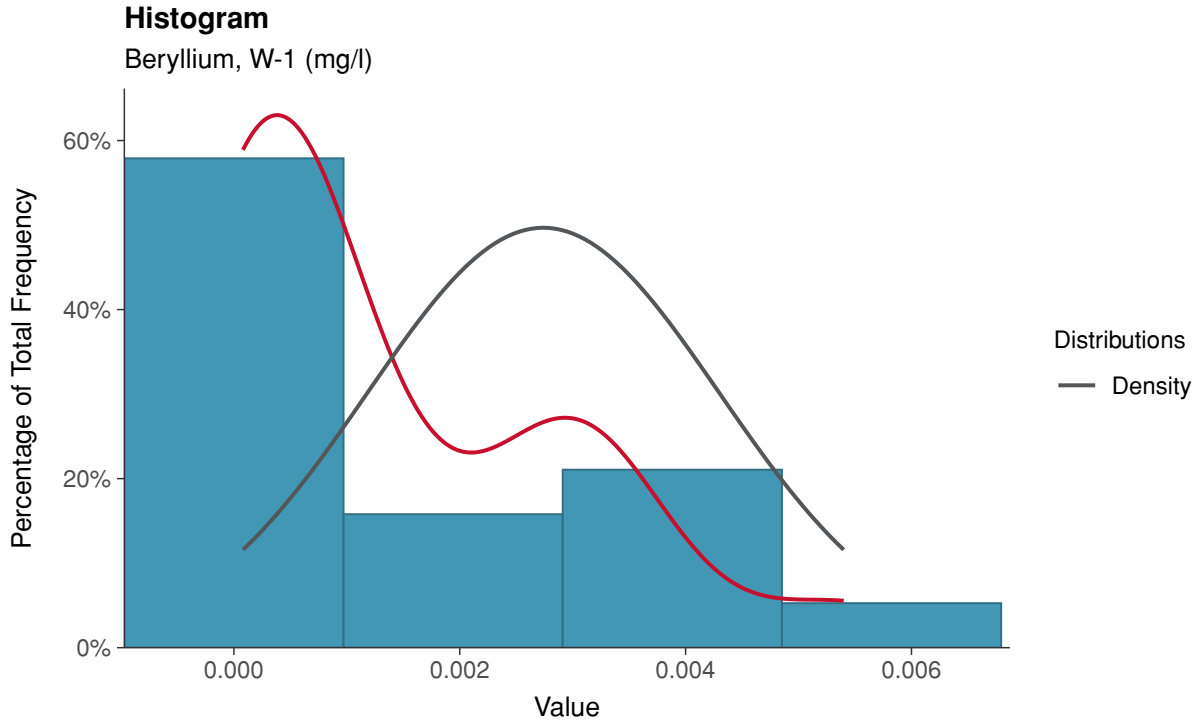
Barium, W-1 (mg/l)



Appendix IV: Beryllium, W-1

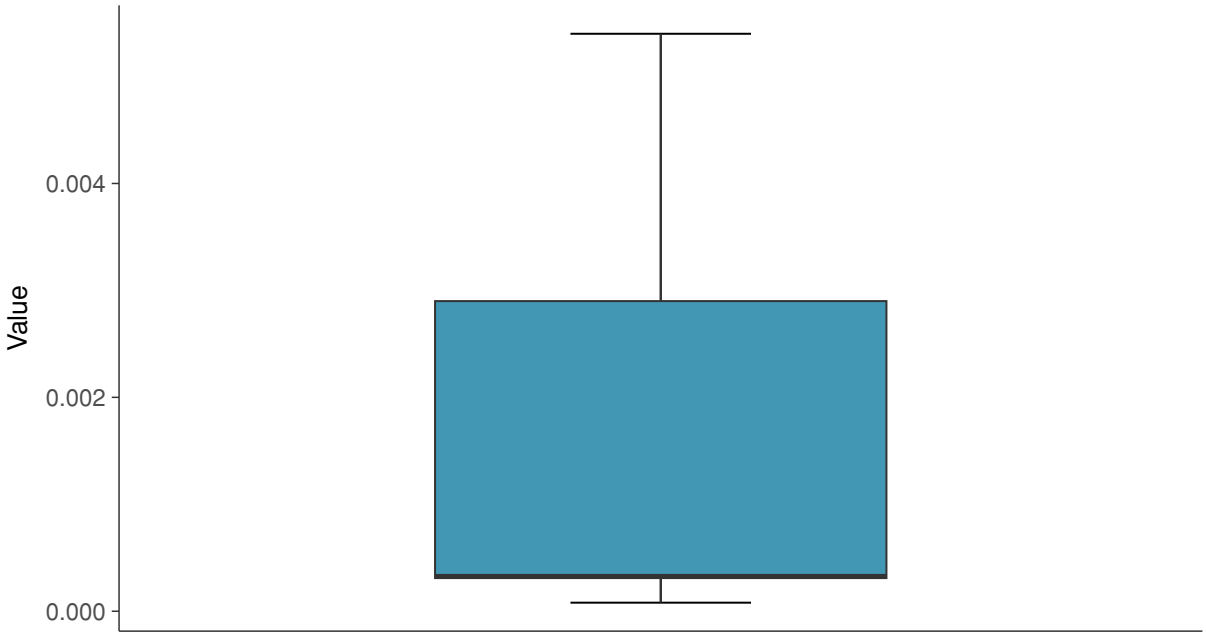
ID: 1_2_104





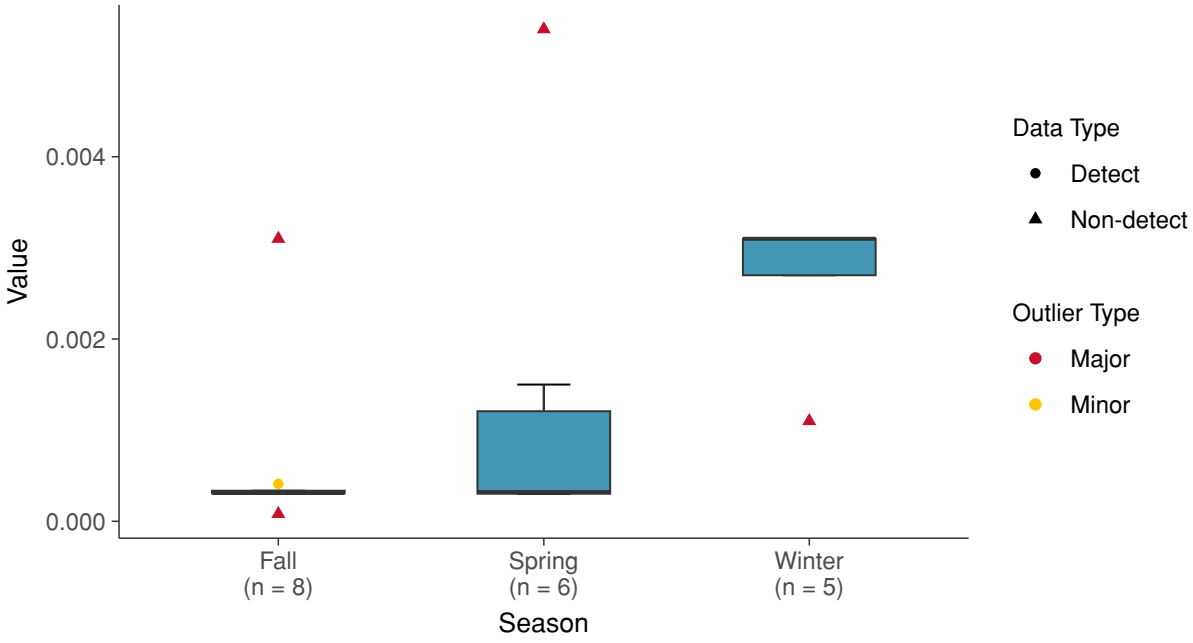
Boxplot

Beryllium, W-1 (mg/l)



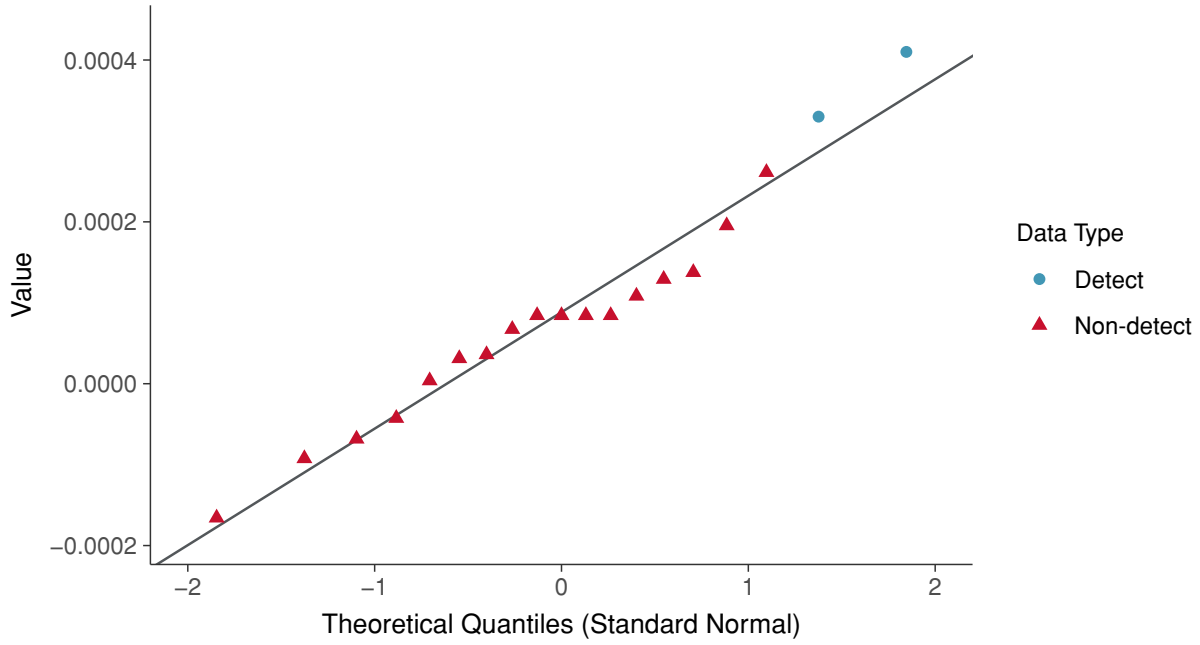
Boxplot by Season

Beryllium, W-1 (mg/l)



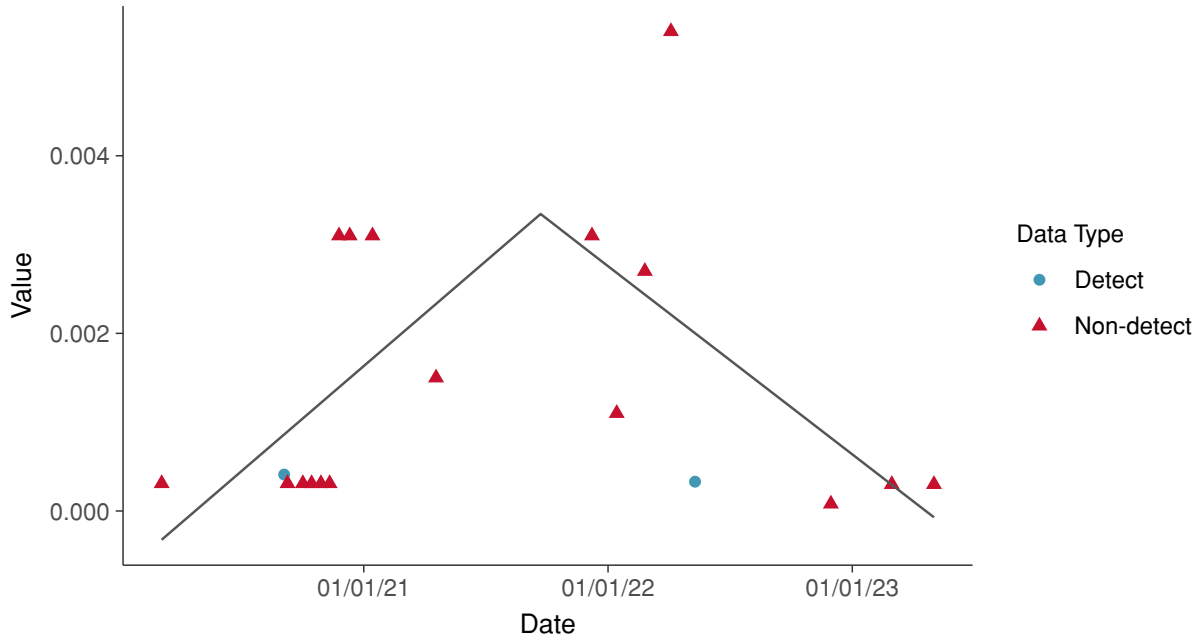
Normal Q-Q plot using ROS Imputed Estimates

Beryllium, W-1 (mg/l)



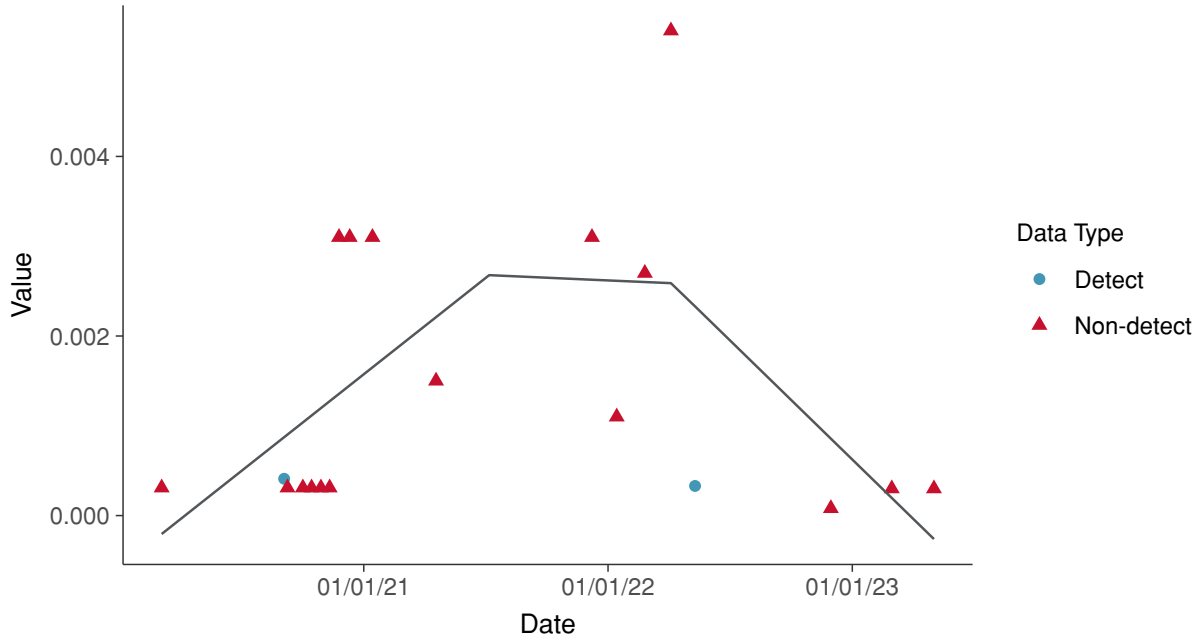
Trend Regression: Piecewise Linear-Linear

Beryllium, W-1 (mg/l)



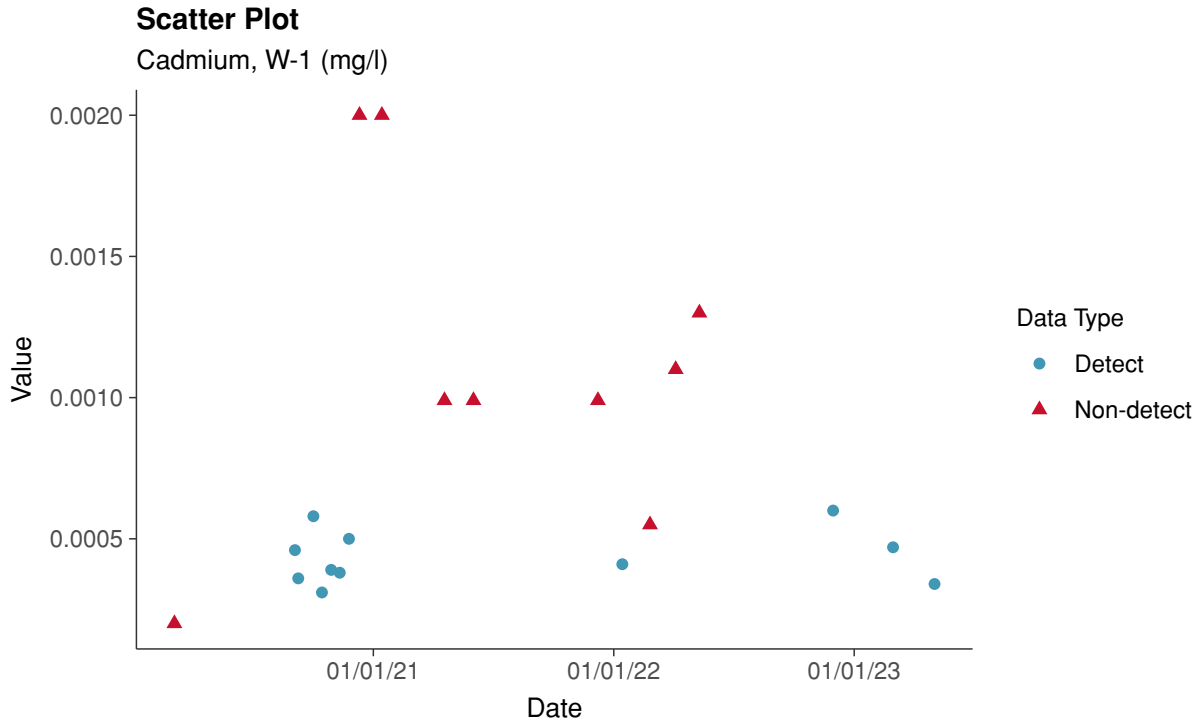
Trend Regression: Piecewise Linear-Linear-Linear

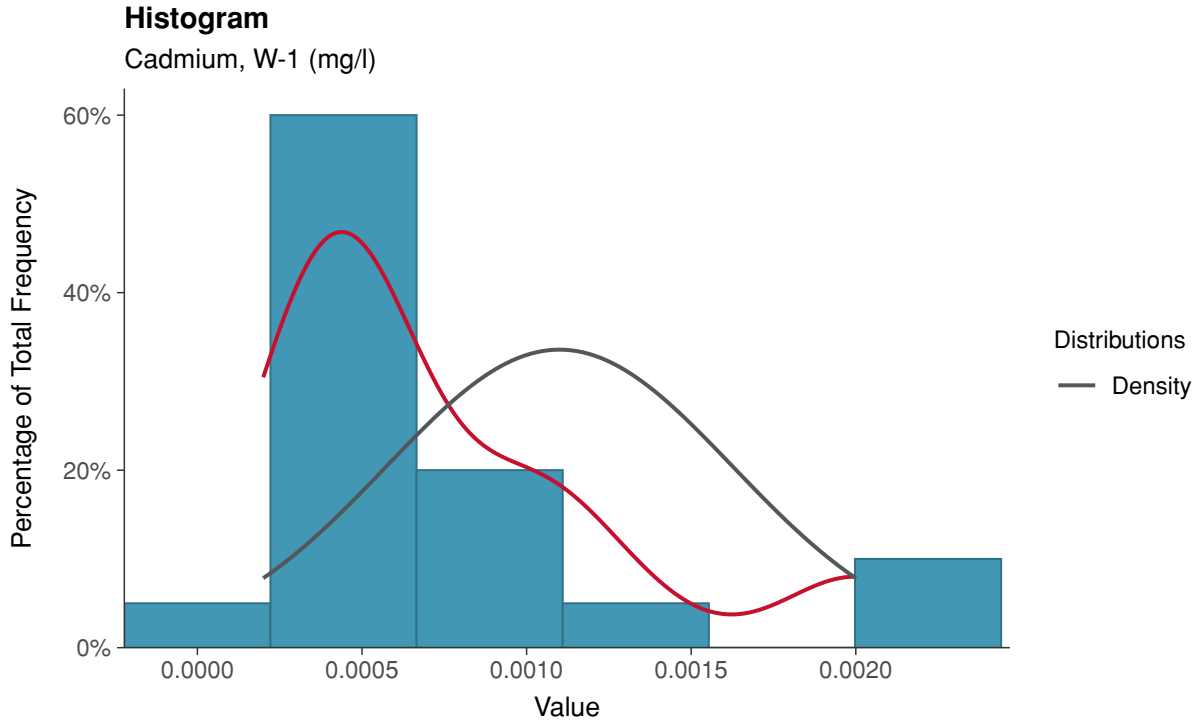
Beryllium, W-1 (mg/l)



Appendix IV: Cadmium, W-1

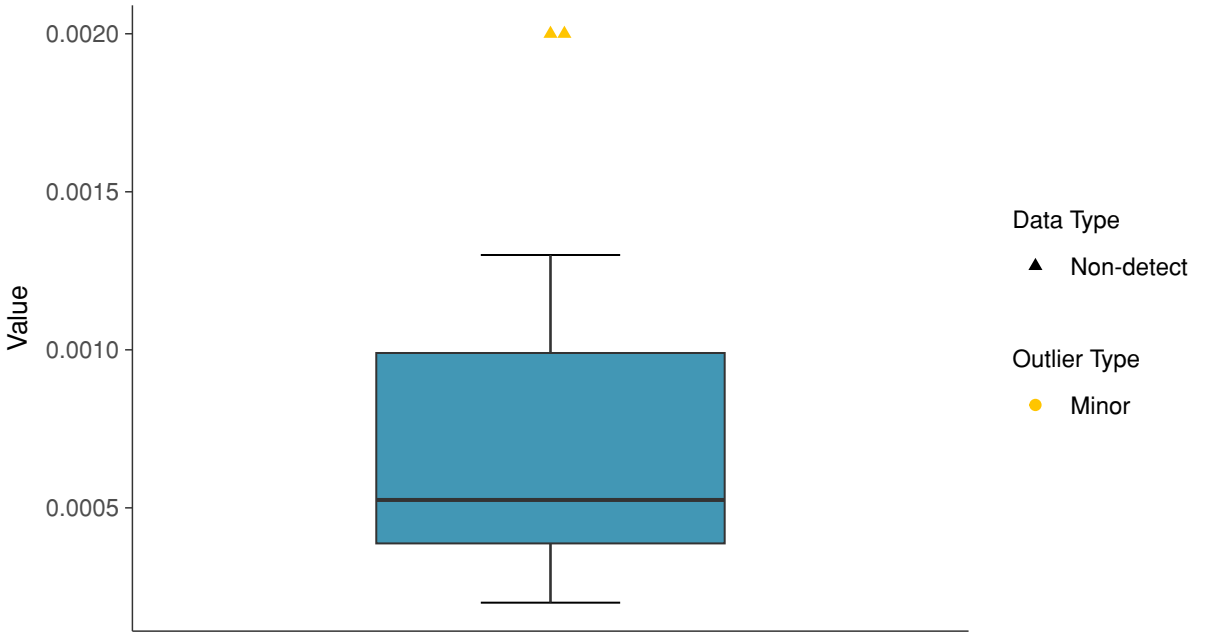
ID: 1_2_106





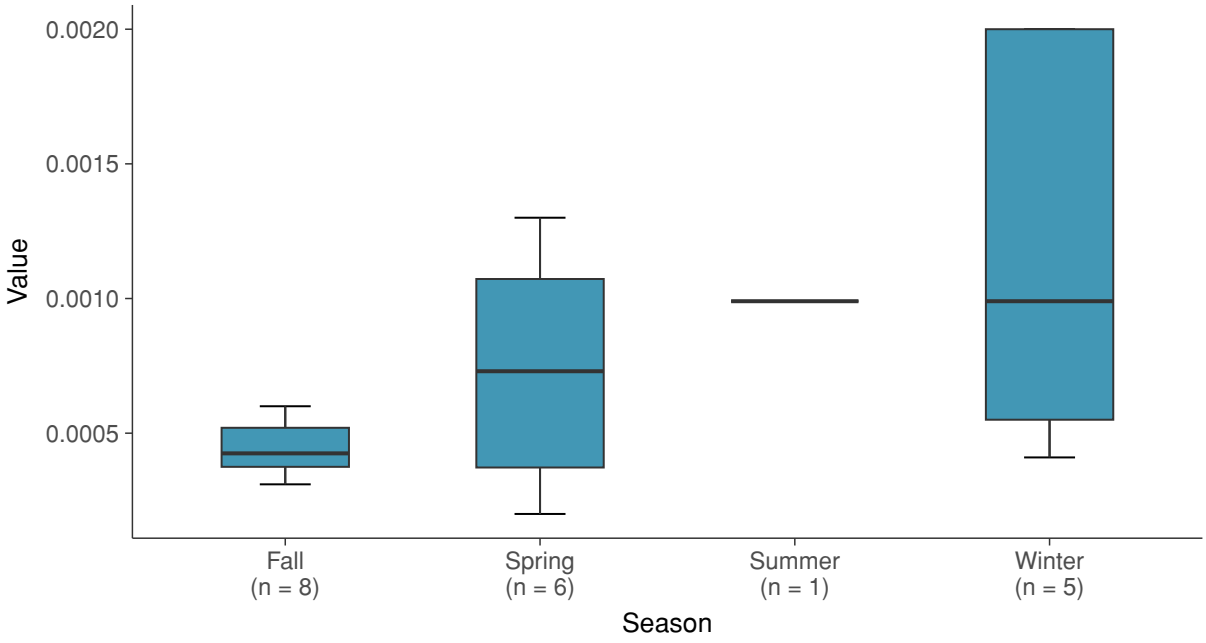
Boxplot

Cadmium, W-1 (mg/l)



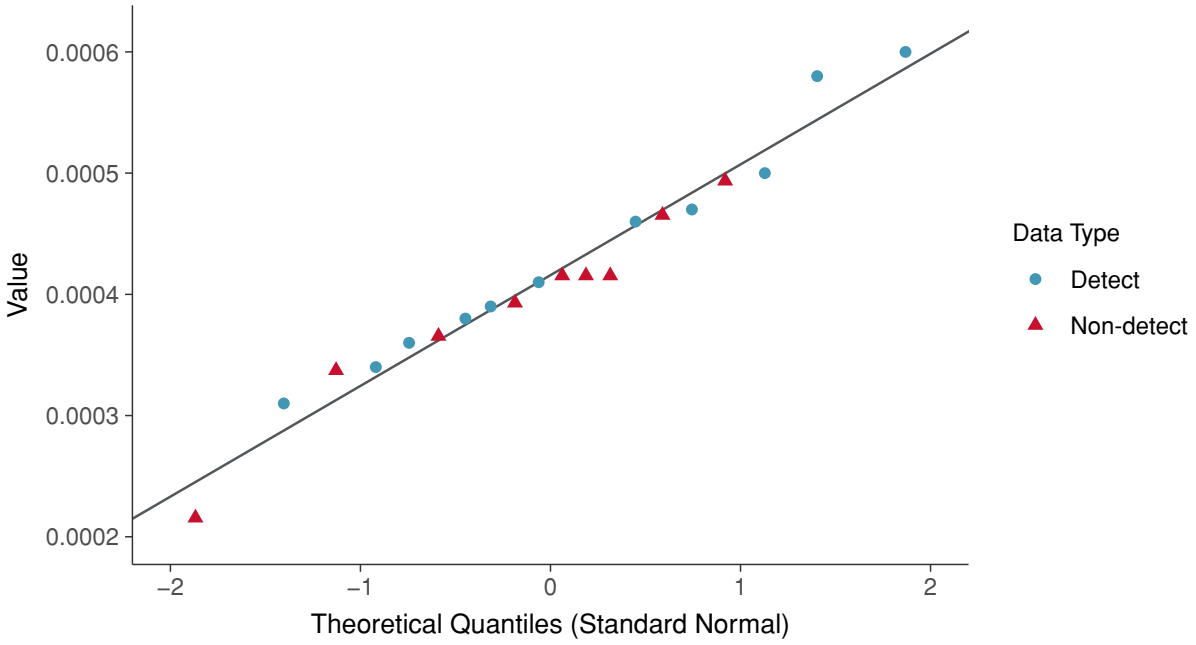
Boxplot by Season

Cadmium, W-1 (mg/l)



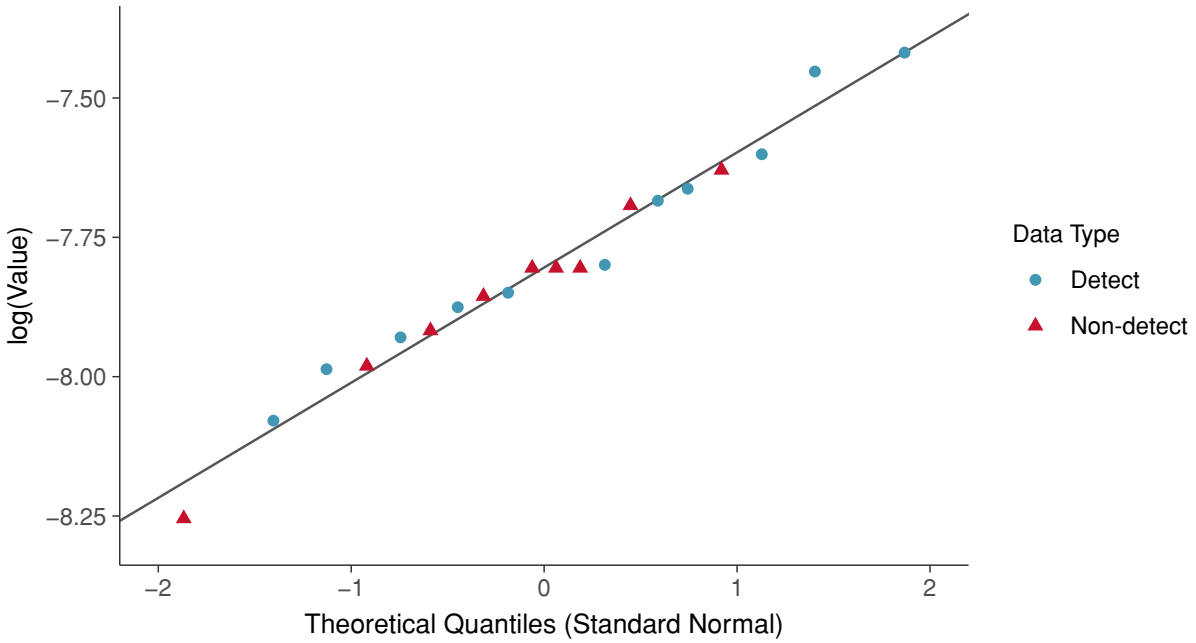
Normal Q-Q plot using ROS Imputed Estimates

Cadmium, W-1 (mg/l)



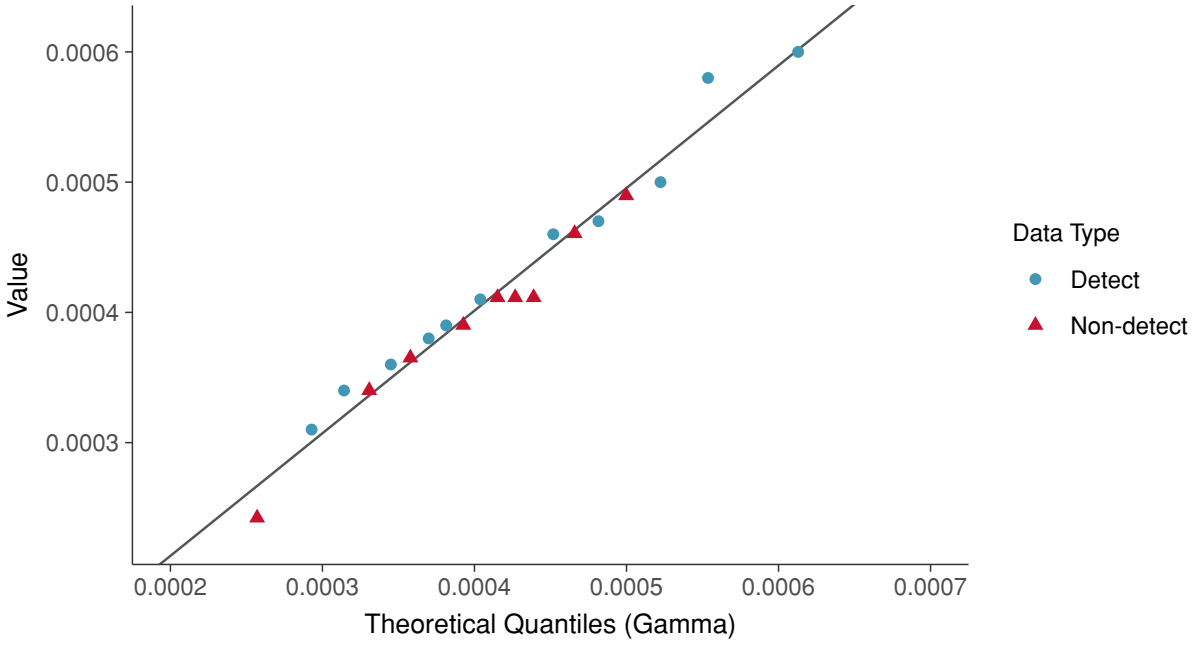
Lognormal Q-Q plot using ROS Imputed Estimates

Cadmium, W-1 (mg/l)



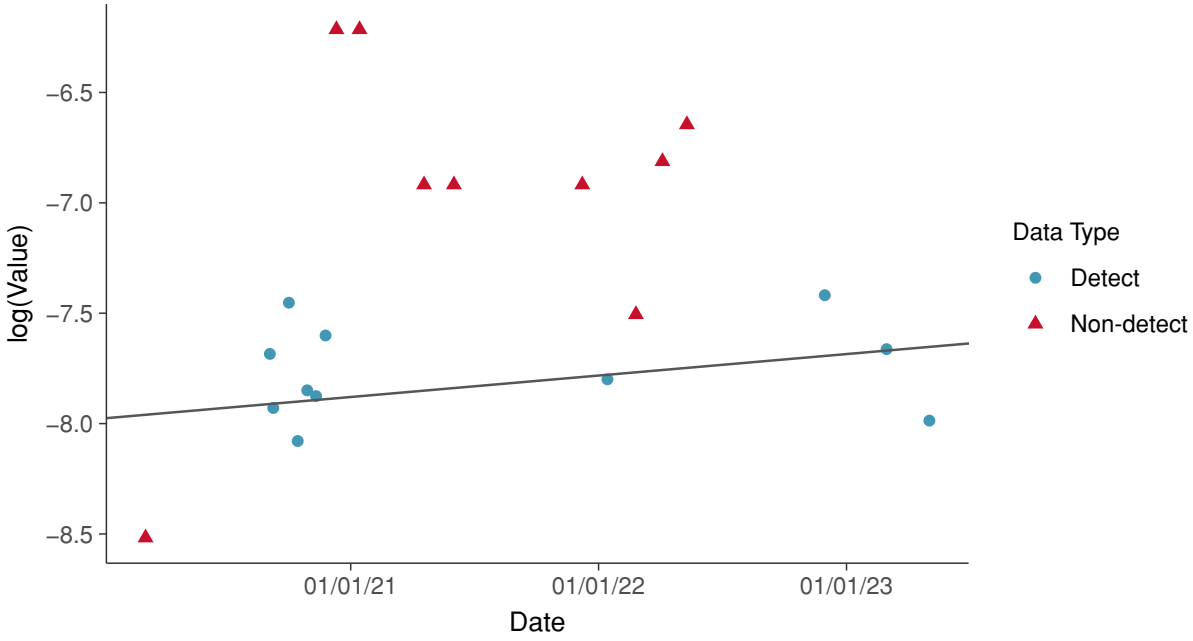
Gamma Q-Q plot using ROS Imputed Estimates

Cadmium, W-1 (mg/l)



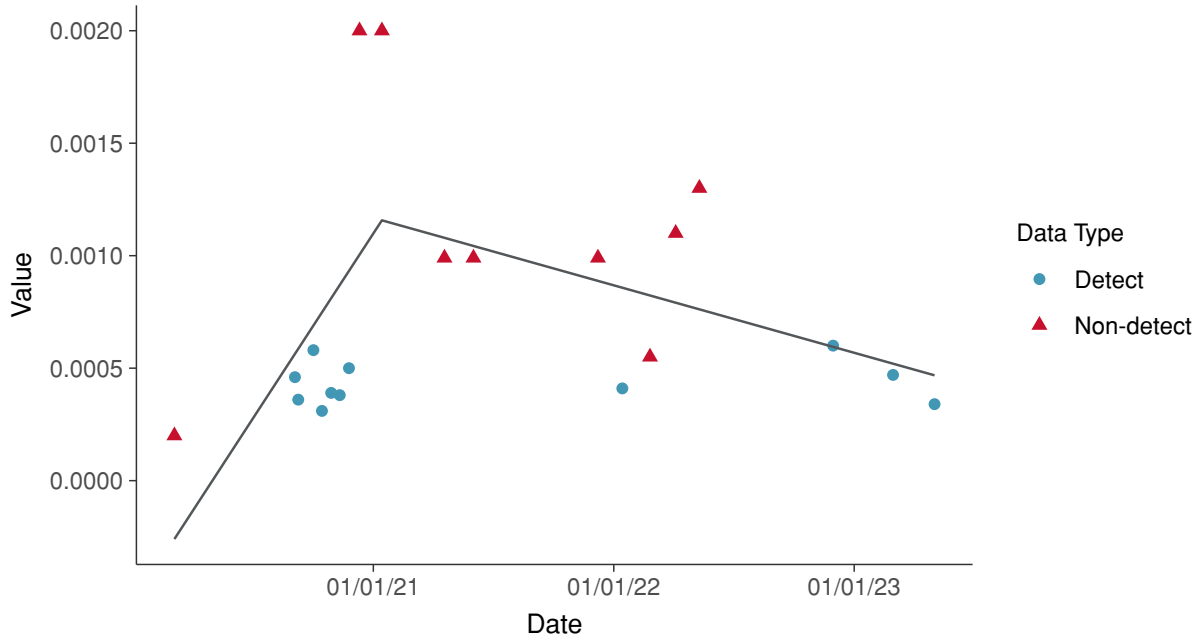
Trend Regression: Lognormal MLE

Cadmium, W-1 (mg/l)



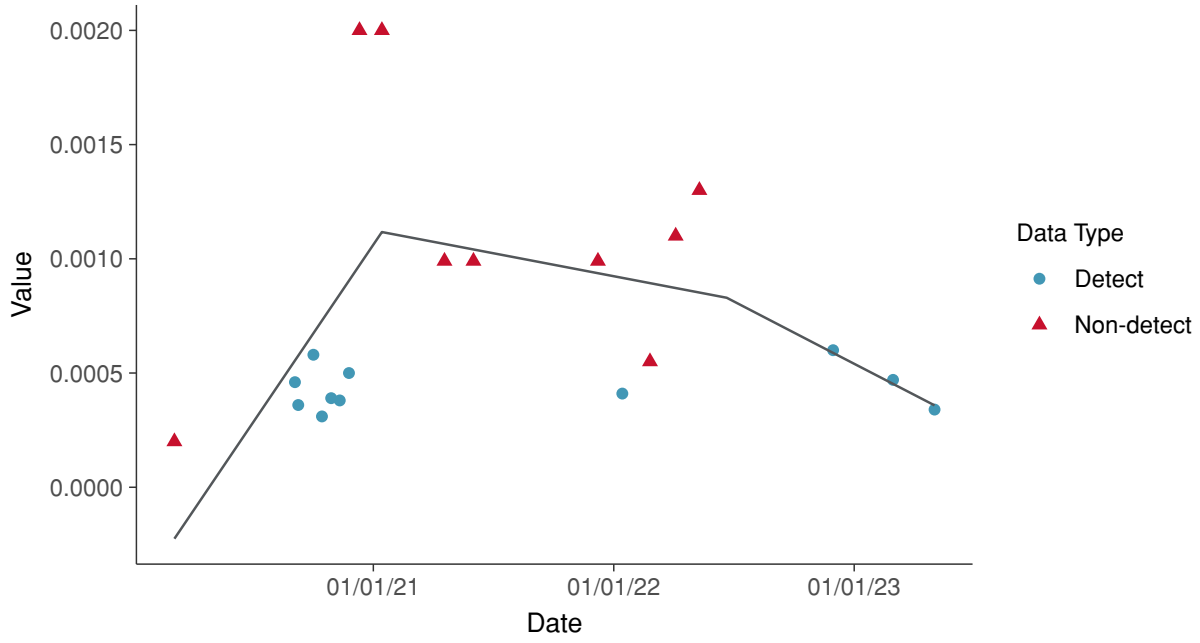
Trend Regression: Piecewise Linear-Linear

Cadmium, W-1 (mg/l)



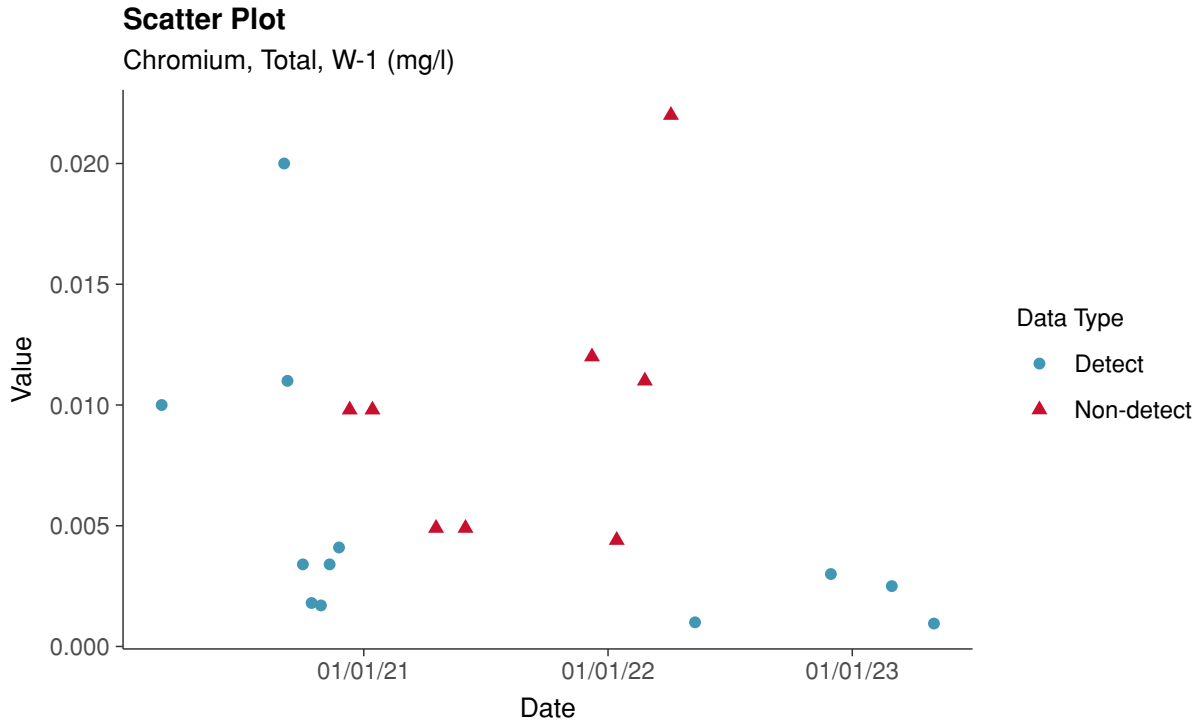
Trend Regression: Piecewise Linear-Linear-Linear

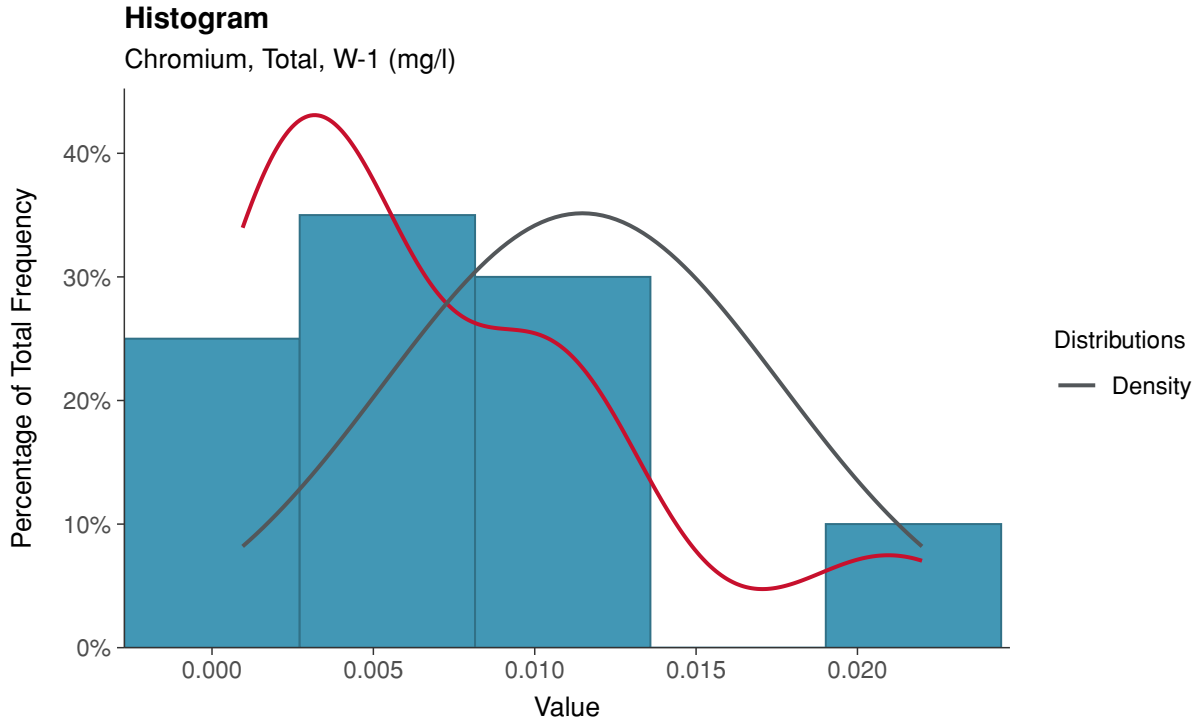
Cadmium, W-1 (mg/l)



Appendix IV: Chromium, Total, W-1

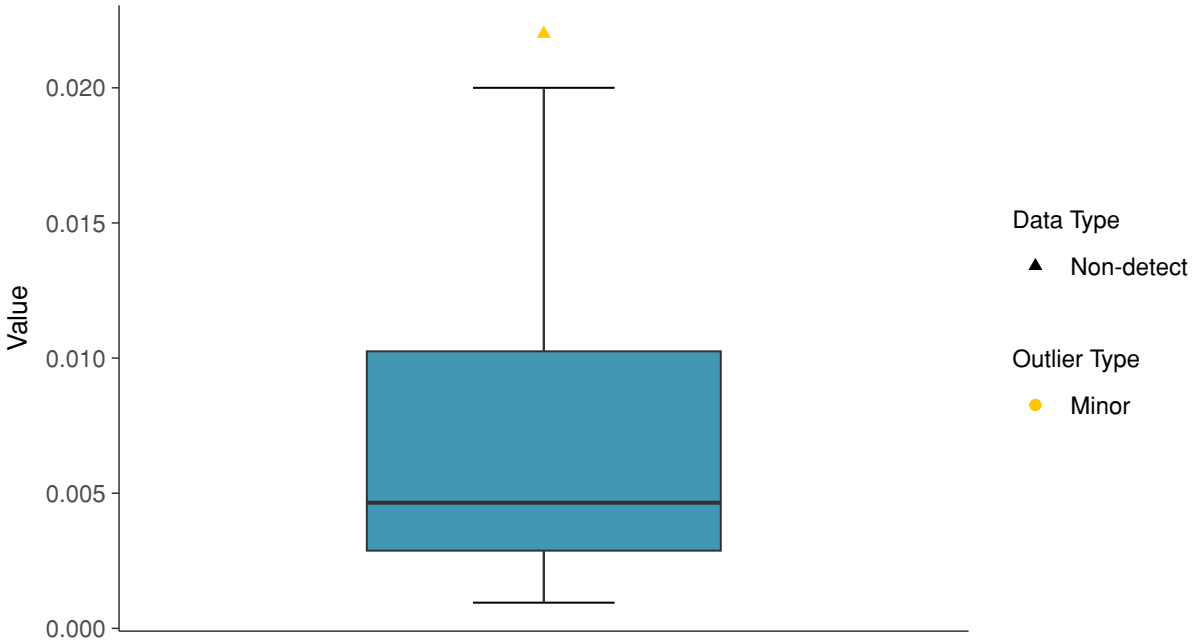
ID: 1_2_109





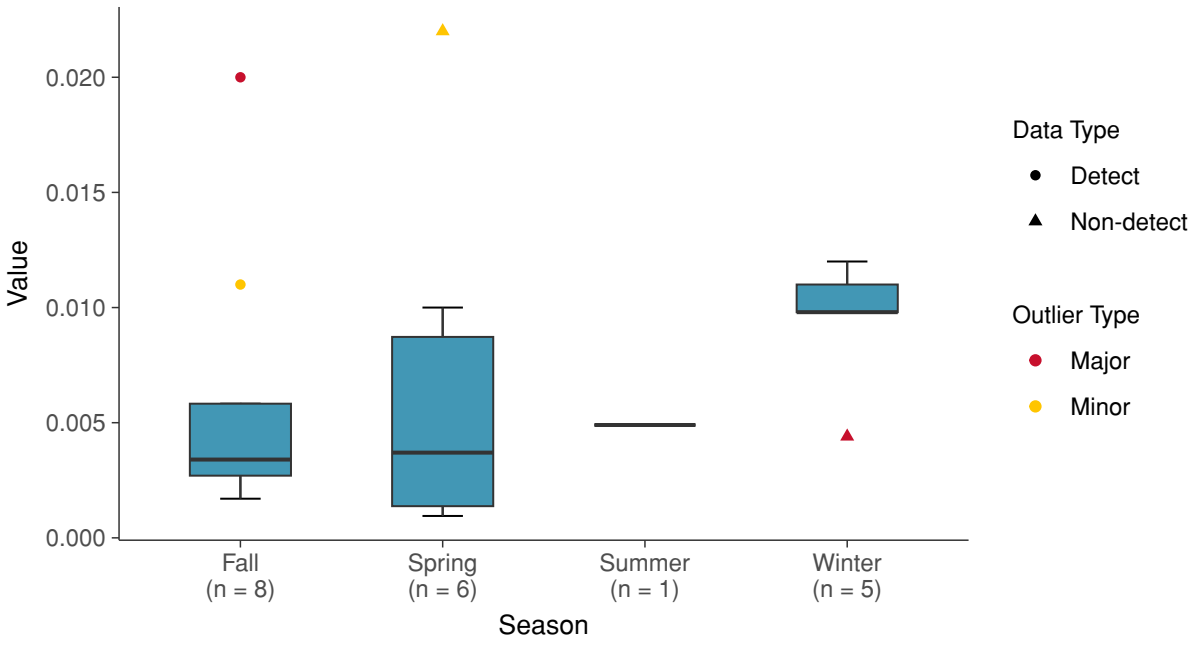
Boxplot

Chromium, Total, W-1 (mg/l)



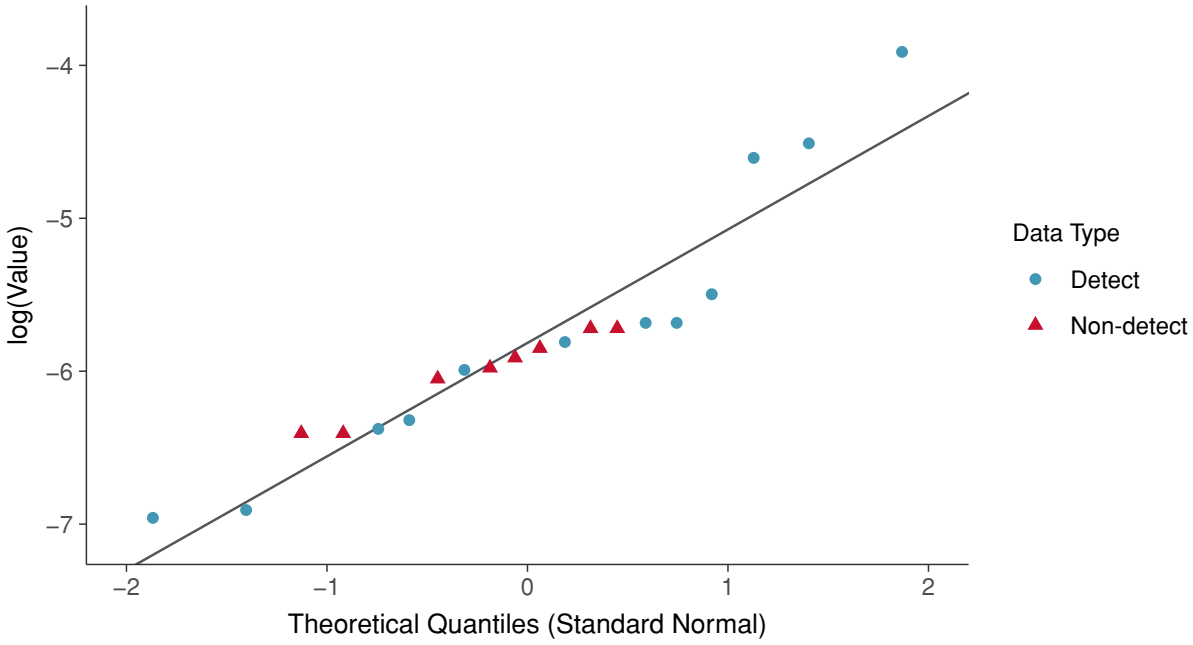
Boxplot by Season

Chromium, Total, W-1 (mg/l)



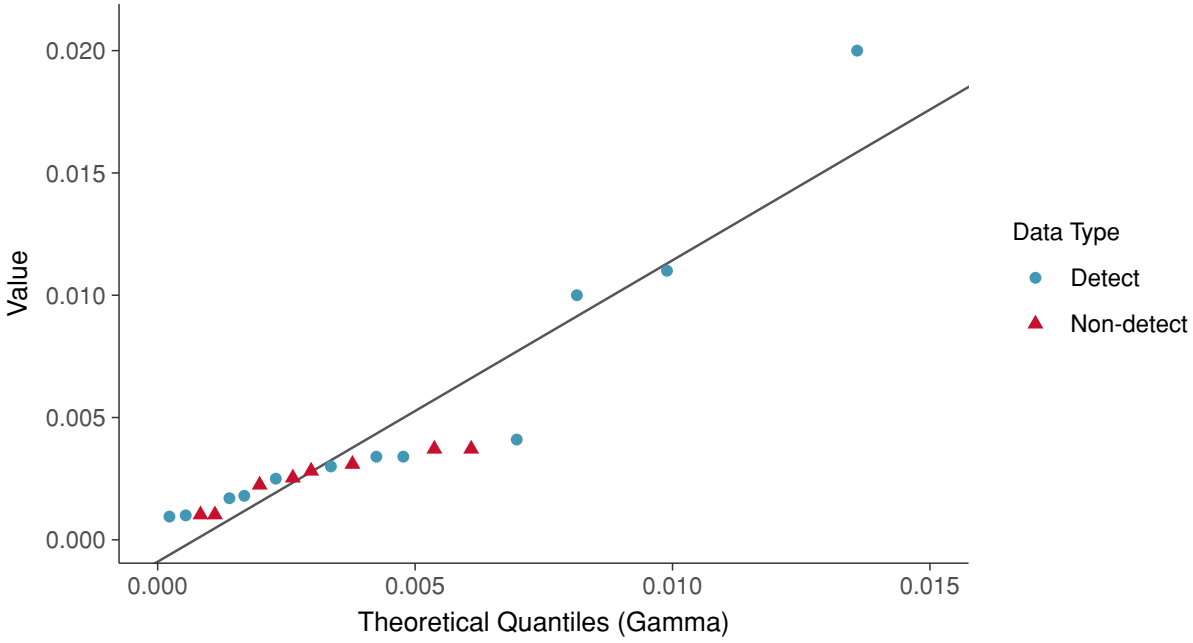
Lognormal Q-Q plot using ROS Imputed Estimates

Chromium, Total, W-1 (mg/l)



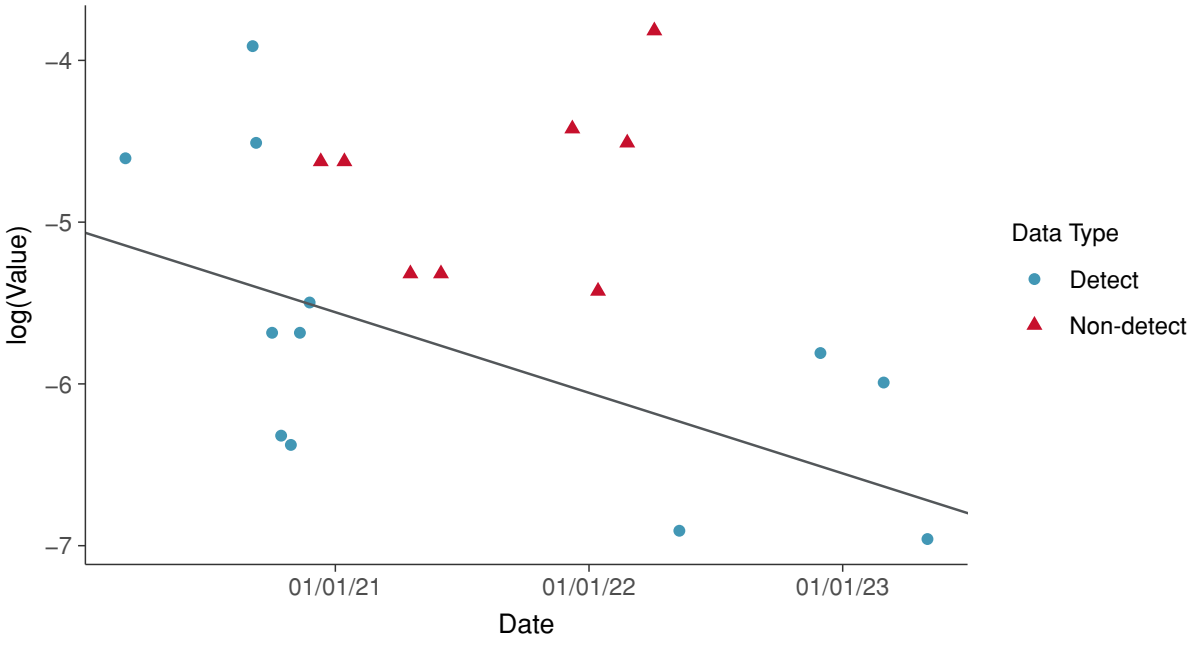
Gamma Q-Q plot using ROS Imputed Estimates

Chromium, Total, W-1 (mg/l)



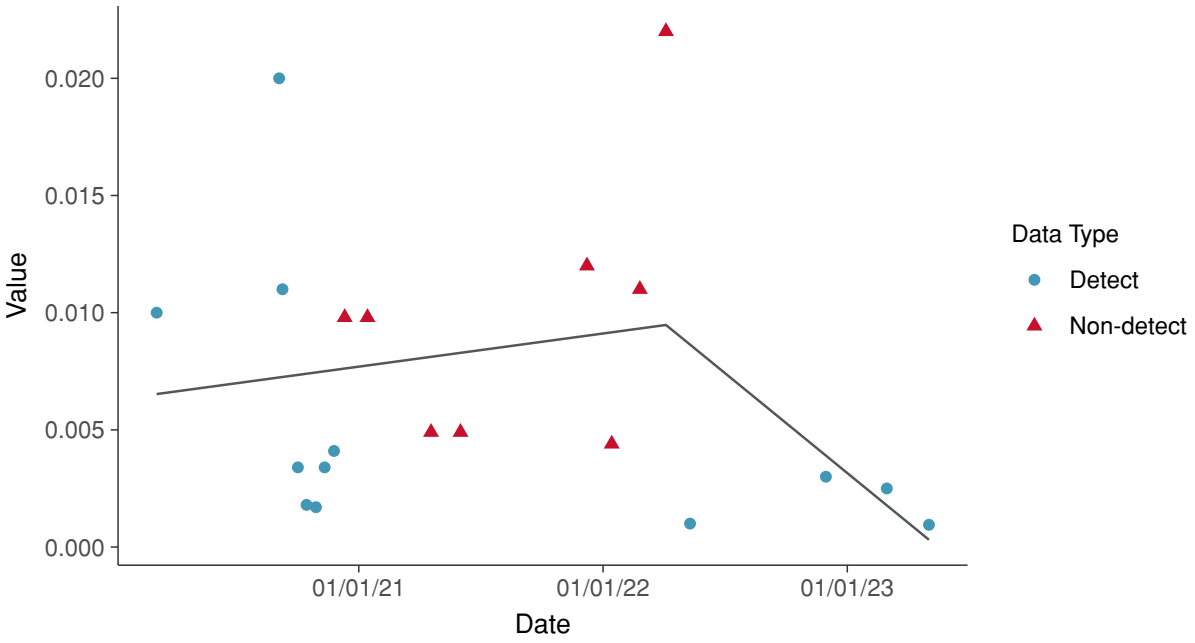
Trend Regression: Lognormal MLE

Chromium, Total, W-1 (mg/l)



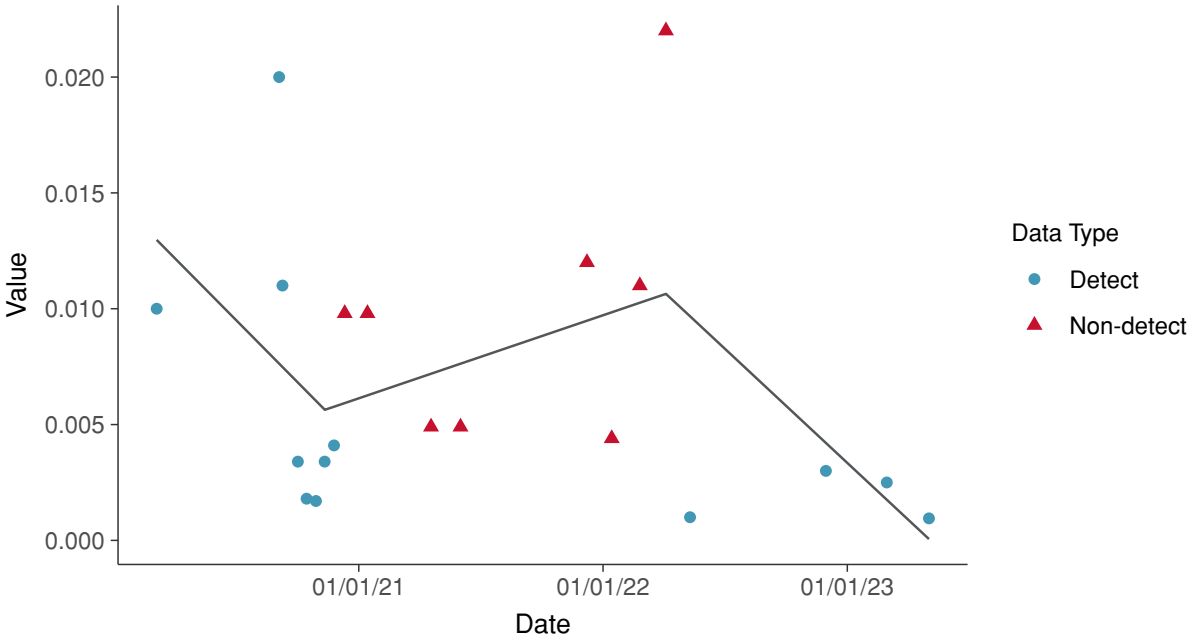
Trend Regression: Piecewise Linear-Linear

Chromium, Total, W-1 (mg/l)



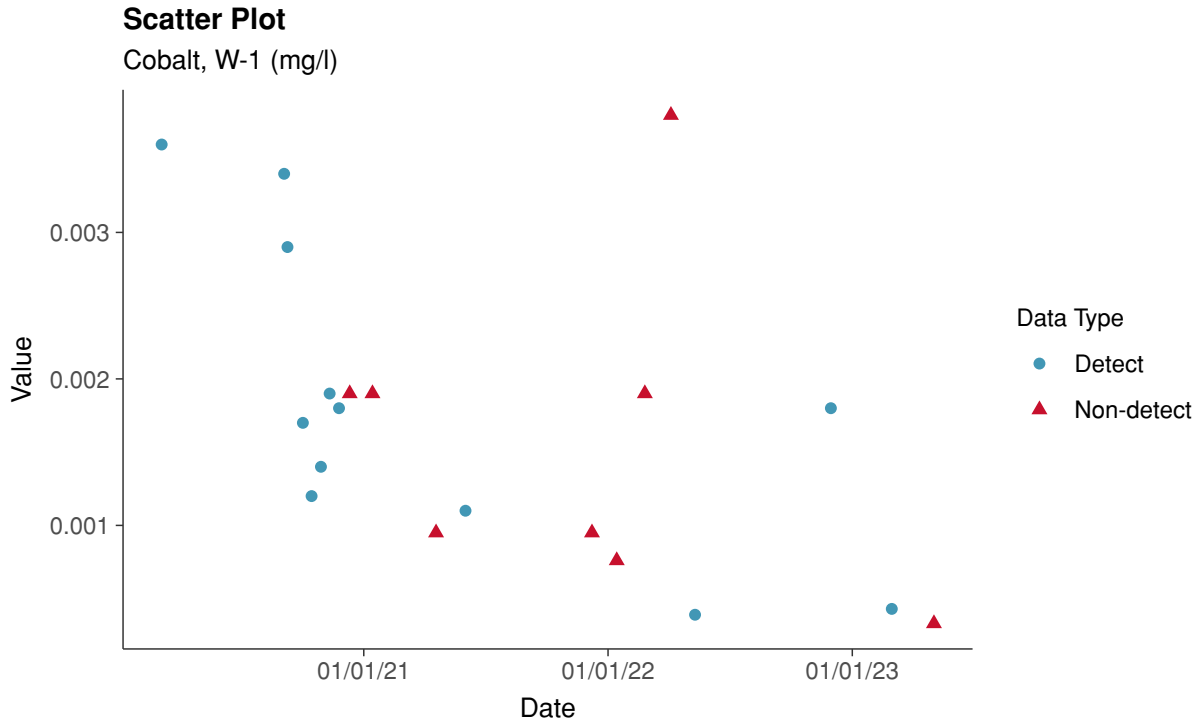
Trend Regression: Piecewise Linear-Linear-Linear

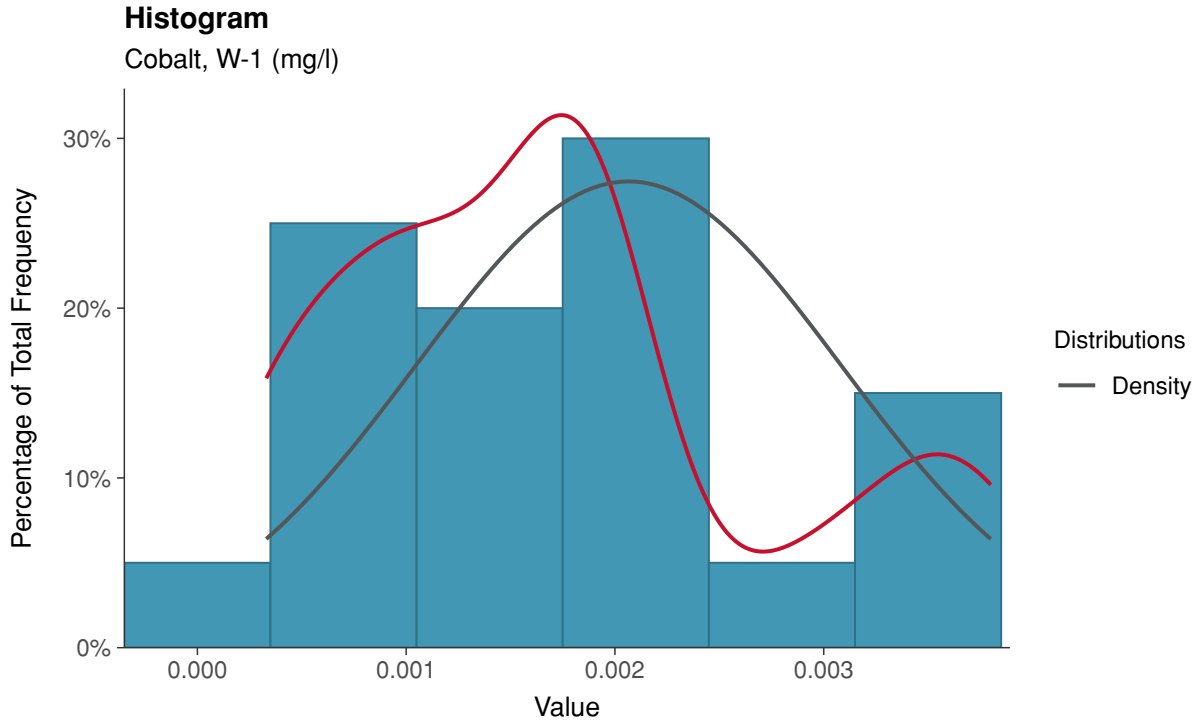
Chromium, Total, W-1 (mg/l)



Appendix IV: Cobalt, W-1

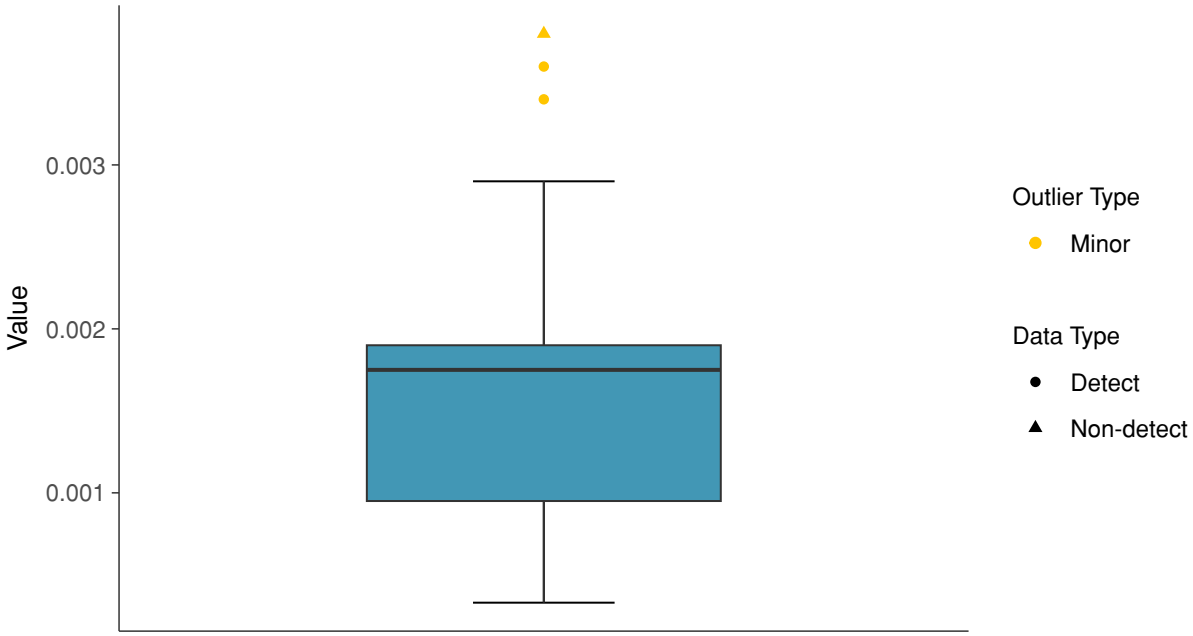
ID: 1_2_110





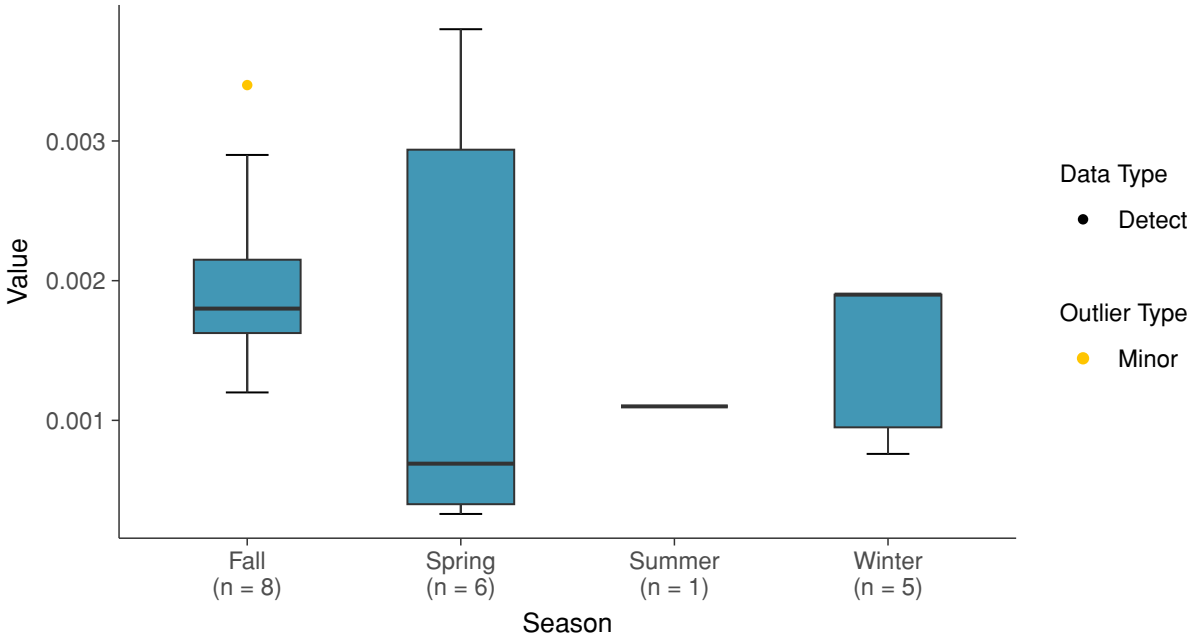
Boxplot

Cobalt, W-1 (mg/l)



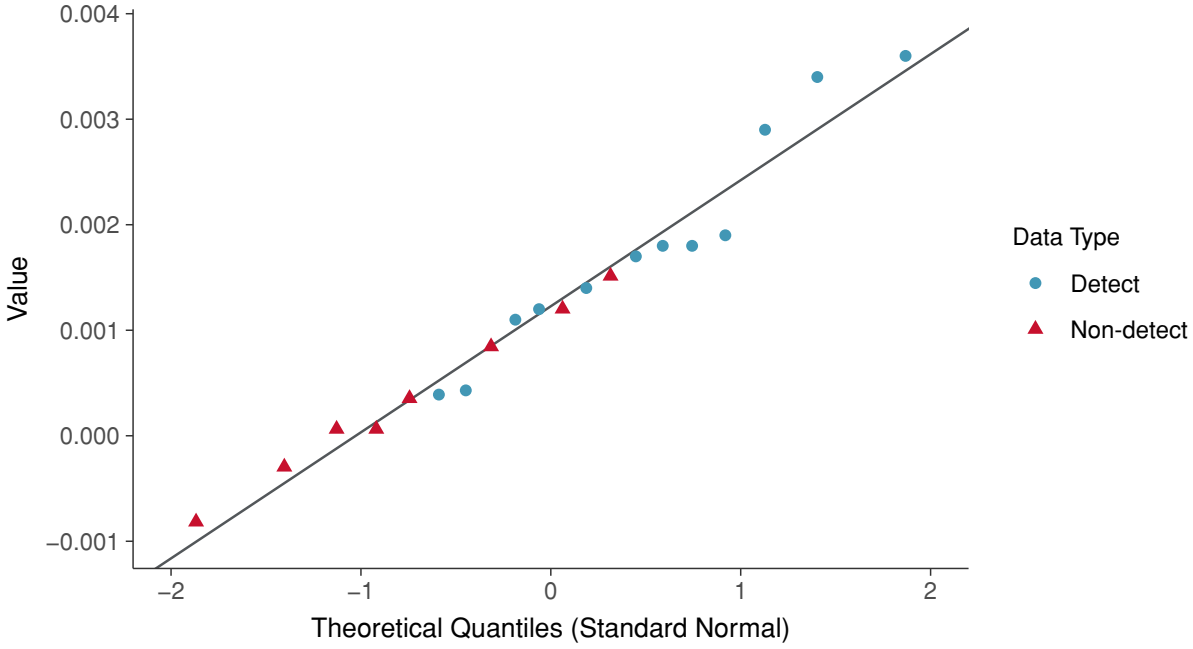
Boxplot by Season

Cobalt, W-1 (mg/l)



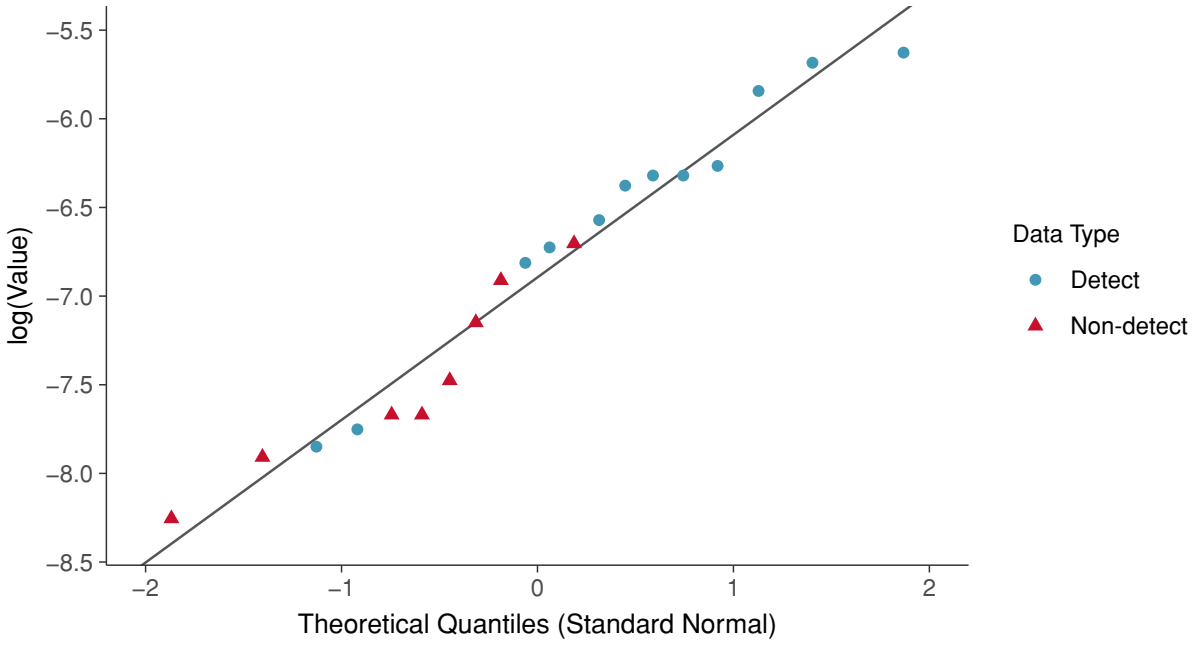
Normal Q-Q plot using ROS Imputed Estimates

Cobalt, W-1 (mg/l)



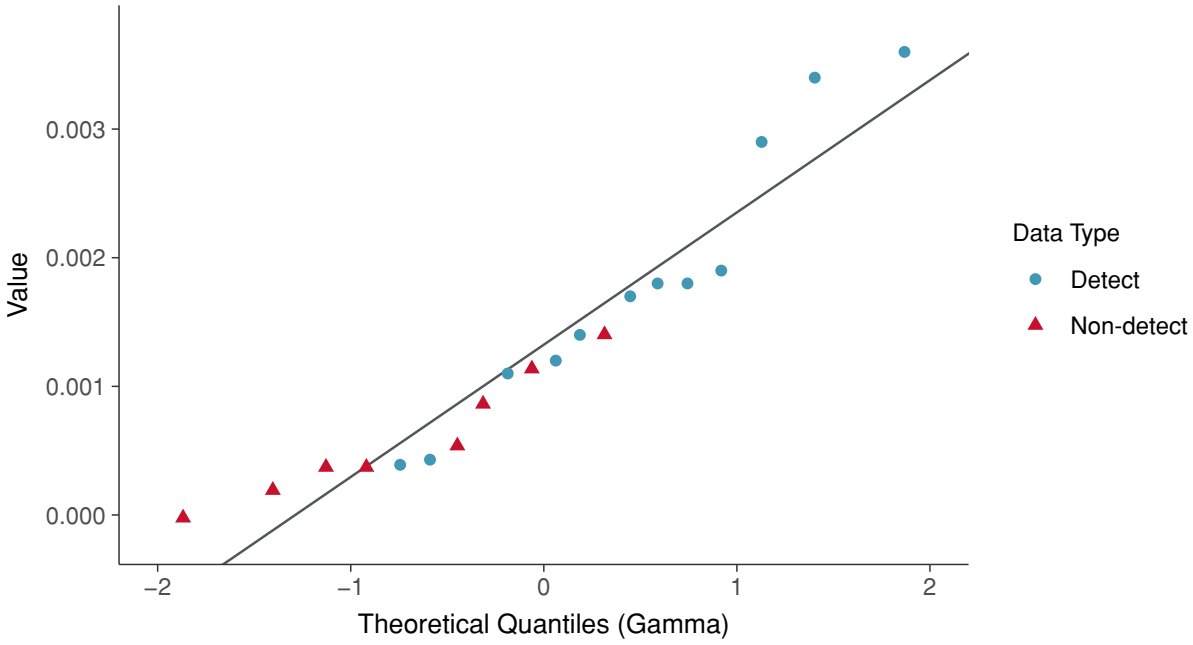
Lognormal Q-Q plot using ROS Imputed Estimates

Cobalt, W-1 (mg/l)



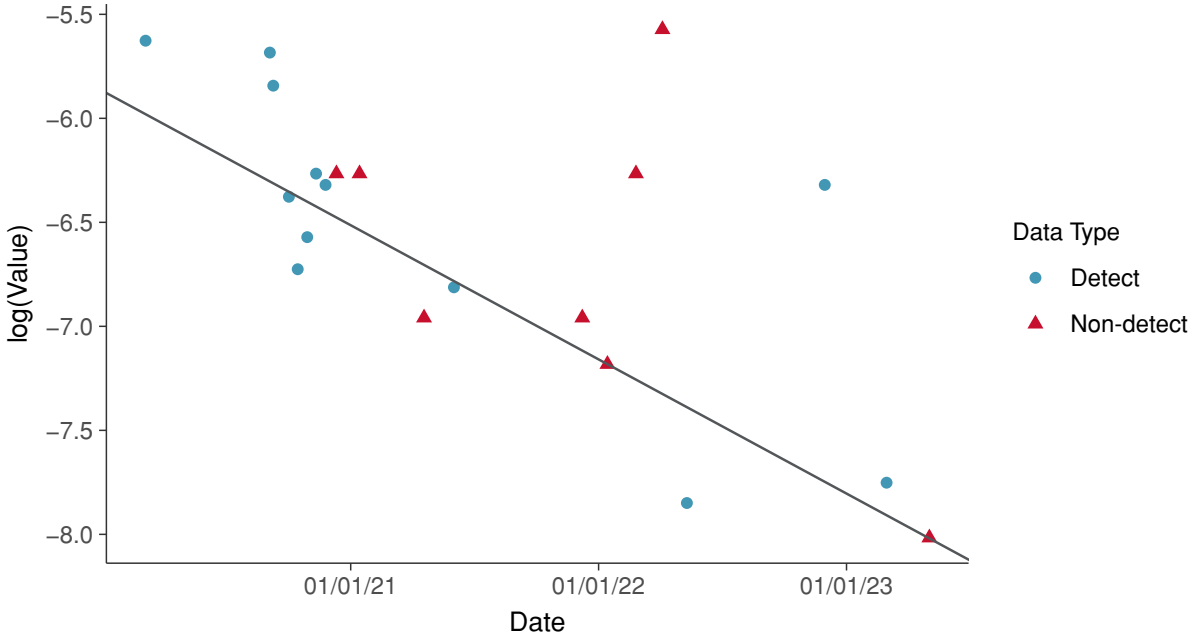
Gamma Q-Q plot using ROS Imputed Estimates

Cobalt, W-1 (mg/l)



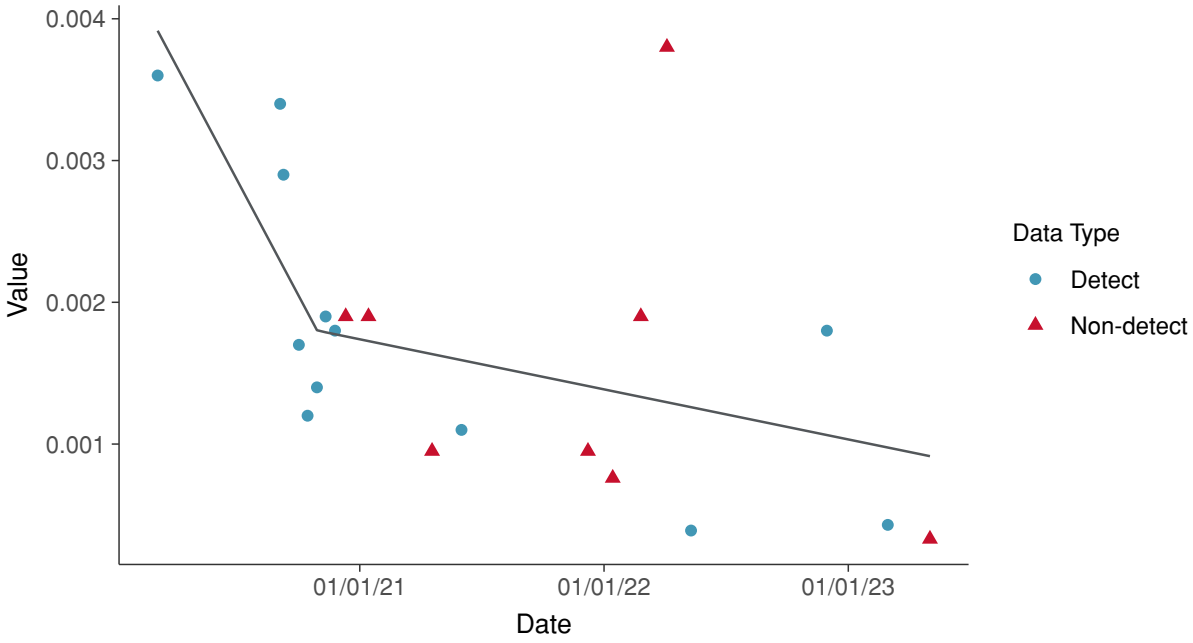
Trend Regression: Lognormal MLE

Cobalt, W-1 (mg/l)



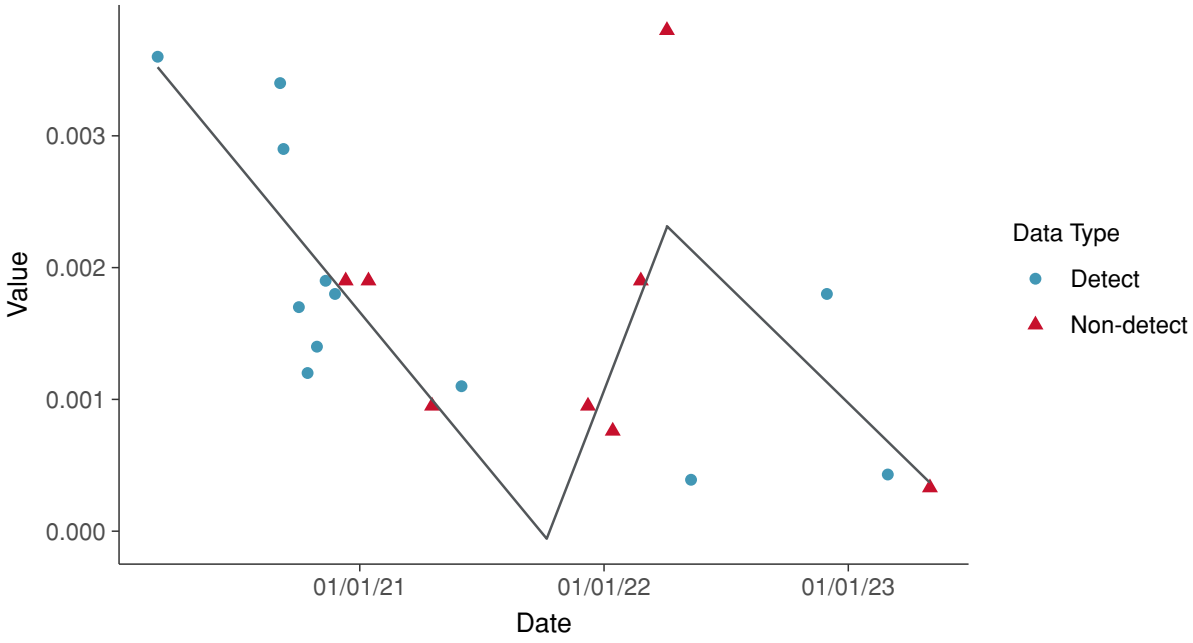
Trend Regression: Piecewise Linear-Linear

Cobalt, W-1 (mg/l)



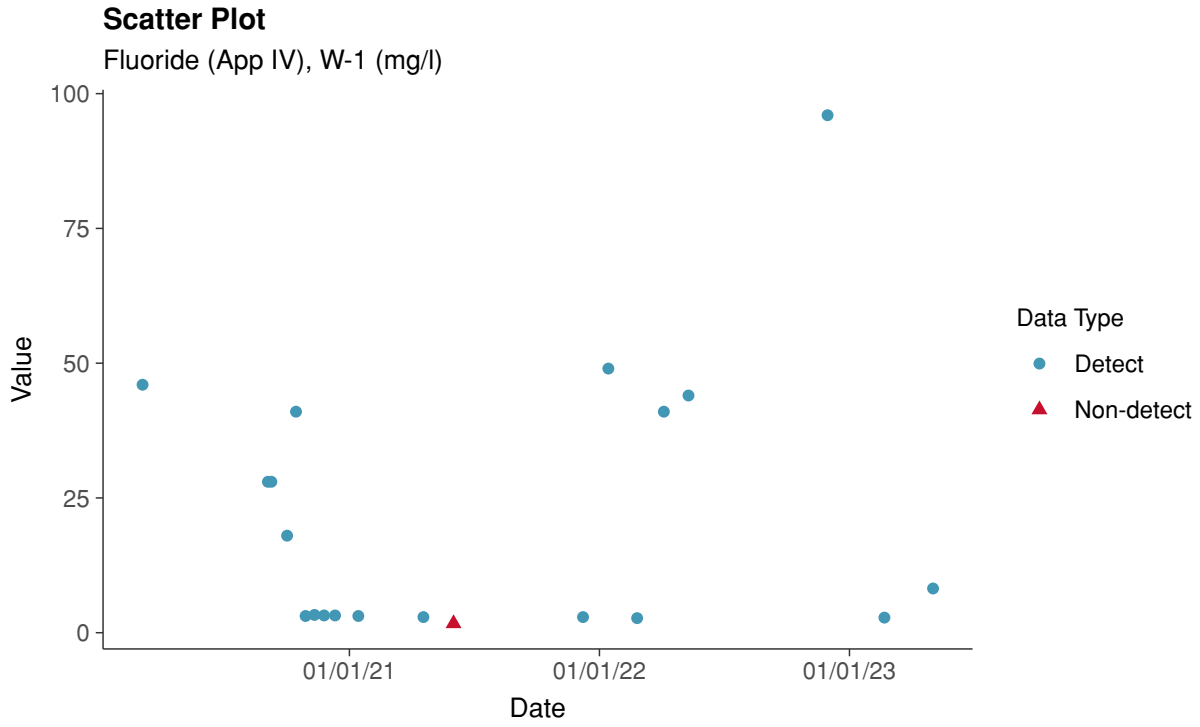
Trend Regression: Piecewise Linear-Linear-Linear

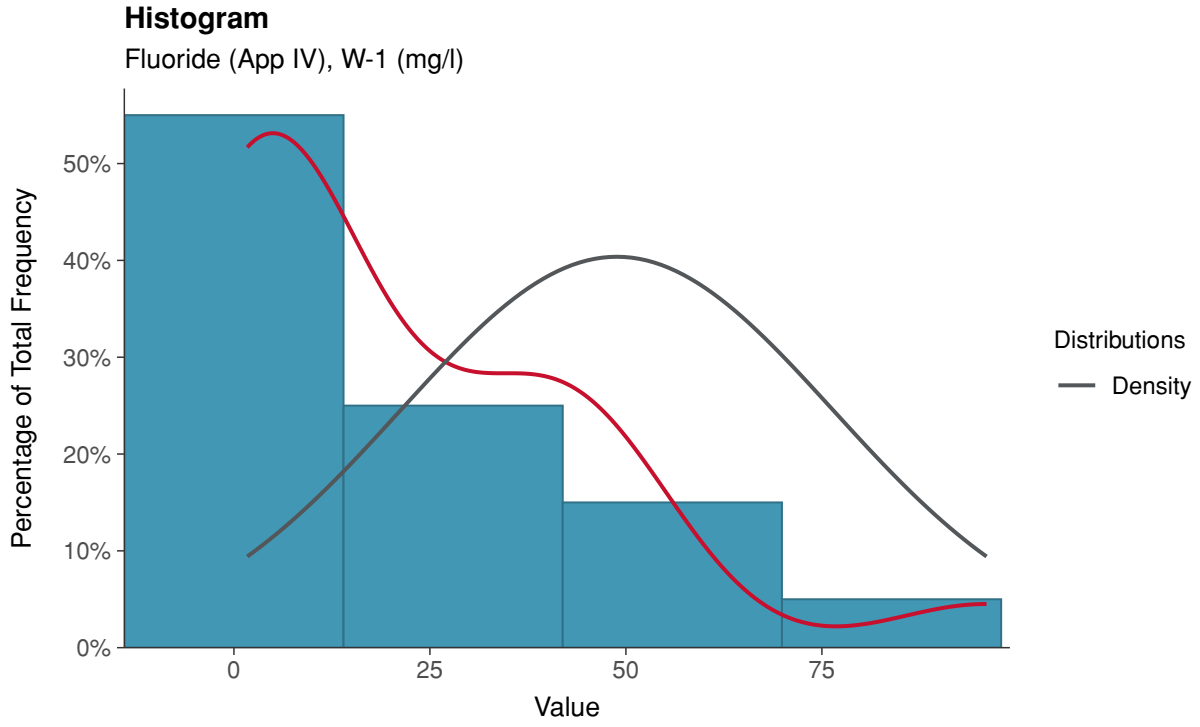
Cobalt, W-1 (mg/l)



Appendix IV: Fluoride (App IV), W-1

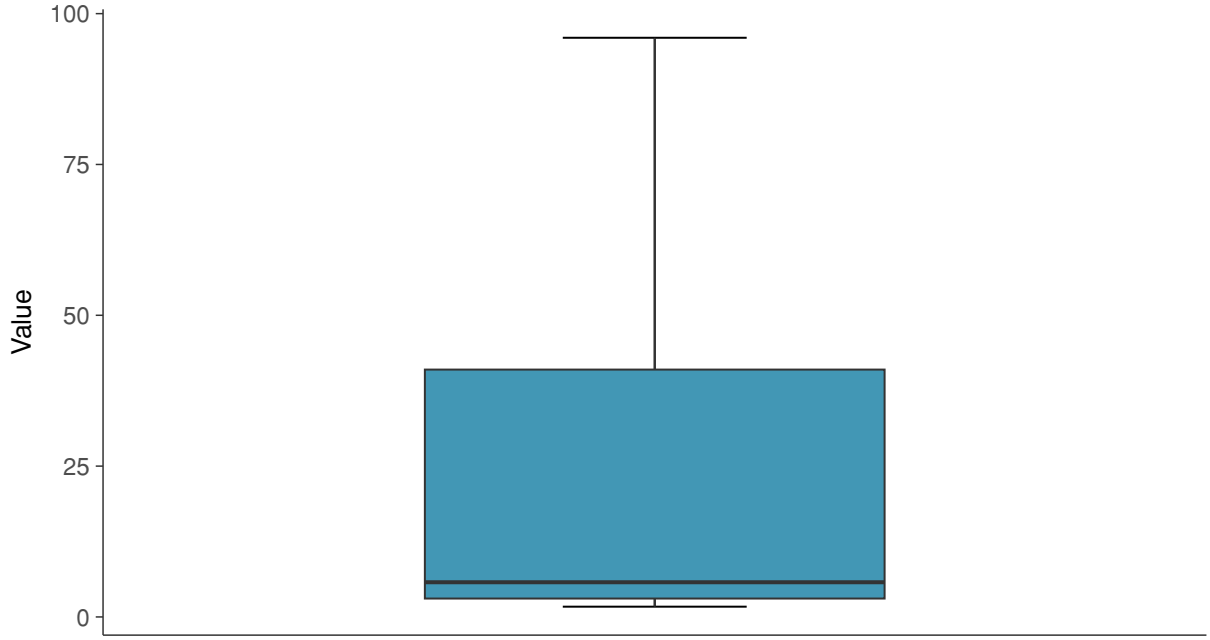
ID: 1_2_112





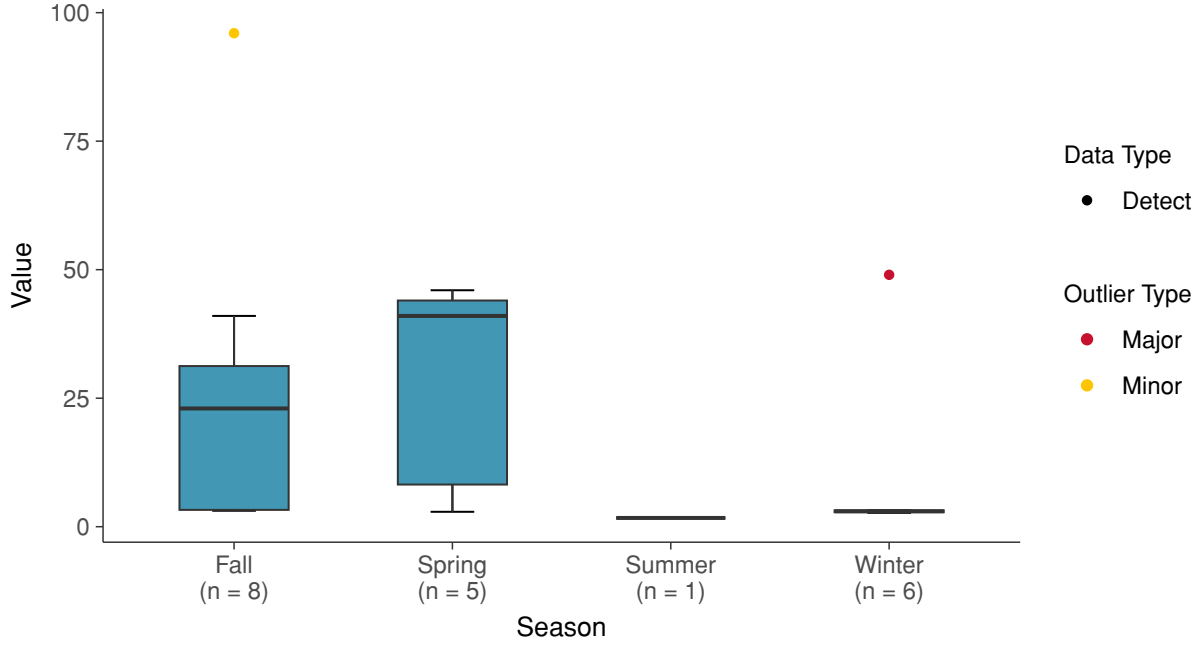
Boxplot

Fluoride (App IV), W-1 (mg/l)



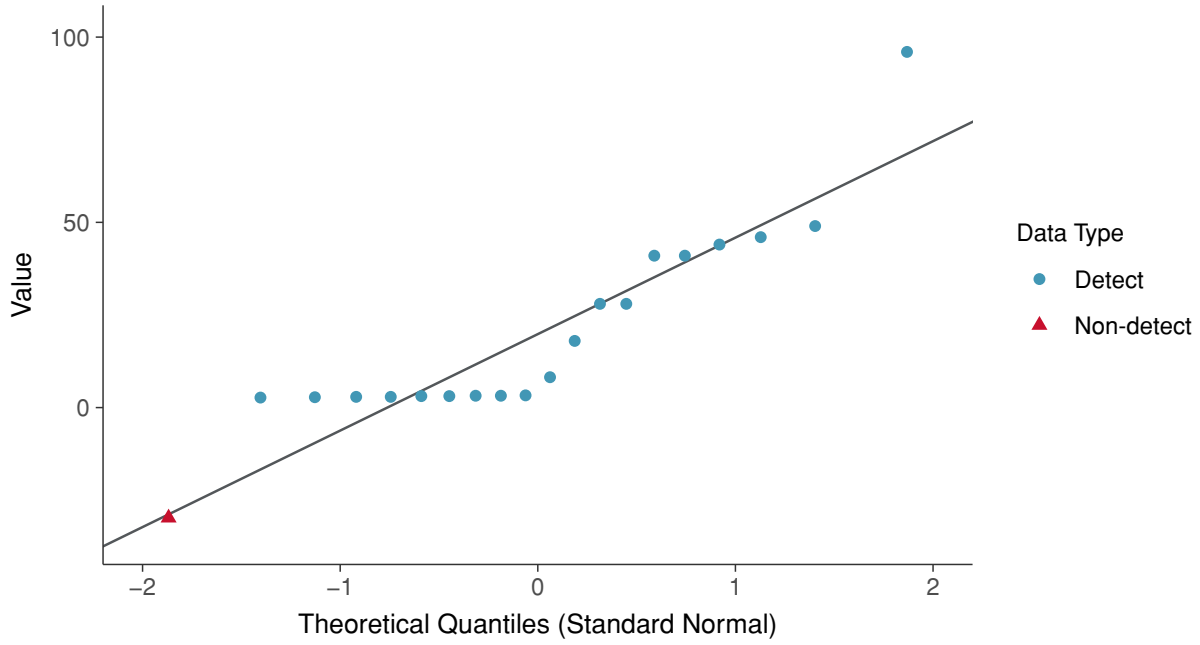
Boxplot by Season

Fluoride (App IV), W-1 (mg/l)



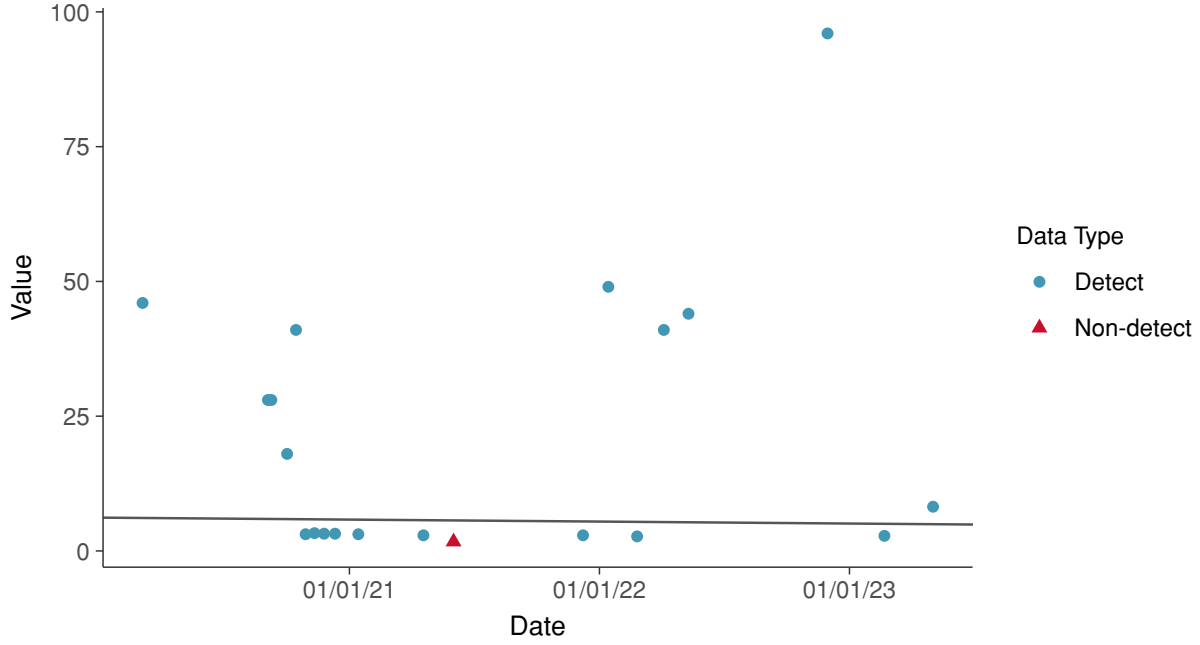
Normal Q-Q plot using ROS Imputed Estimates

Fluoride (App IV), W-1 (mg/l)



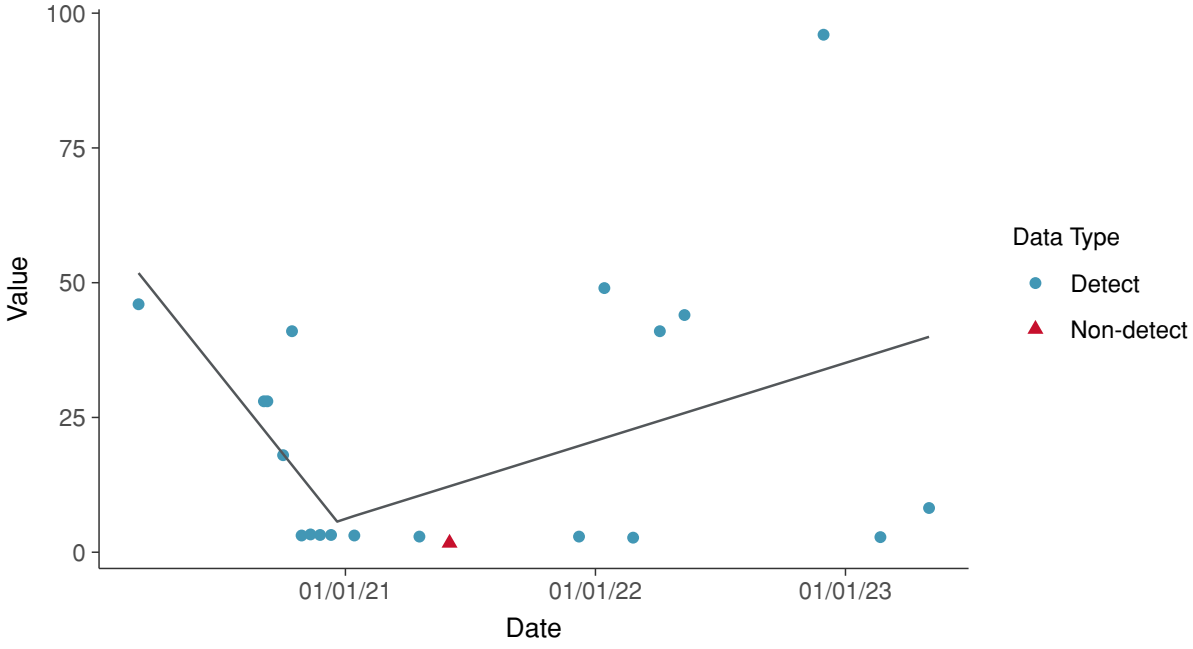
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Fluoride (App IV), W-1 (mg/l)



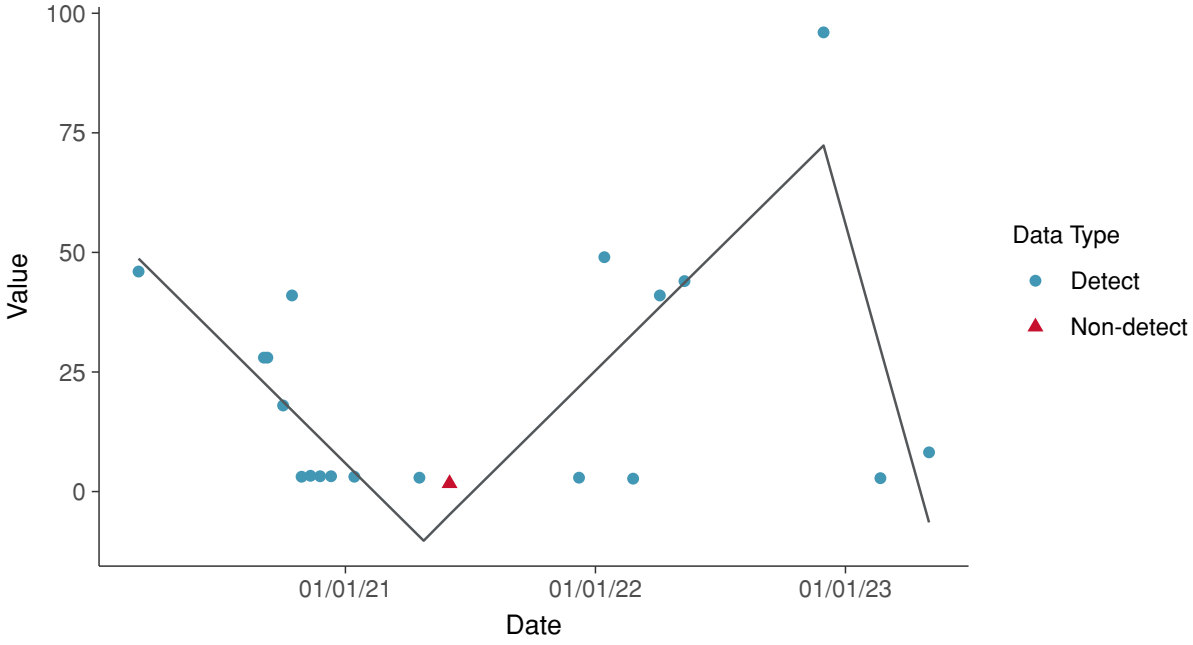
Trend Regression: Piecewise Linear-Linear

Fluoride (App IV), W-1 (mg/l)



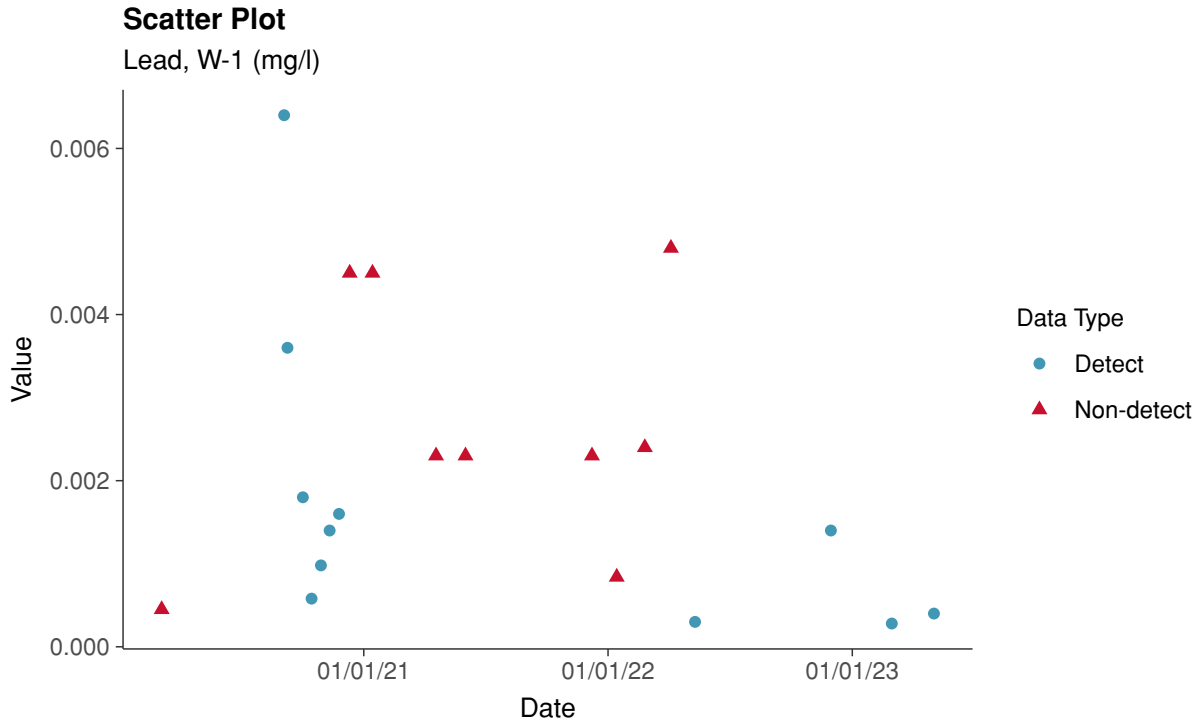
Trend Regression: Piecewise Linear-Linear-Linear

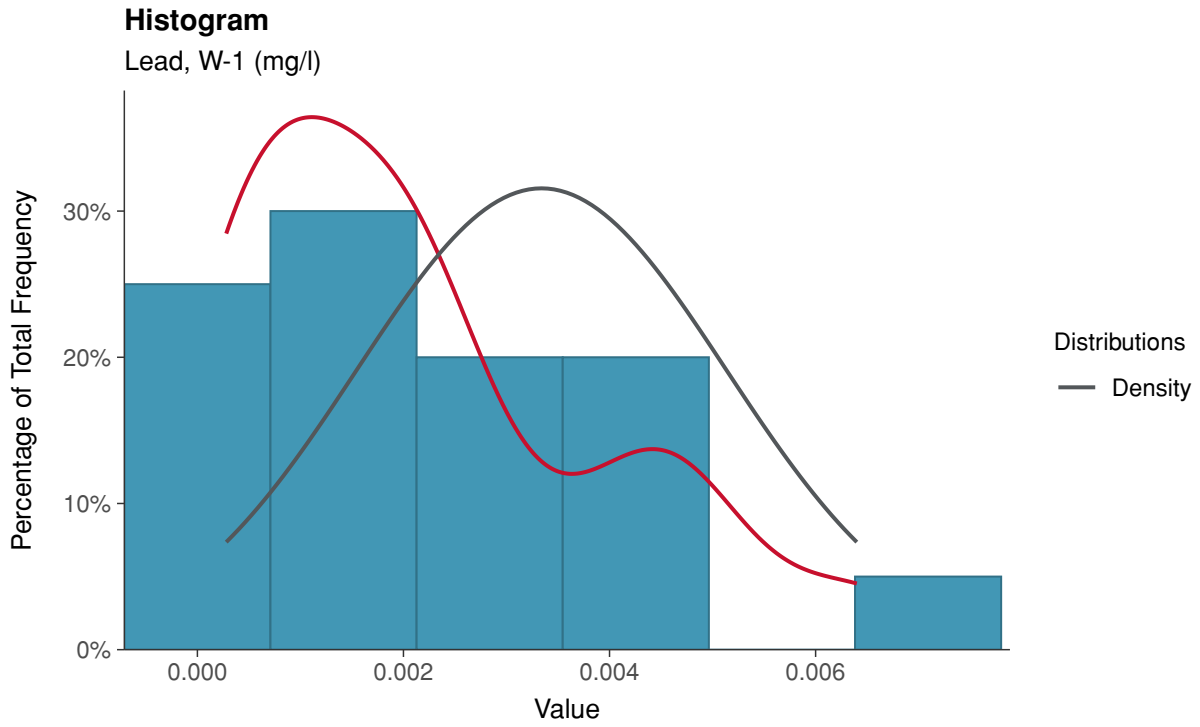
Fluoride (App IV), W-1 (mg/l)



Appendix IV: Lead, W-1

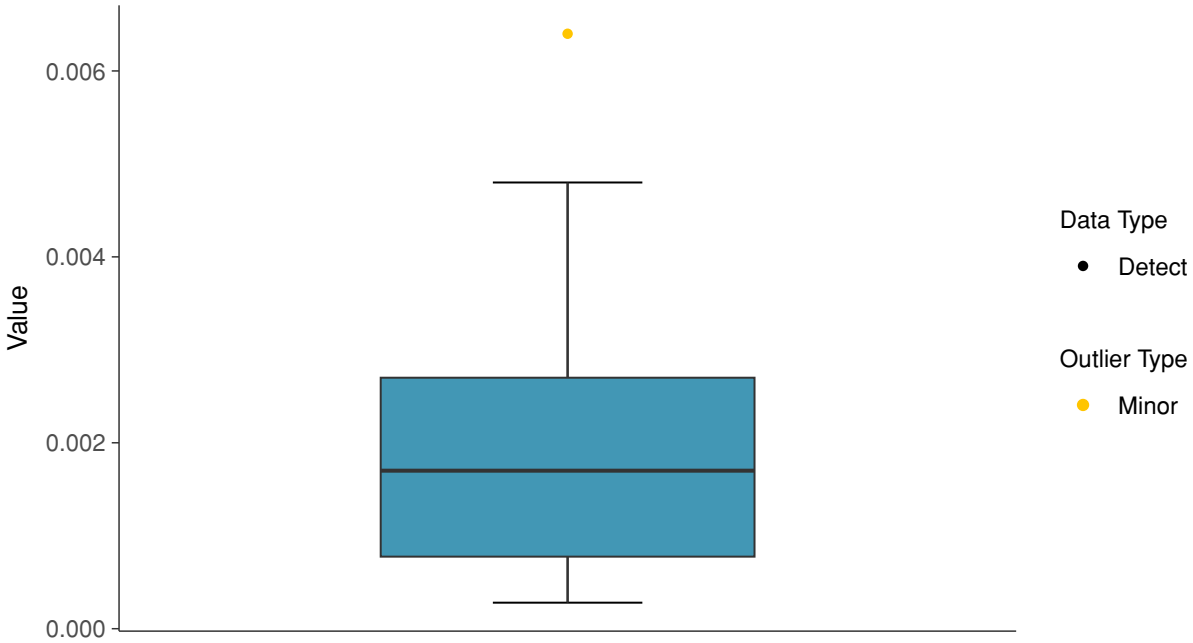
ID: 1_2_113





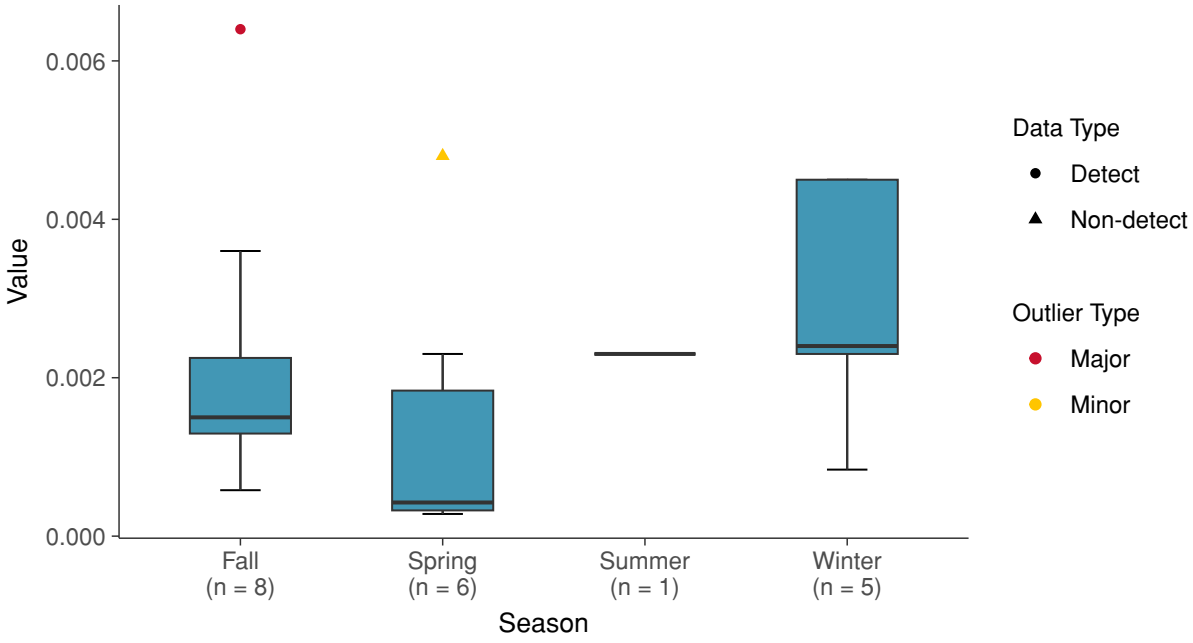
Boxplot

Lead, W-1 (mg/l)



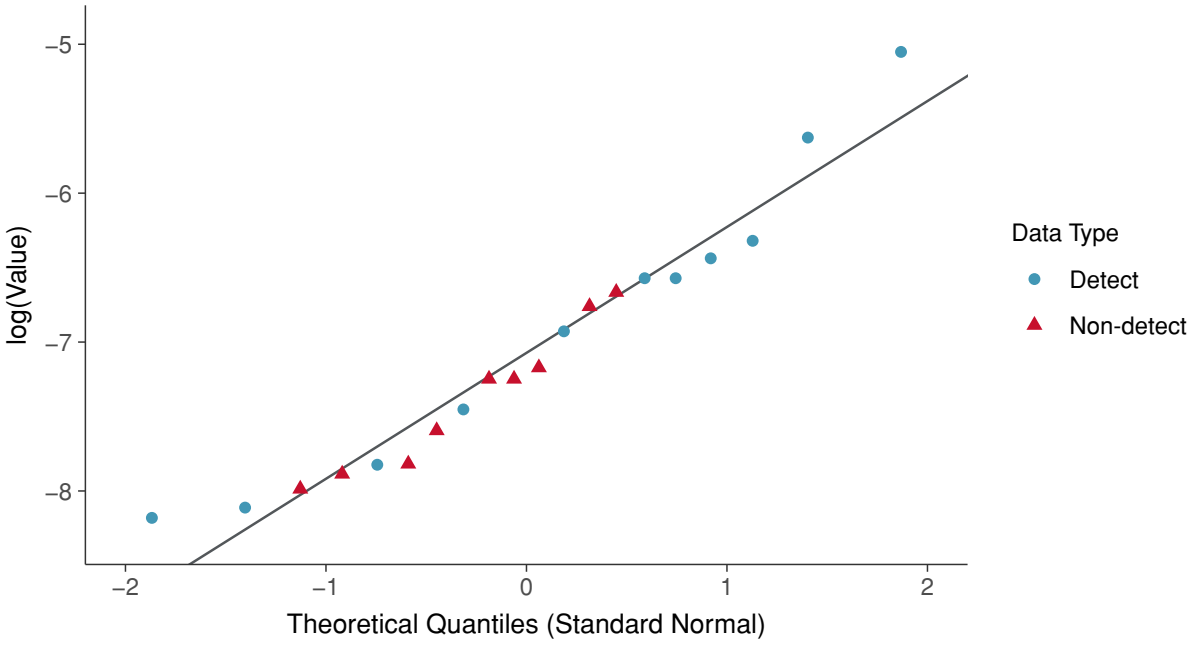
Boxplot by Season

Lead, W-1 (mg/l)



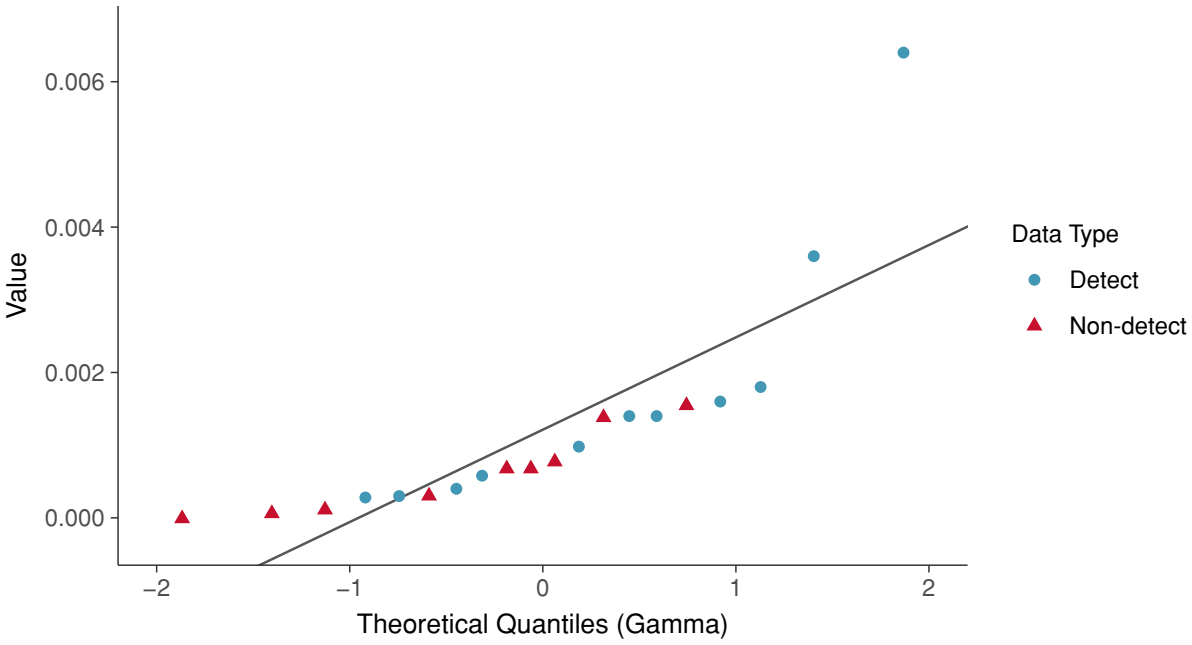
Lognormal Q-Q plot using ROS Imputed Estimates

Lead, W-1 (mg/l)



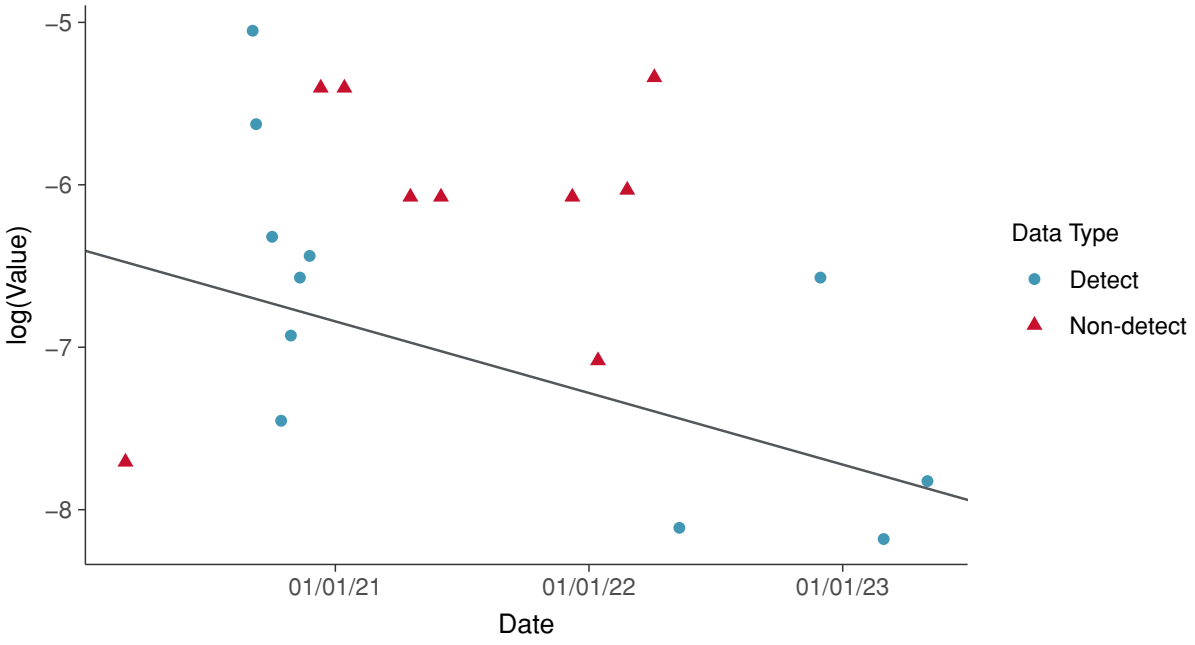
Gamma Q-Q plot using ROS Imputed Estimates

Lead, W-1 (mg/l)



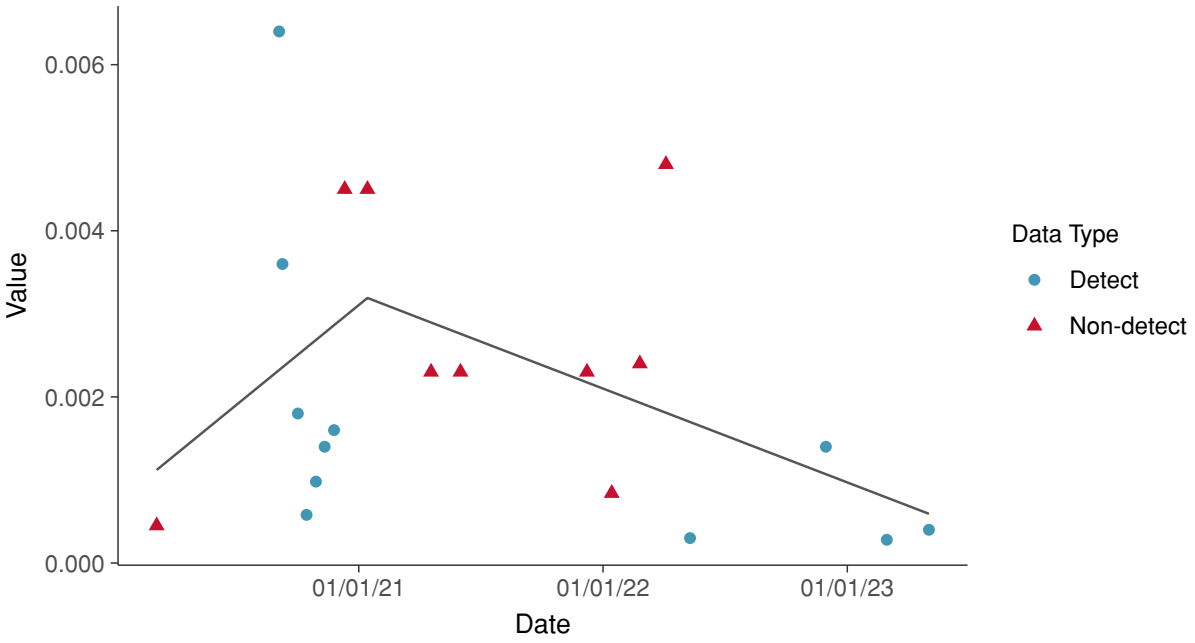
Trend Regression: Lognormal MLE

Lead, W-1 (mg/l)



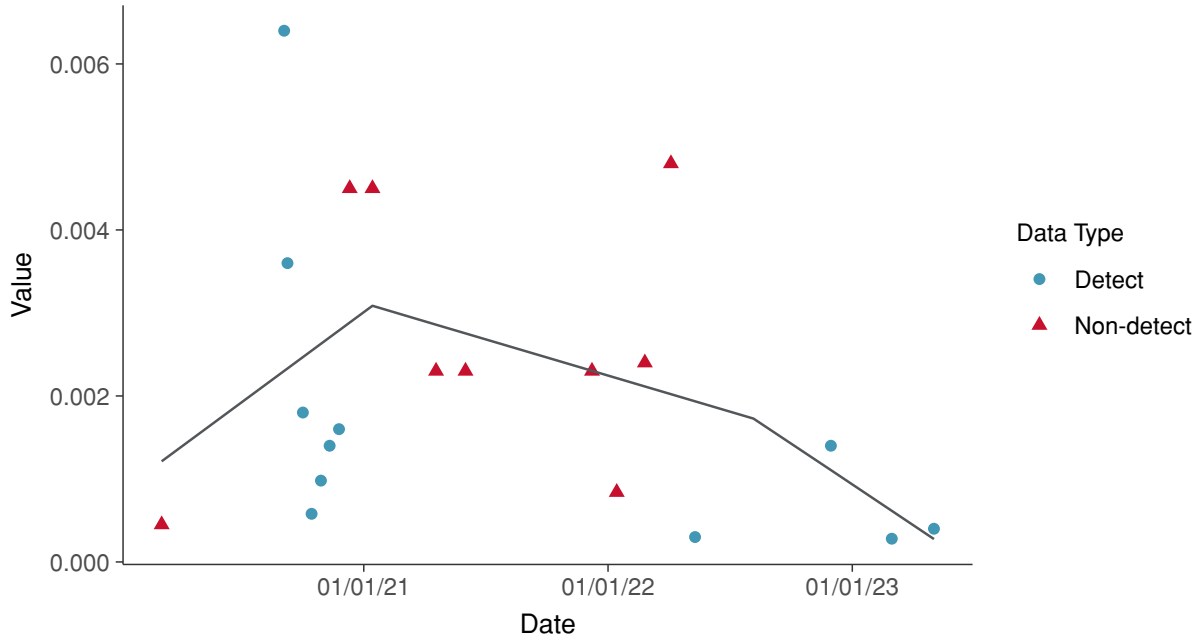
Trend Regression: Piecewise Linear-Linear

Lead, W-1 (mg/l)



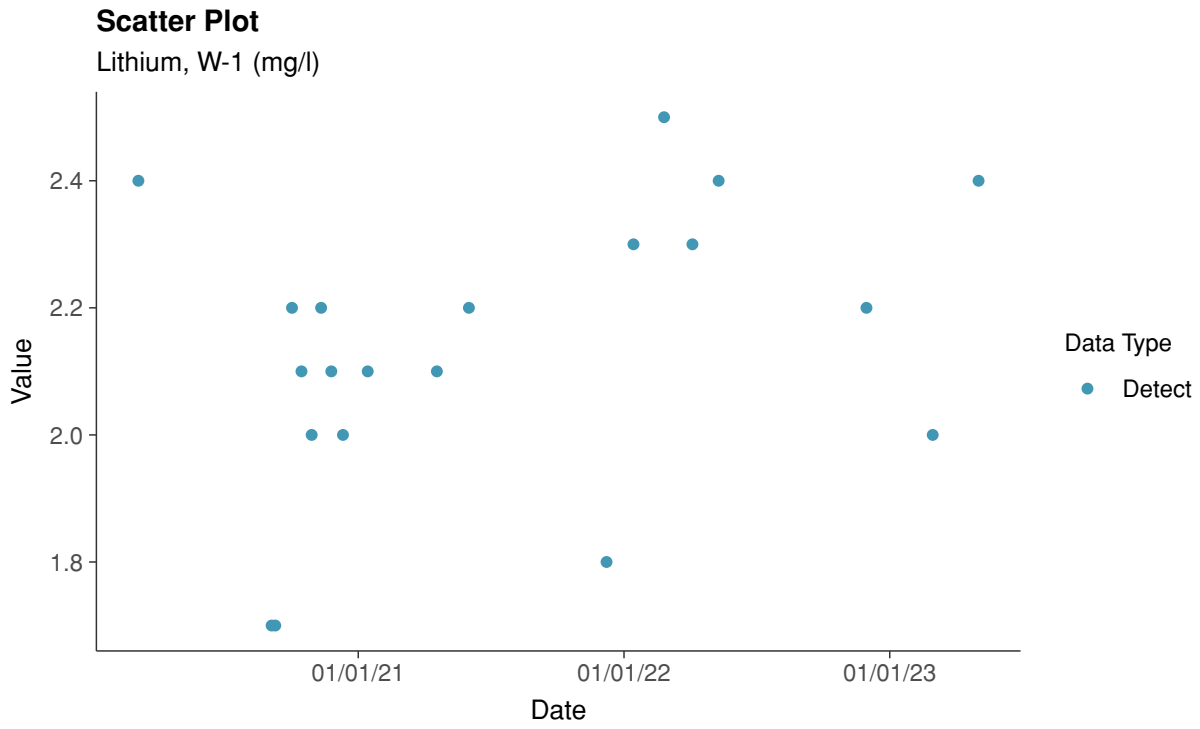
Trend Regression: Piecewise Linear-Linear-Linear

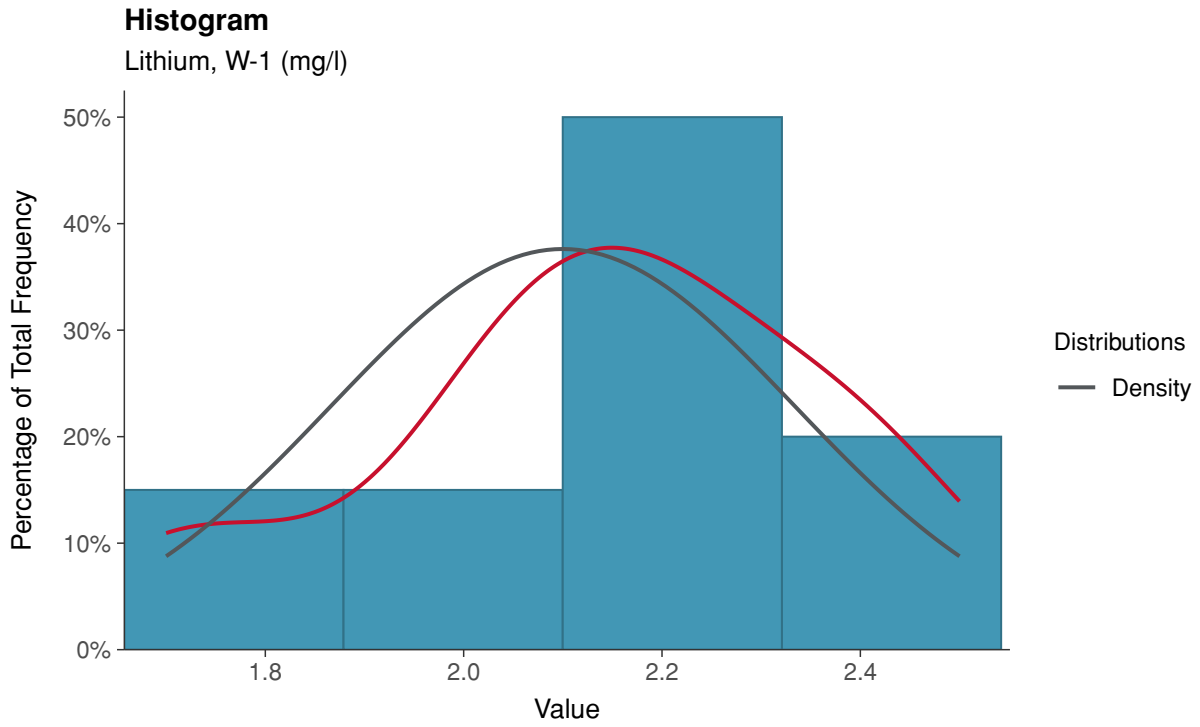
Lead, W-1 (mg/l)



Appendix IV: Lithium, W-1

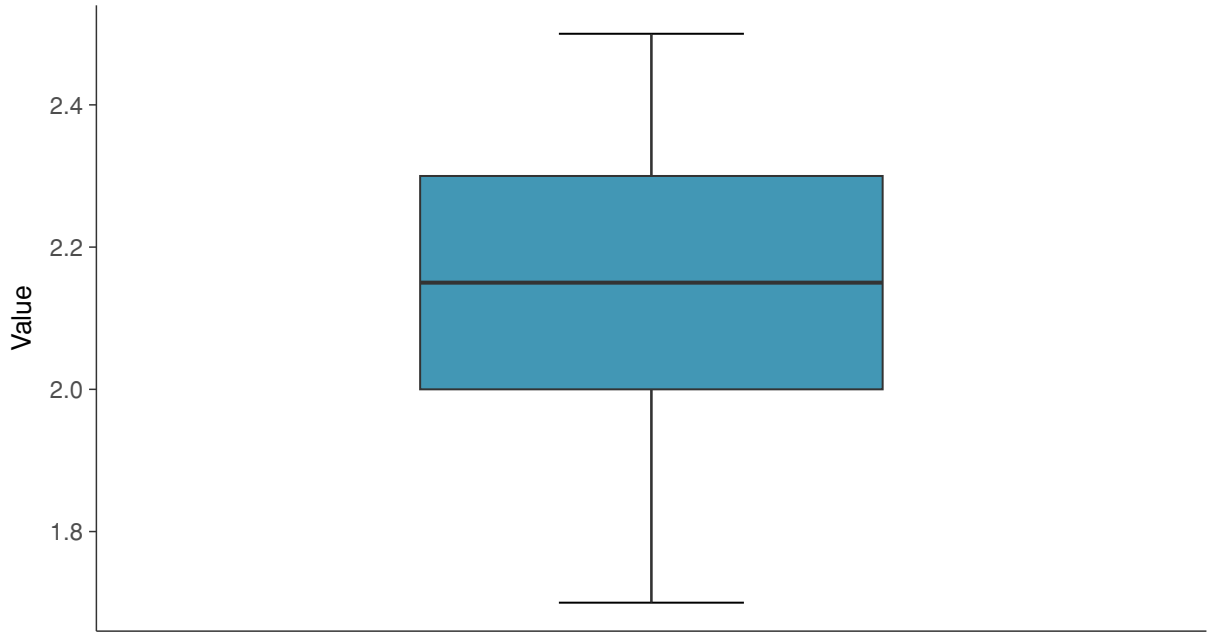
ID: 1_2_114





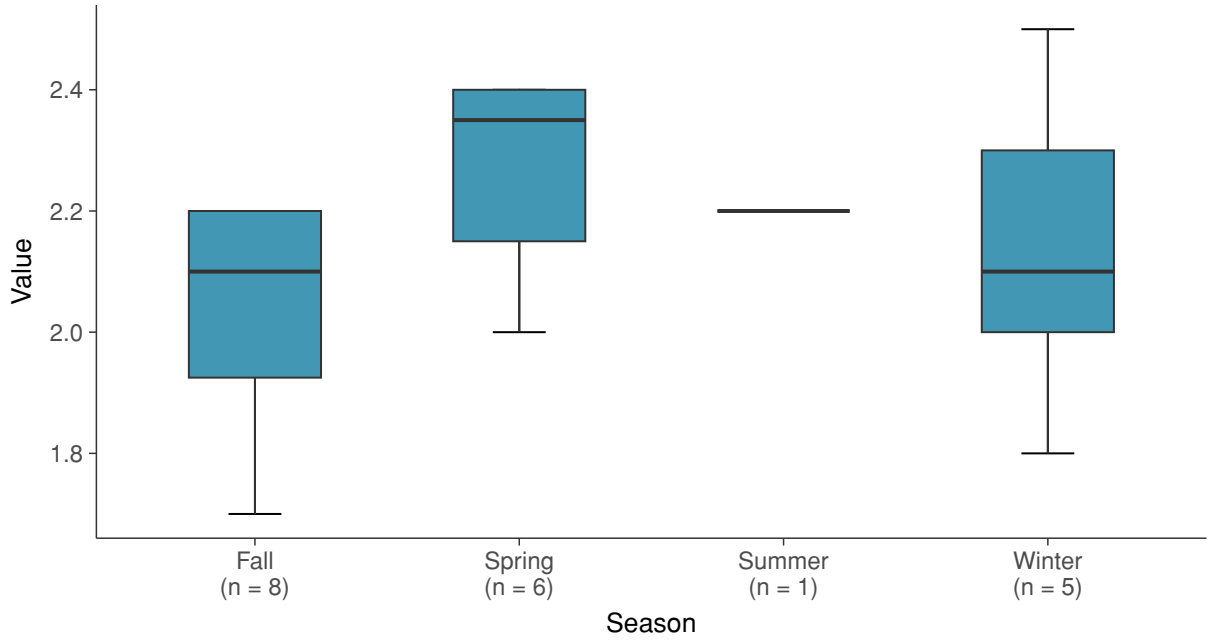
Boxplot

Lithium, W-1 (mg/l)



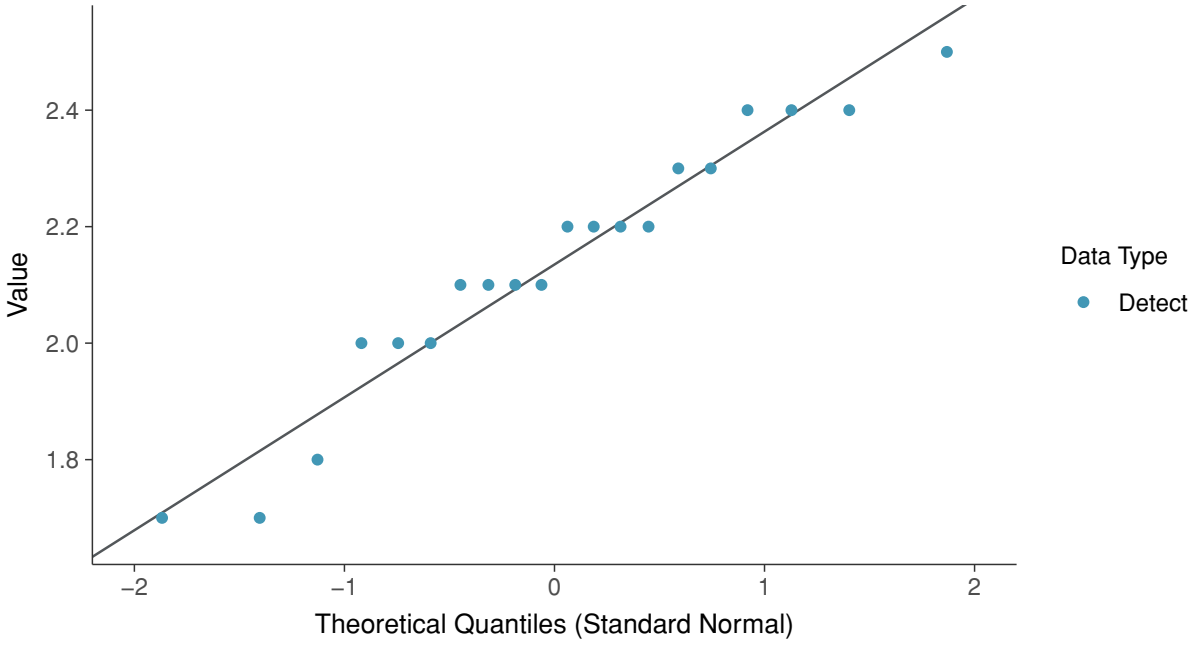
Boxplot by Season

Lithium, W-1 (mg/l)



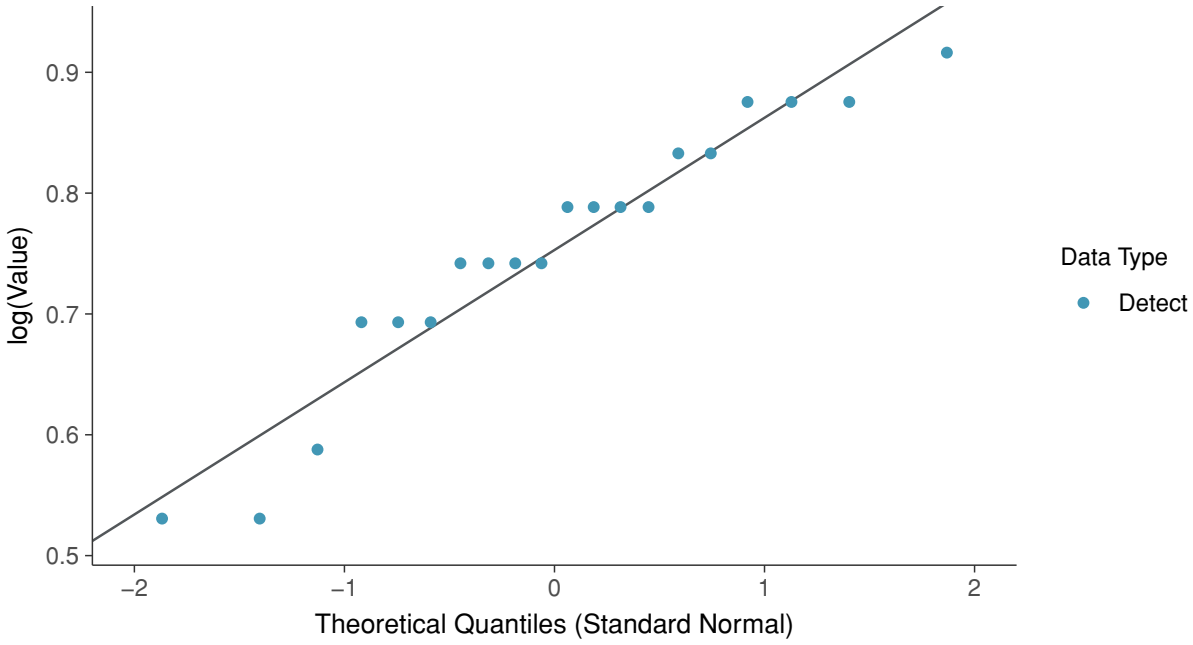
Normal Q-Q plot

Lithium, W-1 (mg/l)



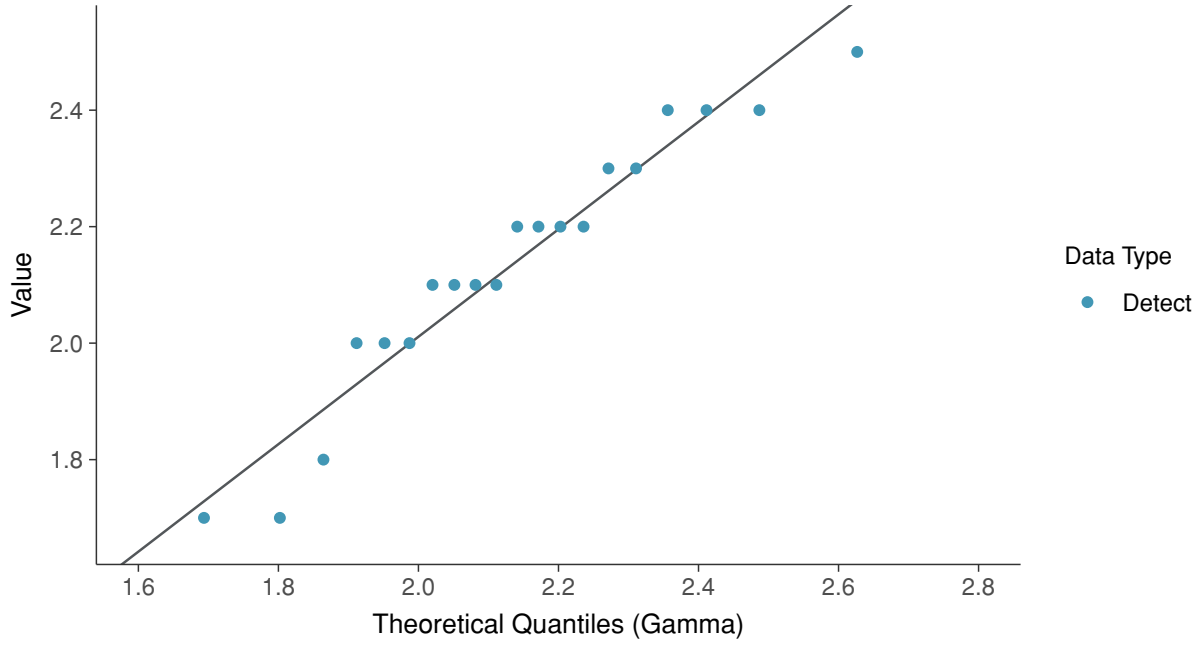
Lognormal Q-Q plot

Lithium, W-1 (mg/l)



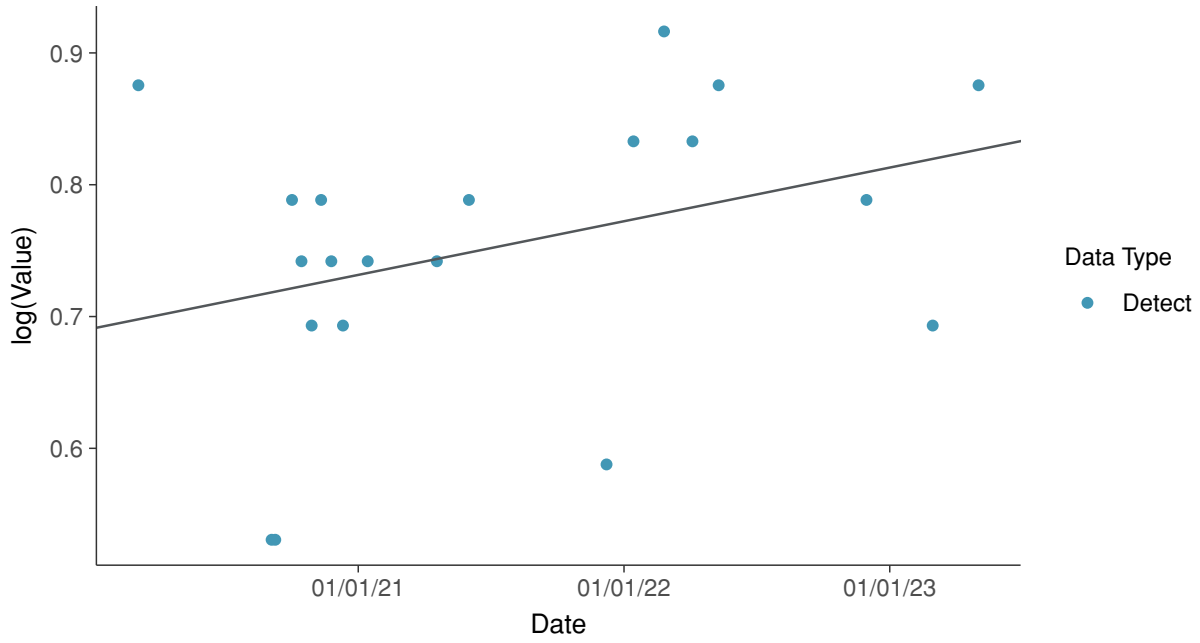
Gamma Q-Q plot

Lithium, W-1 (mg/l)



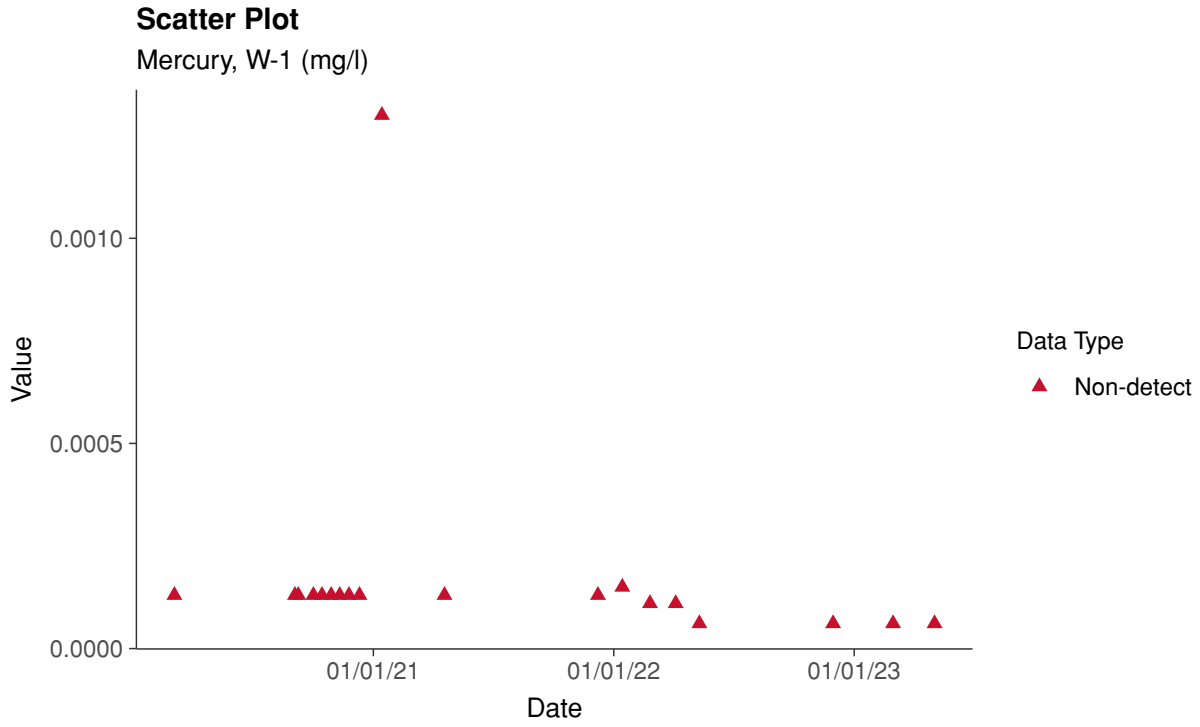
Trend Regression: Lognormal MLE

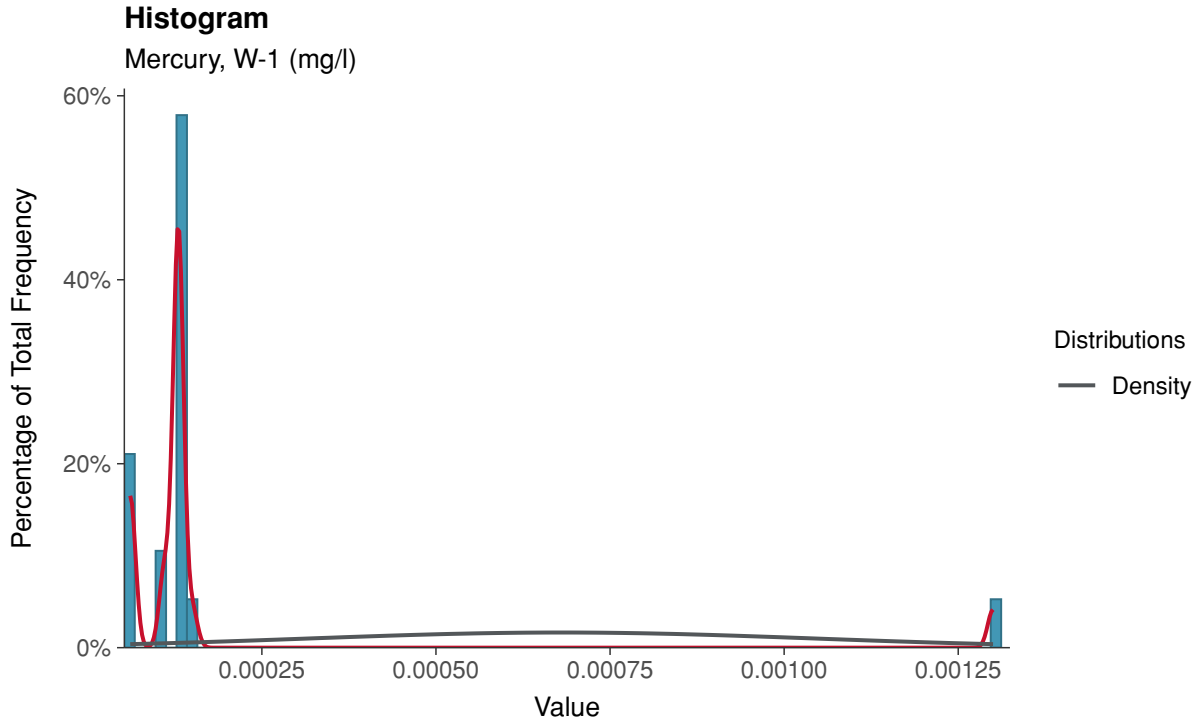
Lithium, W-1 (mg/l)



Appendix IV: Mercury, W-1

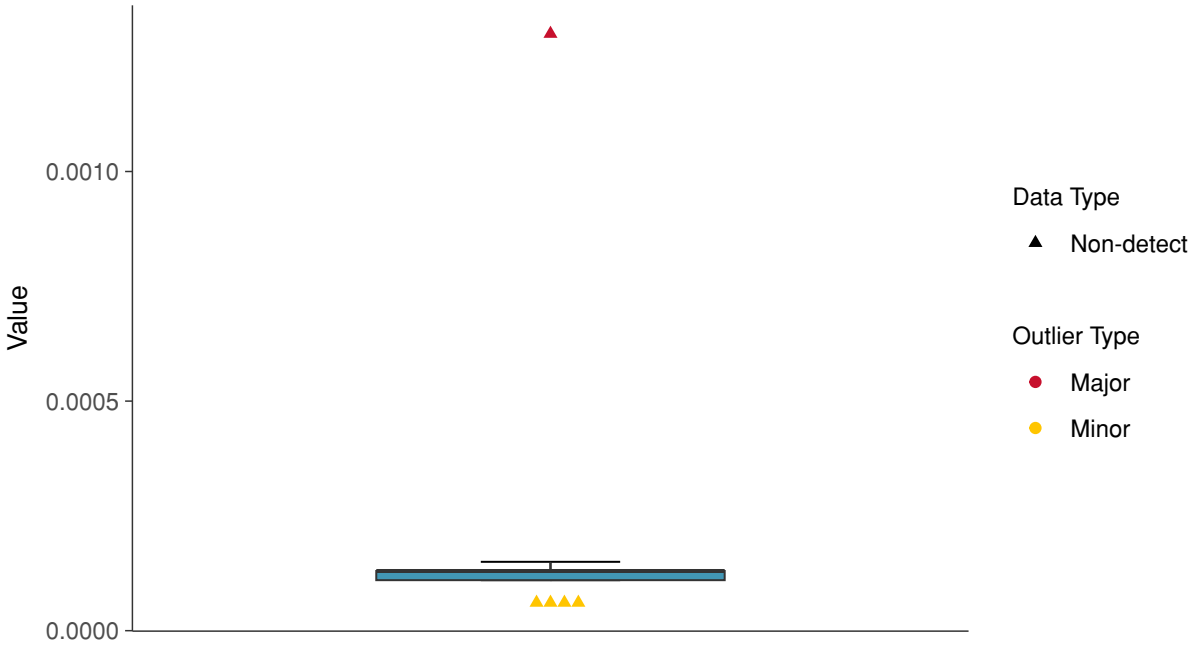
ID: 1_2_115





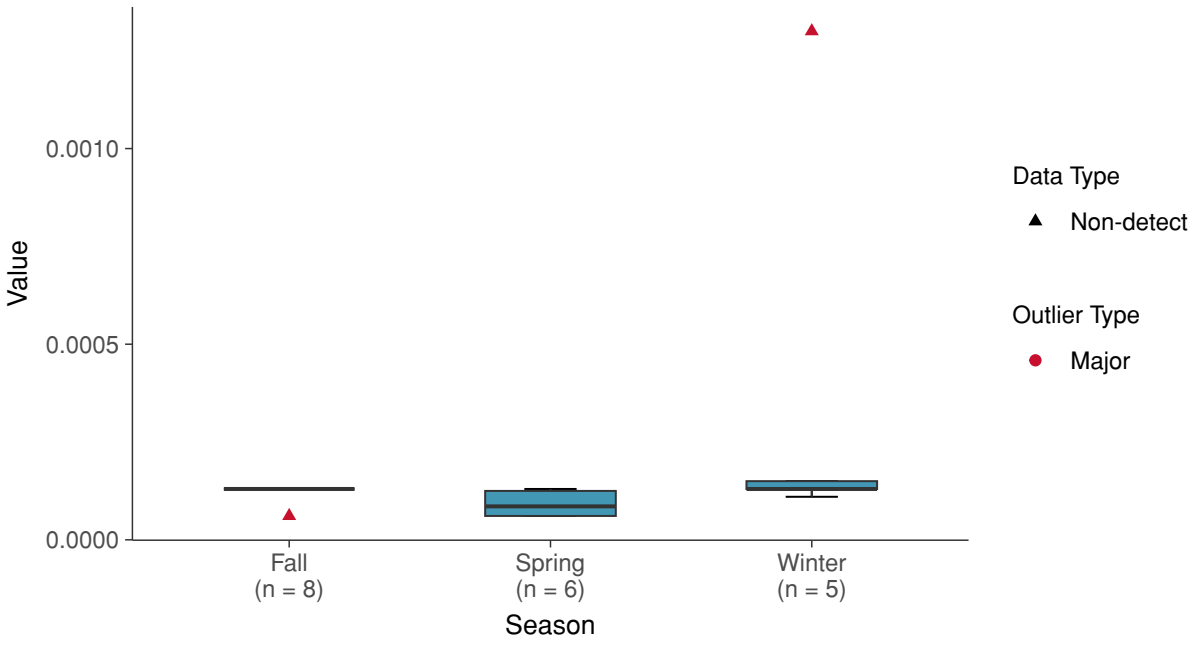
Boxplot

Mercury, W-1 (mg/l)



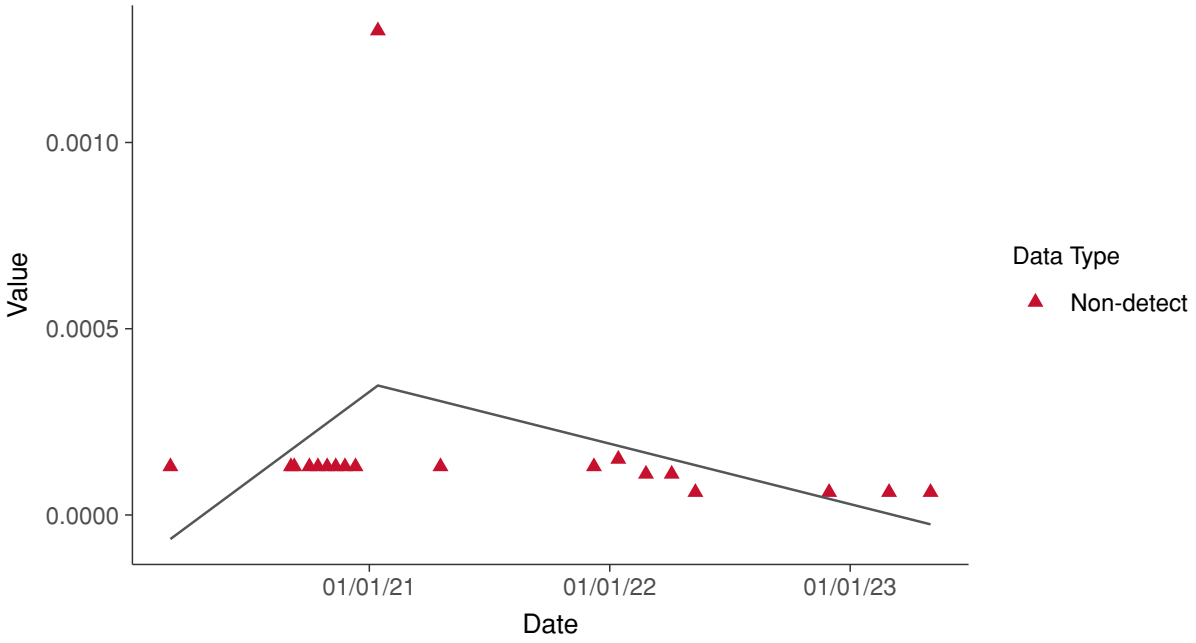
Boxplot by Season

Mercury, W-1 (mg/l)



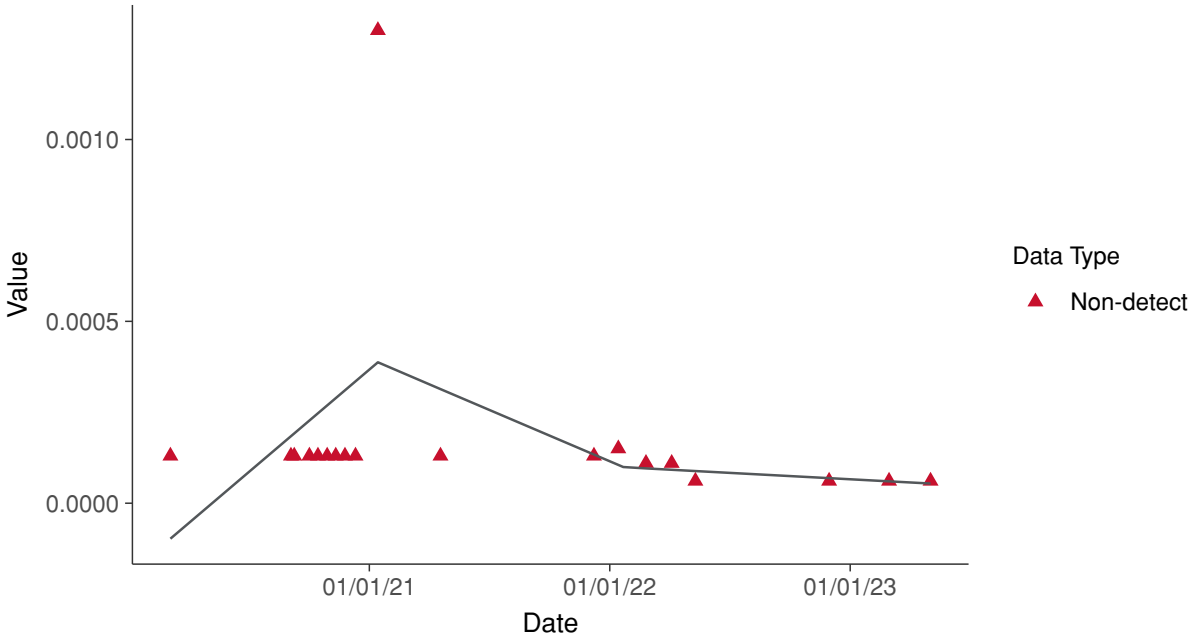
Trend Regression: Piecewise Linear-Linear

Mercury, W-1 (mg/l)



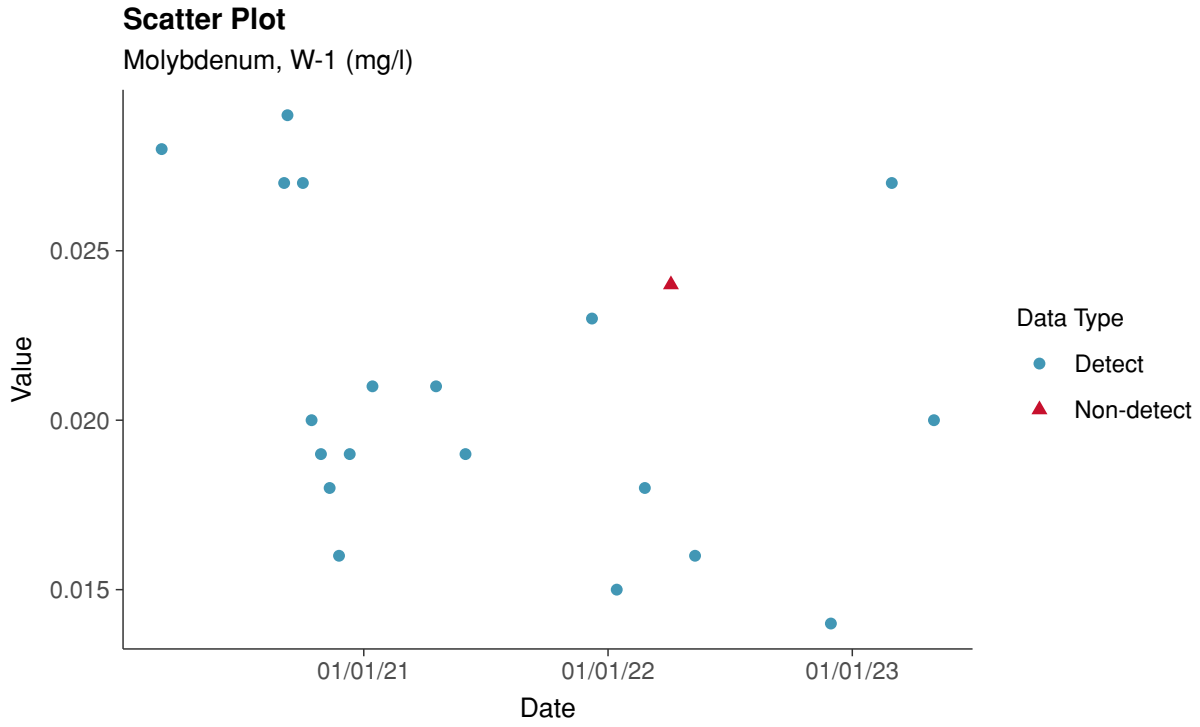
Trend Regression: Piecewise Linear-Linear-Linear

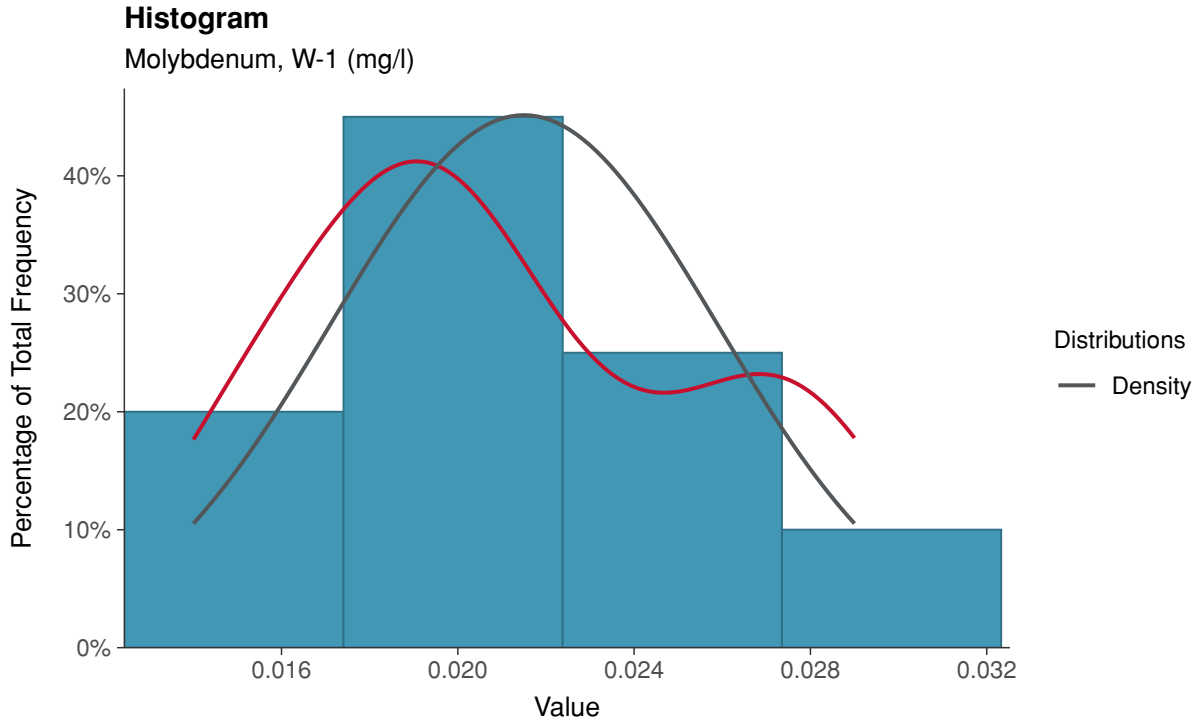
Mercury, W-1 (mg/l)



Appendix IV: Molybdenum, W-1

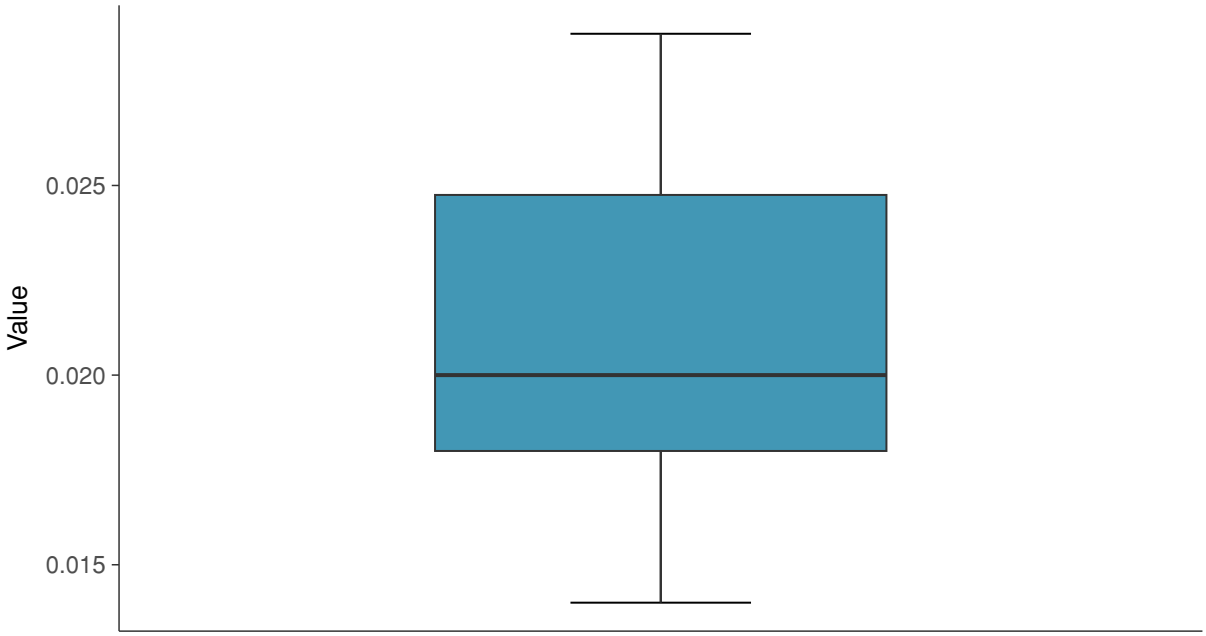
ID: 1_2_116





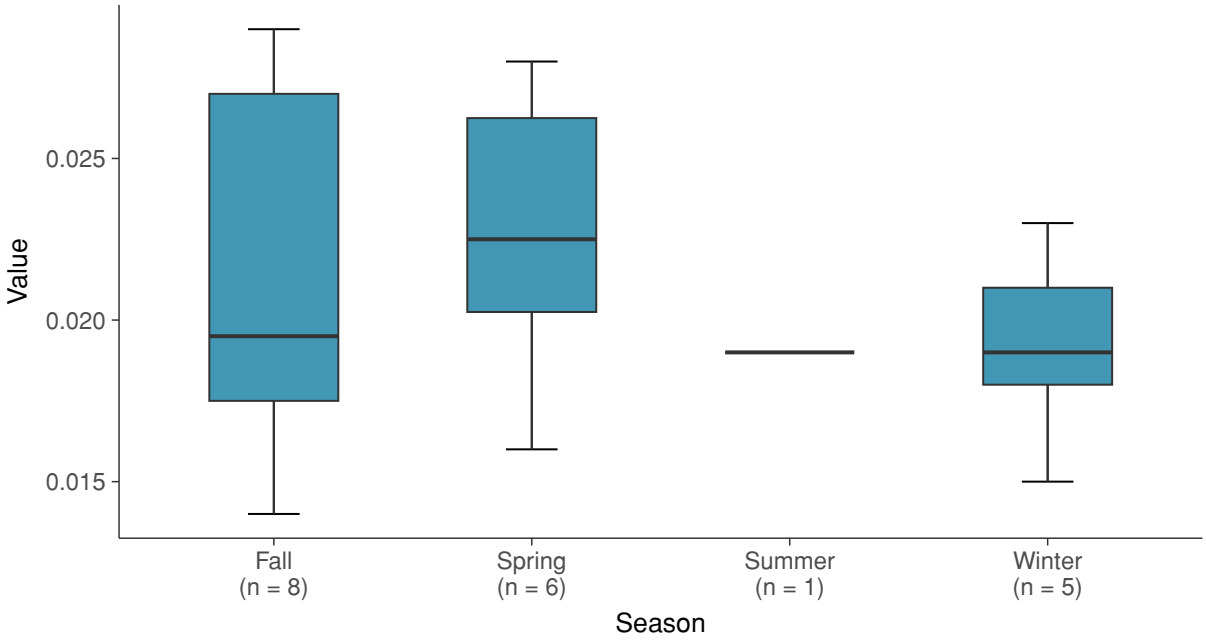
Boxplot

Molybdenum, W-1 (mg/l)



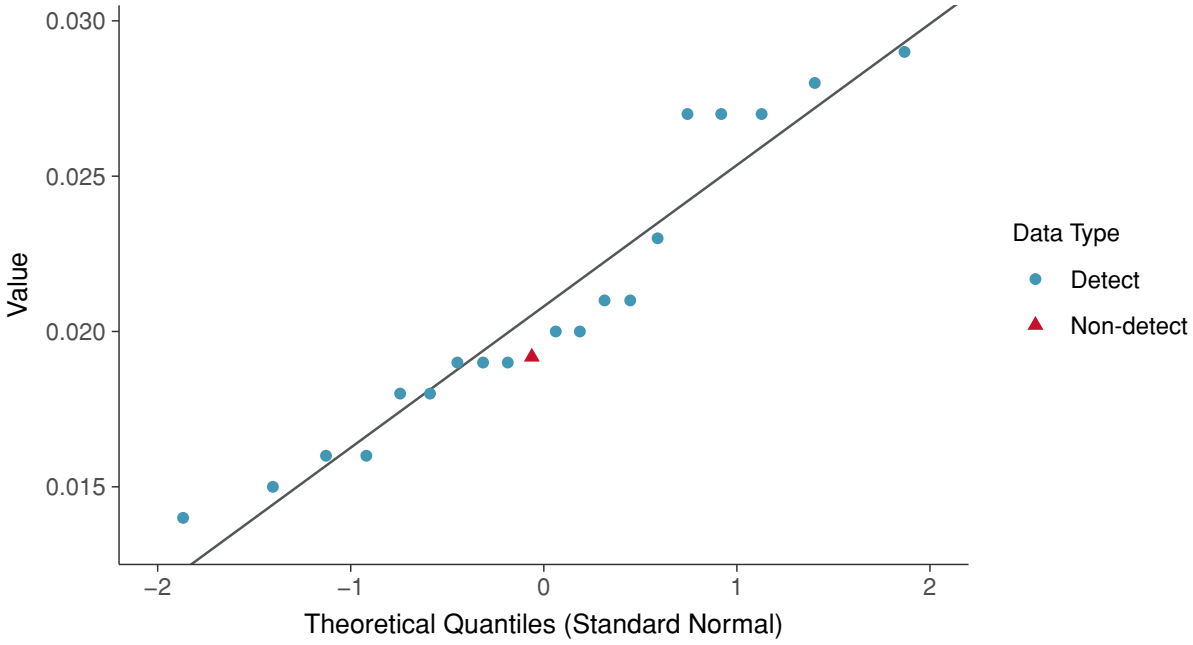
Boxplot by Season

Molybdenum, W-1 (mg/l)



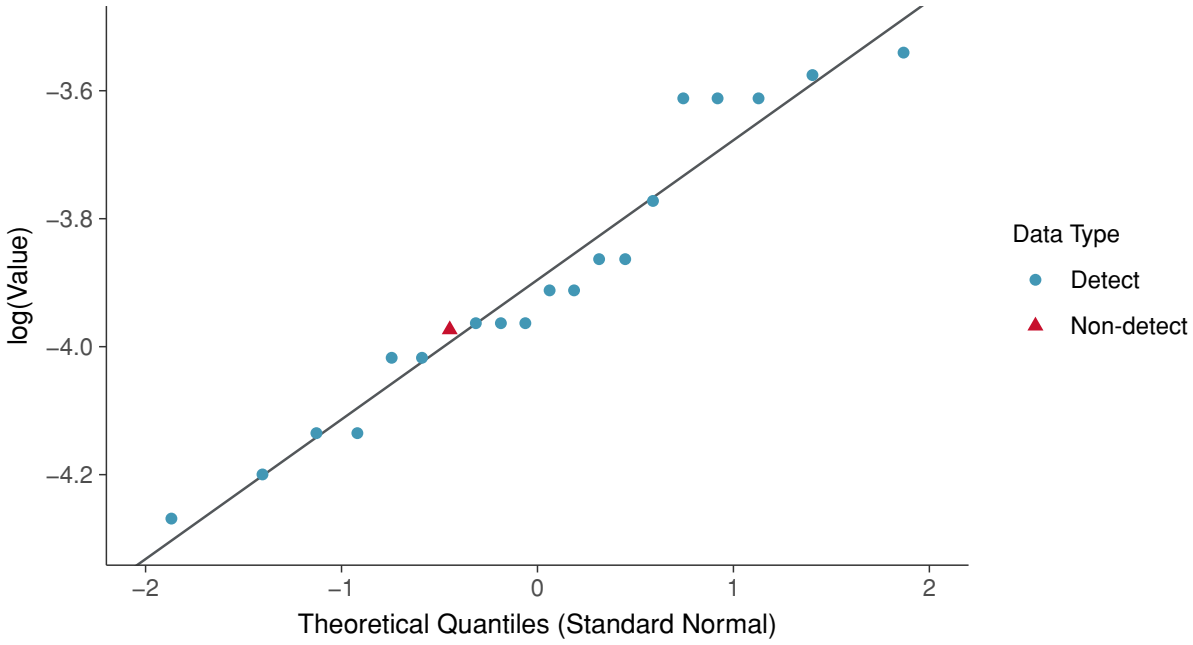
Normal Q-Q plot using ROS Imputed Estimates

Molybdenum, W-1 (mg/l)



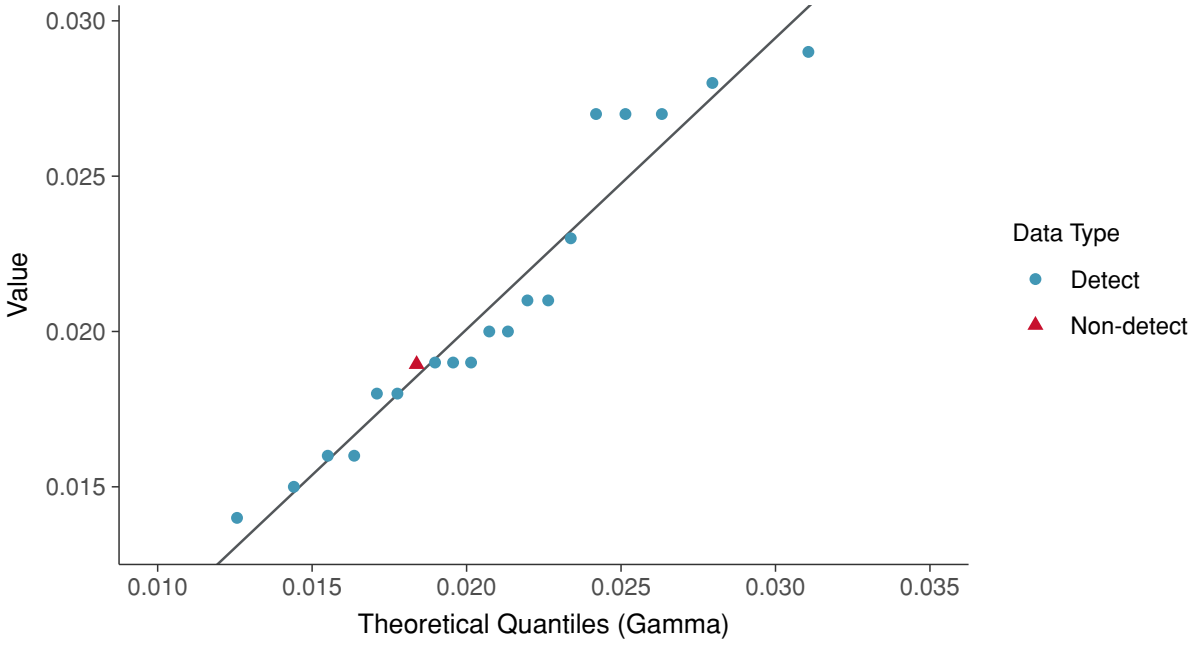
Lognormal Q-Q plot using ROS Imputed Estimates

Molybdenum, W-1 (mg/l)



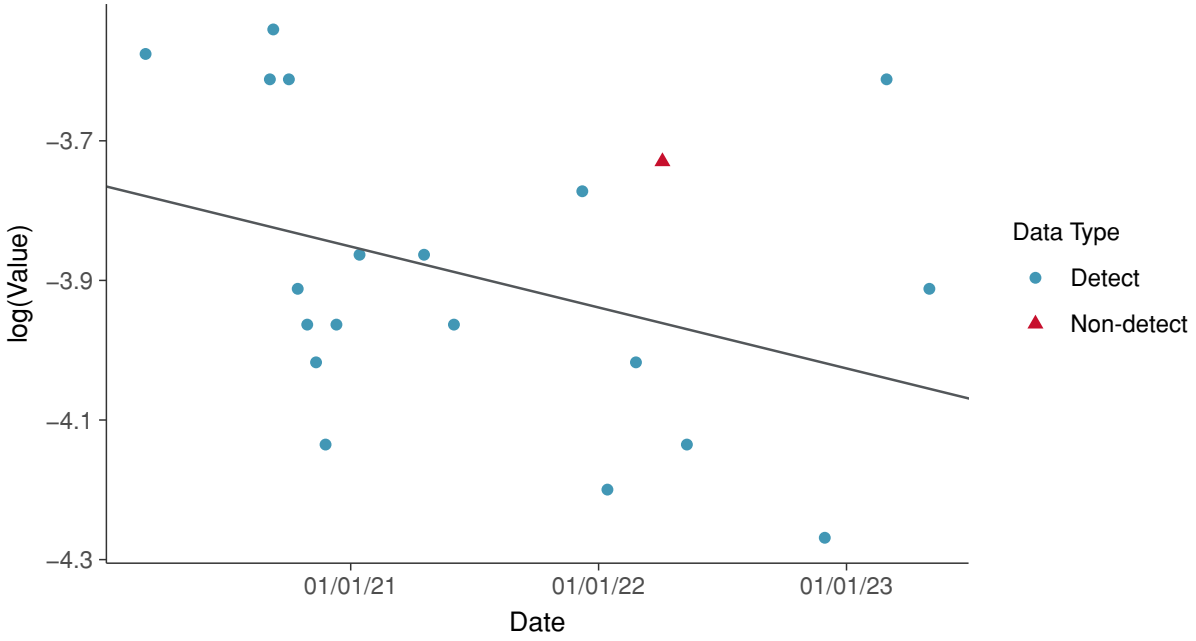
Gamma Q-Q plot using ROS Imputed Estimates

Molybdenum, W-1 (mg/l)



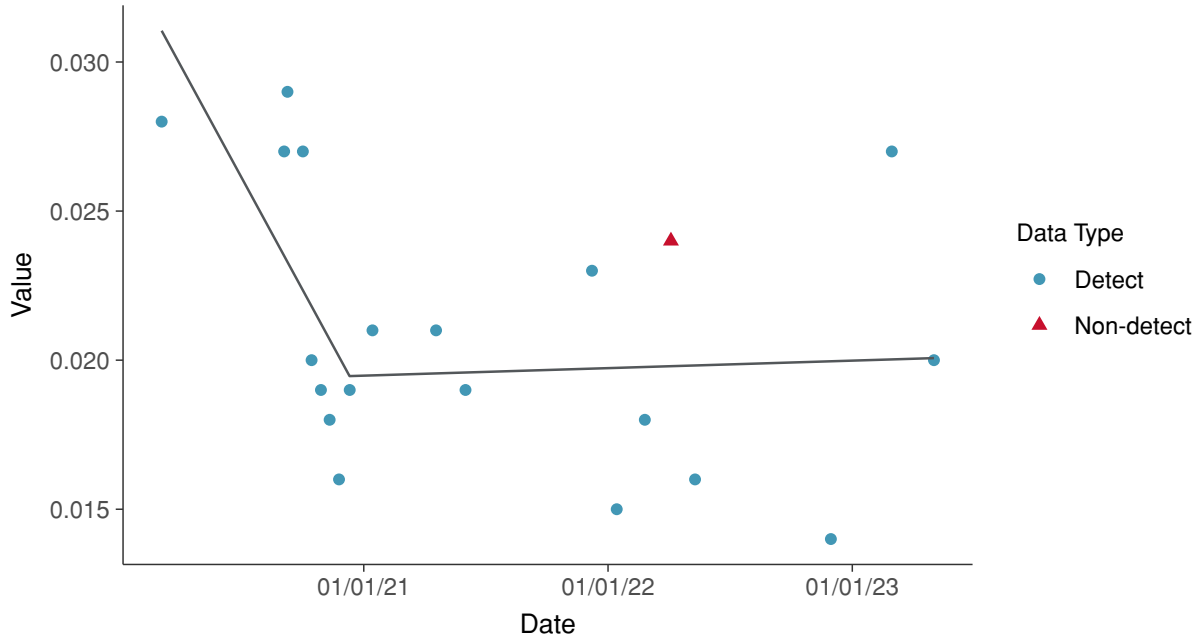
Trend Regression: Lognormal MLE

Molybdenum, W-1 (mg/l)



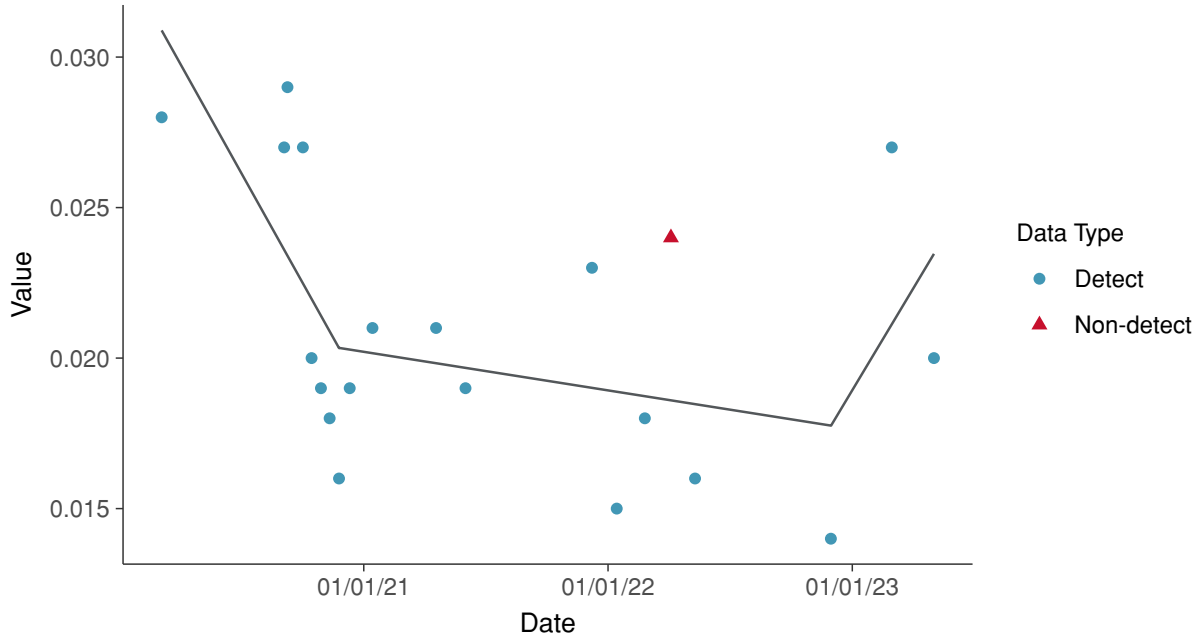
Trend Regression: Piecewise Linear-Linear

Molybdenum, W-1 (mg/l)



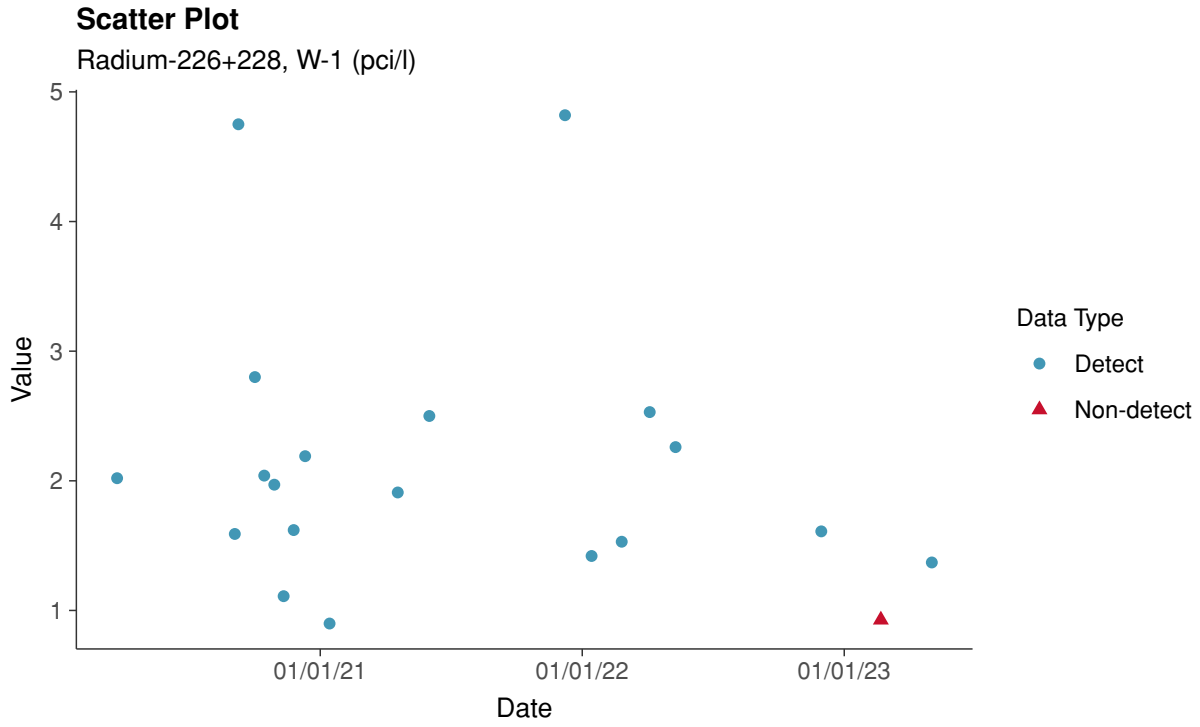
Trend Regression: Piecewise Linear-Linear-Linear

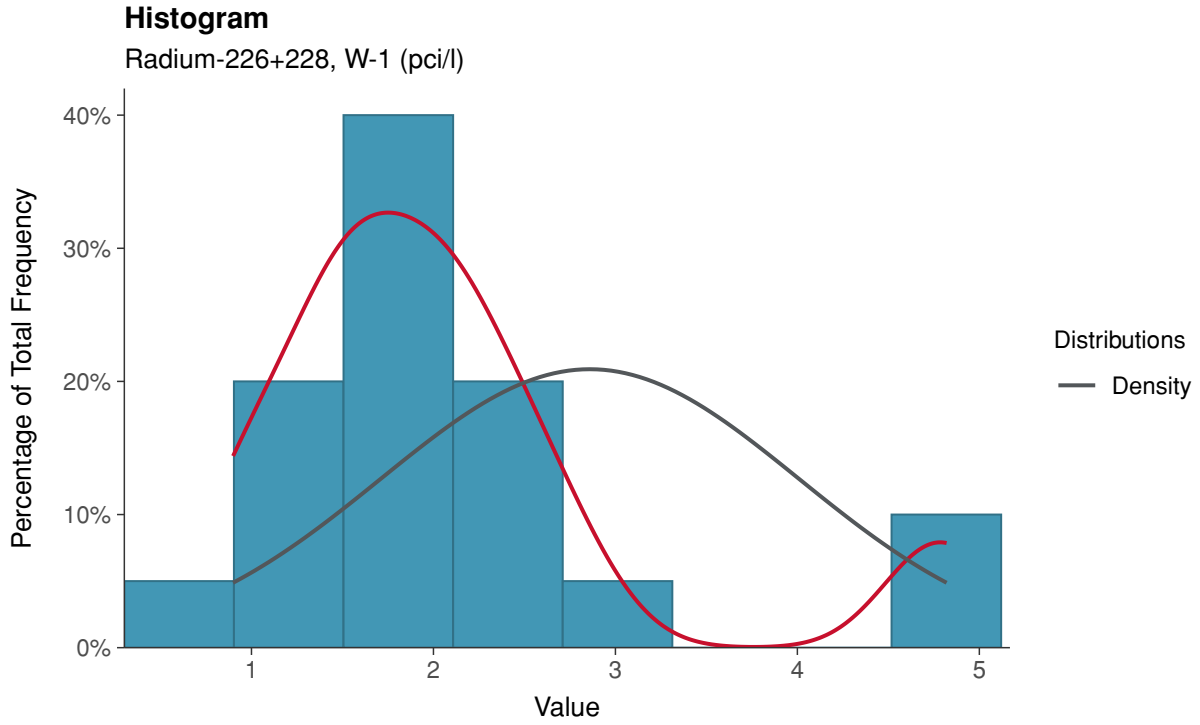
Molybdenum, W-1 (mg/l)



Appendix IV: Radium-226+228, W-1

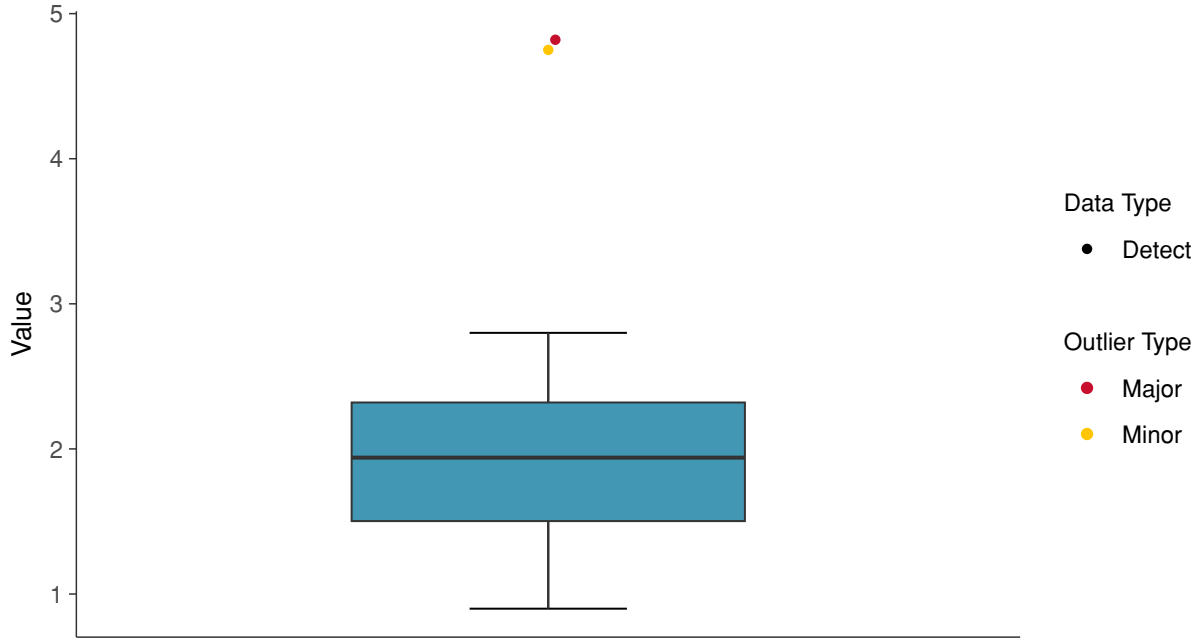
ID: 1_2_120





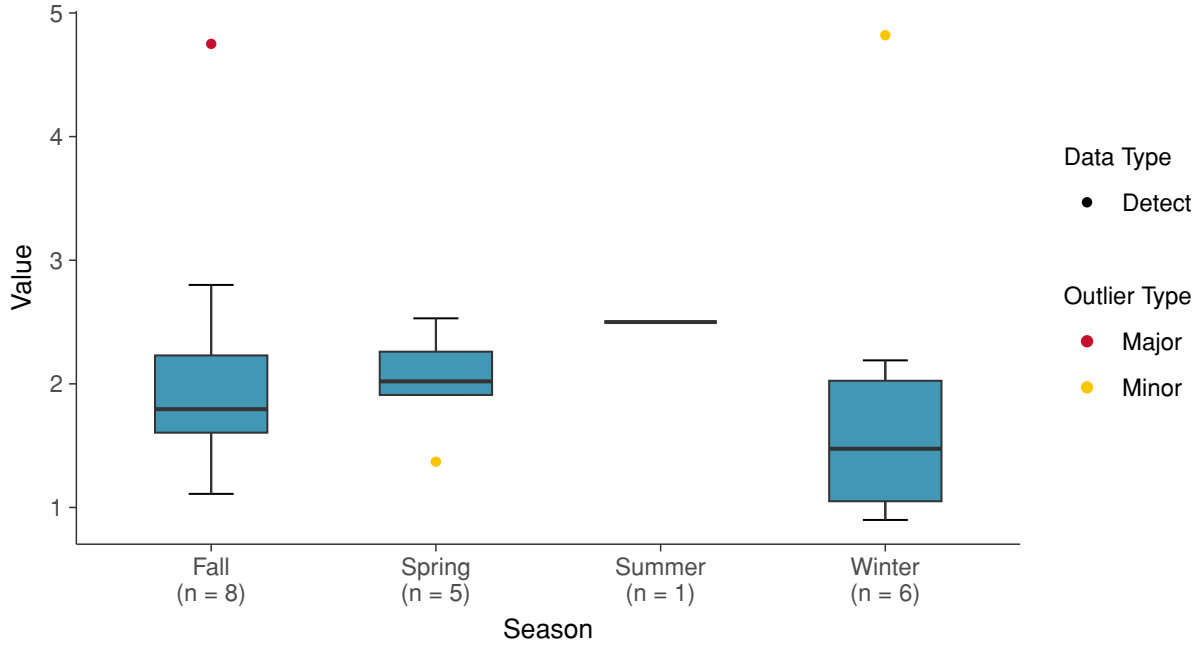
Boxplot

Radium-226+228, W-1 (pci/l)



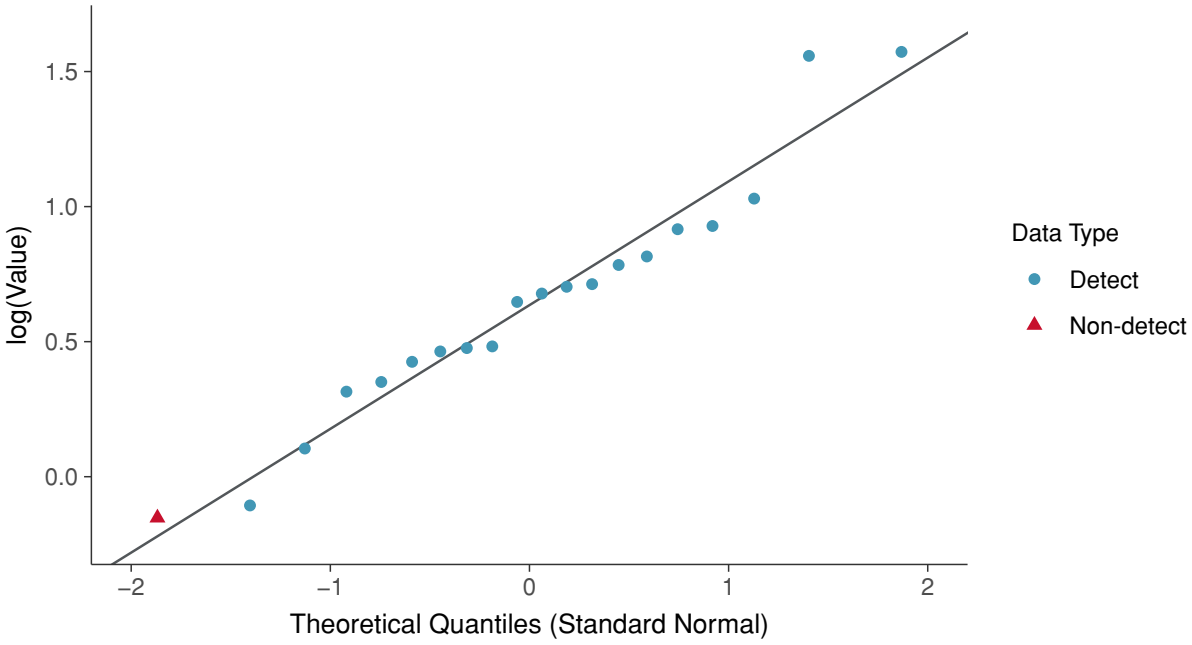
Boxplot by Season

Radium-226+228, W-1 (pci/l)



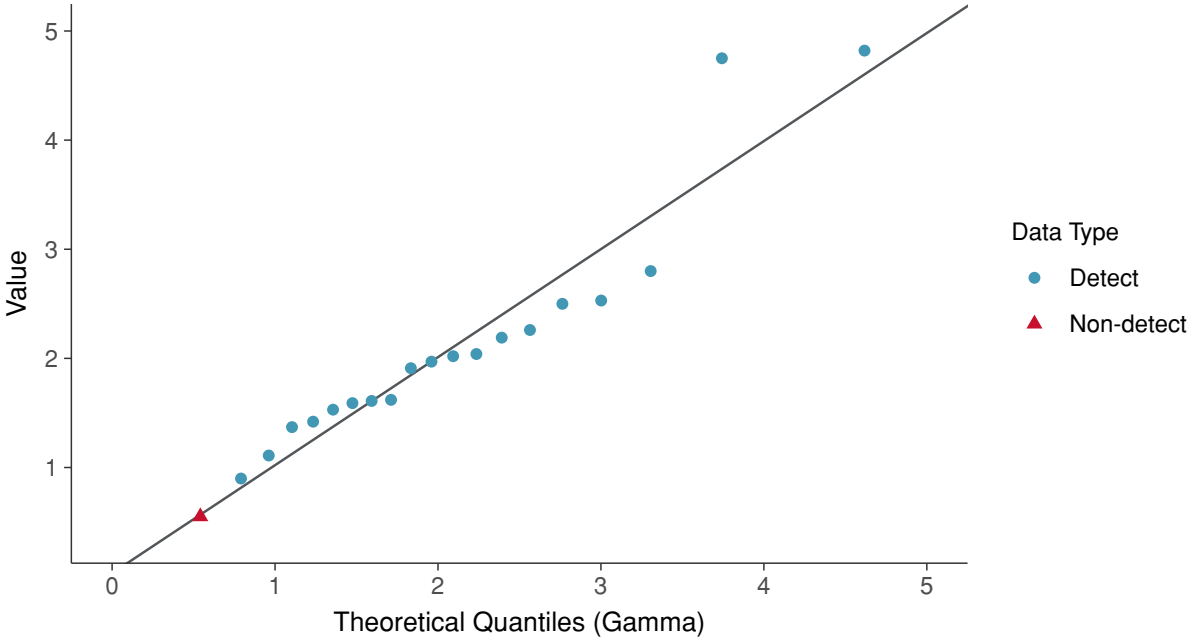
Lognormal Q-Q plot using ROS Imputed Estimates

Radium-226+228, W-1 (pci/l)



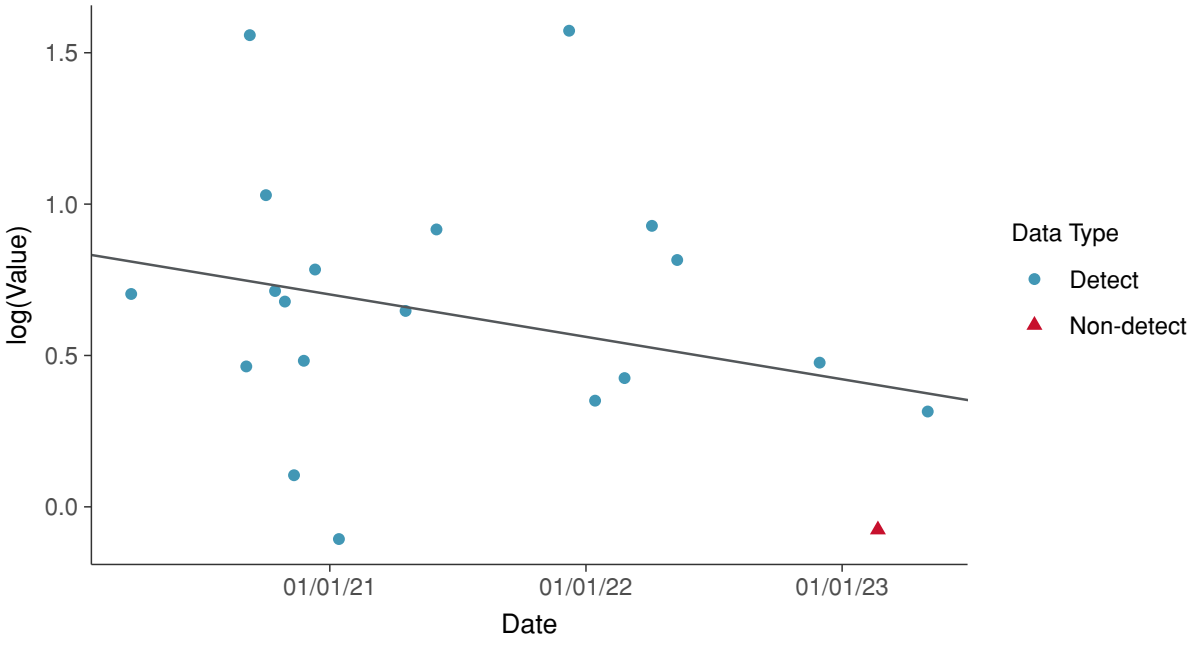
Gamma Q-Q plot using ROS Imputed Estimates

Radium-226+228, W-1 (pci/l)



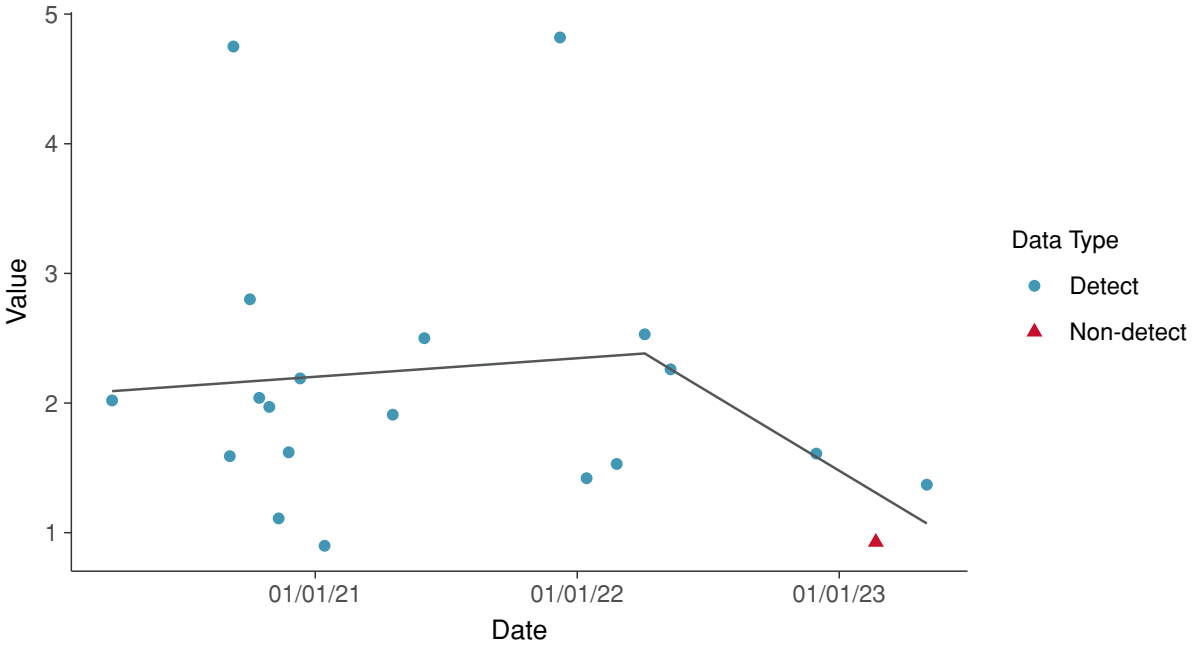
Trend Regression: Lognormal MLE

Radium-226+228, W-1 (pci/l)



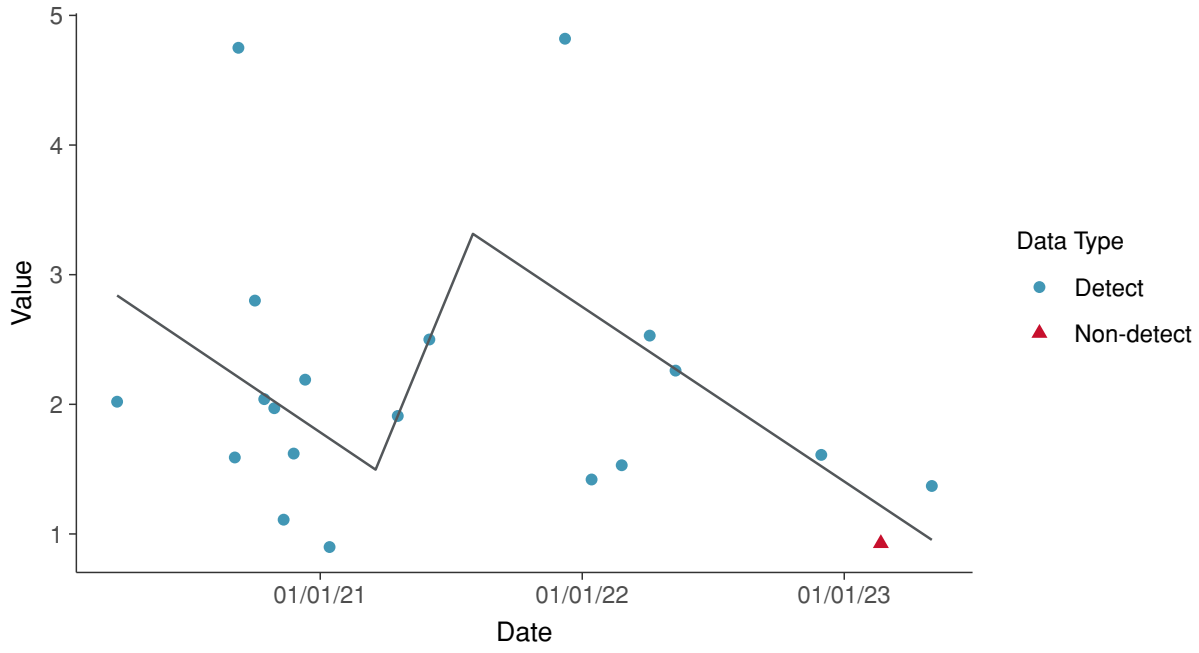
Trend Regression: Piecewise Linear-Linear

Radium-226+228, W-1 (pci/l)



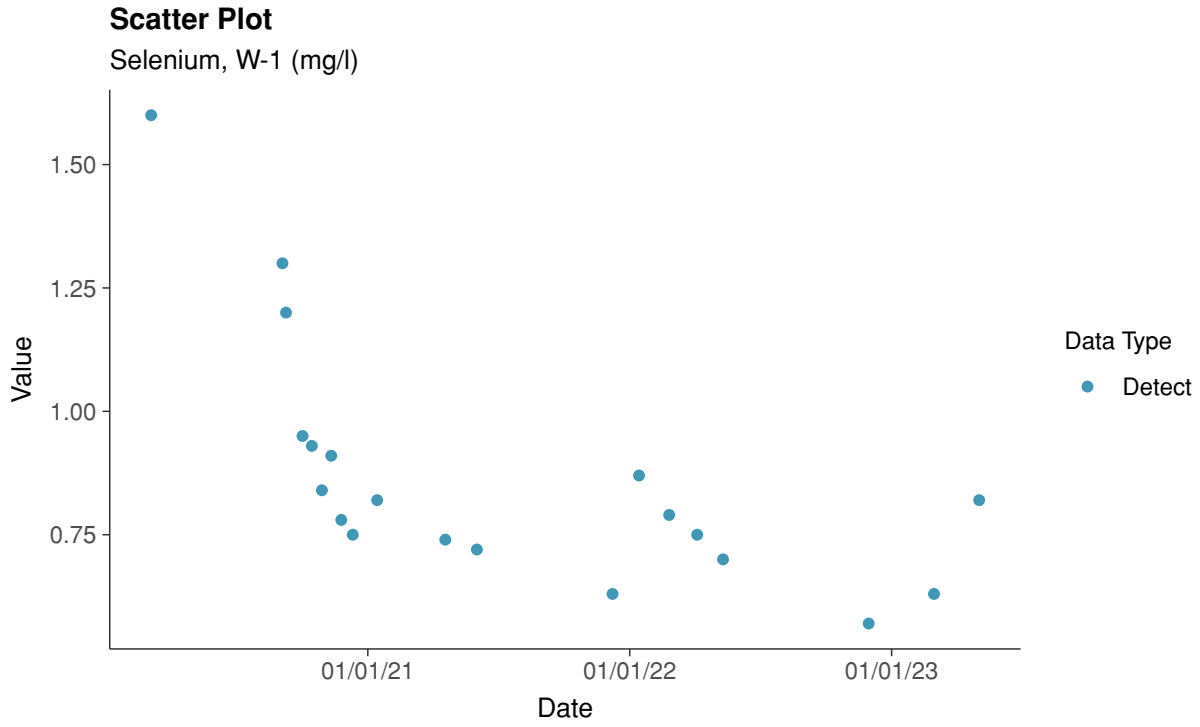
Trend Regression: Piecewise Linear-Linear-Linear

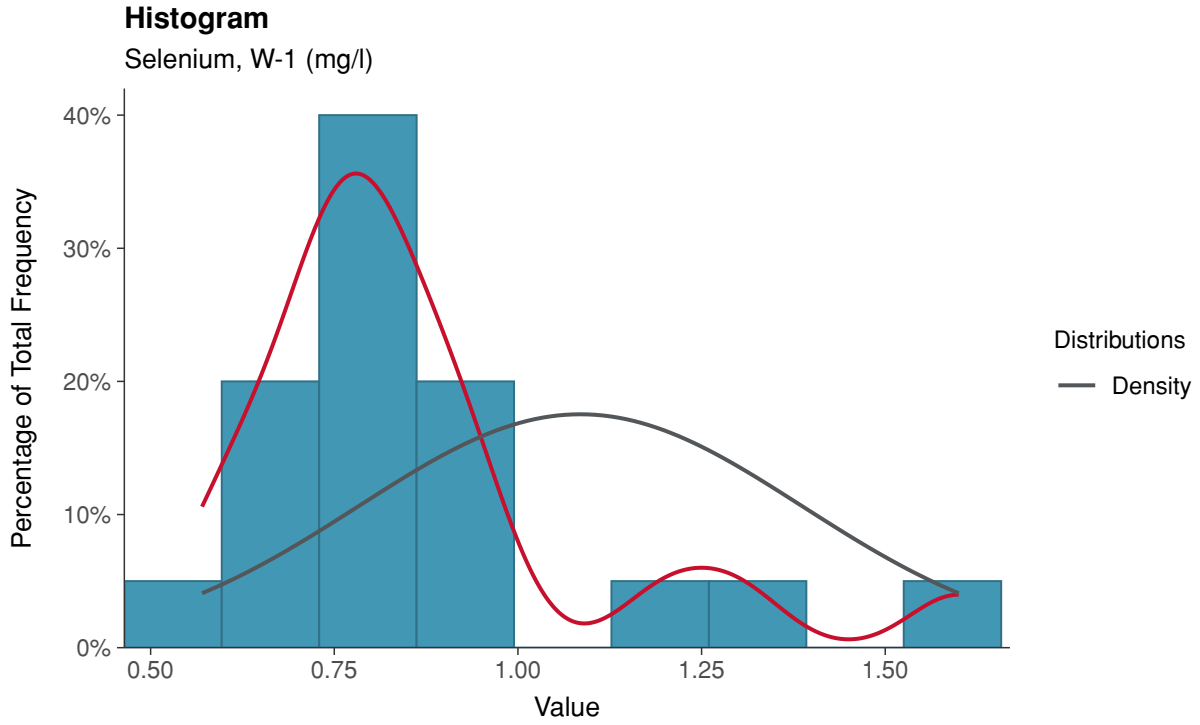
Radium-226+228, W-1 (pci/l)



Appendix IV: Selenium, W-1

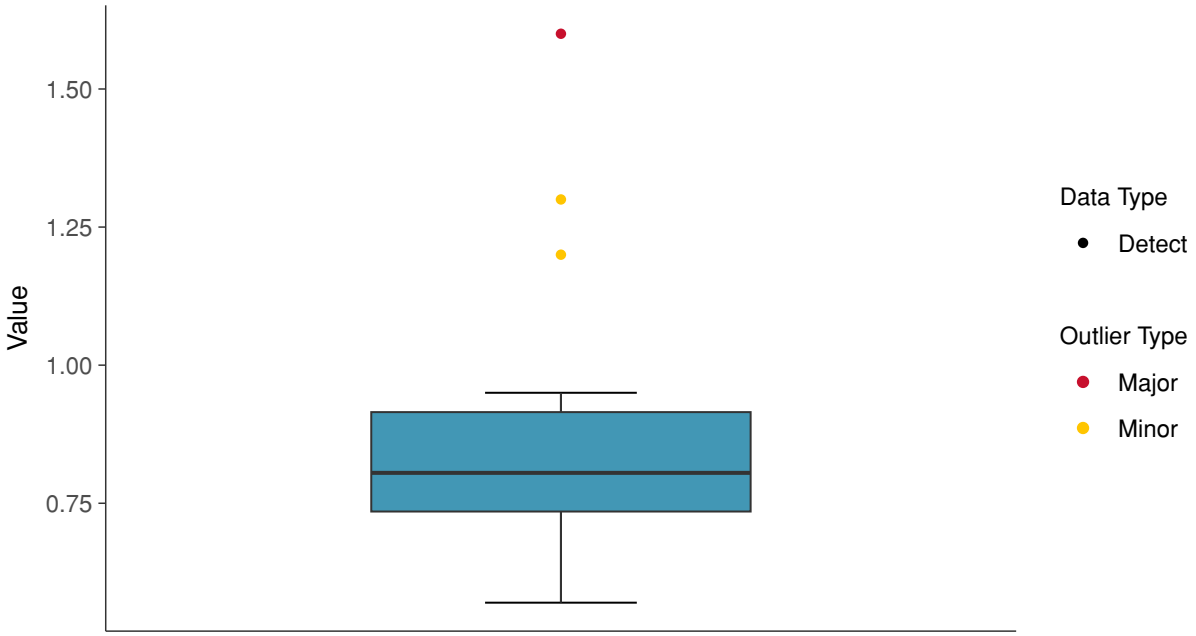
ID: 1_2_122





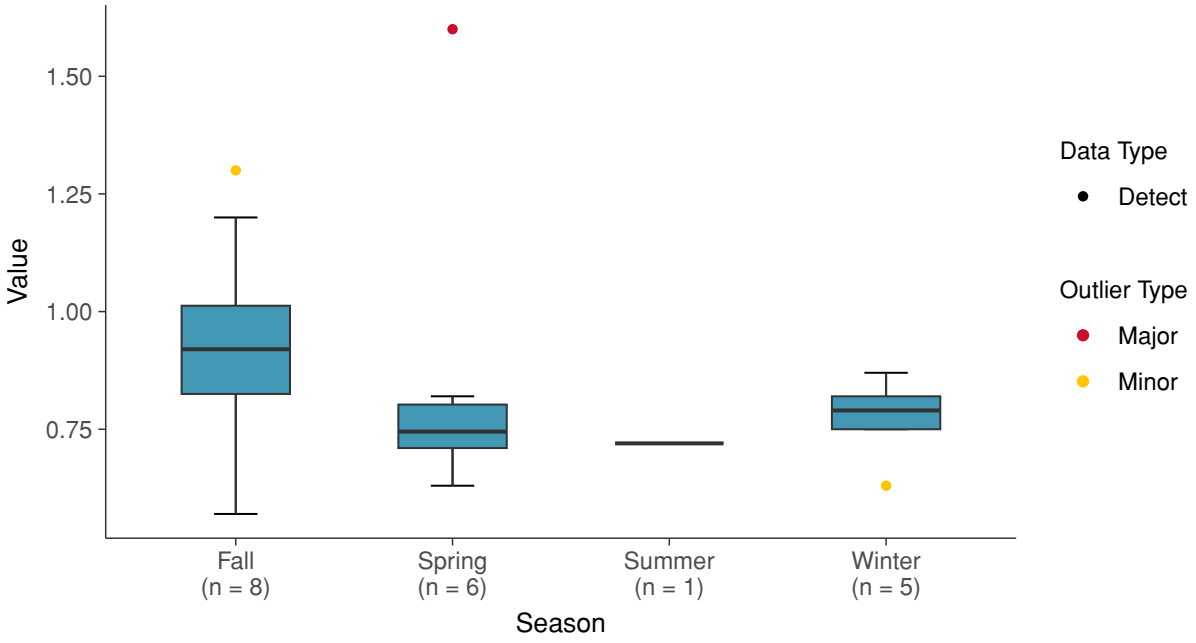
Boxplot

Selenium, W-1 (mg/l)



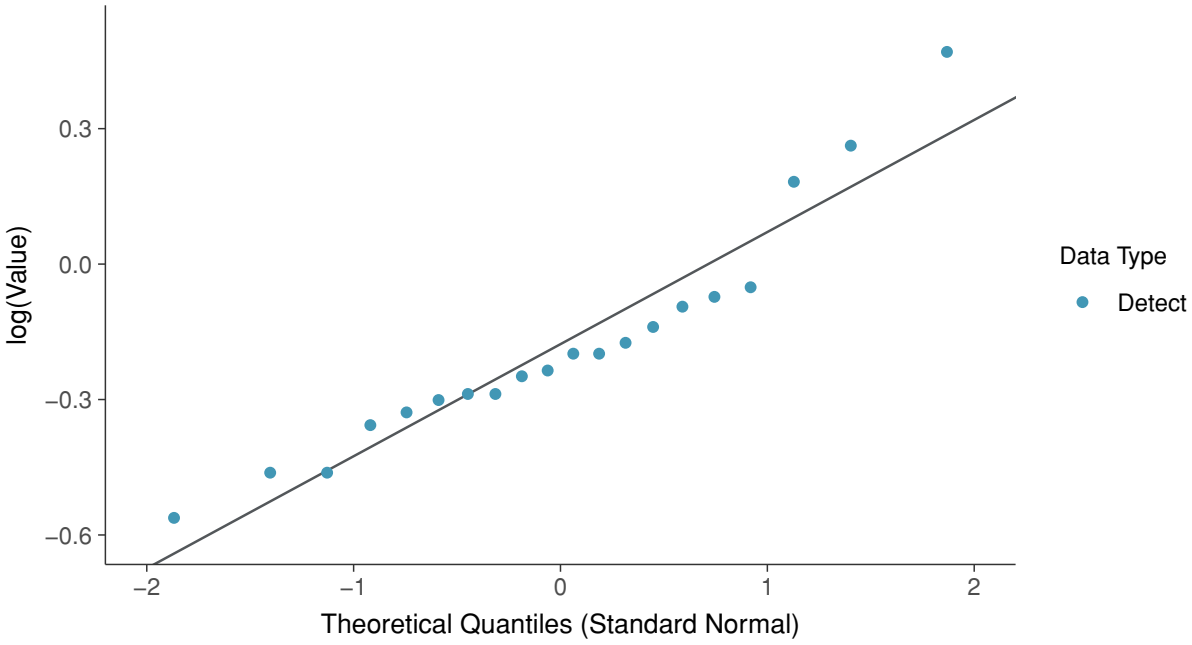
Boxplot by Season

Selenium, W-1 (mg/l)



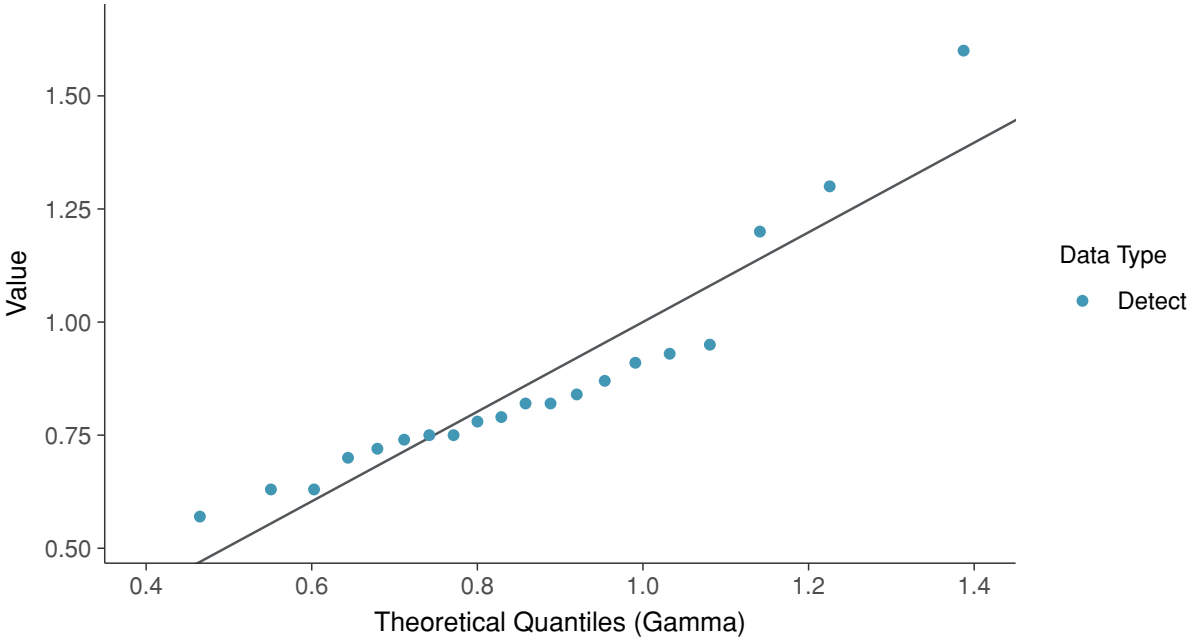
Lognormal Q-Q plot

Selenium, W-1 (mg/l)



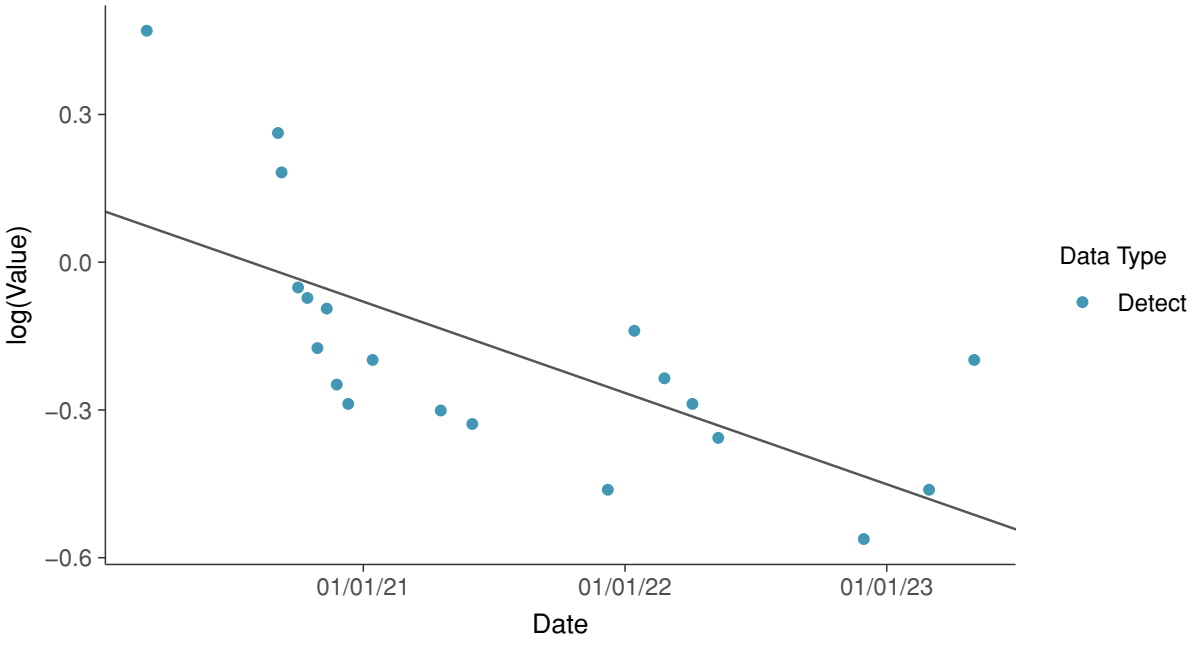
Gamma Q-Q plot

Selenium, W-1 (mg/l)



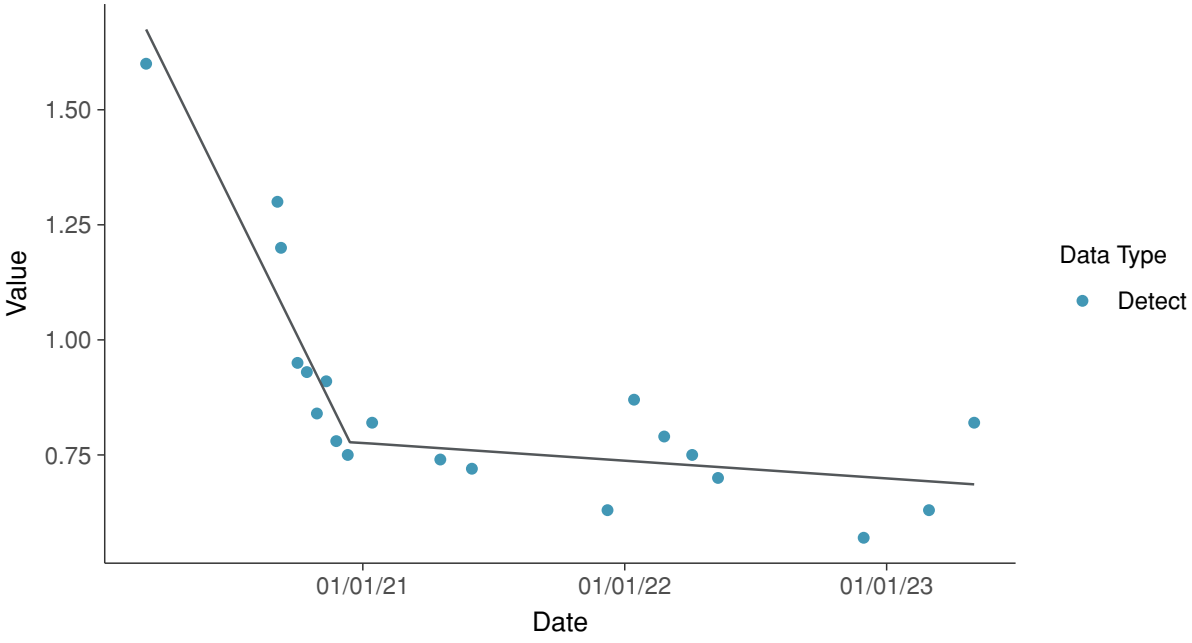
Trend Regression: Lognormal MLE

Selenium, W-1 (mg/l)



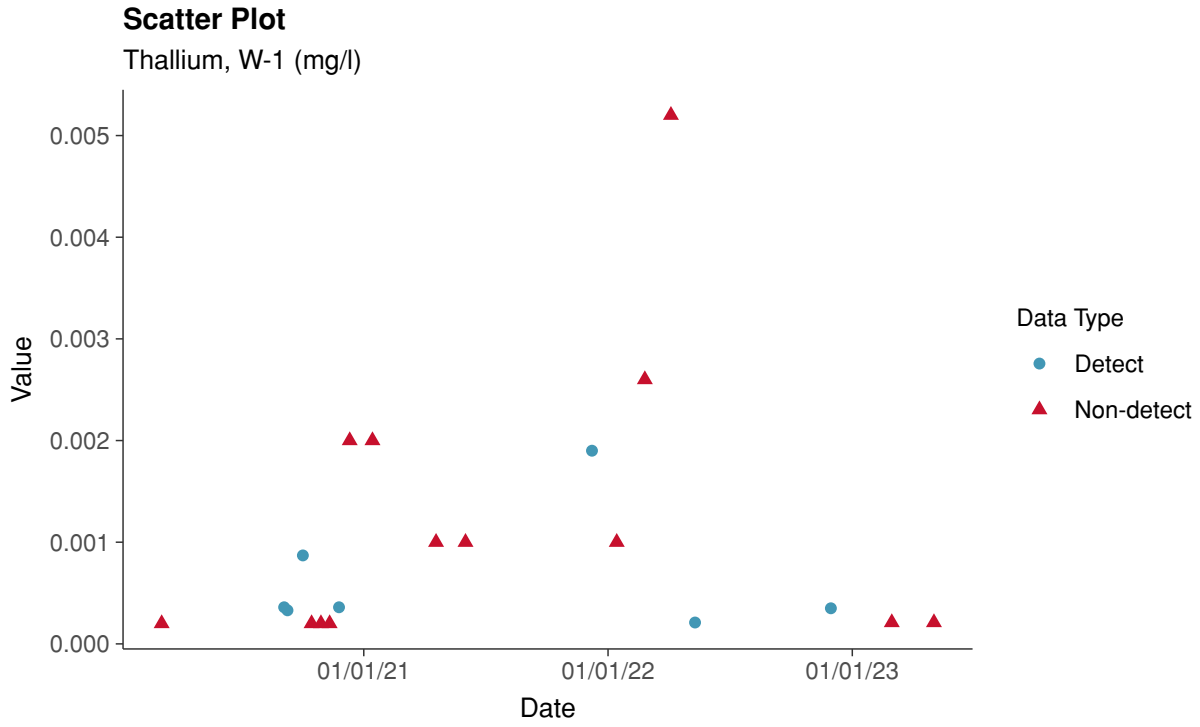
Trend Regression: Piecewise Linear-Linear

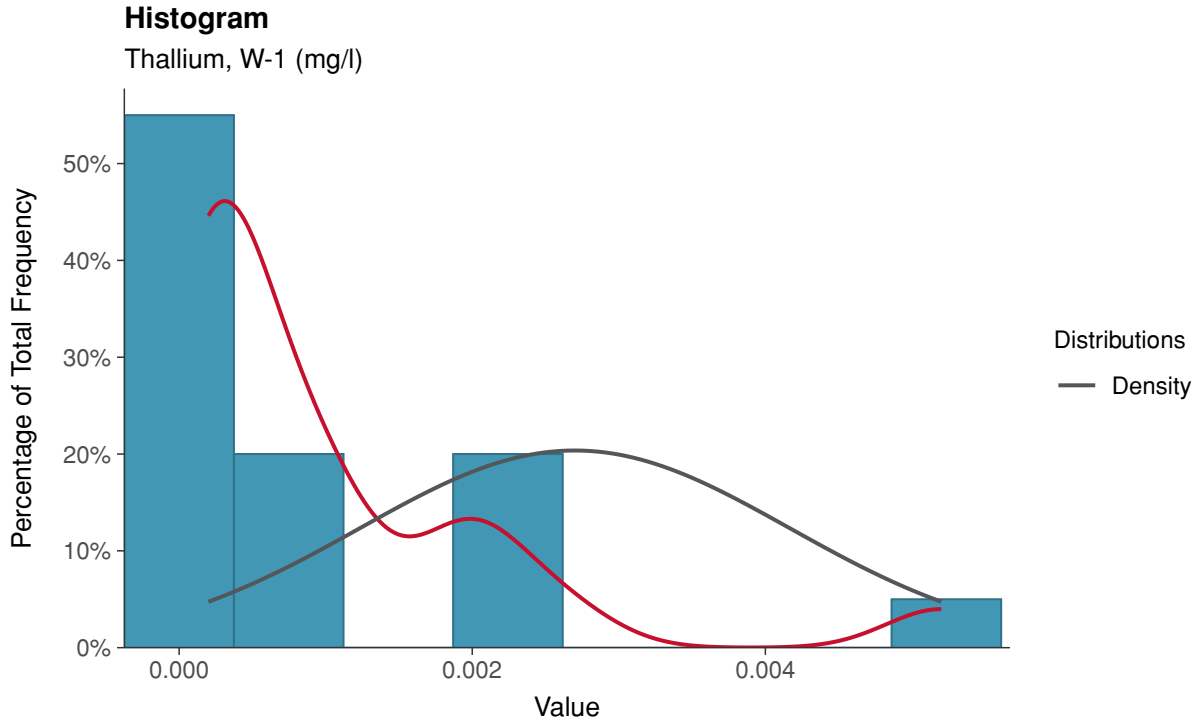
Selenium, W-1 (mg/l)



Appendix IV: Thallium, W-1

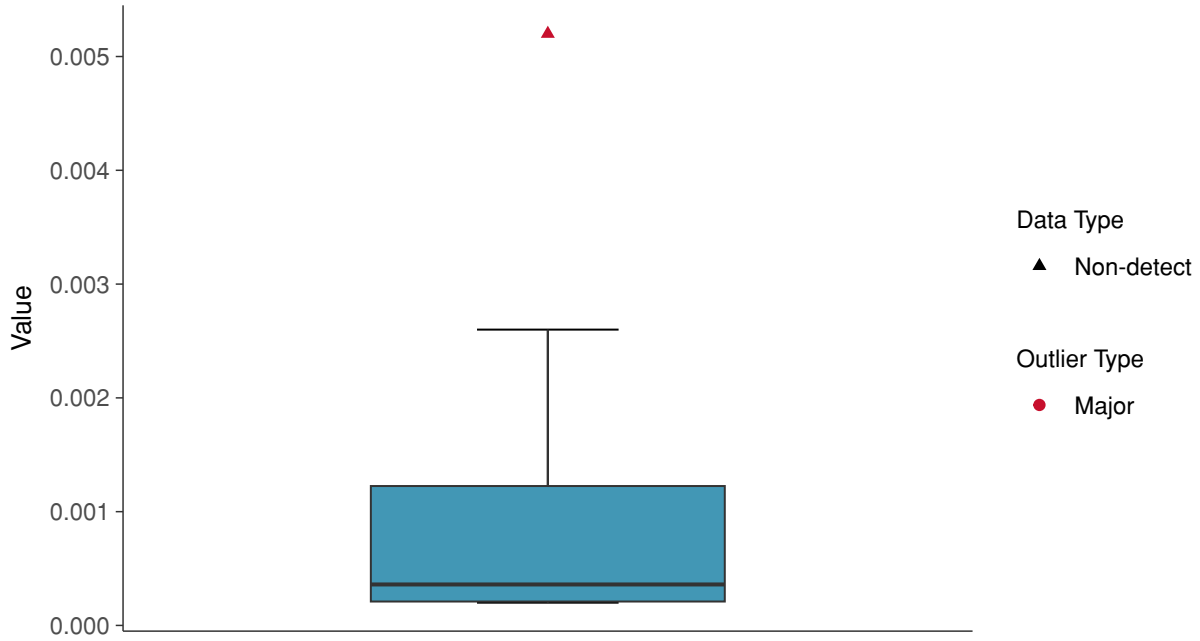
ID: 1_2_126





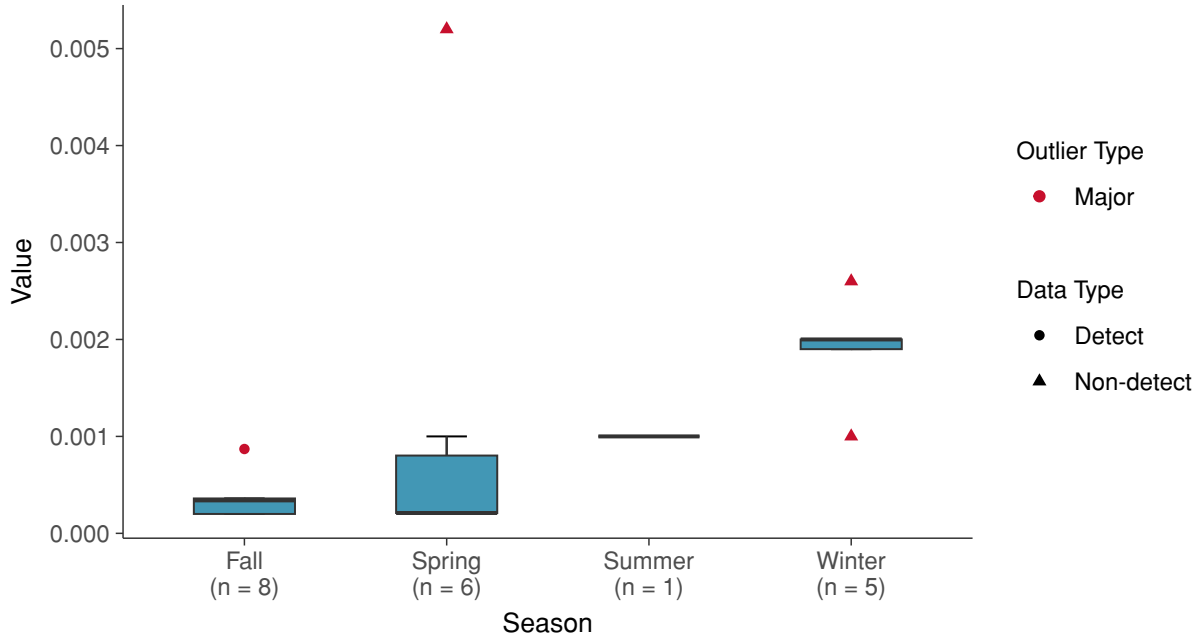
Boxplot

Thallium, W-1 (mg/l)



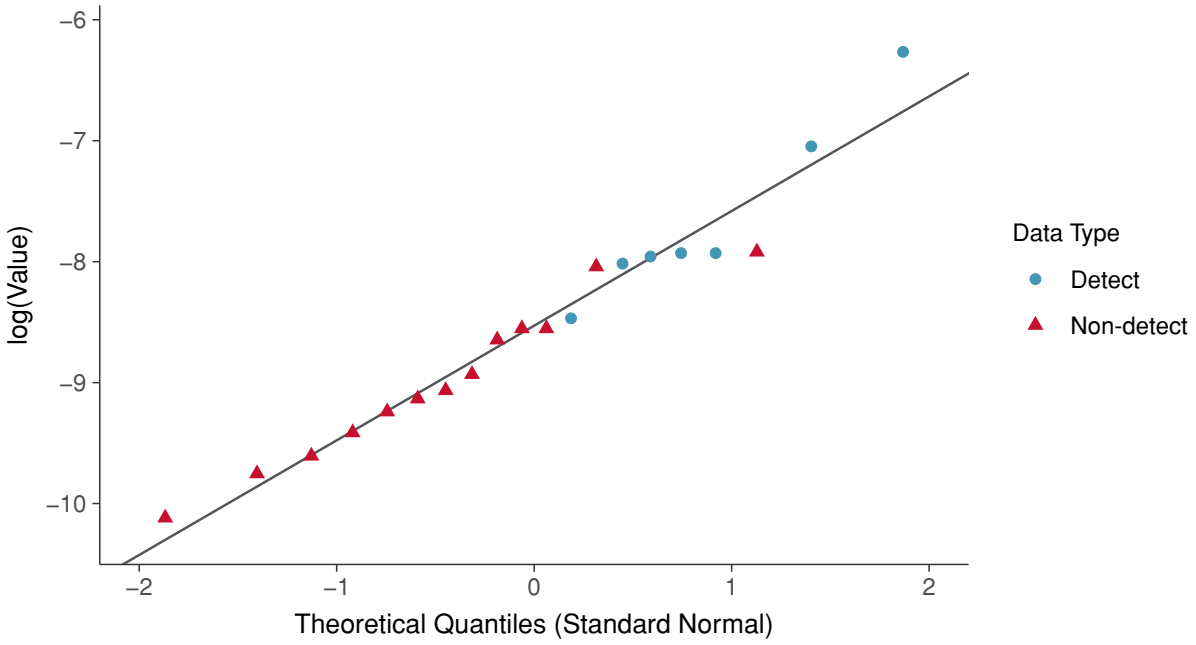
Boxplot by Season

Thallium, W-1 (mg/l)



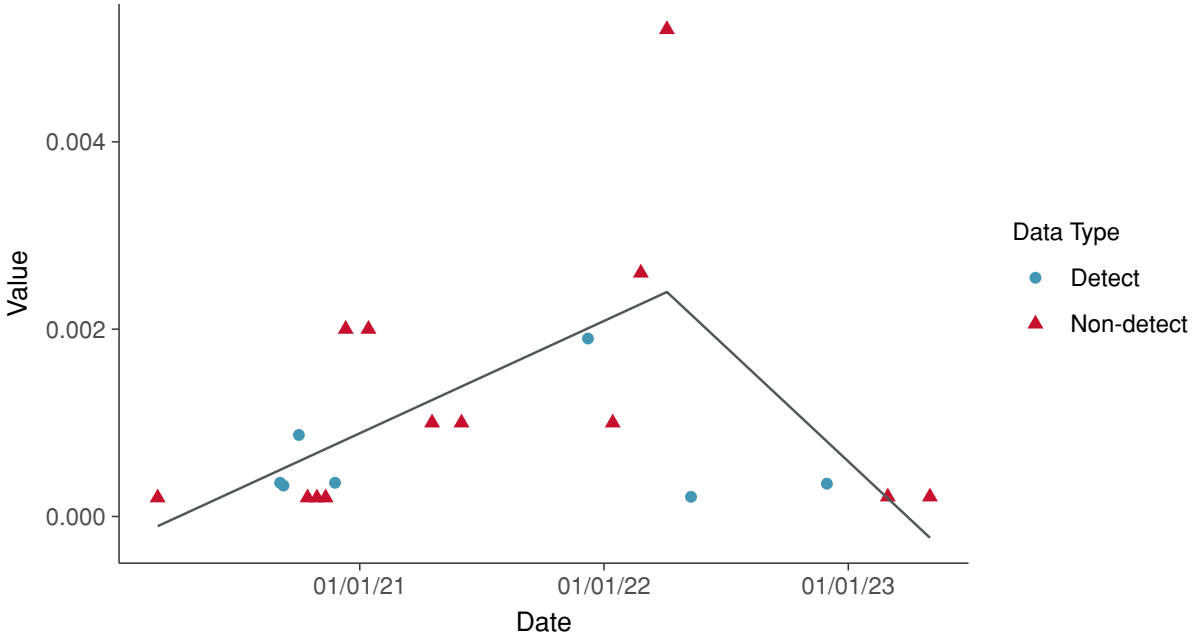
Lognormal Q-Q plot using ROS Imputed Estimates

Thallium, W-1 (mg/l)



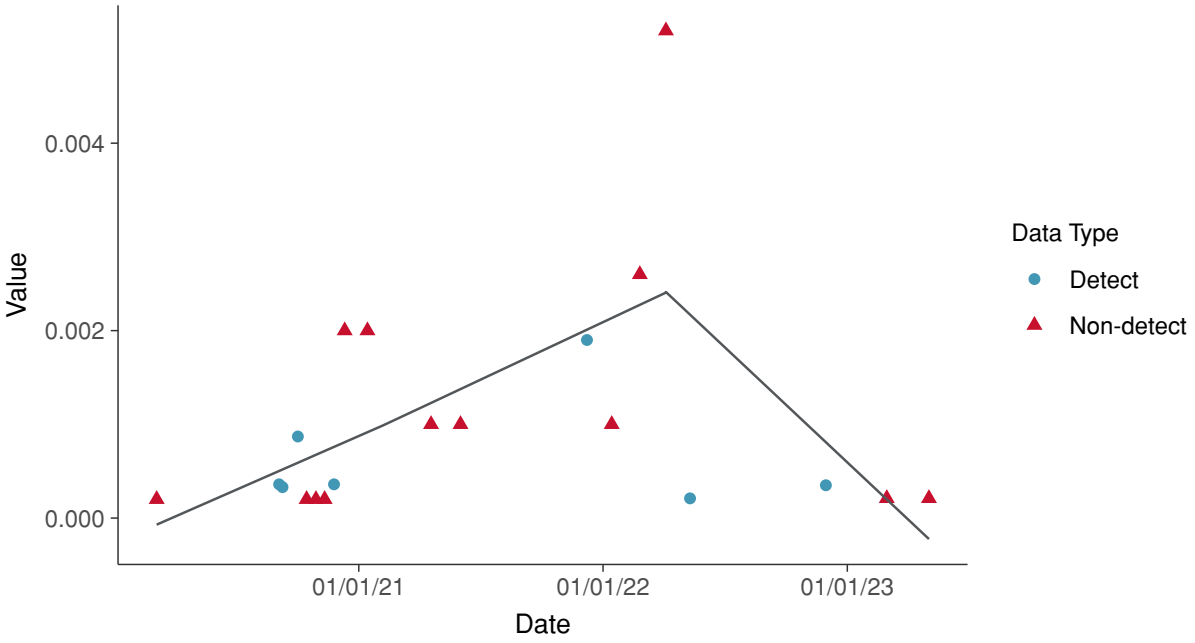
Trend Regression: Piecewise Linear-Linear

Thallium, W-1 (mg/l)



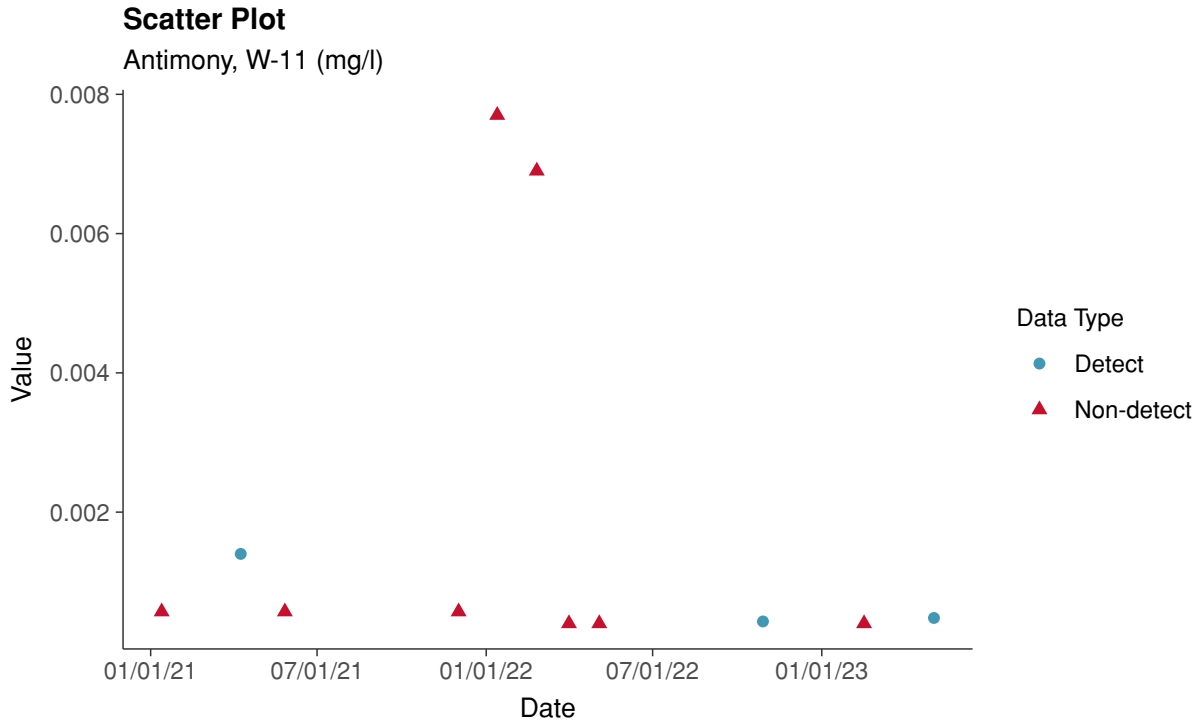
Trend Regression: Piecewise Linear-Linear-Linear

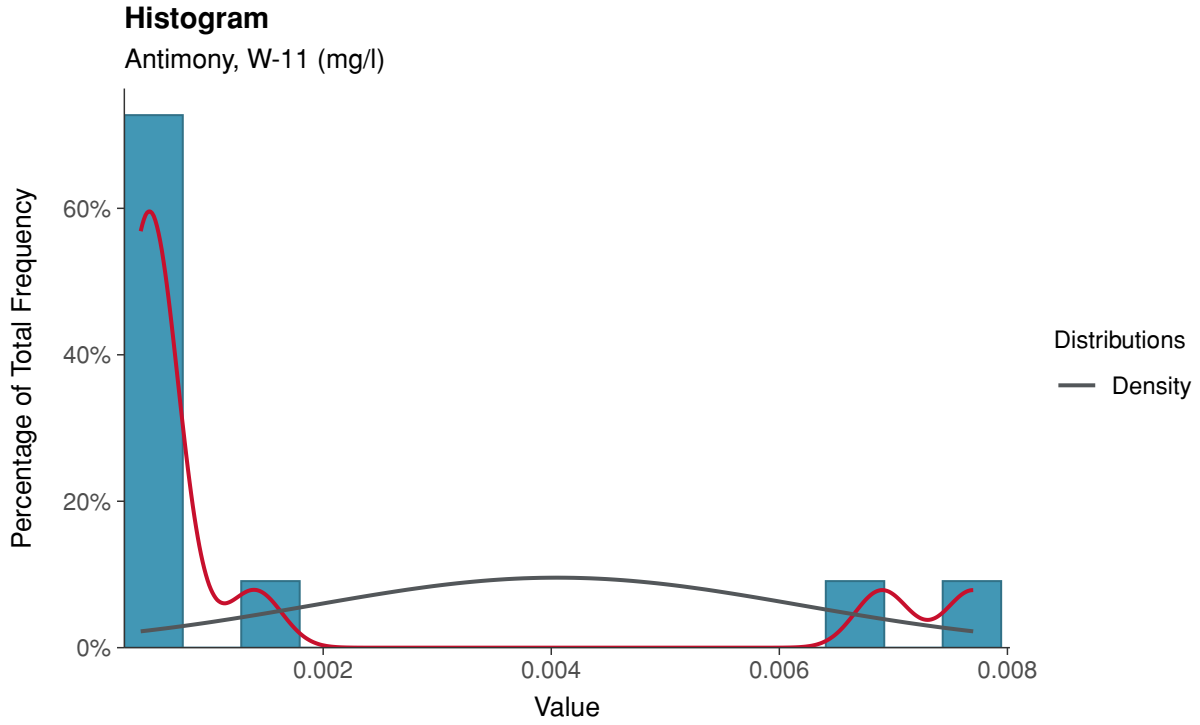
Thallium, W-1 (mg/l)



Appendix IV: Antimony, W-11

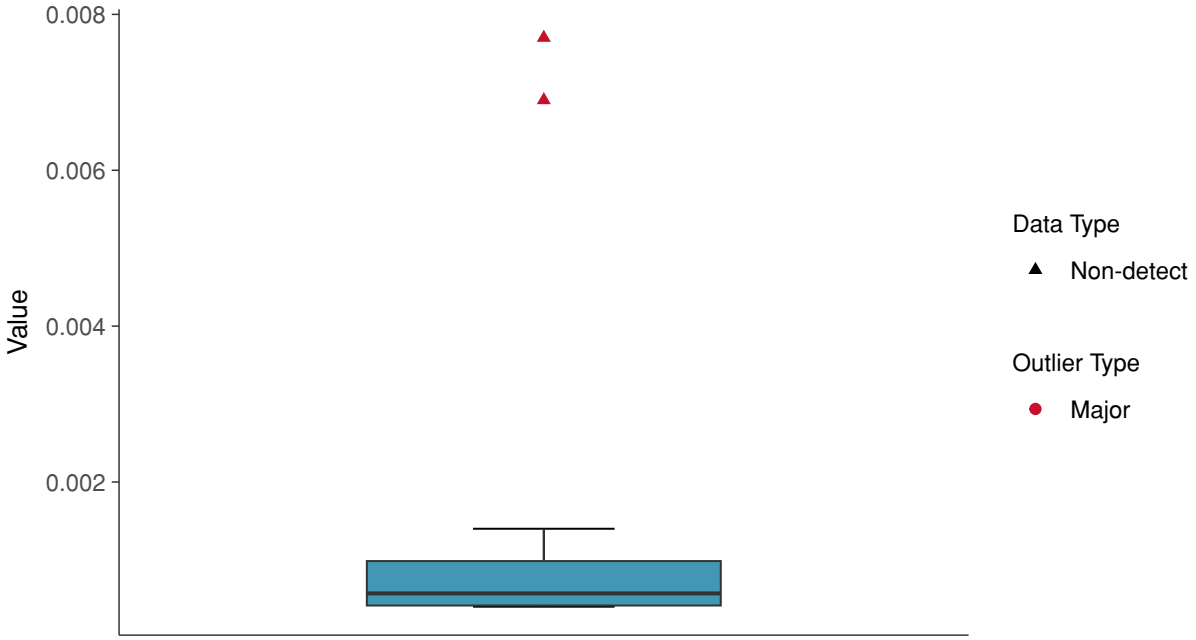
ID: 2_2_101





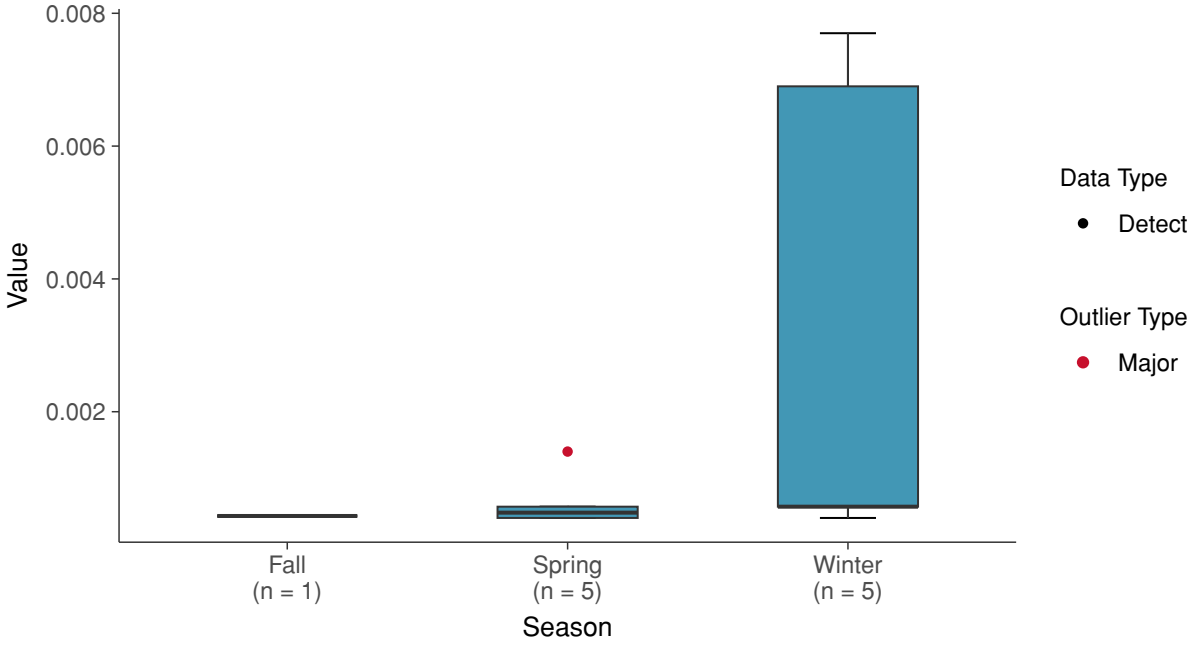
Boxplot

Antimony, W-11 (mg/l)



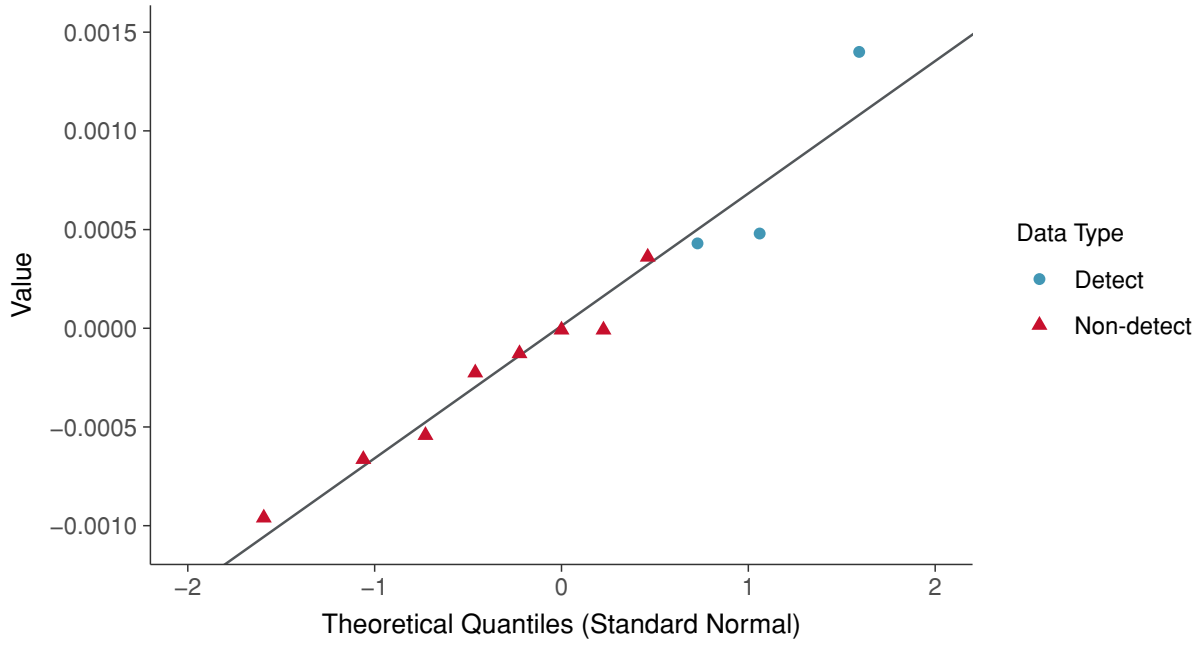
Boxplot by Season

Antimony, W-11 (mg/l)



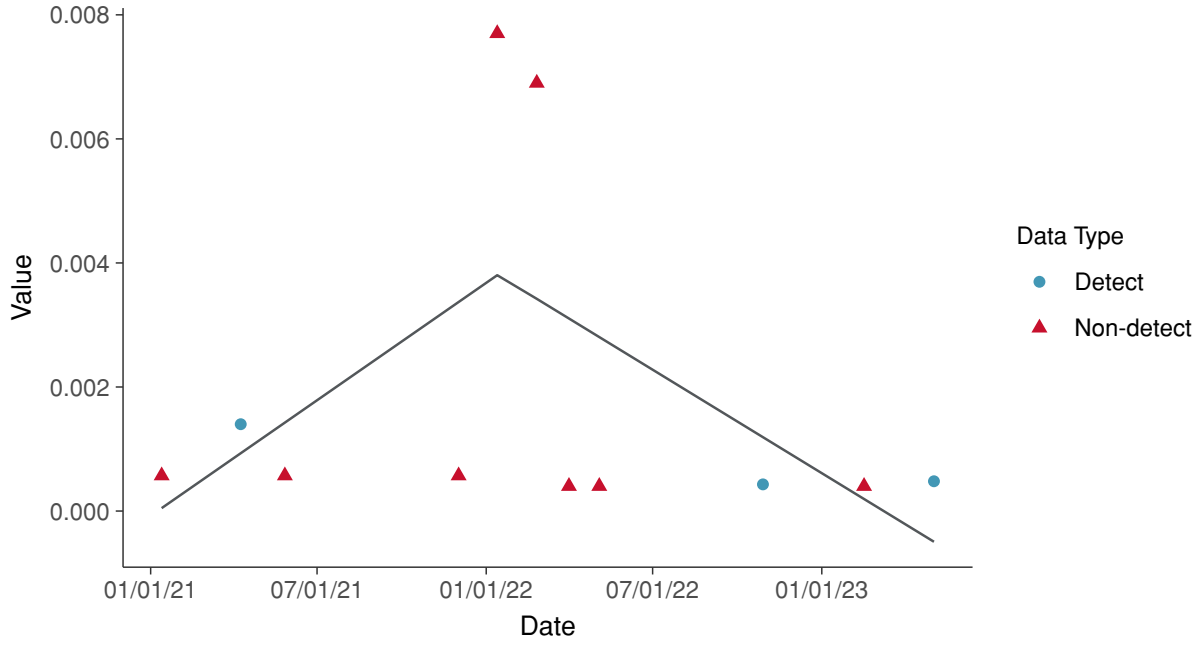
Normal Q-Q plot using ROS Imputed Estimates

Antimony, W-11 (mg/l)



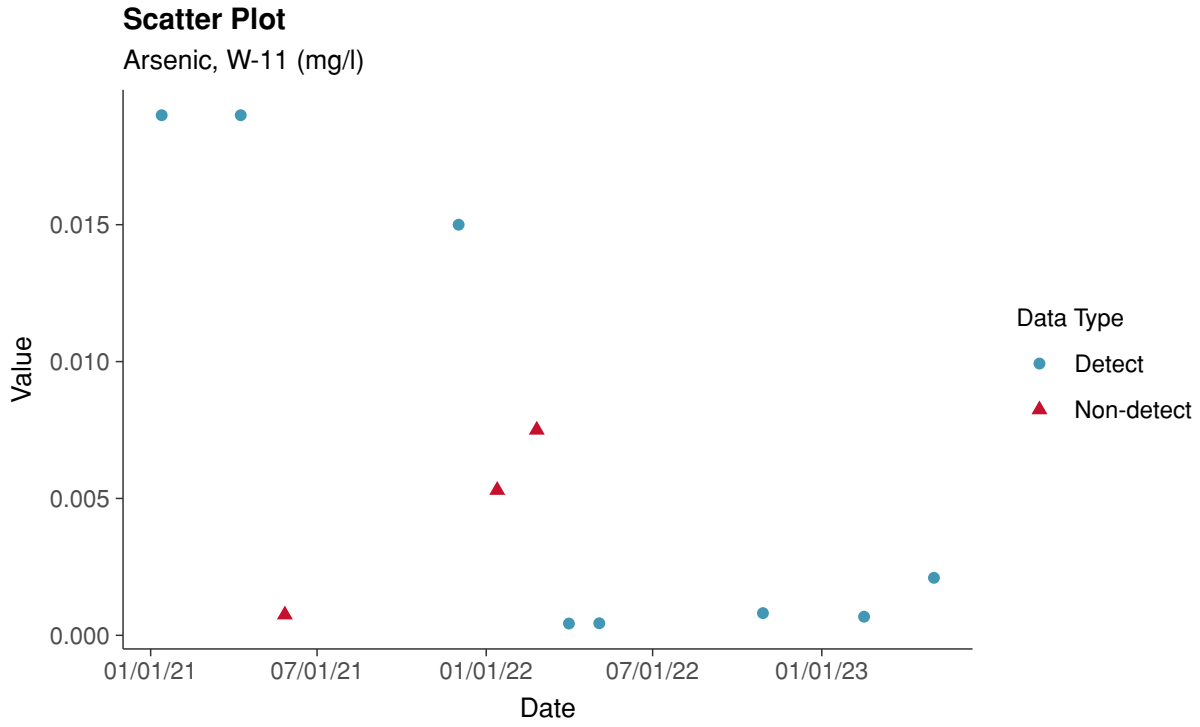
Trend Regression: Piecewise Linear-Linear

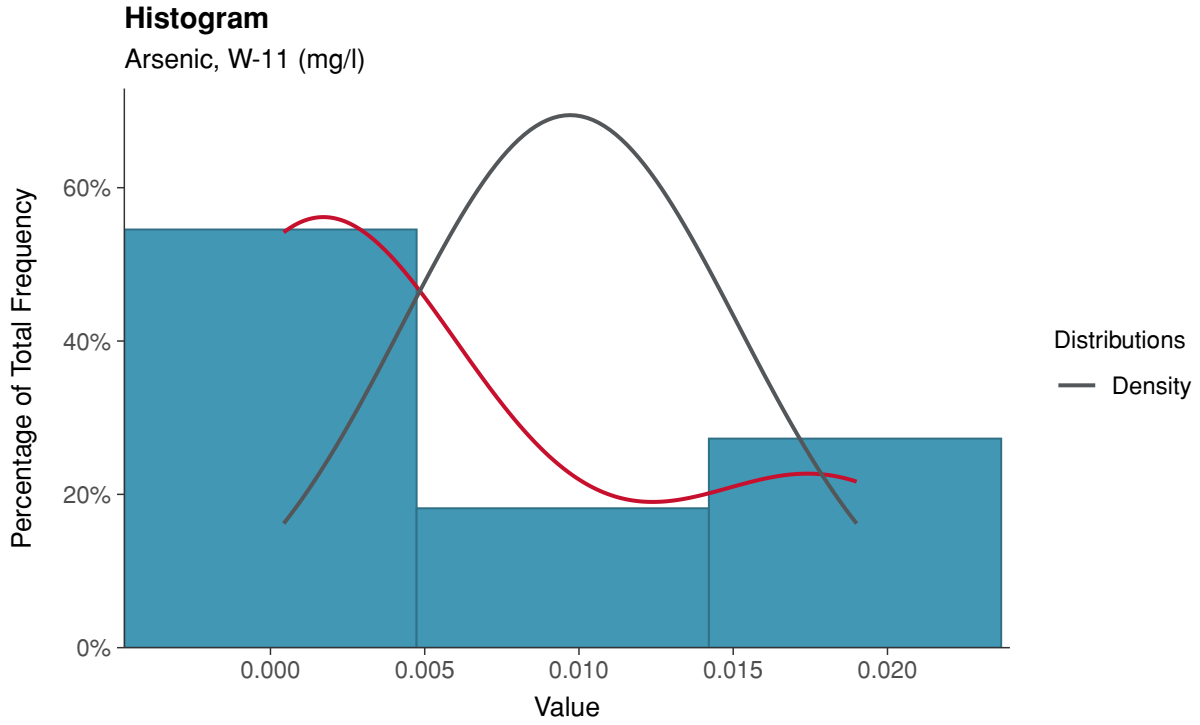
Antimony, W-11 (mg/l)



Appendix IV: Arsenic, W-11

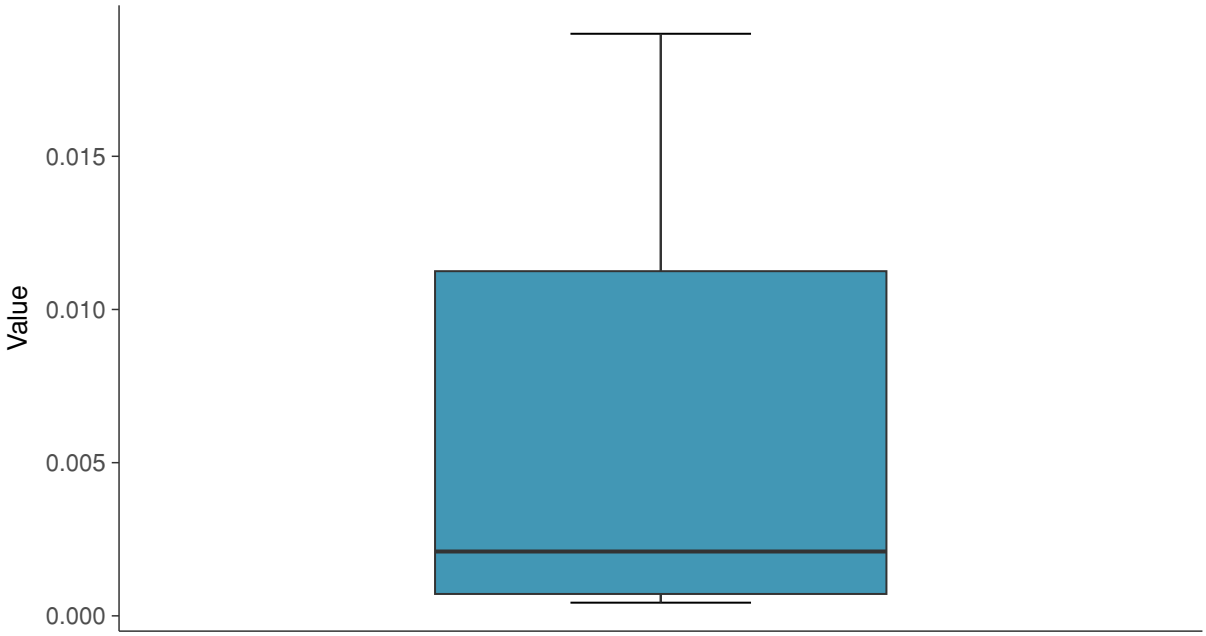
ID: 2_2_102





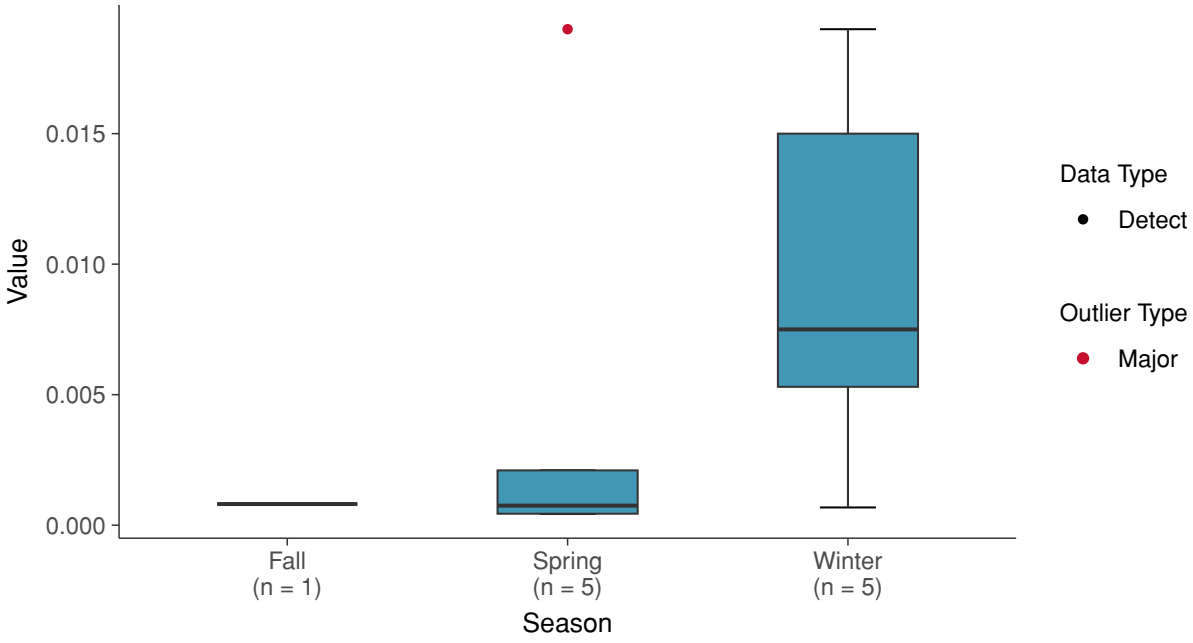
Boxplot

Arsenic, W-11 (mg/l)



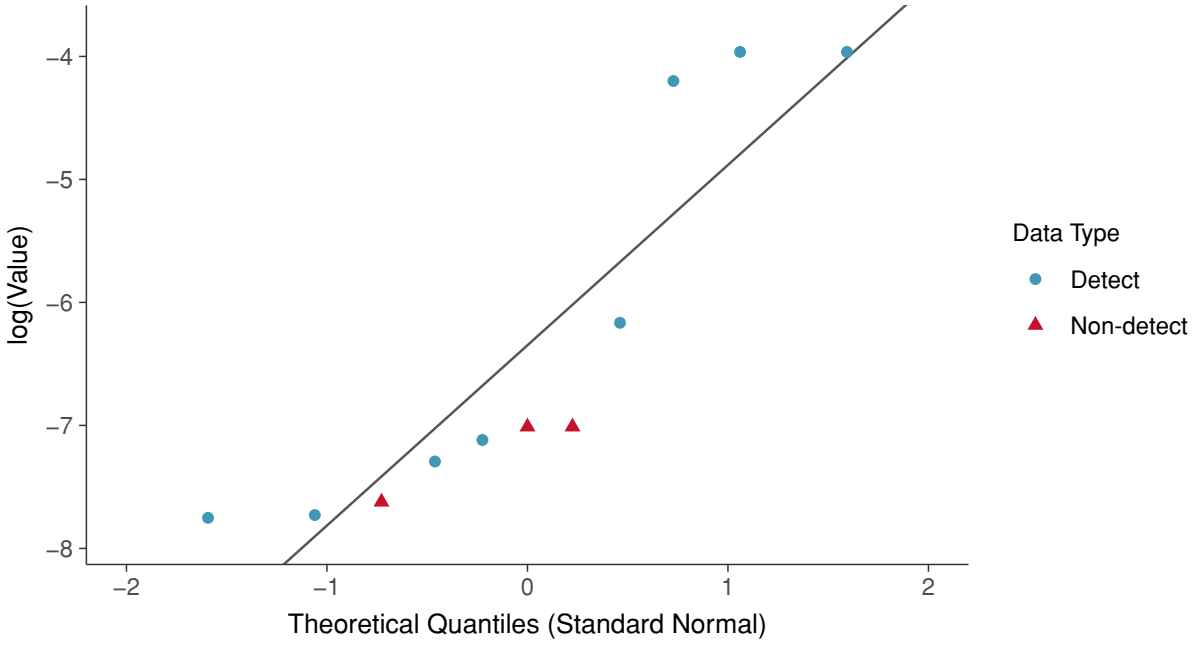
Boxplot by Season

Arsenic, W-11 (mg/l)



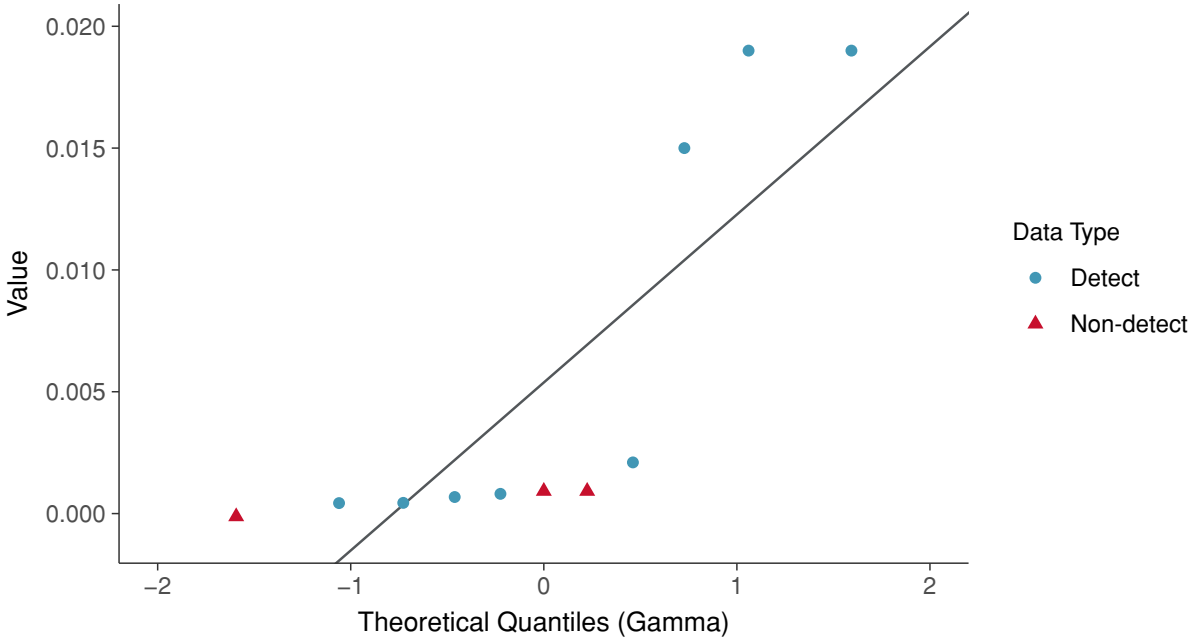
Lognormal Q-Q plot using ROS Imputed Estimates

Arsenic, W-11 (mg/l)



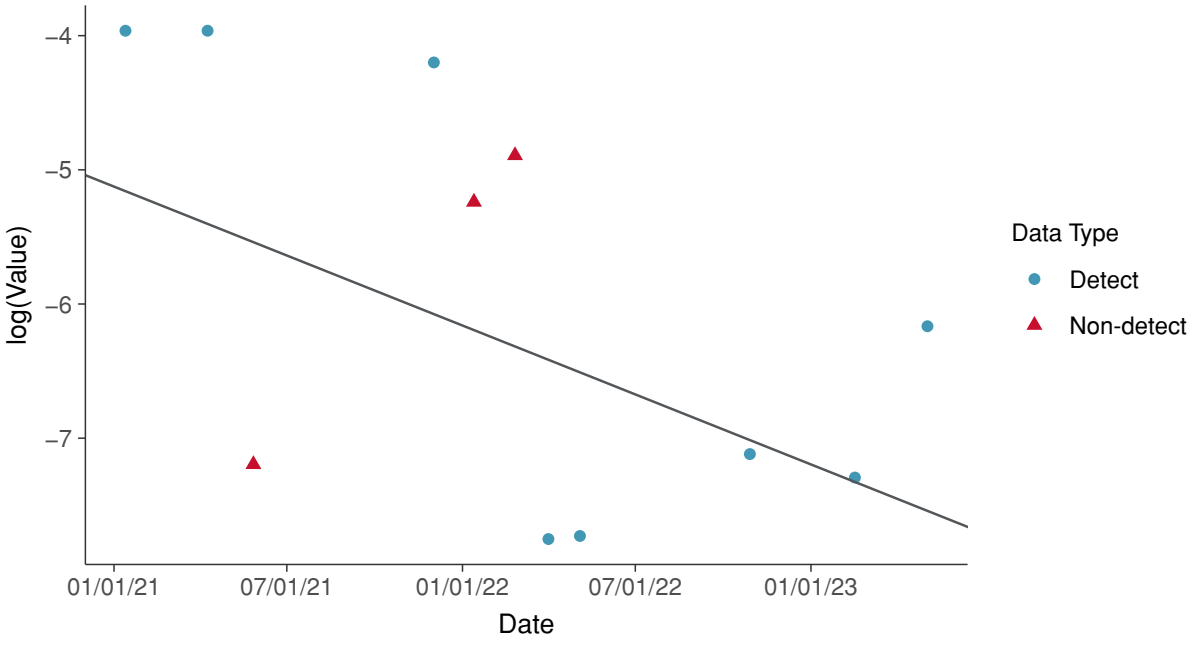
Gamma Q-Q plot using ROS Imputed Estimates

Arsenic, W-11 (mg/l)



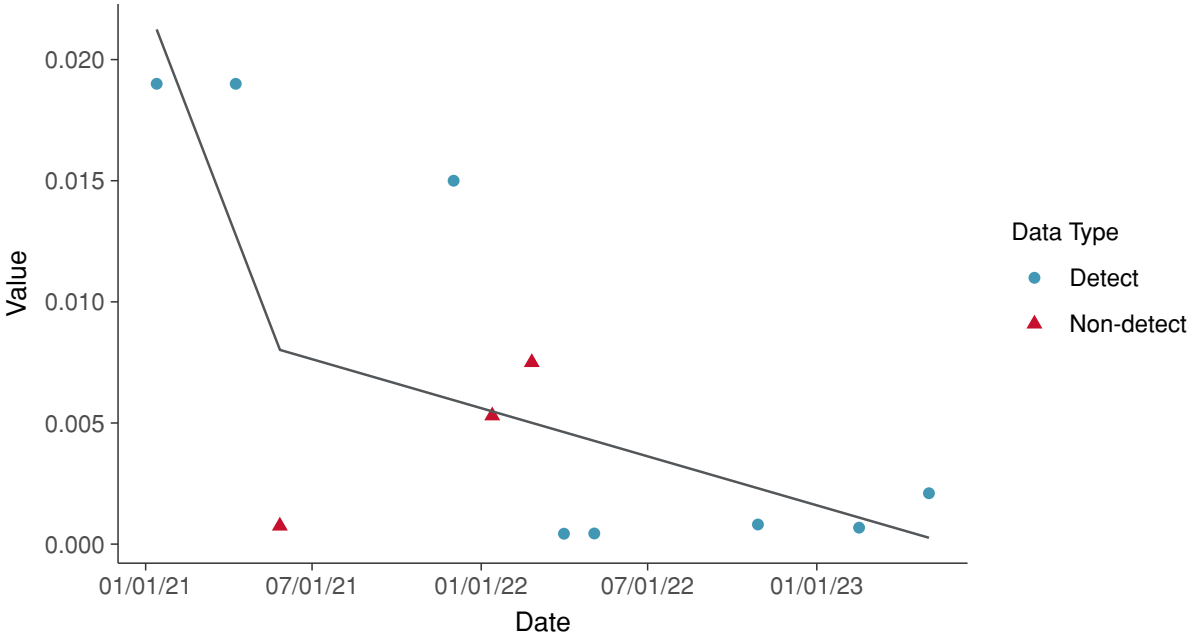
Trend Regression: Lognormal MLE

Arsenic, W-11 (mg/l)



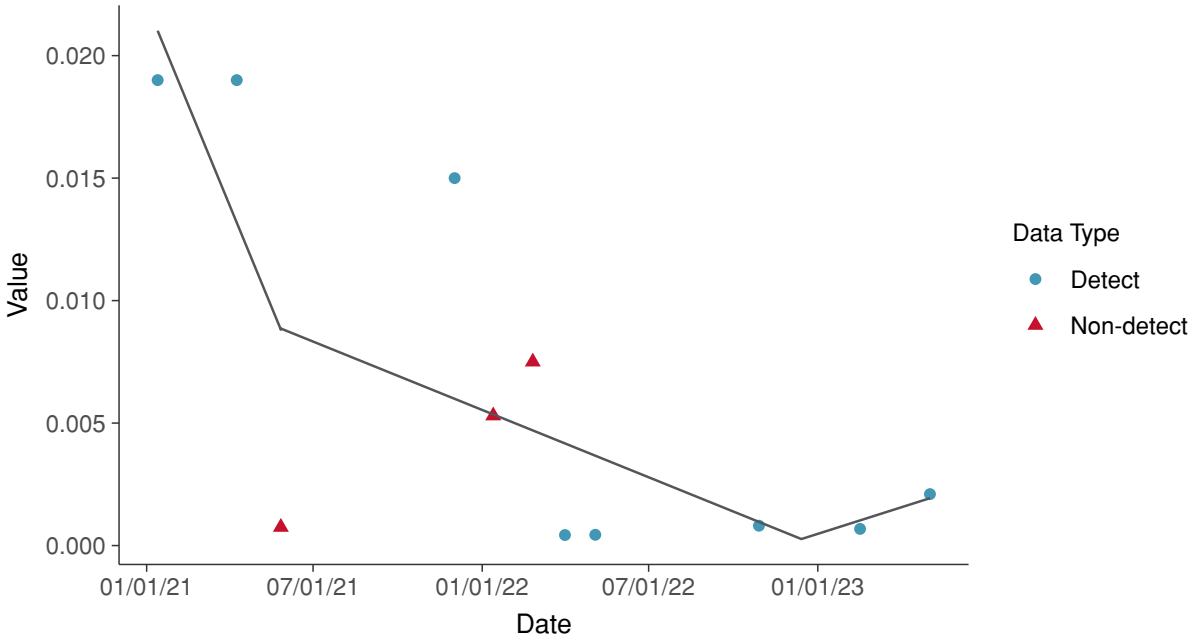
Trend Regression: Piecewise Linear-Linear

Arsenic, W-11 (mg/l)



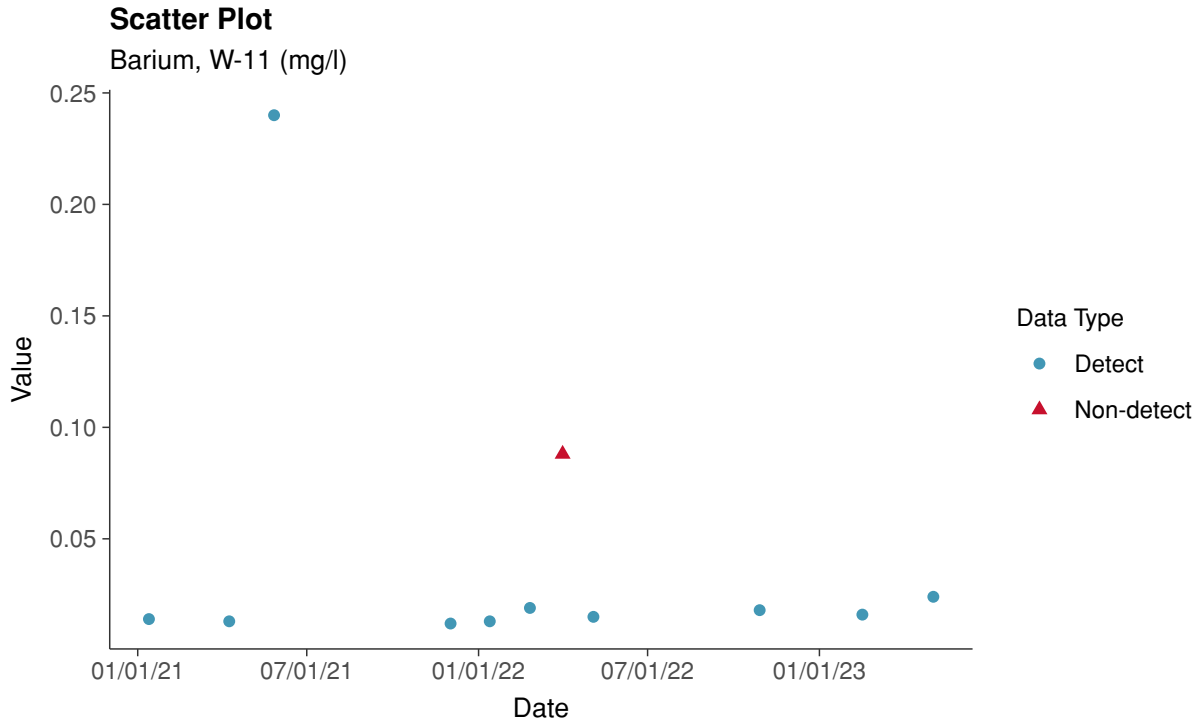
Trend Regression: Piecewise Linear-Linear-Linear

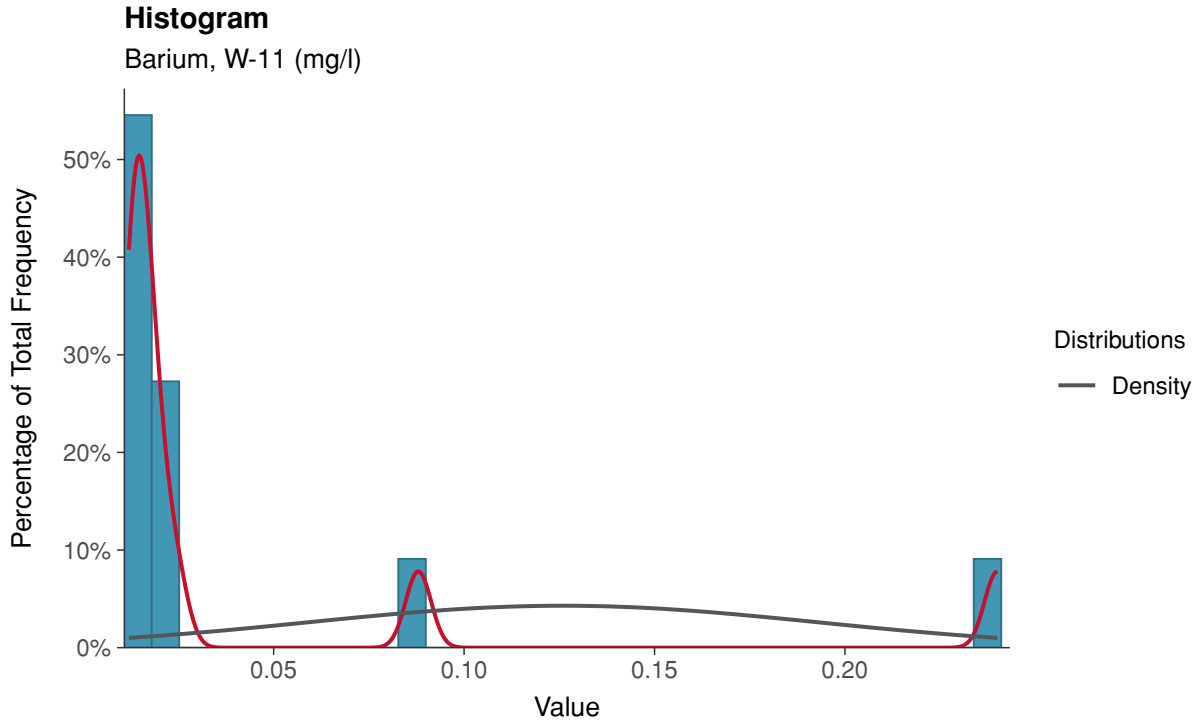
Arsenic, W-11 (mg/l)



Appendix IV: Barium, W-11

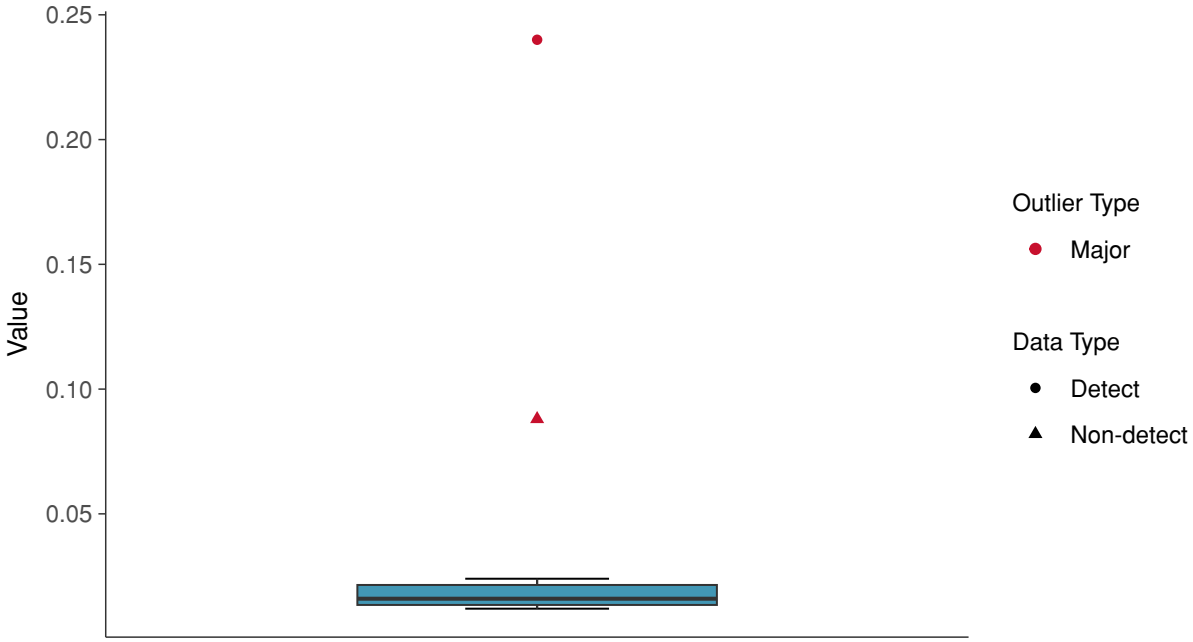
ID: 2_2_103





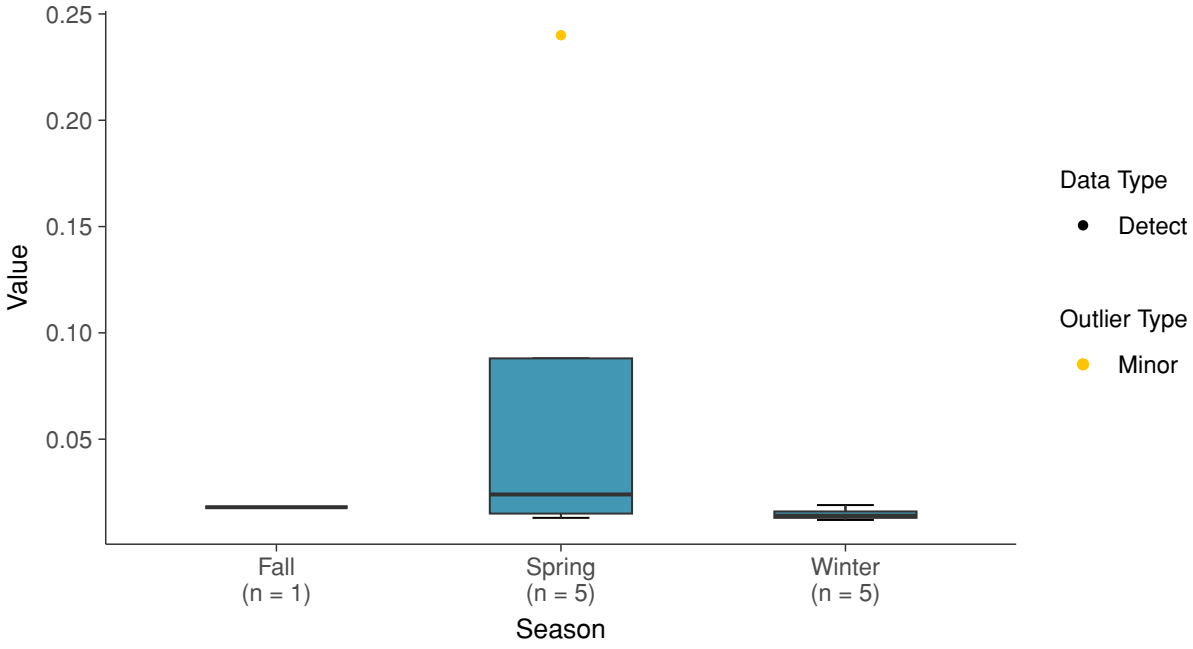
Boxplot

Barium, W-11 (mg/l)



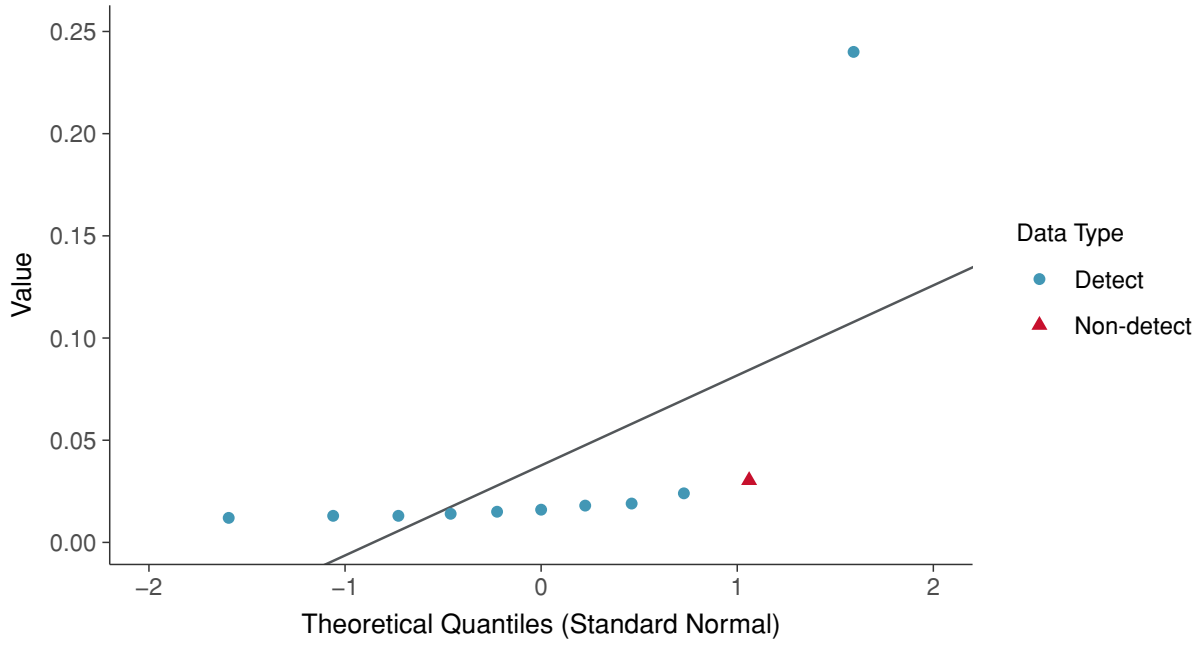
Boxplot by Season

Barium, W-11 (mg/l)



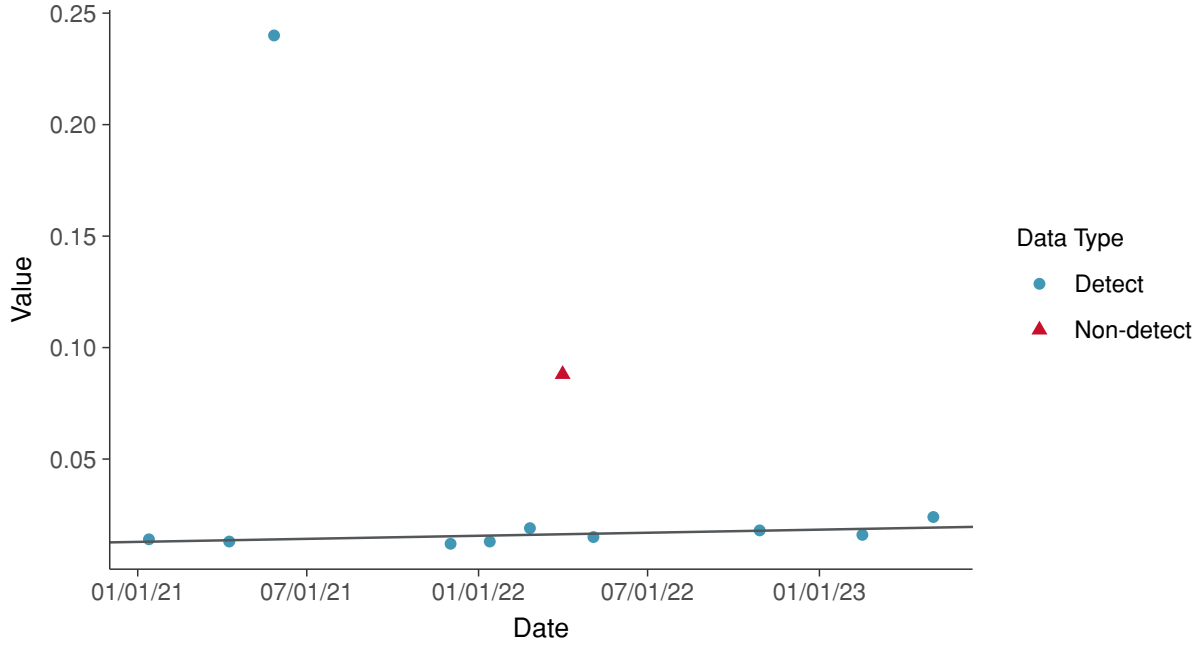
Normal Q-Q plot using ROS Imputed Estimates

Barium, W-11 (mg/l)



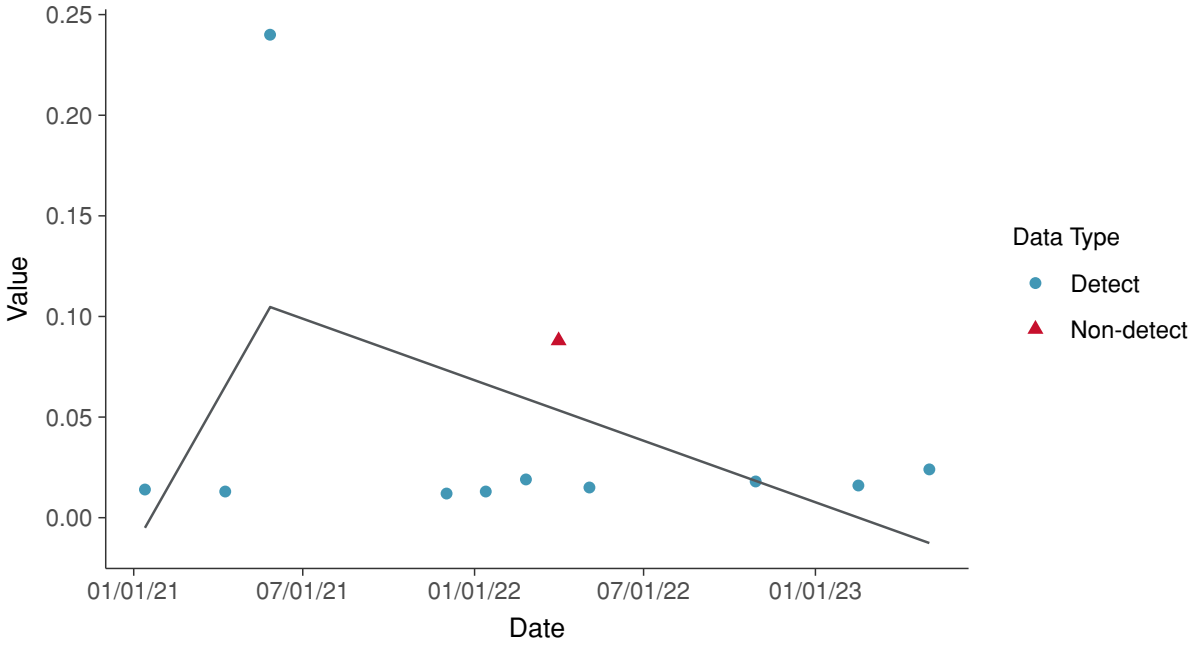
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Barium, W-11 (mg/l)



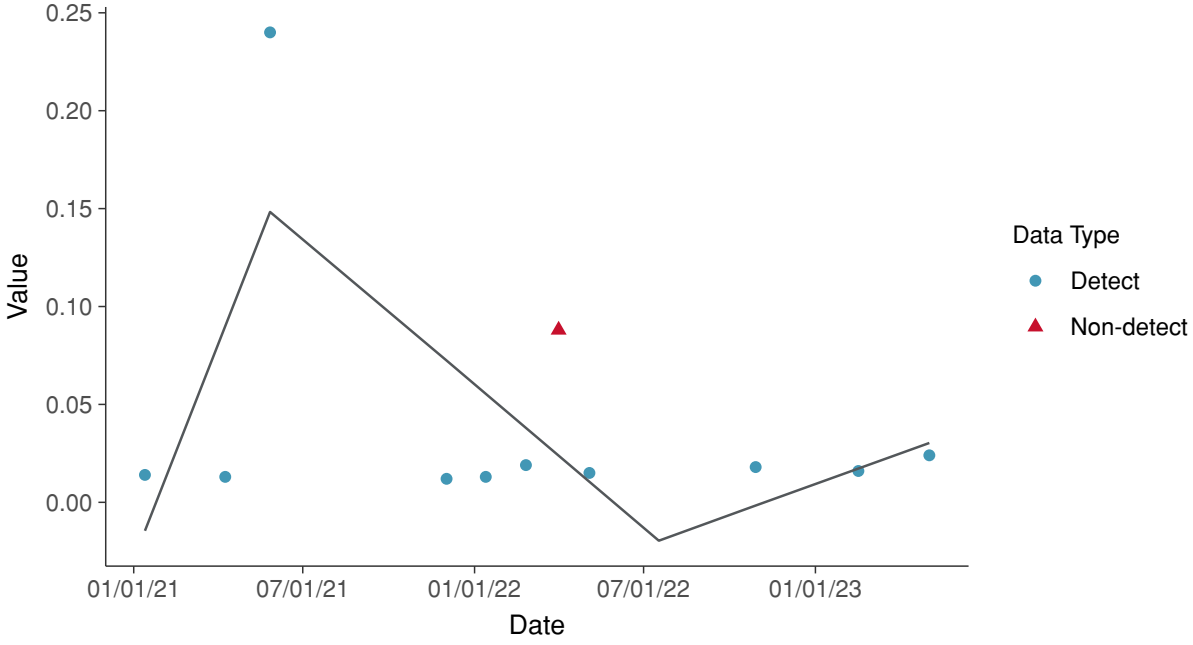
Trend Regression: Piecewise Linear-Linear

Barium, W-11 (mg/l)



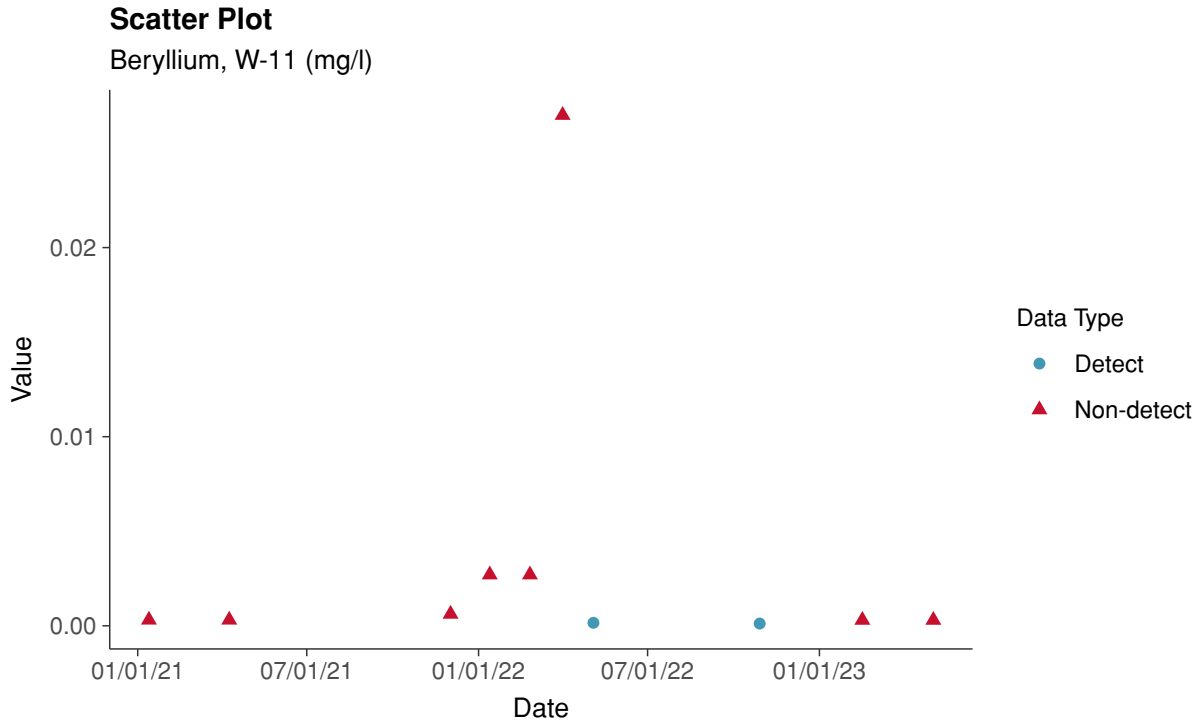
Trend Regression: Piecewise Linear-Linear-Linear

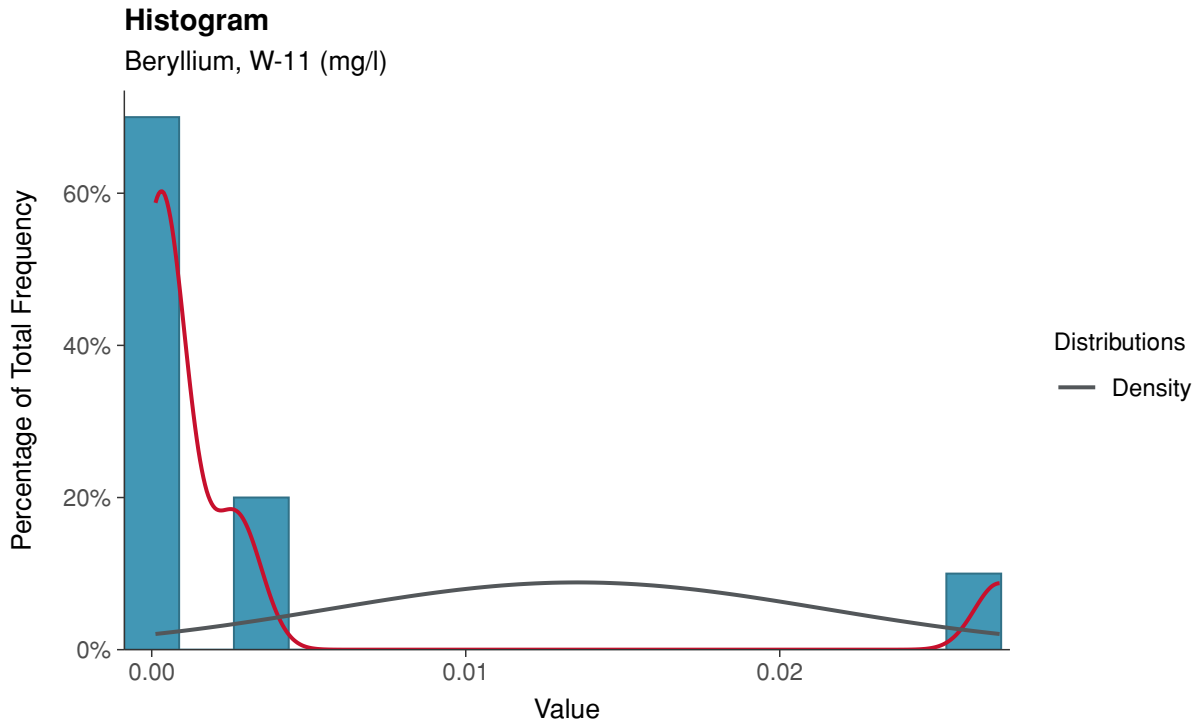
Barium, W-11 (mg/l)



Appendix IV: Beryllium, W-11

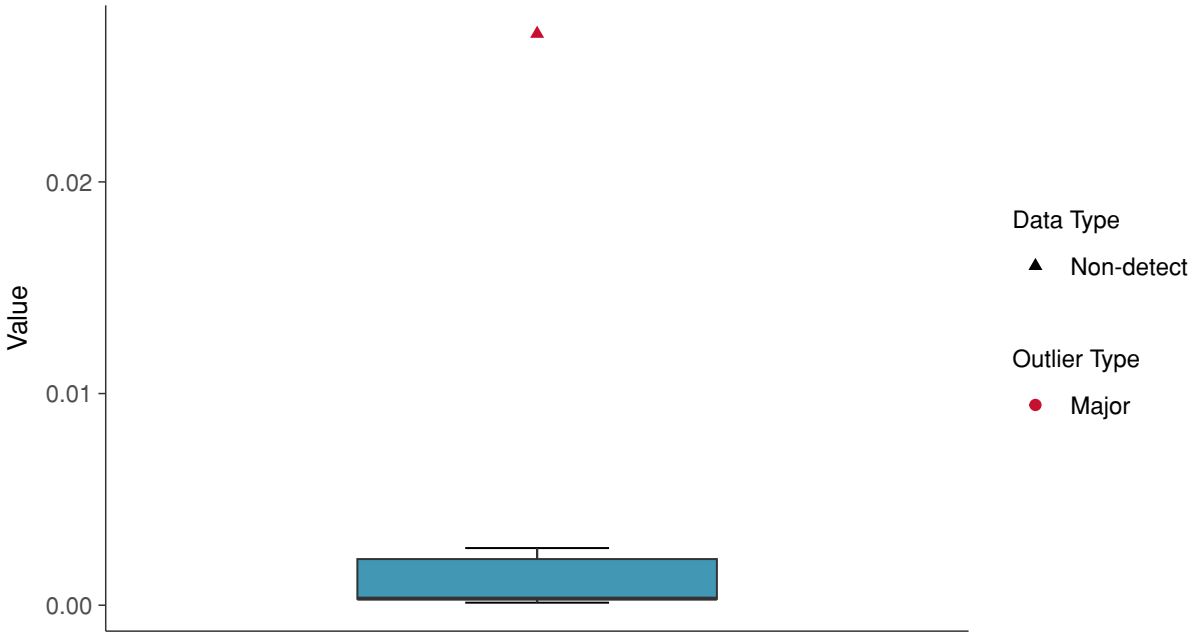
ID: 2_2_104





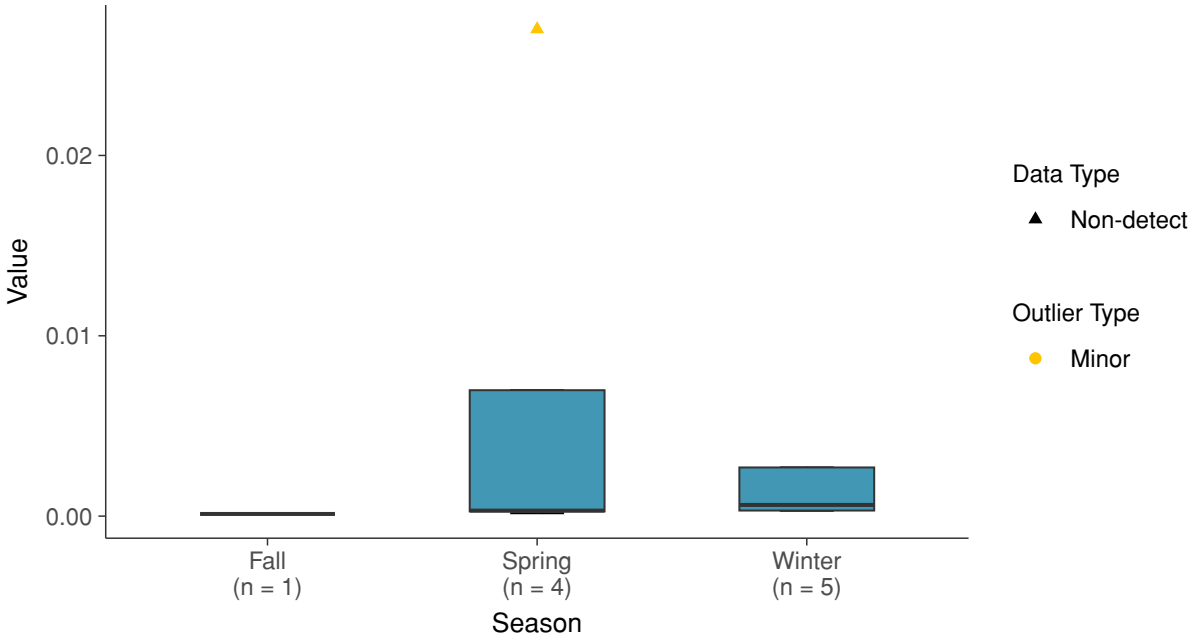
Boxplot

Beryllium, W-11 (mg/l)



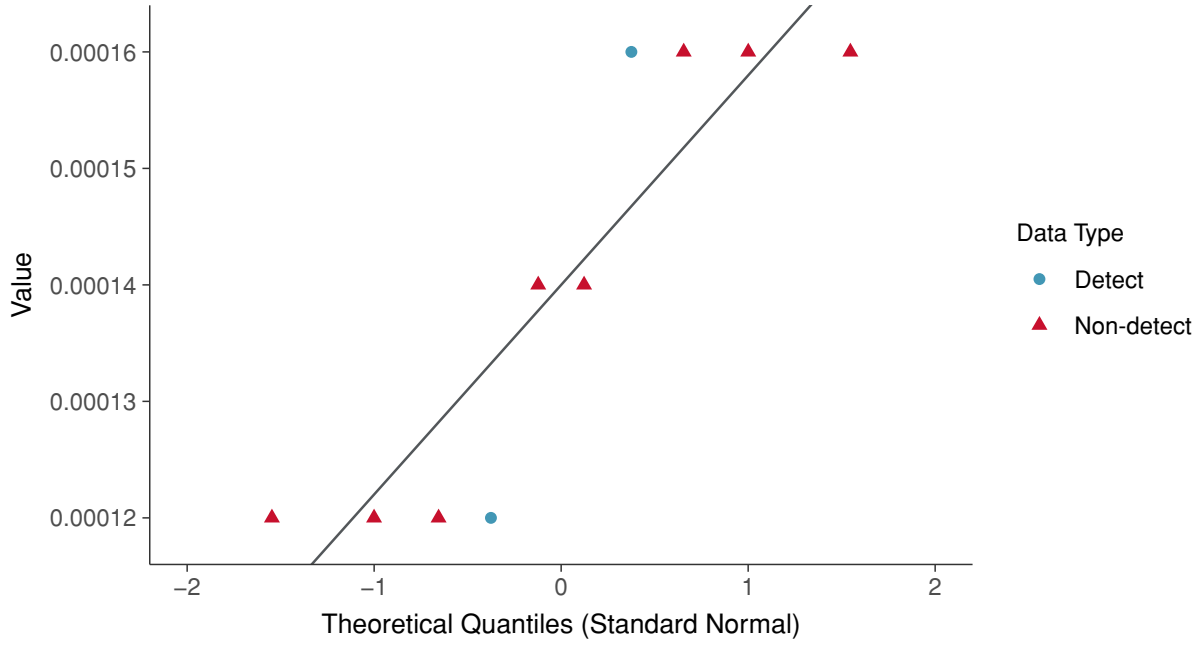
Boxplot by Season

Beryllium, W-11 (mg/l)



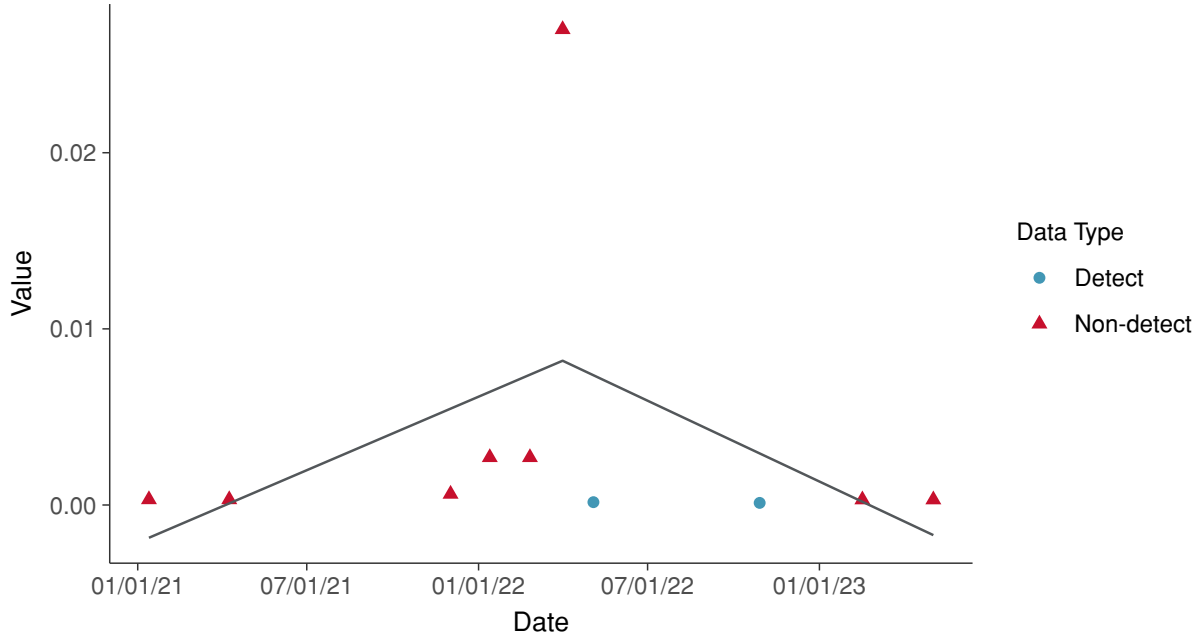
Normal Q-Q plot using ROS Imputed Estimates

Beryllium, W-11 (mg/l)



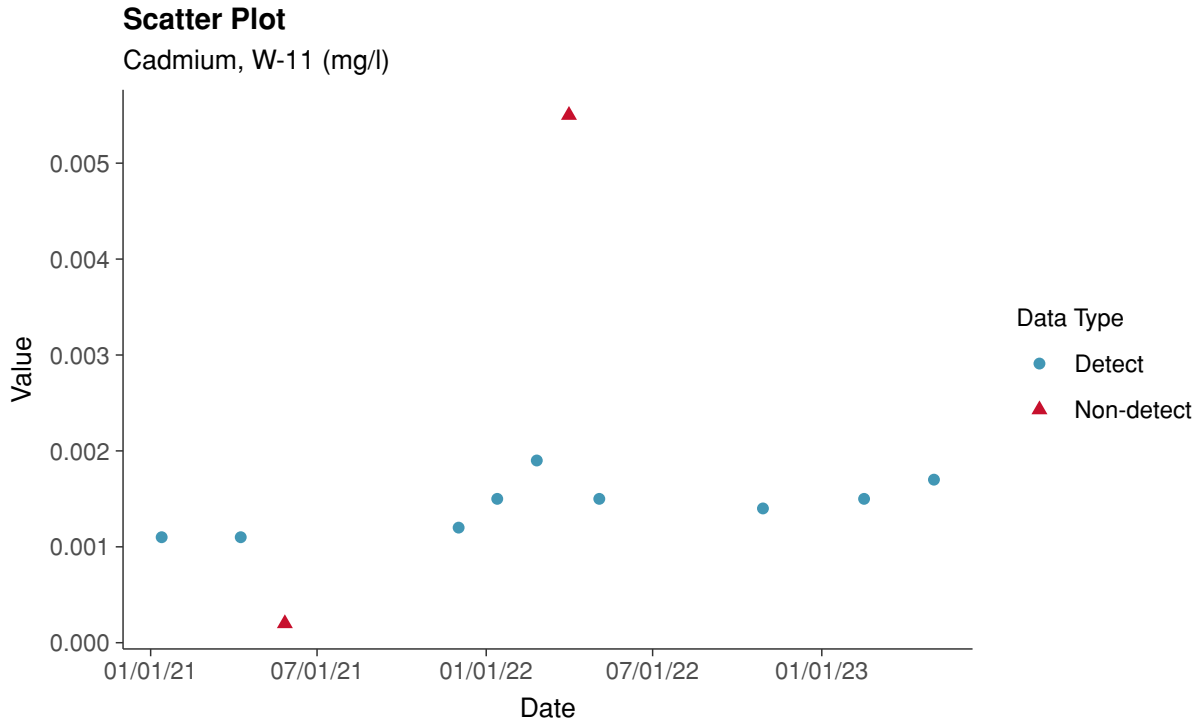
Trend Regression: Piecewise Linear-Linear

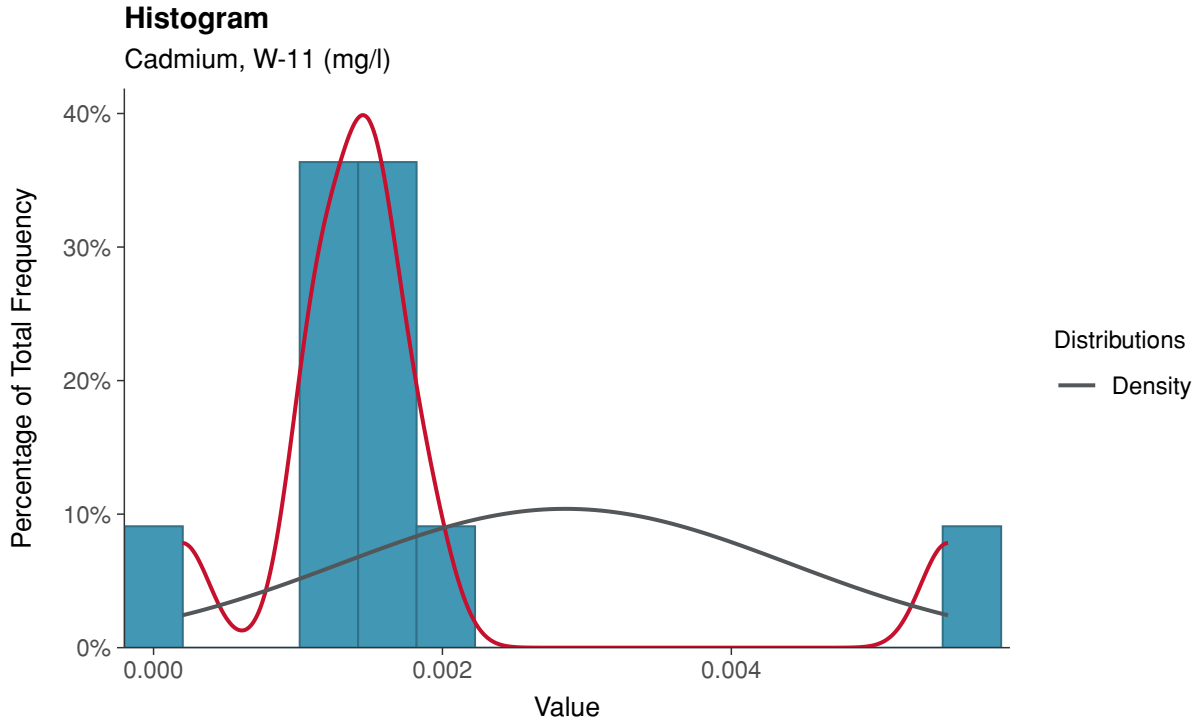
Beryllium, W-11 (mg/l)



Appendix IV: Cadmium, W-11

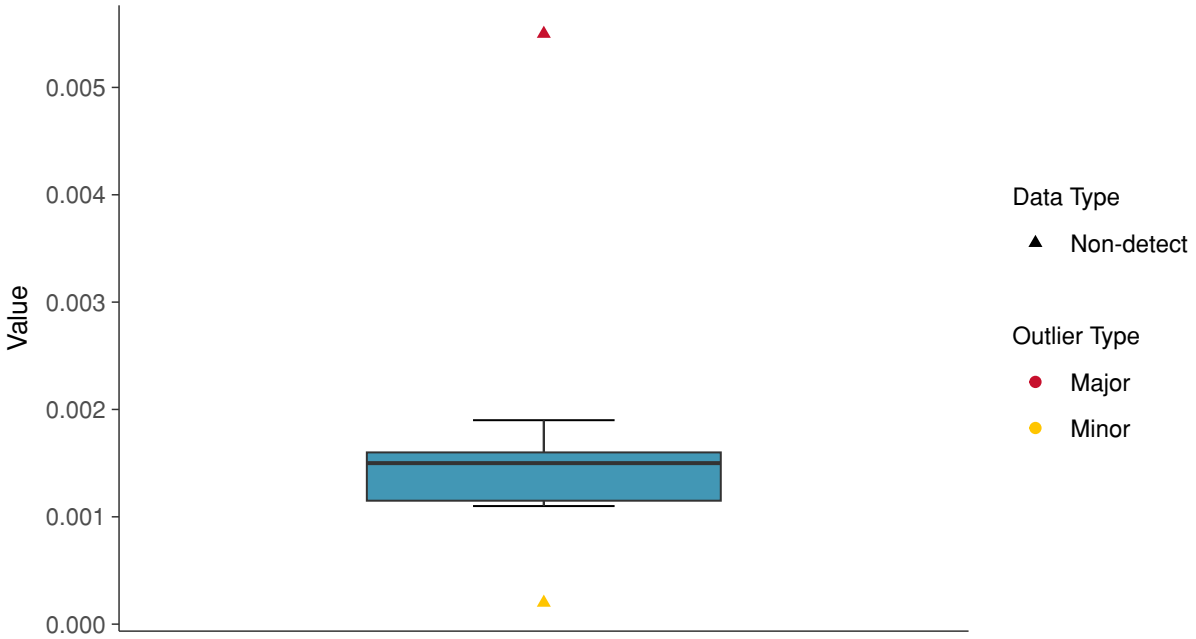
ID: 2_2_106





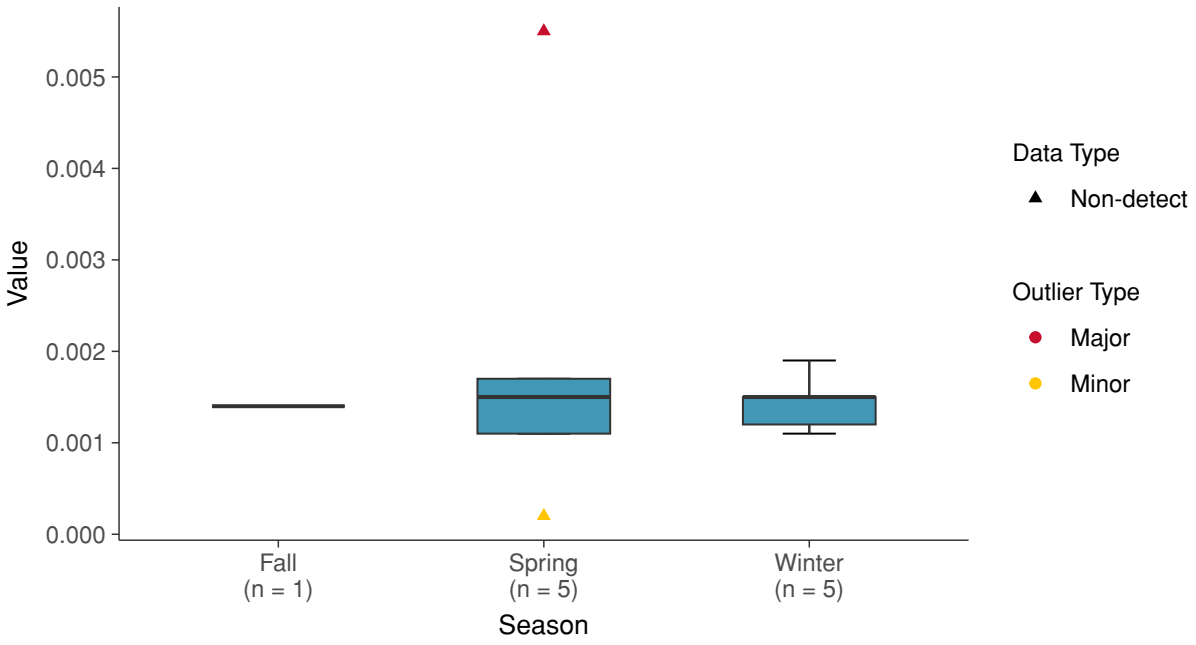
Boxplot

Cadmium, W-11 (mg/l)



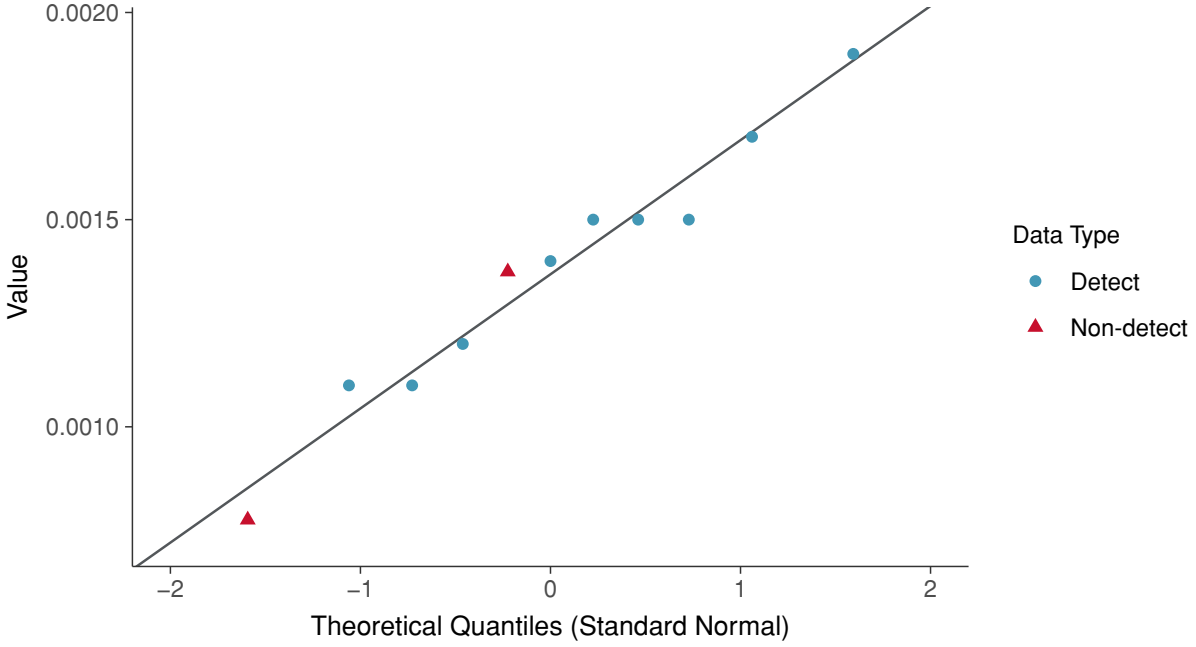
Boxplot by Season

Cadmium, W-11 (mg/l)



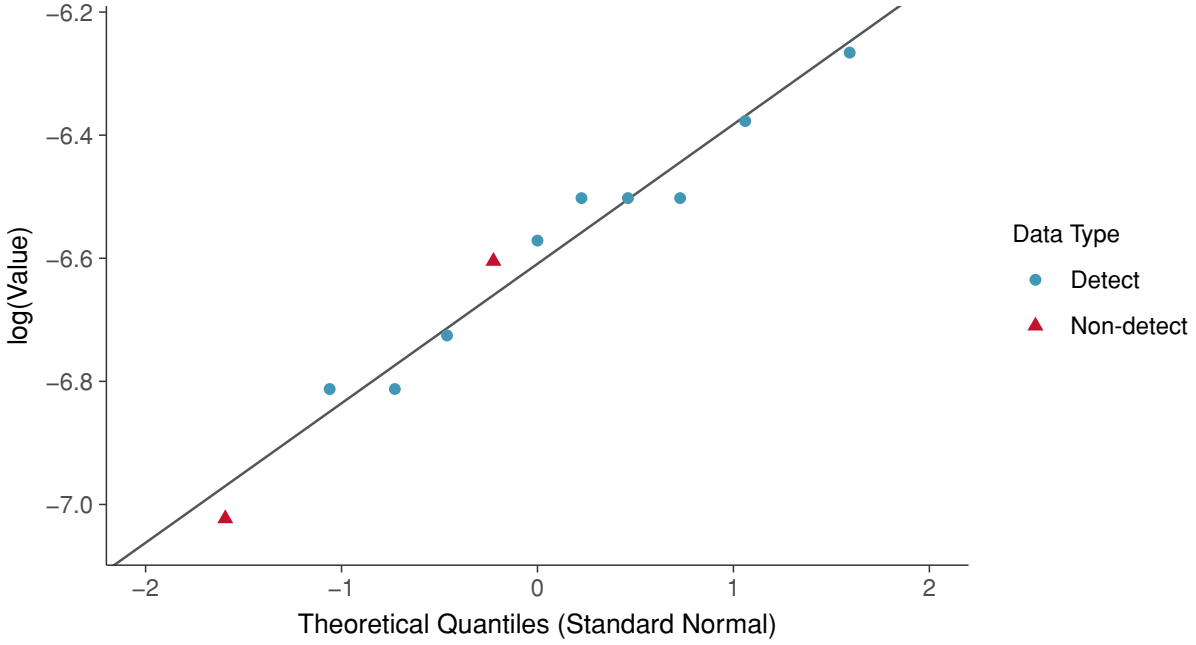
Normal Q-Q plot using ROS Imputed Estimates

Cadmium, W-11 (mg/l)



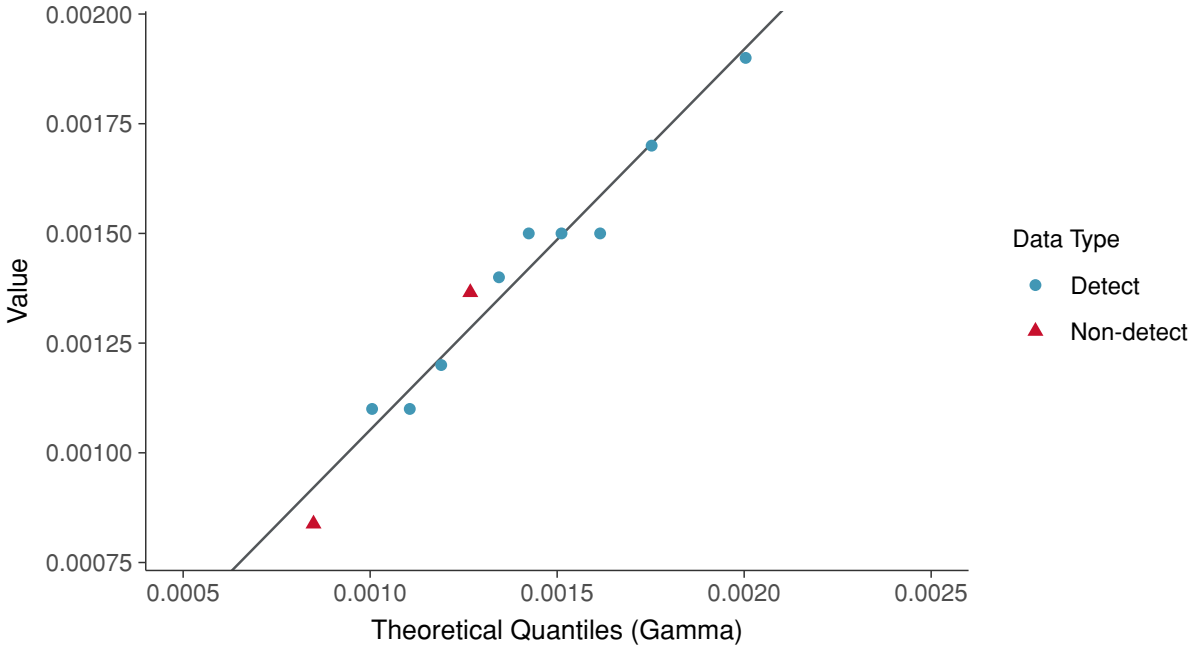
Lognormal Q-Q plot using ROS Imputed Estimates

Cadmium, W-11 (mg/l)



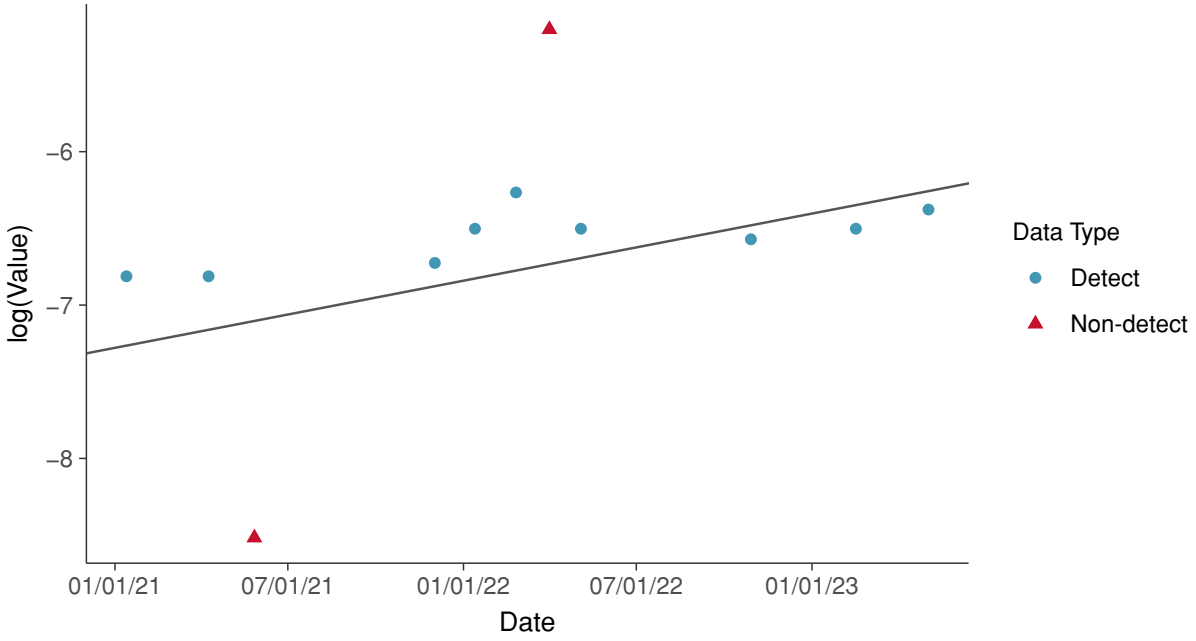
Gamma Q-Q plot using ROS Imputed Estimates

Cadmium, W-11 (mg/l)



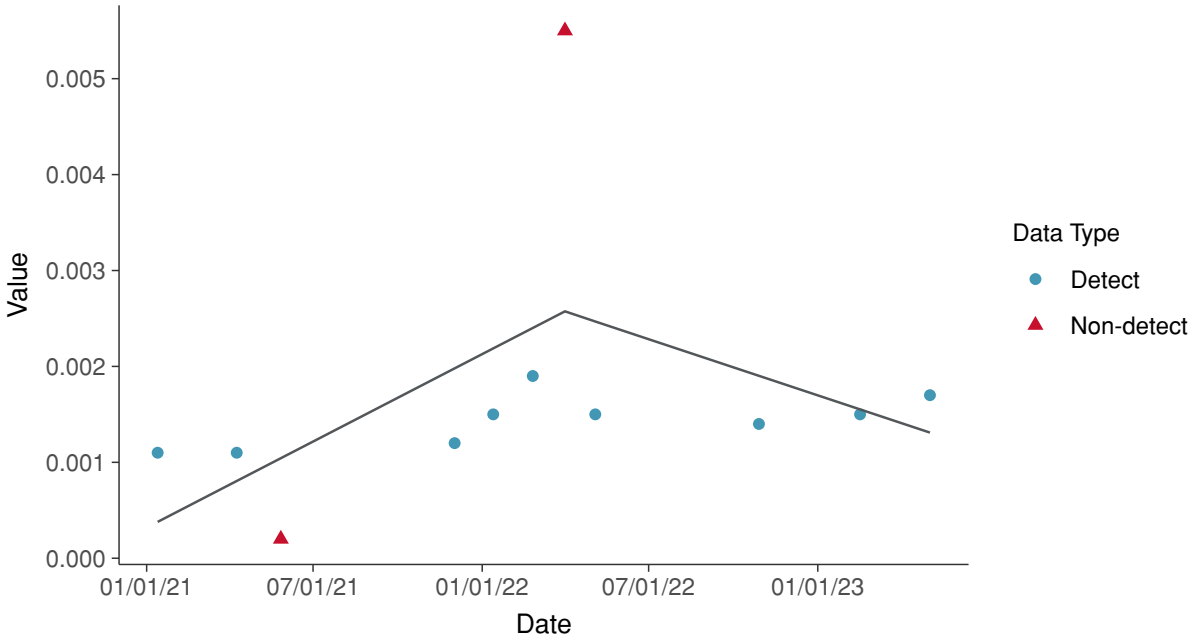
Trend Regression: Lognormal MLE

Cadmium, W-11 (mg/l)



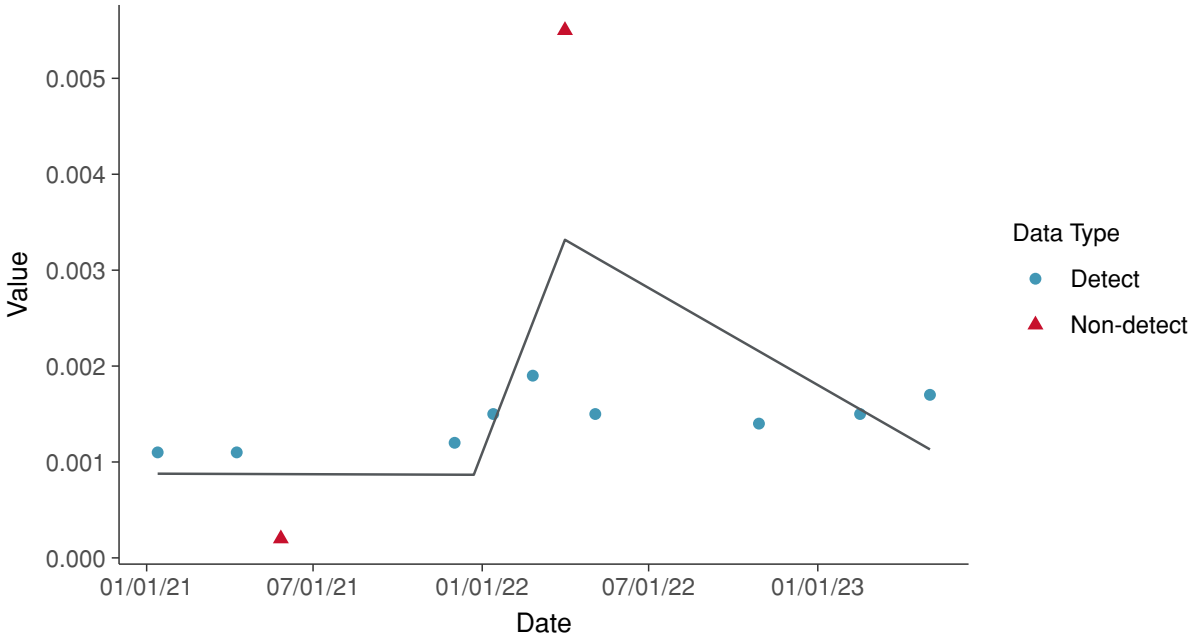
Trend Regression: Piecewise Linear-Linear

Cadmium, W-11 (mg/l)



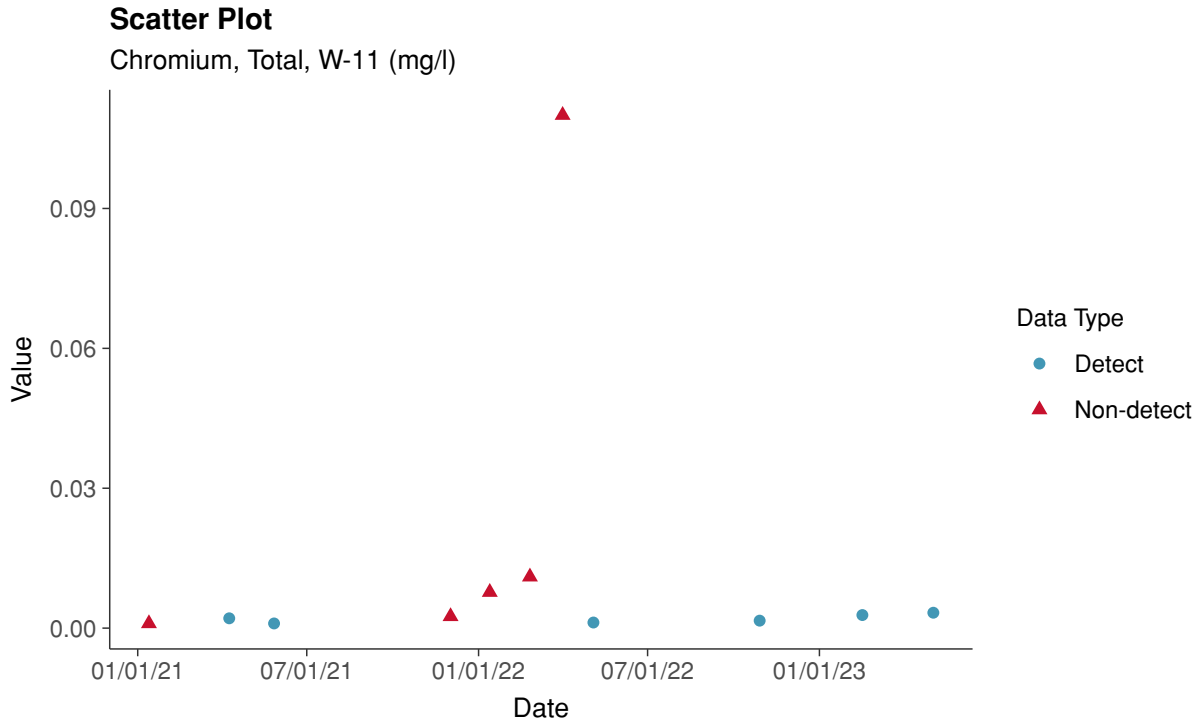
Trend Regression: Piecewise Linear-Linear-Linear

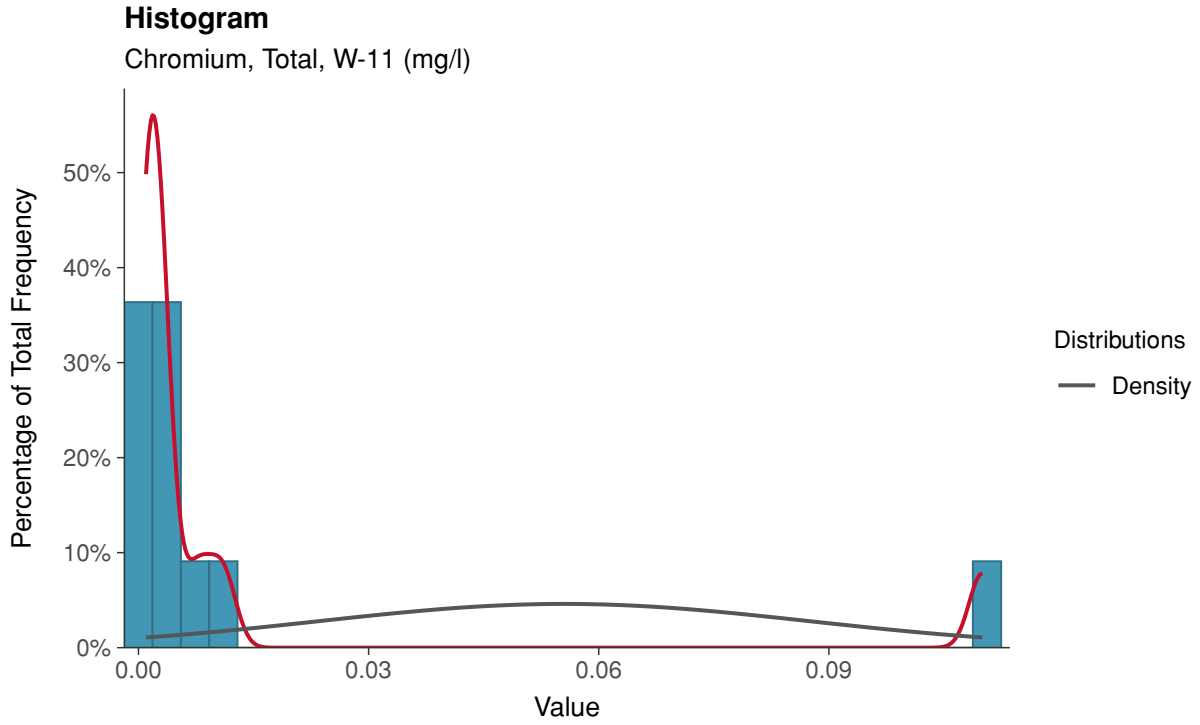
Cadmium, W-11 (mg/l)



Appendix IV: Chromium, Total, W-11

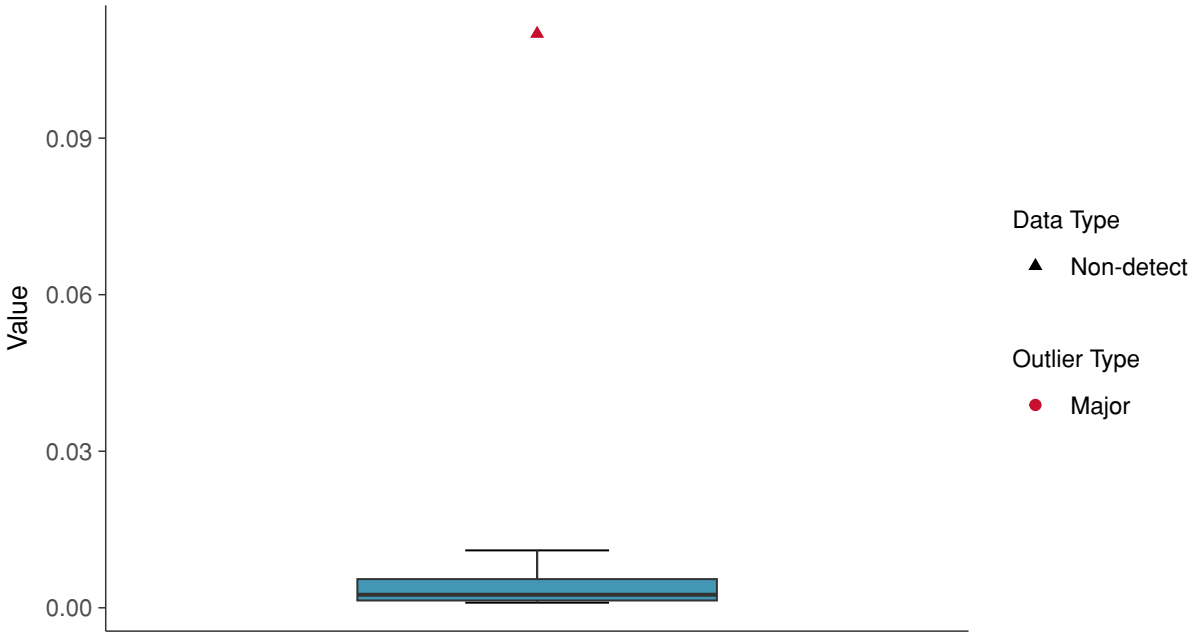
ID: 2_2_109





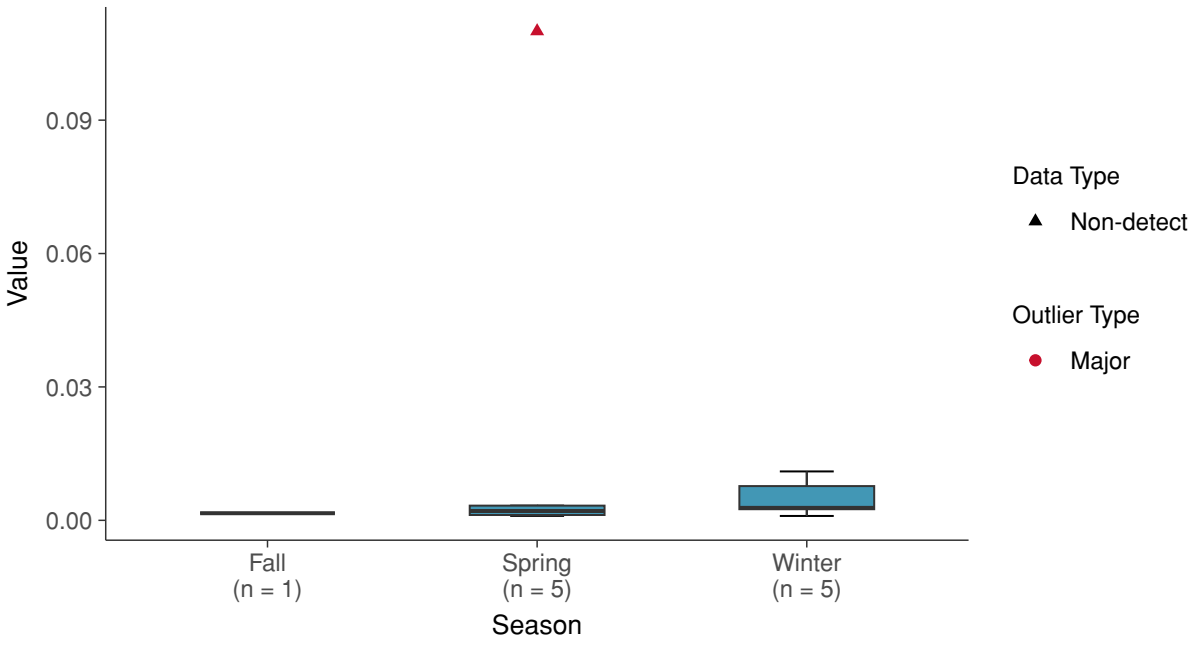
Boxplot

Chromium, Total, W-11 (mg/l)



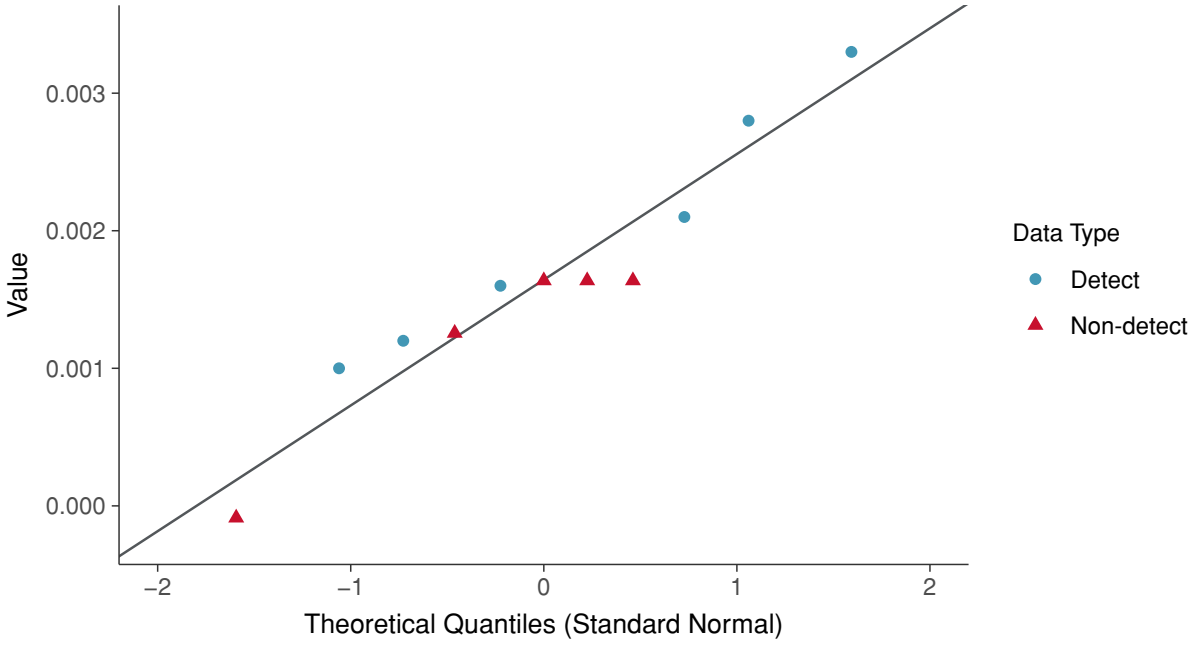
Boxplot by Season

Chromium, Total, W-11 (mg/l)



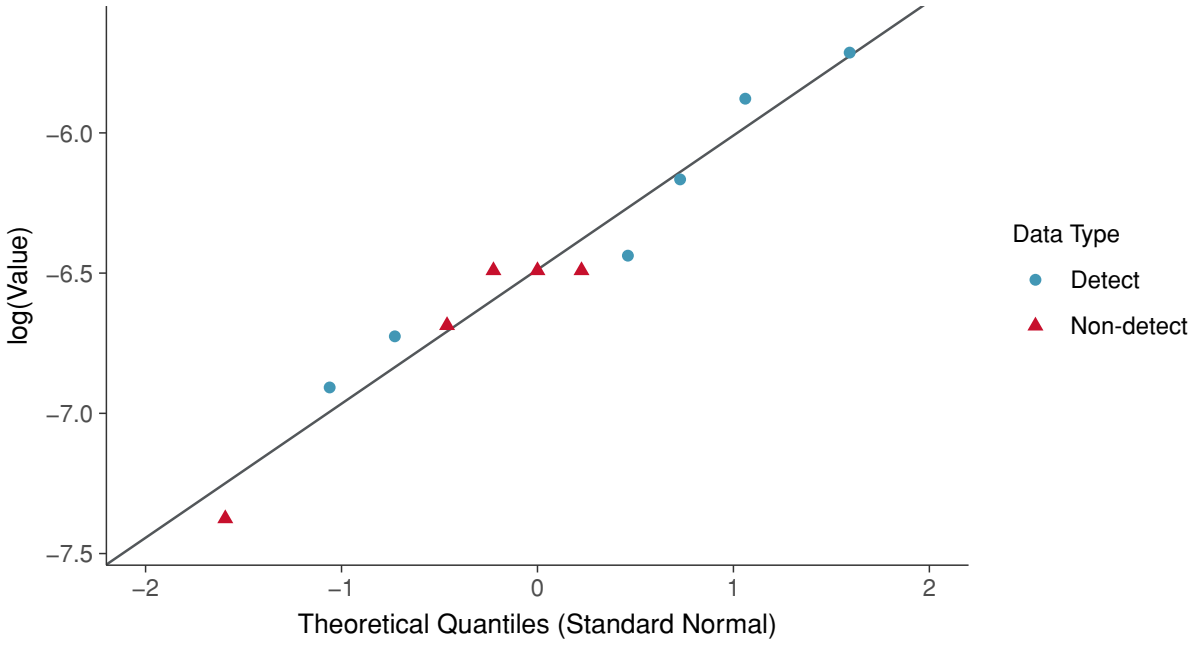
Normal Q-Q plot using ROS Imputed Estimates

Chromium, Total, W-11 (mg/l)



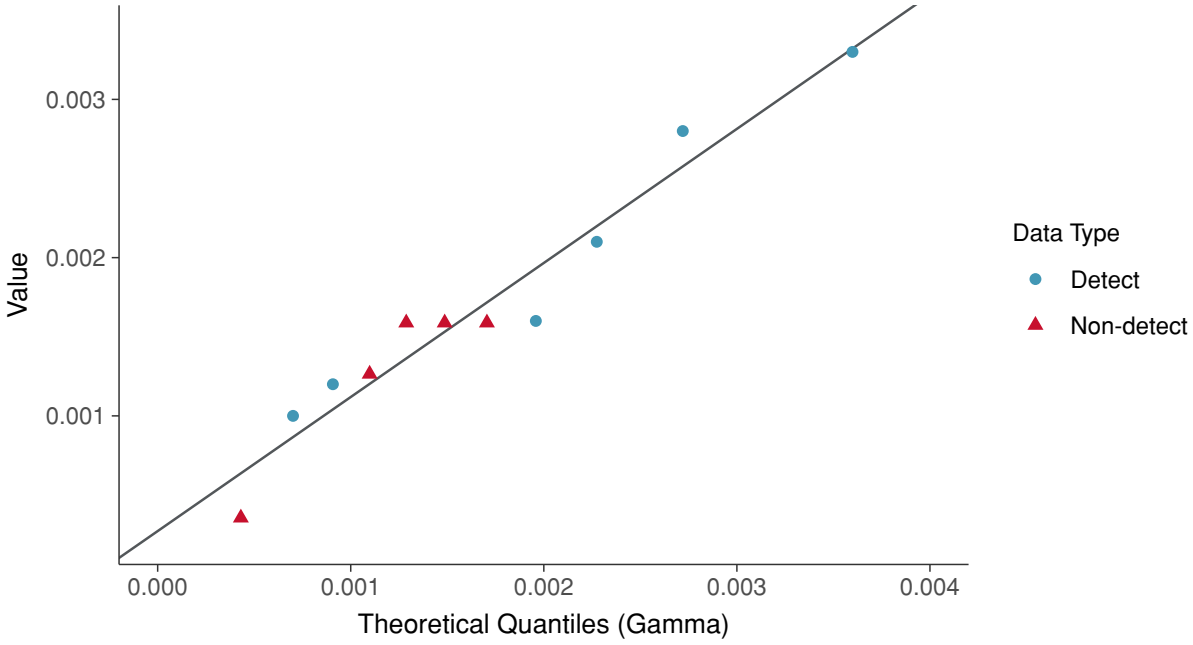
Lognormal Q-Q plot using ROS Imputed Estimates

Chromium, Total, W-11 (mg/l)



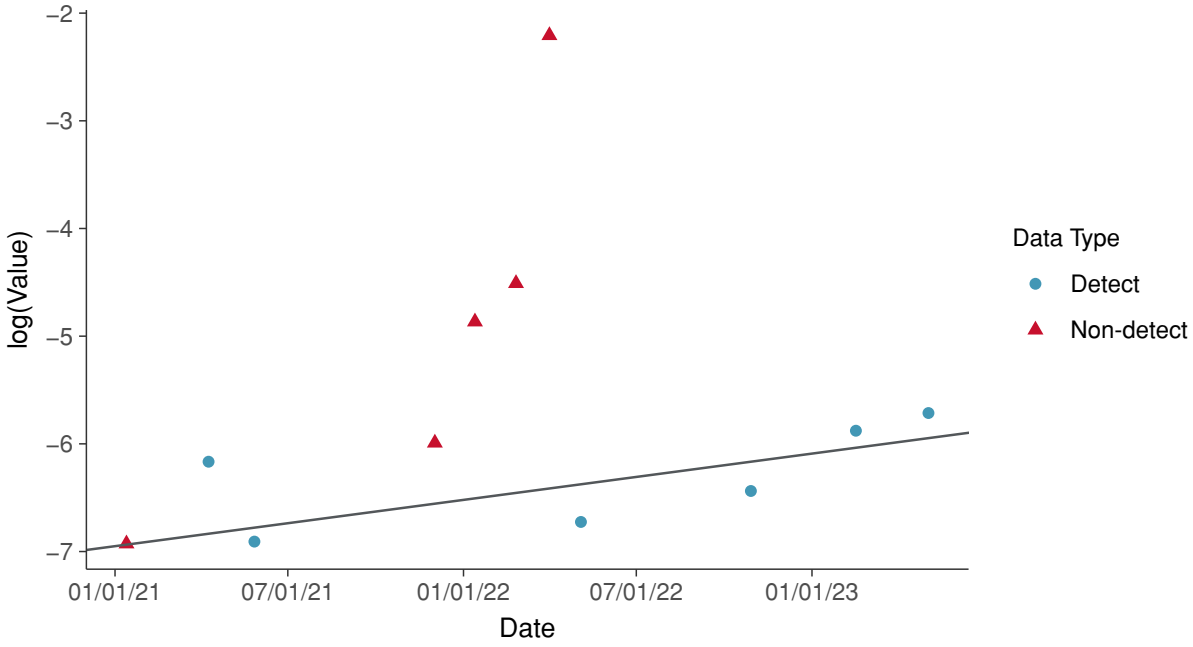
Gamma Q-Q plot using ROS Imputed Estimates

Chromium, Total, W-11 (mg/l)



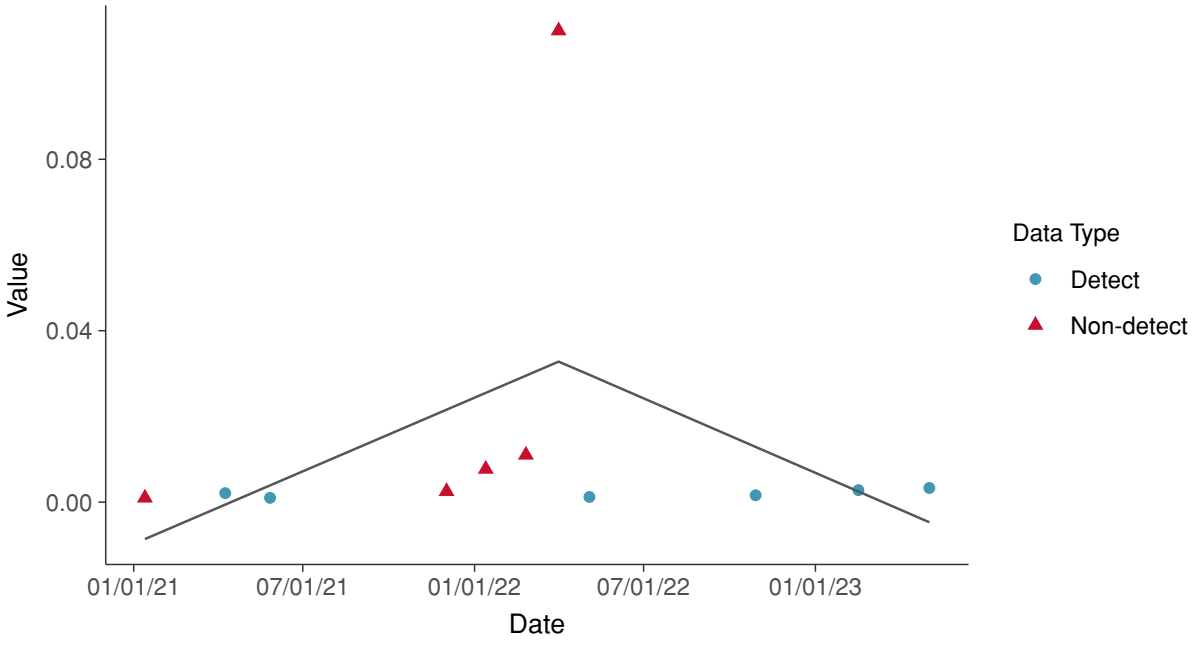
Trend Regression: Lognormal MLE

Chromium, Total, W-11 (mg/l)



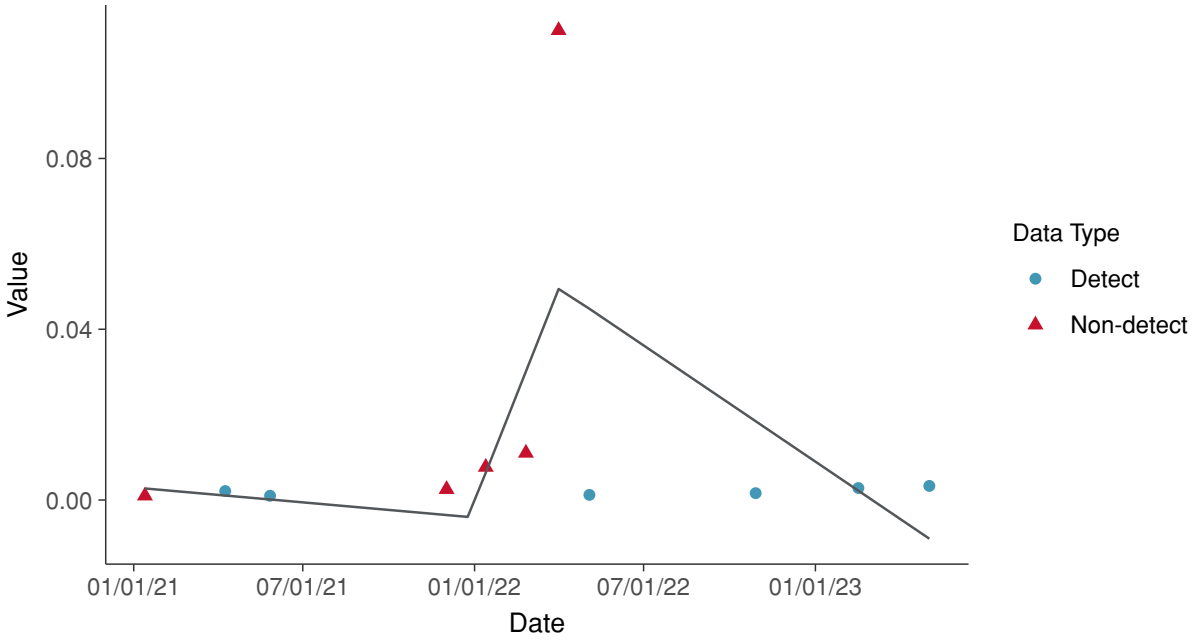
Trend Regression: Piecewise Linear-Linear

Chromium, Total, W-11 (mg/l)



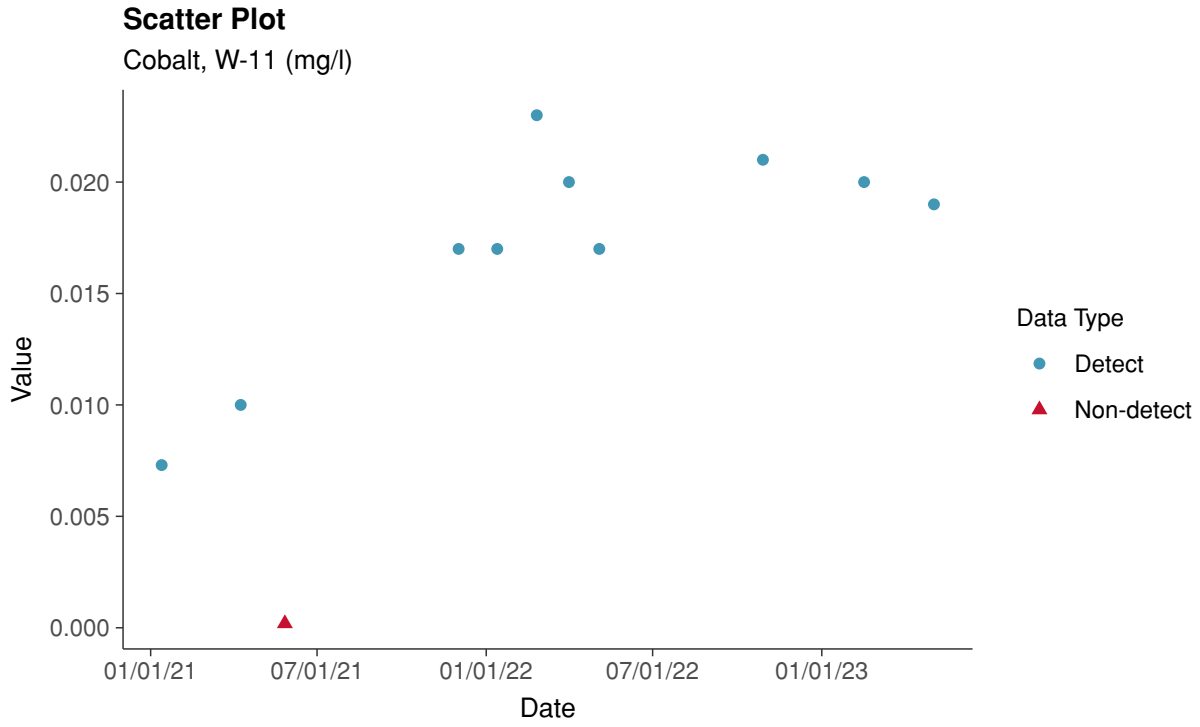
Trend Regression: Piecewise Linear-Linear-Linear

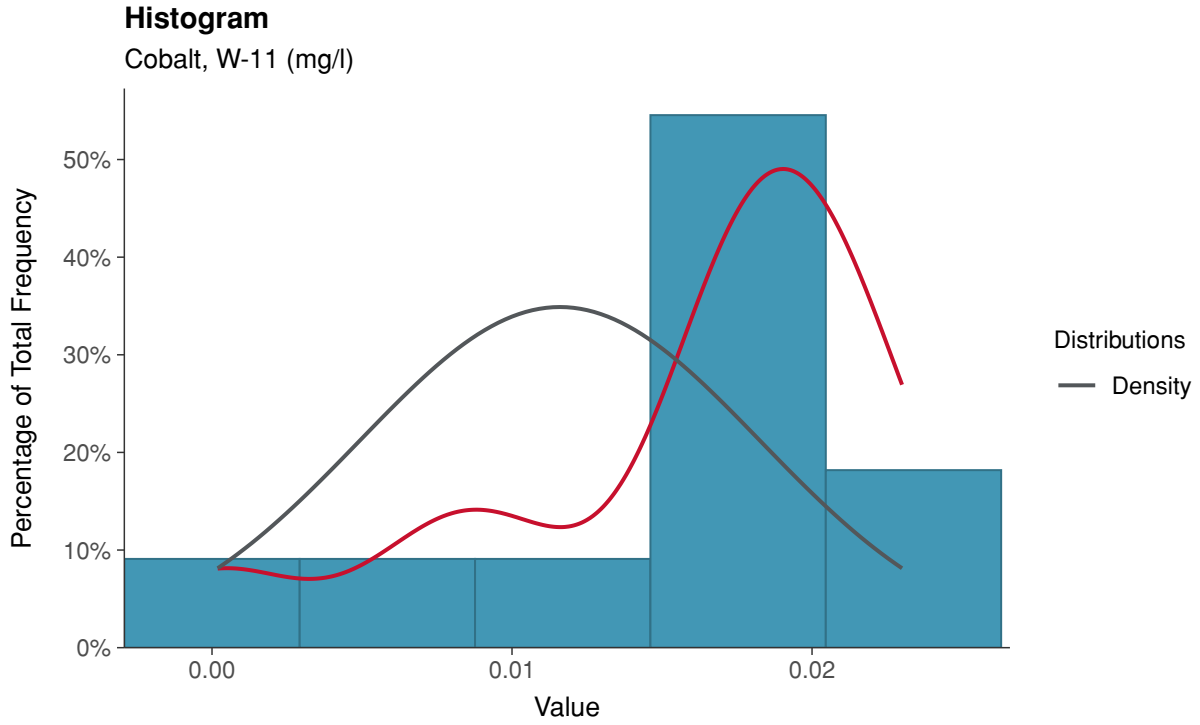
Chromium, Total, W-11 (mg/l)



Appendix IV: Cobalt, W-11

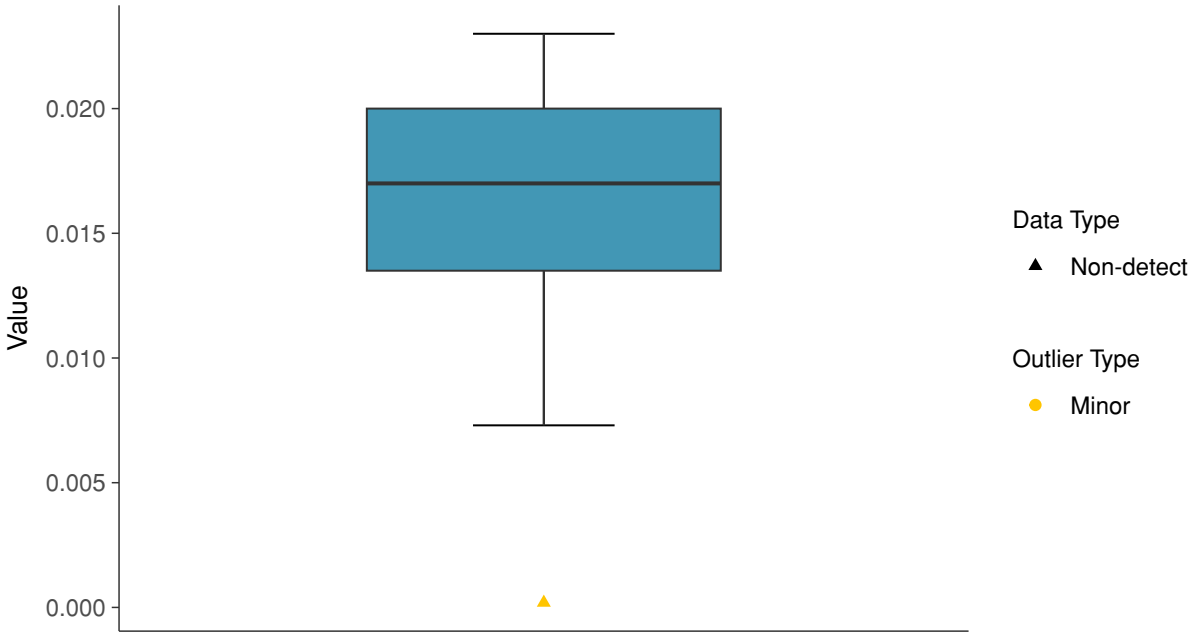
ID: 2_2_110





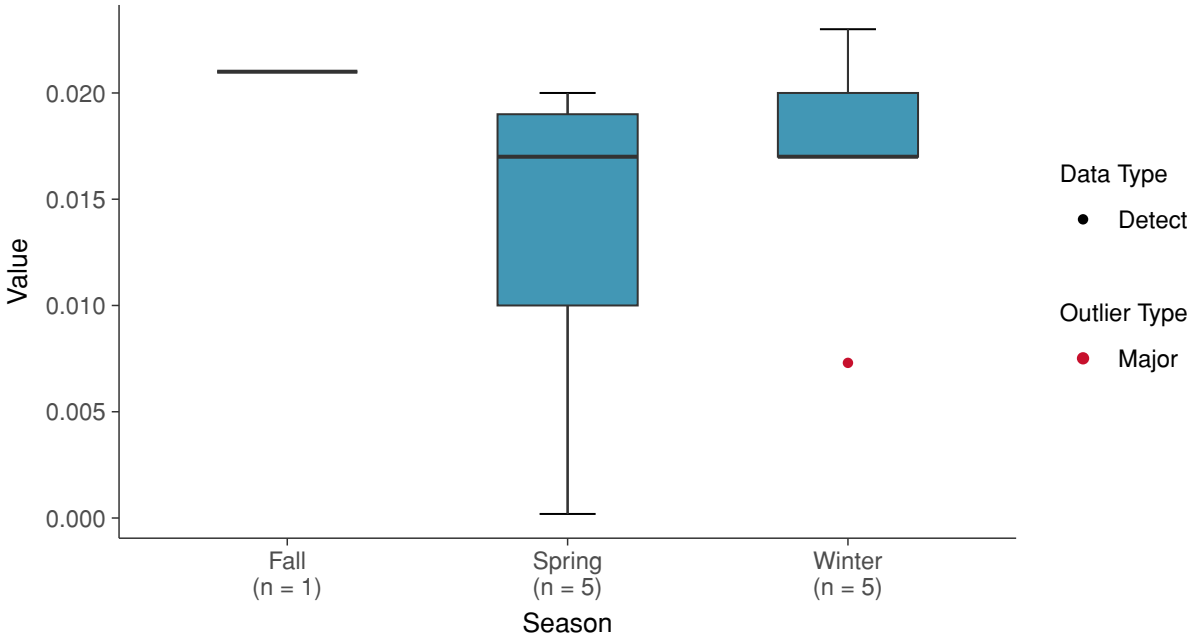
Boxplot

Cobalt, W-11 (mg/l)



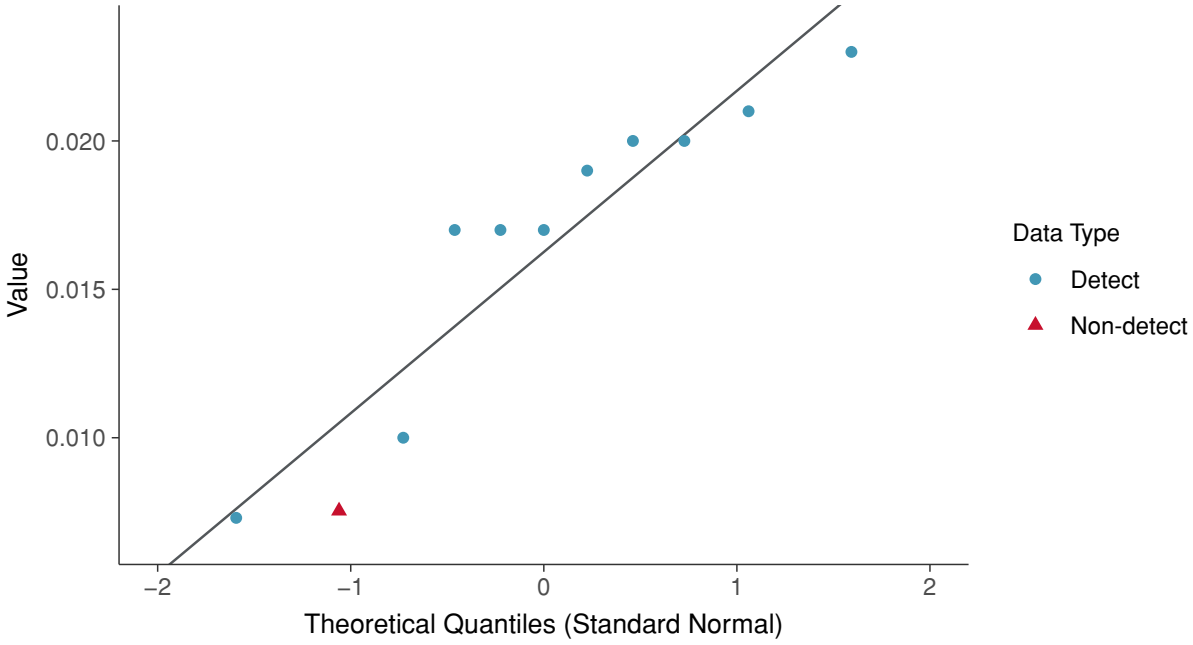
Boxplot by Season

Cobalt, W-11 (mg/l)



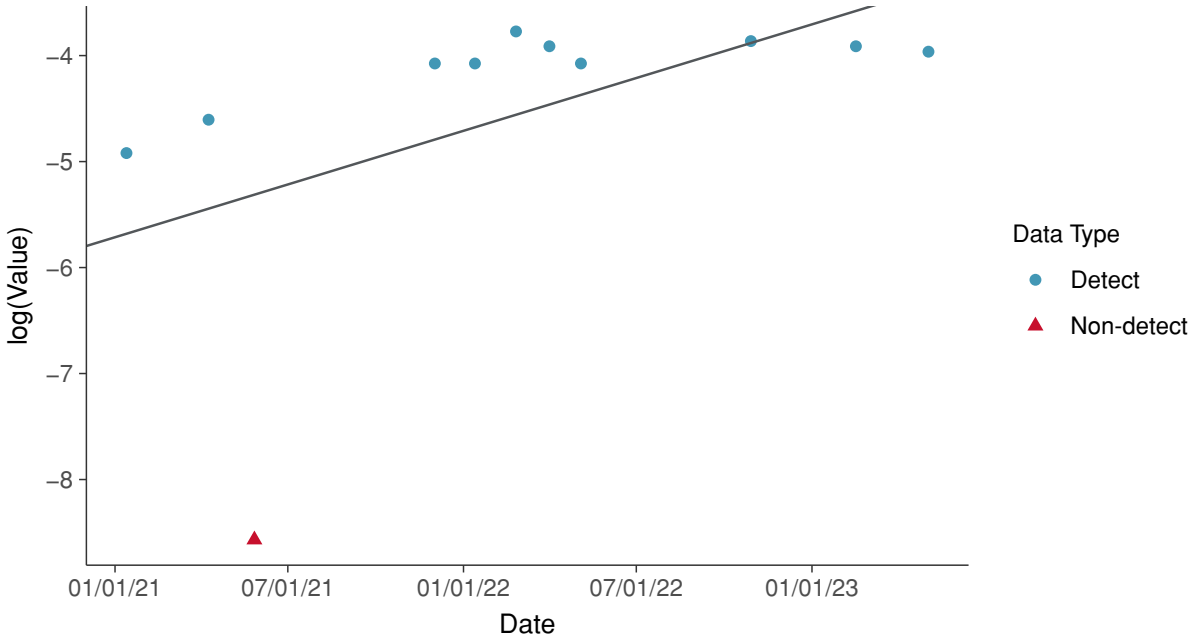
Normal Q-Q plot using ROS Imputed Estimates

Cobalt, W-11 (mg/l)



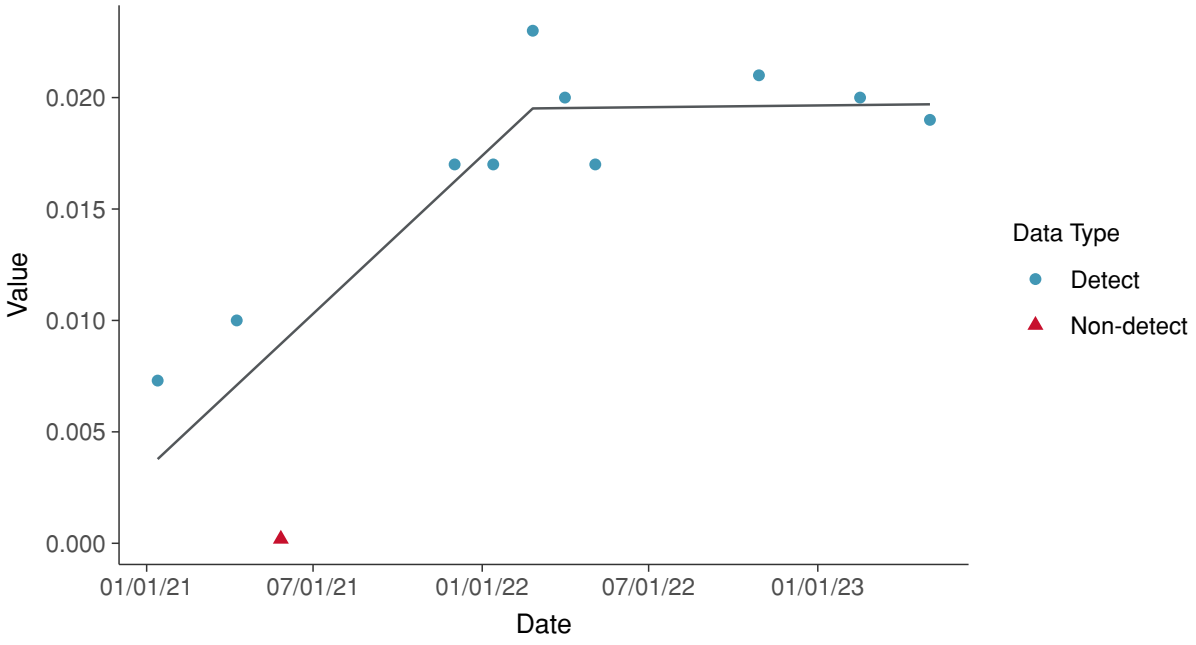
Trend Regression: Lognormal MLE

Cobalt, W-11 (mg/l)



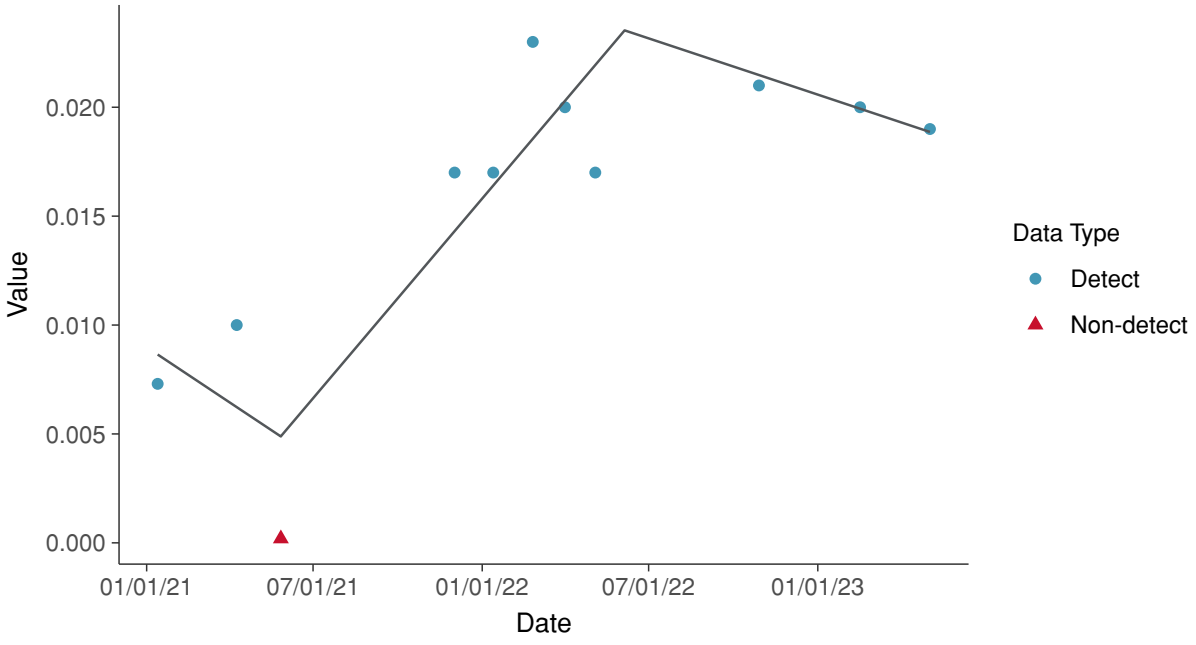
Trend Regression: Piecewise Linear-Linear

Cobalt, W-11 (mg/l)



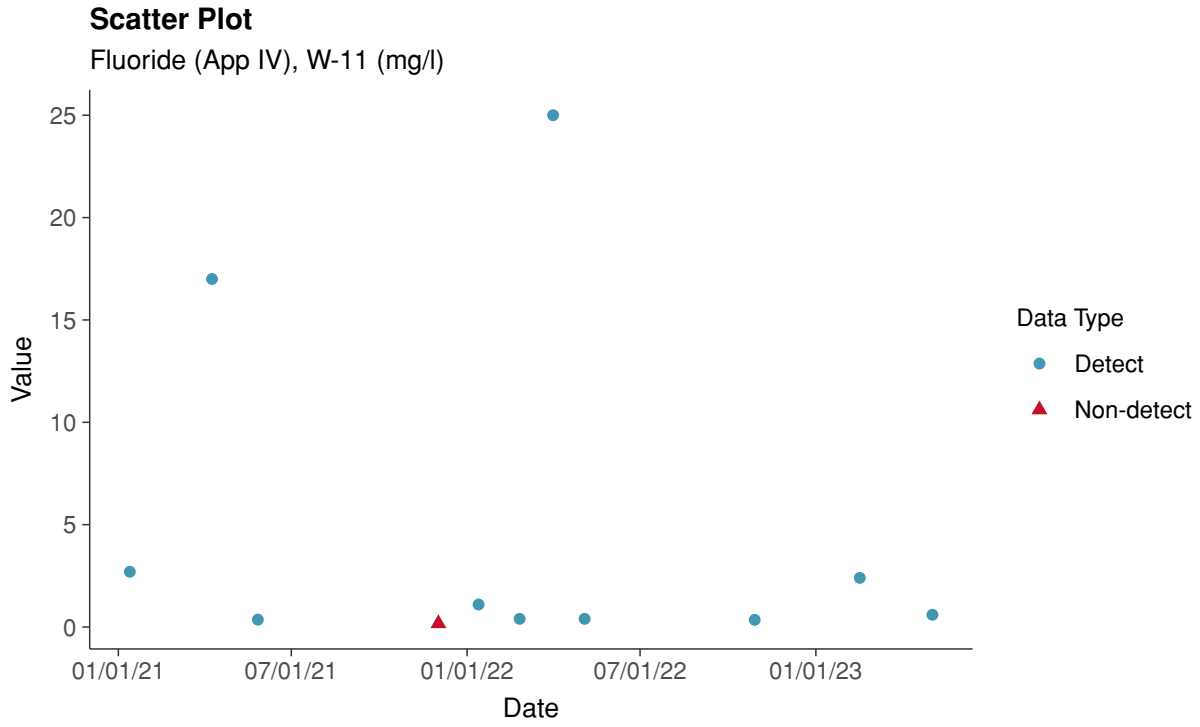
Trend Regression: Piecewise Linear-Linear-Linear

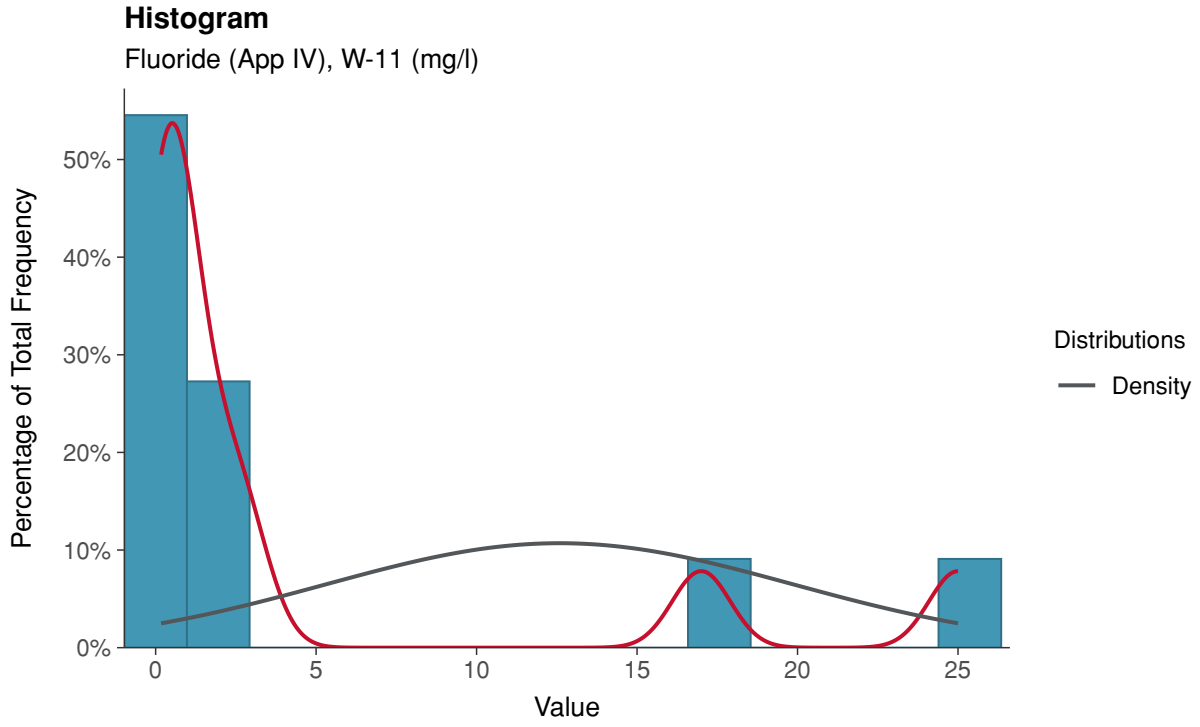
Cobalt, W-11 (mg/l)



Appendix IV: Fluoride (App IV), W-11

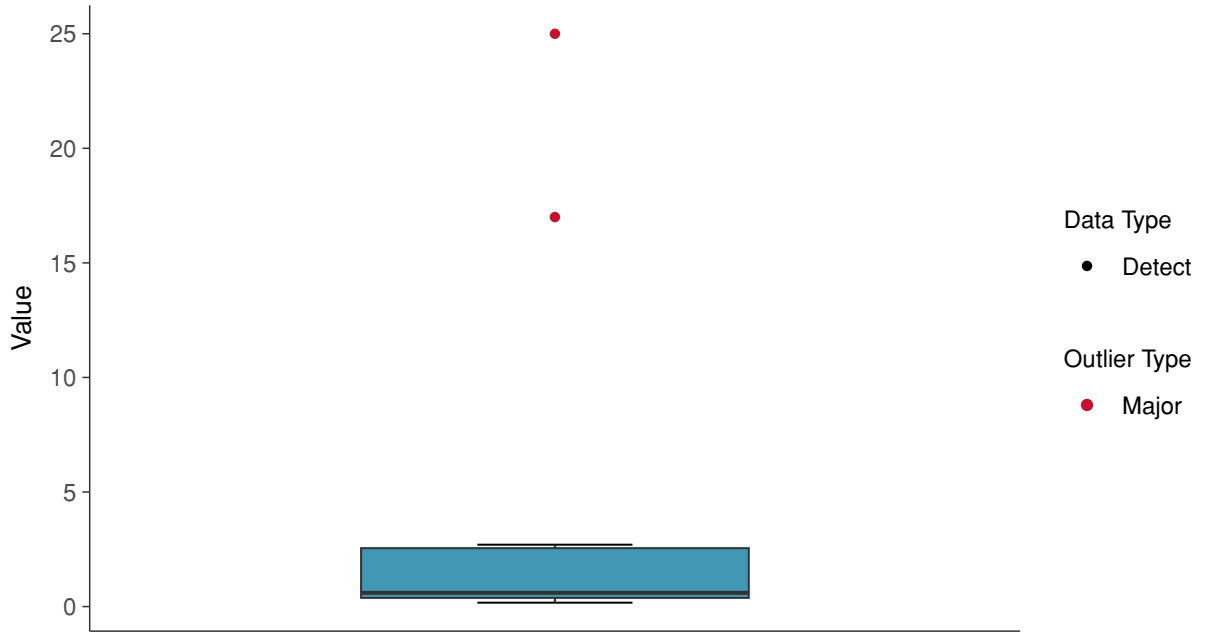
ID: 2_2_112





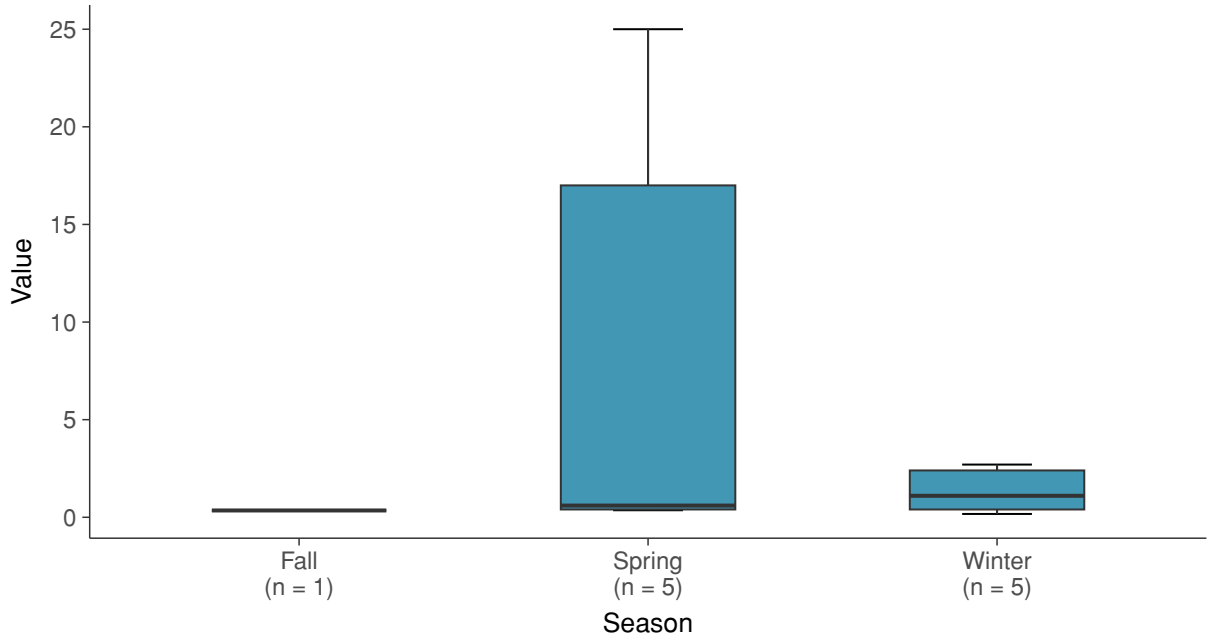
Boxplot

Fluoride (App IV), W-11 (mg/l)



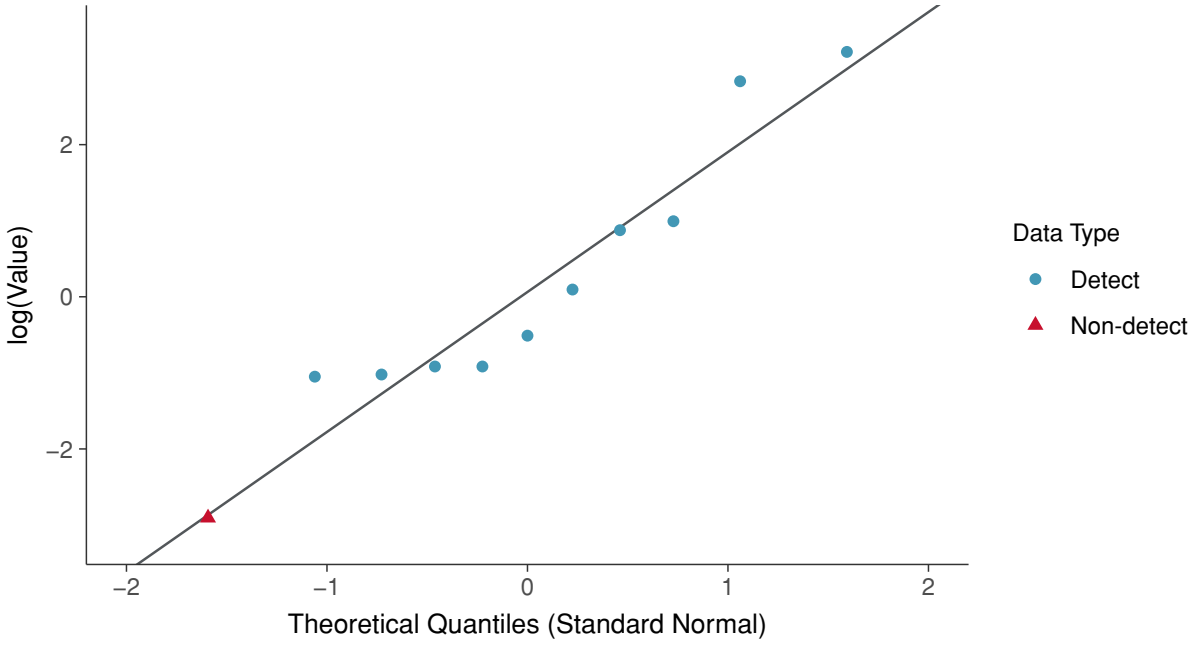
Boxplot by Season

Fluoride (App IV), W-11 (mg/l)



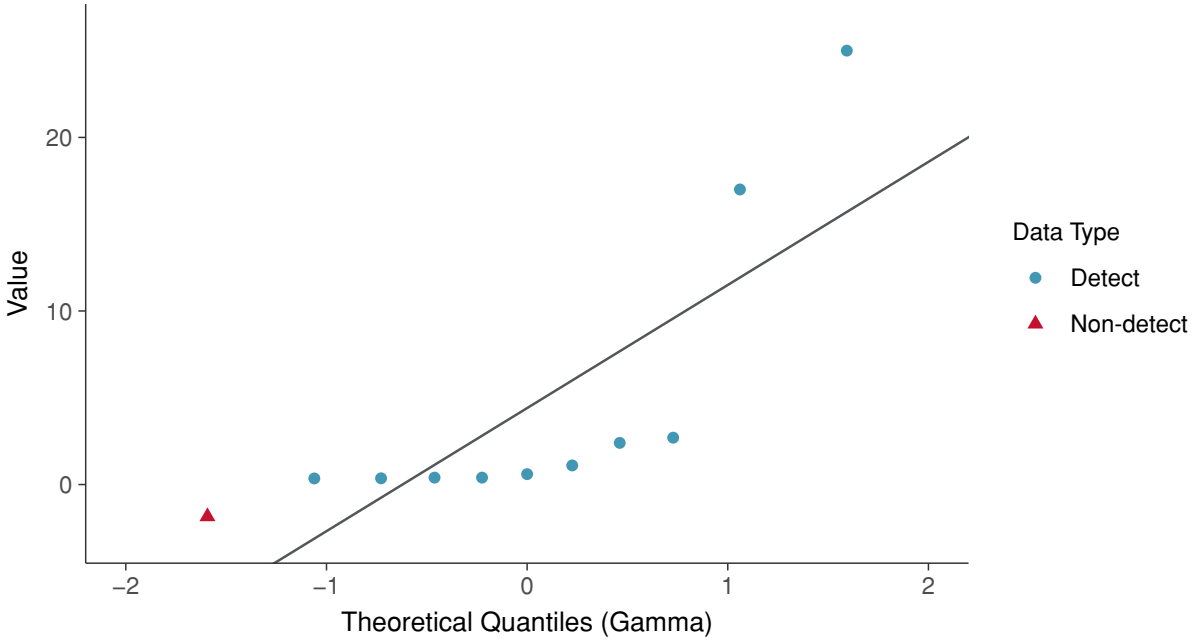
Lognormal Q-Q plot using ROS Imputed Estimates

Fluoride (App IV), W-11 (mg/l)



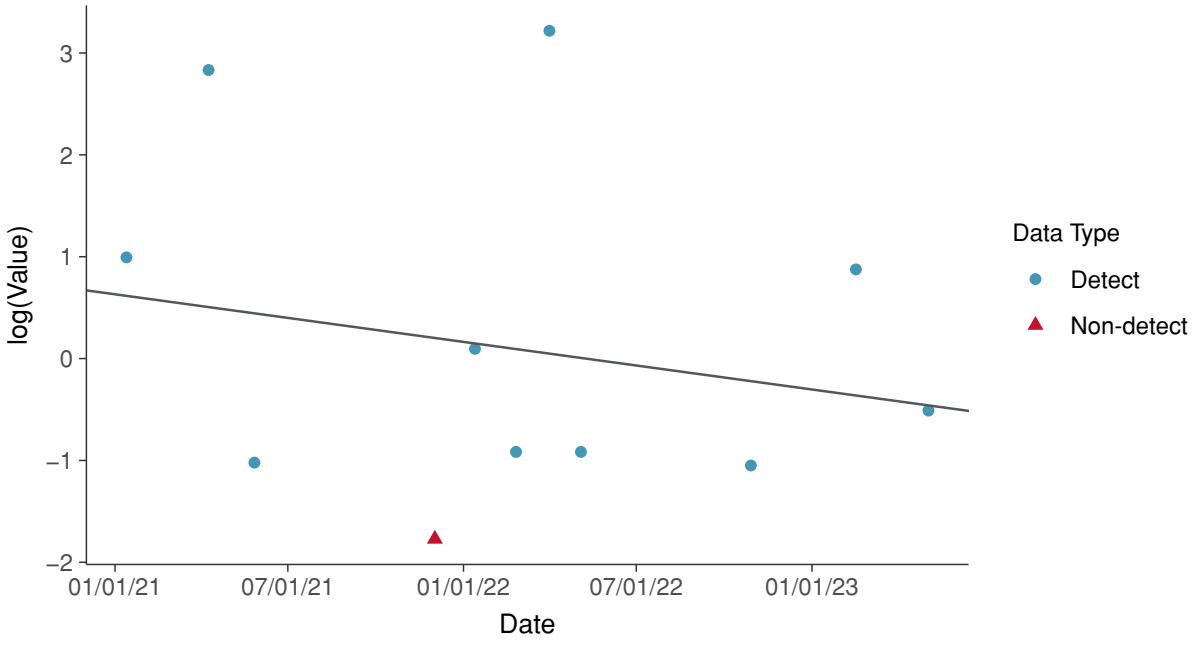
Gamma Q-Q plot using ROS Imputed Estimates

Fluoride (App IV), W-11 (mg/l)



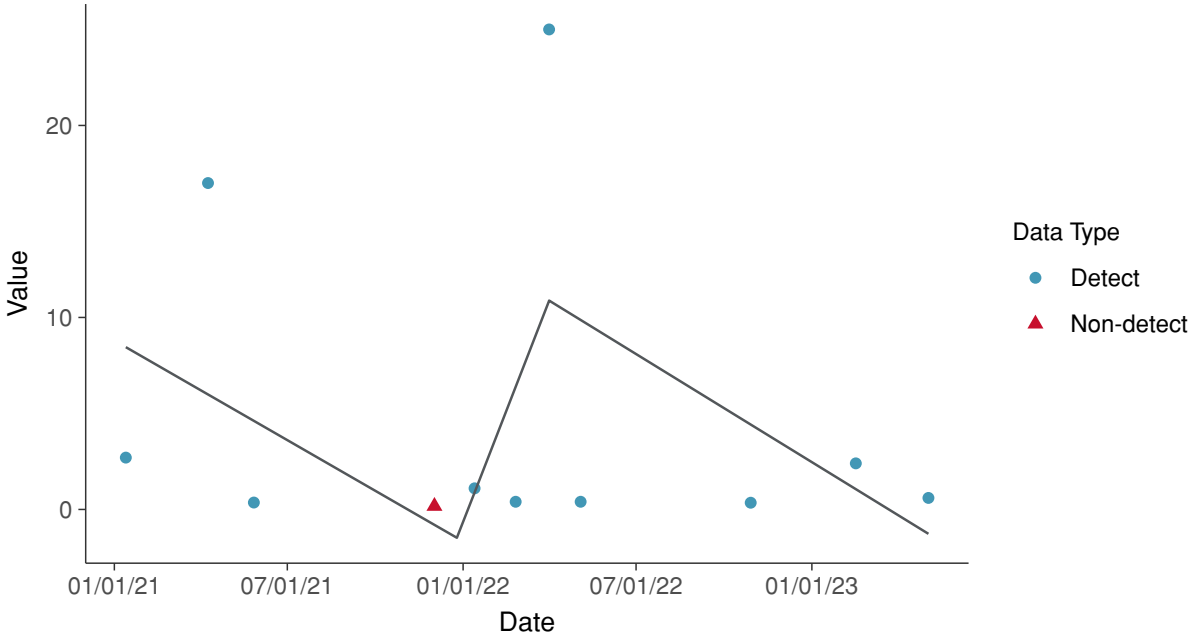
Trend Regression: Lognormal MLE

Fluoride (App IV), W-11 (mg/l)



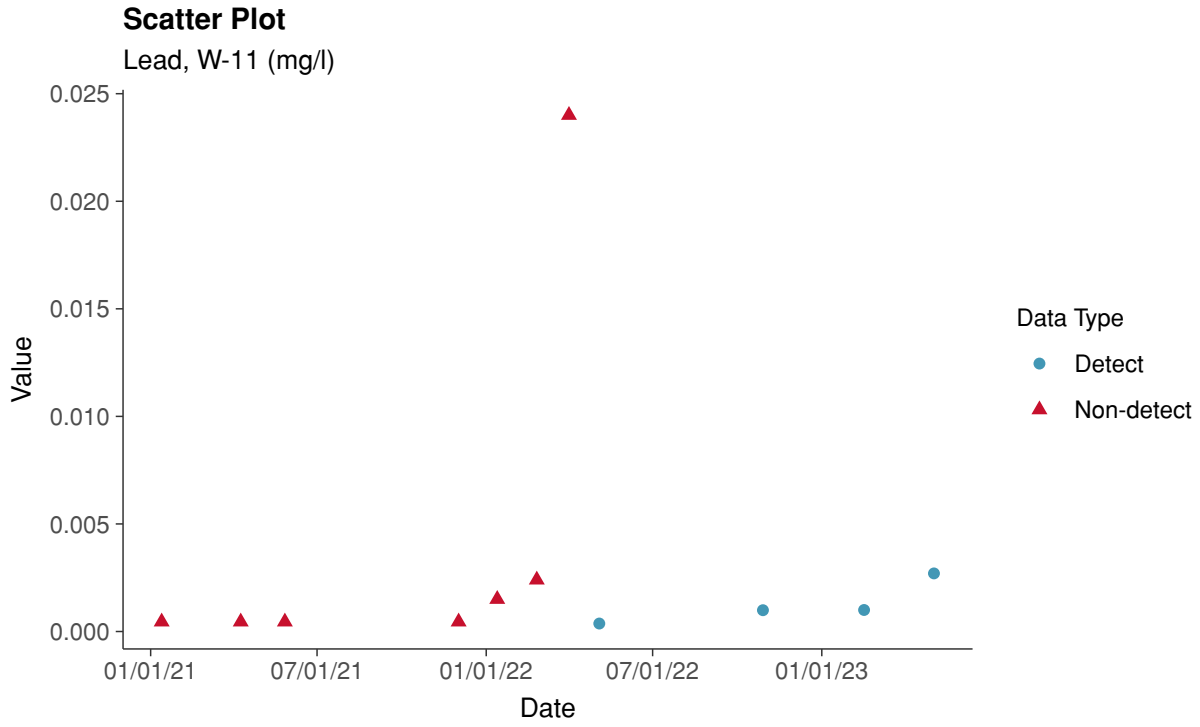
Trend Regression: Piecewise Linear-Linear-Linear

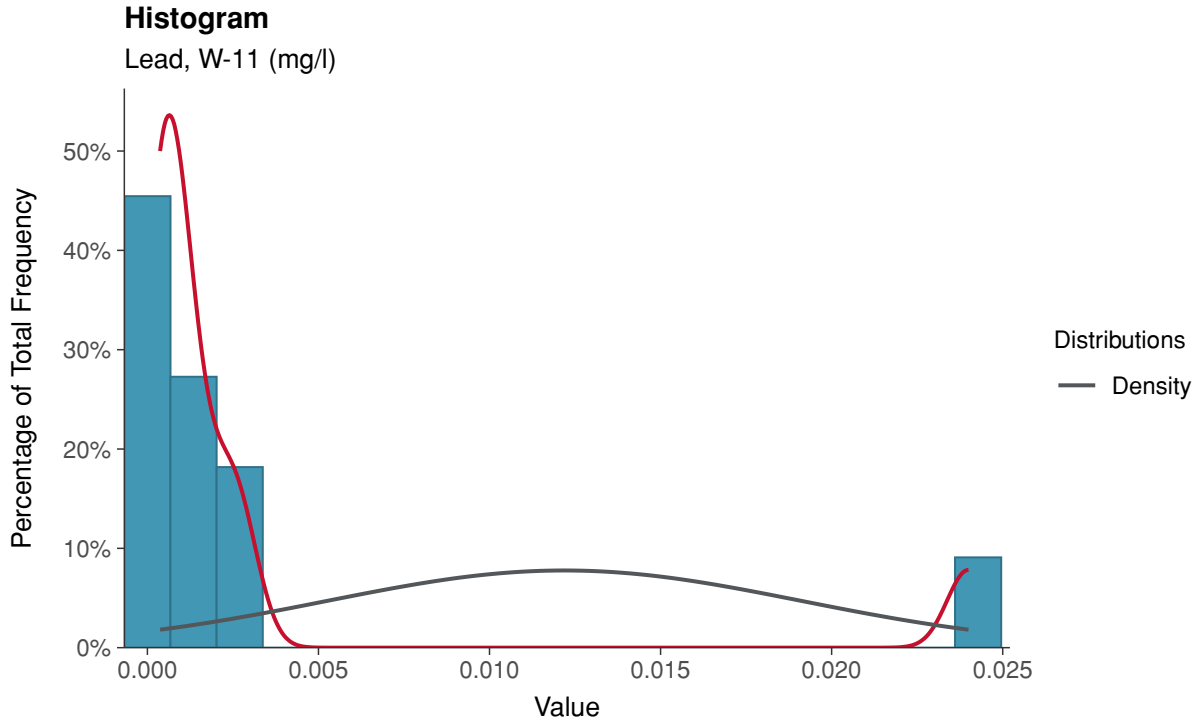
Fluoride (App IV), W-11 (mg/l)



Appendix IV: Lead, W-11

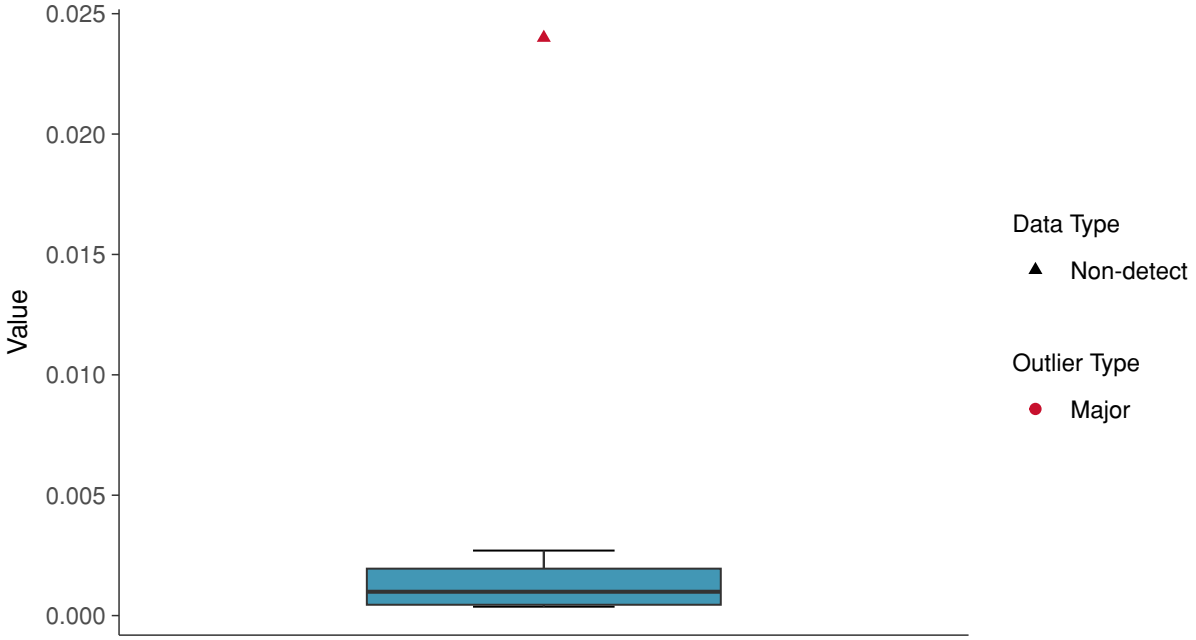
ID: 2_2_113





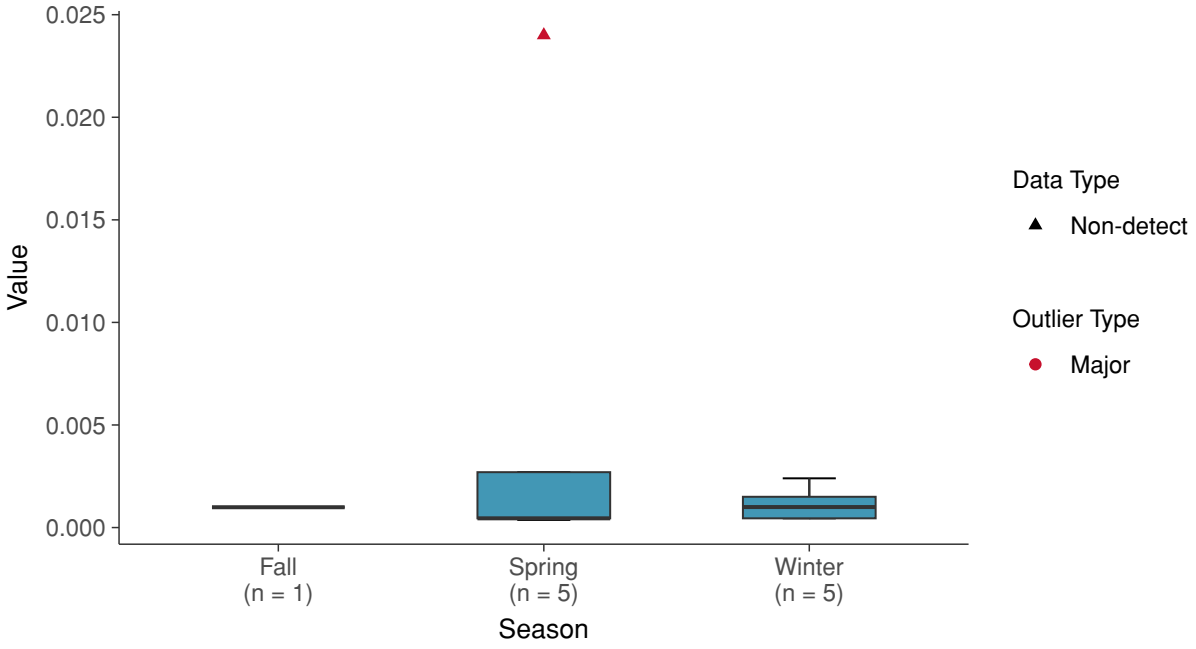
Boxplot

Lead, W-11 (mg/l)



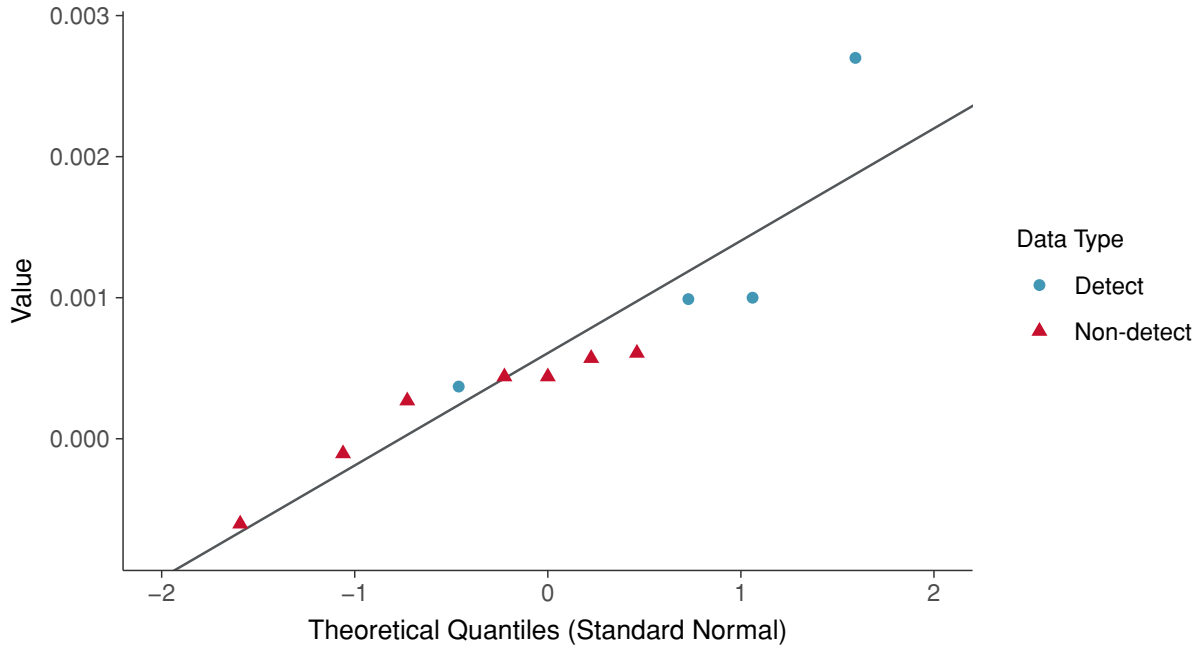
Boxplot by Season

Lead, W-11 (mg/l)



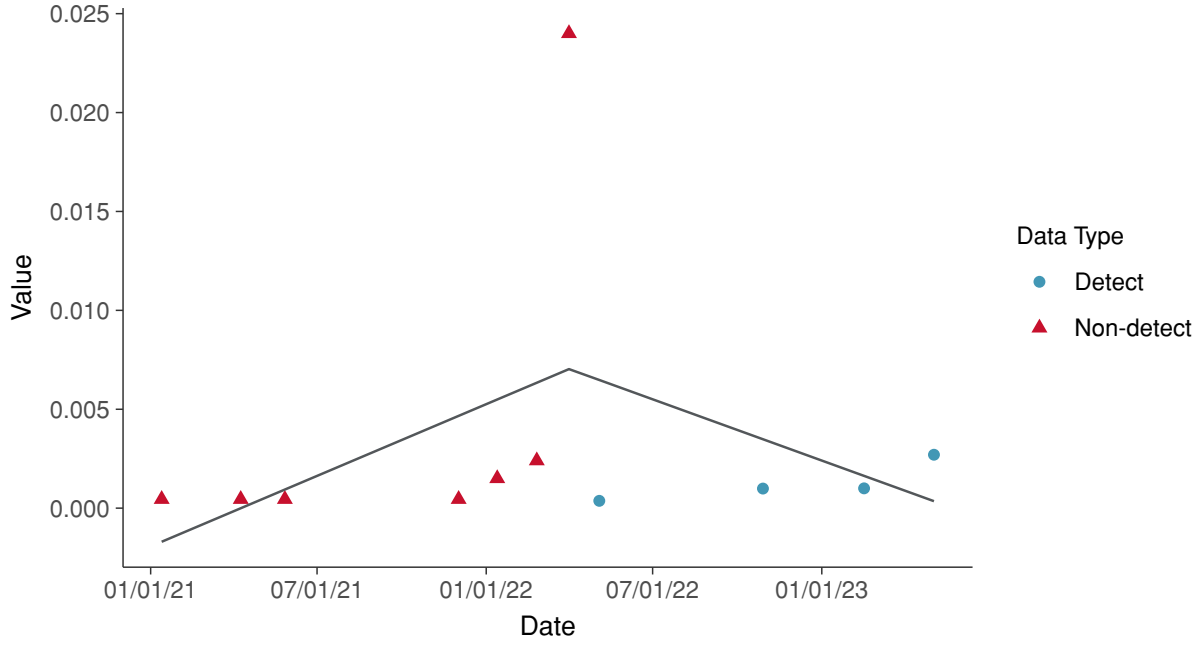
Normal Q-Q plot using ROS Imputed Estimates

Lead, W-11 (mg/l)



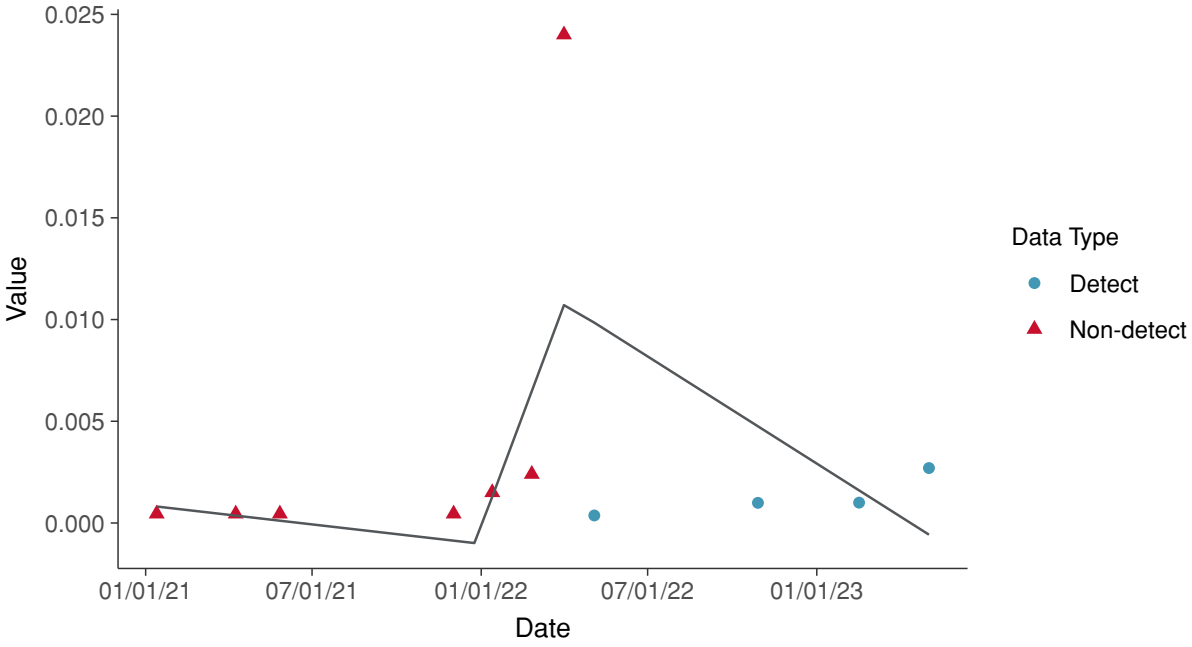
Trend Regression: Piecewise Linear-Linear

Lead, W-11 (mg/l)



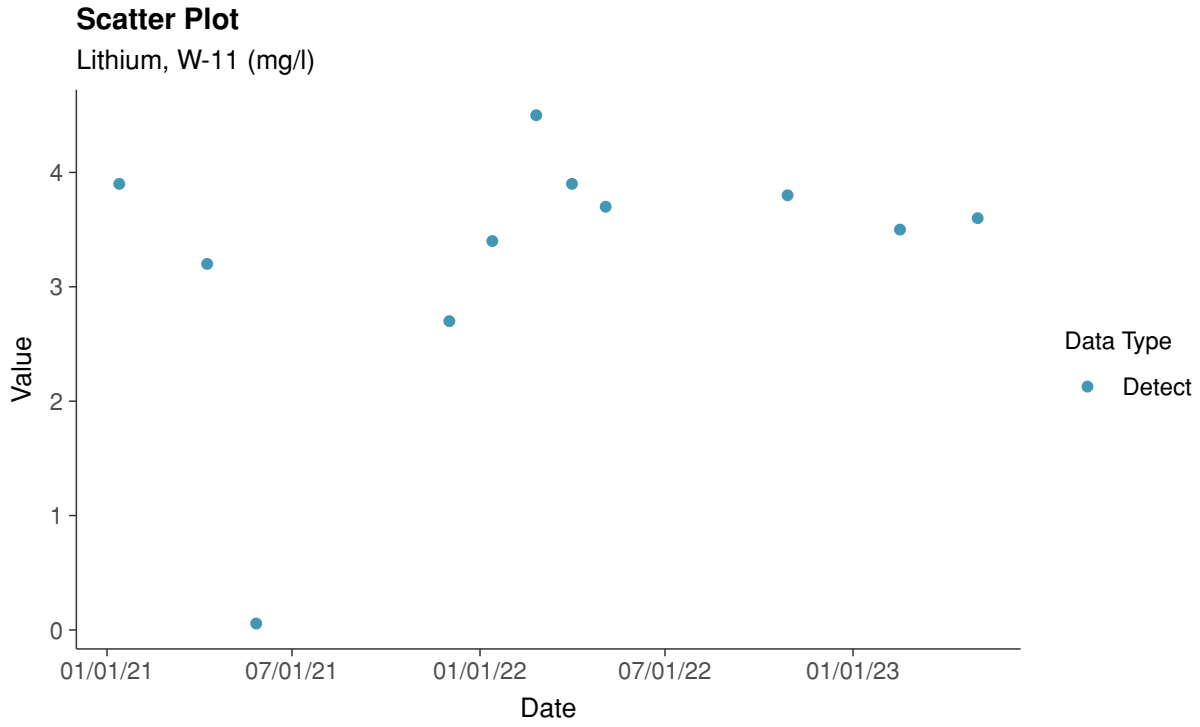
Trend Regression: Piecewise Linear-Linear-Linear

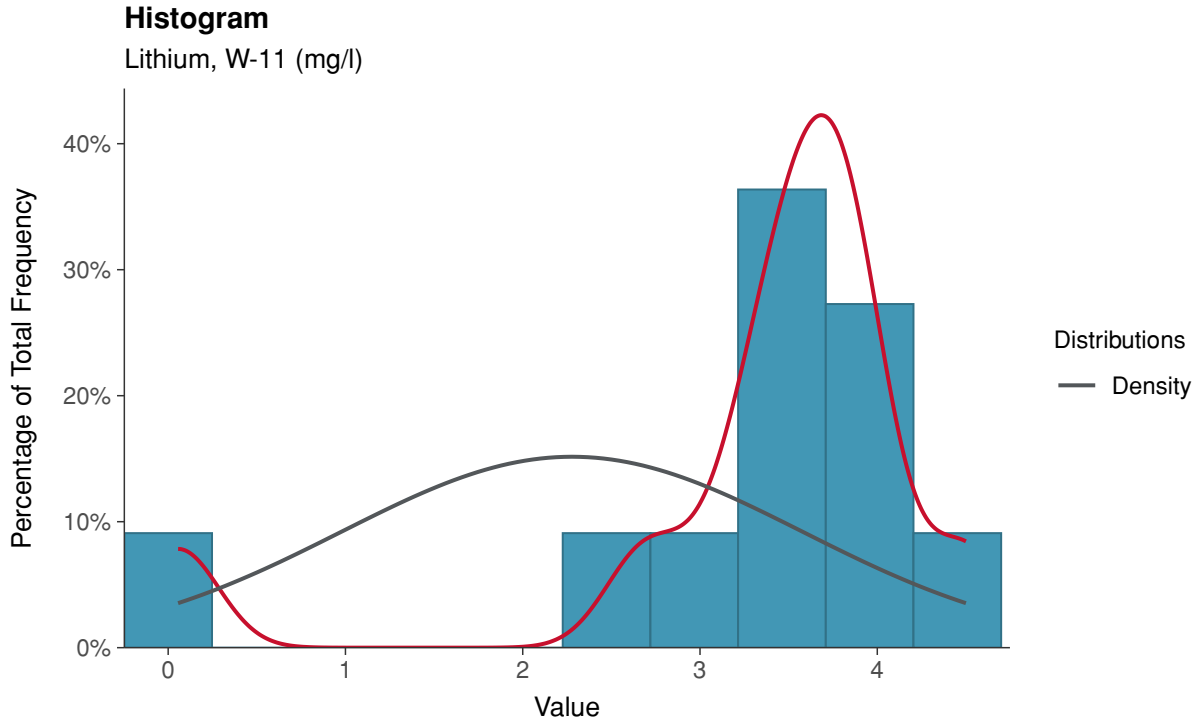
Lead, W-11 (mg/l)



Appendix IV: Lithium, W-11

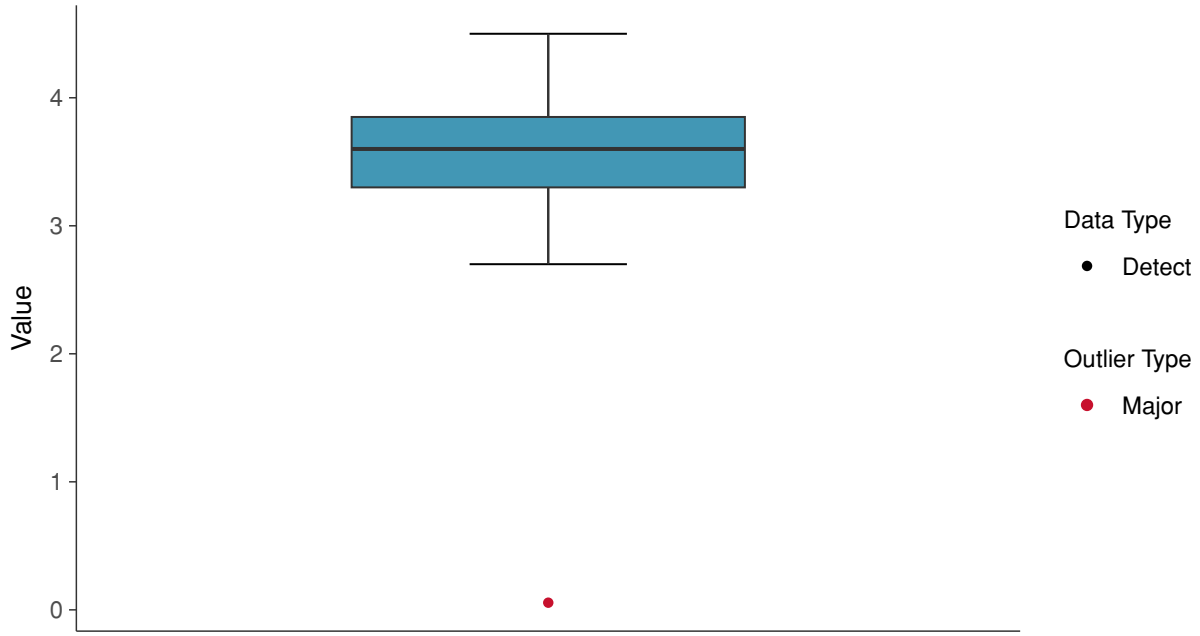
ID: 2_2_114





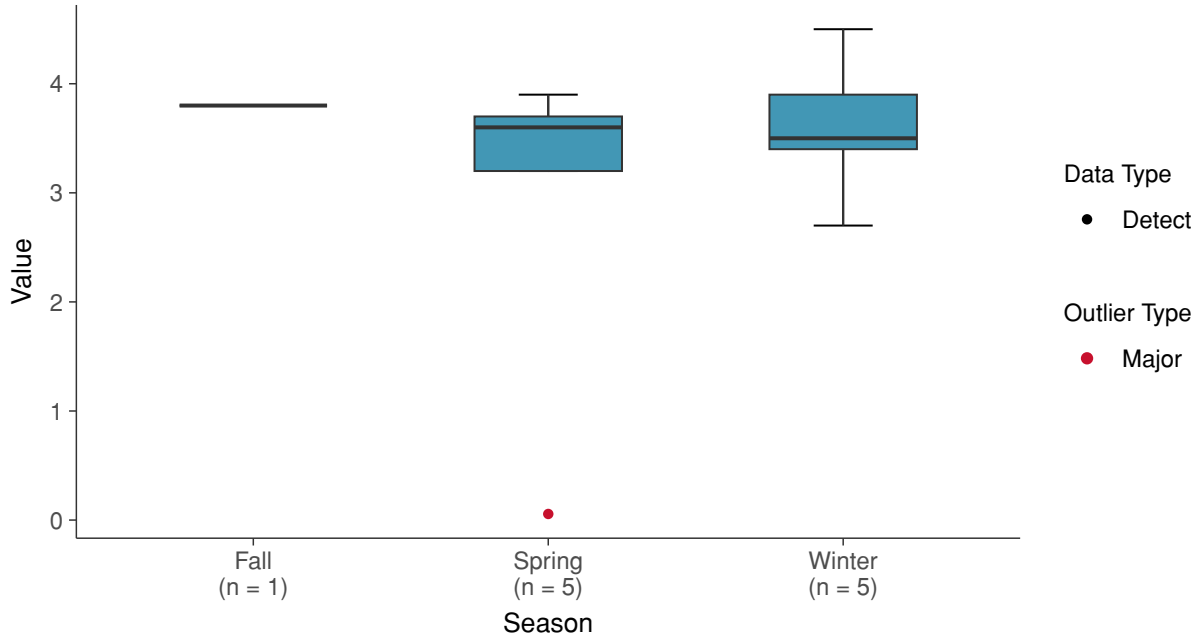
Boxplot

Lithium, W-11 (mg/l)



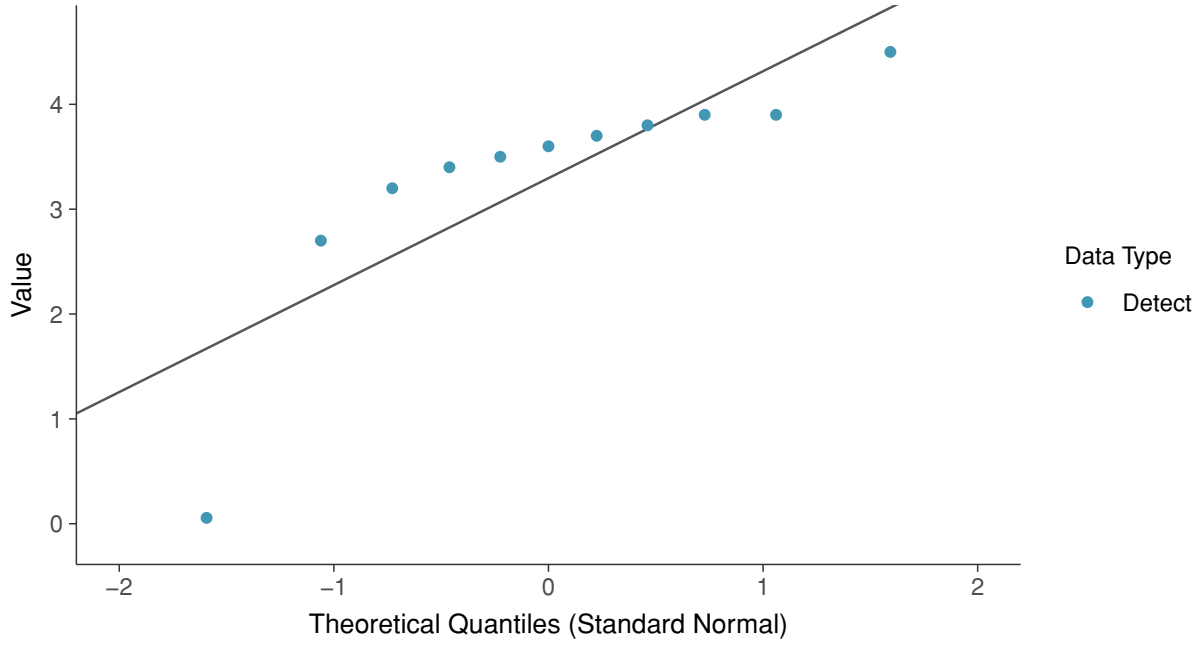
Boxplot by Season

Lithium, W-11 (mg/l)



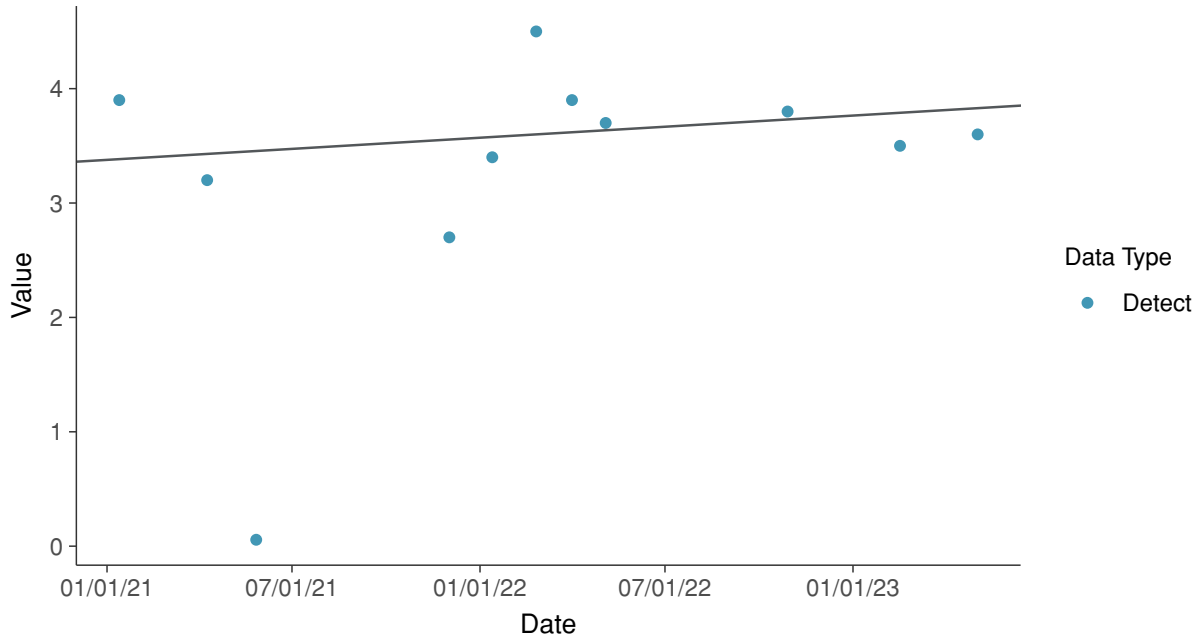
Normal Q-Q plot

Lithium, W-11 (mg/l)



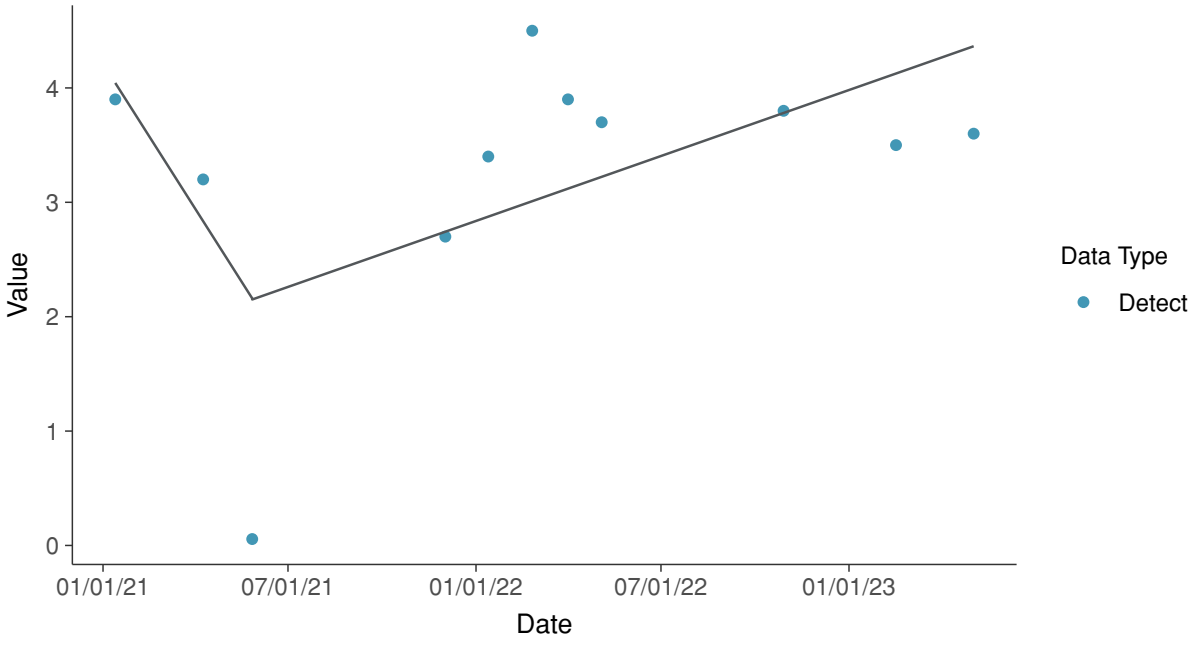
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Lithium, W-11 (mg/l)



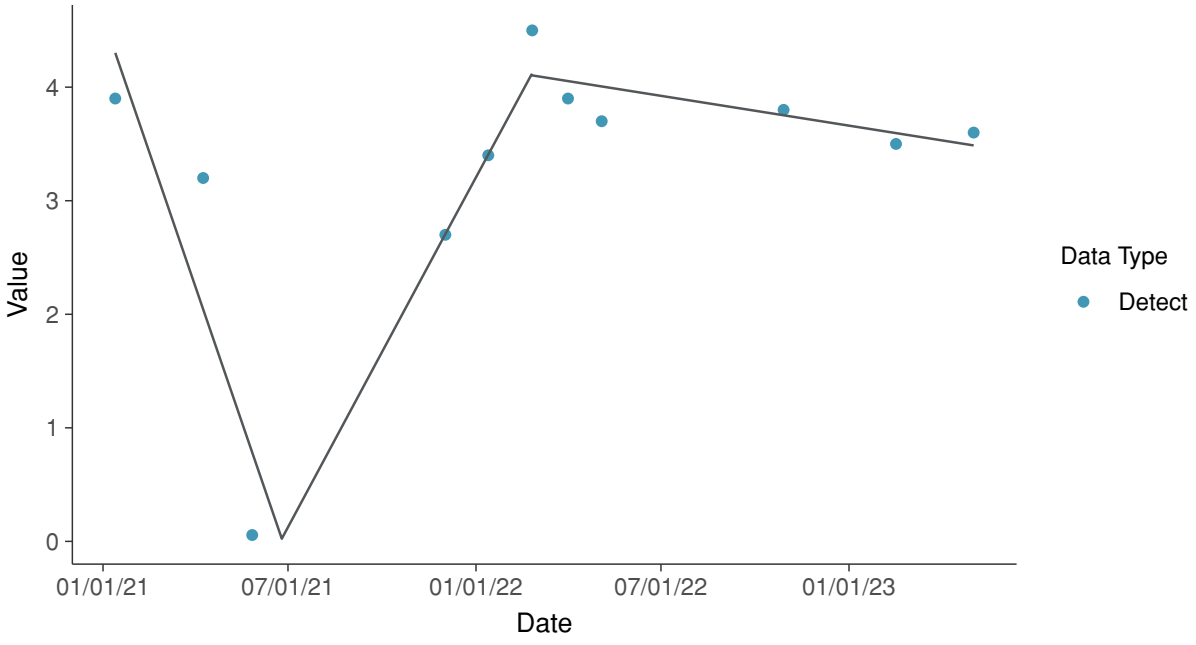
Trend Regression: Piecewise Linear-Linear

Lithium, W-11 (mg/l)



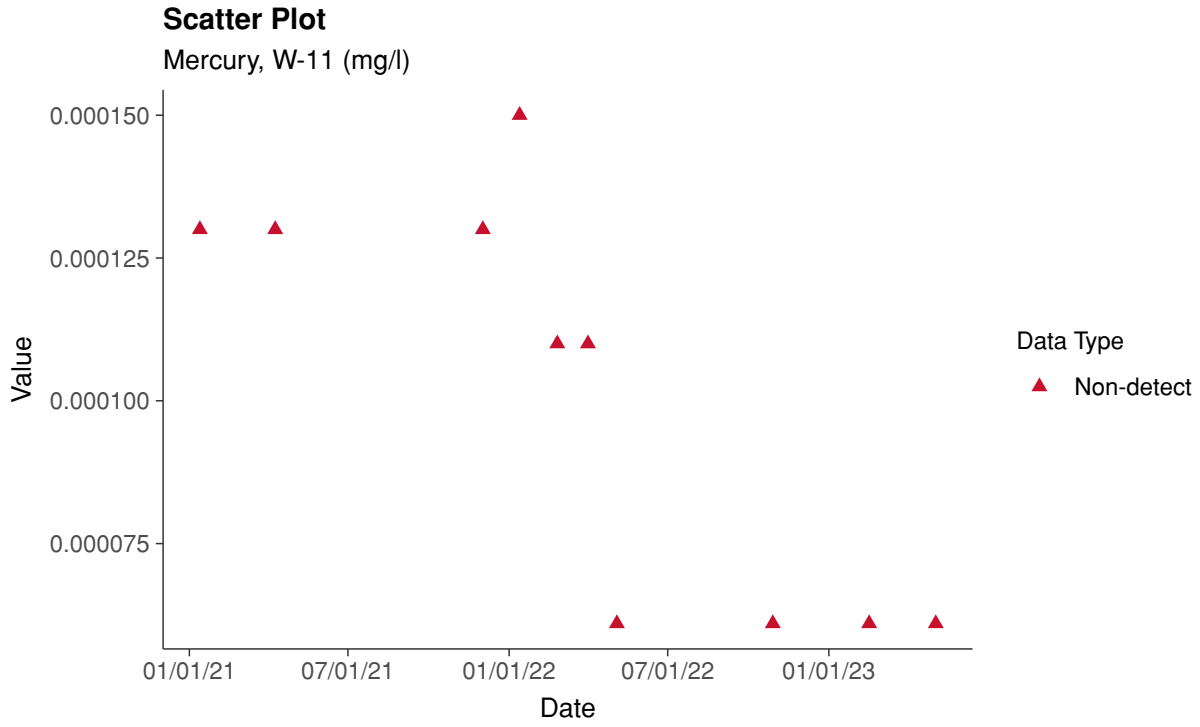
Trend Regression: Piecewise Linear-Linear-Linear

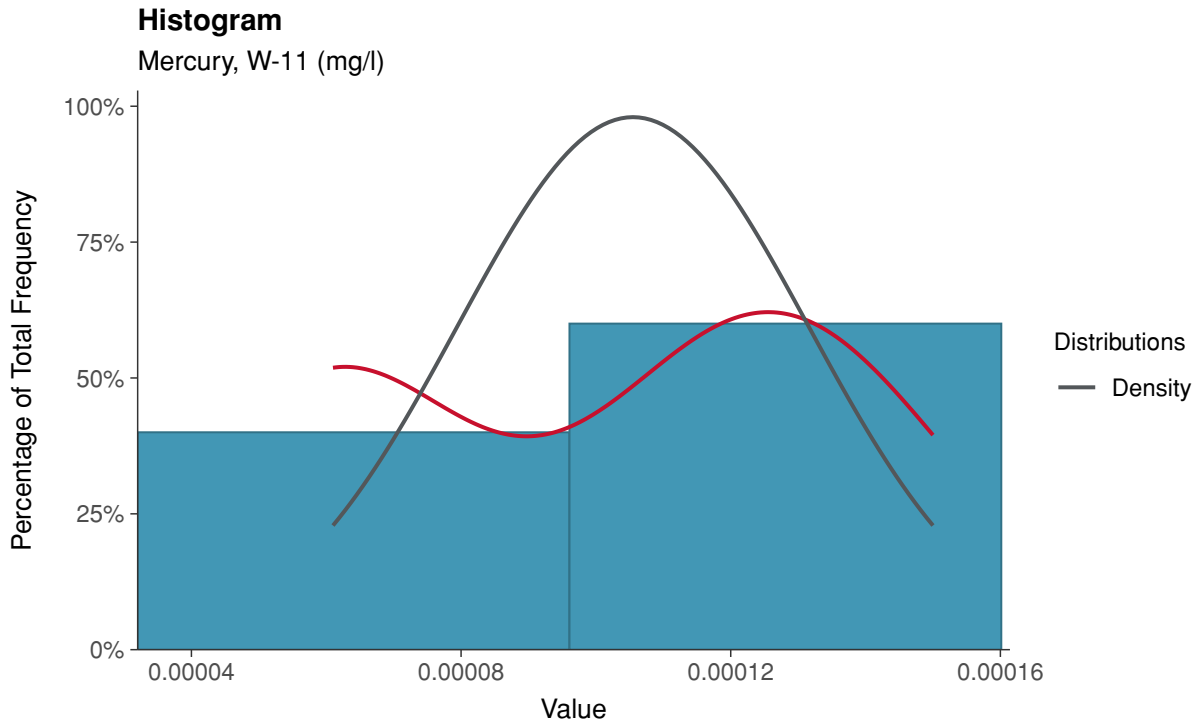
Lithium, W-11 (mg/l)



Appendix IV: Mercury, W-11

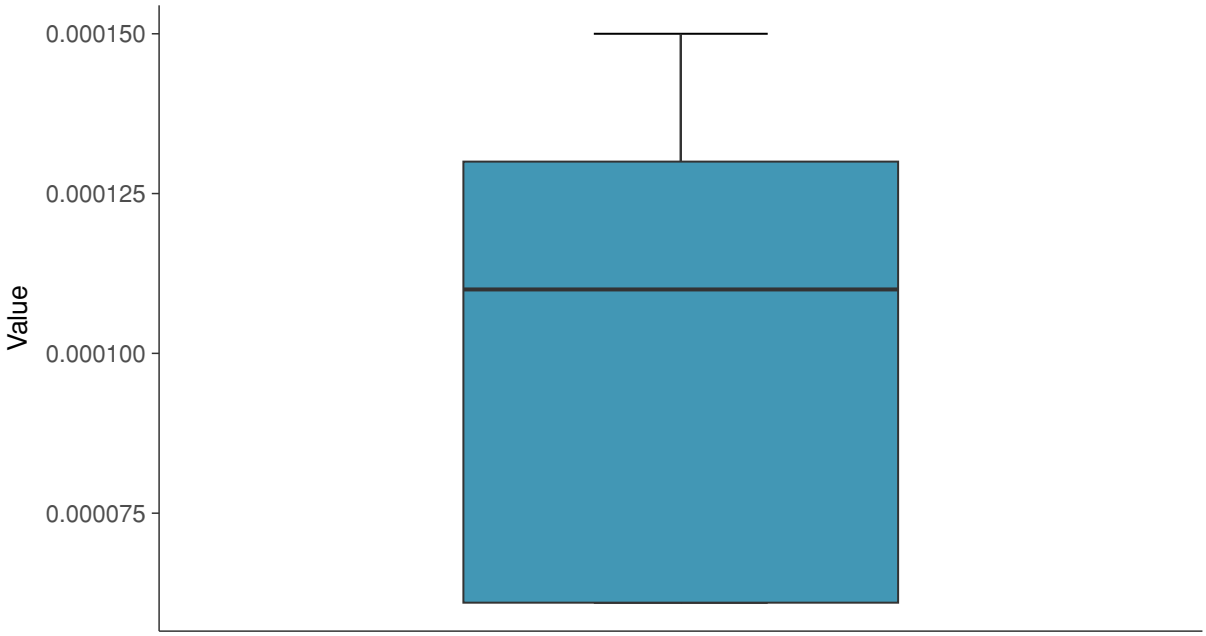
ID: 2_2_115





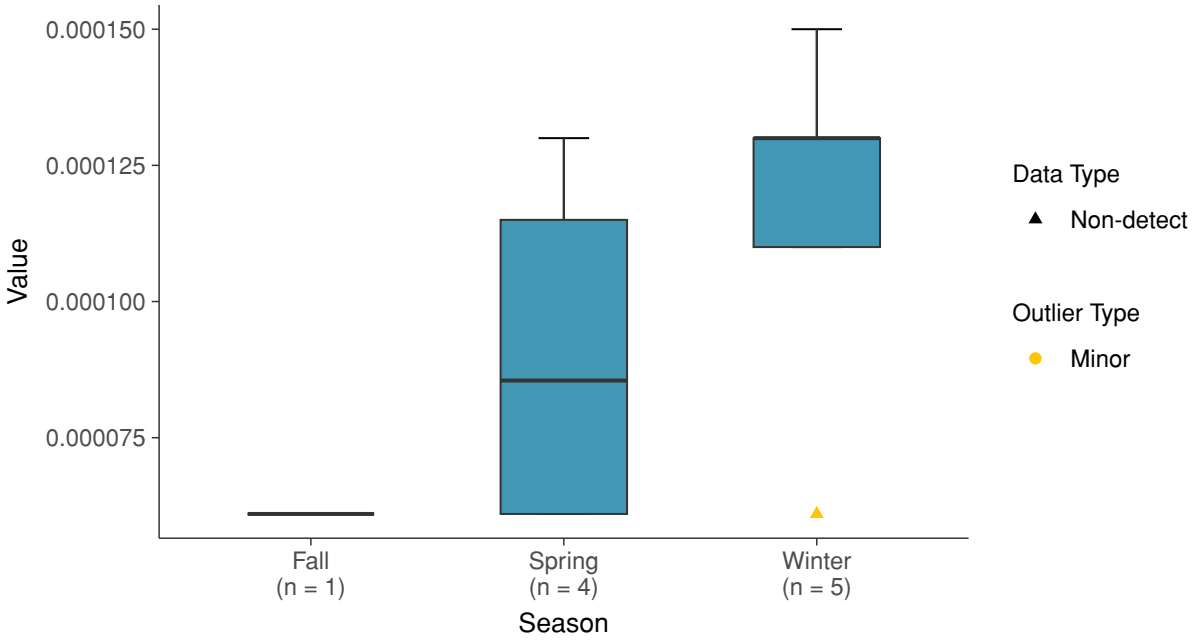
Boxplot

Mercury, W-11 (mg/l)



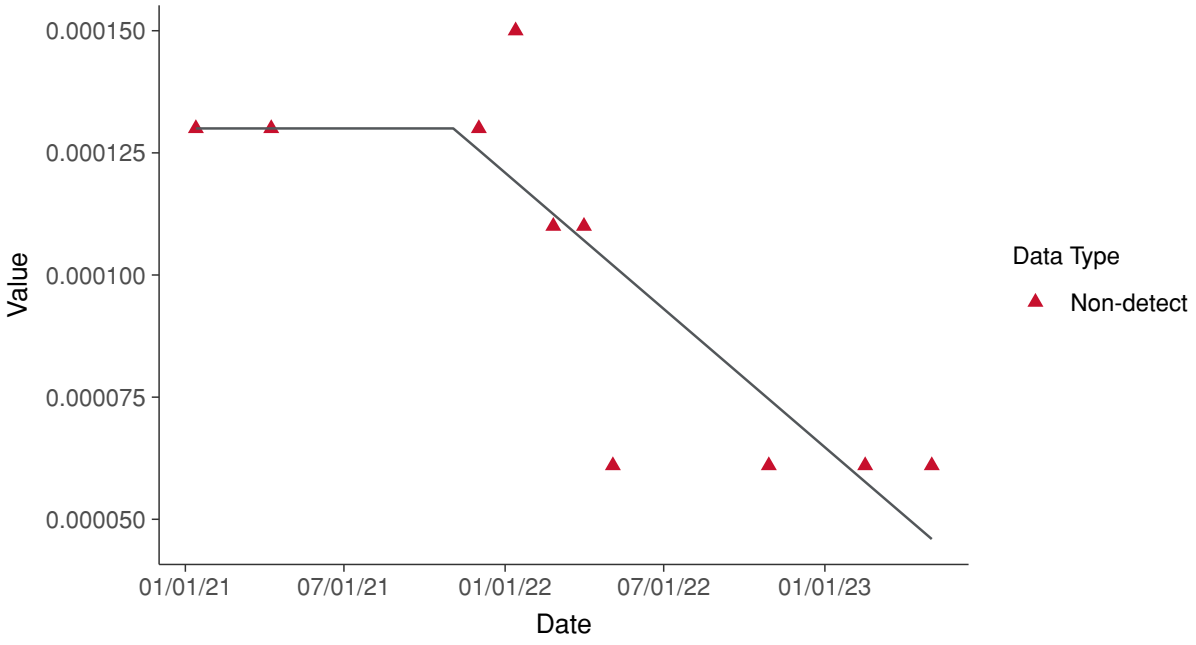
Boxplot by Season

Mercury, W-11 (mg/l)



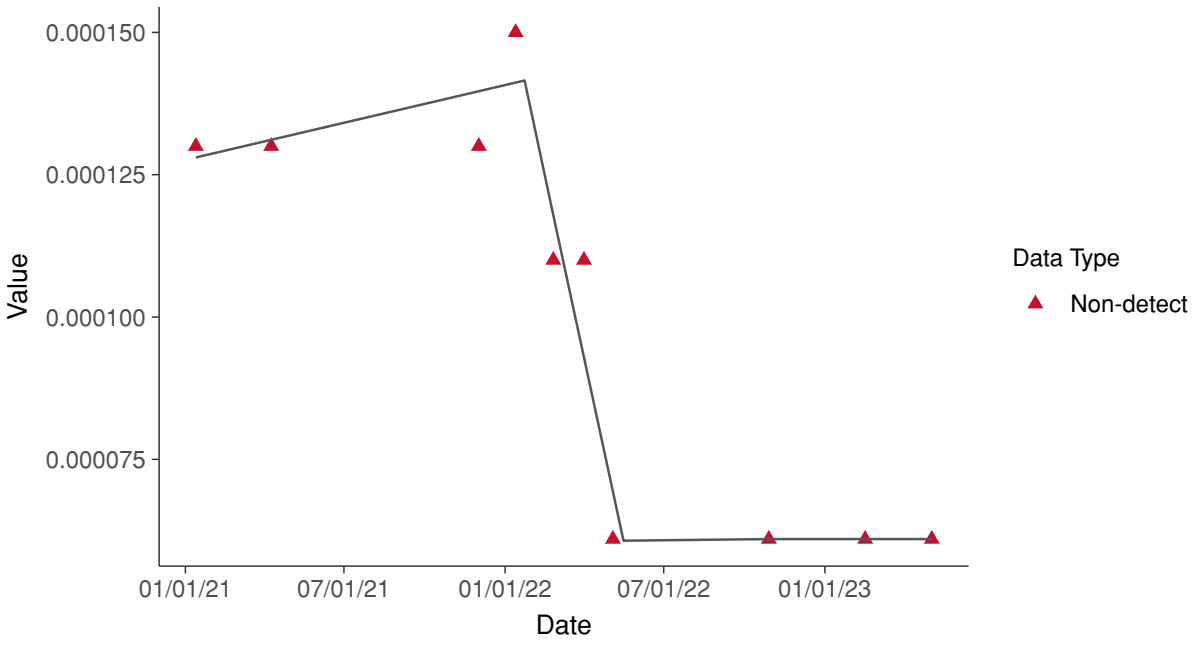
Trend Regression: Piecewise Linear-Linear

Mercury, W-11 (mg/l)



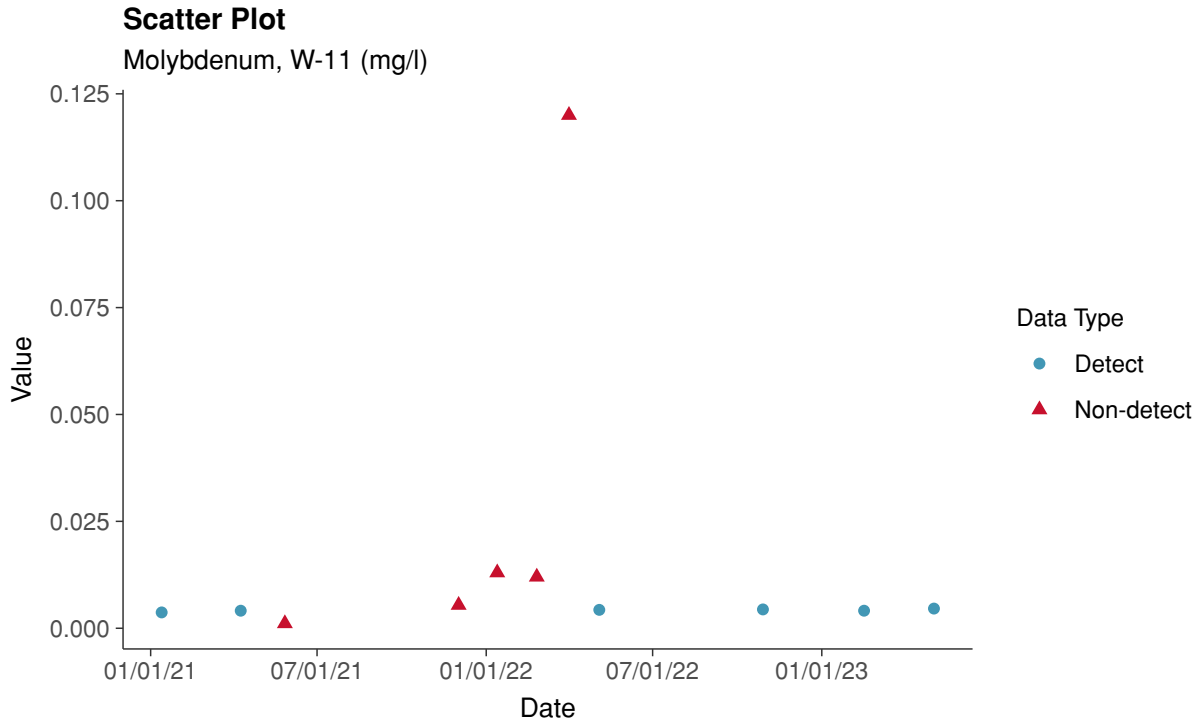
Trend Regression: Piecewise Linear-Linear-Linear

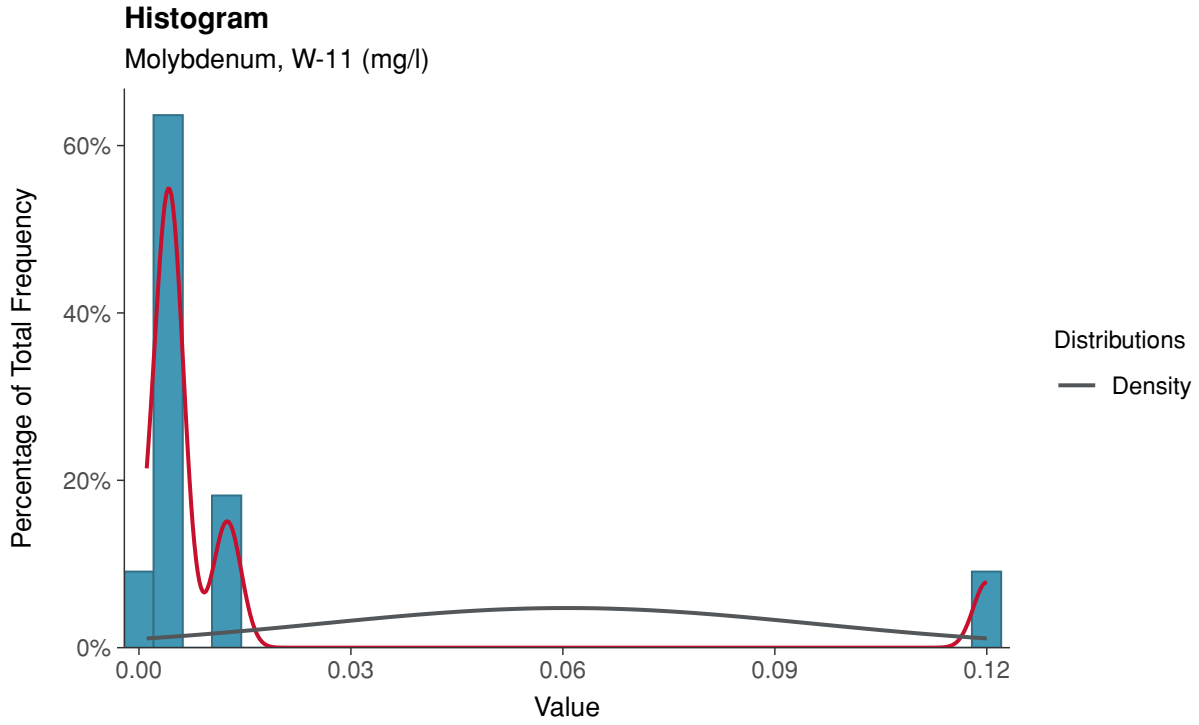
Mercury, W-11 (mg/l)



Appendix IV: Molybdenum, W-11

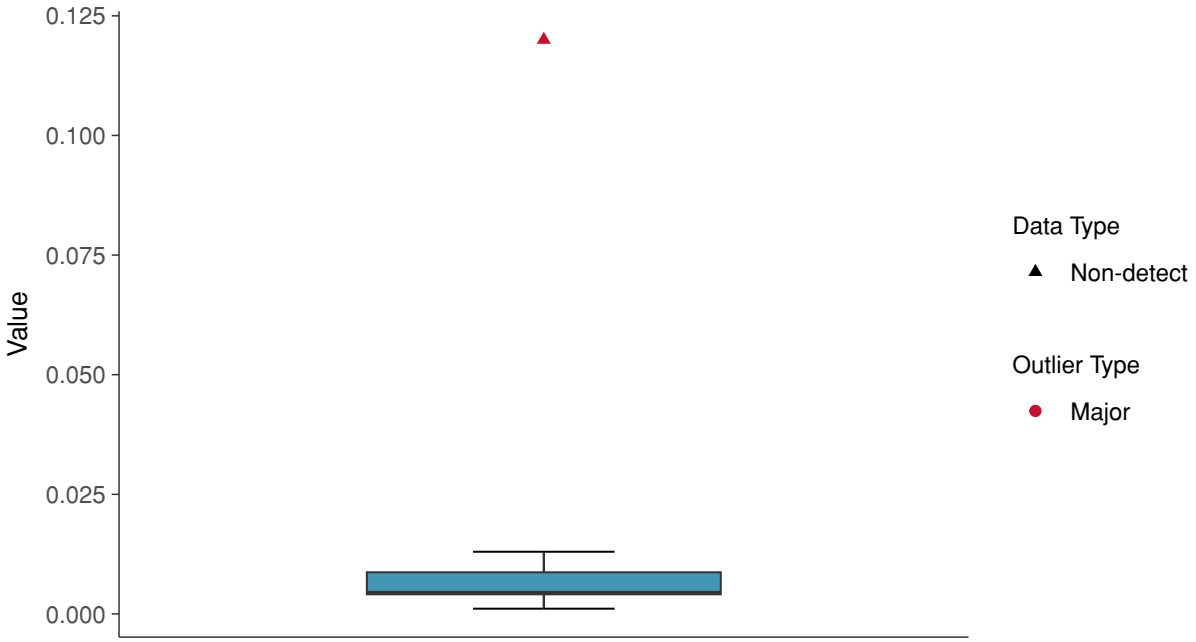
ID: 2_2_116





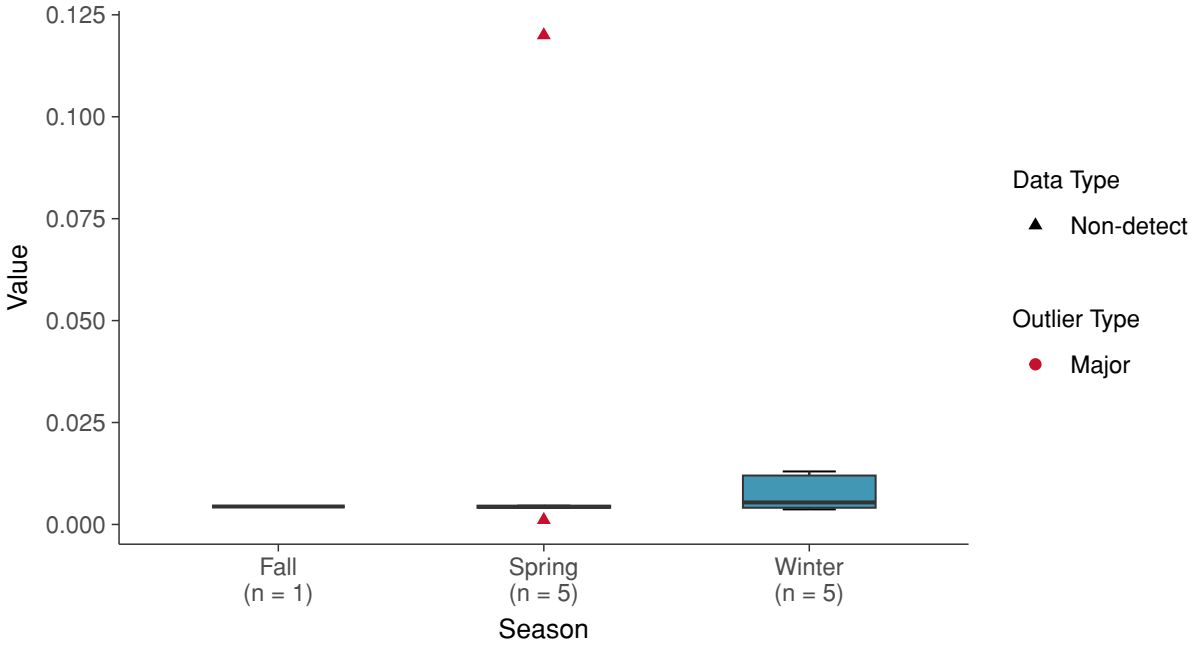
Boxplot

Molybdenum, W-11 (mg/l)



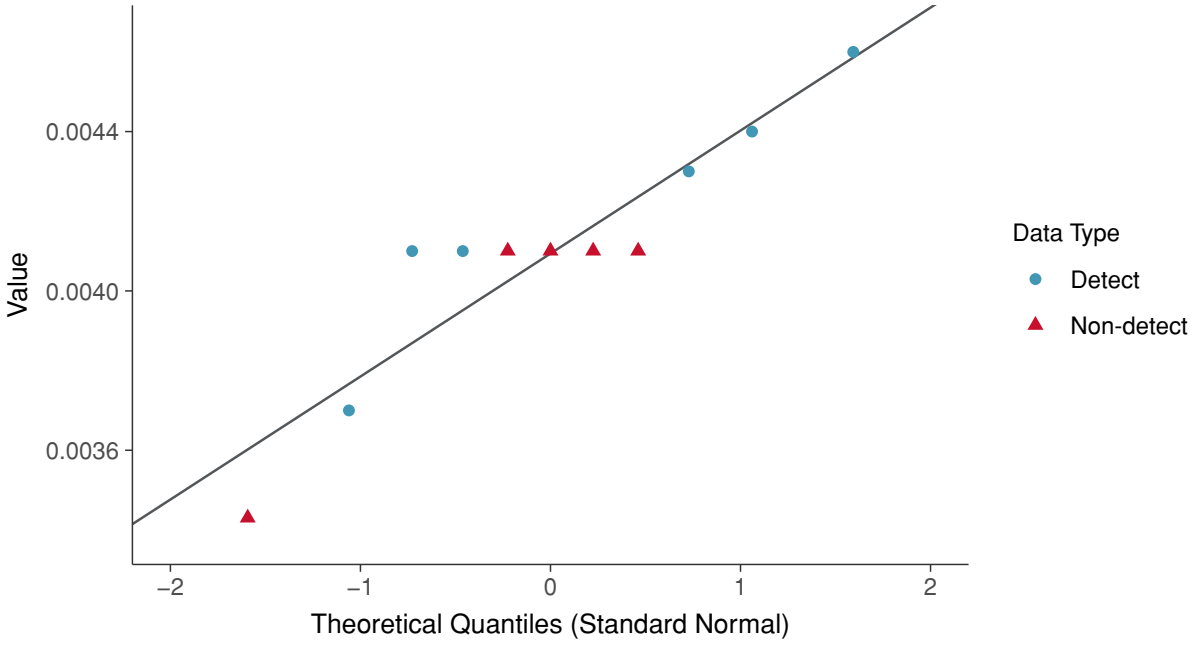
Boxplot by Season

Molybdenum, W-11 (mg/l)



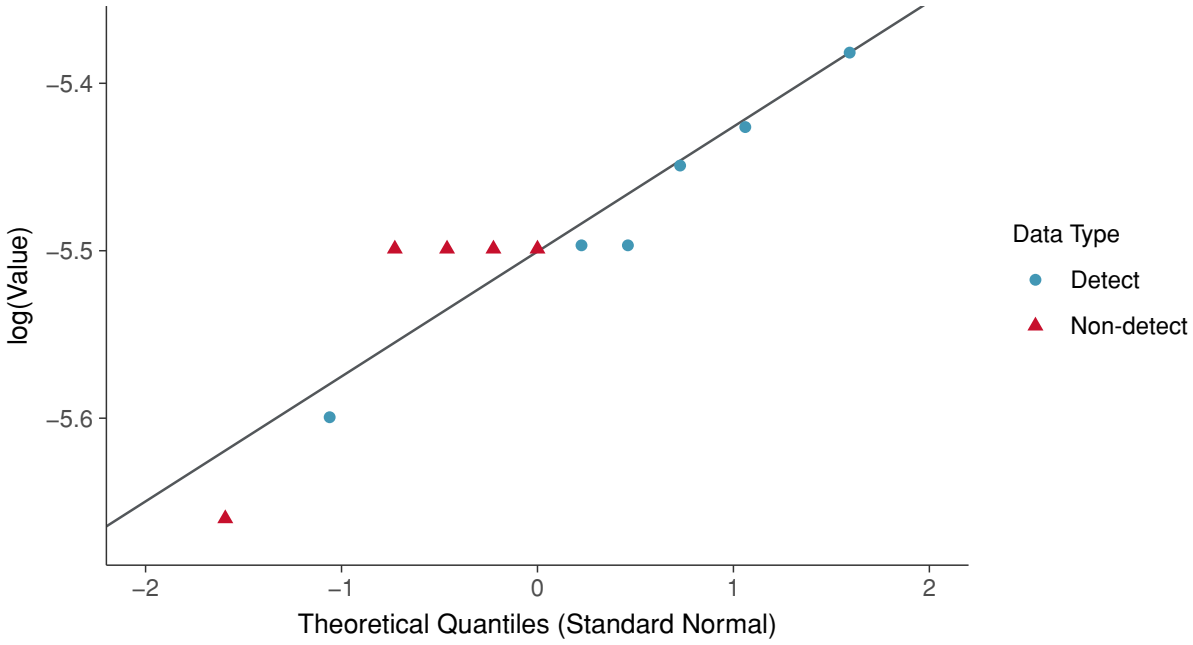
Normal Q-Q plot using ROS Imputed Estimates

Molybdenum, W-11 (mg/l)



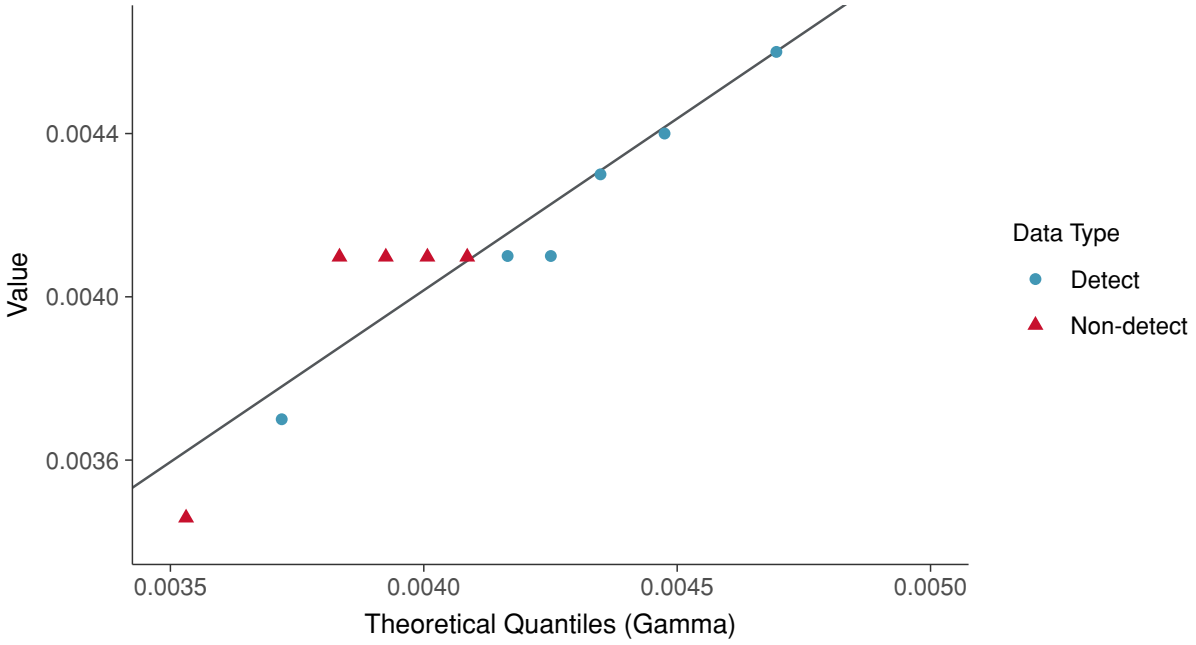
Lognormal Q-Q plot using ROS Imputed Estimates

Molybdenum, W-11 (mg/l)



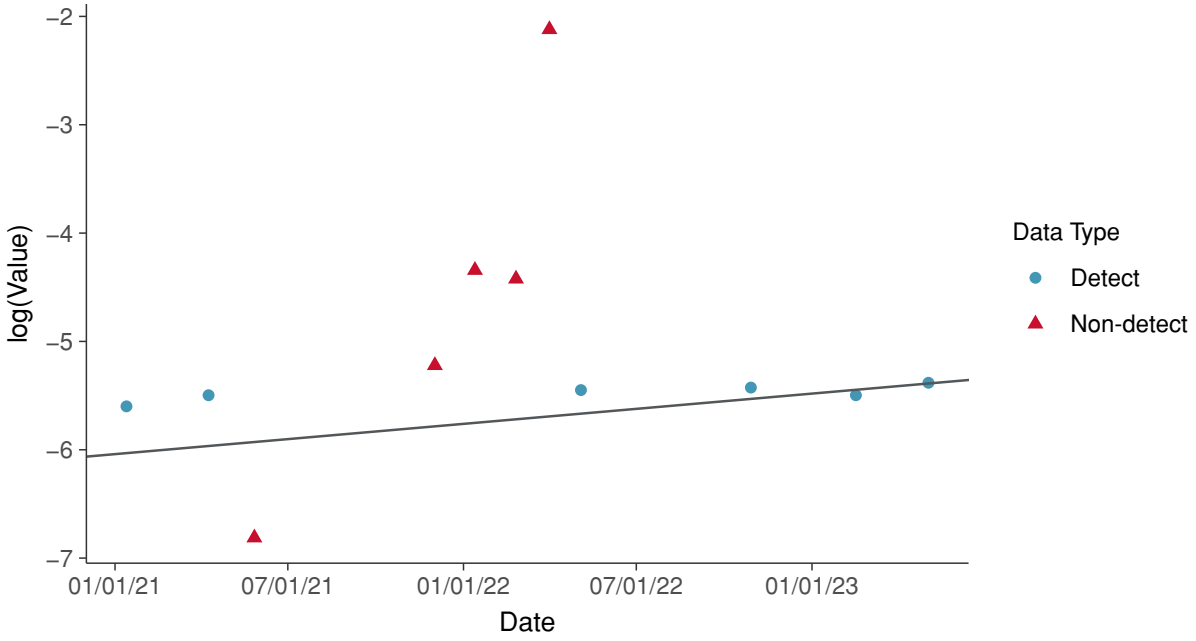
Gamma Q-Q plot using ROS Imputed Estimates

Molybdenum, W-11 (mg/l)



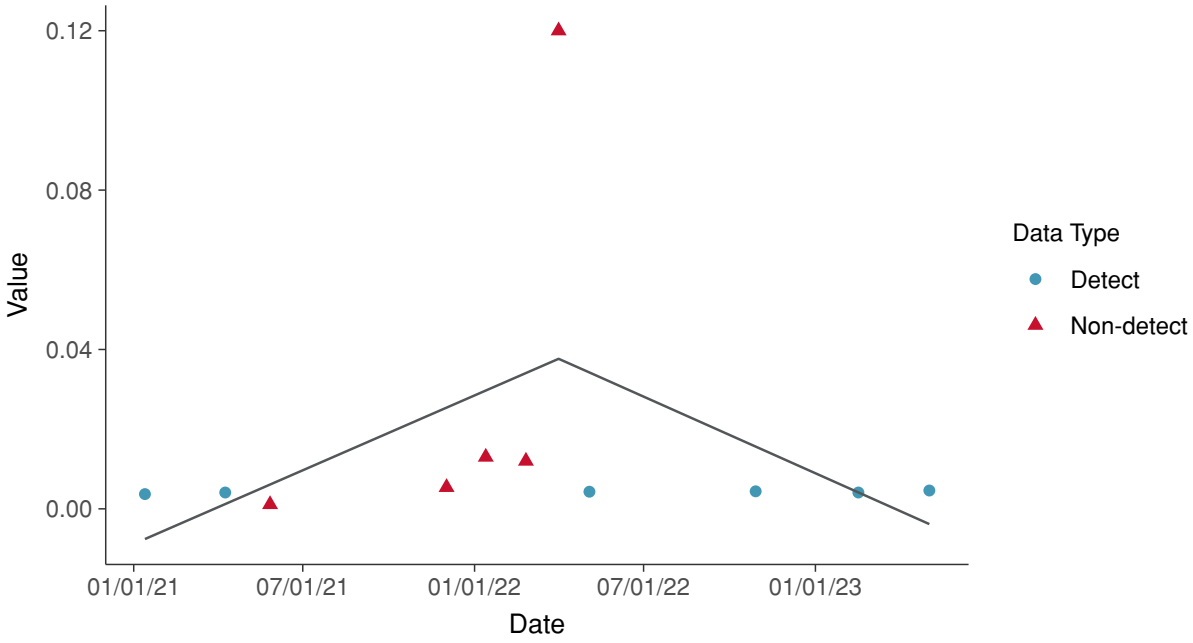
Trend Regression: Lognormal MLE

Molybdenum, W-11 (mg/l)



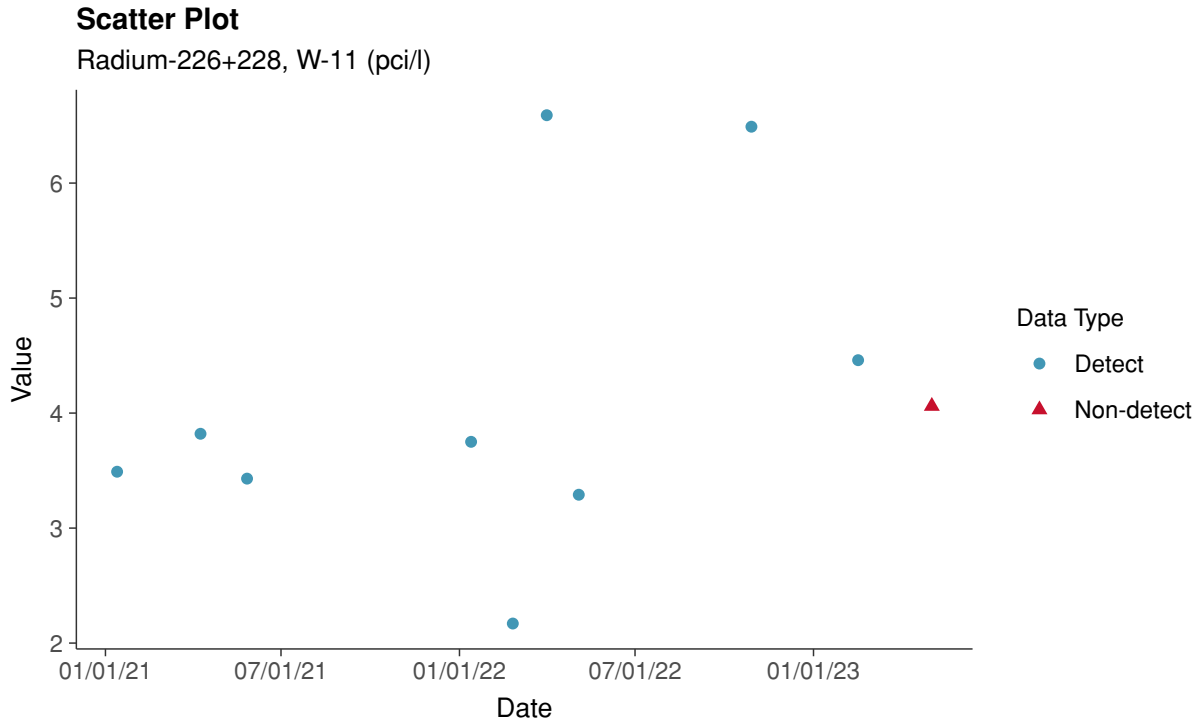
Trend Regression: Piecewise Linear-Linear

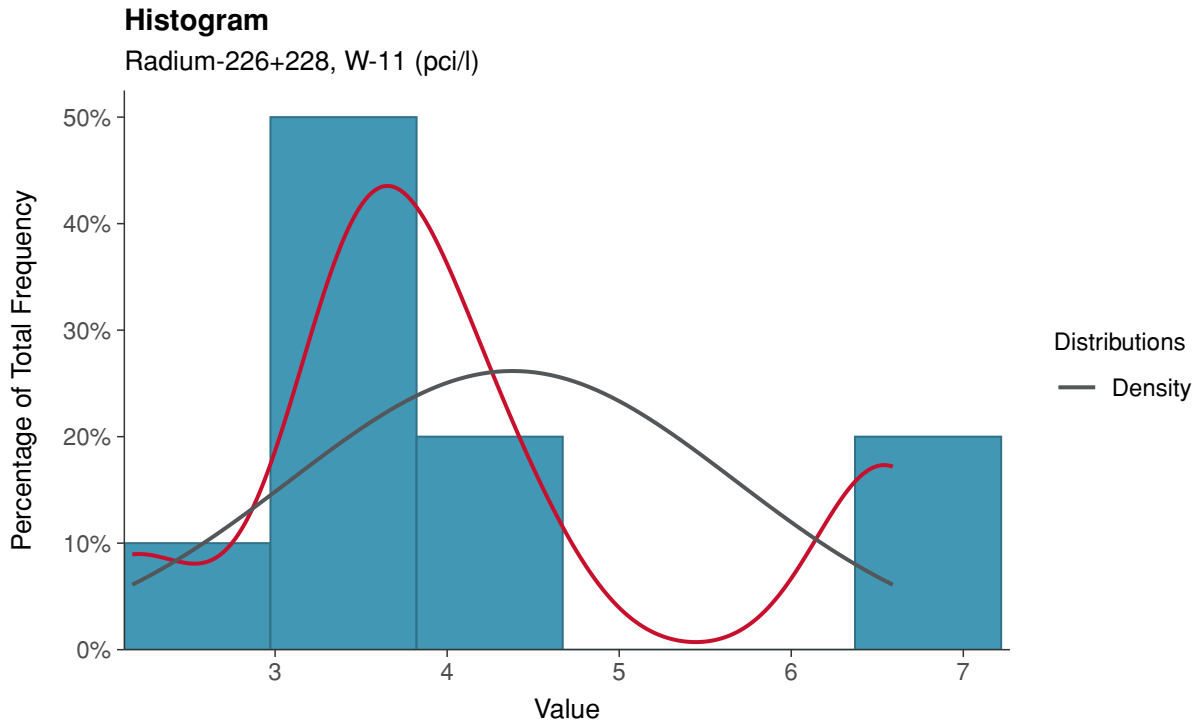
Molybdenum, W-11 (mg/l)



Appendix IV: Radium-226+228, W-11

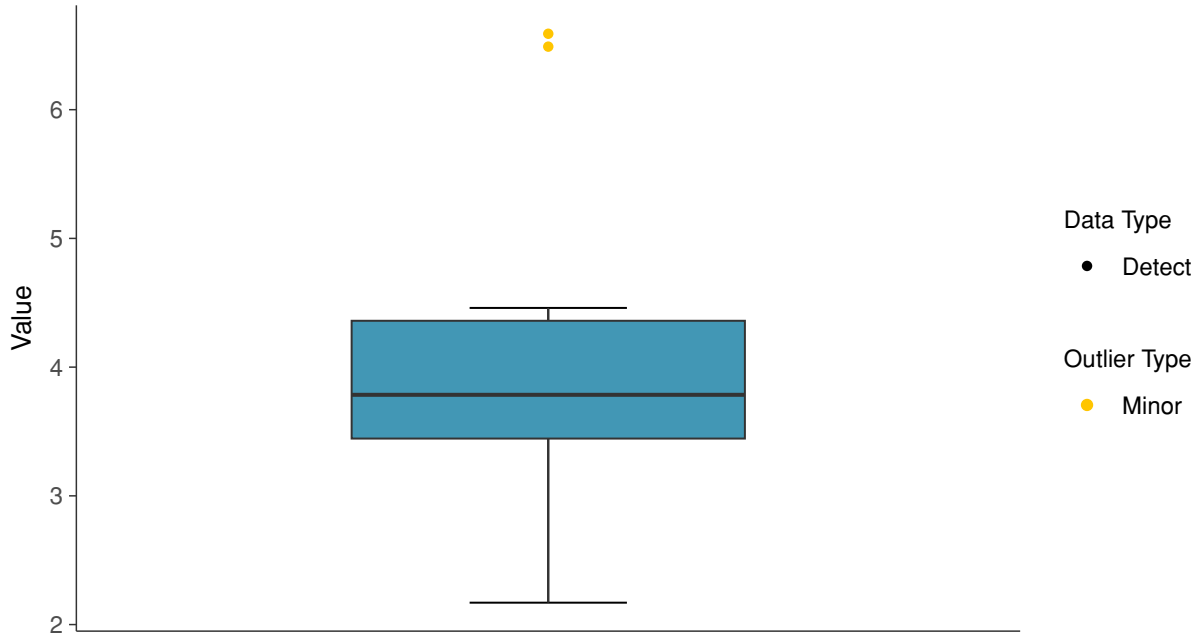
ID: 2_2_120





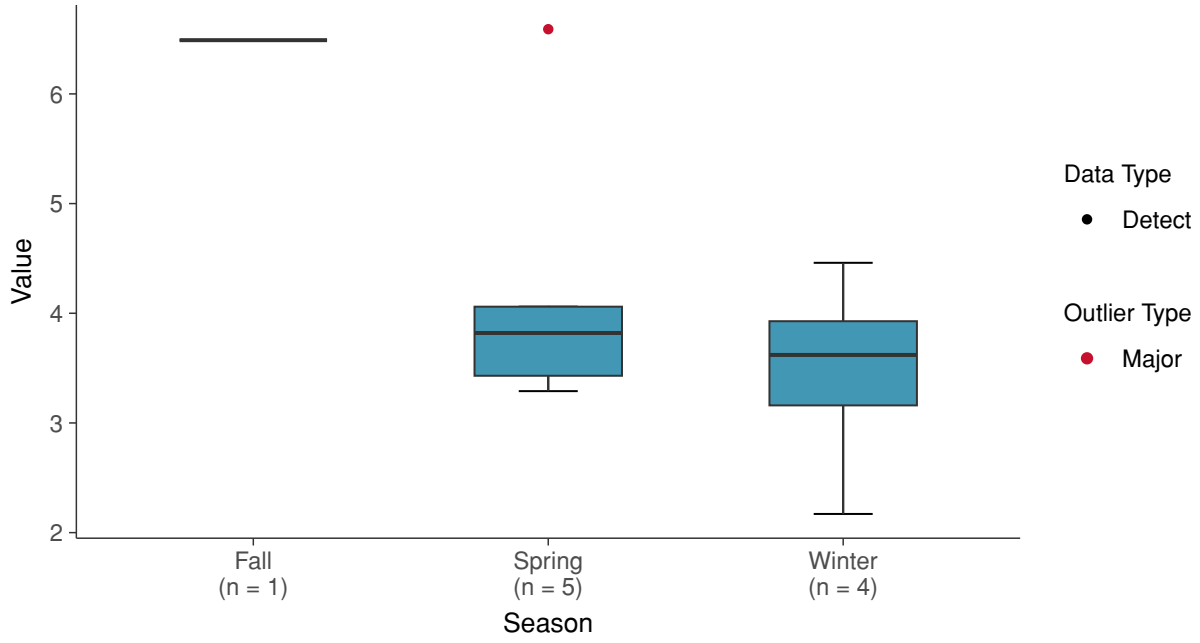
Boxplot

Radium-226+228, W-11 (pci/l)



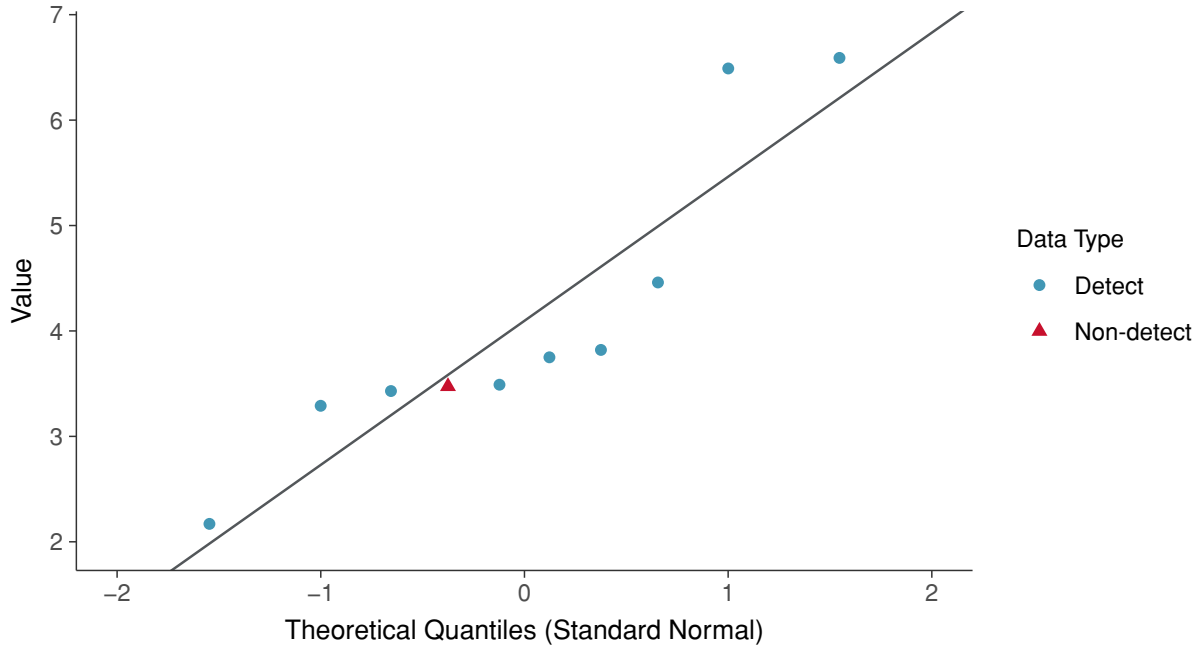
Boxplot by Season

Radium-226+228, W-11 (pci/l)



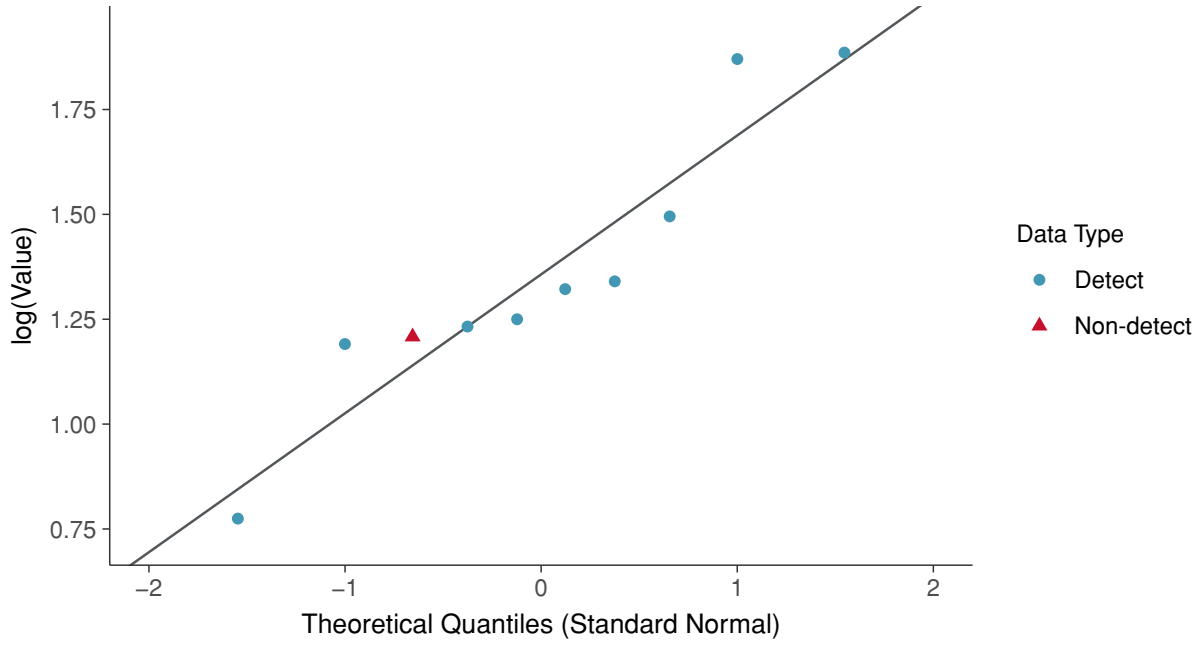
Normal Q-Q plot using ROS Imputed Estimates

Radium-226+228, W-11 (pci/l)



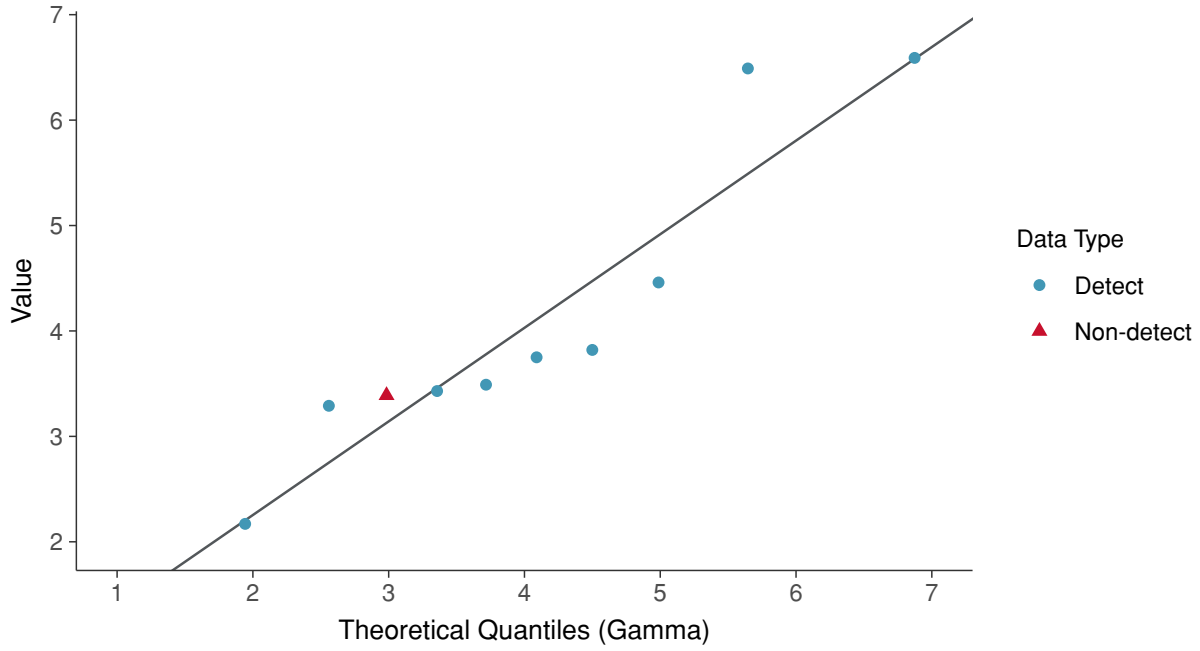
Lognormal Q-Q plot using ROS Imputed Estimates

Radium-226+228, W-11 (pci/l)



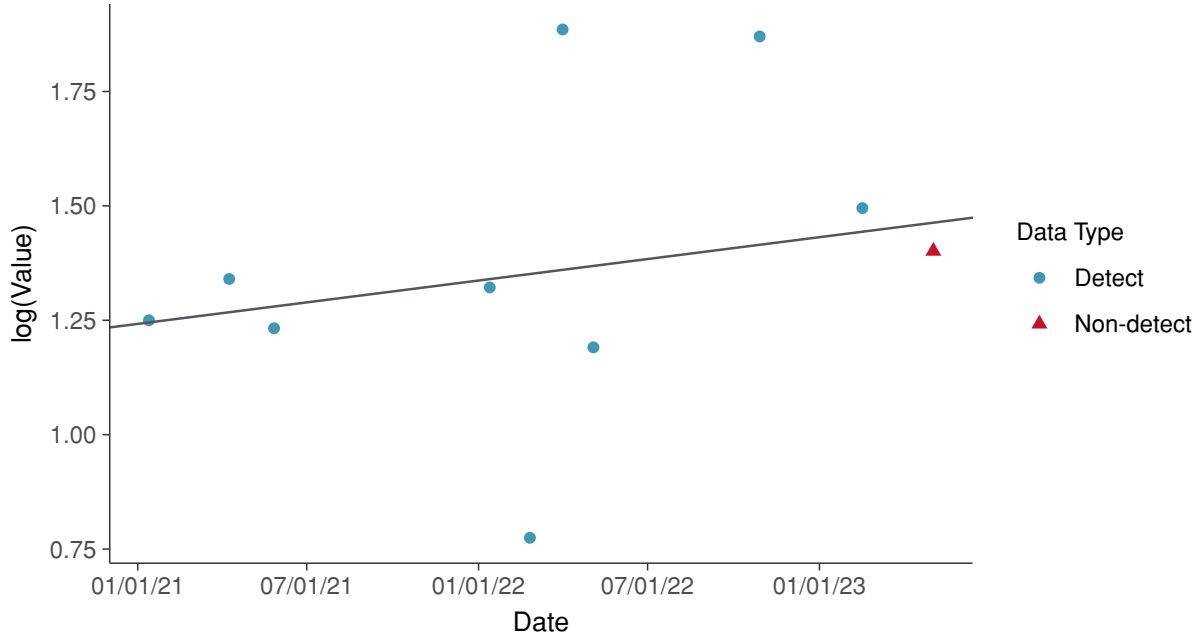
Gamma Q-Q plot using ROS Imputed Estimates

Radium-226+228, W-11 (pci/l)



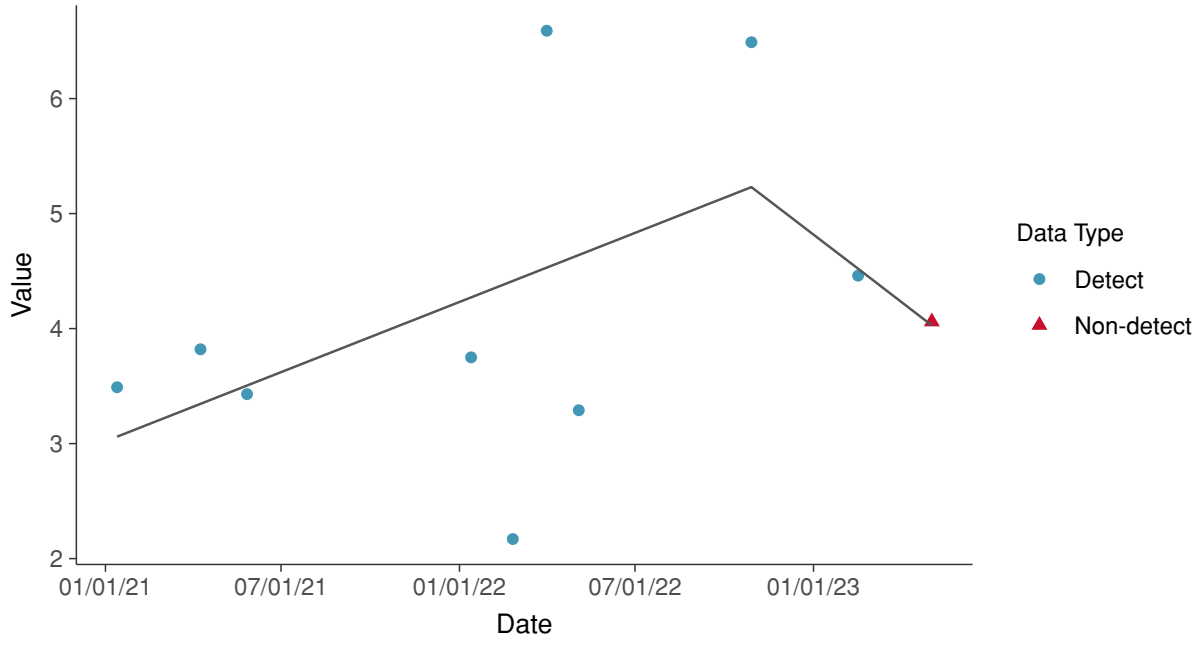
Trend Regression: Lognormal MLE

Radium-226+228, W-11 (pci/l)



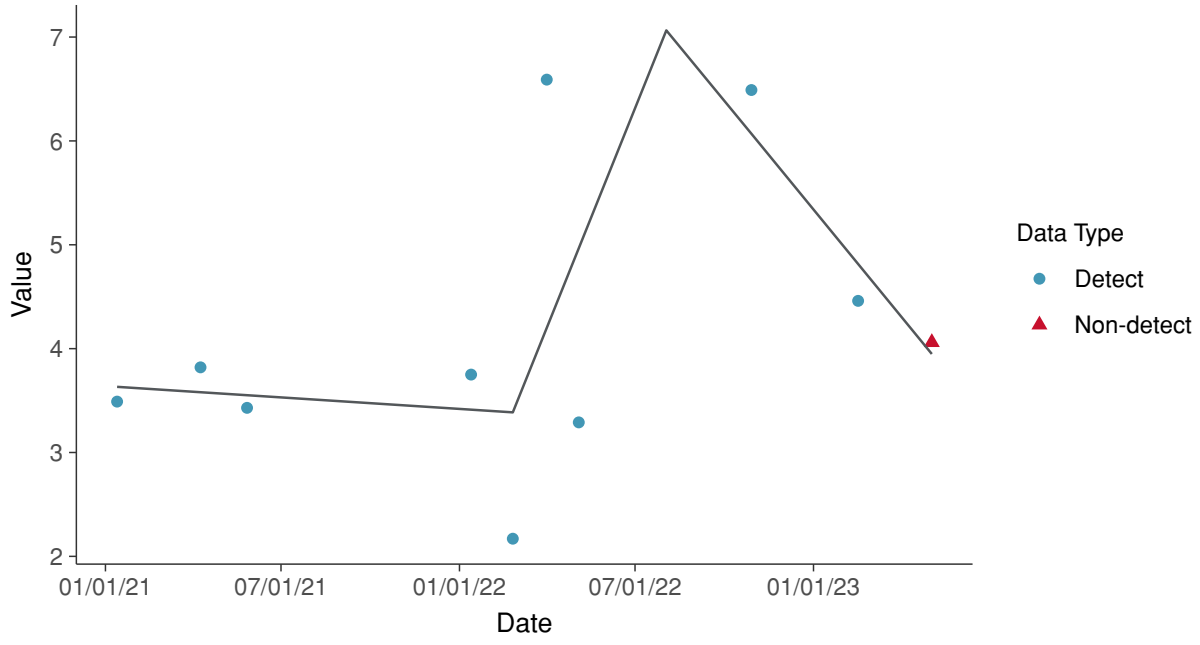
Trend Regression: Piecewise Linear-Linear

Radium-226+228, W-11 (pci/l)



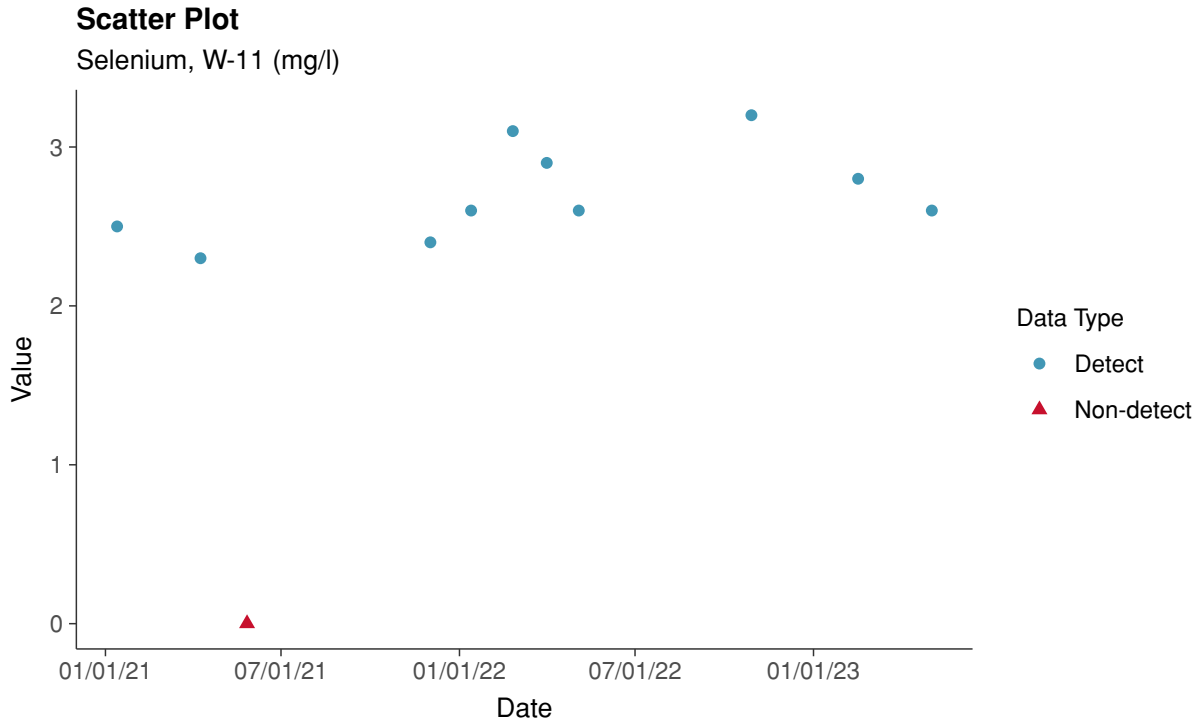
Trend Regression: Piecewise Linear-Linear-Linear

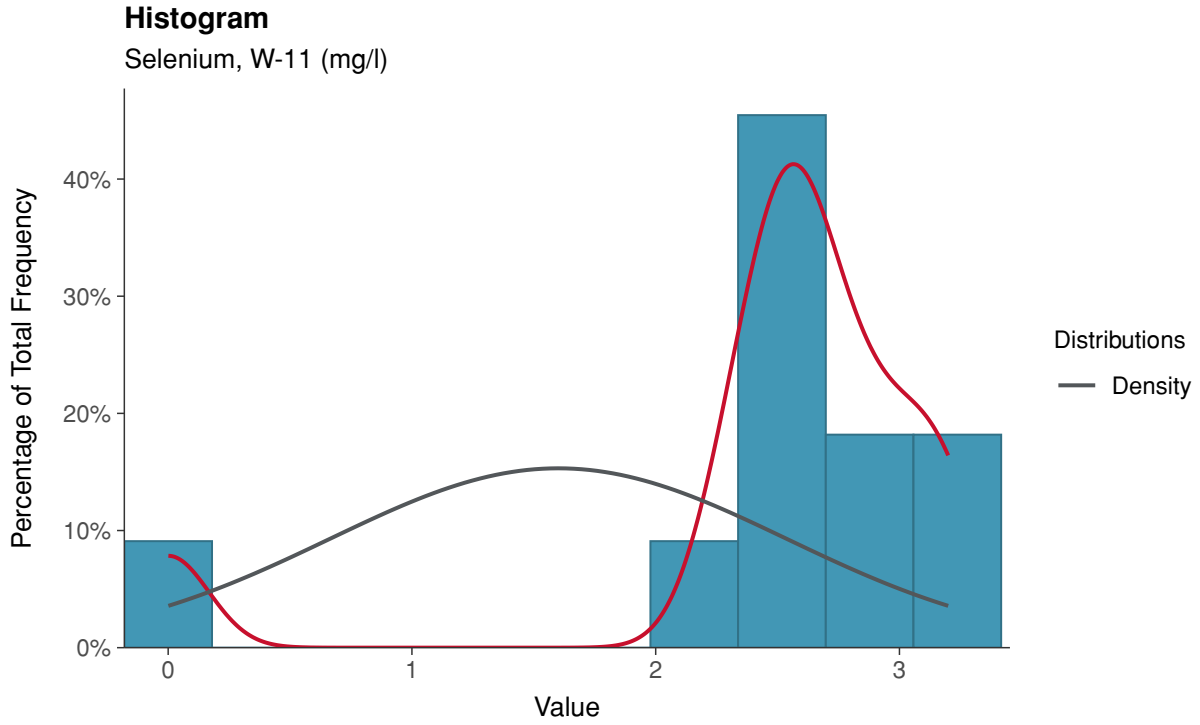
Radium-226+228, W-11 (pci/l)



Appendix IV: Selenium, W-11

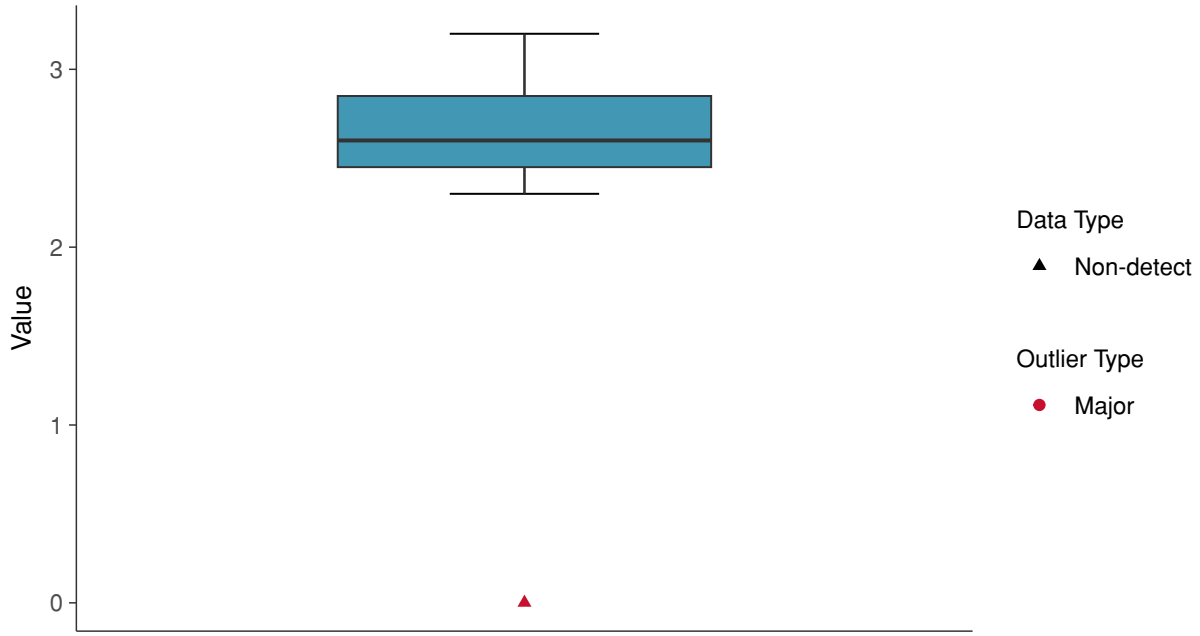
ID: 2_2_122





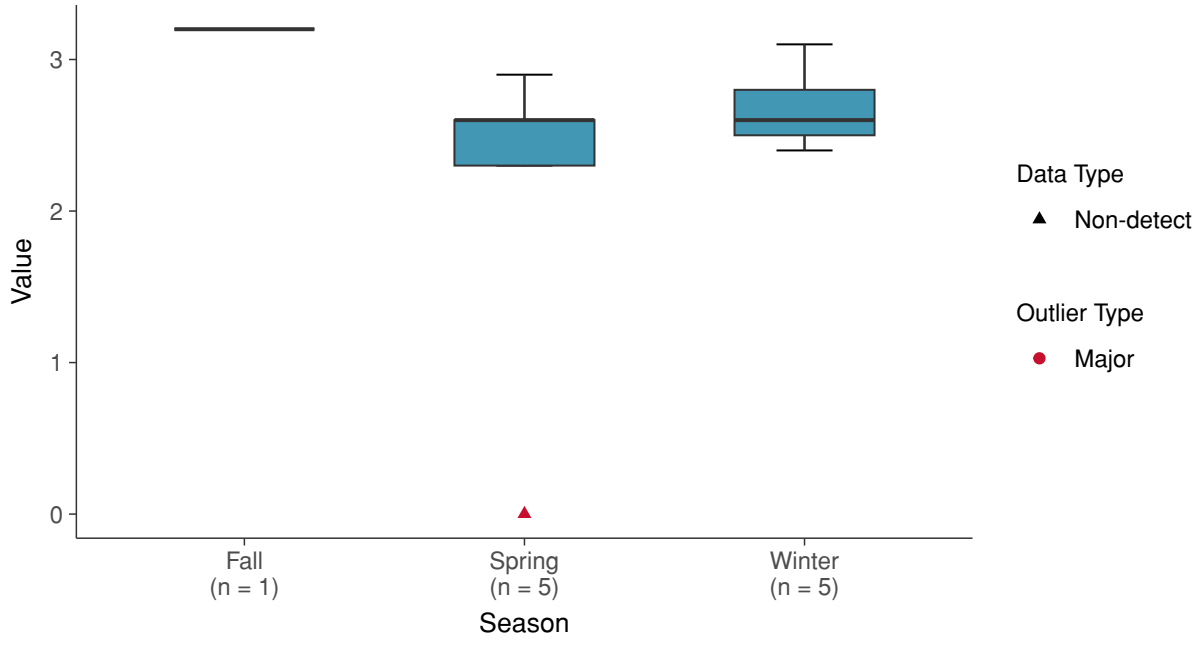
Boxplot

Selenium, W-11 (mg/l)



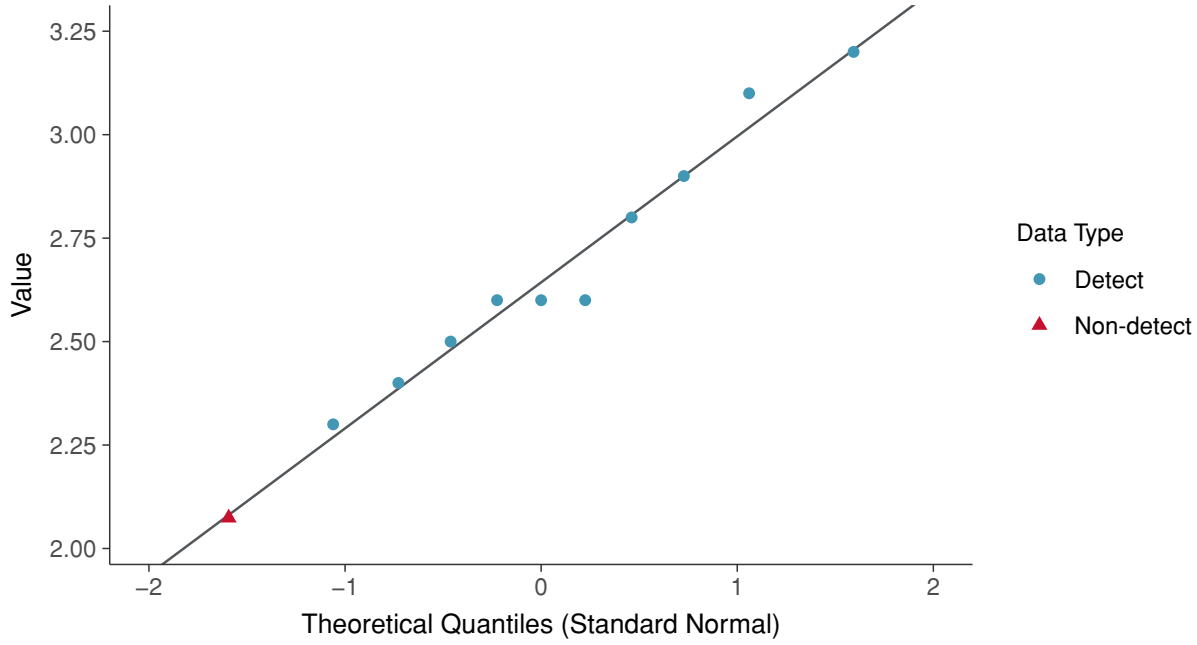
Boxplot by Season

Selenium, W-11 (mg/l)



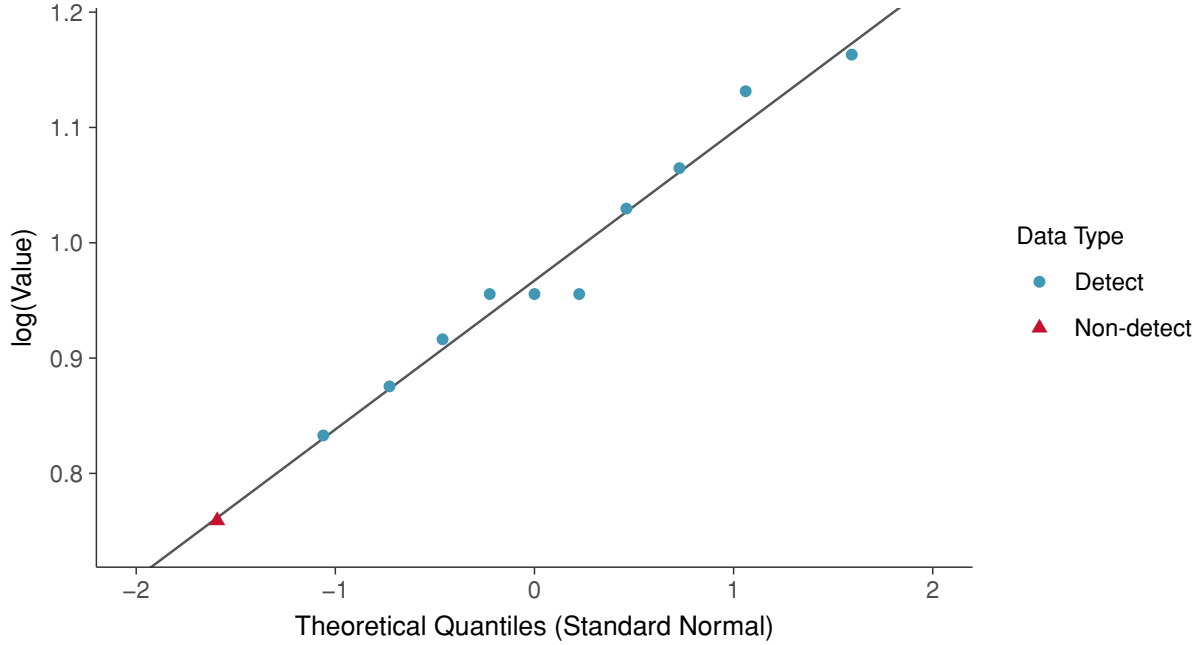
Normal Q-Q plot using ROS Imputed Estimates

Selenium, W-11 (mg/l)



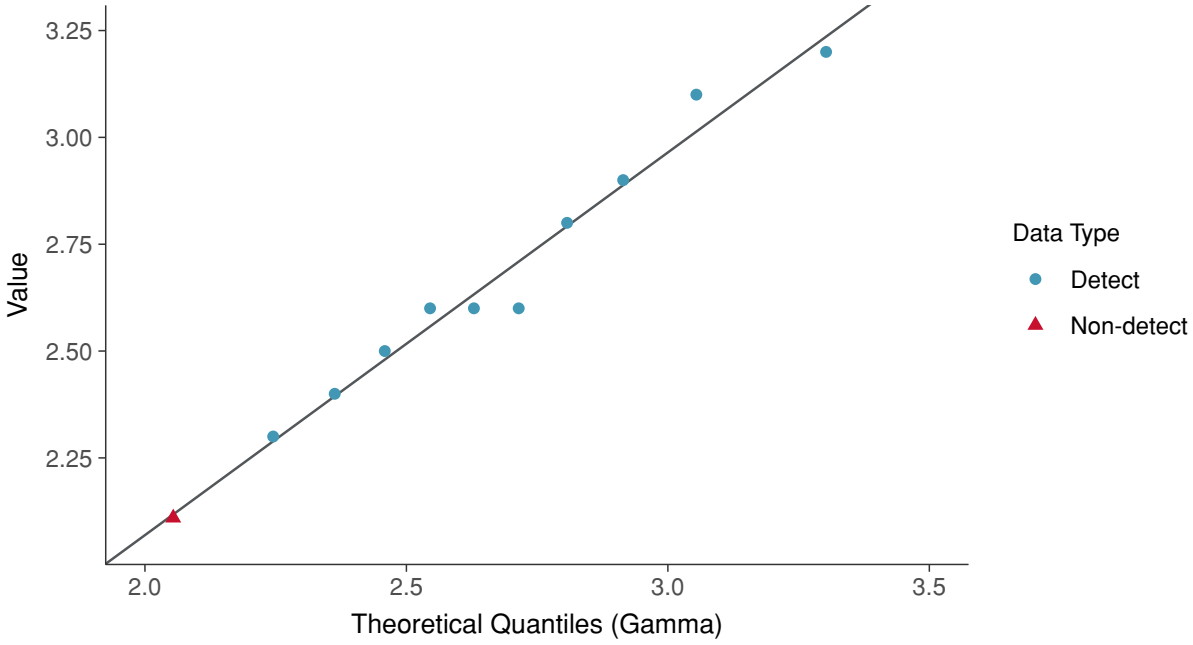
Lognormal Q-Q plot using ROS Imputed Estimates

Selenium, W-11 (mg/l)



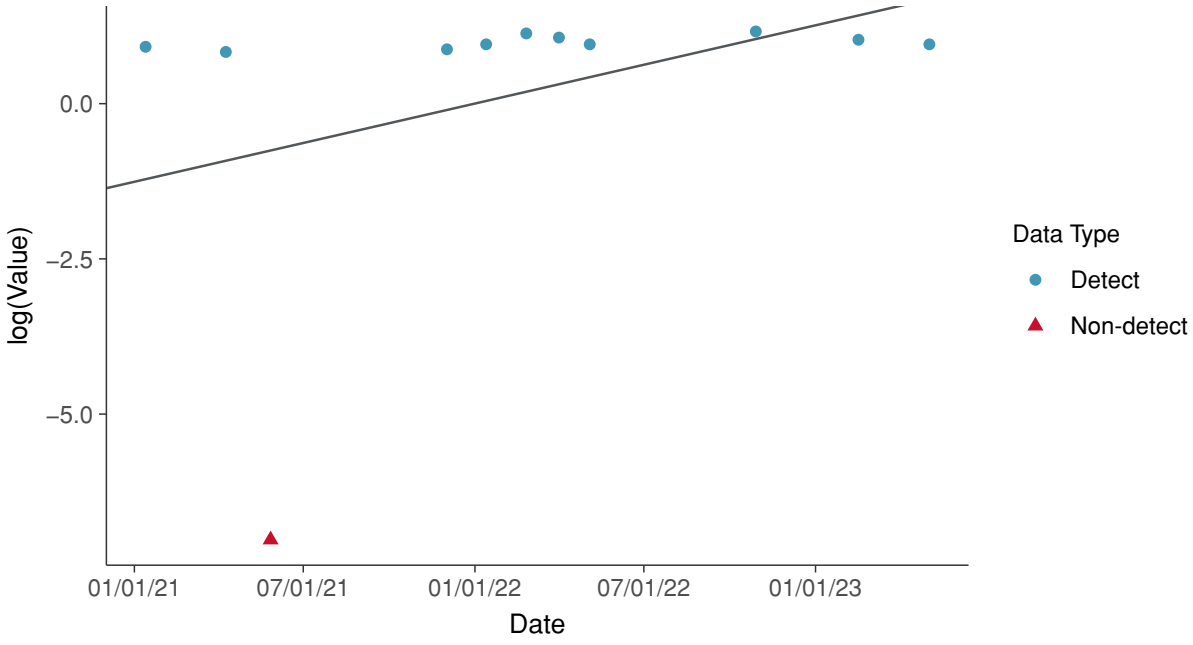
Gamma Q-Q plot using ROS Imputed Estimates

Selenium, W-11 (mg/l)



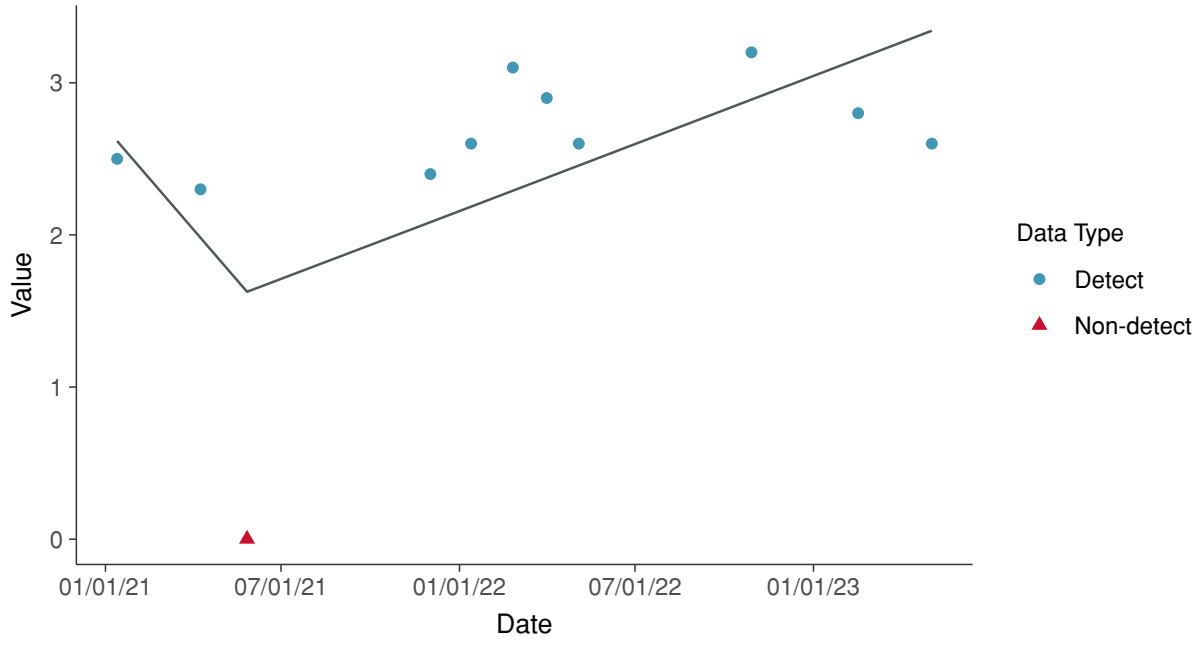
Trend Regression: Lognormal MLE

Selenium, W-11 (mg/l)



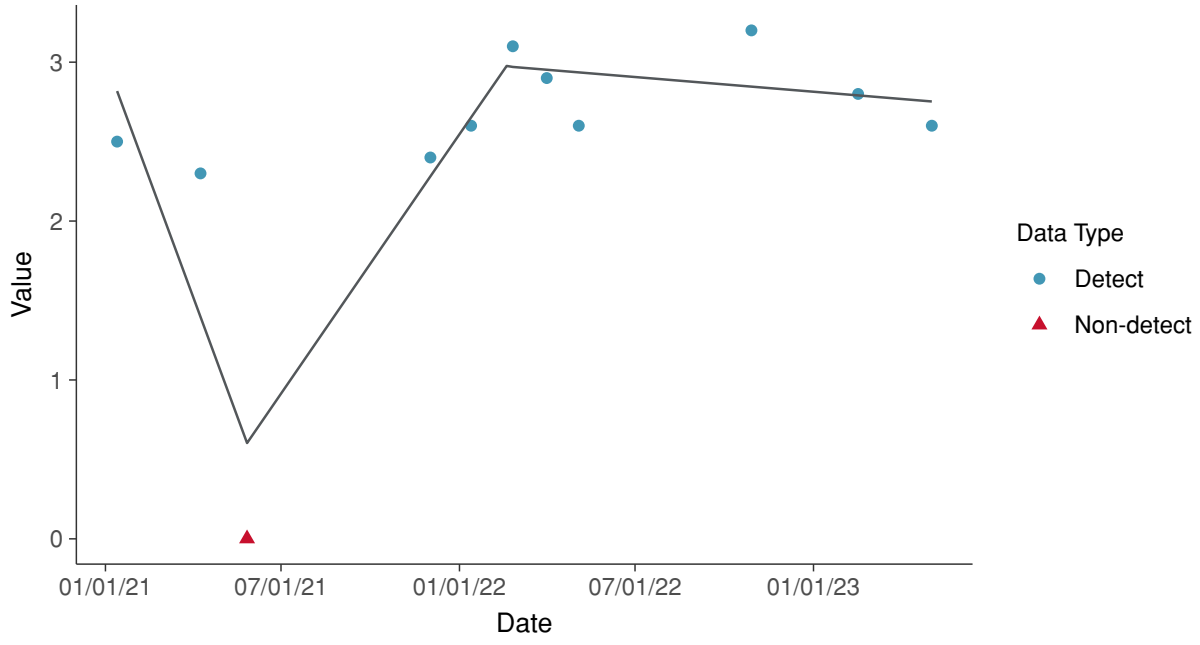
Trend Regression: Piecewise Linear-Linear

Selenium, W-11 (mg/l)



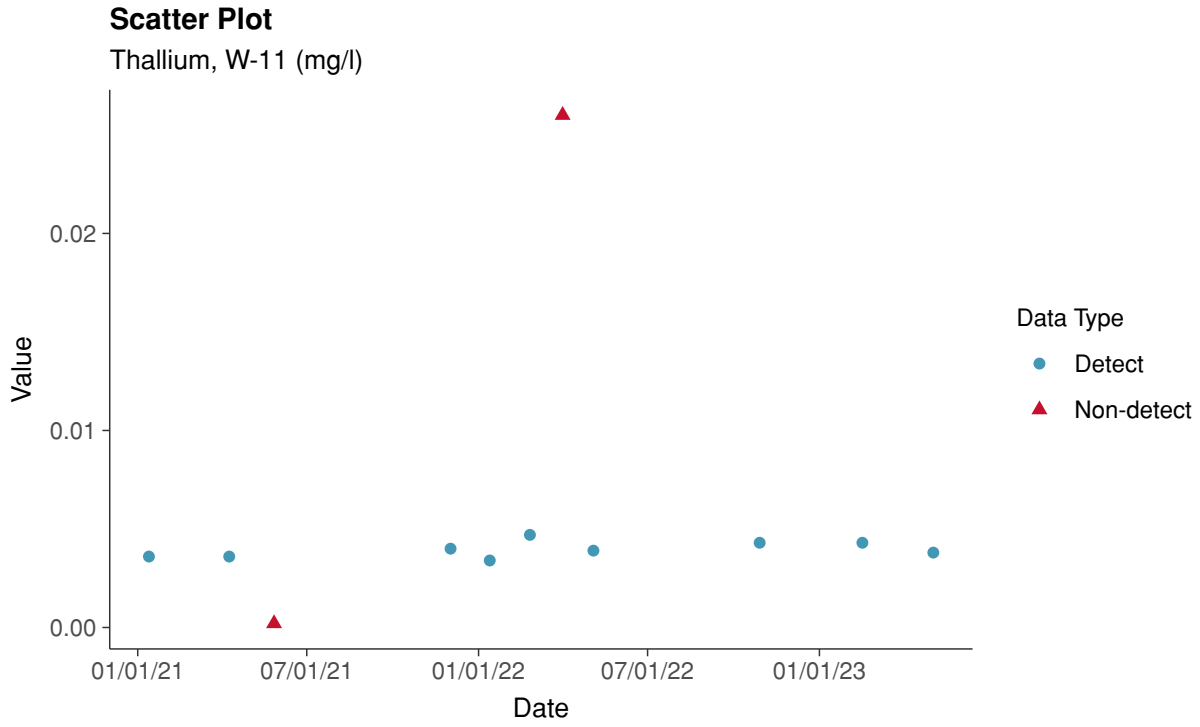
Trend Regression: Piecewise Linear-Linear-Linear

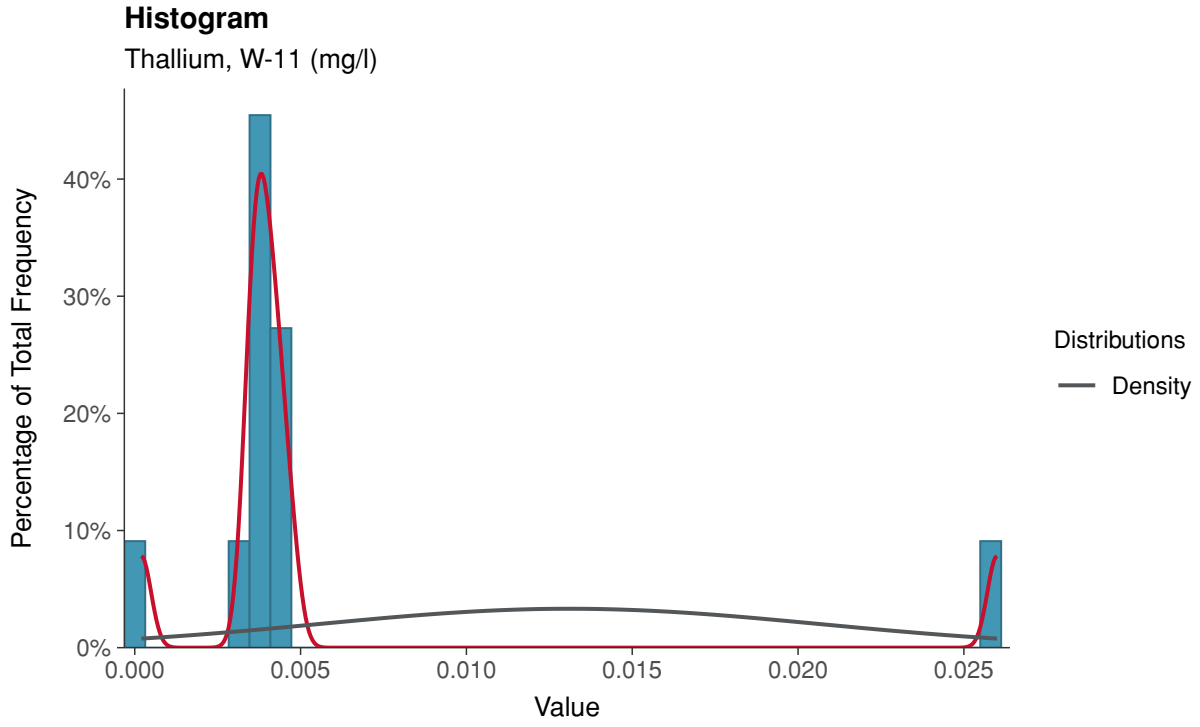
Selenium, W-11 (mg/l)



Appendix IV: Thallium, W-11

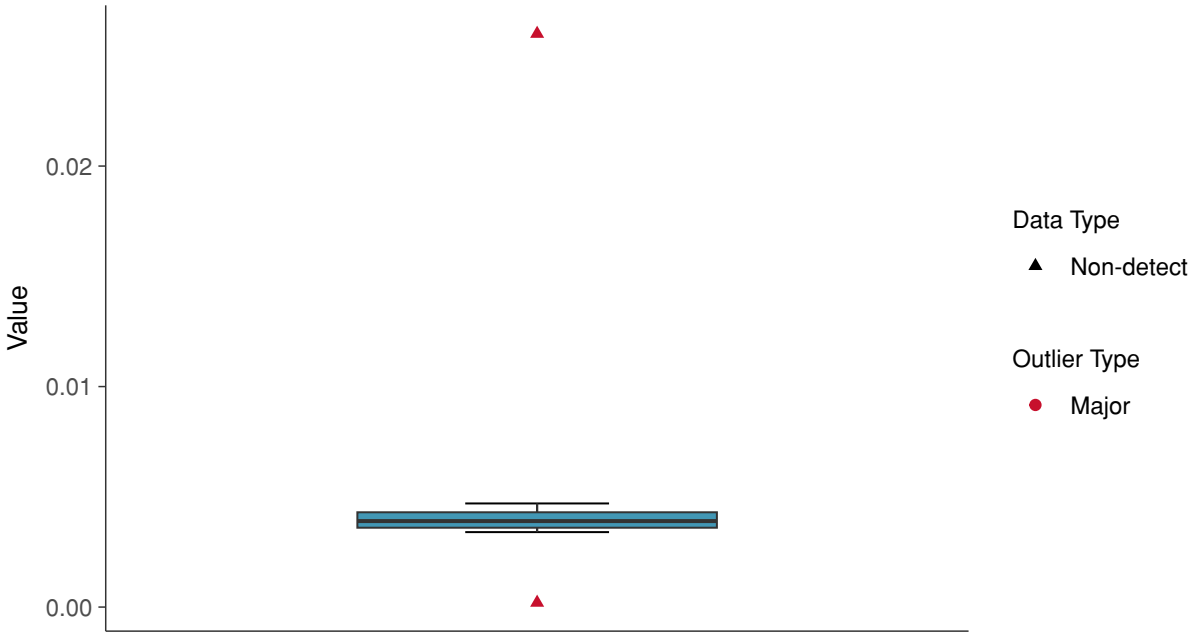
ID: 2_2_126





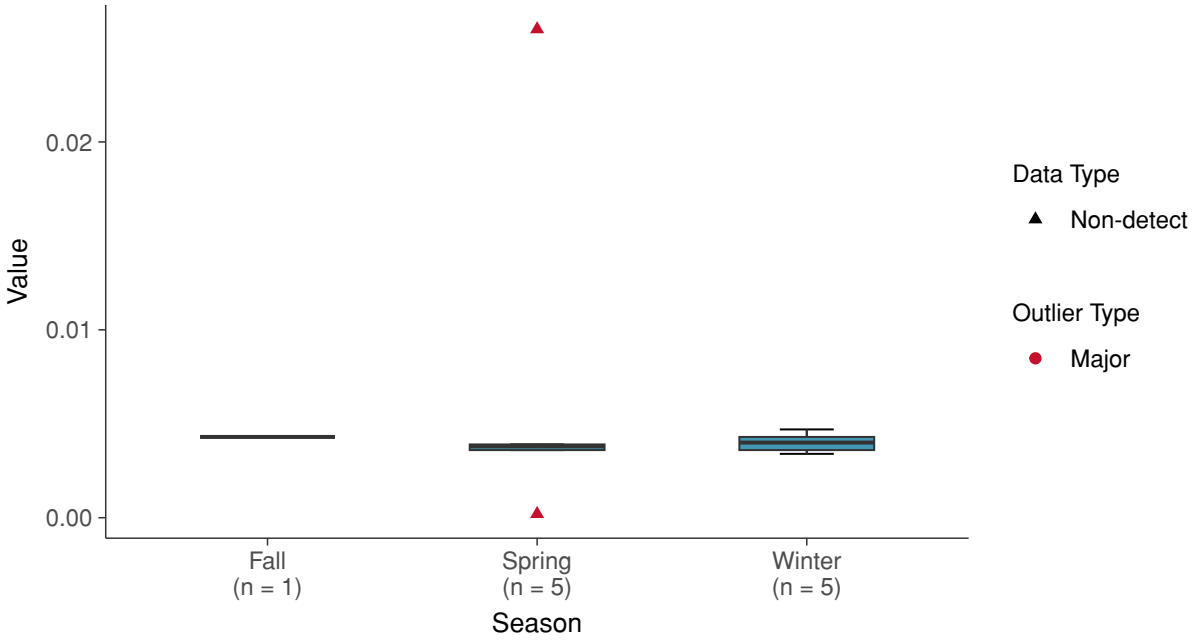
Boxplot

Thallium, W-11 (mg/l)



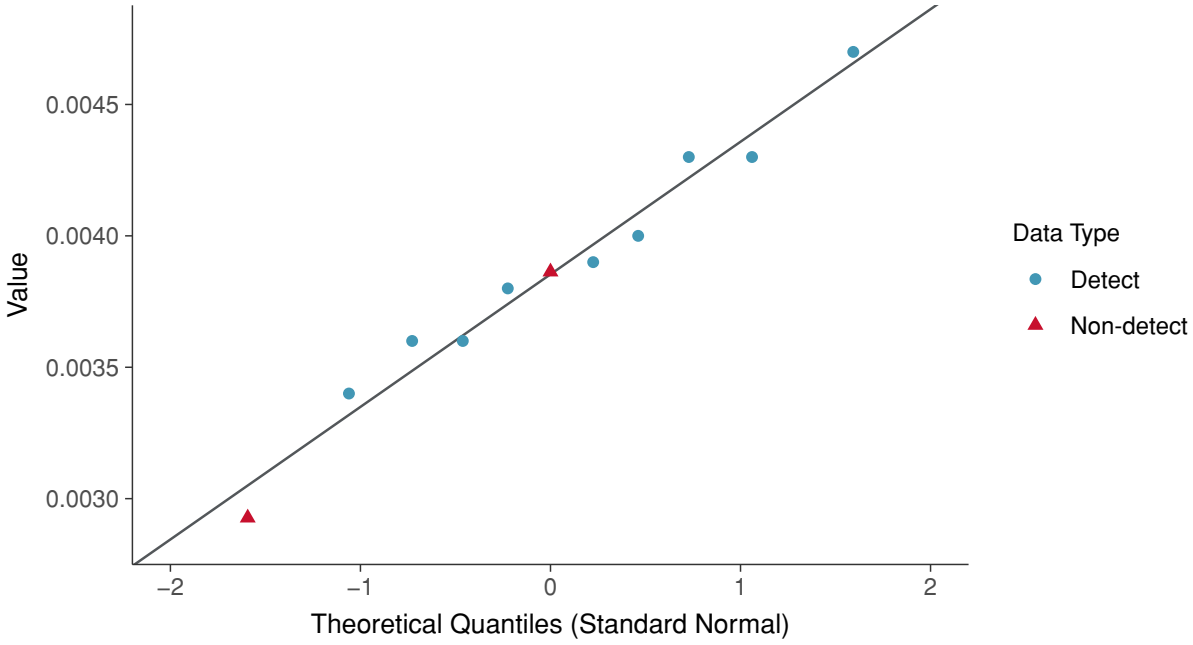
Boxplot by Season

Thallium, W-11 (mg/l)



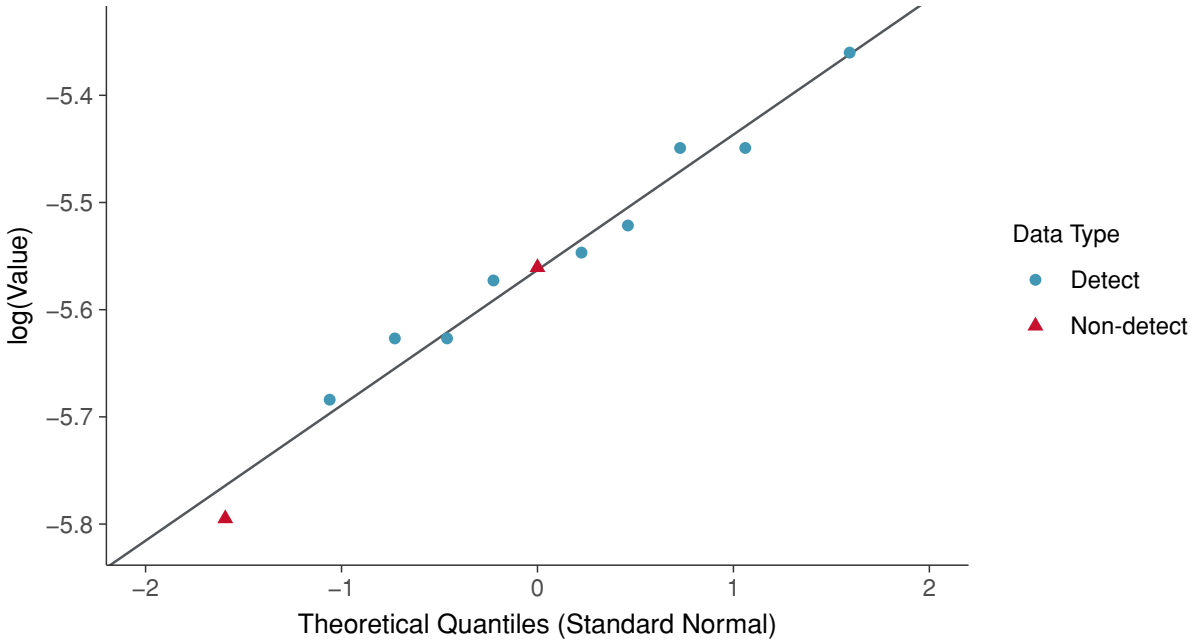
Normal Q-Q plot using ROS Imputed Estimates

Thallium, W-11 (mg/l)



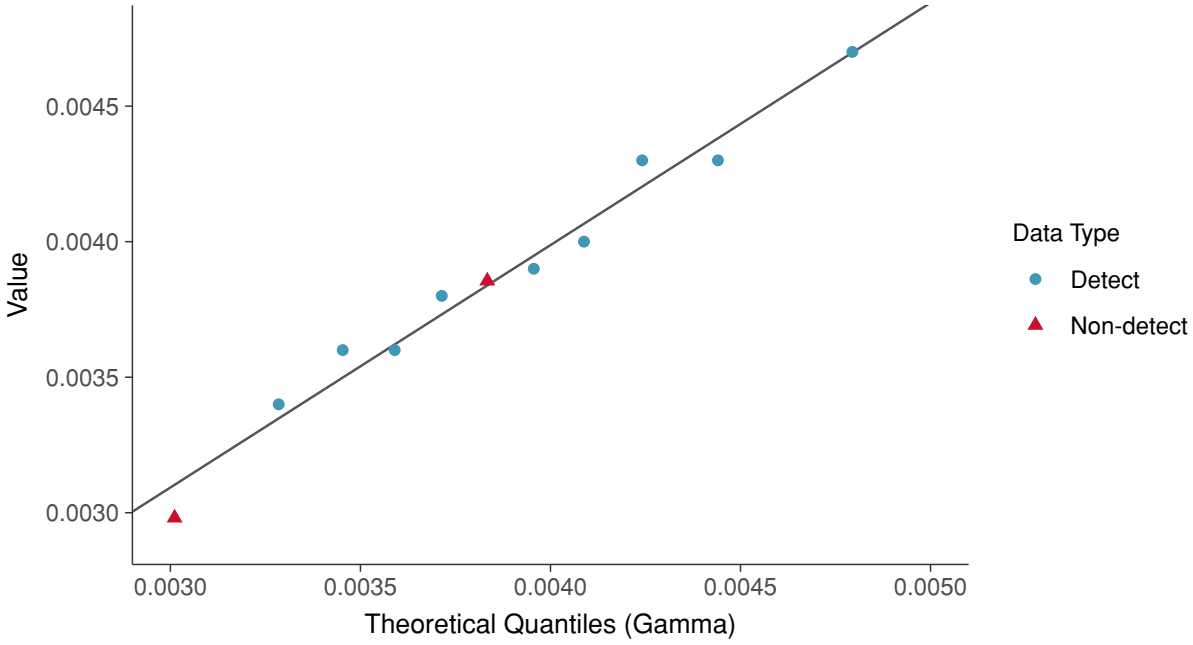
Lognormal Q-Q plot using ROS Imputed Estimates

Thallium, W-11 (mg/l)



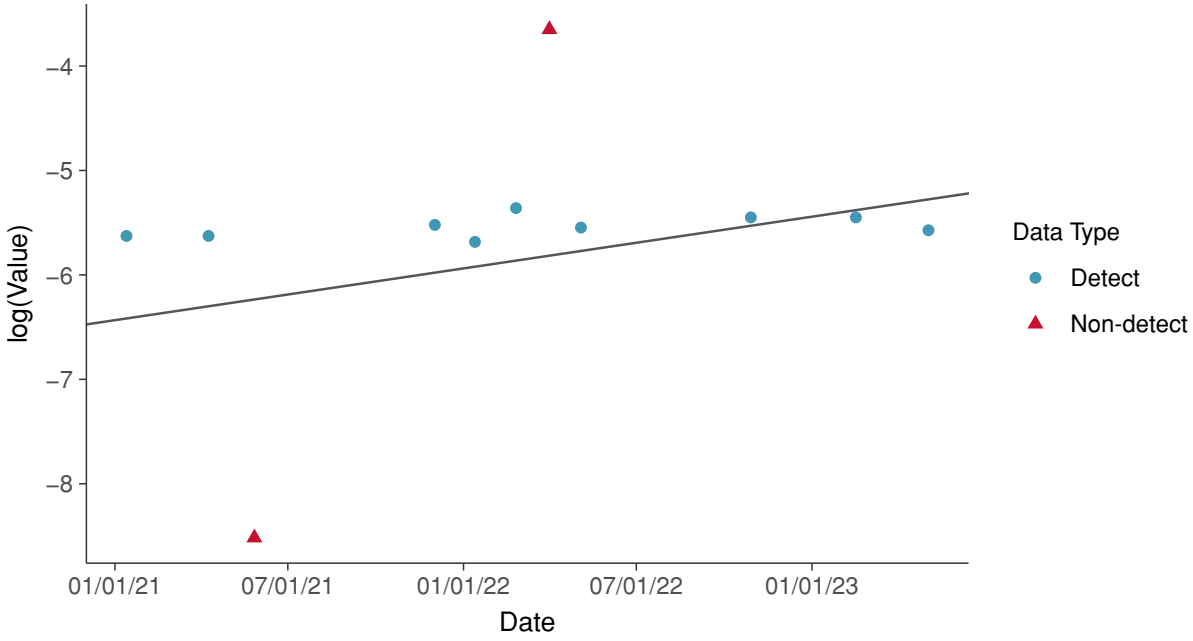
Gamma Q-Q plot using ROS Imputed Estimates

Thallium, W-11 (mg/l)



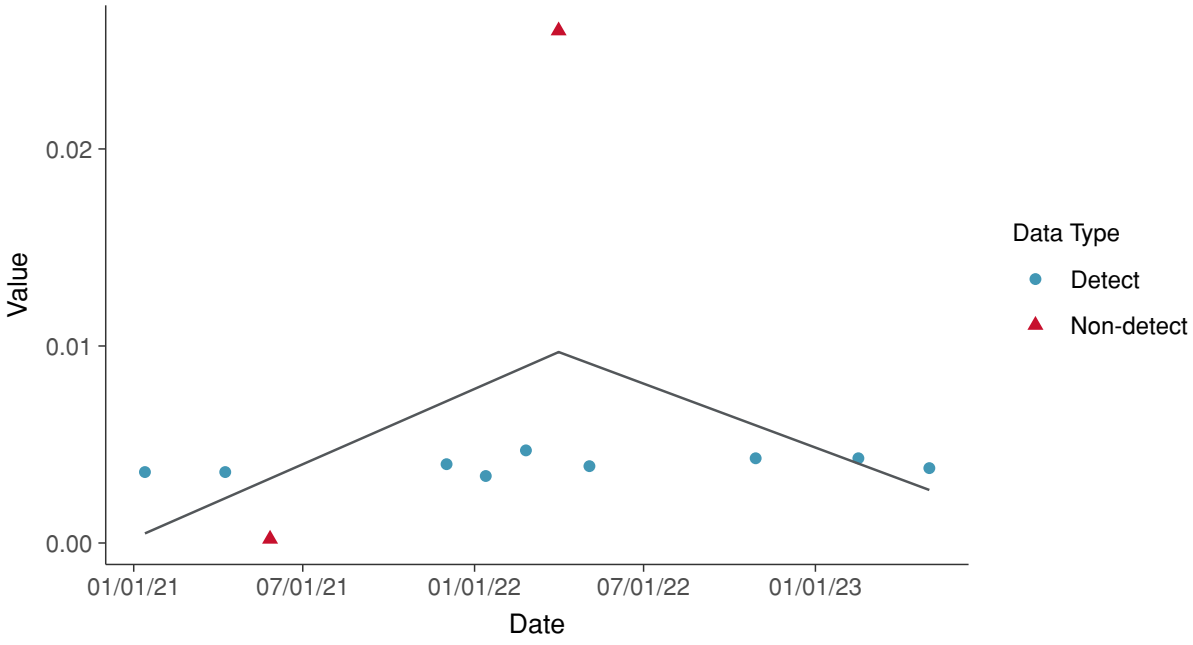
Trend Regression: Lognormal MLE

Thallium, W-11 (mg/l)



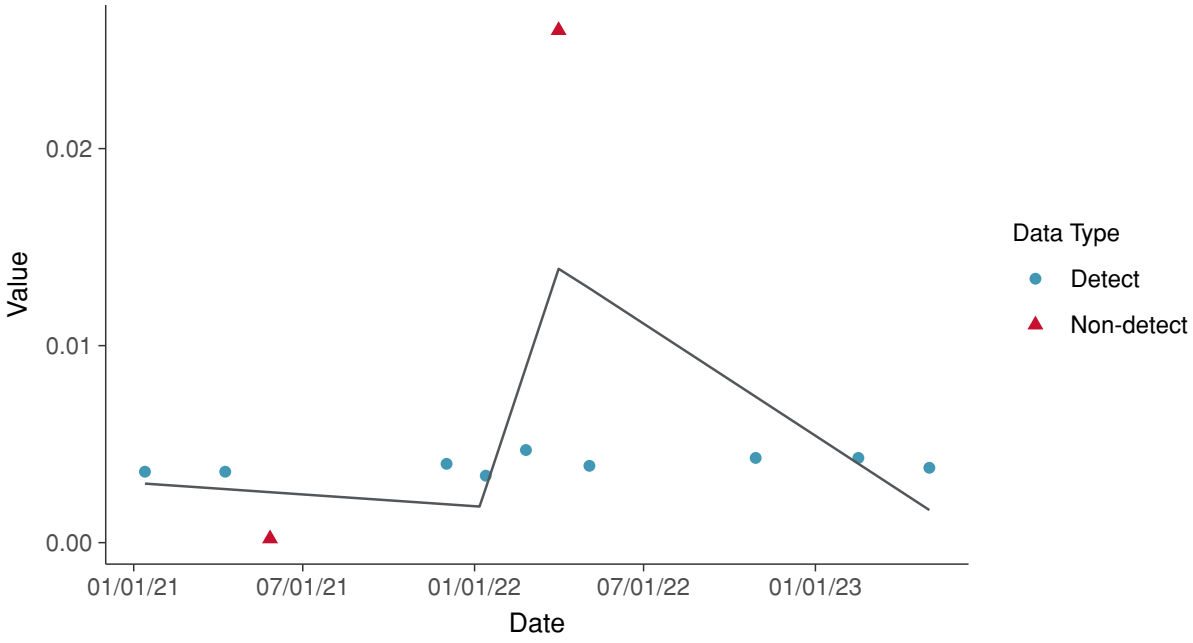
Trend Regression: Piecewise Linear-Linear

Thallium, W-11 (mg/l)



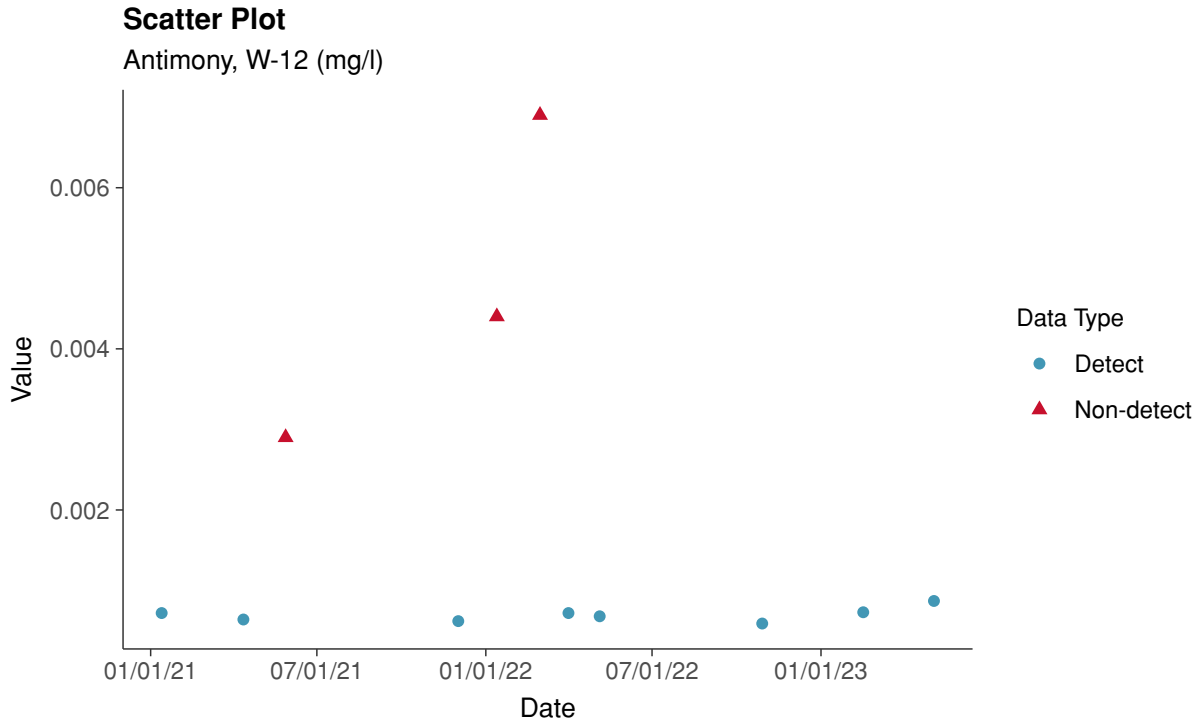
Trend Regression: Piecewise Linear-Linear-Linear

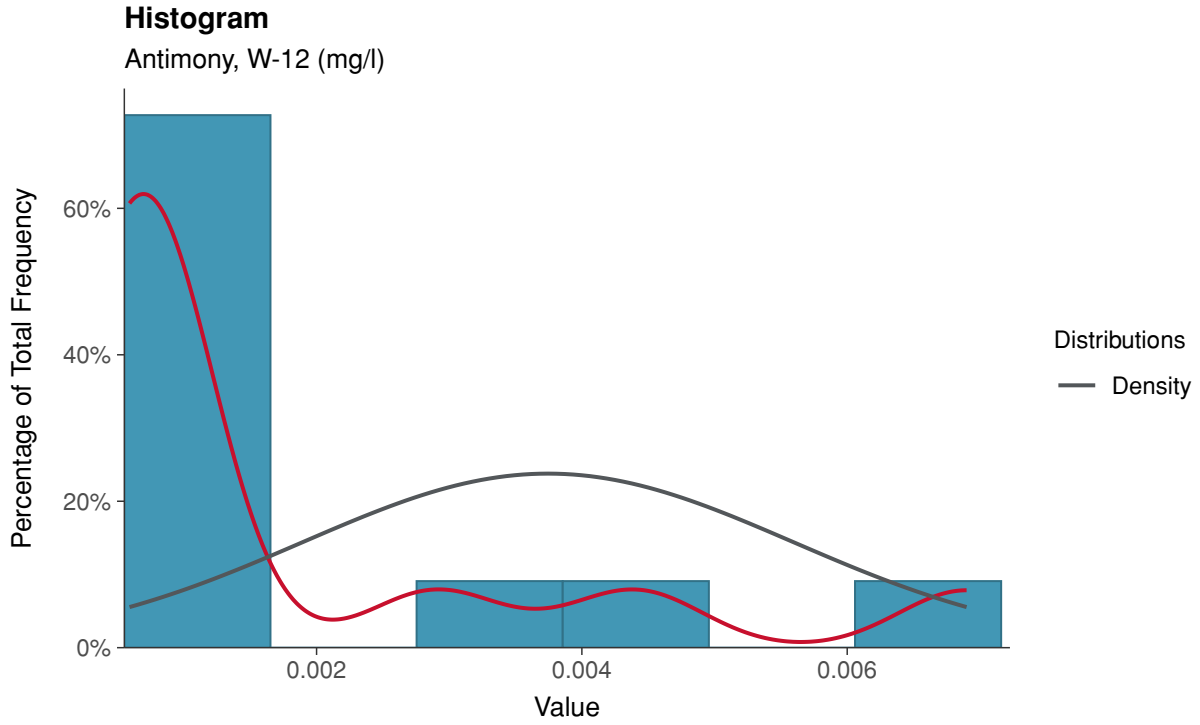
Thallium, W-11 (mg/l)



Appendix IV: Antimony, W-12

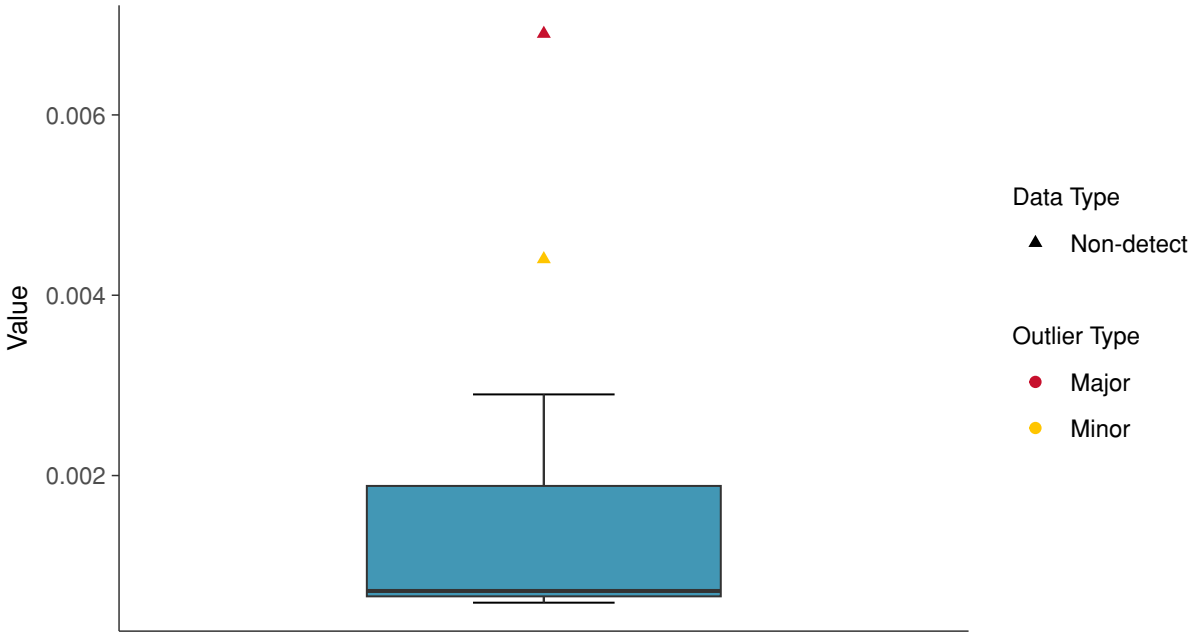
ID: 3_2_101





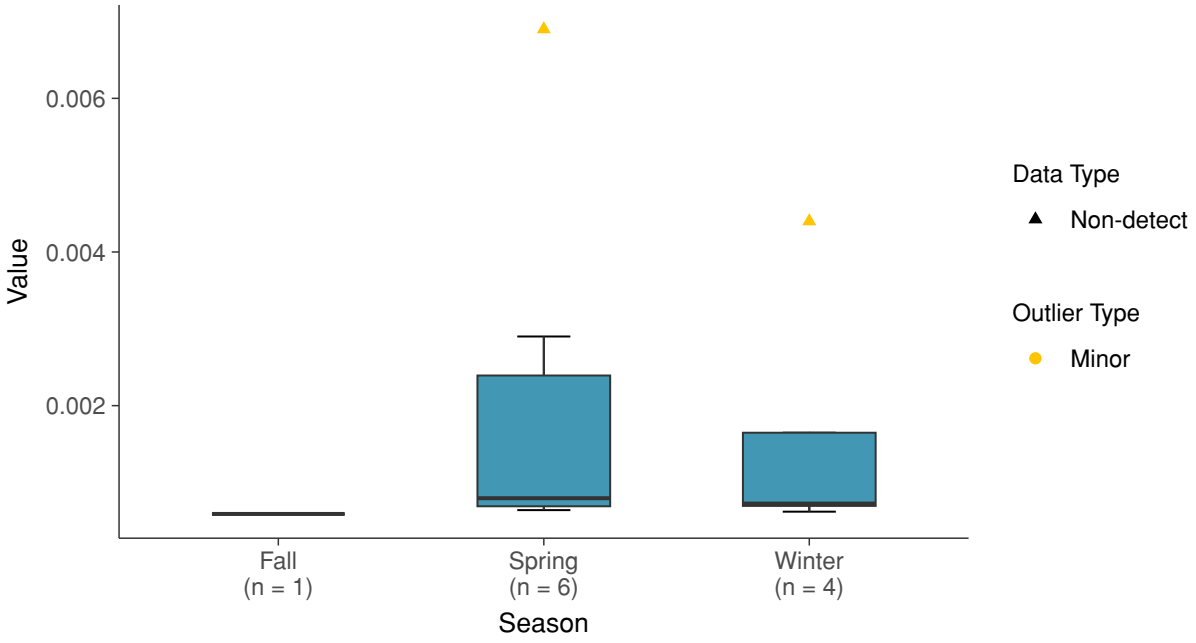
Boxplot

Antimony, W-12 (mg/l)



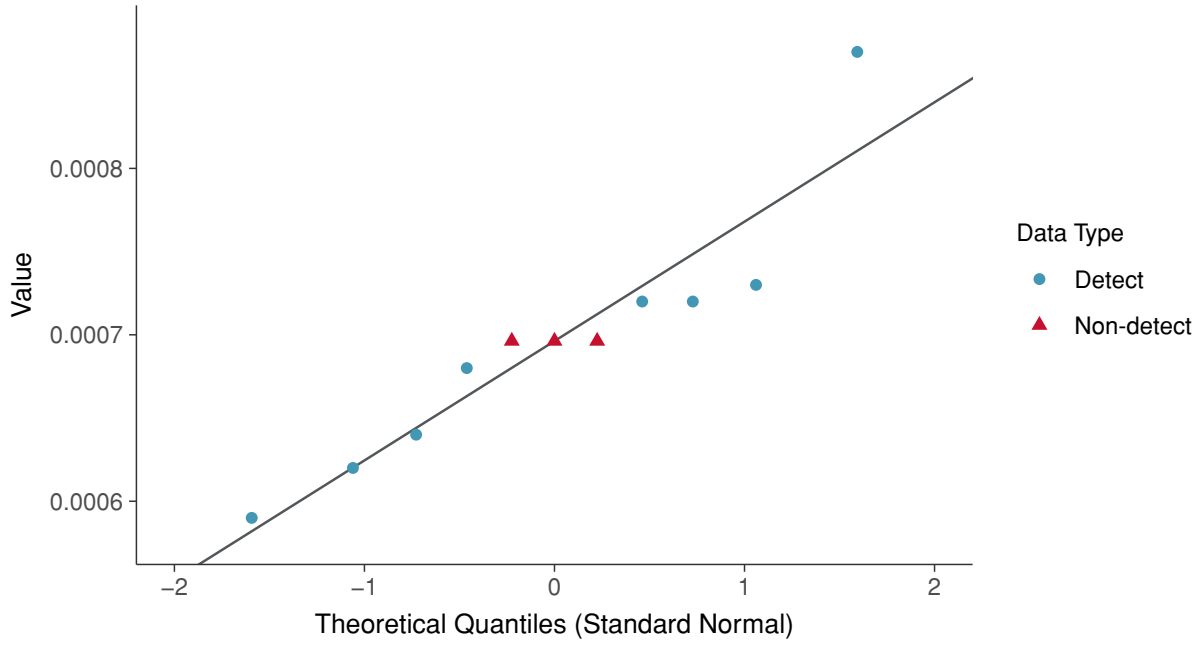
Boxplot by Season

Antimony, W-12 (mg/l)



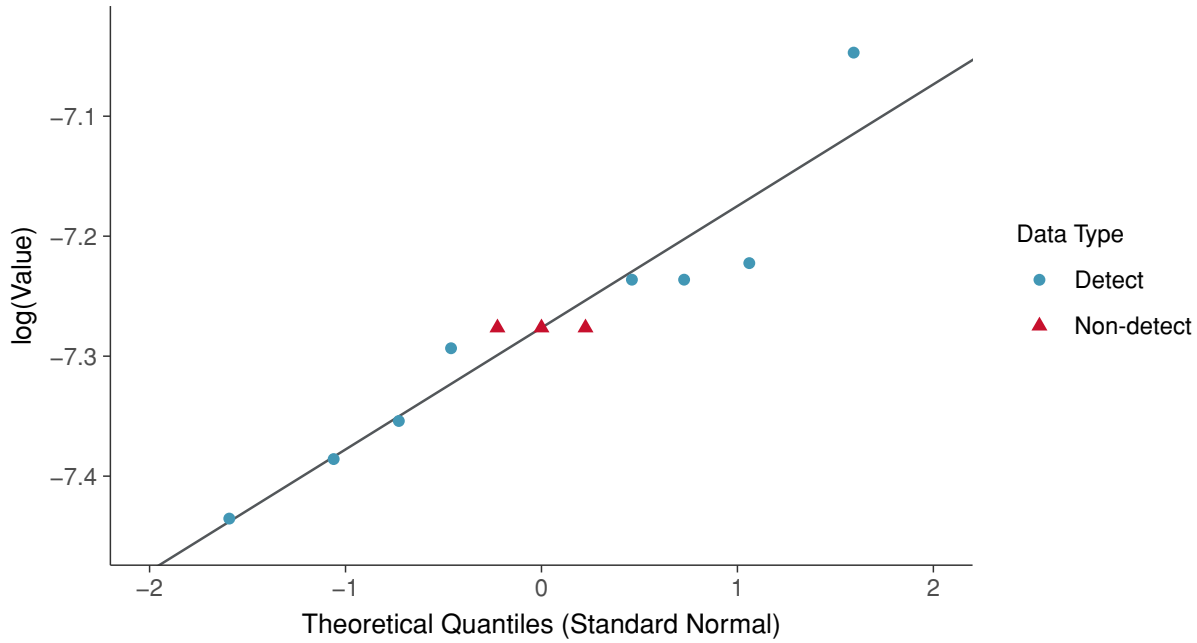
Normal Q-Q plot using ROS Imputed Estimates

Antimony, W-12 (mg/l)



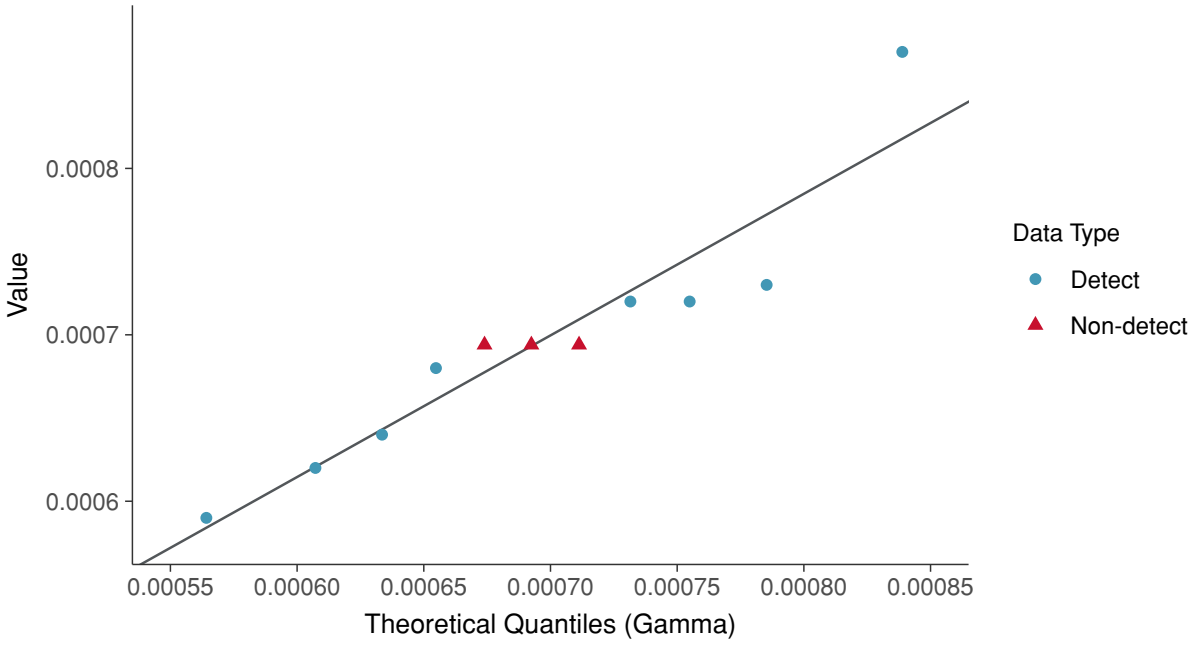
Lognormal Q-Q plot using ROS Imputed Estimates

Antimony, W-12 (mg/l)



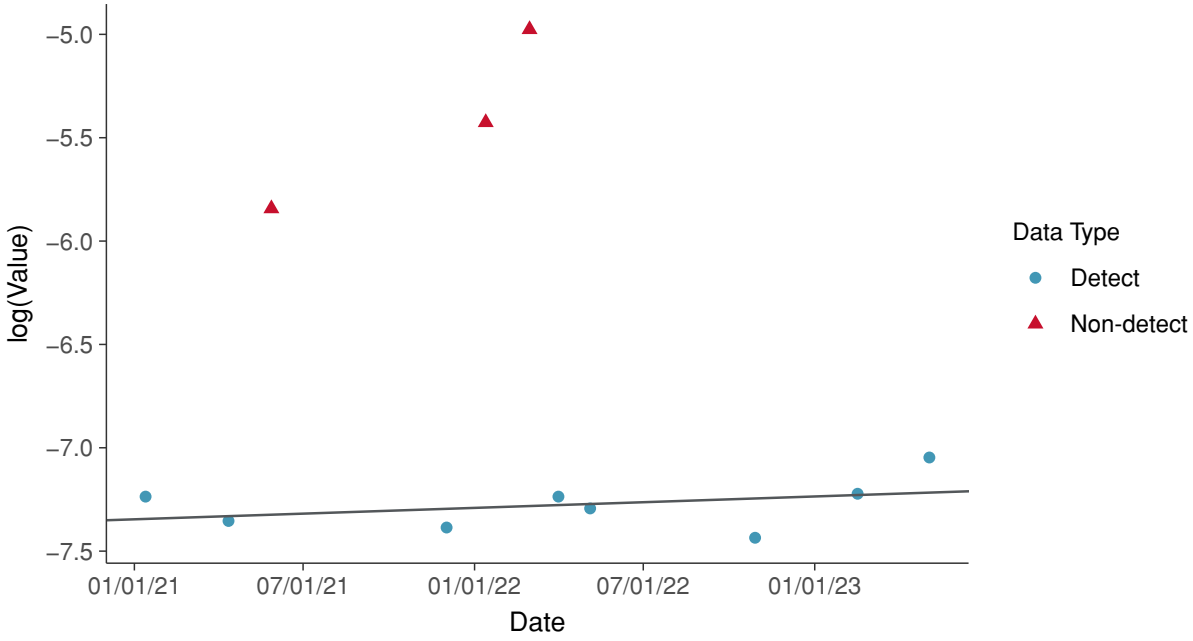
Gamma Q-Q plot using ROS Imputed Estimates

Antimony, W-12 (mg/l)



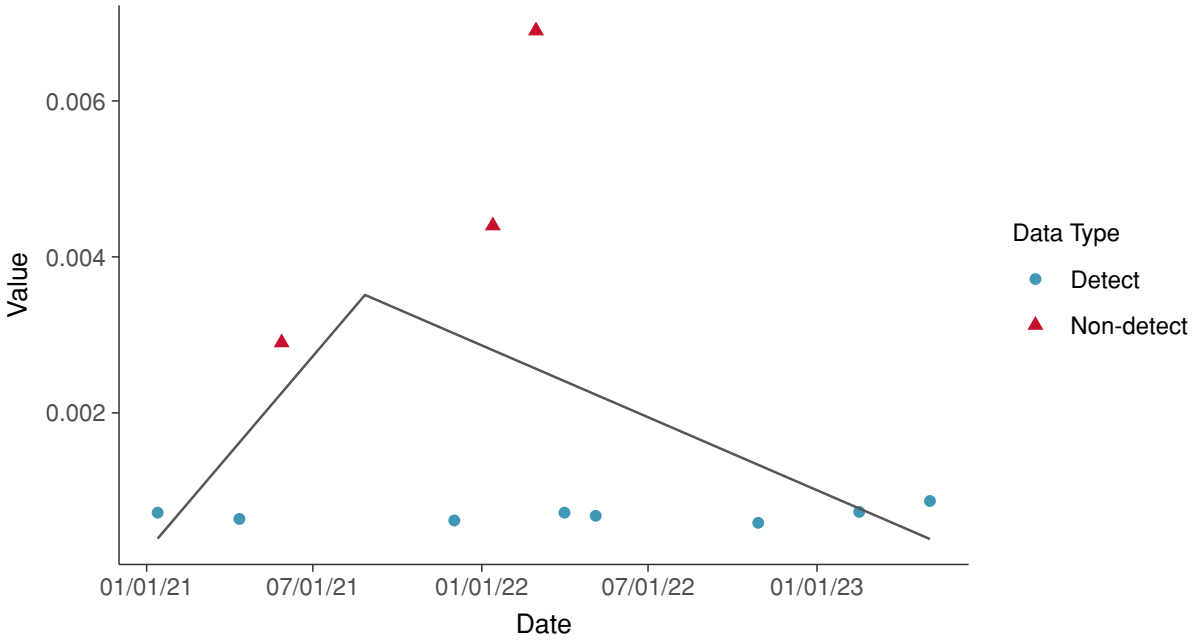
Trend Regression: Lognormal MLE

Antimony, W-12 (mg/l)



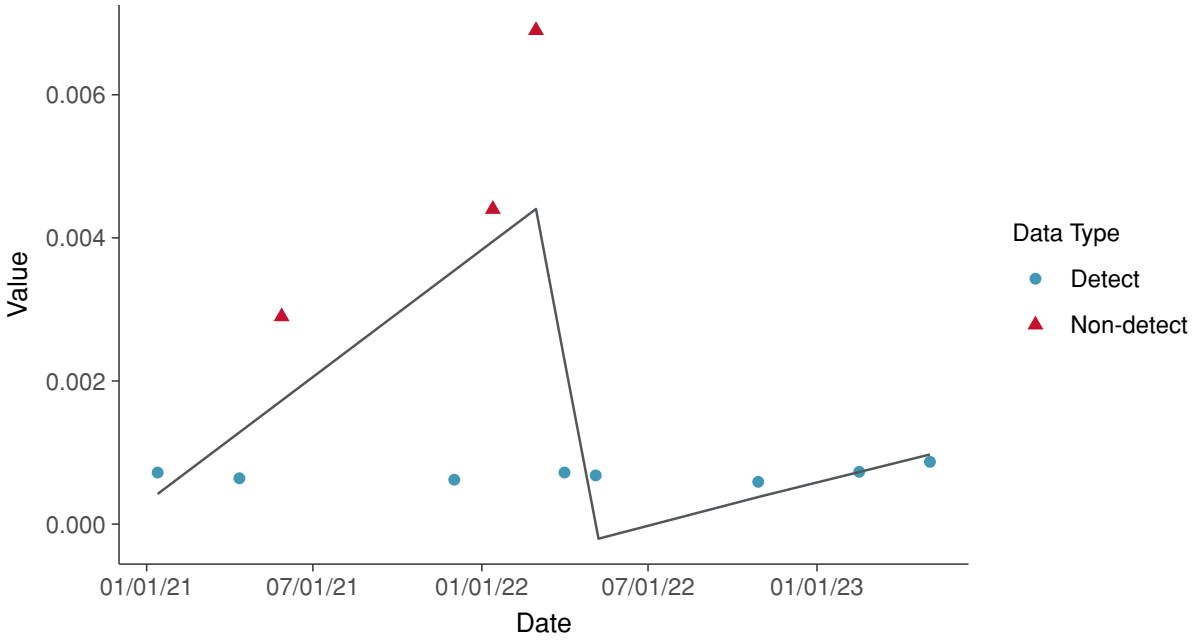
Trend Regression: Piecewise Linear-Linear

Antimony, W-12 (mg/l)



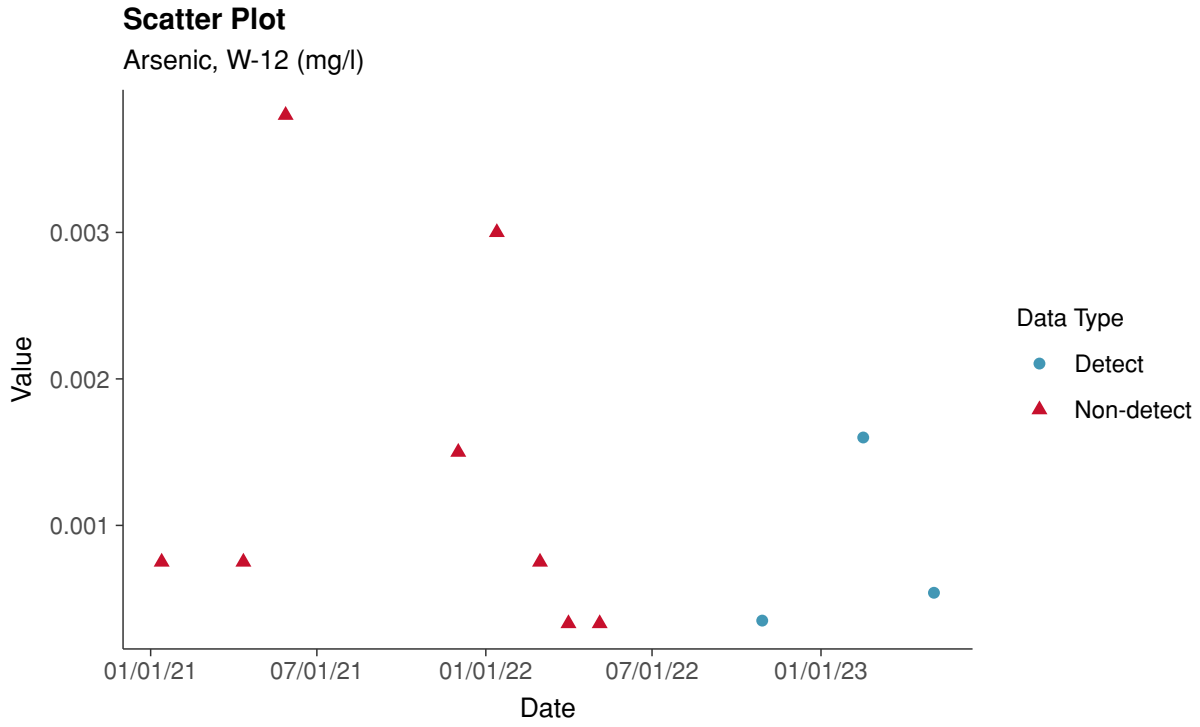
Trend Regression: Piecewise Linear-Linear-Linear

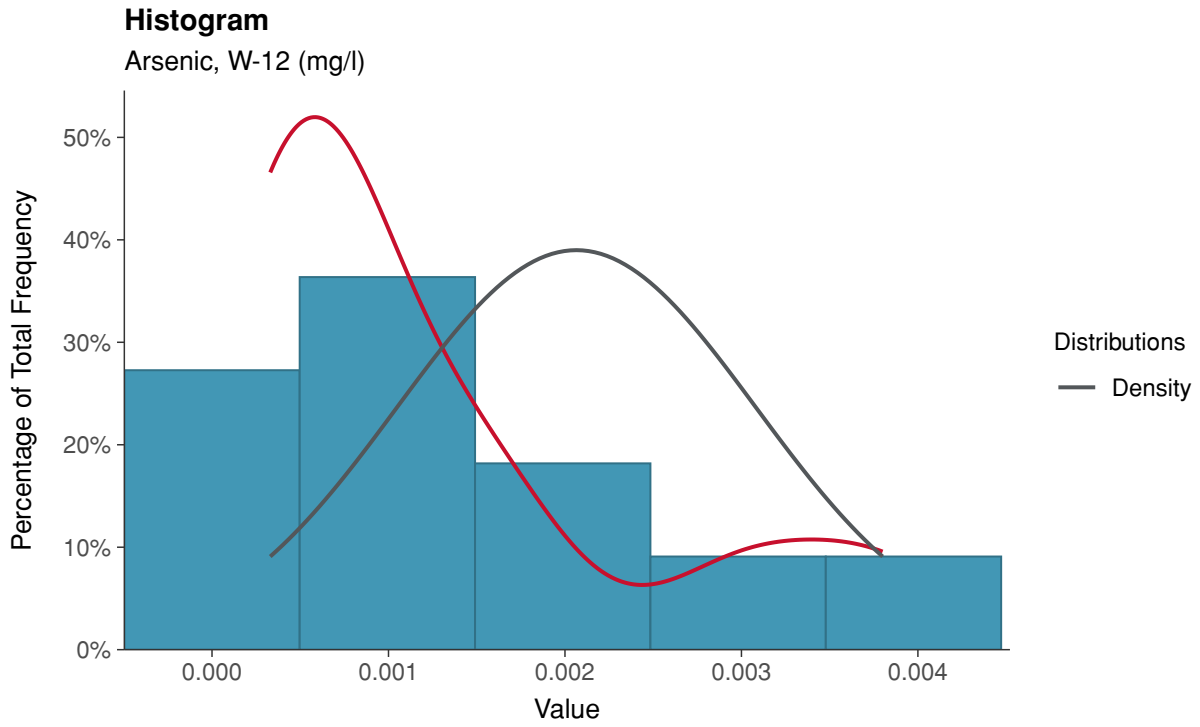
Antimony, W-12 (mg/l)



Appendix IV: Arsenic, W-12

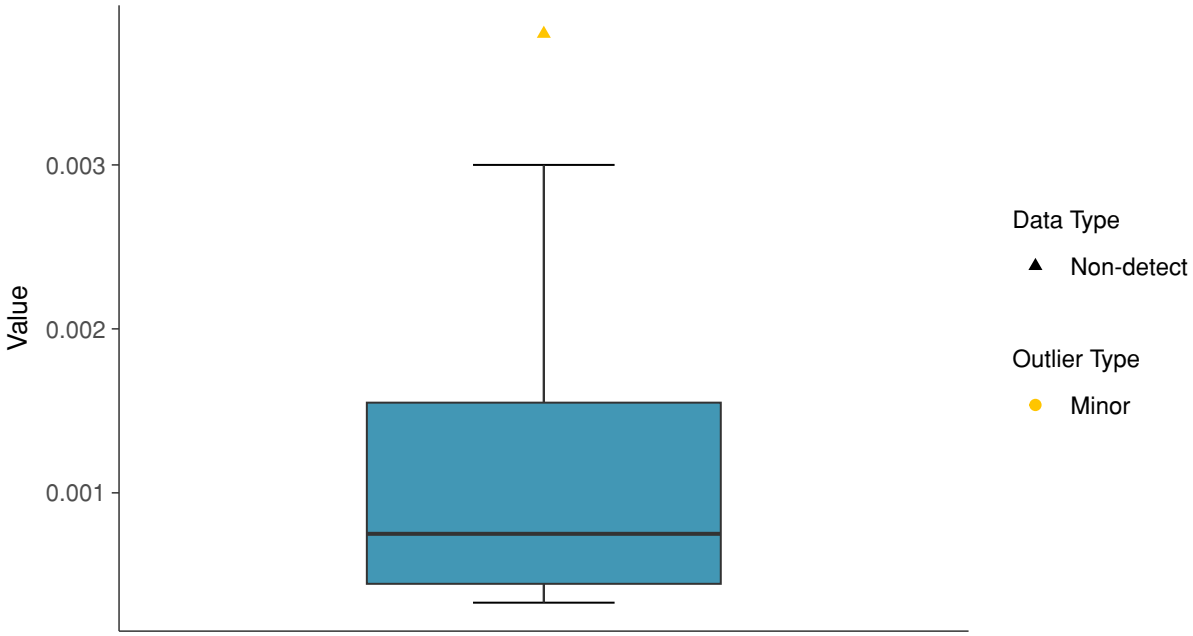
ID: 3_2_102





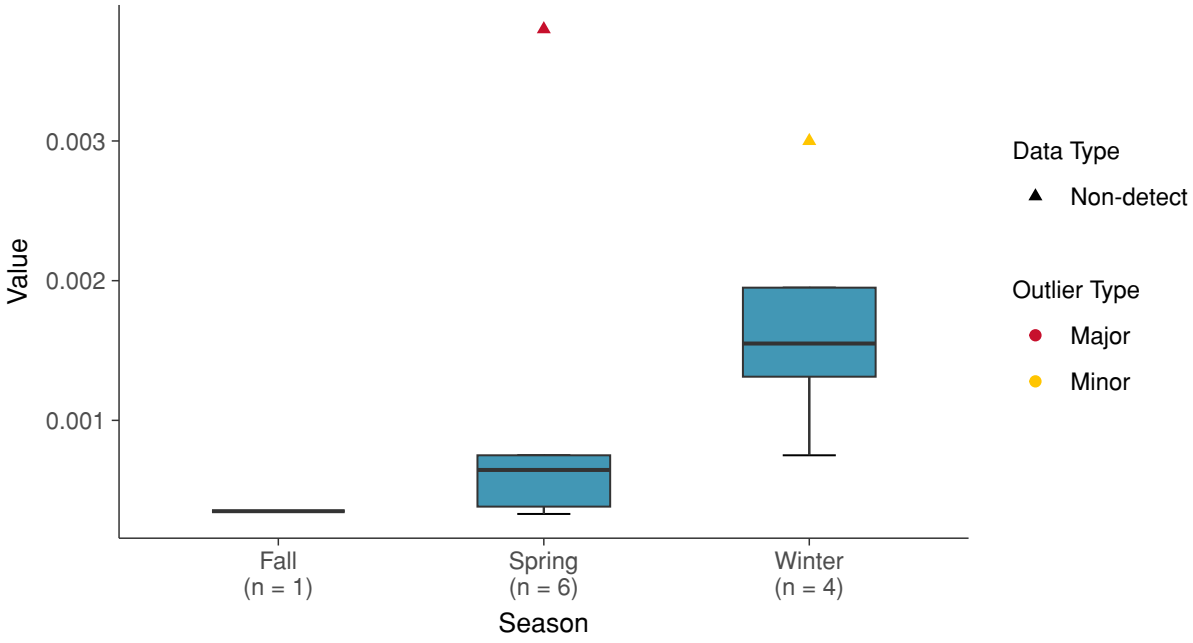
Boxplot

Arsenic, W-12 (mg/l)



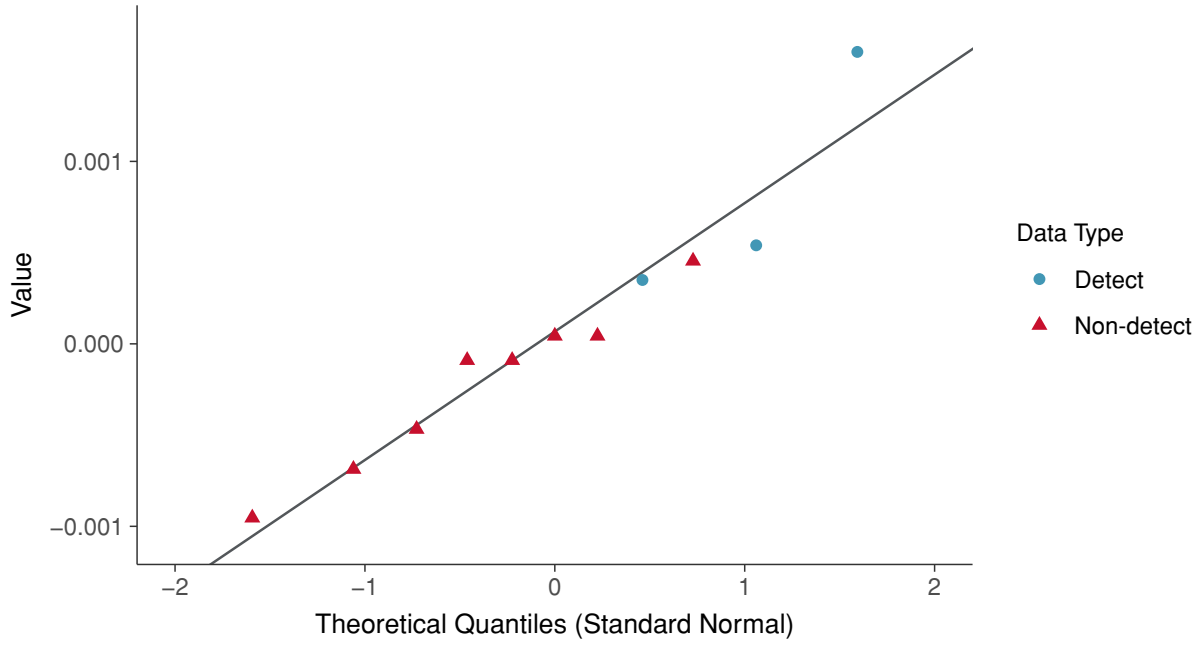
Boxplot by Season

Arsenic, W-12 (mg/l)



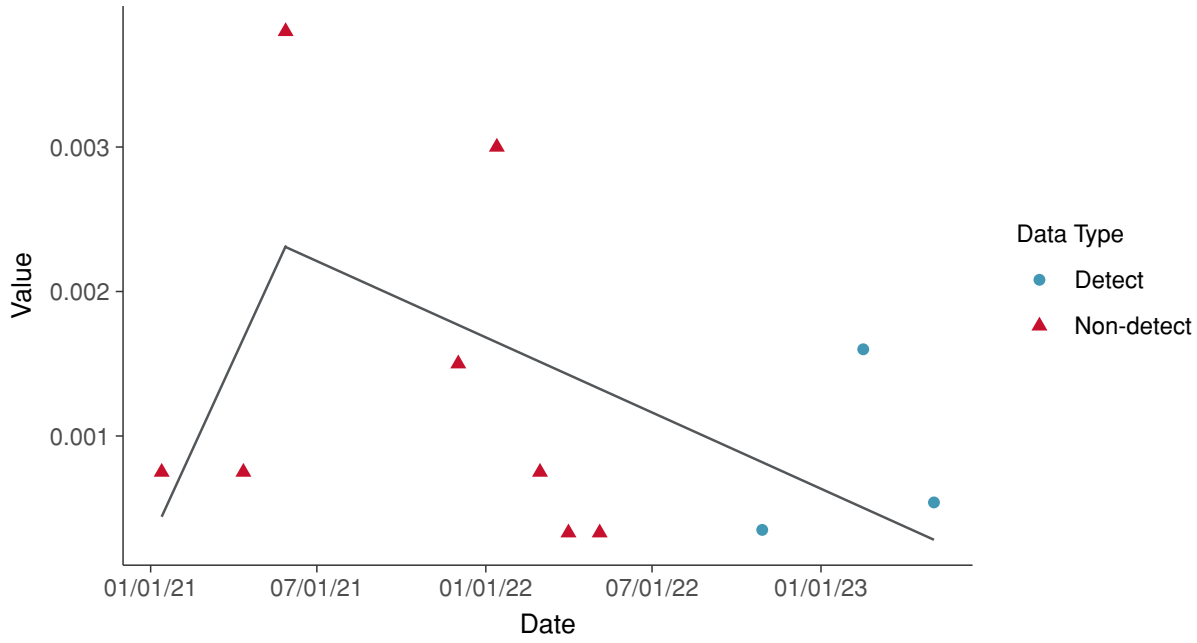
Normal Q-Q plot using ROS Imputed Estimates

Arsenic, W-12 (mg/l)



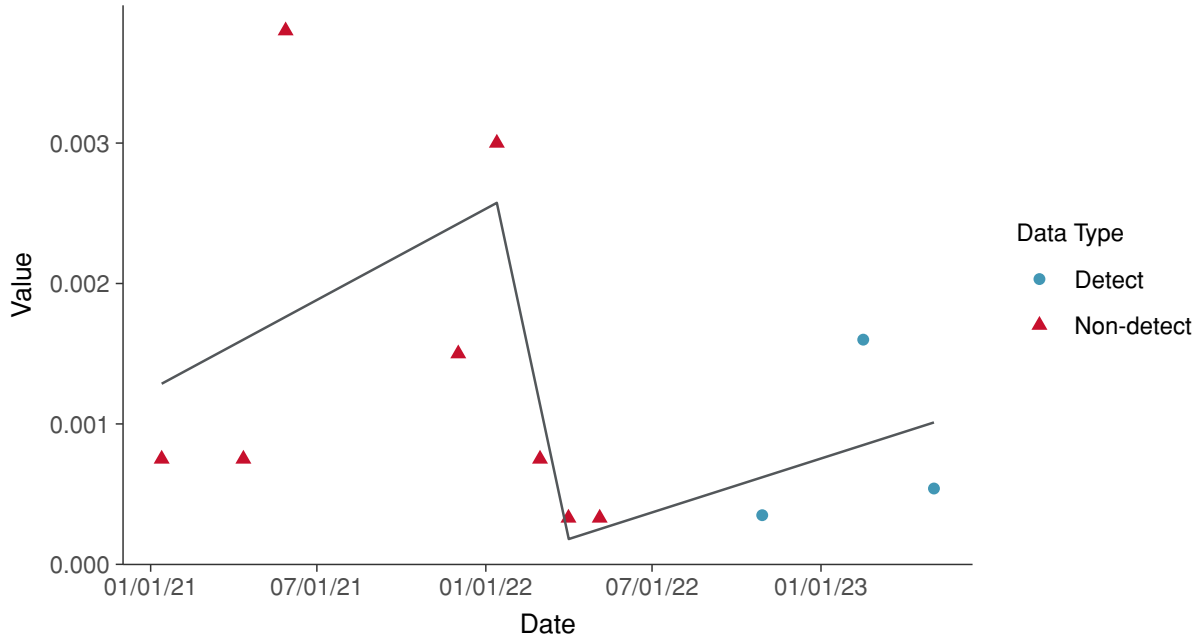
Trend Regression: Piecewise Linear-Linear

Arsenic, W-12 (mg/l)



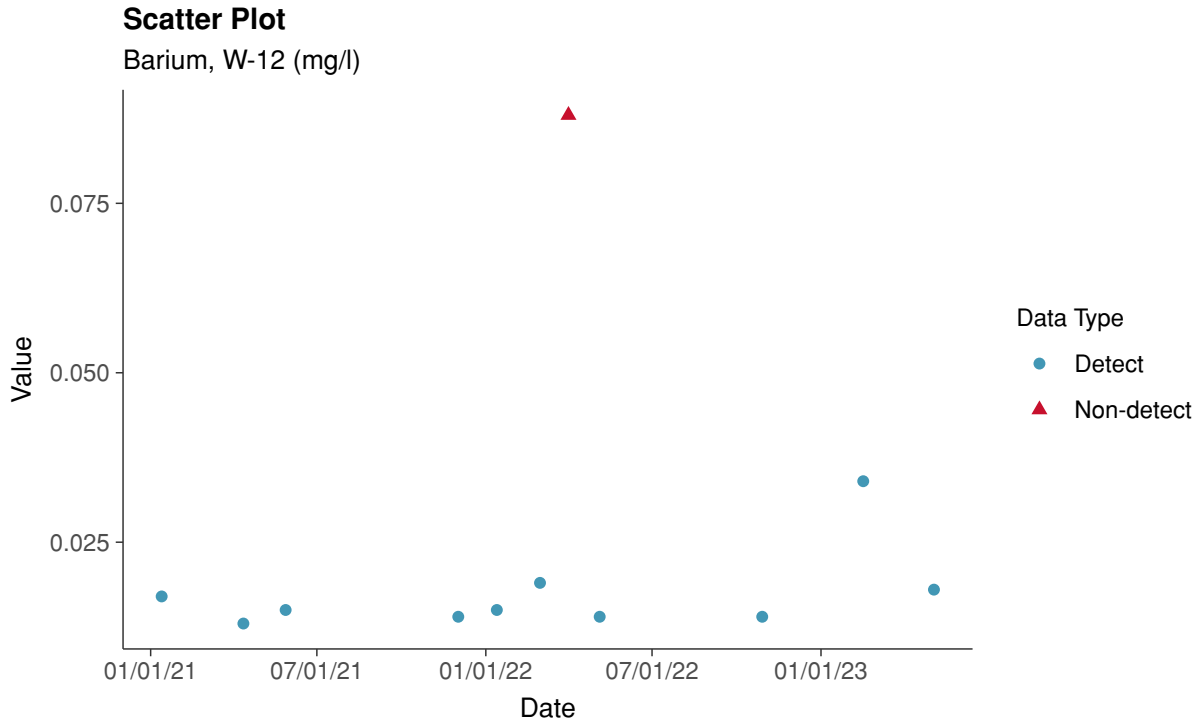
Trend Regression: Piecewise Linear-Linear-Linear

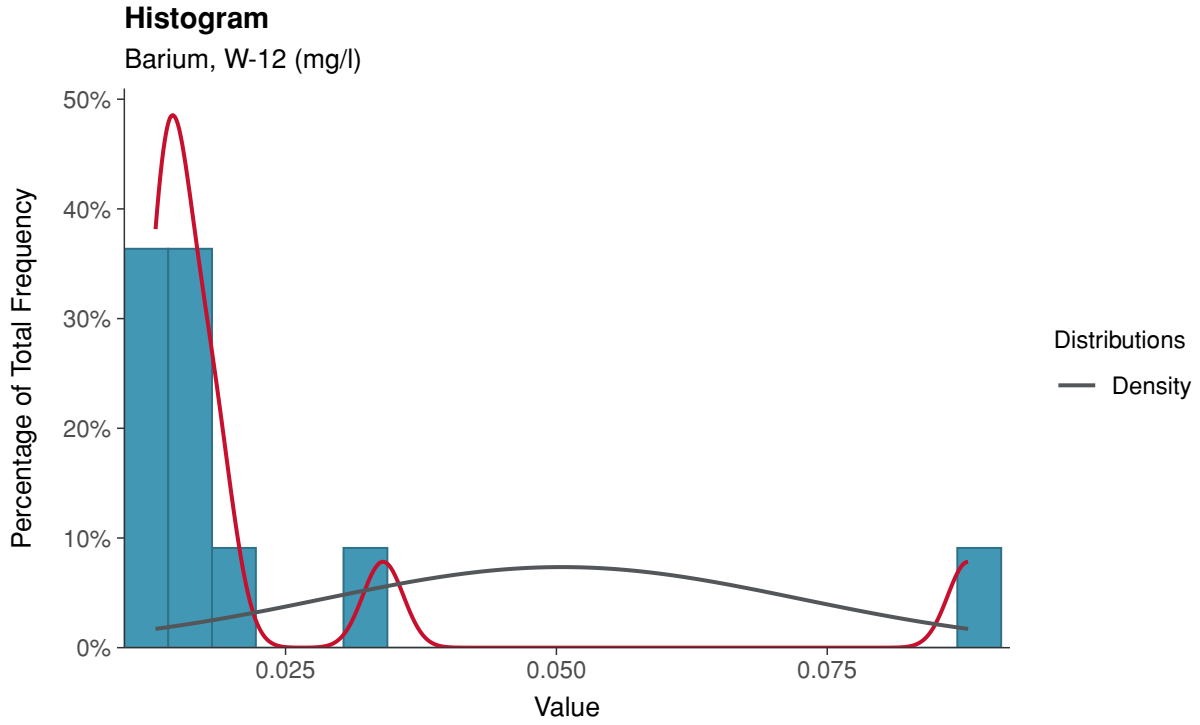
Arsenic, W-12 (mg/l)



Appendix IV: Barium, W-12

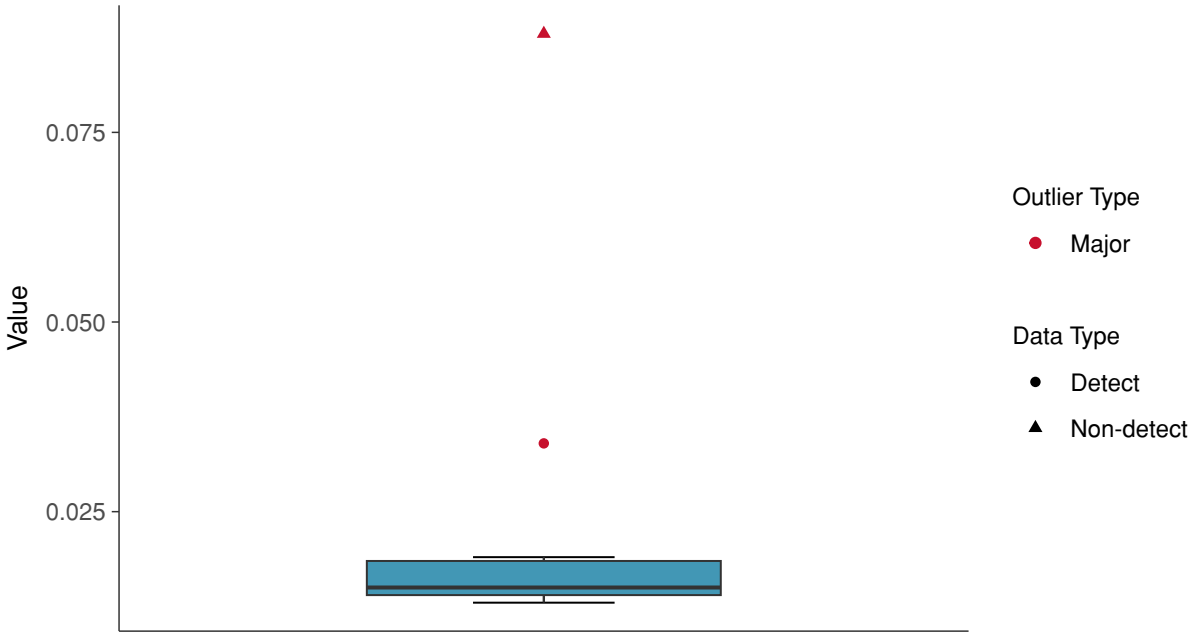
ID: 3_2_103





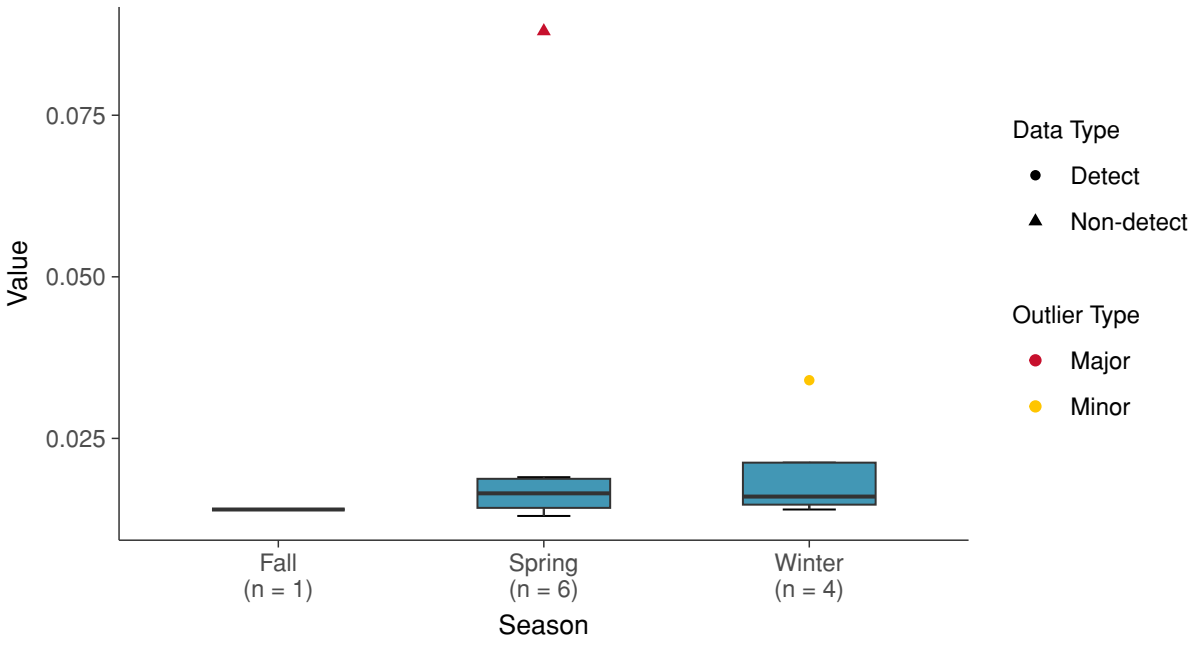
Boxplot

Barium, W-12 (mg/l)



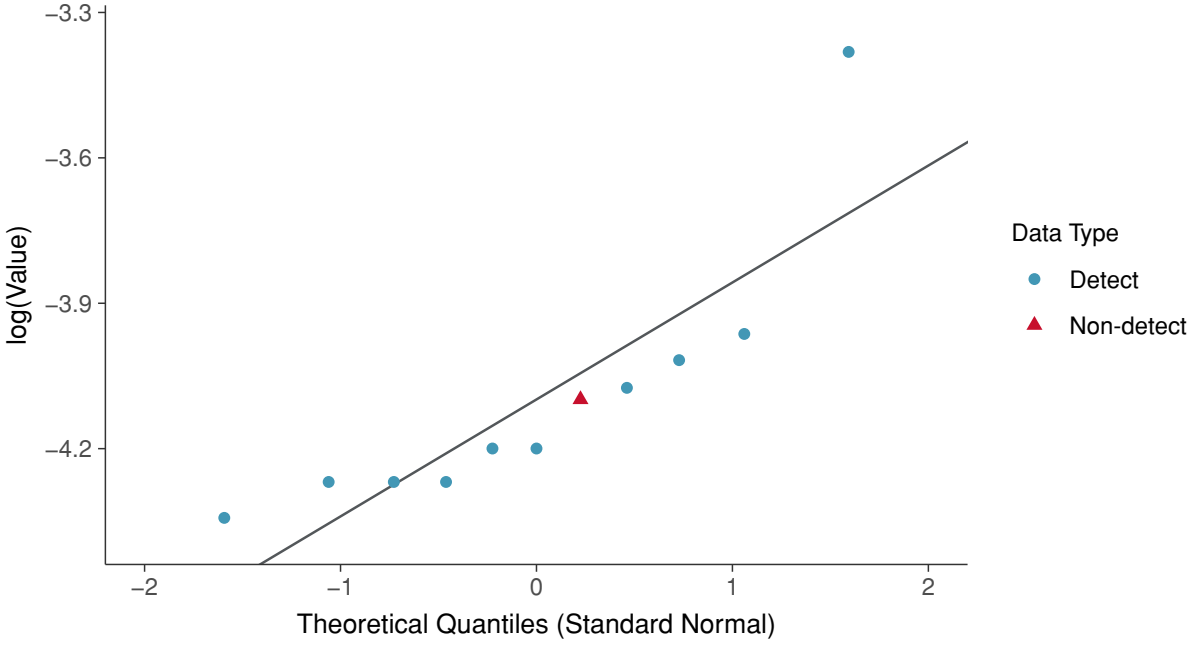
Boxplot by Season

Barium, W-12 (mg/l)



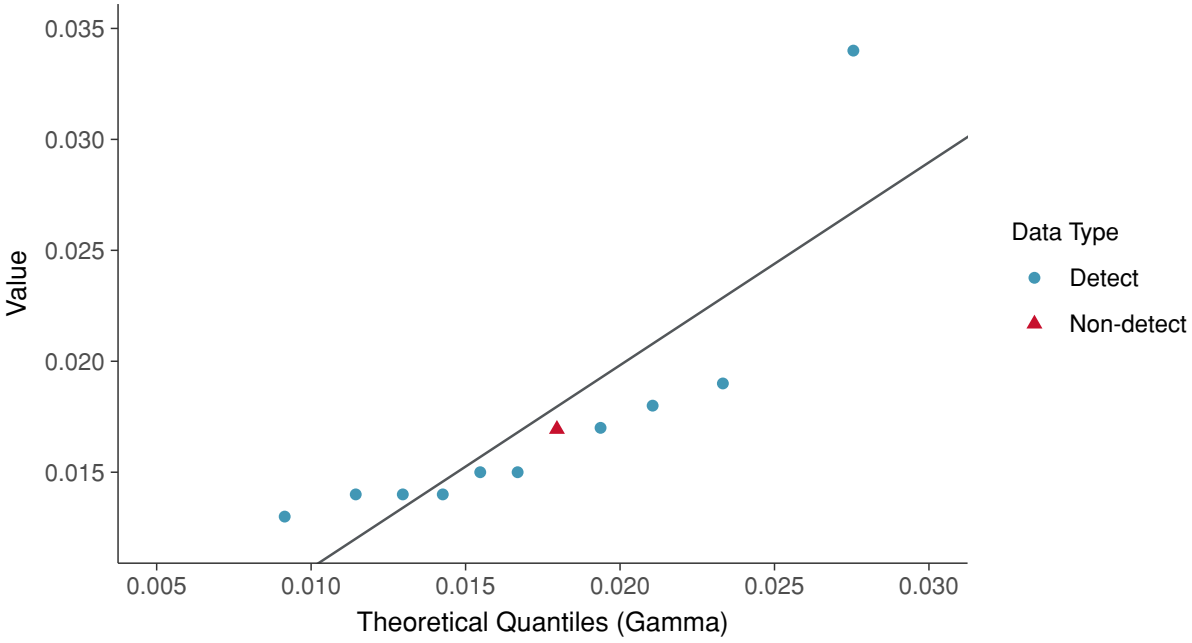
Lognormal Q-Q plot using ROS Imputed Estimates

Barium, W-12 (mg/l)



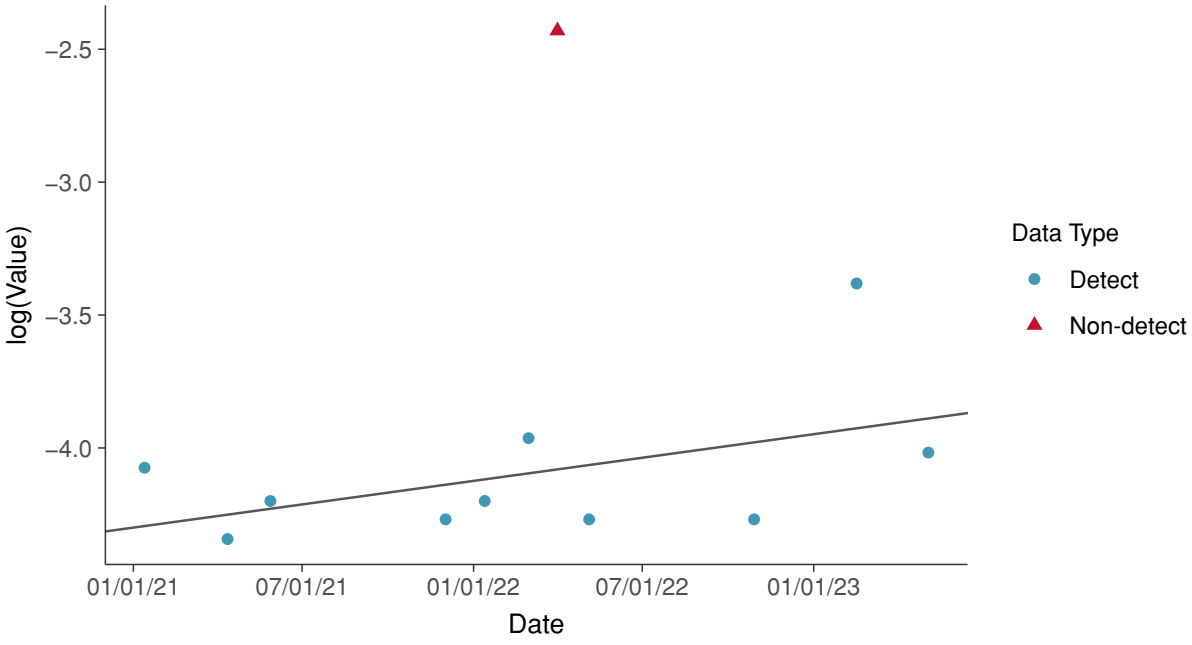
Gamma Q-Q plot using ROS Imputed Estimates

Barium, W-12 (mg/l)



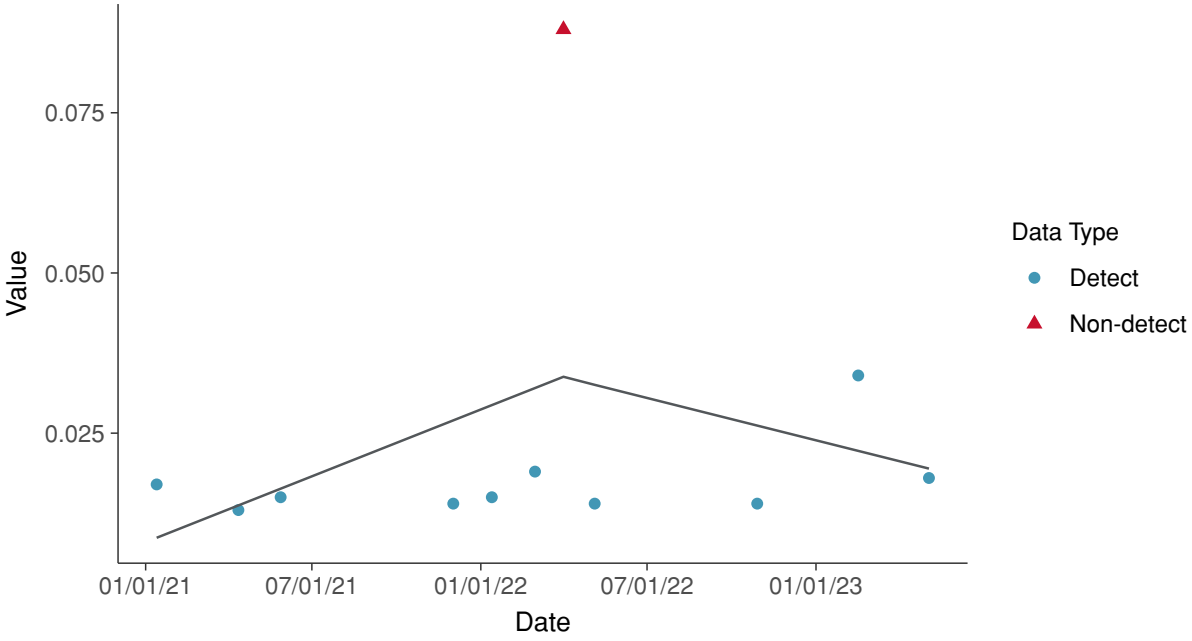
Trend Regression: Lognormal MLE

Barium, W-12 (mg/l)



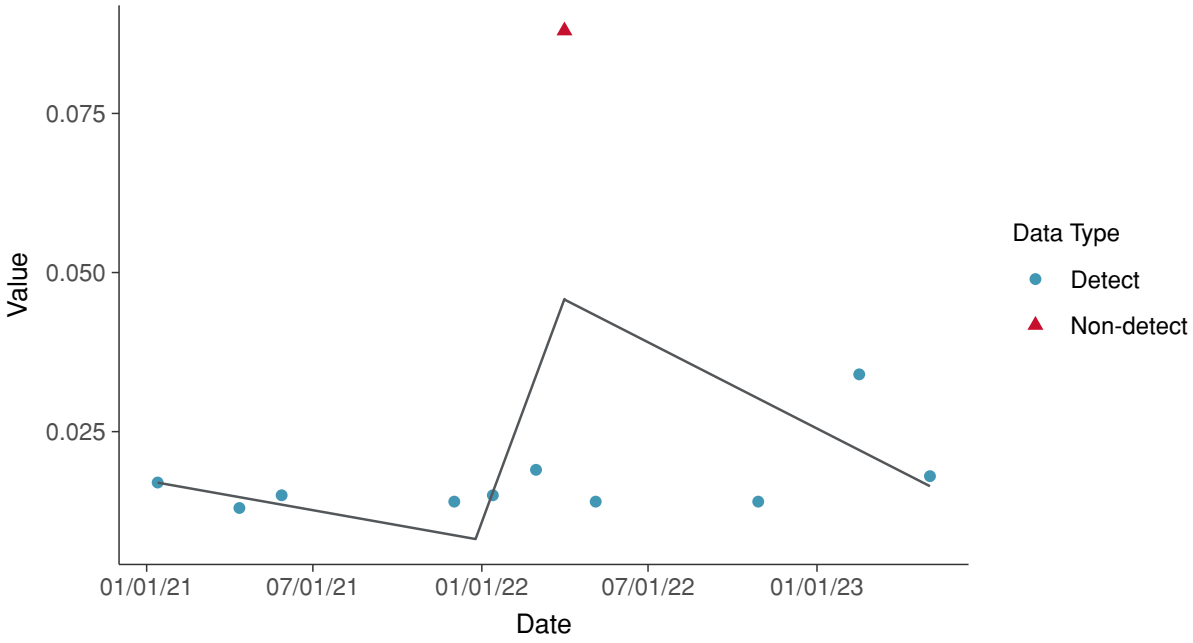
Trend Regression: Piecewise Linear-Linear

Barium, W-12 (mg/l)



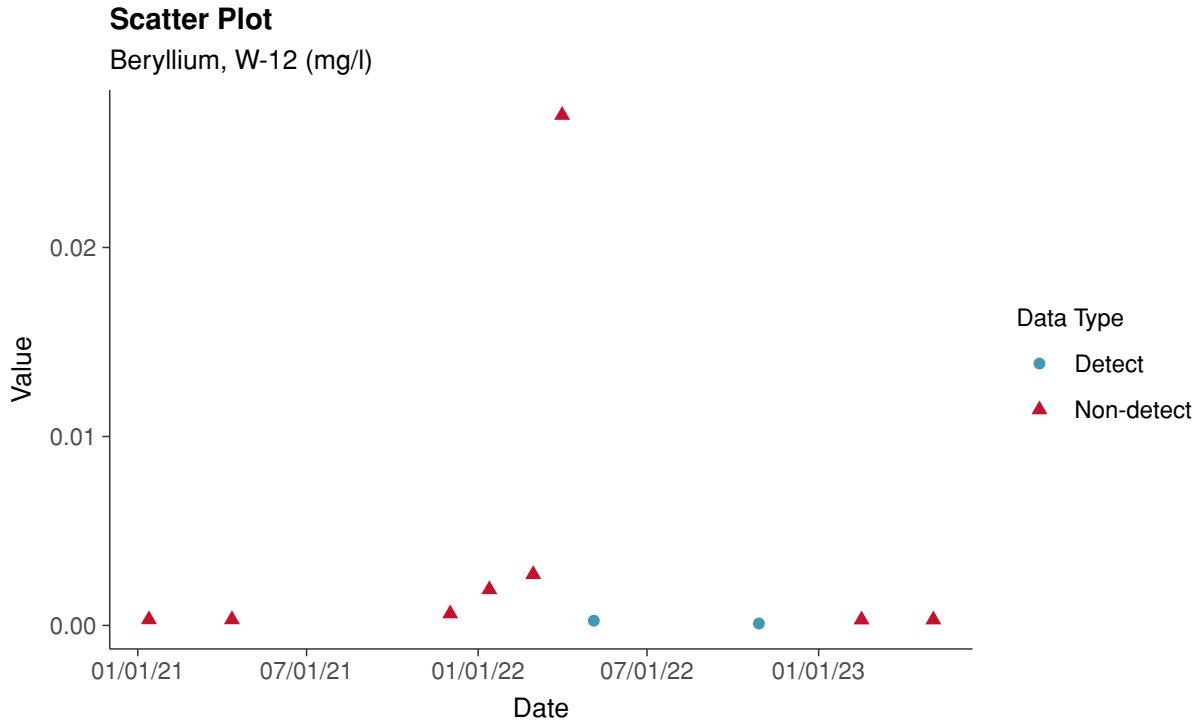
Trend Regression: Piecewise Linear-Linear-Linear

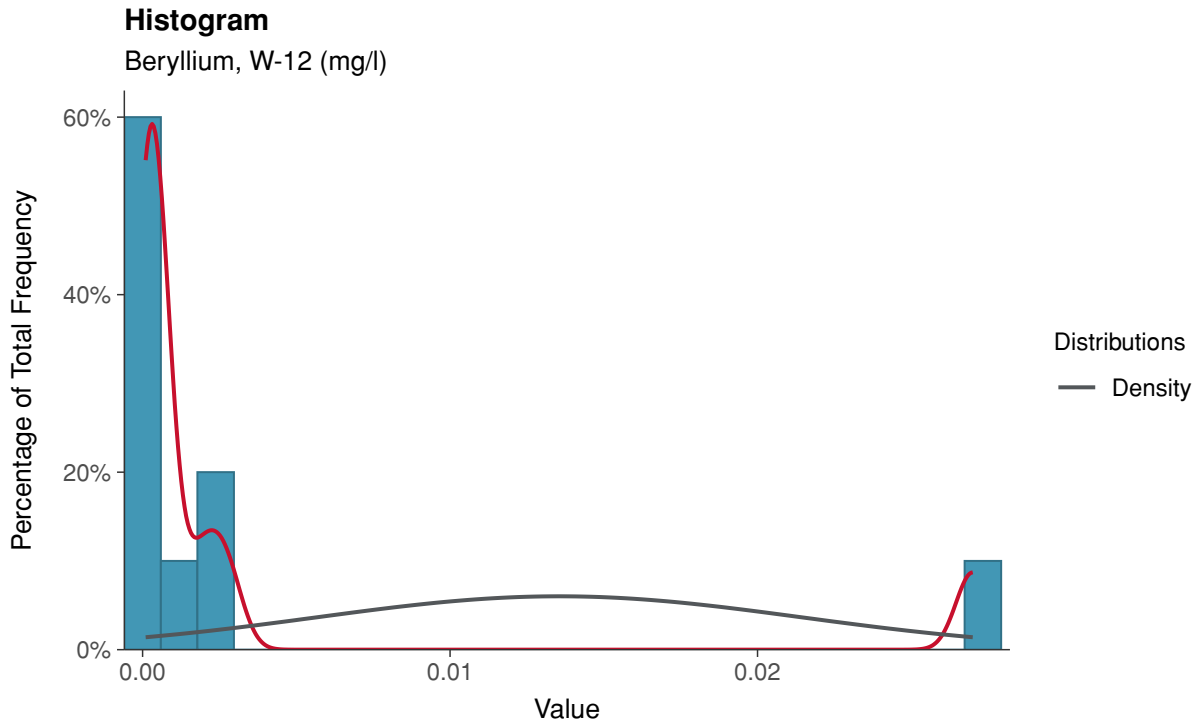
Barium, W-12 (mg/l)



Appendix IV: Beryllium, W-12

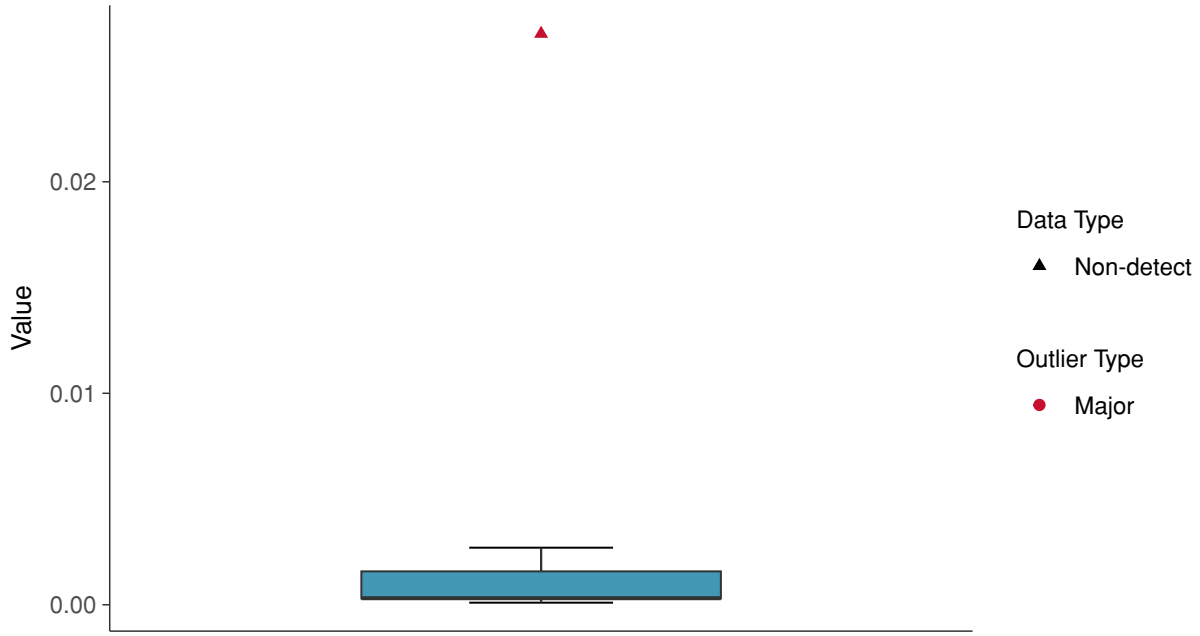
ID: 3_2_104





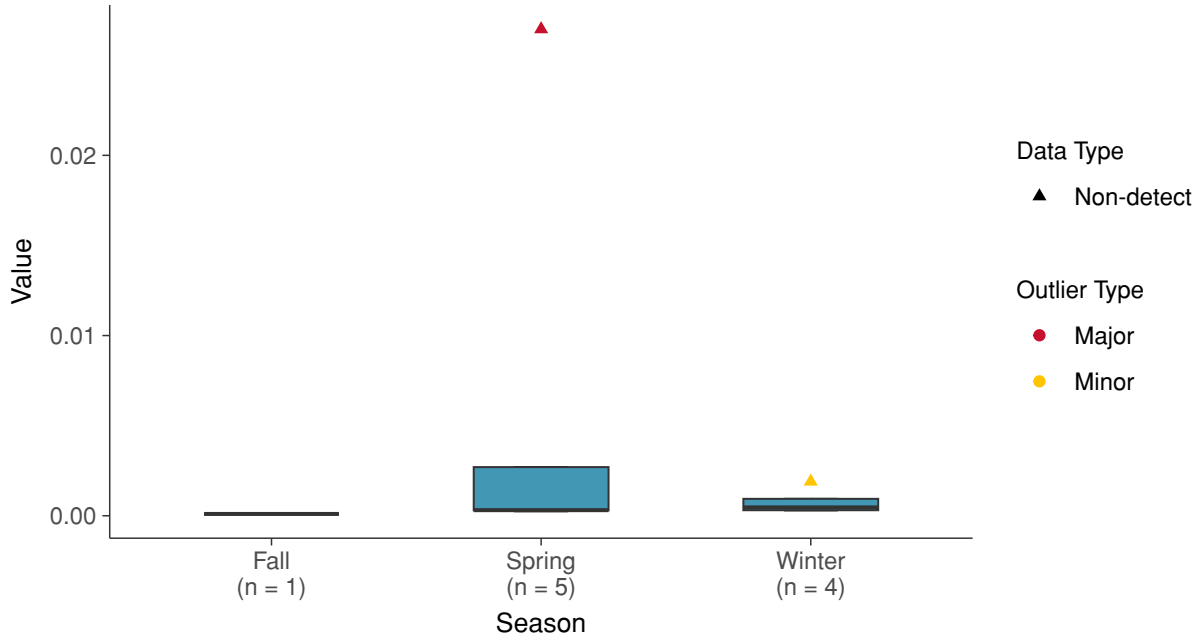
Boxplot

Beryllium, W-12 (mg/l)



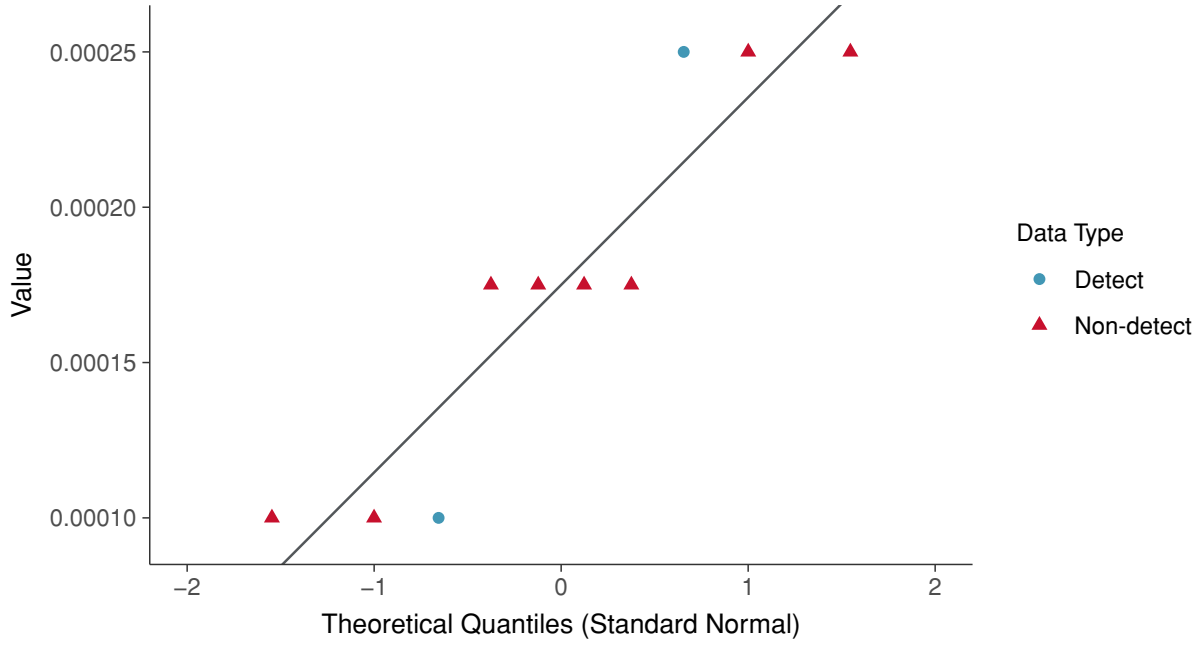
Boxplot by Season

Beryllium, W-12 (mg/l)



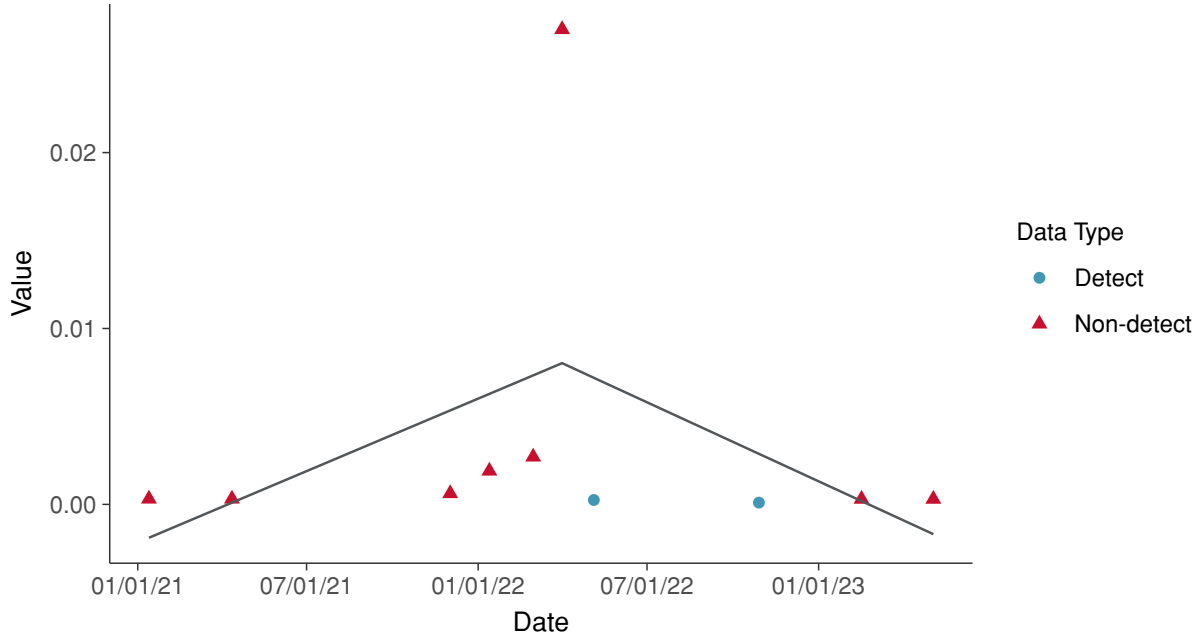
Normal Q-Q plot using ROS Imputed Estimates

Beryllium, W-12 (mg/l)



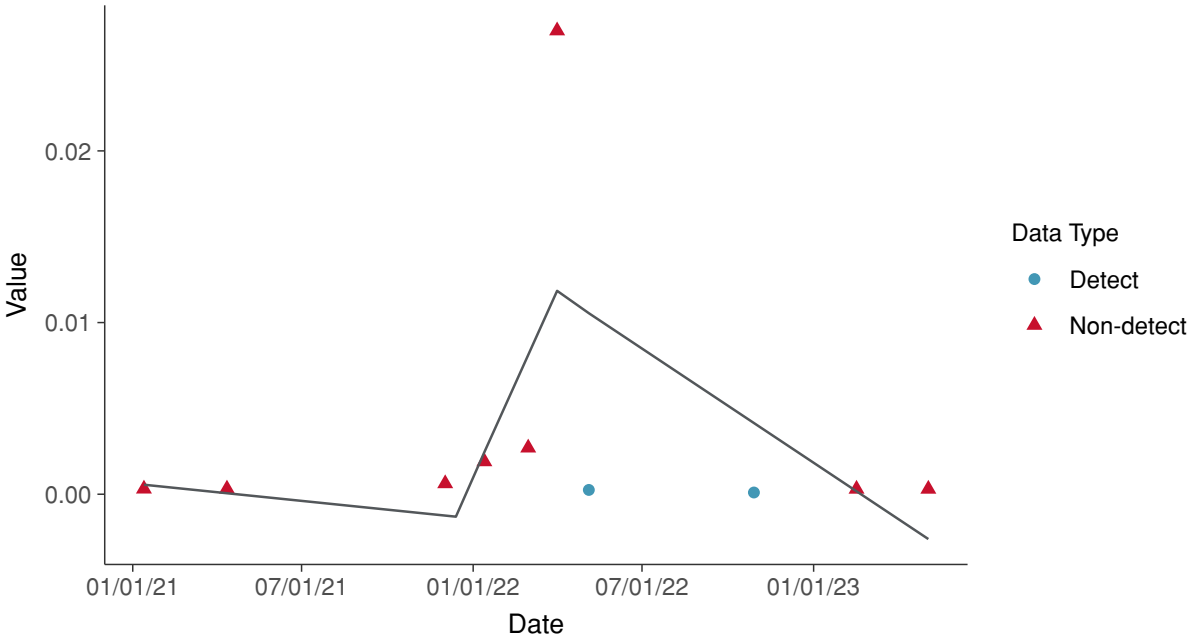
Trend Regression: Piecewise Linear-Linear

Beryllium, W-12 (mg/l)



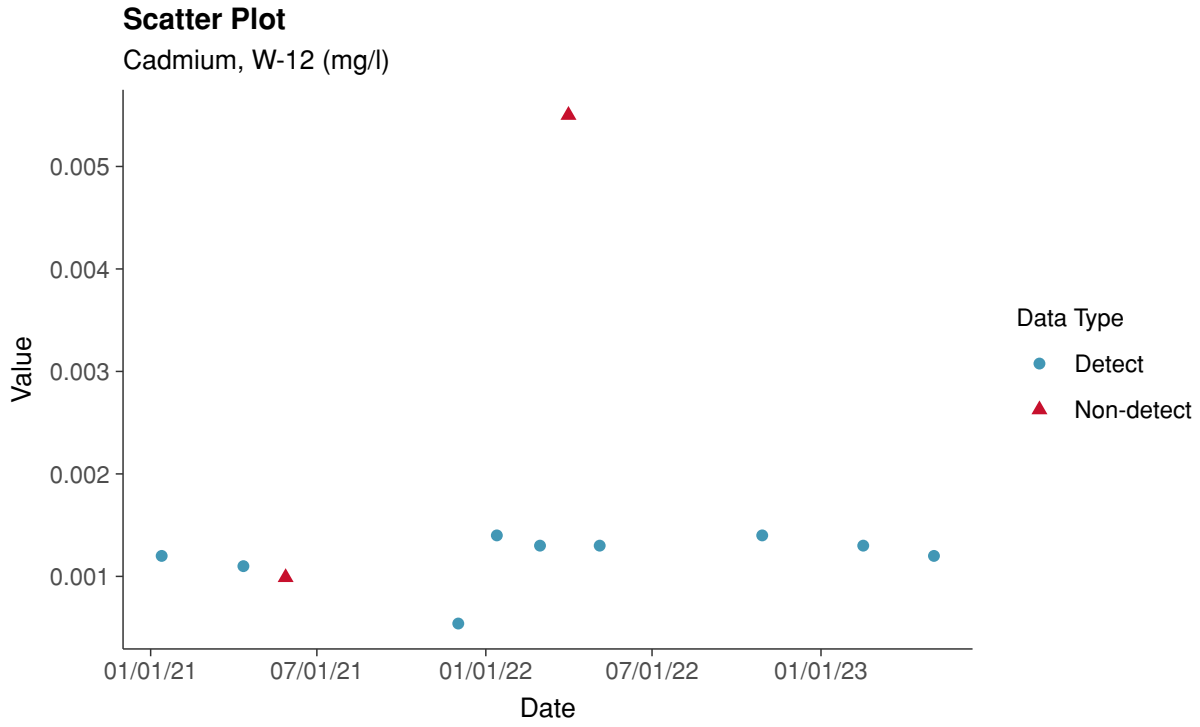
Trend Regression: Piecewise Linear-Linear-Linear

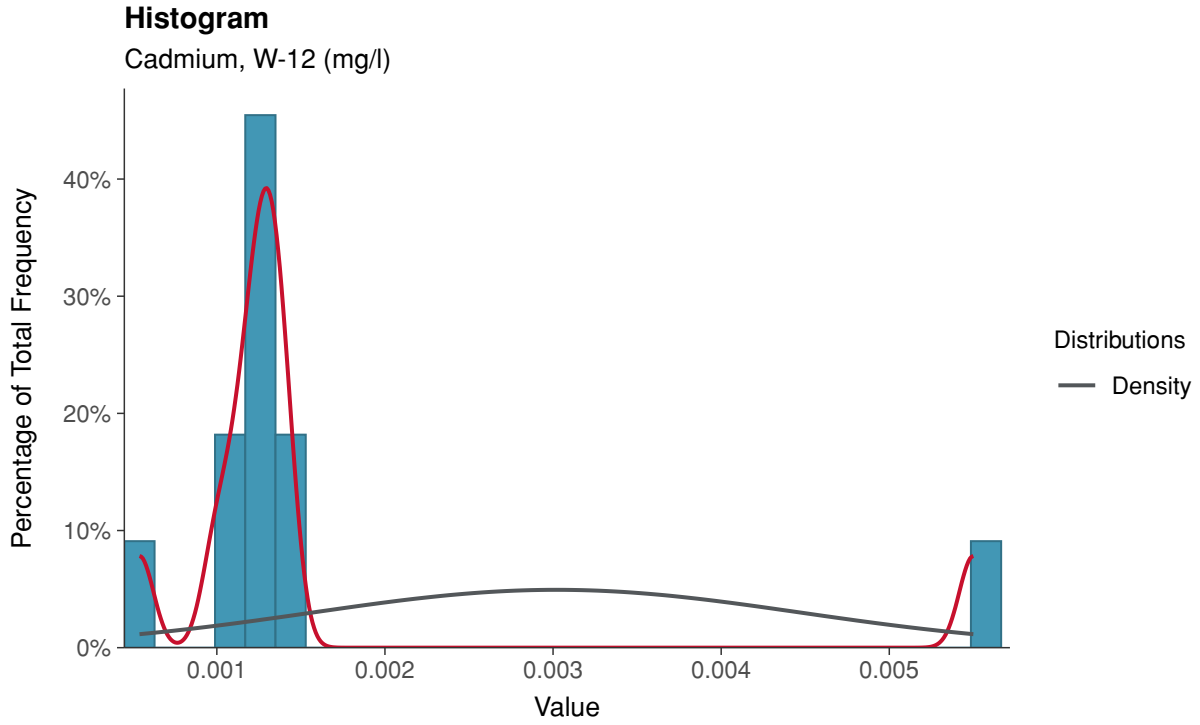
Beryllium, W-12 (mg/l)



Appendix IV: Cadmium, W-12

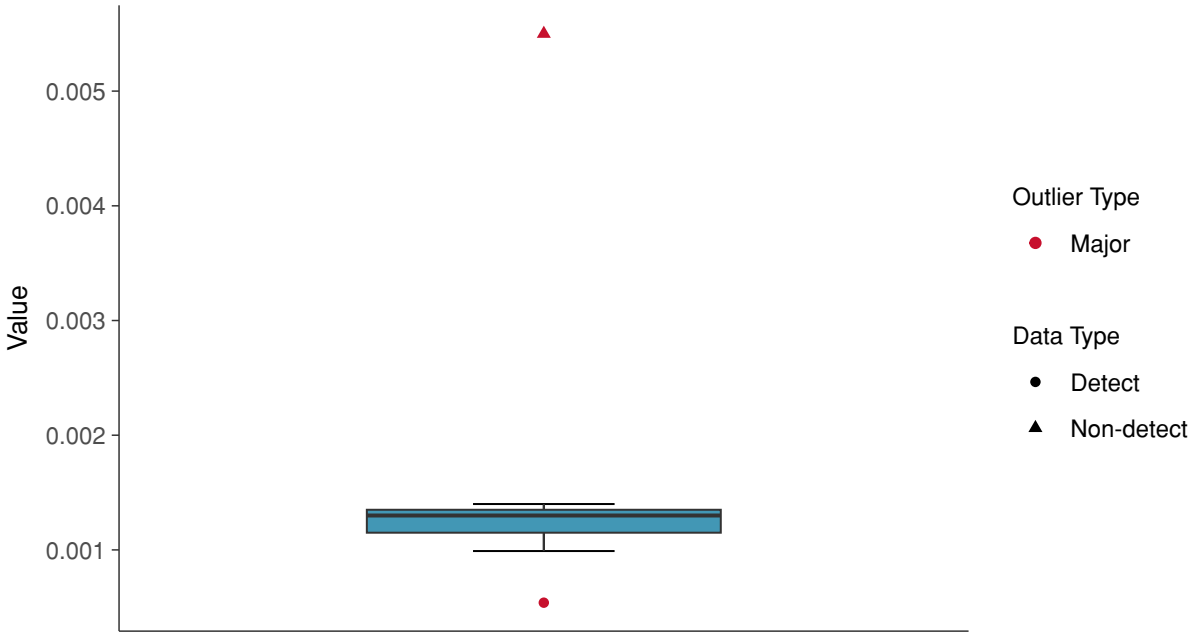
ID: 3_2_106





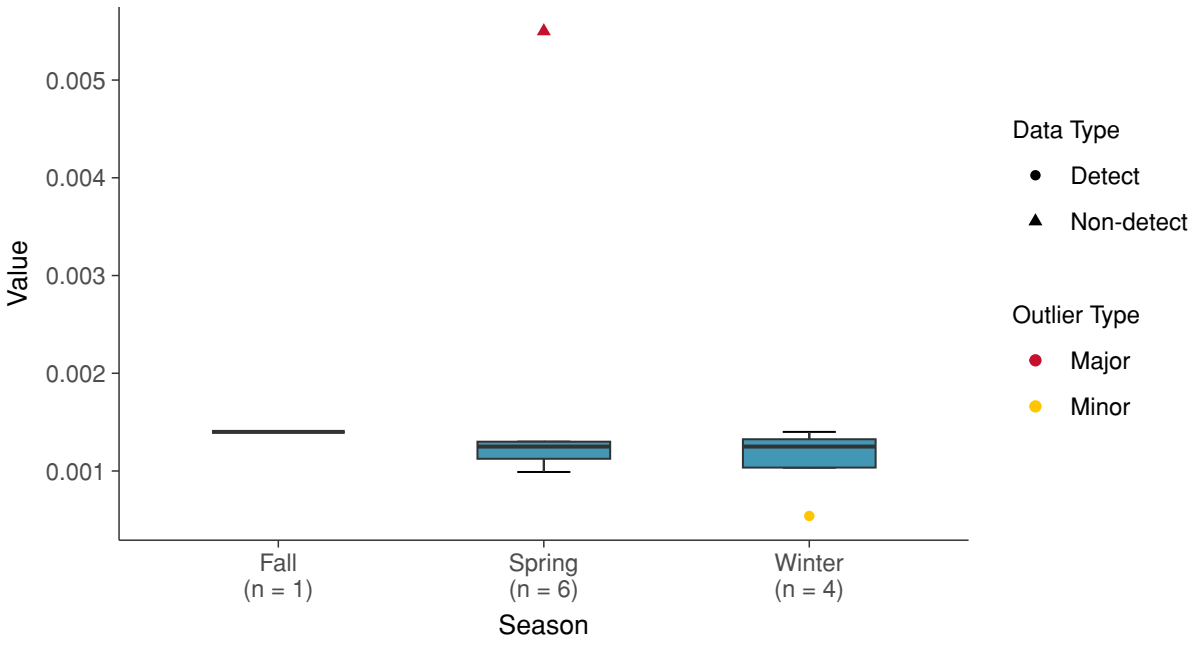
Boxplot

Cadmium, W-12 (mg/l)



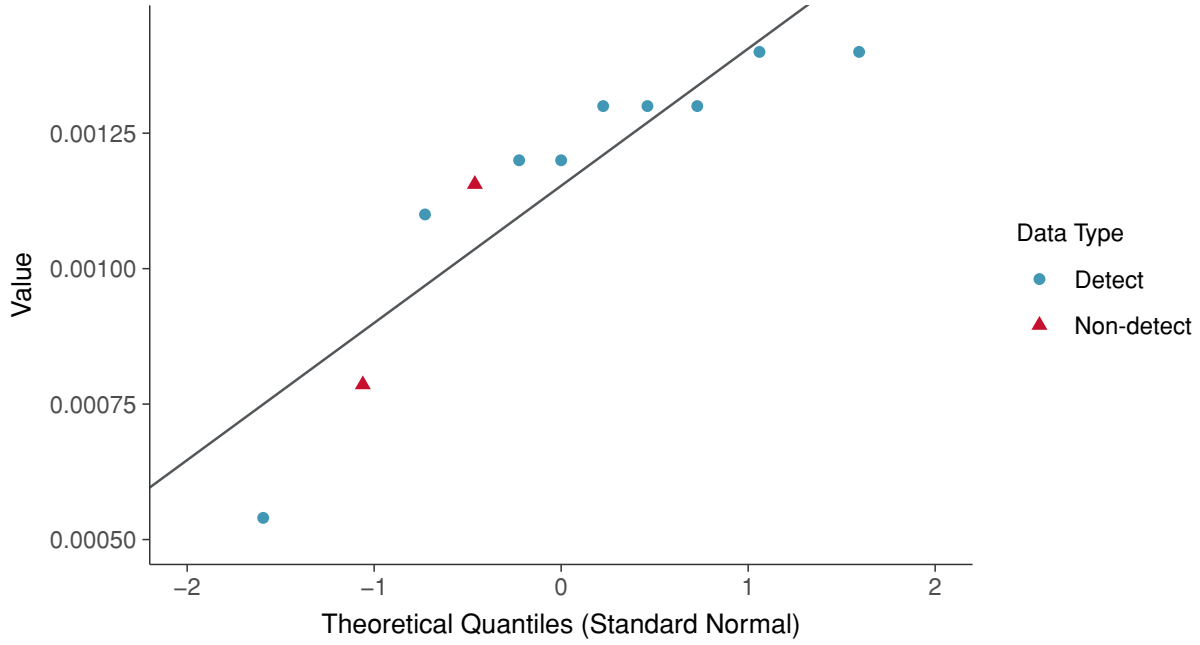
Boxplot by Season

Cadmium, W-12 (mg/l)



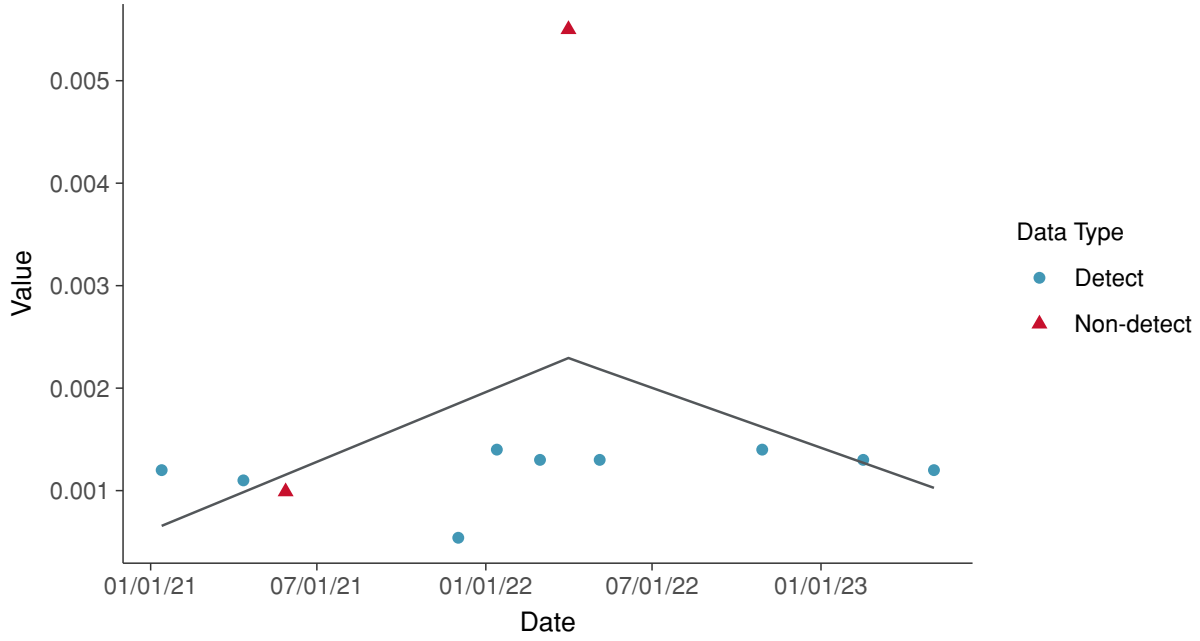
Normal Q-Q plot using ROS Imputed Estimates

Cadmium, W-12 (mg/l)



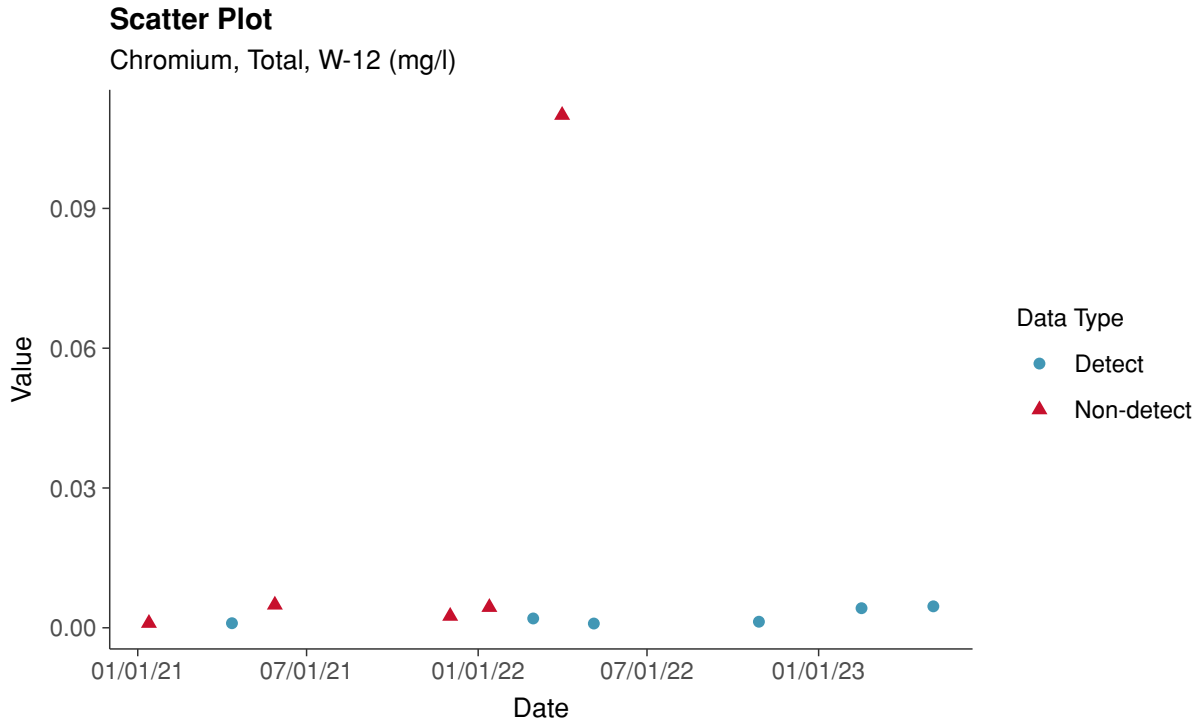
Trend Regression: Piecewise Linear-Linear

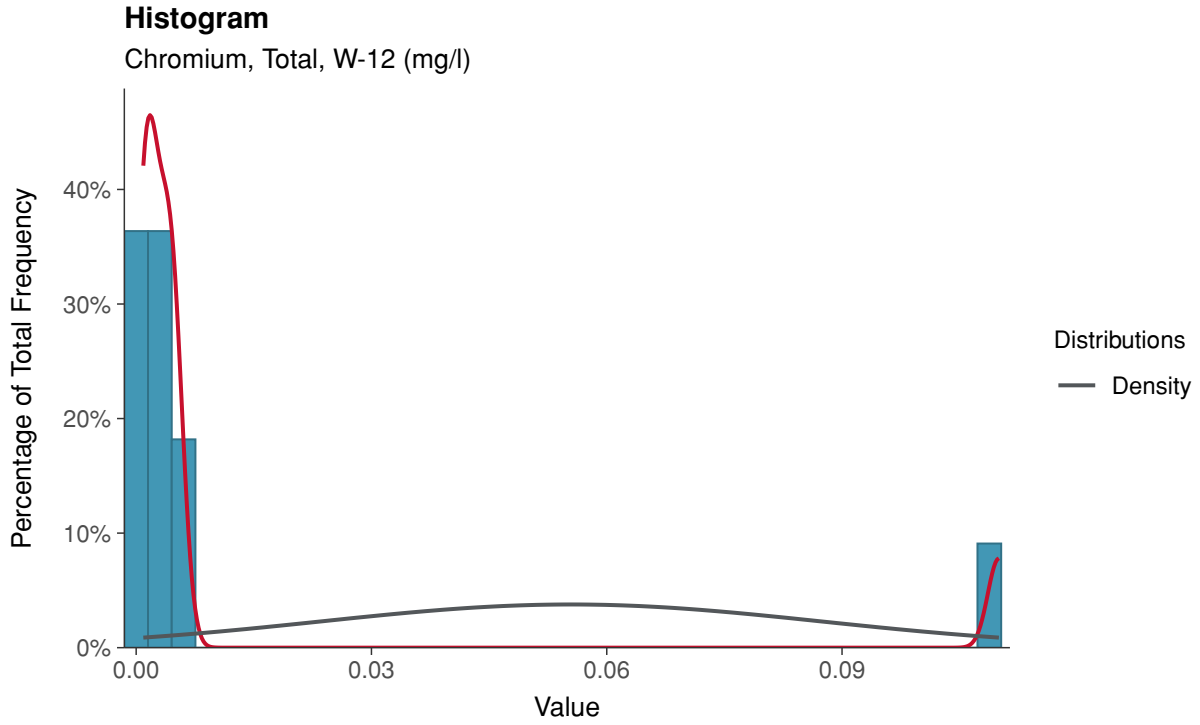
Cadmium, W-12 (mg/l)



Appendix IV: Chromium, Total, W-12

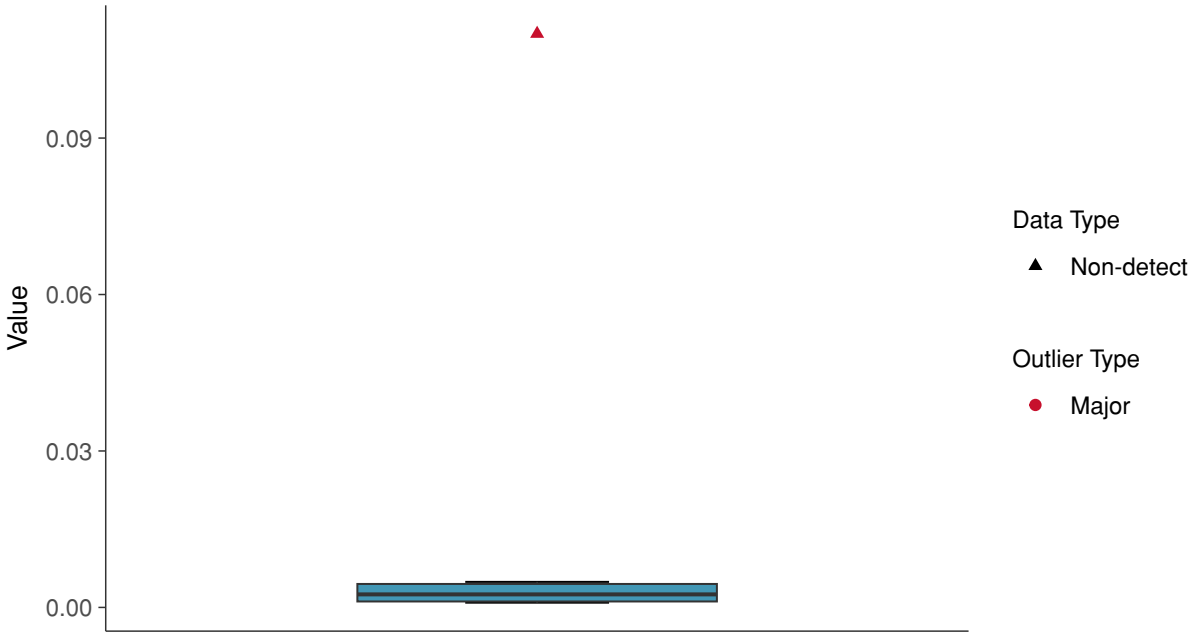
ID: 3_2_109





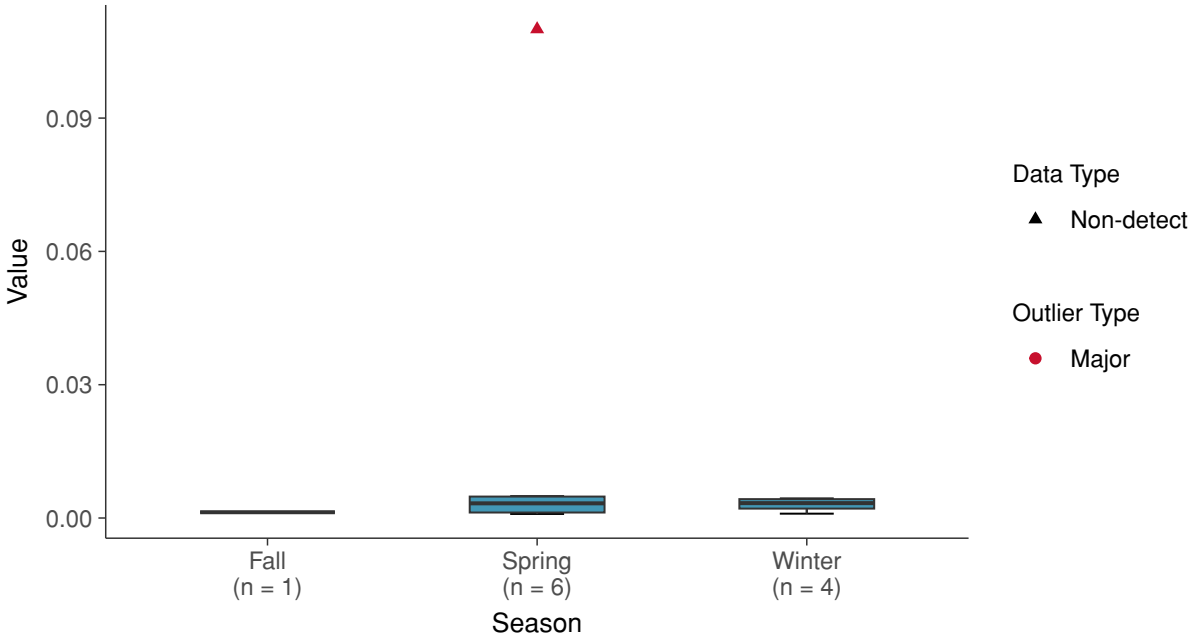
Boxplot

Chromium, Total, W-12 (mg/l)



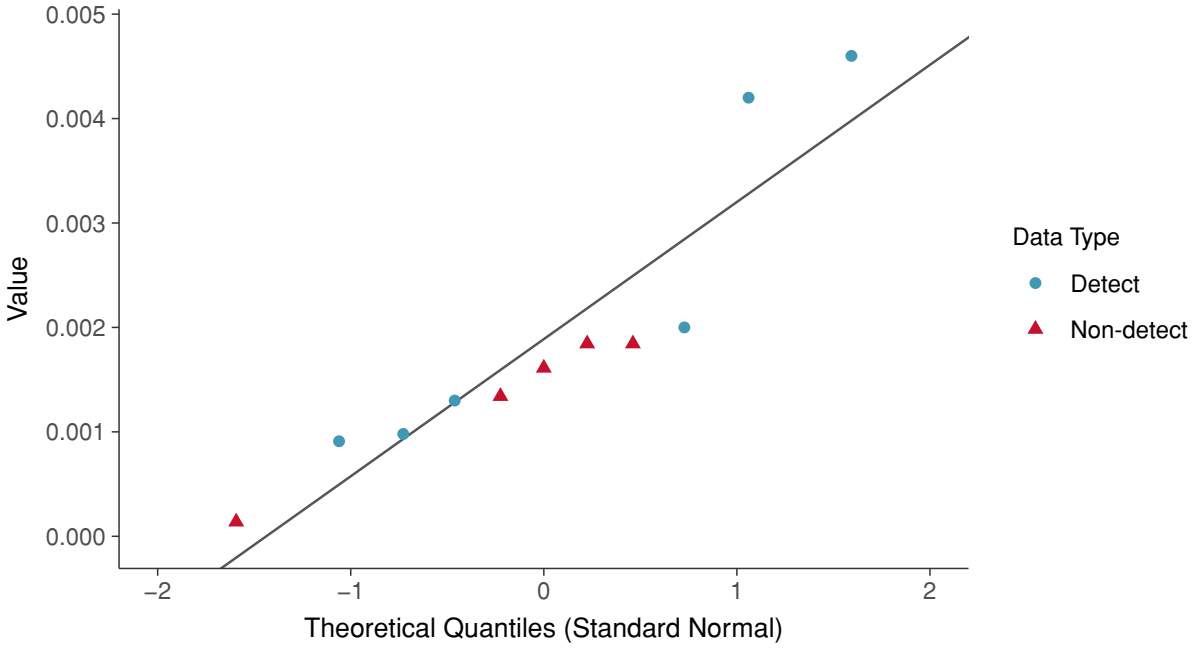
Boxplot by Season

Chromium, Total, W-12 (mg/l)



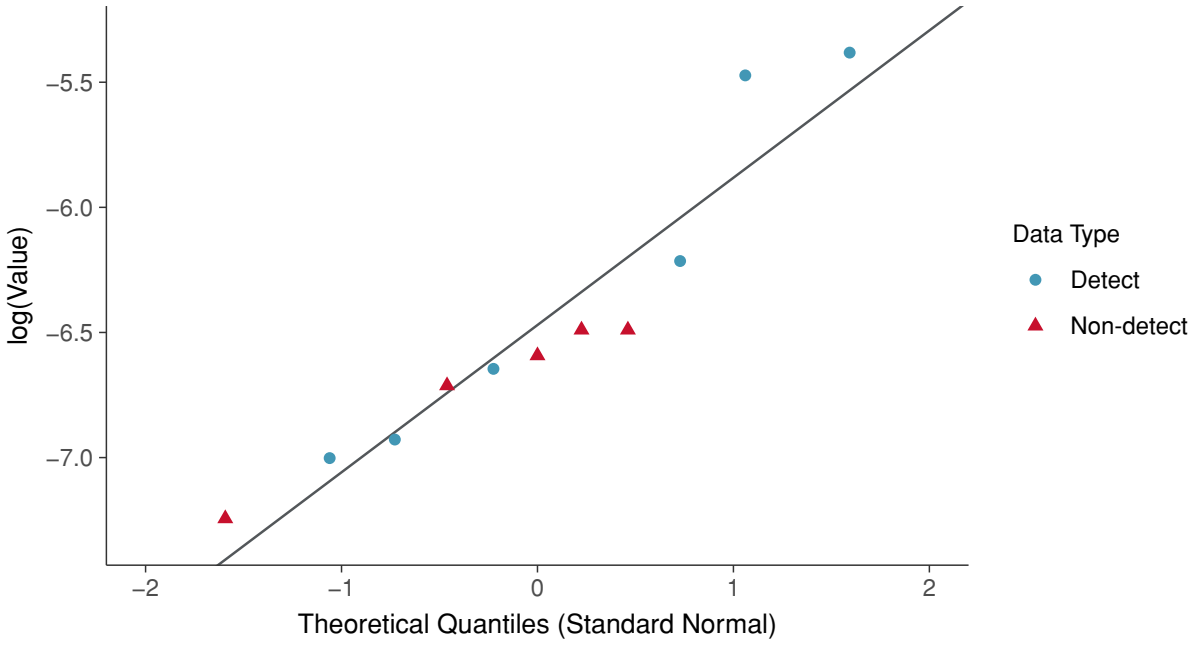
Normal Q-Q plot using ROS Imputed Estimates

Chromium, Total, W-12 (mg/l)



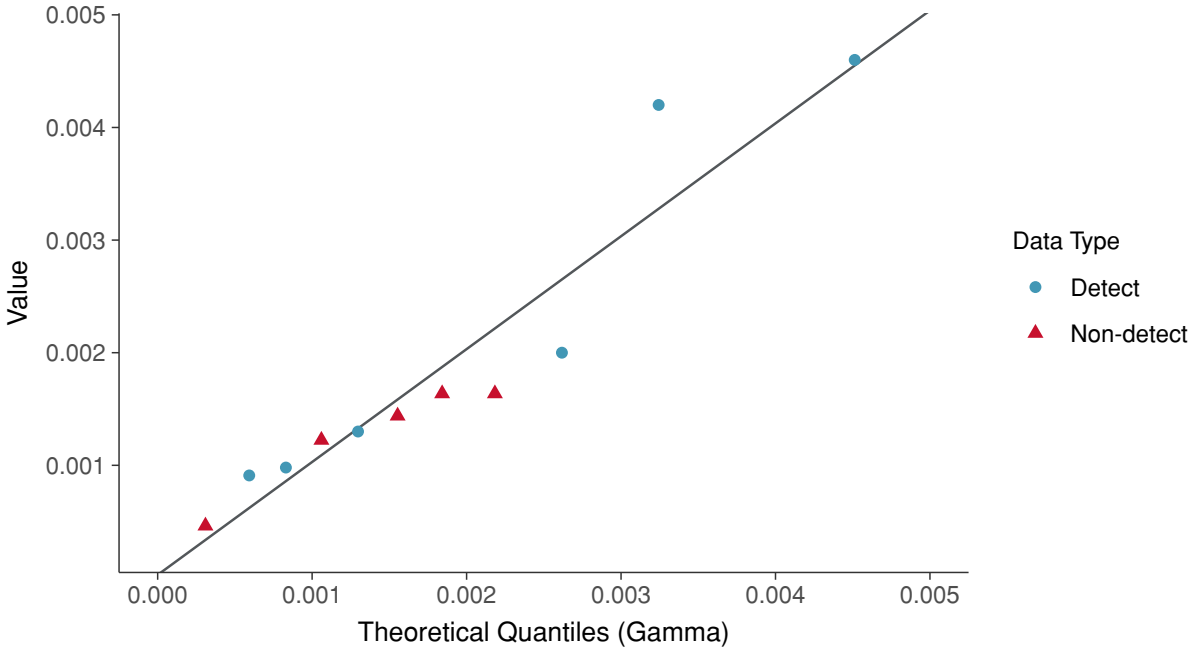
Lognormal Q-Q plot using ROS Imputed Estimates

Chromium, Total, W-12 (mg/l)



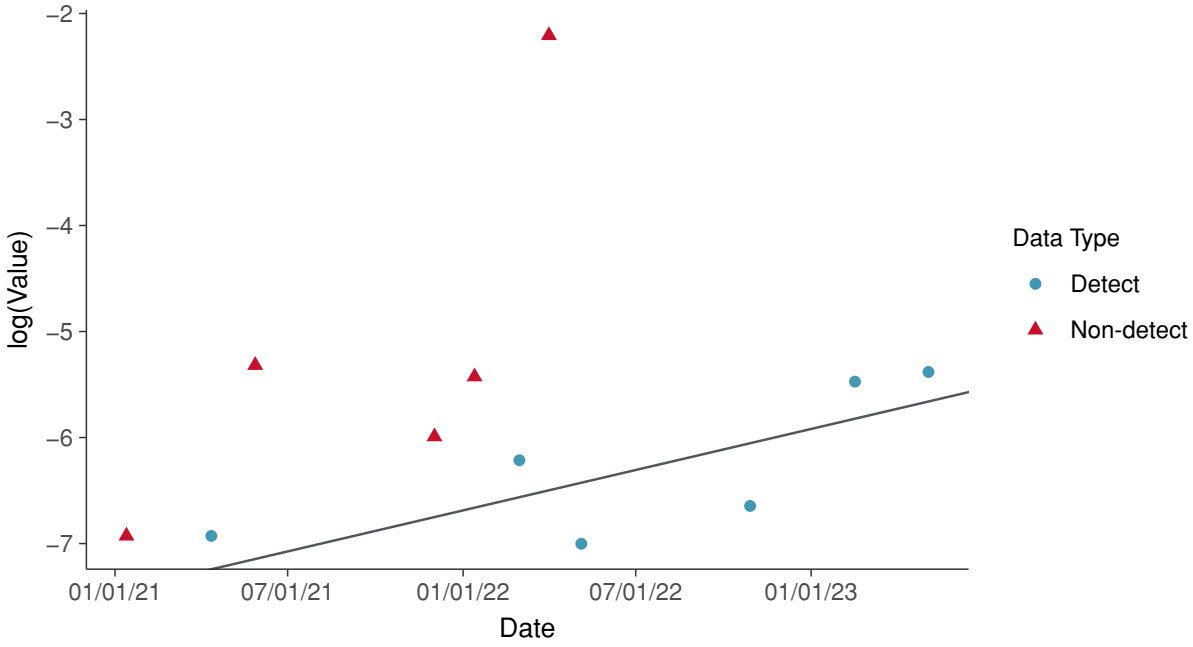
Gamma Q-Q plot using ROS Imputed Estimates

Chromium, Total, W-12 (mg/l)



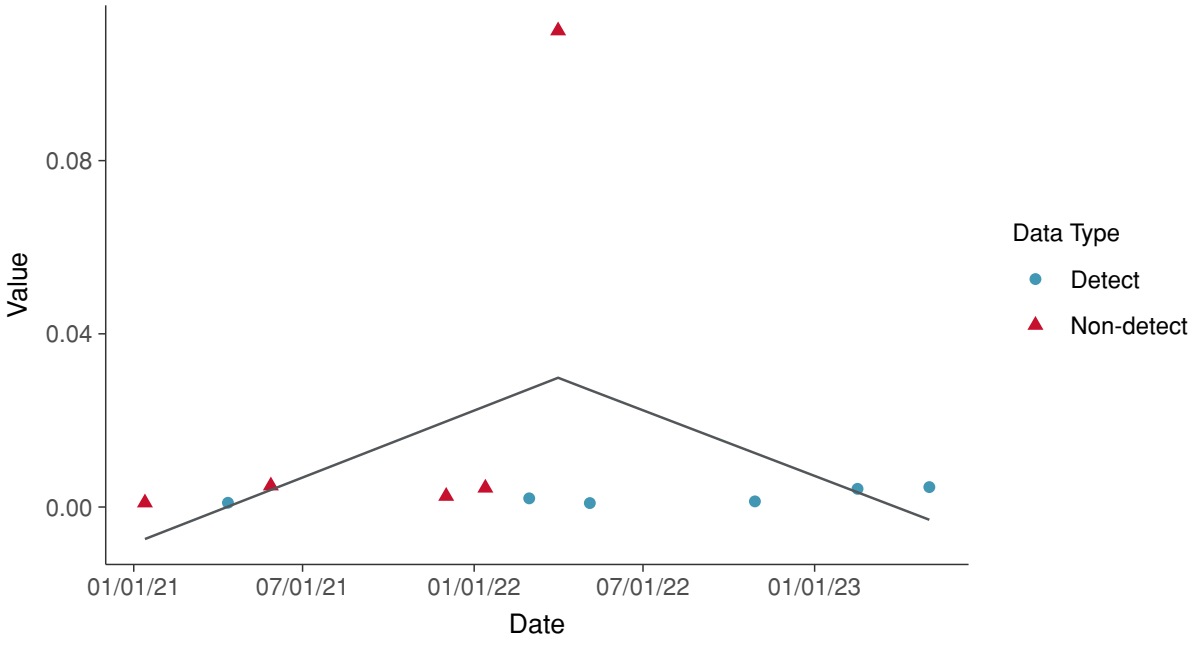
Trend Regression: Lognormal MLE

Chromium, Total, W-12 (mg/l)



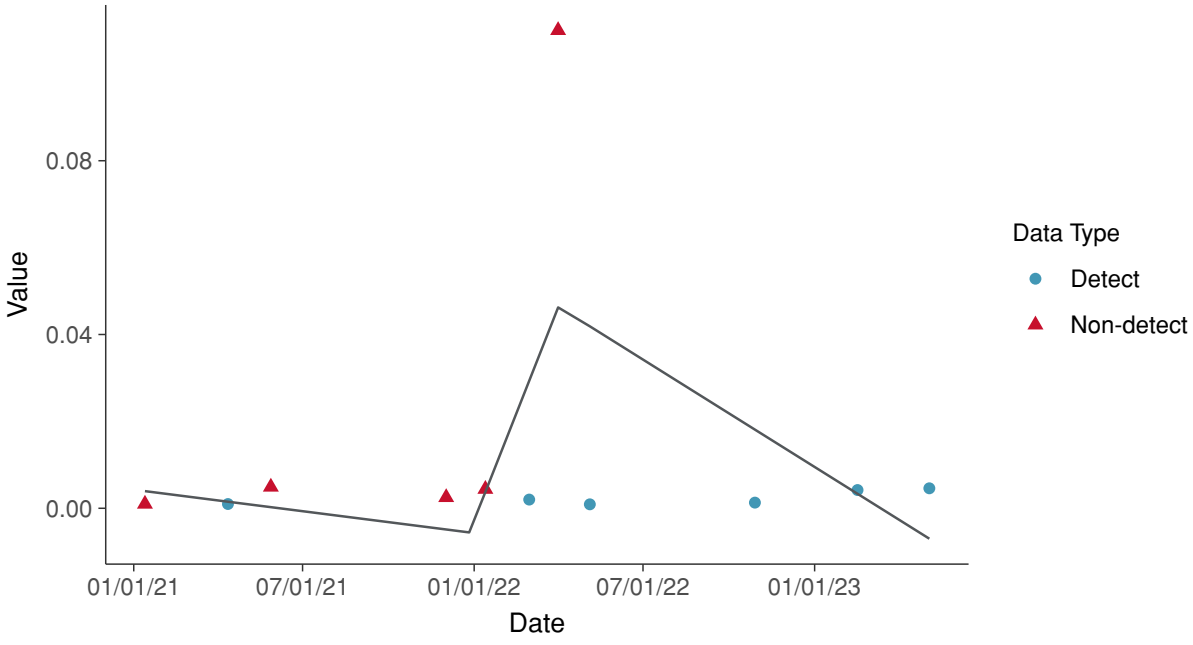
Trend Regression: Piecewise Linear-Linear

Chromium, Total, W-12 (mg/l)



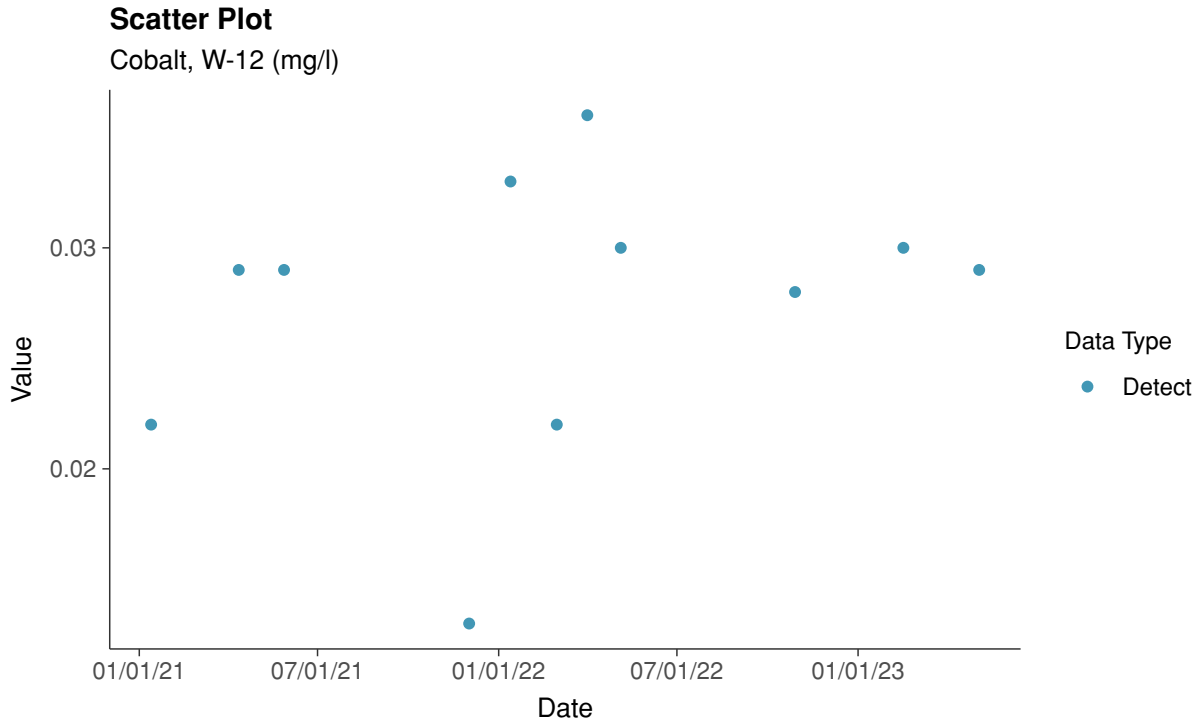
Trend Regression: Piecewise Linear-Linear-Linear

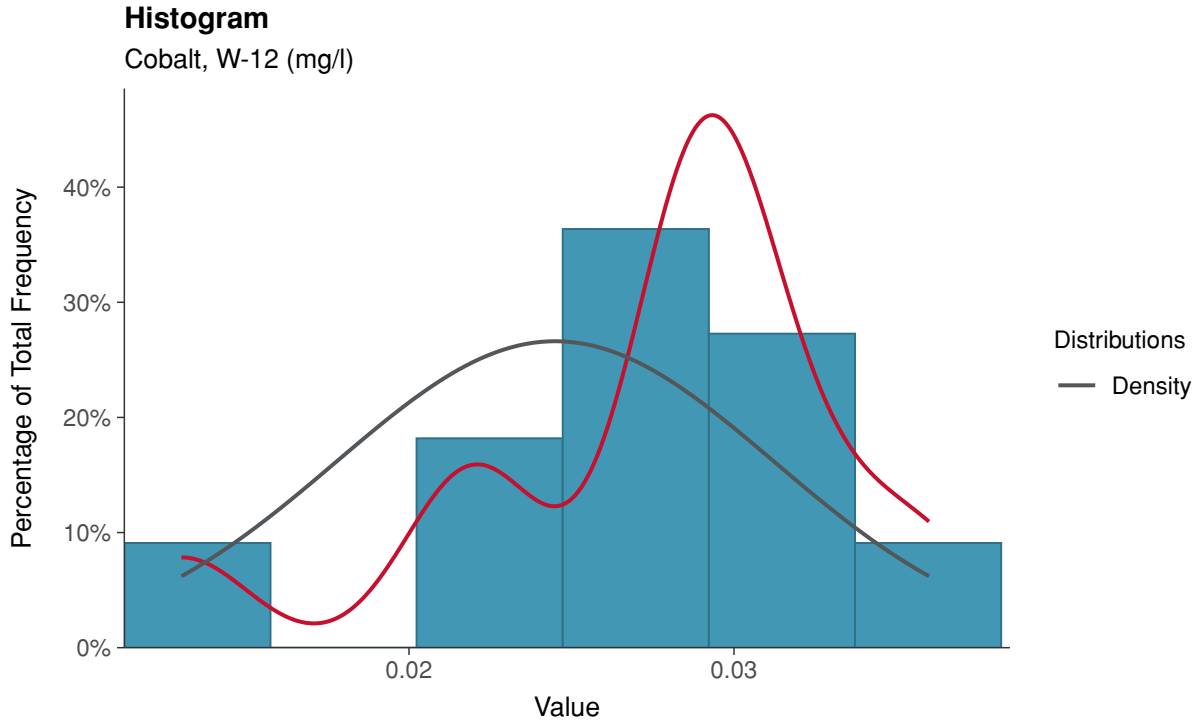
Chromium, Total, W-12 (mg/l)



Appendix IV: Cobalt, W-12

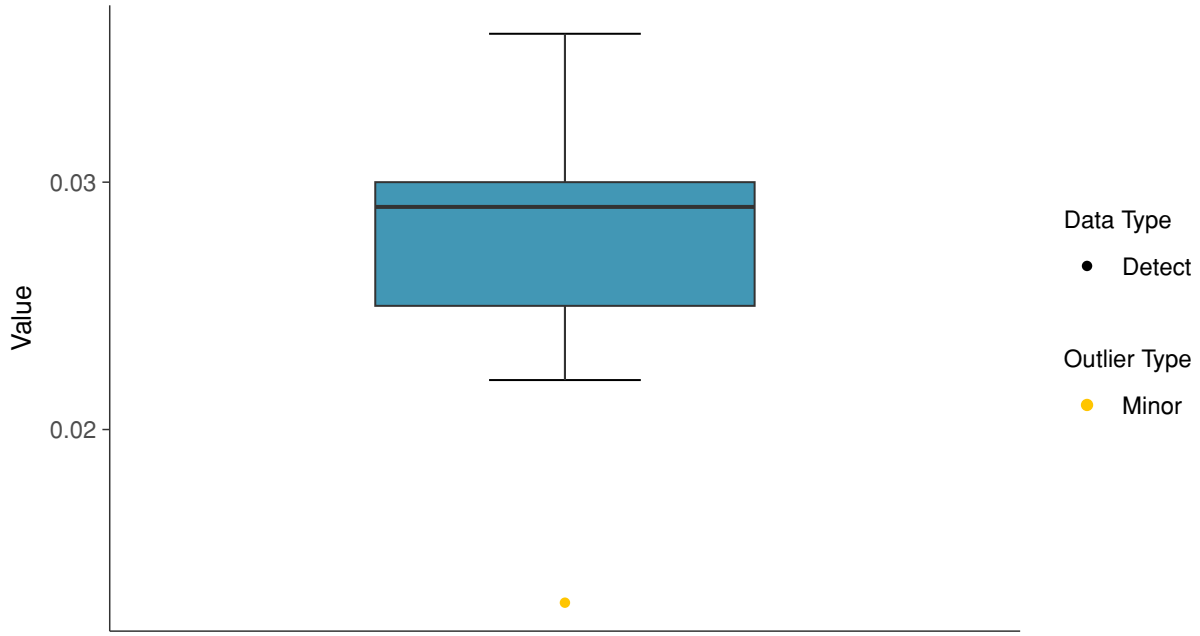
ID: 3_2_110





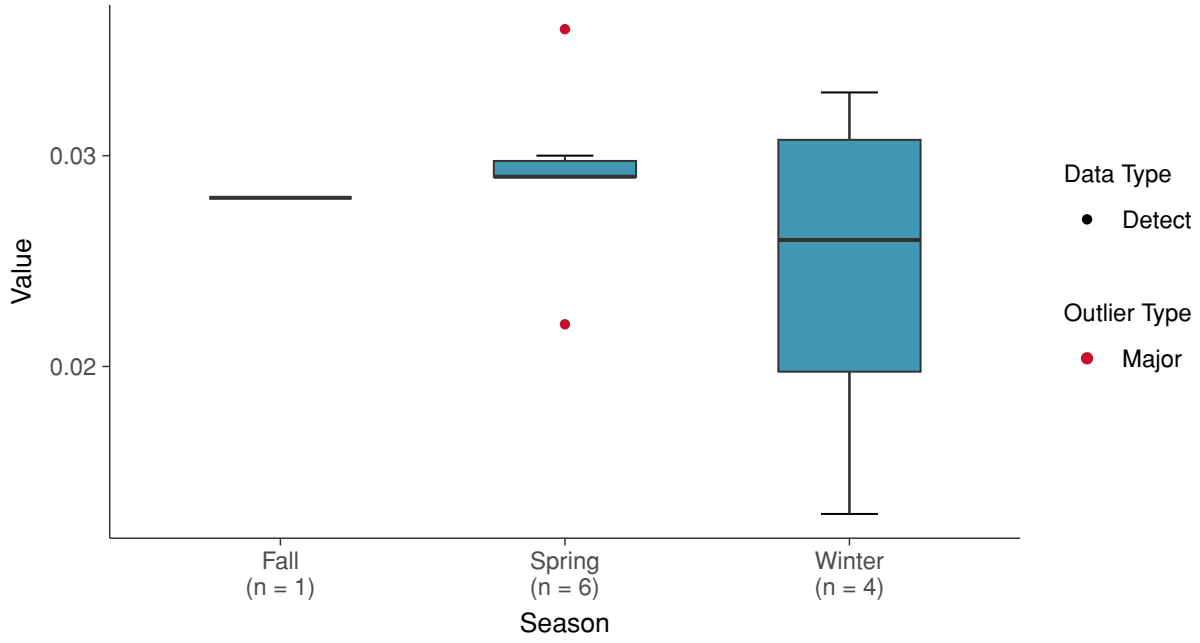
Boxplot

Cobalt, W-12 (mg/l)



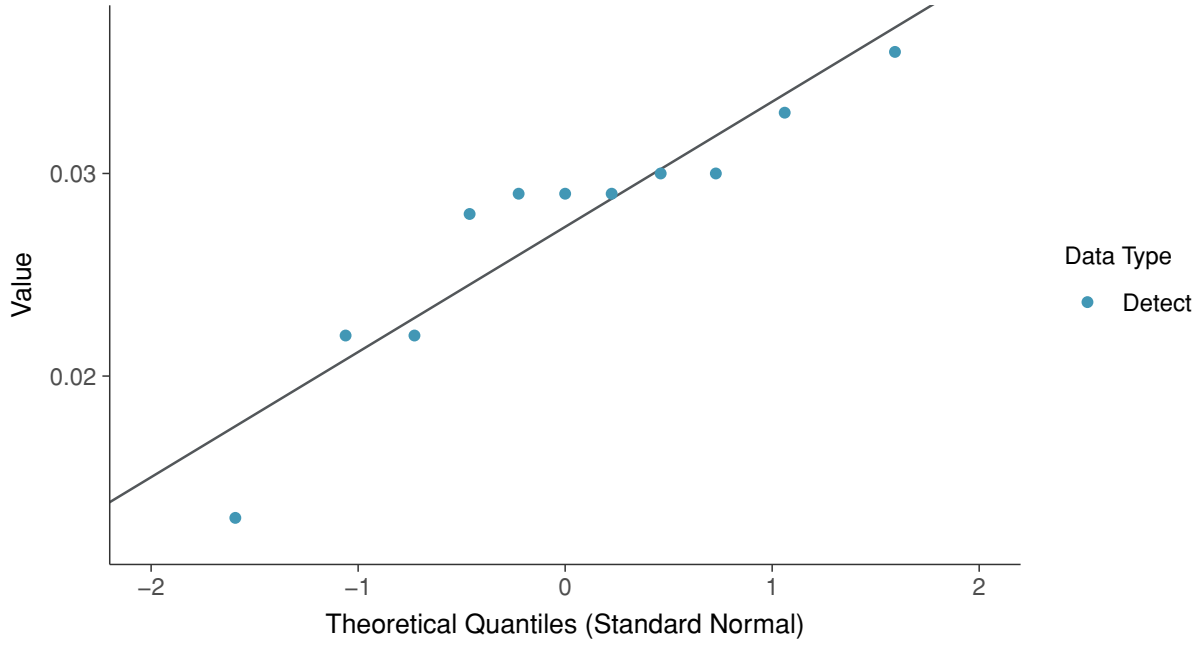
Boxplot by Season

Cobalt, W-12 (mg/l)



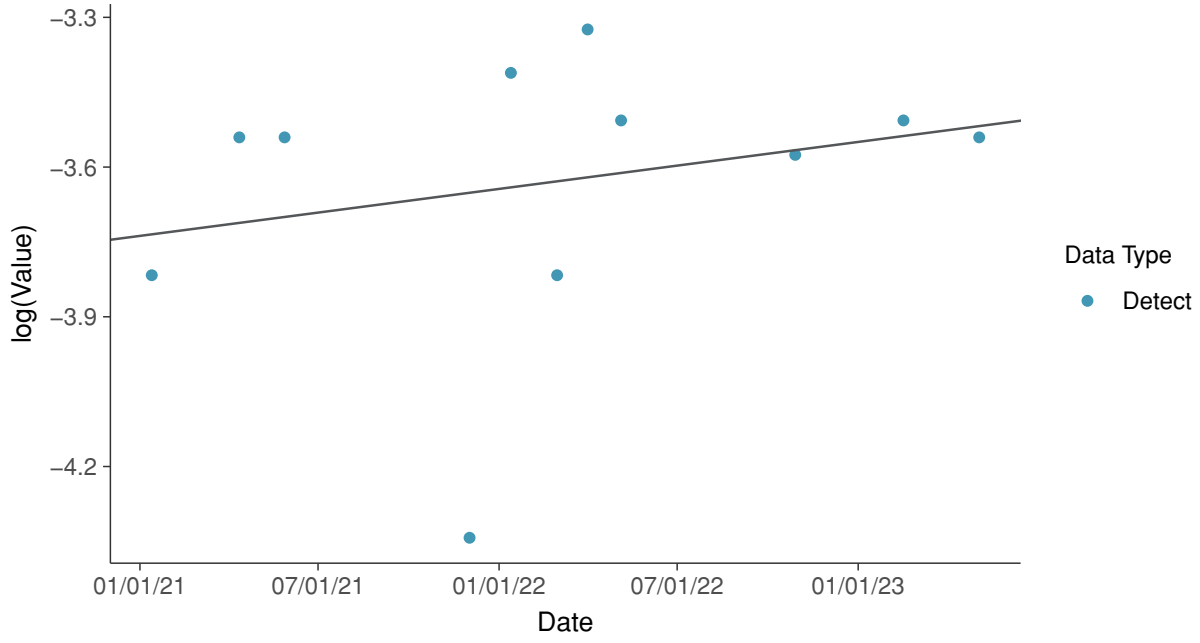
Normal Q-Q plot

Cobalt, W-12 (mg/l)



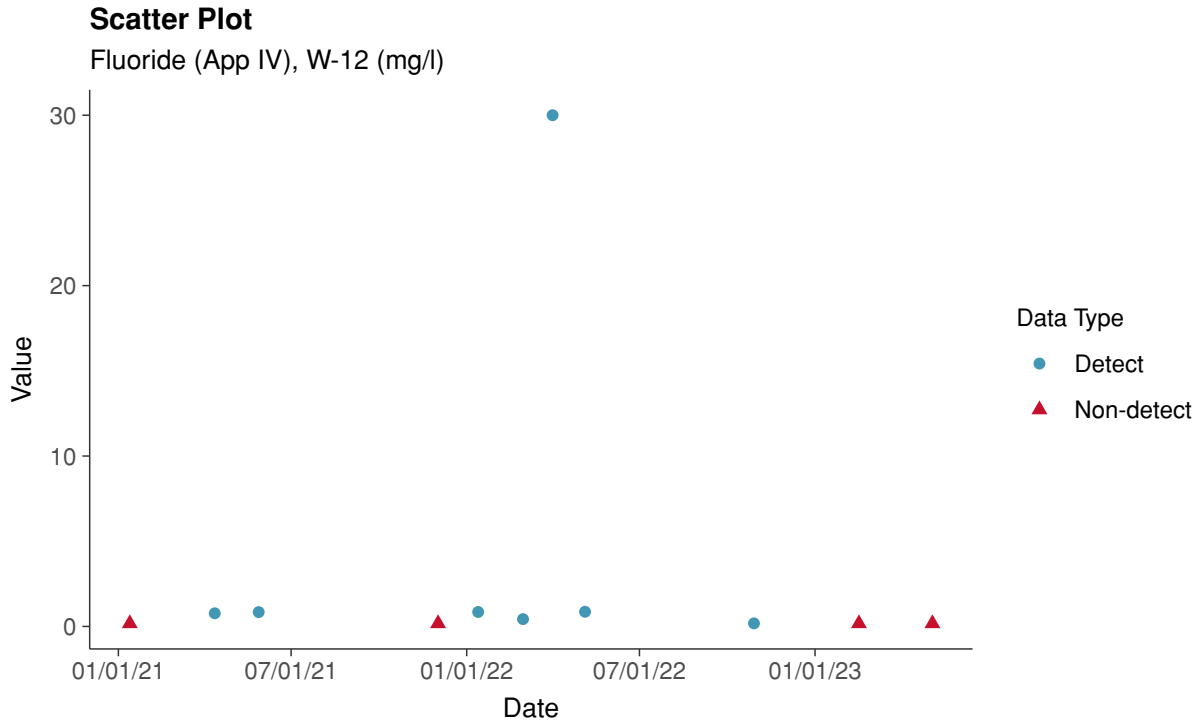
Trend Regression: Lognormal MLE

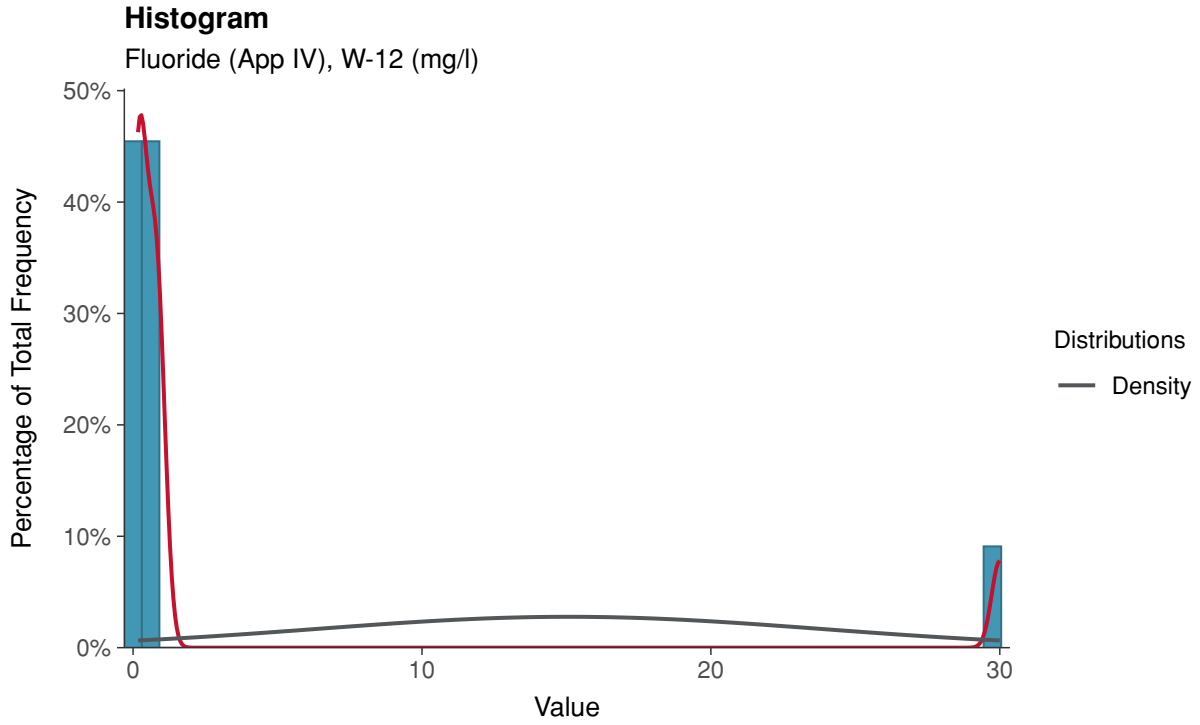
Cobalt, W-12 (mg/l)



Appendix IV: Fluoride (App IV), W-12

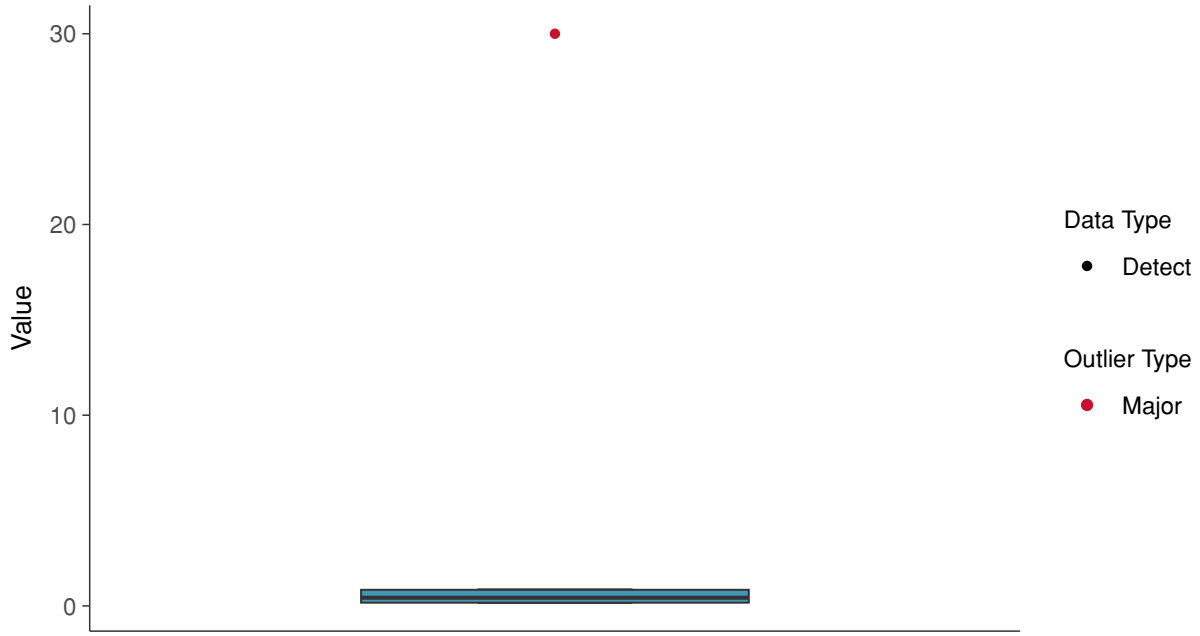
ID: 3_2_112





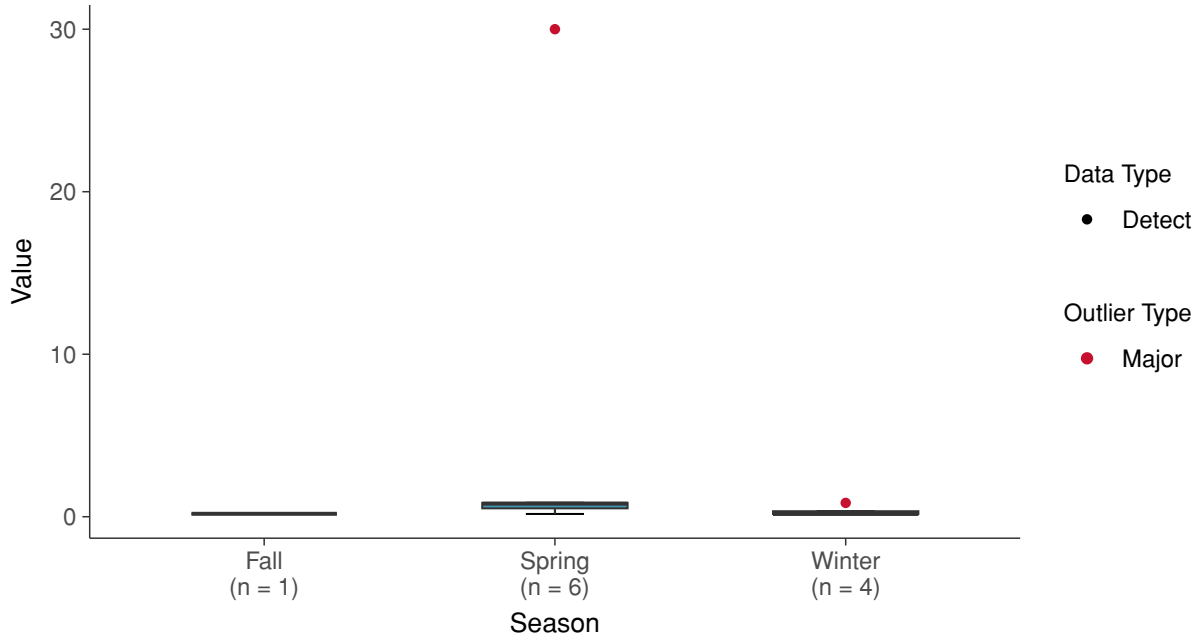
Boxplot

Fluoride (App IV), W-12 (mg/l)



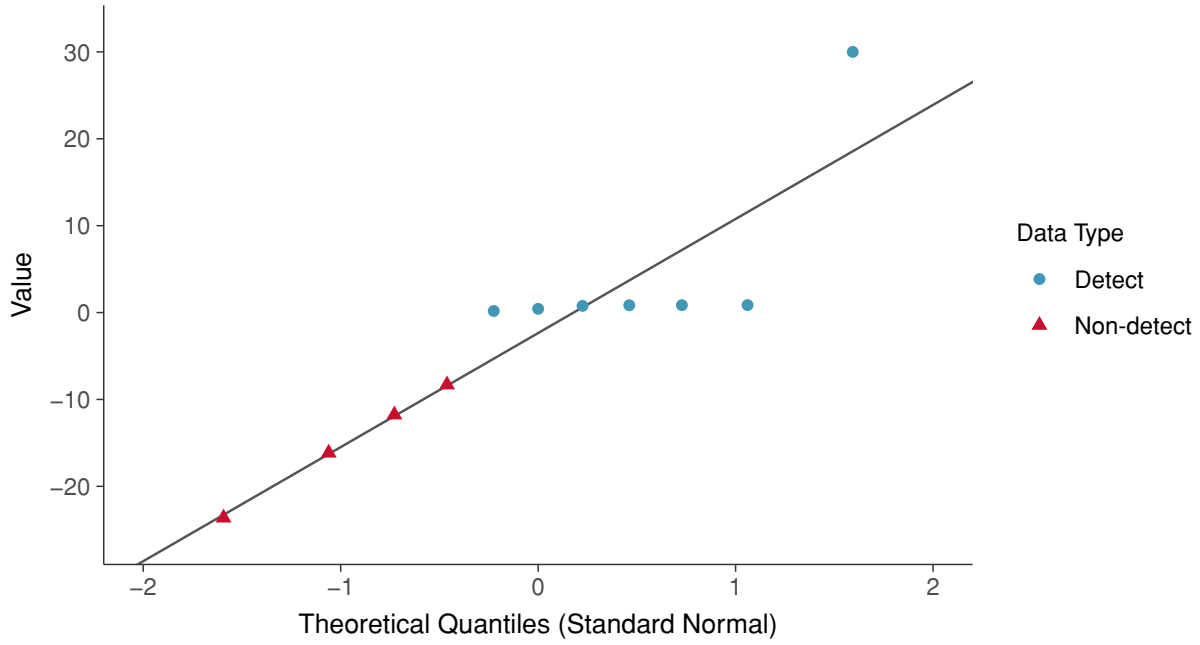
Boxplot by Season

Fluoride (App IV), W-12 (mg/l)



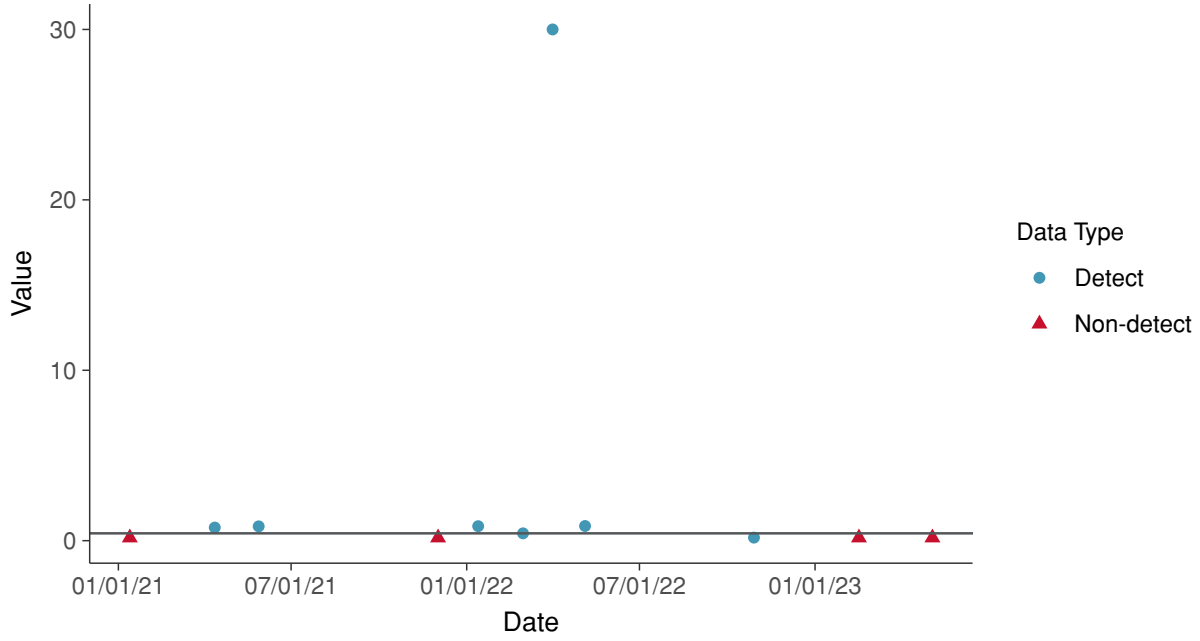
Normal Q-Q plot using ROS Imputed Estimates

Fluoride (App IV), W-12 (mg/l)



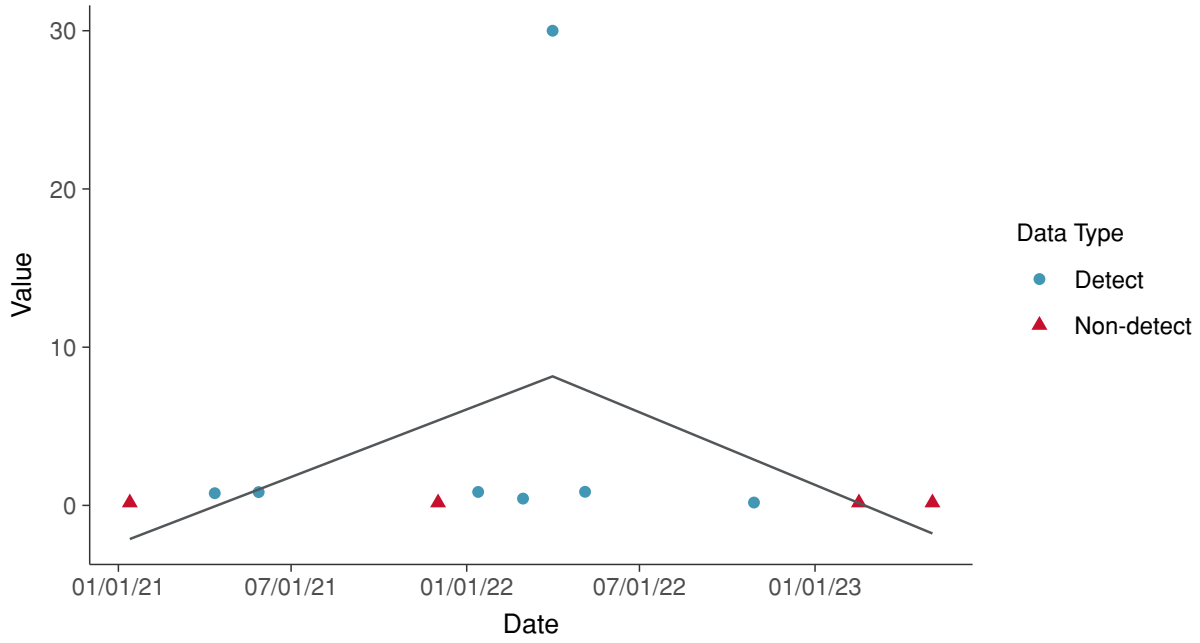
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Fluoride (App IV), W-12 (mg/l)



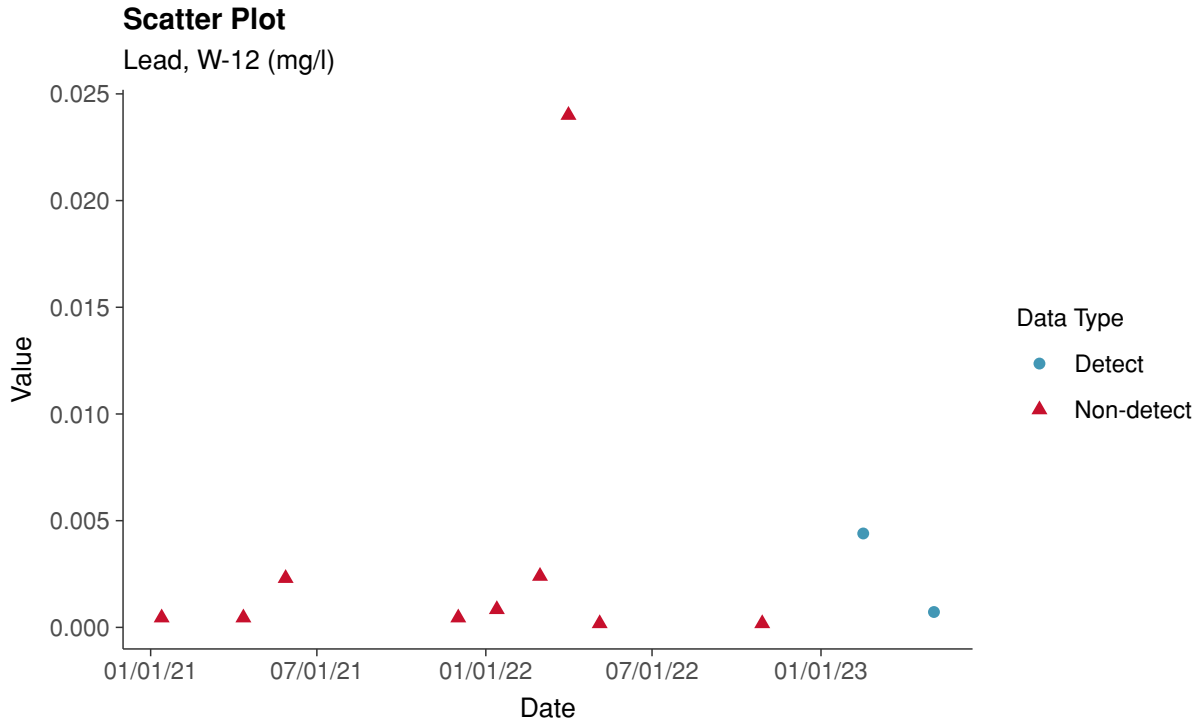
Trend Regression: Piecewise Linear-Linear

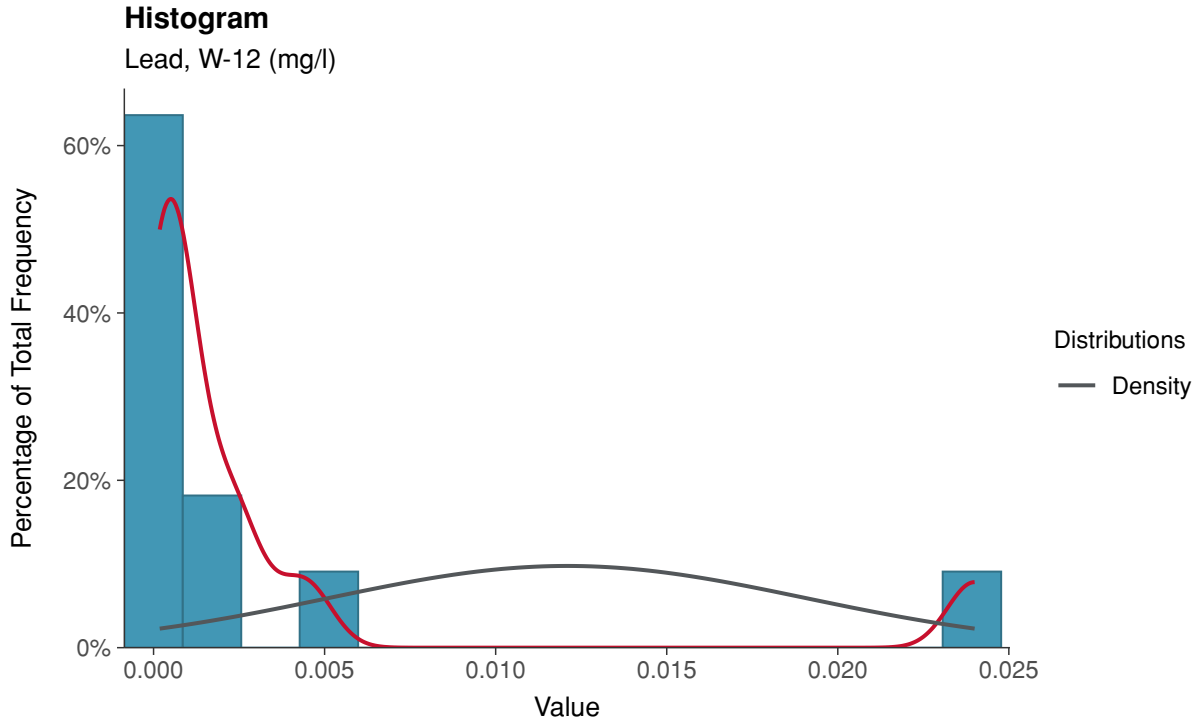
Fluoride (App IV), W-12 (mg/l)



Appendix IV: Lead, W-12

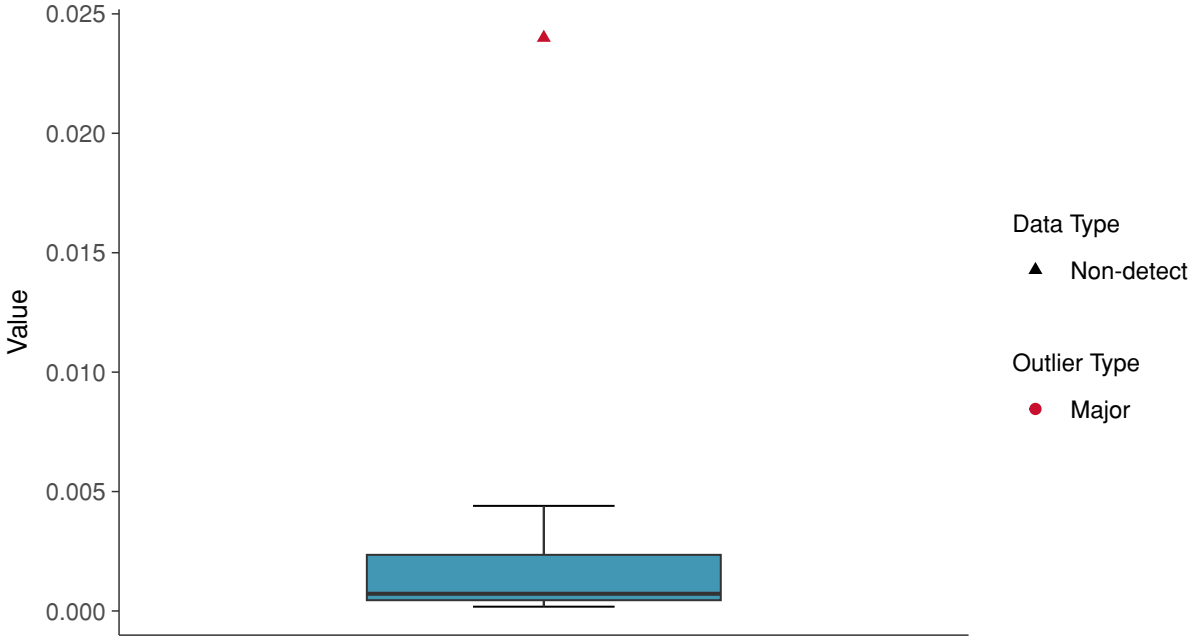
ID: 3_2_113





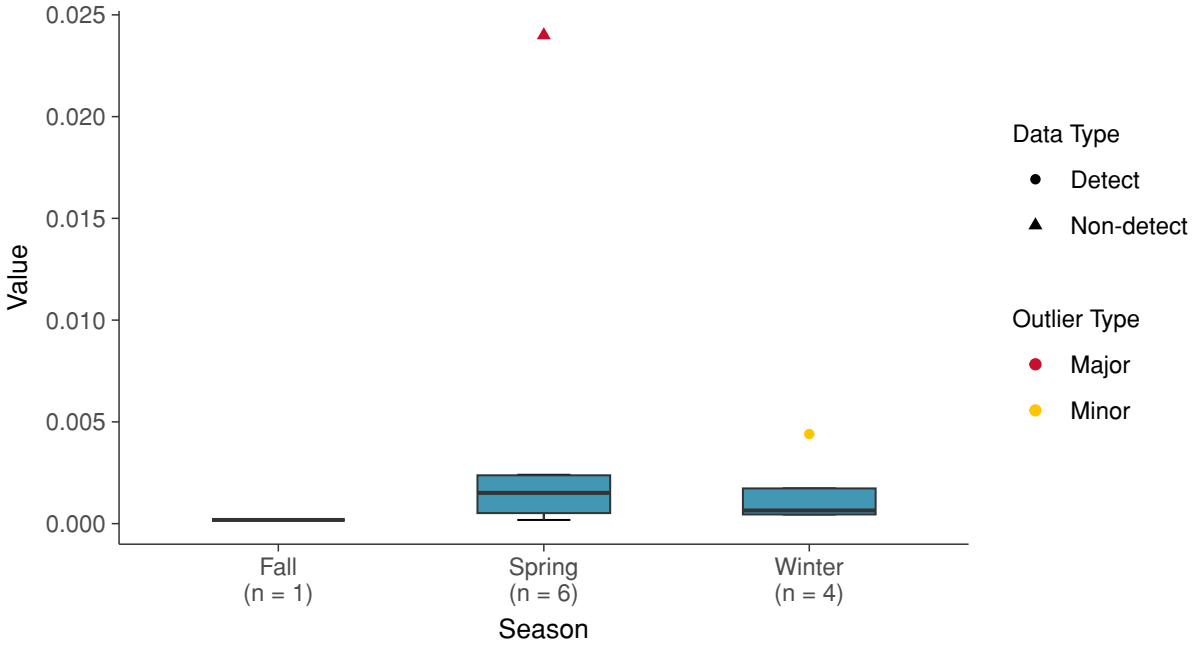
Boxplot

Lead, W-12 (mg/l)



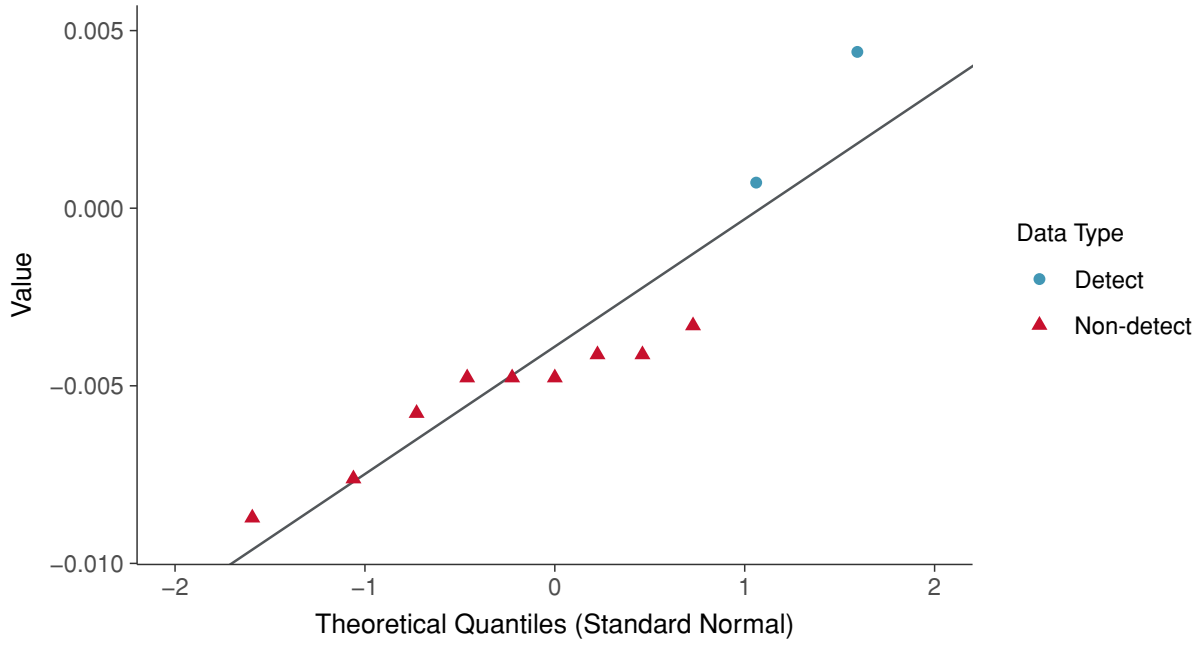
Boxplot by Season

Lead, W-12 (mg/l)



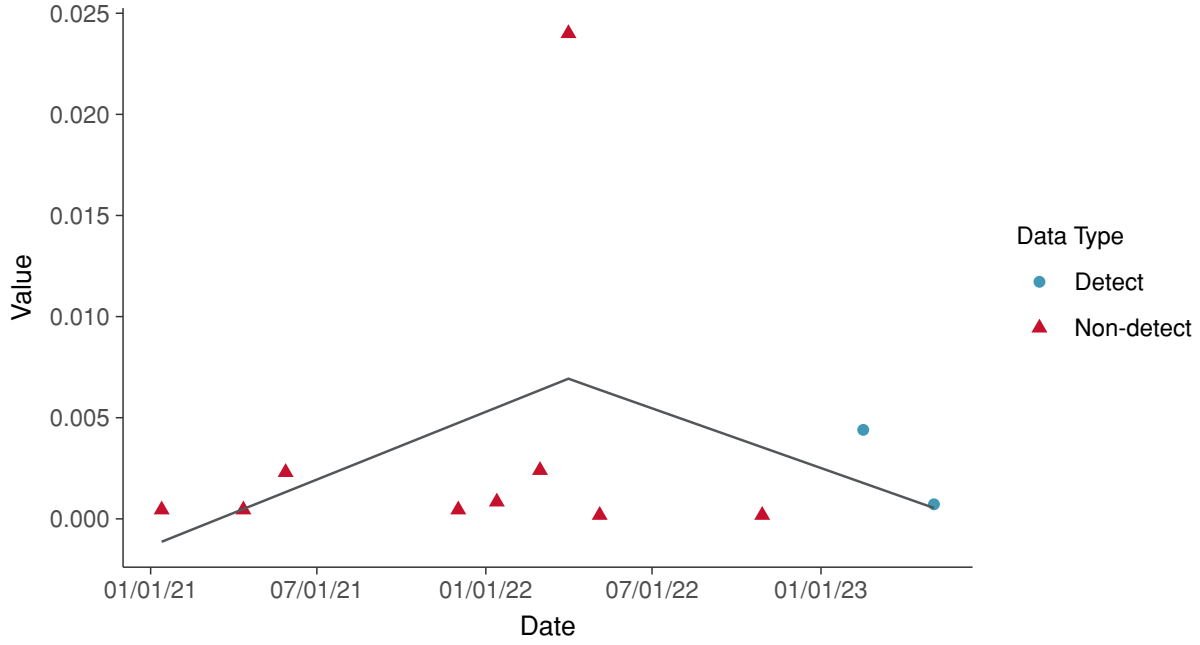
Normal Q-Q plot using ROS Imputed Estimates

Lead, W-12 (mg/l)



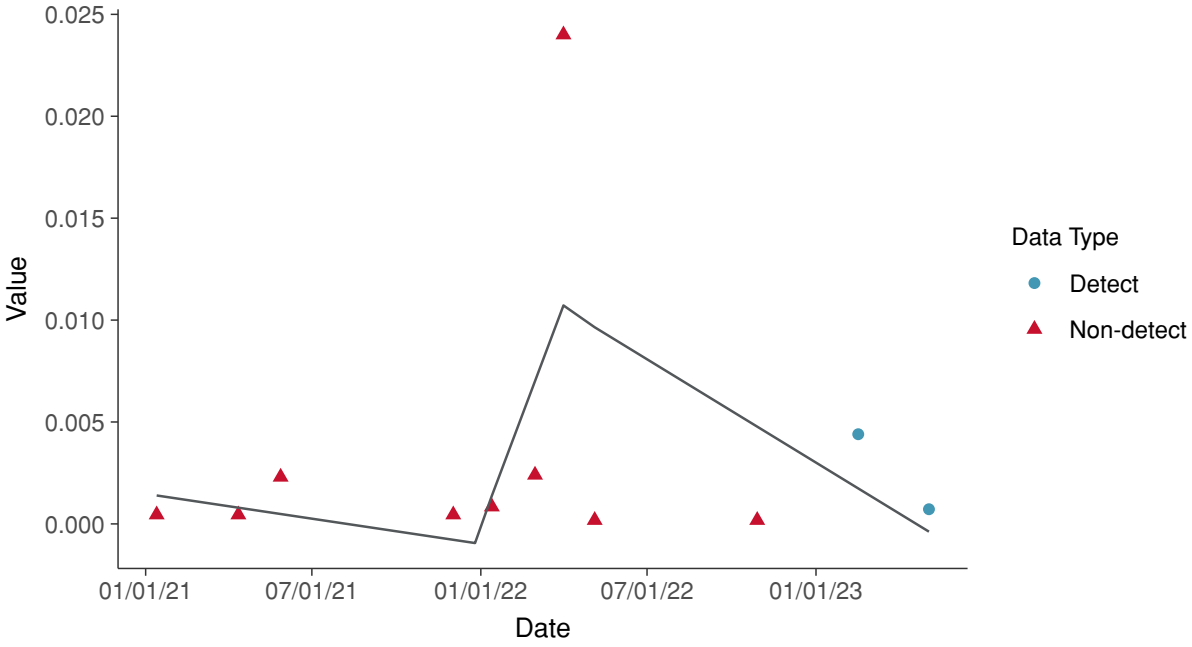
Trend Regression: Piecewise Linear-Linear

Lead, W-12 (mg/l)



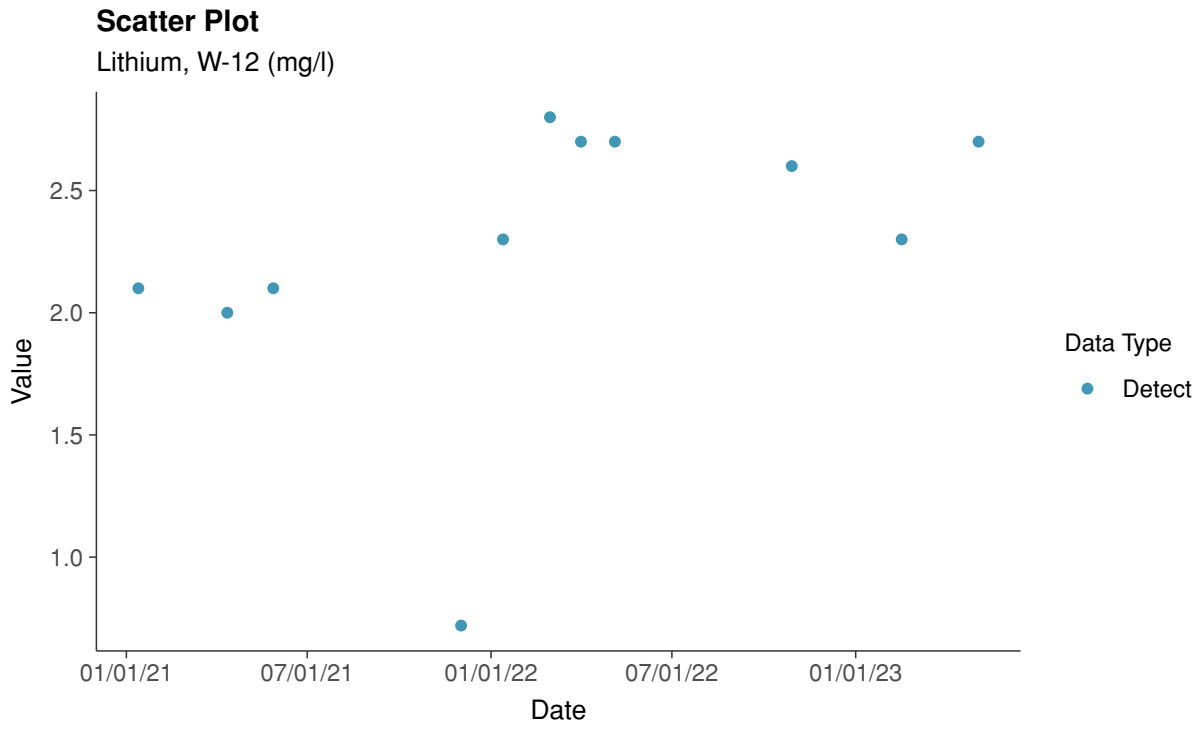
Trend Regression: Piecewise Linear-Linear-Linear

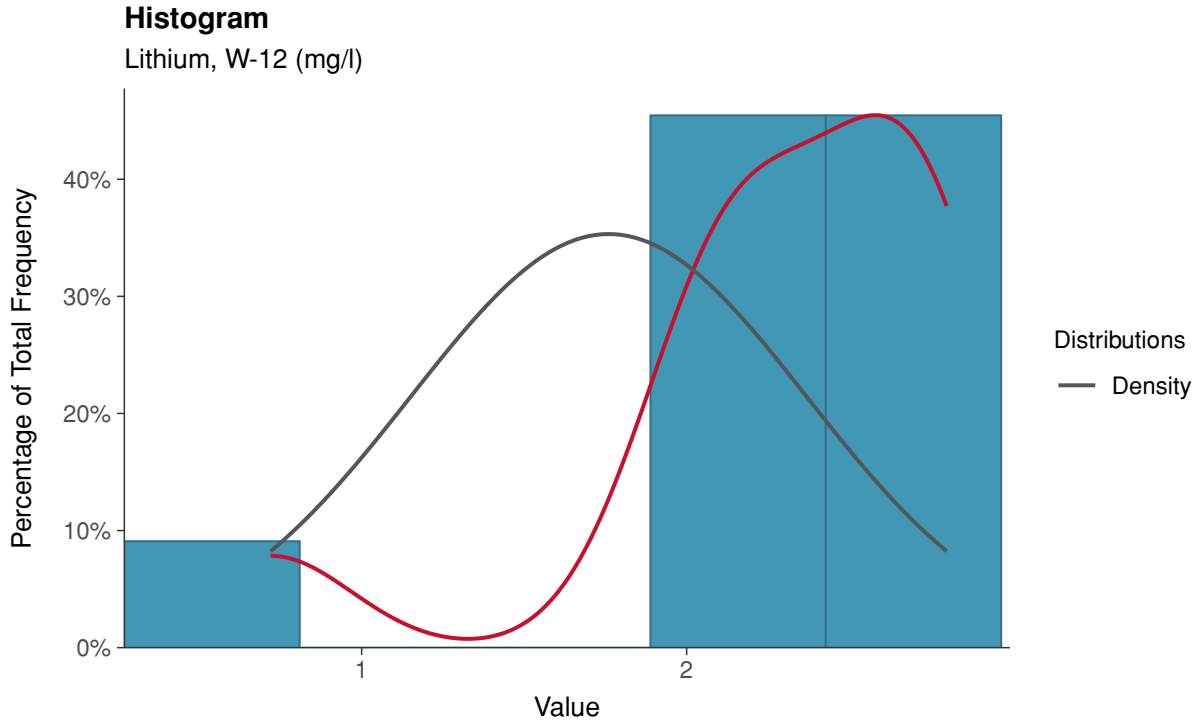
Lead, W-12 (mg/l)



Appendix IV: Lithium, W-12

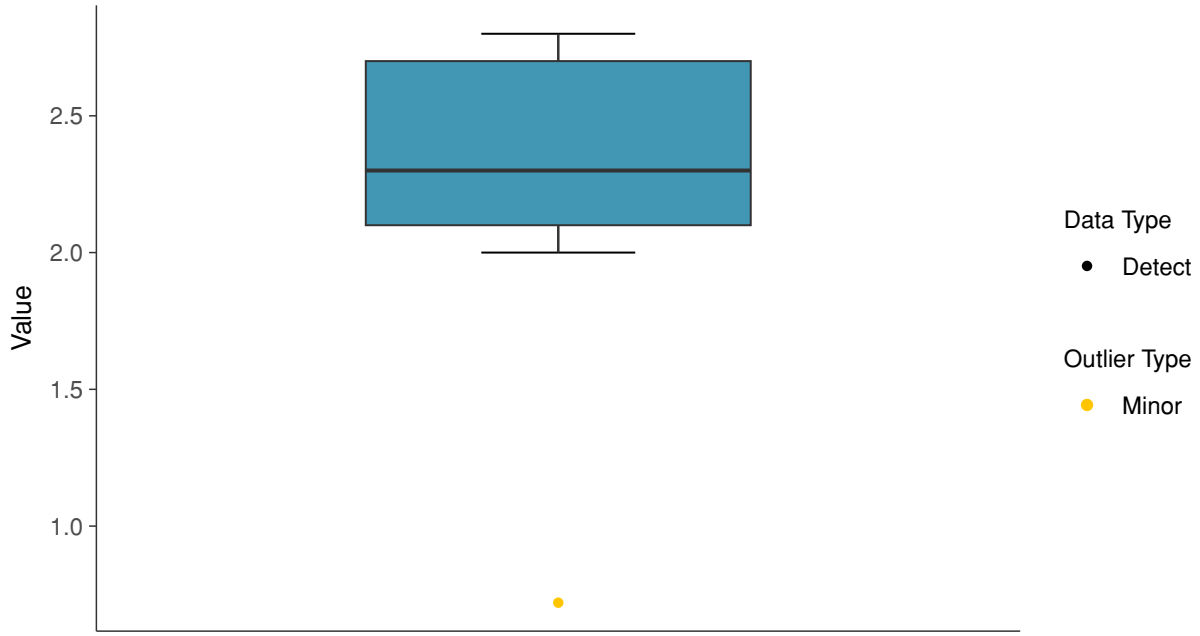
ID: 3_2_114





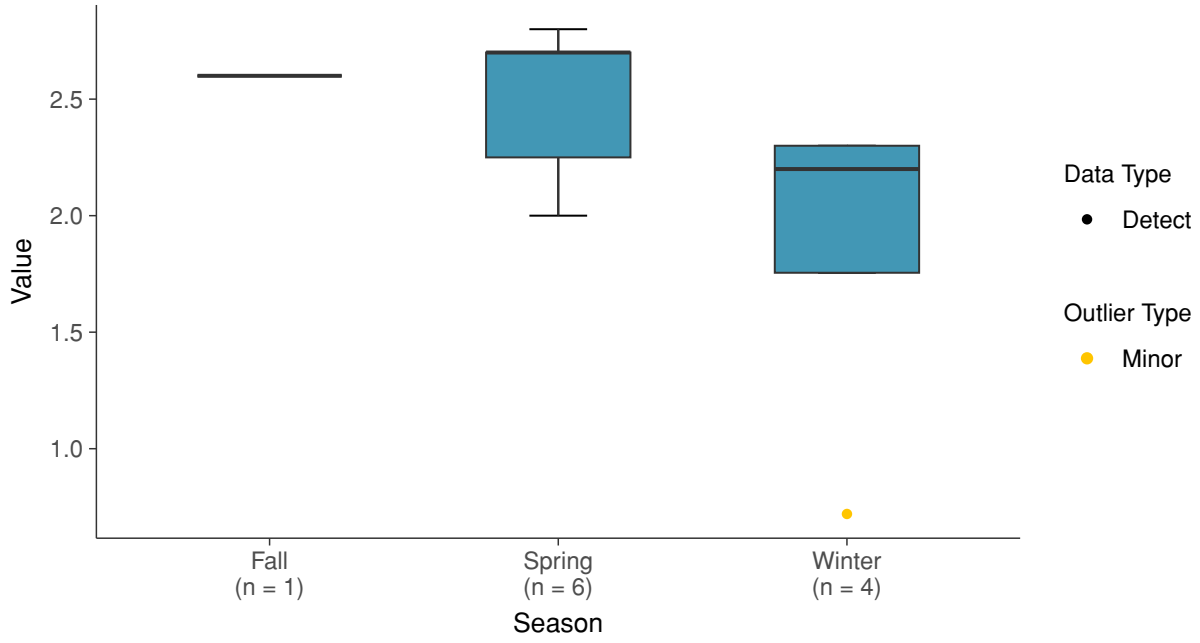
Boxplot

Lithium, W-12 (mg/l)



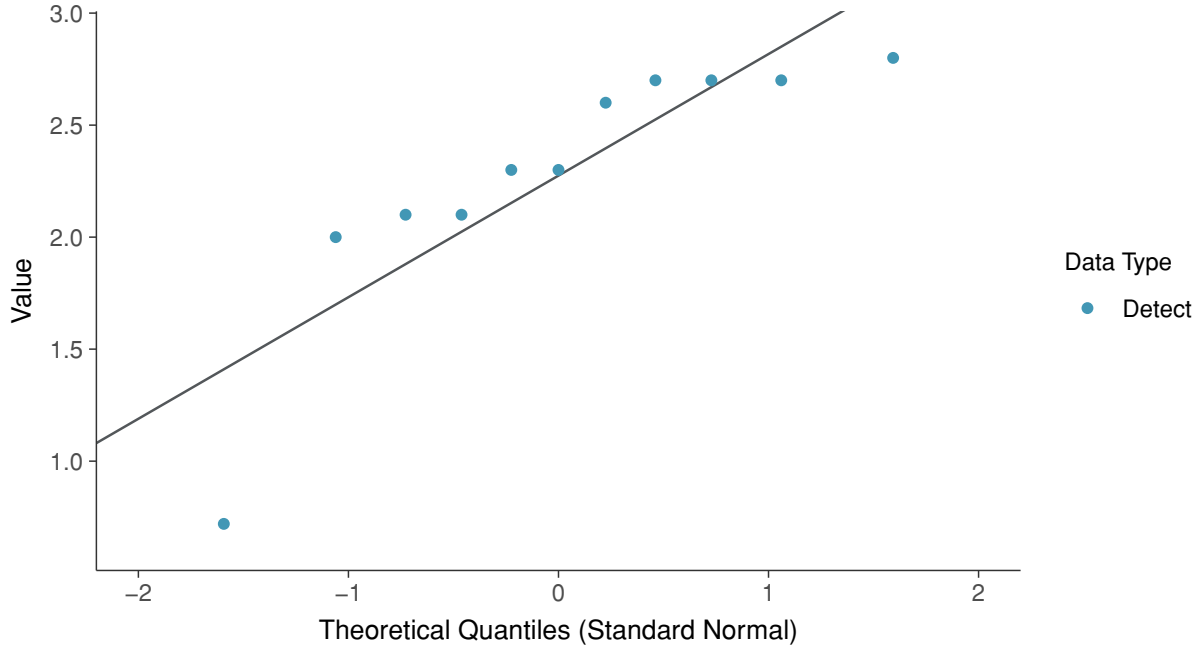
Boxplot by Season

Lithium, W-12 (mg/l)



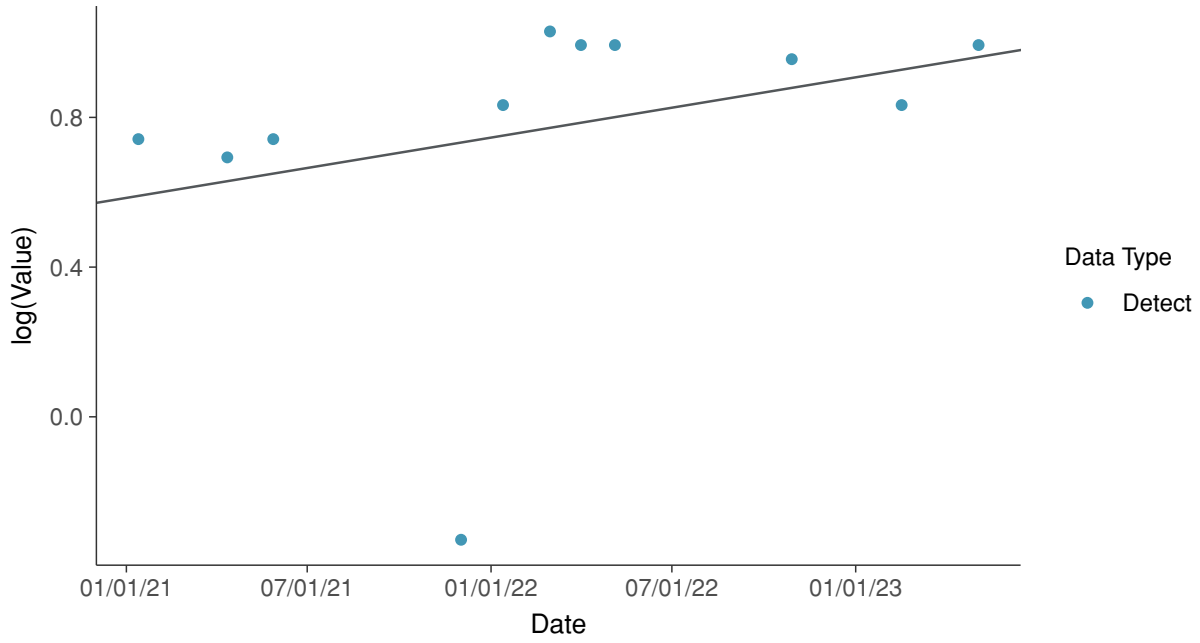
Normal Q-Q plot

Lithium, W-12 (mg/l)



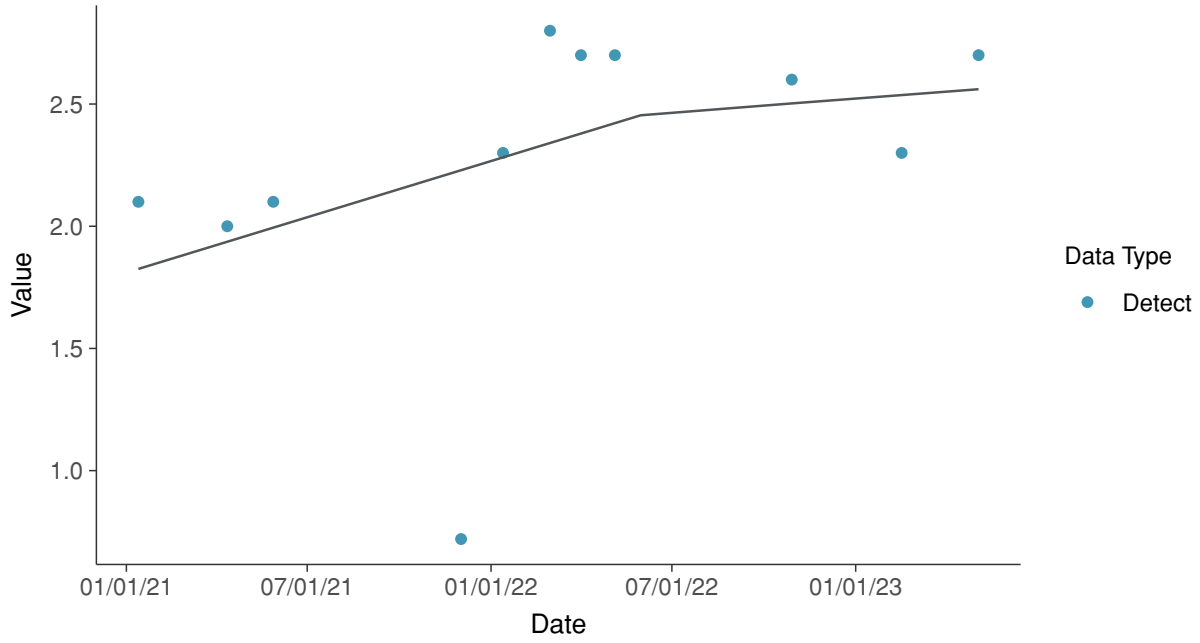
Trend Regression: Lognormal MLE

Lithium, W-12 (mg/l)



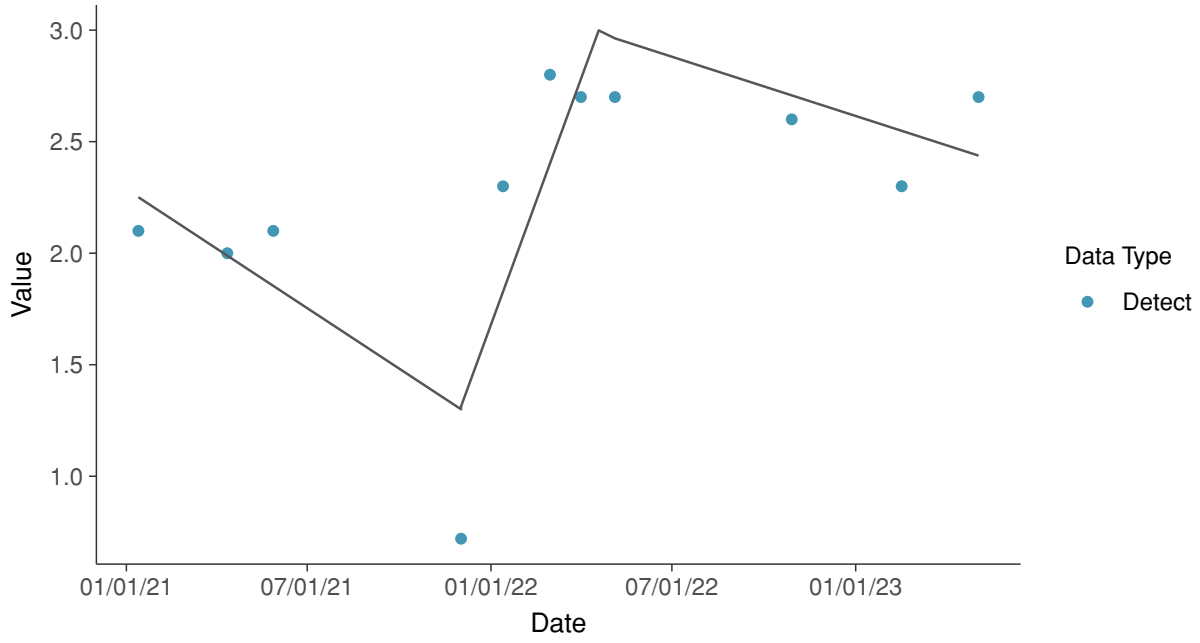
Trend Regression: Piecewise Linear-Linear

Lithium, W-12 (mg/l)



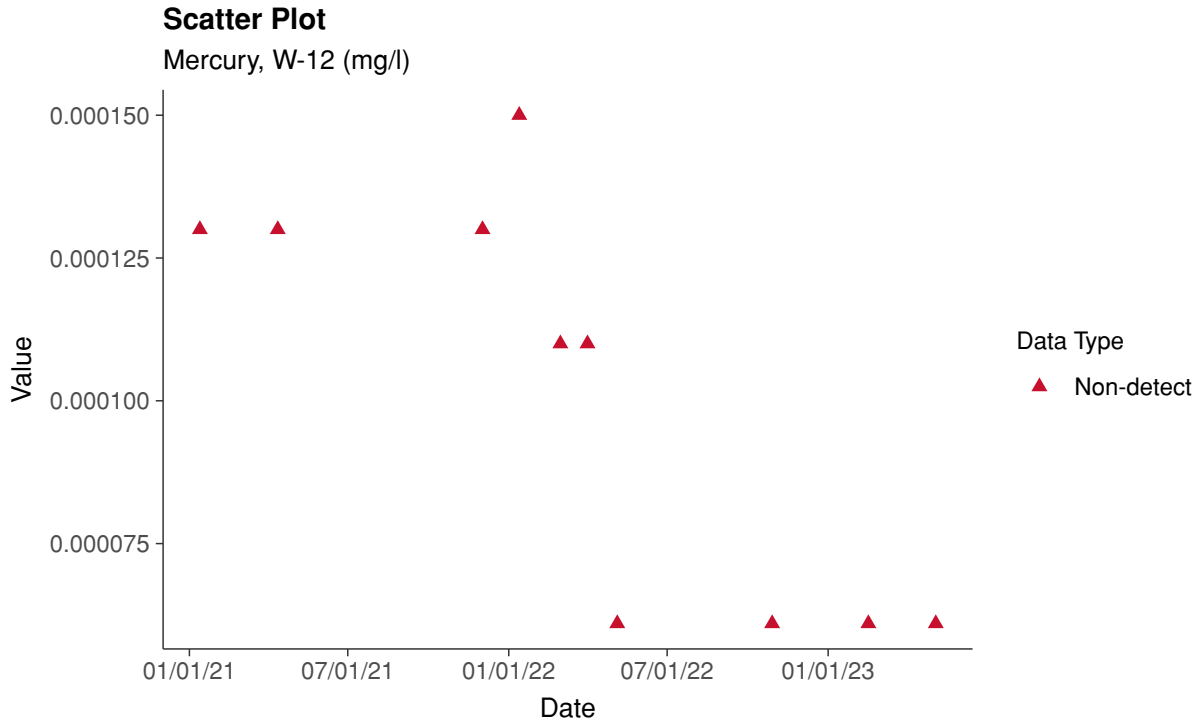
Trend Regression: Piecewise Linear-Linear-Linear

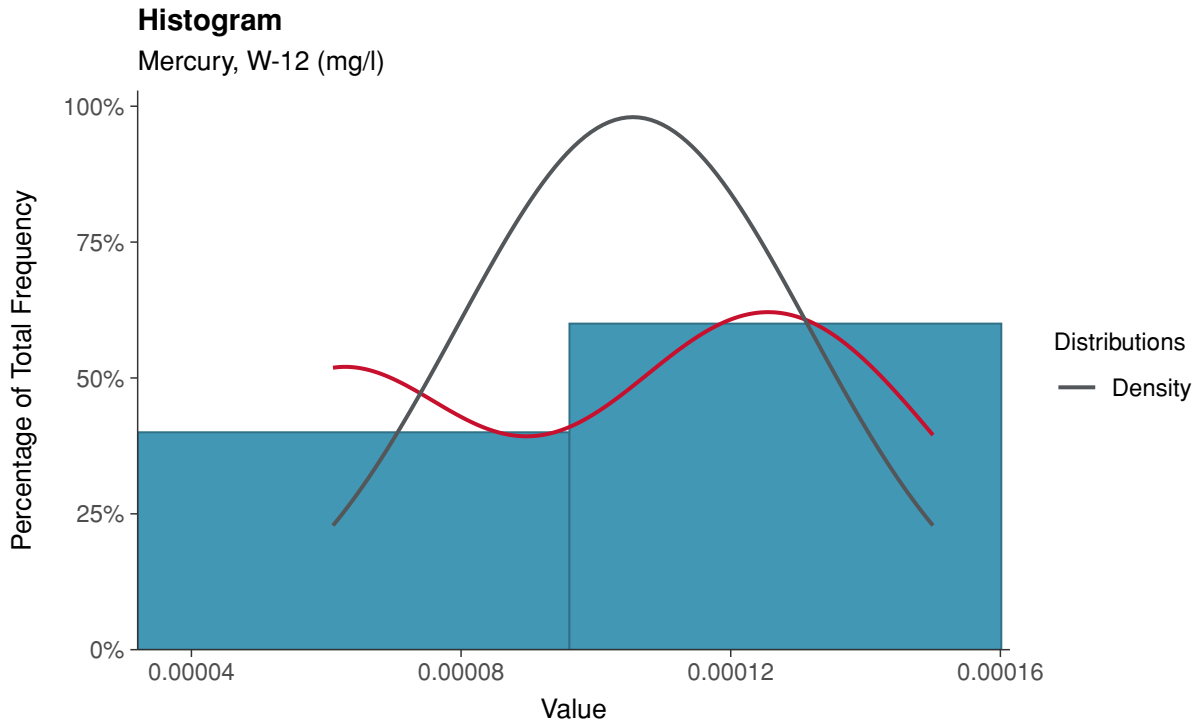
Lithium, W-12 (mg/l)



Appendix IV: Mercury, W-12

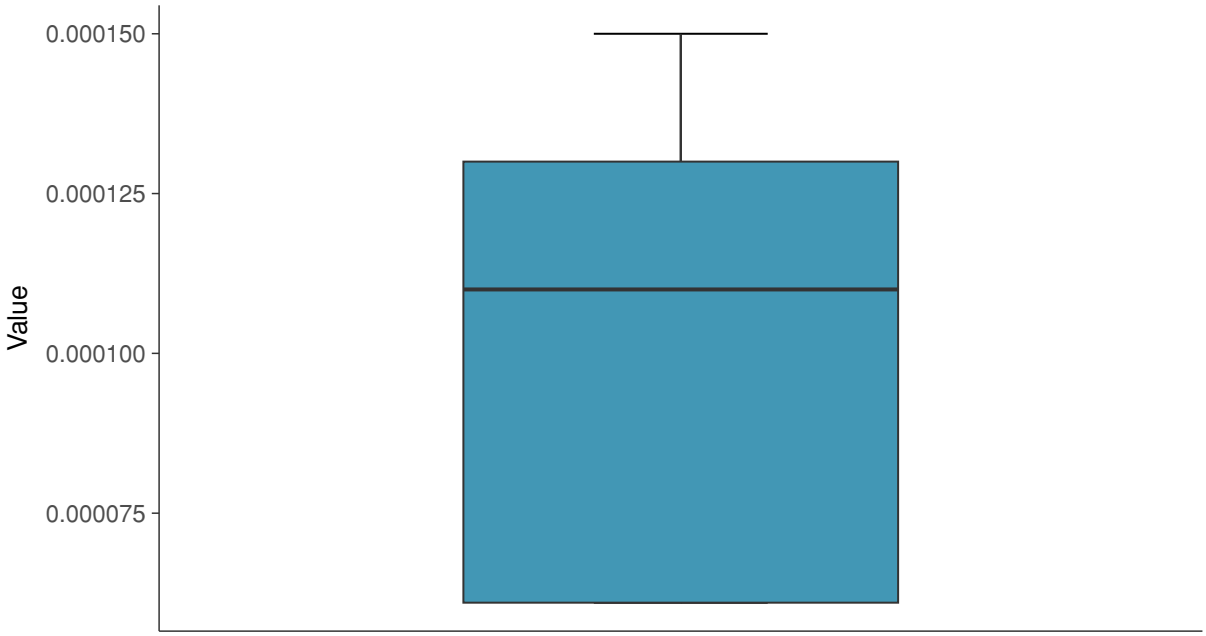
ID: 3_2_115





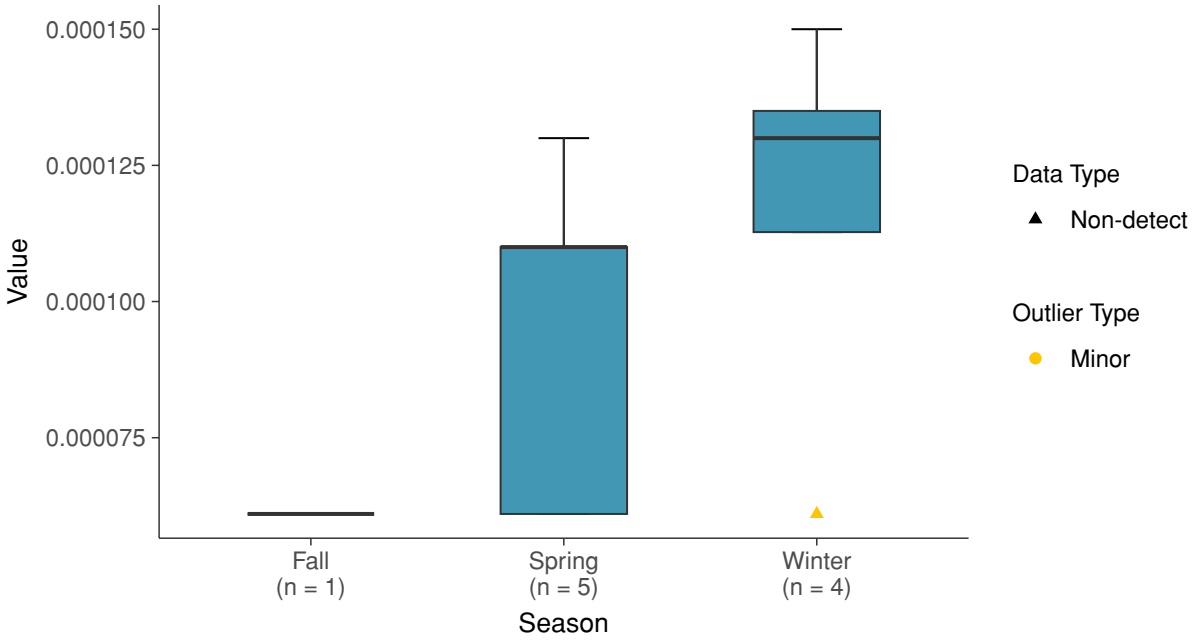
Boxplot

Mercury, W-12 (mg/l)



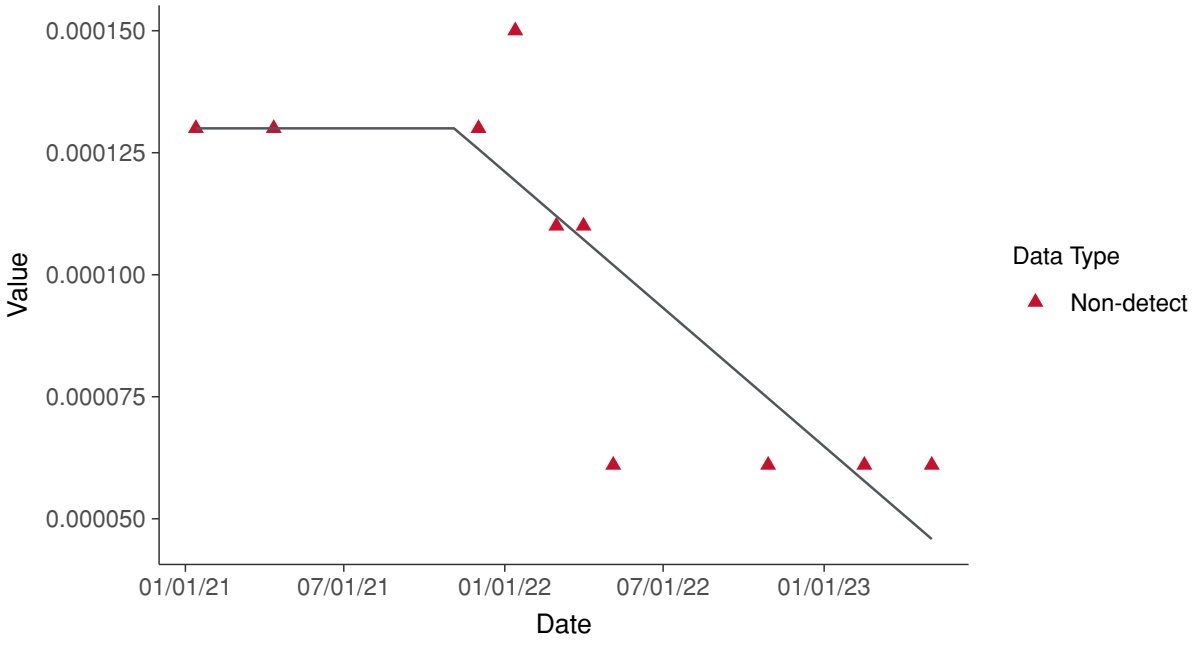
Boxplot by Season

Mercury, W-12 (mg/l)



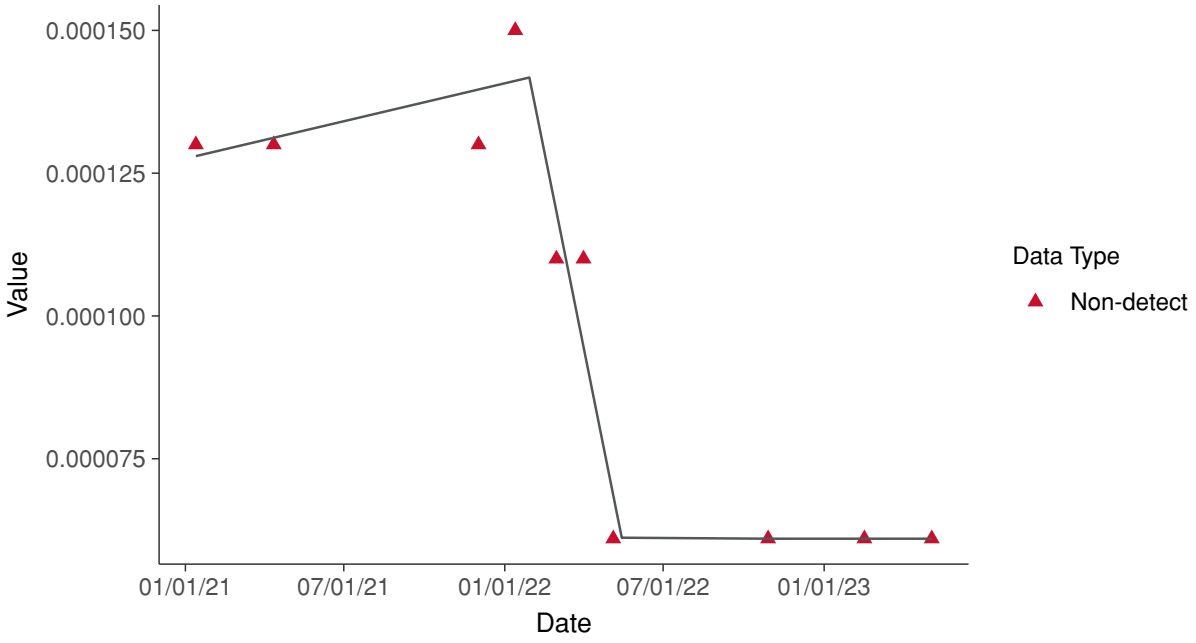
Trend Regression: Piecewise Linear-Linear

Mercury, W-12 (mg/l)



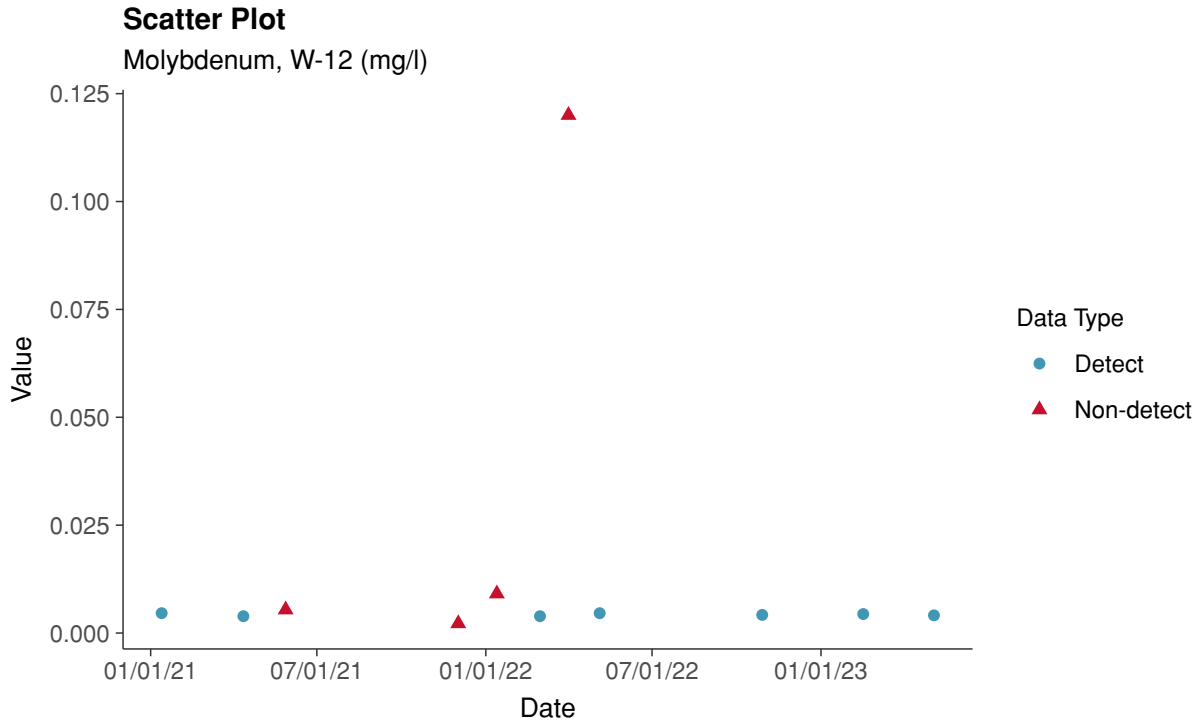
Trend Regression: Piecewise Linear-Linear-Linear

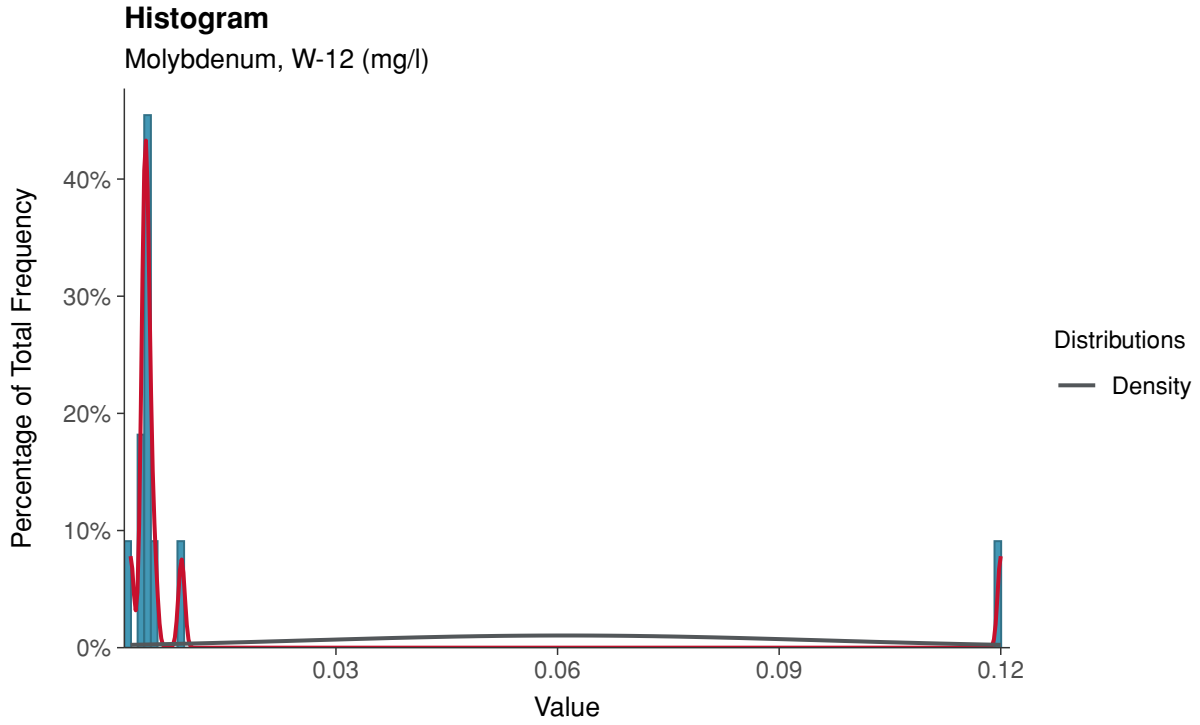
Mercury, W-12 (mg/l)



Appendix IV: Molybdenum, W-12

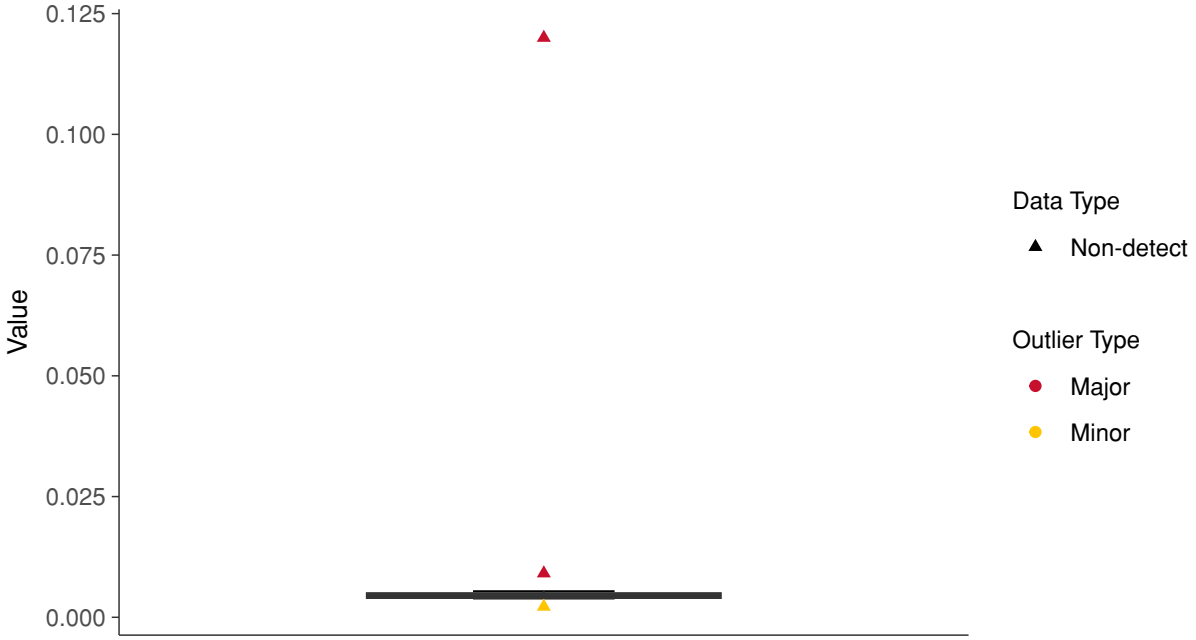
ID: 3_2_116





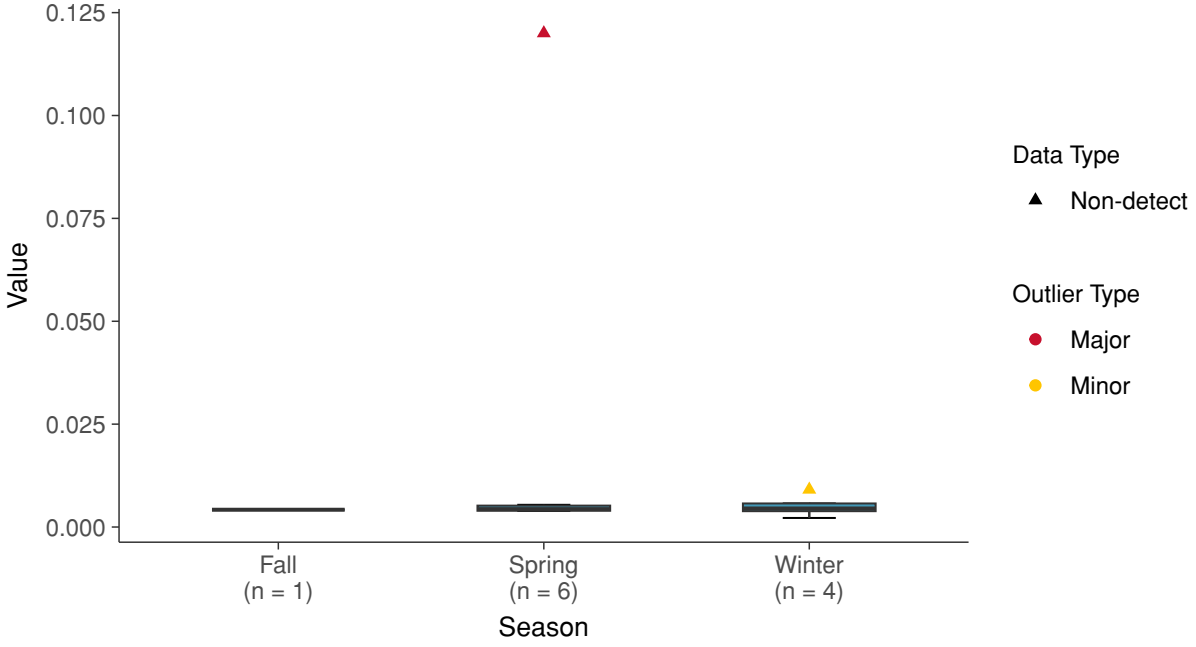
Boxplot

Molybdenum, W-12 (mg/l)



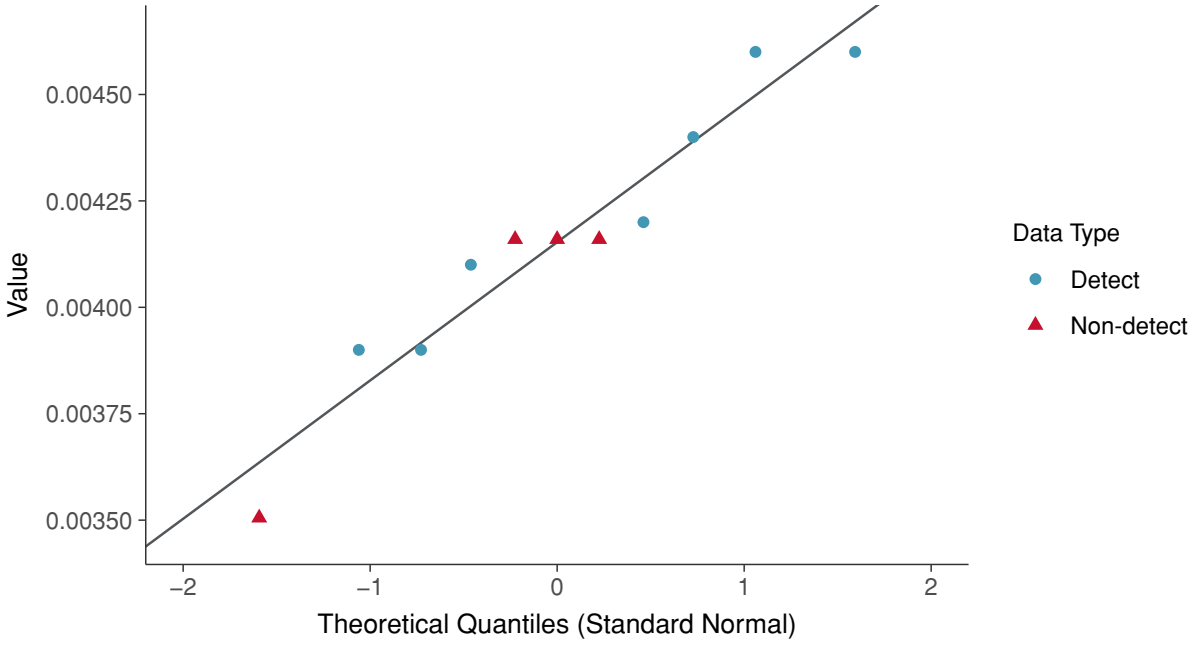
Boxplot by Season

Molybdenum, W-12 (mg/l)



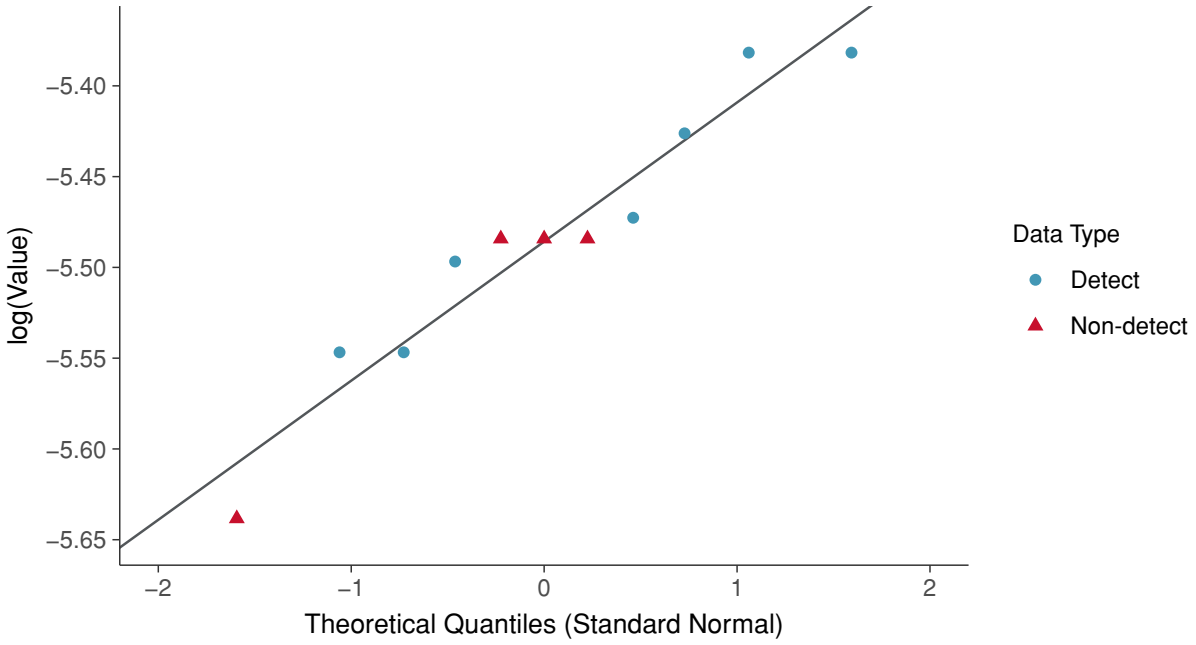
Normal Q-Q plot using ROS Imputed Estimates

Molybdenum, W-12 (mg/l)



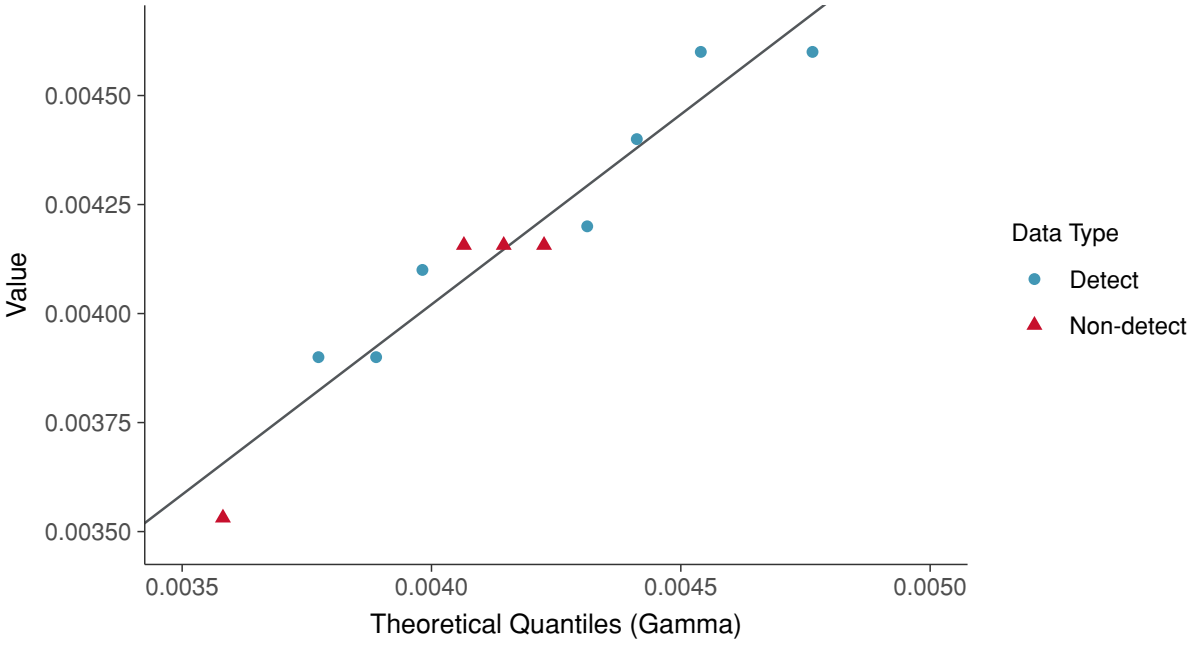
Lognormal Q-Q plot using ROS Imputed Estimates

Molybdenum, W-12 (mg/l)



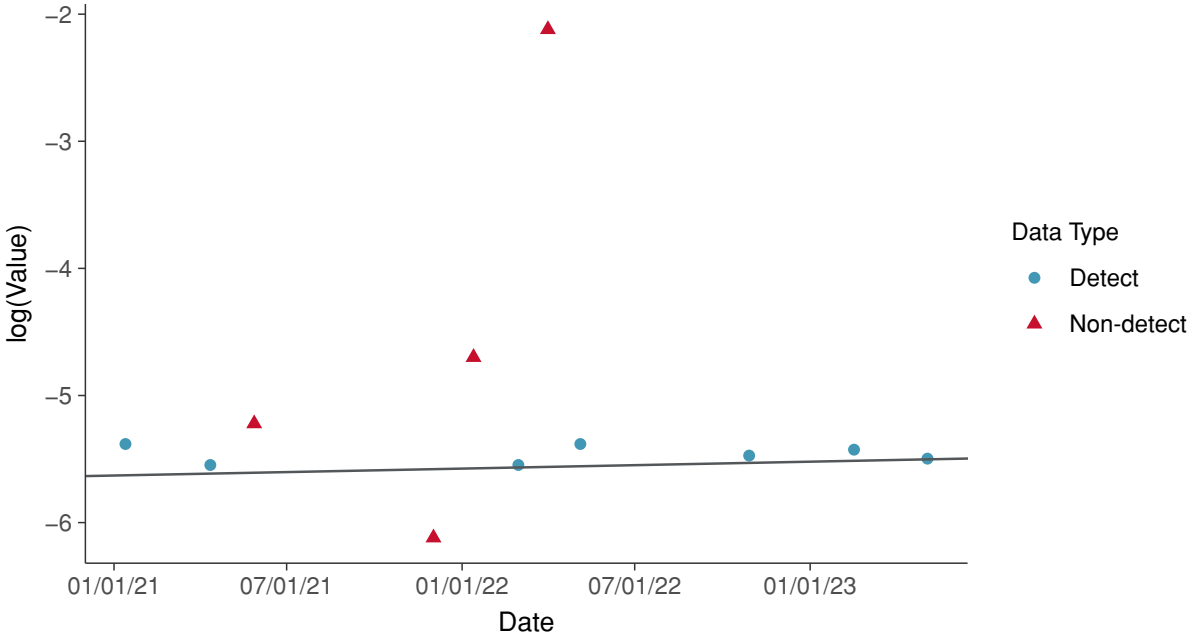
Gamma Q-Q plot using ROS Imputed Estimates

Molybdenum, W-12 (mg/l)



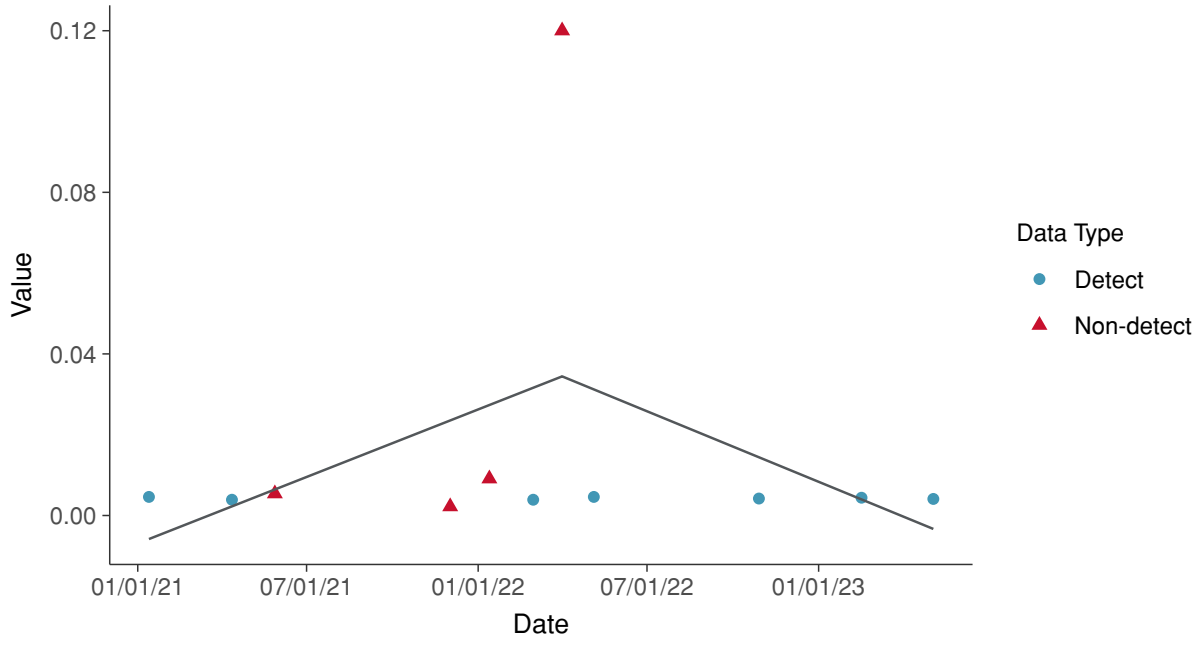
Trend Regression: Lognormal MLE

Molybdenum, W-12 (mg/l)



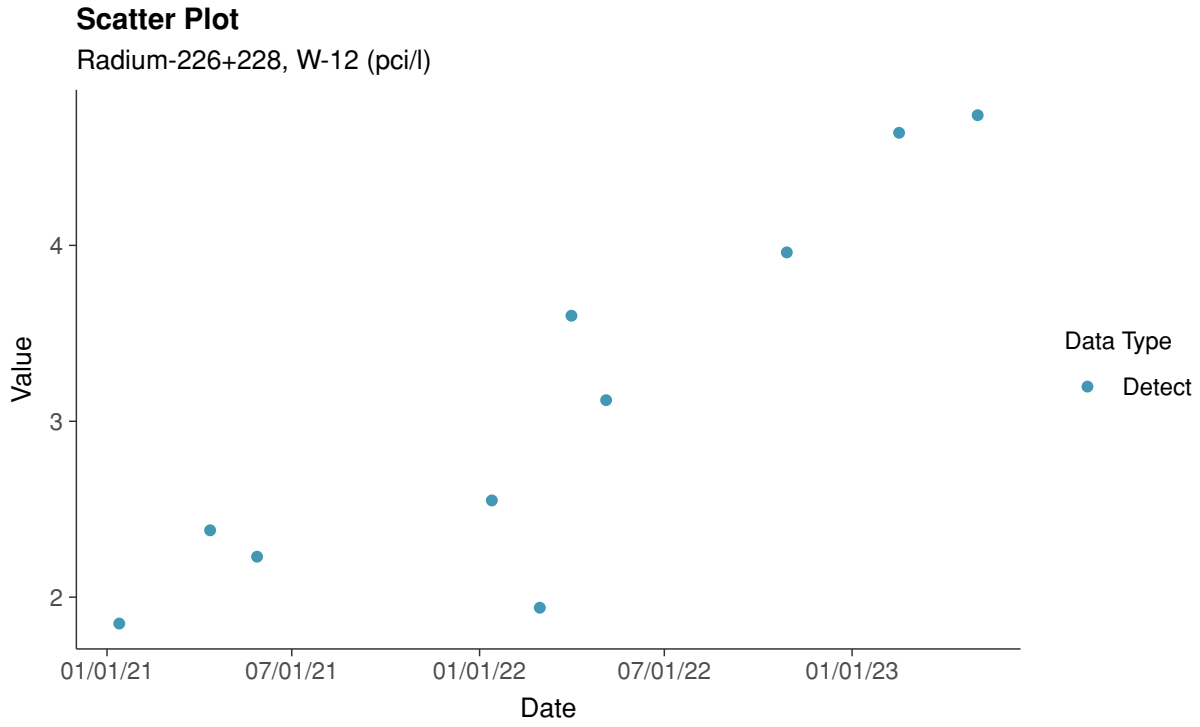
Trend Regression: Piecewise Linear-Linear

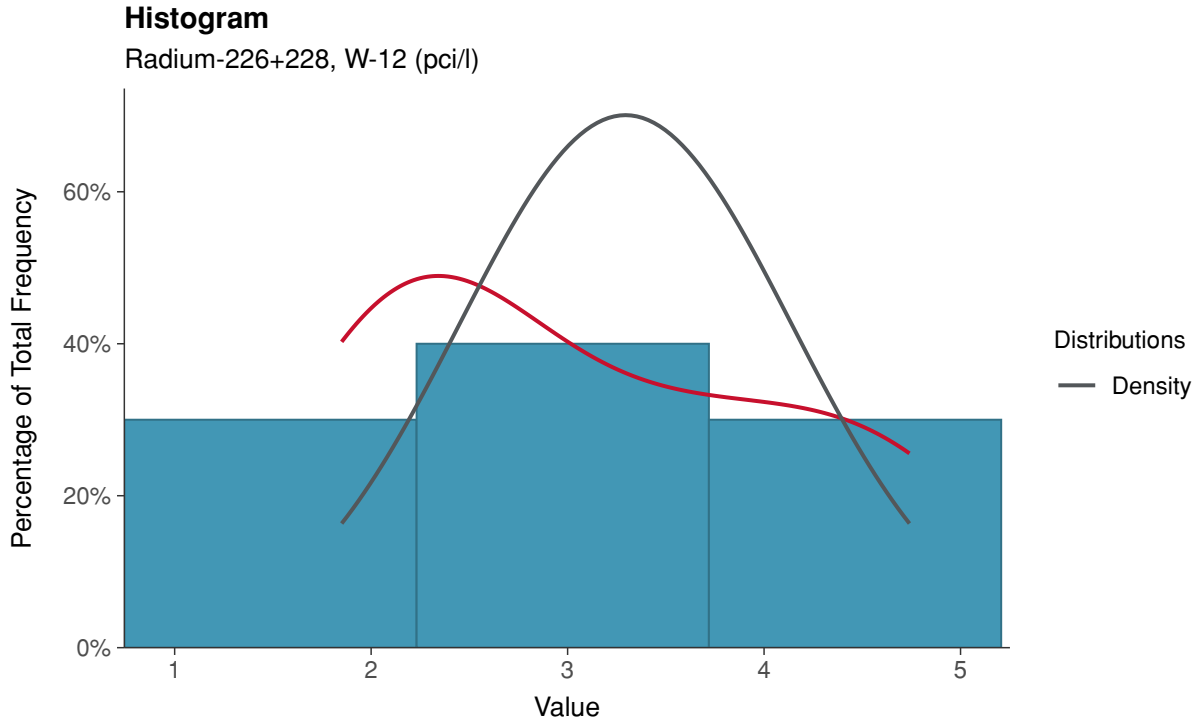
Molybdenum, W-12 (mg/l)



Appendix IV: Radium-226+228, W-12

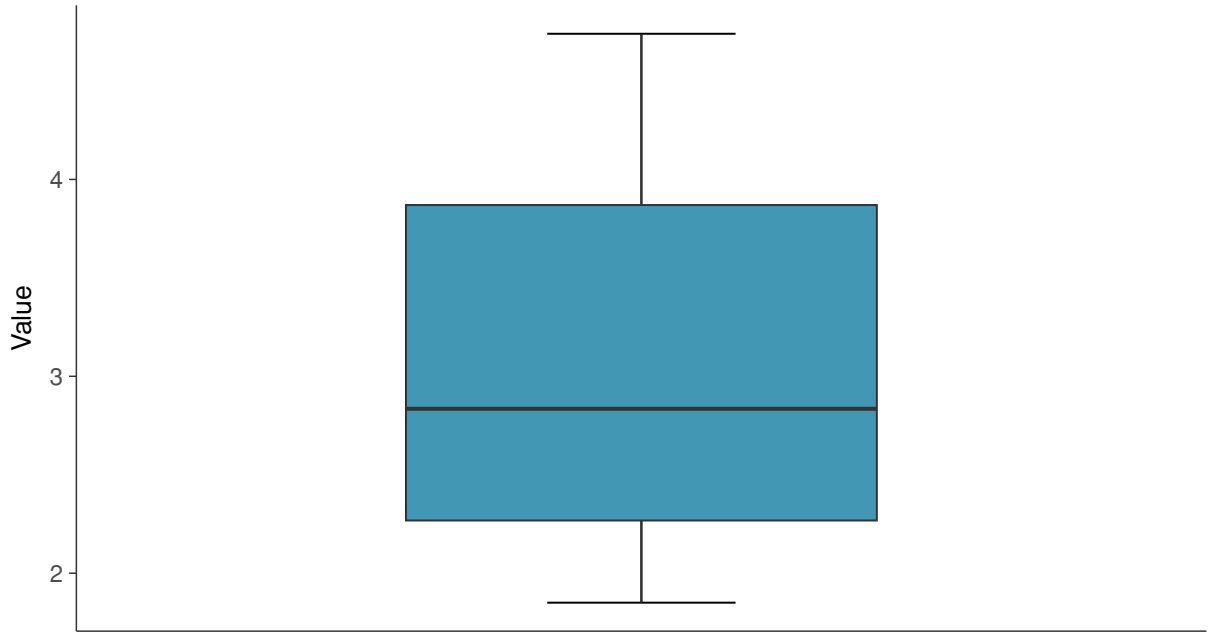
ID: 3_2_120





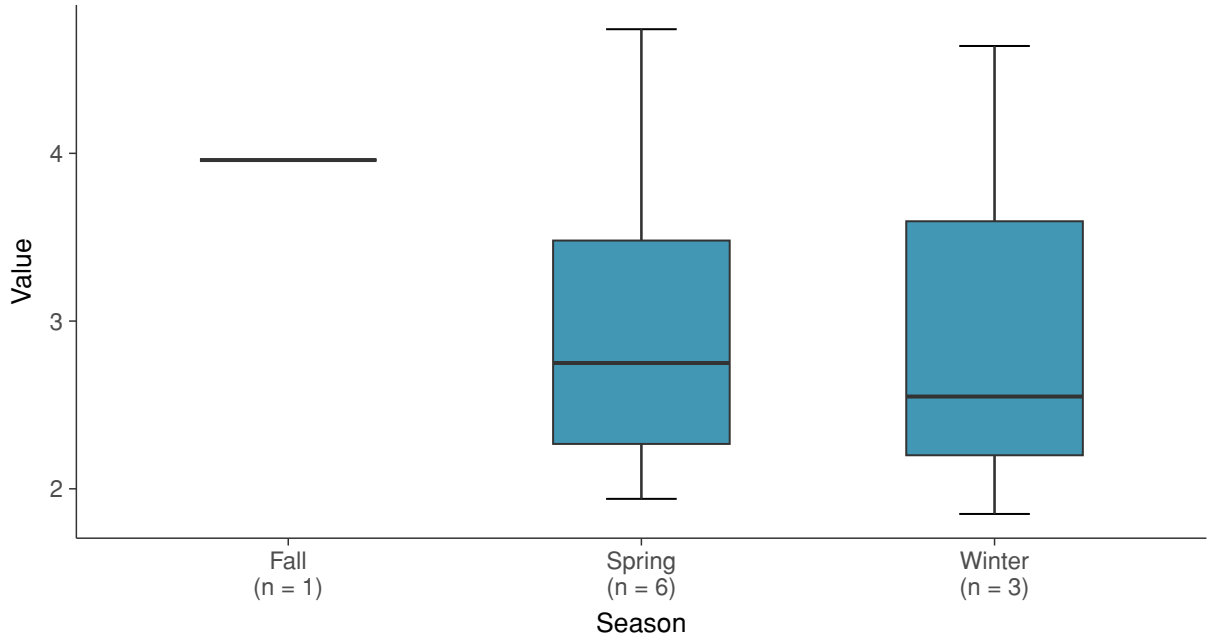
Boxplot

Radium-226+228, W-12 (pci/l)



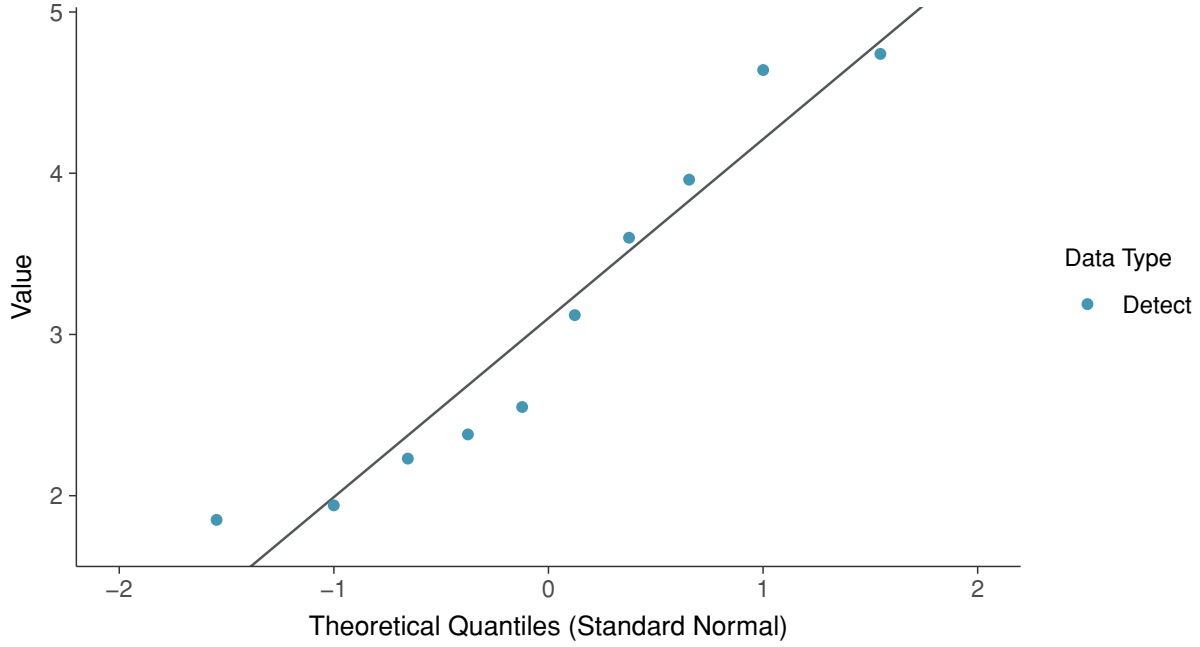
Boxplot by Season

Radium-226+228, W-12 (pci/l)



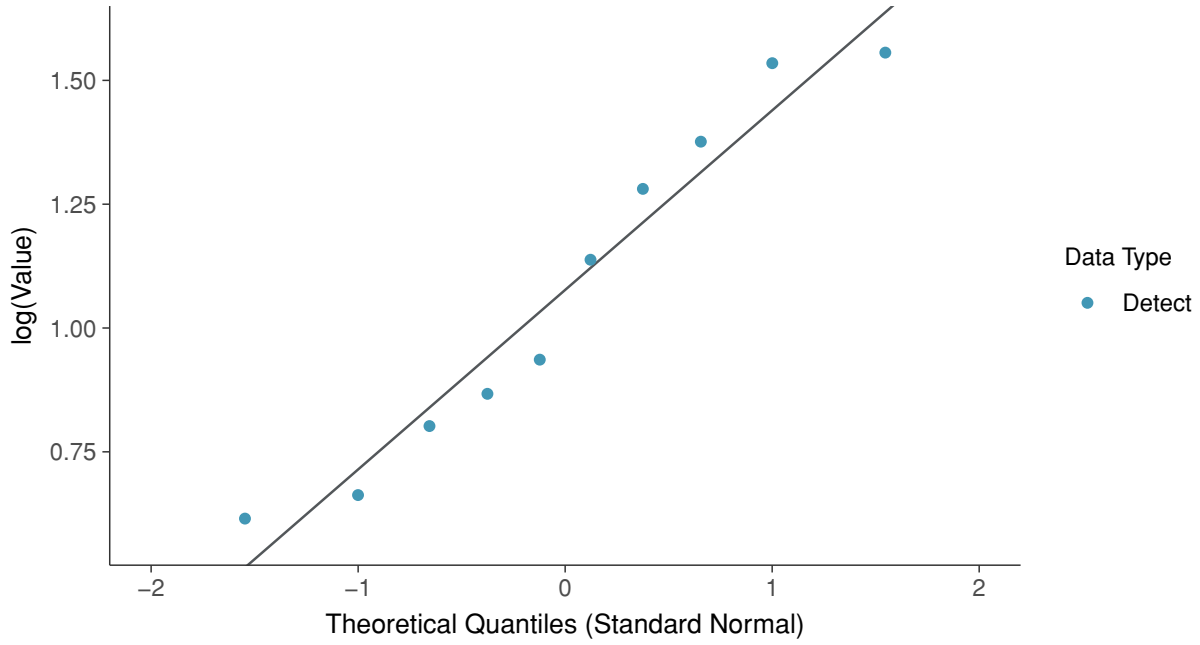
Normal Q-Q plot

Radium-226+228, W-12 (pci/l)



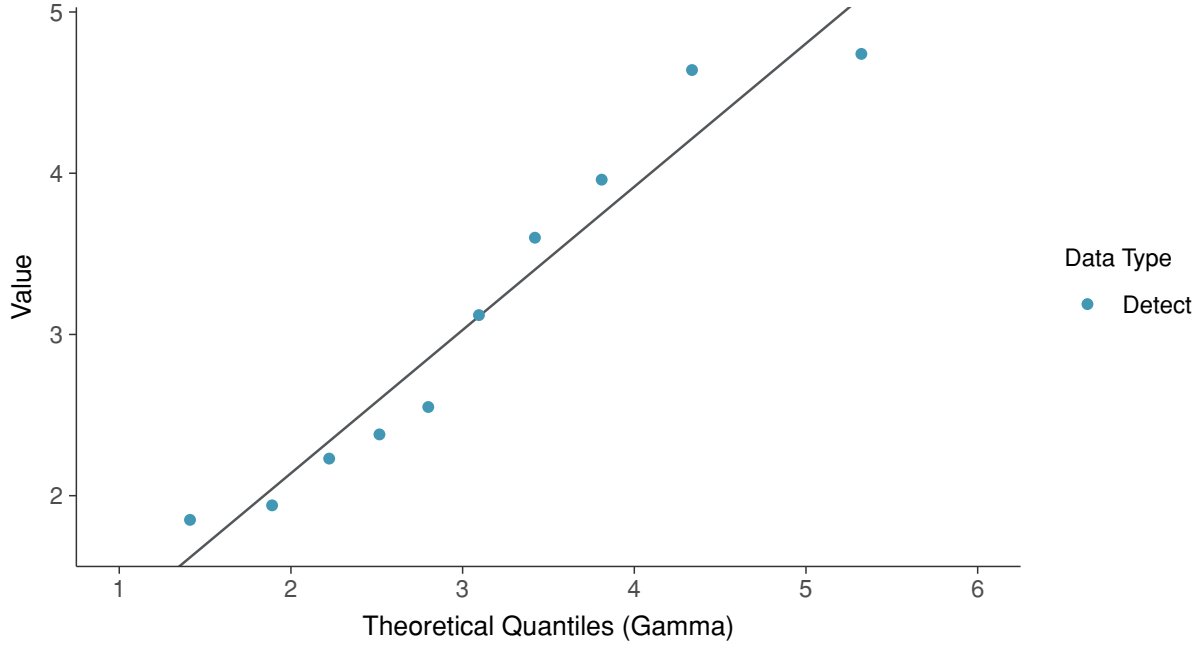
Lognormal Q-Q plot

Radium-226+228, W-12 (pci/l)



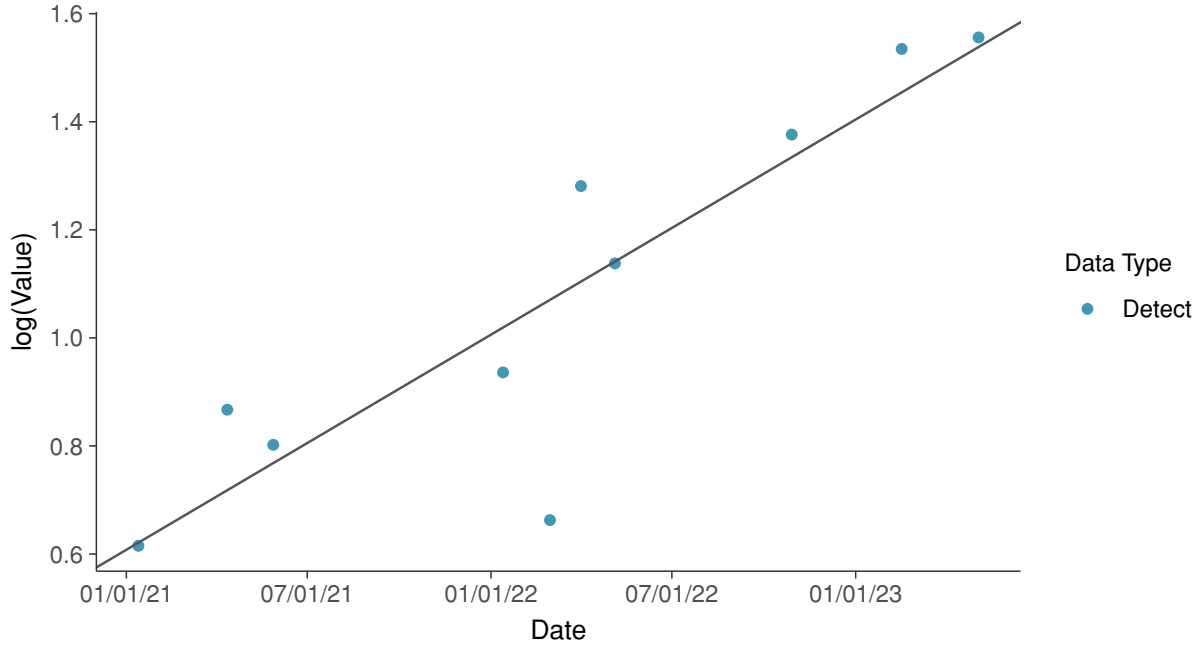
Gamma Q-Q plot

Radium-226+228, W-12 (pci/l)



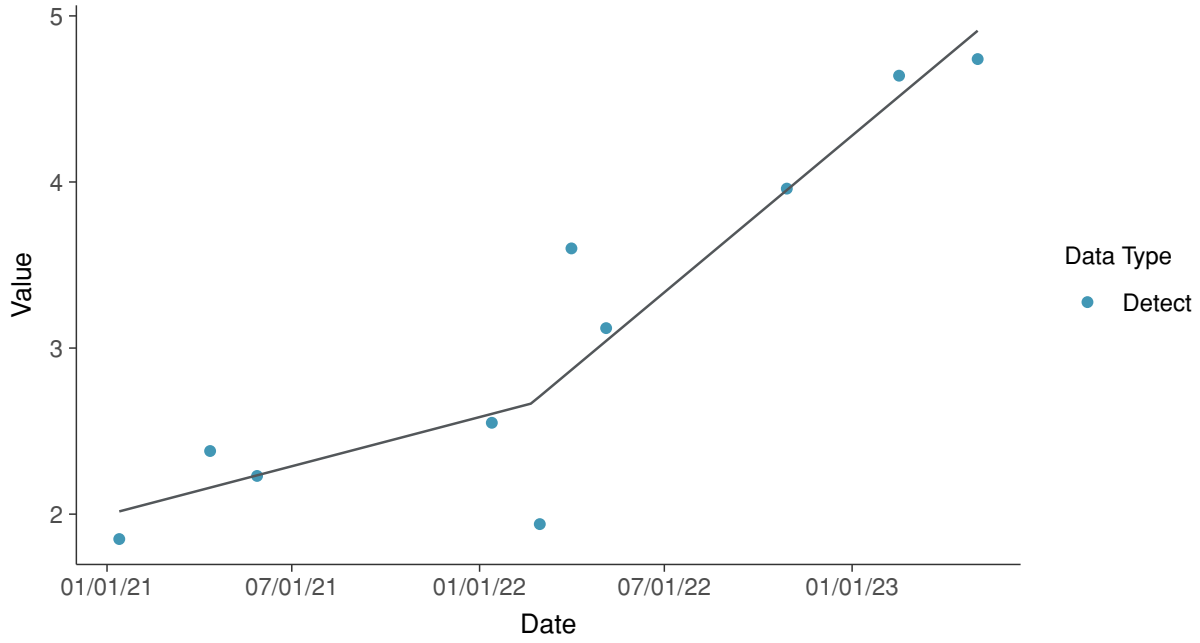
Trend Regression: Lognormal MLE

Radium-226+228, W-12 (pci/l)



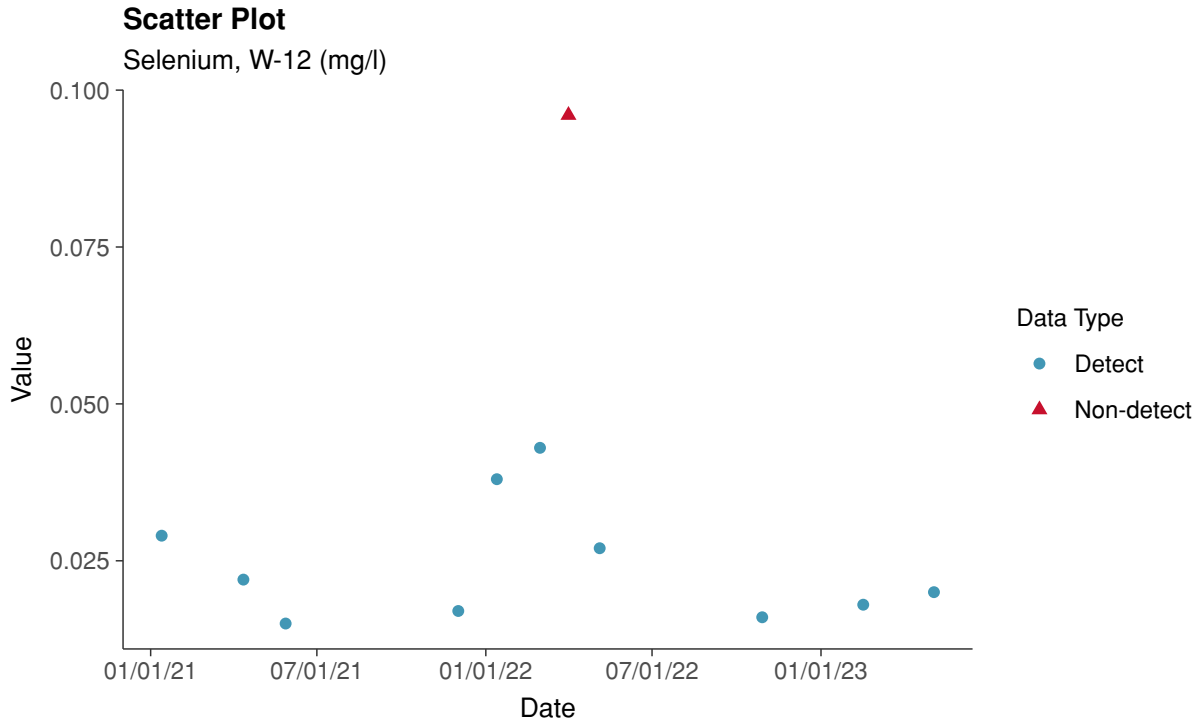
Trend Regression: Piecewise Linear-Linear

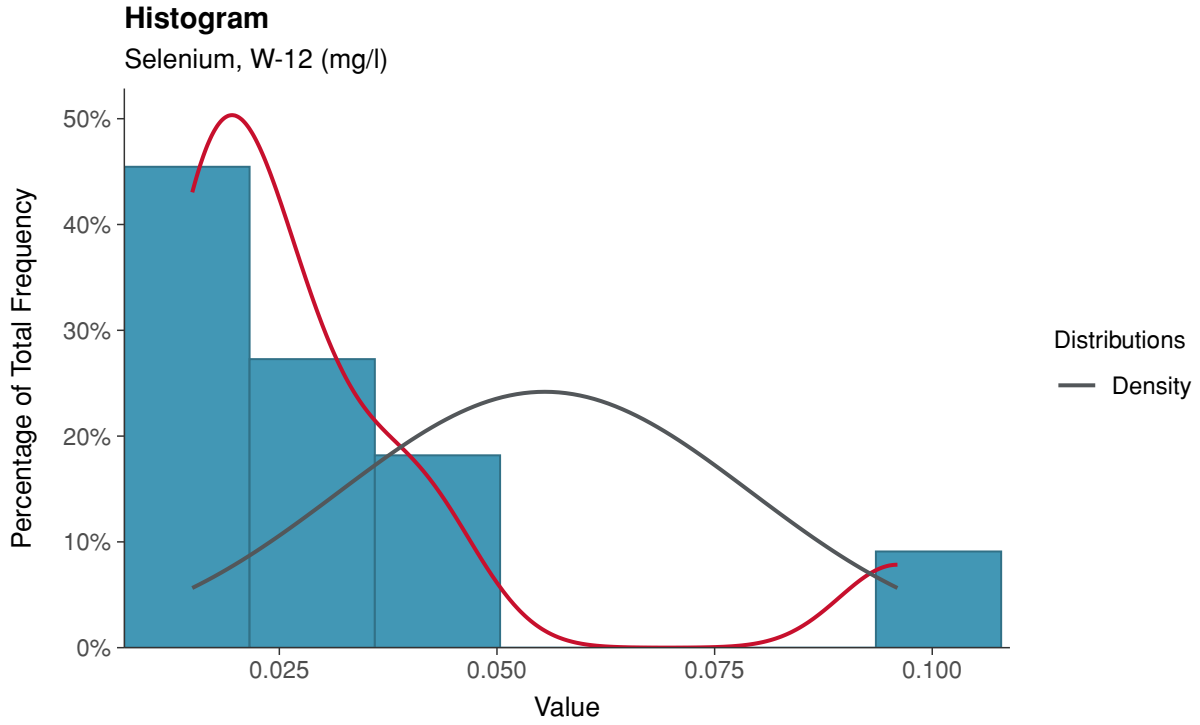
Radium-226+228, W-12 (pci/l)



Appendix IV: Selenium, W-12

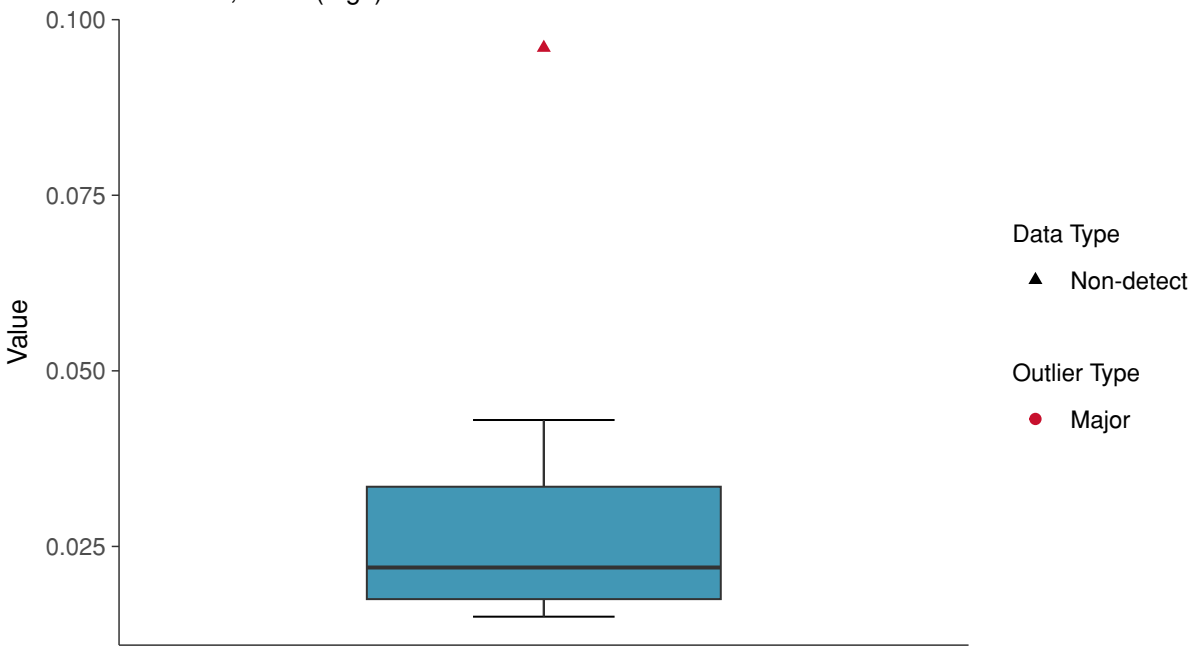
ID: 3_2_122





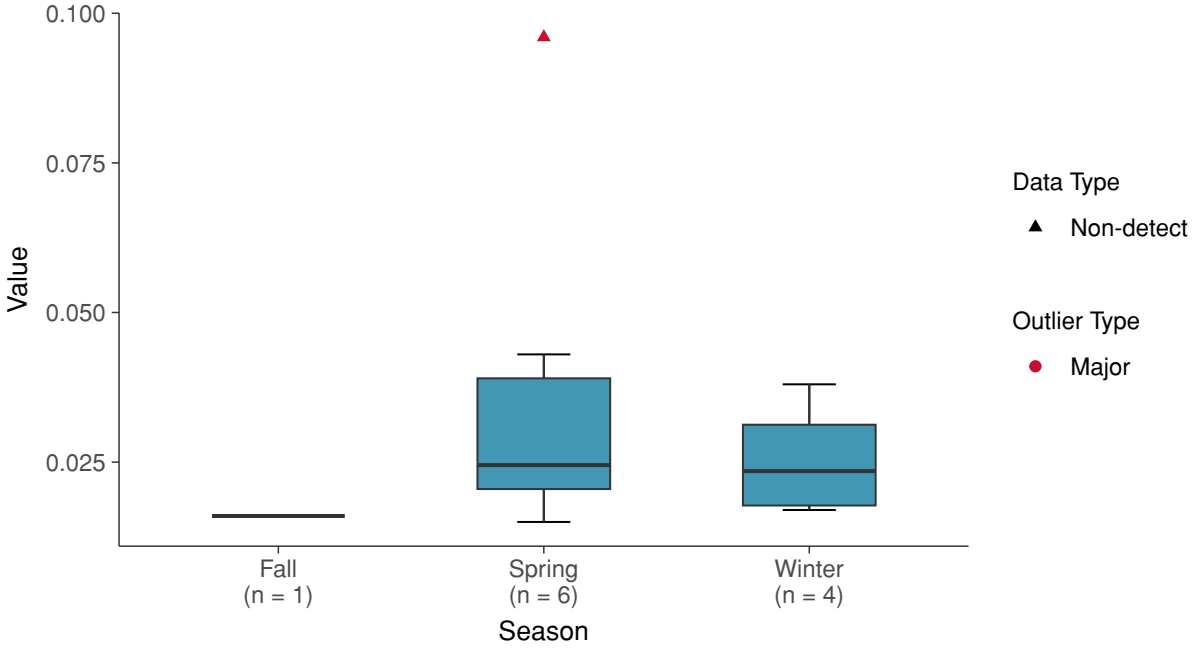
Boxplot

Selenium, W-12 (mg/l)



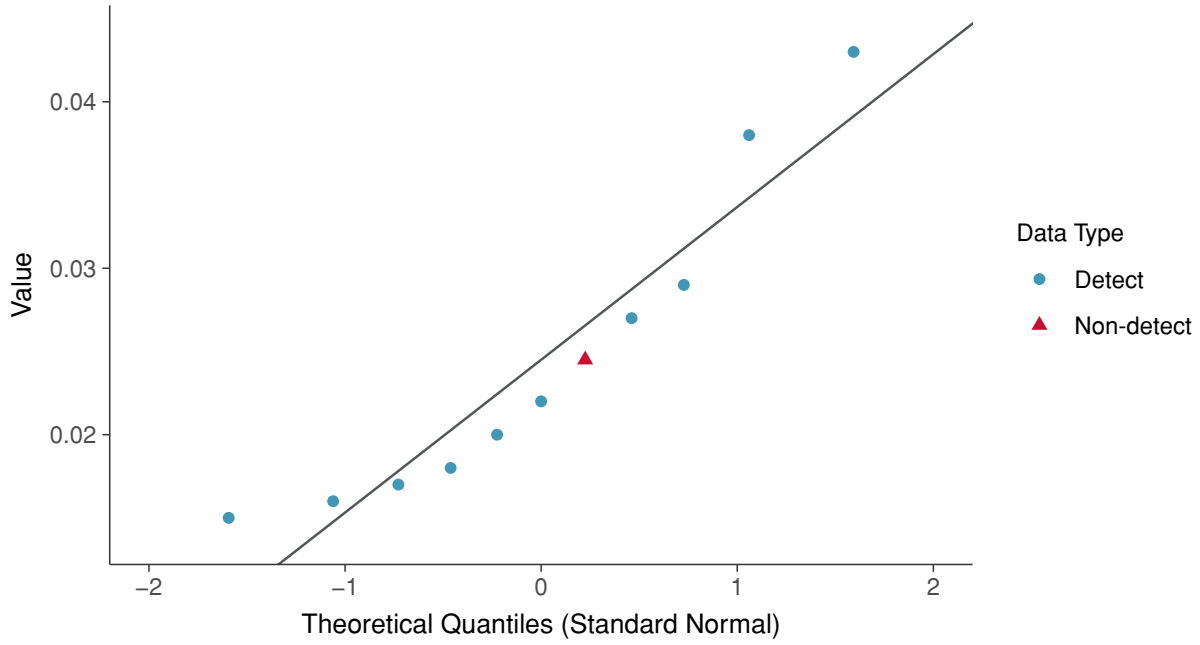
Boxplot by Season

Selenium, W-12 (mg/l)



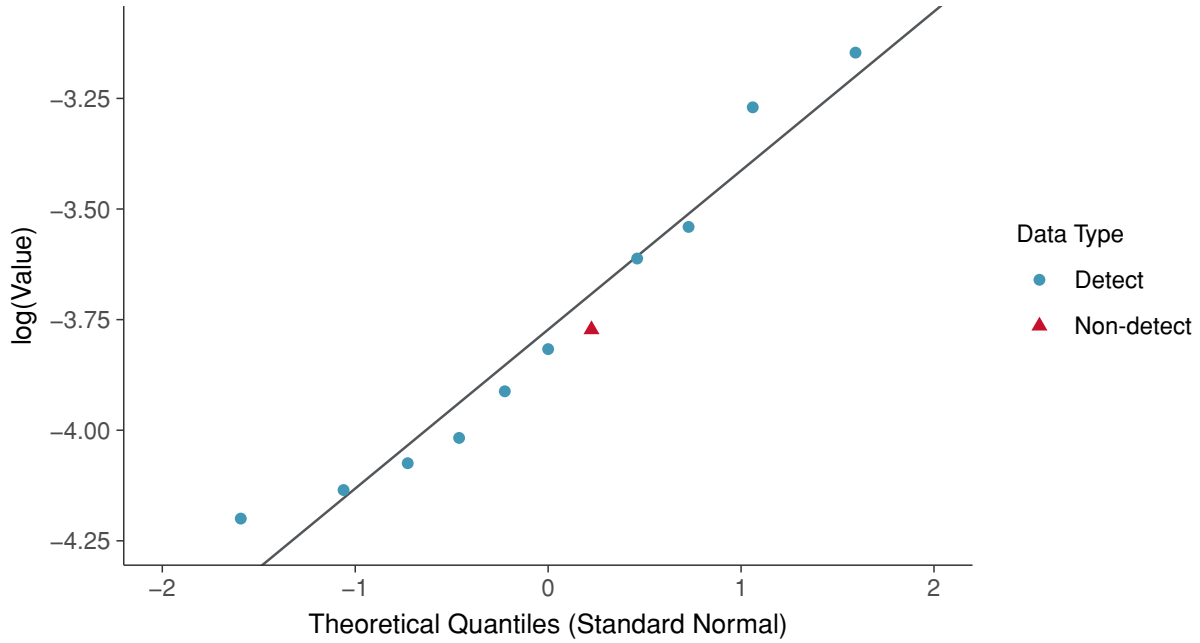
Normal Q-Q plot using ROS Imputed Estimates

Selenium, W-12 (mg/l)



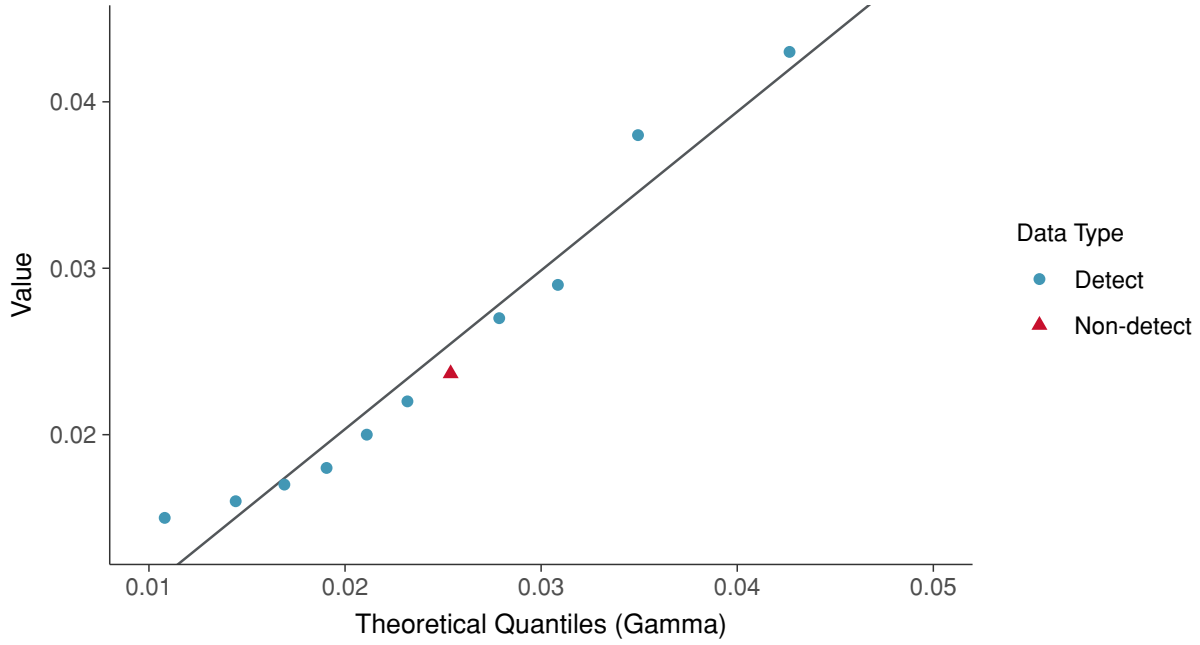
Lognormal Q-Q plot using ROS Imputed Estimates

Selenium, W-12 (mg/l)



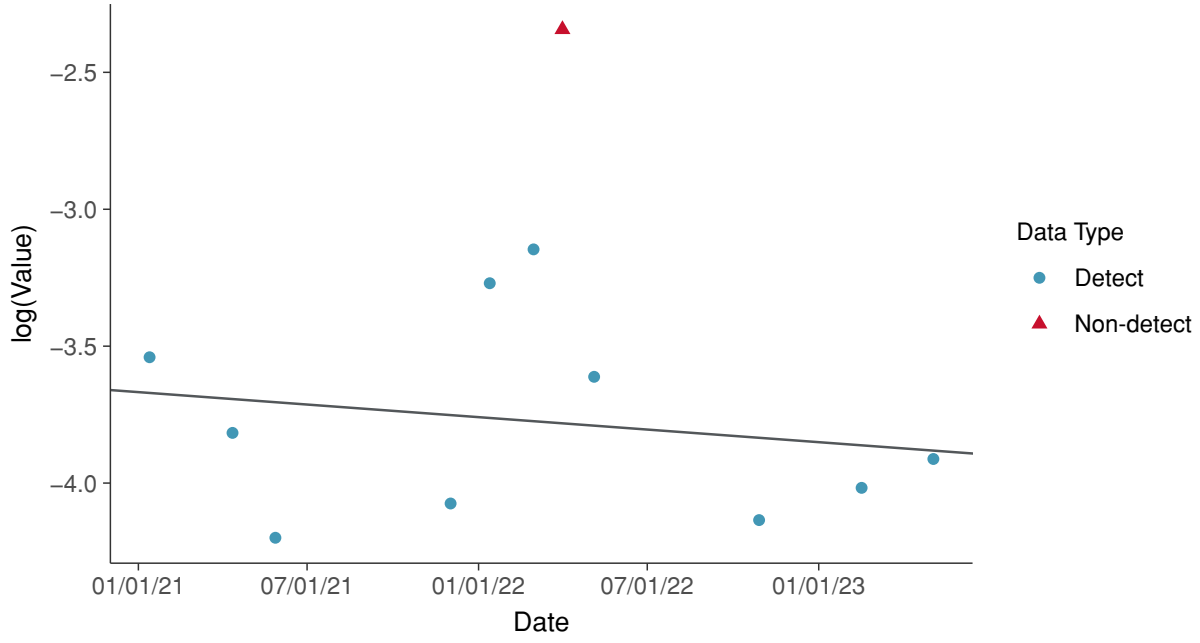
Gamma Q-Q plot using ROS Imputed Estimates

Selenium, W-12 (mg/l)



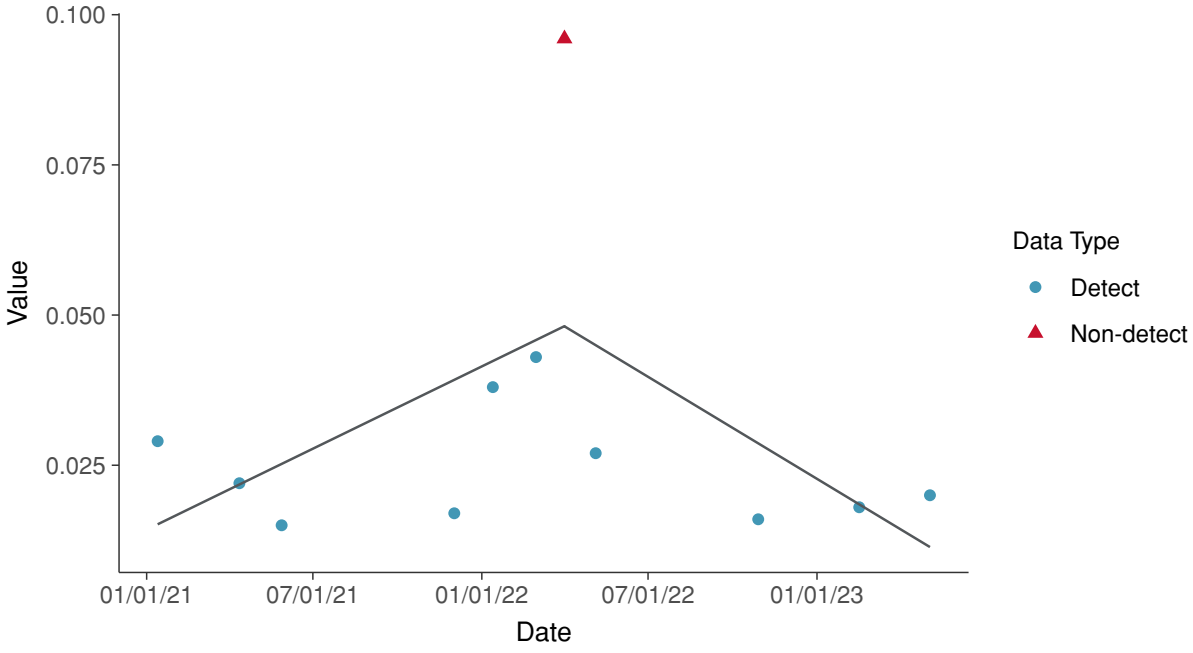
Trend Regression: Lognormal MLE

Selenium, W-12 (mg/l)



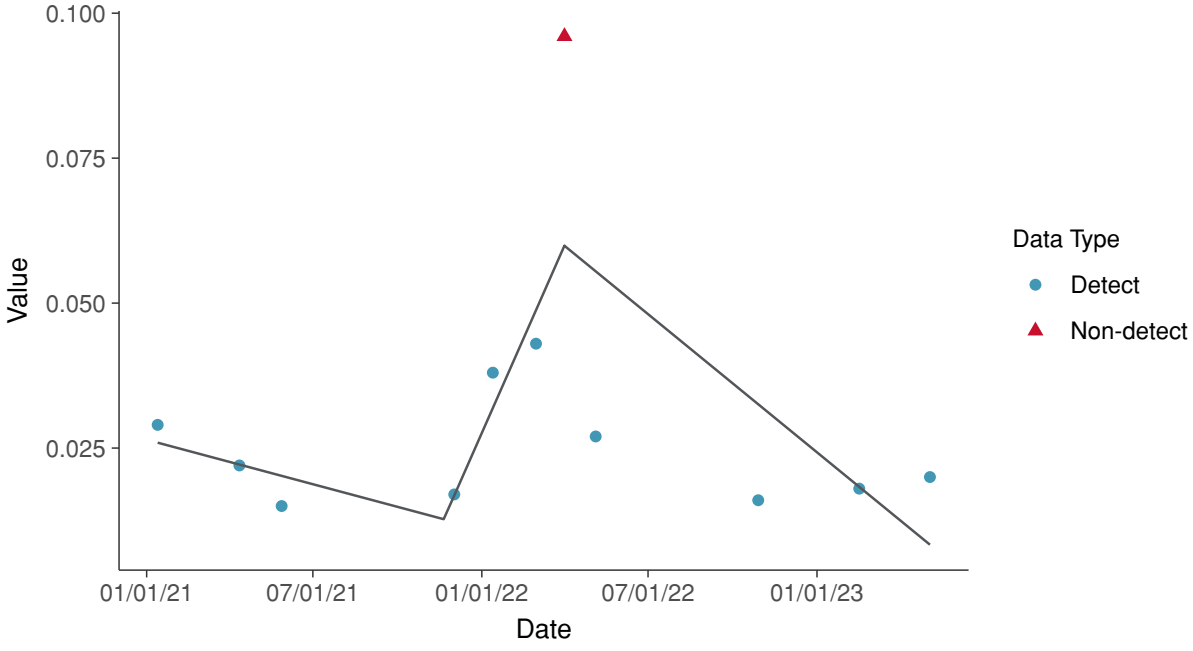
Trend Regression: Piecewise Linear-Linear

Selenium, W-12 (mg/l)



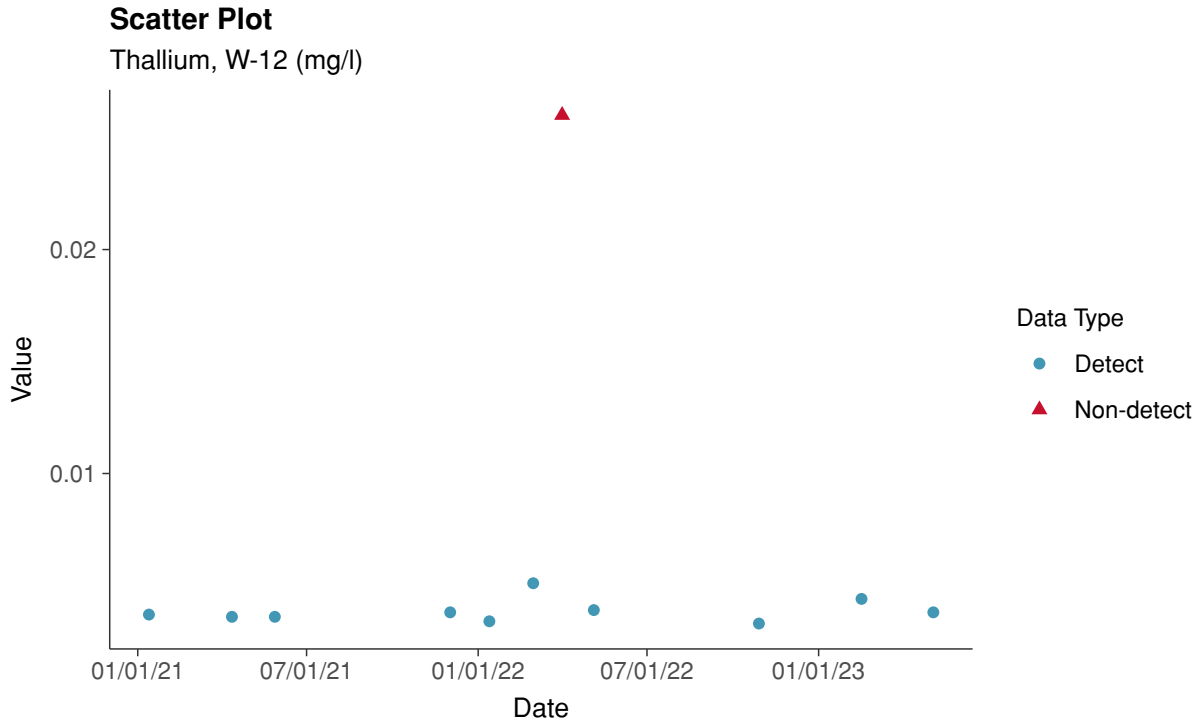
Trend Regression: Piecewise Linear-Linear-Linear

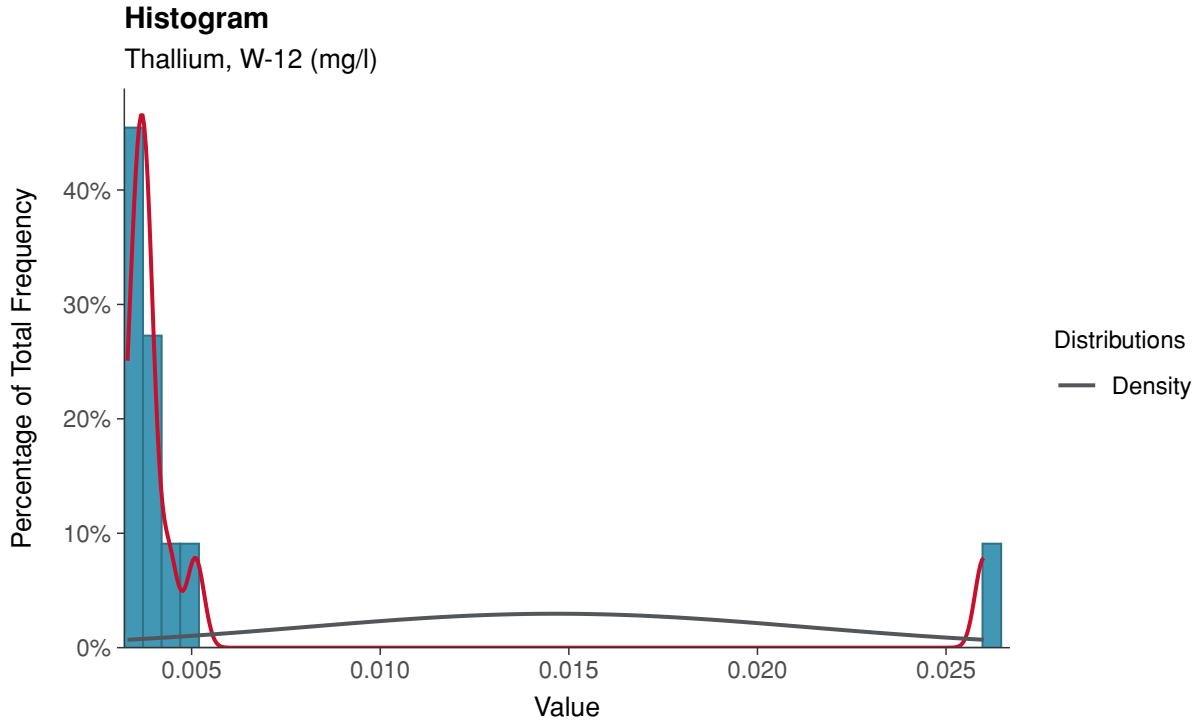
Selenium, W-12 (mg/l)



Appendix IV: Thallium, W-12

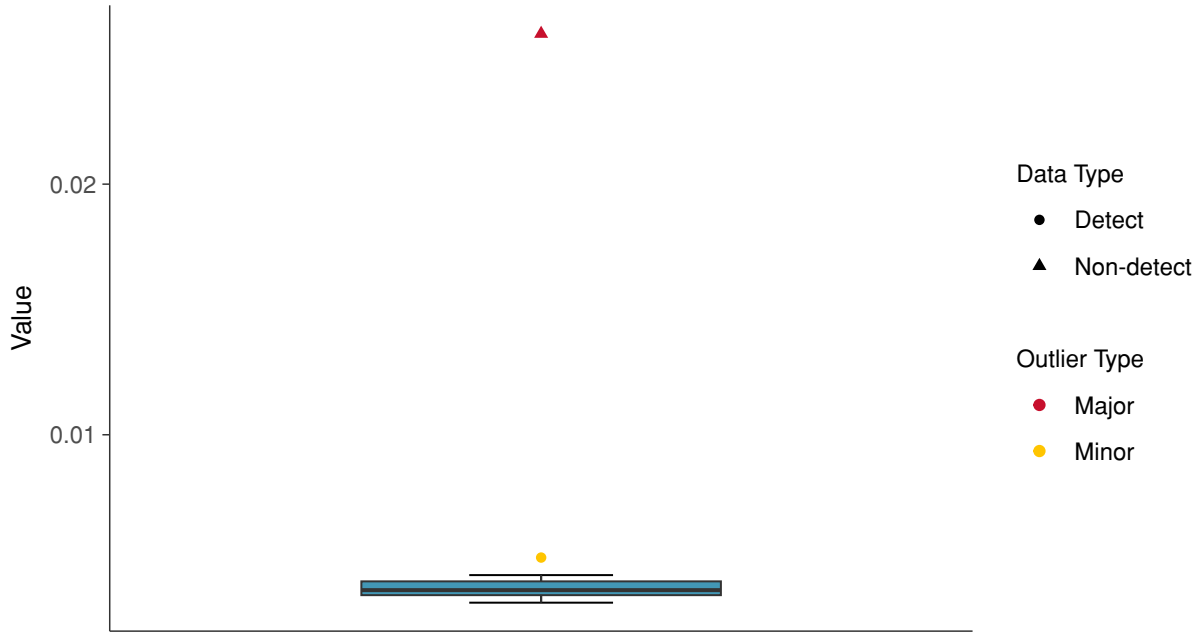
ID: 3_2_126





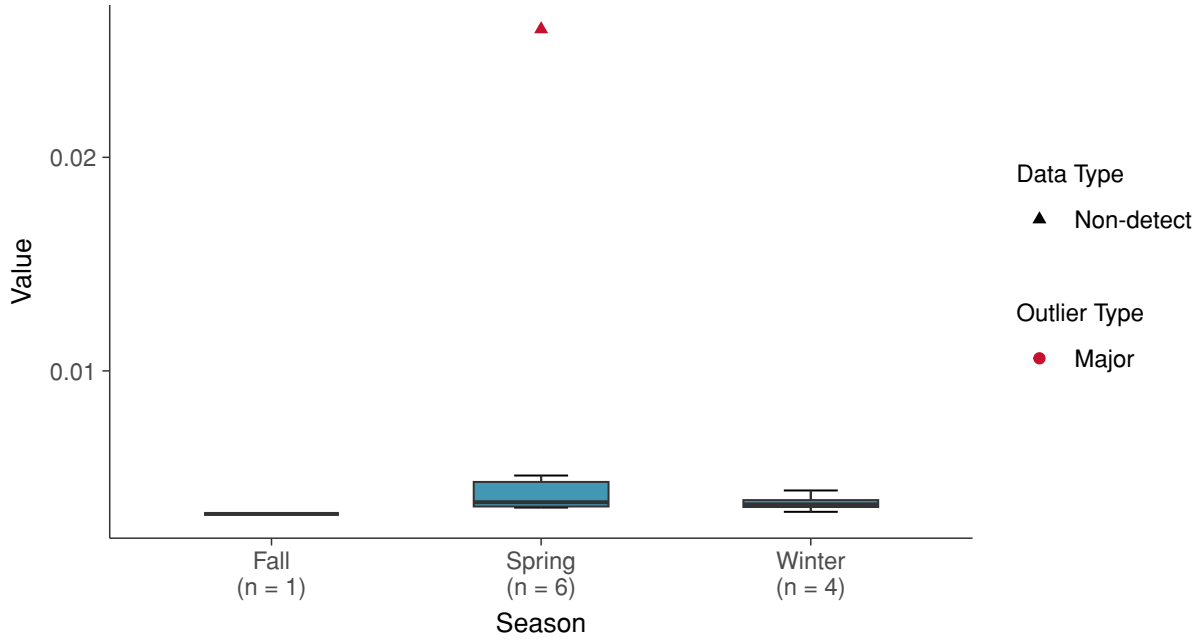
Boxplot

Thallium, W-12 (mg/l)



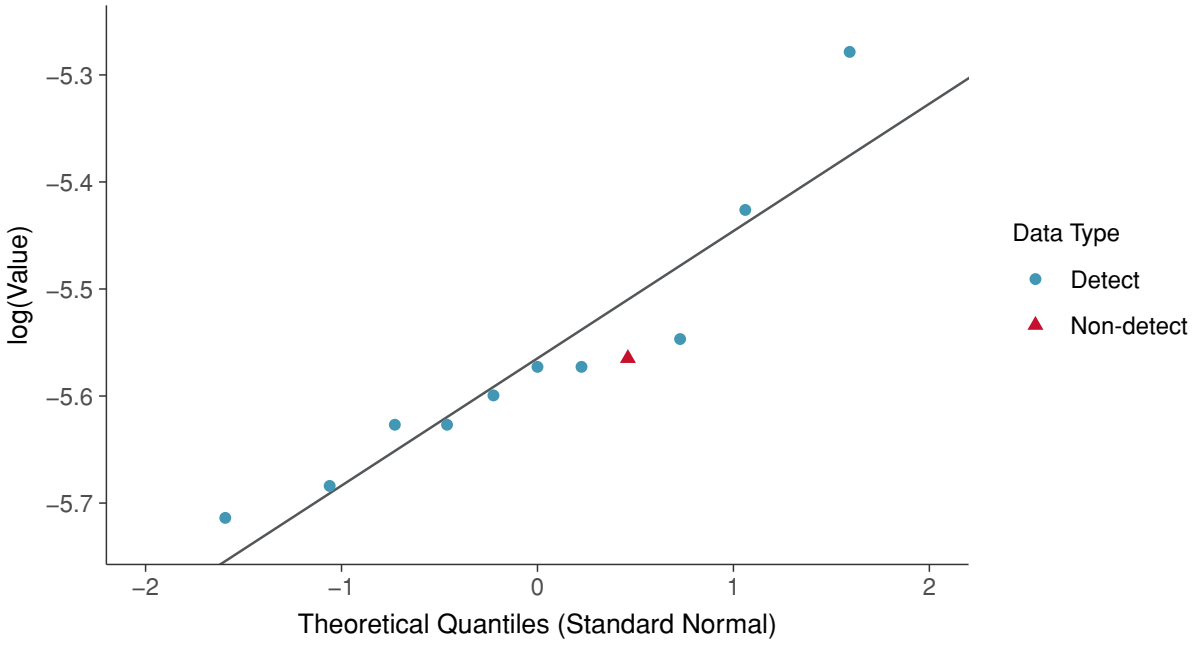
Boxplot by Season

Thallium, W-12 (mg/l)



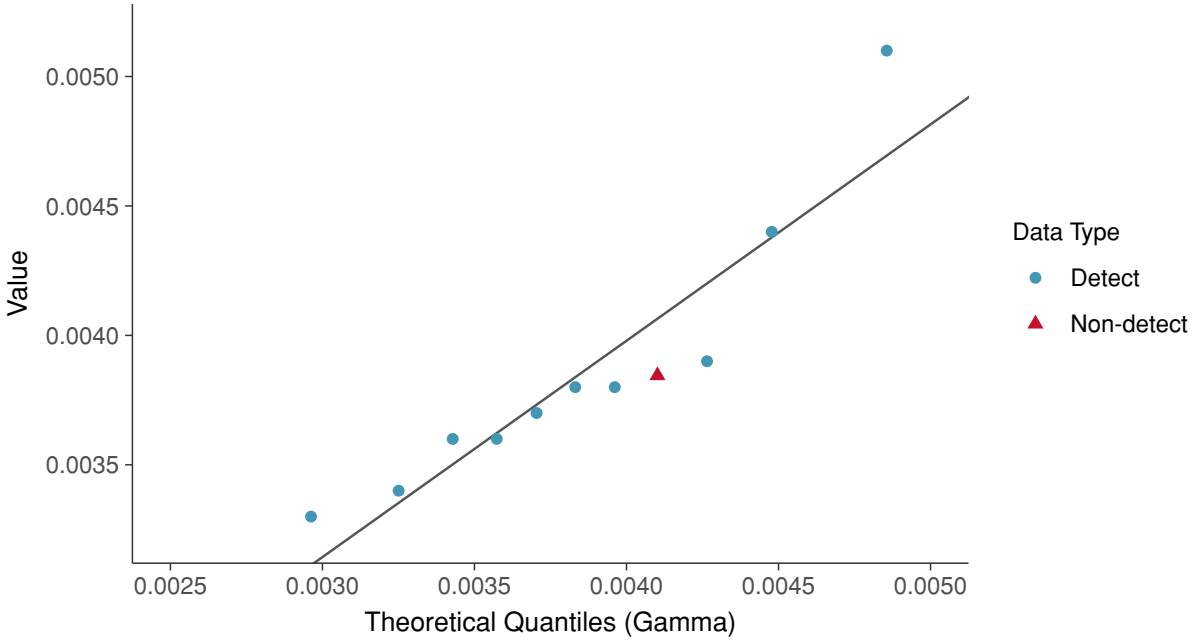
Lognormal Q-Q plot using ROS Imputed Estimates

Thallium, W-12 (mg/l)



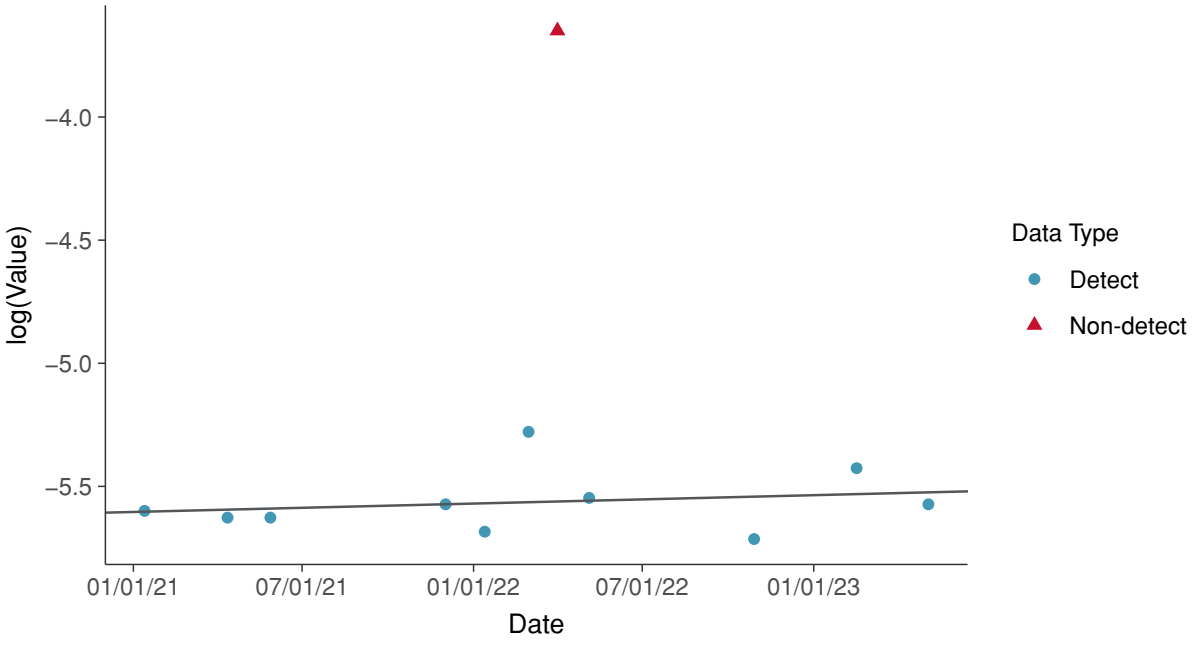
Gamma Q-Q plot using ROS Imputed Estimates

Thallium, W-12 (mg/l)



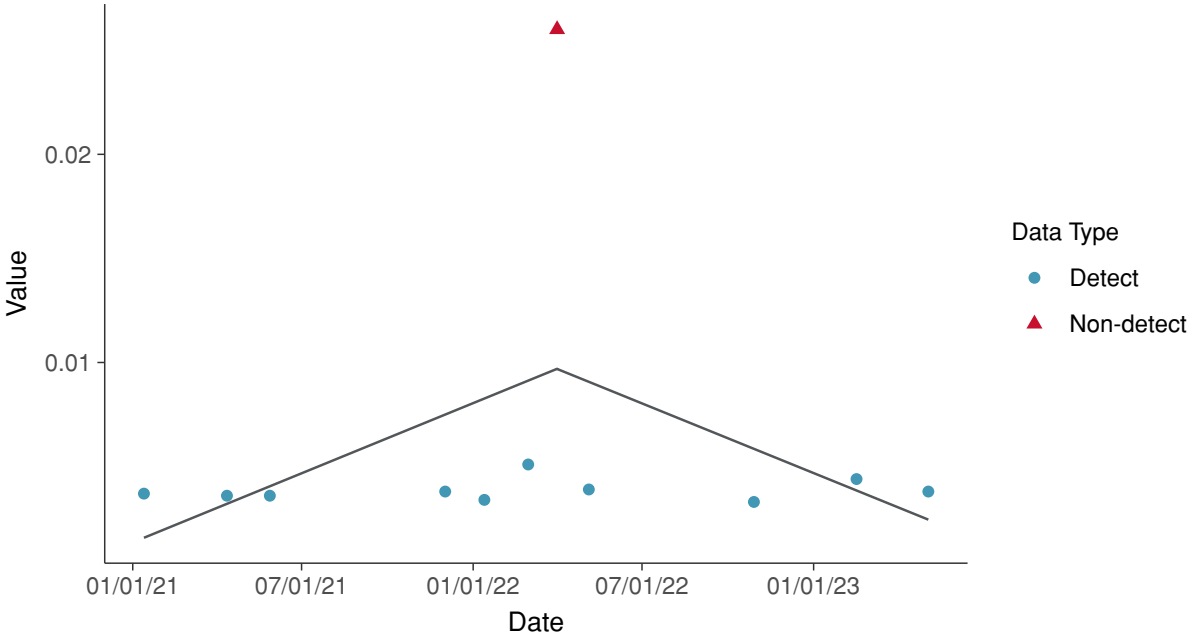
Trend Regression: Lognormal MLE

Thallium, W-12 (mg/l)



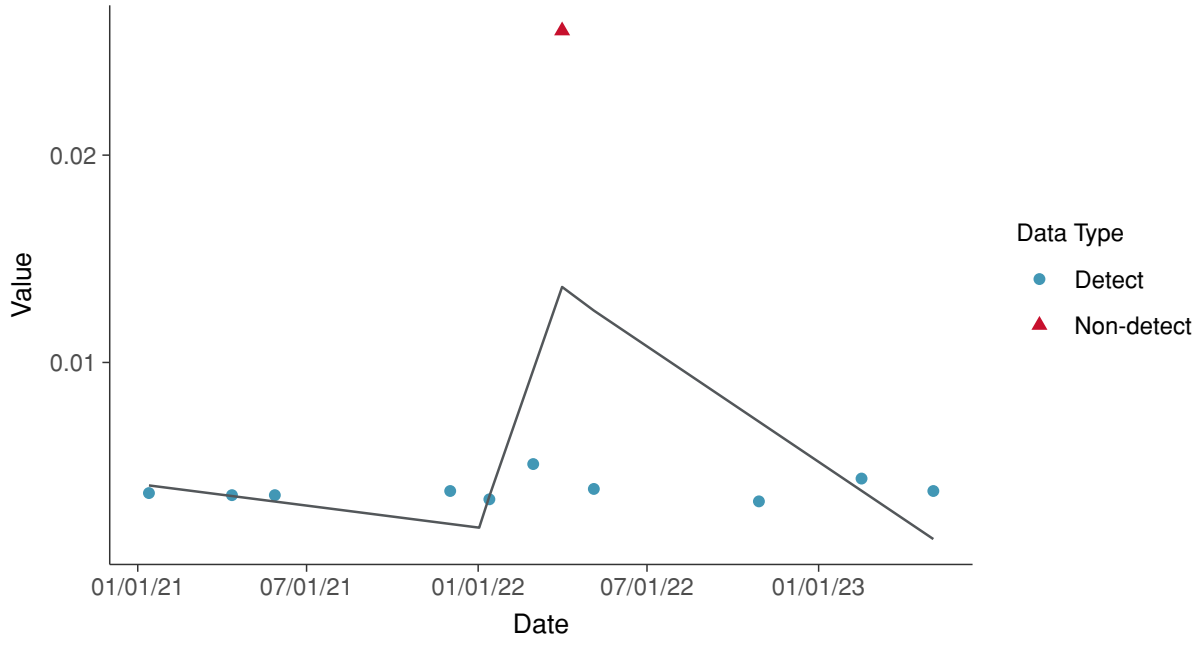
Trend Regression: Piecewise Linear-Linear

Thallium, W-12 (mg/l)



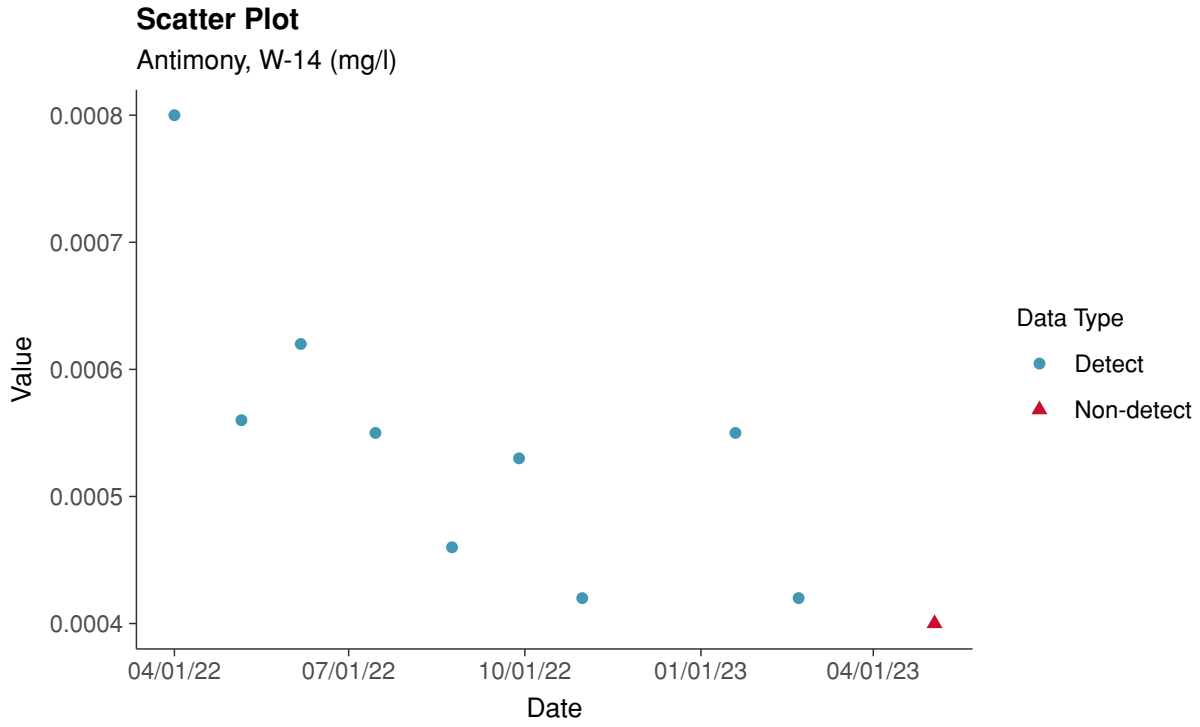
Trend Regression: Piecewise Linear-Linear-Linear

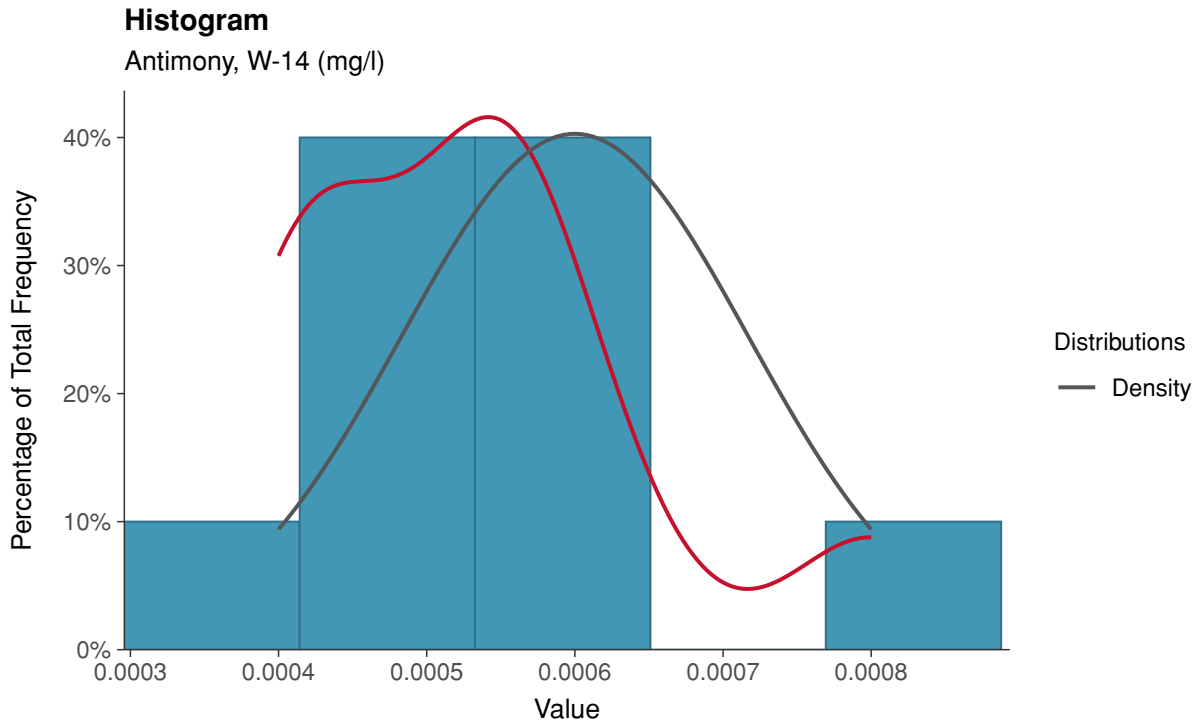
Thallium, W-12 (mg/l)



Appendix IV: Antimony, W-14

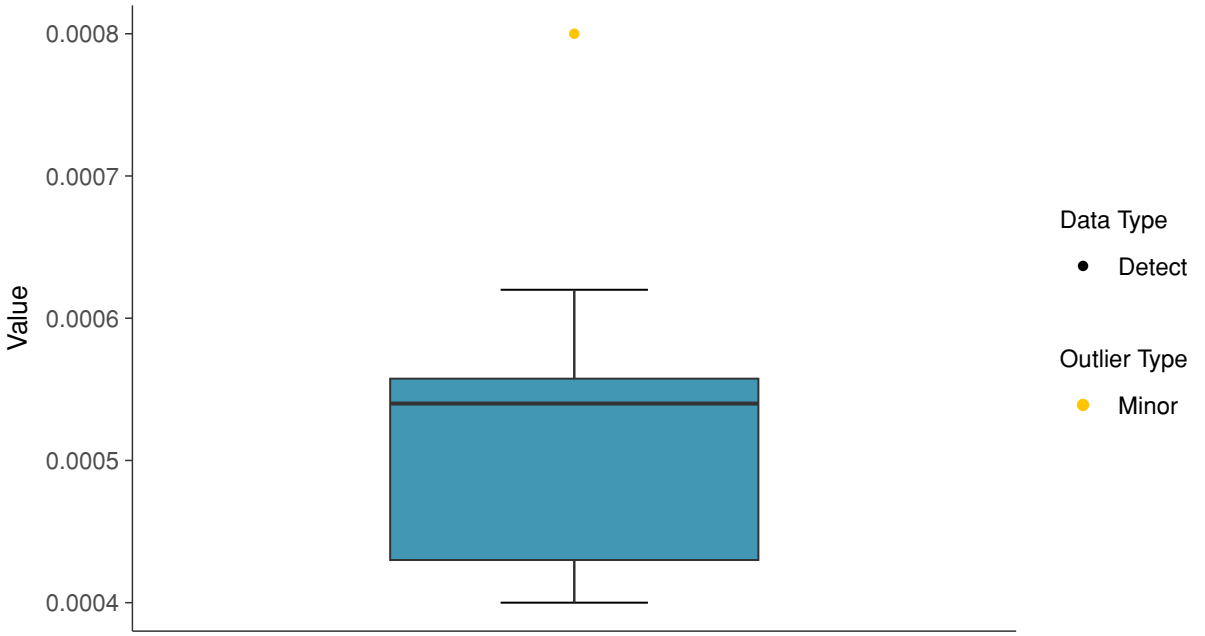
ID: 4_2_101





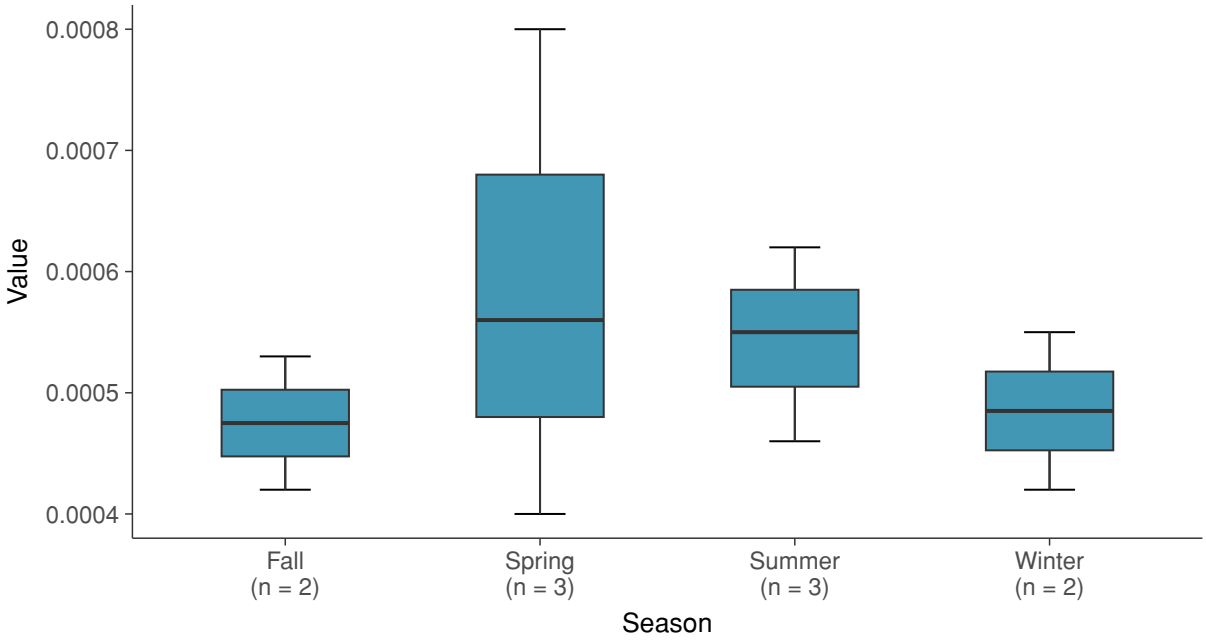
Boxplot

Antimony, W-14 (mg/l)



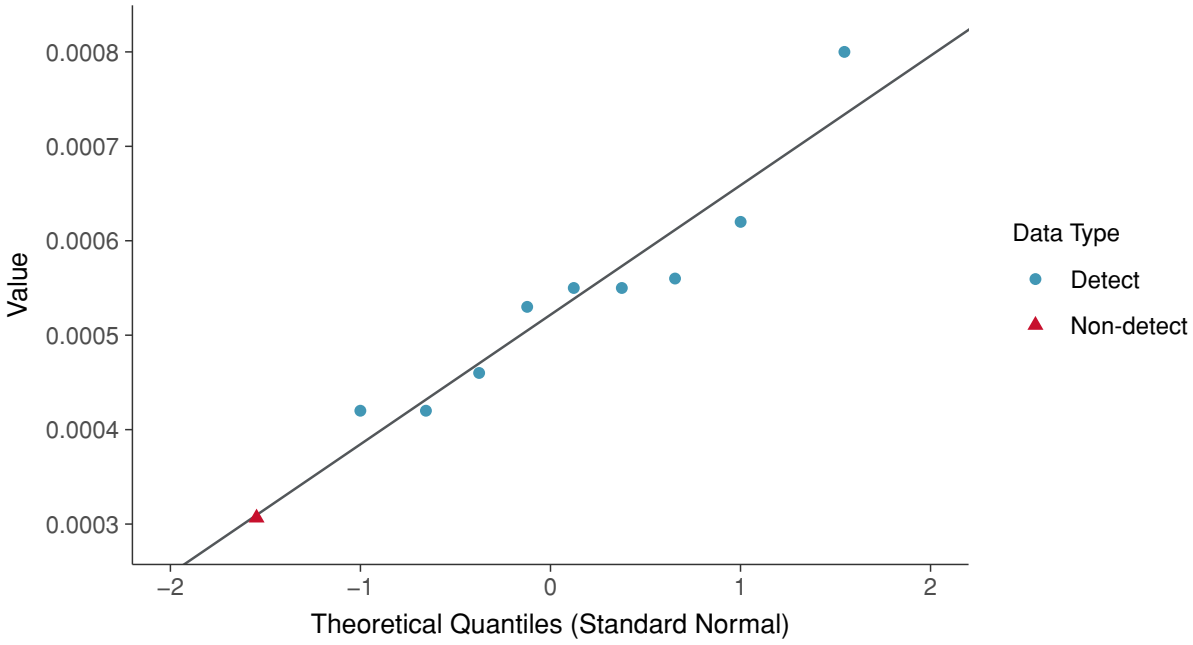
Boxplot by Season

Antimony, W-14 (mg/l)



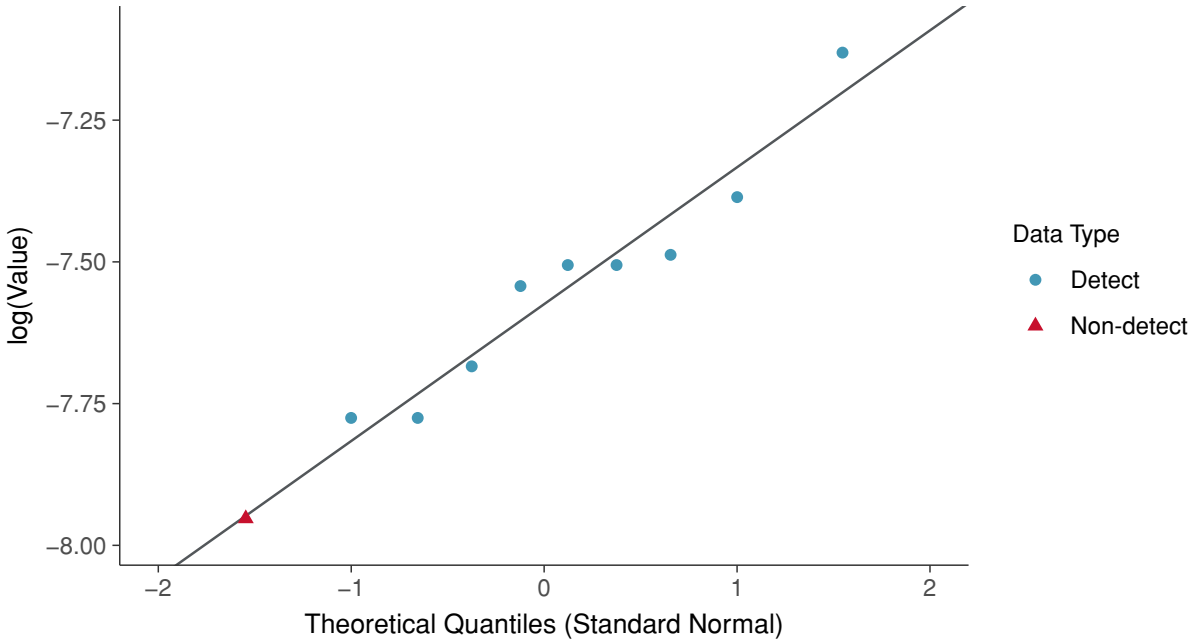
Normal Q-Q plot using ROS Imputed Estimates

Antimony, W-14 (mg/l)



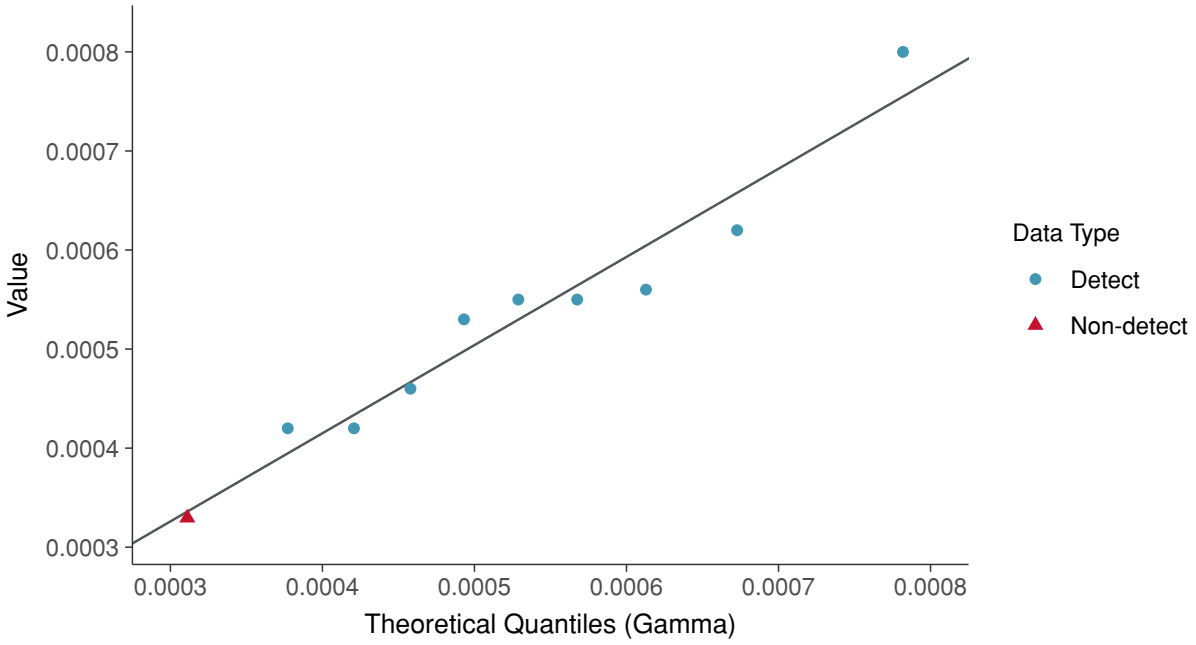
Lognormal Q-Q plot using ROS Imputed Estimates

Antimony, W-14 (mg/l)



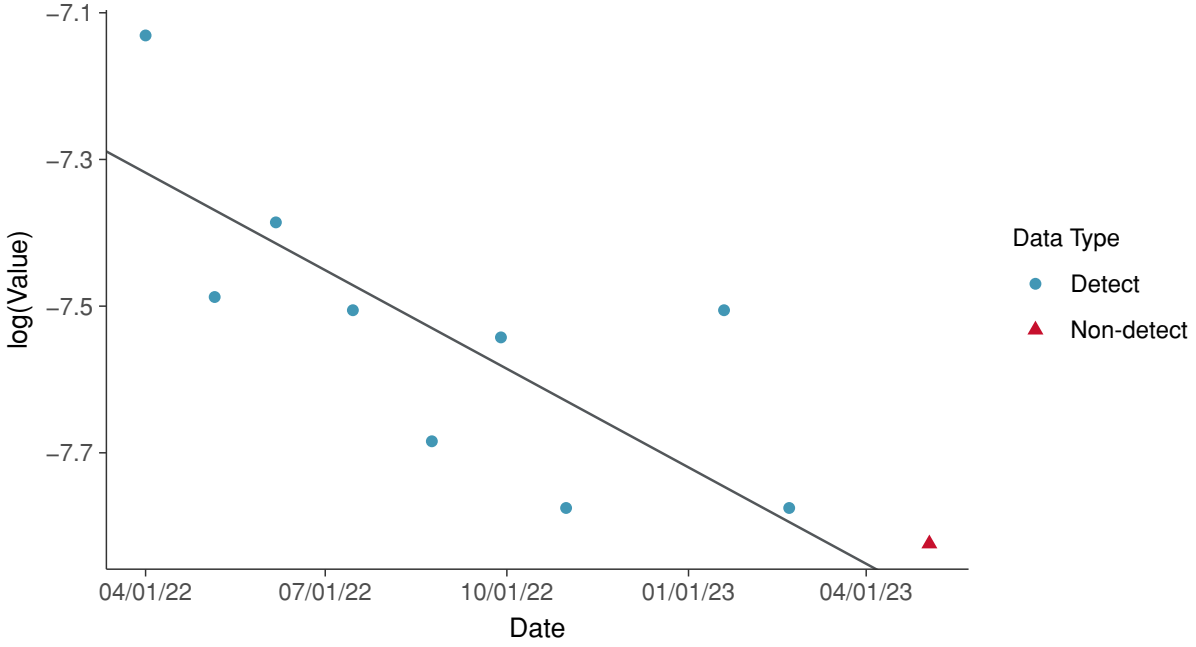
Gamma Q-Q plot using ROS Imputed Estimates

Antimony, W-14 (mg/l)



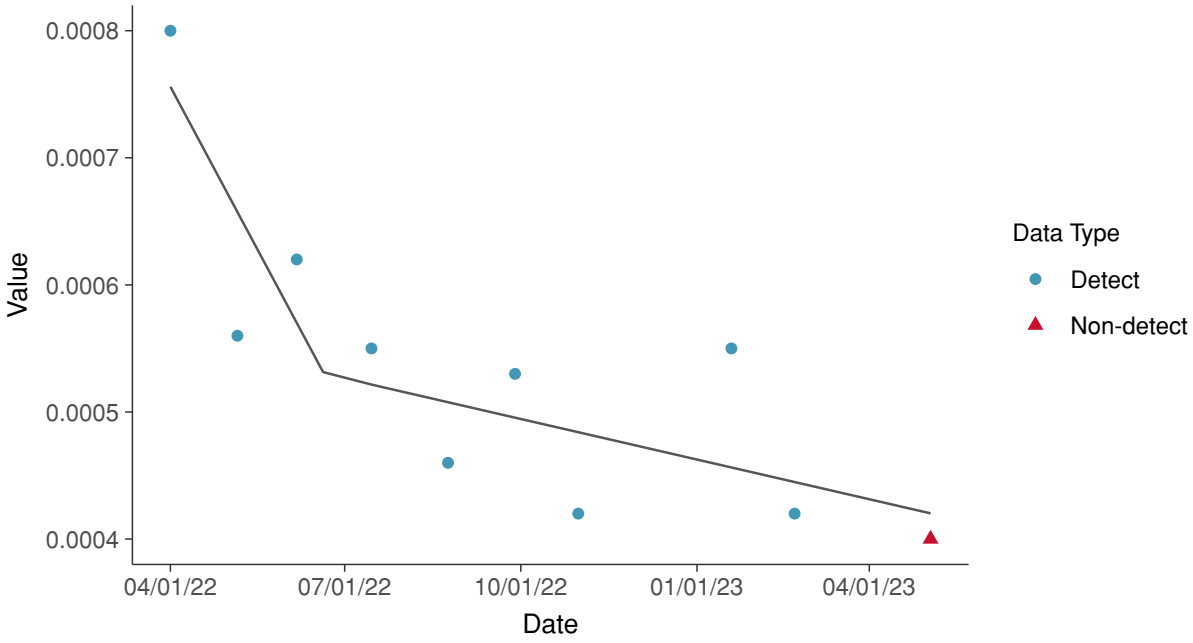
Trend Regression: Lognormal MLE

Antimony, W-14 (mg/l)



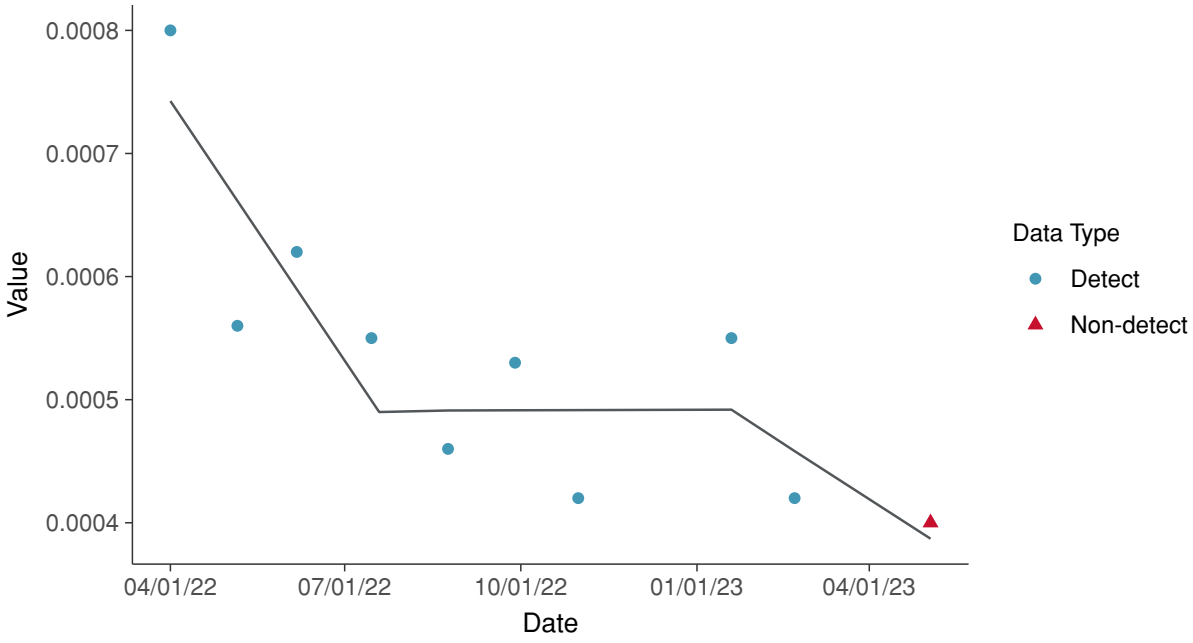
Trend Regression: Piecewise Linear-Linear

Antimony, W-14 (mg/l)



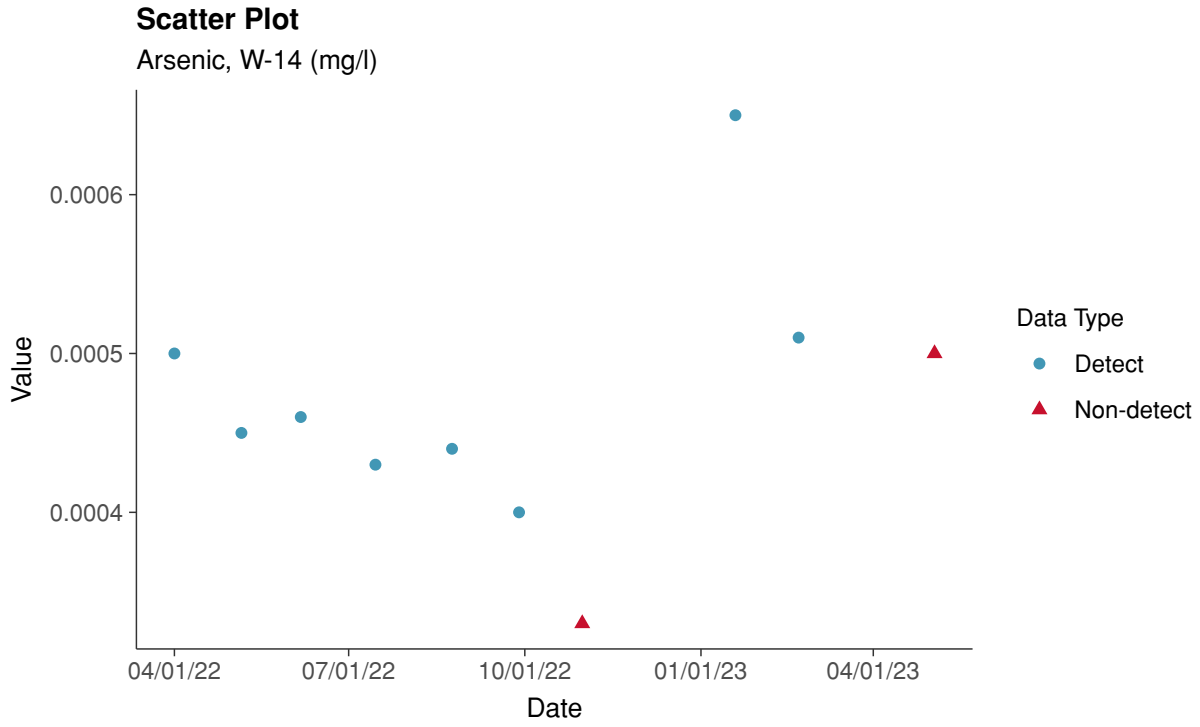
Trend Regression: Piecewise Linear-Linear-Linear

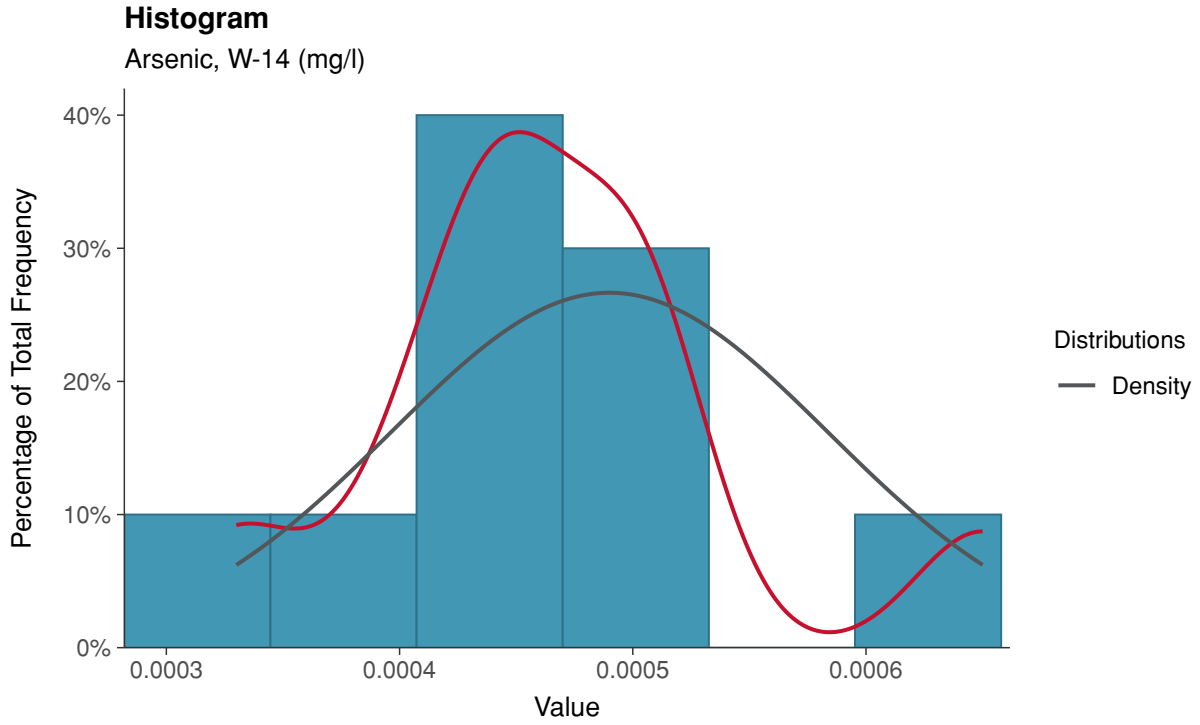
Antimony, W-14 (mg/l)



Appendix IV: Arsenic, W-14

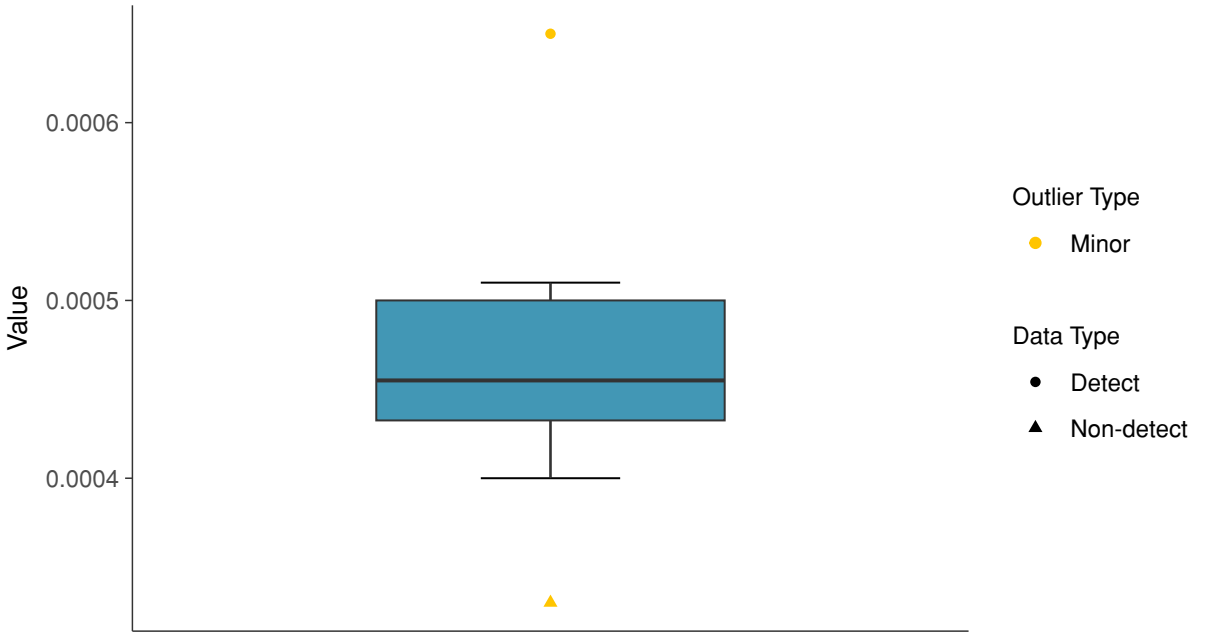
ID: 4_2_102





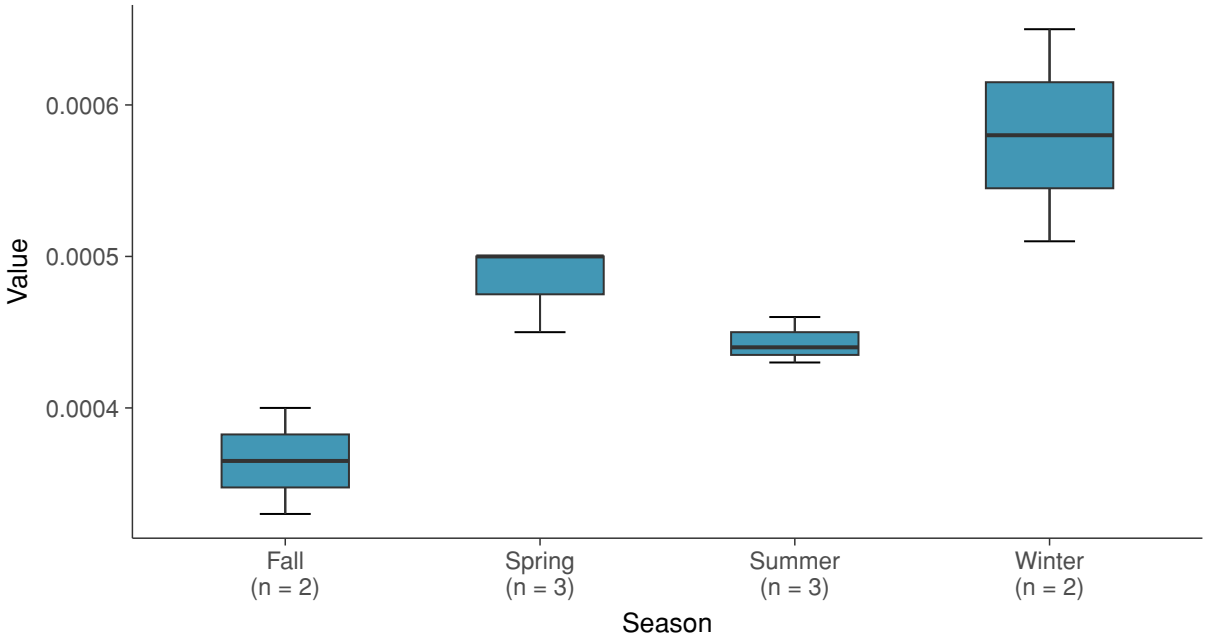
Boxplot

Arsenic, W-14 (mg/l)



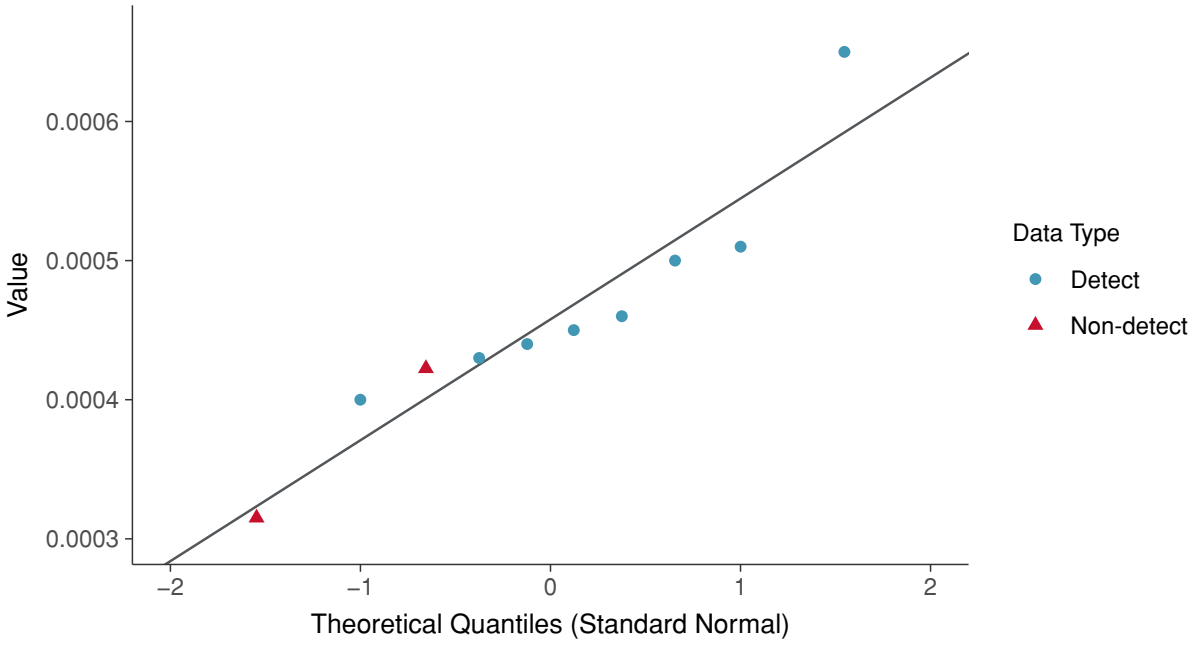
Boxplot by Season

Arsenic, W-14 (mg/l)



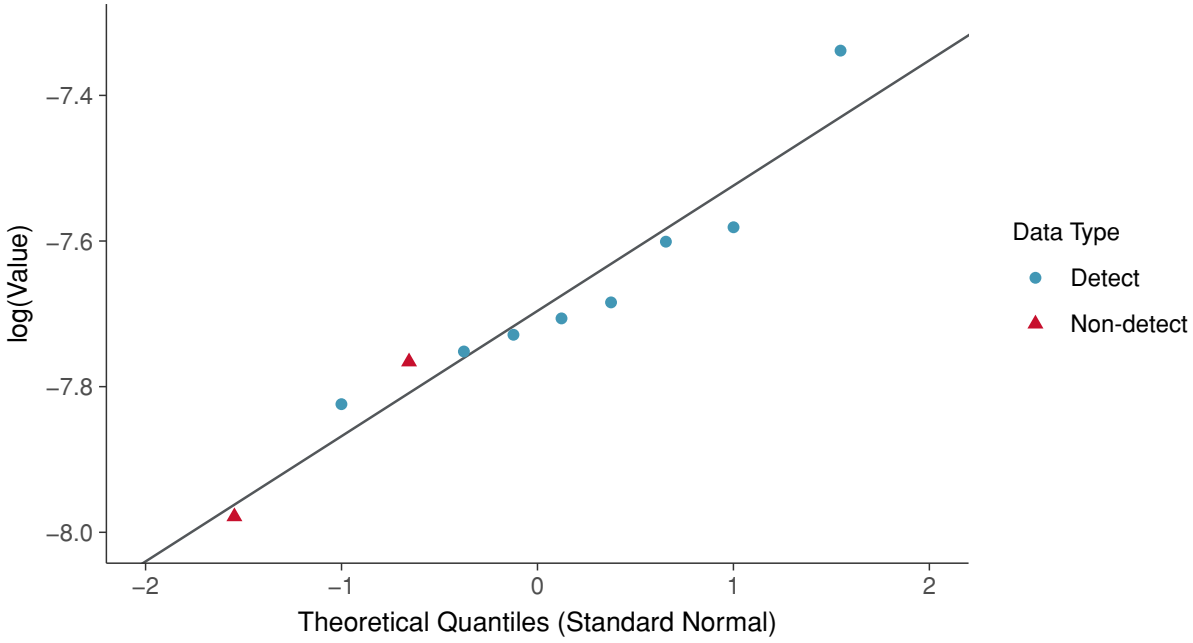
Normal Q-Q plot using ROS Imputed Estimates

Arsenic, W-14 (mg/l)



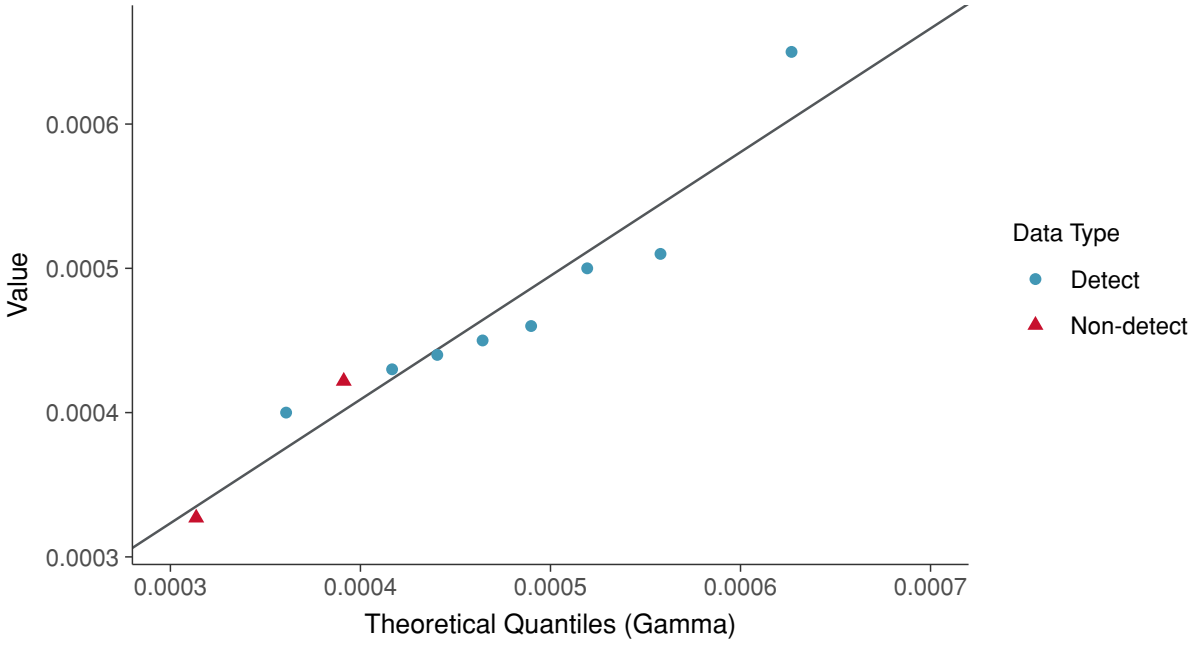
Lognormal Q-Q plot using ROS Imputed Estimates

Arsenic, W-14 (mg/l)



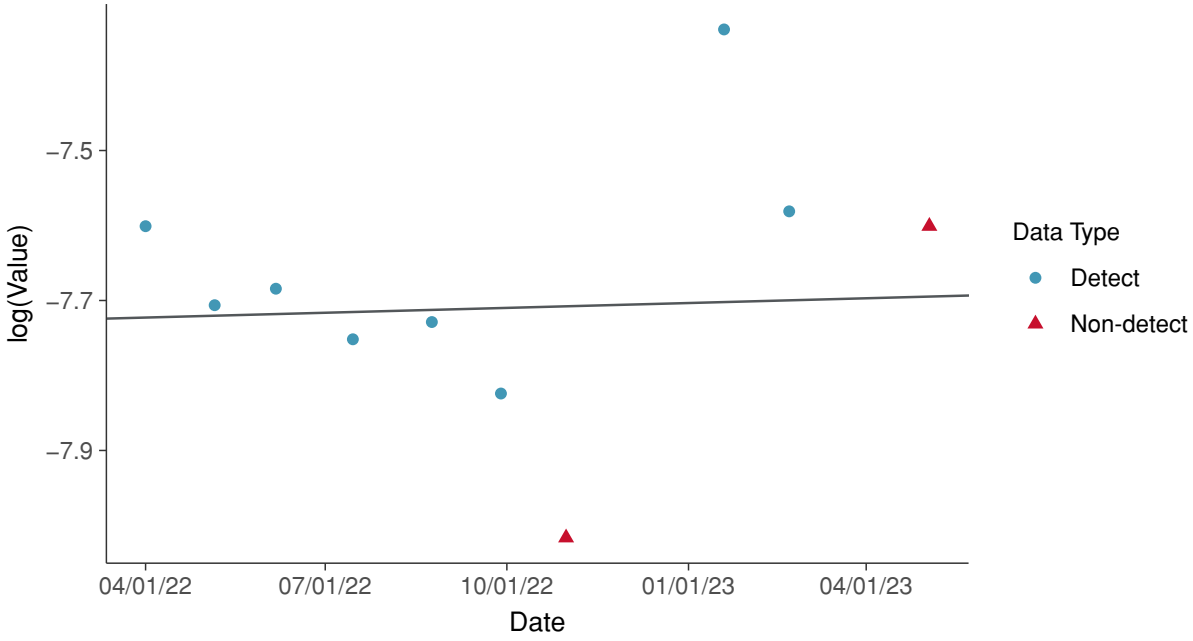
Gamma Q-Q plot using ROS Imputed Estimates

Arsenic, W-14 (mg/l)



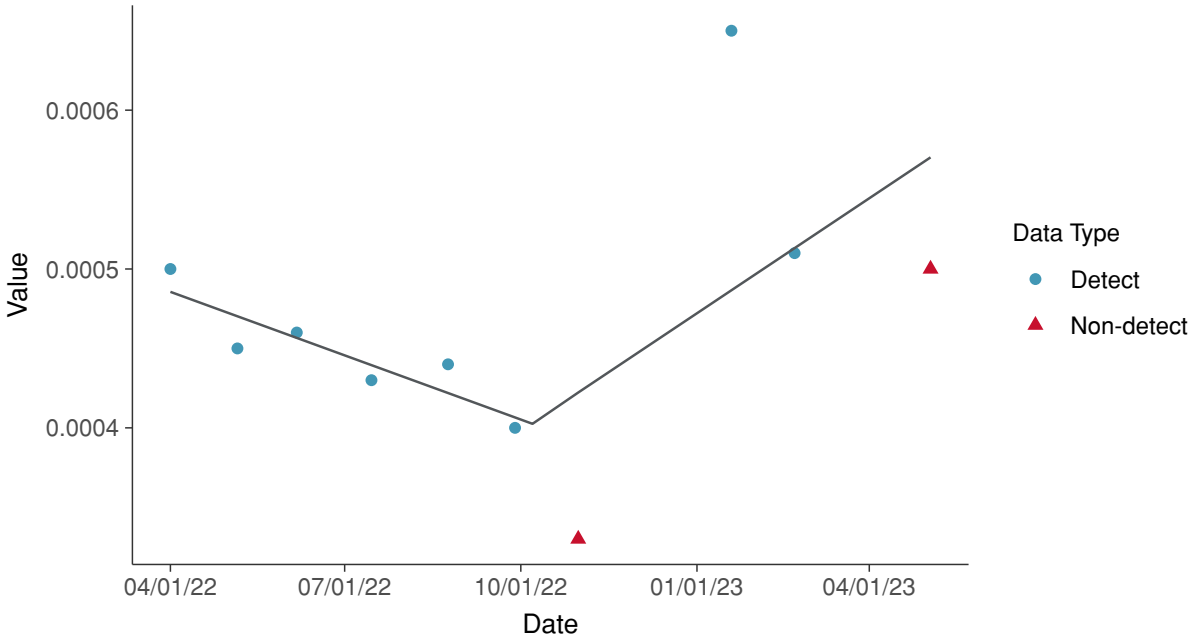
Trend Regression: Lognormal MLE

Arsenic, W-14 (mg/l)



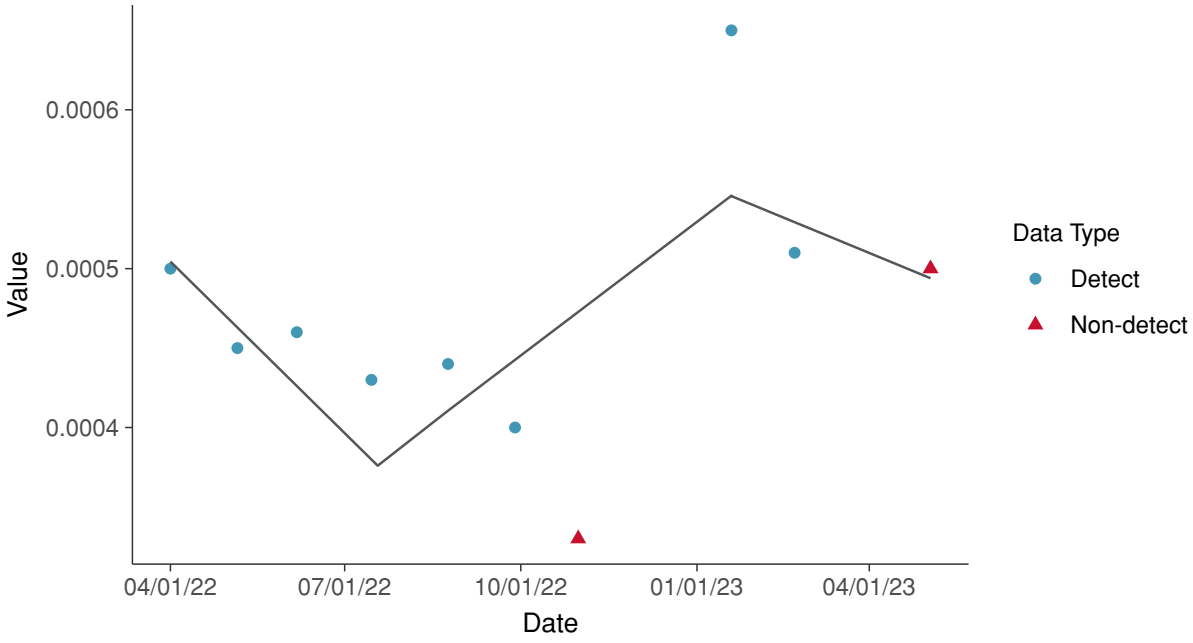
Trend Regression: Piecewise Linear-Linear

Arsenic, W-14 (mg/l)



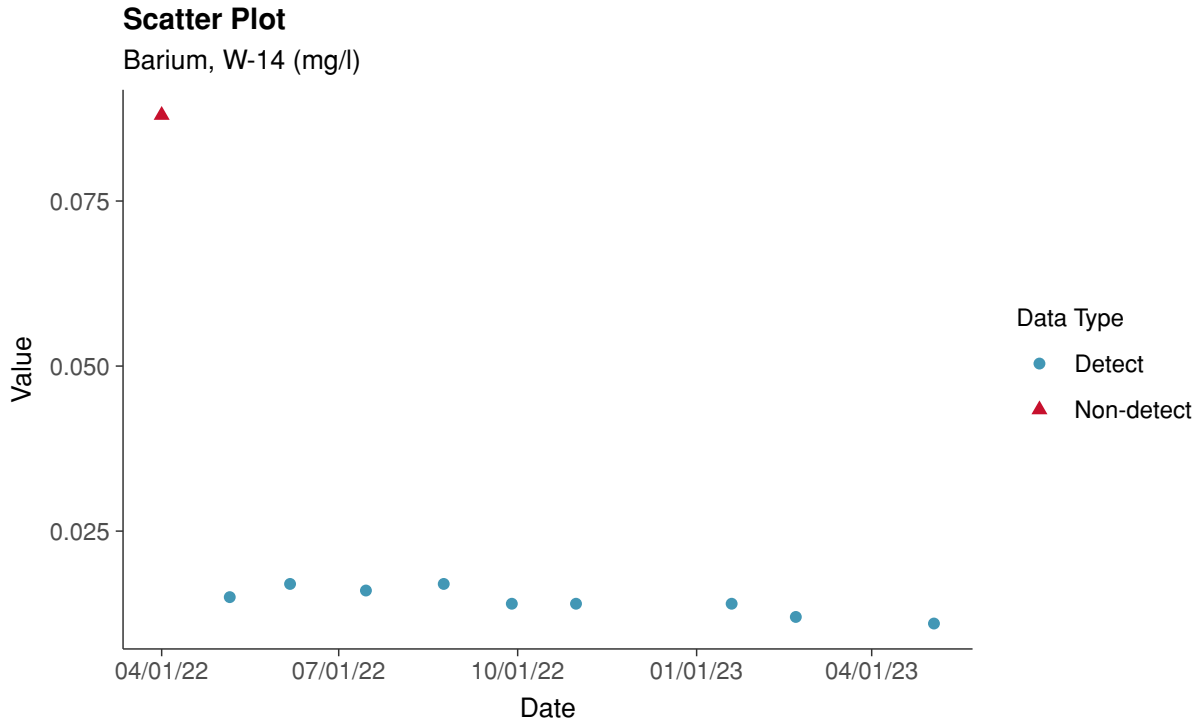
Trend Regression: Piecewise Linear-Linear-Linear

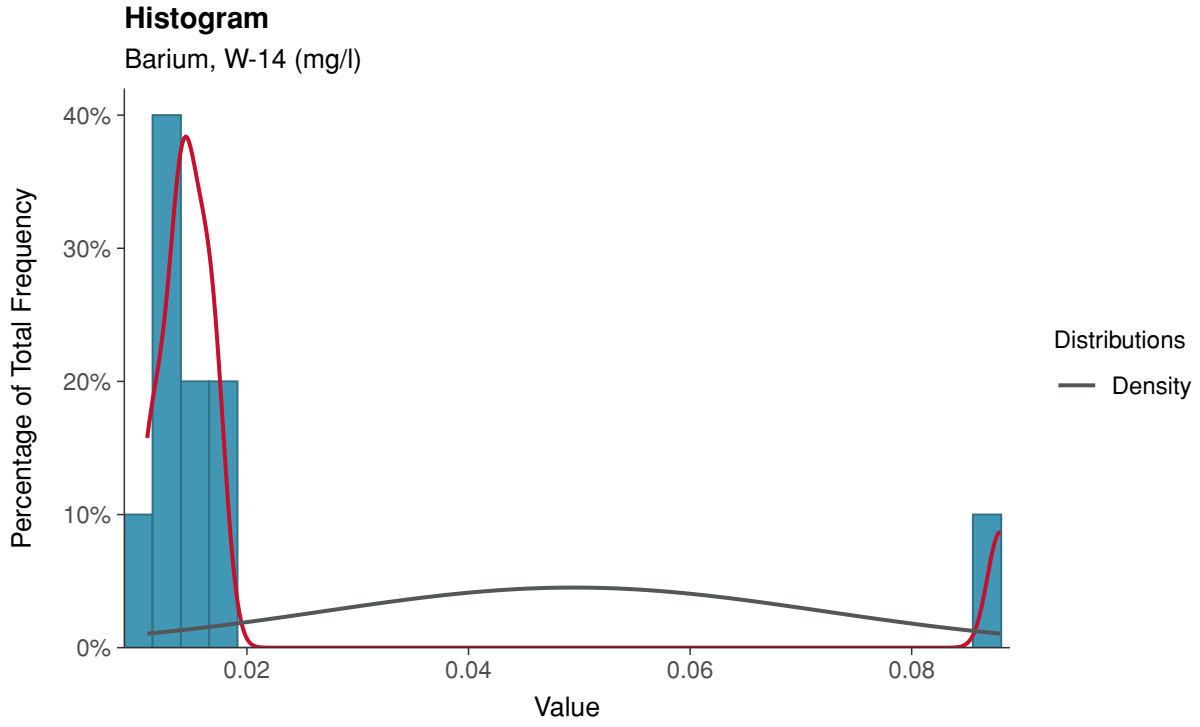
Arsenic, W-14 (mg/l)



Appendix IV: Barium, W-14

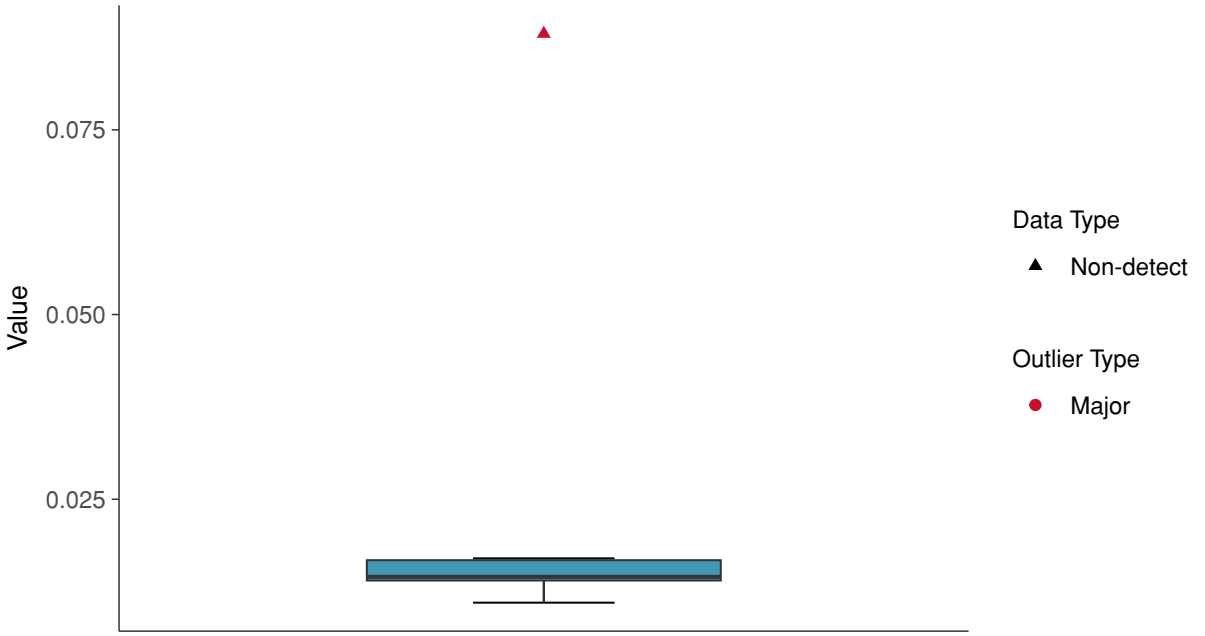
ID: 4_2_103





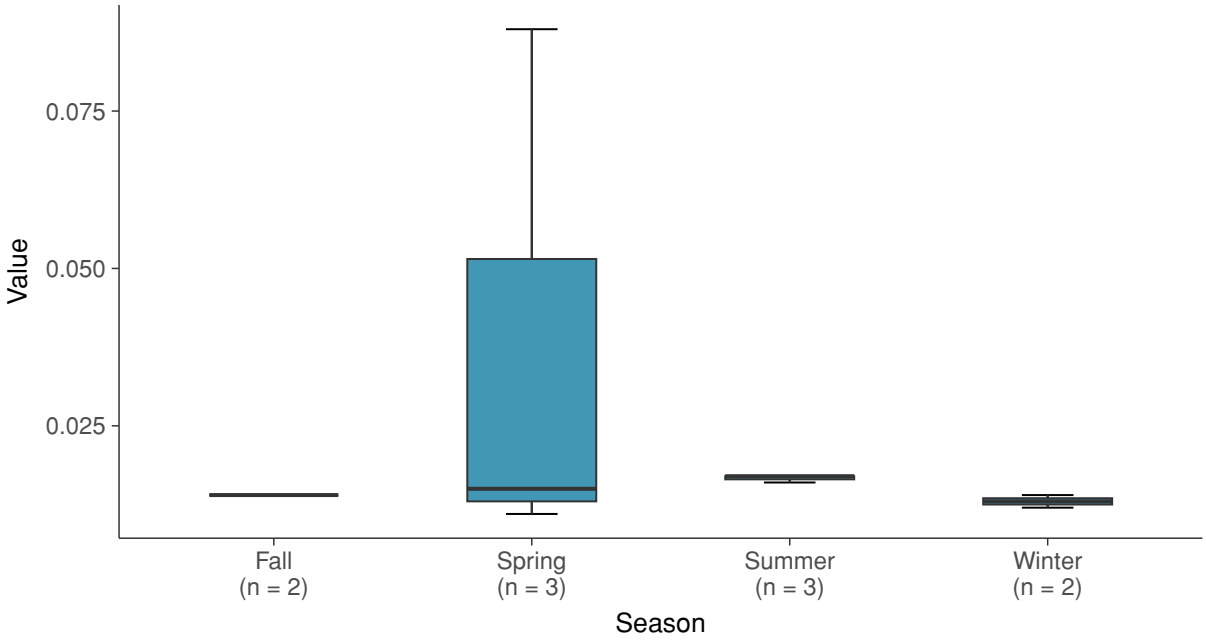
Boxplot

Barium, W-14 (mg/l)



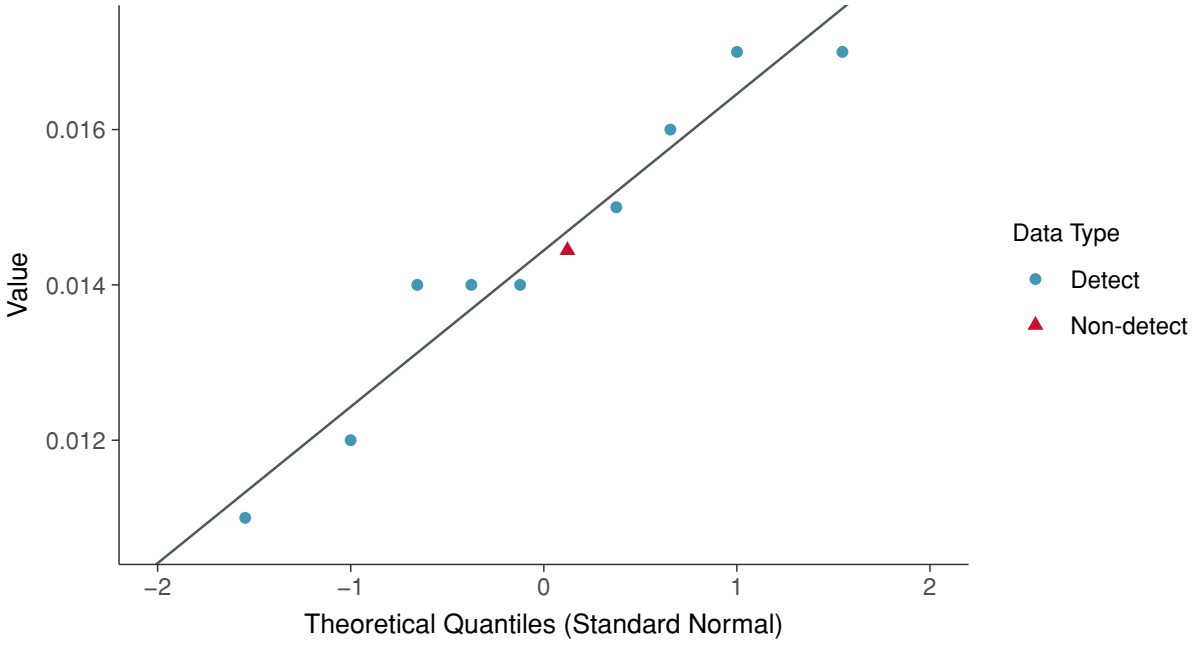
Boxplot by Season

Barium, W-14 (mg/l)



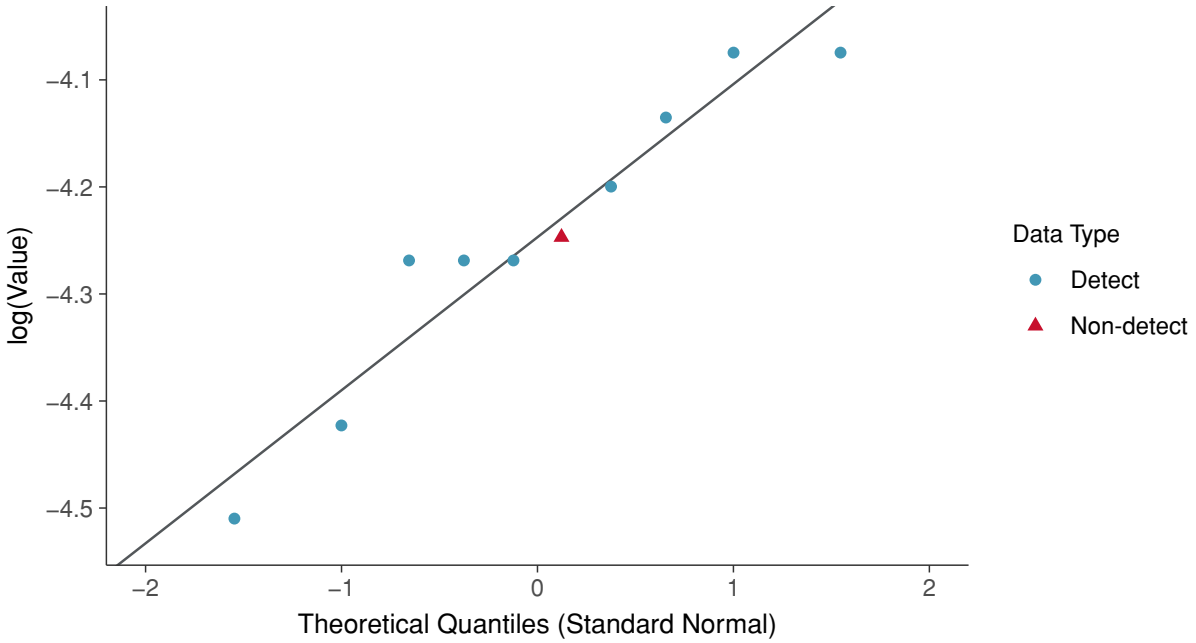
Normal Q-Q plot using ROS Imputed Estimates

Barium, W-14 (mg/l)



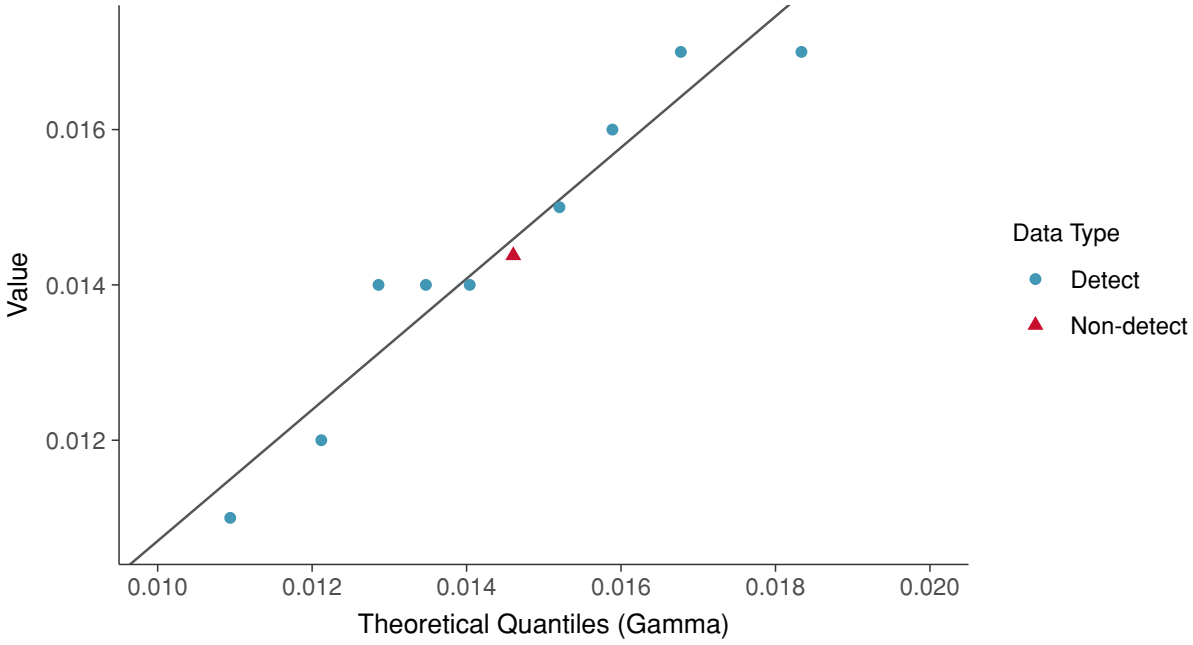
Lognormal Q-Q plot using ROS Imputed Estimates

Barium, W-14 (mg/l)



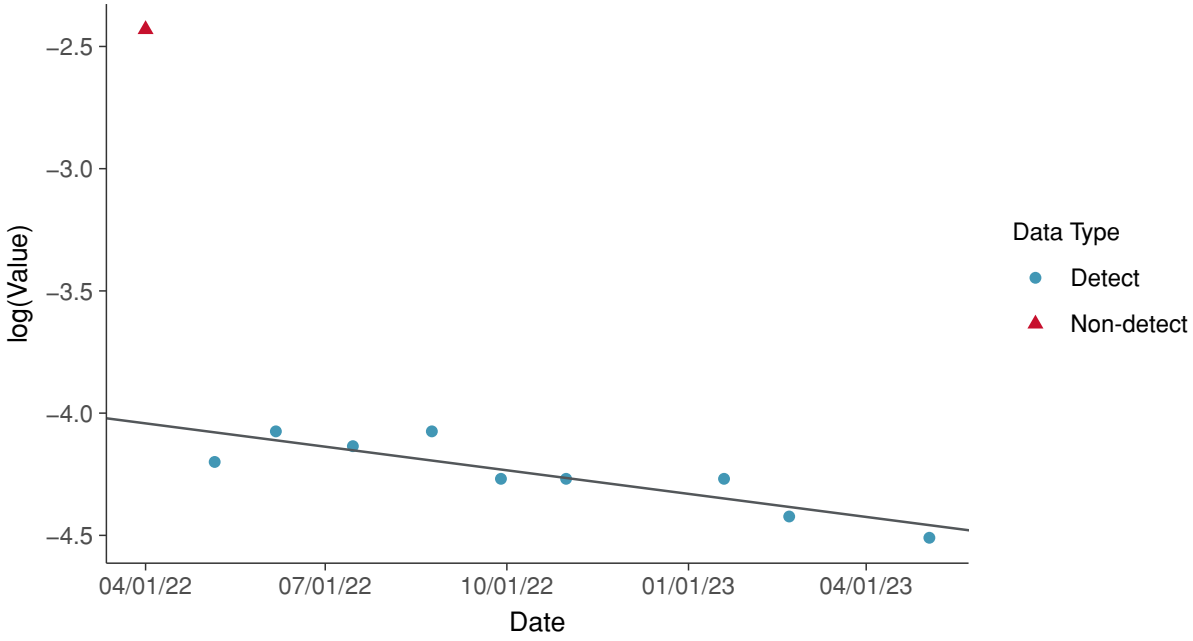
Gamma Q-Q plot using ROS Imputed Estimates

Barium, W-14 (mg/l)



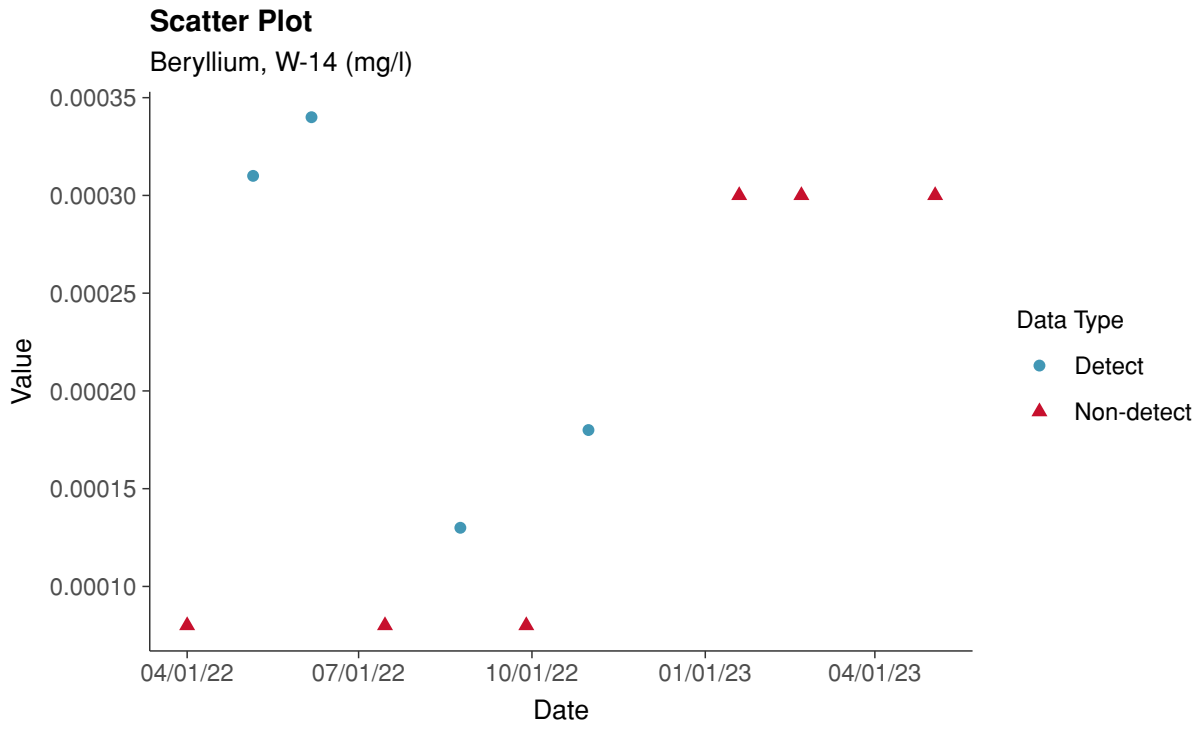
Trend Regression: Lognormal MLE

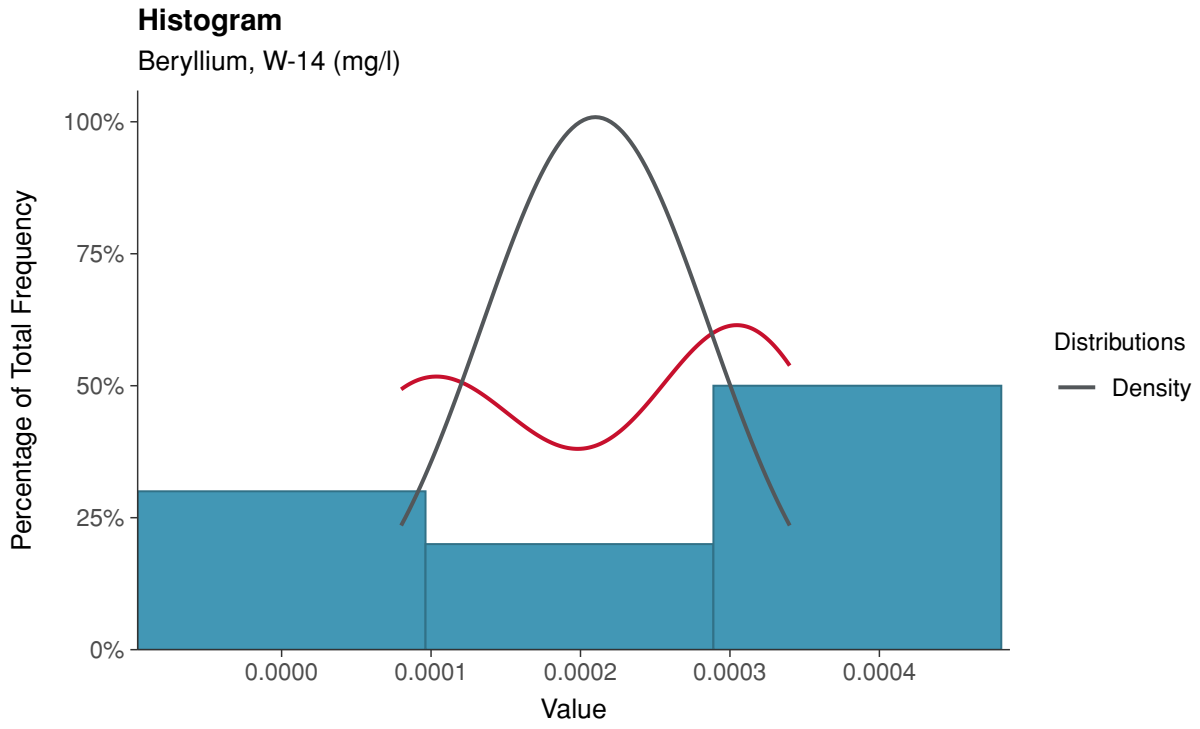
Barium, W-14 (mg/l)



Appendix IV: Beryllium, W-14

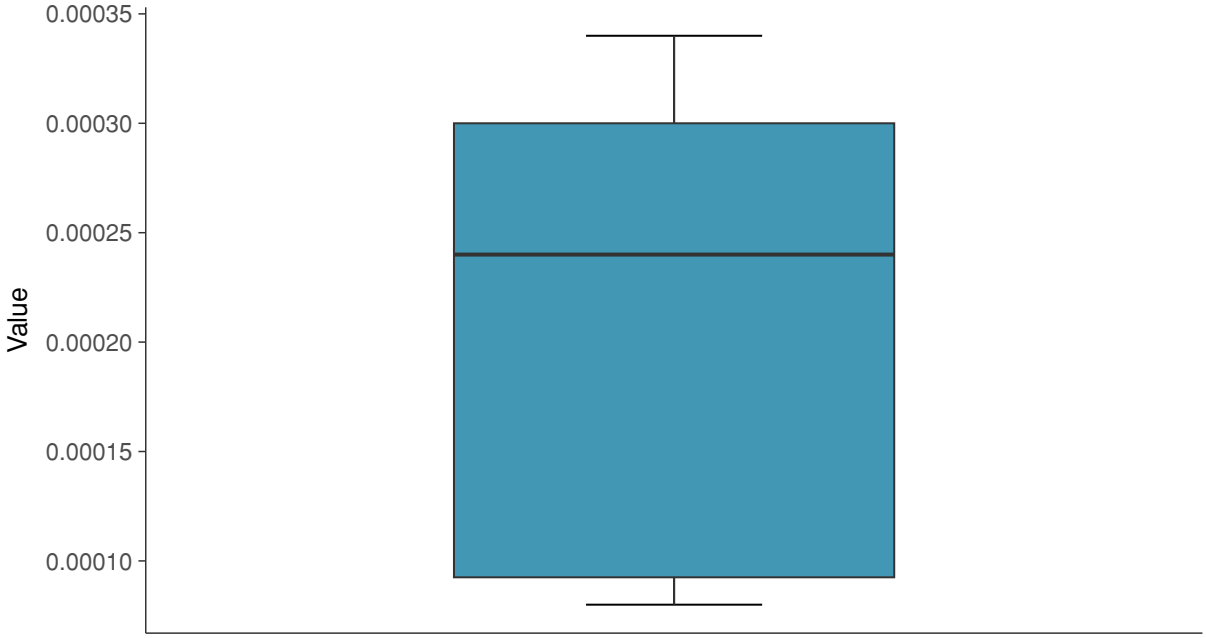
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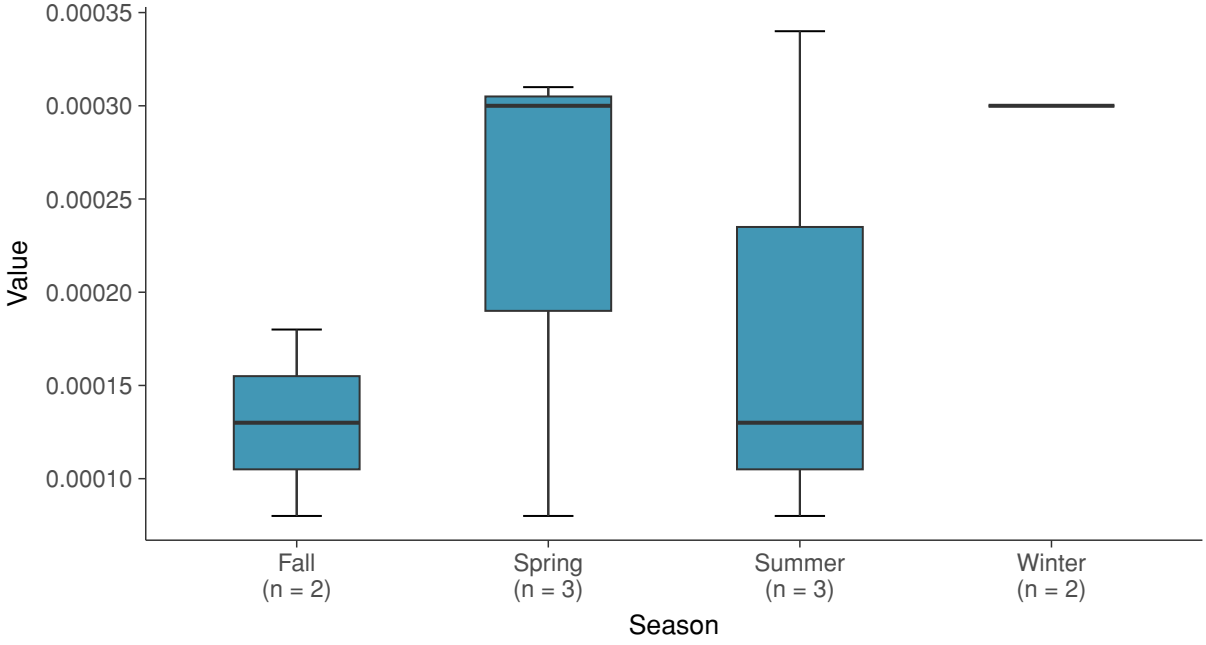
Boxplot

Beryllium, W-14 (mg/l)



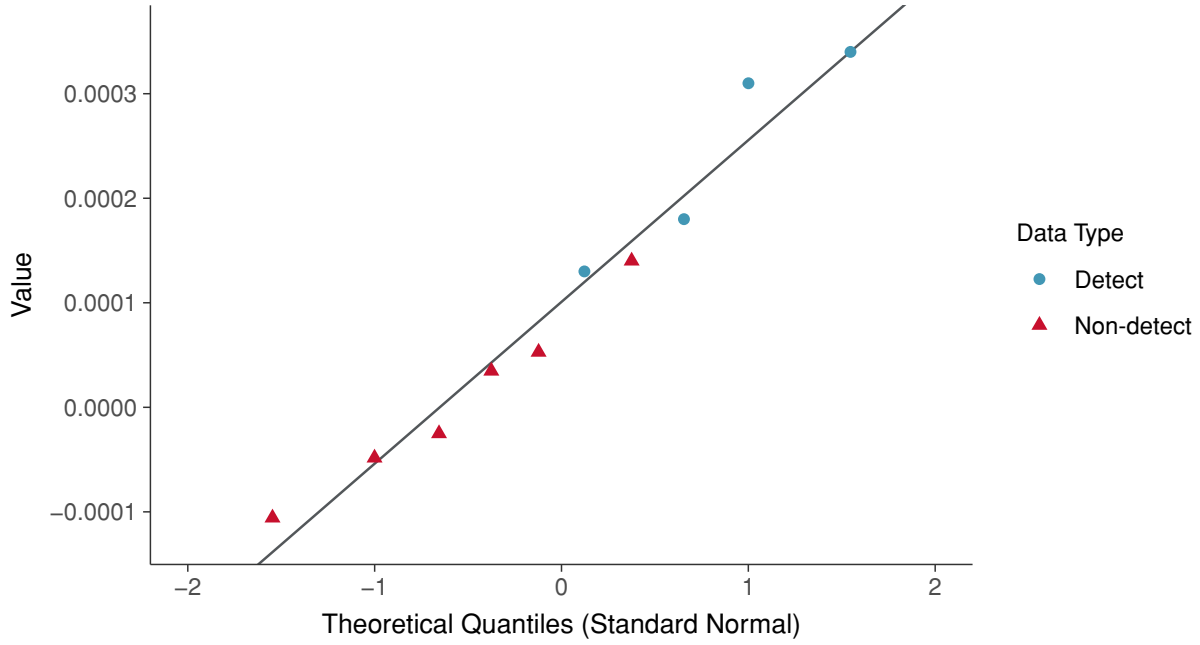
Boxplot by Season

Beryllium, W-14 (mg/l)



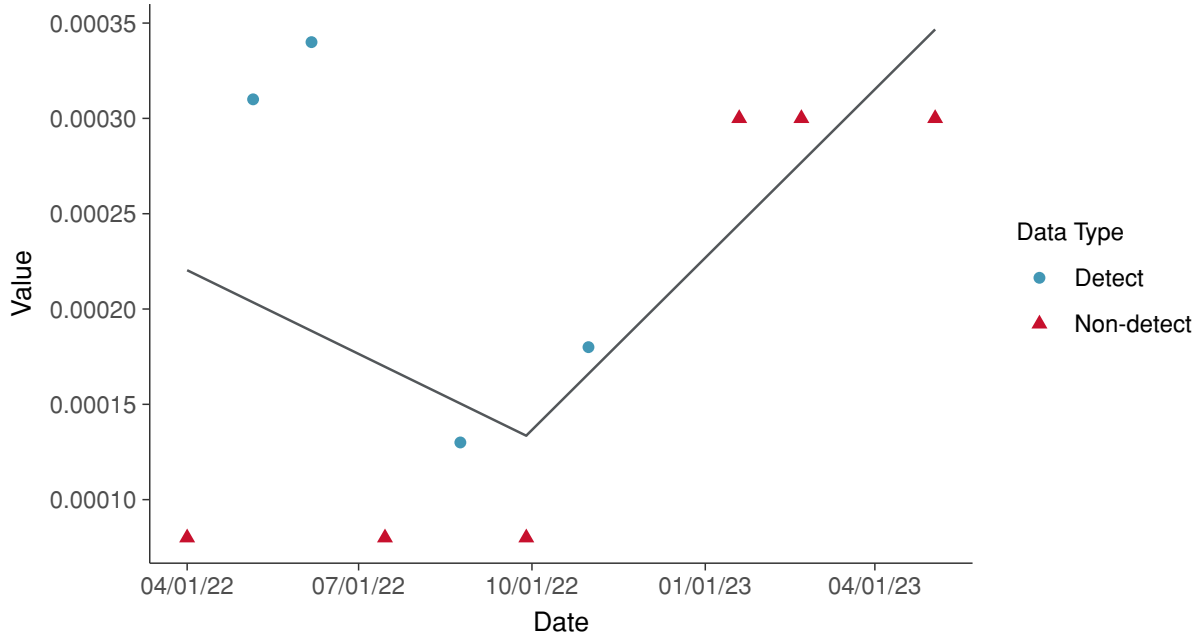
Normal Q-Q plot using ROS Imputed Estimates

Beryllium, W-14 (mg/l)



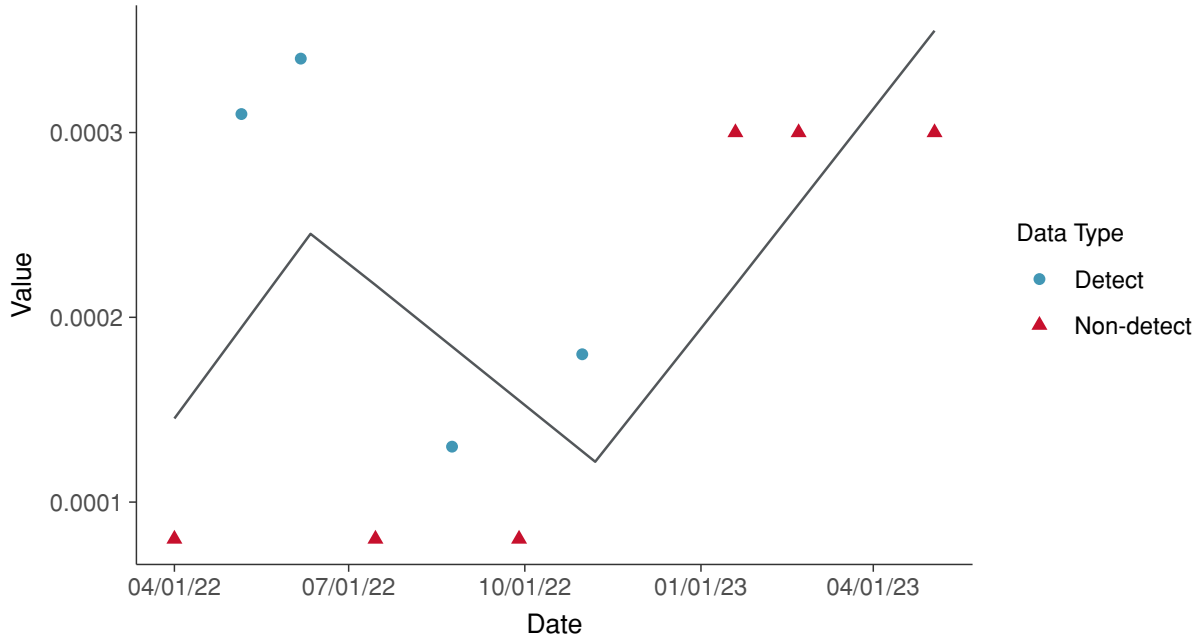
Trend Regression: Piecewise Linear-Linear

Beryllium, W-14 (mg/l)



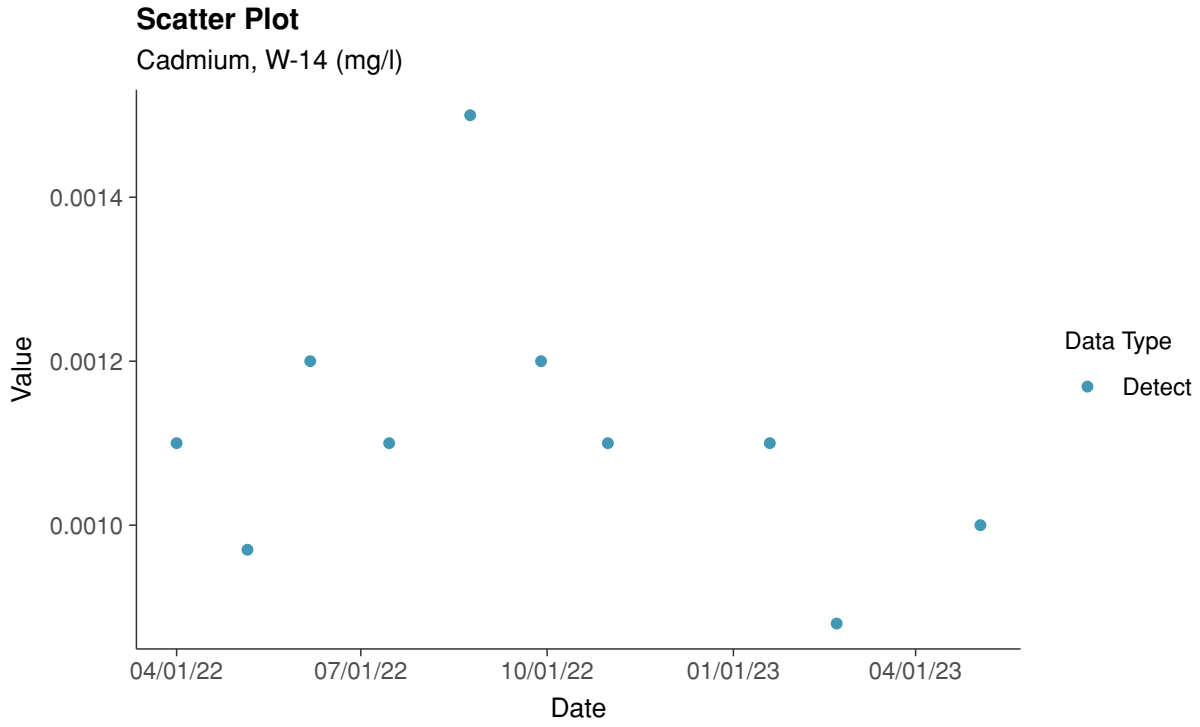
Trend Regression: Piecewise Linear-Linear-Linear

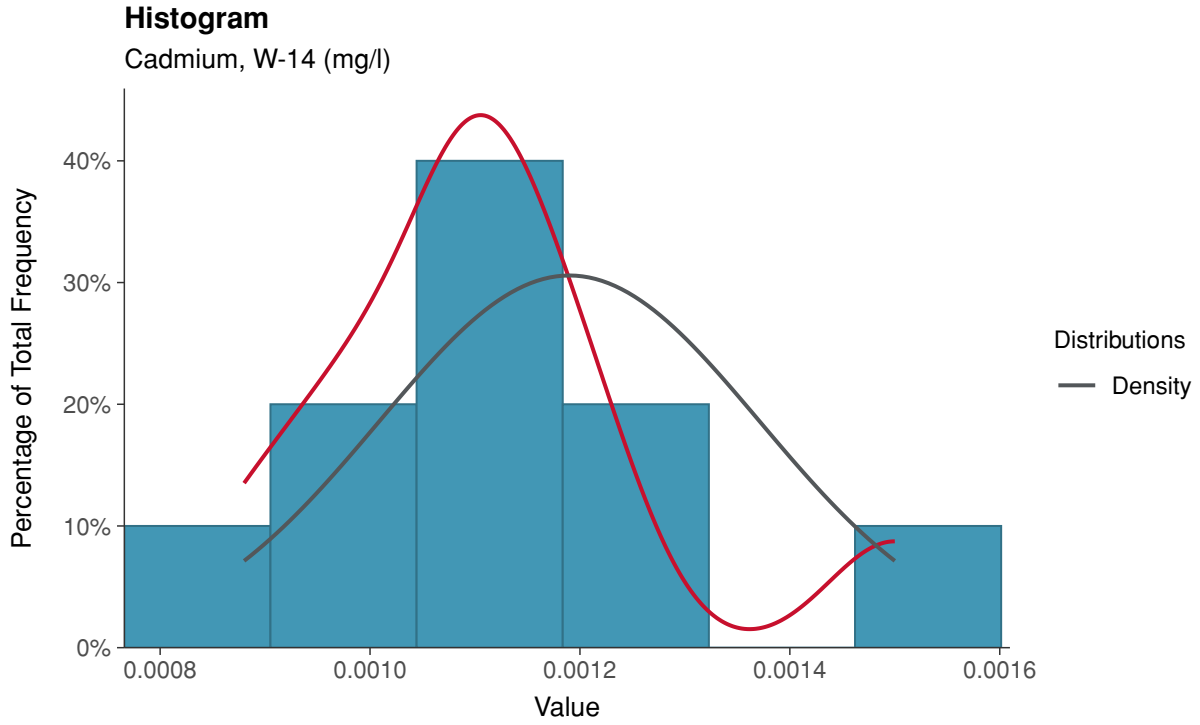
Beryllium, W-14 (mg/l)



Appendix IV: Cadmium, W-14

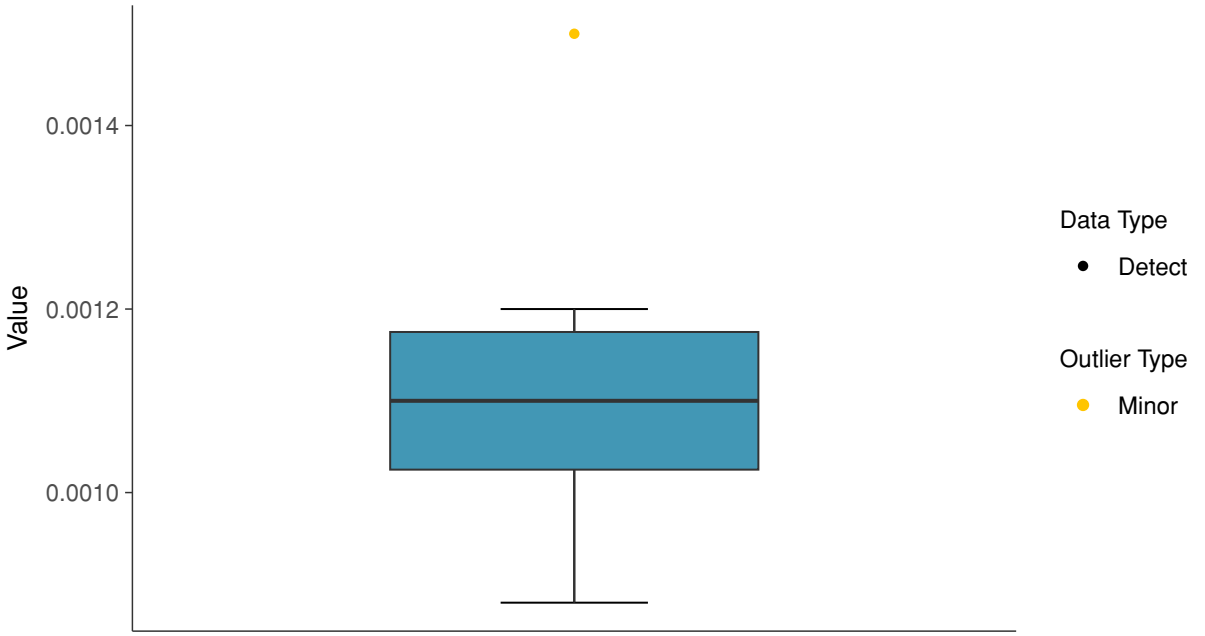
ID: 4_2_106





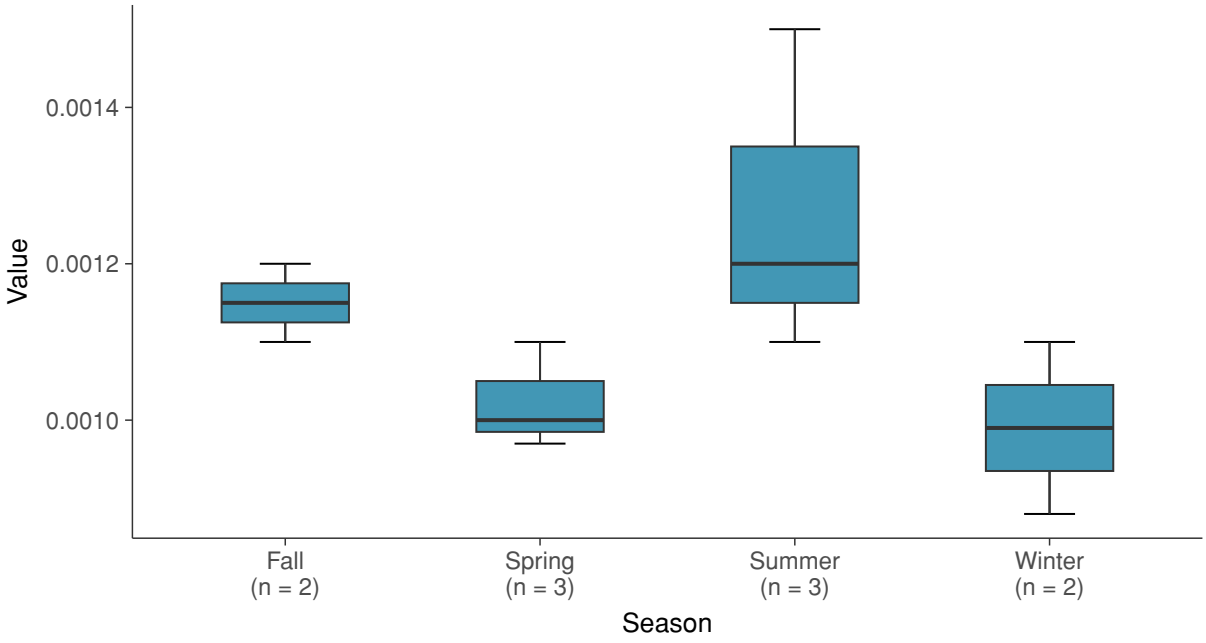
Boxplot

Cadmium, W-14 (mg/l)



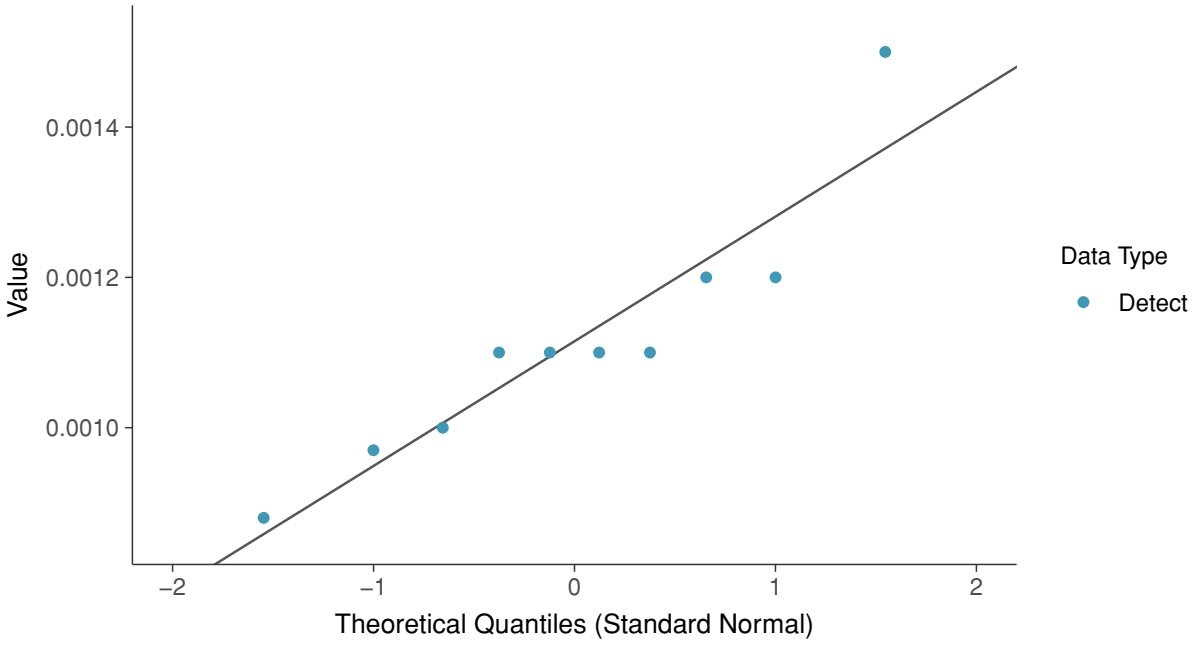
Boxplot by Season

Cadmium, W-14 (mg/l)



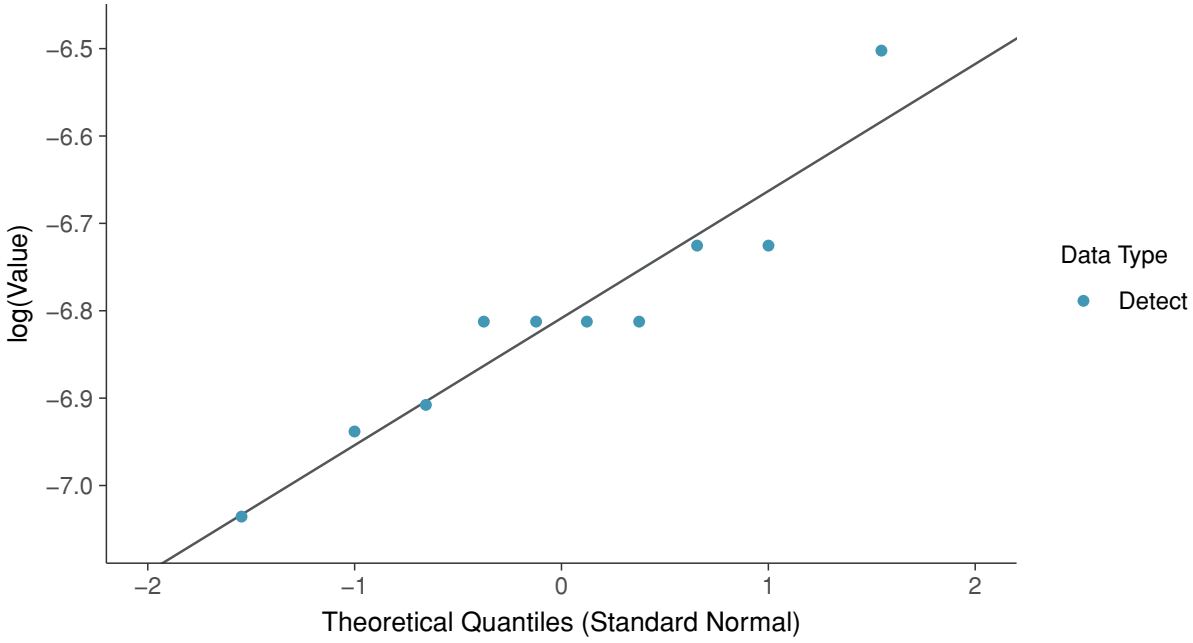
Normal Q-Q plot

Cadmium, W-14 (mg/l)



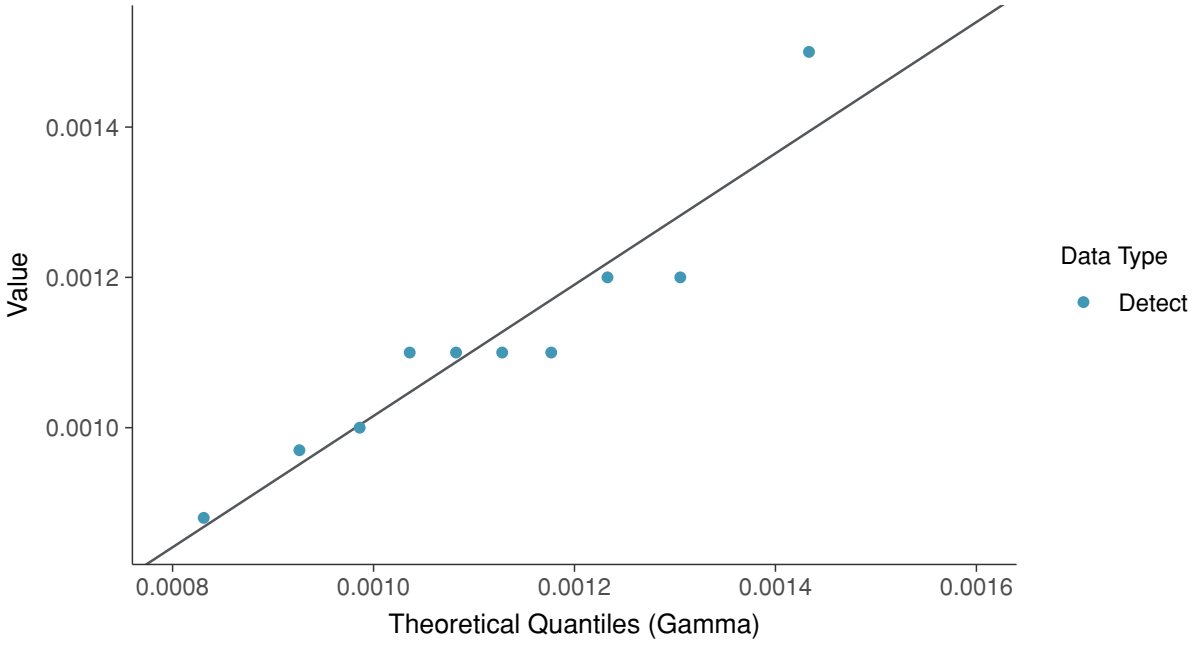
Lognormal Q-Q plot

Cadmium, W-14 (mg/l)



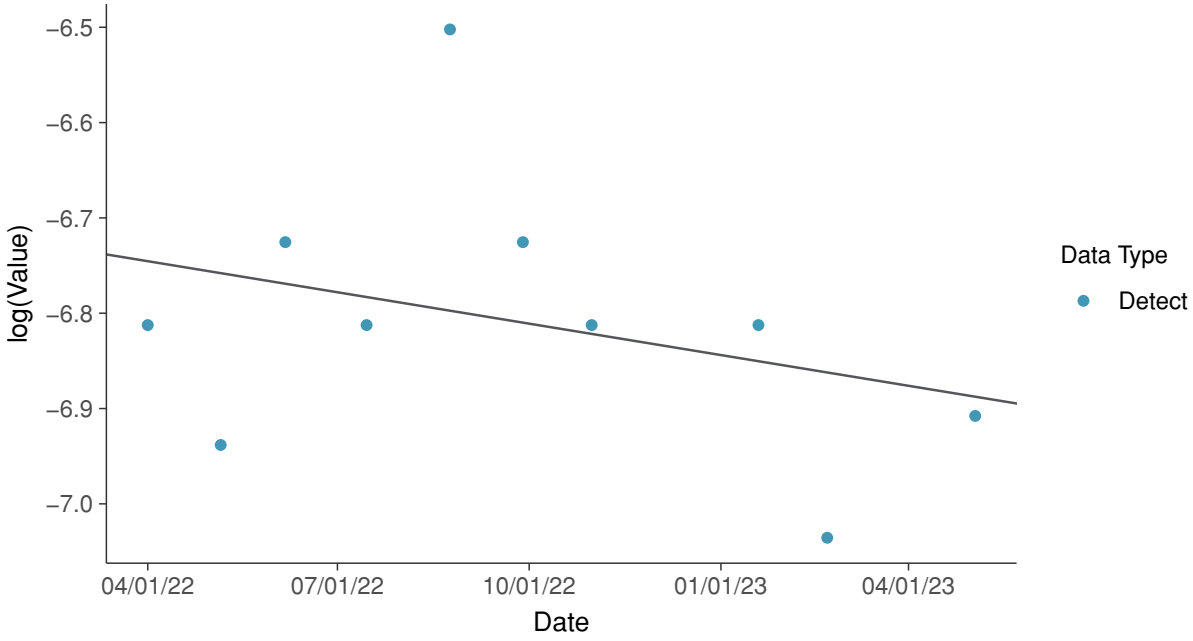
Gamma Q-Q plot

Cadmium, W-14 (mg/l)



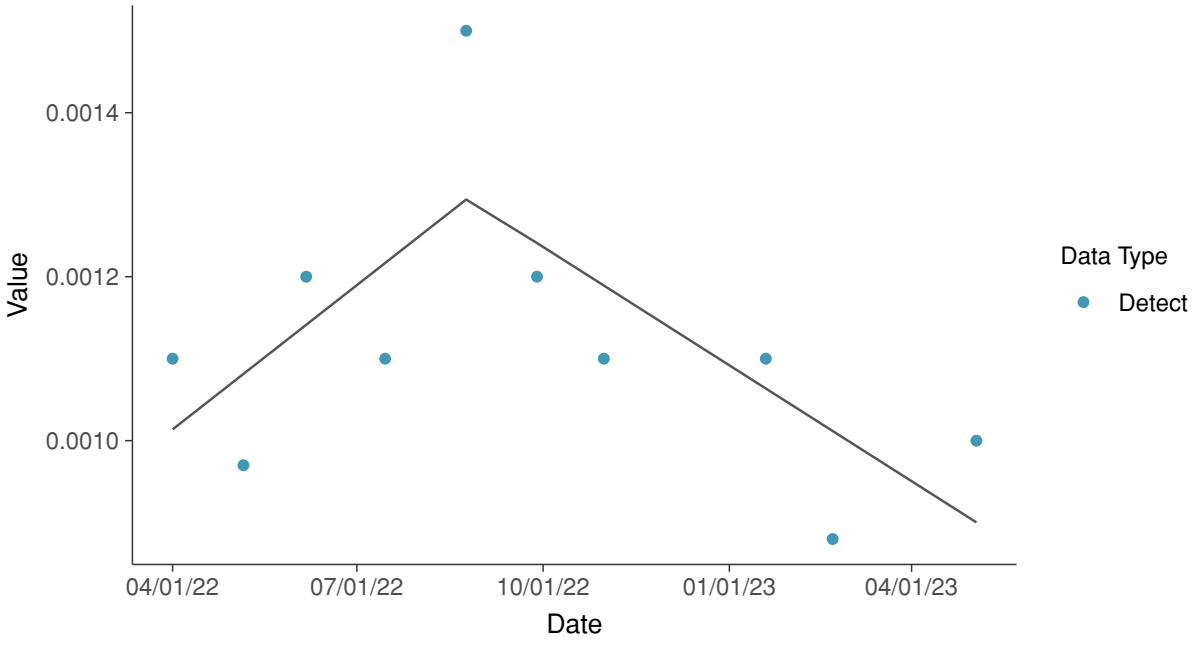
Trend Regression: Lognormal MLE

Cadmium, W-14 (mg/l)



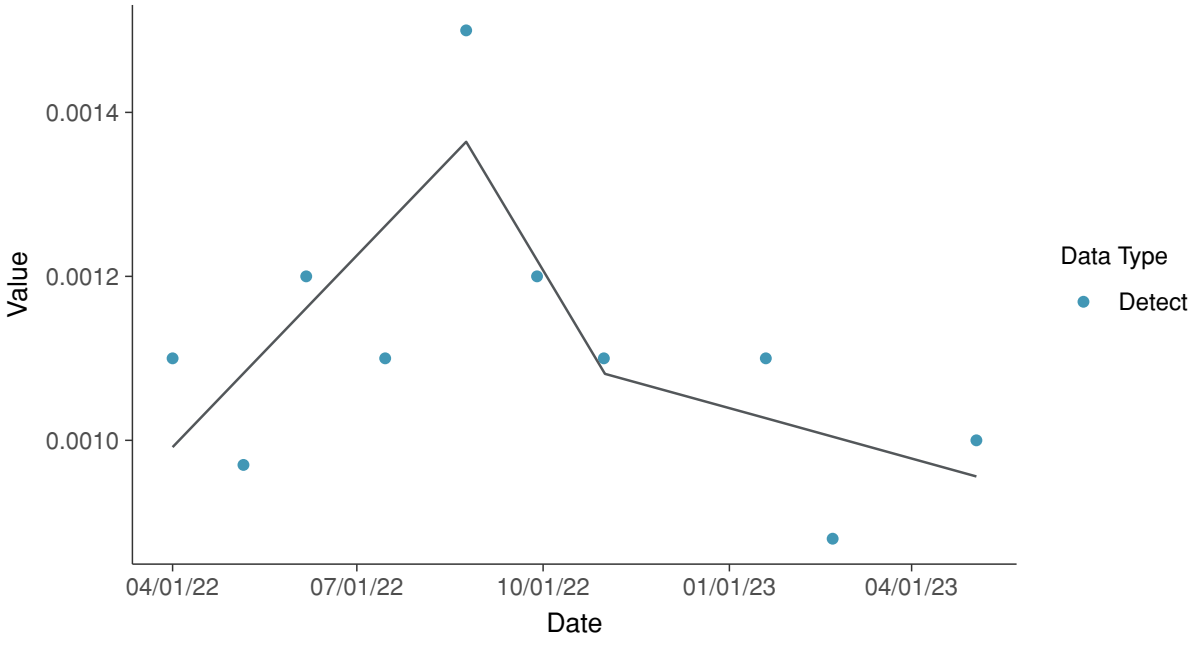
Trend Regression: Piecewise Linear-Linear

Cadmium, W-14 (mg/l)



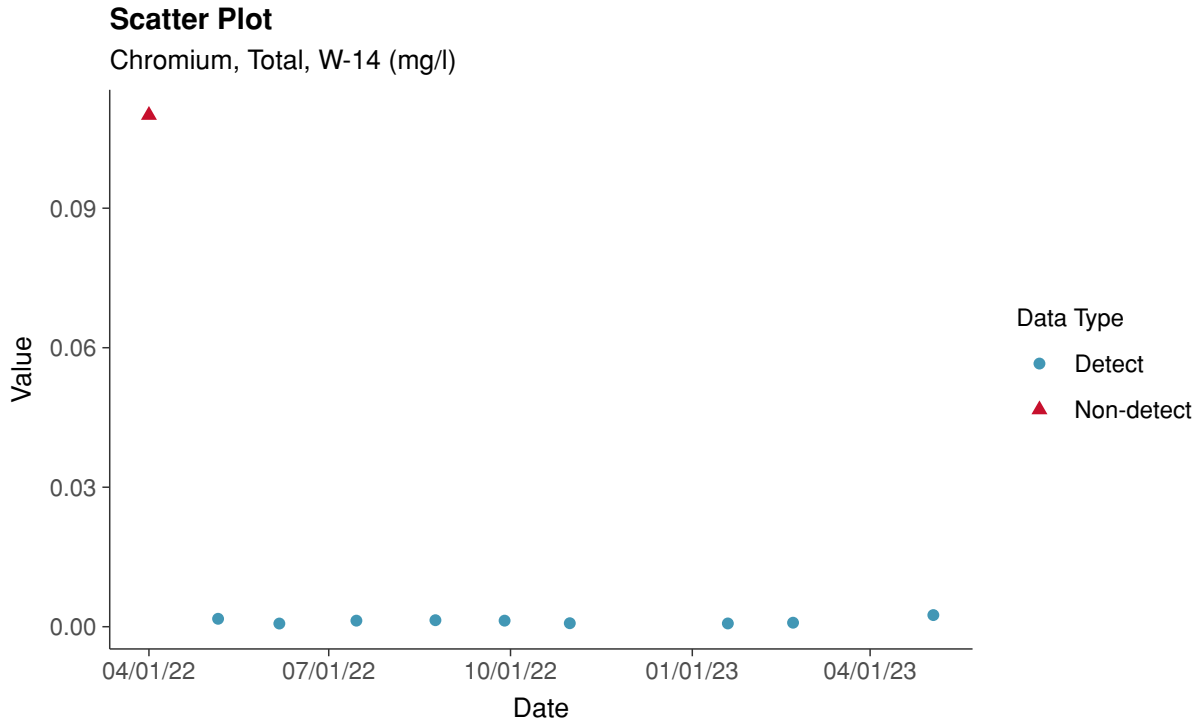
Trend Regression: Piecewise Linear-Linear-Linear

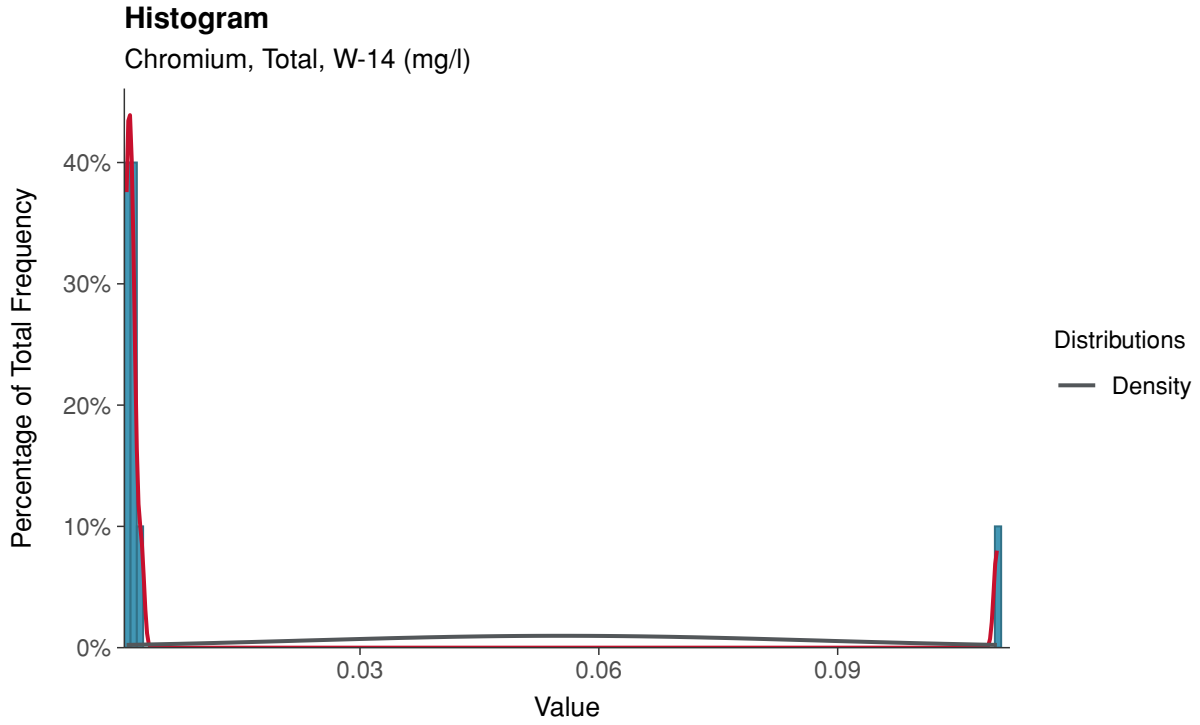
Cadmium, W-14 (mg/l)



Appendix IV: Chromium, Total, W-14

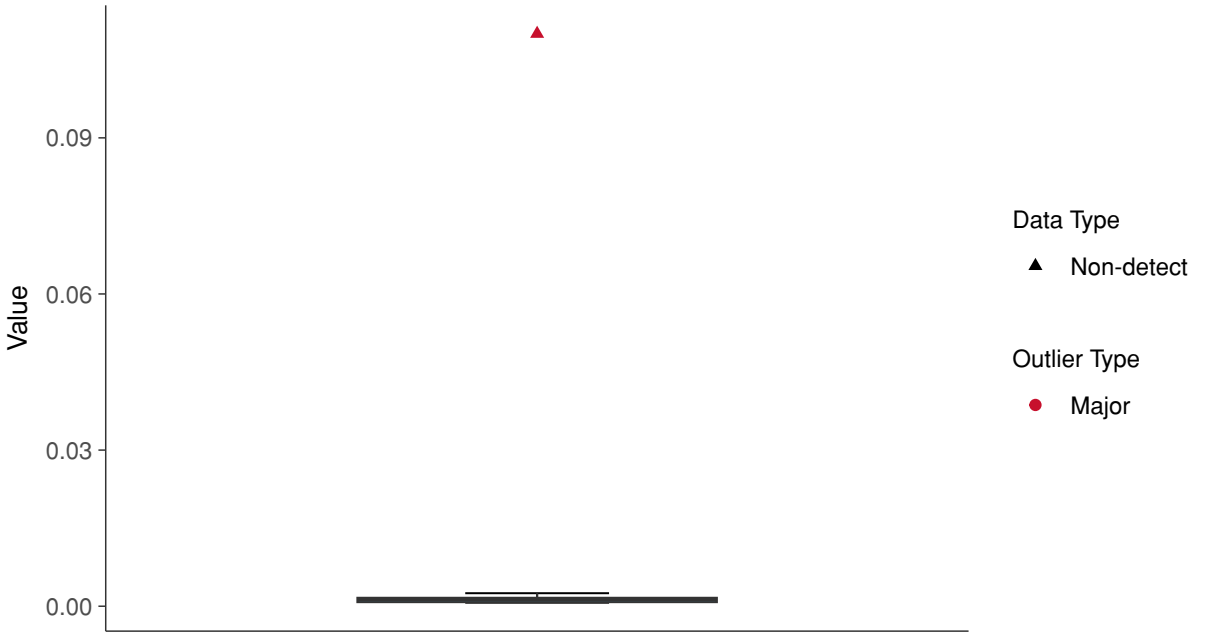
ID: 4_2_109





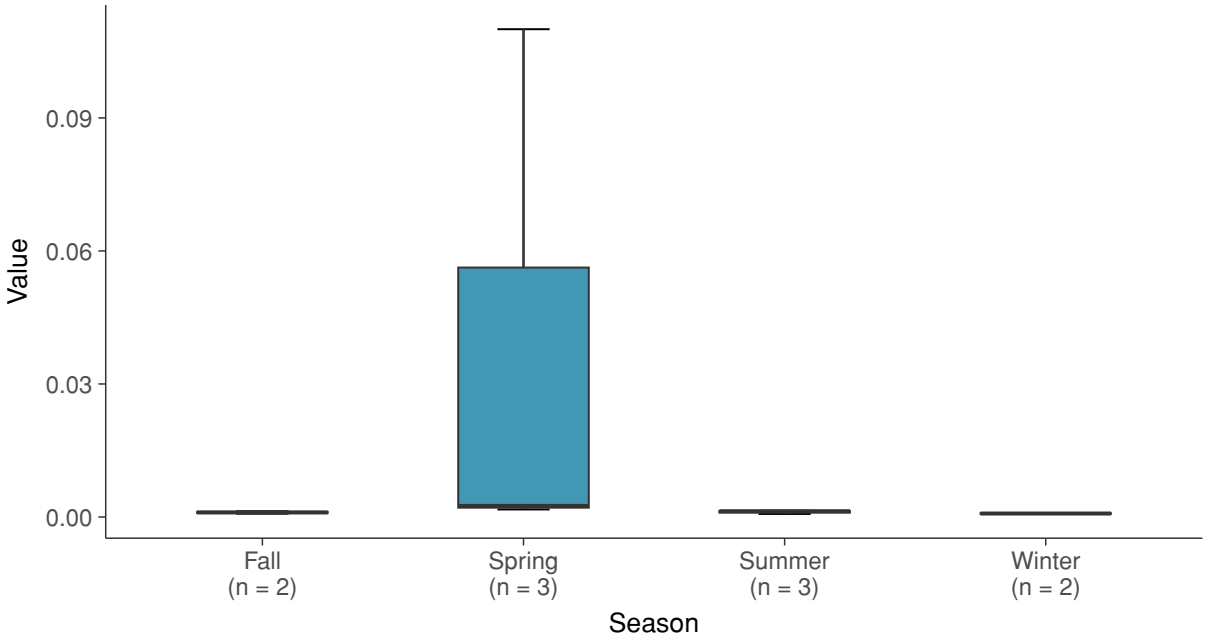
Boxplot

Chromium, Total, W-14 (mg/l)



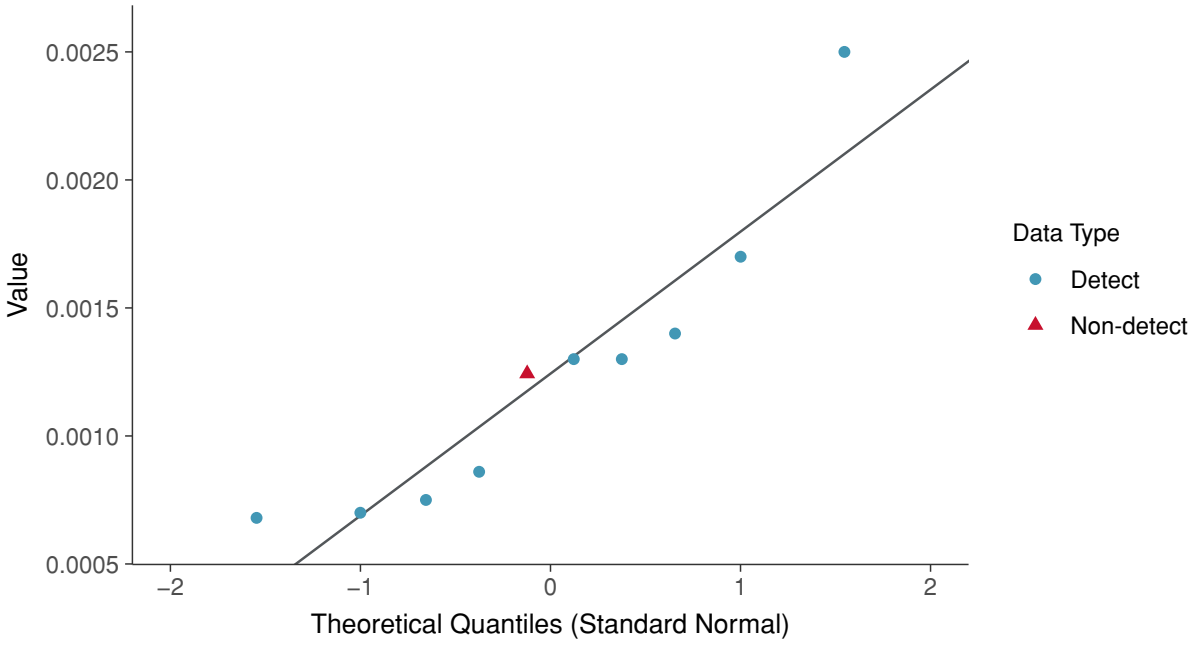
Boxplot by Season

Chromium, Total, W-14 (mg/l)



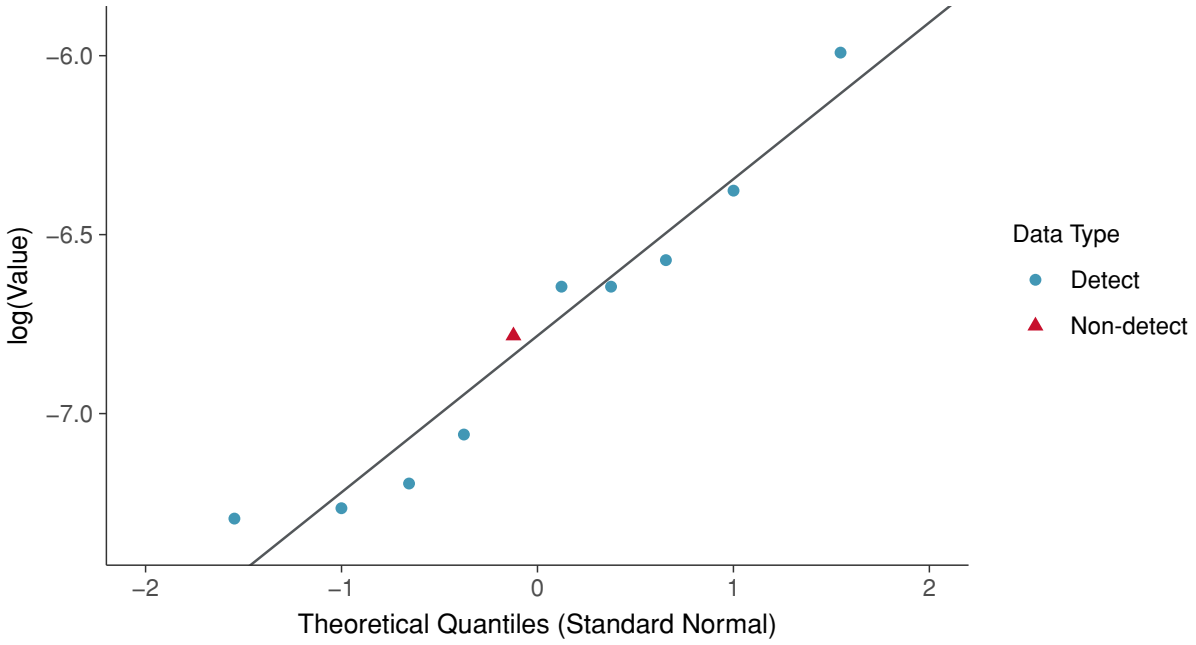
Normal Q-Q plot using ROS Imputed Estimates

Chromium, Total, W-14 (mg/l)



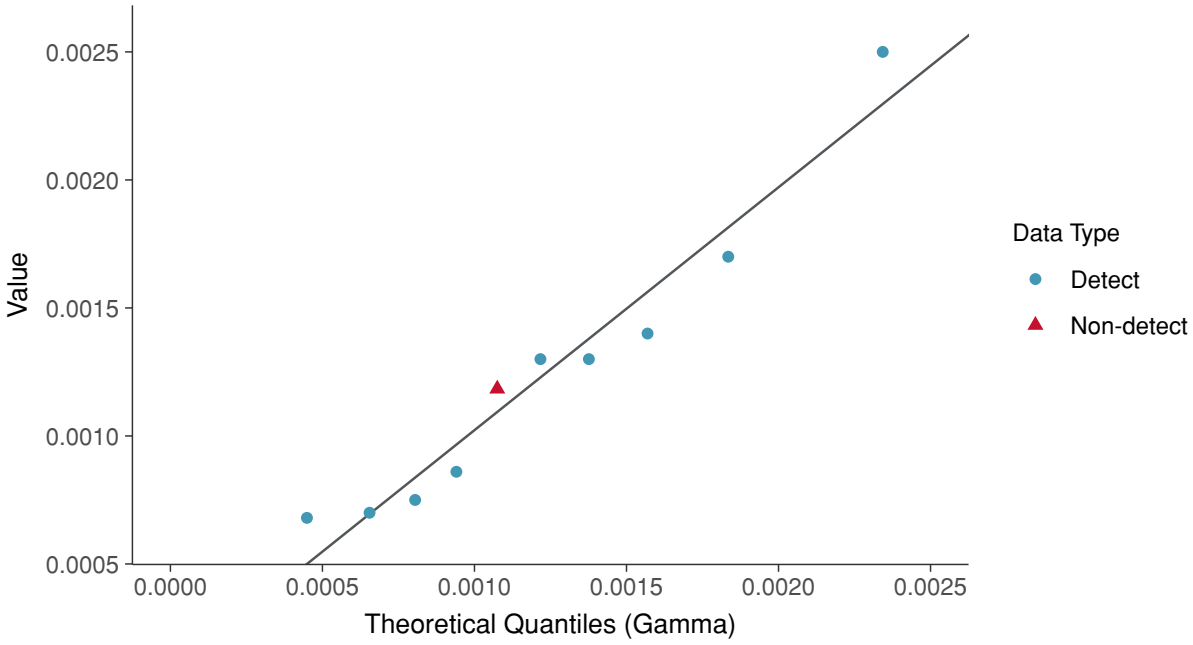
Lognormal Q-Q plot using ROS Imputed Estimates

Chromium, Total, W-14 (mg/l)



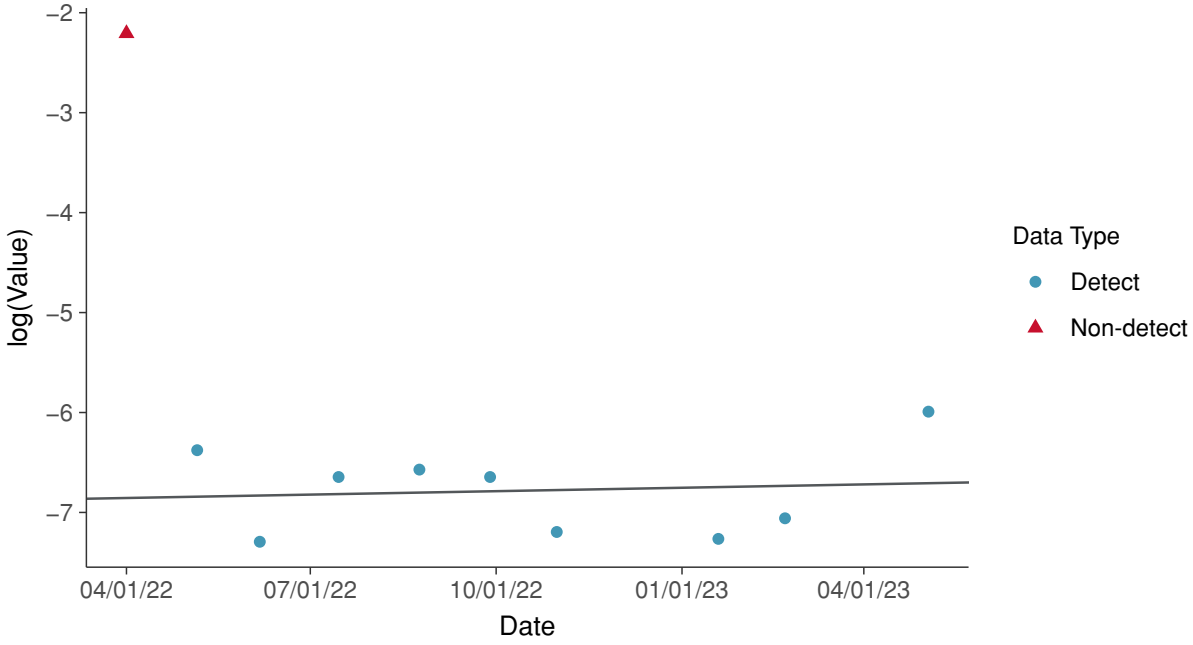
Gamma Q-Q plot using ROS Imputed Estimates

Chromium, Total, W-14 (mg/l)



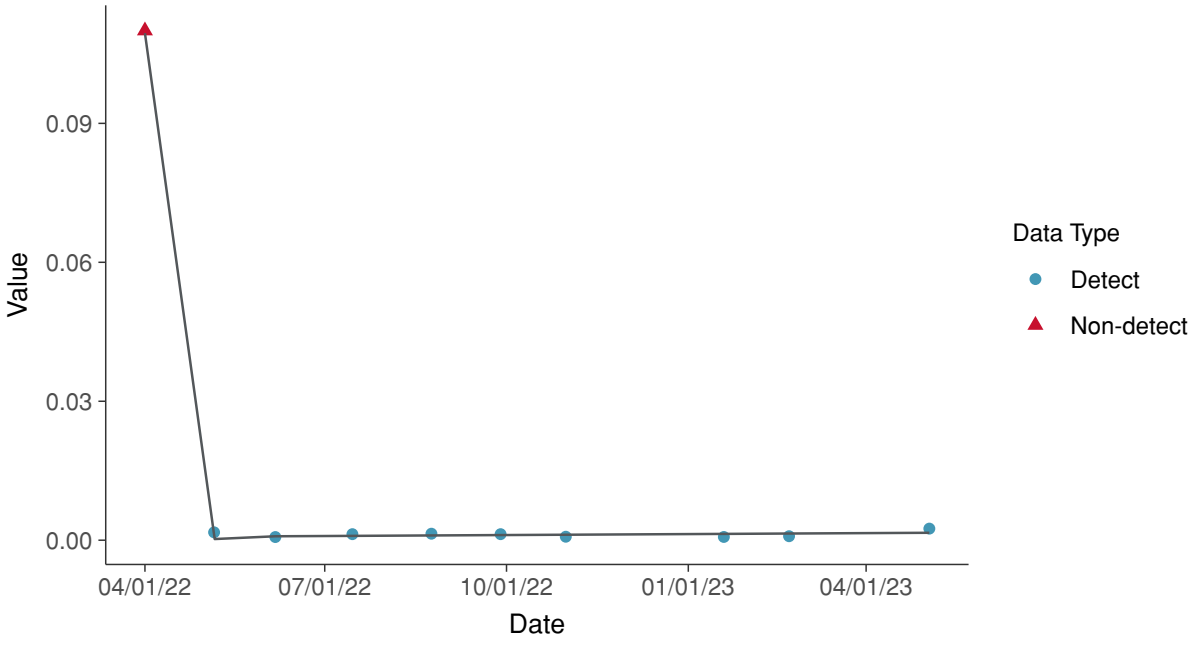
Trend Regression: Lognormal MLE

Chromium, Total, W-14 (mg/l)



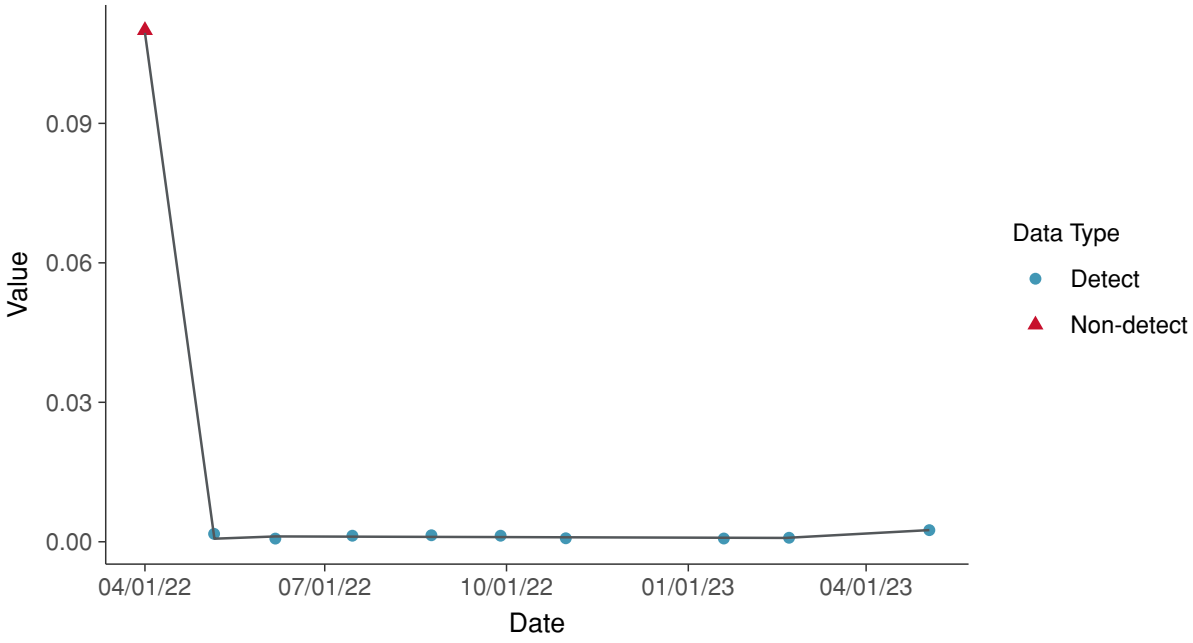
Trend Regression: Piecewise Linear-Linear

Chromium, Total, W-14 (mg/l)



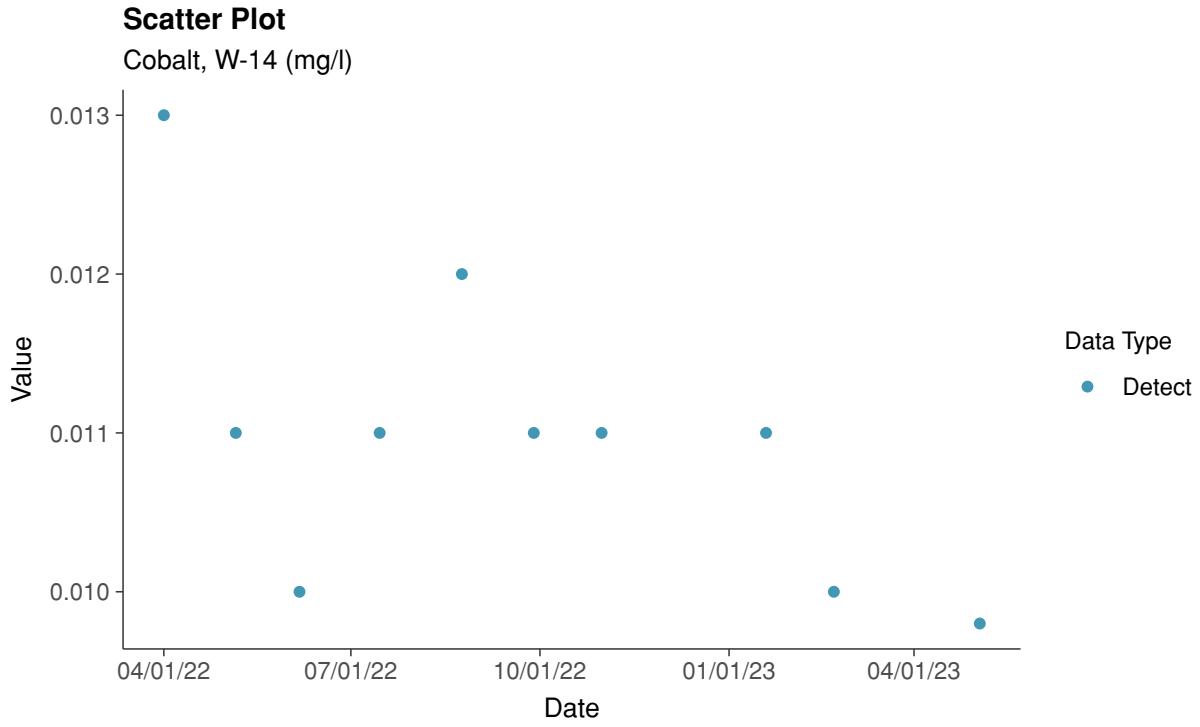
Trend Regression: Piecewise Linear-Linear-Linear

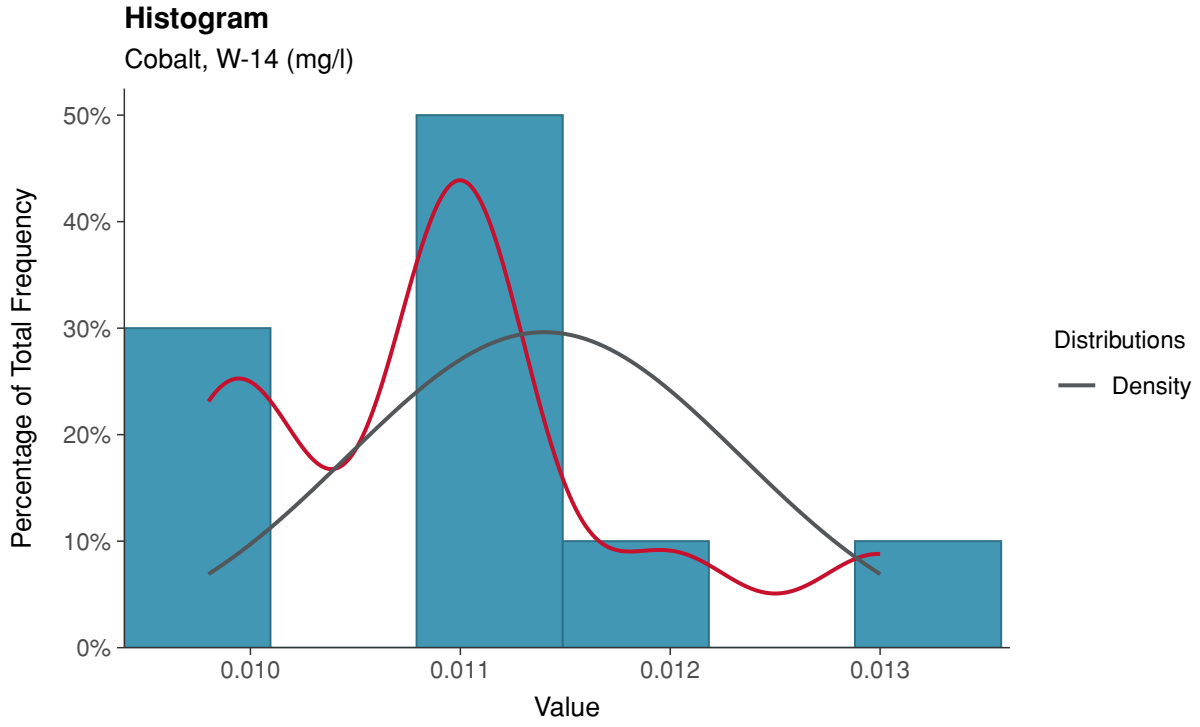
Chromium, Total, W-14 (mg/l)



Appendix IV: Cobalt, W-14

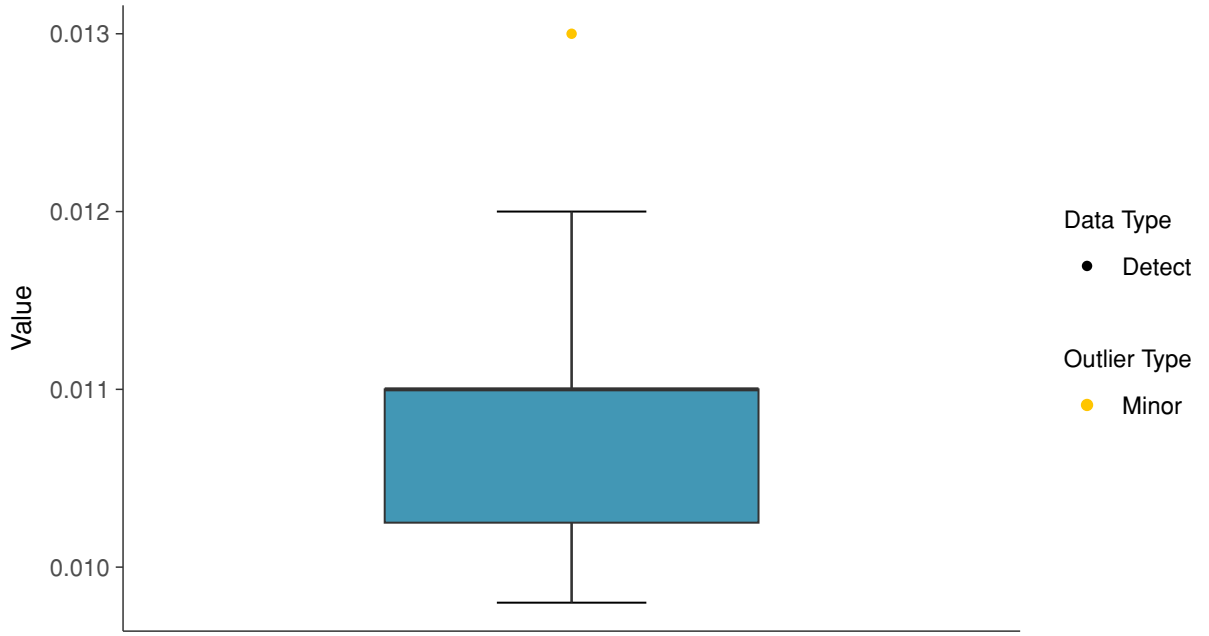
ID: 4_2_110





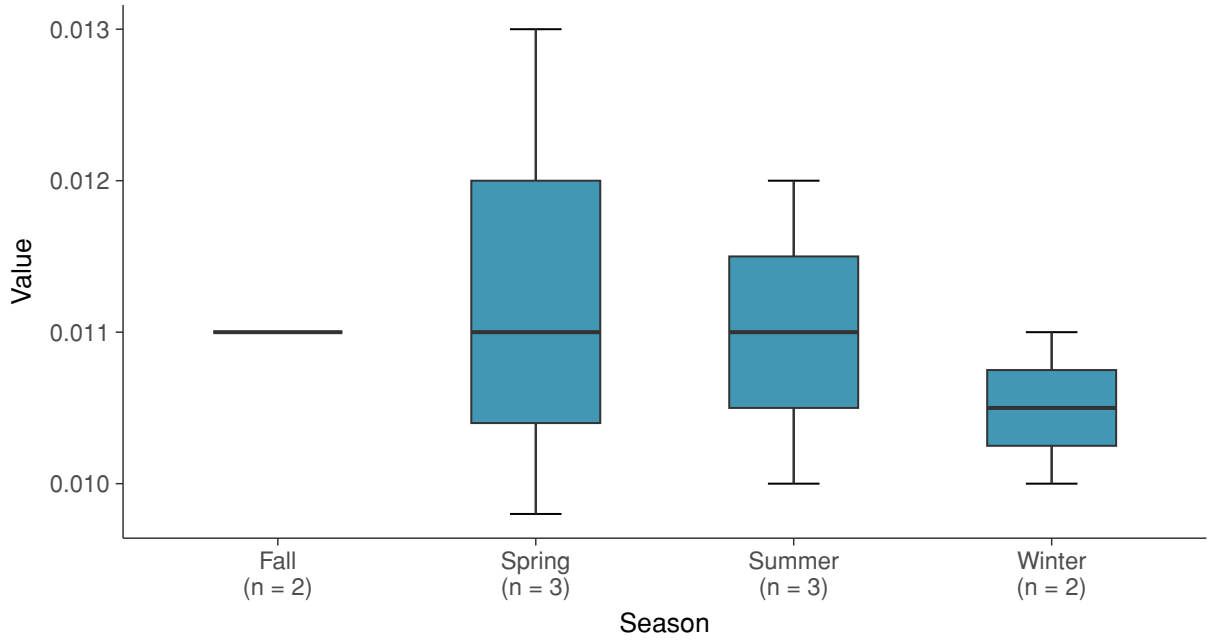
Boxplot

Cobalt, W-14 (mg/l)



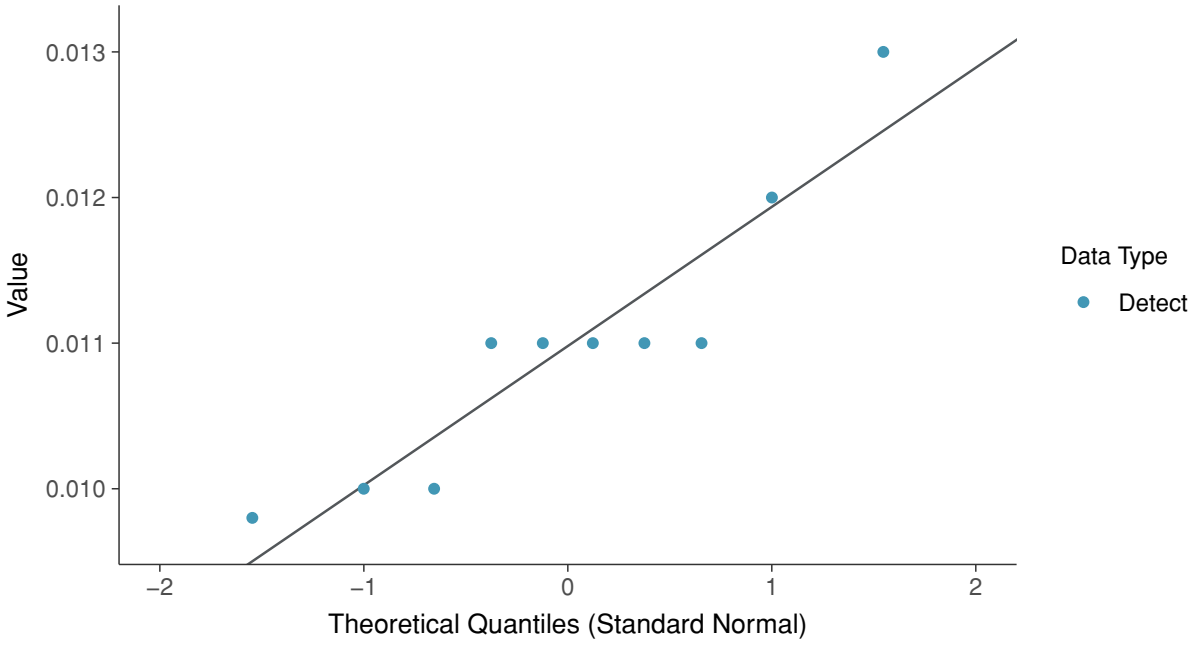
Boxplot by Season

Cobalt, W-14 (mg/l)



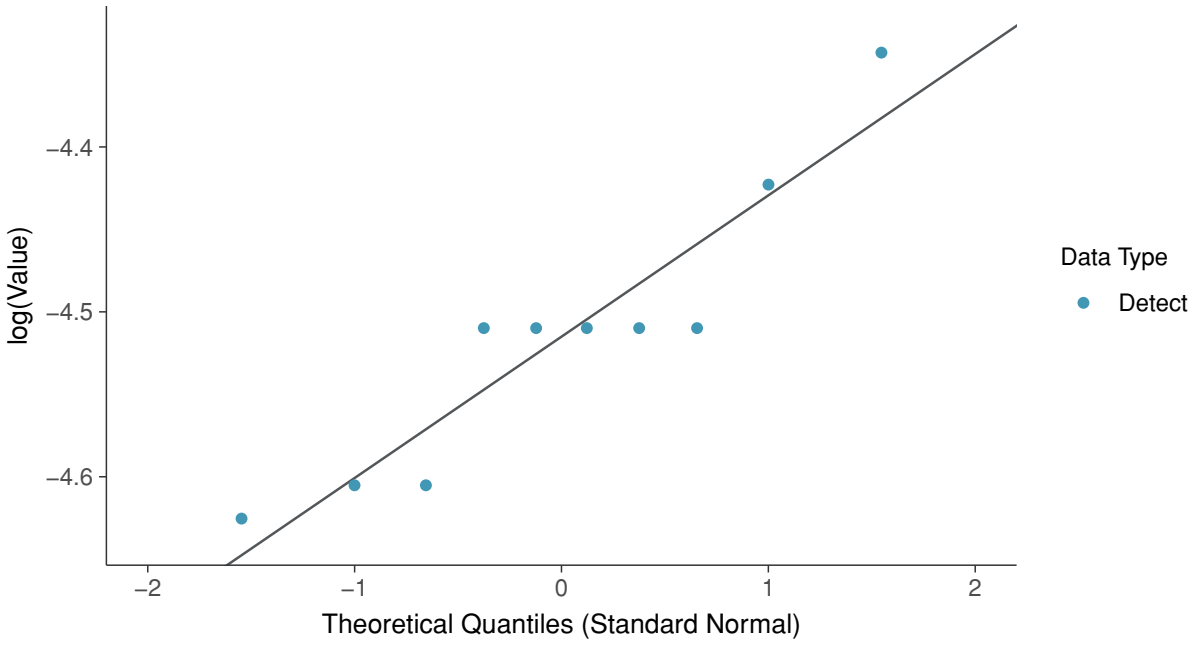
Normal Q-Q plot

Cobalt, W-14 (mg/l)



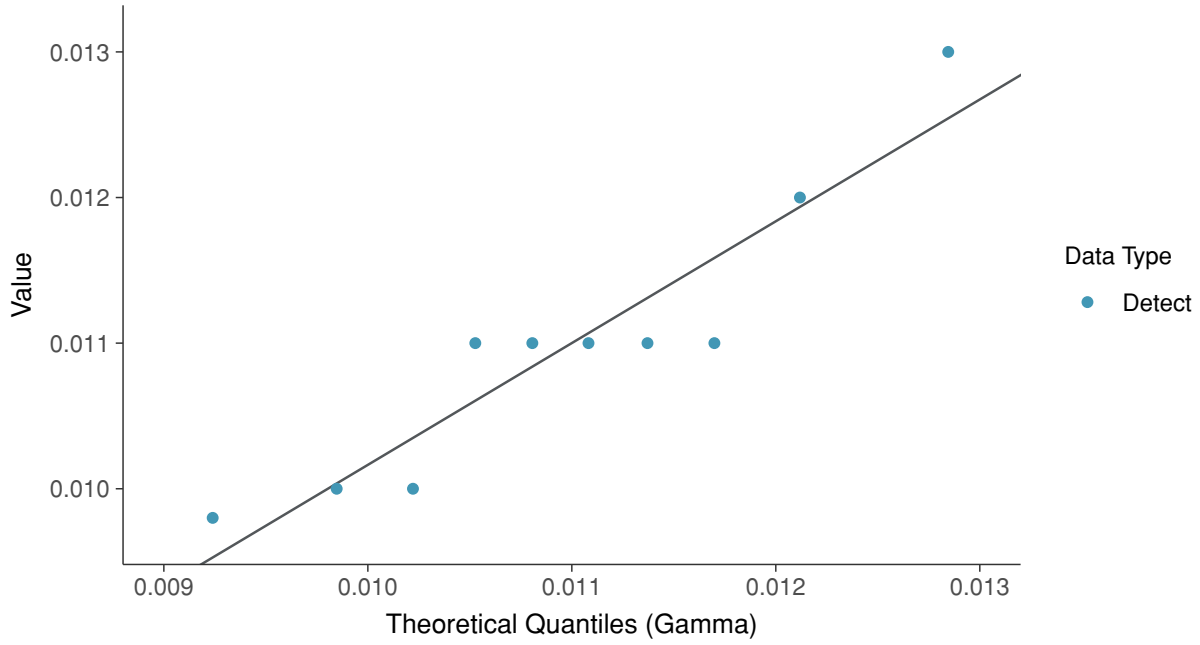
Lognormal Q-Q plot

Cobalt, W-14 (mg/l)



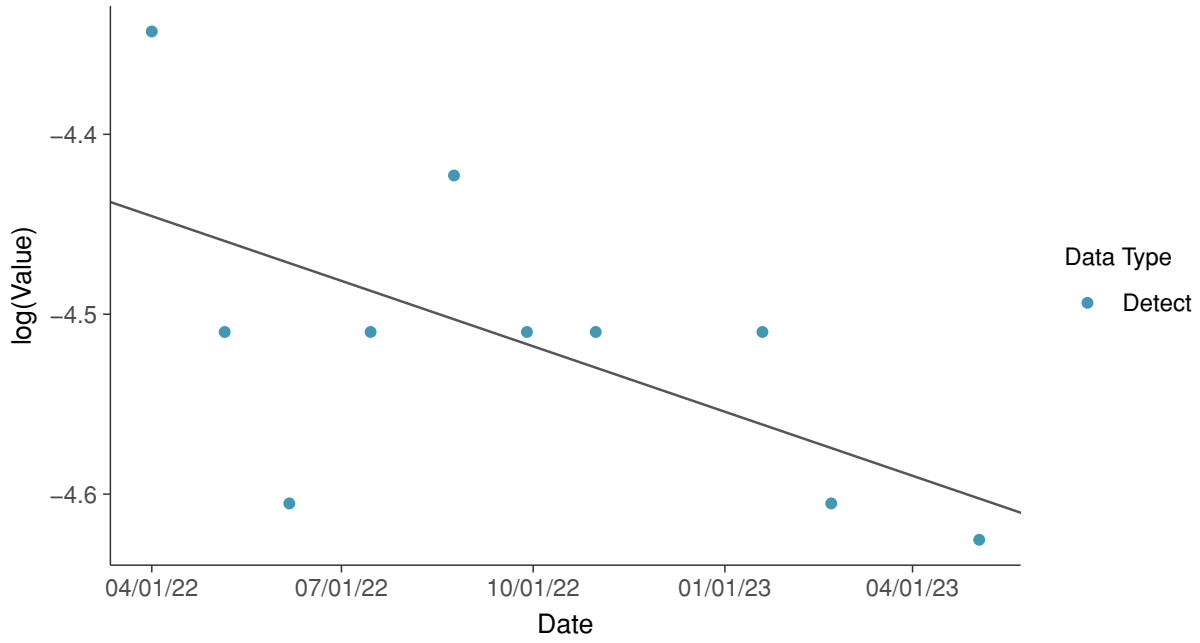
Gamma Q-Q plot

Cobalt, W-14 (mg/l)



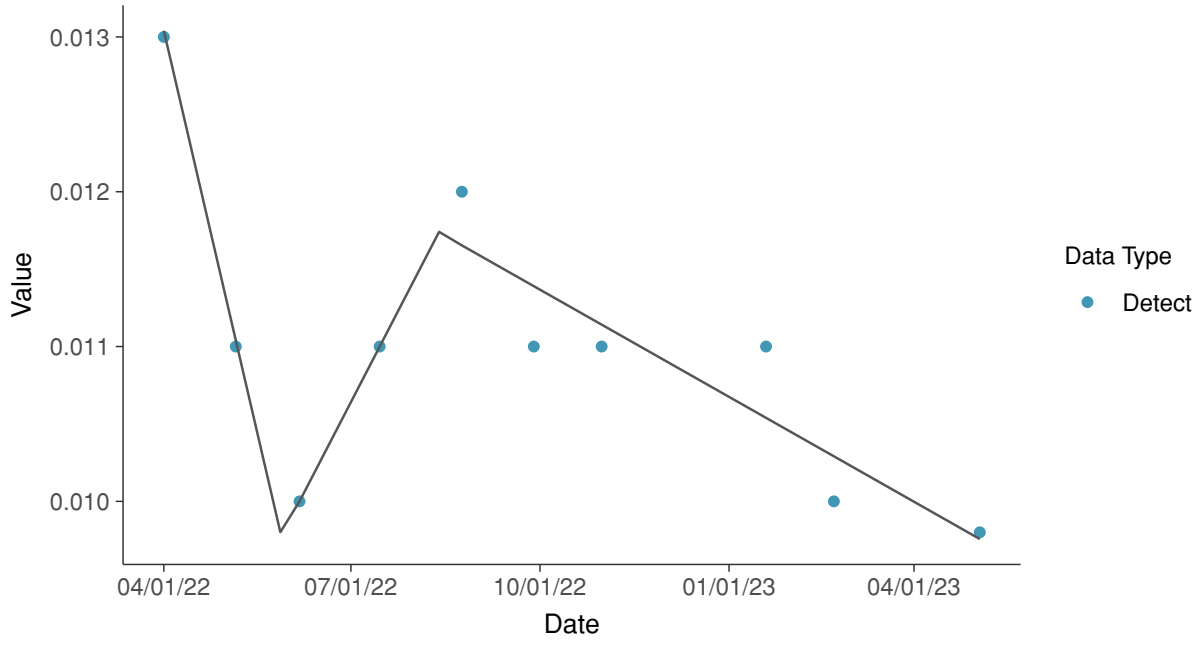
Trend Regression: Lognormal MLE

Cobalt, W-14 (mg/l)



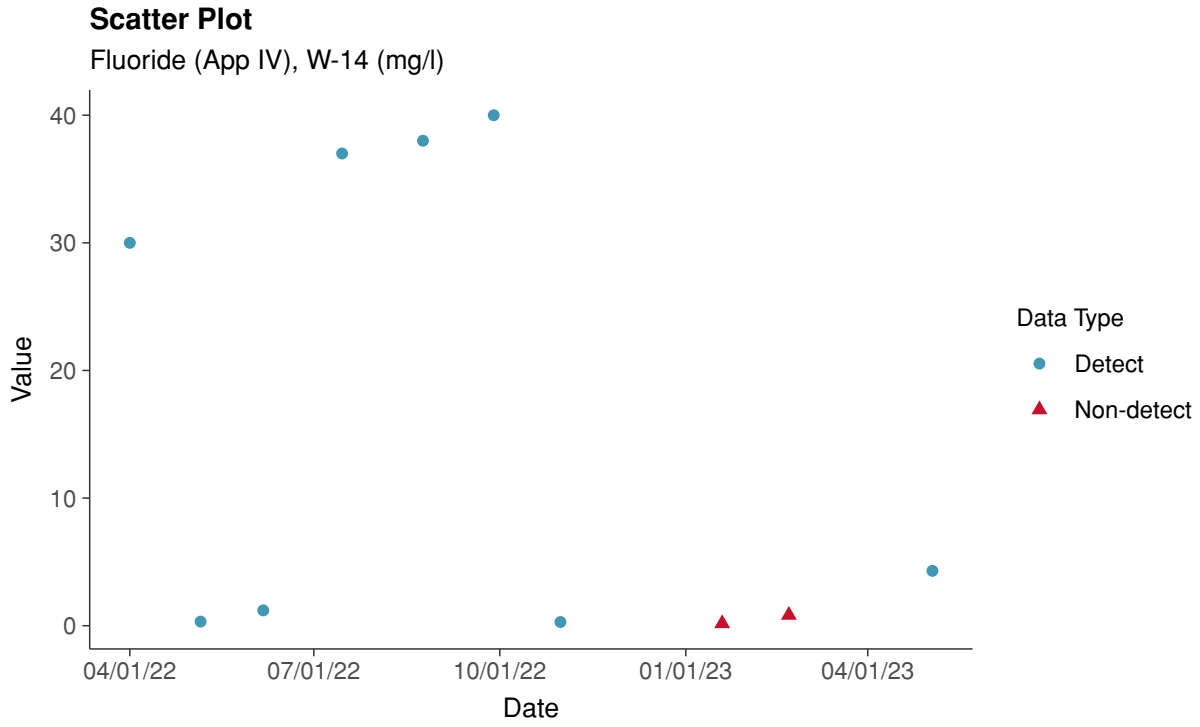
Trend Regression: Piecewise Linear-Linear-Linear

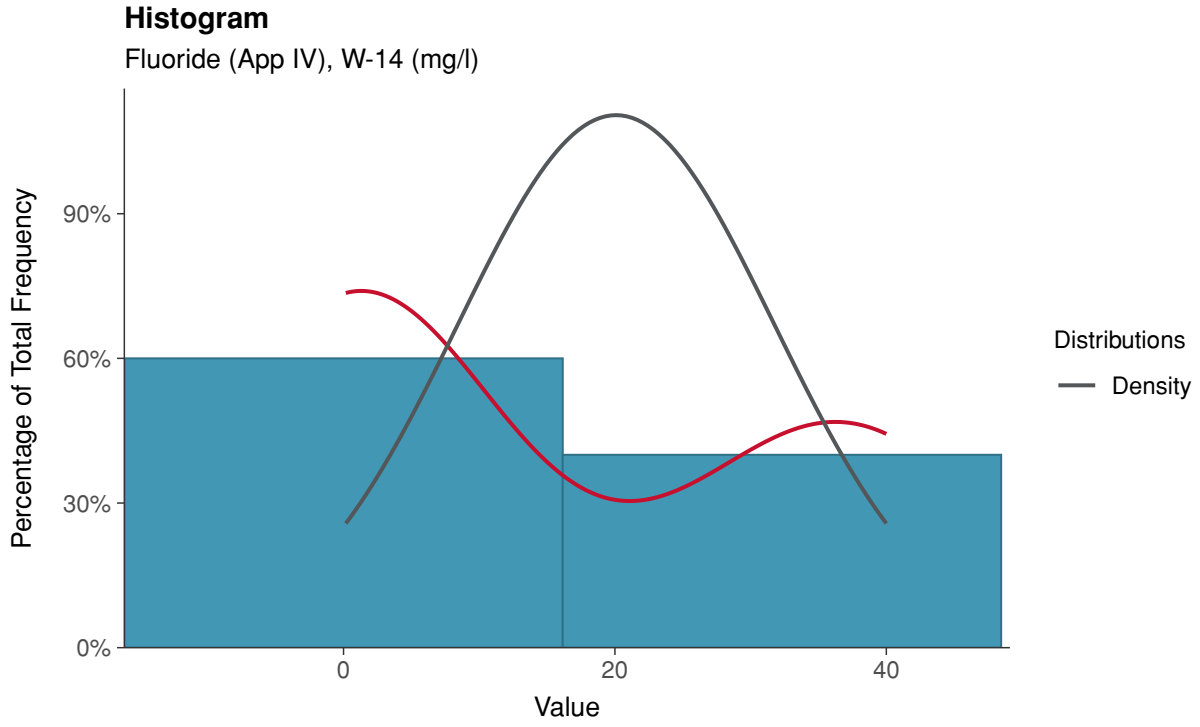
Cobalt, W-14 (mg/l)



Appendix IV: Fluoride (App IV), W-14

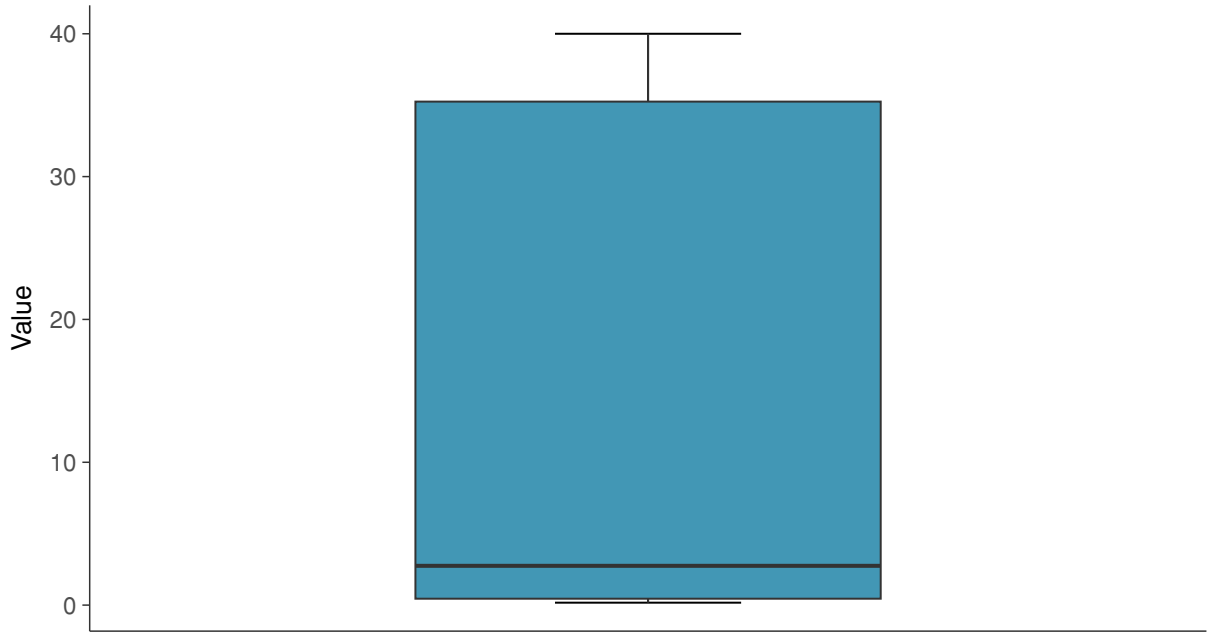
ID: 4_2_112





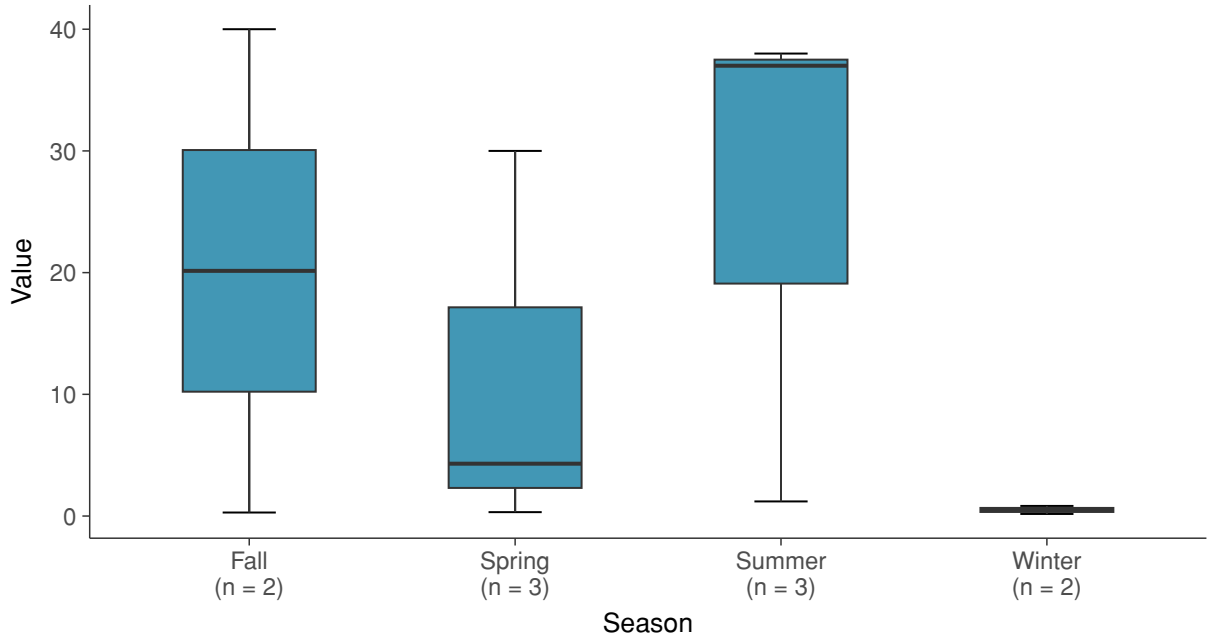
Boxplot

Fluoride (App IV), W-14 (mg/l)



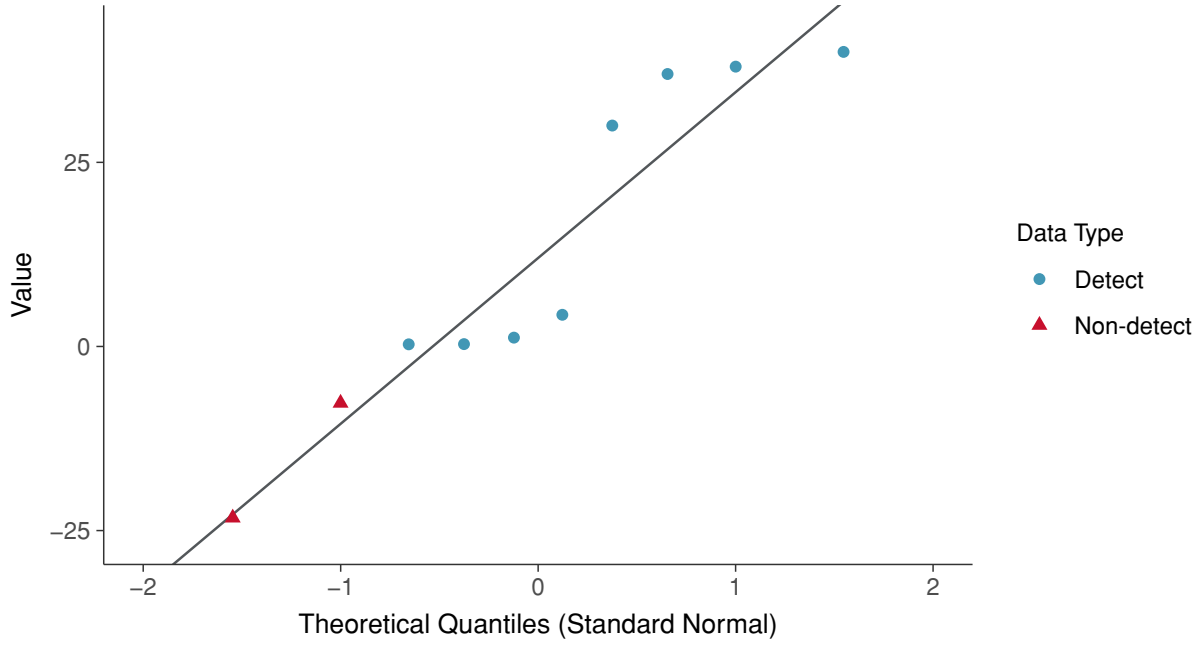
Boxplot by Season

Fluoride (App IV), W-14 (mg/l)



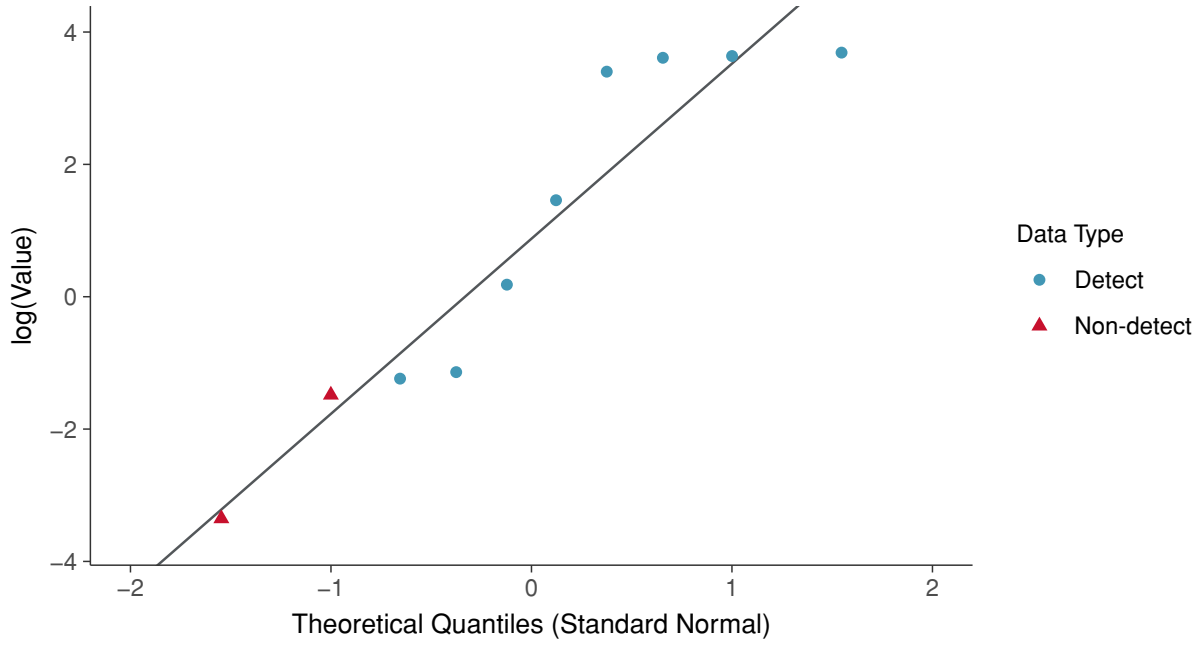
Normal Q-Q plot using ROS Imputed Estimates

Fluoride (App IV), W-14 (mg/l)



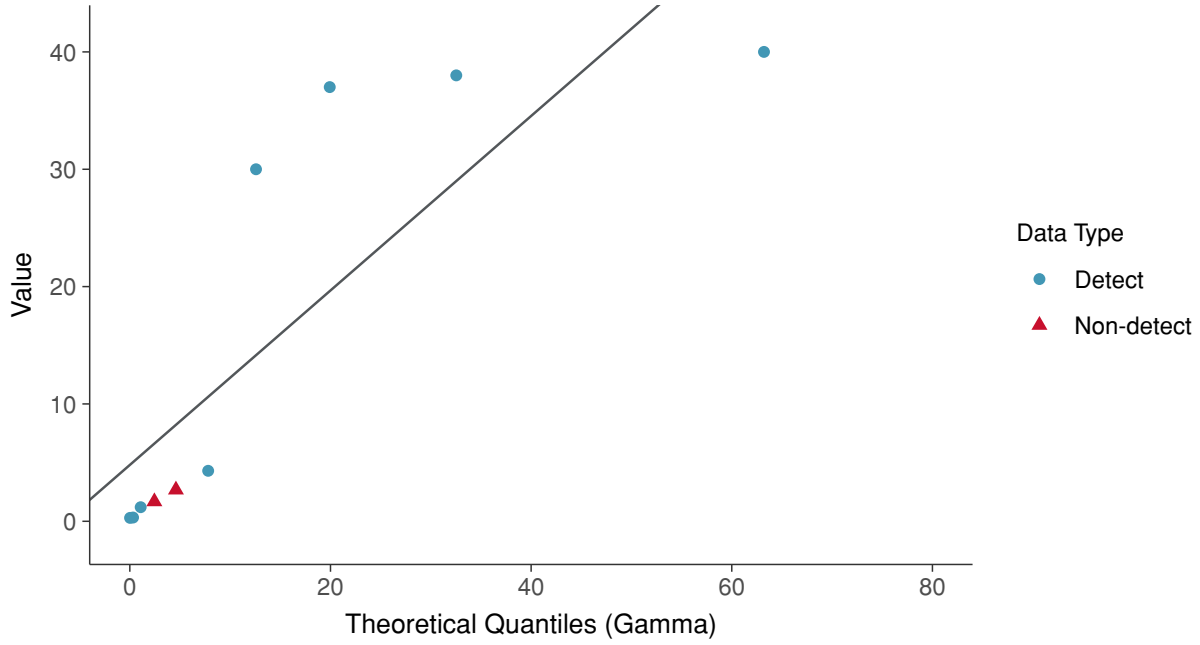
Lognormal Q-Q plot using ROS Imputed Estimates

Fluoride (App IV), W-14 (mg/l)



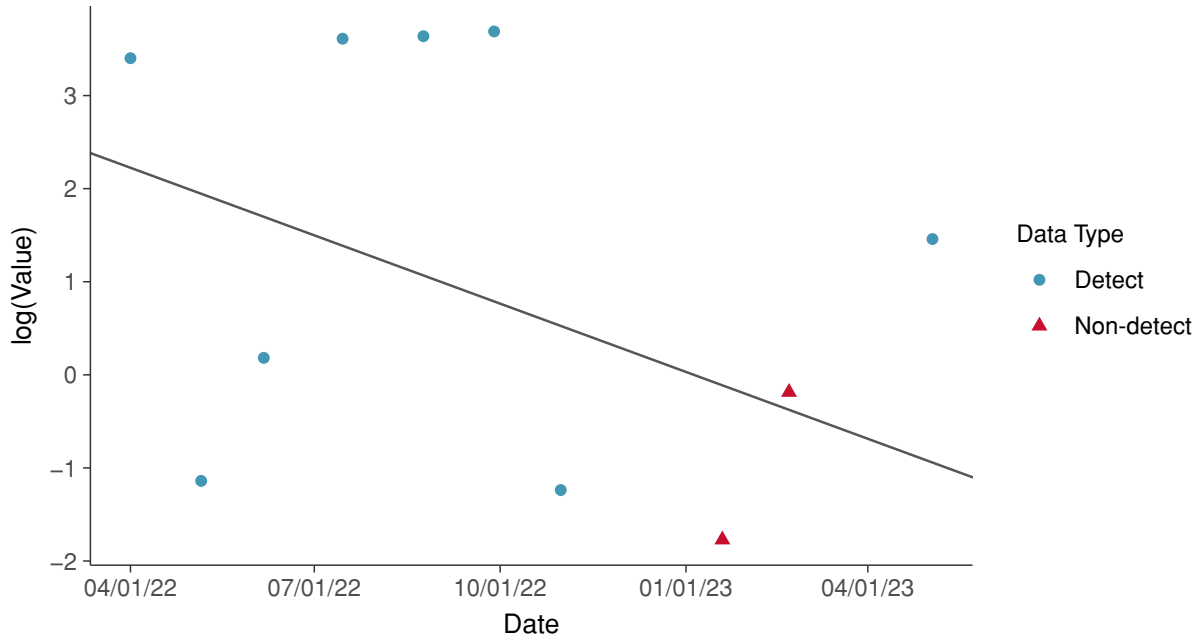
Gamma Q-Q plot using ROS Imputed Estimates

Fluoride (App IV), W-14 (mg/l)



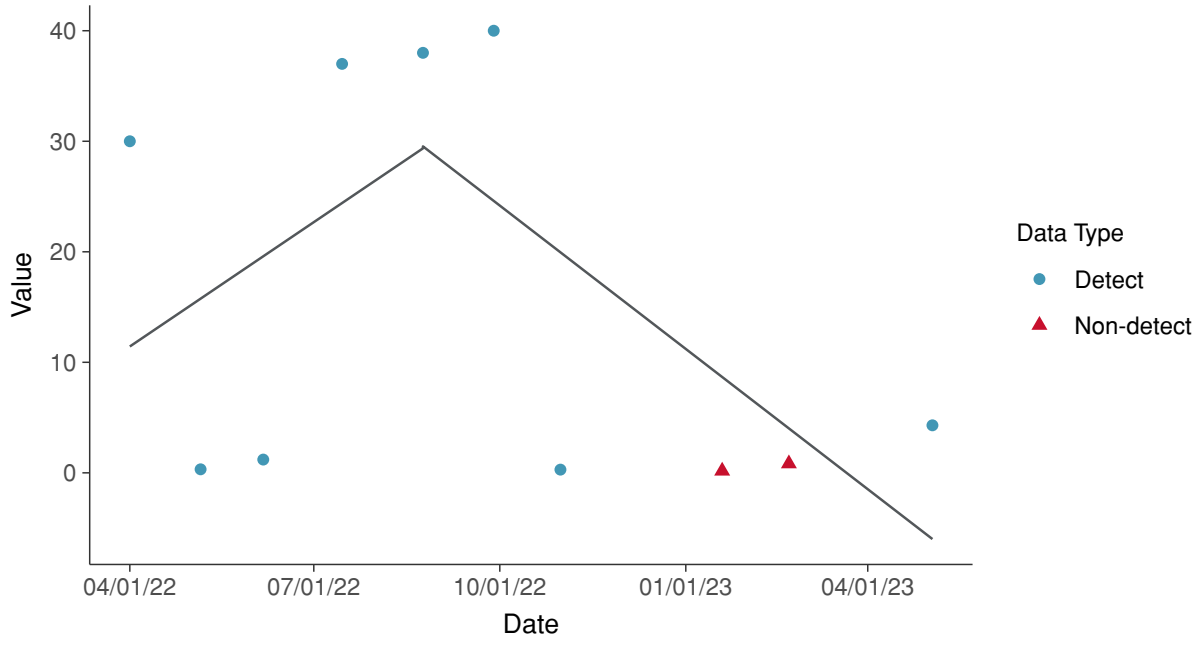
Trend Regression: Lognormal MLE

Fluoride (App IV), W-14 (mg/l)



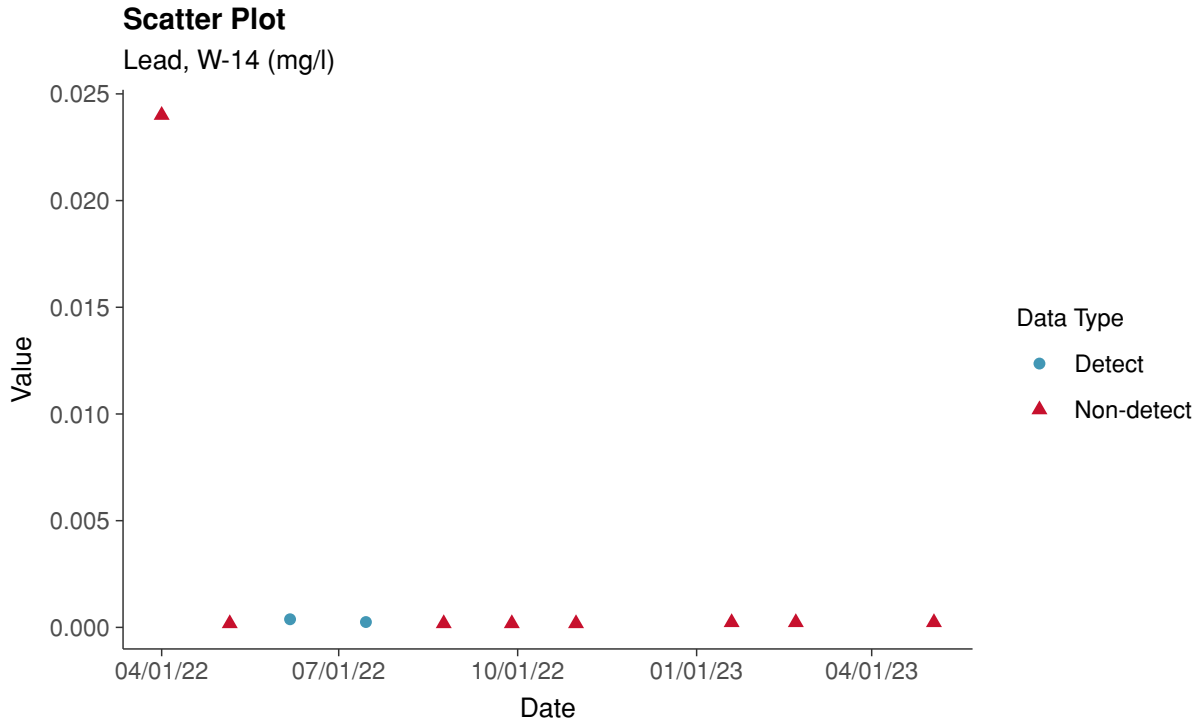
Trend Regression: Piecewise Linear-Linear

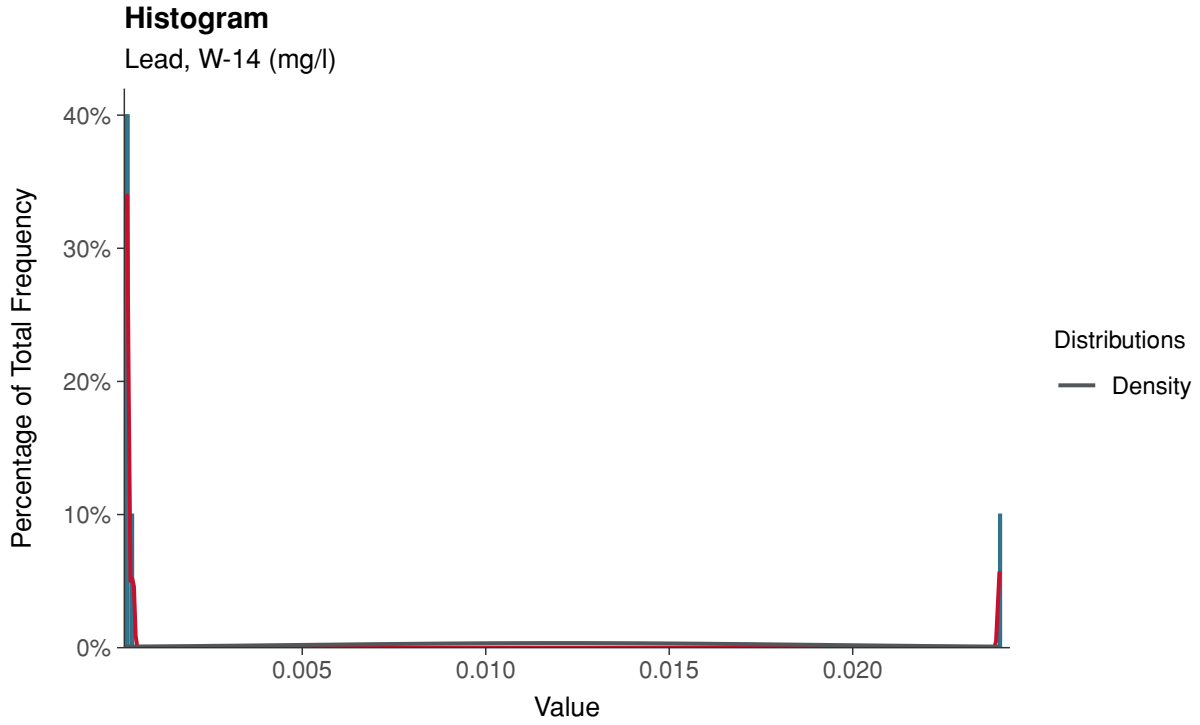
Fluoride (App IV), W-14 (mg/l)



Appendix IV: Lead, W-14

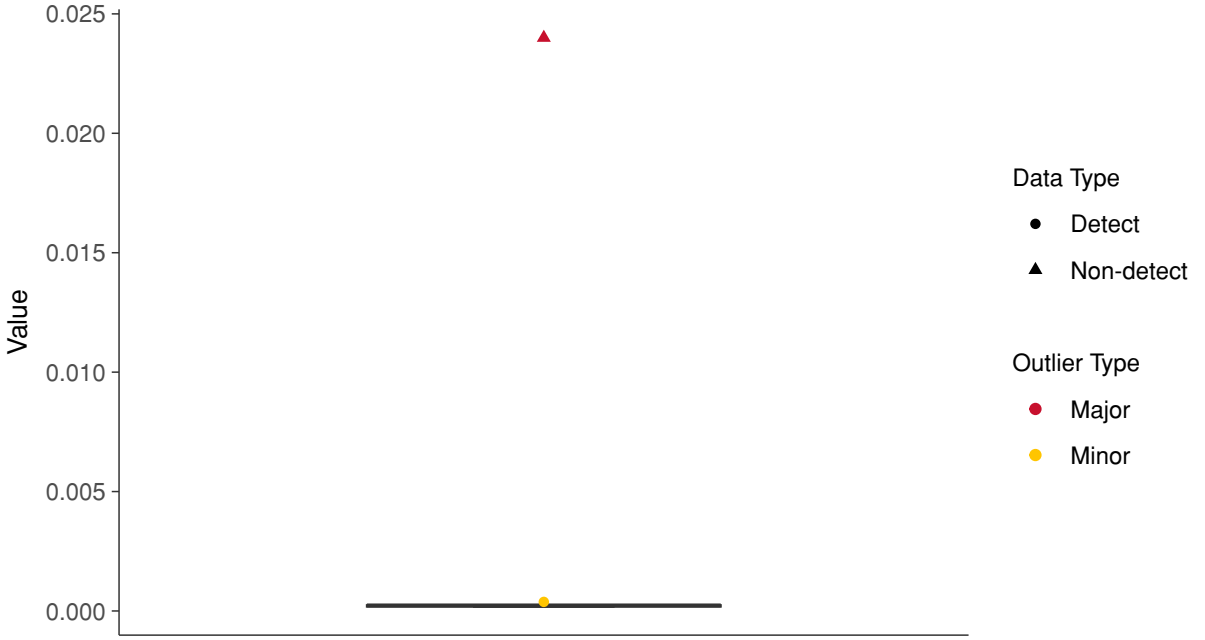
ID: 4_2_113





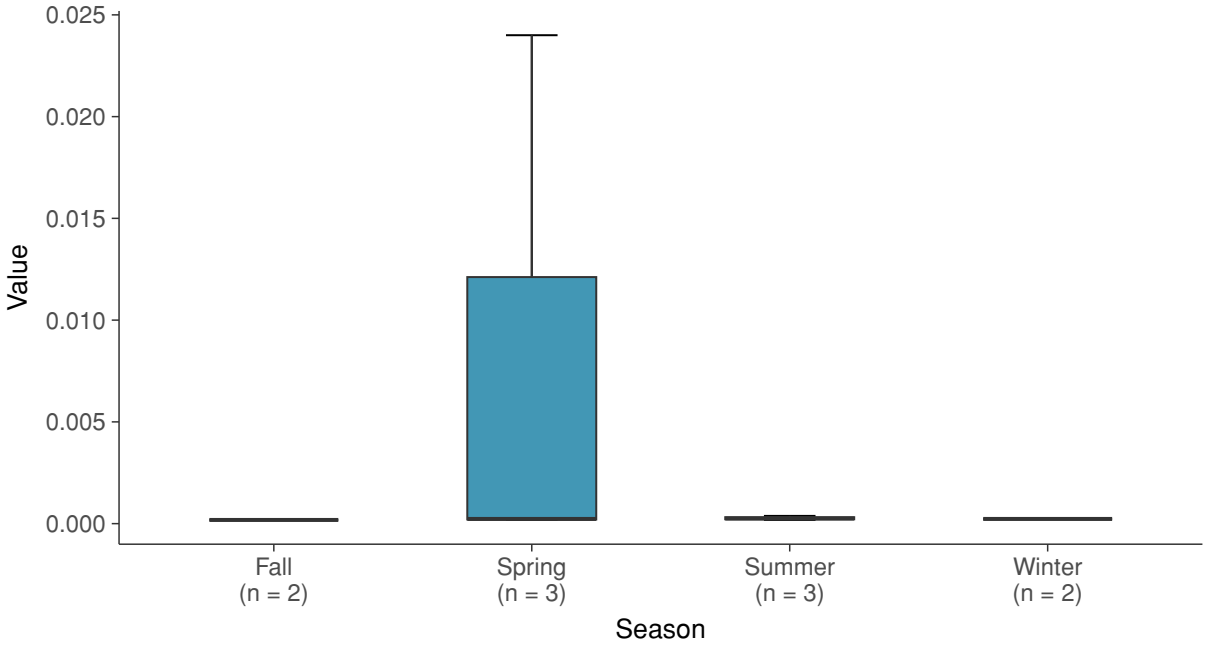
Boxplot

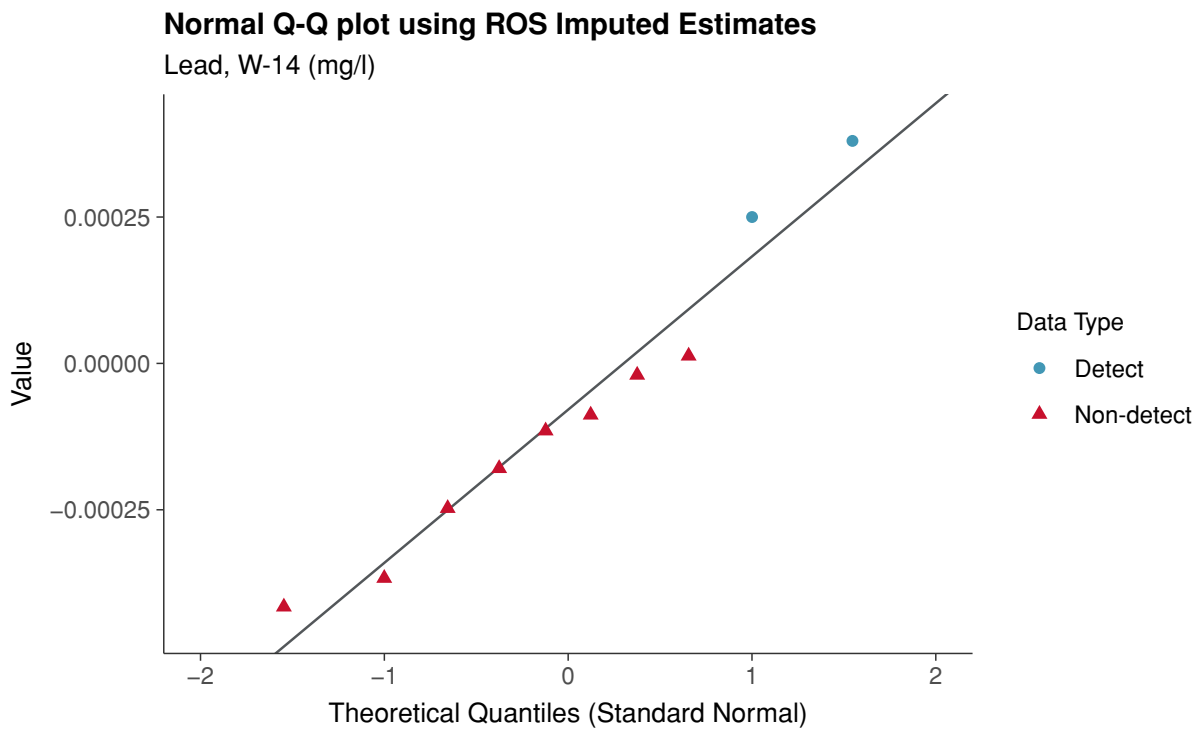
Lead, W-14 (mg/l)



Boxplot by Season

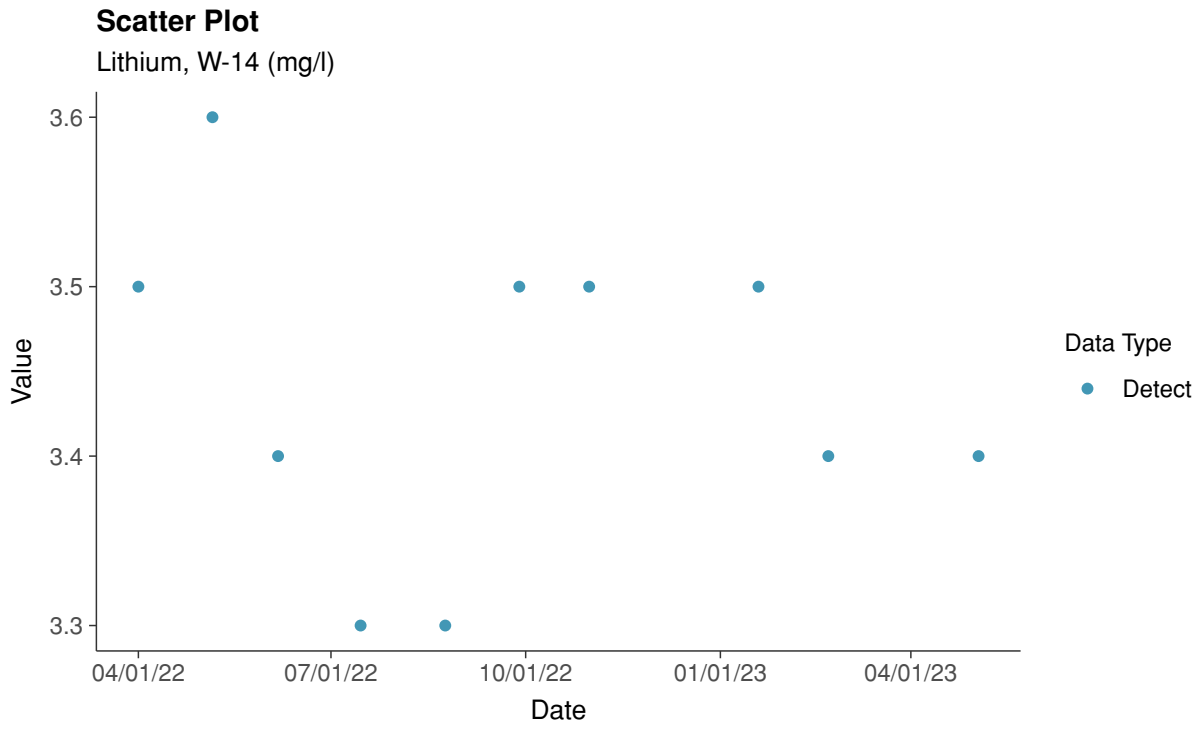
Lead, W-14 (mg/l)

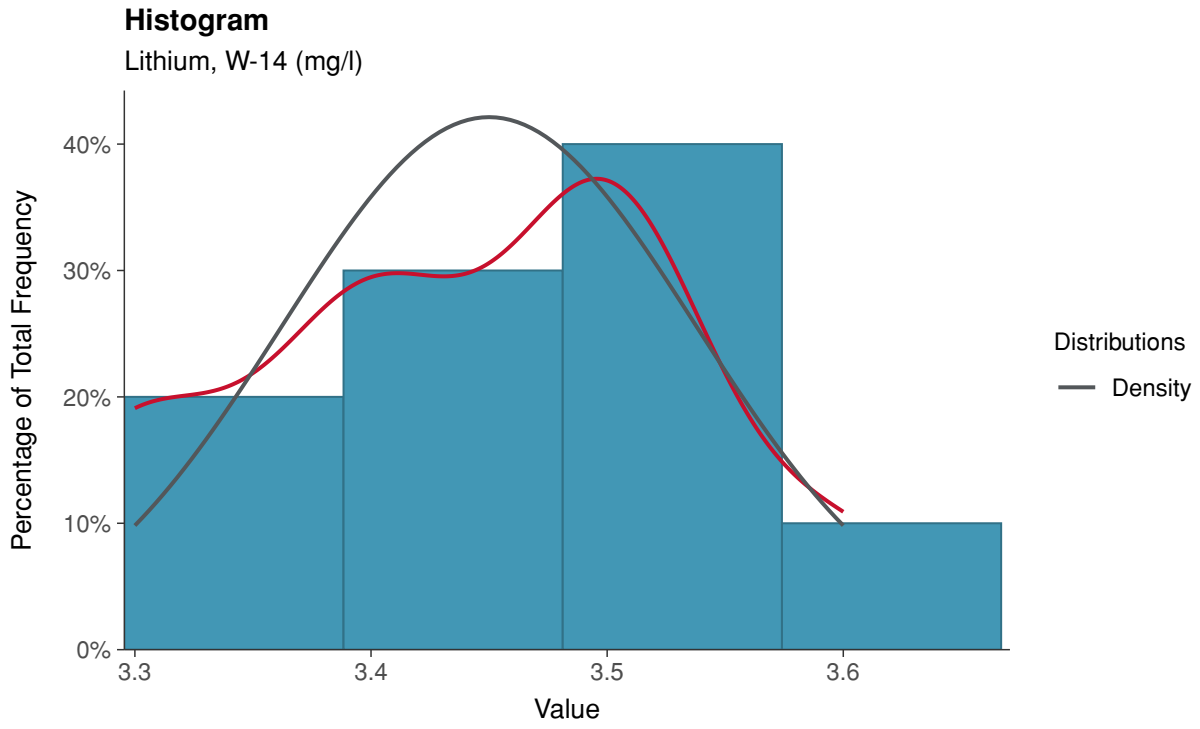



Normal Q-Q plot using ROS Imputed Estimates
Lead, W-14 (mg/l)
Value
0.00025
0.00000
−0.00025
−2
−1
0
1
2
Theoretical Quantiles (Standard Normal)
Data Type
Detect
Non-detect

Appendix IV: Lithium, W-14

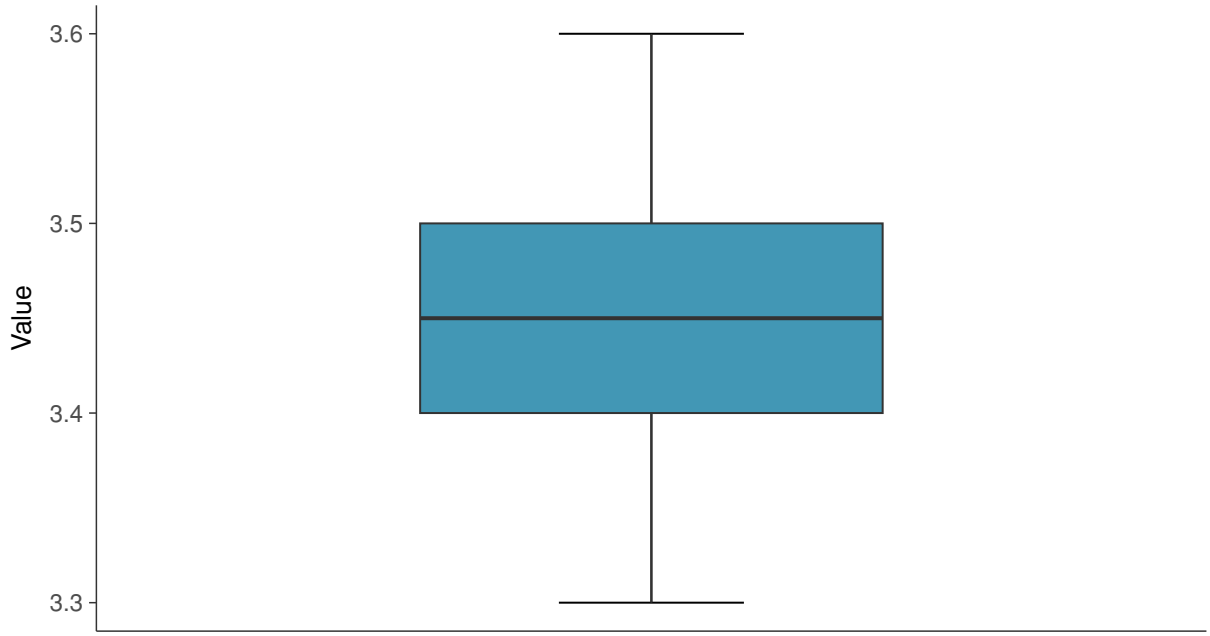
ID: 4_2_114





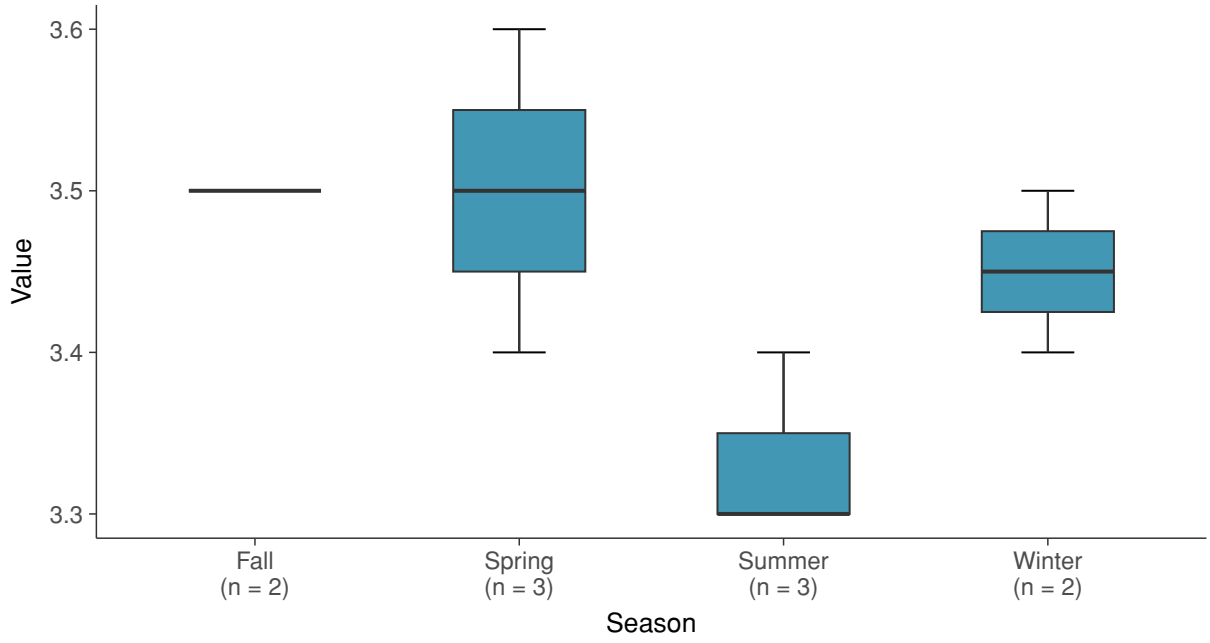
Boxplot

Lithium, W-14 (mg/l)



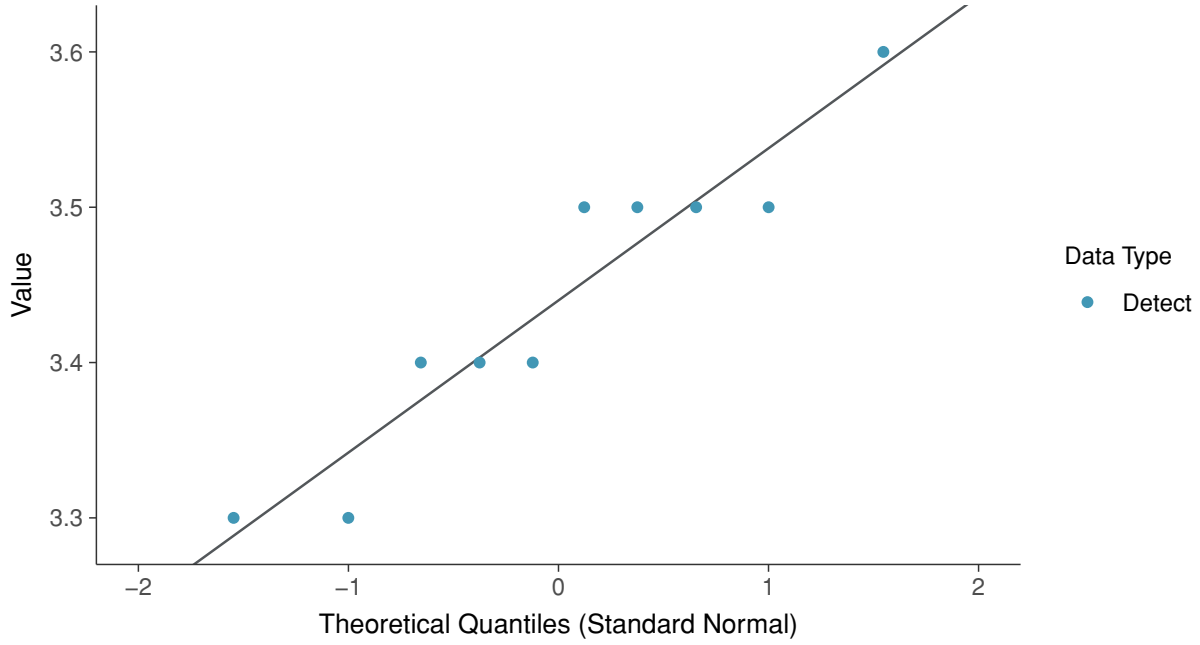
Boxplot by Season

Lithium, W-14 (mg/l)



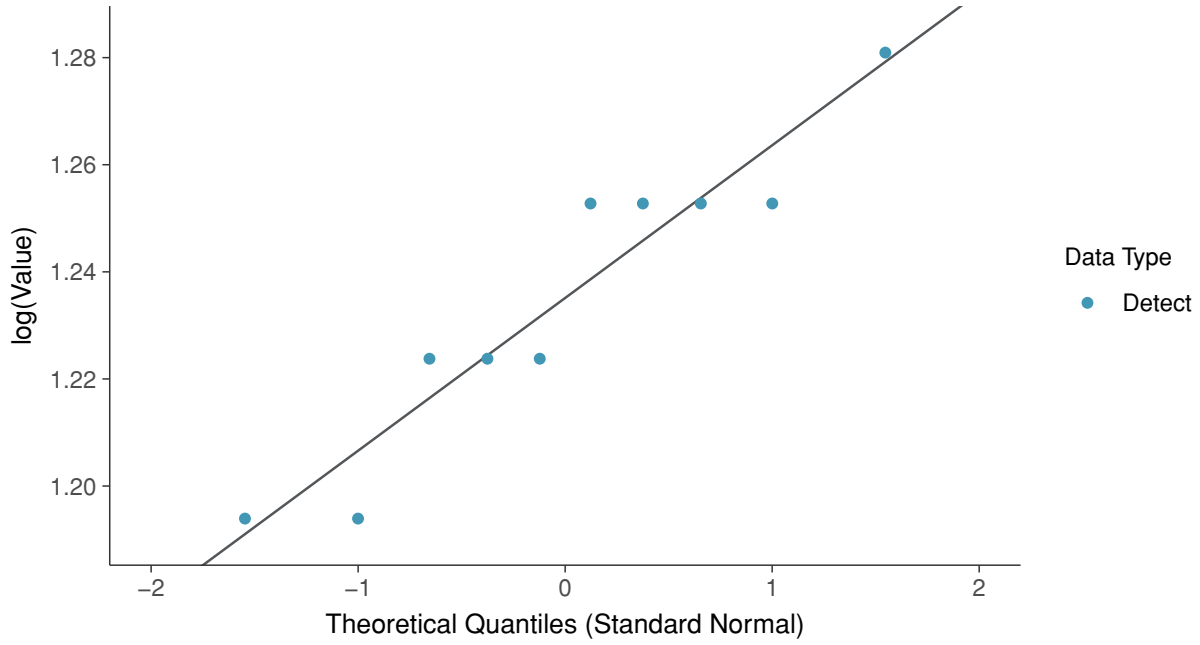
Normal Q-Q plot

Lithium, W-14 (mg/l)



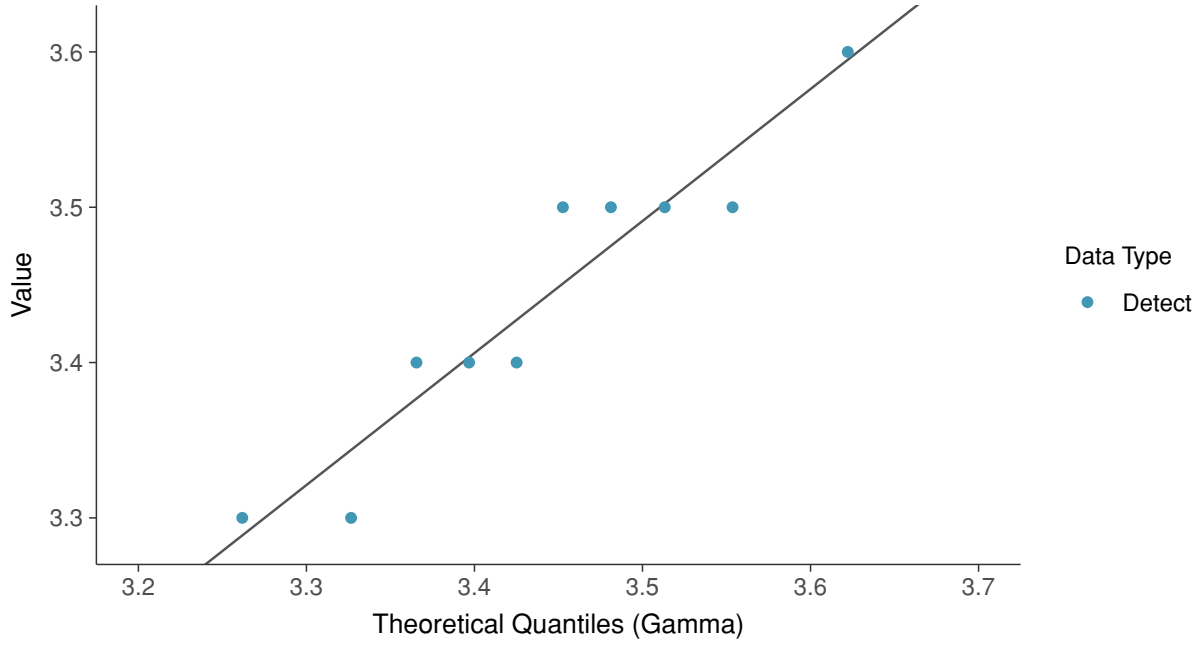
Lognormal Q-Q plot

Lithium, W-14 (mg/l)



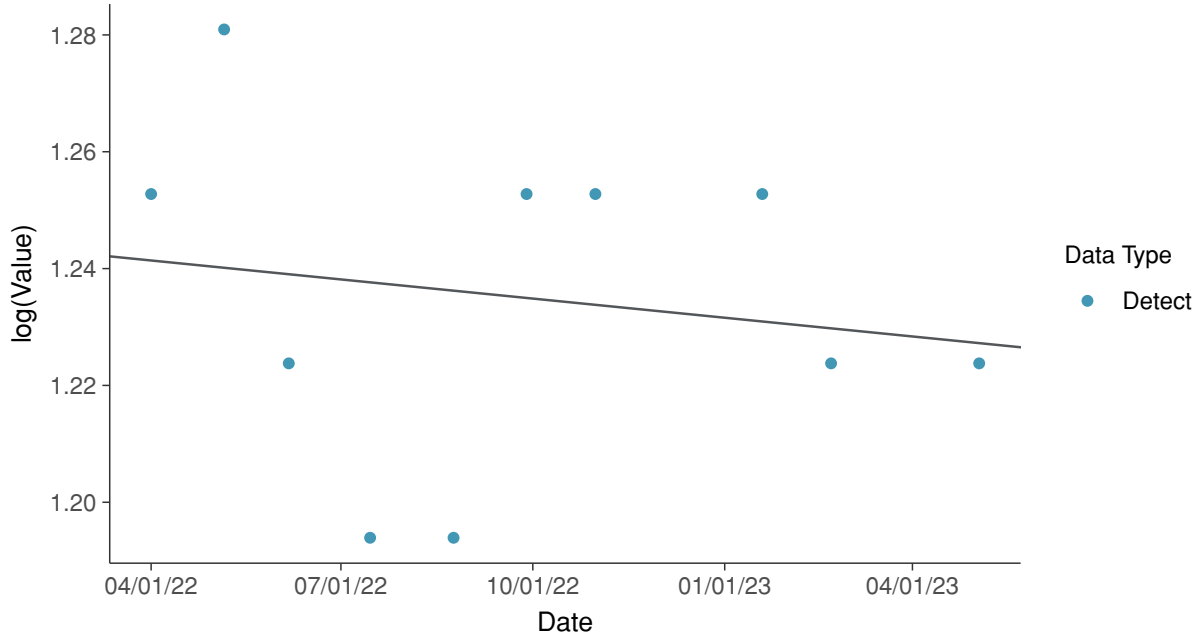
Gamma Q-Q plot

Lithium, W-14 (mg/l)



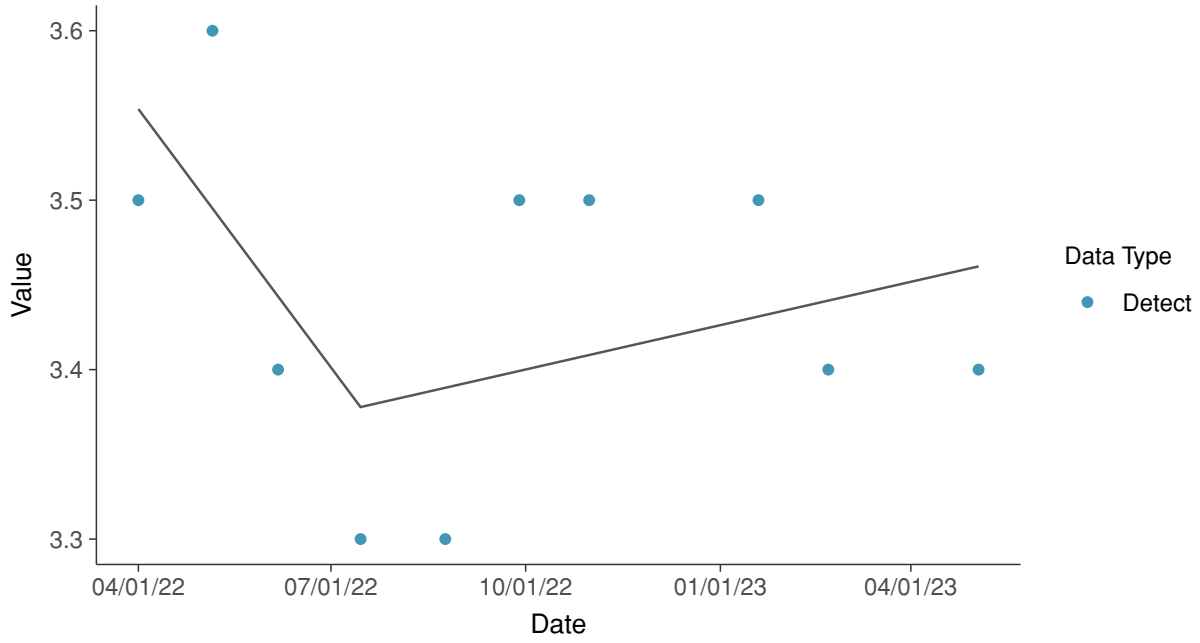
Trend Regression: Lognormal MLE

Lithium, W-14 (mg/l)



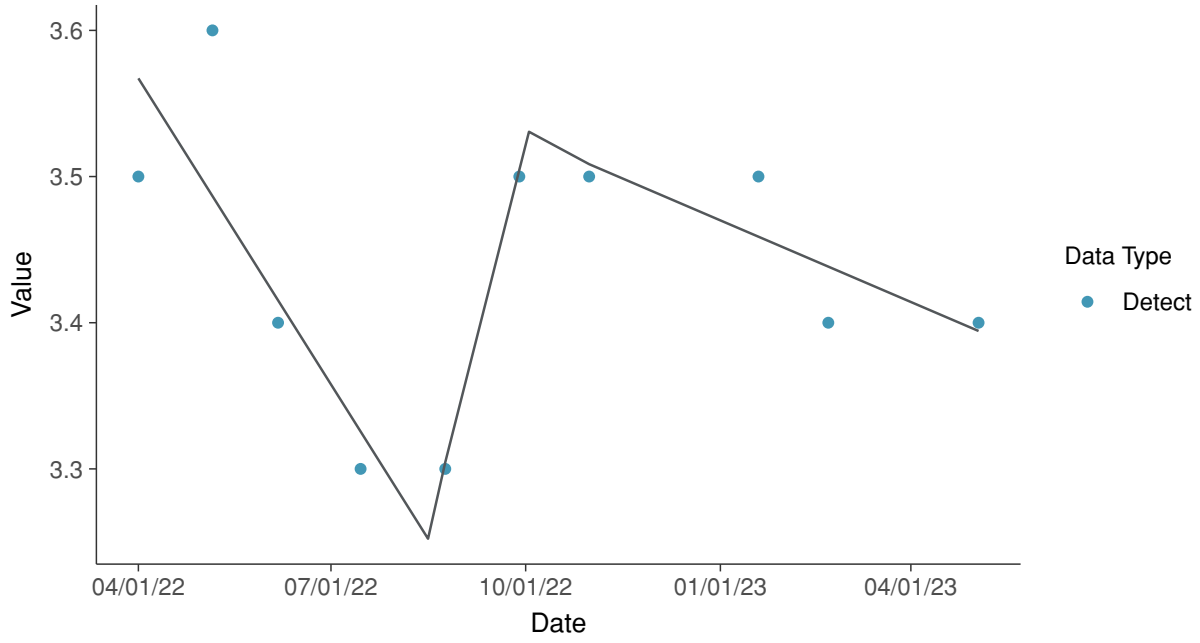
Trend Regression: Piecewise Linear-Linear

Lithium, W-14 (mg/l)



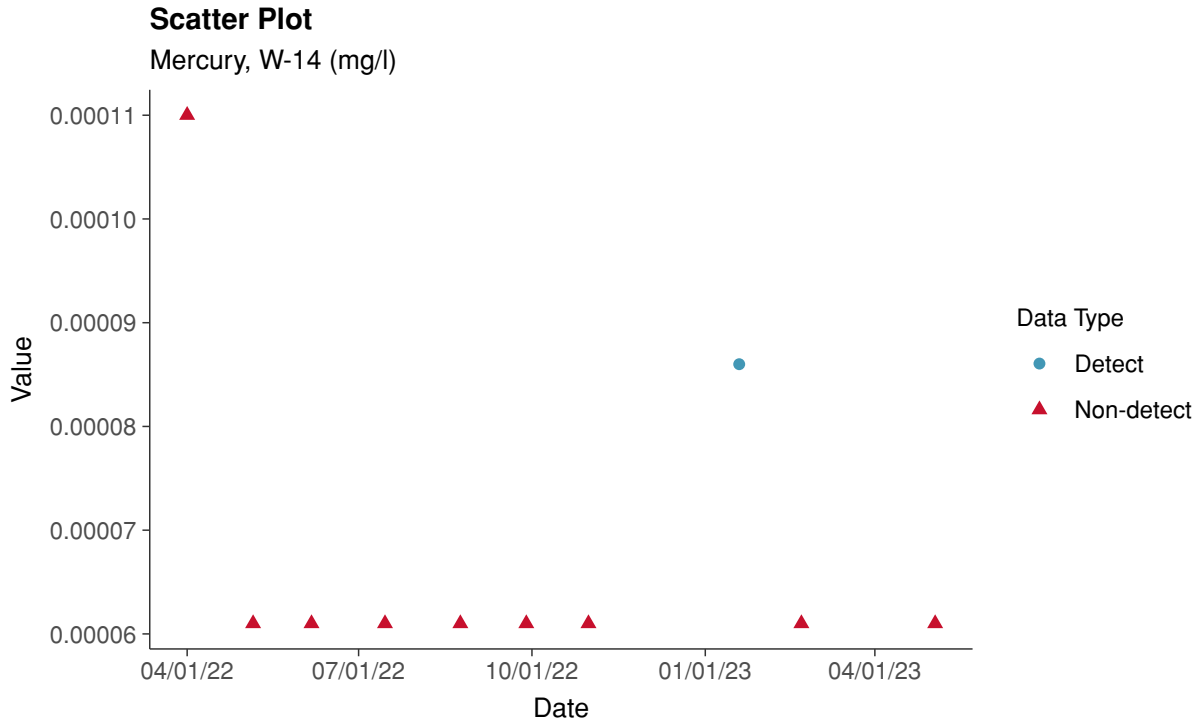
Trend Regression: Piecewise Linear-Linear-Linear

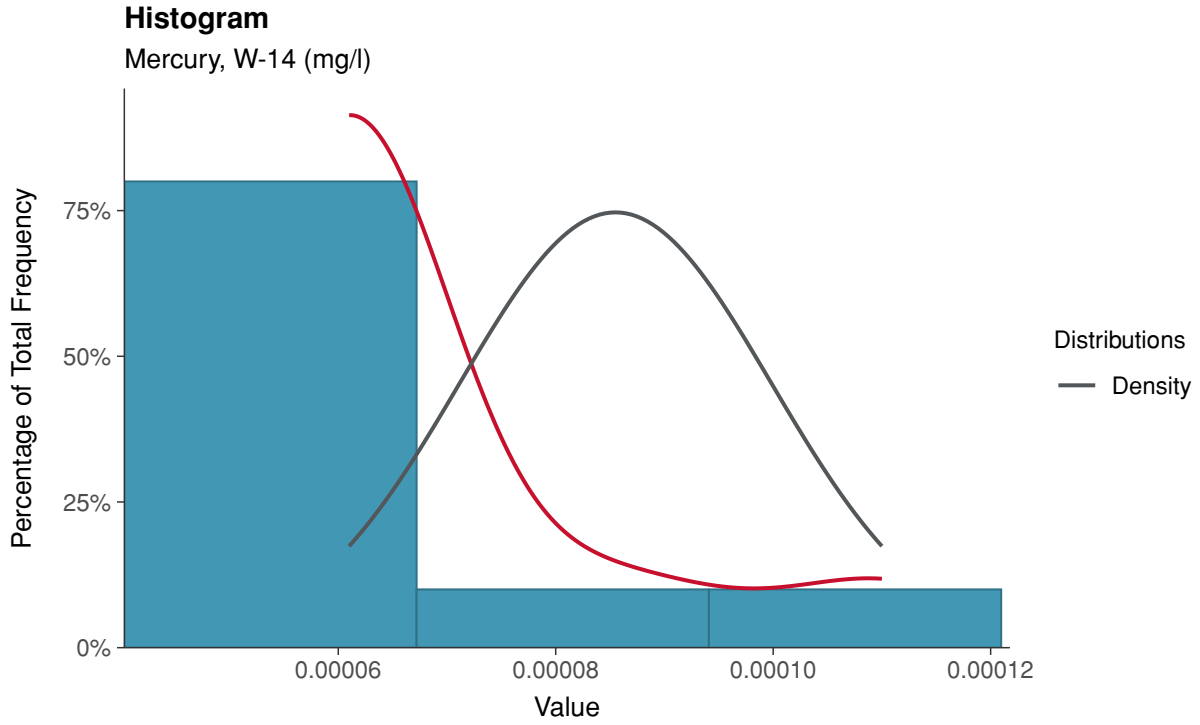
Lithium, W-14 (mg/l)



Appendix IV: Mercury, W-14

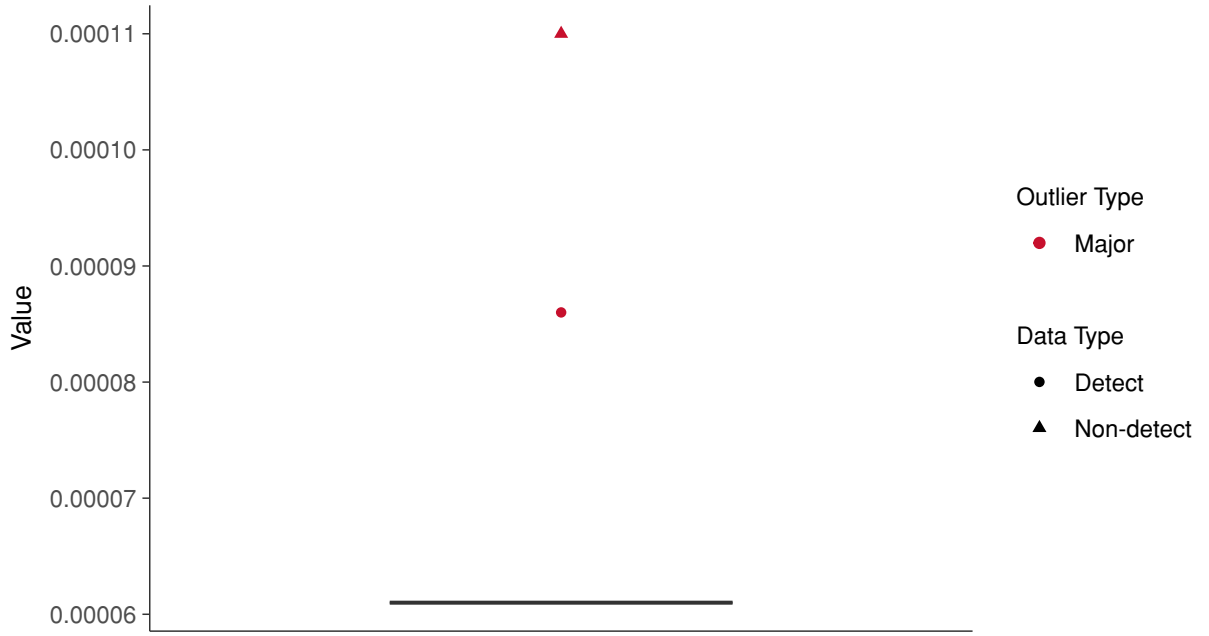
ID: 4_2_115





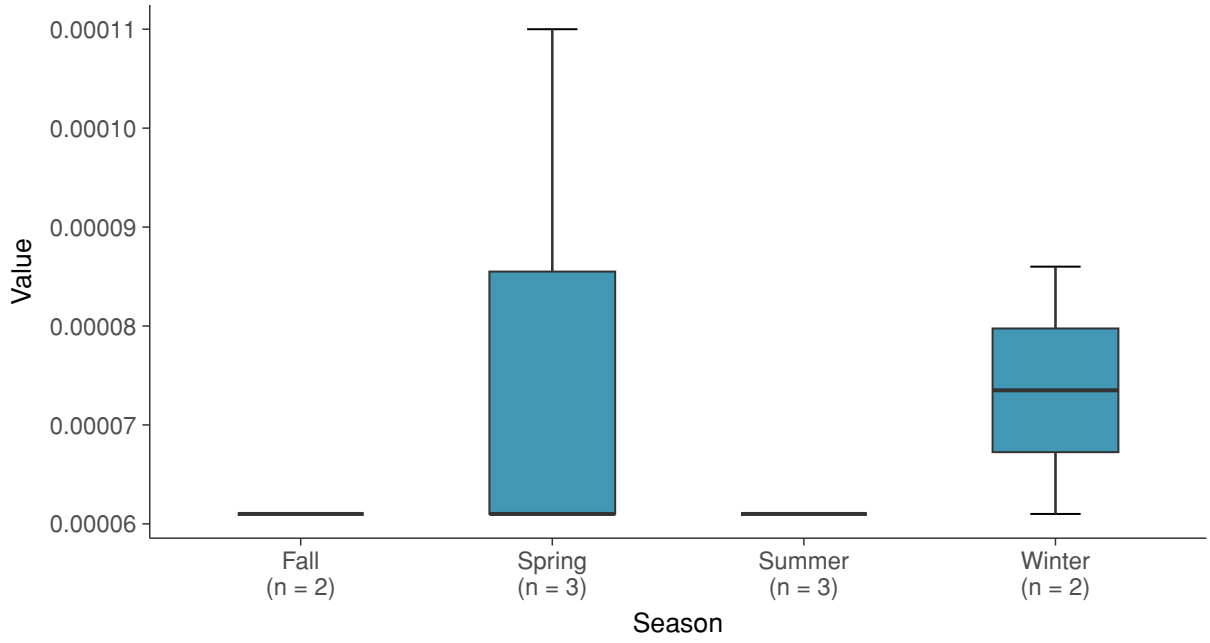
Boxplot

Mercury, W-14 (mg/l)



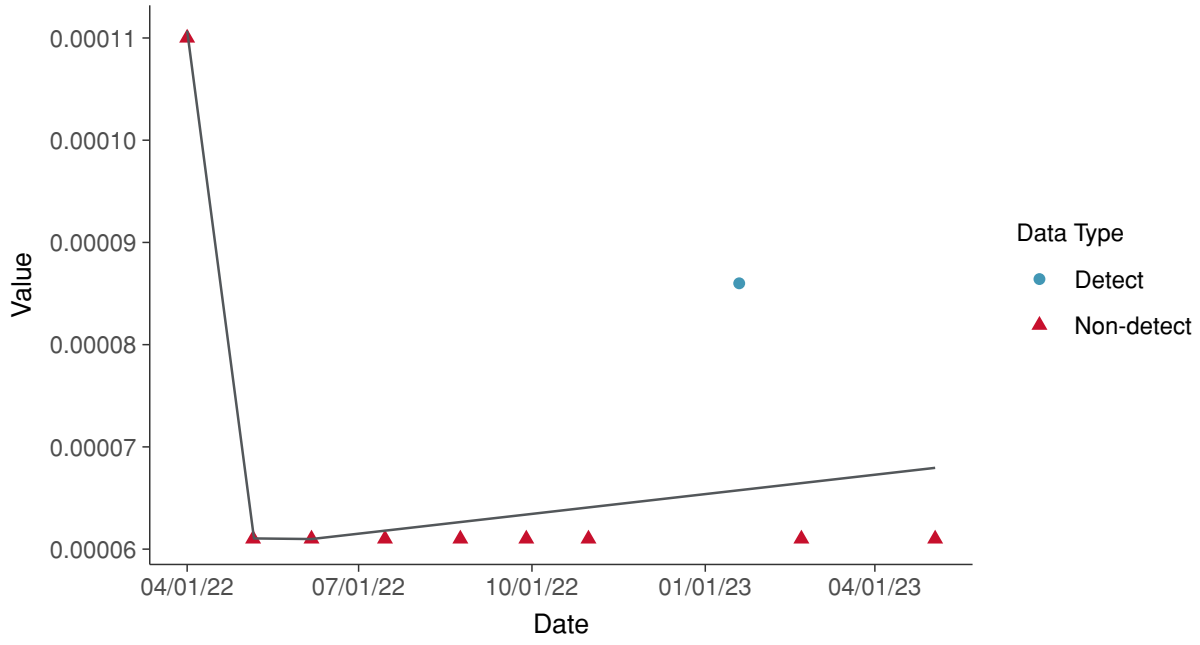
Boxplot by Season

Mercury, W-14 (mg/l)



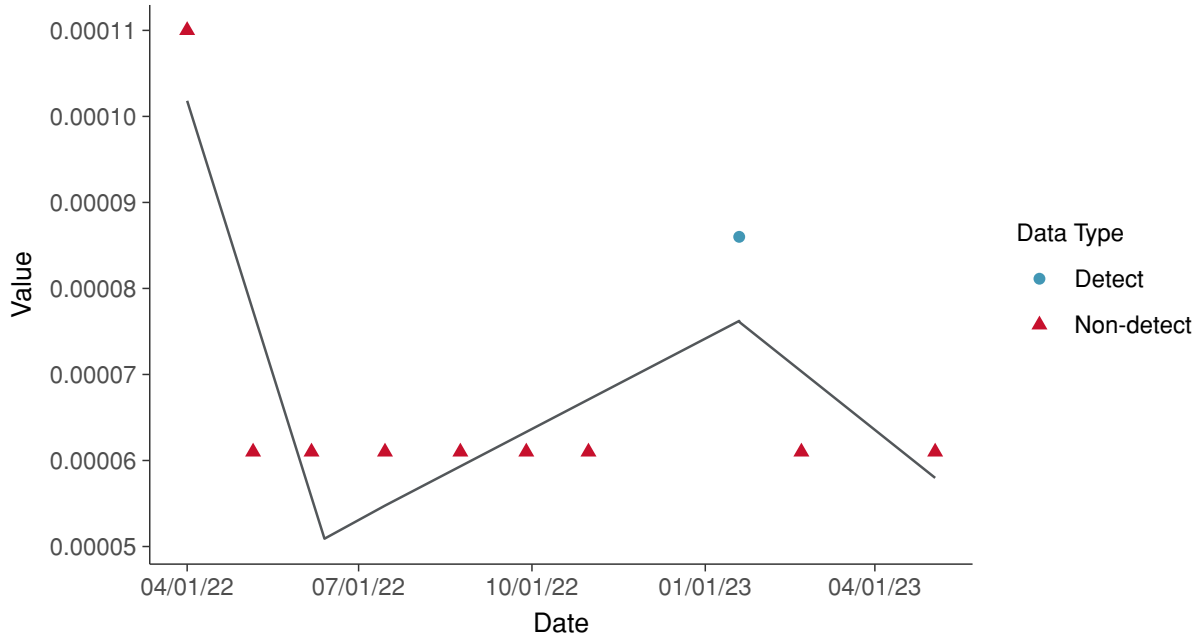
Trend Regression: Piecewise Linear-Linear

Mercury, W-14 (mg/l)



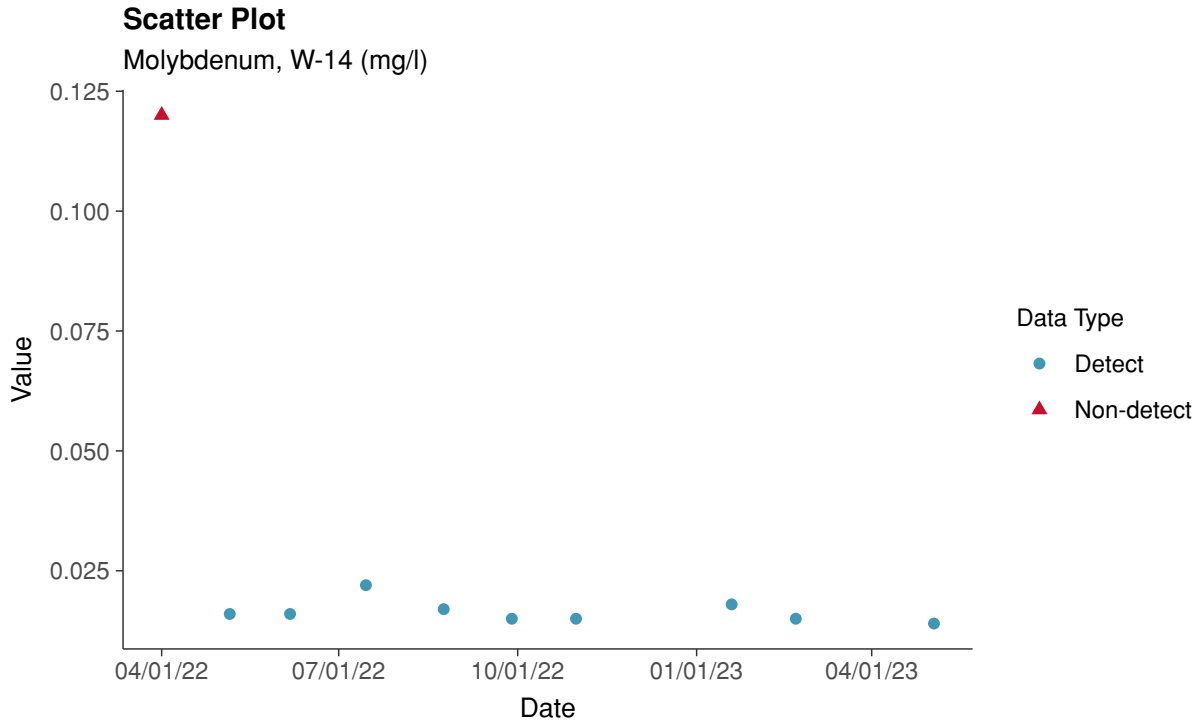
Trend Regression: Piecewise Linear-Linear-Linear

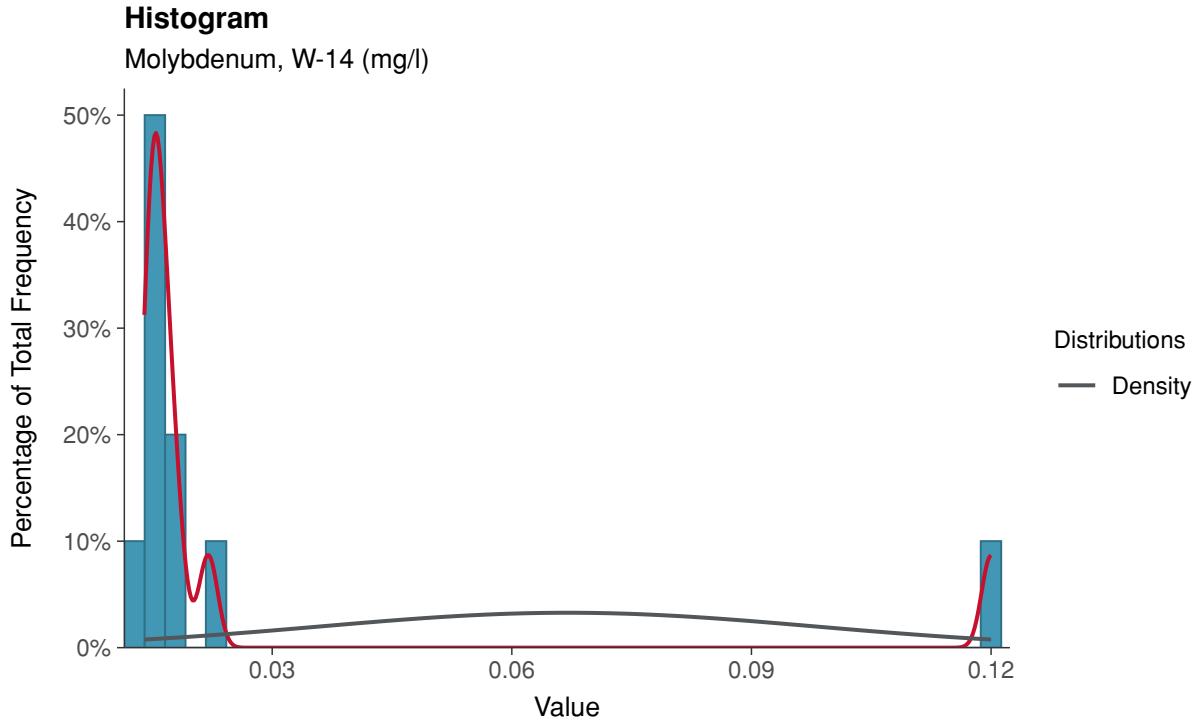
Mercury, W-14 (mg/l)



Appendix IV: Molybdenum, W-14

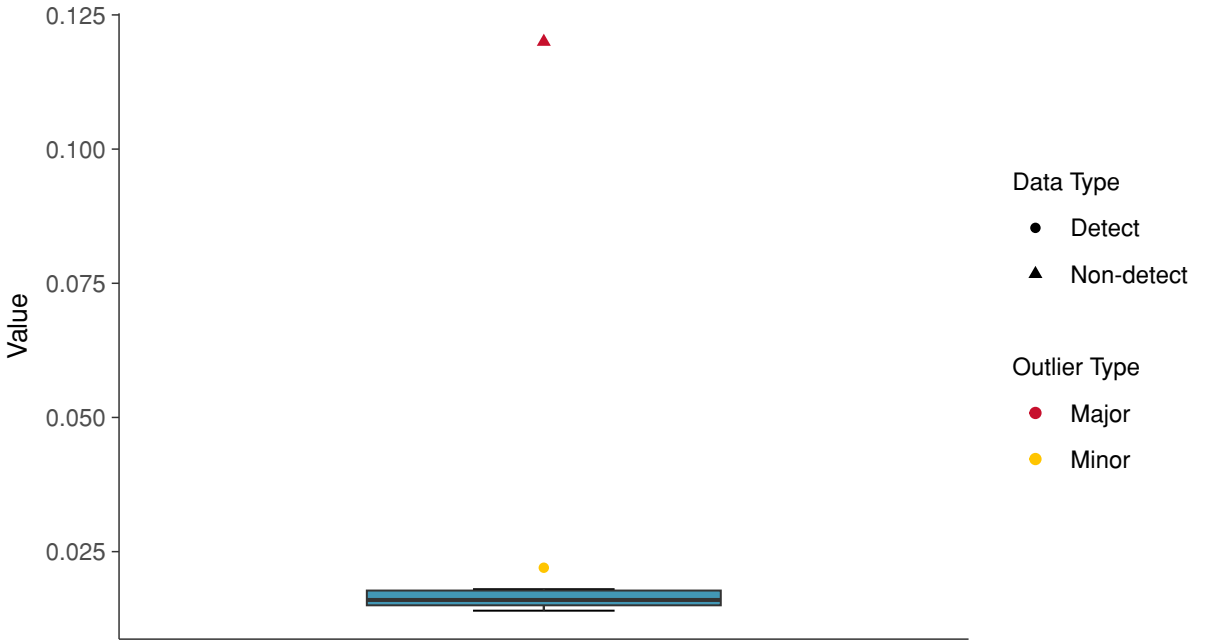
ID: 4_2_116





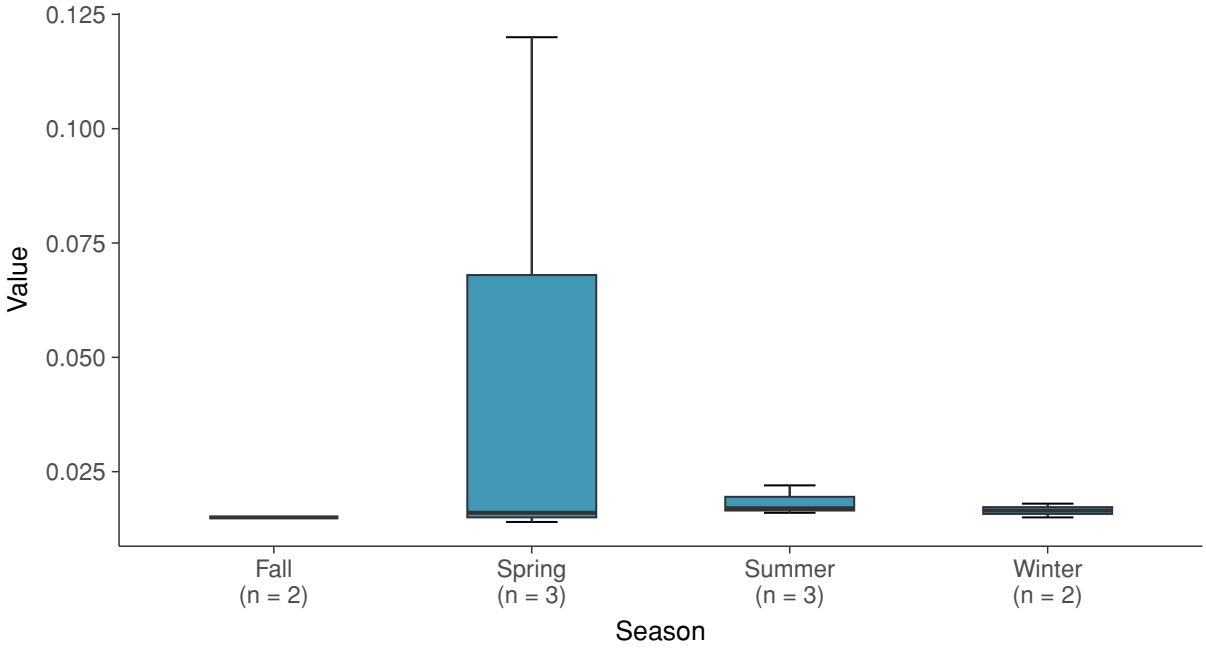
Boxplot

Molybdenum, W-14 (mg/l)



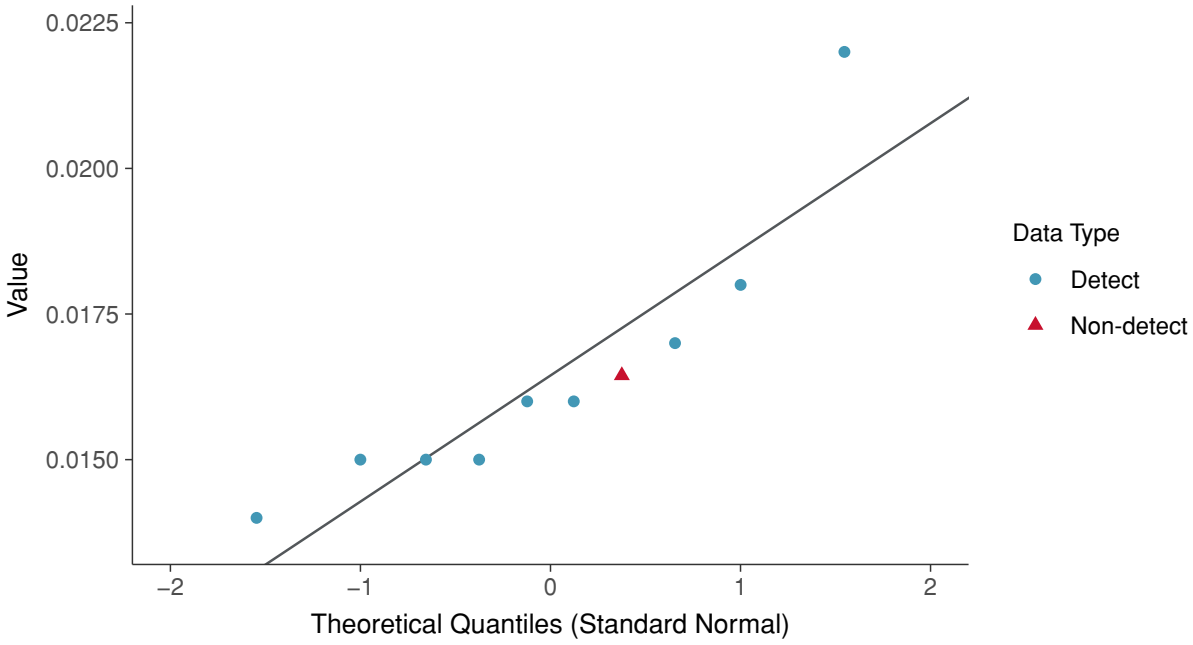
Boxplot by Season

Molybdenum, W-14 (mg/l)



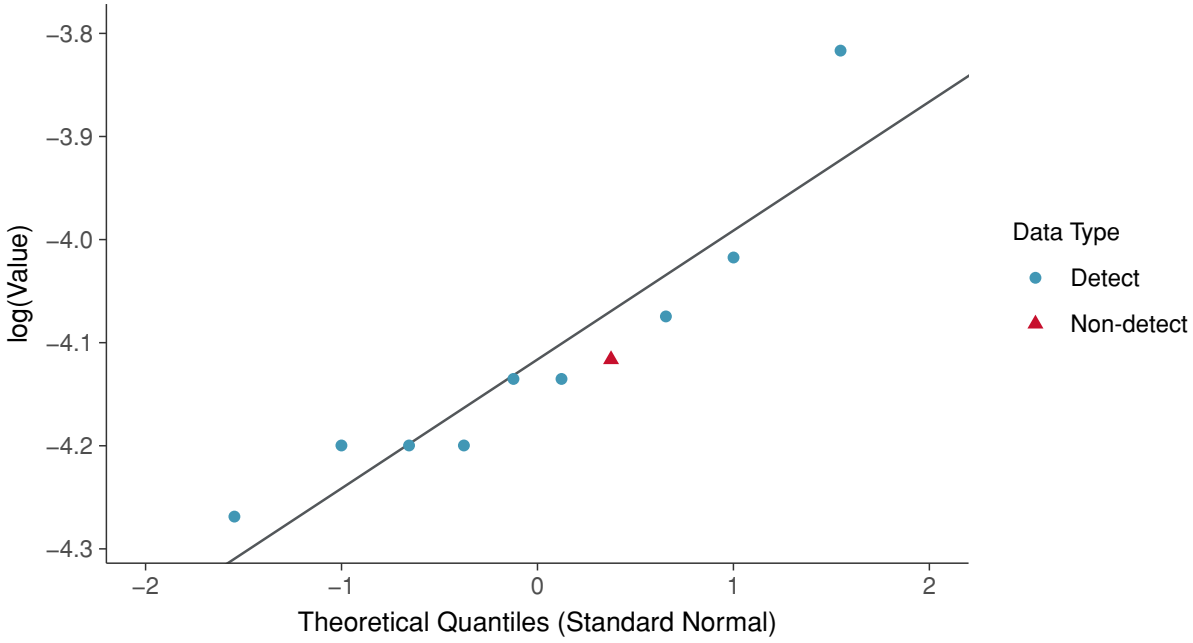
Normal Q-Q plot using ROS Imputed Estimates

Molybdenum, W-14 (mg/l)



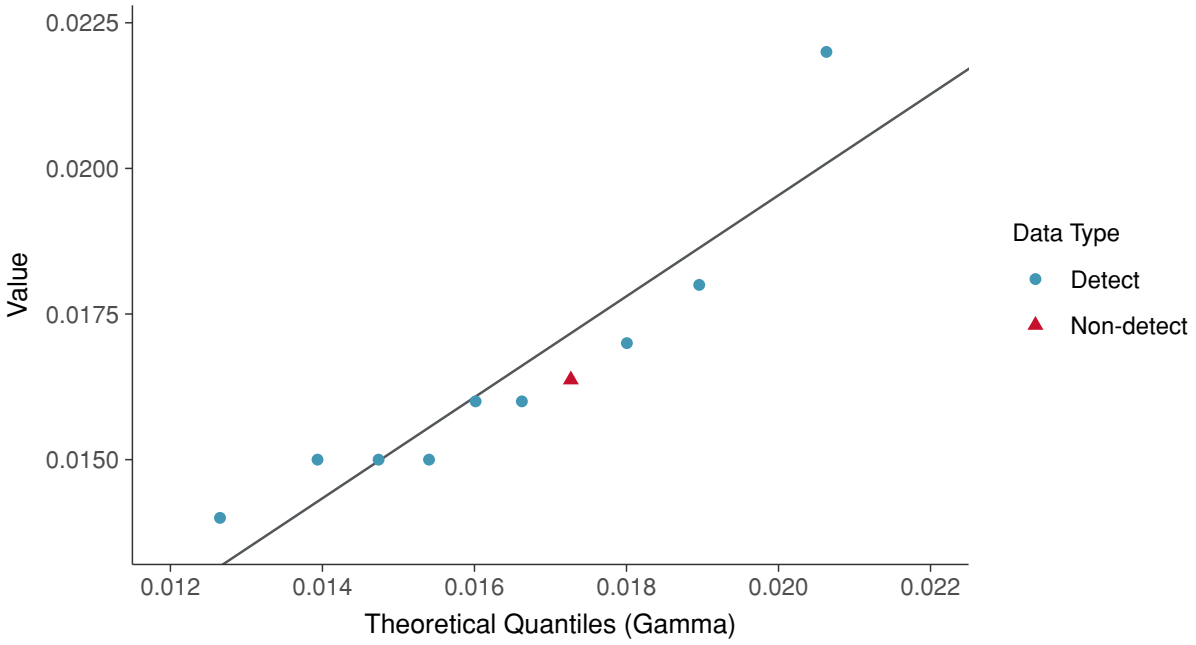
Lognormal Q-Q plot using ROS Imputed Estimates

Molybdenum, W-14 (mg/l)



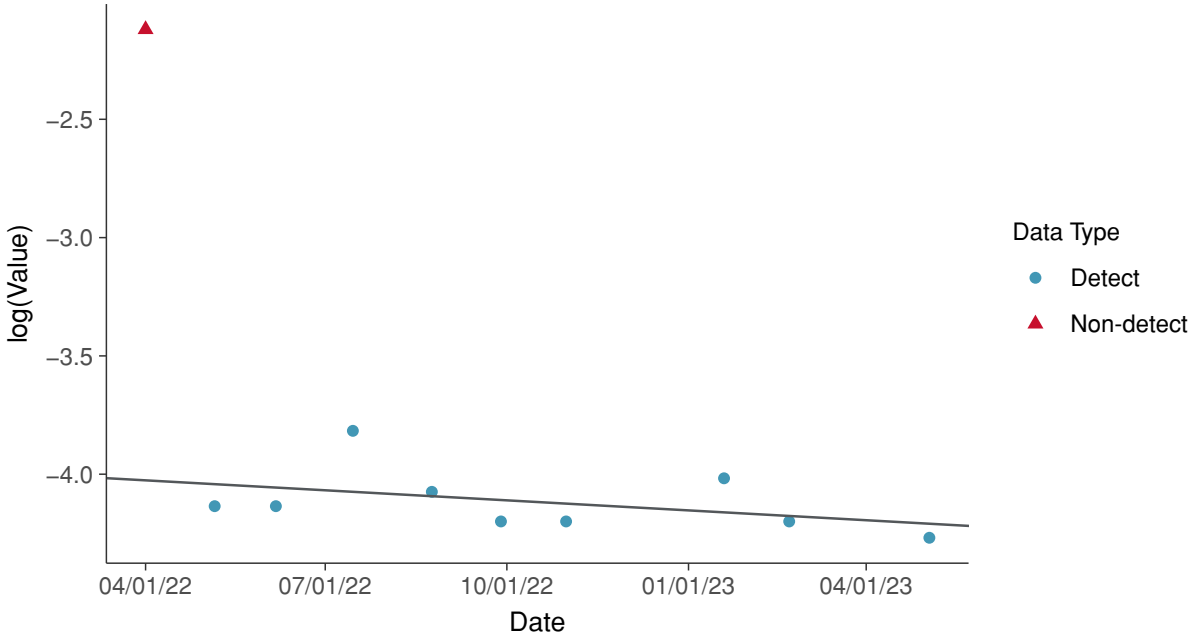
Gamma Q-Q plot using ROS Imputed Estimates

Molybdenum, W-14 (mg/l)



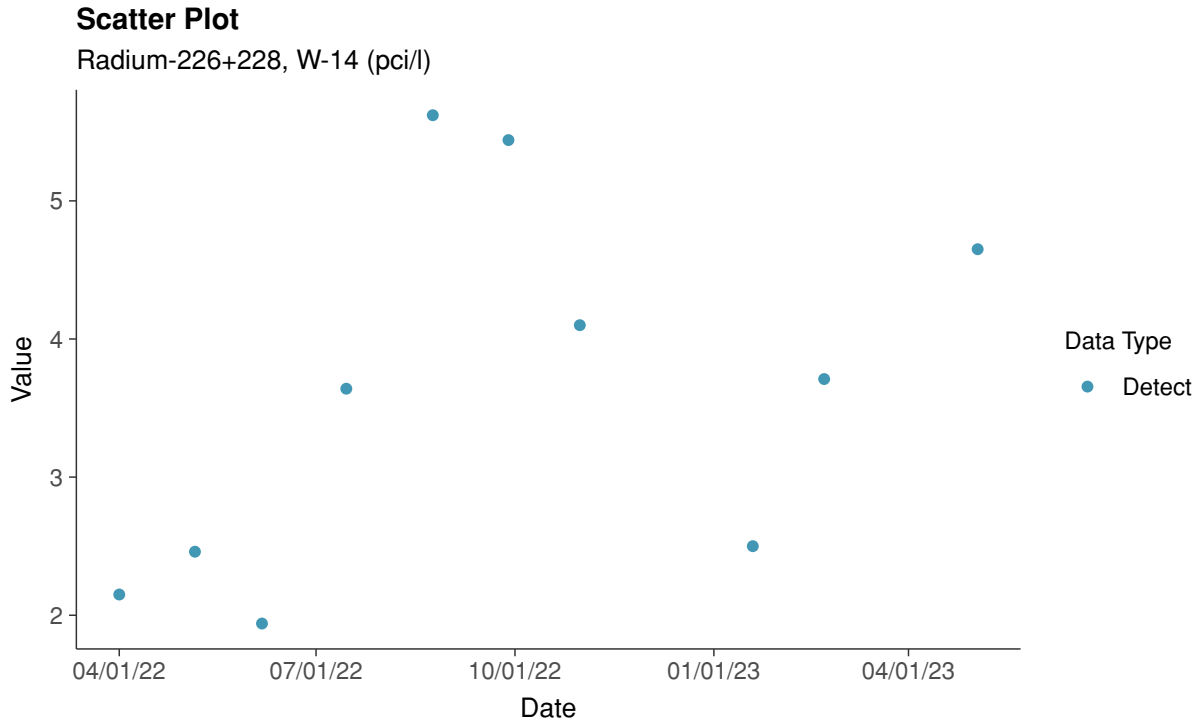
Trend Regression: Lognormal MLE

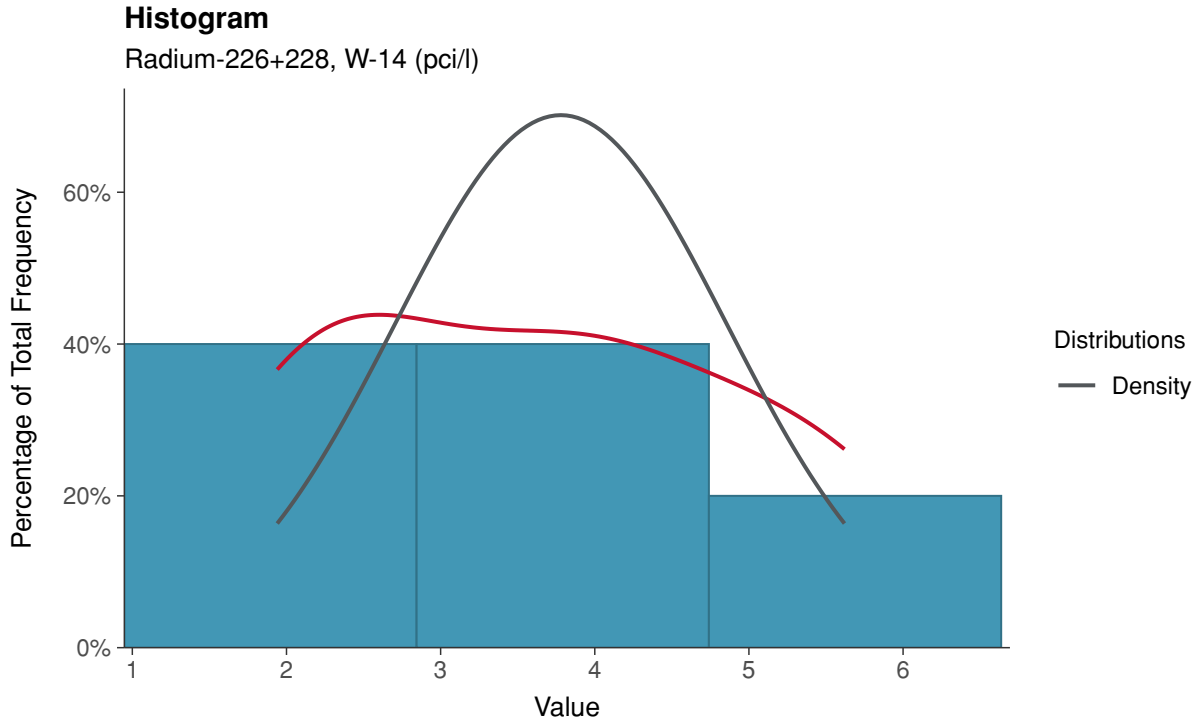
Molybdenum, W-14 (mg/l)



Appendix IV: Radium-226+228, W-14

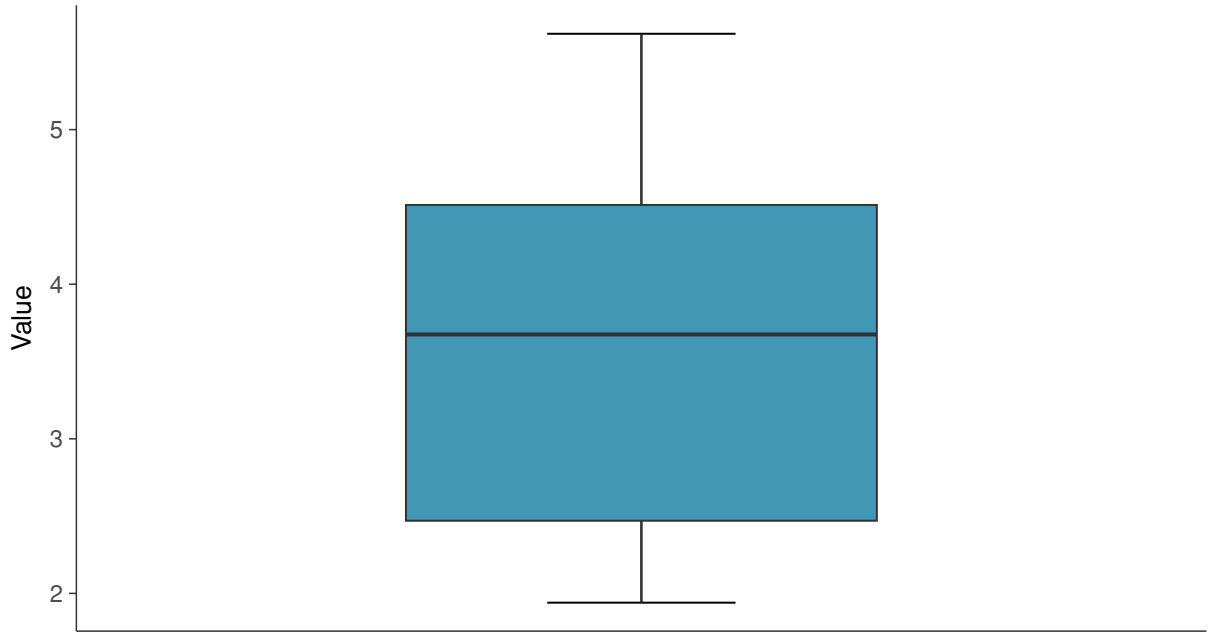
ID: 4_2_120





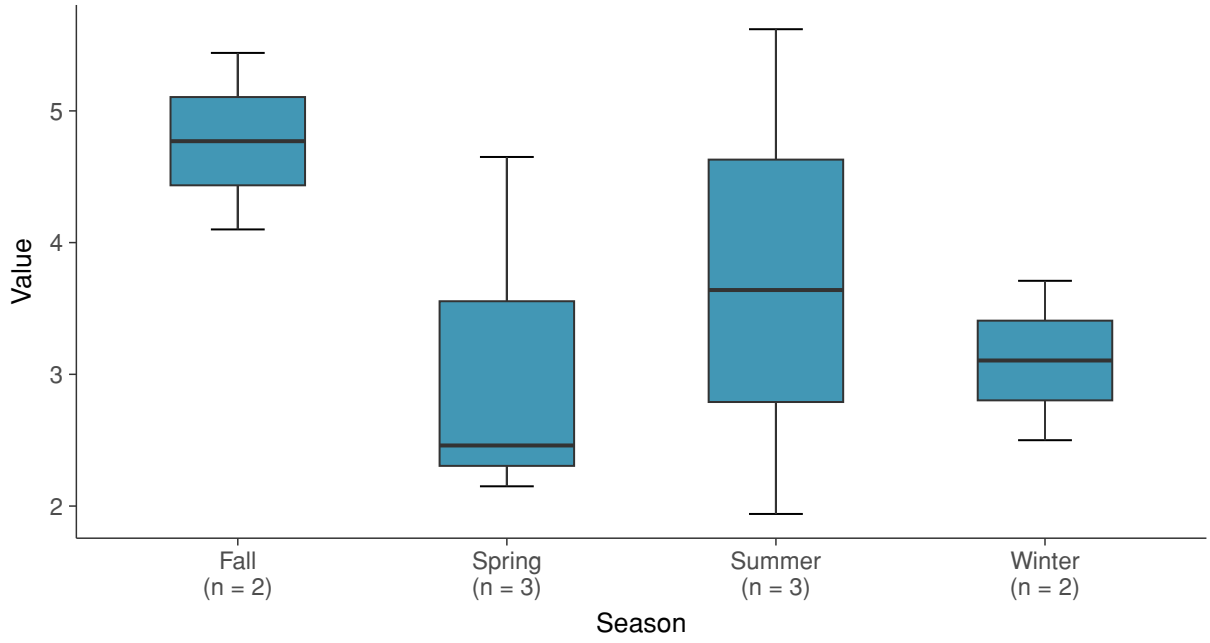
Boxplot

Radium-226+228, W-14 (pci/l)



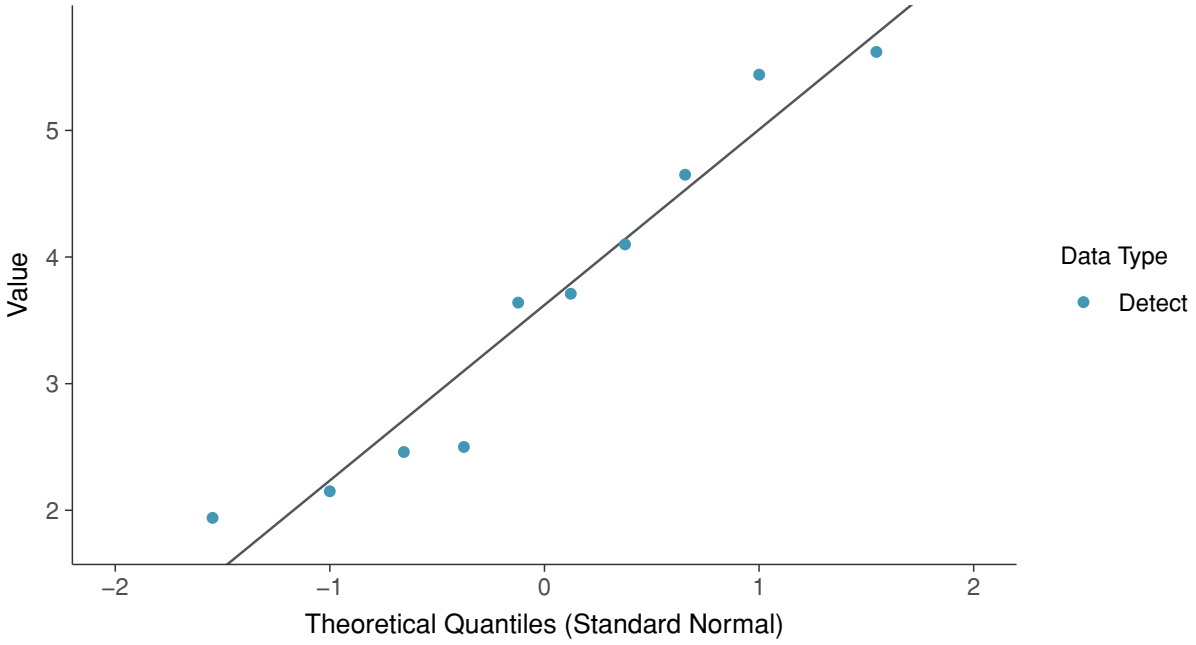
Boxplot by Season

Radium-226+228, W-14 (pci/l)



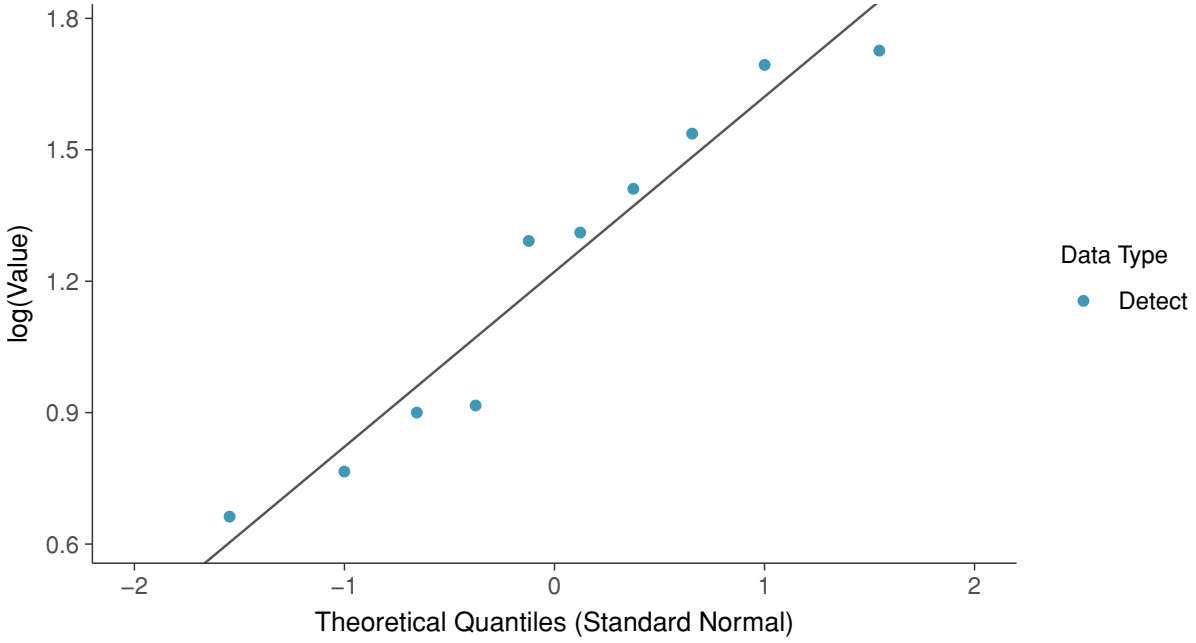
Normal Q-Q plot

Radium-226+228, W-14 (pci/l)



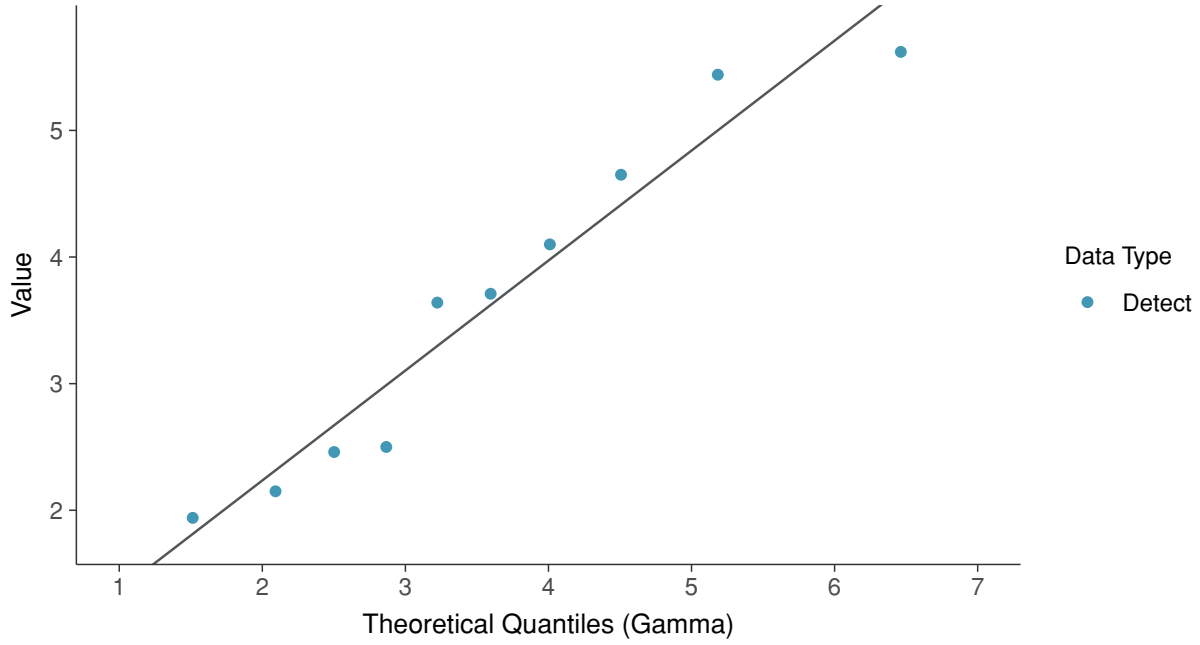
Lognormal Q-Q plot

Radium-226+228, W-14 (pci/l)



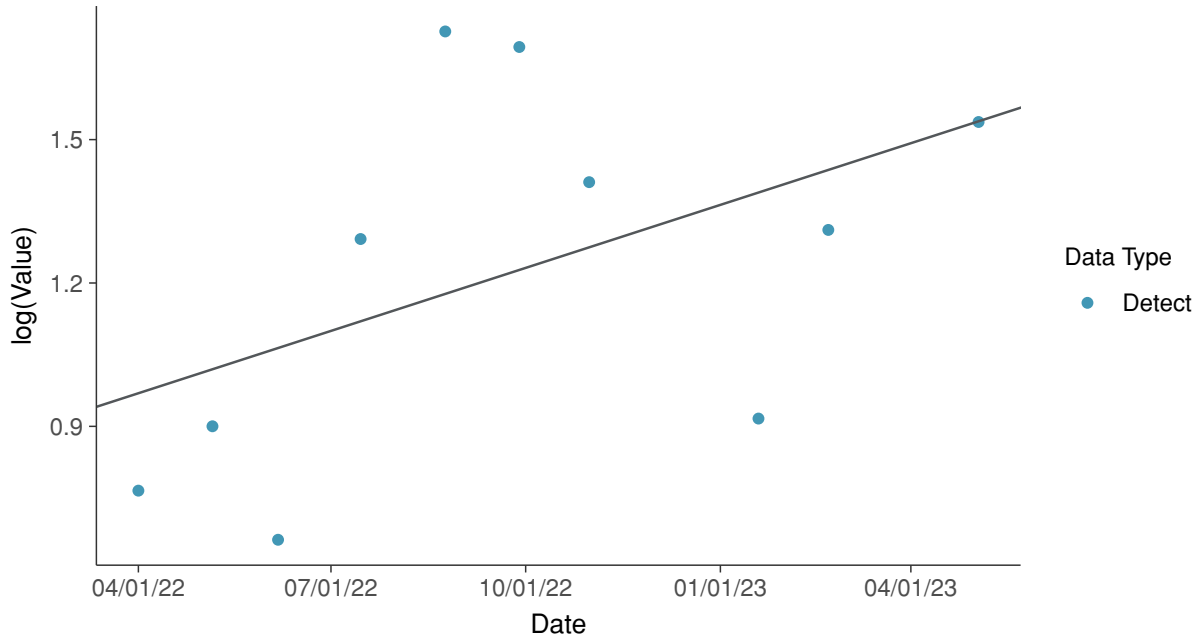
Gamma Q-Q plot

Radium-226+228, W-14 (pci/l)



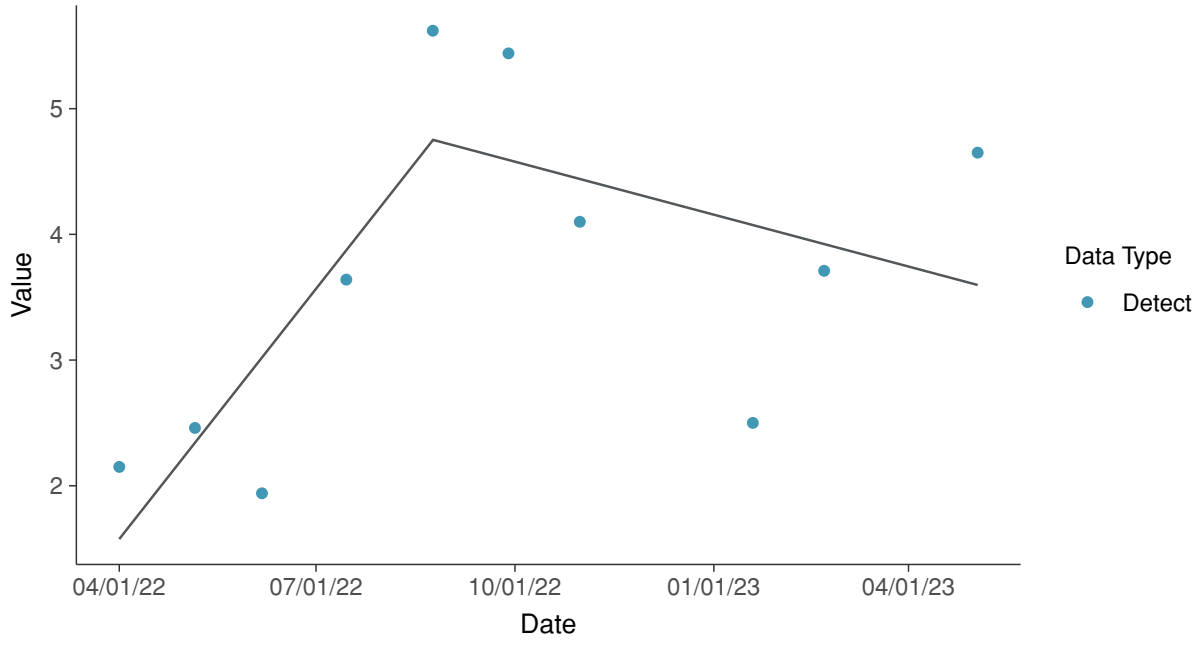
Trend Regression: Lognormal MLE

Radium-226+228, W-14 (pci/l)



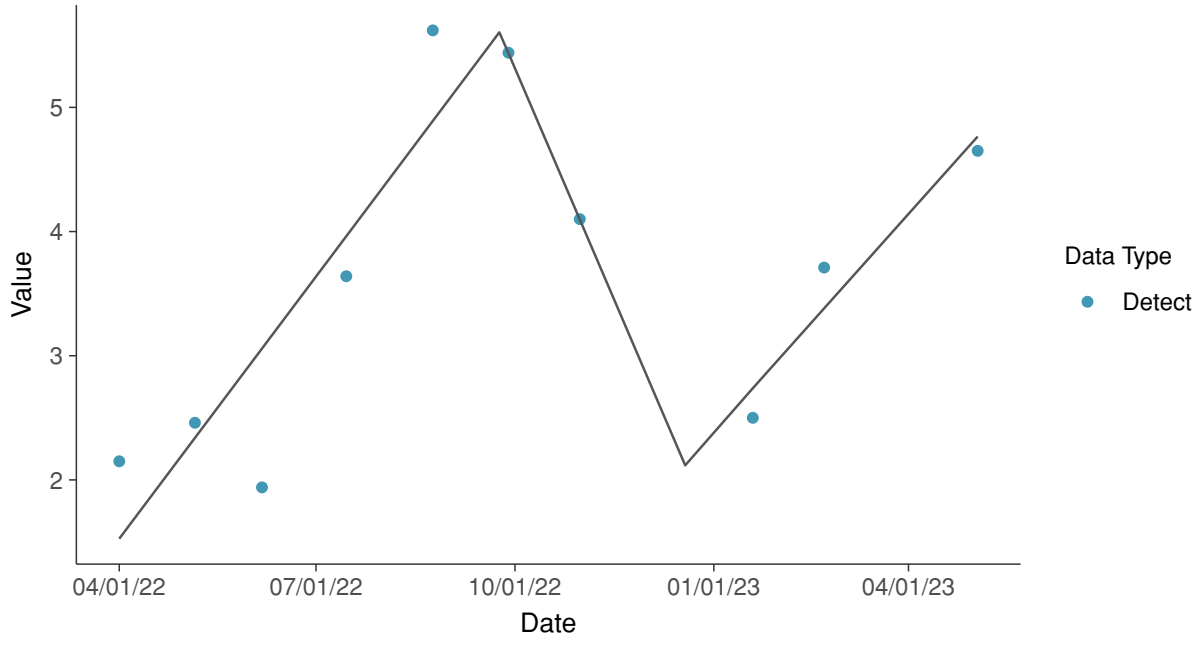
Trend Regression: Piecewise Linear-Linear

Radium-226+228, W-14 (pci/l)



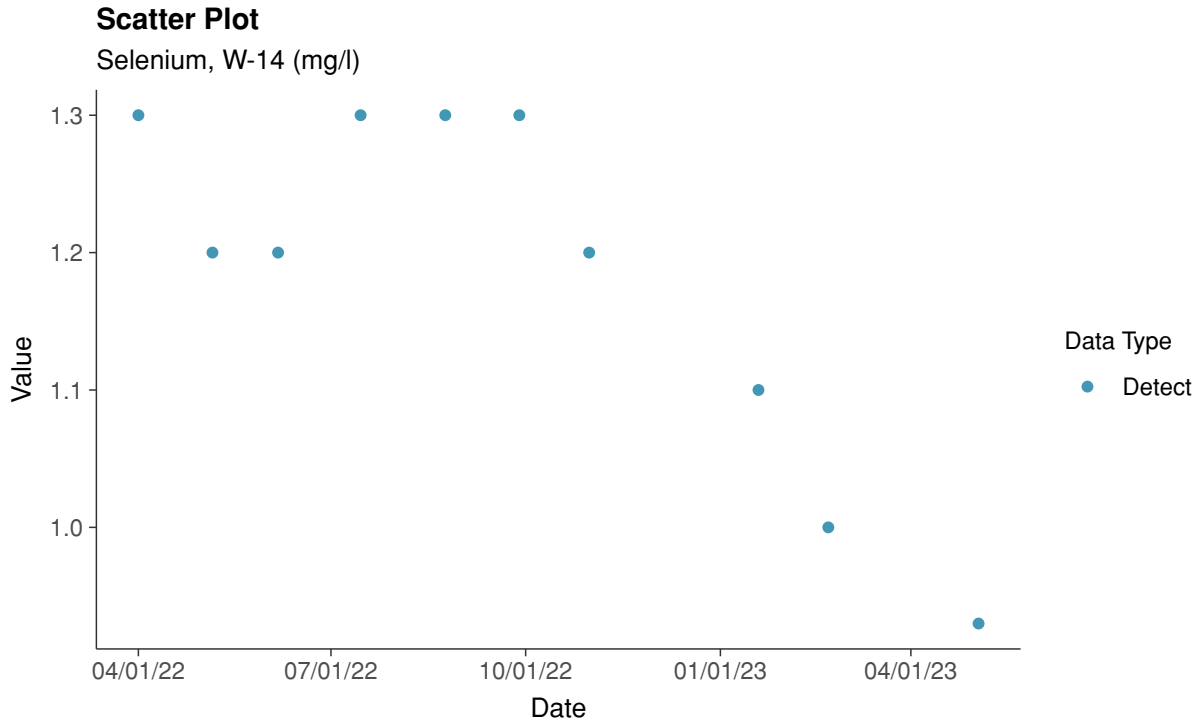
Trend Regression: Piecewise Linear-Linear-Linear

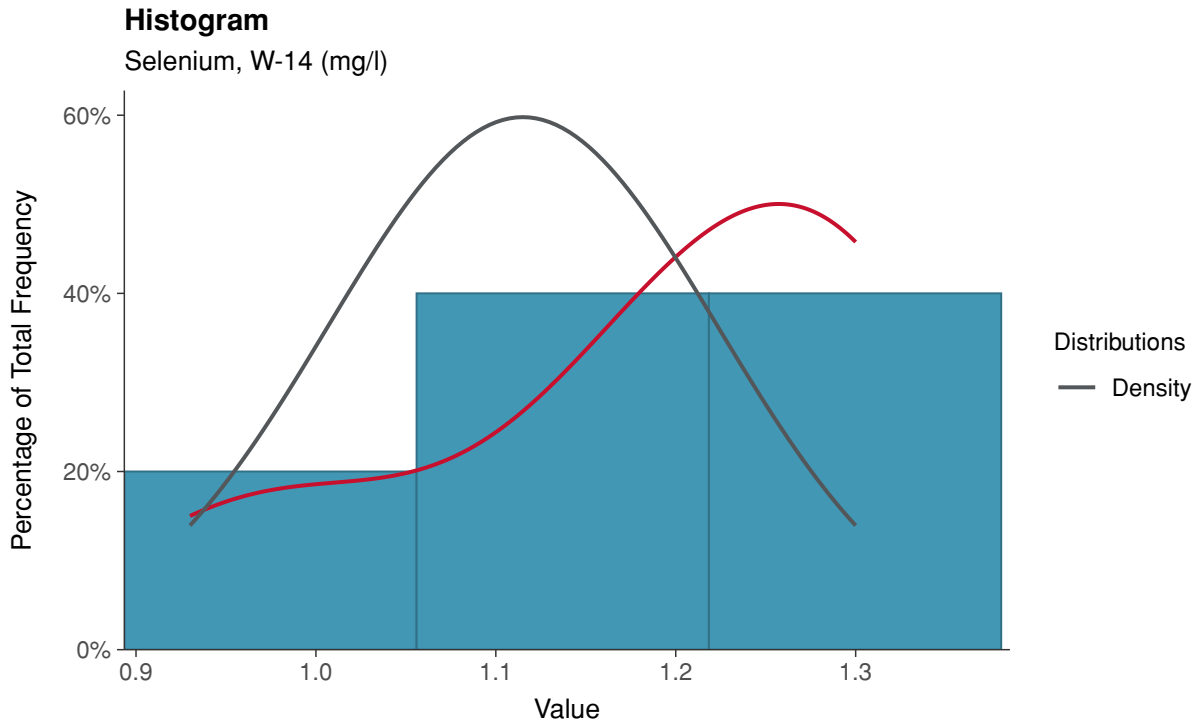
Radium-226+228, W-14 (pci/l)



Appendix IV: Selenium, W-14

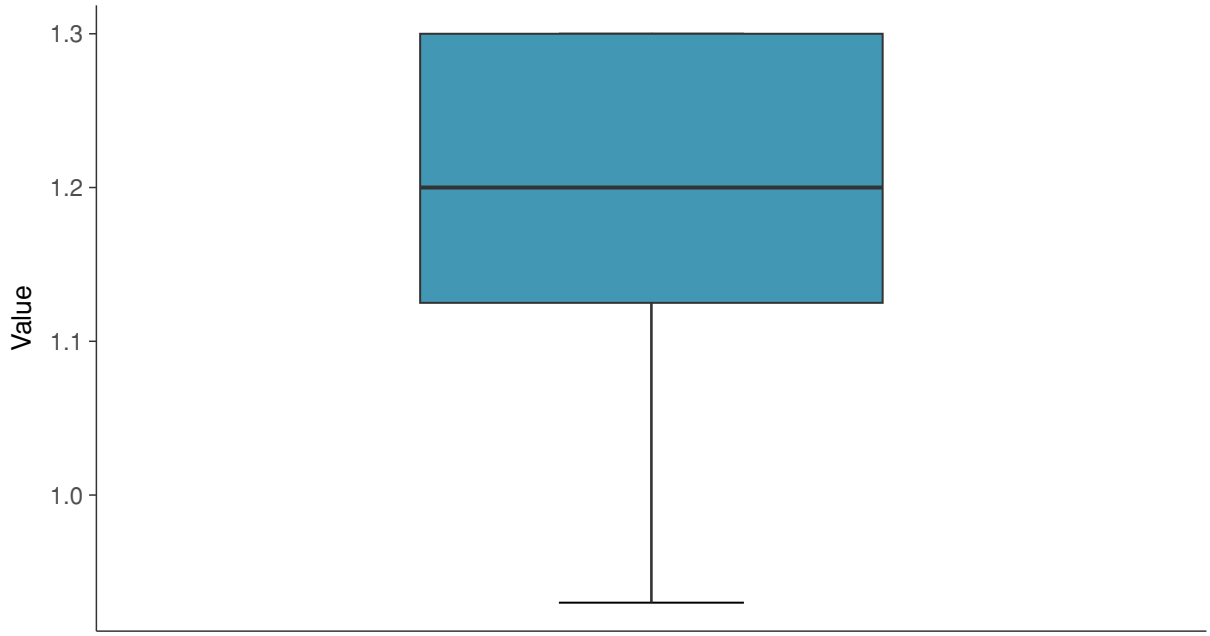
ID: 4_2_122





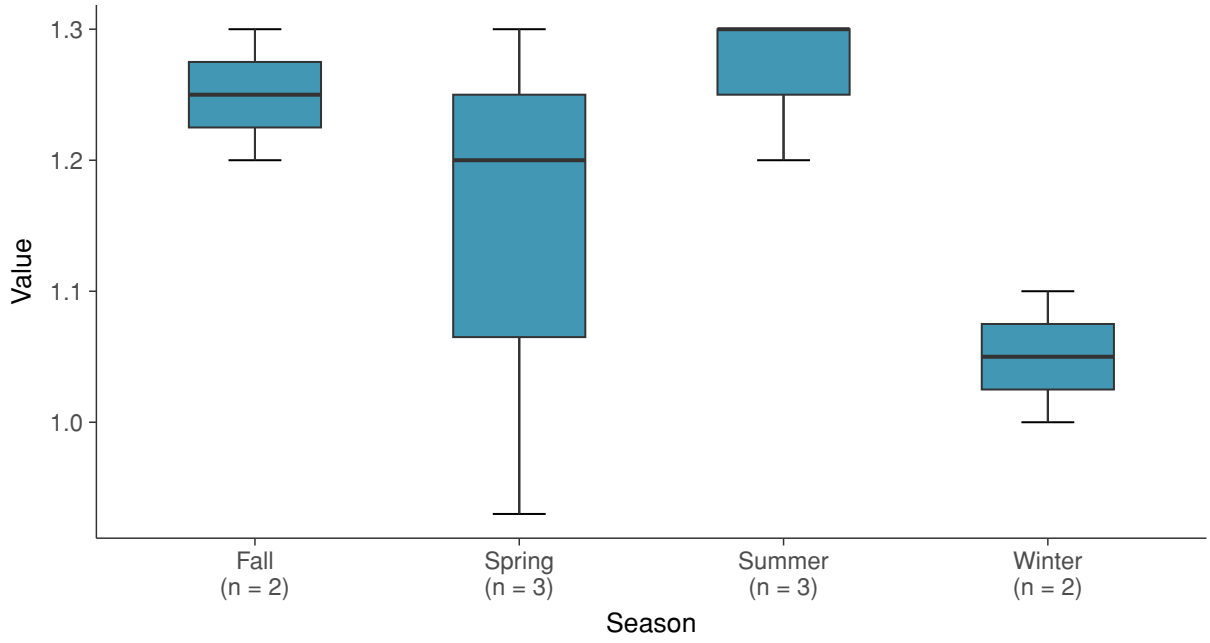
Boxplot

Selenium, W-14 (mg/l)



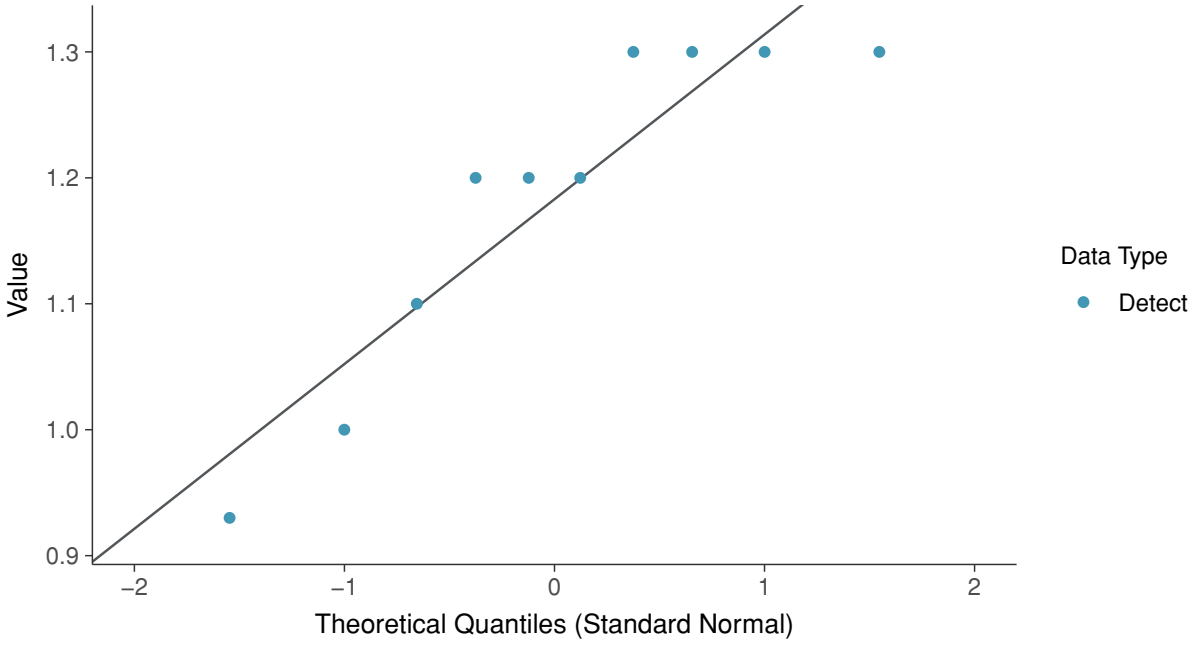
Boxplot by Season

Selenium, W-14 (mg/l)



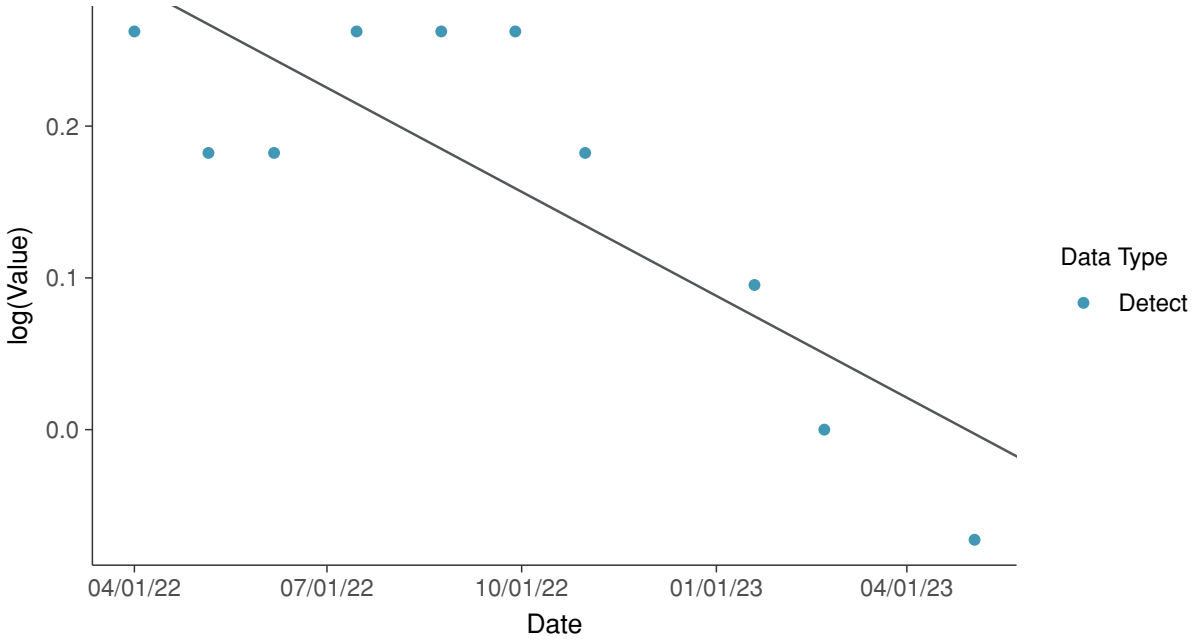
Normal Q-Q plot

Selenium, W-14 (mg/l)



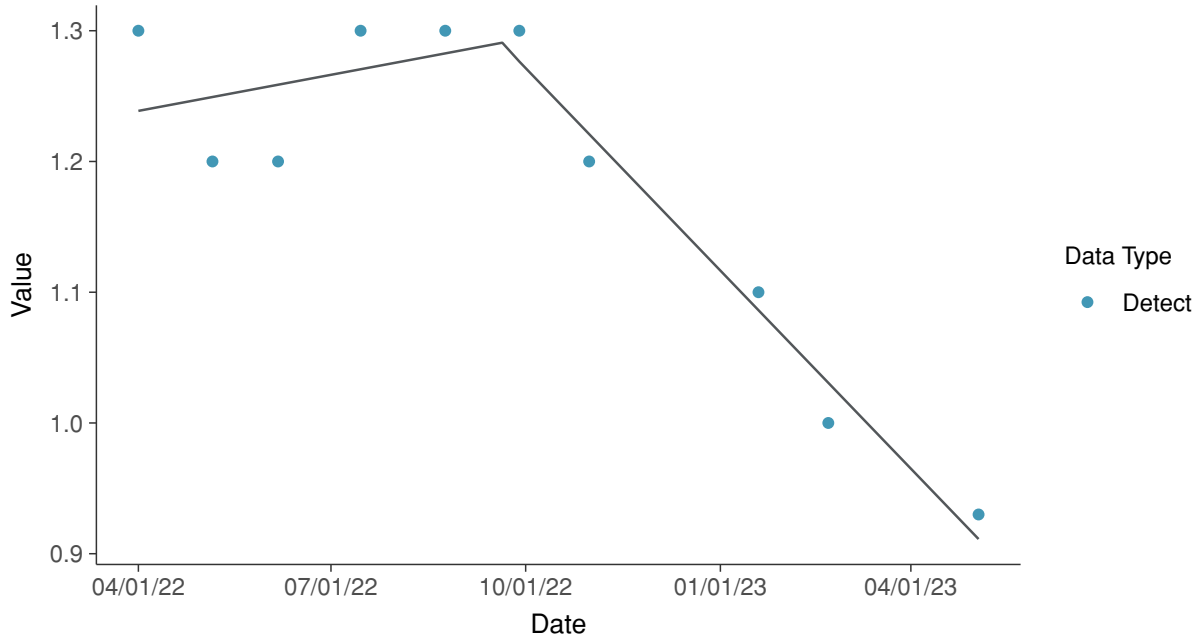
Trend Regression: Lognormal MLE

Selenium, W-14 (mg/l)



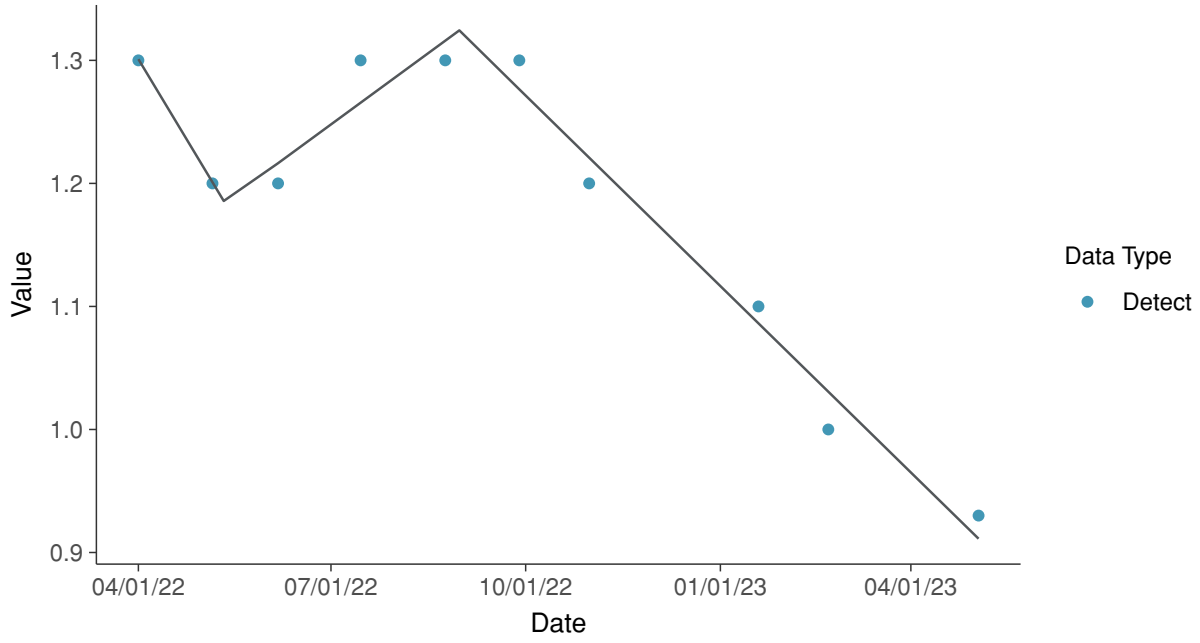
Trend Regression: Piecewise Linear-Linear

Selenium, W-14 (mg/l)



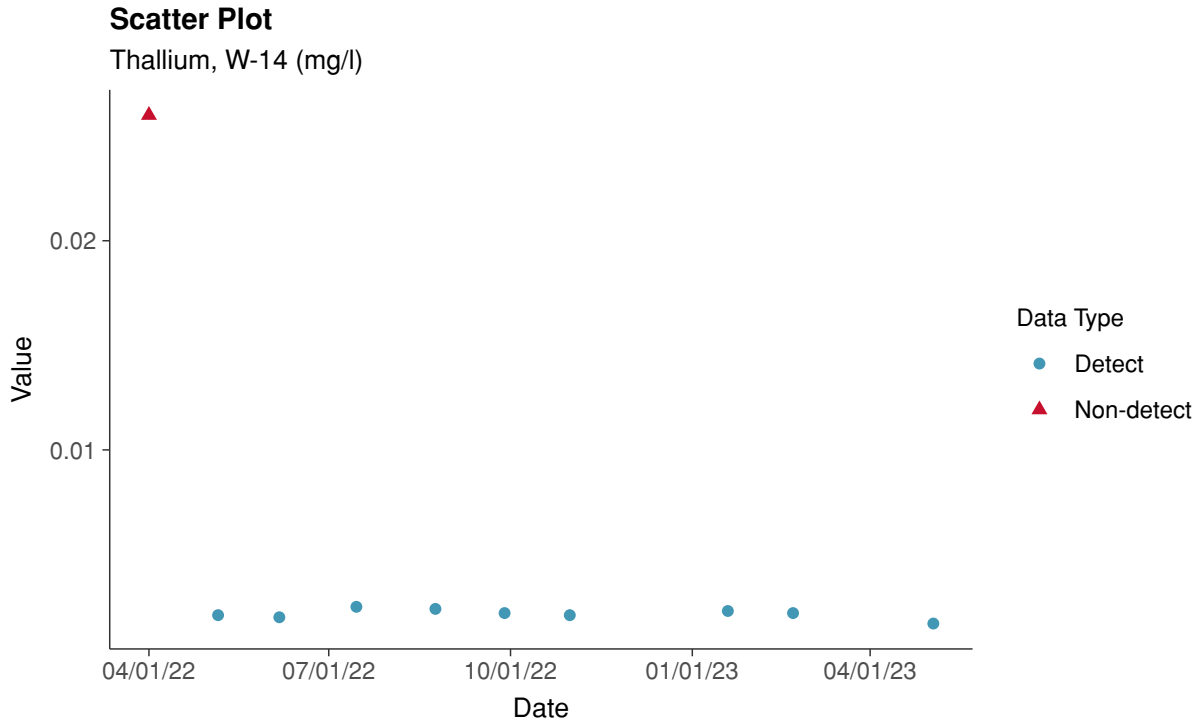
Trend Regression: Piecewise Linear-Linear-Linear

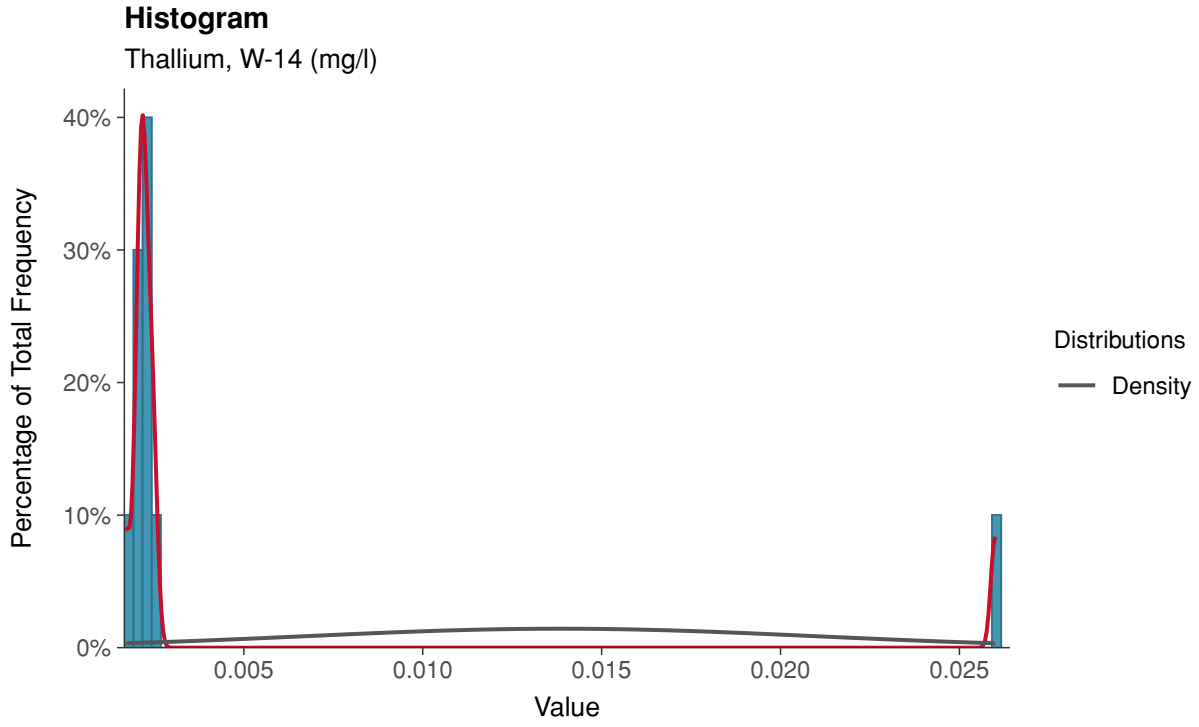
Selenium, W-14 (mg/l)



Appendix IV: Thallium, W-14

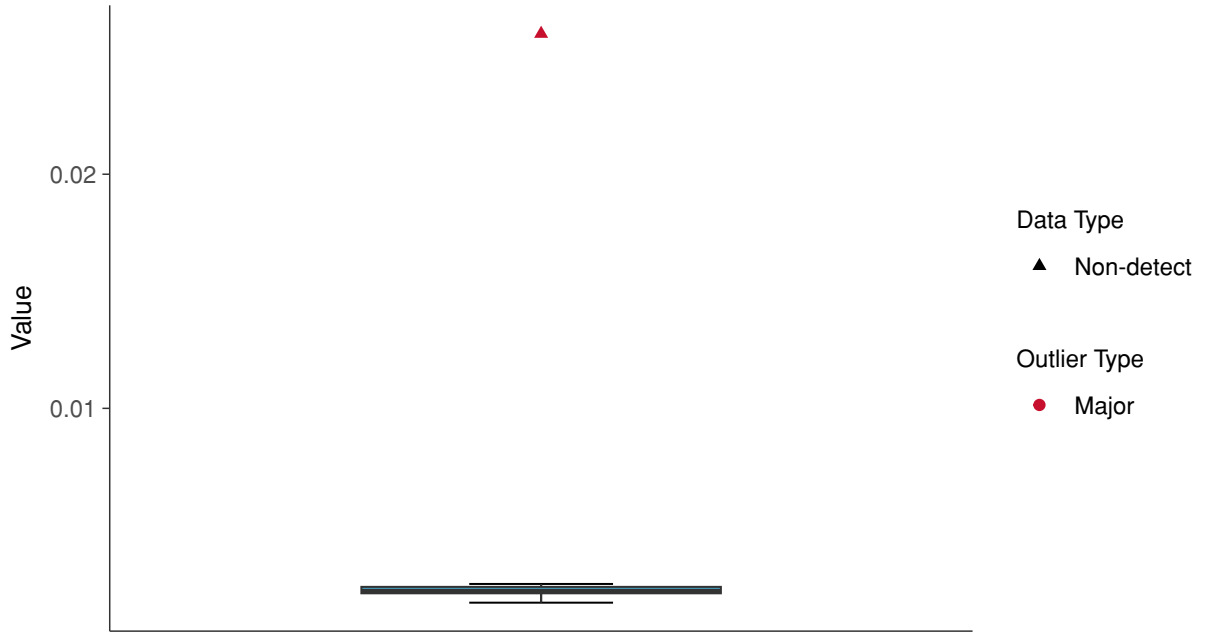
ID: 4_2_126





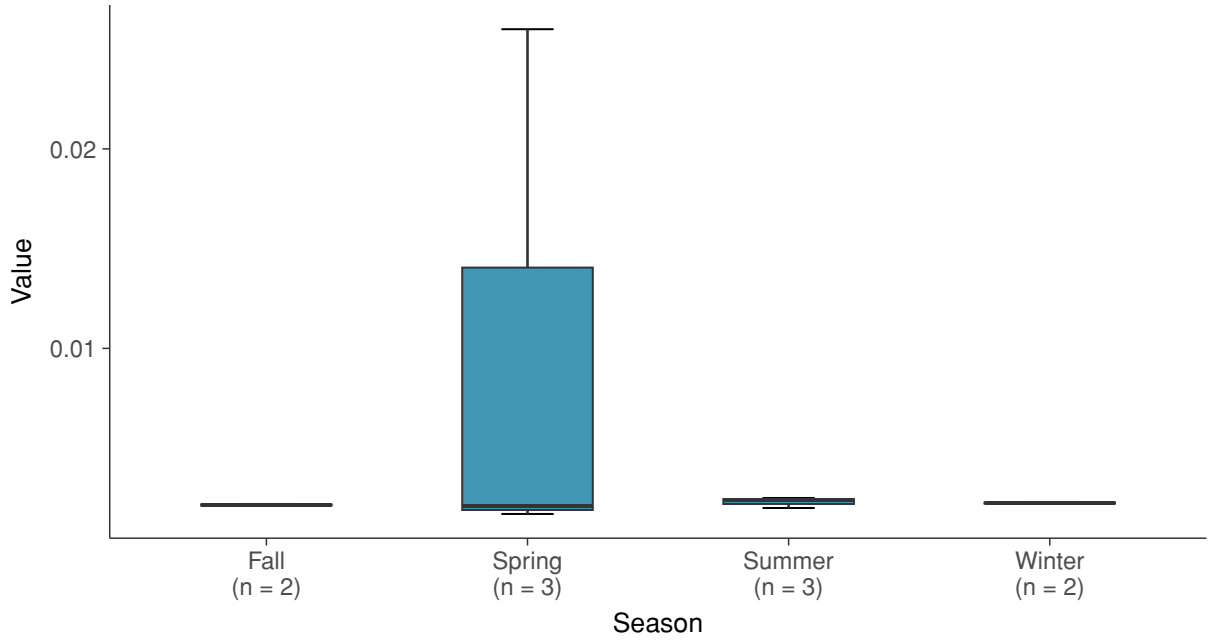
Boxplot

Thallium, W-14 (mg/l)



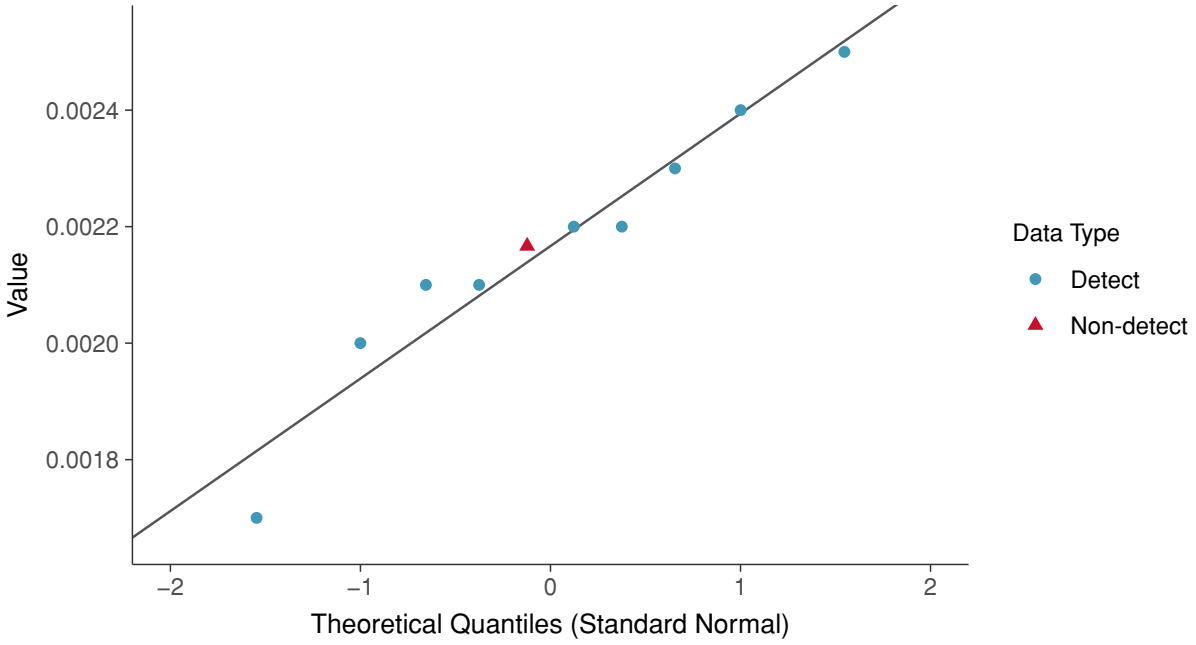
Boxplot by Season

Thallium, W-14 (mg/l)



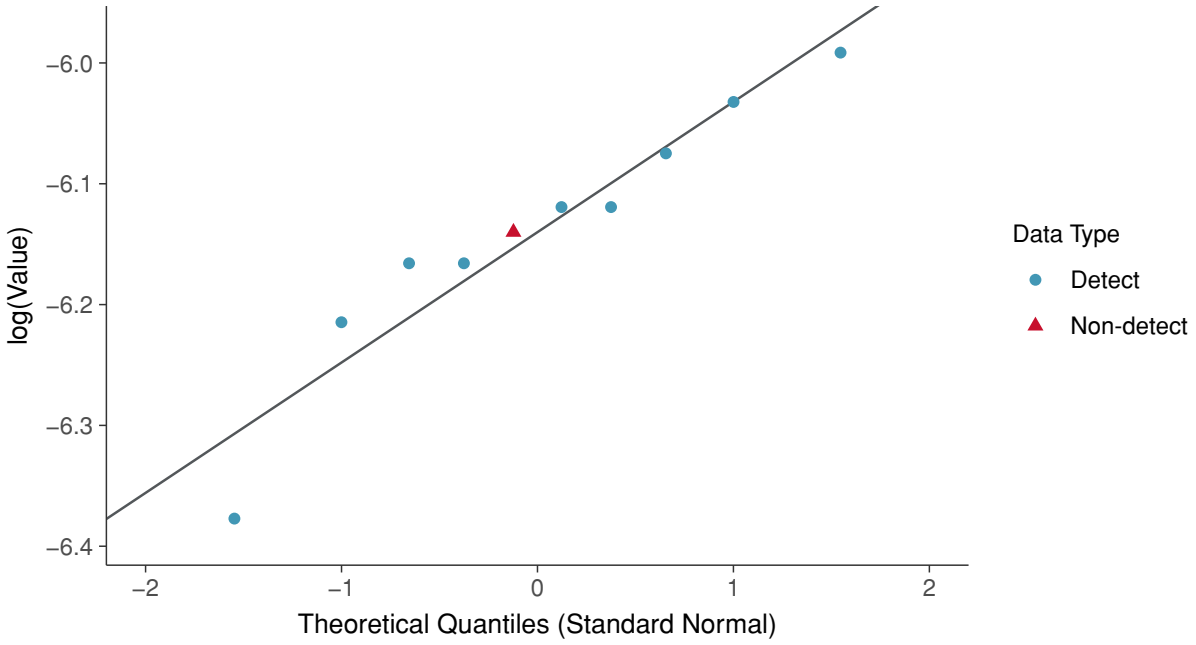
Normal Q-Q plot using ROS Imputed Estimates

Thallium, W-14 (mg/l)



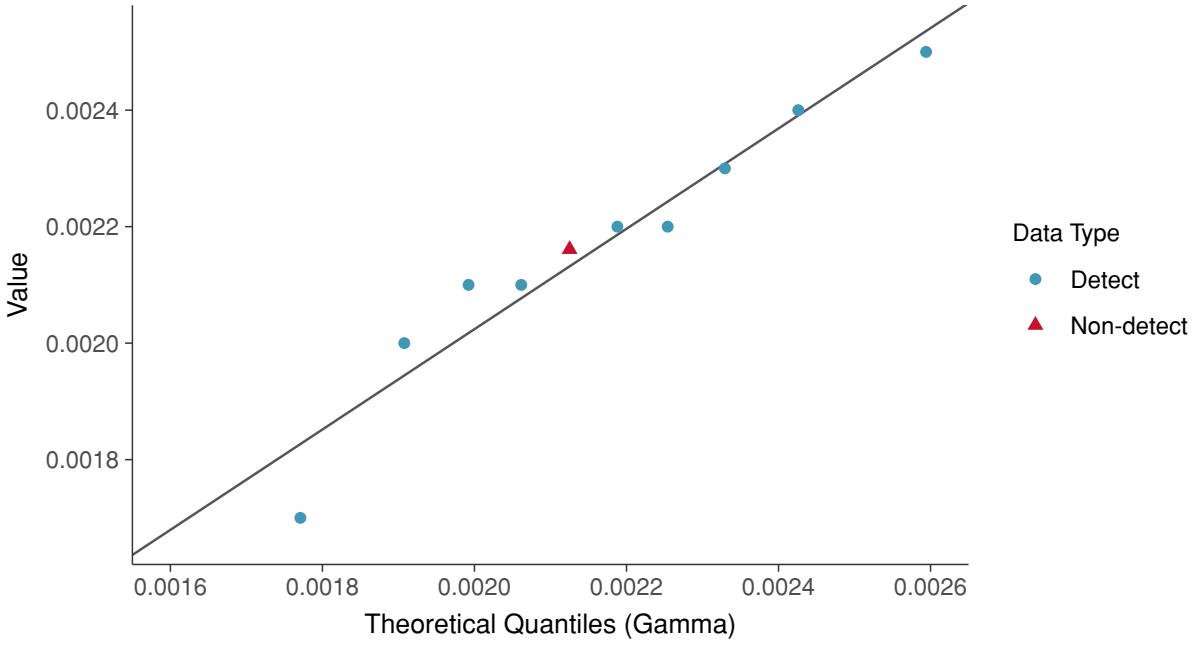
Lognormal Q-Q plot using ROS Imputed Estimates

Thallium, W-14 (mg/l)



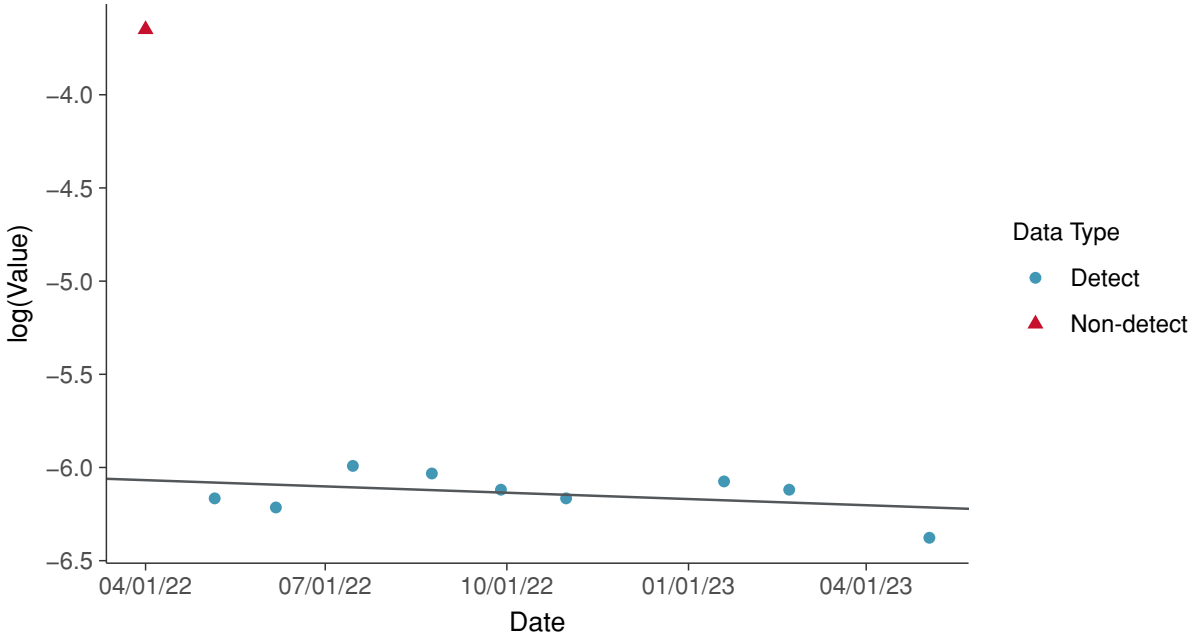
Gamma Q-Q plot using ROS Imputed Estimates

Thallium, W-14 (mg/l)



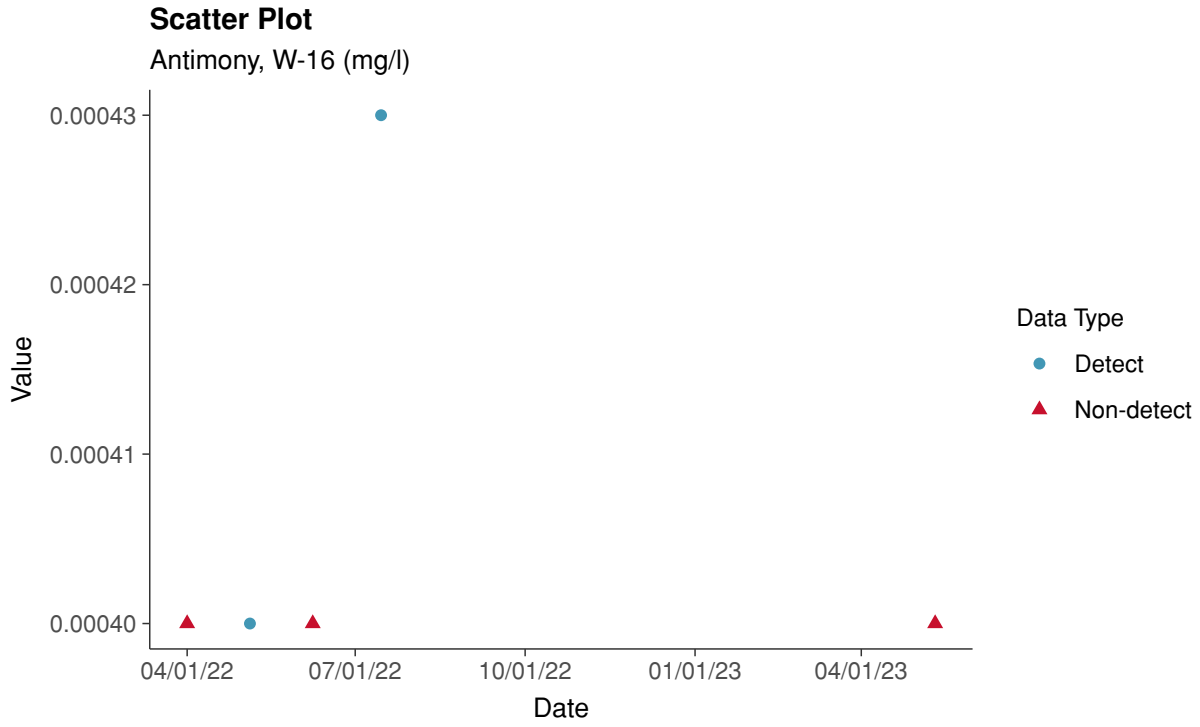
Trend Regression: Lognormal MLE

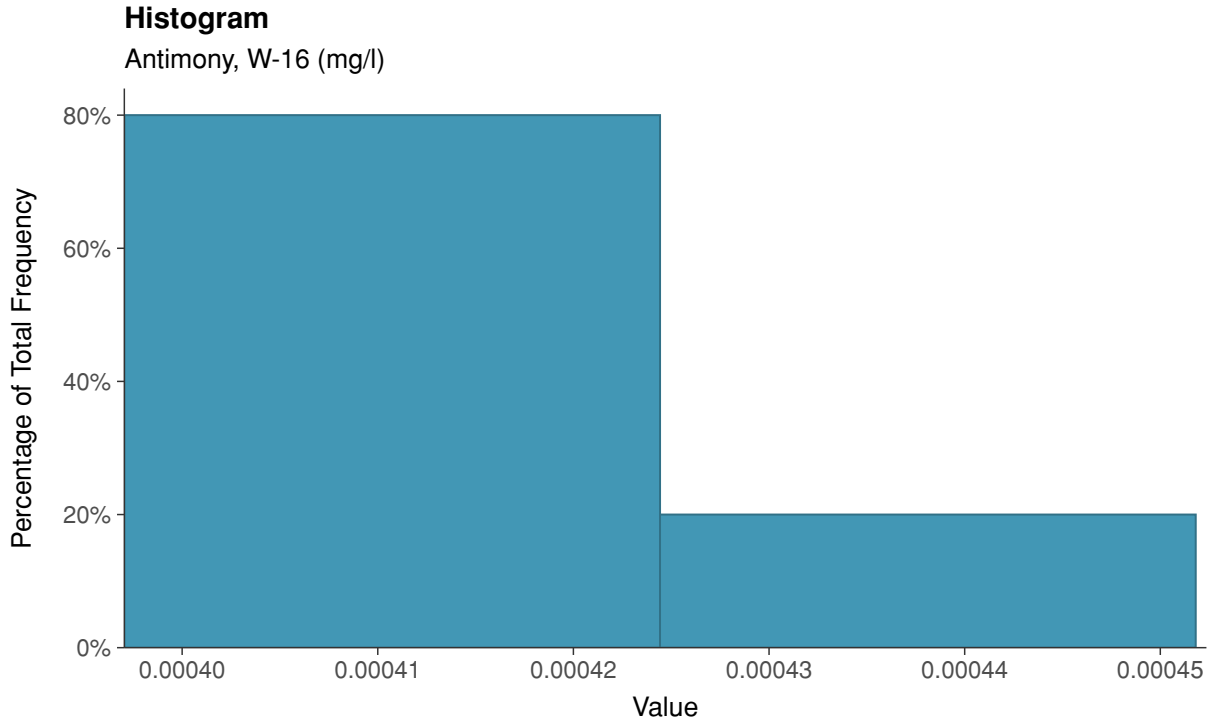
Thallium, W-14 (mg/l)



Appendix IV: Antimony, W-16

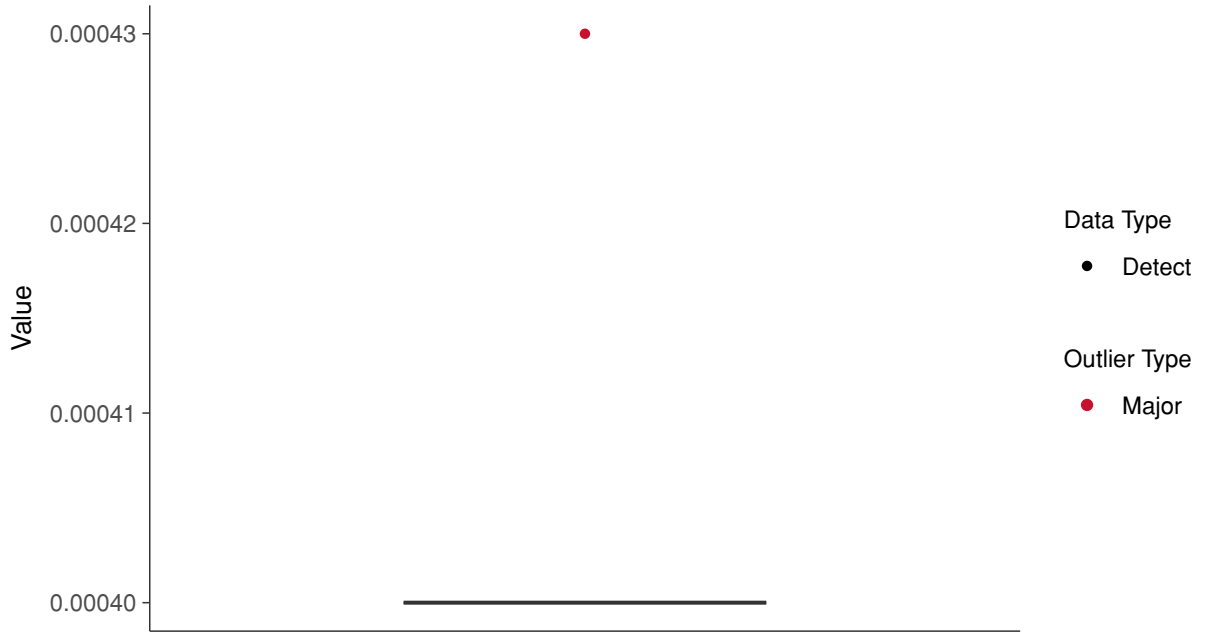
ID: 5_2_101





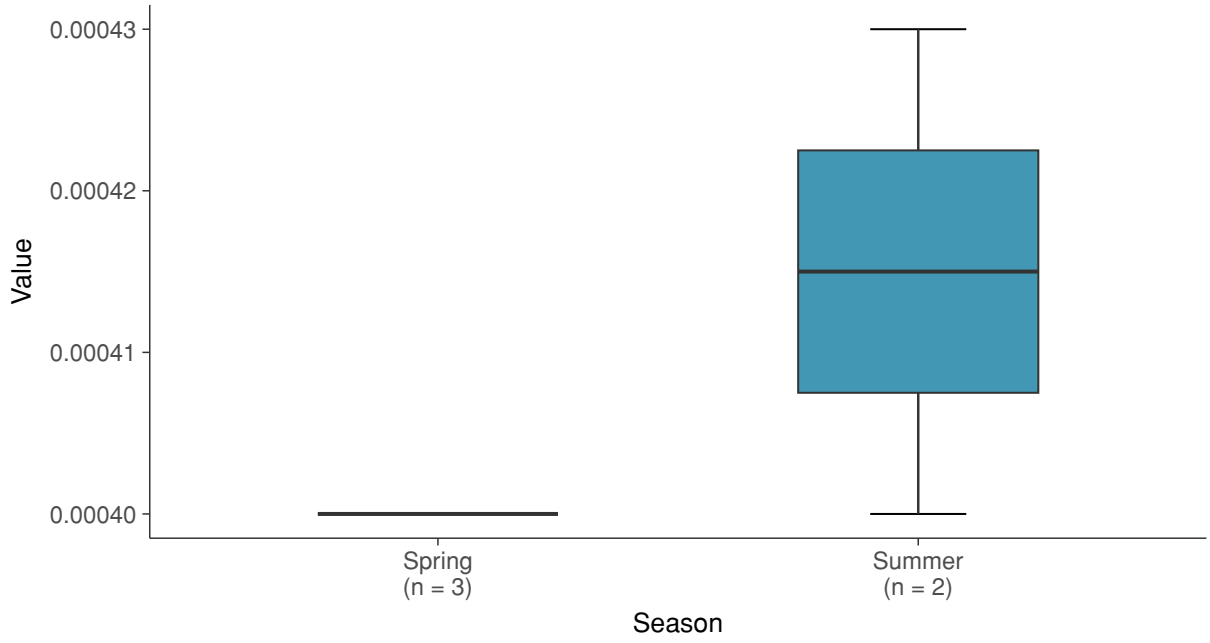
Boxplot

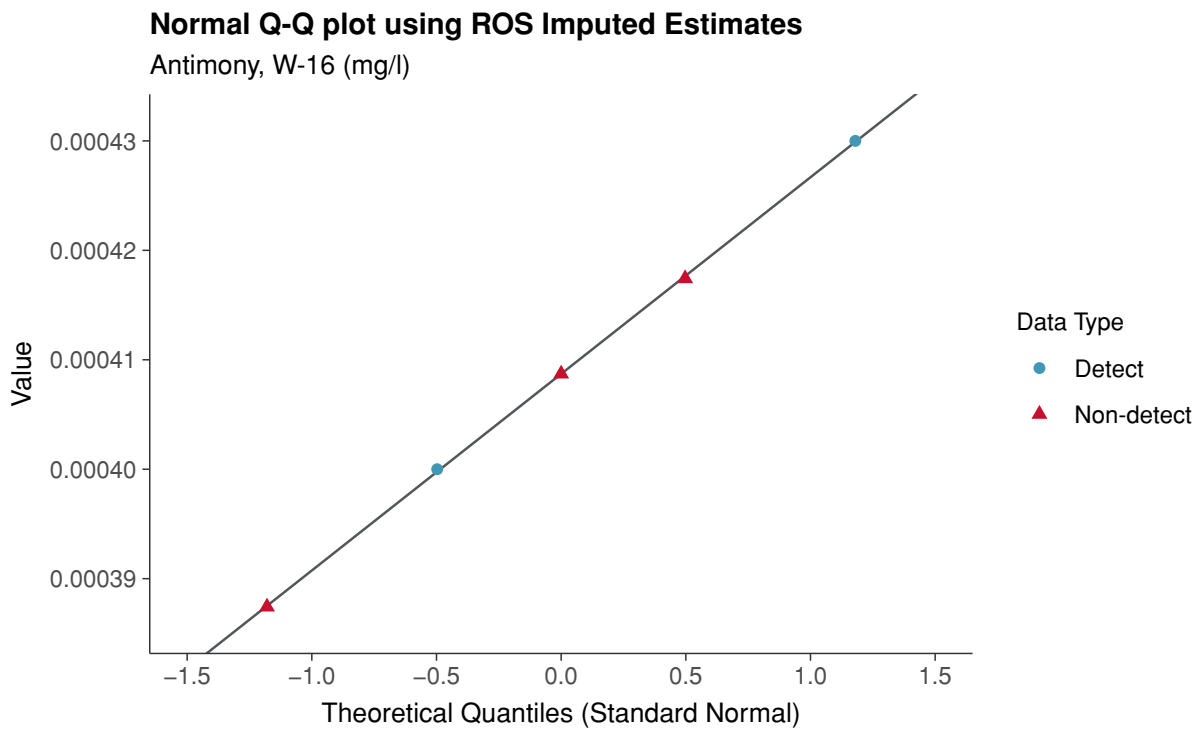
Antimony, W-16 (mg/l)



Boxplot by Season

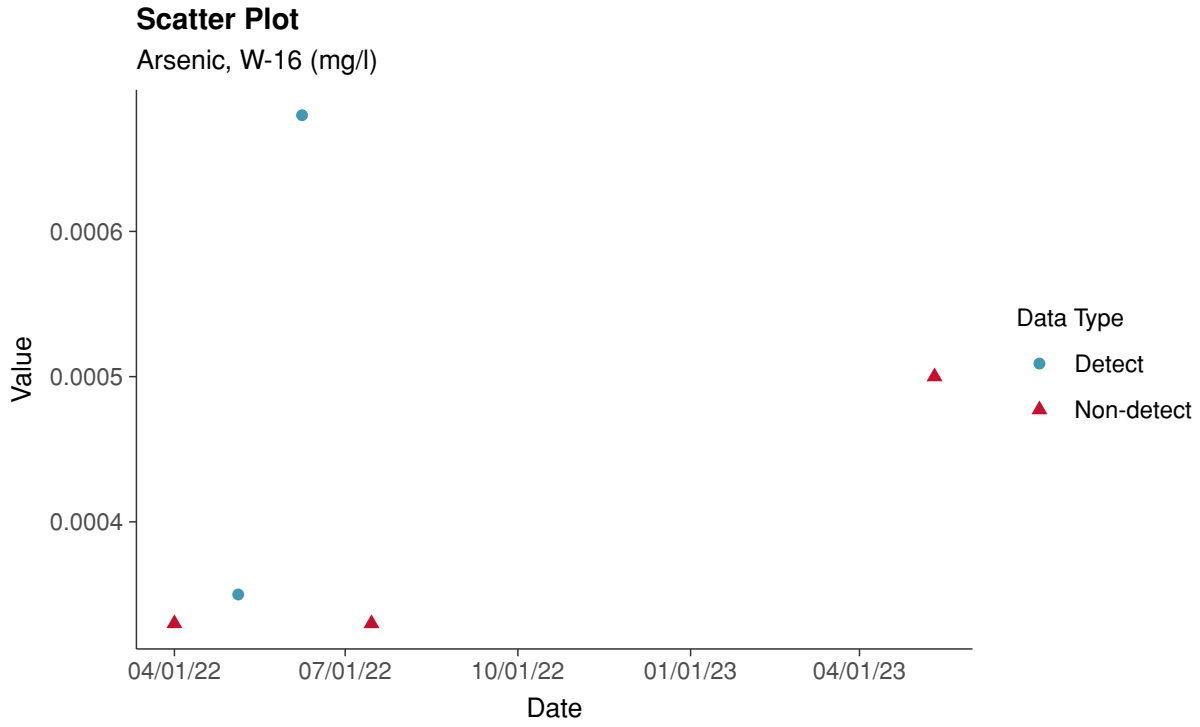
Antimony, W-16 (mg/l)

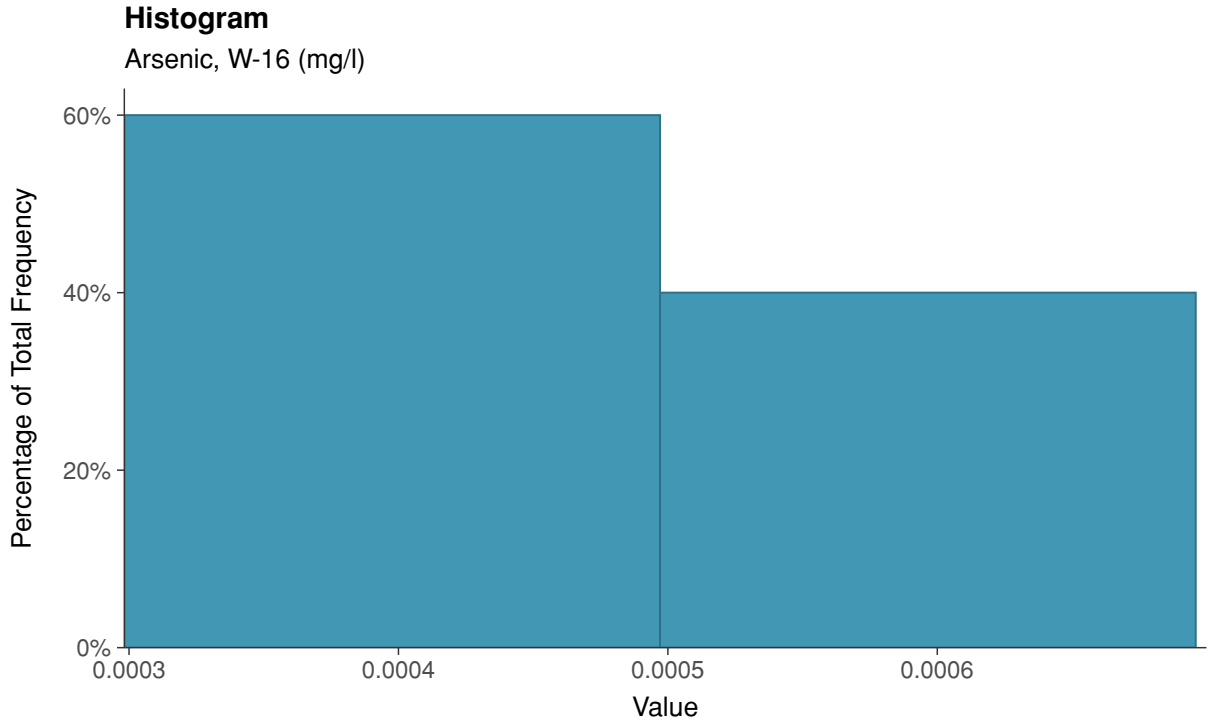



Normal Q-Q plot using ROS Imputed Estimates
Antimony, W-16 (mg/l)
Value
0.00043
0.00042
0.00041
0.00040
0.00039
−1.5
−1.0
−0.5
0.0
0.5
1.0
1.5
Theoretical Quantiles (Standard Normal)
Data Type
Detect
Non-detect

Appendix IV: Arsenic, W-16

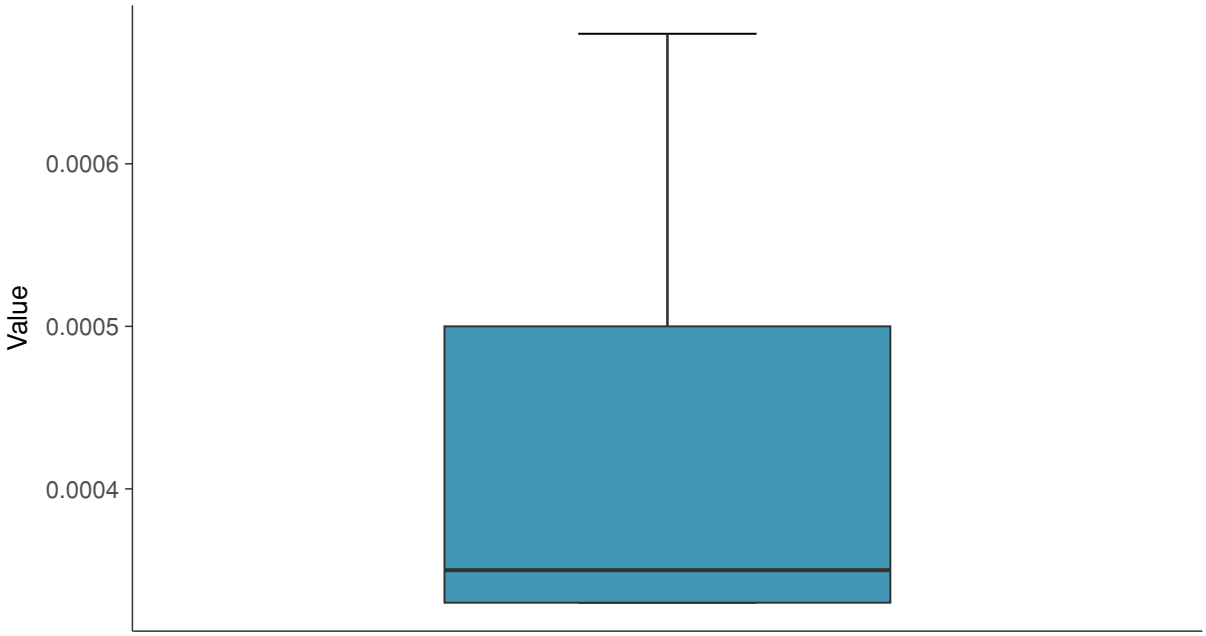
ID: 5_2_102





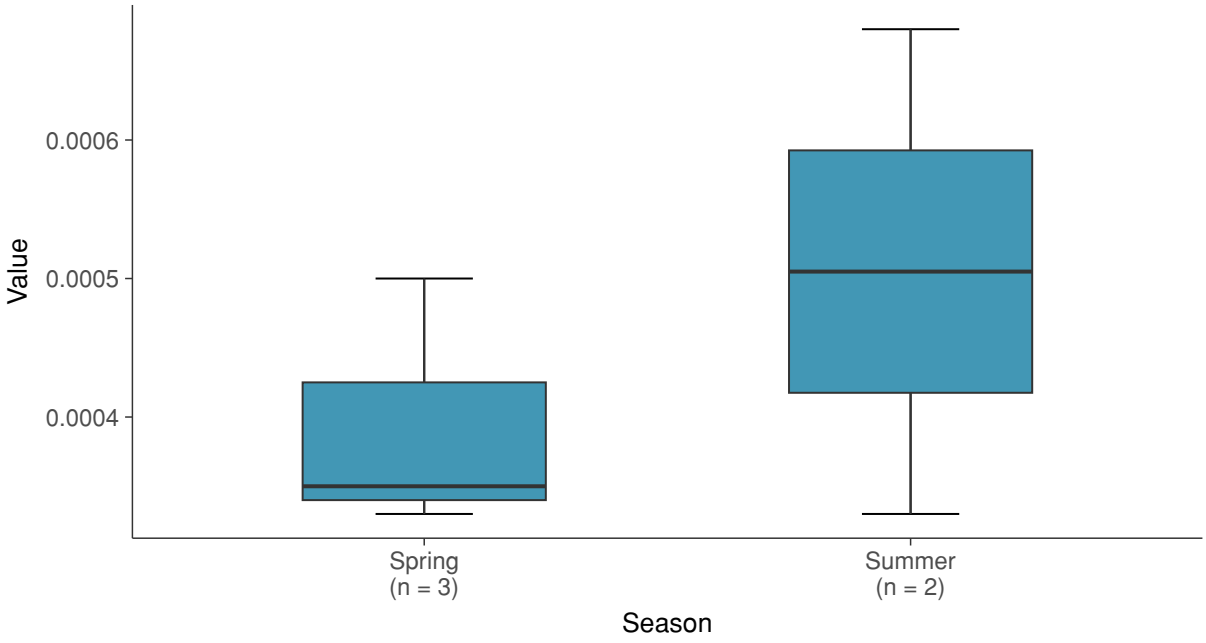
Boxplot

Arsenic, W-16 (mg/l)



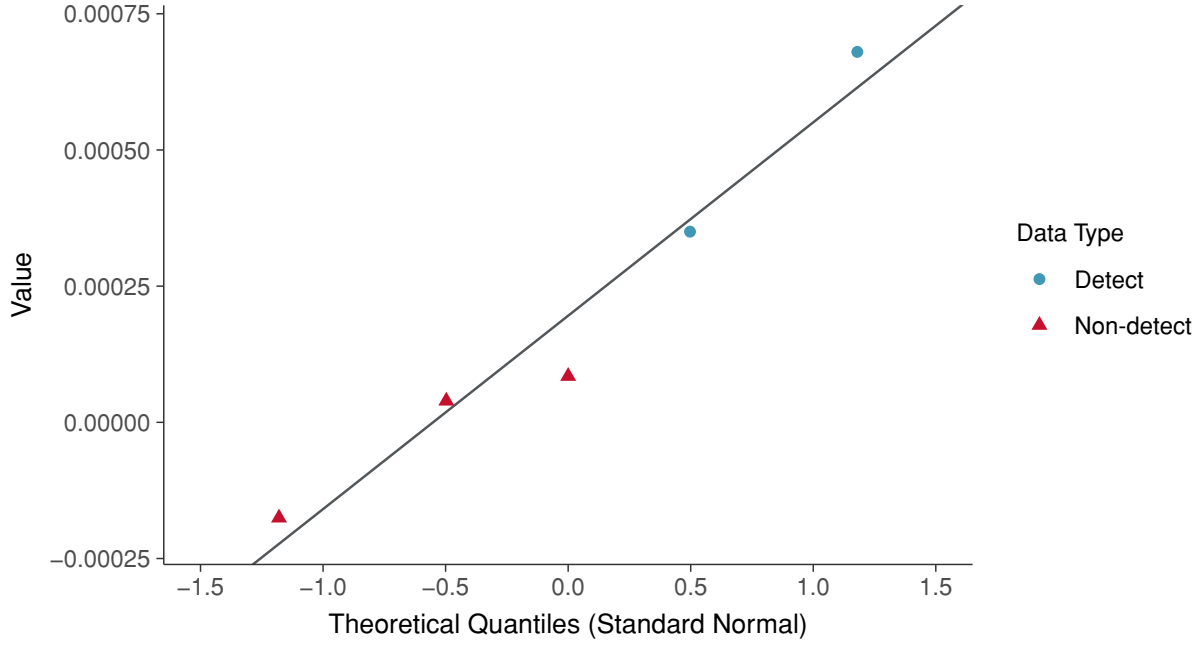
Boxplot by Season

Arsenic, W-16 (mg/l)



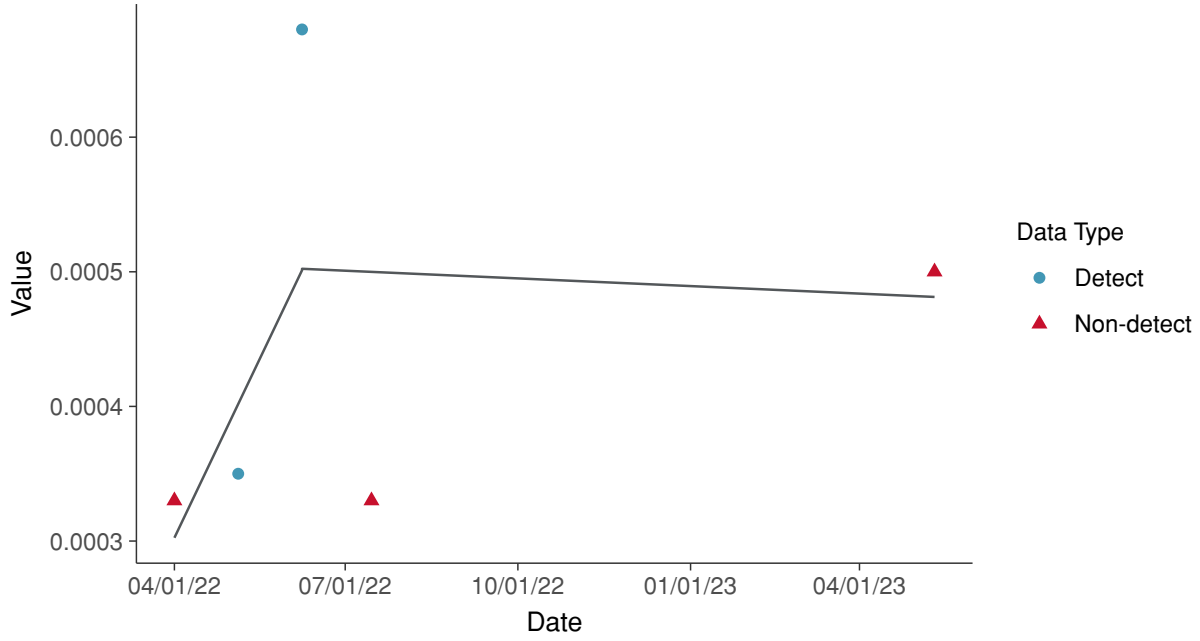
Normal Q-Q plot using ROS Imputed Estimates

Arsenic, W-16 (mg/l)



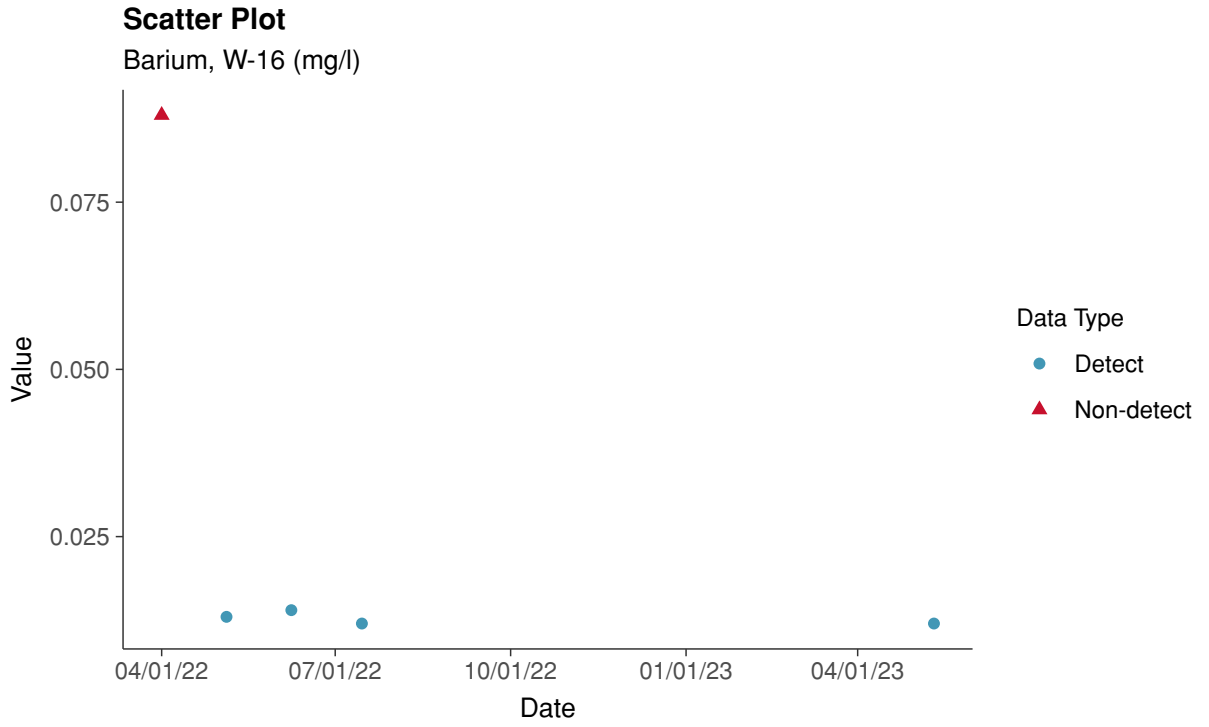
Trend Regression: Piecewise Linear-Linear

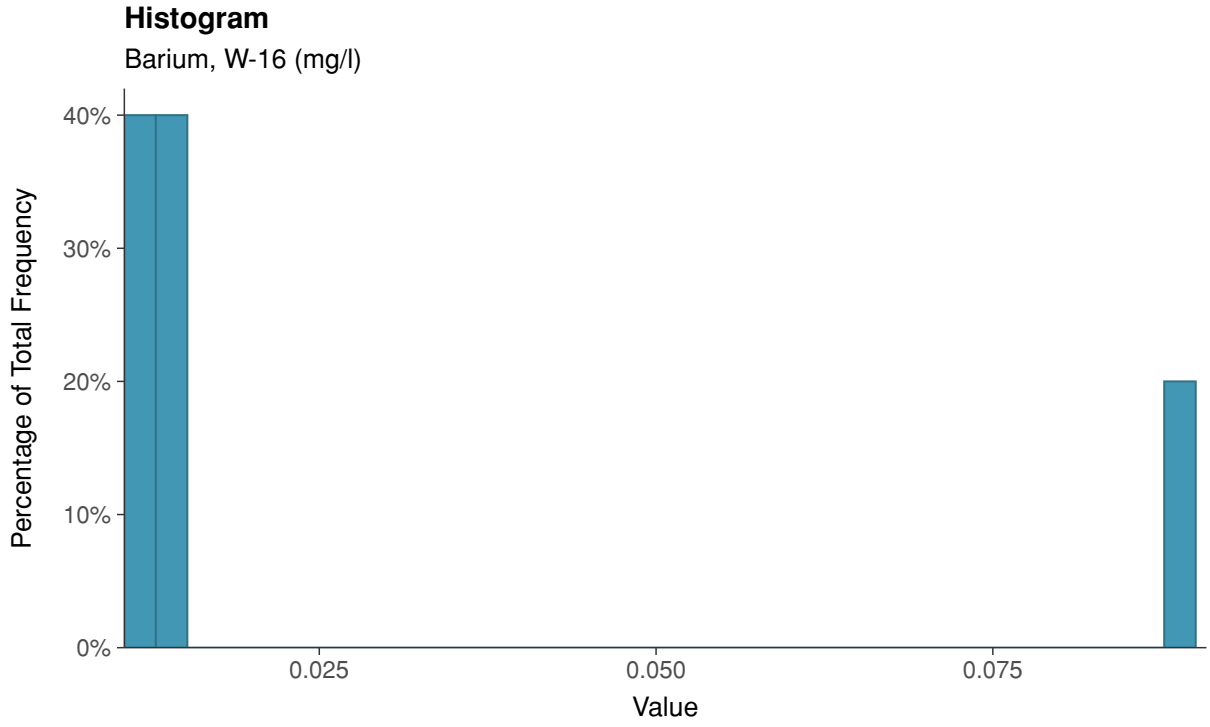
Arsenic, W-16 (mg/l)



Appendix IV: Barium, W-16

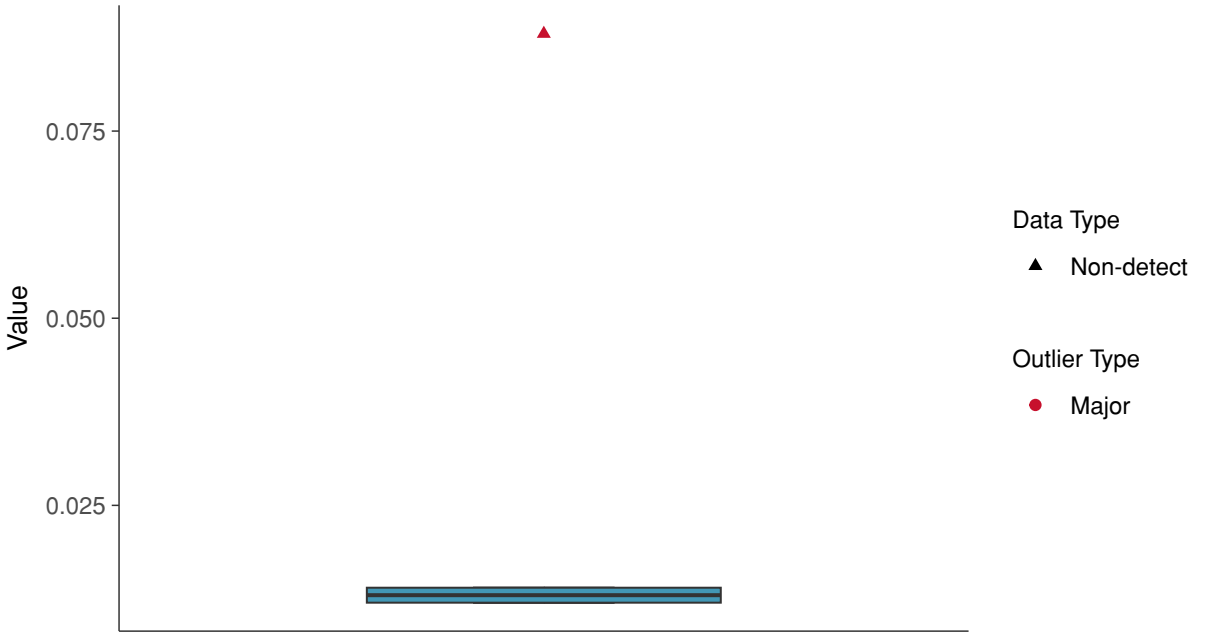
ID: 5_2_103





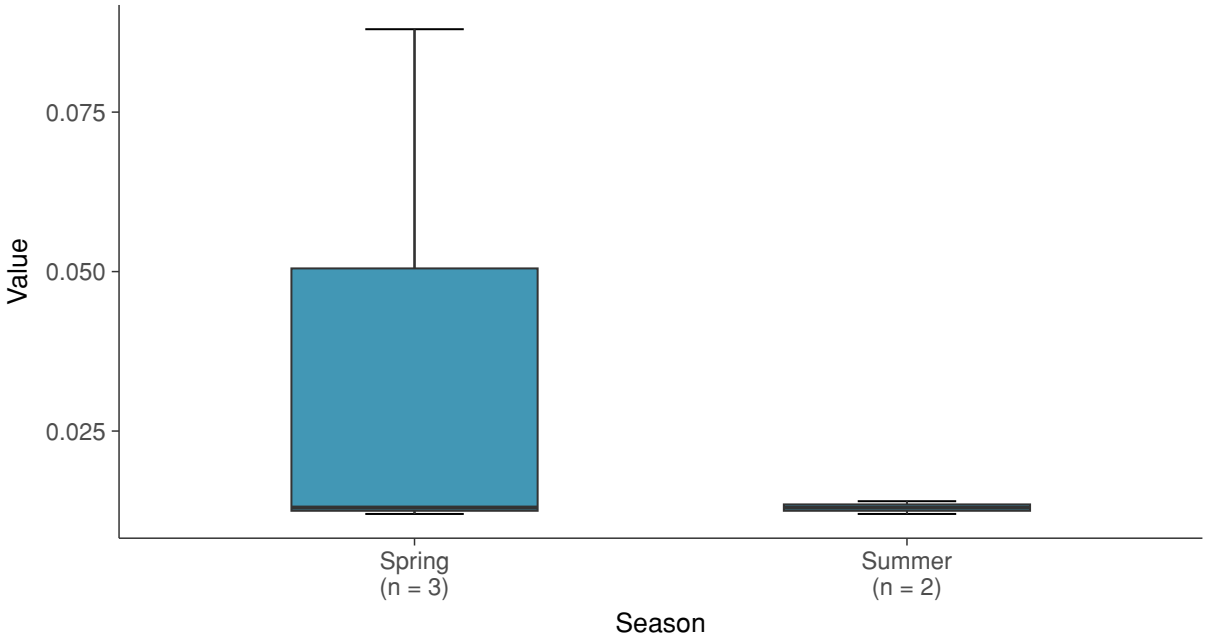
Boxplot

Barium, W-16 (mg/l)



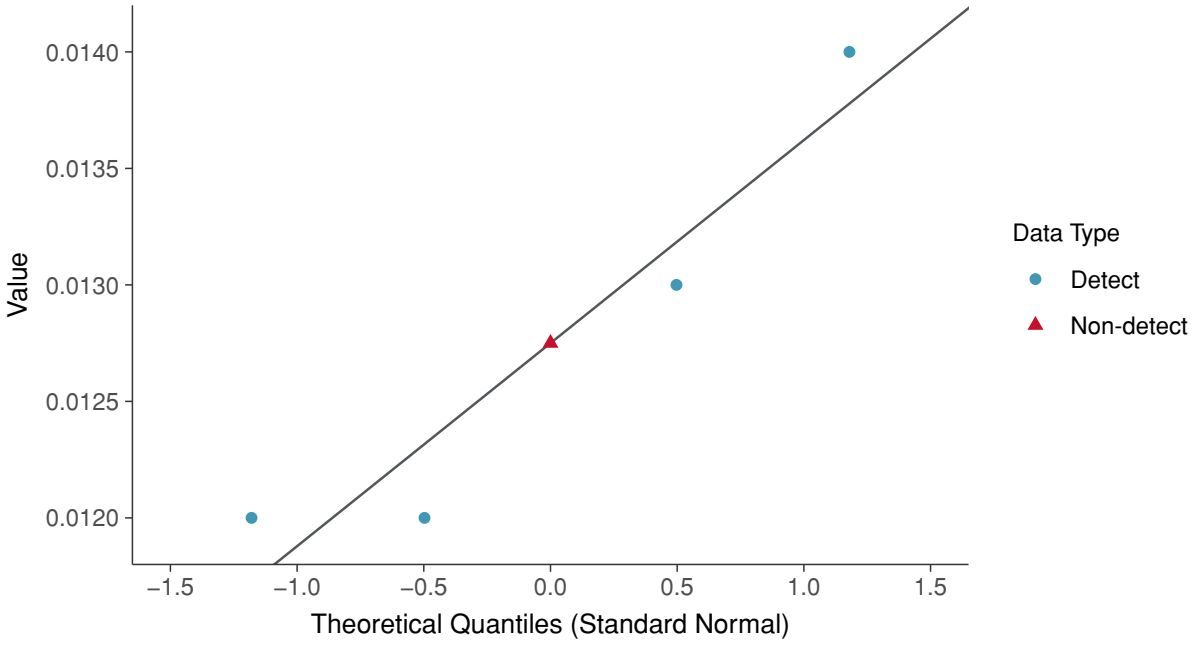
Boxplot by Season

Barium, W-16 (mg/l)



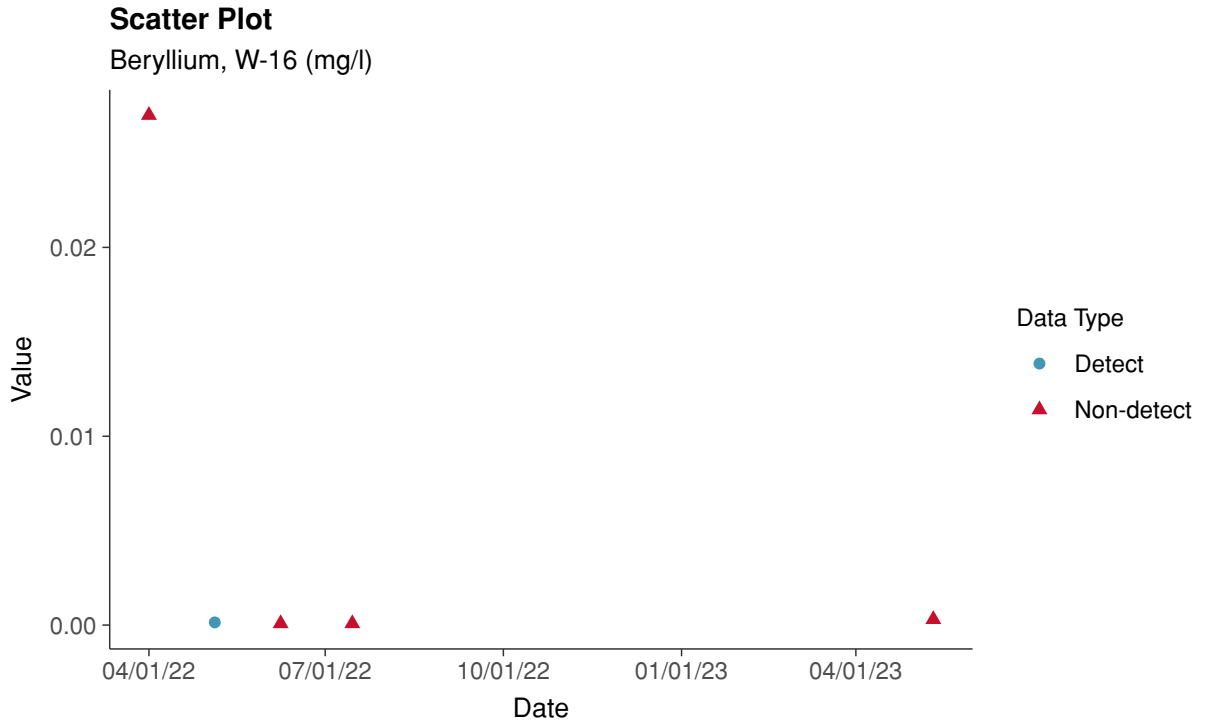
Normal Q-Q plot using ROS Imputed Estimates

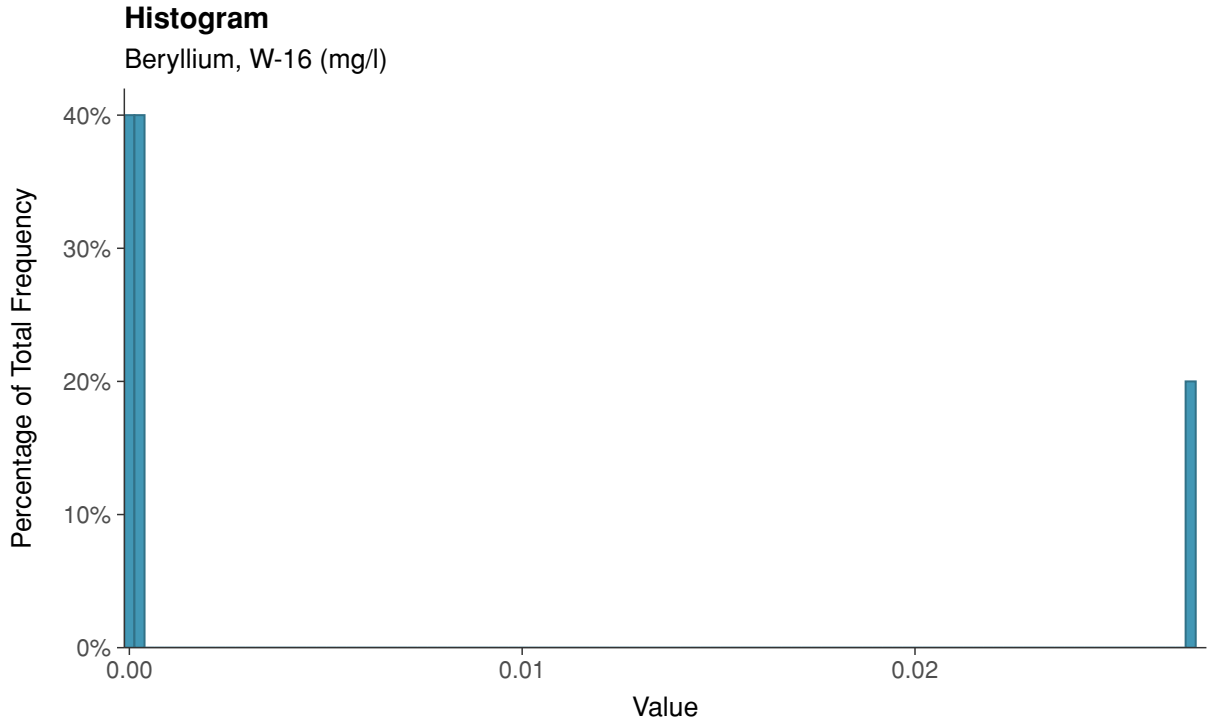
Barium, W-16 (mg/l)



Appendix IV: Beryllium, W-16

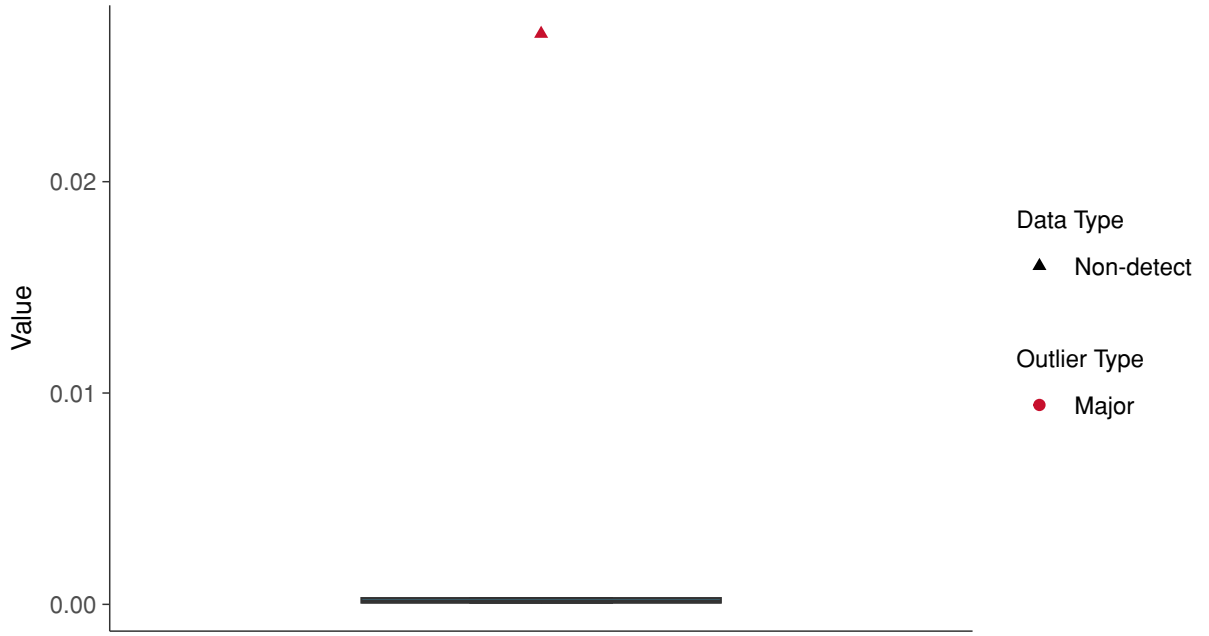
ID: 5_2_104





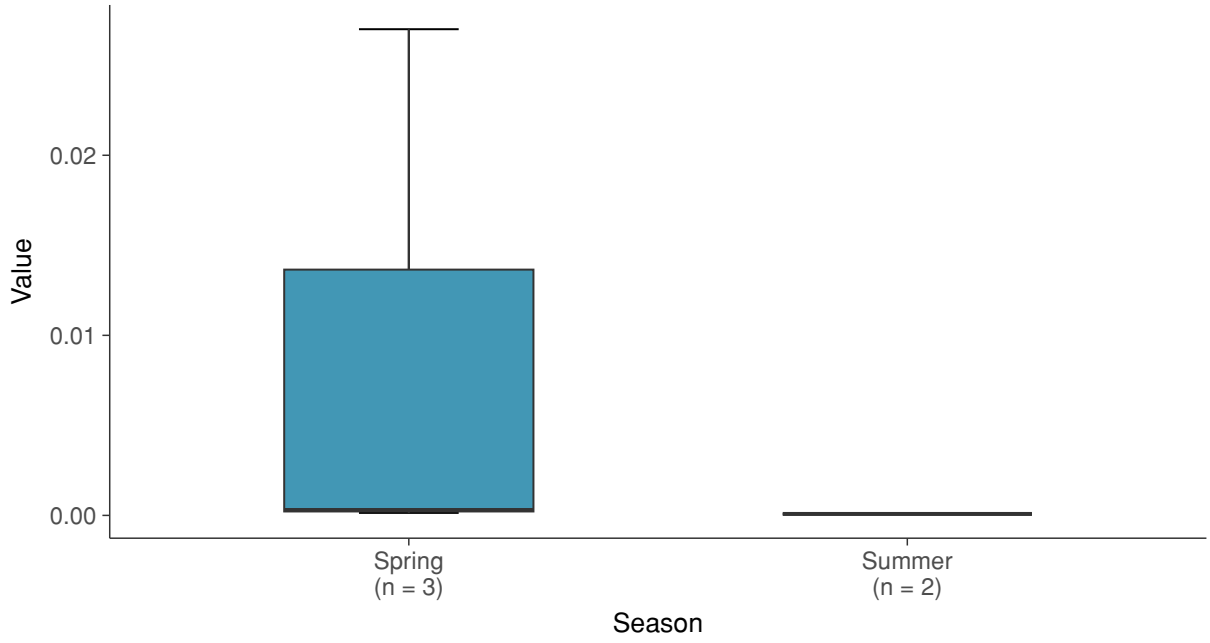
Boxplot

Beryllium, W-16 (mg/l)



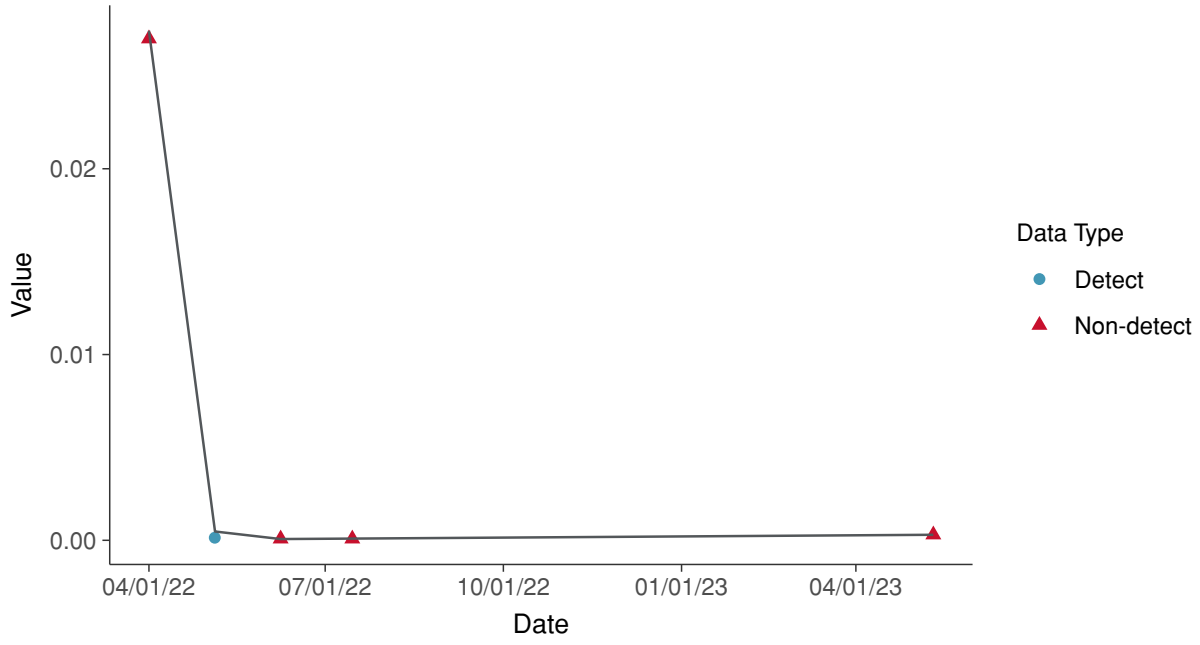
Boxplot by Season

Beryllium, W-16 (mg/l)



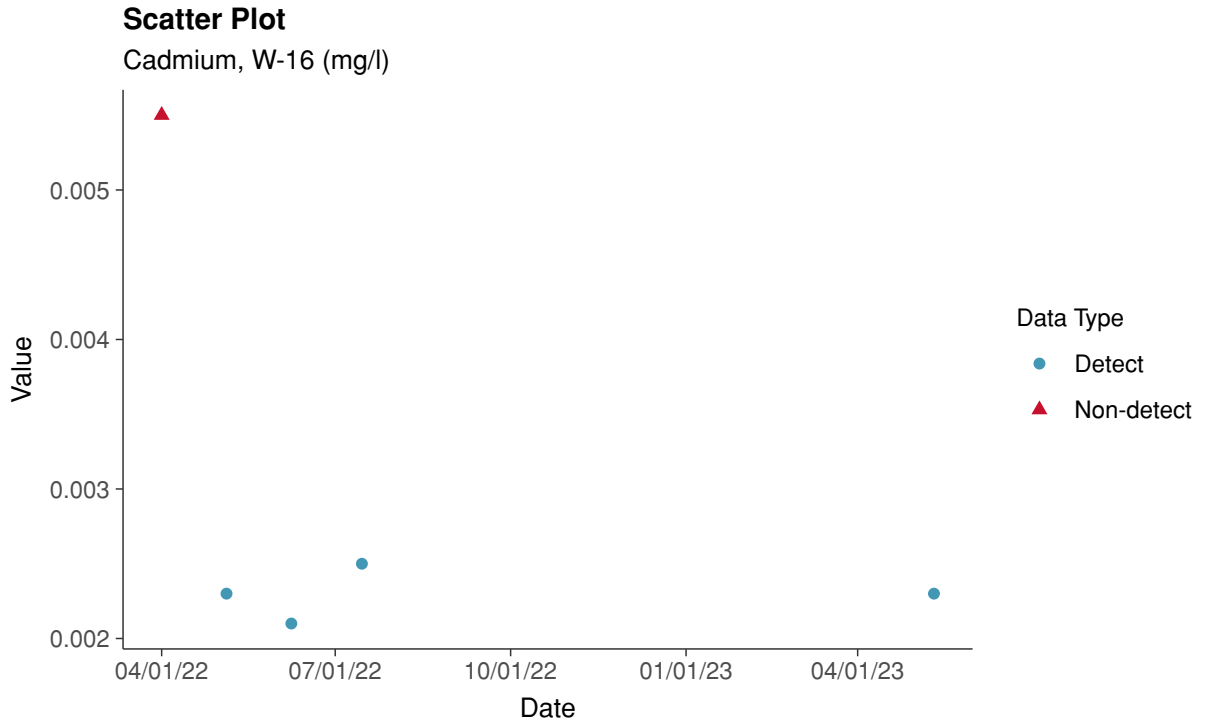
Trend Regression: Piecewise Linear-Linear

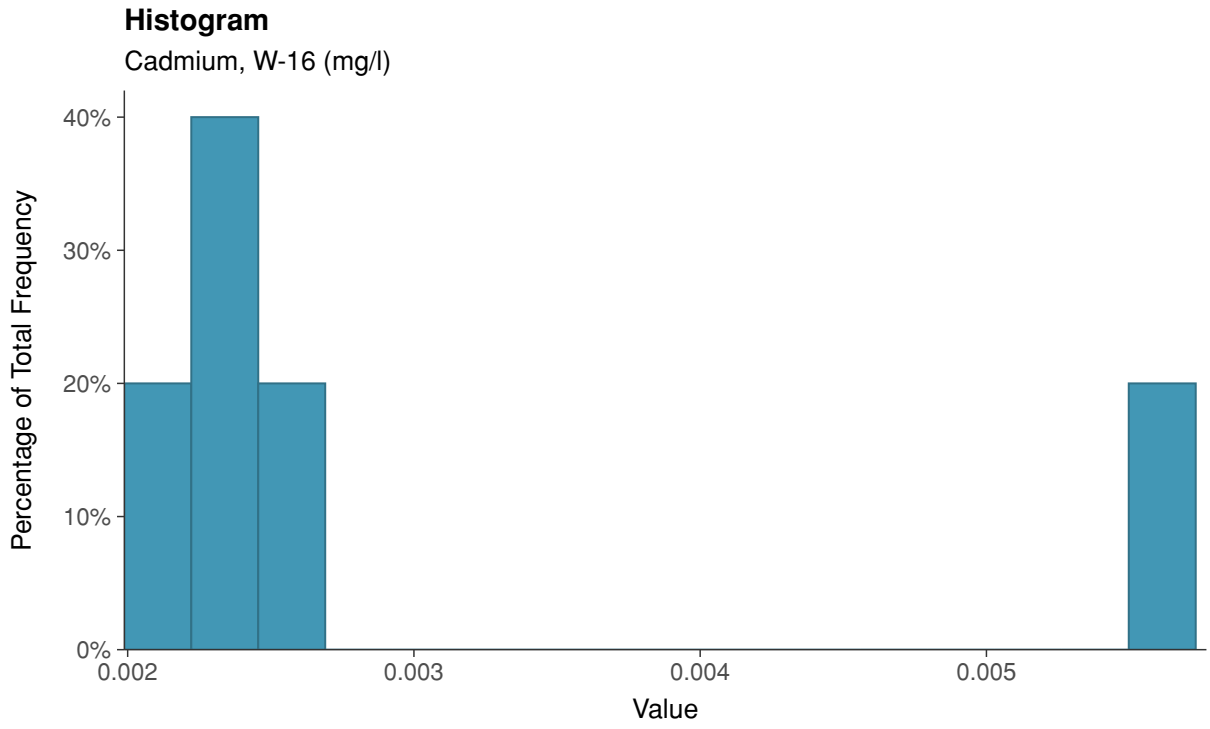
Beryllium, W-16 (mg/l)



Appendix IV: Cadmium, W-16

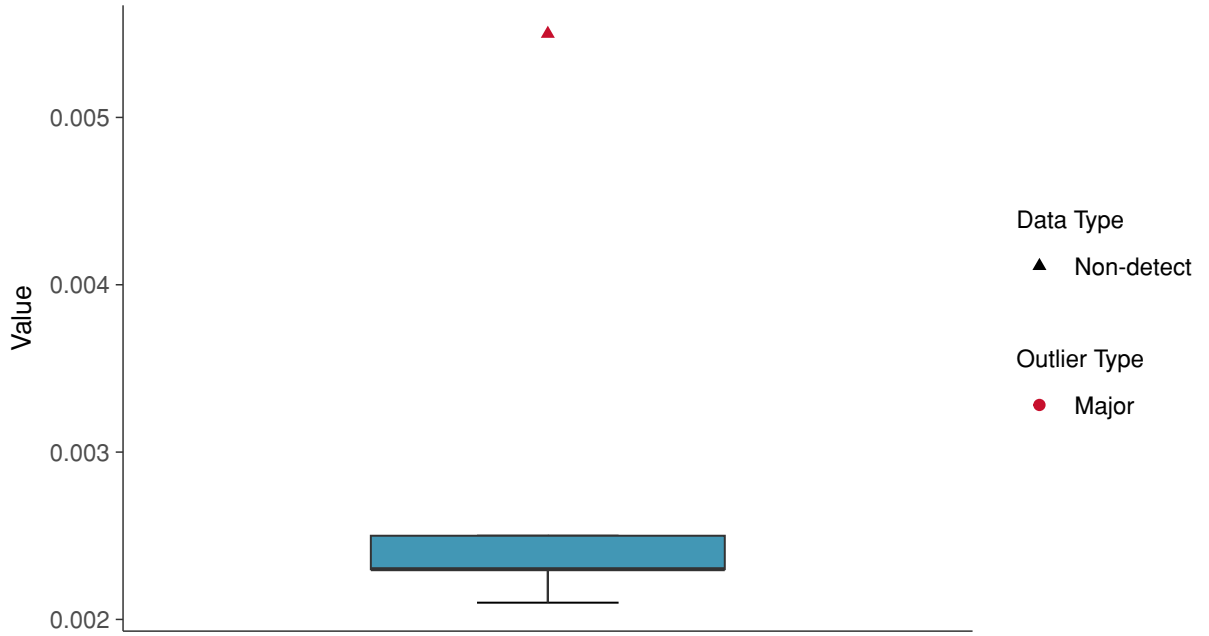
ID: 5_2_106





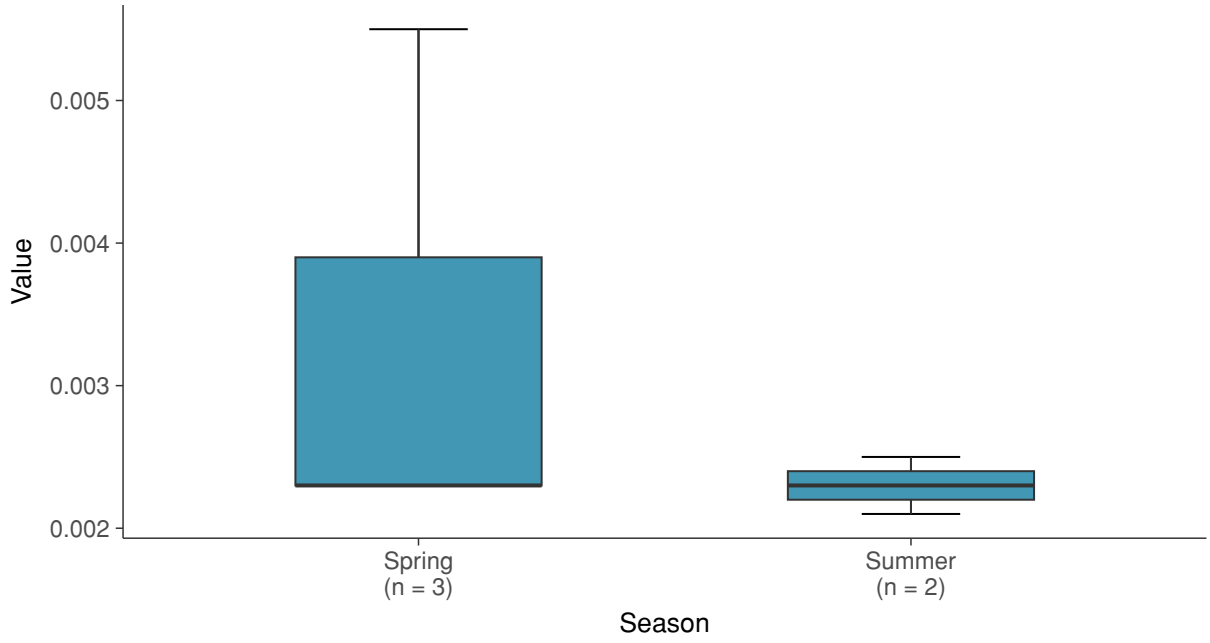
Boxplot

Cadmium, W-16 (mg/l)



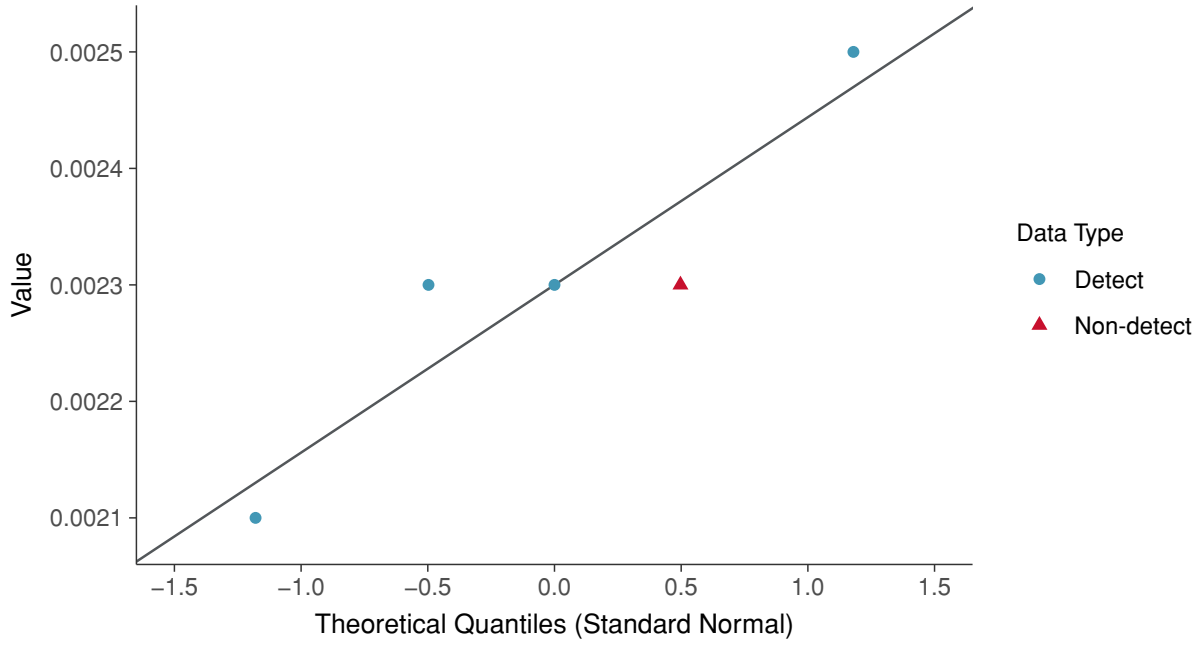
Boxplot by Season

Cadmium, W-16 (mg/l)



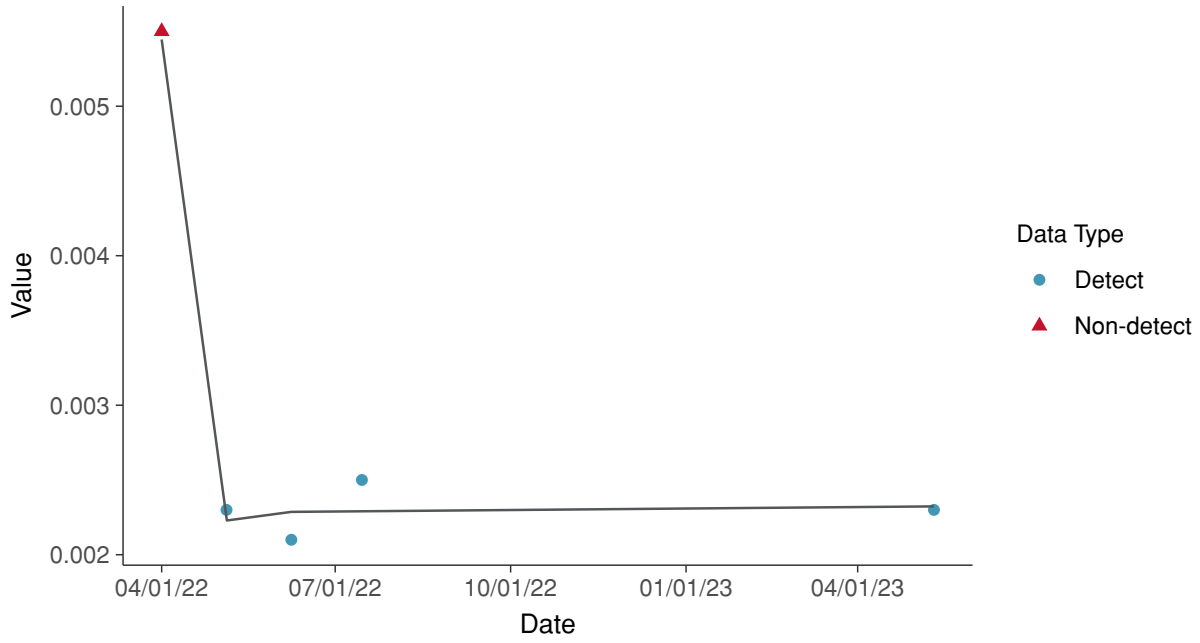
Normal Q-Q plot using ROS Imputed Estimates

Cadmium, W-16 (mg/l)



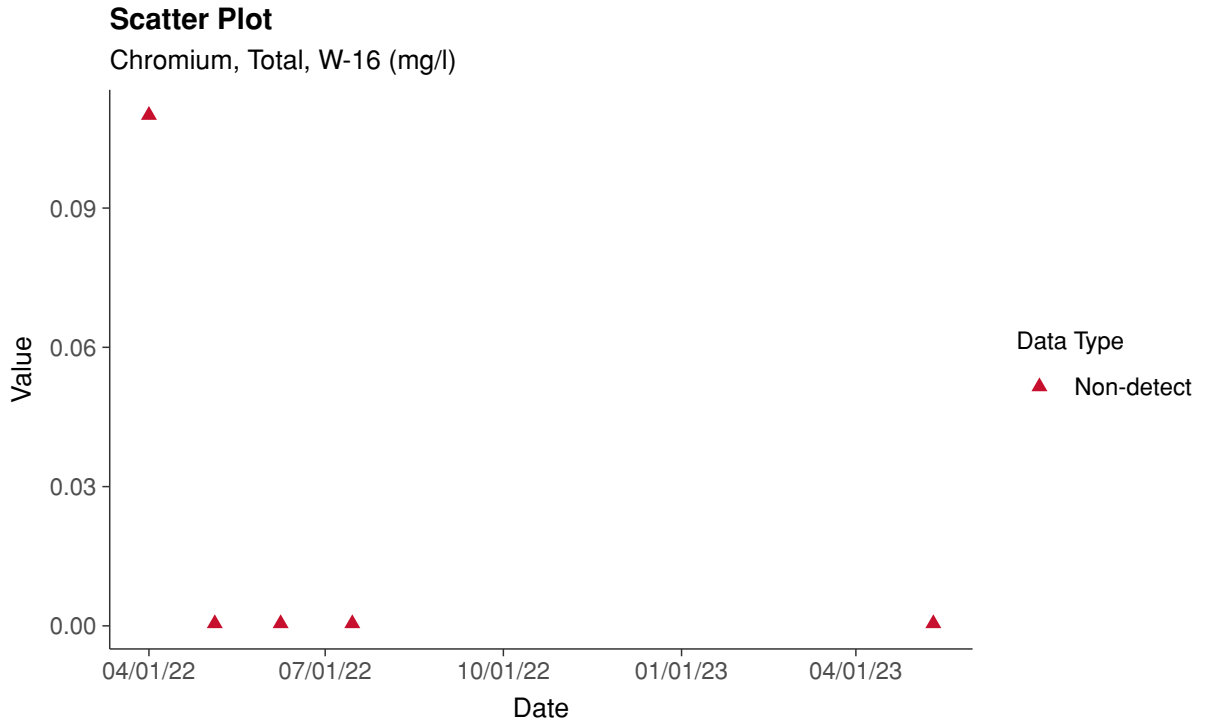
Trend Regression: Piecewise Linear-Linear

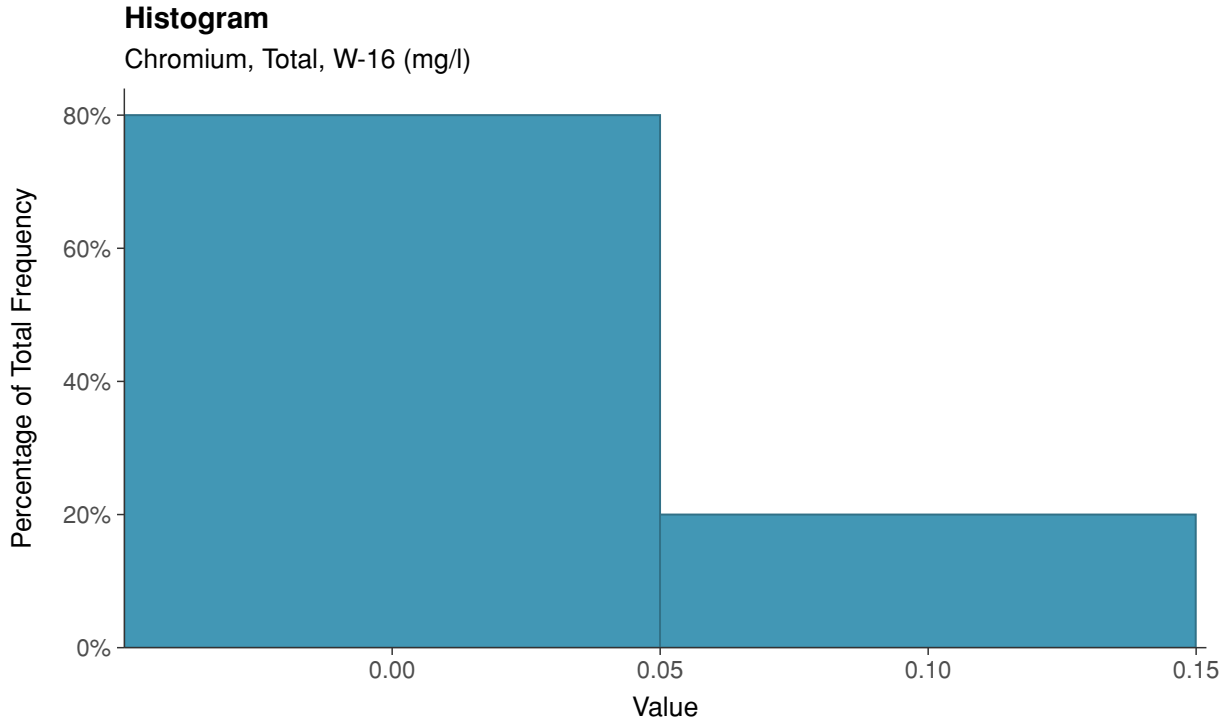
Cadmium, W-16 (mg/l)



Appendix IV: Chromium, Total, W-16

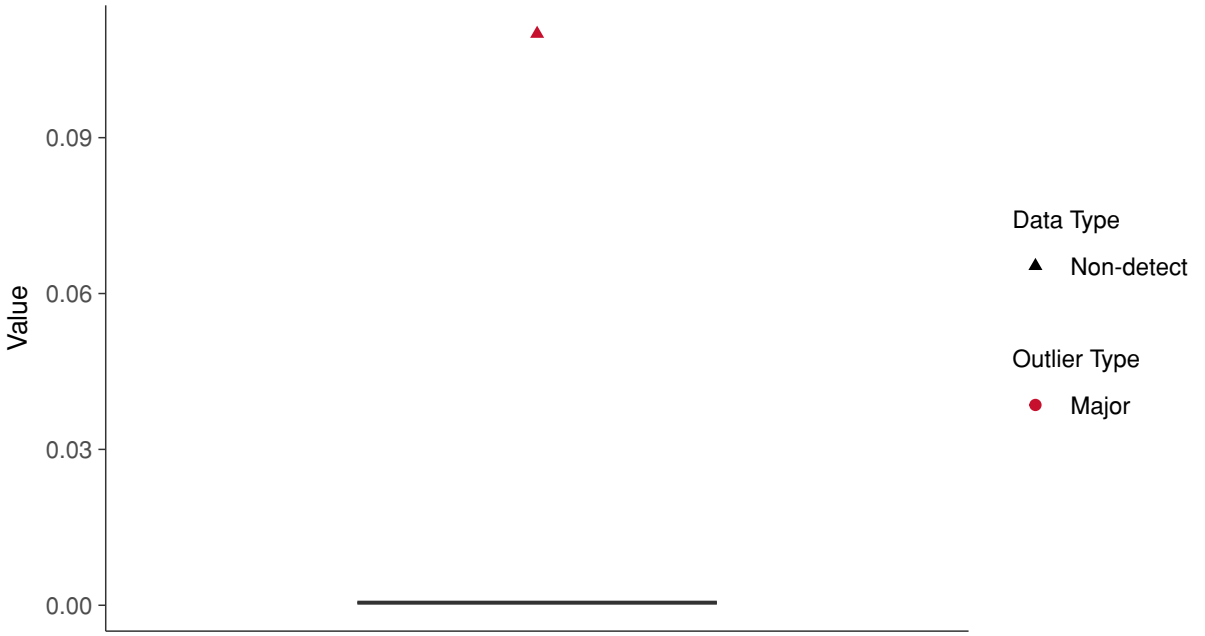
ID: 5_2_109





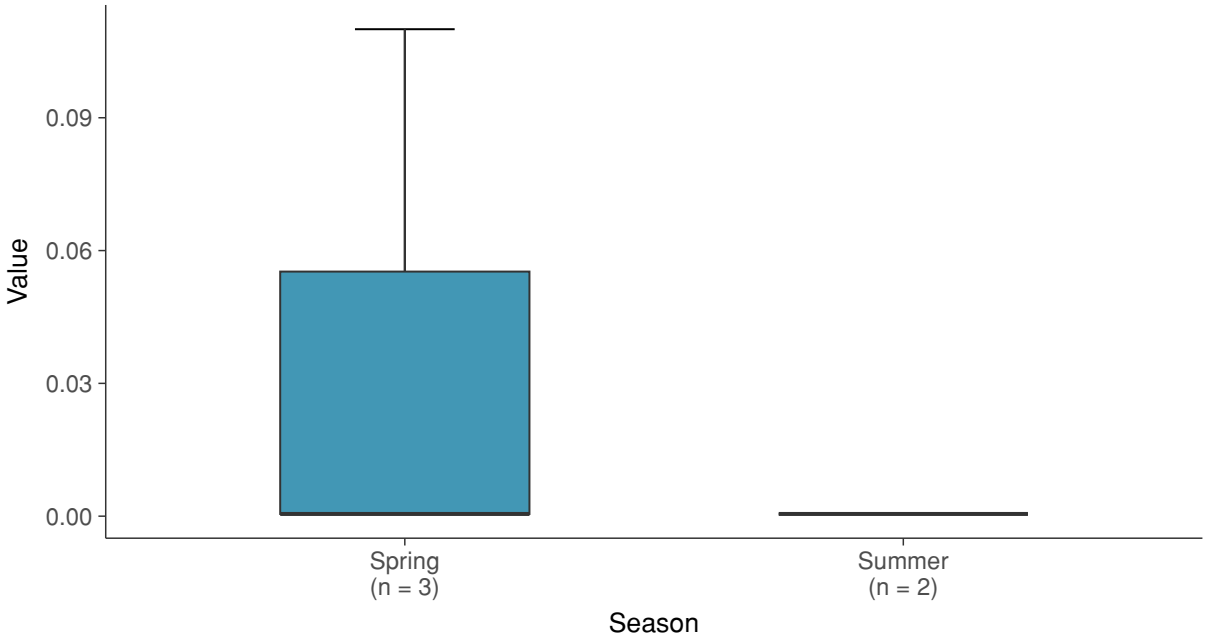
Boxplot

Chromium, Total, W-16 (mg/l)



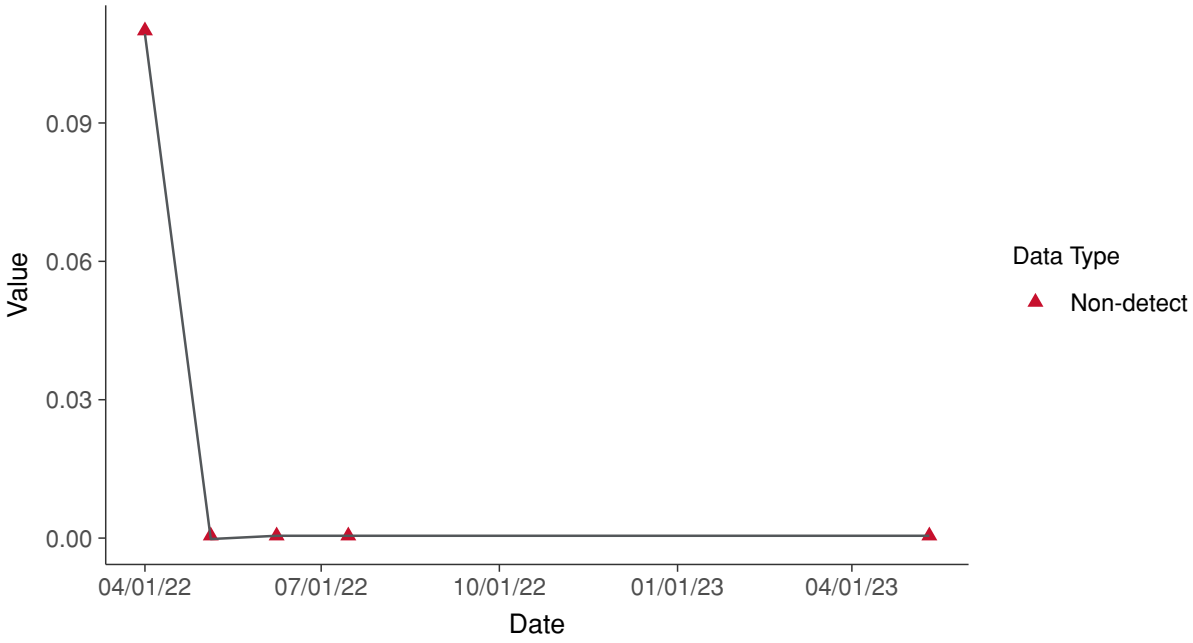
Boxplot by Season

Chromium, Total, W-16 (mg/l)



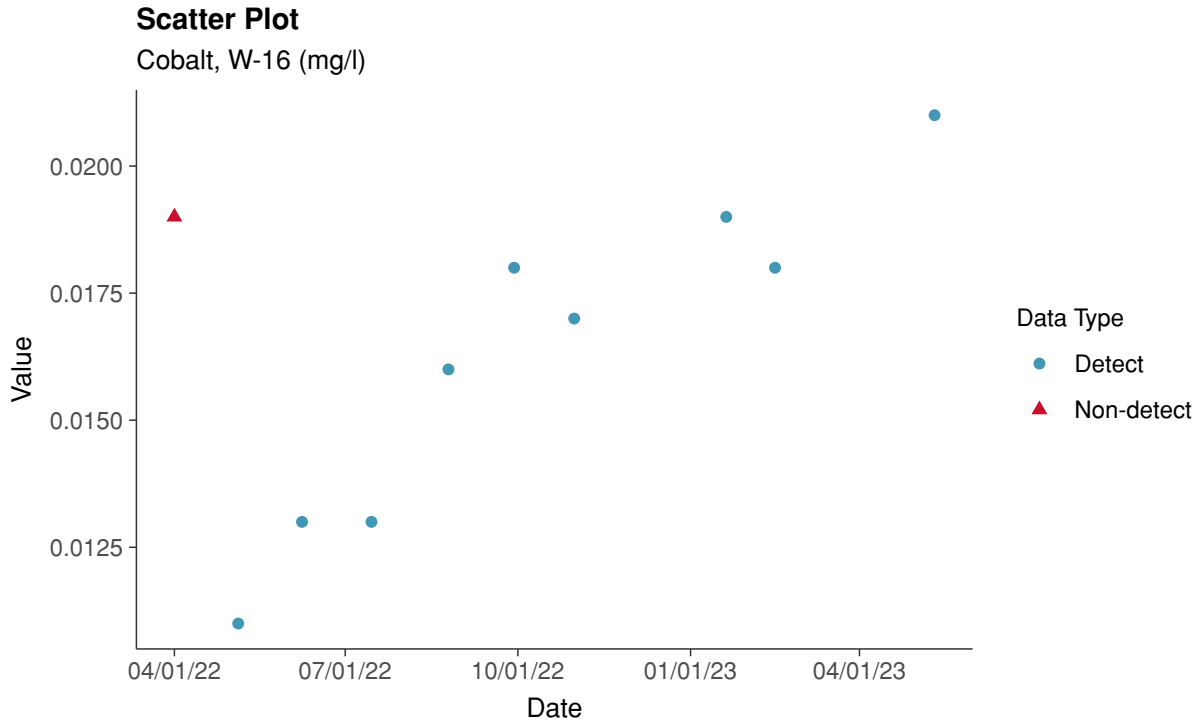
Trend Regression: Piecewise Linear-Linear

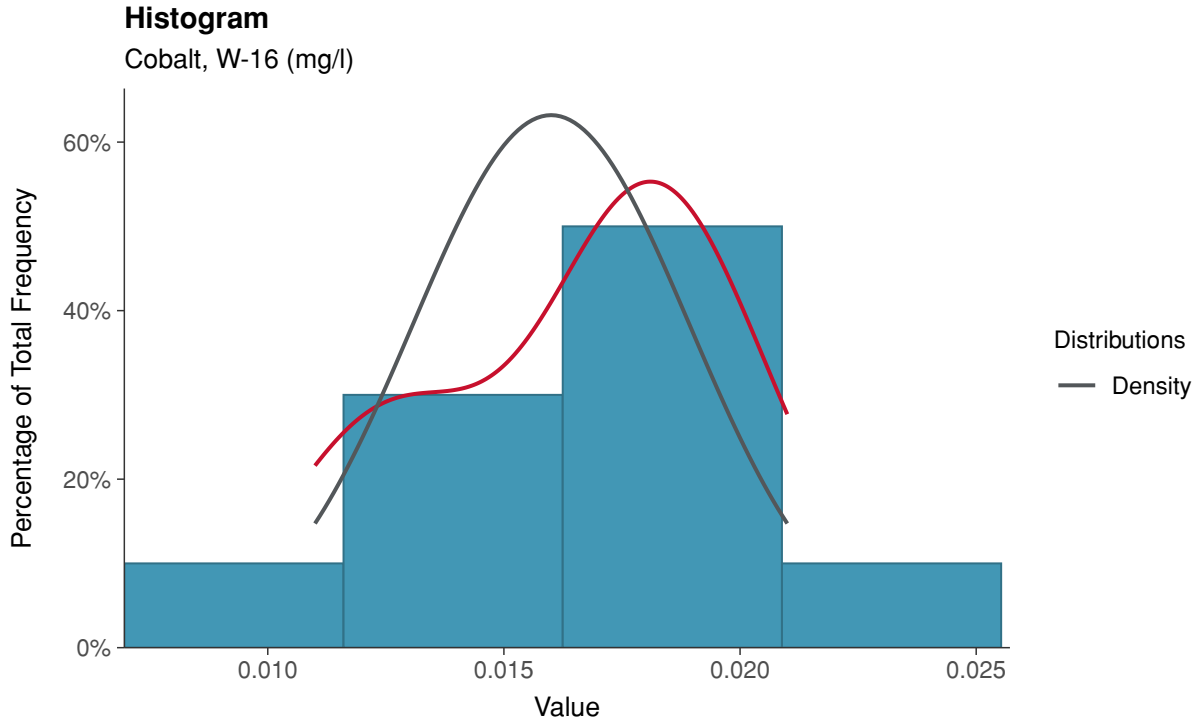
Chromium, Total, W-16 (mg/l)



Appendix IV: Cobalt, W-16

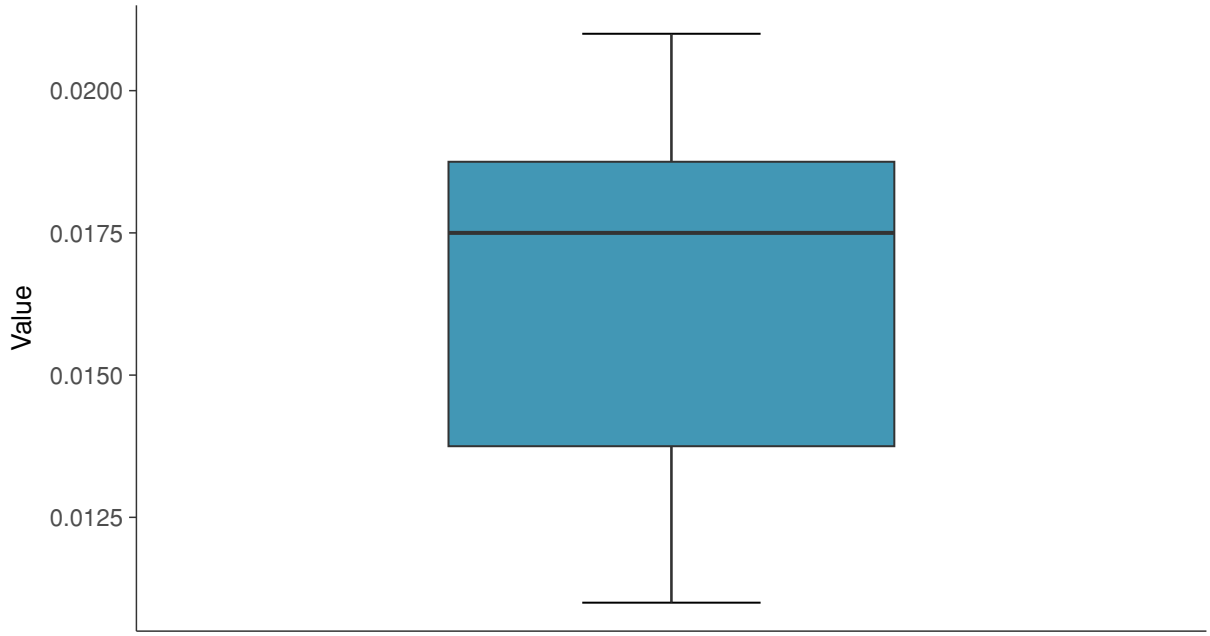
ID: 5_2_110





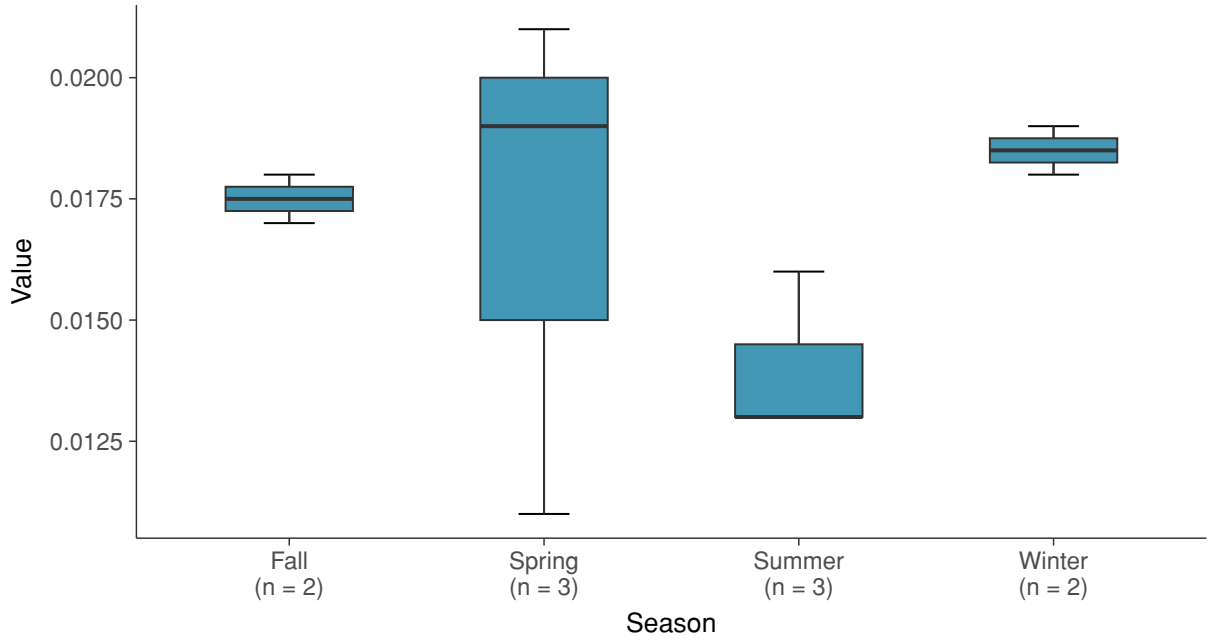
Boxplot

Cobalt, W-16 (mg/l)



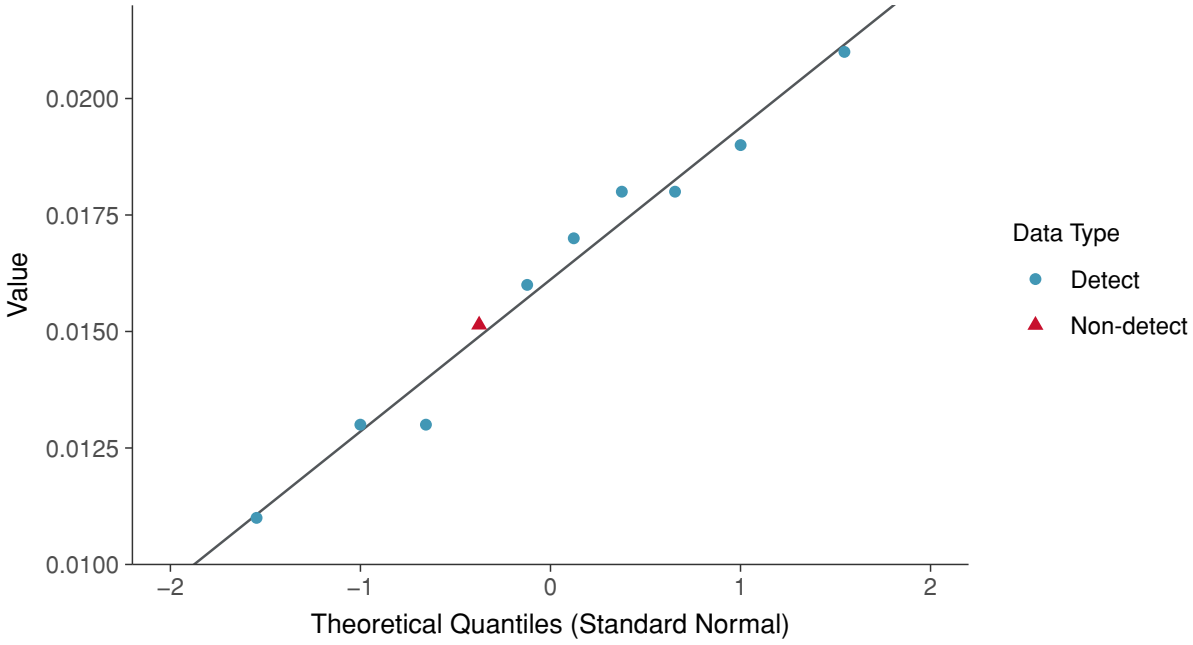
Boxplot by Season

Cobalt, W-16 (mg/l)



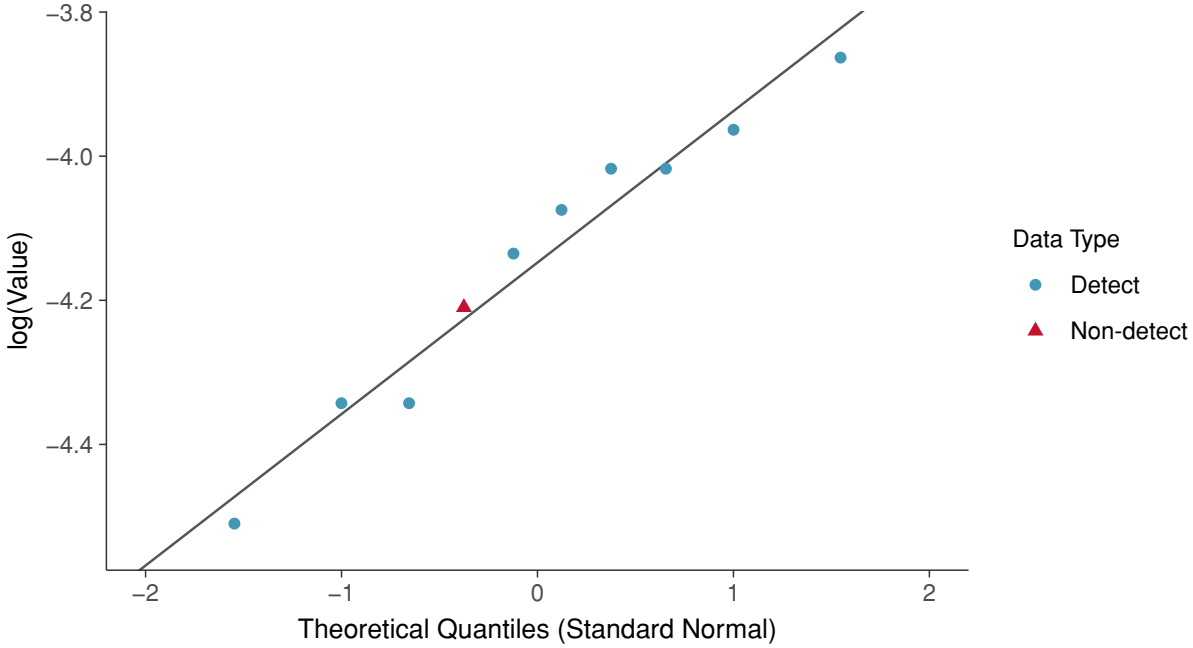
Normal Q-Q plot using ROS Imputed Estimates

Cobalt, W-16 (mg/l)



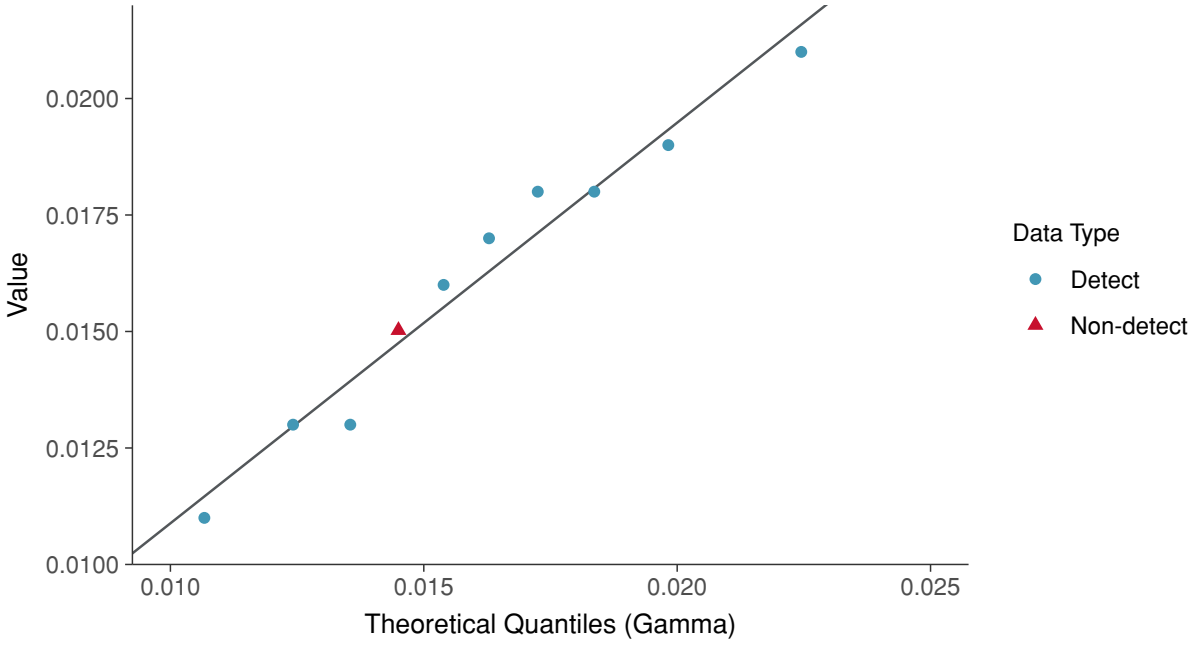
Lognormal Q-Q plot using ROS Imputed Estimates

Cobalt, W-16 (mg/l)



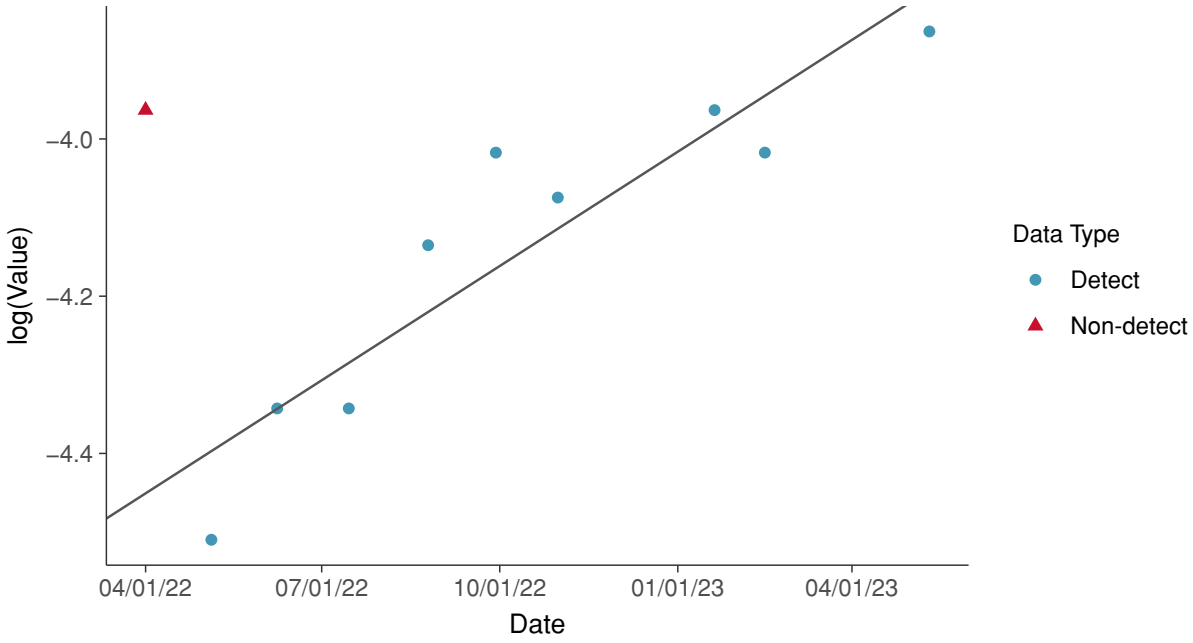
Gamma Q-Q plot using ROS Imputed Estimates

Cobalt, W-16 (mg/l)



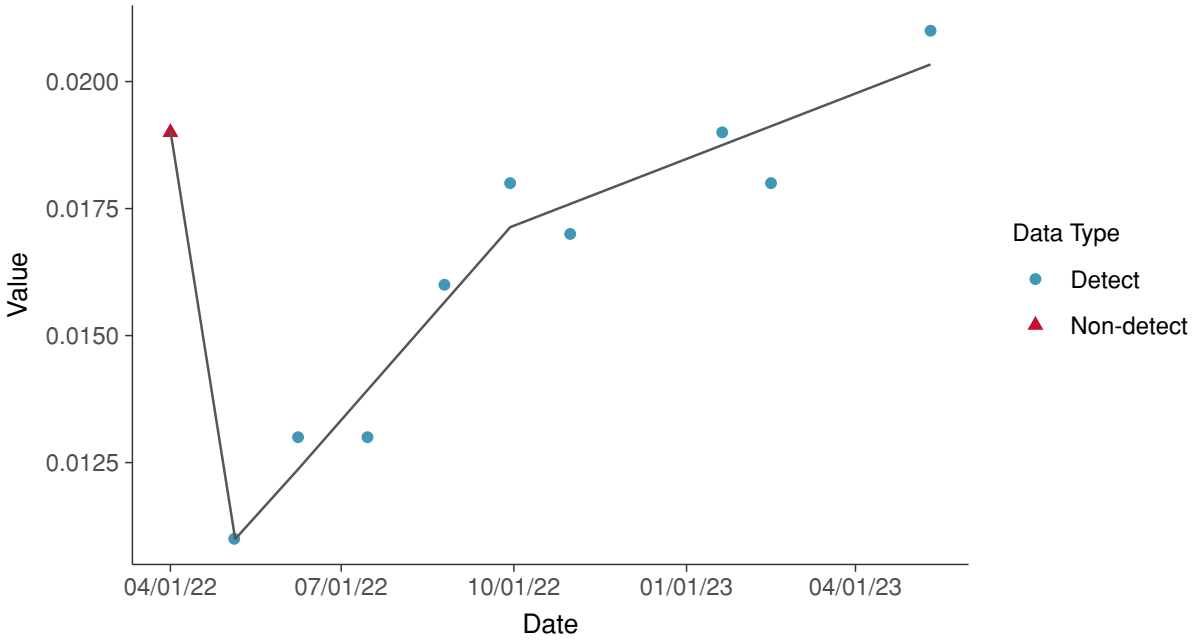
Trend Regression: Lognormal MLE

Cobalt, W-16 (mg/l)



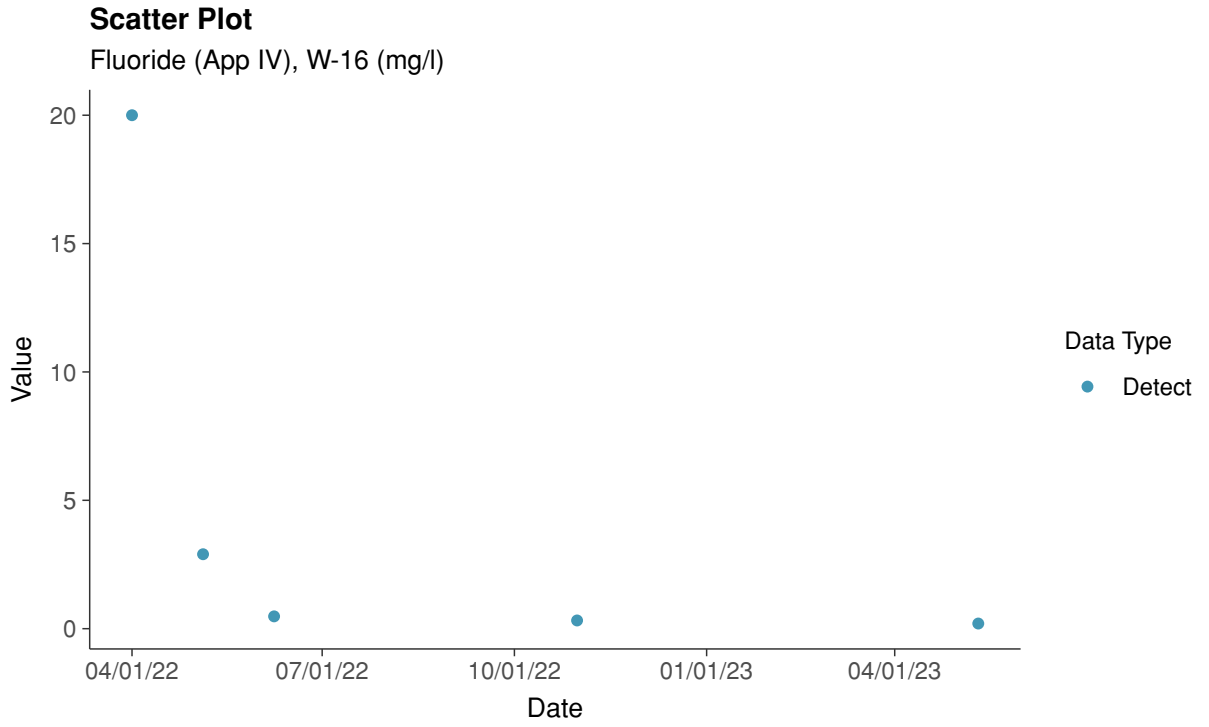
Trend Regression: Piecewise Linear-Linear-Linear

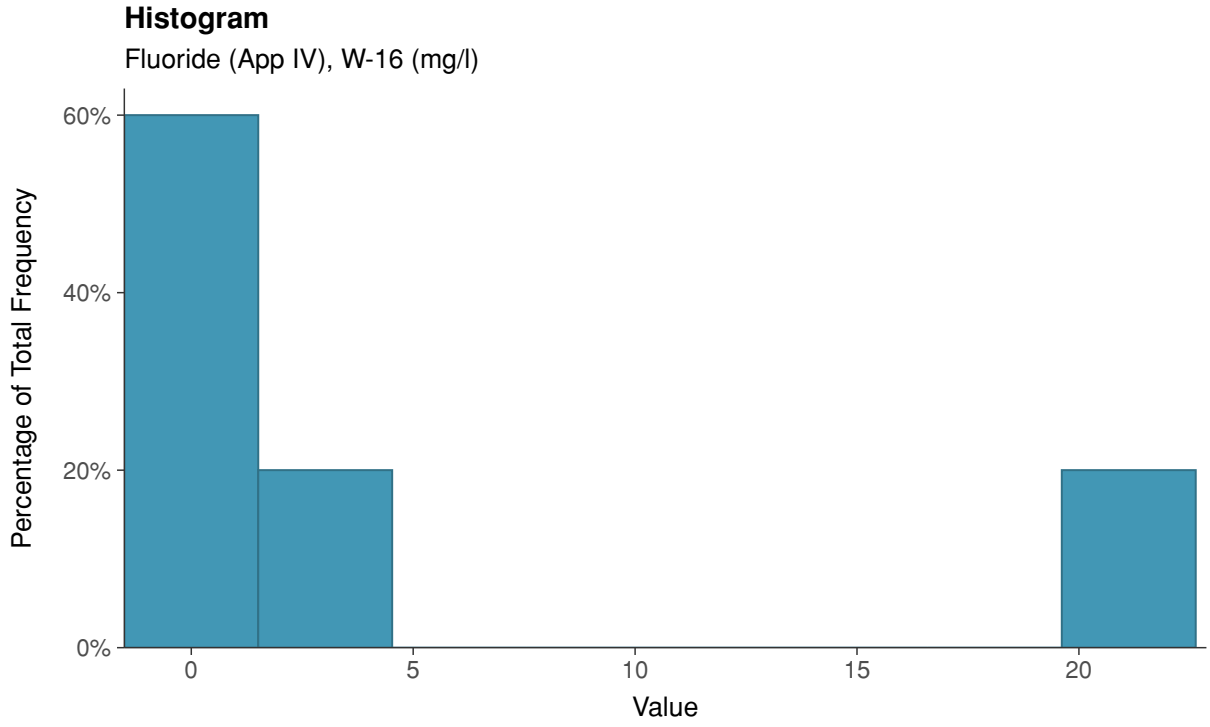
Cobalt, W-16 (mg/l)



Appendix IV: Fluoride (App IV), W-16

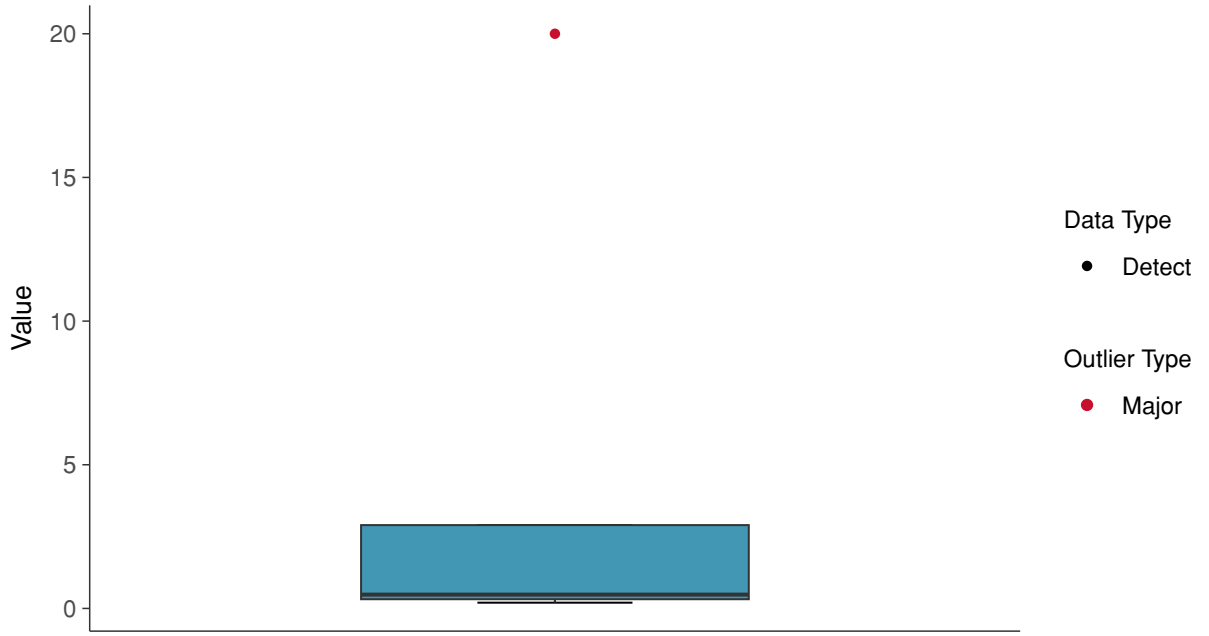
ID: 5_2_112





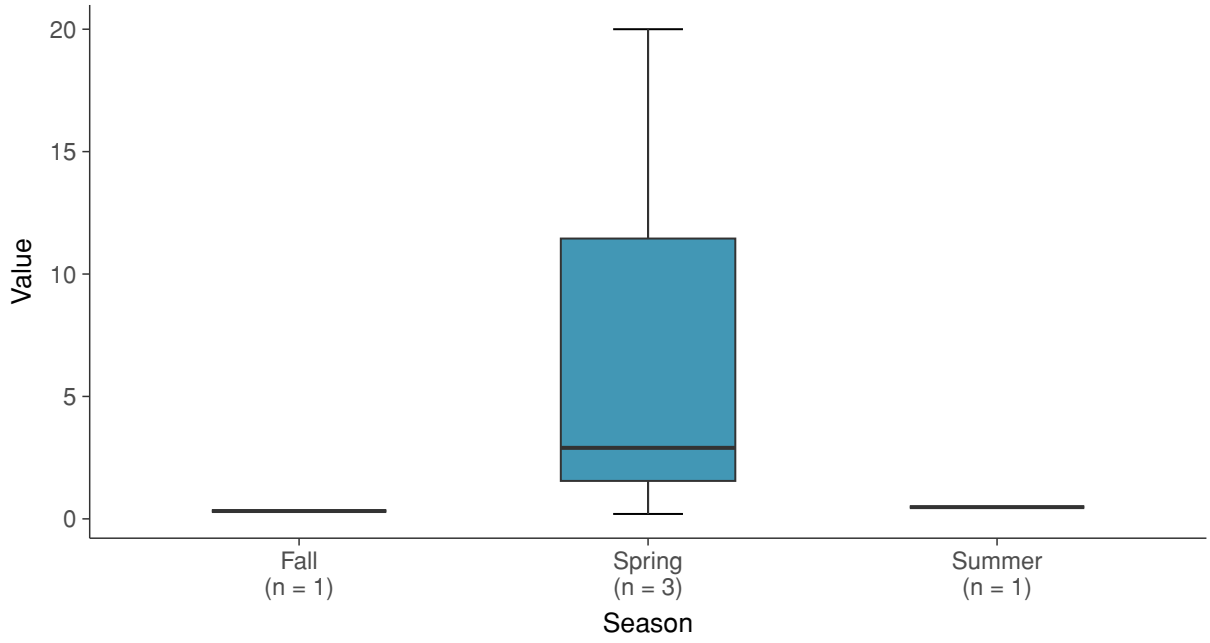
Boxplot

Fluoride (App IV), W-16 (mg/l)



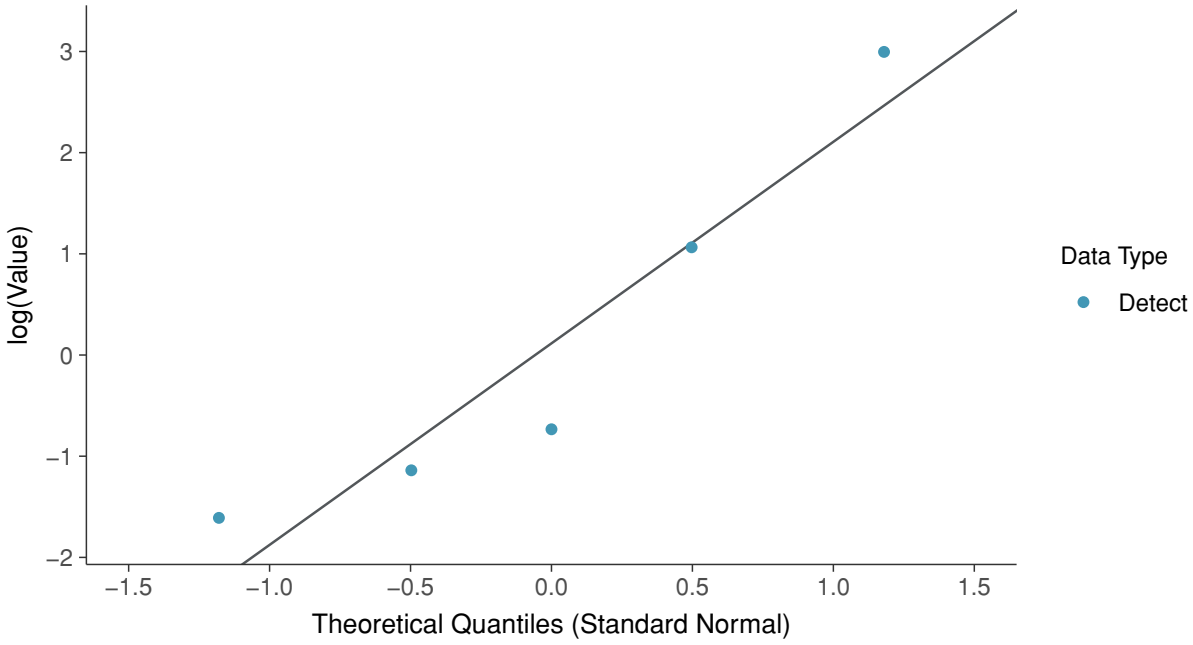
Boxplot by Season

Fluoride (App IV), W-16 (mg/l)



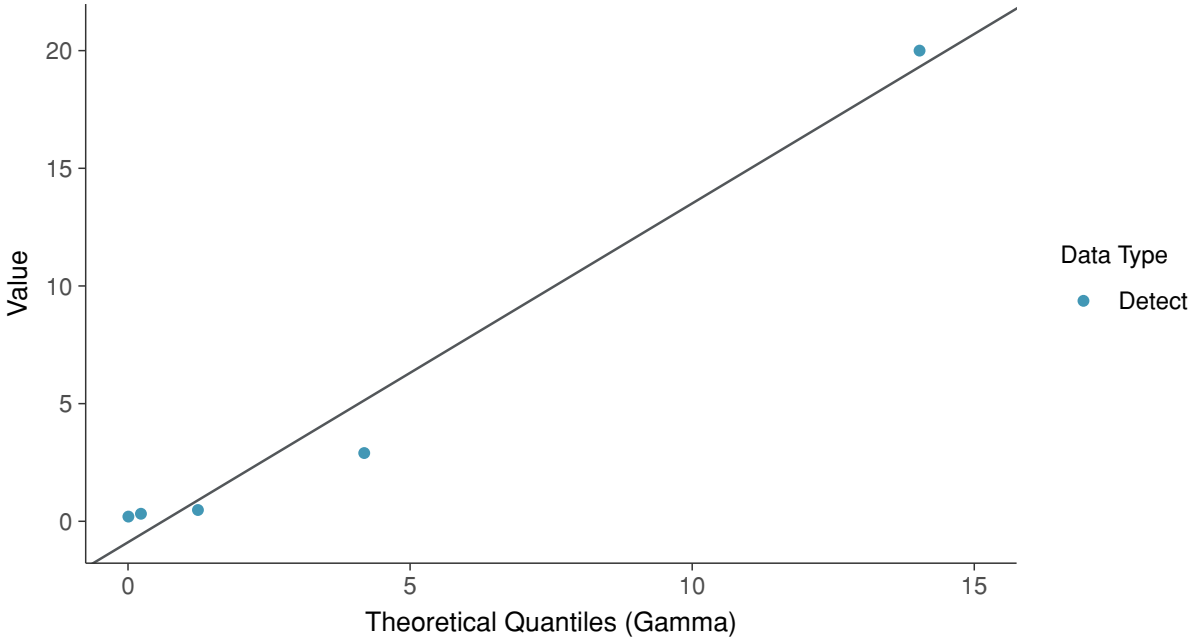
Lognormal Q-Q plot

Fluoride (App IV), W-16 (mg/l)



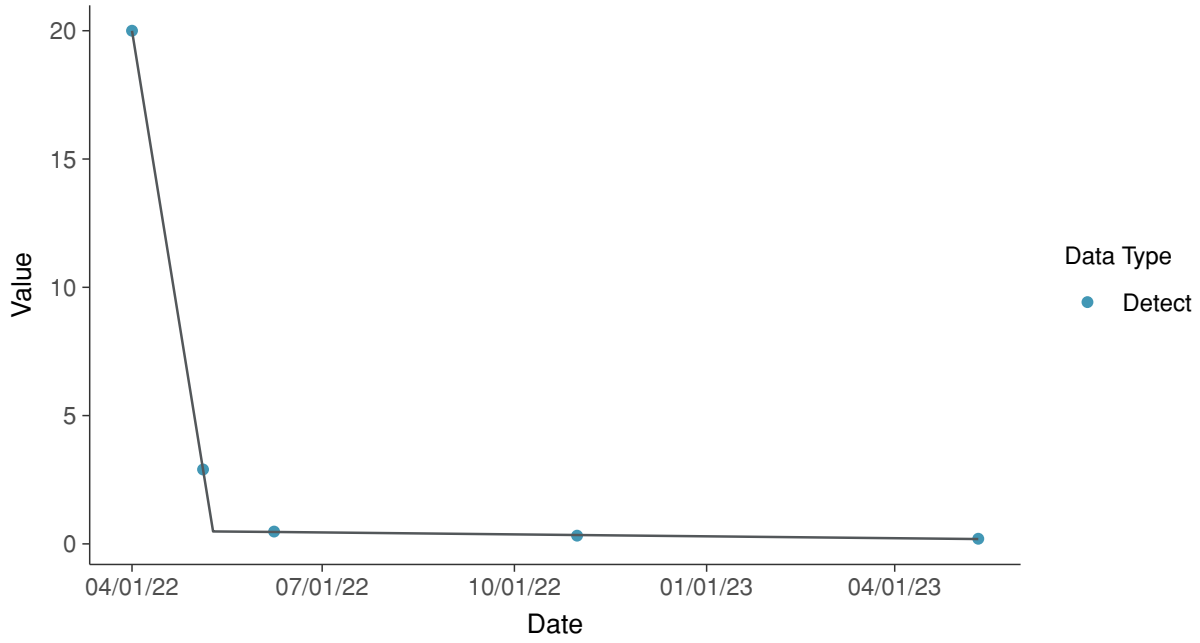
Gamma Q-Q plot

Fluoride (App IV), W-16 (mg/l)



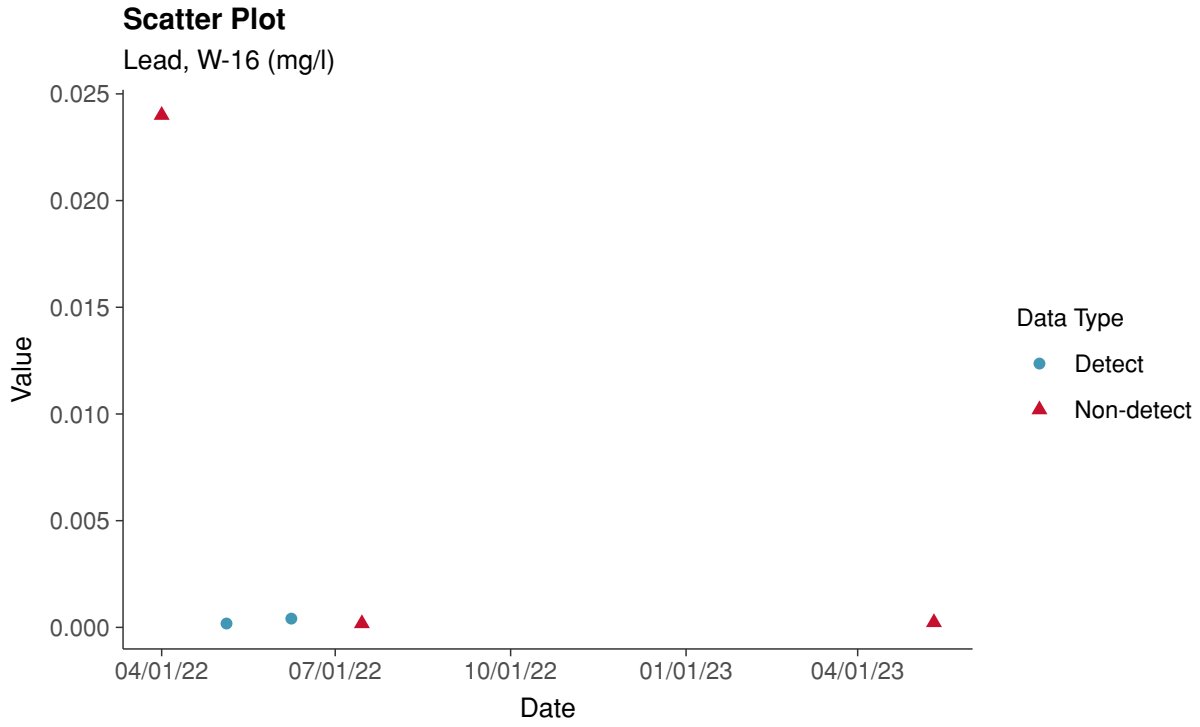
Trend Regression: Piecewise Linear-Linear

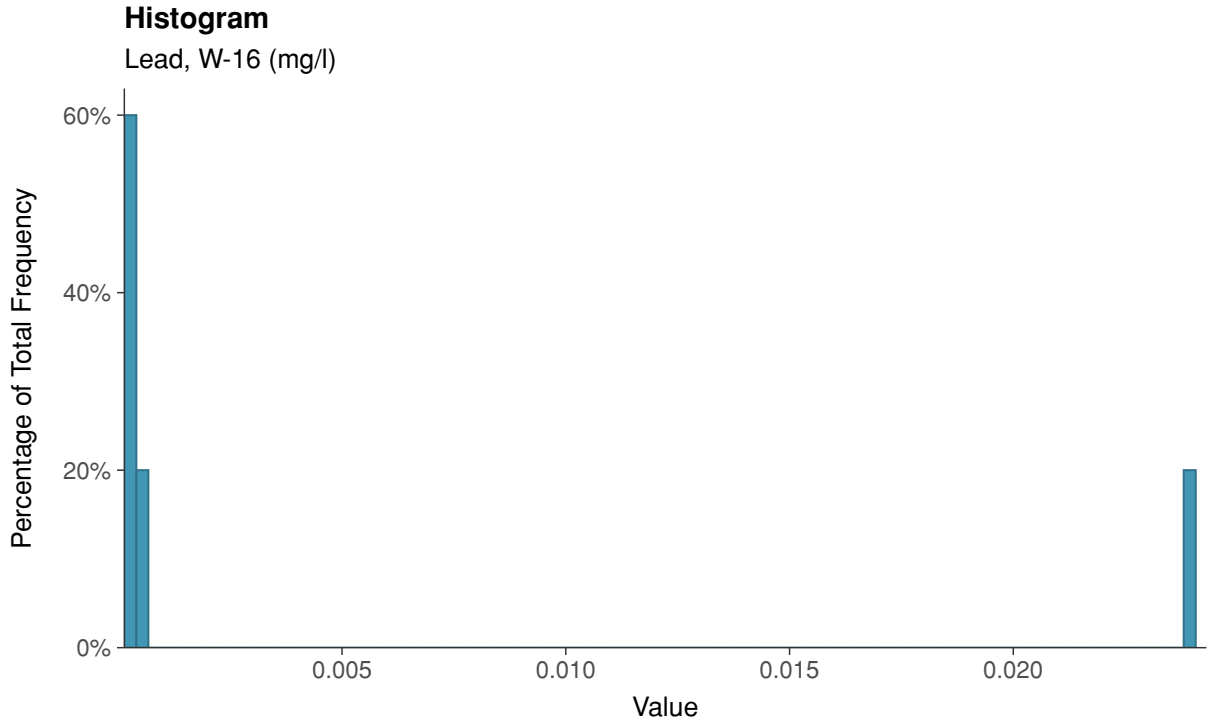
Fluoride (App IV), W-16 (mg/l)



Appendix IV: Lead, W-16

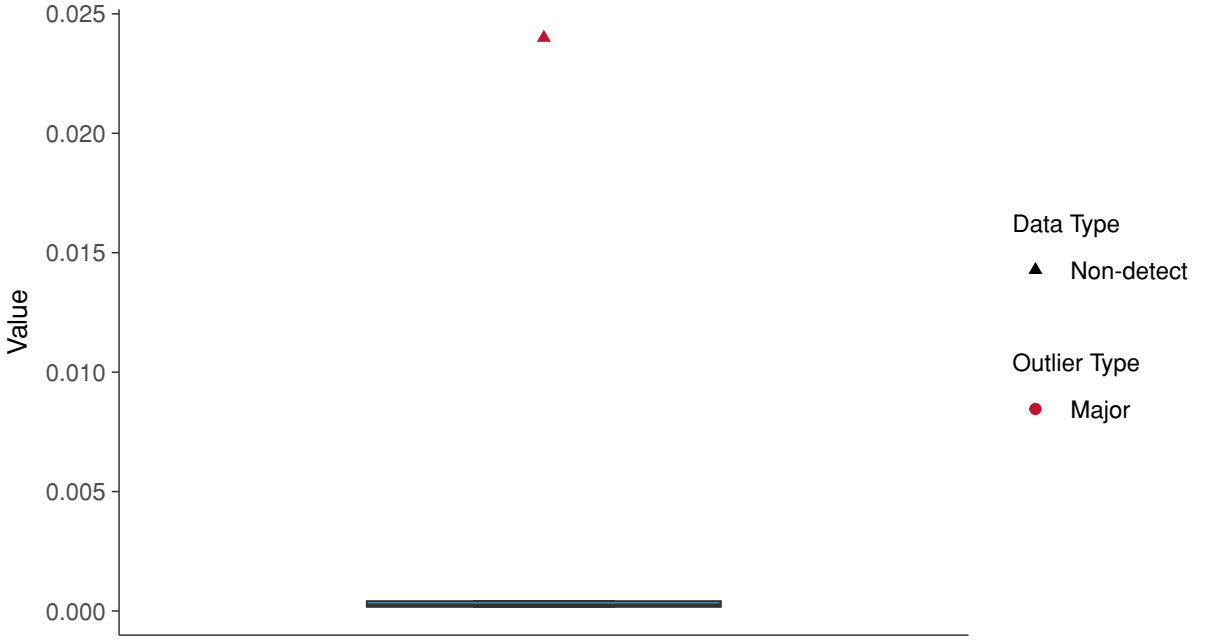
ID: 5_2_113





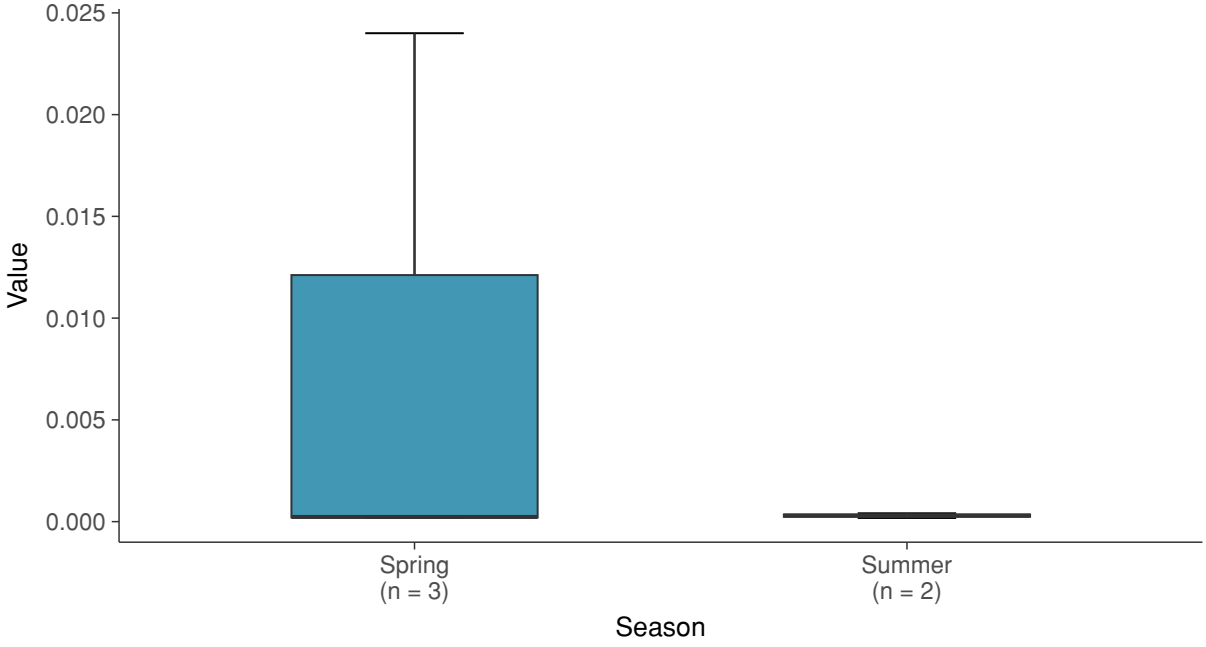
Boxplot

Lead, W-16 (mg/l)



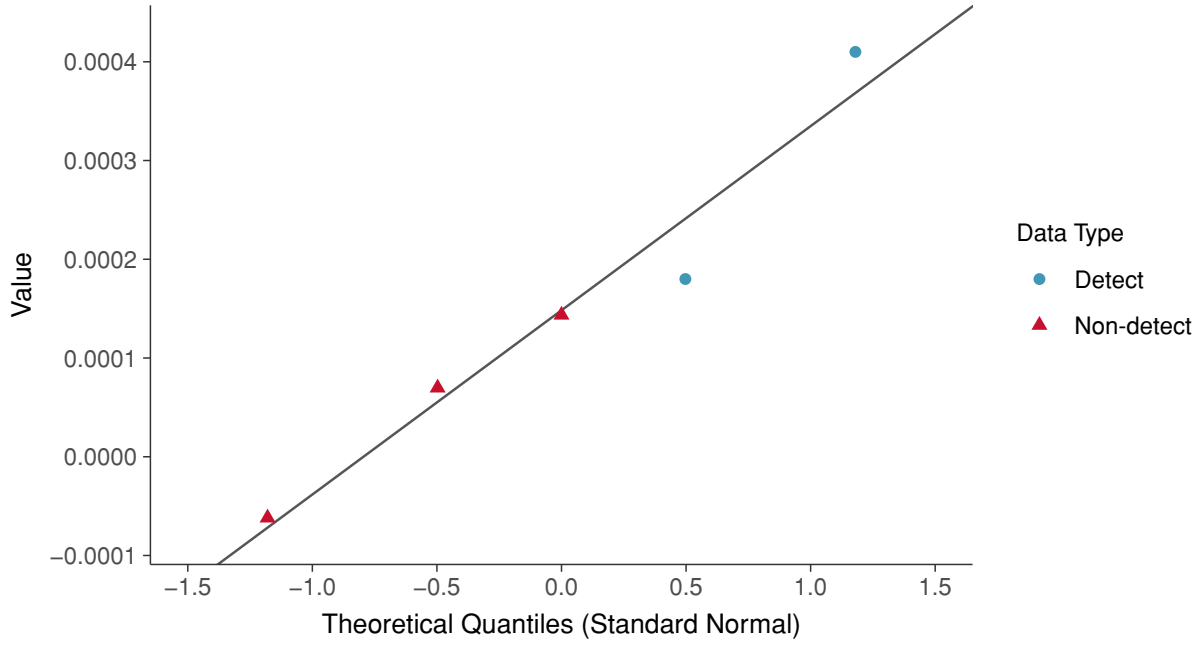
Boxplot by Season

Lead, W-16 (mg/l)



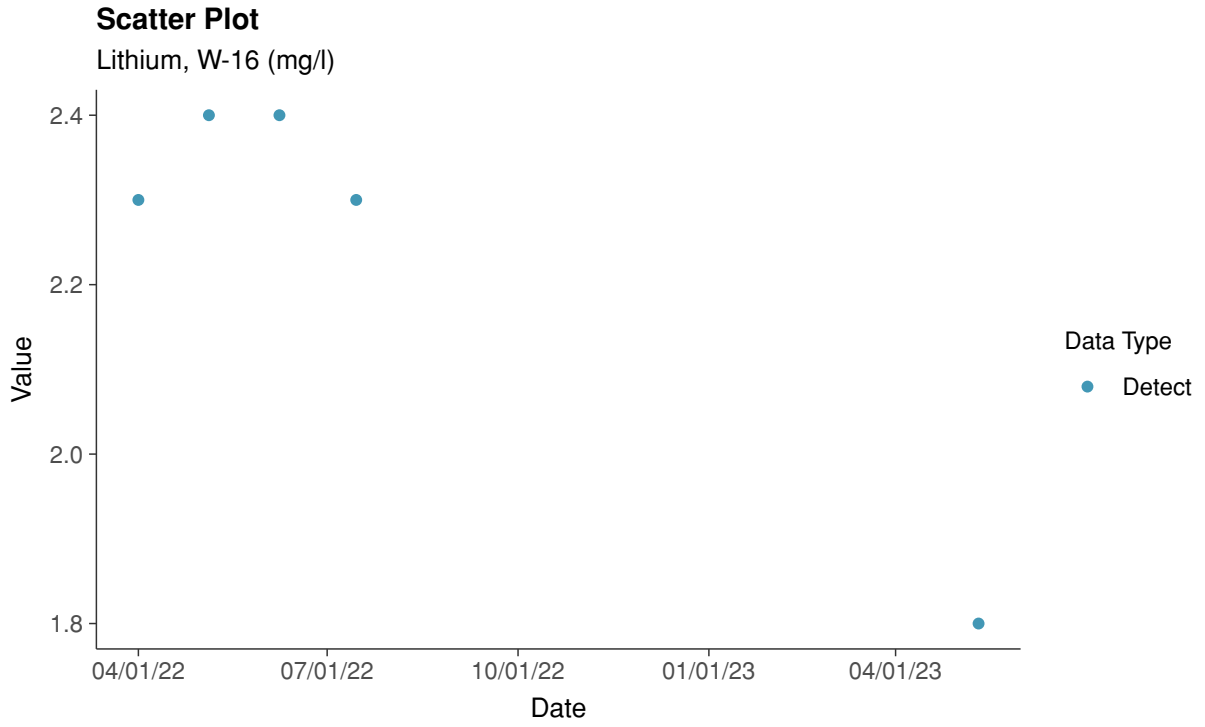
Normal Q-Q plot using ROS Imputed Estimates

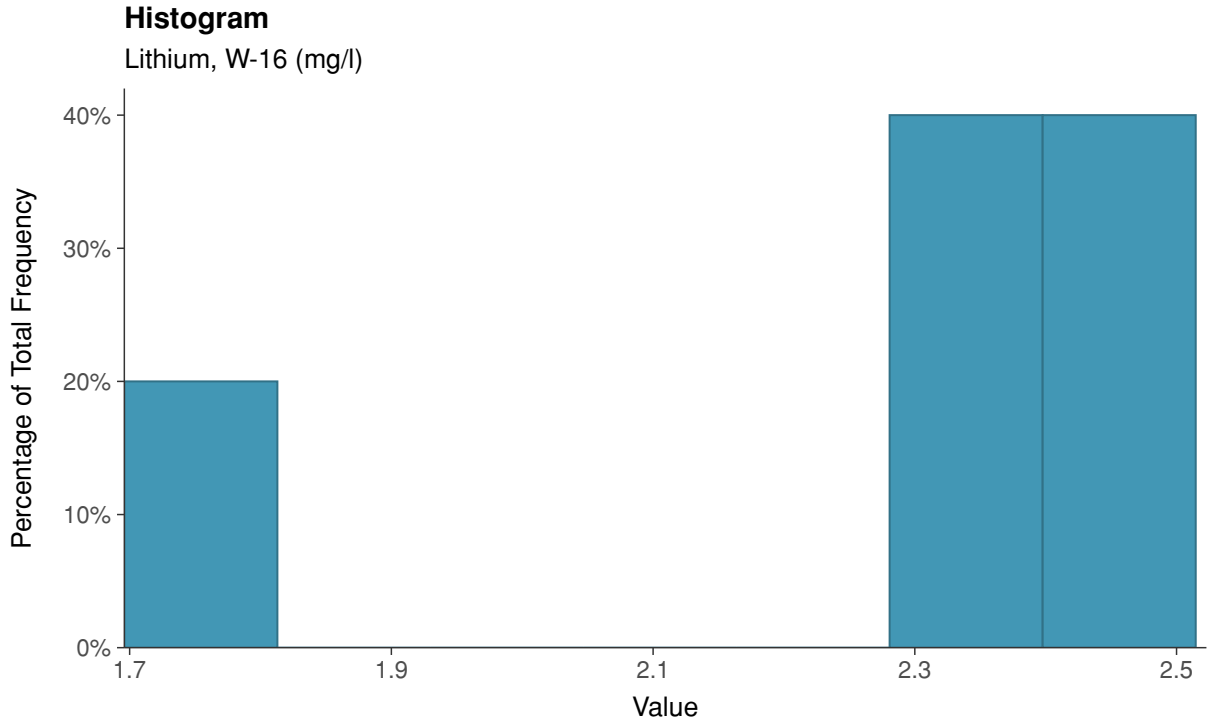
Lead, W-16 (mg/l)



Appendix IV: Lithium, W-16

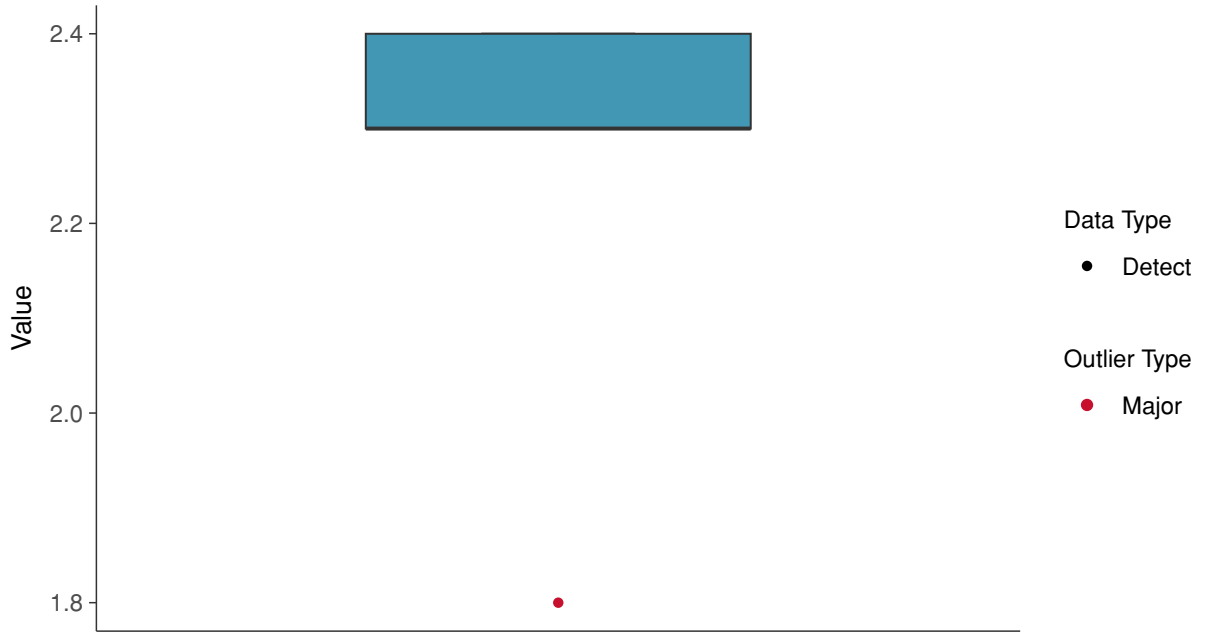
ID: 5_2_114





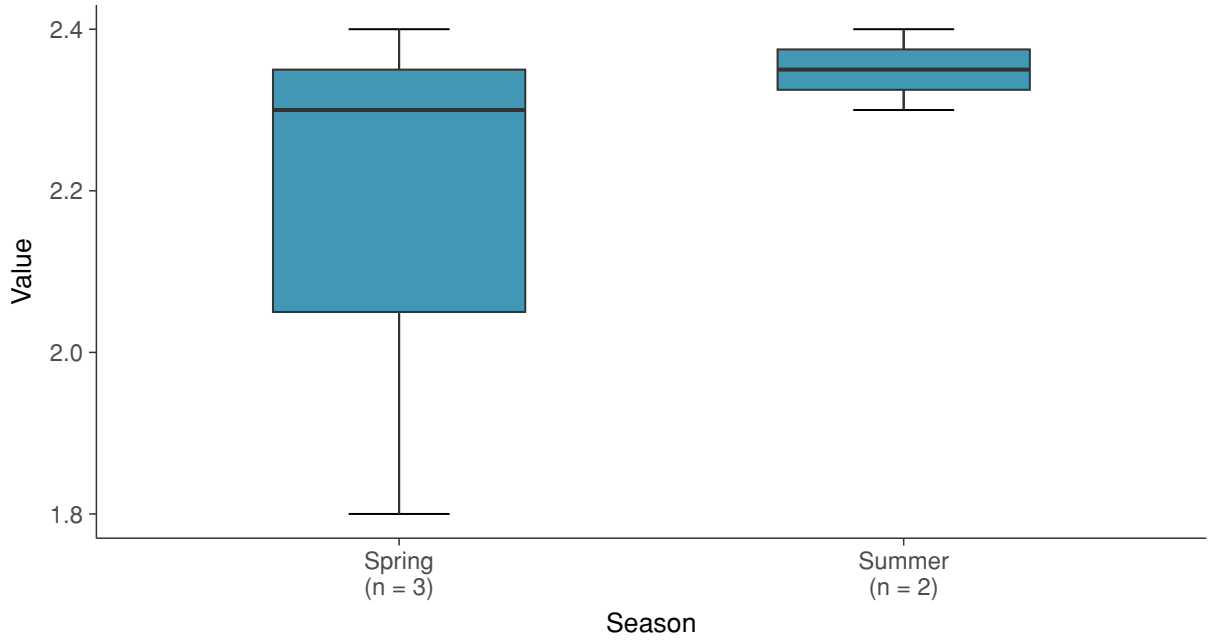
Boxplot

Lithium, W-16 (mg/l)



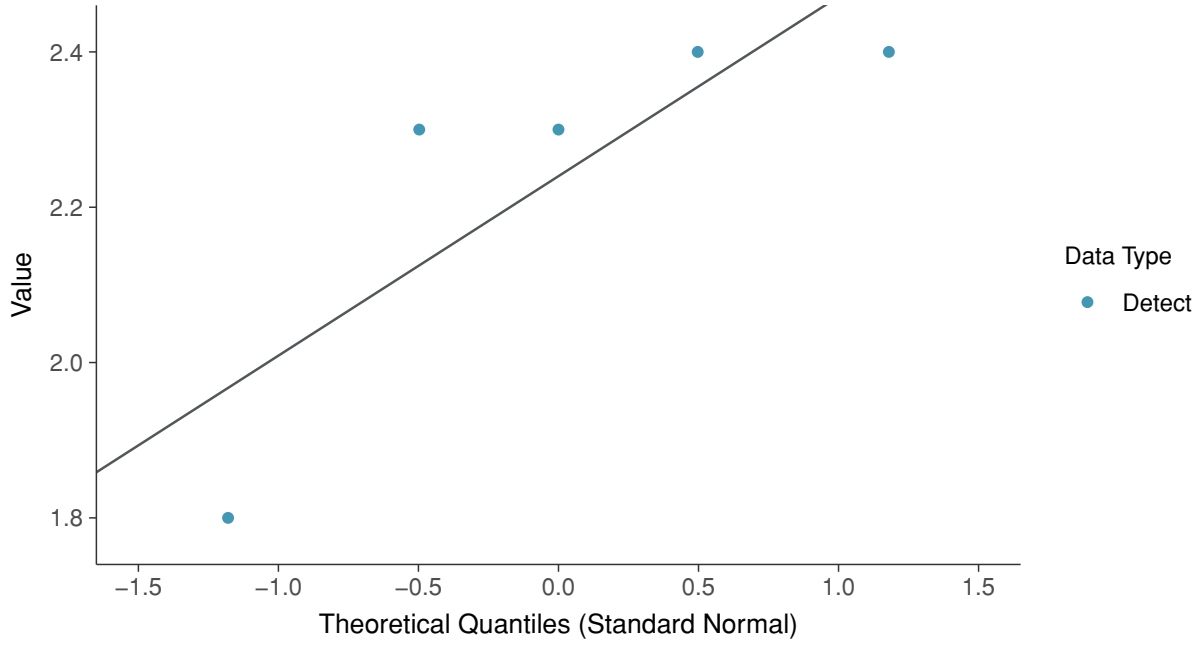
Boxplot by Season

Lithium, W-16 (mg/l)



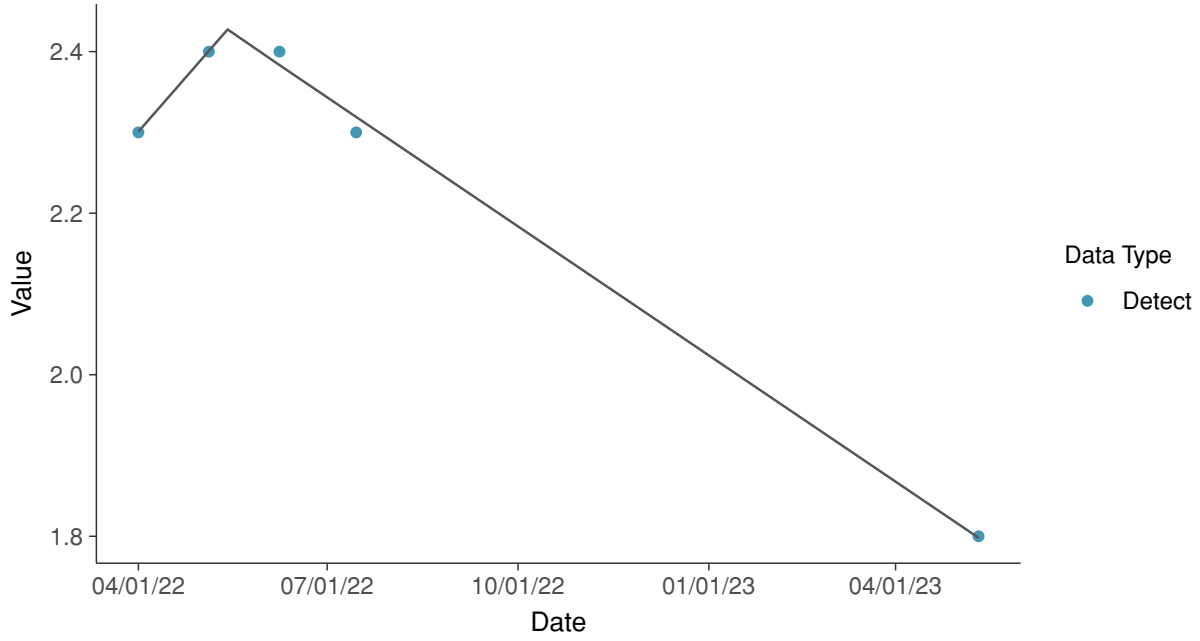
Normal Q-Q plot

Lithium, W-16 (mg/l)



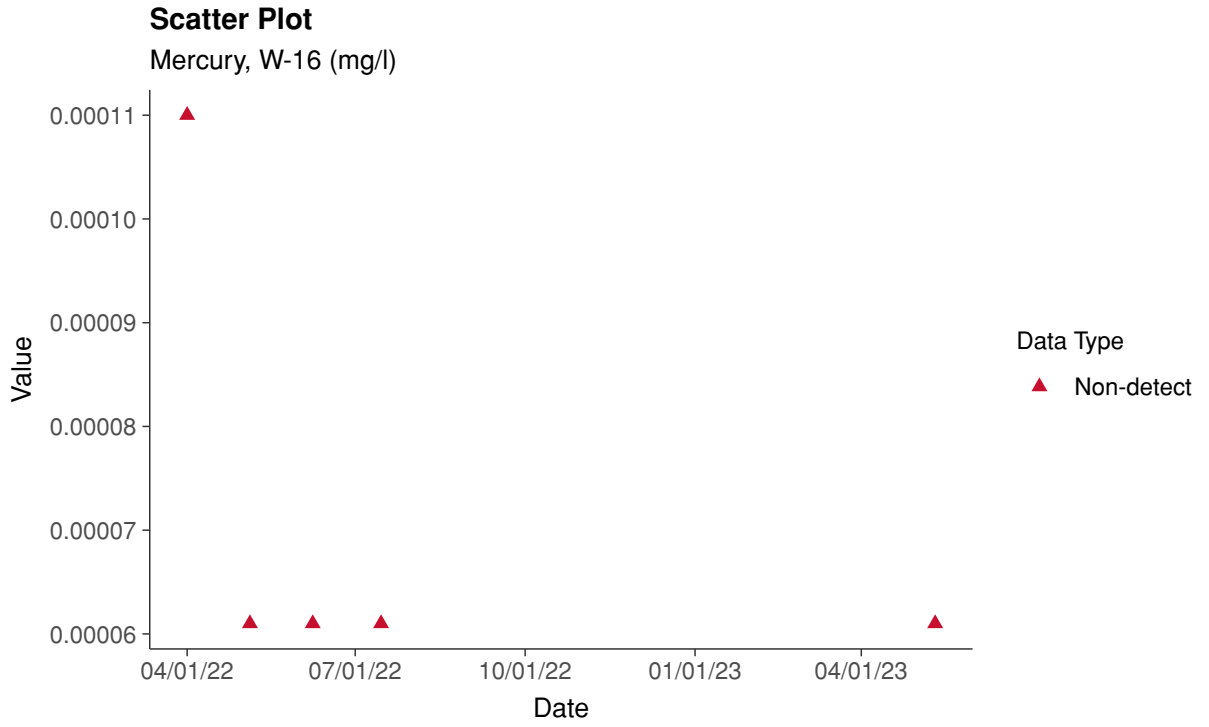
Trend Regression: Piecewise Linear-Linear

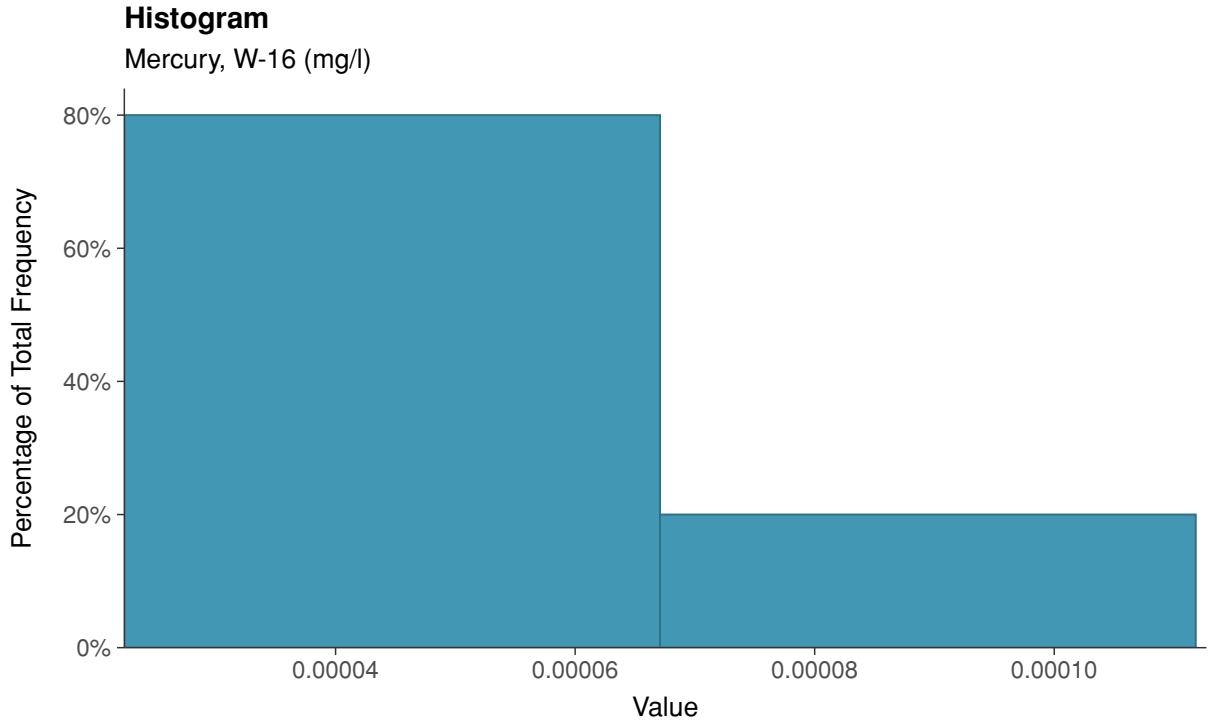
Lithium, W-16 (mg/l)



Appendix IV: Mercury, W-16

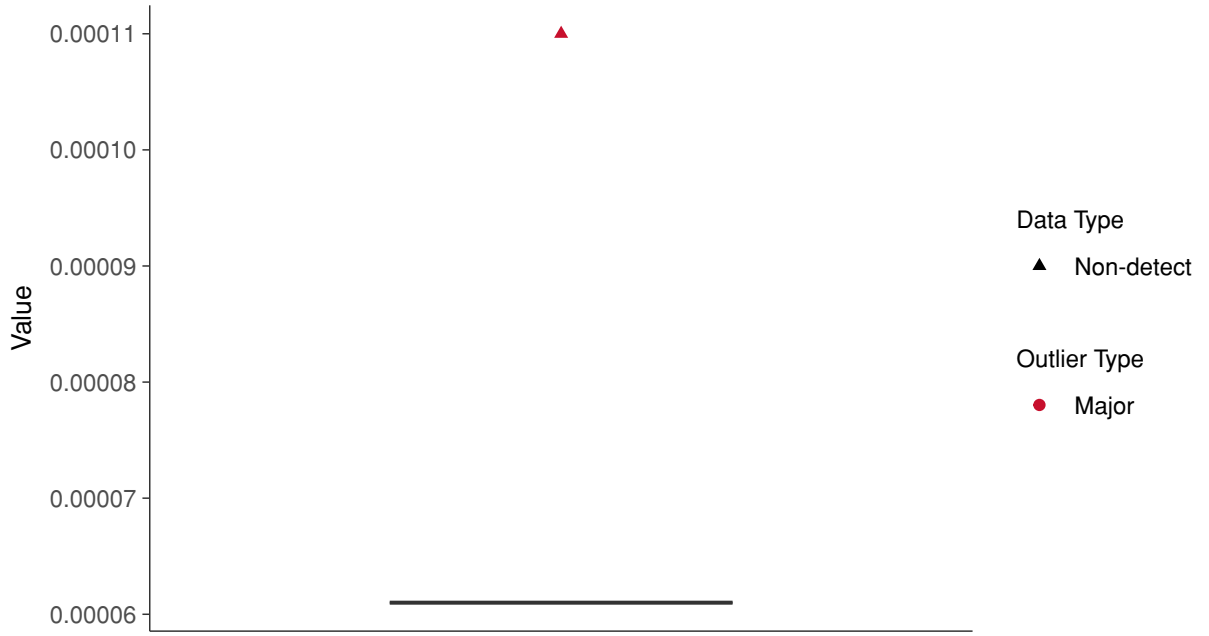
ID: 5_2_115





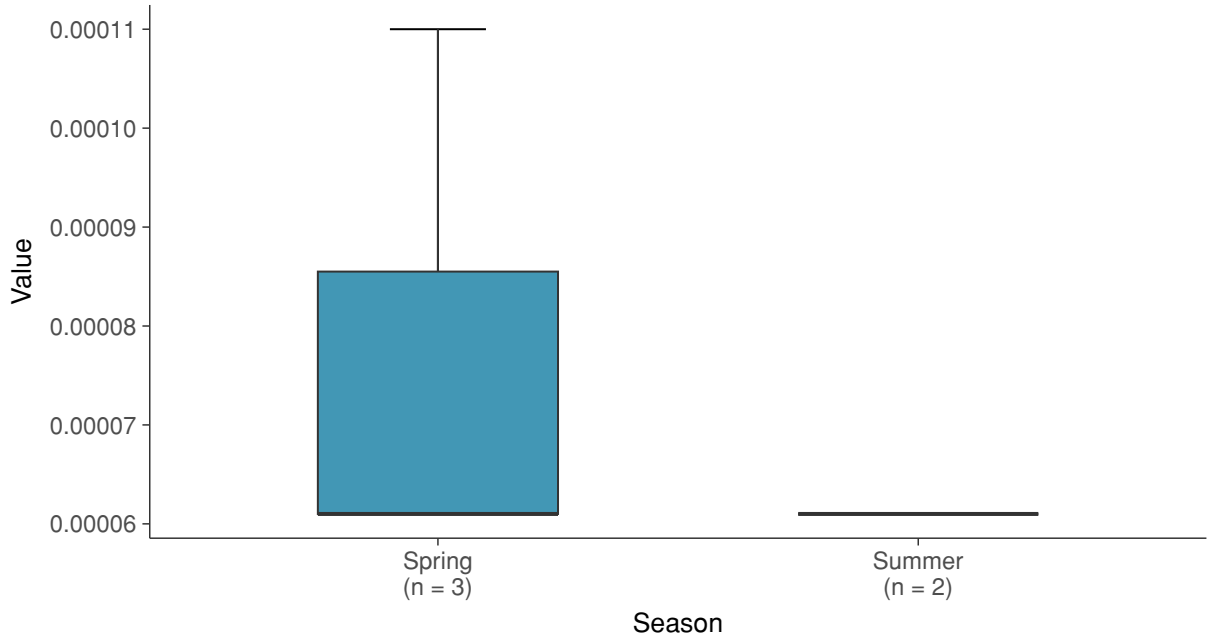
Boxplot

Mercury, W-16 (mg/l)



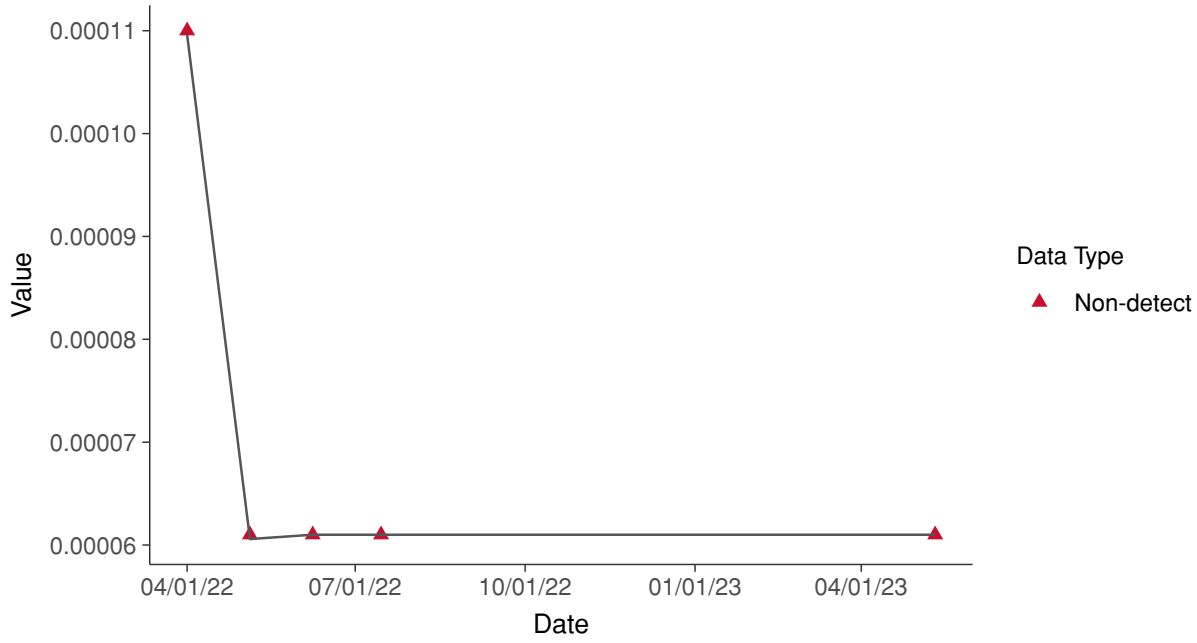
Boxplot by Season

Mercury, W-16 (mg/l)



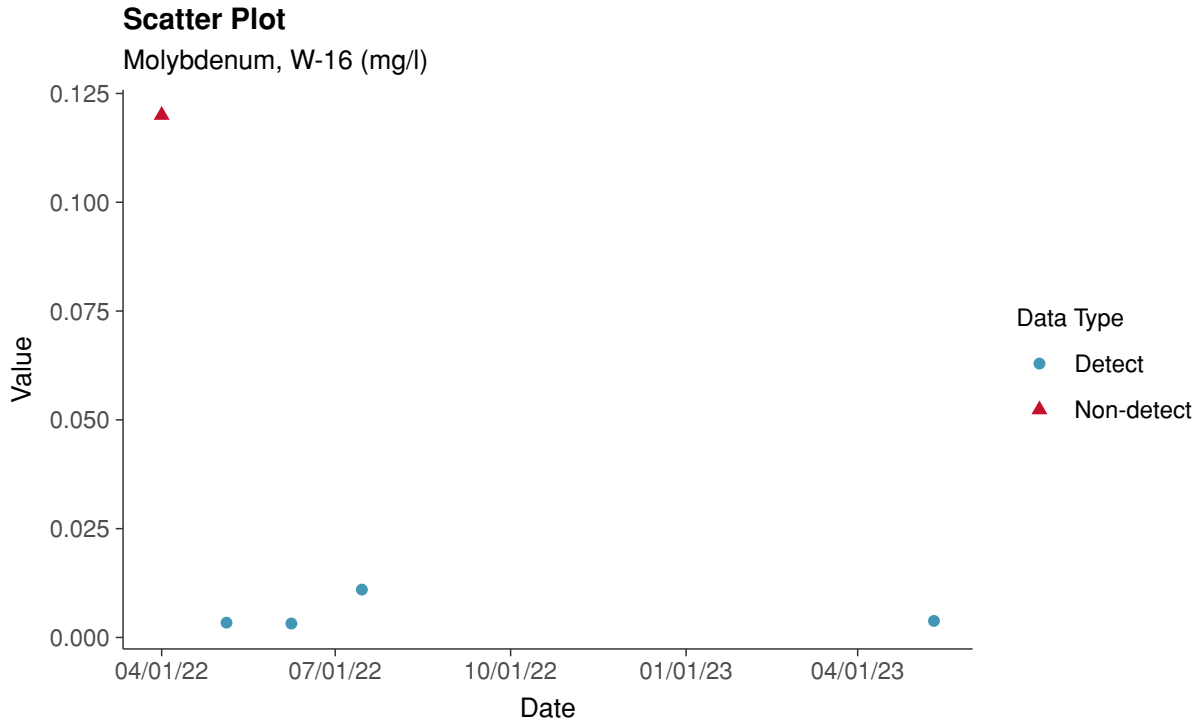
Trend Regression: Piecewise Linear-Linear

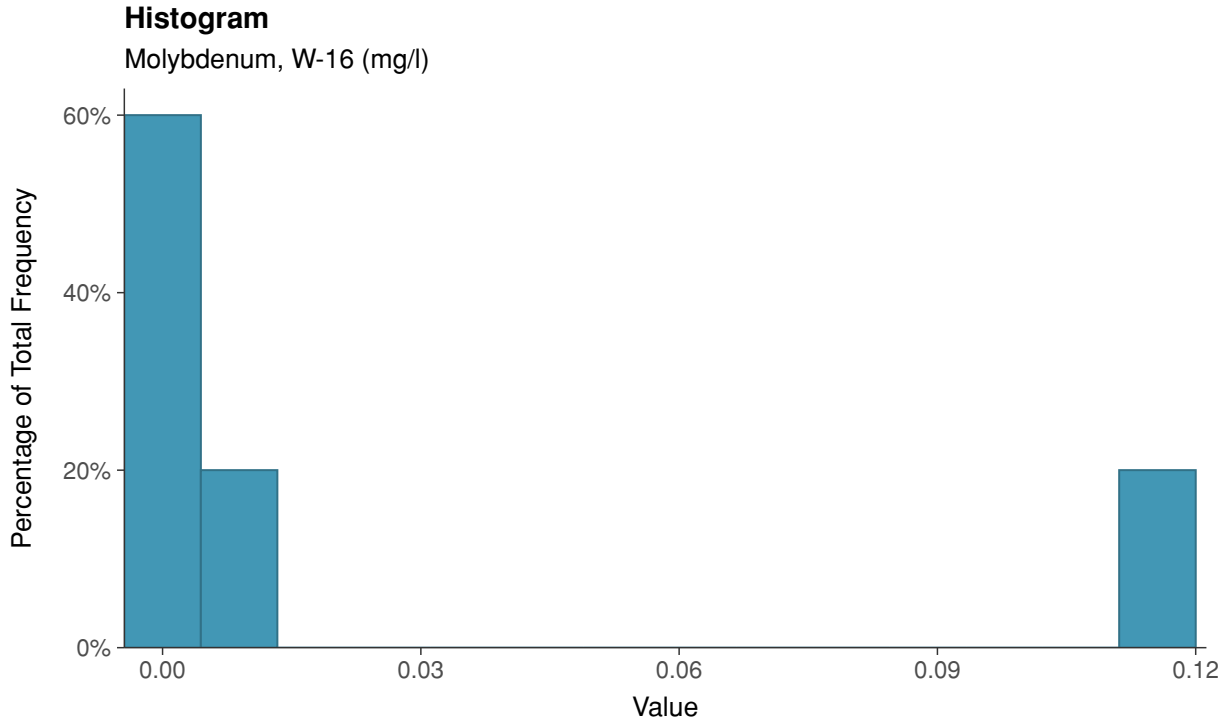
Mercury, W-16 (mg/l)



Appendix IV: Molybdenum, W-16

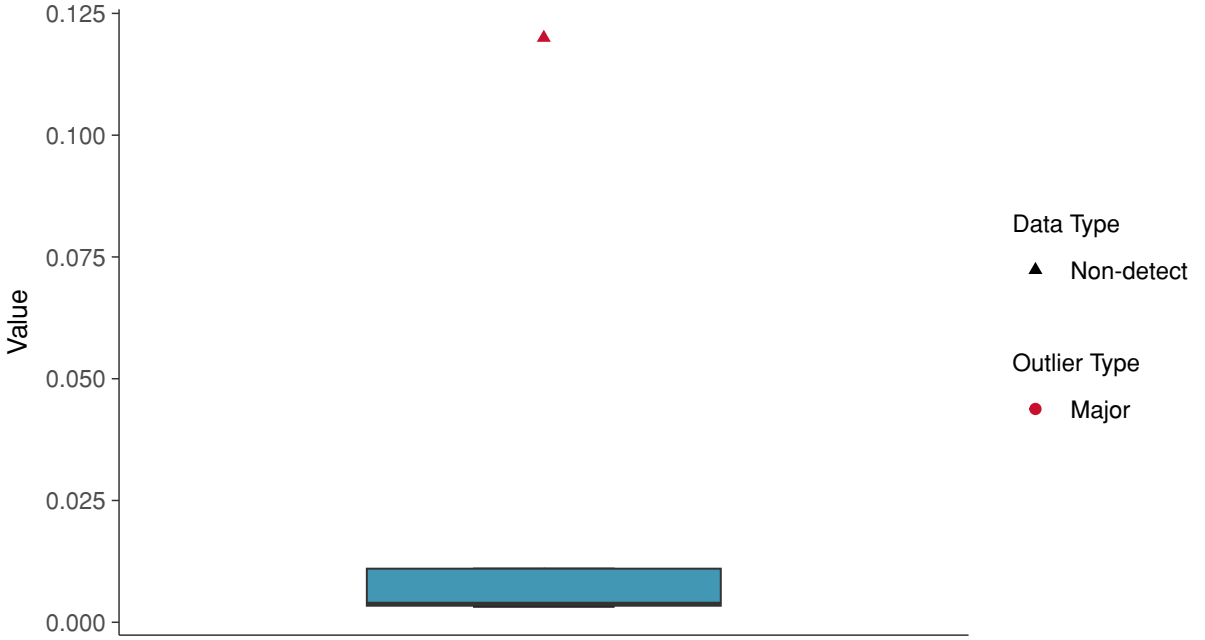
ID: 5_2_116





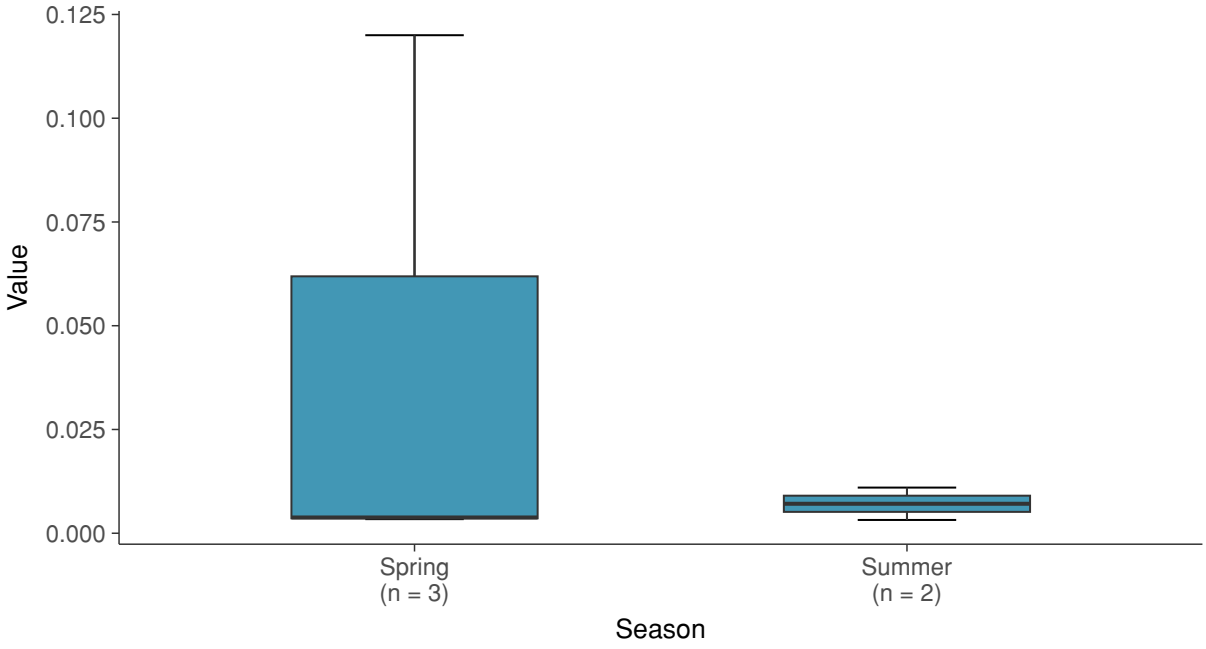
Boxplot

Molybdenum, W-16 (mg/l)



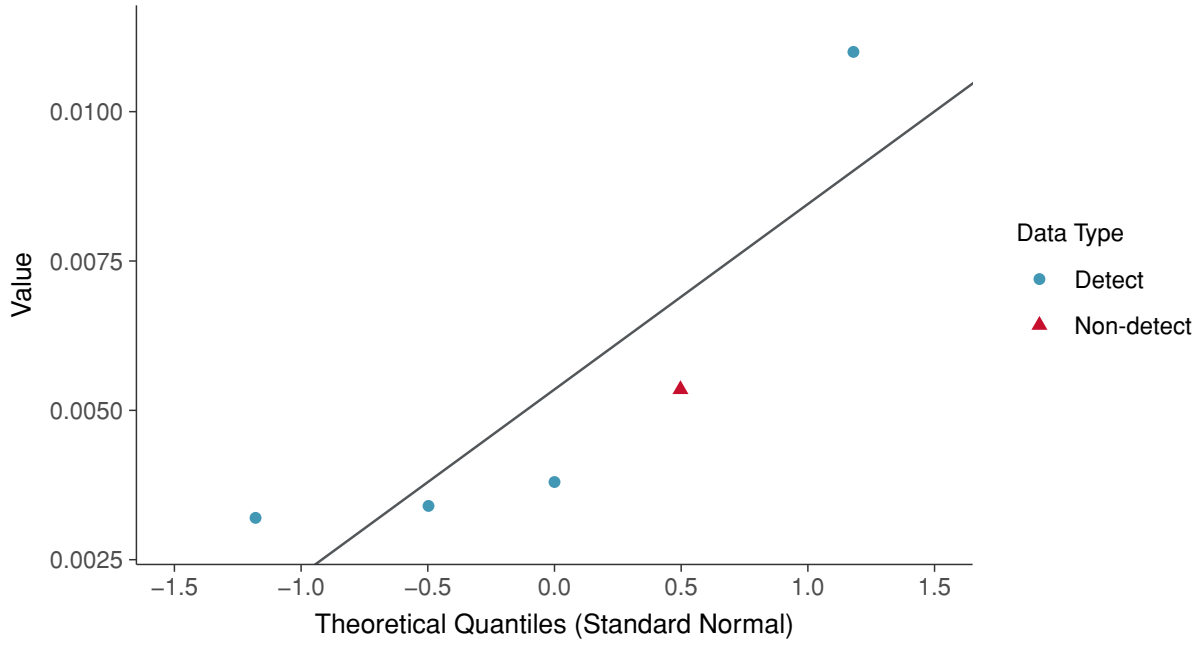
Boxplot by Season

Molybdenum, W-16 (mg/l)



Normal Q-Q plot using ROS Imputed Estimates

Molybdenum, W-16 (mg/l)

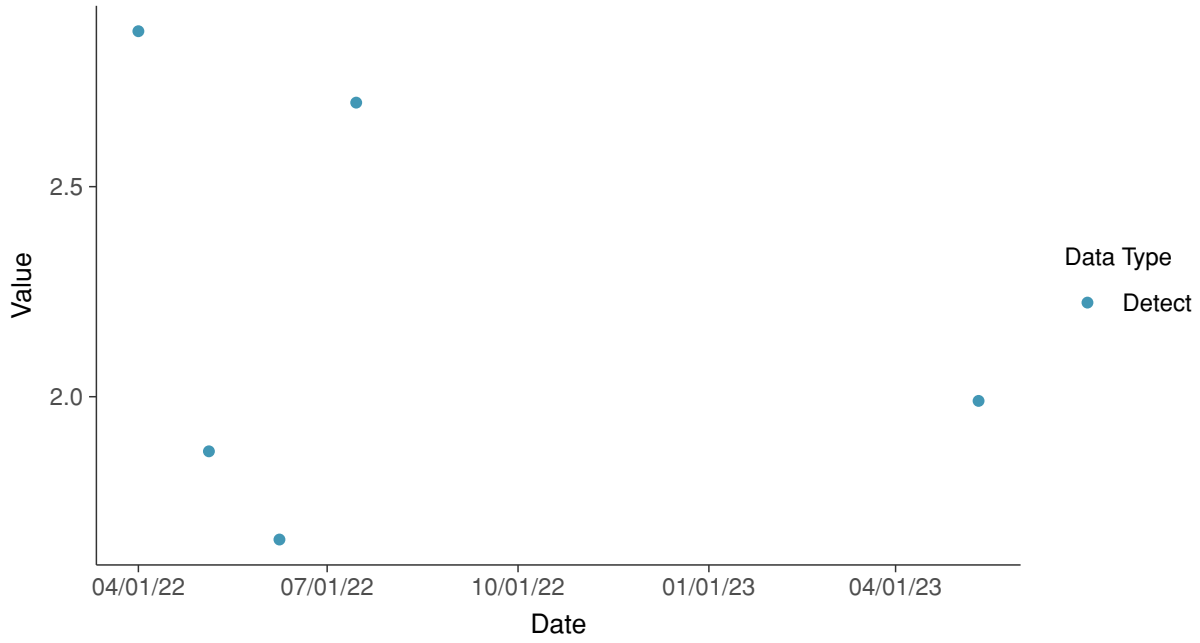


Appendix IV: Radium-226+228, W-16

ID: 5_2_120

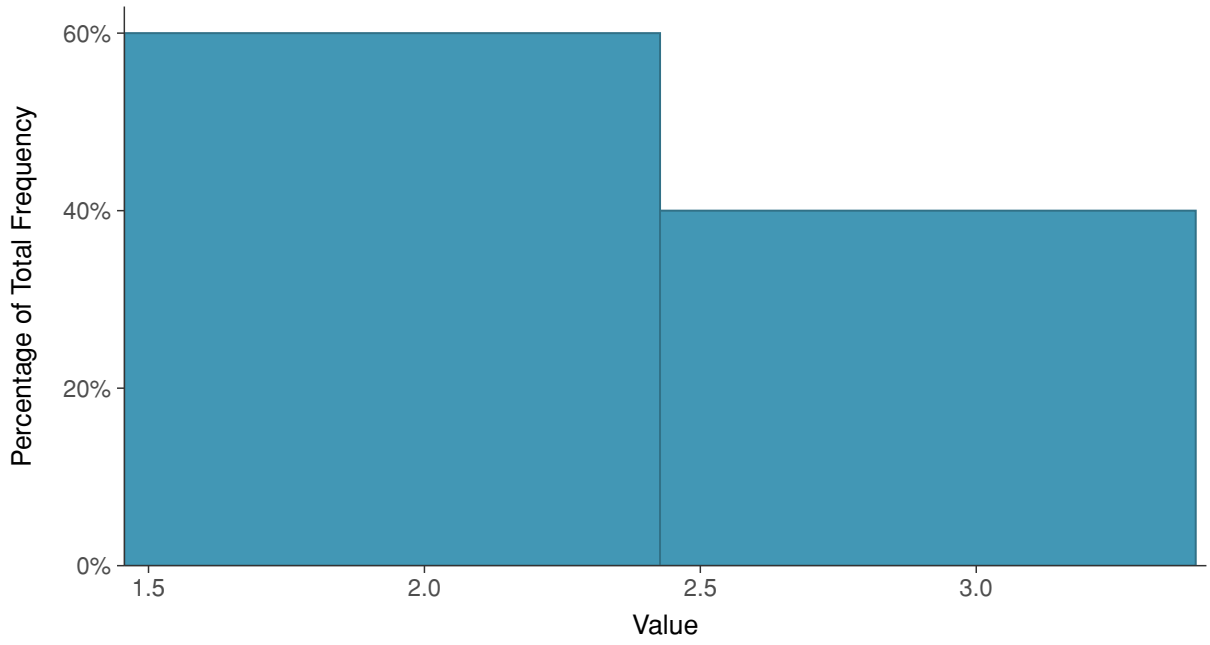
Scatter Plot

Radium-226+228, W-16 (pci/l)



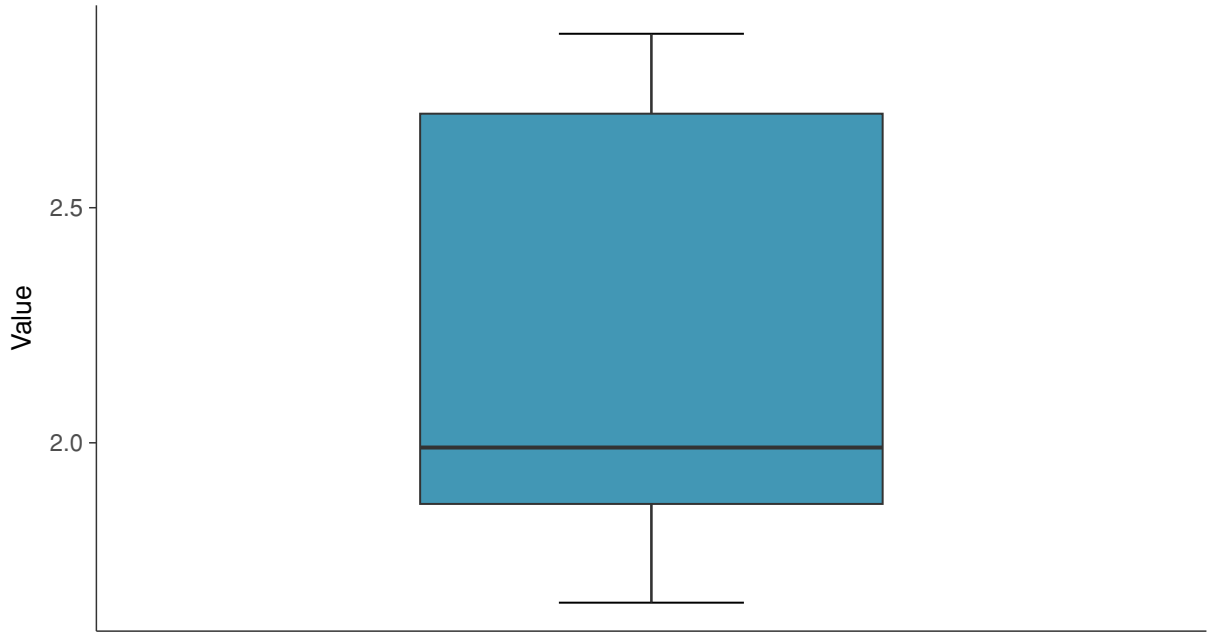
Histogram

Radium-226+228, W-16 (pci/l)



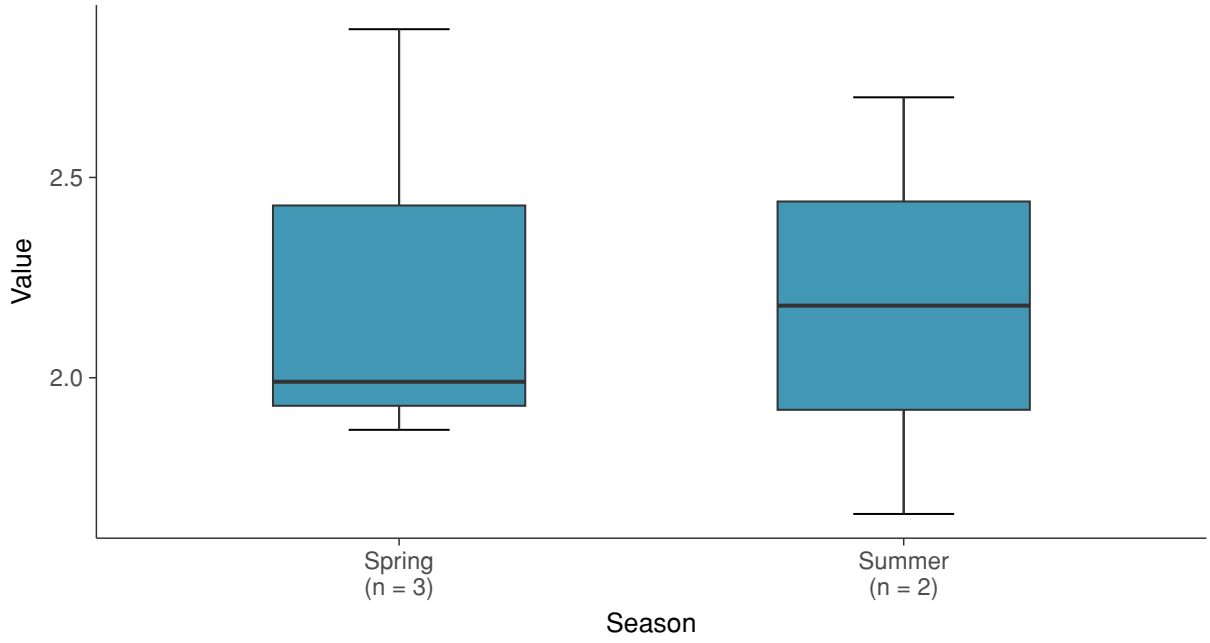
Boxplot

Radium-226+228, W-16 (pci/l)



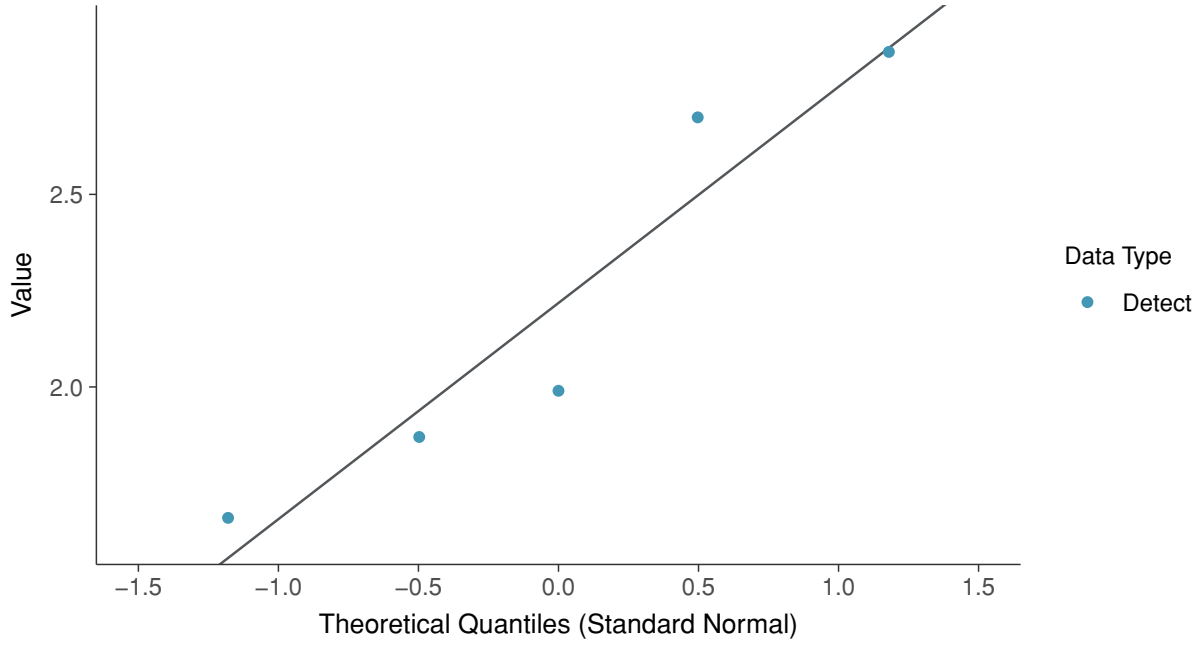
Boxplot by Season

Radium-226+228, W-16 (pci/l)



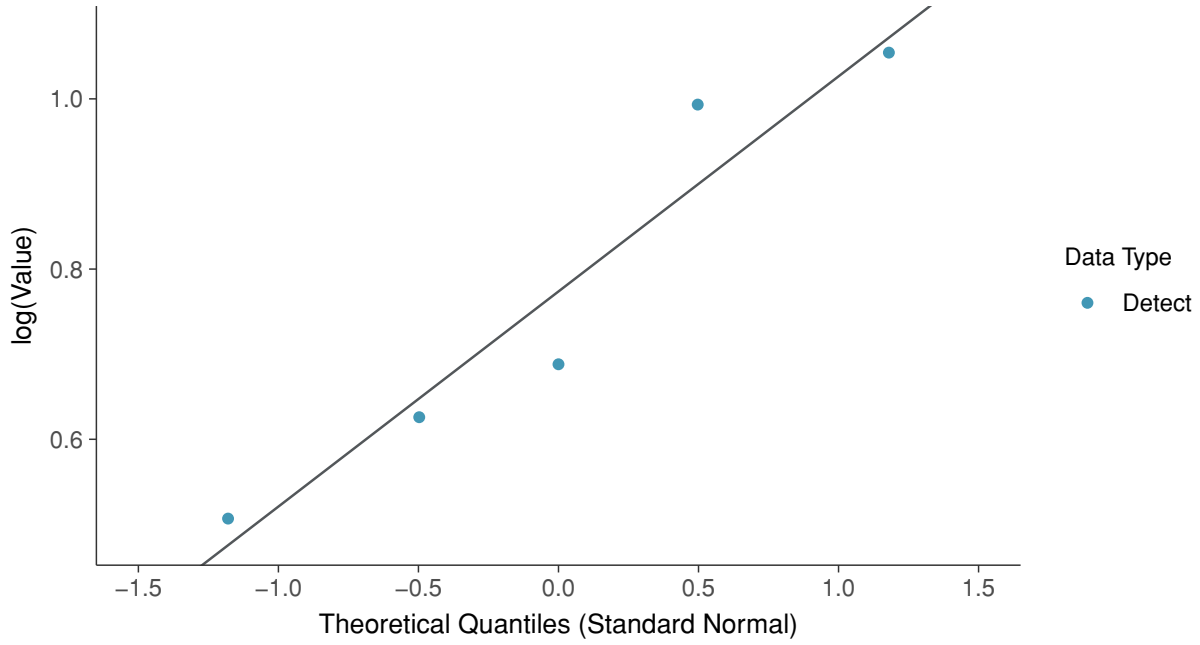
Normal Q-Q plot

Radium-226+228, W-16 (pci/l)



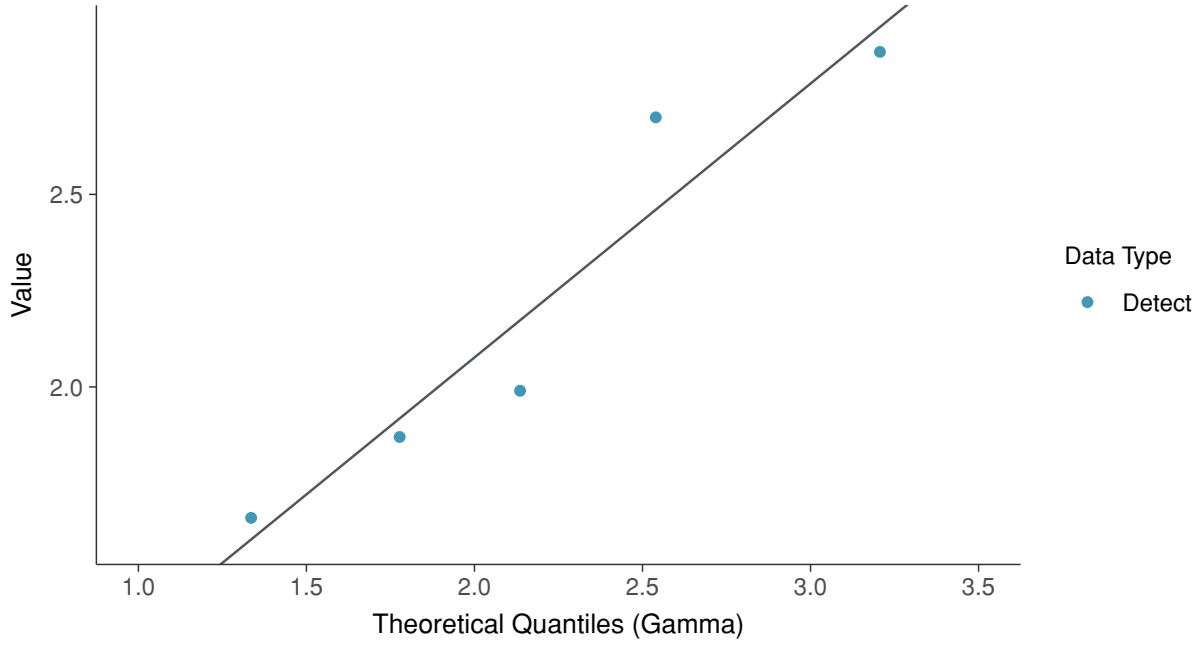
Lognormal Q-Q plot

Radium-226+228, W-16 (pci/l)



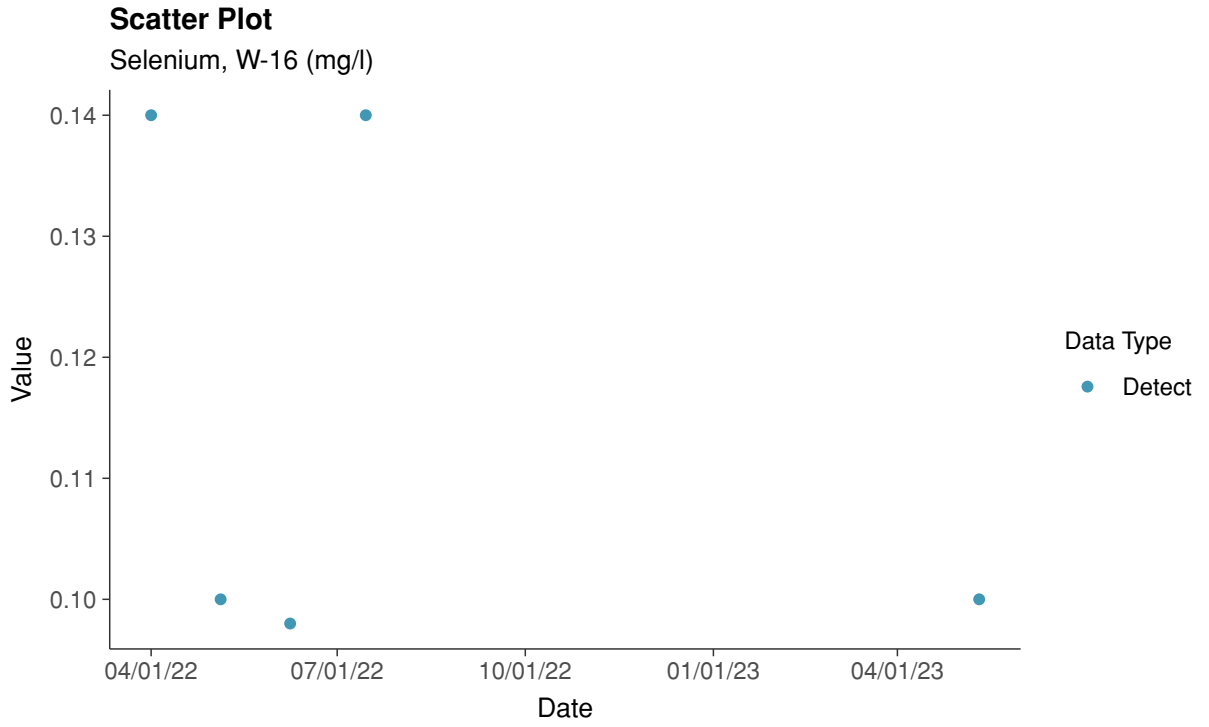
Gamma Q-Q plot

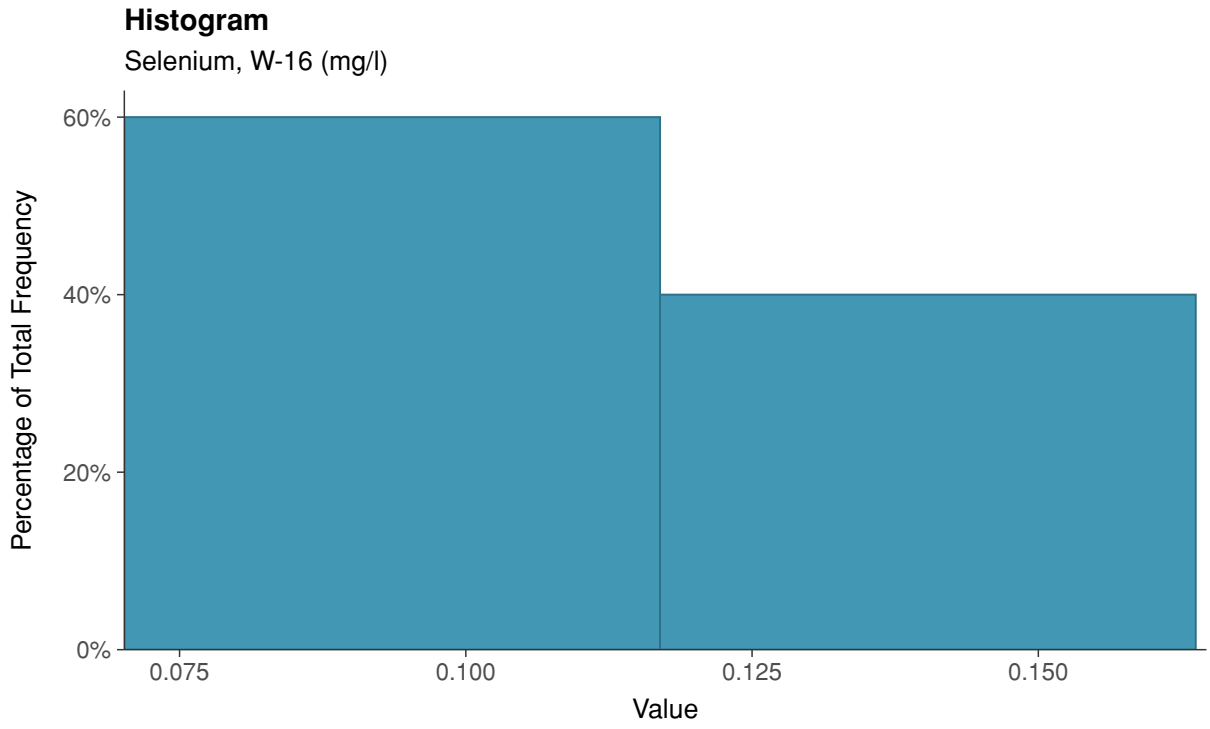
Radium-226+228, W-16 (pci/l)



Appendix IV: Selenium, W-16

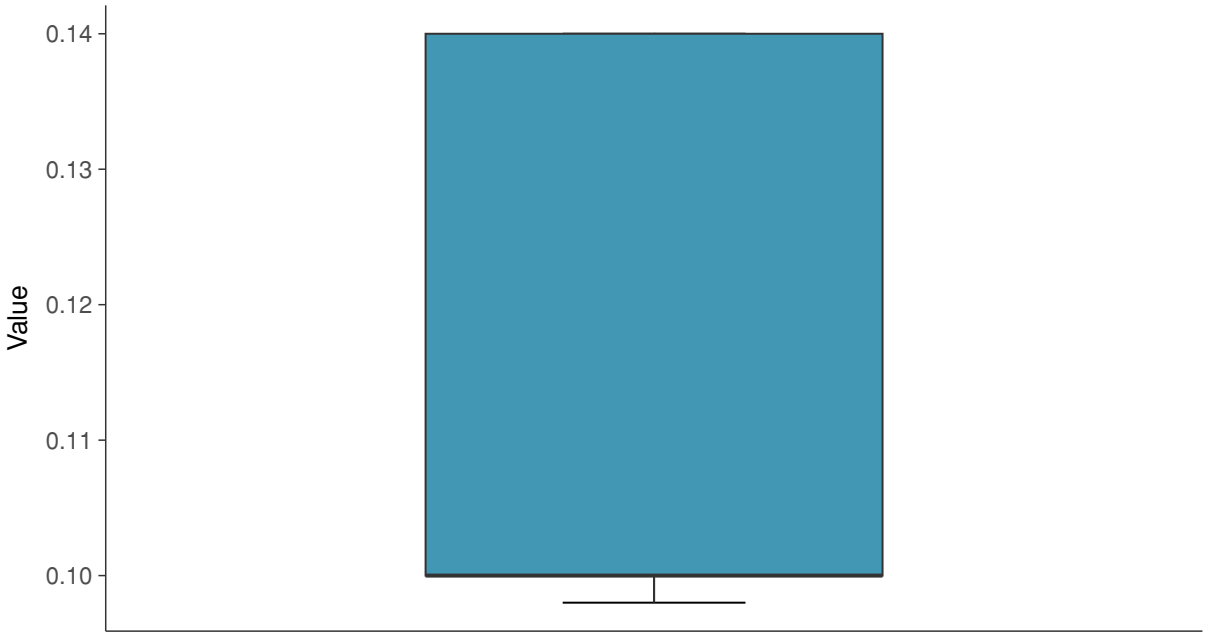
ID: 5_2_122





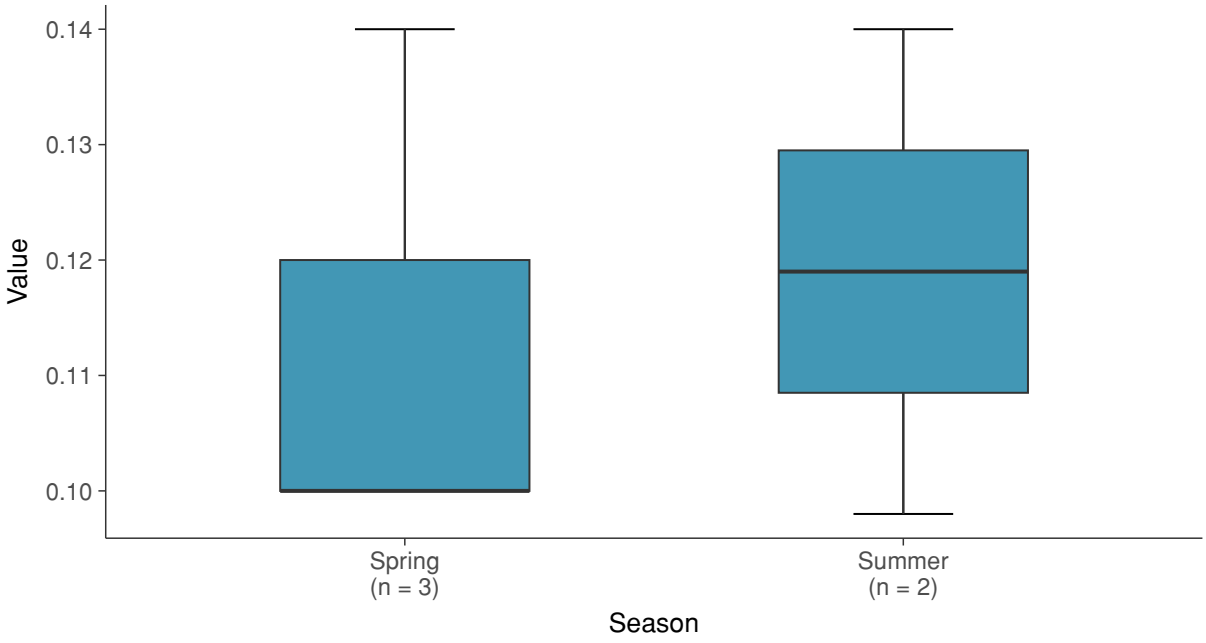
Boxplot

Selenium, W-16 (mg/l)



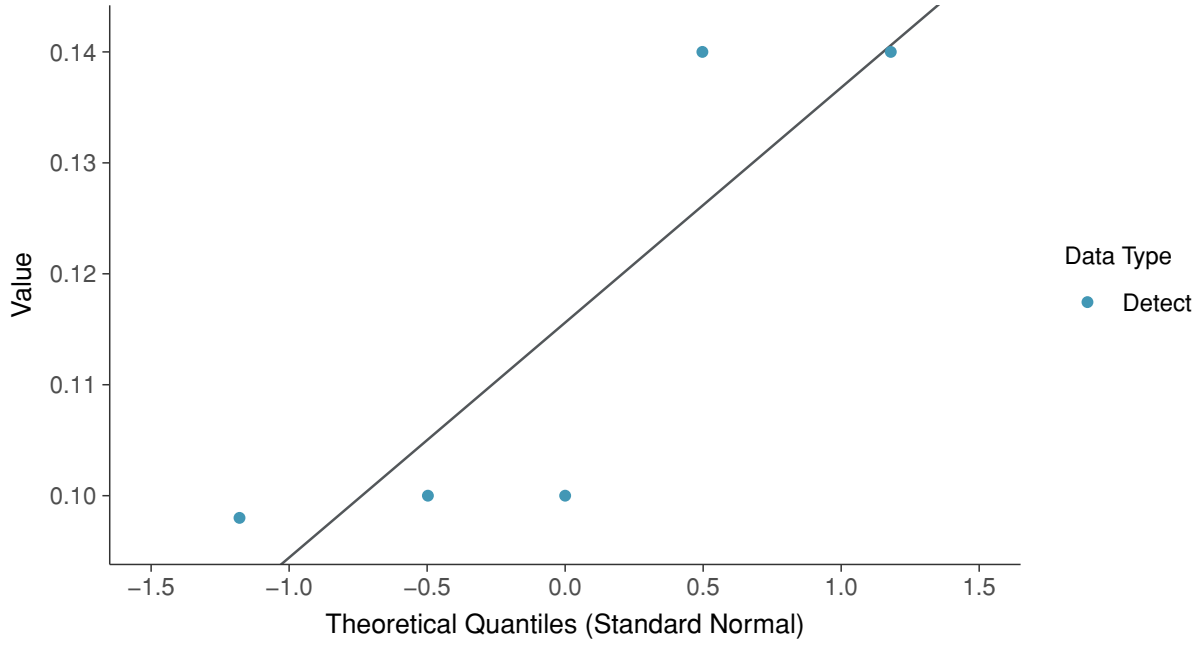
Boxplot by Season

Selenium, W-16 (mg/l)



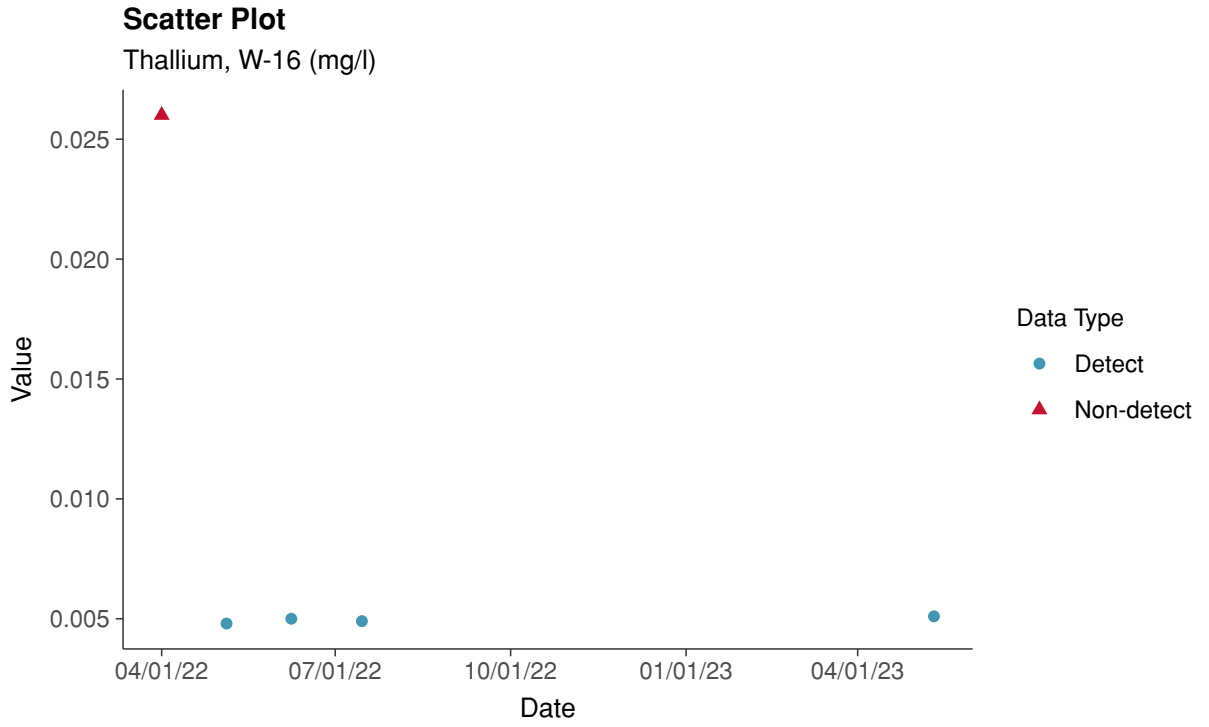
Normal Q-Q plot

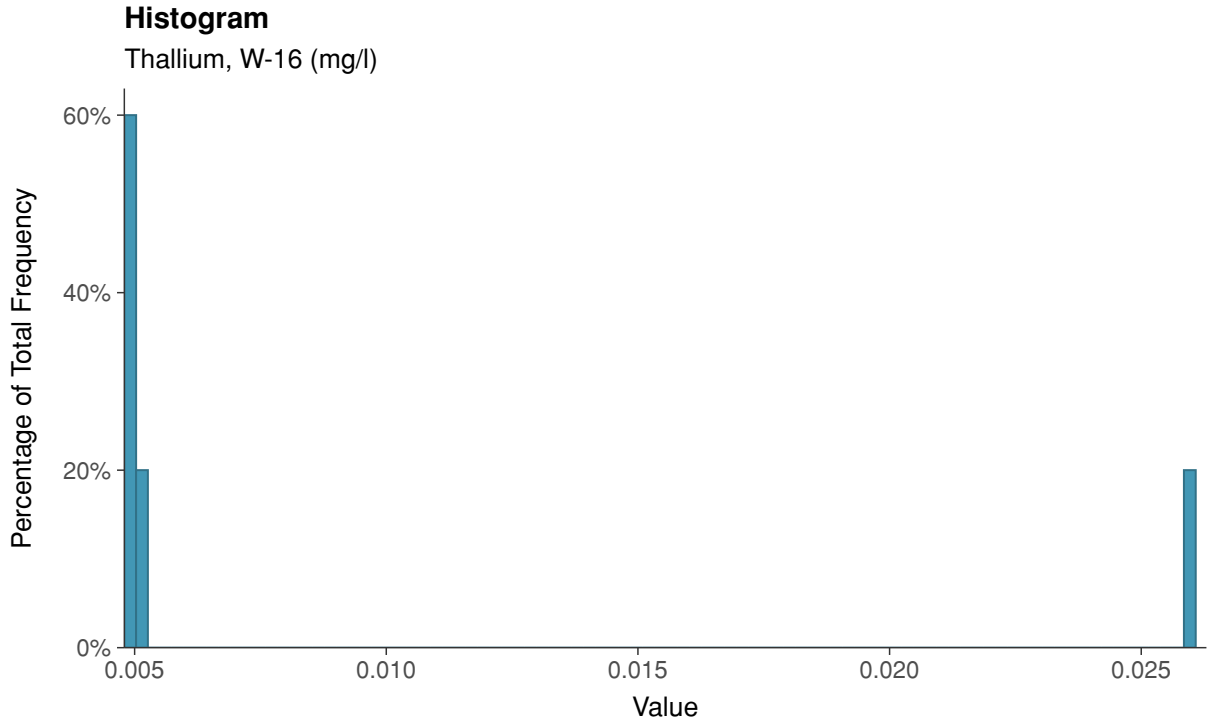
Selenium, W-16 (mg/l)



Appendix IV: Thallium, W-16

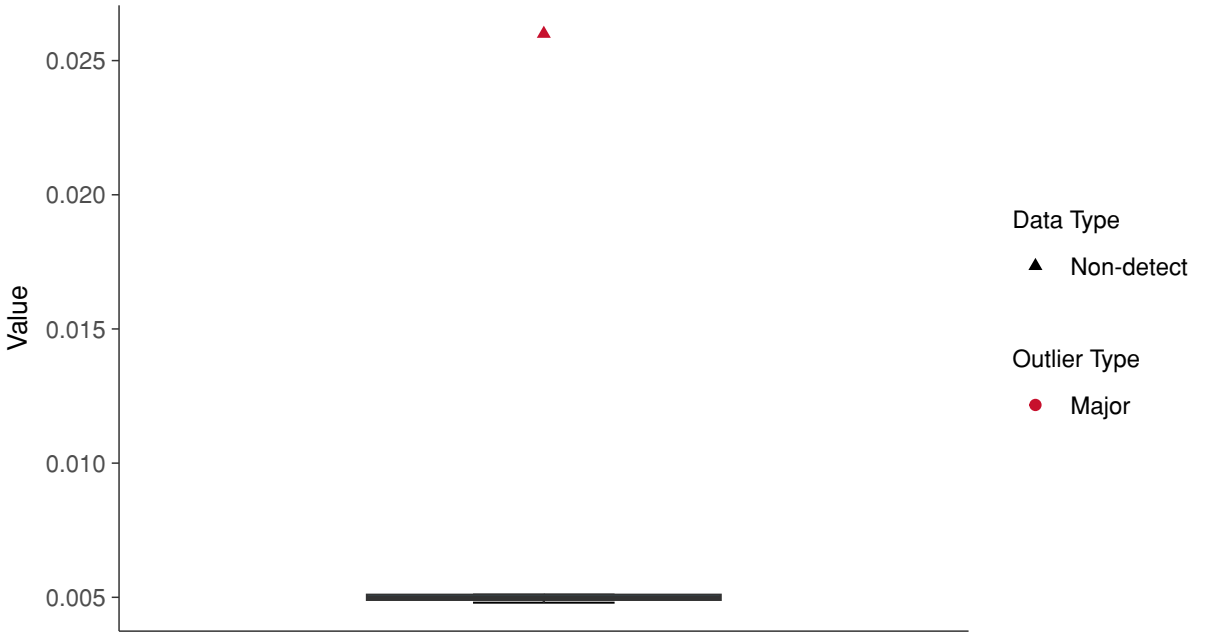
ID: 5_2_126





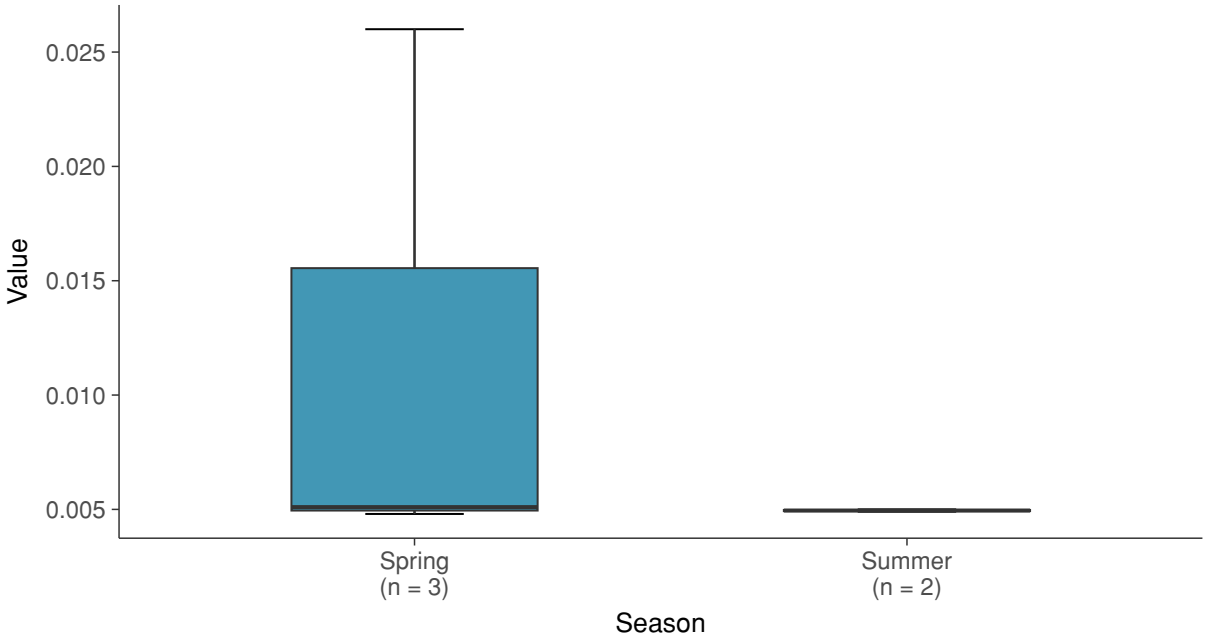
Boxplot

Thallium, W-16 (mg/l)



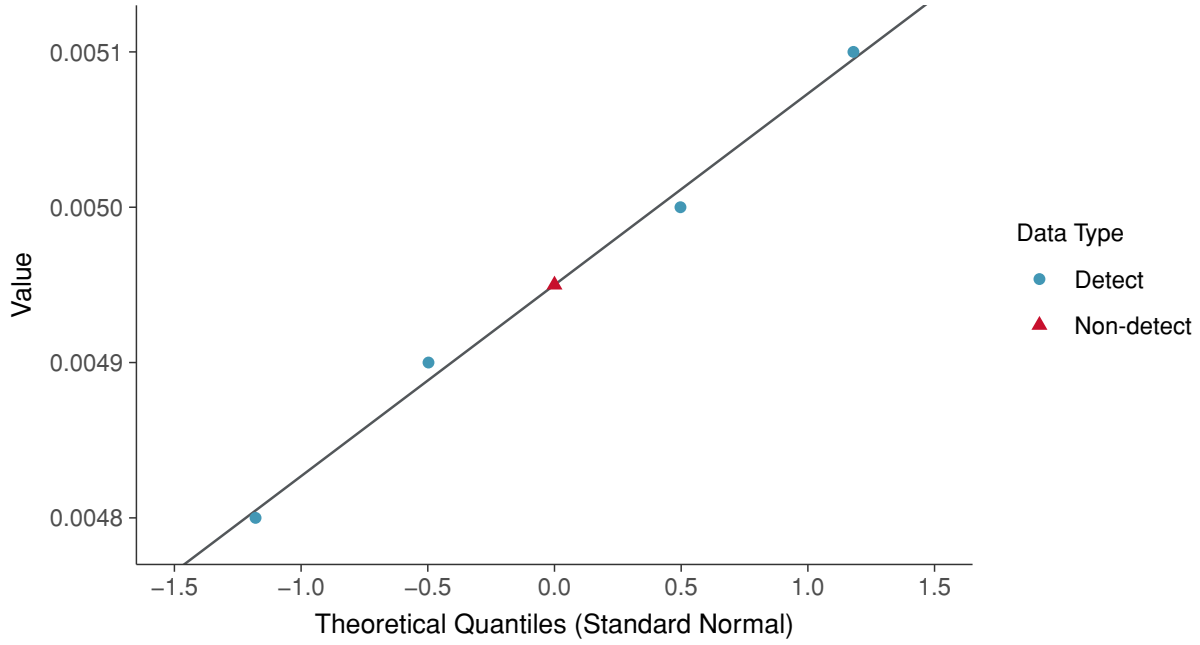
Boxplot by Season

Thallium, W-16 (mg/l)



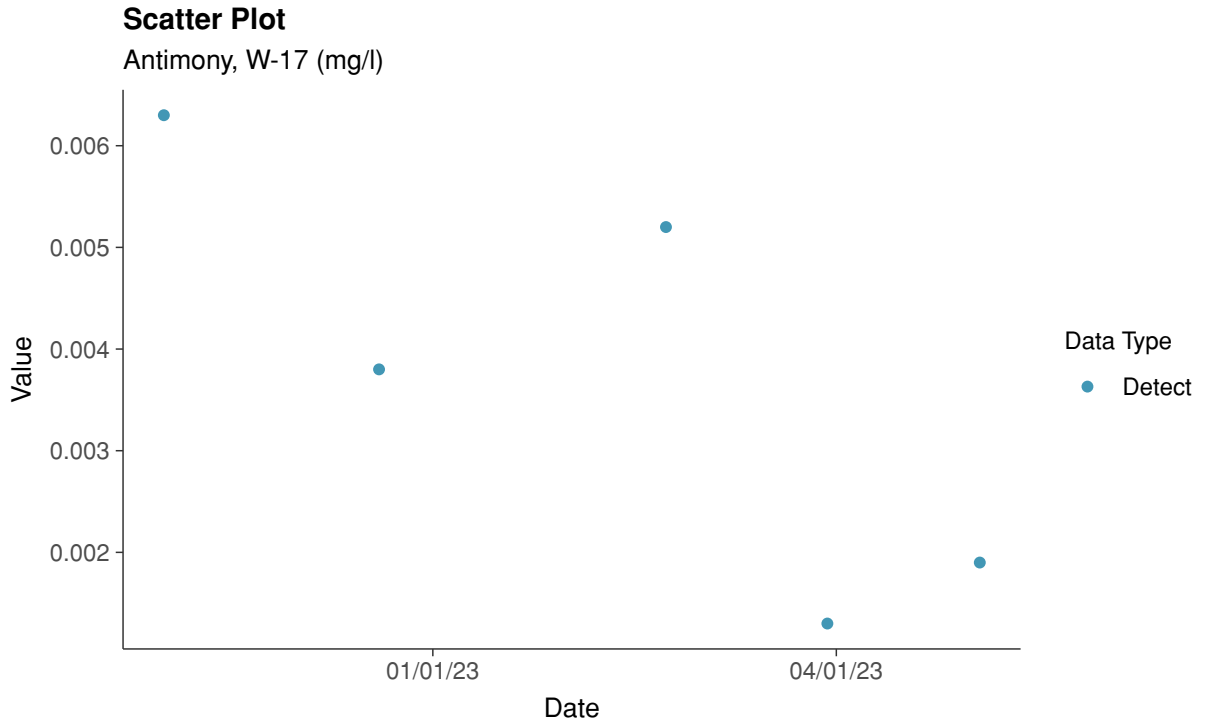
Normal Q-Q plot using ROS Imputed Estimates

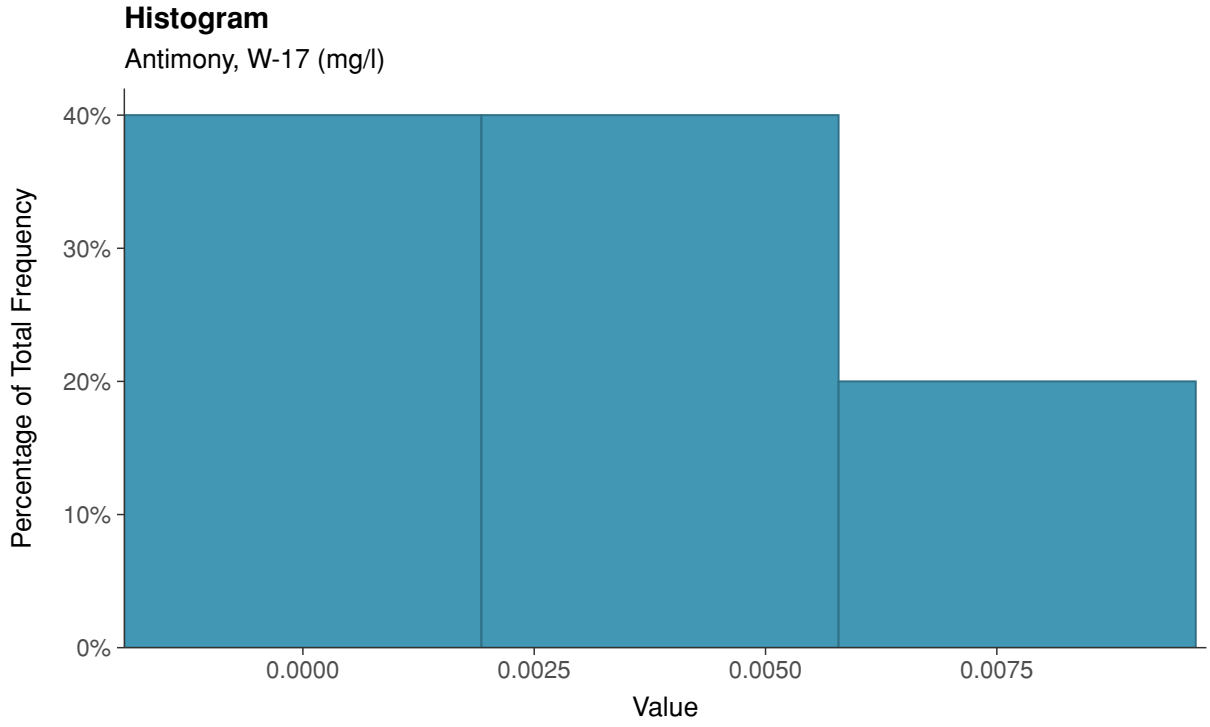
Thallium, W-16 (mg/l)



Appendix IV: Antimony, W-17

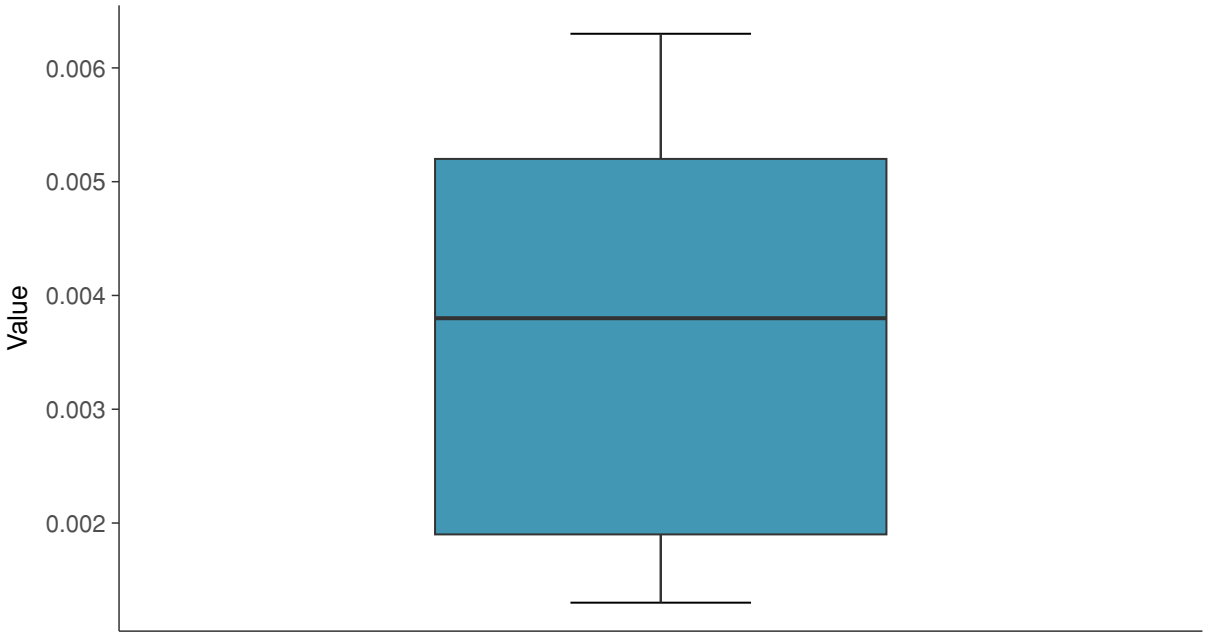
ID: 6_2_101





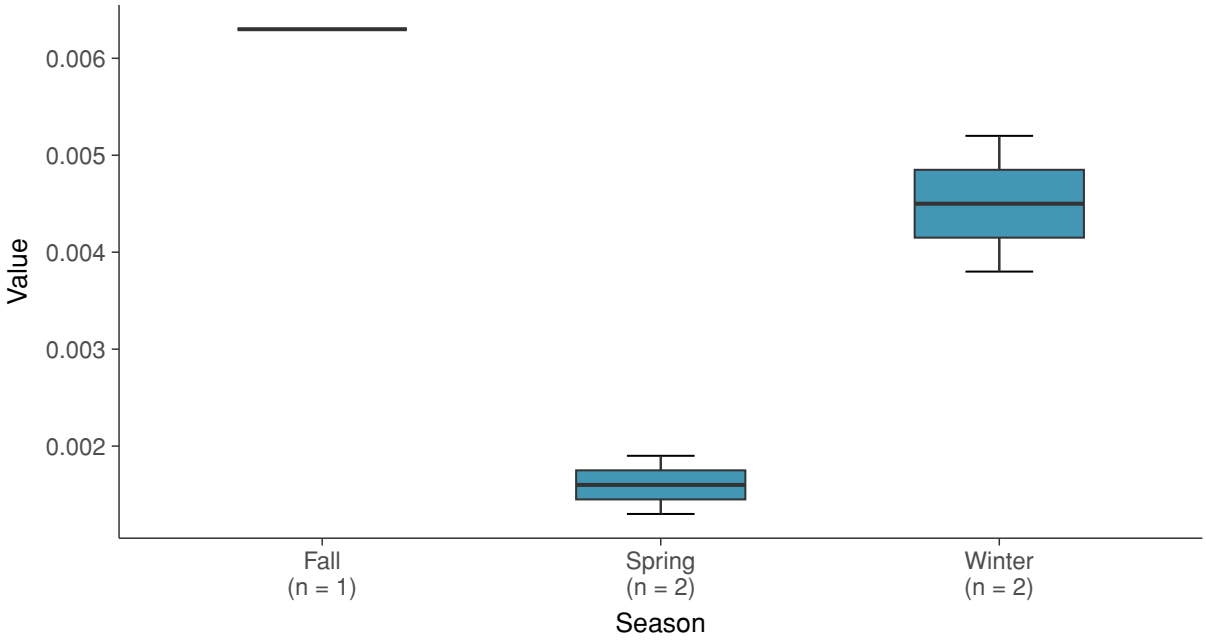
Boxplot

Antimony, W-17 (mg/l)



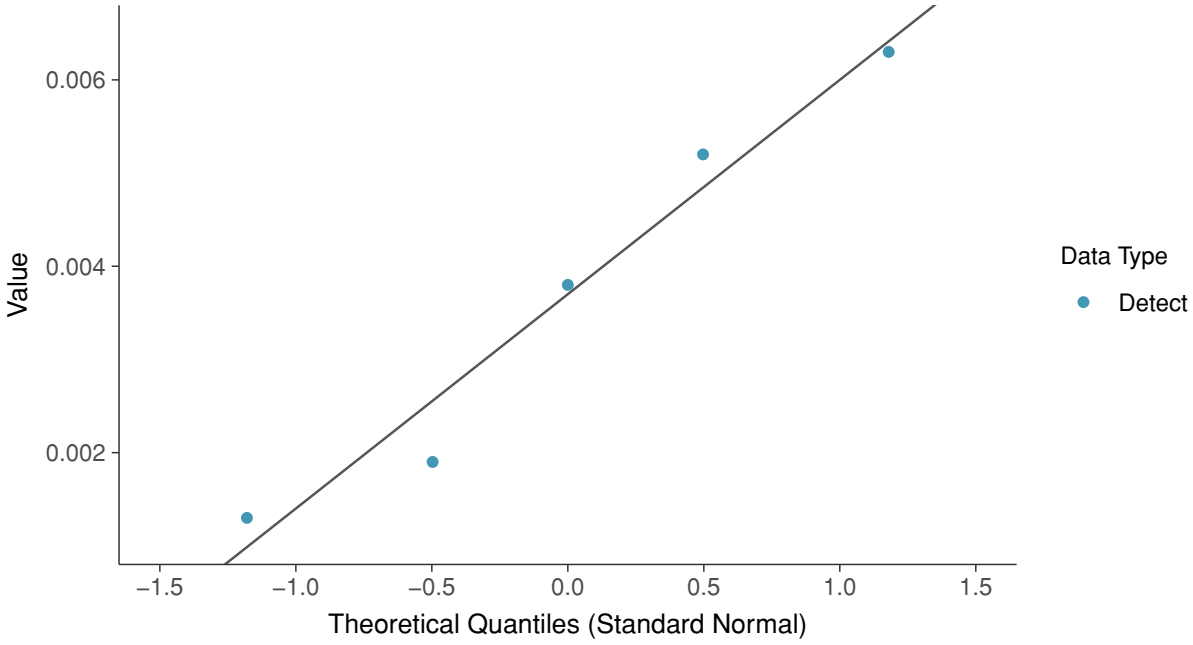
Boxplot by Season

Antimony, W-17 (mg/l)



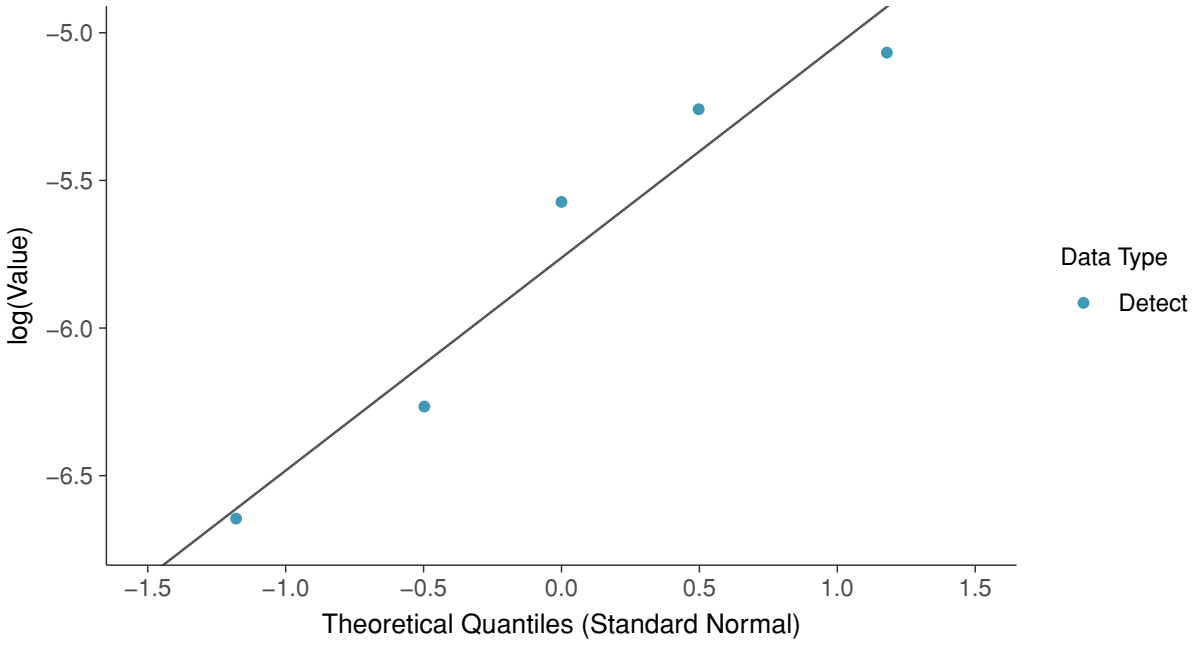
Normal Q-Q plot

Antimony, W-17 (mg/l)



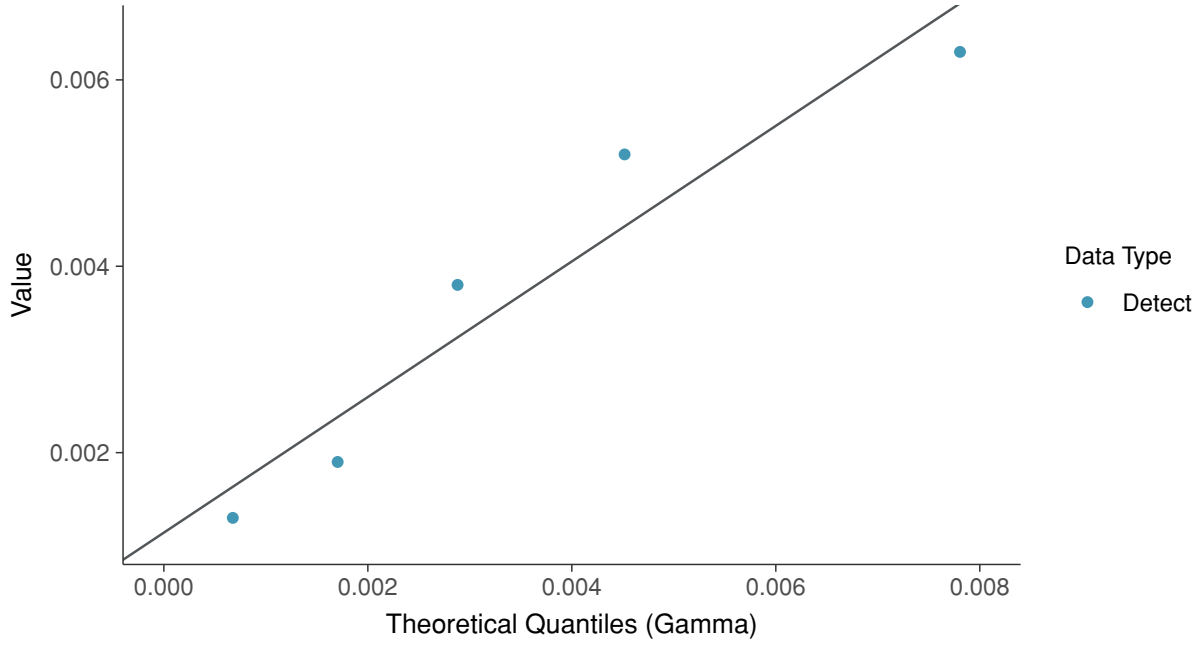
Lognormal Q-Q plot

Antimony, W-17 (mg/l)



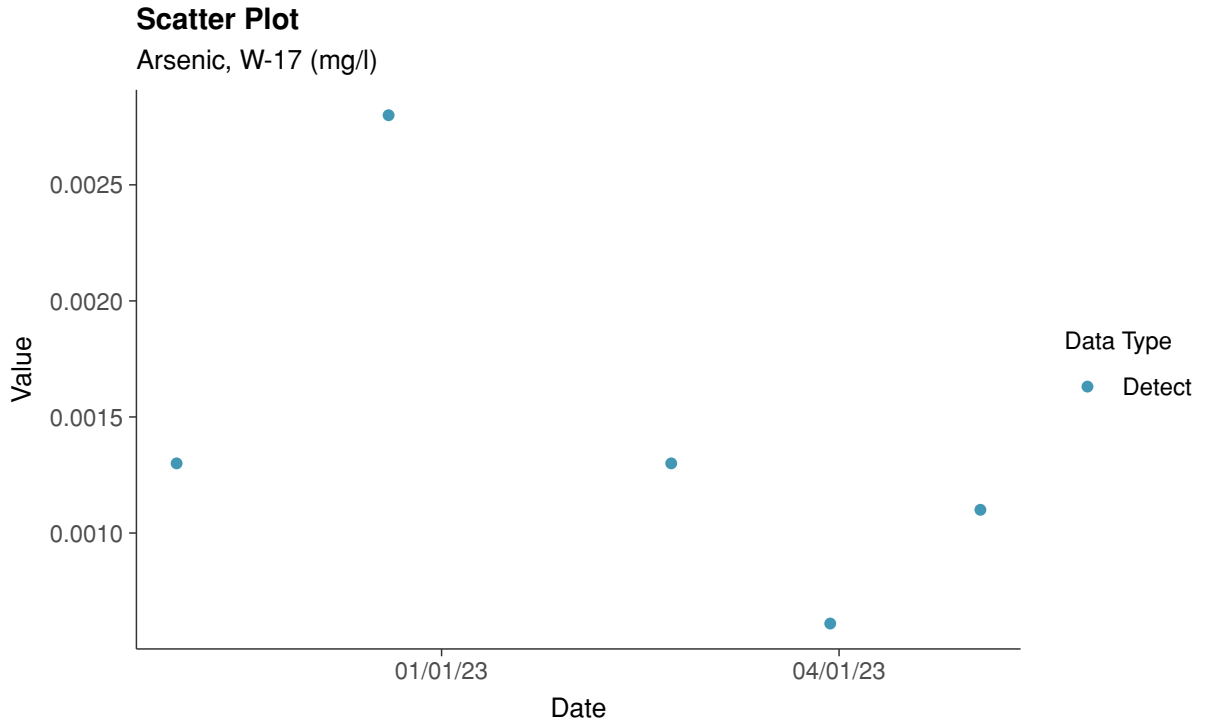
Gamma Q-Q plot

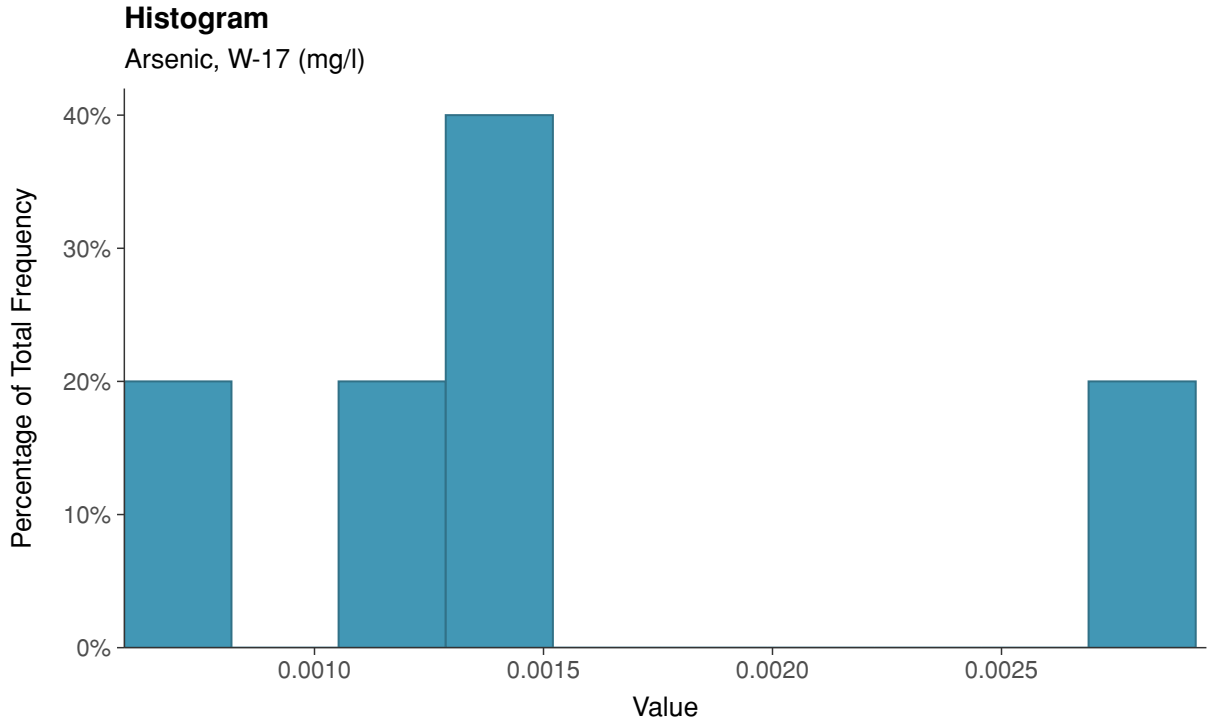
Antimony, W-17 (mg/l)



Appendix IV: Arsenic, W-17

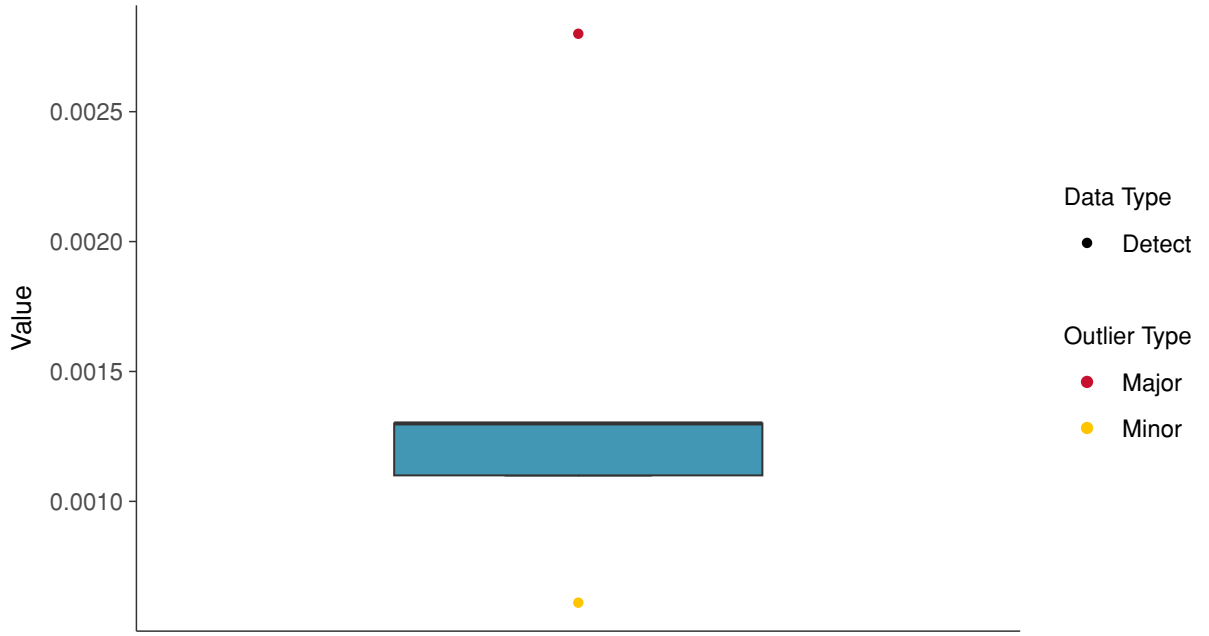
ID: 6_2_102





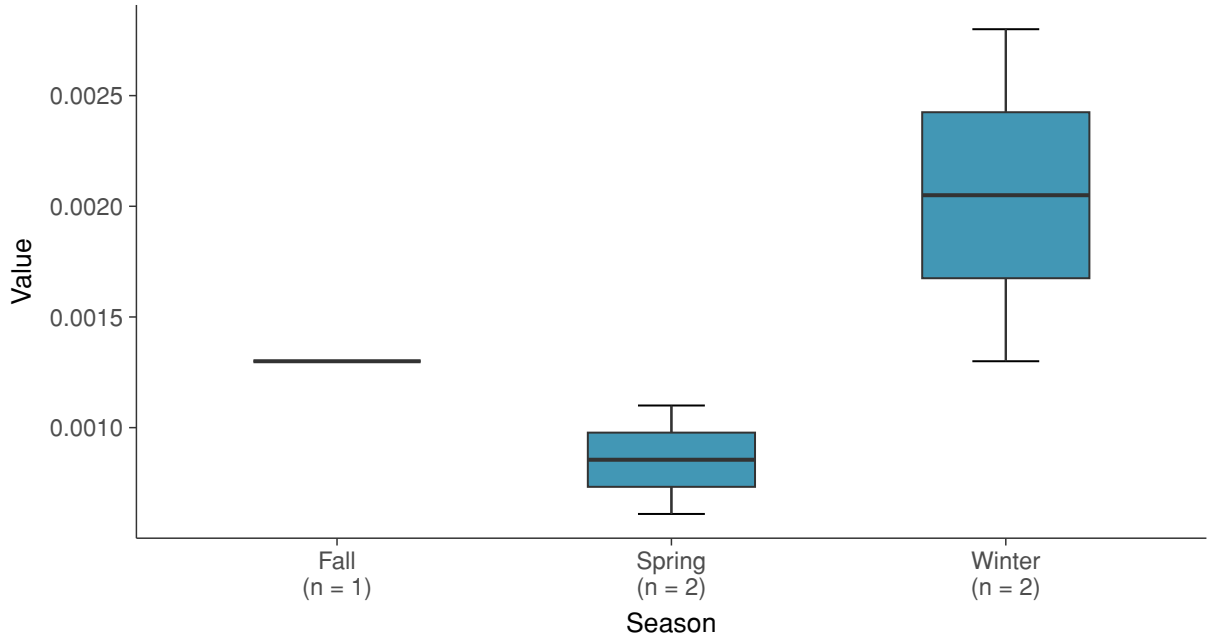
Boxplot

Arsenic, W-17 (mg/l)



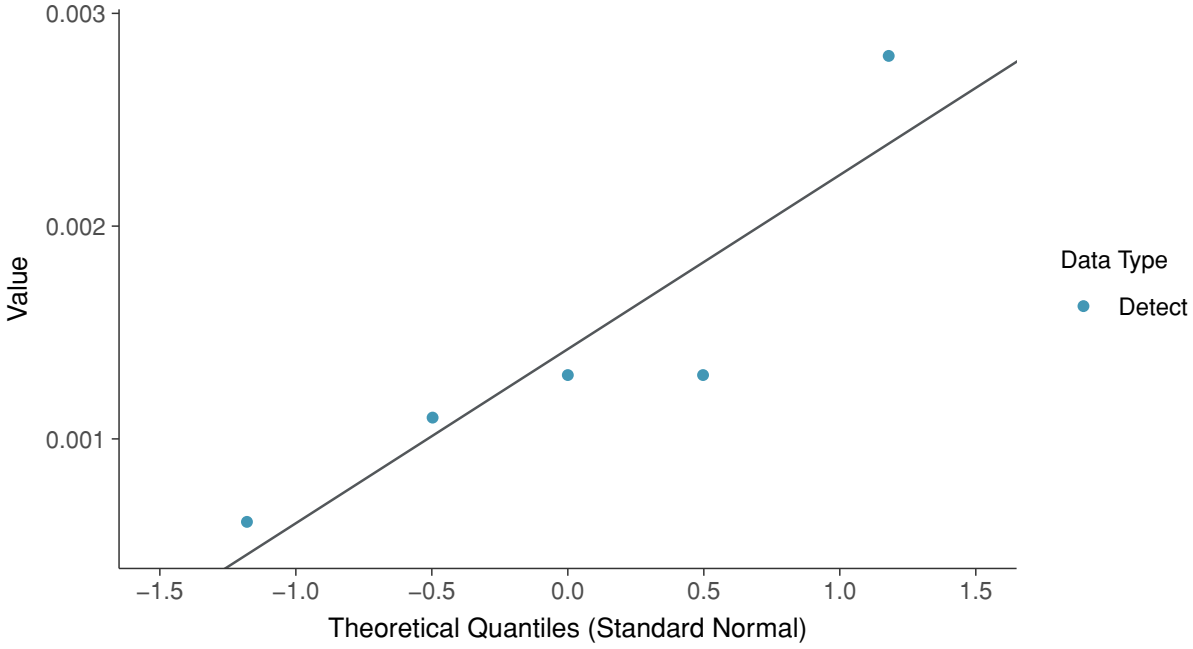
Boxplot by Season

Arsenic, W-17 (mg/l)



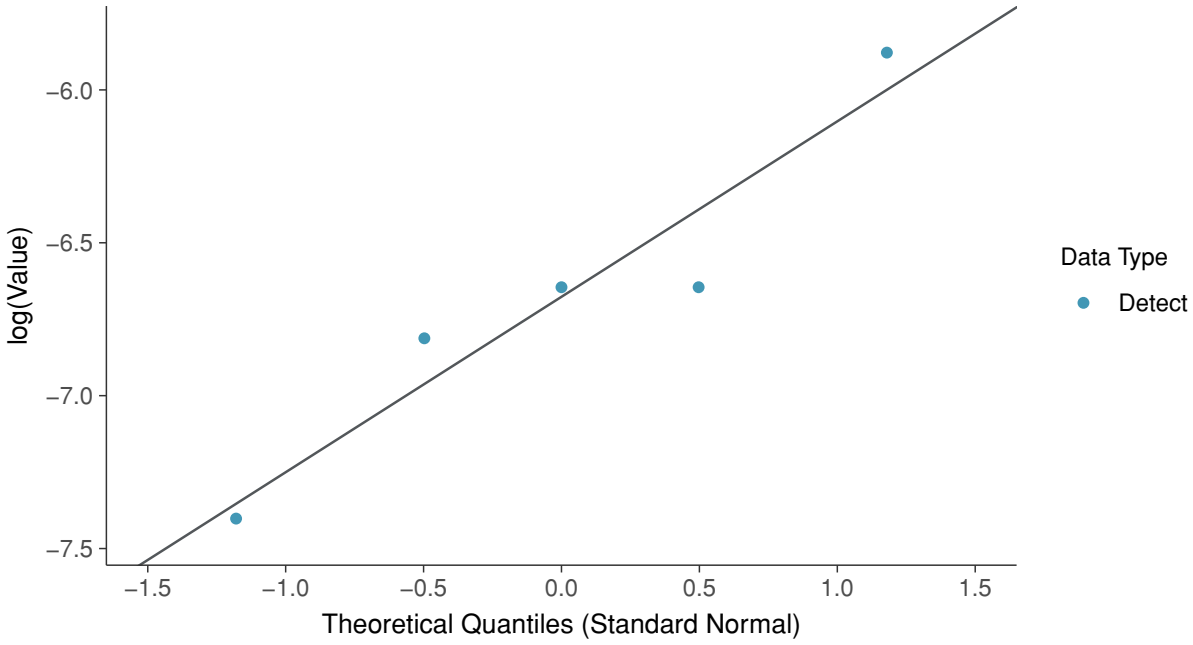
Normal Q-Q plot

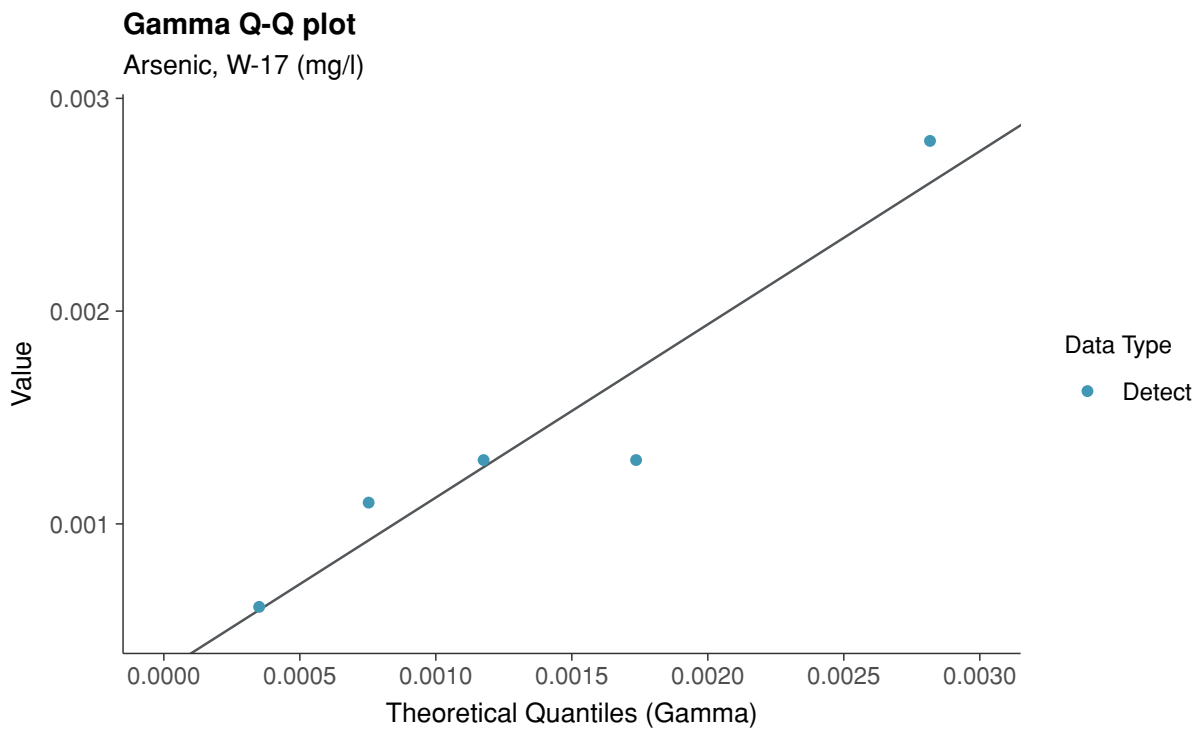
Arsenic, W-17 (mg/l)



Lognormal Q-Q plot

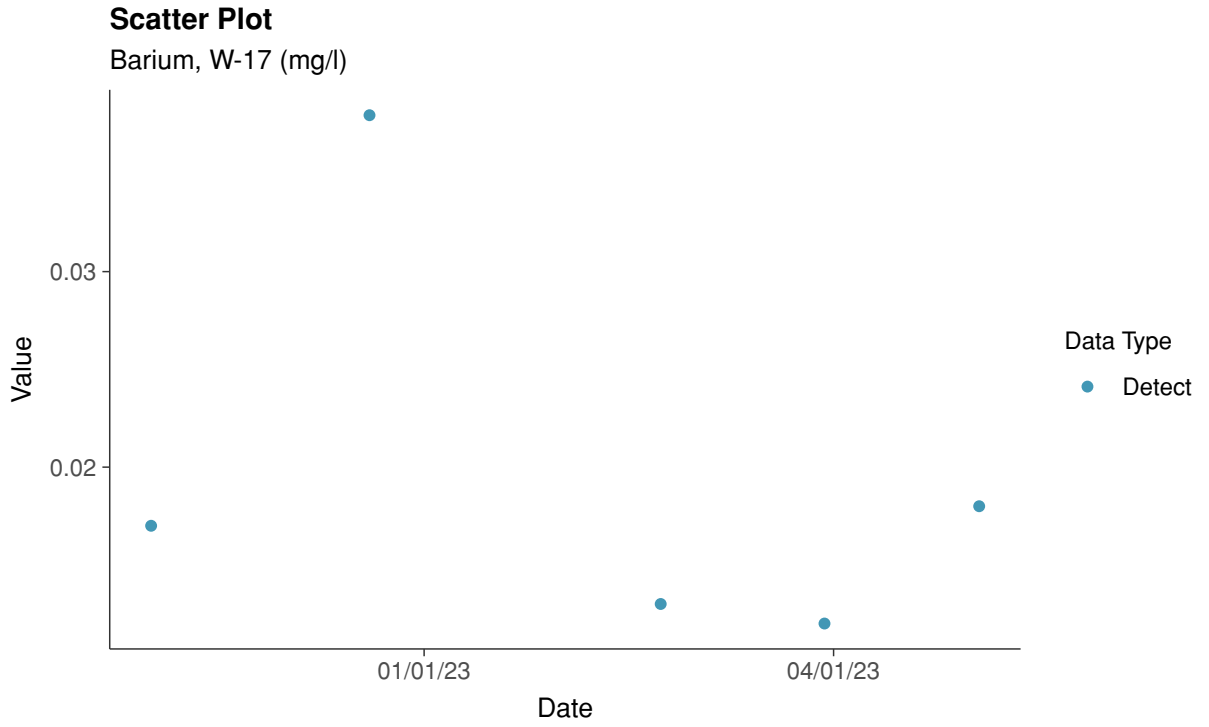
Arsenic, W-17 (mg/l)

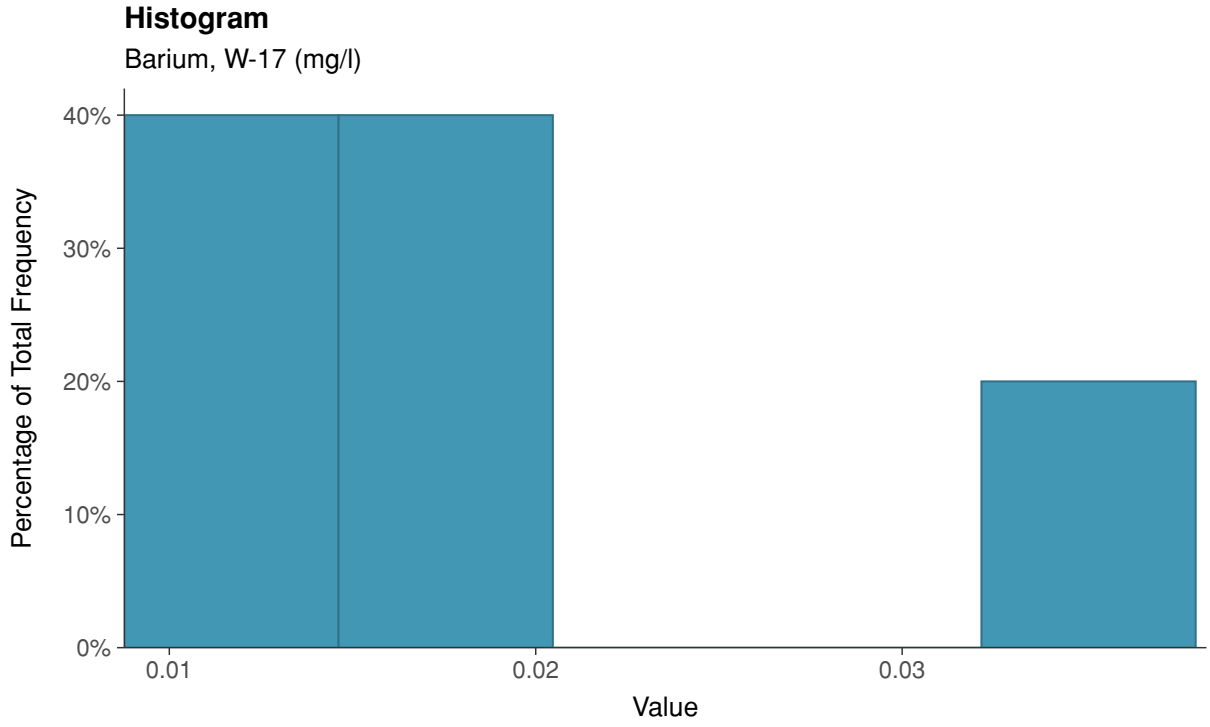



Gamma Q-Q plot
Arsenic, W-17 (mg/l)
0.003
0.002
0.001
Value
0.0000
0.0005
0.0010
0.0015
0.0020
0.0025
0.0030
Theoretical Quantiles (Gamma)
Data Type
Detect

Appendix IV: Barium, W-17

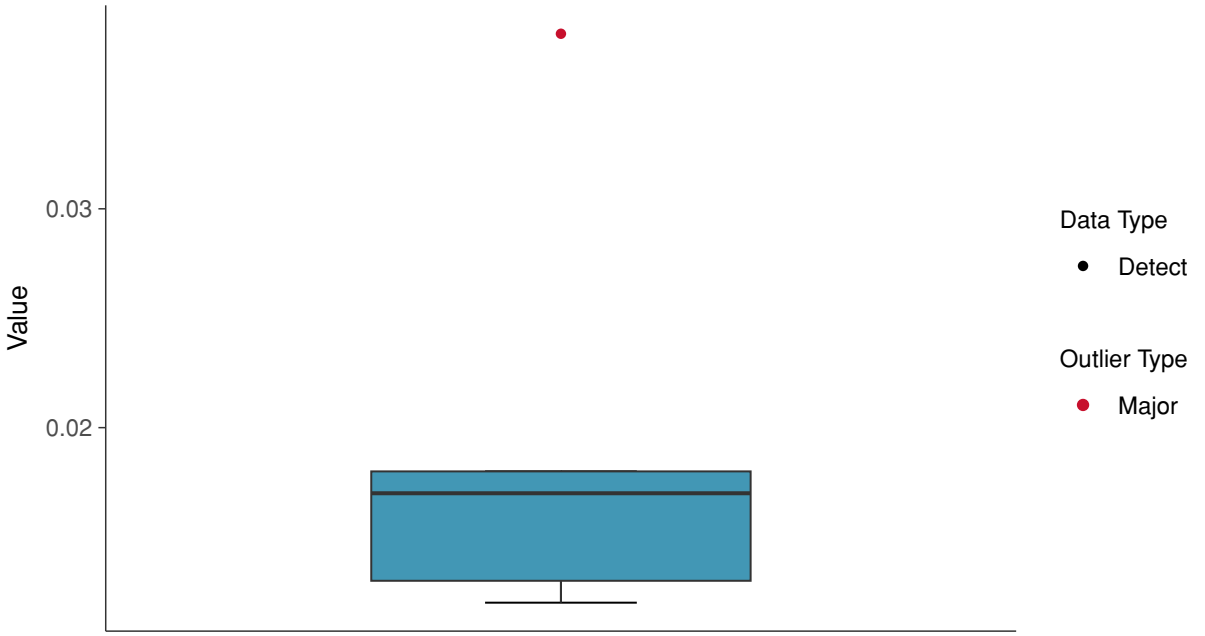
ID: 6_2_103





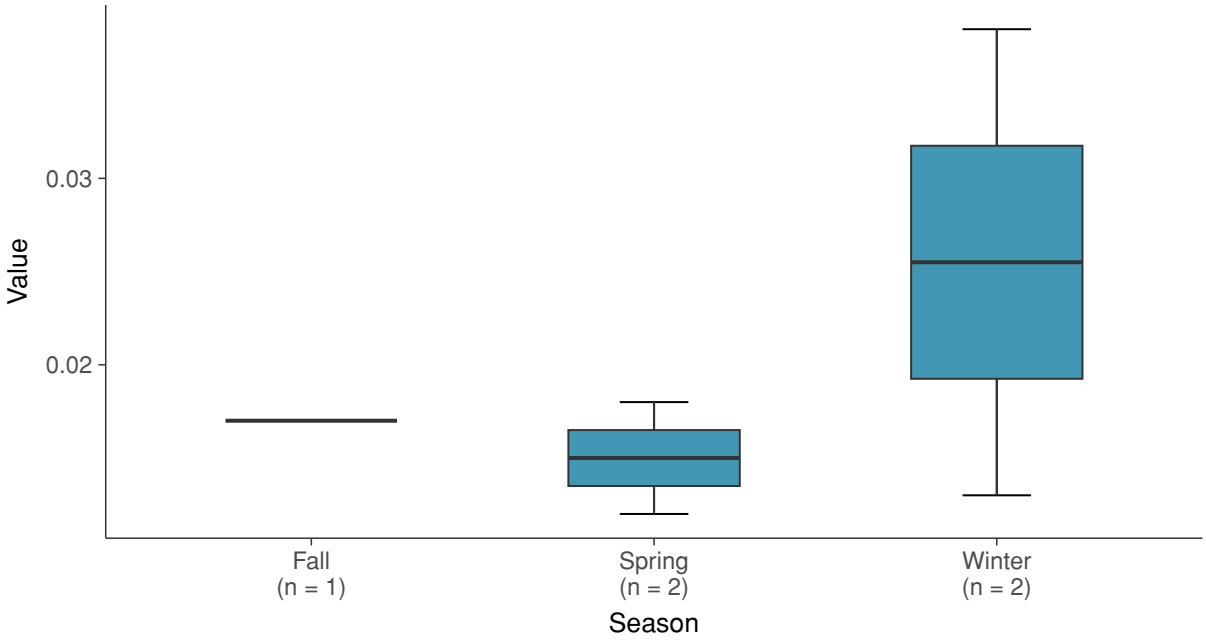
Boxplot

Barium, W-17 (mg/l)



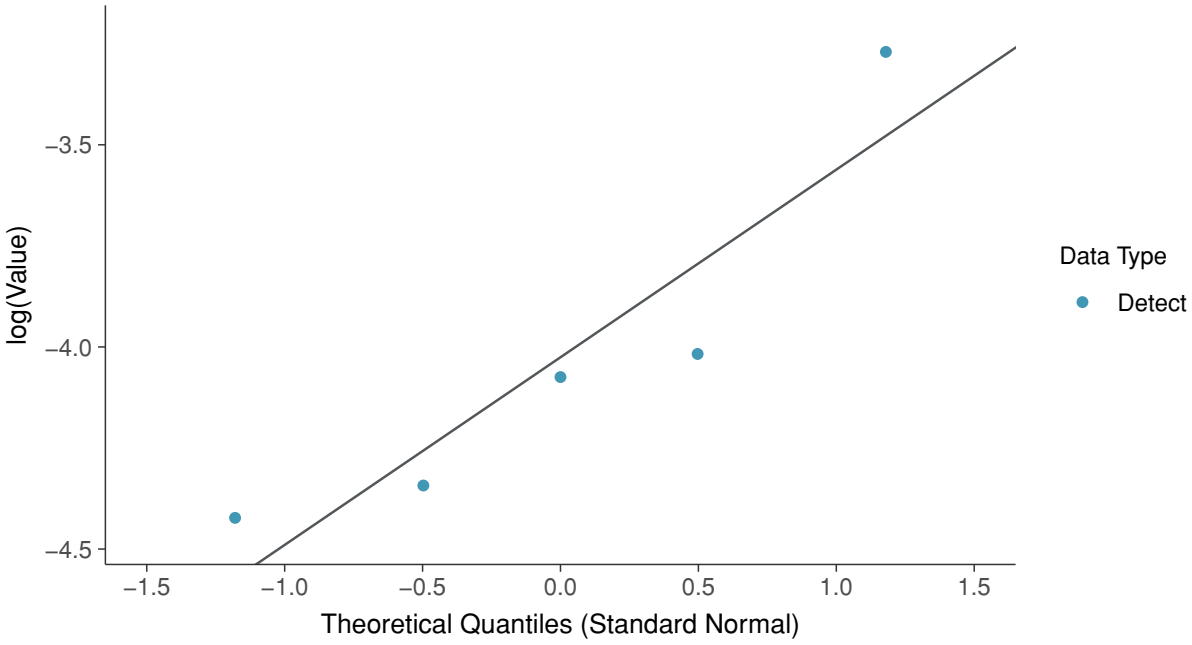
Boxplot by Season

Barium, W-17 (mg/l)



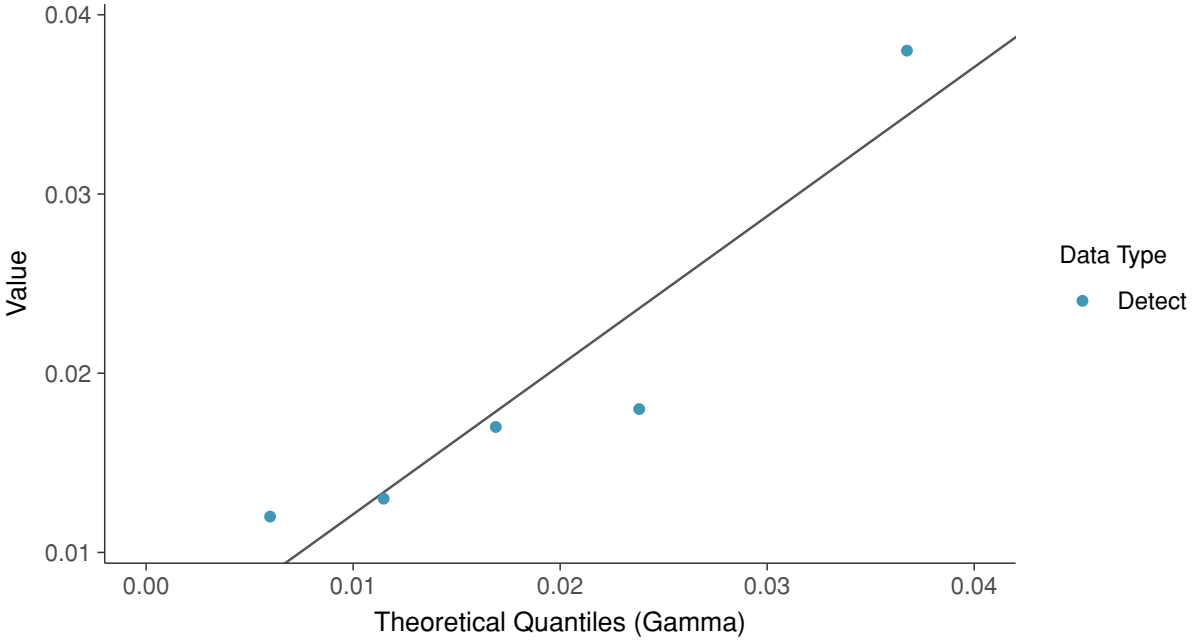
Lognormal Q-Q plot

Barium, W-17 (mg/l)



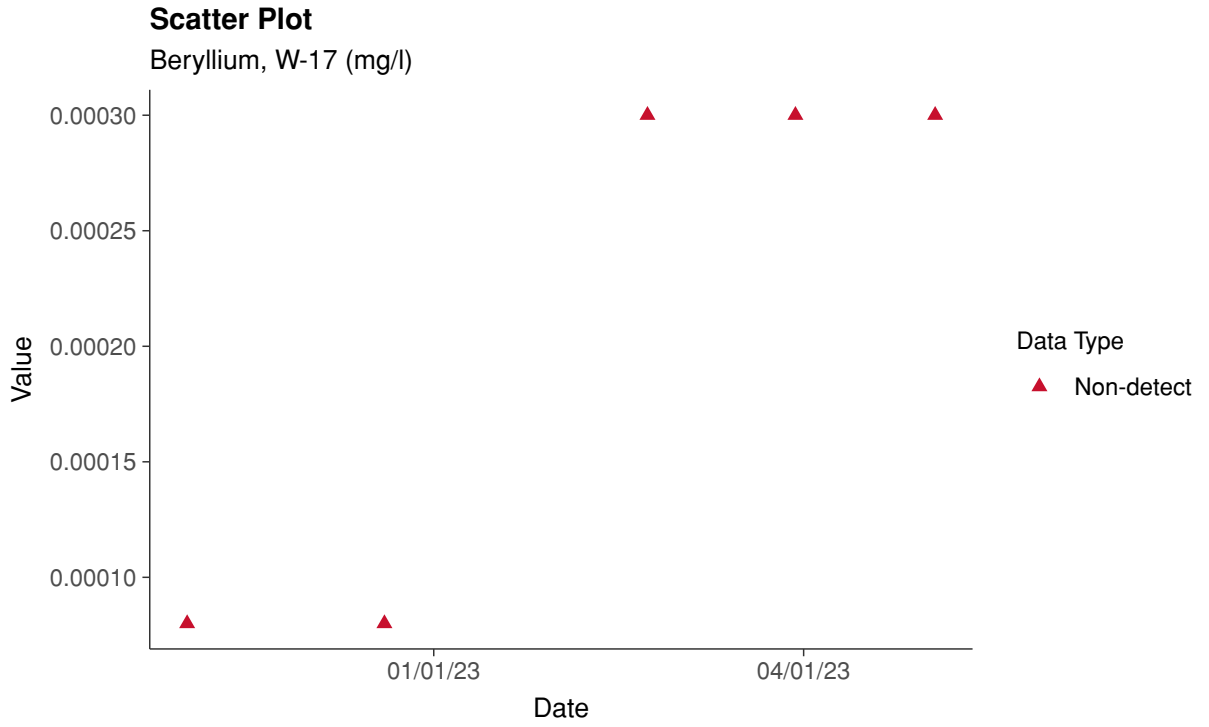
Gamma Q-Q plot

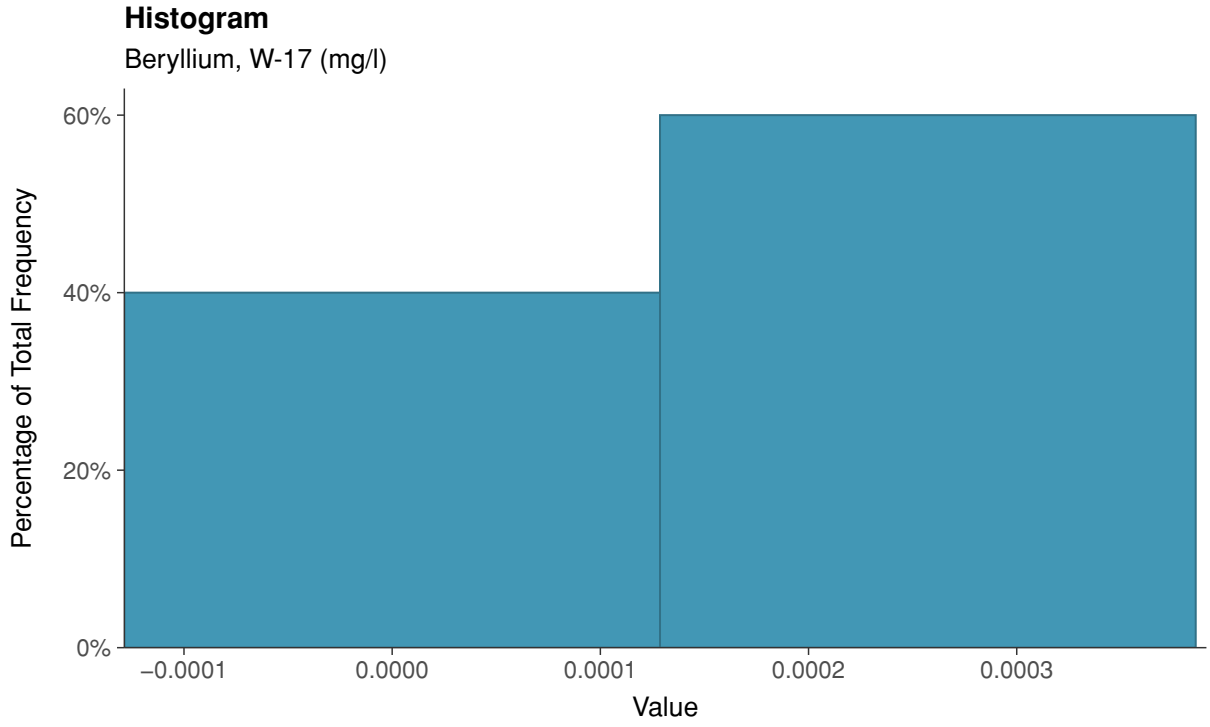
Barium, W-17 (mg/l)



Appendix IV: Beryllium, W-17

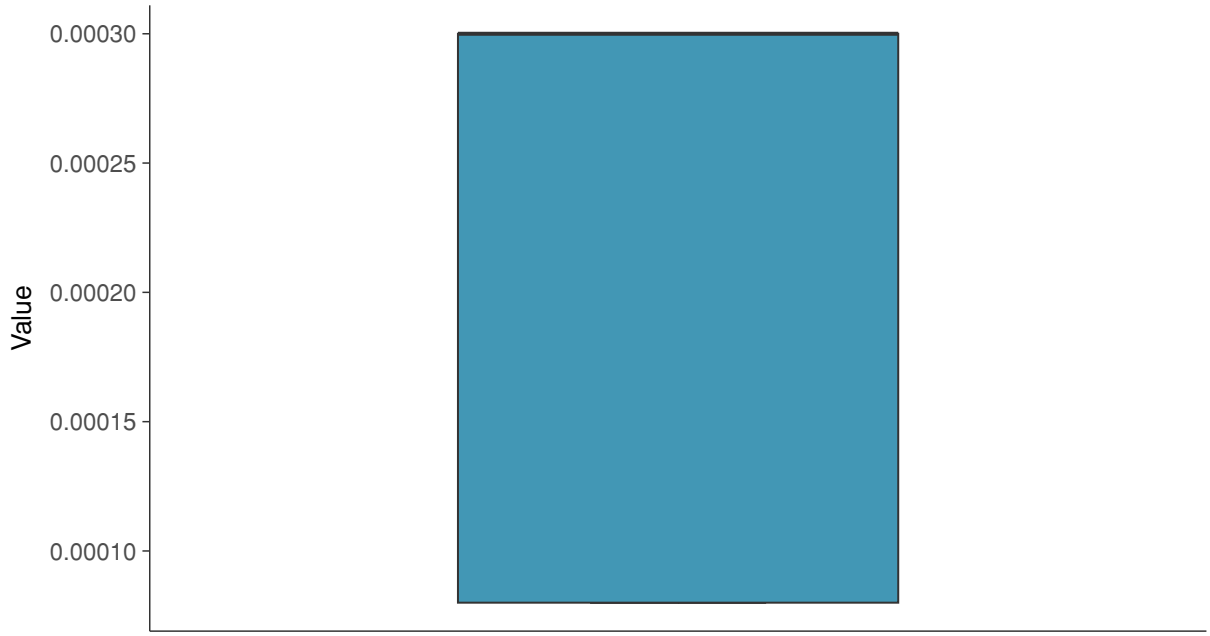
ID: 6_2_104





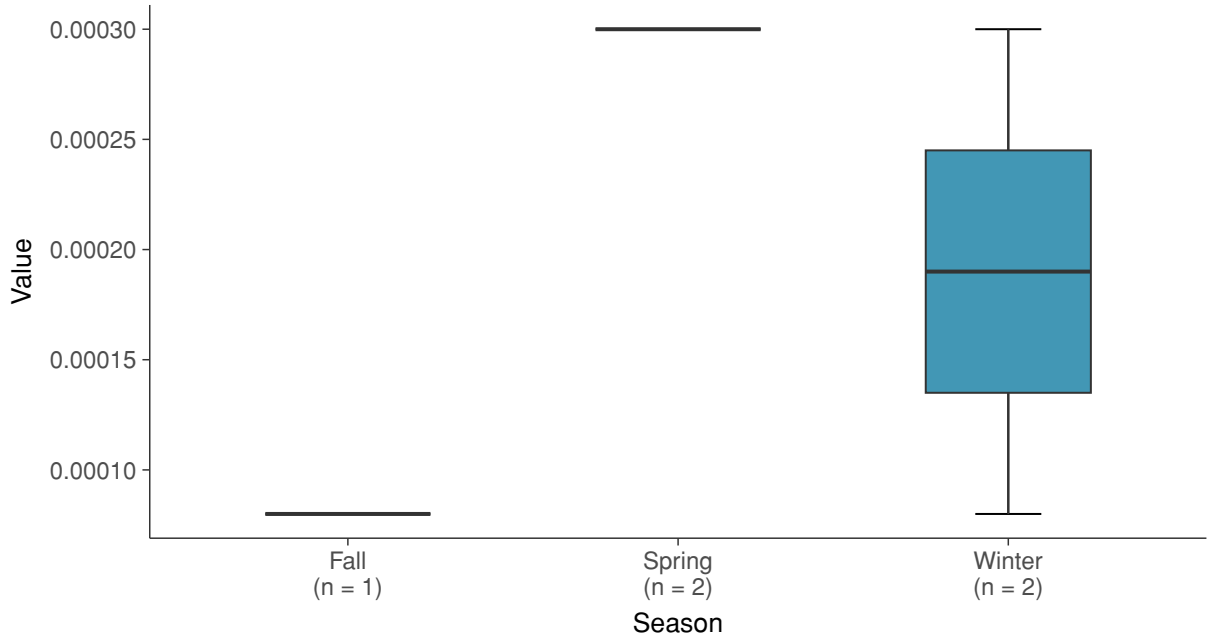
Boxplot

Beryllium, W-17 (mg/l)



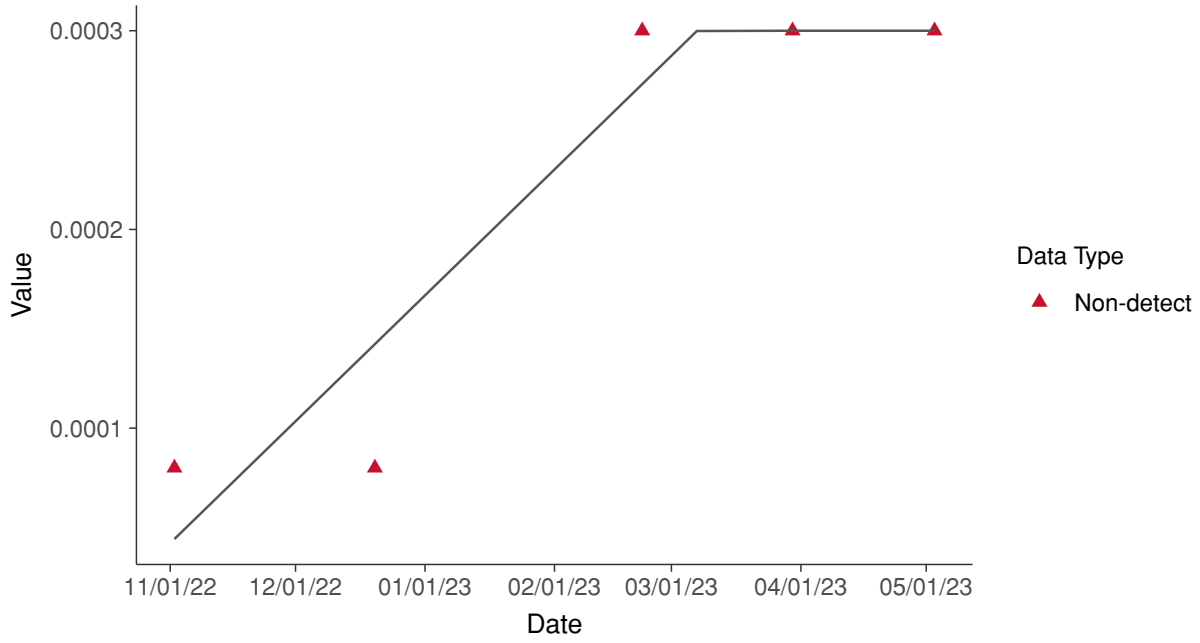
Boxplot by Season

Beryllium, W-17 (mg/l)



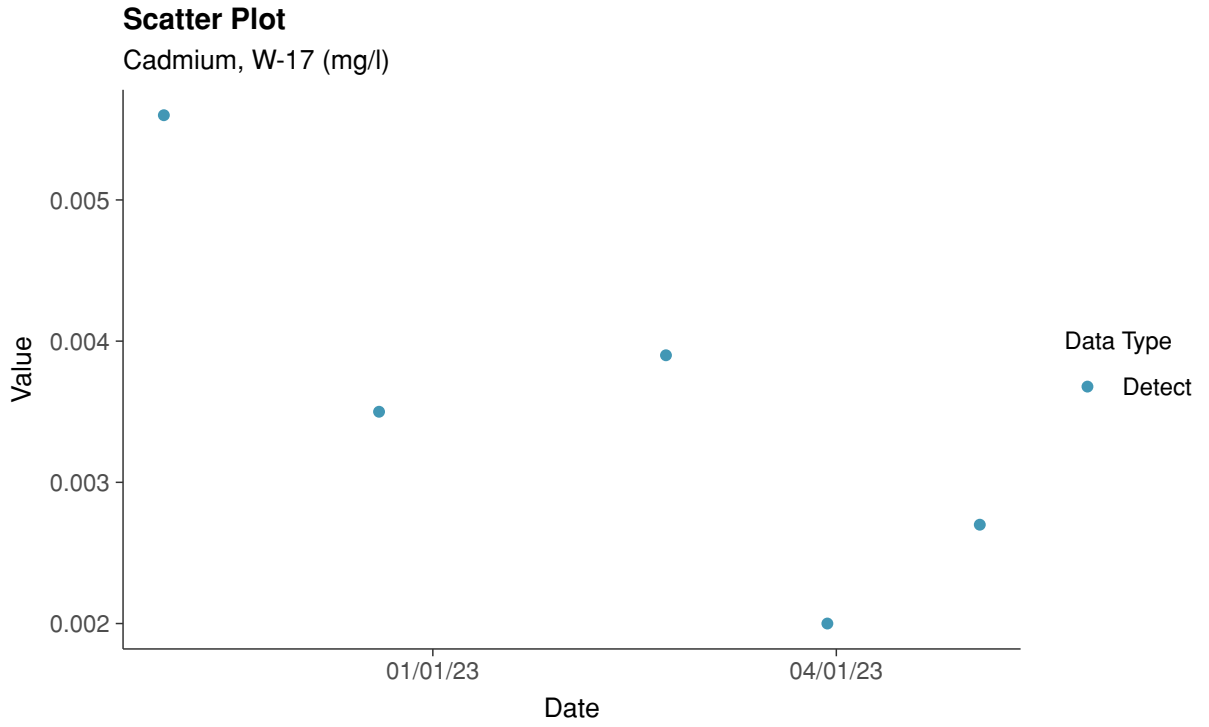
Trend Regression: Piecewise Linear-Linear

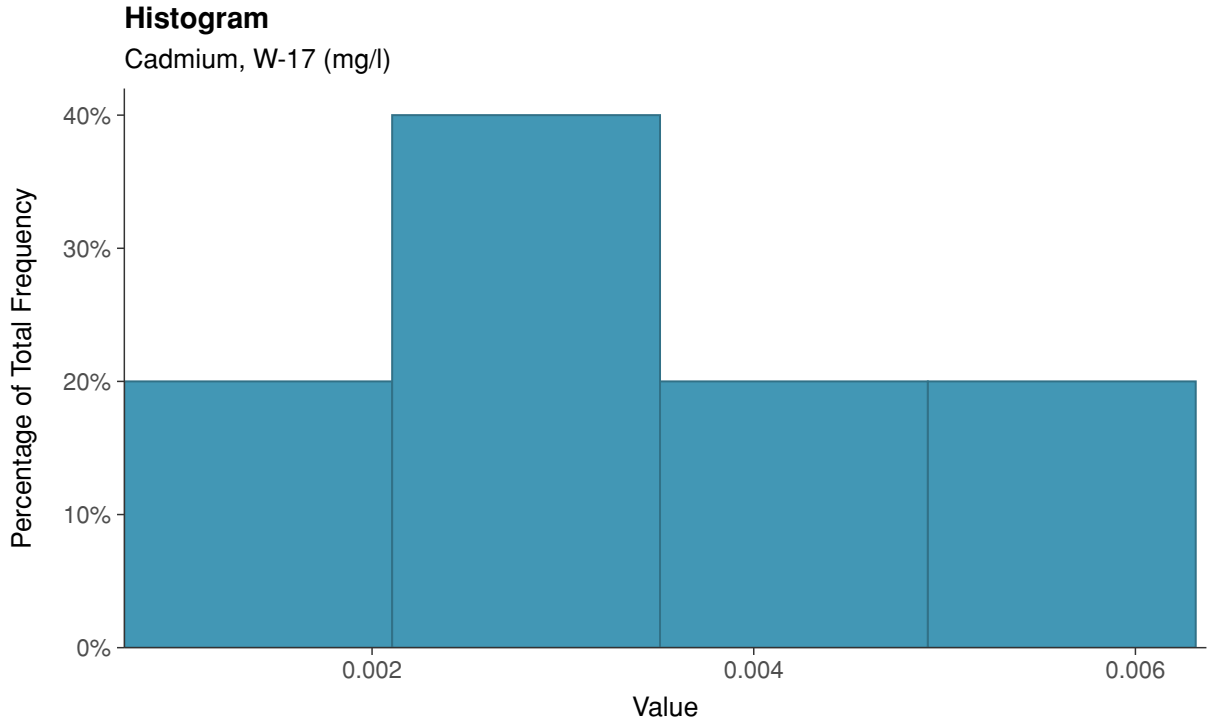
Beryllium, W-17 (mg/l)



Appendix IV: Cadmium, W-17

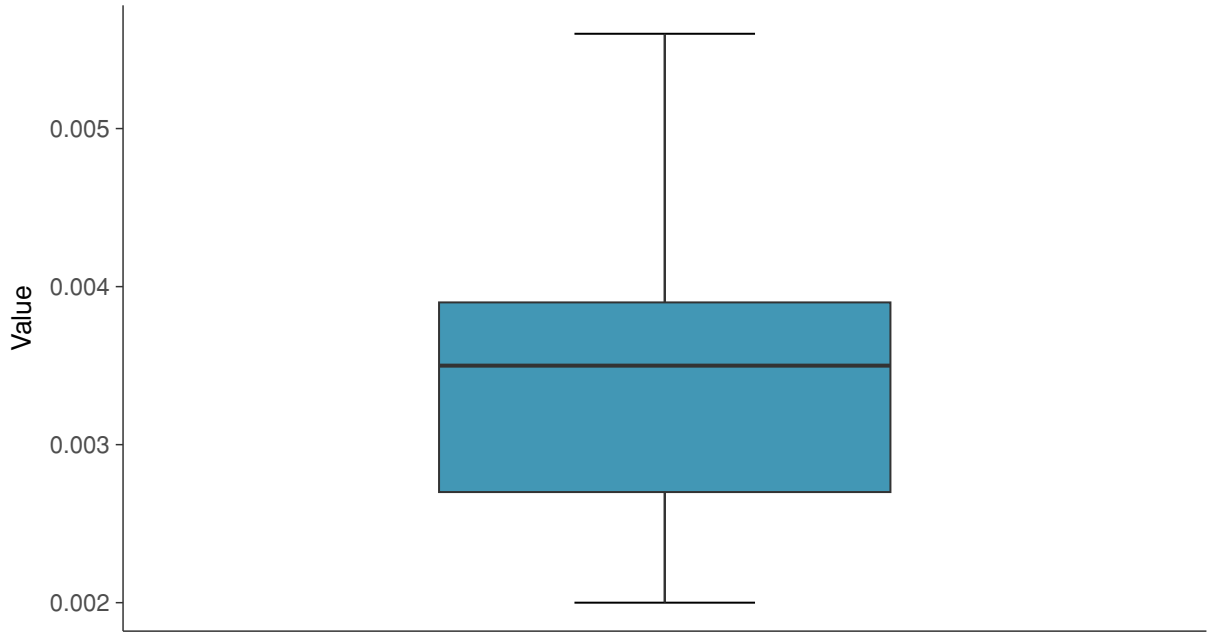
ID: 6_2_106





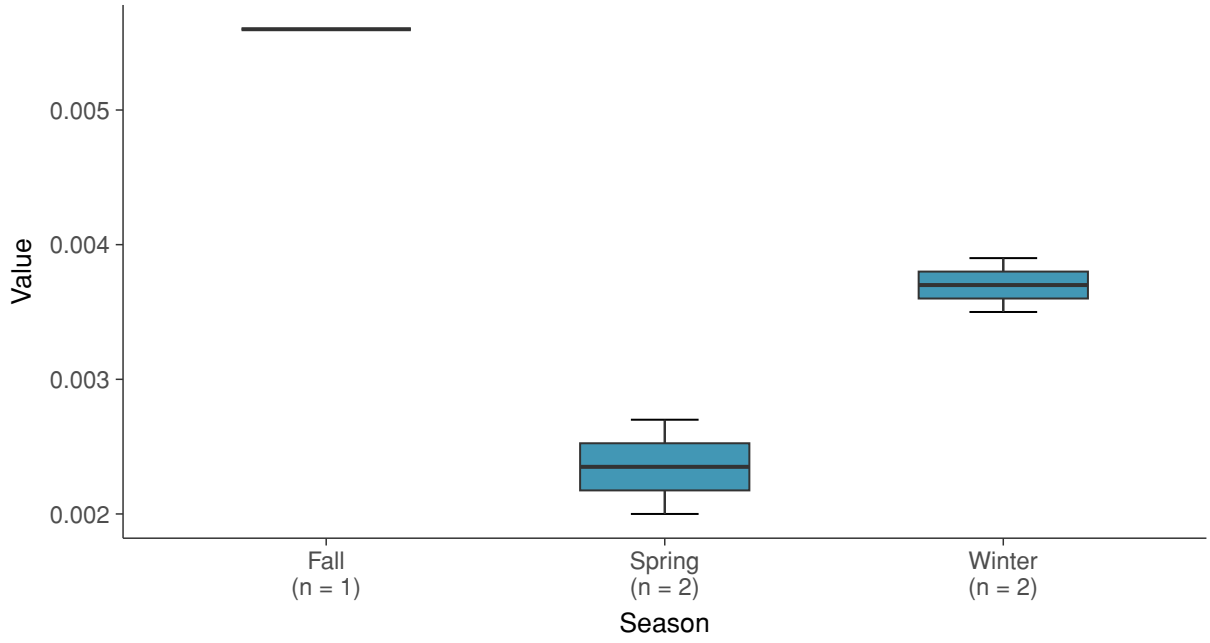
Boxplot

Cadmium, W-17 (mg/l)



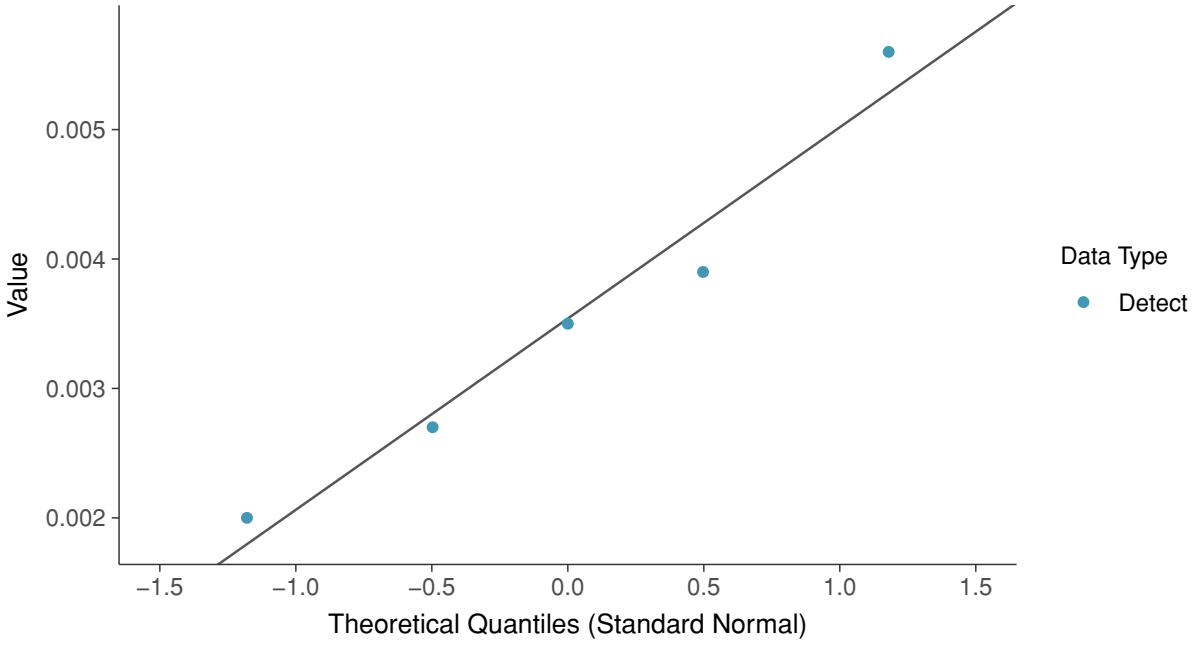
Boxplot by Season

Cadmium, W-17 (mg/l)



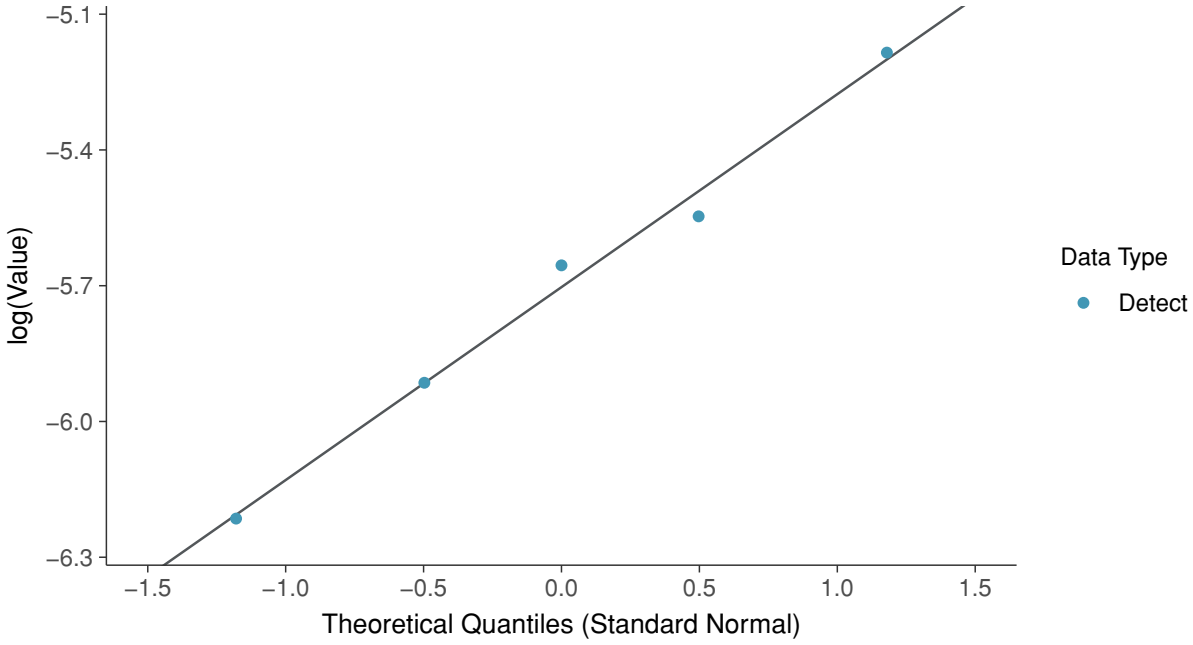
Normal Q-Q plot

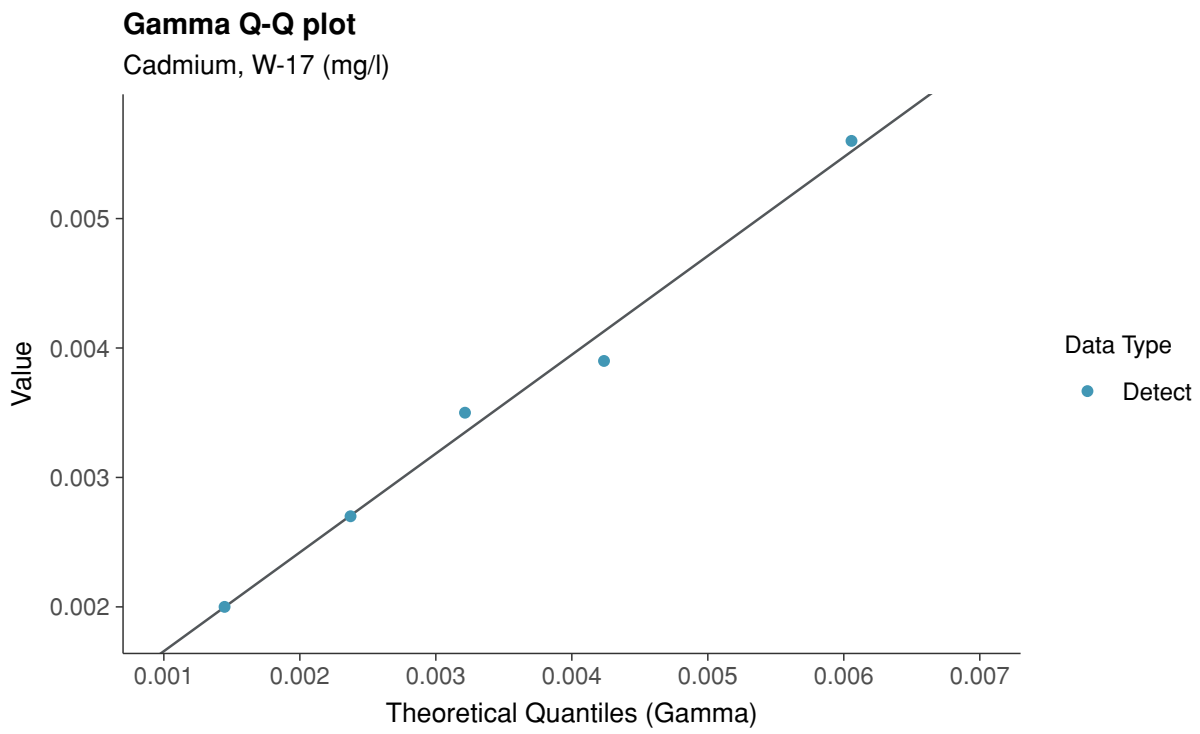
Cadmium, W-17 (mg/l)



Lognormal Q-Q plot

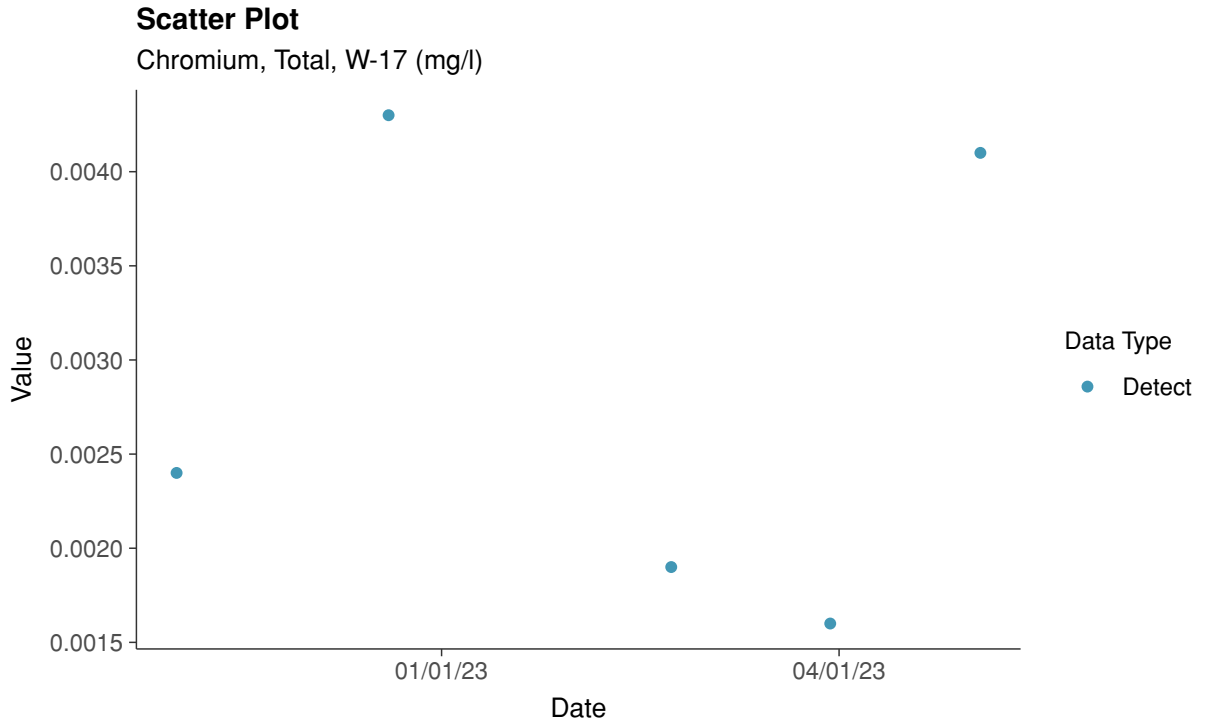
Cadmium, W-17 (mg/l)

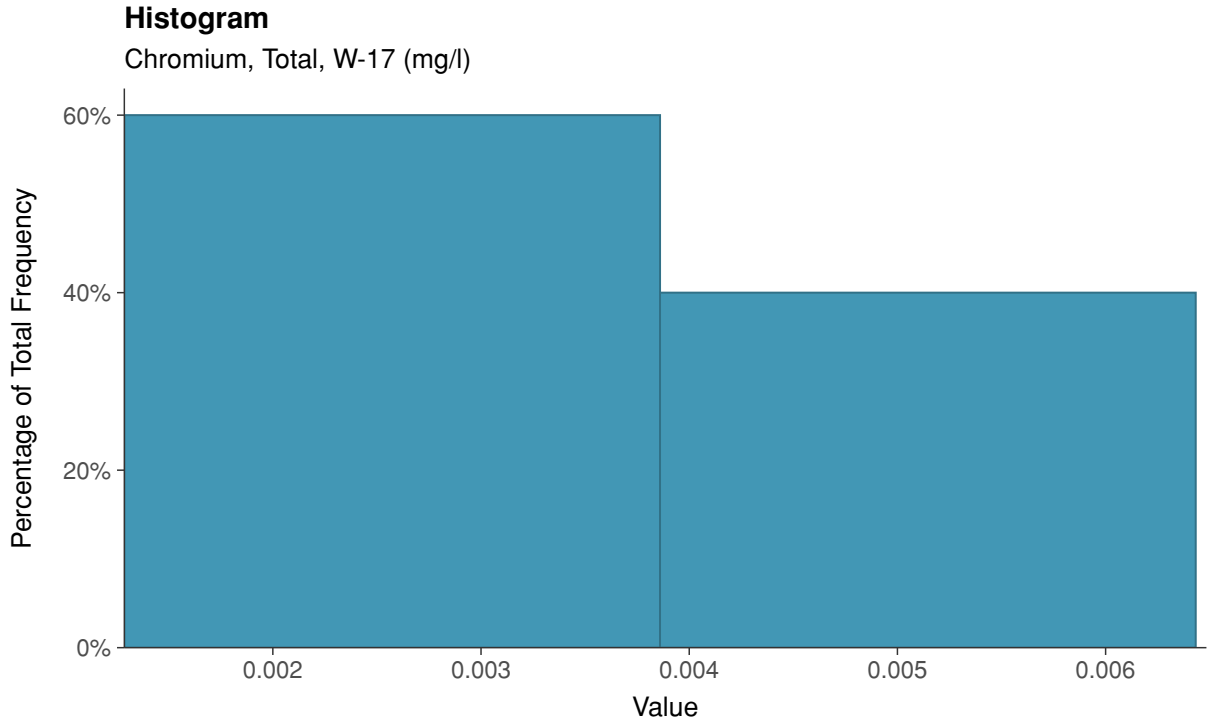



Gamma Q-Q plot
Cadmium, W-17 (mg/l)
Value
0.005
0.004
0.003
0.002
0.001
0.002
0.003
0.004
0.005
0.006
0.007
Theoretical Quantiles (Gamma)
Data Type
Detect

Appendix IV: Chromium, Total, W-17

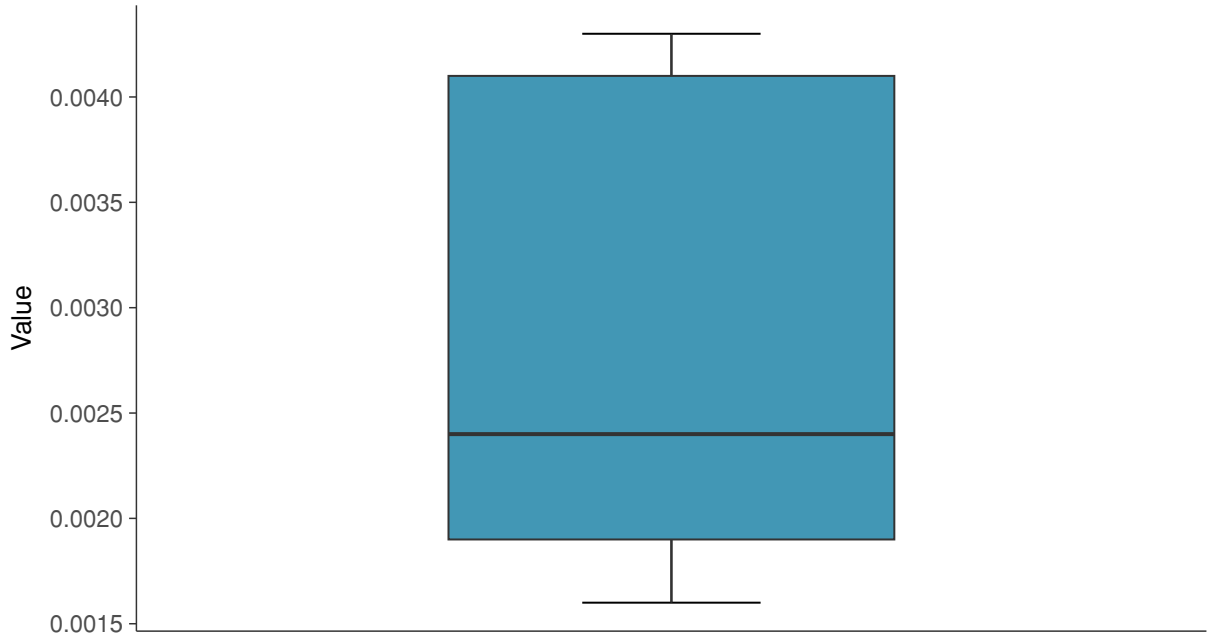
ID: 6_2_109





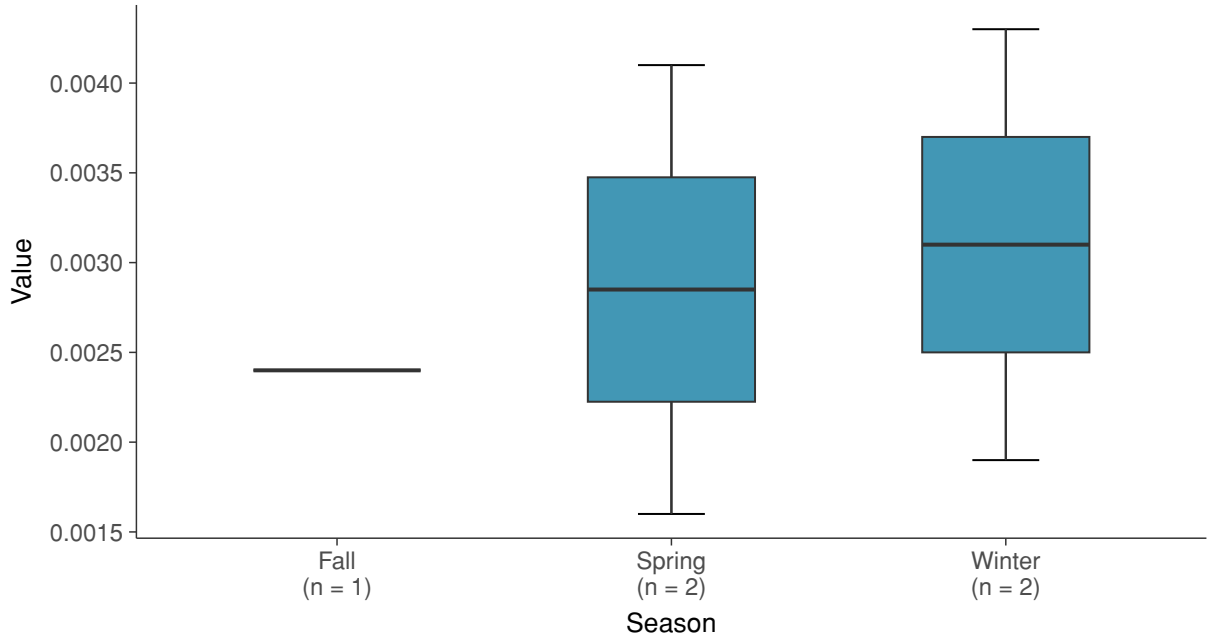
Boxplot

Chromium, Total, W-17 (mg/l)



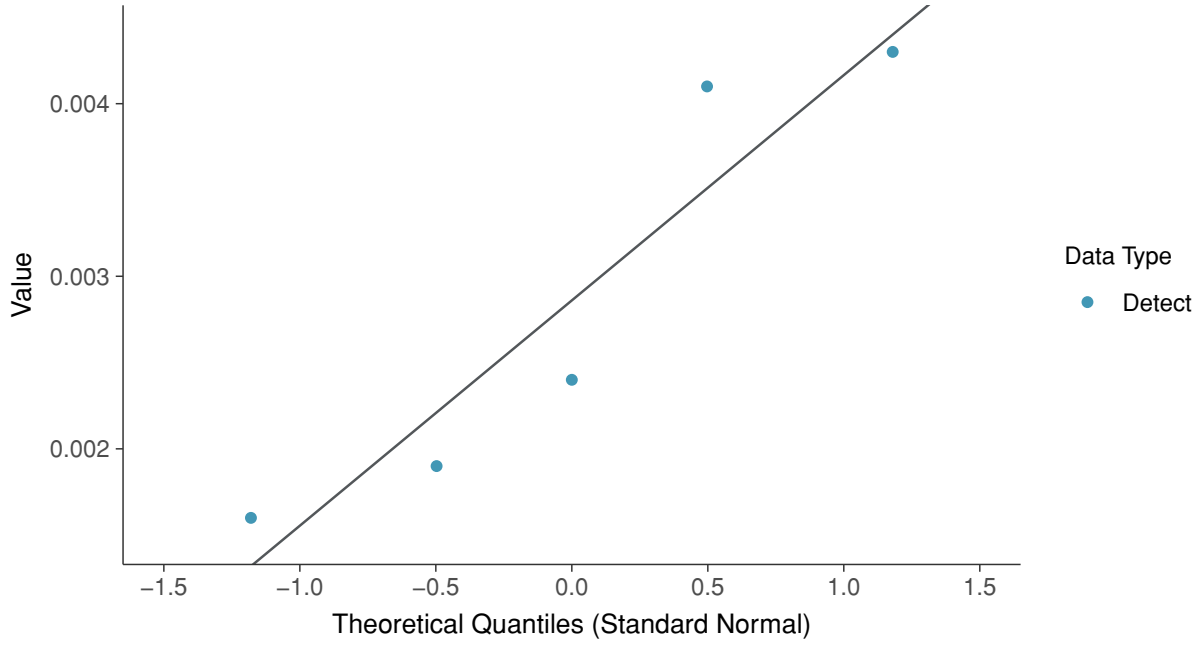
Boxplot by Season

Chromium, Total, W-17 (mg/l)



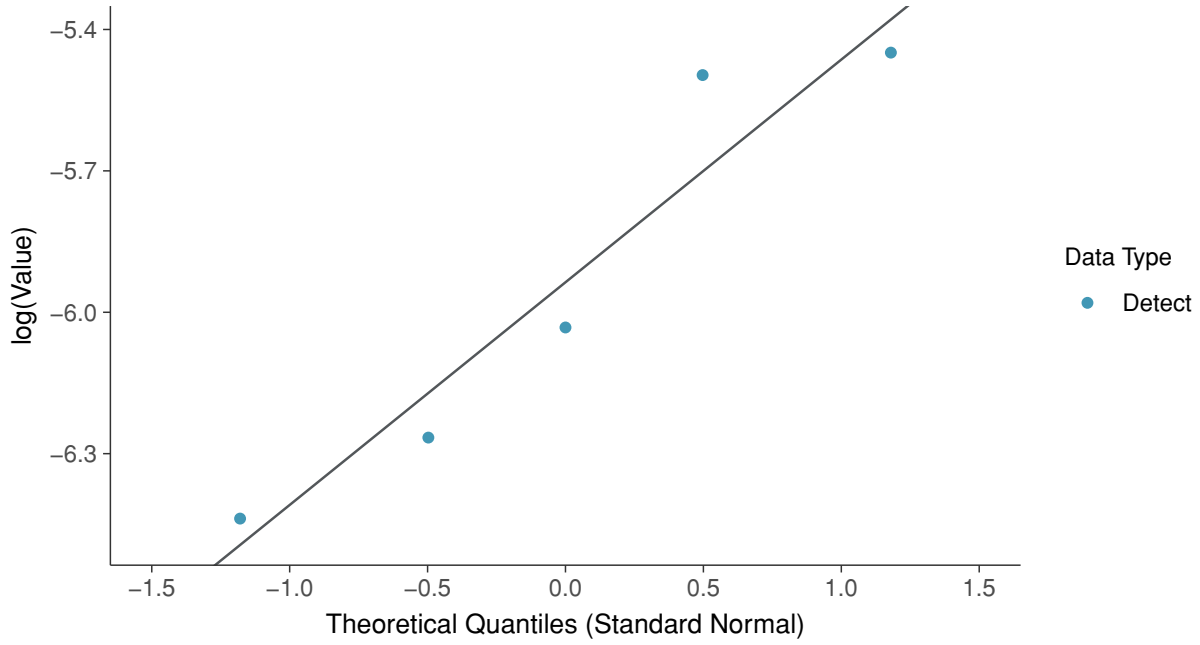
Normal Q-Q plot

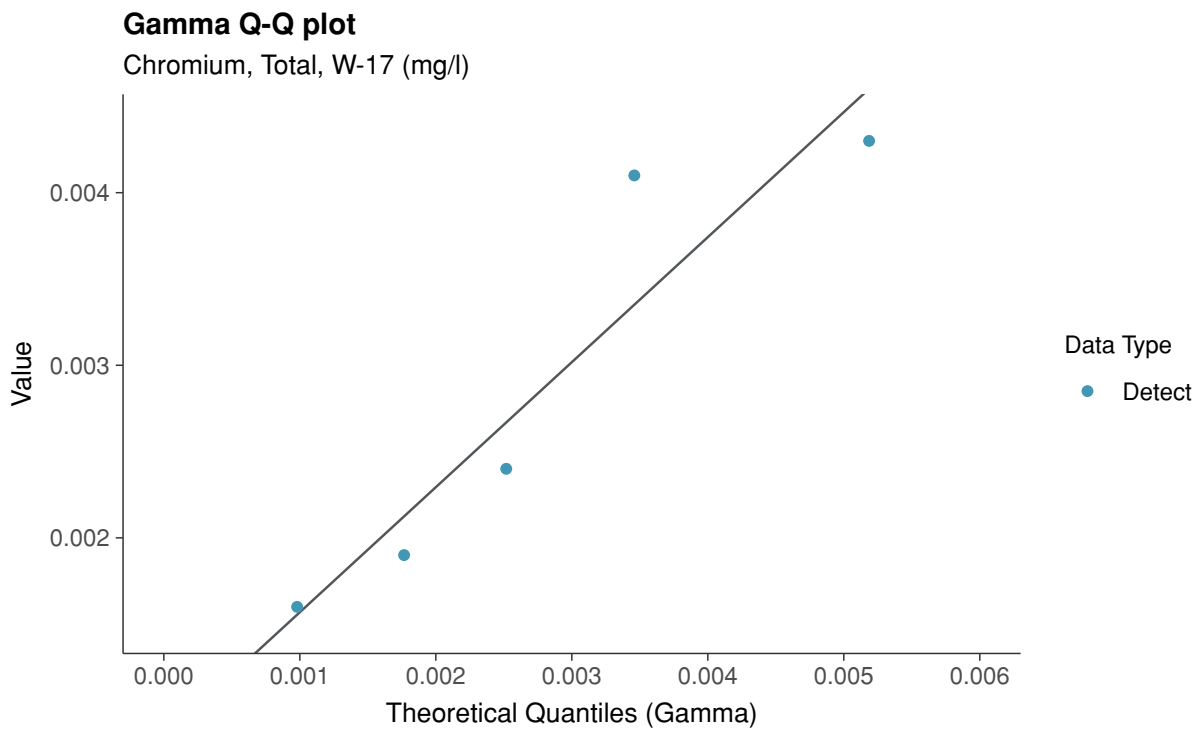
Chromium, Total, W-17 (mg/l)



Lognormal Q-Q plot

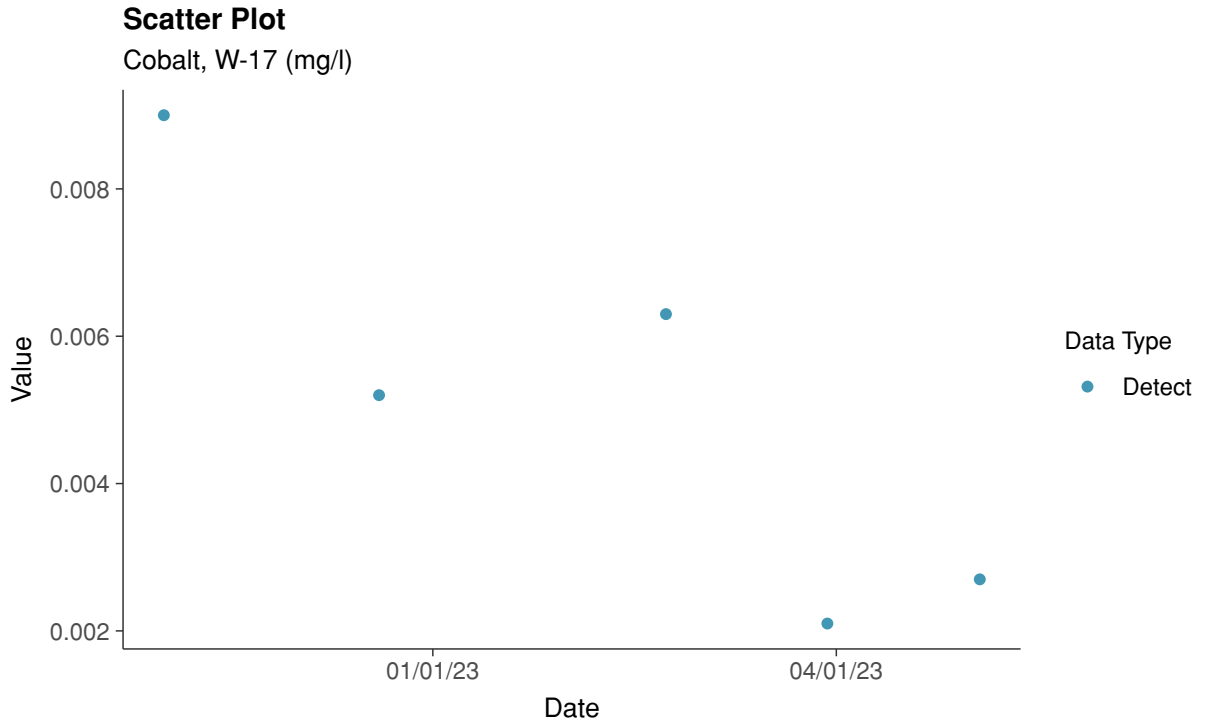
Chromium, Total, W-17 (mg/l)

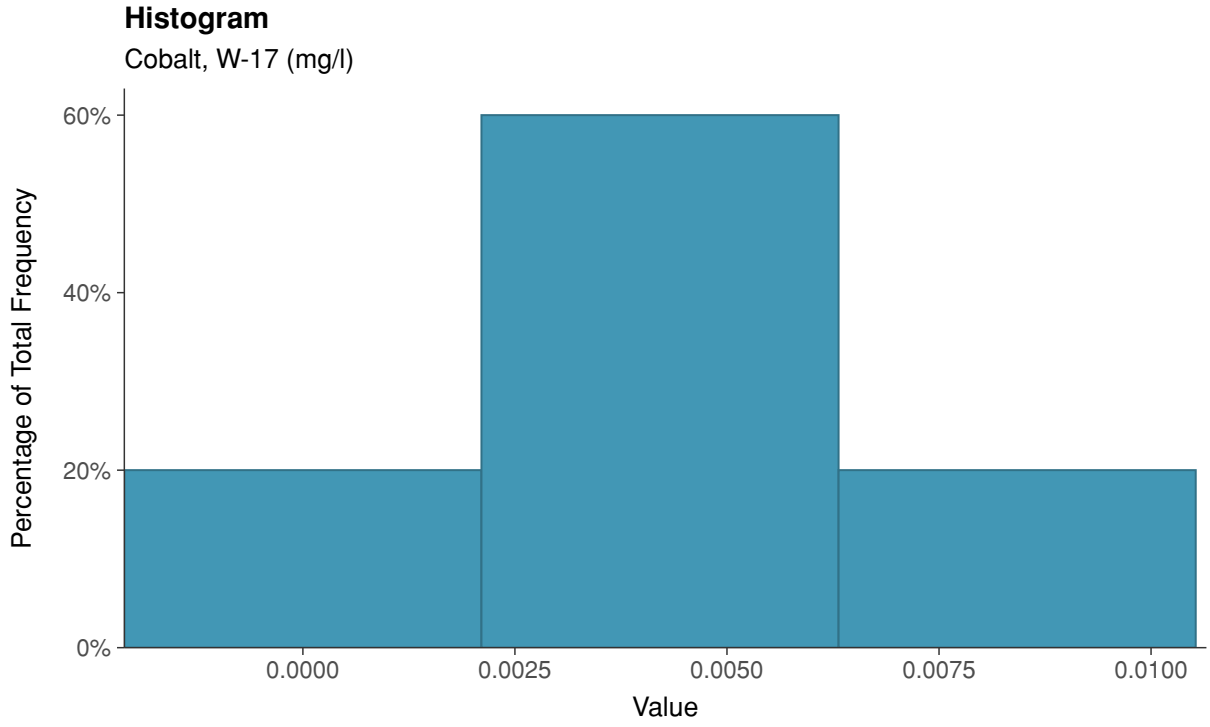



Gamma Q-Q plot
Chromium, Total, W-17 (mg/l)
Value
0.004
0.003
0.002
0.000
0.001
0.002
0.003
0.004
0.005
0.006
Theoretical Quantiles (Gamma)
Data Type
Detect

Appendix IV: Cobalt, W-17

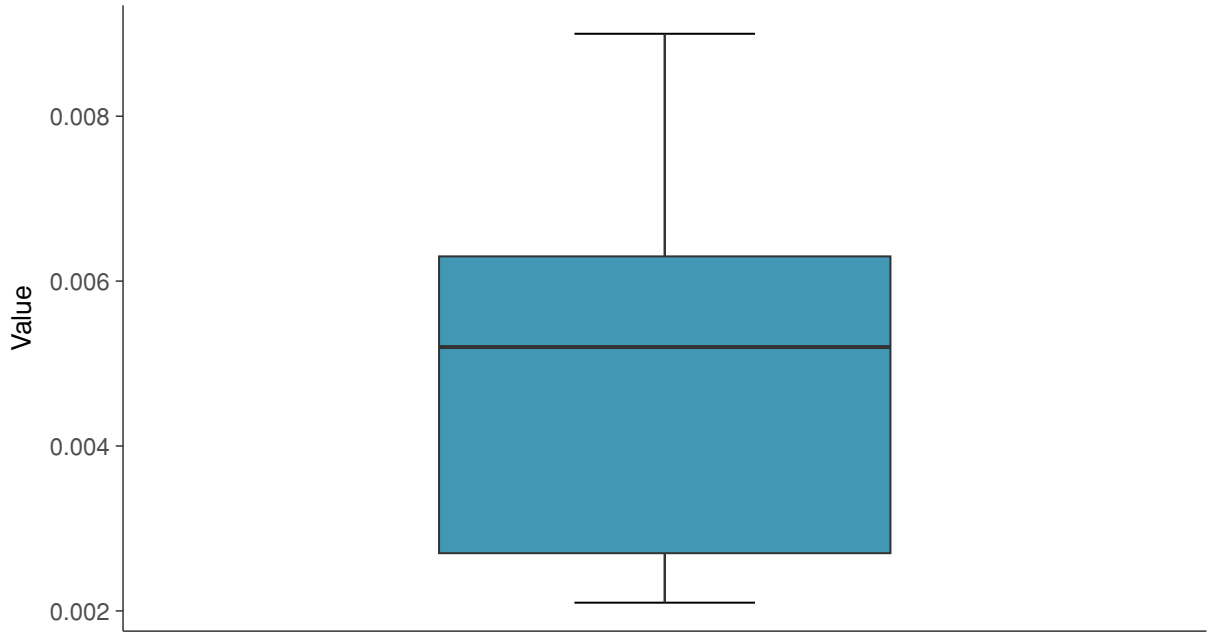
ID: 6_2_110





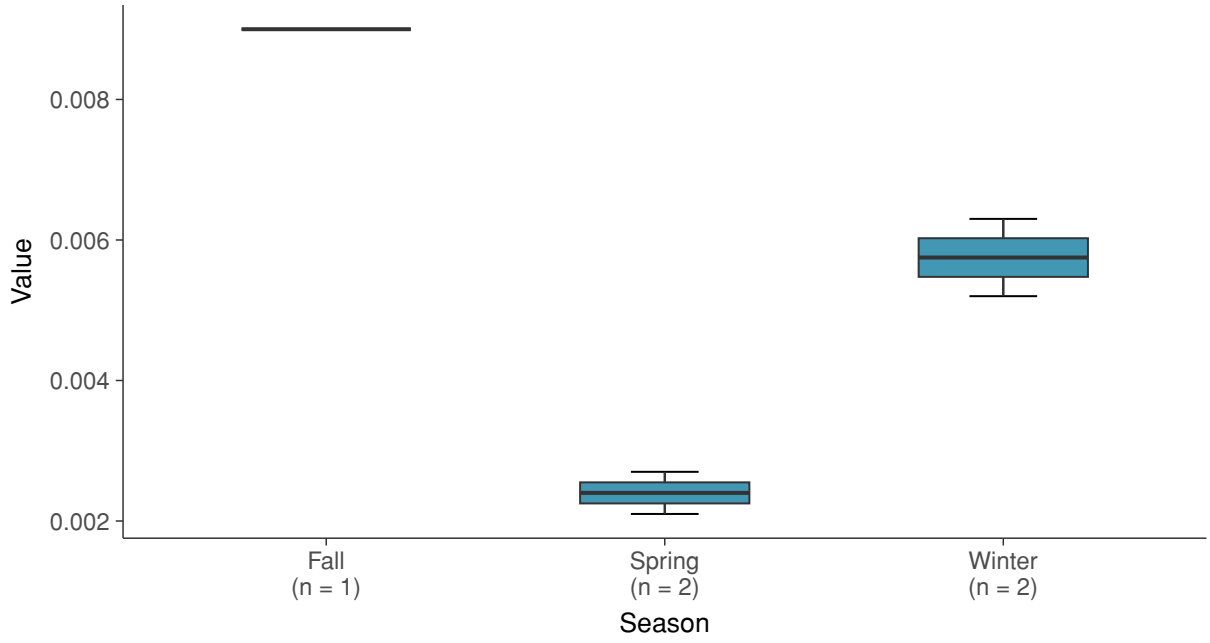
Boxplot

Cobalt, W-17 (mg/l)



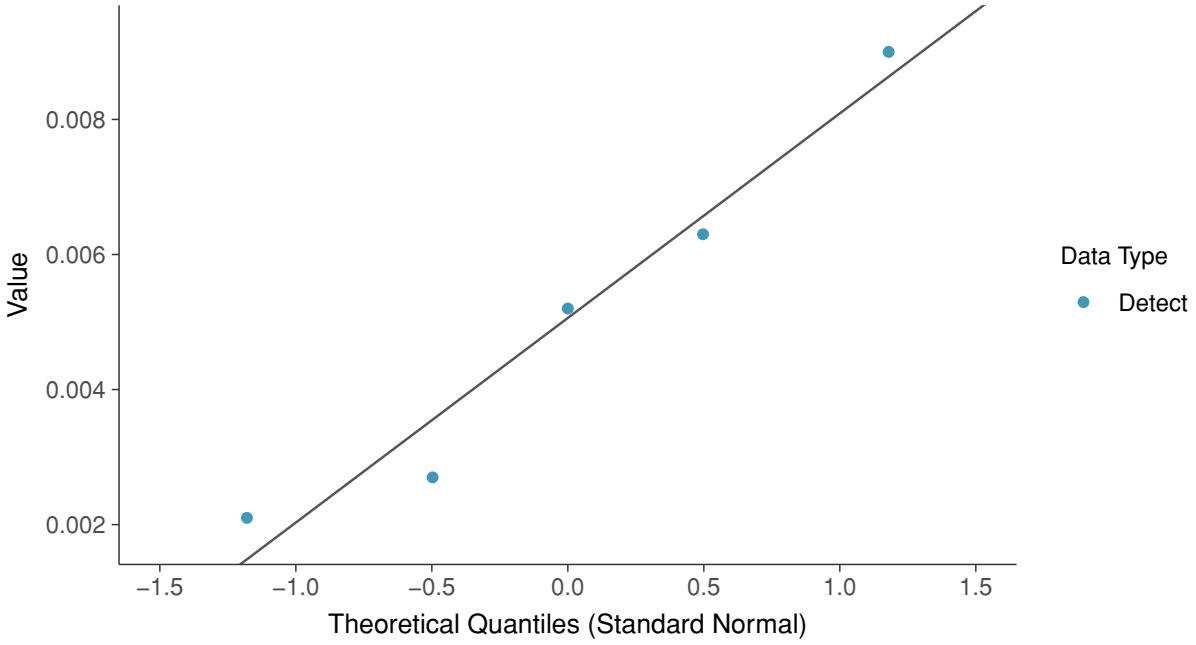
Boxplot by Season

Cobalt, W-17 (mg/l)



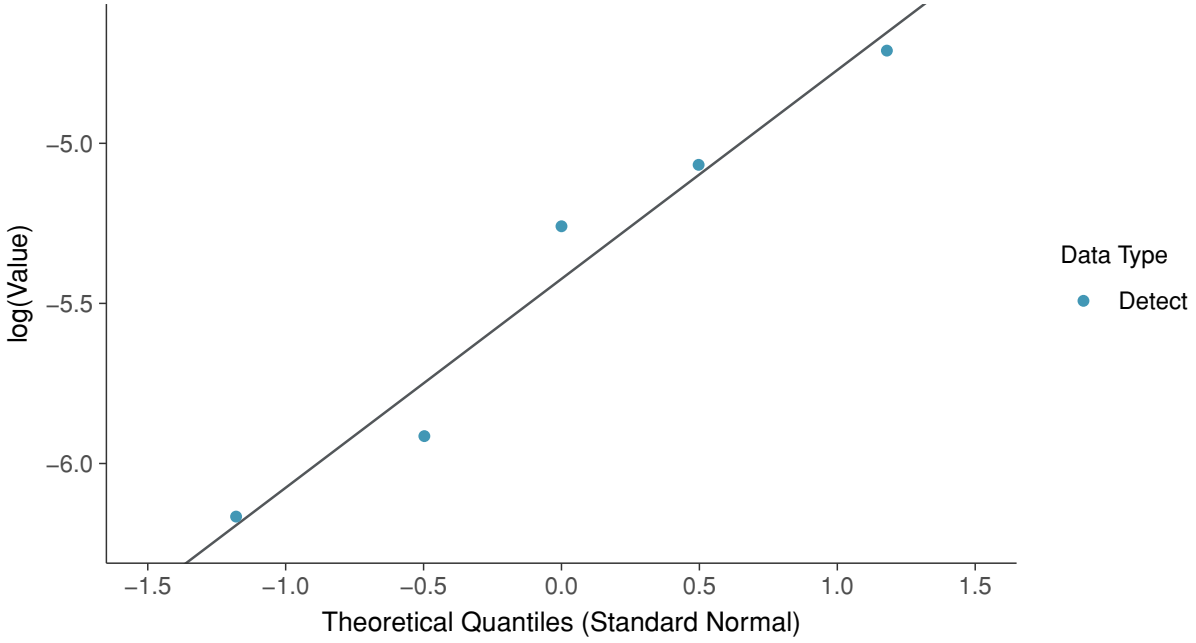
Normal Q-Q plot

Cobalt, W-17 (mg/l)



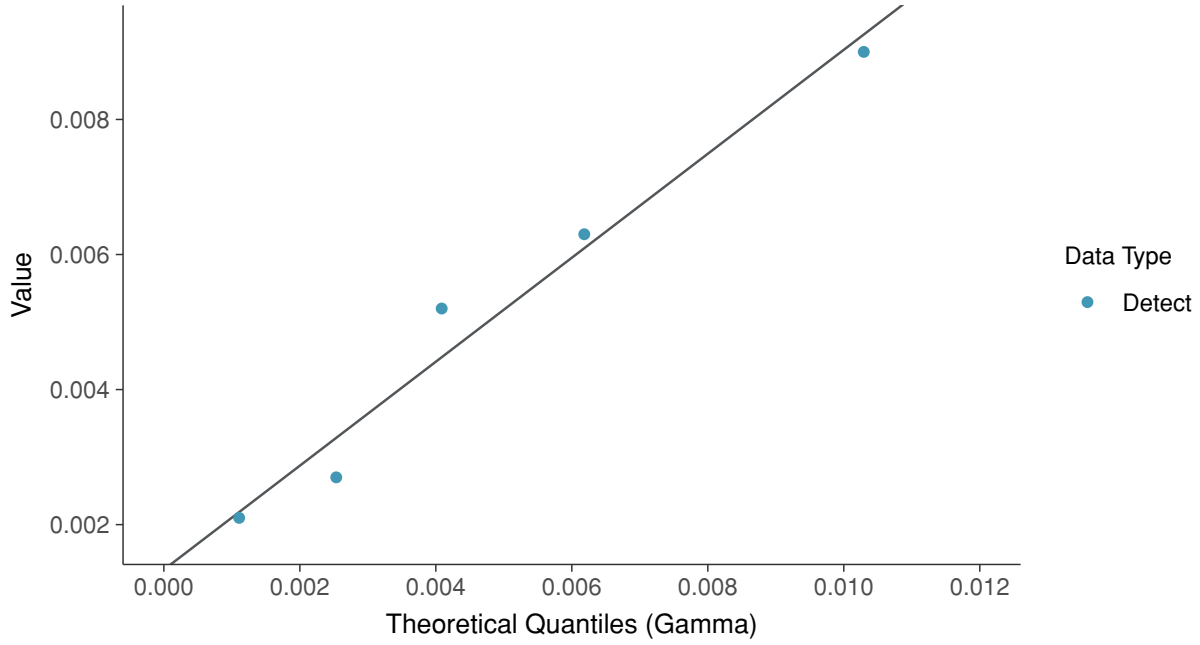
Lognormal Q-Q plot

Cobalt, W-17 (mg/l)



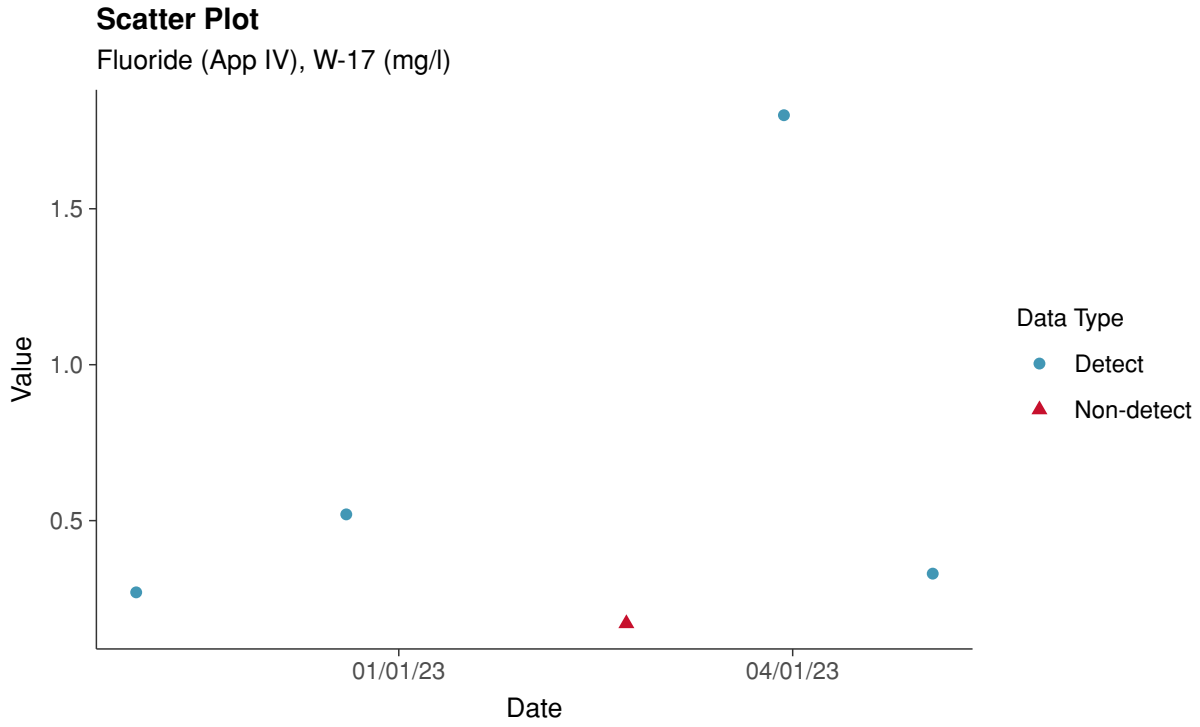
Gamma Q-Q plot

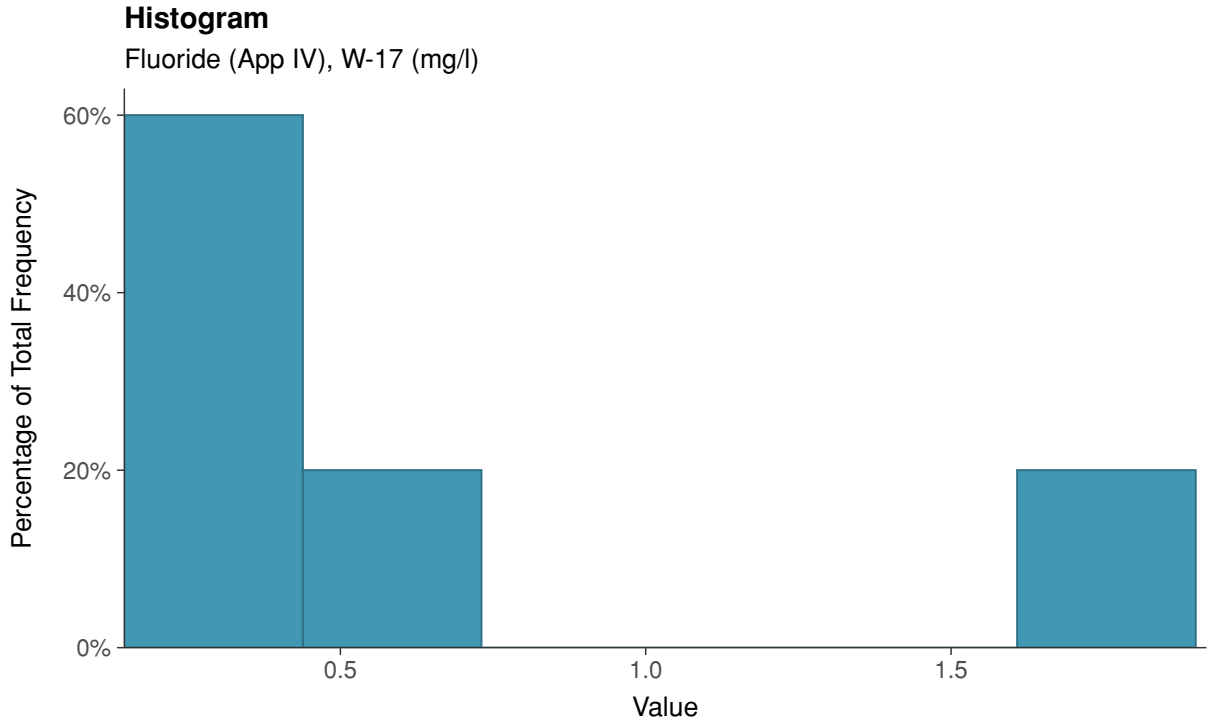
Cobalt, W-17 (mg/l)



Appendix IV: Fluoride (App IV), W-17

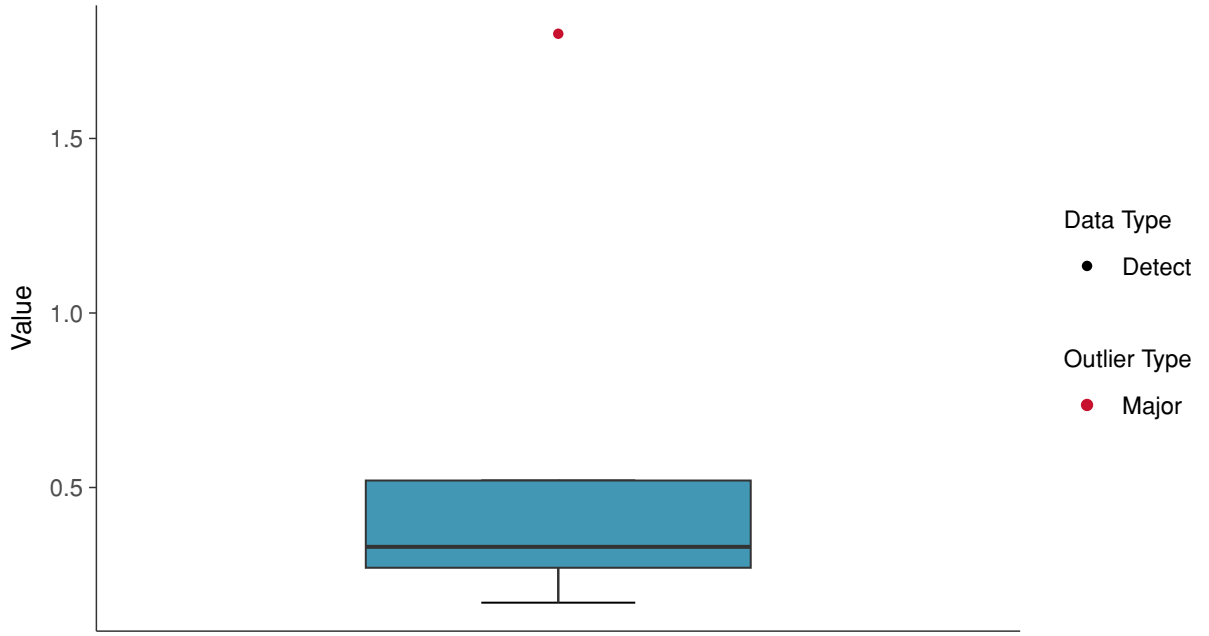
ID: 6_2_112





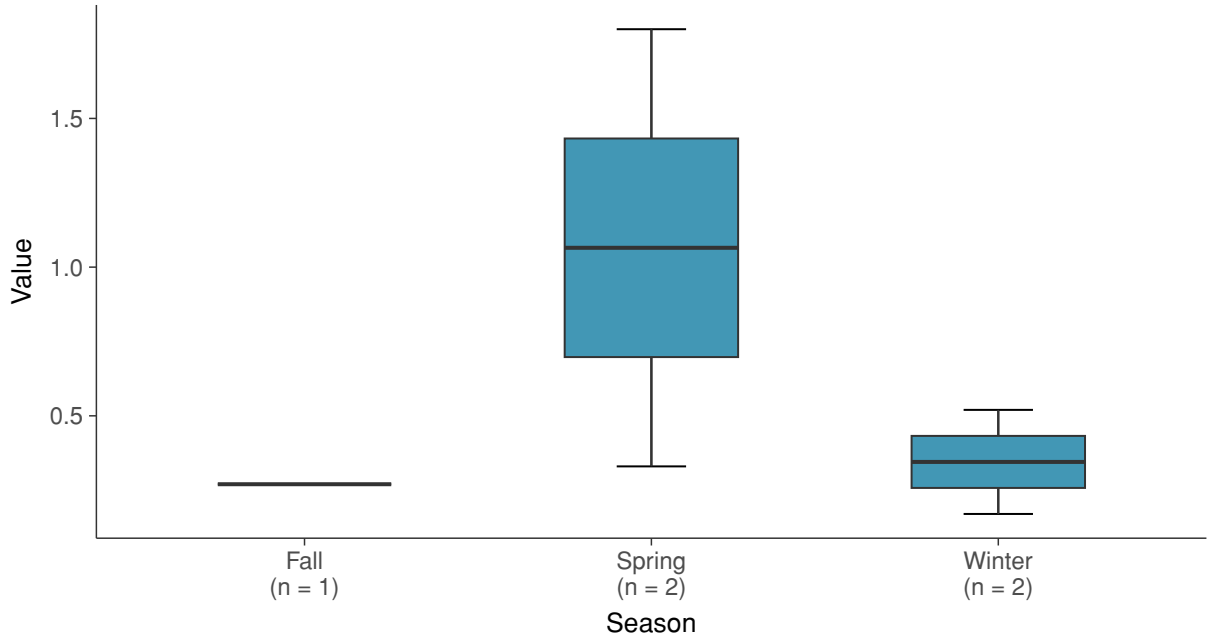
Boxplot

Fluoride (App IV), W-17 (mg/l)



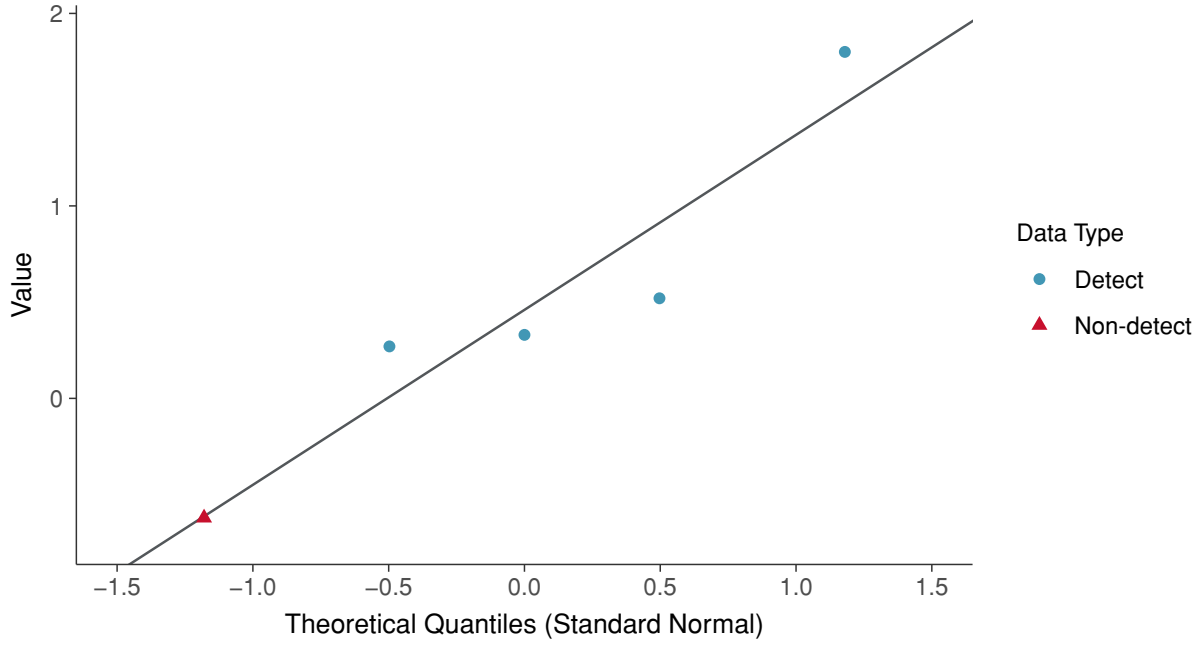
Boxplot by Season

Fluoride (App IV), W-17 (mg/l)



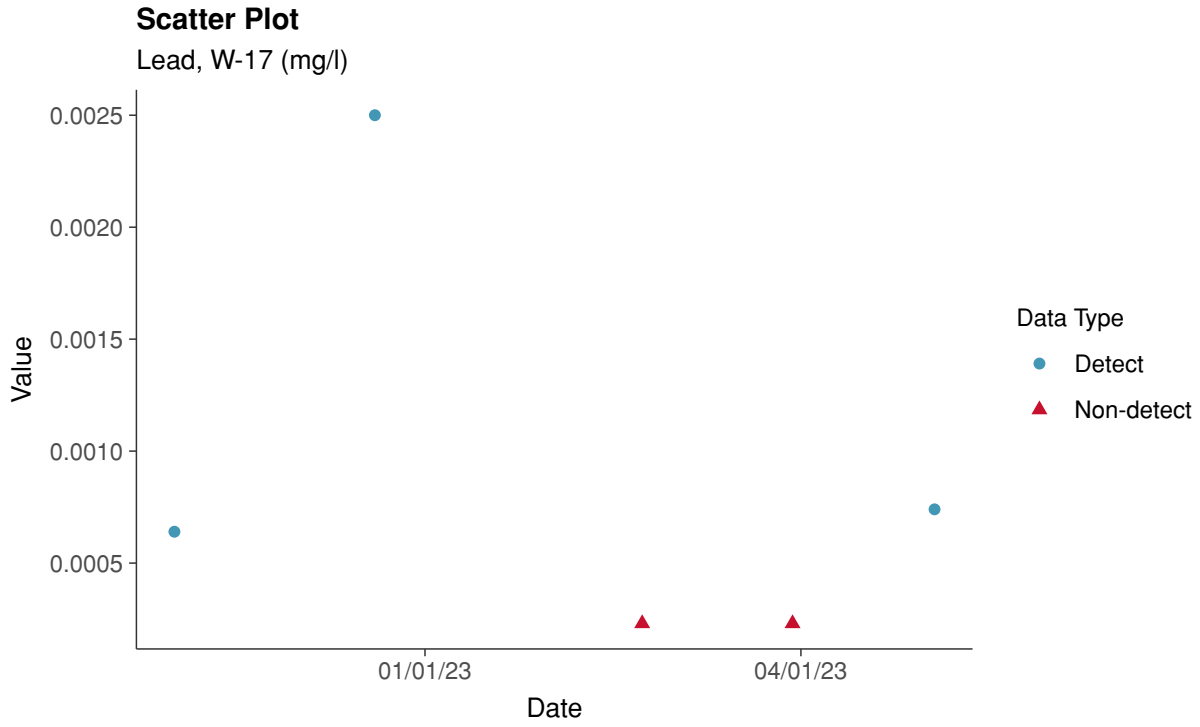
Normal Q-Q plot using ROS Imputed Estimates

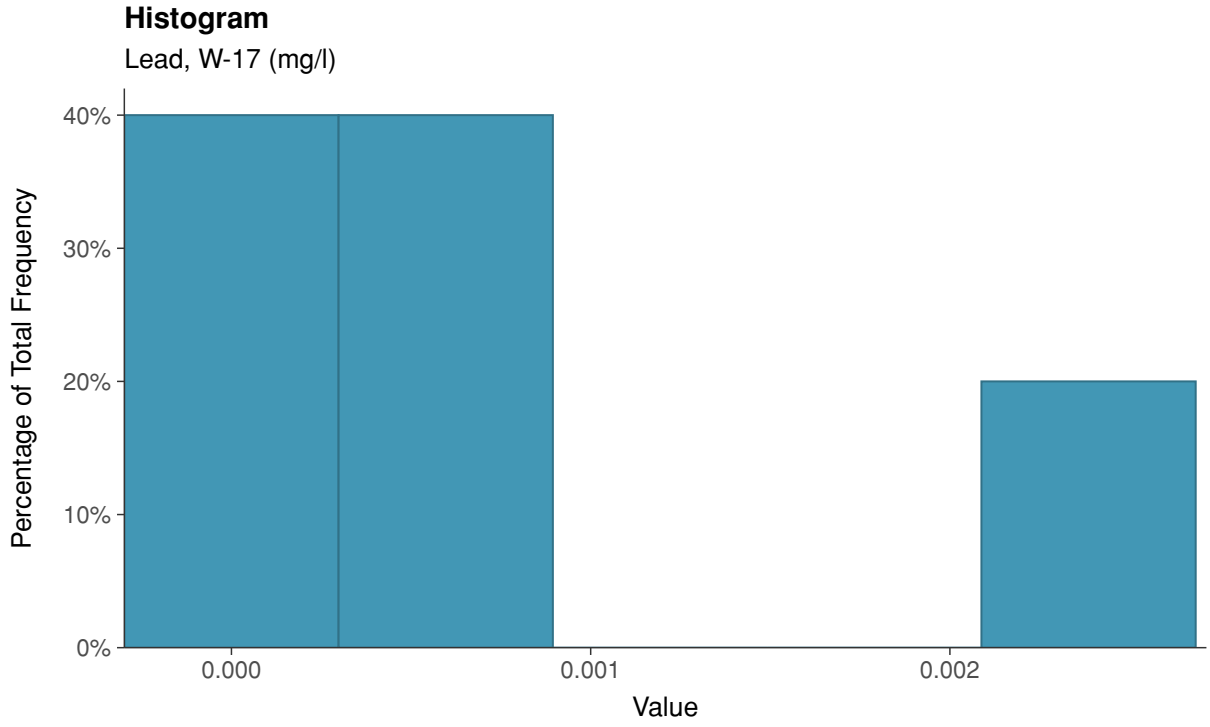
Fluoride (App IV), W-17 (mg/l)



Appendix IV: Lead, W-17

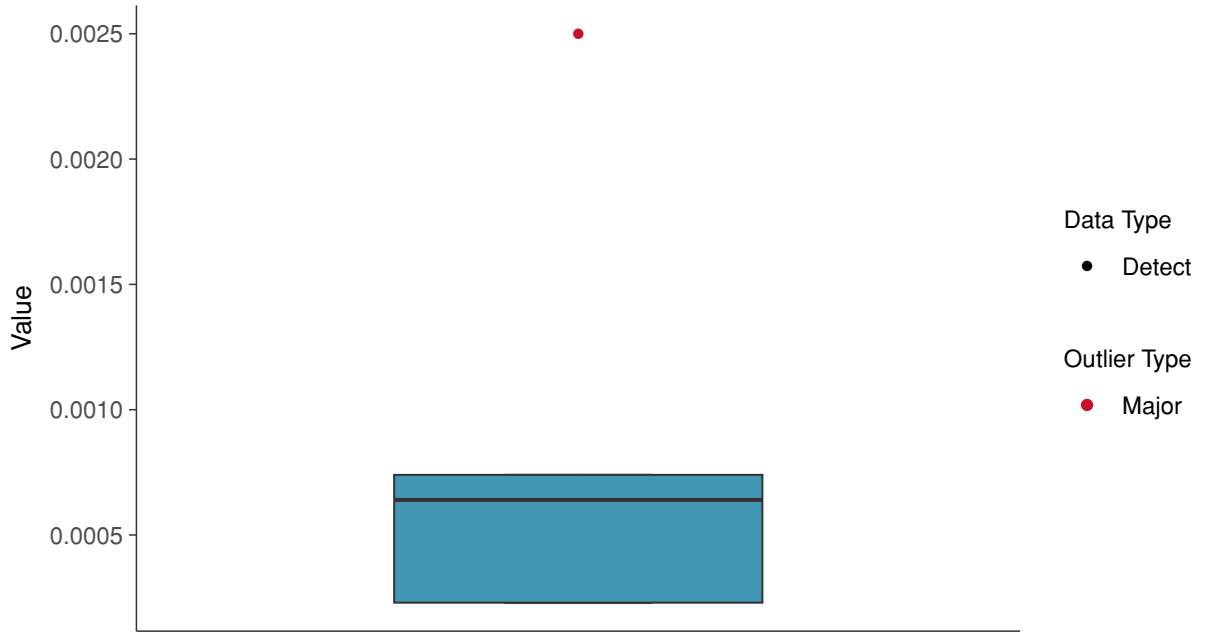
ID: 6_2_113





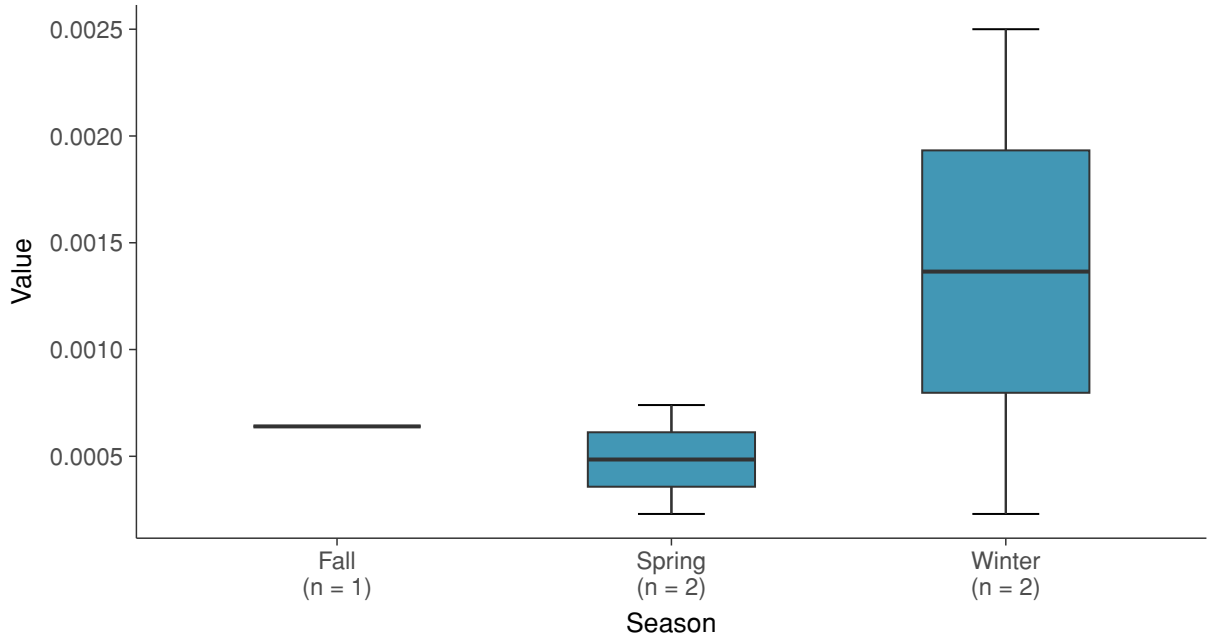
Boxplot

Lead, W-17 (mg/l)



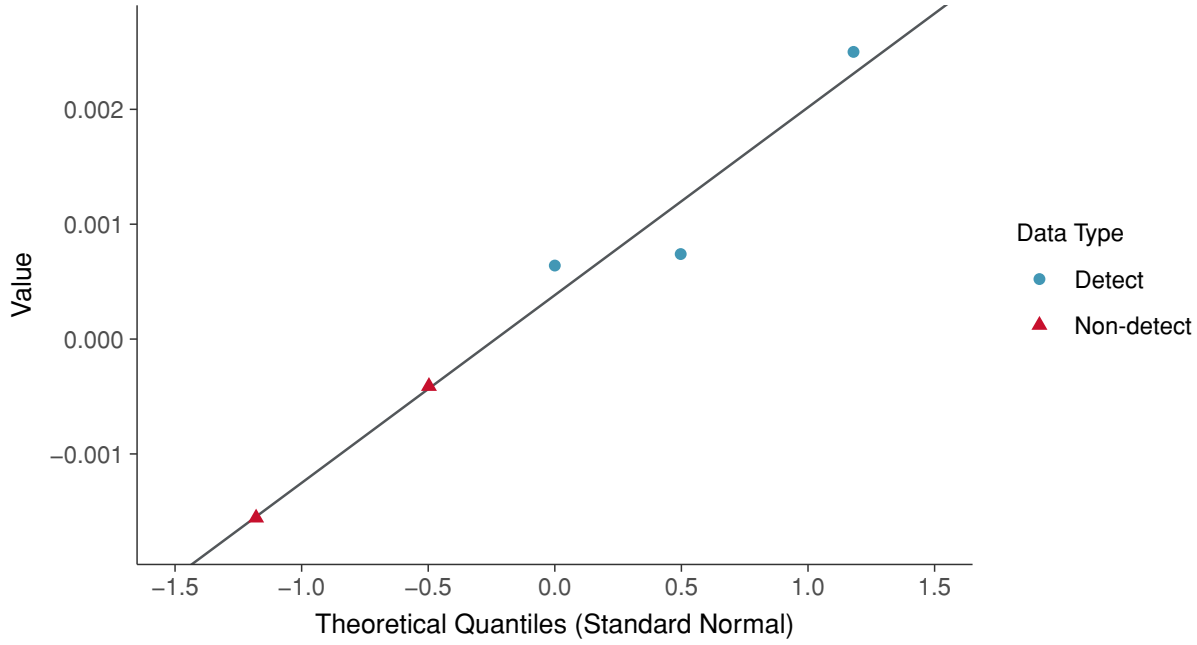
Boxplot by Season

Lead, W-17 (mg/l)



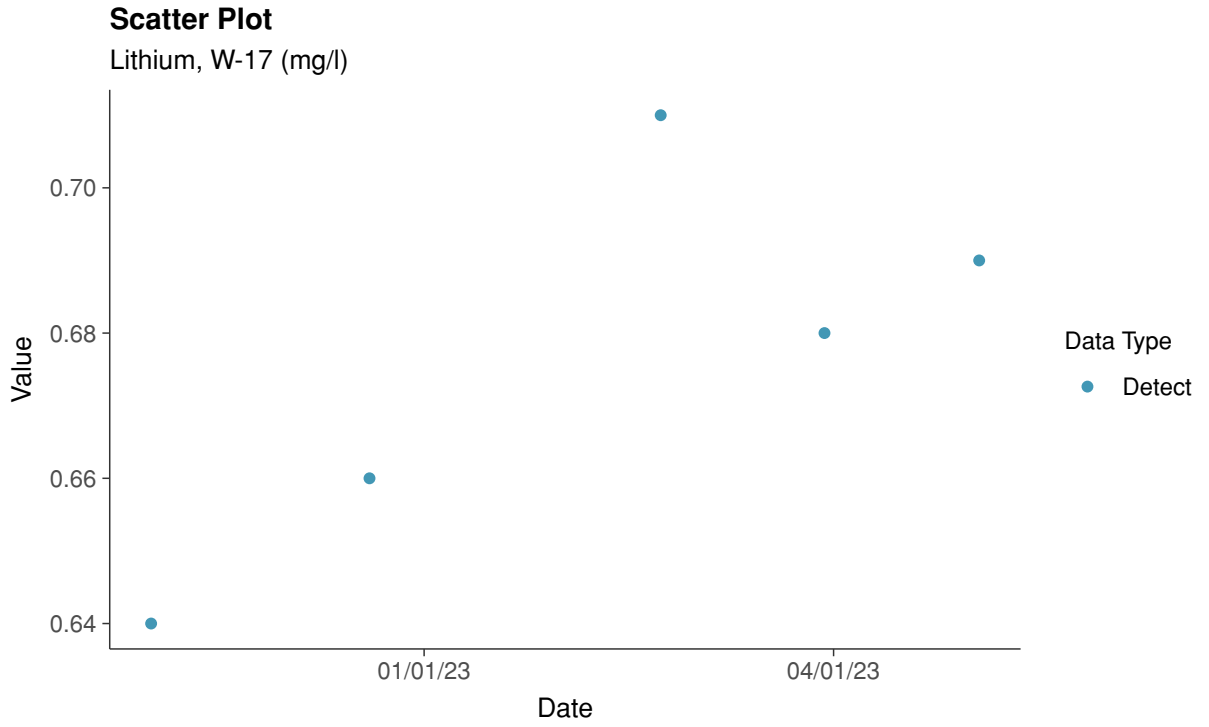
Normal Q-Q plot using ROS Imputed Estimates

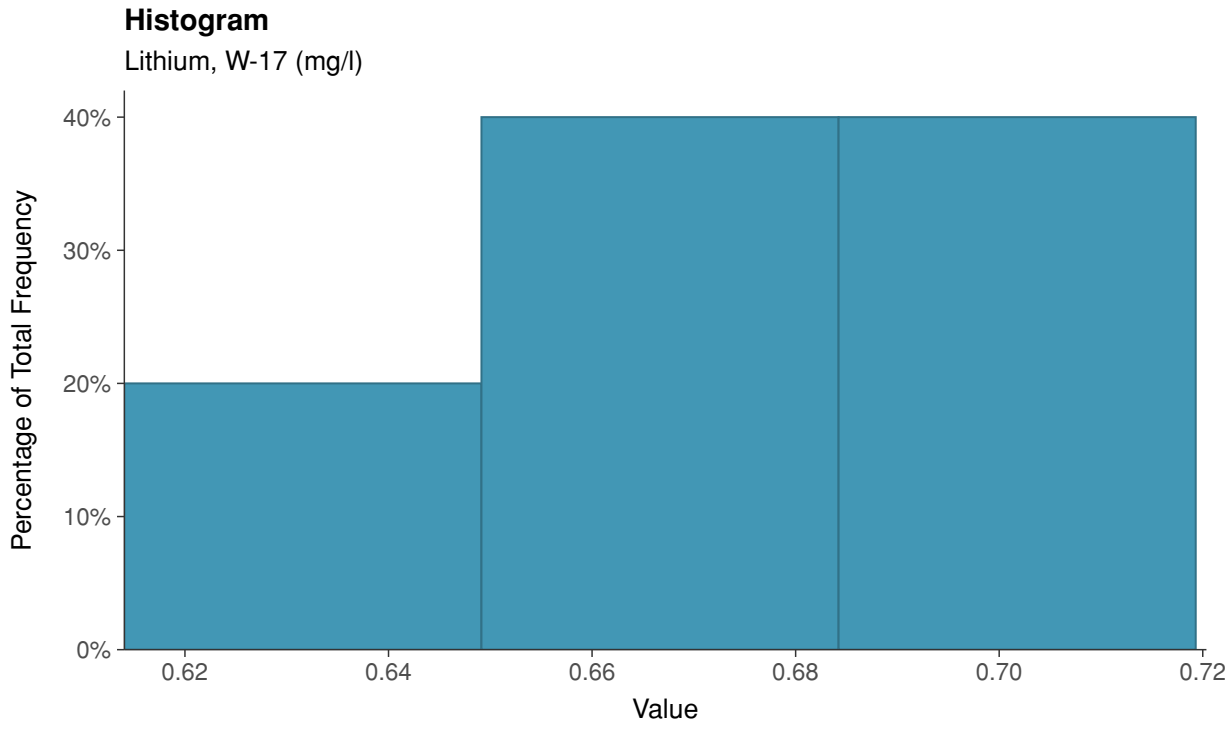
Lead, W-17 (mg/l)



Appendix IV: Lithium, W-17

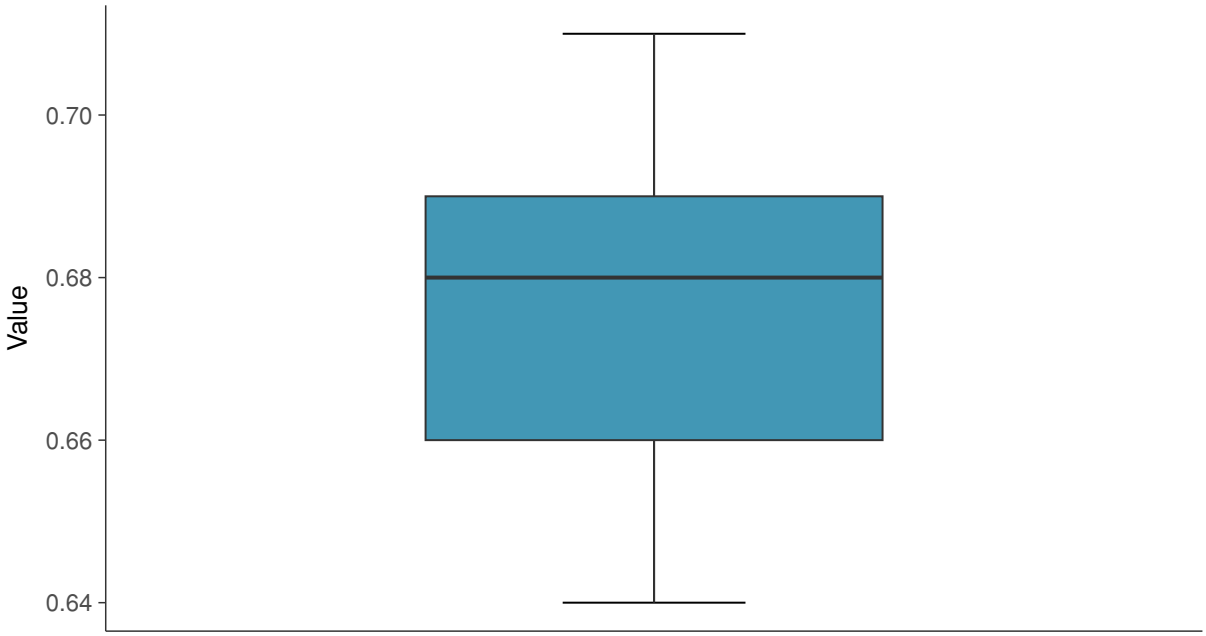
ID: 6_2_114





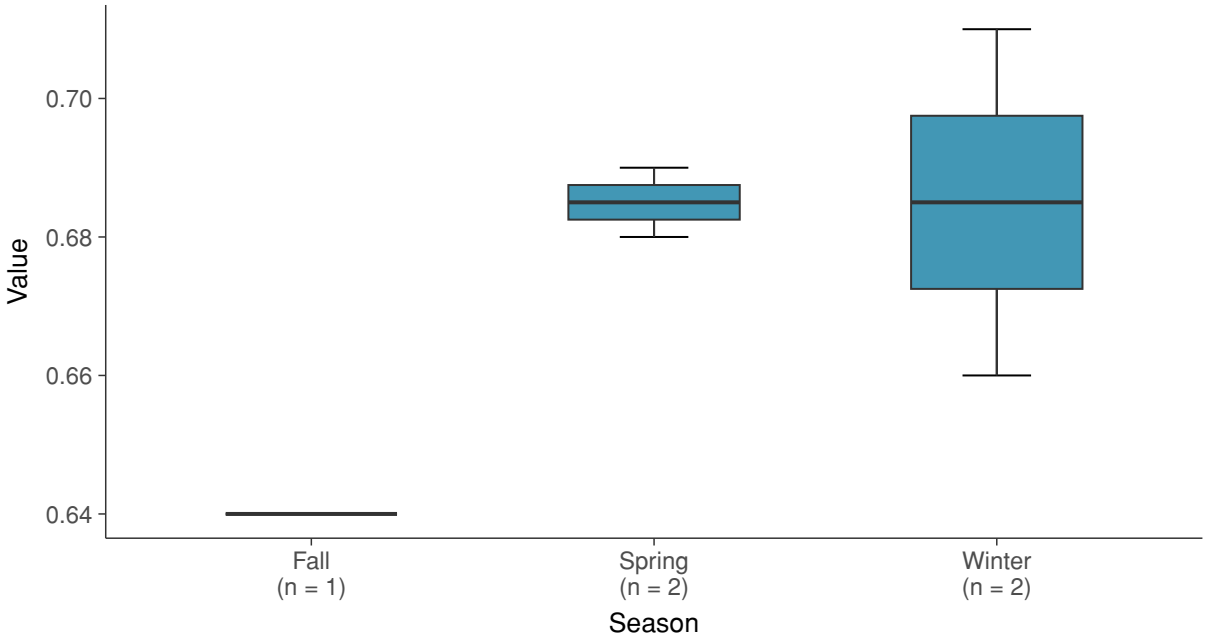
Boxplot

Lithium, W-17 (mg/l)



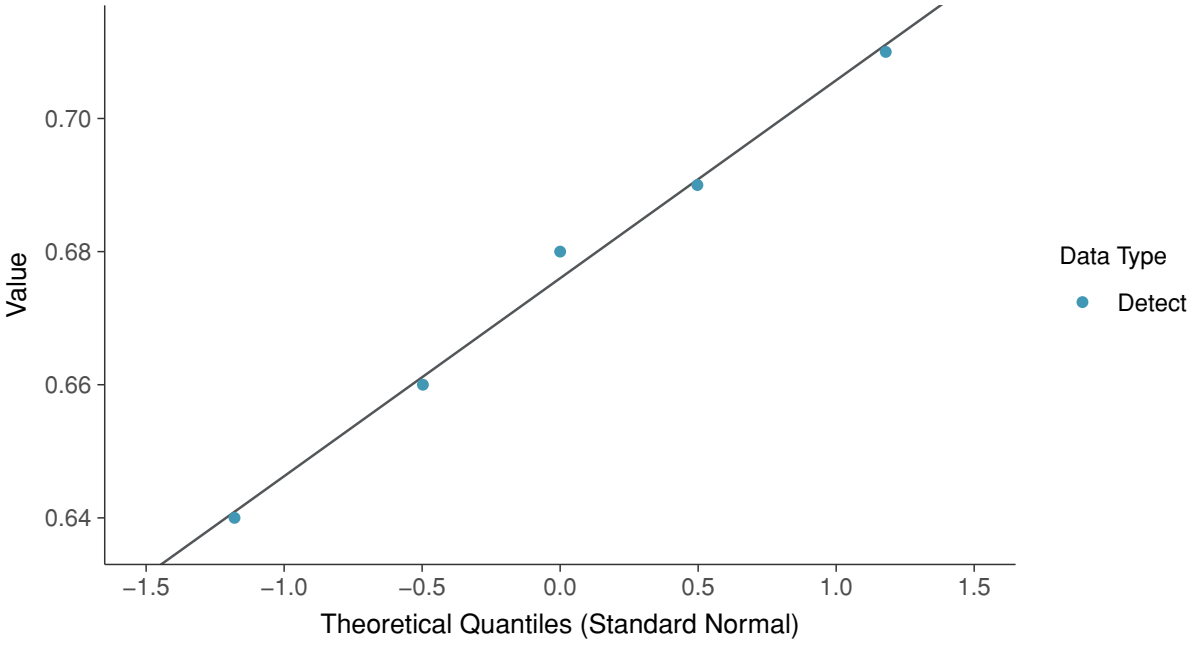
Boxplot by Season

Lithium, W-17 (mg/l)



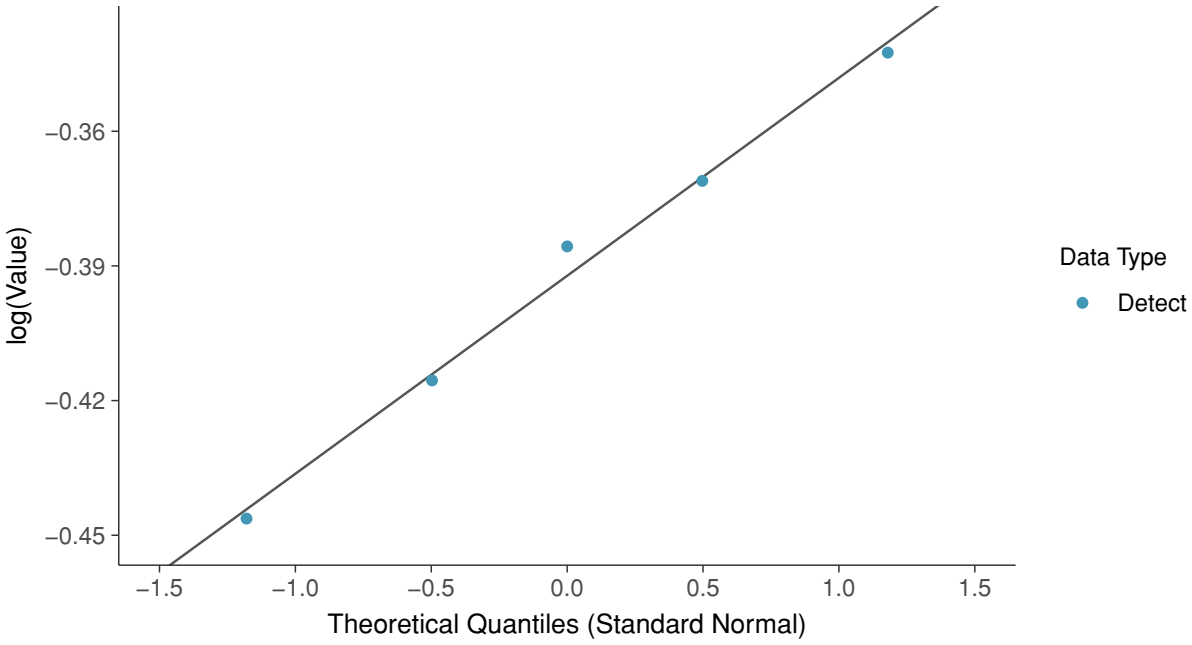
Normal Q-Q plot

Lithium, W-17 (mg/l)



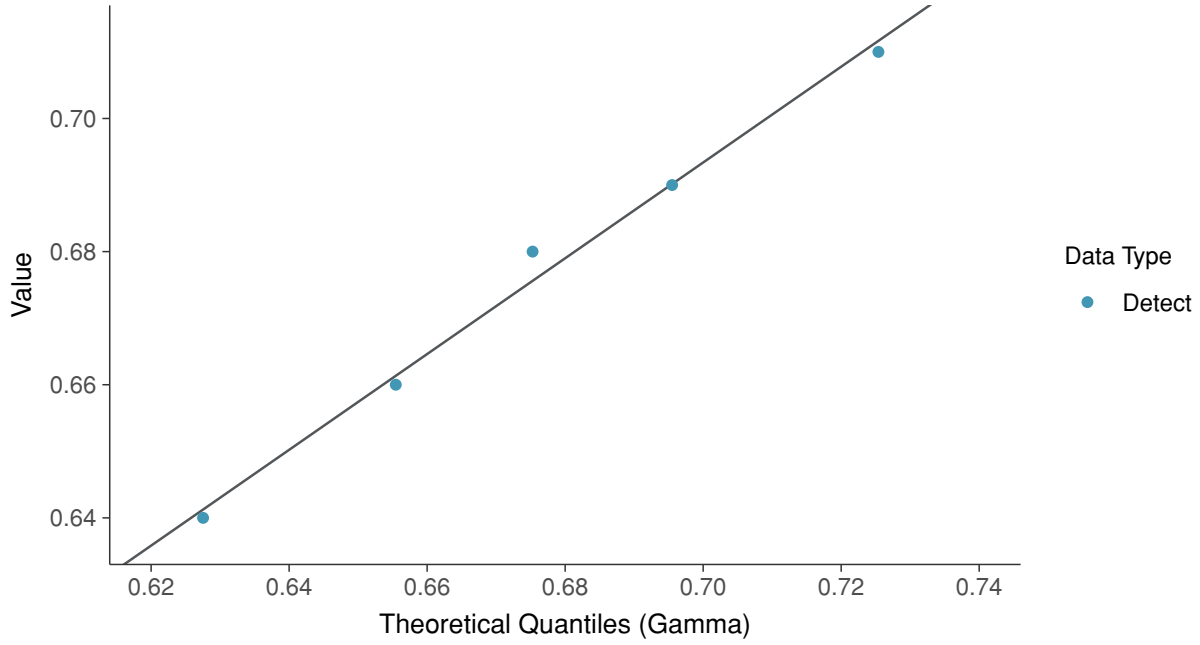
Lognormal Q-Q plot

Lithium, W-17 (mg/l)



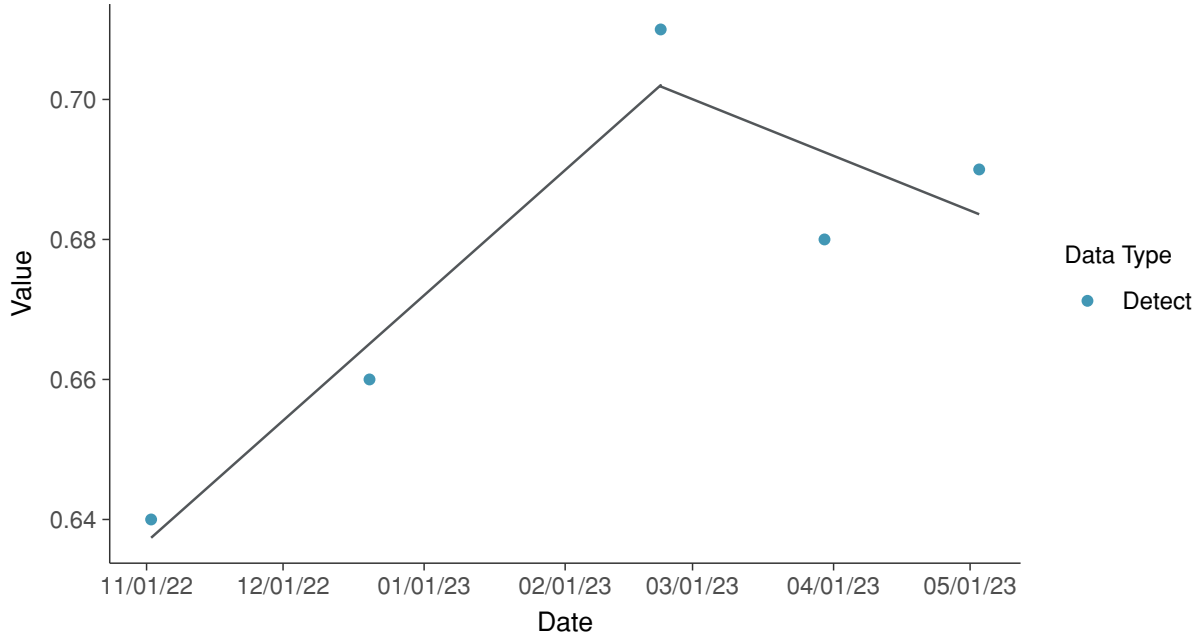
Gamma Q-Q plot

Lithium, W-17 (mg/l)



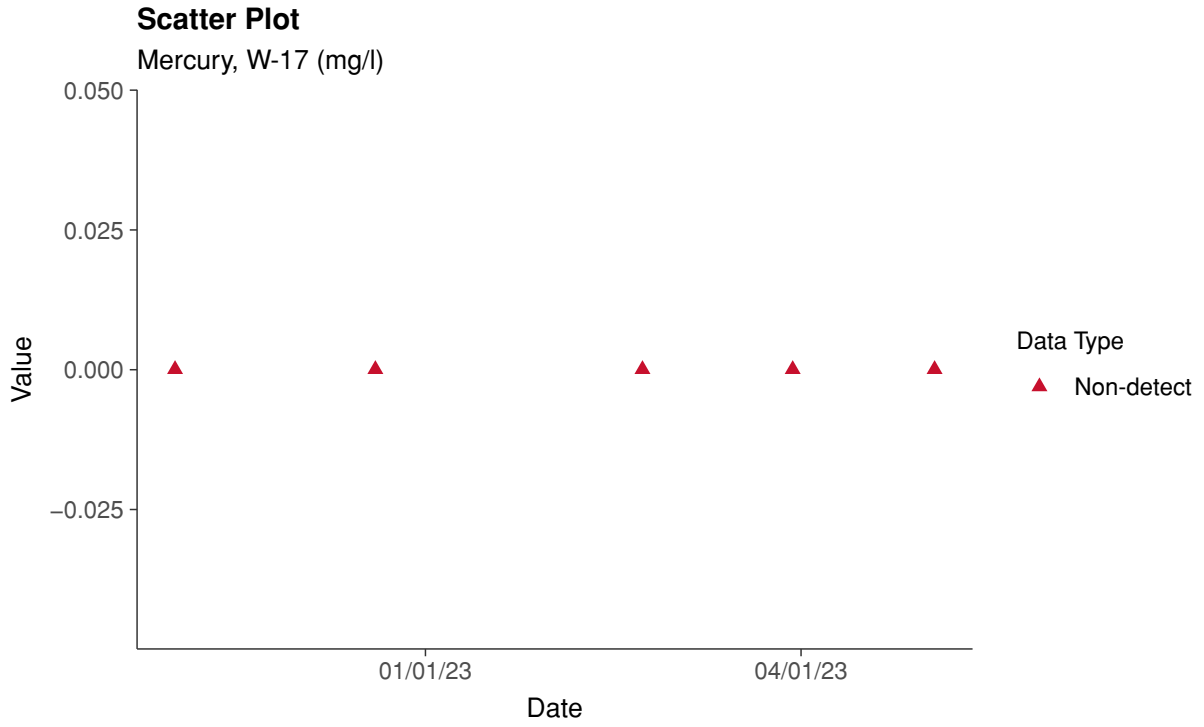
Trend Regression: Piecewise Linear-Linear

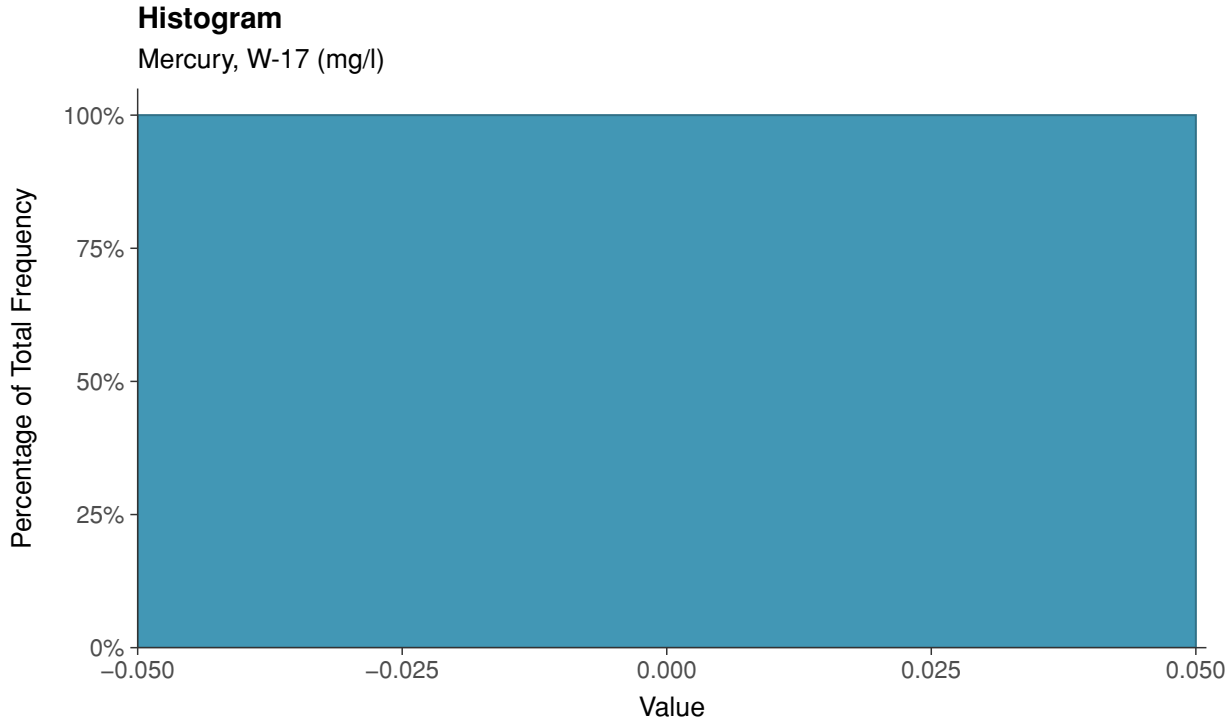
Lithium, W-17 (mg/l)



Appendix IV: Mercury, W-17

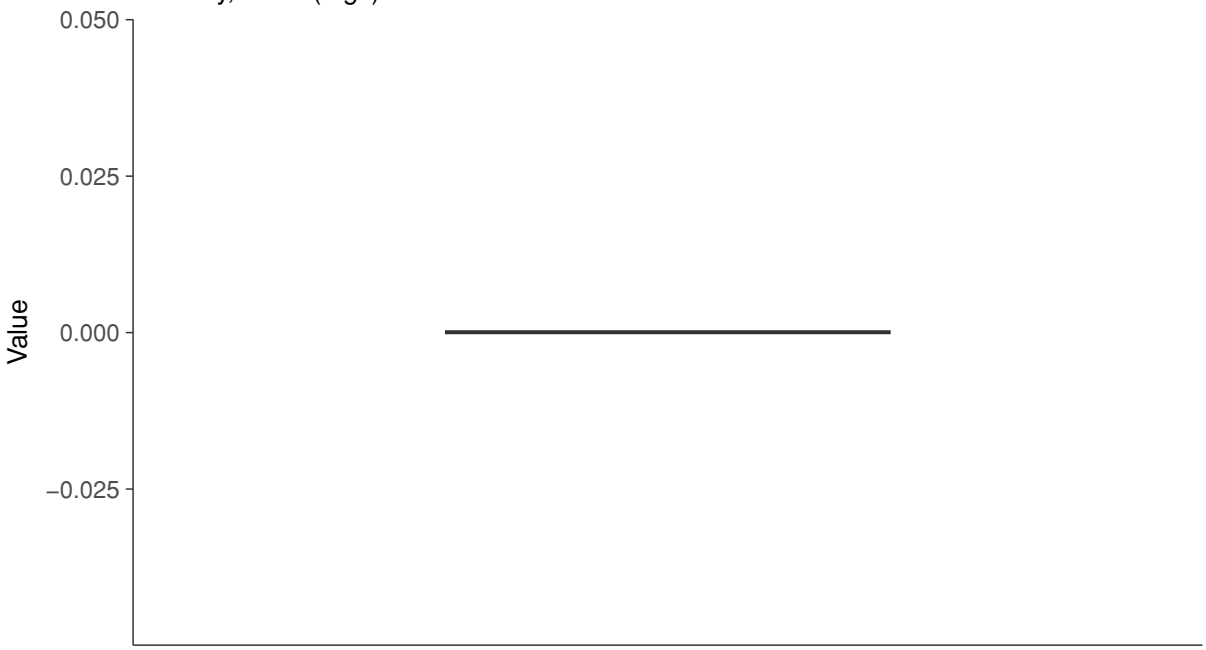
ID: 6_2_115





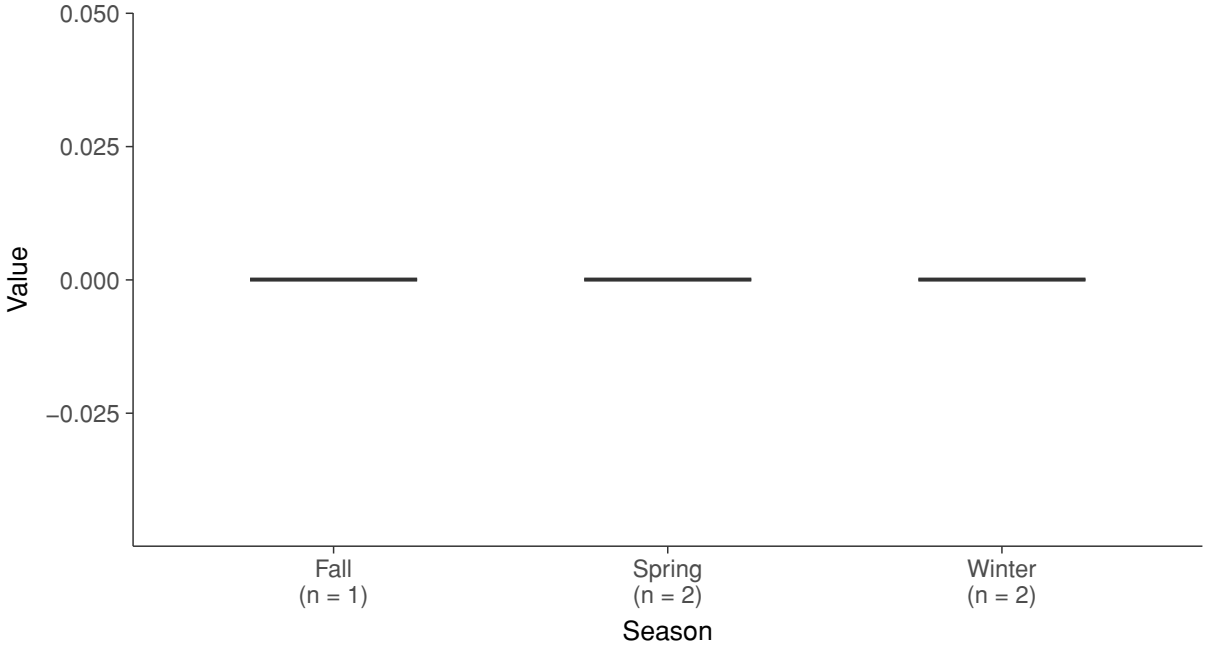
Boxplot

Mercury, W-17 (mg/l)



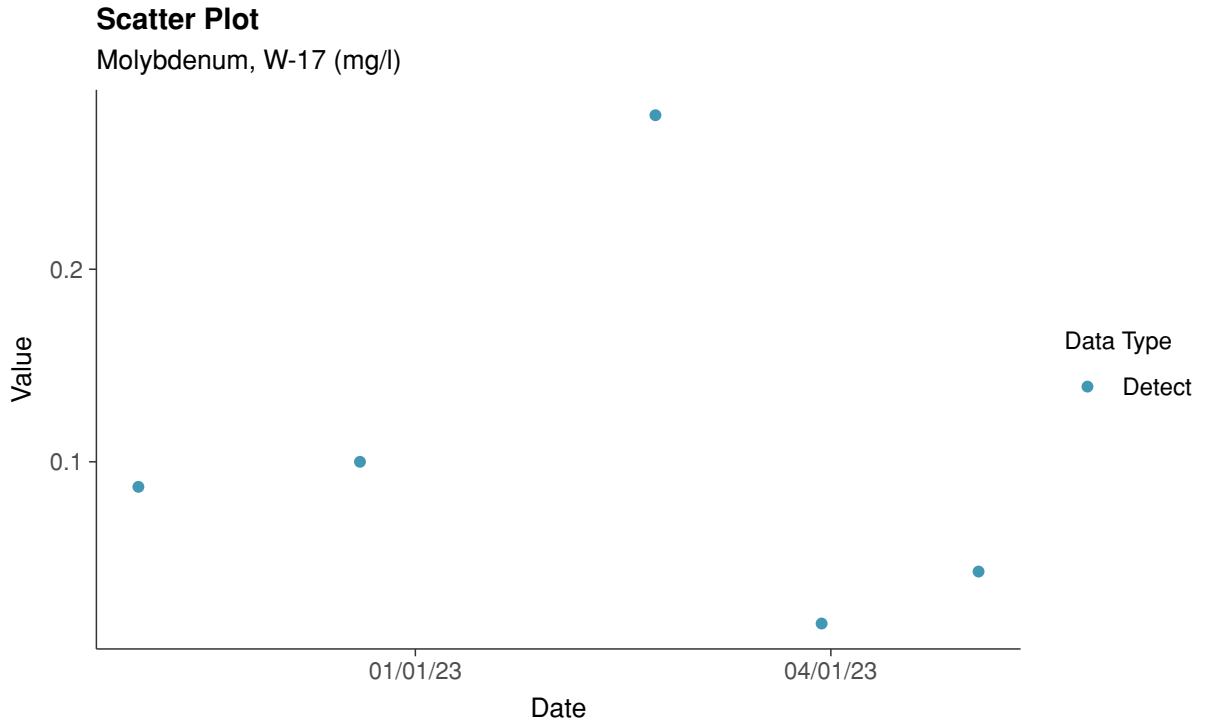
Boxplot by Season

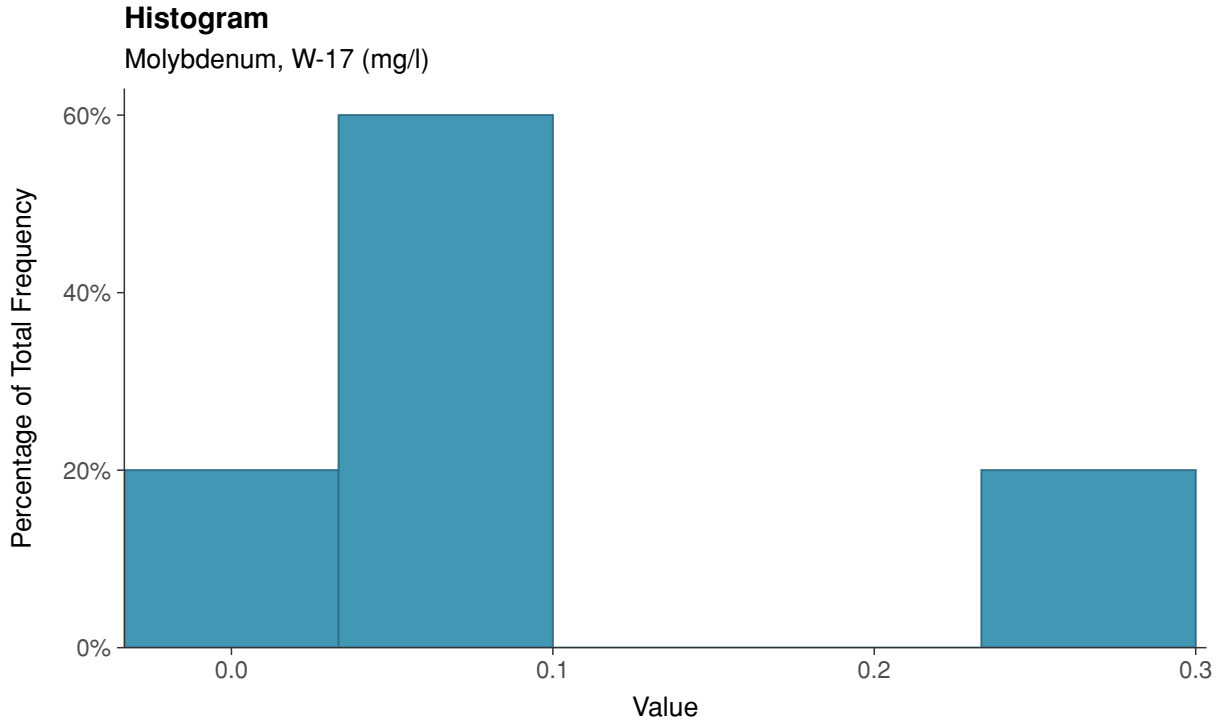
Mercury, W-17 (mg/l)



Appendix IV: Molybdenum, W-17

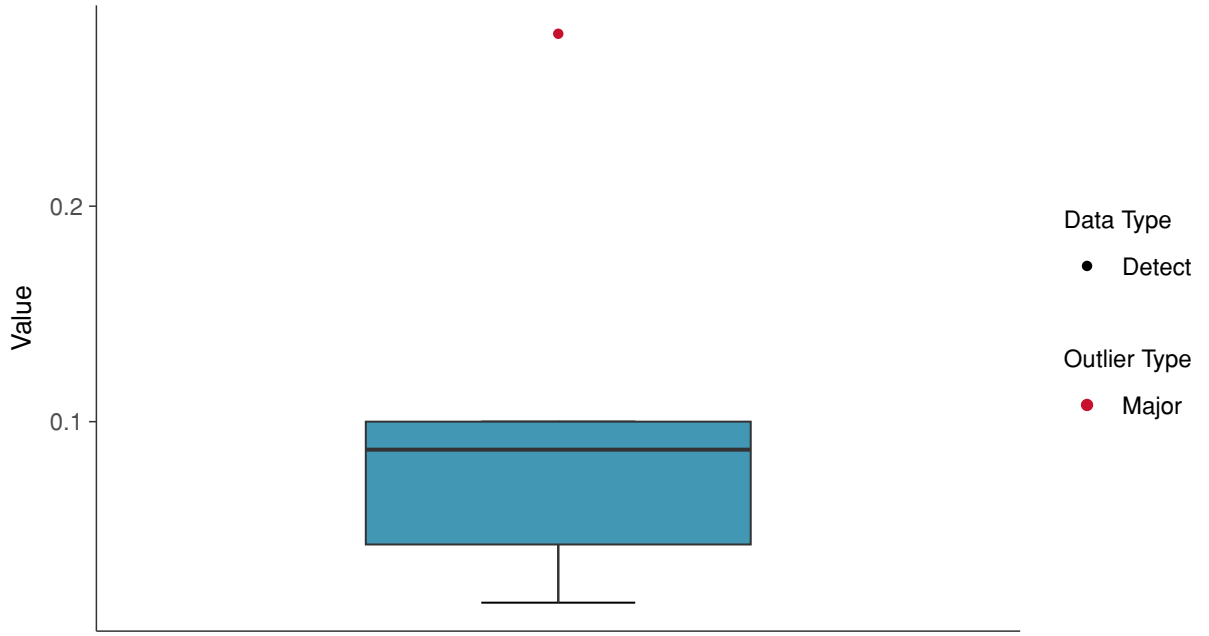
ID: 6_2_116





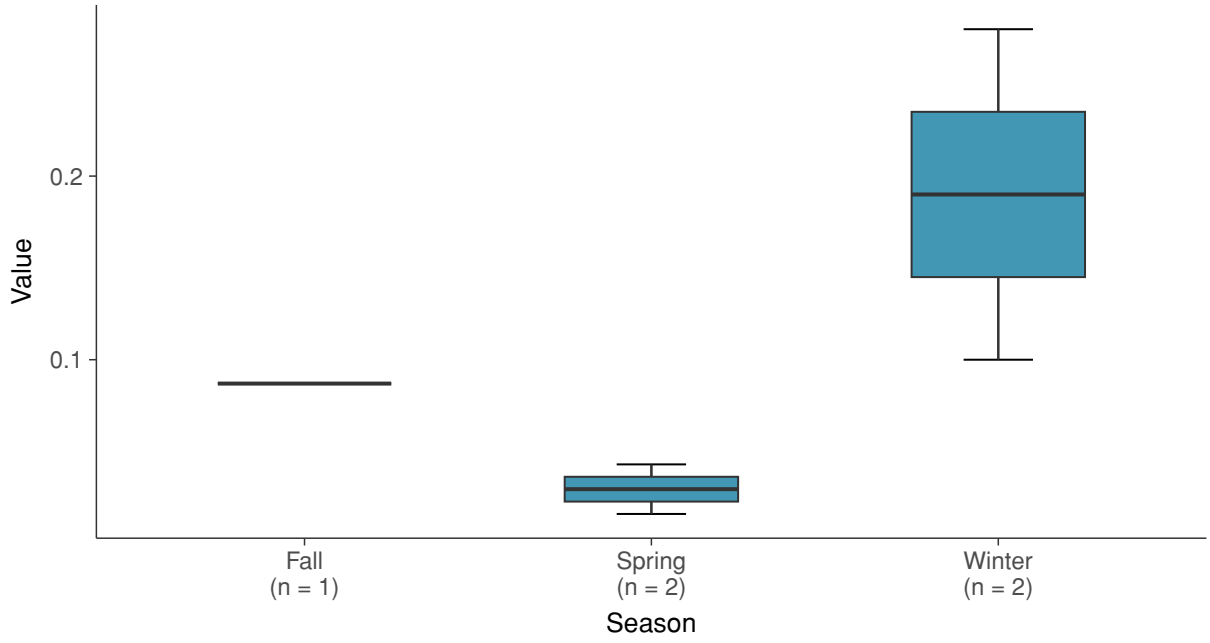
Boxplot

Molybdenum, W-17 (mg/l)



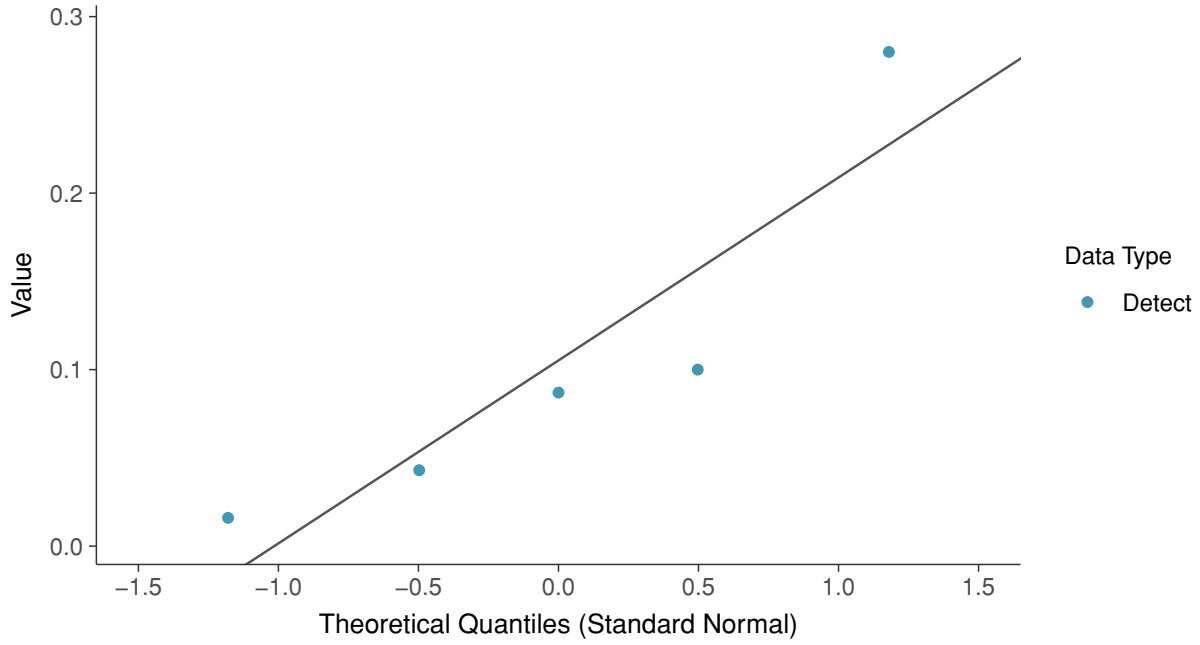
Boxplot by Season

Molybdenum, W-17 (mg/l)



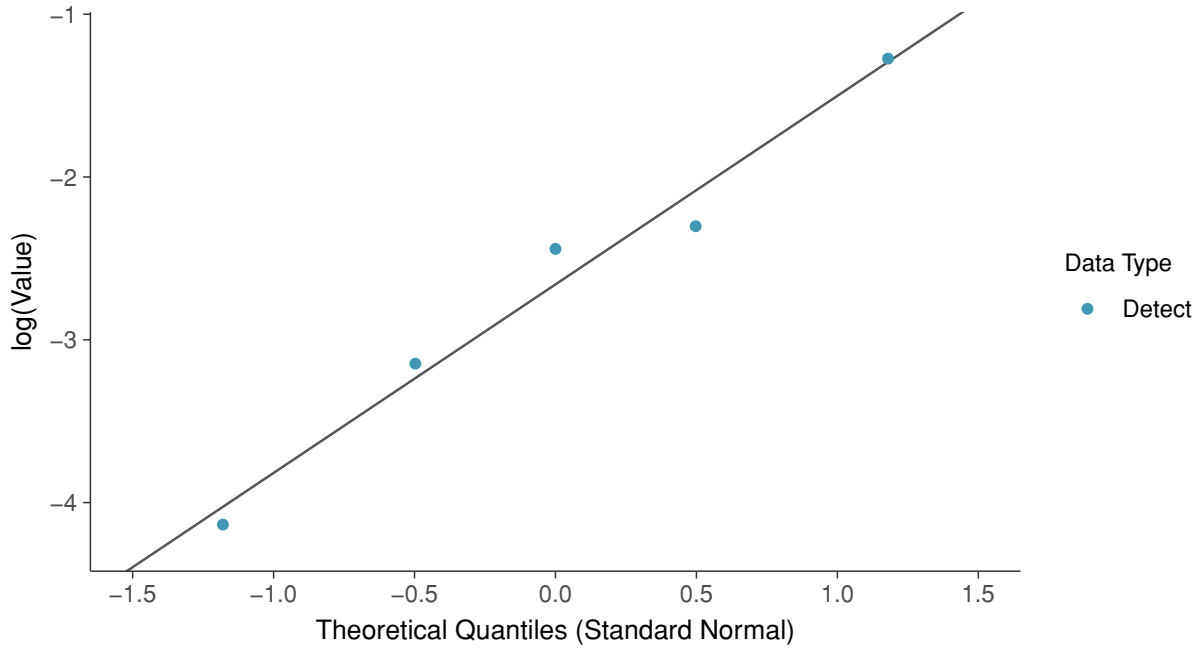
Normal Q-Q plot

Molybdenum, W-17 (mg/l)



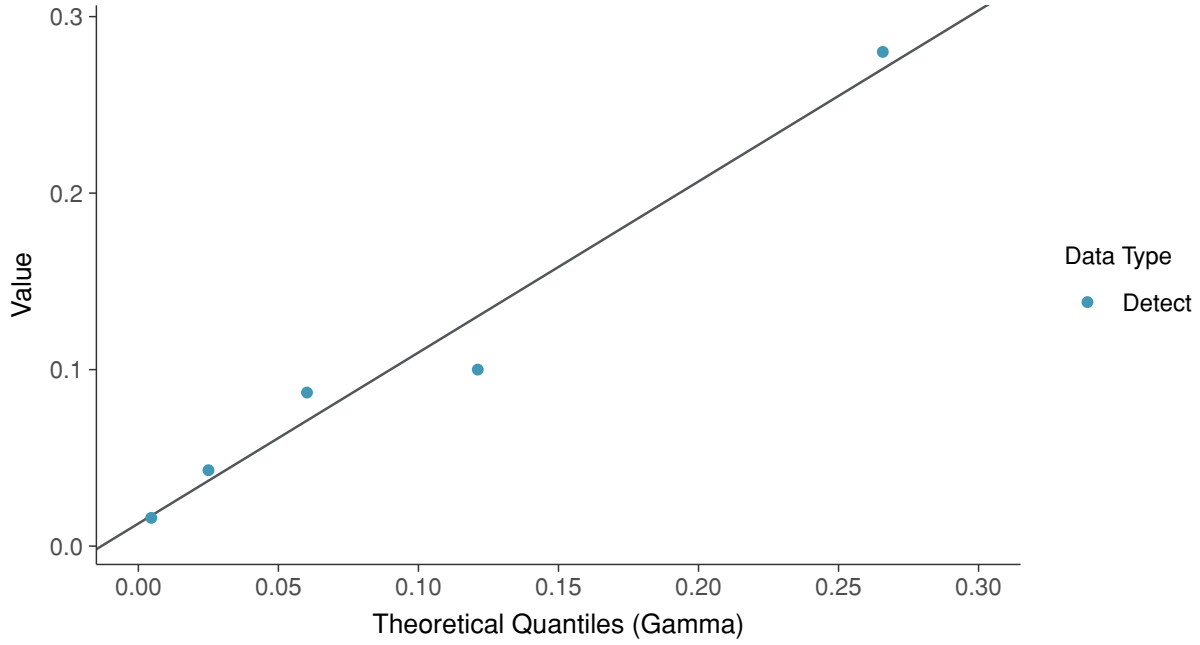
Lognormal Q-Q plot

Molybdenum, W-17 (mg/l)



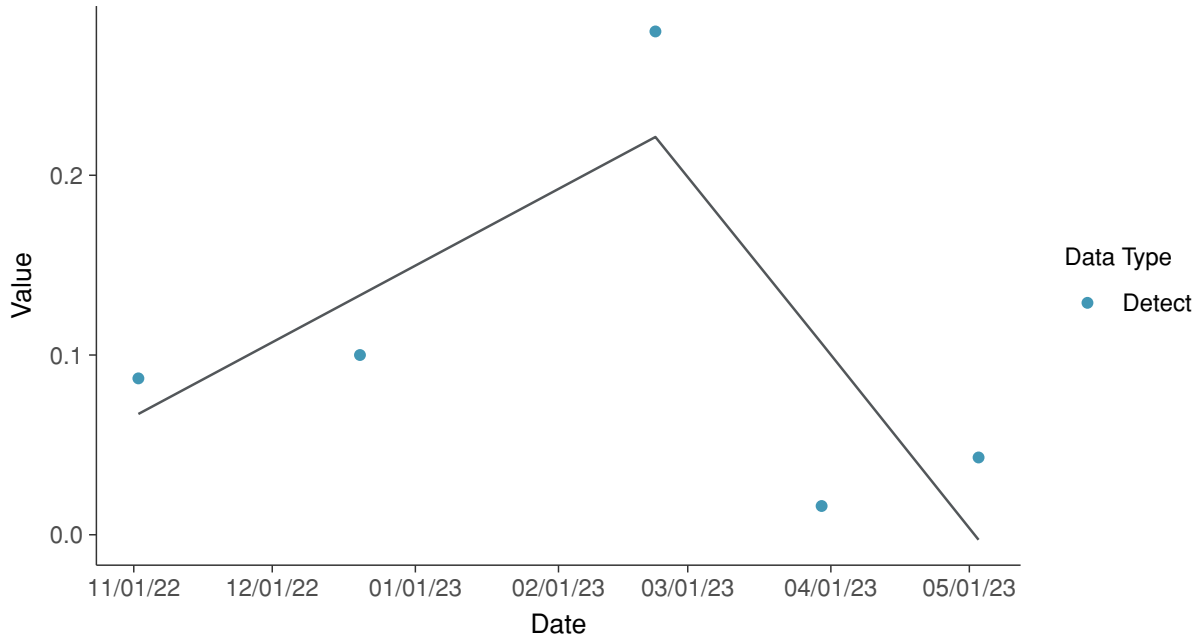
Gamma Q-Q plot

Molybdenum, W-17 (mg/l)



Trend Regression: Piecewise Linear-Linear

Molybdenum, W-17 (mg/l)

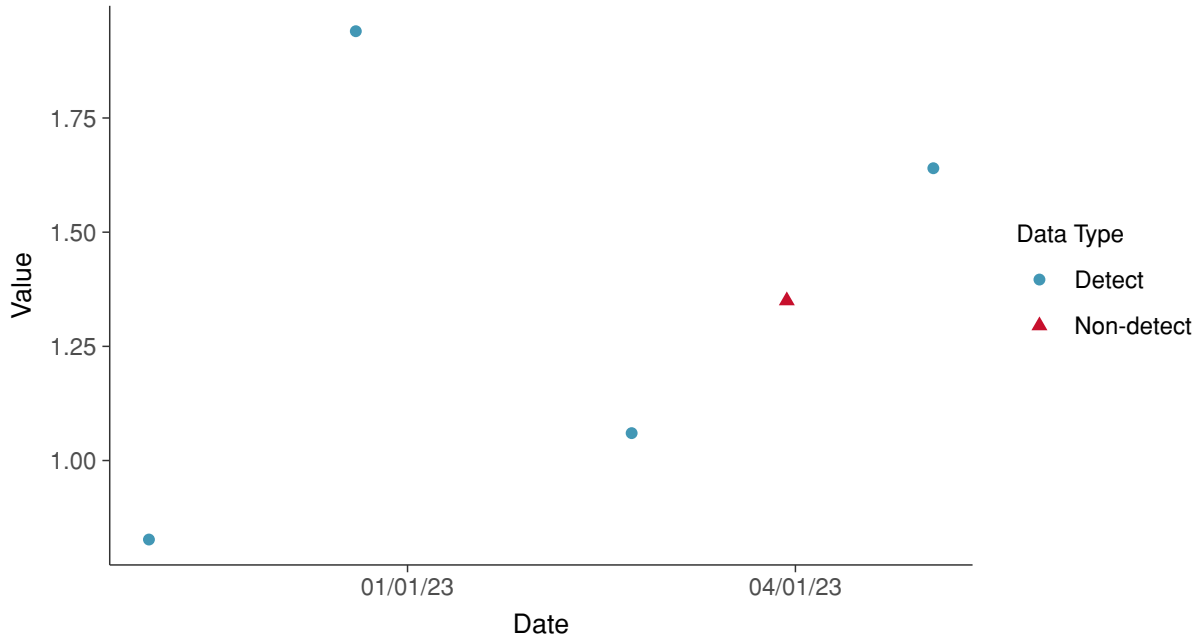


Appendix IV: Radium-226+228, W-17

ID: 6_2_120

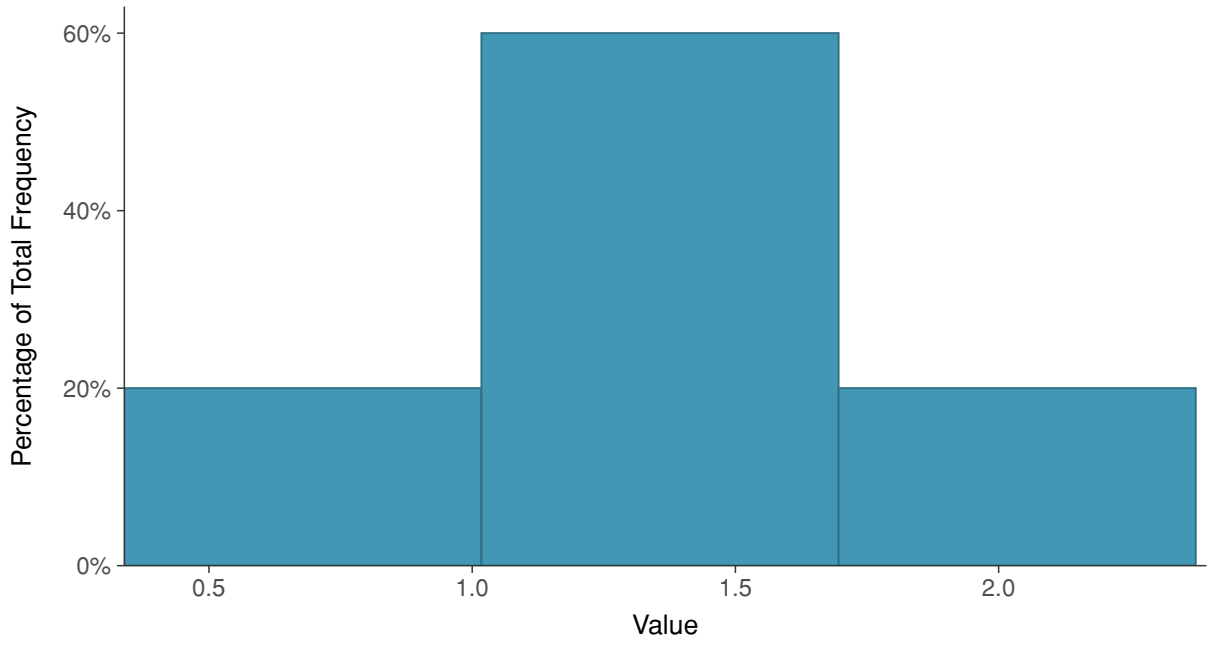
Scatter Plot

Radium-226+228, W-17 (pci/l)



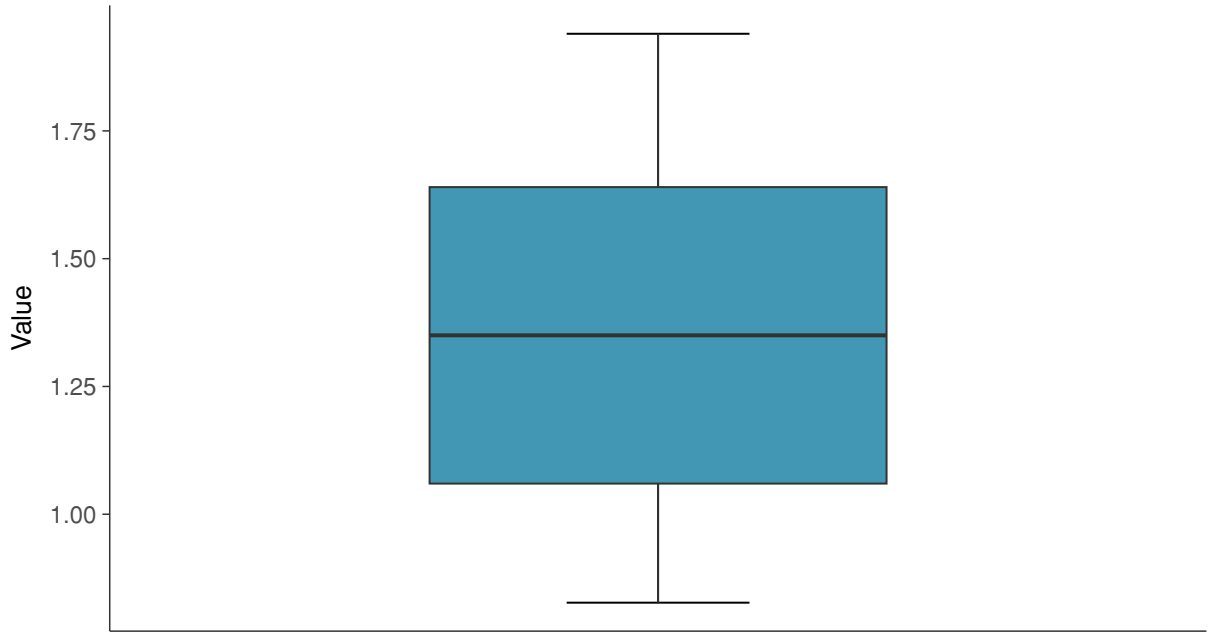
Histogram

Radium-226+228, W-17 (pci/l)



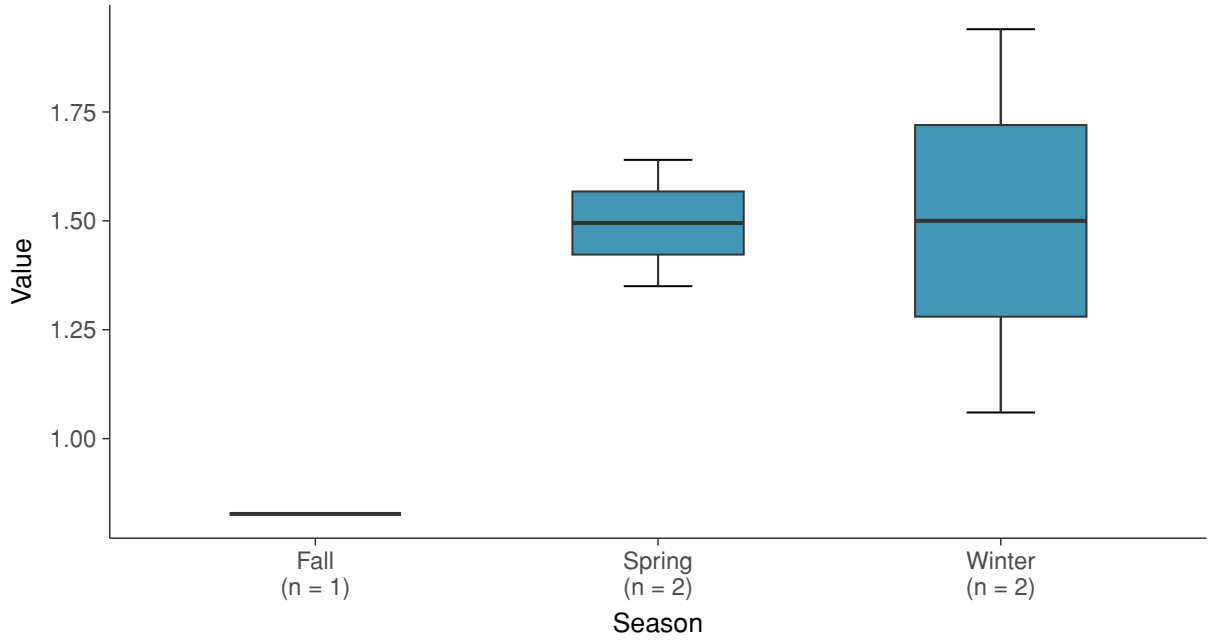
Boxplot

Radium-226+228, W-17 (pci/l)



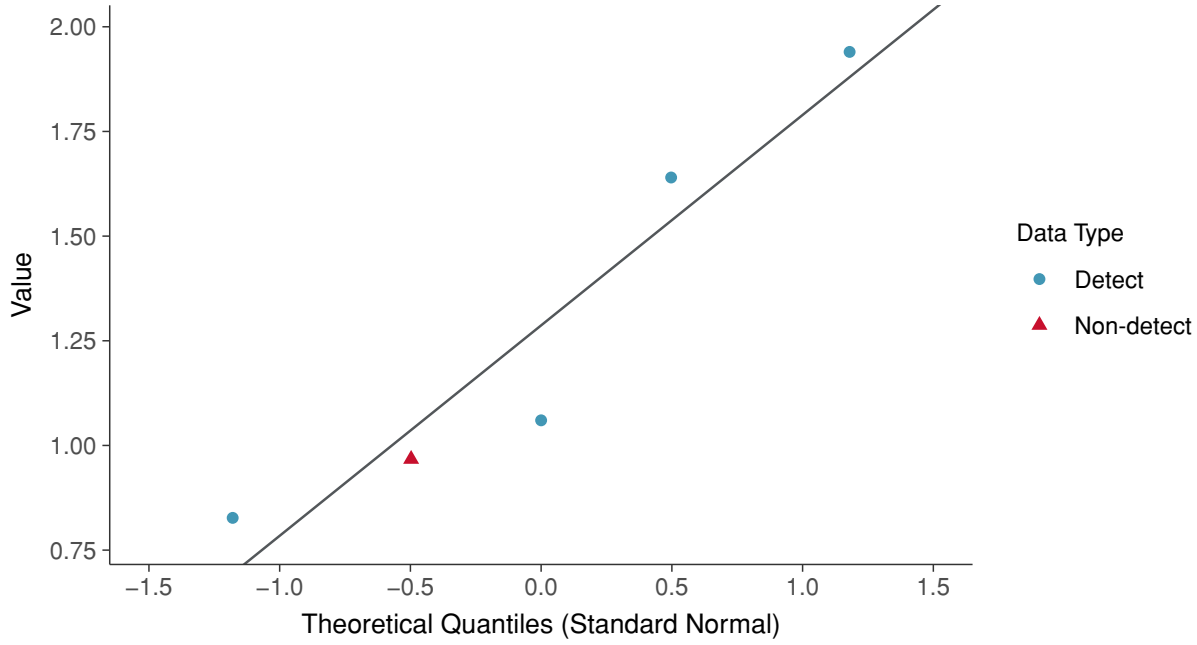
Boxplot by Season

Radium-226+228, W-17 (pci/l)



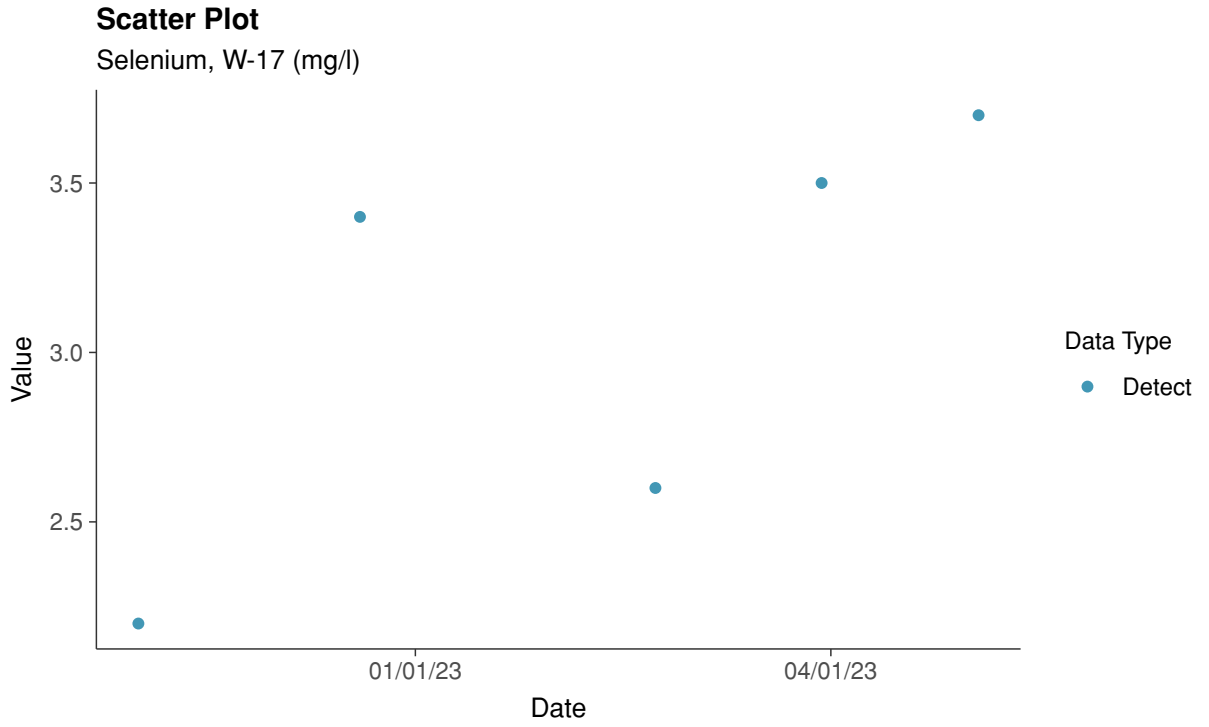
Normal Q-Q plot using ROS Imputed Estimates

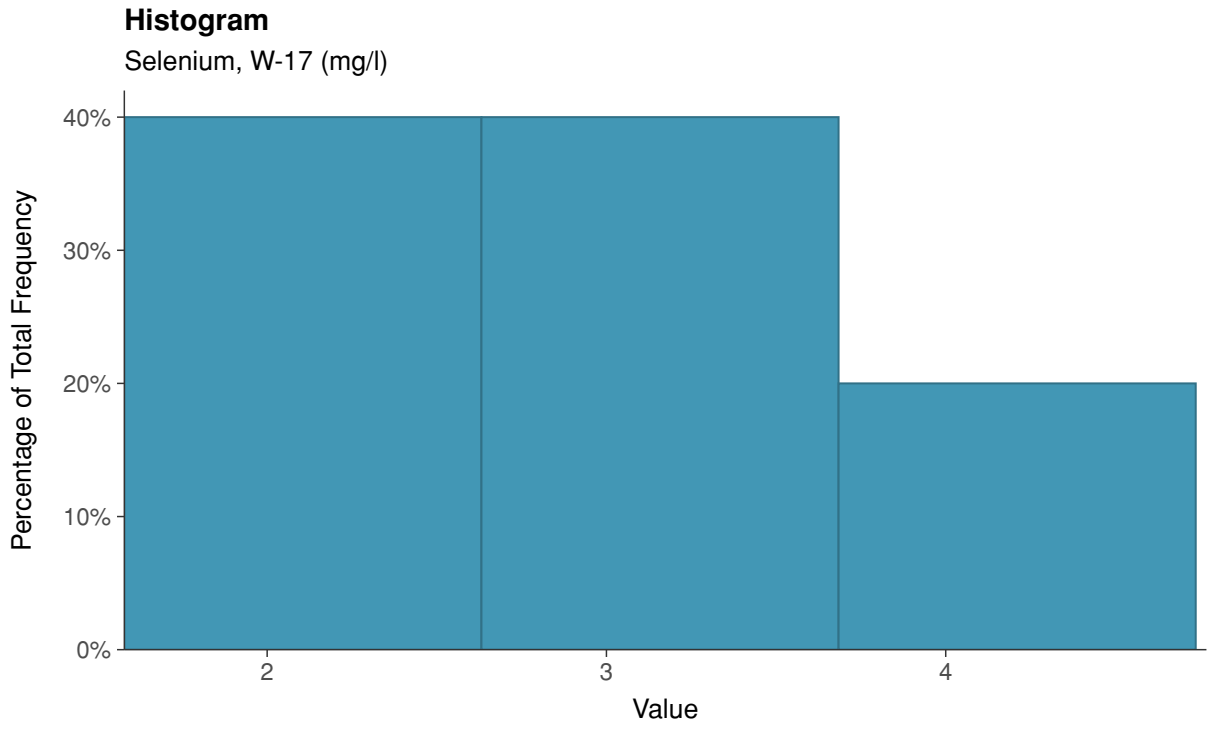
Radium-226+228, W-17 (pci/l)



Appendix IV: Selenium, W-17

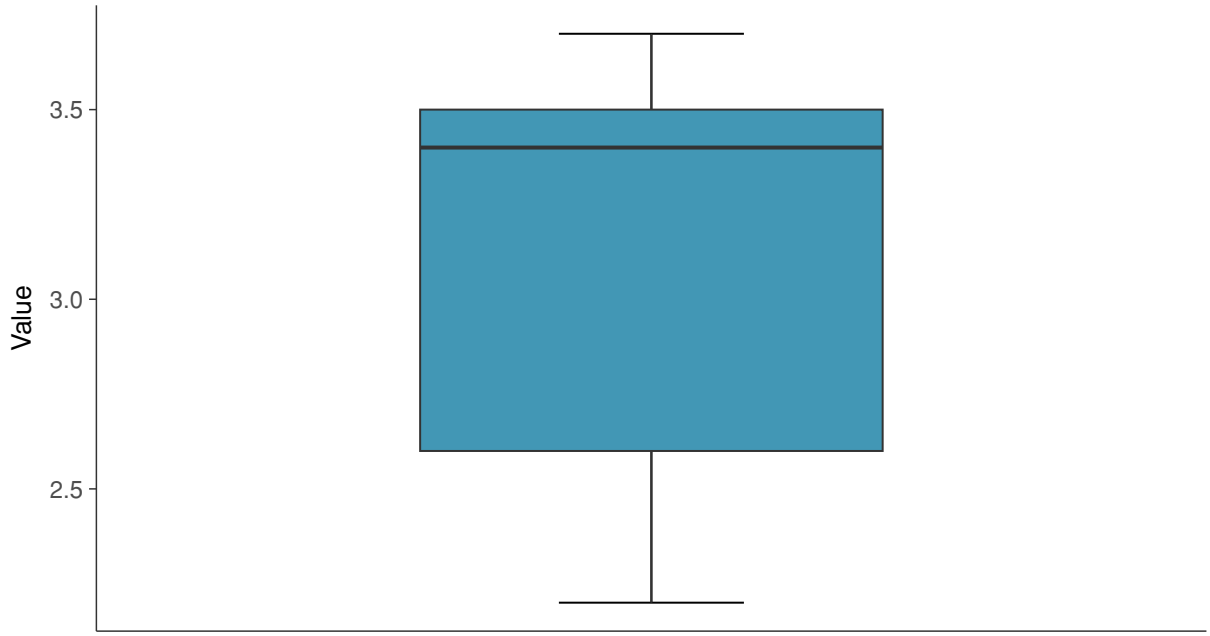
ID: 6_2_122





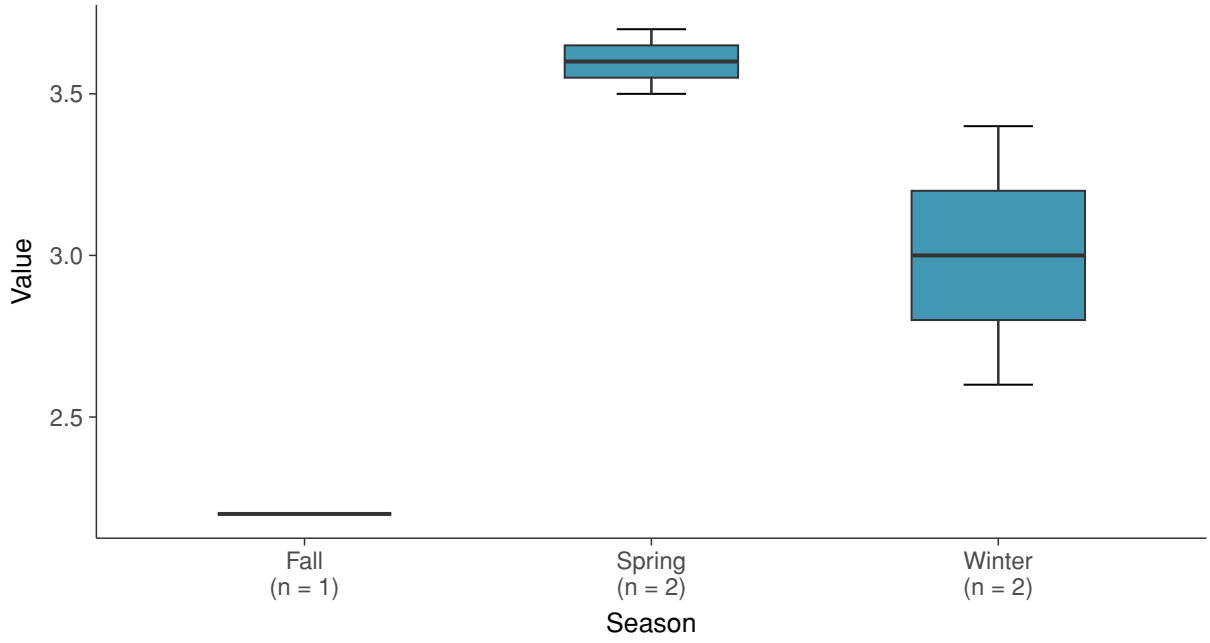
Boxplot

Selenium, W-17 (mg/l)



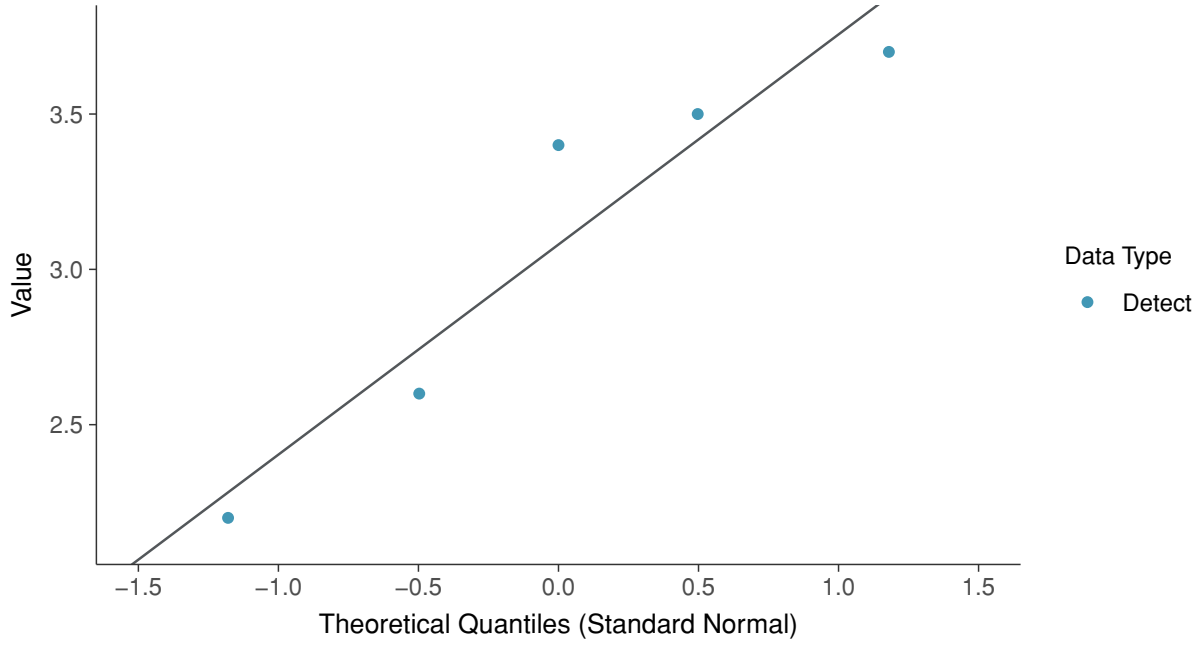
Boxplot by Season

Selenium, W-17 (mg/l)



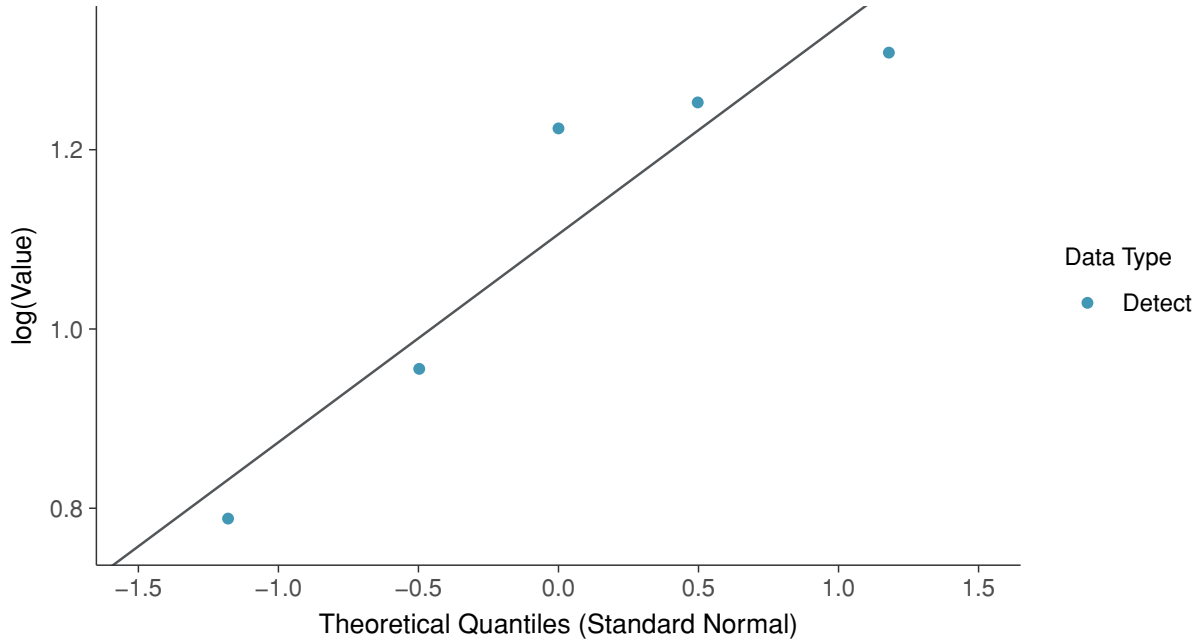
Normal Q-Q plot

Selenium, W-17 (mg/l)



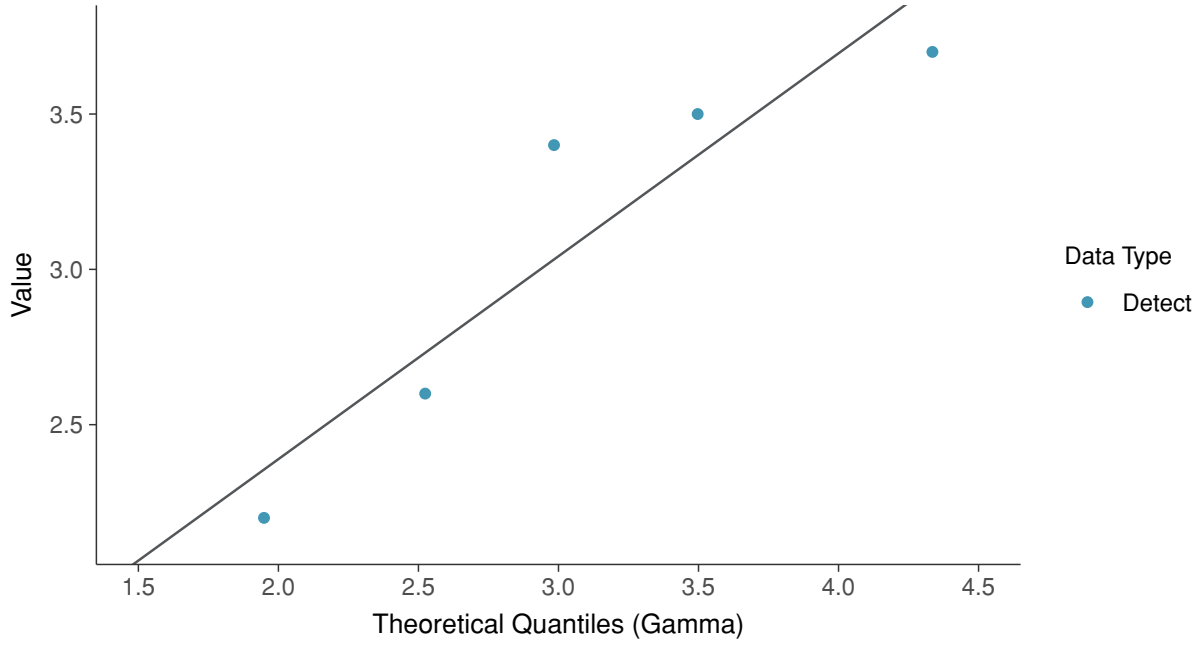
Lognormal Q-Q plot

Selenium, W-17 (mg/l)



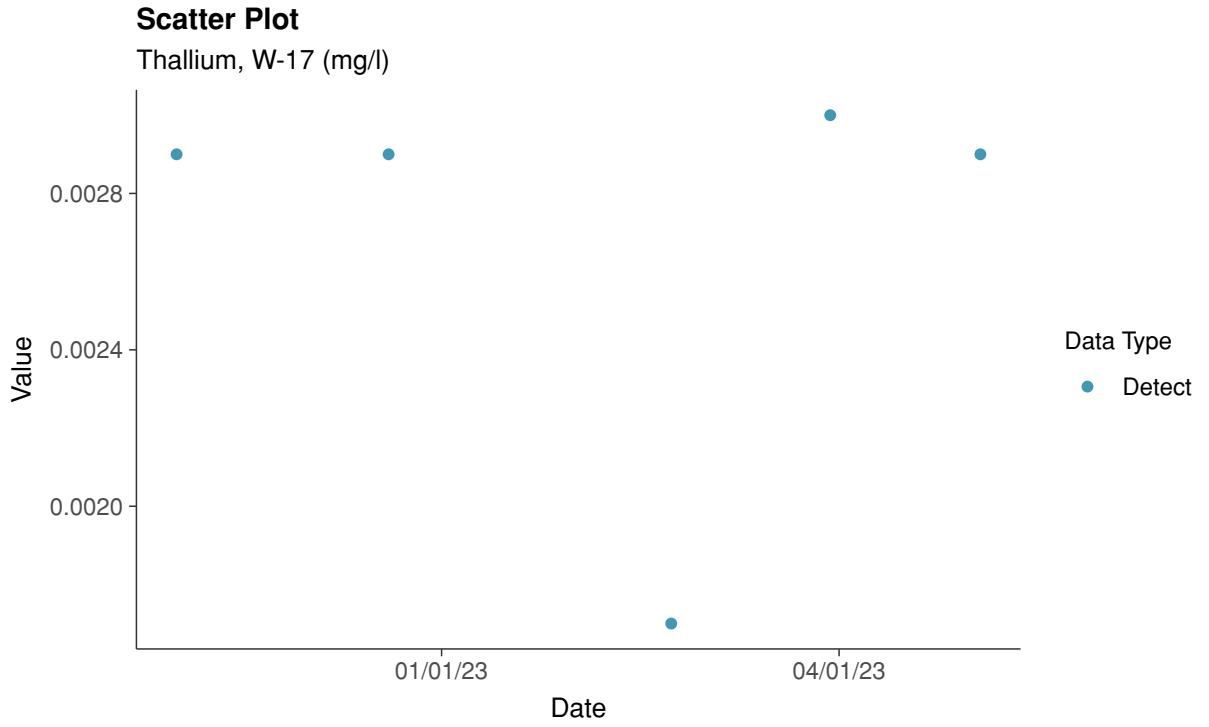
Gamma Q-Q plot

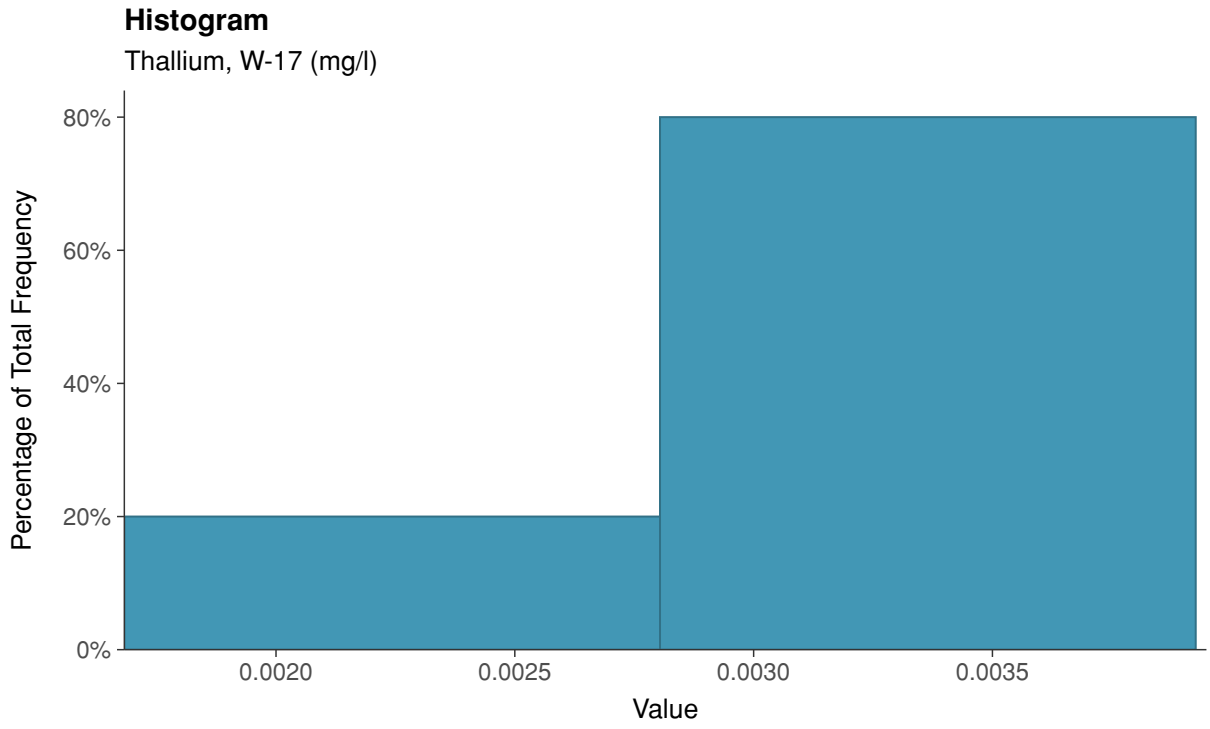
Selenium, W-17 (mg/l)



Appendix IV: Thallium, W-17

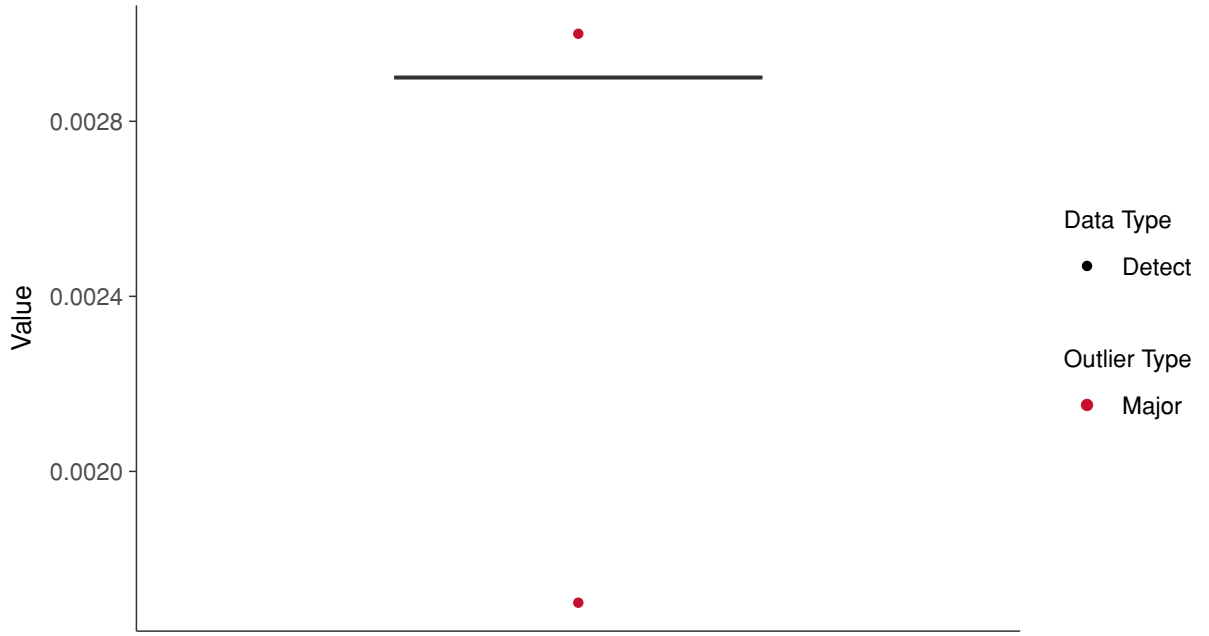
ID: 6_2_126





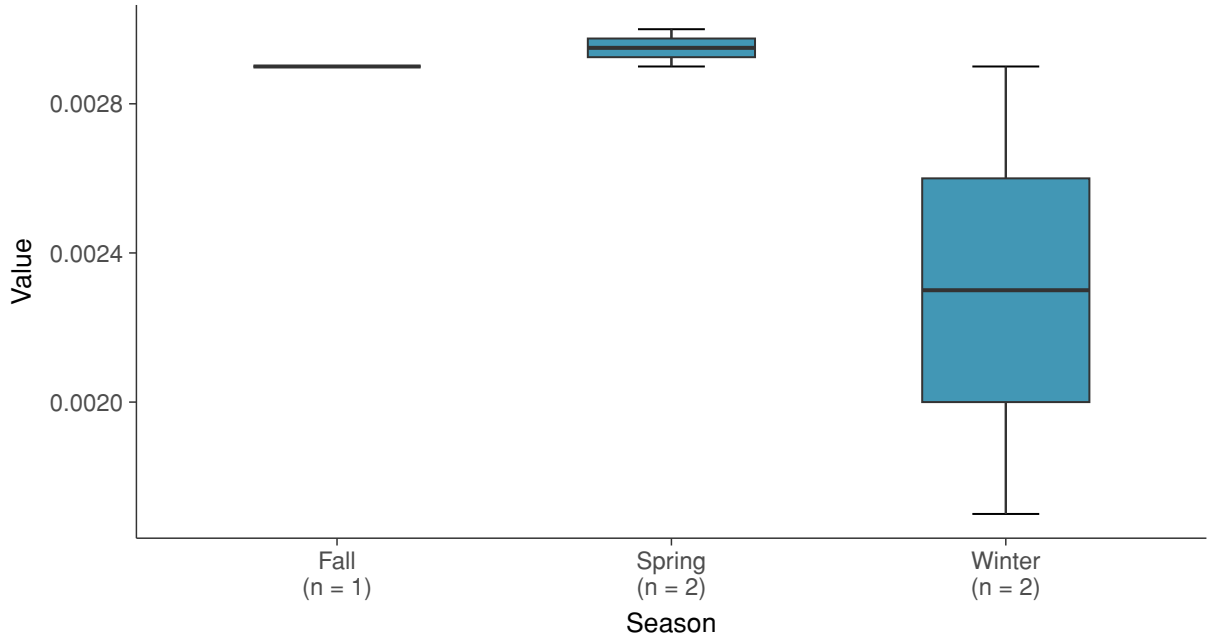
Boxplot

Thallium, W-17 (mg/l)



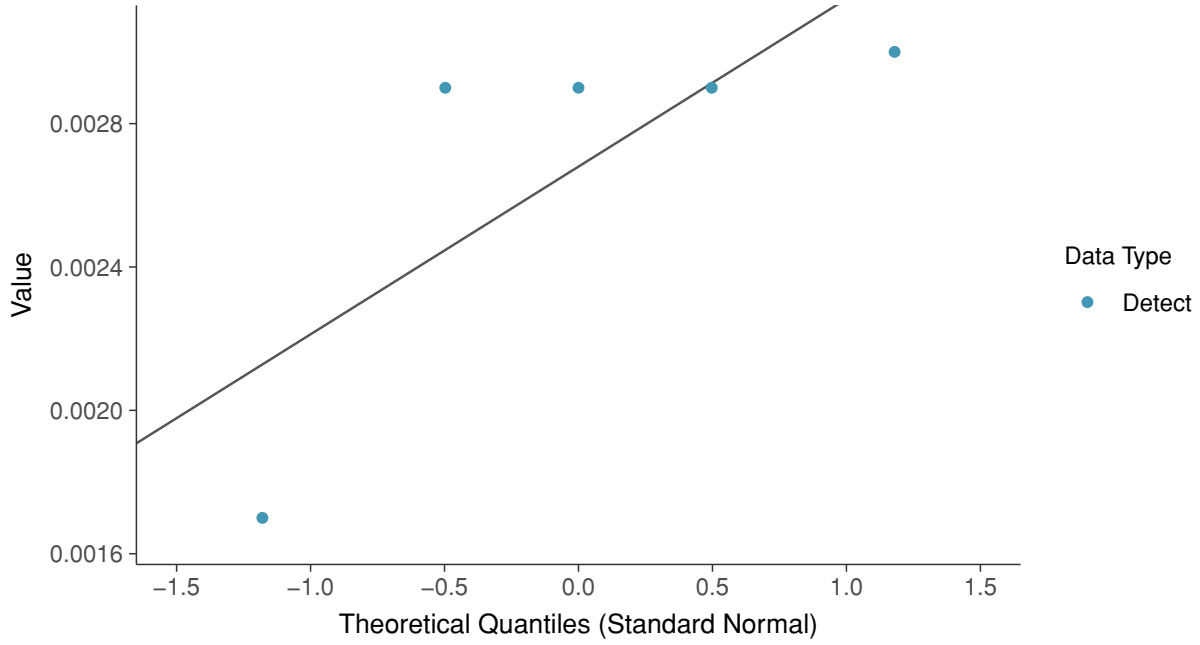
Boxplot by Season

Thallium, W-17 (mg/l)



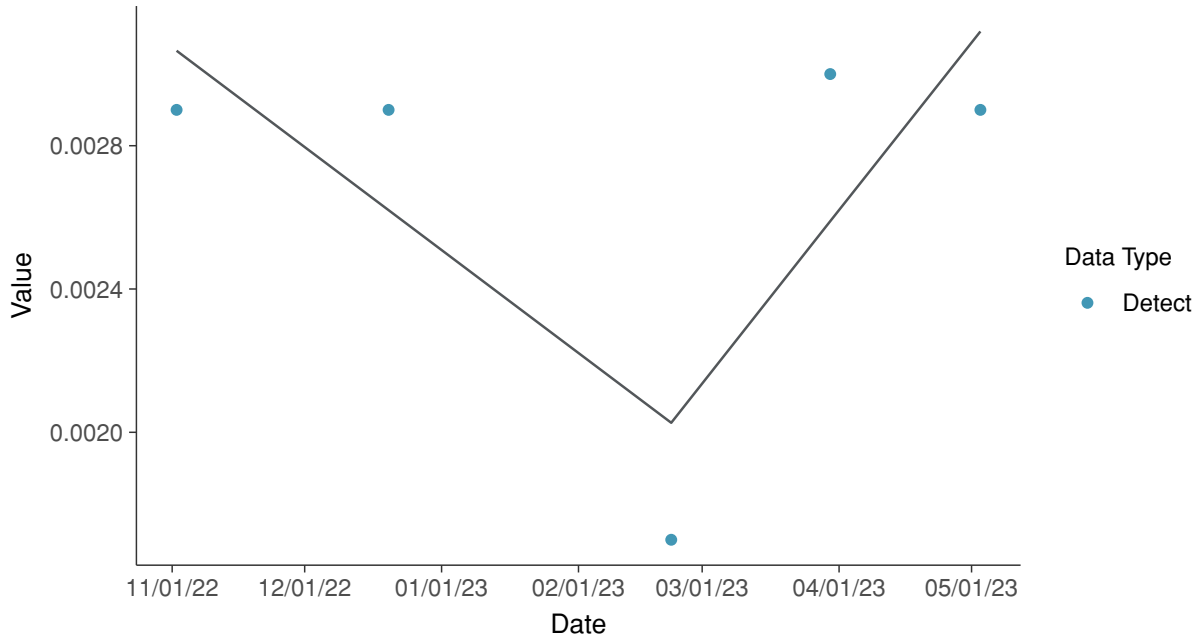
Normal Q-Q plot

Thallium, W-17 (mg/l)



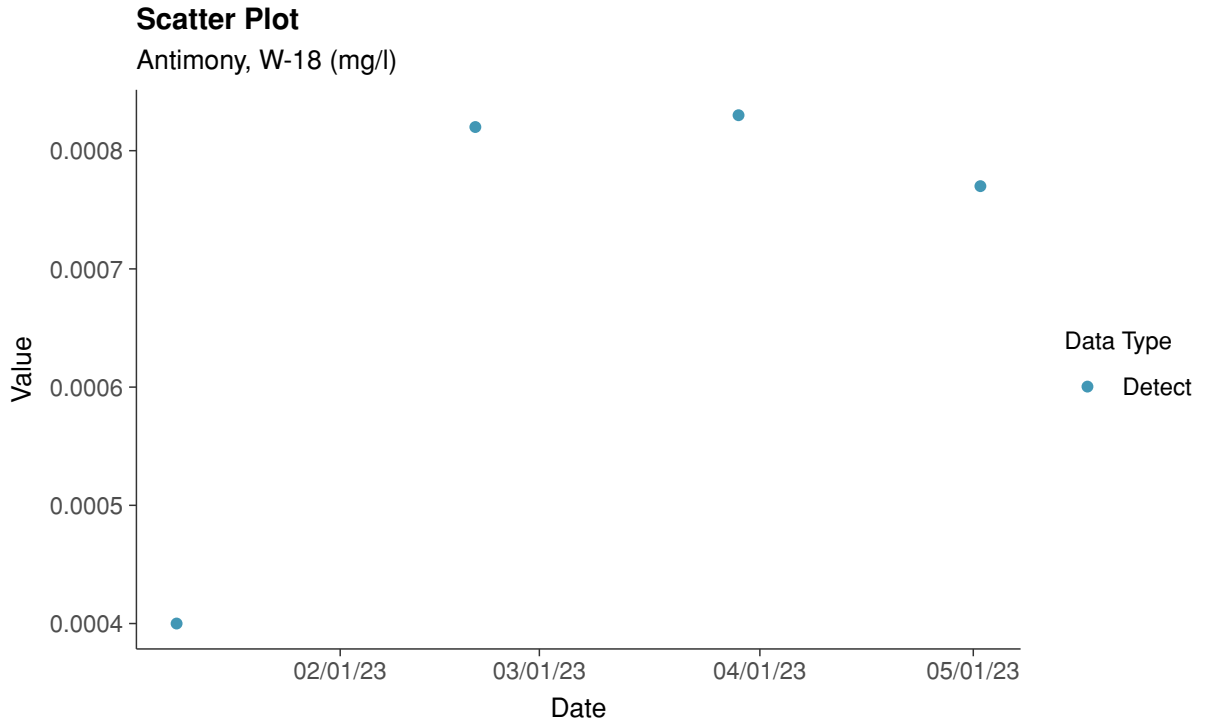
Trend Regression: Piecewise Linear-Linear

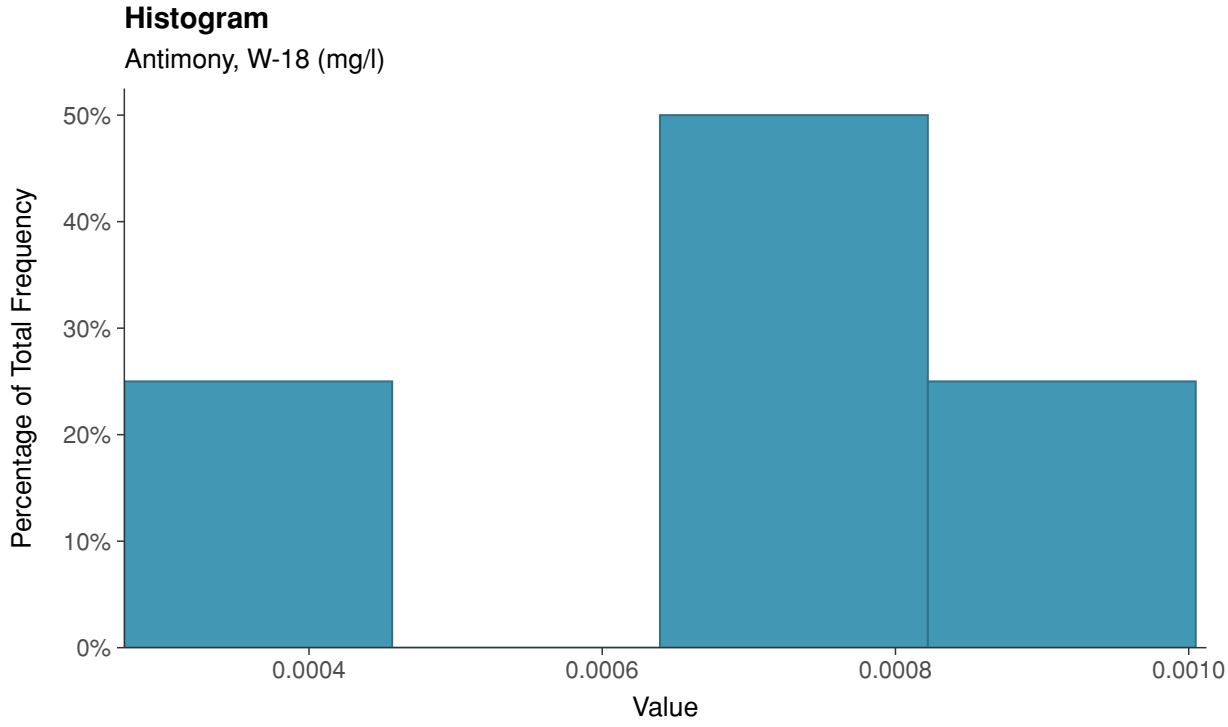
Thallium, W-17 (mg/l)



Appendix IV: Antimony, W-18

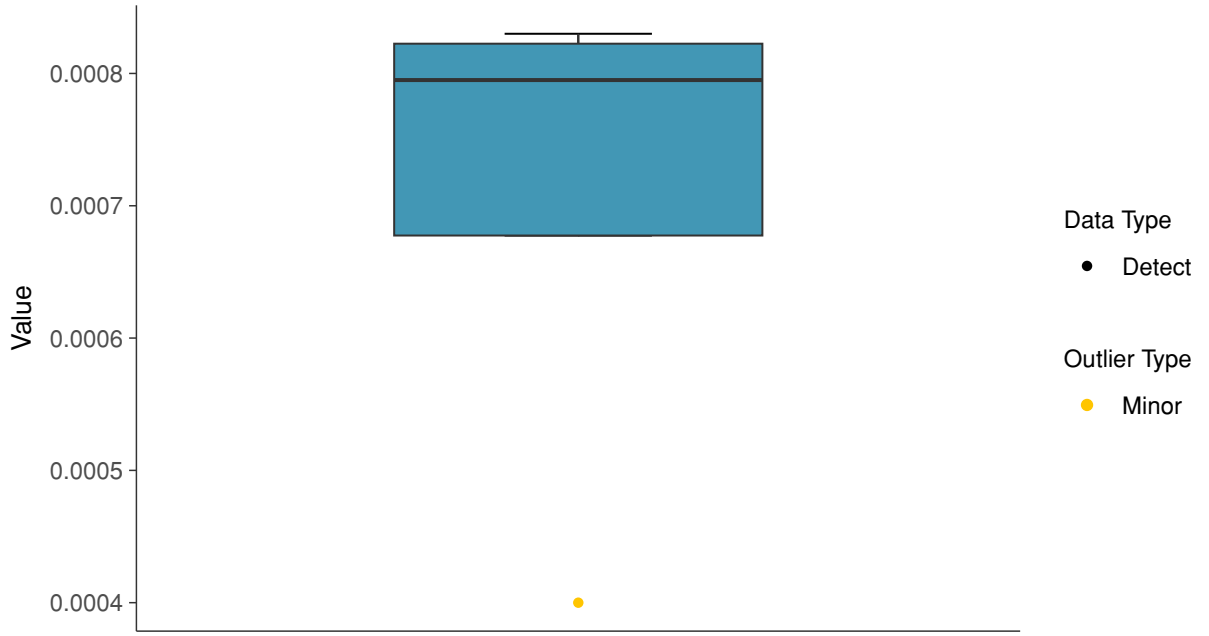
ID: 7_2_101





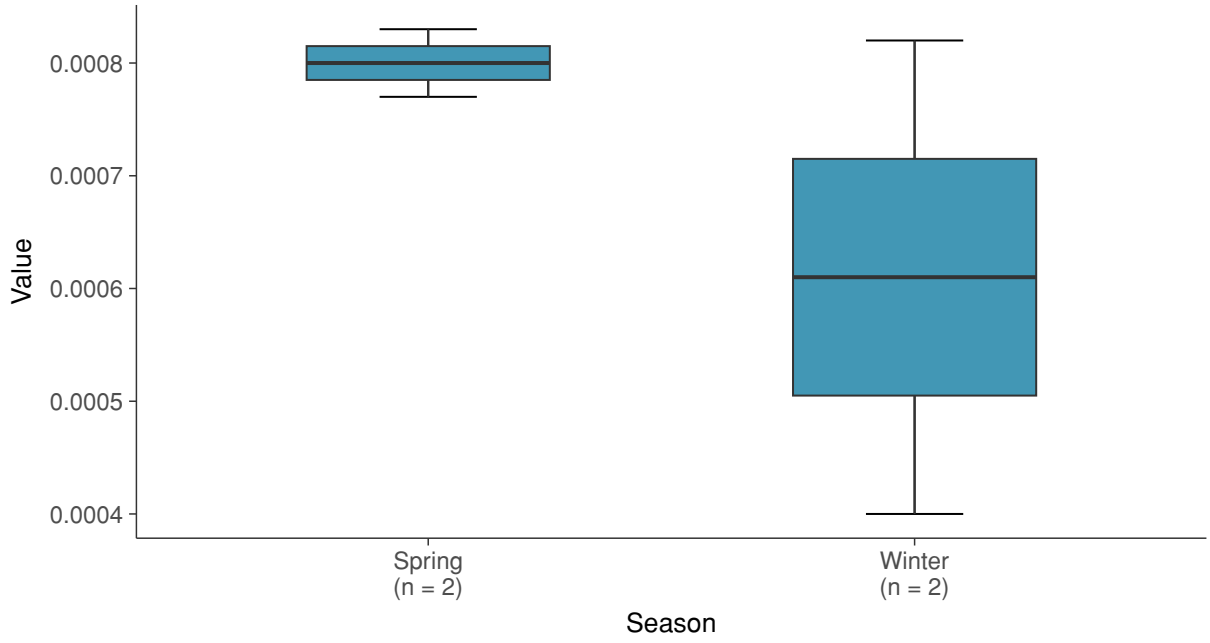
Boxplot

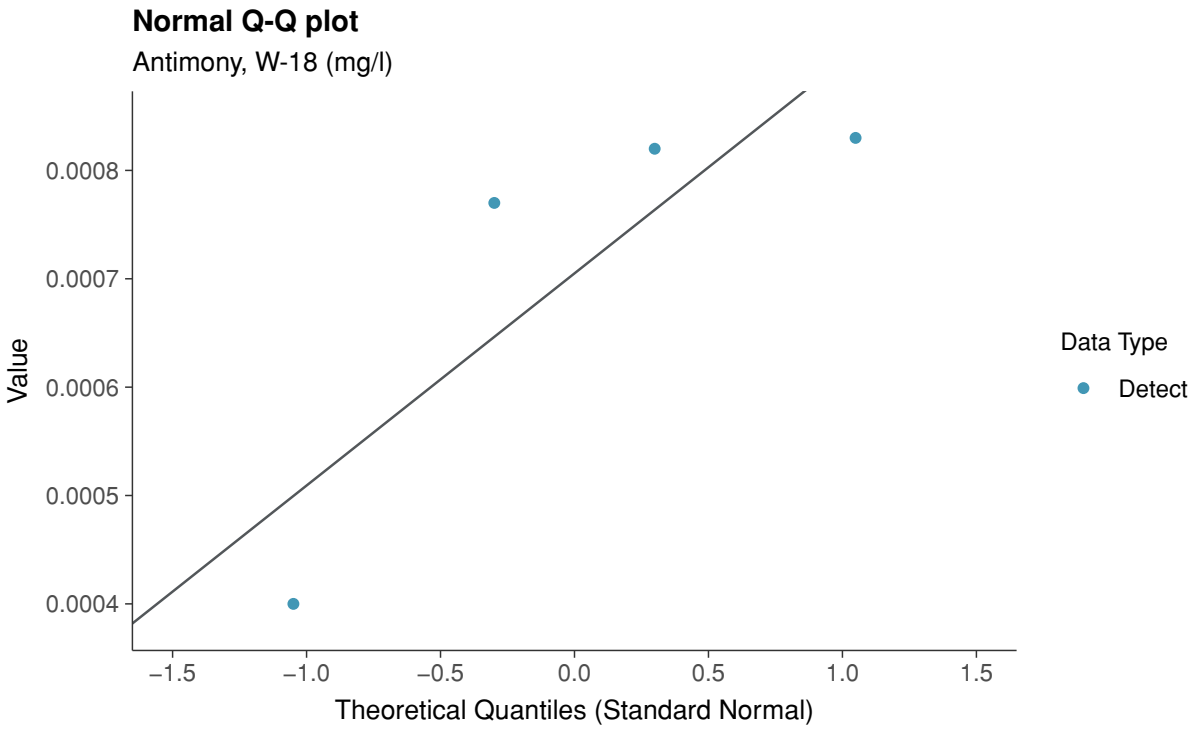
Antimony, W-18 (mg/l)



Boxplot by Season

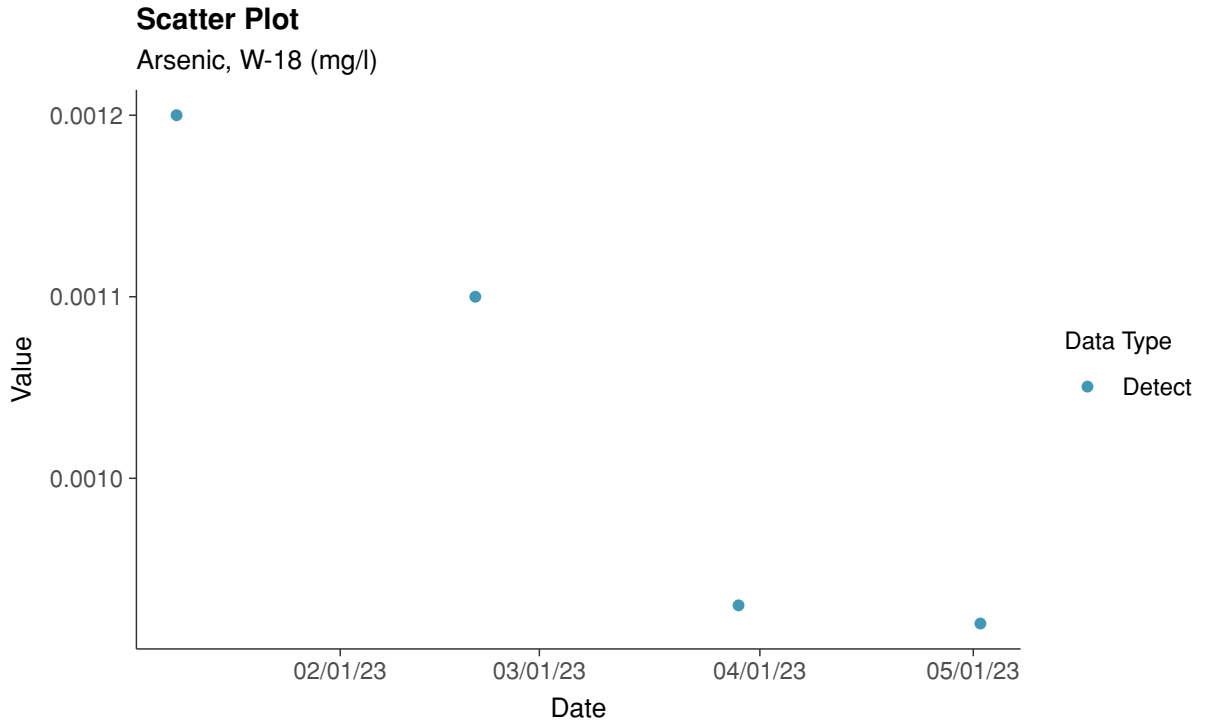
Antimony, W-18 (mg/l)

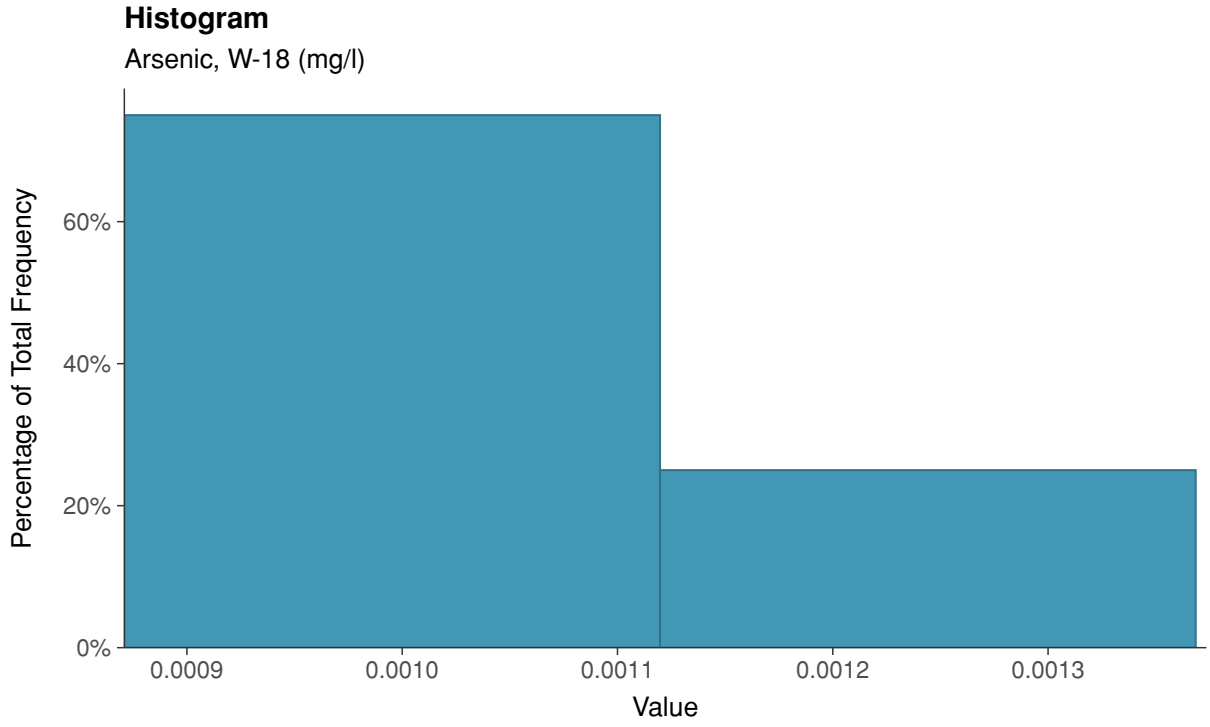



Normal Q-Q plot
Antimony, W-18 (mg/l)
Value
0.0008
0.0007
0.0006
0.0005
0.0004
−1.5
−1.0
−0.5
0.0
0.5
1.0
1.5
Theoretical Quantiles (Standard Normal)
Data Type
Detect

Appendix IV: Arsenic, W-18

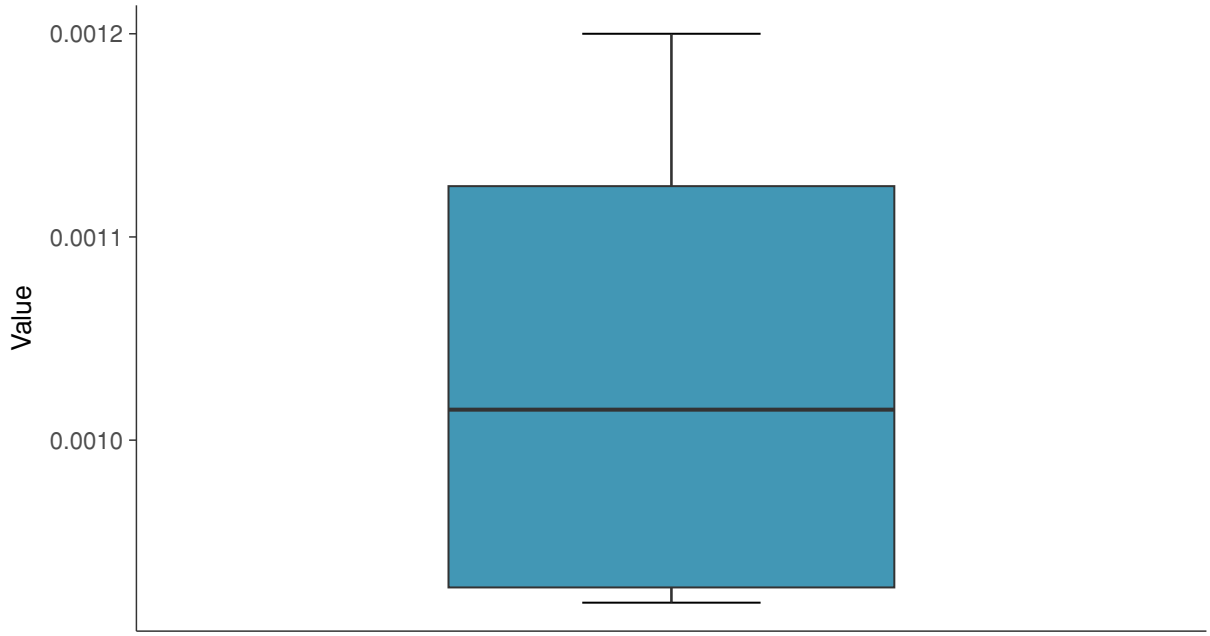
ID: 7_2_102





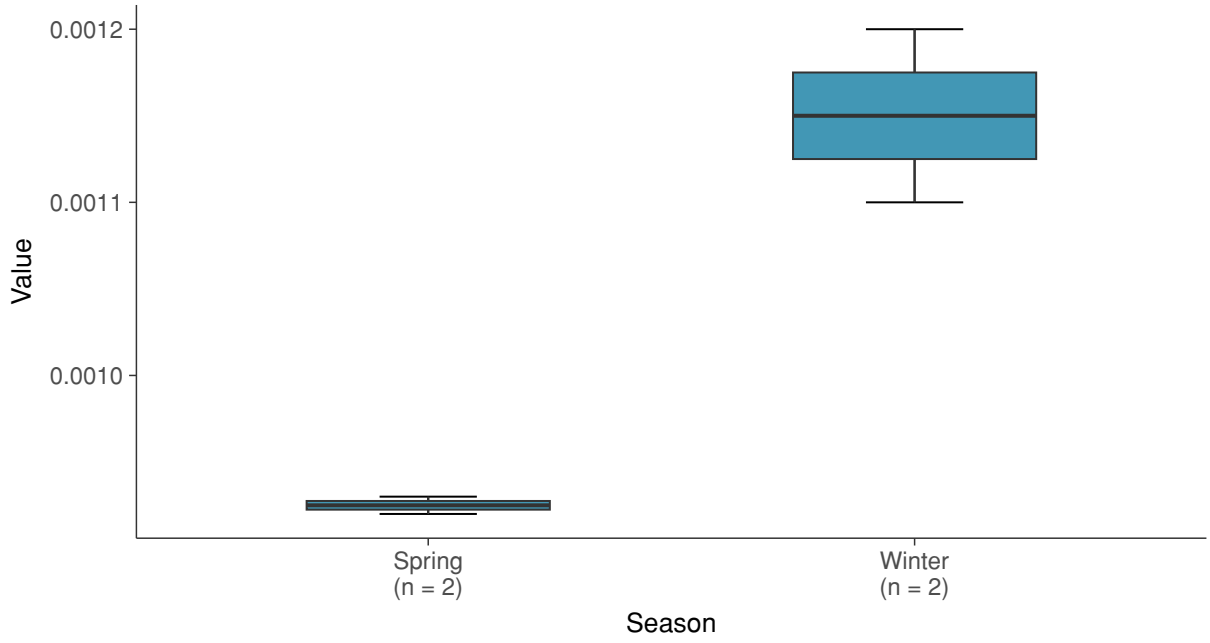
Boxplot

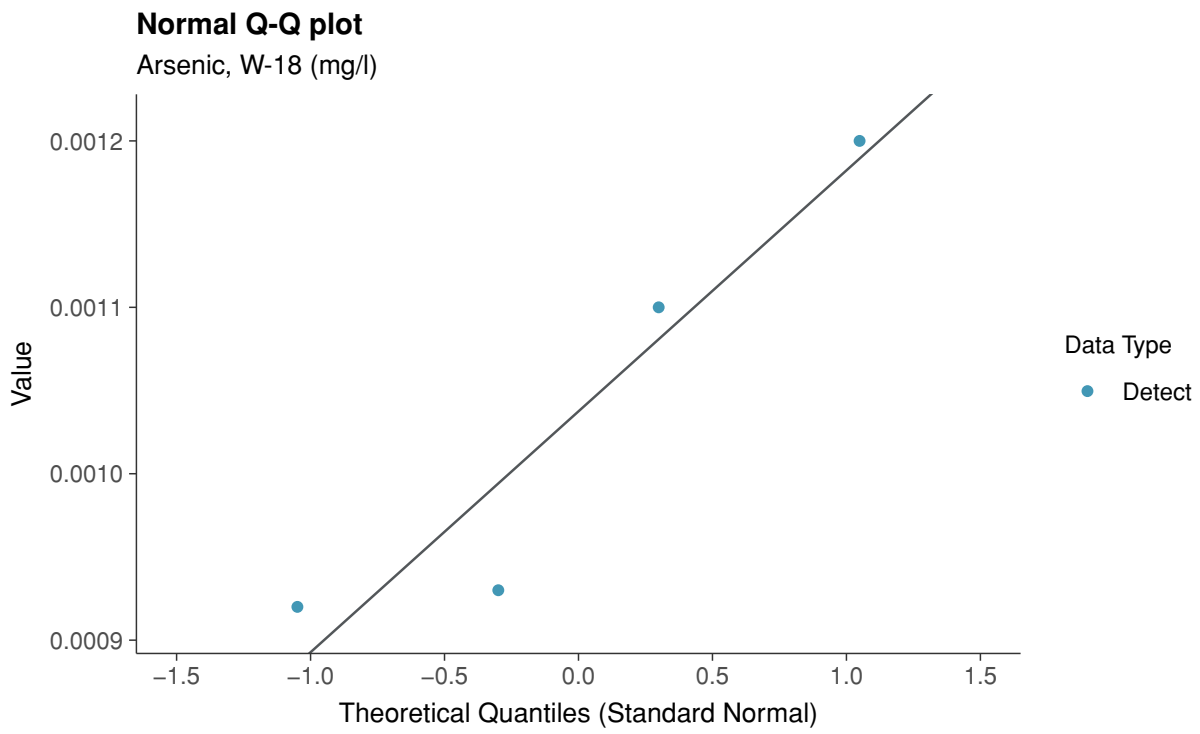
Arsenic, W-18 (mg/l)



Boxplot by Season

Arsenic, W-18 (mg/l)



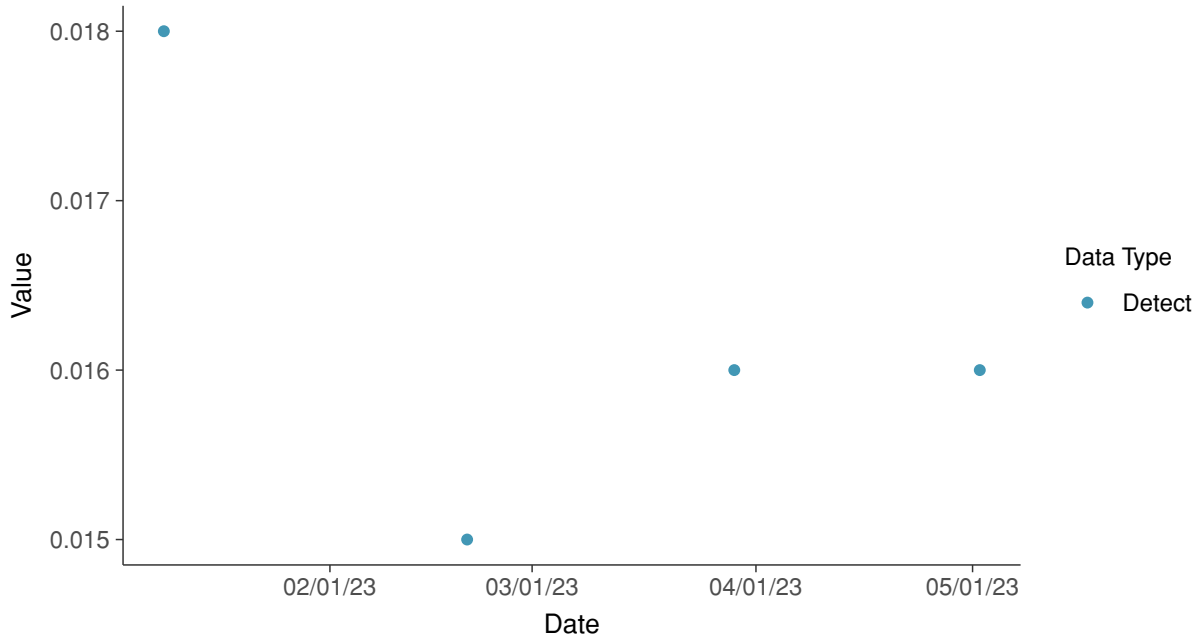

Normal Q-Q plot
Arsenic, W-18 (mg/l)
Value
0.0012
0.0011
0.0010
0.0009
−1.5
−1.0
−0.5
0.0
0.5
1.0
1.5
Theoretical Quantiles (Standard Normal)
Data Type
Detect

Appendix IV: Barium, W-18

ID: 7_2_103

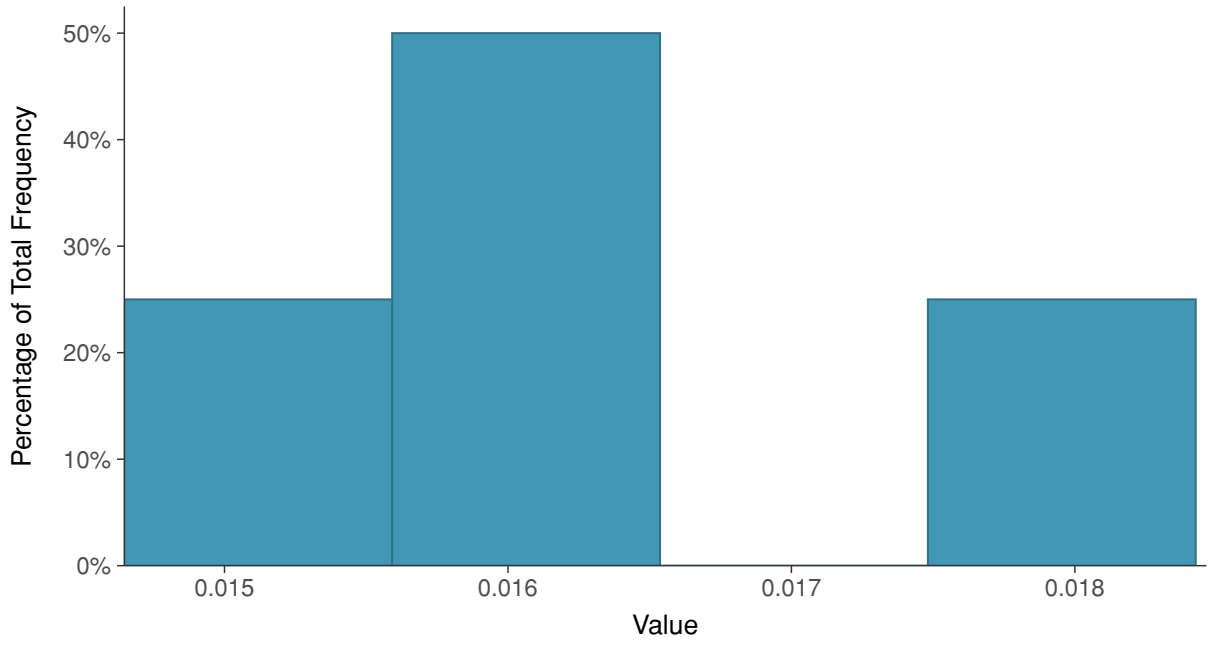
Scatter Plot

Barium, W-18 (mg/l)



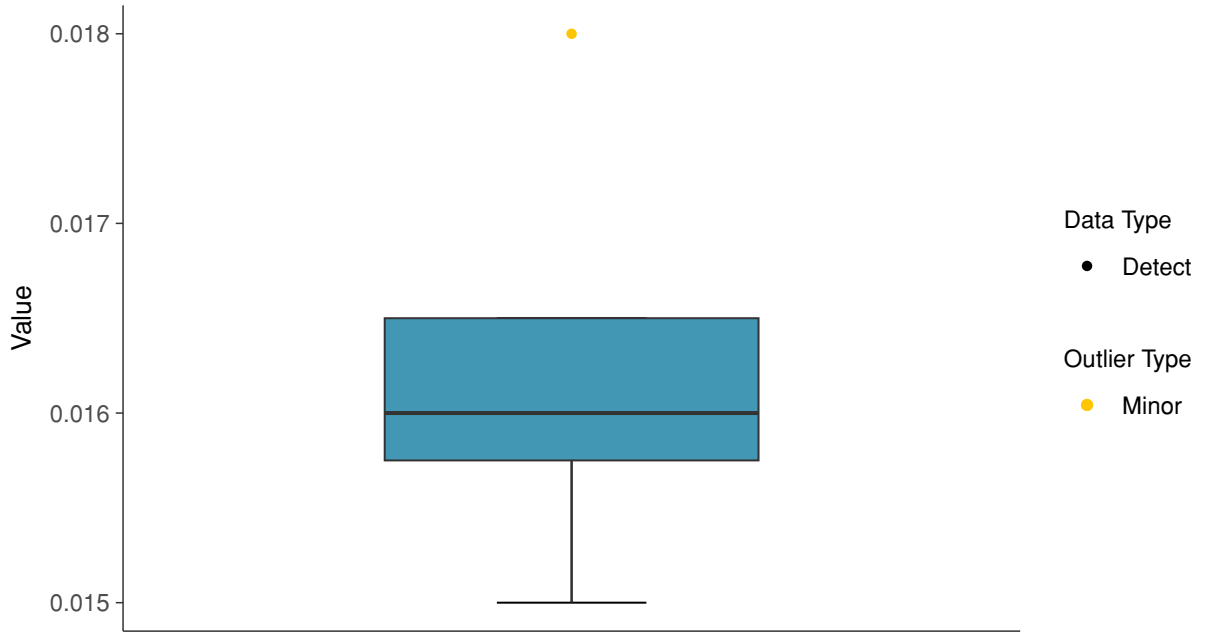
Histogram

Barium, W-18 (mg/l)



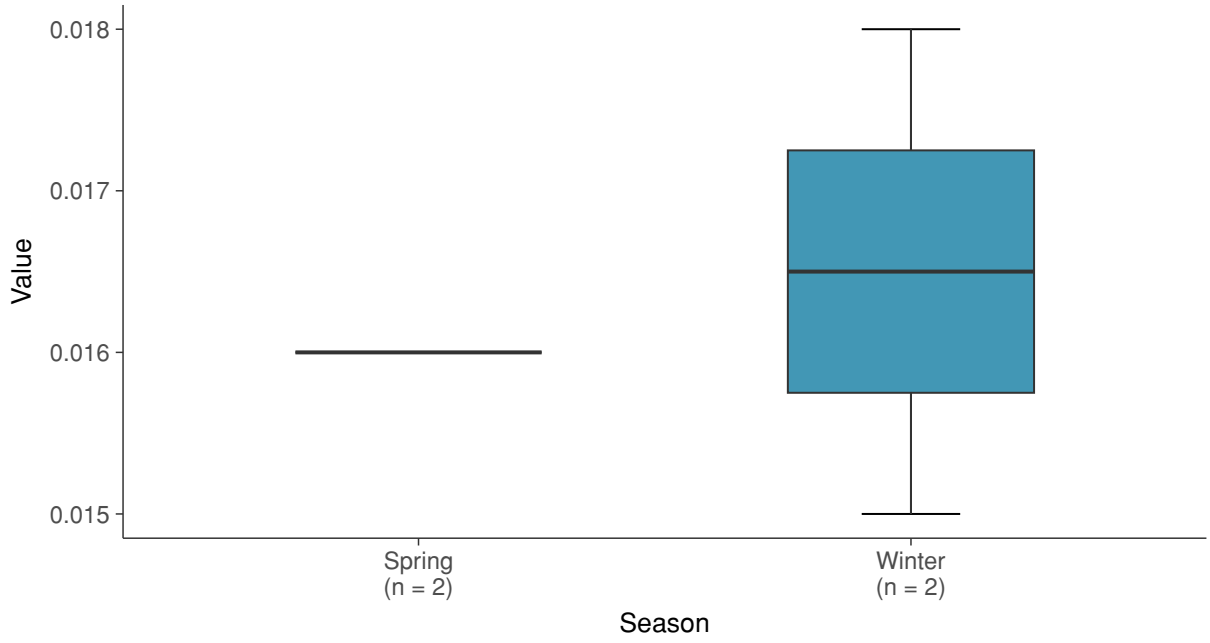
Boxplot

Barium, W-18 (mg/l)



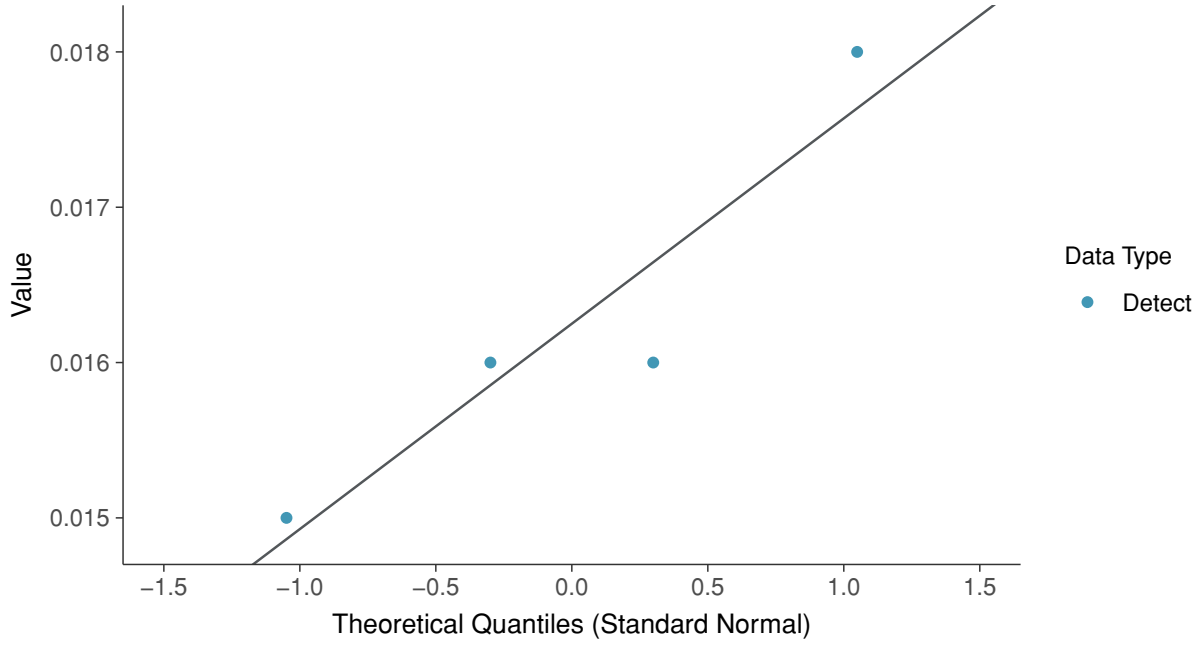
Boxplot by Season

Barium, W-18 (mg/l)



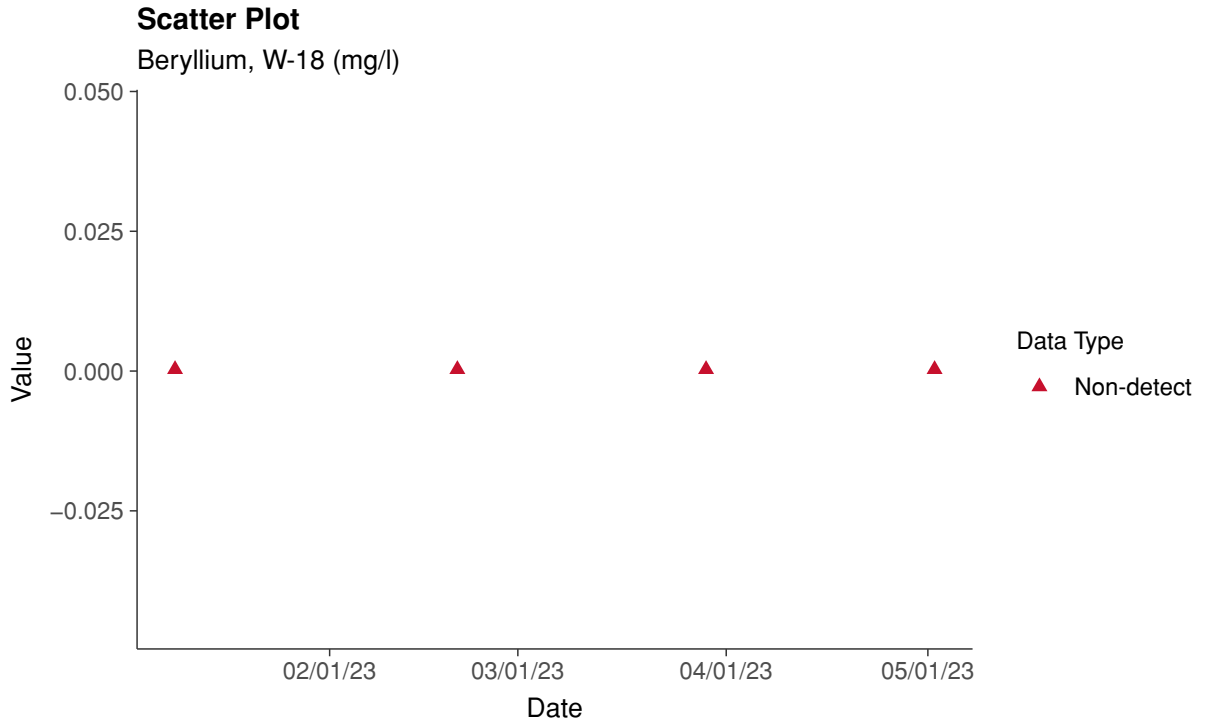
Normal Q-Q plot

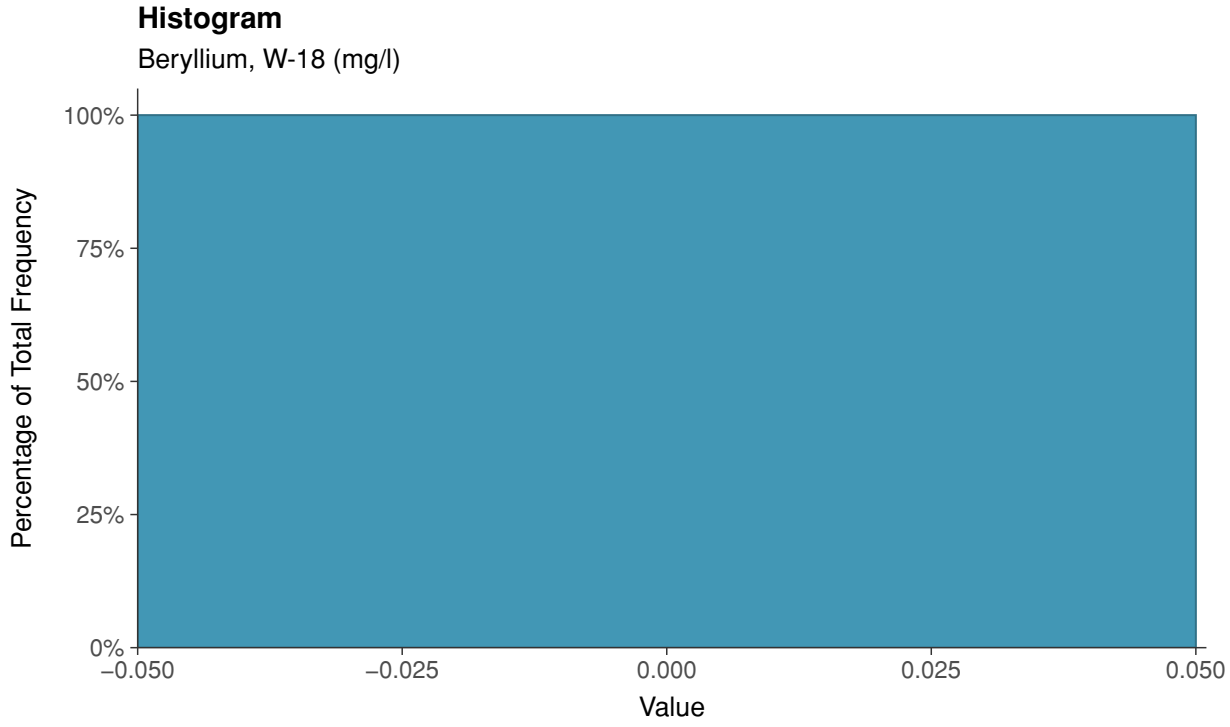
Barium, W-18 (mg/l)



Appendix IV: Beryllium, W-18

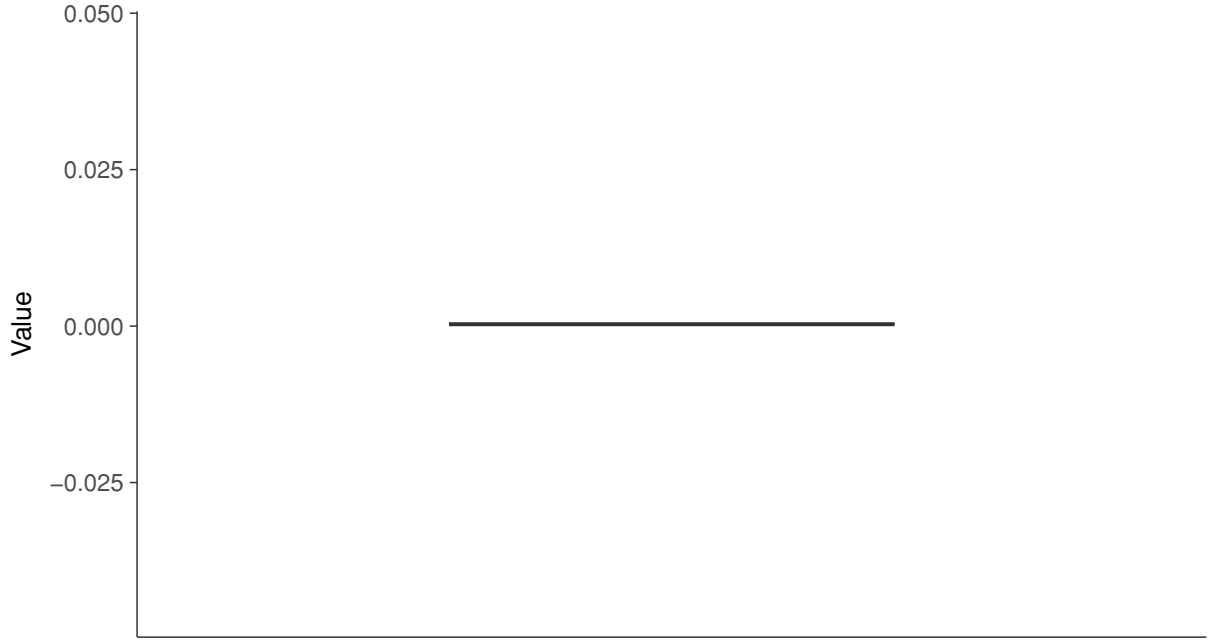
ID: 7_2_104





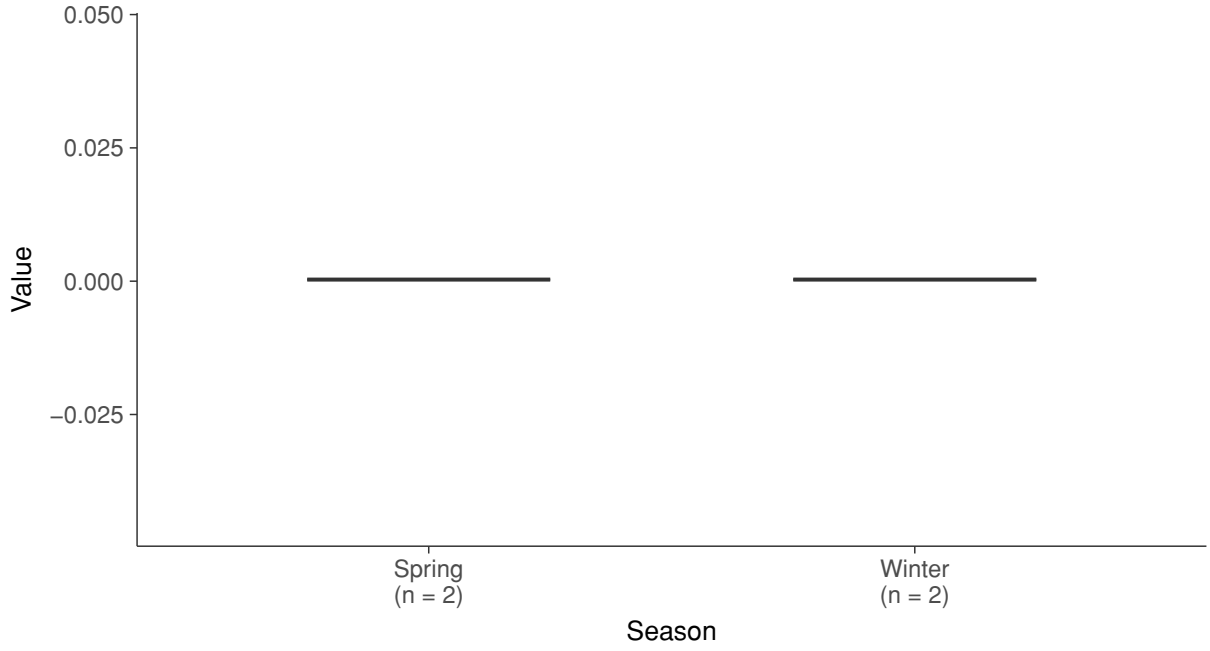
Boxplot

Beryllium, W-18 (mg/l)



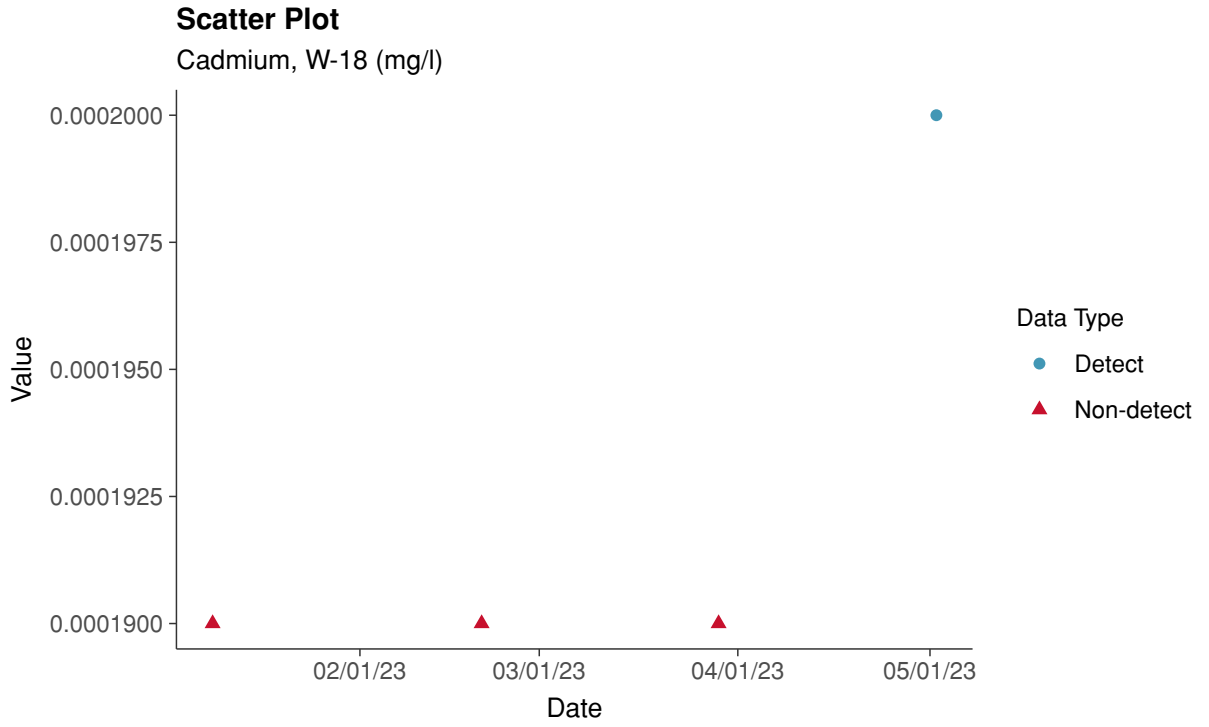
Boxplot by Season

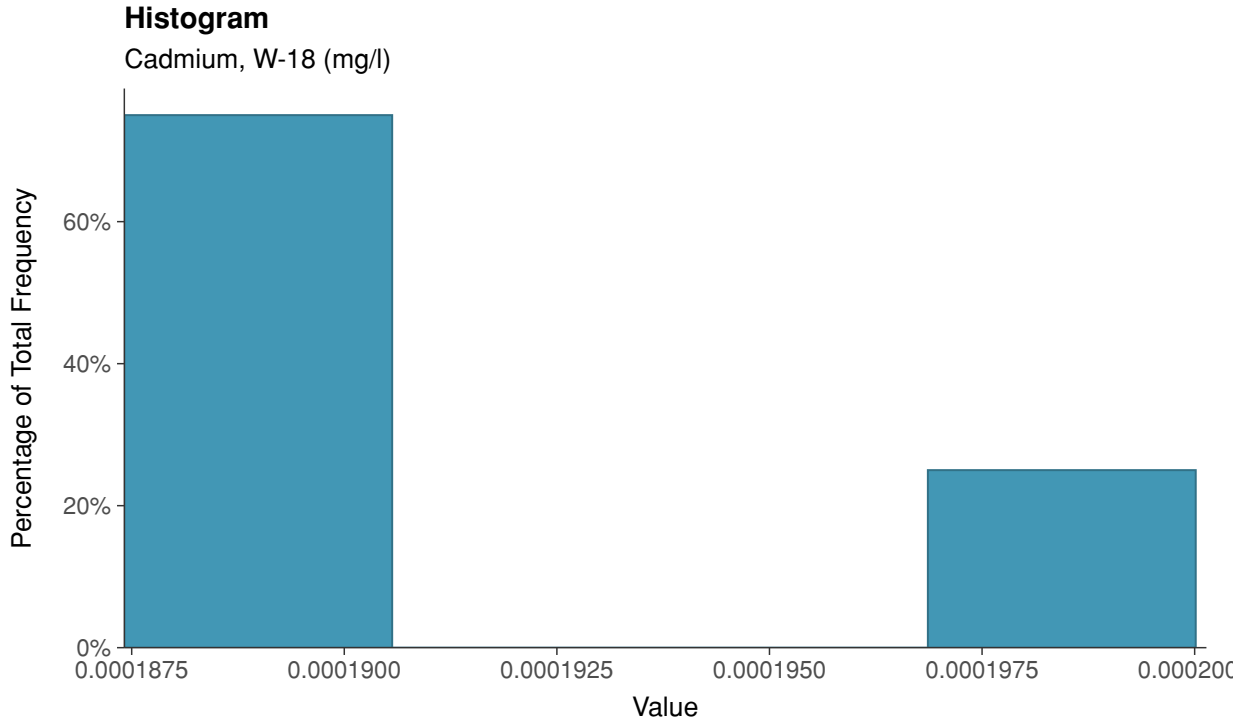
Beryllium, W-18 (mg/l)



Appendix IV: Cadmium, W-18

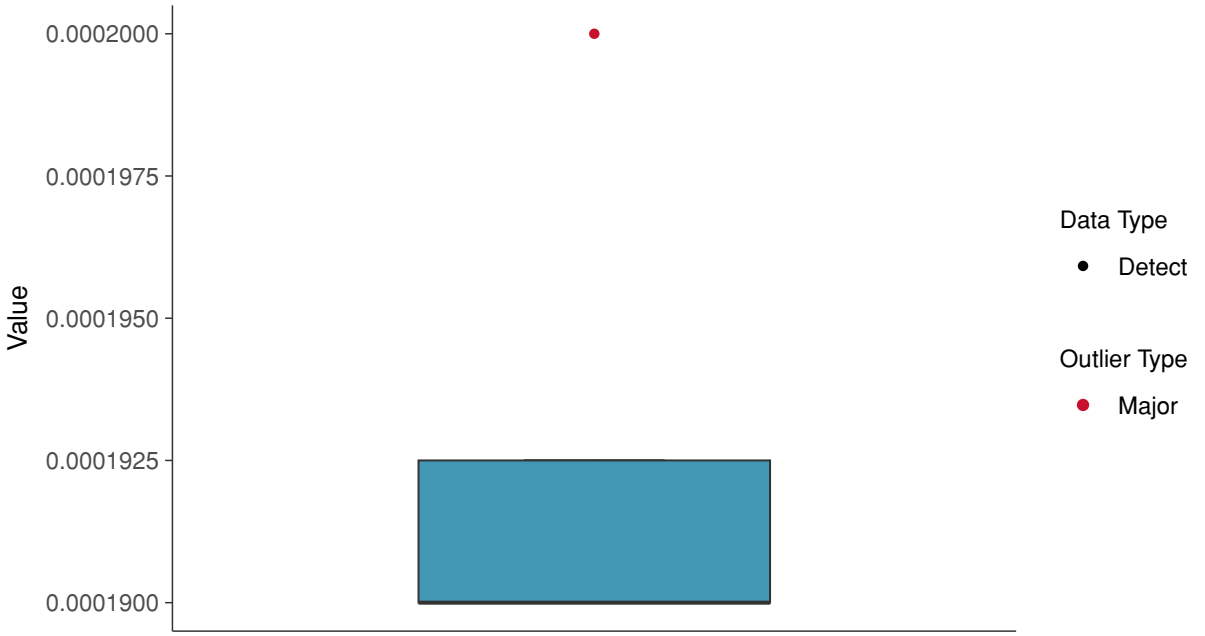
ID: 7_2_106





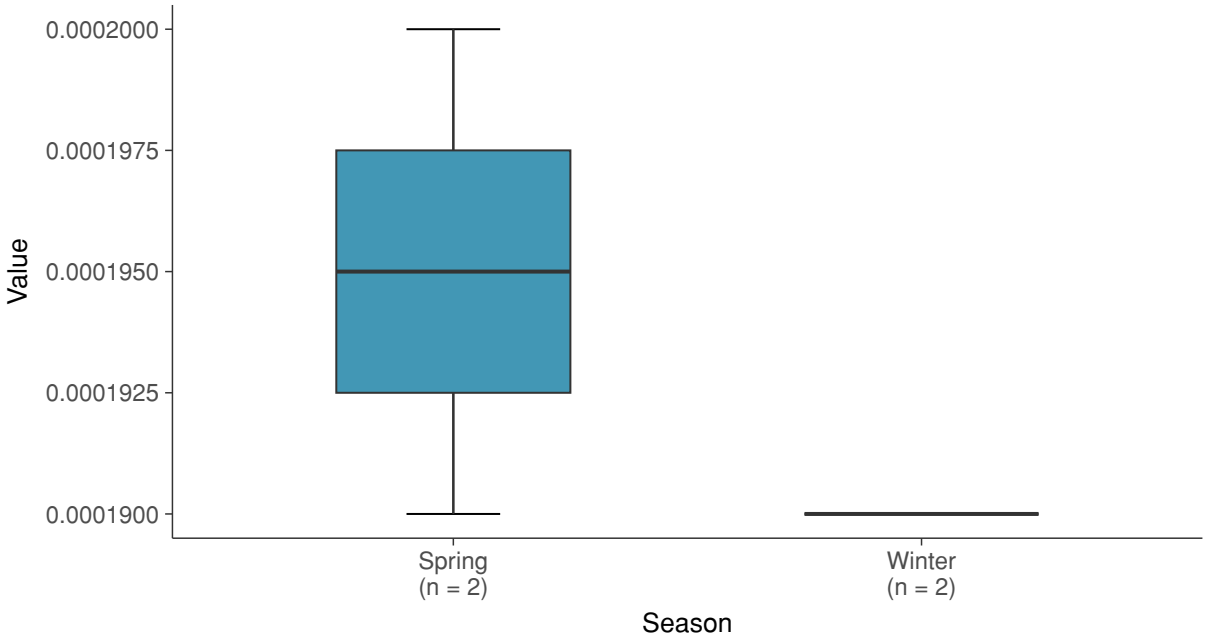
Boxplot

Cadmium, W-18 (mg/l)



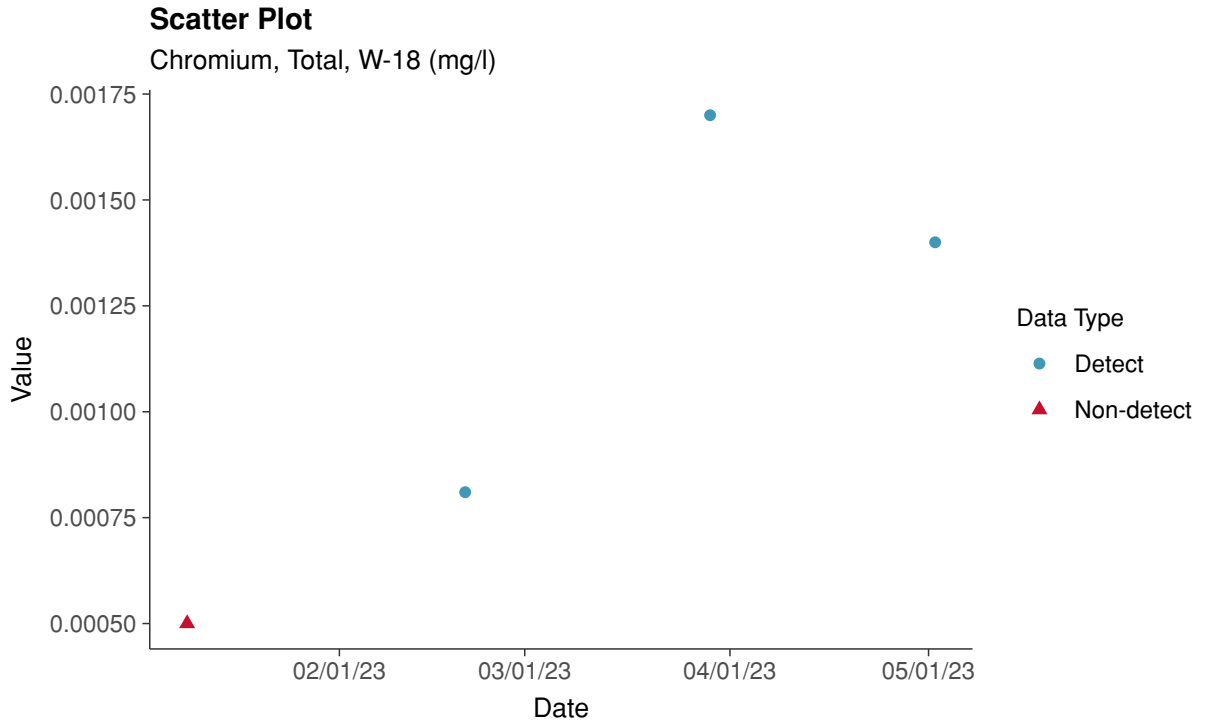
Boxplot by Season

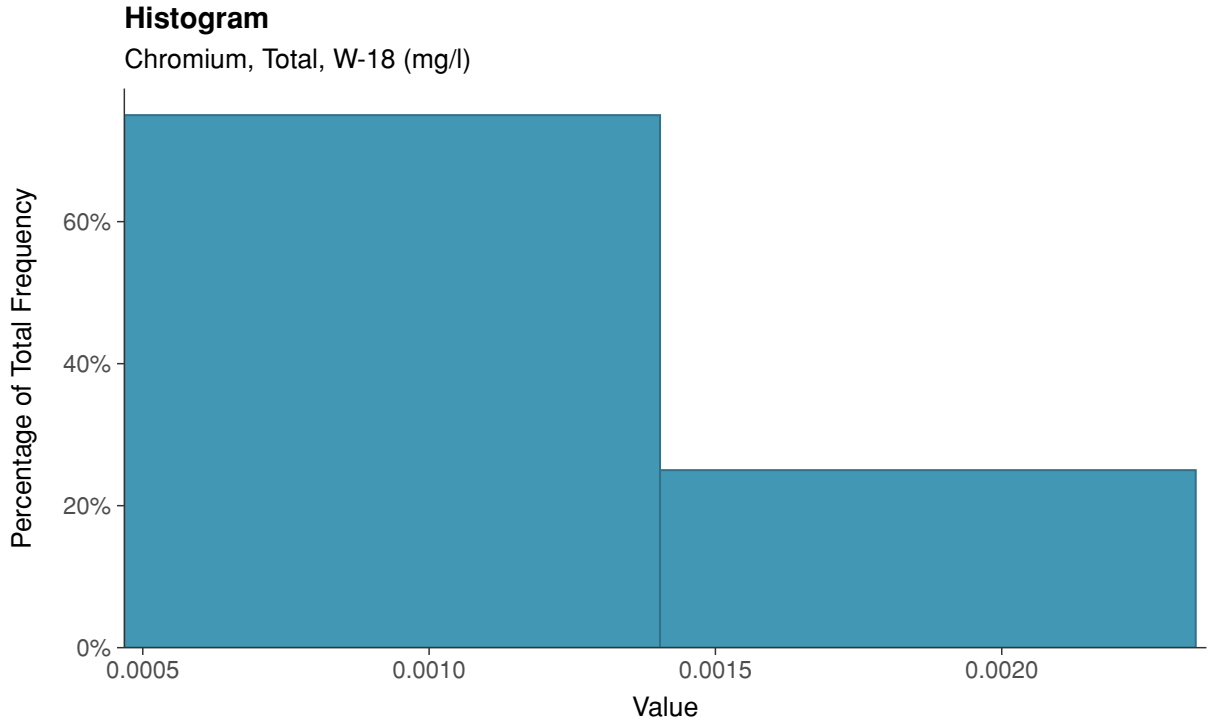
Cadmium, W-18 (mg/l)



Appendix IV: Chromium, Total, W-18

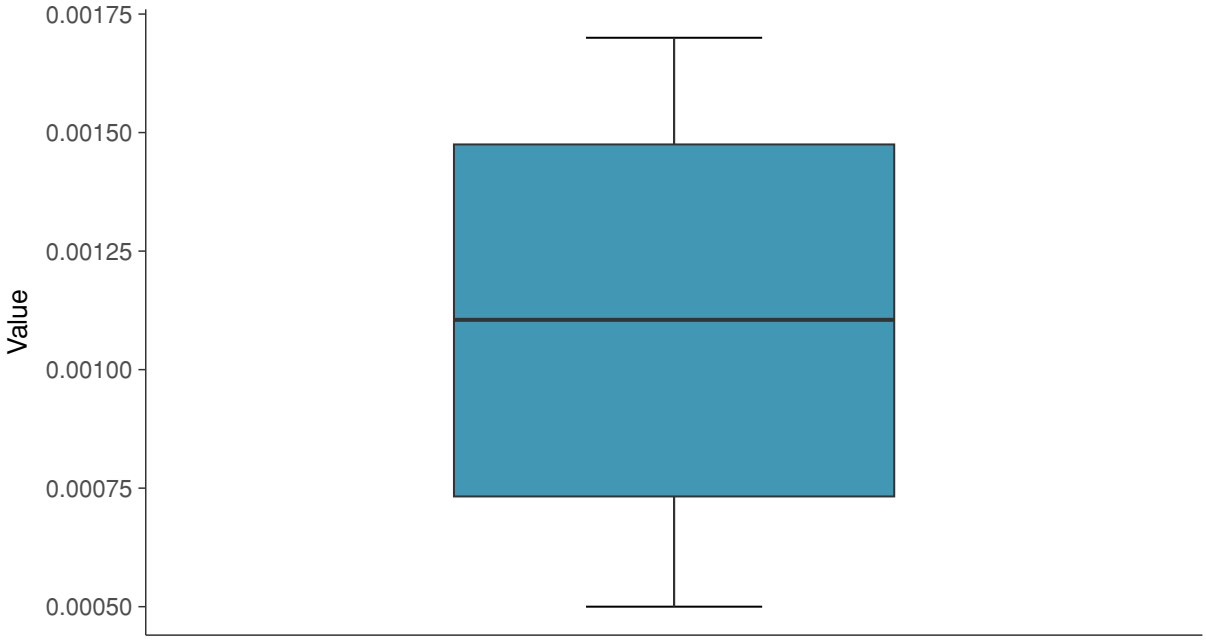
ID: 7_2_109





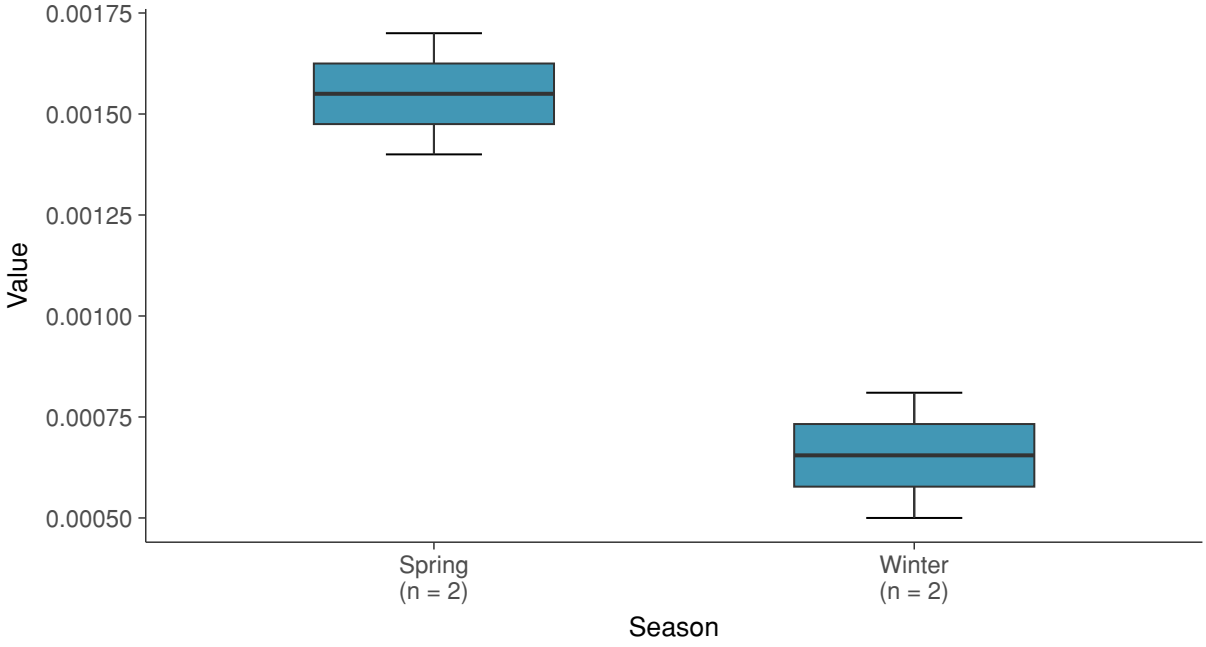
Boxplot

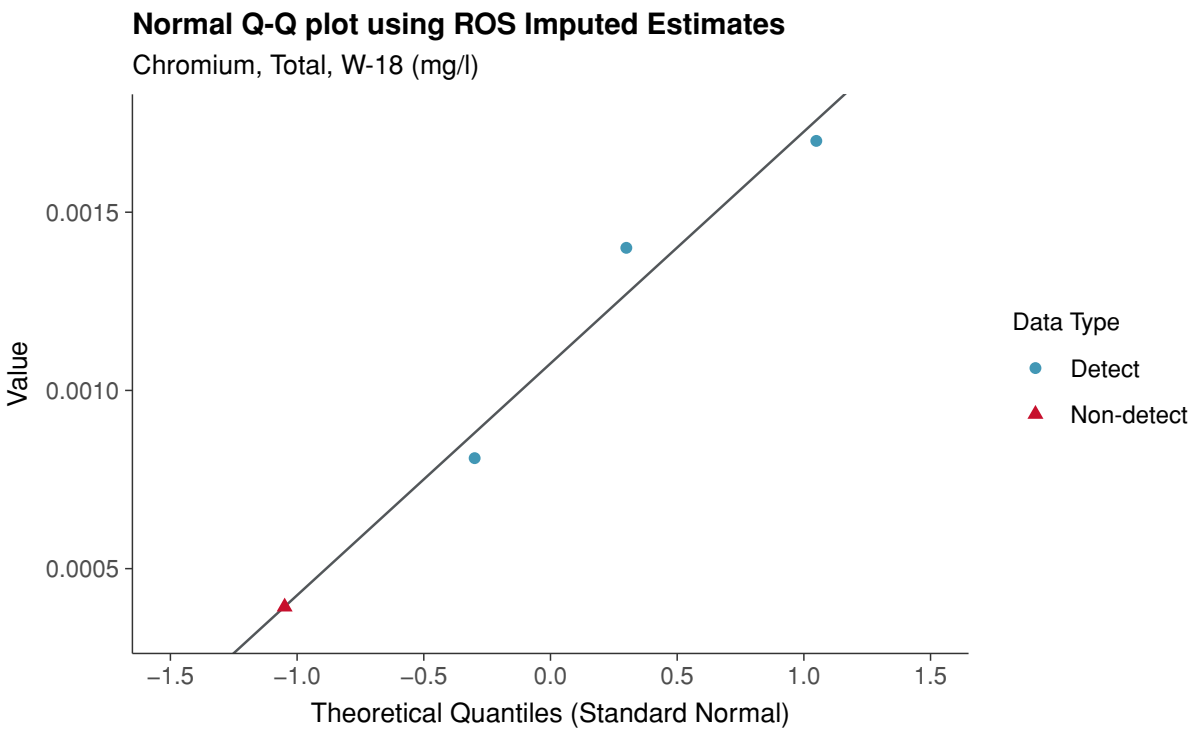
Chromium, Total, W-18 (mg/l)



Boxplot by Season

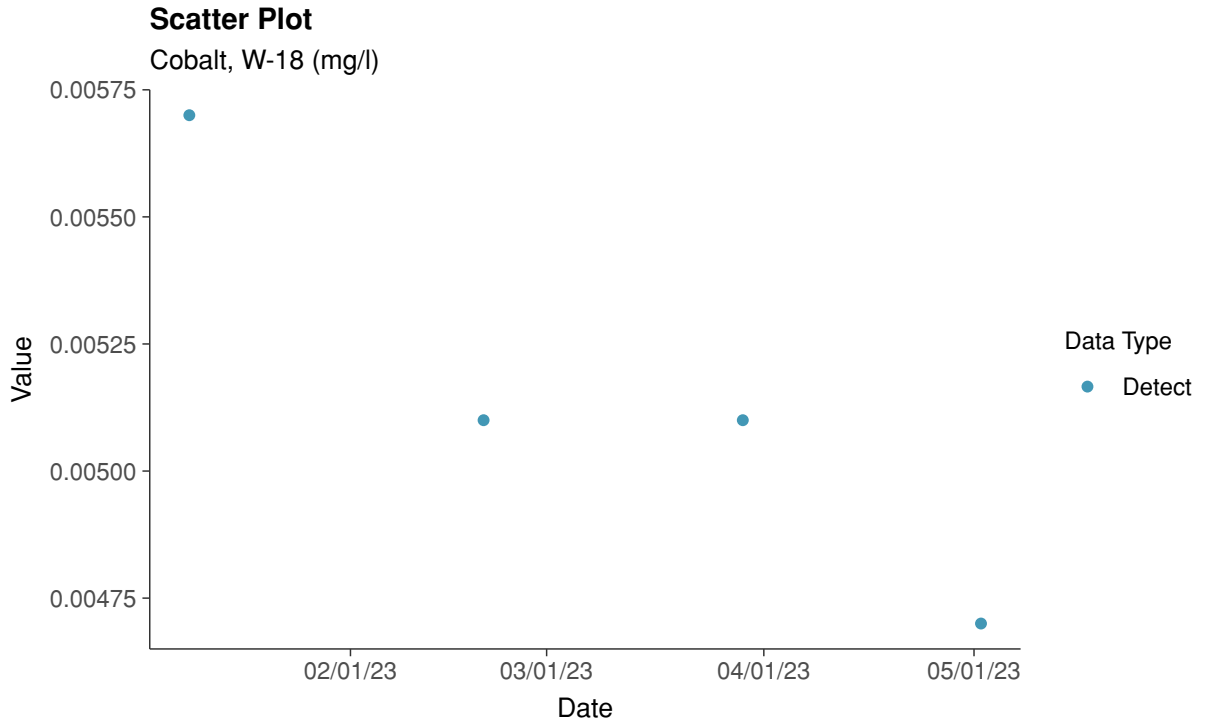
Chromium, Total, W-18 (mg/l)

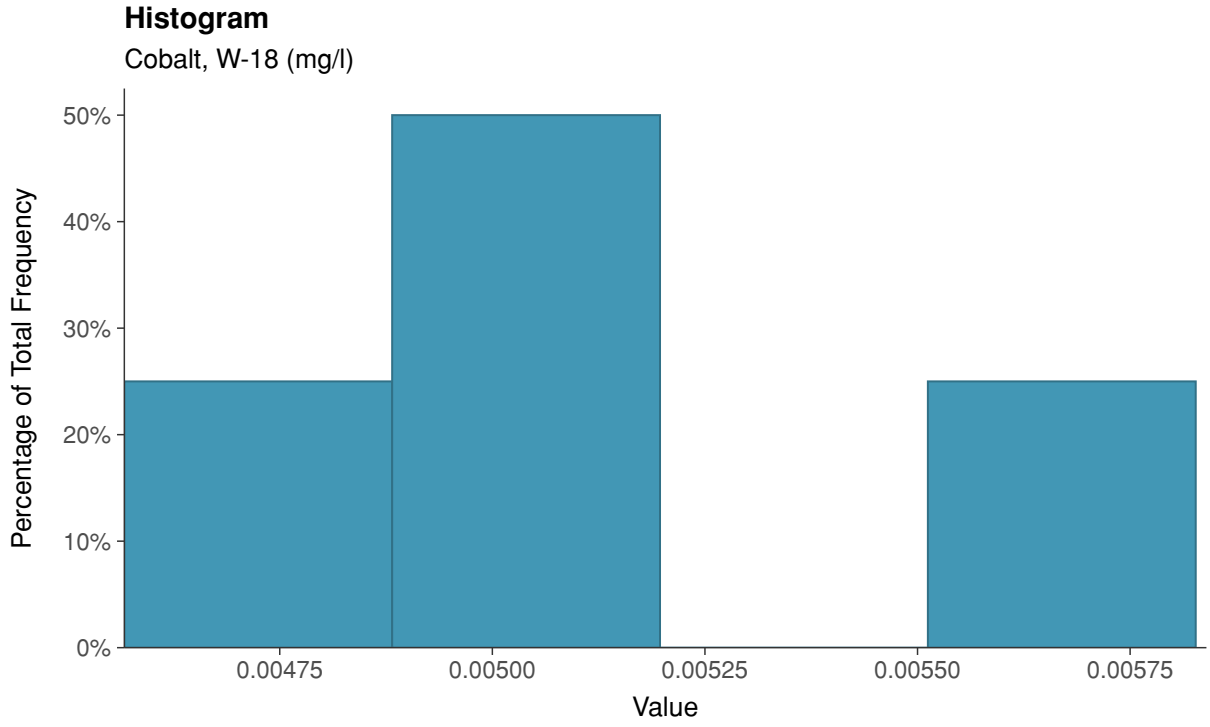



Normal Q-Q plot using ROS Imputed Estimates
Chromium, Total, W-18 (mg/l)
Value
0.0015
0.0010
0.0005
−1.5
−1.0
−0.5
0.0
0.5
1.0
1.5
Theoretical Quantiles (Standard Normal)
Data Type
Detect
Non-detect

Appendix IV: Cobalt, W-18

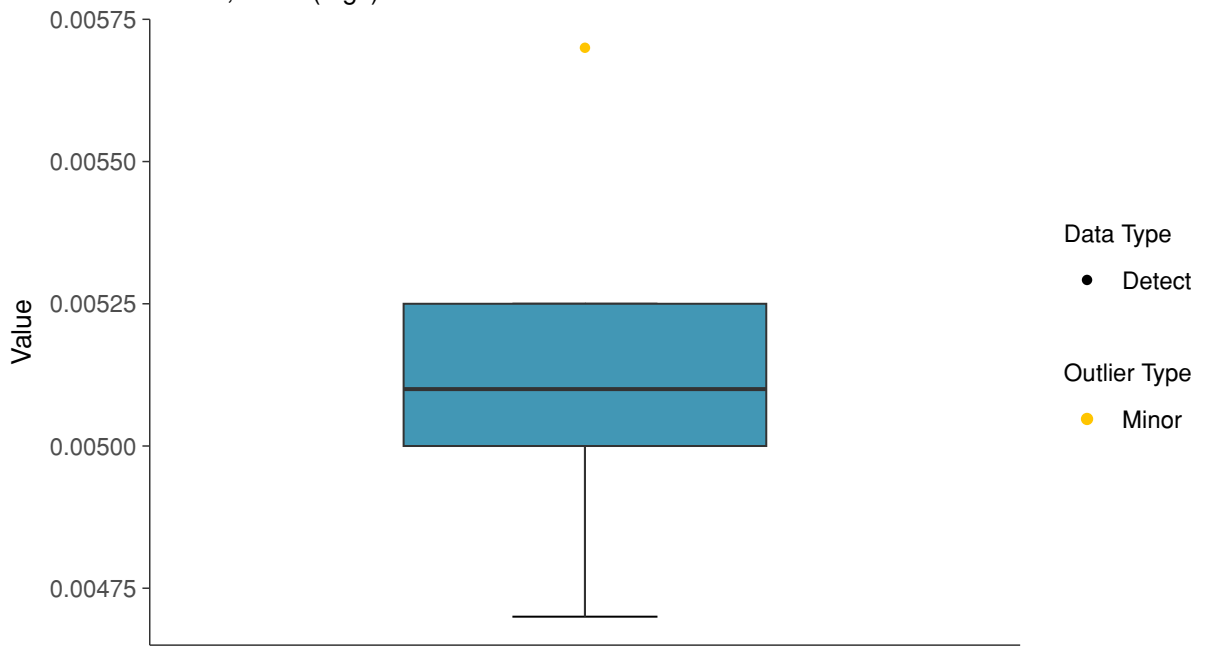
ID: 7_2_110





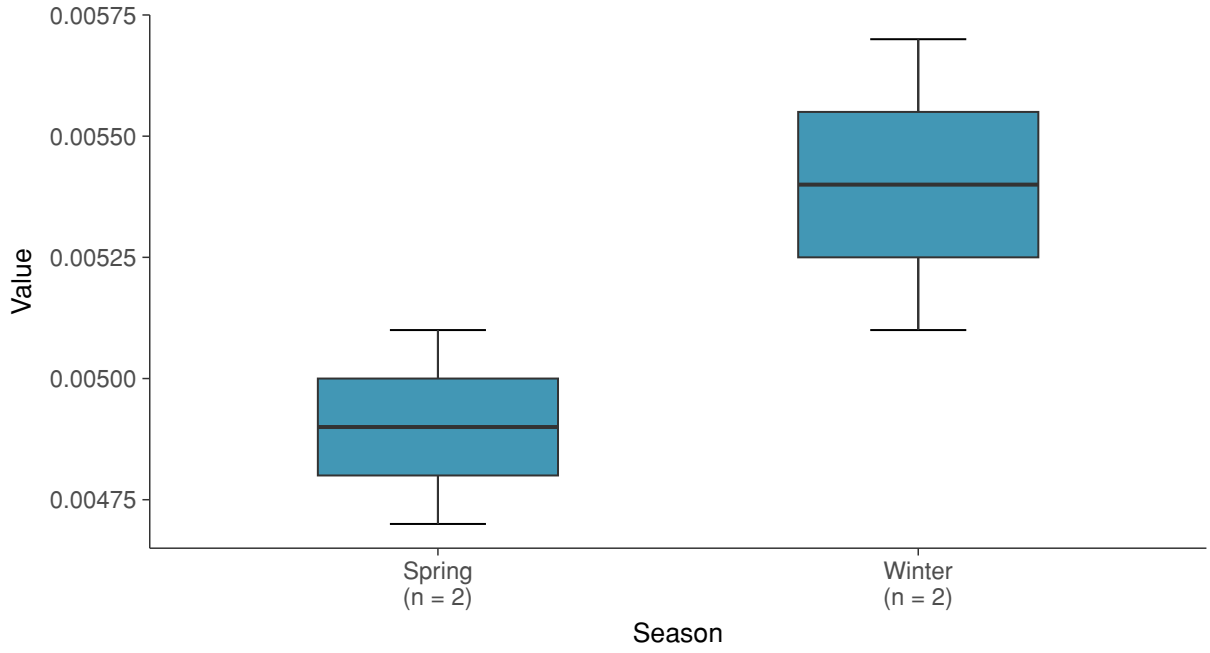
Boxplot

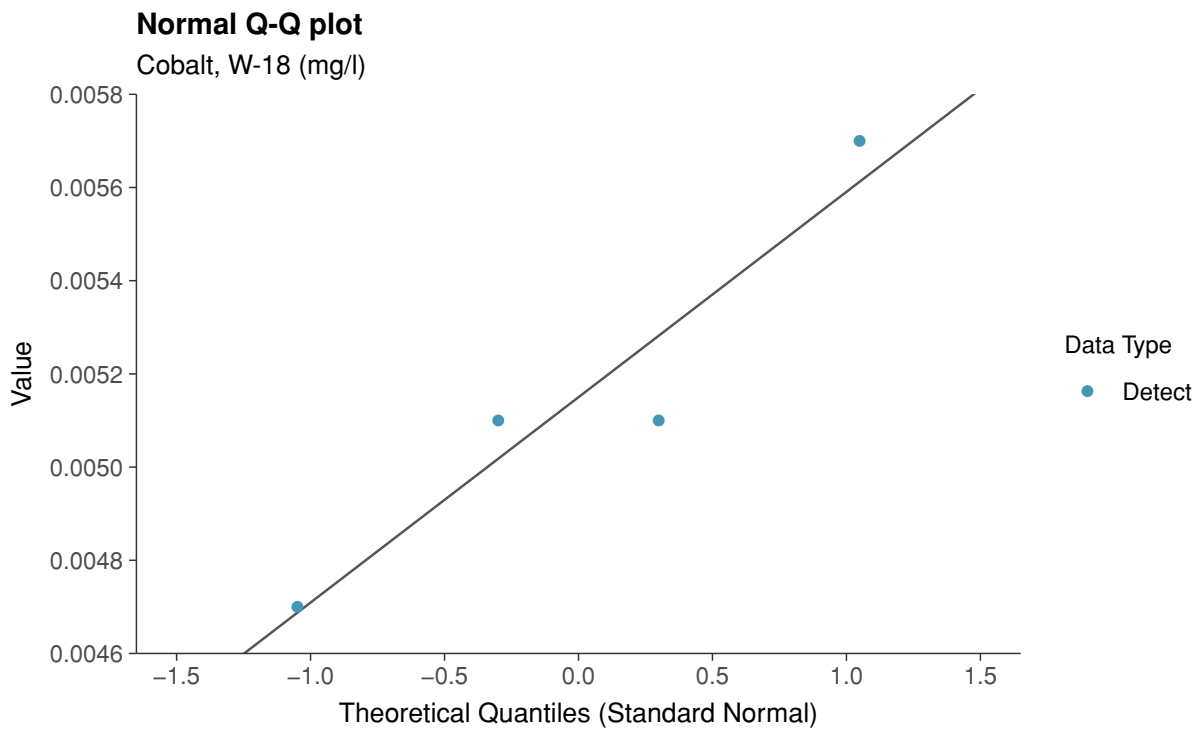
Cobalt, W-18 (mg/l)



Boxplot by Season

Cobalt, W-18 (mg/l)



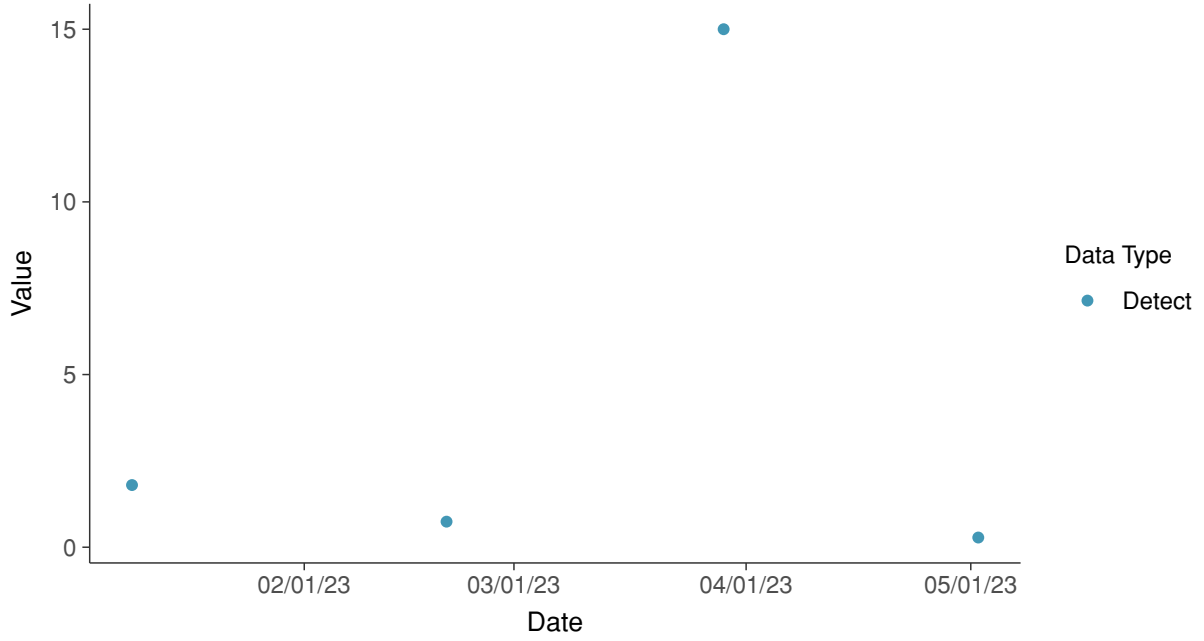

Normal Q-Q plot
Cobalt, W-18 (mg/l)
Value
0.0058
0.0056
0.0054
0.0052
0.0050
0.0048
0.0046
−1.5
−1.0
−0.5
0.0
0.5
1.0
1.5
Theoretical Quantiles (Standard Normal)
Data Type
Detect

Appendix IV: Fluoride (App IV), W-18

ID: 7_2_112

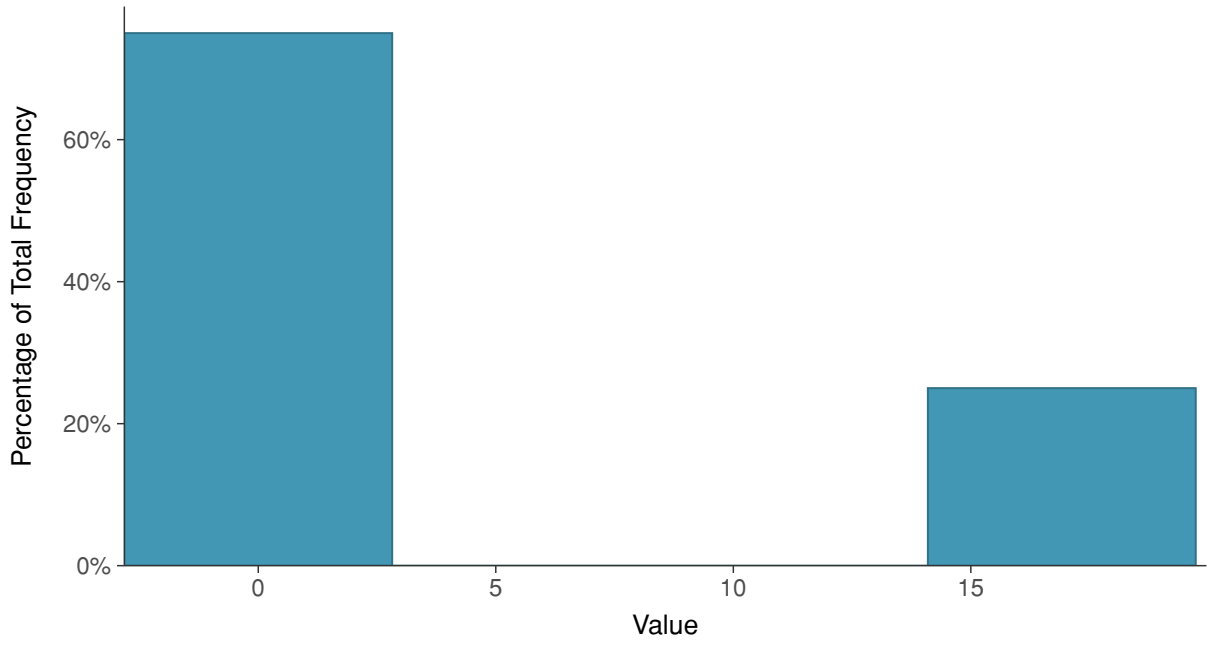
Scatter Plot

Fluoride (App IV), W-18 (mg/l)



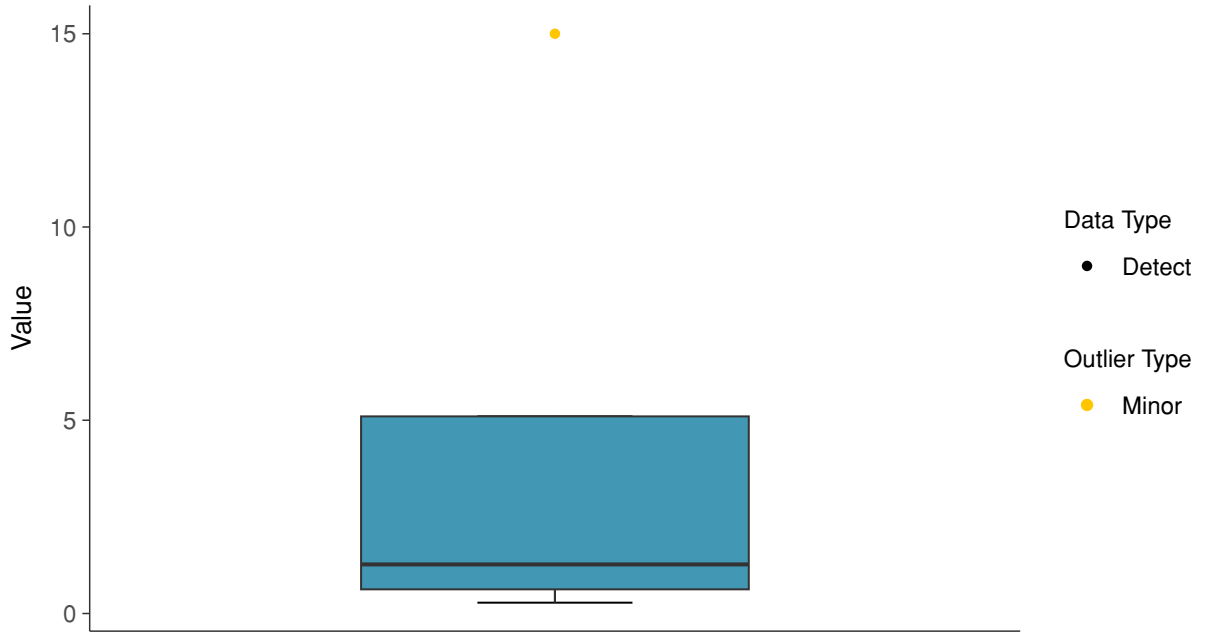
Histogram

Fluoride (App IV), W-18 (mg/l)



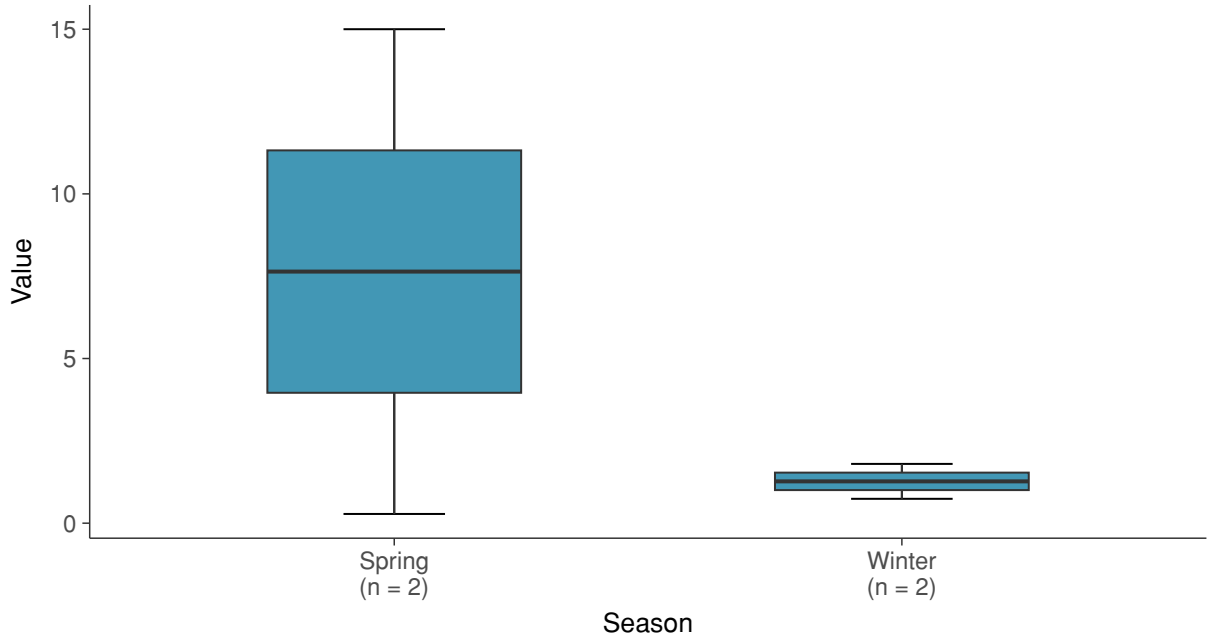
Boxplot

Fluoride (App IV), W-18 (mg/l)



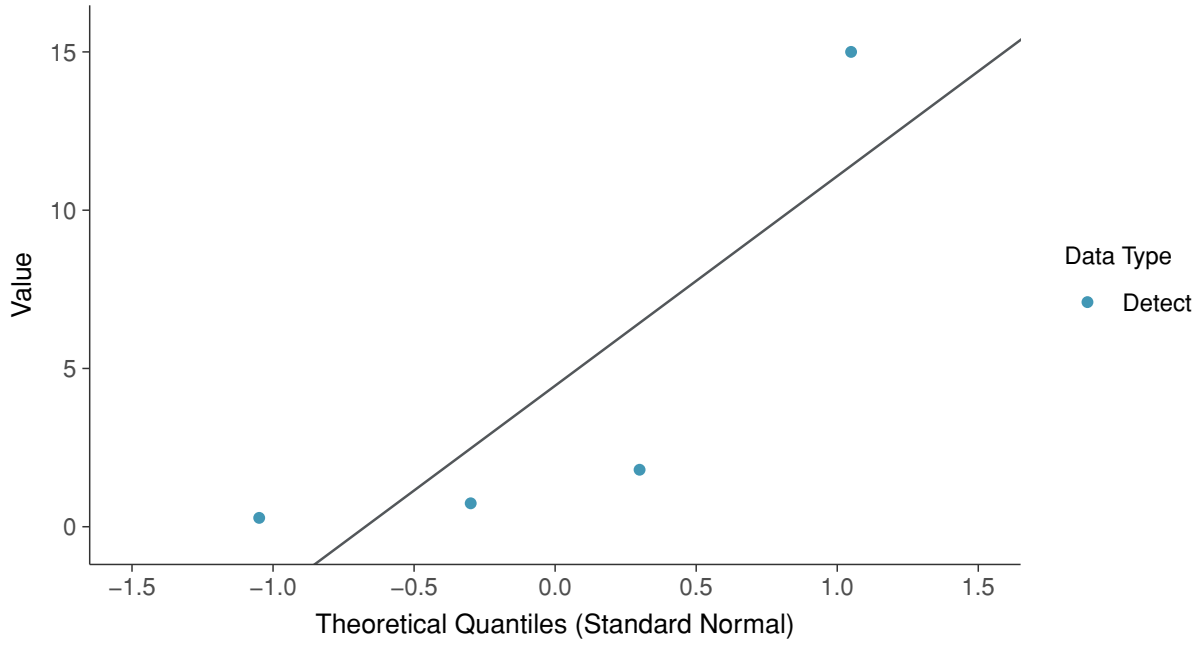
Boxplot by Season

Fluoride (App IV), W-18 (mg/l)



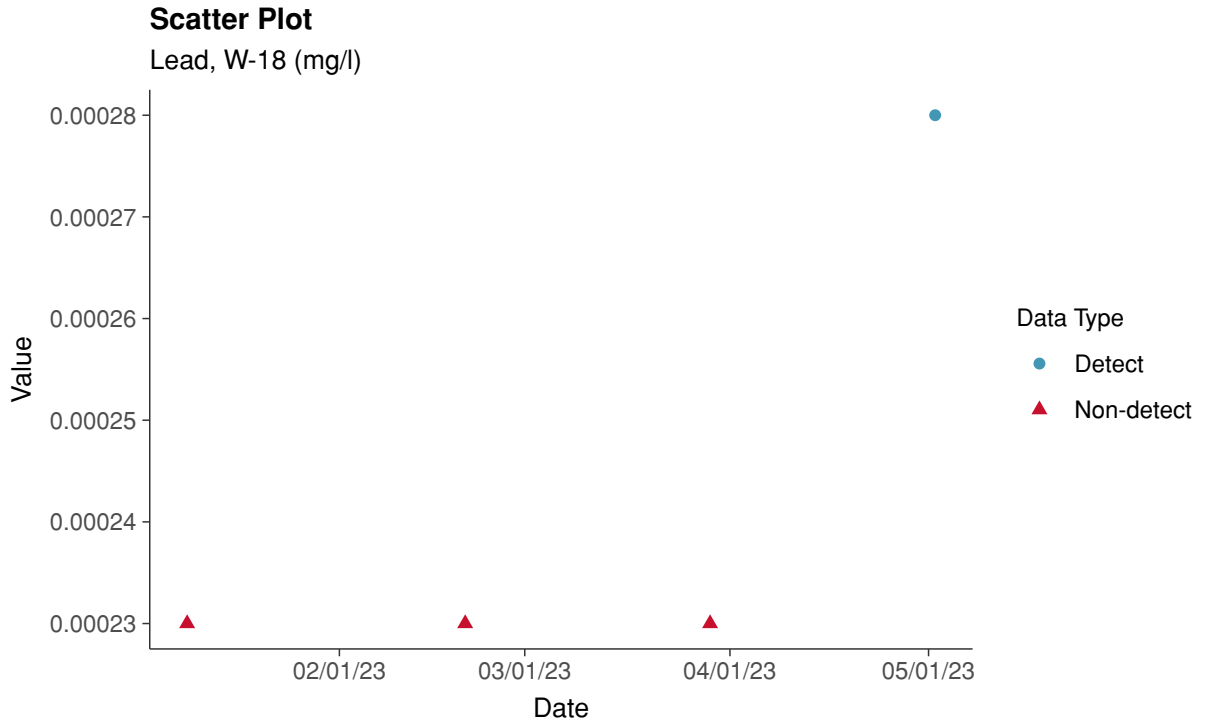
Normal Q-Q plot

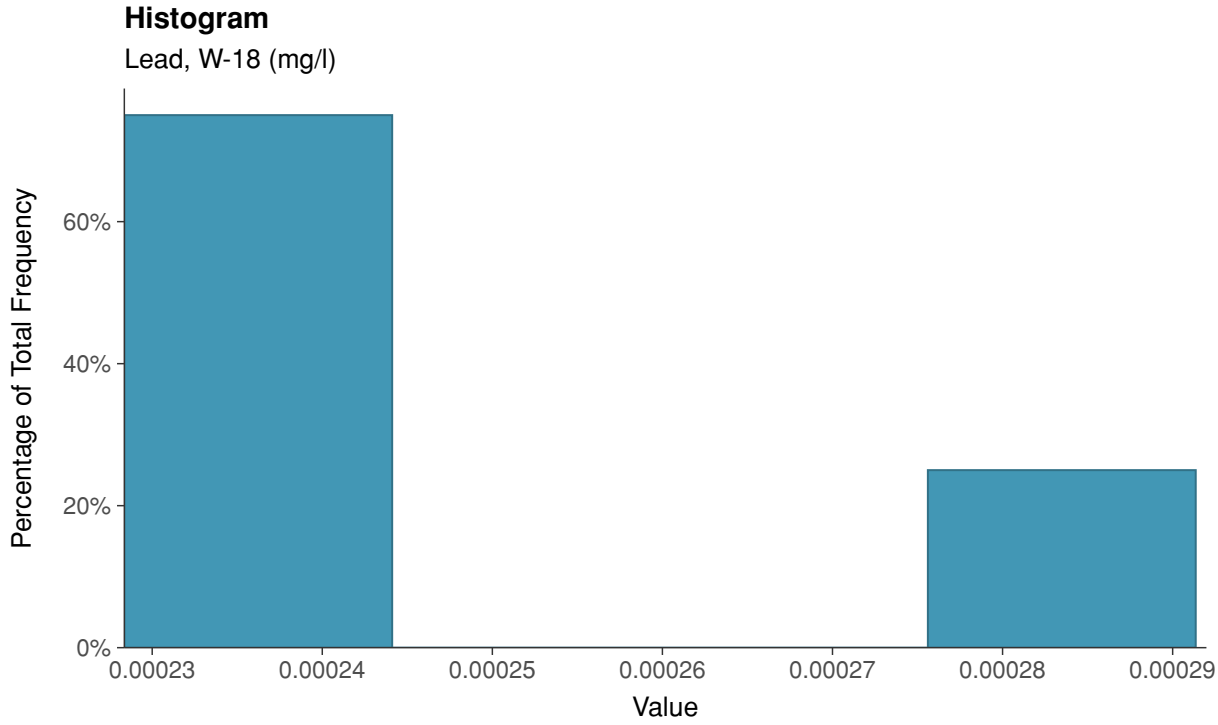
Fluoride (App IV), W-18 (mg/l)



Appendix IV: Lead, W-18

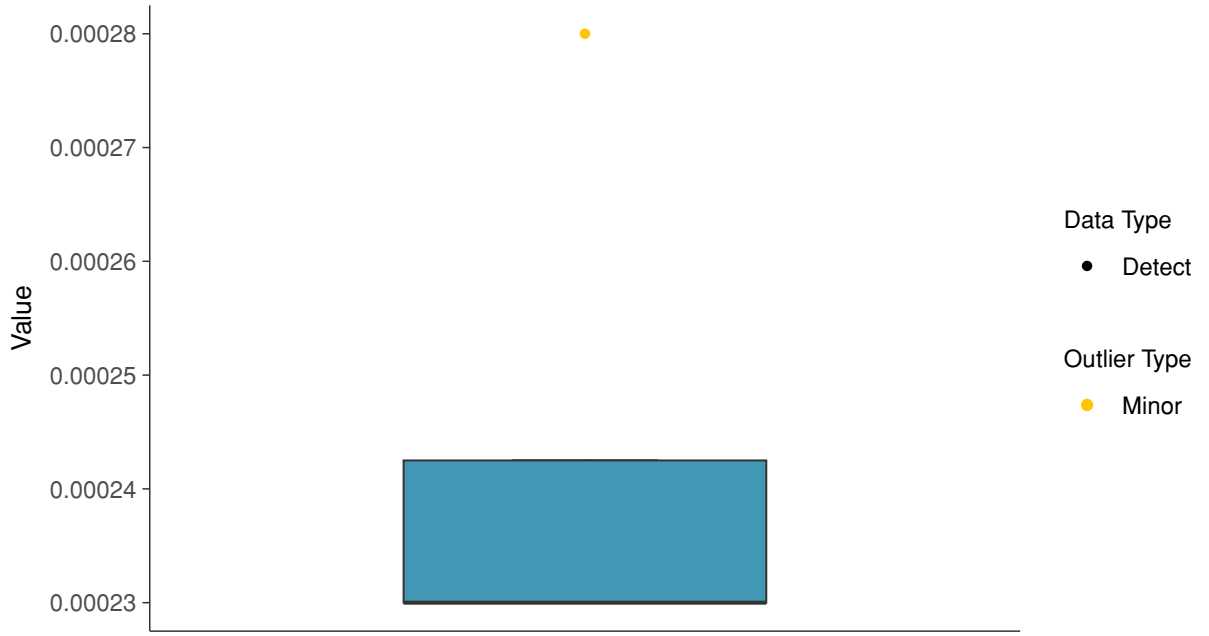
ID: 7_2_113





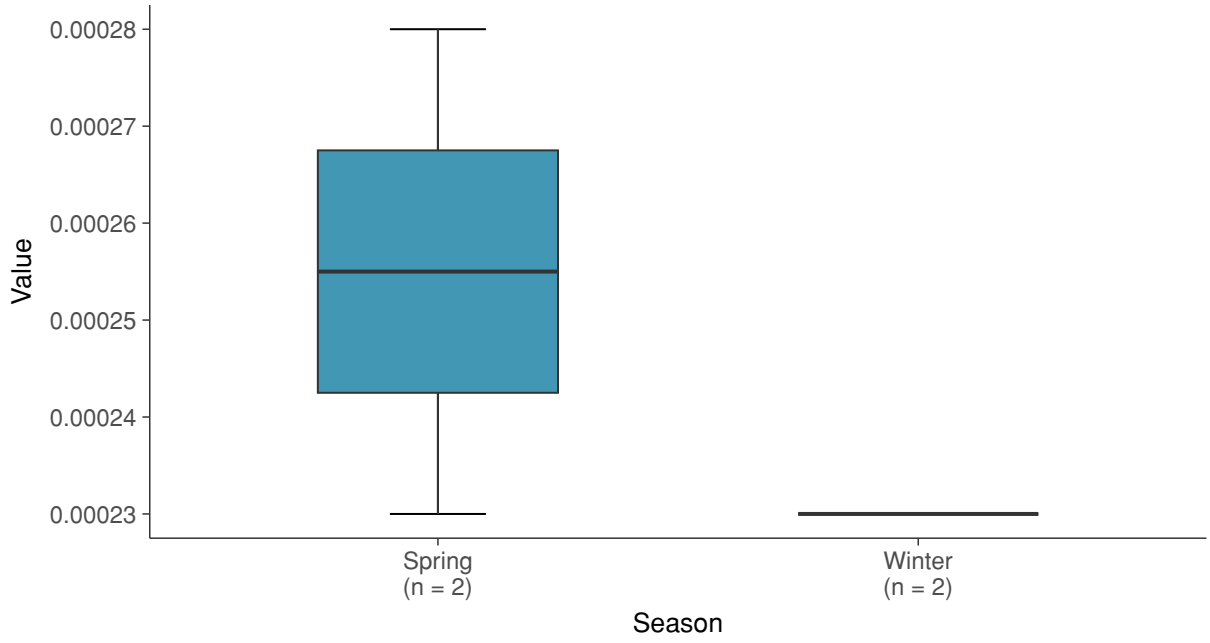
Boxplot

Lead, W-18 (mg/l)



Boxplot by Season

Lead, W-18 (mg/l)

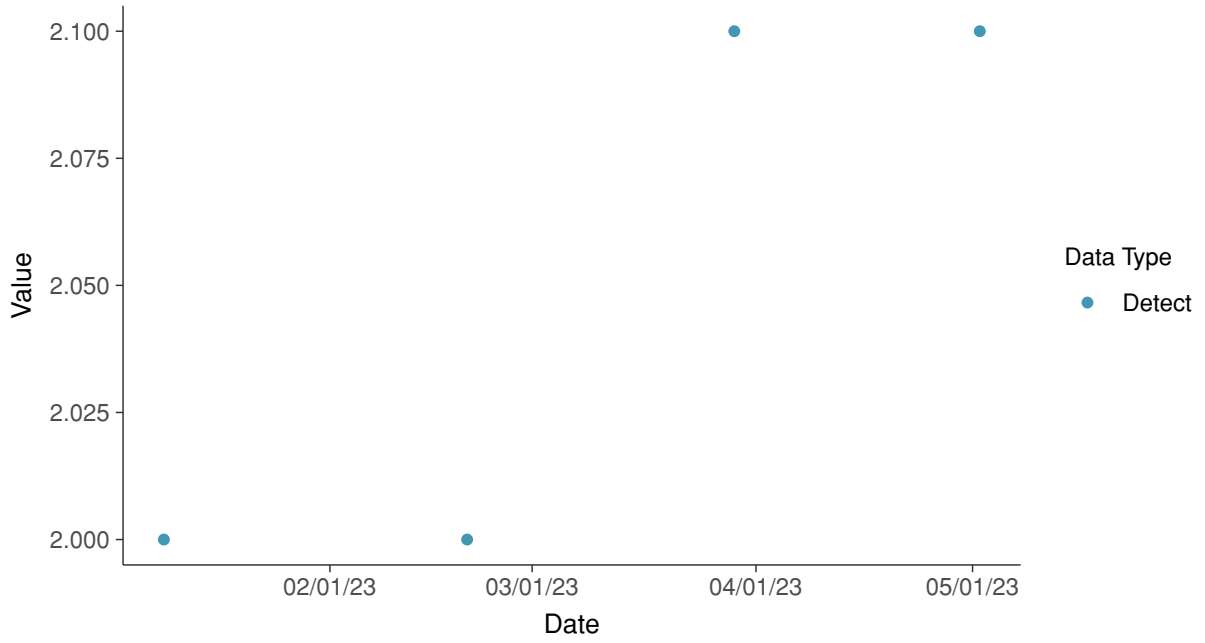


Appendix IV: Lithium, W-18

ID: 7_2_114

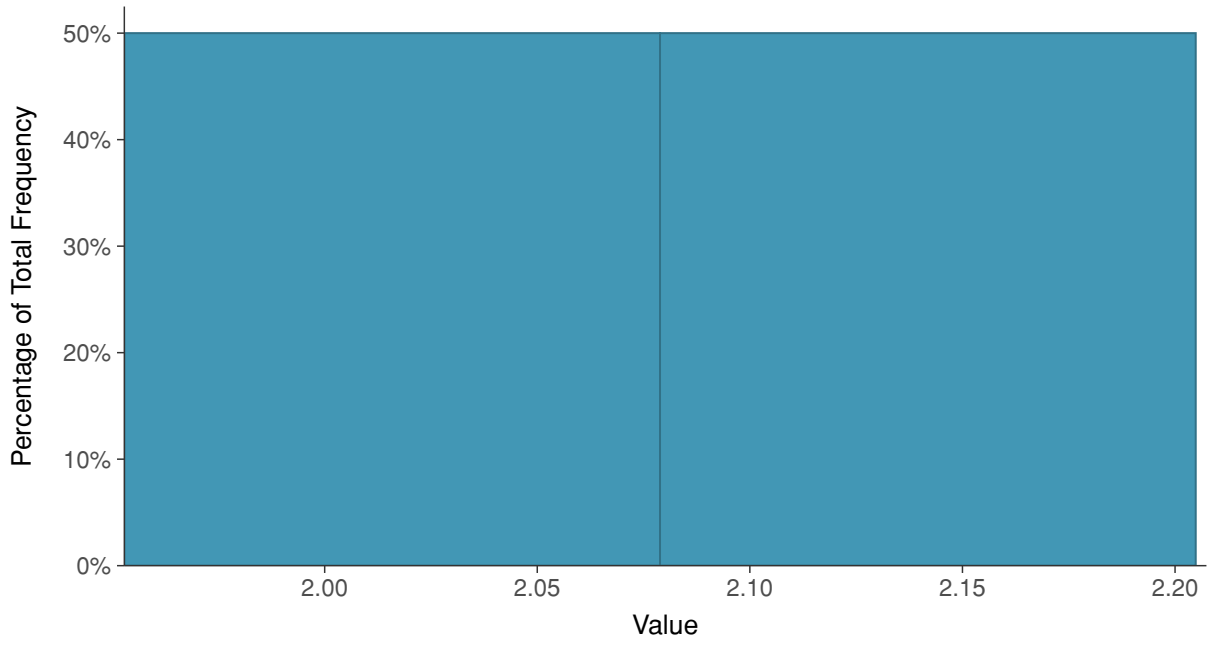
Scatter Plot

Lithium, W-18 (mg/l)



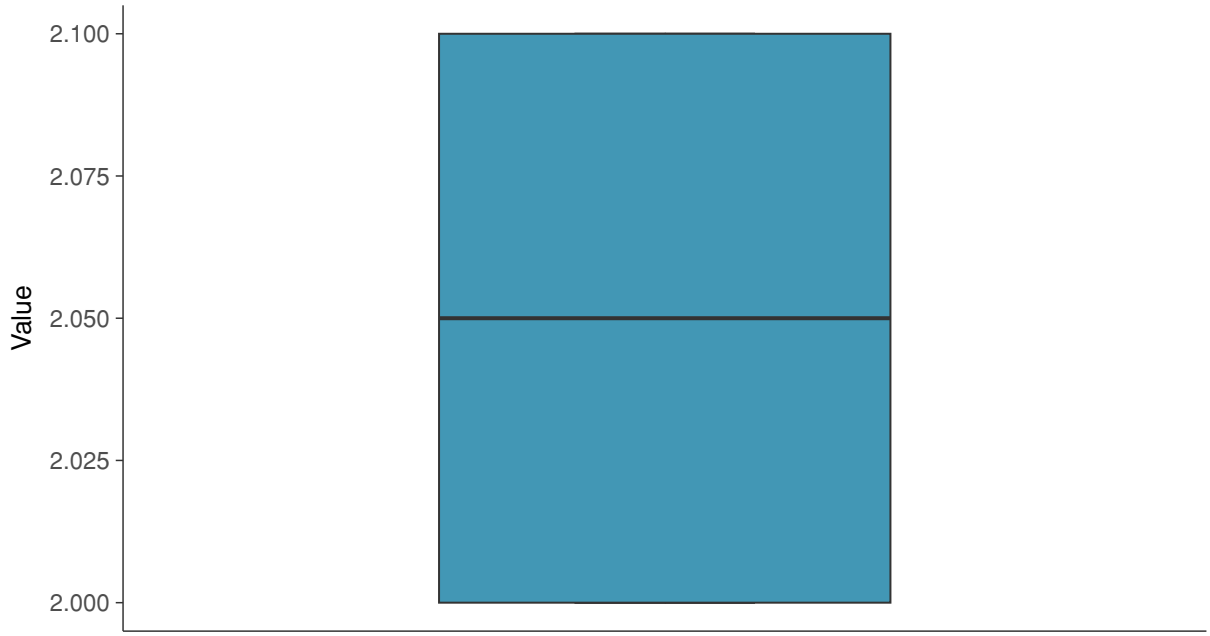
Histogram

Lithium, W-18 (mg/l)



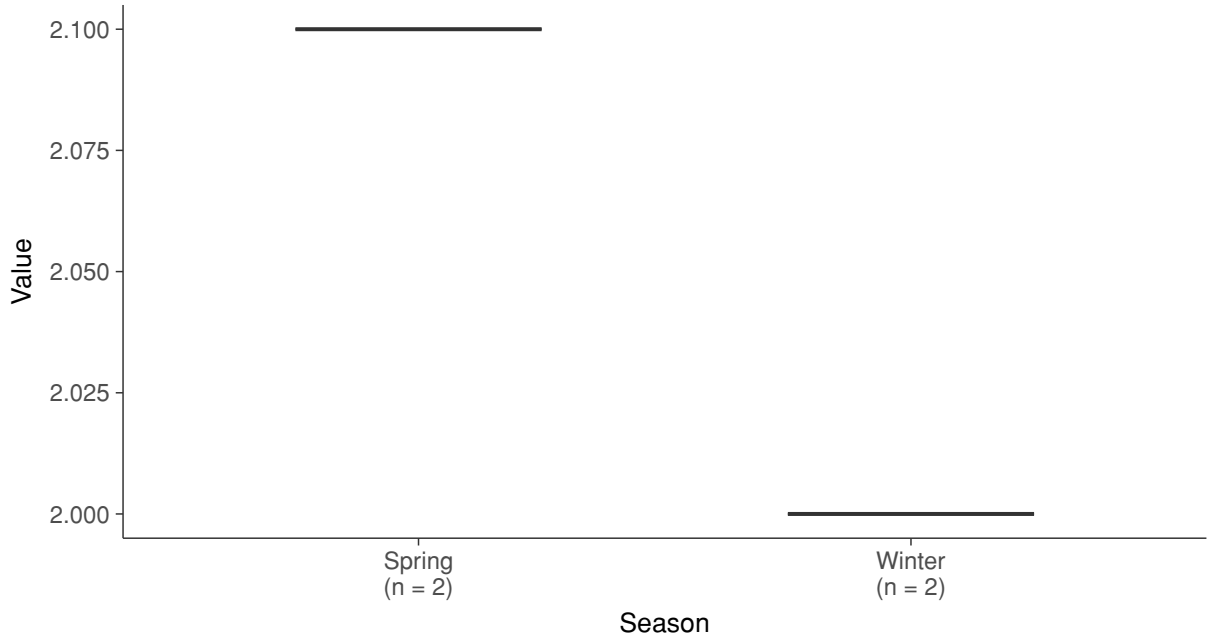
Boxplot

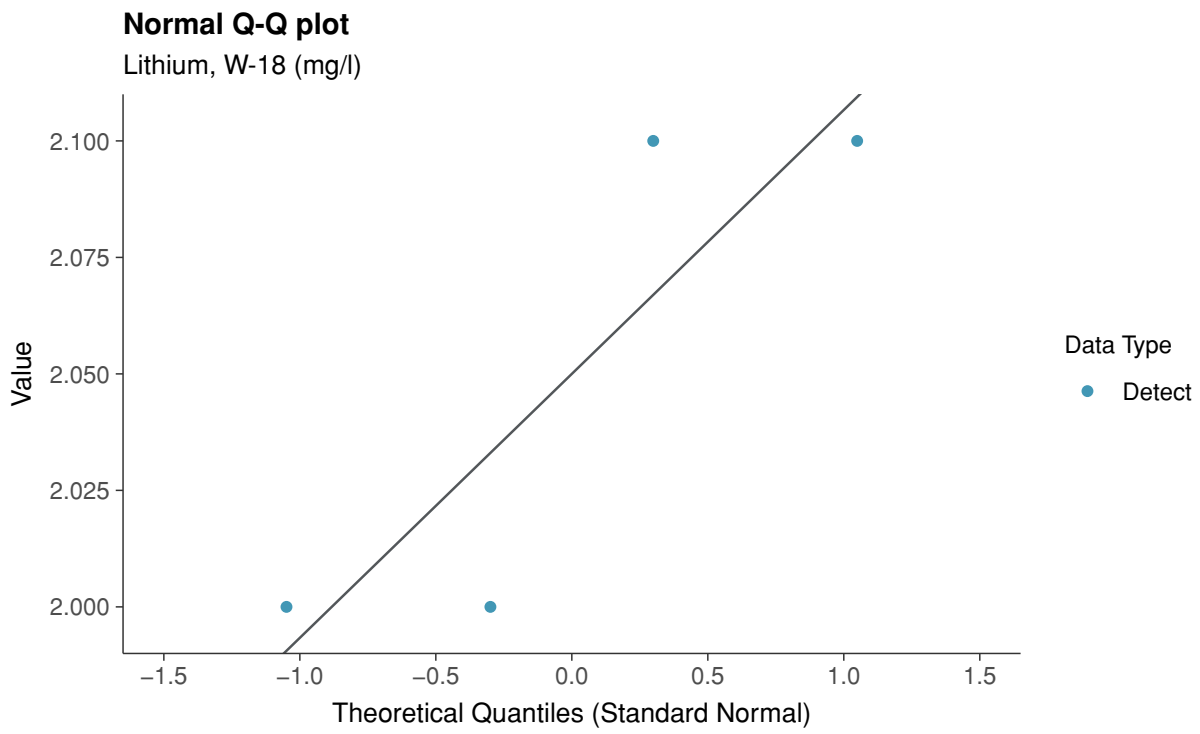
Lithium, W-18 (mg/l)



Boxplot by Season

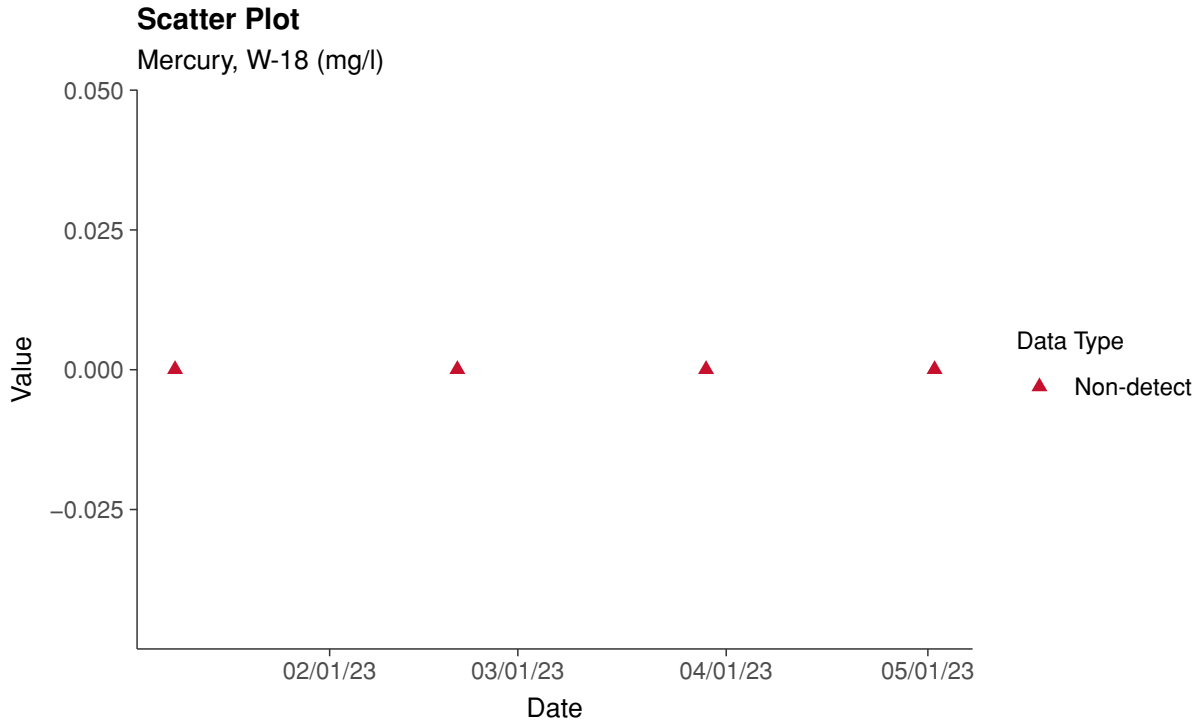
Lithium, W-18 (mg/l)

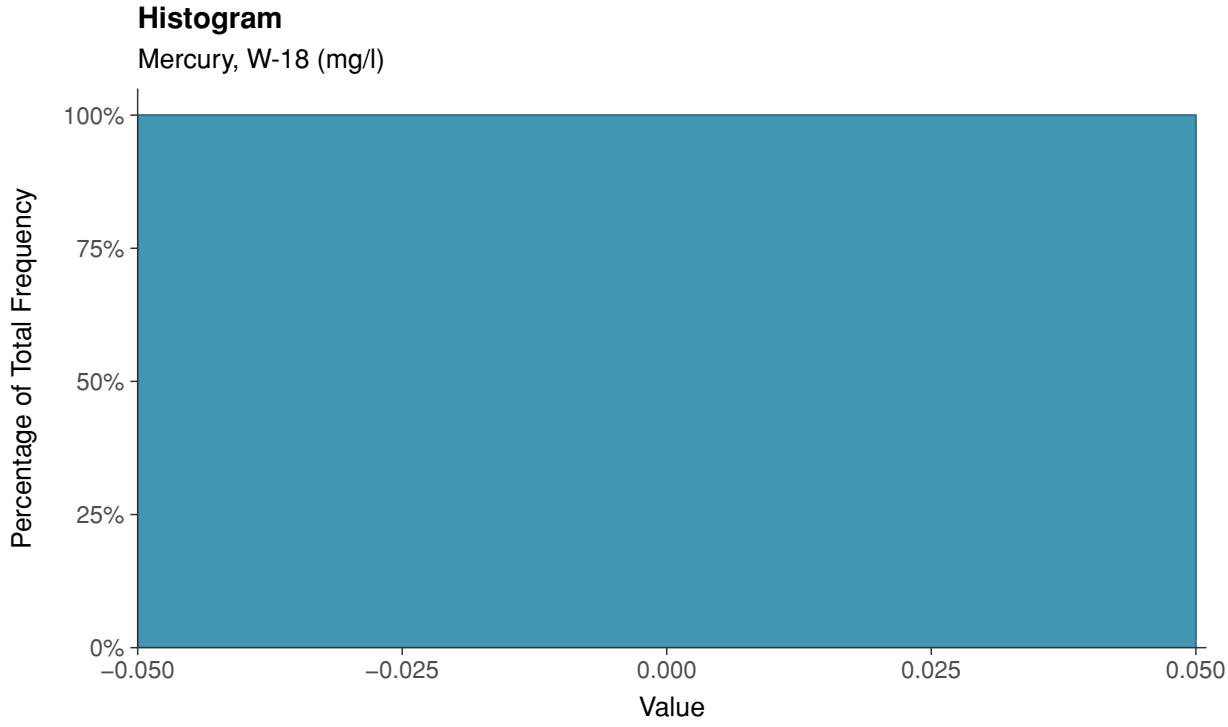



Normal Q-Q plot
Lithium, W-18 (mg/l)
Value
2.100
2.075
2.050
2.025
2.000
−1.5
−1.0
−0.5
0.0
0.5
1.0
1.5
Theoretical Quantiles (Standard Normal)
Data Type
Detect

Appendix IV: Mercury, W-18

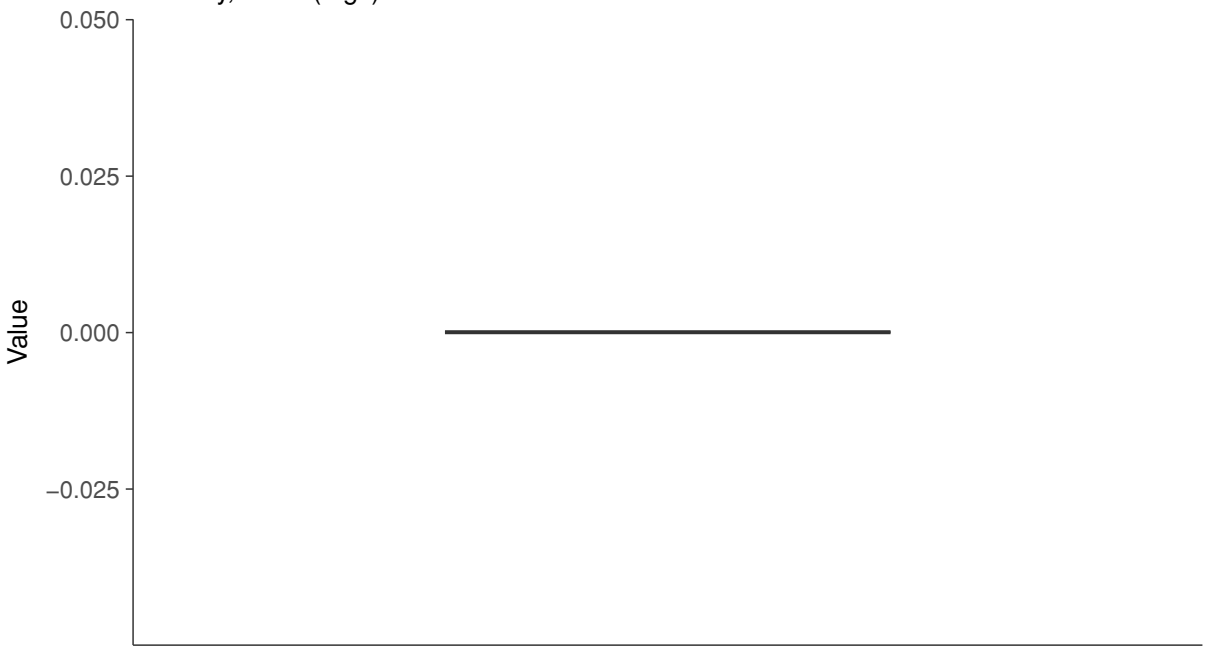
ID: 7_2_115





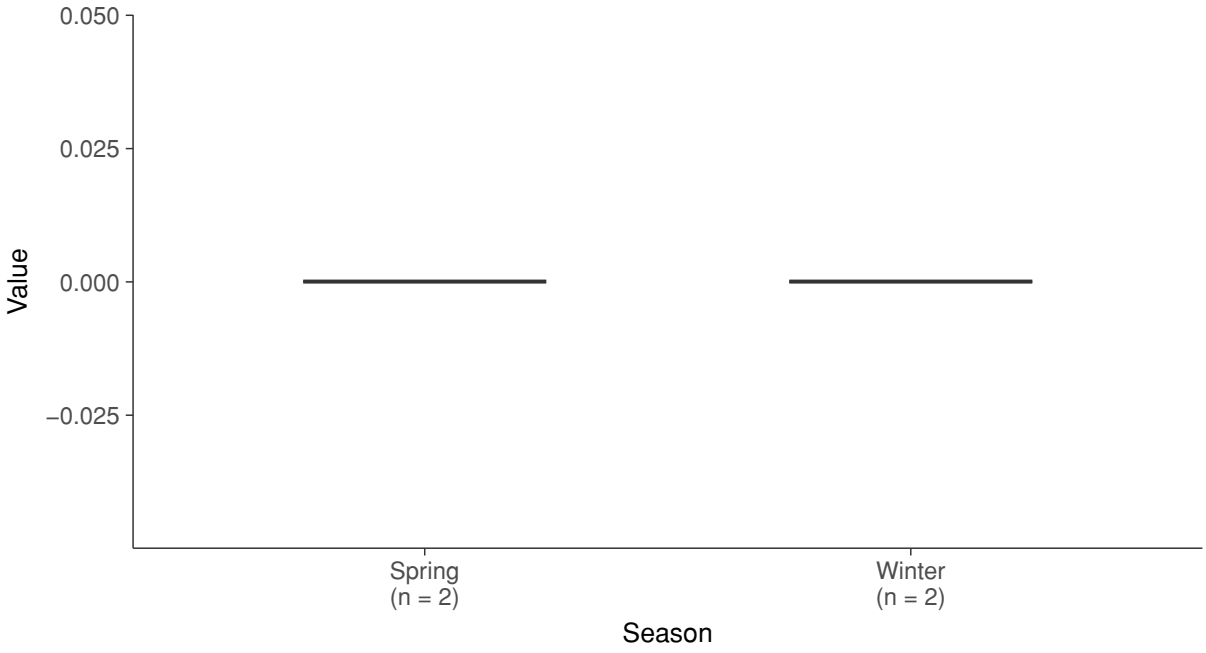
Boxplot

Mercury, W-18 (mg/l)



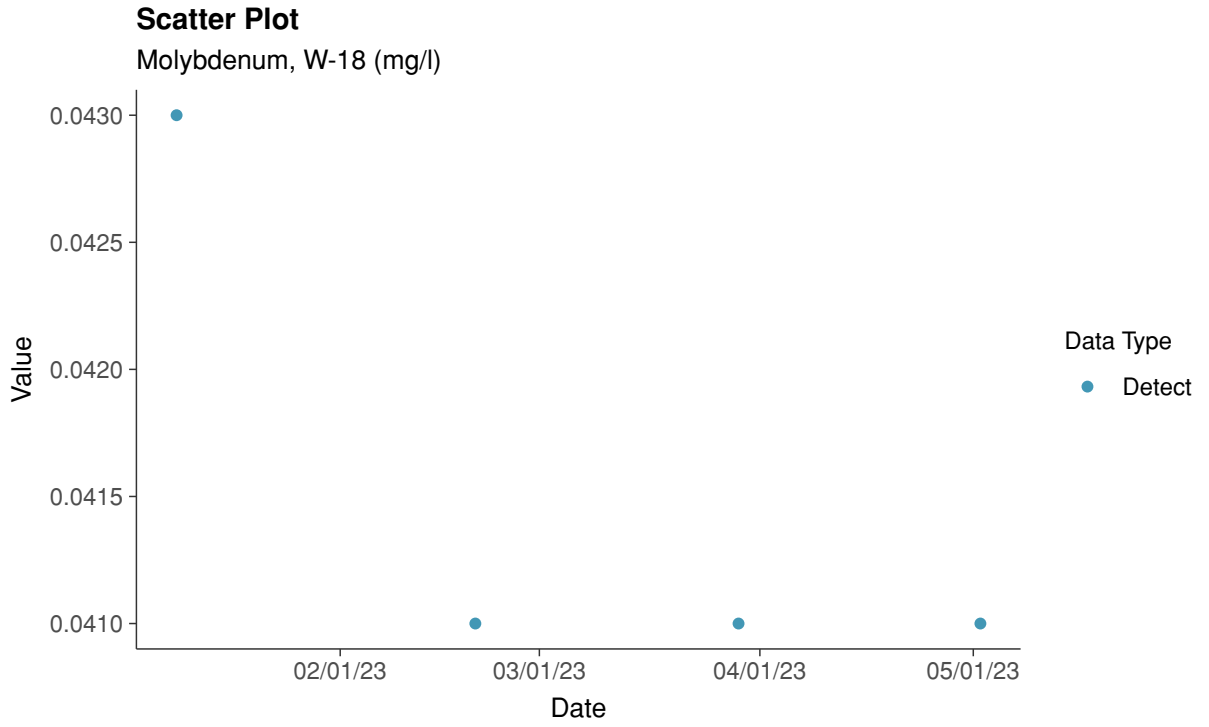
Boxplot by Season

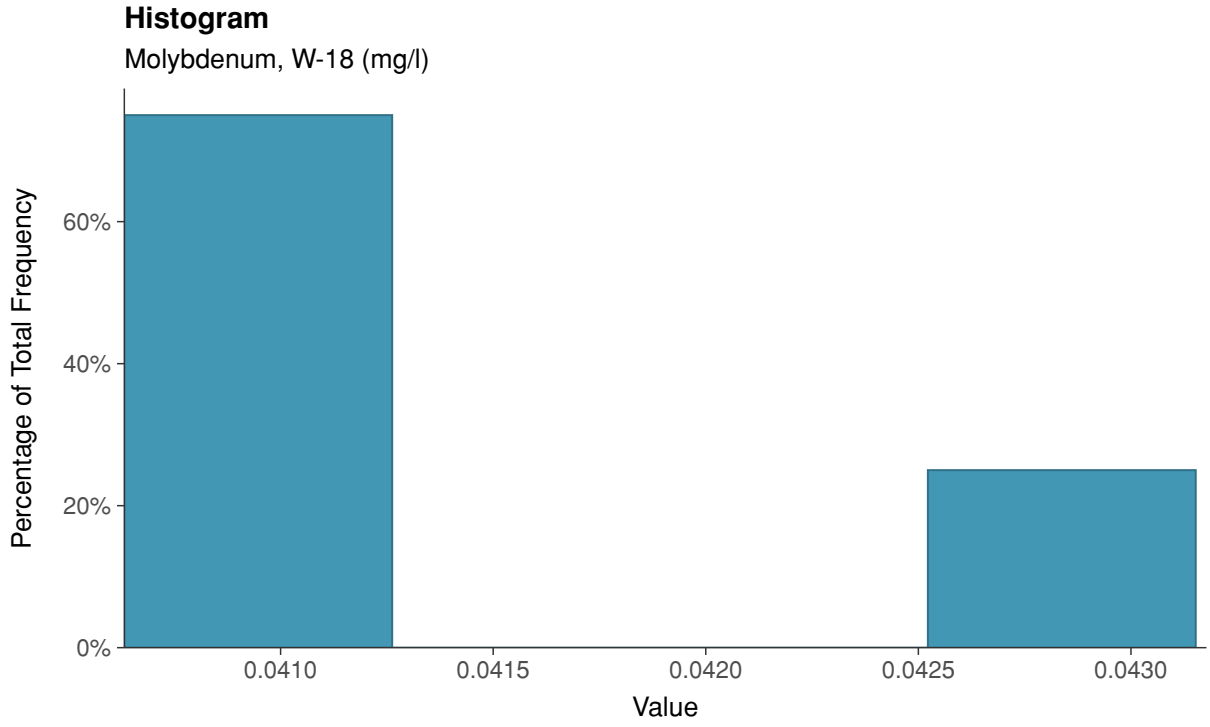
Mercury, W-18 (mg/l)



Appendix IV: Molybdenum, W-18

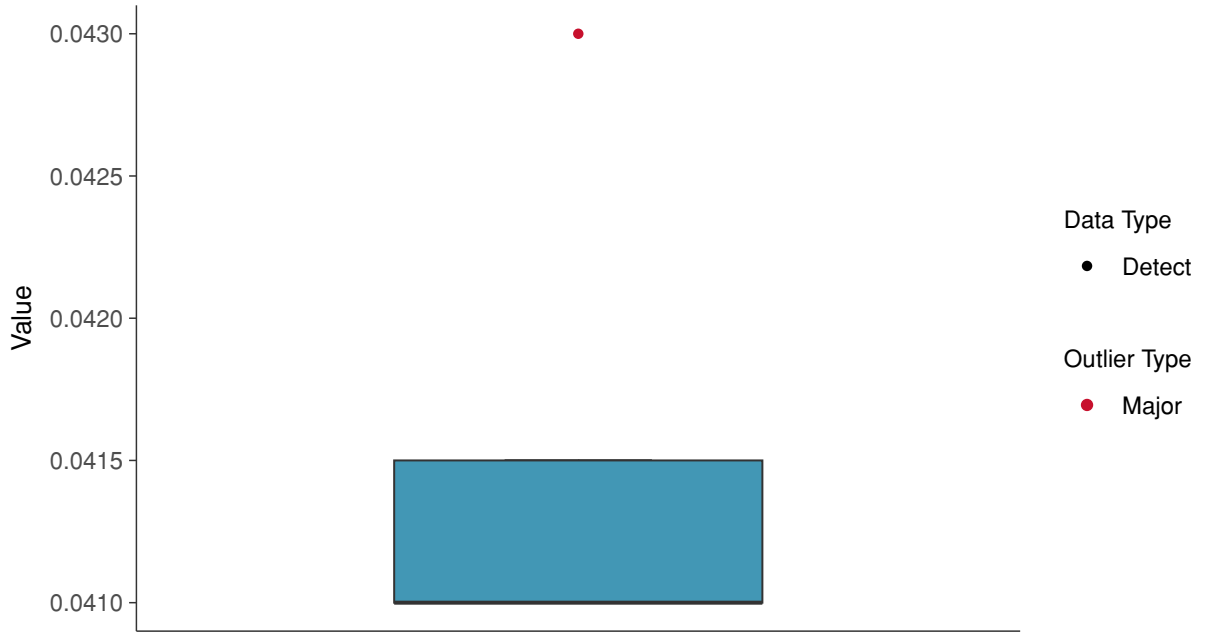
ID: 7_2_116





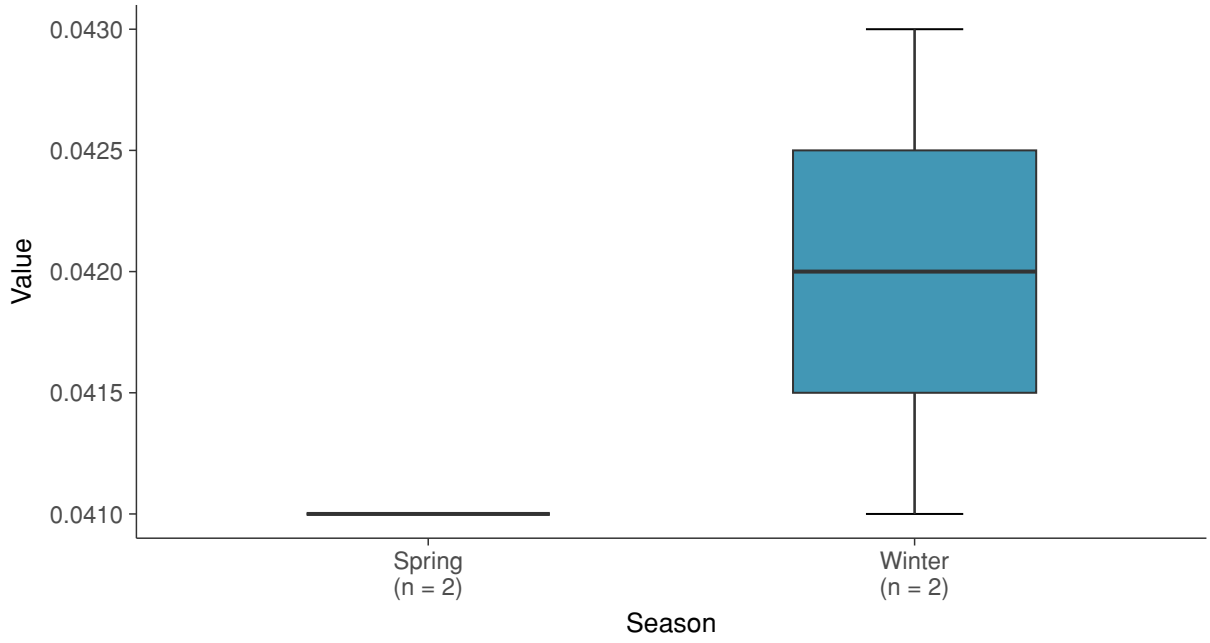
Boxplot

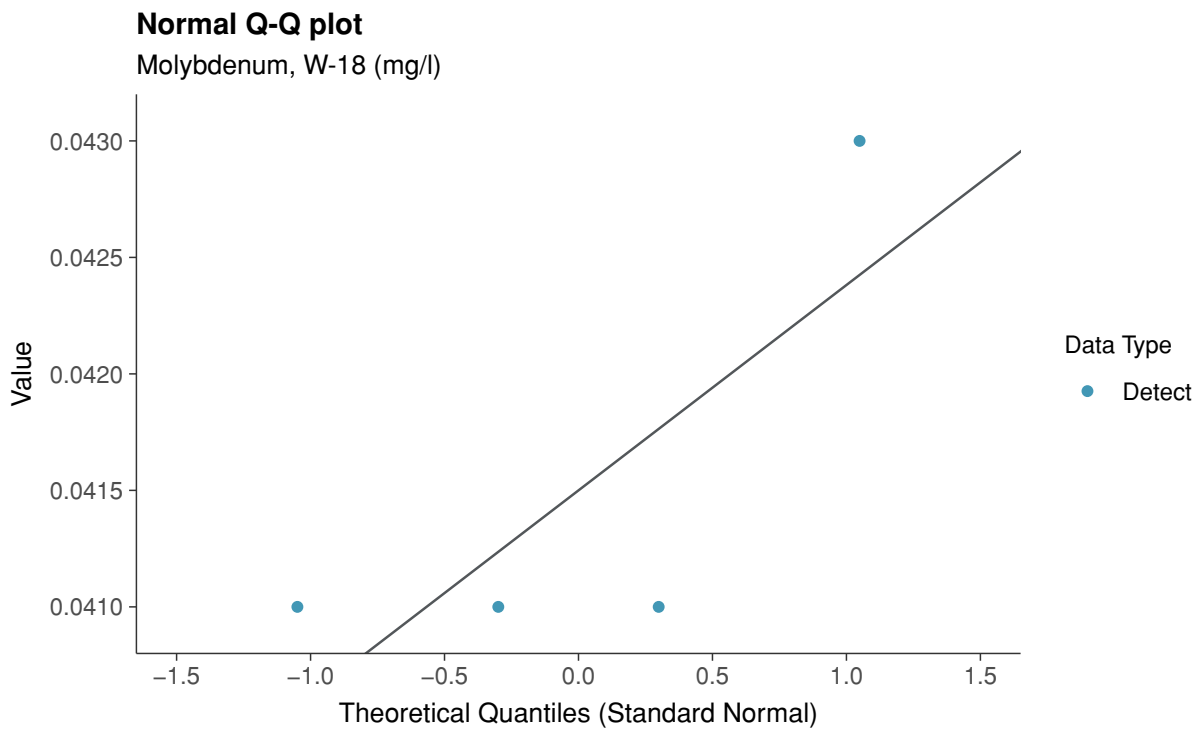
Molybdenum, W-18 (mg/l)



Boxplot by Season

Molybdenum, W-18 (mg/l)



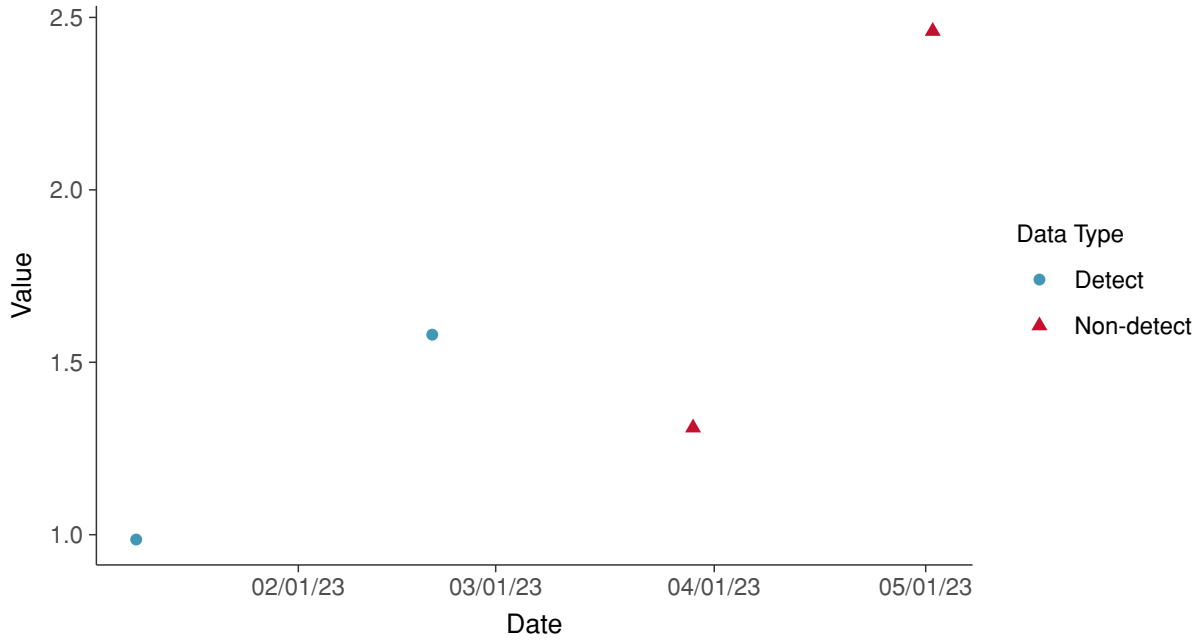

Normal Q-Q plot
Molybdenum, W-18 (mg/l)
Value
0.0430
0.0425
0.0420
0.0415
0.0410
−1.5
−1.0
−0.5
0.0
0.5
1.0
1.5
Theoretical Quantiles (Standard Normal)
Data Type
Detect

Appendix IV: Radium-226+228, W-18

ID: 7_2_120

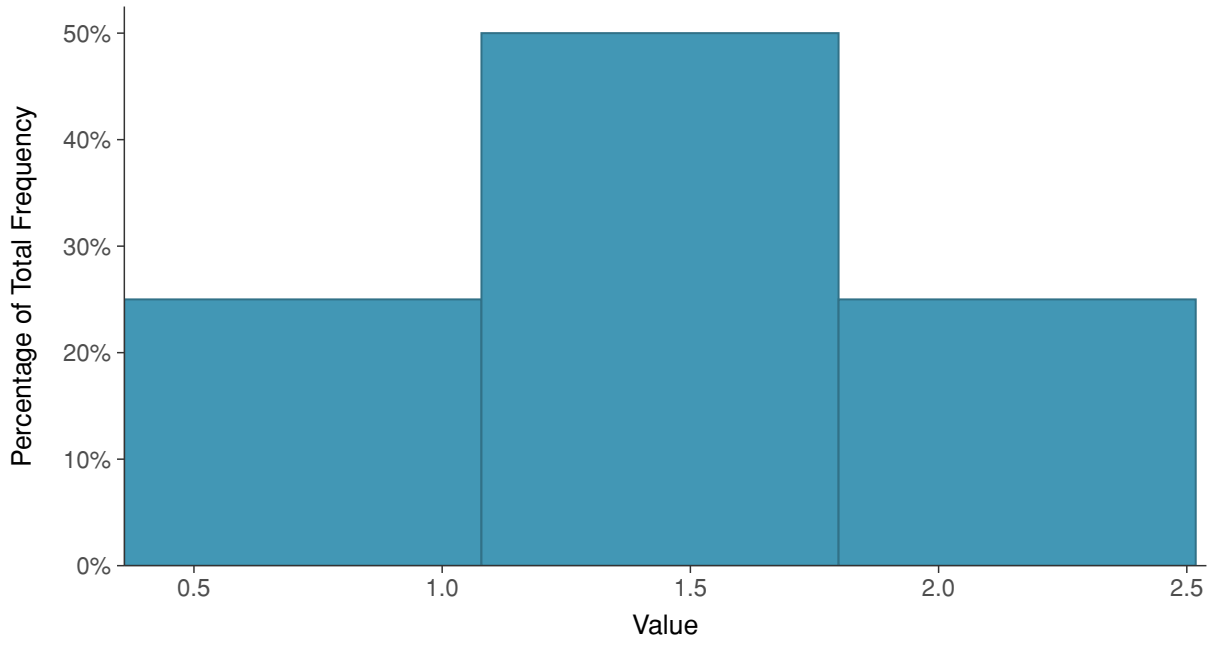
Scatter Plot

Radium-226+228, W-18 (pci/l)



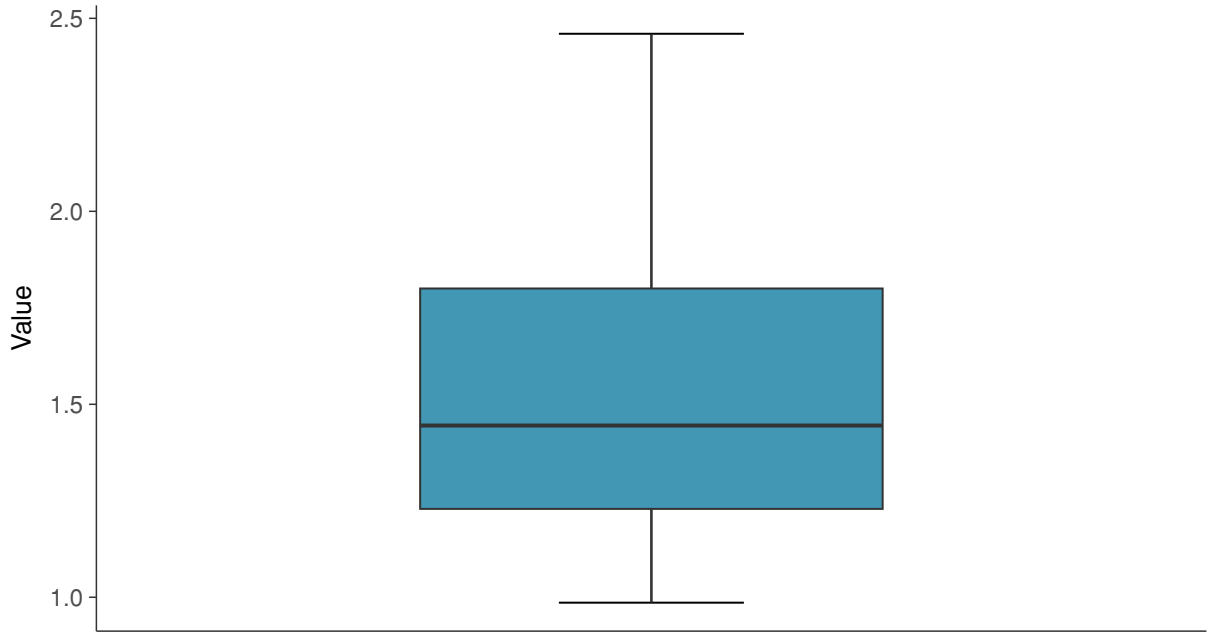
Histogram

Radium-226+228, W-18 (pci/l)



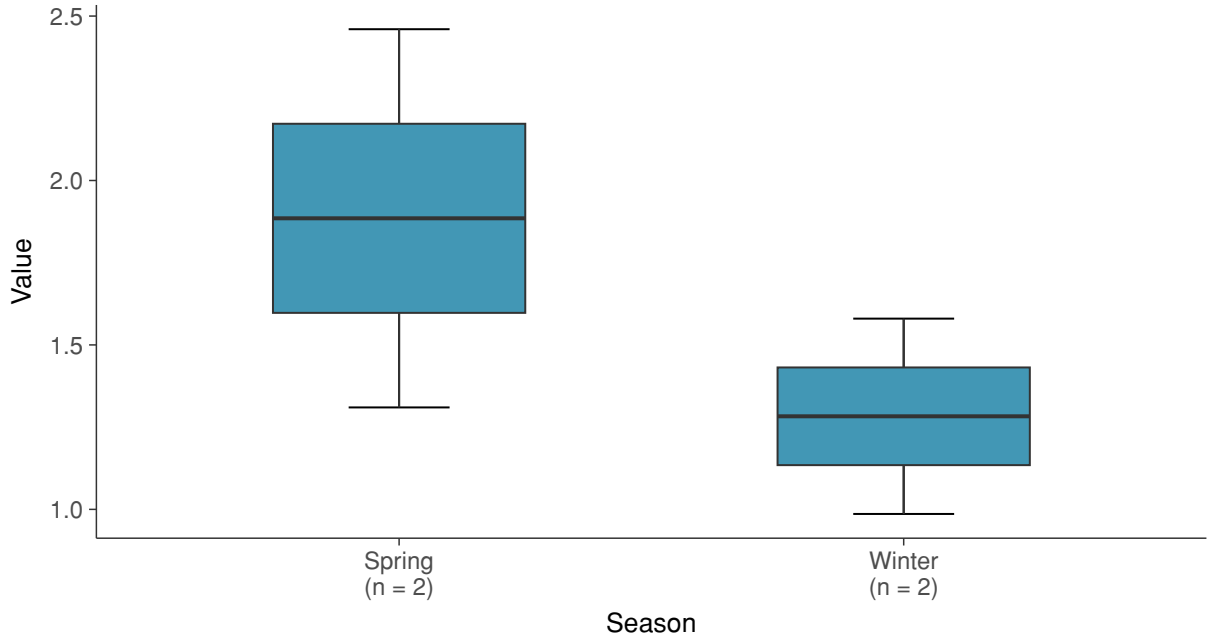
Boxplot

Radium-226+228, W-18 (pci/l)



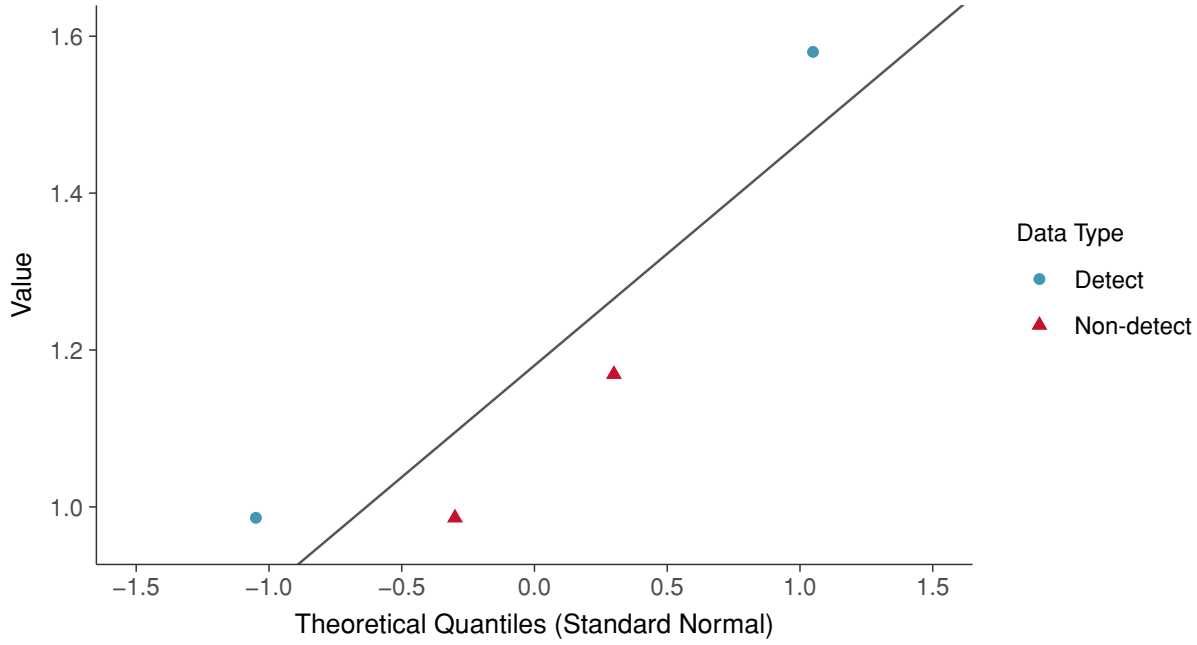
Boxplot by Season

Radium-226+228, W-18 (pci/l)



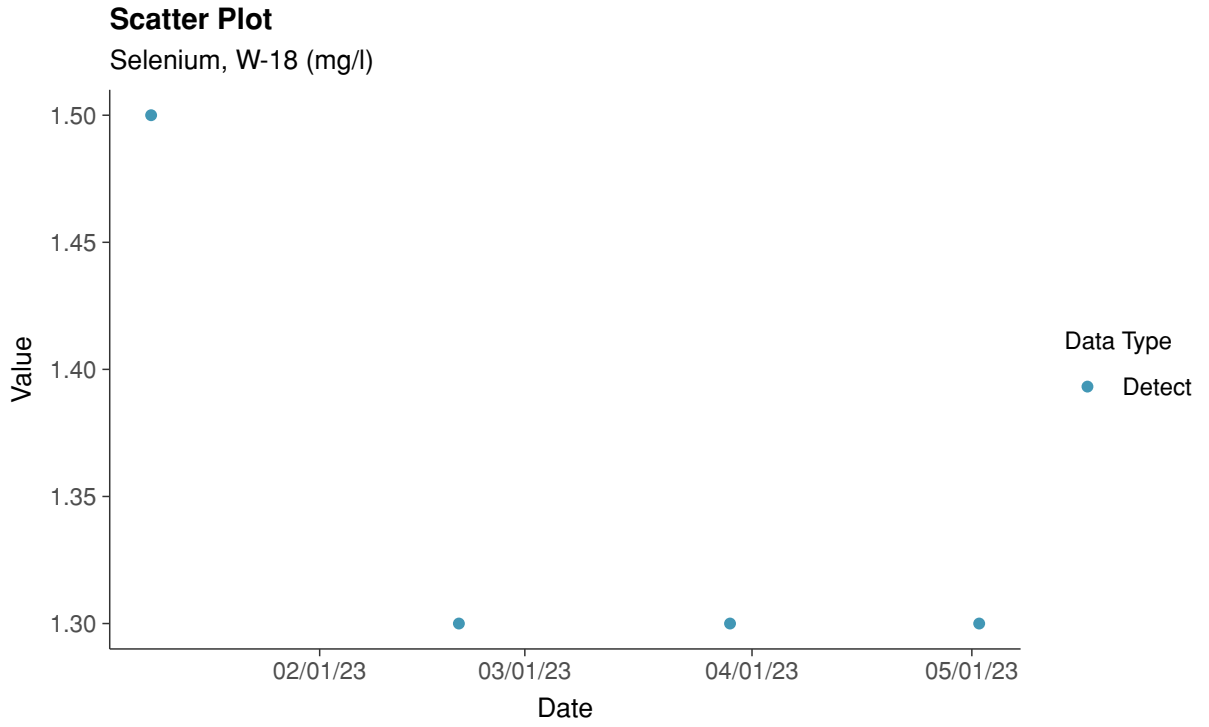
Normal Q-Q plot using ROS Imputed Estimates

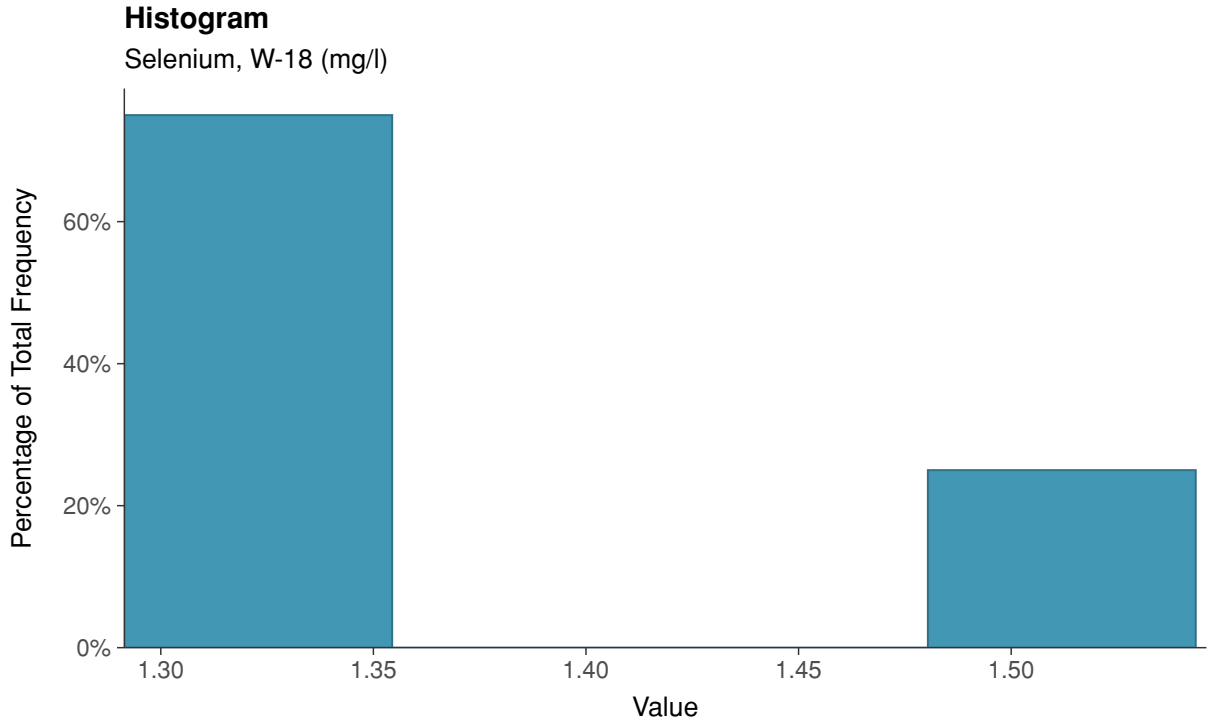
Radium-226+228, W-18 (pci/l)



Appendix IV: Selenium, W-18

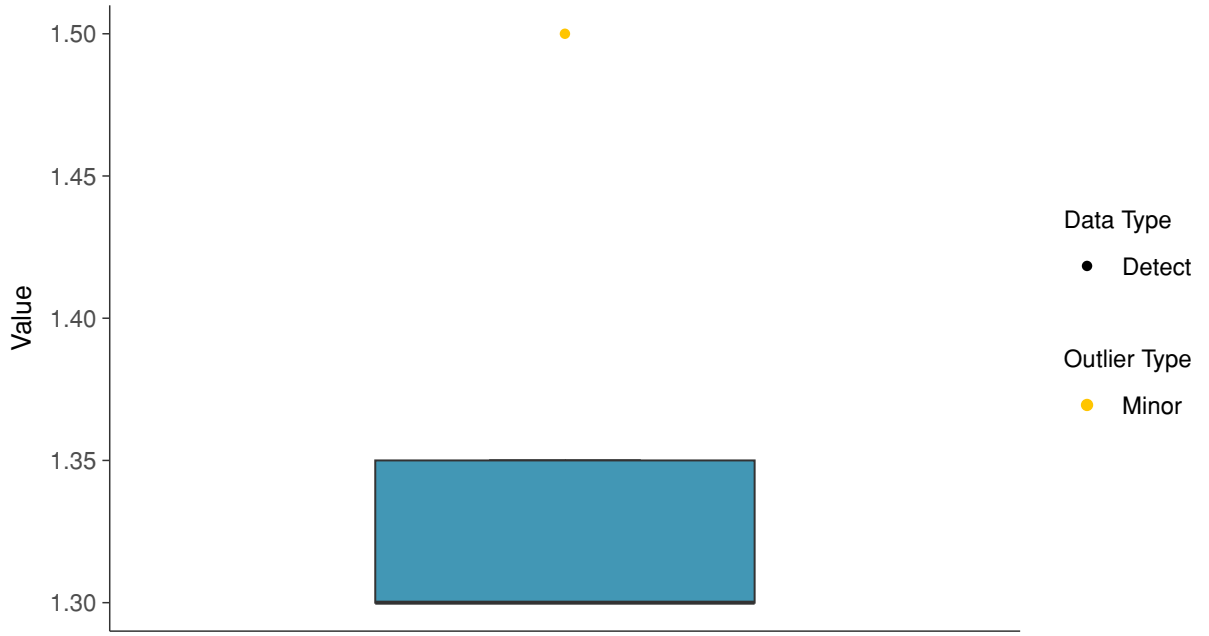
ID: 7_2_122





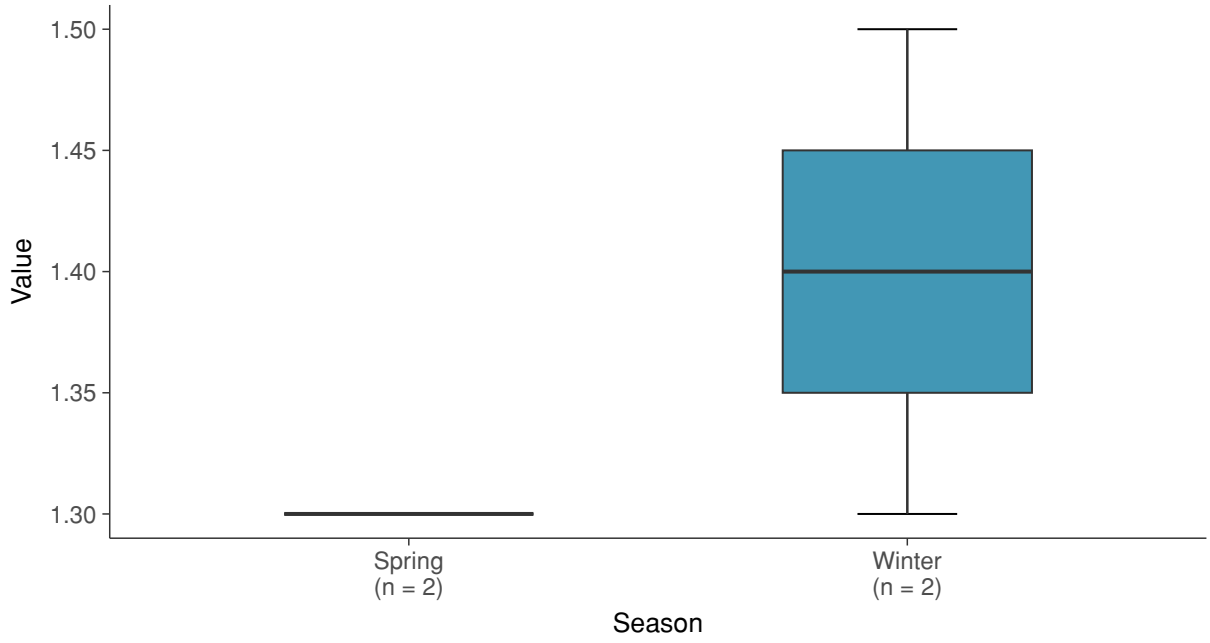
Boxplot

Selenium, W-18 (mg/l)



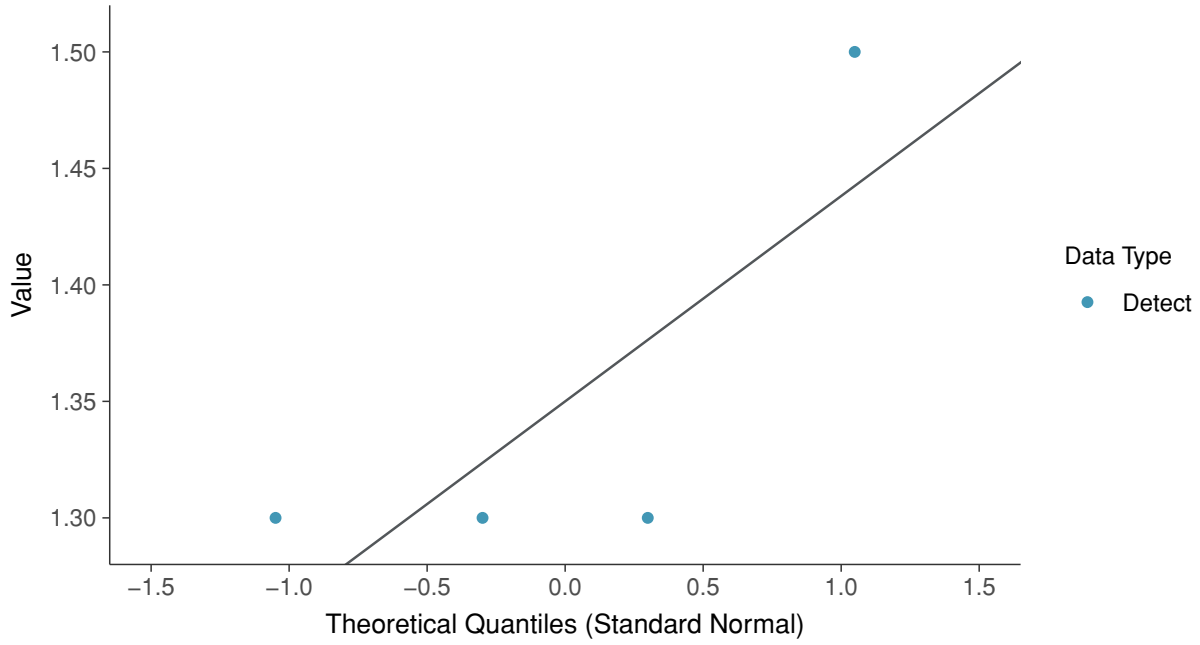
Boxplot by Season

Selenium, W-18 (mg/l)



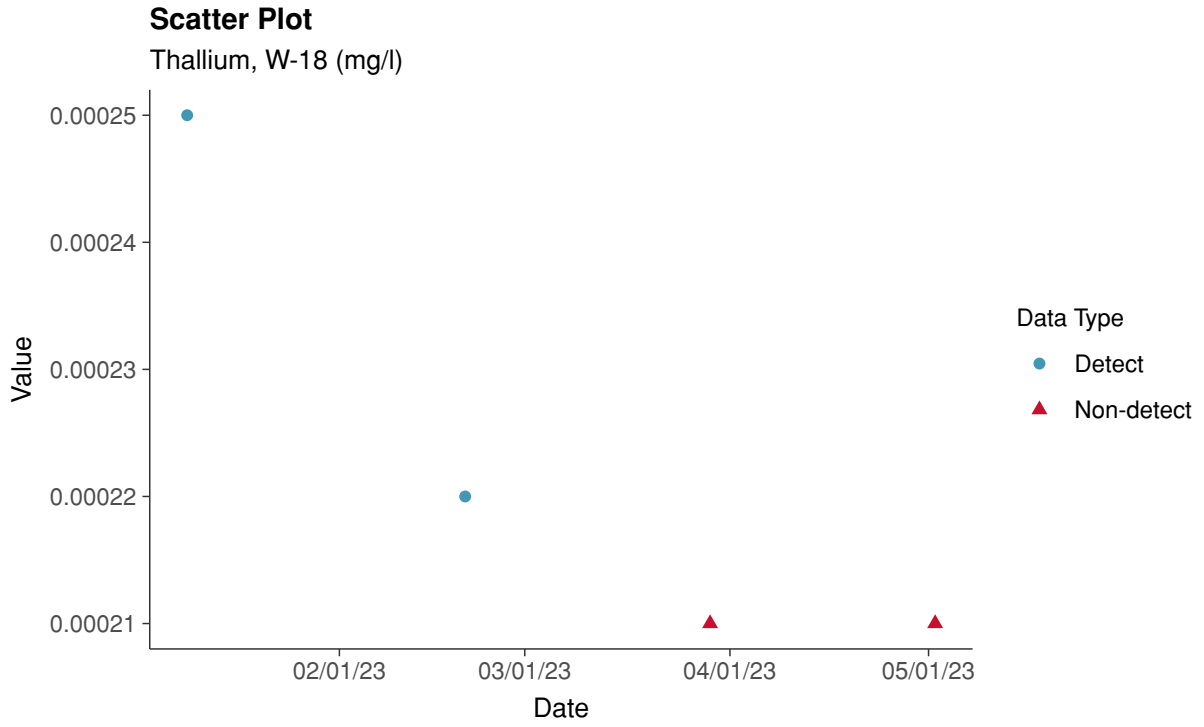
Normal Q-Q plot

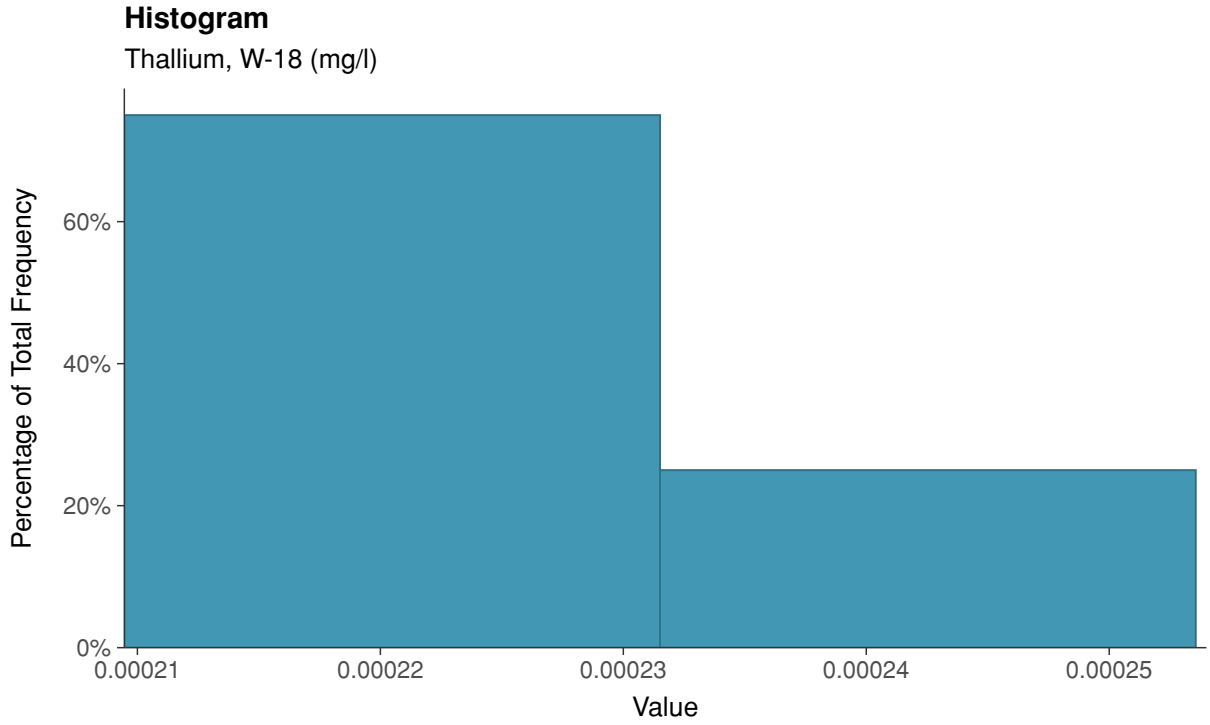
Selenium, W-18 (mg/l)



Appendix IV: Thallium, W-18

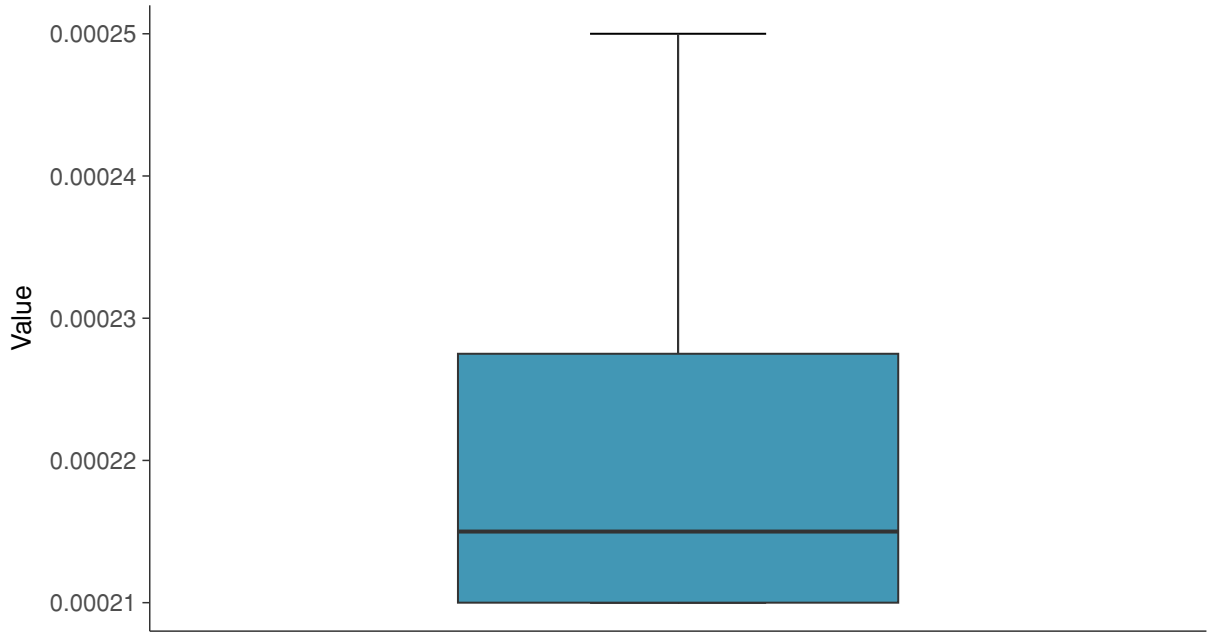
ID: 7_2_126





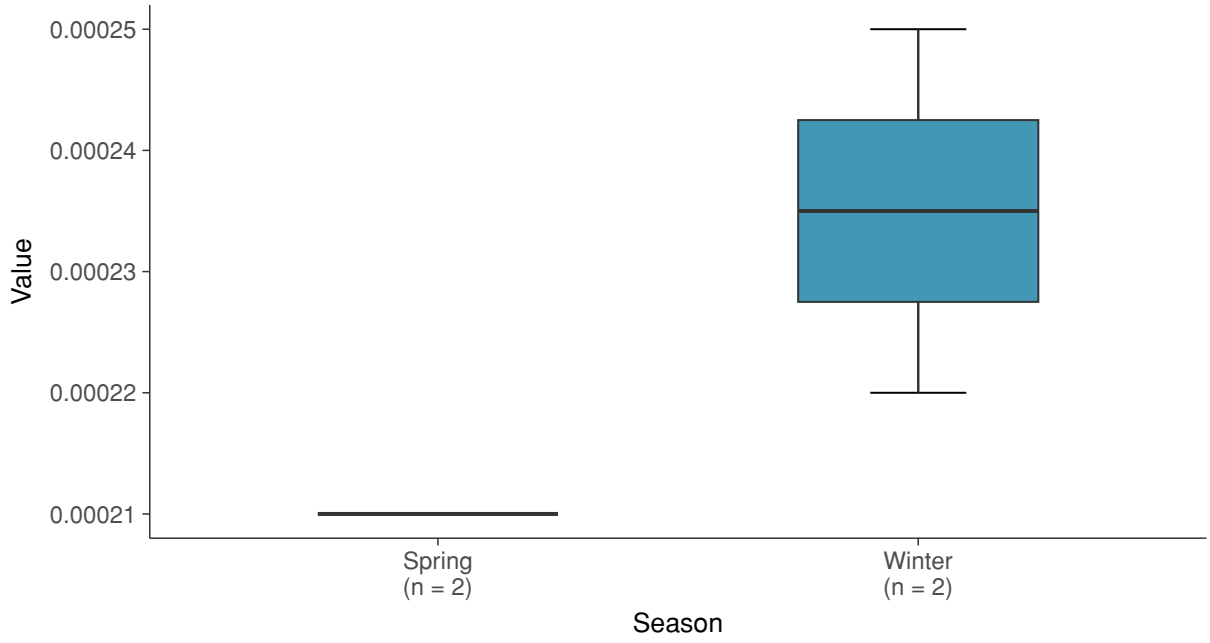
Boxplot

Thallium, W-18 (mg/l)



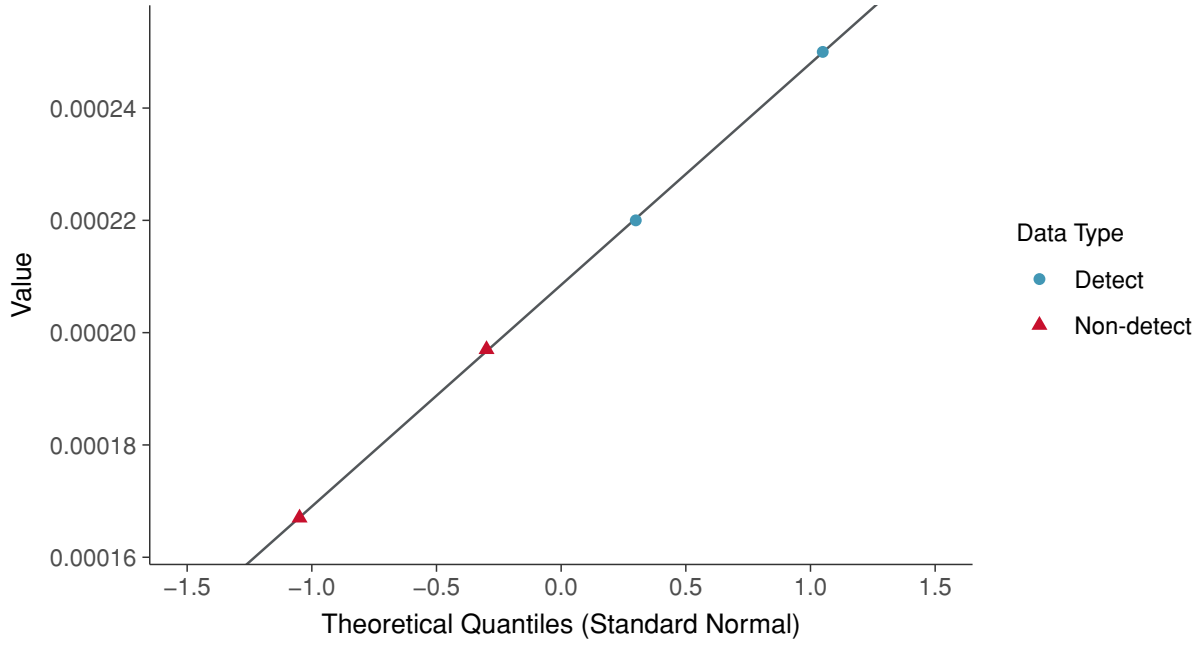
Boxplot by Season

Thallium, W-18 (mg/l)



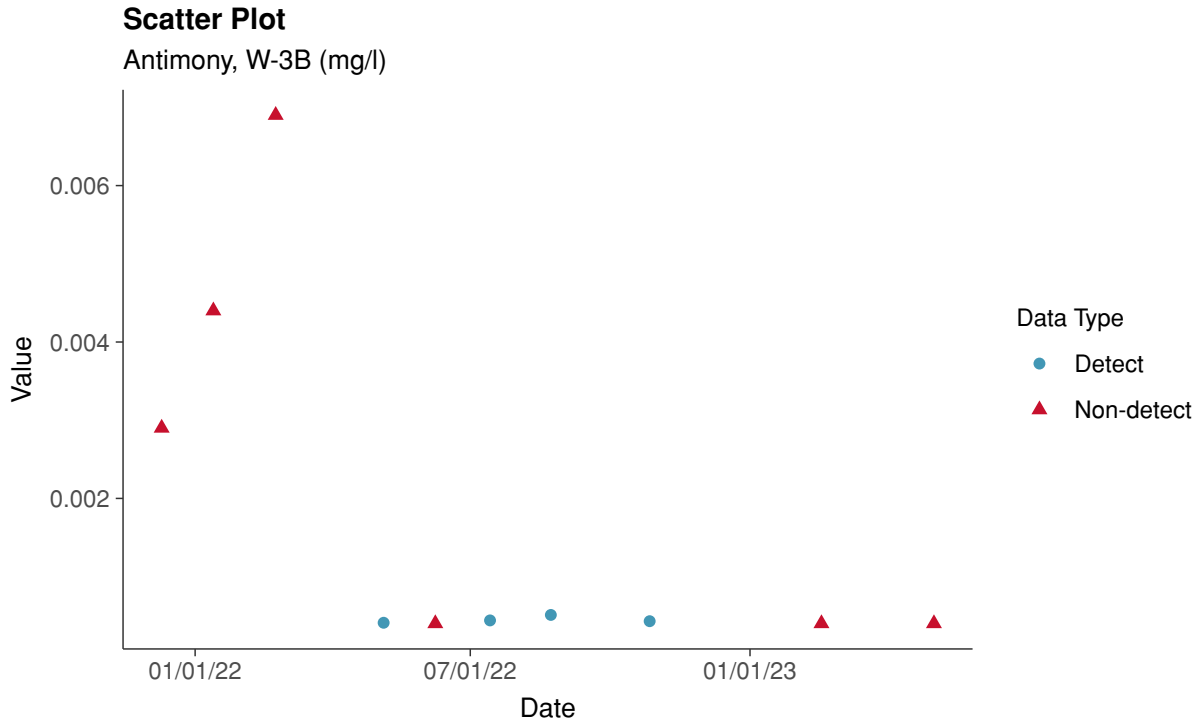
Normal Q-Q plot using ROS Imputed Estimates

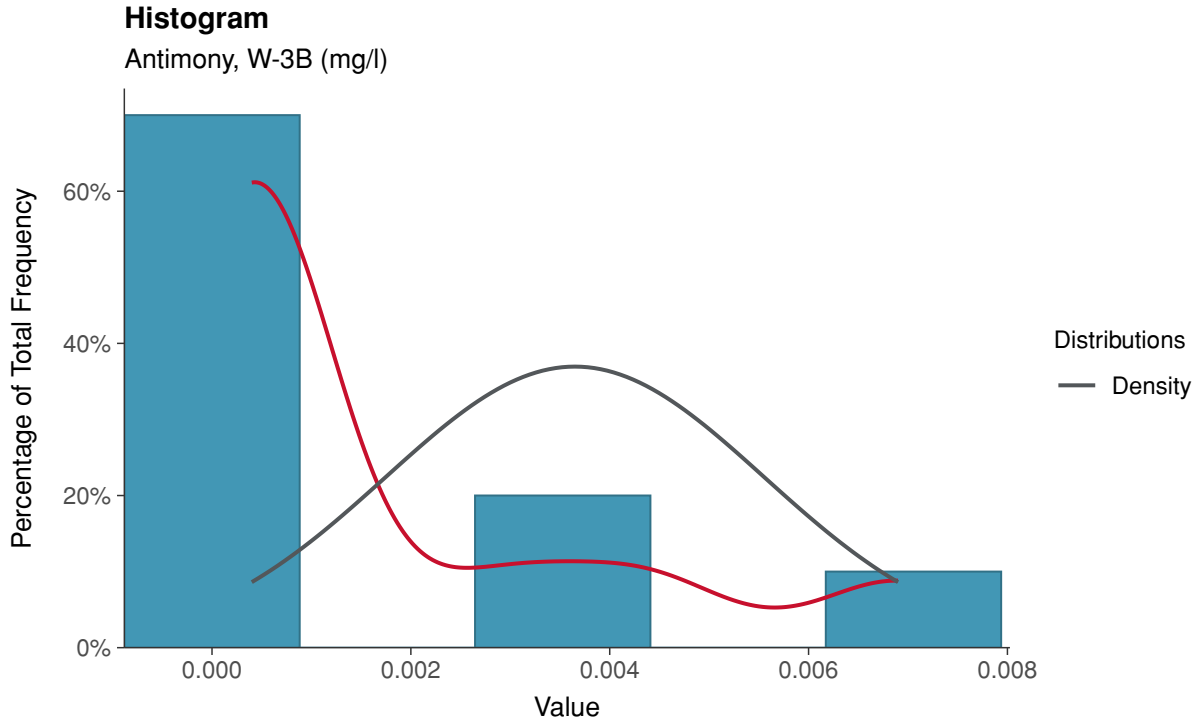
Thallium, W-18 (mg/l)



Appendix IV: Antimony, W-3B

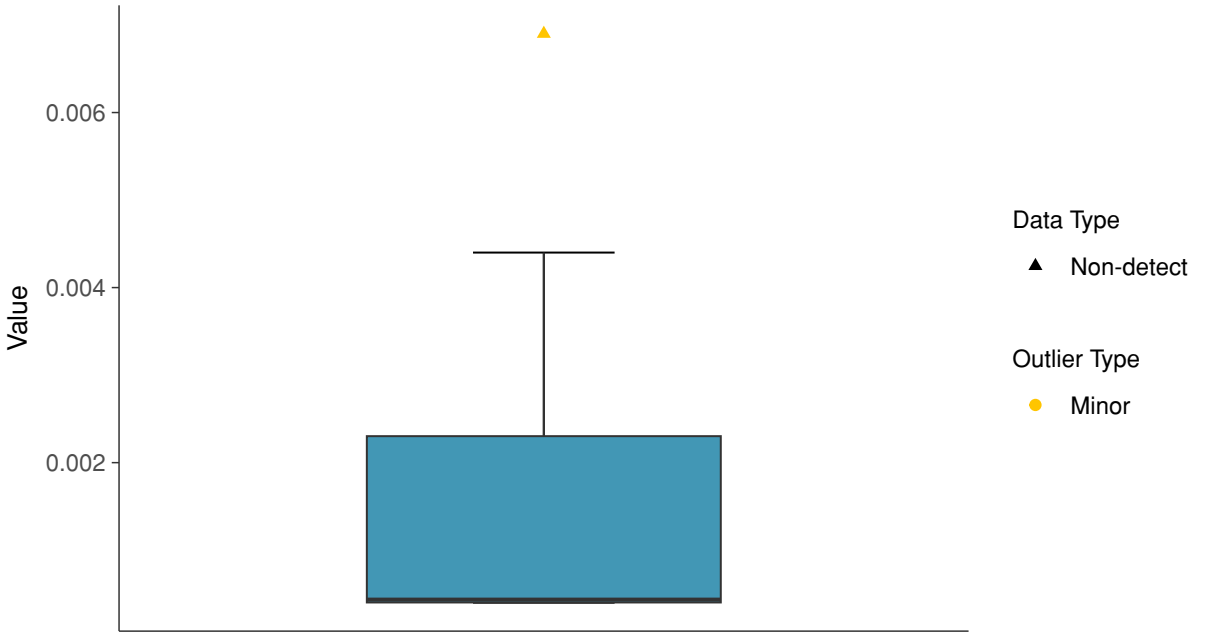
ID: 8_2_101





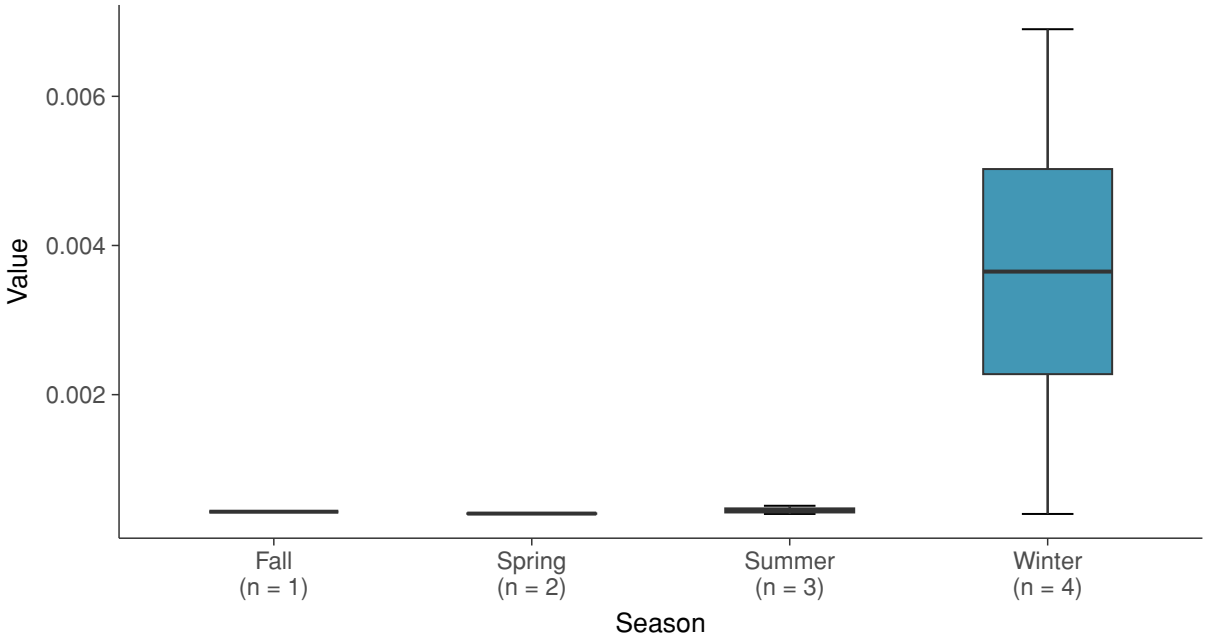
Boxplot

Antimony, W-3B (mg/l)



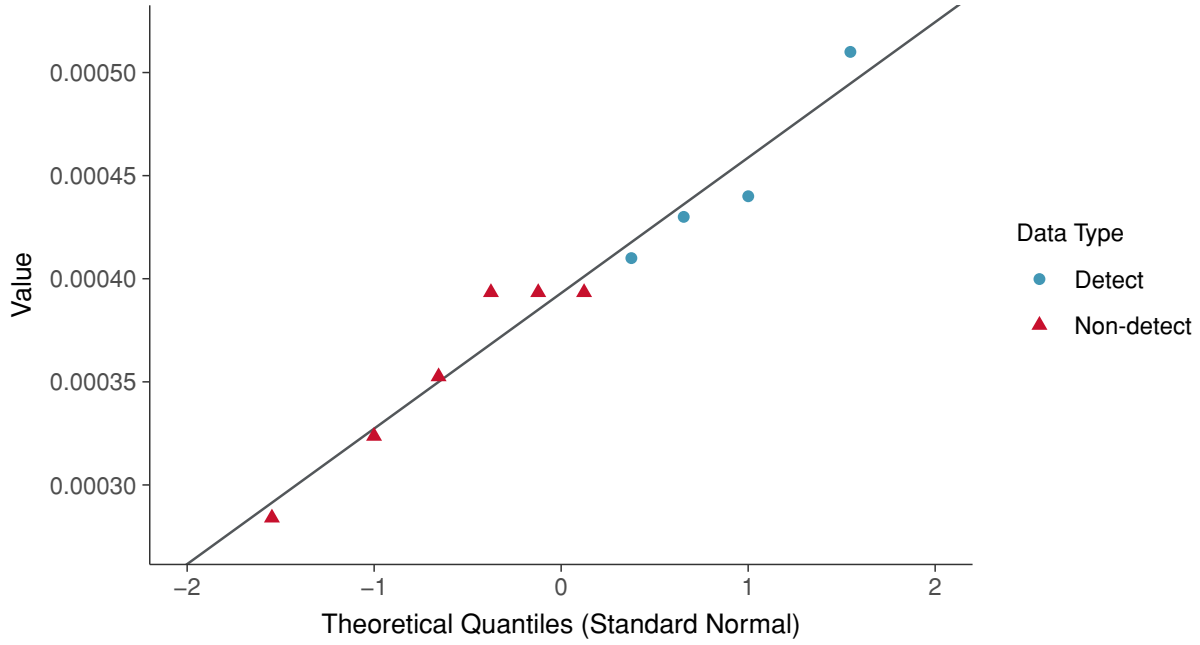
Boxplot by Season

Antimony, W-3B (mg/l)



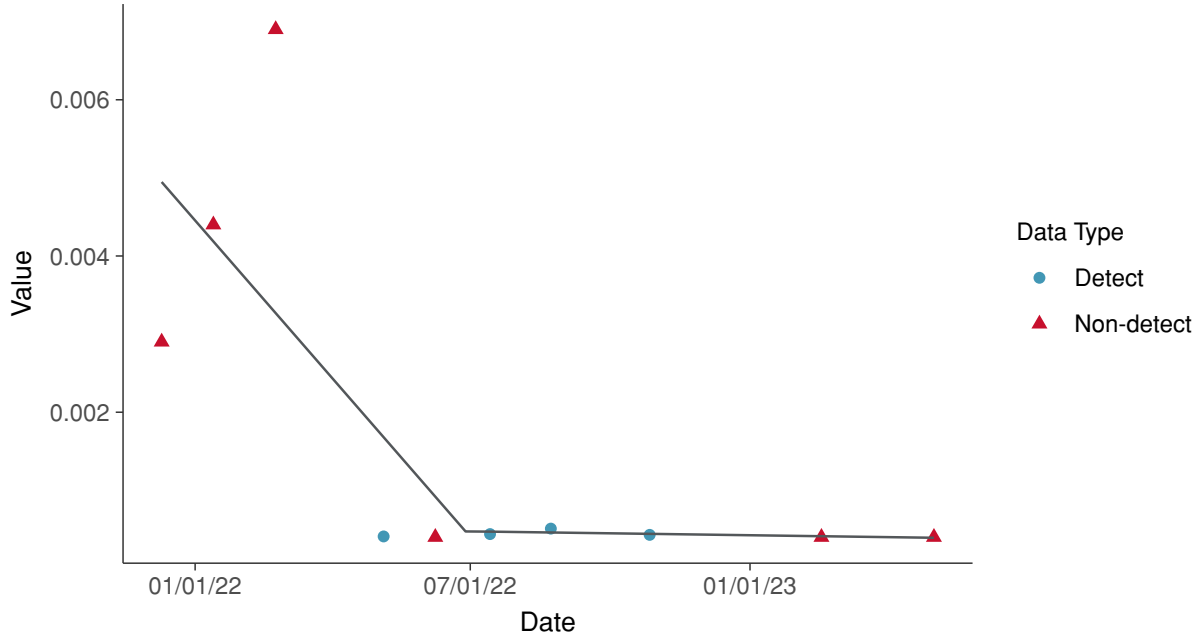
Normal Q-Q plot using ROS Imputed Estimates

Antimony, W-3B (mg/l)



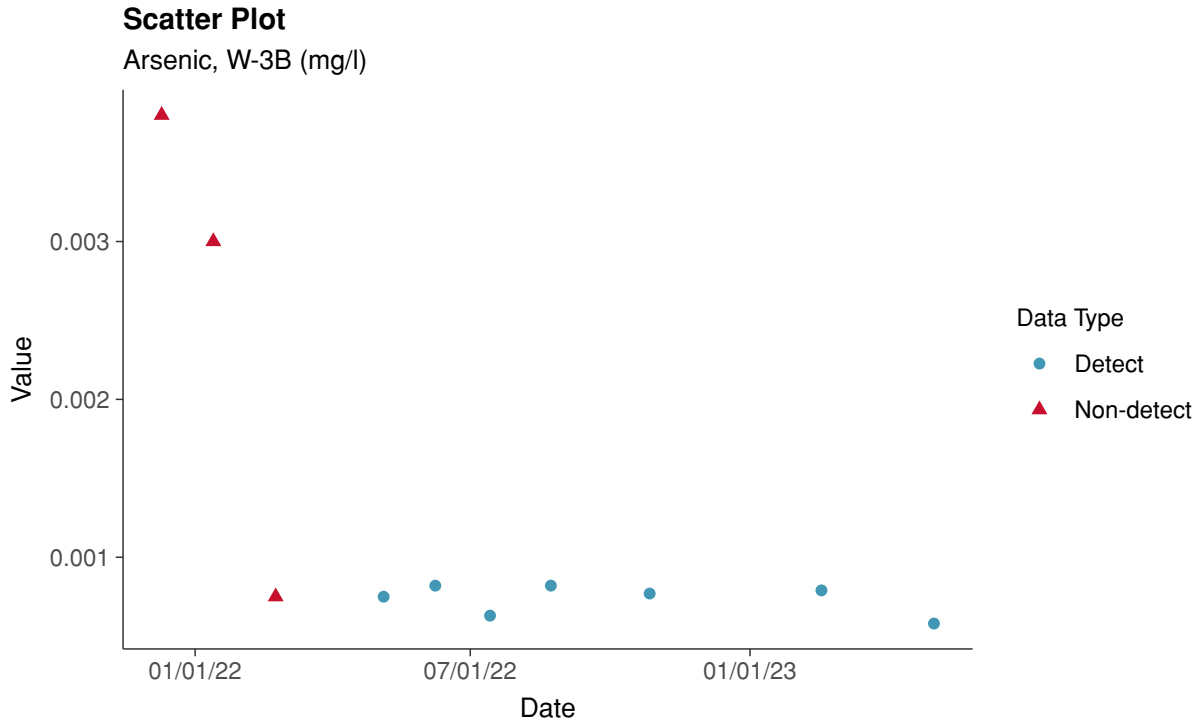
Trend Regression: Piecewise Linear-Linear

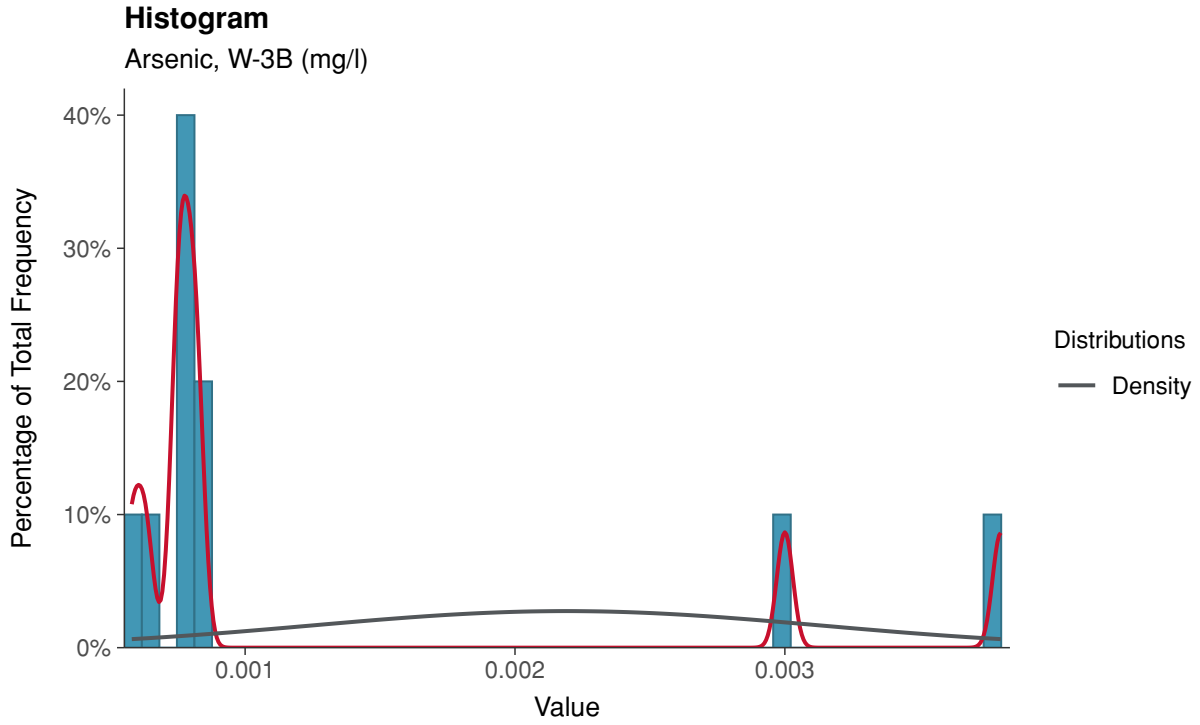
Antimony, W-3B (mg/l)



Appendix IV: Arsenic, W-3B

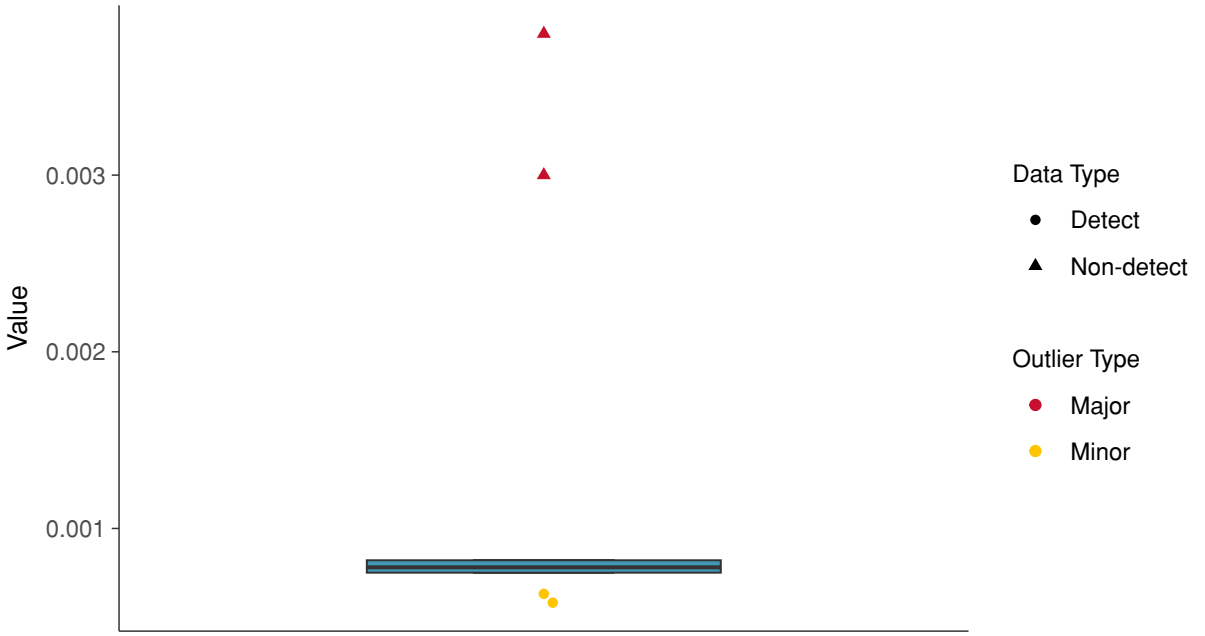
ID: 8_2_102





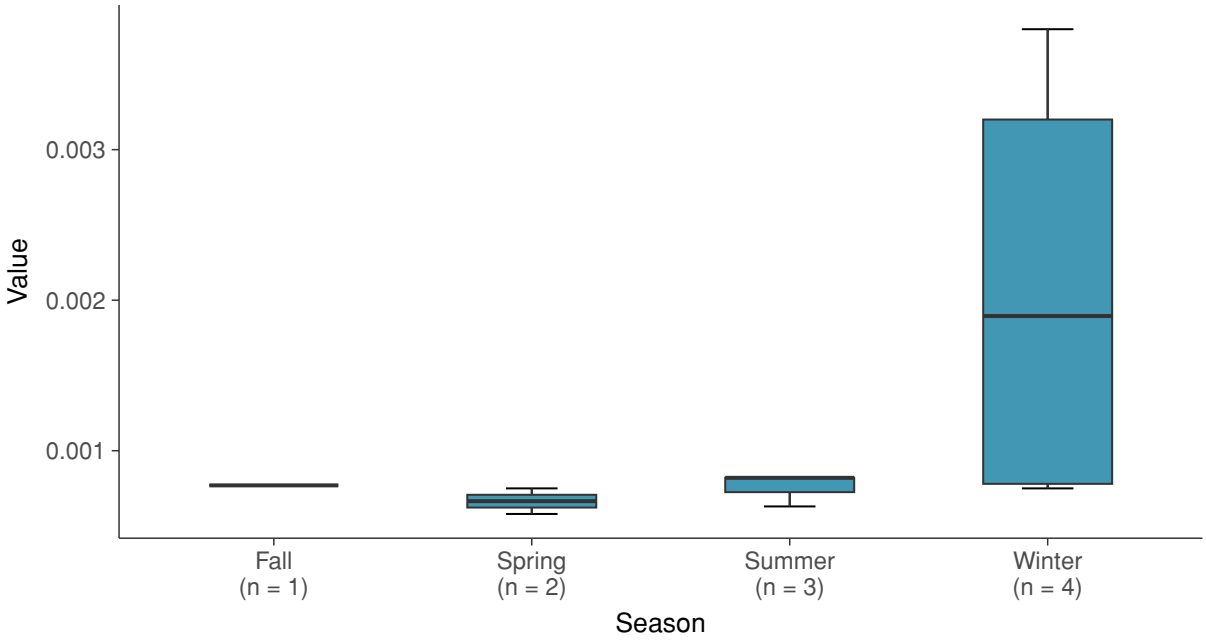
Boxplot

Arsenic, W-3B (mg/l)



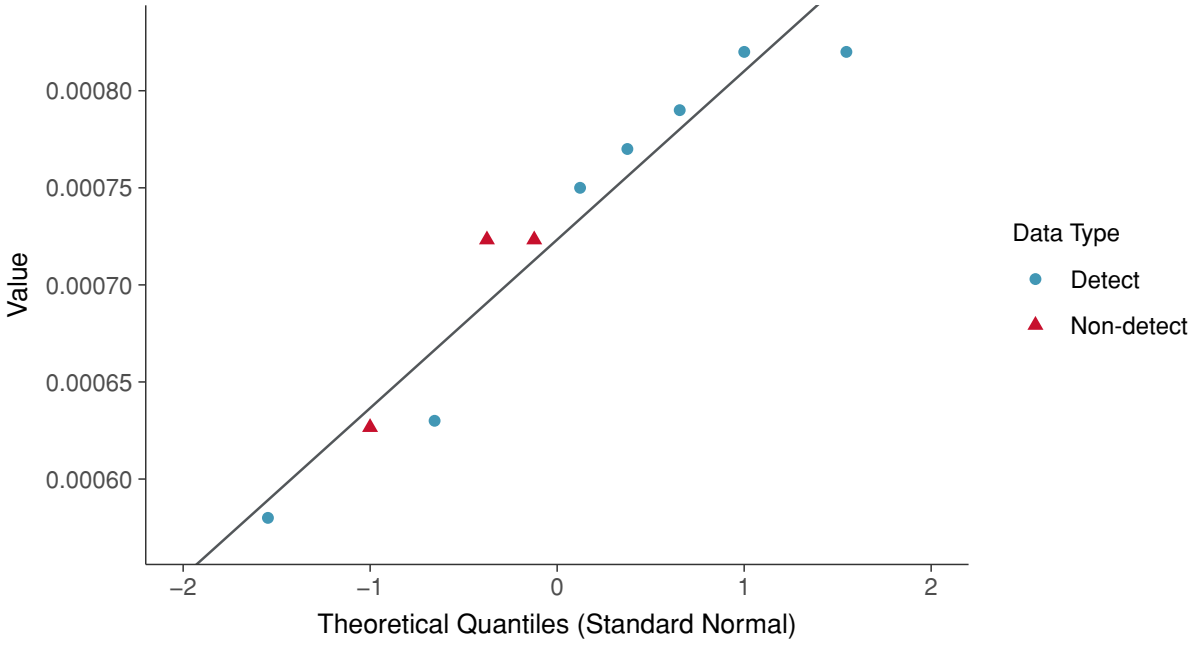
Boxplot by Season

Arsenic, W-3B (mg/l)



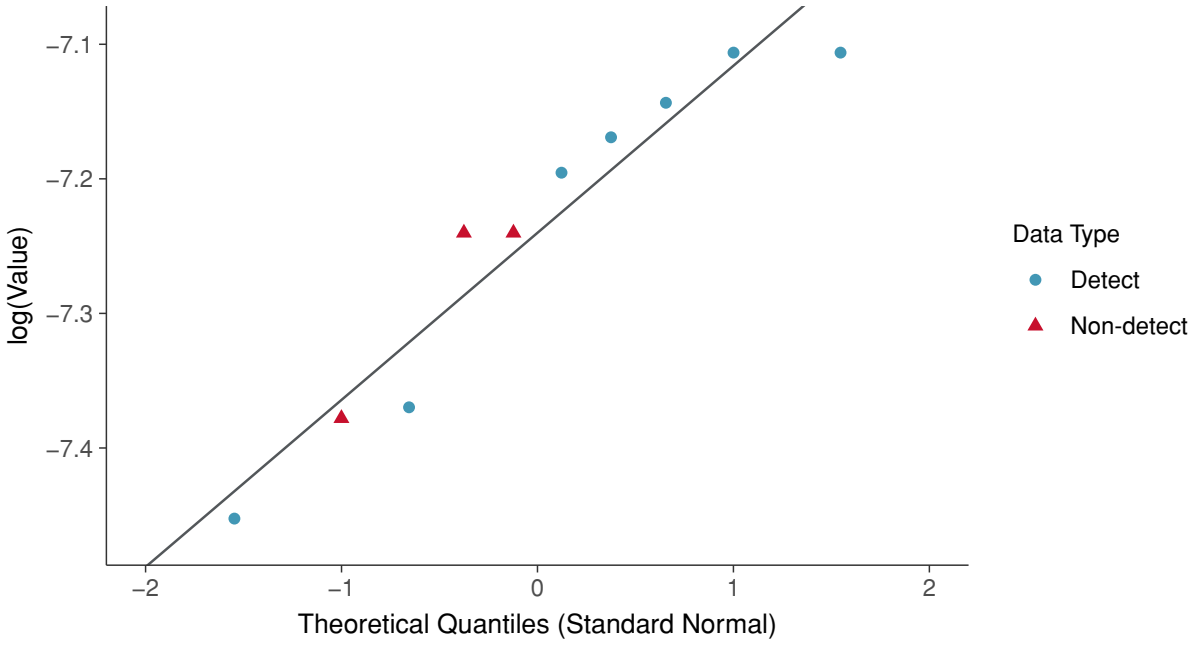
Normal Q-Q plot using ROS Imputed Estimates

Arsenic, W-3B (mg/l)



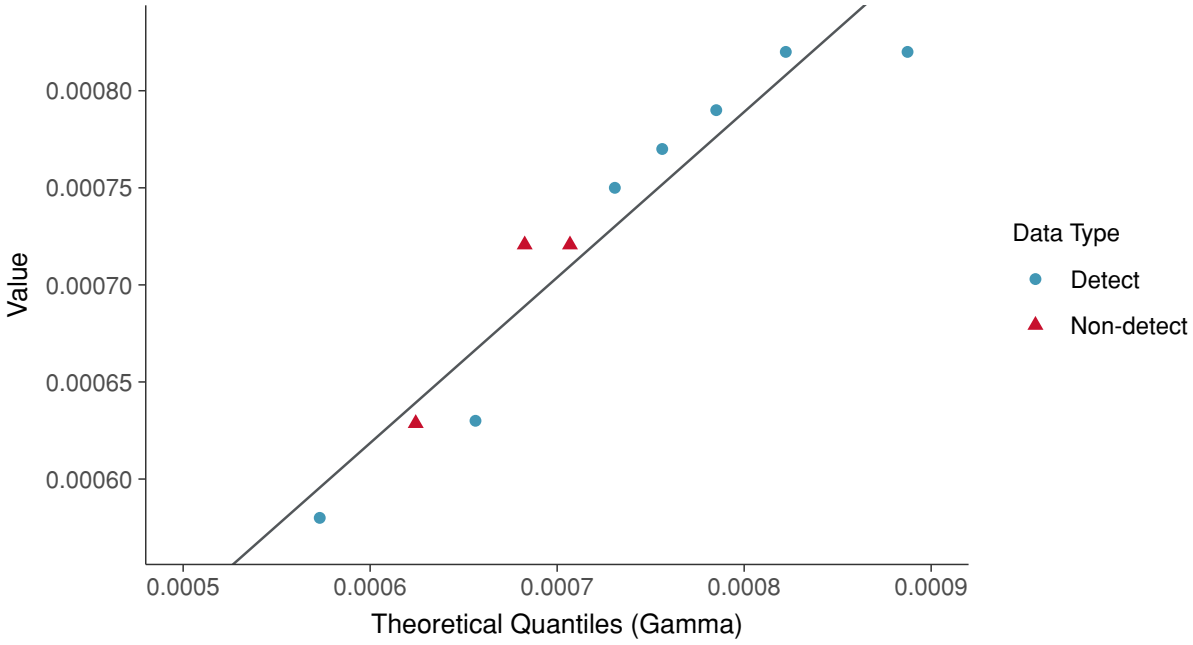
Lognormal Q-Q plot using ROS Imputed Estimates

Arsenic, W-3B (mg/l)



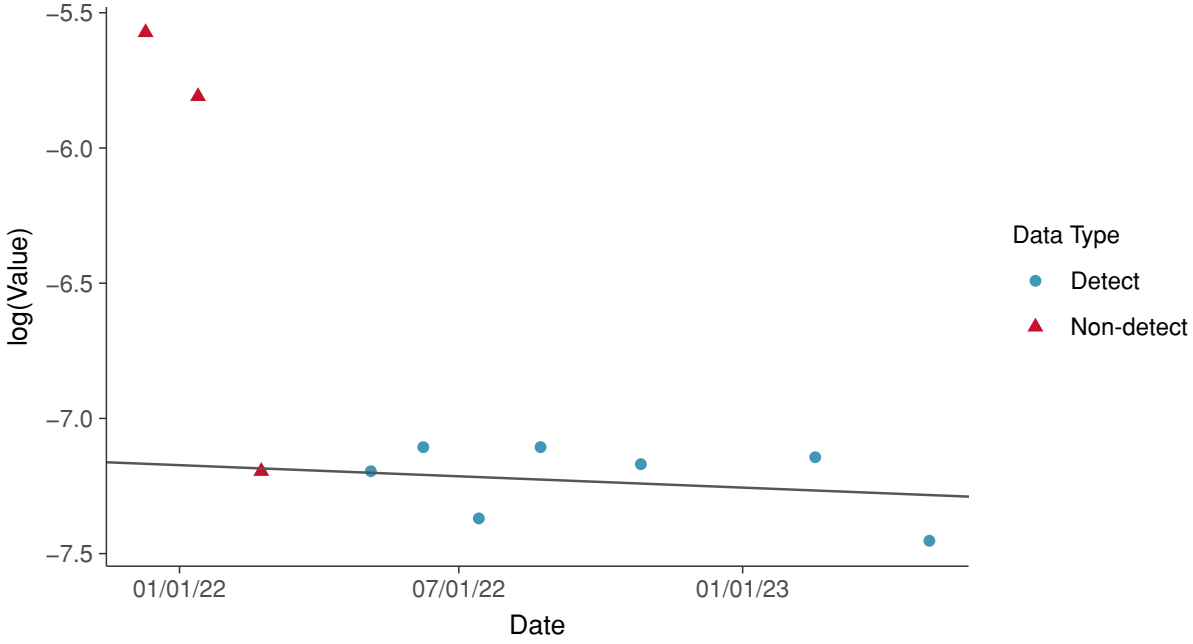
Gamma Q-Q plot using ROS Imputed Estimates

Arsenic, W-3B (mg/l)



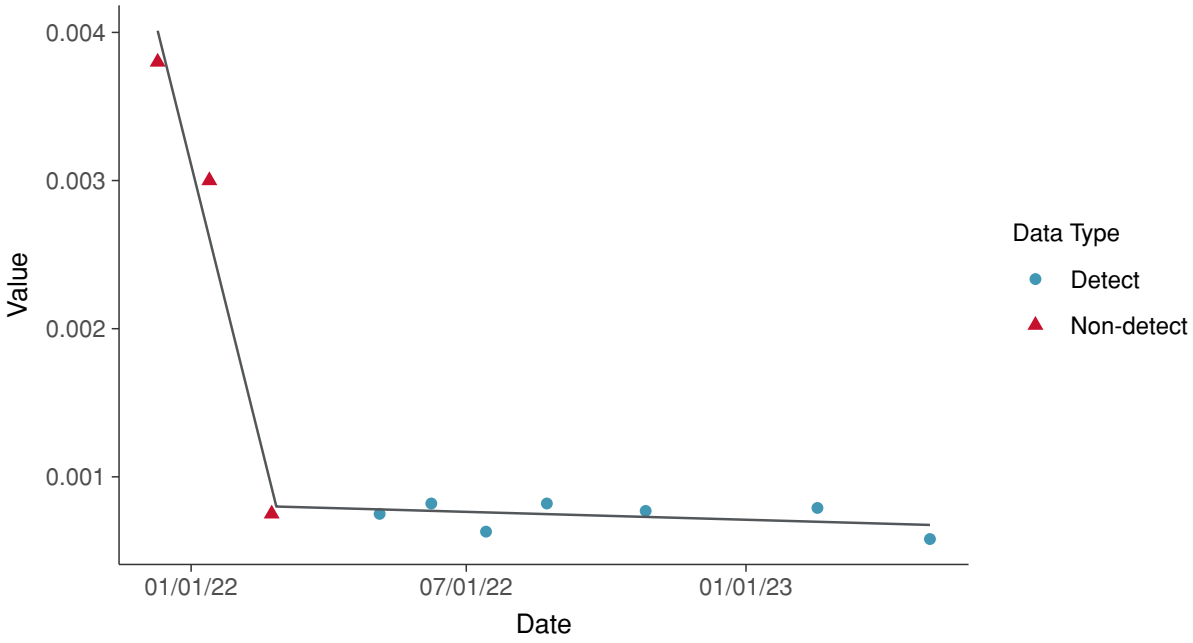
Trend Regression: Lognormal MLE

Arsenic, W-3B (mg/l)



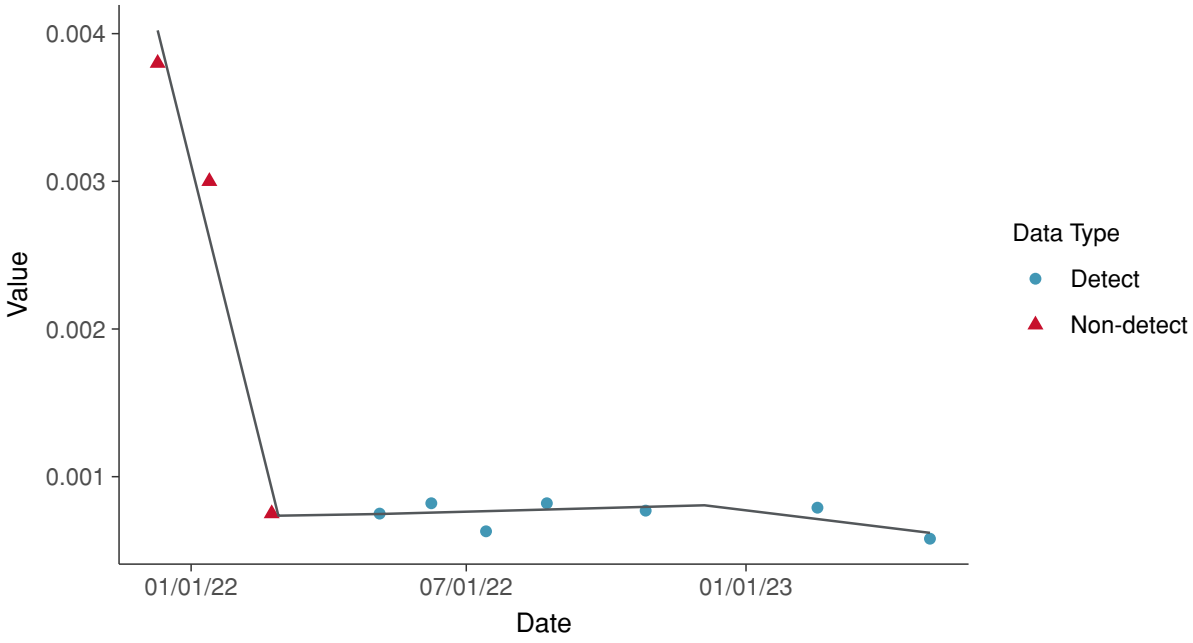
Trend Regression: Piecewise Linear-Linear

Arsenic, W-3B (mg/l)



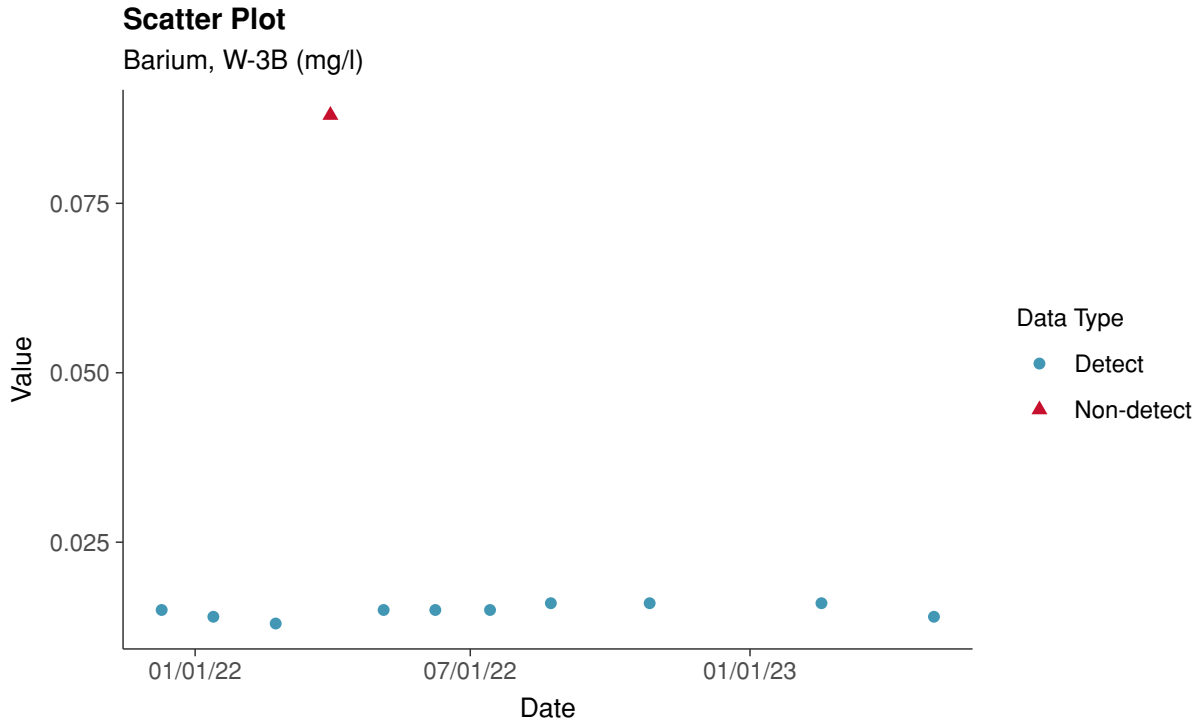
Trend Regression: Piecewise Linear-Linear-Linear

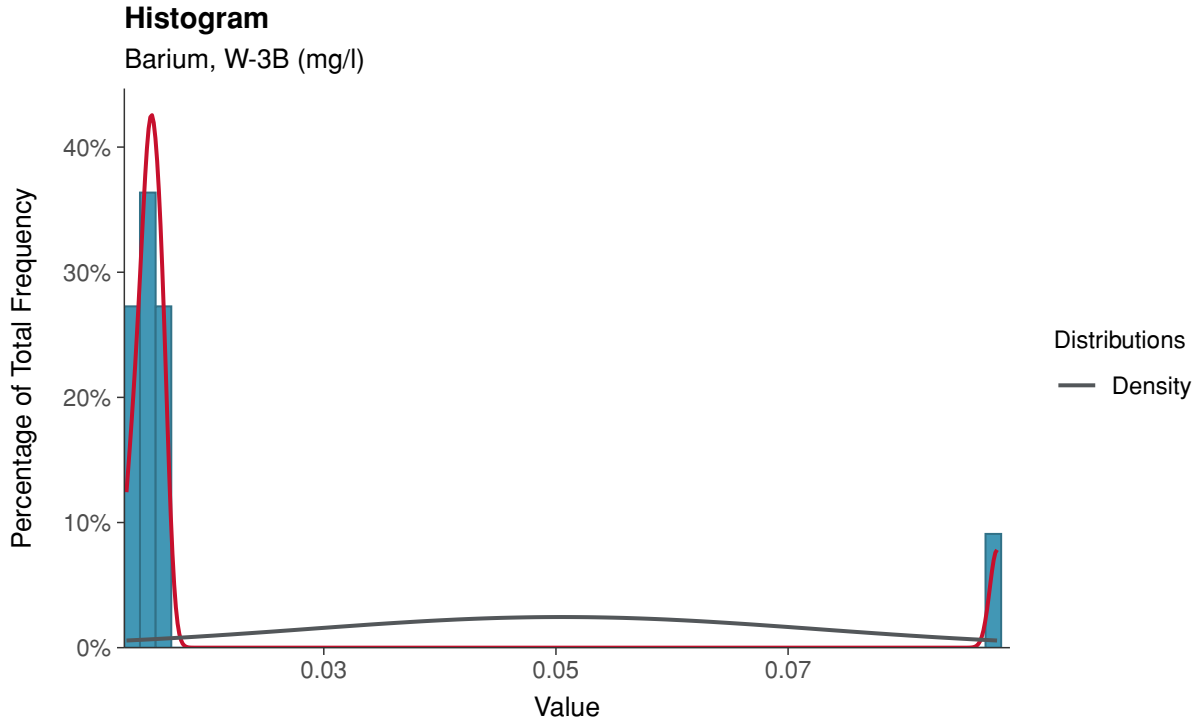
Arsenic, W-3B (mg/l)



Appendix IV: Barium, W-3B

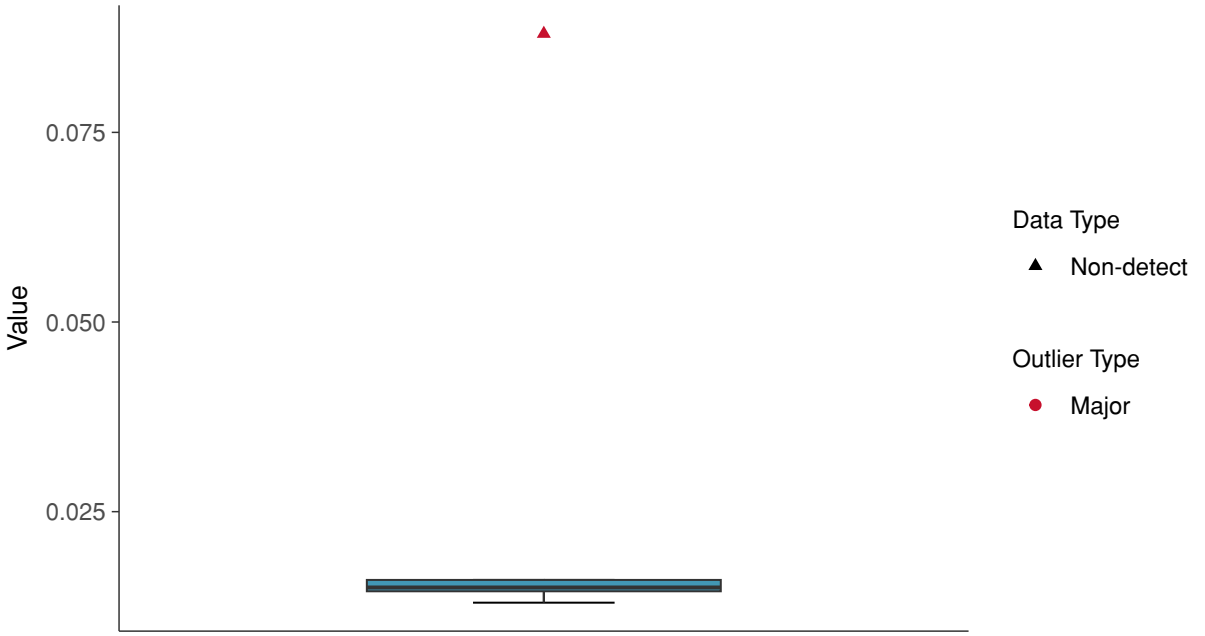
ID: 8_2_103





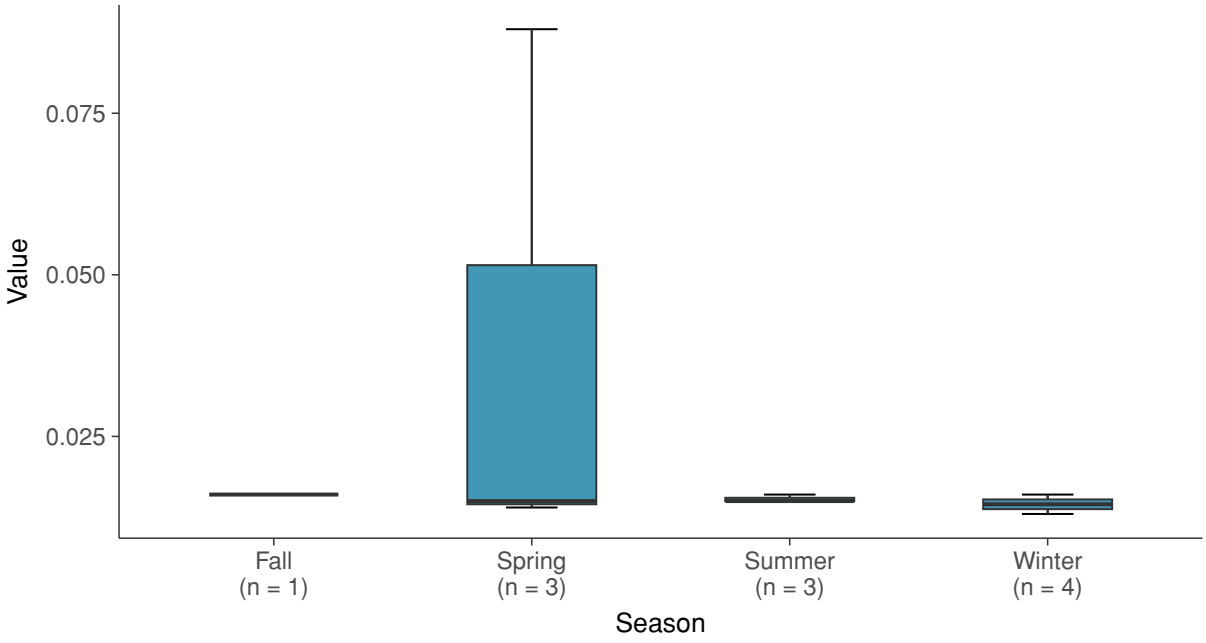
Boxplot

Barium, W-3B (mg/l)



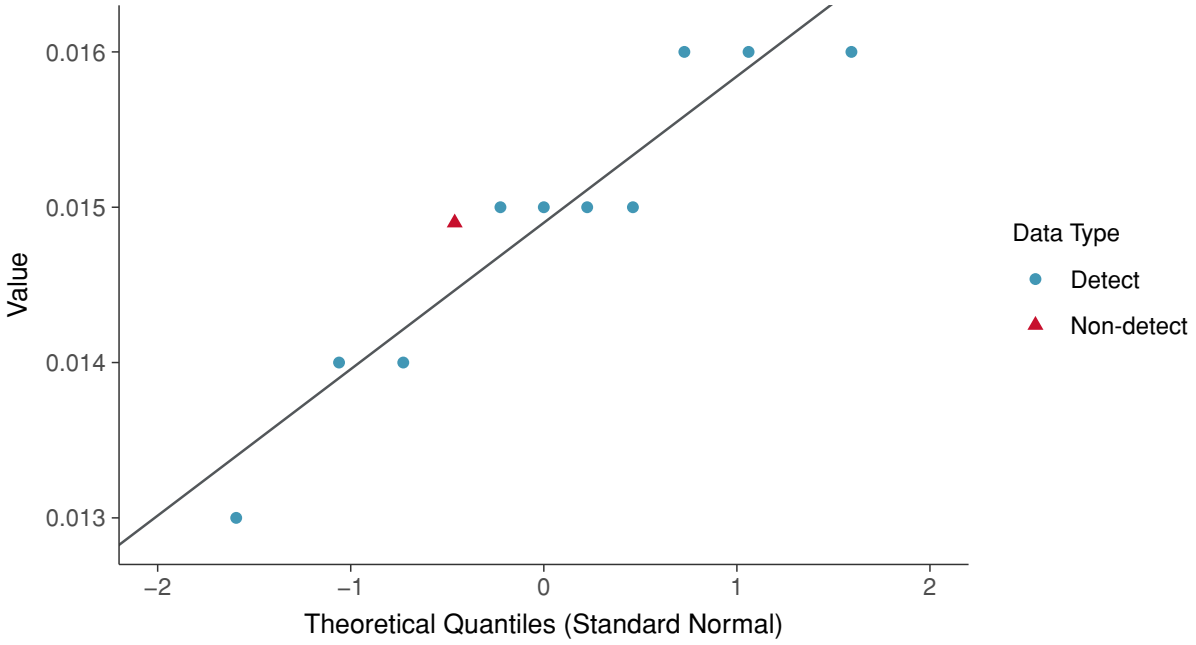
Boxplot by Season

Barium, W-3B (mg/l)



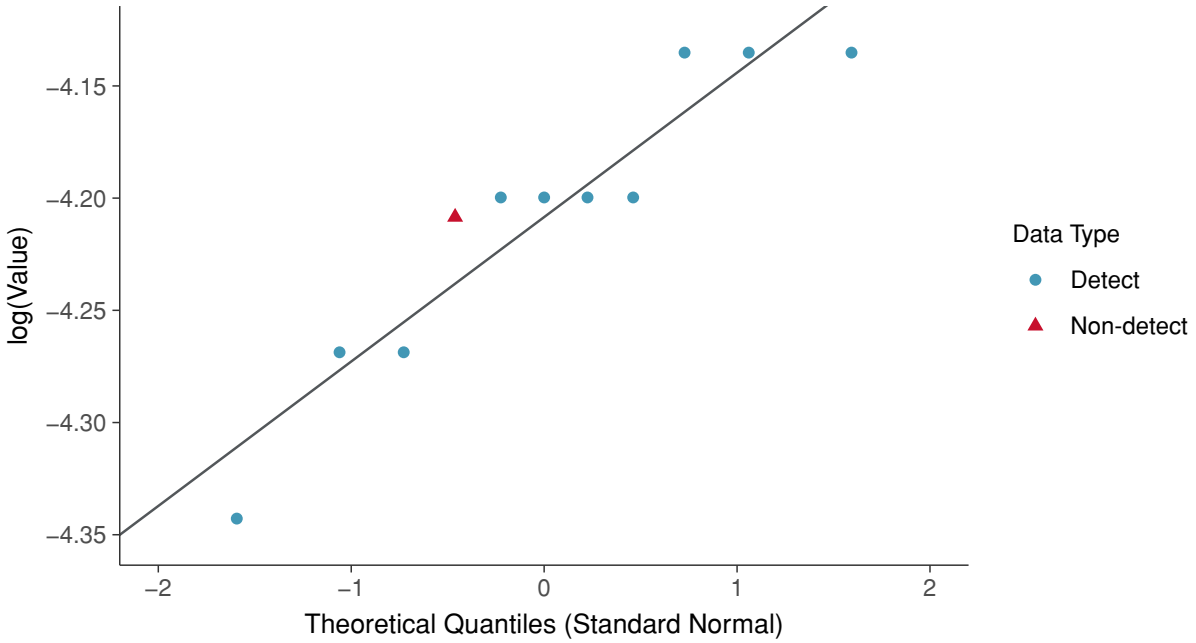
Normal Q-Q plot using ROS Imputed Estimates

Barium, W-3B (mg/l)



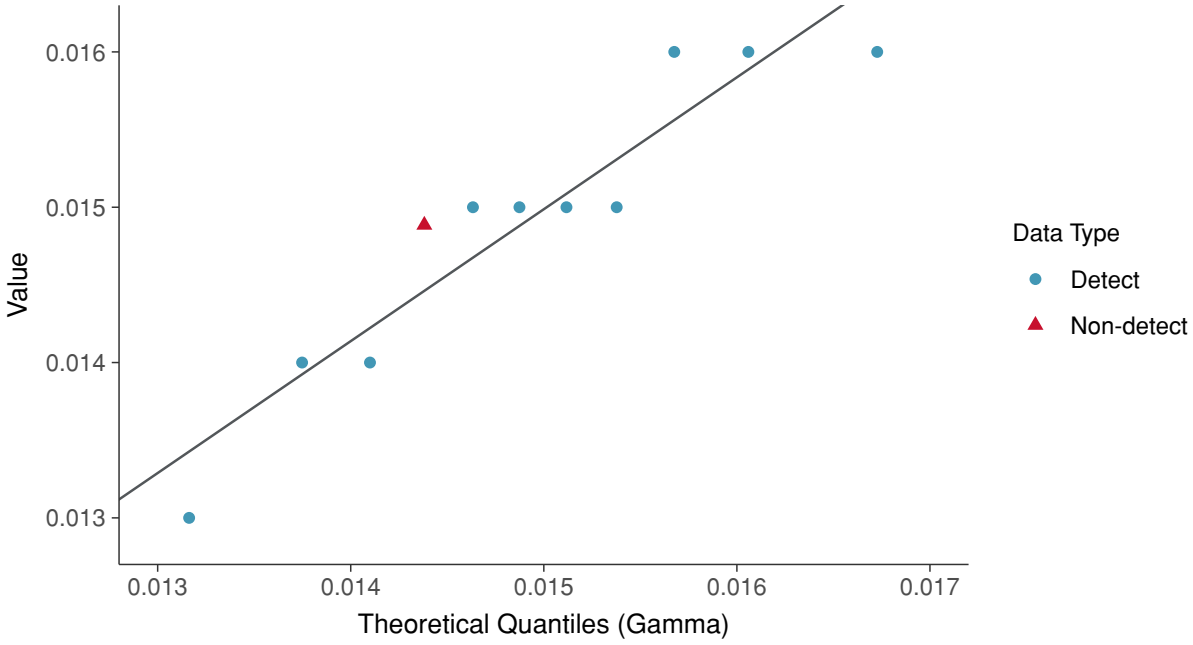
Lognormal Q-Q plot using ROS Imputed Estimates

Barium, W-3B (mg/l)



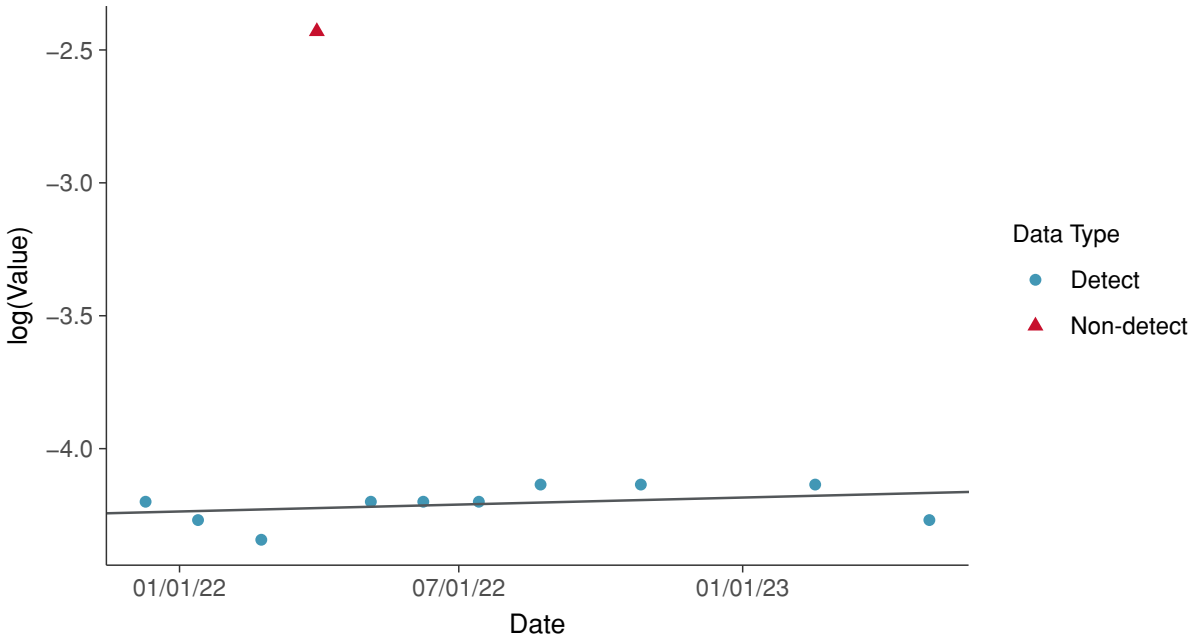
Gamma Q-Q plot using ROS Imputed Estimates

Barium, W-3B (mg/l)



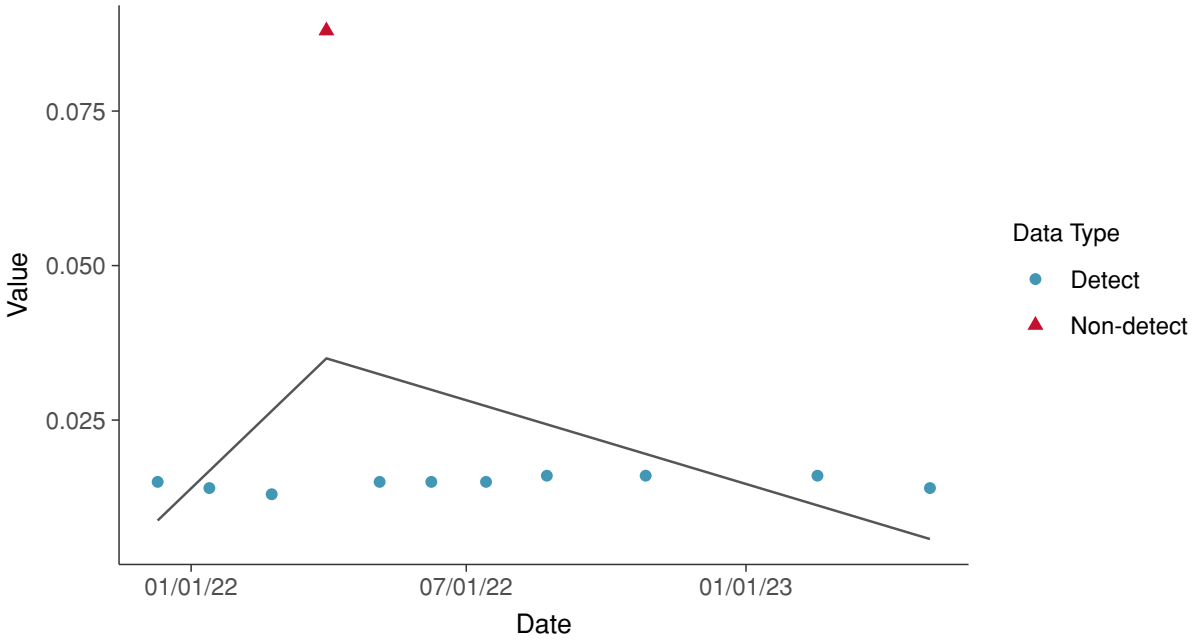
Trend Regression: Lognormal MLE

Barium, W-3B (mg/l)



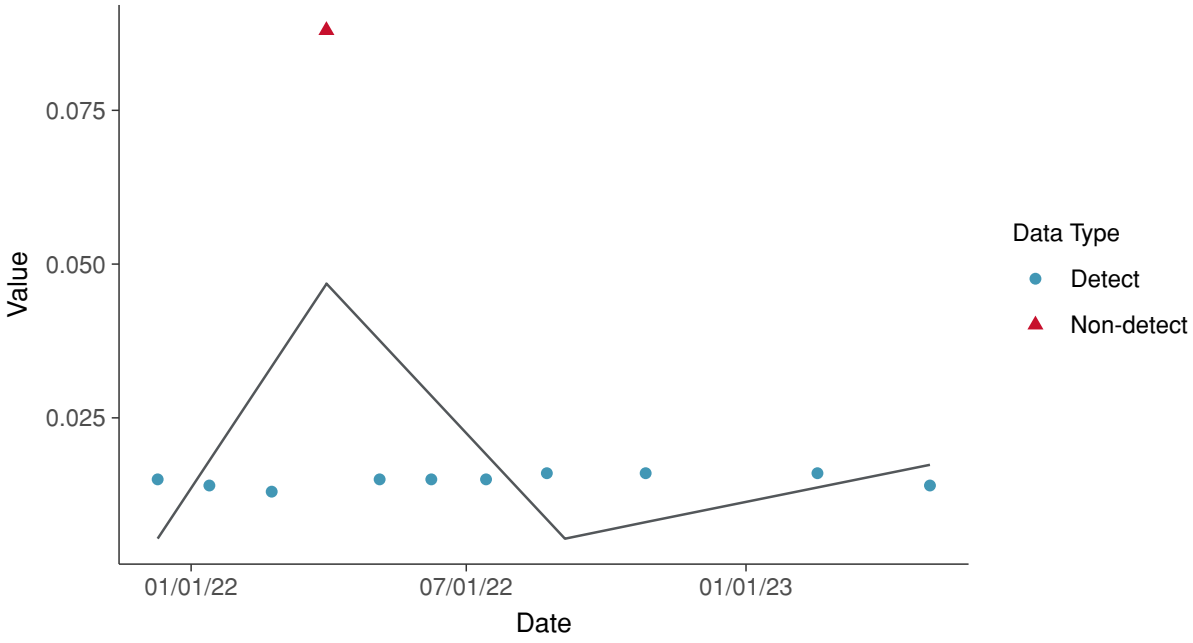
Trend Regression: Piecewise Linear-Linear

Barium, W-3B (mg/l)



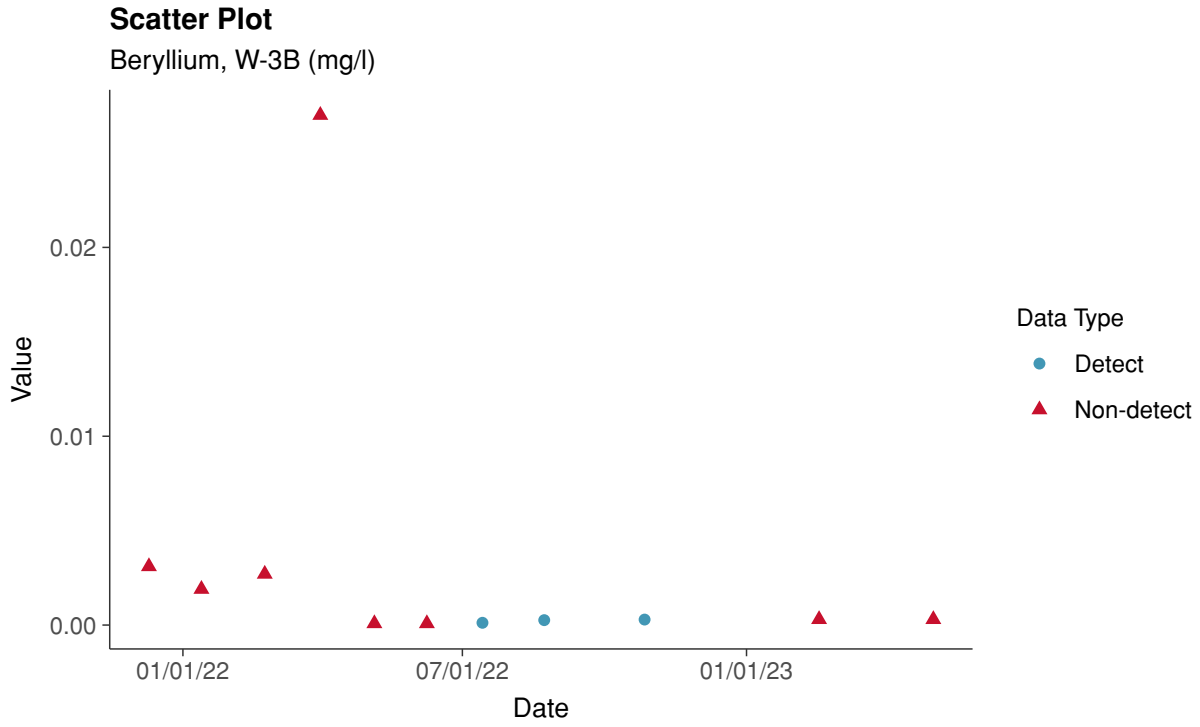
Trend Regression: Piecewise Linear-Linear-Linear

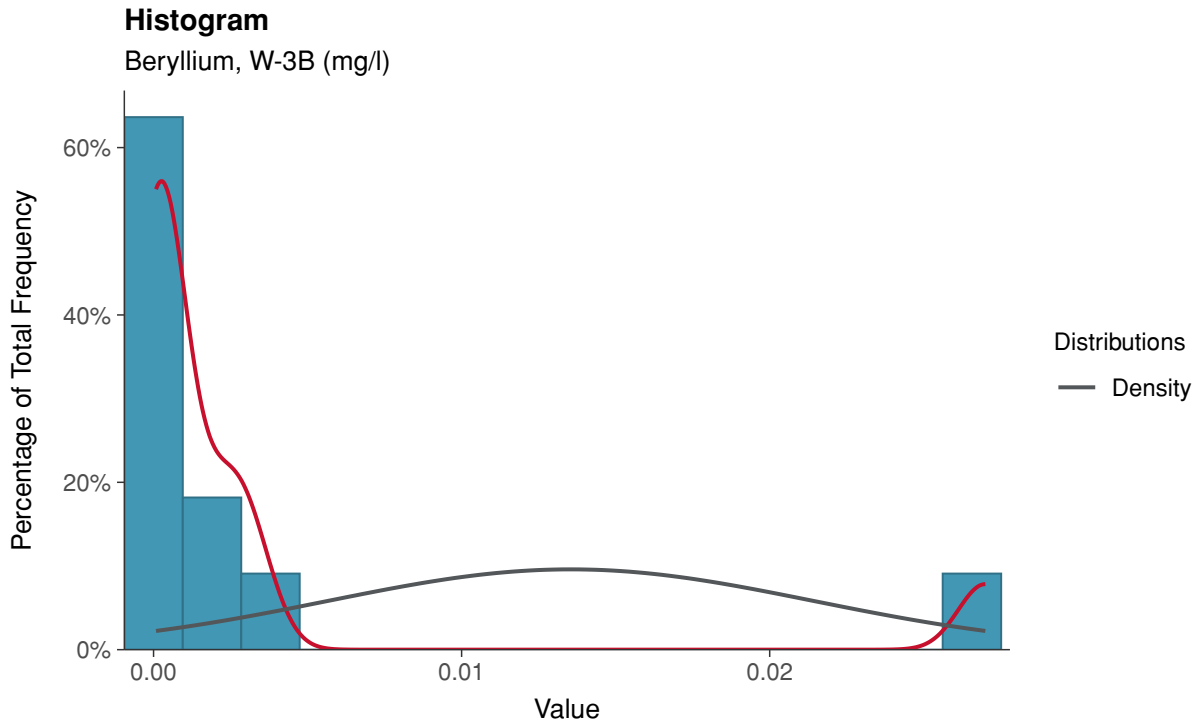
Barium, W-3B (mg/l)



Appendix IV: Beryllium, W-3B

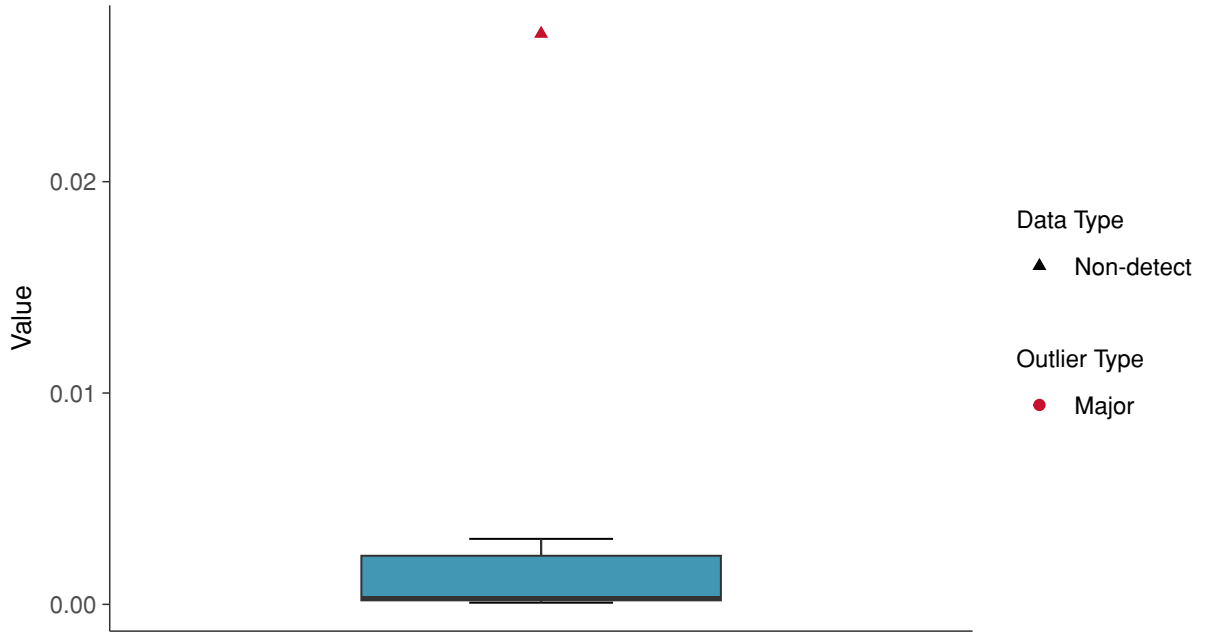
ID: 8_2_104





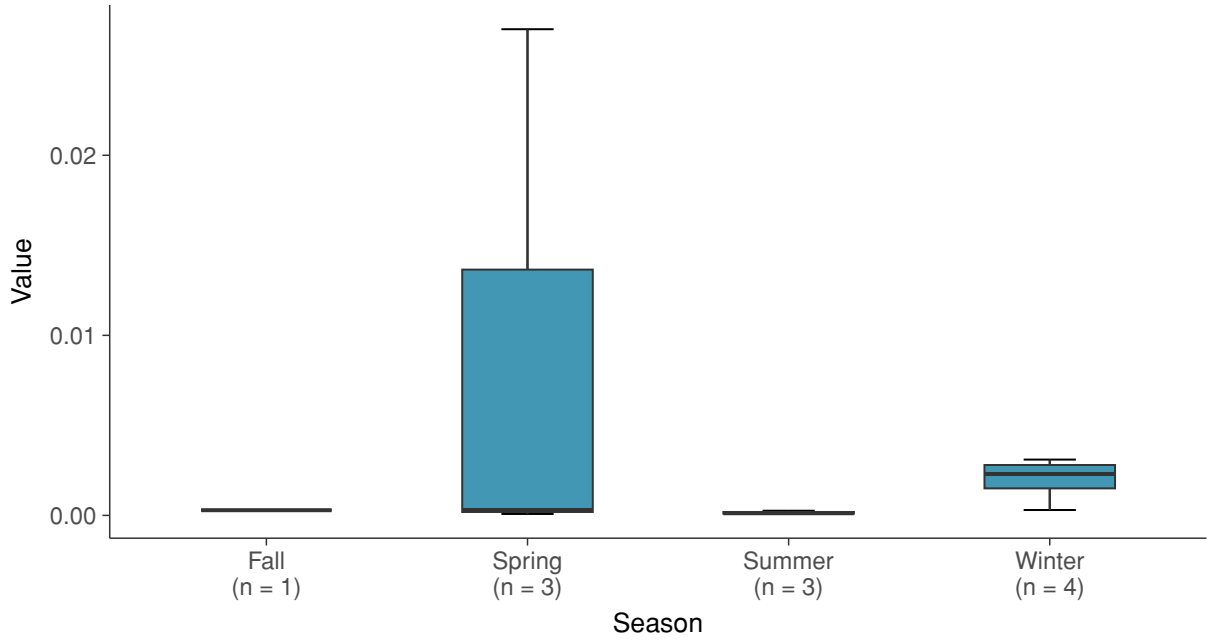
Boxplot

Beryllium, W-3B (mg/l)



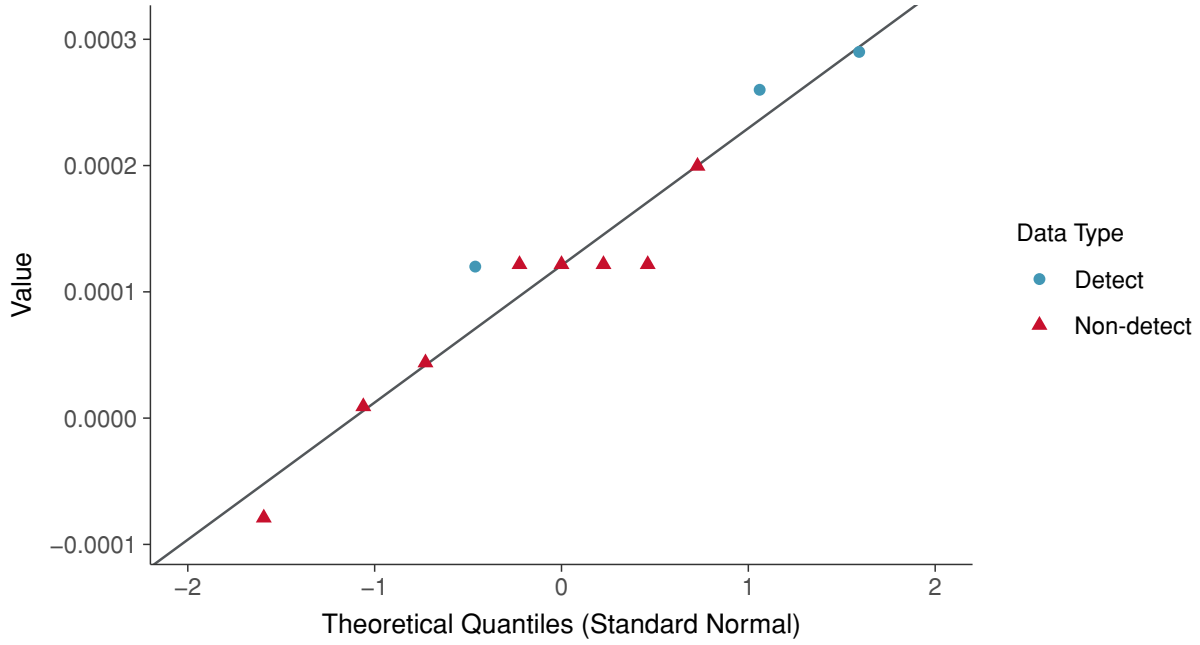
Boxplot by Season

Beryllium, W-3B (mg/l)



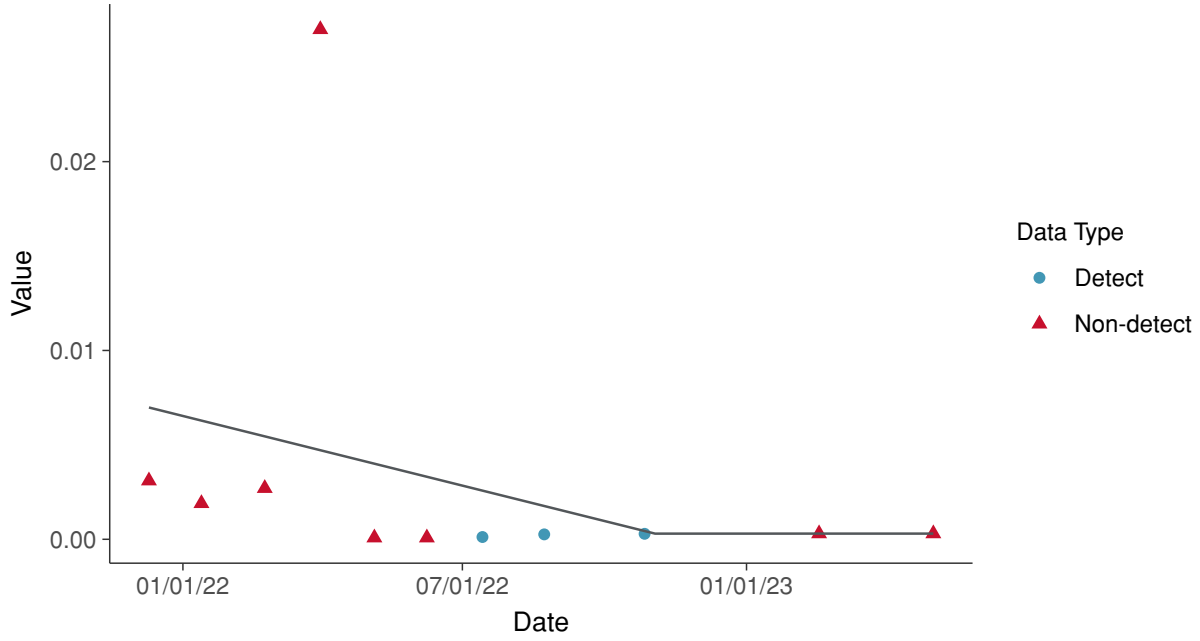
Normal Q-Q plot using ROS Imputed Estimates

Beryllium, W-3B (mg/l)



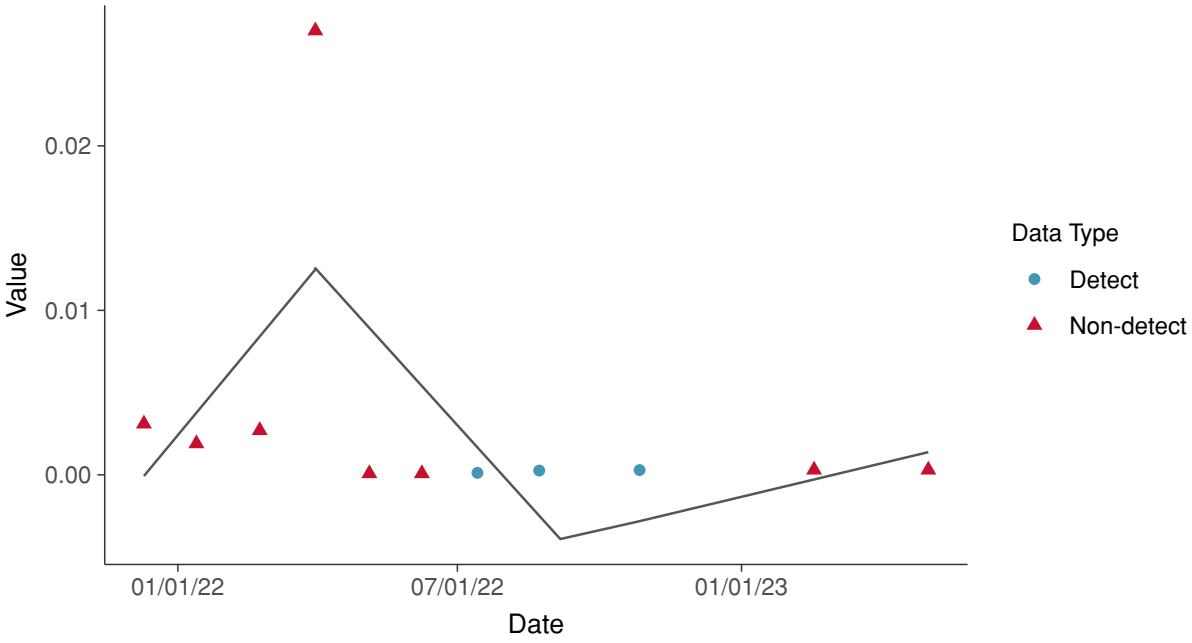
Trend Regression: Piecewise Linear-Linear

Beryllium, W-3B (mg/l)



Trend Regression: Piecewise Linear-Linear-Linear

Beryllium, W-3B (mg/l)

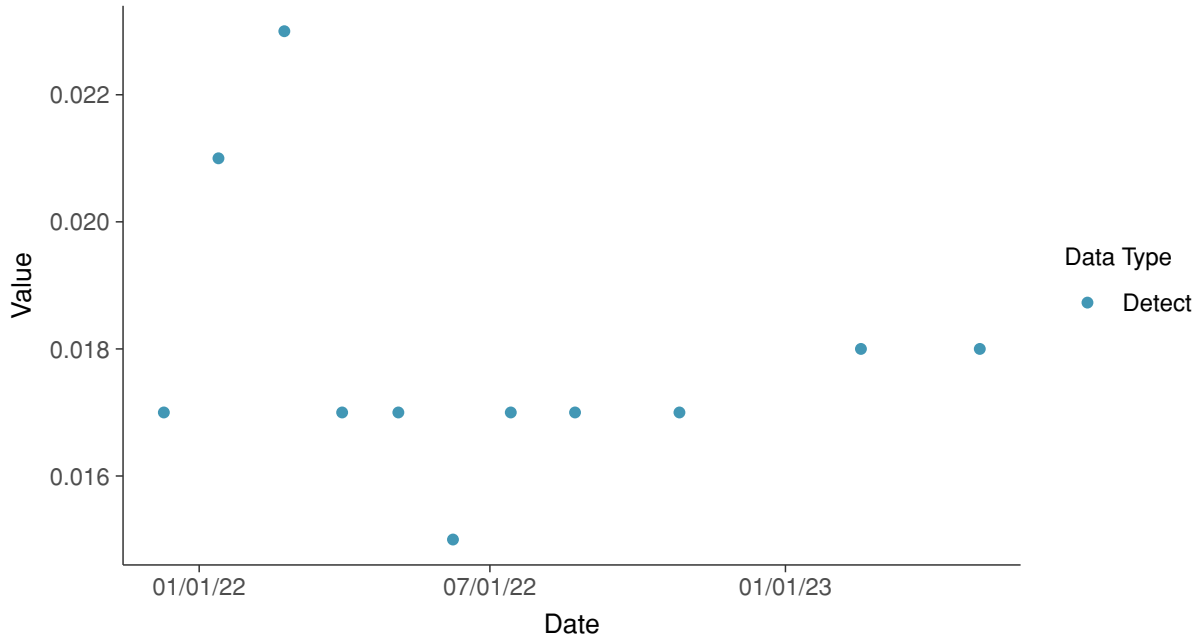


Appendix IV: Cadmium, W-3B

ID: 8_2_106

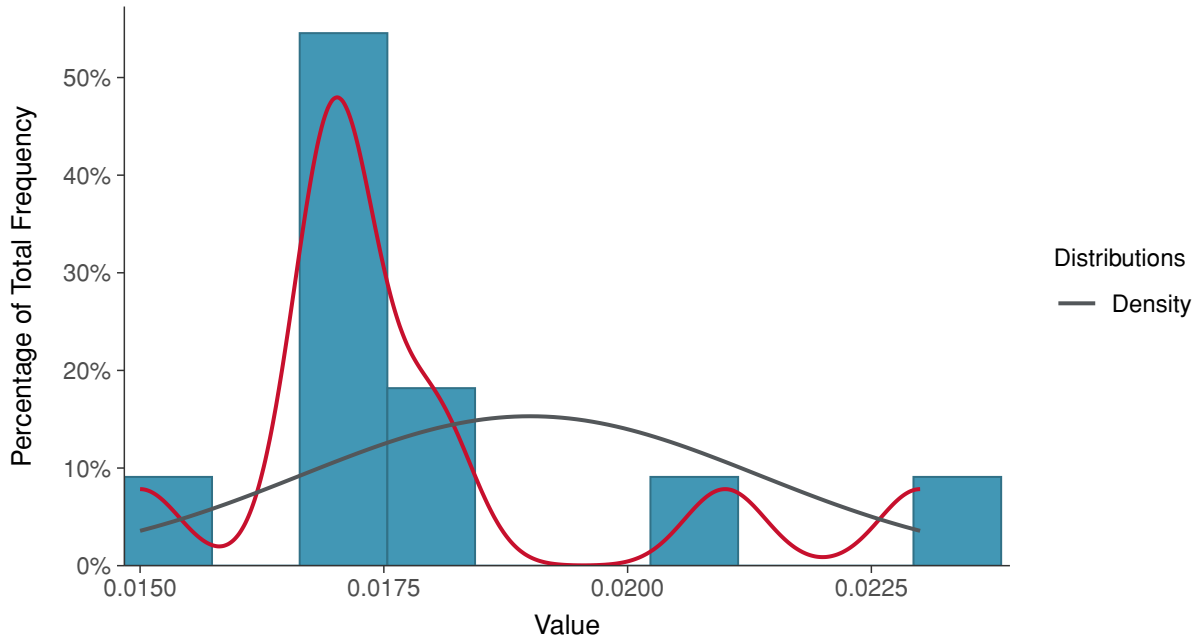
Scatter Plot

Cadmium, W-3B (mg/l)



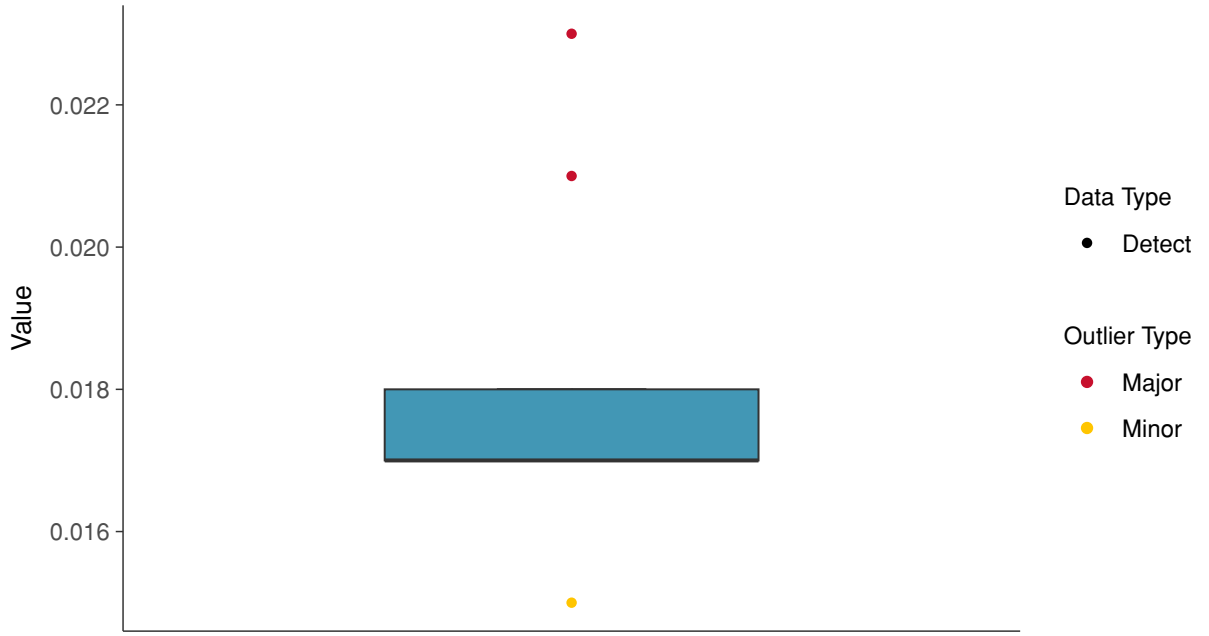
Histogram

Cadmium, W-3B (mg/l)



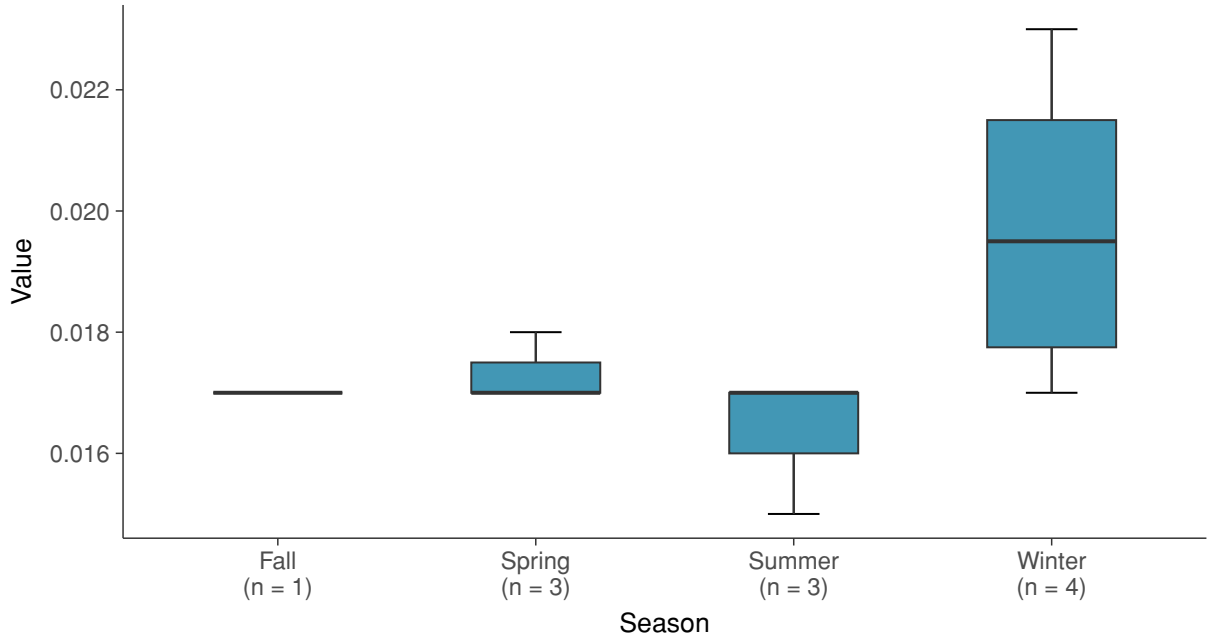
Boxplot

Cadmium, W-3B (mg/l)



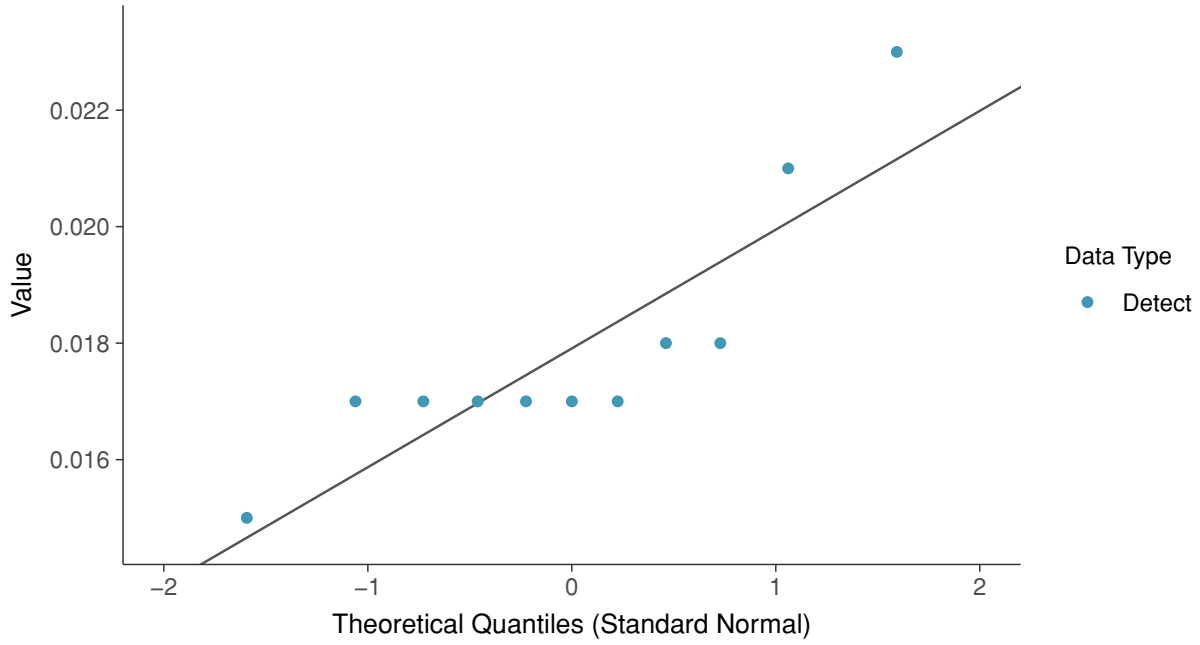
Boxplot by Season

Cadmium, W-3B (mg/l)



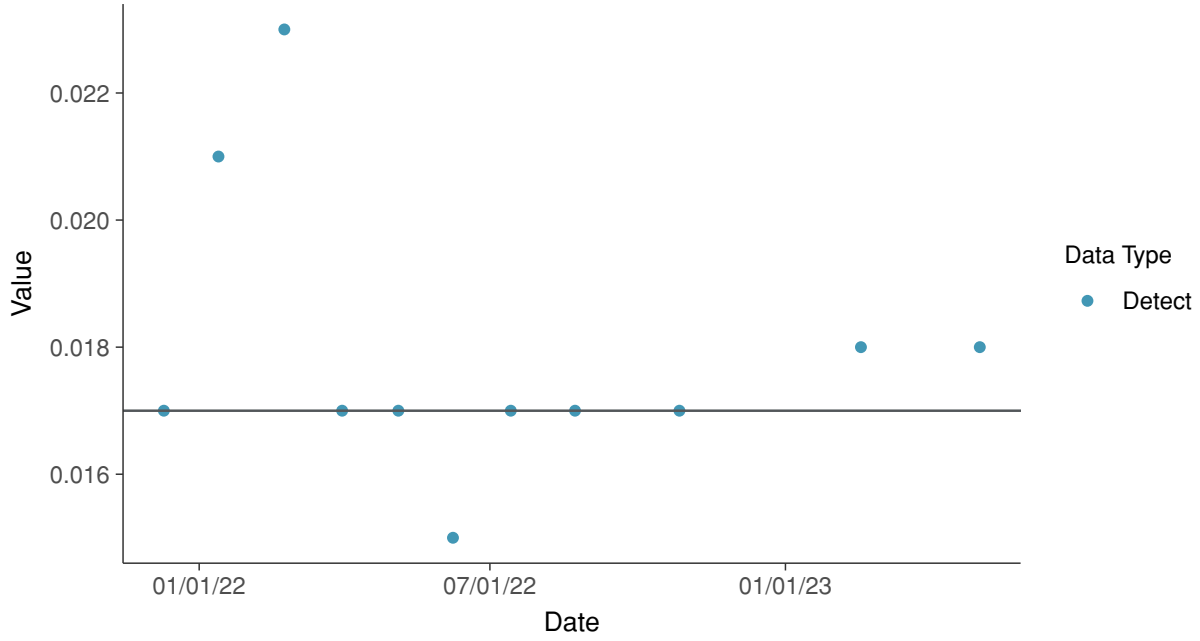
Normal Q-Q plot

Cadmium, W-3B (mg/l)



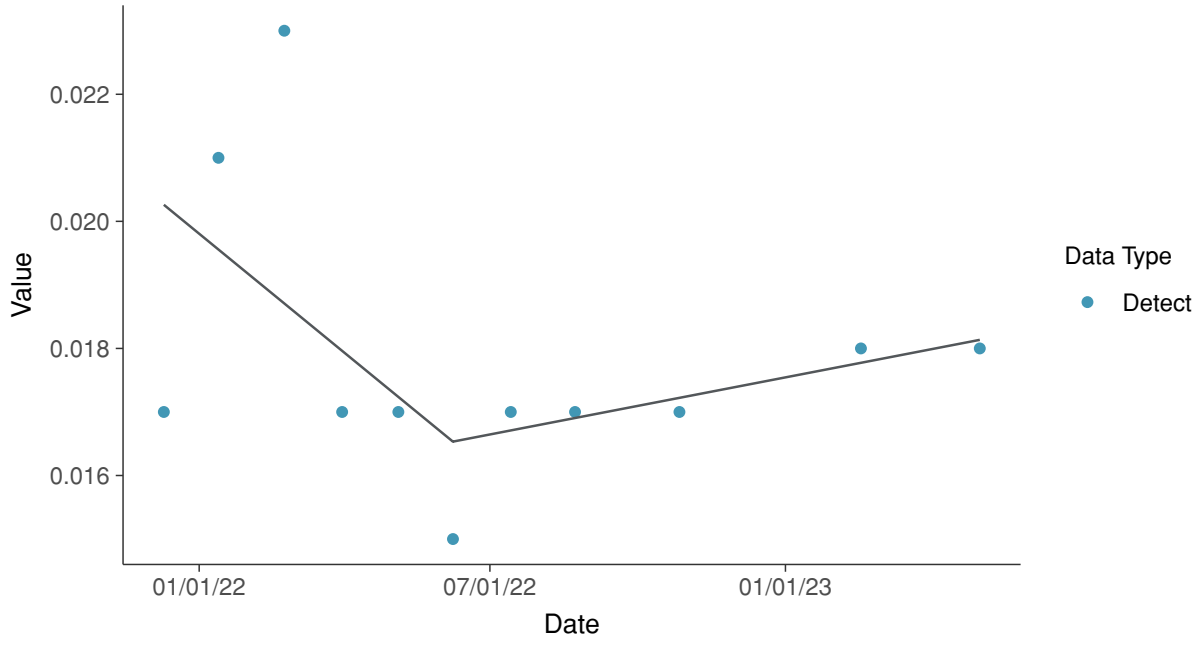
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Cadmium, W-3B (mg/l)



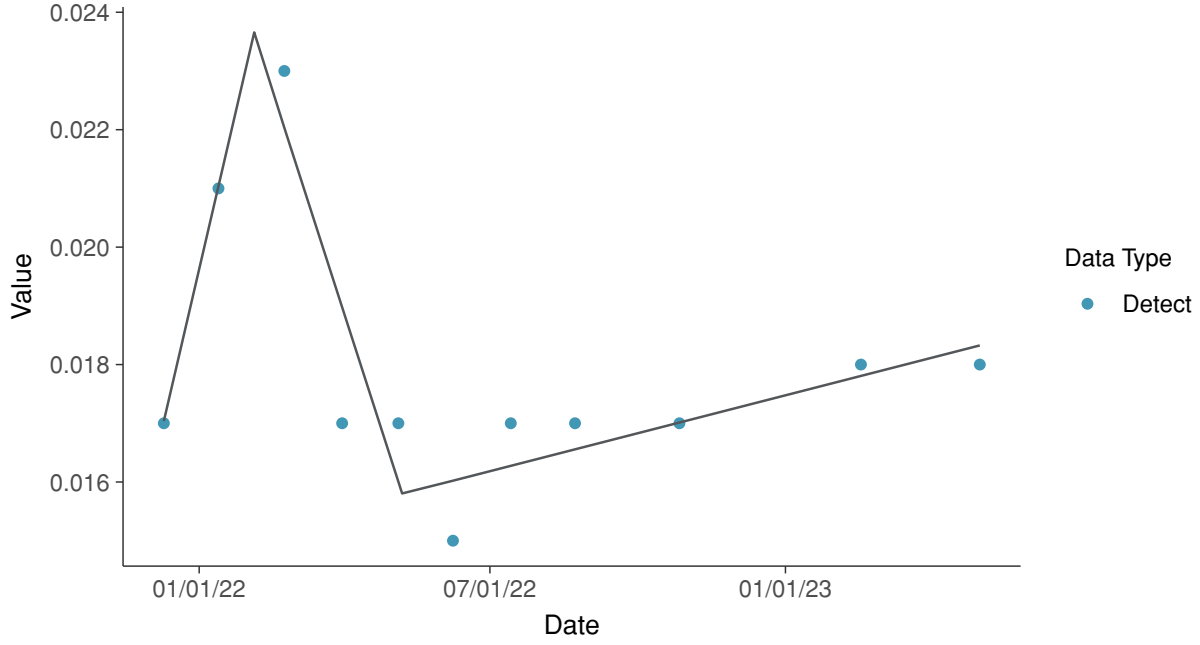
Trend Regression: Piecewise Linear-Linear

Cadmium, W-3B (mg/l)



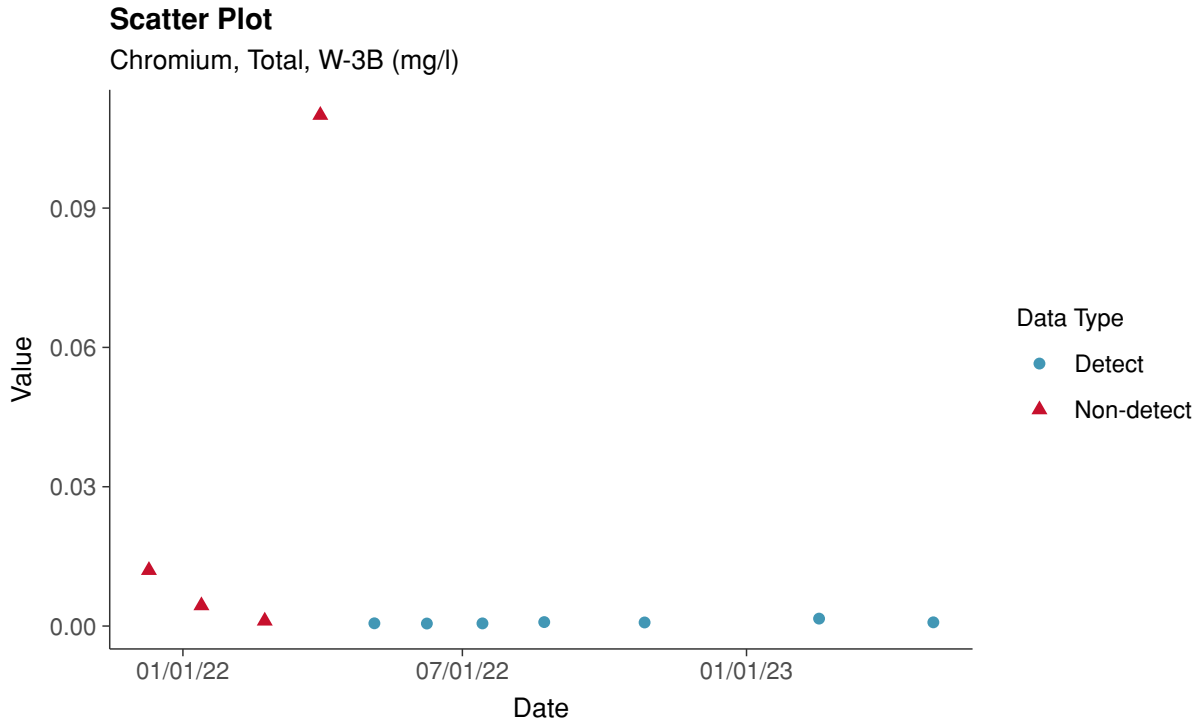
Trend Regression: Piecewise Linear-Linear-Linear

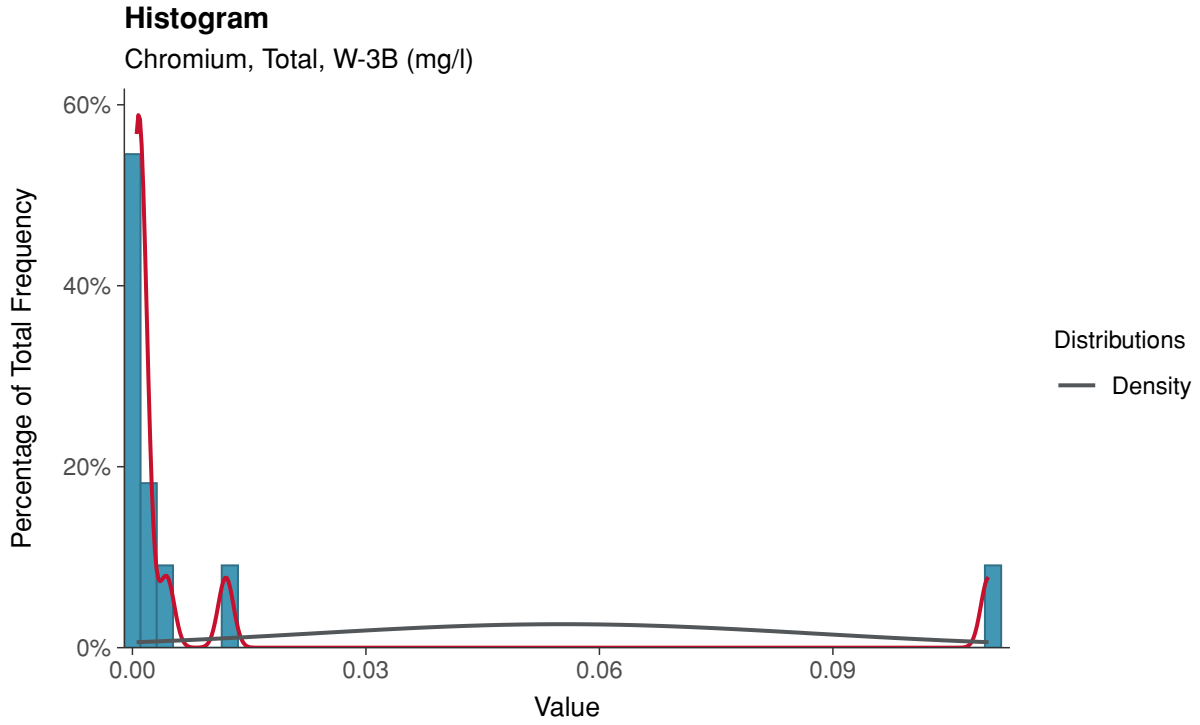
Cadmium, W-3B (mg/l)



Appendix IV: Chromium, Total, W-3B

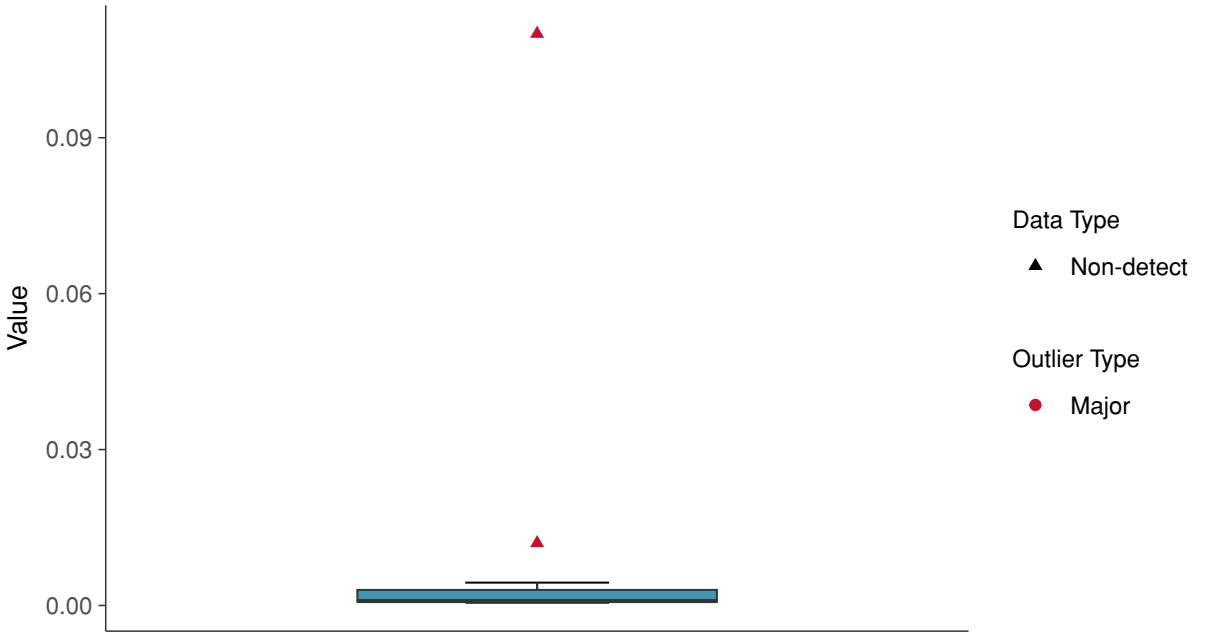
ID: 8_2_109





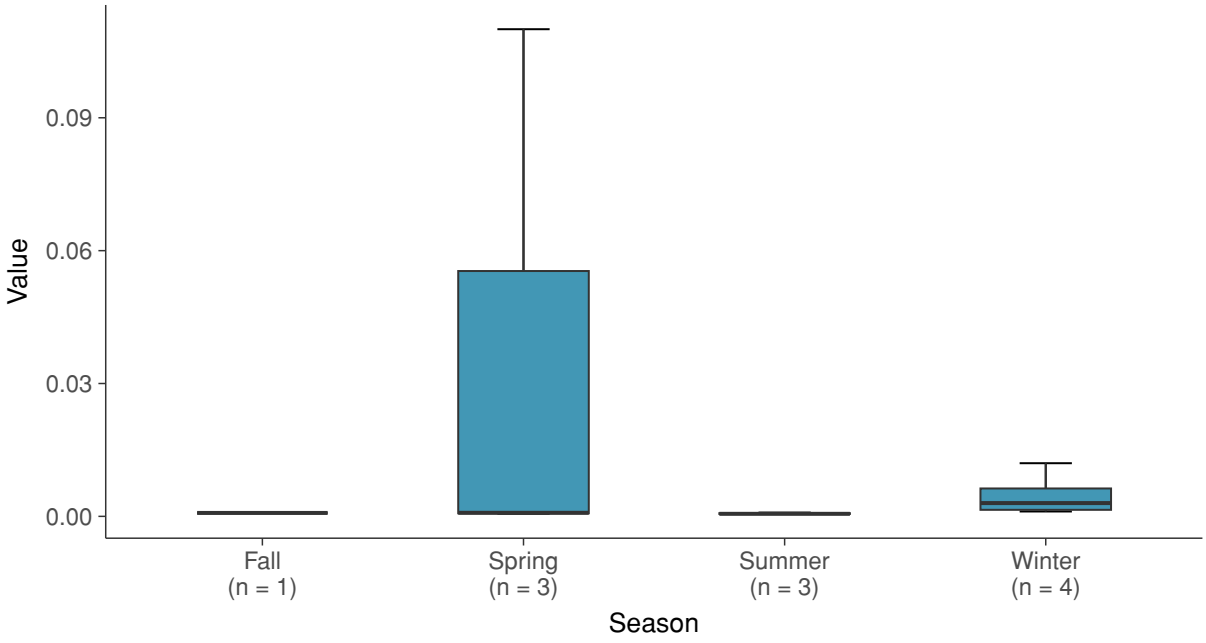
Boxplot

Chromium, Total, W-3B (mg/l)



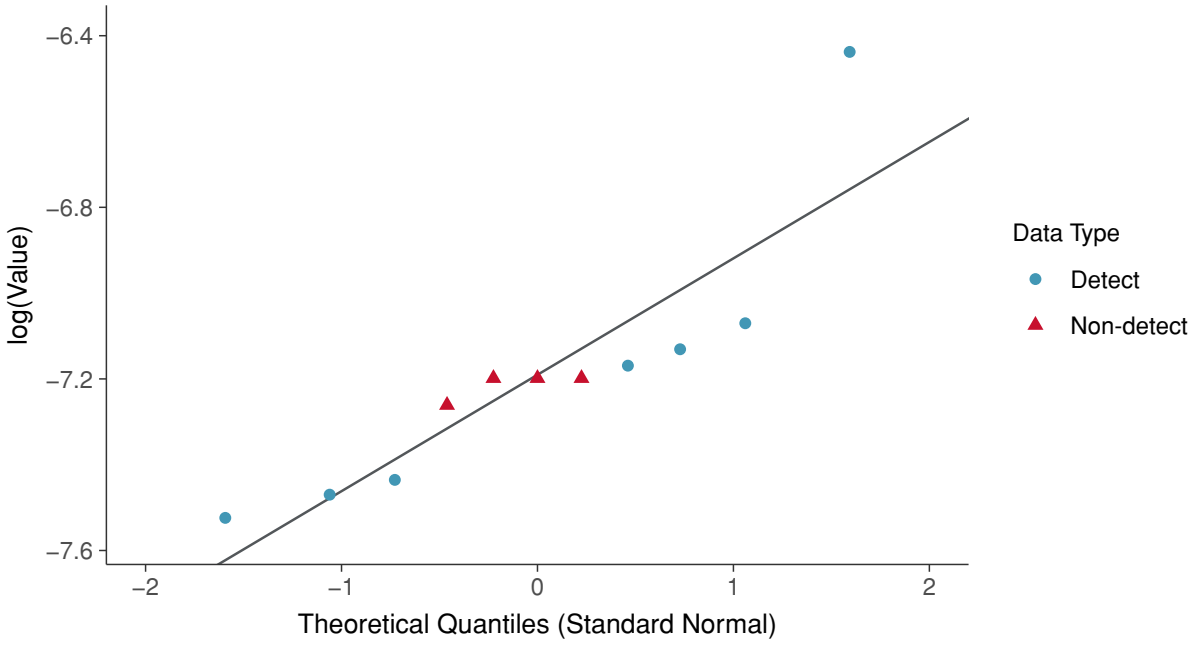
Boxplot by Season

Chromium, Total, W-3B (mg/l)



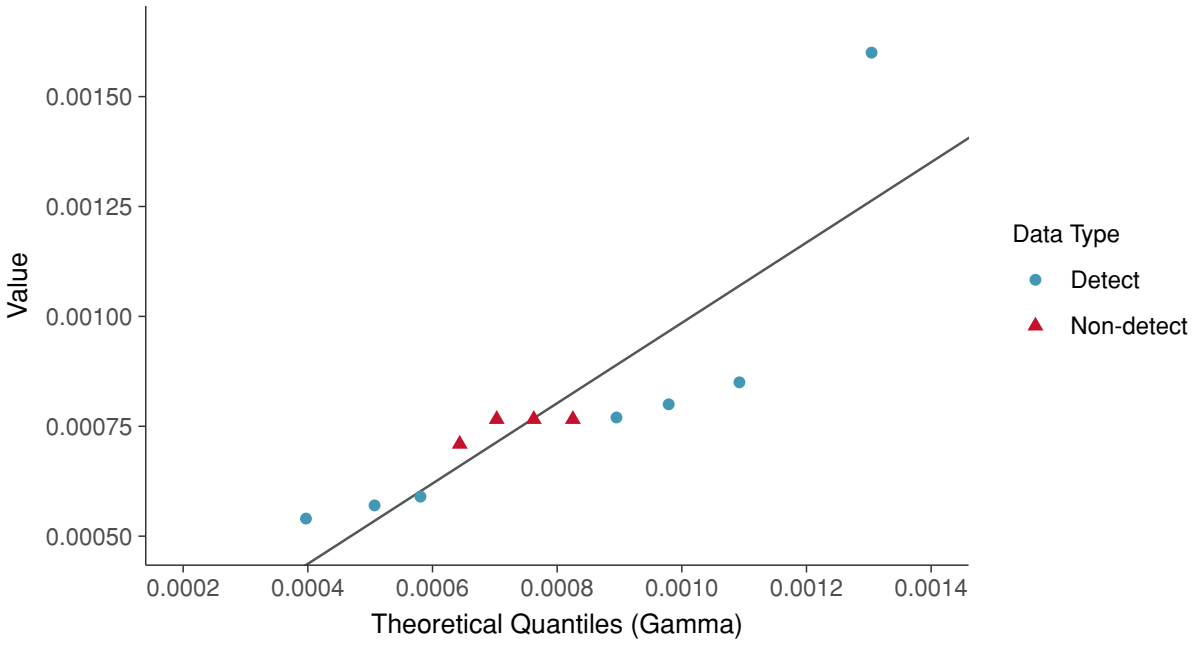
Lognormal Q-Q plot using ROS Imputed Estimates

Chromium, Total, W-3B (mg/l)



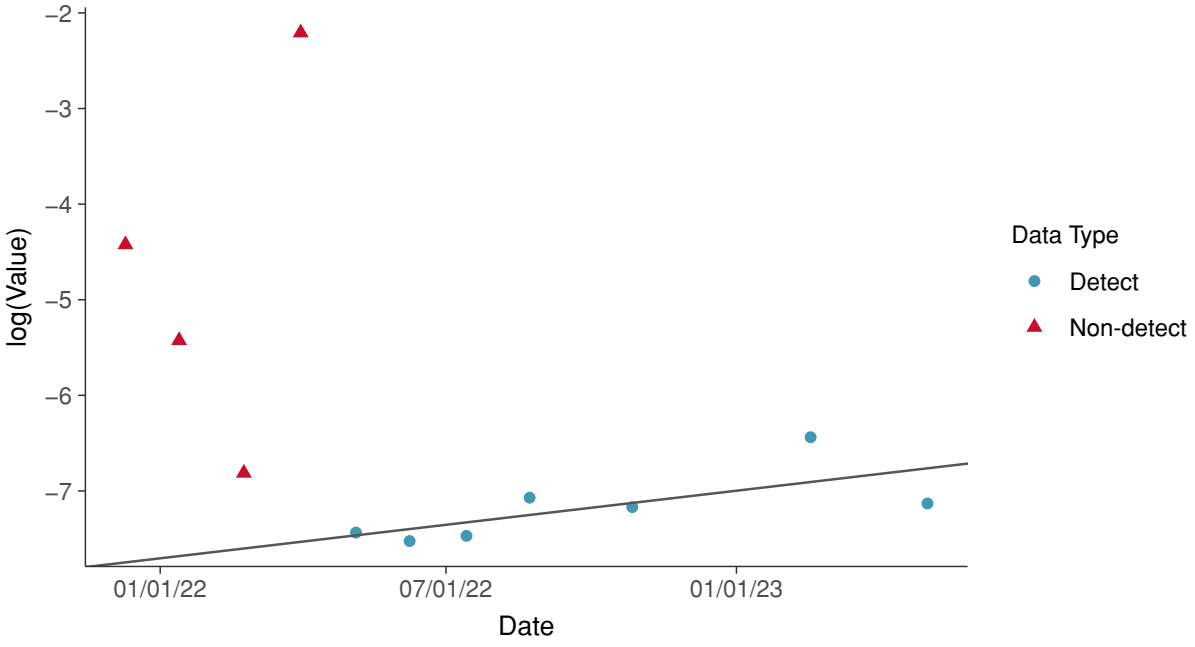
Gamma Q-Q plot using ROS Imputed Estimates

Chromium, Total, W-3B (mg/l)



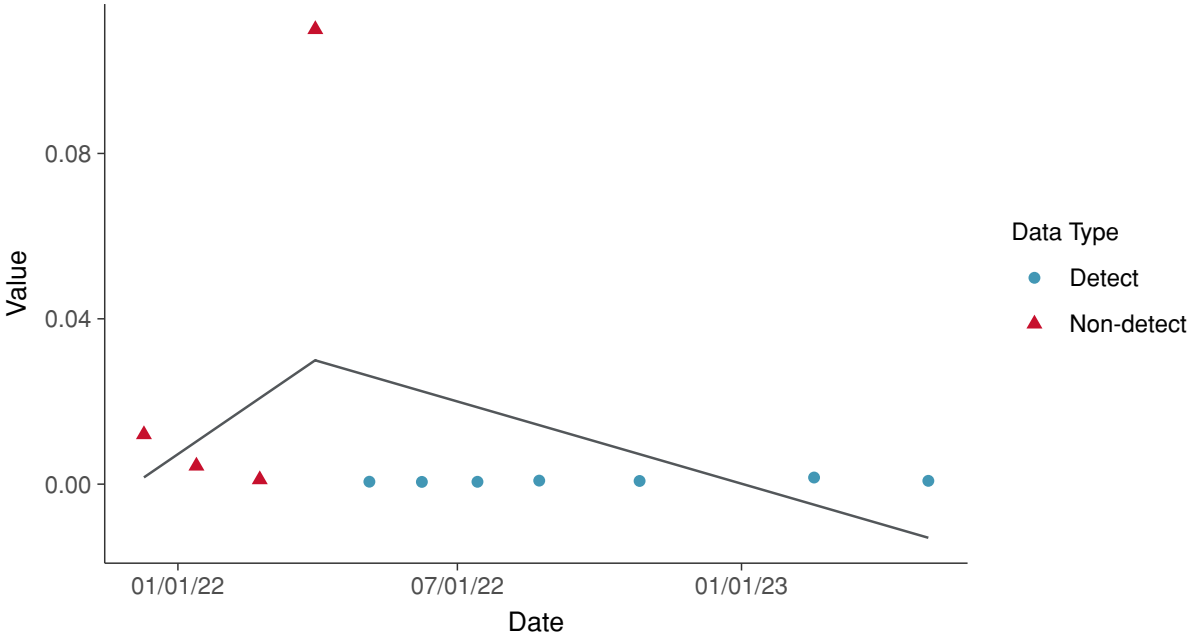
Trend Regression: Lognormal MLE

Chromium, Total, W-3B (mg/l)



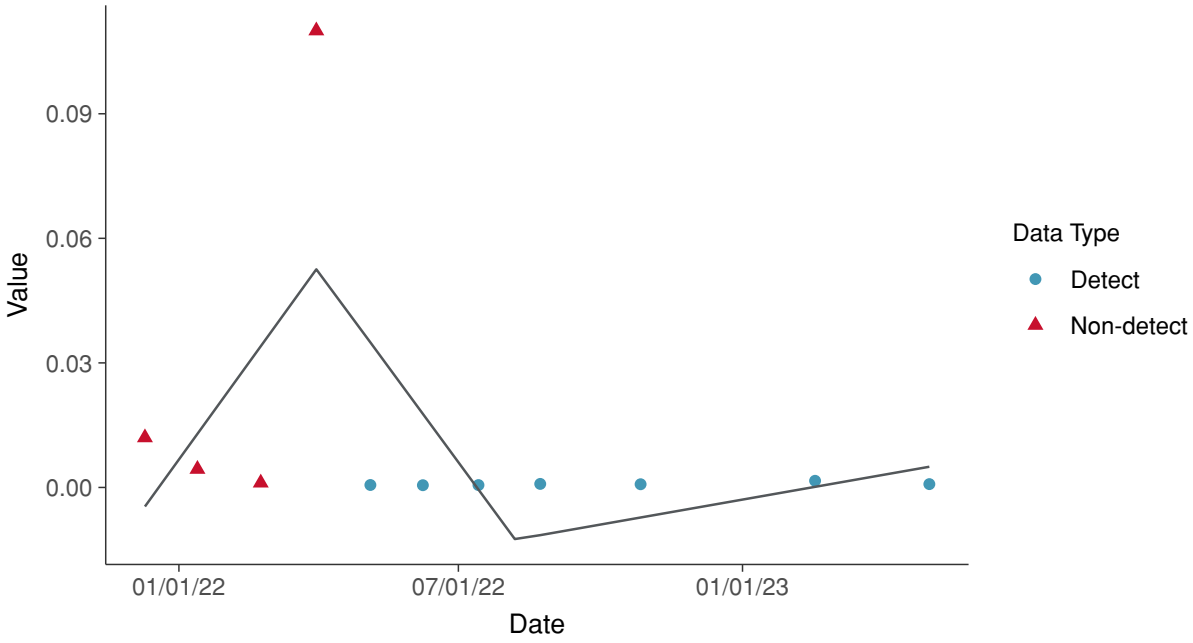
Trend Regression: Piecewise Linear-Linear

Chromium, Total, W-3B (mg/l)



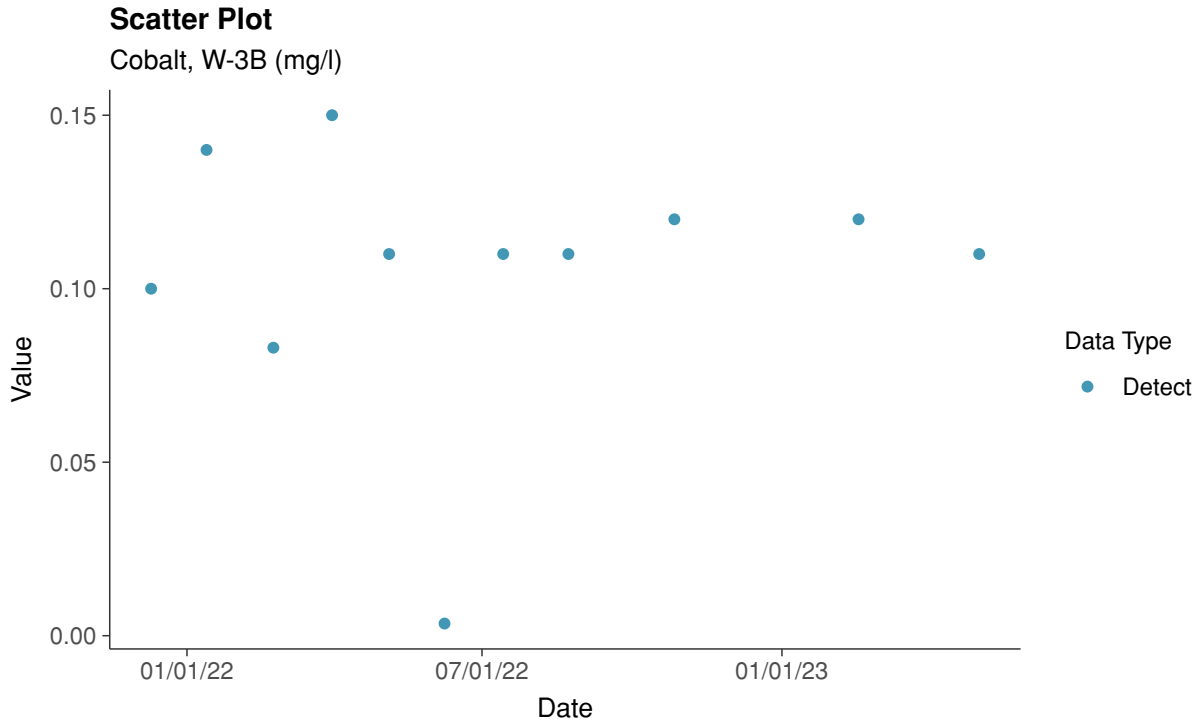
Trend Regression: Piecewise Linear-Linear-Linear

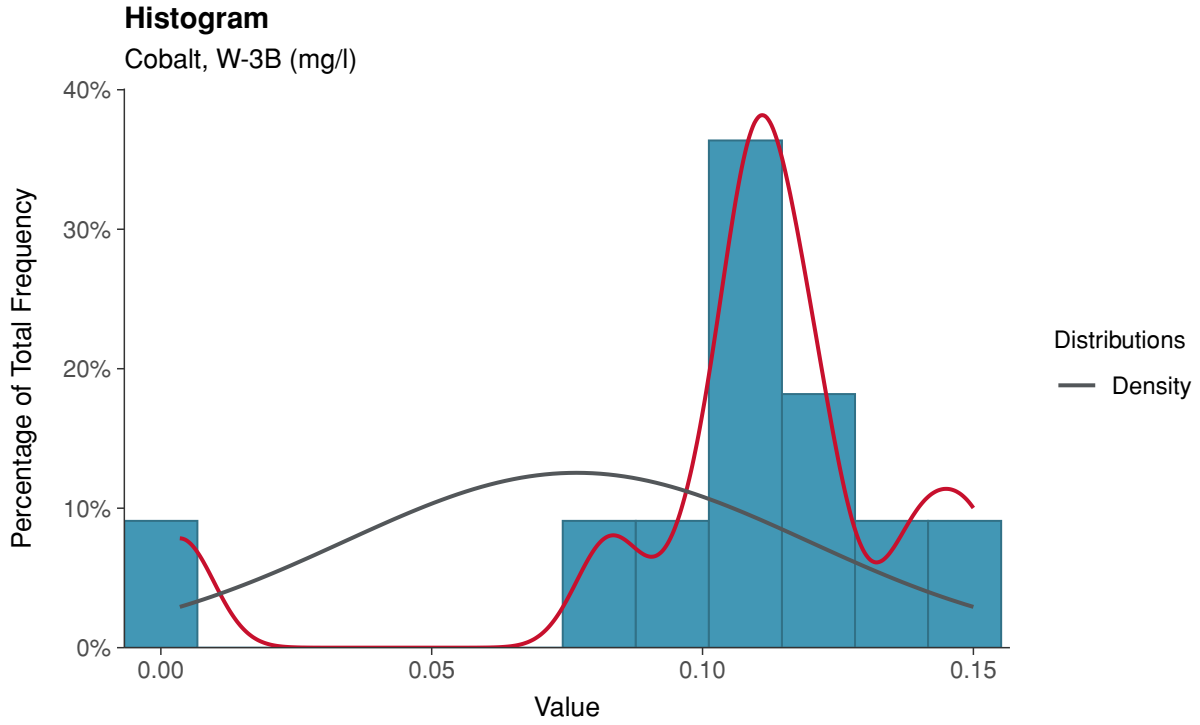
Chromium, Total, W-3B (mg/l)



Appendix IV: Cobalt, W-3B

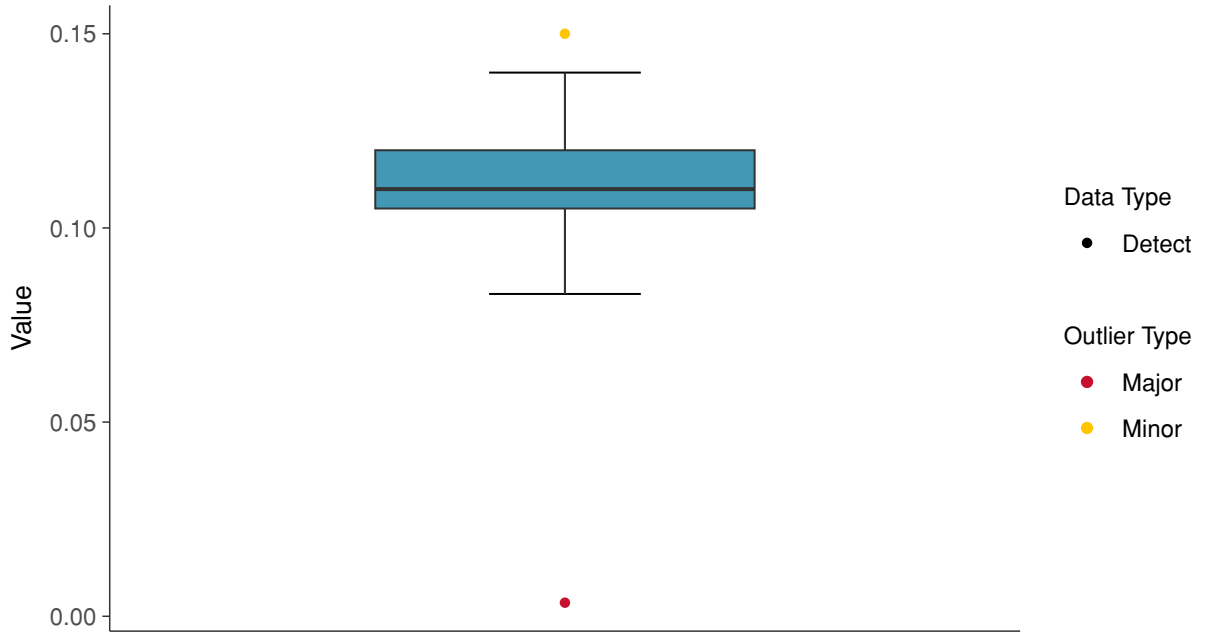
ID: 8_2_110





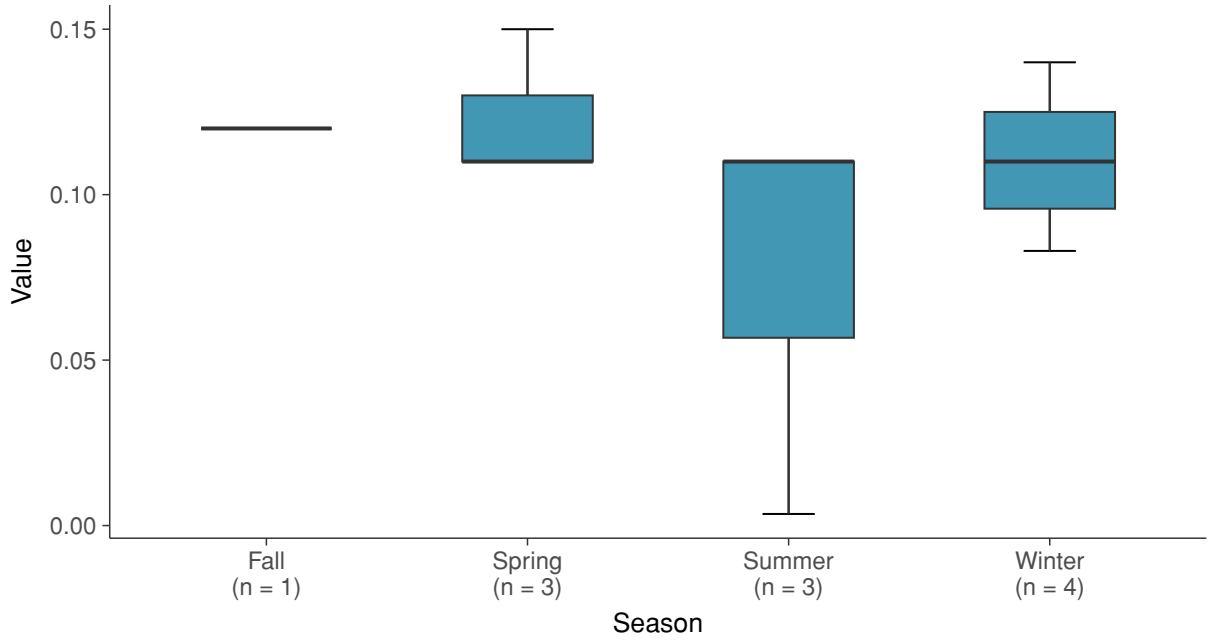
Boxplot

Cobalt, W-3B (mg/l)



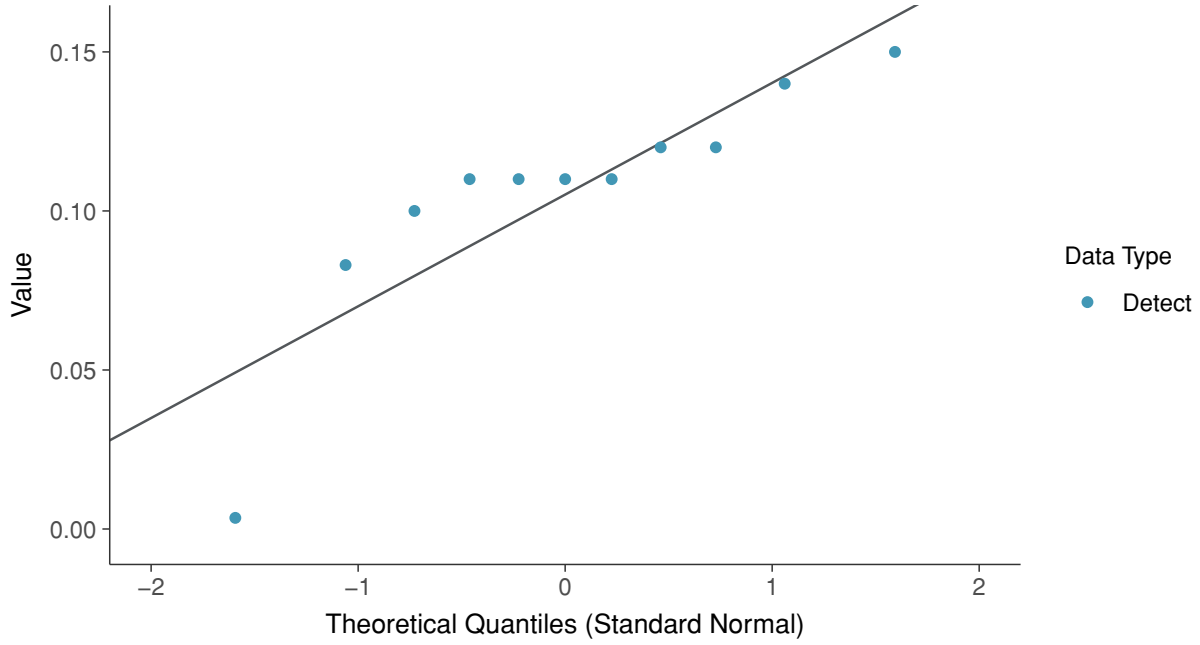
Boxplot by Season

Cobalt, W-3B (mg/l)



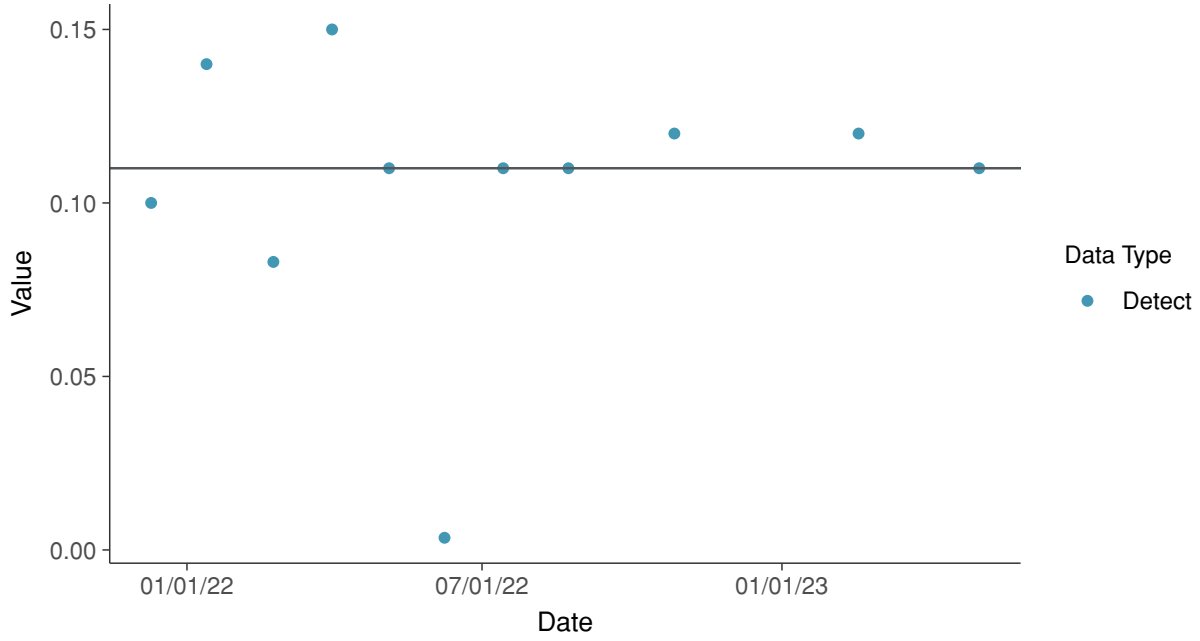
Normal Q-Q plot

Cobalt, W-3B (mg/l)



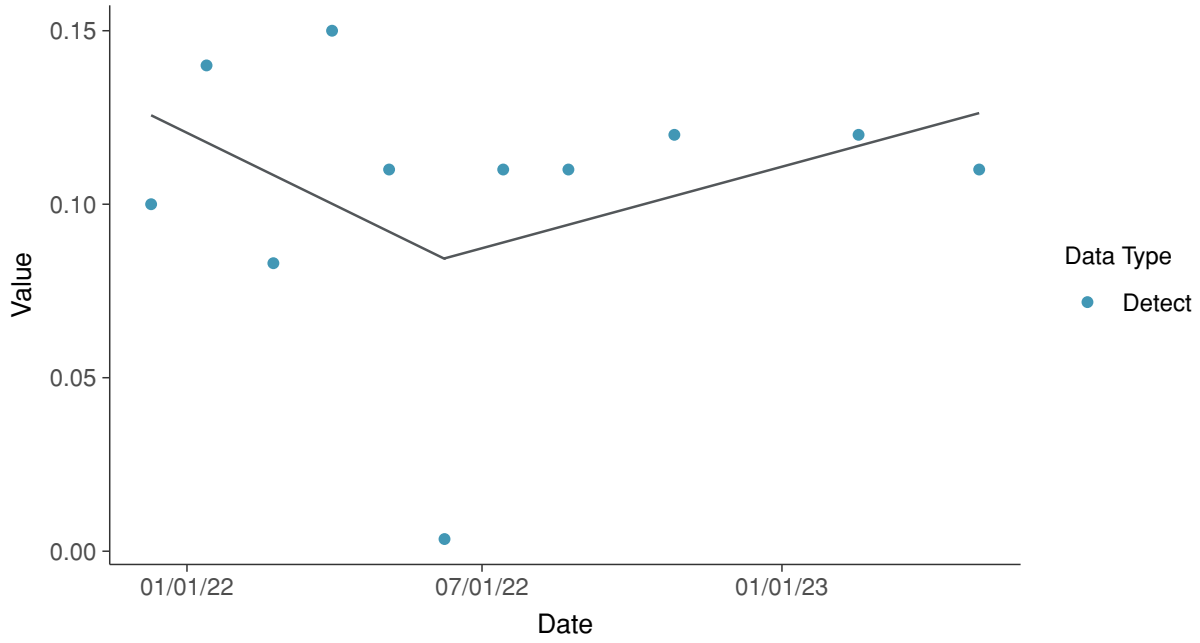
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Cobalt, W-3B (mg/l)



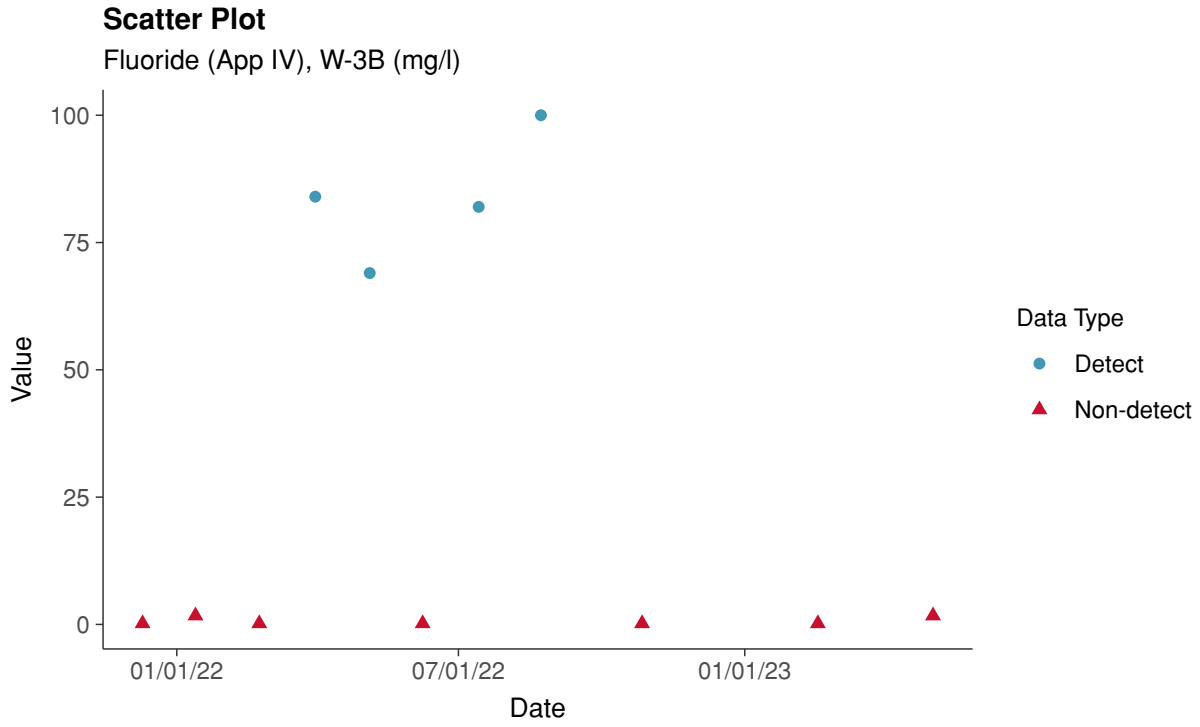
Trend Regression: Piecewise Linear-Linear

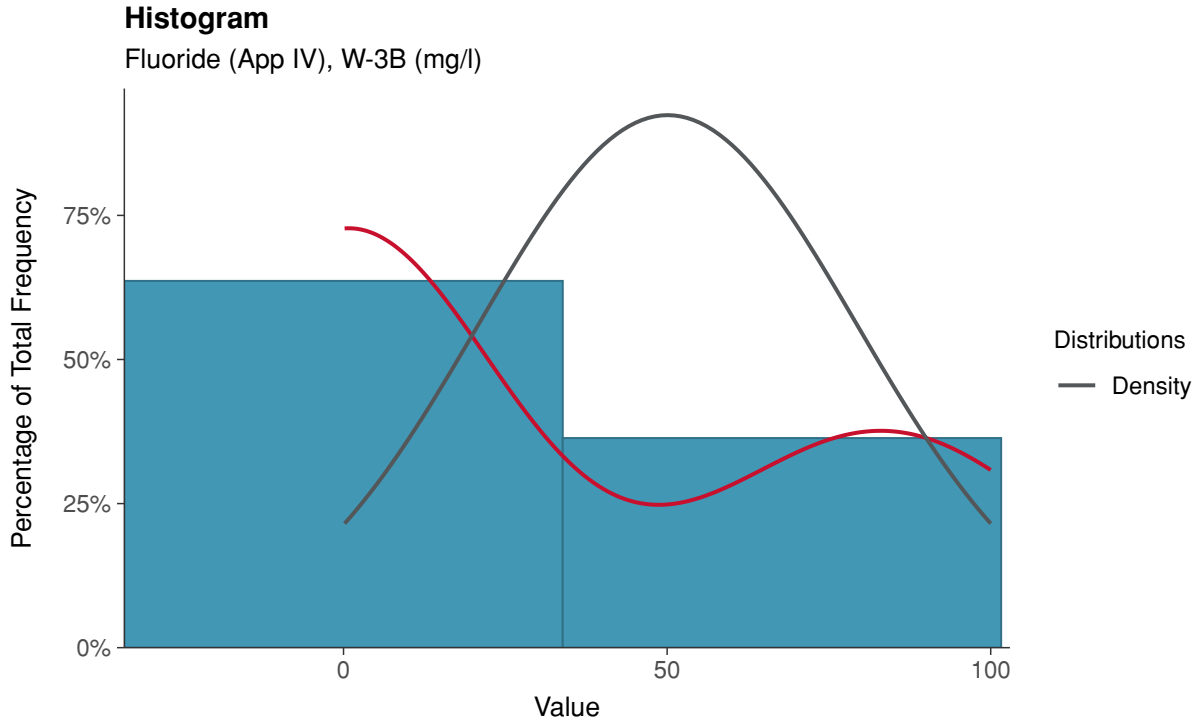
Cobalt, W-3B (mg/l)



Appendix IV: Fluoride (App IV), W-3B

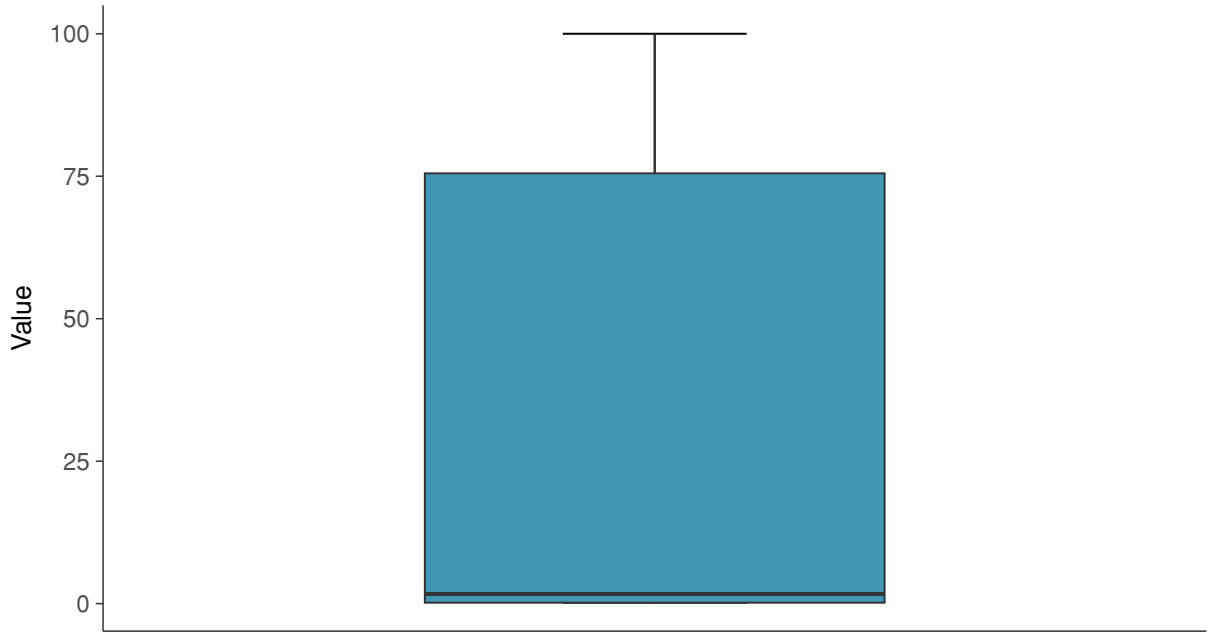
ID: 8_2_112





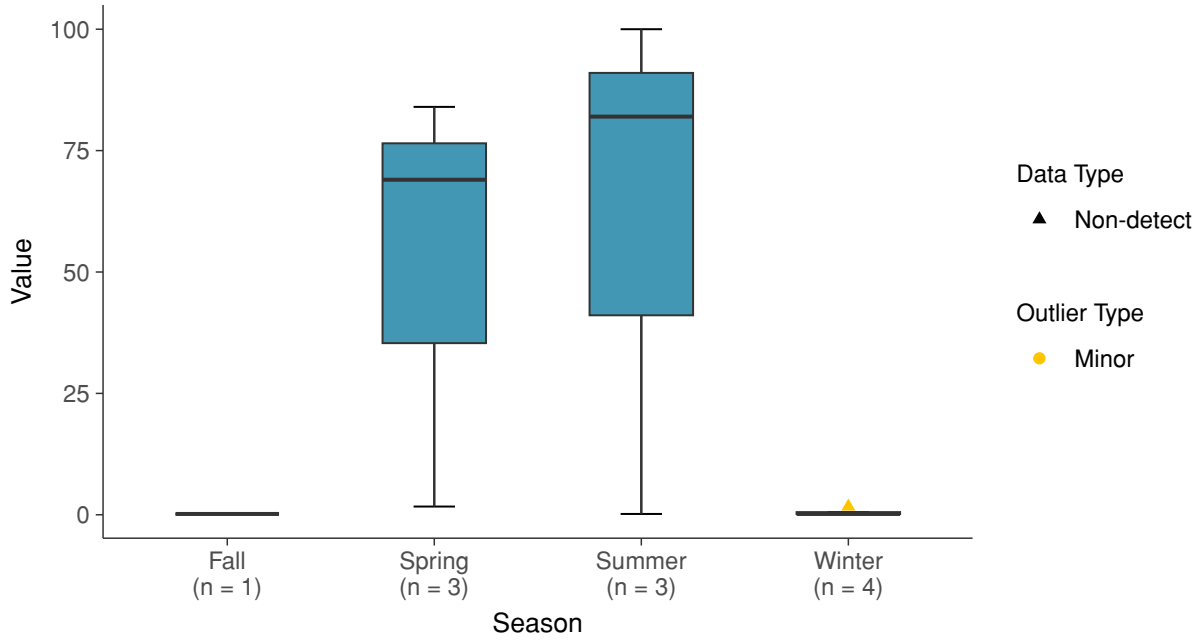
Boxplot

Fluoride (App IV), W-3B (mg/l)



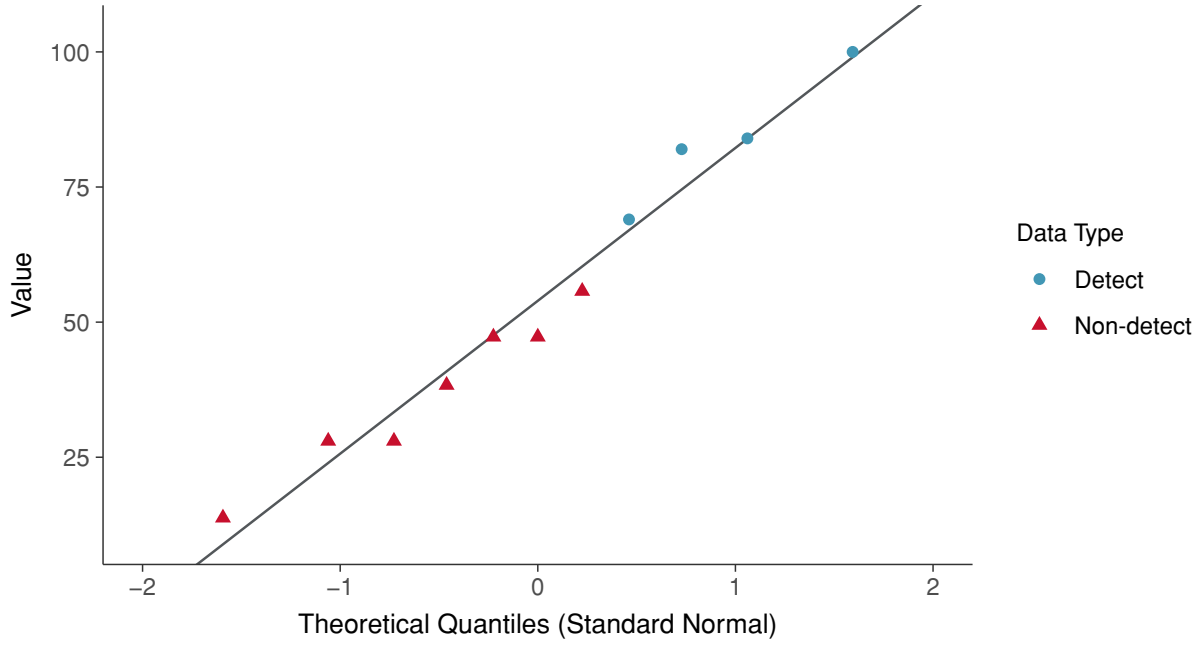
Boxplot by Season

Fluoride (App IV), W-3B (mg/l)



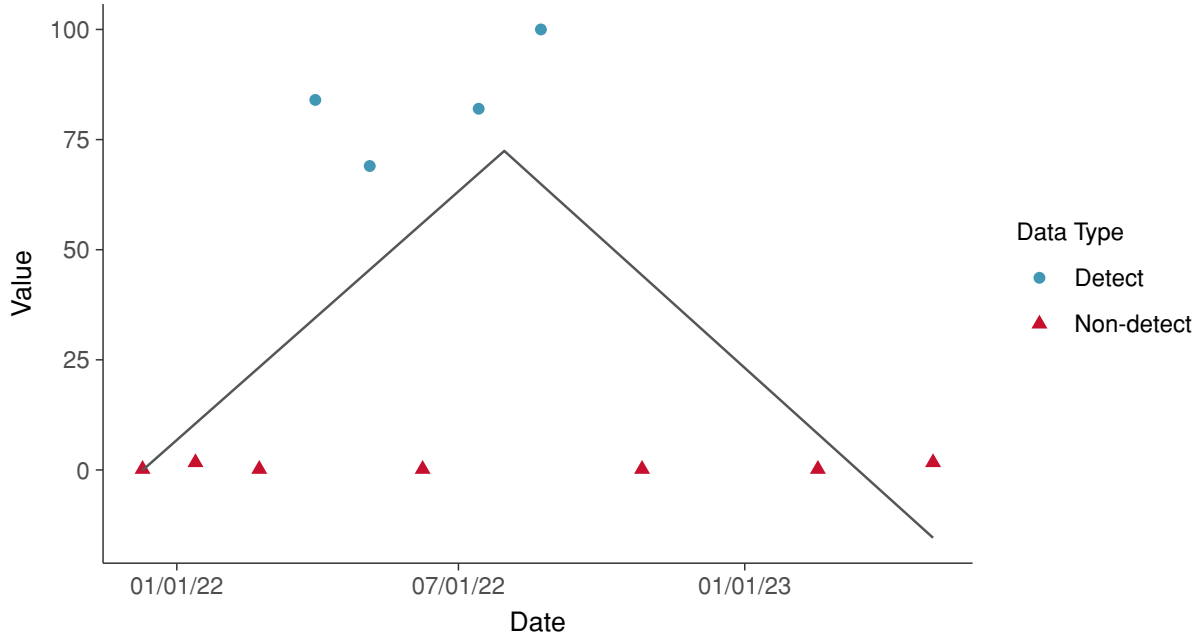
Normal Q-Q plot using ROS Imputed Estimates

Fluoride (App IV), W-3B (mg/l)



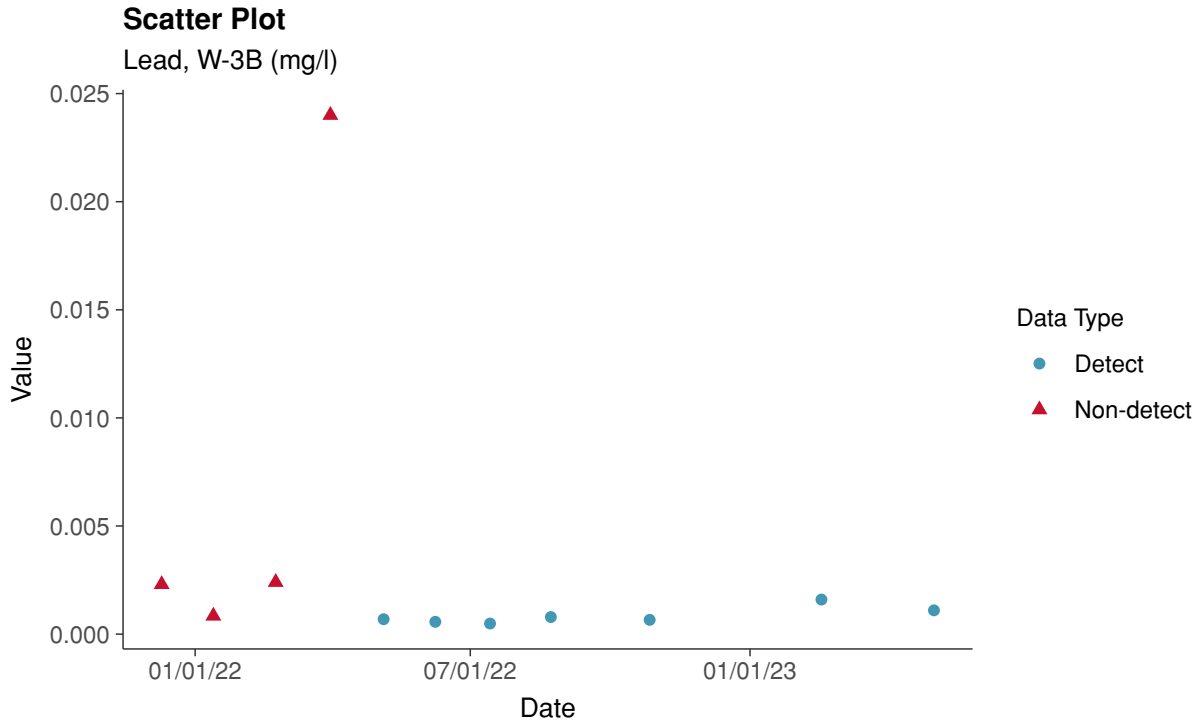
Trend Regression: Piecewise Linear-Linear

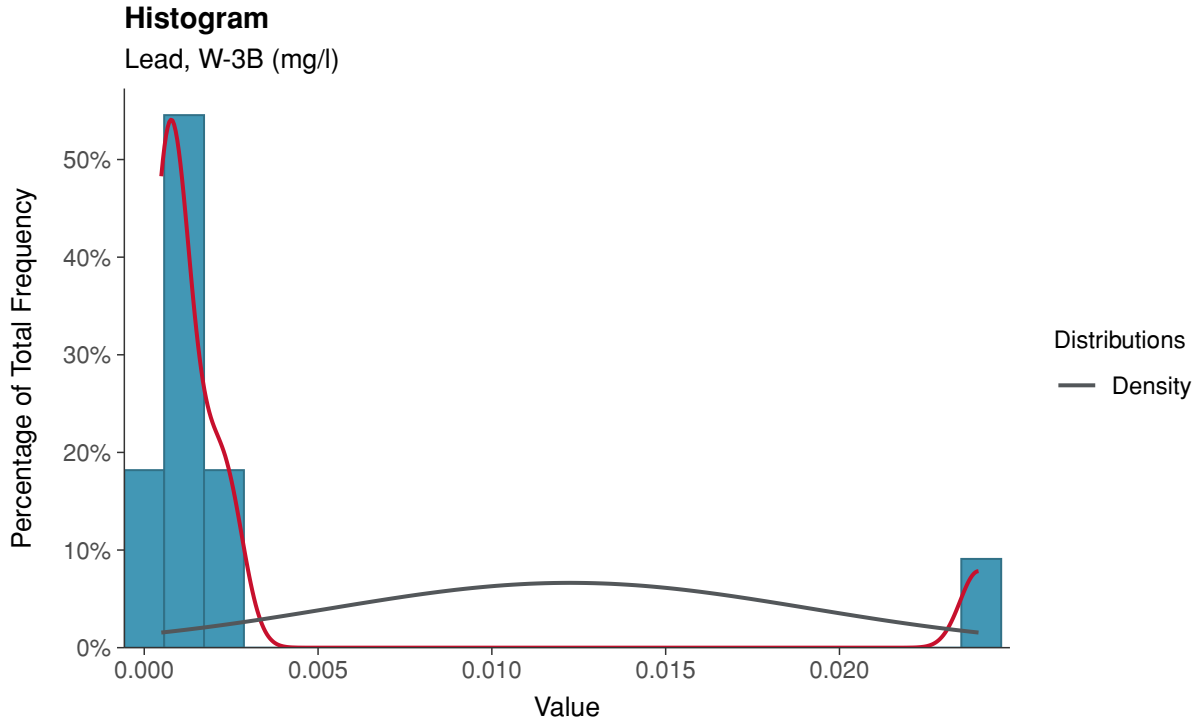
Fluoride (App IV), W-3B (mg/l)



Appendix IV: Lead, W-3B

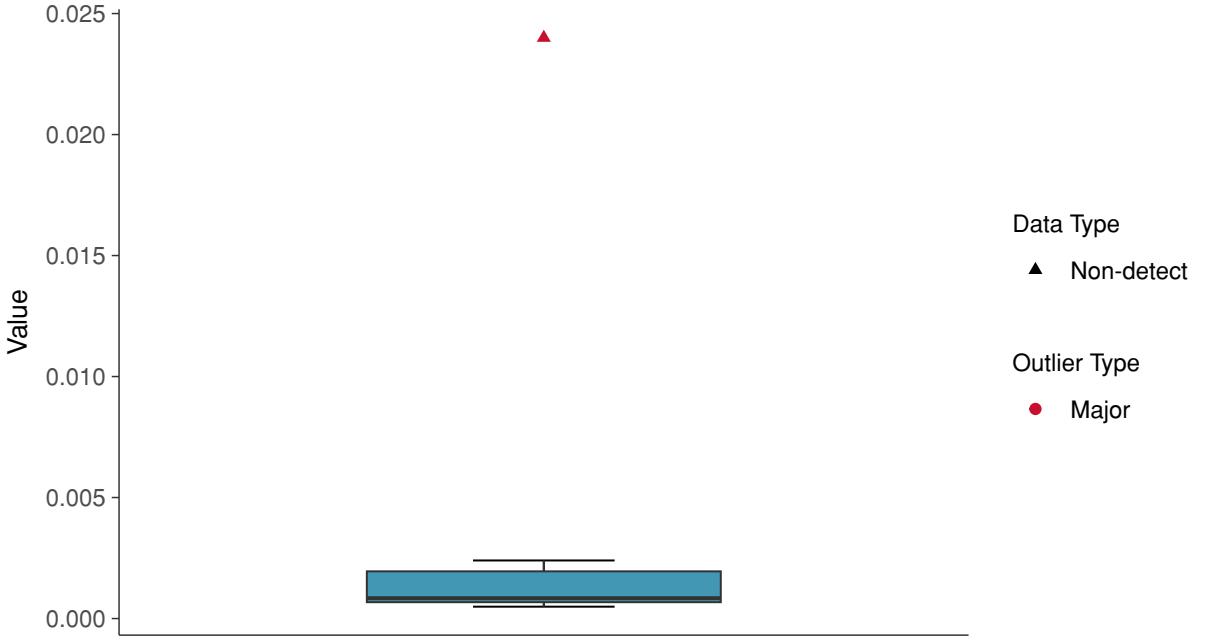
ID: 8_2_113





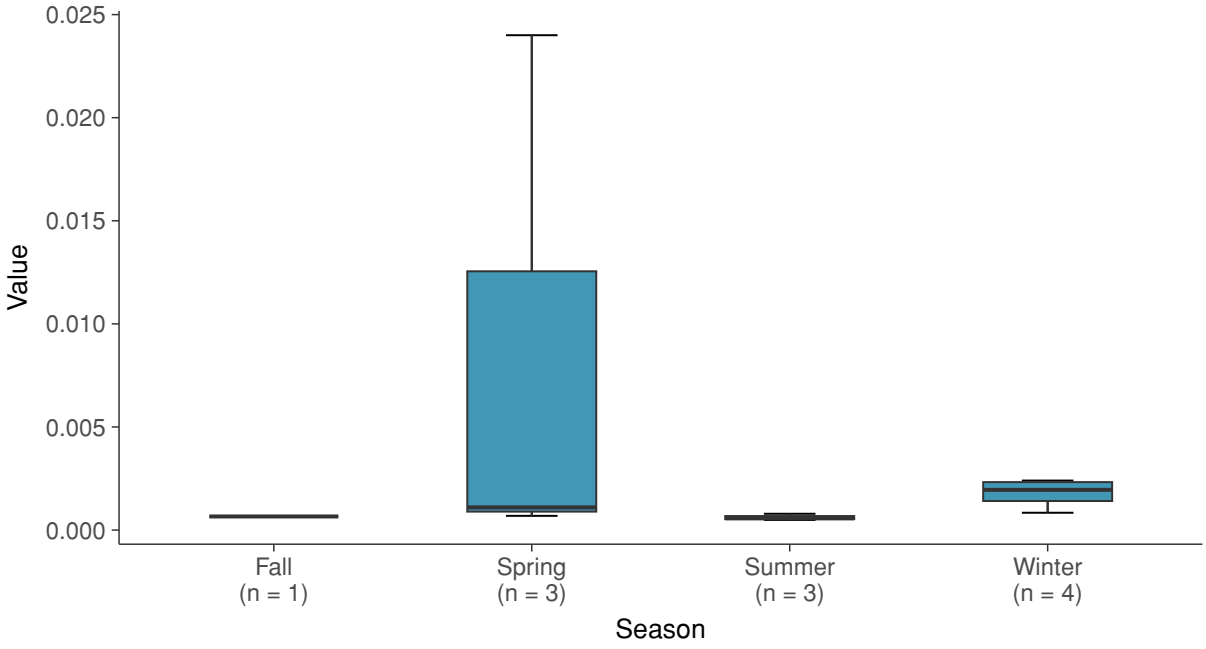
Boxplot

Lead, W-3B (mg/l)



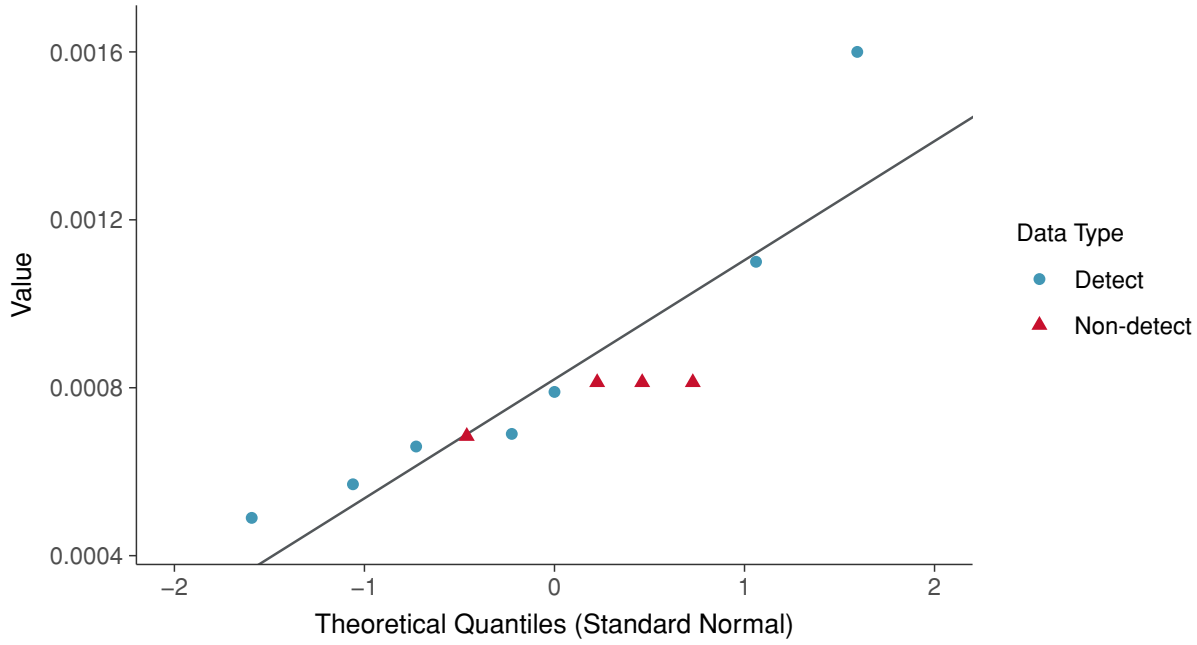
Boxplot by Season

Lead, W-3B (mg/l)



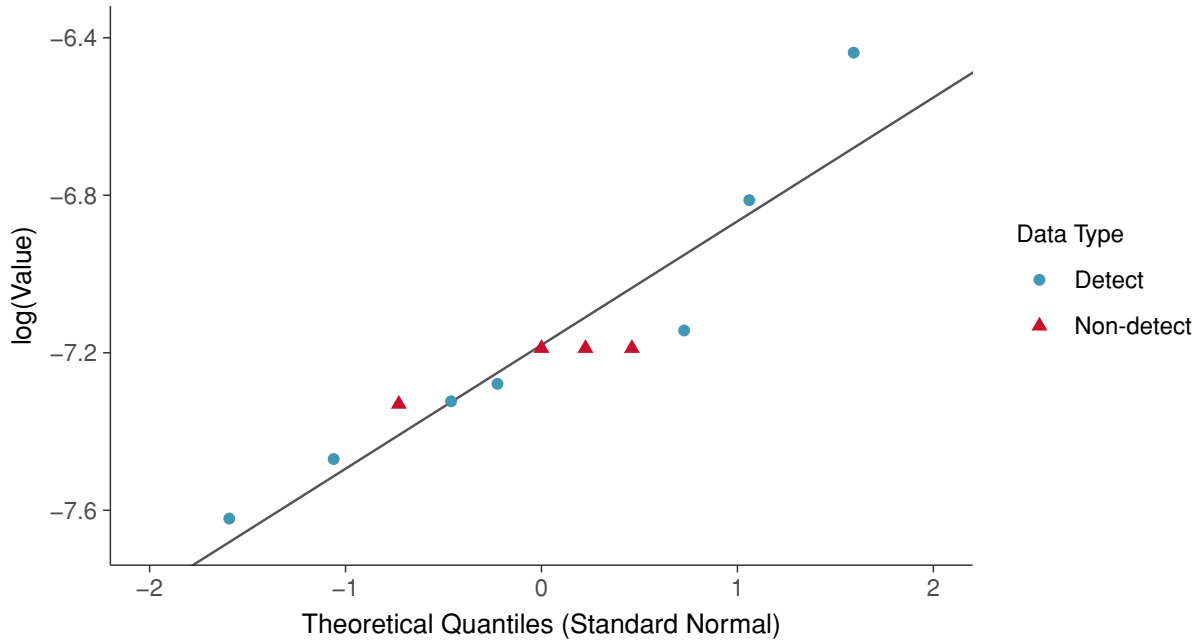
Normal Q-Q plot using ROS Imputed Estimates

Lead, W-3B (mg/l)



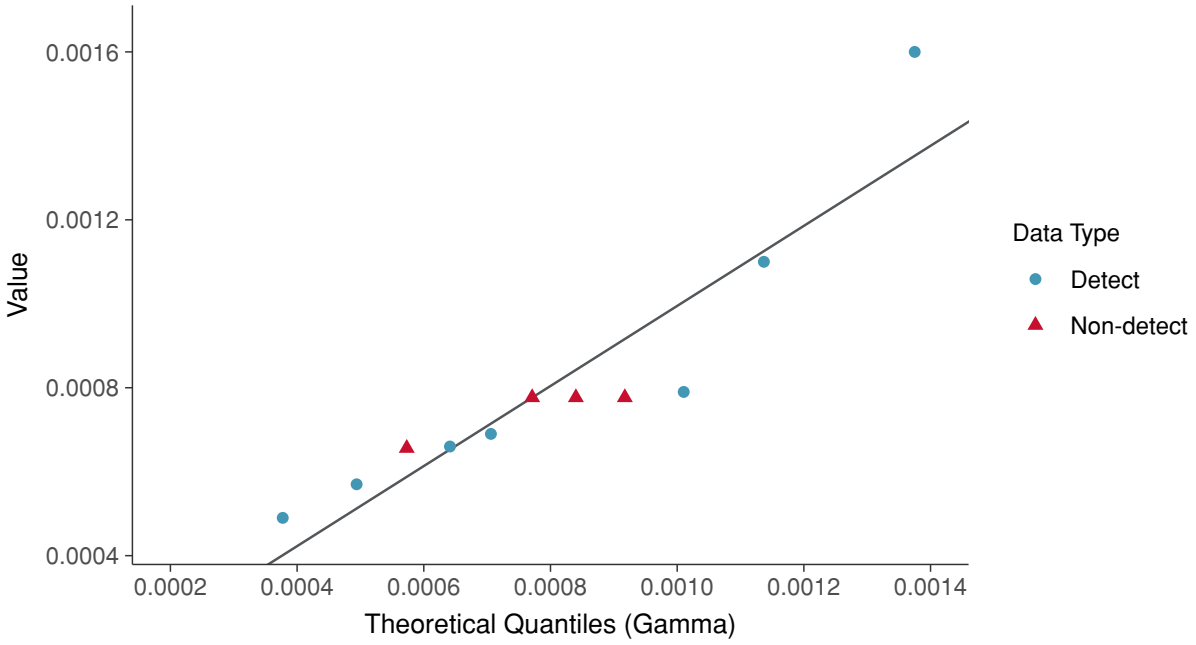
Lognormal Q-Q plot using ROS Imputed Estimates

Lead, W-3B (mg/l)



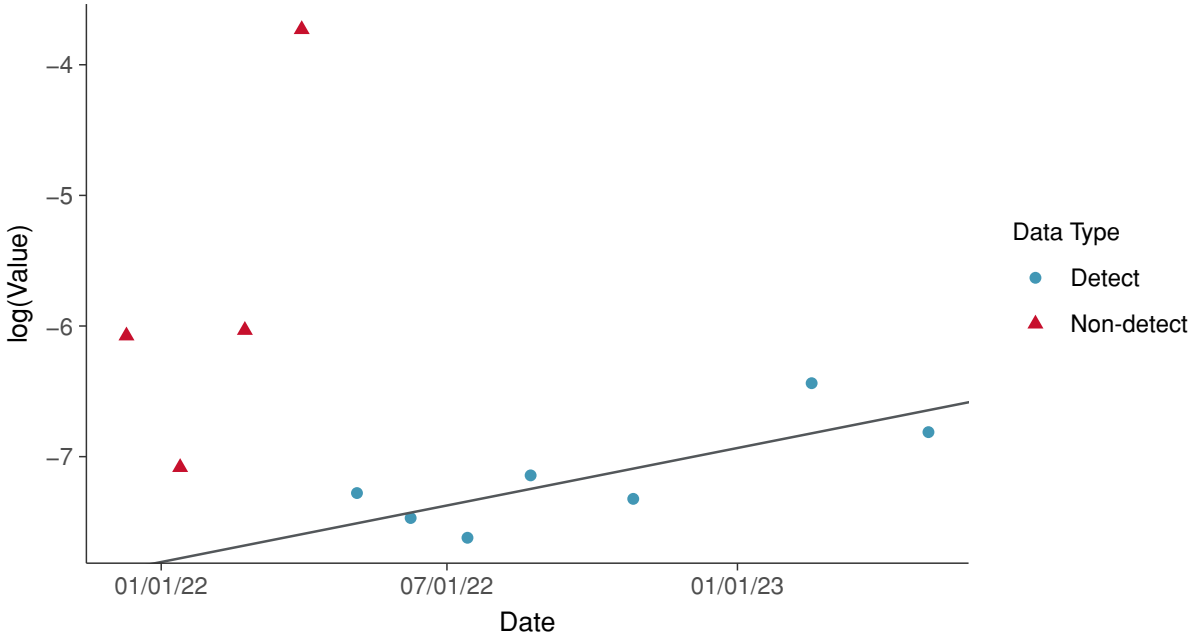
Gamma Q-Q plot using ROS Imputed Estimates

Lead, W-3B (mg/l)



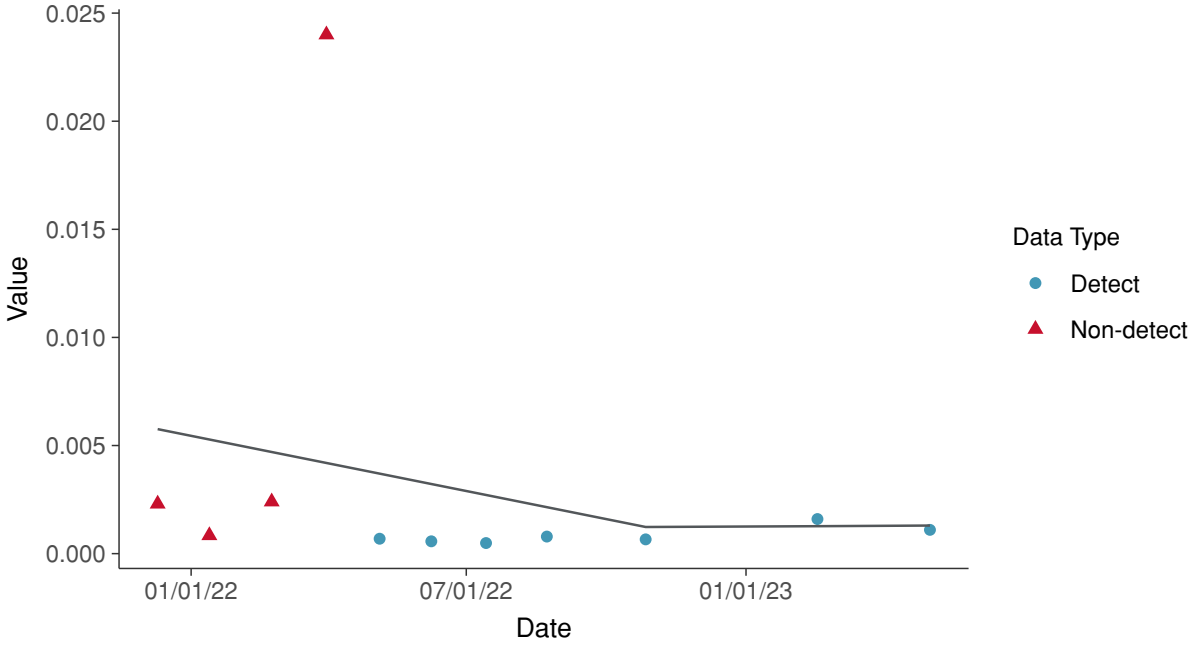
Trend Regression: Lognormal MLE

Lead, W-3B (mg/l)



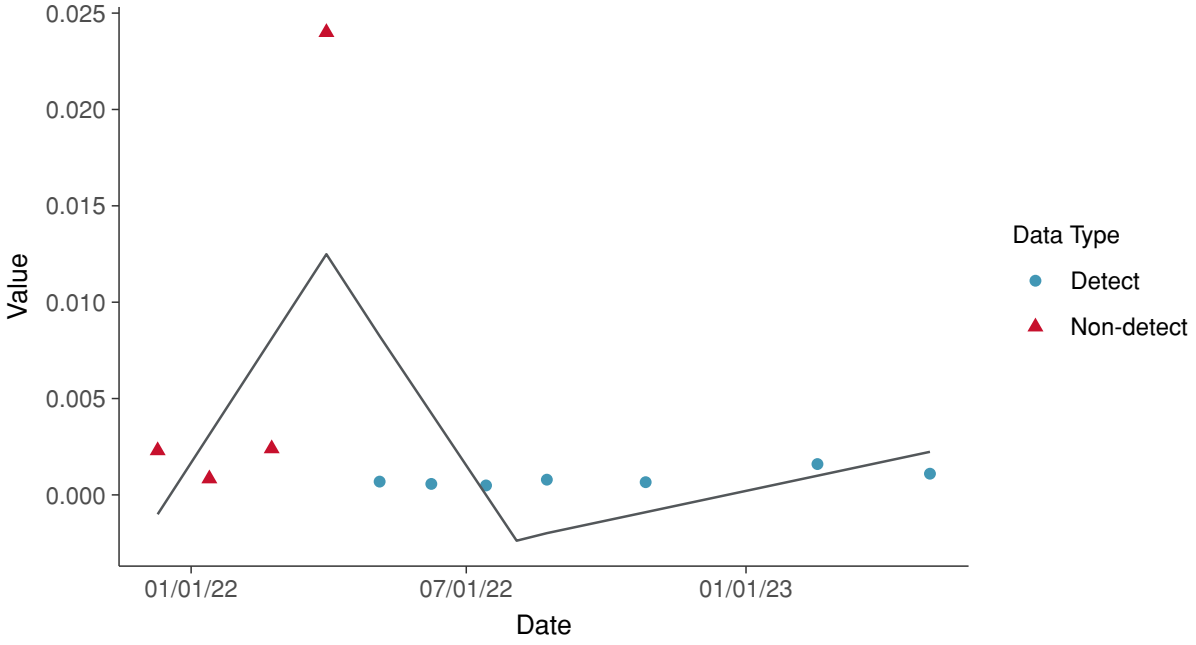
Trend Regression: Piecewise Linear-Linear

Lead, W-3B (mg/l)



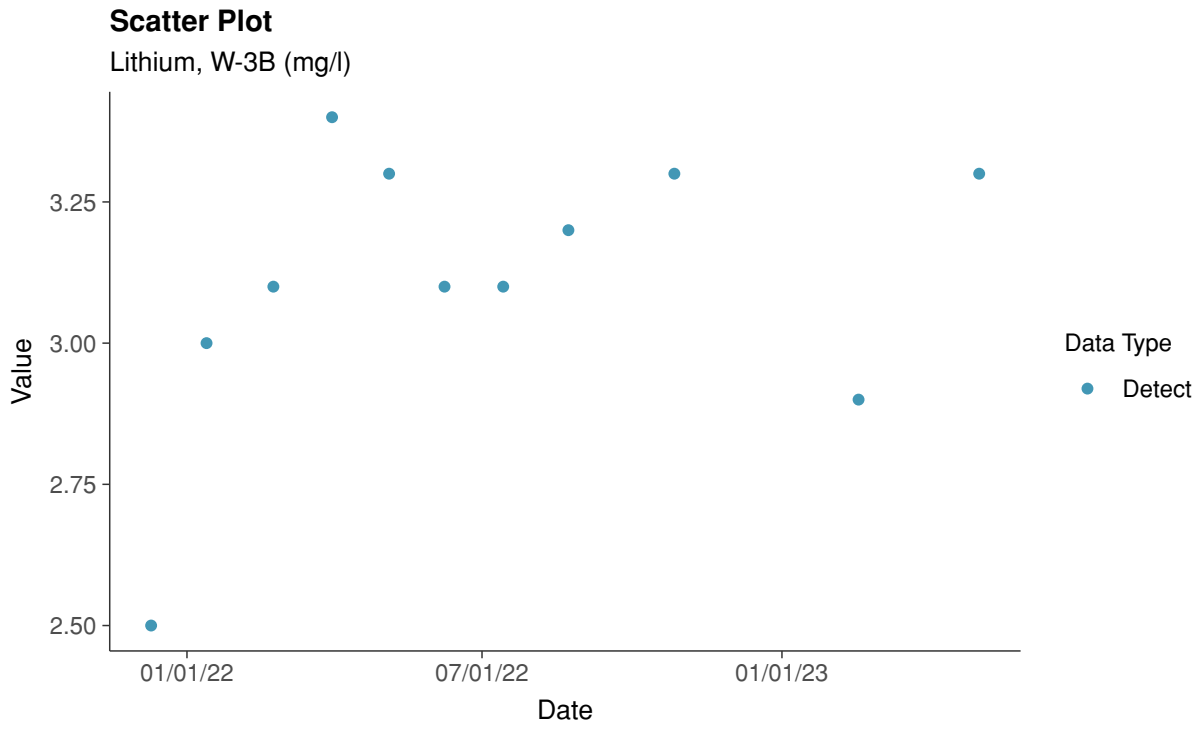
Trend Regression: Piecewise Linear-Linear-Linear

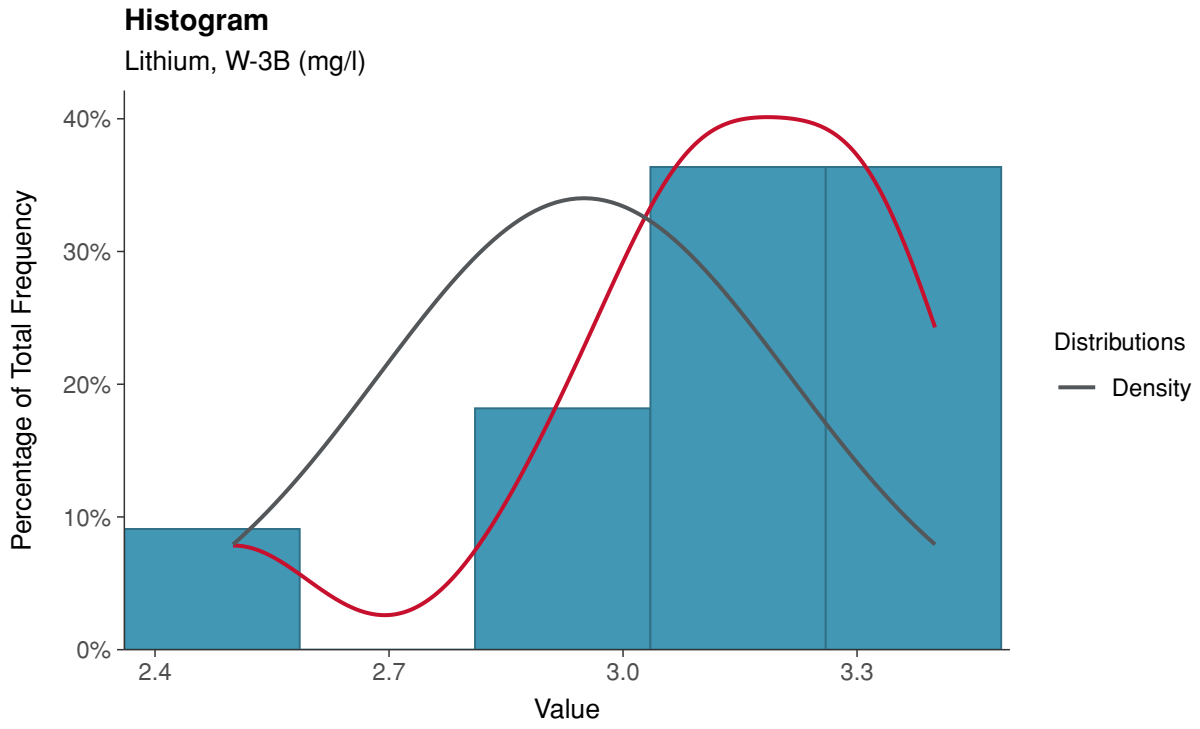
Lead, W-3B (mg/l)



Appendix IV: Lithium, W-3B

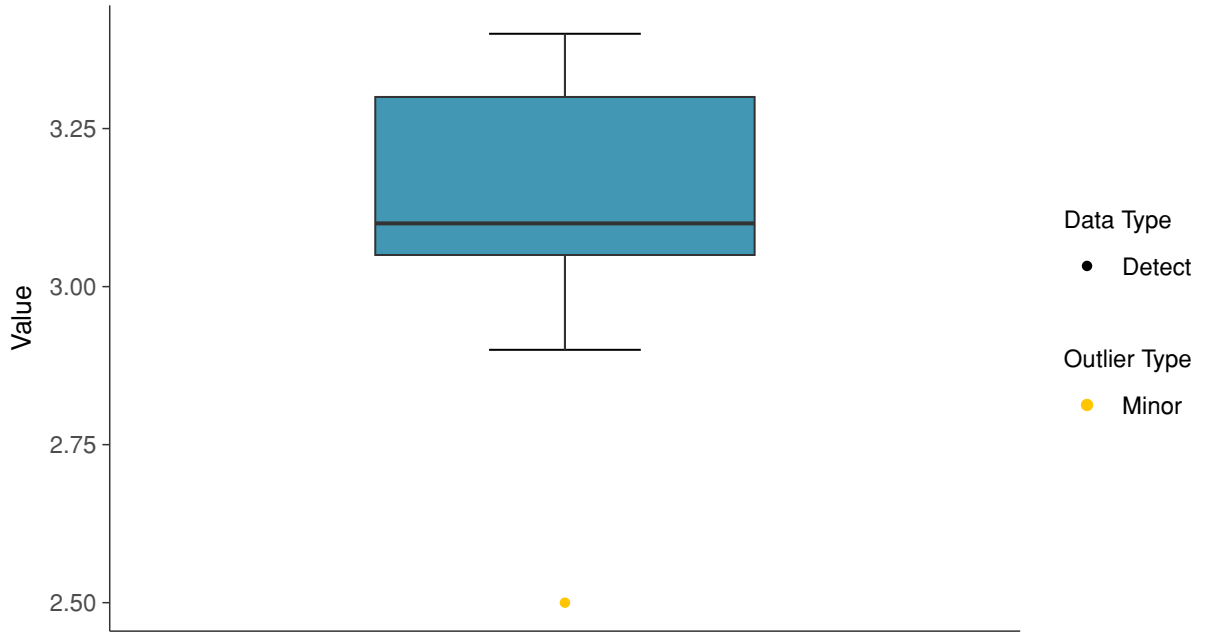
ID: 8_2_114





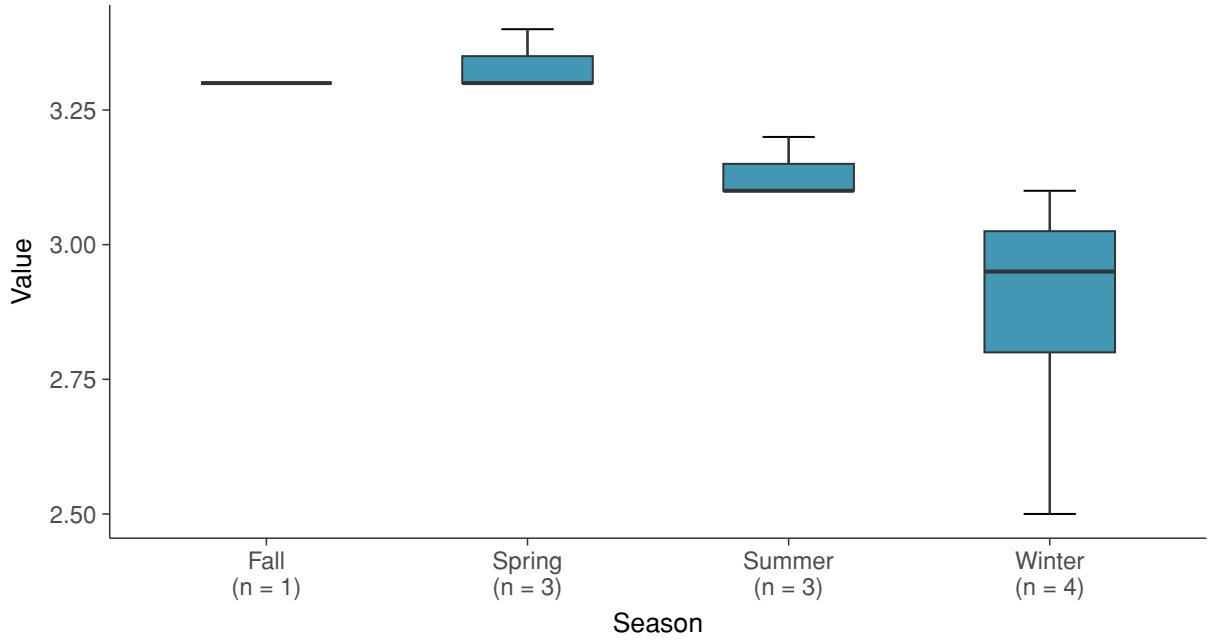
Boxplot

Lithium, W-3B (mg/l)



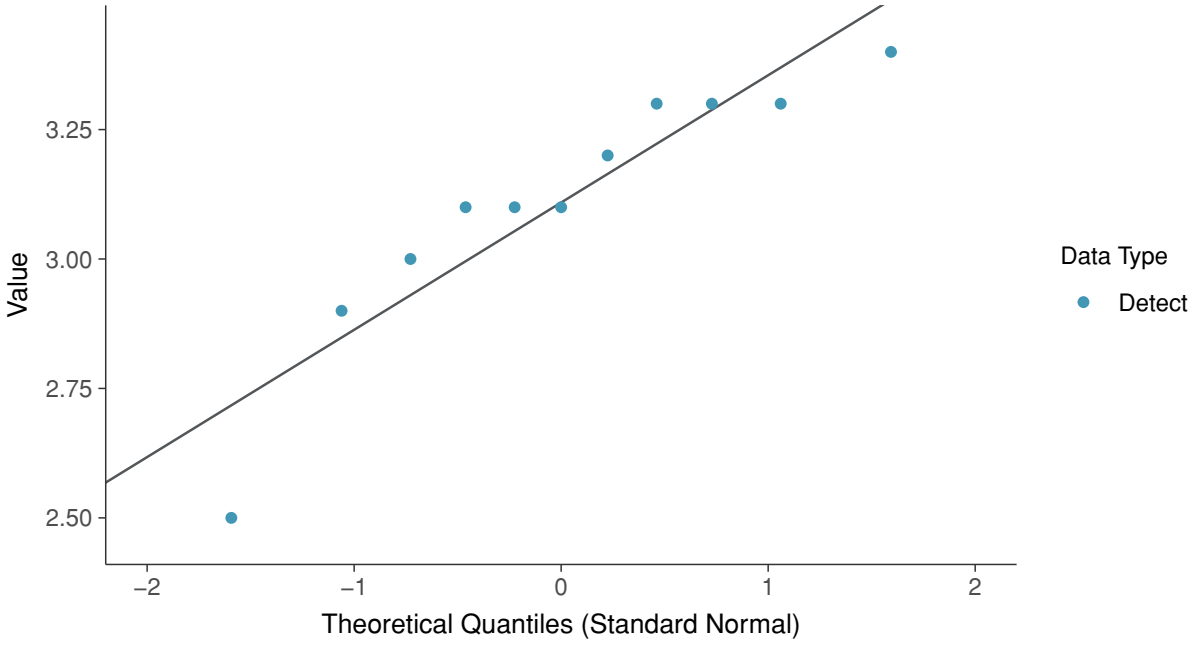
Boxplot by Season

Lithium, W-3B (mg/l)



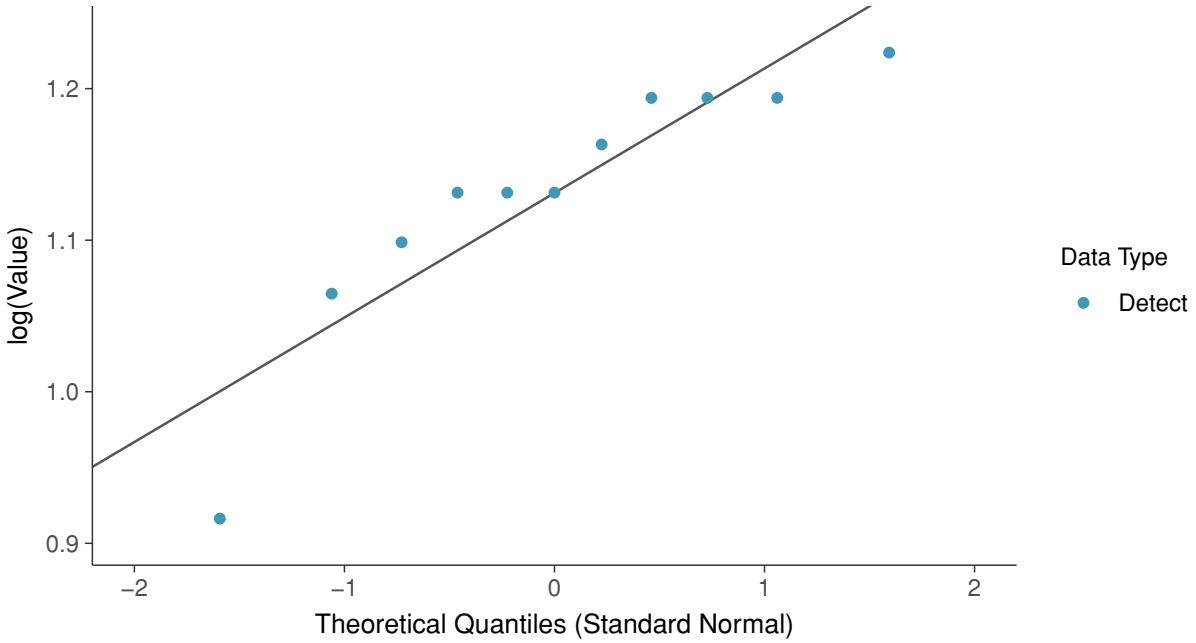
Normal Q-Q plot

Lithium, W-3B (mg/l)



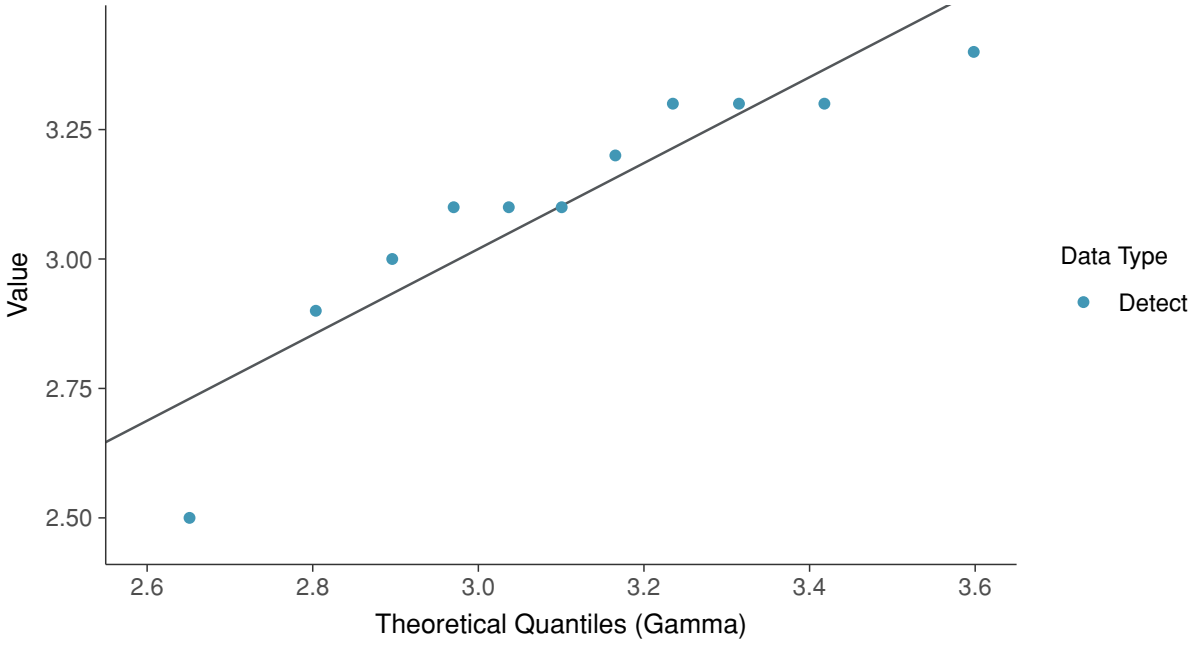
Lognormal Q-Q plot

Lithium, W-3B (mg/l)



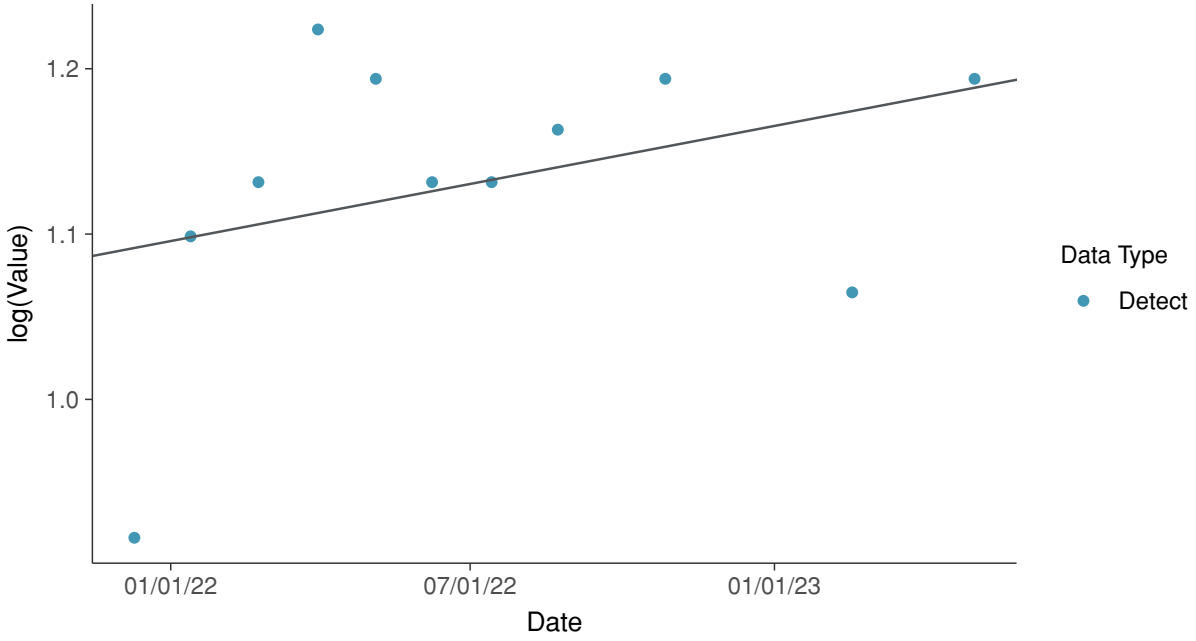
Gamma Q-Q plot

Lithium, W-3B (mg/l)



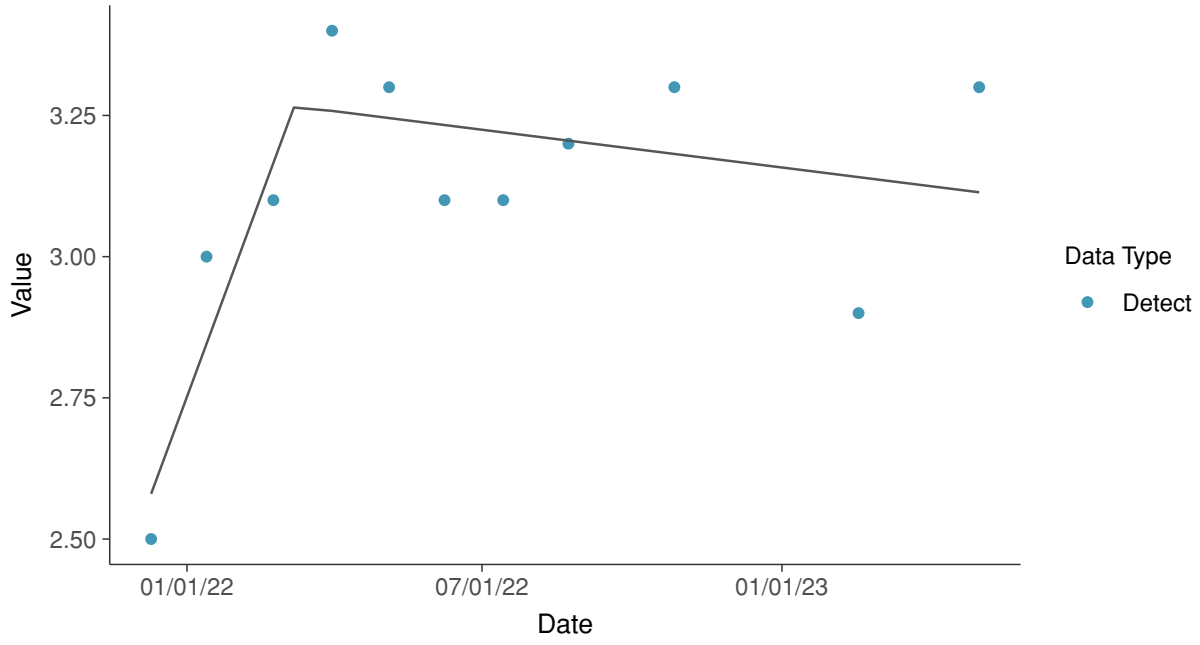
Trend Regression: Lognormal MLE

Lithium, W-3B (mg/l)



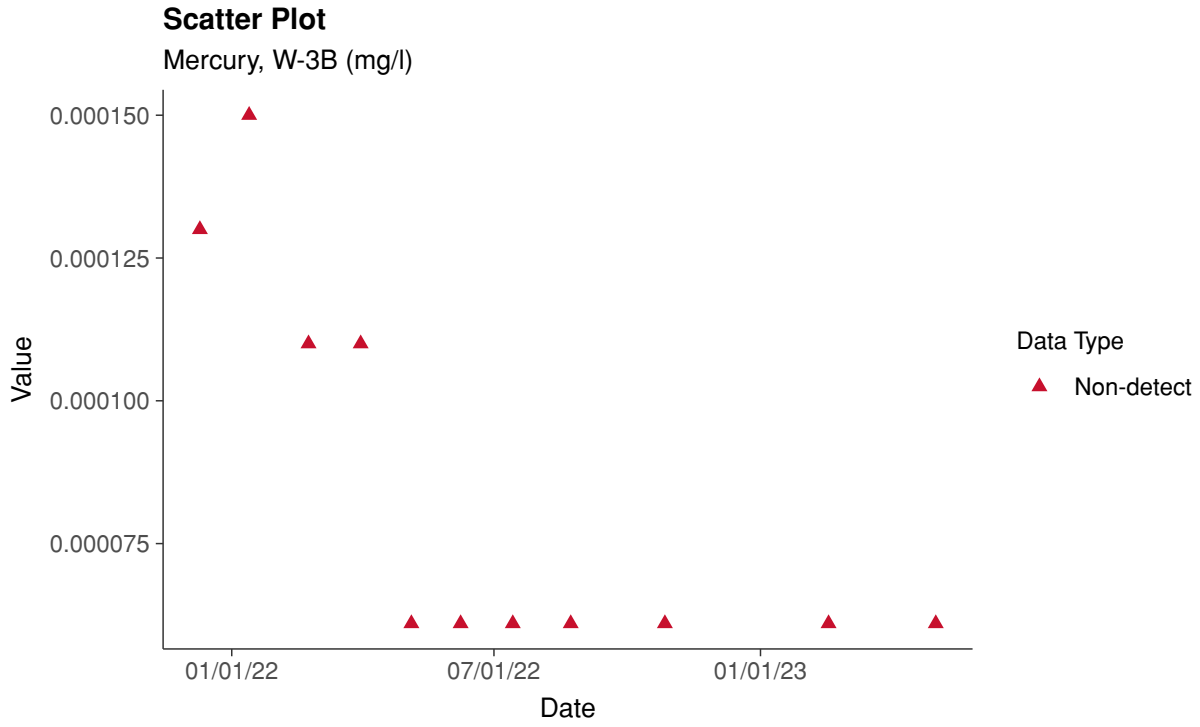
Trend Regression: Piecewise Linear-Linear

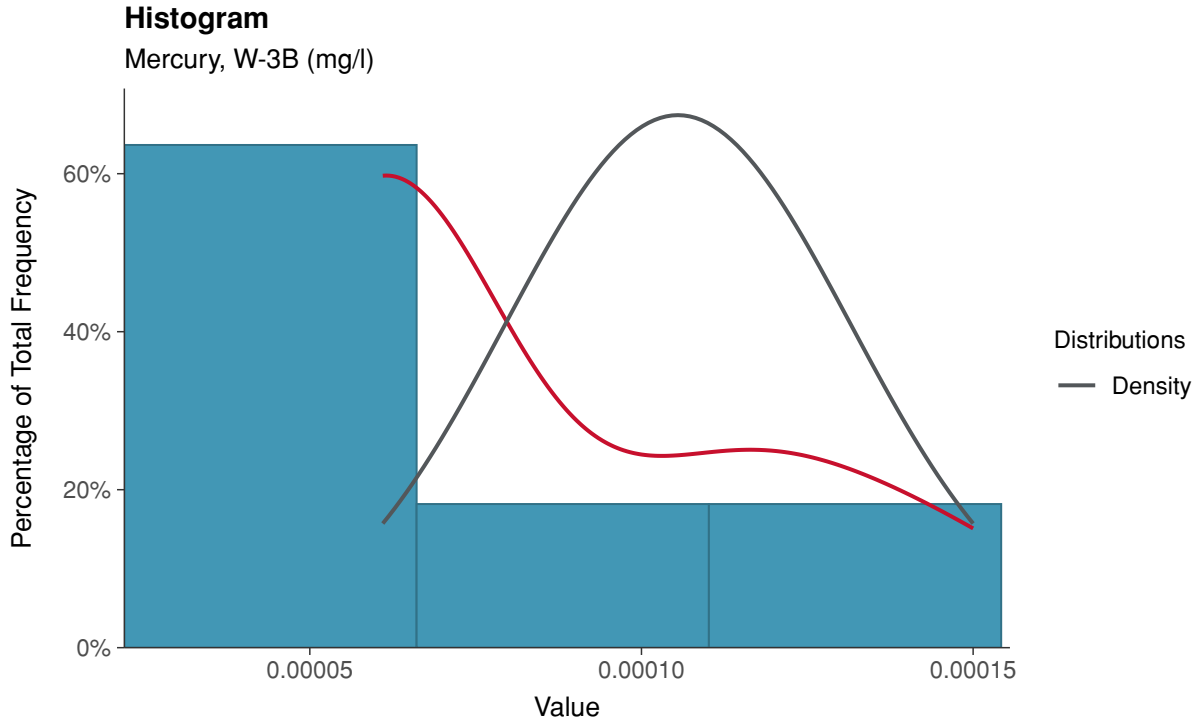
Lithium, W-3B (mg/l)



Appendix IV: Mercury, W-3B

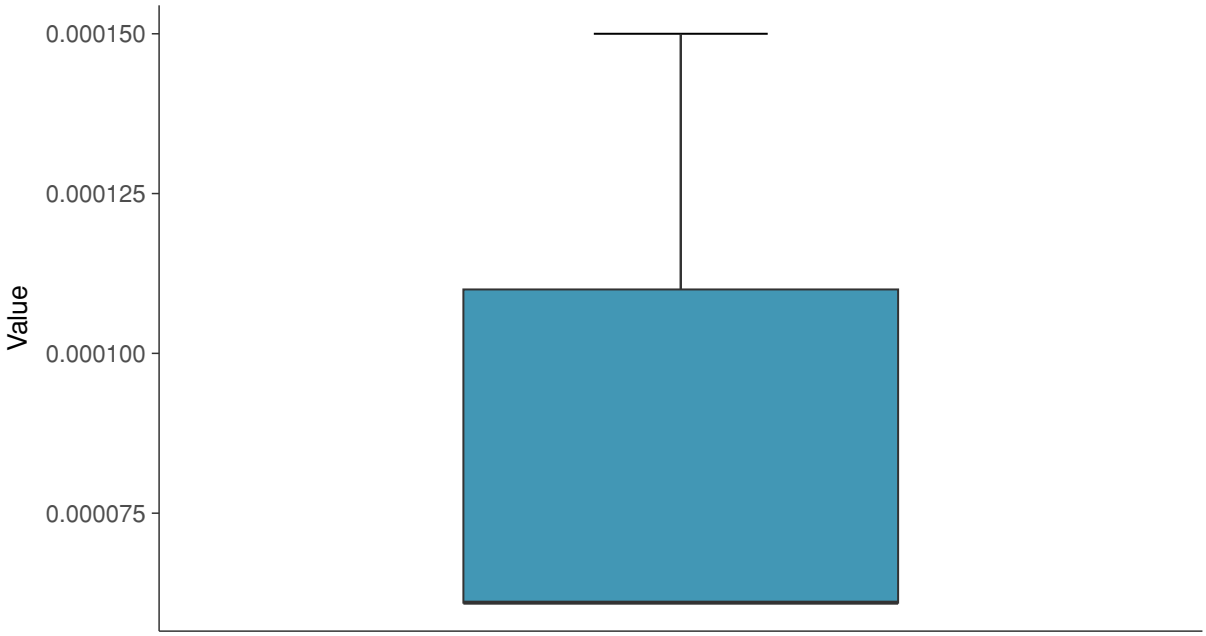
ID: 8_2_115





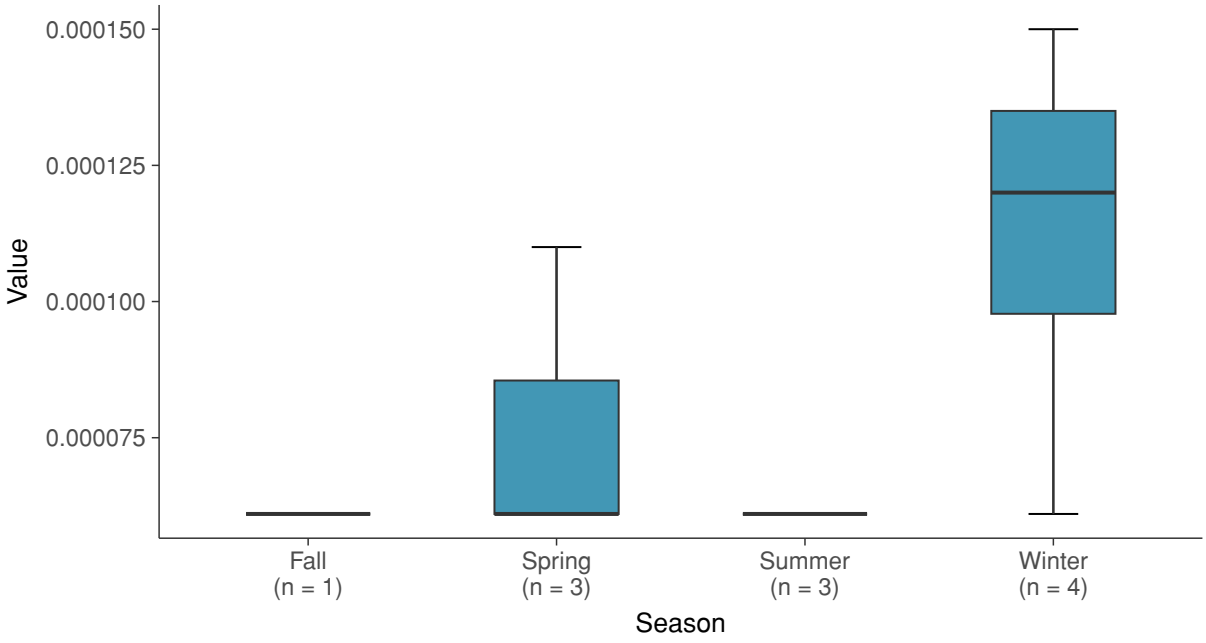
Boxplot

Mercury, W-3B (mg/l)



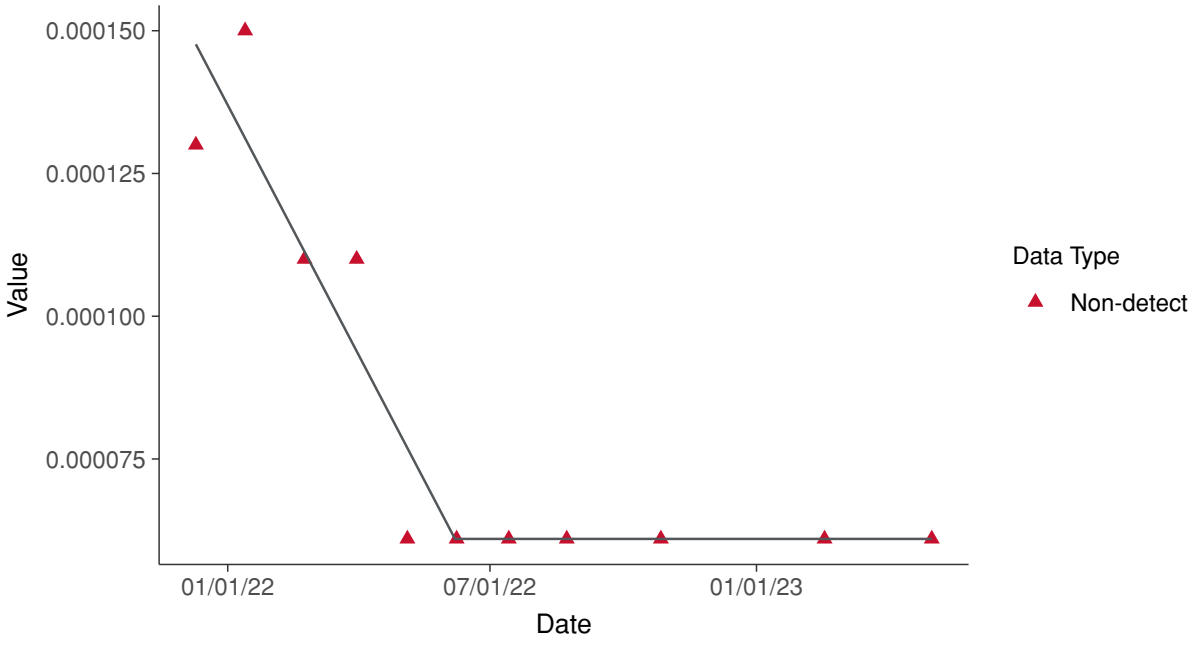
Boxplot by Season

Mercury, W-3B (mg/l)



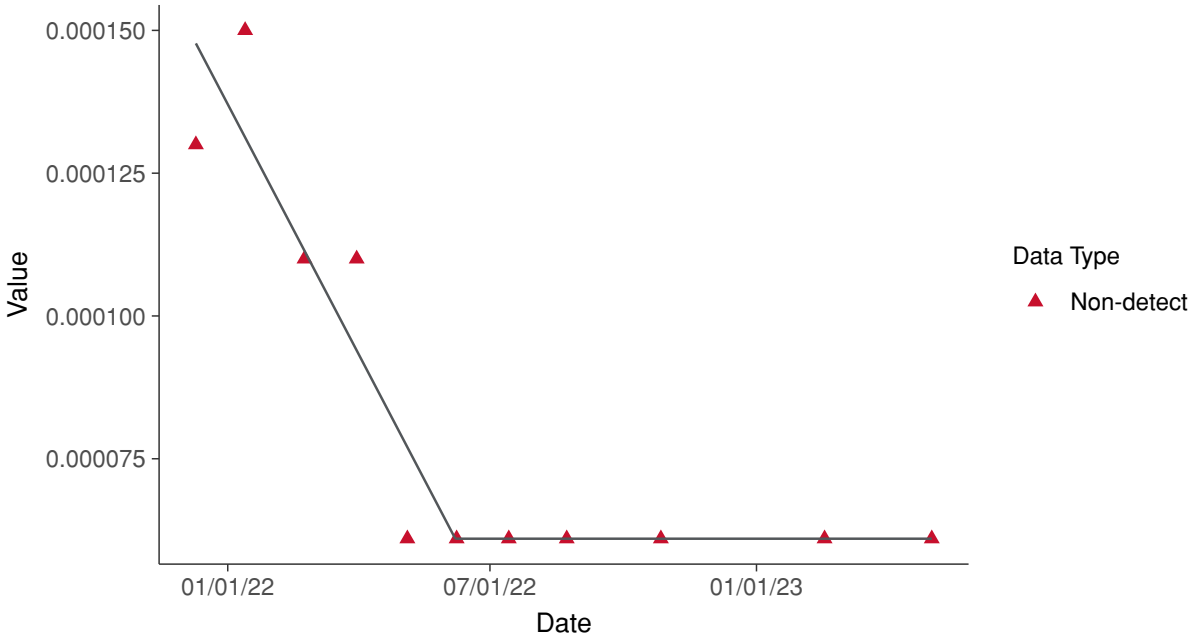
Trend Regression: Piecewise Linear-Linear

Mercury, W-3B (mg/l)



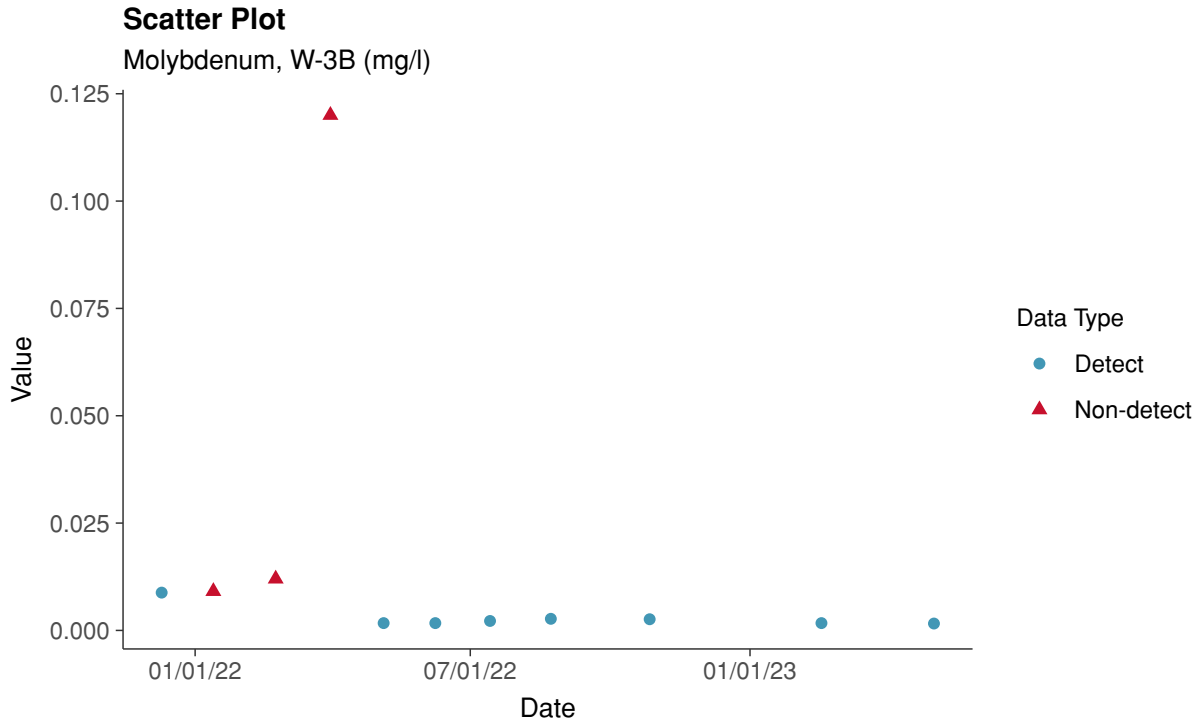
Trend Regression: Piecewise Linear-Linear-Linear

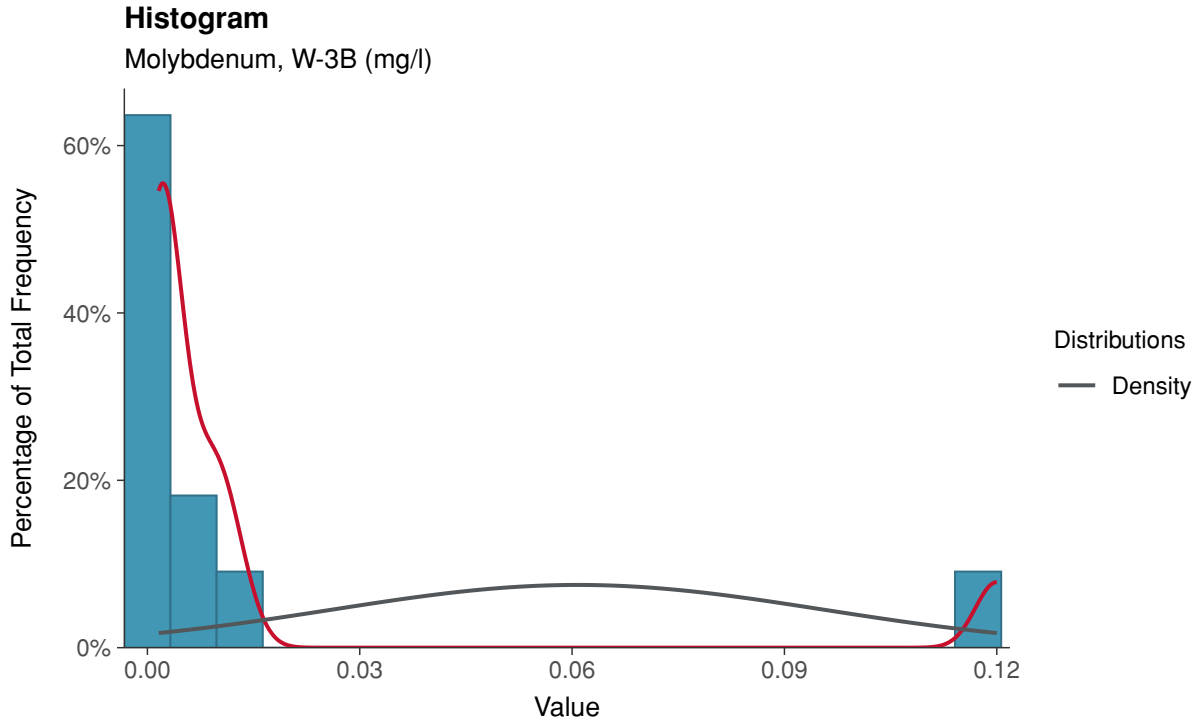
Mercury, W-3B (mg/l)



Appendix IV: Molybdenum, W-3B

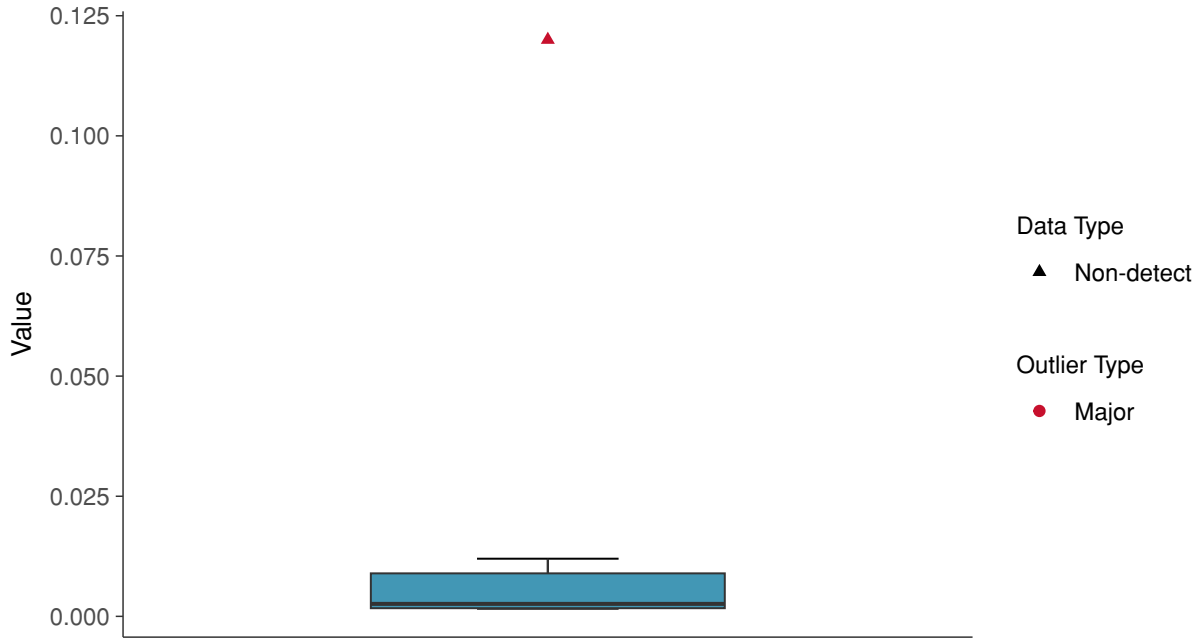
ID: 8_2_116





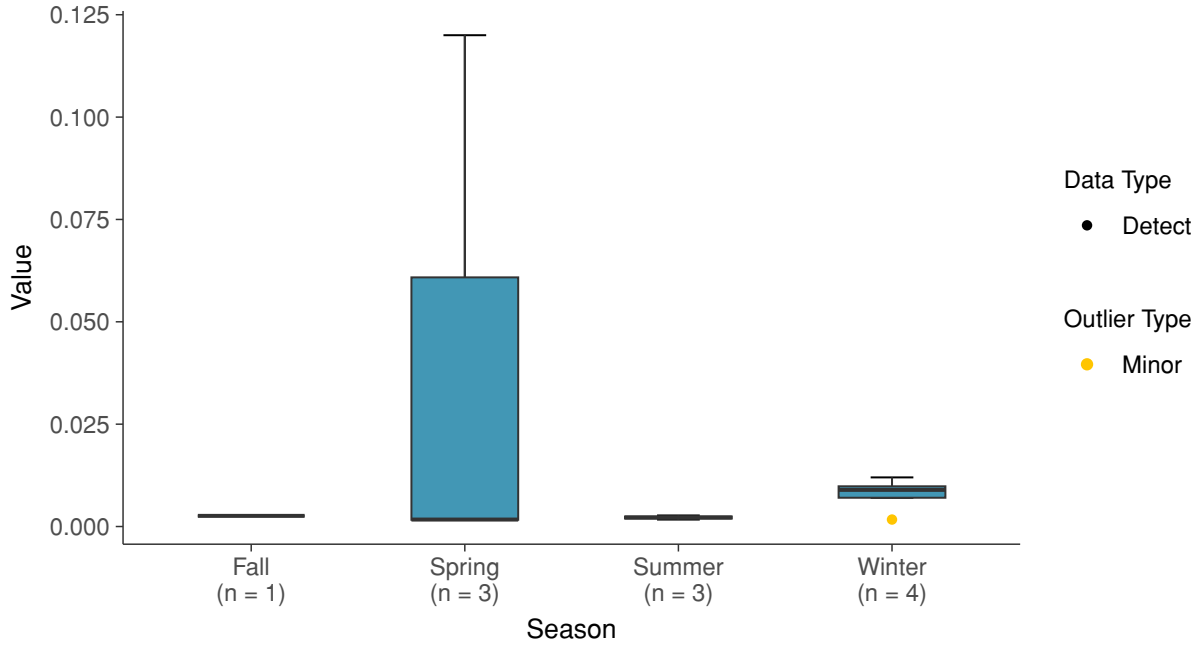
Boxplot

Molybdenum, W-3B (mg/l)



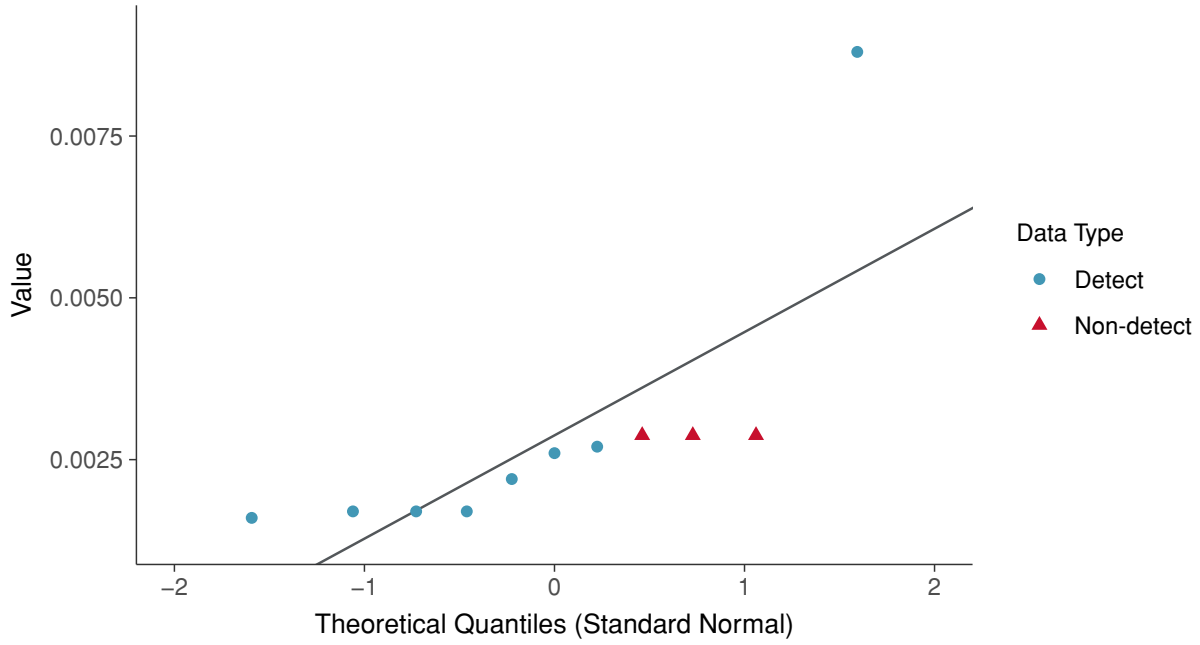
Boxplot by Season

Molybdenum, W-3B (mg/l)



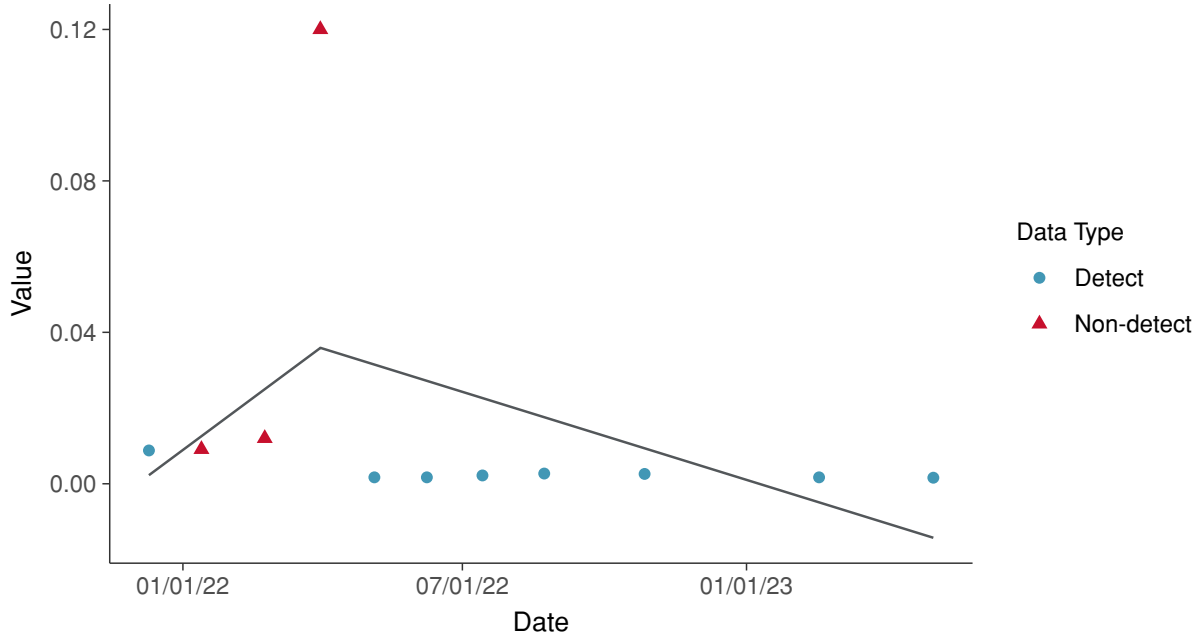
Normal Q-Q plot using ROS Imputed Estimates

Molybdenum, W-3B (mg/l)



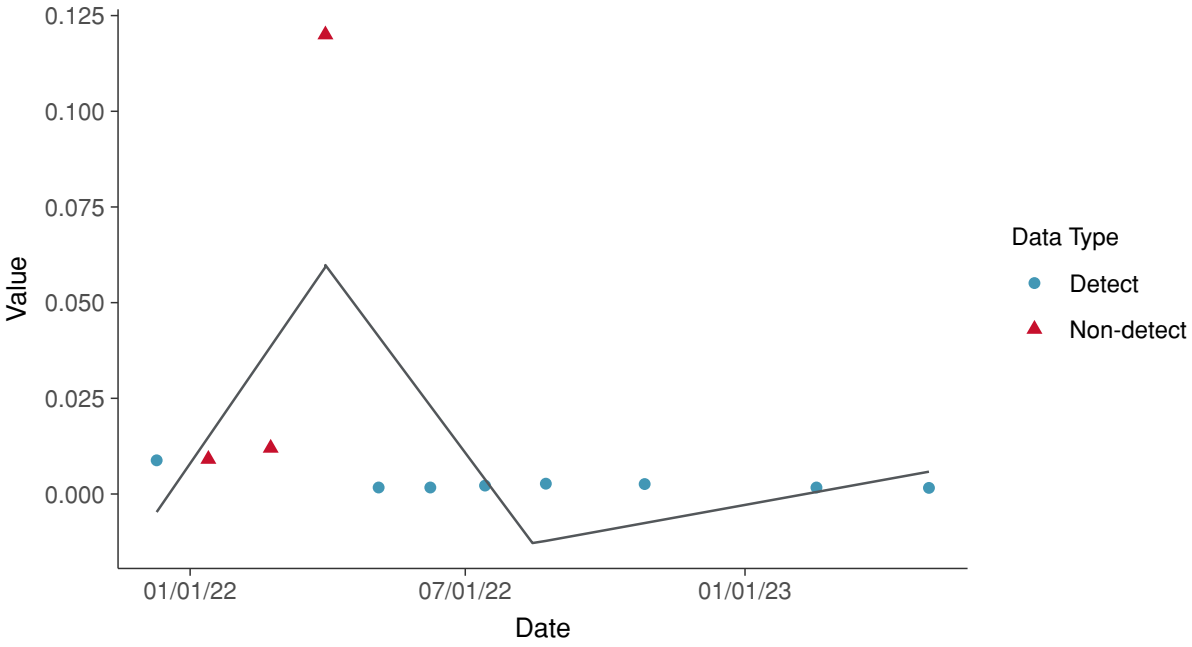
Trend Regression: Piecewise Linear-Linear

Molybdenum, W-3B (mg/l)



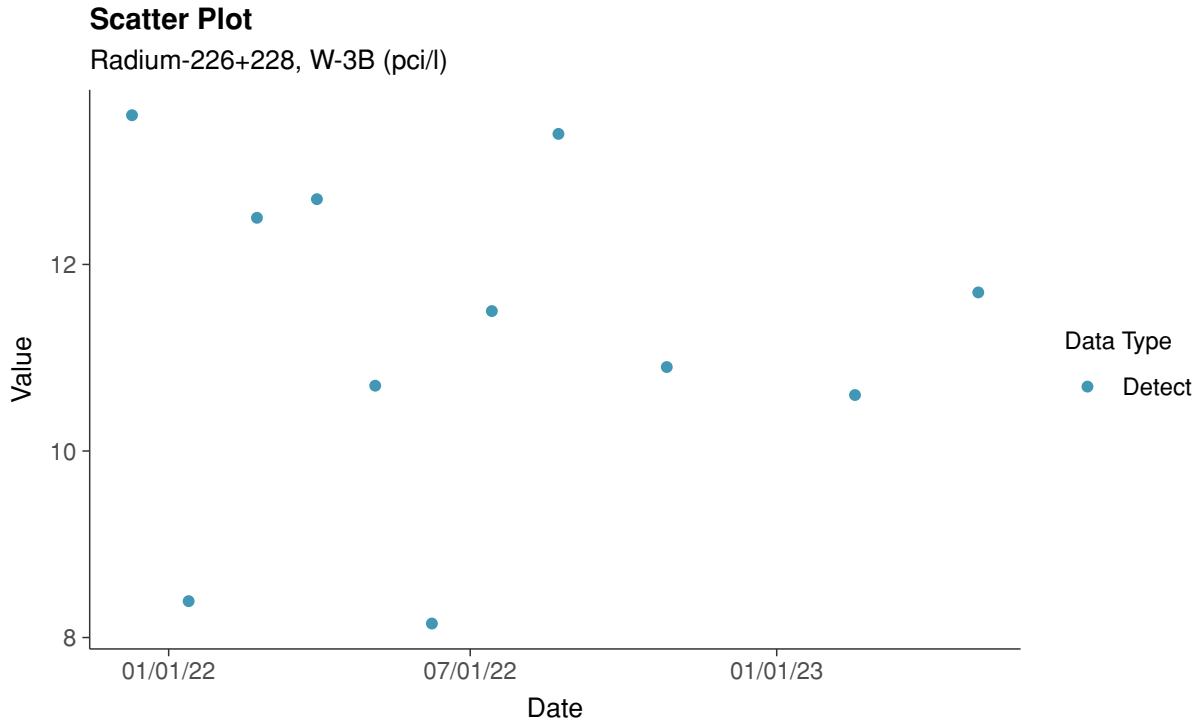
Trend Regression: Piecewise Linear-Linear-Linear

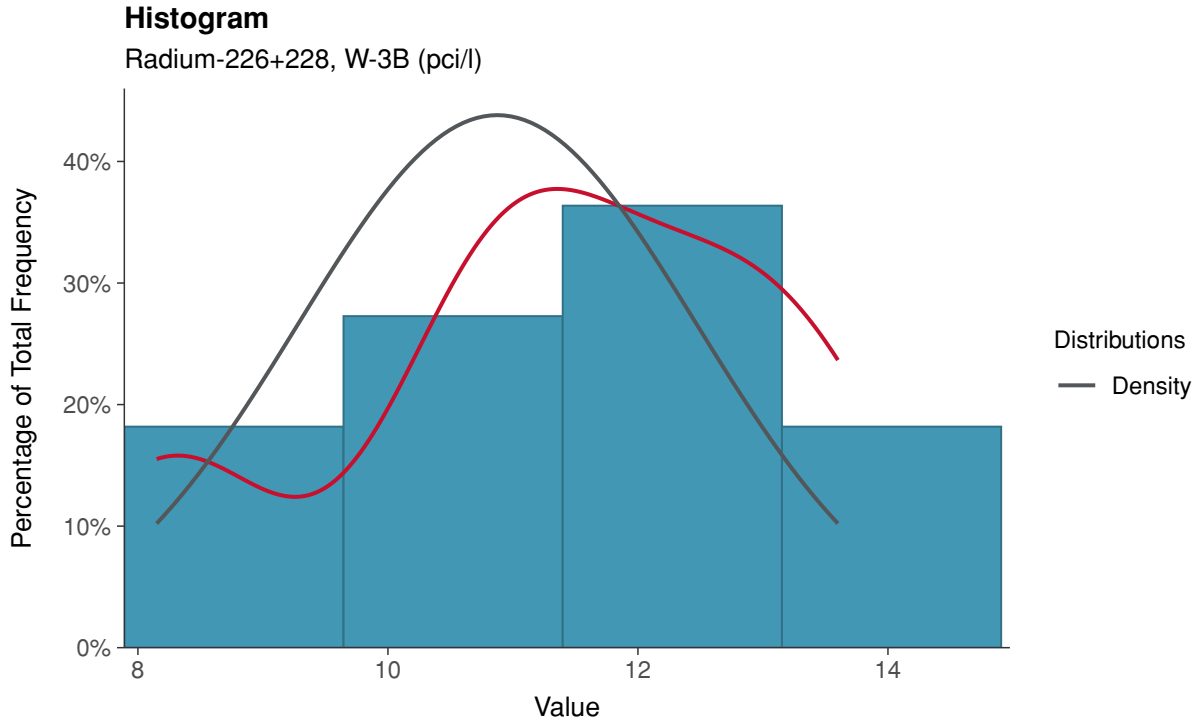
Molybdenum, W-3B (mg/l)



Appendix IV: Radium-226+228, W-3B

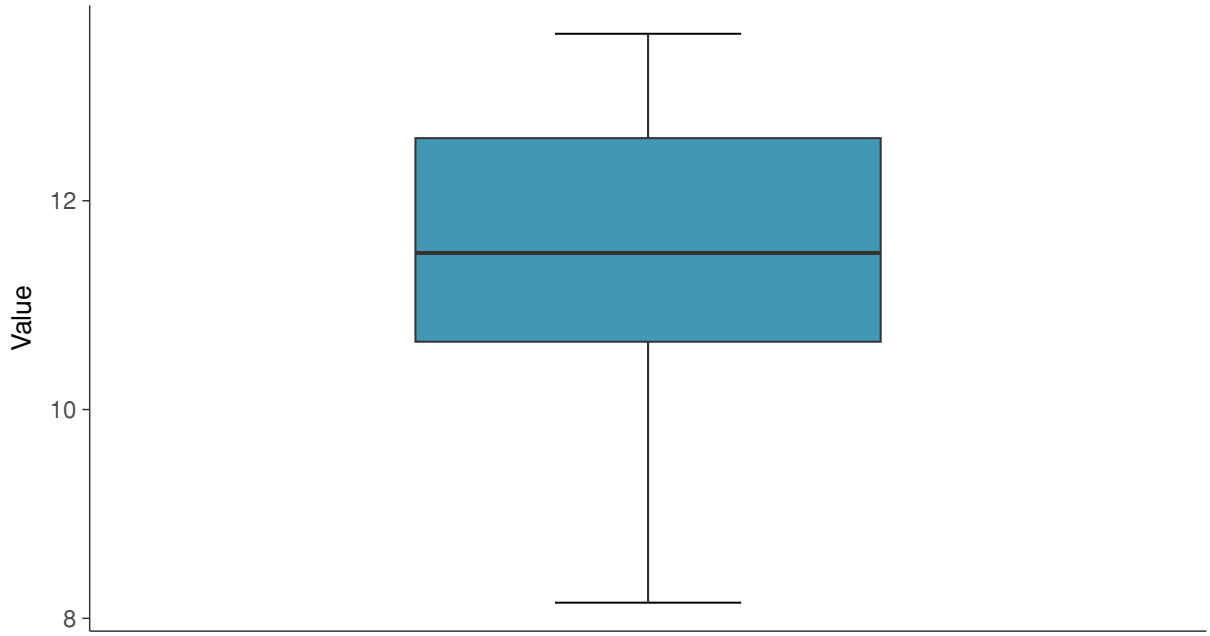
ID: 8_2_120





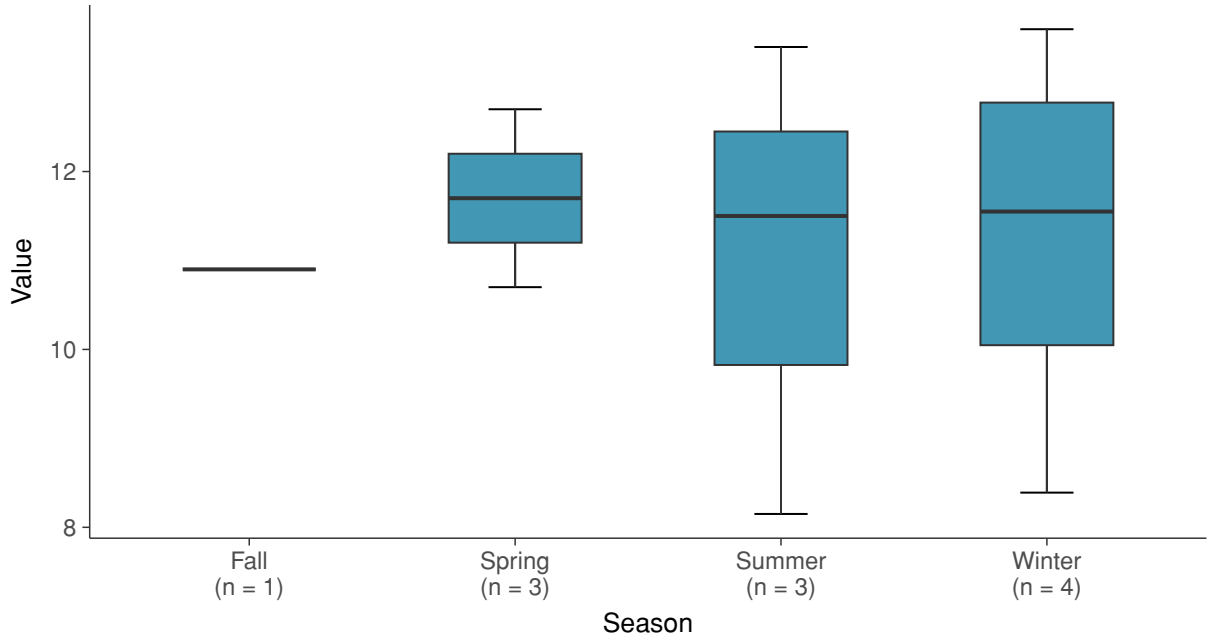
Boxplot

Radium-226+228, W-3B (pci/l)



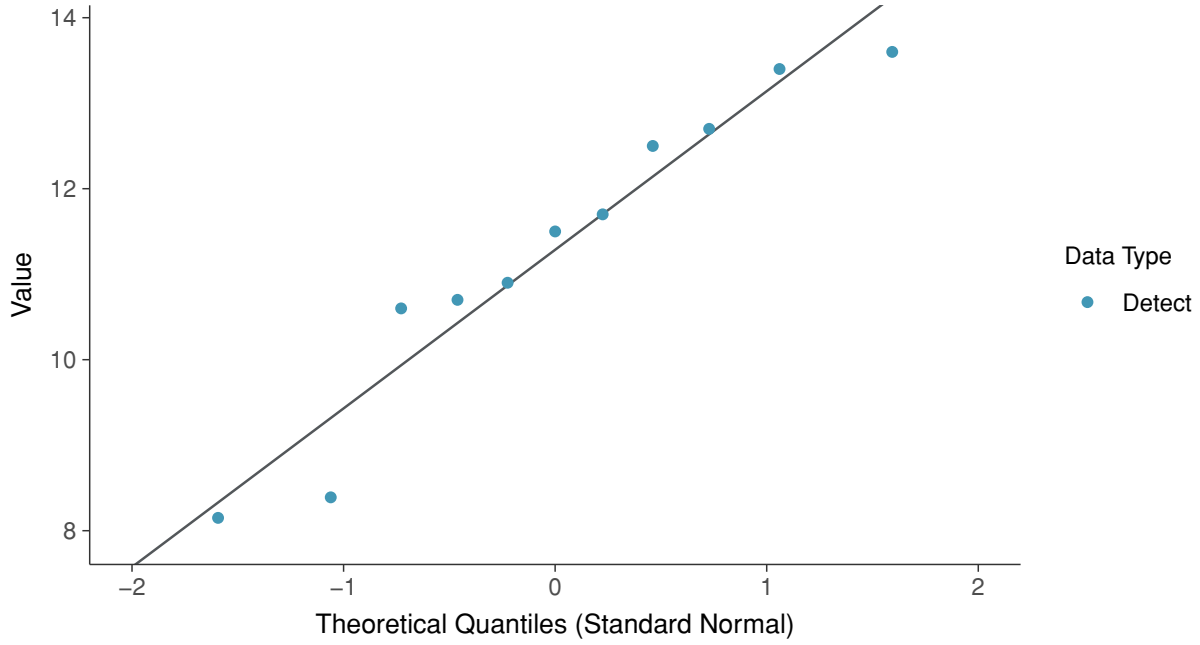
Boxplot by Season

Radium-226+228, W-3B (pci/l)



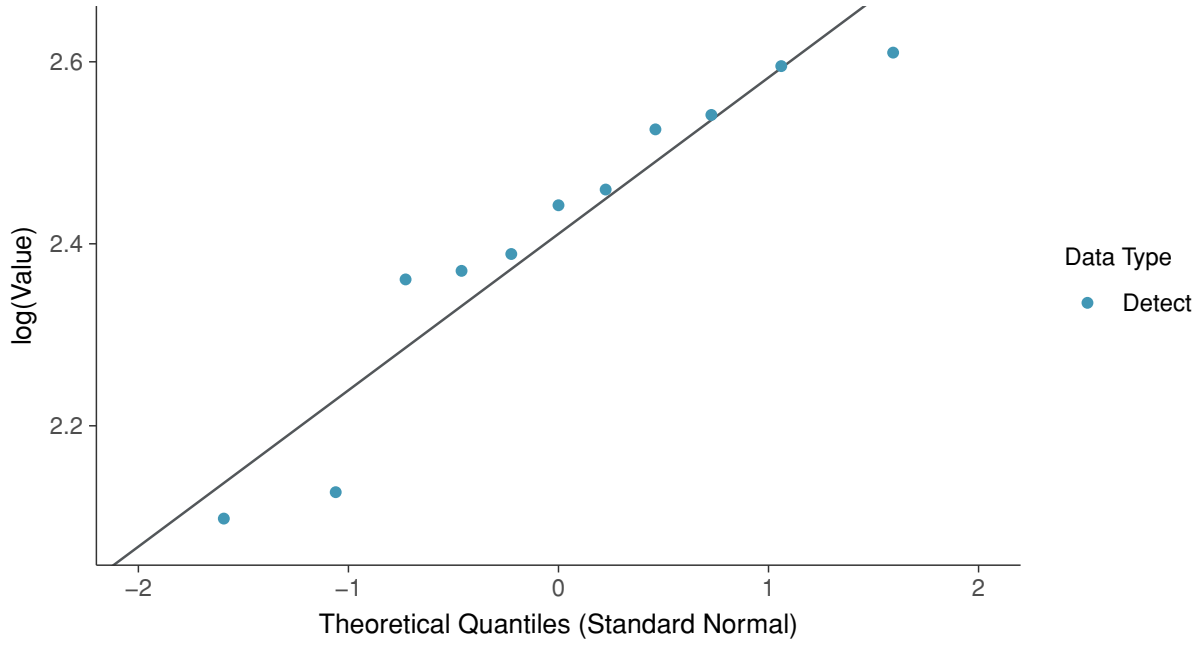
Normal Q-Q plot

Radium-226+228, W-3B (pci/l)



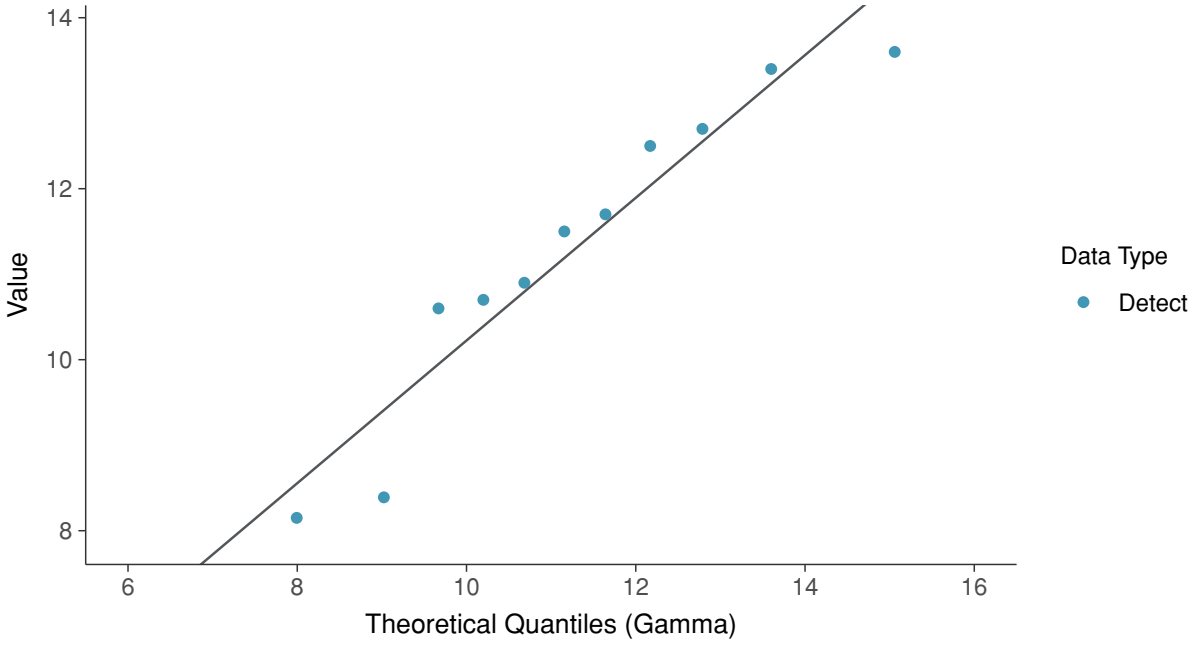
Lognormal Q-Q plot

Radium-226+228, W-3B (pci/l)



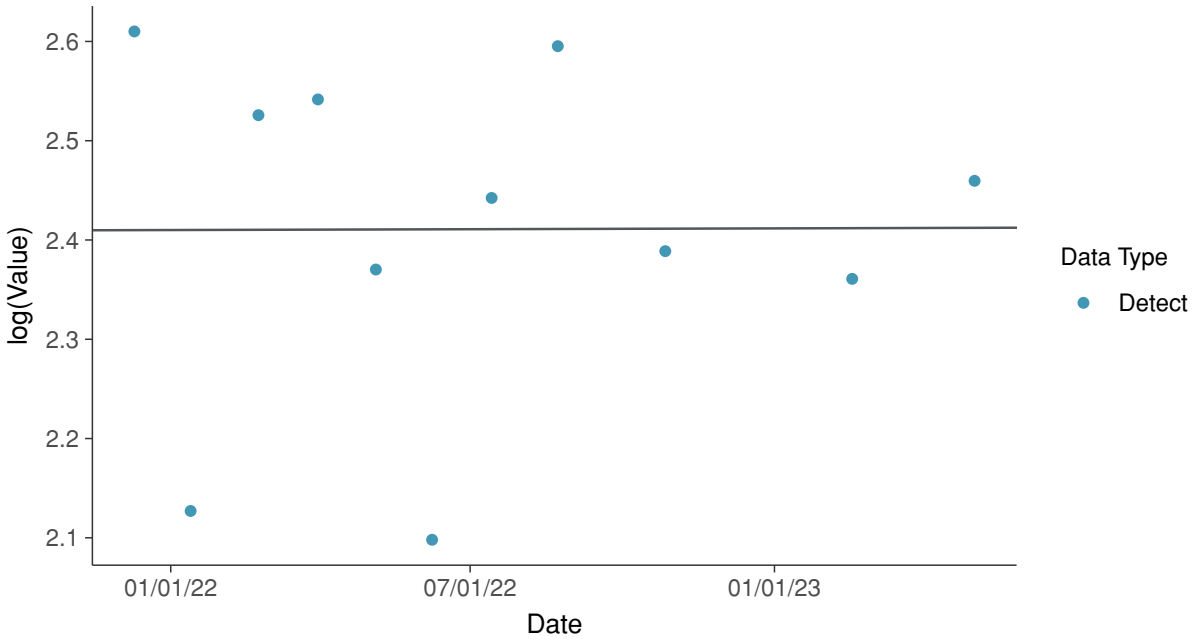
Gamma Q-Q plot

Radium-226+228, W-3B (pci/l)



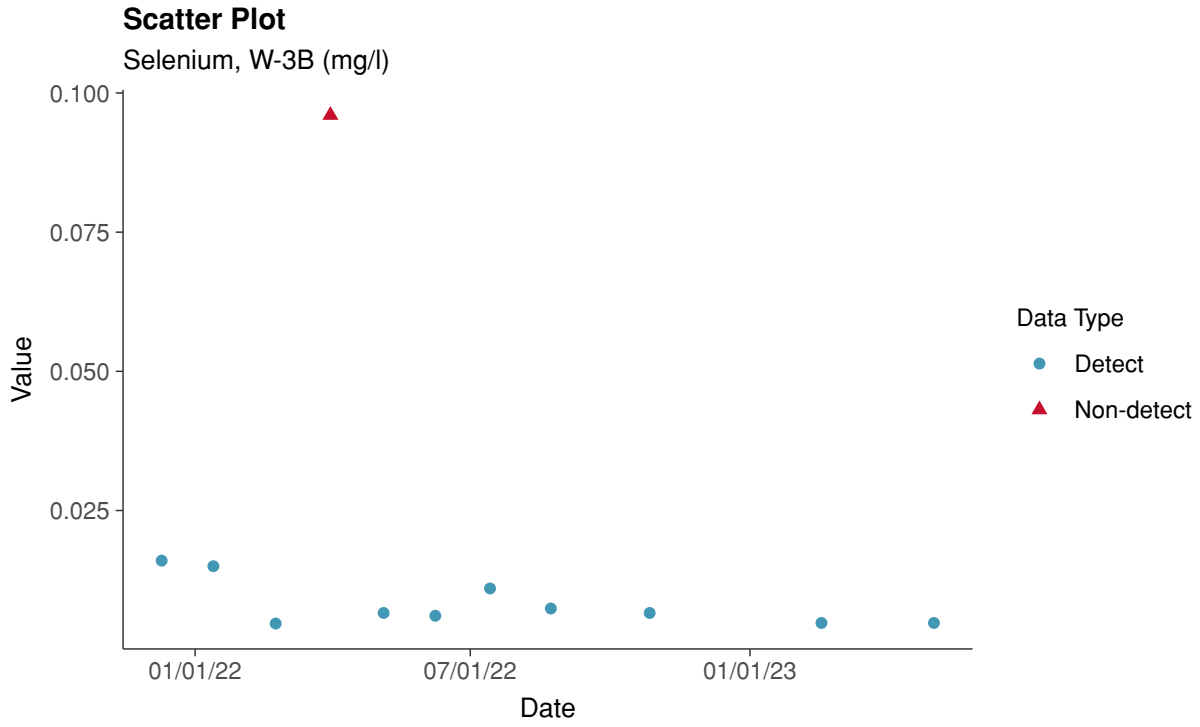
Trend Regression: Lognormal MLE

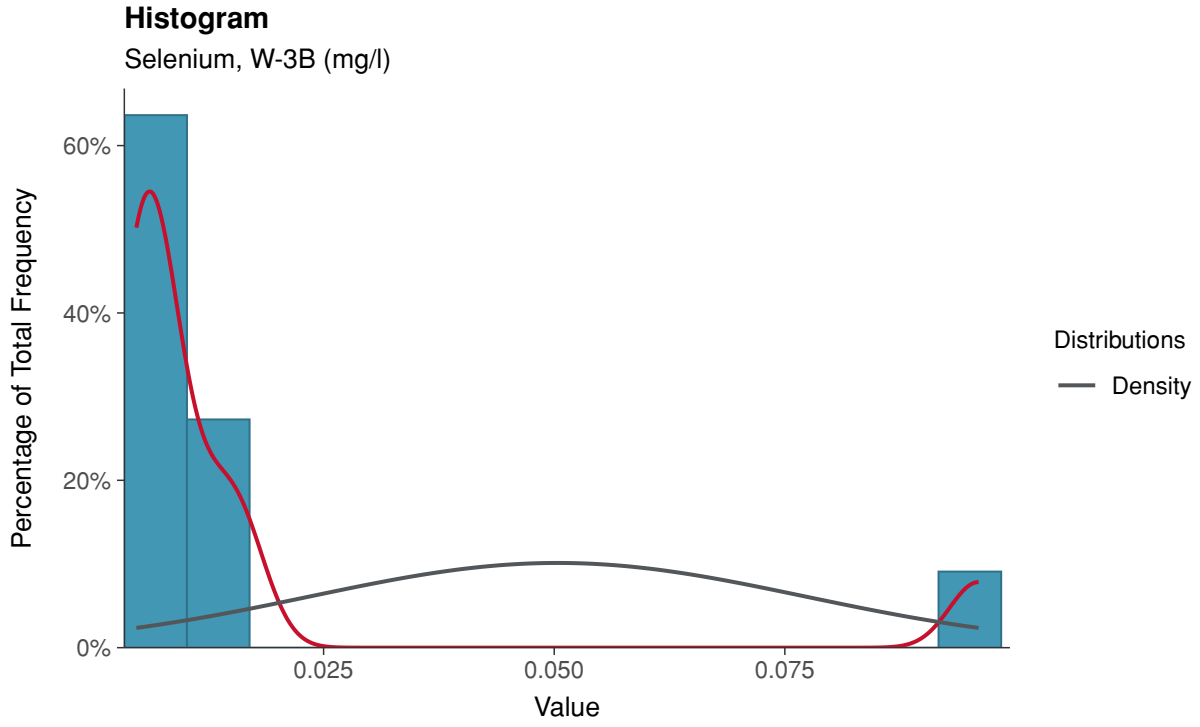
Radium-226+228, W-3B (pci/l)



Appendix IV: Selenium, W-3B

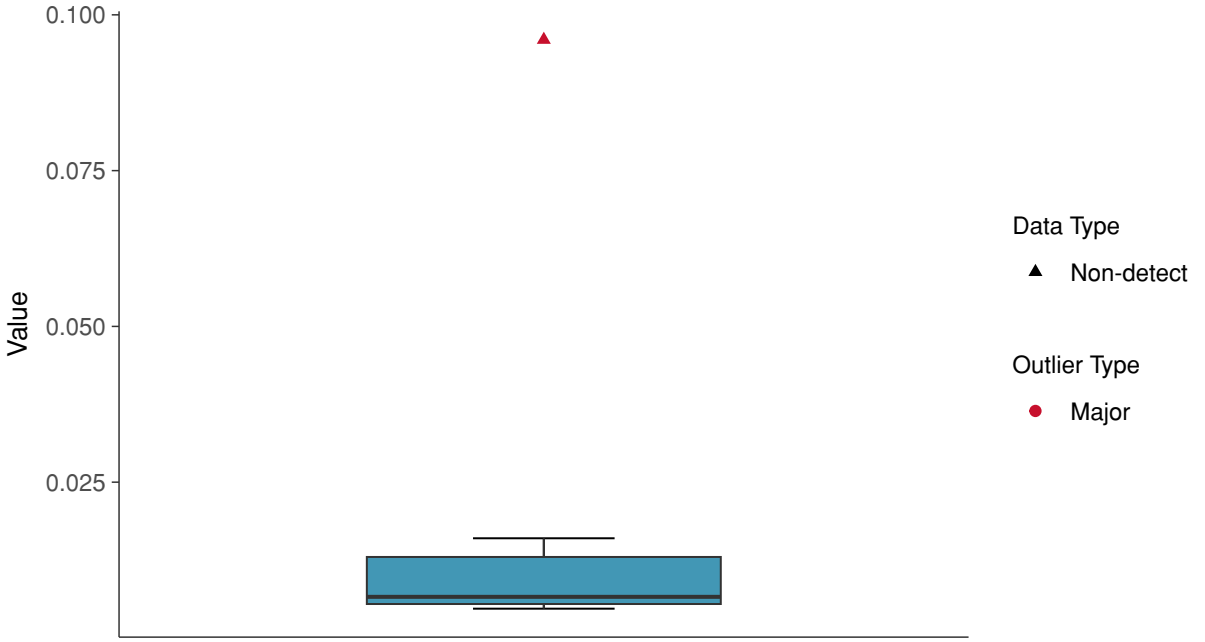
ID: 8_2_122





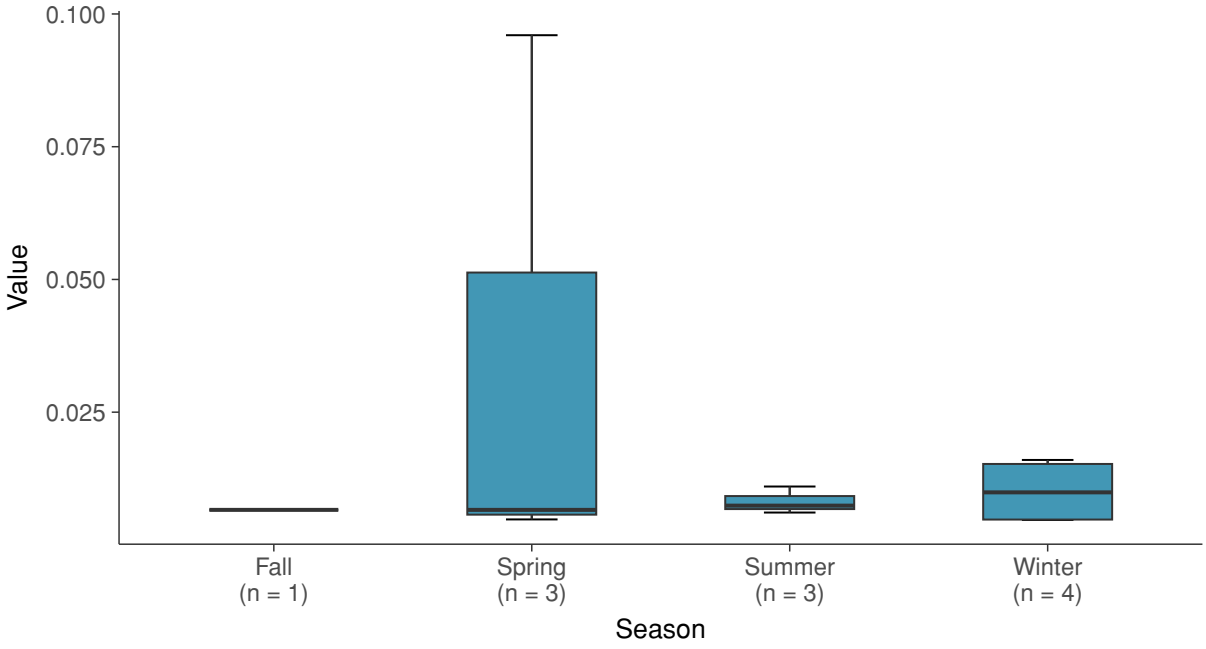
Boxplot

Selenium, W-3B (mg/l)



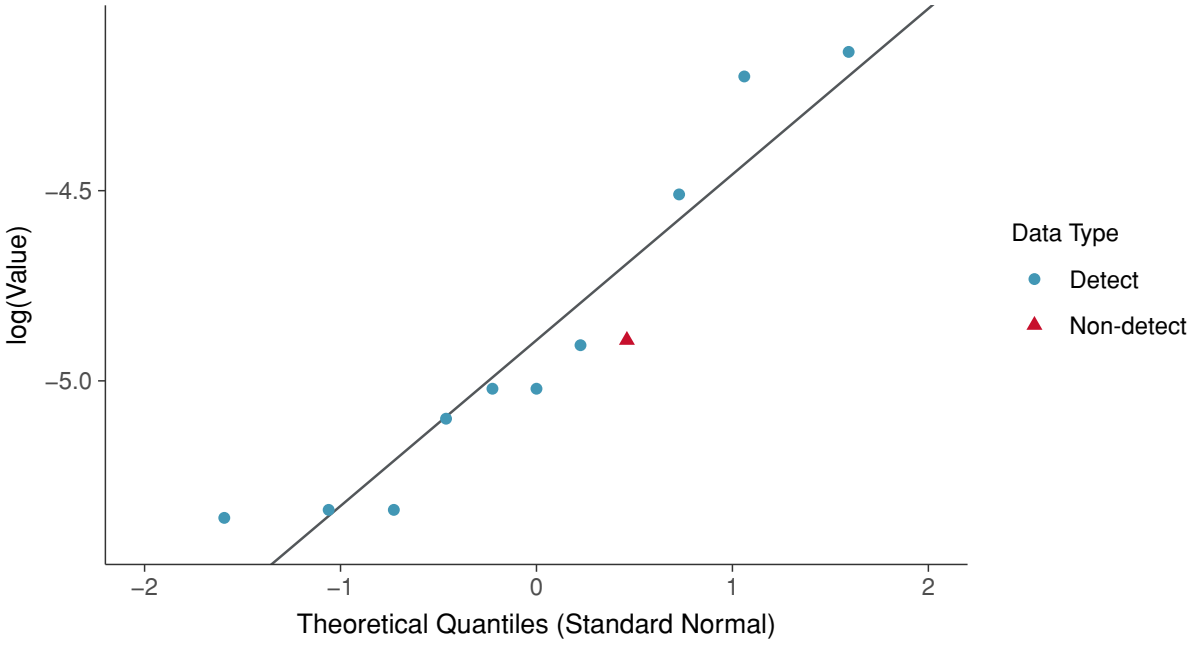
Boxplot by Season

Selenium, W-3B (mg/l)



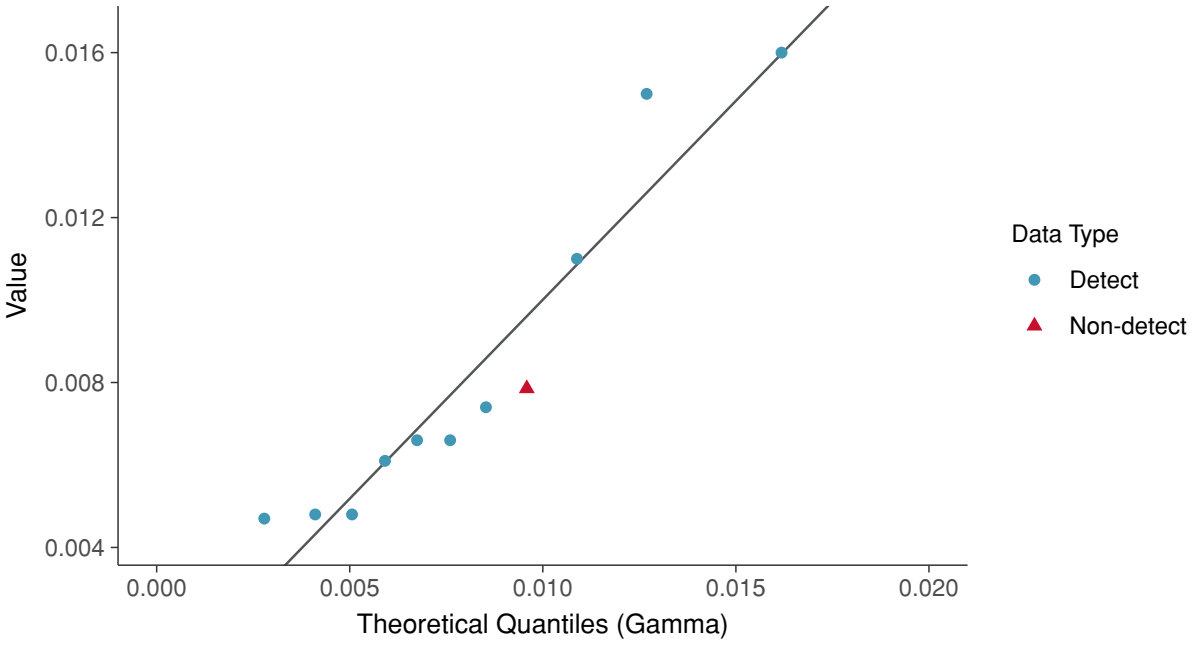
Lognormal Q-Q plot using ROS Imputed Estimates

Selenium, W-3B (mg/l)



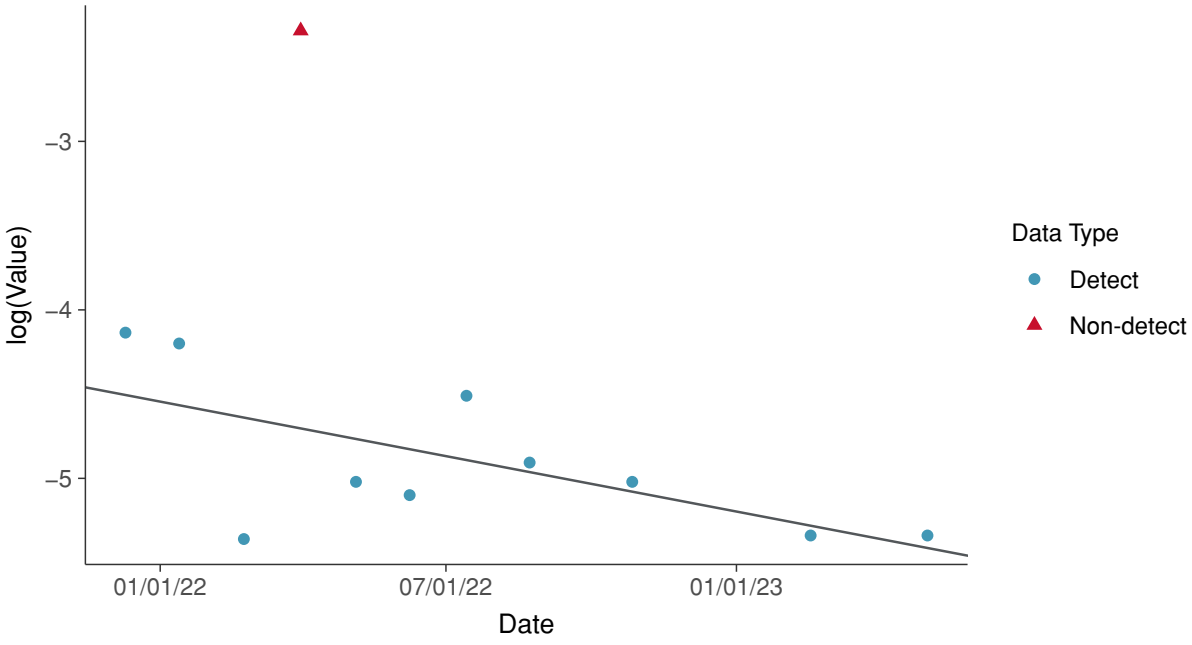
Gamma Q-Q plot using ROS Imputed Estimates

Selenium, W-3B (mg/l)



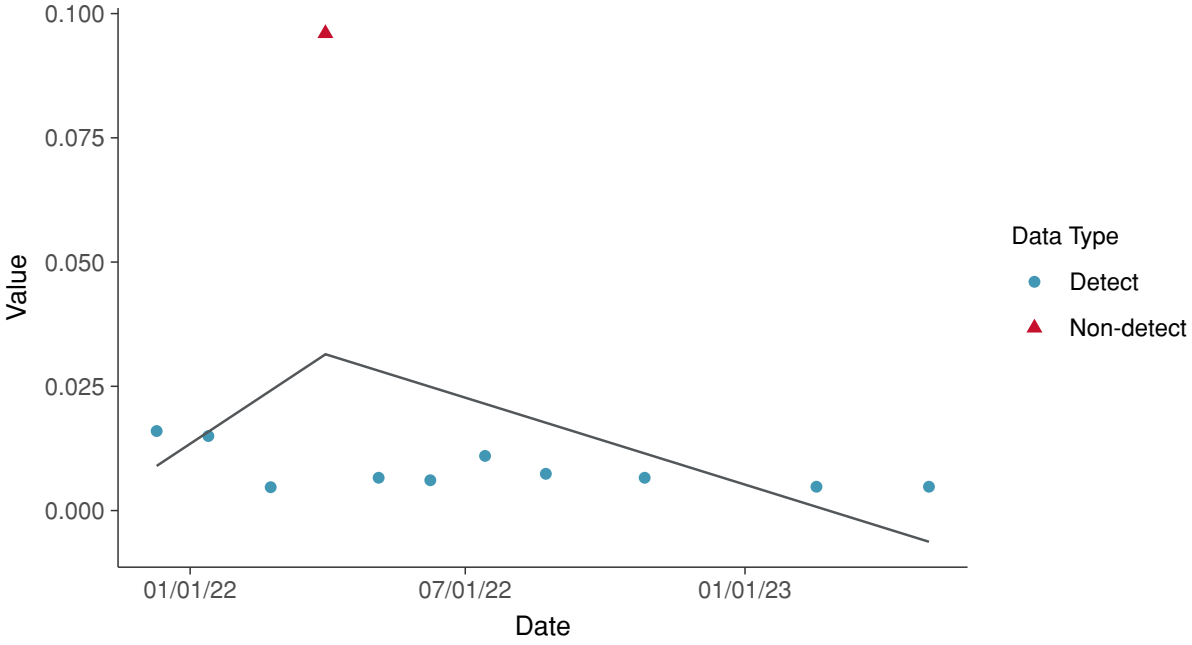
Trend Regression: Lognormal MLE

Selenium, W-3B (mg/l)



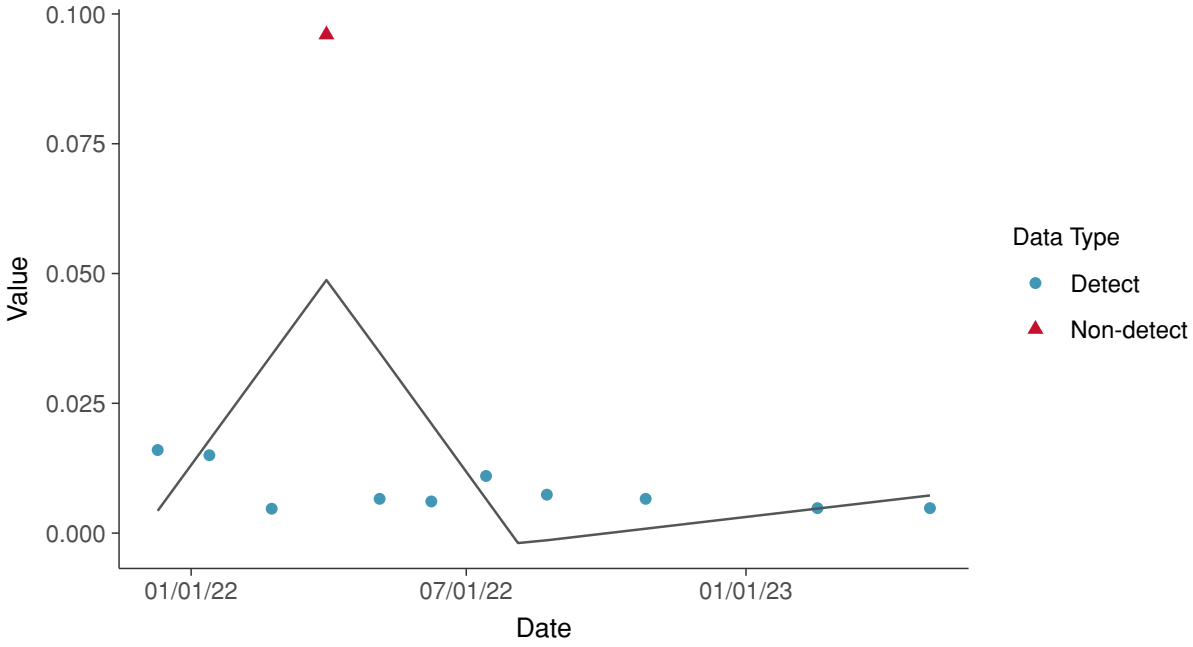
Trend Regression: Piecewise Linear-Linear

Selenium, W-3B (mg/l)



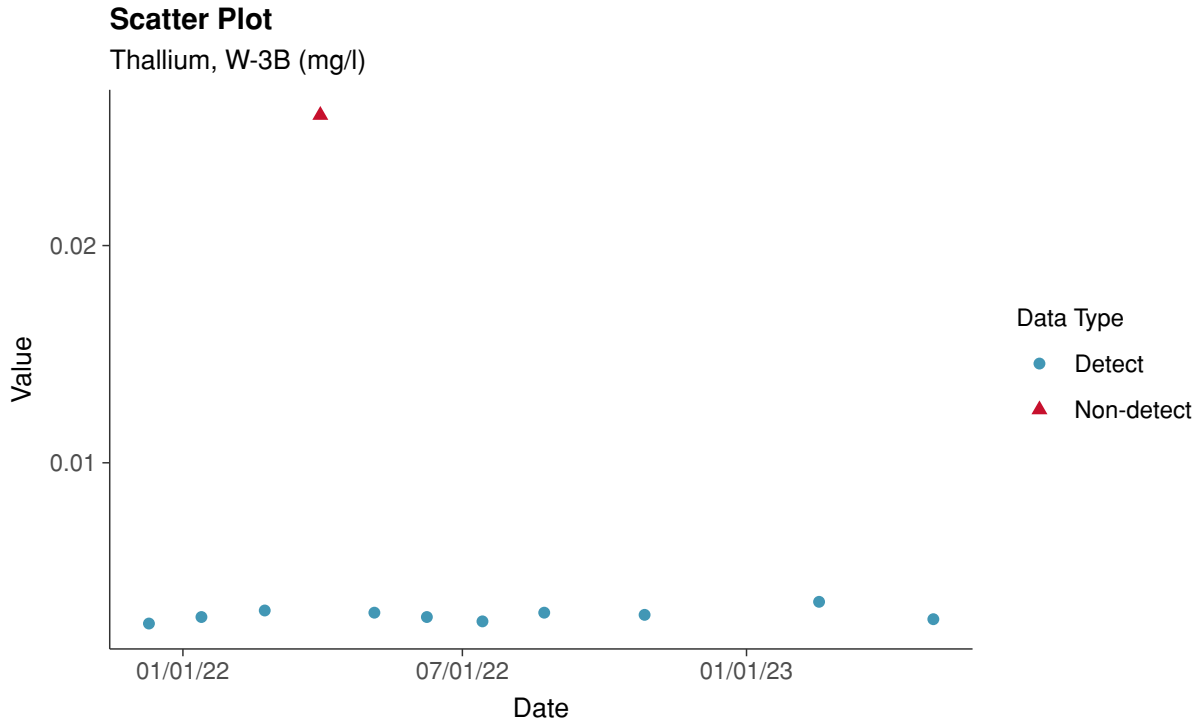
Trend Regression: Piecewise Linear-Linear-Linear

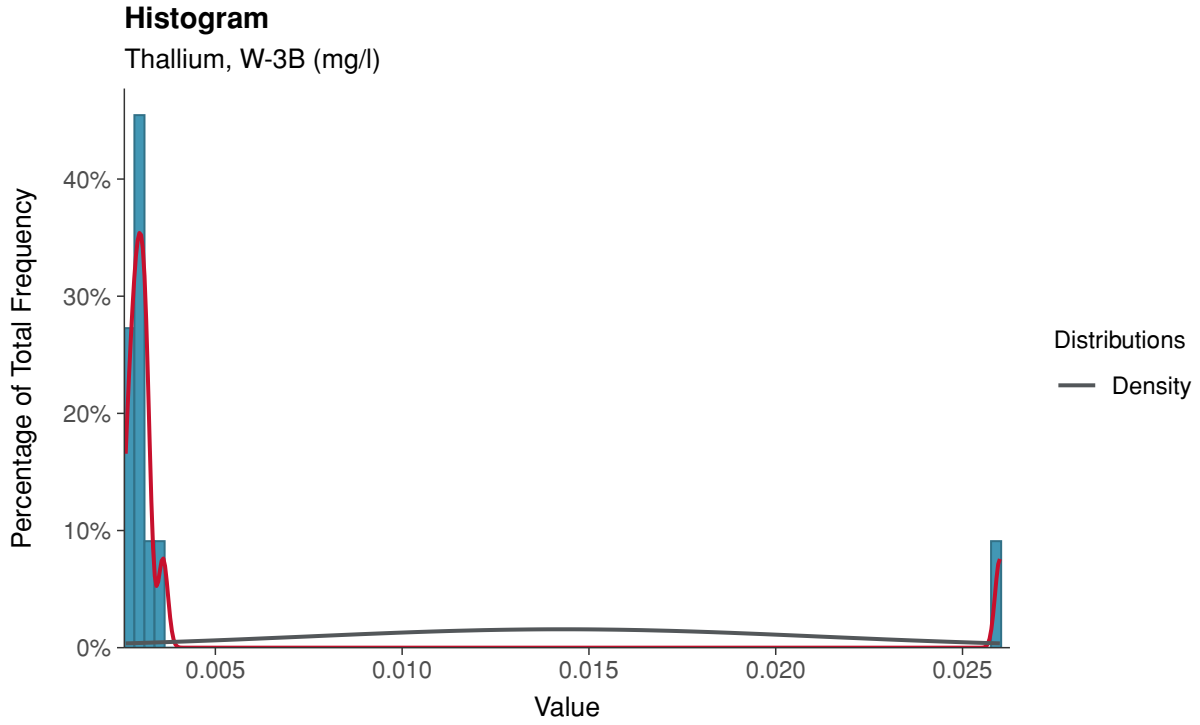
Selenium, W-3B (mg/l)



Appendix IV: Thallium, W-3B

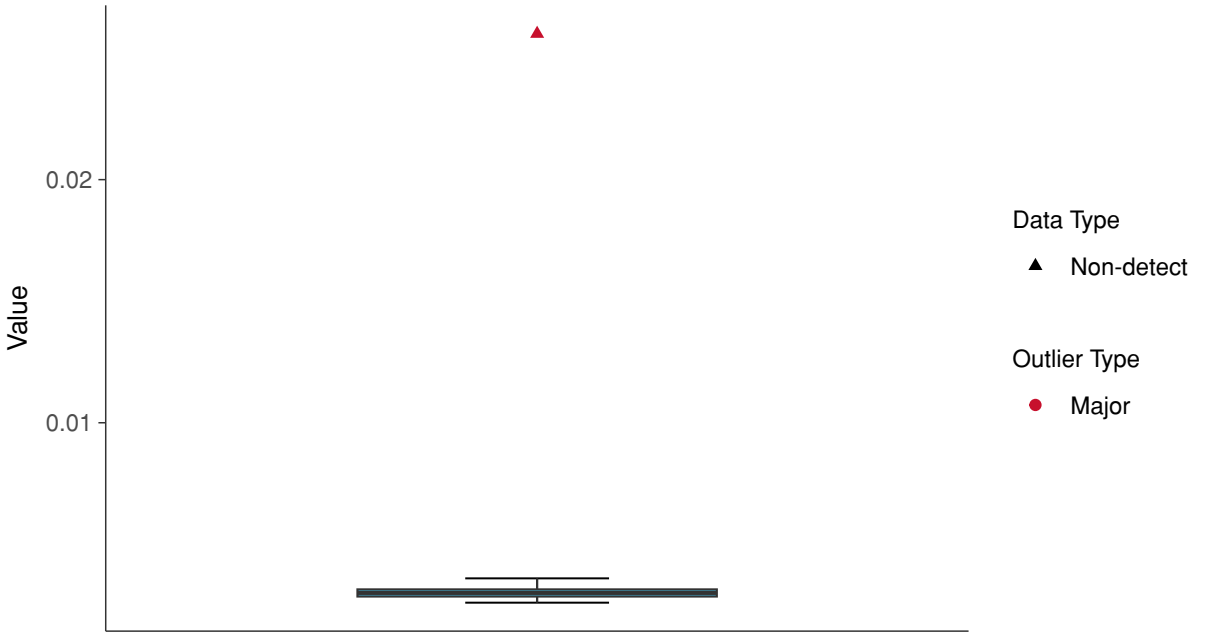
ID: 8_2_126





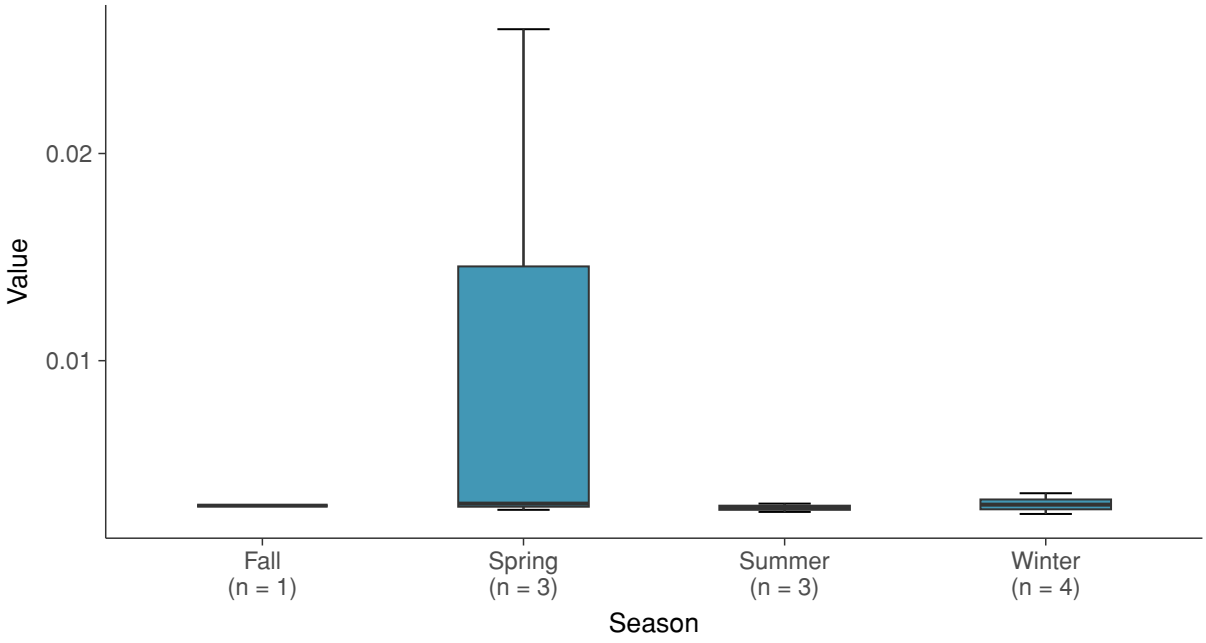
Boxplot

Thallium, W-3B (mg/l)



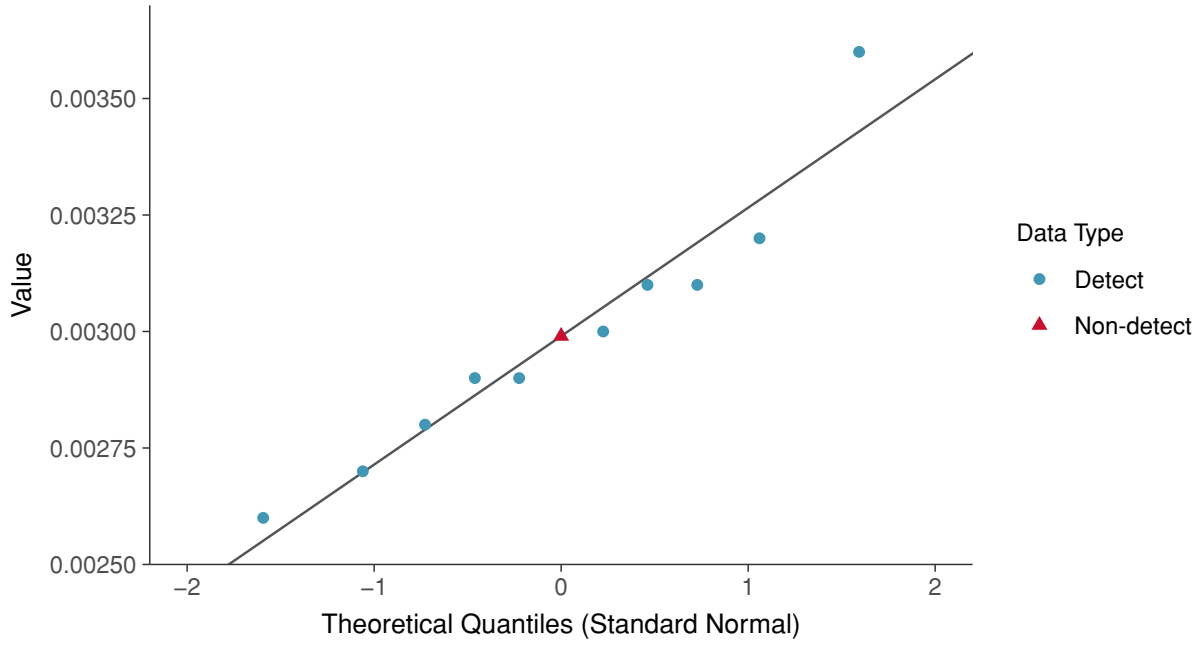
Boxplot by Season

Thallium, W-3B (mg/l)



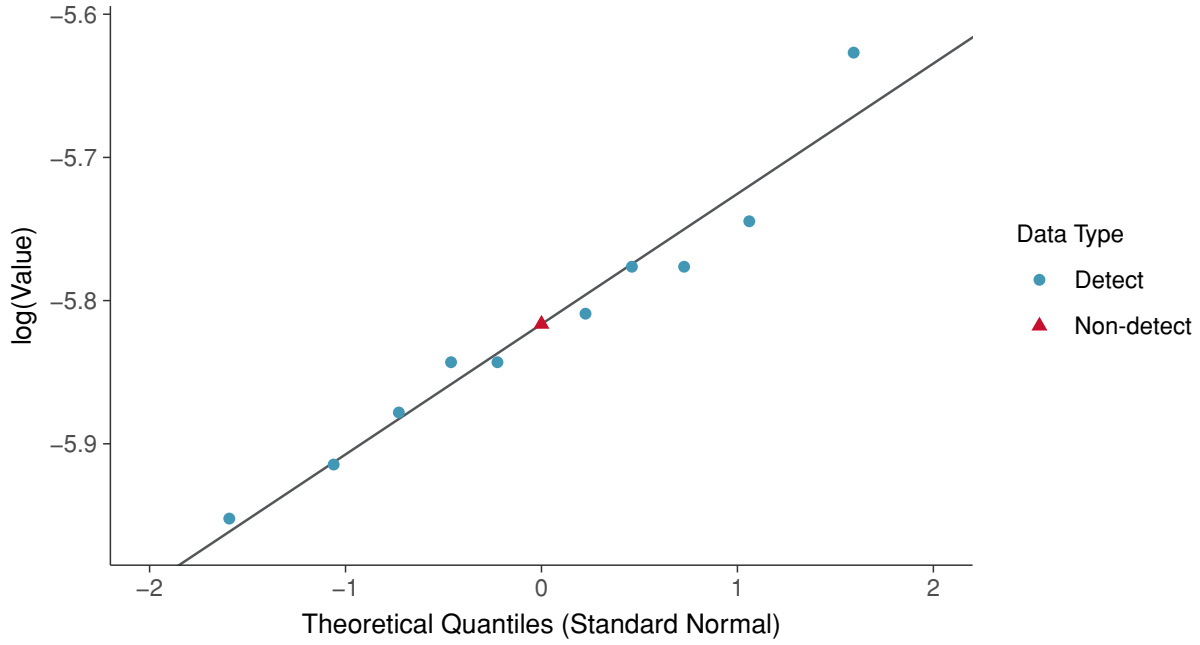
Normal Q-Q plot using ROS Imputed Estimates

Thallium, W-3B (mg/l)



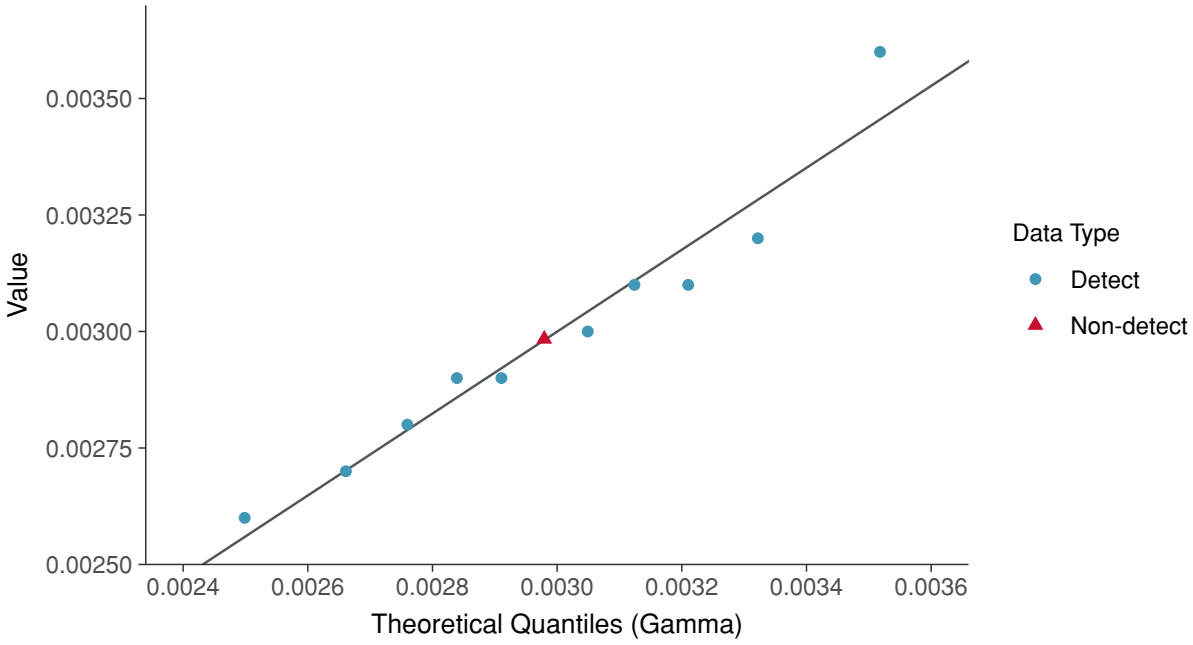
Lognormal Q-Q plot using ROS Imputed Estimates

Thallium, W-3B (mg/l)



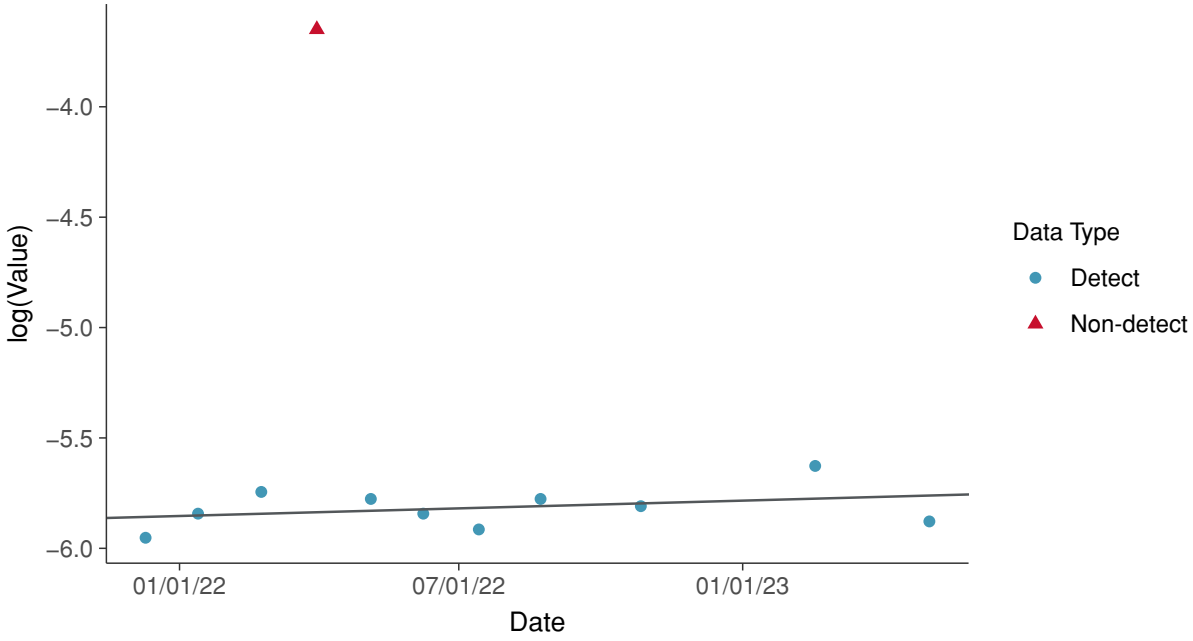
Gamma Q-Q plot using ROS Imputed Estimates

Thallium, W-3B (mg/l)



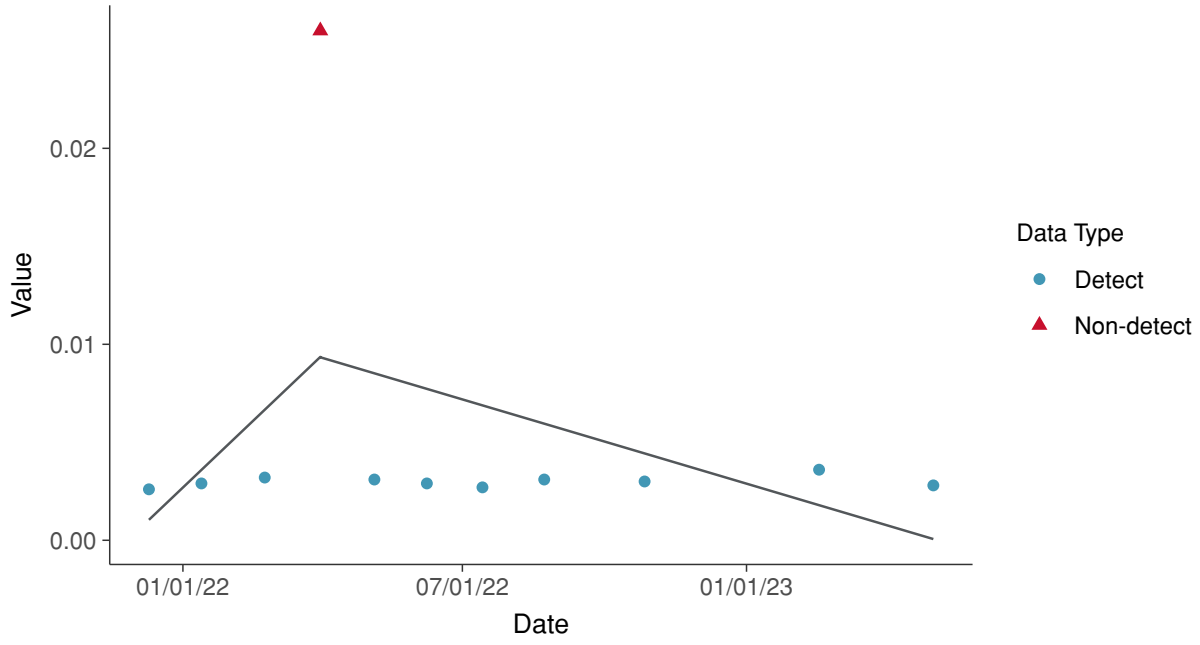
Trend Regression: Lognormal MLE

Thallium, W-3B (mg/l)



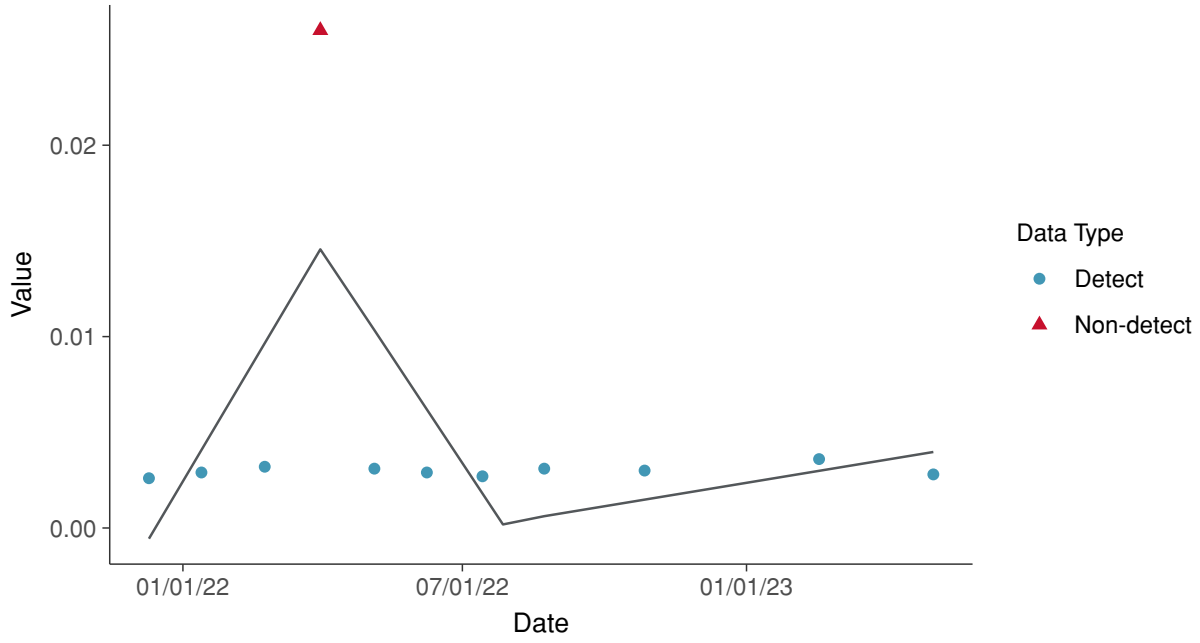
Trend Regression: Piecewise Linear-Linear

Thallium, W-3B (mg/l)



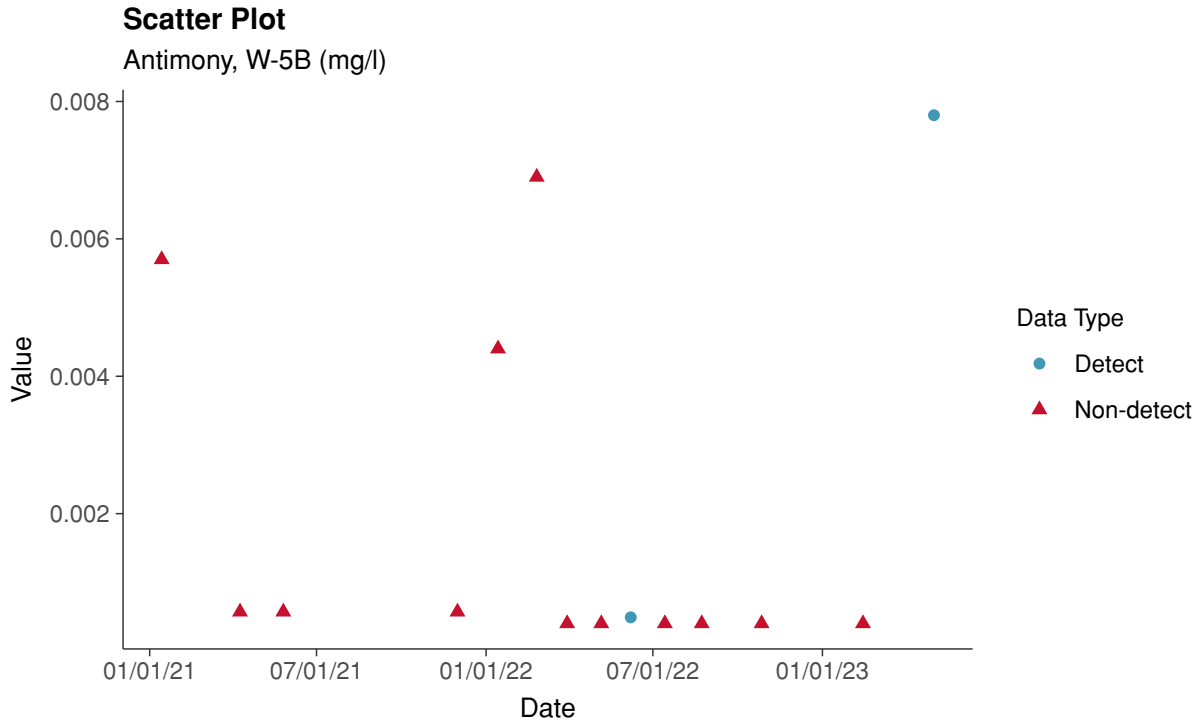
Trend Regression: Piecewise Linear-Linear-Linear

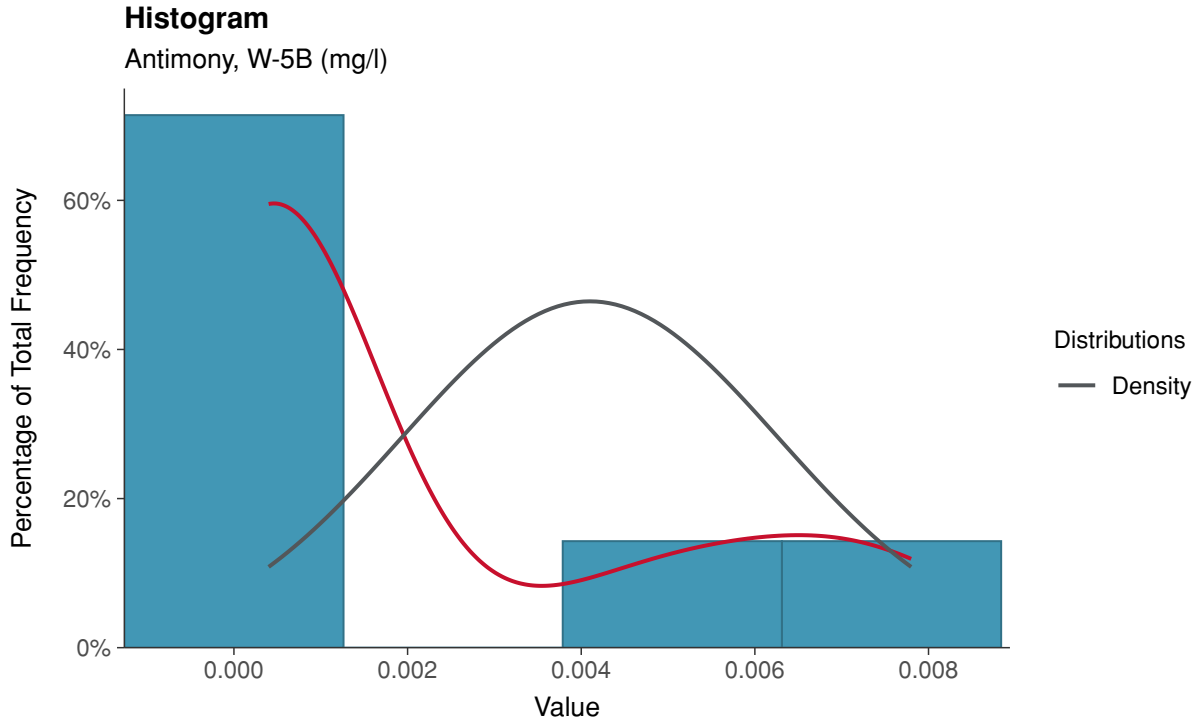
Thallium, W-3B (mg/l)



Appendix IV: Antimony, W-5B

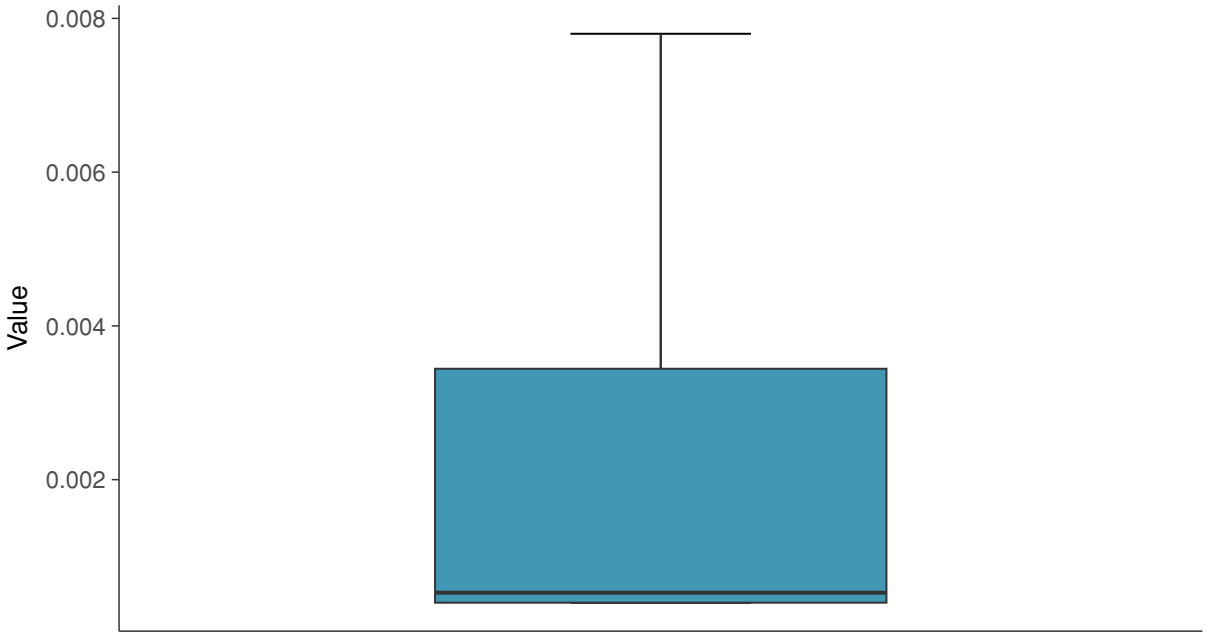
ID: 9_2_101





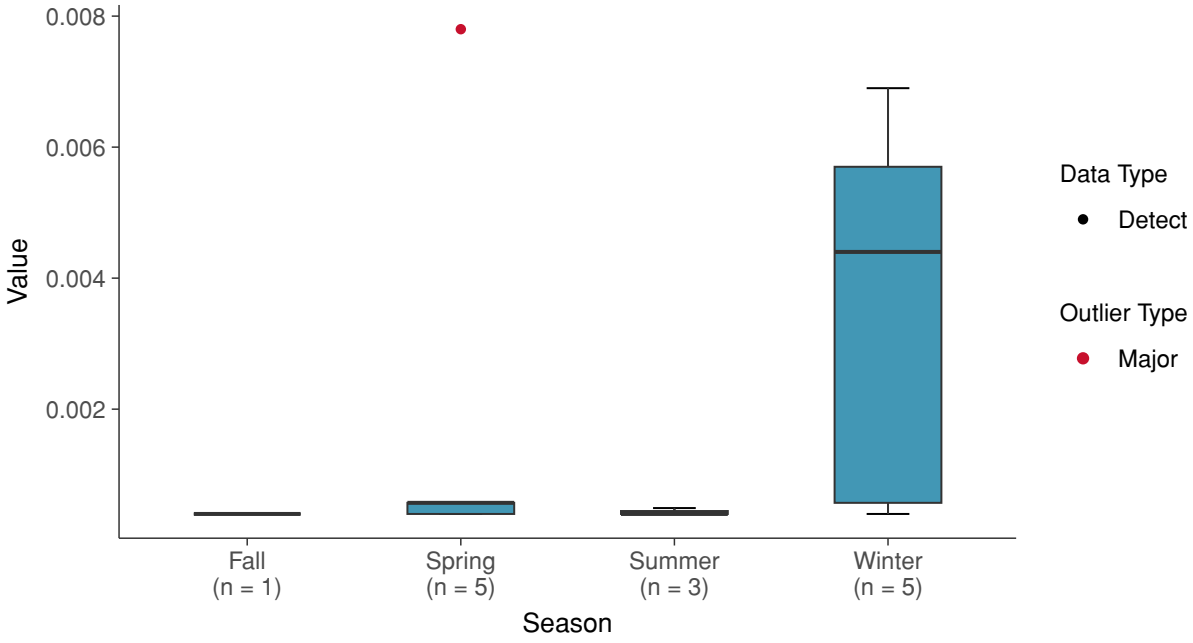
Boxplot

Antimony, W-5B (mg/l)



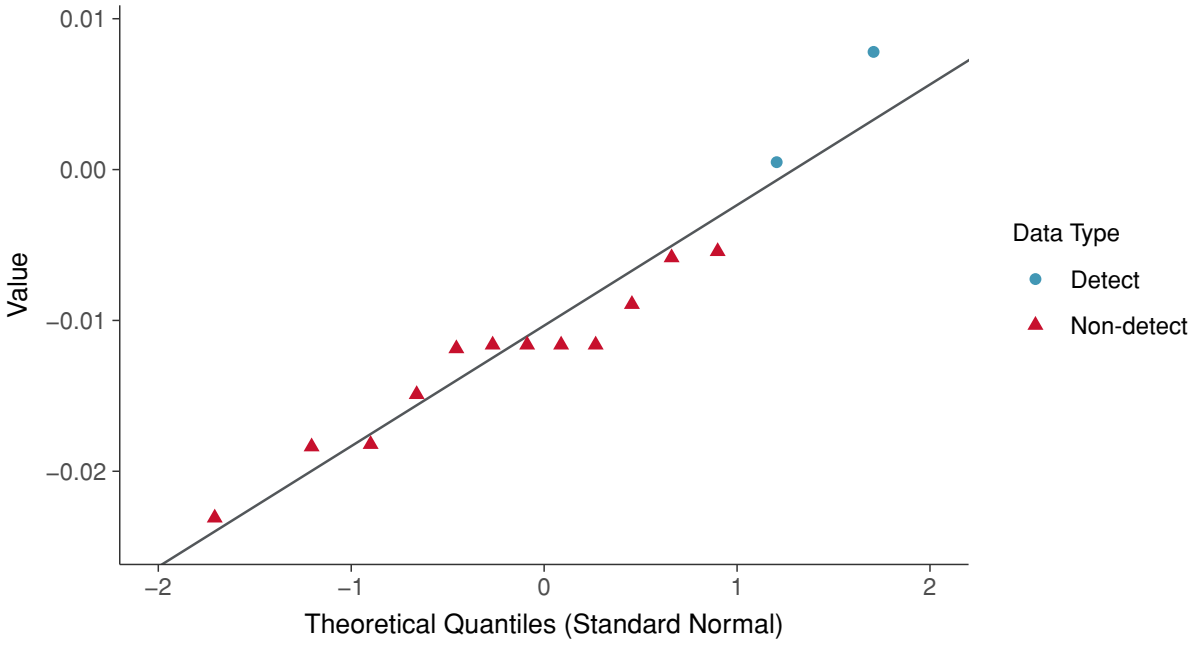
Boxplot by Season

Antimony, W-5B (mg/l)



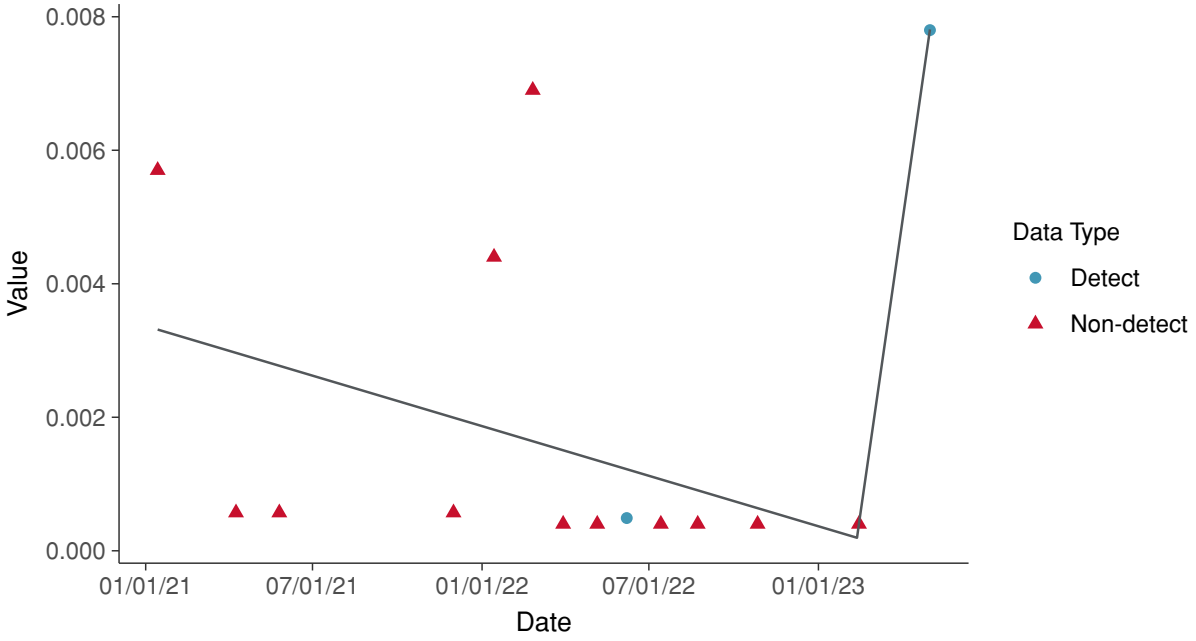
Normal Q-Q plot using ROS Imputed Estimates

Antimony, W-5B (mg/l)



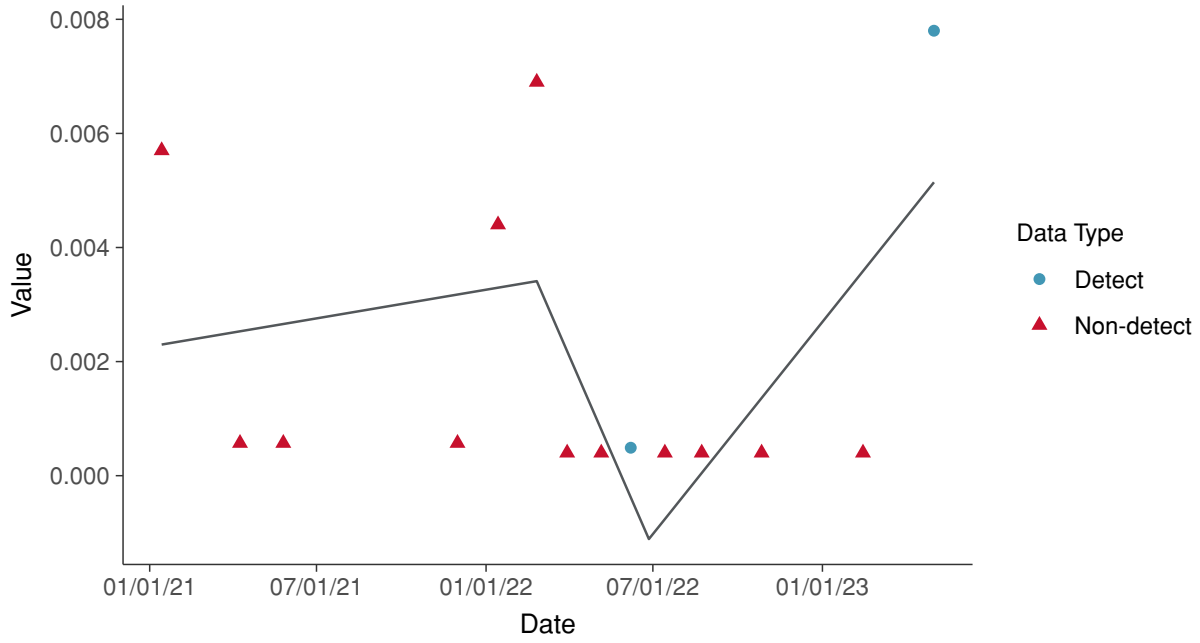
Trend Regression: Piecewise Linear-Linear

Antimony, W-5B (mg/l)



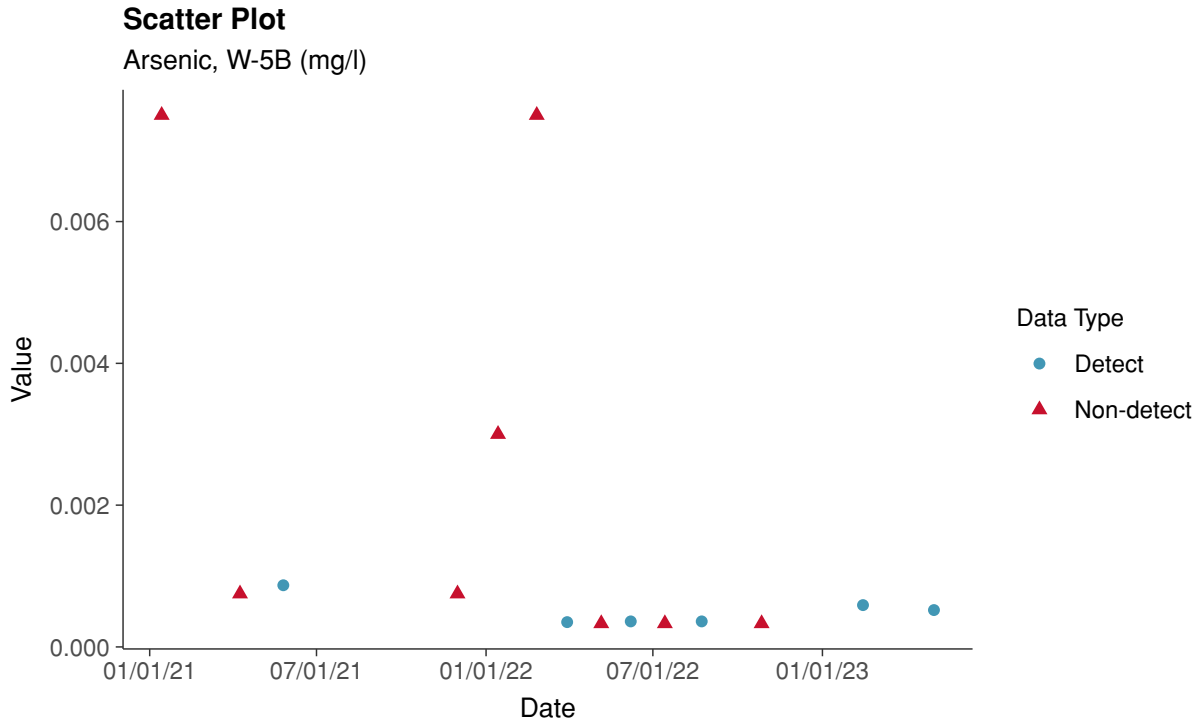
Trend Regression: Piecewise Linear-Linear-Linear

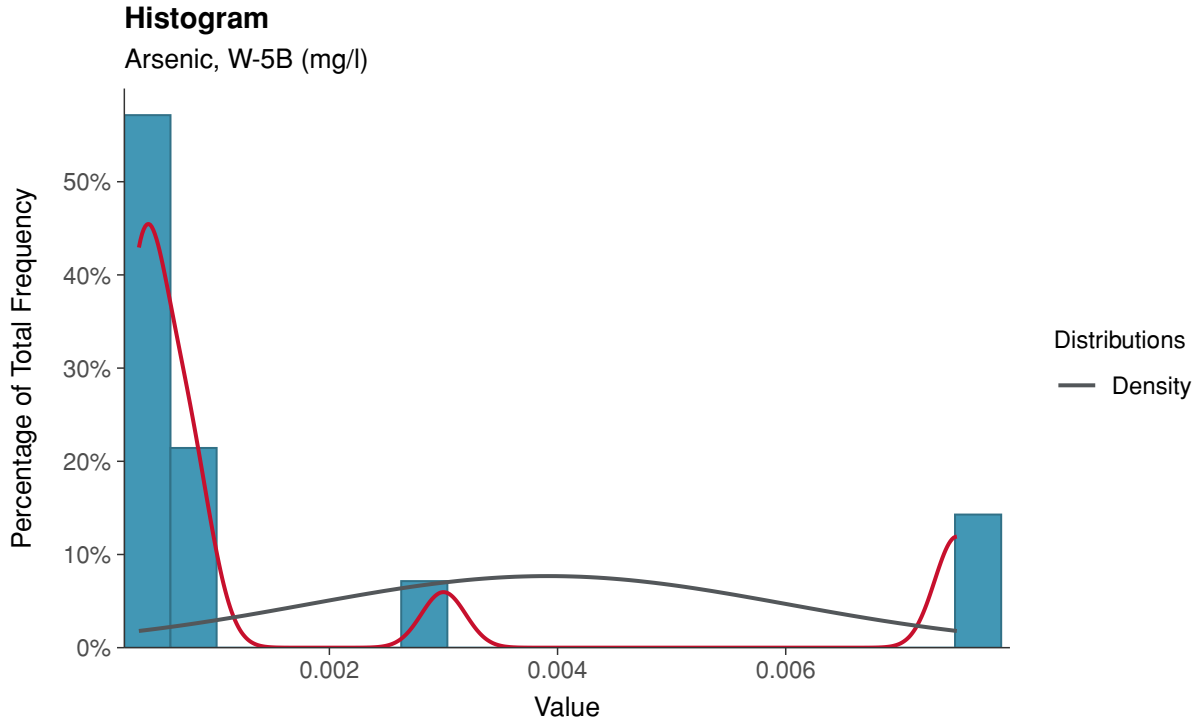
Antimony, W-5B (mg/l)



Appendix IV: Arsenic, W-5B

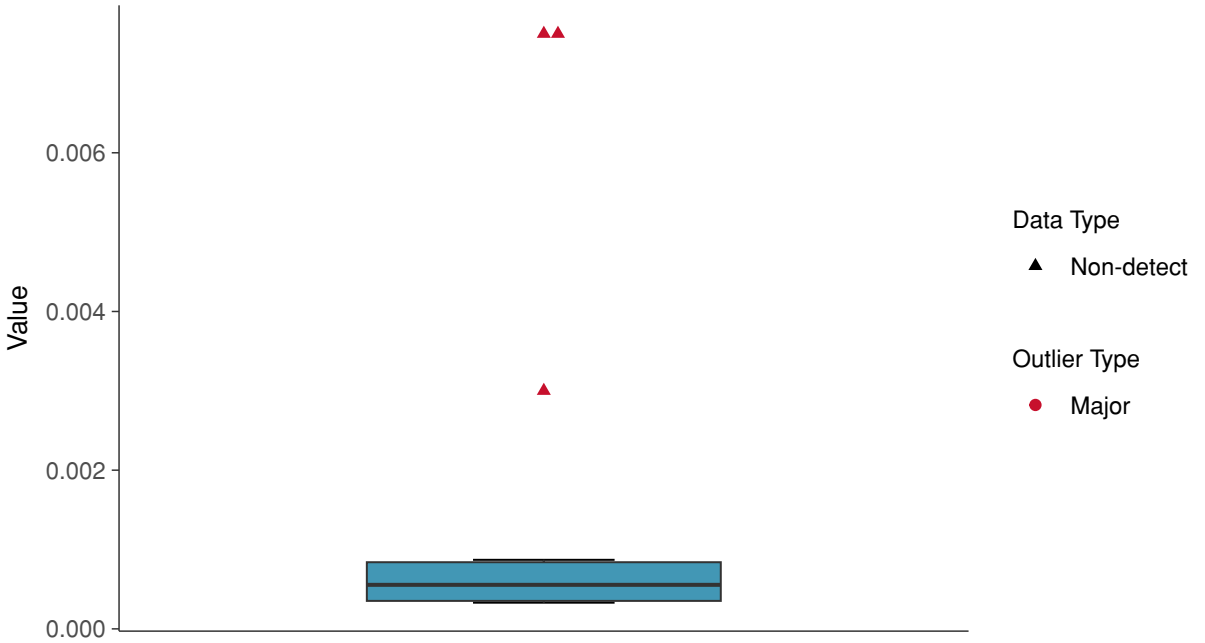
ID: 9_2_102





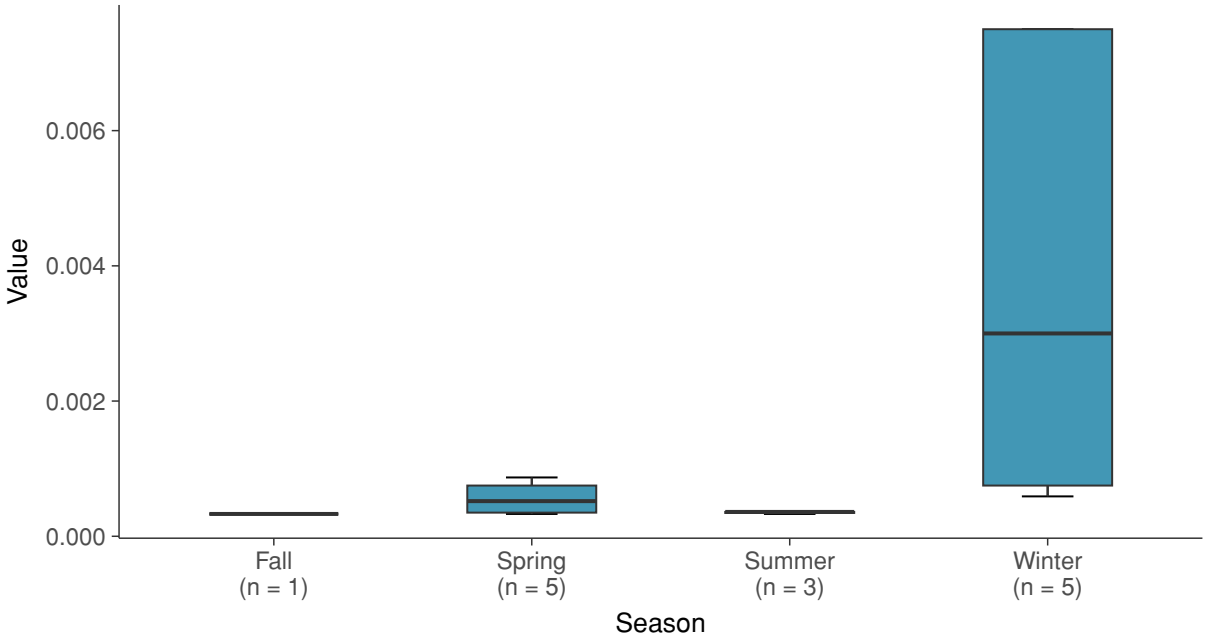
Boxplot

Arsenic, W-5B (mg/l)



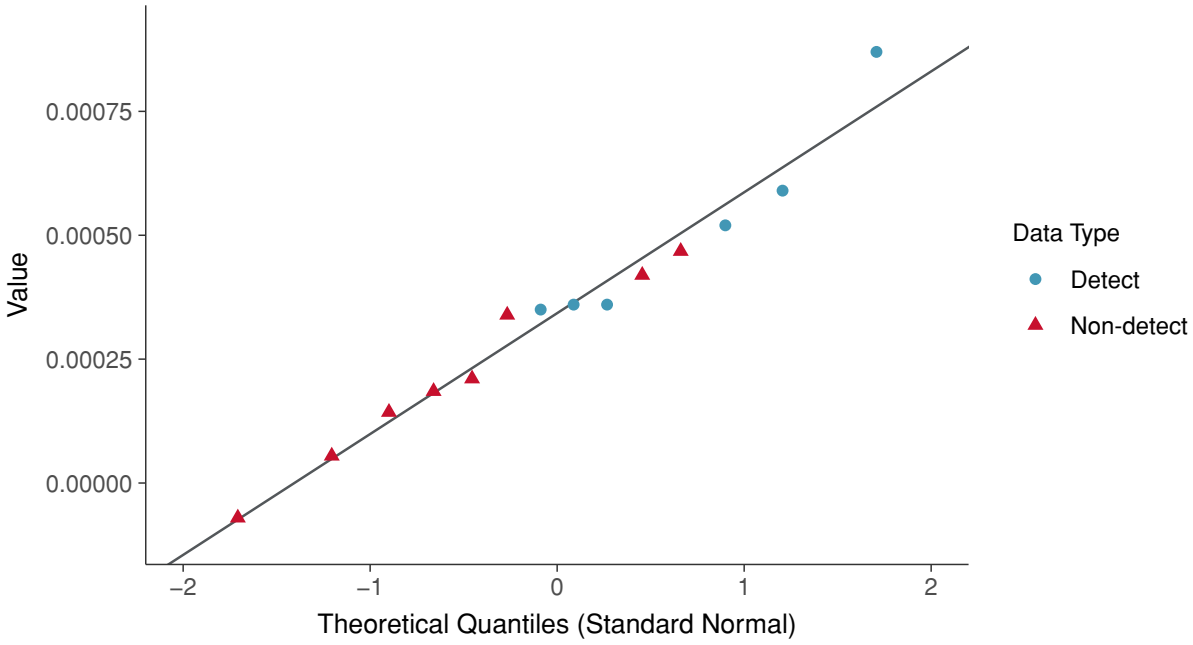
Boxplot by Season

Arsenic, W-5B (mg/l)



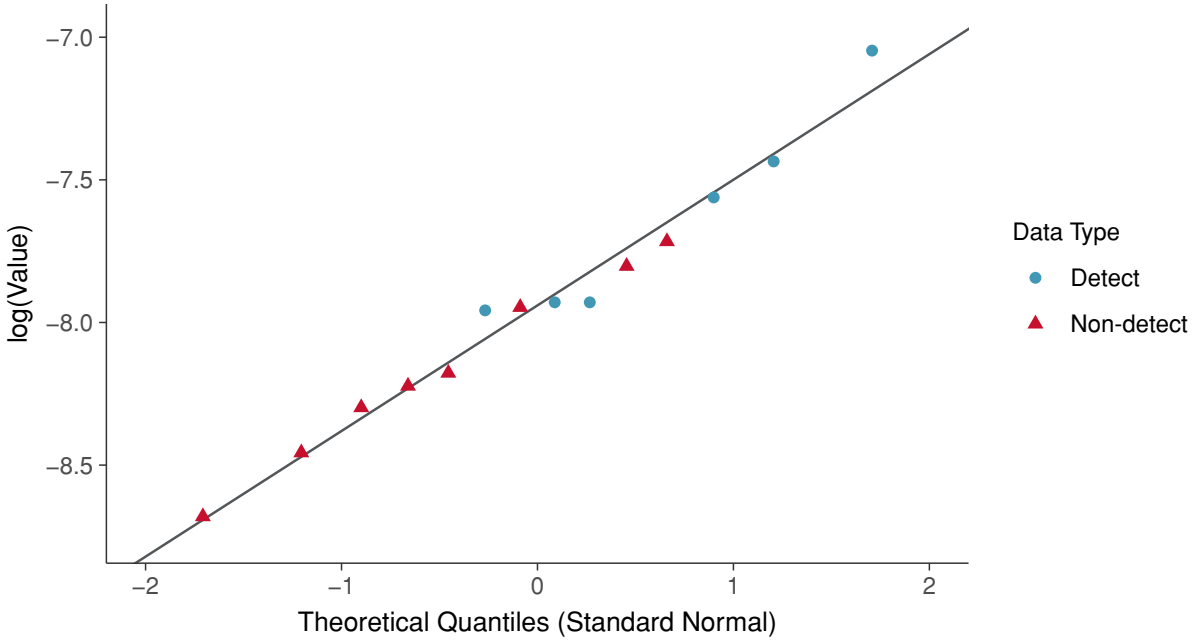
Normal Q-Q plot using ROS Imputed Estimates

Arsenic, W-5B (mg/l)



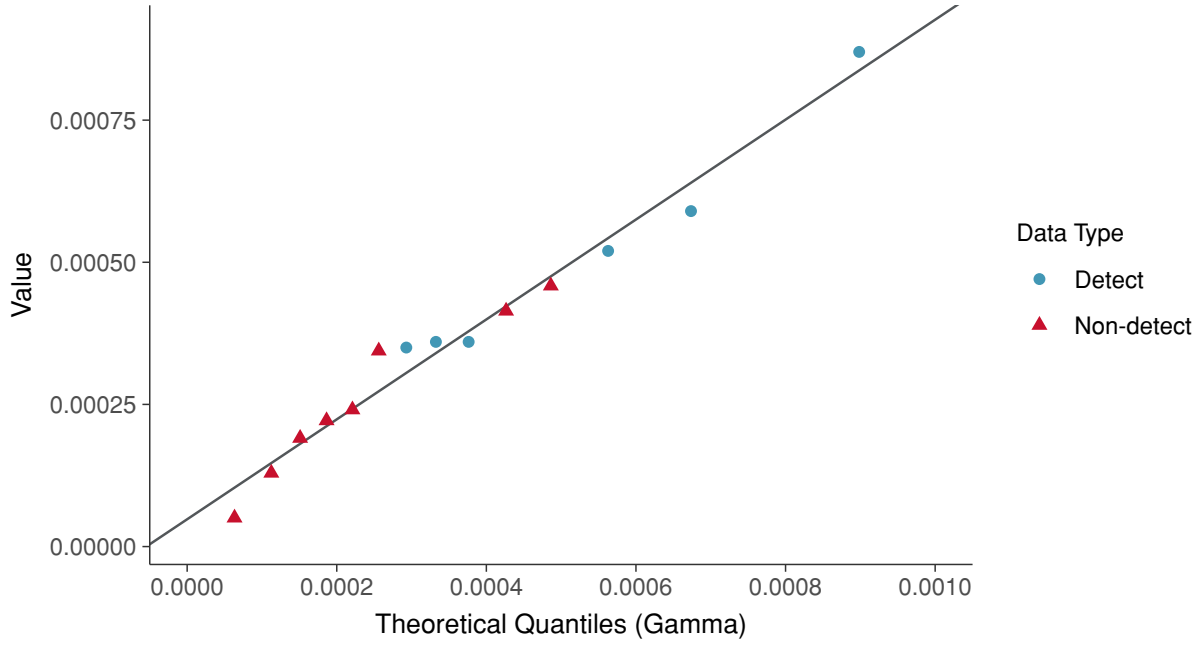
Lognormal Q-Q plot using ROS Imputed Estimates

Arsenic, W-5B (mg/l)



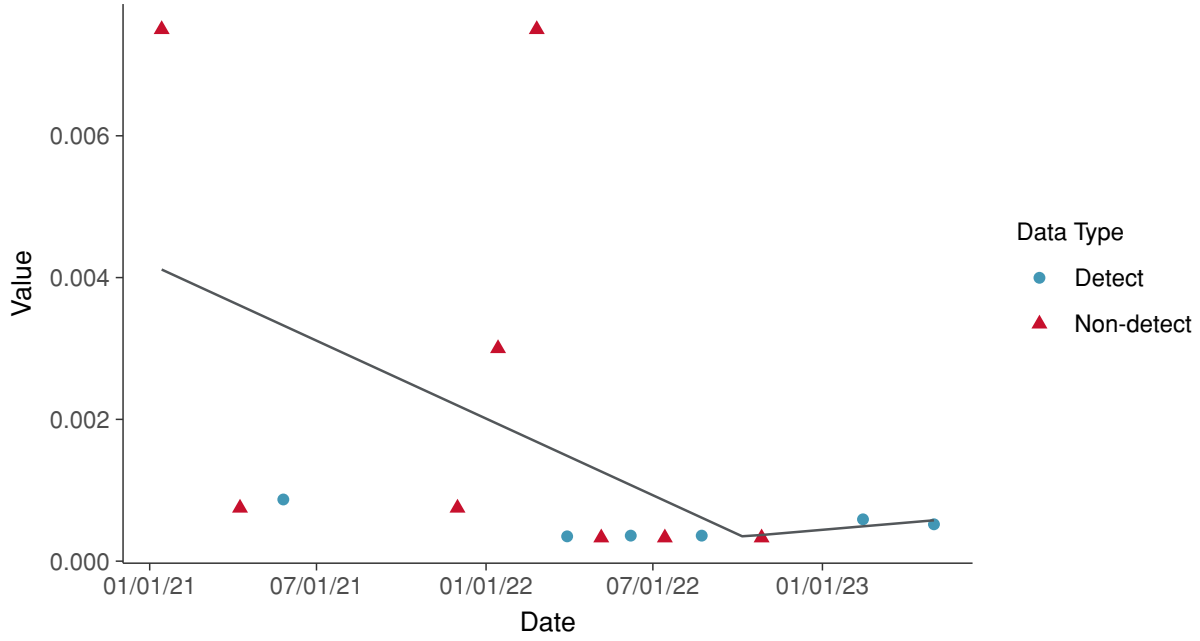
Gamma Q-Q plot using ROS Imputed Estimates

Arsenic, W-5B (mg/l)



Trend Regression: Piecewise Linear-Linear

Arsenic, W-5B (mg/l)

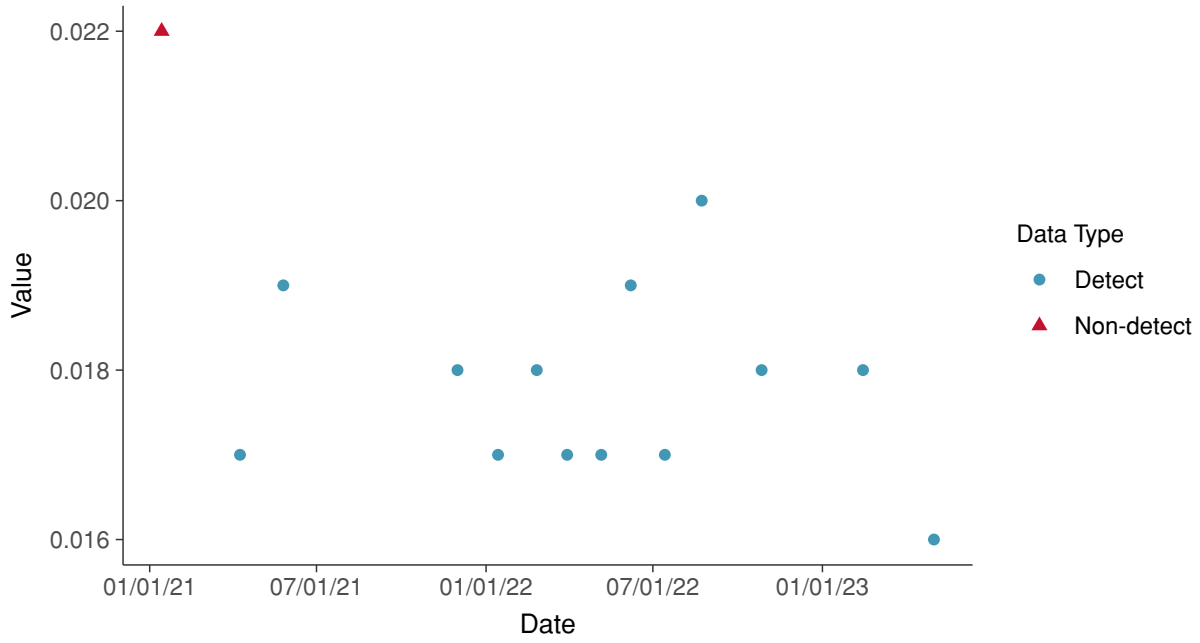


Appendix IV: Barium, W-5B

ID: 9_2_103

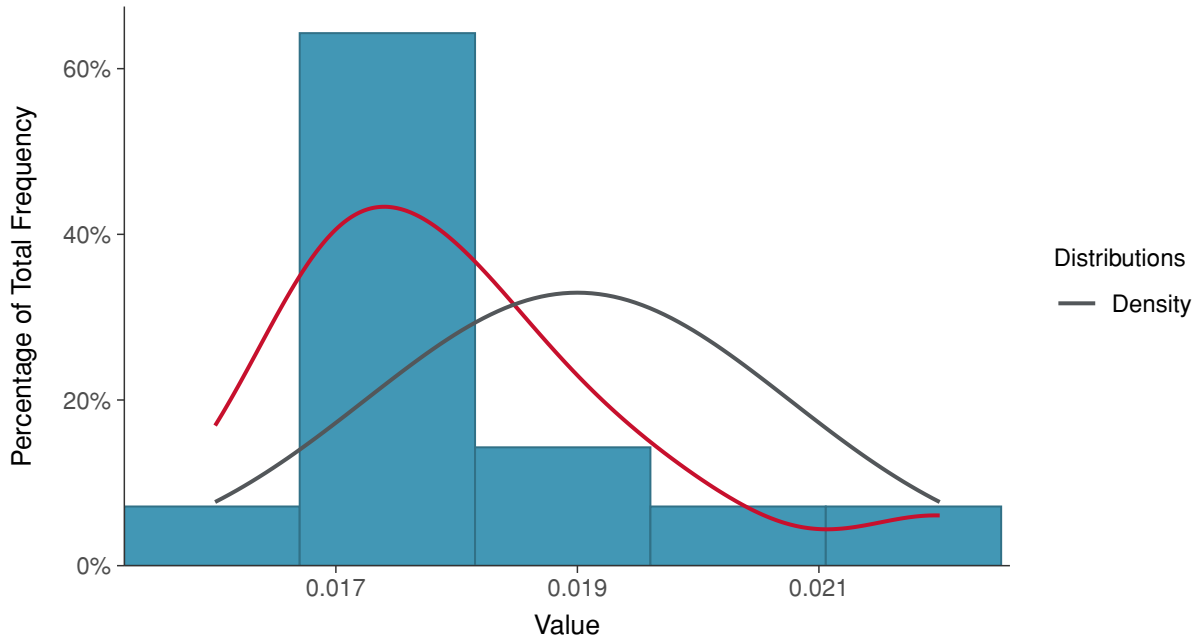
Scatter Plot

Barium, W-5B (mg/l)



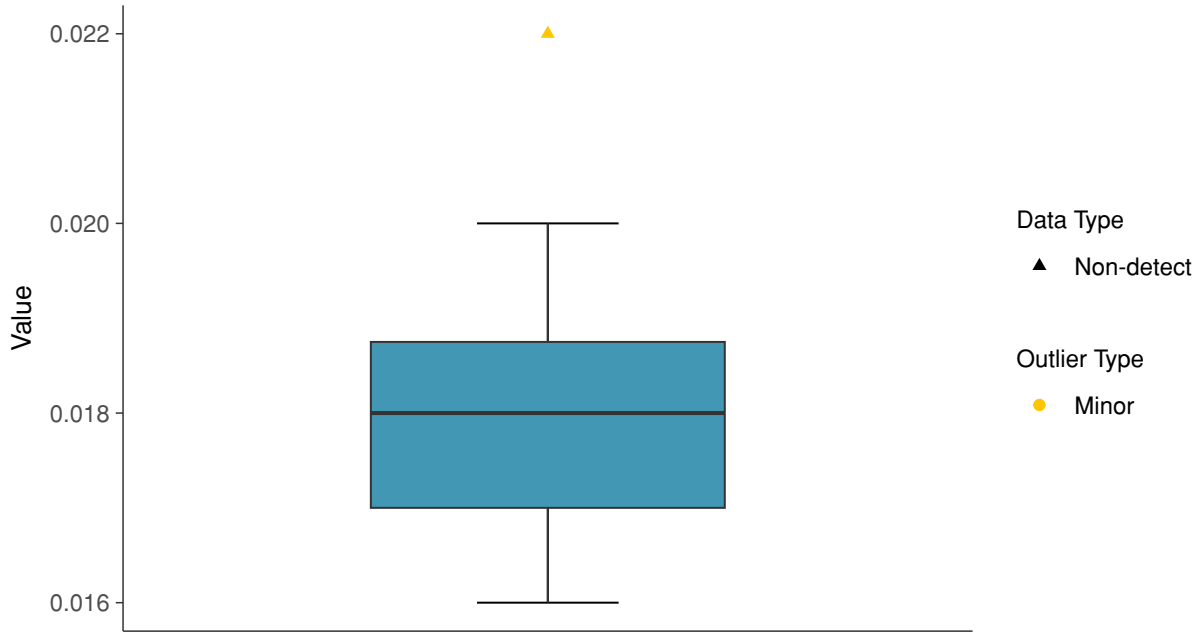
Histogram

Barium, W-5B (mg/l)



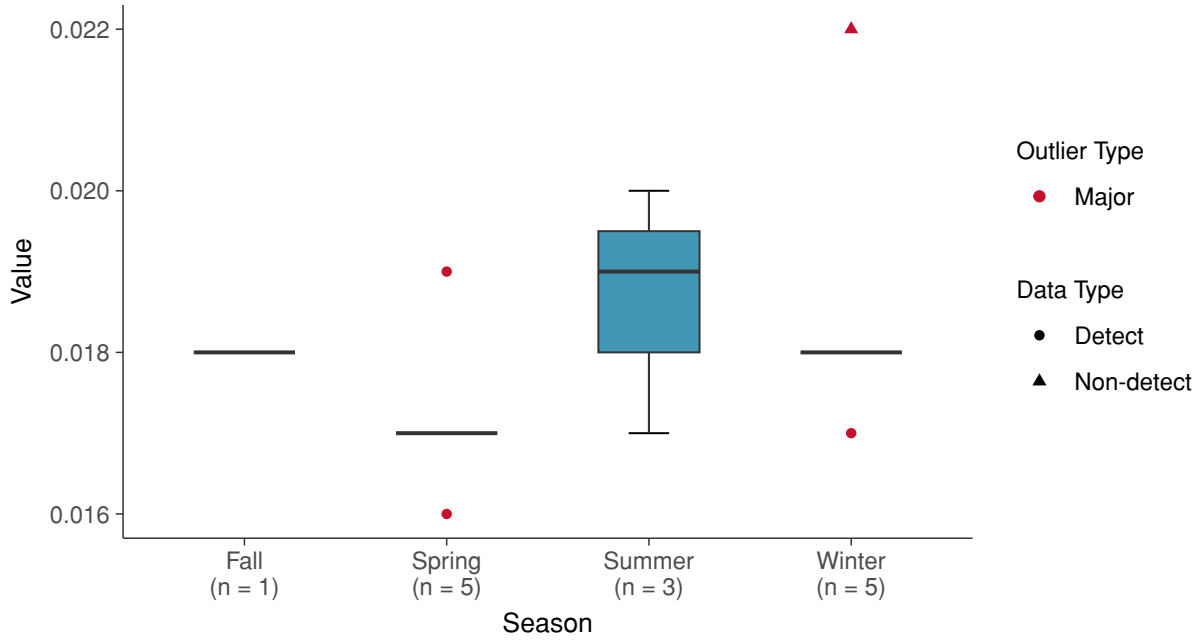
Boxplot

Barium, W-5B (mg/l)



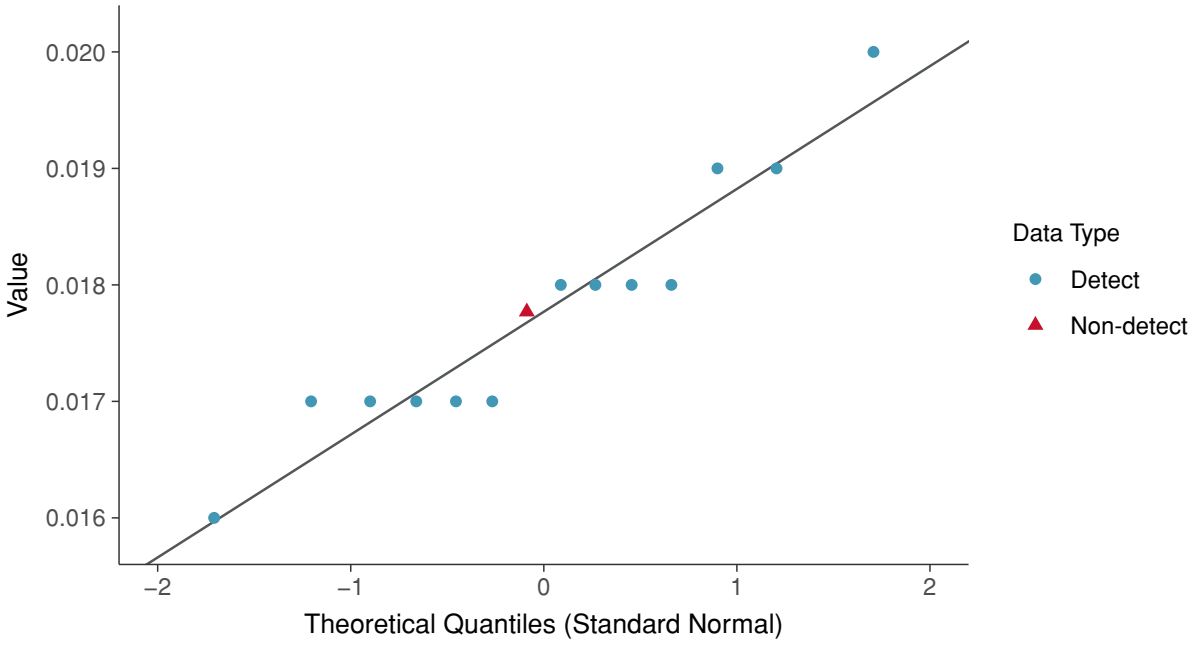
Boxplot by Season

Barium, W-5B (mg/l)



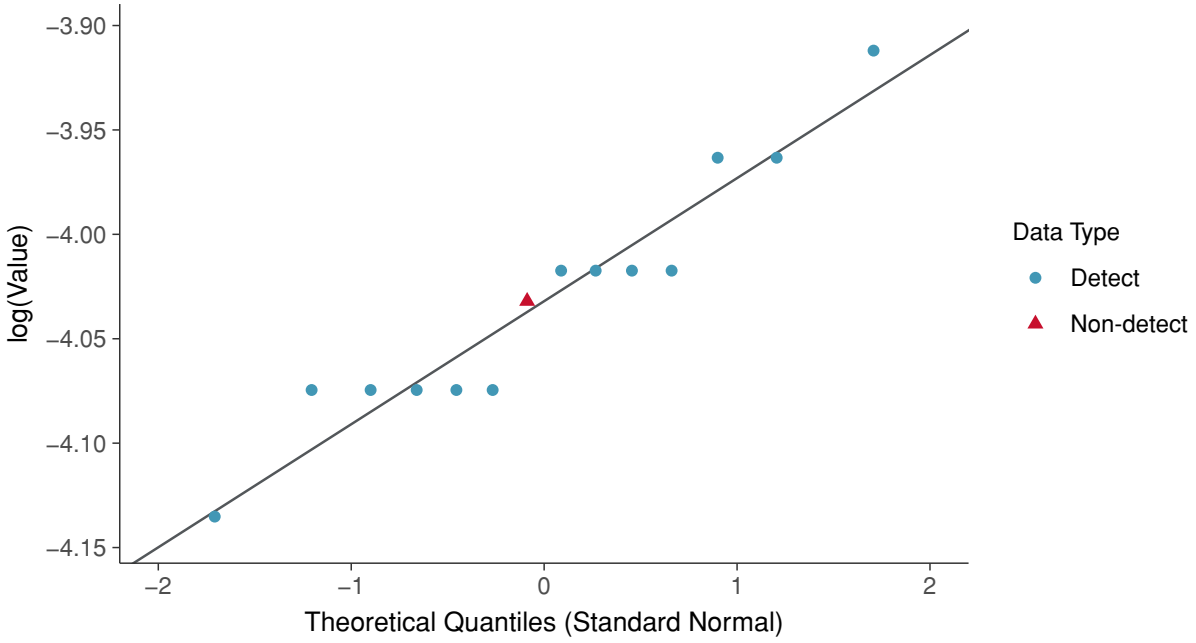
Normal Q-Q plot using ROS Imputed Estimates

Barium, W-5B (mg/l)



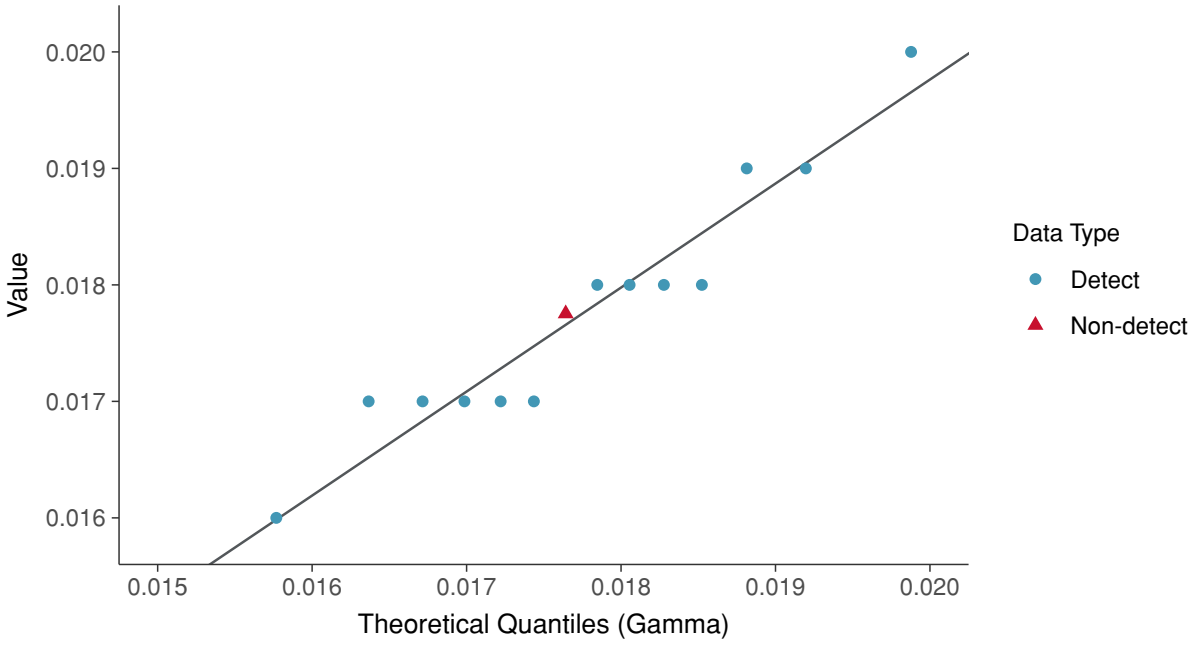
Lognormal Q-Q plot using ROS Imputed Estimates

Barium, W-5B (mg/l)



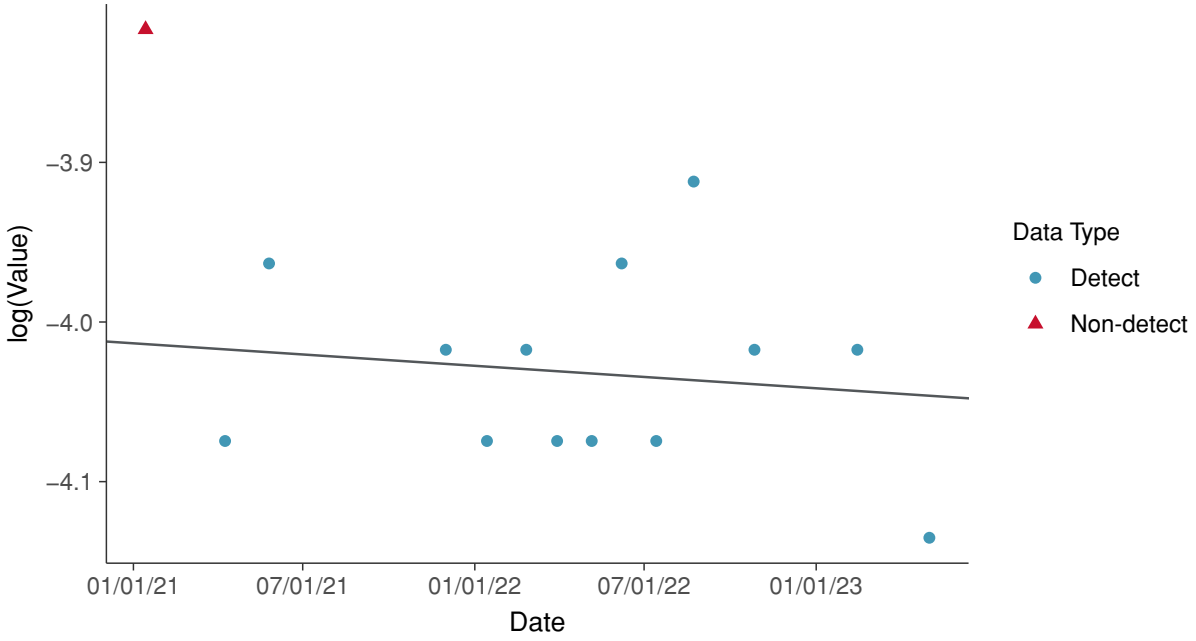
Gamma Q-Q plot using ROS Imputed Estimates

Barium, W-5B (mg/l)



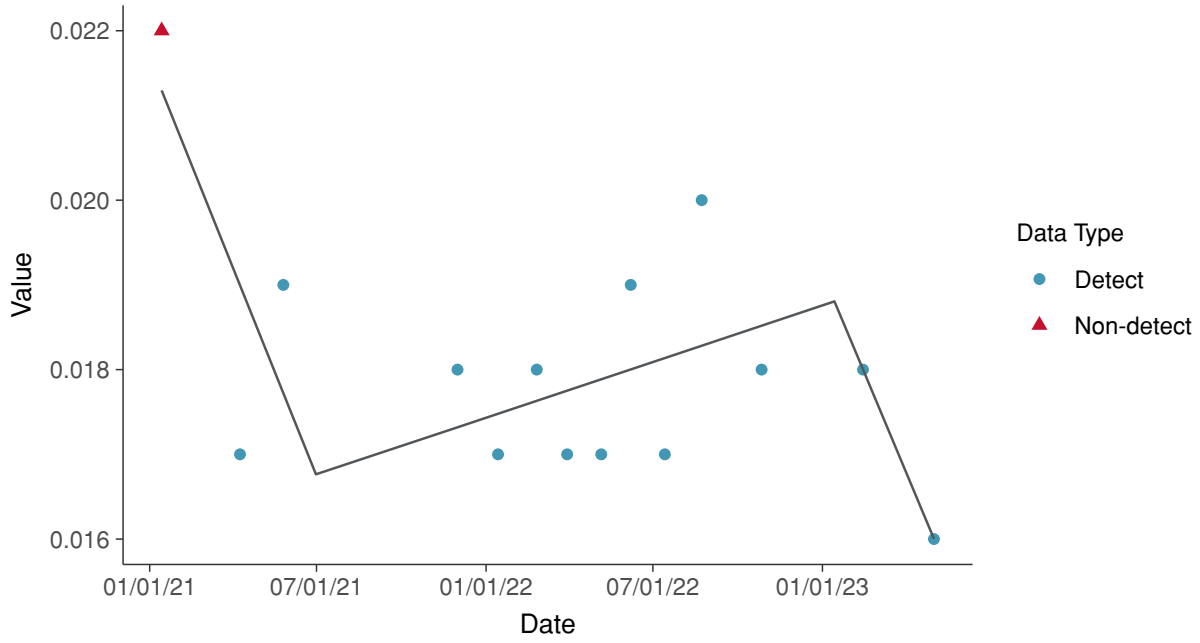
Trend Regression: Lognormal MLE

Barium, W-5B (mg/l)



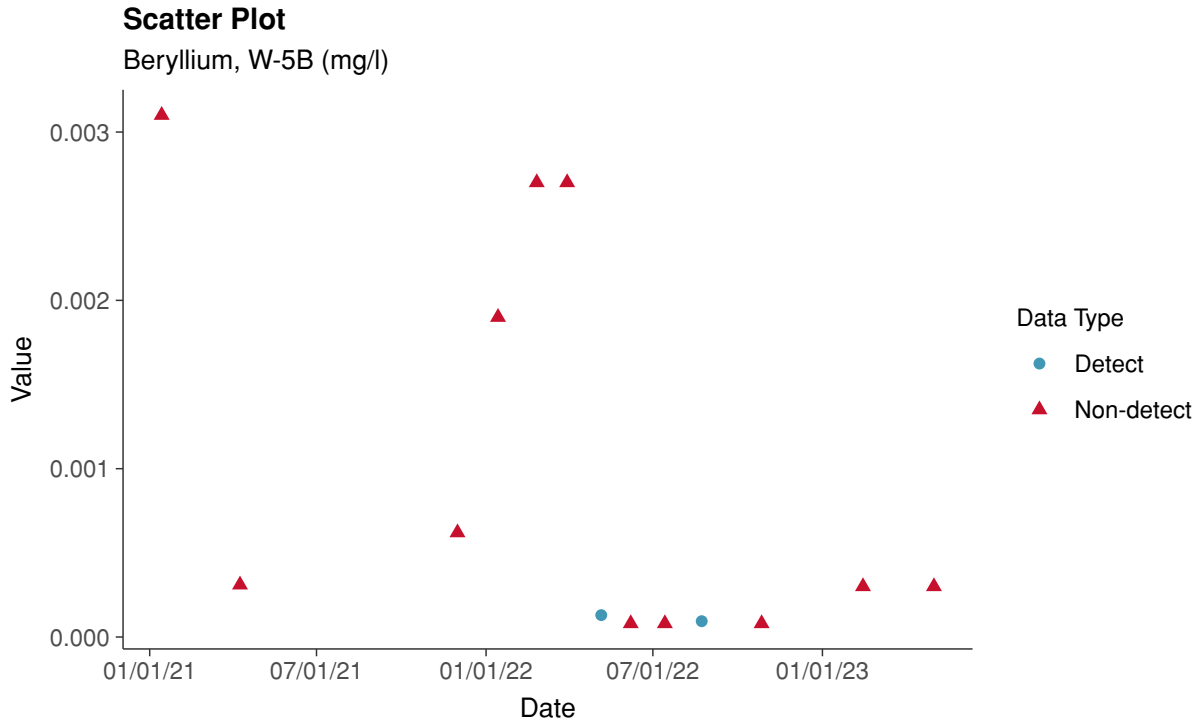
Trend Regression: Piecewise Linear-Linear-Linear

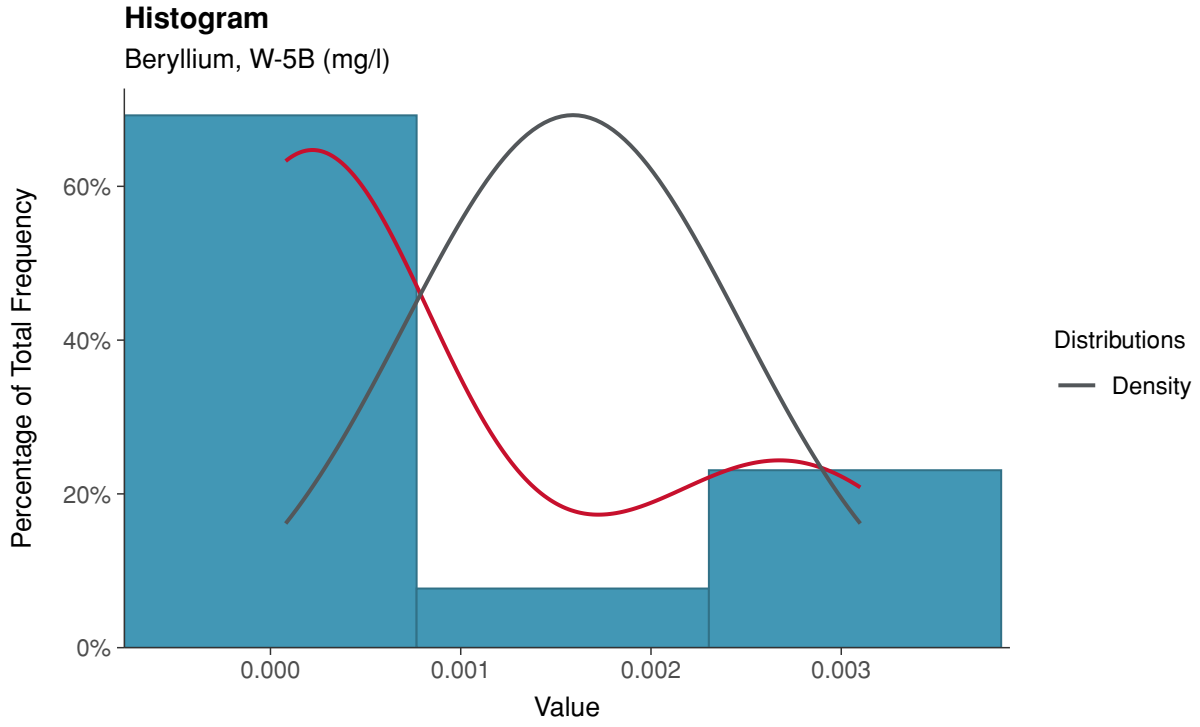
Barium, W-5B (mg/l)



Appendix IV: Beryllium, W-5B

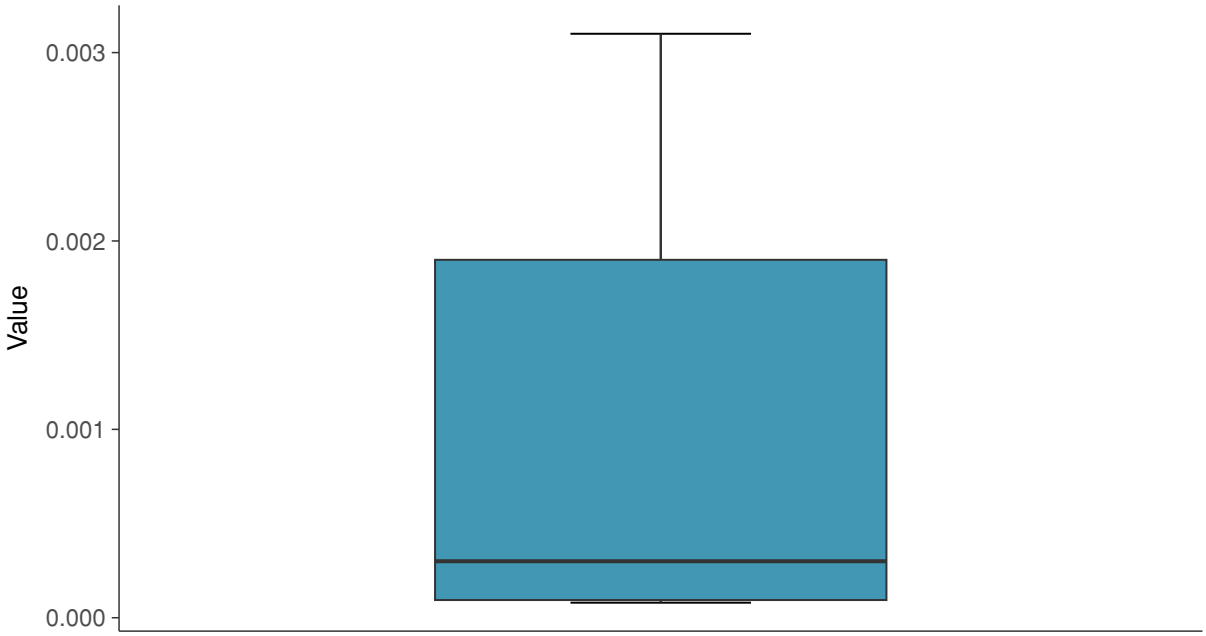
ID: 9_2_104





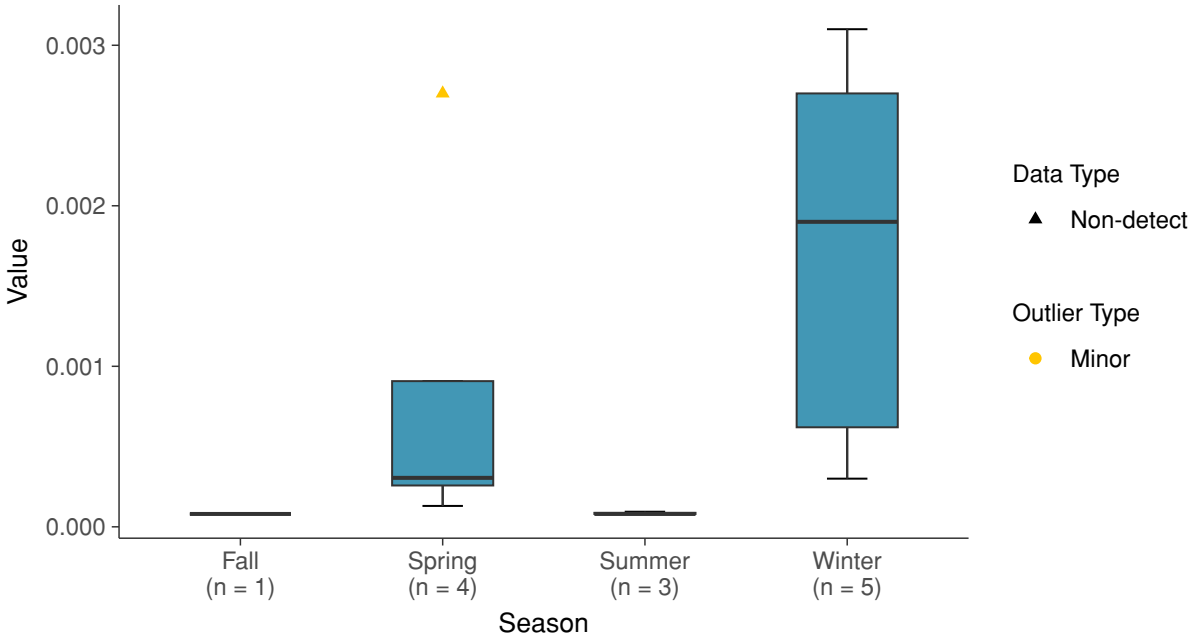
Boxplot

Beryllium, W-5B (mg/l)



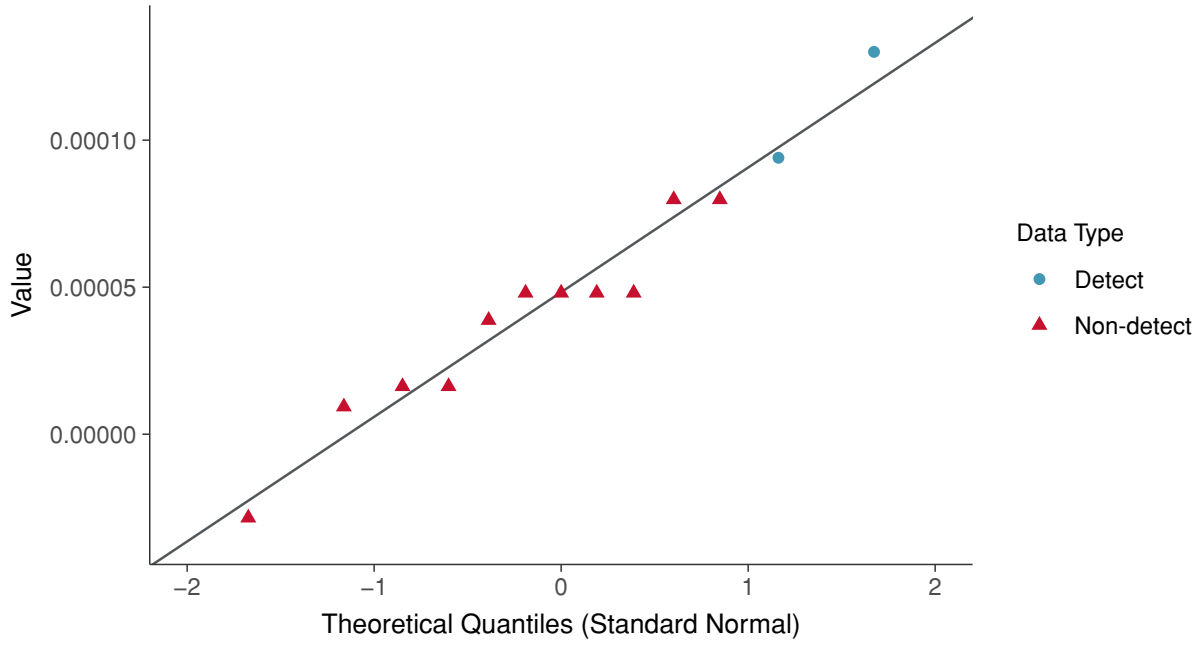
Boxplot by Season

Beryllium, W-5B (mg/l)



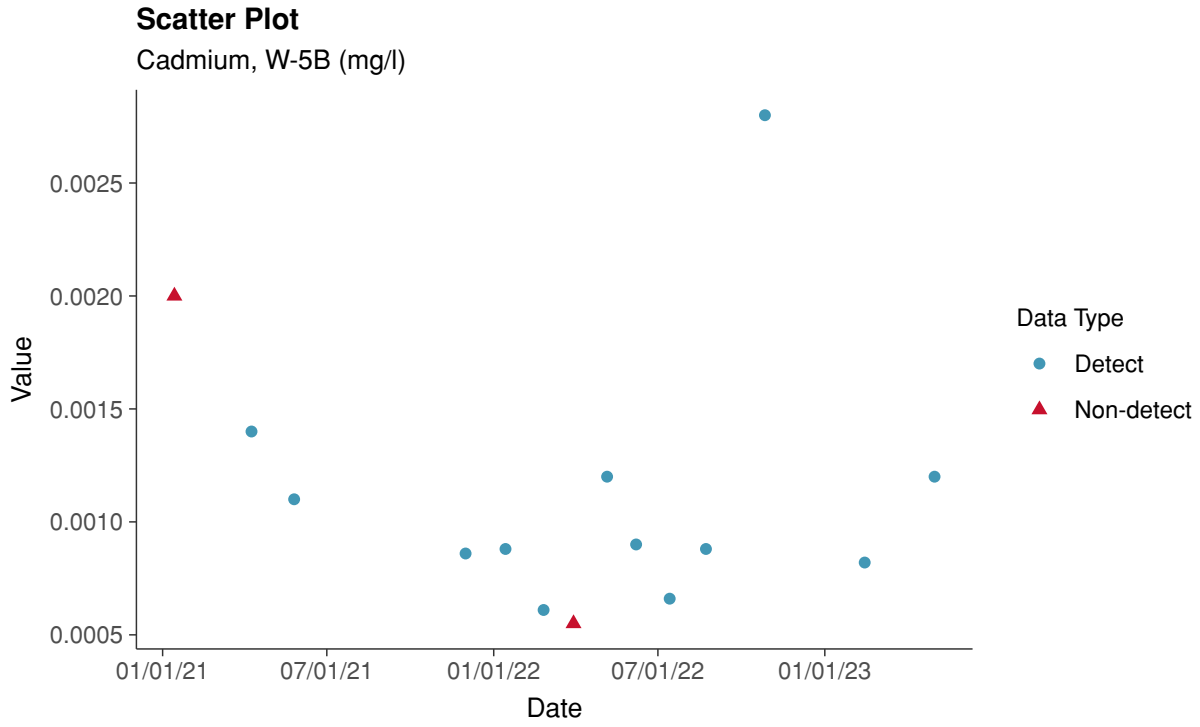
Normal Q-Q plot using ROS Imputed Estimates

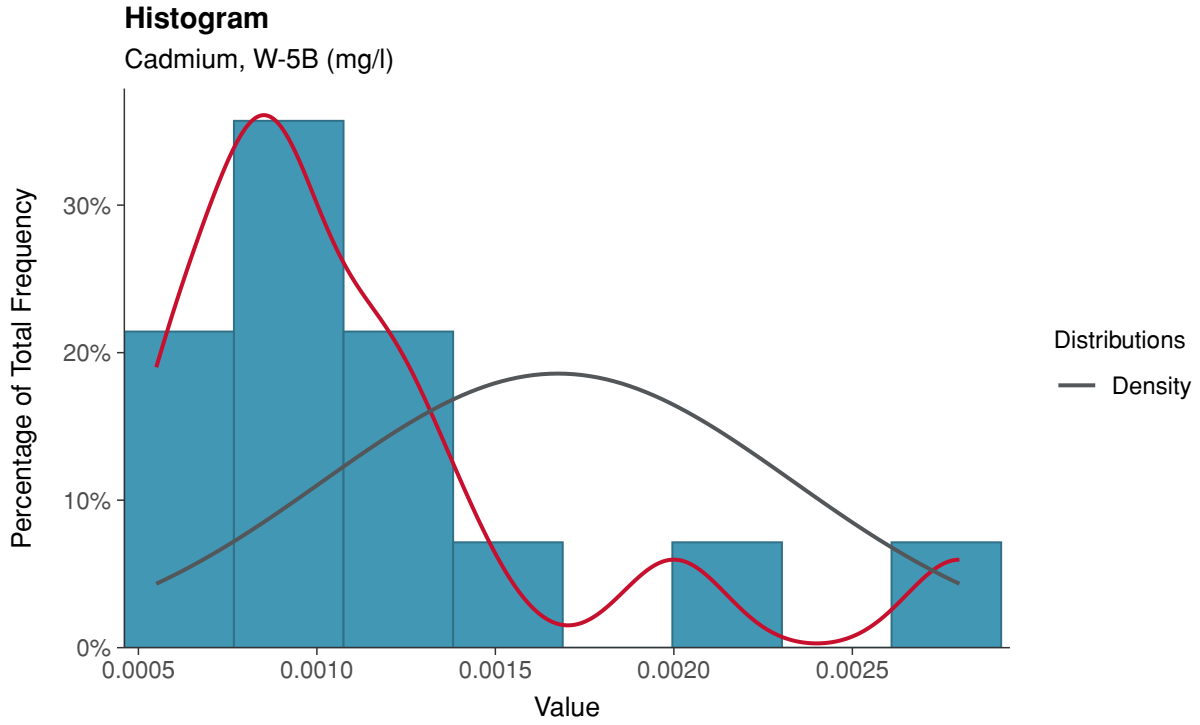
Beryllium, W-5B (mg/l)



Appendix IV: Cadmium, W-5B

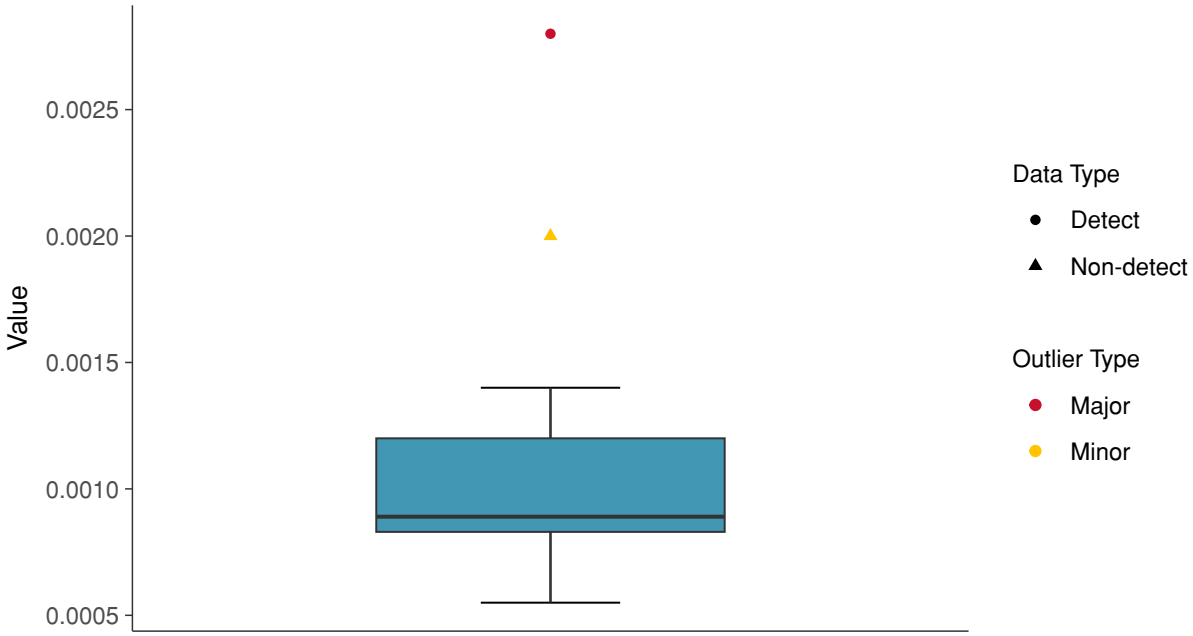
ID: 9_2_106





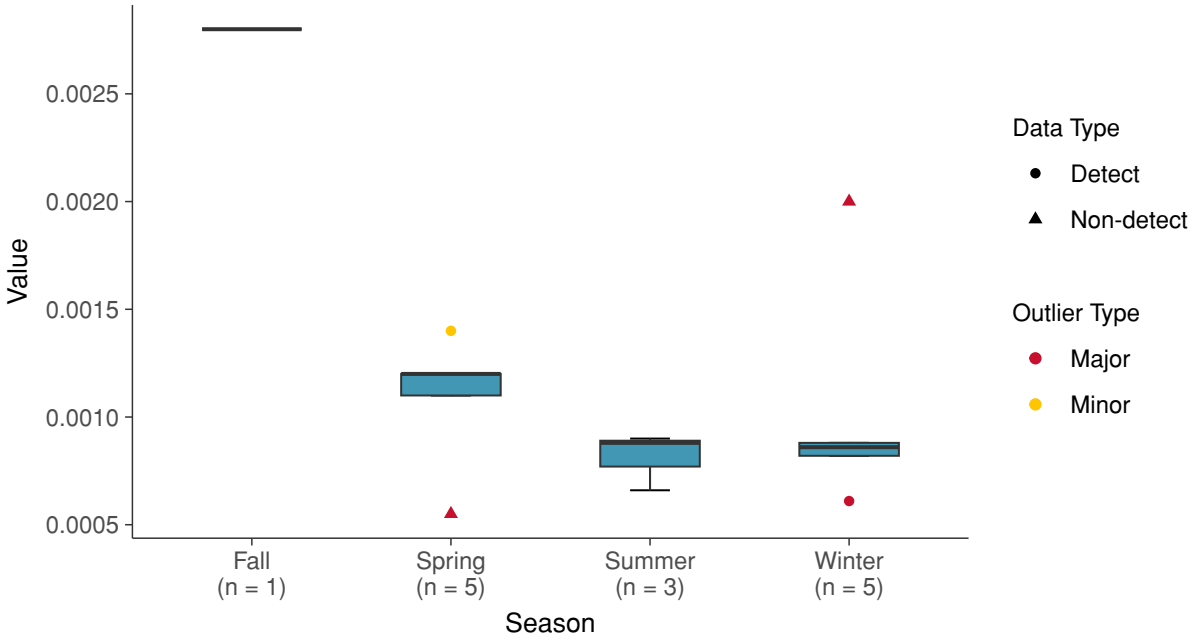
Boxplot

Cadmium, W-5B (mg/l)



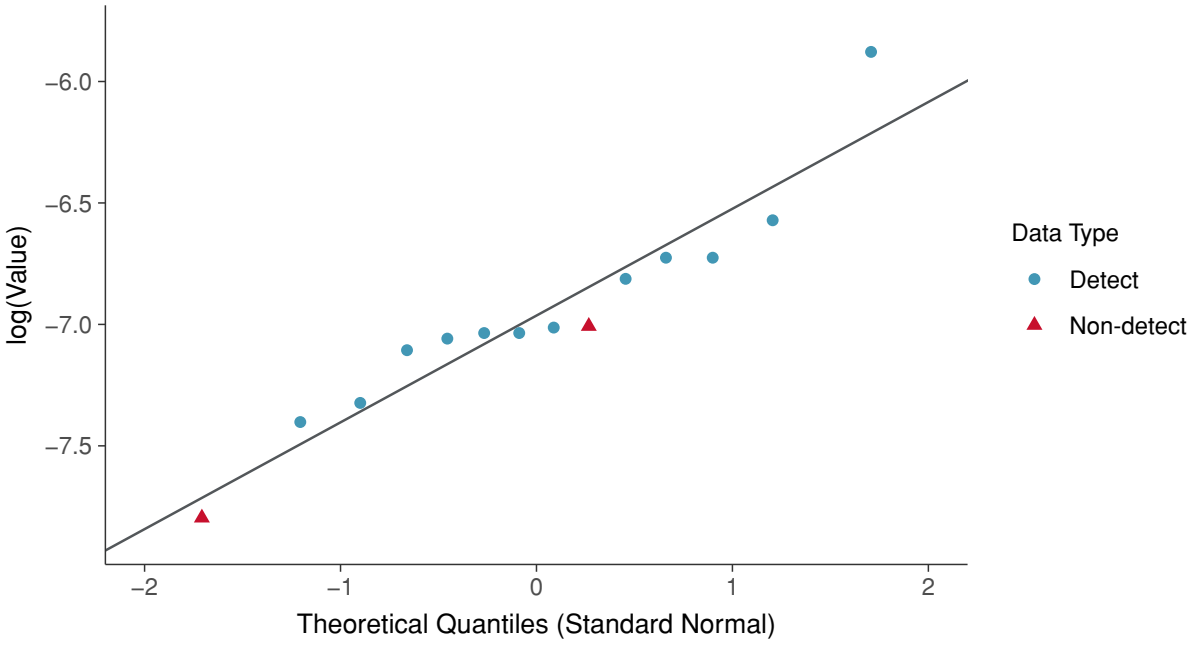
Boxplot by Season

Cadmium, W-5B (mg/l)



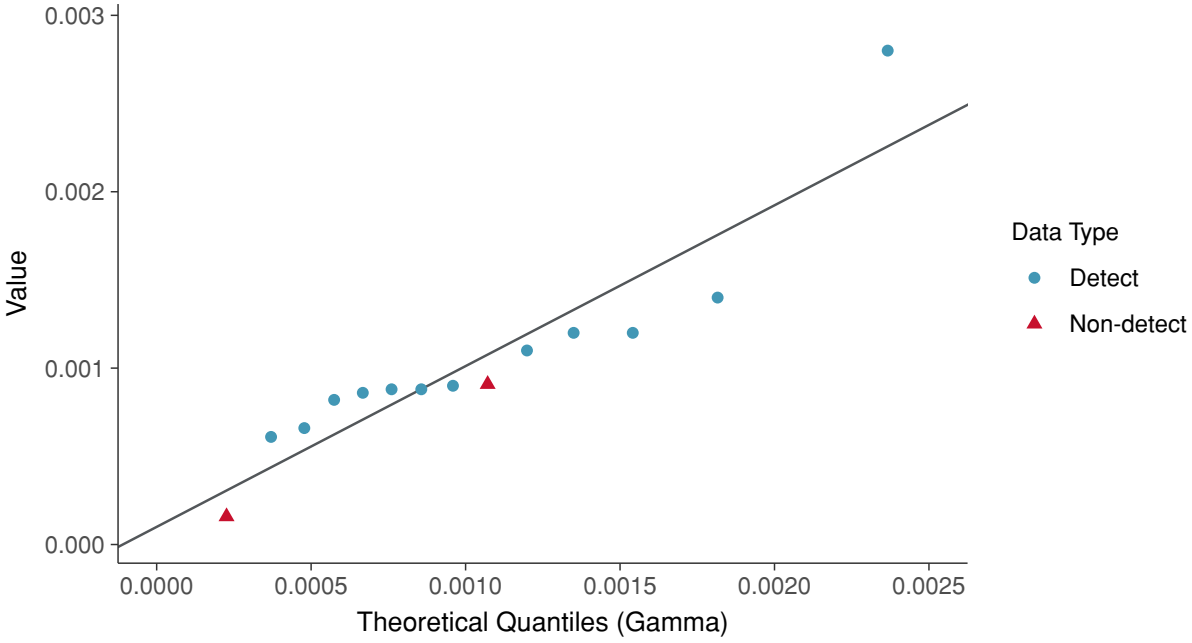
Lognormal Q-Q plot using ROS Imputed Estimates

Cadmium, W-5B (mg/l)



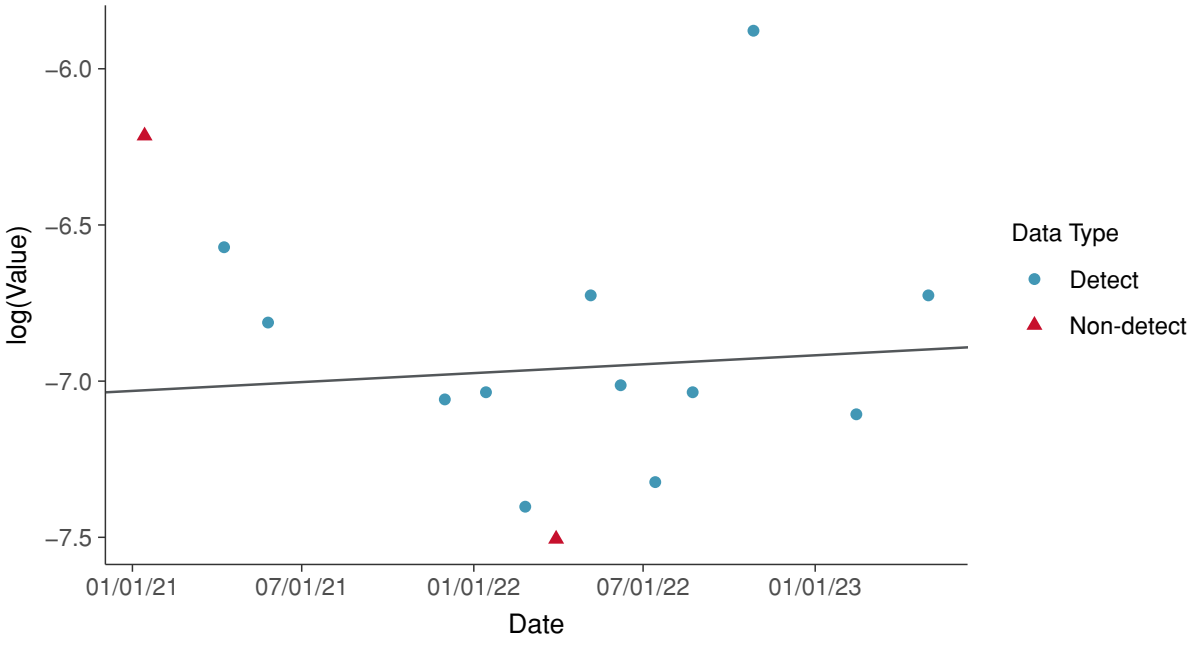
Gamma Q-Q plot using ROS Imputed Estimates

Cadmium, W-5B (mg/l)



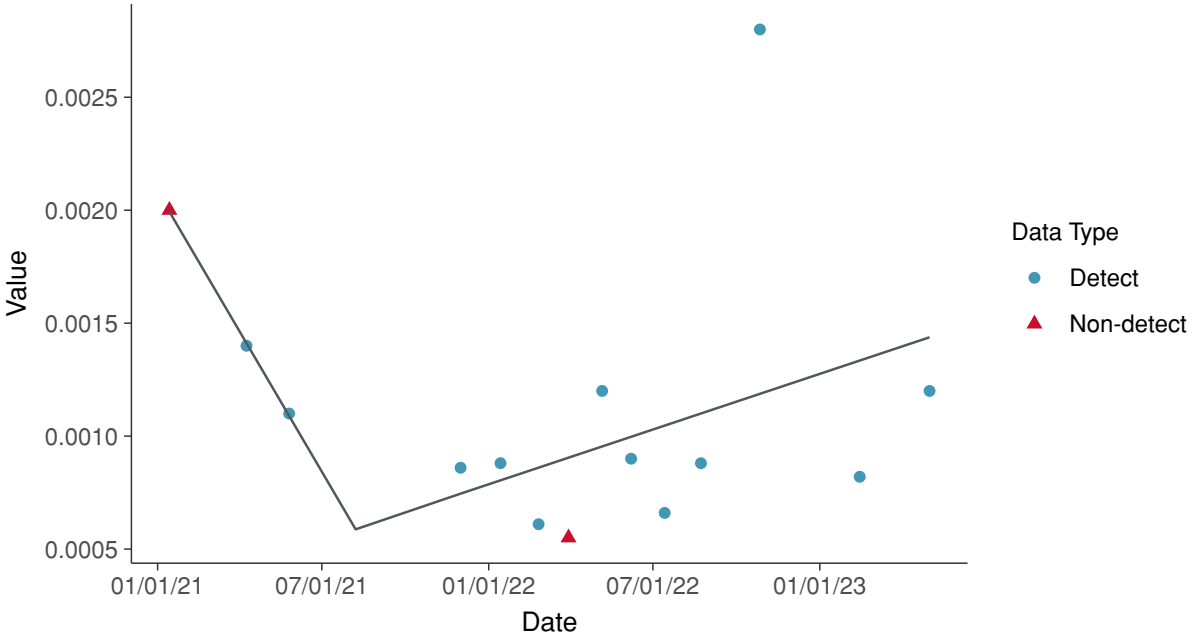
Trend Regression: Lognormal MLE

Cadmium, W-5B (mg/l)



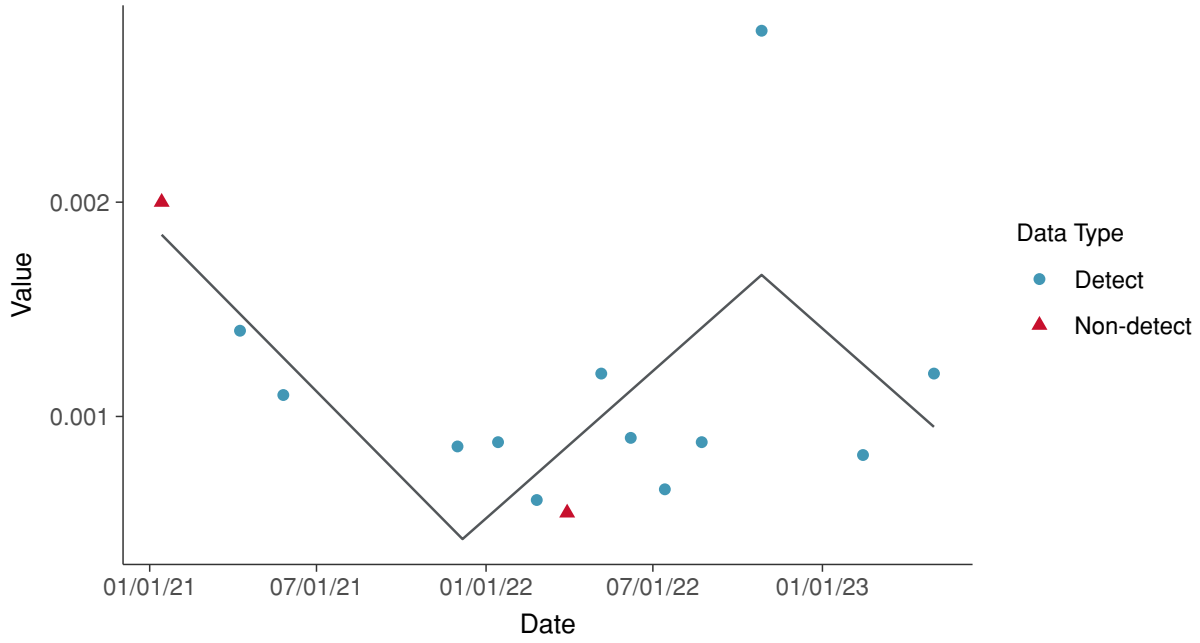
Trend Regression: Piecewise Linear-Linear

Cadmium, W-5B (mg/l)



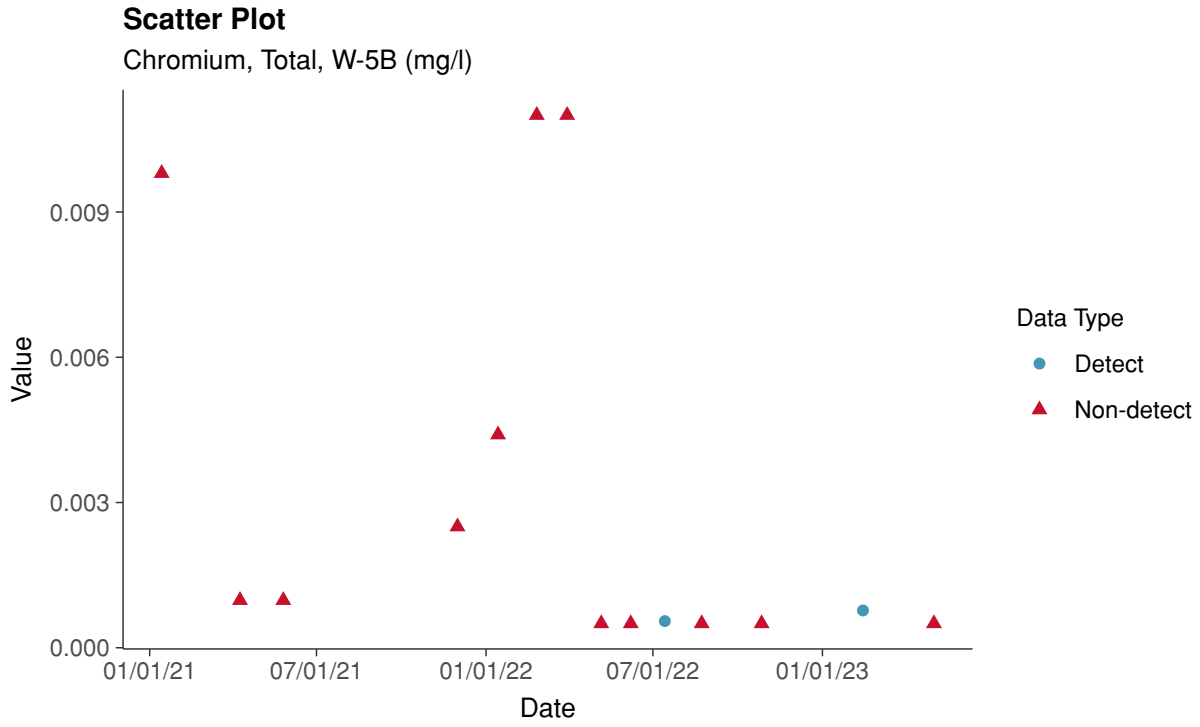
Trend Regression: Piecewise Linear-Linear-Linear

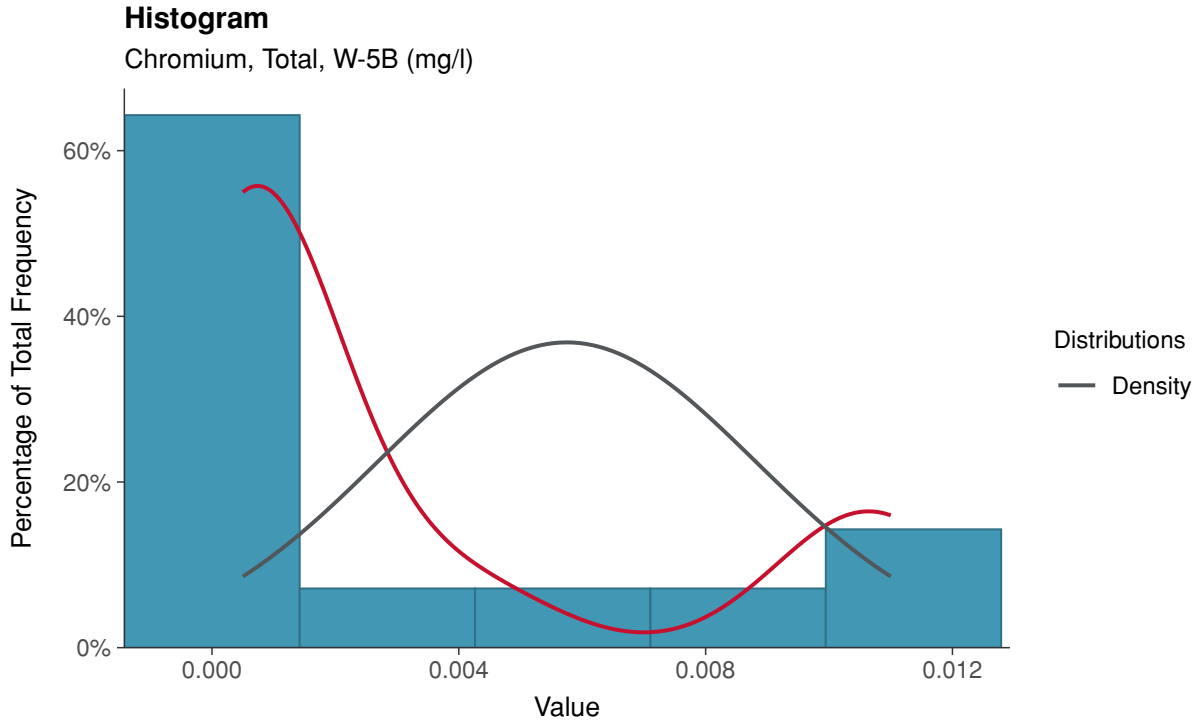
Cadmium, W-5B (mg/l)



Appendix IV: Chromium, Total, W-5B

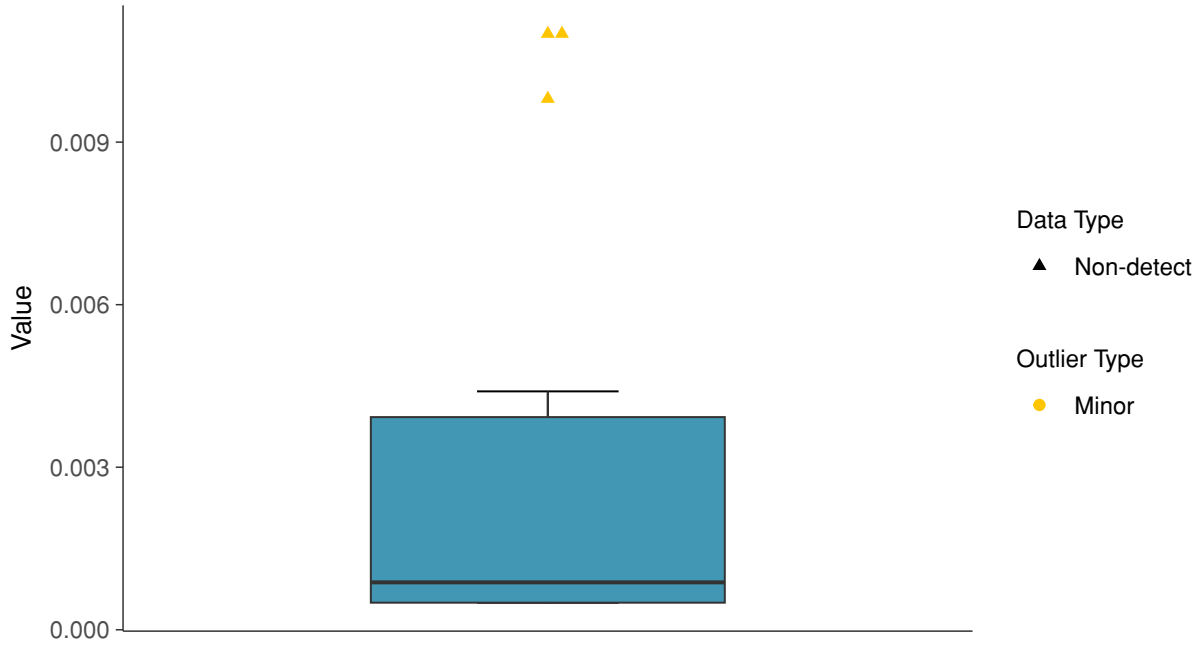
ID: 9_2_109





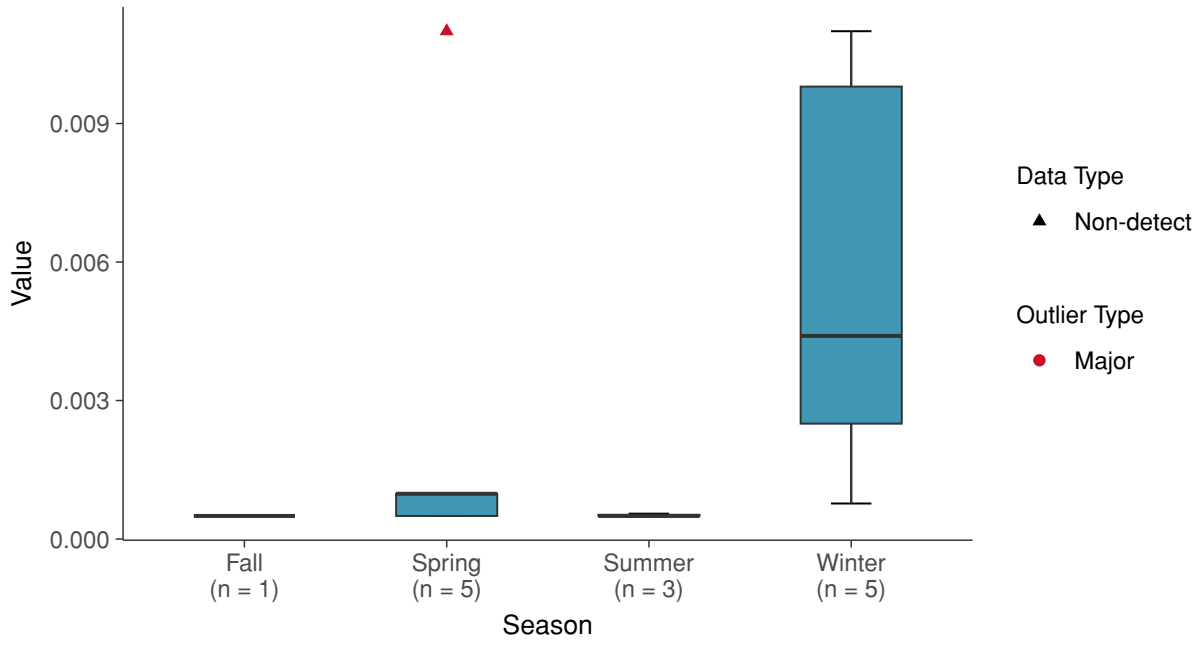
Boxplot

Chromium, Total, W-5B (mg/l)



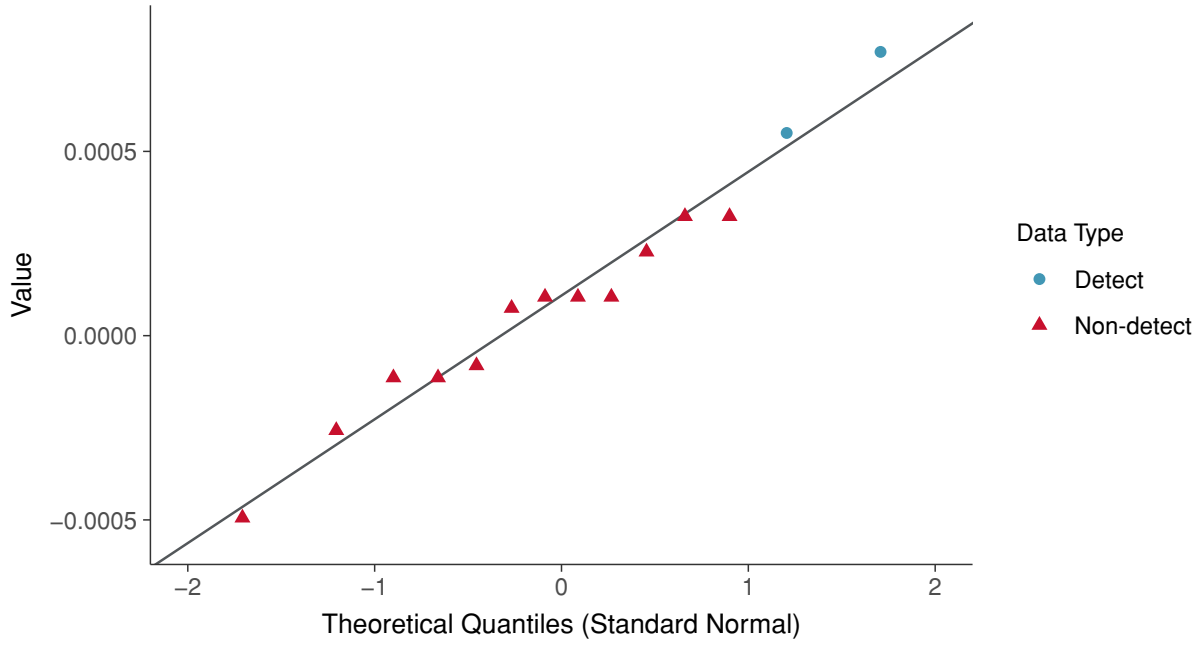
Boxplot by Season

Chromium, Total, W-5B (mg/l)



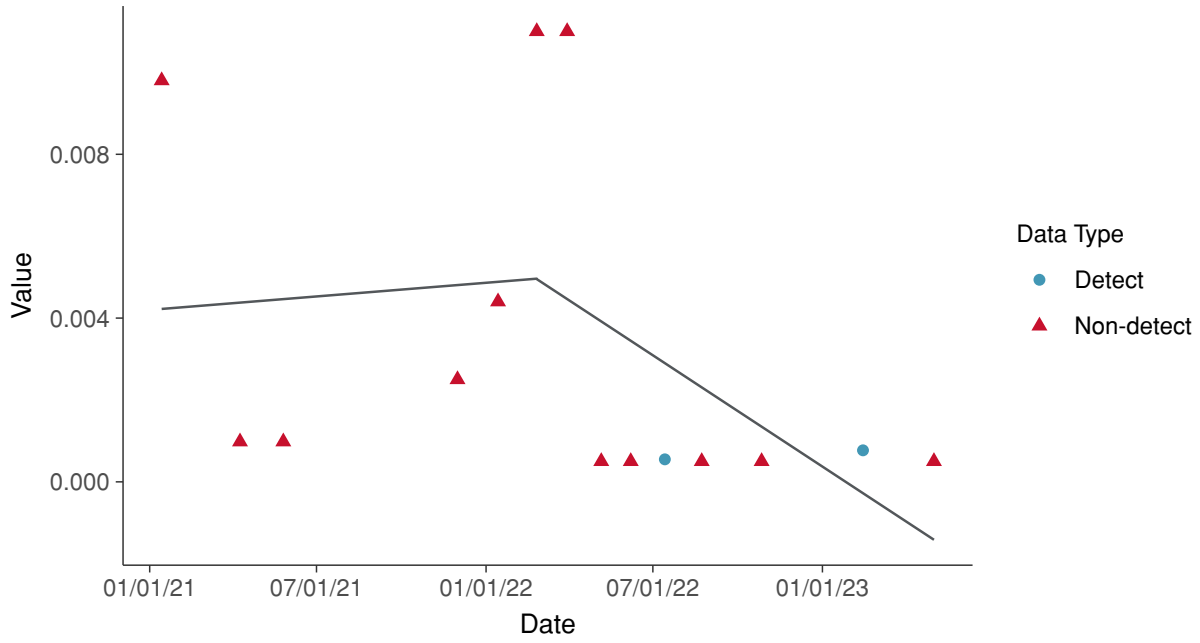
Normal Q-Q plot using ROS Imputed Estimates

Chromium, Total, W-5B (mg/l)



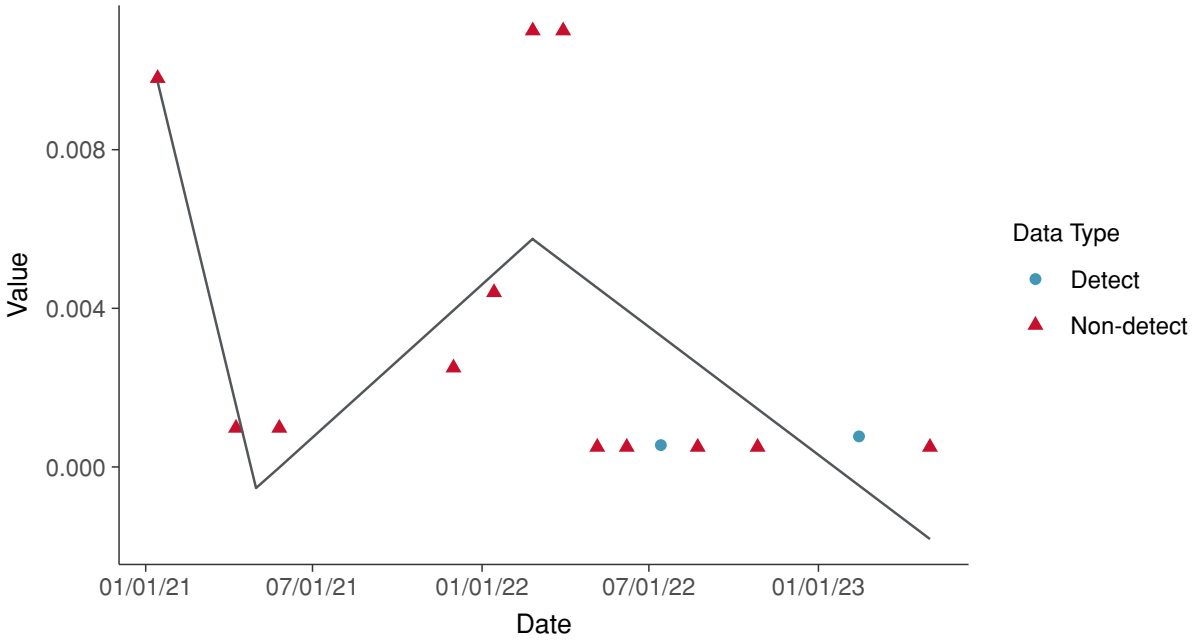
Trend Regression: Piecewise Linear-Linear

Chromium, Total, W-5B (mg/l)



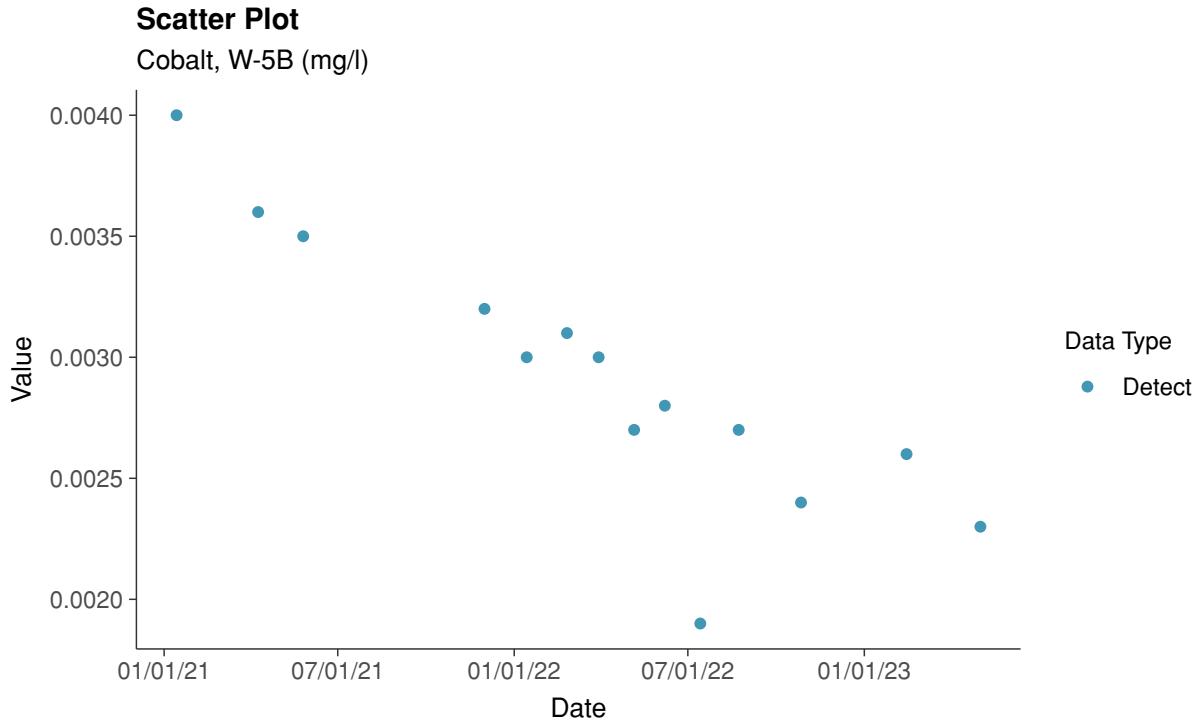
Trend Regression: Piecewise Linear-Linear-Linear

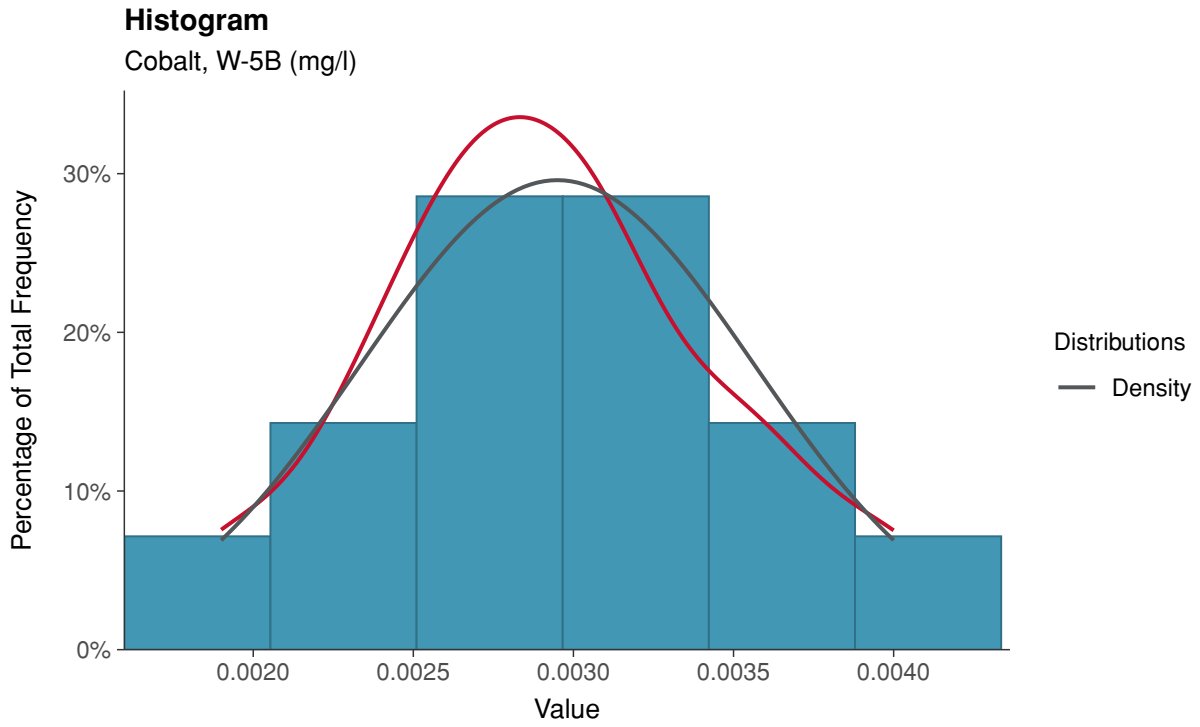
Chromium, Total, W-5B (mg/l)



Appendix IV: Cobalt, W-5B

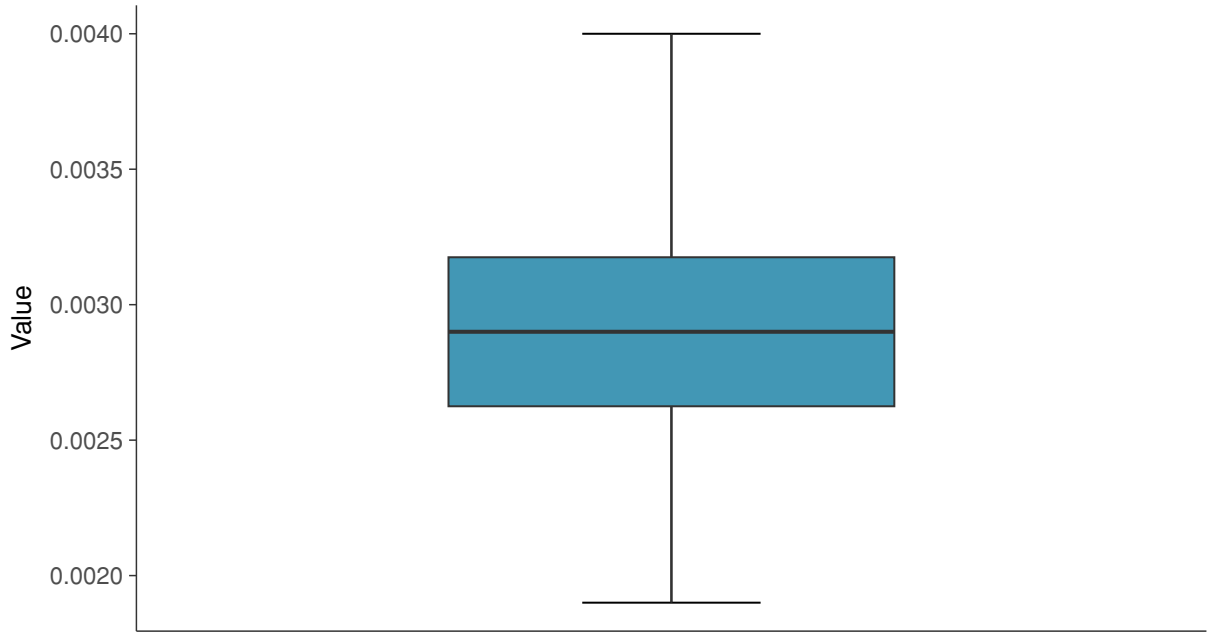
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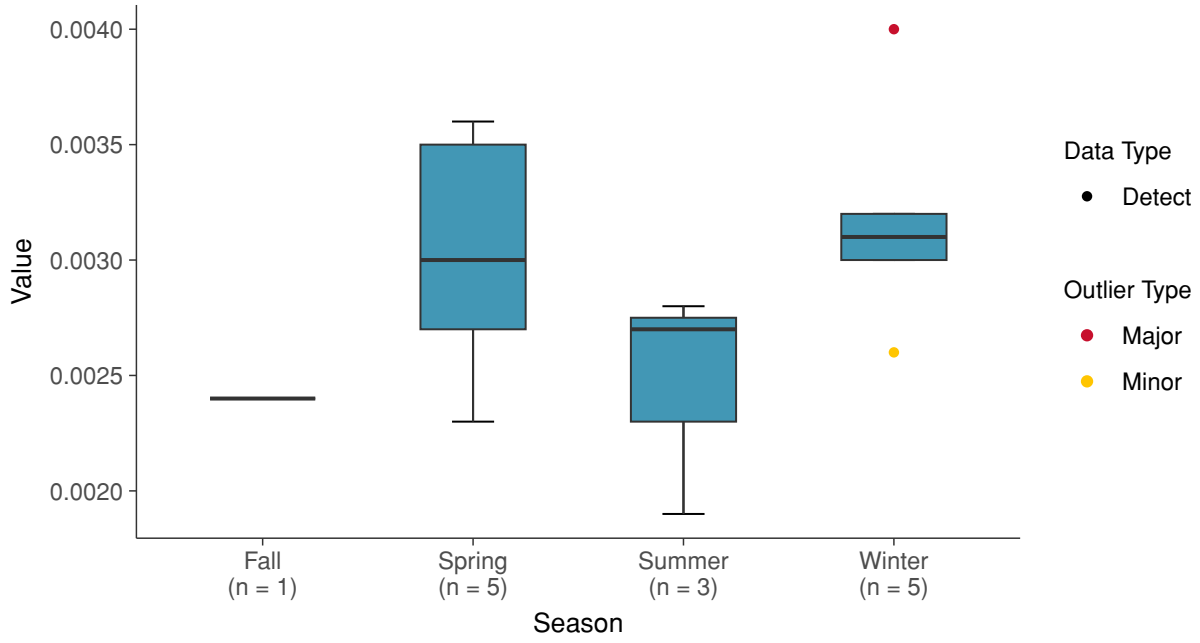
Boxplot

Cobalt, W-5B (mg/l)



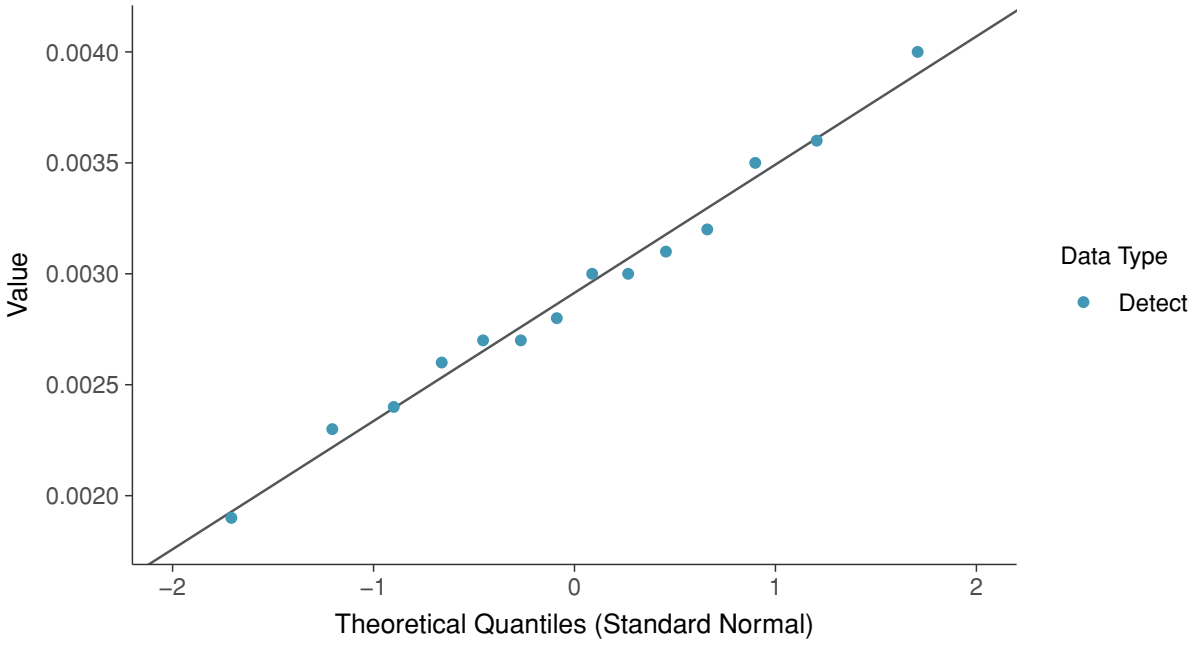
Boxplot by Season

Cobalt, W-5B (mg/l)



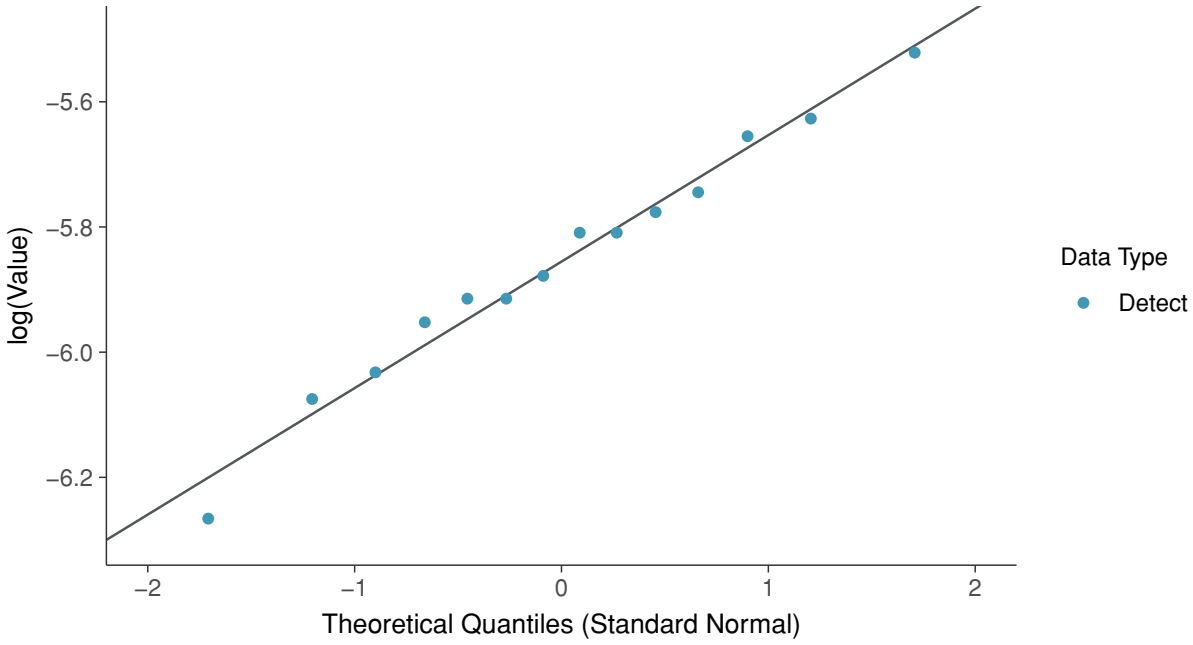
Normal Q-Q plot

Cobalt, W-5B (mg/l)



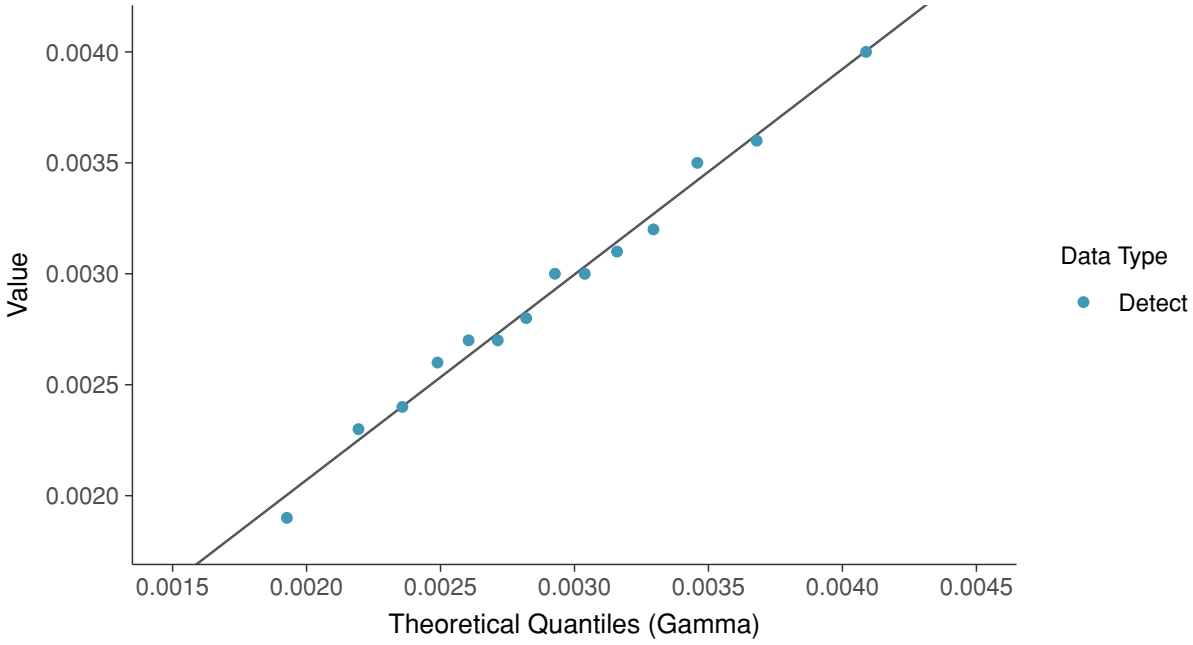
Lognormal Q-Q plot

Cobalt, W-5B (mg/l)



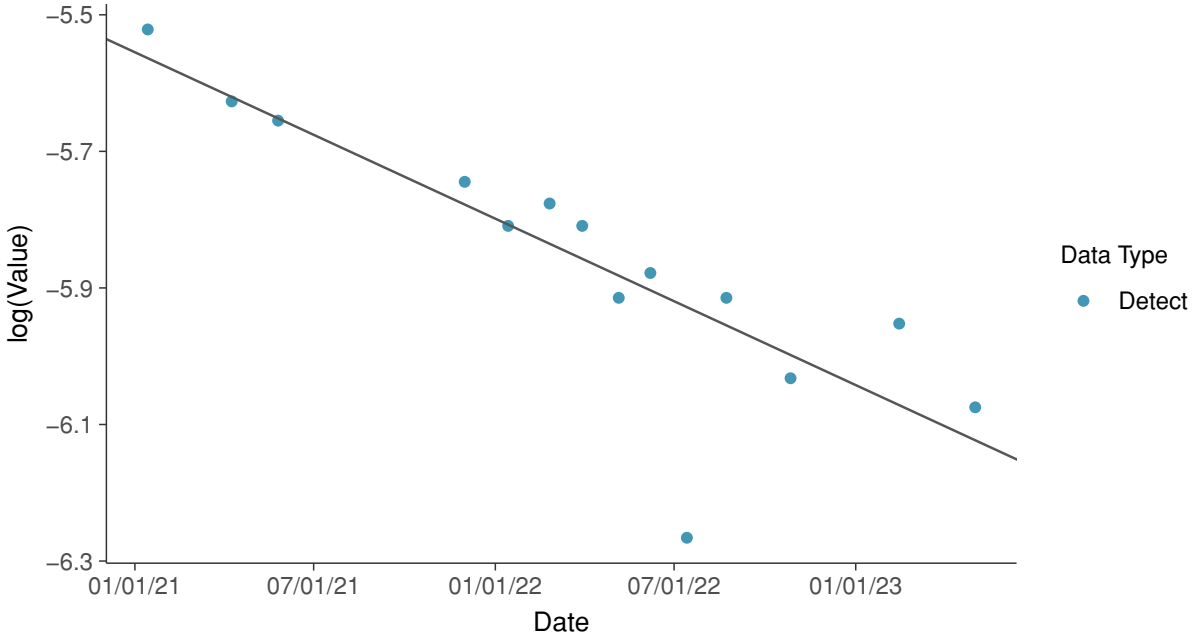
Gamma Q-Q plot

Cobalt, W-5B (mg/l)



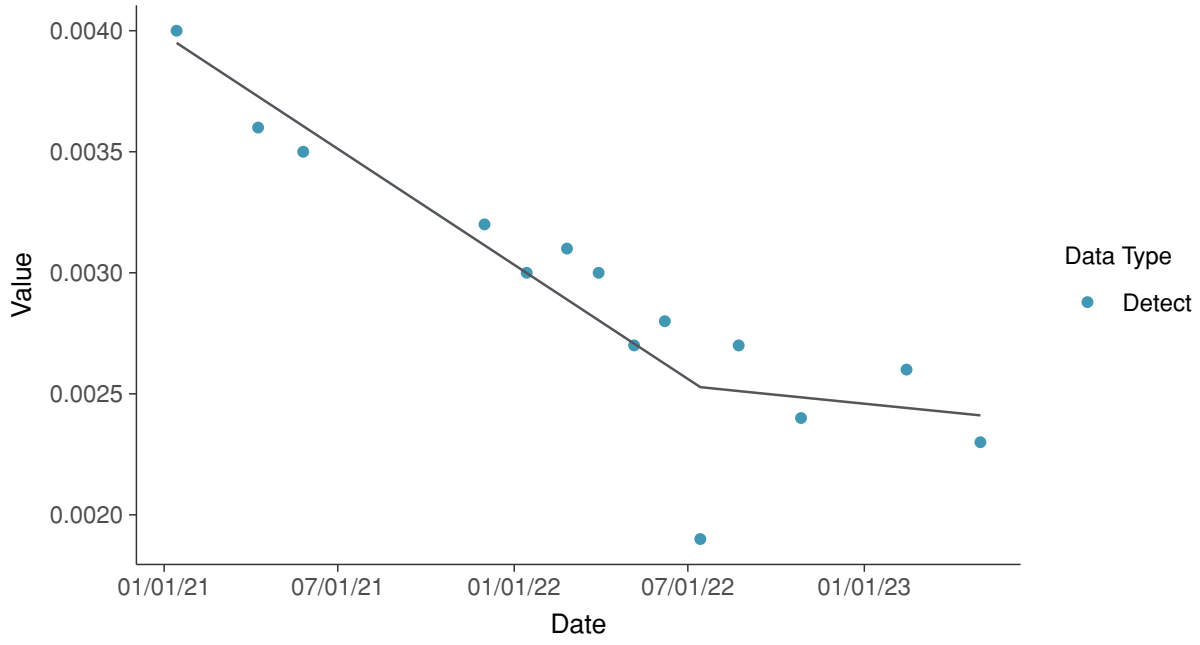
Trend Regression: Lognormal MLE

Cobalt, W-5B (mg/l)



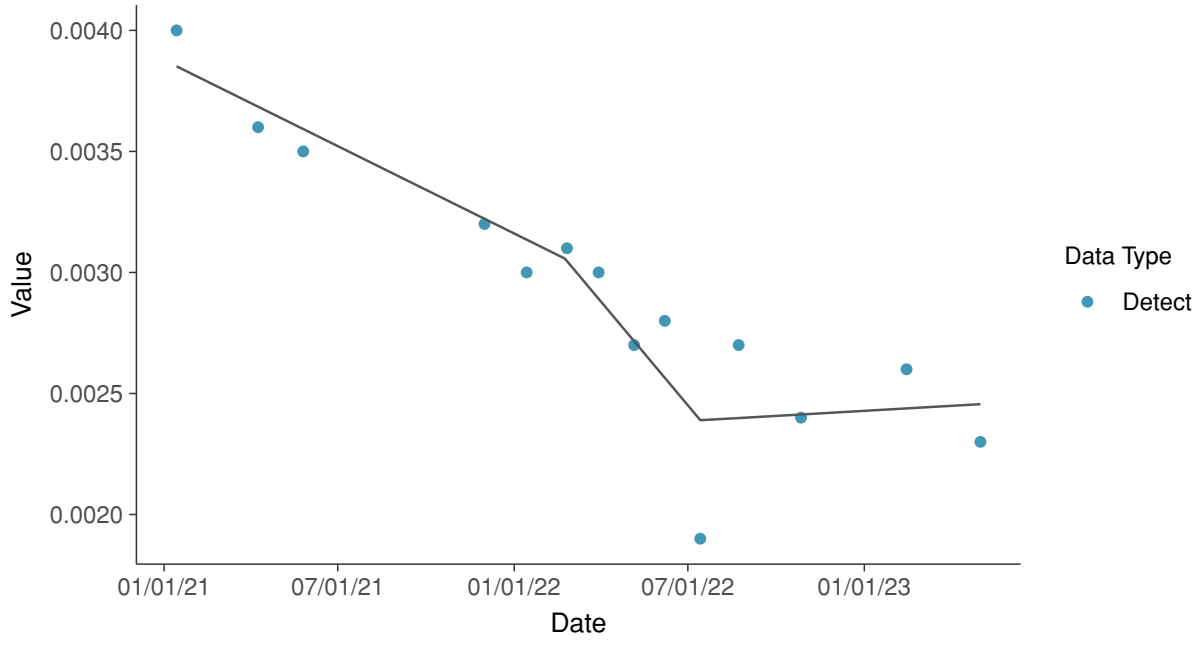
Trend Regression: Piecewise Linear-Linear

Cobalt, W-5B (mg/l)



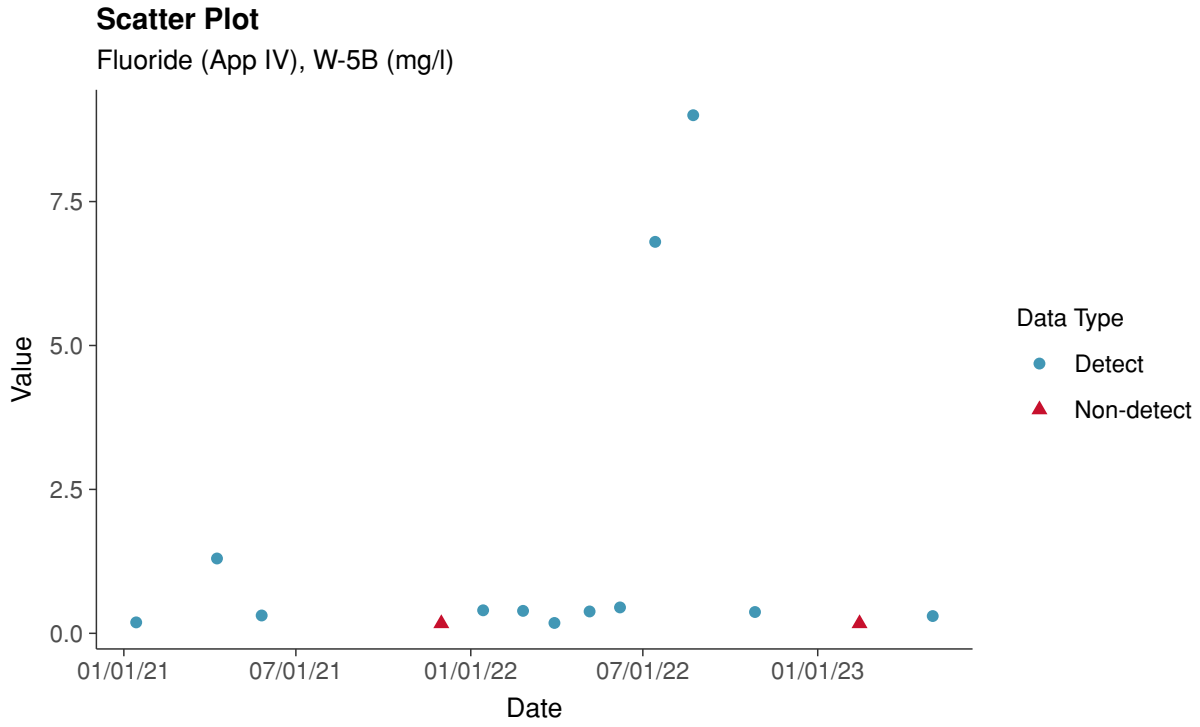
Trend Regression: Piecewise Linear-Linear-Linear

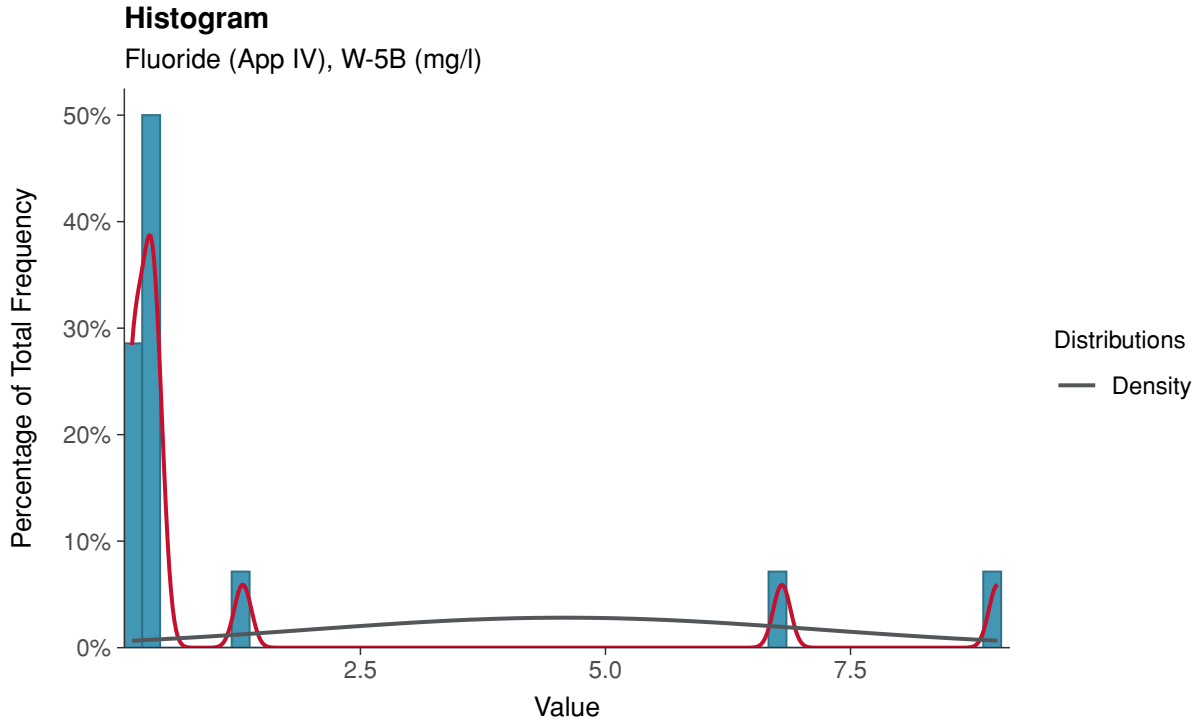
Cobalt, W-5B (mg/l)



Appendix IV: Fluoride (App IV), W-5B

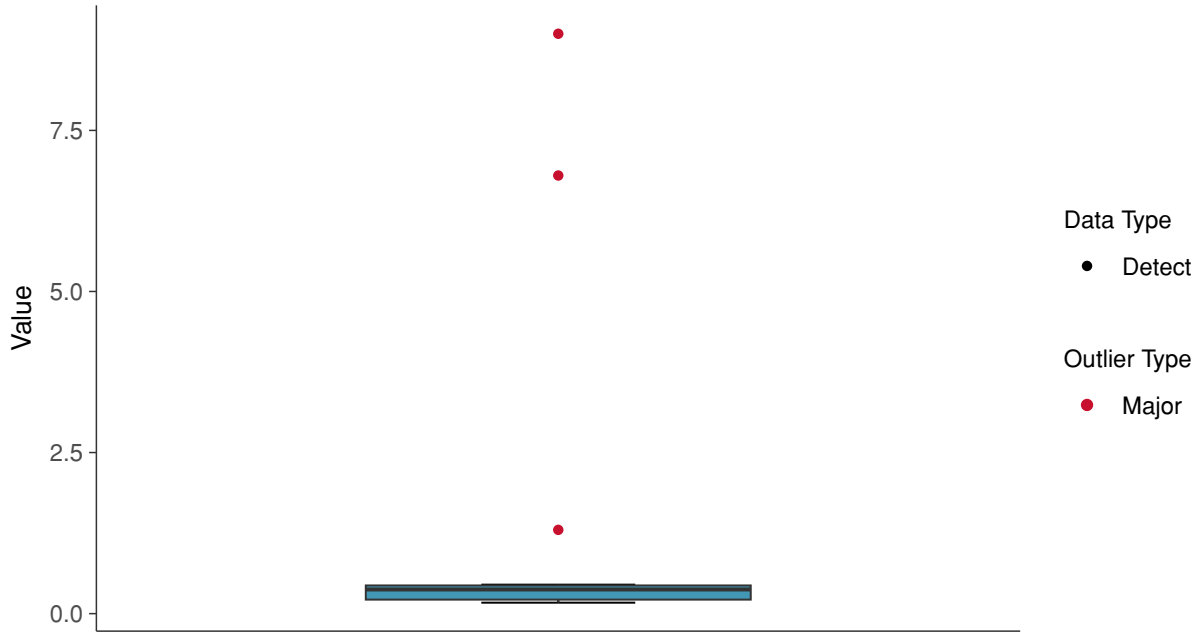
ID: 9_2_112





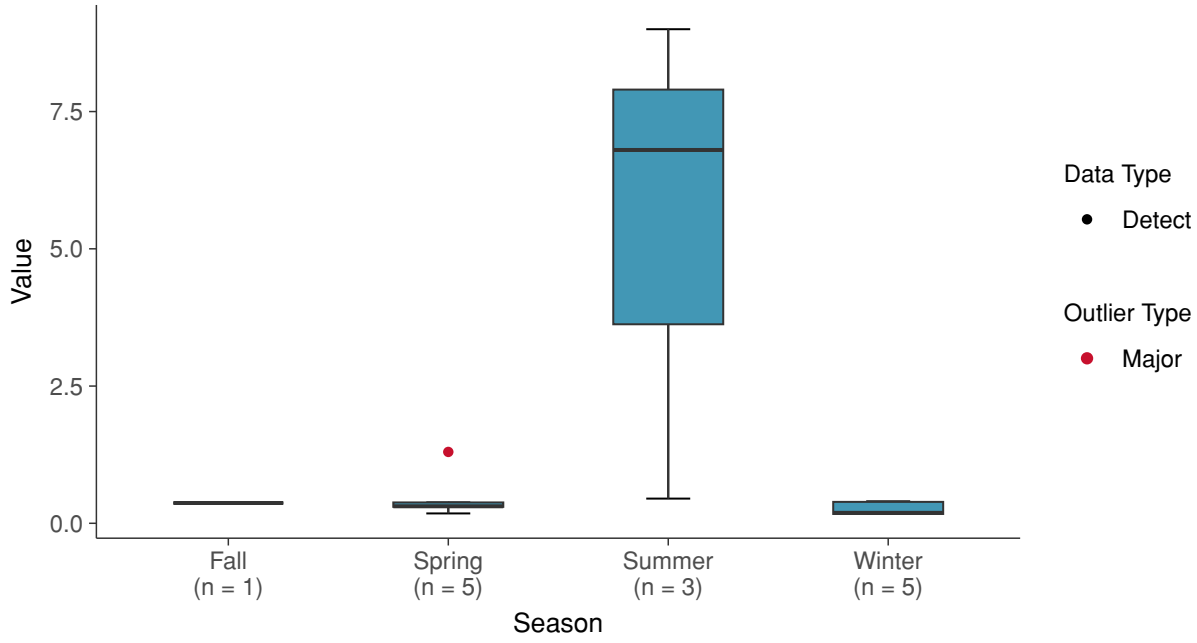
Boxplot

Fluoride (App IV), W-5B (mg/l)



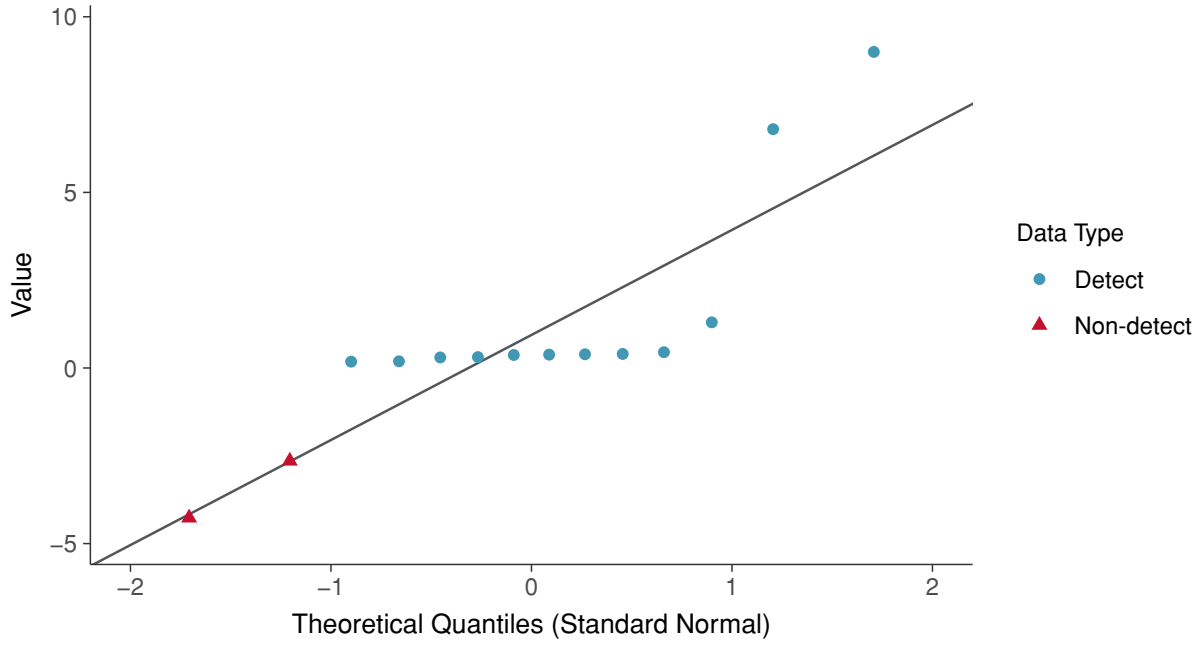
Boxplot by Season

Fluoride (App IV), W-5B (mg/l)



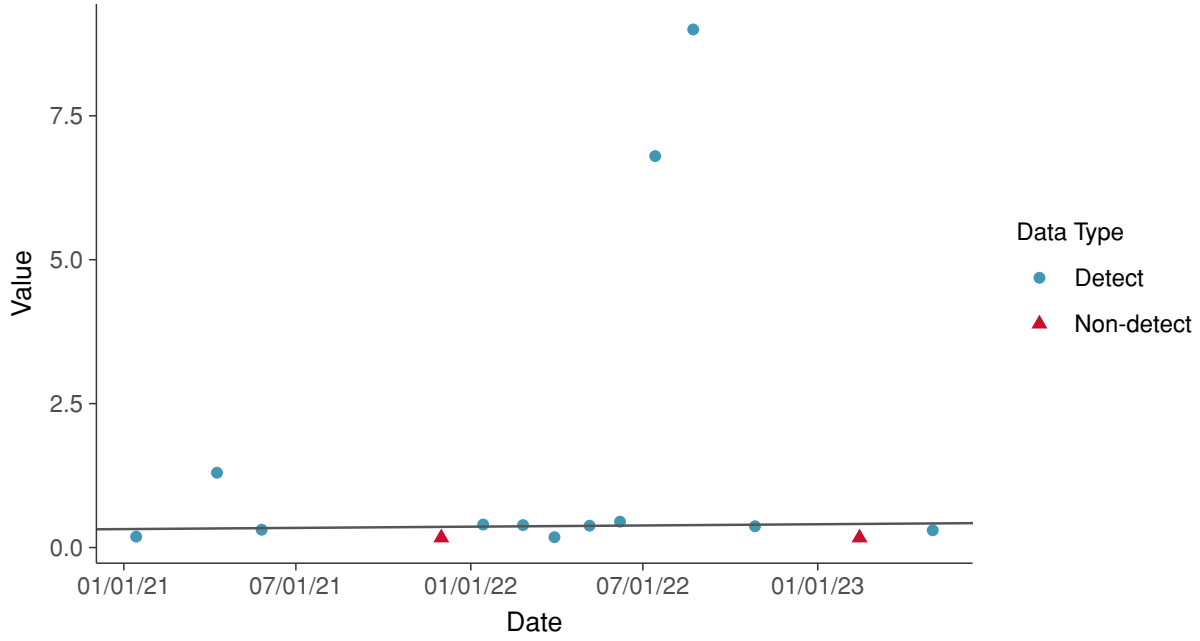
Normal Q-Q plot using ROS Imputed Estimates

Fluoride (App IV), W-5B (mg/l)



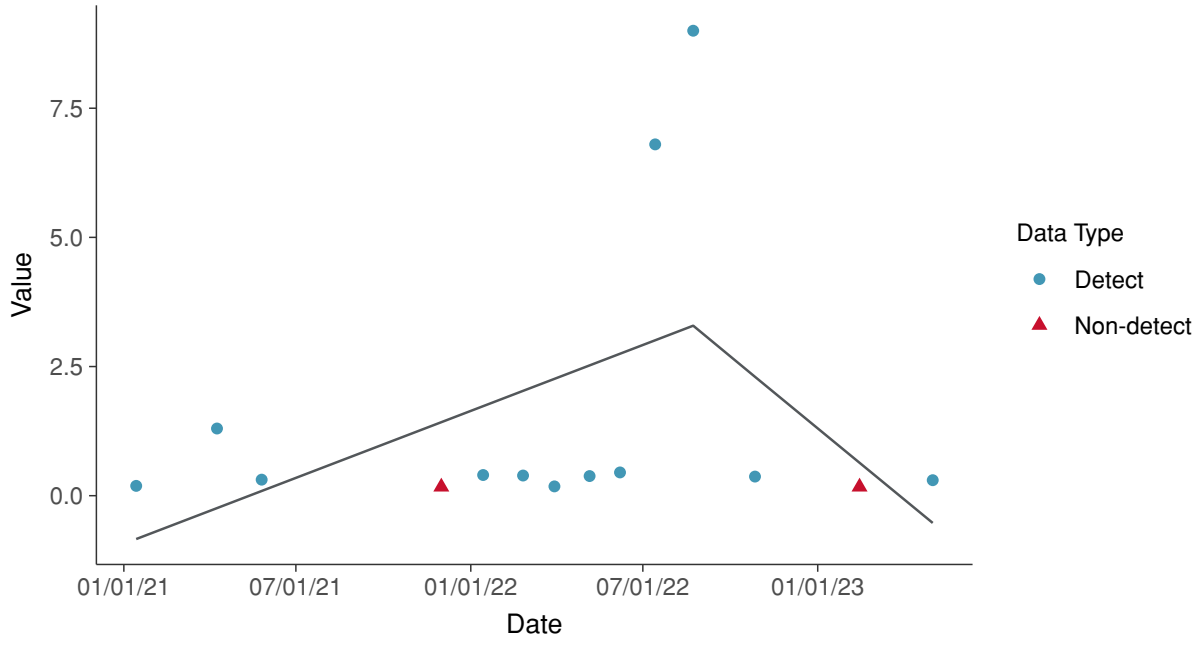
Trend Regression: Mann-Kendall/Theil-Sen Estimate

Fluoride (App IV), W-5B (mg/l)



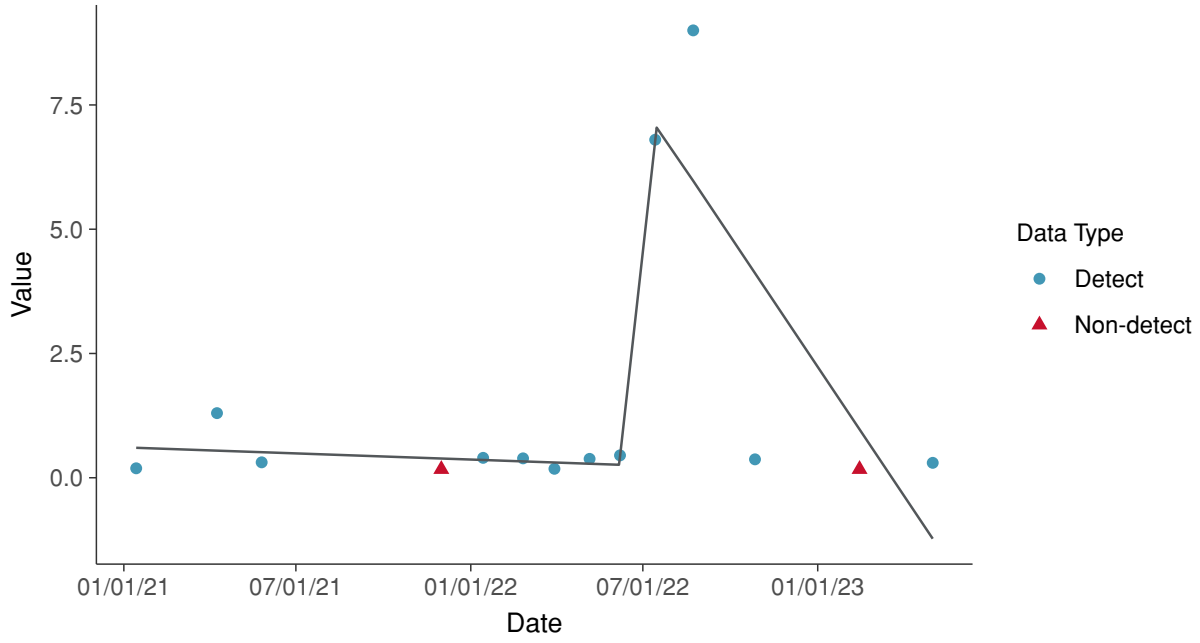
Trend Regression: Piecewise Linear-Linear

Fluoride (App IV), W-5B (mg/l)



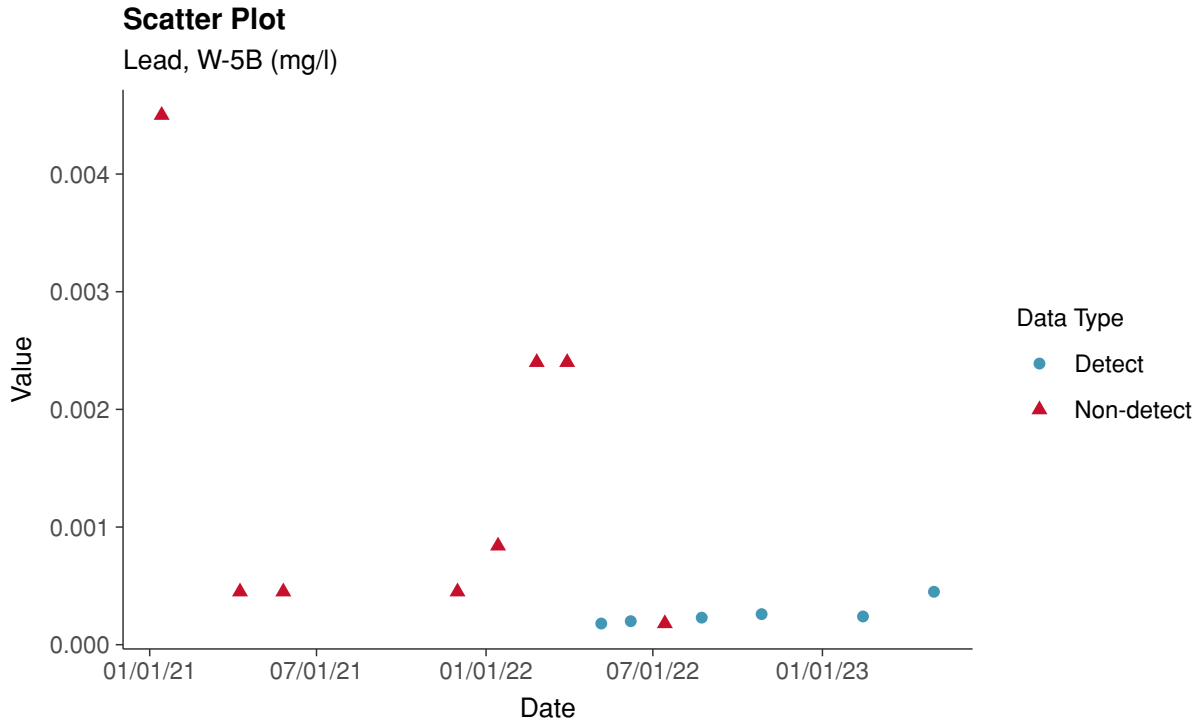
Trend Regression: Piecewise Linear-Linear-Linear

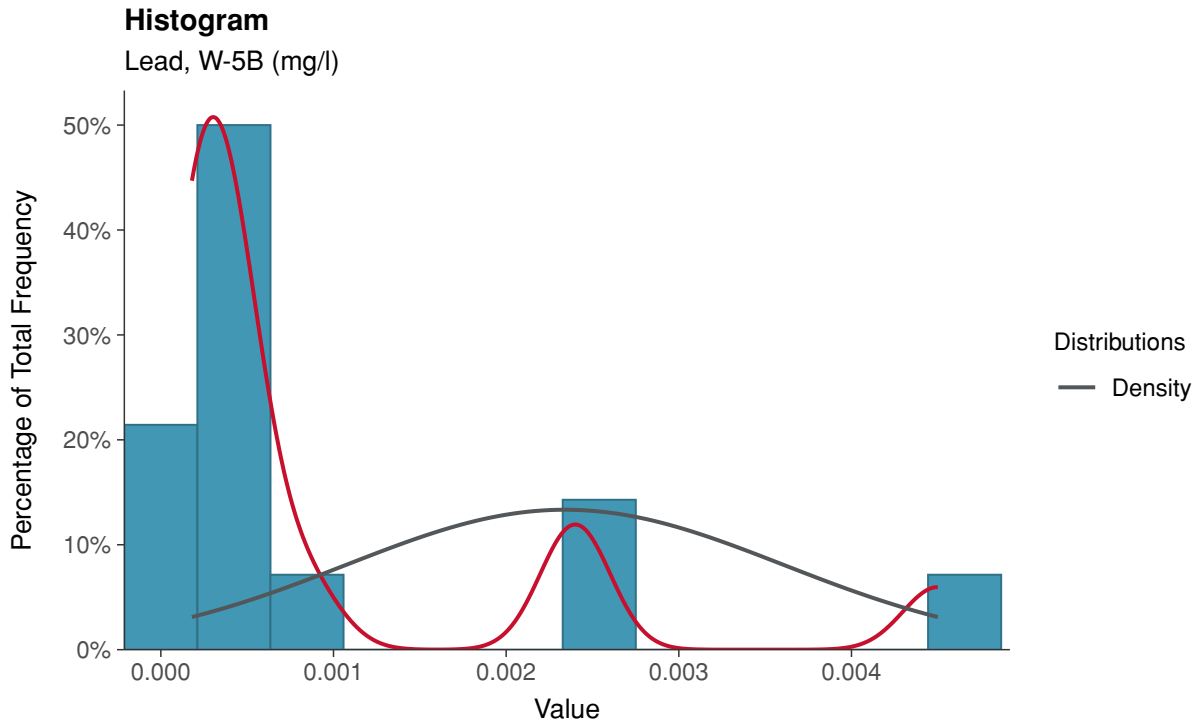
Fluoride (App IV), W-5B (mg/l)



Appendix IV: Lead, W-5B

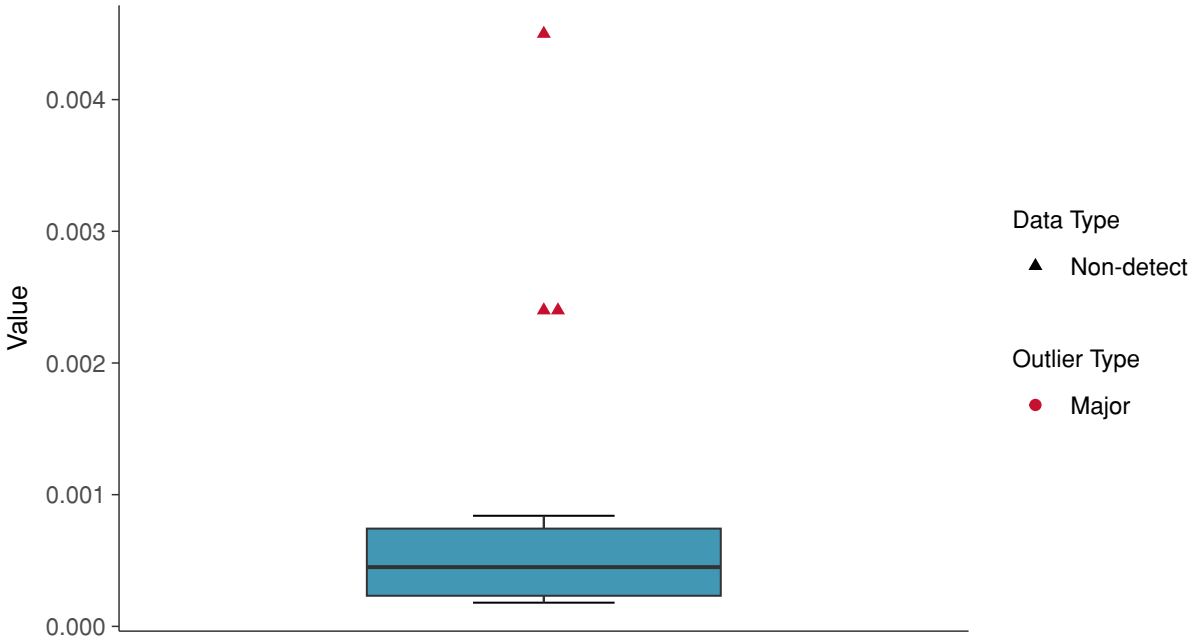
ID: 9_2_113





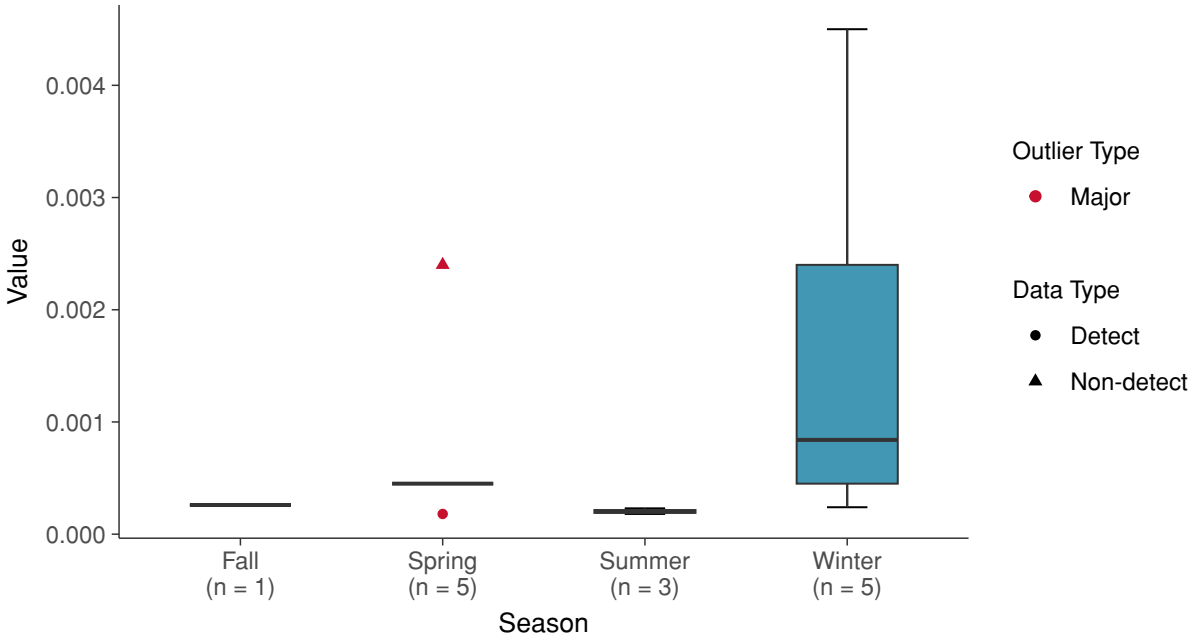
Boxplot

Lead, W-5B (mg/l)



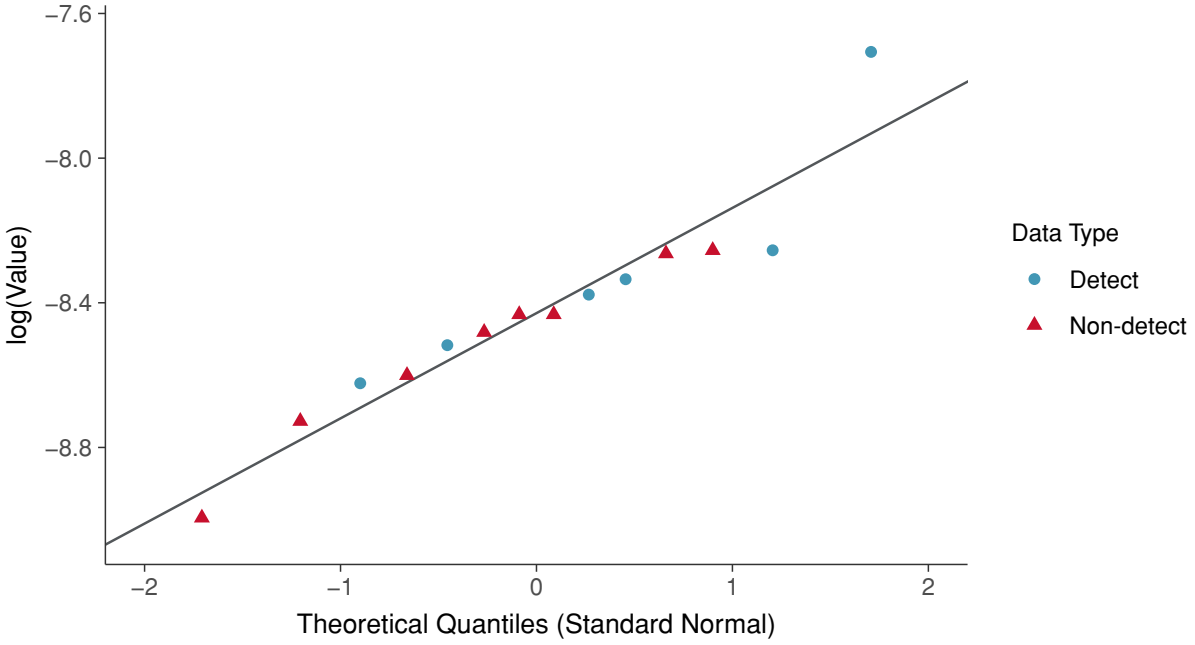
Boxplot by Season

Lead, W-5B (mg/l)



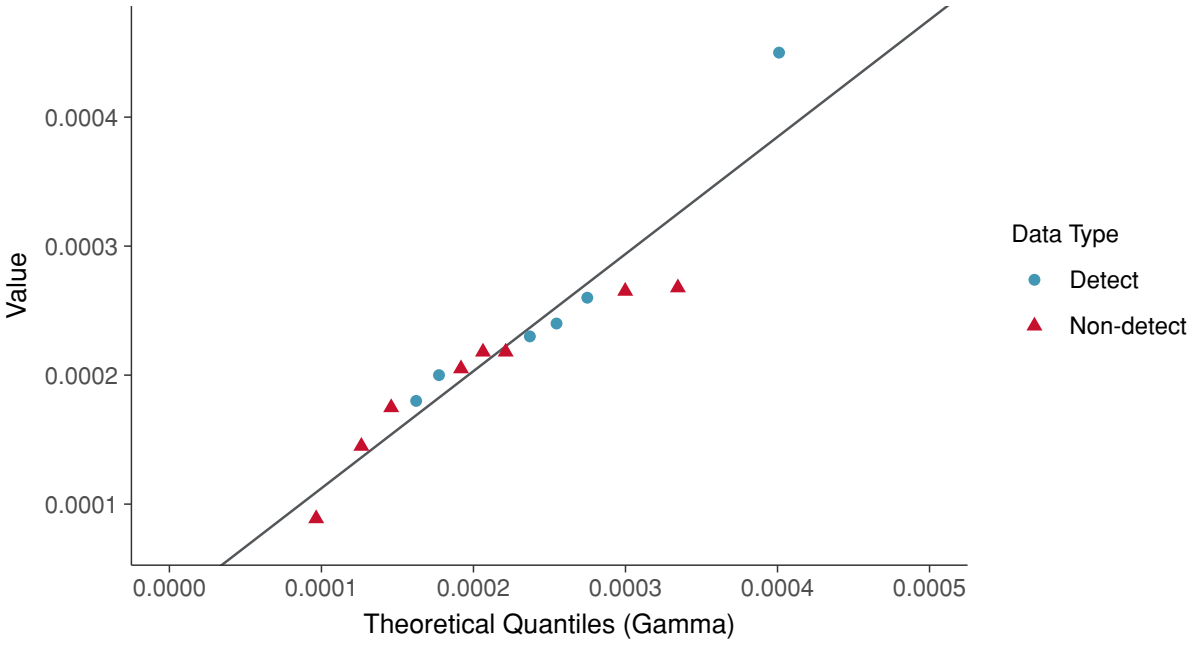
Lognormal Q-Q plot using ROS Imputed Estimates

Lead, W-5B (mg/l)



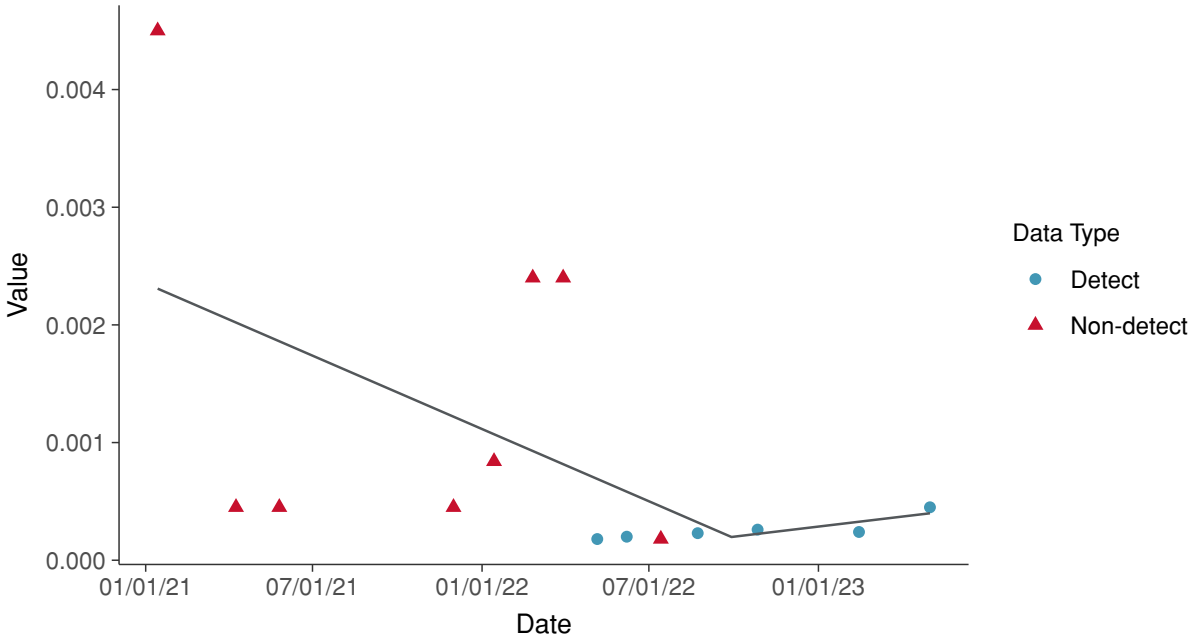
Gamma Q-Q plot using ROS Imputed Estimates

Lead, W-5B (mg/l)



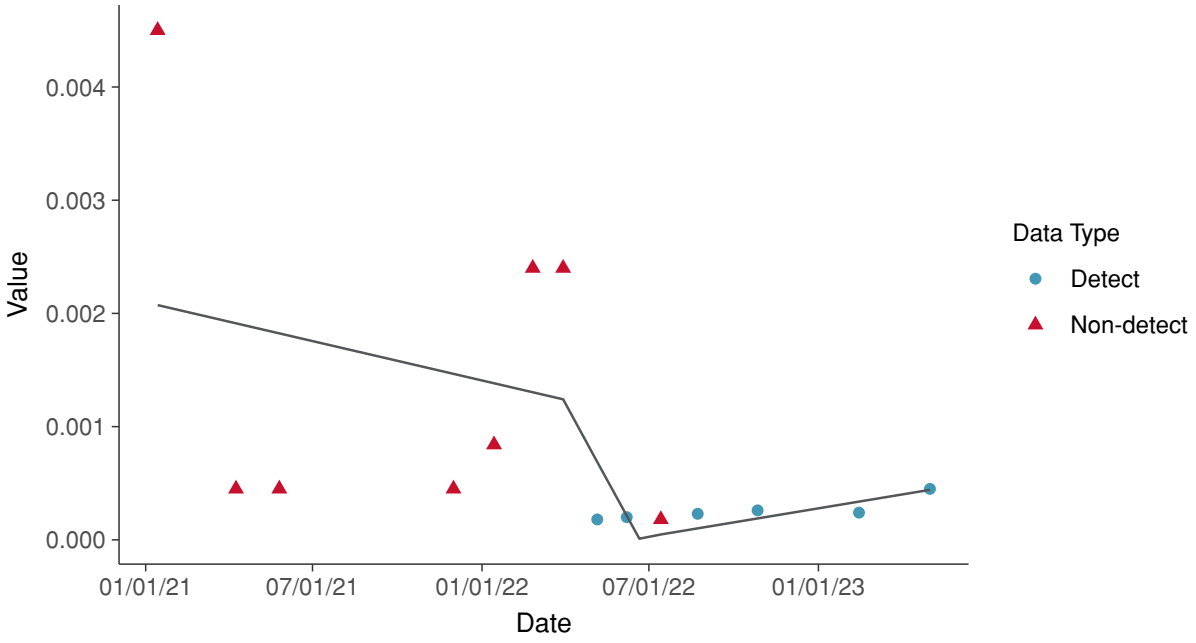
Trend Regression: Piecewise Linear-Linear

Lead, W-5B (mg/l)



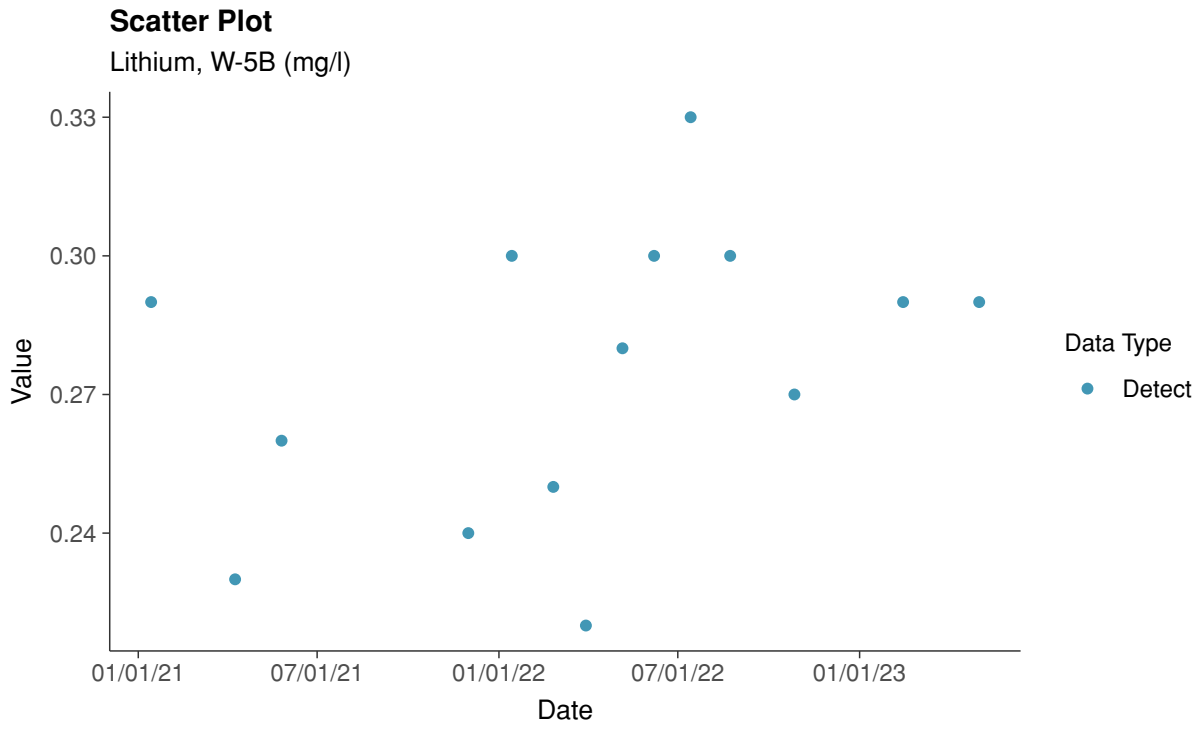
Trend Regression: Piecewise Linear-Linear-Linear

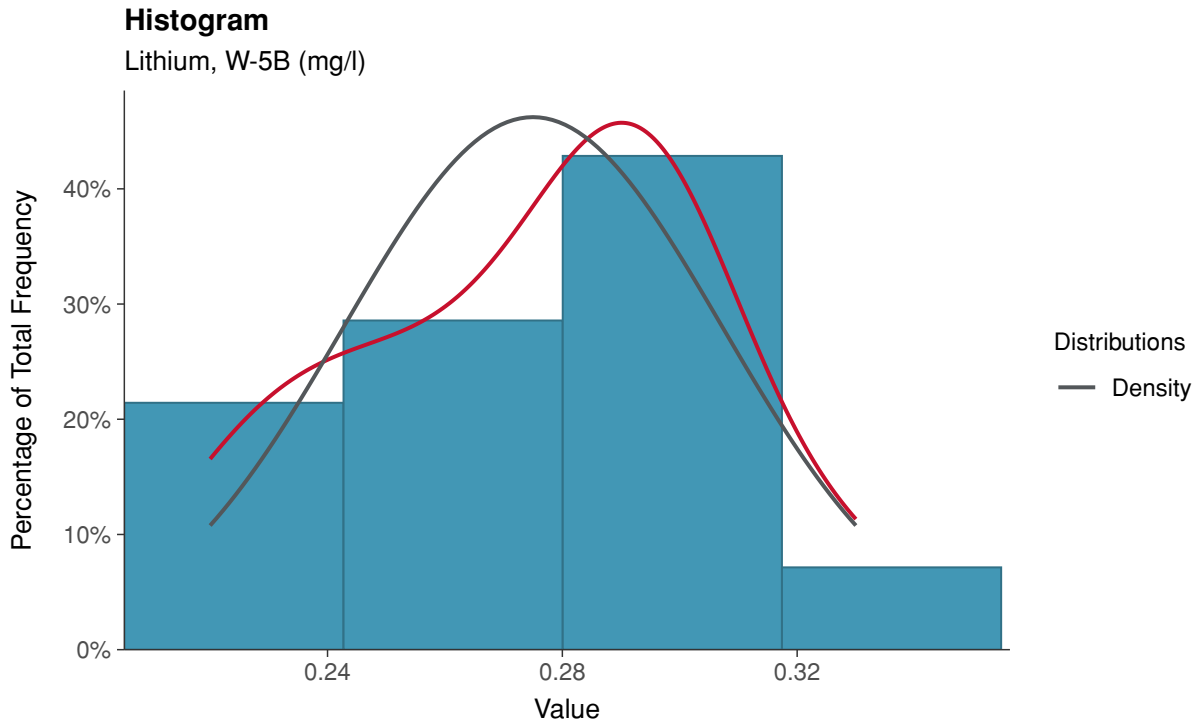
Lead, W-5B (mg/l)



Appendix IV: Lithium, W-5B

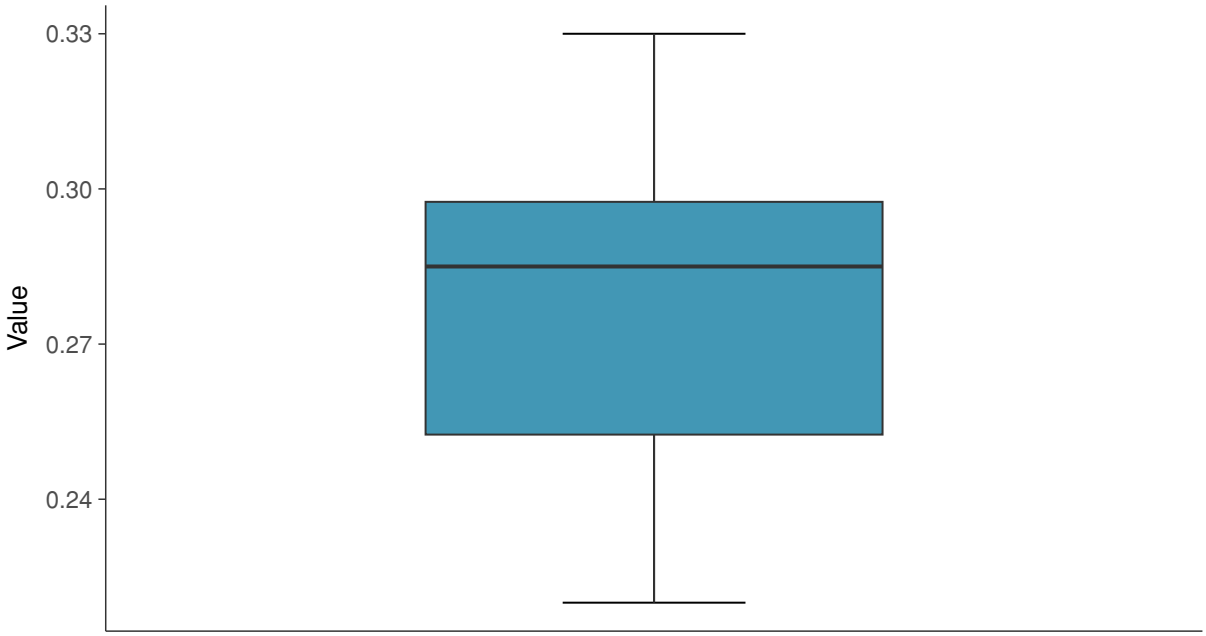
ID: 9_2_114





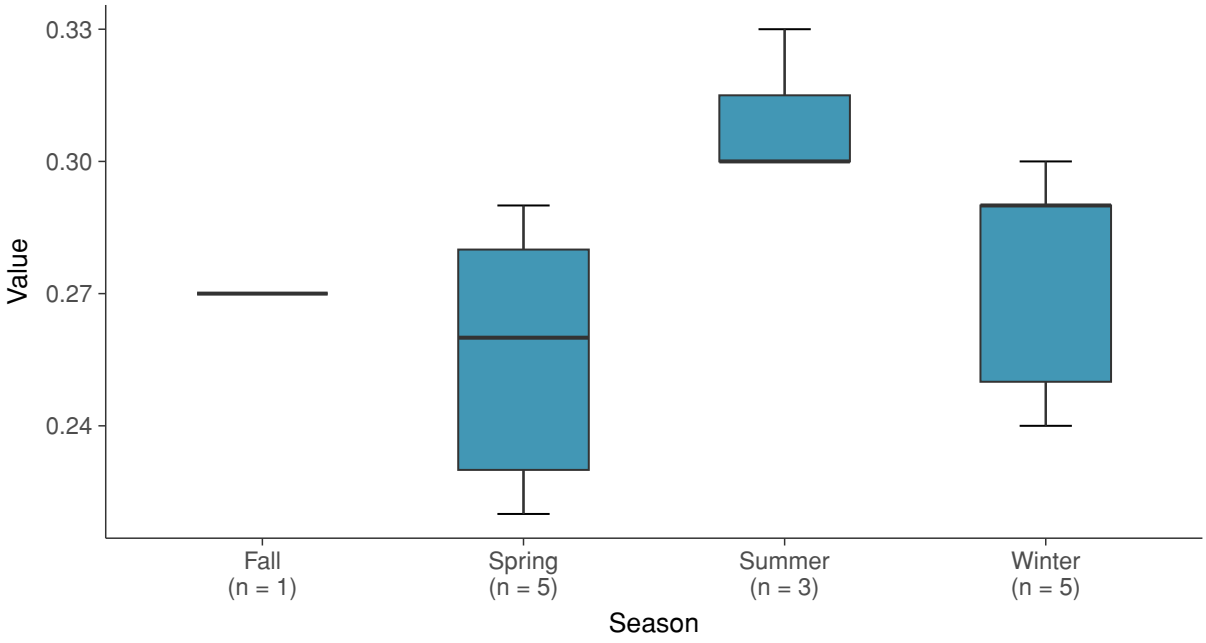
Boxplot

Lithium, W-5B (mg/l)



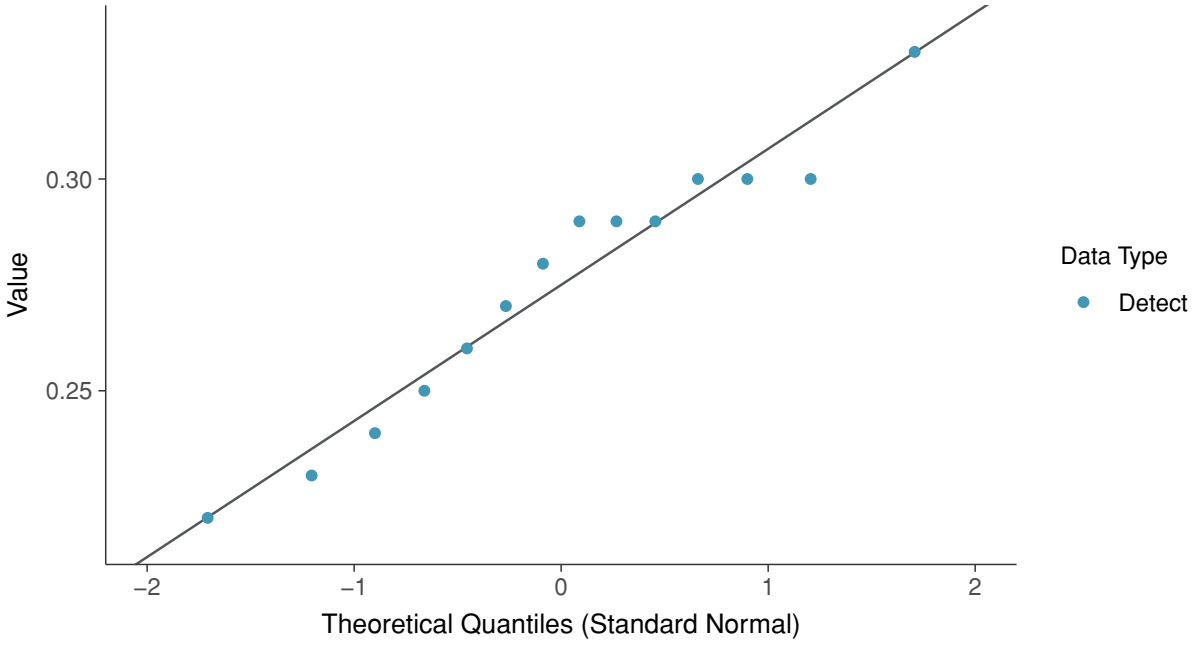
Boxplot by Season

Lithium, W-5B (mg/l)



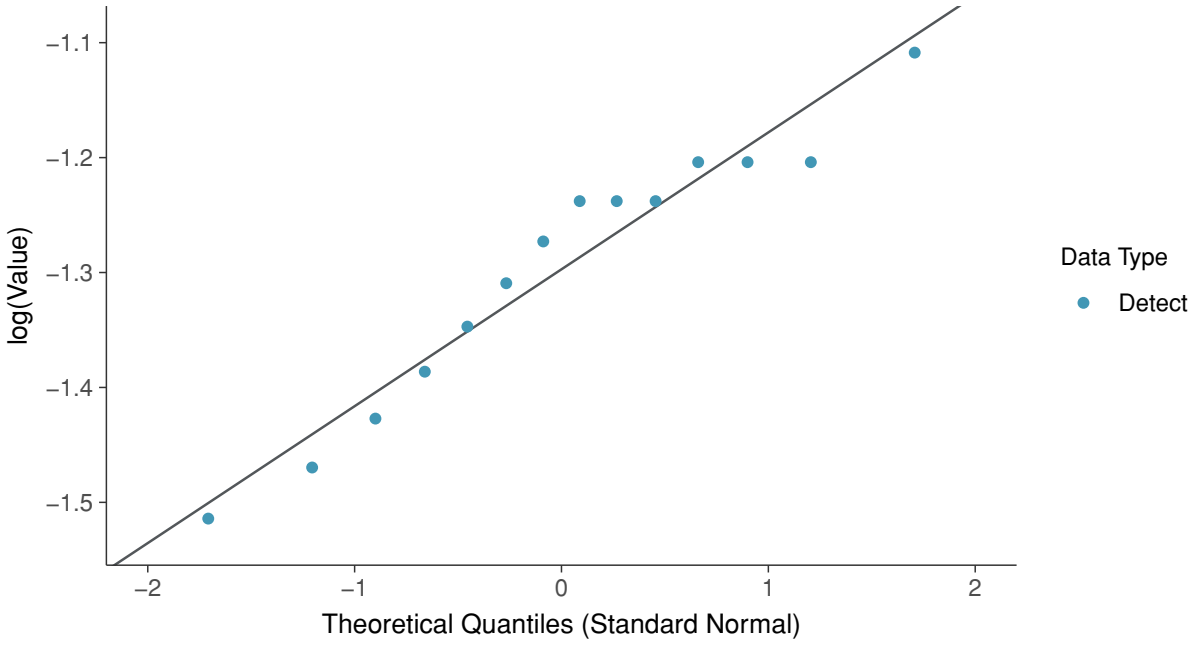
Normal Q-Q plot

Lithium, W-5B (mg/l)



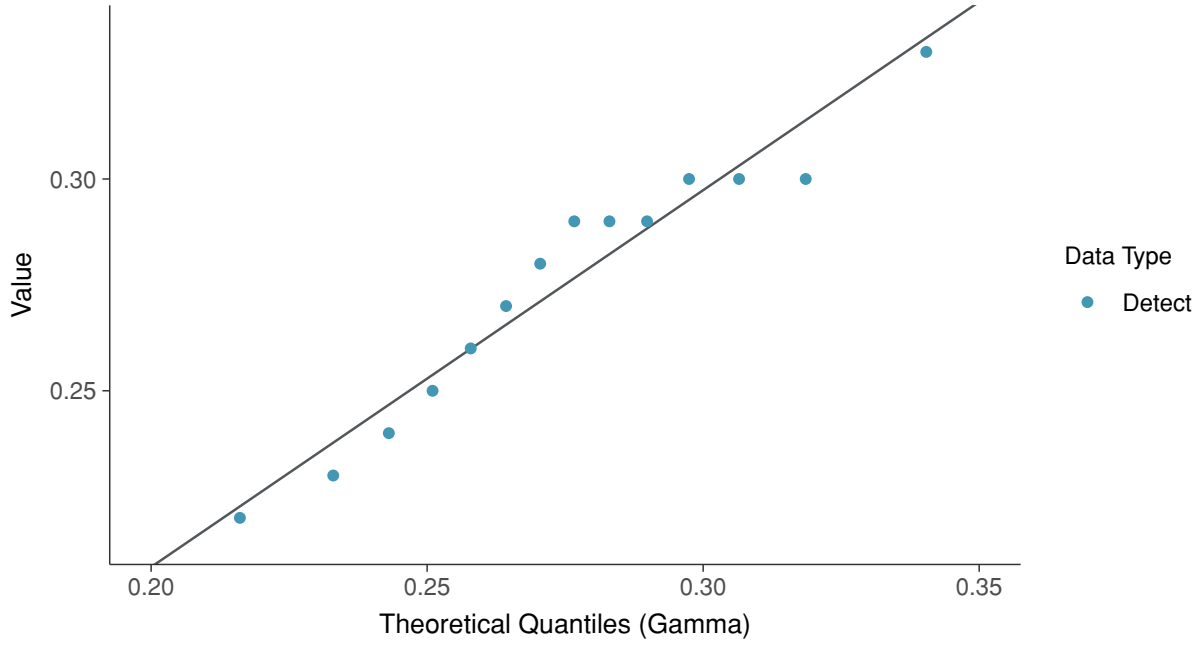
Lognormal Q-Q plot

Lithium, W-5B (mg/l)



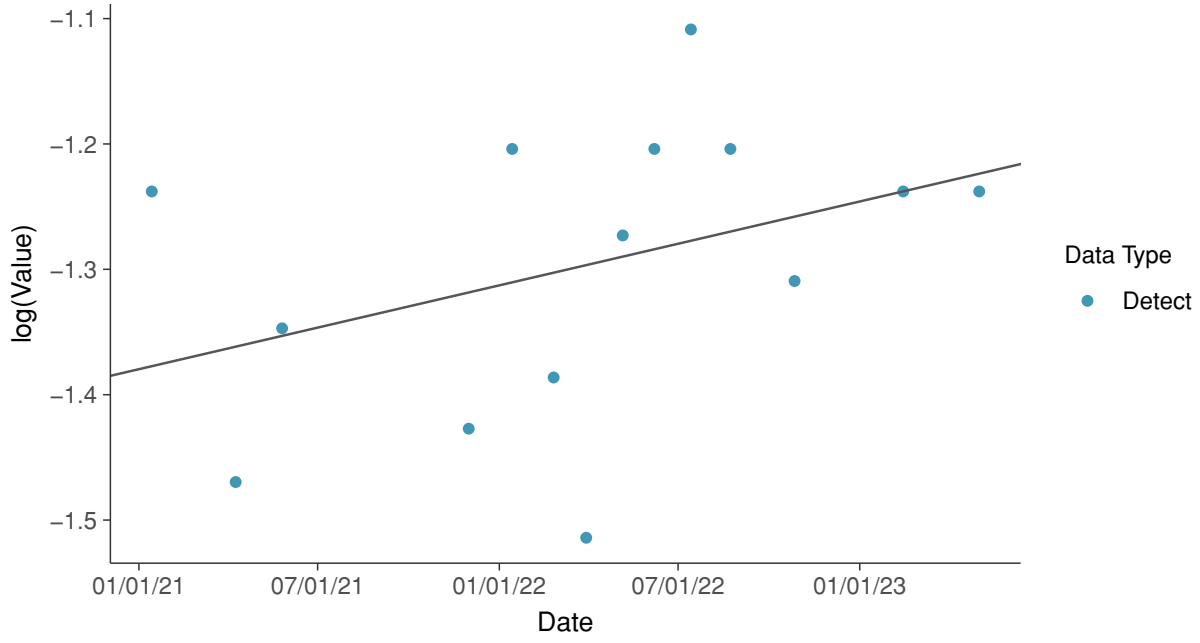
Gamma Q-Q plot

Lithium, W-5B (mg/l)



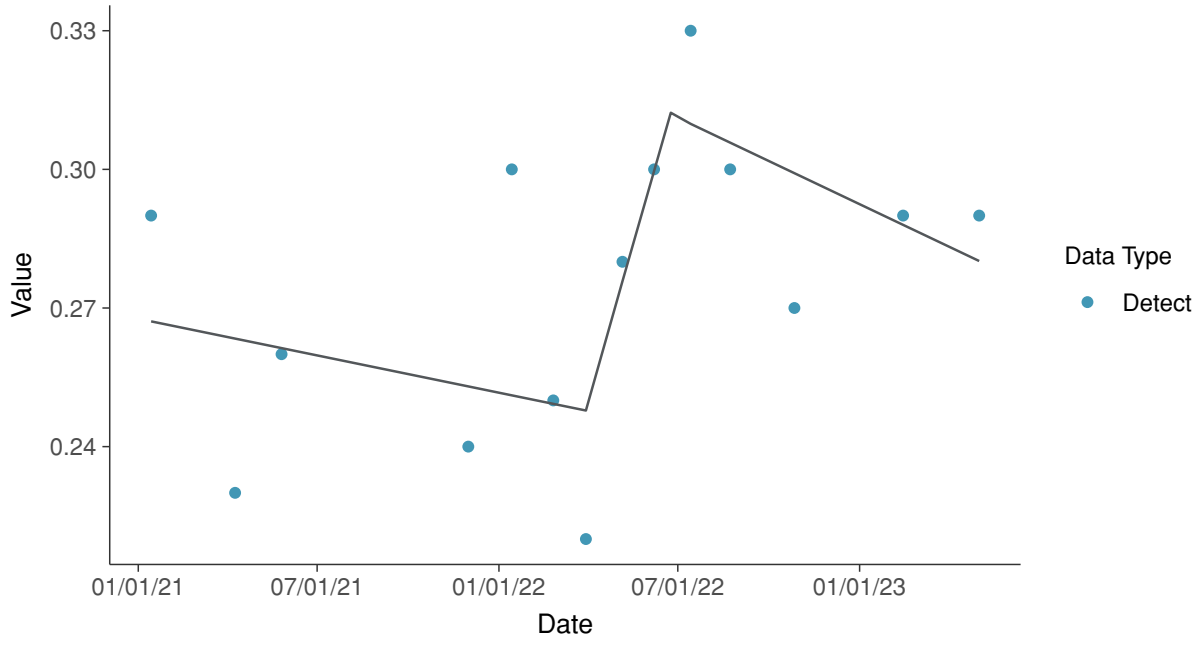
Trend Regression: Lognormal MLE

Lithium, W-5B (mg/l)



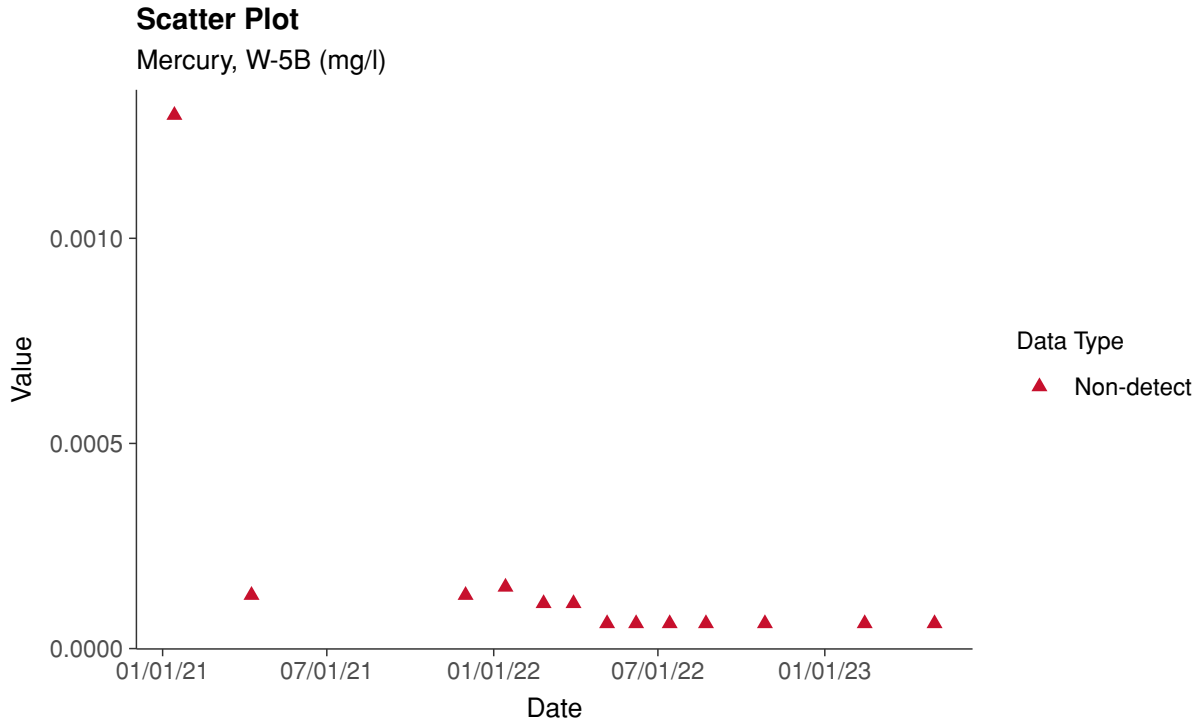
Trend Regression: Piecewise Linear-Linear-Linear

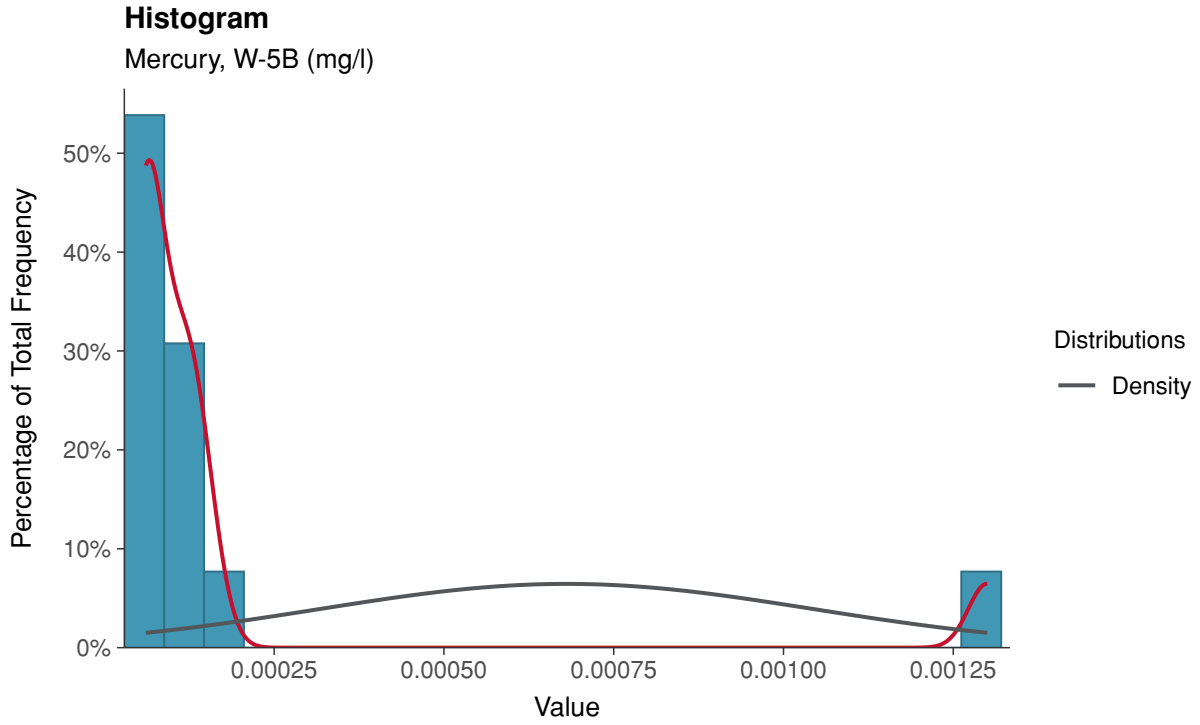
Lithium, W-5B (mg/l)



Appendix IV: Mercury, W-5B

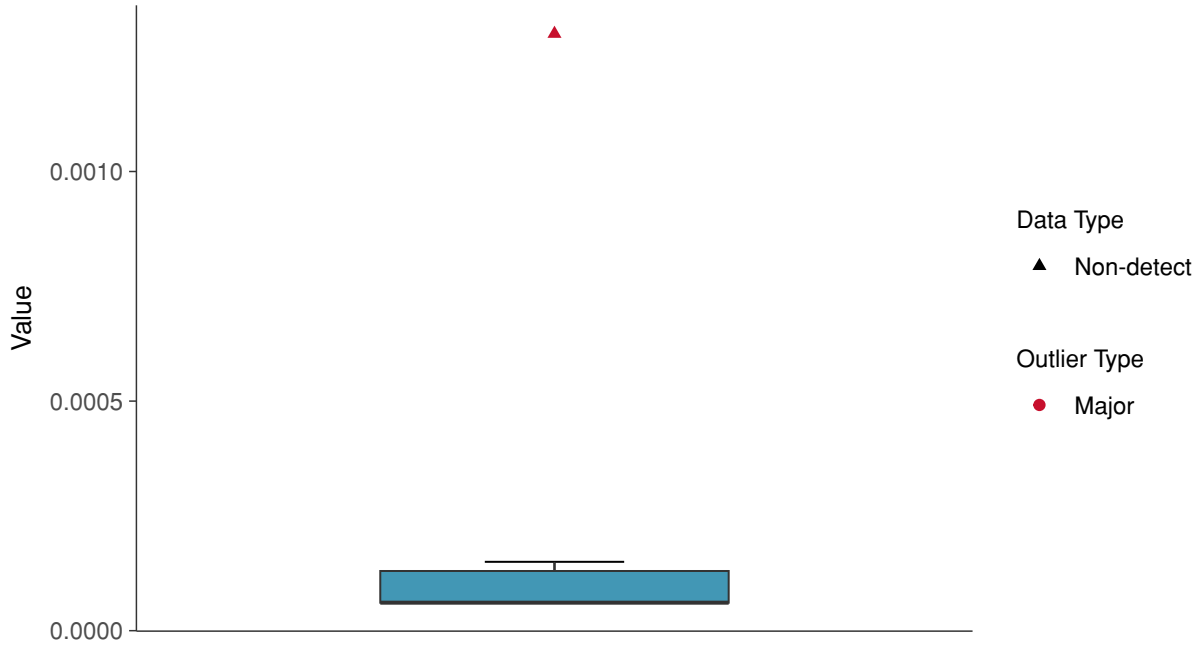
ID: 9_2_115





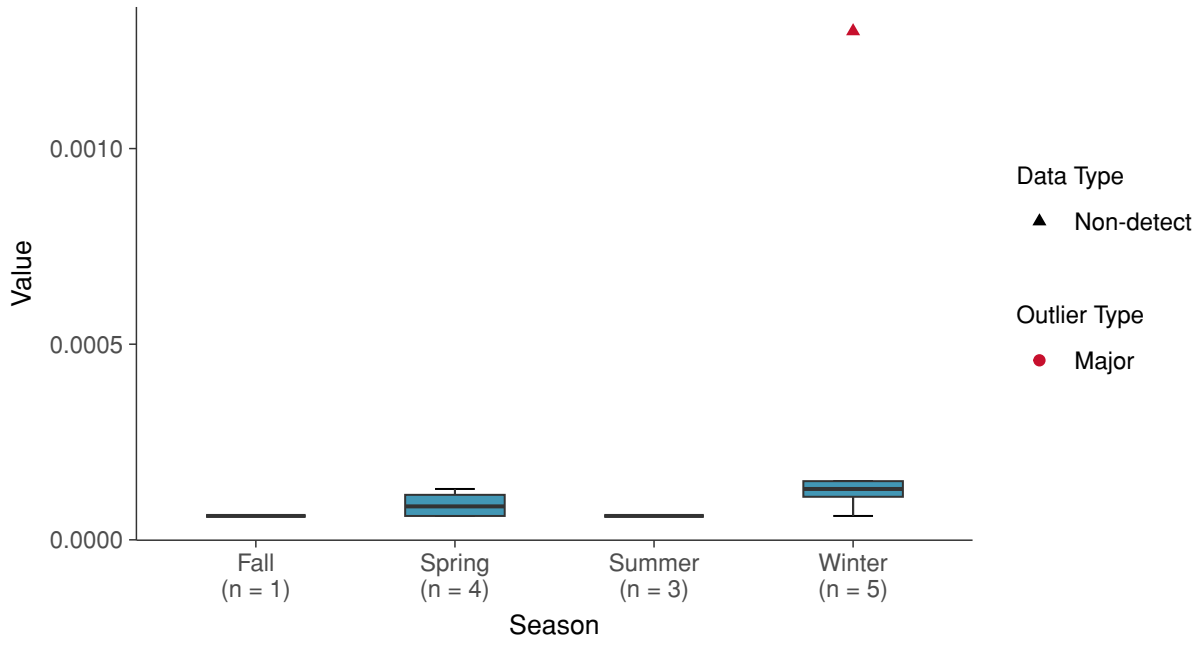
Boxplot

Mercury, W-5B (mg/l)



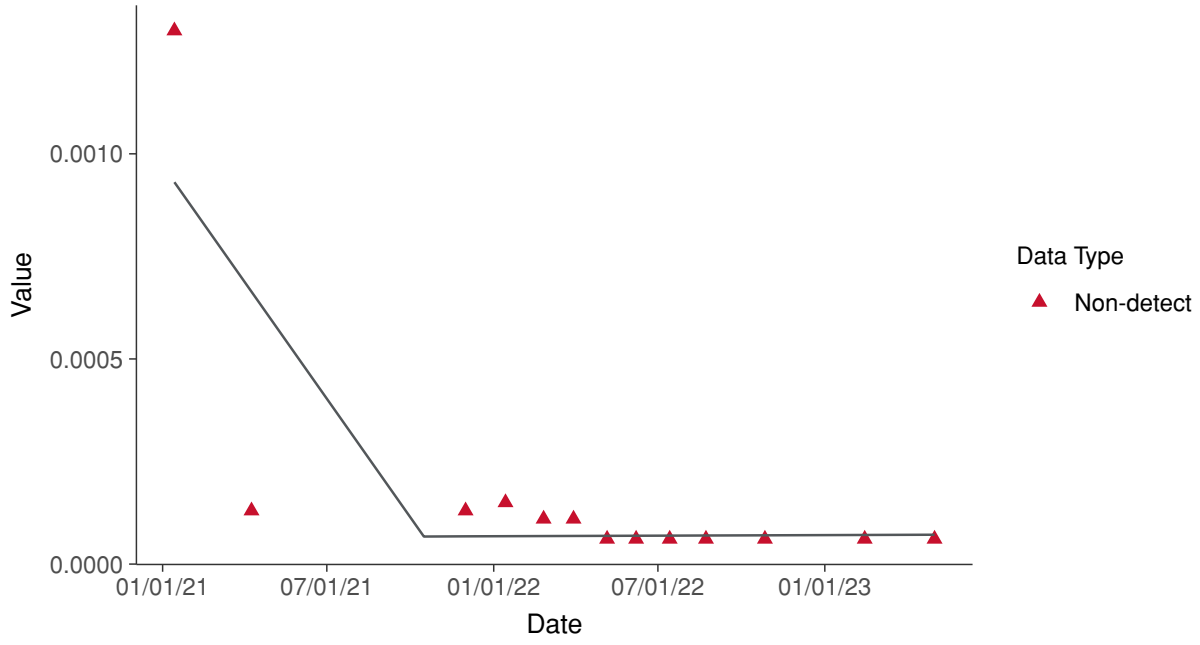
Boxplot by Season

Mercury, W-5B (mg/l)



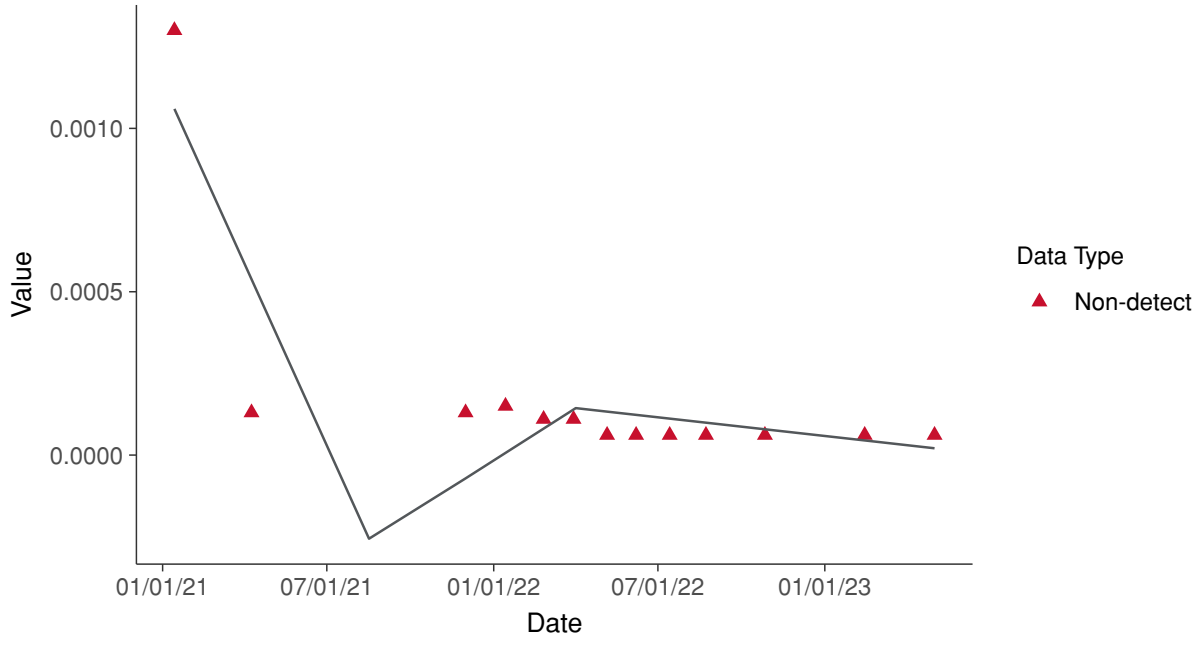
Trend Regression: Piecewise Linear-Linear

Mercury, W-5B (mg/l)



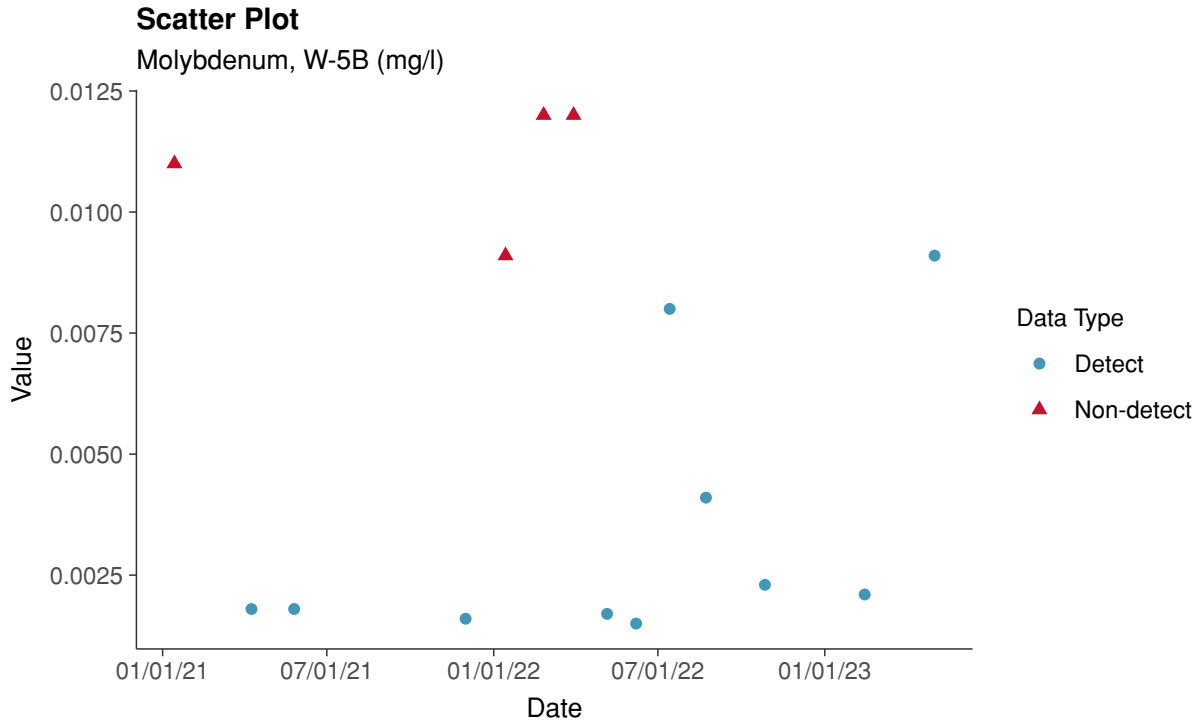
Trend Regression: Piecewise Linear-Linear-Linear

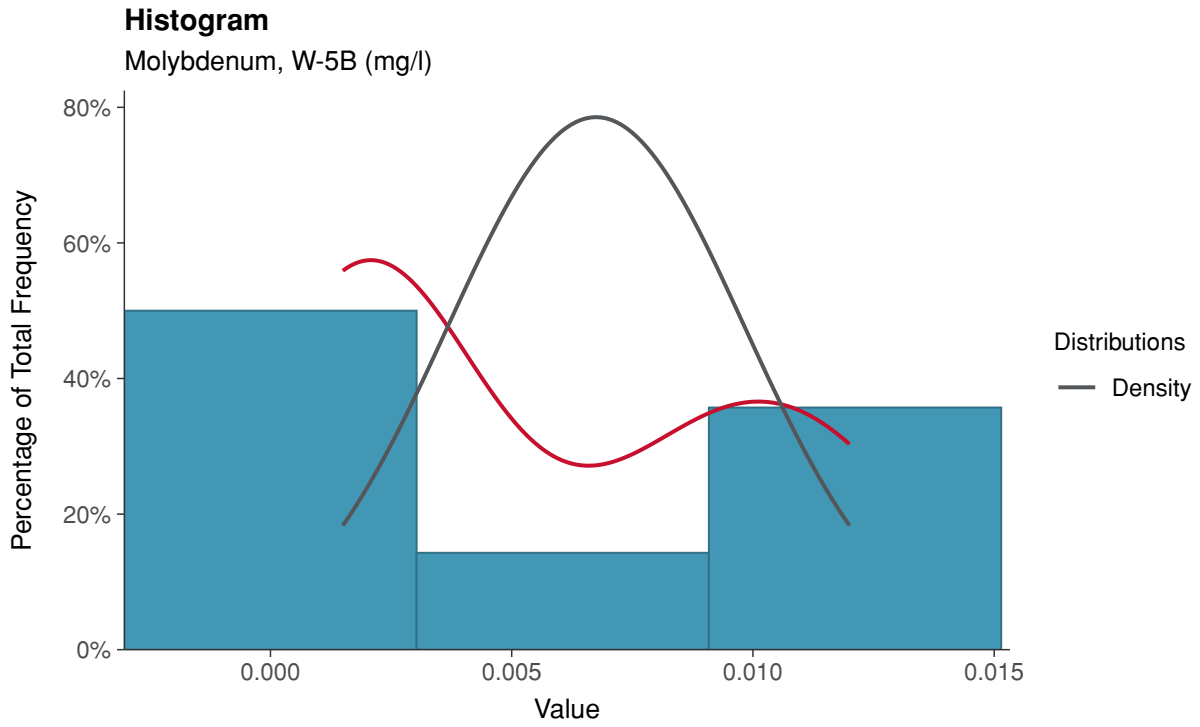
Mercury, W-5B (mg/l)



Appendix IV: Molybdenum, W-5B

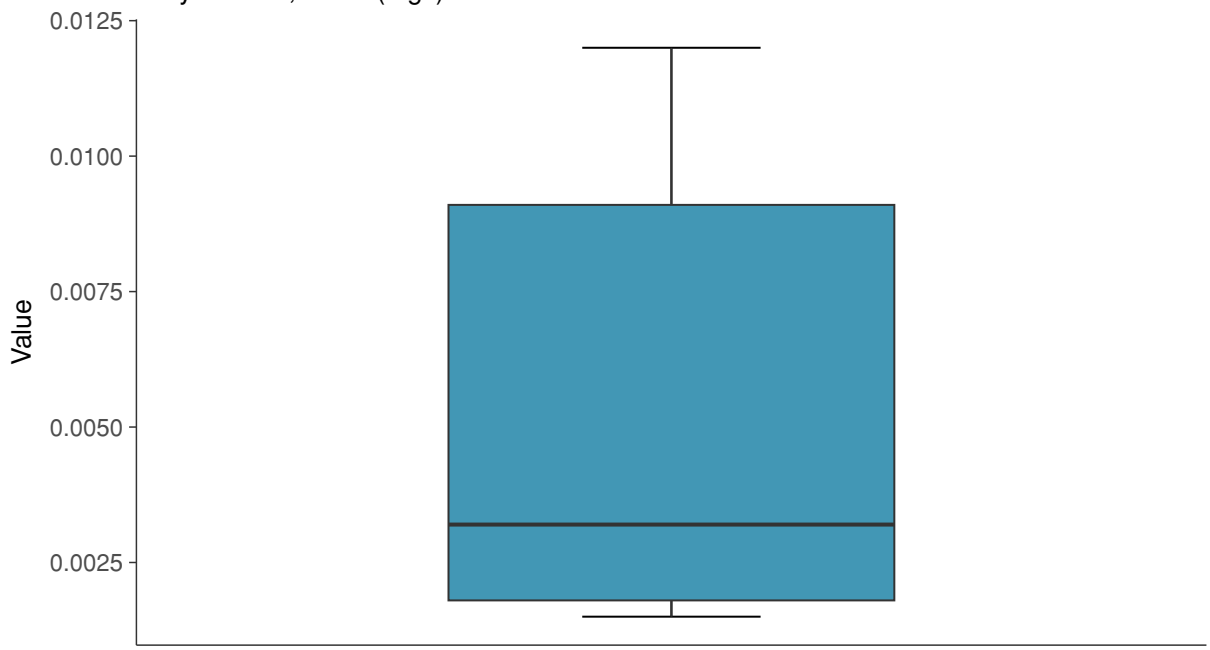
ID: 9_2_116





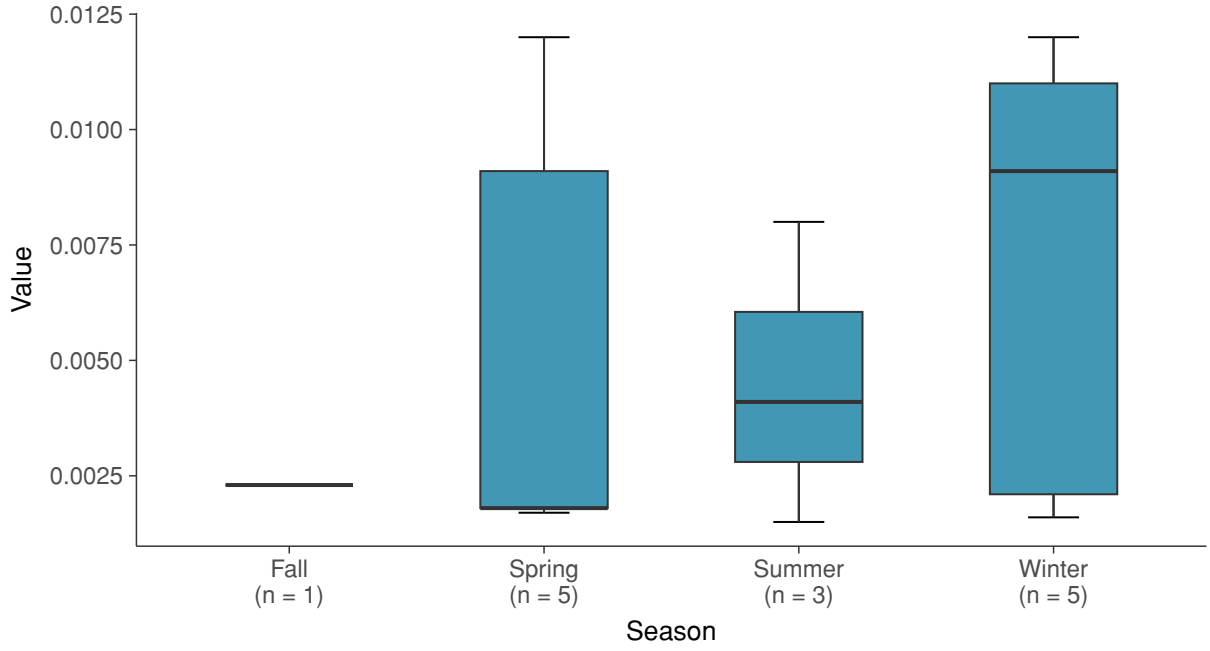
Boxplot

Molybdenum, W-5B (mg/l)



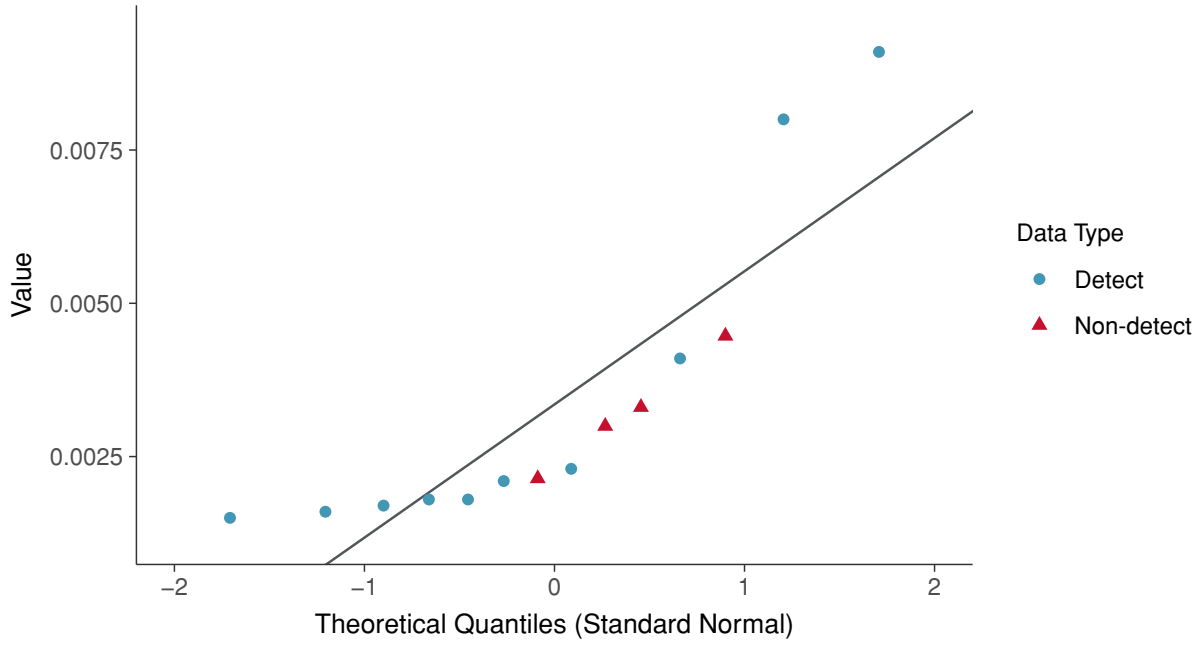
Boxplot by Season

Molybdenum, W-5B (mg/l)



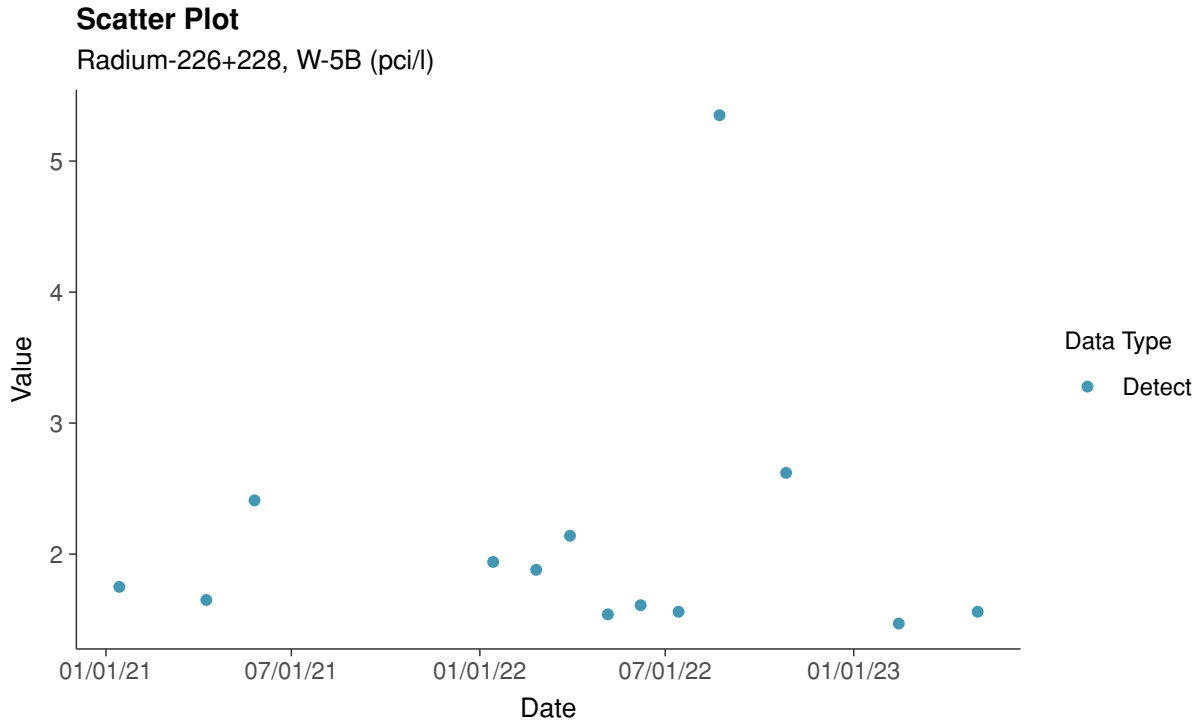
Normal Q-Q plot using ROS Imputed Estimates

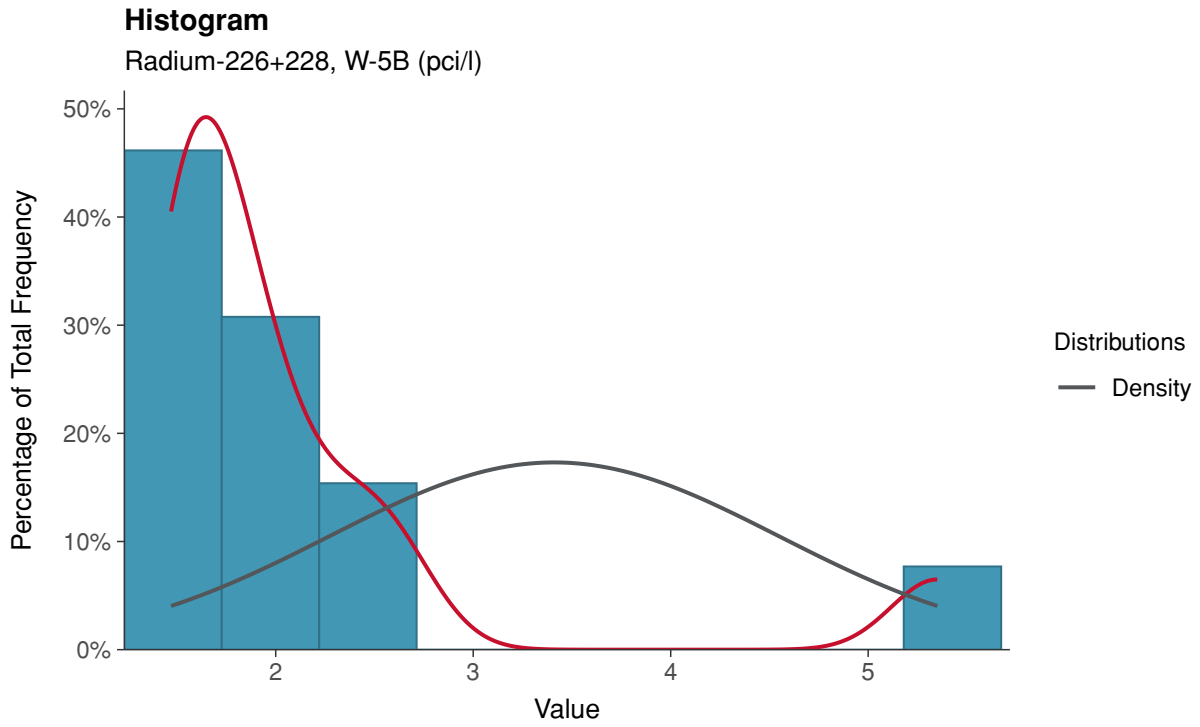
Molybdenum, W-5B (mg/l)



Appendix IV: Radium-226+228, W-5B

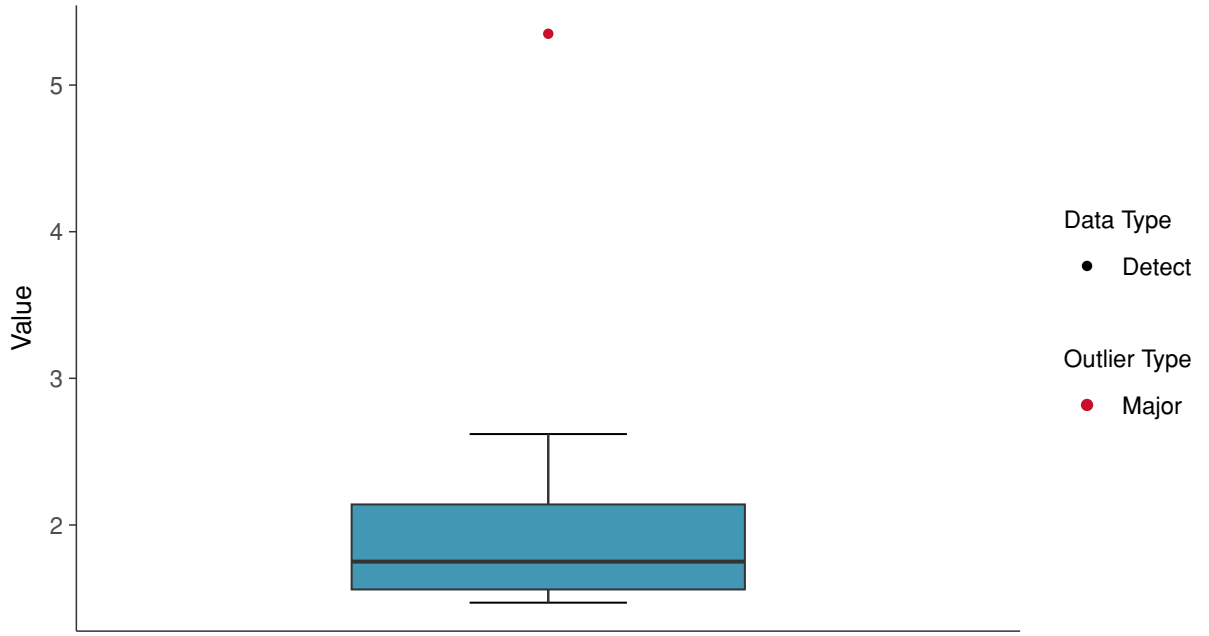
ID: 9_2_120





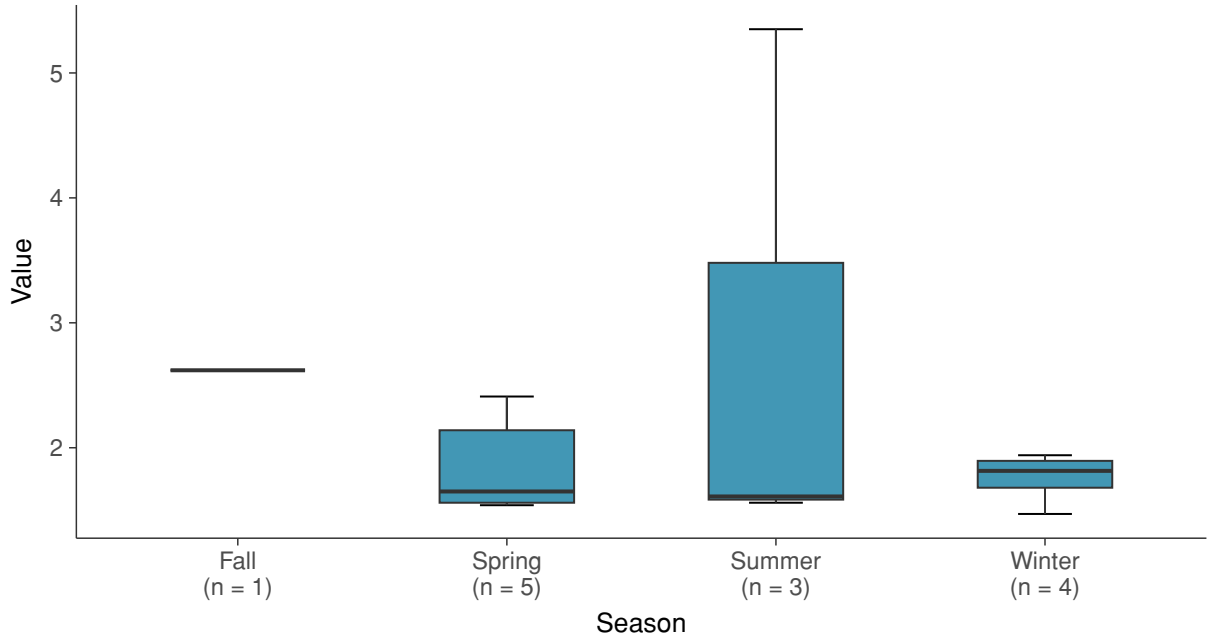
Boxplot

Radium-226+228, W-5B (pci/l)



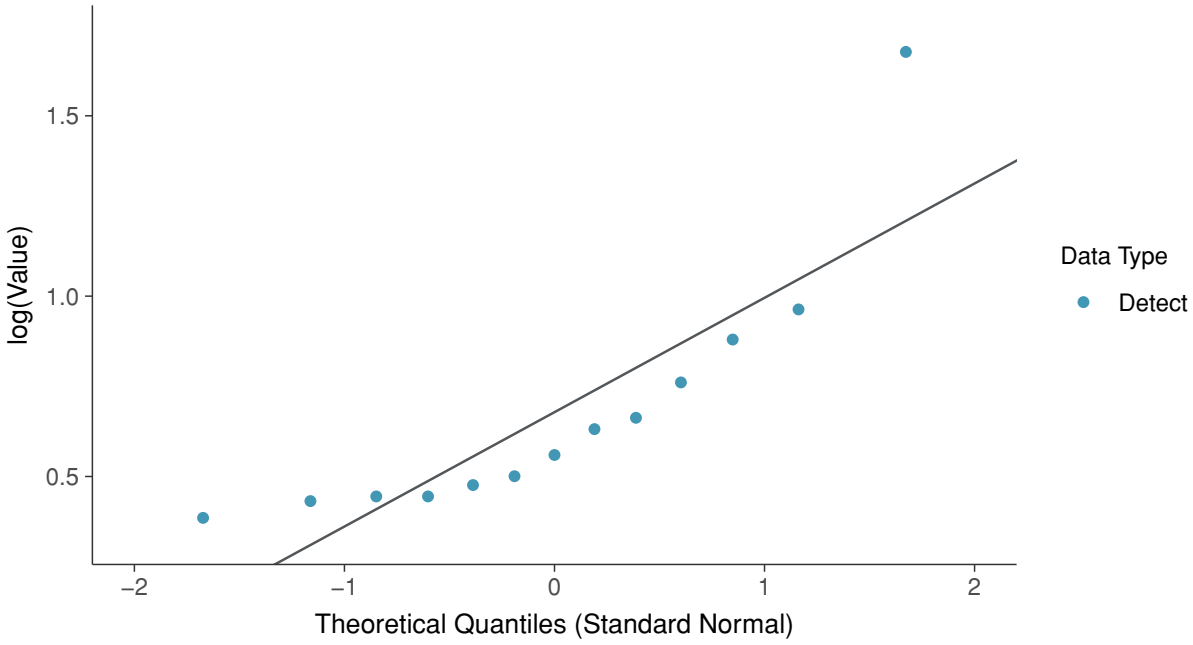
Boxplot by Season

Radium-226+228, W-5B (pci/l)



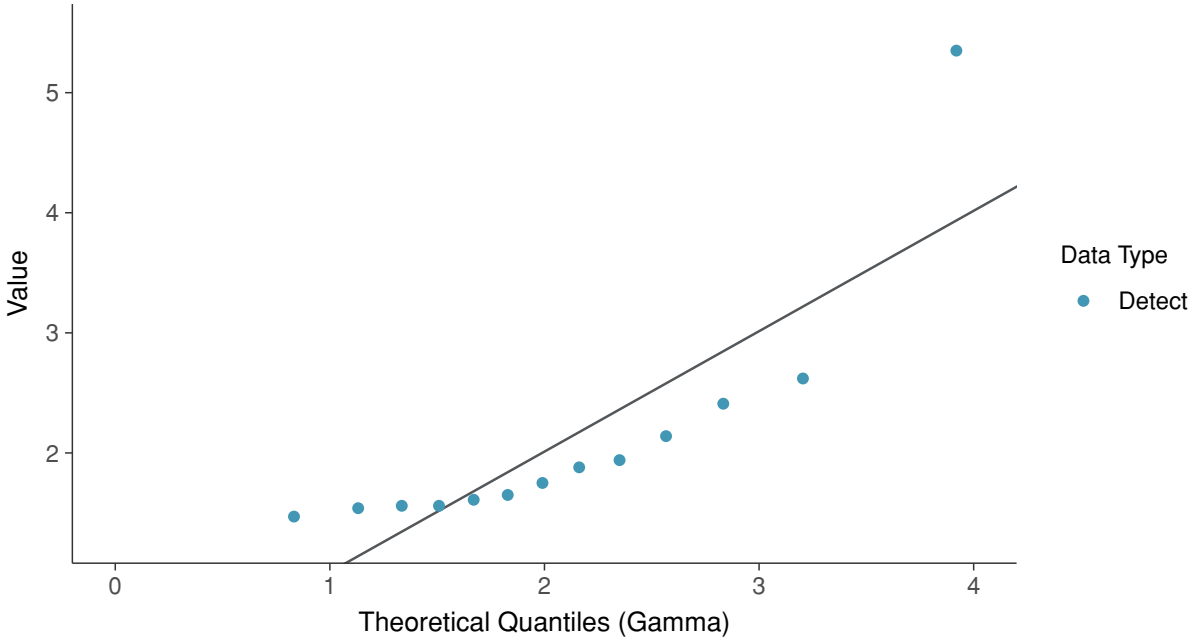
Lognormal Q-Q plot

Radium-226+228, W-5B (pci/l)



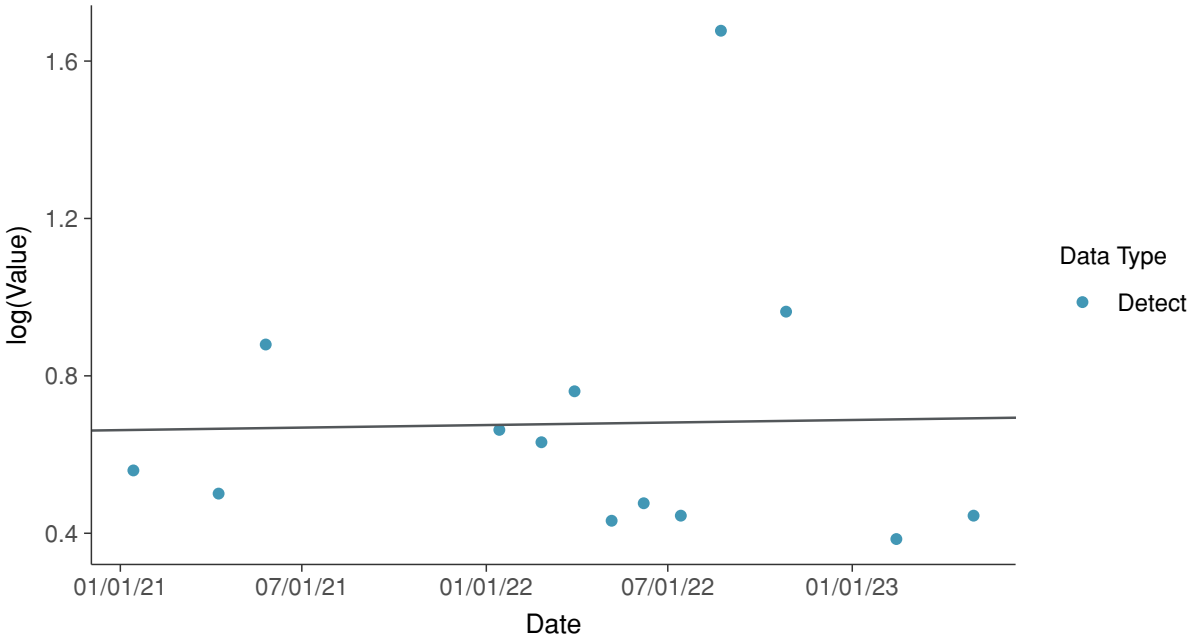
Gamma Q-Q plot

Radium-226+228, W-5B (pci/l)



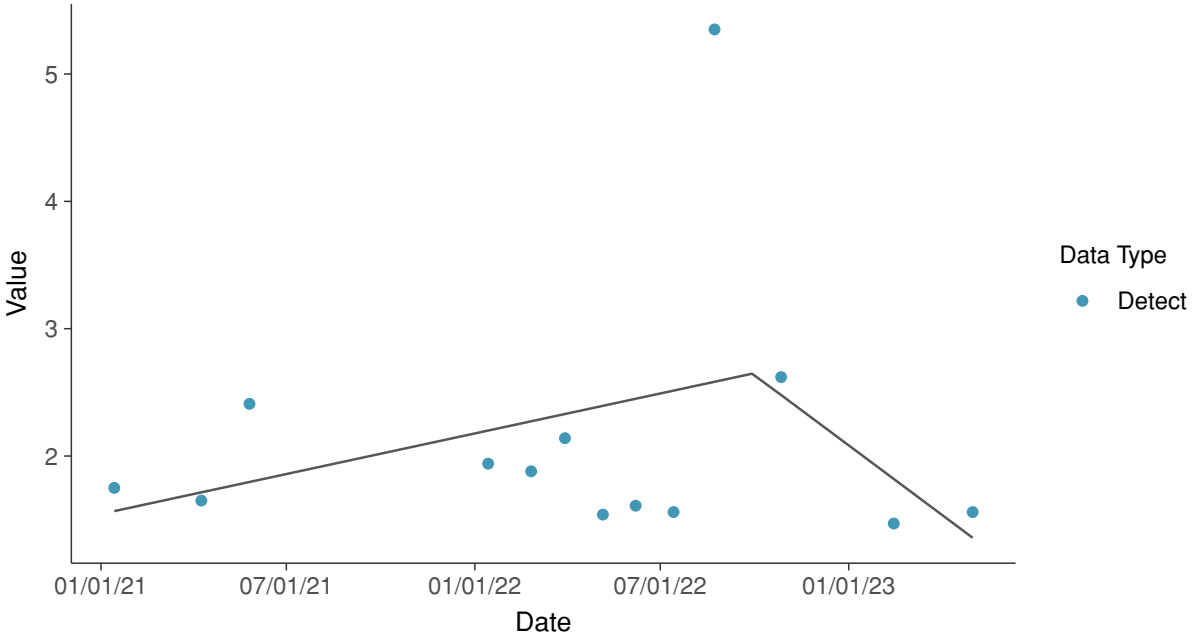
Trend Regression: Lognormal MLE

Radium-226+228, W-5B (pci/l)



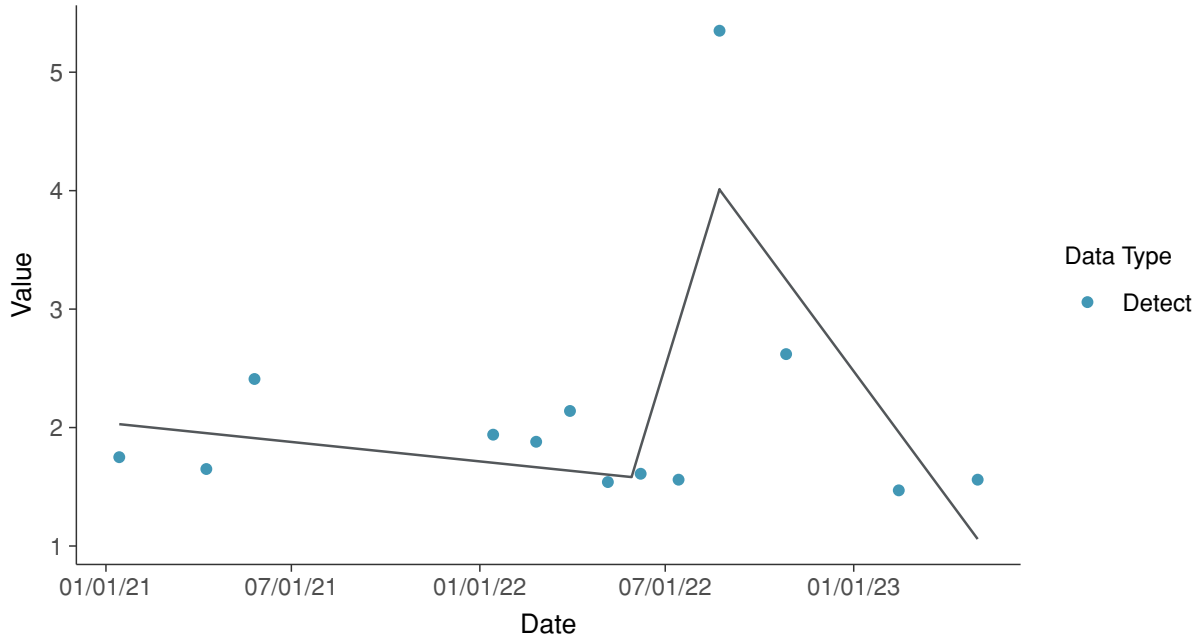
Trend Regression: Piecewise Linear-Linear

Radium-226+228, W-5B (pci/l)



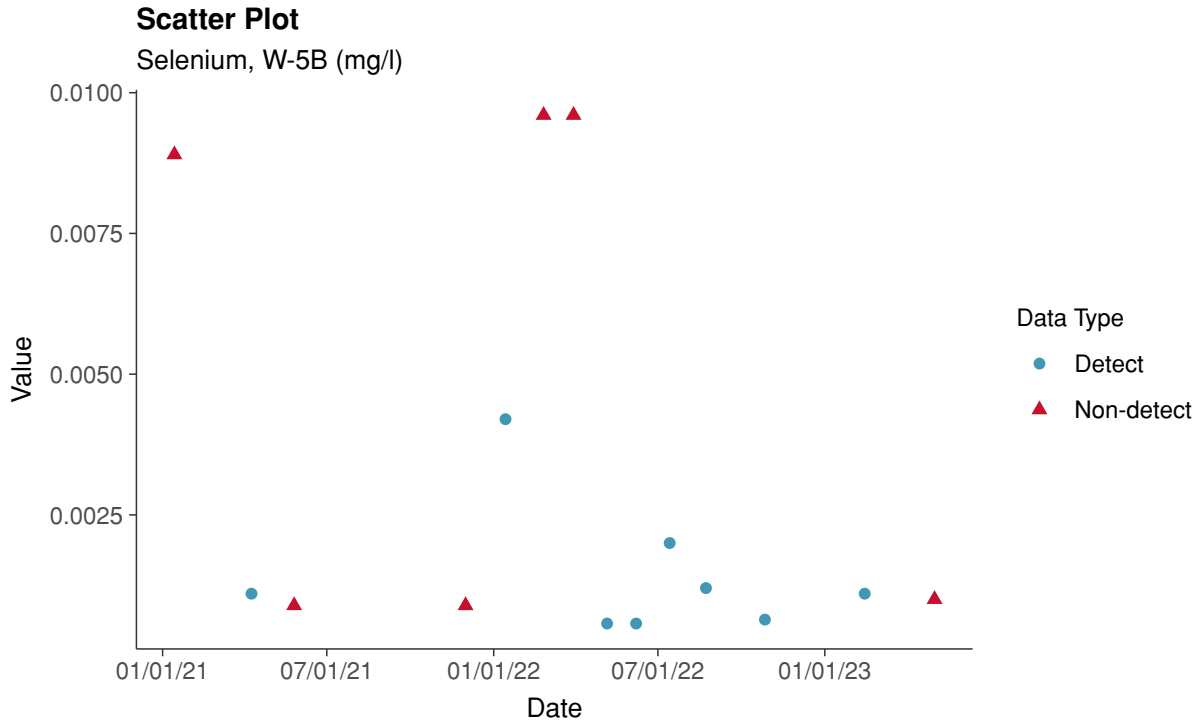
Trend Regression: Piecewise Linear-Linear-Linear

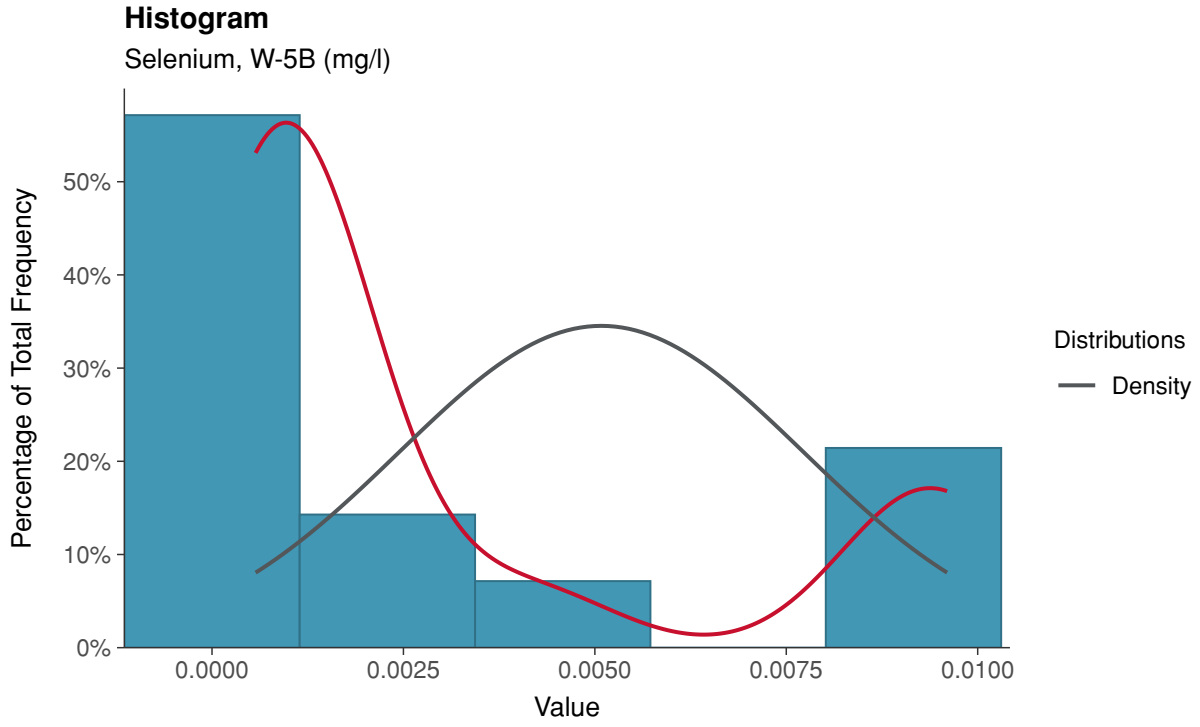
Radium-226+228, W-5B (pci/l)



Appendix IV: Selenium, W-5B

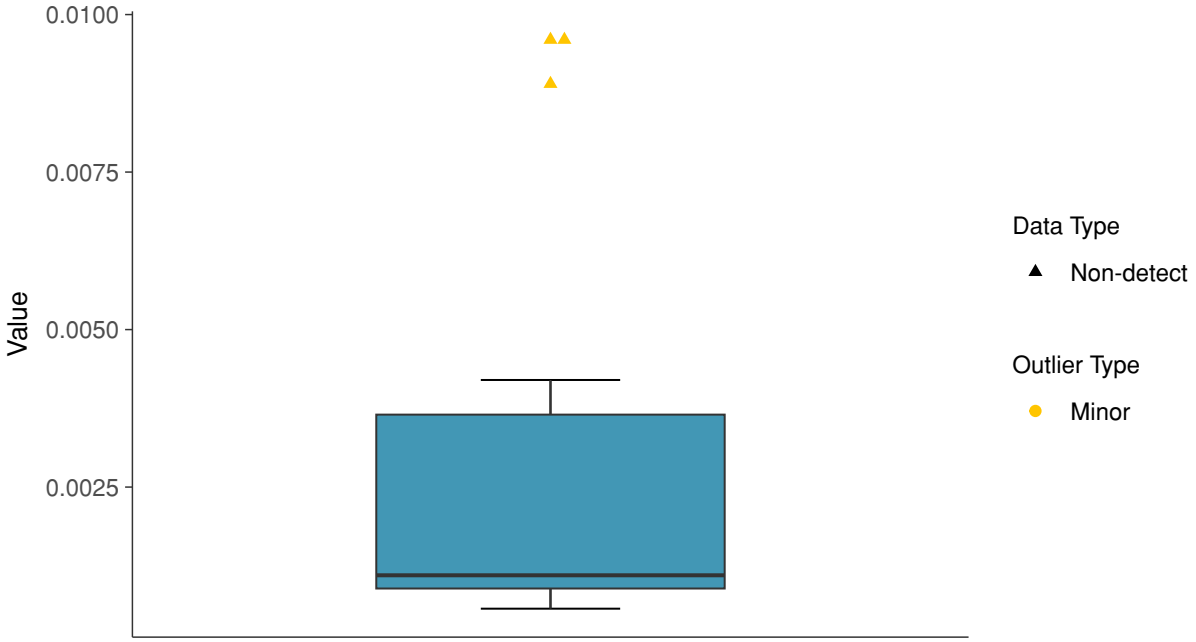
ID: 9_2_122





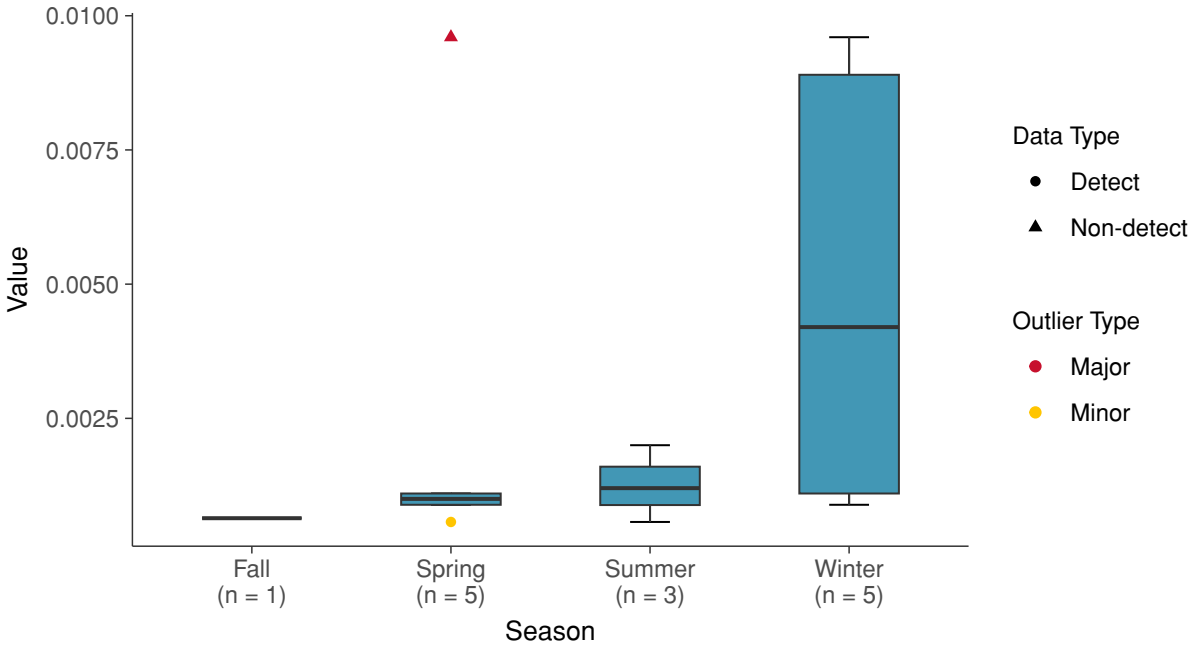
Boxplot

Selenium, W-5B (mg/l)



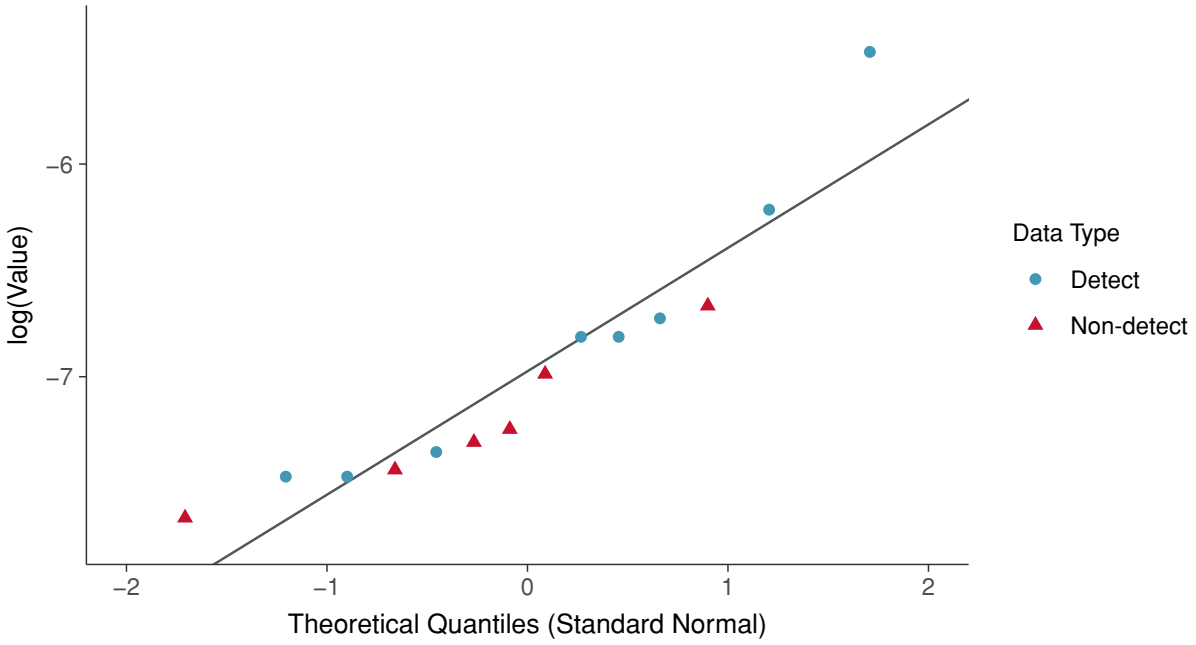
Boxplot by Season

Selenium, W-5B (mg/l)



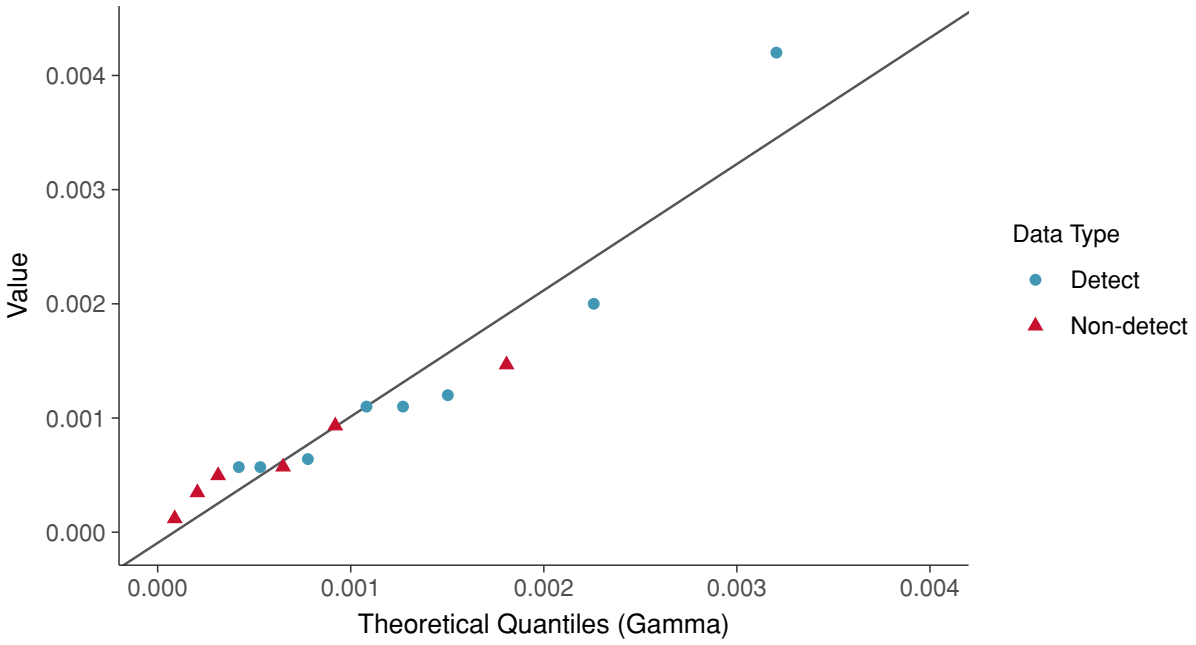
Lognormal Q-Q plot using ROS Imputed Estimates

Selenium, W-5B (mg/l)



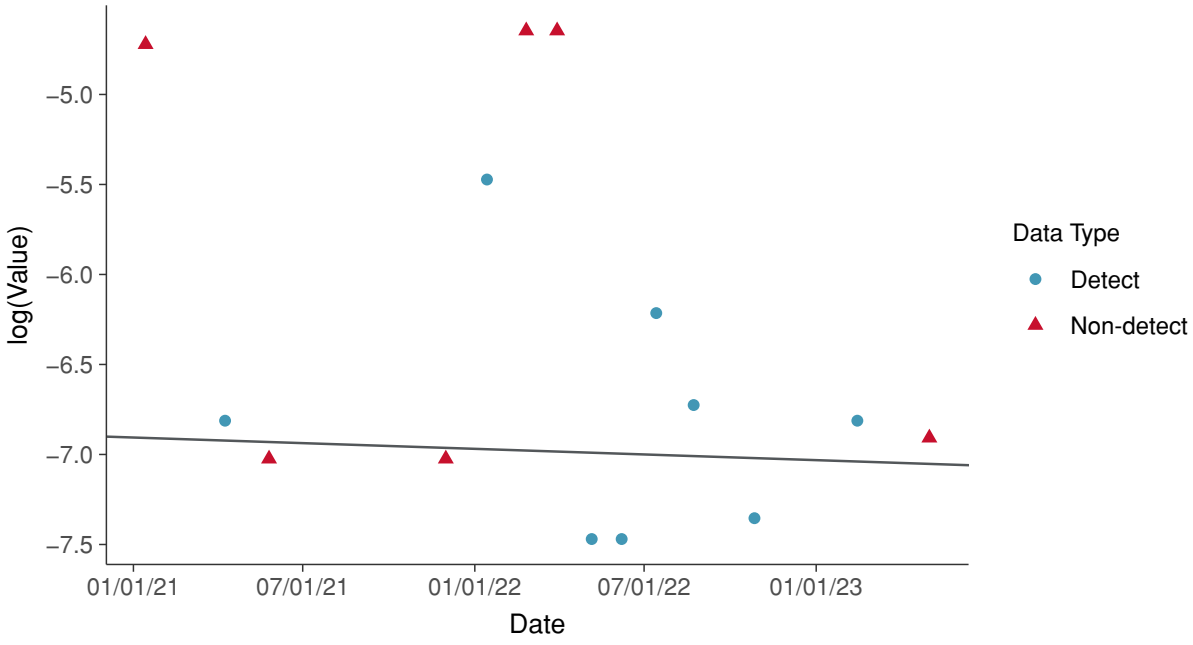
Gamma Q-Q plot using ROS Imputed Estimates

Selenium, W-5B (mg/l)



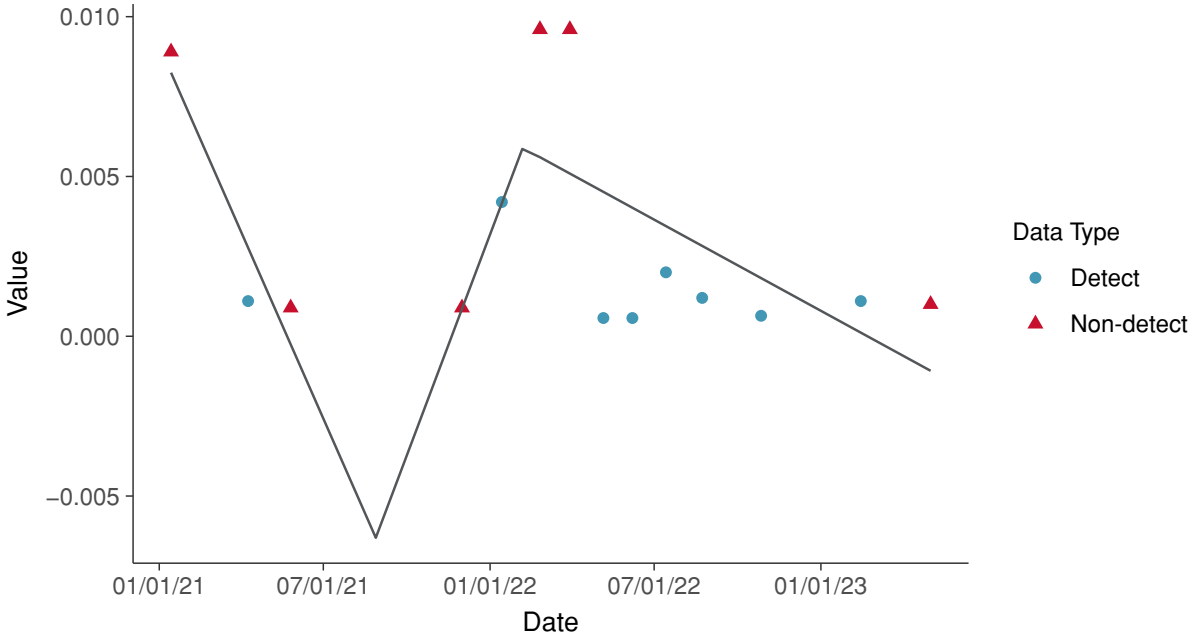
Trend Regression: Lognormal MLE

Selenium, W-5B (mg/l)



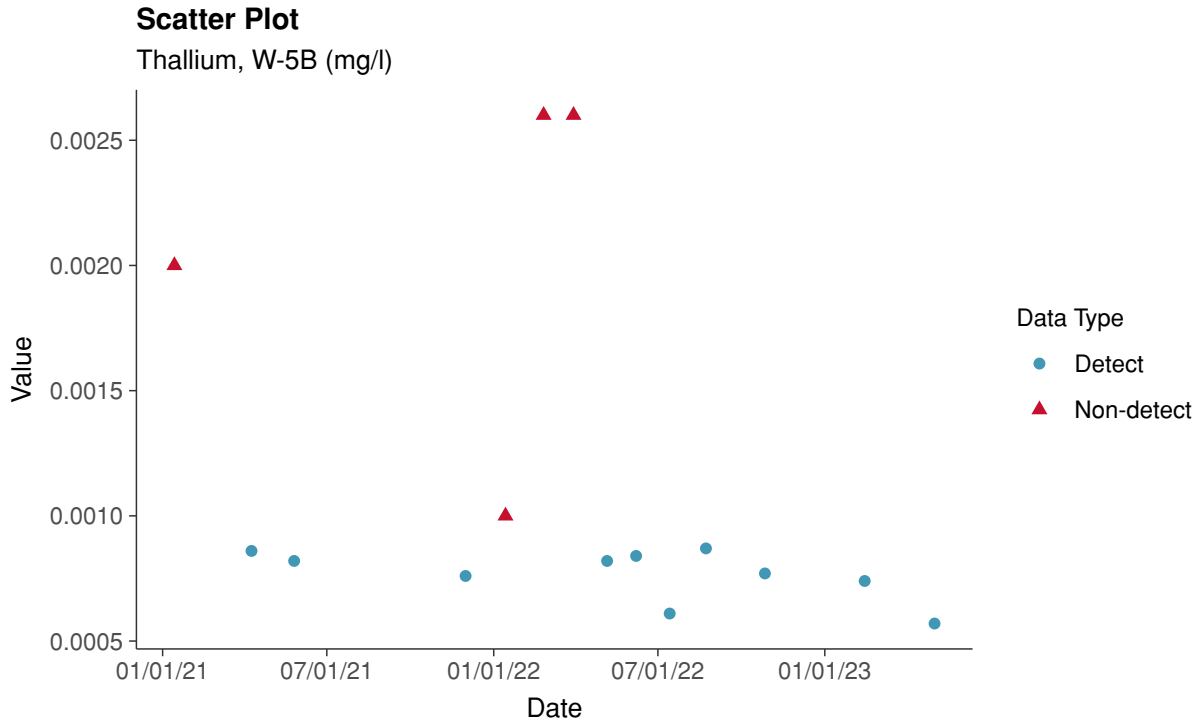
Trend Regression: Piecewise Linear-Linear-Linear

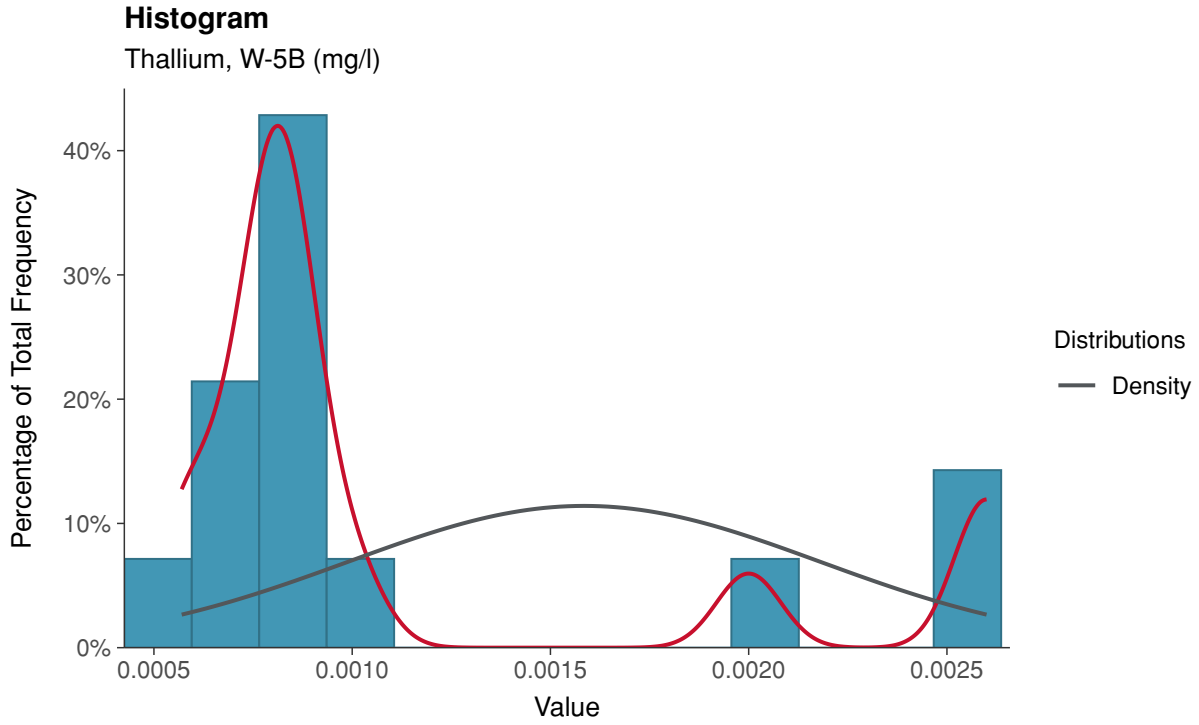
Selenium, W-5B (mg/l)



Appendix IV: Thallium, W-5B

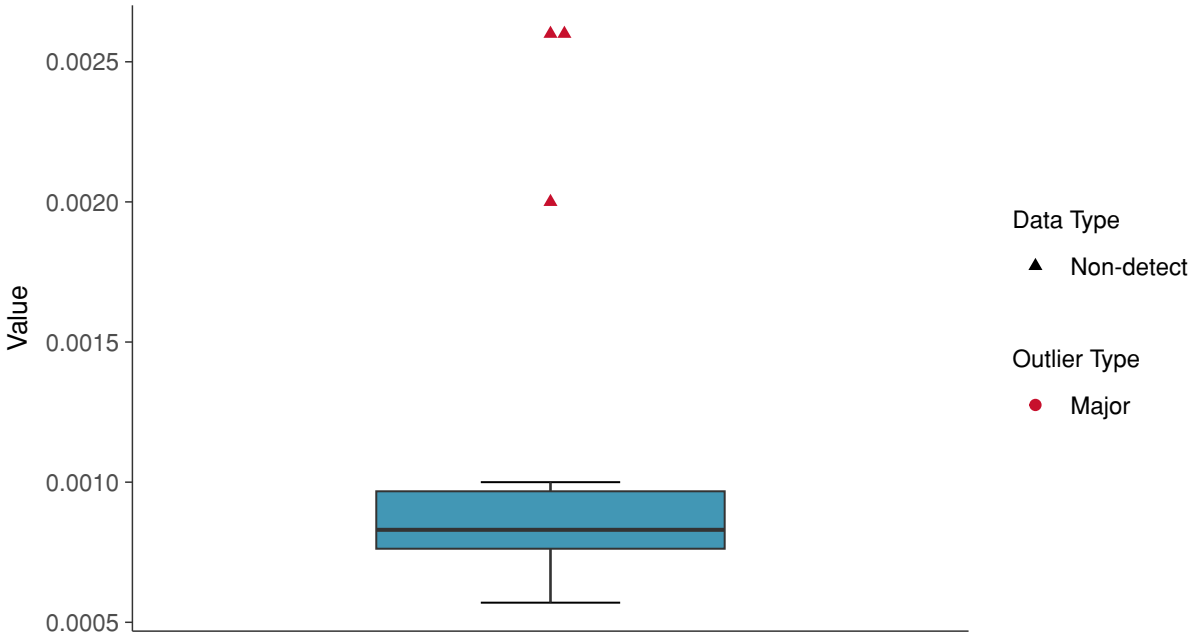
ID: 9_2_126





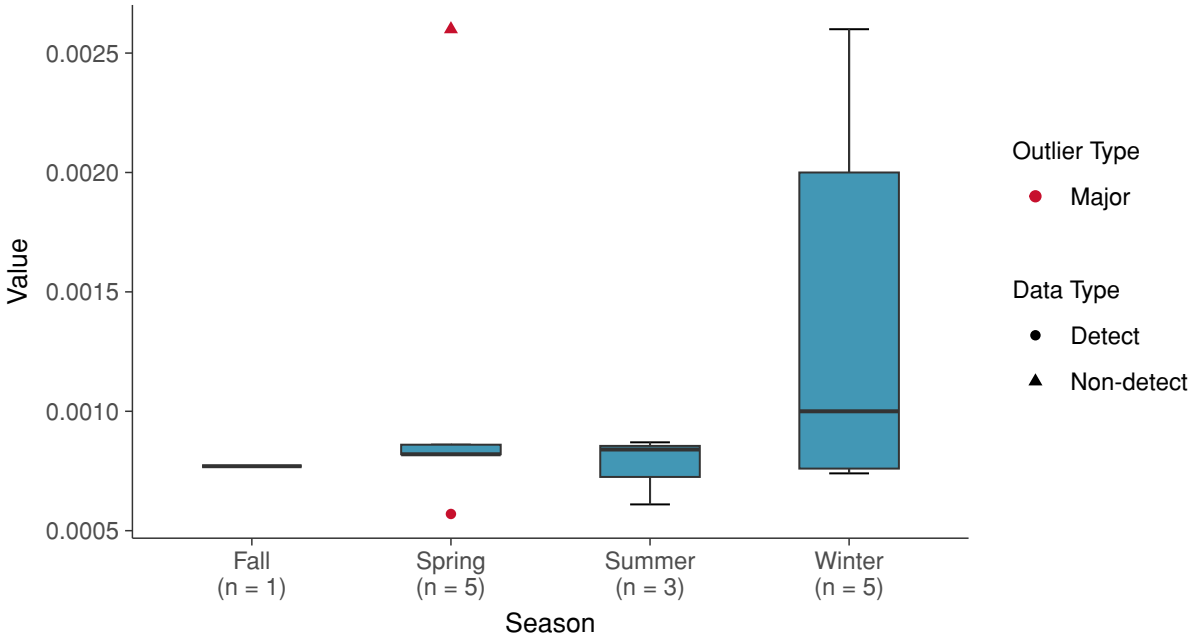
Boxplot

Thallium, W-5B (mg/l)



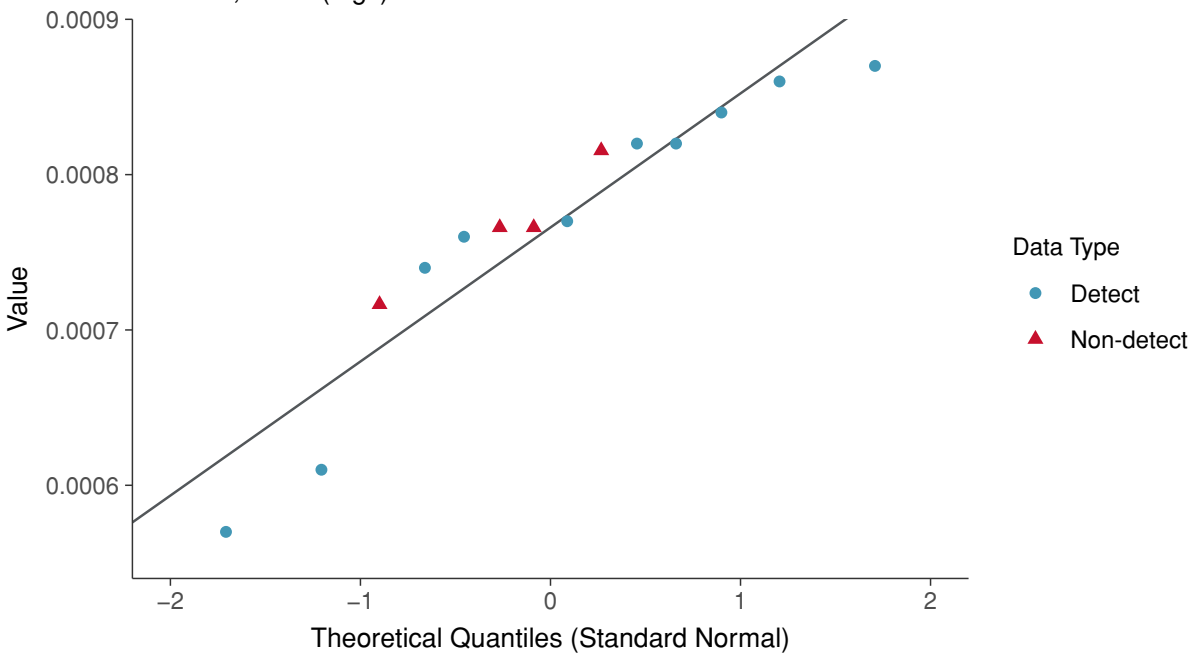
Boxplot by Season

Thallium, W-5B (mg/l)



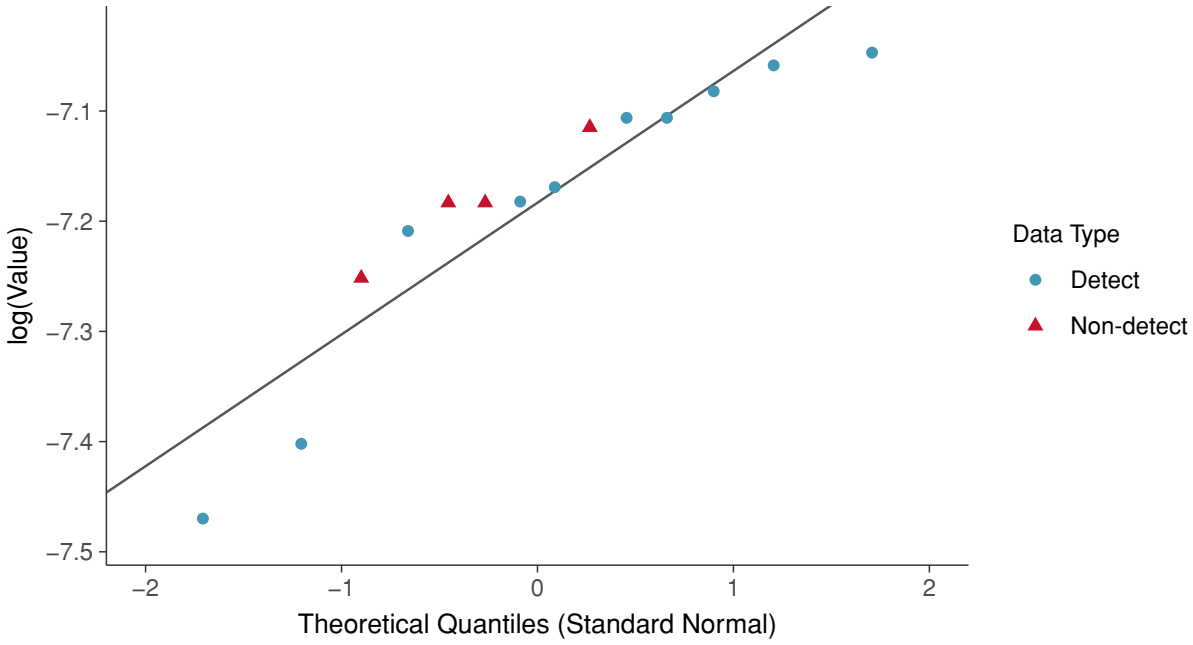
Normal Q-Q plot using ROS Imputed Estimates

Thallium, W-5B (mg/l)



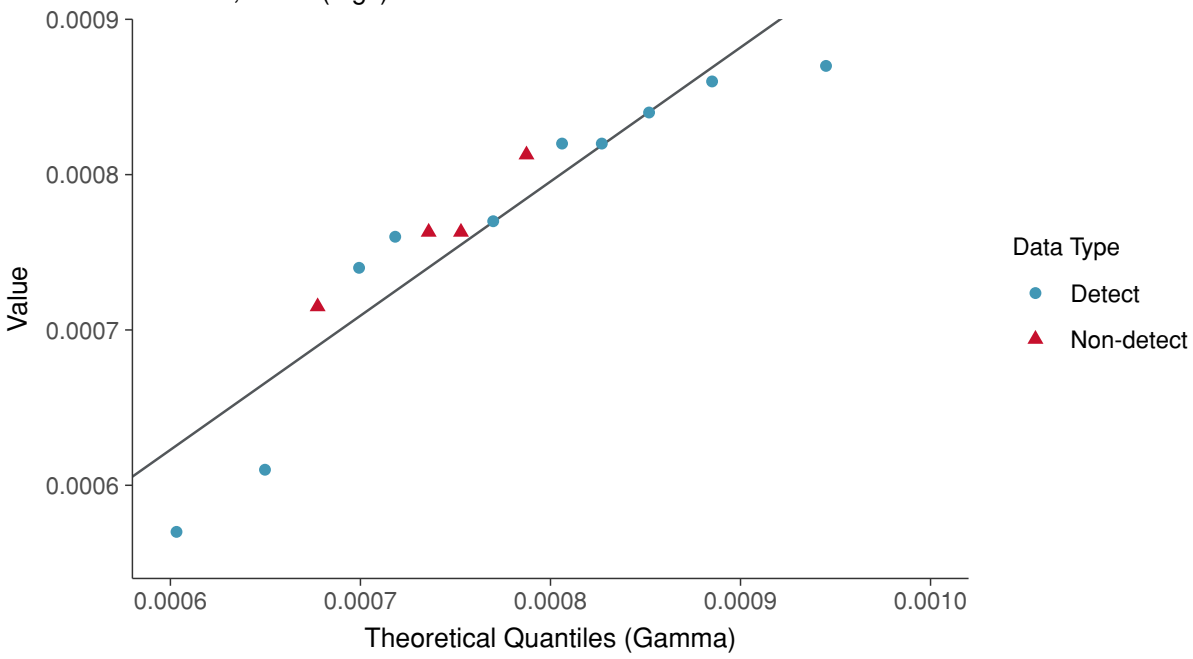
Lognormal Q-Q plot using ROS Imputed Estimates

Thallium, W-5B (mg/l)



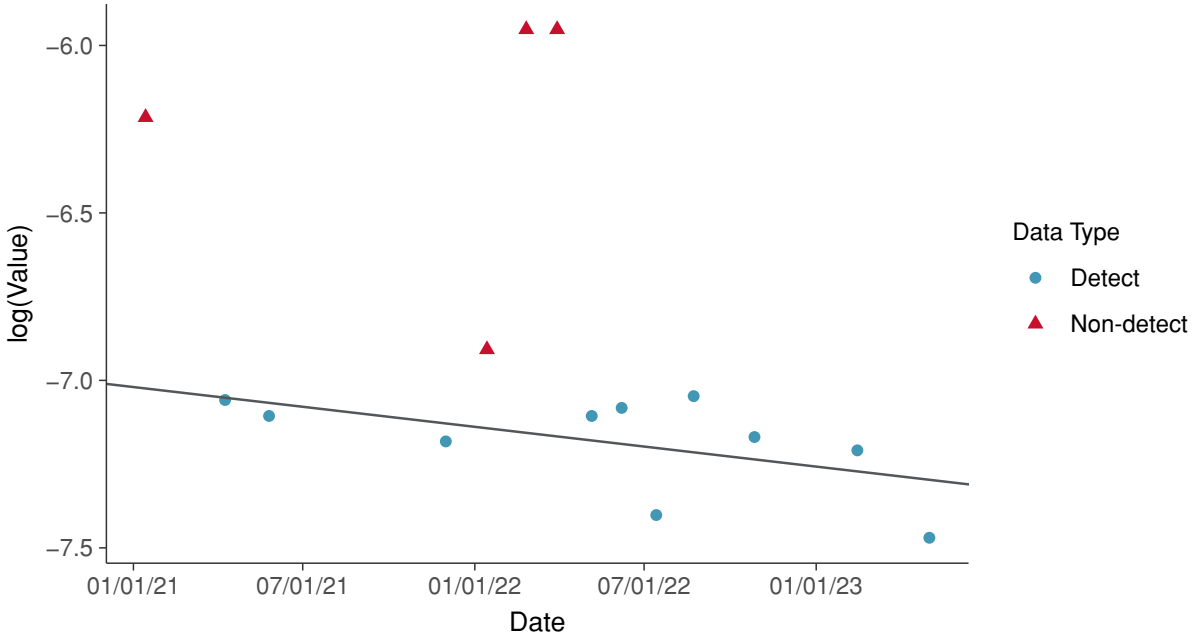
Gamma Q-Q plot using ROS Imputed Estimates

Thallium, W-5B (mg/l)



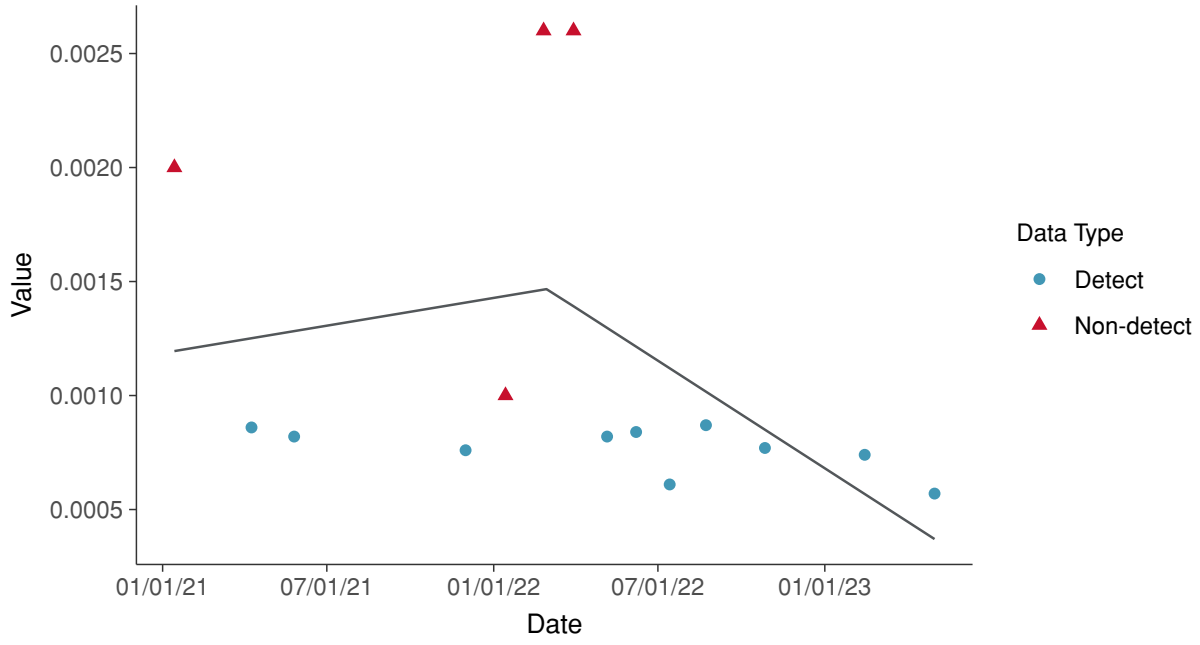
Trend Regression: Lognormal MLE

Thallium, W-5B (mg/l)



Trend Regression: Piecewise Linear-Linear

Thallium, W-5B (mg/l)



Trend Regression: Piecewise Linear-Linear-Linear

Thallium, W-5B (mg/l)

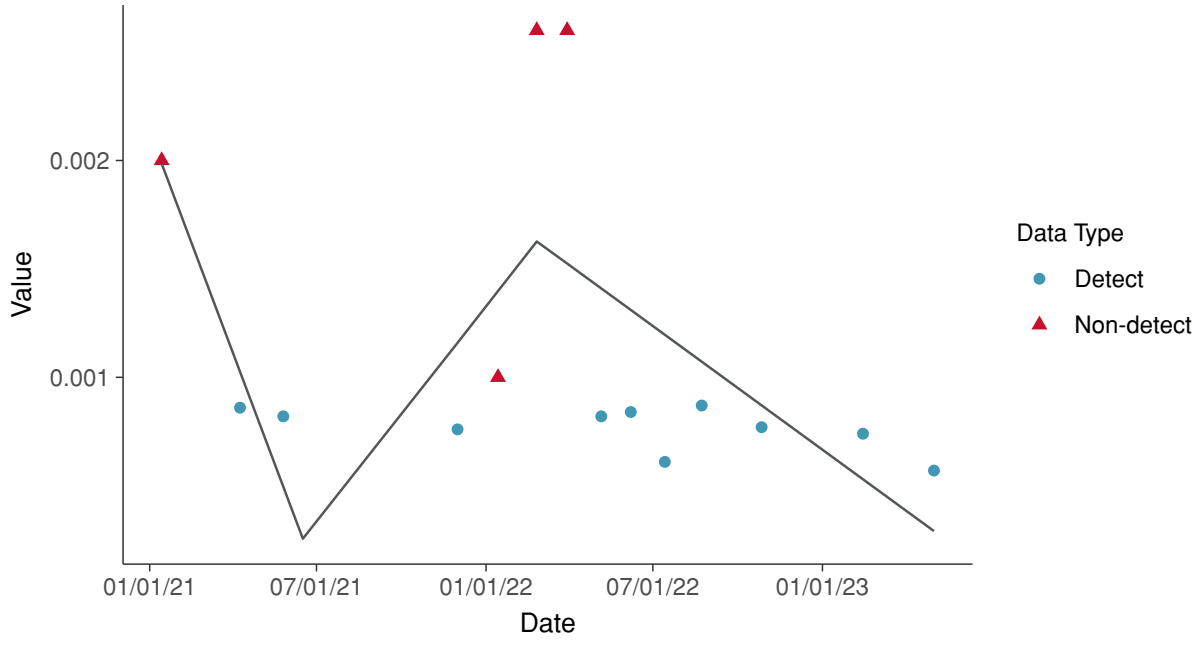


Table 1: Summary Statistics, Non-Detects Included

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_2_101	W-6B	Appendix IV	Antimony	mg/l	11	4	36%	2021-12-09 to 2023-05-03	Nonparametric	Nonparametric	0.00178	0.000660	0.000400	0.00730	0.00223	1.25	0.000385	1.92	3.22
10_2_102	W-6B	Appendix IV	Arsenic	mg/l	11	3	27%	2021-12-09 to 2023-05-03	Gamma; Normal	Normal	0.00223	0.00160	0.000330	0.00750	0.00202	0.905	0.000741	1.99	4.68
10_2_103	W-6B	Appendix IV	Barium	mg/l	11	1	9%	2021-12-09 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.0255	0.0190	0.0150	0.0880	0.0209	0.819	0.00444	3.19	10.4
10_2_104	W-6B	Appendix IV	Beryllium	mg/l	11	7	64%	2021-12-09 to 2023-05-03		Nonparametric	0.00330	0.000300	0.0000800	0.0270	0.00794	2.40	0.000310	3.20	10.4
10_2_106	W-6B	Appendix IV	Cadmium	mg/l	11	0	0%	2021-12-09 to 2023-05-03	Nonparametric	Nonparametric	0.0144	0.0110	0.00850	0.0270	0.00736	0.511	0.00296	1.13	-0.682
10_2_109	W-6B	Appendix IV	Chromium, Total	mg/l	11	5	45%	2021-12-09 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.0135	0.00220	0.000500	0.110	0.0323	2.39	0.00200	3.23	10.6
10_2_110	W-6B	Appendix IV	Cobalt	mg/l	11	0	0%	2021-12-09 to 2023-05-03	Normal	Normal	0.0953	0.100	0.0130	0.140	0.0355	0.373	0.0296	-1.24	2.00
10_2_112	W-6B	Appendix IV	Fluoride (App IV)	mg/l	11	7	64%	2021-12-09 to 2023-05-03		Nonparametric	15.3	0.170	0.170	85.0	31.3	2.05	0	1.94	2.30
10_2_113	W-6B	Appendix IV	Lead	mg/l	11	4	36%	2021-12-09 to 2023-05-03	Gamma; Lognormal	Gamma	0.00322	0.000840	0.000340	0.0240	0.00694	2.15	0.000652	3.24	10.6
10_2_114	W-6B	Appendix IV	Lithium	mg/l	11	0	0%	2021-12-09 to 2023-05-03	Gamma; Lognormal; Normal	Normal	3.65	3.60	2.80	4.60	0.461	0.127	0.296	0.339	1.61
10_2_115	W-6B	Appendix IV	Mercury	mg/l	11	11	100%	2021-12-09 to 2023-05-03		Nonparametric	0.0000843	0.0000610	0.0000610	0.000150	0.0000340	0.403	0	1.02	-0.584
10_2_116	W-6B	Appendix IV	Molybdenum	mg/l	11	3	27%	2021-12-09 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.0164	0.00650	0.00330	0.120	0.0345	2.10	0.00430	3.28	10.8
10_2_120	W-6B	Appendix IV	Radium-226+228	pci/l	11	0	0%	2021-12-09 to 2023-05-03	Gamma; Lognormal; Normal	Normal	8.77	8.50	3.34	13.1	2.97	0.339	2.81	-0.278	-0.506
10_2_122	W-6B	Appendix IV	Selenium	mg/l	11	2	18%	2021-12-09 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.0147	0.00490	0.00280	0.0960	0.0273	1.86	0.00222	3.19	10.4
10_2_126	W-6B	Appendix IV	Thallium	mg/l	11	1	9%	2021-12-09 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.00503	0.00270	0.00120	0.0260	0.00705	1.40	0.00119	3.16	10.2
11_2_101	W-7	Appendix IV	Antimony	mg/l	19	14	74%	2020-08-27 to 2023-05-03	Gamma; Lognormal; Normal	Nonparametric	0.00247	0.000570	0.000400	0.00770	0.00272	1.10	0.000252	0.857	-1.12
11_2_102	W-7	Appendix IV	Arsenic	mg/l	19	3	16%	2020-08-27 to 2023-05-03	Gamma; Normal	Gamma	0.0100	0.0100	0.000500	0.0310	0.00865	0.863	0.0104	0.748	0.214
11_2_103	W-7	Appendix IV	Barium	mg/l	19	4	21%	2020-08-27 to 2023-05-03	Nonparametric	Nonparametric	0.0253	0.0170	0.0120	0.0880	0.0206	0.815	0.00593	2.34	5.02
11_2_104	W-7	Appendix IV	Beryllium	mg/l	18	16	89%	2020-08-27 to 2023-05-03		Nonparametric	0.00262	0.000535	0.0000890	0.0270	0.00620	2.37	0.000348	3.99	16.5
11_2_106	W-7	Appendix IV	Cadmium	mg/l	19	0	0%	2020-08-27 to 2023-05-03	Nonparametric	Nonparametric	0.00789	0.00600	0.00510	0.0390	0.00758	0.961	0.000741	4.26	18.4
11_2_109	W-7	Appendix IV	Chromium, Total	mg/l	19	9	47%	2020-08-27 to 2023-05-03	Gamma; Lognormal	Gamma	0.0107	0.00310	0.000890	0.110	0.0246	2.30	0.00314	4.08	17.2
11_2_110	W-7	Appendix IV	Cobalt	mg/l	19	0	0%	2020-08-27 to 2023-05-03	Lognormal	Lognormal	0.0207	0.0170	0.0140	0.0630	0.0108	0.520	0.00296	3.72	15.0
11_2_112	W-7	Appendix IV	Fluoride (App IV)	mg/l	19	9	47%	2020-08-27 to 2023-05-03	Normal	Nonparametric	43.6	3.30	0.170	170	59.6	1.37	4.64	1.17	0.171
11_2_113	W-7	Appendix IV	Lead	mg/l	19	8	42%	2020-08-27 to 2023-05-03	Lognormal	Nonparametric	0.00493	0.00150	0.000580	0.0370	0.00936	1.90	0.00119	2.97	8.49
11_2_114	W-7	Appendix IV	Lithium	mg/l	19	0	0%	2020-08-27 to 2023-05-03	Gamma; Lognormal; Normal	Normal	4.04	4.00	1.90	5.60	0.967	0.239	0.889	-0.281	-0.134
11_2_115	W-7	Appendix IV	Mercury	mg/l	18	12	67%	2020-08-27 to 2023-05-03		Nonparametric	0.000191	0.000130	0.0000610	0.00130	0.000281	1.47	0.0000296	4.04	16.8
11_2_116	W-7	Appendix IV	Molybdenum	mg/l	19	7	37%	2020-08-27 to 2023-05-03	Nonparametric	Nonparametric	0.0139	0.00540	0.00450	0.120	0.0262	1.88	0.000741	4.11	17.4
11_2_120	W-7	Appendix IV	Radium-226+228	pci/l	17	0	0%	2020-08-27 to 2023-05-03	Gamma; Lognormal; Normal	Normal	4.76	4.74	2.19	6.90	1.11	0.233	1.19	-0.217	0.937
11_2_122	W-7	Appendix IV	Selenium	mg/l	19	0	0%	2020-08-27 to 2023-05-03	Gamma; Lognormal; Normal	Normal	1.80	1.80	0.760	2.40	0.382	0.212	0.444	-0.878	1.69
11_2_126	W-7	Appendix IV	Thallium	mg/l	19	1	5%	2020-08-27 to 2023-05-03	Nonparametric	Nonparametric	0.00817	0.00490	0.00420	0.0380	0.00876	1.07	0.000593	2.93	8.23
12_2_101	W-9	Appendix IV	Antimony	mg/l	11	6	55%	2021-01-13 to 2023-05-03	Gamma; Lognormal	Nonparametric	0.00210	0.000920	0.000400	0.00760	0.00225	1.07	0.000770	1.69	2.80
12_2_102	W-9	Appendix IV	Arsenic	mg/l	11	5	45%	2021-01-13 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.00154	0.000870	0.000500	0.00380	0.00131	0.849	0.000193	1.24	-0.363
12_2_103	W-9	Appendix IV	Barium	mg/l	11	1	9%	2021-01-13 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.0255	0.0210	0.0140	0.0880	0.0210	0.826	0.00593	3.16	10.2
12_2_104	W-9	Appendix IV	Beryllium	mg/l	10	10	100%	2021-01-13 to 2023-05-03		Nonparametric	0.00348	0.000465	0.0000800	0.0270	0.00831	2.39	0.000570	3.10	9.69
12_2_106	W-9	Appendix IV	Cadmium	mg/l	11	5	45%	2021-01-13 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.00132	0.000990	0.000340	0.00550	0.00142	1.07	0.000326	3.06	9.81
12_2_109	W-9	Appendix IV	Chromium, Total	mg/l	11	6	55%	2021-01-13 to 2023-05-03	Gamma; Lognormal; Normal	Nonparametric	0.0127	0.00370	0.000870	0.110	0.0323	2.55	0.00178	3.30	10.9
12_2_110	W-9	Appendix IV	Cobalt	mg/l	11	1	9%	2021-01-13 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.00548	0.00250	0.000840	0.0190	0.00627	1.14	0.00237	1.60	1.44
12_2_112	W-9	Appendix IV	Fluoride (App IV)	mg/l	11	3	27%	2021-01-13 to 2023-05-03	Nonparametric	Nonparametric	3.97	0.380	0.170	20.0	7.93	1.99	0.311	1.92	2.03
12_2_113	W-9	Appendix IV	Lead	mg/l	11	8	73%	2021-01-13 to 2023-05-03		Nonparametric	0.00289	0.000450	0.000230	0.0240	0.00704	2.44	0.000326	3.24	10.6
12_2_114	W-9	Appendix IV	Lithium	mg/l	11	0	0%	2021-01-13 to 2023-05-03	Nonparametric	Nonparametric	1.13	1.20	0.870	1.30	0.131	0.116	0	-0.956	-0.0615
12_2_115	W-9	Appendix IV	Mercury	mg/l	10	10	100%	2021-01-13 to 2023-05-03		Nonparametric	0.000100	0.000110	0.0000610	0.000150	0.0000357	0.356	0.0000444	-0.131	-1.92
12_2_116	W-9	Appendix IV	Molybdenum	mg/l	11	3	27%	2021-01-13 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.0160	0.00570	0.00250	0.120	0.0346	2.17	0.00341	3.29	10.9

(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
12_2_120	W-9	Appendix IV	Radium-226+228	pci/l	10	1	10%	2021-01-13 to 2023-05-03	Gamma; Lognormal; Normal	Normal	2.02	1.81	1.43	3.32	0.599	0.296	0.400	1.32	1.22
12_2_122	W-9	Appendix IV	Selenium	mg/l	11	1	9%	2021-01-13 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.0135	0.00460	0.00300	0.0960	0.0275	2.04	0.00178	3.27	10.8
12_2_126	W-9	Appendix IV	Thallium	mg/l	11	5	45%	2021-01-13 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.00290	0.000620	0.000220	0.0260	0.00767	2.65	0.000563	3.31	11
1_2_101	W-1	Appendix IV	Antimony	mg/l	20	15	75%	2020-03-05 to 2023-05-03	Nonparametric	Nonparametric	0.00196	0.000685	0.000400	0.00690	0.00212	1.08	0.000422	1.27	0.288
1_2_102	W-1	Appendix IV	Arsenic	mg/l	20	3	15%	2020-03-05 to 2023-05-03	Normal	Normal	0.00734	0.00765	0.000770	0.0170	0.00455	0.620	0.00422	0.0365	-0.499
1_2_103	W-1	Appendix IV	Barium	mg/l	20	3	15%	2020-03-05 to 2023-05-03	Nonparametric	Nonparametric	0.0272	0.0195	0.0110	0.0920	0.0210	0.772	0.00815	2.09	4.22
1_2_104	W-1	Appendix IV	Beryllium	mg/l	19	17	89%	2020-03-05 to 2023-05-03		Nonparametric	0.00139	0.000330	0.0000800	0.00540	0.00154	1.11	0.000119	1.23	0.721
1_2_106	W-1	Appendix IV	Cadmium	mg/l	20	9	45%	2020-03-05 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.000746	0.000525	0.000200	0.00200	0.000525	0.704	0.000259	1.46	1.51
1_2_109	W-1	Appendix IV	Chromium, Total	mg/l	20	8	40%	2020-03-05 to 2023-05-03	Gamma; Lognormal	Gamma	0.00708	0.00465	0.000950	0.0220	0.00602	0.851	0.00489	1.25	1.08
1_2_110	W-1	Appendix IV	Cobalt	mg/l	20	8	40%	2020-03-05 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.00171	0.00175	0.000330	0.00380	0.00104	0.608	0.00107	0.710	-0.214
1_2_112	W-1	Appendix IV	Fluoride (App IV)	mg/l	20	1	5%	2020-03-05 to 2023-05-03	Nonparametric	Nonparametric	21.4	5.75	1.70	96.0	25.0	1.17	5.26	1.54	2.65
1_2_113	W-1	Appendix IV	Lead	mg/l	20	9	45%	2020-03-05 to 2023-05-03	Gamma; Lognormal	Gamma	0.00216	0.00170	0.000280	0.00640	0.00175	0.813	0.00147	0.993	0.231
1_2_114	W-1	Appendix IV	Lithium	mg/l	20	0	0%	2020-03-05 to 2023-05-03	Gamma; Lognormal; Normal	Normal	2.13	2.15	1.70	2.50	0.225	0.106	0.222	-0.486	-0.202
1_2_115	W-1	Appendix IV	Mercury	mg/l	19	19	100%	2020-03-05 to 2023-05-03		Nonparametric	0.000176	0.000130	0.0000610	0.00130	0.000274	1.56	0	4.27	18.5
1_2_116	W-1	Appendix IV	Molybdenum	mg/l	20	1	5%	2020-03-05 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.0210	0.0200	0.0140	0.0290	0.00459	0.218	0.00519	0.355	-1.02
1_2_120	W-1	Appendix IV	Radium-226+228	pci/l	20	1	5%	2020-03-24 to 2023-05-03	Gamma; Lognormal	Gamma	2.09	1.94	0.899	4.82	1.06	0.505	0.689	1.69	2.90
1_2_122	W-1	Appendix IV	Selenium	mg/l	20	0	0%	2020-03-05 to 2023-05-03	Gamma; Lognormal	Gamma	0.865	0.805	0.570	1.60	0.247	0.286	0.141	1.75	3.35
1_2_126	W-1	Appendix IV	Thallium	mg/l	20	13	65%	2020-03-05 to 2023-05-03	Lognormal	Nonparametric	0.00102	0.000360	0.000200	0.00520	0.00124	1.21	0.000237	2.29	6.22
2_2_101	W-11	Appendix IV	Antimony	mg/l	11	8	73%	2021-01-13 to 2023-05-03		Nonparametric	0.00180	0.000570	0.000400	0.00770	0.00274	1.52	0.000252	1.90	2.06
2_2_102	W-11	Appendix IV	Arsenic	mg/l	11	3	27%	2021-01-13 to 2023-05-03	Gamma; Lognormal	Gamma	0.00646	0.00210	0.000430	0.0190	0.00761	1.18	0.00247	0.968	-0.833
2_2_103	W-11	Appendix IV	Barium	mg/l	11	1	9%	2021-01-13 to 2023-05-03	Nonparametric	Nonparametric	0.0429	0.0160	0.0120	0.240	0.0689	1.61	0.00444	2.82	8.16
2_2_104	W-11	Appendix IV	Beryllium	mg/l	10	8	80%	2021-01-13 to 2023-05-03		Nonparametric	0.00345	0.000310	0.000120	0.0270	0.00833	2.41	0.000252	3.08	9.60
2_2_106	W-11	Appendix IV	Cadmium	mg/l	11	2	18%	2021-01-13 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.00169	0.00150	0.000200	0.00550	0.00134	0.791	0.000444	2.62	8.17
2_2_109	W-11	Appendix IV	Chromium, Total	mg/l	11	5	45%	2021-01-13 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.0131	0.00250	0.000980	0.110	0.0323	2.46	0.00193	3.26	10.7
2_2_110	W-11	Appendix IV	Cobalt	mg/l	11	1	9%	2021-01-13 to 2023-05-03	Normal	Normal	0.0156	0.0170	0.000190	0.0230	0.00691	0.443	0.00444	-1.34	1.19
2_2_112	W-11	Appendix IV	Fluoride (App IV)	mg/l	11	1	9%	2021-01-13 to 2023-05-03	Gamma; Lognormal	Gamma	4.59	0.600	0.170	25.0	8.35	1.82	0.637	2.08	3.34
2_2_113	W-11	Appendix IV	Lead	mg/l	11	7	64%	2021-01-13 to 2023-05-03		Nonparametric	0.00316	0.000990	0.000370	0.0240	0.00696	2.20	0.000800	3.24	10.6
2_2_114	W-11	Appendix IV	Lithium	mg/l	11	0	0%	2021-01-13 to 2023-05-03	Nonparametric	Nonparametric	3.30	3.60	0.0560	4.50	1.17	0.354	0.444	-2.45	7.01
2_2_115	W-11	Appendix IV	Mercury	mg/l	10	10	100%	2021-01-13 to 2023-05-03		Nonparametric	0.000100	0.000110	0.0000610	0.000150	0.0000357	0.356	0.0000444	-0.131	-1.92
2_2_116	W-11	Appendix IV	Molybdenum	mg/l	11	5	45%	2021-01-13 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.0161	0.00440	0.00110	0.120	0.0347	2.16	0.00104	3.25	10.7
2_2_120	W-11	Appendix IV	Radium-226+228	pci/l	10	1	10%	2021-01-13 to 2023-05-03	Gamma; Lognormal; Normal	Normal	4.16	3.79	2.17	6.59	1.39	0.335	0.630	0.926	0.410
2_2_122	W-11	Appendix IV	Selenium	mg/l	11	1	9%	2021-01-13 to 2023-05-03	Gamma; Lognormal; Normal	Normal	2.45	2.60	0.000890	3.20	0.860	0.351	0.296	-2.68	8.14
2_2_126	W-11	Appendix IV	Thallium	mg/l	11	2	18%	2021-01-13 to 2023-05-03	Gamma; Lognormal; Normal	Gamma	0.00562	0.00390	0.000200	0.0260	0.00686	1.22	0.000593	3.12	10.2
3_2_101	W-12	Appendix IV	Antimony	mg/l	11	3	27%	2021-01-13 to 2023-05-04	Gamma; Lognormal; Normal	Normal	0.00180	0.000720	0.000590	0.00690	0.00209	1.16	0.000148	1.88	2.89
3_2_102	W-12	Appendix IV	Arsenic	mg/l	11	8	73%	2021-01-13 to 2023-05-04		Nonparametric	0.00125	0.000750	0.000330	0.00380	0.00116	0.933	0.000622	1.49	1.32
3_2_103	W-12	Appendix IV	Barium	mg/l	11	1	9%	2021-01-13 to 2023-05-04	Gamma; Lognormal	Gamma	0.0237	0.0150	0.0130	0.0880	0.0221	0.932	0.00296	2.95	8.98
3_2_104	W-12	Appendix IV	Beryllium	mg/l	10	8	80%	2021-01-13 to 2023-05-04		Nonparametric	0.00338	0.000310	0.000100	0.0270	0.00834	2.47	0.000200	3.10	9.71
3_2_106	W-12	Appendix IV	Cadmium	mg/l	11	2	18%	2021-01-13 to 2023-05-04	Nonparametric	Nonparametric	0.00157	0.00130	0.000540	0.00550	0.00133	0.847	0.000148	3.10	10.1
3_2_109	W-12	Appendix IV	Chromium, Total	mg/l	11	5	45%	2021-01-13 to 2023-05-04	Gamma; Lognormal; Normal	Normal	0.0124	0.00250	0.000910	0.110	0.0324	2.61	0.00236	3.30	10.9
3_2_110	W-12	Appendix IV	Cobalt	mg/l	11	0	0%	2021-01-13 to 2023-05-04	Normal	Normal	0.0274	0.0290	0.0130	0.0360	0.00627	0.229	0.00148	-1.19	1.89
3_2_112	W-12	Appendix IV	Fluoride (App IV)	mg/l	11	4	36%	2021-01-13 to 2023-05-04	Nonparametric	Nonparametric	3.15	0.430	0.170	30.0	8.91	2.83	0.385	3.31	11
3_2_113	W-12	Appendix IV	Lead	mg/l	11	9	82%	2021-01-13 to 2023-05-04		Nonparametric	0.00331	0.000720	0.000180	0.0240	0.00699	2.11	0.000800	3.12	9.98

(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_2_114	W-12	Appendix IV	Lithium	mg/l	11	0	0%	2021-01-13 to 2023-05-04	Normal	Normal	2.27	2.30	0.720	2.80	0.590	0.259	0.444	-2.01	4.97
3_2_115	W-12	Appendix IV	Mercury	mg/l	10	10	100%	2021-01-13 to 2023-05-04		Nonparametric	0.000100	0.000110	0.0000610	0.000150	0.0000357	0.356	0.0000444	-0.131	-1.92
3_2_116	W-12	Appendix IV	Molybdenum	mg/l	11	4	36%	2021-01-13 to 2023-05-04	Gamma; Lognormal; Normal	Normal	0.0151	0.00440	0.00220	0.120	0.0348	2.30	0.000741	3.30	10.9
3_2_120	W-12	Appendix IV	Radium-226+228	pci/l	10	0	0%	2021-01-13 to 2023-05-04	Gamma; Lognormal; Normal	Normal	3.10	2.83	1.85	4.74	1.08	0.349	1.23	0.447	-1.37
3_2_122	W-12	Appendix IV	Selenium	mg/l	11	1	9%	2021-01-13 to 2023-05-04	Gamma; Lognormal; Normal	Normal	0.0310	0.0220	0.0150	0.0960	0.0234	0.756	0.00889	2.49	6.85
3_2_126	W-12	Appendix IV	Thallium	mg/l	11	1	9%	2021-01-13 to 2023-05-04	Gamma; Lognormal	Gamma	0.00587	0.00380	0.00330	0.0260	0.00669	1.14	0.000296	3.28	10.8
4_2_101	W-14	Appendix IV	Antimony	mg/l	10	1	10%	2022-04-01 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.000531	0.000540	0.000400	0.000800	0.000120	0.225	0.000119	1.21	1.98
4_2_102	W-14	Appendix IV	Arsenic	mg/l	10	2	20%	2022-04-01 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.000467	0.000455	0.000330	0.000650	0.0000838	0.179	0.0000667	0.786	2.31
4_2_103	W-14	Appendix IV	Barium	mg/l	10	1	10%	2022-04-01 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.0218	0.0145	0.0110	0.0880	0.0233	1.07	0.00296	3.12	9.81
4_2_104	W-14	Appendix IV	Beryllium	mg/l	10	6	60%	2022-04-01 to 2023-05-03		Nonparametric	0.000210	0.000240	0.0000800	0.000340	0.000110	0.525	0.000126	-0.181	-2.14
4_2_106	W-14	Appendix IV	Cadmium	mg/l	10	0	0%	2022-04-01 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.00112	0.00110	0.000880	0.00150	0.000168	0.150	0.000148	1.20	2.77
4_2_109	W-14	Appendix IV	Chromium, Total	mg/l	10	1	10%	2022-04-01 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.0121	0.00130	0.000680	0.110	0.0344	2.84	0.000733	3.16	9.99
4_2_110	W-14	Appendix IV	Cobalt	mg/l	10	0	0%	2022-04-01 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.0110	0.0110	0.00980	0.0130	0.000968	0.0882	0.000741	0.884	1.01
4_2_112	W-14	Appendix IV	Fluoride (App IV)	mg/l	10	2	20%	2022-04-01 to 2023-05-03	Gamma; Lognormal; Normal	Gamma	15.2	2.75	0.170	40.0	18.3	1.20	3.73	0.533	-2.08
4_2_113	W-14	Appendix IV	Lead	mg/l	10	8	80%	2022-04-01 to 2023-05-03		Nonparametric	0.00260	0.000230	0.000180	0.0240	0.00752	2.89	0.0000741	3.16	10
4_2_114	W-14	Appendix IV	Lithium	mg/l	10	0	0%	2022-04-01 to 2023-05-03	Gamma; Lognormal; Normal	Normal	3.44	3.45	3.30	3.60	0.0966	0.0281	0.0741	-0.111	-0.623
4_2_115	W-14	Appendix IV	Mercury	mg/l	10	9	90%	2022-04-01 to 2023-05-03		Nonparametric	0.0000684	0.0000610	0.0000610	0.000110	0.0000166	0.243	0	2.26	4.63
4_2_116	W-14	Appendix IV	Molybdenum	mg/l	10	1	10%	2022-04-01 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.0268	0.0160	0.0140	0.120	0.0328	1.22	0.00148	3.13	9.87
4_2_120	W-14	Appendix IV	Radium-226+228	pci/l	10	0	0%	2022-04-01 to 2023-05-03	Gamma; Lognormal; Normal	Normal	3.62	3.67	1.94	5.62	1.34	0.370	1.77	0.247	-1.36
4_2_122	W-14	Appendix IV	Selenium	mg/l	10	0	0%	2022-04-01 to 2023-05-03	Normal	Normal	1.18	1.20	0.930	1.30	0.133	0.113	0.148	-0.965	-0.185
4_2_126	W-14	Appendix IV	Thallium	mg/l	10	1	10%	2022-04-01 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.00455	0.00220	0.00170	0.0260	0.00754	1.66	0.000222	3.16	9.98
5_2_101	W-16	Appendix IV	Antimony	mg/l	5	3	60%	2022-04-01 to 2023-05-11		Nonparametric	0.000406	0.000400	0.000400	0.000430	0.0000134	0.0330	0	2.24	5.00
5_2_102	W-16	Appendix IV	Arsenic	mg/l	5	3	60%	2022-04-01 to 2023-05-11		Nonparametric	0.000438	0.000350	0.000330	0.000680	0.000153	0.349	0.0000296	1.31	0.644
5_2_103	W-16	Appendix IV	Barium	mg/l	5	1	20%	2022-04-01 to 2023-05-11		Nonparametric	0.0278	0.0130	0.0120	0.0880	0.0337	1.21	0.00148	2.23	4.99
5_2_104	W-16	Appendix IV	Beryllium	mg/l	5	4	80%	2022-04-01 to 2023-05-11		Nonparametric	0.00552	0.000140	0.0000800	0.0270	0.0120	2.18	0.0000889	2.24	5.0
5_2_106	W-16	Appendix IV	Cadmium	mg/l	5	1	20%	2022-04-01 to 2023-05-11		Nonparametric	0.00294	0.00230	0.00210	0.00550	0.00144	0.489	0.000296	2.18	4.81
5_2_109	W-16	Appendix IV	Chromium, Total	mg/l	5	5	100%	2022-04-01 to 2023-05-11		Nonparametric	0.0224	0.000500	0.000500	0.110	0.0490	2.19	0	2.24	5.00
5_2_110	W-16	Appendix IV	Cobalt	mg/l	10	1	10%	2022-04-01 to 2023-05-11	Gamma; Lognormal; Normal	Normal	0.0165	0.0175	0.0110	0.0210	0.00321	0.194	0.00222	-0.518	-0.799
5_2_112	W-16	Appendix IV	Fluoride (App IV)	mg/l	5	0	0%	2022-04-01 to 2023-05-11	Gamma; Lognormal	Nonparametric	4.78	0.480	0.200	20.0	8.58	1.80	0.415	2.15	4.65
5_2_113	W-16	Appendix IV	Lead	mg/l	5	3	60%	2022-04-01 to 2023-05-11		Nonparametric	0.00500	0.000230	0.000180	0.0240	0.0106	2.12	0.0000741	2.24	5.0
5_2_114	W-16	Appendix IV	Lithium	mg/l	5	0	0%	2022-04-01 to 2023-05-11		Nonparametric	2.24	2.30	1.80	2.40	0.251	0.112	0.148	-2.02	4.23
5_2_115	W-16	Appendix IV	Mercury	mg/l	5	5	100%	2022-04-01 to 2023-05-11		Nonparametric	0.0000708	0.0000610	0.0000610	0.000110	0.0000219	0.310	0	2.24	5.00
5_2_116	W-16	Appendix IV	Molybdenum	mg/l	5	1	20%	2022-04-01 to 2023-05-11		Nonparametric	0.0283	0.00380	0.00320	0.120	0.0514	1.82	0.000889	2.21	4.92
5_2_120	W-16	Appendix IV	Radium-226+228	pci/l	5	0	0%	2022-04-01 to 2023-05-11	Gamma; Lognormal; Normal	Nonparametric	2.22	1.99	1.66	2.87	0.534	0.241	0.489	0.441	-2.65
5_2_122	W-16	Appendix IV	Selenium	mg/l	5	0	0%	2022-04-01 to 2023-05-11		Nonparametric	0.116	0.100	0.0980	0.140	0.0223	0.193	0.00296	0.602	-3.32
5_2_126	W-16	Appendix IV	Thallium	mg/l	5	1	20%	2022-04-01 to 2023-05-11		Nonparametric	0.00916	0.00500	0.00480	0.0260	0.00941	1.03	0.000148	2.24	5.0
6_2_101	W-17	Appendix IV	Antimony	mg/l	5	0	0%	2022-11-02 to 2023-05-03	Gamma; Lognormal; Normal	Nonparametric	0.00370	0.00380	0.00130	0.00630	0.00212	0.574	0.00281	0.0565	-2.18
6_2_102	W-17	Appendix IV	Arsenic	mg/l	5	0	0%	2022-11-02 to 2023-05-03	Gamma; Lognormal; Normal	Nonparametric	0.00142	0.00130	0.000610	0.00280	0.000820	0.577	0.000296	1.54	3.18
6_2_103	W-17	Appendix IV	Barium	mg/l	5	0	0%	2022-11-02 to 2023-05-03	Gamma; Lognormal	Nonparametric	0.0196	0.0170	0.0120	0.0380	0.0106	0.541	0.00593	1.92	3.89
6_2_104	W-17	Appendix IV	Beryllium	mg/l	5	5	100%	2022-11-02 to 2023-05-03		Nonparametric	0.000212	0.000300	0.0000800	0.000300	0.000120	0.568	0	-0.609	-3.33
6_2_106	W-17	Appendix IV	Cadmium	mg/l	5	0	0%	2022-11-02 to 2023-05-03	Gamma; Lognormal; Normal	Nonparametric	0.00354	0.00350	0.00200	0.00560	0.00136	0.386	0.00119	0.744	0.697
6_2_109	W-17	Appendix IV	Chromium, Total	mg/l	5	0	0%	2022-11-02 to 2023-05-03	Gamma; Lognormal; Normal	Nonparametric	0.00286	0.00240	0.00160	0.00430	0.00126	0.440	0.00119	0.400	-2.97

(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
6_2_110	W-17	Appendix IV	Cobalt	mg/l	5	0	0%	2022-11-02 to 2023-05-03	Gamma; Lognormal; Normal	Nonparametric	0.00506	0.00520	0.00210	0.00900	0.00280	0.554	0.00370	0.454	-0.883
6_2_112	W-17	Appendix IV	Fluoride (App IV)	mg/l	5	1	20%	2022-11-02 to 2023-05-03		Nonparametric	0.618	0.330	0.170	1.80	0.673	1.09	0.237	2.04	4.27
6_2_113	W-17	Appendix IV	Lead	mg/l	5	2	40%	2022-11-02 to 2023-05-03		Nonparametric	0.000868	0.000640	0.000230	0.00250	0.000942	1.08	0.000607	1.90	3.82
6_2_114	W-17	Appendix IV	Lithium	mg/l	5	0	0%	2022-11-02 to 2023-05-03	Gamma; Lognormal; Normal	Nonparametric	0.676	0.680	0.640	0.710	0.0270	0.0400	0.0296	-0.183	-0.681
6_2_115	W-17	Appendix IV	Mercury	mg/l	5	5	100%	2022-11-02 to 2023-05-03		Nonparametric	0.0000610	0.0000610	0.0000610	0.0000610	0	0	0	NA	NA
6_2_116	W-17	Appendix IV	Molybdenum	mg/l	5	0	0%	2022-11-02 to 2023-05-03	Gamma; Lognormal; Normal	Nonparametric	0.105	0.0870	0.0160	0.280	0.103	0.983	0.0652	1.65	3.08
6_2_120	W-17	Appendix IV	Radium-226+228	pci/l	5	1	20%	2022-11-02 to 2023-05-03		Nonparametric	1.36	1.35	0.827	1.94	0.444	0.326	0.430	0.146	-1.33
6_2_122	W-17	Appendix IV	Selenium	mg/l	5	0	0%	2022-11-02 to 2023-05-03	Gamma; Lognormal; Normal	Nonparametric	3.08	3.40	2.20	3.70	0.646	0.210	0.444	-0.691	-1.95
6_2_126	W-17	Appendix IV	Thallium	mg/l	5	0	0%	2022-11-02 to 2023-05-03		Nonparametric	0.00268	0.00290	0.00170	0.00300	0.000550	0.205	0	-2.20	4.88
7_2_101	W-18	Appendix IV	Antimony	mg/l	4	0	0%	2023-01-09 to 2023-05-02		Nonparametric	0.000705	0.000795	0.000400	0.000830	0.000205	0.291	0.0000444	-1.90	3.65
7_2_102	W-18	Appendix IV	Arsenic	mg/l	4	0	0%	2023-01-09 to 2023-05-02		Nonparametric	0.00104	0.00102	0.000920	0.00120	0.000136	0.131	0.000133	0.441	-3.47
7_2_103	W-18	Appendix IV	Barium	mg/l	4	0	0%	2023-01-09 to 2023-05-02		Nonparametric	0.0163	0.0160	0.0150	0.0180	0.00126	0.0774	0.000741	1.13	2.23
7_2_104	W-18	Appendix IV	Beryllium	mg/l	4	4	100%	2023-01-09 to 2023-05-02		Nonparametric	0.000300	0.000300	0.000300	0.000300	0	0	0	NA	NA
7_2_106	W-18	Appendix IV	Cadmium	mg/l	4	3	75%	2023-01-09 to 2023-05-02		Nonparametric	0.000192	0.000190	0.000190	0.000200	0.00000500	0.0260	0	2.0	4.0
7_2_109	W-18	Appendix IV	Chromium, Total	mg/l	4	1	25%	2023-01-09 to 2023-05-02		Nonparametric	0.00110	0.00111	0.000500	0.00170	0.000546	0.495	0.000659	-0.0168	-3.20
7_2_110	W-18	Appendix IV	Cobalt	mg/l	4	0	0%	2023-01-09 to 2023-05-02		Nonparametric	0.00515	0.00510	0.00470	0.00570	0.000412	0.0801	0.000296	0.713	1.79
7_2_112	W-18	Appendix IV	Fluoride (App IV)	mg/l	4	0	0%	2023-01-09 to 2023-05-02		Nonparametric	4.46	1.27	0.280	15.0	7.06	1.58	1.13	1.95	3.83
7_2_113	W-18	Appendix IV	Lead	mg/l	4	3	75%	2023-01-09 to 2023-05-02		Nonparametric	0.000243	0.000230	0.000230	0.000280	0.0000250	0.103	0	2.00	4.00
7_2_114	W-18	Appendix IV	Lithium	mg/l	4	0	0%	2023-01-09 to 2023-05-02		Nonparametric	2.05	2.05	2.00	2.10	0.0577	0.0282	0.0741	0.0000000000000231	-6.00
7_2_115	W-18	Appendix IV	Mercury	mg/l	4	4	100%	2023-01-09 to 2023-05-02		Nonparametric	0.0000610	0.0000610	0.0000610	0.0000610	0	0	0	NA	NA
7_2_116	W-18	Appendix IV	Molybdenum	mg/l	4	0	0%	2023-01-09 to 2023-05-02		Nonparametric	0.0415	0.0410	0.0410	0.0430	0.001000	0.0241	0	2.0	4.0
7_2_120	W-18	Appendix IV	Radium-226+228	pci/l	4	2	50%	2023-01-09 to 2023-05-02		Nonparametric	1.58	1.45	0.986	2.46	0.632	0.399	0.440	1.15	1.55
7_2_122	W-18	Appendix IV	Selenium	mg/l	4	0	0%	2023-01-09 to 2023-05-02		Nonparametric	1.35	1.30	1.30	1.50	0.100	0.0741	0	2.00	4.0
7_2_126	W-18	Appendix IV	Thallium	mg/l	4	2	50%	2023-01-09 to 2023-05-02		Nonparametric	0.000222	0.000215	0.000210	0.000250	0.0000189	0.0851	0.00000741	1.66	2.62
8_2_101	W-3B	Appendix IV	Antimony	mg/l	10	6	60%	2021-12-10 to 2023-05-02		Nonparametric	0.00172	0.000435	0.000400	0.00690	0.00229	1.33	0.0000519	1.68	1.98
8_2_102	W-3B	Appendix IV	Arsenic	mg/l	10	3	30%	2021-12-10 to 2023-05-02	Gamma; Lognormal; Normal	Normal	0.00127	0.000780	0.000580	0.00380	0.00114	0.897	0.0000593	1.88	2.19
8_2_103	W-3B	Appendix IV	Barium	mg/l	11	1	9%	2021-12-10 to 2023-05-02	Gamma; Lognormal; Normal	Normal	0.0215	0.0150	0.0130	0.0880	0.0221	1.02	0.00148	3.31	10.9
8_2_104	W-3B	Appendix IV	Beryllium	mg/l	11	8	73%	2021-12-10 to 2023-05-02		Nonparametric	0.00328	0.000300	0.0000800	0.0270	0.00794	2.42	0.000326	3.20	10.4
8_2_106	W-3B	Appendix IV	Cadmium	mg/l	11	0	0%	2021-12-10 to 2023-05-02	Nonparametric	Nonparametric	0.0179	0.0170	0.0150	0.0230	0.00221	0.123	0	1.50	2.26
8_2_109	W-3B	Appendix IV	Chromium, Total	mg/l	11	4	36%	2021-12-10 to 2023-05-02	Gamma; Lognormal	Gamma	0.0121	0.000850	0.000540	0.110	0.0326	2.70	0.000415	3.25	10.7
8_2_110	W-3B	Appendix IV	Cobalt	mg/l	11	0	0%	2021-12-10 to 2023-05-02	Nonparametric	Nonparametric	0.105	0.110	0.00350	0.150	0.0382	0.364	0.0148	-2.02	5.50
8_2_112	W-3B	Appendix IV	Fluoride (App IV)	mg/l	11	7	64%	2021-12-10 to 2023-05-02		Nonparametric	30.8	1.70	0.170	100	42.5	1.38	2.27	0.758	-1.60
8_2_113	W-3B	Appendix IV	Lead	mg/l	11	4	36%	2021-12-10 to 2023-05-02	Gamma; Lognormal; Normal	Normal	0.00322	0.000840	0.000490	0.0240	0.00692	2.15	0.000400	3.26	10.7
8_2_114	W-3B	Appendix IV	Lithium	mg/l	11	0	0%	2021-12-10 to 2023-05-02	Gamma; Lognormal; Normal	Normal	3.11	3.10	2.50	3.40	0.251	0.0807	0.296	-1.47	2.82
8_2_115	W-3B	Appendix IV	Mercury	mg/l	11	11	100%	2021-12-10 to 2023-05-02		Nonparametric	0.0000843	0.0000610	0.0000610	0.000150	0.0000340	0.403	0	1.02	-0.584
8_2_116	W-3B	Appendix IV	Molybdenum	mg/l	11	3	27%	2021-12-10 to 2023-05-02	Nonparametric	Nonparametric	0.0149	0.00260	0.00160	0.120	0.0351	2.35	0.00133	3.25	10.7
8_2_120	W-3B	Appendix IV	Radium-226+228	pci/l	11	0	0%	2021-12-10 to 2023-05-02	Gamma; Lognormal; Normal	Normal	11.3	11.5	8.15	13.6	1.81	0.160	1.48	-0.602	-0.357
8_2_122	W-3B	Appendix IV	Selenium	mg/l	11	1	9%	2021-12-10 to 2023-05-02	Gamma; Lognormal	Gamma	0.0163	0.00660	0.00470	0.0960	0.0267	1.64	0.00267	3.19	10.3
8_2_126	W-3B	Appendix IV	Thallium	mg/l	11	1	9%	2021-12-10 to 2023-05-02	Gamma; Lognormal; Normal	Normal	0.00508	0.00300	0.00260	0.0260	0.00694	1.37	0.000296	3.31	11
9_2_101	W-5B	Appendix IV	Antimony	mg/l	14	12	86%	2021-01-14 to 2023-05-02		Nonparametric	0.00210	0.000530	0.000400	0.00780	0.00278	1.33	0.000193	1.29	-0.0589
9_2_102	W-5B	Appendix IV	Arsenic	mg/l	14	8	57%	2021-01-14 to 2023-05-02	Gamma; Lognormal; Normal	Nonparametric	0.00168	0.000555	0.000330	0.00750	0.00256	1.52	0.000319	2.02	2.78
9_2_103	W-5B	Appendix IV	Barium	mg/l	14	1	7%	2021-01-14 to 2023-05-02	Gamma; Lognormal; Normal	Normal	0.0181	0.0180	0.0160	0.0220	0.00154	0.0854	0.00148	1.33	2.18

(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_2_104	W-5B	Appendix IV	Beryllium	mg/l	13	11	85%	2021-01-14 to 2023-05-02		Nonparametric	0.000953	0.000300	0.0000800	0.00310	0.00118	1.24	0.000326	1.04	-0.794
9_2_106	W-5B	Appendix IV	Cadmium	mg/l	14	2	14%	2021-01-14 to 2023-05-02	Gamma; Lognormal	Gamma	0.00113	0.000890	0.000550	0.00280	0.000608	0.537	0.000378	1.90	3.83
9_2_109	W-5B	Appendix IV	Chromium, Total	mg/l	14	12	86%	2021-01-14 to 2023-05-02		Nonparametric	0.00318	0.000875	0.000500	0.0110	0.00417	1.31	0.000556	1.36	0.114
9_2_110	W-5B	Appendix IV	Cobalt	mg/l	14	0	0%	2021-01-14 to 2023-05-02	Gamma; Lognormal; Normal	Normal	0.00291	0.00290	0.00190	0.00400	0.000555	0.190	0.000444	0.195	0.0698
9_2_112	W-5B	Appendix IV	Fluoride (App IV)	mg/l	14	2	14%	2021-01-14 to 2023-05-02	Nonparametric	Nonparametric	1.46	0.375	0.170	9.00	2.78	1.91	0.193	2.36	4.53
9_2_113	W-5B	Appendix IV	Lead	mg/l	14	8	57%	2021-01-14 to 2023-05-02	Gamma; Lognormal	Nonparametric	0.000945	0.000450	0.000180	0.00450	0.00127	1.35	0.000348	2.10	4.11
9_2_114	W-5B	Appendix IV	Lithium	mg/l	14	0	0%	2021-01-14 to 2023-05-02	Gamma; Lognormal; Normal	Normal	0.275	0.285	0.220	0.330	0.0313	0.114	0.0222	-0.280	-0.575
9_2_115	W-5B	Appendix IV	Mercury	mg/l	13	13	100%	2021-01-14 to 2023-05-02		Nonparametric	0.000181	0.0000610	0.0000610	0.00130	0.000338	1.86	0	3.54	12.7
9_2_116	W-5B	Appendix IV	Molybdenum	mg/l	14	4	29%	2021-01-14 to 2023-05-02	Nonparametric	Nonparametric	0.00558	0.00320	0.00150	0.0120	0.00433	0.776	0.00244	0.457	-1.74
9_2_120	W-5B	Appendix IV	Radium-226+228	pci/l	13	0	0%	2021-01-14 to 2023-05-02	Gamma; Lognormal	Gamma	2.11	1.75	1.47	5.35	1.04	0.490	0.281	2.93	9.32
9_2_122	W-5B	Appendix IV	Selenium	mg/l	14	6	43%	2021-01-14 to 2023-05-02	Gamma; Lognormal	Gamma	0.00302	0.00110	0.000570	0.00960	0.00356	1.18	0.000733	1.36	0.0674
9_2_126	W-5B	Appendix IV	Thallium	mg/l	14	4	29%	2021-01-14 to 2023-05-02	Gamma; Lognormal; Normal	Normal	0.00113	0.000830	0.000570	0.00260	0.000708	0.625	0.000119	1.61	1.08

[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_2_101	W-6B	Appendix IV	Antimony	mg/l	11	4	36%	2021-12-09 to 2023-05-03	Nonparametric	Nonparametric	0.00164	0.000660	0.000490	0.00730	0.00250	1.53	0.000252	2.61	6.86
10_2_102	W-6B	Appendix IV	Arsenic	mg/l	11	3	27%	2021-12-09 to 2023-05-03	Gamma; Normal	Normal	0.00162	0.00155	0.000330	0.00300	0.000753	0.466	0.000296	0.264	1.99
10_2_103	W-6B	Appendix IV	Barium	mg/l	11	1	9%	2021-12-09 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.0193	0.0185	0.0150	0.0240	0.00316	0.164	0.00296	0.419	-1.02
10_2_104	W-6B	Appendix IV	Beryllium	mg/l	11	7	64%	2021-12-09 to 2023-05-03		Nonparametric	0.000238	0.000280	0.0000910	0.000300	0.0000983	0.413	0.0000148	-1.94	3.83
10_2_106	W-6B	Appendix IV	Cadmium	mg/l	11	0	0%	2021-12-09 to 2023-05-03	Nonparametric	Nonparametric	0.0144	0.0110	0.00850	0.0270	0.00736	0.511	0.00296	1.13	-0.682
10_2_109	W-6B	Appendix IV	Chromium, Total	mg/l	11	5	45%	2021-12-09 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.00176	0.00170	0.000850	0.00290	0.000738	0.420	0.000741	0.475	-0.299
10_2_110	W-6B	Appendix IV	Cobalt	mg/l	11	0	0%	2021-12-09 to 2023-05-03	Normal	Normal	0.0953	0.100	0.0130	0.140	0.0355	0.373	0.0296	-1.24	2.00
10_2_112	W-6B	Appendix IV	Fluoride (App IV)	mg/l	11	7	64%	2021-12-09 to 2023-05-03		Nonparametric	41.7	39.6	2.50	85.0	42.4	1.02	50.7	0.0779	-5.38
10_2_113	W-6B	Appendix IV	Lead	mg/l	11	4	36%	2021-12-09 to 2023-05-03	Gamma; Lognormal	Gamma	0.000846	0.000630	0.000340	0.00220	0.000661	0.782	0.000341	1.82	3.17
10_2_114	W-6B	Appendix IV	Lithium	mg/l	11	0	0%	2021-12-09 to 2023-05-03	Gamma; Lognormal; Normal	Normal	3.65	3.60	2.80	4.60	0.461	0.127	0.296	0.339	1.61
10_2_116	W-6B	Appendix IV	Molybdenum	mg/l	11	3	27%	2021-12-09 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.00498	0.00435	0.00330	0.00770	0.00180	0.362	0.00148	0.479	-1.80
10_2_120	W-6B	Appendix IV	Radium-226+228	pci/l	11	0	0%	2021-12-09 to 2023-05-03	Gamma; Lognormal; Normal	Normal	8.77	8.50	3.34	13.1	2.97	0.339	2.81	-0.278	-0.506
10_2_122	W-6B	Appendix IV	Selenium	mg/l	11	2	18%	2021-12-09 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.00677	0.00490	0.00280	0.0160	0.00448	0.661	0.00222	1.39	1.14
10_2_126	W-6B	Appendix IV	Thallium	mg/l	11	1	9%	2021-12-09 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.00293	0.00260	0.00120	0.00500	0.00121	0.413	0.000889	0.495	-0.754
11_2_101	W-7	Appendix IV	Antimony	mg/l	19	14	74%	2020-08-27 to 2023-05-03	Gamma; Lognormal; Normal	Nonparametric	0.000504	0.000470	0.000430	0.000600	0.0000760	0.151	0.0000593	0.541	-2.62
11_2_102	W-7	Appendix IV	Arsenic	mg/l	19	3	16%	2020-08-27 to 2023-05-03	Gamma; Normal	Gamma	0.0115	0.0110	0.000560	0.0310	0.00861	0.750	0.00815	0.548	0.189
11_2_103	W-7	Appendix IV	Barium	mg/l	19	4	21%	2020-08-27 to 2023-05-03	Nonparametric	Nonparametric	0.0218	0.0150	0.0120	0.0710	0.0158	0.726	0.00296	2.54	6.79
11_2_104	W-7	Appendix IV	Beryllium	mg/l	18	16	89%	2020-08-27 to 2023-05-03		Nonparametric	0.000274	0.000274	0.0000890	0.000460	0.000262	0.956	0.000275	NA	NA
11_2_106	W-7	Appendix IV	Cadmium	mg/l	19	0	0%	2020-08-27 to 2023-05-03	Nonparametric	Nonparametric	0.00789	0.00600	0.00510	0.0390	0.00758	0.961	0.000741	4.26	18.4
11_2_109	W-7	Appendix IV	Chromium, Total	mg/l	19	9	47%	2020-08-27 to 2023-05-03	Gamma; Lognormal	Gamma	0.00452	0.00195	0.000890	0.0210	0.00611	1.35	0.00134	2.62	7.29
11_2_110	W-7	Appendix IV	Cobalt	mg/l	19	0	0%	2020-08-27 to 2023-05-03	Lognormal	Lognormal	0.0207	0.0170	0.0140	0.0630	0.0108	0.520	0.00296	3.72	15.0
11_2_112	W-7	Appendix IV	Fluoride (App IV)	mg/l	19	9	47%	2020-08-27 to 2023-05-03	Normal	Nonparametric	65.4	71.0	0.740	170	56.2	0.859	65.2	0.505	-0.246
11_2_113	W-7	Appendix IV	Lead	mg/l	19	8	42%	2020-08-27 to 2023-05-03	Lognormal	Nonparametric	0.00446	0.00110	0.000580	0.0370	0.0108	2.42	0.000519	3.30	10.9
11_2_114	W-7	Appendix IV	Lithium	mg/l	19	0	0%	2020-08-27 to 2023-05-03	Gamma; Lognormal; Normal	Normal	4.04	4.00	1.90	5.60	0.967	0.239	0.889	-0.281	-0.134
11_2_115	W-7	Appendix IV	Mercury	mg/l	18	12	67%	2020-08-27 to 2023-05-03		Nonparametric	0.000168	0.000160	0.000130	0.000240	0.0000458	0.272	0.0000444	0.686	-0.948
11_2_116	W-7	Appendix IV	Molybdenum	mg/l	19	7	37%	2020-08-27 to 2023-05-03	Nonparametric	Nonparametric	0.00680	0.00525	0.00450	0.0250	0.00574	0.844	0.000444	3.44	11.9
11_2_120	W-7	Appendix IV	Radium-226+228	pci/l	17	0	0%	2020-08-27 to 2023-05-03	Gamma; Lognormal; Normal	Normal	4.76	4.74	2.19	6.90	1.11	0.233	1.19	-0.217	0.937
11_2_122	W-7	Appendix IV	Selenium	mg/l	19	0	0%	2020-08-27 to 2023-05-03	Gamma; Lognormal; Normal	Normal	1.80	1.80	0.760	2.40	0.382	0.212	0.444	-0.878	1.69
11_2_126	W-7	Appendix IV	Thallium	mg/l	19	1	5%	2020-08-27 to 2023-05-03	Nonparametric	Nonparametric	0.00718	0.00485	0.00420	0.0380	0.00784	1.09	0.000444	4.00	16.4
12_2_101	W-9	Appendix IV	Antimony	mg/l	11	6	55%	2021-01-13 to 2023-05-03	Gamma; Lognormal	Nonparametric	0.00231	0.000920	0.000470	0.00760	0.00299	1.29	0.000667	2.12	4.55
12_2_102	W-9	Appendix IV	Arsenic	mg/l	11	5	45%	2021-01-13 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.000842	0.000850	0.000710	0.00100	0.000104	0.124	0.000104	0.280	-0.233
12_2_103	W-9	Appendix IV	Barium	mg/l	11	1	9%	2021-01-13 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.0192	0.0190	0.0140	0.0240	0.00361	0.188	0.00444	0.0805	-1.61
12_2_106	W-9	Appendix IV	Cadmium	mg/l	11	5	45%	2021-01-13 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.000867	0.000935	0.000340	0.00120	0.000328	0.378	0.000304	-0.766	-0.428
12_2_109	W-9	Appendix IV	Chromium, Total	mg/l	11	6	55%	2021-01-13 to 2023-05-03	Gamma; Lognormal; Normal	Nonparametric	0.00233	0.00200	0.000870	0.00380	0.00135	0.580	0.00167	0.238	-2.86
12_2_110	W-9	Appendix IV	Cobalt	mg/l	11	1	9%	2021-01-13 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.00413	0.00225	0.000840	0.0160	0.00462	1.12	0.00199	2.20	5.34
12_2_112	W-9	Appendix IV	Fluoride (App IV)	mg/l	11	3	27%	2021-01-13 to 2023-05-03	Nonparametric	Nonparametric	5.40	0.600	0.320	20.0	9.01	1.67	0.378	1.44	-0.00263
12_2_113	W-9	Appendix IV	Lead	mg/l	11	8	73%	2021-01-13 to 2023-05-03		Nonparametric	0.000327	0.000310	0.000230	0.000440	0.000106	0.324	0.000119	0.690	NA
12_2_114	W-9	Appendix IV	Lithium	mg/l	11	0	0%	2021-01-13 to 2023-05-03	Nonparametric	Nonparametric	1.13	1.20	0.870	1.30	0.131	0.116	0	-0.956	-0.0615
12_2_116	W-9	Appendix IV	Molybdenum	mg/l	11	3	27%	2021-01-13 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.00513	0.00455	0.00250	0.00790	0.00233	0.454	0.00259	0.202	-2.31
12_2_120	W-9	Appendix IV	Radium-226+228	pci/l	10	1	10%	2021-01-13 to 2023-05-03	Gamma; Lognormal; Normal	Normal	2.07	1.82	1.43	3.32	0.612	0.295	0.459	1.17	0.857
12_2_122	W-9	Appendix IV	Selenium	mg/l	11	1	9%	2021-01-13 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.00522	0.00430	0.00300	0.00990	0.00252	0.483	0.00178	1.29	0.391
12_2_126	W-9	Appendix IV	Thallium	mg/l	11	5	45%	2021-01-13 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.000433	0.000440	0.000220	0.000640	0.000192	0.444	0.000281	-0.0473	-2.76
1_2_101	W-1	Appendix IV	Antimony	mg/l	20	15	75%	2020-03-05 to 2023-05-03	Nonparametric	Nonparametric	0.000790	0.000710	0.000660	0.00120	0.000231	0.292	0.0000741	2.16	4.71

(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
1_2_102	W-1	Appendix IV	Arsenic	mg/l	20	3	15%	2020-03-05 to 2023-05-03	Normal	Normal	0.00757	0.00840	0.000770	0.0170	0.00483	0.638	0.00385	-0.0781	-0.703
1_2_103	W-1	Appendix IV	Barium	mg/l	20	3	15%	2020-03-05 to 2023-05-03	Nonparametric	Nonparametric	0.0283	0.0160	0.0110	0.0920	0.0226	0.800	0.00741	1.85	3.04
1_2_104	W-1	Appendix IV	Beryllium	mg/l	19	17	89%	2020-03-05 to 2023-05-03		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	20	9	45%	2020-03-05 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.000436	0.000410	0.000310	0.000600	0.0000950	0.218	0.0000889	0.570	-0.676
1_2_109	W-1	Appendix IV	Chromium, Total	mg/l	20	8	40%	2020-03-05 to 2023-05-03	Gamma; Lognormal	Gamma	0.00524	0.00320	0.000950	0.0200	0.00568	1.08	0.00215	1.92	3.56
1_2_110	W-1	Appendix IV	Cobalt	mg/l	20	8	40%	2020-03-05 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.00180	0.00175	0.000390	0.00360	0.00104	0.577	0.000889	0.504	-0.488
1_2_112	W-1	Appendix IV	Fluoride (App IV)	mg/l	20	1	5%	2020-03-05 to 2023-05-03	Nonparametric	Nonparametric	22.4	8.20	2.70	96.0	25.3	1.13	8.15	1.48	2.48
1_2_113	W-1	Appendix IV	Lead	mg/l	20	9	45%	2020-03-05 to 2023-05-03	Gamma; Lognormal	Gamma	0.00170	0.00140	0.000280	0.00640	0.00183	1.07	0.00121	2.02	4.28
1_2_114	W-1	Appendix IV	Lithium	mg/l	20	0	0%	2020-03-05 to 2023-05-03	Gamma; Lognormal; Normal	Normal	2.13	2.15	1.70	2.50	0.225	0.106	0.222	-0.486	-0.202
1_2_116	W-1	Appendix IV	Molybdenum	mg/l	20	1	5%	2020-03-05 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.0209	0.0200	0.0140	0.0290	0.00467	0.223	0.00444	0.456	-0.977
1_2_120	W-1	Appendix IV	Radium-226+228	pci/l	20	1	5%	2020-03-24 to 2023-05-03	Gamma; Lognormal	Gamma	2.15	1.97	0.899	4.82	1.05	0.486	0.652	1.73	2.91
1_2_122	W-1	Appendix IV	Selenium	mg/l	20	0	0%	2020-03-05 to 2023-05-03	Gamma; Lognormal	Gamma	0.865	0.805	0.570	1.60	0.247	0.286	0.141	1.75	3.35
1_2_126	W-1	Appendix IV	Thallium	mg/l	20	13	65%	2020-03-05 to 2023-05-03	Lognormal	Nonparametric	0.000626	0.000360	0.000210	0.00190	0.000600	0.959	0.0000444	2.08	4.29
2_2_101	W-11	Appendix IV	Antimony	mg/l	11	8	73%	2021-01-13 to 2023-05-03		Nonparametric	0.000770	0.000480	0.000430	0.00140	0.000546	0.709	0.0000741	1.72	NA
2_2_102	W-11	Appendix IV	Arsenic	mg/l	11	3	27%	2021-01-13 to 2023-05-03	Gamma; Lognormal	Gamma	0.00718	0.00145	0.000430	0.0190	0.00878	1.22	0.00151	0.702	-1.96
2_2_103	W-11	Appendix IV	Barium	mg/l	11	1	9%	2021-01-13 to 2023-05-03	Nonparametric	Nonparametric	0.0384	0.0155	0.0120	0.240	0.0709	1.85	0.00370	3.15	9.93
2_2_104	W-11	Appendix IV	Beryllium	mg/l	10	8	80%	2021-01-13 to 2023-05-03		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	11	2	18%	2021-01-13 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.00143	0.00150	0.00110	0.00190	0.000269	0.188	0.000296	0.285	-0.484
2_2_109	W-11	Appendix IV	Chromium, Total	mg/l	11	5	45%	2021-01-13 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.00200	0.00185	0.00100	0.00330	0.000910	0.455	0.00111	0.452	-1.45
2_2_110	W-11	Appendix IV	Cobalt	mg/l	11	1	9%	2021-01-13 to 2023-05-03	Normal	Normal	0.0171	0.0180	0.00730	0.0230	0.00491	0.287	0.00296	-1.17	0.726
2_2_112	W-11	Appendix IV	Fluoride (App IV)	mg/l	11	1	9%	2021-01-13 to 2023-05-03	Gamma; Lognormal	Gamma	5.03	0.850	0.350	25.0	8.67	1.72	0.733	1.94	2.70
2_2_113	W-11	Appendix IV	Lead	mg/l	11	7	64%	2021-01-13 to 2023-05-03		Nonparametric	0.00127	0.000995	0.000370	0.00270	0.00100	0.791	0.000467	1.46	2.74
2_2_114	W-11	Appendix IV	Lithium	mg/l	11	0	0%	2021-01-13 to 2023-05-03	Nonparametric	Nonparametric	3.30	3.60	0.0560	4.50	1.17	0.354	0.444	-2.45	7.01
2_2_116	W-11	Appendix IV	Molybdenum	mg/l	11	5	45%	2021-01-13 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.00420	0.00420	0.00370	0.00460	0.000310	0.0738	0.000222	-0.545	0.586
2_2_120	W-11	Appendix IV	Radium-226+228	pci/l	10	1	10%	2021-01-13 to 2023-05-03	Gamma; Lognormal; Normal	Normal	4.17	3.75	2.17	6.59	1.48	0.354	0.681	0.871	-0.00285
2_2_122	W-11	Appendix IV	Selenium	mg/l	11	1	9%	2021-01-13 to 2023-05-03	Gamma; Lognormal; Normal	Normal	2.70	2.60	2.30	3.20	0.294	0.109	0.296	0.523	-0.695
2_2_126	W-11	Appendix IV	Thallium	mg/l	11	2	18%	2021-01-13 to 2023-05-03	Gamma; Lognormal; Normal	Gamma	0.00396	0.00390	0.00340	0.00470	0.000416	0.105	0.000444	0.513	-0.416
3_2_101	W-12	Appendix IV	Antimony	mg/l	11	3	27%	2021-01-13 to 2023-05-04	Gamma; Lognormal; Normal	Normal	0.000696	0.000700	0.000590	0.000870	0.0000870	0.125	0.0000667	1.01	1.59
3_2_102	W-12	Appendix IV	Arsenic	mg/l	11	8	73%	2021-01-13 to 2023-05-04		Nonparametric	0.000830	0.000540	0.000350	0.00160	0.000674	0.812	0.000281	1.58	NA
3_2_103	W-12	Appendix IV	Barium	mg/l	11	1	9%	2021-01-13 to 2023-05-04	Gamma; Lognormal	Gamma	0.0173	0.0150	0.0130	0.0340	0.00618	0.357	0.00222	2.61	7.39
3_2_104	W-12	Appendix IV	Beryllium	mg/l	10	8	80%	2021-01-13 to 2023-05-04		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	11	2	18%	2021-01-13 to 2023-05-04	Nonparametric	Nonparametric	0.00119	0.00130	0.000540	0.00140	0.000263	0.221	0.000148	-2.27	5.79
3_2_109	W-12	Appendix IV	Chromium, Total	mg/l	11	5	45%	2021-01-13 to 2023-05-04	Gamma; Lognormal; Normal	Normal	0.00233	0.00165	0.000910	0.00460	0.00165	0.709	0.00104	0.778	-1.82
3_2_110	W-12	Appendix IV	Cobalt	mg/l	11	0	0%	2021-01-13 to 2023-05-04	Normal	Normal	0.0274	0.0290	0.0130	0.0360	0.00627	0.229	0.00148	-1.19	1.89
3_2_112	W-12	Appendix IV	Fluoride (App IV)	mg/l	11	4	36%	2021-01-13 to 2023-05-04	Nonparametric	Nonparametric	4.85	0.840	0.180	30.0	11.1	2.29	0.104	2.64	6.99
3_2_113	W-12	Appendix IV	Lead	mg/l	11	9	82%	2021-01-13 to 2023-05-04		Nonparametric	0.00256	0.00256	0.000720	0.00440	0.00260	1.02	0.00273	NA	NA
3_2_114	W-12	Appendix IV	Lithium	mg/l	11	0	0%	2021-01-13 to 2023-05-04	Normal	Normal	2.27	2.30	0.720	2.80	0.590	0.259	0.444	-2.01	4.97
3_2_116	W-12	Appendix IV	Molybdenum	mg/l	11	4	36%	2021-01-13 to 2023-05-04	Gamma; Lognormal; Normal	Normal	0.00424	0.00420	0.00390	0.00460	0.000299	0.0705	0.000444	0.0992	-1.84
3_2_120	W-12	Appendix IV	Radium-226+228	pci/l	10	0	0%	2021-01-13 to 2023-05-04	Gamma; Lognormal; Normal	Normal	3.10	2.83	1.85	4.74	1.08	0.349	1.23	0.447	-1.37
3_2_122	W-12	Appendix IV	Selenium	mg/l	11	1	9%	2021-01-13 to 2023-05-04	Gamma; Lognormal; Normal	Normal	0.0245	0.0210	0.0150	0.0430	0.00965	0.394	0.00815	1.02	-0.0757
3_2_126	W-12	Appendix IV	Thallium	mg/l	11	1	9%	2021-01-13 to 2023-05-04	Gamma; Lognormal	Gamma	0.00386	0.00375	0.00330	0.00510	0.000530	0.137	0.000222	1.64	2.88
4_2_101	W-14	Appendix IV	Antimony	mg/l	10	1	10%	2022-04-01 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.000546	0.000550	0.000420	0.000800	0.000117	0.215	0.000104	1.23	2.24
4_2_102	W-14	Appendix IV	Arsenic	mg/l	10	2	20%	2022-04-01 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.000480	0.000455	0.000400	0.000650	0.0000775	0.161	0.0000519	1.73	3.55

(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_2_103	W-14	Appendix IV	Barium	mg/l	10	1	10%	2022-04-01 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.0144	0.0140	0.0110	0.0170	0.00207	0.143	0.00296	-0.335	-0.651
4_2_104	W-14	Appendix IV	Beryllium	mg/l	10	6	60%	2022-04-01 to 2023-05-03		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	10	0	0%	2022-04-01 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.00112	0.00110	0.000880	0.00150	0.000168	0.150	0.000148	1.20	2.77
4_2_109	W-14	Appendix IV	Chromium, Total	mg/l	10	1	10%	2022-04-01 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.00124	0.00130	0.000680	0.00250	0.000594	0.478	0.000652	1.20	1.47
4_2_110	W-14	Appendix IV	Cobalt	mg/l	10	0	0%	2022-04-01 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.0110	0.0110	0.00980	0.0130	0.000968	0.0882	0.000741	0.884	1.01
4_2_112	W-14	Appendix IV	Fluoride (App IV)	mg/l	10	2	20%	2022-04-01 to 2023-05-03	Gamma; Lognormal; Normal	Gamma	18.9	17.1	0.290	40.0	18.8	0.996	25	0.0636	-2.61
4_2_113	W-14	Appendix IV	Lead	mg/l	10	8	80%	2022-04-01 to 2023-05-03		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	10	0	0%	2022-04-01 to 2023-05-03	Gamma; Lognormal; Normal	Normal	3.44	3.45	3.30	3.60	0.0966	0.0281	0.0741	-0.111	-0.623
4_2_115	W-14	Appendix IV	Mercury	mg/l	10	9	90%	2022-04-01 to 2023-05-03		Nonparametric	0.0000860	0.0000860	0.0000860	0.0000860	NA	NA	0	NA	NA
4_2_116	W-14	Appendix IV	Molybdenum	mg/l	10	1	10%	2022-04-01 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.0164	0.0160	0.0140	0.0220	0.00240	0.146	0.00148	1.75	3.51
4_2_120	W-14	Appendix IV	Radium-226+228	pci/l	10	0	0%	2022-04-01 to 2023-05-03	Gamma; Lognormal; Normal	Normal	3.62	3.67	1.94	5.62	1.34	0.370	1.77	0.247	-1.36
4_2_122	W-14	Appendix IV	Selenium	mg/l	10	0	0%	2022-04-01 to 2023-05-03	Normal	Normal	1.18	1.20	0.930	1.30	0.133	0.113	0.148	-0.965	-0.185
4_2_126	W-14	Appendix IV	Thallium	mg/l	10	1	10%	2022-04-01 to 2023-05-03	Gamma; Lognormal; Normal	Normal	0.00217	0.00220	0.00170	0.00250	0.000235	0.108	0.000148	-0.681	1.08
5_2_101	W-16	Appendix IV	Antimony	mg/l	5	3	60%	2022-04-01 to 2023-05-11		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	5	3	60%	2022-04-01 to 2023-05-11		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	5	1	20%	2022-04-01 to 2023-05-11		Nonparametric	0.0127	0.0125	0.0120	0.0140	0.000957	0.0751	0.000741	0.855	-1.29
5_2_104	W-16	Appendix IV	Beryllium	mg/l	5	4	80%	2022-04-01 to 2023-05-11		Nonparametric	0.000140	0.000140	0.000140	0.000140	NA	NA	0	NA	NA
5_2_106	W-16	Appendix IV	Cadmium	mg/l	5	1	20%	2022-04-01 to 2023-05-11		Nonparametric	0.00230	0.00230	0.00210	0.00250	0.000163	0.0710	0.000148	0	1.50
5_2_110	W-16	Appendix IV	Cobalt	mg/l	10	1	10%	2022-04-01 to 2023-05-11	Gamma; Lognormal; Normal	Normal	0.0162	0.0170	0.0110	0.0210	0.00327	0.202	0.00296	-0.309	-0.917
5_2_112	W-16	Appendix IV	Fluoride (App IV)	mg/l	5	0	0%	2022-04-01 to 2023-05-11	Gamma; Lognormal	Nonparametric	4.78	0.480	0.200	20.0	8.58	1.80	0.415	2.15	4.65
5_2_113	W-16	Appendix IV	Lead	mg/l	5	3	60%	2022-04-01 to 2023-05-11		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	5	0	0%	2022-04-01 to 2023-05-11		Nonparametric	2.24	2.30	1.80	2.40	0.251	0.112	0.148	-2.02	4.23
5_2_116	W-16	Appendix IV	Molybdenum	mg/l	5	1	20%	2022-04-01 to 2023-05-11		Nonparametric	0.00535	0.00360	0.00320	0.0110	0.00377	0.706	0.000444	1.97	3.91
5_2_120	W-16	Appendix IV	Radium-226+228	pci/l	5	0	0%	2022-04-01 to 2023-05-11	Gamma; Lognormal; Normal	Nonparametric	2.22	1.99	1.66	2.87	0.534	0.241	0.489	0.441	-2.65
5_2_122	W-16	Appendix IV	Selenium	mg/l	5	0	0%	2022-04-01 to 2023-05-11		Nonparametric	0.116	0.100	0.0980	0.140	0.0223	0.193	0.00296	0.602	-3.32
5_2_126	W-16	Appendix IV	Thallium	mg/l	5	1	20%	2022-04-01 to 2023-05-11		Nonparametric	0.00495	0.00495	0.00480	0.00510	0.000129	0.0261	0.000148	0.0000000000000202	-1.20
6_2_101	W-17	Appendix IV	Antimony	mg/l	5	0	0%	2022-11-02 to 2023-05-03	Gamma; Lognormal; Normal	Nonparametric	0.00370	0.00380	0.00130	0.00630	0.00212	0.574	0.00281	0.0565	-2.18
6_2_102	W-17	Appendix IV	Arsenic	mg/l	5	0	0%	2022-11-02 to 2023-05-03	Gamma; Lognormal; Normal	Nonparametric	0.00142	0.00130	0.000610	0.00280	0.000820	0.577	0.000296	1.54	3.18
6_2_103	W-17	Appendix IV	Barium	mg/l	5	0	0%	2022-11-02 to 2023-05-03	Gamma; Lognormal	Nonparametric	0.0196	0.0170	0.0120	0.0380	0.0106	0.541	0.00593	1.92	3.89
6_2_106	W-17	Appendix IV	Cadmium	mg/l	5	0	0%	2022-11-02 to 2023-05-03	Gamma; Lognormal; Normal	Nonparametric	0.00354	0.00350	0.00200	0.00560	0.00136	0.386	0.00119	0.744	0.697
6_2_109	W-17	Appendix IV	Chromium, Total	mg/l	5	0	0%	2022-11-02 to 2023-05-03	Gamma; Lognormal; Normal	Nonparametric	0.00286	0.00240	0.00160	0.00430	0.00126	0.440	0.00119	0.400	-2.97
6_2_110	W-17	Appendix IV	Cobalt	mg/l	5	0	0%	2022-11-02 to 2023-05-03	Gamma; Lognormal; Normal	Nonparametric	0.00506	0.00520	0.00210	0.00900	0.00280	0.554	0.00370	0.454	-0.883
6_2_112	W-17	Appendix IV	Fluoride (App IV)	mg/l	5	1	20%	2022-11-02 to 2023-05-03		Nonparametric	0.730	0.425	0.270	1.80	0.721	0.988	0.185	1.87	3.54
6_2_113	W-17	Appendix IV	Lead	mg/l	5	2	40%	2022-11-02 to 2023-05-03		Nonparametric	0.00129	0.000740	0.000640	0.00250	0.00105	0.809	0.000148	1.71	NA
6_2_114	W-17	Appendix IV	Lithium	mg/l	5	0	0%	2022-11-02 to 2023-05-03	Gamma; Lognormal; Normal	Nonparametric	0.676	0.680	0.640	0.710	0.0270	0.0400	0.0296	-0.183	-0.681
6_2_116	W-17	Appendix IV	Molybdenum	mg/l	5	0	0%	2022-11-02 to 2023-05-03	Gamma; Lognormal; Normal	Nonparametric	0.105	0.0870	0.0160	0.280	0.103	0.983	0.0652	1.65	3.08
6_2_120	W-17	Appendix IV	Radium-226+228	pci/l	5	1	20%	2022-11-02 to 2023-05-03		Nonparametric	1.37	1.35	0.827	1.94	0.513	0.375	0.602	0.112	-3.50
6_2_122	W-17	Appendix IV	Selenium	mg/l	5	0	0%	2022-11-02 to 2023-05-03	Gamma; Lognormal; Normal	Nonparametric	3.08	3.40	2.20	3.70	0.646	0.210	0.444	-0.691	-1.95
6_2_126	W-17	Appendix IV	Thallium	mg/l	5	0	0%	2022-11-02 to 2023-05-03		Nonparametric	0.00268	0.00290	0.00170	0.00300	0.000550	0.205	0	-2.20	4.88
7_2_101	W-18	Appendix IV	Antimony	mg/l	4	0	0%	2023-01-09 to 2023-05-02		Nonparametric	0.000705	0.000795	0.000400	0.000830	0.000205	0.291	0.0000444	-1.90	3.65
7_2_102	W-18	Appendix IV	Arsenic	mg/l	4	0	0%	2023-01-09 to 2023-05-02		Nonparametric	0.00104	0.00102	0.000920	0.00120	0.000136	0.131	0.000133	0.441	-3.47
7_2_103	W-18	Appendix IV	Barium	mg/l	4	0	0%	2023-01-09 to 2023-05-02		Nonparametric	0.0163	0.0160	0.0150	0.0180	0.00126	0.0774	0.000741	1.13	2.23
7_2_106	W-18	Appendix IV	Cadmium	mg/l	4	3	75%	2023-01-09 to 2023-05-02		Nonparametric	0.000200	0.000200	0.000200	0.000200	NA	NA	0	NA	NA

(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
7_2_109	W-18	Appendix IV	Chromium, Total	mg/l	4	1	25%	2023-01-09 to 2023-05-02		Nonparametric	0.00130	0.00140	0.000810	0.00170	0.000453	0.347	0.000444	-0.917	NA
7_2_110	W-18	Appendix IV	Cobalt	mg/l	4	0	0%	2023-01-09 to 2023-05-02		Nonparametric	0.00515	0.00510	0.00470	0.00570	0.000412	0.0801	0.000296	0.713	1.79
7_2_112	W-18	Appendix IV	Fluoride (App IV)	mg/l	4	0	0%	2023-01-09 to 2023-05-02		Nonparametric	4.46	1.27	0.280	15.0	7.06	1.58	1.13	1.95	3.83
7_2_113	W-18	Appendix IV	Lead	mg/l	4	3	75%	2023-01-09 to 2023-05-02		Nonparametric	0.000280	0.000280	0.000280	0.000280	NA	NA	0	NA	NA
7_2_114	W-18	Appendix IV	Lithium	mg/l	4	0	0%	2023-01-09 to 2023-05-02		Nonparametric	2.05	2.05	2.00	2.10	0.0577	0.0282	0.0741	0.0000000000000231	-6.00
7_2_116	W-18	Appendix IV	Molybdenum	mg/l	4	0	0%	2023-01-09 to 2023-05-02		Nonparametric	0.0415	0.0410	0.0410	0.0430	0.001000	0.0241	0	2.0	4.0
7_2_120	W-18	Appendix IV	Radium-226+228	pci/l	4	2	50%	2023-01-09 to 2023-05-02		Nonparametric	1.28	1.28	0.986	1.58	0.420	0.327	0.440	NA	NA
7_2_122	W-18	Appendix IV	Selenium	mg/l	4	0	0%	2023-01-09 to 2023-05-02		Nonparametric	1.35	1.30	1.30	1.50	0.100	0.0741	0	2.00	4.0
7_2_126	W-18	Appendix IV	Thallium	mg/l	4	2	50%	2023-01-09 to 2023-05-02		Nonparametric	0.000235	0.000235	0.000220	0.000250	0.0000212	0.0903	0.0000222	NA	NA
8_2_101	W-3B	Appendix IV	Antimony	mg/l	10	6	60%	2021-12-10 to 2023-05-02		Nonparametric	0.000447	0.000435	0.000410	0.000510	0.0000435	0.0972	0.0000222	1.50	2.65
8_2_102	W-3B	Appendix IV	Arsenic	mg/l	10	3	30%	2021-12-10 to 2023-05-02	Gamma; Lognormal; Normal	Normal	0.000737	0.000770	0.000580	0.000820	0.0000948	0.129	0.0000741	-1.04	-0.522
8_2_103	W-3B	Appendix IV	Barium	mg/l	11	1	9%	2021-12-10 to 2023-05-02	Gamma; Lognormal; Normal	Normal	0.0149	0.0150	0.0130	0.0160	0.000994	0.0667	0.00148	-0.610	-0.157
8_2_104	W-3B	Appendix IV	Beryllium	mg/l	11	8	73%	2021-12-10 to 2023-05-02		Nonparametric	0.000223	0.000260	0.000120	0.000290	0.0000907	0.406	0.0000444	-1.52	NA
8_2_106	W-3B	Appendix IV	Cadmium	mg/l	11	0	0%	2021-12-10 to 2023-05-02	Nonparametric	Nonparametric	0.0179	0.0170	0.0150	0.0230	0.00221	0.123	0	1.50	2.26
8_2_109	W-3B	Appendix IV	Chromium, Total	mg/l	11	4	36%	2021-12-10 to 2023-05-02	Gamma; Lognormal	Gamma	0.000817	0.000770	0.000540	0.00160	0.000367	0.449	0.000267	2.05	4.63
8_2_110	W-3B	Appendix IV	Cobalt	mg/l	11	0	0%	2021-12-10 to 2023-05-02	Nonparametric	Nonparametric	0.105	0.110	0.00350	0.150	0.0382	0.364	0.0148	-2.02	5.50
8_2_112	W-3B	Appendix IV	Fluoride (App IV)	mg/l	11	7	64%	2021-12-10 to 2023-05-02		Nonparametric	83.8	83.0	69.0	100	12.7	0.152	11.1	0.349	1.45
8_2_113	W-3B	Appendix IV	Lead	mg/l	11	4	36%	2021-12-10 to 2023-05-02	Gamma; Lognormal; Normal	Normal	0.000843	0.000690	0.000490	0.00160	0.000387	0.459	0.000178	1.52	2.01
8_2_114	W-3B	Appendix IV	Lithium	mg/l	11	0	0%	2021-12-10 to 2023-05-02	Gamma; Lognormal; Normal	Normal	3.11	3.10	2.50	3.40	0.251	0.0807	0.296	-1.47	2.82
8_2_116	W-3B	Appendix IV	Molybdenum	mg/l	11	3	27%	2021-12-10 to 2023-05-02	Nonparametric	Nonparametric	0.00287	0.00195	0.00160	0.00880	0.00243	0.846	0.000444	2.65	7.24
8_2_120	W-3B	Appendix IV	Radium-226+228	pci/l	11	0	0%	2021-12-10 to 2023-05-02	Gamma; Lognormal; Normal	Normal	11.3	11.5	8.15	13.6	1.81	0.160	1.48	-0.602	-0.357
8_2_122	W-3B	Appendix IV	Selenium	mg/l	11	1	9%	2021-12-10 to 2023-05-02	Gamma; Lognormal	Gamma	0.00830	0.00660	0.00470	0.0160	0.00422	0.509	0.00267	1.15	-0.151
8_2_126	W-3B	Appendix IV	Thallium	mg/l	11	1	9%	2021-12-10 to 2023-05-02	Gamma; Lognormal; Normal	Normal	0.00299	0.00295	0.00260	0.00360	0.000285	0.0952	0.000222	0.885	1.39
9_2_101	W-5B	Appendix IV	Antimony	mg/l	14	12	86%	2021-01-14 to 2023-05-02		Nonparametric	0.00415	0.00415	0.000490	0.00780	0.00517	1.25	0.00541	NA	NA
9_2_102	W-5B	Appendix IV	Arsenic	mg/l	14	8	57%	2021-01-14 to 2023-05-02	Gamma; Lognormal; Normal	Nonparametric	0.000508	0.000440	0.000350	0.000870	0.000203	0.400	0.000126	1.33	1.43
9_2_103	W-5B	Appendix IV	Barium	mg/l	14	1	7%	2021-01-14 to 2023-05-02	Gamma; Lognormal; Normal	Normal	0.0178	0.0180	0.0160	0.0200	0.00109	0.0615	0.00148	0.534	0.0408
9_2_104	W-5B	Appendix IV	Beryllium	mg/l	13	11	85%	2021-01-14 to 2023-05-02		Nonparametric	0.000112	0.000112	0.0000940	0.000130	0.0000255	0.227	0.0000267	NA	NA
9_2_106	W-5B	Appendix IV	Cadmium	mg/l	14	2	14%	2021-01-14 to 2023-05-02	Gamma; Lognormal	Gamma	0.00111	0.000890	0.000610	0.00280	0.000580	0.523	0.000326	2.55	7.49
9_2_109	W-5B	Appendix IV	Chromium, Total	mg/l	14	12	86%	2021-01-14 to 2023-05-02		Nonparametric	0.000660	0.000660	0.000550	0.000770	0.000156	0.236	0.000163	NA	NA
9_2_110	W-5B	Appendix IV	Cobalt	mg/l	14	0	0%	2021-01-14 to 2023-05-02	Gamma; Lognormal; Normal	Normal	0.00291	0.00290	0.00190	0.00400	0.000555	0.190	0.000444	0.195	0.0698
9_2_112	W-5B	Appendix IV	Fluoride (App IV)	mg/l	14	2	14%	2021-01-14 to 2023-05-02	Nonparametric	Nonparametric	1.67	0.385	0.180	9.00	2.96	1.77	0.119	2.13	3.36
9_2_113	W-5B	Appendix IV	Lead	mg/l	14	8	57%	2021-01-14 to 2023-05-02	Gamma; Lognormal	Nonparametric	0.000260	0.000235	0.000180	0.000450	0.0000974	0.374	0.0000444	1.98	4.33
9_2_114	W-5B	Appendix IV	Lithium	mg/l	14	0	0%	2021-01-14 to 2023-05-02	Gamma; Lognormal; Normal	Normal	0.275	0.285	0.220	0.330	0.0313	0.114	0.0222	-0.280	-0.575
9_2_116	W-5B	Appendix IV	Molybdenum	mg/l	14	4	29%	2021-01-14 to 2023-05-02	Nonparametric	Nonparametric	0.00340	0.00195	0.00150	0.00910	0.00283	0.831	0.000519	1.56	0.971
9_2_120	W-5B	Appendix IV	Radium-226+228	pci/l	13	0	0%	2021-01-14 to 2023-05-02	Gamma; Lognormal	Gamma	2.11	1.75	1.47	5.35	1.04	0.490	0.281	2.93	9.32
9_2_122	W-5B	Appendix IV	Selenium	mg/l	14	6	43%	2021-01-14 to 2023-05-02	Gamma; Lognormal	Gamma	0.00142	0.00110	0.000570	0.00420	0.00122	0.856	0.000733	2.09	4.64
9_2_126	W-5B	Appendix IV	Thallium	mg/l	14	4	29%	2021-01-14 to 2023-05-02	Gamma; Lognormal; Normal	Normal	0.000766	0.000795	0.000570	0.000870	0.000102	0.134	0.0000741	-1.12	0.241

Table 3: Goodness-of-Fit Tests, Non-Detects Excluded

								Normal				Lognormal				Gamma						
								S-W		Lilliefors		S-W		Lilliefors		K-S		A-D				
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Log-SD (NDs excl.)	ProUCL Distributions Fit	Recommended Distribution
10_2_101	W-6B	Appendix IV	Antimony	mg/l	11	4	36%	0.523	0.000	0.459	0.000	0.706	0.004	0.335	0.017	0.409	< 0.01	1.312	< 0.01	0.944	Nonparametric	Nonparametric
10_2_102	W-6B	Appendix IV	Arsenic	mg/l	11	3	27%	0.935	0.562	0.212	0.358	0.802	0.030	0.326	0.012	0.283	0.05 <= p < 0.10	0.582	>= 0.10	0.644	Gamma; Normal	Normal
10_2_103	W-6B	Appendix IV	Barium	mg/l	11	1	9%	0.930	0.445	0.159	0.669	0.947	0.628	0.139	0.842	0.152	>= 0.10	0.277	>= 0.10	0.162	Gamma; Lognormal; Normal	Normal
10_2_104	W-6B	Appendix IV	Beryllium	mg/l	11	7	64%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.574		Nonparametric
10_2_106	W-6B	Appendix IV	Cadmium	mg/l	11	0	0%	0.727	0.001	0.355	0.000	0.787	0.006	0.299	0.007	0.326	< 0.01	1.251	< 0.01	0.450	Nonparametric	Nonparametric
10_2_109	W-6B	Appendix IV	Chromium, Total	mg/l	11	5	45%	0.981	0.956	0.137	0.977	0.990	0.990	0.138	0.976	0.130	>= 0.10	0.145	>= 0.10	0.440	Gamma; Lognormal; Normal	Normal
10_2_110	W-6B	Appendix IV	Cobalt	mg/l	11	0	0%	0.917	0.291	0.191	0.320	0.676	0.000	0.284	0.013	0.266	0.01 <= p < 0.05	1.029	< 0.01	0.662	Normal	Normal
10_2_112	W-6B	Appendix IV	Fluoride (App IV)	mg/l	11	7	64%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		1.713		Nonparametric
10_2_113	W-6B	Appendix IV	Lead	mg/l	11	4	36%	0.775	0.023	0.325	0.024	0.919	0.459	0.240	0.259	0.282	>= 0.10	0.473	>= 0.10	0.655	Gamma; Lognormal	Gamma
10_2_114	W-6B	Appendix IV	Lithium	mg/l	11	0	0%	0.944	0.570	0.194	0.291	0.946	0.599	0.214	0.169	0.202	>= 0.10	0.403	>= 0.10	0.127	Gamma; Lognormal; Normal	Normal
10_2_115	W-6B	Appendix IV	Mercury	mg/l	11	11	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
10_2_116	W-6B	Appendix IV	Molybdenum	mg/l	11	3	27%	0.837	0.071	0.277	0.071	0.834	0.065	0.272	0.084	0.290	0.05 <= p < 0.10	0.689	0.05 <= p < 0.10	0.358	Gamma; Lognormal; Normal	Normal
10_2_120	W-6B	Appendix IV	Radium-226+228	pci/l	11	0	0%	0.978	0.957	0.094	0.997	0.919	0.307	0.160	0.605	0.127	>= 0.10	0.248	>= 0.10	0.400	Gamma; Lognormal; Normal	Normal
10_2_122	W-6B	Appendix IV	Selenium	mg/l	11	2	18%	0.832	0.047	0.217	0.255	0.935	0.528	0.159	0.737	0.192	>= 0.10	0.416	>= 0.10	0.593	Gamma; Lognormal; Normal	Normal
10_2_126	W-6B	Appendix IV	Thallium	mg/l	11	1	9%	0.943	0.590	0.175	0.517	0.965	0.842	0.146	0.792	0.163	>= 0.10	0.236	>= 0.10	0.433	Gamma; Lognormal; Normal	Normal
11_2_101	W-7	Appendix IV	Antimony	mg/l	19	14	74%	0.872	0.273	0.273	0.256	0.880	0.311	0.259	0.327	0.280	>= 0.10	0.432	>= 0.10	0.148	Gamma; Lognormal; Normal	Nonparametric
11_2_102	W-7	Appendix IV	Arsenic	mg/l	19	3	16%	0.943	0.383	0.124	0.729	0.822	0.005	0.271	0.003	0.221	0.05 <= p < 0.10	0.810	0.01 <= p < 0.05	1.327	Gamma; Normal	Gamma
11_2_103	W-7	Appendix IV	Barium	mg/l	19	4	21%	0.624	0.000	0.353	0.000	0.765	0.001	0.309	0.000	0.336	< 0.01	1.800	< 0.01	0.507	Nonparametric	Nonparametric
11_2_104	W-7	Appendix IV	Beryllium	mg/l	18	16	89%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		1.161		Nonparametric
11_2_106	W-7	Appendix IV	Cadmium	mg/l	19	0	0%	0.339	0.000	0.421	0.000	0.515	0.000	0.283	0.000	0.339	< 0.01	4.052	< 0.01	0.446	Nonparametric	Nonparametric
11_2_109	W-7	Appendix IV	Chromium, Total	mg/l	19	9	47%	0.622	0.000	0.292	0.016	0.907	0.262	0.201	0.298	0.248	>= 0.10	0.771	0.01 <= p < 0.05	0.969	Gamma; Lognormal	Gamma
11_2_110	W-7	Appendix IV	Cobalt	mg/l	19	0	0%	0.513	0.000	0.278	0.000	0.718	0.000	0.194	0.059	0.224	0.01 <= p < 0.05	2.075	< 0.01	0.333	Lognormal	Lognormal
11_2_112	W-7	Appendix IV	Fluoride (App IV)	mg/l	19	9	47%	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
11_2_113	W-7	Appendix IV	Lead	mg/l	19	8	42%	0.393	0.000	0.481	0.000	0.712	0.001	0.247	0.060	0.384	< 0.01	2.193	< 0.01	1.165	Lognormal	Nonparametric
11_2_114	W-7	Appendix IV	Lithium	mg/l	19	0	0%	0.977	0.901	0.099	0.893	0.931	0.179	0.138	0.439	0.118	>= 0.10	0.264	>= 0.10	0.266	Gamma; Lognormal; Normal	Normal
11_2_115	W-7	Appendix IV	Mercury	mg/l	18	12	67%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.265		Nonparametric
11_2_116	W-7	Appendix IV	Molybdenum	mg/l	19	7	37%	0.383	0.000	0.493	0.000	0.468	0.000	0.440	0.000	0.472	< 0.01	3.167	< 0.01	0.462	Nonparametric	Nonparametric
11_2_120	W-7	Appendix IV	Radium-226+228	pci/l	17	0	0%	0.977	0.928	0.108	0.863	0.911	0.103	0.131	0.618	0.112	>= 0.10	0.318	>= 0.10	0.261	Gamma; Lognormal; Normal	Normal
11_2_122	W-7	Appendix IV	Selenium	mg/l	19	0	0%	0.933	0.197	0.123	0.633	0.825	0.003	0.167	0.175	0.142	>= 0.10	0.667	0.05 <= p < 0.10	0.255	Gamma; Lognormal; Normal	Normal
11_2_126	W-7	Appendix IV	Thallium	mg/l	19	1	5%	0.372	0.000	0.433	0.000	0.550	0.000	0.329	0.000	0.386	< 0.01	3.799	< 0.01	0.515	Nonparametric	Nonparametric
12_2_101	W-9	Appendix IV	Antimony	mg/l	11	6	55%	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	Nonparametric
12_2_102	W-9	Appendix IV	Arsenic	mg/l	11	5	45%	0.972	0.906	0.154	0.925	0.975	0.924	0.145	0.958	0.166	>= 0.10	0.202	>= 0.10	0.123	Gamma; Lognormal; Normal	Normal
12_2_103	W-9	Appendix IV	Barium	mg/l	11	1	9%	0.903	0.238	0.229	0.146	0.908	0.269	0.211	0.238	0.228	>= 0.10	0.509	>= 0.10	0.191	Gamma; Lognormal; Normal	Normal
12_2_104	W-9	Appendix IV	Beryllium	mg/l	10	10	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
12_2_106	W-9	Appendix IV	Cadmium	mg/l	11	5	45%	0.904	0.395	0.262	0.223	0.844	0.140	0.249	0.288	0.276	>= 0.10	0.462	>= 0.10	0.474	Gamma; Lognormal; Normal	Normal
12_2_109	W-9	Appendix IV	Chromium, Total	mg/l	11	6	55%	0.870	0.266	0.243	0.426	0.910	0.467	0.230	0.518	0.262	>= 0.10	0.359	>= 0.10	0.646	Gamma; Lognormal; Normal	Nonparametric
12_2_110	W-9	Appendix IV	Cobalt	mg/l	11	1	9%	0.725	0.002	0.238	0.111	0.946	0.623	0.127	0.919	0.186	>= 0.10	0.436	>= 0.10	0.952	Gamma; Lognormal; Normal	Normal
12_2_112	W-9	Appendix IV	Fluoride (App IV)	mg/l	11	3	27%	0.583	0.000	0.440	0.000	0.723	0.004	0.318	0.017	0.397	< 0.01	1.388	< 0.01	1.744	Nonparametric	Nonparametric
12_2_113	W-9	Appendix IV	Lead	mg/l	11	8	73%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.325		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.

Table 3: Goodness-of-Fit Tests, Non-Detects Excluded *(continued)*

								Normal				Lognormal				Gamma						
								S-W		Lilliefors		S-W		Lilliefors		K-S		A-D				
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Log-SD (NDs excl.)	ProUCL Distributions Fit	Recommended Distribution
12_2_114	W-9	Appendix IV	Lithium	mg/l	11	0	0%	0.836	0.028	0.339	0.001	0.821	0.018	0.343	0.001	0.357	< 0.01	1.126	< 0.01	0.123	Nonparametric	Nonparametric
12_2_115	W-9	Appendix IV	Mercury	mg/l	10	10	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
12_2_116	W-9	Appendix IV	Molybdenum	mg/l	11	3	27%	0.827	0.056	0.271	0.087	0.848	0.092	0.244	0.171	0.269	>= 0.10	0.676	0.05 <= p < 0.10	0.477	Gamma; Lognormal; Normal	Normal
12_2_120	W-9	Appendix IV	Radium-226+228	pci/l	10	1	10%	0.883	0.170	0.253	0.099	0.931	0.494	0.212	0.286	0.231	>= 0.10	0.411	>= 0.10	0.274	Gamma; Lognormal; Normal	Normal
12_2_122	W-9	Appendix IV	Selenium	mg/l	11	1	9%	0.797	0.013	0.256	0.063	0.883	0.140	0.171	0.563	0.195	>= 0.10	0.627	0.05 <= p < 0.10	0.430	Gamma; Lognormal; Normal	Normal
12_2_126	W-9	Appendix IV	Thallium	mg/l	11	5	45%	0.849	0.156	0.228	0.423	0.852	0.164	0.253	0.266	0.266	>= 0.10	0.513	>= 0.10	0.483	Gamma; Lognormal; Normal	Normal
1_2_101	W-1	Appendix IV	Antimony	mg/l	20	15	75%	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	20	3	15%	0.912	0.109	0.186	0.122	0.798	0.002	0.318	0.000	0.282	< 0.01	1.381	< 0.01	1.032	Normal	Normal
1_2_103	W-1	Appendix IV	Barium	mg/l	20	3	15%	0.733	0.000	0.274	0.001	0.861	0.016	0.238	0.012	0.250	< 0.01	1.284	< 0.01	0.637	Nonparametric	Nonparametric
1_2_104	W-1	Appendix IV	Beryllium	mg/l	19	17	89%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.153		Nonparametric
1_2_106	W-1	Appendix IV	Cadmium	mg/l	20	9	45%	0.941	0.529	0.155	0.652	0.964	0.818	0.122	0.918	0.138	>= 0.10	0.239	>= 0.10	0.214	Gamma; Lognormal; Normal	Normal
1_2_109	W-1	Appendix IV	Chromium, Total	mg/l	20	8	40%	0.736	0.002	0.329	0.001	0.942	0.526	0.170	0.442	0.236	0.05 <= p < 0.10	0.598	>= 0.10	0.946	Gamma; Lognormal	Gamma
1_2_110	W-1	Appendix IV	Cobalt	mg/l	20	8	40%	0.925	0.330	0.212	0.142	0.898	0.151	0.169	0.446	0.136	>= 0.10	0.367	>= 0.10	0.709	Gamma; Lognormal; Normal	Normal
1_2_112	W-1	Appendix IV	Fluoride (App IV)	mg/l	20	1	5%	0.778	0.001	0.249	0.003	0.808	0.002	0.287	0.000	0.291	< 0.01	1.505	< 0.01	1.323	Nonparametric	Nonparametric
1_2_113	W-1	Appendix IV	Lead	mg/l	20	9	45%	0.754	0.002	0.297	0.007	0.952	0.664	0.146	0.741	0.177	>= 0.10	0.364	>= 0.10	1.001	Gamma; Lognormal	Gamma
1_2_114	W-1	Appendix IV	Lithium	mg/l	20	0	0%	0.943	0.274	0.138	0.403	0.924	0.120	0.160	0.198	0.150	>= 0.10	0.529	>= 0.10	0.109	Gamma; Lognormal; Normal	Normal
1_2_115	W-1	Appendix IV	Mercury	mg/l	19	19	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
1_2_116	W-1	Appendix IV	Molybdenum	mg/l	20	1	5%	0.916	0.096	0.175	0.130	0.940	0.265	0.160	0.222	0.169	>= 0.10	0.542	>= 0.10	0.221	Gamma; Lognormal; Normal	Normal
1_2_120	W-1	Appendix IV	Radium-226+228	pci/l	20	1	5%	0.803	0.001	0.202	0.040	0.949	0.384	0.118	0.691	0.140	>= 0.10	0.626	0.05 <= p < 0.10	0.423	Gamma; Lognormal	Gamma
1_2_122	W-1	Appendix IV	Selenium	mg/l	20	0	0%	0.827	0.002	0.215	0.016	0.920	0.097	0.157	0.217	0.173	>= 0.10	0.826	0.01 <= p < 0.05	0.250	Gamma; Lognormal	Gamma
1_2_126	W-1	Appendix IV	Thallium	mg/l	20	13	65%	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
2_2_101	W-11	Appendix IV	Antimony	mg/l	11	8	73%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.652		Nonparametric
2_2_102	W-11	Appendix IV	Arsenic	mg/l	11	3	27%	0.717	0.004	0.344	0.006	0.810	0.036	0.239	0.197	0.271	>= 0.10	0.861	0.01 <= p < 0.05	1.713	Gamma; Lognormal	Gamma
2_2_103	W-11	Appendix IV	Barium	mg/l	11	1	9%	0.410	0.000	0.480	0.000	0.583	0.000	0.335	0.002	0.424	< 0.01	2.387	< 0.01	0.889	Nonparametric	Nonparametric
2_2_104	W-11	Appendix IV	Beryllium	mg/l	10	8	80%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.203		Nonparametric
2_2_106	W-11	Appendix IV	Cadmium	mg/l	11	2	18%	0.930	0.482	0.180	0.547	0.927	0.450	0.183	0.522	0.180	>= 0.10	0.363	>= 0.10	0.189	Gamma; Lognormal; Normal	Normal
2_2_109	W-11	Appendix IV	Chromium, Total	mg/l	11	5	45%	0.939	0.654	0.170	0.849	0.956	0.788	0.151	0.939	0.172	>= 0.10	0.232	>= 0.10	0.471	Gamma; Lognormal; Normal	Normal
2_2_110	W-11	Appendix IV	Cobalt	mg/l	11	1	9%	0.867	0.093	0.289	0.017	0.784	0.009	0.347	0.001	0.332	< 0.01	0.918	0.01 <= p < 0.05	0.362	Normal	Normal
2_2_112	W-11	Appendix IV	Fluoride (App IV)	mg/l	11	1	9%	0.614	0.000	0.406	0.000	0.833	0.036	0.207	0.258	0.266	0.05 <= p < 0.10	1.083	< 0.01	1.597	Gamma; Lognormal	Gamma
2_2_113	W-11	Appendix IV	Lead	mg/l	11	7	64%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.811		Nonparametric
2_2_114	W-11	Appendix IV	Lithium	mg/l	11	0	0%	0.714	0.001	0.285	0.013	0.439	0.000	0.439	0.000	0.404	< 0.01	2.605	< 0.01	1.261	Nonparametric	Nonparametric
2_2_115	W-11	Appendix IV	Mercury	mg/l	10	10	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
2_2_116	W-11	Appendix IV	Molybdenum	mg/l	11	5	45%	0.965	0.856	0.207	0.583	0.954	0.775	0.219	0.488	0.203	>= 0.10	0.258	>= 0.10	0.075	Gamma; Lognormal; Normal	Normal
2_2_120	W-11	Appendix IV	Radium-226+228	pci/l	10	1	10%	0.863	0.103	0.259	0.082	0.916	0.356	0.205	0.338	0.228	>= 0.10	0.515	>= 0.10	0.345	Gamma; Lognormal; Normal	Normal
2_2_122	W-11	Appendix IV	Selenium	mg/l	11	1	9%	0.941	0.569	0.233	0.129	0.953	0.699	0.219	0.191	0.229	>= 0.10	0.300	>= 0.10	0.107	Gamma; Lognormal; Normal	Normal
2_2_126	W-11	Appendix IV	Thallium	mg/l	11	2	18%	0.957	0.764	0.137	0.895	0.966	0.858	0.139	0.885	0.150	>= 0.10	0.230	>= 0.10	0.104	Gamma; Lognormal; Normal	Gamma
3_2_101	W-12	Appendix IV	Antimony	mg/l	11	3	27%	0.917	0.409	0.224	0.279	0.942	0.634	0.203	0.430	0.202	>= 0.10	0.305	>= 0.10	0.121	Gamma; Lognormal; Normal	Normal
3_2_102	W-12	Appendix IV	Arsenic	mg/l	11	8	73%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.783		Nonparametric
3_2_103	W-12	Appendix IV	Barium	mg/l	11	1	9%	0.647	0.000	0.292	0.016	0.754	0.004	0.241	0.102	0.252	0.05 <= p < 0.10	1.135	< 0.01	0.280	Gamma; Lognormal	Gamma

(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)*

								Normal				Lognormal				Gamma						
								S-W		Lilliefors		S-W		Lilliefors		K-S		A-D				
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Log-SD (NDs excl.)	ProUCL Distributions Fit	Recommended Distribution
3_2_104	W-12	Appendix IV	Beryllium	mg/l	10	8	80%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.648		Nonparametric
3_2_106	W-12	Appendix IV	Cadmium	mg/l	11	2	18%	0.721	0.003	0.288	0.030	0.628	0.000	0.328	0.006	0.320	0.01 <= p < 0.05	1.340	< 0.01	0.296	Nonparametric	Nonparametric
3_2_109	W-12	Appendix IV	Chromium, Total	mg/l	11	5	45%	0.816	0.081	0.246	0.305	0.873	0.238	0.203	0.612	0.233	>= 0.10	0.491	>= 0.10	0.712	Gamma; Lognormal; Normal	Normal
3_2_110	W-12	Appendix IV	Cobalt	mg/l	11	0	0%	0.883	0.115	0.268	0.027	0.793	0.008	0.304	0.005	0.297	0.01 <= p < 0.05	0.879	0.01 <= p < 0.05	0.279	Normal	Normal
3_2_112	W-12	Appendix IV	Fluoride (App IV)	mg/l	11	4	36%	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	11	9	82%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		1.280		Nonparametric
3_2_114	W-12	Appendix IV	Lithium	mg/l	11	0	0%	0.772	0.004	0.230	0.107	0.627	0.000	0.329	0.002	0.295	0.01 <= p < 0.05	1.361	< 0.01	0.384	Normal	Normal
3_2_115	W-12	Appendix IV	Mercury	mg/l	10	10	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
3_2_116	W-12	Appendix IV	Molybdenum	mg/l	11	4	36%	0.888	0.264	0.169	0.787	0.889	0.270	0.166	0.810	0.185	>= 0.10	0.386	>= 0.10	0.071	Gamma; Lognormal; Normal	Normal
3_2_120	W-12	Appendix IV	Radium-226+228	pci/l	10	0	0%	0.906	0.255	0.195	0.349	0.926	0.413	0.157	0.696	0.179	>= 0.10	0.353	>= 0.10	0.349	Gamma; Lognormal; Normal	Normal
3_2_122	W-12	Appendix IV	Selenium	mg/l	11	1	9%	0.873	0.109	0.202	0.293	0.923	0.381	0.148	0.771	0.172	>= 0.10	0.422	>= 0.10	0.367	Gamma; Lognormal; Normal	Normal
3_2_126	W-12	Appendix IV	Thallium	mg/l	11	1	9%	0.838	0.042	0.270	0.037	0.879	0.128	0.244	0.094	0.250	0.05 <= p < 0.10	0.614	>= 0.10	0.128	Gamma; Lognormal	Gamma
4_2_101	W-14	Appendix IV	Antimony	mg/l	10	1	10%	0.878	0.150	0.229	0.191	0.918	0.376	0.190	0.460	0.198	>= 0.10	0.401	>= 0.10	0.202	Gamma; Lognormal; Normal	Normal
4_2_102	W-14	Appendix IV	Arsenic	mg/l	10	2	20%	0.838	0.072	0.227	0.261	0.888	0.224	0.211	0.368	0.216	>= 0.10	0.485	>= 0.10	0.149	Gamma; Lognormal; Normal	Normal
4_2_103	W-14	Appendix IV	Barium	mg/l	10	1	10%	0.931	0.492	0.193	0.435	0.921	0.401	0.219	0.241	0.204	>= 0.10	0.365	>= 0.10	0.148	Gamma; Lognormal; Normal	Normal
4_2_104	W-14	Appendix IV	Beryllium	mg/l	10	6	60%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.456		Nonparametric
4_2_106	W-14	Appendix IV	Cadmium	mg/l	10	0	0%	0.889	0.164	0.236	0.119	0.927	0.417	0.211	0.234	0.221	>= 0.10	0.469	>= 0.10	0.144	Gamma; Lognormal; Normal	Normal
4_2_109	W-14	Appendix IV	Chromium, Total	mg/l	10	1	10%	0.869	0.121	0.185	0.501	0.919	0.383	0.176	0.587	0.194	>= 0.10	0.399	>= 0.10	0.449	Gamma; Lognormal; Normal	Normal
4_2_110	W-14	Appendix IV	Cobalt	mg/l	10	0	0%	0.869	0.098	0.292	0.016	0.882	0.136	0.276	0.030	0.280	0.01 <= p < 0.05	0.663	0.05 <= p < 0.10	0.086	Gamma; Lognormal; Normal	Normal
4_2_112	W-14	Appendix IV	Fluoride (App IV)	mg/l	10	2	20%	0.769	0.013	0.281	0.063	0.812	0.039	0.282	0.060	0.292	0.05 <= p < 0.10	0.761	0.05 <= p < 0.10	2.181	Gamma; Lognormal; Normal	Gamma
4_2_113	W-14	Appendix IV	Lead	mg/l	10	8	80%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.296		Nonparametric
4_2_114	W-14	Appendix IV	Lithium	mg/l	10	0	0%	0.904	0.245	0.233	0.130	0.903	0.237	0.235	0.122	0.245	0.05 <= p < 0.10	0.559	>= 0.10	0.028	Gamma; Lognormal; Normal	Normal
4_2_115	W-14	Appendix IV	Mercury	mg/l	10	9	90%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
4_2_116	W-14	Appendix IV	Molybdenum	mg/l	10	1	10%	0.825	0.039	0.240	0.142	0.868	0.118	0.222	0.226	0.227	>= 0.10	0.583	>= 0.10	0.135	Gamma; Lognormal; Normal	Normal
4_2_120	W-14	Appendix IV	Radium-226+228	pci/l	10	0	0%	0.921	0.366	0.198	0.321	0.923	0.387	0.185	0.427	0.203	>= 0.10	0.364	>= 0.10	0.386	Gamma; Lognormal; Normal	Normal
4_2_122	W-14	Appendix IV	Selenium	mg/l	10	0	0%	0.838	0.041	0.251	0.075	0.826	0.030	0.268	0.040	0.267	0.01 <= p < 0.05	0.807	0.01 <= p < 0.05	0.119	Normal	Normal
4_2_126	W-14	Appendix IV	Thallium	mg/l	10	1	10%	0.960	0.794	0.166	0.675	0.935	0.527	0.188	0.480	0.171	>= 0.10	0.285	>= 0.10	0.113	Gamma; Lognormal; Normal	Normal
5_2_101	W-16	Appendix IV	Antimony	mg/l	5	3	60%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.051		Nonparametric
5_2_102	W-16	Appendix IV	Arsenic	mg/l	5	3	60%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.470		Nonparametric
5_2_103	W-16	Appendix IV	Barium	mg/l	5	1	20%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.074		Nonparametric
5_2_104	W-16	Appendix IV	Beryllium	mg/l	5	4	80%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
5_2_106	W-16	Appendix IV	Cadmium	mg/l	5	1	20%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.071		Nonparametric
5_2_109	W-16	Appendix IV	Chromium, Total	mg/l	5	5	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
5_2_110	W-16	Appendix IV	Cobalt	mg/l	10	1	10%	0.950	0.685	0.171	0.628	0.929	0.475	0.178	0.567	0.180	>= 0.10	0.374	>= 0.10	0.212	Gamma; Lognormal; Normal	Normal
5_2_112	W-16	Appendix IV	Fluoride (App IV)	mg/l	5	0	0%	0.645	0.002	0.387	0.014	0.892	0.368	0.272	0.257	0.321	>= 0.10	0.545	>= 0.10	1.902	Gamma; Lognormal	Nonparametric
5_2_113	W-16	Appendix IV	Lead	mg/l	5	3	60%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.582		Nonparametric
5_2_114	W-16	Appendix IV	Lithium	mg/l	5	0	0%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.121		Nonparametric
5_2_115	W-16	Appendix IV	Mercury	mg/l	5	5	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
5_2_116	W-16	Appendix IV	Molybdenum	mg/l	5	1	20%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.583		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.

Table 3: Goodness-of-Fit Tests, Non-Detects Excluded *(continued)*

								Normal				Lognormal				Gamma						
								S-W		Lilliefors		S-W		Lilliefors		K-S		A-D				
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Log-SD (NDs excl.)	ProUCL Distributions Fit	Recommended Distribution
5_2_120	W-16	Appendix IV	Radium-226+228	pci/l	5	0	0%	0.884	0.327	0.265	0.294	0.901	0.415	0.240	0.448	0.266	>= 0.10	0.404	>= 0.10	0.238	Gamma; Lognormal; Normal	Nonparametric
5_2_122	W-16	Appendix IV	Selenium	mg/l	5	0	0%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.188		Nonparametric
5_2_126	W-16	Appendix IV	Thallium	mg/l	5	1	20%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.026		Nonparametric
6_2_101	W-17	Appendix IV	Antimony	mg/l	5	0	0%	0.942	0.679	0.202	0.722	0.924	0.558	0.211	0.657	0.211	>= 0.10	0.295	>= 0.10	0.672	Gamma; Lognormal; Normal	Nonparametric
6_2_102	W-17	Appendix IV	Arsenic	mg/l	5	0	0%	0.840	0.165	0.359	0.034	0.937	0.642	0.277	0.235	0.308	>= 0.10	0.392	>= 0.10	0.544	Gamma; Lognormal; Normal	Nonparametric
6_2_103	W-17	Appendix IV	Barium	mg/l	5	0	0%	0.761	0.037	0.360	0.033	0.858	0.221	0.293	0.170	0.321	>= 0.10	0.538	>= 0.10	0.456	Gamma; Lognormal	Nonparametric
6_2_104	W-17	Appendix IV	Beryllium	mg/l	5	5	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
6_2_106	W-17	Appendix IV	Cadmium	mg/l	5	0	0%	0.966	0.846	0.196	0.762	0.994	0.991	0.149	0.971	0.144	>= 0.10	0.181	>= 0.10	0.388	Gamma; Lognormal; Normal	Nonparametric
6_2_109	W-17	Appendix IV	Chromium, Total	mg/l	5	0	0%	0.854	0.208	0.243	0.431	0.888	0.347	0.237	0.468	0.265	>= 0.10	0.426	>= 0.10	0.447	Gamma; Lognormal; Normal	Nonparametric
6_2_110	W-17	Appendix IV	Cobalt	mg/l	5	0	0%	0.947	0.718	0.200	0.733	0.944	0.694	0.207	0.682	0.224	>= 0.10	0.264	>= 0.10	0.603	Gamma; Lognormal; Normal	Nonparametric
6_2_112	W-17	Appendix IV	Fluoride (App IV)	mg/l	5	1	20%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.851		Nonparametric
6_2_113	W-17	Appendix IV	Lead	mg/l	5	2	40%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.748		Nonparametric
6_2_114	W-17	Appendix IV	Lithium	mg/l	5	0	0%	0.990	0.980	0.159	0.947	0.988	0.974	0.165	0.926	0.170	>= 0.10	0.183	>= 0.10	0.040	Gamma; Lognormal; Normal	Nonparametric
6_2_115	W-17	Appendix IV	Mercury	mg/l	5	5	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
6_2_116	W-17	Appendix IV	Molybdenum	mg/l	5	0	0%	0.838	0.159	0.320	0.094	0.983	0.950	0.181	0.850	0.209	>= 0.10	0.229	>= 0.10	1.062	Gamma; Lognormal; Normal	Nonparametric
6_2_120	W-17	Appendix IV	Radium-226+228	pci/l	5	1	20%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.392		Nonparametric
6_2_122	W-17	Appendix IV	Selenium	mg/l	5	0	0%	0.884	0.327	0.290	0.181	0.871	0.272	0.301	0.142	0.319	>= 0.10	0.452	>= 0.10	0.224	Gamma; Lognormal; Normal	Nonparametric
6_2_126	W-17	Appendix IV	Thallium	mg/l	5	0	0%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.243		Nonparametric
7_2_101	W-18	Appendix IV	Antimony	mg/l	4	0	0%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.352		Nonparametric
7_2_102	W-18	Appendix IV	Arsenic	mg/l	4	0	0%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.130		Nonparametric
7_2_103	W-18	Appendix IV	Barium	mg/l	4	0	0%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.076		Nonparametric
7_2_104	W-18	Appendix IV	Beryllium	mg/l	4	4	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
7_2_106	W-18	Appendix IV	Cadmium	mg/l	4	3	75%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
7_2_109	W-18	Appendix IV	Chromium, Total	mg/l	4	1	25%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.384		Nonparametric
7_2_110	W-18	Appendix IV	Cobalt	mg/l	4	0	0%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.079		Nonparametric
7_2_112	W-18	Appendix IV	Fluoride (App IV)	mg/l	4	0	0%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		1.698		Nonparametric
7_2_113	W-18	Appendix IV	Lead	mg/l	4	3	75%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
7_2_114	W-18	Appendix IV	Lithium	mg/l	4	0	0%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.028		Nonparametric
7_2_115	W-18	Appendix IV	Mercury	mg/l	4	4	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
7_2_116	W-18	Appendix IV	Molybdenum	mg/l	4	0	0%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.024		Nonparametric
7_2_120	W-18	Appendix IV	Radium-226+228	pci/l	4	2	50%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.333		Nonparametric
7_2_122	W-18	Appendix IV	Selenium	mg/l	4	0	0%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.072		Nonparametric
7_2_126	W-18	Appendix IV	Thallium	mg/l	4	2	50%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.090		Nonparametric
8_2_101	W-3B	Appendix IV	Antimony	mg/l	10	6	60%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.094		Nonparametric
8_2_102	W-3B	Appendix IV	Arsenic	mg/l	10	3	30%	0.839	0.098	0.268	0.133	0.824	0.070	0.287	0.084	0.286	>= 0.10	0.639	0.05 <= p < 0.10	0.136	Gamma; Lognormal; Normal	Normal
8_2_103	W-3B	Appendix IV	Barium	mg/l	11	1	9%	0.886	0.152	0.240	0.105	0.880	0.132	0.251	0.074	0.250	0.05 <= p < 0.10	0.589	>= 0.10	0.068	Gamma; Lognormal; Normal	Normal
8_2_104	W-3B	Appendix IV	Beryllium	mg/l	11	8	73%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.481		Nonparametric
8_2_106	W-3B	Appendix IV	Cadmium	mg/l	11	0	0%	0.780	0.005	0.302	0.006	0.808	0.012	0.289	0.011	0.291	0.01 <= p < 0.05	1.186	< 0.01	0.116	Nonparametric	Nonparametric
8_2_109	W-3B	Appendix IV	Chromium, Total	mg/l	11	4	36%	0.745	0.011	0.321	0.028	0.849	0.120	0.245	0.232	0.266	>= 0.10	0.618	0.05 <= p < 0.10	0.373	Gamma; Lognormal	Gamma

(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)*

								Normal				Lognormal				Gamma						
								S-W		Lilliefors		S-W		Lilliefors		K-S		A-D				
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Log-SD (NDs excl.)	ProUCL Distributions Fit	Recommended Distribution
8_2_110	W-3B	Appendix IV	Cobalt	mg/l	11	0	0%	0.782	0.005	0.278	0.017	0.482	0.000	0.409	0.000	0.378	< 0.01	2.209	< 0.01	1.062	Nonparametric	Nonparametric
8_2_112	W-3B	Appendix IV	Fluoride (App IV)	mg/l	11	7	64%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.152		Nonparametric
8_2_113	W-3B	Appendix IV	Lead	mg/l	11	4	36%	0.844	0.108	0.269	0.132	0.933	0.575	0.203	0.518	0.229	>= 0.10	0.390	>= 0.10	0.407	Gamma; Lognormal; Normal	Normal
8_2_114	W-3B	Appendix IV	Lithium	mg/l	11	0	0%	0.871	0.079	0.213	0.177	0.840	0.032	0.229	0.112	0.222	>= 0.10	0.636	0.05 <= p < 0.10	0.085	Gamma; Lognormal; Normal	Normal
8_2_115	W-3B	Appendix IV	Mercury	mg/l	11	11	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
8_2_116	W-3B	Appendix IV	Molybdenum	mg/l	11	3	27%	0.570	0.000	0.404	0.000	0.717	0.004	0.290	0.046	0.338	0.01 <= p < 0.05	1.231	< 0.01	0.565	Nonparametric	Nonparametric
8_2_120	W-3B	Appendix IV	Radium-226+228	pci/l	11	0	0%	0.926	0.368	0.171	0.497	0.896	0.164	0.203	0.234	0.186	>= 0.10	0.437	>= 0.10	0.170	Gamma; Lognormal; Normal	Normal
8_2_122	W-3B	Appendix IV	Selenium	mg/l	11	1	9%	0.800	0.015	0.284	0.021	0.864	0.085	0.212	0.232	0.241	>= 0.10	0.710	0.05 <= p < 0.10	0.459	Gamma; Lognormal	Gamma
8_2_126	W-3B	Appendix IV	Thallium	mg/l	11	1	9%	0.947	0.638	0.150	0.760	0.966	0.855	0.133	0.884	0.133	>= 0.10	0.219	>= 0.10	0.093	Gamma; Lognormal; Normal	Normal
9_2_101	W-5B	Appendix IV	Antimony	mg/l	14	12	86%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		1.957		Nonparametric
9_2_102	W-5B	Appendix IV	Arsenic	mg/l	14	8	57%	0.825	0.098	0.267	0.197	0.857	0.179	0.283	0.138	0.300	>= 0.10	0.512	>= 0.10	0.365	Gamma; Lognormal; Normal	Nonparametric
9_2_103	W-5B	Appendix IV	Barium	mg/l	14	1	7%	0.919	0.240	0.221	0.082	0.924	0.284	0.219	0.087	0.227	0.05 <= p < 0.10	0.598	>= 0.10	0.061	Gamma; Lognormal; Normal	Normal
9_2_104	W-5B	Appendix IV	Beryllium	mg/l	13	11	85%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.229		Nonparametric
9_2_106	W-5B	Appendix IV	Cadmium	mg/l	14	2	14%	0.699	0.001	0.271	0.015	0.881	0.089	0.203	0.185	0.221	>= 0.10	0.783	0.01 <= p < 0.05	0.401	Gamma; Lognormal	Gamma
9_2_109	W-5B	Appendix IV	Chromium, Total	mg/l	14	12	86%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.238		Nonparametric
9_2_110	W-5B	Appendix IV	Cobalt	mg/l	14	0	0%	0.990	0.999	0.089	0.992	0.986	0.996	0.095	0.981	0.087	>= 0.10	0.133	>= 0.10	0.194	Gamma; Lognormal; Normal	Normal
9_2_112	W-5B	Appendix IV	Fluoride (App IV)	mg/l	14	2	14%	0.551	0.000	0.410	0.000	0.762	0.004	0.341	0.000	0.400	< 0.01	1.927	< 0.01	1.293	Nonparametric	Nonparametric
9_2_113	W-5B	Appendix IV	Lead	mg/l	14	8	57%	0.772	0.033	0.333	0.036	0.866	0.211	0.275	0.167	0.293	>= 0.10	0.554	>= 0.10	0.320	Gamma; Lognormal	Nonparametric
9_2_114	W-5B	Appendix IV	Lithium	mg/l	14	0	0%	0.952	0.590	0.184	0.223	0.942	0.446	0.194	0.161	0.198	>= 0.10	0.425	>= 0.10	0.117	Gamma; Lognormal; Normal	Normal
9_2_115	W-5B	Appendix IV	Mercury	mg/l	13	13	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
9_2_116	W-5B	Appendix IV	Molybdenum	mg/l	14	4	29%	0.692	0.001	0.351	0.001	0.784	0.009	0.290	0.017	0.326	< 0.01	1.204	< 0.01	0.673	Nonparametric	Nonparametric
9_2_120	W-5B	Appendix IV	Radium-226+228	pci/l	13	0	0%	0.606	0.000	0.267	0.012	0.757	0.002	0.210	0.121	0.234	0.05 <= p < 0.10	1.356	< 0.01	0.350	Gamma; Lognormal	Gamma
9_2_122	W-5B	Appendix IV	Selenium	mg/l	14	6	43%	0.727	0.005	0.323	0.014	0.888	0.224	0.212	0.362	0.259	>= 0.10	0.574	>= 0.10	0.688	Gamma; Lognormal	Gamma
9_2_126	W-5B	Appendix IV	Thallium	mg/l	14	4	29%	0.861	0.079	0.201	0.302	0.832	0.036	0.229	0.142	0.221	>= 0.10	0.765	0.01 <= p < 0.05	0.144	Gamma; Lognormal; Normal	Normal

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_2_101	W-6B	Appendix IV	Antimony	mg/l	11	4	36%	-0.057	0.852	
10_2_102	W-6B	Appendix IV	Arsenic	mg/l	11	3	27%	-0.357	0.227	
10_2_103	W-6B	Appendix IV	Barium	mg/l	11	1	9%	0.402	0.142	
10_2_104	W-6B	Appendix IV	Beryllium	mg/l	11	7	64%	-0.032	0.927	
10_2_106	W-6B	Appendix IV	Cadmium	mg/l	11	0	0%	0.500	0.059	
10_2_109	W-6B	Appendix IV	Chromium, Total	mg/l	11	5	45%	-0.016	0.961	
10_2_110	W-6B	Appendix IV	Cobalt	mg/l	11	0	0%	0.167	0.528	
10_2_112	W-6B	Appendix IV	Fluoride (App IV)	mg/l	11	7	64%	-0.261	0.460	
10_2_113	W-6B	Appendix IV	Lead	mg/l	11	4	36%	-0.038	0.903	
10_2_114	W-6B	Appendix IV	Lithium	mg/l	11	0	0%	0.392	0.138	
10_2_116	W-6B	Appendix IV	Molybdenum	mg/l	11	3	27%	0.126	0.670	
10_2_120	W-6B	Appendix IV	Radium-226+228	pci/l	11	0	0%	0.252	0.340	
10_2_122	W-6B	Appendix IV	Selenium	mg/l	11	2	18%	0.276	0.332	
10_2_126	W-6B	Appendix IV	Thallium	mg/l	11	1	9%	0.321	0.242	
11_2_101	W-7	Appendix IV	Antimony	mg/l	19	14	74%	0.331	0.327	
11_2_102	W-7	Appendix IV	Arsenic	mg/l	19	3	16%	0.374	0.101	
11_2_103	W-7	Appendix IV	Barium	mg/l	19	4	21%	-0.081	0.731	
11_2_104	W-7	Appendix IV	Beryllium	mg/l	18	16	89%	-0.500	0.157	
11_2_106	W-7	Appendix IV	Cadmium	mg/l	19	0	0%	-0.104	0.623	
11_2_109	W-7	Appendix IV	Chromium, Total	mg/l	19	9	47%	-0.192	0.482	
11_2_110	W-7	Appendix IV	Cobalt	mg/l	19	0	0%	-0.032	0.879	
11_2_112	W-7	Appendix IV	Fluoride (App IV)	mg/l	19	9	47%	0.287	0.294	
11_2_113	W-7	Appendix IV	Lead	mg/l	19	8	42%	-0.132	0.618	
11_2_114	W-7	Appendix IV	Lithium	mg/l	19	0	0%	0.572	0.007	**
11_2_115	W-7	Appendix IV	Mercury	mg/l	18	12	67%	-0.762	0.018	*
11_2_116	W-7	Appendix IV	Molybdenum	mg/l	19	7	37%	-0.105	0.682	
11_2_120	W-7	Appendix IV	Radium-226+228	pci/l	17	0	0%	-0.162	0.465	
11_2_122	W-7	Appendix IV	Selenium	mg/l	19	0	0%	0.198	0.350	
11_2_126	W-7	Appendix IV	Thallium	mg/l	19	1	5%	-0.116	0.594	
12_2_101	W-9	Appendix IV	Antimony	mg/l	11	6	55%	-0.234	0.488	
12_2_102	W-9	Appendix IV	Arsenic	mg/l	11	5	45%	0.261	0.419	
12_2_103	W-9	Appendix IV	Barium	mg/l	11	1	9%	-0.429	0.117	
12_2_106	W-9	Appendix IV	Cadmium	mg/l	11	5	45%	0.003	0.994	
12_2_109	W-9	Appendix IV	Chromium, Total	mg/l	11	6	55%	0.125	0.713	
12_2_110	W-9	Appendix IV	Cobalt	mg/l	11	1	9%	0.278	0.310	
12_2_112	W-9	Appendix IV	Fluoride (App IV)	mg/l	11	3	27%	0.288	0.330	
12_2_113	W-9	Appendix IV	Lead	mg/l	11	8	73%	-0.416	0.255	
12_2_114	W-9	Appendix IV	Lithium	mg/l	11	0	0%	0.553	0.037	*
12_2_116	W-9	Appendix IV	Molybdenum	mg/l	11	3	27%	0.140	0.636	
12_2_120	W-9	Appendix IV	Radium-226+228	pci/l	10	1	10%	-0.049	0.863	
12_2_122	W-9	Appendix IV	Selenium	mg/l	11	1	9%	-0.434	0.113	
12_2_126	W-9	Appendix IV	Thallium	mg/l	11	5	45%	-0.064	0.843	

(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_101	W-1	Appendix IV	Antimony	mg/l	20	15	75%	0.017	0.960	
1_2_102	W-1	Appendix IV	Arsenic	mg/l	20	3	15%	0.576	0.010	**
1_2_103	W-1	Appendix IV	Barium	mg/l	20	3	15%	0.693	0.002	**
1_2_104	W-1	Appendix IV	Beryllium	mg/l	19	17	89%	-0.500	0.157	
1_2_106	W-1	Appendix IV	Cadmium	mg/l	20	9	45%	-0.330	0.212	
1_2_109	W-1	Appendix IV	Chromium, Total	mg/l	20	8	40%	0.575	0.025	*
1_2_110	W-1	Appendix IV	Cobalt	mg/l	20	8	40%	0.485	0.058	
1_2_112	W-1	Appendix IV	Fluoride (App IV)	mg/l	20	1	5%	0.117	0.581	
1_2_113	W-1	Appendix IV	Lead	mg/l	20	9	45%	0.387	0.143	
1_2_114	W-1	Appendix IV	Lithium	mg/l	20	0	0%	0.109	0.600	
1_2_116	W-1	Appendix IV	Molybdenum	mg/l	20	1	5%	0.429	0.043	*
1_2_120	W-1	Appendix IV	Radium-226+228	pci/l	20	1	5%	0.037	0.860	
1_2_122	W-1	Appendix IV	Selenium	mg/l	20	0	0%	0.621	0.003	**
1_2_126	W-1	Appendix IV	Thallium	mg/l	20	13	65%	-0.376	0.223	
2_2_101	W-11	Appendix IV	Antimony	mg/l	11	8	73%	-0.194	0.596	
2_2_102	W-11	Appendix IV	Arsenic	mg/l	11	3	27%	0.634	0.032	*
2_2_103	W-11	Appendix IV	Barium	mg/l	11	1	9%	-0.153	0.575	
2_2_104	W-11	Appendix IV	Beryllium	mg/l	10	8	80%	-0.500	0.157	
2_2_106	W-11	Appendix IV	Cadmium	mg/l	11	2	18%	0.429	0.131	
2_2_109	W-11	Appendix IV	Chromium, Total	mg/l	11	5	45%	0.420	0.193	
2_2_110	W-11	Appendix IV	Cobalt	mg/l	11	1	9%	0.474	0.084	
2_2_112	W-11	Appendix IV	Fluoride (App IV)	mg/l	11	1	9%	-0.276	0.314	
2_2_113	W-11	Appendix IV	Lead	mg/l	11	7	64%	-0.020	0.954	
2_2_114	W-11	Appendix IV	Lithium	mg/l	11	0	0%	0.264	0.319	
2_2_116	W-11	Appendix IV	Molybdenum	mg/l	11	5	45%	0.000	1.000	
2_2_120	W-11	Appendix IV	Radium-226+228	pci/l	10	1	10%	-0.384	0.176	
2_2_122	W-11	Appendix IV	Selenium	mg/l	11	1	9%	0.308	0.261	
2_2_126	W-11	Appendix IV	Thallium	mg/l	11	2	18%	-0.234	0.411	
3_2_101	W-12	Appendix IV	Antimony	mg/l	11	3	27%	0.090	0.761	
3_2_102	W-12	Appendix IV	Arsenic	mg/l	11	8	73%	-0.653	0.074	
3_2_103	W-12	Appendix IV	Barium	mg/l	11	1	9%	-0.046	0.868	
3_2_104	W-12	Appendix IV	Beryllium	mg/l	10	8	80%	-0.500	0.157	
3_2_106	W-12	Appendix IV	Cadmium	mg/l	11	2	18%	0.006	0.982	
3_2_109	W-12	Appendix IV	Chromium, Total	mg/l	11	5	45%	0.344	0.287	
3_2_110	W-12	Appendix IV	Cobalt	mg/l	11	0	0%	-0.399	0.131	
3_2_112	W-12	Appendix IV	Fluoride (App IV)	mg/l	11	4	36%	-0.193	0.531	
3_2_113	W-12	Appendix IV	Lead	mg/l	11	9	82%	-0.500	0.157	
3_2_114	W-12	Appendix IV	Lithium	mg/l	11	0	0%	0.260	0.326	
3_2_116	W-12	Appendix IV	Molybdenum	mg/l	11	4	36%	-0.320	0.300	
3_2_120	W-12	Appendix IV	Radium-226+228	pci/l	10	0	0%	0.564	0.040	*
3_2_122	W-12	Appendix IV	Selenium	mg/l	11	1	9%	0.408	0.137	
3_2_126	W-12	Appendix IV	Thallium	mg/l	11	1	9%	-0.287	0.294	

(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_101	W-14	Appendix IV	Antimony	mg/l	10	1	10%	0.063	0.826	
4_2_102	W-14	Appendix IV	Arsenic	mg/l	10	2	20%	-0.055	0.853	
4_2_103	W-14	Appendix IV	Barium	mg/l	10	1	10%	0.530	0.062	
4_2_104	W-14	Appendix IV	Beryllium	mg/l	10	6	60%	0.085	0.810	
4_2_106	W-14	Appendix IV	Cadmium	mg/l	10	0	0%	0.178	0.516	
4_2_109	W-14	Appendix IV	Chromium, Total	mg/l	10	1	10%	-0.108	0.704	
4_2_110	W-14	Appendix IV	Cobalt	mg/l	10	0	0%	0.140	0.610	
4_2_112	W-14	Appendix IV	Fluoride (App IV)	mg/l	10	2	20%	0.173	0.558	
4_2_113	W-14	Appendix IV	Lead	mg/l	10	8	80%	-0.500	0.157	
4_2_114	W-14	Appendix IV	Lithium	mg/l	10	0	0%	0.314	0.251	
4_2_115	W-14	Appendix IV	Mercury	mg/l	10	9	90%	NA	NA	
4_2_116	W-14	Appendix IV	Molybdenum	mg/l	10	1	10%	0.025	0.931	
4_2_120	W-14	Appendix IV	Radium-226+228	pci/l	10	0	0%	0.471	0.085	
4_2_122	W-14	Appendix IV	Selenium	mg/l	10	0	0%	0.586	0.032	*
4_2_126	W-14	Appendix IV	Thallium	mg/l	10	1	10%	0.043	0.880	
5_2_101	W-16	Appendix IV	Antimony	mg/l	5	3	60%	-0.500	0.157	
5_2_102	W-16	Appendix IV	Arsenic	mg/l	5	3	60%	-0.500	0.157	
5_2_103	W-16	Appendix IV	Barium	mg/l	5	1	20%	-0.023	0.949	
5_2_104	W-16	Appendix IV	Beryllium	mg/l	5	4	80%	NA	NA	
5_2_106	W-16	Appendix IV	Cadmium	mg/l	5	1	20%	-0.500	0.157	
5_2_110	W-16	Appendix IV	Cobalt	mg/l	10	1	10%	0.520	0.067	
5_2_112	W-16	Appendix IV	Fluoride (App IV)	mg/l	5	0	0%	0.065	0.848	
5_2_113	W-16	Appendix IV	Lead	mg/l	5	3	60%	-0.500	0.157	
5_2_114	W-16	Appendix IV	Lithium	mg/l	5	0	0%	0.073	0.829	
5_2_116	W-16	Appendix IV	Molybdenum	mg/l	5	1	20%	-0.391	0.269	
5_2_120	W-16	Appendix IV	Radium-226+228	pci/l	5	0	0%	-0.360	0.286	
5_2_122	W-16	Appendix IV	Selenium	mg/l	5	0	0%	-0.461	0.173	
5_2_126	W-16	Appendix IV	Thallium	mg/l	5	1	20%	-0.350	0.322	
6_2_101	W-17	Appendix IV	Antimony	mg/l	5	0	0%	0.063	0.853	
6_2_102	W-17	Appendix IV	Arsenic	mg/l	5	0	0%	0.009	0.979	
6_2_103	W-17	Appendix IV	Barium	mg/l	5	0	0%	-0.238	0.481	
6_2_106	W-17	Appendix IV	Cadmium	mg/l	5	0	0%	0.086	0.799	
6_2_109	W-17	Appendix IV	Chromium, Total	mg/l	5	0	0%	-0.379	0.263	
6_2_110	W-17	Appendix IV	Cobalt	mg/l	5	0	0%	0.129	0.704	
6_2_112	W-17	Appendix IV	Fluoride (App IV)	mg/l	5	1	20%	-0.356	0.314	
6_2_113	W-17	Appendix IV	Lead	mg/l	5	2	40%	-0.665	0.069	
6_2_114	W-17	Appendix IV	Lithium	mg/l	5	0	0%	0.077	0.820	
6_2_116	W-17	Appendix IV	Molybdenum	mg/l	5	0	0%	-0.254	0.452	
6_2_120	W-17	Appendix IV	Radium-226+228	pci/l	5	1	20%	-0.722	0.041	*
6_2_122	W-17	Appendix IV	Selenium	mg/l	5	0	0%	-0.226	0.504	
6_2_126	W-17	Appendix IV	Thallium	mg/l	5	0	0%	-0.340	0.315	
7_2_101	W-18	Appendix IV	Antimony	mg/l	4	0	0%	-0.100	0.778	

(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_2_102	W-18	Appendix IV	Arsenic	mg/l	4	0	0%	0.289	0.414	
7_2_103	W-18	Appendix IV	Barium	mg/l	4	0	0%	-0.382	0.280	
7_2_106	W-18	Appendix IV	Cadmium	mg/l	4	3	75%	NA	NA	
7_2_109	W-18	Appendix IV	Chromium, Total	mg/l	4	1	25%	-0.384	0.293	
7_2_110	W-18	Appendix IV	Cobalt	mg/l	4	0	0%	-0.005	0.989	
7_2_112	W-18	Appendix IV	Fluoride (App IV)	mg/l	4	0	0%	-0.491	0.165	
7_2_113	W-18	Appendix IV	Lead	mg/l	4	3	75%	NA	NA	
7_2_114	W-18	Appendix IV	Lithium	mg/l	4	0	0%	0.250	0.480	
7_2_116	W-18	Appendix IV	Molybdenum	mg/l	4	0	0%	-0.083	0.814	
7_2_120	W-18	Appendix IV	Radium-226+228	pci/l	4	2	50%	-0.500	0.157	
7_2_122	W-18	Appendix IV	Selenium	mg/l	4	0	0%	-0.083	0.814	
7_2_126	W-18	Appendix IV	Thallium	mg/l	4	2	50%	-0.500	0.157	
8_2_101	W-3B	Appendix IV	Antimony	mg/l	10	6	60%	-0.226	0.523	
8_2_102	W-3B	Appendix IV	Arsenic	mg/l	10	3	30%	-0.381	0.217	
8_2_103	W-3B	Appendix IV	Barium	mg/l	11	1	9%	0.336	0.220	
8_2_104	W-3B	Appendix IV	Beryllium	mg/l	11	8	73%	-0.082	0.823	
8_2_106	W-3B	Appendix IV	Cadmium	mg/l	11	0	0%	0.327	0.216	
8_2_109	W-3B	Appendix IV	Chromium, Total	mg/l	11	4	36%	0.089	0.774	
8_2_110	W-3B	Appendix IV	Cobalt	mg/l	11	0	0%	-0.159	0.547	
8_2_112	W-3B	Appendix IV	Fluoride (App IV)	mg/l	11	7	64%	-0.013	0.971	
8_2_113	W-3B	Appendix IV	Lead	mg/l	11	4	36%	0.248	0.422	
8_2_114	W-3B	Appendix IV	Lithium	mg/l	11	0	0%	0.088	0.739	
8_2_116	W-3B	Appendix IV	Molybdenum	mg/l	11	3	27%	-0.068	0.819	
8_2_120	W-3B	Appendix IV	Radium-226+228	pci/l	11	0	0%	-0.261	0.323	
8_2_122	W-3B	Appendix IV	Selenium	mg/l	11	1	9%	0.304	0.268	
8_2_126	W-3B	Appendix IV	Thallium	mg/l	11	1	9%	-0.117	0.670	
9_2_101	W-5B	Appendix IV	Antimony	mg/l	14	12	86%	-0.500	0.157	
9_2_102	W-5B	Appendix IV	Arsenic	mg/l	14	8	57%	-0.111	0.731	
9_2_103	W-5B	Appendix IV	Barium	mg/l	14	1	7%	-0.283	0.253	
9_2_104	W-5B	Appendix IV	Beryllium	mg/l	13	11	85%	-0.500	0.157	
9_2_106	W-5B	Appendix IV	Cadmium	mg/l	14	2	14%	-0.162	0.528	
9_2_109	W-5B	Appendix IV	Chromium, Total	mg/l	14	12	86%	-0.500	0.157	
9_2_110	W-5B	Appendix IV	Cobalt	mg/l	14	0	0%	0.544	0.024	*
9_2_112	W-5B	Appendix IV	Fluoride (App IV)	mg/l	14	2	14%	0.346	0.176	
9_2_113	W-5B	Appendix IV	Lead	mg/l	14	8	57%	0.059	0.855	
9_2_114	W-5B	Appendix IV	Lithium	mg/l	14	0	0%	0.237	0.325	
9_2_116	W-5B	Appendix IV	Molybdenum	mg/l	14	4	29%	-0.008	0.978	
9_2_120	W-5B	Appendix IV	Radium-226+228	pci/l	13	0	0%	0.035	0.889	
9_2_122	W-5B	Appendix IV	Selenium	mg/l	14	6	43%	-0.263	0.373	
9_2_126	W-5B	Appendix IV	Thallium	mg/l	14	4	29%	-0.148	0.590	

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 5: Outlier Counts by Date

Date	Count
2020-09-04	1
2021-01-13	1
2021-05-27	10
2021-12-02	2
2021-12-08	1
2021-12-10	1
2022-02-23	1
2022-02-24	1
2022-03-01	1
2022-04-01	2
2022-05-11	1
2022-06-08	1
2022-07-15	1
2022-08-23	2
2022-10-27	2
2023-01-09	2
2023-02-16	1
2023-02-17	1
2023-02-22	1
2023-03-29	1
2023-05-02	1
2023-05-11	1

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-6B	Appendix IV	Antimony	mg/l	11	4	36%	7	2022-02-24	10	0.00730
10_2_104	W-6B	Appendix IV	Beryllium	mg/l	11	7	64%	4	2022-10-27	1	0.0000910
11_2_103	W-7	Appendix IV	Barium	mg/l	19	4	21%	15	2021-05-27	10	0.0710
11_2_106	W-7	Appendix IV	Cadmium	mg/l	19	0	0%	19	2021-05-27	10	0.0390
11_2_109	W-7	Appendix IV	Chromium, Total	mg/l	19	9	47%	10	2021-05-27	10	0.0210
11_2_110	W-7	Appendix IV	Cobalt	mg/l	19	0	0%	19	2021-05-27	10	0.0630
11_2_113	W-7	Appendix IV	Lead	mg/l	19	8	42%	11	2021-05-27	10	0.0370
11_2_116	W-7	Appendix IV	Molybdenum	mg/l	19	7	37%	12	2021-05-27	10	0.0250
11_2_122	W-7	Appendix IV	Selenium	mg/l	19	0	0%	19	2021-05-27	10	0.760
11_2_126	W-7	Appendix IV	Thallium	mg/l	19	1	5%	18	2021-05-27	10	0.0380
12_2_101	W-9	Appendix IV	Antimony	mg/l	11	6	55%	5	2022-03-01	10	0.00760
12_2_110	W-9	Appendix IV	Cobalt	mg/l	11	1	9%	10	2021-01-13	1	0.0160
1_2_101	W-1	Appendix IV	Antimony	mg/l	20	15	75%	5	2022-05-11	1	0.00120
1_2_113	W-1	Appendix IV	Lead	mg/l	20	9	45%	11	2020-09-04	1	0.00640
1_2_120	W-1	Appendix IV	Radium-226+228	pci/l	20	1	5%	19	2021-12-08	1	4.82

(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
2_2_103	W-11	Appendix IV	Barium	mg/l	11	1	9%	10	2021-05-27	1	0.240
2_2_114	W-11	Appendix IV	Lithium	mg/l	11	0	0%	11	2021-05-27	1	0.0560
3_2_103	W-12	Appendix IV	Barium	mg/l	11	1	9%	10	2023-02-16	1	0.0340
3_2_106	W-12	Appendix IV	Cadmium	mg/l	11	2	18%	9	2021-12-02	1	0.000540
3_2_112	W-12	Appendix IV	Fluoride (App IV)	mg/l	11	4	36%	7	2022-04-01	5	30.0
3_2_114	W-12	Appendix IV	Lithium	mg/l	11	0	0%	11	2021-12-02	2	0.720
5_2_112	W-16	Appendix IV	Fluoride (App IV)	mg/l	5	0	0%	5	2022-04-01	5	20.0
5_2_114	W-16	Appendix IV	Lithium	mg/l	5	0	0%	5	2023-05-11	10	1.80
5_2_116	W-16	Appendix IV	Molybdenum	mg/l	5	1	20%	4	2022-07-15	1	0.0110
6_2_126	W-17	Appendix IV	Thallium	mg/l	5	0	0%	5	2023-02-22	1	0.00170
7_2_112	W-18	Appendix IV	Fluoride (App IV)	mg/l	4	0	0%	4	2023-03-29	10	15.0
7_2_116	W-18	Appendix IV	Molybdenum	mg/l	4	0	0%	4	2023-01-09	1	0.0430
7_2_122	W-18	Appendix IV	Selenium	mg/l	4	0	0%	4	2023-01-09	1	1.50
8_2_106	W-3B	Appendix IV	Cadmium	mg/l	11	0	0%	11	2022-02-23	10	0.0230
8_2_109	W-3B	Appendix IV	Chromium, Total	mg/l	11	4	36%	7	2023-02-17	1	0.00160
8_2_110	W-3B	Appendix IV	Cobalt	mg/l	11	0	0%	11	2022-06-08	1	0.00350
8_2_116	W-3B	Appendix IV	Molybdenum	mg/l	11	3	27%	8	2021-12-10	5	0.00880
9_2_106	W-5B	Appendix IV	Cadmium	mg/l	14	2	14%	12	2022-10-27	1	0.00280
9_2_112	W-5B	Appendix IV	Fluoride (App IV)	mg/l	14	2	14%	12	2022-08-23	1	9.00
9_2_113	W-5B	Appendix IV	Lead	mg/l	14	8	57%	6	2023-05-02	1	0.000450
9_2_120	W-5B	Appendix IV	Radium-226+228	pci/l	13	0	0%	13	2022-08-23	1	5.35

Table 7: Seasonality Tests

						Full								Without Non-Detects							
						Sample Size					p-Value			Sample Size					p-Value		
ID	Well	Constituent Type	Constituent	Unit	% NDs	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA
10_2_101	W-6B	Appendix IV	Antimony	mg/l	36%	4	3	2	2	11	0.097	0.135	0.058	2	2	1	2	7	0.212	0.611	0.582
10_2_102	W-6B	Appendix IV	Arsenic	mg/l	27%	4	3	2	2	11	0.199	0.202	0.173	2	3	1	2	8	0.689	0.649	0.700
10_2_103	W-6B	Appendix IV	Barium	mg/l	9%	4	3	2	2	11	0.566	0.504	0.532	4	2	2	2	10	0.606	0.689	0.697
10_2_104	W-6B	Appendix IV	Beryllium	mg/l	64%	4	3	2	2	11	0.157	0.567	0.290	0	1	1	2	4	0.325	0.785	0.799
10_2_106	W-6B	Appendix IV	Cadmium	mg/l	0%	4	3	2	2	11	0.198	0.013 *	0.028 *	4	3	2	2	11	0.198	0.013 *	0.028 *
10_2_109	W-6B	Appendix IV	Chromium, Total	mg/l	45%	4	3	2	2	11	0.239	0.556	0.425	1	2	1	2	6	0.986	0.991	0.994
10_2_110	W-6B	Appendix IV	Cobalt	mg/l	0%	4	3	2	2	11	0.187	0.208	0.257	4	3	2	2	11	0.187	0.208	0.257
10_2_112	W-6B	Appendix IV	Fluoride (App IV)	mg/l	64%	4	3	2	2	11	0.841	0.544	0.799	1	1	1	1	4	0.392	NA	NA
10_2_113	W-6B	Appendix IV	Lead	mg/l	36%	4	3	2	2	11	0.571	0.495	0.541	1	2	2	2	7	0.975	0.825	0.933
10_2_114	W-6B	Appendix IV	Lithium	mg/l	0%	4	3	2	2	11	0.321	0.219	0.230	4	3	2	2	11	0.321	0.219	0.230
10_2_115	W-6B	Appendix IV	Mercury	mg/l	100%	4	3	2	2	11	0.185	0.180	0.182	NA	NA	NA	NA	NA	NA	NA	NA
10_2_116	W-6B	Appendix IV	Molybdenum	mg/l	27%	4	3	2	2	11	0.776	0.578	0.880	2	2	2	2	8	0.533	0.625	0.577
10_2_120	W-6B	Appendix IV	Radium-226+228	pci/l	0%	4	3	2	2	11	0.783	0.755	0.681	4	3	2	2	11	0.783	0.755	0.681
10_2_122	W-6B	Appendix IV	Selenium	mg/l	18%	4	3	2	2	11	0.940	0.589	0.819	3	2	2	2	9	0.791	0.475	0.671
10_2_126	W-6B	Appendix IV	Thallium	mg/l	9%	4	3	2	2	11	0.360	0.635	0.802	4	2	2	2	10	0.106	0.028 *	0.053
11_2_101	W-7	Appendix IV	Antimony	mg/l	74%	5	6	1	7	19	0.584	0.472	0.611	1	1	1	2	5	0.849	0.889	0.891
11_2_102	W-7	Appendix IV	Arsenic	mg/l	16%	5	6	1	7	19	0.551	0.763	0.310	4	4	1	7	16	0.887	0.904	0.796
11_2_103	W-7	Appendix IV	Barium	mg/l	21%	5	6	1	7	19	0.565	0.281	0.314	3	5	1	6	15	0.467	0.456	0.337
11_2_104	W-7	Appendix IV	Beryllium	mg/l	89%	5	5	1	7	18	0.598	0.538	0.504	0	1	0	1	2	0.317	NA	NA
11_2_106	W-7	Appendix IV	Cadmium	mg/l	0%	5	6	1	7	19	0.264	0.480	0.355	5	6	1	7	19	0.264	0.480	0.355
11_2_109	W-7	Appendix IV	Chromium, Total	mg/l	47%	5	6	1	7	19	0.497	0.555	0.707	1	4	1	4	10	0.400	0.770	0.605
11_2_110	W-7	Appendix IV	Cobalt	mg/l	0%	5	6	1	7	19	0.151	0.456	0.386	5	6	1	7	19	0.151	0.456	0.386
11_2_112	W-7	Appendix IV	Fluoride (App IV)	mg/l	47%	5	6	1	7	19	0.084	0.100	0.033 *	1	3	0	6	10	0.103	0.084	0.033 *
11_2_113	W-7	Appendix IV	Lead	mg/l	42%	5	6	1	7	19	0.510	0.289	0.457	2	4	1	4	11	0.282	0.701	0.592
11_2_114	W-7	Appendix IV	Lithium	mg/l	0%	5	6	1	7	19	0.258	0.468	0.665	5	6	1	7	19	0.258	0.468	0.665
11_2_115	W-7	Appendix IV	Mercury	mg/l	67%	5	5	1	7	18	0.132	0.517	0.448	0	0	1	5	6	0.527	0.659	0.592
11_2_116	W-7	Appendix IV	Molybdenum	mg/l	37%	5	6	1	7	19	0.484	0.458	0.379	2	4	1	5	12	0.509	0.707	0.801
11_2_120	W-7	Appendix IV	Radium-226+228	pci/l	0%	3	6	1	7	17	0.268	0.597	0.807	3	6	1	7	17	0.268	0.597	0.807
11_2_122	W-7	Appendix IV	Selenium	mg/l	0%	5	6	1	7	19	0.734	0.889	0.884	5	6	1	7	19	0.734	0.889	0.884
11_2_126	W-7	Appendix IV	Thallium	mg/l	5%	5	6	1	7	19	0.455	0.261	0.278	5	5	1	7	18	0.682	0.529	0.569
12_2_101	W-9	Appendix IV	Antimony	mg/l	55%	3	6	0	2	11	0.773	0.662	0.702	1	3	0	1	5	0.670	0.891	0.937
12_2_102	W-9	Appendix IV	Arsenic	mg/l	45%	3	6	0	2	11	0.564	0.759	0.811	2	2	0	2	6	0.156	0.092	0.076
12_2_103	W-9	Appendix IV	Barium	mg/l	9%	3	6	0	2	11	0.736	0.738	0.761	3	5	0	2	10	0.635	0.730	0.700
12_2_104	W-9	Appendix IV	Beryllium	mg/l	100%	3	5	0	2	10	0.623	0.614	0.563	NA	NA	NA	NA	NA	NA	NA	NA
12_2_106	W-9	Appendix IV	Cadmium	mg/l	45%	3	6	0	2	11	0.681	0.699	0.559	3	1	0	2	6	0.392	0.617	0.601
12_2_109	W-9	Appendix IV	Chromium, Total	mg/l	55%	3	6	0	2	11	0.977	0.717	0.915	2	2	0	1	5	0.301	0.479	0.535
12_2_110	W-9	Appendix IV	Cobalt	mg/l	9%	3	6	0	2	11	0.840	0.731	0.789	3	5	0	2	10	0.966	0.619	0.880
12_2_112	W-9	Appendix IV	Fluoride (App IV)	mg/l	27%	3	6	0	2	11	0.250	0.430	0.272	1	6	0	1	8	0.684	0.756	0.794
12_2_113	W-9	Appendix IV	Lead	mg/l	73%	3	6	0	2	11	0.637	0.635	0.555	1	1	0	1	3	0.368	NA	NA

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 7: Seasonality Tests *(continued)*

						Full								Without Non-Detects							
						Sample Size					p-Value			Sample Size					p-Value		
ID	Well	Constituent Type	Constituent	Unit	% NDs	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA
12_2_114	W-9	Appendix IV	Lithium	mg/l	0%	3	6	0	2	11	0.667	0.562	0.519	3	6	0	2	11	0.667	0.562	0.519
12_2_115	W-9	Appendix IV	Mercury	mg/l	100%	3	5	0	2	10	0.622	0.788	0.853	NA	NA	NA	NA	NA	NA	NA	NA
12_2_116	W-9	Appendix IV	Molybdenum	mg/l	27%	3	6	0	2	11	0.859	0.739	0.897	2	4	0	2	8	0.570	0.922	0.917
12_2_120	W-9	Appendix IV	Radium-226+228	pci/l	10%	3	6	0	1	10	0.315	0.312	0.283	3	6	0	0	9	0.197	0.193	0.180
12_2_122	W-9	Appendix IV	Selenium	mg/l	9%	3	6	0	2	11	0.963	0.761	0.918	3	5	0	2	10	0.833	0.596	0.719
12_2_126	W-9	Appendix IV	Thallium	mg/l	45%	3	6	0	2	11	0.361	0.698	0.646	2	2	0	2	6	0.565	0.920	0.900
1_2_101	W-1	Appendix IV	Antimony	mg/l	75%	5	6	1	8	20	0.008 **	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	15%	5	6	1	8	20	0.763	0.792	0.351	2	6	1	8	17	0.571	0.658	0.354
1_2_103	W-1	Appendix IV	Barium	mg/l	15%	5	6	1	8	20	0.066	0.216	0.098	3	5	1	8	17	0.057	0.314	0.130
1_2_104	W-1	Appendix IV	Beryllium	mg/l	89%	5	6	0	8	19	0.050 *	0.071	0.012 *	0	1	0	1	2	0.317	NA	NA
1_2_106	W-1	Appendix IV	Cadmium	mg/l	45%	5	6	1	8	20	0.185	0.081	0.121	1	2	0	8	11	0.893	0.848	0.879
1_2_109	W-1	Appendix IV	Chromium, Total	mg/l	40%	5	6	1	8	20	0.405	0.803	0.439	0	4	0	8	12	0.173	0.510	0.288
1_2_110	W-1	Appendix IV	Cobalt	mg/l	40%	5	6	1	8	20	0.578	0.748	0.350	0	3	1	8	12	0.353	0.627	0.231
1_2_112	W-1	Appendix IV	Fluoride (App IV)	mg/l	5%	6	5	1	8	20	0.097	0.487	0.158	6	5	0	8	19	0.138	0.405	0.175
1_2_113	W-1	Appendix IV	Lead	mg/l	45%	5	6	1	8	20	0.276	0.609	0.173	0	3	0	8	11	0.014 *	0.131	0.005 **
1_2_114	W-1	Appendix IV	Lithium	mg/l	0%	5	6	1	8	20	0.289	0.268	0.281	5	6	1	8	20	0.289	0.268	0.281
1_2_115	W-1	Appendix IV	Mercury	mg/l	100%	5	6	0	8	19	0.053	0.204	0.081	NA	NA	NA	NA	NA	NA	NA	NA
1_2_116	W-1	Appendix IV	Molybdenum	mg/l	5%	5	6	1	8	20	0.607	0.657	0.696	5	5	1	8	19	0.743	0.742	0.790
1_2_120	W-1	Appendix IV	Radium-226+228	pci/l	5%	6	5	1	8	20	0.539	0.963	0.785	5	5	1	8	19	0.741	0.982	0.938
1_2_122	W-1	Appendix IV	Selenium	mg/l	0%	5	6	1	8	20	0.279	0.672	0.638	5	6	1	8	20	0.279	0.672	0.638
1_2_126	W-1	Appendix IV	Thallium	mg/l	65%	5	6	1	8	20	0.029 *	0.179	0.015 *	1	1	0	5	7	0.140	0.010 *	0.040 *
2_2_101	W-11	Appendix IV	Antimony	mg/l	73%	5	5	0	1	11	0.412	0.318	0.368	0	2	0	1	3	0.221	0.638	0.613
2_2_102	W-11	Appendix IV	Arsenic	mg/l	27%	5	5	0	1	11	0.389	0.483	0.266	3	4	0	1	8	0.666	0.568	0.577
2_2_103	W-11	Appendix IV	Barium	mg/l	9%	5	5	0	1	11	0.295	0.387	0.260	5	4	0	1	10	0.451	0.507	0.450
2_2_104	W-11	Appendix IV	Beryllium	mg/l	80%	5	4	0	1	10	0.229	0.610	0.607	0	1	0	1	2	0.317	NA	NA
2_2_106	W-11	Appendix IV	Cadmium	mg/l	18%	5	5	0	1	11	0.950	0.818	0.974	5	3	0	1	9	0.924	0.993	0.999
2_2_109	W-11	Appendix IV	Chromium, Total	mg/l	45%	5	5	0	1	11	0.761	0.667	0.867	1	4	0	1	6	0.675	0.712	0.716
2_2_110	W-11	Appendix IV	Cobalt	mg/l	9%	5	5	0	1	11	0.351	0.557	0.588	5	4	0	1	10	0.455	0.752	0.802
2_2_112	W-11	Appendix IV	Fluoride (App IV)	mg/l	9%	5	5	0	1	11	0.399	0.370	0.575	4	5	0	1	10	0.289	0.462	0.648
2_2_113	W-11	Appendix IV	Lead	mg/l	64%	5	5	0	1	11	0.981	0.621	0.906	1	2	0	1	4	0.861	0.950	1.000
2_2_114	W-11	Appendix IV	Lithium	mg/l	0%	5	5	0	1	11	0.730	0.619	0.602	5	5	0	1	11	0.730	0.619	0.602
2_2_115	W-11	Appendix IV	Mercury	mg/l	100%	5	4	0	1	10	0.292	0.320	0.326	NA	NA	NA	NA	NA	NA	NA	NA
2_2_116	W-11	Appendix IV	Molybdenum	mg/l	45%	5	5	0	1	11	0.892	0.689	0.959	2	3	0	1	6	0.240	0.283	0.276
2_2_120	W-11	Appendix IV	Radium-226+228	pci/l	10%	4	5	0	1	10	0.411	0.145	0.191	4	4	0	1	9	0.472	0.190	0.243
2_2_122	W-11	Appendix IV	Selenium	mg/l	9%	5	5	0	1	11	0.223	0.401	0.578	5	4	0	1	10	0.277	0.194	0.225
2_2_126	W-11	Appendix IV	Thallium	mg/l	18%	5	5	0	1	11	0.665	0.751	0.937	5	3	0	1	9	0.490	0.571	0.582
3_2_101	W-12	Appendix IV	Antimony	mg/l	27%	4	6	0	1	11	0.273	0.813	0.742	3	4	0	1	8	0.303	0.426	0.378
3_2_102	W-12	Appendix IV	Arsenic	mg/l	73%	4	6	0	1	11	0.194	0.558	0.217	1	1	0	1	3	0.368	NA	NA
3_2_103	W-12	Appendix IV	Barium	mg/l	9%	4	6	0	1	11	0.630	0.810	0.834	4	5	0	1	10	0.586	0.568	0.579

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 7: Seasonality Tests *(continued)*

						Full								Without Non-Detects							
						Sample Size					p-Value			Sample Size					p-Value		
ID	Well	Constituent Type	Constituent	Unit	% NDs	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA
3_2_104	W-12	Appendix IV	Beryllium	mg/l	80%	4	5	0	1	10	0.289	0.640	0.438	0	1	0	1	2	0.317	NA	NA
3_2_106	W-12	Appendix IV	Cadmium	mg/l	18%	4	6	0	1	11	0.529	0.697	0.614	4	4	0	1	9	0.373	0.649	0.655
3_2_109	W-12	Appendix IV	Chromium, Total	mg/l	45%	4	6	0	1	11	0.792	0.706	0.745	1	4	0	1	6	0.675	0.529	0.554
3_2_110	W-12	Appendix IV	Cobalt	mg/l	0%	4	6	0	1	11	0.699	0.562	0.498	4	6	0	1	11	0.699	0.562	0.498
3_2_112	W-12	Appendix IV	Fluoride (App IV)	mg/l	36%	4	6	0	1	11	0.275	0.677	0.307	1	5	0	1	7	0.314	0.862	0.572
3_2_113	W-12	Appendix IV	Lead	mg/l	82%	4	6	0	1	11	0.350	0.712	0.478	1	1	0	0	2	0.317	NA	NA
3_2_114	W-12	Appendix IV	Lithium	mg/l	0%	4	6	0	1	11	0.265	0.213	0.284	4	6	0	1	11	0.265	0.213	0.284
3_2_115	W-12	Appendix IV	Mercury	mg/l	100%	4	5	0	1	10	0.267	0.356	0.390	NA	NA	NA	NA	NA	NA	NA	NA
3_2_116	W-12	Appendix IV	Molybdenum	mg/l	36%	4	6	0	1	11	0.951	0.719	0.745	2	4	0	1	7	0.360	0.419	0.413
3_2_120	W-12	Appendix IV	Radium-226+228	pci/l	0%	3	6	0	1	10	0.676	0.753	0.715	3	6	0	1	10	0.676	0.753	0.715
3_2_122	W-12	Appendix IV	Selenium	mg/l	9%	4	6	0	1	11	0.428	0.643	0.586	4	5	0	1	10	0.474	0.703	0.637
3_2_126	W-12	Appendix IV	Thallium	mg/l	9%	4	6	0	1	11	0.224	0.670	0.602	4	5	0	1	10	0.273	0.532	0.473
4_2_101	W-14	Appendix IV	Antimony	mg/l	10%	2	3	3	2	10	0.692	0.775	0.815	2	2	3	2	9	0.210	0.304	0.322
4_2_102	W-14	Appendix IV	Arsenic	mg/l	20%	2	3	3	2	10	0.048 *	0.023 *	0.017 *	2	2	3	1	8	0.121	0.127	0.099
4_2_103	W-14	Appendix IV	Barium	mg/l	10%	2	3	3	2	10	0.258	0.634	0.705	2	2	3	2	9	0.123	0.097	0.132
4_2_104	W-14	Appendix IV	Beryllium	mg/l	60%	2	3	3	2	10	0.676	0.519	0.570	0	1	2	1	4	0.861	0.849	0.861
4_2_106	W-14	Appendix IV	Cadmium	mg/l	0%	2	3	3	2	10	0.151	0.209	0.189	2	3	3	2	10	0.151	0.209	0.189
4_2_109	W-14	Appendix IV	Chromium, Total	mg/l	10%	2	3	3	2	10	0.108	0.564	0.269	2	2	3	2	9	0.202	0.075	0.127
4_2_110	W-14	Appendix IV	Cobalt	mg/l	0%	2	3	3	2	10	0.918	0.904	0.914	2	3	3	2	10	0.918	0.904	0.914
4_2_112	W-14	Appendix IV	Fluoride (App IV)	mg/l	20%	2	3	3	2	10	0.372	0.555	0.491	0	3	3	2	8	0.707	0.731	0.797
4_2_113	W-14	Appendix IV	Lead	mg/l	80%	2	3	3	2	10	0.437	0.588	0.626	0	0	2	0	2	NA	NA	NA
4_2_114	W-14	Appendix IV	Lithium	mg/l	0%	2	3	3	2	10	0.134	0.099	0.095	2	3	3	2	10	0.134	0.099	0.095
4_2_115	W-14	Appendix IV	Mercury	mg/l	90%	2	3	3	2	10	0.519	0.643	0.636	1	0	0	0	1	NA	NA	NA
4_2_116	W-14	Appendix IV	Molybdenum	mg/l	10%	2	3	3	2	10	0.504	0.622	0.689	2	2	3	2	9	0.262	0.409	0.377
4_2_120	W-14	Appendix IV	Radium-226+228	pci/l	0%	2	3	3	2	10	0.599	0.600	0.633	2	3	3	2	10	0.599	0.600	0.633
4_2_122	W-14	Appendix IV	Selenium	mg/l	0%	2	3	3	2	10	0.275	0.294	0.313	2	3	3	2	10	0.275	0.294	0.313
4_2_126	W-14	Appendix IV	Thallium	mg/l	10%	2	3	3	2	10	0.868	0.616	0.725	2	2	3	2	9	0.352	0.317	0.309
5_2_101	W-16	Appendix IV	Antimony	mg/l	60%	0	3	2	0	5	0.221	0.272	0.272	0	1	1	0	2	0.317	NA	NA
5_2_102	W-16	Appendix IV	Arsenic	mg/l	60%	0	3	2	0	5	0.767	0.505	0.567	0	1	1	0	2	0.317	NA	NA
5_2_103	W-16	Appendix IV	Barium	mg/l	20%	0	3	2	0	5	0.767	0.503	0.519	0	2	2	0	4	0.683	0.698	0.711
5_2_104	W-16	Appendix IV	Beryllium	mg/l	80%	0	3	2	0	5	0.076	0.489	0.312	0	1	0	0	1	NA	NA	NA
5_2_106	W-16	Appendix IV	Cadmium	mg/l	20%	0	3	2	0	5	0.554	0.497	0.496	0	2	2	0	4	1.000	1.000	0.969
5_2_109	W-16	Appendix IV	Chromium, Total	mg/l	100%	0	3	2	0	5	0.414	0.495	0.495	NA	NA	NA	NA	NA	NA	NA	NA
5_2_110	W-16	Appendix IV	Cobalt	mg/l	10%	2	3	3	2	10	0.345	0.479	0.519	2	2	3	2	9	0.369	0.530	0.531
5_2_112	W-16	Appendix IV	Fluoride (App IV)	mg/l	0%	0	3	1	1	5	0.766	0.783	0.739	0	3	1	1	5	0.766	0.783	0.739
5_2_113	W-16	Appendix IV	Lead	mg/l	60%	0	3	2	0	5	0.767	0.500	0.576	0	1	1	0	2	0.317	NA	NA
5_2_114	W-16	Appendix IV	Lithium	mg/l	0%	0	3	2	0	5	0.543	0.505	0.502	0	3	2	0	5	0.543	0.505	0.502
5_2_115	W-16	Appendix IV	Mercury	mg/l	100%	0	3	2	0	5	0.414	0.495	0.495	NA	NA	NA	NA	NA	NA	NA	NA
5_2_116	W-16	Appendix IV	Molybdenum	mg/l	20%	0	3	2	0	5	0.564	0.532	0.701	0	2	2	0	4	1.000	0.465	0.504

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 7: Seasonality Tests *(continued)*

						Full								Without Non-Detects							
						Sample Size					p-Value			Sample Size					p-Value		
ID	Well	Constituent Type	Constituent	Unit	% NDs	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA
5_2_120	W-16	Appendix IV	Radium-226+228	pci/l	0%	0	3	2	0	5	0.564	0.917	0.885	0	3	2	0	5	0.564	0.917	0.885
5_2_122	W-16	Appendix IV	Selenium	mg/l	0%	0	3	2	0	5	0.761	0.823	0.830	0	3	2	0	5	0.761	0.823	0.830
5_2_126	W-16	Appendix IV	Thallium	mg/l	20%	0	3	2	0	5	0.564	0.495	0.496	0	2	2	0	4	1.000	1.000	0.991
6_2_101	W-17	Appendix IV	Antimony	mg/l	0%	2	2	0	1	5	0.165	0.064	0.067	2	2	0	1	5	0.165	0.064	0.067
6_2_102	W-17	Appendix IV	Arsenic	mg/l	0%	2	2	0	1	5	0.191	0.463	0.395	2	2	0	1	5	0.191	0.463	0.395
6_2_103	W-17	Appendix IV	Barium	mg/l	0%	2	2	0	1	5	0.819	0.736	0.791	2	2	0	1	5	0.819	0.736	0.791
6_2_104	W-17	Appendix IV	Beryllium	mg/l	100%	2	2	0	1	5	0.311	0.417	0.417	NA	NA	NA	NA	NA	NA	NA	NA
6_2_106	W-17	Appendix IV	Cadmium	mg/l	0%	2	2	0	1	5	0.165	0.044 *	0.085	2	2	0	1	5	0.165	0.044 *	0.085
6_2_109	W-17	Appendix IV	Chromium, Total	mg/l	0%	2	2	0	1	5	0.819	0.948	0.971	2	2	0	1	5	0.819	0.948	0.971
6_2_110	W-17	Appendix IV	Cobalt	mg/l	0%	2	2	0	1	5	0.165	0.025 *	0.034 *	2	2	0	1	5	0.165	0.025 *	0.034 *
6_2_112	W-17	Appendix IV	Fluoride (App IV)	mg/l	20%	2	2	0	1	5	0.497	0.630	0.638	1	2	0	1	4	0.407	0.832	0.814
6_2_113	W-17	Appendix IV	Lead	mg/l	40%	2	2	0	1	5	0.949	0.763	0.902	1	1	0	1	3	0.368	NA	NA
6_2_114	W-17	Appendix IV	Lithium	mg/l	0%	2	2	0	1	5	0.368	0.445	0.431	2	2	0	1	5	0.368	0.445	0.431
6_2_115	W-17	Appendix IV	Mercury	mg/l	100%	2	2	0	1	5	NA	0.000 ***	0.000 ***	NA	NA	NA	NA	NA	NA	NA	NA
6_2_116	W-17	Appendix IV	Molybdenum	mg/l	0%	2	2	0	1	5	0.165	0.388	0.226	2	2	0	1	5	0.165	0.388	0.226
6_2_120	W-17	Appendix IV	Radium-226+228	pci/l	20%	2	2	0	1	5	0.368	0.544	0.436	2	1	0	1	4	0.407	0.701	0.630
6_2_122	W-17	Appendix IV	Selenium	mg/l	0%	2	2	0	1	5	0.165	0.204	0.188	2	2	0	1	5	0.165	0.204	0.188
6_2_126	W-17	Appendix IV	Thallium	mg/l	0%	2	2	0	1	5	0.368	0.600	0.606	2	2	0	1	5	0.368	0.600	0.606
7_2_101	W-18	Appendix IV	Antimony	mg/l	0%	2	2	0	0	4	0.439	0.465	0.453	2	2	0	0	4	0.439	0.465	0.453
7_2_102	W-18	Appendix IV	Arsenic	mg/l	0%	2	2	0	0	4	0.121	0.046 *	0.039 *	2	2	0	0	4	0.121	0.046 *	0.039 *
7_2_103	W-18	Appendix IV	Barium	mg/l	0%	2	2	0	0	4	1.000	0.771	0.798	2	2	0	0	4	1.000	0.771	0.798
7_2_104	W-18	Appendix IV	Beryllium	mg/l	100%	2	2	0	0	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7_2_106	W-18	Appendix IV	Cadmium	mg/l	75%	2	2	0	0	4	0.317	0.423	0.423	0	1	0	0	1	NA	NA	NA
7_2_109	W-18	Appendix IV	Chromium, Total	mg/l	25%	2	2	0	0	4	0.121	0.053	0.076	1	2	0	0	3	0.221	0.215	0.163
7_2_110	W-18	Appendix IV	Cobalt	mg/l	0%	2	2	0	0	4	0.221	0.300	0.297	2	2	0	0	4	0.221	0.300	0.297
7_2_112	W-18	Appendix IV	Fluoride (App IV)	mg/l	0%	2	2	0	0	4	1.000	0.479	0.805	2	2	0	0	4	1.000	0.479	0.805
7_2_113	W-18	Appendix IV	Lead	mg/l	75%	2	2	0	0	4	0.317	0.423	0.423	0	1	0	0	1	NA	NA	NA
7_2_114	W-18	Appendix IV	Lithium	mg/l	0%	2	2	0	0	4	0.083	0.000 ***	0.000 ***	2	2	0	0	4	0.083	0.000 ***	0.000 ***
7_2_115	W-18	Appendix IV	Mercury	mg/l	100%	2	2	0	0	4	NA	NA	0.423	NA	NA	NA	NA	NA	NA	NA	NA
7_2_116	W-18	Appendix IV	Molybdenum	mg/l	0%	2	2	0	0	4	0.317	0.423	0.423	2	2	0	0	4	0.317	0.423	0.423
7_2_120	W-18	Appendix IV	Radium-226+228	pci/l	50%	2	2	0	0	4	0.439	0.450	0.453	2	0	0	0	2	NA	NA	NA
7_2_122	W-18	Appendix IV	Selenium	mg/l	0%	2	2	0	0	4	0.317	0.423	0.423	2	2	0	0	4	0.317	0.423	0.423
7_2_126	W-18	Appendix IV	Thallium	mg/l	50%	2	2	0	0	4	0.102	0.238	0.226	2	0	0	0	2	NA	NA	NA
8_2_101	W-3B	Appendix IV	Antimony	mg/l	60%	4	2	3	1	10	0.411	0.185	0.114	0	1	2	1	4	0.259	0.657	0.640
8_2_102	W-3B	Appendix IV	Arsenic	mg/l	30%	4	2	3	1	10	0.316	0.382	0.339	1	2	3	1	7	0.454	0.764	0.762
8_2_103	W-3B	Appendix IV	Barium	mg/l	9%	4	3	3	1	11	0.589	0.525	0.550	4	2	3	1	10	0.395	0.500	0.508
8_2_104	W-3B	Appendix IV	Beryllium	mg/l	73%	4	3	3	1	11	0.175	0.576	0.410	0	0	2	1	3	0.221	0.561	0.594
8_2_106	W-3B	Appendix IV	Cadmium	mg/l	0%	4	3	3	1	11	0.152	0.197	0.183	4	3	3	1	11	0.152	0.197	0.183
8_2_109	W-3B	Appendix IV	Chromium, Total	mg/l	36%	4	3	3	1	11	0.163	0.552	0.556	1	2	3	1	7	0.463	0.052	0.146

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 7: Seasonality Tests *(continued)*

						Full								Without Non-Detects							
						Sample Size					p-Value			Sample Size					p-Value		
ID	Well	Constituent Type	Constituent	Unit	% NDs	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA
8_2_110	W-3B	Appendix IV	Cobalt	mg/l	0%	4	3	3	1	11	0.520	0.476	0.489	4	3	3	1	11	0.520	0.476	0.489
8_2_112	W-3B	Appendix IV	Fluoride (App IV)	mg/l	64%	4	3	3	1	11	0.174	0.188	0.129	0	2	2	0	4	0.439	0.341	0.340
8_2_113	W-3B	Appendix IV	Lead	mg/l	36%	4	3	3	1	11	0.103	0.534	0.406	1	2	3	1	7	0.294	0.092	0.174
8_2_114	W-3B	Appendix IV	Lithium	mg/l	0%	4	3	3	1	11	0.034 *	0.051	0.070	4	3	3	1	11	0.034 *	0.051	0.070
8_2_115	W-3B	Appendix IV	Mercury	mg/l	100%	4	3	3	1	11	0.185	0.180	0.182	NA	NA	NA	NA	NA	NA	NA	NA
8_2_116	W-3B	Appendix IV	Molybdenum	mg/l	27%	4	3	3	1	11	0.708	0.572	0.716	2	2	3	1	8	0.382	0.549	0.595
8_2_120	W-3B	Appendix IV	Radium-226+228	pci/l	0%	4	3	3	1	11	0.970	0.977	0.966	4	3	3	1	11	0.970	0.977	0.966
8_2_122	W-3B	Appendix IV	Selenium	mg/l	9%	4	3	3	1	11	0.987	0.600	0.846	4	2	3	1	10	0.865	0.723	0.810
8_2_126	W-3B	Appendix IV	Thallium	mg/l	9%	4	3	3	1	11	0.833	0.515	0.531	4	2	3	1	10	0.931	0.914	0.932
9_2_101	W-5B	Appendix IV	Antimony	mg/l	86%	5	5	3	1	14	0.257	0.449	0.297	0	1	1	0	2	0.317	NA	NA
9_2_102	W-5B	Appendix IV	Arsenic	mg/l	57%	5	5	3	1	14	0.049 *	0.110	0.026 *	1	3	2	0	6	0.529	0.561	0.493
9_2_103	W-5B	Appendix IV	Barium	mg/l	7%	5	5	3	1	14	0.346	0.499	0.473	4	5	3	1	13	0.370	0.364	0.368
9_2_104	W-5B	Appendix IV	Beryllium	mg/l	85%	5	4	3	1	13	0.035 *	0.236	0.022 *	0	1	1	0	2	0.317	NA	NA
9_2_106	W-5B	Appendix IV	Cadmium	mg/l	14%	5	5	3	1	14	0.282	0.011 *	0.086	4	4	3	1	12	0.032 *	0.000 ***	0.000 ***
9_2_109	W-5B	Appendix IV	Chromium, Total	mg/l	86%	5	5	3	1	14	0.089	0.351	0.096	1	0	1	0	2	0.317	NA	NA
9_2_110	W-5B	Appendix IV	Cobalt	mg/l	0%	5	5	3	1	14	0.261	0.260	0.234	5	5	3	1	14	0.261	0.260	0.234
9_2_112	W-5B	Appendix IV	Fluoride (App IV)	mg/l	14%	5	5	3	1	14	0.100	0.023 *	0.022 *	3	5	3	1	12	0.142	0.061	0.071
9_2_113	W-5B	Appendix IV	Lead	mg/l	57%	5	5	3	1	14	0.104	0.418	0.196	1	2	2	1	6	0.733	0.896	0.934
9_2_114	W-5B	Appendix IV	Lithium	mg/l	0%	5	5	3	1	14	0.075	0.116	0.139	5	5	3	1	14	0.075	0.116	0.139
9_2_115	W-5B	Appendix IV	Mercury	mg/l	100%	5	4	3	1	13	0.139	0.621	0.317	NA	NA	NA	NA	NA	NA	NA	NA
9_2_116	W-5B	Appendix IV	Molybdenum	mg/l	29%	5	5	3	1	14	0.822	0.746	0.838	2	4	3	1	10	0.844	0.808	0.792
9_2_120	W-5B	Appendix IV	Radium-226+228	pci/l	0%	4	5	3	1	13	0.596	0.533	0.587	4	5	3	1	13	0.596	0.533	0.587
9_2_122	W-5B	Appendix IV	Selenium	mg/l	43%	5	5	3	1	14	0.412	0.489	0.373	2	2	3	1	8	0.521	0.485	0.486
9_2_126	W-5B	Appendix IV	Thallium	mg/l	29%	5	5	3	1	14	0.825	0.656	0.610	2	4	3	1	10	0.710	0.997	0.999

*** 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_2_102	W-6B	Appendix IV	Arsenic	mg/l	11	3	27%	Parametric	Lognormal MLE	0.00164	0.346	↔
10_2_103	W-6B	Appendix IV	Barium	mg/l	11	1	9%	Parametric	Lognormal MLE	0.000689	0.001	↑
10_2_106	W-6B	Appendix IV	Cadmium	mg/l	11	0	0%	Nonparametric	MK	0.00000435	0.433	↔
10_2_109	W-6B	Appendix IV	Chromium, Total	mg/l	11	5	45%	Parametric	Lognormal MLE	0.00400	0.001	↑
10_2_110	W-6B	Appendix IV	Cobalt	mg/l	11	0	0%	Parametric	Lognormal MLE	0.0000941	0.938	↔
10_2_113	W-6B	Appendix IV	Lead	mg/l	11	4	36%	Parametric	Lognormal MLE	0.00391	0.001	↑
10_2_114	W-6B	Appendix IV	Lithium	mg/l	11	0	0%	Parametric	Lognormal MLE	-0.0000682	0.769	↔
10_2_116	W-6B	Appendix IV	Molybdenum	mg/l	11	3	27%	Parametric	Lognormal MLE	-0.000666	0.349	↔
10_2_120	W-6B	Appendix IV	Radium-226+228	pci/l	11	0	0%	Parametric	Lognormal MLE	-0.00171	0.001	↓
10_2_122	W-6B	Appendix IV	Selenium	mg/l	11	2	18%	Parametric	Lognormal MLE	-0.00118	0.268	↔
10_2_126	W-6B	Appendix IV	Thallium	mg/l	11	1	9%	Parametric	Lognormal MLE	-0.000488	0.540	↔
11_2_102	W-7	Appendix IV	Arsenic	mg/l	19	3	16%	Parametric	Lognormal MLE	-0.00421	0.000	↓
11_2_106	W-7	Appendix IV	Cadmium	mg/l	19	0	0%	Nonparametric	MK	0.000000581	0.308	↔
11_2_109	W-7	Appendix IV	Chromium, Total	mg/l	19	9	47%	Parametric	Lognormal MLE	-0.000452	0.545	↔
11_2_110	W-7	Appendix IV	Cobalt	mg/l	19	0	0%	Parametric	Lognormal MLE	0.000313	0.164	↔
11_2_114	W-7	Appendix IV	Lithium	mg/l	19	0	0%	Parametric	Lognormal MLE	0.000475	0.002	↑
11_2_120	W-7	Appendix IV	Radium-226+228	pci/l	17	0	0%	Parametric	Lognormal MLE	0.000172	0.344	↔
11_2_122	W-7	Appendix IV	Selenium	mg/l	19	0	0%	Parametric	Lognormal MLE	0.000160	0.364	↔
11_2_126	W-7	Appendix IV	Thallium	mg/l	19	1	5%	Nonparametric	MK	0.00000116	0.073	↔
12_2_102	W-9	Appendix IV	Arsenic	mg/l	11	5	45%	Parametric	Lognormal MLE	-0.000542	0.047	↔
12_2_103	W-9	Appendix IV	Barium	mg/l	11	1	9%	Parametric	Lognormal MLE	-0.000171	0.404	↔
12_2_106	W-9	Appendix IV	Cadmium	mg/l	11	5	45%	Parametric	Lognormal MLE	0.000648	0.249	↔
12_2_110	W-9	Appendix IV	Cobalt	mg/l	11	1	9%	Parametric	Lognormal MLE	-0.00253	0.000	↓
12_2_112	W-9	Appendix IV	Fluoride (App IV)	mg/l	11	3	27%	Nonparametric	MK	0.000382	0.343	↔
12_2_114	W-9	Appendix IV	Lithium	mg/l	11	0	0%	Nonparametric	MK	0.000153	0.104	↔
12_2_116	W-9	Appendix IV	Molybdenum	mg/l	11	3	27%	Parametric	Lognormal MLE	-0.000752	0.088	↔
12_2_120	W-9	Appendix IV	Radium-226+228	pci/l	10	1	10%	Parametric	Lognormal MLE	0.000423	0.145	↔
12_2_122	W-9	Appendix IV	Selenium	mg/l	11	1	9%	Parametric	Lognormal MLE	-0.000315	0.499	↔
12_2_126	W-9	Appendix IV	Thallium	mg/l	11	5	45%	Parametric	Lognormal MLE	0.000520	0.422	↔
1_2_102	W-1	Appendix IV	Arsenic	mg/l	20	3	15%	Parametric	Lognormal MLE	-0.00259	0.000	↓
1_2_106	W-1	Appendix IV	Cadmium	mg/l	20	9	45%	Parametric	Lognormal MLE	0.000266	0.209	↔
1_2_109	W-1	Appendix IV	Chromium, Total	mg/l	20	8	40%	Parametric	Lognormal MLE	-0.00136	0.006	↓
1_2_110	W-1	Appendix IV	Cobalt	mg/l	20	8	40%	Parametric	Lognormal MLE	-0.00177	0.000	↓
1_2_112	W-1	Appendix IV	Fluoride (App IV)	mg/l	20	1	5%	Nonparametric	MK	-0.00100	0.298	↔
1_2_113	W-1	Appendix IV	Lead	mg/l	20	9	45%	Parametric	Lognormal MLE	-0.00121	0.043	↔
1_2_114	W-1	Appendix IV	Lithium	mg/l	20	0	0%	Parametric	Lognormal MLE	0.000112	0.100	↔
1_2_116	W-1	Appendix IV	Molybdenum	mg/l	20	1	5%	Parametric	Lognormal MLE	-0.000239	0.080	↔
1_2_120	W-1	Appendix IV	Radium-226+228	pci/l	20	1	5%	Parametric	Lognormal MLE	-0.000384	0.208	↔
1_2_122	W-1	Appendix IV	Selenium	mg/l	20	0	0%	Parametric	Lognormal MLE	-0.000508	0.000	↓
2_2_102	W-11	Appendix IV	Arsenic	mg/l	11	3	27%	Parametric	Lognormal MLE	-0.00284	0.079	↔
2_2_103	W-11	Appendix IV	Barium	mg/l	11	1	9%	Nonparametric	MK	0.00000752	0.310	↔
2_2_106	W-11	Appendix IV	Cadmium	mg/l	11	2	18%	Parametric	Lognormal MLE	0.00120	0.080	↔
2_2_109	W-11	Appendix IV	Chromium, Total	mg/l	11	5	45%	Parametric	Lognormal MLE	0.00118	0.006	↑

(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
2_2_110	W-11	Appendix IV	Cobalt	mg/l	11	1	9%	Parametric	Lognormal MLE	0.00275	0.060	↔
2_2_112	W-11	Appendix IV	Fluoride (App IV)	mg/l	11	1	9%	Parametric	Lognormal MLE	-0.00128	0.508	↔
2_2_114	W-11	Appendix IV	Lithium	mg/l	11	0	0%	Nonparametric	MK	0.000531	0.585	↔
2_2_116	W-11	Appendix IV	Molybdenum	mg/l	11	5	45%	Parametric	Lognormal MLE	0.000765	0.173	↔
2_2_120	W-11	Appendix IV	Radium-226+228	pci/l	10	1	10%	Parametric	Lognormal MLE	0.000260	0.499	↔
2_2_122	W-11	Appendix IV	Selenium	mg/l	11	1	9%	Parametric	Lognormal MLE	0.00345	0.213	↔
2_2_126	W-11	Appendix IV	Thallium	mg/l	11	2	18%	Parametric	Lognormal MLE	0.00136	0.208	↔
3_2_101	W-12	Appendix IV	Antimony	mg/l	11	3	27%	Parametric	Lognormal MLE	0.000151	0.246	↔
3_2_103	W-12	Appendix IV	Barium	mg/l	11	1	9%	Parametric	Lognormal MLE	0.000481	0.076	↔
3_2_109	W-12	Appendix IV	Chromium, Total	mg/l	11	5	45%	Parametric	Lognormal MLE	0.00210	0.001	↑
3_2_110	W-12	Appendix IV	Cobalt	mg/l	11	0	0%	Parametric	Lognormal MLE	0.000258	0.391	↔
3_2_112	W-12	Appendix IV	Fluoride (App IV)	mg/l	11	4	36%	Nonparametric	MK	0	0.873	↔
3_2_114	W-12	Appendix IV	Lithium	mg/l	11	0	0%	Parametric	Lognormal MLE	0.000441	0.278	↔
3_2_116	W-12	Appendix IV	Molybdenum	mg/l	11	4	36%	Parametric	Lognormal MLE	0.000149	0.627	↔
3_2_120	W-12	Appendix IV	Radium-226+228	pci/l	10	0	0%	Parametric	Lognormal MLE	0.00109	0.000	↑
3_2_122	W-12	Appendix IV	Selenium	mg/l	11	1	9%	Parametric	Lognormal MLE	-0.000250	0.530	↔
3_2_126	W-12	Appendix IV	Thallium	mg/l	11	1	9%	Parametric	Lognormal MLE	0.0000934	0.501	↔
4_2_101	W-14	Appendix IV	Antimony	mg/l	10	1	10%	Parametric	Lognormal MLE	-0.00146	0.000	↓
4_2_102	W-14	Appendix IV	Arsenic	mg/l	10	2	20%	Parametric	Lognormal MLE	0.0000705	0.895	↔
4_2_103	W-14	Appendix IV	Barium	mg/l	10	1	10%	Parametric	Lognormal MLE	-0.00105	0.000	↓
4_2_106	W-14	Appendix IV	Cadmium	mg/l	10	0	0%	Parametric	Lognormal MLE	-0.000358	0.273	↔
4_2_109	W-14	Appendix IV	Chromium, Total	mg/l	10	1	10%	Parametric	Lognormal MLE	0.000372	0.758	↔
4_2_110	W-14	Appendix IV	Cobalt	mg/l	10	0	0%	Parametric	Lognormal MLE	-0.000395	0.017	↔
4_2_112	W-14	Appendix IV	Fluoride (App IV)	mg/l	10	2	20%	Parametric	Lognormal MLE	-0.00798	0.218	↔
4_2_114	W-14	Appendix IV	Lithium	mg/l	10	0	0%	Parametric	Lognormal MLE	-0.0000356	0.594	↔
4_2_116	W-14	Appendix IV	Molybdenum	mg/l	10	1	10%	Parametric	Lognormal MLE	-0.000462	0.165	↔
4_2_120	W-14	Appendix IV	Radium-226+228	pci/l	10	0	0%	Parametric	Lognormal MLE	0.00143	0.077	↔
4_2_122	W-14	Appendix IV	Selenium	mg/l	10	0	0%	Parametric	Lognormal MLE	-0.000745	0.000	↓
4_2_126	W-14	Appendix IV	Thallium	mg/l	10	1	10%	Parametric	Lognormal MLE	-0.000369	0.188	↔
5_2_110	W-16	Appendix IV	Cobalt	mg/l	10	1	10%	Parametric	Lognormal MLE	0.00158	0.000	↑
8_2_102	W-3B	Appendix IV	Arsenic	mg/l	10	3	30%	Parametric	Lognormal MLE	-0.000227	0.480	↔
8_2_103	W-3B	Appendix IV	Barium	mg/l	11	1	9%	Parametric	Lognormal MLE	0.000144	0.233	↔
8_2_106	W-3B	Appendix IV	Cadmium	mg/l	11	0	0%	Nonparametric	MK	0	1.000	↔
8_2_109	W-3B	Appendix IV	Chromium, Total	mg/l	11	4	36%	Parametric	Lognormal MLE	0.00194	0.010	↑
8_2_110	W-3B	Appendix IV	Cobalt	mg/l	11	0	0%	Nonparametric	MK	0	0.688	↔
8_2_113	W-3B	Appendix IV	Lead	mg/l	11	4	36%	Parametric	Lognormal MLE	0.00239	0.001	↑
8_2_114	W-3B	Appendix IV	Lithium	mg/l	11	0	0%	Parametric	Lognormal MLE	0.000191	0.199	↔
8_2_120	W-3B	Appendix IV	Radium-226+228	pci/l	11	0	0%	Parametric	Lognormal MLE	0.00000455	0.989	↔
8_2_122	W-3B	Appendix IV	Selenium	mg/l	11	1	9%	Parametric	Lognormal MLE	-0.00179	0.007	↓
8_2_126	W-3B	Appendix IV	Thallium	mg/l	11	1	9%	Parametric	Lognormal MLE	0.000191	0.248	↔
9_2_103	W-5B	Appendix IV	Barium	mg/l	14	1	7%	Parametric	Lognormal MLE	-0.0000386	0.613	↔
9_2_106	W-5B	Appendix IV	Cadmium	mg/l	14	2	14%	Parametric	Lognormal MLE	0.000156	0.777	↔
9_2_110	W-5B	Appendix IV	Cobalt	mg/l	14	0	0%	Parametric	Lognormal MLE	-0.000668	0.000	↓

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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_2_112	W-5B	Appendix IV	Fluoride (App IV)	mg/l	14	2	14%	Nonparametric	MK	0.000116	0.869	↔
9_2_114	W-5B	Appendix IV	Lithium	mg/l	14	0	0%	Parametric	Lognormal MLE	0.000183	0.119	↔
9_2_120	W-5B	Appendix IV	Radium-226+228	pci/l	13	0	0%	Parametric	Lognormal MLE	0.0000353	0.927	↔
9_2_122	W-5B	Appendix IV	Selenium	mg/l	14	6	43%	Parametric	Lognormal MLE	-0.000172	0.861	↔
9_2_126	W-5B	Appendix IV	Thallium	mg/l	14	4	29%	Parametric	Lognormal MLE	-0.000325	0.031	↔

Table 9: Trend Tests: Piecewise Linear-Linear

								Line 1			Line 2					
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Slope	p-Value	Trend	Slope	p-Value	Trend	Break 1	R-Squared	Overall Trend
10_2_101	W-6B	Appendix IV	Antimony	mg/l	11	4	36%	-0.0000226	0.212	↔	-0.000000349	0.963	↔	2022-06-06	0.469	↔
10_2_102	W-6B	Appendix IV	Arsenic	mg/l	11	3	27%	-0.0000206	0.250	↔	0.00000340	0.653	↔	2022-06-07	0.355	↔
10_2_104	W-6B	Appendix IV	Beryllium	mg/l	11	7	64%	-0.0000203	0.487	↔	-0.0000000000128	1.000	↔	2022-11-12	0.104	↔
10_2_106	W-6B	Appendix IV	Cadmium	mg/l	11	0	0%	0.0000542	0.025	↔	-0.0000834	0.070	↔	2022-10-26	0.647	↔
10_2_109	W-6B	Appendix IV	Chromium, Total	mg/l	11	5	45%	-0.0000749	0.531	↔	0.0000130	0.985	↔	2022-12-02	0.086	↔
10_2_110	W-6B	Appendix IV	Cobalt	mg/l	11	0	0%	0.000103	0.407	↔	-0.000649	0.380	↔	2023-01-25	0.208	↔
10_2_112	W-6B	Appendix IV	Fluoride (App IV)	mg/l	11	7	64%	0.396	0.533	↔	-0.0999	0.304	↔	2022-03-29	0.219	↔
10_2_113	W-6B	Appendix IV	Lead	mg/l	11	4	36%	-0.0000141	0.588	↔	0.0000204	0.894	↔	2023-01-20	0.062	↔
10_2_114	W-6B	Appendix IV	Lithium	mg/l	11	0	0%	0.0127	0.031	↔	-0.00254	0.009	↓	2022-03-21	0.783	↔
10_2_115	W-6B	Appendix IV	Mercury	mg/l	11	11	100%	-0.000000481	0.003	↓	0.000000000000190	1.000	↔	2022-06-07	0.902	↔
10_2_116	W-6B	Appendix IV	Molybdenum	mg/l	11	3	27%	0.000366	0.595	↔	-0.000133	0.218	↔	2022-03-29	0.237	↔
10_2_120	W-6B	Appendix IV	Radium-226+228	pci/l	11	0	0%	-0.000940	0.932	↔	-0.0303	0.055	↔	2022-09-28	0.585	↔
10_2_122	W-6B	Appendix IV	Selenium	mg/l	11	2	18%	0.000286	0.598	↔	-0.000108	0.202	↔	2022-03-29	0.248	↔
10_2_126	W-6B	Appendix IV	Thallium	mg/l	11	1	9%	0.0000858	0.539	↔	-0.0000272	0.213	↔	2022-03-29	0.257	↔
11_2_101	W-7	Appendix IV	Antimony	mg/l	19	14	74%	0.0000577	0.088	↔	-0.00000544	0.042	↔	2020-12-03	0.379	↔
11_2_102	W-7	Appendix IV	Arsenic	mg/l	19	3	16%	0.0000120	0.703	↔	-0.0000301	0.008	↓	2021-05-10	0.563	↔
11_2_103	W-7	Appendix IV	Barium	mg/l	19	4	21%	0.0000730	0.362	↔	-0.0000344	0.427	↔	2021-05-27	0.094	↔
11_2_104	W-7	Appendix IV	Beryllium	mg/l	18	16	89%	0.0000128	0.114	↔	-0.0000231	0.312	↔	2022-03-31	0.221	↔
11_2_106	W-7	Appendix IV	Cadmium	mg/l	19	0	0%	0.0000491	0.070	↔	-0.0000213	0.140	↔	2021-05-27	0.294	↔
11_2_109	W-7	Appendix IV	Chromium, Total	mg/l	19	9	47%	0.0000470	0.202	↔	-0.0000856	0.240	↔	2022-03-30	0.181	↔
11_2_110	W-7	Appendix IV	Cobalt	mg/l	19	0	0%	0.0000745	0.052	↔	-0.0000237	0.237	↔	2021-05-27	0.308	↔
11_2_113	W-7	Appendix IV	Lead	mg/l	19	8	42%	0.0000585	0.084	↔	-0.0000243	0.179	↔	2021-05-27	0.266	↔
11_2_114	W-7	Appendix IV	Lithium	mg/l	19	0	0%	0.00280	0.005	↑	-0.00185	0.749	↔	2022-07-16	0.490	↔
11_2_115	W-7	Appendix IV	Mercury	mg/l	18	12	67%	0.00000308	0.162	↔	-0.000000678	0.110	↔	2021-01-14	0.282	↔
11_2_116	W-7	Appendix IV	Molybdenum	mg/l	19	7	37%	0.0000572	0.137	↔	-0.0000962	0.205	↔	2022-03-30	0.224	↔
11_2_120	W-7	Appendix IV	Radium-226+228	pci/l	17	0	0%	-0.0268	0.642	↔	0.00112	0.257	↔	2020-09-28	0.113	↔
11_2_122	W-7	Appendix IV	Selenium	mg/l	19	0	0%	-0.00419	0.332	↔	0.000604	0.197	↔	2020-12-04	0.164	↔
11_2_126	W-7	Appendix IV	Thallium	mg/l	19	1	5%	0.0000554	0.082	↔	-0.0000208	0.217	↔	2021-05-27	0.261	↔
12_2_101	W-9	Appendix IV	Antimony	mg/l	11	6	55%	0.00000276	0.669	↔	-0.00000803	0.263	↔	2022-03-01	0.264	↔
12_2_103	W-9	Appendix IV	Barium	mg/l	11	1	9%	0.0000476	0.411	↔	-0.0000541	0.543	↔	2022-03-31	0.152	↔
12_2_104	W-9	Appendix IV	Beryllium	mg/l	10	10	100%	0.0000214	0.375	↔	-0.0000243	0.490	↔	2022-03-31	0.211	↔

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Table 9: Trend Tests: Piecewise Linear-Linear *(continued)*

								Line 1			Line 2					
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Slope	p-Value	Trend	Slope	p-Value	Trend	Break 1	R-Squared	Overall Trend
12_2_106	W-9	Appendix IV	Cadmium	mg/l	11	5	45%	0.00000377	0.392	↔	-0.00000346	0.457	↔	2022-03-30	0.175	↔
12_2_109	W-9	Appendix IV	Chromium, Total	mg/l	11	6	55%	0.0000820	0.354	↔	-0.0000847	0.530	↔	2022-03-31	0.174	↔
12_2_112	W-9	Appendix IV	Fluoride (App IV)	mg/l	11	3	27%	0.0298	0.094	↔	-0.0354	0.541	↔	2022-05-06	0.406	↔
12_2_113	W-9	Appendix IV	Lead	mg/l	11	8	73%	0.0000157	0.473	↔	-0.0000193	0.410	↔	2022-03-30	0.161	↔
12_2_114	W-9	Appendix IV	Lithium	mg/l	11	0	0%	0.000458	0.119	↔	-0.0000000000706	1.000	↔	2022-05-18	0.391	↔
12_2_115	W-9	Appendix IV	Mercury	mg/l	10	10	100%	0.00000000000130	1.000	↔	-0.000000154	0.013	↔	2021-11-03	0.735	↔
12_2_116	W-9	Appendix IV	Molybdenum	mg/l	11	3	27%	0.0000869	0.356	↔	-0.0000966	0.502	↔	2022-03-31	0.183	↔
12_2_122	W-9	Appendix IV	Selenium	mg/l	11	1	9%	0.0000733	0.385	↔	-0.0000765	0.395	↔	2022-03-30	0.194	↔
12_2_126	W-9	Appendix IV	Thallium	mg/l	11	5	45%	0.0000197	0.405	↔	-0.0000208	0.410	↔	2022-03-30	0.182	↔
1_2_101	W-1	Appendix IV	Antimony	mg/l	20	15	75%	0.00000865	0.100	↔	-0.00000793	0.044	↔	2021-09-13	0.332	↔
1_2_102	W-1	Appendix IV	Arsenic	mg/l	20	3	15%	-0.0000341	0.031	↔	-0.00000970	0.000	↓	2020-10-14	0.759	↔
1_2_103	W-1	Appendix IV	Barium	mg/l	20	3	15%	-0.000147	0.024	↔	-0.00000133	0.949	↔	2021-03-24	0.556	↔
1_2_104	W-1	Appendix IV	Beryllium	mg/l	19	17	89%	0.00000648	0.155	↔	-0.00000581	0.044	↔	2021-09-22	0.338	↔
1_2_106	W-1	Appendix IV	Cadmium	mg/l	20	9	45%	0.00000450	0.024	↔	-0.000000821	0.206	↔	2021-01-14	0.335	↔
1_2_109	W-1	Appendix IV	Chromium, Total	mg/l	20	8	40%	0.00000387	0.582	↔	-0.0000233	0.311	↔	2022-04-05	0.159	↔
1_2_110	W-1	Appendix IV	Cobalt	mg/l	20	8	40%	-0.00000888	0.066	↔	-0.000000968	0.237	↔	2020-10-29	0.390	↔
1_2_112	W-1	Appendix IV	Fluoride (App IV)	mg/l	20	1	5%	-0.159	0.138	↔	0.0396	0.175	↔	2020-12-19	0.222	↔
1_2_113	W-1	Appendix IV	Lead	mg/l	20	9	45%	0.00000657	0.337	↔	-0.00000310	0.196	↔	2021-01-14	0.191	↔
1_2_115	W-1	Appendix IV	Mercury	mg/l	19	19	100%	0.00000131	0.233	↔	-0.000000445	0.291	↔	2021-01-14	0.178	↔
1_2_116	W-1	Appendix IV	Molybdenum	mg/l	20	1	5%	-0.0000413	0.039	↔	0.000000691	0.872	↔	2020-12-10	0.336	↔
1_2_120	W-1	Appendix IV	Radium-226+228	pci/l	20	1	5%	0.000392	0.759	↔	-0.00333	0.423	↔	2022-04-05	0.111	↔
1_2_122	W-1	Appendix IV	Selenium	mg/l	20	0	0%	-0.00316	0.000	↓	-0.000106	0.369	↔	2020-12-14	0.865	↔
1_2_126	W-1	Appendix IV	Thallium	mg/l	20	13	65%	0.00000329	0.027	↔	-0.00000668	0.039	↔	2022-04-04	0.408	↔
2_2_101	W-11	Appendix IV	Antimony	mg/l	11	8	73%	0.0000103	0.272	↔	-0.00000907	0.216	↔	2022-01-13	0.320	↔
2_2_102	W-11	Appendix IV	Arsenic	mg/l	11	3	27%	-0.0000986	0.323	↔	-0.0000110	0.256	↔	2021-05-26	0.615	↔
2_2_103	W-11	Appendix IV	Barium	mg/l	11	1	9%	0.000818	0.495	↔	-0.000166	0.171	↔	2021-05-26	0.295	↔
2_2_104	W-11	Appendix IV	Beryllium	mg/l	10	8	80%	0.0000227	0.340	↔	-0.0000249	0.475	↔	2022-04-01	0.229	↔
2_2_106	W-11	Appendix IV	Cadmium	mg/l	11	2	18%	0.00000496	0.157	↔	-0.00000318	0.536	↔	2022-04-01	0.299	↔
2_2_109	W-11	Appendix IV	Chromium, Total	mg/l	11	5	45%	0.0000935	0.277	↔	-0.0000945	0.472	↔	2022-04-01	0.224	↔
2_2_110	W-11	Appendix IV	Cobalt	mg/l	11	1	9%	0.0000386	0.010	↔	0.000000425	0.973	↔	2022-02-25	0.748	↔
2_2_113	W-11	Appendix IV	Lead	mg/l	11	7	64%	0.0000197	0.296	↔	-0.0000168	0.557	↔	2022-04-01	0.191	↔
2_2_114	W-11	Appendix IV	Lithium	mg/l	11	0	0%	-0.0141	0.472	↔	0.00314	0.120	↔	2021-05-26	0.349	↔
2_2_115	W-11	Appendix IV	Mercury	mg/l	10	10	100%	-0.0000000000000348	1.000	↔	-0.000000154	0.013	↔	2021-11-02	0.731	↔
2_2_116	W-11	Appendix IV	Molybdenum	mg/l	11	5	45%	0.000102	0.267	↔	-0.000105	0.456	↔	2022-04-01	0.234	↔
2_2_120	W-11	Appendix IV	Radium-226+228	pci/l	10	1	10%	0.00332	0.235	↔	-0.00648	0.823	↔	2022-10-29	0.232	↔
2_2_122	W-11	Appendix IV	Selenium	mg/l	11	1	9%	-0.00740	0.417	↔	0.00243	0.174	↔	2021-05-27	0.359	↔
2_2_126	W-11	Appendix IV	Thallium	mg/l	11	2	18%	0.0000208	0.318	↔	-0.0000176	0.425	↔	2022-03-31	0.218	↔
3_2_101	W-12	Appendix IV	Antimony	mg/l	11	3	27%	0.0000138	0.565	↔	-0.00000509	0.281	↔	2021-08-26	0.209	↔
3_2_102	W-12	Appendix IV	Arsenic	mg/l	11	8	73%	0.0000139	0.474	↔	-0.00000287	0.159	↔	2021-05-27	0.309	↔
3_2_103	W-12	Appendix IV	Barium	mg/l	11	1	9%	0.0000567	0.354	↔	-0.0000359	0.700	↔	2022-04-01	0.143	↔
3_2_104	W-12	Appendix IV	Beryllium	mg/l	10	8	80%	0.0000224	0.348	↔	-0.0000244	0.487	↔	2022-04-01	0.222	↔
3_2_106	W-12	Appendix IV	Cadmium	mg/l	11	2	18%	0.00000370	0.305	↔	-0.00000318	0.563	↔	2022-04-01	0.186	↔

(Table continues on next page)

Table 9: Trend Tests: Piecewise Linear-Linear *(continued)*

								Line 1			Line 2					
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Slope	p-Value	Trend	Slope	p-Value	Trend	Break 1	R-Squared	Overall Trend
3_2_109	W-12	Appendix IV	Chromium, Total	mg/l	11	5	45%	0.0000841	0.340	↔	-0.0000823	0.542	↔	2022-04-01	0.176	↔
3_2_112	W-12	Appendix IV	Fluoride (App IV)	mg/l	11	4	36%	0.0232	0.334	↔	-0.0250	0.499	↔	2022-04-01	0.191	↔
3_2_113	W-12	Appendix IV	Lead	mg/l	11	9	82%	0.0000182	0.341	↔	-0.0000160	0.583	↔	2022-04-01	0.165	↔
3_2_114	W-12	Appendix IV	Lithium	mg/l	11	0	0%	0.00125	0.380	↔	0.000311	0.950	↔	2022-05-30	0.182	↔
3_2_115	W-12	Appendix IV	Mercury	mg/l	10	10	100%	0.000000000000900	1.000	↔	-0.000000154	0.013	↔	2021-11-03	0.732	↔
3_2_116	W-12	Appendix IV	Molybdenum	mg/l	11	4	36%	0.0000909	0.334	↔	-0.0000949	0.512	↔	2022-04-01	0.187	↔
3_2_120	W-12	Appendix IV	Radium-226+228	pci/l	10	0	0%	0.00161	0.380	↔	0.00513	0.004	↑	2022-02-20	0.881	↔
3_2_122	W-12	Appendix IV	Selenium	mg/l	11	1	9%	0.0000745	0.261	↔	-0.0000923	0.203	↔	2022-03-31	0.332	↔
3_2_126	W-12	Appendix IV	Thallium	mg/l	11	1	9%	0.0000183	0.369	↔	-0.0000182	0.406	↔	2022-03-31	0.197	↔
4_2_101	W-14	Appendix IV	Antimony	mg/l	10	1	10%	-0.00000282	0.122	↔	-0.000000347	0.267	↔	2022-06-19	0.751	↔
4_2_102	W-14	Appendix IV	Arsenic	mg/l	10	2	20%	-0.000000439	0.452	↔	0.000000804	0.247	↔	2022-10-07	0.348	↔
4_2_104	W-14	Appendix IV	Beryllium	mg/l	10	6	60%	-0.000000482	0.632	↔	0.000000982	0.167	↔	2022-09-27	0.347	↔
4_2_106	W-14	Appendix IV	Cadmium	mg/l	10	0	0%	0.00000193	0.166	↔	-0.00000157	0.098	↔	2022-08-24	0.537	↔
4_2_109	W-14	Appendix IV	Chromium, Total	mg/l	10	1	10%	-0.00309	0.000	↓	0.00000228	0.287	↔	2022-05-06	1.000	↔
4_2_112	W-14	Appendix IV	Fluoride (App IV)	mg/l	10	2	20%	0.124	0.616	↔	-0.141	0.146	↔	2022-08-23	0.350	↔
4_2_114	W-14	Appendix IV	Lithium	mg/l	10	0	0%	-0.00168	0.458	↔	0.000284	0.486	↔	2022-07-14	0.305	↔
4_2_115	W-14	Appendix IV	Mercury	mg/l	10	9	90%	-0.00000140	0.009	↓	0.0000000210	0.513	↔	2022-05-06	0.796	↔
4_2_120	W-14	Appendix IV	Radium-226+228	pci/l	10	0	0%	0.0219	0.162	↔	-0.00458	0.391	↔	2022-08-23	0.581	↔
4_2_122	W-14	Appendix IV	Selenium	mg/l	10	0	0%	0.000303	0.490	↔	-0.00168	0.001	↓	2022-09-19	0.917	↔
5_2_102	W-16	Appendix IV	Arsenic	mg/l	5	3	60%	0.00000292	0.828	↔	-0.0000000621	0.959	↔	2022-06-07	0.312	↔
5_2_104	W-16	Appendix IV	Beryllium	mg/l	5	4	80%	-0.000790	0.001	↓	0.000000684	0.064	↔	2022-05-05	1.000	↔
5_2_106	W-16	Appendix IV	Cadmium	mg/l	5	1	20%	-0.0000941	0.079	↔	0.000000108	0.936	↔	2022-05-05	0.990	↔
5_2_109	W-16	Appendix IV	Chromium, Total	mg/l	5	5	100%	-0.00322	0.000	↓	0.000000000000000624	0.723	↔	2022-05-05	1.000	↔
5_2_112	W-16	Appendix IV	Fluoride (App IV)	mg/l	5	0	0%	-0.503	0.002	↓	-0.000820	0.104	↔	2022-05-09	1.000	↔
5_2_114	W-16	Appendix IV	Lithium	mg/l	5	0	0%	0.00294	0.220	↔	-0.00174	0.036	↔	2022-05-14	0.997	↔
5_2_115	W-16	Appendix IV	Mercury	mg/l	5	5	100%	-0.00000144	0.000	↓	0.000000000000000195	0.723	↔	2022-05-05	1.000	↔
6_2_104	W-17	Appendix IV	Beryllium	mg/l	5	5	100%	0.00000204	0.281	↔	-0.00000000000702	1.000	↔	2023-03-07	0.899	↔
6_2_114	W-17	Appendix IV	Lithium	mg/l	5	0	0%	0.000577	0.458	↔	-0.000261	0.590	↔	2023-02-21	0.899	↔
6_2_116	W-17	Appendix IV	Molybdenum	mg/l	5	0	0%	0.00138	0.538	↔	-0.00322	0.643	↔	2023-02-22	0.646	↔
6_2_126	W-17	Appendix IV	Thallium	mg/l	5	0	0%	-0.00000927	0.463	↔	0.0000156	0.670	↔	2023-02-22	0.644	↔
8_2_101	W-3B	Appendix IV	Antimony	mg/l	10	6	60%	-0.0000224	0.110	↔	-0.000000269	0.972	↔	2022-06-27	0.590	↔
8_2_102	W-3B	Appendix IV	Arsenic	mg/l	10	3	30%	-0.0000411	0.000	↓	-0.000000290	0.669	↔	2022-02-26	0.977	↔
8_2_103	W-3B	Appendix IV	Barium	mg/l	11	1	9%	0.000236	0.611	↔	-0.0000736	0.284	↔	2022-03-30	0.201	↔
8_2_104	W-3B	Appendix IV	Beryllium	mg/l	11	8	73%	-0.0000204	0.523	↔	0.00000000000489	1.000	↔	2022-11-02	0.093	↔
8_2_106	W-3B	Appendix IV	Cadmium	mg/l	11	0	0%	-0.0000207	0.313	↔	0.00000488	0.548	↔	2022-06-07	0.291	↔
8_2_109	W-3B	Appendix IV	Chromium, Total	mg/l	11	4	36%	0.000256	0.714	↔	-0.000108	0.296	↔	2022-03-30	0.169	↔
8_2_110	W-3B	Appendix IV	Cobalt	mg/l	11	0	0%	-0.000230	0.544	↔	0.000128	0.412	↔	2022-06-07	0.150	↔
8_2_112	W-3B	Appendix IV	Fluoride (App IV)	mg/l	11	7	64%	0.312	0.167	↔	-0.319	0.152	↔	2022-07-30	0.420	↔
8_2_113	W-3B	Appendix IV	Lead	mg/l	11	4	36%	-0.0000141	0.617	↔	0.000000405	0.998	↔	2022-10-27	0.056	↔
8_2_114	W-3B	Appendix IV	Lithium	mg/l	11	0	0%	0.00781	0.042	↔	-0.000363	0.447	↔	2022-03-07	0.688	↔
8_2_115	W-3B	Appendix IV	Mercury	mg/l	11	11	100%	-0.000000484	0.003	↓	-0.0000000000000445	1.000	↔	2022-06-06	0.898	↔
8_2_116	W-3B	Appendix IV	Molybdenum	mg/l	11	3	27%	0.000303	0.680	↔	-0.000126	0.250	↔	2022-03-30	0.201	↔

(Table continues on next page)

Table 9: Trend Tests: Piecewise Linear-Linear *(continued)*

								Line 1			Line 2					
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Slope	p-Value	Trend	Slope	p-Value	Trend	Break 1	R-Squared	Overall Trend
8_2_122	W-3B	Appendix IV	Selenium	mg/l	11	1	9%	0.000202	0.720	↔	-0.0000951	0.259	↔	2022-03-30	0.190	↔
8_2_126	W-3B	Appendix IV	Thallium	mg/l	11	1	9%	0.0000749	0.608	↔	-0.0000234	0.279	↔	2022-03-30	0.204	↔
9_2_101	W-5B	Appendix IV	Antimony	mg/l	14	12	86%	-0.00000411	0.261	↔	0.0000961	0.052	↔	2023-02-11	0.443	↔
9_2_102	W-5B	Appendix IV	Arsenic	mg/l	14	8	57%	-0.00000597	0.177	↔	0.00000111	0.955	↔	2022-10-05	0.228	↔
9_2_106	W-5B	Appendix IV	Cadmium	mg/l	14	2	14%	-0.00000685	0.292	↔	0.00000134	0.266	↔	2021-08-07	0.293	↔
9_2_109	W-5B	Appendix IV	Chromium, Total	mg/l	14	12	86%	0.00000182	0.894	↔	-0.0000148	0.174	↔	2022-02-24	0.231	↔
9_2_110	W-5B	Appendix IV	Cobalt	mg/l	14	0	0%	-0.00000260	0.000	↓	-0.000000398	0.763	↔	2022-07-14	0.843	↔
9_2_112	W-5B	Appendix IV	Fluoride (App IV)	mg/l	14	2	14%	0.00705	0.141	↔	-0.0151	0.481	↔	2022-08-23	0.249	↔
9_2_113	W-5B	Appendix IV	Lead	mg/l	14	8	57%	-0.00000339	0.116	↔	0.000000934	0.921	↔	2022-09-28	0.284	↔
9_2_115	W-5B	Appendix IV	Mercury	mg/l	13	13	100%	-0.00000314	0.413	↔	0.00000000744	0.987	↔	2021-10-16	0.682	↔
9_2_120	W-5B	Appendix IV	Radium-226+228	pci/l	13	0	0%	0.00173	0.352	↔	-0.00600	0.486	↔	2022-09-28	0.156	↔
9_2_126	W-5B	Appendix IV	Thallium	mg/l	14	4	29%	0.000000662	0.735	↔	-0.00000257	0.213	↔	2022-02-28	0.217	↔

Table 10: Trend Tests: Piecewise Linear-Linear-Linear

								Line 1			Line 2			Line 3						
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Slope	p-Value	Trend	Slope	p-Value	Trend	Slope	p-Value	Trend	Break 1	Break 2	R-Squared	Overall Trend
10_2_101	W-6B	Appendix IV	Antimony	mg/l	11	4	36%	0.0000517	0.344	↔	-0.000112	0.067	↔	0.00000222	0.568	↔	2022-02-21	2022-04-21	0.866	↔
10_2_102	W-6B	Appendix IV	Arsenic	mg/l	11	3	27%	0.0000284	0.727	↔	-0.0000619	0.144	↔	0.00000596	0.414	↔	2022-02-23	2022-05-17	0.605	↔
10_2_103	W-6B	Appendix IV	Barium	mg/l	11	1	9%	0.000339	0.486	↔	-0.000197	0.429	↔	0.0000386	0.797	↔	2022-03-29	2022-09-07	0.307	↔
10_2_104	W-6B	Appendix IV	Beryllium	mg/l	11	7	64%	0.000131	0.236	↔	-0.000142	0.702	↔	0.0000154	0.708	↔	2022-03-30	2022-07-26	0.467	↔
10_2_109	W-6B	Appendix IV	Chromium, Total	mg/l	11	5	45%	0.000540	0.423	↔	-0.000555	0.453	↔	0.0000656	0.700	↔	2022-03-29	2022-07-29	0.451	↔
10_2_110	W-6B	Appendix IV	Cobalt	mg/l	11	0	0%	-0.000310	0.170	↔	0.000636	0.370	↔	-0.000634	0.299	↔	2022-06-08	2022-11-22	0.648	↔
10_2_113	W-6B	Appendix IV	Lead	mg/l	11	4	36%	0.000101	0.331	↔	-0.0000685	0.524	↔	0.0000173	0.720	↔	2022-03-30	2022-09-23	0.350	↔
10_2_114	W-6B	Appendix IV	Lithium	mg/l	11	0	0%	0.0148	0.001	↑	-0.00994	0.246	↔	-0.000914	0.326	↔	2022-03-30	2022-06-23	0.927	↔
10_2_115	W-6B	Appendix IV	Mercury	mg/l	11	11	100%	-0.000000481	0.013	↔	0.000000000000356	1.000	↔	-0.000000000000134	1.000	↔	2022-06-07	2022-11-25	0.902	↔
10_2_116	W-6B	Appendix IV	Molybdenum	mg/l	11	3	27%	0.000628	0.383	↔	-0.000586	0.456	↔	0.0000528	0.770	↔	2022-03-29	2022-07-27	0.456	↔
10_2_122	W-6B	Appendix IV	Selenium	mg/l	11	2	18%	0.000461	0.235	↔	-0.000367	0.779	↔	0.0000361	0.803	↔	2022-03-30	2022-08-18	0.441	↔
10_2_126	W-6B	Appendix IV	Thallium	mg/l	11	1	9%	0.000112	0.298	↔	-0.0000638	0.564	↔	-0.00000299	0.952	↔	2022-03-30	2022-08-30	0.329	↔
11_2_102	W-7	Appendix IV	Arsenic	mg/l	19	3	16%	0.0000424	0.026	↔	-0.0000771	0.156	↔	0.00000574	0.744	↔	2021-05-27	2022-04-06	0.788	↔
11_2_103	W-7	Appendix IV	Barium	mg/l	19	4	21%	-0.000950	0.378	↔	0.000127	0.368	↔	-0.0000425	0.229	↔	2020-09-27	2021-05-26	0.225	↔
11_2_109	W-7	Appendix IV	Chromium, Total	mg/l	19	9	47%	-0.00000647	0.975	↔	0.0000759	0.415	↔	-0.0000939	0.230	↔	2021-04-03	2022-03-30	0.196	↔
11_2_110	W-7	Appendix IV	Cobalt	mg/l	19	0	0%	0.0000993	0.014	↔	-0.0000568	0.488	↔	0.0000315	0.675	↔	2021-05-27	2022-07-22	0.407	↔
11_2_112	W-7	Appendix IV	Fluoride (App IV)	mg/l	19	9	47%	6.21	0.338	↔	-0.129	0.089	↔	-0.0000000105	1.000	↔	2020-09-09	2022-07-02	0.332	↔
11_2_113	W-7	Appendix IV	Lead	mg/l	19	8	42%	0.0000697	0.149	↔	-0.0000392	0.266	↔	0.000000829	0.991	↔	2021-05-26	2022-07-23	0.293	↔
11_2_114	W-7	Appendix IV	Lithium	mg/l	19	0	0%	-0.00209	0.354	↔	0.0310	0.152	↔	-0.00192	0.223	↔	2021-11-06	2022-02-03	0.719	↔
11_2_115	W-7	Appendix IV	Mercury	mg/l	18	12	67%	0.00000424	0.066	↔	-0.00000137	0.299	↔	-0.0000000234	0.972	↔	2021-01-14	2022-02-03	0.377	↔
11_2_116	W-7	Appendix IV	Molybdenum	mg/l	19	7	37%	0.00000445	0.974	↔	0.0000885	0.500	↔	-0.000105	0.197	↔	2021-04-13	2022-03-30	0.239	↔
11_2_122	W-7	Appendix IV	Selenium	mg/l	19	0	0%	-0.00383	0.162	↔	0.00203	0.037	↔	-0.00441	0.094	↔	2021-02-18	2022-09-27	0.476	↔
11_2_126	W-7	Appendix IV	Thallium	mg/l	19	1	5%	0.0000650	0.059	↔	-0.0000338	0.643	↔	-0.00000249	0.970	↔	2021-05-27	2022-06-29	0.283	↔

(Table continues on next page)

Table 10: Trend Tests: Piecewise Linear-Linear-Linear *(continued)*

								Line 1			Line 2			Line 3						
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Slope	p-Value	Trend	Slope	p-Value	Trend	Slope	p-Value	Trend	Break 1	Break 2	R-Squared	Overall Trend
12_2_102	W-9	Appendix IV	Arsenic	mg/l	11	5	45%	0.0000287	0.065	↔	-0.00000946	0.039	↔	-0.000000258	0.935	↔	2021-04-27	2022-04-04	0.799	↔
12_2_103	W-9	Appendix IV	Barium	mg/l	11	1	9%	-0.0000250	0.823	↔	0.000343	0.651	↔	-0.0000872	0.272	↔	2021-12-25	2022-03-30	0.309	↔
12_2_104	W-9	Appendix IV	Beryllium	mg/l	10	10	100%	-0.00000568	0.901	↔	0.000127	0.511	↔	-0.0000363	0.375	↔	2021-12-20	2022-03-31	0.363	↔
12_2_106	W-9	Appendix IV	Cadmium	mg/l	11	5	45%	-0.00000238	0.731	↔	0.0000281	0.553	↔	-0.00000621	0.215	↔	2021-12-23	2022-03-30	0.417	↔
12_2_109	W-9	Appendix IV	Chromium, Total	mg/l	11	6	55%	-0.0000321	0.848	↔	0.000542	0.635	↔	-0.000137	0.256	↔	2021-12-24	2022-03-30	0.337	↔
12_2_110	W-9	Appendix IV	Cobalt	mg/l	11	1	9%	-0.0000434	0.142	↔	0.000117	0.306	↔	-0.0000264	0.268	↔	2021-12-21	2022-03-31	0.573	↔
12_2_114	W-9	Appendix IV	Lithium	mg/l	11	0	0%	-0.00104	0.216	↔	0.00353	0.025	↔	-0.000159	0.474	↔	2021-10-24	2022-03-01	0.850	↔
12_2_115	W-9	Appendix IV	Mercury	mg/l	10	10	100%	0.0000000366	0.381	↔	-0.000000763	0.034	↔	-0.00000000000217	1.000	↔	2022-01-28	2022-05-14	0.956	↔
12_2_116	W-9	Appendix IV	Molybdenum	mg/l	11	3	27%	-0.0000300	0.864	↔	0.000675	0.371	↔	-0.000158	0.314	↔	2022-01-06	2022-03-31	0.373	↔
12_2_122	W-9	Appendix IV	Selenium	mg/l	11	1	9%	-0.0000257	0.855	↔	0.000464	0.438	↔	-0.000121	0.336	↔	2021-12-23	2022-03-31	0.361	↔
12_2_126	W-9	Appendix IV	Thallium	mg/l	11	5	45%	-0.00000832	0.832	↔	0.000133	0.620	↔	-0.0000335	0.236	↔	2021-12-24	2022-03-30	0.357	↔
1_2_101	W-1	Appendix IV	Antimony	mg/l	20	15	75%	0.0000117	0.150	↔	0.00000233	0.788	↔	-0.00000831	0.106	↔	2021-01-14	2022-01-14	0.355	↔
1_2_102	W-1	Appendix IV	Arsenic	mg/l	20	3	15%	-0.0000349	0.010	↓	0.00000965	0.889	↔	-0.0000134	0.001	↓	2020-11-22	2021-04-18	0.787	↔
1_2_103	W-1	Appendix IV	Barium	mg/l	20	3	15%	-0.0000385	0.700	↔	-0.000287	0.115	↔	0.00000705	0.727	↔	2020-09-17	2021-02-08	0.631	↔
1_2_104	W-1	Appendix IV	Beryllium	mg/l	19	17	89%	0.00000589	0.220	↔	-0.000000321	0.985	↔	-0.00000726	0.201	↔	2021-07-07	2022-04-05	0.358	↔
1_2_106	W-1	Appendix IV	Cadmium	mg/l	20	9	45%	0.00000426	0.043	↔	-0.000000550	0.689	↔	-0.00000149	0.746	↔	2021-01-14	2022-06-21	0.344	↔
1_2_109	W-1	Appendix IV	Chromium, Total	mg/l	20	8	40%	-0.0000292	0.333	↔	0.00000982	0.378	↔	-0.0000269	0.252	↔	2020-11-11	2022-04-05	0.249	↔
1_2_110	W-1	Appendix IV	Cobalt	mg/l	20	8	40%	-0.00000615	0.012	↔	0.0000132	0.379	↔	-0.00000495	0.051	↔	2021-10-07	2022-04-04	0.549	↔
1_2_112	W-1	Appendix IV	Fluoride (App IV)	mg/l	20	1	5%	-0.142	0.024	↔	0.141	0.006	↑	-0.511	0.172	↔	2021-04-25	2022-11-30	0.627	↔
1_2_113	W-1	Appendix IV	Lead	mg/l	20	9	45%	0.00000595	0.415	↔	-0.00000238	0.639	↔	-0.00000540	0.751	↔	2021-01-14	2022-08-06	0.197	↔
1_2_115	W-1	Appendix IV	Mercury	mg/l	19	19	100%	0.00000154	0.189	↔	-0.000000772	0.587	↔	-0.0000000962	0.892	↔	2021-01-14	2022-01-21	0.206	↔
1_2_116	W-1	Appendix IV	Molybdenum	mg/l	20	1	5%	-0.0000398	0.064	↔	-0.00000351	0.524	↔	0.0000371	0.695	↔	2020-11-24	2022-11-30	0.401	↔
1_2_120	W-1	Appendix IV	Radium-226+228	pci/l	20	1	5%	-0.00373	0.419	↔	0.0134	0.707	↔	-0.00369	0.101	↔	2021-03-19	2021-08-01	0.220	↔
1_2_126	W-1	Appendix IV	Thallium	mg/l	20	13	65%	0.00000313	0.478	↔	0.00000336	0.410	↔	-0.00000671	0.053	↔	2021-02-06	2022-04-04	0.408	↔
2_2_102	W-11	Appendix IV	Arsenic	mg/l	11	3	27%	-0.0000911	0.439	↔	-0.0000152	0.413	↔	0.0000119	0.926	↔	2021-05-26	2022-12-14	0.626	↔
2_2_103	W-11	Appendix IV	Barium	mg/l	11	1	9%	0.00122	0.163	↔	-0.000405	0.521	↔	0.000172	0.763	↔	2021-05-27	2022-07-17	0.464	↔
2_2_106	W-11	Appendix IV	Cadmium	mg/l	11	2	18%	-0.0000000322	0.996	↔	0.0000247	0.364	↔	-0.00000550	0.320	↔	2021-12-22	2022-04-01	0.480	↔
2_2_109	W-11	Appendix IV	Chromium, Total	mg/l	11	5	45%	-0.0000193	0.904	↔	0.000552	0.433	↔	-0.000148	0.309	↔	2021-12-24	2022-04-01	0.387	↔
2_2_110	W-11	Appendix IV	Cobalt	mg/l	11	1	9%	-0.0000281	0.704	↔	0.0000498	0.024	↔	-0.0000141	0.680	↔	2021-05-26	2022-06-04	0.811	↔
2_2_112	W-11	Appendix IV	Fluoride (App IV)	mg/l	11	1	9%	-0.0287	0.536	↔	0.128	0.718	↔	-0.0306	0.344	↔	2021-12-25	2022-03-31	0.254	↔
2_2_113	W-11	Appendix IV	Lead	mg/l	11	7	64%	-0.00000520	0.882	↔	0.000121	0.434	↔	-0.0000286	0.365	↔	2021-12-24	2022-04-01	0.362	↔
2_2_114	W-11	Appendix IV	Lithium	mg/l	11	0	0%	-0.0263	0.014	↔	0.0167	0.501	↔	-0.00143	0.435	↔	2021-06-24	2022-02-24	0.829	↔
2_2_115	W-11	Appendix IV	Mercury	mg/l	10	10	100%	0.0000000360	0.415	↔	-0.000000713	0.049	↔	-0.00000000000216	1.000	↔	2022-01-23	2022-05-16	0.948	↔
2_2_120	W-11	Appendix IV	Radium-226+228	pci/l	10	1	10%	-0.000602	0.901	↔	0.0232	0.755	↔	-0.0114	0.405	↔	2022-02-25	2022-08-02	0.395	↔
2_2_122	W-11	Appendix IV	Selenium	mg/l	11	1	9%	-0.0165	0.037	↔	0.00884	0.660	↔	-0.000503	0.732	↔	2021-05-27	2022-02-18	0.787	↔
2_2_126	W-11	Appendix IV	Thallium	mg/l	11	2	18%	-0.00000325	0.921	↔	0.000143	0.333	↔	-0.0000309	0.302	↔	2022-01-06	2022-04-01	0.426	↔
3_2_101	W-12	Appendix IV	Antimony	mg/l	11	3	27%	0.00000967	0.128	↔	-0.0000673	0.454	↔	0.00000318	0.840	↔	2022-03-01	2022-05-08	0.546	↔
3_2_102	W-12	Appendix IV	Arsenic	mg/l	11	8	73%	0.00000353	0.520	↔	-0.0000306	0.217	↔	0.00000209	0.655	↔	2022-01-12	2022-04-01	0.464	↔
3_2_103	W-12	Appendix IV	Barium	mg/l	11	1	9%	-0.0000256	0.823	↔	0.000389	0.636	↔	-0.0000737	0.363	↔	2021-12-25	2022-03-31	0.326	↔
3_2_104	W-12	Appendix IV	Beryllium	mg/l	10	8	80%	-0.00000557	0.901	↔	0.000120	0.538	↔	-0.0000361	0.376	↔	2021-12-13	2022-04-01	0.370	↔
3_2_109	W-12	Appendix IV	Chromium, Total	mg/l	11	5	45%	-0.0000273	0.870	↔	0.000545	0.455	↔	-0.000134	0.371	↔	2021-12-26	2022-04-01	0.335	↔
3_2_113	W-12	Appendix IV	Lead	mg/l	11	9	82%	-0.00000673	0.852	↔	0.000120	0.447	↔	-0.0000276	0.393	↔	2021-12-25	2022-04-01	0.334	↔

(Table continues on next page)

Table 10: Trend Tests: Piecewise Linear-Linear-Linear *(continued)*

								Line 1			Line 2			Line 3						
ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Slope	p-Value	Trend	Slope	p-Value	Trend	Slope	p-Value	Trend	Break 1	Break 2	R-Squared	Overall Trend
3_2_114	W-12	Appendix IV	Lithium	mg/l	11	0	0%	-0.00294	0.559	↔	0.0122	0.058	↔	-0.00144	0.426	↔	2021-12-01	2022-04-18	0.701	↔
3_2_115	W-12	Appendix IV	Mercury	mg/l	10	10	100%	0.0000000361	0.393	↔	-0.000000765	0.039	↔	-0.00000000000223	1.000	↔	2022-01-29	2022-05-14	0.953	↔
3_2_122	W-12	Appendix IV	Selenium	mg/l	11	1	9%	-0.0000424	0.865	↔	0.000359	0.370	↔	-0.000130	0.106	↔	2021-11-20	2022-03-31	0.520	↔
3_2_126	W-12	Appendix IV	Thallium	mg/l	11	1	9%	-0.00000575	0.861	↔	0.000129	0.375	↔	-0.0000303	0.313	↔	2022-01-02	2022-04-01	0.392	↔
4_2_101	W-14	Appendix IV	Antimony	mg/l	10	1	10%	-0.00000232	0.105	↔	0.00000000454	0.996	↔	-0.00000100	0.590	↔	2022-07-19	2023-01-19	0.770	↔
4_2_102	W-14	Appendix IV	Arsenic	mg/l	10	2	20%	-0.00000119	0.399	↔	0.000000915	0.675	↔	-0.000000497	0.721	↔	2022-07-18	2023-01-18	0.398	↔
4_2_104	W-14	Appendix IV	Beryllium	mg/l	10	6	60%	0.00000141	0.644	↔	-0.000000833	0.638	↔	0.00000132	0.492	↔	2022-06-11	2022-11-06	0.366	↔
4_2_106	W-14	Appendix IV	Cadmium	mg/l	10	0	0%	0.00000257	0.128	↔	-0.00000413	0.563	↔	-0.000000684	0.754	↔	2022-08-24	2022-10-31	0.630	↔
4_2_109	W-14	Appendix IV	Chromium, Total	mg/l	10	1	10%	-0.00309	0.000	↓	-0.00000124	0.576	↔	0.0000231	0.034	↔	2022-05-06	2023-02-19	1.000	↔
4_2_110	W-14	Appendix IV	Cobalt	mg/l	10	0	0%	-0.0000571	0.021	↔	0.0000256	0.140	↔	-0.00000753	0.014	↔	2022-05-27	2022-08-12	0.930	↔
4_2_114	W-14	Appendix IV	Lithium	mg/l	10	0	0%	-0.00230	0.072	↔	0.00571	0.126	↔	-0.000620	0.326	↔	2022-08-15	2022-10-02	0.744	↔
4_2_115	W-14	Appendix IV	Mercury	mg/l	10	9	90%	-0.000000698	0.062	↔	0.000000114	0.509	↔	-0.000000174	0.359	↔	2022-06-12	2023-01-18	0.741	↔
4_2_120	W-14	Appendix IV	Radium-226+228	pci/l	10	0	0%	0.0232	0.028	↔	-0.0406	0.294	↔	0.0195	0.136	↔	2022-09-23	2022-12-18	0.848	↔
4_2_122	W-14	Appendix IV	Selenium	mg/l	10	0	0%	-0.00286	0.094	↔	0.00126	0.095	↔	-0.00168	0.001	↓	2022-05-11	2022-08-30	0.974	↔
5_2_110	W-16	Appendix IV	Cobalt	mg/l	10	1	10%	-0.000233	0.006	↓	0.0000422	0.087	↔	0.0000143	0.069	↔	2022-05-05	2022-09-28	0.954	↔
8_2_102	W-3B	Appendix IV	Arsenic	mg/l	10	3	30%	-0.0000414	0.001	↓	0.000000276	0.890	↔	-0.00000126	0.808	↔	2022-02-27	2022-12-04	0.978	↔
8_2_103	W-3B	Appendix IV	Barium	mg/l	11	1	9%	0.000373	0.460	↔	-0.000264	0.278	↔	0.0000499	0.799	↔	2022-03-30	2022-09-03	0.370	↔
8_2_104	W-3B	Appendix IV	Beryllium	mg/l	11	8	73%	0.000113	0.523	↔	-0.000104	0.235	↔	0.0000224	0.747	↔	2022-03-30	2022-09-05	0.394	↔
8_2_106	W-3B	Appendix IV	Cadmium	mg/l	11	0	0%	0.000118	0.072	↔	-0.0000849	0.019	↔	0.00000702	0.165	↔	2022-02-04	2022-05-07	0.842	↔
8_2_109	W-3B	Appendix IV	Chromium, Total	mg/l	11	4	36%	0.000515	0.284	↔	-0.000506	0.516	↔	0.0000654	0.736	↔	2022-03-31	2022-08-06	0.396	↔
8_2_113	W-3B	Appendix IV	Lead	mg/l	11	4	36%	0.000122	0.222	↔	-0.000118	0.460	↔	0.0000167	0.673	↔	2022-03-31	2022-08-03	0.445	↔
8_2_115	W-3B	Appendix IV	Mercury	mg/l	11	11	100%	-0.000000484	0.014	↔	-0.00000000000399	1.000	↔	0.000000000000383	1.000	↔	2022-06-06	2022-09-05	0.898	↔
8_2_116	W-3B	Appendix IV	Molybdenum	mg/l	11	3	27%	0.000577	0.448	↔	-0.000533	0.314	↔	0.0000718	0.722	↔	2022-03-30	2022-08-14	0.437	↔
8_2_122	W-3B	Appendix IV	Selenium	mg/l	11	1	9%	0.000400	0.310	↔	-0.000403	0.531	↔	0.0000343	0.830	↔	2022-03-31	2022-08-04	0.385	↔
8_2_126	W-3B	Appendix IV	Thallium	mg/l	11	1	9%	0.000136	0.173	↔	-0.000122	0.439	↔	0.0000133	0.732	↔	2022-03-31	2022-07-27	0.465	↔
9_2_101	W-5B	Appendix IV	Antimony	mg/l	14	12	86%	0.00000273	0.726	↔	-0.0000371	0.538	↔	0.0000202	0.120	↔	2022-02-25	2022-06-26	0.368	↔
9_2_103	W-5B	Appendix IV	Barium	mg/l	14	1	7%	-0.0000271	0.087	↔	0.00000363	0.428	↔	-0.0000260	0.313	↔	2021-06-30	2023-01-14	0.554	↔
9_2_106	W-5B	Appendix IV	Cadmium	mg/l	14	2	14%	-0.00000435	0.117	↔	0.00000380	0.139	↔	-0.00000379	0.732	↔	2021-12-06	2022-10-27	0.437	↔
9_2_109	W-5B	Appendix IV	Chromium, Total	mg/l	14	12	86%	-0.0000959	0.164	↔	0.0000210	0.358	↔	-0.0000175	0.090	↔	2021-04-30	2022-02-24	0.500	↔
9_2_110	W-5B	Appendix IV	Cobalt	mg/l	14	0	0%	-0.00000196	0.041	↔	-0.00000473	0.073	↔	0.000000228	0.865	↔	2022-02-22	2022-07-14	0.873	↔
9_2_112	W-5B	Appendix IV	Fluoride (App IV)	mg/l	14	2	14%	-0.000672	0.866	↔	0.172	0.040	↔	-0.0286	0.016	↔	2022-06-05	2022-07-15	0.730	↔
9_2_113	W-5B	Appendix IV	Lead	mg/l	14	8	57%	-0.00000189	0.560	↔	-0.0000148	0.807	↔	0.00000135	0.811	↔	2022-03-30	2022-06-20	0.331	↔
9_2_114	W-5B	Appendix IV	Lithium	mg/l	14	0	0%	-0.0000438	0.526	↔	0.000745	0.567	↔	-0.000102	0.407	↔	2022-03-30	2022-06-23	0.499	↔
9_2_115	W-5B	Appendix IV	Mercury	mg/l	13	13	100%	-0.00000613	0.119	↔	0.00000177	0.470	↔	-0.000000311	0.638	↔	2021-08-16	2022-04-01	0.780	↔
9_2_120	W-5B	Appendix IV	Radium-226+228	pci/l	13	0	0%	-0.000893	0.639	↔	0.0283	0.421	↔	-0.0117	0.034	↔	2022-05-29	2022-08-22	0.592	↔
9_2_122	W-5B	Appendix IV	Selenium	mg/l	14	6	43%	-0.0000644	0.090	↔	0.0000752	0.480	↔	-0.0000155	0.077	↔	2021-08-27	2022-02-05	0.517	↔
9_2_126	W-5B	Appendix IV	Thallium	mg/l	14	4	29%	-0.0000113	0.152	↔	0.00000544	0.637	↔	-0.00000310	0.127	↔	2021-06-16	2022-02-25	0.441	↔

	Goodness-of-Fit Test Statistics for Uncensored Full Data Sets without Non-Detects	
User Selected Options		
Date/Time of Computation	ProUCL 5.2 7/12/2023 1:48:26 PM	
From File	ComancheLF_DATA_UNCENSORED_DG.xls	
Full Precision	OFF	
Confidence Coefficient	0.95	

VALUES (1_1_105)

Raw Statistics	
Number of Valid Observations	14
Number of Distinct Observations	10
Minimum	0.84
Maximum	3.3
Mean of Raw Data	1.61
Standard Deviation of Raw Data	0.647
Khat	7.561
Theta hat	0.213
Kstar	5.989
Theta star	0.269
Mean of Log Transformed Data	0.409
Standard Deviation of Log Transformed Data	0.376

Normal GOF Test Results	
Correlation Coefficient R	0.938
Shapiro Wilk Test Statistic	0.89
Shapiro Wilk Critical (0.05) Value	0.874
Approximate Shapiro Wilk P Value	0.0703
Lilliefors Test Statistic	0.149
Lilliefors Critical (0.05) Value	0.226

Data appear Normal at (0.05) Significance Level

Gamma GOF Test Results	
Correlation Coefficient R	0.972
A-D Test Statistic	0.318
A-D Critical (0.05) Value	0.736
K-S Test Statistic	0.162
K-S Critical(0.05) Value	0.229

Data appear Gamma Distributed at (0.05) Significance Level

Lognormal GOF Test Results	
Correlation Coefficient R	0.98
Shapiro Wilk Test Statistic	0.961
Shapiro Wilk Critical (0.05) Value	0.874
Approximate Shapiro Wilk P Value	0.71
Lilliefors Test Statistic	0.155
Lilliefors Critical (0.05) Value	0.226

Data appear Lognormal at (0.05) Significance Level

	A	B	C	D	E	F	G	H	I	J	K	L
53												
54	VALUES (1_1_107)											
55												
56				Raw Statistics								
57					Number of Valid Observations	14						
58					Number of Distinct Observations	10						
59					Minimum	120						
60					Maximum	510						
61					Mean of Raw Data	384.3						
62					Standard Deviation of Raw Data	103.2						
63					Khat	9.479						
64					Theta hat	40.54						
65					Kstar	7.495						
66					Theta star	51.27						
67					Mean of Log Transformed Data	5.898						
68					Standard Deviation of Log Transformed Data	0.385						
69												
70				Normal GOF Test Results								
71												
72					Correlation Coefficient R	0.876						
73					Shapiro Wilk Test Statistic	0.783						
74					Shapiro Wilk Critical (0.05) Value	0.874						
75					Approximate Shapiro Wilk P Value	0.00212						
76					Lilliefors Test Statistic	0.302						
77					Lilliefors Critical (0.05) Value	0.226						
78	Data not Normal at (0.05) Significance Level											
79												
80				Gamma GOF Test Results								
81												
82					Correlation Coefficient R	0.824						
83					A-D Test Statistic	1.878						
84					A-D Critical (0.05) Value	0.735						
85					K-S Test Statistic	0.354						
86					K-S Critical(0.05) Value	0.229						
87	Data not Gamma Distributed at (0.05) Significance Level											
88												
89				Lognormal GOF Test Results								
90												
91					Correlation Coefficient R	0.799						
92					Shapiro Wilk Test Statistic	0.66						
93					Shapiro Wilk Critical (0.05) Value	0.874						
94					Approximate Shapiro Wilk P Value	6.4198E-5						
95					Lilliefors Test Statistic	0.373						
96					Lilliefors Critical (0.05) Value	0.226						
97	Data not Lognormal at (0.05) Significance Level											
98												
99	Non-parametric GOF Test Results											
100												
101	Data do not follow a discernible distribution at (0.05) Level of Significance											
102												
103	VALUES (1_1_108)											
104												

	A	B	C	D	E	F	G	H	I	J	K	L
105	**Raw Statistics**											
106					Number of Valid Observations	14						
107					Number of Distinct Observations	10						
108					Minimum	280						
109					Maximum	590						
110					Mean of Raw Data	375.7						
111					Standard Deviation of Raw Data	71.65						
112					Khat	34.79						
113					Theta hat	10.8						
114					Kstar	27.38						
115					Theta star	13.72						
116					Mean of Log Transformed Data	5.914						
117					Standard Deviation of Log Transformed Data	0.17						
118												
119	**Normal GOF Test Results**											
120												
121					Correlation Coefficient R	0.873						
122					Shapiro Wilk Test Statistic	0.793						
123					Shapiro Wilk Critical (0.05) Value	0.874						
124					Approximate Shapiro Wilk P Value	0.00237						
125					Lilliefors Test Statistic	0.245						
126					Lilliefors Critical (0.05) Value	0.226						
127	**Data not Normal at (0.05) Significance Level**											
128												
129	**Gamma GOF Test Results**											
130												
131					Correlation Coefficient R	0.898						
132					A-D Test Statistic	0.742						
133					A-D Critical (0.05) Value	0.733						
134					K-S Test Statistic	0.21						
135					K-S Critical(0.05) Value	0.228						
136	**Data appear Gamma Distributed at (0.05) Significance Level**											
137												
138	**Lognormal GOF Test Results**											
139												
140					Correlation Coefficient R	0.923						
141					Shapiro Wilk Test Statistic	0.88						
142					Shapiro Wilk Critical (0.05) Value	0.874						
143					Approximate Shapiro Wilk P Value	0.0381						
144					Lilliefors Test Statistic	0.204						
145					Lilliefors Critical (0.05) Value	0.226						
146	**Data appear Lognormal at (0.05) Significance Level**											
147												
148	**VALUES (1_1_117)**											
149												
150	**Raw Statistics**											
151					Number of Valid Observations	14						
152					Number of Distinct Observations	11						
153					Minimum	6.59						
154					Maximum	6.86						
155					Mean of Raw Data	6.72						
156					Standard Deviation of Raw Data	0.0773						

	A	B	C	D	E	F	G	H	I	J	K	L
157					Khat	8175						
158					Theta hat	8.2199E-4						
159					Kstar	6424						
160					Theta star	0.00105						
161					Mean of Log Transformed Data	1.905						
162					Standard Deviation of Log Transformed Data	0.0115						
163												
164	**Normal GOF Test Results**											
165												
166					Correlation Coefficient R	0.959						
167					Shapiro Wilk Test Statistic	0.918						
168					Shapiro Wilk Critical (0.05) Value	0.874						
169					Approximate Shapiro Wilk P Value	0.211						
170					Lilliefors Test Statistic	0.223						
171					Lilliefors Critical (0.05) Value	0.226						
172	**Data appear Normal at (0.05) Significance Level**											
173												
174	**Gamma GOF Test Results**											
175												
176					Correlation Coefficient R	0.96						
177					A-D Test Statistic	1.079						
178					A-D Critical (0.05) Value	0.733						
179					K-S Test Statistic	0.301						
180					K-S Critical(0.05) Value	0.228						
181	**Data not Gamma Distributed at (0.05) Significance Level**											
182												
183	**Lognormal GOF Test Results**											
184												
185					Correlation Coefficient R	0.959						
186					Shapiro Wilk Test Statistic	0.92						
187					Shapiro Wilk Critical (0.05) Value	0.874						
188					Approximate Shapiro Wilk P Value	0.221						
189					Lilliefors Test Statistic	0.221						
190					Lilliefors Critical (0.05) Value	0.226						
191	**Data appear Lognormal at (0.05) Significance Level**											
192												
193	**VALUES (1_1_118)**											
194												
195				**Raw Statistics**								
196					Number of Valid Observations	14						
197					Number of Distinct Observations	3						
198					Minimum	7						
199					Maximum	7.2						
200					Mean of Raw Data	7.071						
201					Standard Deviation of Raw Data	0.0726						
202					Khat	10240						
203					Theta hat	6.9060E-4						
204					Kstar	8045						
205					Theta star	8.7894E-4						
206					Mean of Log Transformed Data	1.956						
207					Standard Deviation of Log Transformed Data	0.0102						
208												

	A	B	C	D	E	F	G	H	I	J	K	L
209	**Normal GOF Test Results**											
210												
211						Correlation Coefficient R	0.901					
212						Shapiro Wilk Test Statistic	0.796					
213						Shapiro Wilk Critical (0.05) Value	0.874					
214						Approximate Shapiro Wilk P Value	0.00509					
215						Lilliefors Test Statistic	0.266					
216						Lilliefors Critical (0.05) Value	0.226					
217	**Data not Normal at (0.05) Significance Level**											
218												
219	**Gamma GOF Test Results**											
220												
221						Correlation Coefficient R	0.9					
222						A-D Test Statistic	1.47					
223						A-D Critical (0.05) Value	0.733					
224						K-S Test Statistic	0.297					
225						K-S Critical(0.05) Value	0.228					
226	**Data not Gamma Distributed at (0.05) Significance Level**											
227												
228	**Lognormal GOF Test Results**											
229												
230						Correlation Coefficient R	0.902					
231						Shapiro Wilk Test Statistic	0.796					
232						Shapiro Wilk Critical (0.05) Value	0.874					
233						Approximate Shapiro Wilk P Value	0.00513					
234						Lilliefors Test Statistic	0.266					
235						Lilliefors Critical (0.05) Value	0.226					
236	**Data not Lognormal at (0.05) Significance Level**											
237												
238	**Non-parametric GOF Test Results**											
239												
240	**Data do not follow a discernible distribution at (0.05) Level of Significance**											
241												
242	**VALUES (1_1_123)**											
243												
244					**Raw Statistics**							
245						Number of Valid Observations	14					
246						Number of Distinct Observations	8					
247						Minimum	12000					
248						Maximum	21000					
249						Mean of Raw Data	17214					
250						Standard Deviation of Raw Data	2326					
251						Khat	55.43					
252						Theta hat	310.6					
253						Kstar	43.6					
254						Theta star	394.8					
255						Mean of Log Transformed Data	9.744					
256						Standard Deviation of Log Transformed Data	0.142					
257												
258	**Normal GOF Test Results**											
259												
260						Correlation Coefficient R	0.971					

	A	B	C	D	E	F	G	H	I	J	K	L
261					Shapiro Wilk Test Statistic	0.951						
262					Shapiro Wilk Critical (0.05) Value	0.874						
263					Approximate Shapiro Wilk P Value	0.505						
264					Lilliefors Test Statistic	0.158						
265					Lilliefors Critical (0.05) Value	0.226						
266	**Data appear Normal at (0.05) Significance Level**											
267												
268				**Gamma GOF Test Results**								
269												
270					Correlation Coefficient R	0.966						
271					A-D Test Statistic	0.402						
272					A-D Critical (0.05) Value	0.733						
273					K-S Test Statistic	0.168						
274					K-S Critical(0.05) Value	0.228						
275	**Data appear Gamma Distributed at (0.05) Significance Level**											
276												
277				**Lognormal GOF Test Results**								
278												
279					Correlation Coefficient R	0.954						
280					Shapiro Wilk Test Statistic	0.922						
281					Shapiro Wilk Critical (0.05) Value	0.874						
282					Approximate Shapiro Wilk P Value	0.197						
283					Lilliefors Test Statistic	0.183						
284					Lilliefors Critical (0.05) Value	0.226						
285	**Data appear Lognormal at (0.05) Significance Level**											
286												
287	**VALUES (1_1_127)**											
288												
289				**Raw Statistics**								
290					Number of Valid Observations	14						
291					Number of Distinct Observations	12						
292					Minimum	15000						
293					Maximum	34000						
294					Mean of Raw Data	26786						
295					Standard Deviation of Raw Data	5352						
296					Khat	23.44						
297					Theta hat	1143						
298					Kstar	18.46						
299					Theta star	1451						
300					Mean of Log Transformed Data	10.17						
301					Standard Deviation of Log Transformed Data	0.224						
302												
303				**Normal GOF Test Results**								
304												
305					Correlation Coefficient R	0.976						
306					Shapiro Wilk Test Statistic	0.951						
307					Shapiro Wilk Critical (0.05) Value	0.874						
308					Approximate Shapiro Wilk P Value	0.562						
309					Lilliefors Test Statistic	0.155						
310					Lilliefors Critical (0.05) Value	0.226						
311	**Data appear Normal at (0.05) Significance Level**											
312												

	A	B	C	D	E	F	G	H	I	J	K	L
313	**Gamma GOF Test Results**											
314												
315					Correlation Coefficient R	0.955						
316					A-D Test Statistic	0.425						
317					A-D Critical (0.05) Value	0.734						
318					K-S Test Statistic	0.183						
319					K-S Critical(0.05) Value	0.228						
320	**Data appear Gamma Distributed at (0.05) Significance Level**											
321												
322	**Lognormal GOF Test Results**											
323												
324					Correlation Coefficient R	0.945						
325					Shapiro Wilk Test Statistic	0.898						
326					Shapiro Wilk Critical (0.05) Value	0.874						
327					Approximate Shapiro Wilk P Value	0.0977						
328					Lilliefors Test Statistic	0.202						
329					Lilliefors Critical (0.05) Value	0.226						
330	**Data appear Lognormal at (0.05) Significance Level**											
331												
332	**VALUES (1_2_106)**											
333												
334				**Raw Statistics**								
335					Number of Valid Observations	12						
336					Number of Distinct Observations	10						
337					Minimum	0.0021						
338					Maximum	0.0032						
339					Mean of Raw Data	0.0026						
340					Standard Deviation of Raw Data	3.5420E-4						
341					Khat	59.4						
342					Theta hat	4.3773E-5						
343					Kstar	44.6						
344					Theta star	5.8291E-5						
345					Mean of Log Transformed Data	-5.961						
346					Standard Deviation of Log Transformed Data	0.136						
347												
348				**Normal GOF Test Results**								
349												
350					Correlation Coefficient R	0.986						
351					Shapiro Wilk Test Statistic	0.957						
352					Shapiro Wilk Critical (0.05) Value	0.859						
353					Approximate Shapiro Wilk P Value	0.815						
354					Lilliefors Test Statistic	0.135						
355					Lilliefors Critical (0.05) Value	0.243						
356	**Data appear Normal at (0.05) Significance Level**											
357												
358	**Gamma GOF Test Results**											
359												
360					Correlation Coefficient R	0.988						
361					A-D Test Statistic	0.23						
362					A-D Critical (0.05) Value	0.73						
363					K-S Test Statistic	0.145						
364					K-S Critical(0.05) Value	0.245						

	A	B	C	D	E	F	G	H	I	J	K	L
365	**Data appear Gamma Distributed at (0.05) Significance Level**											
366												
367					**Lognormal GOF Test Results**							
368												
369					Correlation Coefficient R	0.989						
370					Shapiro Wilk Test Statistic	0.963						
371					Shapiro Wilk Critical (0.05) Value	0.859						
372					Approximate Shapiro Wilk P Value	0.89						
373					Lilliefors Test Statistic	0.134						
374					Lilliefors Critical (0.05) Value	0.243						
375	**Data appear Lognormal at (0.05) Significance Level**											
376												
377	**VALUES (1_2_110)**											
378												
379					**Raw Statistics**							
380					Number of Valid Observations	12						
381					Number of Distinct Observations	11						
382					Minimum	0.019						
383					Maximum	0.049						
384					Mean of Raw Data	0.0305						
385					Standard Deviation of Raw Data	0.00903						
386					Khat	12.7						
387					Theta hat	0.0024						
388					Kstar	9.58						
389					Theta star	0.00318						
390					Mean of Log Transformed Data	-3.53						
391					Standard Deviation of Log Transformed Data	0.296						
392												
393					**Normal GOF Test Results**							
394												
395					Correlation Coefficient R	0.979						
396					Shapiro Wilk Test Statistic	0.953						
397					Shapiro Wilk Critical (0.05) Value	0.859						
398					Approximate Shapiro Wilk P Value	0.685						
399					Lilliefors Test Statistic	0.109						
400					Lilliefors Critical (0.05) Value	0.243						
401	**Data appear Normal at (0.05) Significance Level**											
402												
403					**Gamma GOF Test Results**							
404												
405					Correlation Coefficient R	0.991						
406					A-D Test Statistic	0.212						
407					A-D Critical (0.05) Value	0.731						
408					K-S Test Statistic	0.126						
409					K-S Critical(0.05) Value	0.245						
410	**Data appear Gamma Distributed at (0.05) Significance Level**											
411												
412					**Lognormal GOF Test Results**							
413												
414					Correlation Coefficient R	0.988						
415					Shapiro Wilk Test Statistic	0.964						
416					Shapiro Wilk Critical (0.05) Value	0.859						

	A	B	C	D	E	F	G	H	I	J	K	L
417					Approximate Shapiro Wilk P Value	0.88						
418					Lilliefors Test Statistic	0.12						
419					Lilliefors Critical (0.05) Value	0.243						
420	**Data appear Lognormal at (0.05) Significance Level**											
421												
422	**VALUES (1_2_114)**											
423												
424				**Raw Statistics**								
425					Number of Valid Observations	12						
426					Number of Distinct Observations	10						
427					Minimum	1.9						
428					Maximum	3.2						
429					Mean of Raw Data	2.642						
430					Standard Deviation of Raw Data	0.468						
431					Khat	33.68						
432					Theta hat	0.0784						
433					Kstar	25.31						
434					Theta star	0.104						
435					Mean of Log Transformed Data	0.956						
436					Standard Deviation of Log Transformed Data	0.182						
437												
438				**Normal GOF Test Results**								
439												
440					Correlation Coefficient R	0.964						
441					Shapiro Wilk Test Statistic	0.905						
442					Shapiro Wilk Critical (0.05) Value	0.859						
443					Approximate Shapiro Wilk P Value	0.272						
444					Lilliefors Test Statistic	0.195						
445					Lilliefors Critical (0.05) Value	0.243						
446	**Data appear Normal at (0.05) Significance Level**											
447												
448				**Gamma GOF Test Results**								
449												
450					Correlation Coefficient R	0.952						
451					A-D Test Statistic	0.484						
452					A-D Critical (0.05) Value	0.731						
453					K-S Test Statistic	0.208						
454					K-S Critical(0.05) Value	0.245						
455	**Data appear Gamma Distributed at (0.05) Significance Level**											
456												
457				**Lognormal GOF Test Results**								
458												
459					Correlation Coefficient R	0.965						
460					Shapiro Wilk Test Statistic	0.91						
461					Shapiro Wilk Critical (0.05) Value	0.859						
462					Approximate Shapiro Wilk P Value	0.294						
463					Lilliefors Test Statistic	0.199						
464					Lilliefors Critical (0.05) Value	0.243						
465	**Data appear Lognormal at (0.05) Significance Level**											
466												
467	**VALUES (1_2_120)**											
468												

	A	B	C	D	E	F	G	H	I	J	K	L
469	**Raw Statistics**											
470					Number of Valid Observations	11						
471					Number of Distinct Observations	11						
472					Minimum	1.27						
473					Maximum	2.65						
474					Mean of Raw Data	1.965						
475					Standard Deviation of Raw Data	0.5						
476					Khat	16.18						
477					Theta hat	0.121						
478					Kstar	11.83						
479					Theta star	0.166						
480					Mean of Log Transformed Data	0.645						
481					Standard Deviation of Log Transformed Data	0.266						
482												
483	**Normal GOF Test Results**											
484												
485					Correlation Coefficient R	0.971						
486					Shapiro Wilk Test Statistic	0.918						
487					Shapiro Wilk Critical (0.05) Value	0.85						
488					Approximate Shapiro Wilk P Value	0.441						
489					Lilliefors Test Statistic	0.188						
490					Lilliefors Critical (0.05) Value	0.251						
491	**Data appear Normal at (0.05) Significance Level**											
492												
493	**Gamma GOF Test Results**											
494												
495					Correlation Coefficient R	0.961						
496					A-D Test Statistic	0.454						
497					A-D Critical (0.05) Value	0.729						
498					K-S Test Statistic	0.194						
499					K-S Critical(0.05) Value	0.255						
500	**Data appear Gamma Distributed at (0.05) Significance Level**											
501												
502	**Lognormal GOF Test Results**											
503												
504					Correlation Coefficient R	0.964						
505					Shapiro Wilk Test Statistic	0.907						
506					Shapiro Wilk Critical (0.05) Value	0.85						
507					Approximate Shapiro Wilk P Value	0.331						
508					Lilliefors Test Statistic	0.179						
509					Lilliefors Critical (0.05) Value	0.251						
510	**Data appear Lognormal at (0.05) Significance Level**											
511												
512	**VALUES (1_2_122)**											
513												
514	**Raw Statistics**											
515					Number of Valid Observations	12						
516					Number of Distinct Observations	9						
517					Minimum	0.51						
518					Maximum	0.75						
519					Mean of Raw Data	0.642						
520					Standard Deviation of Raw Data	0.0709						

521					Khat	85.91						
522					Theta hat	0.00747						
523					Kstar	64.49						
524					Theta star	0.00995						
525					Mean of Log Transformed Data	-0.45						
526					Standard Deviation of Log Transformed Data	0.114						
527												
528	**Normal GOF Test Results**											
529												
530					Correlation Coefficient R	0.982						
531					Shapiro Wilk Test Statistic	0.96						
532					Shapiro Wilk Critical (0.05) Value	0.859						
533					Approximate Shapiro Wilk P Value	0.77						
534					Lilliefors Test Statistic	0.155						
535					Lilliefors Critical (0.05) Value	0.243						
536	**Data appear Normal at (0.05) Significance Level**											
537												
538	**Gamma GOF Test Results**											
539												
540					Correlation Coefficient R	0.974						
541					A-D Test Statistic	0.321						
542					A-D Critical (0.05) Value	0.731						
543					K-S Test Statistic	0.17						
544					K-S Critical(0.05) Value	0.245						
545	**Data appear Gamma Distributed at (0.05) Significance Level**											
546												
547	**Lognormal GOF Test Results**											
548												
549					Correlation Coefficient R	0.975						
550					Shapiro Wilk Test Statistic	0.947						
551					Shapiro Wilk Critical (0.05) Value	0.859						
552					Approximate Shapiro Wilk P Value	0.59						
553					Lilliefors Test Statistic	0.166						
554					Lilliefors Critical (0.05) Value	0.243						
555	**Data appear Lognormal at (0.05) Significance Level**											
556												
557	**VALUES (1_3_119)**											
558												
559	**Raw Statistics**											
560					Number of Valid Observations	11						
561					Number of Distinct Observations	11						
562					Minimum	0.402						
563					Maximum	1.58						
564					Mean of Raw Data	0.761						
565					Standard Deviation of Raw Data	0.316						
566					Khat	7.773						
567					Theta hat	0.0979						
568					Kstar	5.714						
569					Theta star	0.133						
570					Mean of Log Transformed Data	-0.339						
571					Standard Deviation of Log Transformed Data	0.37						
572												

	A	B	C	D	E	F	G	H	I	J	K	L
573	**Normal GOF Test Results**											
574												
575						Correlation Coefficient R	0.896					
576						Shapiro Wilk Test Statistic	0.826					
577						Shapiro Wilk Critical (0.05) Value	0.85					
578						Approximate Shapiro Wilk P Value	0.0147					
579						Lilliefors Test Statistic	0.257					
580						Lilliefors Critical (0.05) Value	0.251					
581	**Data not Normal at (0.05) Significance Level**											
582												
583	**Gamma GOF Test Results**											
584												
585						Correlation Coefficient R	0.939					
586						A-D Test Statistic	0.427					
587						A-D Critical (0.05) Value	0.73					
588						K-S Test Statistic	0.202					
589						K-S Critical(0.05) Value	0.256					
590	**Data appear Gamma Distributed at (0.05) Significance Level**											
591												
592	**Lognormal GOF Test Results**											
593												
594						Correlation Coefficient R	0.962					
595						Shapiro Wilk Test Statistic	0.941					
596						Shapiro Wilk Critical (0.05) Value	0.85					
597						Approximate Shapiro Wilk P Value	0.409					
598						Lilliefors Test Statistic	0.183					
599						Lilliefors Critical (0.05) Value	0.251					
600	**Data appear Lognormal at (0.05) Significance Level**											
601												
602	**VALUES (1_3_121)**											
603												
604					**Raw Statistics**							
605						Number of Valid Observations	11					
606						Number of Distinct Observations	9					
607						Minimum	0.8					
608						Maximum	1.92					
609						Mean of Raw Data	1.204					
610						Standard Deviation of Raw Data	0.369					
611						Khat	12.51					
612						Theta hat	0.0962					
613						Kstar	9.16					
614						Theta star	0.131					
615						Mean of Log Transformed Data	0.145					
616						Standard Deviation of Log Transformed Data	0.295					
617												
618	**Normal GOF Test Results**											
619												
620						Correlation Coefficient R	0.953					
621						Shapiro Wilk Test Statistic	0.898					
622						Shapiro Wilk Critical (0.05) Value	0.85					
623						Approximate Shapiro Wilk P Value	0.209					
624						Lilliefors Test Statistic	0.217					

	A	B	C	D	E	F	G	H	I	J	K	L
625					Lilliefors Critical (0.05) Value	0.251						
626	**Data appear Normal at (0.05) Significance Level**											
627												
628				**Gamma GOF Test Results**								
629												
630					Correlation Coefficient R	0.974						
631					A-D Test Statistic	0.453						
632					A-D Critical (0.05) Value	0.729						
633					K-S Test Statistic	0.205						
634					K-S Critical(0.05) Value	0.255						
635	**Data appear Gamma Distributed at (0.05) Significance Level**											
636												
637				**Lognormal GOF Test Results**								
638												
639					Correlation Coefficient R	0.969						
640					Shapiro Wilk Test Statistic	0.924						
641					Shapiro Wilk Critical (0.05) Value	0.85						
642					Approximate Shapiro Wilk P Value	0.442						
643					Lilliefors Test Statistic	0.186						
644					Lilliefors Critical (0.05) Value	0.251						
645	**Data appear Lognormal at (0.05) Significance Level**											
646												
647	**VALUES (1_3_124)**											
648												
649				**Raw Statistics**								
650					Number of Valid Observations	14						
651					Number of Distinct Observations	14						
652					Minimum	13.9						
653					Maximum	18.5						
654					Mean of Raw Data	16.64						
655					Standard Deviation of Raw Data	1.404						
656					Khat	144.2						
657					Theta hat	0.115						
658					Kstar	113.3						
659					Theta star	0.147						
660					Mean of Log Transformed Data	2.808						
661					Standard Deviation of Log Transformed Data	0.0876						
662												
663				**Normal GOF Test Results**								
664												
665					Correlation Coefficient R	0.965						
666					Shapiro Wilk Test Statistic	0.922						
667					Shapiro Wilk Critical (0.05) Value	0.874						
668					Approximate Shapiro Wilk P Value	0.267						
669					Lilliefors Test Statistic	0.133						
670					Lilliefors Critical (0.05) Value	0.226						
671	**Data appear Normal at (0.05) Significance Level**											
672												
673				**Gamma GOF Test Results**								
674												
675					Correlation Coefficient R	0.956						
676					A-D Test Statistic	0.499						

	A	B	C	D	E	F	G	H	I	J	K	L
677					A-D Critical (0.05) Value	0.733						
678					K-S Test Statistic	0.144						
679					K-S Critical(0.05) Value	0.228						
680	**Data appear Gamma Distributed at (0.05) Significance Level**											
681												
682				**Lognormal GOF Test Results**								
683												
684					Correlation Coefficient R	0.954						
685					Shapiro Wilk Test Statistic	0.904						
686					Shapiro Wilk Critical (0.05) Value	0.874						
687					Approximate Shapiro Wilk P Value	0.143						
688					Lilliefors Test Statistic	0.149						
689					Lilliefors Critical (0.05) Value	0.226						
690	**Data appear Lognormal at (0.05) Significance Level**											
691												
692	**VALUES (1_3_125)**											
693												
694				**Raw Statistics**								
695					Number of Valid Observations	14						
696					Number of Distinct Observations	11						
697					Minimum	18.3						
698					Maximum	22.1						
699					Mean of Raw Data	20.13						
700					Standard Deviation of Raw Data	1.198						
701					Khat	306.4						
702					Theta hat	0.0657						
703					Kstar	240.8						
704					Theta star	0.0836						
705					Mean of Log Transformed Data	3.001						
706					Standard Deviation of Log Transformed Data	0.0592						
707												
708				**Normal GOF Test Results**								
709												
710					Correlation Coefficient R	0.978						
711					Shapiro Wilk Test Statistic	0.944						
712					Shapiro Wilk Critical (0.05) Value	0.874						
713					Approximate Shapiro Wilk P Value	0.539						
714					Lilliefors Test Statistic	0.133						
715					Lilliefors Critical (0.05) Value	0.226						
716	**Data appear Normal at (0.05) Significance Level**											
717												
718				**Gamma GOF Test Results**								
719												
720					Correlation Coefficient R	0.978						
721					A-D Test Statistic	0.308						
722					A-D Critical (0.05) Value	0.733						
723					K-S Test Statistic	0.121						
724					K-S Critical(0.05) Value	0.228						
725	**Data appear Gamma Distributed at (0.05) Significance Level**											
726												
727				**Lognormal GOF Test Results**								
728												

	A	B	C	D	E	F	G	H	I	J	K	L
729					Correlation Coefficient R	0.981						
730					Shapiro Wilk Test Statistic	0.95						
731					Shapiro Wilk Critical (0.05) Value	0.874						
732					Approximate Shapiro Wilk P Value	0.622						
733					Lilliefors Test Statistic	0.123						
734					Lilliefors Critical (0.05) Value	0.226						
735	**Data appear Lognormal at (0.05) Significance Level**											
736												
737	**VALUES (2_1_105)**											
738												
739				**Raw Statistics**								
740					Number of Valid Observations	14						
741					Number of Distinct Observations	14						
742					Minimum	0.77						
743					Maximum	4.7						
744					Mean of Raw Data	2.426						
745					Standard Deviation of Raw Data	0.997						
746					Khat	5.99						
747					Theta hat	0.405						
748					Kstar	4.754						
749					Theta star	0.51						
750					Mean of Log Transformed Data	0.801						
751					Standard Deviation of Log Transformed Data	0.45						
752												
753				**Normal GOF Test Results**								
754												
755					Correlation Coefficient R	0.979						
756					Shapiro Wilk Test Statistic	0.969						
757					Shapiro Wilk Critical (0.05) Value	0.874						
758					Approximate Shapiro Wilk P Value	0.754						
759					Lilliefors Test Statistic	0.145						
760					Lilliefors Critical (0.05) Value	0.226						
761	**Data appear Normal at (0.05) Significance Level**											
762												
763				**Gamma GOF Test Results**								
764												
765					Correlation Coefficient R	0.991						
766					A-D Test Statistic	0.185						
767					A-D Critical (0.05) Value	0.737						
768					K-S Test Statistic	0.132						
769					K-S Critical(0.05) Value	0.229						
770	**Data appear Gamma Distributed at (0.05) Significance Level**											
771												
772				**Lognormal GOF Test Results**								
773												
774					Correlation Coefficient R	0.973						
775					Shapiro Wilk Test Statistic	0.96						
776					Shapiro Wilk Critical (0.05) Value	0.874						
777					Approximate Shapiro Wilk P Value	0.605						
778					Lilliefors Test Statistic	0.162						
779					Lilliefors Critical (0.05) Value	0.226						
780	**Data appear Lognormal at (0.05) Significance Level**											

	A	B	C	D	E	F	G	H	I	J	K	L
781												
782	VALUES (2_1_107)											
783												
784				Raw Statistics								
785					Number of Valid Observations	14						
786					Number of Distinct Observations	11						
787					Minimum	150						
788					Maximum	510						
789					Mean of Raw Data	379.3						
790					Standard Deviation of Raw Data	116.3						
791					Khat	8.291						
792					Theta hat	45.75						
793					Kstar	6.562						
794					Theta star	57.8						
795					Mean of Log Transformed Data	5.877						
796					Standard Deviation of Log Transformed Data	0.398						
797												
798				Normal GOF Test Results								
799												
800					Correlation Coefficient R	0.921						
801					Shapiro Wilk Test Statistic	0.84						
802					Shapiro Wilk Critical (0.05) Value	0.874						
803					Approximate Shapiro Wilk P Value	0.0175						
804					Lilliefors Test Statistic	0.288						
805					Lilliefors Critical (0.05) Value	0.226						
806	Data not Normal at (0.05) Significance Level											
807												
808				Gamma GOF Test Results								
809												
810					Correlation Coefficient R	0.872						
811					A-D Test Statistic	1.371						
812					A-D Critical (0.05) Value	0.736						
813					K-S Test Statistic	0.334						
814					K-S Critical(0.05) Value	0.229						
815	Data not Gamma Distributed at (0.05) Significance Level											
816												
817				Lognormal GOF Test Results								
818												
819					Correlation Coefficient R	0.87						
820					Shapiro Wilk Test Statistic	0.754						
821					Shapiro Wilk Critical (0.05) Value	0.874						
822					Approximate Shapiro Wilk P Value	0.00115						
823					Lilliefors Test Statistic	0.349						
824					Lilliefors Critical (0.05) Value	0.226						
825	Data not Lognormal at (0.05) Significance Level											
826												
827	Non-parametric GOF Test Results											
828												
829	Data do not follow a discernible distribution at (0.05) Level of Significance											
830												
831	VALUES (2_1_108)											
832												

	A	B	C	D	E	F	G	H	I	J	K	L
833	**Raw Statistics**											
834					Number of Valid Observations	14						
835					Number of Distinct Observations	9						
836					Minimum	460						
837					Maximum	580						
838					Mean of Raw Data	530						
839					Standard Deviation of Raw Data	33.97						
840					Khat	255.1						
841					Theta hat	2.078						
842					Kstar	200.4						
843					Theta star	2.644						
844					Mean of Log Transformed Data	6.271						
845					Standard Deviation of Log Transformed Data	0.0655						
846												
847	**Normal GOF Test Results**											
848												
849					Correlation Coefficient R	0.97						
850					Shapiro Wilk Test Statistic	0.94						
851					Shapiro Wilk Critical (0.05) Value	0.874						
852					Approximate Shapiro Wilk P Value	0.418						
853					Lilliefors Test Statistic	0.187						
854					Lilliefors Critical (0.05) Value	0.226						
855	**Data appear Normal at (0.05) Significance Level**											
856												
857	**Gamma GOF Test Results**											
858												
859					Correlation Coefficient R	0.965						
860					A-D Test Statistic	0.469						
861					A-D Critical (0.05) Value	0.733						
862					K-S Test Statistic	0.197						
863					K-S Critical(0.05) Value	0.228						
864	**Data appear Gamma Distributed at (0.05) Significance Level**											
865												
866	**Lognormal GOF Test Results**											
867												
868					Correlation Coefficient R	0.965						
869					Shapiro Wilk Test Statistic	0.93						
870					Shapiro Wilk Critical (0.05) Value	0.874						
871					Approximate Shapiro Wilk P Value	0.305						
872					Lilliefors Test Statistic	0.195						
873					Lilliefors Critical (0.05) Value	0.226						
874	**Data appear Lognormal at (0.05) Significance Level**											
875												
876	**VALUES (2_1_117)**											
877												
878	**Raw Statistics**											
879					Number of Valid Observations	14						
880					Number of Distinct Observations	10						
881					Minimum	6.65						
882					Maximum	6.94						
883					Mean of Raw Data	6.786						
884					Standard Deviation of Raw Data	0.0806						

885					Khat	7635						
886					Theta hat	8.8879E-4						
887					Kstar	5999						
888					Theta star	0.00113						
889					Mean of Log Transformed Data	1.915						
890					Standard Deviation of Log Transformed Data	0.0119						
891												
892				**Normal GOF Test Results**								
893												
894					Correlation Coefficient R	0.989						
895					Shapiro Wilk Test Statistic	0.977						
896					Shapiro Wilk Critical (0.05) Value	0.874						
897					Approximate Shapiro Wilk P Value	0.94						
898					Lilliefors Test Statistic	0.121						
899					Lilliefors Critical (0.05) Value	0.226						
900	**Data appear Normal at (0.05) Significance Level**											
901												
902				**Gamma GOF Test Results**								
903												
904					Correlation Coefficient R	0.99						
905					A-D Test Statistic	0.367						
906					A-D Critical (0.05) Value	0.733						
907					K-S Test Statistic	0.167						
908					K-S Critical(0.05) Value	0.228						
909	**Data appear Gamma Distributed at (0.05) Significance Level**											
910												
911				**Lognormal GOF Test Results**								
912												
913					Correlation Coefficient R	0.99						
914					Shapiro Wilk Test Statistic	0.978						
915					Shapiro Wilk Critical (0.05) Value	0.874						
916					Approximate Shapiro Wilk P Value	0.945						
917					Lilliefors Test Statistic	0.12						
918					Lilliefors Critical (0.05) Value	0.226						
919	**Data appear Lognormal at (0.05) Significance Level**											
920												
921	**VALUES (2_1_118)**											
922												
923				**Raw Statistics**								
924					Number of Valid Observations	14						
925					Number of Distinct Observations	3						
926					Minimum	7						
927					Maximum	7.2						
928					Mean of Raw Data	7.086						
929					Standard Deviation of Raw Data	0.0864						
930					Khat	7251						
931					Theta hat	9.7725E-4						
932					Kstar	5697						
933					Theta star	0.00124						
934					Mean of Log Transformed Data	1.958						
935					Standard Deviation of Log Transformed Data	0.0122						
936												

	A	B	C	D	E	F	G	H	I	J	K	L
937	**Normal GOF Test Results**											
938												
939						Correlation Coefficient R	0.903					
940						Shapiro Wilk Test Statistic	0.786					
941						Shapiro Wilk Critical (0.05) Value	0.874					
942						Approximate Shapiro Wilk P Value	0.00452					
943						Lilliefors Test Statistic	0.268					
944						Lilliefors Critical (0.05) Value	0.226					
945	**Data not Normal at (0.05) Significance Level**											
946												
947	**Gamma GOF Test Results**											
948												
949						Correlation Coefficient R	0.899					
950						A-D Test Statistic	1.38					
951						A-D Critical (0.05) Value	0.733					
952						K-S Test Statistic	0.29					
953						K-S Critical(0.05) Value	0.228					
954	**Data not Gamma Distributed at (0.05) Significance Level**											
955												
956	**Lognormal GOF Test Results**											
957												
958						Correlation Coefficient R	0.903					
959						Shapiro Wilk Test Statistic	0.786					
960						Shapiro Wilk Critical (0.05) Value	0.874					
961						Approximate Shapiro Wilk P Value	0.00454					
962						Lilliefors Test Statistic	0.268					
963						Lilliefors Critical (0.05) Value	0.226					
964	**Data not Lognormal at (0.05) Significance Level**											
965												
966	**Non-parametric GOF Test Results**											
967												
968	**Data do not follow a discernible distribution at (0.05) Level of Significance**											
969												
970	**VALUES (2_1_123)**											
971												
972					**Raw Statistics**							
973						Number of Valid Observations	14					
974						Number of Distinct Observations	9					
975						Minimum	26000					
976						Maximum	37000					
977						Mean of Raw Data	31071					
978						Standard Deviation of Raw Data	3540					
979						Khat	83.68					
980						Theta hat	371.3					
981						Kstar	65.8					
982						Theta star	472.2					
983						Mean of Log Transformed Data	10.34					
984						Standard Deviation of Log Transformed Data	0.113					
985												
986	**Normal GOF Test Results**											
987												
988						Correlation Coefficient R	0.976					

	A	B	C	D	E	F	G	H	I	J	K	L
989					Shapiro Wilk Test Statistic	0.939						
990					Shapiro Wilk Critical (0.05) Value	0.874						
991					Approximate Shapiro Wilk P Value	0.478						
992					Lilliefors Test Statistic	0.152						
993					Lilliefors Critical (0.05) Value	0.226						
994	**Data appear Normal at (0.05) Significance Level**											
995												
996				**Gamma GOF Test Results**								
997												
998					Correlation Coefficient R	0.977						
999					A-D Test Statistic	0.349						
1000					A-D Critical (0.05) Value	0.733						
1001					K-S Test Statistic	0.16						
1002					K-S Critical(0.05) Value	0.228						
1003	**Data appear Gamma Distributed at (0.05) Significance Level**											
1004												
1005				**Lognormal GOF Test Results**								
1006												
1007					Correlation Coefficient R	0.98						
1008					Shapiro Wilk Test Statistic	0.944						
1009					Shapiro Wilk Critical (0.05) Value	0.874						
1010					Approximate Shapiro Wilk P Value	0.562						
1011					Lilliefors Test Statistic	0.151						
1012					Lilliefors Critical (0.05) Value	0.226						
1013	**Data appear Lognormal at (0.05) Significance Level**											
1014												
1015	**VALUES (2_1_127)**											
1016												
1017				**Raw Statistics**								
1018					Number of Valid Observations	14						
1019					Number of Distinct Observations	11						
1020					Minimum	19000						
1021					Maximum	100000						
1022					Mean of Raw Data	47214						
1023					Standard Deviation of Raw Data	17760						
1024					Khat	8.468						
1025					Theta hat	5575						
1026					Kstar	6.701						
1027					Theta star	7045						
1028					Mean of Log Transformed Data	10.7						
1029					Standard Deviation of Log Transformed Data	0.365						
1030												
1031				**Normal GOF Test Results**								
1032												
1033					Correlation Coefficient R	0.82						
1034					Shapiro Wilk Test Statistic	0.713						
1035					Shapiro Wilk Critical (0.05) Value	0.874						
1036					Approximate Shapiro Wilk P Value	2.0882E-4						
1037					Lilliefors Test Statistic	0.344						
1038					Lilliefors Critical (0.05) Value	0.226						
1039	**Data not Normal at (0.05) Significance Level**											
1040												

	A	B	C	D	E	F	G	H	I	J	K	L
1041	**Gamma GOF Test Results**											
1042												
1043					Correlation Coefficient R	0.849						
1044					A-D Test Statistic	1.59						
1045					A-D Critical (0.05) Value	0.736						
1046					K-S Test Statistic	0.297						
1047					K-S Critical(0.05) Value	0.229						
1048	**Data not Gamma Distributed at (0.05) Significance Level**											
1049												
1050	**Lognormal GOF Test Results**											
1051												
1052					Correlation Coefficient R	0.864						
1053					Shapiro Wilk Test Statistic	0.786						
1054					Shapiro Wilk Critical (0.05) Value	0.874						
1055					Approximate Shapiro Wilk P Value	0.0017						
1056					Lilliefors Test Statistic	0.321						
1057					Lilliefors Critical (0.05) Value	0.226						
1058	**Data not Lognormal at (0.05) Significance Level**											
1059												
1060	**Non-parametric GOF Test Results**											
1061												
1062	**Data do not follow a discernible distribution at (0.05) Level of Significance**											
1063												
1064	**VALUES (2_2_102)**											
1065												
1066				**Raw Statistics**								
1067					Number of Valid Observations	12						
1068					Number of Distinct Observations	8						
1069					Minimum	4.9000E-4						
1070					Maximum	0.022						
1071					Mean of Raw Data	0.0152						
1072					Standard Deviation of Raw Data	0.00616						
1073					Khat	2.212						
1074					Theta hat	0.00688						
1075					Kstar	1.715						
1076					Theta star	0.00887						
1077					Mean of Log Transformed Data	-4.428						
1078					Standard Deviation of Log Transformed Data	1.046						
1079												
1080				**Normal GOF Test Results**								
1081												
1082					Correlation Coefficient R	0.929						
1083					Shapiro Wilk Test Statistic	0.87						
1084					Shapiro Wilk Critical (0.05) Value	0.859						
1085					Approximate Shapiro Wilk P Value	0.0561						
1086					Lilliefors Test Statistic	0.217						
1087					Lilliefors Critical (0.05) Value	0.243						
1088	**Data appear Normal at (0.05) Significance Level**											
1089												
1090				**Gamma GOF Test Results**								
1091												
1092					Correlation Coefficient R	0.8						

	A	B	C	D	E	F	G	H	I	J	K	L
1093					A-D Test Statistic	1.625						
1094					A-D Critical (0.05) Value	0.741						
1095					K-S Test Statistic	0.29						
1096					K-S Critical(0.05) Value	0.248						
1097	**Data not Gamma Distributed at (0.05) Significance Level**											
1098												
1099				**Lognormal GOF Test Results**								
1100												
1101					Correlation Coefficient R	0.729						
1102					Shapiro Wilk Test Statistic	0.56						
1103					Shapiro Wilk Critical (0.05) Value	0.859						
1104					Approximate Shapiro Wilk P Value	1.1096E-5						
1105					Lilliefors Test Statistic	0.335						
1106					Lilliefors Critical (0.05) Value	0.243						
1107	**Data not Lognormal at (0.05) Significance Level**											
1108												
1109	**VALUES (2_2_110)**											
1110												
1111				**Raw Statistics**								
1112					Number of Valid Observations	12						
1113					Number of Distinct Observations	11						
1114					Minimum	0.015						
1115					Maximum	0.038						
1116					Mean of Raw Data	0.0253						
1117					Standard Deviation of Raw Data	0.00758						
1118					Khat	12.67						
1119					Theta hat	0.00199						
1120					Kstar	9.556						
1121					Theta star	0.00264						
1122					Mean of Log Transformed Data	-3.719						
1123					Standard Deviation of Log Transformed Data	0.294						
1124												
1125				**Normal GOF Test Results**								
1126												
1127					Correlation Coefficient R	0.962						
1128					Shapiro Wilk Test Statistic	0.912						
1129					Shapiro Wilk Critical (0.05) Value	0.859						
1130					Approximate Shapiro Wilk P Value	0.271						
1131					Lilliefors Test Statistic	0.2						
1132					Lilliefors Critical (0.05) Value	0.243						
1133	**Data appear Normal at (0.05) Significance Level**											
1134												
1135				**Gamma GOF Test Results**								
1136												
1137					Correlation Coefficient R	0.972						
1138					A-D Test Statistic	0.373						
1139					A-D Critical (0.05) Value	0.731						
1140					K-S Test Statistic	0.175						
1141					K-S Critical(0.05) Value	0.245						
1142	**Data appear Gamma Distributed at (0.05) Significance Level**											
1143												
1144				**Lognormal GOF Test Results**								

	A	B	C	D	E	F	G	H	I	J	K	L
1145												
1146					Correlation Coefficient R	0.98						
1147					Shapiro Wilk Test Statistic	0.95						
1148					Shapiro Wilk Critical (0.05) Value	0.859						
1149					Approximate Shapiro Wilk P Value	0.691						
1150					Lilliefors Test Statistic	0.155						
1151					Lilliefors Critical (0.05) Value	0.243						
1152	**Data appear Lognormal at (0.05) Significance Level**											
1153												
1154	**VALUES (2_2_114)**											
1155												
1156				**Raw Statistics**								
1157					Number of Valid Observations	12						
1158					Number of Distinct Observations	8						
1159					Minimum	3.6						
1160					Maximum	5.7						
1161					Mean of Raw Data	4.567						
1162					Standard Deviation of Raw Data	0.582						
1163					Khat	66.93						
1164					Theta hat	0.0682						
1165					Kstar	50.25						
1166					Theta star	0.0909						
1167					Mean of Log Transformed Data	1.511						
1168					Standard Deviation of Log Transformed Data	0.128						
1169												
1170				**Normal GOF Test Results**								
1171												
1172					Correlation Coefficient R	0.979						
1173					Shapiro Wilk Test Statistic	0.964						
1174					Shapiro Wilk Critical (0.05) Value	0.859						
1175					Approximate Shapiro Wilk P Value	0.756						
1176					Lilliefors Test Statistic	0.19						
1177					Lilliefors Critical (0.05) Value	0.243						
1178	**Data appear Normal at (0.05) Significance Level**											
1179												
1180				**Gamma GOF Test Results**								
1181												
1182					Correlation Coefficient R	0.981						
1183					A-D Test Statistic	0.307						
1184					A-D Critical (0.05) Value	0.73						
1185					K-S Test Statistic	0.207						
1186					K-S Critical(0.05) Value	0.245						
1187	**Data appear Gamma Distributed at (0.05) Significance Level**											
1188												
1189				**Lognormal GOF Test Results**								
1190												
1191					Correlation Coefficient R	0.98						
1192					Shapiro Wilk Test Statistic	0.965						
1193					Shapiro Wilk Critical (0.05) Value	0.859						
1194					Approximate Shapiro Wilk P Value	0.778						
1195					Lilliefors Test Statistic	0.213						
1196					Lilliefors Critical (0.05) Value	0.243						

	A	B	C	D	E	F	G	H	I	J	K	L
1197	**Data appear Lognormal at (0.05) Significance Level**											
1198												
1199	**VALUES (2_2_120)**											
1200												
1201				**Raw Statistics**								
1202					Number of Valid Observations	11						
1203					Number of Distinct Observations	11						
1204					Minimum	3.08						
1205					Maximum	5.96						
1206					Mean of Raw Data	3.956						
1207					Standard Deviation of Raw Data	0.756						
1208					Khat	35.44						
1209					Theta hat	0.112						
1210					Kstar	25.83						
1211					Theta star	0.153						
1212					Mean of Log Transformed Data	1.361						
1213					Standard Deviation of Log Transformed Data	0.17						
1214												
1215				**Normal GOF Test Results**								
1216												
1217					Correlation Coefficient R	0.872						
1218					Shapiro Wilk Test Statistic	0.788						
1219					Shapiro Wilk Critical (0.05) Value	0.85						
1220					Approximate Shapiro Wilk P Value	0.00471						
1221					Lilliefors Test Statistic	0.262						
1222					Lilliefors Critical (0.05) Value	0.251						
1223	**Data not Normal at (0.05) Significance Level**											
1224												
1225				**Gamma GOF Test Results**								
1226												
1227					Correlation Coefficient R	0.901						
1228					A-D Test Statistic	0.756						
1229					A-D Critical (0.05) Value	0.729						
1230					K-S Test Statistic	0.245						
1231					K-S Critical(0.05) Value	0.255						
1232	**Data follow Appr. Gamma Distribution at (0.05) Significance Level**											
1233												
1234				**Lognormal GOF Test Results**								
1235												
1236					Correlation Coefficient R	0.914						
1237					Shapiro Wilk Test Statistic	0.862						
1238					Shapiro Wilk Critical (0.05) Value	0.85						
1239					Approximate Shapiro Wilk P Value	0.0377						
1240					Lilliefors Test Statistic	0.234						
1241					Lilliefors Critical (0.05) Value	0.251						
1242	**Data appear Lognormal at (0.05) Significance Level**											
1243												
1244	**VALUES (2_2_122)**											
1245												
1246				**Raw Statistics**								
1247					Number of Valid Observations	12						
1248					Number of Distinct Observations	7						

	A	B	C	D	E	F	G	H	I	J	K	L
1249					Minimum	1.8						
1250					Maximum	2.6						
1251					Mean of Raw Data	2.208						
1252					Standard Deviation of Raw Data	0.257						
1253					Khat	78.74						
1254					Theta hat	0.028						
1255					Kstar	59.11						
1256					Theta star	0.0374						
1257					Mean of Log Transformed Data	0.786						
1258					Standard Deviation of Log Transformed Data	0.118						
1259												
1260	**Normal GOF Test Results**											
1261												
1262					Correlation Coefficient R	0.979						
1263					Shapiro Wilk Test Statistic	0.945						
1264					Shapiro Wilk Critical (0.05) Value	0.859						
1265					Approximate Shapiro Wilk P Value	0.643						
1266					Lilliefors Test Statistic	0.188						
1267					Lilliefors Critical (0.05) Value	0.243						
1268	**Data appear Normal at (0.05) Significance Level**											
1269												
1270	**Gamma GOF Test Results**											
1271												
1272					Correlation Coefficient R	0.975						
1273					A-D Test Statistic	0.369						
1274					A-D Critical (0.05) Value	0.731						
1275					K-S Test Statistic	0.201						
1276					K-S Critical(0.05) Value	0.245						
1277	**Data appear Gamma Distributed at (0.05) Significance Level**											
1278												
1279	**Lognormal GOF Test Results**											
1280												
1281					Correlation Coefficient R	0.976						
1282					Shapiro Wilk Test Statistic	0.939						
1283					Shapiro Wilk Critical (0.05) Value	0.859						
1284					Approximate Shapiro Wilk P Value	0.563						
1285					Lilliefors Test Statistic	0.192						
1286					Lilliefors Critical (0.05) Value	0.243						
1287	**Data appear Lognormal at (0.05) Significance Level**											
1288												
1289	**VALUES (2_2_126)**											
1290												
1291					**Raw Statistics**							
1292					Number of Valid Observations	12						
1293					Number of Distinct Observations	7						
1294					Minimum	0.0091						
1295					Maximum	0.012						
1296					Mean of Raw Data	0.0103						
1297					Standard Deviation of Raw Data	0.00104						
1298					Khat	112.9						
1299					Theta hat	9.1409E-5						
1300					Kstar	84.7						

	A	B	C	D	E	F	G	H	I	J	K	L
1301					Theta star	1.2180E-4						
1302					Mean of Log Transformed Data	-4.578						
1303					Standard Deviation of Log Transformed Data	0.0971						
1304												
1305	**Normal GOF Test Results**											
1306												
1307					Correlation Coefficient R	0.866						
1308					Shapiro Wilk Test Statistic	0.741						
1309					Shapiro Wilk Critical (0.05) Value	0.859						
1310					Approximate Shapiro Wilk P Value	0.00175						
1311					Lilliefors Test Statistic	0.369						
1312					Lilliefors Critical (0.05) Value	0.243						
1313	**Data not Normal at (0.05) Significance Level**											
1314												
1315	**Gamma GOF Test Results**											
1316												
1317					Correlation Coefficient R	0.874						
1318					A-D Test Statistic	1.555						
1319					A-D Critical (0.05) Value	0.731						
1320					K-S Test Statistic	0.367						
1321					K-S Critical(0.05) Value	0.245						
1322	**Data not Gamma Distributed at (0.05) Significance Level**											
1323												
1324	**Lognormal GOF Test Results**											
1325												
1326					Correlation Coefficient R	0.876						
1327					Shapiro Wilk Test Statistic	0.76						
1328					Shapiro Wilk Critical (0.05) Value	0.859						
1329					Approximate Shapiro Wilk P Value	0.00295						
1330					Lilliefors Test Statistic	0.359						
1331					Lilliefors Critical (0.05) Value	0.243						
1332	**Data not Lognormal at (0.05) Significance Level**											
1333												
1334	**Non-parametric GOF Test Results**											
1335												
1336	**Data do not follow a discernible distribution at (0.05) Level of Significance**											
1337												
1338	**VALUES (2_3_119)**											
1339												
1340				**Raw Statistics**								
1341					Number of Valid Observations	11						
1342					Number of Distinct Observations	10						
1343					Minimum	0.938						
1344					Maximum	2.64						
1345					Mean of Raw Data	1.277						
1346					Standard Deviation of Raw Data	0.471						
1347					Khat	11.87						
1348					Theta hat	0.108						
1349					Kstar	8.692						
1350					Theta star	0.147						
1351					Mean of Log Transformed Data	0.202						
1352					Standard Deviation of Log Transformed Data	0.28						

	A	B	C	D	E	F	G	H	I	J	K	L
1353												
1354	**Normal GOF Test Results**											
1355												
1356						Correlation Coefficient R	0.764					
1357						Shapiro Wilk Test Statistic	0.614					
1358						Shapiro Wilk Critical (0.05) Value	0.85					
1359						Approximate Shapiro Wilk P Value	5.3577E-5					
1360						Lilliefors Test Statistic	0.333					
1361						Lilliefors Critical (0.05) Value	0.251					
1362	**Data not Normal at (0.05) Significance Level**											
1363												
1364	**Gamma GOF Test Results**											
1365												
1366						Correlation Coefficient R	0.824					
1367						A-D Test Statistic	1.285					
1368						A-D Critical (0.05) Value	0.729					
1369						K-S Test Statistic	0.298					
1370						K-S Critical(0.05) Value	0.255					
1371	**Data not Gamma Distributed at (0.05) Significance Level**											
1372												
1373	**Lognormal GOF Test Results**											
1374												
1375						Correlation Coefficient R	0.847					
1376						Shapiro Wilk Test Statistic	0.743					
1377						Shapiro Wilk Critical (0.05) Value	0.85					
1378						Approximate Shapiro Wilk P Value	0.00145					
1379						Lilliefors Test Statistic	0.277					
1380						Lilliefors Critical (0.05) Value	0.251					
1381	**Data not Lognormal at (0.05) Significance Level**											
1382												
1383	**Non-parametric GOF Test Results**											
1384												
1385	**Data do not follow a discernible distribution at (0.05) Level of Significance**											
1386												
1387	**VALUES (2_3_121)**											
1388												
1389				**Raw Statistics**								
1390						Number of Valid Observations	11					
1391						Number of Distinct Observations	11					
1392						Minimum	1.82					
1393						Maximum	3.44					
1394						Mean of Raw Data	2.678					
1395						Standard Deviation of Raw Data	0.504					
1396						Khat	30.26					
1397						Theta hat	0.0885					
1398						Kstar	22.07					
1399						Theta star	0.121					
1400						Mean of Log Transformed Data	0.969					
1401						Standard Deviation of Log Transformed Data	0.193					
1402												
1403				**Normal GOF Test Results**								
1404												

	A	B	C	D	E	F	G	H	I	J	K	L
1405					Correlation Coefficient R	0.986						
1406					Shapiro Wilk Test Statistic	0.965						
1407					Shapiro Wilk Critical (0.05) Value	0.85						
1408					Approximate Shapiro Wilk P Value	0.881						
1409					Lilliefors Test Statistic	0.159						
1410					Lilliefors Critical (0.05) Value	0.251						
1411	**Data appear Normal at (0.05) Significance Level**											
1412												
1413				**Gamma GOF Test Results**								
1414												
1415					Correlation Coefficient R	0.983						
1416					A-D Test Statistic	0.211						
1417					A-D Critical (0.05) Value	0.729						
1418					K-S Test Statistic	0.138						
1419					K-S Critical(0.05) Value	0.255						
1420	**Data appear Gamma Distributed at (0.05) Significance Level**											
1421												
1422				**Lognormal GOF Test Results**								
1423												
1424					Correlation Coefficient R	0.984						
1425					Shapiro Wilk Test Statistic	0.964						
1426					Shapiro Wilk Critical (0.05) Value	0.85						
1427					Approximate Shapiro Wilk P Value	0.851						
1428					Lilliefors Test Statistic	0.124						
1429					Lilliefors Critical (0.05) Value	0.251						
1430	**Data appear Lognormal at (0.05) Significance Level**											
1431												
1432	**VALUES (2_3_124)**											
1433												
1434				**Raw Statistics**								
1435					Number of Valid Observations	14						
1436					Number of Distinct Observations	13						
1437					Minimum	12.3						
1438					Maximum	16.9						
1439					Mean of Raw Data	15.11						
1440					Standard Deviation of Raw Data	1.224						
1441					Khat	158.1						
1442					Theta hat	0.0956						
1443					Kstar	124.2						
1444					Theta star	0.122						
1445					Mean of Log Transformed Data	2.712						
1446					Standard Deviation of Log Transformed Data	0.0835						
1447												
1448				**Normal GOF Test Results**								
1449												
1450					Correlation Coefficient R	0.972						
1451					Shapiro Wilk Test Statistic	0.95						
1452					Shapiro Wilk Critical (0.05) Value	0.874						
1453					Approximate Shapiro Wilk P Value	0.519						
1454					Lilliefors Test Statistic	0.141						
1455					Lilliefors Critical (0.05) Value	0.226						
1456	**Data appear Normal at (0.05) Significance Level**											

	A	B	C	D	E	F	G	H	I	J	K	L
1457												
1458	**Gamma GOF Test Results**											
1459												
1460						Correlation Coefficient R	0.968					
1461						A-D Test Statistic	0.321					
1462						A-D Critical (0.05) Value	0.733					
1463						K-S Test Statistic	0.15					
1464						K-S Critical(0.05) Value	0.228					
1465	**Data appear Gamma Distributed at (0.05) Significance Level**											
1466												
1467	**Lognormal GOF Test Results**											
1468												
1469						Correlation Coefficient R	0.962					
1470						Shapiro Wilk Test Statistic	0.933					
1471						Shapiro Wilk Critical (0.05) Value	0.874					
1472						Approximate Shapiro Wilk P Value	0.3					
1473						Lilliefors Test Statistic	0.144					
1474						Lilliefors Critical (0.05) Value	0.226					
1475	**Data appear Lognormal at (0.05) Significance Level**											
1476												
1477	**VALUES (2_3_125)**											
1478												
1479				**Raw Statistics**								
1480						Number of Valid Observations	14					
1481						Number of Distinct Observations	13					
1482						Minimum	18.9					
1483						Maximum	22.2					
1484						Mean of Raw Data	20.13					
1485						Standard Deviation of Raw Data	1.065					
1486						Khat	391.2					
1487						Theta hat	0.0515					
1488						Kstar	307.4					
1489						Theta star	0.0655					
1490						Mean of Log Transformed Data	3.001					
1491						Standard Deviation of Log Transformed Data	0.0523					
1492												
1493				**Normal GOF Test Results**								
1494												
1495						Correlation Coefficient R	0.967					
1496						Shapiro Wilk Test Statistic	0.92					
1497						Shapiro Wilk Critical (0.05) Value	0.874					
1498						Approximate Shapiro Wilk P Value	0.274					
1499						Lilliefors Test Statistic	0.151					
1500						Lilliefors Critical (0.05) Value	0.226					
1501	**Data appear Normal at (0.05) Significance Level**											
1502												
1503	**Gamma GOF Test Results**											
1504												
1505						Correlation Coefficient R	0.969					
1506						A-D Test Statistic	0.429					
1507						A-D Critical (0.05) Value	0.733					
1508						K-S Test Statistic	0.157					

	A	B	C	D	E	F	G	H	I	J	K	L
1509					K-S Critical(0.05) Value	0.228						
1510	**Data appear Gamma Distributed at (0.05) Significance Level**											
1511												
1512				**Lognormal GOF Test Results**								
1513												
1514					Correlation Coefficient R	0.97						
1515					Shapiro Wilk Test Statistic	0.925						
1516					Shapiro Wilk Critical (0.05) Value	0.874						
1517					Approximate Shapiro Wilk P Value	0.321						
1518					Lilliefors Test Statistic	0.148						
1519					Lilliefors Critical (0.05) Value	0.226						
1520	**Data appear Lognormal at (0.05) Significance Level**											
1521												
1522	**VALUES (3_1_105)**											
1523												
1524				**Raw Statistics**								
1525					Number of Valid Observations	5						
1526					Number of Distinct Observations	4						
1527					Minimum	0.71						
1528					Maximum	1.1						
1529					Mean of Raw Data	0.822						
1530					Standard Deviation of Raw Data	0.158						
1531					Khat	38.96						
1532					Theta hat	0.0211						
1533					Kstar	15.72						
1534					Theta star	0.0523						
1535					Mean of Log Transformed Data	-0.209						
1536					Standard Deviation of Log Transformed Data	0.174						
1537												
1538				**Normal GOF Test Results**								
1539												
1540					Correlation Coefficient R	0.824						
1541					Shapiro Wilk Test Statistic	0.702						
1542					Shapiro Wilk Critical (0.05) Value	0.762						
1543					Approximate Shapiro Wilk P Value	N/A						
1544					Lilliefors Test Statistic	0.405						
1545					Lilliefors Critical (0.05) Value	0.343						
1546	**Data not Normal at (0.05) Significance Level**											
1547												
1548				**Gamma GOF Test Results**								
1549												
1550					Correlation Coefficient R	0.859						
1551					A-D Test Statistic	0.846						
1552					A-D Critical (0.05) Value	0.678						
1553					K-S Test Statistic	0.407						
1554					K-S Critical(0.05) Value	0.357						
1555	**Data not Gamma Distributed at (0.05) Significance Level**											
1556												
1557				**Lognormal GOF Test Results**								
1558												
1559					Correlation Coefficient R	0.842						
1560					Shapiro Wilk Test Statistic	0.733						

	A	B	C	D	E	F	G	H	I	J	K	L
1561					Shapiro Wilk Critical (0.05) Value	0.762						
1562					Approximate Shapiro Wilk P Value	N/A						
1563					Lilliefors Test Statistic	0.39						
1564					Lilliefors Critical (0.05) Value	0.343						
1565	**Data not Lognormal at (0.05) Significance Level**											
1566												
1567	**Non-parametric GOF Test Results**											
1568												
1569	**Data do not follow a discernible distribution at (0.05) Level of Significance**											
1570												
1571	**VALUES (3_1_107)**											
1572												
1573				**Raw Statistics**								
1574					Number of Valid Observations	5						
1575					Number of Distinct Observations	4						
1576					Minimum	340						
1577					Maximum	570						
1578					Mean of Raw Data	490						
1579					Standard Deviation of Raw Data	99.25						
1580					Khat	27.29						
1581					Theta hat	17.95						
1582					Kstar	11.05						
1583					Theta star	44.34						
1584					Mean of Log Transformed Data	6.176						
1585					Standard Deviation of Log Transformed Data	0.221						
1586												
1587				**Normal GOF Test Results**								
1588												
1589					Correlation Coefficient R	0.935						
1590					Shapiro Wilk Test Statistic	0.861						
1591					Shapiro Wilk Critical (0.05) Value	0.762						
1592					Approximate Shapiro Wilk P Value	N/A						
1593					Lilliefors Test Statistic	0.257						
1594					Lilliefors Critical (0.05) Value	0.343						
1595	**Data appear Normal at (0.05) Significance Level**											
1596												
1597				**Gamma GOF Test Results**								
1598												
1599					Correlation Coefficient R	0.903						
1600					A-D Test Statistic	0.47						
1601					A-D Critical (0.05) Value	0.679						
1602					K-S Test Statistic	0.284						
1603					K-S Critical(0.05) Value	0.357						
1604	**Data appear Gamma Distributed at (0.05) Significance Level**											
1605												
1606				**Lognormal GOF Test Results**								
1607												
1608					Correlation Coefficient R	0.923						
1609					Shapiro Wilk Test Statistic	0.843						
1610					Shapiro Wilk Critical (0.05) Value	0.762						
1611					Approximate Shapiro Wilk P Value	N/A						
1612					Lilliefors Test Statistic	0.269						

	A	B	C	D	E	F	G	H	I	J	K	L
1613					Lilliefors Critical (0.05) Value	0.343						
1614	**Data appear Lognormal at (0.05) Significance Level**											
1615												
1616	**VALUES (3_1_108)**											
1617												
1618					**Raw Statistics**							
1619					Number of Valid Observations	5						
1620					Number of Distinct Observations	4						
1621					Minimum	280						
1622					Maximum	320						
1623					Mean of Raw Data	298						
1624					Standard Deviation of Raw Data	16.43						
1625					Khat	415.3						
1626					Theta hat	0.718						
1627					Kstar	166.2						
1628					Theta star	1.793						
1629					Mean of Log Transformed Data	5.696						
1630					Standard Deviation of Log Transformed Data	0.0547						
1631												
1632					**Normal GOF Test Results**							
1633												
1634					Correlation Coefficient R	0.96						
1635					Shapiro Wilk Test Statistic	0.914						
1636					Shapiro Wilk Critical (0.05) Value	0.762						
1637					Approximate Shapiro Wilk P Value	N/A						
1638					Lilliefors Test Statistic	0.287						
1639					Lilliefors Critical (0.05) Value	0.343						
1640	**Data appear Normal at (0.05) Significance Level**											
1641												
1642					**Gamma GOF Test Results**							
1643												
1644					Correlation Coefficient R	0.962						
1645					A-D Test Statistic	0.377						
1646					A-D Critical (0.05) Value	0.678						
1647					K-S Test Statistic	0.304						
1648					K-S Critical(0.05) Value	0.357						
1649	**Data appear Gamma Distributed at (0.05) Significance Level**											
1650												
1651					**Lognormal GOF Test Results**							
1652												
1653					Correlation Coefficient R	0.962						
1654					Shapiro Wilk Test Statistic	0.917						
1655					Shapiro Wilk Critical (0.05) Value	0.762						
1656					Approximate Shapiro Wilk P Value	N/A						
1657					Lilliefors Test Statistic	0.283						
1658					Lilliefors Critical (0.05) Value	0.343						
1659	**Data appear Lognormal at (0.05) Significance Level**											
1660												
1661	**VALUES (3_1_111)**											
1662												
1663					**Raw Statistics**							
1664					Number of Valid Observations	5						

	A	B	C	D	E	F	G	H	I	J	K	L
1665					Number of Distinct Observations	5						
1666					Minimum	0.32						
1667					Maximum	15						
1668					Mean of Raw Data	3.838						
1669					Standard Deviation of Raw Data	6.308						
1670					Khat	0.585						
1671					Theta hat	6.56						
1672					Kstar	0.367						
1673					Theta star	10.45						
1674					Mean of Log Transformed Data	0.285						
1675					Standard Deviation of Log Transformed Data	1.592						
1676												
1677	**Normal GOF Test Results**											
1678												
1679					Correlation Coefficient R	0.807						
1680					Shapiro Wilk Test Statistic	0.666						
1681					Shapiro Wilk Critical (0.05) Value	0.762						
1682					Approximate Shapiro Wilk P Value	N/A						
1683					Lilliefors Test Statistic	0.378						
1684					Lilliefors Critical (0.05) Value	0.343						
1685	**Data not Normal at (0.05) Significance Level**											
1686												
1687	**Gamma GOF Test Results**											
1688												
1689					Correlation Coefficient R	0.985						
1690					A-D Test Statistic	0.494						
1691					A-D Critical (0.05) Value	0.707						
1692					K-S Test Statistic	0.266						
1693					K-S Critical(0.05) Value	0.37						
1694	**Data appear Gamma Distributed at (0.05) Significance Level**											
1695												
1696	**Lognormal GOF Test Results**											
1697												
1698					Correlation Coefficient R	0.956						
1699					Shapiro Wilk Test Statistic	0.904						
1700					Shapiro Wilk Critical (0.05) Value	0.762						
1701					Approximate Shapiro Wilk P Value	N/A						
1702					Lilliefors Test Statistic	0.197						
1703					Lilliefors Critical (0.05) Value	0.343						
1704	**Data appear Lognormal at (0.05) Significance Level**											
1705												
1706	**VALUES (3_1_117)**											
1707												
1708	**Raw Statistics**											
1709					Number of Valid Observations	5						
1710					Number of Distinct Observations	4						
1711					Minimum	6.77						
1712					Maximum	6.96						
1713					Mean of Raw Data	6.844						
1714					Standard Deviation of Raw Data	0.0932						
1715					Khat	6768						
1716					Theta hat	0.00101						

	A	B	C	D	E	F	G	H	I	J	K	L
1717					Kstar	2707						
1718					Theta star	0.00253						
1719					Mean of Log Transformed Data	1.923						
1720					Standard Deviation of Log Transformed Data	0.0136						
1721												
1722	**Normal GOF Test Results**											
1723												
1724					Correlation Coefficient R	0.9						
1725					Shapiro Wilk Test Statistic	0.783						
1726					Shapiro Wilk Critical (0.05) Value	0.762						
1727					Approximate Shapiro Wilk P Value	N/A						
1728					Lilliefors Test Statistic	0.319						
1729					Lilliefors Critical (0.05) Value	0.343						
1730	**Data appear Normal at (0.05) Significance Level**											
1731												
1732	**Gamma GOF Test Results**											
1733												
1734					Correlation Coefficient R	0.899						
1735					A-D Test Statistic	0.768						
1736					A-D Critical (0.05) Value	0.678						
1737					K-S Test Statistic	0.372						
1738					K-S Critical(0.05) Value	0.357						
1739	**Data not Gamma Distributed at (0.05) Significance Level**											
1740												
1741	**Lognormal GOF Test Results**											
1742												
1743					Correlation Coefficient R	0.9						
1744					Shapiro Wilk Test Statistic	0.783						
1745					Shapiro Wilk Critical (0.05) Value	0.762						
1746					Approximate Shapiro Wilk P Value	N/A						
1747					Lilliefors Test Statistic	0.318						
1748					Lilliefors Critical (0.05) Value	0.343						
1749	**Data appear Lognormal at (0.05) Significance Level**											
1750												
1751	**VALUES (3_1_118)**											
1752												
1753	**Raw Statistics**											
1754					Number of Valid Observations	5						
1755					Number of Distinct Observations	3						
1756					Minimum	7.1						
1757					Maximum	7.3						
1758					Mean of Raw Data	7.22						
1759					Standard Deviation of Raw Data	0.0837						
1760					Khat	9286						
1761					Theta hat	7.7753E-4						
1762					Kstar	3714						
1763					Theta star	0.00194						
1764					Mean of Log Transformed Data	1.977						
1765					Standard Deviation of Log Transformed Data	0.0116						
1766												
1767	**Normal GOF Test Results**											
1768												

	A	B	C	D	E	F	G	H	I	J	K	L
1769					Correlation Coefficient R	0.943						
1770					Shapiro Wilk Test Statistic	0.881						
1771					Shapiro Wilk Critical (0.05) Value	0.762						
1772					Approximate Shapiro Wilk P Value	N/A						
1773					Lilliefors Test Statistic	0.231						
1774					Lilliefors Critical (0.05) Value	0.343						
1775	**Data appear Normal at (0.05) Significance Level**											
1776												
1777				**Gamma GOF Test Results**								
1778												
1779					Correlation Coefficient R	0.941						
1780					A-D Test Statistic	0.522						
1781					A-D Critical (0.05) Value	0.678						
1782					K-S Test Statistic	0.299						
1783					K-S Critical(0.05) Value	0.357						
1784	**Data appear Gamma Distributed at (0.05) Significance Level**											
1785												
1786				**Lognormal GOF Test Results**								
1787												
1788					Correlation Coefficient R	0.943						
1789					Shapiro Wilk Test Statistic	0.881						
1790					Shapiro Wilk Critical (0.05) Value	0.762						
1791					Approximate Shapiro Wilk P Value	N/A						
1792					Lilliefors Test Statistic	0.23						
1793					Lilliefors Critical (0.05) Value	0.343						
1794	**Data appear Lognormal at (0.05) Significance Level**											
1795												
1796	**VALUES (3_1_123)**											
1797												
1798				**Raw Statistics**								
1799					Number of Valid Observations	5						
1800					Number of Distinct Observations	4						
1801					Minimum	6700						
1802					Maximum	9100						
1803					Mean of Raw Data	7940						
1804					Standard Deviation of Raw Data	1001						
1805					Khat	76.79						
1806					Theta hat	103.4						
1807					Kstar	30.85						
1808					Theta star	257.4						
1809					Mean of Log Transformed Data	8.973						
1810					Standard Deviation of Log Transformed Data	0.129						
1811												
1812				**Normal GOF Test Results**								
1813												
1814					Correlation Coefficient R	0.959						
1815					Shapiro Wilk Test Statistic	0.908						
1816					Shapiro Wilk Critical (0.05) Value	0.762						
1817					Approximate Shapiro Wilk P Value	N/A						
1818					Lilliefors Test Statistic	0.277						
1819					Lilliefors Critical (0.05) Value	0.343						
1820	**Data appear Normal at (0.05) Significance Level**											

	A	B	C	D	E	F	G	H	I	J	K	L
1821												
1822	**Gamma GOF Test Results**											
1823												
1824					Correlation Coefficient R	0.953						
1825					A-D Test Statistic	0.406						
1826					A-D Critical (0.05) Value	0.678						
1827					K-S Test Statistic	0.304						
1828					K-S Critical(0.05) Value	0.357						
1829	**Data appear Gamma Distributed at (0.05) Significance Level**											
1830												
1831	**Lognormal GOF Test Results**											
1832												
1833					Correlation Coefficient R	0.956						
1834					Shapiro Wilk Test Statistic	0.902						
1835					Shapiro Wilk Critical (0.05) Value	0.762						
1836					Approximate Shapiro Wilk P Value	N/A						
1837					Lilliefors Test Statistic	0.288						
1838					Lilliefors Critical (0.05) Value	0.343						
1839	**Data appear Lognormal at (0.05) Significance Level**											
1840												
1841	**VALUES (3_1_127)**											
1842												
1843				**Raw Statistics**								
1844					Number of Valid Observations	5						
1845					Number of Distinct Observations	4						
1846					Minimum	12000						
1847					Maximum	34000						
1848					Mean of Raw Data	17400						
1849					Standard Deviation of Raw Data	9343						
1850					Khat	5.934						
1851					Theta hat	2932						
1852					Kstar	2.507						
1853					Theta star	6941						
1854					Mean of Log Transformed Data	9.678						
1855					Standard Deviation of Log Transformed Data	0.43						
1856												
1857				**Normal GOF Test Results**								
1858												
1859					Correlation Coefficient R	0.797						
1860					Shapiro Wilk Test Statistic	0.653						
1861					Shapiro Wilk Critical (0.05) Value	0.762						
1862					Approximate Shapiro Wilk P Value	N/A						
1863					Lilliefors Test Statistic	0.401						
1864					Lilliefors Critical (0.05) Value	0.343						
1865	**Data not Normal at (0.05) Significance Level**											
1866												
1867				**Gamma GOF Test Results**								
1868												
1869					Correlation Coefficient R	0.885						
1870					A-D Test Statistic	0.905						
1871					A-D Critical (0.05) Value	0.68						
1872					K-S Test Statistic	0.385						

	A	B	C	D	E	F	G	H	I	J	K	L
1873					K-S Critical(0.05) Value	0.358						
1874	**Data not Gamma Distributed at (0.05) Significance Level**											
1875												
1876				**Lognormal GOF Test Results**								
1877												
1878					Correlation Coefficient R	0.834						
1879					Shapiro Wilk Test Statistic	0.712						
1880					Shapiro Wilk Critical (0.05) Value	0.762						
1881					Approximate Shapiro Wilk P Value	N/A						
1882					Lilliefors Test Statistic	0.357						
1883					Lilliefors Critical (0.05) Value	0.343						
1884	**Data not Lognormal at (0.05) Significance Level**											
1885												
1886	**Non-parametric GOF Test Results**											
1887												
1888	**Data do not follow a discernible distribution at (0.05) Level of Significance**											
1889												
1890	**VALUES (3_2_110)**											
1891												
1892				**Raw Statistics**								
1893					Number of Valid Observations	4						
1894					Number of Distinct Observations	4						
1895					Minimum	0.0038						
1896					Maximum	0.0087						
1897					Mean of Raw Data	0.00638						
1898					Standard Deviation of Raw Data	0.00223						
1899					Khat	10.05						
1900					Theta hat	6.3428E-4						
1901					Kstar	2.679						
1902					Theta star	0.00238						
1903					Mean of Log Transformed Data	-5.106						
1904					Standard Deviation of Log Transformed Data	0.376						
1905												
1906				**Normal GOF Test Results**								
1907												
1908					Correlation Coefficient R	0.982						
1909					Shapiro Wilk Test Statistic	0.951						
1910					Shapiro Wilk Critical (0.05) Value	0.748						
1911					Approximate Shapiro Wilk P Value	N/A						
1912					Lilliefors Test Statistic	0.224						
1913					Lilliefors Critical (0.05) Value	0.375						
1914	**Data appear Normal at (0.05) Significance Level**											
1915												
1916				**Gamma GOF Test Results**								
1917												
1918					Correlation Coefficient R	0.959						
1919					A-D Test Statistic	0.286						
1920					A-D Critical (0.05) Value	0.657						
1921					K-S Test Statistic	0.265						
1922					K-S Critical(0.05) Value	0.395						
1923	**Data appear Gamma Distributed at (0.05) Significance Level**											
1924												

	A	B	C	D	E	F	G	H	I	J	K	L
1925	**Lognormal GOF Test Results**											
1926												
1927					Correlation Coefficient R	0.976						
1928					Shapiro Wilk Test Statistic	0.942						
1929					Shapiro Wilk Critical (0.05) Value	0.748						
1930					Approximate Shapiro Wilk P Value	N/A						
1931					Lilliefors Test Statistic	0.238						
1932					Lilliefors Critical (0.05) Value	0.375						
1933	**Data appear Lognormal at (0.05) Significance Level**											
1934												
1935	**VALUES (3_2_112)**											
1936												
1937				**Raw Statistics**								
1938					Number of Valid Observations	5						
1939					Number of Distinct Observations	5						
1940					Minimum	0.32						
1941					Maximum	15						
1942					Mean of Raw Data	3.838						
1943					Standard Deviation of Raw Data	6.308						
1944					Khat	0.585						
1945					Theta hat	6.56						
1946					Kstar	0.367						
1947					Theta star	10.45						
1948					Mean of Log Transformed Data	0.285						
1949					Standard Deviation of Log Transformed Data	1.592						
1950												
1951				**Normal GOF Test Results**								
1952												
1953					Correlation Coefficient R	0.807						
1954					Shapiro Wilk Test Statistic	0.666						
1955					Shapiro Wilk Critical (0.05) Value	0.762						
1956					Approximate Shapiro Wilk P Value	N/A						
1957					Lilliefors Test Statistic	0.378						
1958					Lilliefors Critical (0.05) Value	0.343						
1959	**Data not Normal at (0.05) Significance Level**											
1960												
1961				**Gamma GOF Test Results**								
1962												
1963					Correlation Coefficient R	0.985						
1964					A-D Test Statistic	0.494						
1965					A-D Critical (0.05) Value	0.707						
1966					K-S Test Statistic	0.266						
1967					K-S Critical(0.05) Value	0.37						
1968	**Data appear Gamma Distributed at (0.05) Significance Level**											
1969												
1970				**Lognormal GOF Test Results**								
1971												
1972					Correlation Coefficient R	0.956						
1973					Shapiro Wilk Test Statistic	0.904						
1974					Shapiro Wilk Critical (0.05) Value	0.762						
1975					Approximate Shapiro Wilk P Value	N/A						
1976					Lilliefors Test Statistic	0.197						

	A	B	C	D	E	F	G	H	I	J	K	L
1977					Lilliefors Critical (0.05) Value	0.343						
1978	**Data appear Lognormal at (0.05) Significance Level**											
1979												
1980	**VALUES (3_2_114)**											
1981												
1982					**Raw Statistics**							
1983					Number of Valid Observations	4						
1984					Number of Distinct Observations	4						
1985					Minimum	1.4						
1986					Maximum	2.1						
1987					Mean of Raw Data	1.775						
1988					Standard Deviation of Raw Data	0.33						
1989					Khat	37.45						
1990					Theta hat	0.0474						
1991					Kstar	9.529						
1992					Theta star	0.186						
1993					Mean of Log Transformed Data	0.56						
1994					Standard Deviation of Log Transformed Data	0.191						
1995												
1996					**Normal GOF Test Results**							
1997												
1998					Correlation Coefficient R	0.967						
1999					Shapiro Wilk Test Statistic	0.917						
2000					Shapiro Wilk Critical (0.05) Value	0.748						
2001					Approximate Shapiro Wilk P Value	N/A						
2002					Lilliefors Test Statistic	0.252						
2003					Lilliefors Critical (0.05) Value	0.375						
2004	**Data appear Normal at (0.05) Significance Level**											
2005												
2006					**Gamma GOF Test Results**							
2007												
2008					Correlation Coefficient R	0.955						
2009					A-D Test Statistic	0.343						
2010					A-D Critical (0.05) Value	0.656						
2011					K-S Test Statistic	0.288						
2012					K-S Critical(0.05) Value	0.394						
2013	**Data appear Gamma Distributed at (0.05) Significance Level**											
2014												
2015					**Lognormal GOF Test Results**							
2016												
2017					Correlation Coefficient R	0.967						
2018					Shapiro Wilk Test Statistic	0.917						
2019					Shapiro Wilk Critical (0.05) Value	0.748						
2020					Approximate Shapiro Wilk P Value	N/A						
2021					Lilliefors Test Statistic	0.257						
2022					Lilliefors Critical (0.05) Value	0.375						
2023	**Data appear Lognormal at (0.05) Significance Level**											
2024												
2025	**VALUES (3_2_120)**											
2026												
2027					**Raw Statistics**							
2028					Number of Valid Observations	4						

	A	B	C	D	E	F	G	H	I	J	K	L
2029					Number of Distinct Observations	4						
2030					Minimum	1.59						
2031					Maximum	6.42						
2032					Mean of Raw Data	3.62						
2033					Standard Deviation of Raw Data	2.099						
2034					Khat	3.991						
2035					Theta hat	0.907						
2036					Kstar	1.164						
2037					Theta star	3.109						
2038					Mean of Log Transformed Data	1.156						
2039					Standard Deviation of Log Transformed Data	0.597						
2040												
2041				**Normal GOF Test Results**								
2042												
2043					Correlation Coefficient R	0.977						
2044					Shapiro Wilk Test Statistic	0.954						
2045					Shapiro Wilk Critical (0.05) Value	0.748						
2046					Approximate Shapiro Wilk P Value	N/A						
2047					Lilliefors Test Statistic	0.197						
2048					Lilliefors Critical (0.05) Value	0.375						
2049	**Data appear Normal at (0.05) Significance Level**											
2050												
2051				**Gamma GOF Test Results**								
2052												
2053					Correlation Coefficient R	0.999						
2054					A-D Test Statistic	0.205						
2055					A-D Critical (0.05) Value	0.659						
2056					K-S Test Statistic	0.19						
2057					K-S Critical(0.05) Value	0.396						
2058	**Data appear Gamma Distributed at (0.05) Significance Level**											
2059												
2060				**Lognormal GOF Test Results**								
2061												
2062					Correlation Coefficient R	1						
2063					Shapiro Wilk Test Statistic	0.997						
2064					Shapiro Wilk Critical (0.05) Value	0.748						
2065					Approximate Shapiro Wilk P Value	N/A						
2066					Lilliefors Test Statistic	0.146						
2067					Lilliefors Critical (0.05) Value	0.375						
2068	**Data appear Lognormal at (0.05) Significance Level**											
2069												
2070	**VALUES (3_2_122)**											
2071												
2072				**Raw Statistics**								
2073					Number of Valid Observations	4						
2074					Number of Distinct Observations	3						
2075					Minimum	0.31						
2076					Maximum	0.47						
2077					Mean of Raw Data	0.425						
2078					Standard Deviation of Raw Data	0.0768						
2079					Khat	35.5						
2080					Theta hat	0.012						

	A	B	C	D	E	F	G	H	I	J	K	L
2081					Kstar	9.042						
2082					Theta star	0.047						
2083					Mean of Log Transformed Data	-0.87						
2084					Standard Deviation of Log Transformed Data	0.201						
2085												
2086	**Normal GOF Test Results**											
2087												
2088					Correlation Coefficient R	0.818						
2089					Shapiro Wilk Test Statistic	0.683						
2090					Shapiro Wilk Critical (0.05) Value	0.748						
2091					Approximate Shapiro Wilk P Value	N/A						
2092					Lilliefors Test Statistic	0.426						
2093					Lilliefors Critical (0.05) Value	0.375						
2094	**Data not Normal at (0.05) Significance Level**											
2095												
2096	**Gamma GOF Test Results**											
2097												
2098					Correlation Coefficient R	0.774						
2099					A-D Test Statistic	0.855						
2100					A-D Critical (0.05) Value	0.656						
2101					K-S Test Statistic	0.453						
2102					K-S Critical(0.05) Value	0.394						
2103	**Data not Gamma Distributed at (0.05) Significance Level**											
2104												
2105	**Lognormal GOF Test Results**											
2106												
2107					Correlation Coefficient R	0.812						
2108					Shapiro Wilk Test Statistic	0.674						
2109					Shapiro Wilk Critical (0.05) Value	0.748						
2110					Approximate Shapiro Wilk P Value	N/A						
2111					Lilliefors Test Statistic	0.429						
2112					Lilliefors Critical (0.05) Value	0.375						
2113	**Data not Lognormal at (0.05) Significance Level**											
2114												
2115	**Non-parametric GOF Test Results**											
2116												
2117	**Data do not follow a discernible distribution at (0.05) Level of Significance**											
2118												
2119	**VALUES (3_3_121)**											
2120												
2121				**Raw Statistics**								
2122					Number of Valid Observations	4						
2123					Number of Distinct Observations	4						
2124					Minimum	1.01						
2125					Maximum	5.16						
2126					Mean of Raw Data	2.808						
2127					Standard Deviation of Raw Data	1.908						
2128					Khat	2.681						
2129					Theta hat	1.047						
2130					Kstar	0.837						
2131					Theta star	3.354						
2132					Mean of Log Transformed Data	0.834						

	A	B	C	D	E	F	G	H	I	J	K	L
2133					Standard Deviation of Log Transformed Data	0.748						
2134												
2135					**Normal GOF Test Results**							
2136												
2137					Correlation Coefficient R	0.971						
2138					Shapiro Wilk Test Statistic	0.93						
2139					Shapiro Wilk Critical (0.05) Value	0.748						
2140					Approximate Shapiro Wilk P Value	N/A						
2141					Lilliefors Test Statistic	0.248						
2142					Lilliefors Critical (0.05) Value	0.375						
2143	**Data appear Normal at (0.05) Significance Level**											
2144												
2145					**Gamma GOF Test Results**							
2146												
2147					Correlation Coefficient R	0.975						
2148					A-D Test Statistic	0.291						
2149					A-D Critical (0.05) Value	0.66						
2150					K-S Test Statistic	0.255						
2151					K-S Critical(0.05) Value	0.397						
2152	**Data appear Gamma Distributed at (0.05) Significance Level**											
2153												
2154					**Lognormal GOF Test Results**							
2155												
2156					Correlation Coefficient R	0.981						
2157					Shapiro Wilk Test Statistic	0.947						
2158					Shapiro Wilk Critical (0.05) Value	0.748						
2159					Approximate Shapiro Wilk P Value	N/A						
2160					Lilliefors Test Statistic	0.216						
2161					Lilliefors Critical (0.05) Value	0.375						
2162	**Data appear Lognormal at (0.05) Significance Level**											
2163												
2164	**VALUES (3_3_124)**											
2165												
2166					**Raw Statistics**							
2167					Number of Valid Observations	5						
2168					Number of Distinct Observations	4						
2169					Minimum	14.7						
2170					Maximum	15.9						
2171					Mean of Raw Data	15.2						
2172					Standard Deviation of Raw Data	0.436						
2173					Khat	1538						
2174					Theta hat	0.00988						
2175					Kstar	615.3						
2176					Theta star	0.0247						
2177					Mean of Log Transformed Data	2.721						
2178					Standard Deviation of Log Transformed Data	0.0284						
2179												
2180					**Normal GOF Test Results**							
2181												
2182					Correlation Coefficient R	0.928						
2183					Shapiro Wilk Test Statistic	0.888						
2184					Shapiro Wilk Critical (0.05) Value	0.762						

	A	B	C	D	E	F	G	H	I	J	K	L
2185					Approximate Shapiro Wilk P Value	N/A						
2186					Lilliefors Test Statistic	0.3						
2187					Lilliefors Critical (0.05) Value	0.343						
2188	**Data appear Normal at (0.05) Significance Level**											
2189												
2190				**Gamma GOF Test Results**								
2191												
2192					Correlation Coefficient R	0.934						
2193					A-D Test Statistic	0.46						
2194					A-D Critical (0.05) Value	0.678						
2195					K-S Test Statistic	0.302						
2196					K-S Critical(0.05) Value	0.357						
2197	**Data appear Gamma Distributed at (0.05) Significance Level**											
2198												
2199				**Lognormal GOF Test Results**								
2200												
2201					Correlation Coefficient R	0.931						
2202					Shapiro Wilk Test Statistic	0.894						
2203					Shapiro Wilk Critical (0.05) Value	0.762						
2204					Approximate Shapiro Wilk P Value	N/A						
2205					Lilliefors Test Statistic	0.295						
2206					Lilliefors Critical (0.05) Value	0.343						
2207	**Data appear Lognormal at (0.05) Significance Level**											
2208												
2209	**VALUES (3_3_125)**											
2210												
2211				**Raw Statistics**								
2212					Number of Valid Observations	5						
2213					Number of Distinct Observations	5						
2214					Minimum	19.8						
2215					Maximum	22.8						
2216					Mean of Raw Data	21.24						
2217					Standard Deviation of Raw Data	1.15						
2218					Khat	427.8						
2219					Theta hat	0.0496						
2220					Kstar	171.3						
2221					Theta star	0.124						
2222					Mean of Log Transformed Data	3.055						
2223					Standard Deviation of Log Transformed Data	0.054						
2224												
2225				**Normal GOF Test Results**								
2226												
2227					Correlation Coefficient R	0.993						
2228					Shapiro Wilk Test Statistic	0.985						
2229					Shapiro Wilk Critical (0.05) Value	0.762						
2230					Approximate Shapiro Wilk P Value	N/A						
2231					Lilliefors Test Statistic	0.183						
2232					Lilliefors Critical (0.05) Value	0.343						
2233	**Data appear Normal at (0.05) Significance Level**											
2234												
2235				**Gamma GOF Test Results**								
2236												

	A	B	C	D	E	F	G	H	I	J	K	L
2237					Correlation Coefficient R	0.994						
2238					A-D Test Statistic	0.191						
2239					A-D Critical (0.05) Value	0.678						
2240					K-S Test Statistic	0.186						
2241					K-S Critical(0.05) Value	0.357						
2242	**Data appear Gamma Distributed at (0.05) Significance Level**											
2243												
2244	**Lognormal GOF Test Results**											
2245												
2246					Correlation Coefficient R	0.994						
2247					Shapiro Wilk Test Statistic	0.987						
2248					Shapiro Wilk Critical (0.05) Value	0.762						
2249					Approximate Shapiro Wilk P Value	N/A						
2250					Lilliefors Test Statistic	0.175						
2251					Lilliefors Critical (0.05) Value	0.343						
2252	**Data appear Lognormal at (0.05) Significance Level**											

	Goodness-of-Fit Test Statistics for Data Sets with Non-Detects	
User Selected Options		
Date/Time of Computation	ProUCL 5.2 7/12/2023 1:46:39 PM	
From File	ComancheLF_DATA_CENSORED_DG.xls	
Full Precision	OFF	
Confidence Coefficient	0.95	

VALUES (1_1_111)

	Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs
Raw Statistics	14	0	14	12	2	14.29%

	Number	Minimum	Maximum	Mean	Median	SD
Statistics (Non-Detects Only)	2	0.83	3.3	2.065	2.065	1.747
Statistics (Detects Only)	12	0.35	40	18.15	21	16.4
Statistics (All: NDs treated as DL value)	14	0.35	40	15.85	11.65	16.19
Statistics (All: NDs treated as DL/2 value)	14	0.35	40	15.7	10.9	16.32
Statistics (Normal ROS Imputed Data)	14	-1.351	40	15.73	11.89	16.32
Statistics (Gamma ROS Imputed Data)	14	0.35	40	16.27	12.73	15.83
Statistics (Lognormal ROS Imputed Data)	14	0.35	40	15.66	10.9	16.36

	K hat	K Star	Theta hat	Log Mean	Log Stdv	Log CV
Statistics (Detects Only)	0.553	0.47	32.84	1.767	2.063	1.168
Statistics (NDs = DL)	0.534	0.467	29.67	1.586	1.971	1.242
Statistics (NDs = DL/2)	0.501	0.441	31.33	1.487	2.044	1.374
Statistics (Gamma ROS Estimates)	0.592	0.513	27.49	1.743	1.899	1.089
Statistics (Lognormal ROS Estimates)	--	--	--	1.466	2.049	1.397

Normal GOF Test Results

	No NDs	NDs = DL	NDs = DL/2	Normal ROS
Correlation Coefficient R	0.93	0.916	0.91	0.924

	Test value	Crit. (0.05)	Conclusion with Alpha(0.05)
Shapiro-Wilk (Detects Only)	0.834	0.859	Data Not Normal
Shapiro-Wilk (NDs = DL)	0.811	0.874	Data Not Normal
Shapiro-Wilk (NDs = DL/2)	0.801	0.874	Data Not Normal
Shapiro-Wilk (Normal ROS Estimates)	0.827	0.874	Data Not Normal
Lilliefors (Detects Only)	0.257	0.243	Data Not Normal
Lilliefors (NDs = DL)	0.281	0.226	Data Not Normal
Lilliefors (NDs = DL/2)	0.303	0.226	Data Not Normal
Lilliefors (Normal ROS Estimates)	0.268	0.226	Data Not Normal

Gamma GOF Test Results

	No NDs	NDs = DL	NDs = DL/2	Gamma ROS
Correlation Coefficient R	0.805	0.842	0.833	0.855

	Test value	Crit. (0.05)	Conclusion with Alpha(0.05)
Anderson-Darling (Detects Only)	1.173	0.781	
Kolmogorov-Smirnov (Detects Only)	0.283	0.258	Data Not Gamma Distributed

53	Anderson-Darling (NDs = DL)				1.062	0.79						
54	Kolmogorov-Smirnov (NDs = DL)				0.236	0.241	Detected Data appear Approximate Gamma Distr					
55	Anderson-Darling (NDs = DL/2)				1.223	0.793						
56	Kolmogorov-Smirnov (NDs = DL/2)				0.241	0.242	Detected Data appear Approximate Gamma Distr					
57	Anderson-Darling (Gamma ROS Estimates)				0.824	0.785						
58	Kolmogorov-Smirnov (Gamma ROS Est.)				0.225	0.24	Detected Data appear Approximate Gamma Distr					
59												
60	**Lognormal GOF Test Results**											
61												
62					No NDs	NDs = DL	NDs = DL/2	Log ROS				
63	Correlation Coefficient R				0.896	0.923	0.911	0.908				
64												
65					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
66	Shapiro-Wilk (Detects Only)				0.773	0.859	Data Not Lognormal					
67	Shapiro-Wilk (NDs = DL)				0.822	0.874	Data Not Lognormal					
68	Shapiro-Wilk (NDs = DL/2)				0.799	0.874	Data Not Lognormal					
69	Shapiro-Wilk (Lognormal ROS Estimates)				0.794	0.874	Data Not Lognormal					
70	Lilliefors (Detects Only)				0.308	0.243	Data Not Lognormal					
71	Lilliefors (NDs = DL)				0.263	0.226	Data Not Lognormal					
72	Lilliefors (NDs = DL/2)				0.27	0.226	Data Not Lognormal					
73	Lilliefors (Lognormal ROS Estimates)				0.272	0.226	Data Not Lognormal					
74												
75	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
76												
77	**VALUES (1_2_101)**											
78												
79					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
80	Raw Statistics				12	0	12	7	5	41.67%		
81												
82					Number	Minimum	Maximum	Mean	Median	SD		
83	Statistics (Non-Detects Only)				5	0.0011	0.0057	0.0033	0.0029	0.00231		
84	Statistics (Detects Only)				7	6.4000E-4	0.0012	8.5857E-4	8.1000E-4	2.1114E-4		
85	Statistics (All: NDs treated as DL value)				12	6.4000E-4	0.0057	0.00188	0.0011	0.00188		
86	Statistics (All: NDs treated as DL/2 value)				12	5.5000E-4	0.00285	0.00119	8.2000E-4	8.2210E-4		
87	Statistics (Normal ROS Imputed Data)				12	6.4000E-4	0.0012	8.3591E-4	8.2000E-4	1.6845E-4		
88	Statistics (Gamma ROS Imputed Data)				12	6.4000E-4	0.01	0.00467	0.00115	0.00471		
89	Statistics (Lognormal ROS Imputed Data)				12	6.4000E-4	0.0012	8.3078E-4	8.1122E-4	1.6759E-4		
90												
91					K hat	K Star	Theta hat	Log Mean	Log Stdv	Log CV		
92	Statistics (Detects Only)				20.79	11.98	4.1296E-5	-7.084	0.234	-0.033		
93	Statistics (NDs = DL)				1.628	1.277	0.00115	-6.616	0.783	-0.118		
94	Statistics (NDs = DL/2)				3.102	2.382	3.8310E-4	-6.905	0.572	-0.0828		
95	Statistics (Gamma ROS Estimates)				0.859	0.7	0.00543	-6.051	1.288	-0.213		
96	Statistics (Lognormal ROS Estimates)				--	--	--	-7.11	0.187	-0.0263		
97												
98	**Normal GOF Test Results**											
99												
100					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
101	Correlation Coefficient R				0.942	0.808	0.858	0.939				
102												
103					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
104	Shapiro-Wilk (Detects Only)				0.877	0.803	Data Appear Normal					

105				Shapiro-Wilk (NDs = DL)	0.648	0.859	Data Not Normal					
106				Shapiro-Wilk (NDs = DL/2)	0.729	0.859	Data Not Normal					
107				Shapiro-Wilk (Normal ROS Estimates)	0.882	0.859	Data Appear Normal					
108				Lilliefors (Detects Only)	0.268	0.304	Data Appear Normal					
109				Lilliefors (NDs = DL)	0.39	0.243	Data Not Normal					
110				Lilliefors (NDs = DL/2)	0.252	0.243	Data Not Normal					
111				Lilliefors (Normal ROS Estimates)	0.237	0.243	Data Appear Normal					
112												
113	**Gamma GOF Test Results**											
114												
115					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
116				Correlation Coefficient R	0.96	0.916	0.93	0.781				
117												
118					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
119				Anderson-Darling (Detects Only)	0.428	0.707						
120				Kolmogorov-Smirnov (Detects Only)	0.246	0.311	Detected Data Appear Gamma Distributed					
121				Anderson-Darling (NDs = DL)	1.46	0.744						
122				Kolmogorov-Smirnov (NDs = DL)	0.352	0.249	Data Not Gamma Distributed					
123				Anderson-Darling (NDs = DL/2)	0.877	0.739						
124				Kolmogorov-Smirnov (NDs = DL/2)	0.239	0.247	Detected Data appear Approximate Gamma Distr					
125				Anderson-Darling (Gamma ROS Estimates)	1.764	0.762						
126				Kolmogorov-Smirnov (Gamma ROS Est.)	0.323	0.254	Data Not Gamma Distributed					
127												
128	**Lognormal GOF Test Results**											
129												
130					No NDs	NDs = DL	NDs = DL/2	Log ROS				
131				Correlation Coefficient R	0.961	0.895	0.938	0.953				
132												
133					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
134				Shapiro-Wilk (Detects Only)	0.911	0.803	Data Appear Lognormal					
135				Shapiro-Wilk (NDs = DL)	0.79	0.859	Data Not Lognormal					
136				Shapiro-Wilk (NDs = DL/2)	0.866	0.859	Data Appear Lognormal					
137				Shapiro-Wilk (Lognormal ROS Estimates)	0.908	0.859	Data Appear Lognormal					
138				Lilliefors (Detects Only)	0.231	0.304	Data Appear Lognormal					
139				Lilliefors (NDs = DL)	0.306	0.243	Data Not Lognormal					
140				Lilliefors (NDs = DL/2)	0.213	0.243	Data Appear Lognormal					
141				Lilliefors (Lognormal ROS Estimates)	0.216	0.243	Data Appear Lognormal					
142												
143	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
144												
145	**VALUES (1_2_102)**											
146												
147					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
148				Raw Statistics	12	0	12	11	1	8.33%		
149												
150					Number	Minimum	Maximum	Mean	Median	SD		
151				Statistics (Non-Detects Only)	1	0.0075	0.0075	0.0075	0.0075	N/A		
152				Statistics (Detects Only)	11	3.4000E-4	0.0081	0.00486	0.0052	0.0021		
153				Statistics (All: NDs treated as DL value)	12	3.4000E-4	0.0081	0.00508	0.00535	0.00214		
154				Statistics (All: NDs treated as DL/2 value)	12	3.4000E-4	0.0081	0.00477	0.0049	0.00203		
155				Statistics (Normal ROS Imputed Data)	12	3.4000E-4	0.0081	0.00483	0.0049	0.00201		
156				Statistics (Gamma ROS Imputed Data)	12	3.4000E-4	0.01	0.00529	0.00535	0.00249		

	A	B	C	D	E	F	G	H	I	J	K	L
157	Statistics (Lognormal ROS Imputed Data)				12	3.4000E-4	0.0081	0.00475	0.0049	0.00204		
158												
159					K hat	K Star	Theta hat	Log Mean	Log Stdv	Log CV		
160	Statistics (Detects Only)				2.678	2.008	0.00181	-5.525	0.867	-0.157		
161	Statistics (NDs = DL)				2.79	2.148	0.00182	-5.473	0.847	-0.155		
162	Statistics (NDs = DL/2)				2.873	2.21	0.00166	-5.53	0.827	-0.15		
163	Statistics (Gamma ROS Estimates)				2.582	1.992	0.00205	-5.449	0.868	-0.159		
164	Statistics (Lognormal ROS Estimates)				--	--	--	-5.534	0.827	-0.149		
165												
166	**Normal GOF Test Results**											
167												
168					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
169	Correlation Coefficient R				0.974	0.975	0.98	0.971				
170												
171					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
172	Shapiro-Wilk (Detects Only)				0.961	0.85	Data Appear Normal					
173	Shapiro-Wilk (NDs = DL)				0.957	0.859	Data Appear Normal					
174	Shapiro-Wilk (NDs = DL/2)				0.973	0.859	Data Appear Normal					
175	Shapiro-Wilk (Normal ROS Estimates)				0.958	0.859	Data Appear Normal					
176	Lilliefors (Detects Only)				0.178	0.251	Data Appear Normal					
177	Lilliefors (NDs = DL)				0.162	0.243	Data Appear Normal					
178	Lilliefors (NDs = DL/2)				0.134	0.243	Data Appear Normal					
179	Lilliefors (Normal ROS Estimates)				0.194	0.243	Data Appear Normal					
180												
181	**Gamma GOF Test Results**											
182												
183					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
184	Correlation Coefficient R				0.908	0.904	0.926	0.953				
185												
186					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
187	Anderson-Darling (Detects Only)				0.98	0.735						
188	Kolmogorov-Smirnov (Detects Only)				0.274	0.257	Data Not Gamma Distributed					
189	Anderson-Darling (NDs = DL)				0.999	0.74						
190	Kolmogorov-Smirnov (NDs = DL)				0.266	0.248	Data Not Gamma Distributed					
191	Anderson-Darling (NDs = DL/2)				0.934	0.739						
192	Kolmogorov-Smirnov (NDs = DL/2)				0.222	0.248	Detected Data appear Approximate Gamma Distr					
193	Anderson-Darling (Gamma ROS Estimates)				0.782	0.74						
194	Kolmogorov-Smirnov (Gamma ROS Est.)				0.247	0.248	Detected Data appear Approximate Gamma Distr					
195												
196	**Lognormal GOF Test Results**											
197												
198					No NDs	NDs = DL	NDs = DL/2	Log ROS				
199	Correlation Coefficient R				0.798	0.796	0.801	0.803				
200												
201					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
202	Shapiro-Wilk (Detects Only)				0.666	0.85	Data Not Lognormal					
203	Shapiro-Wilk (NDs = DL)				0.661	0.859	Data Not Lognormal					
204	Shapiro-Wilk (NDs = DL/2)				0.672	0.859	Data Not Lognormal					
205	Shapiro-Wilk (Lognormal ROS Estimates)				0.675	0.859	Data Not Lognormal					
206	Lilliefors (Detects Only)				0.293	0.251	Data Not Lognormal					
207	Lilliefors (NDs = DL)				0.293	0.243	Data Not Lognormal					
208	Lilliefors (NDs = DL/2)				0.285	0.243	Data Not Lognormal					

209	Lilliefors (Lognormal ROS Estimates)				0.286	0.243	Data Not Lognormal					
210												
211	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
212												
213	**VALUES (1_2_103)**											
214												
215					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
216	Raw Statistics				12	0	12	9	3	25.00%		
217												
218					Number	Minimum	Maximum	Mean	Median	SD		
219	Statistics (Non-Detects Only)				3	0.018	0.022	0.0207	0.022	0.00231		
220	Statistics (Detects Only)				9	0.011	0.016	0.0129	0.013	0.00145		
221	Statistics (All: NDs treated as DL value)				12	0.011	0.022	0.0148	0.013	0.00386		
222	Statistics (All: NDs treated as DL/2 value)				12	0.009	0.016	0.0123	0.012	0.00176		
223	Statistics (Normal ROS Imputed Data)				12	0.011	0.016	0.0129	0.0129	0.00128		
224	Statistics (Gamma ROS Imputed Data)				12	0.011	0.016	0.0129	0.0129	0.00128		
225	Statistics (Lognormal ROS Imputed Data)				12	0.011	0.016	0.0129	0.0129	0.00127		
226												
227					K hat	K Star	Theta hat	Log Mean	Log Stdv	Log CV		
228	Statistics (Detects Only)				93.56	62.45	1.3776E-4	-4.357	0.108	-0.0249		
229	Statistics (NDs = DL)				18.29	13.78	8.1081E-4	-4.238	0.238	-0.0562		
230	Statistics (NDs = DL/2)				52.71	39.59	2.3240E-4	-4.412	0.145	-0.0328		
231	Statistics (Gamma ROS Estimates)				117.2	87.94	1.0993E-4	-4.356	0.0954	-0.0219		
232	Statistics (Lognormal ROS Estimates)				--	--	--	-4.357	0.0952	-0.0219		
233												
234	**Normal GOF Test Results**											
235												
236					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
237	Correlation Coefficient R				0.936	0.904	0.966	0.938				
238												
239					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
240	Shapiro-Wilk (Detects Only)				0.894	0.829	Data Appear Normal					
241	Shapiro-Wilk (NDs = DL)				0.806	0.859	Data Not Normal					
242	Shapiro-Wilk (NDs = DL/2)				0.952	0.859	Data Appear Normal					
243	Shapiro-Wilk (Normal ROS Estimates)				0.901	0.859	Data Appear Normal					
244	Lilliefors (Detects Only)				0.247	0.274	Data Appear Normal					
245	Lilliefors (NDs = DL)				0.266	0.243	Data Not Normal					
246	Lilliefors (NDs = DL/2)				0.169	0.243	Data Appear Normal					
247	Lilliefors (Normal ROS Estimates)				0.215	0.243	Data Appear Normal					
248												
249	**Gamma GOF Test Results**											
250												
251					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
252	Correlation Coefficient R				0.949	0.931	0.971	0.949				
253												
254					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
255	Anderson-Darling (Detects Only)				0.455	0.72						
256	Kolmogorov-Smirnov (Detects Only)				0.231	0.279	Detected Data Appear Gamma Distributed					
257	Anderson-Darling (NDs = DL)				0.898	0.732						
258	Kolmogorov-Smirnov (NDs = DL)				0.265	0.245	Data Not Gamma Distributed					
259	Anderson-Darling (NDs = DL/2)				0.344	0.73						
260	Kolmogorov-Smirnov (NDs = DL/2)				0.152	0.245	Data Appear Gamma Distributed					

261	Anderson-Darling (Gamma ROS Estimates)				0.466	0.731						
262	Kolmogorov-Smirnov (Gamma ROS Est.)				0.198	0.245	Data Appear Gamma Distributed					
263												
264	**Lognormal GOF Test Results**											
265												
266					No NDs	NDs = DL	NDs = DL/2	Log ROS				
267	Correlation Coefficient R				0.95	0.929	0.967	0.952				
268												
269					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
270	Shapiro-Wilk (Detects Only)				0.92	0.829	Data Appear Lognormal					
271	Shapiro-Wilk (NDs = DL)				0.85	0.859	Data Not Lognormal					
272	Shapiro-Wilk (NDs = DL/2)				0.955	0.859	Data Appear Lognormal					
273	Shapiro-Wilk (Lognormal ROS Estimates)				0.926	0.859	Data Appear Lognormal					
274	Lilliefors (Detects Only)				0.227	0.274	Data Appear Lognormal					
275	Lilliefors (NDs = DL)				0.253	0.243	Data Not Lognormal					
276	Lilliefors (NDs = DL/2)				0.165	0.243	Data Appear Lognormal					
277	Lilliefors (Lognormal ROS Estimates)				0.192	0.243	Data Appear Lognormal					
278												
279	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
280												
281	**VALUES (1_2_104)**											
282												
283					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
284	Raw Statistics				11	0	11	0	11	100.00%		
285												
286	**Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!**											
287	**Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!**											
288	**The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).**											
289												
290	**The data set for variable VALUES (1_2_104) was not processed!**											
291												
292												
293												
294	**VALUES (1_2_109)**											
295												
296					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
297	Raw Statistics				12	0	12	4	8	66.67%		
298												
299					Number	Minimum	Maximum	Mean	Median	SD		
300	Statistics (Non-Detects Only)				8	9.8000E-4	0.022	0.00656	0.00345	0.00723		
301	Statistics (Detects Only)				4	0.001	0.0021	0.00153	0.0015	4.5735E-4		
302	Statistics (All: NDs treated as DL value)				12	9.8000E-4	0.022	0.00488	0.002	0.00628		
303	Statistics (All: NDs treated as DL/2 value)				12	4.9000E-4	0.011	0.00269	0.0015	0.00302		
304	Statistics (Normal ROS Imputed Data)				12	3.3652E-4	0.0021	0.00113	0.00112	4.7038E-4		
305	Statistics (Gamma ROS Imputed Data)				12	0.001	0.01	0.00718	0.01	0.00418		
306	Statistics (Lognormal ROS Imputed Data)				12	6.7644E-4	0.0021	0.00119	0.00113	3.8871E-4		
307												
308					K hat	K Star	Theta hat	Log Mean	Log Stdv	Log CV		
309	Statistics (Detects Only)				14.49	3.79	1.0521E-4	-6.521	0.308	-0.0473		
310	Statistics (NDs = DL)				1.006	0.81	0.00485	-5.896	1.047	-0.178		
311	Statistics (NDs = DL/2)				1.273	1.01	0.00212	-6.358	0.948	-0.149		
312	Statistics (Gamma ROS Estimates)				1.78	1.39	0.00403	-5.244	0.957	-0.182		

313	Statistics (Lognormal ROS Estimates)				--	--	--	-6.777	0.31	-0.0458		
314												
315	**Normal GOF Test Results**											
316												
317					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
318	Correlation Coefficient R				0.993	0.812	0.836	0.988				
319												
320					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
321	Shapiro-Wilk (Detects Only)				0.993	0.748	Data Appear Normal					
322	Shapiro-Wilk (NDs = DL)				0.674	0.859	Data Not Normal					
323	Shapiro-Wilk (NDs = DL/2)				0.716	0.859	Data Not Normal					
324	Shapiro-Wilk (Normal ROS Estimates)				0.986	0.859	Data Appear Normal					
325	Lilliefors (Detects Only)				0.185	0.375	Data Appear Normal					
326	Lilliefors (NDs = DL)				0.338	0.243	Data Not Normal					
327	Lilliefors (NDs = DL/2)				0.282	0.243	Data Not Normal					
328	Lilliefors (Normal ROS Estimates)				0.113	0.243	Data Appear Normal					
329												
330	**Gamma GOF Test Results**											
331												
332					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
333	Correlation Coefficient R				0.994	0.966	0.966	0.661				
334												
335					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
336	Anderson-Darling (Detects Only)				0.202	0.657						
337	Kolmogorov-Smirnov (Detects Only)				0.171	0.395	Detected Data Appear Gamma Distributed					
338	Anderson-Darling (NDs = DL)				1.004	0.757						
339	Kolmogorov-Smirnov (NDs = DL)				0.318	0.252	Data Not Gamma Distributed					
340	Anderson-Darling (NDs = DL/2)				0.545	0.751						
341	Kolmogorov-Smirnov (NDs = DL/2)				0.175	0.251	Data Appear Gamma Distributed					
342	Anderson-Darling (Gamma ROS Estimates)				2.207	0.743						
343	Kolmogorov-Smirnov (Gamma ROS Est.)				0.429	0.249	Data Not Gamma Distributed					
344												
345	**Lognormal GOF Test Results**											
346												
347					No NDs	NDs = DL	NDs = DL/2	Log ROS				
348	Correlation Coefficient R				0.993	0.936	0.975	0.993				
349												
350					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
351	Shapiro-Wilk (Detects Only)				0.993	0.748	Data Appear Lognormal					
352	Shapiro-Wilk (NDs = DL)				0.864	0.859	Data Appear Lognormal					
353	Shapiro-Wilk (NDs = DL/2)				0.945	0.859	Data Appear Lognormal					
354	Shapiro-Wilk (Lognormal ROS Estimates)				0.99	0.859	Data Appear Lognormal					
355	Lilliefors (Detects Only)				0.185	0.375	Data Appear Lognormal					
356	Lilliefors (NDs = DL)				0.268	0.243	Data Not Lognormal					
357	Lilliefors (NDs = DL/2)				0.136	0.243	Data Appear Lognormal					
358	Lilliefors (Lognormal ROS Estimates)				0.0912	0.243	Data Appear Lognormal					
359												
360	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
361												
362	**VALUES (1_2_112)**											
363												
364					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		

365				Raw Statistics	14	0	14	12	2	14.29%		
366												
367					Number	Minimum	Maximum	Mean	Median	SD		
368				Statistics (Non-Detects Only)	2	0.83	3.3	2.065	2.065	1.747		
369				Statistics (Detects Only)	12	0.35	40	18.15	21	16.4		
370				Statistics (All: NDs treated as DL value)	14	0.35	40	15.85	11.65	16.19		
371				Statistics (All: NDs treated as DL/2 value)	14	0.35	40	15.7	10.9	16.32		
372				Statistics (Normal ROS Imputed Data)	14	-1.351	40	15.73	11.89	16.32		
373				Statistics (Gamma ROS Imputed Data)	14	0.35	40	16.27	12.73	15.83		
374				Statistics (Lognormal ROS Imputed Data)	14	0.35	40	15.66	10.9	16.36		
375												
376					K hat	K Star	Theta hat	Log Mean	Log Stdv	Log CV		
377				Statistics (Detects Only)	0.553	0.47	32.84	1.767	2.063	1.168		
378				Statistics (NDs = DL)	0.534	0.467	29.67	1.586	1.971	1.242		
379				Statistics (NDs = DL/2)	0.501	0.441	31.33	1.487	2.044	1.374		
380				Statistics (Gamma ROS Estimates)	0.592	0.513	27.49	1.743	1.899	1.089		
381				Statistics (Lognormal ROS Estimates)	--	--	--	1.466	2.049	1.397		
382												
383				**Normal GOF Test Results**								
384												
385					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
386				Correlation Coefficient R	0.93	0.916	0.91	0.924				
387												
388					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
389				Shapiro-Wilk (Detects Only)	0.834	0.859	Data Not Normal					
390				Shapiro-Wilk (NDs = DL)	0.811	0.874	Data Not Normal					
391				Shapiro-Wilk (NDs = DL/2)	0.801	0.874	Data Not Normal					
392				Shapiro-Wilk (Normal ROS Estimates)	0.827	0.874	Data Not Normal					
393				Lilliefors (Detects Only)	0.257	0.243	Data Not Normal					
394				Lilliefors (NDs = DL)	0.281	0.226	Data Not Normal					
395				Lilliefors (NDs = DL/2)	0.303	0.226	Data Not Normal					
396				Lilliefors (Normal ROS Estimates)	0.268	0.226	Data Not Normal					
397												
398				**Gamma GOF Test Results**								
399												
400					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
401				Correlation Coefficient R	0.805	0.842	0.833	0.855				
402												
403					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
404				Anderson-Darling (Detects Only)	1.173	0.781						
405				Kolmogorov-Smirnov (Detects Only)	0.283	0.258	Data Not Gamma Distributed					
406				Anderson-Darling (NDs = DL)	1.062	0.79						
407				Kolmogorov-Smirnov (NDs = DL)	0.236	0.241	Detected Data appear Approximate Gamma Distr					
408				Anderson-Darling (NDs = DL/2)	1.223	0.793						
409				Kolmogorov-Smirnov (NDs = DL/2)	0.241	0.242	Detected Data appear Approximate Gamma Distr					
410				Anderson-Darling (Gamma ROS Estimates)	0.824	0.785						
411				Kolmogorov-Smirnov (Gamma ROS Est.)	0.225	0.24	Detected Data appear Approximate Gamma Distr					
412												
413				**Lognormal GOF Test Results**								
414												
415					No NDs	NDs = DL	NDs = DL/2	Log ROS				
416				Correlation Coefficient R	0.896	0.923	0.911	0.908				

	Test value	Crit. (0.05)	Conclusion with Alpha(0.05)
Shapiro-Wilk (Detects Only)	0.773	0.859	Data Not Lognormal
Shapiro-Wilk (NDs = DL)	0.822	0.874	Data Not Lognormal
Shapiro-Wilk (NDs = DL/2)	0.799	0.874	Data Not Lognormal
Shapiro-Wilk (Lognormal ROS Estimates)	0.794	0.874	Data Not Lognormal
Lilliefors (Detects Only)	0.308	0.243	Data Not Lognormal
Lilliefors (NDs = DL)	0.263	0.226	Data Not Lognormal
Lilliefors (NDs = DL/2)	0.27	0.226	Data Not Lognormal
Lilliefors (Lognormal ROS Estimates)	0.272	0.226	Data Not Lognormal

Note: Substitution methods such as DL or DL/2 are not recommended.

VALUES (1_2_113)

	Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs
Raw Statistics	12	0	12	0	12	100.00%

Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!

Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!

The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable VALUES (1_2_113) was not processed!

VALUES (1_2_115)

	Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs
Raw Statistics	10	0	10	3	7	70.00%

	Number	Minimum	Maximum	Mean	Median	SD
Statistics (Non-Detects Only)	7	1.3000E-4	1.3000E-4	1.3000E-4	1.3000E-4	0
Statistics (Detects Only)	3	1.3000E-4	2.0000E-4	1.7000E-4	1.8000E-4	3.6056E-5
Statistics (All: NDs treated as DL value)	10	1.3000E-4	2.0000E-4	1.4200E-4	1.3000E-4	2.5734E-5
Statistics (All: NDs treated as DL/2 value)	10	6.5000E-5	2.0000E-4	9.6500E-5	6.5000E-5	5.3492E-5
Statistics (Normal ROS Imputed Data)	10	-7.010E-5	2.0000E-4	6.4817E-5	5.9057E-5	8.7773E-5
Statistics (Gamma ROS Imputed Data)	10	1.3000E-4	0.01	0.00705	0.01	0.00475
Statistics (Lognormal ROS Imputed Data)	10	3.8454E-5	2.0000E-4	1.0003E-4	8.4986E-5	5.4522E-5

	K hat	K Star	Theta hat	Log Mean	Log Stdv	Log CV
Statistics (Detects Only)	N/A	N/A	N/A	N/A	N/A	N/A
Statistics (NDs = DL)	39.62	27.8	3.5838E-6	-8.872	0.161	-0.0182
Statistics (NDs = DL/2)	4.641	3.315	2.0794E-5	-9.358	0.469	-0.0501
Statistics (Gamma ROS Estimates)	0.69	0.55	0.0102	-5.832	1.979	-0.339
Statistics (Lognormal ROS Estimates)	--	--	--	-9.34	0.538	-0.0576

Normal GOF Test Results

	No NDs	NDs = DL	NDs = DL/2	Normal ROS
Correlation Coefficient R	0.971	0.727	0.81	0.994

469					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
470				Shapiro-Wilk (Detects Only)	0.942	0.767	Data Appear Normal					
471				Shapiro-Wilk (NDs = DL)	0.538	0.842	Data Not Normal					
472				Shapiro-Wilk (NDs = DL/2)	0.649	0.842	Data Not Normal					
473				Shapiro-Wilk (Normal ROS Estimates)	0.977	0.842	Data Appear Normal					
474				Lilliefors (Detects Only)	0.276	0.425	Data Appear Normal					
475				Lilliefors (NDs = DL)	0.48	0.262	Data Not Normal					
476				Lilliefors (NDs = DL/2)	0.422	0.262	Data Not Normal					
477				Lilliefors (Normal ROS Estimates)	0.105	0.262	Data Appear Normal					
478												
479	**Gamma GOF Test Results**											
480												
481					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
482				Correlation Coefficient R	N/A	0.766	0.887	0.521				
483												
484					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
485				Anderson-Darling (Detects Only)	N/A	N/A						
486				Kolmogorov-Smirnov (Detects Only)	N/A	N/A						
487				Anderson-Darling (NDs = DL)	2.506	0.724						
488				Kolmogorov-Smirnov (NDs = DL)	0.489	0.266	Data Not Gamma Distributed					
489				Anderson-Darling (NDs = DL/2)	1.868	0.729						
490				Kolmogorov-Smirnov (NDs = DL/2)	0.438	0.268	Data Not Gamma Distributed					
491				Anderson-Darling (Gamma ROS Estimates)	2.234	0.762						
492				Kolmogorov-Smirnov (Gamma ROS Est.)	0.459	0.277	Data Not Gamma Distributed					
493												
494	**Lognormal GOF Test Results**											
495												
496					No NDs	NDs = DL	NDs = DL/2	Log ROS				
497				Correlation Coefficient R	0.959	0.726	0.81	0.993				
498												
499					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
500				Shapiro-Wilk (Detects Only)	0.92	0.767	Data Appear Lognormal					
501				Shapiro-Wilk (NDs = DL)	0.536	0.842	Data Not Lognormal					
502				Shapiro-Wilk (NDs = DL/2)	0.644	0.842	Data Not Lognormal					
503				Shapiro-Wilk (Lognormal ROS Estimates)	0.975	0.842	Data Appear Lognormal					
504				Lilliefors (Detects Only)	0.295	0.425	Data Appear Lognormal					
505				Lilliefors (NDs = DL)	0.48	0.262	Data Not Lognormal					
506				Lilliefors (NDs = DL/2)	0.427	0.262	Data Not Lognormal					
507				Lilliefors (Lognormal ROS Estimates)	0.109	0.262	Data Appear Lognormal					
508												
509	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
510												
511	**VALUES (1_2_116)**											
512												
513					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
514				Raw Statistics	12	0	12	8	4	33.33%		
515												
516					Number	Minimum	Maximum	Mean	Median	SD		
517				Statistics (Non-Detects Only)	4	0.0054	0.024	0.0129	0.011	0.00789		
518				Statistics (Detects Only)	8	0.0041	0.0053	0.00476	0.0048	4.7491E-4		
519				Statistics (All: NDs treated as DL value)	12	0.0041	0.024	0.00746	0.0052	0.00574		
520				Statistics (All: NDs treated as DL/2 value)	12	0.0027	0.012	0.00532	0.0051	0.00225		

	A	B	C	D	E	F	G	H	I	J	K	L
521	Statistics (Normal ROS Imputed Data)				12	0.0041	0.0053	0.00476	0.00476	3.9291E-4		
522	Statistics (Gamma ROS Imputed Data)				12	0.0041	0.01	0.00651	0.0052	0.00261		
523	Statistics (Lognormal ROS Imputed Data)				12	0.0041	0.0053	0.00476	0.00474	3.9328E-4		
524												
525					K hat	K Star	Theta hat	Log Mean	Log Stdv	Log CV		
526	Statistics (Detects Only)				112.8	70.58	4.2222E-5	-5.351	0.101	-0.0189		
527	Statistics (NDs = DL)				3.155	2.422	0.00236	-5.065	0.535	-0.106		
528	Statistics (NDs = DL/2)				8.592	6.5	6.1878E-4	-5.296	0.338	-0.0639		
529	Statistics (Gamma ROS Estimates)				7.516	5.692	8.6596E-4	-5.103	0.376	-0.0737		
530	Statistics (Lognormal ROS Estimates)				--	--	--	-5.351	0.0838	-0.0157		
531												
532	**Normal GOF Test Results**											
533												
534					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
535	Correlation Coefficient R				0.959	0.765	0.787	0.981				
536												
537					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
538	Shapiro-Wilk (Detects Only)				0.893	0.818	Data Appear Normal					
539	Shapiro-Wilk (NDs = DL)				0.607	0.859	Data Not Normal					
540	Shapiro-Wilk (NDs = DL/2)				0.658	0.859	Data Not Normal					
541	Shapiro-Wilk (Normal ROS Estimates)				0.947	0.859	Data Appear Normal					
542	Lilliefors (Detects Only)				0.197	0.283	Data Appear Normal					
543	Lilliefors (NDs = DL)				0.39	0.243	Data Not Normal					
544	Lilliefors (NDs = DL/2)				0.384	0.243	Data Not Normal					
545	Lilliefors (Normal ROS Estimates)				0.144	0.243	Data Appear Normal					
546												
547	**Gamma GOF Test Results**											
548												
549					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
550	Correlation Coefficient R				0.951	0.882	0.839	0.878				
551												
552					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
553	Anderson-Darling (Detects Only)				0.452	0.715						
554	Kolmogorov-Smirnov (Detects Only)				0.211	0.294	Detected Data Appear Gamma Distributed					
555	Anderson-Darling (NDs = DL)				1.626	0.739						
556	Kolmogorov-Smirnov (NDs = DL)				0.387	0.247	Data Not Gamma Distributed					
557	Anderson-Darling (NDs = DL/2)				1.182	0.731						
558	Kolmogorov-Smirnov (NDs = DL/2)				0.332	0.246	Data Not Gamma Distributed					
559	Anderson-Darling (Gamma ROS Estimates)				1.464	0.731						
560	Kolmogorov-Smirnov (Gamma ROS Est.)				0.33	0.246	Data Not Gamma Distributed					
561												
562	**Lognormal GOF Test Results**											
563												
564					No NDs	NDs = DL	NDs = DL/2	Log ROS				
565	Correlation Coefficient R				0.957	0.856	0.882	0.979				
566												
567					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
568	Shapiro-Wilk (Detects Only)				0.891	0.818	Data Appear Lognormal					
569	Shapiro-Wilk (NDs = DL)				0.741	0.859	Data Not Lognormal					
570	Shapiro-Wilk (NDs = DL/2)				0.82	0.859	Data Not Lognormal					
571	Shapiro-Wilk (Lognormal ROS Estimates)				0.943	0.859	Data Appear Lognormal					
572	Lilliefors (Detects Only)				0.2	0.283	Data Appear Lognormal					

573				Lilliefors (NDs = DL)	0.365	0.243	Data Not Lognormal					
574				Lilliefors (NDs = DL/2)	0.308	0.243	Data Not Lognormal					
575				Lilliefors (Lognormal ROS Estimates)	0.149	0.243	Data Appear Lognormal					
576												
577	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
578												
579	**VALUES (1_2_126)**											
580												
581					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
582				Raw Statistics	12	0	12	11	1	8.33%		
583												
584					Number	Minimum	Maximum	Mean	Median	SD		
585				Statistics (Non-Detects Only)	1	0.0052	0.0052	0.0052	0.0052	N/A		
586				Statistics (Detects Only)	11	0.0026	0.0051	0.00345	0.0033	6.6538E-4		
587				Statistics (All: NDs treated as DL value)	12	0.0026	0.0052	0.00359	0.0034	8.1180E-4		
588				Statistics (All: NDs treated as DL/2 value)	12	0.0026	0.0051	0.00338	0.00325	6.7974E-4		
589				Statistics (Normal ROS Imputed Data)	12	0.0026	0.0051	0.00345	0.00337	6.3441E-4		
590				Statistics (Gamma ROS Imputed Data)	12	0.0026	0.01	0.00399	0.0034	0.002		
591				Statistics (Lognormal ROS Imputed Data)	12	0.0026	0.0051	0.00344	0.00335	6.3459E-4		
592												
593					K hat	K Star	Theta hat	Log Mean	Log Stdv	Log CV		
594				Statistics (Detects Only)	33.11	24.14	1.0406E-4	-5.686	0.178	-0.0314		
595				Statistics (NDs = DL)	23.78	17.89	1.5103E-4	-5.65	0.21	-0.0372		
596				Statistics (NDs = DL/2)	30.08	22.62	1.1220E-4	-5.708	0.187	-0.0327		
597				Statistics (Gamma ROS Estimates)	7.081	5.366	5.6372E-4	-5.596	0.355	-0.0635		
598				Statistics (Lognormal ROS Estimates)	--	--	--	-5.686	0.17	-0.0299		
599												
600					**Normal GOF Test Results**							
601												
602					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
603				Correlation Coefficient R	0.922	0.925	0.929	0.919				
604												
605					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
606				Shapiro-Wilk (Detects Only)	0.871	0.85	Data Appear Normal					
607				Shapiro-Wilk (NDs = DL)	0.853	0.859	Data Not Normal					
608				Shapiro-Wilk (NDs = DL/2)	0.876	0.859	Data Appear Normal					
609				Shapiro-Wilk (Normal ROS Estimates)	0.867	0.859	Data Appear Normal					
610				Lilliefors (Detects Only)	0.169	0.251	Data Appear Normal					
611				Lilliefors (NDs = DL)	0.197	0.243	Data Appear Normal					
612				Lilliefors (NDs = DL/2)	0.15	0.243	Data Appear Normal					
613				Lilliefors (Normal ROS Estimates)	0.177	0.243	Data Appear Normal					
614												
615					**Gamma GOF Test Results**							
616												
617					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
618				Correlation Coefficient R	0.945	0.946	0.951	0.836				
619												
620					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
621				Anderson-Darling (Detects Only)	0.41	0.729						
622				Kolmogorov-Smirnov (Detects Only)	0.145	0.255	Detected Data Appear Gamma Distributed					
623				Anderson-Darling (NDs = DL)	0.592	0.732						
624				Kolmogorov-Smirnov (NDs = DL)	0.165	0.245	Data Appear Gamma Distributed					

625			Anderson-Darling (NDs = DL/2)		0.373	0.731						
626			Kolmogorov-Smirnov (NDs = DL/2)		0.133	0.245	Data Appear Gamma Distributed					
627			Anderson-Darling (Gamma ROS Estimates)		1.434	0.731						
628			Kolmogorov-Smirnov (Gamma ROS Est.)		0.308	0.246	Data Not Gamma Distributed					
629												
630	**Lognormal GOF Test Results**											
631												
632					No NDs	NDs = DL	NDs = DL/2	Log ROS				
633			Correlation Coefficient R		0.956	0.954	0.961	0.953				
634												
635					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
636			Shapiro-Wilk (Detects Only)		0.931	0.85	Data Appear Lognormal					
637			Shapiro-Wilk (NDs = DL)		0.908	0.859	Data Appear Lognormal					
638			Shapiro-Wilk (NDs = DL/2)		0.93	0.859	Data Appear Lognormal					
639			Shapiro-Wilk (Lognormal ROS Estimates)		0.928	0.859	Data Appear Lognormal					
640			Lilliefors (Detects Only)		0.154	0.251	Data Appear Lognormal					
641			Lilliefors (NDs = DL)		0.154	0.243	Data Appear Lognormal					
642			Lilliefors (NDs = DL/2)		0.127	0.243	Data Appear Lognormal					
643			Lilliefors (Lognormal ROS Estimates)		0.151	0.243	Data Appear Lognormal					
644												
645	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
646												
647	**VALUES (1_3_128)**											
648												
649					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
650			Raw Statistics		14	0	14	13	1	7.14%		
651												
652					Number	Minimum	Maximum	Mean	Median	SD		
653			Statistics (Non-Detects Only)		1	1.1	1.1	1.1	1.1	N/A		
654			Statistics (Detects Only)		13	1.6	45	19.06	14	15.87		
655			Statistics (All: NDs treated as DL value)		14	1.1	45	17.78	10.6	15.99		
656			Statistics (All: NDs treated as DL/2 value)		14	0.55	45	17.74	10.6	16.03		
657			Statistics (Normal ROS Imputed Data)		14	-19	45	16.34	10.6	18.33		
658			Statistics (Gamma ROS Imputed Data)		14	0.01	45	17.7	10.6	16.08		
659			Statistics (Lognormal ROS Imputed Data)		14	0.768	45	17.75	10.6	16.02		
660												
661					K hat	K Star	Theta hat	Log Mean	Log Stdv	Log CV		
662			Statistics (Detects Only)		1.174	0.954	16.24	2.465	1.142	0.463		
663			Statistics (NDs = DL)		0.992	0.827	17.93	2.295	1.267	0.552		
664			Statistics (NDs = DL/2)		0.925	0.774	19.18	2.246	1.369	0.61		
665			Statistics (Gamma ROS Estimates)		0.666	0.571	26.58	1.96	2.185	1.115		
666			Statistics (Lognormal ROS Estimates)		--	--	--	2.27	1.317	0.58		
667												
668	**Normal GOF Test Results**											
669												
670					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
671			Correlation Coefficient R		0.946	0.939	0.941	0.97				
672												
673					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
674			Shapiro-Wilk (Detects Only)		0.872	0.866	Data Appear Normal					
675			Shapiro-Wilk (NDs = DL)		0.859	0.874	Data Not Normal					
676			Shapiro-Wilk (NDs = DL/2)		0.864	0.874	Data Not Normal					

677	Shapiro-Wilk (Normal ROS Estimates)				0.937	0.874	Data Appear Normal					
678	Lilliefors (Detects Only)				0.234	0.234	Data Not Normal					
679	Lilliefors (NDs = DL)				0.246	0.226	Data Not Normal					
680	Lilliefors (NDs = DL/2)				0.245	0.226	Data Not Normal					
681	Lilliefors (Normal ROS Estimates)				0.191	0.226	Data Appear Normal					
682												
683	**Gamma GOF Test Results**											
684												
685					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
686	Correlation Coefficient R				0.923	0.923	0.919	0.897				
687												
688					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
689	Anderson-Darling (Detects Only)				0.568	0.755						
690	Kolmogorov-Smirnov (Detects Only)				0.206	0.242	Detected Data Appear Gamma Distributed					
691	Anderson-Darling (NDs = DL)				0.543	0.76						
692	Kolmogorov-Smirnov (NDs = DL)				0.197	0.235	Data Appear Gamma Distributed					
693	Anderson-Darling (NDs = DL/2)				0.472	0.763						
694	Kolmogorov-Smirnov (NDs = DL/2)				0.197	0.236	Data Appear Gamma Distributed					
695	Anderson-Darling (Gamma ROS Estimates)				0.515	0.778						
696	Kolmogorov-Smirnov (Gamma ROS Est.)				0.198	0.239	Data Appear Gamma Distributed					
697												
698	**Lognormal GOF Test Results**											
699												
700					No NDs	NDs = DL	NDs = DL/2	Log ROS				
701	Correlation Coefficient R				0.961	0.965	0.963	0.965				
702												
703					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
704	Shapiro-Wilk (Detects Only)				0.905	0.866	Data Appear Lognormal					
705	Shapiro-Wilk (NDs = DL)				0.911	0.874	Data Appear Lognormal					
706	Shapiro-Wilk (NDs = DL/2)				0.916	0.874	Data Appear Lognormal					
707	Shapiro-Wilk (Lognormal ROS Estimates)				0.917	0.874	Data Appear Lognormal					
708	Lilliefors (Detects Only)				0.218	0.234	Data Appear Lognormal					
709	Lilliefors (NDs = DL)				0.205	0.226	Data Appear Lognormal					
710	Lilliefors (NDs = DL/2)				0.199	0.226	Data Appear Lognormal					
711	Lilliefors (Lognormal ROS Estimates)				0.202	0.226	Data Appear Lognormal					
712												
713	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
714												
715	**VALUES (2_1_111)**											
716												
717					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
718	Raw Statistics				14	0	14	12	2	14.29%		
719												
720					Number	Minimum	Maximum	Mean	Median	SD		
721	Statistics (Non-Detects Only)				2	0.83	3.3	2.065	2.065	1.747		
722	Statistics (Detects Only)				12	0.52	66	39.07	45	24.81		
723	Statistics (All: NDs treated as DL value)				14	0.52	66	33.78	40	26.49		
724	Statistics (All: NDs treated as DL/2 value)				14	0.415	66	33.63	40	26.68		
725	Statistics (Normal ROS Imputed Data)				14	-4.457	66	33.71	40	26.68		
726	Statistics (Gamma ROS Imputed Data)				14	0.52	66	35.87	40	24.23		
727	Statistics (Lognormal ROS Imputed Data)				14	0.52	66	33.71	40	26.58		
728												

	K hat	K Star	Theta hat	Log Mean	Log Stdv	Log CV
Statistics (Detects Only)	0.789	0.647	49.52	2.912	1.856	0.638
Statistics (NDs = DL)	0.642	0.552	52.58	2.568	1.937	0.755
Statistics (NDs = DL/2)	0.591	0.512	56.86	2.469	2.063	0.836
Statistics (Gamma ROS Estimates)	0.861	0.724	41.64	2.897	1.708	0.59
Statistics (Lognormal ROS Estimates)	--	--	--	2.548	1.948	0.764

Normal GOF Test Results

	No NDs	NDs = DL	NDs = DL/2	Normal ROS
Correlation Coefficient R	0.925	0.925	0.923	0.94

	Test value	Crit. (0.05)	Conclusion with Alpha(0.05)
Shapiro-Wilk (Detects Only)	0.835	0.859	Data Not Normal
Shapiro-Wilk (NDs = DL)	0.829	0.874	Data Not Normal
Shapiro-Wilk (NDs = DL/2)	0.824	0.874	Data Not Normal
Shapiro-Wilk (Normal ROS Estimates)	0.858	0.874	Data Not Normal
Lilliefors (Detects Only)	0.249	0.243	Data Not Normal
Lilliefors (NDs = DL)	0.232	0.226	Data Not Normal
Lilliefors (NDs = DL/2)	0.242	0.226	Data Not Normal
Lilliefors (Normal ROS Estimates)	0.221	0.226	Data Appear Normal

Gamma GOF Test Results

	No NDs	NDs = DL	NDs = DL/2	Gamma ROS
Correlation Coefficient R	0.739	0.767	0.756	0.81

	Test value	Crit. (0.05)	Conclusion with Alpha(0.05)
Anderson-Darling (Detects Only)	1.849	0.764	
Kolmogorov-Smirnov (Detects Only)	0.397	0.254	Data Not Gamma Distributed
Anderson-Darling (NDs = DL)	1.626	0.78	
Kolmogorov-Smirnov (NDs = DL)	0.346	0.239	Data Not Gamma Distributed
Anderson-Darling (NDs = DL/2)	1.72	0.785	
Kolmogorov-Smirnov (NDs = DL/2)	0.352	0.24	Data Not Gamma Distributed
Anderson-Darling (Gamma ROS Estimates)	1.386	0.766	
Kolmogorov-Smirnov (Gamma ROS Est.)	0.313	0.236	Data Not Gamma Distributed

Lognormal GOF Test Results

	No NDs	NDs = DL	NDs = DL/2	Log ROS
Correlation Coefficient R	0.823	0.876	0.872	0.872

	Test value	Crit. (0.05)	Conclusion with Alpha(0.05)
Shapiro-Wilk (Detects Only)	0.668	0.859	Data Not Lognormal
Shapiro-Wilk (NDs = DL)	0.747	0.874	Data Not Lognormal
Shapiro-Wilk (NDs = DL/2)	0.739	0.874	Data Not Lognormal
Shapiro-Wilk (Lognormal ROS Estimates)	0.74	0.874	Data Not Lognormal
Lilliefors (Detects Only)	0.407	0.243	Data Not Lognormal
Lilliefors (NDs = DL)	0.357	0.226	Data Not Lognormal
Lilliefors (NDs = DL/2)	0.362	0.226	Data Not Lognormal
Lilliefors (Lognormal ROS Estimates)	0.359	0.226	Data Not Lognormal

	A	B	C	D	E	F	G	H	I	J	K	L
781	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
782												
783	**VALUES (2_2_101)**											
784												
785					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
786				Raw Statistics	12	0	12	3	9	75.00%		
787												
788					Number	Minimum	Maximum	Mean	Median	SD		
789				Statistics (Non-Detects Only)	9	5.7000E-4	0.011	0.00288	0.0011	0.00351		
790				Statistics (Detects Only)	3	6.0000E-4	0.0013	8.4000E-4	6.2000E-4	3.9850E-4		
791				Statistics (All: NDs treated as DL value)	12	5.7000E-4	0.011	0.00237	8.6000E-4	0.00313		
792				Statistics (All: NDs treated as DL/2 value)	12	2.8500E-4	0.0055	0.00129	6.1000E-4	0.00153		
793				Statistics (Normal ROS Imputed Data)	12	-6.463E-4	0.0013	2.0445E-4	1.6204E-4	5.0573E-4		
794				Statistics (Gamma ROS Imputed Data)	12	6.0000E-4	0.01	0.00771	0.01	0.00415		
795				Statistics (Lognormal ROS Imputed Data)	12	1.5290E-4	0.0013	4.5490E-4	3.7240E-4	3.0286E-4		
796												
797					K hat	K Star	Theta hat	Log Mean	Log Stdv	Log CV		
798				Statistics (Detects Only)	N/A	N/A	N/A	N/A	N/A	N/A		
799				Statistics (NDs = DL)	0.997	0.803	0.00237	-6.625	1.041	-0.157		
800				Statistics (NDs = DL/2)	1.157	0.923	0.00111	-7.145	0.992	-0.139		
801				Statistics (Gamma ROS Estimates)	1.474	1.161	0.00523	-5.241	1.166	-0.222		
802				Statistics (Lognormal ROS Estimates)	--	--	--	-7.849	0.556	-0.0709		
803												
804					**Normal GOF Test Results**							
805												
806					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
807				Correlation Coefficient R	0.878	0.8	0.826	0.975				
808												
809					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
810				Shapiro-Wilk (Detects Only)	0.771	0.767	Data Appear Normal					
811				Shapiro-Wilk (NDs = DL)	0.655	0.859	Data Not Normal					
812				Shapiro-Wilk (NDs = DL/2)	0.698	0.859	Data Not Normal					
813				Shapiro-Wilk (Normal ROS Estimates)	0.965	0.859	Data Appear Normal					
814				Lilliefors (Detects Only)	0.376	0.425	Data Appear Normal					
815				Lilliefors (NDs = DL)	0.3	0.243	Data Not Normal					
816				Lilliefors (NDs = DL/2)	0.291	0.243	Data Not Normal					
817				Lilliefors (Normal ROS Estimates)	0.177	0.243	Data Appear Normal					
818												
819					**Gamma GOF Test Results**							
820												
821					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
822				Correlation Coefficient R	N/A	0.968	0.969	0.562				
823												
824					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
825				Anderson-Darling (Detects Only)	N/A	N/A						
826				Kolmogorov-Smirnov (Detects Only)	N/A	N/A						
827				Anderson-Darling (NDs = DL)	1.154	0.757						
828				Kolmogorov-Smirnov (NDs = DL)	0.269	0.252	Data Not Gamma Distributed					
829				Anderson-Darling (NDs = DL/2)	0.697	0.753						
830				Kolmogorov-Smirnov (NDs = DL/2)	0.229	0.251	Data Appear Gamma Distributed					
831				Anderson-Darling (Gamma ROS Estimates)	2.788	0.746						
832				Kolmogorov-Smirnov (Gamma ROS Est.)	0.476	0.25	Data Not Gamma Distributed					

	A	B	C	D	E	F	G	H	I	J	K	L
833												
834	**Lognormal GOF Test Results**											
835												
836					No NDs	NDs = DL	NDs = DL/2	Log ROS				
837				Correlation Coefficient R	0.884	0.909	0.952	0.976				
838												
839					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
840				Shapiro-Wilk (Detects Only)	0.782	0.767	Data Appear Lognormal					
841				Shapiro-Wilk (NDs = DL)	0.814	0.859	Data Not Lognormal					
842				Shapiro-Wilk (NDs = DL/2)	0.892	0.859	Data Appear Lognormal					
843				Shapiro-Wilk (Lognormal ROS Estimates)	0.966	0.859	Data Appear Lognormal					
844				Lilliefors (Detects Only)	0.372	0.425	Data Appear Lognormal					
845				Lilliefors (NDs = DL)	0.267	0.243	Data Not Lognormal					
846				Lilliefors (NDs = DL/2)	0.181	0.243	Data Appear Lognormal					
847				Lilliefors (Lognormal ROS Estimates)	0.177	0.243	Data Appear Lognormal					
848												
849	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
850												
851	**VALUES (2_2_103)**											
852												
853					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
854				Raw Statistics	12	0	12	9	3	25.00%		
855												
856					Number	Minimum	Maximum	Mean	Median	SD		
857				Statistics (Non-Detects Only)	3	0.018	0.045	0.0283	0.022	0.0146		
858				Statistics (Detects Only)	9	0.013	0.025	0.0162	0.016	0.0036		
859				Statistics (All: NDs treated as DL value)	12	0.013	0.045	0.0193	0.0165	0.00883		
860				Statistics (All: NDs treated as DL/2 value)	12	0.009	0.025	0.0157	0.015	0.00446		
861				Statistics (Normal ROS Imputed Data)	12	0.013	0.025	0.0161	0.0158	0.00308		
862				Statistics (Gamma ROS Imputed Data)	12	0.013	0.025	0.0161	0.0156	0.00308		
863				Statistics (Lognormal ROS Imputed Data)	12	0.013	0.025	0.016	0.0156	0.00309		
864												
865					K hat	K Star	Theta hat	Log Mean	Log Stdv	Log CV		
866				Statistics (Detects Only)	27.47	18.38	5.9064E-4	-4.14	0.195	-0.047		
867				Statistics (NDs = DL)	7.763	5.878	0.00248	-4.016	0.346	-0.0862		
868				Statistics (NDs = DL/2)	14.15	10.67	0.00111	-4.189	0.279	-0.0666		
869				Statistics (Gamma ROS Estimates)	36.12	27.15	4.4467E-4	-4.145	0.166	-0.0401		
870				Statistics (Lognormal ROS Estimates)	--	--	--	-4.146	0.166	-0.0402		
871												
872	**Normal GOF Test Results**											
873												
874					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
875				Correlation Coefficient R	0.853	0.798	0.958	0.829				
876												
877					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
878				Shapiro-Wilk (Detects Only)	0.751	0.829	Data Not Normal					
879				Shapiro-Wilk (NDs = DL)	0.661	0.859	Data Not Normal					
880				Shapiro-Wilk (NDs = DL/2)	0.925	0.859	Data Appear Normal					
881				Shapiro-Wilk (Normal ROS Estimates)	0.716	0.859	Data Not Normal					
882				Lilliefors (Detects Only)	0.303	0.274	Data Not Normal					
883				Lilliefors (NDs = DL)	0.306	0.243	Data Not Normal					
884				Lilliefors (NDs = DL/2)	0.219	0.243	Data Appear Normal					

885			Lilliefors (Normal ROS Estimates)		0.302	0.243	Data Not Normal					
886												
887						**Gamma GOF Test Results**						
888												
889					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
890			Correlation Coefficient R		0.887	0.873	0.974	0.859				
891												
892					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
893			Anderson-Darling (Detects Only)		0.768	0.721						
894			Kolmogorov-Smirnov (Detects Only)		0.267	0.279	Detected Data appear Approximate Gamma Distr					
895			Anderson-Darling (NDs = DL)		1.122	0.731						
896			Kolmogorov-Smirnov (NDs = DL)		0.276	0.246	Data Not Gamma Distributed					
897			Anderson-Darling (NDs = DL/2)		0.339	0.731						
898			Kolmogorov-Smirnov (NDs = DL/2)		0.182	0.245	Data Appear Gamma Distributed					
899			Anderson-Darling (Gamma ROS Estimates)		0.999	0.731						
900			Kolmogorov-Smirnov (Gamma ROS Est.)		0.261	0.245	Data Not Gamma Distributed					
901												
902						**Lognormal GOF Test Results**						
903												
904					No NDs	NDs = DL	NDs = DL/2	Log ROS				
905			Correlation Coefficient R		0.896	0.886	0.977	0.879				
906												
907					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
908			Shapiro-Wilk (Detects Only)		0.822	0.829	Data Not Lognormal					
909			Shapiro-Wilk (NDs = DL)		0.799	0.859	Data Not Lognormal					
910			Shapiro-Wilk (NDs = DL/2)		0.962	0.859	Data Appear Lognormal					
911			Shapiro-Wilk (Lognormal ROS Estimates)		0.799	0.859	Data Not Lognormal					
912			Lilliefors (Detects Only)		0.258	0.274	Data Appear Lognormal					
913			Lilliefors (NDs = DL)		0.252	0.243	Data Not Lognormal					
914			Lilliefors (NDs = DL/2)		0.174	0.243	Data Appear Lognormal					
915			Lilliefors (Lognormal ROS Estimates)		0.25	0.243	Data Not Lognormal					
916												
917	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
918												
919	**VALUES (2_2_104)**											
920												
921					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
922			Raw Statistics		11	0	11	0	11	100.00%		
923												
924	**Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!**											
925	**Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!**											
926	**The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).**											
927												
928	**The data set for variable VALUES (2_2_104) was not processed!**											
929												
930												
931												
932	**VALUES (2_2_106)**											
933												
934					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
935			Raw Statistics		12	0	12	9	3	25.00%		
936												

		Number	Minimum	Maximum	Mean	Median	SD
Statistics (Non-Detects Only)		3	9.9000E-4	0.0039	0.0023	0.002	0.00148
Statistics (Detects Only)		9	0.0011	0.0014	0.00119	0.0011	1.1667E-4
Statistics (All: NDs treated as DL value)		12	9.9000E-4	0.0039	0.00147	0.00115	8.1107E-4
Statistics (All: NDs treated as DL/2 value)		12	4.9500E-4	0.00195	0.00118	0.0011	3.3085E-4
Statistics (Normal ROS Imputed Data)		12	9.2150E-4	0.0014	0.00116	0.00113	1.2550E-4
Statistics (Gamma ROS Imputed Data)		12	0.0011	0.01	0.00339	0.00125	0.00399
Statistics (Lognormal ROS Imputed Data)		12	9.5132E-4	0.0014	0.00116	0.00113	1.2050E-4

	K hat	K Star	Theta hat	Log Mean	Log Stdv	Log CV
Statistics (Detects Only)	121.5	81.05	9.7881E-6	-6.739	0.0954	-0.0142
Statistics (NDs = DL)	6.016	4.567	2.4367E-4	-6.611	0.382	-0.0578
Statistics (NDs = DL/2)	12.44	9.386	9.4750E-5	-6.784	0.314	-0.0463
Statistics (Gamma ROS Estimates)	1.1	0.881	0.00308	-6.205	0.968	-0.156
Statistics (Lognormal ROS Estimates)	--	--	--	-6.76	0.103	-0.0152

Normal GOF Test Results

	No NDs	NDs = DL	NDs = DL/2	Normal ROS
Correlation Coefficient R	0.889	0.731	0.905	0.951

	Test value	Crit. (0.05)	Conclusion with Alpha(0.05)
Shapiro-Wilk (Detects Only)	0.775	0.829	Data Not Normal
Shapiro-Wilk (NDs = DL)	0.562	0.859	Data Not Normal
Shapiro-Wilk (NDs = DL/2)	0.86	0.859	Data Appear Normal
Shapiro-Wilk (Normal ROS Estimates)	0.92	0.859	Data Appear Normal
Lilliefors (Detects Only)	0.332	0.274	Data Not Normal
Lilliefors (NDs = DL)	0.366	0.243	Data Not Normal
Lilliefors (NDs = DL/2)	0.239	0.243	Data Appear Normal
Lilliefors (Normal ROS Estimates)	0.226	0.243	Data Appear Normal

Gamma GOF Test Results

	No NDs	NDs = DL	NDs = DL/2	Gamma ROS
Correlation Coefficient R	0.9	0.826	0.916	0.859

	Test value	Crit. (0.05)	Conclusion with Alpha(0.05)
Anderson-Darling (Detects Only)	1.034	0.72	
Kolmogorov-Smirnov (Detects Only)	0.348	0.279	Data Not Gamma Distributed
Anderson-Darling (NDs = DL)	1.796	0.732	
Kolmogorov-Smirnov (NDs = DL)	0.323	0.246	Data Not Gamma Distributed
Anderson-Darling (NDs = DL/2)	0.959	0.731	
Kolmogorov-Smirnov (NDs = DL/2)	0.275	0.245	Data Not Gamma Distributed
Anderson-Darling (Gamma ROS Estimates)	2.506	0.754	
Kolmogorov-Smirnov (Gamma ROS Est.)	0.431	0.252	Data Not Gamma Distributed

Lognormal GOF Test Results

	No NDs	NDs = DL	NDs = DL/2	Log ROS
Correlation Coefficient R	0.89	0.817	0.875	0.953

	Test value	Crit. (0.05)	Conclusion with Alpha(0.05)

989	Shapiro-Wilk (Detects Only)				0.774	0.829	Data Not Lognormal					
990	Shapiro-Wilk (NDs = DL)				0.688	0.859	Data Not Lognormal					
991	Shapiro-Wilk (NDs = DL/2)				0.807	0.859	Data Not Lognormal					
992	Shapiro-Wilk (Lognormal ROS Estimates)				0.921	0.859	Data Appear Lognormal					
993	Lilliefors (Detects Only)				0.335	0.274	Data Not Lognormal					
994	Lilliefors (NDs = DL)				0.292	0.243	Data Not Lognormal					
995	Lilliefors (NDs = DL/2)				0.297	0.243	Data Not Lognormal					
996	Lilliefors (Lognormal ROS Estimates)				0.223	0.243	Data Appear Lognormal					
997												
998	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
999												
1000	**VALUES (2_2_109)**											
1001												
1002					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
1003	Raw Statistics				12	0	12	2	10	83.33%		
1004												
1005					Number	Minimum	Maximum	Mean	Median	SD		
1006	Statistics (Non-Detects Only)				10	9.8000E-4	0.022	0.00675	0.00345	0.00803		
1007	Statistics (Detects Only)				2	0.0016	0.0018	0.0017	0.0017	1.4142E-4		
1008	Statistics (All: NDs treated as DL value)				12	9.8000E-4	0.022	0.00591	0.0019	0.00752		
1009	Statistics (All: NDs treated as DL/2 value)				12	4.9000E-4	0.011	0.0031	0.0017	0.00369		
1010	Statistics (Normal ROS Imputed Data)				12	7.7730E-4	0.0018	0.00127	0.00126	2.6906E-4		
1011	Statistics (Gamma ROS Imputed Data)				12	N/A	N/A	N/A	N/A	N/A		
1012	Statistics (Lognormal ROS Imputed Data)				12	9.8561E-4	0.0018	0.00133	0.00131	2.1567E-4		
1013												
1014					K hat	K Star	Theta hat	Log Mean	Log Stdv	Log CV		
1015	Statistics (Detects Only)				N/A	N/A	N/A	N/A	N/A	N/A		
1016	Statistics (NDs = DL)				0.87	0.708	0.0068	-5.806	1.179	-0.203		
1017	Statistics (NDs = DL/2)				0.957	0.773	0.00324	-6.384	1.148	-0.18		
1018	Statistics (Gamma ROS Estimates)				N/A	N/A	N/A	N/A	N/A	N/A		
1019	Statistics (Lognormal ROS Estimates)				--	--	--	-6.634	0.158	-0.0239		
1020												
1021	**Normal GOF Test Results**											
1022												
1023					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
1024	Correlation Coefficient R				1	0.838	0.853	0.973				
1025												
1026					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
1027	Shapiro-Wilk (NDs = DL)				0.697	0.859	Data Not Normal					
1028	Shapiro-Wilk (NDs = DL/2)				0.723	0.859	Data Not Normal					
1029	Shapiro-Wilk (Normal ROS Estimates)				0.96	0.859	Data Appear Normal					
1030	Lilliefors (Detects Only)				N/A	N/A						
1031	Lilliefors (NDs = DL)				0.303	0.243	Data Not Normal					
1032	Lilliefors (NDs = DL/2)				0.32	0.243	Data Not Normal					
1033	Lilliefors (Normal ROS Estimates)				0.2	0.243	Data Appear Normal					
1034												
1035	**Gamma GOF Test Results**											
1036												
1037					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
1038	Correlation Coefficient R				N/A	0.959	0.961	0.545				
1039												
1040					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					

1041	Anderson-Darling (Detects Only)				N/A	N/A						
1042	Kolmogorov-Smirnov (Detects Only)				N/A	N/A						
1043	Anderson-Darling (NDs = DL)				0.944	0.761						
1044	Kolmogorov-Smirnov (NDs = DL)				0.266	0.254	Data Not Gamma Distributed					
1045	Anderson-Darling (NDs = DL/2)				0.669	0.758						
1046	Kolmogorov-Smirnov (NDs = DL/2)				0.198	0.253	Data Appear Gamma Distributed					
1047	Anderson-Darling (Gamma ROS Estimates)				N/A	0.731						
1048	Kolmogorov-Smirnov (Gamma ROS Est.)				N/A	0.245						
1049												
1050	**Lognormal GOF Test Results**											
1051												
1052					No NDs	NDs = DL	NDs = DL/2	Log ROS				
1053	Correlation Coefficient R				1	0.936	0.955	N/A				
1054												
1055					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
1056	Shapiro-Wilk (NDs = DL)				0.852	0.859	Data Not Lognormal					
1057	Shapiro-Wilk (NDs = DL/2)				0.888	0.859	Data Appear Lognormal					
1058	Shapiro-Wilk (Lognormal ROS Estimates)				0.96	0.859	Data Appear Lognormal					
1059	Lilliefors (Detects Only)				N/A	N/A						
1060	Lilliefors (NDs = DL)				0.219	0.243	Data Appear Lognormal					
1061	Lilliefors (NDs = DL/2)				0.193	0.243	Data Appear Lognormal					
1062	Lilliefors (Lognormal ROS Estimates)				0.2	0.243	Data Appear Lognormal					
1063												
1064	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
1065												
1066	**VALUES (2_2_112)**											
1067												
1068					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
1069	Raw Statistics				14	0	14	12	2	14.29%		
1070												
1071					Number	Minimum	Maximum	Mean	Median	SD		
1072	Statistics (Non-Detects Only)				2	0.83	3.3	2.065	2.065	1.747		
1073	Statistics (Detects Only)				12	0.52	66	39.07	45	24.81		
1074	Statistics (All: NDs treated as DL value)				14	0.52	66	33.78	40	26.49		
1075	Statistics (All: NDs treated as DL/2 value)				14	0.415	66	33.63	40	26.68		
1076	Statistics (Normal ROS Imputed Data)				14	-4.457	66	33.71	40	26.68		
1077	Statistics (Gamma ROS Imputed Data)				14	0.52	66	35.87	40	24.23		
1078	Statistics (Lognormal ROS Imputed Data)				14	0.52	66	33.71	40	26.58		
1079												
1080					K hat	K Star	Theta hat	Log Mean	Log Stdv	Log CV		
1081	Statistics (Detects Only)				0.789	0.647	49.52	2.912	1.856	0.638		
1082	Statistics (NDs = DL)				0.642	0.552	52.58	2.568	1.937	0.755		
1083	Statistics (NDs = DL/2)				0.591	0.512	56.86	2.469	2.063	0.836		
1084	Statistics (Gamma ROS Estimates)				0.861	0.724	41.64	2.897	1.708	0.59		
1085	Statistics (Lognormal ROS Estimates)				--	--	--	2.548	1.948	0.764		
1086												
1087	**Normal GOF Test Results**											
1088												
1089					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
1090	Correlation Coefficient R				0.925	0.925	0.923	0.94				
1091												
1092					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					

1093				Shapiro-Wilk (Detects Only)	0.835	0.859	Data Not Normal					
1094				Shapiro-Wilk (NDs = DL)	0.829	0.874	Data Not Normal					
1095				Shapiro-Wilk (NDs = DL/2)	0.824	0.874	Data Not Normal					
1096				Shapiro-Wilk (Normal ROS Estimates)	0.858	0.874	Data Not Normal					
1097				Lilliefors (Detects Only)	0.249	0.243	Data Not Normal					
1098				Lilliefors (NDs = DL)	0.232	0.226	Data Not Normal					
1099				Lilliefors (NDs = DL/2)	0.242	0.226	Data Not Normal					
1100				Lilliefors (Normal ROS Estimates)	0.221	0.226	Data Appear Normal					
1101												
1102				**Gamma GOF Test Results**								
1103												
1104					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
1105				Correlation Coefficient R	0.739	0.767	0.756	0.81				
1106												
1107					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
1108				Anderson-Darling (Detects Only)	1.849	0.764						
1109				Kolmogorov-Smirnov (Detects Only)	0.397	0.254	Data Not Gamma Distributed					
1110				Anderson-Darling (NDs = DL)	1.626	0.78						
1111				Kolmogorov-Smirnov (NDs = DL)	0.346	0.239	Data Not Gamma Distributed					
1112				Anderson-Darling (NDs = DL/2)	1.72	0.785						
1113				Kolmogorov-Smirnov (NDs = DL/2)	0.352	0.24	Data Not Gamma Distributed					
1114				Anderson-Darling (Gamma ROS Estimates)	1.386	0.766						
1115				Kolmogorov-Smirnov (Gamma ROS Est.)	0.313	0.236	Data Not Gamma Distributed					
1116												
1117				**Lognormal GOF Test Results**								
1118												
1119					No NDs	NDs = DL	NDs = DL/2	Log ROS				
1120				Correlation Coefficient R	0.823	0.876	0.872	0.872				
1121												
1122					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
1123				Shapiro-Wilk (Detects Only)	0.668	0.859	Data Not Lognormal					
1124				Shapiro-Wilk (NDs = DL)	0.747	0.874	Data Not Lognormal					
1125				Shapiro-Wilk (NDs = DL/2)	0.739	0.874	Data Not Lognormal					
1126				Shapiro-Wilk (Lognormal ROS Estimates)	0.74	0.874	Data Not Lognormal					
1127				Lilliefors (Detects Only)	0.407	0.243	Data Not Lognormal					
1128				Lilliefors (NDs = DL)	0.357	0.226	Data Not Lognormal					
1129				Lilliefors (NDs = DL/2)	0.362	0.226	Data Not Lognormal					
1130				Lilliefors (Lognormal ROS Estimates)	0.359	0.226	Data Not Lognormal					
1131												
1132	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
1133												
1134	**VALUES (2_2_113)**											
1135												
1136					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
1137				Raw Statistics	12	0	12	1	11	91.67%		
1138												
1139	**Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!**											
1140	**It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).**											
1141												
1142	**The data set for variable VALUES (2_2_113) was not processed!**											
1143												
1144												

VALUES (2_2_115)

	Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs
Raw Statistics	10	0	10	3	7	70.00%

	Number	Minimum	Maximum	Mean	Median	SD
Statistics (Non-Detects Only)	7	1.3000E-4	1.3000E-4	1.3000E-4	1.3000E-4	0
Statistics (Detects Only)	3	1.3000E-4	1.9000E-4	1.6000E-4	1.6000E-4	3.0000E-5
Statistics (All: NDs treated as DL value)	10	1.3000E-4	1.9000E-4	1.3900E-4	1.3000E-4	2.0248E-5
Statistics (All: NDs treated as DL/2 value)	10	6.5000E-5	1.9000E-4	9.3500E-5	6.5000E-5	4.8019E-5
Statistics (Normal ROS Imputed Data)	10	-5.118E-5	1.9000E-4	6.7485E-5	6.2418E-5	7.7050E-5
Statistics (Gamma ROS Imputed Data)	10	1.3000E-4	0.01	0.00705	0.01	0.00475
Statistics (Lognormal ROS Imputed Data)	10	4.1890E-5	1.9000E-4	9.8200E-5	8.5740E-5	4.8206E-5

	K hat	K Star	Theta hat	Log Mean	Log Stdv	Log CV
Statistics (Detects Only)	N/A	N/A	N/A	N/A	N/A	N/A
Statistics (NDs = DL)	60.94	42.73	2.2808E-6	-8.889	0.13	-0.0147
Statistics (NDs = DL/2)	5.32	3.791	1.7575E-5	-9.374	0.439	-0.0468
Statistics (Gamma ROS Estimates)	0.679	0.542	0.0104	-5.849	2.005	-0.343
Statistics (Lognormal ROS Estimates)	--	--	--	-9.334	0.485	-0.0519

Normal GOF Test Results

	No NDs	NDs = DL	NDs = DL/2	Normal ROS
Correlation Coefficient R	1	0.717	0.814	0.996

	Test value	Crit. (0.05)	Conclusion with Alpha(0.05)
Shapiro-Wilk (Detects Only)	1	0.767	Data Appear Normal
Shapiro-Wilk (NDs = DL)	0.532	0.842	Data Not Normal
Shapiro-Wilk (NDs = DL/2)	0.659	0.842	Data Not Normal
Shapiro-Wilk (Normal ROS Estimates)	0.983	0.842	Data Appear Normal
Lilliefors (Detects Only)	0.175	0.425	Data Appear Normal
Lilliefors (NDs = DL)	0.472	0.262	Data Not Normal
Lilliefors (NDs = DL/2)	0.424	0.262	Data Not Normal
Lilliefors (Normal ROS Estimates)	0.0914	0.262	Data Appear Normal

Gamma GOF Test Results

	No NDs	NDs = DL	NDs = DL/2	Gamma ROS
Correlation Coefficient R	N/A	0.752	0.889	0.519

	Test value	Crit. (0.05)	Conclusion with Alpha(0.05)
Anderson-Darling (Detects Only)	N/A	N/A	
Kolmogorov-Smirnov (Detects Only)	N/A	N/A	
Anderson-Darling (NDs = DL)	2.41	0.724	
Kolmogorov-Smirnov (NDs = DL)	0.482	0.266	Data Not Gamma Distributed
Anderson-Darling (NDs = DL/2)	1.85	0.729	
Kolmogorov-Smirnov (NDs = DL/2)	0.439	0.267	Data Not Gamma Distributed
Anderson-Darling (Gamma ROS Estimates)	2.245	0.763	
Kolmogorov-Smirnov (Gamma ROS Est.)	0.46	0.277	Data Not Gamma Distributed

	A	B	C	D	E	F	G	H	I	J	K	L
1197	**Lognormal GOF Test Results**											
1198												
1199					No NDs	NDs = DL	NDs = DL/2	Log ROS				
1200				Correlation Coefficient R	0.999	0.721	0.812	0.996				
1201												
1202					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
1203				Shapiro-Wilk (Detects Only)	0.997	0.767	Data Appear Lognormal					
1204				Shapiro-Wilk (NDs = DL)	0.536	0.842	Data Not Lognormal					
1205				Shapiro-Wilk (NDs = DL/2)	0.65	0.842	Data Not Lognormal					
1206				Shapiro-Wilk (Lognormal ROS Estimates)	0.982	0.842	Data Appear Lognormal					
1207				Lilliefors (Detects Only)	0.192	0.425	Data Appear Lognormal					
1208				Lilliefors (NDs = DL)	0.474	0.262	Data Not Lognormal					
1209				Lilliefors (NDs = DL/2)	0.428	0.262	Data Not Lognormal					
1210				Lilliefors (Lognormal ROS Estimates)	0.0897	0.262	Data Appear Lognormal					
1211												
1212	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
1213												
1214	**VALUES (2_2_116)**											
1215												
1216					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
1217				Raw Statistics	12	0	12	9	3	25.00%		
1218												
1219					Number	Minimum	Maximum	Mean	Median	SD		
1220				Statistics (Non-Detects Only)	3	0.011	0.024	0.019	0.022	0.007		
1221				Statistics (Detects Only)	9	0.0062	0.0076	0.00704	0.007	4.8247E-4		
1222				Statistics (All: NDs treated as DL value)	12	0.0062	0.024	0.01	0.00735	0.00619		
1223				Statistics (All: NDs treated as DL/2 value)	12	0.0055	0.012	0.00766	0.00715	0.00191		
1224				Statistics (Normal ROS Imputed Data)	12	0.0062	0.0076	0.00704	0.00704	4.1145E-4		
1225				Statistics (Gamma ROS Imputed Data)	12	0.0062	0.01	0.00778	0.00735	0.0014		
1226				Statistics (Lognormal ROS Imputed Data)	12	0.0062	0.0076	0.00704	0.00703	4.1151E-4		
1227												
1228					K hat	K Star	Theta hat	Log Mean	Log Stdv	Log CV		
1229				Statistics (Detects Only)	234.6	156.4	3.0032E-5	-4.958	0.0697	-0.0141		
1230				Statistics (NDs = DL)	4.289	3.272	0.00234	-4.723	0.466	-0.0986		
1231				Statistics (NDs = DL/2)	20.78	15.64	3.6851E-4	-4.896	0.222	-0.0453		
1232				Statistics (Gamma ROS Estimates)	36.51	27.44	2.1321E-4	-4.87	0.17	-0.0349		
1233				Statistics (Lognormal ROS Estimates)	--	--	--	-4.958	0.0594	-0.012		
1234												
1235	**Normal GOF Test Results**											
1236												
1237					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
1238				Correlation Coefficient R	0.972	0.778	0.877	0.965				
1239												
1240					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
1241				Shapiro-Wilk (Detects Only)	0.933	0.829	Data Appear Normal					
1242				Shapiro-Wilk (NDs = DL)	0.61	0.859	Data Not Normal					
1243				Shapiro-Wilk (NDs = DL/2)	0.78	0.859	Data Not Normal					
1244				Shapiro-Wilk (Normal ROS Estimates)	0.932	0.859	Data Appear Normal					
1245				Lilliefors (Detects Only)	0.16	0.274	Data Appear Normal					
1246				Lilliefors (NDs = DL)	0.403	0.243	Data Not Normal					
1247				Lilliefors (NDs = DL/2)	0.346	0.243	Data Not Normal					
1248				Lilliefors (Normal ROS Estimates)	0.196	0.243	Data Appear Normal					

	A	B	C	D	E	F	G	H	I	J	K	L
1249												
1250	**Gamma GOF Test Results**											
1251												
1252					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
1253				Correlation Coefficient R	0.966	0.868	0.908	0.912				
1254												
1255					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
1256				Anderson-Darling (Detects Only)	0.315	0.72						
1257				Kolmogorov-Smirnov (Detects Only)	0.162	0.279	Detected Data Appear Gamma Distributed					
1258				Anderson-Darling (NDs = DL)	1.997	0.735						
1259				Kolmogorov-Smirnov (NDs = DL)	0.4	0.246	Data Not Gamma Distributed					
1260				Anderson-Darling (NDs = DL/2)	1.021	0.732						
1261				Kolmogorov-Smirnov (NDs = DL/2)	0.318	0.245	Data Not Gamma Distributed					
1262				Anderson-Darling (Gamma ROS Estimates)	1.023	0.731						
1263				Kolmogorov-Smirnov (Gamma ROS Est.)	0.285	0.245	Data Not Gamma Distributed					
1264												
1265	**Lognormal GOF Test Results**											
1266												
1267					No NDs	NDs = DL	NDs = DL/2	Log ROS				
1268				Correlation Coefficient R	0.969	0.828	0.916	0.959				
1269												
1270					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
1271				Shapiro-Wilk (Detects Only)	0.927	0.829	Data Appear Lognormal					
1272				Shapiro-Wilk (NDs = DL)	0.685	0.859	Data Not Lognormal					
1273				Shapiro-Wilk (NDs = DL/2)	0.85	0.859	Data Not Lognormal					
1274				Shapiro-Wilk (Lognormal ROS Estimates)	0.921	0.859	Data Appear Lognormal					
1275				Lilliefors (Detects Only)	0.173	0.274	Data Appear Lognormal					
1276				Lilliefors (NDs = DL)	0.382	0.243	Data Not Lognormal					
1277				Lilliefors (NDs = DL/2)	0.303	0.243	Data Not Lognormal					
1278				Lilliefors (Lognormal ROS Estimates)	0.211	0.243	Data Appear Lognormal					
1279												
1280	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
1281												
1282	**VALUES (2_3_128)**											
1283												
1284					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
1285				Raw Statistics	14	0	14	13	1	7.14%		
1286												
1287					Number	Minimum	Maximum	Mean	Median	SD		
1288				Statistics (Non-Detects Only)	1	1.1	1.1	1.1	1.1	N/A		
1289				Statistics (Detects Only)	13	3.2	110	29.52	15	31.25		
1290				Statistics (All: NDs treated as DL value)	14	1.1	110	27.49	14.5	30.97		
1291				Statistics (All: NDs treated as DL/2 value)	14	0.55	110	27.45	14.5	31		
1292				Statistics (Normal ROS Imputed Data)	14	-41.21	110	24.47	14.5	35.48		
1293				Statistics (Gamma ROS Imputed Data)	14	0.01	110	27.42	14.5	31.04		
1294				Statistics (Lognormal ROS Imputed Data)	14	1.05	110	27.49	14.5	30.97		
1295												
1296					K hat	K Star	Theta hat	Log Mean	Log Stdv	Log CV		
1297				Statistics (Detects Only)	1.057	0.865	27.92	2.843	1.137	0.4		
1298				Statistics (NDs = DL)	0.879	0.738	31.29	2.646	1.316	0.497		
1299				Statistics (NDs = DL/2)	0.826	0.697	33.24	2.597	1.428	0.55		
1300				Statistics (Gamma ROS Estimates)	0.615	0.531	44.55	2.311	2.271	0.983		

1301	Statistics (Lognormal ROS Estimates)				--	--	--	2.643	1.323	0.501		
1302												
1303	**Normal GOF Test Results**											
1304												
1305					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
1306	Correlation Coefficient R				0.892	0.887	0.888	0.939				
1307												
1308					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
1309	Shapiro-Wilk (Detects Only)				0.801	0.866	Data Not Normal					
1310	Shapiro-Wilk (NDs = DL)				0.793	0.874	Data Not Normal					
1311	Shapiro-Wilk (NDs = DL/2)				0.796	0.874	Data Not Normal					
1312	Shapiro-Wilk (Normal ROS Estimates)				0.905	0.874	Data Appear Normal					
1313	Lilliefors (Detects Only)				0.25	0.234	Data Not Normal					
1314	Lilliefors (NDs = DL)				0.246	0.226	Data Not Normal					
1315	Lilliefors (NDs = DL/2)				0.246	0.226	Data Not Normal					
1316	Lilliefors (Normal ROS Estimates)				0.208	0.226	Data Appear Normal					
1317												
1318	**Gamma GOF Test Results**											
1319												
1320					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
1321	Correlation Coefficient R				0.982	0.984	0.984	0.982				
1322												
1323					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
1324	Anderson-Darling (Detects Only)				0.365	0.757						
1325	Kolmogorov-Smirnov (Detects Only)				0.15	0.243	Detected Data Appear Gamma Distributed					
1326	Anderson-Darling (NDs = DL)				0.283	0.765						
1327	Kolmogorov-Smirnov (NDs = DL)				0.135	0.236	Data Appear Gamma Distributed					
1328	Anderson-Darling (NDs = DL/2)				0.238	0.767						
1329	Kolmogorov-Smirnov (NDs = DL/2)				0.133	0.237	Data Appear Gamma Distributed					
1330	Anderson-Darling (Gamma ROS Estimates)				0.33	0.783						
1331	Kolmogorov-Smirnov (Gamma ROS Est.)				0.144	0.24	Data Appear Gamma Distributed					
1332												
1333	**Lognormal GOF Test Results**											
1334												
1335					No NDs	NDs = DL	NDs = DL/2	Log ROS				
1336	Correlation Coefficient R				0.982	0.987	0.977	0.987				
1337												
1338					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
1339	Shapiro-Wilk (Detects Only)				0.95	0.866	Data Appear Lognormal					
1340	Shapiro-Wilk (NDs = DL)				0.97	0.874	Data Appear Lognormal					
1341	Shapiro-Wilk (NDs = DL/2)				0.957	0.874	Data Appear Lognormal					
1342	Shapiro-Wilk (Lognormal ROS Estimates)				0.97	0.874	Data Appear Lognormal					
1343	Lilliefors (Detects Only)				0.147	0.234	Data Appear Lognormal					
1344	Lilliefors (NDs = DL)				0.128	0.226	Data Appear Lognormal					
1345	Lilliefors (NDs = DL/2)				0.118	0.226	Data Appear Lognormal					
1346	Lilliefors (Lognormal ROS Estimates)				0.128	0.226	Data Appear Lognormal					
1347												
1348	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
1349												
1350	**VALUES (3_2_101)**											
1351												
1352					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		

1353				Raw Statistics	4	0	4	0	4	100.00%		
1354												
1355	**Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!**											
1356	**Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!**											
1357	**The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).**											
1358												
1359	**The data set for variable VALUES (3_2_101) was not processed!**											
1360												
1361												
1362												
1363	**VALUES (3_2_102)**											
1364												
1365					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
1366				Raw Statistics	4	0	4	1	3	75.00%		
1367												
1368	**Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!**											
1369	**It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).**											
1370												
1371	**The data set for variable VALUES (3_2_102) was not processed!**											
1372												
1373												
1374												
1375	**VALUES (3_2_103)**											
1376												
1377					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
1378				Raw Statistics	4	0	4	3	1	25.00%		
1379												
1380					Number	Minimum	Maximum	Mean	Median	SD		
1381				Statistics (Non-Detects Only)	1	0.018	0.018	0.018	0.018	N/A		
1382				Statistics (Detects Only)	3	0.01	0.012	0.011	0.011	0.001		
1383				Statistics (All: NDs treated as DL value)	4	0.01	0.018	0.0128	0.0115	0.00359		
1384				Statistics (All: NDs treated as DL/2 value)	4	0.009	0.012	0.0105	0.0105	0.00129		
1385				Statistics (Normal ROS Imputed Data)	4	0.01	0.012	0.011	0.011	8.1650E-4		
1386				Statistics (Gamma ROS Imputed Data)	4	0.01	0.012	0.011	0.011	8.1652E-4		
1387				Statistics (Lognormal ROS Imputed Data)	4	0.01	0.012	0.011	0.011	8.1664E-4		
1388												
1389					K hat	K Star	Theta hat	Log Mean	Log Stdv	Log CV		
1390				Statistics (Detects Only)	N/A	N/A	N/A	N/A	N/A	N/A		
1391				Statistics (NDs = DL)	18.97	4.909	6.7218E-4	-4.389	0.259	-0.0589		
1392				Statistics (NDs = DL/2)	87.54	22.05	1.1994E-4	-4.562	0.124	-0.0271		
1393				Statistics (Gamma ROS Estimates)	241.2	60.46	4.5602E-5	-4.512	0.0745	-0.0165		
1394				Statistics (Lognormal ROS Estimates)	--	--	--	-4.513	0.0745	-0.0165		
1395												
1396	**Normal GOF Test Results**											
1397												
1398					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
1399				Correlation Coefficient R	1	0.905	0.999	0.962				
1400												
1401					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
1402				Shapiro-Wilk (Detects Only)	1	0.767	Data Appear Normal					
1403				Shapiro-Wilk (NDs = DL)	0.828	0.748	Data Appear Normal					
1404				Shapiro-Wilk (NDs = DL/2)	0.994	0.748	Data Appear Normal					

1405	Shapiro-Wilk (Normal ROS Estimates)				0.944	0.748	Data Appear Normal					
1406	Lilliefors (Detects Only)				0.175	0.425	Data Appear Normal					
1407	Lilliefors (NDs = DL)				0.333	0.375	Data Appear Normal					
1408	Lilliefors (NDs = DL/2)				0.151	0.375	Data Appear Normal					
1409	Lilliefors (Normal ROS Estimates)				0.25	0.375	Data Appear Normal					
1410												
1411	**Gamma GOF Test Results**											
1412												
1413					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
1414	Correlation Coefficient R				N/A	0.945	0.997	0.965				
1415												
1416					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
1417	Anderson-Darling (Detects Only)				N/A	N/A						
1418	Kolmogorov-Smirnov (Detects Only)				N/A	N/A						
1419	Anderson-Darling (NDs = DL)				0.455	0.657						
1420	Kolmogorov-Smirnov (NDs = DL)				0.323	0.394	Data Appear Gamma Distributed					
1421	Anderson-Darling (NDs = DL/2)				0.202	0.656						
1422	Kolmogorov-Smirnov (NDs = DL/2)				0.182	0.394	Data Appear Gamma Distributed					
1423	Anderson-Darling (Gamma ROS Estimates)				0.325	0.657						
1424	Kolmogorov-Smirnov (Gamma ROS Est.)				0.254	0.394	Data Appear Gamma Distributed					
1425												
1426	**Lognormal GOF Test Results**											
1427												
1428					No NDs	NDs = DL	NDs = DL/2	Log ROS				
1429	Correlation Coefficient R				1	0.93	0.998	0.965				
1430												
1431					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
1432	Shapiro-Wilk (Detects Only)				0.999	0.767	Data Appear Lognormal					
1433	Shapiro-Wilk (NDs = DL)				0.873	0.748	Data Appear Lognormal					
1434	Shapiro-Wilk (NDs = DL/2)				0.992	0.748	Data Appear Lognormal					
1435	Shapiro-Wilk (Lognormal ROS Estimates)				0.951	0.748	Data Appear Lognormal					
1436	Lilliefors (Detects Only)				0.179	0.425	Data Appear Lognormal					
1437	Lilliefors (NDs = DL)				0.302	0.375	Data Appear Lognormal					
1438	Lilliefors (NDs = DL/2)				0.163	0.375	Data Appear Lognormal					
1439	Lilliefors (Lognormal ROS Estimates)				0.25	0.375	Data Appear Lognormal					
1440												
1441	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
1442												
1443	**VALUES (3_2_104)**											
1444												
1445					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
1446	Raw Statistics				4	0	4	0	4	100.00%		
1447												
1448	**Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!**											
1449	**Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!**											
1450	**The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).**											
1451												
1452	**The data set for variable VALUES (3_2_104) was not processed!**											
1453												
1454												
1455												
1456	**VALUES (3_2_106)**											

	Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs
Raw Statistics	4	0	4	3	1	25.00%

	Number	Minimum	Maximum	Mean	Median	SD
Statistics (Non-Detects Only)	1	0.0011	0.0011	0.0011	0.0011	N/A
Statistics (Detects Only)	3	5.5000E-4	8.3000E-4	6.7000E-4	6.3000E-4	1.4422E-4
Statistics (All: NDs treated as DL value)	4	5.5000E-4	0.0011	7.7750E-4	7.3000E-4	2.4514E-4
Statistics (All: NDs treated as DL/2 value)	4	5.5000E-4	8.3000E-4	6.4000E-4	5.9000E-4	1.3216E-4
Statistics (Normal ROS Imputed Data)	4	5.5000E-4	8.3000E-4	6.7000E-4	6.5000E-4	1.1776E-4
Statistics (Gamma ROS Imputed Data)	4	5.5000E-4	0.01	0.003	7.3000E-4	0.00467
Statistics (Lognormal ROS Imputed Data)	4	5.5000E-4	8.3000E-4	6.6752E-4	6.4504E-4	1.1786E-4

	K hat	K Star	Theta hat	Log Mean	Log Stdv	Log CV
Statistics (Detects Only)	N/A	N/A	N/A	N/A	N/A	N/A
Statistics (NDs = DL)	14.03	3.675	5.5402E-5	-7.195	0.307	-0.0427
Statistics (NDs = DL/2)	34.13	8.698	1.8753E-5	-7.369	0.194	-0.0263
Statistics (Gamma ROS Estimates)	0.721	0.347	0.00417	-6.644	1.37	-0.206
Statistics (Lognormal ROS Estimates)	--	--	--	-7.323	0.171	-0.0234

Normal GOF Test Results

	No NDs	NDs = DL	NDs = DL/2	Normal ROS
Correlation Coefficient R	0.971	0.972	0.9	0.972

	Test value	Crit. (0.05)	Conclusion with Alpha(0.05)
Shapiro-Wilk (Detects Only)	0.942	0.767	Data Appear Normal
Shapiro-Wilk (NDs = DL)	0.939	0.748	Data Appear Normal
Shapiro-Wilk (NDs = DL/2)	0.809	0.748	Data Appear Normal
Shapiro-Wilk (Normal ROS Estimates)	0.953	0.748	Data Appear Normal
Lilliefors (Detects Only)	0.276	0.425	Data Appear Normal
Lilliefors (NDs = DL)	0.226	0.375	Data Appear Normal
Lilliefors (NDs = DL/2)	0.28	0.375	Data Appear Normal
Lilliefors (Normal ROS Estimates)	0.25	0.375	Data Appear Normal

Gamma GOF Test Results

	No NDs	NDs = DL	NDs = DL/2	Gamma ROS
Correlation Coefficient R	N/A	0.992	0.933	0.977

	Test value	Crit. (0.05)	Conclusion with Alpha(0.05)
Anderson-Darling (Detects Only)	N/A	N/A	
Kolmogorov-Smirnov (Detects Only)	N/A	N/A	
Anderson-Darling (NDs = DL)	0.264	0.657	
Kolmogorov-Smirnov (NDs = DL)	0.249	0.395	Data Appear Gamma Distributed
Anderson-Darling (NDs = DL/2)	0.507	0.657	
Kolmogorov-Smirnov (NDs = DL/2)	0.29	0.394	Data Appear Gamma Distributed
Anderson-Darling (Gamma ROS Estimates)	0.78	0.672	
Kolmogorov-Smirnov (Gamma ROS Est.)	0.434	0.406	Data Not Gamma Distributed

Lognormal GOF Test Results

	No NDs	NDs = DL	NDs = DL/2	Log ROS
Correlation Coefficient R	0.981	0.986	0.911	0.974

	Test value	Crit. (0.05)	Conclusion with Alpha(0.05)
Shapiro-Wilk (Detects Only)	0.963	0.767	Data Appear Lognormal
Shapiro-Wilk (NDs = DL)	0.963	0.748	Data Appear Lognormal
Shapiro-Wilk (NDs = DL/2)	0.827	0.748	Data Appear Lognormal
Shapiro-Wilk (Lognormal ROS Estimates)	0.96	0.748	Data Appear Lognormal
Lilliefors (Detects Only)	0.255	0.425	Data Appear Lognormal
Lilliefors (NDs = DL)	0.215	0.375	Data Appear Lognormal
Lilliefors (NDs = DL/2)	0.26	0.375	Data Appear Lognormal
Lilliefors (Lognormal ROS Estimates)	0.25	0.375	Data Appear Lognormal

Note: Substitution methods such as DL or DL/2 are not recommended.

VALUES (3_2_109)

	Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs
Raw Statistics	4	0	4	0	4	100.00%

Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!

Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!

The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable VALUES (3_2_109) was not processed!

VALUES (3_2_113)

	Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs
Raw Statistics	4	0	4	0	4	100.00%

Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!

Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!

The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable VALUES (3_2_113) was not processed!

VALUES (3_2_115)

	Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs
Raw Statistics	4	0	4	0	4	100.00%

Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!

Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!

The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable VALUES (3_2_115) was not processed!

1561											
1562											
1563	**VALUES (3_2_116)**										
1564											
1565					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs	
1566				Raw Statistics	4	0	4	1	3	75.00%	
1567											
1568	**Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!**										
1569	**It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).**										
1570											
1571	**The data set for variable VALUES (3_2_116) was not processed!**										
1572											
1573											
1574											
1575	**VALUES (3_2_126)**										
1576											
1577					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs	
1578				Raw Statistics	4	0	4	2	2	50.00%	
1579											
1580					Number	Minimum	Maximum	Mean	Median	SD	
1581				Statistics (Non-Detects Only)	2	0.0026	0.0052	0.0039	0.0039	0.00184	
1582				Statistics (Detects Only)	2	0.0013	0.0014	0.00135	0.00135	7.0711E-5	
1583				Statistics (All: NDs treated as DL value)	4	0.0013	0.0052	0.00263	0.002	0.00182	
1584				Statistics (All: NDs treated as DL/2 value)	4	0.0013	0.0026	0.00165	0.00135	6.3509E-4	
1585				Statistics (Normal ROS Imputed Data)	4	0.0013	0.0014	0.00135	0.00135	4.0825E-5	
1586				Statistics (Gamma ROS Imputed Data)	4	N/A	N/A	N/A	N/A	N/A	
1587				Statistics (Lognormal ROS Imputed Data)	4	0.0013	0.0014	0.00135	0.00135	4.0828E-5	
1588											
1589					K hat	K Star	Theta hat	Log Mean	Log Stdv	Log CV	
1590				Statistics (Detects Only)	N/A	N/A	N/A	N/A	N/A	N/A	
1591				Statistics (NDs = DL)	3.2	0.967	8.2040E-4	-6.107	0.645	-0.106	
1592				Statistics (NDs = DL/2)	10.89	2.89	1.5146E-4	-6.454	0.336	-0.0521	
1593				Statistics (Gamma ROS Estimates)	N/A	N/A	N/A	N/A	N/A	N/A	
1594				Statistics (Lognormal ROS Estimates)	--	--	--	-6.608	0.0303	-0.00458	
1595											
1596	**Normal GOF Test Results**										
1597											
1598					No NDs	NDs = DL	NDs = DL/2	Normal ROS			
1599				Correlation Coefficient R	1	0.917	0.821	0.962			
1600											
1601					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)				
1602				Shapiro-Wilk (NDs = DL)	0.84	0.748	Data Appear Normal				
1603				Shapiro-Wilk (NDs = DL/2)	0.685	0.748	Data Not Normal				
1604				Shapiro-Wilk (Normal ROS Estimates)	0.944	0.748	Data Appear Normal				
1605				Lilliefors (Detects Only)	N/A	N/A					
1606				Lilliefors (NDs = DL)	0.255	0.375	Data Appear Normal				
1607				Lilliefors (NDs = DL/2)	0.403	0.375	Data Not Normal				
1608				Lilliefors (Normal ROS Estimates)	0.25	0.375	Data Appear Normal				
1609											
1610	**Gamma GOF Test Results**										
1611											
1612					No NDs	NDs = DL	NDs = DL/2	Gamma ROS			

1613				Correlation Coefficient R	N/A	0.989	0.894	0.788				
1614												
1615					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
1616				Anderson-Darling (Detects Only)	N/A	N/A						
1617				Kolmogorov-Smirnov (Detects Only)	N/A	N/A						
1618				Anderson-Darling (NDs = DL)	0.396	0.659						
1619				Kolmogorov-Smirnov (NDs = DL)	0.295	0.396	Data Appear Gamma Distributed					
1620				Anderson-Darling (NDs = DL/2)	0.787	0.657						
1621				Kolmogorov-Smirnov (NDs = DL/2)	0.415	0.395	Data Not Gamma Distributed					
1622				Anderson-Darling (Gamma ROS Estimates)	N/A	0.657						
1623				Kolmogorov-Smirnov (Gamma ROS Est.)	N/A	0.394						
1624												
1625				**Lognormal GOF Test Results**								
1626												
1627					No NDs	NDs = DL	NDs = DL/2	Log ROS				
1628				Correlation Coefficient R	1	0.951	0.834	N/A				
1629												
1630					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
1631				Shapiro-Wilk (NDs = DL)	0.894	0.748	Data Appear Lognormal					
1632				Shapiro-Wilk (NDs = DL/2)	0.705	0.748	Data Not Lognormal					
1633				Shapiro-Wilk (Lognormal ROS Estimates)	0.944	0.748	Data Appear Lognormal					
1634				Lilliefors (Detects Only)	N/A	N/A						
1635				Lilliefors (NDs = DL)	0.264	0.375	Data Appear Lognormal					
1636				Lilliefors (NDs = DL/2)	0.387	0.375	Data Not Lognormal					
1637				Lilliefors (Lognormal ROS Estimates)	0.25	0.375	Data Appear Lognormal					
1638												
1639	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
1640												
1641	**VALUES (3_3_119)**											
1642												
1643					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
1644				Raw Statistics	4	0	4	3	1	25.00%		
1645												
1646					Number	Minimum	Maximum	Mean	Median	SD		
1647				Statistics (Non-Detects Only)	1	1.5	1.5	1.5	1.5	N/A		
1648				Statistics (Detects Only)	3	0.397	1.01	0.661	0.575	0.315		
1649				Statistics (All: NDs treated as DL value)	4	0.397	1.5	0.871	0.793	0.492		
1650				Statistics (All: NDs treated as DL/2 value)	4	0.397	1.01	0.683	0.663	0.261		
1651				Statistics (Normal ROS Imputed Data)	4	0.397	1.01	0.661	0.618	0.257		
1652				Statistics (Gamma ROS Imputed Data)	4	0.397	1.01	0.656	0.609	0.258		
1653				Statistics (Lognormal ROS Imputed Data)	4	0.397	1.01	0.649	0.594	0.259		
1654												
1655					K hat	K Star	Theta hat	Log Mean	Log Stdv	Log CV		
1656				Statistics (Detects Only)	N/A	N/A	N/A	N/A	N/A	N/A		
1657				Statistics (NDs = DL)	4.104	1.193	0.212	-0.265	0.589	-2.221		
1658				Statistics (NDs = DL/2)	8.863	2.382	0.0771	-0.439	0.397	-0.905		
1659				Statistics (Gamma ROS Estimates)	9.091	2.439	0.0722	-0.477	0.385	-0.806		
1660				Statistics (Lognormal ROS Estimates)	--	--	--	-0.489	0.384	-0.785		
1661												
1662				**Normal GOF Test Results**								
1663												
1664					No NDs	NDs = DL	NDs = DL/2	Normal ROS				

1665				Correlation Coefficient R	0.972	0.978	0.996	0.972				
1666												
1667					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
1668				Shapiro-Wilk (Detects Only)	0.945	0.767	Data Appear Normal					
1669				Shapiro-Wilk (NDs = DL)	0.949	0.748	Data Appear Normal					
1670				Shapiro-Wilk (NDs = DL/2)	0.991	0.748	Data Appear Normal					
1671				Shapiro-Wilk (Normal ROS Estimates)	0.954	0.748	Data Appear Normal					
1672				Lilliefors (Detects Only)	0.274	0.425	Data Appear Normal					
1673				Lilliefors (NDs = DL)	0.226	0.375	Data Appear Normal					
1674				Lilliefors (NDs = DL/2)	0.16	0.375	Data Appear Normal					
1675				Lilliefors (Normal ROS Estimates)	0.25	0.375	Data Appear Normal					
1676												
1677	**Gamma GOF Test Results**											
1678												
1679					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
1680				Correlation Coefficient R	N/A	0.992	0.997	0.987				
1681												
1682					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
1683				Anderson-Darling (Detects Only)	N/A	N/A						
1684				Kolmogorov-Smirnov (Detects Only)	N/A	N/A						
1685				Anderson-Darling (NDs = DL)	0.241	0.659						
1686				Kolmogorov-Smirnov (NDs = DL)	0.231	0.396	Data Appear Gamma Distributed					
1687				Anderson-Darling (NDs = DL/2)	0.192	0.658						
1688				Kolmogorov-Smirnov (NDs = DL/2)	0.164	0.395	Data Appear Gamma Distributed					
1689				Anderson-Darling (Gamma ROS Estimates)	0.252	0.657						
1690				Kolmogorov-Smirnov (Gamma ROS Est.)	0.231	0.395	Data Appear Gamma Distributed					
1691												
1692	**Lognormal GOF Test Results**											
1693												
1694					No NDs	NDs = DL	NDs = DL/2	Log ROS				
1695				Correlation Coefficient R	0.993	0.992	0.999	0.974				
1696												
1697					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
1698				Shapiro-Wilk (Detects Only)	0.986	0.767	Data Appear Lognormal					
1699				Shapiro-Wilk (NDs = DL)	0.975	0.748	Data Appear Lognormal					
1700				Shapiro-Wilk (NDs = DL/2)	0.996	0.748	Data Appear Lognormal					
1701				Shapiro-Wilk (Lognormal ROS Estimates)	0.963	0.748	Data Appear Lognormal					
1702				Lilliefors (Detects Only)	0.221	0.425	Data Appear Lognormal					
1703				Lilliefors (NDs = DL)	0.187	0.375	Data Appear Lognormal					
1704				Lilliefors (NDs = DL/2)	0.148	0.375	Data Appear Lognormal					
1705				Lilliefors (Lognormal ROS Estimates)	0.25	0.375	Data Appear Lognormal					
1706												
1707	**Note: Substitution methods such as DL or DL/2 are not recommended.**											
1708												
1709	**VALUES (3_3_128)**											
1710												
1711					Num Obs	Num Miss	Num Valid	Detects	NDs	% NDs		
1712				Raw Statistics	5	0	5	4	1	20.00%		
1713												
1714					Number	Minimum	Maximum	Mean	Median	SD		
1715				Statistics (Non-Detects Only)	1	1.1	1.1	1.1	1.1	N/A		
1716				Statistics (Detects Only)	4	1.6	5.2	3.5	3.6	1.97		

1717	Statistics (All: NDs treated as DL value)				5	1.1	5.2	3.02	2	2.015		
1718	Statistics (All: NDs treated as DL/2 value)				5	0.55	5.2	2.91	2	2.157		
1719	Statistics (Normal ROS Imputed Data)				5	-1.325	5.2	2.535	2	2.751		
1720	Statistics (Gamma ROS Imputed Data)				5	0.01	5.2	2.802	2	2.312		
1721	Statistics (Lognormal ROS Imputed Data)				5	0.65	5.2	2.93	2	2.129		
1722												
1723					K hat	K Star	Theta hat	Log Mean	Log Stdv	Log CV		
1724	Statistics (Detects Only)				3.791	1.114	0.923	1.115	0.623	0.558		
1725	Statistics (NDs = DL)				2.731	1.226	1.106	0.911	0.706	0.775		
1726	Statistics (NDs = DL/2)				1.84	0.87	1.581	0.773	0.937	1.213		
1727	Statistics (Gamma ROS Estimates)				0.585	0.368	4.786	-0.0289	2.614	-90.34		
1728	Statistics (Lognormal ROS Estimates)				--	--	--	0.806	0.877	1.088		
1729												
1730	**Normal GOF Test Results**											
1731												
1732					No NDs	NDs = DL	NDs = DL/2	Normal ROS				
1733	Correlation Coefficient R				0.899	0.908	0.932	0.953				
1734												
1735					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
1736	Shapiro-Wilk (Detects Only)				0.779	0.748	Data Appear Normal					
1737	Shapiro-Wilk (NDs = DL)				0.795	0.762	Data Appear Normal					
1738	Shapiro-Wilk (NDs = DL/2)				0.843	0.762	Data Appear Normal					
1739	Shapiro-Wilk (Normal ROS Estimates)				0.895	0.762	Data Appear Normal					
1740	Lilliefors (Detects Only)				0.306	0.375	Data Appear Normal					
1741	Lilliefors (NDs = DL)				0.294	0.343	Data Appear Normal					
1742	Lilliefors (NDs = DL/2)				0.263	0.343	Data Appear Normal					
1743	Lilliefors (Normal ROS Estimates)				0.234	0.343	Data Appear Normal					
1744												
1745	**Gamma GOF Test Results**											
1746												
1747					No NDs	NDs = DL	NDs = DL/2	Gamma ROS				
1748	Correlation Coefficient R				0.85	0.895	0.884	0.8				
1749												
1750					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
1751	Anderson-Darling (Detects Only)				0.579	0.659						
1752	Kolmogorov-Smirnov (Detects Only)				0.339	0.396	Detected Data Appear Gamma Distributed					
1753	Anderson-Darling (NDs = DL)				0.511	0.683						
1754	Kolmogorov-Smirnov (NDs = DL)				0.281	0.36	Data Appear Gamma Distributed					
1755	Anderson-Darling (NDs = DL/2)				0.376	0.685						
1756	Kolmogorov-Smirnov (NDs = DL/2)				0.266	0.361	Data Appear Gamma Distributed					
1757	Anderson-Darling (Gamma ROS Estimates)				0.608	0.707						
1758	Kolmogorov-Smirnov (Gamma ROS Est.)				0.324	0.37	Data Appear Gamma Distributed					
1759												
1760	**Lognormal GOF Test Results**											
1761												
1762					No NDs	NDs = DL	NDs = DL/2	Log ROS				
1763	Correlation Coefficient R				0.915	0.946	0.954	0.957				
1764												
1765					Test value	Crit. (0.05)	Conclusion with Alpha(0.05)					
1766	Shapiro-Wilk (Detects Only)				0.809	0.748	Data Appear Lognormal					
1767	Shapiro-Wilk (NDs = DL)				0.869	0.762	Data Appear Lognormal					
1768	Shapiro-Wilk (NDs = DL/2)				0.9	0.762	Data Appear Lognormal					

	A	B	C	D	E	F	G	H	I	J	K	L
1769	Shapiro-Wilk (Lognormal ROS Estimates)				0.903	0.762	Data Appear Lognormal					
1770	Lilliefors (Detects Only)				0.304	0.375	Data Appear Lognormal					
1771	Lilliefors (NDs = DL)				0.252	0.343	Data Appear Lognormal					
1772	Lilliefors (NDs = DL/2)				0.225	0.343	Data Appear Lognormal					
1773	Lilliefors (Lognormal ROS Estimates)				0.232	0.343	Data Appear Lognormal					
1774												
1775	**Note: Substitution methods such as DL or DL/2 are not recommended.**											

Site	Well	Gradient	DATE	Event	Layer	CCR_Group	Constituent	Result	Flag	Unit	STATUS	RDL	MDL	DL_Unit	cas_rn	result_type_code	fraction	MCL_Low_mgL	MCL_mgL	MCL_Type	sample_type_code	GROUP_VAR
Comanche	W-1	Downgradient	3/5/2020	2020_03		Appendix IV	Antimony	0.00072	J	mg/l	Detect Value	0.002	0.00057	mg/l	7440-36-0	TRG	T		0.006	Primary MCL	N	1_2_101
Comanche	W-1	Downgradient	9/4/2020	2020_09_R1		Appendix IV	Antimony	0.00066	J	mg/l	Detect Value	0.002	0.00057	mg/l	7440-36-0	TRG	T		0.006	Primary MCL	N	1_2_101
Comanche	W-1	Downgradient	9/9/2020	2020_09_R2		Appendix IV	Antimony	0.00066	J	mg/l	Detect Value	0.002	0.00057	mg/l	7440-36-0	TRG	T		0.006	Primary MCL	N	1_2_101
Comanche	W-1	Downgradient	10/2/2020	2020_09_R3		Appendix IV	Antimony	0.00071	J	mg/l	Detect Value	0.002	0.00057	mg/l	7440-36-0	TRG	T		0.006	Primary MCL	N	1_2_101
Comanche	W-1	Downgradient	10/15/2020	2020_10_R4		Appendix IV	Antimony		U	mg/l	Non-Detect Value	0.002	0.00057	mg/l	7440-36-0	TRG	T		0.006	Primary MCL	N	1_2_101
Comanche	W-1	Downgradient	10/29/2020	2020_10_R5		Appendix IV	Antimony		U	mg/l	Non-Detect Value	0.002	0.00057	mg/l	7440-36-0	TRG	T		0.006	Primary MCL	N	1_2_101
Comanche	W-1	Downgradient	11/11/2020	2020_11_R6		Appendix IV	Antimony		U	mg/l	Non-Detect Value	0.002	0.00057	mg/l	7440-36-0	TRG	T		0.006	Primary MCL	N	1_2_101
Comanche	W-1	Downgradient	11/25/2020	2020_11_R7		Appendix IV	Antimony		U	mg/l	Non-Detect Value	0.002	0.00057	mg/l	7440-36-0	TRG	T		0.006	Primary MCL	N	1_2_101
Comanche	W-1	Downgradient	12/11/2020	2020_12_R8		Appendix IV	Antimony		U	mg/l	Non-Detect Value	0.02	0.0057	mg/l	7440-36-0	TRG	T		0.006	Primary MCL	N	1_2_101
Comanche	W-1	Downgradient	1/14/2021	2021_01		Appendix IV	Antimony		U	mg/l	Non-Detect Value	0.02	0.0057	mg/l	7440-36-0	TRG	T		0.006	Primary MCL	N	1_2_101
Comanche	W-1	Downgradient	4/19/2021	2021_04		Appendix IV	Antimony		U	mg/l	Non-Detect Value	0.01	0.0029	mg/l	7440-36-0	TRG	T		0.006	Primary MCL	N	1_2_101
Comanche	W-1	Downgradient	6/2/2021	2021_06		Appendix IV	Antimony		U	mg/l	Non-Detect Value	0.01	0.0029	mg/l	7440-36-0	TRG	T		0.006	Primary MCL	N	1_2_101
Comanche	W-1	Downgradient	12/8/2021	2021_12		Appendix IV	Antimony		U	mg/l	Non-Detect Value	0.01	0.0029	mg/l	7440-36-0	TRG	T		0.006	Primary MCL	N	1_2_101
Comanche	W-1	Downgradient	1/14/2022	2022_01		Appendix IV	Antimony		UJ	mg/l	Non-Detect Value	0.008	0.0044	mg/l	7440-36-0	TRG	T		0.006	Primary MCL	N	1_2_101
Comanche	W-1	Downgradient	2/25/2022	2022_02		Appendix IV	Antimony		UJ	mg/l	Non-Detect Value	0.02	0.0069	mg/l	7440-36-0	TRG	T		0.006	Primary MCL	N	1_2_101
Comanche	W-1	Downgradient	4/5/2022	2022_03		Appendix IV	Antimony		U	mg/l	Non-Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T		0.006	Primary MCL	N	1_2_101
Comanche	W-1	Downgradient	5/11/2022	2022_05		Appendix IV	Antimony	0.0012	J	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T		0.006	Primary MCL	N	1_2_101
Comanche	W-1	Downgradient	11/30/2022	2022_11		Appendix IV	Antimony		U	mg/l	Non-Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T		0.006	Primary MCL	N	1_2_101
Comanche	W-1	Downgradient	3/1/2023	2023_02		Appendix IV	Antimony		U	mg/l	Non-Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T		0.006	Primary MCL	N	1_2_101
Comanche	W-1	Downgradient	5/3/2023	2023_05		Appendix IV	Antimony		U	mg/l	Non-Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T		0.006	Primary MCL	N	1_2_101
Comanche	W-1	Downgradient	3/5/2020	2020_03		Appendix IV	Arsenic	0.017		mg/l	Detect Value	0.005	0.00075	mg/l	7440-38-2	TRG	T		0.01	Primary MCL	N	1_2_102
Comanche	W-1	Downgradient	9/4/2020	2020_09_R1		Appendix IV	Arsenic	0.013		mg/l	Detect Value	0.005	0.00075	mg/l	7440-38-2	TRG	T		0.01	Primary MCL	N	1_2_102
Comanche	W-1	Downgradient	9/9/2020	2020_09_R2		Appendix IV	Arsenic	0.0098		mg/l	Detect Value	0.005	0.00075	mg/l	7440-38-2	TRG	T		0.01	Primary MCL	N	1_2_102
Comanche	W-1	Downgradient	10/2/2020	2020_09_R3		Appendix IV	Arsenic	0.01		mg/l	Detect Value	0.005	0.00075	mg/l	7440-38-2	TRG	T		0.01	Primary MCL	N	1_2_102
Comanche	W-1	Downgradient	10/15/2020	2020_10_R4		Appendix IV	Arsenic	0.0078		mg/l	Detect Value	0.005	0.00075	mg/l	7440-38-2	TRG	T		0.01	Primary MCL	N	1_2_102
Comanche	W-1	Downgradient	10/29/2020	2020_10_R5		Appendix IV	Arsenic	0.0084		mg/l	Detect Value	0.005	0.00075	mg/l	7440-38-2	TRG	T		0.01	Primary MCL	N	1_2_102
Comanche	W-1	Downgradient	11/11/2020	2020_11_R6		Appendix IV	Arsenic	0.0094		mg/l	Detect Value	0.005	0.00075	mg/l	7440-38-2	TRG	T		0.01	Primary MCL	N	1_2_102
Comanche	W-1	Downgradient	11/25/2020	2020_11_R7		Appendix IV	Arsenic	0.0071		mg/l	Detect Value	0.005	0.00075	mg/l	7440-38-2	TRG	T		0.01	Primary MCL	N	1_2_102
Comanche	W-1	Downgradient	12/11/2020	2020_12_R8		Appendix IV	Arsenic	0.01	J	mg/l	Detect Value	0.05	0.0075	mg/l	7440-38-2	TRG	T		0.01	Primary MCL	N	1_2_102
Comanche	W-1	Downgradient	1/14/2021	2021_01		Appendix IV	Arsenic		U	mg/l	Non-Detect Value	0.05	0.0075	mg/l	7440-38-2	TRG	T		0.01	Primary MCL	N	1_2_102
Comanche	W-1	Downgradient	4/19/2021	2021_04		Appendix IV	Arsenic	0.012	J	mg/l	Detect Value	0.025	0.0038	mg/l	7440-38-2	TRG	T		0.01	Primary MCL	N	1_2_102
Comanche	W-1	Downgradient	6/2/2021	2021_06		Appendix IV	Arsenic	0.0072	J+	mg/l	Detect Value	0.025	0.0038	mg/l	7440-38-2	TRG	T		0.01	Primary MCL	N	1_2_102
Comanche	W-1	Downgradient	12/8/2021	2021_12		Appendix IV	Arsenic	0.011	J	mg/l	Detect Value	0.025	0.0038	mg/l	7440-38-2	TRG	T		0.01	Primary MCL	N	1_2_102
Comanche	W-1	Downgradient	1/14/2022	2022_01		Appendix IV	Arsenic		UJ	mg/l	Non-Detect Value	0.008	0.003	mg/l	7440-38-2	TRG	T		0.01	Primary MCL	N	1_2_102
Comanche	W-1	Downgradient	2/25/2022	2022_02		Appendix IV	Arsenic		U	mg/l	Non-Detect Value	0.02	0.0075	mg/l	7440-38-2	TRG	T		0.01	Primary MCL	N	1_2_102
Comanche	W-1	Downgradient	4/5/2022	2022_03		Appendix IV	Arsenic	0.0011	J	mg/l	Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG	T		0.01	Primary MCL	N	1_2_102
Comanche	W-1	Downgradient	5/11/2022	2022_05		Appendix IV	Arsenic	0.0016	J	mg/l	Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG	T		0.01	Primary MCL	N	1_2_102
Comanche	W-1	Downgradient	11/30/2022	2022_11		Appendix IV	Arsenic	0.00077	J+	mg/l	Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG	T		0.01	Primary MCL	N	1_2_102
Comanche	W-1	Downgradient	3/1/2023	2023_02		Appendix IV	Arsenic	0.0014	J	mg/l	Detect Value	0.005	0.0005	mg/l	7440-38-2	TRG	T		0.01	Primary MCL	N	1_2_102
Comanche	W-1	Downgradient	5/3/2023	2023_05		Appendix IV	Arsenic	0.0012	J	mg/l	Detect Value	0.005	0.0005	mg/l	7440-38-2	TRG	T		0.01	Primary MCL	N	1_2_102
Comanche	W-1	Downgradient	3/5/2020	2020_03		Appendix IV	Barium	0.056		mg/l	Detect Value	0.005	0.0022	mg/l	7440-39-3	TRG	T		2	Primary MCL	N	1_2_103
Comanche	W-1	Downgradient	9/4/2020	2020_09_R1		Appendix IV	Barium	0.092		mg/l	Detect Value	0.005	0.0022	mg/l	7440-39-3	TRG	T		2	Primary MCL	N	1_2_103
Comanche	W-1	Downgradient	9/9/2020	2020_09_R2		Appendix IV	Barium	0.065		mg/l	Detect Value	0.005	0.0022	mg/l	7440-39-3	TRG	T		2	Primary MCL	N	1_2_103
Comanche	W-1	Downgradient	10/2/2020	2020_09_R3		Appendix IV	Barium	0.03		mg/l	Detect Value	0.005	0.0022	mg/l	7440-39-3	TRG	T		2	Primary MCL	N	1_2_103
Comanche	W-1	Downgradient	10/15/2020	2020_10_R4		Appendix IV	Barium	0.021		mg/l	Detect Value	0.005	0.0022	mg/l	7440-39-3	TRG	T		2	Primary MCL	N	1_2_103
Comanche	W-1	Downgradient	10/29/2020	2020_10_R5		Appendix IV	Barium	0.021		mg/l	Detect Value	0.005	0.0022	mg/l	7440-39-3	TRG	T		2	Primary MCL	N	1_2_103
Comanche	W-1	Downgradient	11/11/2020	2020_11_R6		Appendix IV	Barium	0.035		mg/l	Detect Value	0.005	0.0022	mg/l	7440-39-3	TRG	T		2	Primary MCL	N	1_2_103
Comanche	W-1	Downgradient	11/25/2020	2020_11_R7		Appendix IV	Barium	0.034		mg/l	Detect Value	0.005	0.0022	mg/l	7440-39-3	TRG	T		2	Primary MCL	N	1_2_103
Comanche	W-1	Downgradient	12/11/2020	2020_12_R8		Appendix IV	Barium		U	mg/l	Non-Detect Value	0.05	0.022	mg/l	7440-39-3	TRG	T		2	Primary MCL	N	1_2_103
Comanche	W-1	Downgradient	1/14/2021	2021_01		Appendix IV	Barium		U	mg/l	Non-Detect Value	0.05	0.022	mg/l	7440-39-3	TRG	T		2	Primary MCL	N	1_2_103
Comanche	W-1	Downgradient	4/19/2021	2021_04		Appendix IV	Barium	0.014	J	mg/l	Detect Value	0.025	0.011	mg/l	7440-39-3	TRG	T		2	Primary MCL	N	1_2_103
Comanche	W-1	Downgradient	6/2/2021	2021_06		Appendix IV	Barium	0.014	J	mg/l	Detect Value	0.025	0.011	mg/l	7440-39-3	TRG	T		2	Primary MCL	N	1_2_103
Comanche	W-1	Downgradient	12/8/2021	2021_12		Appendix IV	Barium	0.013	J	mg/l	Detect Value	0.025	0.011	mg/l	7440-39-3	TRG	T		2	Primary MCL	N	1_2_103
Comanche	W-1	Downgradient	1/14/2022	2022_01		Appendix IV	Barium	0.016		mg/l	Detect Value	0.008	0.0015	mg/l	7440-39-3	TRG	T		2	Primary MCL	N	1_2_103
Comanche	W-1	Downgradient	2/25/2022	2022_02		Appendix IV	Barium	0.015	J	mg/l	Detect Value	0.02	0.0088	mg/l	7440-39-3	TRG	T		2	Primary MCL	N	1_2_103
Comanche	W-1	Downgradient	4/5/2022	2022_03		Appendix IV	Barium		U	mg/l	Non-Detect Value	0.04	0.018	mg/l	7440-39-3	TRG	T		2	Primary MCL	N	1_2_103
Comanche	W-1	Downgradient	5/11/2022	2022_05		Appendix IV	Barium	0.014		mg/l	Detect Value	0.001	0.00029	mg/l	7440-39-3	TRG	T		2	Primary MCL	N	1_2_103
Comanche	W-1	Downgradient	11/30/2022	2022_11		Appendix IV	Barium	0.015		mg/l	Detect Value	0.001	0.00029	mg/l	7440-39-3	TRG	T		2	Primary MCL	N	1_2_103
Comanche	W-1	Downgradient	3/1/2023	2023_02		Appendix IV	Barium	0.015		mg/l	Detect Value	0.003	0.00038	mg/l	7440-39-3	TRG	T		2	Primary MCL	N	1_2_103
Comanche	W-1	Downgradient	5/3/2023	2023_05		Appendix IV	Barium	0.011		mg/l	Detect Value	0.003	0.00038	mg/l	7440-39-3	TRG	T		2	Primary MCL	N	1_2_103
Comanche	W-1	Downgradient	3/5/2020	2020_03		Appendix IV	Beryllium		U	mg/l	Non-Detect Value	0.001	0.00031	mg/l	7440-41-7	TRG	T		0.004	Primary MCL	N	1_2_104
Comanche	W-1	Downgradient	9/4/2020	2020_09_R1		Appendix IV	Beryllium	0.00041	J	mg/l	Detect Value	0.001	0.00031	mg/l	7440-41-7	TRG	T		0.004	Primary MCL	N	1_2_104
Comanche	W-1	Downgradient	9/9/2020	2020_09_R2		Appendix IV	Beryllium		U	mg/l	Non-Detect Value	0.001	0.00031	mg/l	7440-41-7	TRG	T		0.004	Primary MCL	N	1_2_104
Comanche	W-1	Downgradient	10/2/2020	2020_09_R3		Appendix IV	Beryllium		U	mg/l	Non-Detect Value	0.001	0.00031	mg/l	7440-41-7	TRG	T		0.004	Primary MCL	N	1_2_104
Comanche	W-1	Downgradient	10/15/2020	2020_10_R4		Appendix IV	Beryllium		U	mg/l	Non-Detect Value	0.001	0.00031	mg/l	7440-41-7	TRG	T		0.004	Primary MCL	N	1_2_104
Comanche	W-1	Downgradient	10/29/2020	2020_10_R5		Appendix IV	Beryllium		UJ	mg/l	Non-Detect Value	0.001	0.00031	mg/l	7440-41-7	TRG	T		0.004	Primary MCL	N	1_2_104
Comanche	W-1	Downgradient	11/11/2020	2020_11_R6		Appendix IV	Beryllium		U	mg/l	Non-Detect Value	0.001	0.00031	mg/l	7440-41-7	TRG	T		0.004	Primary MCL	N	1_2_104

Comanche	W-1	Downgradient	11/25/2020	2020_11_R7	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.01	0.0031	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	1_2_104
Comanche	W-1	Downgradient	12/11/2020	2020_12_R8	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.01	0.0031	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	1_2_104
Comanche	W-1	Downgradient	1/14/2021	2021_01	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.01	0.0031	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	1_2_104
Comanche	W-1	Downgradient	4/19/2021	2021_04	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.005	0.0015	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	1_2_104
Comanche	W-1	Downgradient	12/8/2021	2021_12	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.005	0.0031	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	1_2_104
Comanche	W-1	Downgradient	1/14/2022	2022_01	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.004	0.0011	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	1_2_104
Comanche	W-1	Downgradient	2/25/2022	2022_02	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.01	0.0027	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	1_2_104
Comanche	W-1	Downgradient	4/5/2022	2022_03	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.02	0.0054	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	1_2_104
Comanche	W-1	Downgradient	5/11/2022	2022_05	Appendix IV	Beryllium	0.00033 J	mg/l	Detect Value	0.001	8.00E-05	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	1_2_104
Comanche	W-1	Downgradient	11/30/2022	2022_11	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.001	8.00E-05	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	1_2_104
Comanche	W-1	Downgradient	3/1/2023	2023_02	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.001	0.0003	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	1_2_104
Comanche	W-1	Downgradient	5/3/2023	2023_05	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.001	0.0003	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	1_2_104
Comanche	W-1	Downgradient	3/5/2020	2020_03	Appendix IV	Cadmium	U	mg/l	Non-Detect Value	0.001	0.0002	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	1_2_106
Comanche	W-1	Downgradient	9/4/2020	2020_09_R1	Appendix IV	Cadmium	0.00046 J	mg/l	Detect Value	0.001	0.0002	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	1_2_106
Comanche	W-1	Downgradient	9/9/2020	2020_09_R2	Appendix IV	Cadmium	0.00036 J	mg/l	Detect Value	0.001	0.0002	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	1_2_106
Comanche	W-1	Downgradient	10/2/2020	2020_09_R3	Appendix IV	Cadmium	0.00058 J+	mg/l	Detect Value	0.001	0.0002	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	1_2_106
Comanche	W-1	Downgradient	10/15/2020	2020_10_R4	Appendix IV	Cadmium	0.00031 J	mg/l	Detect Value	0.001	0.0002	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	1_2_106
Comanche	W-1	Downgradient	10/29/2020	2020_10_R5	Appendix IV	Cadmium	0.00039 J+	mg/l	Detect Value	0.001	0.0002	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	1_2_106
Comanche	W-1	Downgradient	11/11/2020	2020_11_R6	Appendix IV	Cadmium	0.00038 J+	mg/l	Detect Value	0.001	0.0002	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	1_2_106
Comanche	W-1	Downgradient	11/25/2020	2020_11_R7	Appendix IV	Cadmium	0.0005 J+	mg/l	Detect Value	0.001	0.0002	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	1_2_106
Comanche	W-1	Downgradient	12/11/2020	2020_12_R8	Appendix IV	Cadmium	U	mg/l	Non-Detect Value	0.01	0.002	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	1_2_106
Comanche	W-1	Downgradient	1/14/2021	2021_01	Appendix IV	Cadmium	U	mg/l	Non-Detect Value	0.01	0.002	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	1_2_106
Comanche	W-1	Downgradient	4/19/2021	2021_04	Appendix IV	Cadmium	U	mg/l	Non-Detect Value	0.005	0.00099	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	1_2_106
Comanche	W-1	Downgradient	6/2/2021	2021_06	Appendix IV	Cadmium	U	mg/l	Non-Detect Value	0.005	0.00099	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	1_2_106
Comanche	W-1	Downgradient	12/8/2021	2021_12	Appendix IV	Cadmium	U	mg/l	Non-Detect Value	0.005	0.00099	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	1_2_106
Comanche	W-1	Downgradient	1/14/2022	2022_01	Appendix IV	Cadmium	0.00041 J	mg/l	Detect Value	0.0004	0.0002	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	1_2_106
Comanche	W-1	Downgradient	2/25/2022	2022_02	Appendix IV	Cadmium	U	mg/l	Non-Detect Value	0.001	0.00055	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	1_2_106
Comanche	W-1	Downgradient	4/5/2022	2022_03	Appendix IV	Cadmium	U	mg/l	Non-Detect Value	0.002	0.0011	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	1_2_106
Comanche	W-1	Downgradient	5/11/2022	2022_05	Appendix IV	Cadmium	U	mg/l	Non-Detect Value	0.005	0.0013	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	1_2_106
Comanche	W-1	Downgradient	11/30/2022	2022_11	Appendix IV	Cadmium	0.0006 J+	mg/l	Detect Value	0.001	0.00027	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	1_2_106
Comanche	W-1	Downgradient	3/1/2023	2023_02	Appendix IV	Cadmium	0.00047 J	mg/l	Detect Value	0.001	0.00019	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	1_2_106
Comanche	W-1	Downgradient	5/3/2023	2023_05	Appendix IV	Cadmium	0.00034 J	mg/l	Detect Value	0.001	0.00019	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	1_2_106
Comanche	W-1	Downgradient	3/5/2020	2020_03	Appendix IV	Chromium, Total	0.01	mg/l	Detect Value	0.002	0.00098	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	1_2_109
Comanche	W-1	Downgradient	9/4/2020	2020_09_R1	Appendix IV	Chromium, Total	0.02 J+	mg/l	Detect Value	0.002	0.00098	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	1_2_109
Comanche	W-1	Downgradient	9/9/2020	2020_09_R2	Appendix IV	Chromium, Total	0.0034	mg/l	Detect Value	0.002	0.00098	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	1_2_109
Comanche	W-1	Downgradient	10/2/2020	2020_09_R3	Appendix IV	Chromium, Total	0.0018 J	mg/l	Detect Value	0.002	0.00098	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	1_2_109
Comanche	W-1	Downgradient	10/15/2020	2020_10_R4	Appendix IV	Chromium, Total	0.0017 J	mg/l	Detect Value	0.002	0.00098	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	1_2_109
Comanche	W-1	Downgradient	10/29/2020	2020_10_R5	Appendix IV	Chromium, Total	0.0034	mg/l	Detect Value	0.002	0.00098	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	1_2_109
Comanche	W-1	Downgradient	11/11/2020	2020_11_R6	Appendix IV	Chromium, Total	0.0041	mg/l	Detect Value	0.002	0.00098	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	1_2_109
Comanche	W-1	Downgradient	11/25/2020	2020_11_R7	Appendix IV	Chromium, Total	U	mg/l	Non-Detect Value	0.02	0.0098	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	1_2_109
Comanche	W-1	Downgradient	12/11/2020	2020_12_R8	Appendix IV	Chromium, Total	U	mg/l	Non-Detect Value	0.02	0.0098	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	1_2_109
Comanche	W-1	Downgradient	1/14/2021	2021_01	Appendix IV	Chromium, Total	U	mg/l	Non-Detect Value	0.01	0.0049	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	1_2_109
Comanche	W-1	Downgradient	4/19/2021	2021_04	Appendix IV	Chromium, Total	U	mg/l	Non-Detect Value	0.01	0.0049	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	1_2_109
Comanche	W-1	Downgradient	6/2/2021	2021_06	Appendix IV	Chromium, Total	U	mg/l	Non-Detect Value	0.012	0.012	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	1_2_109
Comanche	W-1	Downgradient	12/8/2021	2021_12	Appendix IV	Chromium, Total	U	mg/l	Non-Detect Value	0.02	0.0044	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	1_2_109
Comanche	W-1	Downgradient	1/14/2022	2022_01	Appendix IV	Chromium, Total	UJ	mg/l	Non-Detect Value	0.05	0.011	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	1_2_109
Comanche	W-1	Downgradient	2/25/2022	2022_02	Appendix IV	Chromium, Total	U	mg/l	Non-Detect Value	0.1	0.022	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	1_2_109
Comanche	W-1	Downgradient	4/5/2022	2022_03	Appendix IV	Chromium, Total	U	mg/l	Non-Detect Value	0.002	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	1_2_109
Comanche	W-1	Downgradient	5/11/2022	2022_05	Appendix IV	Chromium, Total	0.001 J	mg/l	Detect Value	0.002	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	1_2_109
Comanche	W-1	Downgradient	11/30/2022	2022_11	Appendix IV	Chromium, Total	0.003	mg/l	Detect Value	0.002	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	1_2_109
Comanche	W-1	Downgradient	3/1/2023	2023_02	Appendix IV	Chromium, Total	0.0025 J	mg/l	Detect Value	0.003	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	1_2_109
Comanche	W-1	Downgradient	5/3/2023	2023_05	Appendix IV	Chromium, Total	0.00095 J	mg/l	Detect Value	0.003	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	1_2_109
Comanche	W-1	Downgradient	3/5/2020	2020_03	Appendix IV	Cobalt	0.0036	mg/l	Detect Value	0.001	0.00019	mg/l	7440-48-4	TRG	T		None	N	1_2_110
Comanche	W-1	Downgradient	9/4/2020	2020_09_R1	Appendix IV	Cobalt	0.0034	mg/l	Detect Value	0.001	0.00019	mg/l	7440-48-4	TRG	T		None	N	1_2_110
Comanche	W-1	Downgradient	9/9/2020	2020_09_R2	Appendix IV	Cobalt	0.0029	mg/l	Detect Value	0.001	0.00019	mg/l	7440-48-4	TRG	T		None	N	1_2_110
Comanche	W-1	Downgradient	10/2/2020	2020_09_R3	Appendix IV	Cobalt	0.0017	mg/l	Detect Value	0.001	0.00019	mg/l	7440-48-4	TRG	T		None	N	1_2_110
Comanche	W-1	Downgradient	10/15/2020	2020_10_R4	Appendix IV	Cobalt	0.0012	mg/l	Detect Value	0.001	0.00019	mg/l	7440-48-4	TRG	T		None	N	1_2_110
Comanche	W-1	Downgradient	10/29/2020	2020_10_R5	Appendix IV	Cobalt	0.0014	mg/l	Detect Value	0.001	0.00019	mg/l	7440-48-4	TRG	T		None	N	1_2_110
Comanche	W-1	Downgradient	11/11/2020	2020_11_R6	Appendix IV	Cobalt	0.0019	mg/l	Detect Value	0.001	0.00019	mg/l	7440-48-4	TRG	T		None	N	1_2_110
Comanche	W-1	Downgradient	11/25/2020	2020_11_R7	Appendix IV	Cobalt	0.0018	mg/l	Detect Value	0.001	0.00019	mg/l	7440-48-4	TRG	T		None	N	1_2_110
Comanche	W-1	Downgradient	12/11/2020	2020_12_R8	Appendix IV	Cobalt	U	mg/l	Non-Detect Value	0.01	0.0019	mg/l	7440-48-4	TRG	T		None	N	1_2_110
Comanche	W-1	Downgradient	1/14/2021	2021_01	Appendix IV	Cobalt	U	mg/l	Non-Detect Value	0.01	0.0019	mg/l	7440-48-4	TRG	T		None	N	1_2_110
Comanche	W-1	Downgradient	4/19/2021	2021_04	Appendix IV	Cobalt	U	mg/l	Non-Detect Value	0.005	0.00095	mg/l	7440-48-4	TRG	T		None	N	1_2_110
Comanche	W-1	Downgradient	6/2/2021	2021_06	Appendix IV	Cobalt	0.0011 J	mg/l	Detect Value	0.005	0.00095	mg/l	7440-48-4	TRG	T		None	N	1_2_110
Comanche	W-1	Downgradient	12/8/2021	2021_12	Appendix IV	Cobalt	U	mg/l	Non-Detect Value	0.005	0.00095	mg/l	7440-48-4	TRG	T		None	N	1_2_110
Comanche	W-1	Downgradient	1/14/2022	2022_01	Appendix IV	Cobalt	U	mg/l	Non-Detect Value	0.002	0.00076	mg/l	7440-48-4	TRG	T		None	N	1_2_110
Comanche	W-1	Downgradient	2/25/2022	2022_02	Appendix IV	Cobalt	U	mg/l	Non-Detect Value	0.005	0.0019	mg/l	7440-48-4	TRG	T		None	N	1_2_110
Comanche	W-1	Downgradient	4/5/2022	2022_03	Appendix IV	Cobalt	U	mg/l	Non-Detect Value	0.01	0.0038	mg/l	7440-48-4	TRG	T		None	N	1_2_110

Comanche	W-1	Downgradient	5/11/2022	2022_05	Appendix IV	Cobalt	0.00039	J	mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG	T	None	N	1_2_110
Comanche	W-1	Downgradient	11/30/2022	2022_11	Appendix IV	Cobalt	0.0018		mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG	T	None	N	1_2_110
Comanche	W-1	Downgradient	3/1/2023	2023_02	Appendix IV	Cobalt	0.00043	J	mg/l	Detect Value	0.001	0.00033	mg/l	7440-48-4	TRG	T	None	N	1_2_110
Comanche	W-1	Downgradient	5/3/2023	2023_05	Appendix IV	Cobalt	U		mg/l	Non-Detect Value	0.001	0.00033	mg/l	7440-48-4	TRG	T	None	N	1_2_110
Comanche	W-1	Downgradient	3/5/2020	2020_03	Appendix IV	Fluoride (App IV)	46		mg/l	Detect Value	2.5	0.83	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	1_2_112
Comanche	W-1	Downgradient	9/4/2020	2020_09_R1	Appendix IV	Fluoride (App IV)	28		mg/l	Detect Value	5	1.7	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	1_2_112
Comanche	W-1	Downgradient	9/9/2020	2020_09_R2	Appendix IV	Fluoride (App IV)	28		mg/l	Detect Value	5	1.7	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	1_2_112
Comanche	W-1	Downgradient	10/2/2020	2020_09_R3	Appendix IV	Fluoride (App IV)	18		mg/l	Detect Value	5	1.7	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	1_2_112
Comanche	W-1	Downgradient	10/15/2020	2020_10_R4	Appendix IV	Fluoride (App IV)	41		mg/l	Detect Value	5	1.7	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	1_2_112
Comanche	W-1	Downgradient	10/29/2020	2020_10_R5	Appendix IV	Fluoride (App IV)	3.1		mg/l	Detect Value	2.5	0.83	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	1_2_112
Comanche	W-1	Downgradient	11/11/2020	2020_11_R6	Appendix IV	Fluoride (App IV)	3.3	J	mg/l	Detect Value	5	1.7	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	1_2_112
Comanche	W-1	Downgradient	11/25/2020	2020_11_R7	Appendix IV	Fluoride (App IV)	3.2	J	mg/l	Detect Value	5	1.7	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	1_2_112
Comanche	W-1	Downgradient	12/11/2020	2020_12_R8	Appendix IV	Fluoride (App IV)	3.2	J	mg/l	Detect Value	5	1.7	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	1_2_112
Comanche	W-1	Downgradient	1/14/2021	2021_01	Appendix IV	Fluoride (App IV)	3.1	J	mg/l	Detect Value	5	1.7	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	1_2_112
Comanche	W-1	Downgradient	4/19/2021	2021_04	Appendix IV	Fluoride (App IV)	2.9		mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	1_2_112
Comanche	W-1	Downgradient	6/2/2021	2021_06	Appendix IV	Fluoride (App IV)	U		mg/l	Non-Detect Value	5	1.7	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	1_2_112
Comanche	W-1	Downgradient	12/8/2021	2021_12	Appendix IV	Fluoride (App IV)	2.9	J	mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	1_2_112
Comanche	W-1	Downgradient	1/14/2022	2022_01	Appendix IV	Fluoride (App IV)	49		mg/l	Detect Value	2.5	0.83	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	1_2_112
Comanche	W-1	Downgradient	2/25/2022	2022_02	Appendix IV	Fluoride (App IV)	2.7		mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	1_2_112
Comanche	W-1	Downgradient	4/5/2022	2022_03	Appendix IV	Fluoride (App IV)	41		mg/l	Detect Value	5	1.7	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	1_2_112
Comanche	W-1	Downgradient	5/11/2022	2022_05	Appendix IV	Fluoride (App IV)	44		mg/l	Detect Value	5	1.7	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	1_2_112
Comanche	W-1	Downgradient	11/30/2022	2022_11	Appendix IV	Fluoride (App IV)	96		mg/l	Detect Value	50	17	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	1_2_112
Comanche	W-1	Downgradient	2/21/2023	2023_02	Appendix IV	Fluoride (App IV)	2.8		mg/l	Detect Value	2.5	0.83	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	1_2_112
Comanche	W-1	Downgradient	5/3/2023	2023_05	Appendix IV	Fluoride (App IV)	8.2		mg/l	Detect Value	5	1.7	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	1_2_112
Comanche	W-1	Downgradient	3/5/2020	2020_03	Appendix IV	Lead	U		mg/l	Non-Detect Value	0.001	0.00045	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	1_2_113
Comanche	W-1	Downgradient	9/4/2020	2020_09_R1	Appendix IV	Lead	0.0064		mg/l	Detect Value	0.001	0.00045	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	1_2_113
Comanche	W-1	Downgradient	9/9/2020	2020_09_R2	Appendix IV	Lead	0.0036		mg/l	Detect Value	0.001	0.00045	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	1_2_113
Comanche	W-1	Downgradient	10/2/2020	2020_09_R3	Appendix IV	Lead	0.0018		mg/l	Detect Value	0.001	0.00045	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	1_2_113
Comanche	W-1	Downgradient	10/15/2020	2020_10_R4	Appendix IV	Lead	0.00058	J	mg/l	Detect Value	0.001	0.00045	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	1_2_113
Comanche	W-1	Downgradient	10/29/2020	2020_10_R5	Appendix IV	Lead	0.00098	J	mg/l	Detect Value	0.001	0.00045	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	1_2_113
Comanche	W-1	Downgradient	11/11/2020	2020_11_R6	Appendix IV	Lead	0.0014		mg/l	Detect Value	0.001	0.00045	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	1_2_113
Comanche	W-1	Downgradient	11/25/2020	2020_11_R7	Appendix IV	Lead	0.0016		mg/l	Detect Value	0.001	0.00045	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	1_2_113
Comanche	W-1	Downgradient	12/11/2020	2020_12_R8	Appendix IV	Lead	U		mg/l	Non-Detect Value	0.01	0.0045	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	1_2_113
Comanche	W-1	Downgradient	1/14/2021	2021_01	Appendix IV	Lead	U		mg/l	Non-Detect Value	0.01	0.0045	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	1_2_113
Comanche	W-1	Downgradient	4/19/2021	2021_04	Appendix IV	Lead	U		mg/l	Non-Detect Value	0.005	0.0023	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	1_2_113
Comanche	W-1	Downgradient	6/2/2021	2021_06	Appendix IV	Lead	U		mg/l	Non-Detect Value	0.005	0.0023	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	1_2_113
Comanche	W-1	Downgradient	12/8/2021	2021_12	Appendix IV	Lead	U		mg/l	Non-Detect Value	0.005	0.0023	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	1_2_113
Comanche	W-1	Downgradient	1/14/2022	2022_01	Appendix IV	Lead	U		mg/l	Non-Detect Value	0.002	0.00084	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	1_2_113
Comanche	W-1	Downgradient	2/25/2022	2022_02	Appendix IV	Lead	U		mg/l	Non-Detect Value	0.005	0.0024	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	1_2_113
Comanche	W-1	Downgradient	4/5/2022	2022_03	Appendix IV	Lead	U		mg/l	Non-Detect Value	0.01	0.0048	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	1_2_113
Comanche	W-1	Downgradient	5/11/2022	2022_05	Appendix IV	Lead	0.0003	J	mg/l	Detect Value	0.001	0.00018	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	1_2_113
Comanche	W-1	Downgradient	11/30/2022	2022_11	Appendix IV	Lead	0.0014		mg/l	Detect Value	0.001	0.00018	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	1_2_113
Comanche	W-1	Downgradient	3/1/2023	2023_02	Appendix IV	Lead	0.00028	J	mg/l	Detect Value	0.001	0.00023	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	1_2_113
Comanche	W-1	Downgradient	5/3/2023	2023_05	Appendix IV	Lead	0.0004	J	mg/l	Detect Value	0.001	0.00023	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	1_2_113
Comanche	W-1	Downgradient	3/5/2020	2020_03	Appendix IV	Lithium	2.4		mg/l	Detect Value	0.08	0.017	mg/l	7439-93-2	TRG	T	None	N	1_2_114
Comanche	W-1	Downgradient	9/4/2020	2020_09_R1	Appendix IV	Lithium	1.7		mg/l	Detect Value	0.008	0.0017	mg/l	7439-93-2	TRG	T	None	N	1_2_114
Comanche	W-1	Downgradient	9/9/2020	2020_09_R2	Appendix IV	Lithium	1.7		mg/l	Detect Value	0.008	0.0017	mg/l	7439-93-2	TRG	T	None	N	1_2_114
Comanche	W-1	Downgradient	10/2/2020	2020_09_R3	Appendix IV	Lithium	2.2		mg/l	Detect Value	0.08	0.017	mg/l	7439-93-2	TRG	T	None	N	1_2_114
Comanche	W-1	Downgradient	10/15/2020	2020_10_R4	Appendix IV	Lithium	2.1		mg/l	Detect Value	0.04	0.0083	mg/l	7439-93-2	TRG	T	None	N	1_2_114
Comanche	W-1	Downgradient	10/29/2020	2020_10_R5	Appendix IV	Lithium	2		mg/l	Detect Value	0.08	0.017	mg/l	7439-93-2	TRG	T	None	N	1_2_114
Comanche	W-1	Downgradient	11/11/2020	2020_11_R6	Appendix IV	Lithium	2.2		mg/l	Detect Value	0.08	0.017	mg/l	7439-93-2	TRG	T	None	N	1_2_114
Comanche	W-1	Downgradient	11/25/2020	2020_11_R7	Appendix IV	Lithium	2.1		mg/l	Detect Value	0.08	0.017	mg/l	7439-93-2	TRG	T	None	N	1_2_114
Comanche	W-1	Downgradient	12/11/2020	2020_12_R8	Appendix IV	Lithium	2		mg/l	Detect Value	0.08	0.017	mg/l	7439-93-2	TRG	T	None	N	1_2_114
Comanche	W-1	Downgradient	1/14/2021	2021_01	Appendix IV	Lithium	2.1		mg/l	Detect Value	0.08	0.017	mg/l	7439-93-2	TRG	T	None	N	1_2_114
Comanche	W-1	Downgradient	4/19/2021	2021_04	Appendix IV	Lithium	2.1		mg/l	Detect Value	0.04	0.0083	mg/l	7439-93-2	TRG	T	None	N	1_2_114
Comanche	W-1	Downgradient	6/2/2021	2021_06	Appendix IV	Lithium	2.2		mg/l	Detect Value	0.04	0.0083	mg/l	7439-93-2	TRG	T	None	N	1_2_114
Comanche	W-1	Downgradient	12/8/2021	2021_12	Appendix IV	Lithium	1.8	J+	mg/l	Detect Value	0.04	0.0083	mg/l	7439-93-2	TRG	T	None	N	1_2_114
Comanche	W-1	Downgradient	1/14/2022	2022_01	Appendix IV	Lithium	2.3	J	mg/l	Detect Value	0.04	0.01	mg/l	7439-93-2	TRG	T	None	N	1_2_114
Comanche	W-1	Downgradient	2/25/2022	2022_02	Appendix IV	Lithium	2.5	J-	mg/l	Detect Value	0.1	0.025	mg/l	7439-93-2	TRG	T	None	N	1_2_114
Comanche	W-1	Downgradient	4/5/2022	2022_03	Appendix IV	Lithium	2.3		mg/l	Detect Value	0.2	0.05	mg/l	7439-93-2	TRG	T	None	N	1_2_114
Comanche	W-1	Downgradient	5/11/2022	2022_05	Appendix IV	Lithium	2.4		mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T	None	N	1_2_114
Comanche	W-1	Downgradient	11/30/2022	2022_11	Appendix IV	Lithium	2.2		mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T	None	N	1_2_114
Comanche	W-1	Downgradient	3/1/2023	2023_02	Appendix IV	Lithium	2		mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T	None	N	1_2_114
Comanche	W-1	Downgradient	5/3/2023	2023_05	Appendix IV	Lithium	2.4		mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T	None	N	1_2_114
Comanche	W-1	Downgradient	3/5/2020	2020_03	Appendix IV	Mercury	U		mg/l	Non-Detect Value	0.0002	0.00013	mg/l	7439-97-6	TRG	T	0.002 Primary MCL	N	1_2_115
Comanche	W-1	Downgradient	9/4/2020	2020_09_R1	Appendix IV	Mercury	UJ		mg/l	Non-Detect Value	0.0002	0.00013	mg/l	7439-97-6	TRG	T	0.002 Primary MCL	N	1_2_115
Comanche	W-1	Downgradient	9/9/2020	2020_09_R2	Appendix IV	Mercury	UJ		mg/l	Non-Detect Value	0.0002	0.00013	mg/l	7439-97-6	TRG	T	0.002 Primary MCL	N	1_2_115
Comanche	W-1	Downgradient	10/2/2020	2020_09_R3	Appendix IV	Mercury	U		mg/l	Non-Detect Value	0.0002	0.00013	mg/l	7439-97-6	TRG	T	0.002 Primary MCL	N	1_2_115

Comanche	W-1	Downgradient	10/15/2020	2020_10_R4	Appendix IV	Mercury	UJ	mg/l	Non-Detect Value	0.0002	0.00013	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	1_2_115
Comanche	W-1	Downgradient	10/29/2020	2020_10_R5	Appendix IV	Mercury	UJ	mg/l	Non-Detect Value	0.0002	0.00013	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	1_2_115
Comanche	W-1	Downgradient	11/11/2020	2020_11_R6	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	0.00013	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	1_2_115
Comanche	W-1	Downgradient	11/25/2020	2020_11_R7	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	0.00013	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	1_2_115
Comanche	W-1	Downgradient	12/11/2020	2020_12_R8	Appendix IV	Mercury	UJ	mg/l	Non-Detect Value	0.0002	0.00013	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	1_2_115
Comanche	W-1	Downgradient	1/14/2021	2021_01	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.002	0.0013	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	1_2_115
Comanche	W-1	Downgradient	4/19/2021	2021_04	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	0.00013	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	1_2_115
Comanche	W-1	Downgradient	12/8/2021	2021_12	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	0.00013	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	1_2_115
Comanche	W-1	Downgradient	1/14/2022	2022_01	Appendix IV	Mercury	UJ	mg/l	Non-Detect Value	0.0002	0.00015	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	1_2_115
Comanche	W-1	Downgradient	2/25/2022	2022_02	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	0.00011	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	1_2_115
Comanche	W-1	Downgradient	4/5/2022	2022_03	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	0.00011	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	1_2_115
Comanche	W-1	Downgradient	5/11/2022	2022_05	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	1_2_115
Comanche	W-1	Downgradient	11/30/2022	2022_11	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	1_2_115
Comanche	W-1	Downgradient	3/1/2023	2023_02	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	1_2_115
Comanche	W-1	Downgradient	5/3/2023	2023_05	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	1_2_115
Comanche	W-1	Downgradient	3/5/2020	2020_03	Appendix IV	Molybdenum	0.028	mg/l	Detect Value	0.01	0.0011	mg/l	7439-98-7	TRG	T		None	N	1_2_116
Comanche	W-1	Downgradient	9/4/2020	2020_09_R1	Appendix IV	Molybdenum	0.027	mg/l	Detect Value	0.01	0.0011	mg/l	7439-98-7	TRG	T		None	N	1_2_116
Comanche	W-1	Downgradient	9/9/2020	2020_09_R2	Appendix IV	Molybdenum	0.029	mg/l	Detect Value	0.01	0.0011	mg/l	7439-98-7	TRG	T		None	N	1_2_116
Comanche	W-1	Downgradient	10/2/2020	2020_09_R3	Appendix IV	Molybdenum	0.027	mg/l	Detect Value	0.01	0.0011	mg/l	7439-98-7	TRG	T		None	N	1_2_116
Comanche	W-1	Downgradient	10/15/2020	2020_10_R4	Appendix IV	Molybdenum	0.02	mg/l	Detect Value	0.01	0.0011	mg/l	7439-98-7	TRG	T		None	N	1_2_116
Comanche	W-1	Downgradient	10/29/2020	2020_10_R5	Appendix IV	Molybdenum	0.019	mg/l	Detect Value	0.01	0.0011	mg/l	7439-98-7	TRG	T		None	N	1_2_116
Comanche	W-1	Downgradient	11/11/2020	2020_11_R6	Appendix IV	Molybdenum	0.018	mg/l	Detect Value	0.01	0.0011	mg/l	7439-98-7	TRG	T		None	N	1_2_116
Comanche	W-1	Downgradient	11/25/2020	2020_11_R7	Appendix IV	Molybdenum	0.016	mg/l	Detect Value	0.01	0.0011	mg/l	7439-98-7	TRG	T		None	N	1_2_116
Comanche	W-1	Downgradient	12/11/2020	2020_12_R8	Appendix IV	Molybdenum	0.019 J	mg/l	Detect Value	0.1	0.011	mg/l	7439-98-7	TRG	T		None	N	1_2_116
Comanche	W-1	Downgradient	1/14/2021	2021_01	Appendix IV	Molybdenum	0.021 J	mg/l	Detect Value	0.1	0.011	mg/l	7439-98-7	TRG	T		None	N	1_2_116
Comanche	W-1	Downgradient	4/19/2021	2021_04	Appendix IV	Molybdenum	0.021 J	mg/l	Detect Value	0.05	0.0054	mg/l	7439-98-7	TRG	T		None	N	1_2_116
Comanche	W-1	Downgradient	6/2/2021	2021_06	Appendix IV	Molybdenum	0.019 J	mg/l	Detect Value	0.05	0.0054	mg/l	7439-98-7	TRG	T		None	N	1_2_116
Comanche	W-1	Downgradient	12/8/2021	2021_12	Appendix IV	Molybdenum	0.023 J	mg/l	Detect Value	0.05	0.0054	mg/l	7439-98-7	TRG	T		None	N	1_2_116
Comanche	W-1	Downgradient	1/14/2022	2022_01	Appendix IV	Molybdenum	0.015	mg/l	Detect Value	0.008	0.0052	mg/l	7439-98-7	TRG	T		None	N	1_2_116
Comanche	W-1	Downgradient	2/25/2022	2022_02	Appendix IV	Molybdenum	0.018 J	mg/l	Detect Value	0.02	0.012	mg/l	7439-98-7	TRG	T		None	N	1_2_116
Comanche	W-1	Downgradient	4/5/2022	2022_03	Appendix IV	Molybdenum	U	mg/l	Non-Detect Value	0.04	0.024	mg/l	7439-98-7	TRG	T		None	N	1_2_116
Comanche	W-1	Downgradient	5/11/2022	2022_05	Appendix IV	Molybdenum	0.016 J+	mg/l	Detect Value	0.002	0.00014	mg/l	7439-98-7	TRG	T		None	N	1_2_116
Comanche	W-1	Downgradient	11/30/2022	2022_11	Appendix IV	Molybdenum	0.014	mg/l	Detect Value	0.002	0.00014	mg/l	7439-98-7	TRG	T		None	N	1_2_116
Comanche	W-1	Downgradient	3/1/2023	2023_02	Appendix IV	Molybdenum	0.027	mg/l	Detect Value	0.002	0.00037	mg/l	7439-98-7	TRG	T		None	N	1_2_116
Comanche	W-1	Downgradient	5/3/2023	2023_05	Appendix IV	Molybdenum	0.02 J+	mg/l	Detect Value	0.002	0.00037	mg/l	7439-98-7	TRG	T		None	N	1_2_116
Comanche	W-1	Downgradient	3/24/2020	2020_03	Appendix IV	Radium-226+228	2.02	pci/l	Detect Value	5	0.679	pci/l		425 TRG	T			N	1_2_120
Comanche	W-1	Downgradient	9/4/2020	2020_09_R1	Appendix IV	Radium-226+228	1.59	pci/l	Detect Value	5	0.8	pci/l		425 TRG	T			N	1_2_120
Comanche	W-1	Downgradient	9/9/2020	2020_09_R2	Appendix IV	Radium-226+228	4.75 J+	pci/l	Detect Value	5	0.874	pci/l		425 TRG	T			N	1_2_120
Comanche	W-1	Downgradient	10/2/2020	2020_09_R3	Appendix IV	Radium-226+228	2.8	pci/l	Detect Value	5	1.1	pci/l		425 TRG	T			N	1_2_120
Comanche	W-1	Downgradient	10/15/2020	2020_10_R4	Appendix IV	Radium-226+228	2.04	pci/l	Detect Value	5	0.628	pci/l		425 TRG	T			N	1_2_120
Comanche	W-1	Downgradient	10/29/2020	2020_10_R5	Appendix IV	Radium-226+228	1.97	pci/l	Detect Value	5	0.612	pci/l		425 TRG	T			N	1_2_120
Comanche	W-1	Downgradient	11/11/2020	2020_11_R6	Appendix IV	Radium-226+228	1.11 J	pci/l	Detect Value	5	0.26	pci/l		425 TRG	T			N	1_2_120
Comanche	W-1	Downgradient	11/25/2020	2020_11_R7	Appendix IV	Radium-226+228	1.62	pci/l	Detect Value	5	0.691	pci/l		425 TRG	T			N	1_2_120
Comanche	W-1	Downgradient	12/11/2020	2020_12_R8	Appendix IV	Radium-226+228	2.19	pci/l	Detect Value	5	0.648	pci/l		425 TRG	T			N	1_2_120
Comanche	W-1	Downgradient	1/14/2021	2021_01	Appendix IV	Radium-226+228	0.899	pci/l	Detect Value	5	0.589	pci/l		425 TRG	T			N	1_2_120
Comanche	W-1	Downgradient	4/19/2021	2021_04	Appendix IV	Radium-226+228	1.91	pci/l	Detect Value	5	0.57	pci/l		425 TRG	T			N	1_2_120
Comanche	W-1	Downgradient	6/2/2021	2021_06	Appendix IV	Radium-226+228	2.5	pci/l	Detect Value	5	0.67	pci/l		425 TRG	T			N	1_2_120
Comanche	W-1	Downgradient	12/8/2021	2021_12	Appendix IV	Radium-226+228	4.82	pci/l	Detect Value	5	0.759	pci/l		425 TRG	T			N	1_2_120
Comanche	W-1	Downgradient	1/14/2022	2022_01	Appendix IV	Radium-226+228	1.42	pci/l	Detect Value	5	0.502	pci/l		425 TRG	T			N	1_2_120
Comanche	W-1	Downgradient	2/25/2022	2022_02	Appendix IV	Radium-226+228	1.53	pci/l	Detect Value	5	0.586	pci/l		425 TRG	T			N	1_2_120
Comanche	W-1	Downgradient	4/5/2022	2022_03	Appendix IV	Radium-226+228	2.53 J	pci/l	Detect Value	5	0.559	pci/l		425 TRG	T			N	1_2_120
Comanche	W-1	Downgradient	5/11/2022	2022_05	Appendix IV	Radium-226+228	2.26	pci/l	Detect Value	5	0.915	pci/l		425 TRG	T			N	1_2_120
Comanche	W-1	Downgradient	11/30/2022	2022_11	Appendix IV	Radium-226+228	1.61	pci/l	Detect Value	5	0.622	pci/l		425 TRG	T			N	1_2_120
Comanche	W-1	Downgradient	2/21/2023	2023_02	Appendix IV	Radium-226+228	0.892 U	pci/l	Non-Detect Value	5	0.927	pci/l		425 TRG	T			N	1_2_120
Comanche	W-1	Downgradient	5/3/2023	2023_05	Appendix IV	Radium-226+228	1.37	pci/l	Detect Value	5	0.827	pci/l		425 TRG	T			N	1_2_120
Comanche	W-1	Downgradient	3/5/2020	2020_03	Appendix IV	Selenium	1.6	mg/l	Detect Value	0.005	0.00089	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	1_2_122
Comanche	W-1	Downgradient	9/4/2020	2020_09_R1	Appendix IV	Selenium	1.3	mg/l	Detect Value	0.005	0.00089	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	1_2_122
Comanche	W-1	Downgradient	9/9/2020	2020_09_R2	Appendix IV	Selenium	1.2	mg/l	Detect Value	0.005	0.00089	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	1_2_122
Comanche	W-1	Downgradient	10/2/2020	2020_09_R3	Appendix IV	Selenium	0.95	mg/l	Detect Value	0.005	0.00089	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	1_2_122
Comanche	W-1	Downgradient	10/15/2020	2020_10_R4	Appendix IV	Selenium	0.93	mg/l	Detect Value	0.005	0.00089	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	1_2_122
Comanche	W-1	Downgradient	10/29/2020	2020_10_R5	Appendix IV	Selenium	0.84 J	mg/l	Detect Value	0.005	0.00089	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	1_2_122
Comanche	W-1	Downgradient	11/11/2020	2020_11_R6	Appendix IV	Selenium	0.91	mg/l	Detect Value	0.005	0.00089	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	1_2_122
Comanche	W-1	Downgradient	11/25/2020	2020_11_R7	Appendix IV	Selenium	0.78	mg/l	Detect Value	0.005	0.00089	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	1_2_122
Comanche	W-1	Downgradient	12/11/2020	2020_12_R8	Appendix IV	Selenium	0.75	mg/l	Detect Value	0.05	0.0089	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	1_2_122
Comanche	W-1	Downgradient	1/14/2021	2021_01	Appendix IV	Selenium	0.82	mg/l	Detect Value	0.05	0.0089	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	1_2_122
Comanche	W-1	Downgradient	4/19/2021	2021_04	Appendix IV	Selenium	0.74	mg/l	Detect Value	0.025	0.0045	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	1_2_122
Comanche	W-1	Downgradient	6/2/2021	2021_06	Appendix IV	Selenium	0.72	mg/l	Detect Value	0.025	0.0045	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	1_2_122
Comanche	W-1	Downgradient	12/8/2021	2021_12	Appendix IV	Selenium	0.63	mg/l	Detect Value	0.025	0.0045	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	1_2_122

Comanche	W-1	Downgradient	1/14/2022	2022_01	Appendix IV	Selenium	0.87 J	mg/l	Detect Value	0.02	0.0038	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	1_2_122
Comanche	W-1	Downgradient	2/25/2022	2022_02	Appendix IV	Selenium	0.79 J+	mg/l	Detect Value	0.05	0.0096	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	1_2_122
Comanche	W-1	Downgradient	4/5/2022	2022_03	Appendix IV	Selenium	0.75	mg/l	Detect Value	0.1	0.019	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	1_2_122
Comanche	W-1	Downgradient	5/11/2022	2022_05	Appendix IV	Selenium	0.7	mg/l	Detect Value	0.005	0.00037	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	1_2_122
Comanche	W-1	Downgradient	11/30/2022	2022_11	Appendix IV	Selenium	0.57 J	mg/l	Detect Value	0.005	0.00037	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	1_2_122
Comanche	W-1	Downgradient	3/1/2023	2023_02	Appendix IV	Selenium	0.63	mg/l	Detect Value	0.005	0.001	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	1_2_122
Comanche	W-1	Downgradient	5/3/2023	2023_05	Appendix IV	Selenium	0.82	mg/l	Detect Value	0.005	0.001	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	1_2_122
Comanche	W-1	Downgradient	3/5/2020	2020_03	Appendix IV	Thallium	U	mg/l	Non-Detect Value	0.001	0.0002	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	1_2_126
Comanche	W-1	Downgradient	9/4/2020	2020_09_R1	Appendix IV	Thallium	0.00036 J	mg/l	Detect Value	0.001	0.0002	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	1_2_126
Comanche	W-1	Downgradient	9/9/2020	2020_09_R2	Appendix IV	Thallium	0.00033 J	mg/l	Detect Value	0.001	0.0002	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	1_2_126
Comanche	W-1	Downgradient	10/2/2020	2020_09_R3	Appendix IV	Thallium	0.00087 J	mg/l	Detect Value	0.001	0.0002	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	1_2_126
Comanche	W-1	Downgradient	10/15/2020	2020_10_R4	Appendix IV	Thallium	U	mg/l	Non-Detect Value	0.001	0.0002	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	1_2_126
Comanche	W-1	Downgradient	10/29/2020	2020_10_R5	Appendix IV	Thallium	U	mg/l	Non-Detect Value	0.001	0.0002	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	1_2_126
Comanche	W-1	Downgradient	11/11/2020	2020_11_R6	Appendix IV	Thallium	U	mg/l	Non-Detect Value	0.001	0.0002	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	1_2_126
Comanche	W-1	Downgradient	11/25/2020	2020_11_R7	Appendix IV	Thallium	0.00036 J	mg/l	Detect Value	0.001	0.0002	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	1_2_126
Comanche	W-1	Downgradient	12/11/2020	2020_12_R8	Appendix IV	Thallium	U	mg/l	Non-Detect Value	0.01	0.002	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	1_2_126
Comanche	W-1	Downgradient	1/14/2021	2021_01	Appendix IV	Thallium	U	mg/l	Non-Detect Value	0.01	0.002	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	1_2_126
Comanche	W-1	Downgradient	4/19/2021	2021_04	Appendix IV	Thallium	U	mg/l	Non-Detect Value	0.005	0.001	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	1_2_126
Comanche	W-1	Downgradient	6/2/2021	2021_06	Appendix IV	Thallium	U	mg/l	Non-Detect Value	0.005	0.001	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	1_2_126
Comanche	W-1	Downgradient	12/8/2021	2021_12	Appendix IV	Thallium	0.0019 J	mg/l	Detect Value	0.005	0.001	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	1_2_126
Comanche	W-1	Downgradient	1/14/2022	2022_01	Appendix IV	Thallium	U	mg/l	Non-Detect Value	0.004	0.001	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	1_2_126
Comanche	W-1	Downgradient	2/25/2022	2022_02	Appendix IV	Thallium	U	mg/l	Non-Detect Value	0.01	0.0026	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	1_2_126
Comanche	W-1	Downgradient	4/5/2022	2022_03	Appendix IV	Thallium	U	mg/l	Non-Detect Value	0.02	0.0052	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	1_2_126
Comanche	W-1	Downgradient	5/11/2022	2022_05	Appendix IV	Thallium	0.00021 J	mg/l	Detect Value	0.001	8.90E-05	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	1_2_126
Comanche	W-1	Downgradient	11/30/2022	2022_11	Appendix IV	Thallium	0.00035 J	mg/l	Detect Value	0.001	8.90E-05	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	1_2_126
Comanche	W-1	Downgradient	3/1/2023	2023_02	Appendix IV	Thallium	U	mg/l	Non-Detect Value	0.001	0.00021	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	1_2_126
Comanche	W-1	Downgradient	5/3/2023	2023_05	Appendix IV	Thallium	U	mg/l	Non-Detect Value	0.001	0.00021	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	1_2_126
Comanche	W-6B	Downgradient	12/9/2021	2021_12	Appendix IV	Antimony	U	mg/l	Non-Detect Value	0.01	0.0029	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	10_2_101
Comanche	W-6B	Downgradient	1/11/2022	2022_01	Appendix IV	Antimony	U	mg/l	Non-Detect Value	0.008	0.0044	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	10_2_101
Comanche	W-6B	Downgradient	2/24/2022	2022_02	Appendix IV	Antimony	0.0073 J	mg/l	Detect Value	0.02	0.0069	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	10_2_101
Comanche	W-6B	Downgradient	3/30/2022	2022_03	Appendix IV	Antimony	U	mg/l	Non-Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	10_2_101
Comanche	W-6B	Downgradient	5/6/2022	2022_05	Appendix IV	Antimony	0.00053 J	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	10_2_101
Comanche	W-6B	Downgradient	6/8/2022	2022_06	Appendix IV	Antimony	U	mg/l	Non-Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	10_2_101
Comanche	W-6B	Downgradient	8/23/2022	2022_08	Appendix IV	Antimony	0.00099 J	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	10_2_101
Comanche	W-6B	Downgradient	9/29/2022	2022_09	Appendix IV	Antimony	0.00093 J	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	10_2_101
Comanche	W-6B	Downgradient	10/27/2022	2022_11	Appendix IV	Antimony	0.00056 J	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	10_2_101
Comanche	W-6B	Downgradient	2/15/2023	2023_02	Appendix IV	Antimony	0.00066 J	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	10_2_101
Comanche	W-6B	Downgradient	5/3/2023	2023_05	Appendix IV	Antimony	0.00049 J	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	10_2_101
Comanche	W-6B	Downgradient	12/9/2021	2021_12	Appendix IV	Arsenic	U	mg/l	Non-Detect Value	0.025	0.0038	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	10_2_102
Comanche	W-6B	Downgradient	1/11/2022	2022_01	Appendix IV	Arsenic	0.003 J	mg/l	Detect Value	0.008	0.003	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	10_2_102
Comanche	W-6B	Downgradient	2/24/2022	2022_02	Appendix IV	Arsenic	U	mg/l	Non-Detect Value	0.02	0.0075	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	10_2_102
Comanche	W-6B	Downgradient	3/30/2022	2022_03	Appendix IV	Arsenic	0.00033 J	mg/l	Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	10_2_102
Comanche	W-6B	Downgradient	5/6/2022	2022_05	Appendix IV	Arsenic	0.0013 J	mg/l	Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	10_2_102
Comanche	W-6B	Downgradient	6/8/2022	2022_06	Appendix IV	Arsenic	U	mg/l	Non-Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	10_2_102
Comanche	W-6B	Downgradient	8/23/2022	2022_08	Appendix IV	Arsenic	0.0016 J	mg/l	Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	10_2_102
Comanche	W-6B	Downgradient	9/29/2022	2022_09	Appendix IV	Arsenic	0.0017 J	mg/l	Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	10_2_102
Comanche	W-6B	Downgradient	10/27/2022	2022_11	Appendix IV	Arsenic	0.0014 J	mg/l	Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	10_2_102
Comanche	W-6B	Downgradient	2/15/2023	2023_02	Appendix IV	Arsenic	0.0015 J	mg/l	Detect Value	0.005	0.0005	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	10_2_102
Comanche	W-6B	Downgradient	5/3/2023	2023_05	Appendix IV	Arsenic	0.0021 J	mg/l	Detect Value	0.005	0.0005	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	10_2_102
Comanche	W-6B	Downgradient	12/9/2021	2021_12	Appendix IV	Barium	0.018 J	mg/l	Detect Value	0.025	0.011	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	10_2_103
Comanche	W-6B	Downgradient	1/11/2022	2022_01	Appendix IV	Barium	0.016	mg/l	Detect Value	0.008	0.0015	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	10_2_103
Comanche	W-6B	Downgradient	2/24/2022	2022_02	Appendix IV	Barium	0.017 J	mg/l	Detect Value	0.02	0.0088	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	10_2_103
Comanche	W-6B	Downgradient	3/30/2022	2022_03	Appendix IV	Barium	U	mg/l	Non-Detect Value	0.2	0.088	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	10_2_103
Comanche	W-6B	Downgradient	5/6/2022	2022_05	Appendix IV	Barium	0.015	mg/l	Detect Value	0.001	0.00029	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	10_2_103
Comanche	W-6B	Downgradient	6/8/2022	2022_06	Appendix IV	Barium	0.018 J+	mg/l	Detect Value	0.001	0.00029	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	10_2_103
Comanche	W-6B	Downgradient	8/23/2022	2022_08	Appendix IV	Barium	0.024	mg/l	Detect Value	0.001	0.00029	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	10_2_103
Comanche	W-6B	Downgradient	9/29/2022	2022_09	Appendix IV	Barium	0.022	mg/l	Detect Value	0.001	0.00029	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	10_2_103
Comanche	W-6B	Downgradient	10/27/2022	2022_11	Appendix IV	Barium	0.019	mg/l	Detect Value	0.001	0.00029	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	10_2_103
Comanche	W-6B	Downgradient	2/15/2023	2023_02	Appendix IV	Barium	0.02 J+	mg/l	Detect Value	0.003	0.00038	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	10_2_103
Comanche	W-6B	Downgradient	5/3/2023	2023_05	Appendix IV	Barium	0.024	mg/l	Detect Value	0.003	0.00038	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	10_2_103
Comanche	W-6B	Downgradient	12/9/2021	2021_12	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.005	0.0031	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	10_2_104
Comanche	W-6B	Downgradient	1/11/2022	2022_01	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.007	0.0019	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	10_2_104
Comanche	W-6B	Downgradient	2/24/2022	2022_02	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.01	0.0027	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	10_2_104
Comanche	W-6B	Downgradient	3/30/2022	2022_03	Appendix IV	Beryllium	UJ	mg/l	Non-Detect Value	0.1	0.027	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	10_2_104
Comanche	W-6B	Downgradient	5/6/2022	2022_05	Appendix IV	Beryllium	0.00028 J+	mg/l	Detect Value	0.001	8.00E-05	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	10_2_104
Comanche	W-6B	Downgradient	6/8/2022	2022_06	Appendix IV	Beryllium	UJ	mg/l	Non-Detect Value	0.001	8.00E-05	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	10_2_104
Comanche	W-6B	Downgradient	8/23/2022	2022_08	Appendix IV	Beryllium	0.0003 J+	mg/l	Detect Value	0.001	8.00E-05	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	10_2_104
Comanche	W-6B	Downgradient	9/29/2022	2022_09	Appendix IV	Beryllium	0.00028 J+	mg/l	Detect Value	0.001	8.00E-05	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	10_2_104

Comanche	W-6B	Downgradient	10/27/2022	2022_11	Appendix IV	Beryllium	9.10E-05	J+	mg/l	Detect Value	0.001	8.00E-05	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	10_2_104
Comanche	W-6B	Downgradient	2/15/2023	2023_02	Appendix IV	Beryllium	U		mg/l	Non-Detect Value	0.001	0.0003	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	10_2_104
Comanche	W-6B	Downgradient	5/3/2023	2023_05	Appendix IV	Beryllium	U		mg/l	Non-Detect Value	0.001	0.0003	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	10_2_104
Comanche	W-6B	Downgradient	12/9/2021	2021_12	Appendix IV	Cadmium	0.012		mg/l	Detect Value	0.005	0.00099	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	10_2_106
Comanche	W-6B	Downgradient	1/11/2022	2022_01	Appendix IV	Cadmium	0.0085		mg/l	Detect Value	0.0004	0.0002	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	10_2_106
Comanche	W-6B	Downgradient	2/24/2022	2022_02	Appendix IV	Cadmium	0.012		mg/l	Detect Value	0.001	0.00055	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	10_2_106
Comanche	W-6B	Downgradient	3/30/2022	2022_03	Appendix IV	Cadmium	0.01		mg/l	Detect Value	0.01	0.0055	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	10_2_106
Comanche	W-6B	Downgradient	5/6/2022	2022_05	Appendix IV	Cadmium	0.009		mg/l	Detect Value	0.001	0.00027	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	10_2_106
Comanche	W-6B	Downgradient	6/8/2022	2022_06	Appendix IV	Cadmium	0.0089		mg/l	Detect Value	0.001	0.00027	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	10_2_106
Comanche	W-6B	Downgradient	8/23/2022	2022_08	Appendix IV	Cadmium	0.024		mg/l	Detect Value	0.001	0.00027	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	10_2_106
Comanche	W-6B	Downgradient	9/29/2022	2022_09	Appendix IV	Cadmium	0.027		mg/l	Detect Value	0.001	0.00027	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	10_2_106
Comanche	W-6B	Downgradient	10/27/2022	2022_11	Appendix IV	Cadmium	0.026		mg/l	Detect Value	0.001	0.00027	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	10_2_106
Comanche	W-6B	Downgradient	2/15/2023	2023_02	Appendix IV	Cadmium	0.01		mg/l	Detect Value	0.001	0.00019	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	10_2_106
Comanche	W-6B	Downgradient	5/3/2023	2023_05	Appendix IV	Cadmium	0.011	J+	mg/l	Detect Value	0.001	0.00019	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	10_2_106
Comanche	W-6B	Downgradient	12/9/2021	2021_12	Appendix IV	Chromium, Total	U		mg/l	Non-Detect Value	0.012	0.012	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	10_2_109
Comanche	W-6B	Downgradient	1/11/2022	2022_01	Appendix IV	Chromium, Total	U		mg/l	Non-Detect Value	0.02	0.0044	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	10_2_109
Comanche	W-6B	Downgradient	2/24/2022	2022_02	Appendix IV	Chromium, Total	U		mg/l	Non-Detect Value	0.05	0.011	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	10_2_109
Comanche	W-6B	Downgradient	3/30/2022	2022_03	Appendix IV	Chromium, Total	U		mg/l	Non-Detect Value	0.5	0.11	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	10_2_109
Comanche	W-6B	Downgradient	5/6/2022	2022_05	Appendix IV	Chromium, Total	0.00085	J	mg/l	Detect Value	0.002	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	10_2_109
Comanche	W-6B	Downgradient	6/8/2022	2022_06	Appendix IV	Chromium, Total	U		mg/l	Non-Detect Value	0.002	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	10_2_109
Comanche	W-6B	Downgradient	8/23/2022	2022_08	Appendix IV	Chromium, Total	0.0015	J	mg/l	Detect Value	0.002	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	10_2_109
Comanche	W-6B	Downgradient	9/29/2022	2022_09	Appendix IV	Chromium, Total	0.0022		mg/l	Detect Value	0.002	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	10_2_109
Comanche	W-6B	Downgradient	10/27/2022	2022_11	Appendix IV	Chromium, Total	0.0012	J	mg/l	Detect Value	0.002	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	10_2_109
Comanche	W-6B	Downgradient	2/15/2023	2023_02	Appendix IV	Chromium, Total	0.0019	J+	mg/l	Detect Value	0.003	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	10_2_109
Comanche	W-6B	Downgradient	5/3/2023	2023_05	Appendix IV	Chromium, Total	0.0029	J	mg/l	Detect Value	0.003	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	10_2_109
Comanche	W-6B	Downgradient	12/9/2021	2021_12	Appendix IV	Cobalt	0.092		mg/l	Detect Value	0.005	0.00095	mg/l	7440-48-4	TRG	T		None	N	10_2_110
Comanche	W-6B	Downgradient	1/11/2022	2022_01	Appendix IV	Cobalt	0.095		mg/l	Detect Value	0.002	0.00076	mg/l	7440-48-4	TRG	T		None	N	10_2_110
Comanche	W-6B	Downgradient	2/24/2022	2022_02	Appendix IV	Cobalt	0.1		mg/l	Detect Value	0.005	0.0019	mg/l	7440-48-4	TRG	T		None	N	10_2_110
Comanche	W-6B	Downgradient	3/30/2022	2022_03	Appendix IV	Cobalt	0.12		mg/l	Detect Value	0.05	0.019	mg/l	7440-48-4	TRG	T		None	N	10_2_110
Comanche	W-6B	Downgradient	5/6/2022	2022_05	Appendix IV	Cobalt	0.078		mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG	T		None	N	10_2_110
Comanche	W-6B	Downgradient	6/8/2022	2022_06	Appendix IV	Cobalt	0.013		mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG	T		None	N	10_2_110
Comanche	W-6B	Downgradient	8/23/2022	2022_08	Appendix IV	Cobalt	0.11		mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG	T		None	N	10_2_110
Comanche	W-6B	Downgradient	9/29/2022	2022_09	Appendix IV	Cobalt	0.13		mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG	T		None	N	10_2_110
Comanche	W-6B	Downgradient	10/27/2022	2022_11	Appendix IV	Cobalt	0.14		mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG	T		None	N	10_2_110
Comanche	W-6B	Downgradient	2/15/2023	2023_02	Appendix IV	Cobalt	0.11		mg/l	Detect Value	0.001	0.00033	mg/l	7440-48-4	TRG	T		None	N	10_2_110
Comanche	W-6B	Downgradient	5/3/2023	2023_05	Appendix IV	Cobalt	0.06		mg/l	Detect Value	0.001	0.00033	mg/l	7440-48-4	TRG	T		None	N	10_2_110
Comanche	W-6B	Downgradient	12/9/2021	2021_12	Appendix IV	Fluoride (App IV)	UJ		mg/l	Non-Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	10_2_112
Comanche	W-6B	Downgradient	1/11/2022	2022_01	Appendix IV	Fluoride (App IV)	2.5	J	mg/l	Detect Value	5	1.7	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	10_2_112
Comanche	W-6B	Downgradient	2/24/2022	2022_02	Appendix IV	Fluoride (App IV)	U		mg/l	Non-Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	10_2_112
Comanche	W-6B	Downgradient	3/30/2022	2022_03	Appendix IV	Fluoride (App IV)	85		mg/l	Detect Value	5	1.7	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	10_2_112
Comanche	W-6B	Downgradient	5/6/2022	2022_05	Appendix IV	Fluoride (App IV)	U		mg/l	Non-Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	10_2_112
Comanche	W-6B	Downgradient	6/8/2022	2022_06	Appendix IV	Fluoride (App IV)	U		mg/l	Non-Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	10_2_112
Comanche	W-6B	Downgradient	8/23/2022	2022_08	Appendix IV	Fluoride (App IV)	71		mg/l	Detect Value	5	1.7	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	10_2_112
Comanche	W-6B	Downgradient	9/29/2022	2022_09	Appendix IV	Fluoride (App IV)	8.2		mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	10_2_112
Comanche	W-6B	Downgradient	10/27/2022	2022_11	Appendix IV	Fluoride (App IV)	UJ		mg/l	Non-Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	10_2_112
Comanche	W-6B	Downgradient	2/15/2023	2023_02	Appendix IV	Fluoride (App IV)	UJ		mg/l	Non-Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	10_2_112
Comanche	W-6B	Downgradient	5/3/2023	2023_05	Appendix IV	Fluoride (App IV)	U		mg/l	Non-Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	10_2_112
Comanche	W-6B	Downgradient	12/9/2021	2021_12	Appendix IV	Lead	U		mg/l	Non-Detect Value	0.005	0.0023	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	10_2_113
Comanche	W-6B	Downgradient	1/11/2022	2022_01	Appendix IV	Lead	U		mg/l	Non-Detect Value	0.002	0.00084	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	10_2_113
Comanche	W-6B	Downgradient	2/24/2022	2022_02	Appendix IV	Lead	U		mg/l	Non-Detect Value	0.005	0.0024	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	10_2_113
Comanche	W-6B	Downgradient	3/30/2022	2022_03	Appendix IV	Lead	U		mg/l	Non-Detect Value	0.05	0.024	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	10_2_113
Comanche	W-6B	Downgradient	5/6/2022	2022_05	Appendix IV	Lead	0.00034	J	mg/l	Detect Value	0.001	0.00018	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	10_2_113
Comanche	W-6B	Downgradient	6/8/2022	2022_06	Appendix IV	Lead	0.0004	J	mg/l	Detect Value	0.001	0.00018	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	10_2_113
Comanche	W-6B	Downgradient	8/23/2022	2022_08	Appendix IV	Lead	0.00066	J	mg/l	Detect Value	0.001	0.00018	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	10_2_113
Comanche	W-6B	Downgradient	9/29/2022	2022_09	Appendix IV	Lead	0.0012		mg/l	Detect Value	0.001	0.00018	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	10_2_113
Comanche	W-6B	Downgradient	10/27/2022	2022_11	Appendix IV	Lead	0.00049	J	mg/l	Detect Value	0.001	0.00018	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	10_2_113
Comanche	W-6B	Downgradient	2/15/2023	2023_02	Appendix IV	Lead	0.00063	J	mg/l	Detect Value	0.001	0.00023	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	10_2_113
Comanche	W-6B	Downgradient	5/3/2023	2023_05	Appendix IV	Lead	0.0022		mg/l	Detect Value	0.001	0.00023	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	10_2_113
Comanche	W-6B	Downgradient	12/9/2021	2021_12	Appendix IV	Lithium	2.8	J+	mg/l	Detect Value	0.04	0.0083	mg/l	7439-93-2	TRG	T		None	N	10_2_114
Comanche	W-6B	Downgradient	1/11/2022	2022_01	Appendix IV	Lithium	3.5		mg/l	Detect Value	0.04	0.01	mg/l	7439-93-2	TRG	T		None	N	10_2_114
Comanche	W-6B	Downgradient	2/24/2022	2022_02	Appendix IV	Lithium	3.8	J-	mg/l	Detect Value	0.1	0.025	mg/l	7439-93-2	TRG	T		None	N	10_2_114
Comanche	W-6B	Downgradient	3/30/2022	2022_03	Appendix IV	Lithium	4.6		mg/l	Detect Value	1	0.25	mg/l	7439-93-2	TRG	T		None	N	10_2_114
Comanche	W-6B	Downgradient	5/6/2022	2022_05	Appendix IV	Lithium	4.1	J+	mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	10_2_114
Comanche	W-6B	Downgradient	6/8/2022	2022_06	Appendix IV	Lithium	3.8	J+	mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	10_2_114
Comanche	W-6B	Downgradient	8/23/2022	2022_08	Appendix IV	Lithium	3.6		mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	10_2_114
Comanche	W-6B	Downgradient	9/29/2022	2022_09	Appendix IV	Lithium	3.6	J+	mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	10_2_114
Comanche	W-6B	Downgradient	10/27/2022	2022_11	Appendix IV	Lithium	3.6		mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	10_2_114
Comanche	W-6B	Downgradient	2/15/2023	2023_02	Appendix IV	Lithium	3.2		mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	10_2_114

Comanche	W-6B	Downgradient	5/3/2023	2023_05	Appendix IV	Lithium	3.5		mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None		N	10_2_114
Comanche	W-6B	Downgradient	12/9/2021	2021_12	Appendix IV	Mercury	U		mg/l	Non-Detect Value	0.0002	0.00013	mg/l	7439-97-6	TRG	T	0.002	Primary MCL		N	10_2_115
Comanche	W-6B	Downgradient	1/11/2022	2022_01	Appendix IV	Mercury	UJ		mg/l	Non-Detect Value	0.0002	0.00015	mg/l	7439-97-6	TRG	T	0.002	Primary MCL		N	10_2_115
Comanche	W-6B	Downgradient	2/24/2022	2022_02	Appendix IV	Mercury	U		mg/l	Non-Detect Value	0.0002	0.00011	mg/l	7439-97-6	TRG	T	0.002	Primary MCL		N	10_2_115
Comanche	W-6B	Downgradient	3/30/2022	2022_03	Appendix IV	Mercury	U		mg/l	Non-Detect Value	0.0002	0.00011	mg/l	7439-97-6	TRG	T	0.002	Primary MCL		N	10_2_115
Comanche	W-6B	Downgradient	5/6/2022	2022_05	Appendix IV	Mercury	U		mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL		N	10_2_115
Comanche	W-6B	Downgradient	6/8/2022	2022_06	Appendix IV	Mercury	U		mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL		N	10_2_115
Comanche	W-6B	Downgradient	8/23/2022	2022_08	Appendix IV	Mercury	U		mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL		N	10_2_115
Comanche	W-6B	Downgradient	9/29/2022	2022_09	Appendix IV	Mercury	U		mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL		N	10_2_115
Comanche	W-6B	Downgradient	10/27/2022	2022_11	Appendix IV	Mercury	U		mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL		N	10_2_115
Comanche	W-6B	Downgradient	2/15/2023	2023_02	Appendix IV	Mercury	U		mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL		N	10_2_115
Comanche	W-6B	Downgradient	5/3/2023	2023_05	Appendix IV	Mercury	U		mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL		N	10_2_115
Comanche	W-6B	Downgradient	12/9/2021	2021_12	Appendix IV	Molybdenum	0.0065	J	mg/l	Detect Value	0.05	0.0054	mg/l	7439-98-7	TRG	T		None		N	10_2_116
Comanche	W-6B	Downgradient	1/11/2022	2022_01	Appendix IV	Molybdenum	U		mg/l	Non-Detect Value	0.014	0.0091	mg/l	7439-98-7	TRG	T		None		N	10_2_116
Comanche	W-6B	Downgradient	2/24/2022	2022_02	Appendix IV	Molybdenum	U		mg/l	Non-Detect Value	0.02	0.012	mg/l	7439-98-7	TRG	T		None		N	10_2_116
Comanche	W-6B	Downgradient	3/30/2022	2022_03	Appendix IV	Molybdenum	U		mg/l	Non-Detect Value	0.2	0.12	mg/l	7439-98-7	TRG	T		None		N	10_2_116
Comanche	W-6B	Downgradient	5/6/2022	2022_05	Appendix IV	Molybdenum	0.0034	J+	mg/l	Detect Value	0.002	0.00014	mg/l	7439-98-7	TRG	T		None		N	10_2_116
Comanche	W-6B	Downgradient	6/8/2022	2022_06	Appendix IV	Molybdenum	0.0033	J+	mg/l	Detect Value	0.002	0.00014	mg/l	7439-98-7	TRG	T		None		N	10_2_116
Comanche	W-6B	Downgradient	8/23/2022	2022_08	Appendix IV	Molybdenum	0.0077	J+	mg/l	Detect Value	0.002	0.00014	mg/l	7439-98-7	TRG	T		None		N	10_2_116
Comanche	W-6B	Downgradient	9/29/2022	2022_09	Appendix IV	Molybdenum	0.0068	J+	mg/l	Detect Value	0.002	0.00014	mg/l	7439-98-7	TRG	T		None		N	10_2_116
Comanche	W-6B	Downgradient	10/27/2022	2022_11	Appendix IV	Molybdenum	0.0051	J+	mg/l	Detect Value	0.002	0.00014	mg/l	7439-98-7	TRG	T		None		N	10_2_116
Comanche	W-6B	Downgradient	2/15/2023	2023_02	Appendix IV	Molybdenum	0.0036		mg/l	Detect Value	0.002	0.00037	mg/l	7439-98-7	TRG	T		None		N	10_2_116
Comanche	W-6B	Downgradient	5/3/2023	2023_05	Appendix IV	Molybdenum	0.0034		mg/l	Detect Value	0.002	0.00037	mg/l	7439-98-7	TRG	T		None		N	10_2_116
Comanche	W-6B	Downgradient	12/9/2021	2021_12	Appendix IV	Radium-226+228	13.1		pci/l	Detect Value	5	0.795	pci/l	425	TRG	T				N	10_2_120
Comanche	W-6B	Downgradient	1/11/2022	2022_01	Appendix IV	Radium-226+228	8.5		pci/l	Detect Value	5	0.894	pci/l	425	TRG	T				N	10_2_120
Comanche	W-6B	Downgradient	2/24/2022	2022_02	Appendix IV	Radium-226+228	9.84		pci/l	Detect Value	5	0.661	pci/l	425	TRG	T				N	10_2_120
Comanche	W-6B	Downgradient	3/30/2022	2022_03	Appendix IV	Radium-226+228	10.4		pci/l	Detect Value	5	0.775	pci/l	425	TRG	T				N	10_2_120
Comanche	W-6B	Downgradient	5/6/2022	2022_05	Appendix IV	Radium-226+228	7.32		pci/l	Detect Value	5	0.989	pci/l	425	TRG	T				N	10_2_120
Comanche	W-6B	Downgradient	6/8/2022	2022_06	Appendix IV	Radium-226+228	6.99		pci/l	Detect Value	5	0.61	pci/l	425	TRG	T				N	10_2_120
Comanche	W-6B	Downgradient	8/23/2022	2022_08	Appendix IV	Radium-226+228	12.2	J+	pci/l	Detect Value	5	0.886	pci/l	425	TRG	T				N	10_2_120
Comanche	W-6B	Downgradient	9/29/2022	2022_09	Appendix IV	Radium-226+228	11.5	J+	pci/l	Detect Value	5	1.01	pci/l	425	TRG	T				N	10_2_120
Comanche	W-6B	Downgradient	10/27/2022	2022_11	Appendix IV	Radium-226+228	7.88		pci/l	Detect Value	5	1.33	pci/l	425	TRG	T				N	10_2_120
Comanche	W-6B	Downgradient	2/15/2023	2023_02	Appendix IV	Radium-226+228	5.45		pci/l	Detect Value	5	0.666	pci/l	425	TRG	T				N	10_2_120
Comanche	W-6B	Downgradient	5/3/2023	2023_05	Appendix IV	Radium-226+228	3.34		pci/l	Detect Value	5	2.84	pci/l	425	TRG	T				N	10_2_120
Comanche	W-6B	Downgradient	12/9/2021	2021_12	Appendix IV	Selenium	U		mg/l	Non-Detect Value	0.025	0.0045	mg/l	7782-49-2	TRG	T	0.05	Primary MCL		N	10_2_122
Comanche	W-6B	Downgradient	1/11/2022	2022_01	Appendix IV	Selenium	0.012	J	mg/l	Detect Value	0.02	0.0038	mg/l	7782-49-2	TRG	T	0.05	Primary MCL		N	10_2_122
Comanche	W-6B	Downgradient	2/24/2022	2022_02	Appendix IV	Selenium	0.016	J+	mg/l	Detect Value	0.05	0.0096	mg/l	7782-49-2	TRG	T	0.05	Primary MCL		N	10_2_122
Comanche	W-6B	Downgradient	3/30/2022	2022_03	Appendix IV	Selenium	U		mg/l	Non-Detect Value	0.5	0.096	mg/l	7782-49-2	TRG	T	0.05	Primary MCL		N	10_2_122
Comanche	W-6B	Downgradient	5/6/2022	2022_05	Appendix IV	Selenium	0.0034	J	mg/l	Detect Value	0.005	0.00037	mg/l	7782-49-2	TRG	T	0.05	Primary MCL		N	10_2_122
Comanche	W-6B	Downgradient	6/8/2022	2022_06	Appendix IV	Selenium	0.0034	J	mg/l	Detect Value	0.005	0.00037	mg/l	7782-49-2	TRG	T	0.05	Primary MCL		N	10_2_122
Comanche	W-6B	Downgradient	8/23/2022	2022_08	Appendix IV	Selenium	0.0062		mg/l	Detect Value	0.005	0.00037	mg/l	7782-49-2	TRG	T	0.05	Primary MCL		N	10_2_122
Comanche	W-6B	Downgradient	9/29/2022	2022_09	Appendix IV	Selenium	0.0076	J	mg/l	Detect Value	0.005	0.00037	mg/l	7782-49-2	TRG	T	0.05	Primary MCL		N	10_2_122
Comanche	W-6B	Downgradient	10/27/2022	2022_11	Appendix IV	Selenium	0.0046	J	mg/l	Detect Value	0.005	0.00037	mg/l	7782-49-2	TRG	T	0.05	Primary MCL		N	10_2_122
Comanche	W-6B	Downgradient	2/15/2023	2023_02	Appendix IV	Selenium	0.0028	J	mg/l	Detect Value	0.005	0.001	mg/l	7782-49-2	TRG	T	0.05	Primary MCL		N	10_2_122
Comanche	W-6B	Downgradient	5/3/2023	2023_05	Appendix IV	Selenium	0.0049	J	mg/l	Detect Value	0.005	0.001	mg/l	7782-49-2	TRG	T	0.05	Primary MCL		N	10_2_122
Comanche	W-6B	Downgradient	12/9/2021	2021_12	Appendix IV	Thallium	0.0031	J	mg/l	Detect Value	0.005	0.001	mg/l	7440-28-0	TRG	T	0.002	Primary MCL		N	10_2_126
Comanche	W-6B	Downgradient	1/11/2022	2022_01	Appendix IV	Thallium	0.0019	J	mg/l	Detect Value	0.004	0.001	mg/l	7440-28-0	TRG	T	0.002	Primary MCL		N	10_2_126
Comanche	W-6B	Downgradient	2/24/2022	2022_02	Appendix IV	Thallium	0.0027	J	mg/l	Detect Value	0.01	0.0026	mg/l	7440-28-0	TRG	T	0.002	Primary MCL		N	10_2_126
Comanche	W-6B	Downgradient	3/30/2022	2022_03	Appendix IV	Thallium	UJ		mg/l	Non-Detect Value	0.1	0.026	mg/l	7440-28-0	TRG	T	0.002	Primary MCL		N	10_2_126
Comanche	W-6B	Downgradient	5/6/2022	2022_05	Appendix IV	Thallium	0.0023		mg/l	Detect Value	0.001	8.90E-05	mg/l	7440-28-0	TRG	T	0.002	Primary MCL		N	10_2_126
Comanche	W-6B	Downgradient	6/8/2022	2022_06	Appendix IV	Thallium	0.0025		mg/l	Detect Value	0.001	8.90E-05	mg/l	7440-28-0	TRG	T	0.002	Primary MCL		N	10_2_126
Comanche	W-6B	Downgradient	8/23/2022	2022_08	Appendix IV	Thallium	0.0042		mg/l	Detect Value	0.001	8.90E-05	mg/l	7440-28-0	TRG	T	0.002	Primary MCL		N	10_2_126
Comanche	W-6B	Downgradient	9/29/2022	2022_09	Appendix IV	Thallium	0.0043		mg/l	Detect Value	0.001	8.90E-05	mg/l	7440-28-0	TRG	T	0.002	Primary MCL		N	10_2_126
Comanche	W-6B	Downgradient	10/27/2022	2022_11	Appendix IV	Thallium	0.005		mg/l	Detect Value	0.001	8.90E-05	mg/l	7440-28-0	TRG	T	0.002	Primary MCL		N	10_2_126
Comanche	W-6B	Downgradient	2/15/2023	2023_02	Appendix IV	Thallium	0.0021		mg/l	Detect Value	0.001	0.00021	mg/l	7440-28-0	TRG	T	0.002	Primary MCL		N	10_2_126
Comanche	W-6B	Downgradient	5/3/2023	2023_05	Appendix IV	Thallium	0.0012		mg/l	Detect Value	0.001	0.00021	mg/l	7440-28-0	TRG	T	0.002	Primary MCL		N	10_2_126
Comanche	W-7	Downgradient	8/27/2020	2020_09_R1	Appendix IV	Antimony	0.00057	J	mg/l	Detect Value	0.002	0.00057	mg/l	7440-36-0	TRG	T	0.006	Primary MCL		N	11_2_101
Comanche	W-7	Downgradient	9/9/2020	2020_09_R2	Appendix IV	Antimony	0.0006	J	mg/l	Detect Value	0.002	0.00057	mg/l	7440-36-0	TRG	T	0.006	Primary MCL		N	11_2_101
Comanche	W-7	Downgradient	9/25/2020	2020_09_R3	Appendix IV	Antimony	U		mg/l	Non-Detect Value	0.002	0.00057	mg/l	7440-36-0	TRG	T	0.006	Primary MCL		N	11_2_101
Comanche	W-7	Downgradient	10/7/2020	2020_10_R4	Appendix IV	Antimony	U		mg/l	Non-Detect Value	0.004	0.0011	mg/l	7440-36-0	TRG	T	0.006	Primary MCL		N	11_2_101
Comanche	W-7	Downgradient	10/20/2020	2020_10_R5	Appendix IV	Antimony	U		mg/l	Non-Detect Value	0.002	0.00057	mg/l	7440-36-0	TRG	T	0.006	Primary MCL		N	11_2_101
Comanche	W-7	Downgradient	11/4/2020	2020_11_R6	Appendix IV	Antimony	U		mg/l	Non-Detect Value	0.01	0.0029	mg/l	7440-36-0	TRG	T	0.006	Primary MCL		N	11_2_101
Comanche	W-7	Downgradient	11/20/2020	2020_11_R7	Appendix IV	Antimony	U		mg/l	Non-Detect Value	0.02	0.0057	mg/l	7440-36-0	TRG	T	0.006	Primary MCL		N	11_2_101
Comanche	W-7	Downgradient	12/4/2020	2020_12_R8	Appendix IV	Antimony	U		mg/l	Non-Detect Value	0.02	0.0057	mg/l	7440-36-0	TRG	T	0.006	Primary MCL		N	11_2_101
Comanche	W-7	Downgradient	1/14/2021	2021_01	Appendix IV	Antimony	U		mg/l	Non-Detect Value	0.02	0.0057	mg/l	7440-36-0	TRG	T	0.006	Primary MCL		N	11_2_101
Comanche	W-7	Downgradient	4/12/2021	2021_04	Appendix IV	Antimony	U		mg/l	Non-Detect Value	0.002	0.00057	mg/l	7440-36-0	TRG	T	0.006	Primary MCL		N	11_2_101
Comanche	W-7	Downgradient	5/27/2021	2021_06	Appendix IV	Antimony	U		mg/l	Non-Detect Value	0.02	0.0057	mg/l	7440-36-0	TRG	T	0.006	Primary MCL		N	11_2_101
Comanche	W-7	Downgradient	12/1/2021	2021_11_AMWells	Appendix IV	Antimony	U		mg/l	Non-Detect Value	0.002	0.00057	mg/l	7440-36-0	TRG	T	0.006	Primary MCL		N	11_2_101

Comanche	W-7	Downgradient	1/12/2022	2022_01	Appendix IV	Antimony	U	mg/l	Non-Detect Value	0.014	0.0077	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	11_2_101
Comanche	W-7	Downgradient	3/1/2022	2022_02	Appendix IV	Antimony	UJ	mg/l	Non-Detect Value	0.02	0.0069	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	11_2_101
Comanche	W-7	Downgradient	3/31/2022	2022_03	Appendix IV	Antimony	U	mg/l	Non-Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	11_2_101
Comanche	W-7	Downgradient	5/4/2022	2022_05	Appendix IV	Antimony	0.00045 J	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	11_2_101
Comanche	W-7	Downgradient	10/28/2022	2022_11	Appendix IV	Antimony	0.00043 J	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	11_2_101
Comanche	W-7	Downgradient	2/14/2023	2023_02	Appendix IV	Antimony	0.00047 J	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	11_2_101
Comanche	W-7	Downgradient	5/3/2023	2023_05	Appendix IV	Antimony	U	mg/l	Non-Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	11_2_101
Comanche	W-7	Downgradient	8/27/2020	2020_09_R1	Appendix IV	Arsenic	0.015	mg/l	Detect Value	0.005	0.00075	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	11_2_102
Comanche	W-7	Downgradient	9/9/2020	2020_09_R2	Appendix IV	Arsenic	0.011	mg/l	Detect Value	0.005	0.00075	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	11_2_102
Comanche	W-7	Downgradient	9/25/2020	2020_09_R3	Appendix IV	Arsenic	0.009	mg/l	Detect Value	0.005	0.00075	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	11_2_102
Comanche	W-7	Downgradient	10/7/2020	2020_10_R4	Appendix IV	Arsenic	0.012	mg/l	Detect Value	0.01	0.0015	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	11_2_102
Comanche	W-7	Downgradient	10/20/2020	2020_10_R5	Appendix IV	Arsenic	0.02	mg/l	Detect Value	0.005	0.00075	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	11_2_102
Comanche	W-7	Downgradient	11/4/2020	2020_11_R6	Appendix IV	Arsenic	0.011 J	mg/l	Detect Value	0.025	0.0038	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	11_2_102
Comanche	W-7	Downgradient	11/20/2020	2020_11_R7	Appendix IV	Arsenic	0.022 J	mg/l	Detect Value	0.05	0.0075	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	11_2_102
Comanche	W-7	Downgradient	12/4/2020	2020_12_R8	Appendix IV	Arsenic	0.017 J	mg/l	Detect Value	0.05	0.0075	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	11_2_102
Comanche	W-7	Downgradient	1/14/2021	2021_01	Appendix IV	Arsenic	0.01 J	mg/l	Detect Value	0.05	0.0075	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	11_2_102
Comanche	W-7	Downgradient	4/12/2021	2021_04	Appendix IV	Arsenic	0.016	mg/l	Detect Value	0.005	0.00075	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	11_2_102
Comanche	W-7	Downgradient	5/27/2021	2021_06	Appendix IV	Arsenic	0.031 J	mg/l	Detect Value	0.05	0.0075	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	11_2_102
Comanche	W-7	Downgradient	12/1/2021	2021_11_AMWells	Appendix IV	Arsenic	0.0061	mg/l	Detect Value	0.005	0.00075	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	11_2_102
Comanche	W-7	Downgradient	1/12/2022	2022_01	Appendix IV	Arsenic	U	mg/l	Non-Detect Value	0.014	0.0053	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	11_2_102
Comanche	W-7	Downgradient	3/1/2022	2022_02	Appendix IV	Arsenic	U	mg/l	Non-Detect Value	0.002	0.00075	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	11_2_102
Comanche	W-7	Downgradient	3/31/2022	2022_03	Appendix IV	Arsenic	0.00058 J	mg/l	Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	11_2_102
Comanche	W-7	Downgradient	5/4/2022	2022_05	Appendix IV	Arsenic	0.00093 J	mg/l	Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	11_2_102
Comanche	W-7	Downgradient	10/28/2022	2022_11	Appendix IV	Arsenic	0.00056 J	mg/l	Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	11_2_102
Comanche	W-7	Downgradient	2/14/2023	2023_02	Appendix IV	Arsenic	0.0016 J	mg/l	Detect Value	0.005	0.0005	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	11_2_102
Comanche	W-7	Downgradient	5/3/2023	2023_05	Appendix IV	Arsenic	U	mg/l	Non-Detect Value	0.005	0.0005	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	11_2_102
Comanche	W-7	Downgradient	8/27/2020	2020_09_R1	Appendix IV	Barium	0.04 J	mg/l	Detect Value	0.005	0.0022	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	11_2_103
Comanche	W-7	Downgradient	9/9/2020	2020_09_R2	Appendix IV	Barium	0.034	mg/l	Detect Value	0.005	0.0022	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	11_2_103
Comanche	W-7	Downgradient	9/25/2020	2020_09_R3	Appendix IV	Barium	0.015	mg/l	Detect Value	0.005	0.0022	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	11_2_103
Comanche	W-7	Downgradient	10/7/2020	2020_10_R4	Appendix IV	Barium	0.012	mg/l	Detect Value	0.01	0.0045	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	11_2_103
Comanche	W-7	Downgradient	10/20/2020	2020_10_R5	Appendix IV	Barium	0.017	mg/l	Detect Value	0.005	0.0022	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	11_2_103
Comanche	W-7	Downgradient	11/4/2020	2020_11_R6	Appendix IV	Barium	0.017 J	mg/l	Detect Value	0.025	0.011	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	11_2_103
Comanche	W-7	Downgradient	11/20/2020	2020_11_R7	Appendix IV	Barium	U	mg/l	Non-Detect Value	0.05	0.022	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	11_2_103
Comanche	W-7	Downgradient	12/4/2020	2020_12_R8	Appendix IV	Barium	U	mg/l	Non-Detect Value	0.05	0.022	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	11_2_103
Comanche	W-7	Downgradient	1/14/2021	2021_01	Appendix IV	Barium	U	mg/l	Non-Detect Value	0.05	0.022	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	11_2_103
Comanche	W-7	Downgradient	4/12/2021	2021_04	Appendix IV	Barium	0.013	mg/l	Detect Value	0.005	0.0022	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	11_2_103
Comanche	W-7	Downgradient	5/27/2021	2021_06	Appendix IV	Barium	0.071 J	mg/l	Detect Value	0.05	0.022	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	11_2_103
Comanche	W-7	Downgradient	12/1/2021	2021_11_AMWells	Appendix IV	Barium	0.014	mg/l	Detect Value	0.005	0.0022	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	11_2_103
Comanche	W-7	Downgradient	1/12/2022	2022_01	Appendix IV	Barium	0.014	mg/l	Detect Value	0.014	0.0026	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	11_2_103
Comanche	W-7	Downgradient	3/1/2022	2022_02	Appendix IV	Barium	0.016 J	mg/l	Detect Value	0.02	0.0088	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	11_2_103
Comanche	W-7	Downgradient	3/31/2022	2022_03	Appendix IV	Barium	U	mg/l	Non-Detect Value	0.2	0.088	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	11_2_103
Comanche	W-7	Downgradient	5/4/2022	2022_05	Appendix IV	Barium	0.022	mg/l	Detect Value	0.001	0.00029	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	11_2_103
Comanche	W-7	Downgradient	10/28/2022	2022_11	Appendix IV	Barium	0.014	mg/l	Detect Value	0.001	0.00029	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	11_2_103
Comanche	W-7	Downgradient	2/14/2023	2023_02	Appendix IV	Barium	0.015	mg/l	Detect Value	0.003	0.00038	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	11_2_103
Comanche	W-7	Downgradient	5/3/2023	2023_05	Appendix IV	Barium	0.013	mg/l	Detect Value	0.003	0.00038	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	11_2_103
Comanche	W-7	Downgradient	8/27/2020	2020_09_R1	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.001	0.00031	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	11_2_104
Comanche	W-7	Downgradient	9/9/2020	2020_09_R2	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.001	0.00031	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	11_2_104
Comanche	W-7	Downgradient	9/25/2020	2020_09_R3	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.001	0.00031	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	11_2_104
Comanche	W-7	Downgradient	10/7/2020	2020_10_R4	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.002	0.00061	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	11_2_104
Comanche	W-7	Downgradient	10/20/2020	2020_10_R5	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.001	0.00031	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	11_2_104
Comanche	W-7	Downgradient	11/4/2020	2020_11_R6	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.005	0.0015	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	11_2_104
Comanche	W-7	Downgradient	11/20/2020	2020_11_R7	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.01	0.0031	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	11_2_104
Comanche	W-7	Downgradient	12/4/2020	2020_12_R8	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.01	0.0031	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	11_2_104
Comanche	W-7	Downgradient	1/14/2021	2021_01	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.01	0.0031	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	11_2_104
Comanche	W-7	Downgradient	4/12/2021	2021_04	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.001	0.00031	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	11_2_104
Comanche	W-7	Downgradient	12/1/2021	2021_11_AMWells	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.001	0.00062	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	11_2_104
Comanche	W-7	Downgradient	1/12/2022	2022_01	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.01	0.0027	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	11_2_104
Comanche	W-7	Downgradient	3/1/2022	2022_02	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.01	0.0027	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	11_2_104
Comanche	W-7	Downgradient	3/31/2022	2022_03	Appendix IV	Beryllium	UJ	mg/l	Non-Detect Value	0.1	0.027	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	11_2_104
Comanche	W-7	Downgradient	5/4/2022	2022_05	Appendix IV	Beryllium	0.00046 J+	mg/l	Detect Value	0.001	8.00E-05	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	11_2_104
Comanche	W-7	Downgradient	10/28/2022	2022_11	Appendix IV	Beryllium	8.90E-05 J+	mg/l	Detect Value	0.001	8.00E-05	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	11_2_104
Comanche	W-7	Downgradient	2/14/2023	2023_02	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.001	0.0003	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	11_2_104
Comanche	W-7	Downgradient	5/3/2023	2023_05	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.001	0.0003	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	11_2_104
Comanche	W-7	Downgradient	8/27/2020	2020_09_R1	Appendix IV	Cadmium	0.006	mg/l	Detect Value	0.001	0.0002	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	11_2_106
Comanche	W-7	Downgradient	9/9/2020	2020_09_R2	Appendix IV	Cadmium	0.006	mg/l	Detect Value	0.001	0.0002	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	11_2_106
Comanche	W-7	Downgradient	9/25/2020	2020_09_R3	Appendix IV	Cadmium	0.0051	mg/l	Detect Value	0.001	0.0002	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	11_2_106
Comanche	W-7	Downgradient	10/7/2020	2020_10_R4	Appendix IV	Cadmium	0.0052	mg/l	Detect Value	0.002	0.00039	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	11_2_106
Comanche	W-7	Downgradient	10/20/2020	2020_10_R5	Appendix IV	Cadmium	0.0057	mg/l	Detect Value	0.001	0.0002	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	11_2_106

Comanche	W-7	Downgradient	11/4/2020	2020_11_R6	Appendix IV	Cadmium	0.0061	J+	mg/l	Detect Value	0.005	0.00099	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	11_2_106
Comanche	W-7	Downgradient	11/20/2020	2020_11_R7	Appendix IV	Cadmium	0.0056	J	mg/l	Detect Value	0.01	0.002	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	11_2_106
Comanche	W-7	Downgradient	12/4/2020	2020_12_R8	Appendix IV	Cadmium	0.0072	J	mg/l	Detect Value	0.01	0.002	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	11_2_106
Comanche	W-7	Downgradient	1/14/2021	2021_01	Appendix IV	Cadmium	0.0066	J+	mg/l	Detect Value	0.01	0.002	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	11_2_106
Comanche	W-7	Downgradient	4/12/2021	2021_04	Appendix IV	Cadmium	0.0052		mg/l	Detect Value	0.001	0.0002	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	11_2_106
Comanche	W-7	Downgradient	5/27/2021	2021_06	Appendix IV	Cadmium	0.039		mg/l	Detect Value	0.01	0.002	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	11_2_106
Comanche	W-7	Downgradient	12/1/2021	2021_11_AMWells	Appendix IV	Cadmium	0.0055		mg/l	Detect Value	0.001	0.0002	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	11_2_106
Comanche	W-7	Downgradient	1/12/2022	2022_01	Appendix IV	Cadmium	0.007		mg/l	Detect Value	0.0007	0.00036	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	11_2_106
Comanche	W-7	Downgradient	3/1/2022	2022_02	Appendix IV	Cadmium	0.0084		mg/l	Detect Value	0.001	0.00055	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	11_2_106
Comanche	W-7	Downgradient	3/31/2022	2022_03	Appendix IV	Cadmium	0.0077	J	mg/l	Detect Value	0.01	0.0055	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	11_2_106
Comanche	W-7	Downgradient	5/4/2022	2022_05	Appendix IV	Cadmium	0.0063		mg/l	Detect Value	0.001	0.00027	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	11_2_106
Comanche	W-7	Downgradient	10/28/2022	2022_11	Appendix IV	Cadmium	0.006		mg/l	Detect Value	0.001	0.00027	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	11_2_106
Comanche	W-7	Downgradient	2/14/2023	2023_02	Appendix IV	Cadmium	0.0057		mg/l	Detect Value	0.001	0.00019	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	11_2_106
Comanche	W-7	Downgradient	5/3/2023	2023_05	Appendix IV	Cadmium	0.0057	J+	mg/l	Detect Value	0.001	0.00019	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	11_2_106
Comanche	W-7	Downgradient	8/27/2020	2020_09_R1	Appendix IV	Chromium, Total	0.0069	J	mg/l	Detect Value	0.002	0.00098	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	11_2_109
Comanche	W-7	Downgradient	9/9/2020	2020_09_R2	Appendix IV	Chromium, Total	0.0053		mg/l	Detect Value	0.002	0.00098	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	11_2_109
Comanche	W-7	Downgradient	9/25/2020	2020_09_R3	Appendix IV	Chromium, Total	0.0015	J	mg/l	Detect Value	0.002	0.00098	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	11_2_109
Comanche	W-7	Downgradient	10/7/2020	2020_10_R4	Appendix IV	Chromium, Total		U	mg/l	Non-Detect Value	0.004	0.002	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	11_2_109
Comanche	W-7	Downgradient	10/20/2020	2020_10_R5	Appendix IV	Chromium, Total	0.0012	J	mg/l	Detect Value	0.002	0.00098	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	11_2_109
Comanche	W-7	Downgradient	11/4/2020	2020_11_R6	Appendix IV	Chromium, Total		U	mg/l	Non-Detect Value	0.01	0.0049	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	11_2_109
Comanche	W-7	Downgradient	11/20/2020	2020_11_R7	Appendix IV	Chromium, Total		U	mg/l	Non-Detect Value	0.02	0.0098	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	11_2_109
Comanche	W-7	Downgradient	12/4/2020	2020_12_R8	Appendix IV	Chromium, Total		U	mg/l	Non-Detect Value	0.02	0.0098	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	11_2_109
Comanche	W-7	Downgradient	1/14/2021	2021_01	Appendix IV	Chromium, Total		U	mg/l	Non-Detect Value	0.02	0.0098	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	11_2_109
Comanche	W-7	Downgradient	4/12/2021	2021_04	Appendix IV	Chromium, Total		U	mg/l	Non-Detect Value	0.002	0.00098	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	11_2_109
Comanche	W-7	Downgradient	5/27/2021	2021_06	Appendix IV	Chromium, Total	0.021		mg/l	Detect Value	0.02	0.0098	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	11_2_109
Comanche	W-7	Downgradient	12/1/2021	2021_11_AMWells	Appendix IV	Chromium, Total		U	mg/l	Non-Detect Value	0.0025	0.0025	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	11_2_109
Comanche	W-7	Downgradient	1/12/2022	2022_01	Appendix IV	Chromium, Total		U	mg/l	Non-Detect Value	0.035	0.0077	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	11_2_109
Comanche	W-7	Downgradient	3/1/2022	2022_02	Appendix IV	Chromium, Total	0.0018	J	mg/l	Detect Value	0.005	0.0011	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	11_2_109
Comanche	W-7	Downgradient	3/31/2022	2022_03	Appendix IV	Chromium, Total		U	mg/l	Non-Detect Value	0.5	0.11	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	11_2_109
Comanche	W-7	Downgradient	5/4/2022	2022_05	Appendix IV	Chromium, Total	0.0031		mg/l	Detect Value	0.002	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	11_2_109
Comanche	W-7	Downgradient	10/28/2022	2022_11	Appendix IV	Chromium, Total	0.00089	J	mg/l	Detect Value	0.002	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	11_2_109
Comanche	W-7	Downgradient	2/14/2023	2023_02	Appendix IV	Chromium, Total	0.0021	J	mg/l	Detect Value	0.003	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	11_2_109
Comanche	W-7	Downgradient	5/3/2023	2023_05	Appendix IV	Chromium, Total	0.0014	J	mg/l	Detect Value	0.003	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	11_2_109
Comanche	W-7	Downgradient	8/27/2020	2020_09_R1	Appendix IV	Cobalt	0.017		mg/l	Detect Value	0.001	0.00019	mg/l	7440-48-4	TRG	T		None	N	11_2_110
Comanche	W-7	Downgradient	9/9/2020	2020_09_R2	Appendix IV	Cobalt	0.016		mg/l	Detect Value	0.001	0.00019	mg/l	7440-48-4	TRG	T		None	N	11_2_110
Comanche	W-7	Downgradient	9/25/2020	2020_09_R3	Appendix IV	Cobalt	0.015		mg/l	Detect Value	0.001	0.00019	mg/l	7440-48-4	TRG	T		None	N	11_2_110
Comanche	W-7	Downgradient	10/7/2020	2020_10_R4	Appendix IV	Cobalt	0.015		mg/l	Detect Value	0.002	0.00038	mg/l	7440-48-4	TRG	T		None	N	11_2_110
Comanche	W-7	Downgradient	10/20/2020	2020_10_R5	Appendix IV	Cobalt	0.016		mg/l	Detect Value	0.001	0.00019	mg/l	7440-48-4	TRG	T		None	N	11_2_110
Comanche	W-7	Downgradient	11/4/2020	2020_11_R6	Appendix IV	Cobalt	0.016		mg/l	Detect Value	0.005	0.00095	mg/l	7440-48-4	TRG	T		None	N	11_2_110
Comanche	W-7	Downgradient	11/20/2020	2020_11_R7	Appendix IV	Cobalt	0.016		mg/l	Detect Value	0.01	0.0019	mg/l	7440-48-4	TRG	T		None	N	11_2_110
Comanche	W-7	Downgradient	12/4/2020	2020_12_R8	Appendix IV	Cobalt	0.017		mg/l	Detect Value	0.01	0.0019	mg/l	7440-48-4	TRG	T		None	N	11_2_110
Comanche	W-7	Downgradient	1/14/2021	2021_01	Appendix IV	Cobalt	0.018		mg/l	Detect Value	0.01	0.0019	mg/l	7440-48-4	TRG	T		None	N	11_2_110
Comanche	W-7	Downgradient	4/12/2021	2021_04	Appendix IV	Cobalt	0.017		mg/l	Detect Value	0.001	0.00019	mg/l	7440-48-4	TRG	T		None	N	11_2_110
Comanche	W-7	Downgradient	5/27/2021	2021_06	Appendix IV	Cobalt	0.063		mg/l	Detect Value	0.01	0.0019	mg/l	7440-48-4	TRG	T		None	N	11_2_110
Comanche	W-7	Downgradient	12/1/2021	2021_11_AMWells	Appendix IV	Cobalt	0.02		mg/l	Detect Value	0.005	0.00095	mg/l	7440-48-4	TRG	T		None	N	11_2_110
Comanche	W-7	Downgradient	1/12/2022	2022_01	Appendix IV	Cobalt	0.023		mg/l	Detect Value	0.0035	0.0013	mg/l	7440-48-4	TRG	T		None	N	11_2_110
Comanche	W-7	Downgradient	3/1/2022	2022_02	Appendix IV	Cobalt	0.014		mg/l	Detect Value	0.0005	0.00019	mg/l	7440-48-4	TRG	T		None	N	11_2_110
Comanche	W-7	Downgradient	3/31/2022	2022_03	Appendix IV	Cobalt	0.026	J	mg/l	Detect Value	0.05	0.019	mg/l	7440-48-4	TRG	T		None	N	11_2_110
Comanche	W-7	Downgradient	5/4/2022	2022_05	Appendix IV	Cobalt	0.019		mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG	T		None	N	11_2_110
Comanche	W-7	Downgradient	10/28/2022	2022_11	Appendix IV	Cobalt	0.024		mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG	T		None	N	11_2_110
Comanche	W-7	Downgradient	2/14/2023	2023_02	Appendix IV	Cobalt	0.021		mg/l	Detect Value	0.001	0.00033	mg/l	7440-48-4	TRG	T		None	N	11_2_110
Comanche	W-7	Downgradient	5/3/2023	2023_05	Appendix IV	Cobalt	0.02		mg/l	Detect Value	0.001	0.00033	mg/l	7440-48-4	TRG	T		None	N	11_2_110
Comanche	W-7	Downgradient	8/27/2020	2020_09_R1	Appendix IV	Fluoride (App IV)		U	mg/l	Non-Detect Value	10	3.3	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	11_2_112
Comanche	W-7	Downgradient	9/9/2020	2020_09_R2	Appendix IV	Fluoride (App IV)	84		mg/l	Detect Value	50	17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	11_2_112
Comanche	W-7	Downgradient	9/25/2020	2020_09_R3	Appendix IV	Fluoride (App IV)	130	J	mg/l	Detect Value	250	83	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	11_2_112
Comanche	W-7	Downgradient	10/7/2020	2020_10_R4	Appendix IV	Fluoride (App IV)	42	J	mg/l	Detect Value	2.5	0.83	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	11_2_112
Comanche	W-7	Downgradient	10/20/2020	2020_10_R5	Appendix IV	Fluoride (App IV)	70	J	mg/l	Detect Value	10	3.3	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	11_2_112
Comanche	W-7	Downgradient	11/4/2020	2020_11_R6	Appendix IV	Fluoride (App IV)	170	J	mg/l	Detect Value	250	83	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	11_2_112
Comanche	W-7	Downgradient	11/20/2020	2020_11_R7	Appendix IV	Fluoride (App IV)	80	J	mg/l	Detect Value	10	3.3	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	11_2_112
Comanche	W-7	Downgradient	12/4/2020	2020_12_R8	Appendix IV	Fluoride (App IV)		U	mg/l	Non-Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	11_2_112
Comanche	W-7	Downgradient	1/14/2021	2021_01	Appendix IV	Fluoride (App IV)		U	mg/l	Non-Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	11_2_112
Comanche	W-7	Downgradient	4/12/2021	2021_04	Appendix IV	Fluoride (App IV)		U	mg/l	Non-Detect Value	500	170	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	11_2_112
Comanche	W-7	Downgradient	5/27/2021	2021_06	Appendix IV	Fluoride (App IV)	0.74		mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	11_2_112
Comanche	W-7	Downgradient	12/1/2021	2021_11_AMWells	Appendix IV	Fluoride (App IV)		UJ	mg/l	Non-Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	11_2_112
Comanche	W-7	Downgradient	1/12/2022	2022_01	Appendix IV	Fluoride (App IV)	3.9	J	mg/l	Detect Value	2.5	0.83	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	11_2_112
Comanche	W-7	Downgradient	3/1/2022	2022_02	Appendix IV	Fluoride (App IV)	1.1	J	mg/l	Detect Value	2.5	0.83	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	11_2_112
Comanche	W-7	Downgradient	3/31/2022	2022_03	Appendix IV	Fluoride (App IV)	72		mg/l	Detect Value	10	3.3	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	11_2_112
Comanche	W-7	Downgradient	5/4/2022	2022_05	Appendix IV	Fluoride (App IV)		U	mg/l	Non-Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	11_2_112

Comanche	W-7	Downgradient	10/28/2022	2022_11	Appendix IV	Fluoride (App IV)	UJ	mg/l	Non-Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	11_2_112
Comanche	W-7	Downgradient	2/14/2023	2023_02	Appendix IV	Fluoride (App IV)	UJ	mg/l	Non-Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	11_2_112
Comanche	W-7	Downgradient	5/3/2023	2023_05	Appendix IV	Fluoride (App IV)	U	mg/l	Non-Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	11_2_112
Comanche	W-7	Downgradient	8/27/2020	2020_09_R1	Appendix IV	Lead	0.0025 J	mg/l	Detect Value	0.001	0.00045	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	11_2_113
Comanche	W-7	Downgradient	9/9/2020	2020_09_R2	Appendix IV	Lead	0.0022	mg/l	Detect Value	0.001	0.00045	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	11_2_113
Comanche	W-7	Downgradient	9/25/2020	2020_09_R3	Appendix IV	Lead	0.00075 J	mg/l	Detect Value	0.001	0.00045	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	11_2_113
Comanche	W-7	Downgradient	10/7/2020	2020_10_R4	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.002	0.0009	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	11_2_113
Comanche	W-7	Downgradient	10/20/2020	2020_10_R5	Appendix IV	Lead	0.00084 J	mg/l	Detect Value	0.001	0.00045	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	11_2_113
Comanche	W-7	Downgradient	11/4/2020	2020_11_R6	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.005	0.0023	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	11_2_113
Comanche	W-7	Downgradient	11/20/2020	2020_11_R7	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.01	0.0045	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	11_2_113
Comanche	W-7	Downgradient	12/4/2020	2020_12_R8	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.01	0.0045	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	11_2_113
Comanche	W-7	Downgradient	1/14/2021	2021_01	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.01	0.0045	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	11_2_113
Comanche	W-7	Downgradient	4/12/2021	2021_04	Appendix IV	Lead	0.00082 J	mg/l	Detect Value	0.001	0.00045	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	11_2_113
Comanche	W-7	Downgradient	5/27/2021	2021_06	Appendix IV	Lead	0.037	mg/l	Detect Value	0.01	0.0045	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	11_2_113
Comanche	W-7	Downgradient	12/1/2021	2021_11_AMWells	Appendix IV	Lead	0.00067 J	mg/l	Detect Value	0.001	0.00045	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	11_2_113
Comanche	W-7	Downgradient	1/12/2022	2022_01	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.0035	0.0015	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	11_2_113
Comanche	W-7	Downgradient	3/1/2022	2022_02	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.005	0.0024	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	11_2_113
Comanche	W-7	Downgradient	3/31/2022	2022_03	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.05	0.024	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	11_2_113
Comanche	W-7	Downgradient	5/4/2022	2022_05	Appendix IV	Lead	0.0012	mg/l	Detect Value	0.001	0.00018	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	11_2_113
Comanche	W-7	Downgradient	10/28/2022	2022_11	Appendix IV	Lead	0.00058 J	mg/l	Detect Value	0.001	0.00018	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	11_2_113
Comanche	W-7	Downgradient	2/14/2023	2023_02	Appendix IV	Lead	0.0011	mg/l	Detect Value	0.001	0.00023	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	11_2_113
Comanche	W-7	Downgradient	5/3/2023	2023_05	Appendix IV	Lead	0.0014	mg/l	Detect Value	0.001	0.00023	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	11_2_113
Comanche	W-7	Downgradient	8/27/2020	2020_09_R1	Appendix IV	Lithium	3.6	mg/l	Detect Value	0.16	0.033	mg/l	7439-93-2	TRG	T		None	N	11_2_114
Comanche	W-7	Downgradient	9/9/2020	2020_09_R2	Appendix IV	Lithium	2.9	mg/l	Detect Value	0.008	0.0017	mg/l	7439-93-2	TRG	T		None	N	11_2_114
Comanche	W-7	Downgradient	9/25/2020	2020_09_R3	Appendix IV	Lithium	3.4	mg/l	Detect Value	0.008	0.0017	mg/l	7439-93-2	TRG	T		None	N	11_2_114
Comanche	W-7	Downgradient	10/7/2020	2020_10_R4	Appendix IV	Lithium	3.4	mg/l	Detect Value	0.016	0.0033	mg/l	7439-93-2	TRG	T		None	N	11_2_114
Comanche	W-7	Downgradient	10/20/2020	2020_10_R5	Appendix IV	Lithium	3.8	mg/l	Detect Value	0.08	0.017	mg/l	7439-93-2	TRG	T		None	N	11_2_114
Comanche	W-7	Downgradient	11/4/2020	2020_11_R6	Appendix IV	Lithium	4	mg/l	Detect Value	0.04	0.0083	mg/l	7439-93-2	TRG	T		None	N	11_2_114
Comanche	W-7	Downgradient	11/20/2020	2020_11_R7	Appendix IV	Lithium	2.8	mg/l	Detect Value	0.08	0.017	mg/l	7439-93-2	TRG	T		None	N	11_2_114
Comanche	W-7	Downgradient	12/4/2020	2020_12_R8	Appendix IV	Lithium	4	mg/l	Detect Value	0.08	0.017	mg/l	7439-93-2	TRG	T		None	N	11_2_114
Comanche	W-7	Downgradient	1/14/2021	2021_01	Appendix IV	Lithium	4.3	mg/l	Detect Value	0.08	0.017	mg/l	7439-93-2	TRG	T		None	N	11_2_114
Comanche	W-7	Downgradient	4/12/2021	2021_04	Appendix IV	Lithium	3.9	mg/l	Detect Value	0.04	0.0083	mg/l	7439-93-2	TRG	T		None	N	11_2_114
Comanche	W-7	Downgradient	5/27/2021	2021_06	Appendix IV	Lithium	1.9	mg/l	Detect Value	0.08	0.017	mg/l	7439-93-2	TRG	T		None	N	11_2_114
Comanche	W-7	Downgradient	12/1/2021	2021_11_AMWells	Appendix IV	Lithium	3.5 J	mg/l	Detect Value	0.04	0.0083	mg/l	7439-93-2	TRG	T		None	N	11_2_114
Comanche	W-7	Downgradient	1/12/2022	2022_01	Appendix IV	Lithium	4.8	mg/l	Detect Value	0.07	0.018	mg/l	7439-93-2	TRG	T		None	N	11_2_114
Comanche	W-7	Downgradient	3/1/2022	2022_02	Appendix IV	Lithium	5.5 J-	mg/l	Detect Value	0.1	0.025	mg/l	7439-93-2	TRG	T		None	N	11_2_114
Comanche	W-7	Downgradient	3/31/2022	2022_03	Appendix IV	Lithium	5.6	mg/l	Detect Value	1	0.25	mg/l	7439-93-2	TRG	T		None	N	11_2_114
Comanche	W-7	Downgradient	5/4/2022	2022_05	Appendix IV	Lithium	5 J+	mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	11_2_114
Comanche	W-7	Downgradient	10/28/2022	2022_11	Appendix IV	Lithium	5.1	mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	11_2_114
Comanche	W-7	Downgradient	2/14/2023	2023_02	Appendix IV	Lithium	4.5	mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	11_2_114
Comanche	W-7	Downgradient	5/3/2023	2023_05	Appendix IV	Lithium	4.8	mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	11_2_114
Comanche	W-7	Downgradient	8/27/2020	2020_09_R1	Appendix IV	Mercury	0.00019 J	mg/l	Detect Value	0.0002	0.00013	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	11_2_115
Comanche	W-7	Downgradient	9/9/2020	2020_09_R2	Appendix IV	Mercury	0.00013 J	mg/l	Detect Value	0.0002	0.00013	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	11_2_115
Comanche	W-7	Downgradient	9/25/2020	2020_09_R3	Appendix IV	Mercury	0.00019 J	mg/l	Detect Value	0.0002	0.00013	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	11_2_115
Comanche	W-7	Downgradient	10/7/2020	2020_10_R4	Appendix IV	Mercury	0.00013 J	mg/l	Detect Value	0.0002	0.00013	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	11_2_115
Comanche	W-7	Downgradient	10/20/2020	2020_10_R5	Appendix IV	Mercury	0.00024 J	mg/l	Detect Value	0.0002	0.00013	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	11_2_115
Comanche	W-7	Downgradient	11/4/2020	2020_11_R6	Appendix IV	Mercury	0.00013 J	mg/l	Detect Value	0.0002	0.00013	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	11_2_115
Comanche	W-7	Downgradient	11/20/2020	2020_11_R7	Appendix IV	Mercury	UJ	mg/l	Non-Detect Value	0.0002	0.00013	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	11_2_115
Comanche	W-7	Downgradient	12/4/2020	2020_12_R8	Appendix IV	Mercury	UJ	mg/l	Non-Detect Value	0.0002	0.00013	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	11_2_115
Comanche	W-7	Downgradient	1/14/2021	2021_01	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.002	0.0013	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	11_2_115
Comanche	W-7	Downgradient	4/12/2021	2021_04	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	0.00013	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	11_2_115
Comanche	W-7	Downgradient	12/1/2021	2021_11_AMWells	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	0.00013	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	11_2_115
Comanche	W-7	Downgradient	1/12/2022	2022_01	Appendix IV	Mercury	UJ	mg/l	Non-Detect Value	0.0002	0.00015	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	11_2_115
Comanche	W-7	Downgradient	3/1/2022	2022_02	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	0.00011	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	11_2_115
Comanche	W-7	Downgradient	3/31/2022	2022_03	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	0.00011	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	11_2_115
Comanche	W-7	Downgradient	5/4/2022	2022_05	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	11_2_115
Comanche	W-7	Downgradient	10/28/2022	2022_11	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	11_2_115
Comanche	W-7	Downgradient	2/14/2023	2023_02	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	11_2_115
Comanche	W-7	Downgradient	5/3/2023	2023_05	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	11_2_115
Comanche	W-7	Downgradient	8/27/2020	2020_09_R1	Appendix IV	Molybdenum	0.0053 J	mg/l	Detect Value	0.01	0.0011	mg/l	7439-98-7	TRG	T		None	N	11_2_116
Comanche	W-7	Downgradient	9/9/2020	2020_09_R2	Appendix IV	Molybdenum	0.0056 J	mg/l	Detect Value	0.01	0.0011	mg/l	7439-98-7	TRG	T		None	N	11_2_116
Comanche	W-7	Downgradient	9/25/2020	2020_09_R3	Appendix IV	Molybdenum	0.005 J	mg/l	Detect Value	0.01	0.0011	mg/l	7439-98-7	TRG	T		None	N	11_2_116
Comanche	W-7	Downgradient	10/7/2020	2020_10_R4	Appendix IV	Molybdenum	0.0049 J	mg/l	Detect Value	0.02	0.0022	mg/l	7439-98-7	TRG	T		None	N	11_2_116
Comanche	W-7	Downgradient	10/20/2020	2020_10_R5	Appendix IV	Molybdenum	0.0052 J	mg/l	Detect Value	0.01	0.0011	mg/l	7439-98-7	TRG	T		None	N	11_2_116
Comanche	W-7	Downgradient	11/4/2020	2020_11_R6	Appendix IV	Molybdenum	U	mg/l	Non-Detect Value	0.05	0.0054	mg/l	7439-98-7	TRG	T		None	N	11_2_116
Comanche	W-7	Downgradient	11/20/2020	2020_11_R7	Appendix IV	Molybdenum	U	mg/l	Non-Detect Value	0.1	0.011	mg/l	7439-98-7	TRG	T		None	N	11_2_116
Comanche	W-7	Downgradient	12/4/2020	2020_12_R8	Appendix IV	Molybdenum	U	mg/l	Non-Detect Value	0.1	0.011	mg/l	7439-98-7	TRG	T		None	N	11_2_116
Comanche	W-7	Downgradient	1/14/2021	2021_01	Appendix IV	Molybdenum	U	mg/l	Non-Detect Value	0.1	0.011	mg/l	7439-98-7	TRG	T		None	N	11_2_116

Comanche	W-7	Downgradient	4/12/2021	2021_04	Appendix IV	Molybdenum	0.0045	J	mg/l	Detect Value	0.01	0.0011	mg/l	7439-98-7	TRG	T	None	N	11_2_116
Comanche	W-7	Downgradient	5/27/2021	2021_06	Appendix IV	Molybdenum	0.025	J	mg/l	Detect Value	0.1	0.011	mg/l	7439-98-7	TRG	T	None	N	11_2_116
Comanche	W-7	Downgradient	12/1/2021	2021_11_AMWells	Appendix IV	Molybdenum	0.0057	J	mg/l	Detect Value	0.01	0.0011	mg/l	7439-98-7	TRG	T	None	N	11_2_116
Comanche	W-7	Downgradient	1/12/2022	2022_01	Appendix IV	Molybdenum		U	mg/l	Non-Detect Value	0.02	0.013	mg/l	7439-98-7	TRG	T	None	N	11_2_116
Comanche	W-7	Downgradient	3/1/2022	2022_02	Appendix IV	Molybdenum		U	mg/l	Non-Detect Value	0.02	0.012	mg/l	7439-98-7	TRG	T	None	N	11_2_116
Comanche	W-7	Downgradient	3/31/2022	2022_03	Appendix IV	Molybdenum		U	mg/l	Non-Detect Value	0.2	0.12	mg/l	7439-98-7	TRG	T	None	N	11_2_116
Comanche	W-7	Downgradient	5/4/2022	2022_05	Appendix IV	Molybdenum	0.0051	J+	mg/l	Detect Value	0.002	0.00014	mg/l	7439-98-7	TRG	T	None	N	11_2_116
Comanche	W-7	Downgradient	10/28/2022	2022_11	Appendix IV	Molybdenum	0.0053	J+	mg/l	Detect Value	0.002	0.00014	mg/l	7439-98-7	TRG	T	None	N	11_2_116
Comanche	W-7	Downgradient	2/14/2023	2023_02	Appendix IV	Molybdenum	0.0053		mg/l	Detect Value	0.002	0.00037	mg/l	7439-98-7	TRG	T	None	N	11_2_116
Comanche	W-7	Downgradient	5/3/2023	2023_05	Appendix IV	Molybdenum	0.0047		mg/l	Detect Value	0.002	0.00037	mg/l	7439-98-7	TRG	T	None	N	11_2_116
Comanche	W-7	Downgradient	8/27/2020	2020_09_R1	Appendix IV	Radium-226+228	4.74		pci/l	Detect Value	5	1.01	pci/l		425 TRG	T		N	11_2_120
Comanche	W-7	Downgradient	9/9/2020	2020_09_R2	Appendix IV	Radium-226+228	5.7	J+	pci/l	Detect Value	5	0.784	pci/l		425 TRG	T		N	11_2_120
Comanche	W-7	Downgradient	9/25/2020	2020_09_R3	Appendix IV	Radium-226+228	4.05		pci/l	Detect Value	5	0.599	pci/l		425 TRG	T		N	11_2_120
Comanche	W-7	Downgradient	10/7/2020	2020_10_R4	Appendix IV	Radium-226+228	3.67		pci/l	Detect Value	5	0.417	pci/l		425 TRG	T		N	11_2_120
Comanche	W-7	Downgradient	10/20/2020	2020_10_R5	Appendix IV	Radium-226+228	4.63		pci/l	Detect Value	5	0.658	pci/l		425 TRG	T		N	11_2_120
Comanche	W-7	Downgradient	11/4/2020	2020_11_R6	Appendix IV	Radium-226+228	4.52	J	pci/l	Detect Value	5	0.403	pci/l		425 TRG	T		N	11_2_120
Comanche	W-7	Downgradient	11/20/2020	2020_11_R7	Appendix IV	Radium-226+228	5.54	J-	pci/l	Detect Value	5	0.521	pci/l		425 TRG	T		N	11_2_120
Comanche	W-7	Downgradient	12/4/2020	2020_12_R8	Appendix IV	Radium-226+228	3.9	J	pci/l	Detect Value	5	0.672	pci/l		425 TRG	T		N	11_2_120
Comanche	W-7	Downgradient	1/14/2021	2021_01	Appendix IV	Radium-226+228	4.36		pci/l	Detect Value	5	1.16	pci/l		425 TRG	T		N	11_2_120
Comanche	W-7	Downgradient	4/12/2021	2021_04	Appendix IV	Radium-226+228	4.88		pci/l	Detect Value	5	0.83	pci/l		425 TRG	T		N	11_2_120
Comanche	W-7	Downgradient	5/27/2021	2021_06	Appendix IV	Radium-226+228	2.19	J	pci/l	Detect Value	5	1.33	pci/l		425 TRG	T		N	11_2_120
Comanche	W-7	Downgradient	3/1/2022	2022_02	Appendix IV	Radium-226+228	6.9		pci/l	Detect Value	5	0.904	pci/l		425 TRG	T		N	11_2_120
Comanche	W-7	Downgradient	3/31/2022	2022_03	Appendix IV	Radium-226+228	6.37		pci/l	Detect Value	5	0.791	pci/l		425 TRG	T		N	11_2_120
Comanche	W-7	Downgradient	5/4/2022	2022_05	Appendix IV	Radium-226+228	5.02		pci/l	Detect Value	5	1.57	pci/l		425 TRG	T		N	11_2_120
Comanche	W-7	Downgradient	10/28/2022	2022_11	Appendix IV	Radium-226+228	5.03		pci/l	Detect Value	5	0.92	pci/l		425 TRG	T		N	11_2_120
Comanche	W-7	Downgradient	2/14/2023	2023_02	Appendix IV	Radium-226+228	3.8		pci/l	Detect Value	5	1.27	pci/l		425 TRG	T		N	11_2_120
Comanche	W-7	Downgradient	5/3/2023	2023_05	Appendix IV	Radium-226+228	5.54		pci/l	Detect Value	5	1.17	pci/l		425 TRG	T		N	11_2_120
Comanche	W-7	Downgradient	8/27/2020	2020_09_R1	Appendix IV	Selenium	1.8		mg/l	Detect Value	0.005	0.00089	mg/l	7782-49-2	TRG	T	0.05 Primary MCL	N	11_2_122
Comanche	W-7	Downgradient	9/9/2020	2020_09_R2	Appendix IV	Selenium	1.9		mg/l	Detect Value	0.005	0.00089	mg/l	7782-49-2	TRG	T	0.05 Primary MCL	N	11_2_122
Comanche	W-7	Downgradient	9/25/2020	2020_09_R3	Appendix IV	Selenium	2		mg/l	Detect Value	0.005	0.00089	mg/l	7782-49-2	TRG	T	0.05 Primary MCL	N	11_2_122
Comanche	W-7	Downgradient	10/7/2020	2020_10_R4	Appendix IV	Selenium	1.7		mg/l	Detect Value	0.01	0.0018	mg/l	7782-49-2	TRG	T	0.05 Primary MCL	N	11_2_122
Comanche	W-7	Downgradient	10/20/2020	2020_10_R5	Appendix IV	Selenium	2.1		mg/l	Detect Value	0.005	0.00089	mg/l	7782-49-2	TRG	T	0.05 Primary MCL	N	11_2_122
Comanche	W-7	Downgradient	11/4/2020	2020_11_R6	Appendix IV	Selenium	1.6		mg/l	Detect Value	0.025	0.0045	mg/l	7782-49-2	TRG	T	0.05 Primary MCL	N	11_2_122
Comanche	W-7	Downgradient	11/20/2020	2020_11_R7	Appendix IV	Selenium	1.5		mg/l	Detect Value	0.05	0.0089	mg/l	7782-49-2	TRG	T	0.05 Primary MCL	N	11_2_122
Comanche	W-7	Downgradient	12/4/2020	2020_12_R8	Appendix IV	Selenium	1.4		mg/l	Detect Value	0.05	0.0089	mg/l	7782-49-2	TRG	T	0.05 Primary MCL	N	11_2_122
Comanche	W-7	Downgradient	1/14/2021	2021_01	Appendix IV	Selenium	1.5		mg/l	Detect Value	0.05	0.0089	mg/l	7782-49-2	TRG	T	0.05 Primary MCL	N	11_2_122
Comanche	W-7	Downgradient	4/12/2021	2021_04	Appendix IV	Selenium	2		mg/l	Detect Value	0.005	0.00089	mg/l	7782-49-2	TRG	T	0.05 Primary MCL	N	11_2_122
Comanche	W-7	Downgradient	5/27/2021	2021_06	Appendix IV	Selenium	0.76		mg/l	Detect Value	0.05	0.0089	mg/l	7782-49-2	TRG	T	0.05 Primary MCL	N	11_2_122
Comanche	W-7	Downgradient	12/1/2021	2021_11_AMWells	Appendix IV	Selenium	1.6	J	mg/l	Detect Value	0.025	0.0045	mg/l	7782-49-2	TRG	T	0.05 Primary MCL	N	11_2_122
Comanche	W-7	Downgradient	1/12/2022	2022_01	Appendix IV	Selenium	2.3		mg/l	Detect Value	0.035	0.0067	mg/l	7782-49-2	TRG	T	0.05 Primary MCL	N	11_2_122
Comanche	W-7	Downgradient	3/1/2022	2022_02	Appendix IV	Selenium	2.1	J+	mg/l	Detect Value	0.05	0.0096	mg/l	7782-49-2	TRG	T	0.05 Primary MCL	N	11_2_122
Comanche	W-7	Downgradient	3/31/2022	2022_03	Appendix IV	Selenium	2.1		mg/l	Detect Value	0.5	0.096	mg/l	7782-49-2	TRG	T	0.05 Primary MCL	N	11_2_122
Comanche	W-7	Downgradient	5/4/2022	2022_05	Appendix IV	Selenium	2.1		mg/l	Detect Value	0.005	0.00037	mg/l	7782-49-2	TRG	T	0.05 Primary MCL	N	11_2_122
Comanche	W-7	Downgradient	10/28/2022	2022_11	Appendix IV	Selenium	2.4		mg/l	Detect Value	0.005	0.00037	mg/l	7782-49-2	TRG	T	0.05 Primary MCL	N	11_2_122
Comanche	W-7	Downgradient	2/14/2023	2023_02	Appendix IV	Selenium	1.7		mg/l	Detect Value	0.005	0.001	mg/l	7782-49-2	TRG	T	0.05 Primary MCL	N	11_2_122
Comanche	W-7	Downgradient	5/3/2023	2023_05	Appendix IV	Selenium	1.6		mg/l	Detect Value	0.005	0.001	mg/l	7782-49-2	TRG	T	0.05 Primary MCL	N	11_2_122
Comanche	W-7	Downgradient	8/27/2020	2020_09_R1	Appendix IV	Thallium	0.0047		mg/l	Detect Value	0.001	0.0002	mg/l	7440-28-0	TRG	T	0.002 Primary MCL	N	11_2_126
Comanche	W-7	Downgradient	9/9/2020	2020_09_R2	Appendix IV	Thallium	0.0048		mg/l	Detect Value	0.001	0.0002	mg/l	7440-28-0	TRG	T	0.002 Primary MCL	N	11_2_126
Comanche	W-7	Downgradient	9/25/2020	2020_09_R3	Appendix IV	Thallium	0.0045		mg/l	Detect Value	0.001	0.0002	mg/l	7440-28-0	TRG	T	0.002 Primary MCL	N	11_2_126
Comanche	W-7	Downgradient	10/7/2020	2020_10_R4	Appendix IV	Thallium	0.0046		mg/l	Detect Value	0.002	0.0004	mg/l	7440-28-0	TRG	T	0.002 Primary MCL	N	11_2_126
Comanche	W-7	Downgradient	10/20/2020	2020_10_R5	Appendix IV	Thallium	0.0048		mg/l	Detect Value	0.001	0.0002	mg/l	7440-28-0	TRG	T	0.002 Primary MCL	N	11_2_126
Comanche	W-7	Downgradient	11/4/2020	2020_11_R6	Appendix IV	Thallium	0.0057		mg/l	Detect Value	0.005	0.001	mg/l	7440-28-0	TRG	T	0.002 Primary MCL	N	11_2_126
Comanche	W-7	Downgradient	11/20/2020	2020_11_R7	Appendix IV	Thallium	0.005	J	mg/l	Detect Value	0.01	0.002	mg/l	7440-28-0	TRG	T	0.002 Primary MCL	N	11_2_126
Comanche	W-7	Downgradient	12/4/2020	2020_12_R8	Appendix IV	Thallium	0.011		mg/l	Detect Value	0.01	0.002	mg/l	7440-28-0	TRG	T	0.002 Primary MCL	N	11_2_126
Comanche	W-7	Downgradient	1/14/2021	2021_01	Appendix IV	Thallium	0.0042	J	mg/l	Detect Value	0.01	0.002	mg/l	7440-28-0	TRG	T	0.002 Primary MCL	N	11_2_126
Comanche	W-7	Downgradient	4/12/2021	2021_04	Appendix IV	Thallium	0.0044		mg/l	Detect Value	0.001	0.0002	mg/l	7440-28-0	TRG	T	0.002 Primary MCL	N	11_2_126
Comanche	W-7	Downgradient	5/27/2021	2021_06	Appendix IV	Thallium	0.038		mg/l	Detect Value	0.01	0.002	mg/l	7440-28-0	TRG	T	0.002 Primary MCL	N	11_2_126
Comanche	W-7	Downgradient	12/1/2021	2021_11_AMWells	Appendix IV	Thallium	0.0048	J	mg/l	Detect Value	0.001	0.0002	mg/l	7440-28-0	TRG	T	0.002 Primary MCL	N	11_2_126
Comanche	W-7	Downgradient	1/12/2022	2022_01	Appendix IV	Thallium	0.0047	J	mg/l	Detect Value	0.007	0.0018	mg/l	7440-28-0	TRG	T	0.002 Primary MCL	N	11_2_126
Comanche	W-7	Downgradient	3/1/2022	2022_02	Appendix IV	Thallium	0.0063	J	mg/l	Detect Value	0.01	0.0026	mg/l	7440-28-0	TRG	T	0.002 Primary MCL	N	11_2_126
Comanche	W-7	Downgradient	3/31/2022	2022_03	Appendix IV	Thallium		UJ	mg/l	Non-Detect Value	0.1	0.026	mg/l	7440-28-0	TRG	T	0.002 Primary MCL	N	11_2_126
Comanche	W-7	Downgradient	5/4/2022	2022_05	Appendix IV	Thallium	0.0051		mg/l	Detect Value	0.001	8.90E-05	mg/l	7440-28-0	TRG	T	0.002 Primary MCL	N	11_2_126
Comanche	W-7	Downgradient	10/28/2022	2022_11	Appendix IV	Thallium	0.0057		mg/l	Detect Value	0.001	8.90E-05	mg/l	7440-28-0	TRG	T	0.002 Primary MCL	N	11_2_126
Comanche	W-7	Downgradient	2/14/2023	2023_02	Appendix IV	Thallium	0.006		mg/l	Detect Value	0.001	0.00021	mg/l	7440-28-0	TRG	T	0.002 Primary MCL	N	11_2_126
Comanche	W-7	Downgradient	5/3/2023	2023_05	Appendix IV	Thallium	0.0049		mg/l	Detect Value	0.001	0.00021	mg/l	7440-28-0	TRG	T	0.002 Primary MCL	N	11_2_126
Comanche	W-9	Downgradient	1/13/2021	2021_01	Appendix IV	Antimony	0.0017	J	mg/l	Detect Value	0.002	0.00057	mg/l	7440-36-0	TRG	T	0.006 Primary MCL	N	12_2_101
Comanche	W-9	Downgradient	4/19/2021	2021_04	Appendix IV	Antimony		U	mg/l	Non-Detect Value	0.01	0.0029	mg/l	7440-36-0	TRG	T	0.006 Primary MCL	N	12_2_101
Comanche	W-9	Downgradient	5/27/2021	2021_06	Appendix IV	Antimony		U	mg/l	Non-Detect Value	0.01	0.0029	mg/l	7440-36-0	TRG	T	0.006 Primary MCL	N	12_2_101

Comanche	W-9	Downgradient	11/30/2021	2021_11_AMWells	Appendix IV	Antimony	U	mg/l	Non-Detect Value	0.002	0.00057	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	12_2_101
Comanche	W-9	Downgradient	1/11/2022	2022_01	Appendix IV	Antimony	U	mg/l	Non-Detect Value	0.008	0.0044	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	12_2_101
Comanche	W-9	Downgradient	3/1/2022	2022_02	Appendix IV	Antimony	0.0076 J	mg/l	Detect Value	0.02	0.0069	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	12_2_101
Comanche	W-9	Downgradient	3/31/2022	2022_03	Appendix IV	Antimony	0.00047 J	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	12_2_101
Comanche	W-9	Downgradient	5/6/2022	2022_05	Appendix IV	Antimony	0.00092 J	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	12_2_101
Comanche	W-9	Downgradient	10/29/2022	2022_11	Appendix IV	Antimony	0.00086 J	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	12_2_101
Comanche	W-9	Downgradient	2/21/2023	2023_02	Appendix IV	Antimony	U	mg/l	Non-Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	12_2_101
Comanche	W-9	Downgradient	5/3/2023	2023_05	Appendix IV	Antimony	U	mg/l	Non-Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	12_2_101
Comanche	W-9	Downgradient	1/13/2021	2021_01	Appendix IV	Arsenic	0.001 J	mg/l	Detect Value	0.005	0.00075	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	12_2_102
Comanche	W-9	Downgradient	4/19/2021	2021_04	Appendix IV	Arsenic	U	mg/l	Non-Detect Value	0.025	0.0038	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	12_2_102
Comanche	W-9	Downgradient	5/27/2021	2021_06	Appendix IV	Arsenic	U	mg/l	Non-Detect Value	0.025	0.0038	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	12_2_102
Comanche	W-9	Downgradient	11/30/2021	2021_11_AMWells	Appendix IV	Arsenic	0.00089 J	mg/l	Detect Value	0.005	0.00075	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	12_2_102
Comanche	W-9	Downgradient	1/11/2022	2022_01	Appendix IV	Arsenic	U	mg/l	Non-Detect Value	0.008	0.003	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	12_2_102
Comanche	W-9	Downgradient	3/1/2022	2022_02	Appendix IV	Arsenic	U	mg/l	Non-Detect Value	0.002	0.00075	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	12_2_102
Comanche	W-9	Downgradient	3/31/2022	2022_03	Appendix IV	Arsenic	0.00071 J	mg/l	Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	12_2_102
Comanche	W-9	Downgradient	5/6/2022	2022_05	Appendix IV	Arsenic	0.00075 J	mg/l	Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	12_2_102
Comanche	W-9	Downgradient	10/29/2022	2022_11	Appendix IV	Arsenic	0.00083 J	mg/l	Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	12_2_102
Comanche	W-9	Downgradient	2/21/2023	2023_02	Appendix IV	Arsenic	0.00087 J	mg/l	Detect Value	0.005	0.0005	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	12_2_102
Comanche	W-9	Downgradient	5/3/2023	2023_05	Appendix IV	Arsenic	U	mg/l	Non-Detect Value	0.005	0.0005	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	12_2_102
Comanche	W-9	Downgradient	1/13/2021	2021_01	Appendix IV	Barium	0.021	mg/l	Detect Value	0.005	0.0022	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	12_2_103
Comanche	W-9	Downgradient	4/19/2021	2021_04	Appendix IV	Barium	0.024 J	mg/l	Detect Value	0.025	0.011	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	12_2_103
Comanche	W-9	Downgradient	5/27/2021	2021_06	Appendix IV	Barium	0.016 J	mg/l	Detect Value	0.025	0.011	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	12_2_103
Comanche	W-9	Downgradient	11/30/2021	2021_11_AMWells	Appendix IV	Barium	0.022	mg/l	Detect Value	0.005	0.0022	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	12_2_103
Comanche	W-9	Downgradient	1/11/2022	2022_01	Appendix IV	Barium	0.017	mg/l	Detect Value	0.008	0.0015	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	12_2_103
Comanche	W-9	Downgradient	3/1/2022	2022_02	Appendix IV	Barium	0.021	mg/l	Detect Value	0.002	0.00088	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	12_2_103
Comanche	W-9	Downgradient	3/31/2022	2022_03	Appendix IV	Barium	U	mg/l	Non-Detect Value	0.2	0.088	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	12_2_103
Comanche	W-9	Downgradient	5/6/2022	2022_05	Appendix IV	Barium	0.016	mg/l	Detect Value	0.001	0.00029	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	12_2_103
Comanche	W-9	Downgradient	10/29/2022	2022_11	Appendix IV	Barium	0.014	mg/l	Detect Value	0.001	0.00029	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	12_2_103
Comanche	W-9	Downgradient	2/21/2023	2023_02	Appendix IV	Barium	0.024	mg/l	Detect Value	0.003	0.00038	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	12_2_103
Comanche	W-9	Downgradient	5/3/2023	2023_05	Appendix IV	Barium	0.017	mg/l	Detect Value	0.003	0.00038	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	12_2_103
Comanche	W-9	Downgradient	1/13/2021	2021_01	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.001	0.00031	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	12_2_104
Comanche	W-9	Downgradient	4/19/2021	2021_04	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.005	0.0015	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	12_2_104
Comanche	W-9	Downgradient	11/30/2021	2021_11_AMWells	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.001	0.00062	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	12_2_104
Comanche	W-9	Downgradient	1/11/2022	2022_01	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.007	0.0019	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	12_2_104
Comanche	W-9	Downgradient	3/1/2022	2022_02	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.01	0.0027	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	12_2_104
Comanche	W-9	Downgradient	3/31/2022	2022_03	Appendix IV	Beryllium	UJ	mg/l	Non-Detect Value	0.1	0.027	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	12_2_104
Comanche	W-9	Downgradient	5/6/2022	2022_05	Appendix IV	Beryllium	UJ	mg/l	Non-Detect Value	0.001	8.00E-05	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	12_2_104
Comanche	W-9	Downgradient	10/29/2022	2022_11	Appendix IV	Beryllium	UJ	mg/l	Non-Detect Value	0.001	8.00E-05	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	12_2_104
Comanche	W-9	Downgradient	2/21/2023	2023_02	Appendix IV	Beryllium	UJ	mg/l	Non-Detect Value	0.001	0.0003	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	12_2_104
Comanche	W-9	Downgradient	5/3/2023	2023_05	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.001	0.0003	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	12_2_104
Comanche	W-9	Downgradient	1/13/2021	2021_01	Appendix IV	Cadmium	0.00077 J+	mg/l	Detect Value	0.001	0.0002	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	12_2_106
Comanche	W-9	Downgradient	4/19/2021	2021_04	Appendix IV	Cadmium	U	mg/l	Non-Detect Value	0.005	0.00099	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	12_2_106
Comanche	W-9	Downgradient	5/27/2021	2021_06	Appendix IV	Cadmium	U	mg/l	Non-Detect Value	0.005	0.00099	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	12_2_106
Comanche	W-9	Downgradient	11/30/2021	2021_11_AMWells	Appendix IV	Cadmium	0.00034 J	mg/l	Detect Value	0.001	0.0002	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	12_2_106
Comanche	W-9	Downgradient	1/11/2022	2022_01	Appendix IV	Cadmium	0.0011	mg/l	Detect Value	0.0004	0.0002	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	12_2_106
Comanche	W-9	Downgradient	3/1/2022	2022_02	Appendix IV	Cadmium	U	mg/l	Non-Detect Value	0.001	0.00055	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	12_2_106
Comanche	W-9	Downgradient	3/31/2022	2022_03	Appendix IV	Cadmium	U	mg/l	Non-Detect Value	0.01	0.0055	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	12_2_106
Comanche	W-9	Downgradient	5/6/2022	2022_05	Appendix IV	Cadmium	U	mg/l	Non-Detect Value	0.005	0.0013	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	12_2_106
Comanche	W-9	Downgradient	10/29/2022	2022_11	Appendix IV	Cadmium	0.0011	mg/l	Detect Value	0.001	0.00027	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	12_2_106
Comanche	W-9	Downgradient	2/21/2023	2023_02	Appendix IV	Cadmium	0.0012	mg/l	Detect Value	0.001	0.00019	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	12_2_106
Comanche	W-9	Downgradient	5/3/2023	2023_05	Appendix IV	Cadmium	0.00069 J+	mg/l	Detect Value	0.001	0.00019	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	12_2_106
Comanche	W-9	Downgradient	1/13/2021	2021_01	Appendix IV	Chromium, Total	0.0013 J	mg/l	Detect Value	0.002	0.00098	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	12_2_109
Comanche	W-9	Downgradient	4/19/2021	2021_04	Appendix IV	Chromium, Total	U	mg/l	Non-Detect Value	0.01	0.0049	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	12_2_109
Comanche	W-9	Downgradient	5/27/2021	2021_06	Appendix IV	Chromium, Total	U	mg/l	Non-Detect Value	0.01	0.0049	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	12_2_109
Comanche	W-9	Downgradient	11/30/2021	2021_11_AMWells	Appendix IV	Chromium, Total	U	mg/l	Non-Detect Value	0.0025	0.0025	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	12_2_109
Comanche	W-9	Downgradient	1/11/2022	2022_01	Appendix IV	Chromium, Total	U	mg/l	Non-Detect Value	0.02	0.0044	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	12_2_109
Comanche	W-9	Downgradient	3/1/2022	2022_02	Appendix IV	Chromium, Total	U	mg/l	Non-Detect Value	0.005	0.0011	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	12_2_109
Comanche	W-9	Downgradient	3/31/2022	2022_03	Appendix IV	Chromium, Total	U	mg/l	Non-Detect Value	0.5	0.11	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	12_2_109
Comanche	W-9	Downgradient	5/6/2022	2022_05	Appendix IV	Chromium, Total	0.00087 J	mg/l	Detect Value	0.002	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	12_2_109
Comanche	W-9	Downgradient	10/29/2022	2022_11	Appendix IV	Chromium, Total	0.0038	mg/l	Detect Value	0.002	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	12_2_109
Comanche	W-9	Downgradient	2/21/2023	2023_02	Appendix IV	Chromium, Total	0.0037	mg/l	Detect Value	0.003	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	12_2_109
Comanche	W-9	Downgradient	5/3/2023	2023_05	Appendix IV	Chromium, Total	0.002 J	mg/l	Detect Value	0.003	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	12_2_109
Comanche	W-9	Downgradient	1/13/2021	2021_01	Appendix IV	Cobalt	0.016	mg/l	Detect Value	0.001	0.00019	mg/l	7440-48-4	TRG	T		None	N	12_2_110
Comanche	W-9	Downgradient	4/19/2021	2021_04	Appendix IV	Cobalt	0.0064	mg/l	Detect Value	0.005	0.00095	mg/l	7440-48-4	TRG	T		None	N	12_2_110
Comanche	W-9	Downgradient	5/27/2021	2021_06	Appendix IV	Cobalt	0.0058	mg/l	Detect Value	0.005	0.00095	mg/l	7440-48-4	TRG	T		None	N	12_2_110
Comanche	W-9	Downgradient	11/30/2021	2021_11_AMWells	Appendix IV	Cobalt	0.0015 J	mg/l	Detect Value	0.002	0.00038	mg/l	7440-48-4	TRG	T		None	N	12_2_110
Comanche	W-9	Downgradient	1/11/2022	2022_01	Appendix IV	Cobalt	0.002	mg/l	Detect Value	0.002	0.00076	mg/l	7440-48-4	TRG	T		None	N	12_2_110
Comanche	W-9	Downgradient	3/1/2022	2022_02	Appendix IV	Cobalt	0.00084	mg/l	Detect Value	0.0005	0.00019	mg/l	7440-48-4	TRG	T		None	N	12_2_110

Comanche	W-9	Downgradient	3/31/2022	2022_03	Appendix IV	Cobalt	U	mg/l	Non-Detect Value	0.05	0.019	mg/l	7440-48-4	TRG	T	None	N	12_2_110
Comanche	W-9	Downgradient	5/6/2022	2022_05	Appendix IV	Cobalt	0.0041	mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG	T	None	N	12_2_110
Comanche	W-9	Downgradient	10/29/2022	2022_11	Appendix IV	Cobalt	0.0025	mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG	T	None	N	12_2_110
Comanche	W-9	Downgradient	2/21/2023	2023_02	Appendix IV	Cobalt	0.00098 J	mg/l	Detect Value	0.001	0.00033	mg/l	7440-48-4	TRG	T	None	N	12_2_110
Comanche	W-9	Downgradient	5/3/2023	2023_05	Appendix IV	Cobalt	0.0012	mg/l	Detect Value	0.001	0.00033	mg/l	7440-48-4	TRG	T	None	N	12_2_110
Comanche	W-9	Downgradient	1/13/2021	2021_01	Appendix IV	Fluoride (App IV)	U	mg/l	Non-Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	12_2_112
Comanche	W-9	Downgradient	4/19/2021	2021_04	Appendix IV	Fluoride (App IV)	0.37 J	mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	12_2_112
Comanche	W-9	Downgradient	5/27/2021	2021_06	Appendix IV	Fluoride (App IV)	0.32 J	mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	12_2_112
Comanche	W-9	Downgradient	11/30/2021	2021_11_AMWells	Appendix IV	Fluoride (App IV)	UJ	mg/l	Non-Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	12_2_112
Comanche	W-9	Downgradient	1/11/2022	2022_01	Appendix IV	Fluoride (App IV)	0.93 J	mg/l	Detect Value	2.5	0.83	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	12_2_112
Comanche	W-9	Downgradient	3/1/2022	2022_02	Appendix IV	Fluoride (App IV)	0.61	mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	12_2_112
Comanche	W-9	Downgradient	3/31/2022	2022_03	Appendix IV	Fluoride (App IV)	20	mg/l	Detect Value	2.5	0.83	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	12_2_112
Comanche	W-9	Downgradient	5/6/2022	2022_05	Appendix IV	Fluoride (App IV)	20	mg/l	Detect Value	2.5	0.83	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	12_2_112
Comanche	W-9	Downgradient	10/29/2022	2022_11	Appendix IV	Fluoride (App IV)	0.38 J	mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	12_2_112
Comanche	W-9	Downgradient	2/21/2023	2023_02	Appendix IV	Fluoride (App IV)	U	mg/l	Non-Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	12_2_112
Comanche	W-9	Downgradient	5/3/2023	2023_05	Appendix IV	Fluoride (App IV)	0.59	mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	12_2_112
Comanche	W-9	Downgradient	1/13/2021	2021_01	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.001	0.00045	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	12_2_113
Comanche	W-9	Downgradient	4/19/2021	2021_04	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.005	0.0023	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	12_2_113
Comanche	W-9	Downgradient	5/27/2021	2021_06	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.005	0.0023	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	12_2_113
Comanche	W-9	Downgradient	11/30/2021	2021_11_AMWells	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.001	0.00045	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	12_2_113
Comanche	W-9	Downgradient	1/11/2022	2022_01	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.002	0.00084	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	12_2_113
Comanche	W-9	Downgradient	3/1/2022	2022_02	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.0005	0.00024	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	12_2_113
Comanche	W-9	Downgradient	3/31/2022	2022_03	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.05	0.024	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	12_2_113
Comanche	W-9	Downgradient	5/6/2022	2022_05	Appendix IV	Lead	0.00031 J	mg/l	Detect Value	0.001	0.00018	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	12_2_113
Comanche	W-9	Downgradient	10/29/2022	2022_11	Appendix IV	Lead	0.00023 J	mg/l	Detect Value	0.001	0.00018	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	12_2_113
Comanche	W-9	Downgradient	2/21/2023	2023_02	Appendix IV	Lead	0.00044 J	mg/l	Detect Value	0.001	0.00023	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	12_2_113
Comanche	W-9	Downgradient	5/3/2023	2023_05	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.001	0.00023	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	12_2_113
Comanche	W-9	Downgradient	1/13/2021	2021_01	Appendix IV	Lithium	1.1	mg/l	Detect Value	0.08	0.017	mg/l	7439-93-2	TRG	T	None	N	12_2_114
Comanche	W-9	Downgradient	4/19/2021	2021_04	Appendix IV	Lithium	1	mg/l	Detect Value	0.04	0.0083	mg/l	7439-93-2	TRG	T	None	N	12_2_114
Comanche	W-9	Downgradient	5/27/2021	2021_06	Appendix IV	Lithium	0.96	mg/l	Detect Value	0.04	0.0083	mg/l	7439-93-2	TRG	T	None	N	12_2_114
Comanche	W-9	Downgradient	11/30/2021	2021_11_AMWells	Appendix IV	Lithium	0.87 J	mg/l	Detect Value	0.016	0.0033	mg/l	7439-93-2	TRG	T	None	N	12_2_114
Comanche	W-9	Downgradient	1/11/2022	2022_01	Appendix IV	Lithium	1.2	mg/l	Detect Value	0.04	0.01	mg/l	7439-93-2	TRG	T	None	N	12_2_114
Comanche	W-9	Downgradient	3/1/2022	2022_02	Appendix IV	Lithium	1.2 J-	mg/l	Detect Value	0.1	0.025	mg/l	7439-93-2	TRG	T	None	N	12_2_114
Comanche	W-9	Downgradient	3/31/2022	2022_03	Appendix IV	Lithium	1.3	mg/l	Detect Value	1	0.25	mg/l	7439-93-2	TRG	T	None	N	12_2_114
Comanche	W-9	Downgradient	5/6/2022	2022_05	Appendix IV	Lithium	1.2	mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T	None	N	12_2_114
Comanche	W-9	Downgradient	10/29/2022	2022_11	Appendix IV	Lithium	1.2	mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T	None	N	12_2_114
Comanche	W-9	Downgradient	2/21/2023	2023_02	Appendix IV	Lithium	1.2	mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T	None	N	12_2_114
Comanche	W-9	Downgradient	5/3/2023	2023_05	Appendix IV	Lithium	1.2	mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T	None	N	12_2_114
Comanche	W-9	Downgradient	1/13/2021	2021_01	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	0.00013	mg/l	7439-97-6	TRG	T	0.002 Primary MCL	N	12_2_115
Comanche	W-9	Downgradient	4/19/2021	2021_04	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	0.00013	mg/l	7439-97-6	TRG	T	0.002 Primary MCL	N	12_2_115
Comanche	W-9	Downgradient	11/30/2021	2021_11_AMWells	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	0.00013	mg/l	7439-97-6	TRG	T	0.002 Primary MCL	N	12_2_115
Comanche	W-9	Downgradient	1/11/2022	2022_01	Appendix IV	Mercury	UJ	mg/l	Non-Detect Value	0.0002	0.00015	mg/l	7439-97-6	TRG	T	0.002 Primary MCL	N	12_2_115
Comanche	W-9	Downgradient	3/1/2022	2022_02	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	0.00011	mg/l	7439-97-6	TRG	T	0.002 Primary MCL	N	12_2_115
Comanche	W-9	Downgradient	3/31/2022	2022_03	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	0.00011	mg/l	7439-97-6	TRG	T	0.002 Primary MCL	N	12_2_115
Comanche	W-9	Downgradient	5/6/2022	2022_05	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002 Primary MCL	N	12_2_115
Comanche	W-9	Downgradient	10/29/2022	2022_11	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002 Primary MCL	N	12_2_115
Comanche	W-9	Downgradient	2/21/2023	2023_02	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002 Primary MCL	N	12_2_115
Comanche	W-9	Downgradient	5/3/2023	2023_05	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002 Primary MCL	N	12_2_115
Comanche	W-9	Downgradient	1/13/2021	2021_01	Appendix IV	Molybdenum	0.0075 J	mg/l	Detect Value	0.01	0.0011	mg/l	7439-98-7	TRG	T	None	N	12_2_116
Comanche	W-9	Downgradient	4/19/2021	2021_04	Appendix IV	Molybdenum	0.0077 J	mg/l	Detect Value	0.05	0.0054	mg/l	7439-98-7	TRG	T	None	N	12_2_116
Comanche	W-9	Downgradient	5/27/2021	2021_06	Appendix IV	Molybdenum	U	mg/l	Non-Detect Value	0.05	0.0054	mg/l	7439-98-7	TRG	T	None	N	12_2_116
Comanche	W-9	Downgradient	11/30/2021	2021_11_AMWells	Appendix IV	Molybdenum	0.0034 J	mg/l	Detect Value	0.01	0.0011	mg/l	7439-98-7	TRG	T	None	N	12_2_116
Comanche	W-9	Downgradient	1/11/2022	2022_01	Appendix IV	Molybdenum	U	mg/l	Non-Detect Value	0.014	0.0091	mg/l	7439-98-7	TRG	T	None	N	12_2_116
Comanche	W-9	Downgradient	3/1/2022	2022_02	Appendix IV	Molybdenum	0.0031	mg/l	Detect Value	0.002	0.0012	mg/l	7439-98-7	TRG	T	None	N	12_2_116
Comanche	W-9	Downgradient	3/31/2022	2022_03	Appendix IV	Molybdenum	U	mg/l	Non-Detect Value	0.2	0.12	mg/l	7439-98-7	TRG	T	None	N	12_2_116
Comanche	W-9	Downgradient	5/6/2022	2022_05	Appendix IV	Molybdenum	0.0057 J+	mg/l	Detect Value	0.002	0.00014	mg/l	7439-98-7	TRG	T	None	N	12_2_116
Comanche	W-9	Downgradient	10/29/2022	2022_11	Appendix IV	Molybdenum	0.0079 J+	mg/l	Detect Value	0.002	0.00014	mg/l	7439-98-7	TRG	T	None	N	12_2_116
Comanche	W-9	Downgradient	2/21/2023	2023_02	Appendix IV	Molybdenum	0.0032	mg/l	Detect Value	0.002	0.00037	mg/l	7439-98-7	TRG	T	None	N	12_2_116
Comanche	W-9	Downgradient	5/3/2023	2023_05	Appendix IV	Molybdenum	0.0025	mg/l	Detect Value	0.002	0.00037	mg/l	7439-98-7	TRG	T	None	N	12_2_116
Comanche	W-9	Downgradient	1/13/2021	2021_01	Appendix IV	Radium-226+228	1.43	pci/l	Detect Value	5	0.627	pci/l	425	TRG	T		N	12_2_120
Comanche	W-9	Downgradient	4/19/2021	2021_04	Appendix IV	Radium-226+228	1.94	pci/l	Detect Value	5	0.491	pci/l	425	TRG	T		N	12_2_120
Comanche	W-9	Downgradient	5/27/2021	2021_06	Appendix IV	Radium-226+228	1.77	pci/l	Detect Value	5	0.491	pci/l	425	TRG	T		N	12_2_120
Comanche	W-9	Downgradient	1/11/2022	2022_01	Appendix IV	Radium-226+228	1.82	pci/l	Detect Value	5	0.712	pci/l	425	TRG	T		N	12_2_120
Comanche	W-9	Downgradient	3/1/2022	2022_02	Appendix IV	Radium-226+228	1.51	pci/l	Detect Value	5	0.549	pci/l	425	TRG	T		N	12_2_120
Comanche	W-9	Downgradient	3/31/2022	2022_03	Appendix IV	Radium-226+228	2.4	pci/l	Detect Value	5	0.885	pci/l	425	TRG	T		N	12_2_120
Comanche	W-9	Downgradient	5/6/2022	2022_05	Appendix IV	Radium-226+228	2.67	pci/l	Detect Value	5	1.01	pci/l	425	TRG	T		N	12_2_120
Comanche	W-9	Downgradient	10/29/2022	2022_11	Appendix IV	Radium-226+228	1.42 U	pci/l	Non-Detect Value	5	1.57	pci/l	425	TRG	T		N	12_2_120
Comanche	W-9	Downgradient	2/21/2023	2023_02	Appendix IV	Radium-226+228	1.8	pci/l	Detect Value	5	1.11	pci/l	425	TRG	T		N	12_2_120

Comanche	W-9	Downgradient	5/3/2023	2023_05	Appendix IV	Radium-226+228	3.32	pci/l	Detect Value	5	2.31	pci/l	425	TRG		T					N	12_2_120
Comanche	W-9	Downgradient	1/13/2021	2021_01	Appendix IV	Selenium	0.0046 J	mg/l	Detect Value	0.005	0.00089	mg/l	7782-49-2	TRG		T	0.05	Primary MCL			N	12_2_122
Comanche	W-9	Downgradient	4/19/2021	2021_04	Appendix IV	Selenium	0.0055 J	mg/l	Detect Value	0.025	0.0045	mg/l	7782-49-2	TRG		T	0.05	Primary MCL			N	12_2_122
Comanche	W-9	Downgradient	5/27/2021	2021_06	Appendix IV	Selenium	0.0055 J	mg/l	Detect Value	0.025	0.0045	mg/l	7782-49-2	TRG		T	0.05	Primary MCL			N	12_2_122
Comanche	W-9	Downgradient	11/30/2021	2021_11_AMWells	Appendix IV	Selenium	0.0031 J	mg/l	Detect Value	0.01	0.0018	mg/l	7782-49-2	TRG		T	0.05	Primary MCL			N	12_2_122
Comanche	W-9	Downgradient	1/11/2022	2022_01	Appendix IV	Selenium	0.0099 J	mg/l	Detect Value	0.02	0.0038	mg/l	7782-49-2	TRG		T	0.05	Primary MCL			N	12_2_122
Comanche	W-9	Downgradient	3/1/2022	2022_02	Appendix IV	Selenium	0.0037 J+	mg/l	Detect Value	0.005	0.00096	mg/l	7782-49-2	TRG		T	0.05	Primary MCL			N	12_2_122
Comanche	W-9	Downgradient	3/31/2022	2022_03	Appendix IV	Selenium	U	mg/l	Non-Detect Value	0.5	0.096	mg/l	7782-49-2	TRG		T	0.05	Primary MCL			N	12_2_122
Comanche	W-9	Downgradient	5/6/2022	2022_05	Appendix IV	Selenium	0.004 J	mg/l	Detect Value	0.005	0.00037	mg/l	7782-49-2	TRG		T	0.05	Primary MCL			N	12_2_122
Comanche	W-9	Downgradient	10/29/2022	2022_11	Appendix IV	Selenium	0.0095	mg/l	Detect Value	0.005	0.00037	mg/l	7782-49-2	TRG		T	0.05	Primary MCL			N	12_2_122
Comanche	W-9	Downgradient	2/21/2023	2023_02	Appendix IV	Selenium	0.0034 J+	mg/l	Detect Value	0.005	0.001	mg/l	7782-49-2	TRG		T	0.05	Primary MCL			N	12_2_122
Comanche	W-9	Downgradient	5/3/2023	2023_05	Appendix IV	Selenium	0.003 J	mg/l	Detect Value	0.005	0.001	mg/l	7782-49-2	TRG		T	0.05	Primary MCL			N	12_2_122
Comanche	W-9	Downgradient	1/13/2021	2021_01	Appendix IV	Thallium	0.00033 J	mg/l	Detect Value	0.001	0.0002	mg/l	7440-28-0	TRG		T	0.002	Primary MCL			N	12_2_126
Comanche	W-9	Downgradient	4/19/2021	2021_04	Appendix IV	Thallium	U	mg/l	Non-Detect Value	0.005	0.001	mg/l	7440-28-0	TRG		T	0.002	Primary MCL			N	12_2_126
Comanche	W-9	Downgradient	5/27/2021	2021_06	Appendix IV	Thallium	U	mg/l	Non-Detect Value	0.005	0.001	mg/l	7440-28-0	TRG		T	0.002	Primary MCL			N	12_2_126
Comanche	W-9	Downgradient	11/30/2021	2021_11_AMWells	Appendix IV	Thallium	0.00022 J	mg/l	Detect Value	0.001	0.0002	mg/l	7440-28-0	TRG		T	0.002	Primary MCL			N	12_2_126
Comanche	W-9	Downgradient	1/11/2022	2022_01	Appendix IV	Thallium	U	mg/l	Non-Detect Value	0.004	0.001	mg/l	7440-28-0	TRG		T	0.002	Primary MCL			N	12_2_126
Comanche	W-9	Downgradient	3/1/2022	2022_02	Appendix IV	Thallium	U	mg/l	Non-Detect Value	0.001	0.00026	mg/l	7440-28-0	TRG		T	0.002	Primary MCL			N	12_2_126
Comanche	W-9	Downgradient	3/31/2022	2022_03	Appendix IV	Thallium	UJ	mg/l	Non-Detect Value	0.1	0.026	mg/l	7440-28-0	TRG		T	0.002	Primary MCL			N	12_2_126
Comanche	W-9	Downgradient	5/6/2022	2022_05	Appendix IV	Thallium	0.00062 J	mg/l	Detect Value	0.001	8.90E-05	mg/l	7440-28-0	TRG		T	0.002	Primary MCL			N	12_2_126
Comanche	W-9	Downgradient	10/29/2022	2022_11	Appendix IV	Thallium	0.00055 J	mg/l	Detect Value	0.001	8.90E-05	mg/l	7440-28-0	TRG		T	0.002	Primary MCL			N	12_2_126
Comanche	W-9	Downgradient	2/21/2023	2023_02	Appendix IV	Thallium	0.00064 J	mg/l	Detect Value	0.001	0.00021	mg/l	7440-28-0	TRG		T	0.002	Primary MCL			N	12_2_126
Comanche	W-9	Downgradient	5/3/2023	2023_05	Appendix IV	Thallium	0.00024 J	mg/l	Detect Value	0.001	0.00021	mg/l	7440-28-0	TRG		T	0.002	Primary MCL			N	12_2_126
Comanche	W-11	Downgradient	1/13/2021	2021_01	Appendix IV	Antimony	U	mg/l	Non-Detect Value	0.002	0.00057	mg/l	7440-36-0	TRG		T	0.006	Primary MCL			N	2_2_101
Comanche	W-11	Downgradient	4/9/2021	2021_04	Appendix IV	Antimony	0.0014 J+	mg/l	Detect Value	0.002	0.00057	mg/l	7440-36-0	TRG		T	0.006	Primary MCL			N	2_2_101
Comanche	W-11	Downgradient	5/27/2021	2021_06	Appendix IV	Antimony	U	mg/l	Non-Detect Value	0.002	0.00057	mg/l	7440-36-0	TRG		T	0.006	Primary MCL			N	2_2_101
Comanche	W-11	Downgradient	12/2/2021	2021_11_AMWells	Appendix IV	Antimony	U	mg/l	Non-Detect Value	0.002	0.00057	mg/l	7440-36-0	TRG		T	0.006	Primary MCL			N	2_2_101
Comanche	W-11	Downgradient	1/13/2022	2022_01	Appendix IV	Antimony	U	mg/l	Non-Detect Value	0.014	0.0077	mg/l	7440-36-0	TRG		T	0.006	Primary MCL			N	2_2_101
Comanche	W-11	Downgradient	2/25/2022	2022_02	Appendix IV	Antimony	UJ	mg/l	Non-Detect Value	0.02	0.0069	mg/l	7440-36-0	TRG		T	0.006	Primary MCL			N	2_2_101
Comanche	W-11	Downgradient	4/1/2022	2022_03	Appendix IV	Antimony	U	mg/l	Non-Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG		T	0.006	Primary MCL			N	2_2_101
Comanche	W-11	Downgradient	5/4/2022	2022_05	Appendix IV	Antimony	U	mg/l	Non-Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG		T	0.006	Primary MCL			N	2_2_101
Comanche	W-11	Downgradient	10/29/2022	2022_11	Appendix IV	Antimony	0.00043 J	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG		T	0.006	Primary MCL			N	2_2_101
Comanche	W-11	Downgradient	2/16/2023	2023_02	Appendix IV	Antimony	U	mg/l	Non-Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG		T	0.006	Primary MCL			N	2_2_101
Comanche	W-11	Downgradient	5/3/2023	2023_05	Appendix IV	Antimony	0.00048 J	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG		T	0.006	Primary MCL			N	2_2_101
Comanche	W-11	Downgradient	1/13/2021	2021_01	Appendix IV	Arsenic	0.019	mg/l	Detect Value	0.005	0.00075	mg/l	7440-38-2	TRG		T	0.01	Primary MCL			N	2_2_102
Comanche	W-11	Downgradient	4/9/2021	2021_04	Appendix IV	Arsenic	0.019	mg/l	Detect Value	0.005	0.00075	mg/l	7440-38-2	TRG		T	0.01	Primary MCL			N	2_2_102
Comanche	W-11	Downgradient	5/27/2021	2021_06	Appendix IV	Arsenic	U	mg/l	Non-Detect Value	0.005	0.00075	mg/l	7440-38-2	TRG		T	0.01	Primary MCL			N	2_2_102
Comanche	W-11	Downgradient	12/2/2021	2021_11_AMWells	Appendix IV	Arsenic	0.015 J	mg/l	Detect Value	0.025	0.0038	mg/l	7440-38-2	TRG		T	0.01	Primary MCL			N	2_2_102
Comanche	W-11	Downgradient	1/13/2022	2022_01	Appendix IV	Arsenic	U	mg/l	Non-Detect Value	0.014	0.0053	mg/l	7440-38-2	TRG		T	0.01	Primary MCL			N	2_2_102
Comanche	W-11	Downgradient	2/25/2022	2022_02	Appendix IV	Arsenic	U	mg/l	Non-Detect Value	0.02	0.0075	mg/l	7440-38-2	TRG		T	0.01	Primary MCL			N	2_2_102
Comanche	W-11	Downgradient	4/1/2022	2022_03	Appendix IV	Arsenic	0.00043 J	mg/l	Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG		T	0.01	Primary MCL			N	2_2_102
Comanche	W-11	Downgradient	5/4/2022	2022_05	Appendix IV	Arsenic	0.00044 J	mg/l	Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG		T	0.01	Primary MCL			N	2_2_102
Comanche	W-11	Downgradient	10/29/2022	2022_11	Appendix IV	Arsenic	0.00081 J	mg/l	Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG		T	0.01	Primary MCL			N	2_2_102
Comanche	W-11	Downgradient	2/16/2023	2023_02	Appendix IV	Arsenic	0.00068 J	mg/l	Detect Value	0.005	0.0005	mg/l	7440-38-2	TRG		T	0.01	Primary MCL			N	2_2_102
Comanche	W-11	Downgradient	5/3/2023	2023_05	Appendix IV	Arsenic	0.0021 J	mg/l	Detect Value	0.005	0.0005	mg/l	7440-38-2	TRG		T	0.01	Primary MCL			N	2_2_102
Comanche	W-11	Downgradient	1/13/2021	2021_01	Appendix IV	Barium	0.014	mg/l	Detect Value	0.005	0.0022	mg/l	7440-39-3	TRG		T	2	Primary MCL			N	2_2_103
Comanche	W-11	Downgradient	4/9/2021	2021_04	Appendix IV	Barium	0.013	mg/l	Detect Value	0.005	0.0022	mg/l	7440-39-3	TRG		T	2	Primary MCL			N	2_2_103
Comanche	W-11	Downgradient	5/27/2021	2021_06	Appendix IV	Barium	0.24	mg/l	Detect Value	0.005	0.0022	mg/l	7440-39-3	TRG		T	2	Primary MCL			N	2_2_103
Comanche	W-11	Downgradient	12/2/2021	2021_11_AMWells	Appendix IV	Barium	0.012	mg/l	Detect Value	0.005	0.0022	mg/l	7440-39-3	TRG		T	2	Primary MCL			N	2_2_103
Comanche	W-11	Downgradient	1/13/2022	2022_01	Appendix IV	Barium	0.013 J	mg/l	Detect Value	0.014	0.0026	mg/l	7440-39-3	TRG		T	2	Primary MCL			N	2_2_103
Comanche	W-11	Downgradient	2/25/2022	2022_02	Appendix IV	Barium	0.019 J+	mg/l	Detect Value	0.02	0.0088	mg/l	7440-39-3	TRG		T	2	Primary MCL			N	2_2_103
Comanche	W-11	Downgradient	4/1/2022	2022_03	Appendix IV	Barium	U	mg/l	Non-Detect Value	0.2	0.088	mg/l	7440-39-3	TRG		T	2	Primary MCL			N	2_2_103
Comanche	W-11	Downgradient	5/4/2022	2022_05	Appendix IV	Barium	0.015	mg/l	Detect Value	0.001	0.00029	mg/l	7440-39-3	TRG		T	2	Primary MCL			N	2_2_103
Comanche	W-11	Downgradient	10/29/2022	2022_11	Appendix IV	Barium	0.018	mg/l	Detect Value	0.001	0.00029	mg/l	7440-39-3	TRG		T	2	Primary MCL			N	2_2_103
Comanche	W-11	Downgradient	2/16/2023	2023_02	Appendix IV	Barium	0.016 J+	mg/l	Detect Value	0.003	0.00038	mg/l	7440-39-3	TRG		T	2	Primary MCL			N	2_2_103
Comanche	W-11	Downgradient	5/3/2023	2023_05	Appendix IV	Barium	0.024	mg/l	Detect Value	0.003	0.00038	mg/l	7440-39-3	TRG		T	2	Primary MCL			N	2_2_103
Comanche	W-11	Downgradient	1/13/2021	2021_01	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.001	0.00031	mg/l	7440-41-7	TRG		T	0.004	Primary MCL			N	2_2_104
Comanche	W-11	Downgradient	4/9/2021	2021_04	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.001	0.00031	mg/l	7440-41-7	TRG		T	0.004	Primary MCL			N	2_2_104
Comanche	W-11	Downgradient	12/2/2021	2021_11_AMWells	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.001	0.00062	mg/l	7440-41-7	TRG		T	0.004	Primary MCL			N	2_2_104
Comanche	W-11	Downgradient	1/13/2022	2022_01	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.01	0.0027	mg/l	7440-41-7	TRG		T	0.004	Primary MCL			N	2_2_104
Comanche	W-11	Downgradient	2/25/2022	2022_02	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.01	0.0027	mg/l	7440-41-7	TRG		T	0.004	Primary MCL			N	2_2_104
Comanche	W-11	Downgradient	4/1/2022	2022_03	Appendix IV	Beryllium	UJ	mg/l	Non-Detect Value	0.1	0.027	mg/l	7440-41-7	TRG		T	0.004	Primary MCL			N	2_2_104
Comanche	W-11	Downgradient	5/4/2022	2022_05	Appendix IV	Beryllium	0.00016 J+	mg/l	Detect Value	0.001	8.00E-05	mg/l	7440-41-7	TRG		T	0.004	Primary MCL			N	2_2_104
Comanche	W-11	Downgradient	10/29/2022	2022_11	Appendix IV	Beryllium	0.00012 J+	mg/l	Detect Value	0.001	8.00E-05	mg/l	7440-41-7	TRG		T	0.004	Primary MCL			N	2_2_104
Comanche	W-11	Downgradient	2/16/2023	2023_02	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.001	0.0003	mg/l	7440-41-7	TRG		T	0.004	Primary MCL			N	2_2_104
Comanche	W-11	Downgradient	5/3/2023	2023_05	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.001	0.0003	mg/l	7440-41-7	TRG		T	0.004	Primary MCL			N	2_2_104
Comanche	W-11	Downgradient	1/13/2021	2021_01	Appendix IV	Cadmium	0.0011	mg/l	Detect Value	0.001	0.0002	mg/l	7440-43-9	TRG		T	0.005	Primary MCL			N	2_2_106
Comanche	W-11	Downgradient	4/9/2021	2021_04	Appendix IV	Cadmium	0.0011 J+	mg/l	Detect Value	0.001	0.0002	mg/l	7440-43-9	TRG		T	0.005	Primary MCL			N	2_2_106

Comanche	W-11	Downgradient	5/27/2021	2021_06	Appendix IV	Cadmium	U	mg/l	Non-Detect Value	0.001	0.0002	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	2_2_106
Comanche	W-11	Downgradient	12/2/2021	2021_11_AMWells	Appendix IV	Cadmium	0.0012	mg/l	Detect Value	0.001	0.0002	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	2_2_106
Comanche	W-11	Downgradient	1/13/2022	2022_01	Appendix IV	Cadmium	0.0015	mg/l	Detect Value	0.0007	0.00036	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	2_2_106
Comanche	W-11	Downgradient	2/25/2022	2022_02	Appendix IV	Cadmium	0.0019 J-	mg/l	Detect Value	0.001	0.00055	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	2_2_106
Comanche	W-11	Downgradient	4/1/2022	2022_03	Appendix IV	Cadmium	U	mg/l	Non-Detect Value	0.01	0.0055	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	2_2_106
Comanche	W-11	Downgradient	5/4/2022	2022_05	Appendix IV	Cadmium	0.0015	mg/l	Detect Value	0.001	0.00027	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	2_2_106
Comanche	W-11	Downgradient	10/29/2022	2022_11	Appendix IV	Cadmium	0.0014	mg/l	Detect Value	0.001	0.00027	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	2_2_106
Comanche	W-11	Downgradient	2/16/2023	2023_02	Appendix IV	Cadmium	0.0015	mg/l	Detect Value	0.001	0.00019	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	2_2_106
Comanche	W-11	Downgradient	5/3/2023	2023_05	Appendix IV	Cadmium	0.0017 J+	mg/l	Detect Value	0.001	0.00019	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	2_2_106
Comanche	W-11	Downgradient	1/13/2021	2021_01	Appendix IV	Chromium, Total	U	mg/l	Non-Detect Value	0.002	0.00098	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	2_2_109
Comanche	W-11	Downgradient	4/9/2021	2021_04	Appendix IV	Chromium, Total	0.0021 J+	mg/l	Detect Value	0.002	0.00098	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	2_2_109
Comanche	W-11	Downgradient	5/27/2021	2021_06	Appendix IV	Chromium, Total	0.001 J	mg/l	Detect Value	0.002	0.00098	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	2_2_109
Comanche	W-11	Downgradient	12/2/2021	2021_11_AMWells	Appendix IV	Chromium, Total	U	mg/l	Non-Detect Value	0.0025	0.0025	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	2_2_109
Comanche	W-11	Downgradient	1/13/2022	2022_01	Appendix IV	Chromium, Total	U	mg/l	Non-Detect Value	0.035	0.0077	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	2_2_109
Comanche	W-11	Downgradient	2/25/2022	2022_02	Appendix IV	Chromium, Total	U	mg/l	Non-Detect Value	0.05	0.011	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	2_2_109
Comanche	W-11	Downgradient	4/1/2022	2022_03	Appendix IV	Chromium, Total	U	mg/l	Non-Detect Value	0.5	0.11	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	2_2_109
Comanche	W-11	Downgradient	5/4/2022	2022_05	Appendix IV	Chromium, Total	0.0012 J	mg/l	Detect Value	0.002	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	2_2_109
Comanche	W-11	Downgradient	10/29/2022	2022_11	Appendix IV	Chromium, Total	0.0016 J	mg/l	Detect Value	0.002	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	2_2_109
Comanche	W-11	Downgradient	2/16/2023	2023_02	Appendix IV	Chromium, Total	0.0028 J+	mg/l	Detect Value	0.003	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	2_2_109
Comanche	W-11	Downgradient	5/3/2023	2023_05	Appendix IV	Chromium, Total	0.0033	mg/l	Detect Value	0.003	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	2_2_109
Comanche	W-11	Downgradient	1/13/2021	2021_01	Appendix IV	Cobalt	0.0073	mg/l	Detect Value	0.001	0.00019	mg/l	7440-48-4	TRG	T		None	N	2_2_110
Comanche	W-11	Downgradient	4/9/2021	2021_04	Appendix IV	Cobalt	0.01	mg/l	Detect Value	0.001	0.00019	mg/l	7440-48-4	TRG	T		None	N	2_2_110
Comanche	W-11	Downgradient	5/27/2021	2021_06	Appendix IV	Cobalt	U	mg/l	Non-Detect Value	0.001	0.00019	mg/l	7440-48-4	TRG	T		None	N	2_2_110
Comanche	W-11	Downgradient	12/2/2021	2021_11_AMWells	Appendix IV	Cobalt	0.017	mg/l	Detect Value	0.005	0.00095	mg/l	7440-48-4	TRG	T		None	N	2_2_110
Comanche	W-11	Downgradient	1/13/2022	2022_01	Appendix IV	Cobalt	0.017	mg/l	Detect Value	0.0035	0.0013	mg/l	7440-48-4	TRG	T		None	N	2_2_110
Comanche	W-11	Downgradient	2/25/2022	2022_02	Appendix IV	Cobalt	0.023 J+	mg/l	Detect Value	0.005	0.0019	mg/l	7440-48-4	TRG	T		None	N	2_2_110
Comanche	W-11	Downgradient	4/1/2022	2022_03	Appendix IV	Cobalt	0.02 J	mg/l	Detect Value	0.05	0.019	mg/l	7440-48-4	TRG	T		None	N	2_2_110
Comanche	W-11	Downgradient	5/4/2022	2022_05	Appendix IV	Cobalt	0.017	mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG	T		None	N	2_2_110
Comanche	W-11	Downgradient	10/29/2022	2022_11	Appendix IV	Cobalt	0.021	mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG	T		None	N	2_2_110
Comanche	W-11	Downgradient	2/16/2023	2023_02	Appendix IV	Cobalt	0.02	mg/l	Detect Value	0.001	0.00033	mg/l	7440-48-4	TRG	T		None	N	2_2_110
Comanche	W-11	Downgradient	5/3/2023	2023_05	Appendix IV	Cobalt	0.019	mg/l	Detect Value	0.001	0.00033	mg/l	7440-48-4	TRG	T		None	N	2_2_110
Comanche	W-11	Downgradient	1/13/2021	2021_01	Appendix IV	Fluoride (App IV)	2.7	mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	2_2_112
Comanche	W-11	Downgradient	4/9/2021	2021_04	Appendix IV	Fluoride (App IV)	17 J	mg/l	Detect Value	5	1.7	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	2_2_112
Comanche	W-11	Downgradient	5/27/2021	2021_06	Appendix IV	Fluoride (App IV)	0.36 J	mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	2_2_112
Comanche	W-11	Downgradient	12/2/2021	2021_11_AMWells	Appendix IV	Fluoride (App IV)	UJ	mg/l	Non-Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	2_2_112
Comanche	W-11	Downgradient	1/13/2022	2022_01	Appendix IV	Fluoride (App IV)	1.1 J	mg/l	Detect Value	2.5	0.83	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	2_2_112
Comanche	W-11	Downgradient	2/25/2022	2022_02	Appendix IV	Fluoride (App IV)	0.4 J	mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	2_2_112
Comanche	W-11	Downgradient	4/1/2022	2022_03	Appendix IV	Fluoride (App IV)	25	mg/l	Detect Value	2.5	0.83	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	2_2_112
Comanche	W-11	Downgradient	5/4/2022	2022_05	Appendix IV	Fluoride (App IV)	0.4 J	mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	2_2_112
Comanche	W-11	Downgradient	10/29/2022	2022_11	Appendix IV	Fluoride (App IV)	0.35 J	mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	2_2_112
Comanche	W-11	Downgradient	2/16/2023	2023_02	Appendix IV	Fluoride (App IV)	2.4	mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	2_2_112
Comanche	W-11	Downgradient	5/3/2023	2023_05	Appendix IV	Fluoride (App IV)	0.6	mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	2_2_112
Comanche	W-11	Downgradient	1/13/2021	2021_01	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.001	0.00045	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	2_2_113
Comanche	W-11	Downgradient	4/9/2021	2021_04	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.001	0.00045	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	2_2_113
Comanche	W-11	Downgradient	5/27/2021	2021_06	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.001	0.00045	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	2_2_113
Comanche	W-11	Downgradient	12/2/2021	2021_11_AMWells	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.001	0.00045	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	2_2_113
Comanche	W-11	Downgradient	1/13/2022	2022_01	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.0035	0.0015	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	2_2_113
Comanche	W-11	Downgradient	2/25/2022	2022_02	Appendix IV	Lead	UJ	mg/l	Non-Detect Value	0.005	0.0024	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	2_2_113
Comanche	W-11	Downgradient	4/1/2022	2022_03	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.05	0.024	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	2_2_113
Comanche	W-11	Downgradient	5/4/2022	2022_05	Appendix IV	Lead	0.00037 J	mg/l	Detect Value	0.001	0.00018	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	2_2_113
Comanche	W-11	Downgradient	10/29/2022	2022_11	Appendix IV	Lead	0.00099 J	mg/l	Detect Value	0.001	0.00018	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	2_2_113
Comanche	W-11	Downgradient	2/16/2023	2023_02	Appendix IV	Lead	0.001	mg/l	Detect Value	0.001	0.00023	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	2_2_113
Comanche	W-11	Downgradient	5/3/2023	2023_05	Appendix IV	Lead	0.0027	mg/l	Detect Value	0.001	0.00023	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	2_2_113
Comanche	W-11	Downgradient	1/13/2021	2021_01	Appendix IV	Lithium	3.9	mg/l	Detect Value	0.08	0.017	mg/l	7439-93-2	TRG	T		None	N	2_2_114
Comanche	W-11	Downgradient	4/9/2021	2021_04	Appendix IV	Lithium	3.2	mg/l	Detect Value	0.04	0.0083	mg/l	7439-93-2	TRG	T		None	N	2_2_114
Comanche	W-11	Downgradient	5/27/2021	2021_06	Appendix IV	Lithium	0.056	mg/l	Detect Value	0.008	0.0017	mg/l	7439-93-2	TRG	T		None	N	2_2_114
Comanche	W-11	Downgradient	12/2/2021	2021_11_AMWells	Appendix IV	Lithium	2.7 J	mg/l	Detect Value	0.04	0.0083	mg/l	7439-93-2	TRG	T		None	N	2_2_114
Comanche	W-11	Downgradient	1/13/2022	2022_01	Appendix IV	Lithium	3.4	mg/l	Detect Value	0.07	0.018	mg/l	7439-93-2	TRG	T		None	N	2_2_114
Comanche	W-11	Downgradient	2/25/2022	2022_02	Appendix IV	Lithium	4.5 J	mg/l	Detect Value	0.1	0.025	mg/l	7439-93-2	TRG	T		None	N	2_2_114
Comanche	W-11	Downgradient	4/1/2022	2022_03	Appendix IV	Lithium	3.9	mg/l	Detect Value	1	0.25	mg/l	7439-93-2	TRG	T		None	N	2_2_114
Comanche	W-11	Downgradient	5/4/2022	2022_05	Appendix IV	Lithium	3.7 J+	mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	2_2_114
Comanche	W-11	Downgradient	10/29/2022	2022_11	Appendix IV	Lithium	3.8	mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	2_2_114
Comanche	W-11	Downgradient	2/16/2023	2023_02	Appendix IV	Lithium	3.5	mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	2_2_114
Comanche	W-11	Downgradient	5/3/2023	2023_05	Appendix IV	Lithium	3.6	mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	2_2_114
Comanche	W-11	Downgradient	1/13/2021	2021_01	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	0.00013	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	2_2_115
Comanche	W-11	Downgradient	4/9/2021	2021_04	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	0.00013	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	2_2_115
Comanche	W-11	Downgradient	12/2/2021	2021_11_AMWells	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	0.00013	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	2_2_115
Comanche	W-11	Downgradient	1/13/2022	2022_01	Appendix IV	Mercury	UJ	mg/l	Non-Detect Value	0.0002	0.00015	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	2_2_115

Comanche	W-11	Downgradient	2/25/2022	2022_02	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	0.00011	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	2_2_115
Comanche	W-11	Downgradient	4/1/2022	2022_03	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	0.00011	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	2_2_115
Comanche	W-11	Downgradient	5/4/2022	2022_05	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	2_2_115
Comanche	W-11	Downgradient	10/29/2022	2022_11	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	2_2_115
Comanche	W-11	Downgradient	2/16/2023	2023_02	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	2_2_115
Comanche	W-11	Downgradient	5/3/2023	2023_05	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	2_2_115
Comanche	W-11	Downgradient	1/13/2021	2021_01	Appendix IV	Molybdenum	0.0037 J	mg/l	Detect Value	0.01	0.0011	mg/l	7439-98-7	TRG	T		None	N	2_2_116
Comanche	W-11	Downgradient	4/9/2021	2021_04	Appendix IV	Molybdenum	0.0041 J	mg/l	Detect Value	0.01	0.0011	mg/l	7439-98-7	TRG	T		None	N	2_2_116
Comanche	W-11	Downgradient	5/27/2021	2021_06	Appendix IV	Molybdenum	U	mg/l	Non-Detect Value	0.01	0.0011	mg/l	7439-98-7	TRG	T		None	N	2_2_116
Comanche	W-11	Downgradient	12/2/2021	2021_11_AMWells	Appendix IV	Molybdenum	U	mg/l	Non-Detect Value	0.05	0.0054	mg/l	7439-98-7	TRG	T		None	N	2_2_116
Comanche	W-11	Downgradient	1/13/2022	2022_01	Appendix IV	Molybdenum	U	mg/l	Non-Detect Value	0.02	0.013	mg/l	7439-98-7	TRG	T		None	N	2_2_116
Comanche	W-11	Downgradient	2/25/2022	2022_02	Appendix IV	Molybdenum	U	mg/l	Non-Detect Value	0.02	0.012	mg/l	7439-98-7	TRG	T		None	N	2_2_116
Comanche	W-11	Downgradient	4/1/2022	2022_03	Appendix IV	Molybdenum	U	mg/l	Non-Detect Value	0.2	0.12	mg/l	7439-98-7	TRG	T		None	N	2_2_116
Comanche	W-11	Downgradient	5/4/2022	2022_05	Appendix IV	Molybdenum	0.0043 J+	mg/l	Detect Value	0.002	0.00014	mg/l	7439-98-7	TRG	T		None	N	2_2_116
Comanche	W-11	Downgradient	10/29/2022	2022_11	Appendix IV	Molybdenum	0.0044 J+	mg/l	Detect Value	0.002	0.00014	mg/l	7439-98-7	TRG	T		None	N	2_2_116
Comanche	W-11	Downgradient	2/16/2023	2023_02	Appendix IV	Molybdenum	0.0041	mg/l	Detect Value	0.002	0.00037	mg/l	7439-98-7	TRG	T		None	N	2_2_116
Comanche	W-11	Downgradient	5/3/2023	2023_05	Appendix IV	Molybdenum	0.0046	mg/l	Detect Value	0.002	0.00037	mg/l	7439-98-7	TRG	T		None	N	2_2_116
Comanche	W-11	Downgradient	1/13/2021	2021_01	Appendix IV	Radium-226+228	3.49	pci/l	Detect Value	5	0.649	pci/l	425	TRG	T			N	2_2_120
Comanche	W-11	Downgradient	4/9/2021	2021_04	Appendix IV	Radium-226+228	3.82	pci/l	Detect Value	5	0.64	pci/l	425	TRG	T			N	2_2_120
Comanche	W-11	Downgradient	5/27/2021	2021_06	Appendix IV	Radium-226+228	3.43	pci/l	Detect Value	5	0.86	pci/l	425	TRG	T			N	2_2_120
Comanche	W-11	Downgradient	1/13/2022	2022_01	Appendix IV	Radium-226+228	3.75	pci/l	Detect Value	5	0.798	pci/l	425	TRG	T			N	2_2_120
Comanche	W-11	Downgradient	2/25/2022	2022_02	Appendix IV	Radium-226+228	2.17	pci/l	Detect Value	5	0.876	pci/l	425	TRG	T			N	2_2_120
Comanche	W-11	Downgradient	4/1/2022	2022_03	Appendix IV	Radium-226+228	6.59	pci/l	Detect Value	5	1.33	pci/l	425	TRG	T			N	2_2_120
Comanche	W-11	Downgradient	5/4/2022	2022_05	Appendix IV	Radium-226+228	3.29	pci/l	Detect Value	5	1.28	pci/l	425	TRG	T			N	2_2_120
Comanche	W-11	Downgradient	10/29/2022	2022_11	Appendix IV	Radium-226+228	6.49	pci/l	Detect Value	5	1.55	pci/l	425	TRG	T			N	2_2_120
Comanche	W-11	Downgradient	2/16/2023	2023_02	Appendix IV	Radium-226+228	4.46	pci/l	Detect Value	5	0.904	pci/l	425	TRG	T			N	2_2_120
Comanche	W-11	Downgradient	5/3/2023	2023_05	Appendix IV	Radium-226+228	2.62 U	pci/l	Non-Detect Value	5	4.06	pci/l	425	TRG	T			N	2_2_120
Comanche	W-11	Downgradient	1/13/2021	2021_01	Appendix IV	Selenium	2.5	mg/l	Detect Value	0.005	0.00089	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	2_2_122
Comanche	W-11	Downgradient	4/9/2021	2021_04	Appendix IV	Selenium	2.3	mg/l	Detect Value	0.005	0.00089	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	2_2_122
Comanche	W-11	Downgradient	5/27/2021	2021_06	Appendix IV	Selenium	U	mg/l	Non-Detect Value	0.005	0.00089	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	2_2_122
Comanche	W-11	Downgradient	12/2/2021	2021_11_AMWells	Appendix IV	Selenium	2.4	mg/l	Detect Value	0.005	0.00089	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	2_2_122
Comanche	W-11	Downgradient	1/13/2022	2022_01	Appendix IV	Selenium	2.6	mg/l	Detect Value	0.035	0.0067	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	2_2_122
Comanche	W-11	Downgradient	2/25/2022	2022_02	Appendix IV	Selenium	3.1 J+	mg/l	Detect Value	0.05	0.0096	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	2_2_122
Comanche	W-11	Downgradient	4/1/2022	2022_03	Appendix IV	Selenium	2.9	mg/l	Detect Value	0.5	0.096	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	2_2_122
Comanche	W-11	Downgradient	5/4/2022	2022_05	Appendix IV	Selenium	2.6	mg/l	Detect Value	0.005	0.00037	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	2_2_122
Comanche	W-11	Downgradient	10/29/2022	2022_11	Appendix IV	Selenium	3.2	mg/l	Detect Value	0.005	0.00037	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	2_2_122
Comanche	W-11	Downgradient	2/16/2023	2023_02	Appendix IV	Selenium	2.8	mg/l	Detect Value	0.005	0.001	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	2_2_122
Comanche	W-11	Downgradient	5/3/2023	2023_05	Appendix IV	Selenium	2.6	mg/l	Detect Value	0.005	0.001	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	2_2_122
Comanche	W-11	Downgradient	1/13/2021	2021_01	Appendix IV	Thallium	0.0036	mg/l	Detect Value	0.001	0.0002	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	2_2_126
Comanche	W-11	Downgradient	4/9/2021	2021_04	Appendix IV	Thallium	0.0036	mg/l	Detect Value	0.001	0.0002	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	2_2_126
Comanche	W-11	Downgradient	5/27/2021	2021_06	Appendix IV	Thallium	U	mg/l	Non-Detect Value	0.001	0.0002	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	2_2_126
Comanche	W-11	Downgradient	12/2/2021	2021_11_AMWells	Appendix IV	Thallium	0.004	mg/l	Detect Value	0.001	0.0002	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	2_2_126
Comanche	W-11	Downgradient	1/13/2022	2022_01	Appendix IV	Thallium	0.0034 J	mg/l	Detect Value	0.007	0.0018	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	2_2_126
Comanche	W-11	Downgradient	2/25/2022	2022_02	Appendix IV	Thallium	0.0047 J-	mg/l	Detect Value	0.01	0.0026	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	2_2_126
Comanche	W-11	Downgradient	4/1/2022	2022_03	Appendix IV	Thallium	UJ	mg/l	Non-Detect Value	0.1	0.026	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	2_2_126
Comanche	W-11	Downgradient	5/4/2022	2022_05	Appendix IV	Thallium	0.0039	mg/l	Detect Value	0.001	8.90E-05	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	2_2_126
Comanche	W-11	Downgradient	10/29/2022	2022_11	Appendix IV	Thallium	0.0043	mg/l	Detect Value	0.001	8.90E-05	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	2_2_126
Comanche	W-11	Downgradient	2/16/2023	2023_02	Appendix IV	Thallium	0.0043	mg/l	Detect Value	0.001	0.00021	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	2_2_126
Comanche	W-11	Downgradient	5/3/2023	2023_05	Appendix IV	Thallium	0.0038	mg/l	Detect Value	0.001	0.00021	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	2_2_126
Comanche	W-12	Downgradient	1/13/2021	2021_01	Appendix IV	Antimony	0.00072 J	mg/l	Detect Value	0.002	0.00057	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	3_2_101
Comanche	W-12	Downgradient	4/12/2021	2021_04	Appendix IV	Antimony	0.00064 J	mg/l	Detect Value	0.002	0.00057	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	3_2_101
Comanche	W-12	Downgradient	5/28/2021	2021_06	Appendix IV	Antimony	U	mg/l	Non-Detect Value	0.01	0.0029	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	3_2_101
Comanche	W-12	Downgradient	12/2/2021	2021_11_AMWells	Appendix IV	Antimony	0.00062 J	mg/l	Detect Value	0.002	0.00057	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	3_2_101
Comanche	W-12	Downgradient	1/13/2022	2022_01	Appendix IV	Antimony	U	mg/l	Non-Detect Value	0.008	0.0044	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	3_2_101
Comanche	W-12	Downgradient	3/1/2022	2022_02	Appendix IV	Antimony	UJ	mg/l	Non-Detect Value	0.02	0.0069	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	3_2_101
Comanche	W-12	Downgradient	4/1/2022	2022_03	Appendix IV	Antimony	0.00072 J	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	3_2_101
Comanche	W-12	Downgradient	5/5/2022	2022_05	Appendix IV	Antimony	0.00068 J	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	3_2_101
Comanche	W-12	Downgradient	10/29/2022	2022_11	Appendix IV	Antimony	0.00059 J	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	3_2_101
Comanche	W-12	Downgradient	2/16/2023	2023_02	Appendix IV	Antimony	0.00073 J	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	3_2_101
Comanche	W-12	Downgradient	5/4/2023	2023_05	Appendix IV	Antimony	0.00087 J	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	3_2_101
Comanche	W-12	Downgradient	1/13/2021	2021_01	Appendix IV	Arsenic	U	mg/l	Non-Detect Value	0.005	0.00075	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	3_2_102
Comanche	W-12	Downgradient	4/12/2021	2021_04	Appendix IV	Arsenic	U	mg/l	Non-Detect Value	0.005	0.00075	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	3_2_102
Comanche	W-12	Downgradient	5/28/2021	2021_06	Appendix IV	Arsenic	U	mg/l	Non-Detect Value	0.025	0.0038	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	3_2_102
Comanche	W-12	Downgradient	12/2/2021	2021_11_AMWells	Appendix IV	Arsenic	U	mg/l	Non-Detect Value	0.01	0.0015	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	3_2_102
Comanche	W-12	Downgradient	1/13/2022	2022_01	Appendix IV	Arsenic	U	mg/l	Non-Detect Value	0.008	0.003	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	3_2_102
Comanche	W-12	Downgradient	3/1/2022	2022_02	Appendix IV	Arsenic	U	mg/l	Non-Detect Value	0.002	0.00075	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	3_2_102
Comanche	W-12	Downgradient	4/1/2022	2022_03	Appendix IV	Arsenic	U	mg/l	Non-Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	3_2_102
Comanche	W-12	Downgradient	5/5/2022	2022_05	Appendix IV	Arsenic	U	mg/l	Non-Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	3_2_102

Comanche	W-12	Downgradient	10/29/2022	2022_11	Appendix IV	Arsenic	0.00035	J	mg/l	Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	3_2_102
Comanche	W-12	Downgradient	2/16/2023	2023_02	Appendix IV	Arsenic	0.0016	J	mg/l	Detect Value	0.005	0.0005	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	3_2_102
Comanche	W-12	Downgradient	5/4/2023	2023_05	Appendix IV	Arsenic	0.00054	J	mg/l	Detect Value	0.005	0.0005	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	3_2_102
Comanche	W-12	Downgradient	1/13/2021	2021_01	Appendix IV	Barium	0.017		mg/l	Detect Value	0.005	0.0022	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	3_2_103
Comanche	W-12	Downgradient	4/12/2021	2021_04	Appendix IV	Barium	0.013		mg/l	Detect Value	0.005	0.0022	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	3_2_103
Comanche	W-12	Downgradient	5/28/2021	2021_06	Appendix IV	Barium	0.015	J	mg/l	Detect Value	0.025	0.011	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	3_2_103
Comanche	W-12	Downgradient	12/2/2021	2021_11_AMWells	Appendix IV	Barium	0.014		mg/l	Detect Value	0.005	0.0022	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	3_2_103
Comanche	W-12	Downgradient	1/13/2022	2022_01	Appendix IV	Barium	0.015		mg/l	Detect Value	0.008	0.0015	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	3_2_103
Comanche	W-12	Downgradient	3/1/2022	2022_02	Appendix IV	Barium	0.019	J	mg/l	Detect Value	0.02	0.0088	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	3_2_103
Comanche	W-12	Downgradient	4/1/2022	2022_03	Appendix IV	Barium		U	mg/l	Non-Detect Value	0.2	0.088	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	3_2_103
Comanche	W-12	Downgradient	5/5/2022	2022_05	Appendix IV	Barium	0.014		mg/l	Detect Value	0.001	0.00029	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	3_2_103
Comanche	W-12	Downgradient	10/29/2022	2022_11	Appendix IV	Barium	0.014		mg/l	Detect Value	0.001	0.00029	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	3_2_103
Comanche	W-12	Downgradient	2/16/2023	2023_02	Appendix IV	Barium	0.034	J+	mg/l	Detect Value	0.003	0.00038	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	3_2_103
Comanche	W-12	Downgradient	5/4/2023	2023_05	Appendix IV	Barium	0.018		mg/l	Detect Value	0.003	0.00038	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	3_2_103
Comanche	W-12	Downgradient	1/13/2021	2021_01	Appendix IV	Beryllium		U	mg/l	Non-Detect Value	0.001	0.00031	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	3_2_104
Comanche	W-12	Downgradient	4/12/2021	2021_04	Appendix IV	Beryllium		U	mg/l	Non-Detect Value	0.001	0.00031	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	3_2_104
Comanche	W-12	Downgradient	12/2/2021	2021_11_AMWells	Appendix IV	Beryllium		U	mg/l	Non-Detect Value	0.001	0.00062	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	3_2_104
Comanche	W-12	Downgradient	1/13/2022	2022_01	Appendix IV	Beryllium		U	mg/l	Non-Detect Value	0.007	0.0019	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	3_2_104
Comanche	W-12	Downgradient	3/1/2022	2022_02	Appendix IV	Beryllium		U	mg/l	Non-Detect Value	0.01	0.0027	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	3_2_104
Comanche	W-12	Downgradient	4/1/2022	2022_03	Appendix IV	Beryllium		UJ	mg/l	Non-Detect Value	0.1	0.027	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	3_2_104
Comanche	W-12	Downgradient	5/5/2022	2022_05	Appendix IV	Beryllium	0.00025	J+	mg/l	Detect Value	0.001	8.00E-05	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	3_2_104
Comanche	W-12	Downgradient	10/29/2022	2022_11	Appendix IV	Beryllium	0.0001	J+	mg/l	Detect Value	0.001	8.00E-05	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	3_2_104
Comanche	W-12	Downgradient	2/16/2023	2023_02	Appendix IV	Beryllium		U	mg/l	Non-Detect Value	0.001	0.0003	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	3_2_104
Comanche	W-12	Downgradient	5/4/2023	2023_05	Appendix IV	Beryllium		U	mg/l	Non-Detect Value	0.001	0.0003	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	3_2_104
Comanche	W-12	Downgradient	1/13/2021	2021_01	Appendix IV	Cadmium	0.0012		mg/l	Detect Value	0.001	0.0002	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	3_2_106
Comanche	W-12	Downgradient	4/12/2021	2021_04	Appendix IV	Cadmium	0.0011	J+	mg/l	Detect Value	0.001	0.0002	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	3_2_106
Comanche	W-12	Downgradient	5/28/2021	2021_06	Appendix IV	Cadmium		U	mg/l	Non-Detect Value	0.005	0.00099	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	3_2_106
Comanche	W-12	Downgradient	12/2/2021	2021_11_AMWells	Appendix IV	Cadmium	0.00054	J	mg/l	Detect Value	0.001	0.0002	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	3_2_106
Comanche	W-12	Downgradient	1/13/2022	2022_01	Appendix IV	Cadmium	0.0014		mg/l	Detect Value	0.0004	0.0002	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	3_2_106
Comanche	W-12	Downgradient	3/1/2022	2022_02	Appendix IV	Cadmium	0.0013		mg/l	Detect Value	0.001	0.00055	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	3_2_106
Comanche	W-12	Downgradient	4/1/2022	2022_03	Appendix IV	Cadmium		U	mg/l	Non-Detect Value	0.01	0.0055	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	3_2_106
Comanche	W-12	Downgradient	5/5/2022	2022_05	Appendix IV	Cadmium	0.0013		mg/l	Detect Value	0.001	0.00027	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	3_2_106
Comanche	W-12	Downgradient	10/29/2022	2022_11	Appendix IV	Cadmium	0.0014		mg/l	Detect Value	0.001	0.00027	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	3_2_106
Comanche	W-12	Downgradient	2/16/2023	2023_02	Appendix IV	Cadmium	0.0013		mg/l	Detect Value	0.001	0.00019	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	3_2_106
Comanche	W-12	Downgradient	5/4/2023	2023_05	Appendix IV	Cadmium	0.0012		mg/l	Detect Value	0.001	0.00019	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	3_2_106
Comanche	W-12	Downgradient	1/13/2021	2021_01	Appendix IV	Chromium, Total		U	mg/l	Non-Detect Value	0.002	0.00098	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	3_2_109
Comanche	W-12	Downgradient	4/12/2021	2021_04	Appendix IV	Chromium, Total	0.00098	J+	mg/l	Detect Value	0.002	0.00098	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	3_2_109
Comanche	W-12	Downgradient	5/28/2021	2021_06	Appendix IV	Chromium, Total		U	mg/l	Non-Detect Value	0.01	0.0049	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	3_2_109
Comanche	W-12	Downgradient	12/2/2021	2021_11_AMWells	Appendix IV	Chromium, Total		U	mg/l	Non-Detect Value	0.0025	0.0025	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	3_2_109
Comanche	W-12	Downgradient	1/13/2022	2022_01	Appendix IV	Chromium, Total		U	mg/l	Non-Detect Value	0.02	0.0044	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	3_2_109
Comanche	W-12	Downgradient	3/1/2022	2022_02	Appendix IV	Chromium, Total	0.002	J	mg/l	Detect Value	0.005	0.0011	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	3_2_109
Comanche	W-12	Downgradient	4/1/2022	2022_03	Appendix IV	Chromium, Total		U	mg/l	Non-Detect Value	0.5	0.11	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	3_2_109
Comanche	W-12	Downgradient	5/5/2022	2022_05	Appendix IV	Chromium, Total	0.00091	J	mg/l	Detect Value	0.002	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	3_2_109
Comanche	W-12	Downgradient	10/29/2022	2022_11	Appendix IV	Chromium, Total	0.0013	J	mg/l	Detect Value	0.002	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	3_2_109
Comanche	W-12	Downgradient	2/16/2023	2023_02	Appendix IV	Chromium, Total	0.0042	J+	mg/l	Detect Value	0.003	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	3_2_109
Comanche	W-12	Downgradient	5/4/2023	2023_05	Appendix IV	Chromium, Total	0.0046		mg/l	Detect Value	0.003	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	3_2_109
Comanche	W-12	Downgradient	1/13/2021	2021_01	Appendix IV	Cobalt	0.022		mg/l	Detect Value	0.001	0.00019	mg/l	7440-48-4	TRG	T		None	N	3_2_110
Comanche	W-12	Downgradient	4/12/2021	2021_04	Appendix IV	Cobalt	0.029		mg/l	Detect Value	0.001	0.00019	mg/l	7440-48-4	TRG	T		None	N	3_2_110
Comanche	W-12	Downgradient	5/28/2021	2021_06	Appendix IV	Cobalt	0.029		mg/l	Detect Value	0.005	0.00095	mg/l	7440-48-4	TRG	T		None	N	3_2_110
Comanche	W-12	Downgradient	12/2/2021	2021_11_AMWells	Appendix IV	Cobalt	0.013		mg/l	Detect Value	0.002	0.00038	mg/l	7440-48-4	TRG	T		None	N	3_2_110
Comanche	W-12	Downgradient	1/13/2022	2022_01	Appendix IV	Cobalt	0.033		mg/l	Detect Value	0.002	0.00076	mg/l	7440-48-4	TRG	T		None	N	3_2_110
Comanche	W-12	Downgradient	3/1/2022	2022_02	Appendix IV	Cobalt	0.022		mg/l	Detect Value	0.0005	0.00019	mg/l	7440-48-4	TRG	T		None	N	3_2_110
Comanche	W-12	Downgradient	4/1/2022	2022_03	Appendix IV	Cobalt	0.036	J	mg/l	Detect Value	0.05	0.019	mg/l	7440-48-4	TRG	T		None	N	3_2_110
Comanche	W-12	Downgradient	5/5/2022	2022_05	Appendix IV	Cobalt	0.03		mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG	T		None	N	3_2_110
Comanche	W-12	Downgradient	10/29/2022	2022_11	Appendix IV	Cobalt	0.028		mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG	T		None	N	3_2_110
Comanche	W-12	Downgradient	2/16/2023	2023_02	Appendix IV	Cobalt	0.03		mg/l	Detect Value	0.001	0.00033	mg/l	7440-48-4	TRG	T		None	N	3_2_110
Comanche	W-12	Downgradient	5/4/2023	2023_05	Appendix IV	Cobalt	0.029		mg/l	Detect Value	0.001	0.00033	mg/l	7440-48-4	TRG	T		None	N	3_2_110
Comanche	W-12	Downgradient	1/13/2021	2021_01	Appendix IV	Fluoride (App IV)		U	mg/l	Non-Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	3_2_112
Comanche	W-12	Downgradient	4/12/2021	2021_04	Appendix IV	Fluoride (App IV)	0.77		mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	3_2_112
Comanche	W-12	Downgradient	5/28/2021	2021_06	Appendix IV	Fluoride (App IV)	0.84		mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	3_2_112
Comanche	W-12	Downgradient	12/2/2021	2021_11_AMWells	Appendix IV	Fluoride (App IV)		UJ	mg/l	Non-Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	3_2_112
Comanche	W-12	Downgradient	1/13/2022	2022_01	Appendix IV	Fluoride (App IV)	0.85	J	mg/l	Detect Value	2.5	0.83	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	3_2_112
Comanche	W-12	Downgradient	3/1/2022	2022_02	Appendix IV	Fluoride (App IV)	0.43	J	mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	3_2_112
Comanche	W-12	Downgradient	4/1/2022	2022_03	Appendix IV	Fluoride (App IV)	30		mg/l	Detect Value	2.5	0.83	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	3_2_112
Comanche	W-12	Downgradient	5/5/2022	2022_05	Appendix IV	Fluoride (App IV)	0.86		mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	3_2_112
Comanche	W-12	Downgradient	10/29/2022	2022_11	Appendix IV	Fluoride (App IV)	0.18	J	mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	3_2_112
Comanche	W-12	Downgradient	2/16/2023	2023_02	Appendix IV	Fluoride (App IV)		U	mg/l	Non-Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	3_2_112
Comanche	W-12	Downgradient	5/4/2023	2023_05	Appendix IV	Fluoride (App IV)		U	mg/l	Non-Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	3_2_112

Comanche	W-12	Downgradient	1/13/2021	2021_01	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.001	0.00045	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	3_2_113
Comanche	W-12	Downgradient	4/12/2021	2021_04	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.001	0.00045	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	3_2_113
Comanche	W-12	Downgradient	5/28/2021	2021_06	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.005	0.0023	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	3_2_113
Comanche	W-12	Downgradient	12/2/2021	2021_11_AMWells	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.001	0.00045	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	3_2_113
Comanche	W-12	Downgradient	1/13/2022	2022_01	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.002	0.00084	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	3_2_113
Comanche	W-12	Downgradient	3/1/2022	2022_02	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.005	0.0024	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	3_2_113
Comanche	W-12	Downgradient	4/1/2022	2022_03	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.05	0.024	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	3_2_113
Comanche	W-12	Downgradient	5/5/2022	2022_05	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.001	0.00018	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	3_2_113
Comanche	W-12	Downgradient	10/29/2022	2022_11	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.001	0.00018	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	3_2_113
Comanche	W-12	Downgradient	2/16/2023	2023_02	Appendix IV	Lead	0.0044	mg/l	Detect Value	0.001	0.00023	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	3_2_113
Comanche	W-12	Downgradient	5/4/2023	2023_05	Appendix IV	Lead	0.00072 J	mg/l	Detect Value	0.001	0.00023	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	3_2_113
Comanche	W-12	Downgradient	1/13/2021	2021_01	Appendix IV	Lithium	2.1	mg/l	Detect Value	0.08	0.017	mg/l	7439-93-2	TRG	T		None	N	3_2_114
Comanche	W-12	Downgradient	4/12/2021	2021_04	Appendix IV	Lithium	2	mg/l	Detect Value	0.04	0.0083	mg/l	7439-93-2	TRG	T		None	N	3_2_114
Comanche	W-12	Downgradient	5/28/2021	2021_06	Appendix IV	Lithium	2.1	mg/l	Detect Value	0.04	0.0083	mg/l	7439-93-2	TRG	T		None	N	3_2_114
Comanche	W-12	Downgradient	12/2/2021	2021_11_AMWells	Appendix IV	Lithium	0.72 J	mg/l	Detect Value	0.016	0.0033	mg/l	7439-93-2	TRG	T		None	N	3_2_114
Comanche	W-12	Downgradient	1/13/2022	2022_01	Appendix IV	Lithium	2.3	mg/l	Detect Value	0.04	0.01	mg/l	7439-93-2	TRG	T		None	N	3_2_114
Comanche	W-12	Downgradient	3/1/2022	2022_02	Appendix IV	Lithium	2.8 J-	mg/l	Detect Value	0.1	0.025	mg/l	7439-93-2	TRG	T		None	N	3_2_114
Comanche	W-12	Downgradient	4/1/2022	2022_03	Appendix IV	Lithium	2.7	mg/l	Detect Value	1	0.25	mg/l	7439-93-2	TRG	T		None	N	3_2_114
Comanche	W-12	Downgradient	5/5/2022	2022_05	Appendix IV	Lithium	2.7 J+	mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	3_2_114
Comanche	W-12	Downgradient	10/29/2022	2022_11	Appendix IV	Lithium	2.6	mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	3_2_114
Comanche	W-12	Downgradient	2/16/2023	2023_02	Appendix IV	Lithium	2.3	mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	3_2_114
Comanche	W-12	Downgradient	5/4/2023	2023_05	Appendix IV	Lithium	2.7	mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	3_2_114
Comanche	W-12	Downgradient	1/13/2021	2021_01	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	0.00013	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	3_2_115
Comanche	W-12	Downgradient	4/12/2021	2021_04	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	0.00013	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	3_2_115
Comanche	W-12	Downgradient	12/2/2021	2021_11_AMWells	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	0.00013	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	3_2_115
Comanche	W-12	Downgradient	1/13/2022	2022_01	Appendix IV	Mercury	UJ	mg/l	Non-Detect Value	0.0002	0.00015	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	3_2_115
Comanche	W-12	Downgradient	3/1/2022	2022_02	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	0.00011	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	3_2_115
Comanche	W-12	Downgradient	4/1/2022	2022_03	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	0.00011	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	3_2_115
Comanche	W-12	Downgradient	5/5/2022	2022_05	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	3_2_115
Comanche	W-12	Downgradient	10/29/2022	2022_11	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	3_2_115
Comanche	W-12	Downgradient	2/16/2023	2023_02	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	3_2_115
Comanche	W-12	Downgradient	5/4/2023	2023_05	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	3_2_115
Comanche	W-12	Downgradient	1/13/2021	2021_01	Appendix IV	Molybdenum	0.0046 J	mg/l	Detect Value	0.01	0.0011	mg/l	7439-98-7	TRG	T		None	N	3_2_116
Comanche	W-12	Downgradient	4/12/2021	2021_04	Appendix IV	Molybdenum	0.0039 J	mg/l	Detect Value	0.01	0.0011	mg/l	7439-98-7	TRG	T		None	N	3_2_116
Comanche	W-12	Downgradient	5/28/2021	2021_06	Appendix IV	Molybdenum	U	mg/l	Non-Detect Value	0.05	0.0054	mg/l	7439-98-7	TRG	T		None	N	3_2_116
Comanche	W-12	Downgradient	12/2/2021	2021_11_AMWells	Appendix IV	Molybdenum	U	mg/l	Non-Detect Value	0.02	0.0022	mg/l	7439-98-7	TRG	T		None	N	3_2_116
Comanche	W-12	Downgradient	1/13/2022	2022_01	Appendix IV	Molybdenum	U	mg/l	Non-Detect Value	0.014	0.0091	mg/l	7439-98-7	TRG	T		None	N	3_2_116
Comanche	W-12	Downgradient	3/1/2022	2022_02	Appendix IV	Molybdenum	0.0039	mg/l	Detect Value	0.002	0.0012	mg/l	7439-98-7	TRG	T		None	N	3_2_116
Comanche	W-12	Downgradient	4/1/2022	2022_03	Appendix IV	Molybdenum	U	mg/l	Non-Detect Value	0.2	0.12	mg/l	7439-98-7	TRG	T		None	N	3_2_116
Comanche	W-12	Downgradient	5/5/2022	2022_05	Appendix IV	Molybdenum	0.0046 J+	mg/l	Detect Value	0.002	0.00014	mg/l	7439-98-7	TRG	T		None	N	3_2_116
Comanche	W-12	Downgradient	10/29/2022	2022_11	Appendix IV	Molybdenum	0.0042 J+	mg/l	Detect Value	0.002	0.00014	mg/l	7439-98-7	TRG	T		None	N	3_2_116
Comanche	W-12	Downgradient	2/16/2023	2023_02	Appendix IV	Molybdenum	0.0044	mg/l	Detect Value	0.002	0.00037	mg/l	7439-98-7	TRG	T		None	N	3_2_116
Comanche	W-12	Downgradient	5/4/2023	2023_05	Appendix IV	Molybdenum	0.0041 J+	mg/l	Detect Value	0.002	0.00037	mg/l	7439-98-7	TRG	T		None	N	3_2_116
Comanche	W-12	Downgradient	1/13/2021	2021_01	Appendix IV	Radium-226+228	1.85	pci/l	Detect Value	5	0.574	pci/l	425	TRG	T			N	3_2_120
Comanche	W-12	Downgradient	4/12/2021	2021_04	Appendix IV	Radium-226+228	2.38	pci/l	Detect Value	5	0.77	pci/l	425	TRG	T			N	3_2_120
Comanche	W-12	Downgradient	5/28/2021	2021_06	Appendix IV	Radium-226+228	2.23 J+	pci/l	Detect Value	5	0.519	pci/l	425	TRG	T			N	3_2_120
Comanche	W-12	Downgradient	1/13/2022	2022_01	Appendix IV	Radium-226+228	2.55	pci/l	Detect Value	5	0.76	pci/l	425	TRG	T			N	3_2_120
Comanche	W-12	Downgradient	3/1/2022	2022_02	Appendix IV	Radium-226+228	1.94	pci/l	Detect Value	5	1.6	pci/l	425	TRG	T			N	3_2_120
Comanche	W-12	Downgradient	4/1/2022	2022_03	Appendix IV	Radium-226+228	3.6	pci/l	Detect Value	5	0.816	pci/l	425	TRG	T			N	3_2_120
Comanche	W-12	Downgradient	5/5/2022	2022_05	Appendix IV	Radium-226+228	3.12	pci/l	Detect Value	5	1.02	pci/l	425	TRG	T			N	3_2_120
Comanche	W-12	Downgradient	10/29/2022	2022_11	Appendix IV	Radium-226+228	3.96	pci/l	Detect Value	5	0.807	pci/l	425	TRG	T			N	3_2_120
Comanche	W-12	Downgradient	2/16/2023	2023_02	Appendix IV	Radium-226+228	4.64	pci/l	Detect Value	5	0.977	pci/l	425	TRG	T			N	3_2_120
Comanche	W-12	Downgradient	5/4/2023	2023_05	Appendix IV	Radium-226+228	4.74	pci/l	Detect Value	5	1.54	pci/l	425	TRG	T			N	3_2_120
Comanche	W-12	Downgradient	1/13/2021	2021_01	Appendix IV	Selenium	0.029	mg/l	Detect Value	0.005	0.00089	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	3_2_122
Comanche	W-12	Downgradient	4/12/2021	2021_04	Appendix IV	Selenium	0.022	mg/l	Detect Value	0.005	0.00089	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	3_2_122
Comanche	W-12	Downgradient	5/28/2021	2021_06	Appendix IV	Selenium	0.015 J	mg/l	Detect Value	0.025	0.0045	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	3_2_122
Comanche	W-12	Downgradient	12/2/2021	2021_11_AMWells	Appendix IV	Selenium	0.017	mg/l	Detect Value	0.005	0.00089	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	3_2_122
Comanche	W-12	Downgradient	1/13/2022	2022_01	Appendix IV	Selenium	0.038	mg/l	Detect Value	0.02	0.0038	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	3_2_122
Comanche	W-12	Downgradient	3/1/2022	2022_02	Appendix IV	Selenium	0.043 J+	mg/l	Detect Value	0.005	0.00096	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	3_2_122
Comanche	W-12	Downgradient	4/1/2022	2022_03	Appendix IV	Selenium	U	mg/l	Non-Detect Value	0.5	0.096	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	3_2_122
Comanche	W-12	Downgradient	5/5/2022	2022_05	Appendix IV	Selenium	0.027	mg/l	Detect Value	0.005	0.00037	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	3_2_122
Comanche	W-12	Downgradient	10/29/2022	2022_11	Appendix IV	Selenium	0.016	mg/l	Detect Value	0.005	0.00037	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	3_2_122
Comanche	W-12	Downgradient	2/16/2023	2023_02	Appendix IV	Selenium	0.018	mg/l	Detect Value	0.005	0.001	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	3_2_122
Comanche	W-12	Downgradient	5/4/2023	2023_05	Appendix IV	Selenium	0.02	mg/l	Detect Value	0.005	0.001	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	3_2_122
Comanche	W-12	Downgradient	1/13/2021	2021_01	Appendix IV	Thallium	0.0037	mg/l	Detect Value	0.001	0.0002	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	3_2_126
Comanche	W-12	Downgradient	4/12/2021	2021_04	Appendix IV	Thallium	0.0036	mg/l	Detect Value	0.001	0.0002	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	3_2_126
Comanche	W-12	Downgradient	5/28/2021	2021_06	Appendix IV	Thallium	0.0036 J	mg/l	Detect Value	0.005	0.001	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	3_2_126
Comanche	W-12	Downgradient	12/2/2021	2021_11_AMWells	Appendix IV	Thallium	0.0038	mg/l	Detect Value	0.001	0.0002	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	3_2_126

Comanche	W-12	Downgradient	1/13/2022	2022_01	Appendix IV	Thallium	0.0034	J	mg/l	Detect Value	0.004	0.001	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	3_2_126
Comanche	W-12	Downgradient	3/1/2022	2022_02	Appendix IV	Thallium	0.0051	J	mg/l	Detect Value	0.01	0.0026	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	3_2_126
Comanche	W-12	Downgradient	4/1/2022	2022_03	Appendix IV	Thallium		UJ	mg/l	Non-Detect Value	0.1	0.026	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	3_2_126
Comanche	W-12	Downgradient	5/5/2022	2022_05	Appendix IV	Thallium	0.0039		mg/l	Detect Value	0.001	8.90E-05	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	3_2_126
Comanche	W-12	Downgradient	10/29/2022	2022_11	Appendix IV	Thallium	0.0033		mg/l	Detect Value	0.001	8.90E-05	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	3_2_126
Comanche	W-12	Downgradient	2/16/2023	2023_02	Appendix IV	Thallium	0.0044		mg/l	Detect Value	0.001	0.00021	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	3_2_126
Comanche	W-12	Downgradient	5/4/2023	2023_05	Appendix IV	Thallium	0.0038		mg/l	Detect Value	0.001	0.00021	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	3_2_126
Comanche	W-14	Downgradient	4/1/2022	2022_03	Appendix IV	Antimony	0.0008	J	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	4_2_101
Comanche	W-14	Downgradient	5/6/2022	2022_05	Appendix IV	Antimony	0.00056	J	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	4_2_101
Comanche	W-14	Downgradient	6/6/2022	2022_06	Appendix IV	Antimony	0.00062	J+	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	4_2_101
Comanche	W-14	Downgradient	7/15/2022	2022_07	Appendix IV	Antimony	0.00055	J	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	4_2_101
Comanche	W-14	Downgradient	8/24/2022	2022_08	Appendix IV	Antimony	0.00046	J	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	4_2_101
Comanche	W-14	Downgradient	9/28/2022	2022_09	Appendix IV	Antimony	0.00053	J	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	4_2_101
Comanche	W-14	Downgradient	10/31/2022	2022_11	Appendix IV	Antimony	0.00042	J+	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	4_2_101
Comanche	W-14	Downgradient	1/19/2023	2023_01	Appendix IV	Antimony	0.00055	J	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	4_2_101
Comanche	W-14	Downgradient	2/21/2023	2023_02	Appendix IV	Antimony	0.00042	J	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	4_2_101
Comanche	W-14	Downgradient	5/3/2023	2023_05	Appendix IV	Antimony		U	mg/l	Non-Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	4_2_101
Comanche	W-14	Downgradient	4/1/2022	2022_03	Appendix IV	Arsenic	0.0005	J	mg/l	Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	4_2_102
Comanche	W-14	Downgradient	5/6/2022	2022_05	Appendix IV	Arsenic	0.00045	J	mg/l	Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	4_2_102
Comanche	W-14	Downgradient	6/6/2022	2022_06	Appendix IV	Arsenic	0.00046	J	mg/l	Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	4_2_102
Comanche	W-14	Downgradient	7/15/2022	2022_07	Appendix IV	Arsenic	0.00043	J	mg/l	Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	4_2_102
Comanche	W-14	Downgradient	8/24/2022	2022_08	Appendix IV	Arsenic	0.00044	J	mg/l	Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	4_2_102
Comanche	W-14	Downgradient	9/28/2022	2022_09	Appendix IV	Arsenic	0.0004	J	mg/l	Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	4_2_102
Comanche	W-14	Downgradient	10/31/2022	2022_11	Appendix IV	Arsenic		UJ	mg/l	Non-Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	4_2_102
Comanche	W-14	Downgradient	1/19/2023	2023_01	Appendix IV	Arsenic	0.00065	J	mg/l	Detect Value	0.005	0.0005	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	4_2_102
Comanche	W-14	Downgradient	2/21/2023	2023_02	Appendix IV	Arsenic	0.00051	J	mg/l	Detect Value	0.005	0.0005	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	4_2_102
Comanche	W-14	Downgradient	5/3/2023	2023_05	Appendix IV	Arsenic		U	mg/l	Non-Detect Value	0.005	0.0005	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	4_2_102
Comanche	W-14	Downgradient	4/1/2022	2022_03	Appendix IV	Barium		U	mg/l	Non-Detect Value	0.2	0.088	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	4_2_103
Comanche	W-14	Downgradient	5/6/2022	2022_05	Appendix IV	Barium	0.015		mg/l	Detect Value	0.001	0.00029	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	4_2_103
Comanche	W-14	Downgradient	6/6/2022	2022_06	Appendix IV	Barium	0.017	J+	mg/l	Detect Value	0.001	0.00029	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	4_2_103
Comanche	W-14	Downgradient	7/15/2022	2022_07	Appendix IV	Barium	0.016	J+	mg/l	Detect Value	0.001	0.00029	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	4_2_103
Comanche	W-14	Downgradient	8/24/2022	2022_08	Appendix IV	Barium	0.017		mg/l	Detect Value	0.001	0.00029	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	4_2_103
Comanche	W-14	Downgradient	9/28/2022	2022_09	Appendix IV	Barium	0.014		mg/l	Detect Value	0.001	0.00029	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	4_2_103
Comanche	W-14	Downgradient	10/31/2022	2022_11	Appendix IV	Barium	0.014	J	mg/l	Detect Value	0.001	0.00029	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	4_2_103
Comanche	W-14	Downgradient	1/19/2023	2023_01	Appendix IV	Barium	0.014		mg/l	Detect Value	0.003	0.00038	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	4_2_103
Comanche	W-14	Downgradient	2/21/2023	2023_02	Appendix IV	Barium	0.012		mg/l	Detect Value	0.003	0.00038	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	4_2_103
Comanche	W-14	Downgradient	5/3/2023	2023_05	Appendix IV	Barium	0.011		mg/l	Detect Value	0.003	0.00038	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	4_2_103
Comanche	W-14	Downgradient	4/1/2022	2022_03	Appendix IV	Beryllium		UJ	mg/l	Non-Detect Value	0.001	8.00E-05	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	4_2_104
Comanche	W-14	Downgradient	5/6/2022	2022_05	Appendix IV	Beryllium	0.00031	J+	mg/l	Detect Value	0.001	8.00E-05	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	4_2_104
Comanche	W-14	Downgradient	6/6/2022	2022_06	Appendix IV	Beryllium	0.00034	J	mg/l	Detect Value	0.001	8.00E-05	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	4_2_104
Comanche	W-14	Downgradient	7/15/2022	2022_07	Appendix IV	Beryllium		UJ	mg/l	Non-Detect Value	0.001	8.00E-05	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	4_2_104
Comanche	W-14	Downgradient	8/24/2022	2022_08	Appendix IV	Beryllium	0.00013	J+	mg/l	Detect Value	0.001	8.00E-05	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	4_2_104
Comanche	W-14	Downgradient	9/28/2022	2022_09	Appendix IV	Beryllium		UJ	mg/l	Non-Detect Value	0.001	8.00E-05	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	4_2_104
Comanche	W-14	Downgradient	10/31/2022	2022_11	Appendix IV	Beryllium	0.00018	J+	mg/l	Detect Value	0.001	8.00E-05	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	4_2_104
Comanche	W-14	Downgradient	1/19/2023	2023_01	Appendix IV	Beryllium		U	mg/l	Non-Detect Value	0.001	0.0003	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	4_2_104
Comanche	W-14	Downgradient	2/21/2023	2023_02	Appendix IV	Beryllium		UJ	mg/l	Non-Detect Value	0.001	0.0003	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	4_2_104
Comanche	W-14	Downgradient	5/3/2023	2023_05	Appendix IV	Beryllium		U	mg/l	Non-Detect Value	0.001	0.0003	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	4_2_104
Comanche	W-14	Downgradient	4/1/2022	2022_03	Appendix IV	Cadmium	0.0011		mg/l	Detect Value	0.001	0.00027	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	4_2_106
Comanche	W-14	Downgradient	5/6/2022	2022_05	Appendix IV	Cadmium	0.00097	J	mg/l	Detect Value	0.001	0.00027	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	4_2_106
Comanche	W-14	Downgradient	6/6/2022	2022_06	Appendix IV	Cadmium	0.0012		mg/l	Detect Value	0.001	0.00027	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	4_2_106
Comanche	W-14	Downgradient	7/15/2022	2022_07	Appendix IV	Cadmium	0.0011		mg/l	Detect Value	0.001	0.00027	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	4_2_106
Comanche	W-14	Downgradient	8/24/2022	2022_08	Appendix IV	Cadmium	0.0015		mg/l	Detect Value	0.001	0.00027	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	4_2_106
Comanche	W-14	Downgradient	9/28/2022	2022_09	Appendix IV	Cadmium	0.0012		mg/l	Detect Value	0.001	0.00027	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	4_2_106
Comanche	W-14	Downgradient	10/31/2022	2022_11	Appendix IV	Cadmium	0.0011		mg/l	Detect Value	0.001	0.00027	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	4_2_106
Comanche	W-14	Downgradient	1/19/2023	2023_01	Appendix IV	Cadmium	0.0011		mg/l	Detect Value	0.001	0.00019	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	4_2_106
Comanche	W-14	Downgradient	2/21/2023	2023_02	Appendix IV	Cadmium	0.00088	J	mg/l	Detect Value	0.001	0.00019	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	4_2_106
Comanche	W-14	Downgradient	5/3/2023	2023_05	Appendix IV	Cadmium	0.001	J+	mg/l	Detect Value	0.001	0.00019	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	4_2_106
Comanche	W-14	Downgradient	4/1/2022	2022_03	Appendix IV	Chromium, Total		U	mg/l	Non-Detect Value	0.5	0.11	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	4_2_109
Comanche	W-14	Downgradient	5/6/2022	2022_05	Appendix IV	Chromium, Total	0.0017	J	mg/l	Detect Value	0.002	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	4_2_109
Comanche	W-14	Downgradient	6/6/2022	2022_06	Appendix IV	Chromium, Total	0.00068	J	mg/l	Detect Value	0.002	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	4_2_109
Comanche	W-14	Downgradient	7/15/2022	2022_07	Appendix IV	Chromium, Total	0.0013	J	mg/l	Detect Value	0.002	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	4_2_109
Comanche	W-14	Downgradient	8/24/2022	2022_08	Appendix IV	Chromium, Total	0.0014	J	mg/l	Detect Value	0.002	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	4_2_109
Comanche	W-14	Downgradient	9/28/2022	2022_09	Appendix IV	Chromium, Total	0.0013	J	mg/l	Detect Value	0.002	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	4_2_109
Comanche	W-14	Downgradient	10/31/2022	2022_11	Appendix IV	Chromium, Total	0.00075	J	mg/l	Detect Value	0.002	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	4_2_109
Comanche	W-14	Downgradient	1/19/2023	2023_01	Appendix IV	Chromium, Total	0.0007	J	mg/l	Detect Value	0.003	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	4_2_109
Comanche	W-14	Downgradient	2/21/2023	2023_02	Appendix IV	Chromium, Total	0.00086	J	mg/l	Detect Value	0.003	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	4_2_109
Comanche	W-14	Downgradient	5/3/2023	2023_05	Appendix IV	Chromium, Total	0.0025	J	mg/l	Detect Value	0.003	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	4_2_109
Comanche	W-14	Downgradient	4/1/2022	2022_03	Appendix IV	Cobalt	0.013		mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG	T		None	N	4_2_110

Comanche	W-14	Downgradient	5/6/2022	2022_05	Appendix IV	Cobalt	0.011		mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG	T	None	N	4_2_110
Comanche	W-14	Downgradient	6/6/2022	2022_06	Appendix IV	Cobalt	0.01		mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG	T	None	N	4_2_110
Comanche	W-14	Downgradient	7/15/2022	2022_07	Appendix IV	Cobalt	0.011		mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG	T	None	N	4_2_110
Comanche	W-14	Downgradient	8/24/2022	2022_08	Appendix IV	Cobalt	0.012		mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG	T	None	N	4_2_110
Comanche	W-14	Downgradient	9/28/2022	2022_09	Appendix IV	Cobalt	0.011		mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG	T	None	N	4_2_110
Comanche	W-14	Downgradient	10/31/2022	2022_11	Appendix IV	Cobalt	0.011		mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG	T	None	N	4_2_110
Comanche	W-14	Downgradient	1/19/2023	2023_01	Appendix IV	Cobalt	0.011		mg/l	Detect Value	0.001	0.00033	mg/l	7440-48-4	TRG	T	None	N	4_2_110
Comanche	W-14	Downgradient	2/21/2023	2023_02	Appendix IV	Cobalt	0.01		mg/l	Detect Value	0.001	0.00033	mg/l	7440-48-4	TRG	T	None	N	4_2_110
Comanche	W-14	Downgradient	5/3/2023	2023_05	Appendix IV	Cobalt	0.0098		mg/l	Detect Value	0.001	0.00033	mg/l	7440-48-4	TRG	T	None	N	4_2_110
Comanche	W-14	Downgradient	4/1/2022	2022_03	Appendix IV	Fluoride (App IV)	30		mg/l	Detect Value	2.5	0.83	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	4_2_112
Comanche	W-14	Downgradient	5/6/2022	2022_05	Appendix IV	Fluoride (App IV)	0.32	J	mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	4_2_112
Comanche	W-14	Downgradient	6/6/2022	2022_06	Appendix IV	Fluoride (App IV)	1.2		mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	4_2_112
Comanche	W-14	Downgradient	7/15/2022	2022_07	Appendix IV	Fluoride (App IV)	37		mg/l	Detect Value	2.5	0.83	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	4_2_112
Comanche	W-14	Downgradient	8/24/2022	2022_08	Appendix IV	Fluoride (App IV)	38		mg/l	Detect Value	2.5	0.83	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	4_2_112
Comanche	W-14	Downgradient	9/28/2022	2022_09	Appendix IV	Fluoride (App IV)	40		mg/l	Detect Value	5	1.7	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	4_2_112
Comanche	W-14	Downgradient	10/31/2022	2022_11	Appendix IV	Fluoride (App IV)	0.29	J	mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	4_2_112
Comanche	W-14	Downgradient	1/19/2023	2023_01	Appendix IV	Fluoride (App IV)	U		mg/l	Non-Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	4_2_112
Comanche	W-14	Downgradient	2/21/2023	2023_02	Appendix IV	Fluoride (App IV)	U		mg/l	Non-Detect Value	2.5	0.83	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	4_2_112
Comanche	W-14	Downgradient	5/3/2023	2023_05	Appendix IV	Fluoride (App IV)	4.3		mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4 Primary MCL	N	4_2_112
Comanche	W-14	Downgradient	4/1/2022	2022_03	Appendix IV	Lead	U		mg/l	Non-Detect Value	0.05	0.024	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	4_2_113
Comanche	W-14	Downgradient	5/6/2022	2022_05	Appendix IV	Lead	U		mg/l	Non-Detect Value	0.001	0.00018	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	4_2_113
Comanche	W-14	Downgradient	6/6/2022	2022_06	Appendix IV	Lead	0.00038	J	mg/l	Detect Value	0.001	0.00018	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	4_2_113
Comanche	W-14	Downgradient	7/15/2022	2022_07	Appendix IV	Lead	0.00025	J	mg/l	Detect Value	0.001	0.00018	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	4_2_113
Comanche	W-14	Downgradient	8/24/2022	2022_08	Appendix IV	Lead	U		mg/l	Non-Detect Value	0.001	0.00018	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	4_2_113
Comanche	W-14	Downgradient	9/28/2022	2022_09	Appendix IV	Lead	U		mg/l	Non-Detect Value	0.001	0.00018	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	4_2_113
Comanche	W-14	Downgradient	10/31/2022	2022_11	Appendix IV	Lead	U		mg/l	Non-Detect Value	0.001	0.00018	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	4_2_113
Comanche	W-14	Downgradient	1/19/2023	2023_01	Appendix IV	Lead	UJ		mg/l	Non-Detect Value	0.001	0.00023	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	4_2_113
Comanche	W-14	Downgradient	2/21/2023	2023_02	Appendix IV	Lead	U		mg/l	Non-Detect Value	0.001	0.00023	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	4_2_113
Comanche	W-14	Downgradient	5/3/2023	2023_05	Appendix IV	Lead	U		mg/l	Non-Detect Value	0.001	0.00023	mg/l	7439-92-1	TRG	T	0.015 Primary MCL	N	4_2_113
Comanche	W-14	Downgradient	4/1/2022	2022_03	Appendix IV	Lithium	3.5		mg/l	Detect Value	1	0.25	mg/l	7439-93-2	TRG	T	None	N	4_2_114
Comanche	W-14	Downgradient	5/6/2022	2022_05	Appendix IV	Lithium	3.6	J+	mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T	None	N	4_2_114
Comanche	W-14	Downgradient	6/6/2022	2022_06	Appendix IV	Lithium	3.4	J+	mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T	None	N	4_2_114
Comanche	W-14	Downgradient	7/15/2022	2022_07	Appendix IV	Lithium	3.3		mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T	None	N	4_2_114
Comanche	W-14	Downgradient	8/24/2022	2022_08	Appendix IV	Lithium	3.3	J	mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T	None	N	4_2_114
Comanche	W-14	Downgradient	9/28/2022	2022_09	Appendix IV	Lithium	3.5	J+	mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T	None	N	4_2_114
Comanche	W-14	Downgradient	10/31/2022	2022_11	Appendix IV	Lithium	3.5		mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T	None	N	4_2_114
Comanche	W-14	Downgradient	1/19/2023	2023_01	Appendix IV	Lithium	3.5		mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T	None	N	4_2_114
Comanche	W-14	Downgradient	2/21/2023	2023_02	Appendix IV	Lithium	3.4		mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T	None	N	4_2_114
Comanche	W-14	Downgradient	5/3/2023	2023_05	Appendix IV	Lithium	3.4		mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T	None	N	4_2_114
Comanche	W-14	Downgradient	4/1/2022	2022_03	Appendix IV	Mercury	U		mg/l	Non-Detect Value	0.0002	0.00011	mg/l	7439-97-6	TRG	T	0.002 Primary MCL	N	4_2_115
Comanche	W-14	Downgradient	5/6/2022	2022_05	Appendix IV	Mercury	U		mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002 Primary MCL	N	4_2_115
Comanche	W-14	Downgradient	6/6/2022	2022_06	Appendix IV	Mercury	U		mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002 Primary MCL	N	4_2_115
Comanche	W-14	Downgradient	7/15/2022	2022_07	Appendix IV	Mercury	U		mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002 Primary MCL	N	4_2_115
Comanche	W-14	Downgradient	8/24/2022	2022_08	Appendix IV	Mercury	U		mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002 Primary MCL	N	4_2_115
Comanche	W-14	Downgradient	9/28/2022	2022_09	Appendix IV	Mercury	U		mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002 Primary MCL	N	4_2_115
Comanche	W-14	Downgradient	10/31/2022	2022_11	Appendix IV	Mercury	U		mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002 Primary MCL	N	4_2_115
Comanche	W-14	Downgradient	1/19/2023	2023_01	Appendix IV	Mercury	8.60E-05	J+	mg/l	Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002 Primary MCL	N	4_2_115
Comanche	W-14	Downgradient	2/21/2023	2023_02	Appendix IV	Mercury	U		mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002 Primary MCL	N	4_2_115
Comanche	W-14	Downgradient	5/3/2023	2023_05	Appendix IV	Mercury	U		mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002 Primary MCL	N	4_2_115
Comanche	W-14	Downgradient	4/1/2022	2022_03	Appendix IV	Molybdenum	U		mg/l	Non-Detect Value	0.2	0.12	mg/l	7439-98-7	TRG	T	None	N	4_2_116
Comanche	W-14	Downgradient	5/6/2022	2022_05	Appendix IV	Molybdenum	0.016	J+	mg/l	Detect Value	0.002	0.00014	mg/l	7439-98-7	TRG	T	None	N	4_2_116
Comanche	W-14	Downgradient	6/6/2022	2022_06	Appendix IV	Molybdenum	0.016	J+	mg/l	Detect Value	0.002	0.00014	mg/l	7439-98-7	TRG	T	None	N	4_2_116
Comanche	W-14	Downgradient	7/15/2022	2022_07	Appendix IV	Molybdenum	0.022	J+	mg/l	Detect Value	0.002	0.00014	mg/l	7439-98-7	TRG	T	None	N	4_2_116
Comanche	W-14	Downgradient	8/24/2022	2022_08	Appendix IV	Molybdenum	0.017	J+	mg/l	Detect Value	0.002	0.00014	mg/l	7439-98-7	TRG	T	None	N	4_2_116
Comanche	W-14	Downgradient	9/28/2022	2022_09	Appendix IV	Molybdenum	0.015	J+	mg/l	Detect Value	0.002	0.00014	mg/l	7439-98-7	TRG	T	None	N	4_2_116
Comanche	W-14	Downgradient	10/31/2022	2022_11	Appendix IV	Molybdenum	0.015	J+	mg/l	Detect Value	0.002	0.00014	mg/l	7439-98-7	TRG	T	None	N	4_2_116
Comanche	W-14	Downgradient	1/19/2023	2023_01	Appendix IV	Molybdenum	0.018		mg/l	Detect Value	0.002	0.00037	mg/l	7439-98-7	TRG	T	None	N	4_2_116
Comanche	W-14	Downgradient	2/21/2023	2023_02	Appendix IV	Molybdenum	0.015		mg/l	Detect Value	0.002	0.00037	mg/l	7439-98-7	TRG	T	None	N	4_2_116
Comanche	W-14	Downgradient	5/3/2023	2023_05	Appendix IV	Molybdenum	0.014		mg/l	Detect Value	0.002	0.00037	mg/l	7439-98-7	TRG	T	None	N	4_2_116
Comanche	W-14	Downgradient	4/1/2022	2022_03	Appendix IV	Radium-226+228	2.15		pci/l	Detect Value	5	0.862	pci/l	425	TRG	T		N	4_2_120
Comanche	W-14	Downgradient	5/6/2022	2022_05	Appendix IV	Radium-226+228	2.46		pci/l	Detect Value	5	1.23	pci/l	425	TRG	T		N	4_2_120
Comanche	W-14	Downgradient	6/6/2022	2022_06	Appendix IV	Radium-226+228	1.94		pci/l	Detect Value	5	0.657	pci/l	425	TRG	T		N	4_2_120
Comanche	W-14	Downgradient	7/15/2022	2022_07	Appendix IV	Radium-226+228	3.64		pci/l	Detect Value	5	0.871	pci/l	425	TRG	T		N	4_2_120
Comanche	W-14	Downgradient	8/24/2022	2022_08	Appendix IV	Radium-226+228	5.62	J+	pci/l	Detect Value	5	0.896	pci/l	425	TRG	T		N	4_2_120
Comanche	W-14	Downgradient	9/28/2022	2022_09	Appendix IV	Radium-226+228	5.44	J+	pci/l	Detect Value	5	1.46	pci/l	425	TRG	T		N	4_2_120
Comanche	W-14	Downgradient	10/31/2022	2022_11	Appendix IV	Radium-226+228	4.1		pci/l	Detect Value	5	0.848	pci/l	425	TRG	T		N	4_2_120
Comanche	W-14	Downgradient	1/19/2023	2023_01	Appendix IV	Radium-226+228	2.5	J	pci/l	Detect Value	5	1.07	pci/l	425	TRG	T		N	4_2_120
Comanche	W-14	Downgradient	2/21/2023	2023_02	Appendix IV	Radium-226+228	3.71		pci/l	Detect Value	5	0.687	pci/l	425	TRG	T		N	4_2_120

Comanche	W-14	Downgradient	5/3/2023	2023_05	Appendix IV	Radium-226+228	4.65	J	pci/l	Detect Value	5	2.9	pci/l	425	TRG		T				N	4_2_120
Comanche	W-14	Downgradient	4/1/2022	2022_03	Appendix IV	Selenium	1.3		mg/l	Detect Value	0.5	0.096	mg/l	7782-49-2	TRG		T	0.05	Primary MCL		N	4_2_122
Comanche	W-14	Downgradient	5/6/2022	2022_05	Appendix IV	Selenium	1.2		mg/l	Detect Value	0.005	0.00037	mg/l	7782-49-2	TRG		T	0.05	Primary MCL		N	4_2_122
Comanche	W-14	Downgradient	6/6/2022	2022_06	Appendix IV	Selenium	1.2	J+	mg/l	Detect Value	0.005	0.00037	mg/l	7782-49-2	TRG		T	0.05	Primary MCL		N	4_2_122
Comanche	W-14	Downgradient	7/15/2022	2022_07	Appendix IV	Selenium	1.3		mg/l	Detect Value	0.005	0.00037	mg/l	7782-49-2	TRG		T	0.05	Primary MCL		N	4_2_122
Comanche	W-14	Downgradient	8/24/2022	2022_08	Appendix IV	Selenium	1.3		mg/l	Detect Value	0.005	0.00037	mg/l	7782-49-2	TRG		T	0.05	Primary MCL		N	4_2_122
Comanche	W-14	Downgradient	9/28/2022	2022_09	Appendix IV	Selenium	1.3		mg/l	Detect Value	0.005	0.00037	mg/l	7782-49-2	TRG		T	0.05	Primary MCL		N	4_2_122
Comanche	W-14	Downgradient	10/31/2022	2022_11	Appendix IV	Selenium	1.2		mg/l	Detect Value	0.005	0.00037	mg/l	7782-49-2	TRG		T	0.05	Primary MCL		N	4_2_122
Comanche	W-14	Downgradient	1/19/2023	2023_01	Appendix IV	Selenium	1.1		mg/l	Detect Value	0.005	0.001	mg/l	7782-49-2	TRG		T	0.05	Primary MCL		N	4_2_122
Comanche	W-14	Downgradient	2/21/2023	2023_02	Appendix IV	Selenium	1		mg/l	Detect Value	0.005	0.001	mg/l	7782-49-2	TRG		T	0.05	Primary MCL		N	4_2_122
Comanche	W-14	Downgradient	5/3/2023	2023_05	Appendix IV	Selenium	0.93		mg/l	Detect Value	0.005	0.001	mg/l	7782-49-2	TRG		T	0.05	Primary MCL		N	4_2_122
Comanche	W-14	Downgradient	4/1/2022	2022_03	Appendix IV	Thallium		UJ	mg/l	Non-Detect Value	0.1	0.026	mg/l	7440-28-0	TRG		T	0.002	Primary MCL		N	4_2_126
Comanche	W-14	Downgradient	5/6/2022	2022_05	Appendix IV	Thallium	0.0021		mg/l	Detect Value	0.001	8.90E-05	mg/l	7440-28-0	TRG		T	0.002	Primary MCL		N	4_2_126
Comanche	W-14	Downgradient	6/6/2022	2022_06	Appendix IV	Thallium	0.002		mg/l	Detect Value	0.001	8.90E-05	mg/l	7440-28-0	TRG		T	0.002	Primary MCL		N	4_2_126
Comanche	W-14	Downgradient	7/15/2022	2022_07	Appendix IV	Thallium	0.0025		mg/l	Detect Value	0.001	8.90E-05	mg/l	7440-28-0	TRG		T	0.002	Primary MCL		N	4_2_126
Comanche	W-14	Downgradient	8/24/2022	2022_08	Appendix IV	Thallium	0.0024		mg/l	Detect Value	0.001	8.90E-05	mg/l	7440-28-0	TRG		T	0.002	Primary MCL		N	4_2_126
Comanche	W-14	Downgradient	9/28/2022	2022_09	Appendix IV	Thallium	0.0022		mg/l	Detect Value	0.001	8.90E-05	mg/l	7440-28-0	TRG		T	0.002	Primary MCL		N	4_2_126
Comanche	W-14	Downgradient	10/31/2022	2022_11	Appendix IV	Thallium	0.0021		mg/l	Detect Value	0.001	8.90E-05	mg/l	7440-28-0	TRG		T	0.002	Primary MCL		N	4_2_126
Comanche	W-14	Downgradient	1/19/2023	2023_01	Appendix IV	Thallium	0.0023		mg/l	Detect Value	0.001	0.00021	mg/l	7440-28-0	TRG		T	0.002	Primary MCL		N	4_2_126
Comanche	W-14	Downgradient	2/21/2023	2023_02	Appendix IV	Thallium	0.0022		mg/l	Detect Value	0.001	0.00021	mg/l	7440-28-0	TRG		T	0.002	Primary MCL		N	4_2_126
Comanche	W-14	Downgradient	5/3/2023	2023_05	Appendix IV	Thallium	0.0017		mg/l	Detect Value	0.001	0.00021	mg/l	7440-28-0	TRG		T	0.002	Primary MCL		N	4_2_126
Comanche	W-16	Downgradient	4/1/2022	2022_03	Appendix IV	Antimony		U	mg/l	Non-Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG		T	0.006	Primary MCL		N	5_2_101
Comanche	W-16	Downgradient	5/5/2022	2022_05	Appendix IV	Antimony	0.0004	J	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG		T	0.006	Primary MCL		N	5_2_101
Comanche	W-16	Downgradient	6/8/2022	2022_06	Appendix IV	Antimony		U	mg/l	Non-Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG		T	0.006	Primary MCL		N	5_2_101
Comanche	W-16	Downgradient	7/15/2022	2022_07	Appendix IV	Antimony	0.00043	J	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG		T	0.006	Primary MCL		N	5_2_101
Comanche	W-16	Downgradient	5/11/2023	2023_05	Appendix IV	Antimony		U	mg/l	Non-Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG		T	0.006	Primary MCL		N	5_2_101
Comanche	W-16	Downgradient	4/1/2022	2022_03	Appendix IV	Arsenic		U	mg/l	Non-Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG		T	0.01	Primary MCL		N	5_2_102
Comanche	W-16	Downgradient	5/5/2022	2022_05	Appendix IV	Arsenic	0.00035	J	mg/l	Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG		T	0.01	Primary MCL		N	5_2_102
Comanche	W-16	Downgradient	6/8/2022	2022_06	Appendix IV	Arsenic	0.00068	J	mg/l	Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG		T	0.01	Primary MCL		N	5_2_102
Comanche	W-16	Downgradient	7/15/2022	2022_07	Appendix IV	Arsenic		U	mg/l	Non-Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG		T	0.01	Primary MCL		N	5_2_102
Comanche	W-16	Downgradient	5/11/2023	2023_05	Appendix IV	Arsenic		U	mg/l	Non-Detect Value	0.005	0.0005	mg/l	7440-38-2	TRG		T	0.01	Primary MCL		N	5_2_102
Comanche	W-16	Downgradient	4/1/2022	2022_03	Appendix IV	Barium		U	mg/l	Non-Detect Value	0.2	0.088	mg/l	7440-39-3	TRG		T	2	Primary MCL		N	5_2_103
Comanche	W-16	Downgradient	5/5/2022	2022_05	Appendix IV	Barium	0.013		mg/l	Detect Value	0.001	0.00029	mg/l	7440-39-3	TRG		T	2	Primary MCL		N	5_2_103
Comanche	W-16	Downgradient	6/8/2022	2022_06	Appendix IV	Barium	0.014	J+	mg/l	Detect Value	0.001	0.00029	mg/l	7440-39-3	TRG		T	2	Primary MCL		N	5_2_103
Comanche	W-16	Downgradient	7/15/2022	2022_07	Appendix IV	Barium	0.012	J+	mg/l	Detect Value	0.001	0.00029	mg/l	7440-39-3	TRG		T	2	Primary MCL		N	5_2_103
Comanche	W-16	Downgradient	5/11/2023	2023_05	Appendix IV	Barium	0.012		mg/l	Detect Value	0.003	0.00038	mg/l	7440-39-3	TRG		T	2	Primary MCL		N	5_2_103
Comanche	W-16	Downgradient	4/1/2022	2022_03	Appendix IV	Beryllium		UJ	mg/l	Non-Detect Value	0.1	0.027	mg/l	7440-41-7	TRG		T	0.004	Primary MCL		N	5_2_104
Comanche	W-16	Downgradient	5/5/2022	2022_05	Appendix IV	Beryllium	0.00014	J	mg/l	Detect Value	0.001	8.00E-05	mg/l	7440-41-7	TRG		T	0.004	Primary MCL		N	5_2_104
Comanche	W-16	Downgradient	6/8/2022	2022_06	Appendix IV	Beryllium		UJ	mg/l	Non-Detect Value	0.001	8.00E-05	mg/l	7440-41-7	TRG		T	0.004	Primary MCL		N	5_2_104
Comanche	W-16	Downgradient	7/15/2022	2022_07	Appendix IV	Beryllium		UJ	mg/l	Non-Detect Value	0.001	8.00E-05	mg/l	7440-41-7	TRG		T	0.004	Primary MCL		N	5_2_104
Comanche	W-16	Downgradient	5/11/2023	2023_05	Appendix IV	Beryllium		U	mg/l	Non-Detect Value	0.001	0.0003	mg/l	7440-41-7	TRG		T	0.004	Primary MCL		N	5_2_104
Comanche	W-16	Downgradient	4/1/2022	2022_03	Appendix IV	Cadmium		U	mg/l	Non-Detect Value	0.01	0.0055	mg/l	7440-43-9	TRG		T	0.005	Primary MCL		N	5_2_106
Comanche	W-16	Downgradient	5/5/2022	2022_05	Appendix IV	Cadmium	0.0023		mg/l	Detect Value	0.001	0.00027	mg/l	7440-43-9	TRG		T	0.005	Primary MCL		N	5_2_106
Comanche	W-16	Downgradient	6/8/2022	2022_06	Appendix IV	Cadmium	0.0021		mg/l	Detect Value	0.001	0.00027	mg/l	7440-43-9	TRG		T	0.005	Primary MCL		N	5_2_106
Comanche	W-16	Downgradient	7/15/2022	2022_07	Appendix IV	Cadmium	0.0025		mg/l	Detect Value	0.001	0.00027	mg/l	7440-43-9	TRG		T	0.005	Primary MCL		N	5_2_106
Comanche	W-16	Downgradient	5/11/2023	2023_05	Appendix IV	Cadmium	0.0023		mg/l	Detect Value	0.001	0.00019	mg/l	7440-43-9	TRG		T	0.005	Primary MCL		N	5_2_106
Comanche	W-16	Downgradient	4/1/2022	2022_03	Appendix IV	Chromium, Total		U	mg/l	Non-Detect Value	0.5	0.11	mg/l	7440-47-3	TRG		T	0.1	Primary MCL		N	5_2_109
Comanche	W-16	Downgradient	5/5/2022	2022_05	Appendix IV	Chromium, Total		U	mg/l	Non-Detect Value	0.002	0.0005	mg/l	7440-47-3	TRG		T	0.1	Primary MCL		N	5_2_109
Comanche	W-16	Downgradient	6/8/2022	2022_06	Appendix IV	Chromium, Total		U	mg/l	Non-Detect Value	0.002	0.0005	mg/l	7440-47-3	TRG		T	0.1	Primary MCL		N	5_2_109
Comanche	W-16	Downgradient	7/15/2022	2022_07	Appendix IV	Chromium, Total		U	mg/l	Non-Detect Value	0.002	0.0005	mg/l	7440-47-3	TRG		T	0.1	Primary MCL		N	5_2_109
Comanche	W-16	Downgradient	5/11/2023	2023_05	Appendix IV	Chromium, Total		U	mg/l	Non-Detect Value	0.003	0.0005	mg/l	7440-47-3	TRG		T	0.1	Primary MCL		N	5_2_109
Comanche	W-16	Downgradient	4/1/2022	2022_03	Appendix IV	Cobalt		U	mg/l	Non-Detect Value	0.05	0.019	mg/l	7440-48-4	TRG		T		None		N	5_2_110
Comanche	W-16	Downgradient	5/5/2022	2022_05	Appendix IV	Cobalt	0.011		mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG		T		None		N	5_2_110
Comanche	W-16	Downgradient	6/8/2022	2022_06	Appendix IV	Cobalt	0.013		mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG		T		None		N	5_2_110
Comanche	W-16	Downgradient	7/15/2022	2022_07	Appendix IV	Cobalt	0.013		mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG		T		None		N	5_2_110
Comanche	W-16	Downgradient	8/25/2022	2022_08	Appendix IV	Cobalt	0.016		mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG		T		None		N	5_2_110
Comanche	W-16	Downgradient	9/29/2022	2022_09	Appendix IV	Cobalt	0.018		mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG		T		None		N	5_2_110
Comanche	W-16	Downgradient	10/31/2022	2022_11	Appendix IV	Cobalt	0.017		mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG		T		None		N	5_2_110
Comanche	W-16	Downgradient	1/20/2023	2023_01	Appendix IV	Cobalt	0.019		mg/l	Detect Value	0.001	0.00033	mg/l	7440-48-4	TRG		T		None		N	5_2_110
Comanche	W-16	Downgradient	2/15/2023	2023_02	Appendix IV	Cobalt	0.018		mg/l	Detect Value	0.001	0.00033	mg/l	7440-48-4	TRG		T		None		N	5_2_110
Comanche	W-16	Downgradient	5/11/2023	2023_05	Appendix IV	Cobalt	0.021		mg/l	Detect Value	0.001	0.00033	mg/l	7440-48-4	TRG		T		None		N	5_2_110
Comanche	W-16	Downgradient	4/1/2022	2022_03	Appendix IV	Fluoride (App IV)	20		mg/l	Detect Value	2.5	0.83	mg/l	16984-48-8	TRG		N	4	Primary MCL		N	5_2_112
Comanche	W-16	Downgradient	5/5/2022	2022_05	Appendix IV	Fluoride (App IV)	2.9	J	mg/l	Detect Value	2.5	0.83	mg/l	16984-48-8	TRG		N	4	Primary MCL		N	5_2_112
Comanche	W-16	Downgradient	6/8/2022	2022_06	Appendix IV	Fluoride (App IV)	0.48	J	mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG		N	4	Primary MCL		N	5_2_112
Comanche	W-16	Downgradient	10/31/2022	2022_11	Appendix IV	Fluoride (App IV)	0.32	J	mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG		N	4	Primary MCL		N	5_2_112
Comanche	W-16	Downgradient	5/11/2023	2023_05	Appendix IV	Fluoride (App IV)	0.2	J	mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG		N	4	Primary MCL		N	5_2_112
Comanche	W-16	Downgradient	4/1/2022	2022_03	Appendix IV	Lead		U	mg/l	Non-Detect Value	0.05	0.024	mg/l	7439-92-1	TRG		T	0.015	Primary MCL		N	5_2_113
Comanche	W-16	Downgradient	5/5/2022	2022_05	Appendix IV	Lead	0.00018	J	mg/l	Detect Value	0.001	0.00018	mg/l	7439-92-1	TRG		T	0.015	Primary MCL		N	5_2_113

Comanche	W-16	Downgradient	6/8/2022	2022_06	Appendix IV	Lead	0.00041	J	mg/l	Detect Value	0.001	0.00018	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	5_2_113
Comanche	W-16	Downgradient	7/15/2022	2022_07	Appendix IV	Lead	U		mg/l	Non-Detect Value	0.001	0.00018	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	5_2_113
Comanche	W-16	Downgradient	5/11/2023	2023_05	Appendix IV	Lead	U		mg/l	Non-Detect Value	0.001	0.00023	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	5_2_113
Comanche	W-16	Downgradient	4/1/2022	2022_03	Appendix IV	Lithium	2.3		mg/l	Detect Value	1	0.25	mg/l	7439-93-2	TRG	T		None	N	5_2_114
Comanche	W-16	Downgradient	5/5/2022	2022_05	Appendix IV	Lithium	2.4	J+	mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	5_2_114
Comanche	W-16	Downgradient	6/8/2022	2022_06	Appendix IV	Lithium	2.4	J+	mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	5_2_114
Comanche	W-16	Downgradient	7/15/2022	2022_07	Appendix IV	Lithium	2.3		mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	5_2_114
Comanche	W-16	Downgradient	5/11/2023	2023_05	Appendix IV	Lithium	1.8		mg/l	Detect Value	0.2	0.091	mg/l	7439-93-2	TRG	T		None	N	5_2_114
Comanche	W-16	Downgradient	4/1/2022	2022_03	Appendix IV	Mercury	U		mg/l	Non-Detect Value	0.0002	0.00011	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	5_2_115
Comanche	W-16	Downgradient	5/5/2022	2022_05	Appendix IV	Mercury	U		mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	5_2_115
Comanche	W-16	Downgradient	6/8/2022	2022_06	Appendix IV	Mercury	U		mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	5_2_115
Comanche	W-16	Downgradient	7/15/2022	2022_07	Appendix IV	Mercury	U		mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	5_2_115
Comanche	W-16	Downgradient	5/11/2023	2023_05	Appendix IV	Mercury	U		mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	5_2_115
Comanche	W-16	Downgradient	4/1/2022	2022_03	Appendix IV	Molybdenum	U		mg/l	Non-Detect Value	0.2	0.12	mg/l	7439-98-7	TRG	T		None	N	5_2_116
Comanche	W-16	Downgradient	5/5/2022	2022_05	Appendix IV	Molybdenum	0.0034	J+	mg/l	Detect Value	0.002	0.00014	mg/l	7439-98-7	TRG	T		None	N	5_2_116
Comanche	W-16	Downgradient	6/8/2022	2022_06	Appendix IV	Molybdenum	0.0032	J+	mg/l	Detect Value	0.002	0.00014	mg/l	7439-98-7	TRG	T		None	N	5_2_116
Comanche	W-16	Downgradient	7/15/2022	2022_07	Appendix IV	Molybdenum	0.011	J+	mg/l	Detect Value	0.002	0.00014	mg/l	7439-98-7	TRG	T		None	N	5_2_116
Comanche	W-16	Downgradient	5/11/2023	2023_05	Appendix IV	Molybdenum	0.0038		mg/l	Detect Value	0.002	0.00037	mg/l	7439-98-7	TRG	T		None	N	5_2_116
Comanche	W-16	Downgradient	4/1/2022	2022_03	Appendix IV	Radium-226+228	2.87		pci/l	Detect Value	5	0.568	pci/l	425	TRG	T			N	5_2_120
Comanche	W-16	Downgradient	5/5/2022	2022_05	Appendix IV	Radium-226+228	1.87		pci/l	Detect Value	5	0.943	pci/l	425	TRG	T			N	5_2_120
Comanche	W-16	Downgradient	6/8/2022	2022_06	Appendix IV	Radium-226+228	1.66		pci/l	Detect Value	5	0.698	pci/l	425	TRG	T			N	5_2_120
Comanche	W-16	Downgradient	7/15/2022	2022_07	Appendix IV	Radium-226+228	2.7		pci/l	Detect Value	5	0.81	pci/l	425	TRG	T			N	5_2_120
Comanche	W-16	Downgradient	5/11/2023	2023_05	Appendix IV	Radium-226+228	1.99		pci/l	Detect Value	5	1.44	pci/l	425	TRG	T			N	5_2_120
Comanche	W-16	Downgradient	4/1/2022	2022_03	Appendix IV	Selenium	0.14	J	mg/l	Detect Value	0.5	0.096	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	5_2_122
Comanche	W-16	Downgradient	5/5/2022	2022_05	Appendix IV	Selenium	0.1		mg/l	Detect Value	0.005	0.00037	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	5_2_122
Comanche	W-16	Downgradient	6/8/2022	2022_06	Appendix IV	Selenium	0.098		mg/l	Detect Value	0.005	0.00037	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	5_2_122
Comanche	W-16	Downgradient	7/15/2022	2022_07	Appendix IV	Selenium	0.14		mg/l	Detect Value	0.005	0.00037	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	5_2_122
Comanche	W-16	Downgradient	5/11/2023	2023_05	Appendix IV	Selenium	0.1		mg/l	Detect Value	0.005	0.001	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	5_2_122
Comanche	W-16	Downgradient	4/1/2022	2022_03	Appendix IV	Thallium		UJ	mg/l	Non-Detect Value	0.1	0.026	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	5_2_126
Comanche	W-16	Downgradient	5/5/2022	2022_05	Appendix IV	Thallium	0.0048		mg/l	Detect Value	0.001	8.90E-05	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	5_2_126
Comanche	W-16	Downgradient	6/8/2022	2022_06	Appendix IV	Thallium	0.005		mg/l	Detect Value	0.001	8.90E-05	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	5_2_126
Comanche	W-16	Downgradient	7/15/2022	2022_07	Appendix IV	Thallium	0.0049		mg/l	Detect Value	0.001	8.90E-05	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	5_2_126
Comanche	W-16	Downgradient	5/11/2023	2023_05	Appendix IV	Thallium	0.0051		mg/l	Detect Value	0.001	0.00021	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	5_2_126
Comanche	W-17	Downgradient	11/2/2022	2022_11	Appendix IV	Antimony	0.0063		mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	6_2_101
Comanche	W-17	Downgradient	12/20/2022	2022_12	Appendix IV	Antimony	0.0038		mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	6_2_101
Comanche	W-17	Downgradient	2/22/2023	2023_02	Appendix IV	Antimony	0.0052		mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	6_2_101
Comanche	W-17	Downgradient	3/30/2023	2023_03	Appendix IV	Antimony	0.0013	J	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	6_2_101
Comanche	W-17	Downgradient	5/3/2023	2023_05	Appendix IV	Antimony	0.0019	J	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	6_2_101
Comanche	W-17	Downgradient	11/2/2022	2022_11	Appendix IV	Arsenic	0.0013	J	mg/l	Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	6_2_102
Comanche	W-17	Downgradient	12/20/2022	2022_12	Appendix IV	Arsenic	0.0028	J	mg/l	Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	6_2_102
Comanche	W-17	Downgradient	2/22/2023	2023_02	Appendix IV	Arsenic	0.0013	J	mg/l	Detect Value	0.005	0.0005	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	6_2_102
Comanche	W-17	Downgradient	3/30/2023	2023_03	Appendix IV	Arsenic	0.00061	J	mg/l	Detect Value	0.005	0.0005	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	6_2_102
Comanche	W-17	Downgradient	5/3/2023	2023_05	Appendix IV	Arsenic	0.0011	J	mg/l	Detect Value	0.005	0.0005	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	6_2_102
Comanche	W-17	Downgradient	11/2/2022	2022_11	Appendix IV	Barium	0.017	J	mg/l	Detect Value	0.001	0.00029	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	6_2_103
Comanche	W-17	Downgradient	12/20/2022	2022_12	Appendix IV	Barium	0.038		mg/l	Detect Value	0.001	0.00029	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	6_2_103
Comanche	W-17	Downgradient	2/22/2023	2023_02	Appendix IV	Barium	0.013		mg/l	Detect Value	0.003	0.00038	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	6_2_103
Comanche	W-17	Downgradient	3/30/2023	2023_03	Appendix IV	Barium	0.012		mg/l	Detect Value	0.003	0.00038	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	6_2_103
Comanche	W-17	Downgradient	5/3/2023	2023_05	Appendix IV	Barium	0.018		mg/l	Detect Value	0.003	0.00038	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	6_2_103
Comanche	W-17	Downgradient	11/2/2022	2022_11	Appendix IV	Beryllium		UJ	mg/l	Non-Detect Value	0.001	8.00E-05	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	6_2_104
Comanche	W-17	Downgradient	12/20/2022	2022_12	Appendix IV	Beryllium		U	mg/l	Non-Detect Value	0.001	8.00E-05	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	6_2_104
Comanche	W-17	Downgradient	2/22/2023	2023_02	Appendix IV	Beryllium		UJ	mg/l	Non-Detect Value	0.001	0.0003	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	6_2_104
Comanche	W-17	Downgradient	3/30/2023	2023_03	Appendix IV	Beryllium		U	mg/l	Non-Detect Value	0.001	0.0003	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	6_2_104
Comanche	W-17	Downgradient	5/3/2023	2023_05	Appendix IV	Beryllium		U	mg/l	Non-Detect Value	0.001	0.0003	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	6_2_104
Comanche	W-17	Downgradient	11/2/2022	2022_11	Appendix IV	Cadmium	0.0056		mg/l	Detect Value	0.001	0.00027	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	6_2_106
Comanche	W-17	Downgradient	12/20/2022	2022_12	Appendix IV	Cadmium	0.0035		mg/l	Detect Value	0.001	0.00027	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	6_2_106
Comanche	W-17	Downgradient	2/22/2023	2023_02	Appendix IV	Cadmium	0.0039		mg/l	Detect Value	0.001	0.00019	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	6_2_106
Comanche	W-17	Downgradient	3/30/2023	2023_03	Appendix IV	Cadmium	0.002		mg/l	Detect Value	0.001	0.00019	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	6_2_106
Comanche	W-17	Downgradient	5/3/2023	2023_05	Appendix IV	Cadmium	0.0027	J+	mg/l	Detect Value	0.001	0.00019	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	6_2_106
Comanche	W-17	Downgradient	11/2/2022	2022_11	Appendix IV	Chromium, Total	0.0024		mg/l	Detect Value	0.002	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	6_2_109
Comanche	W-17	Downgradient	12/20/2022	2022_12	Appendix IV	Chromium, Total	0.0043		mg/l	Detect Value	0.002	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	6_2_109
Comanche	W-17	Downgradient	2/22/2023	2023_02	Appendix IV	Chromium, Total	0.0019	J	mg/l	Detect Value	0.003	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	6_2_109
Comanche	W-17	Downgradient	3/30/2023	2023_03	Appendix IV	Chromium, Total	0.0016	J+	mg/l	Detect Value	0.003	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	6_2_109
Comanche	W-17	Downgradient	5/3/2023	2023_05	Appendix IV	Chromium, Total	0.0041		mg/l	Detect Value	0.003	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	6_2_109
Comanche	W-17	Downgradient	11/2/2022	2022_11	Appendix IV	Cobalt	0.009		mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG	T		None	N	6_2_110
Comanche	W-17	Downgradient	12/20/2022	2022_12	Appendix IV	Cobalt	0.0052		mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG	T		None	N	6_2_110
Comanche	W-17	Downgradient	2/22/2023	2023_02	Appendix IV	Cobalt	0.0063		mg/l	Detect Value	0.001	0.00033	mg/l	7440-48-4	TRG	T		None	N	6_2_110
Comanche	W-17	Downgradient	3/30/2023	2023_03	Appendix IV	Cobalt	0.0021		mg/l	Detect Value	0.001	0.00033	mg/l	7440-48-4	TRG	T		None	N	6_2_110
Comanche	W-17	Downgradient	5/3/2023	2023_05	Appendix IV	Cobalt	0.0027		mg/l	Detect Value	0.001	0.00033	mg/l	7440-48-4	TRG	T		None	N	6_2_110

Comanche	W-17	Downgradient	11/2/2022	2022_11	Appendix IV	Fluoride (App IV)	0.27	J	mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	6_2_112
Comanche	W-17	Downgradient	12/20/2022	2022_12	Appendix IV	Fluoride (App IV)	0.52		mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	6_2_112
Comanche	W-17	Downgradient	2/22/2023	2023_02	Appendix IV	Fluoride (App IV)		U	mg/l	Non-Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	6_2_112
Comanche	W-17	Downgradient	3/30/2023	2023_03	Appendix IV	Fluoride (App IV)	1.8		mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	6_2_112
Comanche	W-17	Downgradient	5/3/2023	2023_05	Appendix IV	Fluoride (App IV)	0.33	J	mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	6_2_112
Comanche	W-17	Downgradient	11/2/2022	2022_11	Appendix IV	Lead	0.00064	J	mg/l	Detect Value	0.001	0.00018	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	6_2_113
Comanche	W-17	Downgradient	12/20/2022	2022_12	Appendix IV	Lead	0.0025		mg/l	Detect Value	0.001	0.00018	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	6_2_113
Comanche	W-17	Downgradient	2/22/2023	2023_02	Appendix IV	Lead		U	mg/l	Non-Detect Value	0.001	0.00023	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	6_2_113
Comanche	W-17	Downgradient	3/30/2023	2023_03	Appendix IV	Lead		U	mg/l	Non-Detect Value	0.001	0.00023	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	6_2_113
Comanche	W-17	Downgradient	5/3/2023	2023_05	Appendix IV	Lead	0.00074	J	mg/l	Detect Value	0.001	0.00023	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	6_2_113
Comanche	W-17	Downgradient	11/2/2022	2022_11	Appendix IV	Lithium	0.64		mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	6_2_114
Comanche	W-17	Downgradient	12/20/2022	2022_12	Appendix IV	Lithium	0.66	J+	mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	6_2_114
Comanche	W-17	Downgradient	2/22/2023	2023_02	Appendix IV	Lithium	0.71		mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	6_2_114
Comanche	W-17	Downgradient	3/30/2023	2023_03	Appendix IV	Lithium	0.68		mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	6_2_114
Comanche	W-17	Downgradient	5/3/2023	2023_05	Appendix IV	Lithium	0.69		mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	6_2_114
Comanche	W-17	Downgradient	11/2/2022	2022_11	Appendix IV	Mercury		U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	6_2_115
Comanche	W-17	Downgradient	12/20/2022	2022_12	Appendix IV	Mercury		U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	6_2_115
Comanche	W-17	Downgradient	2/22/2023	2023_02	Appendix IV	Mercury		U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	6_2_115
Comanche	W-17	Downgradient	3/30/2023	2023_03	Appendix IV	Mercury		U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	6_2_115
Comanche	W-17	Downgradient	5/3/2023	2023_05	Appendix IV	Mercury		U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	6_2_115
Comanche	W-17	Downgradient	11/2/2022	2022_11	Appendix IV	Molybdenum	0.087	J+	mg/l	Detect Value	0.002	0.00014	mg/l	7439-98-7	TRG	T		None	N	6_2_116
Comanche	W-17	Downgradient	12/20/2022	2022_12	Appendix IV	Molybdenum	0.1		mg/l	Detect Value	0.002	0.00014	mg/l	7439-98-7	TRG	T		None	N	6_2_116
Comanche	W-17	Downgradient	2/22/2023	2023_02	Appendix IV	Molybdenum	0.28		mg/l	Detect Value	0.002	0.00037	mg/l	7439-98-7	TRG	T		None	N	6_2_116
Comanche	W-17	Downgradient	3/30/2023	2023_03	Appendix IV	Molybdenum	0.016		mg/l	Detect Value	0.002	0.00037	mg/l	7439-98-7	TRG	T		None	N	6_2_116
Comanche	W-17	Downgradient	5/3/2023	2023_05	Appendix IV	Molybdenum	0.043		mg/l	Detect Value	0.002	0.00037	mg/l	7439-98-7	TRG	T		None	N	6_2_116
Comanche	W-17	Downgradient	11/2/2022	2022_11	Appendix IV	Radium-226+228	0.827		pci/l	Detect Value	5	0.794	pci/l	425	TRG	T			N	6_2_120
Comanche	W-17	Downgradient	12/20/2022	2022_12	Appendix IV	Radium-226+228	1.94		pci/l	Detect Value	5	1.05	pci/l	425	TRG	T			N	6_2_120
Comanche	W-17	Downgradient	2/22/2023	2023_02	Appendix IV	Radium-226+228	1.06		pci/l	Detect Value	5	0.826	pci/l	425	TRG	T			N	6_2_120
Comanche	W-17	Downgradient	3/30/2023	2023_03	Appendix IV	Radium-226+228	0.342	U	pci/l	Non-Detect Value	5	1.35	pci/l	425	TRG	T			N	6_2_120
Comanche	W-17	Downgradient	5/3/2023	2023_05	Appendix IV	Radium-226+228	1.64		pci/l	Detect Value	5	1.08	pci/l	425	TRG	T			N	6_2_120
Comanche	W-17	Downgradient	11/2/2022	2022_11	Appendix IV	Selenium	2.2		mg/l	Detect Value	0.005	0.00037	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	6_2_122
Comanche	W-17	Downgradient	12/20/2022	2022_12	Appendix IV	Selenium	3.4		mg/l	Detect Value	0.005	0.00037	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	6_2_122
Comanche	W-17	Downgradient	2/22/2023	2023_02	Appendix IV	Selenium	2.6		mg/l	Detect Value	0.005	0.001	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	6_2_122
Comanche	W-17	Downgradient	3/30/2023	2023_03	Appendix IV	Selenium	3.5		mg/l	Detect Value	0.25	0.05	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	6_2_122
Comanche	W-17	Downgradient	5/3/2023	2023_05	Appendix IV	Selenium	3.7		mg/l	Detect Value	0.25	0.05	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	6_2_122
Comanche	W-17	Downgradient	11/2/2022	2022_11	Appendix IV	Thallium	0.0029		mg/l	Detect Value	0.001	8.90E-05	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	6_2_126
Comanche	W-17	Downgradient	12/20/2022	2022_12	Appendix IV	Thallium	0.0029		mg/l	Detect Value	0.001	8.90E-05	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	6_2_126
Comanche	W-17	Downgradient	2/22/2023	2023_02	Appendix IV	Thallium	0.0017		mg/l	Detect Value	0.001	0.00021	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	6_2_126
Comanche	W-17	Downgradient	3/30/2023	2023_03	Appendix IV	Thallium	0.003		mg/l	Detect Value	0.001	0.00021	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	6_2_126
Comanche	W-17	Downgradient	5/3/2023	2023_05	Appendix IV	Thallium	0.0029		mg/l	Detect Value	0.001	0.00021	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	6_2_126
Comanche	W-18	Downgradient	1/9/2023	2023_01	Appendix IV	Antimony	0.0004	J	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	7_2_101
Comanche	W-18	Downgradient	2/20/2023	2023_02	Appendix IV	Antimony	0.00082	J	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	7_2_101
Comanche	W-18	Downgradient	3/29/2023	2023_03	Appendix IV	Antimony	0.00083	J	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	7_2_101
Comanche	W-18	Downgradient	5/2/2023	2023_05	Appendix IV	Antimony	0.00077	J	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	7_2_101
Comanche	W-18	Downgradient	1/9/2023	2023_01	Appendix IV	Arsenic	0.0012	J	mg/l	Detect Value	0.005	0.0005	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	7_2_102
Comanche	W-18	Downgradient	2/20/2023	2023_02	Appendix IV	Arsenic	0.0011	J	mg/l	Detect Value	0.005	0.0005	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	7_2_102
Comanche	W-18	Downgradient	3/29/2023	2023_03	Appendix IV	Arsenic	0.00093	J	mg/l	Detect Value	0.005	0.0005	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	7_2_102
Comanche	W-18	Downgradient	5/2/2023	2023_05	Appendix IV	Arsenic	0.00092	J	mg/l	Detect Value	0.005	0.0005	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	7_2_102
Comanche	W-18	Downgradient	1/9/2023	2023_01	Appendix IV	Barium	0.018		mg/l	Detect Value	0.003	0.00038	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	7_2_103
Comanche	W-18	Downgradient	2/20/2023	2023_02	Appendix IV	Barium	0.015		mg/l	Detect Value	0.003	0.00038	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	7_2_103
Comanche	W-18	Downgradient	3/29/2023	2023_03	Appendix IV	Barium	0.016		mg/l	Detect Value	0.003	0.00038	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	7_2_103
Comanche	W-18	Downgradient	5/2/2023	2023_05	Appendix IV	Barium	0.016		mg/l	Detect Value	0.003	0.00038	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	7_2_103
Comanche	W-18	Downgradient	1/9/2023	2023_01	Appendix IV	Beryllium		U	mg/l	Non-Detect Value	0.001	0.0003	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	7_2_104
Comanche	W-18	Downgradient	2/20/2023	2023_02	Appendix IV	Beryllium		UJ	mg/l	Non-Detect Value	0.001	0.0003	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	7_2_104
Comanche	W-18	Downgradient	3/29/2023	2023_03	Appendix IV	Beryllium		U	mg/l	Non-Detect Value	0.001	0.0003	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	7_2_104
Comanche	W-18	Downgradient	5/2/2023	2023_05	Appendix IV	Beryllium		U	mg/l	Non-Detect Value	0.001	0.0003	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	7_2_104
Comanche	W-18	Downgradient	1/9/2023	2023_01	Appendix IV	Cadmium		U	mg/l	Non-Detect Value	0.001	0.00019	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	7_2_106
Comanche	W-18	Downgradient	2/20/2023	2023_02	Appendix IV	Cadmium		U	mg/l	Non-Detect Value	0.001	0.00019	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	7_2_106
Comanche	W-18	Downgradient	3/29/2023	2023_03	Appendix IV	Cadmium		UJ	mg/l	Non-Detect Value	0.001	0.00019	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	7_2_106
Comanche	W-18	Downgradient	5/2/2023	2023_05	Appendix IV	Cadmium	0.0002	J+	mg/l	Detect Value	0.001	0.00019	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	7_2_106
Comanche	W-18	Downgradient	1/9/2023	2023_01	Appendix IV	Chromium, Total		U	mg/l	Non-Detect Value	0.003	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	7_2_109
Comanche	W-18	Downgradient	2/20/2023	2023_02	Appendix IV	Chromium, Total	0.00081	J	mg/l	Detect Value	0.003	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	7_2_109
Comanche	W-18	Downgradient	3/29/2023	2023_03	Appendix IV	Chromium, Total	0.0017	J+	mg/l	Detect Value	0.003	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	7_2_109
Comanche	W-18	Downgradient	5/2/2023	2023_05	Appendix IV	Chromium, Total	0.0014	J	mg/l	Detect Value	0.003	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	7_2_109
Comanche	W-18	Downgradient	1/9/2023	2023_01	Appendix IV	Cobalt	0.0057		mg/l	Detect Value	0.001	0.00033	mg/l	7440-48-4	TRG	T		None	N	7_2_110
Comanche	W-18	Downgradient	2/20/2023	2023_02	Appendix IV	Cobalt	0.0051		mg/l	Detect Value	0.001	0.00033	mg/l	7440-48-4	TRG	T		None	N	7_2_110
Comanche	W-18	Downgradient	3/29/2023	2023_03	Appendix IV	Cobalt	0.0051		mg/l	Detect Value	0.001	0.00033	mg/l	7440-48-4	TRG	T		None	N	7_2_110
Comanche	W-18	Downgradient	5/2/2023	2023_05	Appendix IV	Cobalt	0.0047		mg/l	Detect Value	0.001	0.00033	mg/l	7440-48-4	TRG	T		None	N	7_2_110

Comanche	W-18	Downgradient	1/9/2023	2023_01	Appendix IV	Fluoride (App IV)	1.8		mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	7_2_112
Comanche	W-18	Downgradient	2/20/2023	2023_02	Appendix IV	Fluoride (App IV)	0.74		mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	7_2_112
Comanche	W-18	Downgradient	3/29/2023	2023_03	Appendix IV	Fluoride (App IV)	15		mg/l	Detect Value	5	1.7	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	7_2_112
Comanche	W-18	Downgradient	5/2/2023	2023_05	Appendix IV	Fluoride (App IV)	0.28	J	mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	7_2_112
Comanche	W-18	Downgradient	1/9/2023	2023_01	Appendix IV	Lead		U	mg/l	Non-Detect Value	0.001	0.00023	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	7_2_113
Comanche	W-18	Downgradient	2/20/2023	2023_02	Appendix IV	Lead		U	mg/l	Non-Detect Value	0.001	0.00023	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	7_2_113
Comanche	W-18	Downgradient	3/29/2023	2023_03	Appendix IV	Lead		UJ	mg/l	Non-Detect Value	0.001	0.00023	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	7_2_113
Comanche	W-18	Downgradient	5/2/2023	2023_05	Appendix IV	Lead	0.00028	J	mg/l	Detect Value	0.001	0.00023	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	7_2_113
Comanche	W-18	Downgradient	1/9/2023	2023_01	Appendix IV	Lithium	2		mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	7_2_114
Comanche	W-18	Downgradient	2/20/2023	2023_02	Appendix IV	Lithium	2		mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	7_2_114
Comanche	W-18	Downgradient	3/29/2023	2023_03	Appendix IV	Lithium	2.1		mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	7_2_114
Comanche	W-18	Downgradient	5/2/2023	2023_05	Appendix IV	Lithium	2.1		mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	7_2_114
Comanche	W-18	Downgradient	1/9/2023	2023_01	Appendix IV	Mercury		U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	7_2_115
Comanche	W-18	Downgradient	2/20/2023	2023_02	Appendix IV	Mercury		U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	7_2_115
Comanche	W-18	Downgradient	3/29/2023	2023_03	Appendix IV	Mercury		U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	7_2_115
Comanche	W-18	Downgradient	5/2/2023	2023_05	Appendix IV	Mercury		U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	7_2_115
Comanche	W-18	Downgradient	1/9/2023	2023_01	Appendix IV	Molybdenum	0.043		mg/l	Detect Value	0.002	0.00037	mg/l	7439-98-7	TRG	T		None	N	7_2_116
Comanche	W-18	Downgradient	2/20/2023	2023_02	Appendix IV	Molybdenum	0.041		mg/l	Detect Value	0.002	0.00037	mg/l	7439-98-7	TRG	T		None	N	7_2_116
Comanche	W-18	Downgradient	3/29/2023	2023_03	Appendix IV	Molybdenum	0.041		mg/l	Detect Value	0.002	0.00037	mg/l	7439-98-7	TRG	T		None	N	7_2_116
Comanche	W-18	Downgradient	5/2/2023	2023_05	Appendix IV	Molybdenum	0.041		mg/l	Detect Value	0.002	0.00037	mg/l	7439-98-7	TRG	T		None	N	7_2_116
Comanche	W-18	Downgradient	1/9/2023	2023_01	Appendix IV	Radium-226+228	0.986	J	pci/l	Detect Value	5	0.828	pci/l	425	TRG	T			N	7_2_120
Comanche	W-18	Downgradient	2/20/2023	2023_02	Appendix IV	Radium-226+228	1.58		pci/l	Detect Value	5	1.07	pci/l	425	TRG	T			N	7_2_120
Comanche	W-18	Downgradient	3/29/2023	2023_03	Appendix IV	Radium-226+228	1.23	UJ	pci/l	Non-Detect Value	5	1.31	pci/l	425	TRG	T			N	7_2_120
Comanche	W-18	Downgradient	5/2/2023	2023_05	Appendix IV	Radium-226+228	1.95	UJ	pci/l	Non-Detect Value	5	2.46	pci/l	425	TRG	T			N	7_2_120
Comanche	W-18	Downgradient	1/9/2023	2023_01	Appendix IV	Selenium	1.5		mg/l	Detect Value	0.005	0.001	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	7_2_122
Comanche	W-18	Downgradient	2/20/2023	2023_02	Appendix IV	Selenium	1.3		mg/l	Detect Value	0.005	0.001	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	7_2_122
Comanche	W-18	Downgradient	3/29/2023	2023_03	Appendix IV	Selenium	1.3	J	mg/l	Detect Value	0.005	0.001	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	7_2_122
Comanche	W-18	Downgradient	5/2/2023	2023_05	Appendix IV	Selenium	1.3		mg/l	Detect Value	0.005	0.001	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	7_2_122
Comanche	W-18	Downgradient	1/9/2023	2023_01	Appendix IV	Thallium	0.00025	J	mg/l	Detect Value	0.001	0.00021	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	7_2_126
Comanche	W-18	Downgradient	2/20/2023	2023_02	Appendix IV	Thallium	0.00022	J	mg/l	Detect Value	0.001	0.00021	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	7_2_126
Comanche	W-18	Downgradient	3/29/2023	2023_03	Appendix IV	Thallium		U	mg/l	Non-Detect Value	0.001	0.00021	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	7_2_126
Comanche	W-18	Downgradient	5/2/2023	2023_05	Appendix IV	Thallium		U	mg/l	Non-Detect Value	0.001	0.00021	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	7_2_126
Comanche	W-3B	Downgradient	12/10/2021	2021_12	Appendix IV	Antimony		U	mg/l	Non-Detect Value	0.01	0.0029	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	8_2_101
Comanche	W-3B	Downgradient	1/13/2022	2022_01	Appendix IV	Antimony		U	mg/l	Non-Detect Value	0.008	0.0044	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	8_2_101
Comanche	W-3B	Downgradient	2/23/2022	2022_02	Appendix IV	Antimony		UJ	mg/l	Non-Detect Value	0.02	0.0069	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	8_2_101
Comanche	W-3B	Downgradient	5/5/2022	2022_05	Appendix IV	Antimony	0.00041	J+	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	8_2_101
Comanche	W-3B	Downgradient	6/8/2022	2022_06	Appendix IV	Antimony		U	mg/l	Non-Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	8_2_101
Comanche	W-3B	Downgradient	7/14/2022	2022_07	Appendix IV	Antimony	0.00044	J	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	8_2_101
Comanche	W-3B	Downgradient	8/23/2022	2022_08	Appendix IV	Antimony	0.00051	J	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	8_2_101
Comanche	W-3B	Downgradient	10/27/2022	2022_11	Appendix IV	Antimony	0.00043	J	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	8_2_101
Comanche	W-3B	Downgradient	2/17/2023	2023_02	Appendix IV	Antimony		U	mg/l	Non-Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	8_2_101
Comanche	W-3B	Downgradient	5/2/2023	2023_05	Appendix IV	Antimony		U	mg/l	Non-Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	8_2_101
Comanche	W-3B	Downgradient	12/10/2021	2021_12	Appendix IV	Arsenic		U	mg/l	Non-Detect Value	0.025	0.0038	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	8_2_102
Comanche	W-3B	Downgradient	1/13/2022	2022_01	Appendix IV	Arsenic		U	mg/l	Non-Detect Value	0.008	0.003	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	8_2_102
Comanche	W-3B	Downgradient	2/23/2022	2022_02	Appendix IV	Arsenic		U	mg/l	Non-Detect Value	0.002	0.00075	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	8_2_102
Comanche	W-3B	Downgradient	5/5/2022	2022_05	Appendix IV	Arsenic	0.00075	J	mg/l	Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	8_2_102
Comanche	W-3B	Downgradient	6/8/2022	2022_06	Appendix IV	Arsenic	0.00082	J	mg/l	Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	8_2_102
Comanche	W-3B	Downgradient	7/14/2022	2022_07	Appendix IV	Arsenic	0.00063	J	mg/l	Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	8_2_102
Comanche	W-3B	Downgradient	8/23/2022	2022_08	Appendix IV	Arsenic	0.00082	J	mg/l	Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	8_2_102
Comanche	W-3B	Downgradient	10/27/2022	2022_11	Appendix IV	Arsenic	0.00077	J	mg/l	Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	8_2_102
Comanche	W-3B	Downgradient	2/17/2023	2023_02	Appendix IV	Arsenic	0.00079	J	mg/l	Detect Value	0.005	0.0005	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	8_2_102
Comanche	W-3B	Downgradient	5/2/2023	2023_05	Appendix IV	Arsenic	0.00058	J	mg/l	Detect Value	0.005	0.0005	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	8_2_102
Comanche	W-3B	Downgradient	12/10/2021	2021_12	Appendix IV	Barium	0.015	J	mg/l	Detect Value	0.025	0.011	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	8_2_103
Comanche	W-3B	Downgradient	1/13/2022	2022_01	Appendix IV	Barium	0.014		mg/l	Detect Value	0.008	0.0015	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	8_2_103
Comanche	W-3B	Downgradient	2/23/2022	2022_02	Appendix IV	Barium	0.013	J	mg/l	Detect Value	0.02	0.0088	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	8_2_103
Comanche	W-3B	Downgradient	3/31/2022	2022_03	Appendix IV	Barium		U	mg/l	Non-Detect Value	0.2	0.088	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	8_2_103
Comanche	W-3B	Downgradient	5/5/2022	2022_05	Appendix IV	Barium	0.015		mg/l	Detect Value	0.001	0.00029	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	8_2_103
Comanche	W-3B	Downgradient	6/8/2022	2022_06	Appendix IV	Barium	0.015	J+	mg/l	Detect Value	0.001	0.00029	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	8_2_103
Comanche	W-3B	Downgradient	7/14/2022	2022_07	Appendix IV	Barium	0.015	J+	mg/l	Detect Value	0.001	0.00029	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	8_2_103
Comanche	W-3B	Downgradient	8/23/2022	2022_08	Appendix IV	Barium	0.016		mg/l	Detect Value	0.001	0.00029	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	8_2_103
Comanche	W-3B	Downgradient	10/27/2022	2022_11	Appendix IV	Barium	0.016		mg/l	Detect Value	0.001	0.00029	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	8_2_103
Comanche	W-3B	Downgradient	2/17/2023	2023_02	Appendix IV	Barium	0.016	J+	mg/l	Detect Value	0.003	0.00038	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	8_2_103
Comanche	W-3B	Downgradient	5/2/2023	2023_05	Appendix IV	Barium	0.014		mg/l	Detect Value	0.003	0.00038	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	8_2_103
Comanche	W-3B	Downgradient	12/10/2021	2021_12	Appendix IV	Beryllium		U	mg/l	Non-Detect Value	0.005	0.0031	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	8_2_104
Comanche	W-3B	Downgradient	1/13/2022	2022_01	Appendix IV	Beryllium		U	mg/l	Non-Detect Value	0.007	0.0019	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	8_2_104
Comanche	W-3B	Downgradient	2/23/2022	2022_02	Appendix IV	Beryllium		U	mg/l	Non-Detect Value	0.01	0.0027	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	8_2_104
Comanche	W-3B	Downgradient	3/31/2022	2022_03	Appendix IV	Beryllium		U	mg/l	Non-Detect Value	0.1	0.027	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	8_2_104
Comanche	W-3B	Downgradient	5/5/2022	2022_05	Appendix IV	Beryllium		UJ	mg/l	Non-Detect Value	0.001	8.00E-05	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	8_2_104

Comanche	W-3B	Downgradient	6/8/2022	2022_06	Appendix IV	Beryllium	UJ	mg/l	Non-Detect Value	0.001	8.00E-05	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	8_2_104
Comanche	W-3B	Downgradient	7/14/2022	2022_07	Appendix IV	Beryllium	0.00012 J+	mg/l	Detect Value	0.001	8.00E-05	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	8_2_104
Comanche	W-3B	Downgradient	8/23/2022	2022_08	Appendix IV	Beryllium	0.00026 J+	mg/l	Detect Value	0.001	8.00E-05	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	8_2_104
Comanche	W-3B	Downgradient	10/27/2022	2022_11	Appendix IV	Beryllium	0.00029 J+	mg/l	Detect Value	0.001	8.00E-05	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	8_2_104
Comanche	W-3B	Downgradient	2/17/2023	2023_02	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.001	0.0003	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	8_2_104
Comanche	W-3B	Downgradient	5/2/2023	2023_05	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.001	0.0003	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	8_2_104
Comanche	W-3B	Downgradient	12/10/2021	2021_12	Appendix IV	Cadmium	0.017	mg/l	Detect Value	0.005	0.00099	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	8_2_106
Comanche	W-3B	Downgradient	1/13/2022	2022_01	Appendix IV	Cadmium	0.021	mg/l	Detect Value	0.0004	0.0002	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	8_2_106
Comanche	W-3B	Downgradient	2/23/2022	2022_02	Appendix IV	Cadmium	0.023	mg/l	Detect Value	0.001	0.00055	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	8_2_106
Comanche	W-3B	Downgradient	3/31/2022	2022_03	Appendix IV	Cadmium	0.017	mg/l	Detect Value	0.01	0.0055	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	8_2_106
Comanche	W-3B	Downgradient	5/5/2022	2022_05	Appendix IV	Cadmium	0.017	mg/l	Detect Value	0.001	0.00027	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	8_2_106
Comanche	W-3B	Downgradient	6/8/2022	2022_06	Appendix IV	Cadmium	0.015	mg/l	Detect Value	0.001	0.00027	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	8_2_106
Comanche	W-3B	Downgradient	7/14/2022	2022_07	Appendix IV	Cadmium	0.017	mg/l	Detect Value	0.001	0.00027	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	8_2_106
Comanche	W-3B	Downgradient	8/23/2022	2022_08	Appendix IV	Cadmium	0.017	mg/l	Detect Value	0.001	0.00027	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	8_2_106
Comanche	W-3B	Downgradient	10/27/2022	2022_11	Appendix IV	Cadmium	0.017	mg/l	Detect Value	0.001	0.00027	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	8_2_106
Comanche	W-3B	Downgradient	2/17/2023	2023_02	Appendix IV	Cadmium	0.018	mg/l	Detect Value	0.001	0.00019	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	8_2_106
Comanche	W-3B	Downgradient	5/2/2023	2023_05	Appendix IV	Cadmium	0.018 J+	mg/l	Detect Value	0.001	0.00019	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	8_2_106
Comanche	W-3B	Downgradient	12/10/2021	2021_12	Appendix IV	Chromium, Total	U	mg/l	Non-Detect Value	0.012	0.012	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	8_2_109
Comanche	W-3B	Downgradient	1/13/2022	2022_01	Appendix IV	Chromium, Total	U	mg/l	Non-Detect Value	0.02	0.0044	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	8_2_109
Comanche	W-3B	Downgradient	2/23/2022	2022_02	Appendix IV	Chromium, Total	U	mg/l	Non-Detect Value	0.005	0.0011	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	8_2_109
Comanche	W-3B	Downgradient	3/31/2022	2022_03	Appendix IV	Chromium, Total	U	mg/l	Non-Detect Value	0.5	0.11	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	8_2_109
Comanche	W-3B	Downgradient	5/5/2022	2022_05	Appendix IV	Chromium, Total	0.00059 J	mg/l	Detect Value	0.002	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	8_2_109
Comanche	W-3B	Downgradient	6/8/2022	2022_06	Appendix IV	Chromium, Total	0.00054 J	mg/l	Detect Value	0.002	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	8_2_109
Comanche	W-3B	Downgradient	7/14/2022	2022_07	Appendix IV	Chromium, Total	0.00057 J	mg/l	Detect Value	0.002	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	8_2_109
Comanche	W-3B	Downgradient	8/23/2022	2022_08	Appendix IV	Chromium, Total	0.00085 J	mg/l	Detect Value	0.002	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	8_2_109
Comanche	W-3B	Downgradient	10/27/2022	2022_11	Appendix IV	Chromium, Total	0.00077 J	mg/l	Detect Value	0.002	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	8_2_109
Comanche	W-3B	Downgradient	2/17/2023	2023_02	Appendix IV	Chromium, Total	0.0016 J+	mg/l	Detect Value	0.003	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	8_2_109
Comanche	W-3B	Downgradient	5/2/2023	2023_05	Appendix IV	Chromium, Total	0.0008 J	mg/l	Detect Value	0.003	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	8_2_109
Comanche	W-3B	Downgradient	12/10/2021	2021_12	Appendix IV	Cobalt	0.1	mg/l	Detect Value	0.005	0.00095	mg/l	7440-48-4	TRG	T		None	N	8_2_110
Comanche	W-3B	Downgradient	1/13/2022	2022_01	Appendix IV	Cobalt	0.14	mg/l	Detect Value	0.002	0.00076	mg/l	7440-48-4	TRG	T		None	N	8_2_110
Comanche	W-3B	Downgradient	2/23/2022	2022_02	Appendix IV	Cobalt	0.083	mg/l	Detect Value	0.0005	0.00019	mg/l	7440-48-4	TRG	T		None	N	8_2_110
Comanche	W-3B	Downgradient	3/31/2022	2022_03	Appendix IV	Cobalt	0.15	mg/l	Detect Value	0.05	0.019	mg/l	7440-48-4	TRG	T		None	N	8_2_110
Comanche	W-3B	Downgradient	5/5/2022	2022_05	Appendix IV	Cobalt	0.11	mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG	T		None	N	8_2_110
Comanche	W-3B	Downgradient	6/8/2022	2022_06	Appendix IV	Cobalt	0.0035	mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG	T		None	N	8_2_110
Comanche	W-3B	Downgradient	7/14/2022	2022_07	Appendix IV	Cobalt	0.11	mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG	T		None	N	8_2_110
Comanche	W-3B	Downgradient	8/23/2022	2022_08	Appendix IV	Cobalt	0.11	mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG	T		None	N	8_2_110
Comanche	W-3B	Downgradient	10/27/2022	2022_11	Appendix IV	Cobalt	0.12	mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG	T		None	N	8_2_110
Comanche	W-3B	Downgradient	2/17/2023	2023_02	Appendix IV	Cobalt	0.12	mg/l	Detect Value	0.001	0.00033	mg/l	7440-48-4	TRG	T		None	N	8_2_110
Comanche	W-3B	Downgradient	5/2/2023	2023_05	Appendix IV	Cobalt	0.11	mg/l	Detect Value	0.001	0.00033	mg/l	7440-48-4	TRG	T		None	N	8_2_110
Comanche	W-3B	Downgradient	12/10/2021	2021_12	Appendix IV	Fluoride (App IV)	UJ	mg/l	Non-Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	8_2_112
Comanche	W-3B	Downgradient	1/13/2022	2022_01	Appendix IV	Fluoride (App IV)	UJ	mg/l	Non-Detect Value	5	1.7	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	8_2_112
Comanche	W-3B	Downgradient	2/23/2022	2022_02	Appendix IV	Fluoride (App IV)	U	mg/l	Non-Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	8_2_112
Comanche	W-3B	Downgradient	3/31/2022	2022_03	Appendix IV	Fluoride (App IV)	84	mg/l	Detect Value	5	1.7	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	8_2_112
Comanche	W-3B	Downgradient	5/5/2022	2022_05	Appendix IV	Fluoride (App IV)	69 J+	mg/l	Detect Value	10	3.3	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	8_2_112
Comanche	W-3B	Downgradient	6/8/2022	2022_06	Appendix IV	Fluoride (App IV)	U	mg/l	Non-Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	8_2_112
Comanche	W-3B	Downgradient	7/14/2022	2022_07	Appendix IV	Fluoride (App IV)	82	mg/l	Detect Value	10	3.3	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	8_2_112
Comanche	W-3B	Downgradient	8/23/2022	2022_08	Appendix IV	Fluoride (App IV)	100	mg/l	Detect Value	10	3.3	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	8_2_112
Comanche	W-3B	Downgradient	10/27/2022	2022_11	Appendix IV	Fluoride (App IV)	U	mg/l	Non-Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	8_2_112
Comanche	W-3B	Downgradient	2/17/2023	2023_02	Appendix IV	Fluoride (App IV)	U	mg/l	Non-Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	8_2_112
Comanche	W-3B	Downgradient	5/2/2023	2023_05	Appendix IV	Fluoride (App IV)	UJ	mg/l	Non-Detect Value	5	1.7	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	8_2_112
Comanche	W-3B	Downgradient	12/10/2021	2021_12	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.005	0.0023	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	8_2_113
Comanche	W-3B	Downgradient	1/13/2022	2022_01	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.002	0.00084	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	8_2_113
Comanche	W-3B	Downgradient	2/23/2022	2022_02	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.005	0.0024	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	8_2_113
Comanche	W-3B	Downgradient	3/31/2022	2022_03	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.05	0.024	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	8_2_113
Comanche	W-3B	Downgradient	5/5/2022	2022_05	Appendix IV	Lead	0.00069 J	mg/l	Detect Value	0.001	0.00018	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	8_2_113
Comanche	W-3B	Downgradient	6/8/2022	2022_06	Appendix IV	Lead	0.00057 J	mg/l	Detect Value	0.001	0.00018	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	8_2_113
Comanche	W-3B	Downgradient	7/14/2022	2022_07	Appendix IV	Lead	0.00049 J	mg/l	Detect Value	0.001	0.00018	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	8_2_113
Comanche	W-3B	Downgradient	8/23/2022	2022_08	Appendix IV	Lead	0.00079 J	mg/l	Detect Value	0.001	0.00018	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	8_2_113
Comanche	W-3B	Downgradient	10/27/2022	2022_11	Appendix IV	Lead	0.00066 J	mg/l	Detect Value	0.001	0.00018	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	8_2_113
Comanche	W-3B	Downgradient	2/17/2023	2023_02	Appendix IV	Lead	0.0016	mg/l	Detect Value	0.001	0.00023	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	8_2_113
Comanche	W-3B	Downgradient	5/2/2023	2023_05	Appendix IV	Lead	0.0011	mg/l	Detect Value	0.001	0.00023	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	8_2_113
Comanche	W-3B	Downgradient	12/10/2021	2021_12	Appendix IV	Lithium	2.5 J+	mg/l	Detect Value	0.04	0.0083	mg/l	7439-93-2	TRG	T		None	N	8_2_114
Comanche	W-3B	Downgradient	1/13/2022	2022_01	Appendix IV	Lithium	3	mg/l	Detect Value	0.04	0.01	mg/l	7439-93-2	TRG	T		None	N	8_2_114
Comanche	W-3B	Downgradient	2/23/2022	2022_02	Appendix IV	Lithium	3.1 J-	mg/l	Detect Value	0.1	0.025	mg/l	7439-93-2	TRG	T		None	N	8_2_114
Comanche	W-3B	Downgradient	3/31/2022	2022_03	Appendix IV	Lithium	3.4	mg/l	Detect Value	1	0.25	mg/l	7439-93-2	TRG	T		None	N	8_2_114
Comanche	W-3B	Downgradient	5/5/2022	2022_05	Appendix IV	Lithium	3.3 J	mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	8_2_114
Comanche	W-3B	Downgradient	6/8/2022	2022_06	Appendix IV	Lithium	3.1 J+	mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	8_2_114
Comanche	W-3B	Downgradient	7/14/2022	2022_07	Appendix IV	Lithium	3.1	mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	8_2_114

Comanche	W-3B	Downgradient	8/23/2022	2022_08	Appendix IV	Lithium	3.2		mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	8_2_114
Comanche	W-3B	Downgradient	10/27/2022	2022_11	Appendix IV	Lithium	3.3		mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	8_2_114
Comanche	W-3B	Downgradient	2/17/2023	2023_02	Appendix IV	Lithium	2.9		mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	8_2_114
Comanche	W-3B	Downgradient	5/2/2023	2023_05	Appendix IV	Lithium	3.3		mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	8_2_114
Comanche	W-3B	Downgradient	12/10/2021	2021_12	Appendix IV	Mercury		U	mg/l	Non-Detect Value	0.0002	0.00013	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	8_2_115
Comanche	W-3B	Downgradient	1/13/2022	2022_01	Appendix IV	Mercury		UJ	mg/l	Non-Detect Value	0.0002	0.00015	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	8_2_115
Comanche	W-3B	Downgradient	2/23/2022	2022_02	Appendix IV	Mercury		U	mg/l	Non-Detect Value	0.0002	0.00011	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	8_2_115
Comanche	W-3B	Downgradient	3/31/2022	2022_03	Appendix IV	Mercury		U	mg/l	Non-Detect Value	0.0002	0.00011	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	8_2_115
Comanche	W-3B	Downgradient	5/5/2022	2022_05	Appendix IV	Mercury		U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	8_2_115
Comanche	W-3B	Downgradient	6/8/2022	2022_06	Appendix IV	Mercury		U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	8_2_115
Comanche	W-3B	Downgradient	7/14/2022	2022_07	Appendix IV	Mercury		U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	8_2_115
Comanche	W-3B	Downgradient	8/23/2022	2022_08	Appendix IV	Mercury		U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	8_2_115
Comanche	W-3B	Downgradient	10/27/2022	2022_11	Appendix IV	Mercury		U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	8_2_115
Comanche	W-3B	Downgradient	2/17/2023	2023_02	Appendix IV	Mercury		U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	8_2_115
Comanche	W-3B	Downgradient	5/2/2023	2023_05	Appendix IV	Mercury		U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	8_2_115
Comanche	W-3B	Downgradient	12/10/2021	2021_12	Appendix IV	Molybdenum	0.0088	J	mg/l	Detect Value	0.05	0.0054	mg/l	7439-98-7	TRG	T		None	N	8_2_116
Comanche	W-3B	Downgradient	1/13/2022	2022_01	Appendix IV	Molybdenum		U	mg/l	Non-Detect Value	0.014	0.0091	mg/l	7439-98-7	TRG	T		None	N	8_2_116
Comanche	W-3B	Downgradient	2/23/2022	2022_02	Appendix IV	Molybdenum		U	mg/l	Non-Detect Value	0.02	0.012	mg/l	7439-98-7	TRG	T		None	N	8_2_116
Comanche	W-3B	Downgradient	3/31/2022	2022_03	Appendix IV	Molybdenum		U	mg/l	Non-Detect Value	0.2	0.12	mg/l	7439-98-7	TRG	T		None	N	8_2_116
Comanche	W-3B	Downgradient	5/5/2022	2022_05	Appendix IV	Molybdenum	0.0017	J+	mg/l	Detect Value	0.002	0.00014	mg/l	7439-98-7	TRG	T		None	N	8_2_116
Comanche	W-3B	Downgradient	6/8/2022	2022_06	Appendix IV	Molybdenum	0.0017	J+	mg/l	Detect Value	0.002	0.00014	mg/l	7439-98-7	TRG	T		None	N	8_2_116
Comanche	W-3B	Downgradient	7/14/2022	2022_07	Appendix IV	Molybdenum	0.0022	J+	mg/l	Detect Value	0.002	0.00014	mg/l	7439-98-7	TRG	T		None	N	8_2_116
Comanche	W-3B	Downgradient	8/23/2022	2022_08	Appendix IV	Molybdenum	0.0027	J+	mg/l	Detect Value	0.002	0.00014	mg/l	7439-98-7	TRG	T		None	N	8_2_116
Comanche	W-3B	Downgradient	10/27/2022	2022_11	Appendix IV	Molybdenum	0.0026	J+	mg/l	Detect Value	0.002	0.00014	mg/l	7439-98-7	TRG	T		None	N	8_2_116
Comanche	W-3B	Downgradient	2/17/2023	2023_02	Appendix IV	Molybdenum	0.0017	J	mg/l	Detect Value	0.002	0.00037	mg/l	7439-98-7	TRG	T		None	N	8_2_116
Comanche	W-3B	Downgradient	5/2/2023	2023_05	Appendix IV	Molybdenum	0.0016	J	mg/l	Detect Value	0.002	0.00037	mg/l	7439-98-7	TRG	T		None	N	8_2_116
Comanche	W-3B	Downgradient	12/10/2021	2021_12	Appendix IV	Radium-226+228	13.6		pci/l	Detect Value	5	0.925	pci/l	425	TRG	T			N	8_2_120
Comanche	W-3B	Downgradient	1/13/2022	2022_01	Appendix IV	Radium-226+228	8.39	J+	pci/l	Detect Value	5	0.626	pci/l	425	TRG	T			N	8_2_120
Comanche	W-3B	Downgradient	2/23/2022	2022_02	Appendix IV	Radium-226+228	12.5		pci/l	Detect Value	5	0.602	pci/l	425	TRG	T			N	8_2_120
Comanche	W-3B	Downgradient	3/31/2022	2022_03	Appendix IV	Radium-226+228	12.7		pci/l	Detect Value	5	0.645	pci/l	425	TRG	T			N	8_2_120
Comanche	W-3B	Downgradient	5/5/2022	2022_05	Appendix IV	Radium-226+228	10.7		pci/l	Detect Value	5	0.938	pci/l	425	TRG	T			N	8_2_120
Comanche	W-3B	Downgradient	6/8/2022	2022_06	Appendix IV	Radium-226+228	8.15		pci/l	Detect Value	5	0.617	pci/l	425	TRG	T			N	8_2_120
Comanche	W-3B	Downgradient	7/14/2022	2022_07	Appendix IV	Radium-226+228	11.5		pci/l	Detect Value	5	0.851	pci/l	425	TRG	T			N	8_2_120
Comanche	W-3B	Downgradient	8/23/2022	2022_08	Appendix IV	Radium-226+228	13.4	J+	pci/l	Detect Value	5	1.09	pci/l	425	TRG	T			N	8_2_120
Comanche	W-3B	Downgradient	10/27/2022	2022_11	Appendix IV	Radium-226+228	10.9		pci/l	Detect Value	5	0.727	pci/l	425	TRG	T			N	8_2_120
Comanche	W-3B	Downgradient	2/17/2023	2023_02	Appendix IV	Radium-226+228	10.6		pci/l	Detect Value	5	1.1	pci/l	425	TRG	T			N	8_2_120
Comanche	W-3B	Downgradient	5/2/2023	2023_05	Appendix IV	Radium-226+228	11.7		pci/l	Detect Value	5	0.775	pci/l	425	TRG	T			N	8_2_120
Comanche	W-3B	Downgradient	12/10/2021	2021_12	Appendix IV	Selenium	0.016	J	mg/l	Detect Value	0.025	0.0045	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	8_2_122
Comanche	W-3B	Downgradient	1/13/2022	2022_01	Appendix IV	Selenium	0.015	J	mg/l	Detect Value	0.02	0.0038	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	8_2_122
Comanche	W-3B	Downgradient	2/23/2022	2022_02	Appendix IV	Selenium	0.0047	J+	mg/l	Detect Value	0.005	0.00096	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	8_2_122
Comanche	W-3B	Downgradient	3/31/2022	2022_03	Appendix IV	Selenium		U	mg/l	Non-Detect Value	0.5	0.096	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	8_2_122
Comanche	W-3B	Downgradient	5/5/2022	2022_05	Appendix IV	Selenium	0.0066		mg/l	Detect Value	0.005	0.00037	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	8_2_122
Comanche	W-3B	Downgradient	6/8/2022	2022_06	Appendix IV	Selenium	0.0061		mg/l	Detect Value	0.005	0.00037	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	8_2_122
Comanche	W-3B	Downgradient	7/14/2022	2022_07	Appendix IV	Selenium	0.011		mg/l	Detect Value	0.005	0.00037	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	8_2_122
Comanche	W-3B	Downgradient	8/23/2022	2022_08	Appendix IV	Selenium	0.0074		mg/l	Detect Value	0.005	0.00037	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	8_2_122
Comanche	W-3B	Downgradient	10/27/2022	2022_11	Appendix IV	Selenium	0.0066		mg/l	Detect Value	0.005	0.00037	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	8_2_122
Comanche	W-3B	Downgradient	2/17/2023	2023_02	Appendix IV	Selenium	0.0048	J	mg/l	Detect Value	0.005	0.001	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	8_2_122
Comanche	W-3B	Downgradient	5/2/2023	2023_05	Appendix IV	Selenium	0.0048	J	mg/l	Detect Value	0.005	0.001	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	8_2_122
Comanche	W-3B	Downgradient	12/10/2021	2021_12	Appendix IV	Thallium	0.0026	J	mg/l	Detect Value	0.005	0.001	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	8_2_126
Comanche	W-3B	Downgradient	1/13/2022	2022_01	Appendix IV	Thallium	0.0029	J	mg/l	Detect Value	0.004	0.001	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	8_2_126
Comanche	W-3B	Downgradient	2/23/2022	2022_02	Appendix IV	Thallium	0.0032	J	mg/l	Detect Value	0.01	0.0026	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	8_2_126
Comanche	W-3B	Downgradient	3/31/2022	2022_03	Appendix IV	Thallium		UJ	mg/l	Non-Detect Value	0.1	0.026	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	8_2_126
Comanche	W-3B	Downgradient	5/5/2022	2022_05	Appendix IV	Thallium	0.0031		mg/l	Detect Value	0.001	8.90E-05	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	8_2_126
Comanche	W-3B	Downgradient	6/8/2022	2022_06	Appendix IV	Thallium	0.0029		mg/l	Detect Value	0.001	8.90E-05	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	8_2_126
Comanche	W-3B	Downgradient	7/14/2022	2022_07	Appendix IV	Thallium	0.0027	J+	mg/l	Detect Value	0.001	8.90E-05	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	8_2_126
Comanche	W-3B	Downgradient	8/23/2022	2022_08	Appendix IV	Thallium	0.0031		mg/l	Detect Value	0.001	8.90E-05	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	8_2_126
Comanche	W-3B	Downgradient	10/27/2022	2022_11	Appendix IV	Thallium	0.003		mg/l	Detect Value	0.001	8.90E-05	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	8_2_126
Comanche	W-3B	Downgradient	2/17/2023	2023_02	Appendix IV	Thallium	0.0036		mg/l	Detect Value	0.001	0.00021	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	8_2_126
Comanche	W-3B	Downgradient	5/2/2023	2023_05	Appendix IV	Thallium	0.0028		mg/l	Detect Value	0.001	0.00021	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	8_2_126
Comanche	W-5B	Downgradient	1/14/2021	2021_01	Appendix IV	Antimony		U	mg/l	Non-Detect Value	0.02	0.0057	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	9_2_101
Comanche	W-5B	Downgradient	4/9/2021	2021_04	Appendix IV	Antimony		U	mg/l	Non-Detect Value	0.002	0.00057	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	9_2_101
Comanche	W-5B	Downgradient	5/26/2021	2021_06	Appendix IV	Antimony		U	mg/l	Non-Detect Value	0.002	0.00057	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	9_2_101
Comanche	W-5B	Downgradient	12/1/2021	2021_11_AMWells	Appendix IV	Antimony		U	mg/l	Non-Detect Value	0.002	0.00057	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	9_2_101
Comanche	W-5B	Downgradient	1/14/2022	2022_01	Appendix IV	Antimony		U	mg/l	Non-Detect Value	0.008	0.0044	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	9_2_101
Comanche	W-5B	Downgradient	2/25/2022	2022_02	Appendix IV	Antimony		UJ	mg/l	Non-Detect Value	0.02	0.0069	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	9_2_101
Comanche	W-5B	Downgradient	3/30/2022	2022_03	Appendix IV	Antimony		U	mg/l	Non-Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	9_2_101
Comanche	W-5B	Downgradient	5/6/2022	2022_05	Appendix IV	Antimony		U	mg/l	Non-Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	9_2_101
Comanche	W-5B	Downgradient	6/7/2022	2022_06	Appendix IV	Antimony	0.00049	J	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	9_2_101

Comanche	W-5B	Downgradient	7/14/2022	2022_07	Appendix IV	Antimony	U	mg/l	Non-Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	9_2_101
Comanche	W-5B	Downgradient	8/23/2022	2022_08	Appendix IV	Antimony	U	mg/l	Non-Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	9_2_101
Comanche	W-5B	Downgradient	10/27/2022	2022_11	Appendix IV	Antimony	U	mg/l	Non-Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	9_2_101
Comanche	W-5B	Downgradient	2/14/2023	2023_02	Appendix IV	Antimony	U	mg/l	Non-Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	9_2_101
Comanche	W-5B	Downgradient	5/2/2023	2023_05	Appendix IV	Antimony	0.0078	mg/l	Detect Value	0.002	0.0004	mg/l	7440-36-0	TRG	T	0.006	Primary MCL	N	9_2_101
Comanche	W-5B	Downgradient	1/14/2021	2021_01	Appendix IV	Arsenic	U	mg/l	Non-Detect Value	0.05	0.0075	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	9_2_102
Comanche	W-5B	Downgradient	4/9/2021	2021_04	Appendix IV	Arsenic	U	mg/l	Non-Detect Value	0.005	0.00075	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	9_2_102
Comanche	W-5B	Downgradient	5/26/2021	2021_06	Appendix IV	Arsenic	0.00087 J	mg/l	Detect Value	0.005	0.00075	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	9_2_102
Comanche	W-5B	Downgradient	12/1/2021	2021_11_AMWells	Appendix IV	Arsenic	U	mg/l	Non-Detect Value	0.005	0.00075	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	9_2_102
Comanche	W-5B	Downgradient	1/14/2022	2022_01	Appendix IV	Arsenic	U	mg/l	Non-Detect Value	0.008	0.003	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	9_2_102
Comanche	W-5B	Downgradient	2/25/2022	2022_02	Appendix IV	Arsenic	U	mg/l	Non-Detect Value	0.02	0.0075	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	9_2_102
Comanche	W-5B	Downgradient	3/30/2022	2022_03	Appendix IV	Arsenic	0.00035 J	mg/l	Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	9_2_102
Comanche	W-5B	Downgradient	5/6/2022	2022_05	Appendix IV	Arsenic	U	mg/l	Non-Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	9_2_102
Comanche	W-5B	Downgradient	6/7/2022	2022_06	Appendix IV	Arsenic	0.00036 J	mg/l	Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	9_2_102
Comanche	W-5B	Downgradient	7/14/2022	2022_07	Appendix IV	Arsenic	U	mg/l	Non-Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	9_2_102
Comanche	W-5B	Downgradient	8/23/2022	2022_08	Appendix IV	Arsenic	0.00036 J	mg/l	Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	9_2_102
Comanche	W-5B	Downgradient	10/27/2022	2022_11	Appendix IV	Arsenic	U	mg/l	Non-Detect Value	0.005	0.00033	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	9_2_102
Comanche	W-5B	Downgradient	2/14/2023	2023_02	Appendix IV	Arsenic	0.00059 J	mg/l	Detect Value	0.005	0.0005	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	9_2_102
Comanche	W-5B	Downgradient	5/2/2023	2023_05	Appendix IV	Arsenic	0.00052 J	mg/l	Detect Value	0.005	0.0005	mg/l	7440-38-2	TRG	T	0.01	Primary MCL	N	9_2_102
Comanche	W-5B	Downgradient	1/14/2021	2021_01	Appendix IV	Barium	U	mg/l	Non-Detect Value	0.05	0.022	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	9_2_103
Comanche	W-5B	Downgradient	4/9/2021	2021_04	Appendix IV	Barium	0.017	mg/l	Detect Value	0.005	0.0022	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	9_2_103
Comanche	W-5B	Downgradient	5/26/2021	2021_06	Appendix IV	Barium	0.019	mg/l	Detect Value	0.005	0.0022	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	9_2_103
Comanche	W-5B	Downgradient	12/1/2021	2021_11_AMWells	Appendix IV	Barium	0.018	mg/l	Detect Value	0.005	0.0022	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	9_2_103
Comanche	W-5B	Downgradient	1/14/2022	2022_01	Appendix IV	Barium	0.017	mg/l	Detect Value	0.008	0.0015	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	9_2_103
Comanche	W-5B	Downgradient	2/25/2022	2022_02	Appendix IV	Barium	0.018 J	mg/l	Detect Value	0.02	0.0088	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	9_2_103
Comanche	W-5B	Downgradient	3/30/2022	2022_03	Appendix IV	Barium	0.017 J	mg/l	Detect Value	0.02	0.0088	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	9_2_103
Comanche	W-5B	Downgradient	5/6/2022	2022_05	Appendix IV	Barium	0.017	mg/l	Detect Value	0.001	0.00029	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	9_2_103
Comanche	W-5B	Downgradient	6/7/2022	2022_06	Appendix IV	Barium	0.019 J+	mg/l	Detect Value	0.001	0.00029	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	9_2_103
Comanche	W-5B	Downgradient	7/14/2022	2022_07	Appendix IV	Barium	0.017 J+	mg/l	Detect Value	0.001	0.00029	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	9_2_103
Comanche	W-5B	Downgradient	8/23/2022	2022_08	Appendix IV	Barium	0.02	mg/l	Detect Value	0.001	0.00029	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	9_2_103
Comanche	W-5B	Downgradient	10/27/2022	2022_11	Appendix IV	Barium	0.018 J	mg/l	Detect Value	0.001	0.00029	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	9_2_103
Comanche	W-5B	Downgradient	2/14/2023	2023_02	Appendix IV	Barium	0.018	mg/l	Detect Value	0.003	0.00038	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	9_2_103
Comanche	W-5B	Downgradient	5/2/2023	2023_05	Appendix IV	Barium	0.016	mg/l	Detect Value	0.003	0.00038	mg/l	7440-39-3	TRG	T	2	Primary MCL	N	9_2_103
Comanche	W-5B	Downgradient	1/14/2021	2021_01	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.01	0.00031	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	9_2_104
Comanche	W-5B	Downgradient	12/1/2021	2021_11_AMWells	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.001	0.00062	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	9_2_104
Comanche	W-5B	Downgradient	1/14/2022	2022_01	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.007	0.0019	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	9_2_104
Comanche	W-5B	Downgradient	2/25/2022	2022_02	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.01	0.0027	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	9_2_104
Comanche	W-5B	Downgradient	3/30/2022	2022_03	Appendix IV	Beryllium	UJ	mg/l	Non-Detect Value	0.01	0.0027	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	9_2_104
Comanche	W-5B	Downgradient	5/6/2022	2022_05	Appendix IV	Beryllium	0.00013 J+	mg/l	Detect Value	0.001	8.00E-05	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	9_2_104
Comanche	W-5B	Downgradient	6/7/2022	2022_06	Appendix IV	Beryllium	UJ	mg/l	Non-Detect Value	0.001	8.00E-05	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	9_2_104
Comanche	W-5B	Downgradient	7/14/2022	2022_07	Appendix IV	Beryllium	UJ	mg/l	Non-Detect Value	0.001	8.00E-05	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	9_2_104
Comanche	W-5B	Downgradient	8/23/2022	2022_08	Appendix IV	Beryllium	9.40E-05 J+	mg/l	Detect Value	0.001	8.00E-05	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	9_2_104
Comanche	W-5B	Downgradient	10/27/2022	2022_11	Appendix IV	Beryllium	UJ	mg/l	Non-Detect Value	0.001	8.00E-05	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	9_2_104
Comanche	W-5B	Downgradient	2/14/2023	2023_02	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.001	0.0003	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	9_2_104
Comanche	W-5B	Downgradient	5/2/2023	2023_05	Appendix IV	Beryllium	U	mg/l	Non-Detect Value	0.001	0.0003	mg/l	7440-41-7	TRG	T	0.004	Primary MCL	N	9_2_104
Comanche	W-5B	Downgradient	1/14/2021	2021_01	Appendix IV	Cadmium	U	mg/l	Non-Detect Value	0.01	0.002	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	9_2_106
Comanche	W-5B	Downgradient	4/9/2021	2021_04	Appendix IV	Cadmium	0.0014 J+	mg/l	Detect Value	0.001	0.0002	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	9_2_106
Comanche	W-5B	Downgradient	5/26/2021	2021_06	Appendix IV	Cadmium	0.0011	mg/l	Detect Value	0.001	0.0002	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	9_2_106
Comanche	W-5B	Downgradient	12/1/2021	2021_11_AMWells	Appendix IV	Cadmium	0.00086 J	mg/l	Detect Value	0.001	0.0002	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	9_2_106
Comanche	W-5B	Downgradient	1/14/2022	2022_01	Appendix IV	Cadmium	0.00088	mg/l	Detect Value	0.0004	0.0002	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	9_2_106
Comanche	W-5B	Downgradient	2/25/2022	2022_02	Appendix IV	Cadmium	0.00061 J	mg/l	Detect Value	0.001	0.00055	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	9_2_106
Comanche	W-5B	Downgradient	3/30/2022	2022_03	Appendix IV	Cadmium	U	mg/l	Non-Detect Value	0.001	0.00055	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	9_2_106
Comanche	W-5B	Downgradient	5/6/2022	2022_05	Appendix IV	Cadmium	0.0012	mg/l	Detect Value	0.001	0.00027	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	9_2_106
Comanche	W-5B	Downgradient	6/7/2022	2022_06	Appendix IV	Cadmium	0.0009 J	mg/l	Detect Value	0.001	0.00027	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	9_2_106
Comanche	W-5B	Downgradient	7/14/2022	2022_07	Appendix IV	Cadmium	0.00066 J	mg/l	Detect Value	0.001	0.00027	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	9_2_106
Comanche	W-5B	Downgradient	8/23/2022	2022_08	Appendix IV	Cadmium	0.00088 J	mg/l	Detect Value	0.001	0.00027	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	9_2_106
Comanche	W-5B	Downgradient	10/27/2022	2022_11	Appendix IV	Cadmium	0.0028	mg/l	Detect Value	0.001	0.00027	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	9_2_106
Comanche	W-5B	Downgradient	2/14/2023	2023_02	Appendix IV	Cadmium	0.00082 J	mg/l	Detect Value	0.001	0.00019	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	9_2_106
Comanche	W-5B	Downgradient	5/2/2023	2023_05	Appendix IV	Cadmium	0.0012 J+	mg/l	Detect Value	0.001	0.00019	mg/l	7440-43-9	TRG	T	0.005	Primary MCL	N	9_2_106
Comanche	W-5B	Downgradient	1/14/2021	2021_01	Appendix IV	Chromium, Total	U	mg/l	Non-Detect Value	0.02	0.0098	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	9_2_109
Comanche	W-5B	Downgradient	4/9/2021	2021_04	Appendix IV	Chromium, Total	U	mg/l	Non-Detect Value	0.002	0.00098	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	9_2_109
Comanche	W-5B	Downgradient	5/26/2021	2021_06	Appendix IV	Chromium, Total	U	mg/l	Non-Detect Value	0.002	0.00098	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	9_2_109
Comanche	W-5B	Downgradient	12/1/2021	2021_11_AMWells	Appendix IV	Chromium, Total	U	mg/l	Non-Detect Value	0.0025	0.0025	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	9_2_109
Comanche	W-5B	Downgradient	1/14/2022	2022_01	Appendix IV	Chromium, Total	U	mg/l	Non-Detect Value	0.02	0.0044	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	9_2_109
Comanche	W-5B	Downgradient	2/25/2022	2022_02	Appendix IV	Chromium, Total	U	mg/l	Non-Detect Value	0.05	0.011	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	9_2_109
Comanche	W-5B	Downgradient	3/30/2022	2022_03	Appendix IV	Chromium, Total	U	mg/l	Non-Detect Value	0.05	0.011	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	9_2_109
Comanche	W-5B	Downgradient	5/6/2022	2022_05	Appendix IV	Chromium, Total	U	mg/l	Non-Detect Value	0.002	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	9_2_109

Comanche	W-5B	Downgradient	6/7/2022	2022_06	Appendix IV	Chromium, Total	U	mg/l	Non-Detect Value	0.002	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	9_2_109
Comanche	W-5B	Downgradient	7/14/2022	2022_07	Appendix IV	Chromium, Total	0.00055 J	mg/l	Detect Value	0.002	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	9_2_109
Comanche	W-5B	Downgradient	8/23/2022	2022_08	Appendix IV	Chromium, Total	U	mg/l	Non-Detect Value	0.002	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	9_2_109
Comanche	W-5B	Downgradient	10/27/2022	2022_11	Appendix IV	Chromium, Total	U	mg/l	Non-Detect Value	0.002	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	9_2_109
Comanche	W-5B	Downgradient	2/14/2023	2023_02	Appendix IV	Chromium, Total	0.00077 J+	mg/l	Detect Value	0.003	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	9_2_109
Comanche	W-5B	Downgradient	5/2/2023	2023_05	Appendix IV	Chromium, Total	U	mg/l	Non-Detect Value	0.003	0.0005	mg/l	7440-47-3	TRG	T	0.1	Primary MCL	N	9_2_109
Comanche	W-5B	Downgradient	1/14/2021	2021_01	Appendix IV	Cobalt	0.004 J	mg/l	Detect Value	0.01	0.0019	mg/l	7440-48-4	TRG	T		None	N	9_2_110
Comanche	W-5B	Downgradient	4/9/2021	2021_04	Appendix IV	Cobalt	0.0036	mg/l	Detect Value	0.001	0.00019	mg/l	7440-48-4	TRG	T		None	N	9_2_110
Comanche	W-5B	Downgradient	5/26/2021	2021_06	Appendix IV	Cobalt	0.0035	mg/l	Detect Value	0.001	0.00019	mg/l	7440-48-4	TRG	T		None	N	9_2_110
Comanche	W-5B	Downgradient	12/1/2021	2021_11_AMWells	Appendix IV	Cobalt	0.0032	mg/l	Detect Value	0.001	0.00019	mg/l	7440-48-4	TRG	T		None	N	9_2_110
Comanche	W-5B	Downgradient	1/14/2022	2022_01	Appendix IV	Cobalt	0.003	mg/l	Detect Value	0.002	0.00076	mg/l	7440-48-4	TRG	T		None	N	9_2_110
Comanche	W-5B	Downgradient	2/25/2022	2022_02	Appendix IV	Cobalt	0.0031 J	mg/l	Detect Value	0.005	0.0019	mg/l	7440-48-4	TRG	T		None	N	9_2_110
Comanche	W-5B	Downgradient	3/30/2022	2022_03	Appendix IV	Cobalt	0.003 J	mg/l	Detect Value	0.005	0.0019	mg/l	7440-48-4	TRG	T		None	N	9_2_110
Comanche	W-5B	Downgradient	5/6/2022	2022_05	Appendix IV	Cobalt	0.0027	mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG	T		None	N	9_2_110
Comanche	W-5B	Downgradient	6/7/2022	2022_06	Appendix IV	Cobalt	0.0028	mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG	T		None	N	9_2_110
Comanche	W-5B	Downgradient	7/14/2022	2022_07	Appendix IV	Cobalt	0.0019	mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG	T		None	N	9_2_110
Comanche	W-5B	Downgradient	8/23/2022	2022_08	Appendix IV	Cobalt	0.0027	mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG	T		None	N	9_2_110
Comanche	W-5B	Downgradient	10/27/2022	2022_11	Appendix IV	Cobalt	0.0024	mg/l	Detect Value	0.001	9.20E-05	mg/l	7440-48-4	TRG	T		None	N	9_2_110
Comanche	W-5B	Downgradient	2/14/2023	2023_02	Appendix IV	Cobalt	0.0026	mg/l	Detect Value	0.001	0.00033	mg/l	7440-48-4	TRG	T		None	N	9_2_110
Comanche	W-5B	Downgradient	5/2/2023	2023_05	Appendix IV	Cobalt	0.0023	mg/l	Detect Value	0.001	0.00033	mg/l	7440-48-4	TRG	T		None	N	9_2_110
Comanche	W-5B	Downgradient	1/14/2021	2021_01	Appendix IV	Fluoride (App IV)	0.19 J	mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	9_2_112
Comanche	W-5B	Downgradient	4/9/2021	2021_04	Appendix IV	Fluoride (App IV)	1.3	mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	9_2_112
Comanche	W-5B	Downgradient	5/26/2021	2021_06	Appendix IV	Fluoride (App IV)	0.31 J	mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	9_2_112
Comanche	W-5B	Downgradient	12/1/2021	2021_11_AMWells	Appendix IV	Fluoride (App IV)	UJ	mg/l	Non-Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	9_2_112
Comanche	W-5B	Downgradient	1/14/2022	2022_01	Appendix IV	Fluoride (App IV)	0.4 J	mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	9_2_112
Comanche	W-5B	Downgradient	2/25/2022	2022_02	Appendix IV	Fluoride (App IV)	0.39 J	mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	9_2_112
Comanche	W-5B	Downgradient	3/30/2022	2022_03	Appendix IV	Fluoride (App IV)	0.18 J	mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	9_2_112
Comanche	W-5B	Downgradient	5/6/2022	2022_05	Appendix IV	Fluoride (App IV)	0.38 J	mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	9_2_112
Comanche	W-5B	Downgradient	6/7/2022	2022_06	Appendix IV	Fluoride (App IV)	0.45 J	mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	9_2_112
Comanche	W-5B	Downgradient	7/14/2022	2022_07	Appendix IV	Fluoride (App IV)	6.8	mg/l	Detect Value	1	0.33	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	9_2_112
Comanche	W-5B	Downgradient	8/23/2022	2022_08	Appendix IV	Fluoride (App IV)	9	mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	9_2_112
Comanche	W-5B	Downgradient	10/27/2022	2022_11	Appendix IV	Fluoride (App IV)	0.37 J	mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	9_2_112
Comanche	W-5B	Downgradient	2/14/2023	2023_02	Appendix IV	Fluoride (App IV)	UJ	mg/l	Non-Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	9_2_112
Comanche	W-5B	Downgradient	5/2/2023	2023_05	Appendix IV	Fluoride (App IV)	0.3 J	mg/l	Detect Value	0.5	0.17	mg/l	16984-48-8	TRG	N	4	Primary MCL	N	9_2_112
Comanche	W-5B	Downgradient	1/14/2021	2021_01	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.01	0.0045	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	9_2_113
Comanche	W-5B	Downgradient	4/9/2021	2021_04	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.001	0.00045	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	9_2_113
Comanche	W-5B	Downgradient	5/26/2021	2021_06	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.001	0.00045	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	9_2_113
Comanche	W-5B	Downgradient	12/1/2021	2021_11_AMWells	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.001	0.00045	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	9_2_113
Comanche	W-5B	Downgradient	1/14/2022	2022_01	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.002	0.00084	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	9_2_113
Comanche	W-5B	Downgradient	2/25/2022	2022_02	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.005	0.0024	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	9_2_113
Comanche	W-5B	Downgradient	3/30/2022	2022_03	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.005	0.0024	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	9_2_113
Comanche	W-5B	Downgradient	5/6/2022	2022_05	Appendix IV	Lead	0.00018 J	mg/l	Detect Value	0.001	0.00018	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	9_2_113
Comanche	W-5B	Downgradient	6/7/2022	2022_06	Appendix IV	Lead	0.0002 J	mg/l	Detect Value	0.001	0.00018	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	9_2_113
Comanche	W-5B	Downgradient	7/14/2022	2022_07	Appendix IV	Lead	U	mg/l	Non-Detect Value	0.001	0.00018	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	9_2_113
Comanche	W-5B	Downgradient	8/23/2022	2022_08	Appendix IV	Lead	0.00023 J	mg/l	Detect Value	0.001	0.00018	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	9_2_113
Comanche	W-5B	Downgradient	10/27/2022	2022_11	Appendix IV	Lead	0.00026 J	mg/l	Detect Value	0.001	0.00018	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	9_2_113
Comanche	W-5B	Downgradient	2/14/2023	2023_02	Appendix IV	Lead	0.00024 J	mg/l	Detect Value	0.001	0.00023	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	9_2_113
Comanche	W-5B	Downgradient	5/2/2023	2023_05	Appendix IV	Lead	0.00045 J	mg/l	Detect Value	0.001	0.00023	mg/l	7439-92-1	TRG	T	0.015	Primary MCL	N	9_2_113
Comanche	W-5B	Downgradient	1/14/2021	2021_01	Appendix IV	Lithium	0.29	mg/l	Detect Value	0.08	0.017	mg/l	7439-93-2	TRG	T		None	N	9_2_114
Comanche	W-5B	Downgradient	4/9/2021	2021_04	Appendix IV	Lithium	0.23	mg/l	Detect Value	0.008	0.0017	mg/l	7439-93-2	TRG	T		None	N	9_2_114
Comanche	W-5B	Downgradient	5/26/2021	2021_06	Appendix IV	Lithium	0.26	mg/l	Detect Value	0.008	0.0017	mg/l	7439-93-2	TRG	T		None	N	9_2_114
Comanche	W-5B	Downgradient	12/1/2021	2021_11_AMWells	Appendix IV	Lithium	0.24 J	mg/l	Detect Value	0.008	0.0017	mg/l	7439-93-2	TRG	T		None	N	9_2_114
Comanche	W-5B	Downgradient	1/14/2022	2022_01	Appendix IV	Lithium	0.3	mg/l	Detect Value	0.04	0.01	mg/l	7439-93-2	TRG	T		None	N	9_2_114
Comanche	W-5B	Downgradient	2/25/2022	2022_02	Appendix IV	Lithium	0.25 J-	mg/l	Detect Value	0.1	0.025	mg/l	7439-93-2	TRG	T		None	N	9_2_114
Comanche	W-5B	Downgradient	3/30/2022	2022_03	Appendix IV	Lithium	0.22	mg/l	Detect Value	0.1	0.025	mg/l	7439-93-2	TRG	T		None	N	9_2_114
Comanche	W-5B	Downgradient	5/6/2022	2022_05	Appendix IV	Lithium	0.28 J+	mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	9_2_114
Comanche	W-5B	Downgradient	6/7/2022	2022_06	Appendix IV	Lithium	0.3 J+	mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	9_2_114
Comanche	W-5B	Downgradient	7/14/2022	2022_07	Appendix IV	Lithium	0.33	mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	9_2_114
Comanche	W-5B	Downgradient	8/23/2022	2022_08	Appendix IV	Lithium	0.3	mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	9_2_114
Comanche	W-5B	Downgradient	10/27/2022	2022_11	Appendix IV	Lithium	0.27	mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	9_2_114
Comanche	W-5B	Downgradient	2/14/2023	2023_02	Appendix IV	Lithium	0.29 J+	mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	9_2_114
Comanche	W-5B	Downgradient	5/2/2023	2023_05	Appendix IV	Lithium	0.29	mg/l	Detect Value	0.02	0.0091	mg/l	7439-93-2	TRG	T		None	N	9_2_114
Comanche	W-5B	Downgradient	1/14/2021	2021_01	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.002	0.0013	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	9_2_115
Comanche	W-5B	Downgradient	4/9/2021	2021_04	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	0.00013	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	9_2_115
Comanche	W-5B	Downgradient	12/1/2021	2021_11_AMWells	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	0.00013	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	9_2_115
Comanche	W-5B	Downgradient	1/14/2022	2022_01	Appendix IV	Mercury	UJ	mg/l	Non-Detect Value	0.0002	0.00015	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	9_2_115
Comanche	W-5B	Downgradient	2/25/2022	2022_02	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	0.00011	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	9_2_115
Comanche	W-5B	Downgradient	3/30/2022	2022_03	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	0.00011	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	9_2_115

Comanche	W-5B	Downgradient	5/6/2022	2022_05	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	9_2_115
Comanche	W-5B	Downgradient	6/7/2022	2022_06	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	9_2_115
Comanche	W-5B	Downgradient	7/14/2022	2022_07	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	9_2_115
Comanche	W-5B	Downgradient	8/23/2022	2022_08	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	9_2_115
Comanche	W-5B	Downgradient	10/27/2022	2022_11	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	9_2_115
Comanche	W-5B	Downgradient	2/14/2023	2023_02	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	9_2_115
Comanche	W-5B	Downgradient	5/2/2023	2023_05	Appendix IV	Mercury	U	mg/l	Non-Detect Value	0.0002	6.10E-05	mg/l	7439-97-6	TRG	T	0.002	Primary MCL	N	9_2_115
Comanche	W-5B	Downgradient	1/14/2021	2021_01	Appendix IV	Molybdenum	U	mg/l	Non-Detect Value	0.1	0.011	mg/l	7439-98-7	TRG	T		None	N	9_2_116
Comanche	W-5B	Downgradient	4/9/2021	2021_04	Appendix IV	Molybdenum	0.0018 J	mg/l	Detect Value	0.01	0.0011	mg/l	7439-98-7	TRG	T		None	N	9_2_116
Comanche	W-5B	Downgradient	5/26/2021	2021_06	Appendix IV	Molybdenum	0.0018 J	mg/l	Detect Value	0.01	0.0011	mg/l	7439-98-7	TRG	T		None	N	9_2_116
Comanche	W-5B	Downgradient	12/1/2021	2021_11_AMWells	Appendix IV	Molybdenum	0.0016 J	mg/l	Detect Value	0.01	0.0011	mg/l	7439-98-7	TRG	T		None	N	9_2_116
Comanche	W-5B	Downgradient	1/14/2022	2022_01	Appendix IV	Molybdenum	U	mg/l	Non-Detect Value	0.014	0.0091	mg/l	7439-98-7	TRG	T		None	N	9_2_116
Comanche	W-5B	Downgradient	2/25/2022	2022_02	Appendix IV	Molybdenum	U	mg/l	Non-Detect Value	0.02	0.012	mg/l	7439-98-7	TRG	T		None	N	9_2_116
Comanche	W-5B	Downgradient	3/30/2022	2022_03	Appendix IV	Molybdenum	U	mg/l	Non-Detect Value	0.02	0.012	mg/l	7439-98-7	TRG	T		None	N	9_2_116
Comanche	W-5B	Downgradient	5/6/2022	2022_05	Appendix IV	Molybdenum	0.0017 J+	mg/l	Detect Value	0.002	0.00014	mg/l	7439-98-7	TRG	T		None	N	9_2_116
Comanche	W-5B	Downgradient	6/7/2022	2022_06	Appendix IV	Molybdenum	0.0015 J+	mg/l	Detect Value	0.002	0.00014	mg/l	7439-98-7	TRG	T		None	N	9_2_116
Comanche	W-5B	Downgradient	7/14/2022	2022_07	Appendix IV	Molybdenum	0.008 J+	mg/l	Detect Value	0.002	0.00014	mg/l	7439-98-7	TRG	T		None	N	9_2_116
Comanche	W-5B	Downgradient	8/23/2022	2022_08	Appendix IV	Molybdenum	0.0041 J+	mg/l	Detect Value	0.002	0.00014	mg/l	7439-98-7	TRG	T		None	N	9_2_116
Comanche	W-5B	Downgradient	10/27/2022	2022_11	Appendix IV	Molybdenum	0.0023 J+	mg/l	Detect Value	0.002	0.00014	mg/l	7439-98-7	TRG	T		None	N	9_2_116
Comanche	W-5B	Downgradient	2/14/2023	2023_02	Appendix IV	Molybdenum	0.0021	mg/l	Detect Value	0.002	0.00037	mg/l	7439-98-7	TRG	T		None	N	9_2_116
Comanche	W-5B	Downgradient	5/2/2023	2023_05	Appendix IV	Molybdenum	0.0091	mg/l	Detect Value	0.002	0.00037	mg/l	7439-98-7	TRG	T		None	N	9_2_116
Comanche	W-5B	Downgradient	1/14/2021	2021_01	Appendix IV	Radium-226+228	1.75	pci/l	Detect Value	5	0.498	pci/l	425	TRG	T			N	9_2_120
Comanche	W-5B	Downgradient	4/9/2021	2021_04	Appendix IV	Radium-226+228	1.65	pci/l	Detect Value	5	0.578	pci/l	425	TRG	T			N	9_2_120
Comanche	W-5B	Downgradient	5/26/2021	2021_06	Appendix IV	Radium-226+228	2.41	pci/l	Detect Value	5	0.656	pci/l	425	TRG	T			N	9_2_120
Comanche	W-5B	Downgradient	1/14/2022	2022_01	Appendix IV	Radium-226+228	1.94	pci/l	Detect Value	5	0.498	pci/l	425	TRG	T			N	9_2_120
Comanche	W-5B	Downgradient	2/25/2022	2022_02	Appendix IV	Radium-226+228	1.88	pci/l	Detect Value	5	0.58	pci/l	425	TRG	T			N	9_2_120
Comanche	W-5B	Downgradient	3/30/2022	2022_03	Appendix IV	Radium-226+228	2.14	pci/l	Detect Value	5	0.474	pci/l	425	TRG	T			N	9_2_120
Comanche	W-5B	Downgradient	5/6/2022	2022_05	Appendix IV	Radium-226+228	1.54	pci/l	Detect Value	5	0.666	pci/l	425	TRG	T			N	9_2_120
Comanche	W-5B	Downgradient	6/7/2022	2022_06	Appendix IV	Radium-226+228	1.61	pci/l	Detect Value	5	0.581	pci/l	425	TRG	T			N	9_2_120
Comanche	W-5B	Downgradient	7/14/2022	2022_07	Appendix IV	Radium-226+228	1.56	pci/l	Detect Value	5	0.867	pci/l	425	TRG	T			N	9_2_120
Comanche	W-5B	Downgradient	8/23/2022	2022_08	Appendix IV	Radium-226+228	5.35 J+	pci/l	Detect Value	5	0.554	pci/l	425	TRG	T			N	9_2_120
Comanche	W-5B	Downgradient	10/27/2022	2022_11	Appendix IV	Radium-226+228	2.62	pci/l	Detect Value	5	0.879	pci/l	425	TRG	T			N	9_2_120
Comanche	W-5B	Downgradient	2/14/2023	2023_02	Appendix IV	Radium-226+228	1.47	pci/l	Detect Value	5	0.488	pci/l	425	TRG	T			N	9_2_120
Comanche	W-5B	Downgradient	5/2/2023	2023_05	Appendix IV	Radium-226+228	1.56	pci/l	Detect Value	5	0.782	pci/l	425	TRG	T			N	9_2_120
Comanche	W-5B	Downgradient	1/14/2021	2021_01	Appendix IV	Selenium	U	mg/l	Non-Detect Value	0.05	0.0089	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	9_2_122
Comanche	W-5B	Downgradient	4/9/2021	2021_04	Appendix IV	Selenium	0.0011 J	mg/l	Detect Value	0.005	0.00089	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	9_2_122
Comanche	W-5B	Downgradient	5/26/2021	2021_06	Appendix IV	Selenium	U	mg/l	Non-Detect Value	0.005	0.00089	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	9_2_122
Comanche	W-5B	Downgradient	12/1/2021	2021_11_AMWells	Appendix IV	Selenium	UJ	mg/l	Non-Detect Value	0.005	0.00089	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	9_2_122
Comanche	W-5B	Downgradient	1/14/2022	2022_01	Appendix IV	Selenium	0.0042 J	mg/l	Detect Value	0.02	0.0038	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	9_2_122
Comanche	W-5B	Downgradient	2/25/2022	2022_02	Appendix IV	Selenium	UJ	mg/l	Non-Detect Value	0.05	0.0096	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	9_2_122
Comanche	W-5B	Downgradient	3/30/2022	2022_03	Appendix IV	Selenium	U	mg/l	Non-Detect Value	0.05	0.0096	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	9_2_122
Comanche	W-5B	Downgradient	5/6/2022	2022_05	Appendix IV	Selenium	0.00057 J	mg/l	Detect Value	0.005	0.00037	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	9_2_122
Comanche	W-5B	Downgradient	6/7/2022	2022_06	Appendix IV	Selenium	0.00057 J	mg/l	Detect Value	0.005	0.00037	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	9_2_122
Comanche	W-5B	Downgradient	7/14/2022	2022_07	Appendix IV	Selenium	0.002 J	mg/l	Detect Value	0.005	0.00037	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	9_2_122
Comanche	W-5B	Downgradient	8/23/2022	2022_08	Appendix IV	Selenium	0.0012 J+	mg/l	Detect Value	0.005	0.00037	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	9_2_122
Comanche	W-5B	Downgradient	10/27/2022	2022_11	Appendix IV	Selenium	0.00064 J	mg/l	Detect Value	0.005	0.00037	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	9_2_122
Comanche	W-5B	Downgradient	2/14/2023	2023_02	Appendix IV	Selenium	0.0011 J	mg/l	Detect Value	0.005	0.001	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	9_2_122
Comanche	W-5B	Downgradient	5/2/2023	2023_05	Appendix IV	Selenium	U	mg/l	Non-Detect Value	0.005	0.001	mg/l	7782-49-2	TRG	T	0.05	Primary MCL	N	9_2_122
Comanche	W-5B	Downgradient	1/14/2021	2021_01	Appendix IV	Thallium	U	mg/l	Non-Detect Value	0.01	0.002	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	9_2_126
Comanche	W-5B	Downgradient	4/9/2021	2021_04	Appendix IV	Thallium	0.00086 J+	mg/l	Detect Value	0.001	0.0002	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	9_2_126
Comanche	W-5B	Downgradient	5/26/2021	2021_06	Appendix IV	Thallium	0.00082 J	mg/l	Detect Value	0.001	0.0002	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	9_2_126
Comanche	W-5B	Downgradient	12/1/2021	2021_11_AMWells	Appendix IV	Thallium	0.00076 J	mg/l	Detect Value	0.001	0.0002	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	9_2_126
Comanche	W-5B	Downgradient	1/14/2022	2022_01	Appendix IV	Thallium	U	mg/l	Non-Detect Value	0.004	0.001	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	9_2_126
Comanche	W-5B	Downgradient	2/25/2022	2022_02	Appendix IV	Thallium	U	mg/l	Non-Detect Value	0.01	0.0026	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	9_2_126
Comanche	W-5B	Downgradient	3/30/2022	2022_03	Appendix IV	Thallium	UJ	mg/l	Non-Detect Value	0.01	0.0026	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	9_2_126
Comanche	W-5B	Downgradient	5/6/2022	2022_05	Appendix IV	Thallium	0.00082 J	mg/l	Detect Value	0.001	8.90E-05	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	9_2_126
Comanche	W-5B	Downgradient	6/7/2022	2022_06	Appendix IV	Thallium	0.00084 J	mg/l	Detect Value	0.001	8.90E-05	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	9_2_126
Comanche	W-5B	Downgradient	7/14/2022	2022_07	Appendix IV	Thallium	0.00061 J+	mg/l	Detect Value	0.001	8.90E-05	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	9_2_126
Comanche	W-5B	Downgradient	8/23/2022	2022_08	Appendix IV	Thallium	0.00087 J	mg/l	Detect Value	0.001	8.90E-05	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	9_2_126
Comanche	W-5B	Downgradient	10/27/2022	2022_11	Appendix IV	Thallium	0.00077 J	mg/l	Detect Value	0.001	8.90E-05	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	9_2_126
Comanche	W-5B	Downgradient	2/14/2023	2023_02	Appendix IV	Thallium	0.00074 J	mg/l	Detect Value	0.001	0.00021	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	9_2_126
Comanche	W-5B	Downgradient	5/2/2023	2023_05	Appendix IV	Thallium	0.00057 J	mg/l	Detect Value	0.001	0.00021	mg/l	7440-28-0	TRG	T	0.002	Primary MCL	N	9_2_126

Appendix E

Boring Logs, Well Completion Logs, and Field Sampling Logs

Field Sampling Logs

ATTACHMENT A
GROUNDWATER LEVEL AND TOTAL DEPTH MEASUREMENT DATA SHEET

GROUNDWATER LEVEL AND TOTAL DEPTH MEASUREMENT DATA SHEET

Project Name: Xcel Comanche Page 1 of 1

Project #: 10279361 Sampling Personnel: F. Li

Date: 02/13/23

Remarks:

Well I.D.	Time	Depth to Water (from TOC):	Total Well Depth (from TOC):	Comments
PZ-1		24.75		
W-1		11.98	18.31	
W-2C		27.88	37.16	
W-3		14.72	30.57	top of casing sunken in ~ 1ft
W-3B		16.70	47.55	
W-5		12.84	27.66	
W-5B		11.97	38.10	
W-6		11.11	29.40	
W-6BI		15.17	45.75	
W-7		8.24	24.00	
W-8A		31.05	32.26	
W-9		35.62	40.43	
W-10A		DRY	20.19	
W-10B		27.80	33.11	
W-11		23.31	35.36	
W-12		21.97	27.07	
W-13		29.70	31.58	
W-14		38.49	46.76	
W-17		25.08	37.89	
W-18		8.53	17.22	
W-15		DRY	33.93	
W-16		37.07	49.12	

FIELD EQUIPMENT

Water Level Meter: _____ Serial Number: _____

ATTACHMENT A
GROUNDWATER LEVEL AND TOTAL DEPTH MEASUREMENT DATA SHEET

GROUNDWATER LEVEL AND TOTAL DEPTH MEASUREMENT DATA SHEET

Project Name: Xcel Comanche Page 1 of 1

Project #: 10279361, task 300 Sampling Personnel: MHB

Date: 05/01/2023

Remarks: Water level sweep

Well I.D.	Time	Depth to Water (from TOC)	Total Well Depth (from TOC)	Comments
MW-1	1446	DRY	11.05	No sample
MW-1B	1443	31.60	40.00	
MW-2	1431	DRY	12.64	No sample
MW-2B	1409	18.57	30.00	
MW-3	1520	9.69	12.84	
MW-4	1502	DRY	30.30	No sample
MW-4B	1506	38.05	58.00	
MW-5	1515	27.03	38.51	
MW-6	1452	31.76	44.50	
MW-7	1438	20.89	36.00	

FIELD EQUIPMENT

Water Level Meter: 3119 Serial Number: 82050014

ATTACHMENT A
MONITORING WELL INSPECTION SHEET

Well Inspection Form

Well I.D.: MW-1	Inspector's Initials: MHB	Date: 05/01/2023
Well Type: ☐ Flush Mount ☑ Stickup ☐ Other _____	Well Diameter: ☐ 1 inch ☑ 4 inch ☐ 2 inch ☐ _____ Material: SCH 40 PVC	Flush Mount Cover Size: ☐ 6 inch ☐ 10 inch ☐ 8 inch ☐ 12 inch N/A

Well Pad Condition	No pad	
Flush Mount	N/A	**Comments**
# Bolts Allowed		
# Bolts Missing		
# Washers Missing		
O-Ring Missing (Y/N)		
Stick Up Well	Y	**Comments**
Locked (Y/N/NA)	Y	
Hinged (Y/N)	Y	
Bent/Damaged (Y/N)	N	
Cap	Y	**Comments**
Locked (Y/N/NA)	N/A	
Expandable Cap (Y/N)	N	

Well I.D.: MW-1B	Inspector's Initials: MHB	Date: 05/01/2023
Well Type: ☐ Flush Mount ☑ Stickup ☐ Other _____	Well Diameter: ☐ 1 inch ☐ 4 inch ☑ 2 inch ☐ _____ Material: SCH 40 PVC	Flush Mount Cover Size: ☐ 6 inch ☑ 10 inch ☐ 8 inch ☐ 12 inch N/A

Well Pad Condition	concrete, good condition, Wooden frame	
Flush Mount	N/A	**Comments**
# Bolts Allowed		
# Bolts Missing		
# Washers Missing		
O-Ring Missing (Y/N)		
Stick Up Well	Y	**Comments**
Locked (Y/N/NA)	Y	
Hinged (Y/N)	Y	
Bent/Damaged (Y/N)	N	
Cap	Y	**Comments**
Locked (Y/N/NA)	N/A	
Expandable Cap (Y/N)	N	

ATTACHMENT A
MONITORING WELL INSPECTION SHEET

Well Inspection Form

Well I.D.: MW-2	Inspector's Initials: MHB	Date: 05/01/2023
Well Type: ☐ Flush Mount ☑ Stickup ☐ Other _____	Well Diameter: ☐ 1 inch ☑ 4 inch ☐ 2 inch ☐ _____ Material: SCH 40 PVC	Flush Mount Cover Size: ☐ 6 inch ☐ 10 inch ☐ 8 inch ☐ 12 inch N/A

Well Pad Condition	No pad	
Flush Mount	N/A	**Comments**
# Bolts Allowed		
# Bolts Missing		
# Washers Missing		
O-Ring Missing (Y/N)		
Stick Up Well	Y	**Comments**
Locked (Y/N/NA)	Y	
Hinged (Y/N)	Y	
Bent/Damaged (Y/N)	N	
Cap	Y	**Comments**
Locked (Y/N/NA)	N/A	
Expandable Cap (Y/N)	N	

Well I.D.: MW-2B	Inspector's Initials: MHB	Date: 05/01/2023
Well Type: ☐ Flush Mount ☑ Stickup ☐ Other _____	Well Diameter: ☐ 1 inch ☐ 4 inch ☑ 2 inch ☐ _____ Material: SCH 40 PVC	Flush Mount Cover Size: ☐ 6 inch ☑ 10 inch ☐ 8 inch ☐ 12 inch N/A

Well Pad Condition	concrete, good condition, wood frame	
Flush Mount	N/A	**Comments**
# Bolts Allowed		
# Bolts Missing		
# Washers Missing		
O-Ring Missing (Y/N)		
Stick Up Well	Y	**Comments**
Locked (Y/N/NA)	Y	
Hinged (Y/N)	Y	
Bent/Damaged (Y/N)	N	
Cap	Y	**Comments**
Locked (Y/N/NA)	N/A	
Expandable Cap (Y/N)	N	

ATTACHMENT A
MONITORING WELL INSPECTION SHEET

Well Inspection Form

Well I.D.: MW-3	Inspector's Initials: MHB	Date: 05/01/2023
Well Type: ☐ Flush Mount ☑ Stickup ☐ Other _____	Well Diameter: ☐ 1 inch ☑ 4 inch ☐ 2 inch ☐ _____ Material: SCH 40 PVC	Flush Mount Cover Size: ☐ 6 inch ☐ 10 inch ☐ 8 inch ☐ 12 inch N/A

Well Pad Condition	No pad	
Flush Mount	N/A	**Comments**
# Bolts Allowed		
# Bolts Missing		
# Washers Missing		
O-Ring Missing (Y/N)		
Stick Up Well	Y	**Comments**
Locked (Y/N/NA)	Y	
Hinged (Y/N)	Y	
Bent/Damaged (Y/N)	N	
Cap	Y	**Comments**
Locked (Y/N/NA)	N/A	
Expandable Cap (Y/N)	N	

Well I.D.: MW-4	Inspector's Initials: MHB	Date: 05/01/2023
Well Type: ☐ Flush Mount ☑ Stickup ☐ Other _____	Well Diameter: ☐ 1 inch ~~☐~~ ☐ 2 inch ☑ 4 inch Material: SCH 40 PVC	Flush Mount Cover Size: ☐ 6 inch ☑ 10 inch ☐ 8 inch ☐ 12 inch N/A

Well Pad Condition	No pad	
Flush Mount	N/A	**Comments**
# Bolts Allowed		
# Bolts Missing		
# Washers Missing		
O-Ring Missing (Y/N)		
Stick Up Well	Y	**Comments**
Locked (Y/N/NA)	Y	
Hinged (Y/N)	Y	
Bent/Damaged (Y/N)	N	
Cap	Y	**Comments**
Locked (Y/N/NA)	N/A	
Expandable Cap (Y/N)	N	

ATTACHMENT A
MONITORING WELL INSPECTION SHEET

Well Inspection Form

Well I.D.: MW-4B	Inspector's Initials: MHB	Date: 05/01/2023
Well Type: ☐ Flush Mount ☑ Stickup ☐ Other _____	Well Diameter: ☐ 1 inch ☐ 4 inch ☑ 2 inch ☐ _____ Material: SCH 40 PVC	Flush Mount Cover Size: ☐ 6 inch ☐ 10 inch ☐ 8 inch ☐ 12 inch N/A

Well Pad Condition	concrete, good condition, Wood frame	
Flush Mount	N/A	**Comments**
# Bolts Allowed		
# Bolts Missing		
# Washers Missing		
O-Ring Missing (Y/N)		
Stick Up Well	Y	**Comments**
Locked (Y/N/NA)	Y	
Hinged (Y/N)	Y	
Bent/Damaged (Y/N)	N	
Cap	Y	**Comments**
Locked (Y/N/NA)	N/A	
Expandable Cap (Y/N)	N	

Well I.D.: MW-5	Inspector's Initials: MHB	Date: 05/01/2023
Well Type: ☐ Flush Mount ☑ Stickup ☐ Other _____	Well Diameter: ☐ 1 inch ☐ 4 inch ☑ 2 inch ☐ _____ Material: SCH 40 PVC	Flush Mount Cover Size: ☐ 6 inch ☑ 10 inch ☐ 8 inch ☐ 12 inch N/A

Well Pad Condition	Concrete, good condition, Wood frame	
Flush Mount	N/A	**Comments**
# Bolts Allowed		
# Bolts Missing		
# Washers Missing		
O-Ring Missing (Y/N)		
Stick Up Well	Y	**Comments**
Locked (Y/N/NA)	Y	
Hinged (Y/N)	Y	
Bent/Damaged (Y/N)	N	
Cap	Y	**Comments**
Locked (Y/N/NA)	N/A	
Expandable Cap (Y/N)	N	

ATTACHMENT A
MONITORING WELL INSPECTION SHEET

Well Inspection Form

Well I.D.: MW-6	Inspector's Initials: MHB	Date: 05/01/2023
Well Type: ☐ Flush Mount ☑ Stickup ☐ Other _____	Well Diameter: ☐ 1 inch ☐ 4 inch ☑ 2 inch ☐ _____ Material: SCH 40 PVC	Flush Mount Cover Size: ☐ 6 inch ☐ 10 inch ☐ 8 inch ☐ 12 inch N/A

Well Pad Condition	concrete, good condition, wood frame	
Flush Mount	N/A	**Comments**
# Bolts Allowed		
# Bolts Missing		
# Washers Missing		
O-Ring Missing (Y/N)		
Stick Up Well	Y	**Comments**
Locked (Y/N/NA)	Y	
Hinged (Y/N)	Y	
Bent/Damaged (Y/N)	N	
Cap	Y	**Comments**
Locked (Y/N/NA)	N/A	
Expandable Cap (Y/N)	N	

Well I.D.: MW-7	Inspector's Initials: MHB	Date: 05/01/2023
Well Type: ☐ Flush Mount ☑ Stickup ☐ Other _____	Well Diameter: ☐ 1 inch ☐ 4 inch ☑ 2 inch ☐ _____ Material: SCH 40 PVC	Flush Mount Cover Size: ☐ 6 inch ☑ 10 inch ☐ 8 inch ☐ 12 inch N/A

Well Pad Condition	concrete, good condition, wood frame	
Flush Mount	N/A	**Comments**
# Bolts Allowed		
# Bolts Missing		
# Washers Missing		
O-Ring Missing (Y/N)		
Stick Up Well	Y	**Comments**
Locked (Y/N/NA)	Y	
Hinged (Y/N)	Y	
Bent/Damaged (Y/N)	N	
Cap	Y	**Comments**
Locked (Y/N/NA)	N/A	
Expandable Cap (Y/N)	N	

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID.: W-18 (Cullen)

Sample I.D.(match bottle and COC form exactly): W-18

Date/Time Collected (match bottle and COC form exactly): 1/9/23

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: —

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) ~15

Date: 1/9/23 Depth to Water (ft, btoc) 8.59

Time Completed: 1225 Total Purge 32 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	µS/cm ~~mS/cm~~ COND	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)	Rate (mL/min)
1010	START	PUMP						8.58	300
1020	3000	7.24	10968	587	5.27	12.1	259.8	8.81	300
1030	5500	7.20	10985	118	4.94	12.0	250.4	8.62	↓
1040	9000	7.19	10966	43.8	4.43	12.0	240.7	8.69	
1050	11500	7.17	10953	29.5	4.03	12.0	233.5	8.73	
1100	14000	7.17	11031	28.3	3.57	12.0	225.2	8.65	
1110	17000	7.16	11052	23.6	3.31	12.1	218.4	8.71	
1120	20000	7.16	11031	19.3	3.04	12.1	212.6	8.64	
1130	23000	7.15	11019	12.4	2.80	12.1	206.7	8.80	
1140	26000	7.15	11011	12.1	2.65	12.2	201.8	8.78	
1150	29000	7.14	11020	7.39	2.30	12.2	196.0	8.66	
1155	30500	7.14	11057	7.18	2.25	12.3	194.6	8.71	
1200	32000	7.14	11033	6.71	2.19	12.2	192.7	—	
1205	SAMPLE								

Flow Rate 300 mL/min

Pump controller setting 10 D/25 F

General Comments:

6 Bottles (clear to pale yellow)

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): 1/10/23 0930

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: WK-108 (1/9/23 1300)

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) ~31

Date: 1/10/23 Depth to Water (ft, btoc) 27.75

Time Completed: 1000 Total Purge 7 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)	Rate (mL/min)
1335	START	Pump						27.75	
1345	1000	6.73	37006	5.36	1.71	16.0	235.3	28.84	100
1355	2000	6.71	36941	9.82	1.45	16.1	233.3	29.35	100
1405	3000	6.69	36843	11.4	0.75	15.9	230.0	6top	↓
1415	3750	6.68	36710	16.7	0.67	15.6	227.2	↓	150
1425	4250	6.69	36825	17.2	0.53	15.6	225.3		
1435	5000	6.69	36974	49.8	0.47	15.7	222.1	~~29.692~~	
1445	6500	6.66	37413	35.7	1.30	16.5	215.0	~~29.83~~	
1455	Purged	dry							
1/10/23 0925	START	PUMP						27.91	(>90%) recharge
0930	SAMPLE	(Grab recharge)							

lowered * pump to purge dry (adjust rate to purge)

Flow Rate 100/50 mL/min

Pump controller setting 50/50 F

General Comments:

Equipment blank sampled prior to purge (6 bottles) WK-108

Purged dry - return for recharge grab on 1/10/23.

Initial turbidity prior to sampling = 12.6 NTU - take DM sample 7 bottles; including 250 mL Diss. metals for high turbidity (>10 NTU) dark yellow samples

43° Sunny
4 mph

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): 1/19/23 1345

Personnel: F. Ray

Sample Method: LF Ded. 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: WT-14 (1/19/23 1415)

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) ~44.5'

Date: 1/19/23 Depth to Water (ft, btoc) 38.73'

Time Completed: 1450 Total Purge 15 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (~~gal~~) L	pH	~~mS/cm~~ COND (~~mS/m~~)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)	Rate (mL/min)
1215	START	PUMP						38.73'	200
1225	2	6.87	18562	15.2	1.86	14.8	41.6	38.94	250
1235	4	6.92	18494	5.90	1.07	14.7	30.2	38.90	200
1240	5	6.92	18304	7.50	1.01	14.3	28.3	38.92	150
1250	6.5	6.92	18625	5.04	0.74	14.4	27.7	38.91	150
1300	7.75	6.88	18609	1.98	0.49	14.4	25.6	39.03	150
1310	9.0	6.87	18450	2.25	0.40	14.3	25.4	38.98	
1320	10	6.86	18477	3.80	0.31	14.0	26.0	39.00	
1330	12	6.86	18630	2.45	0.25	14.5	25.9	38.99	
1335	13	6.85	18665	1.71	0.24	14.6	26.1	39.01	
1340	14	6.85	18639	1.42	0.23	14.7	26.4	—	
1345	SAMPLE - Onsite background (App. III & IV Metals, Mercury, Mg, Na, K, Cl, SO4, Fl, TDS/TSS/ALK + pH, Rad 226/228)								
1415	SAMPLE DUP (WT-14)								

emptied YSI flowcell *

Flow Rate 150/200 mL/min

Pump controller setting 10 D/30 F

General Comments:

12 bottles total; yellow samples

20° Mostly cloudy
3 mph

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): 1/20/23 1000

Personnel: F. Ray

Sample Method: LF Ded. 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) ~46

Date: 1/20/23 Depth to Water (ft, btoc) 37.53'

Time Completed: 1015 Total Purge 10 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (~~ml~~) L	pH	µS/cm COND (~~mS/m~~)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)	Rate (mL/min)
0910	START	PUMP						37.53	
0920	2	6.63	12698	15.2	3.98	12.6	150.4	37.62	200
0930	4	6.64	12879	12.7	3.66	13.3	144.6	37.63	200
0940	6	6.62	13016	9.32	3.21	14.0	143.6	37.65	200
0945	7	6.62	13023	8.77	3.06	14.1	143.3	37.64	
0950	8	6.61	13062	8.84	2.92	13.9	143.4	37.62	
0955	9	6.62	13040	7.06	2.78	14.0	143.1	37.63	
1000	10	6.62	12900	3.64	2.67	13.8	142.9	—	
1000	SAMPLE	- offsite background (TDS/TSS, ALK, bicarb, carb, pH, Cl, SO4, Co, Mg, Ca, Na, K, Bo)							

Flow Rate 200 mL/min
Pump controller setting 8 D/25 F
General Comments:
3 samples; yellow color

ATTACHMENT A

GROUNDWATER SAMPLING DATA SHEET

GROUNDWATER SAMPLING DATA SHEET

Well Name: W-1 | Sample Technique: (Low Flow) or *Standard* | Page 1 of 1

Sample Date: 02/21/23 | Well Diameter: 2"

Project Name: Xcel Comanche | Screen Interval: see const. log

Project #: 10279361 | Well Stick Up:

Well Location: Comanche | Depth to Water (from TOC): 11.83'

Sampling Personnel: F Li | Total Well Depth (from TOC): 18.31'

Feet of Water: 6.48'

Casing Volume: 1.06 gal

Well Volume Table

Well Dia. (in)	Gallon/ ft water	Well Dia. (in)	Gallon/ ft water
1	0.041	4	0.653
(2)	0.163	5	1.020
3	0.367	6	1.469

Condition of well: good.

Remarks: 300mL/min, dry after 1hr. min vol: 436 mL sample after min vol returned 2/22/23, 2/23, 03/01 to finish getting volume.

FIELD EQUIPMENT CALIBRATIONS

Date/Time: 02/21/23 0736 Spec. Conductance: Standard 1413 µmhos/cm at 25 °C Reading 1010 µmhos/cm at 20.2 °C

pH: pH 4.00 - 4.03 at 20.2 °C pH 7.00 - 7.06 at 20.5 °C pH 10.00 - 10.20 at 20.0 °C Slope

PURGING DATA

(note: collect field water quality parameters every 5 to 10 minutes when using low-flow sampling techniques)

Time	Discharge Rate (mL/min)	Volume Purged (gallons)	Depth to Water (ft.)	pH	Temperature (°C/°F)	Specific Conductance (µmhos/cm)	Turbidity (NTU)	DO (mg/L) | ORP (mV) Comments
1515								START Pump
1520	275	0.3	12.88	7.52	15.5	17497	3.83	5.52 141.7
1530								DRY. 1 bottle filled

SAMPLE PARAMETERS

1520	275		12.88	7.52	15.5	17497	3.83	5.52	141.7

Sample ID: W-1 Duplicate ID: QA/QC Samples/IDs:

LABORATORY SAMPLES

Analyses: Total Metals, TDS/ALK, Rad 226 + 228, Hg

Number of Bottles: 6

Sample Depth:

Sample Method: dedicated bladder pump.

ATTACHMENT A

GROUNDWATER SAMPLING DATA SHEET

GROUNDWATER SAMPLING DATA SHEET

Well Name: W-2C | Sample Technique: (Low Flow) or *Standard* | Page 1 of 1

Sample Date: 02/14/23 | Well Diameter: 2"

Project Name: Xcel Comanche | Screen Interval: see const. log

Project #: 10279361 | Well Stick Up:

Well Location: Comanche | Depth to Water (from TOC): 27.89'

Sampling Personnel: FLI | Total Well Depth (from TOC): 37.16'

Feet of Water: 9.27'

Casing Volume: 1.51 gal

Well Volume Table

Well Dia. (in)	Gallon/ ft water	Well Dia. (in)	Gallon/ ft water
1	0.041	4	0.653
(2)	0.163	5	1.020
3	0.367	6	1.469

Condition of well: good

Remarks: well water is dark yellow

FIELD EQUIPMENT CALIBRATIONS - Geotech calibrated

Date/Time: _____ Spec. Conductance: Standard _____ µmhos/cm at 25 °C Reading _____ µmhos/cm at _____ °C

pH: pH 4.00 - _____ at _____ °C pH 7.00 - _____ at _____ °C pH 10.00 - _____ at _____ °C Slope _____

PURGING DATA

(note: collect field water quality parameters every 5 to 10 minutes when using low-flow sampling techniques)

Time	Discharge Rate (mL/min)	Volume Purged (gallons)	Depth to Water (ft.)	pH	Temperature (°C/°F)	Specific Conductance (µmhos/cm)	Turbidity (NTU)	DO (mg/L) Comments	ORP (mV)
1015								START PUMP	
1025	175	0.5	28.25	6.45	15.4	29947	12.1	recalibrate. SPC high, no change	
1035	175	1.0	28.23	6.45	15.9	31104	7.89	0.80	226.0
1045	200	1.5	28.32	6.45	16.0	30774	12.6	0.80	219.5
1055	200	2.0	28.36	6.47	16.0	29472	12.0	0.83	215.7
1105	200	2.5	28.41	6.47	16.3	28379	9.58	1.09	211.1
1110	200	2.75	28.43	6.50	16.3	27867	7.16	0.90	207.2
1115	200	3.0	28.43	6.50	16.2	27617	5.52	0.96	205.9
1120	200	3.25	28.44	6.50	16.4	27579	4.76	0.92	204.0

SAMPLE PARAMETERS

1120	200	3.25	28.44	6.50	16.4	27579	4.76	0.92	204.0

Sample ID: W-2C **Duplicate ID:** _____ **QA/QC Samples/IDs:** _____

LABORATORY SAMPLES

Analyses: Total Metals, Hg, ALK/TDS, Rad 226 + 228

Number of Bottles: 6

Sample Depth: _____

Sample Method: dedicated bladder pump

ATTACHMENT A

GROUNDWATER SAMPLING DATA SHEET

GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1

Well Name: W-3B
Sample Technique: (Low Flow) or Standard
Sample Date: 02/17/23
Well Diameter: 2"
Project Name: 10279381
Screen Interval: see const. log
Project #: Xcel Comanche
Well Stick Up: 2.32
Well Location: Comanche
Depth to Water (from TOC): 17.00
Sampling Personnel: F LI
Total Well Depth (from TOC): 47.55
Feet of Water: 30.55
Casing Volume: 4.98'

Well Volume Table

Well Dia. (in)	Gallon/ ft water	Well Dia. (in)	Gallon/ ft water
1	0.041	4	0.653
(2)	0.163	5	1.020
3	0.367	6	1.469

Condition of well: good.
Remarks:

FIELD EQUIPMENT CALIBRATIONS

Date/Time: 02/17/23 0750 Spec. Conductance: Standard 1413 µmhos/cm at 25 °C Reading 1075 µmhos/cm at 20.0 °C
pH: pH 4.00 - 4.03 at 20.1 °C pH 7.00 - 6.96 at 19.2 °C pH 10.00 - 10.07 at 19.8 °C Slope

PURGING DATA

(note: collect field water quality parameters every 5 to 10 minutes when using low-flow sampling techniques)

Time	Discharge Rate (mL/min)	Volume Purged (gallons)	Depth to Water (ft.)	pH	Temperature (°C/°F)	Specific Conductance (µmhos/cm)	Turbidity (NTU)	DO (mg/L) Comments	ORP (mV)
0910								START Pump	
0920	225	~~225~~ 0.5	17.60	6.54	12.7	26490	31.7	3.06	70.7
0930	225	1.0	17.91	6.48	13.0	26395	53.1	1.50	100.2
0940	225	1.5	18.01	6.47	12.8	26274	38.7	1.74	116.2
0950	225	2.0	18.03	6.45	12.9	26331	21.9	1.26	120.3
1000	225	2.5	18.16	6.45	13.3	26389	15.3	1.30	125.0
1010	225	3.0	18.21	6.44	13.0	26308	8.07	1.22	128.4
1015	225	3.25	18.22	6.45	13.1	26298	7.25	1.18	129.7
1020	225	3.5	18.26	6.44	13.3	26359	6.88	1.23	133.6

SAMPLE PARAMETERS

1020	225	3.5	18.26	6.44	13.3	26359	6.88	1.23	133.6

Sample ID: W-3B Duplicate ID: QA/QC Samples/IDs:

LABORATORY SAMPLES

Analyses: Total Metals, TDS/ALK, Hg, Rad 226 + 228
Number of Bottles: 6
Sample Depth:
Sample Method: dedicated bladder pump

ATTACHMENT A

GROUNDWATER SAMPLING DATA SHEET

GROUNDWATER SAMPLING DATA SHEET

Well Name: W-5B | Sample Technique: *Low Flow* or *Standard* | Page 1 of 1

Sample Date: 02/14/23 | Well Diameter: 2"

Project Name: Xcel Comanche | Screen Interval: see const. log

Project #: 10279361 | Well Stick Up:

Well Location: Comanche | Depth to Water (from TOC): 11.73'

Sampling Personnel: FLI | Total Well Depth (from TOC): 38.10'

Feet of Water: 26.37'

Casing Volume: 4.30 gal

Condition of well: good

Remarks:

Well Volume Table

Well Dia. (in)	Gallon/ ft water	Well Dia. (in)	Gallon/ ft water
1	0.041	4	0.653
(2)	0.163	5	1.020
3	0.367	6	1.469

FIELD EQUIPMENT CALIBRATIONS - Geotech calibrated

Date/Time: _____ Spec. Conductance: Standard _____ µmhos/cm at 25 °C Reading _____ µmhos/cm at _____ °C

pH: pH 4.00 - _____ at _____ °C pH 7.00 - _____ at _____ °C pH 10.00 - _____ at _____ °C Slope _____

PURGING DATA 3-5% ±10 ≤10 ±10% ±10mV

(note: collect field water quality parameters every 5 to 10 minutes when using low-flow sampling techniques)

Time	Discharge Rate (mL/min)	Volume Purged (gallons)	Depth to Water (ft.)	pH	Temperature (°C/°F)	Specific Conductance (µmhos/cm)	Turbidity (NTU)	~~DO~~ / Comments	~~ORP~~
1505								START	PUMP
1515	200	0.5	11.89	6.82	15.3	22554	25.6	3.71	-48.4
1525	200	1.0	11.91	6.83	15.4	17464	40.2	3.00	-56.1
1535	200	1.5	11.89	6.87	15.7	13704	39.2	2.87	-35.1
1545	200	2.0	11.93	6.94	15.6	~~13~~ 7344	9.26	2.61	-12.8
1550	200	2.5	11.97	6.98	15.5	6064	4.47	2.43	-4.2
1555	200	3.0	11.98	7.00	15.6	5706	4.02	1.73	9.3
1605	200	3.5	11.98	7.01	15.7	5281	2.06	0.68	22.7
1615	200	~~4.0~~ 4.0	12.01	7.03	15.6	4832	1.56	0.56	26.5
1620	200	425	12.00	7.04	15.3	4768	1.55	0.55	21.4
1625	200	~~5.0~~ 4.5	12.01	7.04	15.1	4644	1.53	0.56	22.7
~~1635~~	~~200~~	~~4.5~~	~~+~~						

SAMPLE PARAMETERS

1625	200	4.5	12.01	7.04	15.1	4644	1.53	0.56	22.7

Sample ID: W-5B **Duplicate ID:** _____ **QA/QC Samples/IDs:** _____

LABORATORY SAMPLES

Analyses: Total Metals, ALK/TDS, Hg, Rad 226 + 228

Number of Bottles: 6

Sample Depth: _____

Sample Method: dedicated bladder pump

ATTACHMENT A

GROUNDWATER SAMPLING DATA SHEET

GROUNDWATER SAMPLING DATA SHEET

Well Name: W-6B1 Sample Technique: Low Flow or Standard Page ____ of ____

Sample Date: 02/15/23 Well Diameter 2"

Project Name: Xcel Comanche Screen Interval: see const log

Project #: 10274361 Well Stick Up:

Well Location: Comanche Depth to Water (from TOC): 15.43'

Sampling Personnel: F LI Total Well Depth (from TOC): 45.75'

Feet of Water: 30.32'

Casing Volume: 4.94 gal

Condition of well: good

Remarks:

Well Volume Table

Well Dia. (in)	Gallon/ ft water	Well Dia. (in)	Gallon/ ft water
1	0.041	4	0.653
2	0.163	5	1.020
3	0.367	6	1.469

FIELD EQUIPMENT CALIBRATIONS

Date/Time: 02/15/23 0830 Spec. Conductance: Standard 1413 µmhos/cm at 25 °C Reading 1493 µmhos/cm at 19.0 °C

pH: pH 4.00 - 4.07 at 18.9 °C pH 7.00 - 6.91 at 19.0 °C pH 10.00 - 9.98 at 18.8 °C Slope ____

PURGING DATA

(note: collect field water quality parameters every 5 to 10 minutes when using low-flow sampling techniques)

Time	Discharge Rate (mL/min)	Volume Purged (gallons)	Depth to Water (ft.)	pH	Temperature (°C/°F)	Specific Conductance (µmhos/cm)	Turbidity (NTU)	Comments	
1335								START	
1430	200	3.0	16.66	6.58	13.2	28267	64.4	0.13	21.4
1440	200	3.5	16.71	6.54	13.6	28510	46.6	0.17	33.7
1450	200	4.0	16.76	6.52	13.2	28341	40.9	0.39	46.0
1500	200	4.5	16.81	6.51	13.3	28376	35.6	0.29	55.6
1510	200	5.0	16.84	6.50	13.5	28420	30.6	0.24	65.1
1520	200	5.5	16.87	6.49	13.4	28355	27.2	0.24	70.0
1530	200	6.0	16.88	6.49	13.3	28193	24.4	0.23	72.9
1540	200	6.5	16.96	6.48	13.3	28400	22.7	0.29	73.6
1550	200	7.0	16.98	6.48	13.2	28341	17.3	0.34	74.4
1600	200	7.5	17.00	6.48	13.2	28393	16.9	0.36	75.5
1610	200	8.0	17.00	6.47	13.3	28450	15.2	0.36	76.5
1620	200	8.5	17.04	6.47	13.2	28456	15.9	0.34	76.8
SAMPLE PARAMETERS									
1630	200	9.0	17.05	6.47	13.3	28387	13.3	0.25	78.1

Sample ID: W-6B1 Duplicate ID: WT-6B1 QA/QC Samples/IDs: ____

LABORATORY SAMPLES

Analyses: Total Metals, Hg, ALK/TDS, Rad 226 + 228

Number of Bottles: 12

Sample Depth: ____

Sample Method: dedicated bladder pump.

ATTACHMENT A

GROUNDWATER SAMPLING DATA SHEET

GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1

Well Name: W-7 Sample Technique: *Low Flow* or *Standard*

Sample Date: 02/14/23 Well Diameter 2"

Project Name: Xcel Comanche Screen Interval: see const. log

Project #: 102795 61 Well Stick Up:

Well Location: Comanche Depth to Water (from TOC): 8.03

Sampling Personnel: Total Well Depth (from TOC): 24.00

F Li Feet of Water: 15.97

Casing Volume: 2.60

Well Volume Table

Well Dia. (in)	Gallon/ ft water	Well Dia. (in)	Gallon/ ft water
1	0.041	4	0.653
2	0.163	5	1.020
3	0.367	6	1.469

Condition of well: good

Remarks:

FIELD EQUIPMENT CALIBRATIONS - Geotech calibrated

Date/Time: _____ Spec. Conductance: Standard _____ µmhos/cm at 25 °C Reading _____ µmhos/cm at _____ °C

pH: pH 4.00 - _____ at _____ °C pH 7.00 - _____ at _____ °C pH 10.00 - _____ at _____ °C Slope _____

PURGING DATA

(note: collect field water quality parameters every 5 to 10 minutes when using low-flow sampling techniques)

Time	Discharge Rate (mL/min)	Volume Purged (gallons)	Depth to Water (ft.)	pH	Temperature (°C/°F)	Specific Conductance (µmhos/cm)	Turbidity (NTU)	DO Comments	ORP
1245								START PUMP	
1255	250	0.6	8.13	6.57	14.5	32042	40.2	6.60	197.8
1305	250	1.2	8.14	6.55	14.6	31843	26.8	6.56	200.7
1315	250	1.8	8.16	6.56	14.7	31447	21.3	6.29	199.5
1325	250	2.4	8.16	6.55	14.8	32272	17.7	4.90	190.3
1335	250	3.0	8.16	6.55	14.9	31998	14.4	5.70	178.9
1345	250	3.6	8.18	6.54	15.0	31980	10.9	5.77	171.7
1350	250	3.9	8.19	6.54	14.9	32106	8.49	5.88	167.7
1355	250	4.2	8.20	6.55	15.0	31973	9.78	5.82	166.7
1400	250	4.5	8.22	6.55	15.0	31804	9.82	5.77	168.5

SAMPLE PARAMETERS

1400	250	4.5	8.22	6.55	15.0	31804	9.82	5.77	168.5

Sample ID: W-7 Duplicate ID: _____ QA/QC Samples/IDs: _____

LABORATORY SAMPLES

Analyses: Total Metals, Hg, ALK/TDS, Rad 226 + 228

Number of Bottles: 6

Sample Depth: _____

Sample Method: dedicated bladder pump

ATTACHMENT A

GROUNDWATER SAMPLING DATA SHEET

GROUNDWATER SAMPLING DATA SHEET

Well Name: W-9 Sample Technique: (Low Flow) or *Standard* Page 1 of 1

Sample Date: 02/21/23 Well Diameter 2"

Project Name: Xcel Comanche Screen Interval: see const. log

Project #: 10279361 Well Stick Up: 2.31'

Well Location: Comanche Depth to Water (from TOC): 35.46'

Sampling Personnel: Total Well Depth (from TOC): 40.43'

F Li Feet of Water: 4.97'

Casing Volume: 0.81 gal

Condition of well:

Remarks: pump @ ~39.50' 130mL/min, dry after 1hr min vol: 672 mL. Sample after min vol.

Well Volume Table

Well Dia. (in)	Gallon/ ft water	Well Dia. (in)	Gallon/ ft water
1	0.041	4	0.653
(2)	0.163	5	1.020
3	0.367	6	1.469

FIELD EQUIPMENT CALIBRATIONS

Date/Time: 02/21/23 0736 Spec. Conductance: Standard 1413 µmhos/cm at 25 °C Reading 1010 µmhos/cm at 20.2 °C

pH: pH 4.00 - 4.03 at 20.2 °C pH 7.00 - 7.06 at 20.5 °C pH 10.00 - 10.20 at 20.0 °C Slope

PURGING DATA

(note: collect field water quality parameters every 5 to 10 minutes when using low-flow sampling techniques)

Time	Discharge Rate (mL/min)	Volume Purged (gallons)	Depth to Water (ft.)	pH	Temperature (°C/°F)	Specific Conductance (µmhos/cm)	Turbidity (NTU)	DO(mg/L) Comments	ORP (mV)
1335								START Pump	
1345	80	0	35.66	6.89	18.3	10561	27.3	3.16	158.0 - RESET Pump
1355	150	.2	36.01	6.83	18.0	10393	19.4	2.16	137.4
1400	150	.3	36.15	6.82	17.4	10235	22.1	1.15	133.9

SAMPLE PARAMETERS

1400	150	0.3	36.15	6.82	17.4	10235	22.1	1.15	133.9

Sample ID: W-9 Duplicate ID: QA/QC Samples/IDs:

LABORATORY SAMPLES

Analyses: Total Metals, TDS/ALK, Rad 226 + 228, Hg

Number of Bottles: 6

Sample Depth: 39.50'

Sample Method: Bladder Pump

ATTACHMENT A

GROUNDWATER SAMPLING DATA SHEET

GROUNDWATER SAMPLING DATA SHEET

Well Name: W-10B | Sample Technique: *Low Flow* or *Standard* | Page 1 of 1

Sample Date: 02/21/23 | Well Diameter: 2"

Project Name: Xcel Colorado Comanche | Screen Interval: See const. log

Project #: 10279361 | Well Stick Up: 1.5'

Well Location: Comanche | Depth to Water (from TOC): 27.62

Sampling Personnel: F LI | Total Well Depth (from TOC): 33.10'

Feet of Water: 5.48'

Casing Volume: 0.89 gal

Well Volume Table

Well Dia. (in)	Gallon/ ft water	Well Dia. (in)	Gallon/ ft water
1	0.041	4	0.653
(2)	0.163	5	1.020
3	0.367	6	1.469

Condition of well: good

Remarks: >700ml will be tubing/pump volume or higher. Records show going dry in 30 min @ 120ml/min sampling after 1 equipment volume. Pump at 32'

FIELD EQUIPMENT CALIBRATIONS

Date/Time: 02/21/23 0736 Spec. Conductance: Standard 1413 µmhos/cm at 25 °C Reading 1010 µmhos/cm at 20.2 °C

pH: pH 4.00 - 4.03 at 20.2 °C pH 7.00 - 7.06 at 20.5 °C pH 10.00 10.20 at 20.0 °C Slope _____

PURGING DATA

(note: collect field water quality parameters every 5 to 10 minutes when using low-flow sampling techniques)

Time	Discharge Rate (mL/min)	Volume Purged (~~gallons~~) ml	Depth to Water (ft.)	pH	Temperature (°C/°F)	Specific Conductance (µmhos/cm)	Turbidity (NTU)	DO (mg/L) Comments	ORP (mV)
0945								START PUMPING	
0955	90	450	28.44	6.74	15.7	27618	3.20	2.11	187.1
1003	90	1170	28.76	6.73	15.8	28019	4.47	1.47	178.0

min pumping vol achieved.

SAMPLE PARAMETERS

1003	90	1170	28.76	6.73	15.8	28019	4.47	1.47	178.0

Sample ID: W-10B Duplicate ID: _____ QA/QC Samples/IDs: WK-10B (Equipment Blank)

LABORATORY SAMPLES

Analyses: Total Metals, TDS/ALK, Rad 226 + 228, Hg

Number of Bottles: 12

Sample Depth: 32'

Sample Method: Bladder Pump

ATTACHMENT A

GROUNDWATER SAMPLING DATA SHEET

GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1

Well Name: W-11 Sample Technique: (Low Flow) or *Standard*

Sample Date: 02/16/23 Well Diameter: 2"

Project Name: Xcel Comanche Screen Interval: see const log

Project #: 10279361 Well Stick Up: 2.35'

Well Location: Comanche Depth to Water (from TOC): 24.09

Sampling Personnel: F. Li Total Well Depth (from TOC): 35.36'

Feet of Water: 11.27'

Casing Volume: 1.83 gal

Condition of well: good

Remarks:

Well Volume Table

Well Dia. (in)	Gallon/ ft water	Well Dia. (in)	Gallon/ ft water
1	0.041	4	0.653
(2)	0.163	5	1.020
3	0.367	6	1.469

FIELD EQUIPMENT CALIBRATIONS

Date/Time: 02/16/23 0814 Spec. Conductance: Standard 1413 µmhos/cm at 25 °C Reading 1694 µmhos/cm at 19.8 °C

pH: pH 4.00 - 4.05 at 19.9 °C pH 7.00 - 6.44 at 19.8 °C pH 10.00 - 10.04 at 20.1 °C Slope

PURGING DATA

(note: collect field water quality parameters every 5 to 10 minutes when using low-flow sampling techniques)

Time	Discharge Rate (mL/min)	Volume Purged (gallons)	Depth to Water (ft.)	pH	Temperature (°C/°F)	Specific Conductance (µmhos/cm)	Turbidity (NTU)	DO (mg/L) / ORP (mV) Comments	
0455								START PUMP	
1055	250	3.0	24.86	6.88	12.6	9335	36.6	2.33	148.0
1105	250	3.5	24.86	6.87	12.7	9391	34.7	4.92	125.9
1115	250	4.0	24.90	6.86	12.6	9359	28.6	2.13	106.2
1125	250	4.5	24.96	6.86	12.9	9413	28.2	2.60	86.6
1135	250	5.0	24.96	6.87	12.8	9369	22.7	1.61	66.1
1145	250	5.5	24.94	6.87	12.7	9367	19.4	3.72	36.8
1155	250	6.0	24.96	6.87	12.6	9336	20.5	2.40	33.2
1205	250	6.5	24.94	6.86	13.0	9372	19.1	2.37	29.6
1215	250	7.0	24.96	6.87	12.6	9343	19.7	2.60	56.0
1225	250	7.5	24.98	6.87	12.7	9336	16.6	2.62	40.0
1235	250	8.0	24.97	6.86	12.1	9172	15.1	2.15	20.3
1245	250	8.5	24.95	6.87	12.4	9229	16.0	2.08	27.8
SAMPLE PARAMETERS									
1255	250	9.0	24.96	6.87	12.3	9216	17.2	2.74	33.5

Sample ID: W-11 Duplicate ID: QA/QC Samples/IDs:

LABORATORY SAMPLES

Analyses: Total Metals, Hg, ALK/TDS, Rad 226 + 228

Number of Bottles: 6

Sample Depth:

Sample Method: dedicated bladder pumps.

ATTACHMENT A

GROUNDWATER SAMPLING DATA SHEET

GROUNDWATER SAMPLING DATA SHEET

Well Name: W-12 Sample Technique: ~~Low Flow~~ or *Standard* Page 1 of 1

Sample Date: 02/16/23 Well Diameter 2"

Project Name: Xcel Comanche Screen Interval: see const. log

Project #: 10279361 Well Stick Up: 2.35'

Well Location: Comanche Depth to Water (from TOC): 22.39'

Sampling Personnel: Total Well Depth (from TOC): 27.07'

F Li Feet of Water: 4.68'

Casing Volume: 0.76 gal

Condition of well: Good

Remarks:

Well Volume Table

Well Dia. (in)	Gallon/ ft water	Well Dia. (in)	Gallon/ ft water
1	0.041	4	0.653
(2)	0.163	5	1.020
3	0.367	6	1.469

FIELD EQUIPMENT CALIBRATIONS

Date/Time: 02/16/23 0814 Spec. Conductance: Standard 1413 µmhos/cm at 25 °C Reading 1694 µmhos/cm at 19.8 °C

pH: pH 4.00 - 4.05 at 19.9 °C pH 7.00 - 6.94 at 19.8 °C pH 10.00 - 10.04 at 20.1 °C Slope

PURGING DATA

(note: collect field water quality parameters every 5 to 10 minutes when using low-flow sampling techniques)

Time	Discharge Rate (mL/min)	Volume Purged (gallons)	Depth to Water (ft.)	pH	Temperature (°C/°F)	Specific Conductance (µmhos/cm)	Turbidity (NTU)	DO (mg/L) / ORP (mV) Comments	
1335								START	PUMPING
1445	200	3.5	22.92	6.81	12.3	11386	114	0.36	-20.1
1455	200	4.0	22.94	6.82	12.3	11351	46.6	0.41	-6.2
1505	200	4.5	22.96	6.81	12.5	11401	26.3	0.44	3.2
1515	200	5.0	22.98	6.81	12.5	11382	61.5	0.46	15.8
1525	200	5.5	22.96	6.81	12.1	11340	30.3	0.46	20.2
1535	200	6.0	22.92	6.81	12.1	11300	14.9	0.46	20.9
1545	200	6.5	22.95	6.81	12.1	11311	30.3	0.72	36.0
1555	200	7.0	22.92	6.81	12.0	11281	34.2	0.51	20.9
1605	200	7.5	22.96	6.81	12.1	11240	74.5	0.53	2.5
1615	200	8.0	23.02	6.81	12.2	11357	25.9	0.55	3.6
1625	200	8.5	23.00	6.80	12.4	11348	8.11	0.54	8.4 turb tube rinsed out
1630	200	~~8.75~~	22.95	6.81	12.1	11336	8.50	0.58	11.6
SAMPLE PARAMETERS									
1635	200	9.0	22.95	6.80	12.2	11312	9.60	0.54	16.2

Sample ID: W-12 Duplicate ID: QA/QC Samples/IDs:

LABORATORY SAMPLES

Analyses: Total Metals, Hg, ALK/TDS, Rad 226 & 228

Number of Bottles: 6

Sample Depth:

Sample Method: dedicated bladder pump

ATTACHMENT A

GROUNDWATER SAMPLING DATA SHEET

GROUNDWATER SAMPLING DATA SHEET

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Well Name: W-14 | Sample Technique: ~~Low Flow~~ or *Standard*

Sample Date: 2/21/23 | Well Diameter: 2"

Project Name: Xcel Valmont | Screen Interval: see const. log

Project #: 10279361 | Well Stick Up: 2.27

Well Location: Comanche | Depth to Water (from TOC): ~~37~~ 37.48'

Sampling Personnel: F. Li | Total Well Depth (from TOC): 46.76'

Feet of Water: 9.28'

Casing Volume: 1.51 gal

Condition of well: good

Remarks:

Well Volume Table

Well Dia. (in)	Gallon/ ft water	Well Dia. (in)	Gallon/ ft water
1	0.041	4	0.653
(2)	0.163	5	1.020
3	0.367	6	1.469

FIELD EQUIPMENT CALIBRATIONS

Date/Time: 02/21/23 0736 Spec. Conductance: Standard 1413 µmhos/cm at 25 °C Reading 1019 µmhos/cm at 20.2 °C

pH: pH 4.00 - 4.03 at 20.2 °C pH 7.00 - 7.06 at 20.5 °C pH 10.00 - 10.20 at 20.0 °C Slope

PURGING DATA

(note: collect field water quality parameters every 5 to 10 minutes when using low-flow sampling techniques)

Time	Discharge Rate (mL/min)	Volume Purged (gallons)	Depth to Water (ft.)	pH	Temperature (°C/°F)	Specific Conductance (µmhos/cm)	Turbidity (NTU)	DO (mg/L) | ORP (mV) Comments
1545								START PUMP
1555	180	0.4	37.64	6.93	16.2	14595	0.04	3.28 | 128.0
1605	180	0.8	37.71	6.97	16.1	14543	0.02	~~2.65~~ 1.07 | 122.0
1615	180	1.2	37.80	6.99	16.0	14399	0.02	2.12 | 118.2
1620	180	1.6	37.72	6.99	16.1	14444	0.02	2.15 | 115.3
1625	180	2.0	37.~~68~~ 68	6.99	16.4	14703	0.02	1.89 | 110.4
1630	180	2.4	37.~~69~~ 72	6.98	16.8	14380	0.02	2.27 | 110.9
1635	180	2.8	37.72	6.96	16.0	14412	0.02	2.26 | 107.8
1640	180	3.2	37.74	6.96	15.9	14385	0.02	2.22 | 107.7

SAMPLE PARAMETERS

1640	180	3.2	37.74	6.96	15.9	14385	0.02	2.22 | 107.7

Sample ID: W-14 Duplicate ID: QA/QC Samples/IDs:

LABORATORY SAMPLES

Analyses: Total Metals, TDS/ALK, Rad 226 + 228, Hg

Number of Bottles: 6

Sample Depth:

Sample Method: dedicated bladder pump

ATTACHMENT A

GROUNDWATER SAMPLING DATA SHEET

GROUNDWATER SAMPLING DATA SHEET

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Well Name: W-16 Sample Technique: *Low Flow* or *Standard*

Sample Date: 02/15/23 Well Diameter 2"

Project Name: Xcel Valmont Screen Interval: see const log

Project #: 10279361 Well Stick Up: 3.5'

Well Location: Inward Energy Depth to Water (from TOC): 37.53'

Sampling Personnel: Total Well Depth (from TOC): 49.12'

F Li Feet of Water: 11.59'

Casing Volume: 1.89 gal

Condition of well: good

Remarks:

Well Volume Table

Well Dia. (in)	Gallon/ ft water	Well Dia. (in)	Gallon/ ft water
1	0.041	4	0.653
(2)	.0.163	5	1.020
3	0.367	6	1.469

FIELD EQUIPMENT CALIBRATIONS

Date/Time: 02/15/23 0830 Spec. Conductance: Standard 1413 µmhos/cm at 25 °C Reading 1493 µmhos/cm at 19.0 °C

pH: pH 4.00 - 4.07 at 18.9 °C pH 7.00 - 6.91 at 19.0 °C pH 10.00 - 9.98 at 18.8 °C Slope

PURGING DATA

(note: collect field water quality parameters every 5 to 10 minutes when using low-flow sampling techniques)

Time	Discharge Rate (mL/min)	Volume Purged (gallons)	Depth to Water (ft.)	pH	Temperature (°C/°F)	Specific Conductance (µmhos/cm)	Turbidity (NTU)	Comments DO (mg/L)	ORP (mV)
1135	~~200~~	~~0.5~~						START	
1145	200	0.5	37.60	6.84	11.9	9391	2.80	5.70	251.4
1155	200	1.0	37.64	6.77	12.5	9412	1.66	3.85	243.6
1205	200	1.5	37.63	6.75	12.4	9377	1.81	3.60	237.5
1210	200	1.75	37.63	6.75	12.5	9406	2.12	2.81	228.7
1215	200	2.0	37.64	6.75	12.4	9410	2.07	2.87	226.7
1220	200	2.25	37.64	6.74	12.4	9388	1.81	2.68	222.6

SAMPLE PARAMETERS

1220	200	2.25	37.64	6.74	12.4	9388	1.81	2.68	222.6

Sample ID: Duplicate ID: QA/QC Samples/IDs:

LABORATORY SAMPLES

Analyses: Cobalt + Gen WQ + Boron + TDS

Number of Bottles: # 3

Sample Depth:

Sample Method: dedicated bladder pump

ATTACHMENT A

GROUNDWATER SAMPLING DATA SHEET

GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1

Well Name: W-17 | Sample Technique: Low Flow or Standard

Sample Date: 2/22/23 | Well Diameter: 2"

Project Name: Xcel Comanche | Screen Interval: see const. log

Project #: 10279361 | Well Stick Up: 2.17'

Well Location: Comanche | Depth to Water (from TOC): 24.95'

Sampling Personnel: F. Li | Total Well Depth (from TOC): 37.89'

Feet of Water: 12.94'

Casing Volume: 2.11'

Well Volume Table

Well Dia. (in)	Gallon/ ft water	Well Dia. (in)	Gallon/ ft water
1	0.041	4	0.653
(2)	0.163	5	1.020
3	0.367	6	1.469

Condition of well: good

Remarks:

FIELD EQUIPMENT CALIBRATIONS

Date/Time: 02/22/23 0745 Spec. Conductance: Standard 1413 µmhos/cm at 25 °C Reading 1522 µmhos/cm at 19.6 °C

pH: pH 4.00 - 3.95 at 19.5 °C pH 7.00 - 6.98 at 19.6 °C pH 10.00 - 10.03 at 18.9 °C Slope

PURGING DATA

(note: collect field water quality parameters every 5 to 10 minutes when using low-flow sampling techniques)

Time	Discharge Rate (mL/min)	Volume Purged (gallons)	Depth to Water (ft.)	pH	Temperature (°C/°F)	Specific Conductance (µmhos/cm)	Turbidity (NTU)	DO (mg/L) / ORP (mV) Comments	
0745								START	
1015								YSI wont turn on	
1020	200	0.5	27.32	7.17	11.2	3771	15.5	7.19	209.7
1030	200	1.0	28.10	7.14	11.0	3744	25.2	6.64	205.4
1040	200	1.5	28.79	7.08	9.0	3593	45.2	6.56	201.7
1050	150	1.9	28.95	7.04	8.9	3545	56.9	5.86	198.3
1100	150	2.3	29.20	7.00	9.2	3558	54.1	5.43	195.3
1110	150	2.7	29.56	6.96	9.2	3644	43.8	5.26	185.5
1120	150	3.2	29.80	6.96	9.2	3535	30.5	5.18	184.2
1130	150	3.6	29.93	6.97	9.0	3518	22.6	5.36	182.9
1140	150	4.0	30.15	6.97	9.1	3504	12.2	5.33	180.2
1145	100	4.2	30.30	6.98	9.5	3548	9.98	5.33	178.4
1150	100	4.4	30.42	6.99	8.9	3492	9.51	5.39	177.1
				SAMPLE PARAMETERS					
1155	100	4.6	30.56	7.00	8.7	3475	8.50	5.31	177.3

Sample ID: W-17 Duplicate ID: QA/QC Samples/IDs:

LABORATORY SAMPLES

Analyses: Total Metals, TDS/ALK, Rad 226 + 228, Hg

Number of Bottles: 6

Sample Depth: 36.5'

Sample Method: Bladder Pump

ATTACHMENT A

GROUNDWATER SAMPLING DATA SHEET

GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1

Well Name: W-18 Sample Technique: (Low Flow) or *Standard*

Sample Date: 02/20/23 Well Diameter: 2"

Project Name: Xcel Comanche Screen Interval: see const. log

Project #: 10279361 Well Stick Up: 1.92'

Well Location: Comanche Depth to Water (from TOC): 8.52'

Sampling Personnel: Total Well Depth (from TOC): 17.22'

F L. Feet of Water: 8.7'

Casing Volume: 1.42 gal

Well Volume Table

Well Dia. (in)	Gallon/ ft water	Well Dia. (in)	Gallon/ ft water
1	0.041	4	0.653
(2)	0.163	5	1.020
3	0.367	6	1.469

Condition of well: Good

Remarks: pump at ~14.52 ft

FIELD EQUIPMENT CALIBRATIONS

Date/Time: 02/20/23 Spec. Conductance: Standard 1413 µmhos/cm at 25 °C Reading 1504 µmhos/cm at 14.8 °C

pH: pH 4.00 - 4.05 at 10.2 °C pH 7.00 - 6.95 at 13.1 °C pH 10.00 - 10.07 at 11.2 °C Slope

PURGING DATA

(note: collect field water quality parameters every 5 to 10 minutes when using low-flow sampling techniques)

Time	Discharge Rate (mL/min)	Volume Purged (gallons)	Depth to Water (ft.)	pH	Temperature (°C/°F)	Specific Conductance (µmhos/cm)	Turbidity (NTU)	Comments DO(mg/L) / ORP(mV)
1345								pump START
1355	250	0.6	8.67	7.32	11.5	6464	418	1.86 / 163.2
1405	250	1.2	8.66	7.30	11.5	6444	177	1.04 / 143.5
1415	250	1.8	8.70	7.29	11.3	6426	82.1	0.63 / 137.3
1425	250	2.4	8.67	7.28	11.4	6449	50.8	0.30 / 133.8
1435	250	3.0	8.66	7.27	11.6	6471	39.2	0.24 / 131.4
1445	250	3.6	8.58	7.25	11.8	6511	21.1	0.19 / 128.3
1455	250	4.2	8.63	7.25	11.8	6519	15.2	0.15 / 125.5
1505	250	4.8	8.63	7.25	11.9	6508	12.0	0.13 / 122.4
1515	250	5.4	8.68	7.24	12.0	6514	10.8	0.15 / 123.8
1525	250	6.0	8.66	7.24	11.6	6499	9.05	0.17 / 122.5
1530	250	6.6	8.67	7.24	11.7	6503	8.43	0.16 / 121.0
1535	250	7.2	8.63	7.24	11.6	6493	8.31	0.16 / 119.2

SAMPLE PARAMETERS

1535	250	7.2	8.63	7.24	11.6	6493	8.31	0.16 / 119.2

Sample ID: W-18 Duplicate ID: QA/QC Samples/IDs:

LABORATORY SAMPLES

Analyses: Total Metals, TDS/ALK, Rad 226 + 228, Hg

Number of Bottles: 6

Sample Depth: ~14.52'

Sample Method: Bladder Pump

ATTACHMENT A

GROUNDWATER SAMPLING DATA SHEET

GROUNDWATER SAMPLING DATA SHEET

Well Name: MW-8 Sample Technique: Low Flow or Standard Page 1 of 1

Sample Date: 03/01/23 Well Diameter 2"

Project Name: Xcel Comanche Screen Interval: 28 - 38ft

Project #: 10279361 Well Stick Up: 2.18'

Well Location: Comanche Depth to Water (from TOC): 32.32

Sampling Personnel: Total Well Depth (from TOC): 40.00

F. Li Feet of Water: 7.68'

Casing Volume: 1.25 gal

Well Volume Table

Well Dia. (in)	Gallon/ ft water	Well Dia. (in)	Gallon/ ft water
1	0.041	4	0.653
(2)	0.163	5	1.020
3	0.367	6	1.469

Condition of well: good

Remarks: Casing to 38ft. Pump set at 38'

FIELD EQUIPMENT CALIBRATIONS

Date/Time: 1146 03/01/23 Spec. Conductance: Standard 1413 ~~875~~ µmhos/cm at 25 °C Reading 973 µmhos/cm at 6.4 °C

pH: pH 4.00 - 4.15 at 6.4 °C pH 7.00 - 7.20 at 5.0 °C pH 10.00 - 10.45 at 5.2 °C Slope

PURGING DATA

(note: collect field water quality parameters every 5 to 10 minutes when using low-flow sampling techniques)

Time	Discharge Rate (mL/min)	Volume Purged (gallons)	Depth to Water (ft.)	pH	Temperature (°C/°F)	Specific Conductance (µmhos/cm)	Turbidity (NTU)	DO(mg/L) Comments	ORP(mV)
1535								START PUMP	
1545	175	0.4	32.44	6.76	15.0	24249	35.5	0.91	130.7
1555	175	0.8	32.46	6.76	15.0	23225	37.8	0.69	111.8
1605	175	1.2	32.45	6.76	15.1	22734	16.4	0.61	102.4
1615	175	1.6	32.52	6.76	14.9	22359	11.0	0.57	99.9
1625	175	2.0	32.50	6.75	15.1	22343	15.5	0.53	95.1
1635	175	2.4	32.51	6.75	15.3	22346	13.9	0.52	99.0
1645	175	2.8	32.55	6.75	15.3	22282	9.31	0.52	101.3
1650	175	3.2	32.52	6.75	15.2	22236	7.42	0.52	101.4
1655	175	3.6	32.56	6.75	15.2	22214	7.18	0.51	99.6

SAMPLE PARAMETERS

1655	175	3.6	32.56	6.75	15.2	22214	7.18	0.51	99.6

Sample ID: MW-8 **Duplicate ID:** **QA/QC Samples/IDs:**

LABORATORY SAMPLES

Analyses: Total Metals, TDS/ALK, Rad 226 & 228, Hg

Number of Bottles: 6

Sample Depth: 38'

Sample Method: Bladder Pump

ATTACHMENT A

GROUNDWATER SAMPLING DATA SHEET

GROUNDWATER SAMPLING DATA SHEET

Well Name: MW-9 Sample Technique: (Low Flow) or *Standard* Page 1 of 1

Sample Date: 03/01/23 Well Diameter 2"

Project Name: Xcel Comanche Screen Interval: 15-24'

Project #: 10279361 Well Stick Up: 2.09'

Well Location: Comanche Depth to Water (from TOC): 6.45'

Sampling Personnel: Total Well Depth (from TOC): 25'

F L. Feet of Water: 18.55'

Casing Volume: 3.02 gal

Condition of well: good

Remarks: Pump at 23.5'

Well Volume Table

Well Dia. (in)	Gallon/ ft water	Well Dia. (in)	Gallon/ ft water
1	0.041	4	0.653
(2)	0.163	5	1.020
3	0.367	6	1.469

FIELD EQUIPMENT CALIBRATIONS

Date/Time: 03/01/23 1146 Spec. Conductance: Standard 1413 µmhos/cm at 25 °C Reading 973 µmhos/cm at 6.4 °C

pH: pH 4.00 - 4.15 at 6.4 °C pH 7.00 - 7.20 at 5.0 °C pH 10.00 - 10.45 at 5.2 °C Slope

PURGING DATA

(note: collect field water quality parameters every 5 to 10 minutes when using low-flow sampling techniques)

Time	Discharge Rate (mL/min)	Volume Purged (gallons)	Depth to Water (ft.)	pH	Temperature (°C/°F)	Specific Conductance (µmhos/cm)	Turbidity (NTU)	DO(mg/L) / ORP (mV) Comments
1220								START PUMP
1230	200	0.5	7.79	6.89	10.8	17171	118	1.24 / -7.4
1240	200	1.0	8.53	6.85	11.5	16790	52.3	1.05 / 11.6
1250	200	1.5	9.00	6.83	11.3	16665	34.1	0.78 / 7.4
1300	200	2.0	9.52	6.81	12.0	16910	26.2	0.67 / 10.7
1310	200	2.5	9.90	6.80	12.0	16929	19.6	0.58 / 10.4
1320	200	3.0	10.29	6.79	12.3	17167	13.6	0.50 / 13.0
1325	200	3.25	10.48	6.80	12.1	16997	17.0	0.53 / 9.5
1335	200	3.75	10.68	6.79	12.4	17412	11.8	0.44 / 12.1
1340	200	4.00	10.77	6.79	12.5	17186	10.5	0.43 / 12.4
1345	200	4.25	10.80	6.79	12.6	17188	9.89	0.46 / 12.5
1350	200	4.50	10.92	6.79	12.6	17228	9.77	0.47 / 11.9
1355	200	4.75	11.08	6.78	12.7	17289	9.45	0.45 / 12.1
SAMPLE PARAMETERS								
1355	200	4.75	11.08	6.78	12.7	17289	9.45	0.45 / 12.1

Sample ID: MW-9 Duplicate ID: QA/QC Samples/IDs:

LABORATORY SAMPLES

Analyses: Total Metals, TDS/ALK, Rad 226 + 228, Hg

Number of Bottles: 6

Sample Depth: 23.5'

Sample Method: Bladder Pump

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): 3/30/23 1010

Personnel: F. Davis 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: WK-10B 3/30/23 1110

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) ~31.00'

Date: 3/29/23 Depth to Water (ft, btoc) 28.32'

Time Completed: 1600 Total Purge 8 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged ~~(ml)~~ L	0.10 pH	3-5% µS/cm COND ~~(mS/m)~~	<10 TURB (NTU)	10% DO (mg/L)	N/A TEMP (C°)	±10 ORP (mV)	Water Depth (ft, btoc)	Rate (mL/min)
1415	START	PUMP	—					28.32	—
1425	0.5	6.71	41045	24.9	2.11	18.4	160.5	28.60	50
1435	1.0	6.70	41331	12.3	1.66	18.6	166.4	28.59	50
1445	1.5	6.69	41977	8.53	1.23	19.2	163.7	28.61	50
1455	NO discharge	— increase			pump	rate	—	28.50	—
1500	2.0	6.68	40561	12.1	0.87	17.9	154.2	28.79	100
1510	3.0	6.68	40268	11.0	0.69	17.6	163.4	29.06	100
1520	3.75	6.65	40249	9.79	0.59	17.7	166.8	29.37	75
1530	4.75	6.65	39565	7.39	0.59	17.0	167.1	29.72	100
1540	5.75	6.64	39654	9.64	0.46	17.2	167.4	29.98	100
1550	6.75	6.65	39497	7.15	0.45	16.9	167.3	btop	100
1600	Well	Dry	—						
1000	START	PUMP	—					27.95	
1005	0.5	—	—	15.3	—	—	—	—	
1010	SAMPLE (App. III + III + TSS + Alk + Mg + Na + K) + OM = 7 bottles								
1040	STOP	PUMP	—						

Return on 3/30/23

Flow Rate 50/100

Pump controller setting 80/25F

General Comments:

Purged dry on 3/29; grab recharge on 3/30

Initial turbidity on 3/30 = 15.3 NTU (take Diss. Metals sample) UNP 250 mL

Light/pale yellow samples

1110 Sample WK-10B (equipment blank) = 6 bottles

13 bottles total

Water Sample Collection Field Data Sheet [redacted]

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): 3/30/23 1320

Personnel: F. Davis 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) ~35.50'

Date: 3/30/23 Depth to Water (ft, btoc) 25.95'

Time Completed: 1420 Total Purge 6 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged ~~(ml)~~ L	0.10 pH	3-5% ~~uS/cm~~ mS/cm COND	<10 TURB (NTU)	10% DO (mg/L)	N/A TEMP (C°)	+/- 10 ORP (mV)	Water Depth (ft, btoc)	Rate (mL/min)
1225	START	PUMP	—				—	25.95'	—
1235	2.0	6.74	7330	3.78	1.08	17.2	208.5	26.40	200
1245	3.0	6.73	7667	5.51	1.04	19.5	193.6	26.49	100
1255	4.0	6.72	7385	5.45	1.21	18.4	187.7	26.84	100
1305	5.0	6.71	7320	8.43	1.31	18.3	185.7	27.15	100
1310	5.5	6.70	7325	7.77	1.30	18.4	185.1	27.30	↓
1315	6.0	6.70	7338	6.20	1.27	18.4	184.6	27.47	
1320	SAMPLE (App. III + III + TSS + Alk + Mg + Na + K) =								6 bottles

Flow Rate 100

Pump controller setting 7D/30F

General Comments:

Mostly clear to very pale yellow samples. High winds during sampling. 6 bottles total

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID.: W-18

Sample I.D.(match bottle and COC form exactly): W-18

Date/Time Collected (match bottle and COC form exactly): 3/29/23 1135

Personnel: F. Davis Ray

Sample Method: LF Bladder

Water level meter, pump, and tubing decontaminated prior: (Yes) No

Sample QC: Duplicate (Yes) No Duplicate Sample ID: WT-18 3/29/23 1200

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) ~14.50'

Date: 3/29/23 Depth to Water (ft, btoc) 8.68'

Time Completed: 1225 Total Purge 19 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (~~ml~~) L	0.10 pH	3-5% ~~mS/cm~~ µS/cm COND	<10 TURB (NTU)	10% DO (mg/L)	N/A TEMP (C°)	+/-10 ORP (mV)	Water Depth (ft, btoc)	Rate (mL/Min)
1000	START	PUMP						8.68	—
1010	1.0	7.20	11032	273	1.64	10.5	237.6	8.69	100
1020	4.0	7.17	10946	104	0.33	10.2	228.4	8.77	300
1030	6.5	7.16	11014	57.1	0.18	10.4	223.7	8.71	250
1040	8.5	7.15	11054	35.2	0.07	10.6	219.8	8.72	200
1050	10.5	7.14	11111	21.0	-0.01	10.8	216.1	8.73	200
1100	12.5	7.13	11138	11.2	-0.03	10.9	211.9	8.73	200
1110	14.5	7.13	11201	11.6	-0.06	11.1	206.1	8.75	↓
1120	16.5	7.12	11212	8.02	-0.07	11.2	199.4	8.74	
1125	17.5	7.12	11218	7.73	-0.08	11.2	196.9	8.78	
1130	18.5	7.12	11253	7.90	-0.07	11.3	195.9	8.79	
1135	SAMPLE	(App. III & IV + TSS + Alk + Mg + Na + K) = 6 bottles							
1200	SAMPLE DUP = 6 bottles								

Flow Rate 200

Pump controller setting 8 D/27 F

General Comments:

Light pale Yellow samples + Duplicate = 12 bottles total

High winds during WT-18 sampling.

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID.: PTW

Sample I.D.(match bottle and COC form exactly): PTW

Date/Time Collected (match bottle and COC form exactly): 5/3/23 0840

Personnel: K. Malone

Sample Method: low flow 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) 48 ft

Date: 5/3/23 Depth to Water (ft, btoc) 26.84

Time Completed: 0835 Total Purge _____ Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (mL)	pH (+/- 0.1)	COND (µS/cm) (+/- 3%)	TURB (NTU) (+/- 10%)	DO (mg/L) (+/- 0.3)	TEMP (C°)	ORP (mV) (+/- 10 mV)	Water Depth (ft, btoc)
0822	0.6	7.07	22393	381.9	6.13	16.3	215.6	27.80
0825	1.2	6.78	45542	635.7	4.02	16.9	213.5	27.91
0828	1.8	6.69	45427	270.4	3.83	17.1	210.1	27.73
0831	2.4	6.67	44321	181.5	3.70	17.3	209.4	27.34
0834	3.0	6.67	43892	170.0	3.62	17.1	206.9	27.10

Flow Rate 0.6L / min

Pump controller setting 11.5V

General Comments:

ATTACHMENT A

GROUNDWATER SAMPLING DATA SHEET

GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1

Well Name: MW-1
Sample Technique: *Low Flow* or *Standard*
Sample Date: 05/01/2023
Well Diameter: 4"
Project Name: Xcel Comanche
Screen Interval: 4' - 9'
Project #: 10279361
Well Stick Up: Yes
Well Location: Landfill
Depth to Water (from TOC): DRY
Sampling Personnel: MHB
Total Well Depth (from TOC): 11.05'
Feet of Water: N/A
Casing Volume: N/A

Well Volume Table

Well Dia. (in)	Gallon/ ft water	Well Dia. (in)	Gallon/ ft water
1	0.041	4	0.653
2	0.163	5	1.020
3	0.367	6	1.469

Condition of well: good/fair
Remarks: locked, capped, and labeled

FIELD EQUIPMENT CALIBRATIONS

Date/Time: _____ Spec. Conductance: Standard _____ µmhos/cm at 25 °C Reading _____ µmhos/cm at _____ °C

pH: pH 4.00 - _____ at _____ °C pH 7.00 - _____ at _____ °C pH 10.00 - _____ at _____ °C Slope _____

PURGING DATA

(note: collect field water quality parameters every 5 to 10 minutes when using low-flow sampling techniques)

Time	Discharge Rate (mL/min)	Volume Purged (gallons)	Depth to Water (ft.)	pH	Temperature (°C/°F)	Specific Conductance (µmhos/cm)	Turbidity (NTU)	Comments

Well Dry

SAMPLE PARAMETERS

Sample ID: N/A Duplicate ID: _____ QA/QC Samples/IDs: _____

LABORATORY SAMPLES

Analyses: N/A
Number of Bottles: N/A
Sample Depth: N/A
Sample Method: N/A

ATTACHMENT A

GROUNDWATER SAMPLING DATA SHEET

GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1

Well Name: MW-1B
Sample Technique: Low Flow or Standard
Sample Date: 5/4/23
Well Diameter: 2"
Project Name: Xcel Comanche
Screen Interval: 25 - 40
Project #: 10279361
Well Stick Up: 2.18
Well Location:
Depth to Water (from TOC): 31.55
Sampling Personnel: F L
Total Well Depth (from TOC): 40
Feet of Water: 8.45
Casing Volume: 1.38

Well Volume Table

Well Dia. (in)	Gallon/ ft water	Well Dia. (in)	Gallon/ ft water
1	0.041	4	0.653
2	0.163	5	1.020
3	0.367	6	1.469

Condition of well: fair - stick is rusty, paint flaking
Remarks:

FIELD EQUIPMENT CALIBRATIONS

Date/Time: 5/4/23 0814 Spec. Conductance: Standard 1413 µmhos/cm at 25 °C Reading 1408 µmhos/cm at 20.6 °C
pH: pH 4.00 - 4.03 at 18.7 °C pH 7.00 - 7.01 at 19.8 °C pH 10.00 - 10.16 at 20.2 °C Slope

PURGING DATA

(note: collect field water quality parameters every 5 to 10 minutes when using low-flow sampling techniques)

Time	Discharge Rate (mL/min)	Volume Purged (gallons)	Depth to Water (ft.)	pH	Temperature (°C/°F)	Specific Conductance (µmhos/cm)	Turbidity (NTU)	DO (mg/L) Comments	ORP (mV)
1525								START PUMP	
1535	200	0.5	31.58	6.63	17.8	25016	1.45	0.80	195.1
1545	200	1.0	31.58	6.62	18.0	24563	0.99	1.78	179.9
1555	200	1.5	31.59	6.63	18.3	22870	0.84	1.97	172.2
1605	200	2.0	31.58	6.64	18.0	19630	0.49	1.67	167.6
1615	200	2.5	31.63	6.65	17.7	18682	0.64	1.68	164.3
1625	200	3.0	31.57	6.64	17.7	18542	0.64	1.47	161.2
1630	200	3.5	31.57	6.64	17.5	18292	0.68	1.43	159.4
1635	200	4.0	31.58	6.64	17.5	18207	0.52	1.36	158.2
1635								SAMPLE	
1651								PUMP OFF	

SAMPLE PARAMETERS

1635	200	4.0	31.58	6.64	17.5	18207	0.52	1.36	158.2

Sample ID: MW-1B Duplicate ID: — QA/QC Samples/IDs: —

LABORATORY SAMPLES

Analyses: NO_2, NO_3, P-Alkalinity, Diss. Metals
Number of Bottles: 2
Sample Depth: dedicated pump
Sample Method: bladder

ATTACHMENT A

GROUNDWATER SAMPLING DATA SHEET

GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1

Well Name: MW-2 Sample Technique: *Low Flow* or *Standard*

Sample Date: 05/01/2023 Well Diameter 4"

Project Name: Xcel Comanche Screen Interval: ~~MW~~ 6' - 11'

Project #: 10279361 Well Stick Up: Yes

Well Location: Landfill Depth to Water (from TOC) DRY

Sampling Personnel: MHB Total Well Depth (from TOC): 12.64'

Feet of Water: N/A

Casing Volume: N/A

Condition of well: good/fair

Remarks: locked, capped, and labeled

Well Volume Table

Well Dia. (in)	Gallon/ ft water	Well Dia. (in)	Gallon/ ft water
1	0.041	4	0.653
2	0.163	5	1.020
3	0.367	6	1.469

FIELD EQUIPMENT CALIBRATIONS

Date/Time: _____ Spec. Conductance: Standard _____ µmhos/cm at 25 °C Reading _____ µmhos/cm at _____ °C

pH: pH 4.00 - _____ at _____ °C pH 7.00 - _____ at _____ °C pH 10.00 - _____ at _____ °C Slope _____

PURGING DATA

(note: collect field water quality parameters every 5 to 10 minutes when using low-flow sampling techniques)

Time	Discharge Rate (mL/min)	Volume Purged (gallons)	Depth to Water (ft.)	pH	Temperature (°C/°F)	Specific Conductance (µmhos/cm)	Turbidity (NTU)	Comments

Well Dry

SAMPLE PARAMETERS

Sample ID: N/A Duplicate ID: — QA/QC Samples/IDs: —

LABORATORY SAMPLES

Analyses: N/A

Number of Bottles: N/A

Sample Depth: N/A

Sample Method: N/A

ATTACHMENT A

GROUNDWATER SAMPLING DATA SHEET

GROUNDWATER SAMPLING DATA SHEET

Well Name: MW-2B Sample Technique: (Low Flow) or Standard Page 1 of 1

Sample Date: 5/4/23 Well Diameter: 2"

Project Name: Xcel Comanche Screen Interval: 20 - 30'

Project #: 10279361 Well Stick Up: 2.39'

Well Location: Landfill Depth to Water (from TOC): 18.49'

Sampling Personnel: FLi Total Well Depth (from TOC): ~~32.83~~ 30'

Feet of Water: 11.51 ft

Casing Volume: 1.88 gal

Well Volume Table

Well Dia. (in)	Gallon/ ft water	Well Dia. (in)	Gallon/ ft water
1	0.041	4	0.653
(2)	0.163	5	1.020
3	0.367	6	1.469

Condition of well: good. Minor paint cracking

Remarks:

FIELD EQUIPMENT CALIBRATIONS

Date/Time: 5/4/23/0814 Spec. Conductance: Standard 1413 µmhos/cm at 25 °C Reading 1408 µmhos/cm at 20.6 °C

pH: pH 4.00 - 4.03 at 18.7 °C pH 7.00 - 7.01 at 19.8 °C pH 10.00 - 10.16 at 20.2 °C Slope

PURGING DATA

(note: collect field water quality parameters every 5 to 10 minutes when using low-flow sampling techniques)

Time	Discharge Rate (mL/min)	Volume Purged (gallons)	Depth to Water (ft.)	pH	Temperature (°C/°F)	Specific Conductance (µmhos/cm)	Turbidity (NTU)	DO (mg/L) / Comments	ORP (mV)
1710	—	—	—	—	—	—	—	START	
1720	250	0.6	18.50	6.73	16.1	28235	0.58	3.54	179.4
1730	250	1.2	18.50	6.73	16.0	27955	3.60	2.86	162.1
1735	250	1.5	18.50	6.73	16.0	27435	1.74	2.09	155.7
1740	250	1.8	18.50	6.73	16.0	27436	1.58	2.16	152.4
1745	250	2.1	18.50	6.73	16.0	27260	1.90	1.99	149.6
1745	—	—	—	—	—	—	—	SAMPLE	
1800	—	—	—	—	—	—	—	Pump OFF	

SAMPLE PARAMETERS

1745	250	2.1	18.50	6.73	16.0	27260	1.90	1.99	149.6

Sample ID: MW-2B Duplicate ID: — QA/QC Samples/IDs: —

LABORATORY SAMPLES

Analyses: NO_2, NO_3, P-Alkalinity, Diss. Metals

Number of Bottles: 2

Sample Depth: dedicated pump

Sample Method: bladder (low flow)

05/11
15 °C
partly cloudy
wind 16 mph S
57% humidity

ATTACHMENT A

GROUNDWATER SAMPLING DATA SHEET

GROUNDWATER SAMPLING DATA SHEET

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Well Name: MW-3 Sample Technique: ~~Low Flow~~ or *Standard*

Sample Date: 05/11/2023 Well Diameter: 4 in

Project Name: Xcel Comanche Screen Interval: 4' - 9'

Project #: 10279361 Well Stick Up: Yes

Well Location: Landfill Depth to Water (from TOC): 9.49'

Sampling Personnel: MHB Total Well Depth (from TOC): 12.84'

Feet of Water: 3.35'

Casing Volume: 2.19 gallons

Well Volume Table

Well Dia. (in)	Gallon/ ft water	Well Dia. (in)	Gallon/ ft water
1	0.041	4	0.653
2	0.163	5	1.020
3	0.367	6	1.469

Condition of well: good - locked & labeled, but old casing

Remarks: Water is orange in color. All equipment functioning normally.

FIELD EQUIPMENT CALIBRATIONS

Date/Time: 05/11, 0900 Spec. Conductance: Standard 1413 µmhos/cm at 25 °C Reading 1470 µmhos/cm at 15.4 °C

pH: pH 4.00 - 4.07 at 15.5 °C pH 7.00 - 7.00 at 15.3 °C pH 10.00 - 10.10 at 15.2 °C Slope N/A

PURGING DATA

(note: collect field water quality parameters every 5 to 10 minutes when using low-flow sampling techniques)

Time	Discharge Rate (mL/min)	Volume Purged (gallons)	Depth to Water (ft.)	pH	Temperature (°C/°F)	Specific Conductance (µmhos/cm)	Turbidity (NTU)	DO (mg/L) Comments	ORP (mV)
1400	START	PUMP							
1405	200	0.26	9.87	7.29	12.8	34851	1.49	0.90	242.3
1410	200	0.53	9.81	7.29	12.8	34847	1.09	0.78	242.1
1415	200	0.79	9.83	7.28	12.9	34843	1.32	0.77	241.4
1420	200	1.06	9.84	7.28	12.8	34819	1.30	0.79	241.5
1425	SAMPLE								
1435	PUMP	OFF							

SAMPLE PARAMETERS

1425	200		9.84	7.28	12.8	34819	1.30	0.79	241.5

Sample ID: MW-3 Duplicate ID: ~~———~~ QA/QC Samples/IDs: ~~MW~~ MWK-3 (5/11, 1455)

LABORATORY SAMPLES

Analyses: NO_2, NO_3, P-Alkalinity, and dissolved metals

Number of Bottles: ~~3~~ 4

Sample Depth: 10.5'

Sample Method: low flow bladder

ATTACHMENT A

GROUNDWATER SAMPLING DATA SHEET

GROUNDWATER SAMPLING DATA SHEET

Well Name: MW-4 Sample Technique: *Low Flow* or *Standard* Page 1 of 1

Sample Date: 05/01/2023 Well Diameter 4"

Project Name: Xcel Comanche Screen Interval: 7'-27'

Project #: 10279361 Well Stick Up: Yes

Well Location: Landfill Depth to Water (from TOC): DRY

Sampling Personnel: MHB Total Well Depth (from TOC): 30.30'

Feet of Water: N/A

Casing Volume: N/A

Condition of well: good/fair

Remarks: locked, capped, and labeled

Well Volume Table

Well Dia. (in)	Gallon/ ft water	Well Dia. (in)	Gallon/ ft water
1	0.041	4	0.653
2	0.163	5	1.020
3	0.367	6	1.469

FIELD EQUIPMENT CALIBRATIONS

Date/Time: _____ Spec. Conductance: Standard _____ µmhos/cm at 25 °C Reading _____ µmhos/cm at _____ °C

pH: pH 4.00 - _____ at _____ °C pH 7.00 - _____ at _____ °C pH 10.00 - _____ at _____ °C Slope _____

PURGING DATA

(note: collect field water quality parameters every 5 to 10 minutes when using low-flow sampling techniques)

Time	Discharge Rate (mL/min)	Volume Purged (gallons)	Depth to Water (ft.)	pH	Temperature (°C/°F)	Specific Conductance (µmhos/cm)	Turbidity (NTU)	Comments

Well Dry

SAMPLE PARAMETERS

Sample ID: _____ Duplicate ID: _____ QA/QC Samples/IDs: _____

LABORATORY SAMPLES

Analyses: _____

Number of Bottles: _____

Sample Depth: _____

Sample Method: _____

05/08
19°C
sunny
wind 7 mph NW
36% humidity

ATTACHMENT A

GROUNDWATER SAMPLING DATA SHEET

GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1

Well Name: MW-4B
Sample Technique: (Low Flow) or Standard
Sample Date: 05/08/2023
Well Diameter: 2 in
Project Name: Xcel Comanche
Screen Interval: 38'-58'
Project #: 10279361
Well Stick Up: 30 in
Well Location: Landfill
Depth to Water (from TOC): 38.08' MHB
Sampling Personnel: MHB
Total Well Depth (from TOC): ~~60.95'~~ 58.0
Feet of Water: ~~22.87'~~
Casing Volume: 3.25 gallons ~~3.73 gallons~~

Well Volume Table

Well Dia. (in)	Gallon/ ft water	Well Dia. (in)	Gallon/ ft water
1	0.041	4	0.653
2	0.163	5	1.020
3	0.367	6	1.469

Condition of well: good - some oxidation staining & paint chipping. locked & labeled.
Remarks: Water is pale yellow in color. All equipment functioning normally. Collected both CCR and state samples on 05/08 at 1200

FIELD EQUIPMENT CALIBRATIONS

Date/Time: 05/08, 0925 Spec. Conductance: Standard 1413 µmhos/cm at 25 °C Reading 1388 µmhos/cm at 17.6 °C
pH: pH 4.00 - 3.98 at 16.8 °C pH 7.00 - 7.07 at 16.8 °C pH 10.00 - 10.13 at 16.9 °C Slope N/A

PURGING DATA

(note: collect field water quality parameters every 5 to 10 minutes when using low-flow sampling techniques)

Time	Discharge Rate (mL/min)	Volume Purged (gallons)	Depth to Water (ft.)	pH	Temperature (°C/°F)	Specific Conductance (µmhos/cm)	Turbidity (NTU)	DO (mg/L) Comments	ORP (mV)
1105	START PUMP								
1110	100	0.13	38.74	6.82	16.5	6951	1.66	1.28	244.0
1115	100	0.26	38.88	6.72	17.0	6721	2.62	0.86	242.8
1120	100	0.40	39.00	6.68	16.9	6631	1.76	0.56	239.4
1125	100	0.53	39.13	6.65	17.4	6505	1.69	0.35	227.6
1130	100	0.66	39.26	6.65	17.3	6526	0.82	0.32	220.3
1135	100	0.79	39.34	6.66	17.5	6537	0.67	0.29	212.6
1140	100	0.92	39.44	6.67	17.7	6525	0.45	0.27	208.5
1145	100	1.06	39.51	6.70	17.5	6578	0.26	0.26	205.0
1150	100	1.19	39.55	6.71	17.5	6562	0.34	0.25	199.3
1155	100	1.32	39.61	6.71	17.3	6551	0.27	0.24	196.1
1200	SAMPLE								
1220	PUMP OFF								

SAMPLE PARAMETERS

1200	100		39.61	6.71	17.3	6551	0.27	0.24	196.1

Sample ID: MW-4B Duplicate ID: — QA/QC Samples/IDs: —

LABORATORY SAMPLES

Analyses: NO_3, NO_2, P-alkalinity, and dissolved metals
Number of Bottles: 2
Sample Depth: dedicated pump
Sample Method: low flow bladder

- Trucks moving ash around landfill stirring up a lot of dust.
- Water is pale yellow in color
- All equipment functioning normally

05/08
18°C
sunny
wind 6mph NW
37% humidity

ATTACHMENT A

GROUNDWATER SAMPLING DATA SHEET

GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1

Well Name: MW-5 Sample Technique: *Low Flow* or *Standard*

Sample Date: 05/08/2023 Well Diameter: 2 in

Project Name: Xcel Comanche Screen Interval: 16' - 26'

Project #: 10279361 Well Stick Up: 30 in

Well Location: Landfill Depth to Water (from TOC): 27.04'

Sampling Personnel: MHB Total Well Depth (from TOC): 38.51'

Feet of Water: 11.47'

Casing Volume: 1.87* gallons

Well Volume Table

Well Dia. (in)	Gallon/ ft water	Well Dia. (in)	Gallon/ ft water
1	0.041	4	0.653
2	0.163	5	1.020
3	0.367	6	1.469

Condition of well: good - some minor paint chipping

Remarks: sampled after purging one equipment volume* (as this well typically runs dry)

FIELD EQUIPMENT CALIBRATIONS

Date/Time: 05/08, 0925 Spec. Conductance: Standard 1413 µmhos/cm at 25 °C Reading 1388 µmhos/cm at 17.6 °C

pH: pH 4.00 - 3.98 at 16.8 °C pH 7.00 - 7.07 at 16.8 °C pH 10.00 - 10.13 at 16.9 °C Slope N/A

PURGING DATA

(note: collect field water quality parameters every 5 to 10 minutes when using low-flow sampling techniques)

Time	Discharge Rate (mL/min)	Volume Purged (gallons)	Depth to Water (ft.)	pH	Temperature (°C/°F)	Specific Conductance (µmhos/cm)	Turbidity (NTU)	DO (mg/L) Comments	ORP (mV)
1020	START	PUMP							
1025	150	~~0.20~~	27.78	6.88	15.6	25356	5.09	3.16	237.8
1030	SAMPLE								
1033	~~PUMP~~	OFF							

SAMPLE PARAMETERS

1030	150		27.78	6.88	15.6	25356	5.09	3.16	237.8

Sample ID: MW-5 Duplicate ID: — QA/QC Samples/IDs: —

LABORATORY SAMPLES

Analyses: NO_3, NO_2, P-alkalinity, and dissolved metals

Number of Bottles: 2

Sample Depth: dedicated pump

Sample Method: low flow bladder

* one equipment volume = 574 mL

05/04
26°C
Mostly sunny
Wind 4 mph NW
20% humidity

ATTACHMENT A

GROUNDWATER SAMPLING DATA SHEET

GROUNDWATER SAMPLING DATA SHEET

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Well Name: MW-6
Sample Technique: Low Flow or Standard
Sample Date: 05/04/2023
Well Diameter: 2 in
Project Name: Xcel Comanche
Screen Interval: 27 ft - 37 ft
Project #: 10279361
Well Stick Up: 30 in
Well Location: Landfill
Depth to Water (from TOC): 31.73'
Sampling Personnel: MHB
Total Well Depth (from TOC): 44.50'
Feet of Water: 12.77'
Casing Volume: 2.08 gallons

Well Volume Table

Well Dia. (in)	Gallon/ ft water	Well Dia. (in)	Gallon/ ft water
1	0.041	4	0.653
2	0.163	5	1.020
3	0.367	6	1.469

Condition of well: mediocre - most paint has chipped off of casing
Remarks: well is locked, capped, and labeled

FIELD EQUIPMENT CALIBRATIONS

Date/Time: 05/04, 1430 Spec. Conductance: Standard 1413 µmhos/cm at 25 °C Reading 1419 µmhos/cm at 22.5 °C
pH: pH 4.00 - 4.06 at 21.9 °C pH 7.00 - 7.01 at 22.1 °C pH 10.00 - 10.04 at 23.0 °C Slope N/A

PURGING DATA

(note: collect field water quality parameters every 5 to 10 minutes when using low-flow sampling techniques)

Time	Discharge Rate (mL/min)	Volume Purged (gallons)	Depth to Water (ft.)	pH	Temperature (°C/°F)	Specific Conductance (µmhos/cm)	Turbidity (NTU)	DO (mg/L) Comments	ORP (mV)	
1530	START	PUMP								
1535	150	0.20	31.80	7.29	16.8	6876	26.9	1.90	189.8	
1540	150	0.40	31.82	7.29	17.1	6860	14.1	1.90	188.2	
1545	150	0.59	31.83	7.32	17.0	6863	17.2	2.67	188.2	
1550	150	0.79	31.83	7.35	17.2	6840	18.7	3.15	192.0	
1555	150	0.99	31.84	7.37	17.2	6823	17.8	3.38	192.8	
1600	150	1.19	31.83	7.39	17.1	6853	10.1	3.88	196.0	
1605	150	1.39	31.83	7.39	17.0	6854	8.30	3.71	196.2	
1610	150	1.59	31.84	7.39	17.2	6830	6.80	3.69	196.2	
1615	150	1.78	31.84	7.39	16.8	6836	5.07	3.56	195.6	
1620	150	1.98	31.85	7.39	16.8	6839	3.31	3.29	194.0	turb 2.74
1625	150	2.18	31.85	7.39	16.7	6843	~~3.31~~ 2.74	3.29	193.4	
1630	SAMPLE									

SAMPLE PARAMETERS

1630	150		31.85	7.39	16.7	6843	2.74	3.29	193.4

Sample ID: MW-6 Duplicate ID: MWT-6 QA/QC Samples/IDs: —

LABORATORY SAMPLES

Analyses: NO_2, NO_3, P-Alkalinity, dissolved metals
Number of Bottles: 2
Sample Depth: dedicated pump
Sample Method: low flow bladder

* collected both CCR and state samples @ 1630 on 05/04

1700 - PUMP OFF

05/08
23°C
sunny
wind 11 mph NW
28% humidity

ATTACHMENT A
GROUNDWATER SAMPLING DATA SHEET

GROUNDWATER SAMPLING DATA SHEET

Page 1 of 2

Well Name: MW-7 Sample Technique: (Low Flow) or Standard

Sample Date: 05/08/2023 Well Diameter: 2 in

Project Name: Xcel Comanche Screen Interval: 26'-36'

Project #: 10279361 Well Stick Up: 30 in

Well Location: Landfill Depth to Water (from TOC): 21.01'

Sampling Personnel: MHB Total Well Depth (from TOC): ~~39.0~~ 36.0' MHB

MHB Feet of Water: ~~17.99'~~ 14.99'

Casing Volume: ~~2.93 gallons~~ 2.44 gallons

Well Volume Table

Well Dia. (in)	Gallon/ ft water	Well Dia. (in)	Gallon/ ft water
1	0.041	4	0.653
2	0.163	5	1.020
3	0.367	6	1.469

Condition of well: very good - no issues noted except it is not labeled on the exterior

Remarks: water is pale yellow to light orange in color. All equipment functioning normally

FIELD EQUIPMENT CALIBRATIONS

Date/Time: 05/08, 0925 Spec. Conductance: Standard 1413 µmhos/cm at 25 °C Reading 1388 µmhos/cm at 17.6 °C

pH: pH 4.00 - 3.98 at 16.8 °C pH 7.00 - 7.07 at 16.8 °C pH 10.00 - 10.13 at 16.9 °C Slope N/A

PURGING DATA

(note: collect field water quality parameters every 5 to 10 minutes when using low-flow sampling techniques)

Time	Discharge Rate (mL/min)	Volume Purged (gallons)	Depth to Water (ft.)	pH	Temperature (°C/°F)	Specific Conductance (µmhos/cm)	Turbidity (NTU)	DO (mg/L) Comments	ORP (mV)
1310	START	PUMP							
1315	250	0.33	21.04*	6.90	15.6	18925	41.9	1.87	241.4
1320	250	0.66	21.04	6.86	15.5	15684	54.8	1.15	234.0
1325	250	0.99	21.04	6.85	15.5	14477	48.4	0.82	228.7
1330	250	1.32	21.04	6.85	15.4	13871	41.7	0.71	224.3
1335	250	1.65	21.03	6.84	15.4	13506	40.0	0.64	221.1
1340	250	1.98	21.04	6.84	15.4	13353	34.8	0.57	217.3
1345	250	2.31	21.04	6.84	15.4	13398	28.7	0.55	214.5
1350	250	2.64	21.04	6.84	15.3	13341	25.4	0.53	211.5
1355	250	2.97	21.03	6.84	15.4	13272	21.6	0.50	208.6
1400	250	3.30	21.03	6.85	15.4	13212	20.8	0.50	205.9
1405	250	3.63	21.04	6.85	15.4	13216	19.5	0.49	203.6
1410	250	3.96	21.03	6.84	15.3	13175	16.2	0.50	201.4
					SAMPLE PARAMETERS				
1445	250		21.03	6.85	15.3	13029	7.42	0.42	191.0

Sample ID: MW-7 Duplicate ID: — QA/QC Samples/IDs: —

LABORATORY SAMPLES

Analyses: NO_3, NO_2, P-alkalinity, dissolved metals

Number of Bottles: 2

Sample Depth: dedicated pump

Sample Method: low flow bladder

see back of sheet

t	Discharge rate (mL/min)	V purged (gallons)	DTW (ft)	pH	T (°C)	cond. ($\frac{\mu S}{cm}$)	turb (NTU)	DO (mg/L)	ORP (mV)
1415	250	4.29	21.03	6.84	15.4	13050	13.4	0.46	198.9
1420	250	4.62	21.03	6.84	15.4	13072	12.3	0.45	197.4
1425	250	4.95	21.03	6.85	15.4	13014	10.3	0.45	195.5
1430	250	5.28	21.03	6.85	15.4	12968	9.33	0.44	193.9
1435	250	5.61	21.03	6.84	15.4	13013	8.52	0.44	192.1
1440	250	5.94	21.03	6.85	15.3	13029	7.42	0.42	191.0
1445	SAMPLE								
1455	STOP PUMP								

collected both state and CCR samples on 05/08 at 1445.

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

Personnel: FL

Date: 5/3/23 Static Depth to Water (ft, btoc) 11.96

Date/Time Sample Collected (match bottle and COC form exactly): 5/3/23 1438

Sample Method: low flow

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

Time Completed: 5/5/23 0758 Total Purge 500 Units mL

Field Measurements:

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
1435								START
1437	~~300~~	7.52	22784		5.74	15.4	132.9	12.53
1438								SAMPLING
1447								DRY/PUMP OFF
0845								START
0857								DRY/PUMP OFF
1819								START
1827								DRY/PUMP OFF
0755								START
0758								FINISHED. PUMP OFF

5/4/23

Return 5/4

5/5 ——>

Flow Rate 250 mL/min

Pump controller setting 10/35

General Comments:

436 mL = min equipment volume

5/4/23 - Collected ~1.5 L, ~1 L

5/5/23 - Collected ~0.5 L

Water Sample Collection Field Data Sheet

Site Name: Xcel ~~Cherokee~~ Comanche Well ID.: ~~MW~~-2C

Sample I.D.(match bottle and COC form exactly): W-2C

Date/Time Collected (match bottle and COC form exactly): 05/01/23 1625

Personnel: FL

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) ~~35~~ Dedicated

Date: 05/01/23 Depth to Water (ft, btoc) 28.52

Time Completed: 1656 Total Purge 17.8 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)
1456								START
1505	1800	6.52	30382	2.38	4.80	17.7	190.4	29.12
1515	3800	6.58	27877	9.21	4.49	17.4	194.5	29.12
1525	5800	6.58	27754	16.1	4.16	17.6	198.2	29.22
1535	7800	6.58	27781	17.9	3.16	17.7	204.0	29.26
1545	9800	6.59	27714	15.4	5.78	17.7	206.7	29.32
1555	11800	6.58	27992	14.5	5.98	17.9	206.7	29.28
1605	13800	6.57	27958	11.5	5.99	18.1	207.9	29.24
1615	15800	6.57	28093	6.58	0.86	18.0	203.2	29.28
1620	16800	6.57	28069	6.56	0.87	18.0	202.7	29.28
1625	17800	6.57	28023	4.25	0.88	17.9	202.0	29.27
1625								SAMPLE
1656								PUMP OFF

Flow Rate 200 mL/min

Pump controller setting 10/40

General Comments:

water very yellow, 1545, reduced flow rate slightly from 225 -> 200 Flow through cell moved, DO dropped drastically. Air bubble may have been trapped

05/02
12 °C
mostly cloudy
wind 5 mph SW
46 % humidity

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): 05/02/2023, 1035

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: WT-3B (sampled 05/02/2023, 1055)

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: 05/02/2023 Depth to Water (ft, btoc) 17.33

Time Completed: 1120 Total Purge 12.25 Units Liters

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH (+/- 0.1)	COND (µS/cm) (+/- 3%)	TURB (NTU) (+/- 10%)	DO (mg/L) (+/- 0.3)	TEMP (C°)	ORP (mV) (+/- 10 mV)	Water Depth (ft, btoc)
0933	START PUMP							
0938	1250	6.56	45886	42.4	3.24	14.8	142.7	18.15
0943	2250	6.51	45083	31.0	2.22	14.9	145.3	18.27
0948	3250	6.49	44570	28.3	1.90	14.8	147.2	18.30
0953	4250	6.50	44289	20.5	1.61	14.9	149.5	18.32
0958	5250	6.48	44022	16.4	1.35	14.9	150.0	18.37
1003	6250	6.47	43890	15.0	1.22	15.3	150.6	18.31
1008	7250	6.47	43585	12.5	1.17	15.2	150.3	18.33
1013	8250	6.47	43601	8.88	1.22	15.1	150.5	18.30
1018	9250	6.47	43350	10.1	0.93	15.1	150.6	18.32
1023	10250	6.47	43273	9.97	0.72	15.3	150.7	18.32
1028	11250	6.47	42974	9.02	0.60	15.1	150.7	18.34
1033	12250	6.47	42938	9.03	0.57	15.1	150.5	18.33
1035	SAMPLE							
1055	COLLECT DUPLICATE							
1120	STOP PUMP							

increased fill time → from 40 to 45 sec

Flow Rate 200-250 mL/min

Pump controller setting 100/40F → 100/45F

General Comments:

collected two 1L un preserved for TDS/TSS/Alkalinity/Anions/pH, two 1L HNO_3-preserved for Ra226/Ra228, and one 500 mL HNO_3-preserved for total metals/Hg, Mg, K, Na. All equipment functioning normally. Water is yellow-orange in color.

05/02
17°C
cloudy
wind 7 mph W
35% humidity

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): 05/02/2023, 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) dedicated pump

Date: 05/02/2023 Depth to Water (ft, btoc) 13.43'

Time Completed: 1345 Total Purge 16.25 Units Liters

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH (+/- 0.1)	COND (µS/cm) (+/- 3%)	TURB (NTU) (+/- 10%)	DO (mg/L) (+/- 0.3)	TEMP (C°)	ORP (mV) (+/- 10 mV)	Water Depth (ft, btoc)
1215	START PUMP							
1220	1250	6.92	26269	5.87	1.72	16.2	93.6	13.62
1225	2500	6.91	22465	5.81	0.85	16.3	-3.4	13.65
1230	3750	6.91	15187	4.95	1.31	16.4	10.6	13.68
1235	5000	6.99	10823	2.58	1.36	16.3	23.6	13.68
1240	6250	7.01	9641	2.13	1.29	16.2	26.2	13.70
1245	7500	7.04	8248	1.89	1.19	16.2	30.7	13.69
1250	8750	7.05	7196	1.64	1.06	16.3	36.4	13.70
1255	10000	7.06	6733	1.35	1.04	16.3	41.3	13.70
1300	11250	7.06	6406	0.91	0.93	16.3	45.2	13.69
1305	12500	7.06	6123	~~1.13~~ MHB 1.12	0.86	16.4	47.6	13.68
1310	13750	7.07	5902		0.82	16.5	49.9	13.71
1315	15000	7.06	5811	0.75	0.73	16.4	50.6	13.70
1320	16250	7.06	5795	0.77	0.70	16.3	50.4	13.71
1325	SAMPLE							
1345	STOP PUMP							

Flow Rate 250 mL/min

Pump controller setting 10D/40F

General Comments:

collected two 1L unpreserved for TDS/TSS/Alk/Anions/pH, two 1L HNO_3 preserved for Ra226/Ra228, and one 500 mL HNO_3 preserved for total metals/Hg, Mg, K, N/a. All equipment functioning normally. Water is pale yellow in color and became more clear throughout the purge process.

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

Personnel: FL

Date: 5/3/23 Static Depth to Water (ft, btoc) 16.05

Date/Time Sample Collected (match bottle and COC form exactly): 5/3/23 1710

Sample Method: bladder low flow

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

Time Completed: 1800 Total Purge 19.75 Units L

Field Measurements:

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
1520	1750	6.85	41699	245	0.26	18.9	-5.3	16.97
1530	3500	6.82	41712	211	0.12	19.1	-13.4	17.32
1540	5250	6.80	41467	262	0.08	19.1	-19.3	17.60
1550	6750	6.64	40164	497	0.12	19.1	-7.1	17.82
1600	8250	6.59	40157	514	0.11	19.1	-5.2	17.83
1610	9750	6.50	39547	360	0.14	18.9	7.4	17.93
1620	11250	6.48	39526	352	0.14	19.2	16.2	18.10
1630	12750	6.45	39291	345	0.16	18.9	20.0	18.12
1640	15250	6.44	39293	315	0.16	19.0	29.4	18.11
1650	16750	6.44	39668	309	0.17	19.2	33.5	18.18
1700	18250	6.46	39439	261	0.19	19.0	39.7	18.19
1710	19750	6.44	39534	229	0.20	19.1	46.3	18.25
1710								SAMPLE
1800								PUMP OFF

flow reduced

Flow Rate 150 mL/min

Pump controller setting 11/35

General Comments:

Samples taken 1 day after pump test.

Starting flow rate: 175 mL/min.

Ending flow rate: 150 mL/min

05/03
14°C
mostly cloudy
wind 3 mph E
59% humidity

Water Sample Collection Field Data Sheet

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): 5/3/2023, 0920

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

Date: 05/03/2023 Depth to Water (ft, btoc) 9.18'

Time Completed: 0935 Total Purge 10.5 Units Liters

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH (+/- 0.1)	COND (µS/cm) (+/- 3%)	TURB (NTU) (+/- 10%)	DO (mg/L) (+/- 0.3)	TEMP (C°)	ORP (mV) (+/- 10 mV)	Water Depth (ft, btoc)
0840	START PUMP							
0845	1500	6.81	40901	7.06	3.67	14.3	264.2	
0850	3000	6.72	40811	7.00	2.41	14.1	261.4	9.35
0855	4500	6.70	40867	4.59	1.51	14.2	258.6	9.36
0900	6000	6.69	41232	5.01	1.30	14.1	256.6	9.36
0905	7500	6.68	41304	1.63	1.68	14.3	254.3	9.38
0910	9000	6.68	41182	1.65	1.34	14.2	251.2	9.40
0915	10500	6.68	41248	MHB 1.56	1.45	14.3	249.3	9.41
0920	SAMPLE							
0935	STOP PUMP							

Flow Rate 300 mL/min

Pump controller setting 10D/45F

General Comments:

collected two 1L unpreserved for TDS/TSS/Alk/Anions/pH, two 1L HNO_3 preserved for Ra226/Ra228, and one 500 mL HNO_3 preserved for total metals/Hg, Mg, K, Na. All equipment functioning normally, water is yellow-dark orange in color.

05/03
23°C
sunny
wind 2mph SW
30% humidity

Water Sample Collection Field Data Sheet

Site Name: Xcel 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): 05/03/2023, 1140

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

Date: 05/03/2023 Depth to Water (ft, btoc) 35.70'

Time Completed: 1217 Total Purge 1.5 Units Liters

(~3 equip. volumes)

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH (+/- 0.1)	COND (µS/cm) (+/- 3%)	TURB (NTU) (+/- 10%)	DO (mg/L) (+/- 0.3)	TEMP (C°)	ORP (mV) (+/- 10 mV)	Water Depth (ft, btoc)
~~1120~~		~~6.97~~	~~16115~~	~~5.70~~	~~4.50~~	~~17.0~~	~~224.3~~	~~36.11~~ MHB
1120	START PUMP							
1125	500	6.97	16115	5.70	4.50	17.0	224.3	36.11
1130	1000	6.93	15925	3.45	3.89	16.8	224.4	36.20
1135	1500	6.92	15835	1.10	3.23	17.7	223.0	36.36
1140	SAMPLE							
1217	STOP PUMP							

Flow Rate 100 ml/min

Pump controller setting 7D/45F

General Comments:

purged one equipment volume. As this well typically runs dry I begin sampling after purging ~3 equip. volumes due to concerns about well running dry.

collected two 1L unpreserved for TDS/TSS/Alk/Anions/pH, two 1L HNO_3 preserved for Ra226/Ra228, and one 500 mL HNO_3 preserved for total metals/Hg, Mg, K, Na. Equipment functioning normally. Water is pale yellow in color.

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

Personnel: FL

Date: 05/02/23 Static Depth to Water (ft, btoc) 28.21

Date/Time Sample Collected (match bottle and COC form exactly): 5/2/23 1015

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: WK-10B

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) 32'

Time Completed: 1219 Total Purge 4.5 Units L

Field Measurements:

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
0910								START
0925	-	6.75	34326	3.34	11.64	16.1	209.8	28.87
0935	1000	6.72	34465	2.62	6.24	16.4	204.2	29.12
0945	2000	6.71	35138	4.56	2.48	16.9	193.0	29.67
0955	2500	6.70	35317	6.39	2.44	17.2	190.9	29.96
1005	3500	6.70	35220	5.80	2.14	17.3	190.6	30.02
1010	4000	6.69	35395	5.44	2.19	17.4	189.3	30.16
1015	4500	6.69	35719	3.59	2.27	17.7	192.1	30.20
1015								SAMPLE
1138								DRY
1142								START AGAIN
1219								STOP PUMP

Flow Rate 100 mL/min

Pump controller setting 8/45

General Comments:

3L filled. Well Dry. Will return later today to finish filling bottles.

Flow resumed as I was packing up.

05/03
27°C
mostly sunny
wind 6 mph W
17% humidity

Water Sample Collection Field Data Sheet

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): 05/03/2023, 1635

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

Date: 05/03/2023 Depth to Water (ft, btoc) 23.83'

Time Completed: 1700 Total Purge 33.75 Units Liters

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH (+/- 0.1)	COND (µS/cm) (+/- 3%)	TURB (NTU) (+/- 10%)	DO (mg/L) (+/- 0.3)	TEMP (C°)	ORP (mV) (+/- 10 mV)	Water Depth (ft, btoc)
1415	START PUMP							
1420	1250	6.83	18795	2.27	3.24	15.5	194.0	24.30
1425	2500	6.83	18920	2.85	1.93	15.7	185.6	24.39
1430	3750	6.82	19133	4.02	1.39	15.5	182.5	24.50
1435	5000	6.83	19412	14.2	1.35	15.4	179.1	24.64
1440	6250	6.84	19385	25.6	1.10	15.7	175.0	24.80
1445	7500	6.84	19493	39.8	0.99	15.5	172.5	24.93
1450	8750	6.84	19480	40.5	0.92	15.4	169.3	25.09
1455	10000	6.86	19655	40.3	3.15	15.5	177.9	25.21
1500	11250	6.85	19499	50.6	1.47	15.4	172.8	25.35
1505	12500	6.85	19364	59.4	1.19	15.5	170.3	24.80
1510	13750	6.85	19303	63.8	0.92	15.4	167.8	24.91
1515	15000	6.85	19434	64.2	0.74	15.2	167.1	24.93
1520	16250	6.85	19379	68.0	0.58	15.4	165.6	24.95
1525	17500	6.85	19403	78.4	0.49	15.4	164.3	24.97
1530	18750	6.85	19406	97.2	0.45	15.5	161.6	24.98
1535	20000	6.85	19391	107	0.39	15.3	161.3	25.01

cleaned out flow through cell, Turned off pump while doing this. →

Flow Rate 250 mL/min

Pump controller setting 10D/45F

General Comments:

see back of sheet

t	amt. purged (mL)	pH	Cond. ($\frac{mS}{cm}$)	turb (NTU)	DO ($\frac{mg}{L}$)	T (°C)	ORP (mV)	water depth (ft btoc)
1540	21250	6.84	19434	133	0.32	15.4	159.0	25.03
1545	22500	6.84	19456	128	0.30	15.4	155.1	25.05
1550	23750	6.84	19404	158	0.29	15.3	153.0	25.08
1555	25000	6.84	19579	156	0.28	15.3	152.7	25.10
1600	26250	6.84	19577	146	0.26	15.4	152.6	25.11
1605	27500	6.84	19498	151	0.24	15.3	151.9	25.12
1610	28750	6.84	19535	145	0.23	15.3	151.5	25.14
1615	30000	6.84	19578	143	0.23	15.3	151.7	25.16
1620	31250	6.84	19581	142	0.23	15.3	151.9	25.19
1625	32500	6.83	19565	138	0.23	15.3	152.2	25.20
1630	33750	6.84	19552	141	0.22	15.4	152.3	25.22
1635	SAMPLE							
1700	STOP PUMP							

- collected:
  - → two 1L unpreserved for TDS/TSS/Alk/Anions/pH
  - → one 1L unpreserved for dissolved metals*
    - ↳ did not have any unpreserved bottles of lower volume
  - → two 1L HNO_3 preserved for Ra226/Ra228
  - → one 500 mL HNO_3 preserved for total metals/Hg, Mg, K, Na
- equipment functioning normally. However, I cleaned out flow through cell when turbidity started to increase.
- water is yellow - dark orange in color

* collected extra bottle for dissolved metals. tried to get turbidity as stable as possible. Appears to have leveled off around ~140 NTU.

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID.: W-12

Sample I.D.(match bottle and COC form exactly): W-12

Personnel: FL

Date: 05/04/23 Static Depth to Water (ft, btoc) 22.15

Date/Time Sample Collected (match bottle and COC form exactly): 5/4/23 1108

Sample Method: (bladder) low flow

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

Time Completed: 1141 Total Purge _____ Units_____

Field Measurements:

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
1005	2000	6.77	17624	411	0.60	14.5	170.5	22.87
1015	4000	6.76	17558	354	0.57	15.1	164.0	22.85
1025	6000	6.75	17614	112	0.48	14.9	165.6	22.83
1035	8000	6.75	17590	35.0	0.57	15.0	166.2	22.80
1045	10000	6.76	17553	18.9	0.66	15.4	167.3	22.82
1055	12000	6.76	17493	11.3	0.72	14.9	168.0	22.88
1100	13000	6.75	17532	6.96	0.74	14.8	169.4	22.84
1105	14000	6.76	17565	6.15	0.72	15.1	170.2	22.84
1108								SAMPLE
1141								PUMP OFF

Flow Rate 200 mL/min

Pump controller setting 10/50

General Comments:

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

Personnel: FL

Date: 05/03/23 Static Depth to Water (ft, btoc) 38.74

Date/Time Sample Collected (match bottle and COC form exactly): 05/03/23 1040

Sample Method: dedicated pump (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

Time Completed: 1123 Total Purge 18 Units L

Field Measurements:

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
0910								START
0920	2000	6.94	19774	2.67	0.98	15.9	172.6	38.79
0930	4000	6.94	19150	1.04	0.50	16.2	162.7	38.81
0940	6000	7.00	19056	0.11	0.92	16.3	158.7	38.85
0950	8000	7.00	19133	1.26	1.99	16.4	161.4	38.85
1000	10000	6.97	19171	0.40	2.39	16.6	160.7	38.86
1010	12000	6.95	19189	0.32	1.28	16.7	156.6	38.91
1015	13000	6.95	19209	0.10	1.24	16.7	153.8	38.91
1020	14000	6.94	19217	0.02	1.14	16.6	149.1	38.89
1025	15000	6.94	19250	0.02	1.06	16.8	148.6	38.90
1030	16000	6.94	19403	0.02	0.90	17.1	145.8	38.88
1035	17000	6.93	19285	0.02	0.94	16.8	144.3	38.88
1040	18000	6.93	19301	0.02	0.97	17.0	142.0	38.90
~~1123~~ 1040								SAMPLING
1123								PUMP OFF

Flow Rate 200 mL/min

Pump controller setting 10/35

General Comments:

05/11
mostly cloudy
17°C
Wind 16 mph S
70% humidity

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): 05/11/2023, 1005

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

Date: 05/11/2023 Depth to Water (ft, btoc) 37.28'

Time Completed: 1018 Total Purge 8.0 Units Liters

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH (+/- 0.1)	COND (µS/cm) (+/- 3%)	TURB (NTU) (+/- 10%)	DO (mg/L) (+/- 0.3)	TEMP (C°)	ORP (mV) (+/- 10 mV)	Water Depth (ft, btoc)
0930	START PUMP							
0935	1500	6.72	14767	4.66	1.91	15.6	230.4	37.37'
0940	3000	6.70	14782	2.74	1.24	15.7	231.9	37.39
0945	4500	6.69	14805	2.61	0.85	15.6	236.6	37.41
0950	6000	6.69	14795	2.70	0.68	15.6	239.2	37.42
0955	7500	6.69	14770	2.69	0.59	15.6	241.0	37.43
1000	8000	6.69	14763	2.58	0.54	15.6	242.5	37.44
1005	SAMPLE							
1018	PUMP OFF							

Flow Rate 300 mL/min

Pump controller setting 10D/40F

General Comments:

Water is pale yellow in color. All equipment functioning normally.

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

Personnel: FL

Date: 05/03/23 Static Depth to Water (ft, btoc) 25.39

Date/Time Sample Collected (match bottle and COC form exactly): 5/3/23 1240

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) 35ft

Time Completed: 1320 Total Purge 5.25 Units L

Field Measurements:

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
1157								START
1210	1500	6.78	7227	5.14	2.32	19.1	166.5	26.44
1220	3000	6.77	7221	5.07	1.66	19.6	152.6	26.94
1230	4500	6.77	7178	4.77	1.56	19.8	149.8	27.33
1235	5250	6.77	7117	4.76	1.63	19.5	149.3	27.50
1240								SAMPLE
1320								PUMP OFF

Flow Rate 150 mL/min

Pump controller setting 10/35

General Comments:

37.89 TD

Water Sample Collection Field Data Sheet

Site Name: ~~W-18~~ Xcel Comanche Well ID.: W-18

Sample I.D.(match bottle and COC form exactly): W-18

Personnel: FL

Date: 5/2/23 Static Depth to Water (ft, btoc) 8.55

Date/Time Sample Collected (match bottle and COC form exactly): 5/2/23 1405

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) 15.5'

Time Completed: 1430 Total Purge 16.5 Units L

Field Measurements:

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
1310								START
1320	3000	7.19	10435	533	1.68	12.2	180.4	8.61
1330	6000	7.20	10395	146	0.91	12.2	171.6	8.61
1340	9000	7.18	10379	17.3	0.55	11.9	163.1	8.58
1350	12000	7.16	10389	880	0.43	12.0	158.2	8.59
1355	13500	7.16	10361	7.11	0.36	11.9	155.2	8.59
1400	15000	7.15	10353	5.46	0.34	12.0	153.6	8.58
1405	16500	7.15	10357	5.25	0.35	12.0	152.0	8.58
1405								SAMPLE
1430								STOP pump

Flow Rate 300 mL/min

Pump controller setting 10/30

General Comments:

Lots of mud on end of tubing.

05/11
13°C
mostly cloudy
wind 15 mph S
64% humidity

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID.: W-19

Sample I.D.(match bottle and COC form exactly): W-19

Date/Time Collected (match bottle and COC form exactly): 05/11/2023, 1150

Personnel: MHB

Sample Method: low flow bladder

Water level meter, ~~pump~~ and ~~tubing~~ decontaminated prior: (Yes) No

* pump & tubing were decon'ed

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) 50.0' TD= 50.9

Date: 05/11/2023 Depth to Water (ft, btoc) 42.24'

Time Completed: 1215 Total Purge 8.0 Units Liters

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH (+/- 0.1)	COND (µS/cm) (+/- 3%)	TURB (NTU) (+/- 10%)	DO (mg/L) (+/- 0.3)	TEMP (C°)	ORP (mV) (+/- 10 mV)	Water Depth (ft, btoc)
1105	START PUMP							
1110	1000	6.72	18188	8.01	1.58	16.2	238.0	42.51
1115	2000	6.71	17765	6.56	1.18	16.4	226.2	42.61
1120	3000	6.71	17523	5.79	0.99	16.3	223.9	42.69
1125	4000	6.70	17477	4.44	0.92	16.2	221.3	42.71
1130	5000	6.70	17489	4.39	0.87	16.3	219.3	42.72
1135	6000	6.70	17518	4.15	0.83	16.5	216.4	42.73
1140	7000	6.70	17579	4.16	0.79	16.5	213.1	42.74
1145	8000	6.70	17570	4.08	0.80	16.5	211.3	42.75
1150	SAMPLE							
1215	PUMP OFF							

Flow Rate 200 mL/min

Pump controller setting 10 D/45 F

General Comments:

Well W-19 was developed on 5/10. Water is pale yellow in color. All equipment functioning normally.

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID.: MW-1

Sample I.D.(match bottle and COC form exactly): N/A

Date/Time Collected (match bottle and COC form exactly): N/A

Personnel: MHB

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: 05/01/2023 Depth to Water (ft, btoc) DRY

Time Completed: N/A Total Purge — Units —

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH (+/- 0.1)	COND (µS/cm) (+/- 3%)	TURB (NTU) (+/- 10%)	DO (mg/L) (+/- 0.3)	TEMP (C°)	ORP (mV) (+/- 10 mV)	Water Depth (ft, btoc)
		Well Dry						

Flow Rate_____

Pump controller setting_____

General Comments:

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID.: MW-1B

Sample I.D.(match bottle and COC form exactly): MW-1B

Personnel: FL

Date: 05/04/23 Static Depth to Water (ft, btoc) 31.55

Date/Time Sample Collected (match bottle and COC form exactly): 5/4/23 1635

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

Time Completed: 1651 Total Purge 14 Units L

Field Measurements:

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
1525	2							START
1535	2000	6.63	25016	1.45	0.80	17.8	195.1	31.58
1545	4000	6.62	24563	0.89	1.78	18.0	179.9	31.58
1555	6000	6.63	22870	0.84	1.97	18.3	172.2	31.59
1605	8000	6.64	19630	0.49	1.67	18.0	167.6	31.58
1615	10000	6.65	18682	0.64	1.68	17.7	164.3	31.63
1625 ~~1620~~	12000	6.64	18542	0.64	1.47	17.7	161.2	31.57
1630 ~~1625~~	13000	6.64	18292	0.68	1.43	17.5	159.4	31.57
1635 ~~1630~~	14000	6.64	18207	0.62	1.36	17.5	158.2	31.58
1635 ~~1651~~								SAMPLE
1651								PUMP OFF

Flow Rate 200mL/min

Pump controller setting 10/30

General Comments:

_____

_____

_____

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID.: MW-2

Sample I.D.(match bottle and COC form exactly): N/A

Date/Time Collected (match bottle and COC form exactly): N/A

Personnel: MHB

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: 05/01/2023 Depth to Water (ft, btoc) DRY

Time Completed: N/A Total Purge ——— Units ———

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH (+/- 0.1)	COND (µS/cm) (+/- 3%)	TURB (NTU) (+/- 10%)	DO (mg/L) (+/- 0.3)	TEMP (C°)	ORP (mV) (+/- 10 mV)	Water Depth (ft, btoc)
		Well Dry						

Flow Rate_____

Pump controller setting_____

General Comments:

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

Personnel: F L

Date: 5/4/23 Static Depth to Water (ft, btoc) 18.49

Date/Time Sample Collected (match bottle and COC form exactly): 5/4/23 1745

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

Time Completed: 1800 Total Purge 12.5 Units L

Field Measurements:

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
1710								START
1720	2500	6.73	28235	0.58	3.54	16.1	179.4	18.50
1730	~~5000~~	6.73	27555	3.60	2.86	16.0	162.1	18.50
1735	7500	6.73	27435	1.74	2.09	16.0	155.7	18.50
1740	~~9500~~	6.73	27436	1.58	2.16	16.0	152.4	18.50
1745	~~12500~~	6.73	27260	1.90	1.99	16.0	149.6	18.50
1745								SAMPLE
1800								PUMP OFF

Flow Rate ~~8/30~~ 250 mL/min

Pump controller setting 8/30

General Comments:

05/11
15°C
partly cloudy
wind 16 mph's
57% humidity

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): 05/11/2023, 1425

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: MWK-3 (5/11, 1455)

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) 10.5'

Date: 05/11/2023 Depth to Water (ft, btoc) 9.49'

Time Completed: 1435 Total Purge 4.0 Units Liters

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH (+/- 0.1)	COND (µS/cm) (+/- 3%)	TURB (NTU) (+/- 10%)	DO (mg/L) (+/- 0.3)	TEMP (C°)	ORP (mV) (+/- 10 mV)	Water Depth (ft, btoc)
1400	START PUMP							
1405	1000	7.29	34851	1.49	0.90	12.8	242.3	9.87
1410	2000	7.29	34847	1.09	0.78	12.8	242.1	9.81
1415	3000	7.28	34843	1.32	0.77	12.9	241.4	9.83
1420	4000	7.28	34819	1.30	0.79	12.8	241.5	9.84
1425	SAMPLE							
1435	PUMP OFF							

Flow Rate 200 mL/min

Pump controller setting 10 | 45 F

General Comments:

Water is orange in color. All equipment functioning normally.

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID.: MW-4

Sample I.D.(match bottle and COC form exactly): N/A

Date/Time Collected (match bottle and COC form exactly): N/A

Personnel: MHB

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: 05/01/2023 Depth to Water (ft, btoc) DRY

Time Completed: N/A Total Purge — Units —

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH (+/- 0.1)	COND (µS/cm) (+/- 3%)	TURB (NTU) (+/- 10%)	DO (mg/L) (+/- 0.3)	TEMP (C°)	ORP (mV) (+/- 10 mV)	Water Depth (ft, btoc)

Well Dry

Flow Rate_____

Pump controller setting_____

General Comments:

05/08
19°C
sunny
wind 7mph NW
36% humidity

Water Sample Collection Field Data Sheet

Site Name: Xcel 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): 05/08/2023, 1200

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

Date: 05/08/2023 Depth to Water (ft, btoc) 38.08'

Time Completed: 1220 Total Purge 5.0 Units Liters

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH (+/- 0.1)	COND (µS/cm) (+/- 3%)	TURB (NTU) (+/- 10%)	DO (mg/L) (+/- 0.3)	TEMP (C°)	ORP (mV) (+/- 10 mV)	Water Depth (ft, btoc)
1105	START PUMP							
1110	500	6.82	6951	1.66	1.28	16.5	244.0	38.74
1115	1000	6.72	6721	2.62	0.86	17.0	242.8	38.88
1120	1500	6.68	6631	1.76	0.56	16.9	239.4	39.00
1125	2000	6.65	6505	1.69	0.35	17.4	227.6	39.13
1130	2500	6.65	6526	0.82	0.32	17.3	220.3	39.26
1135	3000	6.66	6537	0.67	0.29	17.5	212.6	39.34
1140	3500	6.67	6525	0.45	0.27	17.7	208.5	39.44
1145	4000	6.70	6578	0.26	0.26	17.5	205.0	39.51
1150	4500	6.71	6562	0.34	0.25	17.5	199.3	39.55
1155	5000	6.71	6551	0.27	0.24	17.3	196.1	39.61
1200	SAMPLE							
1220	PUMP OFF							

Flow Rate 100 mL/min

Pump controller setting 100/45F

General Comments:

collected one 250 mL unpreserved, one 1L unpreserved, and one 250 mL HNO_3 preserved for App. III metals, Mg, K, Na, TSS, and Alkalinity. Water is pale yellow in color. All equipment functioning normally. Collected both CCR and State samples on 05/08 at 1200.

05/04
26°C
mostly sunny
wind 4 mph NW
20% humidity

Water Sample Collection Field Data Sheet

Site Name: ~~MW~~ Xcel 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): 05/04/2023, 1630

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: MWT-6

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: 05/04/2023 Depth to Water (ft, btoc) 31.73'

Time Completed: 1700 Total Purge 8.25 Units Liters

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH (+/- 0.1)	COND (µS/cm) (+/- 3%)	TURB (NTU) (+/- 10%)	DO (mg/L) (+/- 0.3)	TEMP (C°)	ORP (mV) (+/- 10 mV)	Water Depth (ft, btoc)
1530	START PUMP							
1535	750	7.29	6876	26.9	1.90	16.8	189.8	31.80
1540	1500	7.29	6860	14.1	1.90	17.1	188.2	31.82
1545	2250	7.32	6863	17.2	2.67	17.0	188.2	31.83
1550	3000	7.35	6840	18.7	3.15	17.2	192.0	31.83
1555	3750	7.37	6823	17.8	3.38	17.2	192.8	31.84
1600	4500	7.39	6853	10.1	3.88	17.1	196.0	31.83
1605	5250	7.39	6854	8.30	3.71	17.0	196.2	31.83
1610	6000	7.39	6830	6.80	3.69	17.2	196.2	31.84
1615	6750	7.39	6836	5.07	3.56	16.8	195.6	31.84
1620	7500	7.39	6839	3.31	3.29	16.8	194.0	31.85
1625	8250	7.39	6843	2.74	3.29	16.7	193.4	31.85
1630	SAMPLE							
1700	STOP PUMP							

Flow Rate 150 mL/min

Pump controller setting 100/50F

General Comments:

collected one 1L unpreserved for App. III metals, TSS, Alk, Mg, K, Na; one 250 mL unpreserved, ~~for some constituents~~ and one 250 mL HNO_3 preserved. All equipment functioning normally. Water is mostly clear.

*collected both CCR and state samples on 05/04 at 1630

05/08
23°C
sunny
wind 11 mph NW
28% humidity

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): 05/08/2023

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

Date: 05/08/2023 Depth to Water (ft, btoc) 21.01'

Time Completed: 1455 Total Purge ~~2000~~ MHB Units Liters

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH (+/- 0.1)	COND (µS/cm) (+/- 3%)	TURB (NTU) (+/- 10%)	DO (mg/L) (+/- 0.3)	TEMP (C°)	ORP (mV) (+/- 10 mV)	Water Depth (ft, btoc)
1310	START PUMP							
1315	MHB ~~1250~~ 1250	6.90	18925	41.9	1.87	15.6	241.4	21.04
1320	2500	6.86	15684	54.8	1.15	15.5	234.0	21.04
1325	3750	6.85	14477	48.4	0.82	15.5	228.7	21.04
1330	5000	6.85	13891	41.7	0.71	15.4	224.3	21.04
1335	6250	6.84	13506	40.0	0.64	15.4	221.1	21.03
1340	7500	6.84	13353	34.8	0.57	15.4	217.3	21.04
1345	8750	6.84	13398	28.7	0.55	15.4	214.5	21.04
1350	10000	6.84	13341	25.4	0.53	15.3	211.5	21.04
1355	11250	6.84	13272	21.6	0.50	15.4	208.6	21.03
1400	12500	6.85	13212	20.8	0.50	15.4	205.9	21.03
1405	13750	6.85	13216	19.5	0.49	15.4	203.6	21.04
1410	15000	6.84	13175	16.2	0.50	15.3	201.4	21.03
1415	16250	6.84	13050	13.4	0.46	15.4	198.9	21.03
1420	17500	6.84	13072	12.3	0.45	15.4	197.4	21.03
1425	18750	6.85	13014	10.3	0.45	15.4	195.5	21.03
1430	20000	6.85	12958	9.33	0.44	15.4	193.9	21.03

Flow Rate 250 mL/min

Pump controller setting 12D/40F

General Comments:

See back of sheet

time	amt purged (mL)	pH	cond (µS/cm)	turb (NTU)	DO (mg/L)	T (°C)	ORP (mV)	water depth (ft btoc)
1435	21250	6.84	13013	8.52	0.44	15.4	192.1	21.03
1440	22500	6.85	13029	7.42	0.42	15.3	191.0	21.03
1445	SAMPLE [redacted] MHB							
1455	STOP PUMP [redacted] MHB							

collected: one 250 mL unpreserved, one 1L unpreserved, and one 250 mL HNO_3 preserved for App. III metals, Mg, K, Na, ~~and~~ TSS, and alkalinity

- water is pale yellow to orange in color
- all equipment functioning normally
- collected both CCR and State samples on 05/08 at 1445

Water Sample Collection Field Data Sheet

Site Name: 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): 5/22/2023 1450

Personnel: Kelly Malone

Sample Method: Low flow

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) 38.00

Date: 5/22/2023 Depth to Water (ft, btoc) 30.70

Time Completed: 1450 Total Purge 3.2 Units Gal

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)
1320	-----	----	----	------	-----	-----	------	30.70
1325	0.2	6.95	17714		1.28	19.0	128.5	
1330	0.4	6.92	17732		1.17	19.2	125.6	
1335	0.6	6.88	17818		1.03	18.8	123.5	
1340	0.8	6.89	17723		1.10	18.7	122.1	
1345	1.0	6.89	17641		0.98	18.7	117.0	
1350	1.2	6.85	17549		0.72	17.8	115.9	
1355	1.4	6.85	17512		0.68	18.4	117.8	
1400	1.6	6.83	17535		0.70	17.9	114.2	
1405	1.8	6.79	17688		0.64	17.7	107.1	
1410	2.0	6.80	17891		0.68	17.7	109.3	
1415	2.2	6.80	17906		0.72	18.2	103.5	
1420	2.4	6.79	17913		0.74	18.3	101.7	
1425	2.6	6.79	17855		0.69	18.1	105.7	
1430	2.8	6.79	17840		0.72	18.0	103.3	
1435	3.0	6.78	17839		0.75	18.3	101.8	
1440	3.2	6.79	17851		0.74	18.1	101.9	

Flow Rate 0.2 gal / 5 mins

Pump controller setting_____

General Comments:

_____

_____

_____

Water Sample Collection Field Data Sheet

Site Name: 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): 5/23/2023 1220

Personnel: Kelly Malone

Sample Method: Low flow

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) 23.00

Date: 5/23/2023 Depth to Water (ft, btoc) 6.82

Time Completed: 1220 Total Purge 4.0 Units Gal

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)
1035	-----	----	----	------	-----	-----	------	6.82
1040	0.2	6.91	27453		0.81	15.6	51.4	
1050	0.4	6.91	27310		0.86	14.1	38.0	
1100	0.6	6.93	27013		0.98	14.4	39.5	
1055	0.8	6.93	27193		0.80	14.5	42.3	
1100	1.0	6.93	26922		0.76	14.7	40.1	
1105	1.2	6.93	27129		0.70	13.8	39.5	
1110	1.4	6.92	27303		0.72	13.8	33.0	
1120	1.8	6.92	27111		0.67	13.6	22.2	
1130	2.2	6.91	26984		0.59	13.7	20.1	
1140	2.6	6.91	26977		0.55	13.5	17.1	
1150	3.0	6.91	27008		1.03	13.7	15.0	
1155	3.2	6.92	27195		1.29	13.6	12.7	
1200	3.4	6.93	27200		1.42	13.7	12.4	
1205	3.6	6.93	27134		1.63	13.7	10.5	
1210	3.8	6.94	27209		1.79	13.6	8.3	
1215	4.0	6.94	27211		1.86	13.5	7.1	

Flow Rate 0.25 gal / 5 mins

Pump controller setting_____

General Comments:

_____

_____

_____

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID.: W-20

Sample I.D.(match bottle and COC form exactly): W-20

Personnel: FZ

Date: 6/2/23 Static Depth to Water (ft, btoc) 28.02

Date/Time Sample Collected (match bottle and COC form exactly): 6/2/23 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) 30'

Time Completed: 1216 Total Purge 13375 Units mL

Field Measurements:

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)	
0952								START PUMP	
1000	2500	6.60	39683	96.8	4.62	20.1	175.4	BTOP	
1010	1500	6.61	39103	57.4	4.18	19.4	160.6	BTOP	
1020	2750	6.60	38534	51.7	4.06	18.0	149.2	BTOP	
1030	4000	6.60	36031	81.2	4.01	17.6	117.7	BTOP	
1040	5250	6.62	35299	94.0	5.32	17.2	122.0	BTOP	
1050	6500	6.62	34936	78.8	5.11	17.0	119.9	BTOP	
1100	7750	6.61	34818	36.0	0.53	17.3	117.3	BTOP	bubble poss. trapped in flow cell
1110	9000	6.61	34883	24.0	0.58	17.7	115.6	BTOP	
1120	10250	6.61	34784	16.0	0.60	17.5	110.6	BTOP	
1130	11500	6.60	35305	12.0	0.53	18.2	108.1	BTOP	
1135	12050	6.60	35174	8.84	0.47	18.0	107.0	BTOP	
1140	12750	6.60	34967	8.37	0.50	18.0	106.2	BTOP	
1145	13375	6.60	35100	6.01	0.46	18.0	105.6	BTOP	
1145								SAMPLE	
1216								PUMP OFF	

Flow Rate 125 mL/min

Pump controller setting ~~40~~ 8/40

General Comments:

TD: 30.70' Well needs lock

Development Logs

Well Development Attempt 1.

SITE NAME	~~Xcel~~ Comanche
WELL NUMBER	MW-11
JOB NUMBER	10279361
OWNER	
DATE	6/19/23

TIME	CONDUCTIVITY (µS/cm)	pH	TEMP. (°C)	TURBIDITY (NTU)	WATER VOLUME REMOVED	
1325					START PUMP	
1335	foot valve plugged with sand					
1345					START PUMP	
1350	flow stopped again.					bottom of screen
1355	7217	6.79	29.2	>1000	1 gal	
1405	7476	6.74	34.1	>1000	1.5 gal	flow intermittent top of screen
1425	3804	6.63	25.7	>1000	2.25 gal	
1435	3853	6.64	24.5	>1000	3.75 gal	
1445	3138	6.64	25.7	>1000	5 gal	
1455	3750	6.66	20.5	>1000	7 gal	
1505	2853	6.65	20.6	>1000	8.5 gal	bottom of screen
1515	2953	6.33	21.0	>1000	10.25 gal	
1525	3136	6.61	18.0	>1000	12.50 gal	
1535	3414	6.63	18.8	>1000	15 gal	
1545	4043	6.64	19.4	>1000	17.5 gal	
1555	4833	6.74	18.1	>1000	21 gal	
1605	6402	6.64	18.3	>1000	23.5 gal	
1610	DISPOSING OF IDW					
1700					START PUMP	
1710	6592	6.64	19.1	>1000	26 gal	
1720	6558	6.63	18.9	>1000	28.5 gal	
1730	6274	6.65	17.0	>1000	32.5 gal	
1740	6171	6.64	16.6	>1000	36.5 gal	
1750	6121	6.66	17.6	>1000	41 gal	
1800	6293	6.67	17.2	>1000	45.5 gal	
1810	6165	6.66	16.5		50.5 gal	
1815					PUMP STOP	WL: ~49ft

NOTES: WL: 39.28 ft water. 5 ft Screen
1237 Surging. → 1318 flow rate either ~1.5 gal/5 min or no flow
Flow thru cell shaded.

Well Development

Attempt 2

SITE NAME	Xcel Comanche
WELL NUMBER	MW-11
JOB NUMBER	
OWNER	
DATE	6/2/23

TIME	CONDUCTIVITY (µS/cm)	pH	TEMP. (°C)	TURBIDITY (NTU)	WATER VOLUME REMOVED
0910					SURGING
0945					PURGING
0955	6654	6.85	18.7	>1000	1 gal
1005	6404	6.72	17.8	>1000	2 gal
1015	6344	6.71	17.4	>1000	5 gal
1025	6255	6.72	16.5	>1000	7.5 gal
1035	6308	6.70	17.2	>1000	10 gal
1045	6431	6.69	18.4	>1000	12.5 gal
1055	6151	6.69	16.2	>1000	15 gal
1105	6137	6.68	16.0	>1000	17.5 gal
1115	6264	6.69	17.3	>1000	20 gal
1125	6254	6.71	17.1	>1000	22.5 gal
1135	6225	6.70	17.1	>1000	25 gal
1145	6064	6.68	17.2	>1000	27.5 gal
1155	6096	6.72	16.1	>1000	30 gal
1208		DISPOSE	PURGE		
1220	6068	6.66	16.0	>1000	31.5 gal
1230	6231	~~6.69~~ 6.69	17.0	>1000	33.5 gal
1240	6350	~~6350~~ 6.68	17.6	>1000	35.5 gal
1250	6278	6.68	16.8	>1000	38 gal
1300	6358	6.68	17.8	>1000	40 gal
1310	6500	6.67	17.4	>1000	42.5 gal
1320	6453	6.66	20.1	>1000	44.0 gal
1330	6204	6.71	16.9	>1000	46 gal
1340		flow stopped			
1350	6776	6.67	20.8	>1000	46.5 gal
1400	6974	6.67	22.0	>1000	48 gal
1410	6824	6.69	23.1	>1000	50 gal
1420	6946	6.66	21.7	>1000	52 gal
1430	6879	6.67	21.0	>1000	54 gal
1440	6874	6.67	21.1	>1000	56 gal
1450	6850	6.68	20.8	>1000	58 gal
1500	6805	6.68	20.9	>1000	60 gal

Flow issues

moved to top of screen flow restarted at lower speed

NOTES: WL: 40.02

Surging 0910 -> 0940

pumps for ~5 mins, then doesn't have flow for a few minutes. WLM shows water fairly stable at ~40 ft.

1333 - Flow stopped

Initial WL: 41.25
Initial TD: 50.90

Purge Rate: 0.25 g/min. @ 1515,
decreased purge rate to 0.1 g/min

Well Development

SITE NAME	**Comanche**
WELL NUMBER	**W-19**
JOB NUMBER	**102717175**
OWNER	**Comanche**
DATE	**May 10, 2023**

TIME	DTW (ft)	pH	TEMP. (°C)	TURBIDITY (NTU)	WATER VOLUME REMOVED (gal)
1245	45.36			40.31	1
1250	45.93			39.85	2
1300	46.81			37.17	4
1310	47.30			32.21	6
1320	47.03			34.99	8
1330	46.87			40.42	10
1340	46.95			39.85	12
1350	47.41			35.38	14
1400	47.89			28.70	16
1410	47.96			27.41	18
1420	48.03			23.55	20
1430	48.19			22.80	22
1440	48.32			19.12	24
1450	48.37			17.85	26
1500	48.30			16.71	28
1510	48.34			15.23	30
1520	48.32			16.70	30.5
1530	48.38			13.45	31.0
1540	48.30			13.32	31.5
1550	48.22			10.44	32.0
1600	48.13			8.61	32.5
1610	47.98			9.40	33.0
1620	47.96			8.73	33.5

NOTES: _____

HDR

Well Development

SITE NAME	~~HDR~~ XCel Energy
WELL NUMBER	W-20
JOB NUMBER	
OWNER	KM
DATE	5/22/23

	TIME	CONDUCTIVITY (µS/cm)	pH	TEMP. (°C)	TURBIDITY (NTU)	WATER VOLUME REMOVED
5/22/23	1530				313	0.5
	1538				470	1.0
	1549				326	1.5
	1600				281	2.0
	1610				107	2.5
	1620				41.9	3.0
	1630				77.8	3.5
	1640				63.1	4.0
	1650				96.3	4.5
	1700				45.5	5.0
	1710				30.9	5.5
	1720				37.7	6.0
	1730				44.1	6.5
	1740				39.7	7.0
5/23/23	0730				270	8.0
	0740				65.2	8.5
	0750				61.7	9.0
	0800				39.9	9.5
	0810				18.0	10.0
	0820				21.9	10.5
	0830				17.6	11.0
	0840				15.0	11.5
	0850				18.8	12.0
	0900				13.2	12.5
	0910				12.9	13.0
	0920				11.4	13.5
	0930				10.7	14.0
	0940				13.5	14.5
	0950				11.9	15.6
	1006				9.6	15.5
	1012				8.3	16.0

G

Scanned with CamScanner

starting DTW : 14.38 ft
starting TD : 45.50 ft

ending DTW: 14.47 ft
ending TD : 45.65 ft

4/25 1330 : start surge
4/25 1430 : stop surge
4/25 1440 : start purge
4/25 1800 : stop purge

10 ft screen : 3 mins per 0.5 ft
purge rate : 1.0L a min

Well Development

SITE NAME	XCel Comanche
WELL NUMBER	~~10227075~~ PTW
JOB NUMBER	10271775
OWNER	XCel
DATE	April 25, 2023

TIME	CONDUCTIVITY (µS/cm)	pH	TEMP. (°C)	TURBIDITY (NTU)	WATER VOLUME REMOVED
1450	40046	6.78	15.7	237	10L
1500	42241	6.69	15.7	241	20L
1510	42364	6.68	15.3	247	30L
1520	42253	6.68	15.0	313	40L
1530	41984	6.68	15.4	288	50L
1540	41721	6.68	14.4	220	60L
1550	41585	6.67	11.6	207	70L
1600	41284	6.68	10.3	193	80L
1610	41288	6.68	11.4	170	90 L
1620	41659	6.68	13.6	187	100 L
1630	41389	6.68	13.7	192	110 L
1640	41122	6.68	13.6	187	120 L
1650	41131	6.69	13.7	176	130 L
1700	41042	6.70	13.8	141	140 L
1710	40897	6.70	13.9	146	150 L
1720	40731	6.71	13.1	138	160 L
1730	40719	6.71	12.8	139	170 L
1740	40646	6.71	12.4	140	180 L
1750	40680	6.71	12.4	135	190 L
1800	40689	6.72	12.3	123	200L

Scanned with CamScanner

Starting DTW: 11.80
Starting TD : 46.43

ending DTW: 37.41
ending ~~D~~TD: 46.52

4/26 0745: start surg
4/26 0645: stop surge
4/26 0850: start purge
4/26 1130: stop purge

HDR

Well Development

SITE NAME	XCel Comanche
WELL NUMBER	P2-PT1
JOB NUMBER	102717175
OWNER	XCel
DATE	April 26, 2023

10 ft screen: 3 min per 0.5 ft

purge rate: ~~0.05~~ L/min

TIME	CONDUCTIVITY (µS/cm)	pH	TEMP. (°C)	TURBIDITY (NTU)	WATER VOLUME REMOVED
0855	42081	7.14	14.8	471	~~5~~ L
0905	46976	7.05	13.4	358	15L
0915	46459	7.07	12.7	280	25L
0925	45812	7.07	12.5	217	35L
0935	43263	6.97	13.8	235	45L
0945	43729	6.97	13.7	209	55L
0955	43125	6.98	13.4	191	65L
1005	42863	6.97	13.5	187	75L
1015	42451	6.98	13.4	193	85L
1025	43927	6.98	13.3	185	95L.
1035	DRY*				
1045					
1055					
1105					
1115					

* not enough water coming out to get accurate readings

Scanned with CamScanner

Boring Logs

HDR, Inc.
369 Inverness Pkwy, Ste 325
Englewood, CO 80112

BORING LOG

ID: W-19

CLIENT Xcel
PROJECT NAME Comanche
PROJECT NUMBER 10217175
PROJECT LOCATION Pueblo, CO
DATE STARTED 3/8/23 COMPLETED 3/9/23
DRILLING CONTRACTOR Dakota Drilling
DRILLING METHOD HSA / Air Rotary
SAMPLER TYPE(S) Cont. / NX Core
BOREHOLE DIAMETER 4.25" / 7.625"
FIELD GEOLOGIST K. Malone
NOTES

WELL CASING TYPE sch 40 PVC DIAMETER 2"
SCREEN INTERVAL 38.0-48.0 SLOT SIZE 0.010"
FILTER PACK INTERVAL 36.0 - 48.0 MATERIAL 10/20 silica sand
ANNULAR SEAL INTERVAL 0.0 - 36.0 MATERIAL bentonite chips

Depth ft bgs	Blow Count	Recovery	Symbol or Abbreviation	Moisture	Well Sketch	Description
5	Auger	Cont.	ML	DRY		0.0 to 7.0 sandy SILT, low PL fines, very fine; 10 YR 6/6; cohesive, w<PL, soft.
	Cont	1.0/2				7.0 to 9.0 SAA, except chunks of granite cobbles.
	Cont	0.8/2				9.0 to 15.0 COBBLES, granite, quartzite, some sandy silt, low PL fines; 10YR 6/6; non-cohesive, dry, soft.
10	Cont	0.1/2				15.0 to 19.0 SAA except silty COBBLES, moist.
	Auger	Cont.				19.0 to 21.0 SAA except no silt, dry.
	Auger	Cont.				21.0 to 23.5 SAA except fine cobbles.
15	Auger	Cont.	GM	MOIST		23.5 to 30.0 Residuum, CLAY, low PL fines; 10YR 5/4; some oxidation staining and calcification; some miner. between fractures; cohesive, w<PL, firm to stiff.
	Auger	Cont.				30.0 to 35.0 SHALE, highly fractured & weathered, competent; N3 to N1; some calcification and oxidation staining; clay between fractures; dry.
	Auger	Cont.				35.0 to 48.0 SAA except wet.
20	Auger		GW			48.0 to 50.0 SAA except low fractures/weathering, dry, no
	Cont	1.4/2				
25			CL	DRY		
30	NX	4/5	weath. SHALE			
35						

HDR, Inc.
369 Inverness Pkwy, Ste 325
Englewood, CO 80112

BORING LOG

ID: W-19
PAGE 2 OF 2

CLIENT Xcel
PROJECT NAME Comanche
PROJECT NUMBER 10217175
PROJECT LOCATION Pueblo, CO

Depth ft bgs	Blow Count	Recovery	Symbol or Abbreviation	Moisture	Well Sketch	Description
						Interval, USCS/Rock Type, Color (Munsell Designation), Consistency, Plasticity, Moisture, Structure, Angularity/Mineralogy, Remarks (e.g., fractures, staining, odor, rig behavior, samples, screening results, etc.,
						oxidation staining, no calcification.
						50.0 to 60.0
						SHALE, unfractured, unweathered, consolidated;
						N3 to N1; massive structure, dry.
40	NX		weathered SHALE	WET		
	NX					
45	NX					
50	NX		unweathered SHALE	DRY		
55	NX					
60						BOE @ 60.0 ft bgs

3/8/23
1245 Blew out hole, lifted casing 5ft.
1310 Water @ 61.72 ft BTOC

3/9/23
0800 water @ 42.31 ft btoc

HDR, Inc.
369 Inverness Pkwy, Ste 325
Englewood, CO 80112

BORING LOG

ID: W-20

CLIENT Xcel
PROJECT NUMBER 10217175
DATE STARTED 3/9/23 COMPLETED 3/9/23
DRILLING CONTRACTOR Dakota Drilling
DRILLING METHOD HSA / Air Rotary
SAMPLER TYPE(S) Cont. / NX Core
BOREHOLE DIAMETER 4.25" / 7.625"
FIELD GEOLOGIST K. Malone
NOTES

PROJECT NAME Comanche
PROJECT LOCATION Pueblo, CO
WELL CASING TYPE Sch 40 PVC DIAMETER 2"
SCREEN INTERVAL 18.0 - 28.0 SLOT SIZE 0.010"
FILTER PACK INTERVAL 16.0 - 28.0 MATERIAL 10/20 silica sand
ANNULAR SEAL INTERVAL 0.0 - 16.0 MATERIAL bentonite chips

Depth ft bgs	Blow Count	Recovery	Symbol or Abbreviation	Moisture	Well Sketch
5	Auger	Cont.	ML		
	Cont.	1.3/2			
	Cont.	0.3/2	CL		
10	NX	4.5/5			
15	NX	4.8/5	Weathered SHALE	DRY	
20	NX	5/5			
25	NX	5/5		WET	
30	NX	5/5	Unweathered SHALE	DRY	
35					

Description

Interval, USCS/Rock Type, Color (Munsell Designation), Consistency, Plasticity, Moisture, Structure, Angularity/Mineralogy, Remarks (e.g., fractures, staining, odor, rig behavior, samples, screening results, etc.)

0.0 to 7.0 ft
SILT, low PL fines; 10 YR 6/6; cohesive, w~ PL, very soft.

7.0 to 11.0 ft
Residuum, CLAY, low PL fines; 5Y 6/4; some calcific.; cohesive, wc PL, firm to stiff.

11.0 to 25.0 ft
SHALE, highly weathered, high fractures; 5Y 5/2 to 5Y 6/4; calcification and oxidation staining present; massive structure.

25.0 to 28.0 ft
SAA except med weathering/frax & WET.

28.0 to 40.0
SHALE, unweathered, unfractured; N3 to N1; dry; very hard, massive structure.

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BORING LOG

ID: W-20

CLIENT Xcel

PROJECT NAME Comanche

PROJECT NUMBER 10217175

PROJECT LOCATION Pueblo, CO

Depth ft bgs	Blow Count	Recovery	Symbol or Abbreviation	Moisture	Well Sketch	Description *Interval, USCS/Rock Type, Color (Munsell Designation), Consistency, Plasticity, Moisture, Structure, Angularity/Mineralogy, Remarks (e.g., fractures, staining, odor, rig behavior, samples, screening results, etc.)*
40	NX	5/5	unweath. SHALE	DRY		BOE @ 40.0 ft

Xcel Comanche — Mon: 6/5/23

Utility Locates (Public)

0630 Leave apartment

0830 Onsite at Comanche Station
* clear Black Hills Energy (power) and Stake Center (gas)

0915 Standby for drillers/locators

0940 Call Josh w/ Dakota Drilling regarding Xcel Energy locate services delay to tomorrow (Tue. 6/6)

1000 Xcel Energy locate delayed by approximately 48-hours (call to verify)

1030 Drillers onsite/scope out PZ-12 well site area (wet offroad cond.)

1100 Contact Tri-State Generation & Transmission Association and Century Link regarding locates

1130 Tri-state clear - waiting on Century Link (last locate)

1230 Move drill rig to PZ-12
* semi-truck gets stuck due to oversaturated ground conditions

1300 Call Renee for bulldozer help

1330 Help arrives/pull out stuck vehicle

1400 Abandon PZ-12 and move drilling equipment to MW-10 (dry spot)

1430 Setup equipment/vehicles at MW-10

1500 Meet w/ USIC locator at front gate entrance (CenturyLink fiber/telco)

1630 All public utilities cleared
* Return to drill crew/well site

1645 Incoming lightning/thunderstorm (resume tomorrow) ~10-15 miles approaching site

1700 Leave site

EOD

Xcel Comanche — Tue: 6/6/23

Start Drilling MW-10/MW-11

0630 Leave hotel

0655 Sign in at admin. bldg. and drive to MW-10 proposed area

0700 Grab box truck w/ well supplies and move to MW-10 (drillers)

0715 Safety + JHA Meeting

0730 Mast up rig and setup first auger to drill to 5 ft bgs

* Proposed MW-10 location *

Time	Depth (ft)	Type	Recovery (in)
0740	0 - 3	HSA	Cuttings

SC or CL — Desc: Fine sandy CLAY, med. plasticity, trace to few f. gravel, (qtz, granite, basalt?), trace organic debris (ang/subang) (low-mois/dry), med. dense to soft (10YR 4/3)

0745	3 - 5	HSA	Cuttings

ML or SM — Desc: F. sandy SILT (w/ f. sand?), dry soft, slightly cohesive fines, homogenous, (10YR 6/3)

0750	5-7	SS	10"

*NO CONT. CORE (unavailable) split spoon

BC = 9-11-10-6

Desc: Mostly SAA, dry (10YR 5/4)

0755	7-9	SS	12"

SM/ML — BC = 5-5-5-5 — SILT → SW (low-moist)

0800	9-11	SS	15"

SP ↓ SW — BC = 3-3-5-8 — *multi-colored composition

Desc: well-graded SAND (alluvium?) few to some silty fines, fine gravel, ang. to sub-round, dry

0805	11-13	SS	14"

BC = 10-22-23-17

SW — Desc: Mostly SAA, dry (alluvium) trace silty fines

0810	13-15	SS	12"

BC = 9-16-19-28

SW — Desc: Mostly SAA, dry (alluvium) more oxidation present, med dense

0815	15-17	SS	12"

BC = 16-30-32-24

SW — Desc: Mostly SAA, dry (alluvium) f-c gravel (ang to subround) mottled color, dense

0820	17-19	SS	12"

BC = 12-25-26-36

SW — DESC: Mostly SAA, dry (alluvium) dense

0825	19-21	SS	9"

BC = 15-27-17-12 (alluvium)

SW — Desc: Mostly SAA, low-moist to moist → more fines

0830	21-23	SS	16"

~22 ft
* wet spoon (SW)

BC = 7-7-34-24
Desc: SW clayey alluvium transition to dense clay~~stone~~ (highly weathered shale), trace laminations, wet/moist
(CL?)

0845 Highly weathered shale/claystone encountered at ~22 ft bgs

* Burn down to ~25 ft bgs to fully case borehole and setup for NX core drilling

0930 Resume drilling to competent shale

1000	25-30	NX	54"

Weathered Shale (~~clay~~?)
*moist
*No clear signs of GW

Desc: Highly weathered SHALE, moist, laminated, soft clayey exterior to med. strong matrix, some weak and brittle areas, few fract. w/ trace evaporite veins/xtls oxidation present (mottled)
10YR 5/3 to 2.5Y 3/1

1025	30-35	NX	60"

WS
* moist to wet @ ~34 ft bgs
Fractured

Desc: Shale, highly to mod. weathered, soft/weak clayey zones (~30-31) vertical and horizontal fract. w/ prominent evaporite veins and crystal deposits, weak to med. strong, oxidation present (mottled)
10YR 4/3 to 4/4

1055	35-40	NX	60"

WS
* moist/wet along fract.

Desc: Shale, med. to slightly weathered, soft clayey areas, weak/brittle along fract., some evaps. present med. strong?, some oxidation
2.5Y 4/2 to 3/2

1125	40-45	NX	60"

Weathered to competent Shale boundary
GLEY1 2.5/N
WS
2.5Y 3/2

Desc: Shale, slightly weathered from ~40-43, then competent bedrock
[40-43]: slightly weathered, wet/moist along fracture/bedding planes, prominent evaporite veins/crystals some soft clayey/brittle zones, med. strong to strong, med. hard

Pierre shale (competent bedrock)

[43-45]: Competent shale, moist to dry, unweathered no fractures, hard, strong (2.5Y 6/2 to black)

Terminate borehole

1135 Flush out the borehole w/ compressed air and trip out all NX core equipment

1200 Start air rotary to ~~total~~ ~43 ft borehole depth (widen annulus for well install)

1230 Finish AR and remove drilling equipment (augers left in place to help stabilize borehole from collapse)

1300 Driller helper leaves site to get concrete mix while the drill operator sets up for well install

1330 Begin setting slotted PVC casing down the open borehole (~42 ft -32) (helper returns/loads concrete mix)

*4-6" bent. plug seal

1400 Unload well construction materials from the box truck

1430 Backfill borehole annulus space with washed silica sand (filter material) and bentonite chips (annular seal).

MW-10 Well Construction Data

- Screen Interval = 32 - 42 ft bgs
- Filter pack (sand) = 42.5 - 30 ft bgs
- Bentonite seal (chips) = 0 - 30 ft bgs

~6" bent. plug at ~42.5

1500 Mast down, move rig and set well cover/pad.

1530 Mix and set concrete for well pad

1600 Pack up and secure all drilling equipment to move to MW-11

1630 Setup to drill MW-11
* Proposed MW-11 Boring *

Time	Depth (ft)	Type	Recovery (in)
1645	0 - 2.5	HSA	Cuttings
SM or ML?	Desc: some CLAY SILT w/ f. sand, low-moist, soft loose, few organic debris, low-cohesive fines (10YR 4/4) Dark color		
1650	2.5 - 5	HSA	Cuttings
SM to ML	Desc: Silty f-c SAND, dry, soft, loose, low cohesive fines (10YR 6/4) Light color		
1655	5 - 7	SS (split spoon)	14"
SM to ML (10YR 7/4)	BC = 5-5-5-6 subround to subang. DESC: F-C SAND w/ silt, low-moist ↑cohesion ↑density		

1700	7-9	SS	18"

BC = 10-15-25-38

Shale/claystone Desc: Highly weathered shale/claystone, dry, hard, dense, prominent evaporites present (10YR 5/4)

1705 Burn down one foot to ~10 ft bgs to setup for NX coring
* incoming thunderstorm/lightning observed - pack up and resume work tomorrow (Wed. 6/7)

1720 Sign out/leave site

EOD

Xcel Comanche, PZ — Wed: 6/7/23

Finish MW-11 / Start ~~MW~~ MW-12 (setup)

0630 Leave hotel
0700 Onsite / sign in at admin. bldg.
0715 Safety + JHA Meeting
0730 Setup on MW-11 and switch to NX rock core drilling
0745 Resume drilling MW-11 at a depth of ~10 ft bgs

Time	Depth (ft)	Type	Rec (in)
0800	10-15	NX	8"

* Poor recovery (lost material) Alluvium?

Desc: Fat CLAY w/ shale fragments (weathered shale?), soft, evaps, mottled color (10YR 5/4), mica, dense, trace/relict sed. struct.

0810	15-20	NX core	0"

* No advancement due to possible alluvium (sand/gravel layer) - Remove NX core equipment and attempt to burn down w/ HSA to stabilize the borehole

0830 13-15 ft bgs → Driller noted dense claystone layer from ~7-13, followed by sand/gravel alluvium (cuttings)
* Advance HSA to ~20 ft bgs (no sample due to NX core void space between the auger and borehole sidewall)

0845	20-22	Split Spoon	0"

Alluvium? Desc: No recovery (alluvium?)
BC = 12-15-21-22 sand/gravel/cuttings

0905	22-24	SS	24"

Lean clay (CL)
BC = 5-12-19-29
Desc: Lean CLAY/~~SHALE~~/Highly weathered SHALE, dense, relict sed. structure, trace shale frags, dry to low-moist (10YR 5/4)

0920	24-26	SS	24"

Lean clay (CL)
BC = 5-6-6-12
Desc: Mostly SAA, dry/low-moist Lean CLAY/claystone, trace evaps, some oxidation mottling

0935	26-28	SS	24"

Lean clay (CL)
BC = 6-12-24-34
Desc: Mostly SAA, dry/low-moist ↑density

0950	28-30	SS	24"

CL
BC = 4-6-12-19
* GW? Desc: Mostly SAA, dry/low-moist Low blow counts, but feels dense
1000 Switch to NX coring at ~30 ft bgs

SEE NEXT PAGE →

1025	30-35	NX	48"
CL (claystone)	Desc: Mostly SAA, low-moist to moist, soft clayey exterior, dense interior, no prominent sed. structure, med. hard?, mottled color		
1055	35-40	NX	60"
Claystone to Residually weathered shale?	Desc: Mostly SAA, moist, soft clayey ext. w/ more structured interior (relict shale fragments) some oxidation present, micro-cracks and evaps along trace bedding planes		
1130	40-45	NX	28"
Claystone to Residually weathered shale?	Desc: Mostly SAA w/ slightly more grayish color at depth, moist, few seams w/ oxidation, no obvious struct. (relict) (10YR 5/3, 2.5Y 5/3)		
1200	45-50	NX	60"
Claystone to weathered shale? (bottom) highly to mod. (transition zone)	Desc: Claystone (unstructured) to highly weathered(?) shale Shale starts at 48-49 ft bgs * gradual transition throughout the entire core run evaporite crystals and oxidation present along some fractures med. hard, med. strong (10YR 4/2, 2.5Y 4/2, GLEY 1 4/N)		

1230	50-55	NX	60"
Slightly weathered to Competent Shale	Desc: SHALE, slightly weathered to competent (~54 ft bgs), prominent wet fractures and clayey oxidation zones, bedded, few evaporite vein deposits, hard, strong (2.5Y 5/1, 2.5Y 3/1)		

Terminate Boring

1240 Blow out borehole and remove NX coring equipment

1315 Start air rotary drilling to the total depth of the borehole to widen annulus space for monitoring well installment

1345 Air rotary complete. Remove all drilling equipment from the open borehole (leave augers in place to stabilize sidewall)

1400 Begin setting the slotted well screen interval with PVC casing (5 ft)

* MW-11 Well Installment Data
- Screen interval = 49-54 ft bgs
- Filter pack (sand) = 48.5-54.5 ft bgs
- Bentonite seal (chips) = 0-48.5 ft bgs

~6" bent plug at bottom of borehole (54.5 ft bgs - 55)

1415 Backfill borehole w/ sand + bentonite →

1430 Remove auger segments and backfill the remaing void space to the ground surface

1445 Mast down and move rig to place the protective cover and well pad

1500 Pack up/secure all drilling equipment (incoming scattered thunderstorms and lightning)

1520 Move all vehicles to the proposed PZ-12 well site area

1545 Inclement weather observed onsite (thunder/lightning/rain)
*Resume tomorrow (Thu. 6/8)

1600 Sign out/leave site

EOD

Xcel Comanche Thu: 6/8/23
Start PZ-12 / Thalhamer Private Locates

0645	Leave hotel		
0715	Onsite/sign in		
0730	Safety + JHA		
0745	Setup to drill PZ-12		
0800 (time)	0-5 (depth)	HSA (type)	Cuttings (rec)

CL — Desc: (10YR 4/3) 0-2 — Fine sandy CLAY low-moist cohesive, low plast, loose, soft

ML to SM — 10YR 6/3 to 6/4 — 2-5 — F-m silty SAND, dry, loose, soft to med. dense, slightly cohesive fines stiff

0805	5-7	SS	24"

BC = 6-9-8-10 (10YR 6/3 to 7/2)
MC to SM — Desc: Mostly SAA, low/dry, med. dense, compact, slightly cohesive fines (stiff)

0810	7-9	SS	18"

BC = 6-5-5-7
ML to SM — Desc: Mostly SAA, dry/low-moist, becoming more silty/dense w/ depth

0815	9-11	SS	7"

Alluvium? (gravel caused spoon refusal) — BC = 17-50/5 — Alluvium @ ~10 ft
Desc: Mostly SAA, dry/low-moist, trace evaporites, f-c gravel (granite) dense, stiff qtz/feld/bio

0820	11-13	SS	10".
Alluvium SW	BC = 30 - 50/5 Desc: Well-graded SAND w/ f-c gravel, subround to angular, trace fines, dry, multi-colored composition, unconsolidated		
0825	13-15	SS	18"
Alluvium SW/GW	BC = 20-34-19-23 Desc: Mostly SAA, dry, more gravel, less fines?		
0835	15-17	SS	18"
Alluvium SW	BC = 20-30-22-35 Desc: Mostly SAA, dry, less gravel, more fines, more compact		
0845	17-19	SS	18"
Alluvium SW	BC = 30-34-50/6 Desc: Mostly SAA, dry Mostly felsic compositions (qtz/feld)		
0855	19-21	SS	24"
CL to ML	BC = 6-6-14-18 (10YR 5/3 to 5/4) Desc: Silty CLAY, dry/low-moist, dense, very stiff, trace evaporites, slightly plastic, mottled structure		
0910	21-23	SS	24"
CL	BC = 6-9-18-24 Desc: Mostly SAA, dry/low, more homogenous trace shale frags		

0920	23-25	SS	24"
	BC = 5-8-10-18		
CL	Desc: Mostly SAA, dry/low-moist		
0930	25-27	SS	24"
	BC = 5-10-24-30		
CL	Desc: Mostly SAA, dry/low-moist, trace to few gravel (fine), highly fissured, some evaporites		
0940	Threaded auger bolt stuck - attempt to forcibly remove		
0950	27-29	SS	24"
Alluvium SP to SM	BC = 14-17-17-17 (10YR 5/4) to 6/4 Desc: Firm silty SAND dry/low-moist, trace f. gravel, subround to subang. (c. sand)		
1000	GPRS private locator stuck in Colorado Springs - Thalhamer utilities pushed back to around 1 PM		
1010	Burn down one foot to ~30 ftbgs and setup for additional SS sample to confirm alluvium, lense/seam (return to sand/gravel)		
1025	30-32	SS	18"
SW → SP → CL (~32)	BC = 15-15-13-15 (10YR 5/4 to 6/4) Desc: Transition zone from alluvial material (SW/SP) to more fine-grained colluvial material (SM/CL), dry, few to some fine gravel (subround/subang) loose to dense, fines w/ depth →		

1045	32-34	SS	19"

* Drill interference (Stall) at ~ 31-32 ft bgs

BC = 24-36-40-40

Alluvium (SW) (7.5YR 5/4) Desc: Well-graded sand w/ f-c gravel (subround/ang), dry, compact dense, multi-colored composition

1110	34-36	SS	2"

* Additional drill interference while attempting to auger through alluvial material

* Poor recovery due to coarse gravel *

(Alluvium) Desc: Mostly SAA, wet (added water)

1115 Drillers leave site to grab tools and supplies to fix auger segment (threaded bolt caused damage to the fastener - additional augers are required to further advance the borehole)

1130 Check WLs at MW-10/MW-11

* MW-10: DTW = DRY TD = 44.29'

* MW-11: DTW = 39.32' TD = 56.71'

1200 Meet the private locator w/ GPRS at the front gate entrance

1245 Thalhamer proposed well location is cleared for a 20-ft radius

1300 Return to PZ-12 to meet w/ drillers - resume borehole advance

1305	37-39	SS	24"

CH ↑ Switch ↓

BC = 4-7-9-12 (10YR 5/4 to 2.5Y 5/3)

Desc: Mostly SAA, moist, mottled, trace clayey seams, color becomes darker w/ depth

1310	39-41	SS	24"

CH

BC = 4-5-7-9

Desc: Fat CLAY, moist?, very stiff, mottled structure, trace/little sand (f-c)

1315 Switch to NX rock core sampler @ ~ 39 ft bgs

1400	39-44	NX CORE	12"

CH (2.5Y 5/4 to 4/3)

Desc: Mostly SAA, moist/wet? stiff, consolidated fat clay, mottled, no prominent sed. structure

1445	44-49	NX	44"

* slow NX core advancement due to soft clay material and excess groundwater flow

CH *wet? SW

Desc: Mostly SAA, wet/moist, more dense/stiff no prominent structure trace relict shale? few clayey seams, darker color w/ depth (10YR 4/2 to 5/3)

→

1520	49-54	NX	45"
CH to WS *wet	Desc: Mostly SAA → transition zone, wet/moist Highly to mod. weathered shale at ~49-50 ft bgs, more prominent structure, med hard bedding + fract. @ ~51 ft bgs med strong ~~same brittle/weak clayey areas~~ ~~Trace oxidation staining~~		

1530 Stop drilling, pack up and move to MW-11 to finish install

1545 Place concrete well pad for MW-11

1620 Finish MW-11 installment/clean up

1630 Sign out/leave site

EOD

Xcel Comanche Fri: 6/9/23

PZ-12 Installment/Thalhamer Public Locates

0630 Leave Hotel

0700 Onsite/Sign in at admin bldg.

0715 Safety + JHA Meeting

0730 Setup to resume drilling PZ-12

0755	53-54	NX CORE	6"
WS GLEY1 3/N to 10YR 3/1	Desc: Slightly weathered shale, wet, few fractures, hard, med strong, no evaps/oxid.		

0800 Drive to front gate entrance to meet w/ public locators

0815 Standby for utilities (wrong location?)

0830 Drive to Thalhamer property
* Call utility representatives to check on site clearance

0845 All public utilities cleared except for USIC (CenturyLink)
* Responded "no access" - rescheduled locate to Monday (6/12) 10AM

0900 Return to PZ-12 well site

0930	54-59	NX	60"
WS GLEY1 2.5/N to 4/N	Desc: Slightly weathered shale, wet along soft clayey zones and bedding planes (fract?), no evaps/oxidation, weak to strong, soft to hard →		

1015	59-64	NX	60"
WS ↓ Competent bedrock @ ~60-61	Desc: Slightly weathered to competent shale (unweathered) wet along some fractures and weak/brittle clayey zones (seams) strong, hard, no evaps/oxidation (GLEY 1 4/N to 2.5/N)		
	Terminate Borehole		
1030	Remove all NX core equipment and setup for air rotary		
1100	Start air rotary drilling to a borehole depth of ~61 ft bgs		
1130	Finish air rotary and setup to install PZ-12: (piezometer) • Screen interval = 61-51 ft bgs • Filter pack (sand) = 61.5-50.5 ft bgs • Bentonite seal (chips) = 50.5-0 ft bgs		
1145	Remove HSA segments and backfill the remaining borehole annulus space to the ground surface		
1230	Set the well protective cover and mast down/move rig		
1245	Mix and place concrete for the PZ-12 well pad		
1315	Pack up/secure drill equipment *Stage rig on landfill roadway		
1345	Fill out driller paperwork		
1400	Sign out/leave site		

EOD

Xcel Comanche — Mon: 6/12/23

Install safety Bllards / Clear Thalhamer

0745	Leave apartment/drive to Pueblo
0830	Stop for gas
1015	Onsite Comanche Station/sign-in
1030	Meet w/ drillers (installing PZ-12 bollards) - waiting for utilities to clear for Thalhamer
1100	Move to MW-11 to install safety bollards
1200	Set/spray paint safety bollards
1220	Move to MW-10 to install safety bollards
1245	Drive to Thalhamer property (offsite) to meet w/ public locator (USIC)
1300	Mark the fiberHelco utility line on the Thalhamer property
1315	All utilities cleared to drill *Return to Comanche Station*
1330	Install MW-10 bollards and move equipment to Thalhamer proposed well site area
1400	Setup to drill Thalhamer well
1430	Incoming thunder/lightning - standby
1500	Leave site (resume tomorrow)

EOD

Xcel Comanche — Tue: 6/13/23

Start Thalhamer well

0630 Leave hotel
0700 Arrive at Thalhamer property
0715 Safety and JHA Meeting
0730 Mast up and prepare to drill *Thalhamer well*

Time	Depth (ft)	Type	Recovery (in)
0745	0 – 5	HSA	Cuttings

TS (10YR 4/2) — 0–1 — F. Sandy CLAY, moist, slightly plastic, cohesive, soft, loose

Alluvium/Cobbles — Drill Interference (shake/rattle) — 1–5 — well-to-poorly graded gravel w/ some f-c sand, trace silt, dry, sub-round to sub-ang, fine-grained, multi-colored

0800	5 – 7	SS	12"

Alluvium — Drill Engine Stall — BC = 5-19-25-31 (10YR 6/3) Desc: Well-graded SAND w/ f-c gravel subround to ang, dry,

0810	7 – 9	SS	22"

CL to residually weathered shale — BC = 16-17-25-50/5 Desc: Highly weathered shale? Lean CLAY w/ bedded structure, soft, weak/brittle, moist? highly fissured, trace evaporites/little oxidation

Alluvium/shale w. shale boundary — low-plasticity, some sand/gravel alluvium (color 5/3 to 4/2)

0815	9 – 11	SS	12"

SS @ 10 FT → BC# = 35-50/6

WS ↓ — Desc: Weathered shale, dry/low-moist, soft, weak, bedded structure, evap. mnl deposits, fissured, oxidation present along planes

0820 Remove SS equipment and setup for NX coring @ ~10 ft bgs

0900	10 – 15	NX CORE	43"

Highly WS ↑ SHALE ↓ — Desc: Very Highly weathered shale dry/low-moist, prominent fracture/planes w/ evaporation crystals, oxidation staining, mast clayey areas, weak, brittle, soft to med. hard, bedded, darker color w/ depth

0930	15 – 20	NX CORE	60"

Highly to ~~Mod.~~ WS (10YR 3/1) — Desc: Mostly SAA, dry/low-moist, more prominent fracture sets, less oxidation, more evaporites

0950	20 – 25	NX CORE	60"

HWS — Desc: Mostly SAA, moist?, becoming more brown/oxidized w/ depth, prominent evaporites/veins

1015	25 – 30	NX CORE	60"

MWB — Desc: Mod. weathered, more strong hard, wet/moist? Large oxidation zone @ ~25 ft bgs →

1035	30–35	NX CORE	60"
Slightly WS *wet/moist ? GW?	Desc: Weathered Shale (slightly), wet/moist along fract planes? large oxidation zone @ ~ 31–32 ft bgs clayey zones (soft/weak). med-hard to med. strong		
1105	35–40	NX CORE	60"
Slightly to Mod. WS	Desc: Mostly SAA, but more weathered, wet/moist along clayey seams and fractures? Large oxidation zone @ ~37 ft bgs, some hard/strong, mostly weak/mod. hard, brittle areas		
1145	40–45	NX CORE	60"
Slightly WS to Competent bedrock	Desc: Mostly SAA, slightly weathered, 40–42 some fractures, dark color, soft clayey zones (brittle), weak to med. strong/hard @ ~42 Competent shale, unweathered, no fracts/claps, trace mech. breaks, strong, hard, black		

(+20 ft)

1200 Blowout borehole w/ compressed air and allow to sit for signs of GW = 30 mins (drillers refuel)

1230 Thalhamer borehole DRY

1300 Standby – rain/lightning

* Pull up drill barrels ~10 ft to expose the weathered shale unit – wait for GW recharge (~30 mins)

1400 Contact Molly regarding well depth

1430 Rain/lightning delay – drillers refill water tank for additional borehole advancement (Comanche Station)

1515 Drillers return and refill the rig drill water/fluid (resume drilling)

* Thalhamer Well (Cont.) *

1550	45–50	NX	60"
Confining unit bedrock ↓	Desc: Competent shale, unweathered no fractures (mech. breaks), no oxidation or evaporites		
1615	50–55	NX	60"
bedrock confining unit ↓	Desc: Mostly SAA, unweathered competent, solid shale, mech. breaks present		
1645	55–60	NX	60"
bedrock confining unit	Desc: Mostly SAA, competent shale		
1705	60–65	NX	60"
	Desc: Mostly SAA		

1715 Blow out borehole and allow to sit overnight (check w/ tomorrow morning)

1730 Leave site

EOD

Xcel Comanche — Wed: 6/14/23

Finish Thalhamer / Start PP Sample Borings

0630 Leave hotel

0700 Arrive at Thalhamer property (onsite)
* Thalhamer borehole DTW = Dry

0715 Safety + JHA Meeting

0730 Remove NX coring equipment from the open borehole

0745 Begin air rotary to a borehole depth of ~42 ft bgs

0830 Stop air rotary and begin backfilling the open borehole with a bentonite seal to ~42 ft bgs

0845 Install Thalhamer Well: (W-21)
- Screen interval = 32-42 ft bgs
- Sand Filter = 30-42 ft bgs
- Bentonite seal = 0-30 ft bgs

0900 Remove augers and backfill the remaining annular space with bentonite to the ground surface

0915 Mast down and move rig to install well pad/protective cover

0930 Need additional construction supplies
* Pack up box truck for transport

0945 Drillers leave to grab well pad materials, HDR leaves to purchase sampling supplies

1000 Home Depot - buckets, well locks

1015 Walmart - Cellophane, water, ice →

1045 Hobby Lobby - wax

1115 Return to Thalhamer property (drillers finishing well pad)

1125 Drive to the polishing pond area by Comanche Station

1150 Call Francis/Sierra to verify utility clearance for SBS borings

1200 Setup drill to advance SBS 1 to a depth of ~5 ft bgs

1230 Attempt clay liner sample from ~5-7 ft [Sample SBS-1]

1245 Offset ~5 feet eastward and attempt another sample to verify material consistency [redacted]

1315 [Sample SBS-9] (1 offset)

1330 Setup drill to sample SBS-2

1345 [Sample SBS-2]

1400 [Sample SBS-3]

1415 [Sample SBS-10] (3 offset)

1430 [Sample SBS-4]

1445 [Sample SBS-5]

1500 [Sample SBS-11] (5 offset)

1515 [Sample SBS-6]

1530 [Sample SBS-7]

1545 [Sample SBS-12] (7 offset)

1600 [Sample SBS-8] Pack up drill rig
* backfill boreholes w/ drill cuttings

1615 Scope out [redacted] W-68 area and attempt to stage the drill rig →

1630	Drill rig gets stuck in soft ash material due to damaged differential.
1645	Pull out drill rig w/ utility truck
	*No luck, call Renee for a potential bulldozer (none - left site)
1715	Leave site (resume tomorrow morning w/ drill rig recovery)
1730	Hotel

EOD

HDR, Inc.
369 Inverness Pkwy, Ste 325
Englewood, CO 80112

BORING LOG

ID: PTW

CLIENT XCel Energy
PROJECT NUMBER 10279361
DATE STARTED 4/6/23 COMPLETED 4/7/23
DRILLING CONTRACTOR Dakota Drilling
DRILLING METHOD HSA/ NX/ AR
SAMPLER TYPE(S)
BOREHOLE DIAMETER 8in
FIELD GEOLOGIST K Malone
NOTES

PROJECT NAME Comanche
PROJECT LOCATION Pueblo, CO
WELL CASING TYPE DIAMETER 4in
SCREEN INTERVAL 33.0-43.0 SLOT SIZE 0.010
FILTER PACK INTERVAL 31.0 - 43.0 MATERIAL 10/20 silica sand
ANNULAR SEAL INTERVAL 31.0 - 0.0 MATERIAL bentonite chips

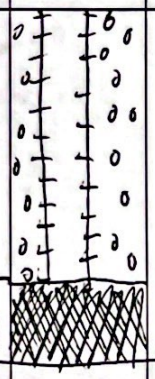
Depth ft bgs	Blow Count	Recovery	Symbol or Abbreviation	Moisture	Well Sketch	Description
0	Auger	Cont	SW	dry		00 to 5.0 ft SAND, some clay, vf to m; 5YR 2/2; non-cohesive, dry, loose.
5	Cont	0.9/2	CL			5.0 to 7.0 ft Sandy CLAY, medium plastic fines, m to c; 5Y 6/4; cohesive, w ~ PL, stiff.
	Cont	0.9/2		wet		7.0 to 11.0 ft CLAY, high PL fines, some small gravels; 5Y 6/4; cohesive, w > PL, soft to stiff.
10	Cont	1.1/2				11.0 to 17.0 ft SAA except some oxide staining, some evaporites; very stiff, w ~ PL.
	Cont	2/2				
	Cont	1.7/2				
15	Cont	2/2	CH			17.0 to 25.3 ft SAA except high PL fines.
	Cont	1.7/2				
	Cont	2/2		moist		25.3 to 29.2 ft CLAY, residuum, high PL fines, some weathered shale fragments; 5Y 5/2 to 5/6; cohesive, w ~ PL, stiff.
20	Cont	1.5/2				
	Cont	2/2				29.2 to 35.0 ft ~~CLAY~~ SHALE, highly weathered, clayey, blocky; N3; some calcite lenses; wet.
25	NX	5/5	CL			35.0 to 43.0 ft SHALE, low weathering/fracturing, clayey; N3; wet.
30	NX	5/5	weathered shale	wet		43.0 to 45.0 ft SHALE, unfractured, unweathered; N3; dry.
35						

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BORING LOG

ID: PTW
PAGE 2 OF 2

CLIENT Xcel Energy
PROJECT NUMBER 10279361
PROJECT NAME Comanche
PROJECT LOCATION Pueblo, CO

Depth ft bgs	Blow Count	Recovery	Symbol or Abbreviation	Moisture	Well Sketch	Description *Interval, USCS/Rock Type, Color (Munsell Designation), Consistency, Plasticity, Moisture, Structure, Angularity/Mineralogy, Remarks (e.g., fractures, staining, odor, rig behavior, samples, screening results, etc.)*
40	NX	4.4/5	weath shale	wet		
	NX	5/5	unw. shale	dry		
45						BOE @ 45.0 ft

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BORING LOG

ID: P2-PT1
PAGE 1 OF 2

CLIENT Xcel Energy
PROJECT NUMBER 10279361
DATE STARTED 4/5/23 COMPLETED 4/6/23
DRILLING CONTRACTOR Dakota Drilling
DRILLING METHOD HSA / NX / AR
SAMPLER TYPE(S)
BOREHOLE DIAMETER
FIELD GEOLOGIST K. Malone
NOTES

PROJECT NAME Comanche
PROJECT LOCATION Pueblo, CO
WELL CASING TYPE Sch 40 PVC DIAMETER 2"
SCREEN INTERVAL 34.0 - 44.0 SLOT SIZE 0.010
FILTER PACK INTERVAL 33.0 - 44.0 MATERIAL 10/20 silica sand
ANNULAR SEAL INTERVAL 32.0 - 0.0 MATERIAL bentonite chips

Depth ft bgs	Blow Count	Recovery	Symbol or Abbreviation	Moisture	Well Sketch	Description
5	Auger	Cont		SM		0.0 to 6.5 ft silty SAND, vf to m; low PL fines; 10YR 4/2; Non-cohesive, loose, wet. No odor.
	Cont	1.1/2				
	Cont	1.0/2		CL		6.5 to 8.0 ft sandy CLAY, high PL fines, f to m; 10YR 4/2 to 2/2; cohesive, soft to firm, w>PL. Minor black discoloration, faint chemical-like odor.
10	Cont	1.7/2				
	Cont	1.8/2				8.0 to 11.0 CLAY, high PL fines; 5Y 5/6 to 5Y 5/2; some oxide staining, some evaporites; cohesive, firm to stiff; w>PL. No odor / staining.
	Cont	1.2/2				
15	Cont	1.8/2				11.0 to 20.0 ft SAA except ~~saturated~~ wet. no oxidation, evaporites; 5Y 5/6.
	Cont	0/2				
20	Cont	2/2	wet	CH		20.0 to 28.0 SAA except saturated.
	Cont	2/2				28.0 to 33.0 ft Residuum, clay, high PL fines, trace weathered shale; 5Y 6/4 to 5Y 6/2; cohesive, firm to very stiff, w>PL.
	Cont	2/2				
25	NX	3/5				33.0 to 37.0 ft SHALE, highly weathered, clayey; ~~some~~ NB; some oxide staining; wet.
30	NX	5/5		W. Shale		
35						

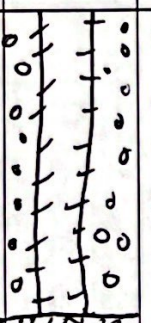
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BORING LOG

ID: P2-PT1

CLIENT Xcel Energy
PROJECT NAME Comanche
PROJECT NUMBER 10279361
PROJECT LOCATION Pueblo, CO

Depth ft bgs	Blow Count	Recovery	Symbol or Abbreviation	Moisture	Well Sketch	Description (Interval, USCS/Rock Type, Color (Munsell Designation), Consistency, Plasticity, Moisture, Structure, Angularity/Mineralogy, Remarks (e.g., fractures, staining, odor, rig behavior, samples, screening results, etc.)
40	NX	5/5	wet	weath. SHALE		37.0 to 44.0 ft SHALE, low weathering/fractured, clayey; N3; wet.
	NX	5/5				44.0 to 45.0 ft SHALE, unweathered, unfractured; N3; dry.
45			dry	SHALE		

BOE @ 45.0 ft

Scanned with CamScanner

Well Completion Logs

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BORING NUMBER PTW

CLIENT Xcel Energy
PROJECT NAME Comanche
PROJECT NUMBER 10279361
PROJECT LOCATION Pueblo, CO
DATE STARTED 23/04/06 00:00 **COMPLETED** 4/7/23
GROUND ELEVATION TBD **HOLE SIZE(S)** 8 inches
DRILLING CONTRACTOR Dakota Drilling:
NORTHING TBD **EASTING** TBD
DRILLING METHOD 4 1/4" Hollow Stem Auger, CME 75
GROUND WATER LEVELS:
LOGGED BY K. Malone **CHECKED BY** C. Hearn
DATE/TIME ---
NOTES
DATE/TIME ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0					WELL GRADED SAND (SW): Loose, dry, (5YR 2/2), fine to medium sand grains, well graded, noncohesive.	
5					5.0 SANDY LEAN CLAY (CL): Stiff, moist, (5Y 6/4), fine to coarse sand grains, medium plastic fines, cohesive.	
					7.0 FAT CLAY (CH): Soft to stiff, wet, (5Y 6/4), high plasticity, some small gravels, cohesive.	
10					11.0 FAT CLAY (CH): Very stiff, moist, (5Y 6/4), high plasticity, some oxide staining, some evaporites, cohesive.	
15						Bentonite chips
					17.0 FAT CLAY (CH): Very stiff, moist, (5Y 6/4), high plasticity, cohesive.	
20						
25					25.3 FAT CLAY (CH): Stiff, moist, (5Y 5/2), high plasticity, residuum, some weathered shale fragments, cohesive.	
					29.2 CLAYEY SHALE, (N3), highly weathered, blocky, some calcite lenses, wet	
30						
35					35.0	

CHARLOTTE HDR BORE LOGS - GINT STD US LAB.GDT - 7/14/23 12:51 - C:\USERS\MSCHANTZ\DESKTOP\COMANCHE\COMANCHE 04062023.GPJ

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BORING NUMBER PTW

CLIENT Xcel Energy **PROJECT NAME** Comanche

PROJECT NUMBER 10279361 **PROJECT LOCATION** Pueblo, CO

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
35					CLAYEY SHALE, (N3), slightly weathered, wet	10/20 silica sand; 0.010" slotted 4" SCH 40 PVC Well Screen
40						
43.0					SHALE, (N3), unweathered, dry	
45					45.0	

Bottom of borehole at 45.0 feet.

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BORING NUMBER PZ-PT1

CLIENT Xcel Energy
PROJECT NAME Comanche
PROJECT NUMBER 10279361
PROJECT LOCATION Pueblo, CO
DATE STARTED 23/04/05 00:00 **COMPLETED** 4/6/23
GROUND ELEVATION TBD **HOLE SIZE(S)** 12 inches
DRILLING CONTRACTOR Dakota Drilling:
NORTHING TBD **EASTING** TBD
DRILLING METHOD 4 1/4" Hollow Stem Auger, CME 75
GROUND WATER LEVELS:
LOGGED BY K. Malone **CHECKED BY** C. Hearn
DATE/TIME ---
NOTES
DATE/TIME ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0					SILTY SAND (SM): Loose, wet, (10YR 4/2), fine to medium sand grains, low plasticity, noncohesive, no odor.	
6.5					SANDY LEAN CLAY (CL): Soft to medium, wet, (10YR 4/2) (10YR 2/2), fine to medium sand grains, high plasticity, cohesive, minor black distortion, faint chemical-like odor.	
8.0					FAT CLAY (CH): Medium to stiff, wet, (5Y 5/6) (5Y 5/2), high plasticity, some oxide staining, some evaporites, cohesive, no odor/staining.	
11.0					FAT CLAY (CH): Medium to stiff, wet, (5Y 5/6), high plasticity, no oxidation, evaporites.	Bentonite chips
20.0					FAT CLAY (CH): Medium to stiff, wet, (5Y 5/6), high plasticity, saturated.	
28.0					FAT CLAY (CH): Medium to very stiff, wet, (5Y 6/4) (5Y 6/2), high plasticity, residuum, trace weathered shale, cohesive.	
33.0					CLAYEY SHALE, (N3), highly weathered, some oxide staining, wet	
35						

CHARLOTTE HDR BORE LOGS - GINT STD US LAB.GDT - 7/14/23 12:51 - C:\USERS\MSCHANTZ\DESKTOP\COMANCHE\COMANCHE 04062023.GPJ

(Continued Next Page)

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BORING NUMBER PZ-PT1

CLIENT Xcel Energy **PROJECT NAME** Comanche

PROJECT NUMBER 10279361 **PROJECT LOCATION** Pueblo, CO

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
35					CLAYEY SHALE, (N3), highly weathered, some oxide staining, wet *(continued)*	
					37.0 CLAYEY SHALE, (N3), slightly weathered, fractured, wet	10/20 silica sand; 0.010" slotted 4" SCH 40 PVC Well Screen
40						
					44.0 SHALE, (N3), unweathered, unfractured, dry	
45					45.0 Bottom of borehole at 45.0 feet.	

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HDR

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PAGE 1 OF 2

CLIENT Xcel Energy **PROJECT NAME** Comanche Station
PROJECT NUMBER 10279361 **PROJECT LOCATION** Pueblo, CO
DATE STARTED 03/08/23 00:00 **COMPLETED** 03/09/23 00:00 **WELL LOCATION**
DRILLING CONTRACTOR Dakota Drilling **GROUND ELEVATION** **HOLE DIAMETER** 7.625
DRILLING METHOD HSA/AR **GROUND WATER LEVELS:**
LOGGED BY K. Malone **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
5	AU	100		ML		SANDY SILT (ML), brownish yellow, soft, low plasticity, dry, fine grained, cohesive	
	CC	50					
7.0							
	CC	42		ML		SANDY SILT (ML), brownish yellow, soft, low plasticity, dry, fine grained, with cobbles, cohesive	
9.0							
10	CC	8		GM		SILTY GRAVEL (GM), brownish yellow, soft, low plasticity, dry, fine grained, non-cohesive	
	AU	100					
15	AU	100					
15.0							
	AU	100		GM		SILTY GRAVEL (GM), brownish yellow, soft, low plasticity, moist, fine grained, with cobbles, non-cohesive	
	AU	100					Bentonite (Seal)
19.0							
20	AU	100		GM		SILTY GRAVEL (GM), brownish yellow, soft, low plasticity, dry, fine grained, with cobbles, non-cohesive	
21.0							
	AU	100		GW		WELL GRADED GRAVEL (GW), brownish yellow, soft, low plasticity, dry, fine grained, with cobbles, non-cohesive	
23.5							
	AU	100		CL		LEAN CLAY (CL), yellowish brown, firm to stiff, low plasticity, dry, fine grained, iron oxide staining, some calcification, cohesive	
25							
	AU	100					
30							
30.0							
	NX	80				SHALE, highly weathered, dry, iron oxide staining, N3 to N1, calcification staining, clay between fractures	
35							
35.0							

(Continued Next Page)

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							
40	NX	100				SHALE, highly weathered, wet, iron oxide staining, N3 to N1, calcification staining, clay between fractures	
45	NX	100					10/20 Silica Sand Screen Interval (0.010")
50	NX	100				48.0 SHALE, slightly weathered, dry, no staining, N3 to N1, clay between fractures	
55	NX	100				50.0 SHALE, unweathered, massive, dry, N3 to N1, consolidated, unfractured	
60	NX	100				60.0	

Bottom of borehole at 60.0 feet.

HDR

W-20

CLIENT Xcel Energy **PROJECT NAME** Comanche Station

PROJECT NUMBER 10279361 **PROJECT LOCATION** Pueblo, CO

DATE STARTED 03/09/23 00:00 **COMPLETED** 03/09/23 00:00 **WELL LOCATION**

DRILLING CONTRACTOR Dakota Drilling **GROUND ELEVATION** **HOLE DIAMETER** 7.625

DRILLING METHOD HSA/AR **GROUND WATER LEVELS:**

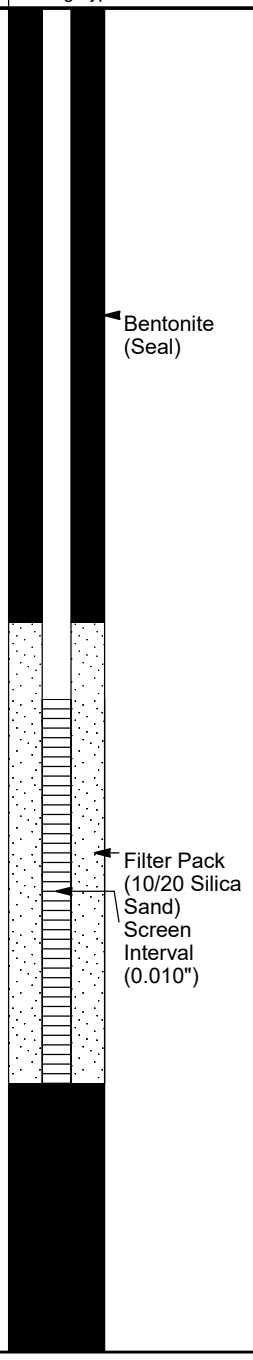
LOGGED BY K. Malone **CHECKED BY** **AFTER DRILLING** ---

NOTES

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0						
	AU	100		ML		SILT (ML), brownish yellow, soft, low plasticity, dry, fine grained
5	CC	63				
	CC	17				7.0
	NR	0		CL		LEAN CLAY (CL), pale olive, firm to stiff, low plasticity, dry, fine grained, cohesive, some calcification
10						11.0
	NX	90				SHALE, highly weathered, massive, pale olive, iron oxide staining, calcification staining
15						
	NX	97				
20						
	NX	100				
25						25.0
	NX	100				SHALE, moderately weathered, massive, pale olive, iron oxide staining, calcification staining
30						28.0
	NX	100				SHALE, unweathered, massive
35						

WELL DIAGRAM

Casing Type: 2-in PVC



(Continued Next Page)

HDR

W-20
PAGE 2 OF 2

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							
40	NX	100				SHALE, unweathered, massive *(continued)*	
						40.0 Bottom of borehole at 40.0 feet.	

HDR

W-21
PAGE 1 OF 2

CLIENT Xcel Energy
PROJECT NAME Comanche Station
PROJECT NUMBER 10279361
PROJECT LOCATION Pueblo, CO
DATE STARTED 06/13/23 00:00 **COMPLETED** 06/14/23 00:00
WELL LOCATION
DRILLING CONTRACTOR Dakota Drilling
GROUND ELEVATION **HOLE DIAMETER** 8 inches
DRILLING METHOD HSA/NX/AR
GROUND WATER LEVELS:
LOGGED BY F. Davis Ray **CHECKED BY**
AFTER DRILLING ---
NOTES Thalhamer well - Initially dry for 12 hours. Recovered ~4 feet of water over 13 days. Bailed dry - very slow recharge.

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 SCH 40 PVC
	AU	0		CL		SANDY LEAN CLAY (CL), dark yellowish brown to dark grayish brown, soft, low plasticity, moist, fine grained	
1.0							
				GW		WELL GRADED GRAVEL WITH SAND (GW), pale brown, very dense, non plastic, dry, subangular, fine to coarse grained, little silt, multi-colored composition	
5	SS	50	5-19-25-31 (44)				
7.0							
	SS	92	16-17-25-50 (42)	CL		LEAN CLAY (CL), grayish brown, hard, low plasticity, dry to moist, laminated, some sand, weak, brittle, trace oxidation	
10	AU	0					
10.0							
	SS	100	35-50			SHALE, highly weathered, laminated, light gray to very dark gray, damp to wet, iron oxide staining, soft clayey areas and brittle zones, prominent fractures and evaporite deposits, soft to medium hard, weak to medium strong	
15	NX	90					Annular seal (bentonite chips)
20	NX	100					
25	NX	100					
30	NX	100					
30.0							
	NX	100				SHALE, moderately weathered, bedded, very dark gray to black, wet, iron oxide staining, some soft clayey areas, prominent fractures, medium strong, medium hard	
35							

(Continued Next Page)

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							
40	NX	100				SHALE, moderately weathered, bedded, very dark gray to black, wet, iron oxide staining, some soft clayey areas, prominent fractures, medium strong, medium hard *(continued)*	Filter pack (silica sand) Slotted screen interval (0.010")
						40.0	
45	NX	100				SHALE, slightly weathered, bedded, very dark gray to black, damp to wet, no staining, few fractures with brittle zones, trace evaporite deposits, medium strong to strong, medium hard to hard	
						42.0 SHALE, unweathered, black, dry, no staining, no fractures, hard, strong (competent bedrock)	
50	NX	100					
55	NX	100					
60	NX	100					
65	NX	100					
						65.0	

Bottom of borehole at 65.0 feet.

HDR

MW-10

CLIENT Xcel Energy **PROJECT NAME** Comanche Station

PROJECT NUMBER 10279361 **PROJECT LOCATION** Pueblo, CO

DATE STARTED 06/06/23 00:00 **COMPLETED** 06/06/23 00:00 **WELL LOCATION**

DRILLING CONTRACTOR Dakota Drilling **GROUND ELEVATION** **HOLE DIAMETER** 8 inches

DRILLING METHOD HSA/NX/AR **GROUND WATER LEVELS:**

LOGGED BY F. Davis Ray **CHECKED BY** **AFTER DRILLING** ---

NOTES Dry well

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 SCH 40 PVC
	AU	0		CL		LEAN CLAY (CL), brown, soft to medium stiff, low plasticity, moist, homogeneous, some fine sand, little fine to coarse gravel, trace roots	
3.0							
5				ML		SILT WITH SAND (ML), pale brown, very soft to stiff, non plastic, dry, homogeneous	
	SS	42	9-11-10-6 (21)				
	SS	50	5-5-5-5 (10)				
8.0							
10	SS	63	3-3-5-8 (8)	SP		POORLY GRADED SAND WITH SILT (SP), yellowish brown, medium dense, non plastic, dry, subangular, fine to medium grained, homogeneous, trace fine gravel	
11.0							
	SS	58	10-22-23-17 (45)	SW		WELL GRADED SAND WITH GRAVEL (SW), light brown, dense, non plastic, dry, subangular, fine to coarse grained, homogeneous, trace silt, clayey fines with depth	
15	SS	50	9-16-19-28 (35)				
	SS	50	16-30-32-24 (62)				Annular seal (bentonite chips)
	SS	50	12-25-26-36 (51)				
20	SS	38	18-27-17-12 (44)				
	SS	67	7-7-34-24 (41)				
22.0							
	AU	0		CL		LEAN CLAY (CL), dark yellowish brown, hard, low plasticity, moist to wet, laminated, some fine to coarse sand, residual sedimentary structure (residuum)	
25							
25.0							
	NX	90				SHALE, completely weathered, laminated, brown mottled with very dark gray, damp, iron oxide staining, soft clayey exterior, hard interior matrix, weak, brittle zones, few fractures, trace evaporite veins	
30							
30.0							
	NX	100				SHALE, highly weathered, bedded, brown mottled with dark yellowish brown, wet, iron oxide staining, soft clayey areas, prominent fractures, evaporite veins and crystal deposits, weak to medium strong, medium hard	
35							
35.0							

(Continued Next Page)

HDR

MW-10
PAGE 2 OF 2

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							
40	NX	100				SHALE, moderately weathered, bedded, dark grayish brown, wet, iron oxide staining, soft clayey areas, brittle along fracture planes, some evaporites, medium strong, medium hard	Filter pack (silica sand) Slotted screen interval (0.010")
						40.0	
	NX	100				SHALE, slightly weathered, bedded, very dark gray to black, wet, no staining, few soft clayey areas, prominent fractures, evaporite veins and crystal deposits, medium strong to strong, medium hard	
						43.0	
45						SHALE, unweathered, black, dry, no staining, no fractures, hard, strong (competent bedrock)	Borehole collapse during air rotary
						45.0	
						Bottom of borehole at 45.0 feet.	

HDR

MW-11

CLIENT Xcel Energy
PROJECT NAME Comanche Station
PROJECT NUMBER 10279361
PROJECT LOCATION Pueblo, CO
DATE STARTED 06/06/23 00:00 **COMPLETED** 06/07/23 00:00
WELL LOCATION
DRILLING CONTRACTOR Dakota Drilling
GROUND ELEVATION **HOLE DIAMETER** 8 inches
DRILLING METHOD HSA/NX/AR
GROUND WATER LEVELS:
LOGGED BY F. Davis 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 SCH 40 PVC
	AU	0		CL		LEAN CLAY WITH SAND (CL), dark yellowish brown, soft, low plasticity, dry to moist, fine grained, homogeneous, some silt, little organics, trace fine to coarse gravel	
2.5							
				ML		SANDY SILT (ML), light yellowish brown, soft, non plastic, dry, fine to coarse grained, homogeneous, little fine gravel	
5							
5.0							
	SS	58	5-5-5-6 (10)	SP-SM		SILTY SAND (SP-SM), pale brown to grayish orange, medium dense to stiff, non plastic, dry, subangular, fine to coarse grained, homogeneous, some fine to coarse gravel	
7.0							
	SS	75	10-15-25-38 (40)			LEAN CLAY (CL), yellowish brown, hard, low plasticity, dry, mottled, evaporites present	
10	AU	0		CL			
	NX	13					
13.0							
15						POORLY GRADED SAND WITH GRAVEL (SP), brown, dense, non plastic, dry, subangular, fine to coarse grained, (no drill recovery - observations based on visual soil cuttings)	
	NX	0		SP			
20							
	SS	0	12-15-21-22 (36)				
22.0							
	SS	100	5-12-19-29 (31)			LEAN CLAY (CL), yellowish brown to light olive brown, very stiff to hard, low plasticity, dry to moist, mottled, trace rock fragments, residual sedimentary structure and oxidation staining present with depth	
25	SS	100	5-6-6-12 (12)				Annular seal (bentonite chips)
	SS	100	6-12-24-34 (36)				
30	SS	100	4-6-12-19 (18)	CL			
	NX	80					
35							

(Continued Next Page)

HDR

MW-11
PAGE 2 OF 2

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							
40	NX	100		CL		LEAN CLAY (CL), yellowish brown to light olive brown, very stiff to hard, low plasticity, dry to moist, mottled, trace rock fragments, residual sedimentary structure and oxidation staining present with depth *(continued)*	
45	NX	47					
50	NX	100				48.0 SHALE, moderately weathered, laminated, dark yellowish brown mottled with dark grayish brown, damp to wet, iron oxide staining, few brittle zones, some fractures and evaporites present, medium hard, medim strong	
55	NX	100				51.0 SHALE, slightly weathered, bedded, gray to very dark gray, wet, iron oxide staining, prominent fractures and clayey areas, few evaporite veins, medium strong to strong, medium hard to hard 54.0 SHALE, unweathered, very dark gray to black, dry, no staining, no fractures, hard, strong (competent bedrock) 55.0 Bottom of borehole at 55.0 feet.	Filter pack (silica sand) Slotted screen interval (0.010")

HDR

PZ-12

CLIENT Xcel Energy **PROJECT NAME** Comanche Station

PROJECT NUMBER 10279361 **PROJECT LOCATION** Pueblo, CO

DATE STARTED 06/08/23 00:00 **COMPLETED** 06/09/23 00:00 **WELL LOCATION**

DRILLING CONTRACTOR Dakota Drilling **GROUND ELEVATION** **HOLE DIAMETER** 8 inches

DRILLING METHOD HSA/NX/AR **GROUND WATER LEVELS:**

LOGGED BY F. Davis Ray **CHECKED BY** **AFTER DRILLING** ---

NOTES Piezometer

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 SCH 40 PVC
	AU 1	0		CL		LEAN CLAY WITH SAND (CL), brown, soft, low plasticity, dry to moist, fine grained, homogeneous, trace roots	
2.0							
				ML		SANDY SILT (ML), pale brown to light yellowish brown, soft to medium stiff, non plastic, dry, fine grained, homogeneous	
5							
	SS 2	100	6-9-8-10 (17)	SP-SM		POORLY GRADED SAND WITH SILT (SP-SM), pale brown to light gray, medium dense, non plastic, dry, subrounded, fine to medium grained, homogeneous, trace fine gravel	
	SS 3	75	6-5-5-6 (10)				
10	SS 4	29	17-50				
10.0							
	SS 5	42	30-50	SW		WELL GRADED SAND WITH GRAVEL (SW), light brown, very dense, non plastic, dry, subangular, fine to coarse grained, homogeneous, trace silt, multi-colored composition	
15	SS 6	75	20-34-19-23 (53)				
	SS 7	75	20-30-22-35 (52)				
	SS 8	75	30-34-50 (84)				
19.0							
20	SS 9	100	6-6-14-18 (20)	CL		LEAN CLAY (CL), brown to yellowish brown, very stiff to hard, low plasticity, dry, mottled, trace gravel with rock fragments, few evaporites	
	SS 10	100	6-9-18-24 (27)				
	SS 11	100	5-8-10-18 (18)				
25	SS 12	100	5-10-24-30 (34)				Annular seal (bentonite chips)
27.0							
	SS 13	100	14-17-17-17 (34)	SP		POORLY GRADED SAND (SP), light yellowish brown, medium dense to dense, non plastic, dry, subrounded, fine to medium grained, homogeneous, trace fine gravel	
30	AU 14	0					
	SS 15	75	15-15-13-15 (28)				
32.0							
	SS 16	79	24-36-40-40 (76)	SW		WELL GRADED SAND WITH GRAVEL (SW), brown, very dense, non plastic, dry, subangular, fine to coarse grained, homogeneous, multi-colored composition	
35							

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HDR

PZ-12

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	SS	8	50	SW		WELL GRADED SAND WITH GRAVEL (SW), brown, very dense, non plastic, dry, subangular, fine to coarse grained, homogeneous, multi-colored composition *(continued)*	
	AU	0					
	SS	100	4-7-9-12 (16)			37.0 FAT CLAY (CH), yellowish brown to light olive brown, very stiff, medium plasticity, moist, mottled, little sand, trace rock fragments	
40	SS	100	4-5-7-9 (12)				
	NX	33		CH			
45	NX	73					
50	NX	94				50.0 SHALE, highly weathered to moderately weathered, bedded, light gray, wet, iron oxide staining, prominent fractures with soft clayey area, brittle zones, weak to medium strong, medium hard	
	NX	50				54.0	
55	NX	100				SHALE, moderately weathered to slightly weathered, bedded, very dark gray, wet, no staining, few fractures with soft clayey areas, weak to medium strong, medium hard	Filter pack (silica sand) Slotted screen interval (0.010")
60	NX	100				61.0 SHALE, unweathered, very dark gray to black, dry, no staining, no fractures, strong, hard (competent bedrock)	
65						65.0 Bottom of borehole at 65.0 feet.	

Environmental Media

Xcel Comanche — Thu: 6/15/23

Start MNA Borings / SBS Sample Delivery

0630 Leave hotel

0645 Stop by FedEx to ship SBS clay samples

0700 Package too heavy (cooler w/ ice)
* Requires Shipping Center location - open @ 9 am

0715 Stop by the store for additional supplies (ice, water, jars)

0745 Drive to Comanche Station (drill rig is secured)

0800 Onsite / sign in at admin bldg.

0815 Safety & JHA Meeting

0830 Move drilling and setup on MW-38
* DTW = 17.40' TD = ~47' (ded. pump)

0845 Begin advancing MW-38 MNA with hollow stem auger - 5ft below surface geology will be verified with a previously drilled log (MW-38)

0900 Switch to air rotary drilling at a depth of ~45 ft bgs

0930 Drop off SBS samples at FedEx

1000 Switch to NX coring @ ~35 ft

1030 Trouble with advancement / remove NX core barrel and attempt to auger down.

*Slow progress due to low airflow

1100 Clean out borehole w/ auger →

1100 Setup to advance w/ NX core to the weathered shale boundary

Time	Depth (ft)	Type	Rec (in)
1145	35-40	NX	60
WS	Desc: Highly weathered shale, bedded, struct. interior, soft, clayey exterior, med. strong to weak, oxidation zones		
sat. * zone	* Continue to the bottom section of WS		
1210	40-45	NX	42"
WS	Desc: Highly to moderately weathered shale, bedded, sed. struct., soft to med. hard, weak to med. strong		
sat. * zone (sample depth)	Terminate Borehole		
	Sample W-38 MNA		
1215	1x 4oz glass jar (TA) - iced		
	1x 2000g plastic bag (~~ACE~~) TA - iced		
	1x 16oz mason jar (ACE) - room temp		
	* Cadmium, cobalt, radium, XRD-Clay CEC and Kd (multiple labs)		
1230	Stop drilling and pack up all equipment for transport		
	* Backfill borehole w/ drill cuttings after removing all equipment		
1330	Pack up/secure drill equipment		
1345	and drive to W-2C		
	Stage rig and drill equipment at W-2C (resume tomorrow - thunderstorms)		
1400	Leave site/sign out (EOD) →		

Xcel * Comanche Fri: 6/16/23

W-2C MNA Sample Borehole

0700 Leave hotel

0730 Onsite/sign in at Comanche Station

0745 Safety & JHA Meeting

0800 Begin borehole advancement at W-2C MNA with HSA to an approximate depth of ~15 ft bgs

* DTW = 28.40' TD = ~36' (decl. pump)

0820 Setup/switch to NX rock coring

0830 The driller helper leaves to refill the utility truck portable water tank

0900 Begin NX core sampler advancement at the approximate weathered shale unit boundary (~15-20 ft bgs)

* W-2C MNA *

Time	Depth (ft)	Type	Recovery (in)
0920	15-20	NX	44"
WS	Desc: Very highly weathered shale, weak/soft clayey zones, bedded, brittle, med. hard to med. strong fractures, oxidation and evaporites		
0940	20-25	NX	60"
WS	Desc: Highly weathered shale, weak/soft clayey zones, bedded brittle planes, med. hard to med. strong, fractures, evaps, oxidation zones		

* SEE NEXT PAGE →

1000	25-30	NX	48" [redacted]
WS *Sat. zone (partial)	Desc: Highly to moderately weathered shale, soft/weak clayey areas, brittle fracture zones, trace evaporites, bedded, med. hard to med. strong		
1020	30-35	NX	60"
WS *Sat. zone (sample)	Desc: Mod. to slightly weathered, fractures, brittle areas, bedded, [redacted] soft to hard, weak to strong, no oxidation/caps		

Terminate Borehole

1030 **Sample MW-2C MNA:**

1x 4oz glass jar (cadmium - TA)
1x 2000g plastic bag (cobalt + radium) TA
1x 16 oz mason jar (ACZ) XRD - Clay, CEC
1x 12 inch core ([redacted] - WSP)
* Separate labs Kd

1045 Remove NX core equipment from open borehole [redacted]

1115 Remove HSA segments from the ground and backfill the borehole with drill cuttings

1145 Mast down the rig and packup all drilling equipment for transport

1215 Drive over to the next borehole MW-3 MNA

1245 Setup to advance sample borehole MW-3 MNA →

1300 Advance MW-3 MNA to a depth of ~5 ft bgs with HSA

1315 Switch to NX core sampler at the approximate weathered shale boundary

*** MW-3 MNA ***

13[redacted]25	5-10	NX	60"
CL to WS *Sat. zone (sample)	Desc: Lean clay from ~5-7 ft, transitions into very highly weathered shale, bedded, soft/weak clayey areas, Med. strong/hard		

1330 **Sample MW-3 MNA:**

* cadmium, cobalt, radium, XRD-Clay and Kd (Separate labs)

1345 Remove NX coring equipment/augers and backfill the open borehole with drill cuttings

1400 Fill out driller paperwork and leave site (return to Denver)

* Drop samples off at TA lab before they close at 5 PM (ROC)

1700 Eurofins TestAmerica is closed and no longer accepting sample deliveries (delayed in travel due to traffic and rain)

1715 Home

EOD

Xcel Comanche
MNA Boreholes / Mobilize to Denver

Mon: 6/19/23

0630	Leave apartment and drive to Pueblo
0700	Stop for gas
0900	Onsite / sign in at admin. bldg
0915	Safety + JHA meeting
0930	Setup rig to drill W-9
1000	Begin advancing W-9 with HSA to an approximate depth of ~~refusal~~ ~25 ft bgs
1030	Switch to NX core sampler at ~25 ft bgs to capture the weathered shale contact
1100	Start NX Rock Coring

Time	Depth (ft)	Type	Rec (in)
1115	25-30	NX	60"

CL to WS transition (boundary)

Desc: Lean clay transition to highly weathered shale, soft clayey zones, weak/brittle areas, med. hard/strong, bedded, some evaporites

1135	30-35	NX	60"

* Sat. zone @ ~33 ft bgs (sample partial)

Desc: Highly to mod. weathered Shale, bedded, soft/brittle clay zones, med. hard

1150	35-40	NX	60"

WS * Sat. zone (sample)

Desc: Slightly weathered shale, bedded, med-strong/hard, trace evaps, no oxidation

Terminate Borehole

1200 **Sample W-9 MNA:**
- 1 x 4oz glass jar (TA)
- 1 x 2000g plastic bag (TA)
- 1 x 250g Mason jar ~~(Glass)~~ (AC-Z)
- 1 x 12-inch core (WSP)
- * cadmium, cobalt, radium, CEC + Kd (multiple labs)

1215 Remove NX coring equipment and augers from borehole

1230 Mast down/move rig and pack up equipment

1245 Backfill open borehole with drill cuttings to the surface

1300 Move all vehicles to the bat truck by the front gate

1330 Unload drill rig to be towed from the site to a local auto shop

1400 Leave site/sign out - Return to Denver

1610 Deliver MNA samples to TA
* cadmium, cobalt + radium (MW-3, W-26, W-9, W-38)

1630 Home

EOD

May 1 2023

Kelly Malone
60°f sunny

0900 arrive at site
0930 unpack equipment
0955 take WLs

P2-PT1: 15.75 km ~~[illegible]~~ ft btoc
PTW: 16.23 km ~~[illegible]~~ ft btoc
W-6B1: 16.91 km ~~[illegible]~~ ft btoc

1000 set up insitu software on computer
1230 set up level trolls in PTW and ~~[illegible]~~ km W-6B1, 0.5 ft above bottom of casing

PTW: 44.50 ft
W-6B1: 44.50

1340 Start log
1600 Pump test start, pumping rate at 0.25 GPM
1609 Rate decreased to 0.16PM, too much drawdown seen
1956 Chad arrives at Comanche
2030 Set up extra troll at P2-PT1, 0.5 f above bottom

P2-PT1: 44.50 ft

2100 Switch off with Chad, leave for hotel
2110 Call with Chad, says well is almost dry. Decide to continue w/ pumping rate
2155 Pump test stopped, well ran dry. Start recovery test

Scanned with CamScanner

Kelly Malone
70°f sunny

May 2 2023

0750 Arrive at Comanche
0815 Check trolls at pump test well, not enough recovery
0850 Call with Chad, decide to come back next day
1235 Leave comanche

May 3 2023

0750 Arrive at Comanche
0815 Stop troll at pump test well
0840 Sample taken at PTW
1200 Leave comanche to drop off lab samples

Scanned with CamScanner