

2025 Annual Groundwater Monitoring and Corrective Action Report

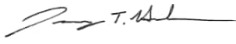
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Wheatland, Wyoming

Basin Electric Power Cooperative

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List of Acronyms

95% LCL	95 percent lower confidence limit
ACM	Assessment of Corrective Measures
AECOM	AECOM Technical Services, Inc.
ASD	alternative source demonstration
Basin	Basin Electric Power Cooperative
bgs	below ground surface
CCR	coal combustion residuals
CFR	Code of Federal Regulations
ft	feet
ft/day	feet per day
GWPS	groundwater protection standard
LRS	Laramie River Station
SSI	statistically significant increase
SSL	statistically significant levels
TDS	total dissolved solids
UPL	upper prediction limit
U.S.	United States
USGS	United States Geological Survey

Executive Summary

This report summarizes groundwater monitoring and corrective action activities completed between January 1 and December 31, 2025 for the coal combustion residuals (CCR) units at the Basin Electric Power Cooperative (Basin) Laramie River Station (LRS), as required by 40 Code of Federal Regulations (CFR) § 257.90(e) of the United States (U.S.) Environmental Protection Agency CCR rule. The CCR units subject to the rule include:

- Bottom Ash Pond 1;
- Bottom Ash Pond 2/Bottom Ash Pond 3/Ash Landfill Multi-unit; and
- Emergency Holding Ponds Multi-unit.

Site figures illustrating the location of the CCR units and program monitoring networks for the CCR units are presented as **Figures 1** and **2**, respectively. There were no changes to the monitoring program that occurred during the reporting period.

Basin implemented an Assessment monitoring program for Bottom Ash Pond 1 and the two CCR multi-units (Bottom Ash Pond 2/Bottom Ash Pond 3/Ash Landfill and Emergency Holding Ponds) in the spring of 2018, in response to the identification of statistically significant increases (SSIs) of Appendix III constituents in downgradient monitoring wells. Assessment monitoring was in place for all three units/multi-units at the start and end of the current annual reporting period (2025).

Assessment monitoring of the Bottom Ash Pond 2/Bottom Ash Pond 3/Ash Landfill Multi-unit in 2025 found that concentrations of one Appendix III constituent (fluoride), and six Appendix IV constituents (arsenic, chromium, fluoride, molybdenum, radium 226/228 combined, and selenium) exhibited SSIs above background values at select monitoring wells. No SSIs identified at the Bottom Ash Pond 2/Bottom Ash Pond 3/Ash Landfill Multi-unit exceeded groundwater protection standards (GWPSs).

Assessment monitoring of the Emergency Holding Ponds Multi-unit in 2025 found that concentrations of one Appendix III constituent (fluoride), and four Appendix IV constituents (barium, chromium, fluoride, and radium 226/228) exhibited SSIs above the background values at select monitoring wells. No SSIs identified at the Emergency Holding Ponds Multi-unit exceeded GWPSs.

Assessment monitoring of the Bottom Ash Pond 1 Unit found that concentrations of five Appendix III constituents (boron, calcium, chloride, sulfate, and total dissolved solids [TDS]) and four Appendix IV constituents (chromium, lithium, molybdenum, and selenium) exhibited SSIs above background levels at select monitoring wells. Lithium at monitoring wells MW-38B and MW-21B and molybdenum at monitoring well MW-38B additionally exceeded GWPSs. Downgradient well(s) with a constituent or constituents reported above GWPSs at a statistically significant level (SSL) are as follows:

Appendix IV Constituent	Unit/Multi-Unit	Downgradient Well(s) GWPS SSL Exceedance
Lithium and molybdenum	Bottom Ash Pond 1	MW-38B

For context, previously as required by the CCR rule, an assessment of corrective measures (ACM) was conducted and a public meeting open to interested and affected parties was held on January 30, 2020, to discuss the results of the ACM. After completion of the ACM, work was initiated on the Selection of Remedy for the impacted groundwater as required by 40 CFR § 257.97. A Groundwater Remedy Selection Report was prepared and issued in July 2020 (AECOM Technical Services, Inc. [AECOM] 2020), after which work was initiated on the design and implementation of the following selected remedy:

- Bottom Ash Pond 1 retrofit, hydraulic capture of impacted groundwater, and treatment of the captured groundwater in the new zero-discharge Pond 1.

Cleanout and retrofit of Bottom Ash Pond 1, which essentially eliminated the source of impact to groundwater was completed in March 2021. Installation and hydraulic testing of extraction wells for the hydraulic capture system was

completed in December 2021. The hydraulic capture pumping system was designed in 2022 and contracting for installation of the system was initiated in 2022. Installation of the pumping system began in summer 2023 and initiation of pumping on a continual basis began on July 24, 2024, once final system components were installed. Recovery well RW-1 and RW-2 both operated for the first half of 2025, but RW-1 became non-functioning in mid-2025. Efforts to return the well to service have been ongoing during the second half of 2025.

Other activities and conditions for the 2025 annual reporting period include:

- Semiannual Assessment-mode groundwater monitoring events were conducted in May and September. Monitoring involved sampling of background monitoring wells and downgradient monitoring wells.
- Dedicated bladder pumps in monitoring wells MW-52B and MW-53BR were repaired and reinstalled.
- No program transitions (Detection to Assessment or vice versa) were triggered.
- The First Half 2025 Assessment-Mode Monitoring Summary Report was completed (August 2025).

Anticipated activities for the next annual reporting period include:

- Completion of two semi-annual Assessment-mode groundwater monitoring events.
- Statistical evaluation of groundwater data for Appendix III and Appendix IV constituents.
- Performance monitoring of the selected remedy.
- Return Extraction System recovery well RW-1 to operation.

1 Introduction

On behalf of Basin Electric Power Cooperative (Basin), AECOM Technical Services, Inc. (AECOM) has prepared this 2025 annual report documenting groundwater monitoring and corrective action for the coal combustion residuals (CCR) units at Basin's Laramie River Station (LRS).

Section 1 provides background information on the LRS power generating facility, its CCR unit(s) and their physical setting, including geology, hydrology, and groundwater conditions. Section 2 summarizes CCR groundwater monitoring activities conducted prior to 2025. Section 3 summarizes the groundwater monitoring and corrective action activities completed in 2025, and references attachments to this report that contain detailed documentation of those activities. Section 4 provides some general information regarding the LRS CCR program and actions planned for 2026. Section 5 presents a summary and conclusions from CCR groundwater monitoring in 2025 and statistical analysis of the results. Section 6 lists references cited in this report.

1.1 Regulatory Background

The CCR rule (Chapter 40 of the Code of Federal Regulations [CFR] Part 257 Subpart D) became effective on October 19, 2015, and established standards for the disposal of CCR in landfills and surface impoundments (CCR units). In particular, the rule set forth groundwater monitoring and corrective action requirements for CCR units. The rule includes the requirement for an "annual groundwater monitoring and corrective action report" (annual report), with the annual report for 2025 due by January 31, 2026. The annual report is intended to document the status of the groundwater monitoring and corrective action program for each CCR unit, summarize key actions completed in the previous year, and project key activities for the upcoming year. This report is the ninth annual report for LRS and reports on activities performed and data gathered in calendar year 2025.

1.2 Facility Location and Operational History

LRS, located east of Wheatland, Wyoming (**Figure 1**), is one of the largest consumer-operated, regional, joint power supply ventures in the United States (U.S.). The plant consists of three power-generating units with a total power output capacity of 1,710 megawatts:

- Unit 1, with a rating of 570 megawatts, which began operating in 1980;
- Unit 2, with a rating of 570 net megawatts, which began operating in 1981; and
- Unit 3, with a rating of 570 net megawatts, which began operating in 1982.

CCR produced at LRS includes fly ash, bottom ash, and flue gas desulfurization waste.

1.3 CCR Unit Description

CCR is disposed at LRS in the following CCR units, monitored as individual units or multi-units:

- Bottom Ash Pond 1;
- Bottom Ash Pond 2/Bottom Ash Pond 3/Ash Landfill (multi-unit); and
- Emergency Holding Ponds (multi-unit).

The Ash Landfill and three bottom ash ponds are located near the western edge of the site, west of the LRS generating units and office complex (**Figure 2**). The two emergency holding ponds are located north of the generating units in the northeastern part of the site. The landfill and ash ponds were permitted in 1978 and began receiving coal ash in 1980. The emergency holding ponds were identified as CCR units due to periodic disposal of flue gas desulfurization waste in the ponds.

Changes that have been implemented at each unit to improve CCR management include the following:

- Bottom Ash Pond 1, Bottom Ash Pond 2, and the East Emergency Holding Pond were cleaned out and retrofitted with liners in 2020 and 2021.
- Because they were considered unlined, Bottom Ash Pond 3 and the West Emergency Holding Pond ceased accepting CCR material prior to April 11, 2021.
- Partial retrofit with a liner of Bottom Ash Pond 3 was completed during the 2022 construction season and AECOM completed retrofit construction certification in January 2023.
- CCR and CCR-impacted materials were removed from the eastern portion of Bottom Ash Pond 3, consolidated into the western portion, and excess materials were disposed of in the onsite CCR Landfill. A new central berm with a composite liner system was constructed on both sides of the berm in accordance with 257.71 of the CCR Rule, and a final cover was installed on the West Hill consisting of a synthetic membrane, soil infiltration layer, and topsoil.
- Drainage and excavation of materials in the west emergency holding pond and the inactive eastern lobe of the East-Emergency Holding Pond began in May 2024 as part of a liner retrofit project. The West Emergency Holding Pond liner retrofit project was completed in 2025 and the West Emergency Holding Pond was placed into service on November 6, 2025. The drainage of all CCRs and removal of the liner in the eastern lobe of the East Emergency Holding Pond was completed in April 2025 and seeding was completed in October 2025. This area was not retrofit and is not used as an impoundment.

1.4 Physical Setting

The geological and hydrogeological setting is important to understanding the groundwater environment in the vicinity of the LRS. The geologic history of Platte County, Wyoming is similar to most areas within the Front Range of the Rocky Mountains. Platte County is underlain by marine and continental deposits of limestone, conglomerate, sandstone, siltstone, shale, and unconsolidated sediments. Deposits range in thickness up to 10,000 feet (ft) in the east central and southeastern parts of the county. Precambrian rocks generally make up the mountainous areas, Paleozoic and Mesozoic rocks adjoin the older formations, and Tertiary and Quaternary period rocks underlie most of the county east of the Laramie Range (U.S. Geological Survey [USGS] 1960). The Laramide Orogeny was a period of mountain building active in the county approximately 70 million years ago marking the beginning of the Laramie Range and the Hartville Uplift, a structural divide separating the southern Powder River Basin from the northern Denver Basin. During the Cenozoic Era, streams eroded the eastern side of the range depositing silts, sands, and gravels of the Brule and Arikaree Formations that underlie the Wheatland area, including LRS.

Precipitation landing on the eastern flank of the Laramie Range supplies surface water to perennial and ephemeral streams that flow east towards the basin. Most surface water west of Wheatland eventually joins with the Laramie River, continuing east before discharging into the Platte River near Fort Laramie. Groundwater near Wheatland is recharged primarily through infiltration of rain and melt water on the eastern flank of the Laramie Range and through infiltration of irrigation water during the spring, summer, and fall months. Some groundwater in the saturated zones eventually returns to the land surface through seeps and springs, or is discharged by wells and evapotranspiration; however, the majority flows into surface streams. Alluvial drainages bounding the western (Wheatland Creek) and eastern portions (Chugwater Creek) of the facility generally transport surface water northward, discharging to the Laramie River (USGS 1960). Some groundwater within these regions percolates into the Arikaree Formation, which holds the uppermost aquifer beneath the LRS facility.

The LRS facility is underlain by a 5 to 30 ft thick section of Quaternary sediments that overlie the Arikaree Formation. The Arikaree Formation is comprised primarily of loosely to moderately cemented, very-fine to fine-grained sandstone with interbedded silts and clays. A lower unit consists of lenses of loose- to well-cemented, red to gray coarse sandstone interbedded with lenses of well-cemented conglomerate. A basal conglomerate lies unconformably upon the underlying Brule Formation in many places throughout Platte County (USGS 1960). A review of the geologic logs generated during the drilling of the on-site water supply well (Forell-Baumgardner No. 2) suggests the Brule Formation is approximately 820 ft below ground surface (bgs) in the western portions of the facility. Based on this information, the local thickness of the Arikaree Formation on-site is approximately 790 ft thick.

The lithologic characteristics of the Arikaree Formation beneath the LRS are generally consistent, although there are slight differences in the degree of cementation and induration, and minor variations in grain size. Few fractures were

noted in borehole soil cores obtained during monitoring well network installation. Interbeds with higher silt and clay content, coupled with greater cementation, generate thin discontinuous perched groundwater horizons that are interpreted to hold only seasonal groundwater. The perched groundwater would tend to percolate downward to what is interpreted as the uppermost aquifer based on data obtained during monitoring well installation and aquifer testing. The uppermost aquifer is present at a depth of approximately 95 ft bgs in the southwestern portion of the facility, and slopes generally north towards the Laramie River. The hydraulic gradient for the uppermost aquifer beneath the facility appears to be controlled dominantly through topographic features and enhanced infiltration zones in permeable shallow alluvium. A representative potentiometric surface map from the most recent Assessment monitoring event conducted in September 2025 is presented in **Attachment A**. Data from aquifer pumping tests conducted at the facility in 2016 were used to estimate hydraulic conductivities, which range from 0.65 ft per day (ft/day) to 3.12 ft/day, with an average of 1.40 ft/day. Aquifer slug tests were also performed on eight other wells, with resulting hydraulic conductivities ranging from 0.45 ft/day to 6.28 ft/day, with an average of 2.16 ft/day.

2 CCR Groundwater Monitoring Activities Prior to 2025

The regulatory process for CCR groundwater monitoring and corrective action is established by 40 CFR § 257.90 through 257.98. The process includes a phased approach to groundwater monitoring, leading (if applicable) to the establishment of groundwater protection standards (GWPSs) for each CCR unit. Exceedances of the GWPSs that are determined to be statistically significant can trigger requirements for additional groundwater characterization and corrective action assessment, followed by corrective action implementation.

The following paragraphs provide a summary of CCR groundwater monitoring activities performed prior to 2025. CCR groundwater monitoring activities performed in 2025 are discussed in Section 3.

Groundwater monitoring at LRS is performed using a network of monitoring wells that includes wells to monitor background water quality that is not potentially influenced by the presence of the CCR unit, and wells placed at the downgradient boundary of the CCR units (**Figure 2**). The hydro stratigraphic positions of the CCR monitoring wells selected for sampling background and downgradient groundwater quality for each LRS CCR unit or multi-unit prior to 2025 are summarized below:

CCR Unit/multi-Unit	Background Wells	Downgradient Wells
Bottom Ash Pond 1	MW-52B, MW-53BR	MW-49B, MW-21B, MW-38B, MW-38C
Bottom Ash Pond 2/Bottom Ash Pond 3/Ash Landfill	MW-39B, MW-32B	MW-36B, MW-37B, MW-20B, MW-14BR, MW-40B, MW-52B, MW-53BR
Emergency Holding Ponds	MW-41B, MW-42B, MW-43B	MW-44B, MW-45B, MW-46B, MW-47B

The following monitoring wells were also included in the CCR monitoring network for the purpose of measuring groundwater elevations and evaluating groundwater flow direction and velocity in the vicinity of the bottom ash ponds and landfill: MW-33B, MW-34B, MW-35B, MW-48B, MW-50B, MW-51B, MW-54B, MW-55B, and MW-56B. Note: MW-53BR serves as a replacement well for the original MW-53B monitoring well.

2.1 Baseline Detection Monitoring (2016-17)

Detection monitoring initiated in August 2016 involved sampling groundwater for Part 257 Appendix III and Appendix IV constituents over eight baseline Detection monitoring events.

Baseline Detection monitoring events were performed in general accordance with procedures established in the site-specific Sampling and Analysis Plan (AECOM 2018a), which is included in the facility's Operating Record. The Sampling and Analysis Plan describes the procedures for equipment calibration, monitoring well water level measurement, monitoring well purging and sampling, sample custody, sample shipping, laboratory analysis, and documentation requirements for each groundwater sample submitted. The results of detection monitoring at LRS were presented and discussed in the First Annual Groundwater Monitoring and Corrective Action Report, 2016-2017 (AECOM 2018b).

2.2 Initial Assessment Monitoring (2018)

If a statistically significant increase (SSI) of any Appendix III constituent relative to background conditions was detected in the downgradient monitoring wells and could not be demonstrated to be associated with a source other than the CCR unit, then the CCR rule required that groundwater monitoring transition from the Detection monitoring phase to the Assessment monitoring phase. The results of the Baseline Detection monitoring (2016–2017) identified the following Appendix III SSIs:

- Bottom Ash Pond 1 SSIs – boron, calcium, chloride, sulfate, and total dissolved solids (TDS);
- Bottom Ash Pond 2/Bottom Ash Pond 3/Ash Landfill SSIs – fluoride and chloride; and

- Emergency Holding Ponds SSI – fluoride.

In response to SSIs identified during Detection monitoring, Basin implemented an Assessment monitoring program for the two CCR multi-units (Bottom Ash Pond 2/Bottom Ash Pond 3/Ash Landfill and Emergency Holding Ponds) in the spring of 2018. The initial Assessment monitoring event for the two multi-units was conducted in April 2018 and included analysis of groundwater samples for constituents listed in Part 257 Appendix IV.

Also in the spring of 2018, Basin elected to conduct an alternative source demonstration (ASD) investigation to evaluate whether an alternative source could explain the SSIs identified for Bottom Ash Pond 1 during Detection monitoring. This ASD investigation involved the following activities:

- Analyzing soil samples collected from shallow soil borings at 10 locations near Bottom Ash Pond 1; and
- Performing groundwater modeling to evaluate potential constituent migration pathways and transport times from potential source areas to one of the downgradient wells for Bottom Ash Pond 1.

The ASD investigation could not confirm an alternative source; therefore, Basin initiated an Assessment monitoring program for Bottom Ash Pond 1 and completed the initial Assessment monitoring event in June 2018, which included analysis of groundwater samples for constituents listed in Part 257 Appendix IV.

The following Appendix IV constituents were detected during the initial Assessment monitoring of the CCR multi-units: barium, chromium, fluoride, lithium, molybdenum, radium-226 and -228 (combined), and selenium (April 2018). The Appendix IV constituents detected during initial Assessment monitoring of Bottom Ash Pond 1 included barium, chromium, cobalt, fluoride, lithium, molybdenum, and selenium (June 2018).

Because one or more Appendix IV constituents were detected during the initial Assessment monitoring events for all three CCR units/multi-units at LRS, the CCR rule required that a second verification Assessment monitoring event be performed for each unit/multi-unit. Verification Assessment monitoring was performed in June 2018 for the two multi-units and in October 2018 for Bottom Ash Pond 1. Verification monitoring for each unit/multi-unit involved analysis for Appendix III constituents plus the Appendix IV constituents detected during initial Assessment monitoring.

The results of Assessment monitoring conducted in 2018 were presented in the 2018 Annual Groundwater Monitoring and Corrective Action Report (AECOM 2019a).

2.3 Additional Groundwater Characterization (2019)

The CCR rule requires that concentrations of Appendix III and Appendix IV constituents detected in downgradient wells during Assessment monitoring be compared to background concentrations using the statistical procedures in 40 CFR § 257.93(g). The rule also requires the establishment of GWPSs in accordance with 40 CFR § 257.95(h) for each Appendix IV constituent detected in downgradient wells during Assessment monitoring. If a GWPS is exceeded in one or more downgradient wells at statistically significant levels (SSLs), the rule requires additional groundwater characterization and an ACM, unless the SSLs can be attributed to a source other than the CCR unit or to an error in sampling, statistical evaluation, or natural variation in groundwater quality.

Assessment monitoring of Bottom Ash Pond 1 found that lithium and molybdenum concentrations in monitoring well MW-38B exceeded GWPSs at SSLs. Although selenium concentrations in monitoring wells MW-21B and MW-38B exceeded the GWPS by direct comparison, their 95 percent lower confidence limit (95% LCL) did not exceed the GWPS. Basin concluded the available data indicated that the SSLs associated with Bottom Ash Pond 1 could not be attributed to a source other than the CCR unit or to errors in sampling, statistical evaluation, or natural variation in groundwater quality. Therefore, Basin performed additional groundwater characterization and an ACM for Bottom Ash Pond 1. Additional groundwater characterization activities were performed in the spring of 2019 to evaluate the nature and extent of groundwater impacted by a release of CCR from Bottom Ash Pond 1 that has resulted in the exceedance of GWPSs for lithium and molybdenum. The characterization activities were designed to also support selection and implementation of a remedy to attain GWPSs. The activities involved installation and sampling of four monitoring wells (MW-38C, MW-54B, MW-55B, MW-56B) downgradient of Bottom Ash Pond 1 at the locations illustrated in **Figure 2**:

- MW-38C was installed near MW-38B to evaluate the vertical extent of groundwater impacts near MW-38B. The total depth of MW-38C was 130 ft bgs.
- MW-54B was installed to evaluate groundwater quality of the uppermost aquifer at the facility boundary. The total depth of MW-54B was 25 ft bgs.
- MW-55B was installed northeast of MW-21B to evaluate the downgradient extent of groundwater impacts north of MW-38B. The total depth of MW-55B was 70 ft bgs.
- MW-56B was installed east of MW-21B to evaluate the lateral extent of groundwater impacts northeast of MW-38B. The total depth of MW-56B was 79 ft bgs.

Groundwater samples from the four wells were analyzed for Appendix III parameters and the following Appendix IV parameters: barium, chromium, cobalt, fluoride, lithium, molybdenum, and selenium; and the geochemical parameters alkalinity, magnesium, and sodium. None of the 2019 results exceeded the GWPSs for lithium, molybdenum, or the other Appendix IV constituents detected during Assessment monitoring in 2018. These results, combined with results from past Assessment monitoring, reasonably defined the extent of groundwater impacted by lithium and molybdenum attributed to Bottom Ash Pond 1. The data suggest that the horizontal extent of groundwater with lithium and molybdenum concentrations exceeding GWPSs extends from Bottom Ash Pond 1 downgradient to MW-38B, but not as far as MW-55B or MW-56B. Similarly, the vertical extent of groundwater exceeding GWPSs extends from the surface of the uppermost aquifer at MW-38B to possibly below the bottom of the screened interval of MW-38B (75 ft bgs), but not as deep as the screened interval of MW-38C (114 ft bgs to 125 ft bgs). Overall, the data enhanced understanding of relevant site conditions, assisted in selecting a remedy, and will be useful for remedy design and implementation.

2.4 Assessment of Corrective Measures (ACM) (2019-2020)

Groundwater Assessment monitoring of Bottom Ash Pond 1 identified lithium and molybdenum at SSLs above GWPSs. The exceedance of GWPSs triggered requirements for the assessment, selection, and implementation of corrective measures to prevent further releases of hazardous constituents, remediate any releases, and restore the affected area. Basin completed an ACM in 2019 (AECOM 2019b). The ACM focused on identifying and evaluating groundwater corrective measures to address the dissolved lithium and molybdenum in groundwater downgradient of Bottom Ash Pond 1.

Potentially applicable corrective measures were identified based on the nature and extent of groundwater impacts and site-specific geological and hydrogeological characteristics. Screening was performed by evaluating each corrective measure against the criteria of effectiveness, technical implementability, and relative cost. Those that were deemed ineffective and/or had significant implementation concerns were rejected from further consideration. Natural attenuation, groundwater extraction, and long-term monitoring passed the screening step and were assembled into the following two corrective measures alternatives for further detailed evaluation:

- Alternative A: Natural Attenuation and Long-Term Monitoring; and
- Alternative B: Groundwater Extraction, On-site Reuse or Disposal, and Long-Term Monitoring.

The two alternatives were evaluated against the requirements specified in 40 CFR § 257.96 and § 257.97, broadly categorized under the criterion of effectiveness, implementability, and cost. The results of the ACMs, including an evaluation of the two alternatives, are presented in the ACMs (AECOM 2019b). The two alternatives were presented at a public meeting held on January 30, 2020, in Wheatland, Wyoming. A 30-day public comment period started on January 30, 2020, and ended on February 29, 2020. No comments were received during the 30-day period following the public meeting.

2.5 Selection of Remedy and Remedy Implementation (2020-2021)

Following the ACM public meeting, Basin elected to implement Alternative B: Retrofit of Bottom Ash Pond 1, Groundwater Extraction, On-site Reuse or Disposal, and Long-Term Monitoring to meet the remedy requirements of the CCR rule. The Groundwater Remedy Selection Report was certified and issued in July 2020 (AECOM 2020). Basin

subsequently initiated remedial design activities within 90 days of remedy selection in accordance with 40 CFR § 257.97.

- The first step in the selected alternative involves the removal of all CCR from Bottom Ash Pond 1 and the placement of a liner system before returning it to service as a CCR unit. The retrofit was initiated in August 2020 and completed in March 2021.
- The second step involves the use of proven, reliable groundwater pumping technology to intercept impacted groundwater and route it back to the retrofitted Bottom Ash Pond 1. Design of this step was initiated in November 2020 and was completed in spring 2022. The following steps were completed in 2021:
 - Installation of two 6-inch recovery wells to a total depth of approximately 80 ft bgs occurred in November 2021.
 - Recovery well development and aquifer testing of the recovery wells occurred in December 2021.

2.6 Semi-annual Assessment Monitoring (2019-2024)

Assessment monitoring in 2018 of the Bottom Ash Pond 2/Bottom Ash Pond 3/Ash Landfill multi-unit found that concentrations of Appendix IV constituents chromium, fluoride, and selenium exhibited SSIs above background values, but all concentrations were below GWPSs. Therefore, Assessment monitoring of this multi-unit is required on a semi-annual basis per the requirements of 40 CFR § 257.95. Assessment monitoring of the Emergency Holding Ponds multi-unit found that Appendix IV constituents chromium, fluoride, and selenium exhibited SSIs above background values but below GWPSs. Therefore, semi-annual Assessment monitoring of this multi-unit is also required. The results of semi-annual Assessment monitoring subsequently completed in 2025 are discussed in Section 3.

The first of two semi-annual Assessment monitoring events for 2019 occurred on June 4-6, 2019. The field activities and resulting data were summarized in the Sampling and Analysis Report, Assessment Monitoring, June 2019 (AECOM 2019c). The second semi-annual Assessment monitoring event for 2019 occurred on October 21-23, 2019. The field activities and data were summarized in the Sampling and Analysis Report, Assessment Monitoring, October 2019 (AECOM 2019d).

Semi-annual Assessment monitoring events for the 2020-2023 monitoring years occurred in June and October of each year. In 2024, assessment monitoring events were completed in June and September. The field activities and resulting data were summarized in the 2020 Annual Groundwater Monitoring and Corrective Action Report, the 2021 Annual Groundwater Monitoring Corrective Action Report, the 2022 Annual Groundwater Monitoring Corrective Action Report, 2023 Annual Groundwater Monitoring Corrective Action Report, and the 2024 Annual Groundwater Monitoring Corrective Action Report (AECOM 2021, 2022, 2023, 2024 ,2025).

3 CCR Groundwater Monitoring and Corrective Action Activities in 2025

This section summarizes the activities conducted at LRS in 2025 to comply with the groundwater requirements of the CCR rule:

- Groundwater Assessment monitoring activities for all CCR units:
 - monitoring system evaluation;
 - groundwater sampling;
 - laboratory analysis; and
 - statistical analysis of the monitoring results.
- Repair and reinstallation of dedicated bladder pumps in monitoring wells MW-52B and MW-53BR.
- Groundwater Corrective Action
 - A Groundwater Extraction System was designed for Bottom ash Pond 1, was partially installed in 2023 with final installation completed in July 2024, and operation began on July 24, 2024.
 - Groundwater recovery well RW-1 experienced a pumping malfunction late in 2025 while RW-2 has remained operational. Efforts to repair the pumping system in RW-1 are ongoing. RW-2 pumping continues to enact the groundwater corrective action remedy.

Further details concerning each of these activities, including brief discussion of work completed during the reporting period are provided below.

3.1 Assessment Monitoring Activities

3.1.1 Monitoring System Evaluation

As described in the CCR Groundwater Monitoring System Report (AECOM 2017), monitoring wells were installed around the CCR unit/multi-units at LRS to: (1) facilitate collection of representative groundwater samples from the uppermost aquifer; and (2) accurately measure water table elevations to support evaluation of groundwater gradient and flow direction. Monitoring wells comprising the LRS CCR monitoring system were found to be in good condition during the assessment monitoring events conducted in 2025. Dedicated bladder pumps for monitoring wells MW-52B and MW-53BR were repaired and reinstalled during the May 2025 sampling event due to poor performance during past monitoring events.

Following additional groundwater characterization of Bottom Ash Pond 1 in the spring of 2019, Basin elected to incorporate the four newly installed monitoring wells (MW-38C, MW-54B, MW-55B, and MW-56B) into the Assessment monitoring program, which continued into 2025. Water level measurements and groundwater quality samples were collected from MW-38C during the May and September 2025 Assessment monitoring events. Water level measurements only were taken at MW-54B, MW-55B, and MW-56B in 2025.

Potentiometric surface maps constructed using the depth-to-groundwater measurements obtained at the beginning of each monitoring event are presented in **Attachment A**. The direction of groundwater flow in both 2025 events is generally to the northeast, consistent with previous data collected during detection and assessment monitoring from 2016 through 2024 and supports the design of the well network (**Figure 2**) to monitor background groundwater quality and the quality of groundwater downgradient of the three CCR unit/multi-units.

3.1.2 Groundwater Sampling and Analysis

Groundwater Assessment monitoring was performed at LRS in May and September 2025 for the three CCR unit/multi-units. Monitoring activities included collecting groundwater samples from the wells listed below:

CCR Unit/Multi-unit	Background Wells	Downgradient Wells
Bottom Ash Pond 1	MW-52B, MW-53BR	MW-21B, MW-38B, MW-38C*, MW-49B
Bottom Ash Pond 2/Bottom Ash Pond 3/Ash Landfill (multi-unit)	MW-39B, MW-32B	MW-36B, MW-37B, MW-20B, MW-14BR, MW-40B, MW-52B, MW-53BR
Emergency Holding Ponds (multi-unit)	MW-41B, MW-42B, MW-43B	MW-44B, MW-45B, MW-46B, MW-47B

* MW-38C, installed in April 2019, was added to the assessment monitoring program as a downgradient compliance well for Bottom Ash Pond 1.

In addition to the wells above, grab samples were collected from the two recovery wells on site (RW-1 and RW-2) during each sampling event to help evaluate the performance and operation of the recovery well system. In September 2025, RW-1 was not operational and therefore, a sample was only obtained from RW-2. Corrective measures are ongoing to return RW-1 to an operational status. Analytical data from these samples is presented in **Attachment A**.

Water levels were also measured in the following monitoring wells for the purpose of evaluating groundwater flow direction and velocity:

- MW-33B, MW-34B, MW-35B, MW-48B, MW-50B, MW-51B, MW-54B, MW-55B, and MW-56B. Assessment monitoring sampling and analysis was performed in general accordance with procedures established in the Sampling and Analysis Plan (AECOM 2018a). The results are presented in **Attachment A**, which also includes representative potentiometric surface maps for the uppermost aquifer, inferred groundwater flow directions and estimated velocities, and a tabulated summary of field measurements and laboratory analytical data.

3.2 Statistical Procedures and Analysis

The CCR rule requires that concentrations of Appendix III and Appendix IV constituents detected in downgradient wells during Assessment monitoring be compared to background concentrations using the statistical procedures in 40 CFR § 257.93(g). The rule also requires the establishment of GWPSs for each Appendix IV constituent detected in downgradient wells during Assessment monitoring. The detected concentrations are then compared to the GWPSs for each constituent, which are either:

- The federal Safe Drinking Water Act maximum contaminant level;
- Concentrations for cobalt, lead, lithium, and molybdenum specified in 40 CFR § 257.95(h)(2); or
- The background concentration (upper prediction limit [UPL]) if it is higher than the maximum contaminant level or concentration specified in 40 CFR § 257.95(h)(2).

The statistical analysis procedures and results from 2025 Assessment monitoring for each LRS CCR unit/multi-unit are discussed below. Input and output data files for calculating the UPLs and lower prediction limits for the LRS multi-units are provided in **Attachment B**.

3.3 Bottom Ash Pond 1

Appendix III and Appendix IV groundwater quality data from Bottom Ash Pond 1 Assessment monitoring were evaluated using an interwell approach that statistically compared constituent concentrations at downgradient monitoring wells to those present at background monitoring wells. The statistical analyses were performed in accordance with the Statistical Method Certification and Statistical Methodology presented in the CCR Groundwater Monitoring System Report (AECOM 2017).

Prediction limits (i.e., parametric or nonparametric) were developed for each constituent based on the frequency of non-detect values and whether the background data for that constituent exhibited a normal, lognormal, or nonparametric distribution. For the statistical analysis, non-detect values were represented as one-half the detection limit. No outliers were identified in the background data. Analytical data from the background monitoring wells were used to develop an UPL for the Appendix III and Appendix IV background data at 95% confidence or better. Data from each downgradient compliance monitoring well were compared to the UPL to identify SSIs over background. Mann-Kendall trend analysis was used to identify trends for constituents with SSIs. Constituents exhibiting an SSI over the background UPL were further evaluated to determine whether they are present at SSLs relative to GWPS established under 40 CFR § 257.95(d)(2). SSLs were identified by calculating the 95% LCL for the constituents exhibiting SSIs over background at the downgradient compliance wells at each CCR unit and comparing the 95% LCL to the established GWPS. A constituent is present at an SSL above the GWPS if the 95% LCL is greater than the GWPS.

Table 1 summarizes the statistically determined background UPLs of each Appendix III and Appendix IV constituent for Bottom Ash Pond 1. **Table 1** also identifies applicable Appendix IV GWPSs, whether each Appendix IV constituent concentration measured in the downgradient wells exceeds the GWPS by direct comparison, and if constituent concentrations are present at an SSL above the GWPS. Assessment monitoring of Bottom Ash Pond 1 in 2025 found that lithium and molybdenum at monitoring well MW-38B exceeded their respective GWPSs at an SSL. Appendix IV SSIs were also observed in MW-21B for lithium, molybdenum, chromium, and selenium. In these instances, the SSIs did not exceed the GWPS at an SSL because the 95% LCL did not exceed the GWPS. Assessment monitoring of this CCR unit will continue on a semi-annual basis per the requirements of 40 CFR § 257.95.

3.4 Bottom Ash Pond 2/Bottom Ash Pond 3/Ash Landfill Multi-unit

Statistical analyses of Appendix III and Appendix IV groundwater quality data for the Bottom Ash Pond 2/Bottom Ash Pond 3/Ash Landfill multi-unit were performed in a manner similar to that described above for Bottom Ash Pond 1. **Table 2** summarizes the statistically determined background UPLs of each Appendix III and Appendix IV constituent for the Bottom Ash Pond 2/Bottom Ash Pond 3/Ash Landfill multi-unit. **Table 2** also identifies applicable Appendix IV GWPSs, whether each Appendix IV constituent concentration measured in the downgradient wells exceeds a GWPS by direct comparison, and if the constituent concentrations are present at an SSL above the GWPS. Assessment monitoring of this multi-unit in 2025, found that concentrations of some Appendix IV constituents (arsenic, chromium, , fluoride, molybdenum, radium 226/228, and selenium) exhibited SSIs relative to background values at select monitoring wells, but each SSI concentration was below its respective GWPS so no SSLs were identified. Assessment monitoring of this multi-unit will continue on a semi-annual basis per the requirements of 40 CFR § 257.95.

3.5 Emergency Holding Ponds

Statistical analyses of Appendix III and Appendix IV groundwater quality data for the Emergency Holding Ponds multi-unit were also performed consistent with the methodology described above for Bottom Ash Pond 1. **Table 3** summarizes the statistically determined background UPLs of each Appendix III and IV constituent for the Emergency Holding Ponds multi-unit. **Table 3** also identifies applicable Appendix IV GWPSs, whether each Appendix IV constituent concentration measured in the downgradient wells exceeds a GWPS by direct comparison, and if the constituent concentrations are present at an SSL above the GWPS. Assessment monitoring of the Emergency Holding Ponds multi-unit in 2025 found that concentrations of Appendix IV constituents (barium, chromium, fluoride, and radium 226/228) exhibited one or more SSIs above the background value at select monitoring wells. No Appendix IV constituent concentrations exceeded the respective GWPSs so no SSLs were identified. Assessment monitoring of this multi-unit will continue on a semi-annual basis per the requirements of 40 CFR § 257.95.

3.6 Corrective Action Activities

3.6.1 Selection of Remedy for Bottom Ash Pond 1

After completion of the Bottom Ash Pond 1 excavation and retrofit, and the installation of the groundwater system extraction wells in 2021, the design of the groundwater recovery pumping system was conducted. The design included elements of pumping, piping, electrical service, and process controls. The design was completed in 2022 and the

contracting for installation of these elements was initiated in 2022. The system was partially installed in 2023 and completed in 2024, with system startup of both recovery wells in July 2024 for continual groundwater extraction. Data from the extraction wells and downgradient monitoring wells indicate that the extraction system is achieving the intended objective of hydraulic containment of impacted groundwater such that no impact above GWPSs is allowed to migrate beyond the extraction wells.

Extraction system well RW-2 has remained in service since the startup in July 2024. Extraction system well RW-1 became nonfunctional in August 2025. Ongoing maintenance to return the extraction system well to services continued the second half of 2025 with the following timeline and actions:

- 8/3/2025: Pump noted offline, unable to return to operation
- 9/25/2025: Pulled pump from well and replaced with new pump. Recovery well is still not operational.
- 11/3/2025: Control system designer checked system controls in the field and tried replacing VFD drive. The VFD was not the problem. Well still not operational but well and casing appear.
- Ongoing: Original pump being tested to see if it is functional outside of the well. Testing ongoing as of end of December 2025.
- Expected February 2026: replace lead wires to the pump to see if this corrects the problem and the well becomes operational again.

4 General Information

The following subsections summarize any problems encountered in the LRS CCR program in 2025, resolutions to those problems (if needed), and upcoming actions planned for 2026.

4.1 Problems Encountered and Corrective Actions

In April of 2024, monitoring well MW-53B was replaced with monitoring well MW-53BR due to a compromised screen in MW-53B. Data from MW-53B collected in 2024 were compared to data from MW-53BR in 2025, confirming that the similarity between the datasets demonstrates MW-53BR is a viable replacement well. Permanent bladder pumps for monitoring wells MW-52B and MW-53BR were repaired and reinstalled in the wells during the May 2025 sampling event due to poor performance during past sampling events.

The recovery well system was operational in 2025. However, in August 2025, the groundwater extraction from RW-1 became nonfunctional. Basin notified Remington Technologies, the company that installed the recovery system, to carry out warranty repair work. The pump and VFD drive were subsequently replaced. These corrective actions did not resolve the issue and work is ongoing to return the pump to operational status.

No other problems were encountered or corrective actions taken in 2025.

4.2 Actions Planned for 2026

Basin plans to continue the Assessment monitoring program for the three CCR unit/multi-unit monitoring systems at LRS in 2026. The Assessment monitoring program will include semi-annual groundwater sampling events and the required statistical evaluations. Performance monitoring samples will continue to be collected from RW-1 and RW-2 during each semi-annual sampling event to help evaluate the performance and operation of the system. Recovery well RW-1 will be returned to service once corrective actions can be identified.

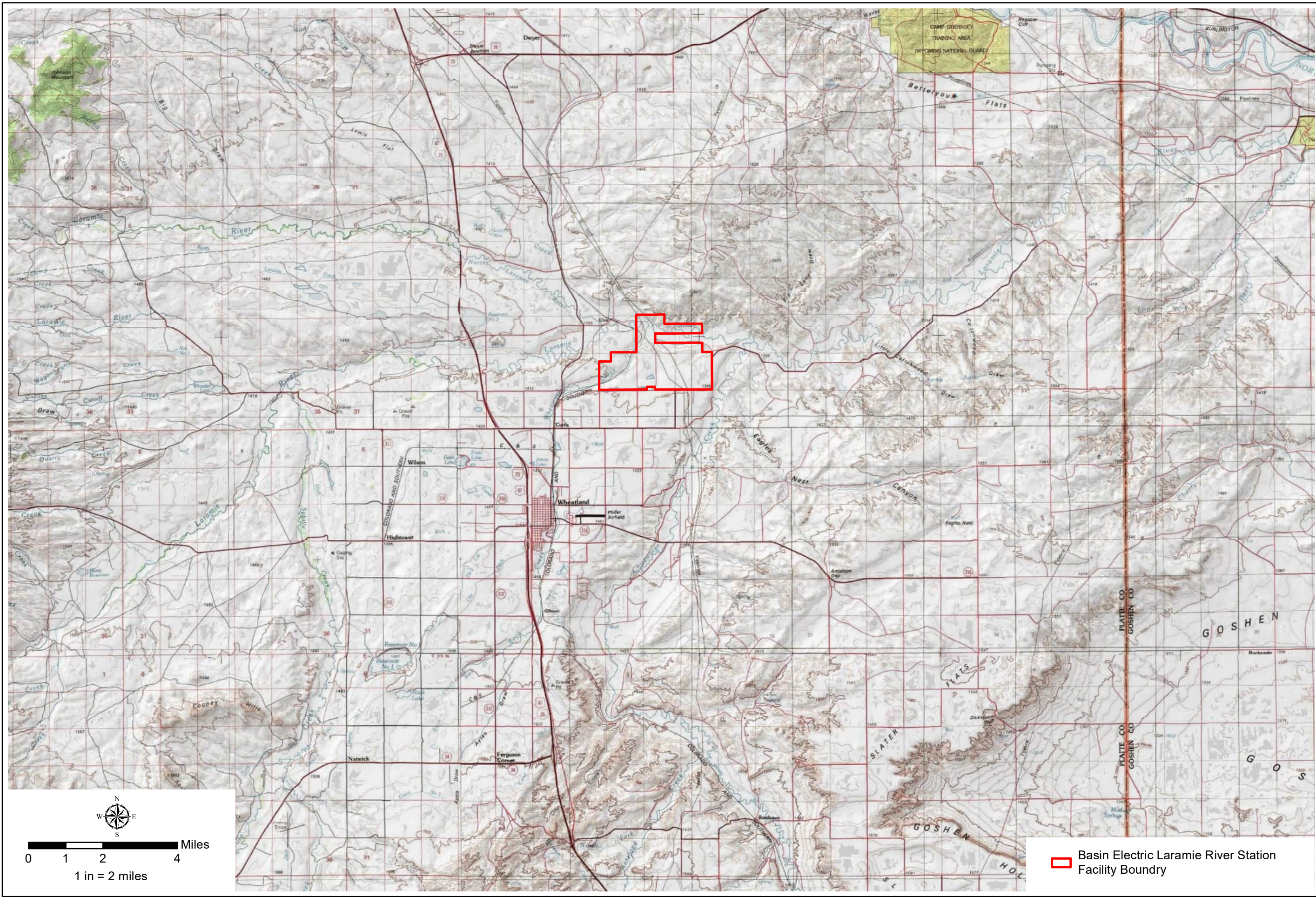
5 Summary and Conclusions

Two rounds of groundwater Assessment monitoring were performed at LRS in 2025. Statistical analysis of the results identified an SSI for at least one Appendix III constituent for each LRS CCR unit/multi-units. Therefore, Assessment monitoring will be performed on a semi-annual basis in 2026 for all LRS CCR unit/multi-units. Basin will monitor the effectiveness of the selected remedy implemented in 2024 to effect hydraulic containment of Appendix IV SSLs for lithium and molybdenum associated with Bottom Ash Pond 1. Basin will continue to comply with CCR rule notification, reporting, and certification requirements.

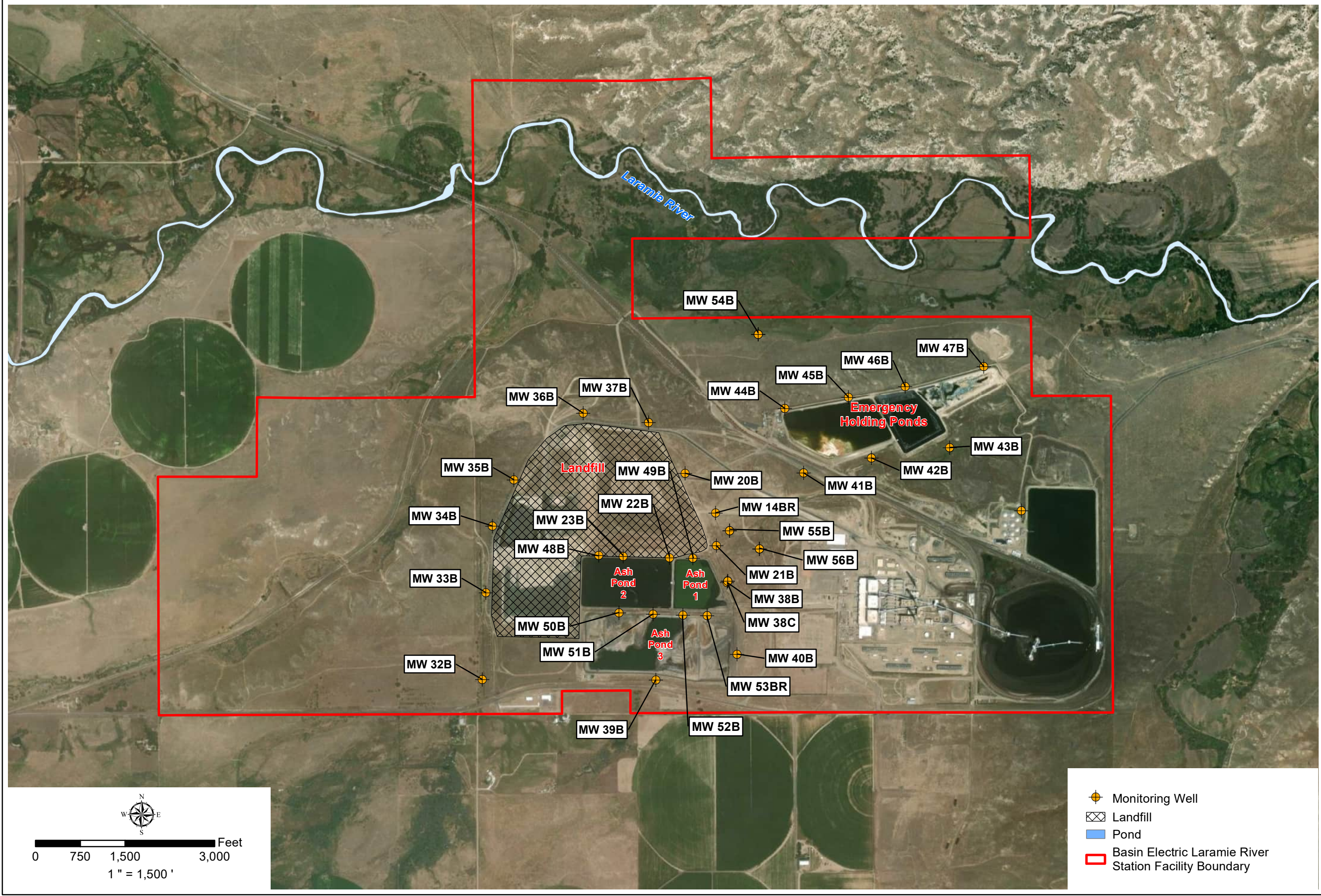
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Figures



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Tables

Table 1 Statistical Analysis Methods and Results - Bottom Ash Pond 1 2025

Parameter (units)	Number of Samples	Percent Nondetects	Normal or Lognormal Distribution?	Statistical Test	Background UPL	GWPS Basis	GWPS	SSI Above Background?	Exceeds GWPS?	SSL Above GWPS?
Appendix III										
Boron (mg/L)	81	14	No/No	Nonparametric	0.179	----	----	Yes (MW-38B, MW-49B)	----	----
Calcium (mg/L)	81	0	No/Yes	Parametric	189.3	----	----	Yes (MW-21B, MW-38B)	----	----
Chloride (mg/L)	81	0	Yes/Yes	Parametric	49.86	----	----	Yes (MW-21B, MW-38B)	----	----
Fluoride (mg/L)	84	33	Yes/No	Parametric	1.327	----	----	No	----	----
pH (std units)	89	0	No/No	Nonparametric	6.94/8.837	----	----	No	----	----
Sulfate (mg/L)	81	0	No/No	Nonparametric	647.4	----	----	Yes (MW-21B, MW-38B)	----	----
TDS (mg/L)	82	0	No/No	Nonparametric	1,403	----	----	Yes (MW-21B, MW-38B)	----	----
Appendix IV										
Antimony (mg/L)	78	100	No/No	MDL	0.002	§257.95(h)(3)	0.006	No	----	----
Arsenic (mg/L)	77	84	No/No	MDL	0.005		0.01	No	----	----
Barium (mg/L)	84	0	Yes/Yes	Parametric	0.155		2	No	----	----
Beryllium (mg/L)	77	99	No/No	MDL	0.001		0.004	No	----	----
Cadmium (mg/L)	77	99	No/No	MDL	0.001		0.005	No	----	----
Chromium (mg/L)	84	29	Yes/Yes	Parametric	0.00583		0.1	Yes (MW-21B)	No	No
Cobalt (mg/L)	84	86	No/No	Nonparametric	0.001		0.006	No	----	----
Fluoride (mg/L)	84	33	No/No	Nonparametric	1.33		4	No	----	----
Lead (mg/L)	77	92	No/No	MDL	0.001		0.015	No	----	----
Lithium (mg/L)	84	4	Yes/Yes	Parametric	0.0532		0.0532 (0.04)	Yes (MW-21B, MW-38B)	Yes (MW-21B, MW-38B)	Yes (MW-38B)
Mercury (mg/L)	77	100	No/No	MDL	0.0002		0.002	No	----	----
Molybdenum (mg/L)	84	12	Yes/Yes	Parametric	0.0138		0.1	Yes (MW-21B, MW-38B)	Yes (MW-38B)	Yes (MW-38B)
Radium 226+228 (pCi/L)	77	58	Yes/Yes	Parametric	0.803		5	No	----	----
Selenium (mg/L)	84	32	Yes/Yes	Parametric	0.0106		0.05	Yes (MW-21B)	No	No
Thallium (mg/L)	76	99	No/No	MDL	0.001		0.002	No	----	----

UPL - upper prediction limit

GWPS - groundwater protection standard (MCL shown in parentheses if UPL is higher)

SSI - statistically significant increase

SSL - statistically significant level (95LCL exceeds GWPS)

MCL - maximum contaminant level

mg/L - milligram per liter

pCi/L - picocuries per liter

MDL - UPL set at maximum Method Detection Limit

Table 2 Statistical Analysis Methods and Results - Ash Pond 2, Ash Pond 3, Ash Landfill Multiunit 2025

Parameter (units)	Number of Samples	Percent Nondetects	Normal or Lognormal Distribution?	Statistical Test	Background UPL	GWPS Basis	GWPS	SSI Above Background?	Exceeds GWPS?	SSL Above GWPS?
Appendix III										
Boron (mg/L)	160	14	No/No	Nonparametric	0.311	----	----	No	----	----
Calcium (mg/L)	160	0	Yes/Yes	Parametric	208.3	----	----	No	----	----
Chloride (mg/L)	160	0	No/No	Nonparametric	95.56	----	----	No	----	----
Fluoride (mg/L)	167	33	No/No	Nonparametric	0.93	----	----	Yes (MW-53BR)	----	----
pH (std units)	175	0	No/No	Nonparametric	6.37/7.635	----	----	No	----	----
Sulfate (mg/L)	160	0	No/No	Nonparametric	859.4	----	----	No	----	----
TDS (mg/L)	160	0	No/No	Nonparametric	1,835	----	----	No	----	----
Appendix IV										
Antimony (mg/L)	153	99	No/No	MDL	0.002	§257.95(h)(3)	0.006	No	----	----
Arsenic (mg/L)	153	84	No/No	MDL	0.005		0.01	Yes (MW-40B)	No	No
Barium (mg/L)	167	0	No/No	Nonparametric	0.0885		2	No	----	----
Beryllium (mg/L)	153	99	No/No	MDL	0.001		0.004	No	----	----
Cadmium (mg/L)	153	99	No/No	MDL	0.001		0.005	No	----	----
Chromium (mg/L)	167	68	No/No	MDL	0.002		0.1	Yes (MW-14BR, MW-37B)	No	No
Cobalt (mg/L)	155	93	No/No	MDL	0.001		0.006	No	No	No
Fluoride (mg/L)	167	33	No/No	Nonparametric	0.93		4	Yes (MW-53BR)	No	No
Lead (mg/L)	153	93	No/No	MDL	0.001		0.015	No	----	----
Lithium (mg/L)	167	4	Yes/Yes	Parametric	0.0848		0.0848 (0.04)	No	----	----
Mercury (mg/L)	153	100	No/No	MDL	0.0002		0.002	No	----	----
Molybdenum (mg/L)	167	26	No/Yes	Parametric	0.0315		0.1	Yes (MW-37B)	No	No
Radium 226+228 (pCi/L)	164	57	No/Yes	Parametric	1.198		5	Yes (MW-40B)	No	No
Selenium (mg/L)	167	41	No/No	MDL	0.005		0.05	Yes (MW-14BR, MW-36B, MW-53BR)	No	No
Thallium (mg/L)	153	98	No/No	MDL	0.001		0.002	No	----	----

UPL - upper prediction limit

GWPS - groundwater protection standard

SSI - statistically significant increase

SSL - statistically significant level (95LCL exceeds GWPS)

MCL - maximum contaminant level

mg/L - milligram per liter

pCi/L - picocuries per liter

MDL - UPL set at maximum Method Detection Limit

Table 3 Statistical Analysis Methods and Results - Emergency Holding Ponds 2025

Parameter (units)	Number of Samples	Percent Nondetects	Normal or Lognormal Distribution?	Statistical Test	Background UPL	GWPS Basis	GWPS	SSI Above Background?	Exceeds GWPS?	SSL Above GWPS?
Appendix III										
Boron (mg/L)	92	21	No/No	Nonparametric	1.26	----	----	No	----	----
Calcium (mg/L)	92	0	Yes/Yes	Parametric	446.7	----	----	No	----	----
Chloride (mg/L)	92	0	No/No	Nonparametric	320	----	----	No	----	----
Fluoride (mg/L)	96	24	Yes/Yes	Parametric	0.694	----	----	Yes (MW-45B, MW-46B)	----	----
pH (std units)	104	0	No/No	Nonparametric	6.45/7.9	----	----	No	----	----
Sulfate (mg/L)	92	0	No/No	Nonparametric	2,200	----	----	No	----	----
TDS (mg/L)	92	0	No/No	Nonparametric	3,900	----	----	No	----	----
Appendix IV										
Antimony (mg/L)	88	99	No/No	MDL	0.002	§257.95(h)(3)	0.006	No	----	----
Arsenic (mg/L)	88	82	No/No	MDL	0.005		0.01	No	----	----
Barium (mg/L)	96	0	No/Yes	Parametric	0.0552		2	Yes (MW-46B, MW-47B)	No	No
Beryllium (mg/L)	88	100	No/No	MDL	0.001		0.004	No	----	----
Cadmium (mg/L)	88	100	No/No	MDL	0.001		0.005	No	----	----
Chromium (mg/L)	92	32	No/Yes	Parametric	0.0063		0.1	Yes (MW-46B)	No	No
Cobalt (mg/L)	88	100	Yes/Yes	Parametric	0.00121		0.006	No	----	----
Fluoride (mg/L)	96	24	Yes/Yes	Parametric	0.694		4	Yes (MW-45B, MW-46B)	No	No
Lead (mg/L)	88	100	No/No	MDL	0.001		0.015	No	----	----
Lithium (mg/L)	96	5	Yes/No	Parametric	0.0809		0.0848 (0.04)	No	----	----
Mercury (mg/L)	88	100	No/No	MDL	0.0002		0.002	No	----	----
Molybdenum (mg/L)	96	25	No/No	Nonparametric	0.177		0.177 (0.1)	No	----	----
Radium 226+228 (pCi/L)	92	55	Yes/Yes	Parametric	0.826		5	Yes (MW-44B)	No	No
Selenium (mg/L)	96	49	Yes/Yes	Parametric	0.0136		0.05	No	----	----
Thallium (mg/L)	88	100	No/No	MDL	0.001		0.002	No	----	----

UPL - upper prediction limit

GWPS - groundwater protection standard

SSI - statistically significant increase

SSL - statistically significant level (95LCL exceeds GWPS)

MCL - maximum contaminant level

mg/L - milligram per liter

pCi/L - picocuries per liter

MDL - UPL set at maximum Method Detection Limit

Attachment A

2025 Sampling and Analysis Report, CCR Monitoring Program

2025 Sampling and Analysis Report CCR Monitoring Program

Laramie River Station
Wheatland, Wyoming

Basin Electric Power Cooperative

January 31, 2026

Prepared for:

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List of Acronyms

AECOM	AECOM Technical Services, Inc.
Basin	Basin Electric Power Cooperative
CCR	Coal Combustion Residuals
CFR	Code of Federal Regulations
LRS	Laramie River Station
USEPA	United States Environmental Protection Agency

1. Introduction

On behalf of Basin Electric Power Cooperative (Basin), AECOM Technical Services, Inc. (AECOM) prepared this Coal Combustion Residuals (CCR) Groundwater Sampling and Analysis Report for the Basin Laramie River Station (LRS).

This Sampling and Analysis Report was prepared to present the results of sampling and analysis of groundwater conducted per the monitoring requirements of the United States Environmental Protection Agency (USEPA) CCR rule (Title 40 of the Code of Federal Regulations [CFR], §§ 257.90 to 257.98).

The following three CCR unit/multi-units are present at LRS:

- Bottom Ash Pond 1;
- Bottom Ash Pond 2, Bottom Ash Pond 3, Ash Landfill (multi-unit); and
- Emergency Holding Ponds (multi-unit).

Semi-annual groundwater Assessment monitoring was performed at LRS in May and September 2025 for the three CCR unit/multi-units. Assessment monitoring involves groundwater level measurements, collection of groundwater samples from CCR monitoring wells and the two recovery wells on site, and analysis for Part 257 Appendix III and selected Appendix IV parameters.

2. Groundwater Flow

As required by 40 CFR § 257.93(c), groundwater elevations were measured in each well prior to purging each time groundwater was sampled. The groundwater measurements for the 2025 Assessment monitoring events, presented in **Table 1**, were used to create potentiometric surface maps for the uppermost aquifer for each monitoring event. The resulting potentiometric surface maps (contained in the operating record) were used to evaluate the direction of groundwater flow and hydraulic gradient for each subject CCR unit/multi-unit. **Figure 1** and **Figure 2** represent a potentiometric surface map, including inferred groundwater flow direction for each CCR unit/multiunit, constructed using measurements taken on May 20, 2025 and September 8-9, 2025, respectively. The potentiometric surface and inferred groundwater flow direction for the events completed in 2025 were generally consistent with previous events that have been conducted at LRS since monitoring began in 2016.

Groundwater flow velocities were calculated for each unit/multi-unit using measurements from the semi-annual Assessment monitoring events in May and September 2025, as presented in **Appendix I** and summarized below:

CCR Unit/multi-unit	Calculated Seepage Velocities (feet/day)		
	Minimum	Maximum	Average
Bottom Ash Pond 1	0.027	0.58	0.13
Bottom Ash Pond 2, Bottom Ash Pond 3, Ash Landfill	0.012	2.3	0.17
Emergency Holding Ponds	0.04	2.5	0.32

Based on the groundwater flow conditions documented in this section, the relative function of the monitoring wells employed in the LRS CCR groundwater monitoring system is as follows:

CCR Unit/multi-unit	Background Wells	Downgradient Wells
Bottom Ash Pond 1	MW-52B, MW-53BR	MW-49B, MW-21B, MW-38B, MW-38C*
Bottom Ash Pond 2, Bottom Ash Pond 3, Ash Landfill	MW-39B, MW-32B	MW-36B, MW-37B, MW-20B, MW-14BR, MW-40B, MW-52B, MW-53BR
Emergency Holding Ponds	MW-41B, MW-42B, MW-43B	MW-44B, MW-45B, MW-46B, MW-47B

* MW-38C was added to the Bottom Ash Pond 1 monitoring program following its installation during groundwater characterization activities in the spring of 2019.

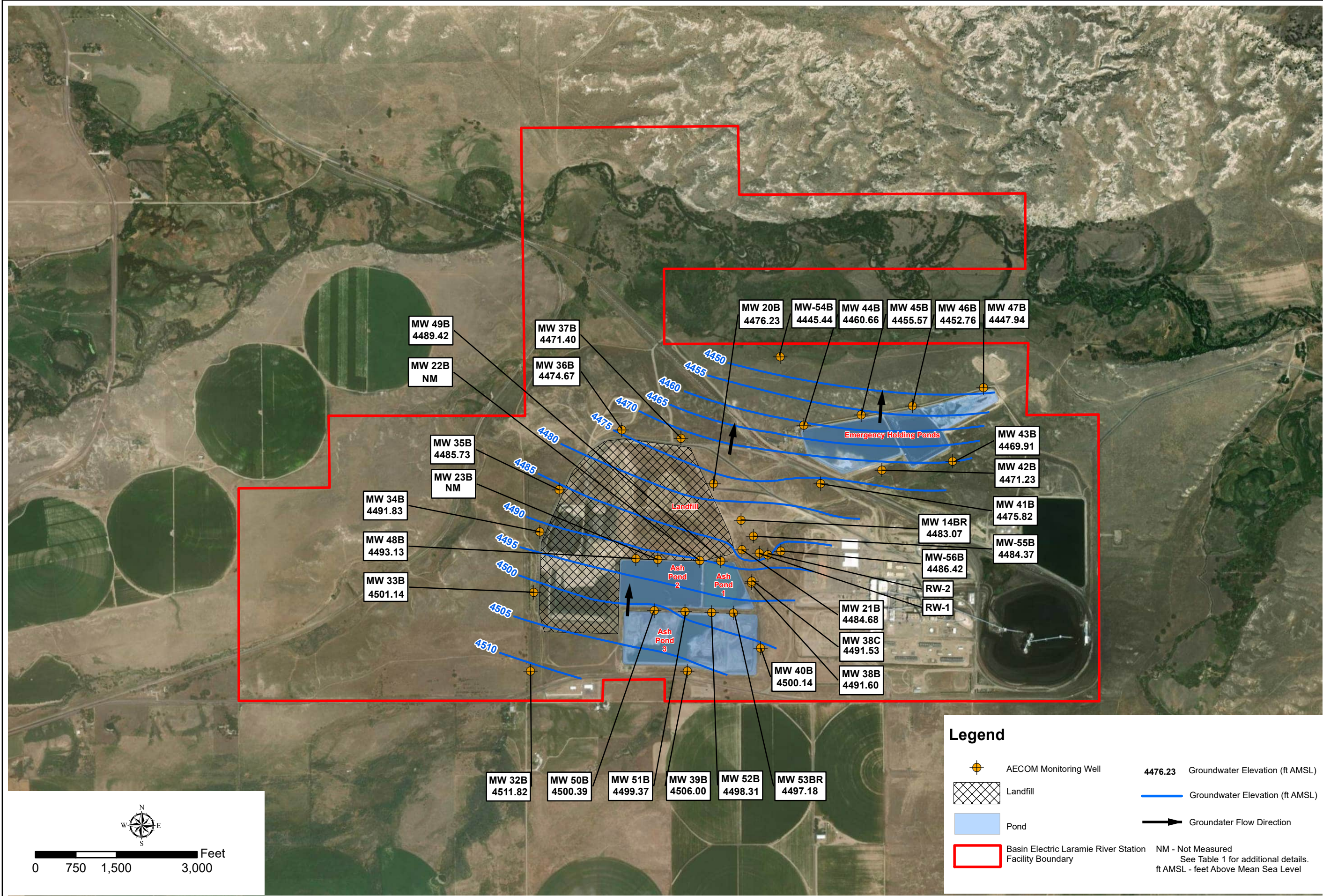
The following monitoring wells are also included in the LRS CCR monitoring system for the purpose of measuring groundwater elevations and evaluating groundwater flow direction and velocity in the vicinity of the bottom ash ponds and landfill: MW-33B, MW-34B, MW-35B, MW-48B, MW-50B, MW-51B, MW-54B, MW-55B, and MW-56B. These wells were added to the list following their installation during groundwater characterization activities conducted in the spring of 2019. Permanent bladder pumps for monitoring wells MW-52B and MW-53BR were repaired and reinstalled during the May 2025 sampling event due to poor performance during past sampling events.

3. Groundwater Quality

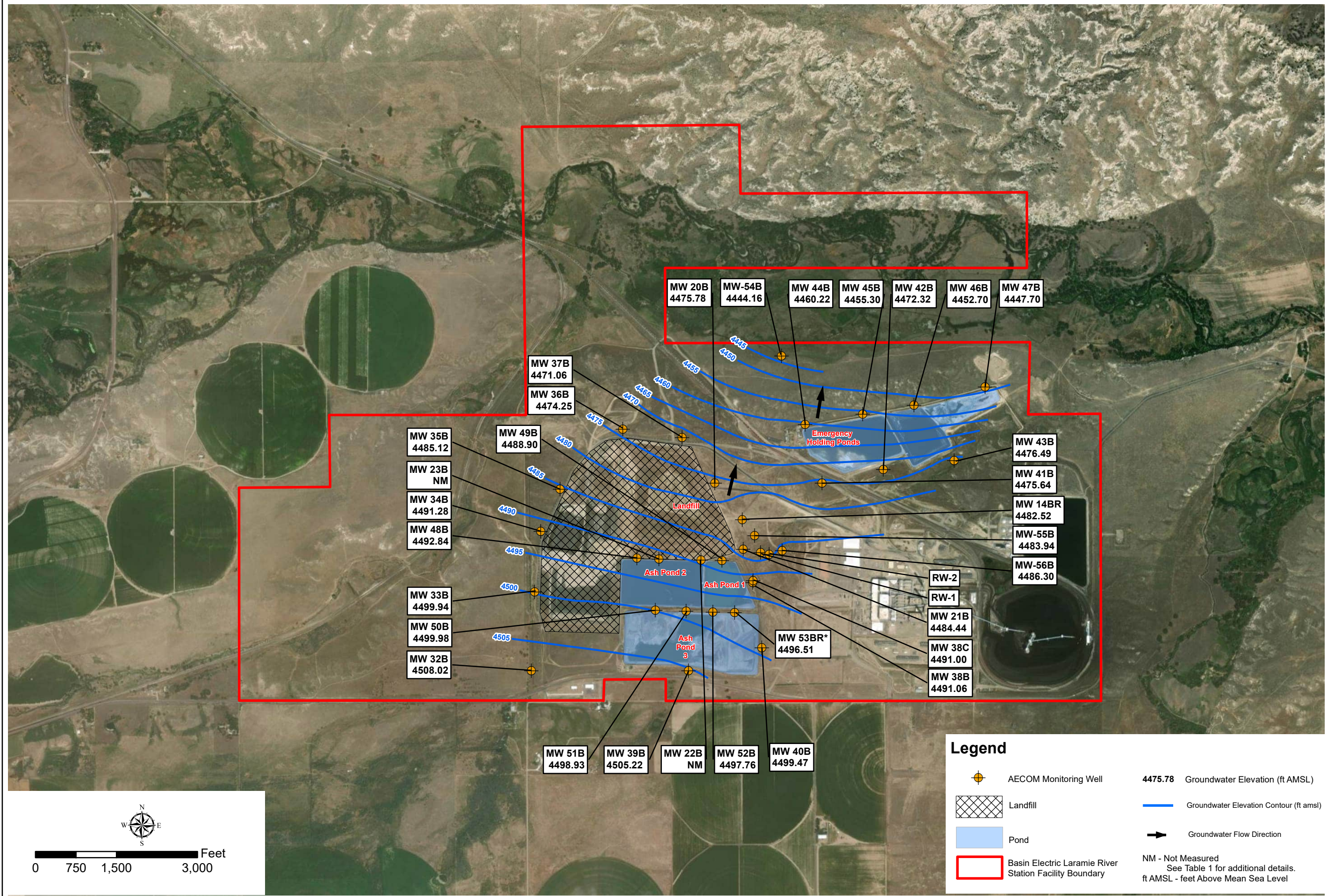
The semiannual Assessment monitoring events in May and September 2025 included samples from each well in the CCR unit/multiunit program. In addition, grab samples were collected from the two recovery wells on site (RW-1 and RW-2) during each sampling event to help evaluate the performance and operation of the recovery well system. In September 2025, RW-1 was not operational and therefore, a sample was only obtained from RW-2.

The samples collected for each event were submitted under chain-of-custody to the Eurofins Denver Laboratory located in Arvada, Colorado for analysis of the analytes included CCR Rule Appendix III and Appendix IV. The laboratory reports issued by Eurofins for these events were reviewed against the chain-of-custody forms and for compliance with maximum holding times and conformance with project-required methods with copies included in the LRS operating record. The results for the May and September 2025 sampling events were compiled into summary form as presented in **Tables 2, 3, and 4**. The analytical results for the recovery wells are presented in **Table 5**. Copies of the Eurofins analytical laboratory reports for the May and September 2025 events are included as **Appendix II**.

Figures



Potentiometric Surface Map
May 20, 2025



Potentiometric Surface Map
September 8-9, 2025

Tables

Table 1: Groundwater Level Measurements and Elevations 2025

Location ID	TOC Elevation (feet amsl)	Date Gauged	Depth to Water (TOC feet)	Water Level Elevation (feet amsl)	Date Gauged	Depth to Water (TOC feet)	Water Level Elevation (feet amsl)
MW-14BR	4540.51	5/20/2025	57.44	4,483.07	9/8/2025	57.99	4,482.52
MW-20B	4535.47	5/20/2025	59.24	4,476.23	9/8/2025	59.69	4,475.78
MW-21B	4539.58	5/20/2025	54.90	4,484.68	9/8/2025	55.14	4,484.44
MW-32B	4569.72	5/20/2025	57.90	4,511.82	9/9/2025	61.70	4,508.02
MW-33B	4569.22	5/20/2025	68.08	4,501.14	9/9/2025	69.28	4,499.94
MW-34B	4557.33	5/20/2025	65.50	4,491.83	9/9/2025	66.05	4,491.28
MW-35B	4551.28	5/20/2025	65.55	4,485.73	9/9/2025	66.16	4,485.12
MW-36B	4535.05	5/20/2025	60.38	4,474.67	9/9/2025	60.80	4,474.25
MW-37B	4532.98	5/20/2025	61.58	4,471.40	9/9/2025	61.92	4,471.06
MW-38B	4550.09	5/20/2025	58.49	4,491.60	9/8/2025	59.03	4,491.06
MW-38C	4549.45	5/20/2025	57.92	4,491.53	9/8/2025	58.45	4,491.00
MW-39B	4584.06	5/20/2025	78.06	4,506.00	9/8/2025	78.84	4,505.22
MW-40B	4592.20	5/20/2025	92.06	4,500.14	9/8/2025	92.73	4,499.47
MW-41B	4532.25	5/20/2025	56.43	4,475.82	9/9/2025	56.61	4,475.64
MW-42B	4518.44	5/20/2025	47.21	4,471.23	9/9/2025	46.12	4,472.32
MW-43B	4504.05	5/20/2025	34.14	4,469.91	9/9/2025	27.56	4,476.49
MW-44B	4532.00	5/20/2025	71.34	4,460.66	9/9/2025	71.78	4,460.22
MW-45B	4533.53	5/20/2025	77.96	4,455.57	9/9/2025	78.23	4,455.30
MW-46B	4530.33	5/20/2025	77.57	4,452.76	9/9/2025	77.63	4,452.70
MW-47B	4525.21	5/20/2025	77.27	4,447.94	9/9/2025	77.51	4,447.70
MW-48B	4571.27	5/20/2025	78.14	4,493.13	9/8/2025	78.43	4,492.84
MW-49B	4566.97	5/20/2025	77.55	4,489.42	9/8/2025	78.07	4,488.90
MW-50B	4593.48	5/20/2025	93.09	4,500.39	9/8/2025	93.50	4,499.98
MW-51B	4593.14	5/20/2025	93.77	4,499.37	9/8/2025	94.21	4,498.93
MW-52B	4593.30	5/20/2025	94.99	4,498.31	9/8/2025	95.54	4,497.76
MW-53BR*	4592.89	5/20/2025	95.71	4,497.18	9/8/2025	96.38	4,496.51
MW-54B	4454.80	5/20/2025	9.36	4,445.44	9/9/2025	10.64	4,444.16
MW-55B	4532.37	5/20/2025	48.00	4,484.37	9/8/2025	48.43	4,483.94
MW-56B	4541.95	5/20/2025	55.53	4,486.42	9/9/2025	55.65	4,486.30

Notes:

TOC = top of casing

feet amsl = feet above mean sea level

ID = Identification

NM¹ = Not Measured - Well Not Found

NM = Not Measured

* = MW-53B replaced with MW-53BR in April 2024

Vertical Datum: North American Vertical Datum of 1988 (NAVD 88)

Table 2: Groundwater Analytical Data - Bottom Ash Pond 1
Basin Electric Power Cooperative, Laramie River Station, Wyoming
Sampling and Analysis Report

	Chemical Name Unit			Appendix III Constituents							Appendix IV Constituents													
				Boron mg/L	Calcium mg/L	Chloride mg/L	Fluoride mg/L	pH SU	Sulfate mg/L	TDS mg/L	Antimony mg/L	Arsenic mg/L	Barium mg/L	Beryllium mg/L	Cadmium mg/L	Chromium mg/L	Cobalt mg/L	Lead mg/L	Lithium mg/L	Mercury mg/L	Molybdenum mg/L	Radium 226/228 pCi/L	Selenium mg/L	Thallium mg/L
Relative Location	Well ID	Sample Date	Sample Type																					
Background	MW-52B	5/21/2025	N	0.186	159	46.6	< 0.500	7.5	493	1170	< 0.00200	0.00287	0.0543	< 0.00100	< 0.00100	< 0.00300	< 0.00100	< 0.00100	0.0504	< 0.000200	0.004	1.12	< 0.00200	< 0.00100
	MW-52B	09/10/2025	N	0.170	152	50.0	0.215	7.52	510	1180	< 0.00200	0.00207	0.0509	< 0.00100	< 0.00100	< 0.00300	< 0.00100	< 0.00100	0.0559	< 0.000200	0.00390	< 0.714	0.00163	< 0.00100
	MW-53BR	5/21/2025	N	0.123	107	42.4	0.996	7.34	237	766	< 0.00200	0.003	0.0437	< 0.00100	< 0.00100	< 0.00300	< 0.00100	< 0.00100	0.0456	< 0.000200	0.00645	< 0.172	0.009	< 0.00100
	MW-53BR	09/10/2025	N	0.111	105	45.5	1.04	7.51	241	787	< 0.00200	0.00292	0.0499	< 0.00100	< 0.00100	0.00118	< 0.00100	< 0.00100	0.0513	< 0.000200	0.00623	1.07	0.0115	< 0.00100
Downgradient	MW-21B	5/21/2025	N	0.217	687	422	0.529	7.41	1460	2890	< 0.00200	0.00251	0.0452	< 0.00100	< 0.00100	0.0139	< 0.00100	< 0.00100	0.0603	< 0.000200	0.0718	< 0.244	0.0135	< 0.00100
	MW-21B	09/10/2025	N	0.160	396	369	0.492	7.59	1290	2440	< 0.00200	0.00182	0.0488	< 0.00100	< 0.00100	0.0185	< 0.00100	< 0.00100	0.0586	< 0.000200	0.0559	< 0.567	0.0188	< 0.00100
	MW-38B	5/21/2025	N	3.07	424	219	< 0.500	7.25	5180	8470	< 0.00200	0.0039	0.0159	< 0.00100	< 0.00100	0.00572	< 0.00100	< 0.00100	0.11	< 0.000200	0.188	< 0.498	0.00347	< 0.00100
	MW-38B	09/10/2025	N	2.910	384	228	0.332	7.47	5560	8500	< 0.00200	0.00344	0.0175	< 0.00100	< 0.00100	0.00579	0.000431	< 0.00100	0.108	< 0.000200	0.170	1.34	0.00339	< 0.00100
	MW-38C	5/21/2025	N	0.0663	104	30.6	< 0.500	7.35	236	671	< 0.00200	0.00285	0.0475	< 0.00100	< 0.00100	< 0.00300	< 0.00100	< 0.00100	0.0251	< 0.000200	0.00531	0.528	0.00556	< 0.00100
	MW-38C	09/10/2025	N	0.561	101	33.0	0.581	7.53	235	687	< 0.00200	0.00263	0.0506	< 0.00100	< 0.00100	< 0.00300	< 0.00100	< 0.00100	0.0351	< 0.000200	0.00525	< 0.662	0.00506	< 0.00100
	MW-49B	5/21/2025	FD	0.2	136	26.3	< 0.500	7.15	337	844	< 0.00200	0.00249	0.0562	< 0.00100	< 0.00100	< 0.00300	< 0.00100	< 0.00100	0.0402	< 0.000200	0.00302	< 0.472	< 0.00200	< 0.00100
	MW-49B	5/21/2025	N	0.215	135	26.4	< 0.500	7.15	342	852	< 0.00200	0.00351	0.0552	< 0.00100	< 0.00100	< 0.00300	< 0.00100	< 0.00100	0.0399	< 0.000200	0.00359	< 0.00726	< 0.00200	< 0.00100
	MW-49B	09/10/2025	N	0.181	127	26.5	0.557	7.4	327	809	< 0.00200	0.00229	0.0600	< 0.00100	< 0.00100	< 0.00300	< 0.00100	< 0.00100	0.0454	< 0.000200	0.00283	< 0.614	0.000655	< 0.00100

Notes:
< = value less than the reporting limit
mg/L = milligrams per liter
FD = duplicate sample
ID = identification
N = normal (i.e., not a duplicate sample)
pCi/L = picoCuries per liter
SU = standard units
TDS = total dissolved solids

Table 3: Groundwater Analytical Data - Bottom Ash Pond 2, Bottom Ash Pond 3, Ash Landfill
Basin Electric Cooperative, Laramie River Station, Wyoming
Sampling and Analysis Report

Chemical Name Unit				Appendix III Constituents							Appendix IV Constituents													
				Boron mg/L	Calcium mg/L	Chloride mg/L	Fluoride mg/L	pH SU	Sulfate mg/L	TDS mg/L	Antimony mg/L	Arsenic mg/L	Barium mg/L	Beryllium mg/L	Cadmium mg/L	Chromium mg/L	Cobalt mg/L	Lead mg/L	Lithium mg/L	Mercury mg/L	Molybdenum mg/L	Radium 226/228 pCi/L	Selenium mg/L	Thallium mg/L
Relative Location	Well ID	Sample Date	Sample Type																					
Background	MW-32B	5/20/2025	N	0.322	238	118	< 0.500	7.05	1050	2210	< 0.00200	< 0.00200	0.0323	< 0.00100	< 0.00100	< 0.00300	< 0.00100	< 0.00100	0.0859	< 0.000200	0.00301	0.989	0.00212	< 0.00100
	MW-32B	09/09/2025	N	0.319	226	121	0.455	7.24	1070	2150	< 0.00200	0.00130	0.0335	< 0.00100	< 0.00100	< 0.00300	< 0.00100	< 0.00100	0.0943	< 0.000200	0.00272	0.831	0.00182	< 0.00100
	MW-39B	5/20/2025	N	0.206	168	47.4	0.544	7.06	562	1360	< 0.00200	0.00298	0.0325	< 0.00100	< 0.00100	< 0.00300	< 0.00100	< 0.00100	0.0639	< 0.000200	0.00438	0.797	< 0.00200	< 0.00100
	MW-39B	09/10/2025	N	0.154	117	49.2	0.654	7.31	474	1180	< 0.00200	0.00316	0.0303	< 0.00100	< 0.00100	< 0.00300	< 0.00100	< 0.00100	0.0639	< 0.000200	0.00319	0.668	0.00451	< 0.00100
Downgradient	MW-14BR	5/21/2025	N	0.174	210	92.4	< 0.500	7.48	475	1140	< 0.00200	0.00296	0.0494	< 0.00100	< 0.00100	0.00533	< 0.00100	< 0.00100	0.0352	< 0.000200	0.0129	< -0.0963	0.0207	< 0.00100
	MW-14BR	09/10/2025	N	0.154	198	93.7	0.412	7.66	481	1110	< 0.00200	0.00221	0.0474	< 0.00100	< 0.00100	0.00469	< 0.00100	< 0.00100	0.0414	< 0.000200	0.0129	< 0.777	0.0187	< 0.00100
	MW-20B	5/21/2025	N	0.227	133	45.4	0.621	7.54	388	932	< 0.00200	0.00296	0.0569	< 0.00100	< 0.00100	< 0.00300	< 0.00100	< 0.00100	0.0349	< 0.000200	0.0082	< 0.0177	0.00333	< 0.00100
	MW-20B	09/10/2025	N	0.210	130	48.2	0.735	7.64	384	971	< 0.00200	0.00290	0.0733	< 0.00100	< 0.00100	< 0.00300	< 0.00100	< 0.00100	0.0400	< 0.000200	0.00853	< 0.512	0.00294	< 0.00100
	MW-36B	5/20/2025	N	0.118	136	44.4	0.564	7.53	389	928	< 0.00200	0.00291	0.0661	< 0.00100	< 0.00100	< 0.00300	< 0.00100	< 0.00100	0.0329	< 0.000200	0.00727	< 0.183	0.00725	< 0.00100
	MW-36B	09/09/2025	N	0.128	118	47.6	0.698	7.8	361	870	< 0.00200	0.00271	0.0695	< 0.00100	< 0.00100	< 0.00300	< 0.00100	< 0.00100	0.0390	< 0.000200	0.00716	1.15	0.00958	< 0.00100
	MW-37B	5/20/2025	N	0.185	187	67.3	< 0.500	7.36	505	1180	< 0.00200	0.00212	0.0604	< 0.00100	< 0.00100	< 0.00300	< 0.00100	< 0.00100	0.0378	< 0.000200	0.0323	< 0.352	0.00422	< 0.00100
	MW-37B	09/09/2025	N	0.195	180	68.8	0.511	7.51	527	1180	< 0.00200	0.00190	0.0670	< 0.00100	< 0.00100	0.00224	< 0.00100	< 0.00100	0.0454	< 0.000200	0.0312	< 0.542	0.00350	< 0.00100
	MW-40B	5/21/2025	N	0.18	130	29.4	0.782	7.42	316	900	< 0.00200	0.00603	0.0263	< 0.00100	< 0.00100	< 0.00300	< 0.00100	< 0.00100	0.054	< 0.000200	0.00593	1.31	0.0036	< 0.00100
	MW-40B	09/10/2025	N	0.158	126	33.0	0.846	7.60	326	915	< 0.00200	0.00467	0.0299	< 0.00100	< 0.00100	< 0.00300	< 0.00100	< 0.00100	0.0581	< 0.000200	0.00603	1.52	0.00511	< 0.00100
	MW-52B	5/21/2025	N	0.186	159	46.6	< 0.500	7.5	493	1170	< 0.00200	0.00287	0.0543	< 0.00100	< 0.00100	< 0.00300	< 0.00100	< 0.00100	0.0504	< 0.000200	0.004	1.12	< 0.00200	< 0.00100
	MW-52B	09/10/2025	N	0.170	152	50.0	0.215	7.52	510	1180	< 0.00200	0.00207	0.0509	< 0.00100	< 0.00100	< 0.00300	< 0.00100	< 0.00100	0.0559	< 0.000200	0.00390	< 0.714	0.00163	< 0.00100
	MW-53BR	5/21/2025	N	0.123	107	42.4	0.996	7.34	237	766	< 0.00200	0.003	0.0437	< 0.00100	< 0.00100	< 0.00300	< 0.00100	< 0.00100	0.0456	< 0.000200	0.00645	< 0.172	0.009	< 0.00100
	MW-53BR	09/10/2025	N	0.111	105	45.5	1.04	7.51	241	787	< 0.00200	0.00292	0.0499	< 0.00100	< 0.00100	0.00118	< 0.00100	< 0.00100	0.0513	< 0.000200	0.00623	1.07	0.0115	< 0.00100

Notes:
< = value less than the reporting limit
mg/L = milligrams per liter
FD = duplicate sample
ID = identification
N = normal (i.e., not a duplicate sample)
pCi/L = picoCuries per liter
SU = standard units
TDS = total dissolved solids

Table 4: Groundwater Analytical Data - Emergency Holding Ponds
Basin Electric Cooperative, Laramie River Station, Wyoming
Sampling and Analysis Report

Chemical Name Unit				Appendix III Constituents							Appendix IV Constituents													
				Boron mg/L	Calcium mg/L	Chloride mg/L	Fluoride mg/L	pH SU	Sulfate mg/L	TDS mg/L	Antimony mg/L	Arsenic mg/L	Barium mg/L	Beryllium mg/L	Cadmium mg/L	Chromium mg/L	Cobalt mg/L	Lead mg/L	Lithium mg/L	Mercury mg/L	Molybdenum mg/L	Radium 226/228 pCi/L	Selenium mg/L	Thallium mg/L
Relative Location	Well ID	Sample Date	Sample Type																					
Background	MW-41B	5/22/2025	N	0.875	97.5	60.2	0.533	7.45	516	1200	< 0.00200	0.0052	0.0191	< 0.00100	< 0.00100	0.00485	< 0.00100	< 0.00100	0.0399	< 0.000200	0.0753	0.596	0.00696	< 0.00100
	MW-41B	09/09/2025	N	0.884	91.8	63.2	0.585	7.74	538	1200	< 0.00200	0.00443	0.0200	< 0.00100	< 0.00100	0.00435	0.000469	< 0.00100	0.0434	< 0.000200	0.0707	< 0.598	0.00766	< 0.00100
	MW-42B	5/22/2025	N	0.79	352	531	< 0.500	7.12	1620	3490	< 0.00200	0.00405	0.0236	< 0.00100	< 0.00100	< 0.00300	< 0.00100	< 0.00100	0.0972	< 0.000200	0.0577	< 0.245	0.0107	< 0.00100
	MW-42B	09/09/2025	N	0.507	95.4	74.3	0.642	7.78	470	1100	< 0.00200	0.00581	0.0218	< 0.00100	< 0.00100	0.00156	< 0.00100	< 0.00100	0.0428	< 0.000200	0.0258	< 0.620	0.0209	< 0.00100
	MW-43B	5/22/2025	N	0.266	185	99.9	< 0.500	7.18	703	1530	< 0.00200	0.00339	0.0524	< 0.00100	< 0.00100	< 0.00300	< 0.00100	< 0.00100	0.0433	< 0.000200	0.012	< 0.105	0.00242	< 0.00100
	MW-43B	09/09/2025	N	0.279	181	112	0.458	7.33	767	1590	< 0.00200	0.00351	0.0574	< 0.00100	< 0.00100	0.00128	< 0.00100	< 0.00100	0.0511	< 0.000200	0.0135	0.828	0.00221	< 0.00100
Downgradient	MW-44B	5/22/2025	N	0.112	181	59.9	0.636	7.31	456	1130	< 0.00200	0.00261	0.0475	< 0.00100	< 0.00100	< 0.00300	< 0.00100	< 0.00100	0.0357	< 0.000200	0.00649	0.877	0.0058	< 0.00100
	MW-44B	09/09/2025	N	0.123	173	65.9	0.666	7.60	455	1160	< 0.00200	0.00264	0.0455	< 0.00100	< 0.00100	0.00298	< 0.00100	< 0.00100	0.0385	< 0.000200	0.00559	0.935	0.0140	< 0.00100
	MW-45B	5/22/2025	N	0.197	156	54.0	0.723	7.49	386	956	< 0.00200	0.0034	0.045	< 0.00100	< 0.00100	< 0.00300	< 0.00100	< 0.00100	0.0353	< 0.000200	0.00721	< 0.00759	0.00754	< 0.00100
	MW-45B	09/09/2025	N	0.197	154	58.9	0.785	7.76	390	1010	< 0.00200	0.00352	0.0463	< 0.00100	< 0.00100	< 0.00300	< 0.00100	< 0.00100	0.0398	< 0.000200	0.00716	< 0.598	0.00843	< 0.00100
	MW-46B	5/22/2025	N	0.0985	80.4	22.9	0.746	7.49	186	571	< 0.00200	0.00385	0.0465	< 0.00100	< 0.00100	< 0.00300	< 0.00100	< 0.00100	0.0261	< 0.000200	0.00281	< 0.350	0.00437	< 0.00100
	MW-46B	09/09/2025	N	0.796	111	52.3	0.615	7.52	325	812	< 0.00200	0.00251	0.0592	< 0.00100	< 0.00100	0.0102	< 0.00100	< 0.00100	0.0318	< 0.000200	0.00334	0.963	0.00414	< 0.00100
	MW-47B	5/22/2025	N	0.143	125	34.5	< 0.500	7.35	317	793	< 0.00200	0.00345	0.0771	< 0.00100	< 0.00100	0.00478	< 0.00100	< 0.00100	0.0297	< 0.000200	0.0059	< 0.289	0.00495	< 0.00100
	MW-47B	09/09/2025	N	0.145	120	36.9	0.387	7.5	327	807	< 0.00200	0.00302	0.0754	< 0.00100	< 0.00100	0.00522	< 0.00100	< 0.00100	0.0335	< 0.000200	0.00556	1.16	0.00511	< 0.00100

Notes:
< = value less than the reporting limit
mg/L = milligrams per liter
FD = duplicate sample
ID = identification
N = normal (i.e., not a duplicate sample)
pCi/L = picoCuries per liter
SU = standard units
TDS = total dissolved solids

Table 5: Groundwater Analytical Data - Recovery Wells
Basin Electric Cooperative, Laramie River Station, Wyoming
Sampling and Analysis Report

Chemical Name Unit				Appendix III Constituents							Appendix IV Constituents													
				Boron mg/L	Calcium mg/L	Chloride mg/L	Fluoride mg/L	pH SU	Sulfate mg/L	TDS mg/L	Antimony mg/L	Arsenic mg/L	Barium mg/L	Beryllium mg/L	Cadmium mg/L	Chromium mg/L	Cobalt mg/L	Lead mg/L	Lithium mg/L	Mercury mg/L	Molybdenum mg/L	Radium 226/228 pCi/L	Selenium mg/L	Thallium mg/L
Relative Location	Well ID	Sample Date	Sample Type																					
Extraction	RW-1	5/21/2025	N	0.151	315	265	< 0.500	7.49	889	2000	< 0.00200	0.00308	0.0972	< 0.00100	< 0.00100	0.0132	< 0.00100	< 0.00100	0.0513	< 0.00200	0.0279	< 0.693	0.0291	< 0.00100
Extraction	RW-2	5/21/2025	N	0.0995	163	81.4	0.578	7.46	434	1050	< 0.00200	0.00228	0.0626	< 0.00100	< 0.00100	< 0.00300	< 0.00100	< 0.00100	0.0396	< 0.000200	0.0106	< 0.631	0.013	< 0.00100
Extraction	RW-2	09/10/2025	N	0.0997	162	86.2	0.635	7.13	448	1120	< 0.00200	0.0106	0.0678	< 0.00100	< 0.00100	0.00613	< 0.00100	< 0.00100	0.0400	< 0.000200	0.0106	< 0.621	0.0127	< 0.00100

Notes:
< = value less than the reporting limit
mg/L = milligrams per liter
FD = duplicate sample
ID = identification
N = normal (i.e., not a duplicate sample)
pCi/L = picoCuries per liter
SU = standard units
TDS = total dissolved solids

Appendix I

Groundwater Flow Calculations

Project: **Laramie River Station**
Calculations by: **Olivia Helinski**
Date: **12/30/2025**

CCR Unit: **Bottom Ash Pond 1**
Checked by: **Mackensie Swift**
Date: **1/2/2026**

Background Wells: **MW-52B, MW-53B**
Downgradient Wells: **MW-49B, MW-21B, MW-38B**

Hydraulic Gradient (i, ft/ft)

$$i = -dh/dl$$

where, i= hydraulic gradient

dh= change in hydraulic head between upgradient and downgradient locations

dl= horizontal distance between upgradient and downgradient locations, parallel to flow (perpendicular to potentiometric contours)

Date	Upgradient WL elevation (ft MSL)	Downgradient WL Elevation (ft MSL)	dh (ft)	dl (ft)	i (ft/ft)
May 20, 2025 (49B)	4500	4489.42	10.58	1345	0.00787
May 20, 2025 (52B)	4498.31	4490	8.31	780	0.01065
September 8-9, 2025 (49B)	4505	4488.90	16.10	1995	0.00807
September 8-9, 2025 (52B)	4497.76	4490	7.76	700	0.01109
Minimum					0.00787
Maximum					0.01109
Average					0.00942

Hydraulic Conductivity (K, ft/d)

K, from slug and pumping tests		
Minimum	1.04	ft/day
Maximum	1.04	ft/day
Average (geomean)	1.04	ft/day

Specific Yield, Effective Porosity

Specific Yield, Effective Porosity	
Minimum	0.02
Maximum	0.3
Average	0.15

Note: Effective porosity/specific yield is based on literature values from Arikaree Formation literature and textbook values for sandstone

Seepage Velocity

$$v_s = -K * i / n_e$$

where,

v_s = seepage velocity, feet per day (ft/d)

K= hydraulic conductivity, feet per day (ft/d)

i= hydraulic gradient, feet per foot (ft/ft)

n_e = effective porosity/specific yield, unitless

Calculated Seepage Velocities (ft/day)				
	K (ft/day)	i (ft/ft)	n_e	v_s (ft/day)
Minimum	1.04	0.0079	0.30	0.027
Maximum	1.04	0.0111	0.02	0.58
Geometric Mean				0.13

Project: **Laramie River Station**
Calculations by: **Olivia Helinski**
Date: **12/30/2025**

CCR Unit: **Bottom Ash Ponds 2&3 and Ash Landfill**
Checked by: **Mackensie Swift**
Date: **1/2/2026**

Background Wells: **MW-39B, MW-32B**
Downgradient Wells: **MW-36B, MW-37B, MW-20B, MW-14BR, MW-40B, MW-52B, MW-53B**

Hydraulic Gradient (i, ft/ft)

$$i = -dh/dl$$

where, i= hydraulic gradient
dh= change in hydraulic head between upgradient and downgradient locations
dl= horizontal distance between upgradient and downgradient locations, parallel to flow (perpendicular to potentiometric contours)

Summary Table - Hydraulic Gradient

Date	Vector	Upgradient WL elevation (ft MSL)	Downgradient WL Elevation (ft MSL)	dh (ft)	dl (ft)	i (ft/ft)	Average i (ft/ft)
May 20, 2025	Vector 1 (368)	4505	4474.67	30.33	3865	0.0078	0.0075
	Vector 2 (488)	4505	4493.13	11.87	1820	0.0065	
	Vector 3 (378)	4505	4471.40	33.60	4180	0.0080	
September 8-9, 2025	Vector 1 (368)	4505	4474.25	30.75	4135	0.0074	0.0076
	Vector 2 (488)	4505	4492.84	12.16	1745	0.0070	
	Vector 3 (378)	4505	4471.06	33.94	4115	0.0082	
						Minimum	0.0075
						Maximum	0.0076
						Average	0.0075

Hydraulic Conductivity (K, ft/d)

K from slug and pumping tests conducted at site		
Minimum	0.50	ft/day
Maximum	6.16	ft/day
Average (geomean)	1.54	ft/day

Specific Yield, Effective Porosity

Specific Yield, Effective Porosity	
Minimum	0.02
Maximum	0.3
Average	0.15

Note: Effective porosity/specific yield is based on literature values from Arikaree Formation literature and textbook values for sandstone

Seepage Velocity

$$v_s = -K * i / n_e$$

where, v_s= seepage velocity, feet per day (ft/d)
K= hydraulic conductivity, feet per day (ft/d)
i= hydraulic gradient, feet per foot (ft/ft)
n_e= effective porosity/specific yield, unitless

Calculated Seepage Velocities (ft/day)				
	K (ft/day)	i (ft/ft)	n_e	v_s (ft/day)
Minimum	0.50	0.0075	0.30	0.012
Maximum	6.16	0.0076	0.02	2.3
Geometric Mean				0.17

Project: **Laramie River Station**
Calculations by: **Olivia Helinski**
Date: **12/30/2025**

CCR Unit: **Emergency Holding Ponds**
Checked by: **Mackensie Swift**
Date: **1/2/2026**

Background Wells: **MW-41B, MW-42B, MW-43B**
Downgradient Wells: **MW-44B, MW-45B, MW-46B, MW-47B**

Hydraulic Gradient (i, ft/ft)

Governing Equation:
(Hydraulic Gradient)

$$i = -dh/dl$$

where, i= hydraulic gradient

dh= change in hydraulic head between upgradient and downgradient locations

dl= horizontal distance between upgradient and downgradient locations, parallel to flow (perpendicular to potentiometric contours)

Calculation Table

Date	Vector	Upgradient WL elevation (ft MSL)	Downgradient WL Elevation (ft MSL)	dh (ft)	dl (ft)	i (ft/ft)	Average i (ft/ft)
May 20, 2025	Vector 1 (42B)	4471.23	4450	21.23	1390	0.0153	0.0161
	Vector 2 (43B)	4469.91	4450	19.91	1175	0.0169	
September 8-9, 2025	Vector 1 (42B)	4472.32	4455	17.32	1365	0.0127	0.0163
	Vector 2 (43B)	4476.49	4455	21.49	1080	0.0199	
Minimum							0.0161
Maximum							0.0163
Average							0.0162

Hydraulic Conductivity (K, ft/d)

K from slug and pumping tests conducted at site		
Minimum	0.75	ft/day
Maximum	3.12	ft/day
Average (geomean)	1.31	ft/day

Specific Yield, Effective Porosity

Specific Yield, Effective Porosity	
Minimum	0.02
Maximum	0.3
Average	0.15

Note: Effective porosity/specific yield is based on literature values from Arikaree Formation literature and textbook values for sandstone

Seepage Velocity

$$v_s = -K * i / n_e$$

where,

v_s = seepage velocity, feet per day (ft/d)

K= hydraulic conductivity, feet per day (ft/d)

i= hydraulic gradient, feet per foot (ft/ft)

n_e = effective porosity/specific yield, unitless

Calculated Seepage Velocities (ft/day)				
	K (ft/day)	i (ft/ft)	n_e	v_s (ft/day)
Minimum	0.75	0.0161	0.30	0.04
Maximum	3.12	0.0163	0.02	2.5
Geometric Mean				0.32

Appendix II

Analytical Laboratory Reports

ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katie Abbott
AECOM Technical Services Inc.
6200 S. Quebec Street
Greenwood Village, Colorado 80111

Generated 6/24/2025 2:50:50 PM

JOB DESCRIPTION

Basin 2025 Support

JOB NUMBER

280-208132-1

Eurofins Denver

Job Notes

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Patrick McEntee, Client Service Manager
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Definitions/Glossary

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-1

Qualifiers

Rad

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

Glossary

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

Case Narrative

Client: AECOM Technical Services Inc.
Project: Basin 2025 Support

Job ID: 280-208132-1

Job ID: 280-208132-1

Eurofins Denver

Job Narrative 280-208132-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt

The samples were received on 5/23/2025 9:20 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 6 coolers at receipt time were 0.1°C, 0.4°C, 0.6°C, 1.1°C, 1.1°C and 1.8°C.

Receipt Exceptions

The results for radiochemistry requested on the COC are reported under 280-208132-1.

Method 9315 - Radium-226 (GFPC)

Samples MW-39B-05202025 (280-208132-1), MW-32B-05202025 (280-208132-2), MW-36B-05202025 (280-208132-3), MW-37B-05202025 (280-208132-4), DUP-05212025 (280-208132-5), MW-53BR-05212025 (280-208132-6), MW-38B-05212025 (280-208132-7), MW-38B-05212025 (280-208132-7MS), MW-38B-05212025 (280-208132-7MSD), MW-49B-05212025 (280-208132-8), MW-40B-05212025 (280-208132-9), MW-20B-05212025 (280-208132-10), MW-14BR-05212025 (280-208132-11), MW-38C-05212025 (280-208132-12), MW-21B-05212025 (280-208132-13), MW-52B-05212025 (280-208132-14), MW-44B-05222025 (280-208132-15), MW-45B-05222025 (280-208132-16), MW-46B-05222025 (280-208132-17), MW-47B-05222025 (280-208132-18), MW-43B-05222025 (280-208132-19), MW-42B-05222025 (280-208132-20) and MW-41B-05222025 (280-208132-21) were analyzed for Radium-226 (GFPC). The samples were prepared on 5/30/2025 and analyzed on 6/23/2025.

Method 9320 - Radium-228 (GFPC)

Samples MW-39B-05202025 (280-208132-1), MW-32B-05202025 (280-208132-2), MW-36B-05202025 (280-208132-3), MW-37B-05202025 (280-208132-4), DUP-05212025 (280-208132-5), MW-53BR-05212025 (280-208132-6), MW-38B-05212025 (280-208132-7), MW-38B-05212025 (280-208132-7MS), MW-38B-05212025 (280-208132-7MSD), MW-49B-05212025 (280-208132-8), MW-40B-05212025 (280-208132-9), MW-20B-05212025 (280-208132-10), MW-14BR-05212025 (280-208132-11), MW-38C-05212025 (280-208132-12), MW-21B-05212025 (280-208132-13), MW-52B-05212025 (280-208132-14), MW-44B-05222025 (280-208132-15), MW-45B-05222025 (280-208132-16), MW-46B-05222025 (280-208132-17), MW-47B-05222025 (280-208132-18), MW-43B-05222025 (280-208132-19), MW-42B-05222025 (280-208132-20) and MW-41B-05222025 (280-208132-21) were analyzed for Radium-228 (GFPC). The samples were prepared on 5/30/2025 and analyzed on 6/22/2025 and 6/23/2025.

Method Ra226_Ra228 - Combined Radium-226 and Radium-228

Samples MW-39B-05202025 (280-208132-1), MW-32B-05202025 (280-208132-2), MW-36B-05202025 (280-208132-3), MW-37B-05202025 (280-208132-4), DUP-05212025 (280-208132-5), MW-53BR-05212025 (280-208132-6), MW-38B-05212025 (280-208132-7), MW-49B-05212025 (280-208132-8), MW-40B-05212025 (280-208132-9), MW-20B-05212025 (280-208132-10), MW-14BR-05212025 (280-208132-11), MW-38C-05212025 (280-208132-12), MW-21B-05212025 (280-208132-13), MW-52B-05212025 (280-208132-14), MW-44B-05222025 (280-208132-15), MW-45B-05222025 (280-208132-16), MW-46B-05222025 (280-208132-17), MW-47B-05222025 (280-208132-18), MW-43B-05222025 (280-208132-19), MW-42B-05222025 (280-208132-20) and MW-41B-05222025 (280-208132-21) were analyzed for Combined Radium-226 and Radium-228. The samples were analyzed on 6/24/2025.

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Detection Summary

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-1

Client Sample ID: MW-39B-05202025	Lab Sample ID: 280-208132-1
No Detections.	
Client Sample ID: MW-32B-05202025	Lab Sample ID: 280-208132-2
No Detections.	
Client Sample ID: MW-36B-05202025	Lab Sample ID: 280-208132-3
No Detections.	
Client Sample ID: MW-37B-05202025	Lab Sample ID: 280-208132-4
No Detections.	
Client Sample ID: DUP-05212025	Lab Sample ID: 280-208132-5
No Detections.	
Client Sample ID: MW-53BR-05212025	Lab Sample ID: 280-208132-6
No Detections.	
Client Sample ID: MW-38B-05212025	Lab Sample ID: 280-208132-7
No Detections.	
Client Sample ID: MW-49B-05212025	Lab Sample ID: 280-208132-8
No Detections.	
Client Sample ID: MW-40B-05212025	Lab Sample ID: 280-208132-9
No Detections.	
Client Sample ID: MW-20B-05212025	Lab Sample ID: 280-208132-10
No Detections.	
Client Sample ID: MW-14BR-05212025	Lab Sample ID: 280-208132-11
No Detections.	
Client Sample ID: MW-38C-05212025	Lab Sample ID: 280-208132-12
No Detections.	
Client Sample ID: MW-21B-05212025	Lab Sample ID: 280-208132-13
No Detections.	
Client Sample ID: MW-52B-05212025	Lab Sample ID: 280-208132-14
No Detections.	
Client Sample ID: MW-44B-05222025	Lab Sample ID: 280-208132-15
No Detections.	
Client Sample ID: MW-45B-05222025	Lab Sample ID: 280-208132-16
No Detections.	

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-1

Client Sample ID: MW-46B-05222025

Lab Sample ID: 280-208132-17

☐ No Detections.

Client Sample ID: MW-47B-05222025

Lab Sample ID: 280-208132-18

☐ No Detections.

Client Sample ID: MW-43B-05222025

Lab Sample ID: 280-208132-19

☐ No Detections.

Client Sample ID: MW-42B-05222025

Lab Sample ID: 280-208132-20

☐ No Detections.

Client Sample ID: MW-41B-05222025

Lab Sample ID: 280-208132-21

☐ No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Method Summary

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-1

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: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-208132-1	MW-39B-05202025	Water	05/20/25 15:05	05/23/25 09:20
280-208132-2	MW-32B-05202025	Water	05/20/25 16:00	05/23/25 09:20
280-208132-3	MW-36B-05202025	Water	05/20/25 16:40	05/23/25 09:20
280-208132-4	MW-37B-05202025	Water	05/20/25 17:35	05/23/25 09:20
280-208132-5	DUP-05212025	Water	05/21/25 00:00	05/23/25 09:20
280-208132-6	MW-53BR-05212025	Water	05/21/25 08:00	05/23/25 09:20
280-208132-7	MW-38B-05212025	Water	05/21/25 09:05	05/23/25 09:20
280-208132-8	MW-49B-05212025	Water	05/21/25 10:10	05/23/25 09:20
280-208132-9	MW-40B-05212025	Water	05/21/25 11:30	05/23/25 09:20
280-208132-10	MW-20B-05212025	Water	05/21/25 12:20	05/23/25 09:20
280-208132-11	MW-14BR-05212025	Water	05/21/25 13:10	05/23/25 09:20
280-208132-12	MW-38C-05212025	Water	05/21/25 13:55	05/23/25 09:20
280-208132-13	MW-21B-05212025	Water	05/21/25 14:40	05/23/25 09:20
280-208132-14	MW-52B-05212025	Water	05/21/25 17:00	05/23/25 09:20
280-208132-15	MW-44B-05222025	Water	05/22/25 07:30	05/23/25 09:20
280-208132-16	MW-45B-05222025	Water	05/22/25 08:10	05/23/25 09:20
280-208132-17	MW-46B-05222025	Water	05/22/25 09:00	05/23/25 09:20
280-208132-18	MW-47B-05222025	Water	05/22/25 09:40	05/23/25 09:20
280-208132-19	MW-43B-05222025	Water	05/22/25 10:25	05/23/25 09:20
280-208132-20	MW-42B-05222025	Water	05/22/25 11:00	05/23/25 09:20
280-208132-21	MW-41B-05222025	Water	05/22/25 11:40	05/23/25 09:20

Client Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-1

Method: SW846 9315 - Radium-226 (GFPC)

Client Sample ID: MW-39B-05202025

Date Collected: 05/20/25 15:05

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-1

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0531	U	0.162	0.162	1.00	0.363	pCi/L	05/30/25 07:50	06/23/25 16:14	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.3		30 - 110					05/30/25 07:50	06/23/25 16:14	1

Client Sample ID: MW-32B-05202025

Date Collected: 05/20/25 16:00

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-2

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.314	U	0.283	0.285	1.00	0.440	pCi/L	05/30/25 07:50	06/23/25 16:14	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.6		30 - 110					05/30/25 07:50	06/23/25 16:14	1

Client Sample ID: MW-36B-05202025

Date Collected: 05/20/25 16:40

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-3

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.107	U	0.195	0.195	1.00	0.346	pCi/L	05/30/25 07:50	06/23/25 16:14	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.8		30 - 110					05/30/25 07:50	06/23/25 16:14	1

Client Sample ID: MW-37B-05202025

Date Collected: 05/20/25 17:35

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-4

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.301	U	0.220	0.222	1.00	0.308	pCi/L	05/30/25 07:50	06/23/25 16:14	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.5		30 - 110					05/30/25 07:50	06/23/25 16:14	1

Client Sample ID: DUP-05212025

Date Collected: 05/21/25 00:00

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-5

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.209	U	0.213	0.213	1.00	0.333	pCi/L	05/30/25 07:50	06/23/25 16:15	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.1		30 - 110					05/30/25 07:50	06/23/25 16:15	1

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Client Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-1

Method: SW846 9315 - Radium-226 (GFPC)

Client Sample ID: MW-53BR-05212025

Date Collected: 05/21/25 08:00

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-6

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.253	U	0.280	0.281	1.00	0.455	pCi/L	05/30/25 07:50	06/23/25 16:15	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.3		30 - 110					05/30/25 07:50	06/23/25 16:15	1

Client Sample ID: MW-38B-05212025

Date Collected: 05/21/25 09:05

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-7

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.167	U	0.232	0.232	1.00	0.391	pCi/L	05/30/25 07:50	06/23/25 16:15	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	80.1		30 - 110					05/30/25 07:50	06/23/25 16:15	1

Client Sample ID: MW-49B-05212025

Date Collected: 05/21/25 10:10

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-8

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0615	U	0.124	0.124	1.00	0.310	pCi/L	05/30/25 07:50	06/23/25 16:19	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.3		30 - 110					05/30/25 07:50	06/23/25 16:19	1

Client Sample ID: MW-40B-05212025

Date Collected: 05/21/25 11:30

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-9

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.228	U	0.243	0.244	1.00	0.388	pCi/L	05/30/25 07:50	06/23/25 16:19	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	77.9		30 - 110					05/30/25 07:50	06/23/25 16:19	1

Client Sample ID: MW-20B-05212025

Date Collected: 05/21/25 12:20

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-10

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0933	U	0.126	0.127	1.00	0.331	pCi/L	05/30/25 07:50	06/23/25 16:19	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	88.3		30 - 110					05/30/25 07:50	06/23/25 16:19	1

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Client Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-1

Method: SW846 9315 - Radium-226 (GFPC)

Client Sample ID: MW-14BR-05212025
Date Collected: 05/21/25 13:10
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-11
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0301	U	0.181	0.181	1.00	0.359	pCi/L	05/30/25 07:50	06/23/25 16:19	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	84.1		30 - 110					05/30/25 07:50	06/23/25 16:19	1

Client Sample ID: MW-38C-05212025
Date Collected: 05/21/25 13:55
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-12
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0801	U	0.189	0.189	1.00	0.347	pCi/L	05/30/25 07:50	06/23/25 16:18	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.0		30 - 110					05/30/25 07:50	06/23/25 16:18	1

Client Sample ID: MW-21B-05212025
Date Collected: 05/21/25 14:40
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-13
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0208	U	0.138	0.138	1.00	0.308	pCi/L	05/30/25 07:50	06/23/25 16:18	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.5		30 - 110					05/30/25 07:50	06/23/25 16:18	1

Client Sample ID: MW-52B-05212025
Date Collected: 05/21/25 17:00
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-14
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.202	U	0.272	0.273	1.00	0.458	pCi/L	05/30/25 07:50	06/23/25 16:22	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.3		30 - 110					05/30/25 07:50	06/23/25 16:22	1

Client Sample ID: MW-44B-05222025
Date Collected: 05/22/25 07:30
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-15
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.124	U	0.187	0.188	1.00	0.323	pCi/L	05/30/25 07:50	06/23/25 16:22	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	88.8		30 - 110					05/30/25 07:50	06/23/25 16:22	1

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Client Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-1

Method: SW846 9315 - Radium-226 (GFPC)

Client Sample ID: MW-45B-05222025
Date Collected: 05/22/25 08:10
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-16
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0794	U	0.228	0.228	1.00	0.417	pCi/L	05/30/25 07:50	06/23/25 16:22	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.3		30 - 110					05/30/25 07:50	06/23/25 16:22	1

Client Sample ID: MW-46B-05222025
Date Collected: 05/22/25 09:00
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-17
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0724	U	0.206	0.206	1.00	0.381	pCi/L	05/30/25 07:50	06/23/25 16:22	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.0		30 - 110					05/30/25 07:50	06/23/25 16:22	1

Client Sample ID: MW-47B-05222025
Date Collected: 05/22/25 09:40
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-18
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.211	U	0.245	0.245	1.00	0.399	pCi/L	05/30/25 07:50	06/23/25 16:22	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.3		30 - 110					05/30/25 07:50	06/23/25 16:22	1

Client Sample ID: MW-43B-05222025
Date Collected: 05/22/25 10:25
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-19
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0106	U	0.158	0.158	1.00	0.317	pCi/L	05/30/25 07:54	06/23/25 07:21	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.3		30 - 110					05/30/25 07:54	06/23/25 07:21	1

Client Sample ID: MW-42B-05222025
Date Collected: 05/22/25 11:00
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-20
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0735	U	0.162	0.162	1.00	0.293	pCi/L	05/30/25 07:54	06/23/25 07:21	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.8		30 - 110					05/30/25 07:54	06/23/25 07:21	1

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Client Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-1

Method: SW846 9315 - Radium-226 (GFPC)

Client Sample ID: MW-41B-05222025
Date Collected: 05/22/25 11:40
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-21
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.200	U	0.196	0.197	1.00	0.308	pCi/L	05/30/25 07:54	06/23/25 07:21	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.6		30 - 110					05/30/25 07:54	06/23/25 07:21	1

Method: SW846 9320 - Radium-228 (GFPC)

Client Sample ID: MW-39B-05202025
Date Collected: 05/20/25 15:05
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.851		0.436	0.443	1.00	0.618	pCi/L	05/30/25 07:53	06/23/25 13:57	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.3		30 - 110					05/30/25 07:53	06/23/25 13:57	1
Y Carrier	82.6		30 - 110					05/30/25 07:53	06/23/25 13:57	1

Client Sample ID: MW-32B-05202025
Date Collected: 05/20/25 16:00
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.675		0.419	0.424	1.00	0.624	pCi/L	05/30/25 07:53	06/23/25 13:57	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.6		30 - 110					05/30/25 07:53	06/23/25 13:57	1
Y Carrier	83.4		30 - 110					05/30/25 07:53	06/23/25 13:57	1

Client Sample ID: MW-36B-05202025
Date Collected: 05/20/25 16:40
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0758	U	0.307	0.307	1.00	0.556	pCi/L	05/30/25 07:53	06/23/25 13:57	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.8		30 - 110					05/30/25 07:53	06/23/25 13:57	1
Y Carrier	84.1		30 - 110					05/30/25 07:53	06/23/25 13:57	1

Client Sample ID: MW-37B-05202025
Date Collected: 05/20/25 17:35
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0502	U	0.255	0.255	1.00	0.469	pCi/L	05/30/25 07:53	06/23/25 13:57	1

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Client Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-1

Method: SW846 9320 - Radium-228 (GFPC)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	95.5		30 - 110	05/30/25 07:53	06/23/25 13:57	1
Y Carrier	84.1		30 - 110	05/30/25 07:53	06/23/25 13:57	1

Client Sample ID: DUP-05212025
Date Collected: 05/21/25 00:00
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-5
Matrix: Water

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.263	U	0.366	0.366	1.00	0.613	pCi/L	05/30/25 07:53	06/23/25 13:57	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.1		30 - 110					05/30/25 07:53	06/23/25 13:57	1
Y Carrier	78.5		30 - 110					05/30/25 07:53	06/23/25 13:57	1

Client Sample ID: MW-53BR-05212025
Date Collected: 05/21/25 08:00
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-6
Matrix: Water

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0804	U	0.316	0.317	1.00	0.614	pCi/L	05/30/25 07:53	06/23/25 13:57	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.3		30 - 110					05/30/25 07:53	06/23/25 13:57	1
Y Carrier	80.7		30 - 110					05/30/25 07:53	06/23/25 13:57	1

Client Sample ID: MW-38B-05212025
Date Collected: 05/21/25 09:05
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-7
Matrix: Water

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.331	U	0.367	0.368	1.00	0.598	pCi/L	05/30/25 07:53	06/23/25 13:58	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	80.1		30 - 110					05/30/25 07:53	06/23/25 13:58	1
Y Carrier	78.5		30 - 110					05/30/25 07:53	06/23/25 13:58	1

Client Sample ID: MW-49B-05212025
Date Collected: 05/21/25 10:10
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-8
Matrix: Water

RADON DETECTION RESULTS										
Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Radium-228	0.0687	U	0.277	0.277	1.00	0.502	pCi/L	05/30/25 07:53	06/23/25 13:58	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.3		30 - 110					05/30/25 07:53	06/23/25 13:58	1
Y Carrier	84.5		30 - 110					05/30/25 07:53	06/23/25 13:58	1

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Client Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-1

Method: SW846 9320 - Radium-228 (GFPC)

Client Sample ID: MW-40B-05212025
Date Collected: 05/21/25 11:30
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.08		0.541	0.550	1.00	0.753	pCi/L	05/30/25 07:53	06/23/25 13:58	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	77.9		30 - 110					05/30/25 07:53	06/23/25 13:58	1
Y Carrier	71.8		30 - 110					05/30/25 07:53	06/23/25 13:58	1

Client Sample ID: MW-20B-05212025
Date Collected: 05/21/25 12:20
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-10
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.111	U	0.301	0.301	1.00	0.536	pCi/L	05/30/25 07:53	06/23/25 13:58	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	88.3		30 - 110					05/30/25 07:53	06/23/25 13:58	1
Y Carrier	82.2		30 - 110					05/30/25 07:53	06/23/25 13:58	1

Client Sample ID: MW-14BR-05212025
Date Collected: 05/21/25 13:10
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-11
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.126	U	0.278	0.278	1.00	0.569	pCi/L	05/30/25 07:53	06/23/25 13:59	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	84.1		30 - 110					05/30/25 07:53	06/23/25 13:59	1
Y Carrier	78.5		30 - 110					05/30/25 07:53	06/23/25 13:59	1

Client Sample ID: MW-38C-05212025
Date Collected: 05/21/25 13:55
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-12
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.448	U	0.314	0.317	1.00	0.467	pCi/L	05/30/25 07:53	06/23/25 13:59	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.0		30 - 110					05/30/25 07:53	06/23/25 13:59	1
Y Carrier	85.6		30 - 110					05/30/25 07:53	06/23/25 13:59	1

Client Sample ID: MW-21B-05212025
Date Collected: 05/21/25 14:40
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-13
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.265	U	0.309	0.310	1.00	0.508	pCi/L	05/30/25 07:53	06/23/25 14:01	1

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Client Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-1

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	93.5		30 - 110	05/30/25 07:53	06/23/25 14:01	1
Y Carrier	81.5		30 - 110	05/30/25 07:53	06/23/25 14:01	1

Client Sample ID: MW-52B-05212025
Date Collected: 05/21/25 17:00
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-14
Matrix: Water

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.913		0.470	0.478	1.00	0.641	pCi/L	05/30/25 07:53	06/23/25 14:01	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.3		30 - 110					05/30/25 07:53	06/23/25 14:01	1
Y Carrier	83.0		30 - 110					05/30/25 07:53	06/23/25 14:01	1

Client Sample ID: MW-44B-05222025
Date Collected: 05/22/25 07:30
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-15
Matrix: Water

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.753		0.407	0.413	1.00	0.579	pCi/L	05/30/25 07:53	06/23/25 14:01	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	88.8		30 - 110					05/30/25 07:53	06/23/25 14:01	1
Y Carrier	80.4		30 - 110					05/30/25 07:53	06/23/25 14:01	1

Client Sample ID: MW-45B-05222025
Date Collected: 05/22/25 08:10
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-16
Matrix: Water

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0718	U	0.252	0.252	1.00	0.495	pCi/L	05/30/25 07:53	06/23/25 14:01	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.3		30 - 110					05/30/25 07:53	06/23/25 14:01	1
Y Carrier	84.1		30 - 110					05/30/25 07:53	06/23/25 14:01	1

Client Sample ID: MW-46B-05222025
Date Collected: 05/22/25 09:00
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-17
Matrix: Water

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Radium-228	0.278	U	0.343	0.344	1.00	0.569	pCi/L	05/30/25 07:53	06/23/25 14:02	1
Carrier	%Yield	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
Ba Carrier	95.0		30 - 110				05/30/25 07:53	06/23/25 14:02	1	
Y Carrier	83.7		30 - 110				05/30/25 07:53	06/23/25 14:02	1	

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Client Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-1

Method: SW846 9320 - Radium-228 (GFPC)

Client Sample ID: MW-47B-05222025

Date Collected: 05/22/25 09:40

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-18

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0783	U	0.327	0.327	1.00	0.588	pCi/L	05/30/25 07:53	06/23/25 14:02	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.3		30 - 110					05/30/25 07:53	06/23/25 14:02	1
Y Carrier	83.7		30 - 110					05/30/25 07:53	06/23/25 14:02	1

Client Sample ID: MW-43B-05222025

Date Collected: 05/22/25 10:25

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-19

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.116	U	0.315	0.315	1.00	0.558	pCi/L	05/30/25 07:58	06/22/25 10:51	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.3		30 - 110					05/30/25 07:58	06/22/25 10:51	1
Y Carrier	75.9		30 - 110					05/30/25 07:58	06/22/25 10:51	1

Client Sample ID: MW-42B-05222025

Date Collected: 05/22/25 11:00

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-20

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.171	U	0.297	0.297	1.00	0.512	pCi/L	05/30/25 07:58	06/22/25 10:51	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.8		30 - 110					05/30/25 07:58	06/22/25 10:51	1
Y Carrier	77.4		30 - 110					05/30/25 07:58	06/22/25 10:51	1

Client Sample ID: MW-41B-05222025

Date Collected: 05/22/25 11:40

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-21

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.396	U	0.344	0.346	1.00	0.534	pCi/L	05/30/25 07:58	06/22/25 10:51	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.6		30 - 110					05/30/25 07:58	06/22/25 10:51	1
Y Carrier	71.8		30 - 110					05/30/25 07:58	06/22/25 10:51	1

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Client Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-1

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

Client Sample ID: MW-39B-05202025
Date Collected: 05/20/25 15:05
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.797		0.465	0.472	5.00	0.618	pCi/L		06/24/25 14:19	1

Client Sample ID: MW-32B-05202025
Date Collected: 05/20/25 16:00
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.989		0.506	0.511	5.00	0.624	pCi/L		06/24/25 14:19	1

Client Sample ID: MW-36B-05202025
Date Collected: 05/20/25 16:40
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.183	U	0.364	0.364	5.00	0.556	pCi/L		06/24/25 14:19	1

Client Sample ID: MW-37B-05202025
Date Collected: 05/20/25 17:35
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.352	U	0.337	0.338	5.00	0.469	pCi/L		06/24/25 14:19	1

Client Sample ID: DUP-05212025
Date Collected: 05/21/25 00:00
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.472	U	0.423	0.423	5.00	0.613	pCi/L		06/24/25 14:19	1

Client Sample ID: MW-53BR-05212025
Date Collected: 05/21/25 08:00
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.172	U	0.422	0.424	5.00	0.614	pCi/L		06/24/25 14:19	1

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Client Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-1

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

Client Sample ID: MW-38B-05212025
Date Collected: 05/21/25 09:05
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.498	U	0.434	0.435	5.00	0.598	pCi/L		06/24/25 14:19	1

Client Sample ID: MW-49B-05212025
Date Collected: 05/21/25 10:10
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.00726	U	0.303	0.303	5.00	0.502	pCi/L		06/24/25 14:30	1

Client Sample ID: MW-40B-05212025
Date Collected: 05/21/25 11:30
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.31		0.593	0.602	5.00	0.753	pCi/L		06/24/25 14:30	1

Client Sample ID: MW-20B-05212025
Date Collected: 05/21/25 12:20
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-10
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.0177	U	0.326	0.327	5.00	0.536	pCi/L		06/24/25 14:30	1

Client Sample ID: MW-14BR-05212025
Date Collected: 05/21/25 13:10
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-11
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.0963	U	0.332	0.332	5.00	0.569	pCi/L		06/24/25 14:30	1

Client Sample ID: MW-38C-05212025
Date Collected: 05/21/25 13:55
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-12
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.528		0.366	0.369	5.00	0.467	pCi/L		06/24/25 14:30	1

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Client Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-1

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

Client Sample ID: MW-21B-05212025
Date Collected: 05/21/25 14:40
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-13
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.244	U	0.338	0.339	5.00	0.508	pCi/L		06/24/25 14:30	1

Client Sample ID: MW-52B-05212025
Date Collected: 05/21/25 17:00
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-14
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.12		0.543	0.550	5.00	0.641	pCi/L		06/24/25 14:30	1

Client Sample ID: MW-44B-05222025
Date Collected: 05/22/25 07:30
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-15
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.877		0.448	0.454	5.00	0.579	pCi/L		06/24/25 14:30	1

Client Sample ID: MW-45B-05222025
Date Collected: 05/22/25 08:10
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-16
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.00759	U	0.340	0.340	5.00	0.495	pCi/L		06/24/25 14:30	1

Client Sample ID: MW-46B-05222025
Date Collected: 05/22/25 09:00
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-17
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.350	U	0.400	0.401	5.00	0.569	pCi/L		06/24/25 14:30	1

Client Sample ID: MW-47B-05222025
Date Collected: 05/22/25 09:40
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-18
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.289	U	0.409	0.409	5.00	0.588	pCi/L		06/24/25 14:30	1

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Client Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-1

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

Client Sample ID: MW-43B-05222025
Date Collected: 05/22/25 10:25
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-19
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.105	U	0.352	0.352	5.00	0.558	pCi/L		06/24/25 14:30	1

Client Sample ID: MW-42B-05222025
Date Collected: 05/22/25 11:00
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-20
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.245	U	0.338	0.338	5.00	0.512	pCi/L		06/24/25 14:30	1

Client Sample ID: MW-41B-05222025
Date Collected: 05/22/25 11:40
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-21
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.596		0.396	0.398	5.00	0.534	pCi/L		06/24/25 14:30	1

QC Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-1

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-720082/1-A

Matrix: Water

Analysis Batch: 723863

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 720082

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.02056	U	0.186	0.186	1.00	0.383	pCi/L	05/30/25 07:50	06/23/25 16:13	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.5		30 - 110					05/30/25 07:50	06/23/25 16:13	1

Lab Sample ID: LCS 160-720082/2-A

Matrix: Water

Analysis Batch: 723863

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 720082

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226			9.58	8.998		1.23	1.00	0.359	pCi/L	94	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits								
Ba Carrier	88.8		30 - 110								

Lab Sample ID: 280-208132-7 MS

Matrix: Water

Analysis Batch: 723861

Client Sample ID: MW-38B-05212025

Prep Type: Total/NA

Prep Batch: 720082

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226	0.167	U	9.56	8.522		1.21	1.00	0.331	pCi/L	87	60 - 140
Carrier	MS %Yield	MS Qualifier	Limits								
Ba Carrier	82.1		30 - 110								

Lab Sample ID: 280-208132-7 MSD

Matrix: Water

Analysis Batch: 723861

Client Sample ID: MW-38B-05212025

Prep Type: Total/NA

Prep Batch: 720082

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-226	0.167	U	9.56	8.819		1.22	1.00	0.265	pCi/L	90	60 - 140	0.12	1
Carrier	MSD %Yield	MSD Qualifier	Limits										
Ba Carrier	86.1		30 - 110										

Lab Sample ID: MB 160-720084/1-A

Matrix: Water

Analysis Batch: 723862

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 720084

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.008783	U	0.122	0.122	1.00	0.258	pCi/L	05/30/25 07:54	06/23/25 07:21	1

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QC Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-1

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

Lab Sample ID: MB 160-720084/1-A
Matrix: Water
Analysis Batch: 723862

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 720084

	MB	MB									
Carrier	%Yield	Qualifier	Limits						Prepared	Analyzed	Dil Fac
Ba Carrier	91.3		30 - 110						05/30/25 07:54	06/23/25 07:21	1

Lab Sample ID: LCS 160-720084/2-A
Matrix: Water
Analysis Batch: 723862

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 720084

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-226		9.58	9.086		1.16	1.00	0.242	pCi/L	95	75 - 125		
Carrier	LCS	LCS										
	%Yield	Qualifier	Limits									
Ba Carrier	88.8		30 - 110									

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-720083/1-A
Matrix: Water
Analysis Batch: 723861

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 720083

Analyte	MB	MB	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1152	U	0.251	0.251	1.00	0.444	pCi/L	05/30/25 07:53	06/23/25 13:55	1
Carrier	MB	MB								
	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.5		30 - 110					05/30/25 07:53	06/23/25 13:55	1
Y Carrier	86.7		30 - 110					05/30/25 07:53	06/23/25 13:55	1

Lab Sample ID: LCS 160-720083/2-A
Matrix: Water
Analysis Batch: 723861

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 720083

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-228		9.32	10.88		1.45	1.00	0.625	pCi/L	117	75 - 125		
Carrier	LCS	LCS										
	%Yield	Qualifier	Limits									
Ba Carrier	88.8		30 - 110									
Y Carrier	83.0		30 - 110									

Lab Sample ID: 280-208132-7 MS
Matrix: Water
Analysis Batch: 723861

Client Sample ID: MW-38B-05212025
Prep Type: Total/NA
Prep Batch: 720083

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-228	0.331	U	9.31	9.481		1.31	1.00	0.488	pCi/L	98	60 - 140		

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QC Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-1

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

Lab Sample ID: 280-208132-7 MS

Matrix: Water

Analysis Batch: 723861

Client Sample ID: MW-38B-05212025

Prep Type: Total/NA

Prep Batch: 720083

	MS	MS	
Carrier	%Yield	Qualifier	Limits
Ba Carrier	82.1		30 - 110
Y Carrier	87.5		30 - 110

Lab Sample ID: 280-208132-7 MSD

Matrix: Water

Analysis Batch: 723861

Client Sample ID: MW-38B-05212025

Prep Type: Total/NA

Prep Batch: 720083

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-228	0.331	U	9.31	11.24		1.50	1.00	0.512	pCi/L	117	60 - 140	0.63	1

	MSD	MSD	
Carrier	%Yield	Qualifier	Limits
Ba Carrier	86.1		30 - 110
Y Carrier	79.3		30 - 110

Lab Sample ID: MB 160-720089/1-A

Matrix: Water

Analysis Batch: 723691

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 720089

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.3916	U	0.329	0.331	1.00	0.511	pCi/L	05/30/25 07:58	06/22/25 10:49	1

	MB	MB								
Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac				
Ba Carrier	91.3		30 - 110	05/30/25 07:58	06/22/25 10:49	1				
Y Carrier	78.5		30 - 110	05/30/25 07:58	06/22/25 10:49	1				

Lab Sample ID: LCS 160-720089/2-A

Matrix: Water

Analysis Batch: 723691

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 720089

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-228	9.33	11.36		1.53	1.00	0.639	pCi/L	122	75 - 125

	LCS	LCS	
Carrier	%Yield	Qualifier	Limits
Ba Carrier	88.8		30 - 110
Y Carrier	75.9		30 - 110

Eurofins Denver

QC Association Summary

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-1

Rad

Prep Batch: 720082

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-208132-1	MW-39B-05202025	Total/NA	Water	PrecSep-21	
280-208132-2	MW-32B-05202025	Total/NA	Water	PrecSep-21	
280-208132-3	MW-36B-05202025	Total/NA	Water	PrecSep-21	
280-208132-4	MW-37B-05202025	Total/NA	Water	PrecSep-21	
280-208132-5	DUP-05212025	Total/NA	Water	PrecSep-21	
280-208132-6	MW-53BR-05212025	Total/NA	Water	PrecSep-21	
280-208132-7	MW-38B-05212025	Total/NA	Water	PrecSep-21	
280-208132-8	MW-49B-05212025	Total/NA	Water	PrecSep-21	
280-208132-9	MW-40B-05212025	Total/NA	Water	PrecSep-21	
280-208132-10	MW-20B-05212025	Total/NA	Water	PrecSep-21	
280-208132-11	MW-14BR-05212025	Total/NA	Water	PrecSep-21	
280-208132-12	MW-38C-05212025	Total/NA	Water	PrecSep-21	
280-208132-13	MW-21B-05212025	Total/NA	Water	PrecSep-21	
280-208132-14	MW-52B-05212025	Total/NA	Water	PrecSep-21	
280-208132-15	MW-44B-05222025	Total/NA	Water	PrecSep-21	
280-208132-16	MW-45B-05222025	Total/NA	Water	PrecSep-21	
280-208132-17	MW-46B-05222025	Total/NA	Water	PrecSep-21	
280-208132-18	MW-47B-05222025	Total/NA	Water	PrecSep-21	
MB 160-720082/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-720082/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
280-208132-7 MS	MW-38B-05212025	Total/NA	Water	PrecSep-21	
280-208132-7 MSD	MW-38B-05212025	Total/NA	Water	PrecSep-21	

Prep Batch: 720083

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-208132-1	MW-39B-05202025	Total/NA	Water	PrecSep_0	
280-208132-2	MW-32B-05202025	Total/NA	Water	PrecSep_0	
280-208132-3	MW-36B-05202025	Total/NA	Water	PrecSep_0	
280-208132-4	MW-37B-05202025	Total/NA	Water	PrecSep_0	
280-208132-5	DUP-05212025	Total/NA	Water	PrecSep_0	
280-208132-6	MW-53BR-05212025	Total/NA	Water	PrecSep_0	
280-208132-7	MW-38B-05212025	Total/NA	Water	PrecSep_0	
280-208132-8	MW-49B-05212025	Total/NA	Water	PrecSep_0	
280-208132-9	MW-40B-05212025	Total/NA	Water	PrecSep_0	
280-208132-10	MW-20B-05212025	Total/NA	Water	PrecSep_0	
280-208132-11	MW-14BR-05212025	Total/NA	Water	PrecSep_0	
280-208132-12	MW-38C-05212025	Total/NA	Water	PrecSep_0	
280-208132-13	MW-21B-05212025	Total/NA	Water	PrecSep_0	
280-208132-14	MW-52B-05212025	Total/NA	Water	PrecSep_0	
280-208132-15	MW-44B-05222025	Total/NA	Water	PrecSep_0	
280-208132-16	MW-45B-05222025	Total/NA	Water	PrecSep_0	
280-208132-17	MW-46B-05222025	Total/NA	Water	PrecSep_0	
280-208132-18	MW-47B-05222025	Total/NA	Water	PrecSep_0	
MB 160-720083/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-720083/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
280-208132-7 MS	MW-38B-05212025	Total/NA	Water	PrecSep_0	
280-208132-7 MSD	MW-38B-05212025	Total/NA	Water	PrecSep_0	

Prep Batch: 720084

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-208132-19	MW-43B-05222025	Total/NA	Water	PrecSep-21	

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QC Association Summary

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-1

Rad (Continued)

Prep Batch: 720084 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-208132-20	MW-42B-05222025	Total/NA	Water	PrecSep-21	
280-208132-21	MW-41B-05222025	Total/NA	Water	PrecSep-21	
MB 160-720084/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-720084/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 720089

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-208132-19	MW-43B-05222025	Total/NA	Water	PrecSep_0	
280-208132-20	MW-42B-05222025	Total/NA	Water	PrecSep_0	
280-208132-21	MW-41B-05222025	Total/NA	Water	PrecSep_0	
MB 160-720089/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-720089/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-1

Client Sample ID: MW-39B-05202025

Lab Sample ID: 280-208132-1

Date Collected: 05/20/25 15:05

Matrix: Water

Date Received: 05/23/25 09:20

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			1002.38 mL	1.0 g	720082	05/30/25 07:50	OGC	EET SL
Total/NA	Analysis	9315		1			723863	06/23/25 16:14	SWS	EET SL
Total/NA	Prep	PrecSep_0			1002.38 mL	1.0 g	720083	05/30/25 07:53	OGC	EET SL
Total/NA	Analysis	9320		1			723861	06/23/25 13:57	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			723865	06/24/25 14:19	SCB	EET SL

Client Sample ID: MW-32B-05202025

Lab Sample ID: 280-208132-2

Date Collected: 05/20/25 16:00

Matrix: Water

Date Received: 05/23/25 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.16 mL	1.0 g	720082	05/30/25 07:50	OGC	EET SL
Total/NA	Analysis	9315		1			723863	06/23/25 16:14	SWS	EET SL
Total/NA	Prep	PrecSep_0			999.16 mL	1.0 g	720083	05/30/25 07:53	OGC	EET SL
Total/NA	Analysis	9320		1			723861	06/23/25 13:57	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			723865	06/24/25 14:19	SCB	EET SL

Client Sample ID: MW-36B-05202025

Lab Sample ID: 280-208132-3

Date Collected: 05/20/25 16:40

Matrix: Water

Date Received: 05/23/25 09:20

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			1002.06 mL	1.0 g	720082	05/30/25 07:50	OGC	EET SL
Total/NA	Analysis	9315		1			723863	06/23/25 16:14	SWS	EET SL
Total/NA	Prep	PrecSep_0			1002.06 mL	1.0 g	720083	05/30/25 07:53	OGC	EET SL
Total/NA	Analysis	9320		1			723861	06/23/25 13:57	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			723865	06/24/25 14:19	SCB	EET SL

Client Sample ID: MW-37B-05202025

Lab Sample ID: 280-208132-4

Date Collected: 05/20/25 17:35

Matrix: Water

Date Received: 05/23/25 09:20

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			1001.43 mL	1.0 g	720082	05/30/25 07:50	OGC	EET SL
Total/NA	Analysis	9315		1			723861	06/23/25 16:14	SWS	EET SL
Total/NA	Prep	PrecSep_0			1001.43 mL	1.0 g	720083	05/30/25 07:53	OGC	EET SL
Total/NA	Analysis	9320		1			723861	06/23/25 13:57	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			723865	06/24/25 14:19	SCB	EET SL

Lab Chronicle

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-1

Client Sample ID: DUP-05212025

Lab Sample ID: 280-208132-5

Date Collected: 05/21/25 00:00

Matrix: Water

Date Received: 05/23/25 09:20

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			1002.34 mL	1.0 g	720082	05/30/25 07:50	OGC	EET SL
Total/NA	Analysis	9315		1			723861	06/23/25 16:15	SWS	EET SL
Total/NA	Prep	PrecSep_0			1002.34 mL	1.0 g	720083	05/30/25 07:53	OGC	EET SL
Total/NA	Analysis	9320		1			723861	06/23/25 13:57	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			723865	06/24/25 14:19	SCB	EET SL

Client Sample ID: MW-53BR-05212025

Lab Sample ID: 280-208132-6

Date Collected: 05/21/25 08:00

Matrix: Water

Date Received: 05/23/25 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.65 mL	1.0 g	720082	05/30/25 07:50	OGC	EET SL
Total/NA	Analysis	9315		1			723861	06/23/25 16:15	SWS	EET SL
Total/NA	Prep	PrecSep_0			1000.65 mL	1.0 g	720083	05/30/25 07:53	OGC	EET SL
Total/NA	Analysis	9320		1			723861	06/23/25 13:57	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			723865	06/24/25 14:19	SCB	EET SL

Client Sample ID: MW-38B-05212025

Lab Sample ID: 280-208132-7

Date Collected: 05/21/25 09:05

Matrix: Water

Date Received: 05/23/25 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.25 mL	1.0 g	720082	05/30/25 07:50	OGC	EET SL
Total/NA	Analysis	9315		1			723861	06/23/25 16:15	SWS	EET SL
Total/NA	Prep	PrecSep_0			1000.25 mL	1.0 g	720083	05/30/25 07:53	OGC	EET SL
Total/NA	Analysis	9320		1			723861	06/23/25 13:58	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			723865	06/24/25 14:19	SCB	EET SL

Client Sample ID: MW-49B-05212025

Lab Sample ID: 280-208132-8

Date Collected: 05/21/25 10:10

Matrix: Water

Date Received: 05/23/25 09:20

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			1002.99 mL	1.0 g	720082	05/30/25 07:50	OGC	EET SL
Total/NA	Analysis	9315		1			723861	06/23/25 16:19	SWS	EET SL
Total/NA	Prep	PrecSep_0			1002.99 mL	1.0 g	720083	05/30/25 07:53	OGC	EET SL
Total/NA	Analysis	9320		1			723861	06/23/25 13:58	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			723865	06/24/25 14:30	SCB	EET SL

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Lab Chronicle

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-1

Client Sample ID: MW-40B-05212025

Lab Sample ID: 280-208132-9

Date Collected: 05/21/25 11:30

Matrix: Water

Date Received: 05/23/25 09:20

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			1001.72 mL	1.0 g	720082	05/30/25 07:50	OGC	EET SL
Total/NA	Analysis	9315		1			723861	06/23/25 16:19	SWS	EET SL
Total/NA	Prep	PrecSep_0			1001.72 mL	1.0 g	720083	05/30/25 07:53	OGC	EET SL
Total/NA	Analysis	9320		1			723861	06/23/25 13:58	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			723865	06/24/25 14:30	SCB	EET SL

Client Sample ID: MW-20B-05212025

Lab Sample ID: 280-208132-10

Date Collected: 05/21/25 12:20

Matrix: Water

Date Received: 05/23/25 09:20

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			1001.30 mL	1.0 g	720082	05/30/25 07:50	OGC	EET SL
Total/NA	Analysis	9315		1			723861	06/23/25 16:19	SWS	EET SL
Total/NA	Prep	PrecSep_0			1001.30 mL	1.0 g	720083	05/30/25 07:53	OGC	EET SL
Total/NA	Analysis	9320		1			723861	06/23/25 13:58	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			723865	06/24/25 14:30	SCB	EET SL

Client Sample ID: MW-14BR-05212025

Lab Sample ID: 280-208132-11

Date Collected: 05/21/25 13:10

Matrix: Water

Date Received: 05/23/25 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.89 mL	1.0 g	720082	05/30/25 07:50	OGC	EET SL
Total/NA	Analysis	9315		1			723861	06/23/25 16:19	SWS	EET SL
Total/NA	Prep	PrecSep_0			1000.89 mL	1.0 g	720083	05/30/25 07:53	OGC	EET SL
Total/NA	Analysis	9320		1			723861	06/23/25 13:59	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			723865	06/24/25 14:30	SCB	EET SL

Client Sample ID: MW-38C-05212025

Lab Sample ID: 280-208132-12

Date Collected: 05/21/25 13:55

Matrix: Water

Date Received: 05/23/25 09:20

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			1001.06 mL	1.0 g	720082	05/30/25 07:50	OGC	EET SL
Total/NA	Analysis	9315		1			723861	06/23/25 16:18	SWS	EET SL
Total/NA	Prep	PrecSep_0			1001.06 mL	1.0 g	720083	05/30/25 07:53	OGC	EET SL
Total/NA	Analysis	9320		1			723861	06/23/25 13:59	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			723865	06/24/25 14:30	SCB	EET SL

Lab Chronicle

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-1

Client Sample ID: MW-21B-05212025

Lab Sample ID: 280-208132-13

Date Collected: 05/21/25 14:40

Matrix: Water

Date Received: 05/23/25 09:20

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	720082	05/30/25 07:50	OGC	EET SL
Total/NA	Analysis	9315		1			723861	06/23/25 16:18	SWS	EET SL
Total/NA	Prep	PrecSep_0			1001.27 mL	1.0 g	720083	05/30/25 07:53	OGC	EET SL
Total/NA	Analysis	9320		1			723862	06/23/25 14:01	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			723865	06/24/25 14:30	SCB	EET SL

Client Sample ID: MW-52B-05212025

Lab Sample ID: 280-208132-14

Date Collected: 05/21/25 17:00

Matrix: Water

Date Received: 05/23/25 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			754.49 mL	1.0 g	720082	05/30/25 07:50	OGC	EET SL
Total/NA	Analysis	9315		1			723862	06/23/25 16:22	SWS	EET SL
Total/NA	Prep	PrecSep_0			754.49 mL	1.0 g	720083	05/30/25 07:53	OGC	EET SL
Total/NA	Analysis	9320		1			723862	06/23/25 14:01	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			723865	06/24/25 14:30	SCB	EET SL

Client Sample ID: MW-44B-05222025

Lab Sample ID: 280-208132-15

Date Collected: 05/22/25 07:30

Matrix: Water

Date Received: 05/23/25 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.30 mL	1.0 g	720082	05/30/25 07:50	OGC	EET SL
Total/NA	Analysis	9315		1			723862	06/23/25 16:22	SWS	EET SL
Total/NA	Prep	PrecSep_0			1000.30 mL	1.0 g	720083	05/30/25 07:53	OGC	EET SL
Total/NA	Analysis	9320		1			723862	06/23/25 14:01	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			723865	06/24/25 14:30	SCB	EET SL

Client Sample ID: MW-45B-05222025

Lab Sample ID: 280-208132-16

Date Collected: 05/22/25 08:10

Matrix: Water

Date Received: 05/23/25 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.54 mL	1.0 g	720082	05/30/25 07:50	OGC	EET SL
Total/NA	Analysis	9315		1			723862	06/23/25 16:22	SWS	EET SL
Total/NA	Prep	PrecSep_0			1000.54 mL	1.0 g	720083	05/30/25 07:53	OGC	EET SL
Total/NA	Analysis	9320		1			723862	06/23/25 14:01	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			723865	06/24/25 14:30	SCB	EET SL

Lab Chronicle

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-1

Client Sample ID: MW-46B-05222025

Lab Sample ID: 280-208132-17

Date Collected: 05/22/25 09:00

Matrix: Water

Date Received: 05/23/25 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.87 mL	1.0 g	720082	05/30/25 07:50	OGC	EET SL
Total/NA	Analysis	9315		1			723862	06/23/25 16:22	SWS	EET SL
Total/NA	Prep	PrecSep_0			1000.87 mL	1.0 g	720083	05/30/25 07:53	OGC	EET SL
Total/NA	Analysis	9320		1			723862	06/23/25 14:02	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			723865	06/24/25 14:30	SCB	EET SL

Client Sample ID: MW-47B-05222025

Lab Sample ID: 280-208132-18

Date Collected: 05/22/25 09:40

Matrix: Water

Date Received: 05/23/25 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.08 mL	1.0 g	720082	05/30/25 07:50	OGC	EET SL
Total/NA	Analysis	9315		1			723862	06/23/25 16:22	SWS	EET SL
Total/NA	Prep	PrecSep_0			1000.08 mL	1.0 g	720083	05/30/25 07:53	OGC	EET SL
Total/NA	Analysis	9320		1			723862	06/23/25 14:02	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			723865	06/24/25 14:30	SCB	EET SL

Client Sample ID: MW-43B-05222025

Lab Sample ID: 280-208132-19

Date Collected: 05/22/25 10:25

Matrix: Water

Date Received: 05/23/25 09:20

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			1001.85 mL	1.0 g	720084	05/30/25 07:54	OGC	EET SL
Total/NA	Analysis	9315		1			723862	06/23/25 07:21	SWS	EET SL
Total/NA	Prep	PrecSep_0			1001.85 mL	1.0 g	720089	05/30/25 07:58	OGC	EET SL
Total/NA	Analysis	9320		1			723691	06/22/25 10:51	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			723865	06/24/25 14:30	SCB	EET SL

Client Sample ID: MW-42B-05222025

Lab Sample ID: 280-208132-20

Date Collected: 05/22/25 11:00

Matrix: Water

Date Received: 05/23/25 09:20

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			1001.78 mL	1.0 g	720084	05/30/25 07:54	OGC	EET SL
Total/NA	Analysis	9315		1			723862	06/23/25 07:21	SWS	EET SL
Total/NA	Prep	PrecSep_0			1001.78 mL	1.0 g	720089	05/30/25 07:58	OGC	EET SL
Total/NA	Analysis	9320		1			723691	06/22/25 10:51	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			723865	06/24/25 14:30	SCB	EET SL

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Lab Chronicle

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-1

Client Sample ID: MW-41B-05222025
Date Collected: 05/22/25 11:40
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-21
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1002.23 mL	1.0 g	720084	05/30/25 07:54	OGC	EET SL
Total/NA	Analysis	9315		1			723862	06/23/25 07:21	SWS	EET SL
Total/NA	Prep	PrecSep_0			1002.23 mL	1.0 g	720089	05/30/25 07:58	OGC	EET SL
Total/NA	Analysis	9320		1			723691	06/22/25 10:51	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			723865	06/24/25 14:30	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: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-1

Laboratory: Eurofins St. Louis

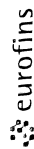
All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-27
ANAB	Dept. of Defense ELAP	L2305	04-06-27
ANAB	Dept. of Energy	L2305.01	04-06-27
ANAB	ISO/IEC 17025	L2305	04-06-27
Arizona	State	AZ0813	12-08-25
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-25
Connecticut	State	PH-0241	03-31-27
Florida	NELAP	E87689	06-30-25
HI - RadChem Recognition	State	n/a	06-30-25
Illinois	NELAP	200023	11-30-25
Iowa	State	373	12-01-26
Kansas	NELAP	E-10236	10-31-25
Kentucky (DW)	State	KY90125	12-31-25
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-25
Louisiana (All)	NELAP	106151	06-30-25
Louisiana (DW)	State	LA011	12-31-25
Maryland	State	310	09-30-25
Massachusetts	State	M-MO054	06-30-25
MI - RadChem Recognition	State	9005	06-30-25
Missouri	State	780	06-30-25
Nevada	State	MO00054	07-31-25
New Jersey	NELAP	MO002	06-30-25
New Mexico	State	MO00054	06-30-25
New York	NELAP	11616	03-31-26
North Carolina (DW)	State	29700	08-02-25
North Dakota	State	R-207	06-30-25
Oklahoma	NELAP	9997	08-31-25
Oregon	NELAP	4157	09-01-25
Pennsylvania	NELAP	68-00540	02-28-26
South Carolina	State	85002	06-30-25
Texas	NELAP	T104704193	07-31-25
US Fish & Wildlife	US Federal Programs	058448	07-31-25
USDA	US Federal Programs	525-23-138-94730	05-18-26
Utah	NELAP	MO00054	07-31-25
Virginia	NELAP	460230	06-14-26
Washington	State	C592	08-30-25
West Virginia DEP	State	381	10-31-25

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

Eurofins Denver

Chain of Custody Record



Environment Testing

Client Information		Sampler	Lab PM	Carrier Tracking No(s)	COG No
Ms. Katie Abbott		Olivia Helinski	McEntee, Patrick J		280-133855-37095.1
Company		360-333-4002	E-Mail	State of Origin	Page 1 of 2
AECOM Technical Services Inc.			Patrick.McEntee@et.eurofins.com	WY	Job #
Address		Analysis Requested			
6200 S. Quebec Street		Due Date Requested:			
City		TAT Requested (days):			
Greenwood Village		STANDARD			
State, Zip		Compliance Project: ☐ Yes ☐ No			
CO, 80111		PO #			
Phone		AECOM Project# 60632474			
616-574-8327(Tel)		Project #			
Email		28020759			
katie.abbott@aecom.com		SSOW#			
Project Name		Basin Electric, Laramie River Station			
Basin		2025 Support			
Site					
Sample Identification		Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=water/oil, B=toxic, A=air)
MW-39B - 05202025		5/20/25	1505	G	W
MW-32B - 05202025		5/20/25	1600	G	W
MW-36B - 05202025		5/20/25	1646	G	W
MW-37B - 05202025		5/20/25	1735	G	W
DUP - 05212025		5/21/25	—	G	W
MW-53B - 05212025		5/21/25	0800	G	W
MW-38B - 05212025		5/21/25	0905	G	W
MW-49B - 05212025		5/21/25	1010	G	W
MW-40B - 05212025		5/21/25	1130	G	W
MW-20B - 05212025		5/21/25	1220	G	W
MW-14B - 05212025		5/21/25	1310	G	W
Possible Hazard Identification		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)			
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological		☐ Return To Client ☐ Disposal By Lab ☐ Archive For Months			
Deliverable Requested: I, II, III, IV, Other (specify)		Special Instructions/QC Requirements:			
Empty Kit Relinquished by:		Method of Shipment			
Relinquished by		Date/Time	Received by		
Relinquished by		5/22/25 1700	AECOM		
Relinquished by		Date/Time	Company		
Relinquished by		Date/Time	Company		
Custody Seals Intact: ☐ Yes ☐ No		Custody Seal No.:			
Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:			
		-0.1, 0.2, 0.4, 0.9, 0.9, 1.6, 2.8, 4.0, 5.0, 6.0, 7.0, 8.0, 9.0, 10.0, 11.0, 12.0, 13.0, 14.0, 15.0			

Eurofins Denver

4955 Yarrow Street
Arvada, CO 80002

Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record



Environment Testing

Client Information		Sampler: Olivia Melinski	Lab PM: McEntee, Patrick J	Carrier Tracking No(s):	COC No: 280-133855-37095.1										
Client Contact: Ms. Katie Abbott		Phone: 360-333-9002	E-Mail: Patrick.McEntee@eurofins.com	State of Origin: WY	Page: 2 of 2										
Company: AECOM Technical Services Inc.		PWSID:	Job #:												
Address: 6200 S Quebec Street		Analysis Requested													
City: Greenwood Village		Due Date Requested:													
State, Zip: CO, 80111		TAT Requested (days): STANDARD													
Phone: 616-574-8327(Tel)		Compliance Project: ☐ Yes ☐ No													
Email: katie.abbott@aecom.com		PO #:													
Project Name: Basin 2025 Support		AECOM Project# 60632474													
Site: Basin Electric, Laramie River Station		SSOW#:													
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix (W=water, S=solid, O=wastewater, I=ice, T=tissue, A=air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	915 Ra226 - Ra226	930 Ra228 - Ra228	Ra226Ra228 - Combined Ra226 Ra228	9056A, 280 - Chloride, Fluoride, Sulfate	6010D, 6020B, 7470A - App III and IV Total Metals	2540C - Solids, Total Dissolved (TDS)	Total Number of Containers	Special Instructions/Note:	
MW-38C-05212025	5/21/25	1355	G	W	N	N	X	X	X	X	X	X	5		
MW-21B-05212025	5/21/25	1440	G	W	N	N	X	X	X	X	X	X	5		
MW-52B-05212025	5/21/25	1700	G	W	N	N	X	X	X	X	X	X	5		
MW-44B-05222025	5/22/25	0730	G	W	N	N	X	X	X	X	X	X	5		
MW-45B-05222025	5/22/25	0810	G	W	N	N	X	X	X	X	X	X	5		
MW-46B-05222025	5/22/25	0900	G	W	N	N	X	X	X	X	X	X	5		
MW-47B-05222025	5/22/25	0940	G	W	N	N	X	X	X	X	X	X	5		
MW-43B-05222025	5/22/25	1025	G	W	N	N	X	X	X	X	X	X	5		
MW-42B-05222025	5/22/25	1100	G	W	N	N	X	X	X	X	X	X	5		
MW-41B-05222025	5/22/25	1140	G	W	N	N	X	X	X	X	X	X	5		
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)	
Deliverable Requested: ☐ I, II, III, IV, Other (specify)														☐ Return To Client ☐ Disposal By Lab ☐ Archive For Months	
Empty Kit Relinquished by:														Time:	
Relinquished by: Olivia Melinski														Date/Time: 5/22/25 1700	
Relinquished by:														Date/Time:	
Relinquished by:														Date/Time:	
Custody Seals Intact: ☐ Yes ☐ No														Custody Seal No.:	



280-208132 Waybill

Part # 156297-435 HROB2 EXP 10/25

ORIGIN ID: FTCA (360) 333-9002
1601 PROSPECT PKWY
FORT COLLINS, CO 80525
UNITED STATES US
SHIP DATE: 22MAY25
ACTWGT: 83.95 LB
CAD: 6996907/SSFE2600
DIMS: 24x13x13 IN
BILL THIRD PARTY

TO EUROFINS DENVER

4955 YARROW ST

ARVADA CO 80002

(303) 738-0100
REF: 0200

DEPT:

FedEx
Express

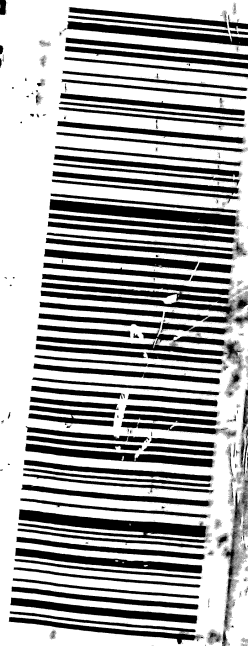


FRI - 23 MAY 10:30A
PRIORITY OVERNIGHT

5 of 6
MP# 2889 6769 7270
Mstr# 8184 6313 1490

72 LAAA

80002
CO-US DEN



eurofins

Environment Testing
TestAmerica

2742716

SIGNATURE

DATE

Custody Seal

5/2

Part # 156297-435 HROB2 EXP 10/25

ORIGIN ID: FTCA (360) 333-9002
1601 PROSPECT PKWY
FORT COLLINS, CO 80525
UNITED STATES US

EUROFINS DENVER

4955 YARROW ST

ARVADA CO 80002

(303) 738-0100
REF: 0200

DEPT:

FedEx
Express



FRI - 23 MAY 10:30A
PRIORITY OVERNIGHT

1 of 6
TRK# 8184 6313 1490
MASTER

eurofins

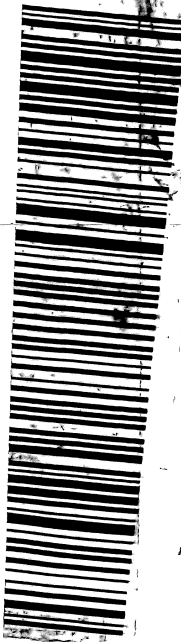
Environment Testing
TestAmerica

2742714

SIGNATURE

DATE

Custody Seal

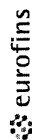


4955 Yarrow Street

Arvada, CO 80002

Phone: 303-736-0100 Fax: 303-431-7171

Chain of Custody Record



Environment Testing

Client Information (Sub Contract Lab)				Lab P/N: McEntee, Patrick J		Carrier Tracking No(s): N/A		COC No: 280-747535.1						
Client Contact: Patrick McEntee				E-Mail: Patrick.McEntee@et.eurofinsus.com		State of Origin: Colorado		Page: Page 1 of 3						
Shipping/Receiving				Company: TestAmerica Laboratories, Inc.		Accreditation Required (See note): NELAP - Oregon		Job #: 280-208132-1						
Address: 13715 Rider Trail North, Earth City, MO, 63045				Due Date Requested: 6/24/2025		Analysis Requested		Preservation Codes: 280-208132-1						
City: Earth City				TAT Requested (days): N/A										
State, Zip: MO, 63045				PO #: N/A										
Phone: 314-298-8566(Tel) 314-298-8757(Fax)				WO #: N/A										
Email: N/A				Project #: 28020759										
Site: N/A				SSOW#: N/A				Other: N/A						
Sample Identification - Client ID (Lab ID)				Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=on-site)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	315_Ra226/PreSep_21 Standard Target List	320_Ra228/PreSep_10 Standard Target List	Ra226Ra228_GFPc	Total Number of Containers	Special Instructions/Note:
MW-39B-05202025 (280-208132-1)				5/20/25	15:05 Mountain	G	Water		X	X	X		2	
MW-32B-05202025 (280-208132-2)				5/20/25	16:00 Mountain	G	Water		X	X	X		2	
MW-36B-05202025 (280-208132-3)				5/20/25	16:40 Mountain	G	Water		X	X	X		2	
MW-37B-05202025 (280-208132-4)				5/20/25	17:35 Mountain	G	Water		X	X	X		2	
DUP-05210205 (280-208132-5)				5/21/25	Mountain	G	Water		X	X	X		2	
MW-53BR-05210205 (280-208132-6)				5/21/25	08:00 Mountain	G	Water		X	X	X		2	
MW-38B-05210205 (280-208132-7)				5/21/25	09:05 Mountain	G	Water		X	X	X		2	
MW-38B-05210205 (280-208132-7MS)				5/21/25	09:05 Mountain	G	Water		X	X	X		2	
MW-38B-05210205 (280-208132-7MSD)				5/21/25	09:05 Mountain	G	Water		X	X	X		2	
Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins TestAmerica.														
Possible Hazard Identification														
Unconfirmed Deliverable Requested: I, II, III, IV, Other (specify) _____ Primary Deliverable Rank: 2 Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months Special Instructions/QC Requirements: _____														
Empty Kit Relinquished by: _____ Date: _____ Time: _____ Method of Shipment: _____ Relinquished by: <i>[Signature]</i> Date/Time: 5-27-25 15:00 Company: Eurofins Received by: <i>[Signature]</i> Date/Time: 09:05 MAY 28 2025 Company: _____ Relinquished by: _____ Date/Time: _____ Company: _____ Received by: Cheyenne Forrest Date/Time: _____ Company: _____ Relinquished by: _____ Date/Time: _____ Company: _____ Received by: _____ Date/Time: _____ Company: _____														
Custody Seals Intact: ☐ Yes ☐ No Custody Seal No.: _____ Cooler Temperature(s) °C and Other Remarks: _____														

Phone: 303-736-0100 Fax: 303-431-7171

Chain of Custody Record



Environment Testing

Client Information (Sub Contract Lab)				Sampler: McEntee, Patrick J Phone: N/A E-Mail: Patrick.McEntee@et.eurofinsus.com		Carrier Tracking No(s): 280-747535 2 State of Origin: Colorado Page: Page 2 of 3 Job #: 280-208132-1		COC No: 280-747535 2 Preservation Codes: 280-208132-1	
Address: 13715 Rider Trail North, City: Earth City State, Zip: MO, 63045 Phone: 314-298-8566(Tel) 314-298-8757(Fax) Email: N/A				Due Date Requested: 6/24/2025 TAT Requested (days): N/A		Analysis Requested		Total Number of Containers: 2	
Project Name: Basin 2025 Support Project #: 28020759 SSOW#: N/A				PO #: N/A WO #: N/A		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)	
Sample Identification - Client ID (Lab ID)				Sample Date		Sample Time		Preservation Code	
MW-49B-05212025 (280-208132-8)				5/21/25		10:10 Mountain		G Water	
MW-40B-05212025 (280-208132-9)				5/21/25		11:30 Mountain		G Water	
MW-20B-05212025 (280-208132-10)				5/21/25		12:20 Mountain		G Water	
MW-14BR-05212025 (280-208132-11)				5/21/25		13:10 Mountain		G Water	
MW-38C-05212025 (280-208132-12)				5/21/25		13:55 Mountain		G Water	
MW-21B-05212025 (280-208132-13)				5/21/25		14:40 Mountain		G Water	
MW-52B-05212025 (280-208132-14)				5/21/25		17:00 Mountain		G Water	
MW-44B-05222025 (280-208132-15)				5/22/25		07:30 Mountain		G Water	
MW-45B-05222025 (280-208132-16)				5/22/25		08:10 Mountain		G Water	
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/testmatrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins TestAmerica.									
Possible Hazard Identification Unconfirmed Deliverable Requested: I, II, III, IV, Other (specify) _____									
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months									
Special Instructions/QC Requirements: _____									
Empty Kit Relinquished by: _____ Date: _____ Time: _____									
Relinquished by: <i>[Signature]</i> Date/Time: 5-27-25 15:00									
Relinquished by: <i>[Signature]</i> Date/Time: _____									
Relinquished by: _____ Date/Time: _____									
Relinquished by: _____ Date/Time: _____									
Custody Seals Intact: ☒ Yes ☐ No									
Custody Seal No.: _____									

Login Sample Receipt Checklist

Client: AECOM Technical Services Inc.

Job Number: 280-208132-1

Login Number: 208132

List Source: Eurofins Denver

List Number: 1

Creator: Roehsner, Karen P

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

This receipt checklist is generated for all samples received in this Login. It may not be applicable to all Jobs associated with this Login.

Eurofins Denver

Login Sample Receipt Checklist

Client: AECOM Technical Services Inc.

Job Number: 280-208132-1

Login Number: 208132

List Number: 2

Creator: Forrest, Cheyenne L

List Source: Eurofins St. Louis

List Creation: 05/28/25 12:25 PM

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

This receipt checklist is generated for all samples received in this Login. It may not be applicable to all Jobs associated with this Login.

Eurofins Denver

Tracer/Carrier Summary

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-1

Method: 9315 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)					
		Ba					
Lab Sample ID	Client Sample ID	(30-110)					
280-208132-1	MW-39B-05202025	86.3					
280-208132-2	MW-32B-05202025	87.6					
280-208132-3	MW-36B-05202025	86.8					
280-208132-4	MW-37B-05202025	95.5					
280-208132-5	DUP-05212025	89.1					
280-208132-6	MW-53BR-05212025	85.3					
280-208132-7	MW-38B-05212025	80.1					
280-208132-7 MS	MW-38B-05212025	82.1					
280-208132-7 MSD	MW-38B-05212025	86.1					
280-208132-8	MW-49B-05212025	90.3					
280-208132-9	MW-40B-05212025	77.9					
280-208132-10	MW-20B-05212025	88.3					
280-208132-11	MW-14BR-05212025	84.1					
280-208132-12	MW-38C-05212025	90.0					
280-208132-13	MW-21B-05212025	93.5					
280-208132-14	MW-52B-05212025	91.3					
280-208132-15	MW-44B-05222025	88.8					
280-208132-16	MW-45B-05222025	96.3					
280-208132-17	MW-46B-05222025	95.0					
280-208132-18	MW-47B-05222025	89.3					
280-208132-19	MW-43B-05222025	94.3					
280-208132-20	MW-42B-05222025	91.8					
280-208132-21	MW-41B-05222025	85.6					
LCS 160-720082/2-A	Lab Control Sample	88.8					
LCS 160-720084/2-A	Lab Control Sample	88.8					
MB 160-720082/1-A	Method Blank	90.5					
MB 160-720084/1-A	Method Blank	91.3					

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)				
280-208132-1	MW-39B-05202025	86.3	82.6				
280-208132-2	MW-32B-05202025	87.6	83.4				
280-208132-3	MW-36B-05202025	86.8	84.1				
280-208132-4	MW-37B-05202025	95.5	84.1				
280-208132-5	DUP-05212025	89.1	78.5				
280-208132-6	MW-53BR-05212025	85.3	80.7				
280-208132-7	MW-38B-05212025	80.1	78.5				
280-208132-7 MS	MW-38B-05212025	82.1	87.5				
280-208132-7 MSD	MW-38B-05212025	86.1	79.3				
280-208132-8	MW-49B-05212025	90.3	84.5				
280-208132-9	MW-40B-05212025	77.9	71.8				
280-208132-10	MW-20B-05212025	88.3	82.2				
280-208132-11	MW-14BR-05212025	84.1	78.5				

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Tracer/Carrier Summary

Client: AECOM Technical Services Inc.

Job ID: 280-208132-1

Project/Site: Basin 2025 Support

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

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (30-110)	Y (30-110)
280-208132-12	MW-38C-05212025	90.0	85.6
280-208132-13	MW-21B-05212025	93.5	81.5
280-208132-14	MW-52B-05212025	91.3	83.0
280-208132-15	MW-44B-05222025	88.8	80.4
280-208132-16	MW-45B-05222025	96.3	84.1
280-208132-17	MW-46B-05222025	95.0	83.7
280-208132-18	MW-47B-05222025	89.3	83.7
280-208132-19	MW-43B-05222025	94.3	75.9
280-208132-20	MW-42B-05222025	91.8	77.4
280-208132-21	MW-41B-05222025	85.6	71.8
LCS 160-720083/2-A	Lab Control Sample	88.8	83.0
LCS 160-720089/2-A	Lab Control Sample	88.8	75.9
MB 160-720083/1-A	Method Blank	90.5	86.7
MB 160-720089/1-A	Method Blank	91.3	78.5

Tracer/Carrier Legend

Ba = Ba Carrier

Y = Y Carrier

ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katie Abbott
AECOM Technical Services Inc.
6200 S. Quebec Street
Greenwood Village, Colorado 80111

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JOB DESCRIPTION

Basin 2025 Support

JOB NUMBER

280-208132-2

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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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Definitions/Glossary

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

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.

General Chemistry

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

Glossary

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

Case Narrative

Client: AECOM Technical Services Inc.
Project: Basin 2025 Support

Job ID: 280-208132-2

Job ID: 280-208132-2

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Job Narrative 280-208132-2

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt

The samples were received on 5/23/2025 9:20 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 6 coolers at receipt time were 0.1°C, 0.4°C, 0.6°C, 1.1°C, 1.1°C and 1.8°C.

Receipt Exceptions

The results for radiochemistry requested on the COC are reported under 280-208132-1.

Method 6010D - Metals (ICP)

Samples MW-39B-05202025 (280-208132-1), MW-32B-05202025 (280-208132-2), MW-36B-05202025 (280-208132-3), MW-37B-05202025 (280-208132-4), DUP-05212025 (280-208132-5), MW-53BR-05212025 (280-208132-6), MW-38B-05212025 (280-208132-7), MW-38B-05212025 (280-208132-7MS), MW-38B-05212025 (280-208132-7MSD), MW-49B-05212025 (280-208132-8), MW-40B-05212025 (280-208132-9), MW-20B-05212025 (280-208132-10), MW-14BR-05212025 (280-208132-11), MW-38C-05212025 (280-208132-12), MW-21B-05212025 (280-208132-13), MW-52B-05212025 (280-208132-14), MW-44B-05222025 (280-208132-15), MW-45B-05222025 (280-208132-16), MW-46B-05222025 (280-208132-17), MW-47B-05222025 (280-208132-18), MW-43B-05222025 (280-208132-19), MW-42B-05222025 (280-208132-20) and MW-41B-05222025 (280-208132-21) were analyzed for Metals (ICP). The samples were prepared on 5/27/2025 and analyzed on 5/28/2025 and 5/30/2025.

Sample MW-21B-05212025 (280-208132-13)[5x] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

The following sample was diluted to bring the concentration of target analytes within the calibration range: 280-208132-13. Elevated reporting limits (RLs) are provided.

Method 6020B - Metals (ICP/MS)

Samples MW-39B-05202025 (280-208132-1), MW-32B-05202025 (280-208132-2), MW-36B-05202025 (280-208132-3), MW-37B-05202025 (280-208132-4), DUP-05212025 (280-208132-5), MW-53BR-05212025 (280-208132-6), MW-38B-05212025 (280-208132-7), MW-38B-05212025 (280-208132-7MS), MW-38B-05212025 (280-208132-7MSD), MW-49B-05212025 (280-208132-8), MW-40B-05212025 (280-208132-9), MW-20B-05212025 (280-208132-10), MW-14BR-05212025 (280-208132-11), MW-38C-05212025 (280-208132-12), MW-21B-05212025 (280-208132-13), MW-52B-05212025 (280-208132-14), MW-44B-05222025 (280-208132-15), MW-45B-05222025 (280-208132-16), MW-46B-05222025 (280-208132-17), MW-47B-05222025 (280-208132-18), MW-43B-05222025 (280-208132-19), MW-42B-05222025 (280-208132-20) and MW-41B-05222025 (280-208132-21) were analyzed for Metals (ICP/MS). The samples were prepared on 5/27/2025 and analyzed on 5/28/2025, 5/29/2025 and 5/30/2025.

The continuing calibration verification (CCV) associated with batch 280-698105 recovered above the upper control limit for Cr. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are: 280-208132-1, 280-208132-2, 280-208132-3, 280-208132-4, 280-208132-5, 280-208132-6, CCV 280-698105/29, LCS 280-697528/25-A and MB 280-697528/1-A.

Method 7470A - Mercury (CVAA)

Samples MW-39B-05202025 (280-208132-1), MW-32B-05202025 (280-208132-2), MW-36B-05202025 (280-208132-3), MW-37B-05202025 (280-208132-4), DUP-05212025 (280-208132-5), MW-53BR-05212025 (280-208132-6), MW-38B-05212025 (280-208132-7), MW-38B-05212025 (280-208132-7MS), MW-38B-05212025 (280-208132-7MSD), MW-49B-05212025

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Case Narrative

Client: AECOM Technical Services Inc.
Project: Basin 2025 Support

Job ID: 280-208132-2

Job ID: 280-208132-2 (Continued)

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(280-208132-8), MW-40B-05212025 (280-208132-9), MW-20B-05212025 (280-208132-10), MW-14BR-05212025 (280-208132-11), MW-38C-05212025 (280-208132-12), MW-21B-05212025 (280-208132-13), MW-52B-05212025 (280-208132-14), MW-44B-05222025 (280-208132-15), MW-45B-05222025 (280-208132-16), MW-46B-05222025 (280-208132-17), MW-47B-05222025 (280-208132-18), MW-43B-05222025 (280-208132-19), MW-42B-05222025 (280-208132-20) and MW-41B-05222025 (280-208132-21) were analyzed for Mercury (CVAA). The samples were prepared on 5/29/2025 and analyzed on 5/30/2025.

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

Samples MW-39B-05202025 (280-208132-1), MW-32B-05202025 (280-208132-2), MW-36B-05202025 (280-208132-3), MW-37B-05202025 (280-208132-4), DUP-05212025 (280-208132-5), MW-53BR-05212025 (280-208132-6), MW-38B-05212025 (280-208132-7), MW-49B-05212025 (280-208132-8), MW-40B-05212025 (280-208132-9), MW-20B-05212025 (280-208132-10), MW-14BR-05212025 (280-208132-11), MW-38C-05212025 (280-208132-12), MW-21B-05212025 (280-208132-13), MW-52B-05212025 (280-208132-14), MW-44B-05222025 (280-208132-15), MW-45B-05222025 (280-208132-16), MW-46B-05222025 (280-208132-17), MW-47B-05222025 (280-208132-18), MW-43B-05222025 (280-208132-19), MW-42B-05222025 (280-208132-20) and MW-41B-05222025 (280-208132-21) were analyzed for Solids, Total Dissolved (TDS). The samples were analyzed on 5/27/2025 and 5/28/2025.

Method 9056A - Anions, Ion Chromatography

Samples MW-39B-05202025 (280-208132-1), MW-32B-05202025 (280-208132-2), MW-36B-05202025 (280-208132-3), MW-37B-05202025 (280-208132-4), DUP-05212025 (280-208132-5), MW-53BR-05212025 (280-208132-6), MW-38B-05212025 (280-208132-7), MW-38B-05212025 (280-208132-7MS), MW-38B-05212025 (280-208132-7MSD), MW-49B-05212025 (280-208132-8), MW-40B-05212025 (280-208132-9), MW-20B-05212025 (280-208132-10), MW-14BR-05212025 (280-208132-11), MW-38C-05212025 (280-208132-12), MW-21B-05212025 (280-208132-13), MW-52B-05212025 (280-208132-14), MW-44B-05222025 (280-208132-15), MW-45B-05222025 (280-208132-16), MW-46B-05222025 (280-208132-17), MW-47B-05222025 (280-208132-18), MW-43B-05222025 (280-208132-19), MW-42B-05222025 (280-208132-20) and MW-41B-05222025 (280-208132-21) were analyzed for Anions, Ion Chromatography. The samples were analyzed on 5/27/2025, 5/28/2025, 5/29/2025, 5/30/2025 and 5/31/2025.

Samples MW-39B-05202025 (280-208132-1)[5x], MW-32B-05202025 (280-208132-2)[10x], MW-36B-05202025 (280-208132-3)[5x], MW-37B-05202025 (280-208132-4)[5x], DUP-05212025 (280-208132-5)[5x], MW-53BR-05212025 (280-208132-6)[5x], MW-38B-05212025 (280-208132-7)[50x], MW-38B-05212025 (280-208132-7MS)[50x], MW-38B-05212025 (280-208132-7MSD)[50x], MW-49B-05212025 (280-208132-8)[5x], MW-40B-05212025 (280-208132-9)[5x], MW-20B-05212025 (280-208132-10)[5x], MW-14BR-05212025 (280-208132-11)[5x], MW-38C-05212025 (280-208132-12)[5x], MW-21B-05212025 (280-208132-13)[10x], MW-52B-05212025 (280-208132-14)[5x], MW-44B-05222025 (280-208132-15)[5x], MW-45B-05222025 (280-208132-16)[5x], MW-47B-05222025 (280-208132-18)[5x], MW-43B-05222025 (280-208132-19)[5x], MW-42B-05222025 (280-208132-20)[10x] and MW-41B-05222025 (280-208132-21)[10x] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 280-697825 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 associated samples are: 280-208132-E-15 MS and 280-208132-E-15 MSD.

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 280-697825 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 associated samples are: 280-208132-7[MS] and 280-208132-7[MSD].

The following samples have chromatographic interferences that could adversely impact the identification and quantitation of target analytes: 280-208132-7 These interferences impact Fluoride and may cause the values to have a low bias.

The matrix spike duplicate (MSD) recoveries for analytical batch 280-698247 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 associated Matrix Spike is also within acceptance limits. The associated samples is: 280-208132-E-9 MSD.

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Detection Summary

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

Client Sample ID: MW-39B-05202025

Lab Sample ID: 280-208132-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	206		50.0		ug/L	1		6010D	Total/NA
Calcium	168000		200		ug/L	1		6010D	Total/NA
Lithium	63.9		20.0		ug/L	1		6010D	Total/NA
Arsenic	2.98		2.00		ug/L	1		6020B	Total/NA
Barium	32.5		2.00		ug/L	1		6020B	Total/NA
Molybdenum	4.38		2.00		ug/L	1		6020B	Total/NA
Chloride	47.4		3.00		mg/L	1		9056A	Total/NA
Fluoride	0.544		0.500		mg/L	1		9056A	Total/NA
Sulfate	562		15.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1360		20.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-32B-05202025

Lab Sample ID: 280-208132-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	322		50.0		ug/L	1		6010D	Total/NA
Calcium	238000		200		ug/L	1		6010D	Total/NA
Lithium	85.9		20.0		ug/L	1		6010D	Total/NA
Barium	32.3		2.00		ug/L	1		6020B	Total/NA
Molybdenum	3.01		2.00		ug/L	1		6020B	Total/NA
Selenium	2.12		2.00		ug/L	1		6020B	Total/NA
Chloride	118		3.00		mg/L	1		9056A	Total/NA
Sulfate	1050		30.0		mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	2210		20.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-36B-05202025

Lab Sample ID: 280-208132-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	118		50.0		ug/L	1		6010D	Total/NA
Calcium	136000		200		ug/L	1		6010D	Total/NA
Lithium	32.9		20.0		ug/L	1		6010D	Total/NA
Arsenic	2.91		2.00		ug/L	1		6020B	Total/NA
Barium	66.1		2.00		ug/L	1		6020B	Total/NA
Molybdenum	7.27		2.00		ug/L	1		6020B	Total/NA
Selenium	7.25		2.00		ug/L	1		6020B	Total/NA
Chloride	44.4		3.00		mg/L	1		9056A	Total/NA
Fluoride	0.564		0.500		mg/L	1		9056A	Total/NA
Sulfate	389		15.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	928		10.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-37B-05202025

Lab Sample ID: 280-208132-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	185		50.0		ug/L	1		6010D	Total/NA
Calcium	187000		200		ug/L	1		6010D	Total/NA
Lithium	37.8		20.0		ug/L	1		6010D	Total/NA
Arsenic	2.12		2.00		ug/L	1		6020B	Total/NA
Barium	60.4		2.00		ug/L	1		6020B	Total/NA
Molybdenum	32.3		2.00		ug/L	1		6020B	Total/NA
Selenium	4.22		2.00		ug/L	1		6020B	Total/NA
Chloride	67.3		3.00		mg/L	1		9056A	Total/NA
Sulfate	505		15.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1180		20.0		mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

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Detection Summary

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

Client Sample ID: DUP-05212025

Lab Sample ID: 280-208132-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	200		50.0		ug/L	1		6010D	Total/NA
Calcium	136000		200		ug/L	1		6010D	Total/NA
Lithium	40.2		20.0		ug/L	1		6010D	Total/NA
Arsenic	2.49		2.00		ug/L	1		6020B	Total/NA
Barium	56.2		2.00		ug/L	1		6020B	Total/NA
Molybdenum	3.02		2.00		ug/L	1		6020B	Total/NA
Chloride	26.3		3.00		mg/L	1		9056A	Total/NA
Sulfate	337		15.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	844		10.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-53BR-05212025

Lab Sample ID: 280-208132-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	123		50.0		ug/L	1		6010D	Total/NA
Calcium	107000		200		ug/L	1		6010D	Total/NA
Lithium	45.6		20.0		ug/L	1		6010D	Total/NA
Arsenic	3.00		2.00		ug/L	1		6020B	Total/NA
Barium	43.7		2.00		ug/L	1		6020B	Total/NA
Molybdenum	6.45		2.00		ug/L	1		6020B	Total/NA
Selenium	9.00		2.00		ug/L	1		6020B	Total/NA
Chloride	42.4		3.00		mg/L	1		9056A	Total/NA
Fluoride	0.996		0.500		mg/L	1		9056A	Total/NA
Sulfate	237		15.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	766		10.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-38B-05212025

Lab Sample ID: 280-208132-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	3070		50.0		ug/L	1		6010D	Total/NA
Calcium	424000		200		ug/L	1		6010D	Total/NA
Lithium	110		20.0		ug/L	1		6010D	Total/NA
Arsenic	3.90		2.00		ug/L	1		6020B	Total/NA
Barium	15.9		2.00		ug/L	1		6020B	Total/NA
Chromium	5.72		3.00		ug/L	1		6020B	Total/NA
Molybdenum	188		2.00		ug/L	1		6020B	Total/NA
Selenium	3.47		2.00		ug/L	1		6020B	Total/NA
Chloride	219		150		mg/L	50		9056A	Total/NA
Sulfate	5180		150		mg/L	50		9056A	Total/NA
Total Dissolved Solids (TDS)	8470		100		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-49B-05212025

Lab Sample ID: 280-208132-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	215		50.0		ug/L	1		6010D	Total/NA
Calcium	135000		200		ug/L	1		6010D	Total/NA
Lithium	39.9		20.0		ug/L	1		6010D	Total/NA
Arsenic	3.51		2.00		ug/L	1		6020B	Total/NA
Barium	55.2		2.00		ug/L	1		6020B	Total/NA
Molybdenum	3.59		2.00		ug/L	1		6020B	Total/NA
Chloride	26.4		3.00		mg/L	1		9056A	Total/NA
Sulfate	342		15.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	852		10.0		mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

Client Sample ID: MW-40B-05212025

Lab Sample ID: 280-208132-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	180		50.0		ug/L	1		6010D	Total/NA
Calcium	130000		200		ug/L	1		6010D	Total/NA
Lithium	54.0		20.0		ug/L	1		6010D	Total/NA
Arsenic	6.03		2.00		ug/L	1		6020B	Total/NA
Barium	26.3		2.00		ug/L	1		6020B	Total/NA
Molybdenum	5.93		2.00		ug/L	1		6020B	Total/NA
Selenium	3.60		2.00		ug/L	1		6020B	Total/NA
Chloride	29.4		3.00		mg/L	1		9056A	Total/NA
Fluoride	0.782		0.500		mg/L	1		9056A	Total/NA
Sulfate	316		15.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	900		10.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-20B-05212025

Lab Sample ID: 280-208132-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	227		50.0		ug/L	1		6010D	Total/NA
Calcium	133000		200		ug/L	1		6010D	Total/NA
Lithium	34.9		20.0		ug/L	1		6010D	Total/NA
Arsenic	2.96		2.00		ug/L	1		6020B	Total/NA
Barium	56.9		2.00		ug/L	1		6020B	Total/NA
Molybdenum	8.20		2.00		ug/L	1		6020B	Total/NA
Selenium	3.33		2.00		ug/L	1		6020B	Total/NA
Chloride	45.4		3.00		mg/L	1		9056A	Total/NA
Fluoride	0.621		0.500		mg/L	1		9056A	Total/NA
Sulfate	388		15.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	932		20.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-14BR-05212025

Lab Sample ID: 280-208132-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	174		50.0		ug/L	1		6010D	Total/NA
Calcium	210000		200		ug/L	1		6010D	Total/NA
Lithium	35.2		20.0		ug/L	1		6010D	Total/NA
Arsenic	2.96		2.00		ug/L	1		6020B	Total/NA
Barium	49.4		2.00		ug/L	1		6020B	Total/NA
Chromium	5.33		3.00		ug/L	1		6020B	Total/NA
Molybdenum	12.9		2.00		ug/L	1		6020B	Total/NA
Selenium	20.7		2.00		ug/L	1		6020B	Total/NA
Chloride	92.4		3.00		mg/L	1		9056A	Total/NA
Sulfate	475		15.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1140		20.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-38C-05212025

Lab Sample ID: 280-208132-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	66.3		50.0		ug/L	1		6010D	Total/NA
Calcium	104000		200		ug/L	1		6010D	Total/NA
Lithium	25.1		20.0		ug/L	1		6010D	Total/NA
Arsenic	2.85		2.00		ug/L	1		6020B	Total/NA
Barium	47.5		2.00		ug/L	1		6020B	Total/NA
Molybdenum	5.31		2.00		ug/L	1		6020B	Total/NA
Selenium	5.56		2.00		ug/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

Client Sample ID: MW-38C-05212025 (Continued)

Lab Sample ID: 280-208132-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	30.6		3.00		mg/L	1		9056A	Total/NA
Sulfate	236		15.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	671		10.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-21B-05212025

Lab Sample ID: 280-208132-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	217		50.0		ug/L	1		6010D	Total/NA
Calcium	687000		1000		ug/L	5		6010D	Total/NA
Lithium	60.3		20.0		ug/L	1		6010D	Total/NA
Arsenic	2.51		2.00		ug/L	1		6020B	Total/NA
Barium	45.2		2.00		ug/L	1		6020B	Total/NA
Chromium	13.9		3.00		ug/L	1		6020B	Total/NA
Molybdenum	71.8		2.00		ug/L	1		6020B	Total/NA
Selenium	13.5		2.00		ug/L	1		6020B	Total/NA
Chloride	422		30.0		mg/L	10		9056A	Total/NA
Fluoride	0.529		0.500		mg/L	1		9056A	Total/NA
Sulfate	1460		30.0		mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	2890		40.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-52B-05212025

Lab Sample ID: 280-208132-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	186		50.0		ug/L	1		6010D	Total/NA
Calcium	159000		200		ug/L	1		6010D	Total/NA
Lithium	50.4		20.0		ug/L	1		6010D	Total/NA
Arsenic	2.87		2.00		ug/L	1		6020B	Total/NA
Barium	54.3		2.00		ug/L	1		6020B	Total/NA
Molybdenum	4.00		2.00		ug/L	1		6020B	Total/NA
Chloride	46.6		3.00		mg/L	1		9056A	Total/NA
Sulfate	493		15.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1170		20.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-44B-05222025

Lab Sample ID: 280-208132-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	112		50.0		ug/L	1		6010D	Total/NA
Calcium	181000		200		ug/L	1		6010D	Total/NA
Lithium	35.7		20.0		ug/L	1		6010D	Total/NA
Arsenic	2.61		2.00		ug/L	1		6020B	Total/NA
Barium	47.5		2.00		ug/L	1		6020B	Total/NA
Molybdenum	6.49		2.00		ug/L	1		6020B	Total/NA
Selenium	5.80		2.00		ug/L	1		6020B	Total/NA
Chloride	59.9		3.00		mg/L	1		9056A	Total/NA
Fluoride	0.636	F1	0.500		mg/L	1		9056A	Total/NA
Sulfate	456		15.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1130		20.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-45B-05222025

Lab Sample ID: 280-208132-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	197		50.0		ug/L	1		6010D	Total/NA
Calcium	156000		200		ug/L	1		6010D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

Client Sample ID: MW-45B-05222025 (Continued)

Lab Sample ID: 280-208132-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lithium	35.3		20.0		ug/L	1		6010D	Total/NA
Arsenic	3.40		2.00		ug/L	1		6020B	Total/NA
Barium	45.0		2.00		ug/L	1		6020B	Total/NA
Molybdenum	7.21		2.00		ug/L	1		6020B	Total/NA
Selenium	7.54		2.00		ug/L	1		6020B	Total/NA
Chloride	54.0		3.00		mg/L	1		9056A	Total/NA
Fluoride	0.723		0.500		mg/L	1		9056A	Total/NA
Sulfate	386		15.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	956		20.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-46B-05222025

Lab Sample ID: 280-208132-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	98.5		50.0		ug/L	1		6010D	Total/NA
Calcium	80400		200		ug/L	1		6010D	Total/NA
Lithium	26.1		20.0		ug/L	1		6010D	Total/NA
Arsenic	3.85		2.00		ug/L	1		6020B	Total/NA
Barium	46.5		2.00		ug/L	1		6020B	Total/NA
Molybdenum	2.81		2.00		ug/L	1		6020B	Total/NA
Selenium	4.37		2.00		ug/L	1		6020B	Total/NA
Chloride	22.9		3.00		mg/L	1		9056A	Total/NA
Fluoride	0.746		0.500		mg/L	1		9056A	Total/NA
Sulfate	186		3.00		mg/L	1		9056A	Total/NA
Total Dissolved Solids (TDS)	571		10.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-47B-05222025

Lab Sample ID: 280-208132-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	143		50.0		ug/L	1		6010D	Total/NA
Calcium	125000		200		ug/L	1		6010D	Total/NA
Lithium	29.7		20.0		ug/L	1		6010D	Total/NA
Arsenic	3.45		2.00		ug/L	1		6020B	Total/NA
Barium	77.1		2.00		ug/L	1		6020B	Total/NA
Chromium	4.78		3.00		ug/L	1		6020B	Total/NA
Molybdenum	5.90		2.00		ug/L	1		6020B	Total/NA
Selenium	4.95		2.00		ug/L	1		6020B	Total/NA
Chloride	34.5		3.00		mg/L	1		9056A	Total/NA
Sulfate	317		15.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	793		10.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-43B-05222025

Lab Sample ID: 280-208132-19

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	266		50.0		ug/L	1		6010D	Total/NA
Calcium	185000		200		ug/L	1		6010D	Total/NA
Lithium	43.3		20.0		ug/L	1		6010D	Total/NA
Arsenic	3.39		2.00		ug/L	1		6020B	Total/NA
Barium	52.4		2.00		ug/L	1		6020B	Total/NA
Molybdenum	12.0		2.00		ug/L	1		6020B	Total/NA
Selenium	2.42		2.00		ug/L	1		6020B	Total/NA
Chloride	99.9		3.00		mg/L	1		9056A	Total/NA
Sulfate	703		15.0		mg/L	5		9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

Client Sample ID: MW-43B-05222025 (Continued)

Lab Sample ID: 280-208132-19

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Dissolved Solids (TDS)	1530		20.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-42B-05222025

Lab Sample ID: 280-208132-20

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	790		50.0		ug/L	1		6010D	Total/NA
Calcium	352000		200		ug/L	1		6010D	Total/NA
Lithium	97.2		20.0		ug/L	1		6010D	Total/NA
Arsenic	4.05		2.00		ug/L	1		6020B	Total/NA
Barium	23.6		2.00		ug/L	1		6020B	Total/NA
Molybdenum	57.7		2.00		ug/L	1		6020B	Total/NA
Selenium	10.7		2.00		ug/L	1		6020B	Total/NA
Chloride	531		30.0		mg/L	10		9056A	Total/NA
Sulfate	1620		30.0		mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	3490		40.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-41B-05222025

Lab Sample ID: 280-208132-21

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	875		50.0		ug/L	1		6010D	Total/NA
Calcium	97500		200		ug/L	1		6010D	Total/NA
Lithium	39.9		20.0		ug/L	1		6010D	Total/NA
Arsenic	5.20		2.00		ug/L	1		6020B	Total/NA
Barium	19.1		2.00		ug/L	1		6020B	Total/NA
Chromium	4.85		3.00		ug/L	1		6020B	Total/NA
Molybdenum	75.3		2.00		ug/L	1		6020B	Total/NA
Selenium	6.96		2.00		ug/L	1		6020B	Total/NA
Chloride	60.2		3.00		mg/L	1		9056A	Total/NA
Fluoride	0.533		0.500		mg/L	1		9056A	Total/NA
Sulfate	516		30.0		mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	1200		20.0		mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Method Summary

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

Method	Method Description	Protocol	Laboratory
6010D	Metals (ICP)	SW846	EET DEN
6020B	Metals (ICP/MS)	SW846	EET DEN
7470A	Mercury (CVAA)	SW846	EET DEN
9056A	Anions, Ion Chromatography	SW846	EET DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET DEN
3005A	Preparation, Total 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: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-208132-1	MW-39B-05202025	Water	05/20/25 15:05	05/23/25 09:20
280-208132-2	MW-32B-05202025	Water	05/20/25 16:00	05/23/25 09:20
280-208132-3	MW-36B-05202025	Water	05/20/25 16:40	05/23/25 09:20
280-208132-4	MW-37B-05202025	Water	05/20/25 17:35	05/23/25 09:20
280-208132-5	DUP-05212025	Water	05/21/25 00:00	05/23/25 09:20
280-208132-6	MW-53BR-05212025	Water	05/21/25 08:00	05/23/25 09:20
280-208132-7	MW-38B-05212025	Water	05/21/25 09:05	05/23/25 09:20
280-208132-8	MW-49B-05212025	Water	05/21/25 10:10	05/23/25 09:20
280-208132-9	MW-40B-05212025	Water	05/21/25 11:30	05/23/25 09:20
280-208132-10	MW-20B-05212025	Water	05/21/25 12:20	05/23/25 09:20
280-208132-11	MW-14BR-05212025	Water	05/21/25 13:10	05/23/25 09:20
280-208132-12	MW-38C-05212025	Water	05/21/25 13:55	05/23/25 09:20
280-208132-13	MW-21B-05212025	Water	05/21/25 14:40	05/23/25 09:20
280-208132-14	MW-52B-05212025	Water	05/21/25 17:00	05/23/25 09:20
280-208132-15	MW-44B-05222025	Water	05/22/25 07:30	05/23/25 09:20
280-208132-16	MW-45B-05222025	Water	05/22/25 08:10	05/23/25 09:20
280-208132-17	MW-46B-05222025	Water	05/22/25 09:00	05/23/25 09:20
280-208132-18	MW-47B-05222025	Water	05/22/25 09:40	05/23/25 09:20
280-208132-19	MW-43B-05222025	Water	05/22/25 10:25	05/23/25 09:20
280-208132-20	MW-42B-05222025	Water	05/22/25 11:00	05/23/25 09:20
280-208132-21	MW-41B-05222025	Water	05/22/25 11:40	05/23/25 09:20

Client Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

Method: SW846 6010D - Metals (ICP)

Client Sample ID: MW-39B-05202025

Date Collected: 05/20/25 15:05

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	206		50.0		ug/L		05/27/25 15:04	05/28/25 18:17	1
Calcium	168000		200		ug/L		05/27/25 15:04	05/28/25 18:17	1
Lithium	63.9		20.0		ug/L		05/27/25 15:04	05/28/25 18:17	1

Client Sample ID: MW-32B-05202025

Date Collected: 05/20/25 16:00

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	322		50.0		ug/L		05/27/25 15:04	05/28/25 18:22	1
Calcium	238000		200		ug/L		05/27/25 15:04	05/28/25 18:22	1
Lithium	85.9		20.0		ug/L		05/27/25 15:04	05/28/25 18:22	1

Client Sample ID: MW-36B-05202025

Date Collected: 05/20/25 16:40

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	118		50.0		ug/L		05/27/25 15:04	05/28/25 18:26	1
Calcium	136000		200		ug/L		05/27/25 15:04	05/28/25 18:26	1
Lithium	32.9		20.0		ug/L		05/27/25 15:04	05/28/25 18:26	1

Client Sample ID: MW-37B-05202025

Date Collected: 05/20/25 17:35

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-4

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	185		50.0		ug/L		05/27/25 15:04	05/28/25 18:30	1
Calcium	187000		200		ug/L		05/27/25 15:04	05/28/25 18:30	1
Lithium	37.8		20.0		ug/L		05/27/25 15:04	05/28/25 18:30	1

Client Sample ID: DUP-05212025

Date Collected: 05/21/25 00:00

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-5

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	200		50.0		ug/L		05/27/25 15:04	05/28/25 18:35	1
Calcium	136000		200		ug/L		05/27/25 15:04	05/28/25 18:35	1
Lithium	40.2		20.0		ug/L		05/27/25 15:04	05/28/25 18:35	1

Client Sample ID: MW-53BR-05212025

Date Collected: 05/21/25 08:00

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-6

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	123		50.0		ug/L		05/27/25 15:04	05/28/25 18:39	1
Calcium	107000		200		ug/L		05/27/25 15:04	05/28/25 18:39	1
Lithium	45.6		20.0		ug/L		05/27/25 15:04	05/28/25 18:39	1

Client Sample ID: MW-38B-05212025

Date Collected: 05/21/25 09:05

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-7

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	3070		50.0		ug/L		05/27/25 15:04	05/28/25 18:43	1
Calcium	424000		200		ug/L		05/27/25 15:04	05/28/25 18:43	1
Lithium	110		20.0		ug/L		05/27/25 15:04	05/28/25 18:43	1

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Client Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

Method: SW846 6010D - Metals (ICP)

Client Sample ID: MW-49B-05212025

Date Collected: 05/21/25 10:10

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-8

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	215		50.0		ug/L		05/27/25 15:04	05/28/25 19:19	1
Calcium	135000		200		ug/L		05/27/25 15:04	05/28/25 19:19	1
Lithium	39.9		20.0		ug/L		05/27/25 15:04	05/28/25 19:19	1

Client Sample ID: MW-40B-05212025

Date Collected: 05/21/25 11:30

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-9

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	180		50.0		ug/L		05/27/25 15:04	05/28/25 19:24	1
Calcium	130000		200		ug/L		05/27/25 15:04	05/28/25 19:24	1
Lithium	54.0		20.0		ug/L		05/27/25 15:04	05/28/25 19:24	1

Client Sample ID: MW-20B-05212025

Date Collected: 05/21/25 12:20

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-10

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	227		50.0		ug/L		05/27/25 15:04	05/28/25 19:28	1
Calcium	133000		200		ug/L		05/27/25 15:04	05/28/25 19:28	1
Lithium	34.9		20.0		ug/L		05/27/25 15:04	05/28/25 19:28	1

Client Sample ID: MW-14BR-05212025

Date Collected: 05/21/25 13:10

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-11

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	174		50.0		ug/L		05/27/25 15:04	05/28/25 19:32	1
Calcium	210000		200		ug/L		05/27/25 15:04	05/28/25 19:32	1
Lithium	35.2		20.0		ug/L		05/27/25 15:04	05/28/25 19:32	1

Client Sample ID: MW-38C-05212025

Date Collected: 05/21/25 13:55

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-12

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	66.3		50.0		ug/L		05/27/25 15:04	05/28/25 19:37	1
Calcium	104000		200		ug/L		05/27/25 15:04	05/28/25 19:37	1
Lithium	25.1		20.0		ug/L		05/27/25 15:04	05/28/25 19:37	1

Client Sample ID: MW-21B-05212025

Date Collected: 05/21/25 14:40

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-13

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	217		50.0		ug/L		05/27/25 15:04	05/28/25 19:41	1
Calcium	687000		1000		ug/L		05/27/25 15:04	05/30/25 01:24	5
Lithium	60.3		20.0		ug/L		05/27/25 15:04	05/28/25 19:41	1

Client Sample ID: MW-52B-05212025

Date Collected: 05/21/25 17:00

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-14

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	186		50.0		ug/L		05/27/25 15:04	05/28/25 19:45	1
Calcium	159000		200		ug/L		05/27/25 15:04	05/28/25 19:45	1
Lithium	50.4		20.0		ug/L		05/27/25 15:04	05/28/25 19:45	1

Eurofins Denver

Client Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

Method: SW846 6010D - Metals (ICP)

Client Sample ID: MW-44B-05222025

Date Collected: 05/22/25 07:30

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-15

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	112		50.0		ug/L		05/27/25 15:04	05/28/25 20:03	1
Calcium	181000		200		ug/L		05/27/25 15:04	05/28/25 20:03	1
Lithium	35.7		20.0		ug/L		05/27/25 15:04	05/28/25 20:03	1

Client Sample ID: MW-45B-05222025

Date Collected: 05/22/25 08:10

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-16

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	197		50.0		ug/L		05/27/25 15:04	05/28/25 20:07	1
Calcium	156000		200		ug/L		05/27/25 15:04	05/28/25 20:07	1
Lithium	35.3		20.0		ug/L		05/27/25 15:04	05/28/25 20:07	1

Client Sample ID: MW-46B-05222025

Date Collected: 05/22/25 09:00

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-17

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	98.5		50.0		ug/L		05/27/25 15:04	05/28/25 20:11	1
Calcium	80400		200		ug/L		05/27/25 15:04	05/28/25 20:11	1
Lithium	26.1		20.0		ug/L		05/27/25 15:04	05/28/25 20:11	1

Client Sample ID: MW-47B-05222025

Date Collected: 05/22/25 09:40

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-18

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	143		50.0		ug/L		05/27/25 15:04	05/28/25 20:15	1
Calcium	125000		200		ug/L		05/27/25 15:04	05/28/25 20:15	1
Lithium	29.7		20.0		ug/L		05/27/25 15:04	05/28/25 20:15	1

Client Sample ID: MW-43B-05222025

Date Collected: 05/22/25 10:25

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-19

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	266		50.0		ug/L		05/27/25 15:04	05/28/25 20:20	1
Calcium	185000		200		ug/L		05/27/25 15:04	05/28/25 20:20	1
Lithium	43.3		20.0		ug/L		05/27/25 15:04	05/28/25 20:20	1

Client Sample ID: MW-42B-05222025

Date Collected: 05/22/25 11:00

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-20

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	790		50.0		ug/L		05/27/25 15:04	05/28/25 20:24	1
Calcium	352000		200		ug/L		05/27/25 15:04	05/28/25 20:24	1
Lithium	97.2		20.0		ug/L		05/27/25 15:04	05/28/25 20:24	1

Client Sample ID: MW-41B-05222025

Date Collected: 05/22/25 11:40

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-21

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	875		50.0		ug/L		05/27/25 15:04	05/28/25 18:45	1
Calcium	97500		200		ug/L		05/27/25 15:04	05/28/25 18:45	1
Lithium	39.9		20.0		ug/L		05/27/25 15:04	05/28/25 18:45	1

Eurofins Denver

Client Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

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

Client Sample ID: MW-39B-05202025

Date Collected: 05/20/25 15:05

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.98		2.00		ug/L		05/27/25 15:04	05/30/25 08:28	1
Barium	32.5		2.00		ug/L		05/27/25 15:04	05/28/25 22:29	1
Beryllium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:29	1
Cadmium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:29	1
Cobalt	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:29	1
Chromium	ND	^+	3.00		ug/L		05/27/25 15:04	05/29/25 19:32	1
Molybdenum	4.38		2.00		ug/L		05/27/25 15:04	05/28/25 22:29	1
Lead	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:29	1
Antimony	ND		2.00		ug/L		05/27/25 15:04	05/28/25 22:29	1
Selenium	ND		2.00		ug/L		05/27/25 15:04	05/28/25 22:29	1
Thallium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:29	1

Client Sample ID: MW-32B-05202025

Date Collected: 05/20/25 16:00

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		2.00		ug/L		05/27/25 15:04	05/30/25 08:30	1
Barium	32.3		2.00		ug/L		05/27/25 15:04	05/28/25 22:32	1
Beryllium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:32	1
Cadmium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:32	1
Cobalt	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:32	1
Chromium	ND	^+	3.00		ug/L		05/27/25 15:04	05/29/25 19:35	1
Molybdenum	3.01		2.00		ug/L		05/27/25 15:04	05/28/25 22:32	1
Lead	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:32	1
Antimony	ND		2.00		ug/L		05/27/25 15:04	05/28/25 22:32	1
Selenium	2.12		2.00		ug/L		05/27/25 15:04	05/28/25 22:32	1
Thallium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:32	1

Client Sample ID: MW-36B-05202025

Date Collected: 05/20/25 16:40

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.91		2.00		ug/L		05/27/25 15:04	05/30/25 08:33	1
Barium	66.1		2.00		ug/L		05/27/25 15:04	05/28/25 22:34	1
Beryllium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:34	1
Cadmium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:34	1
Cobalt	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:34	1
Chromium	ND	^+	3.00		ug/L		05/27/25 15:04	05/29/25 19:37	1
Molybdenum	7.27		2.00		ug/L		05/27/25 15:04	05/28/25 22:34	1
Lead	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:34	1
Antimony	ND		2.00		ug/L		05/27/25 15:04	05/28/25 22:34	1
Selenium	7.25		2.00		ug/L		05/27/25 15:04	05/28/25 22:34	1
Thallium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:34	1

Client Sample ID: MW-37B-05202025

Date Collected: 05/20/25 17:35

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-4

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.12		2.00		ug/L		05/27/25 15:04	05/30/25 08:35	1
Barium	60.4		2.00		ug/L		05/27/25 15:04	05/28/25 22:36	1

Eurofins Denver

Client Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

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

Client Sample ID: MW-37B-05202025

Date Collected: 05/20/25 17:35

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-4

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:36	1
Cadmium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:36	1
Cobalt	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:36	1
Chromium	ND	^+	3.00		ug/L		05/27/25 15:04	05/29/25 19:39	1
Molybdenum	32.3		2.00		ug/L		05/27/25 15:04	05/28/25 22:36	1
Lead	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:36	1
Antimony	ND		2.00		ug/L		05/27/25 15:04	05/28/25 22:36	1
Selenium	4.22		2.00		ug/L		05/27/25 15:04	05/28/25 22:36	1
Thallium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:36	1

Client Sample ID: DUP-05212025

Date Collected: 05/21/25 00:00

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-5

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.49		2.00		ug/L		05/27/25 15:04	05/30/25 08:37	1
Barium	56.2		2.00		ug/L		05/27/25 15:04	05/28/25 22:39	1
Beryllium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:39	1
Cadmium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:39	1
Cobalt	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:39	1
Chromium	ND	^+	3.00		ug/L		05/27/25 15:04	05/29/25 19:42	1
Molybdenum	3.02		2.00		ug/L		05/27/25 15:04	05/28/25 22:39	1
Lead	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:39	1
Antimony	ND		2.00		ug/L		05/27/25 15:04	05/28/25 22:39	1
Selenium	ND		2.00		ug/L		05/27/25 15:04	05/28/25 22:39	1
Thallium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:39	1

Client Sample ID: MW-53BR-05212025

Date Collected: 05/21/25 08:00

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-6

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	3.00		2.00		ug/L		05/27/25 15:04	05/30/25 08:40	1
Barium	43.7		2.00		ug/L		05/27/25 15:04	05/28/25 22:41	1
Beryllium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:41	1
Cadmium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:41	1
Cobalt	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:41	1
Chromium	ND	^+	3.00		ug/L		05/27/25 15:04	05/29/25 19:44	1
Molybdenum	6.45		2.00		ug/L		05/27/25 15:04	05/28/25 22:41	1
Lead	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:41	1
Antimony	ND		2.00		ug/L		05/27/25 15:04	05/28/25 22:41	1
Selenium	9.00		2.00		ug/L		05/27/25 15:04	05/28/25 22:41	1
Thallium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:41	1

Client Sample ID: MW-38B-05212025

Date Collected: 05/21/25 09:05

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-7

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	3.90		2.00		ug/L		05/27/25 15:04	05/29/25 19:51	1
Barium	15.9		2.00		ug/L		05/27/25 15:04	05/28/25 22:48	1
Beryllium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:48	1
Cadmium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:48	1

Eurofins Denver

Client Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

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

Client Sample ID: MW-38B-05212025

Date Collected: 05/21/25 09:05

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-7

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:48	1
Chromium	5.72		3.00		ug/L		05/27/25 15:04	05/28/25 22:48	1
Molybdenum	188		2.00		ug/L		05/27/25 15:04	05/28/25 22:48	1
Lead	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:48	1
Antimony	ND		2.00		ug/L		05/27/25 15:04	05/28/25 22:48	1
Selenium	3.47		2.00		ug/L		05/27/25 15:04	05/28/25 22:48	1
Thallium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:48	1

Client Sample ID: MW-49B-05212025

Date Collected: 05/21/25 10:10

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-8

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	3.51		2.00		ug/L		05/27/25 15:04	05/29/25 20:03	1
Barium	55.2		2.00		ug/L		05/27/25 15:04	05/28/25 23:00	1
Beryllium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:00	1
Cadmium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:00	1
Cobalt	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:00	1
Chromium	ND		3.00		ug/L		05/27/25 15:04	05/28/25 23:00	1
Molybdenum	3.59		2.00		ug/L		05/27/25 15:04	05/28/25 23:00	1
Lead	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:00	1
Antimony	ND		2.00		ug/L		05/27/25 15:04	05/28/25 23:00	1
Selenium	ND		2.00		ug/L		05/27/25 15:04	05/28/25 23:00	1
Thallium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:00	1

Client Sample ID: MW-40B-05212025

Date Collected: 05/21/25 11:30

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-9

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	6.03		2.00		ug/L		05/27/25 15:04	05/29/25 20:05	1
Barium	26.3		2.00		ug/L		05/27/25 15:04	05/28/25 23:02	1
Beryllium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:02	1
Cadmium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:02	1
Cobalt	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:02	1
Chromium	ND		3.00		ug/L		05/27/25 15:04	05/28/25 23:02	1
Molybdenum	5.93		2.00		ug/L		05/27/25 15:04	05/28/25 23:02	1
Lead	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:02	1
Antimony	ND		2.00		ug/L		05/27/25 15:04	05/28/25 23:02	1
Selenium	3.60		2.00		ug/L		05/27/25 15:04	05/28/25 23:02	1
Thallium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:02	1

Client Sample ID: MW-20B-05212025

Date Collected: 05/21/25 12:20

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-10

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.96		2.00		ug/L		05/27/25 15:04	05/29/25 20:08	1
Barium	56.9		2.00		ug/L		05/27/25 15:04	05/28/25 23:05	1
Beryllium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:05	1
Cadmium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:05	1
Cobalt	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:05	1
Chromium	ND		3.00		ug/L		05/27/25 15:04	05/28/25 23:05	1

Eurofins Denver

Client Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

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

Client Sample ID: MW-20B-05212025

Date Collected: 05/21/25 12:20

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-10

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	8.20		2.00		ug/L		05/27/25 15:04	05/28/25 23:05	1
Lead	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:05	1
Antimony	ND		2.00		ug/L		05/27/25 15:04	05/28/25 23:05	1
Selenium	3.33		2.00		ug/L		05/27/25 15:04	05/28/25 23:05	1
Thallium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:05	1

Client Sample ID: MW-14BR-05212025

Date Collected: 05/21/25 13:10

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-11

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.96		2.00		ug/L		05/27/25 15:04	05/29/25 20:15	1
Barium	49.4		2.00		ug/L		05/27/25 15:04	05/28/25 23:12	1
Beryllium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:12	1
Cadmium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:12	1
Cobalt	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:12	1
Chromium	5.33		3.00		ug/L		05/27/25 15:04	05/28/25 23:12	1
Molybdenum	12.9		2.00		ug/L		05/27/25 15:04	05/28/25 23:12	1
Lead	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:12	1
Antimony	ND		2.00		ug/L		05/27/25 15:04	05/28/25 23:12	1
Selenium	20.7		2.00		ug/L		05/27/25 15:04	05/28/25 23:12	1
Thallium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:12	1

Client Sample ID: MW-38C-05212025

Date Collected: 05/21/25 13:55

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-12

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.85		2.00		ug/L		05/27/25 15:04	05/29/25 20:17	1
Barium	47.5		2.00		ug/L		05/27/25 15:04	05/28/25 23:14	1
Beryllium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:14	1
Cadmium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:14	1
Cobalt	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:14	1
Chromium	ND		3.00		ug/L		05/27/25 15:04	05/28/25 23:14	1
Molybdenum	5.31		2.00		ug/L		05/27/25 15:04	05/28/25 23:14	1
Lead	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:14	1
Antimony	ND		2.00		ug/L		05/27/25 15:04	05/28/25 23:14	1
Selenium	5.56		2.00		ug/L		05/27/25 15:04	05/28/25 23:14	1
Thallium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:14	1

Client Sample ID: MW-21B-05212025

Date Collected: 05/21/25 14:40

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-13

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.51		2.00		ug/L		05/27/25 15:04	05/29/25 20:19	1
Barium	45.2		2.00		ug/L		05/27/25 15:04	05/28/25 23:16	1
Beryllium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:16	1
Cadmium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:16	1
Cobalt	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:16	1
Chromium	13.9		3.00		ug/L		05/27/25 15:04	05/28/25 23:16	1
Molybdenum	71.8		2.00		ug/L		05/27/25 15:04	05/28/25 23:16	1
Lead	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:16	1

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Client Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

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

Client Sample ID: MW-21B-05212025

Date Collected: 05/21/25 14:40

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-13

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.00		ug/L		05/27/25 15:04	05/28/25 23:16	1
Selenium	13.5		2.00		ug/L		05/27/25 15:04	05/28/25 23:16	1
Thallium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:16	1

Client Sample ID: MW-52B-05212025

Date Collected: 05/21/25 17:00

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-14

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.87		2.00		ug/L		05/27/25 15:04	05/29/25 20:22	1
Barium	54.3		2.00		ug/L		05/27/25 15:04	05/28/25 23:19	1
Beryllium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:19	1
Cadmium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:19	1
Cobalt	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:19	1
Chromium	ND		3.00		ug/L		05/27/25 15:04	05/28/25 23:19	1
Molybdenum	4.00		2.00		ug/L		05/27/25 15:04	05/28/25 23:19	1
Lead	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:19	1
Antimony	ND		2.00		ug/L		05/27/25 15:04	05/28/25 23:19	1
Selenium	ND		2.00		ug/L		05/27/25 15:04	05/28/25 23:19	1
Thallium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:19	1

Client Sample ID: MW-44B-05222025

Date Collected: 05/22/25 07:30

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-15

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.61		2.00		ug/L		05/27/25 15:04	05/29/25 20:24	1
Barium	47.5		2.00		ug/L		05/27/25 15:04	05/28/25 23:21	1
Beryllium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:21	1
Cadmium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:21	1
Cobalt	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:21	1
Chromium	ND		3.00		ug/L		05/27/25 15:04	05/28/25 23:21	1
Molybdenum	6.49		2.00		ug/L		05/27/25 15:04	05/28/25 23:21	1
Lead	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:21	1
Antimony	ND		2.00		ug/L		05/27/25 15:04	05/28/25 23:21	1
Selenium	5.80		2.00		ug/L		05/27/25 15:04	05/28/25 23:21	1
Thallium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:21	1

Client Sample ID: MW-45B-05222025

Date Collected: 05/22/25 08:10

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-16

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	3.40		2.00		ug/L		05/27/25 15:04	05/29/25 20:26	1
Barium	45.0		2.00		ug/L		05/27/25 15:04	05/28/25 23:23	1
Beryllium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:23	1
Cadmium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:23	1
Cobalt	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:23	1
Chromium	ND		3.00		ug/L		05/27/25 15:04	05/28/25 23:23	1
Molybdenum	7.21		2.00		ug/L		05/27/25 15:04	05/28/25 23:23	1
Lead	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:23	1
Antimony	ND		2.00		ug/L		05/27/25 15:04	05/28/25 23:23	1
Selenium	7.54		2.00		ug/L		05/27/25 15:04	05/28/25 23:23	1

Eurofins Denver

Client Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

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

Client Sample ID: MW-45B-05222025

Date Collected: 05/22/25 08:10

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-16

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:23	1

Client Sample ID: MW-46B-05222025

Date Collected: 05/22/25 09:00

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-17

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	3.85		2.00		ug/L		05/27/25 15:04	05/29/25 20:29	1
Barium	46.5		2.00		ug/L		05/27/25 15:04	05/28/25 23:26	1
Beryllium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:26	1
Cadmium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:26	1
Cobalt	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:26	1
Chromium	ND		3.00		ug/L		05/27/25 15:04	05/28/25 23:26	1
Molybdenum	2.81		2.00		ug/L		05/27/25 15:04	05/28/25 23:26	1
Lead	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:26	1
Antimony	ND		2.00		ug/L		05/27/25 15:04	05/28/25 23:26	1
Selenium	4.37		2.00		ug/L		05/27/25 15:04	05/28/25 23:26	1
Thallium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:26	1

Client Sample ID: MW-47B-05222025

Date Collected: 05/22/25 09:40

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-18

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	3.45		2.00		ug/L		05/27/25 15:04	05/29/25 20:31	1
Barium	77.1		2.00		ug/L		05/27/25 15:04	05/28/25 23:28	1
Beryllium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:28	1
Cadmium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:28	1
Cobalt	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:28	1
Chromium	4.78		3.00		ug/L		05/27/25 15:04	05/28/25 23:28	1
Molybdenum	5.90		2.00		ug/L		05/27/25 15:04	05/28/25 23:28	1
Lead	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:28	1
Antimony	ND		2.00		ug/L		05/27/25 15:04	05/28/25 23:28	1
Selenium	4.95		2.00		ug/L		05/27/25 15:04	05/28/25 23:28	1
Thallium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:28	1

Client Sample ID: MW-43B-05222025

Date Collected: 05/22/25 10:25

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-19

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	3.39		2.00		ug/L		05/27/25 15:04	05/29/25 20:33	1
Barium	52.4		2.00		ug/L		05/27/25 15:04	05/28/25 23:30	1
Beryllium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:30	1
Cadmium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:30	1
Cobalt	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:30	1
Chromium	ND		3.00		ug/L		05/27/25 15:04	05/28/25 23:30	1
Molybdenum	12.0		2.00		ug/L		05/27/25 15:04	05/28/25 23:30	1
Lead	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:30	1
Antimony	ND		2.00		ug/L		05/27/25 15:04	05/28/25 23:30	1
Selenium	2.42		2.00		ug/L		05/27/25 15:04	05/28/25 23:30	1
Thallium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:30	1

Eurofins Denver

Client Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

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

Client Sample ID: MW-42B-05222025

Date Collected: 05/22/25 11:00

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-20

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.05		2.00		ug/L		05/27/25 15:04	05/29/25 20:36	1
Barium	23.6		2.00		ug/L		05/27/25 15:04	05/28/25 23:33	1
Beryllium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:33	1
Cadmium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:33	1
Cobalt	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:33	1
Chromium	ND		3.00		ug/L		05/27/25 15:04	05/28/25 23:33	1
Molybdenum	57.7		2.00		ug/L		05/27/25 15:04	05/28/25 23:33	1
Lead	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:33	1
Antimony	ND		2.00		ug/L		05/27/25 15:04	05/28/25 23:33	1
Selenium	10.7		2.00		ug/L		05/27/25 15:04	05/28/25 23:33	1
Thallium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:33	1

Client Sample ID: MW-41B-05222025

Date Collected: 05/22/25 11:40

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-21

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	5.20		2.00		ug/L		05/27/25 15:04	05/29/25 20:48	1
Barium	19.1		2.00		ug/L		05/27/25 15:04	05/28/25 23:45	1
Beryllium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:45	1
Cadmium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:45	1
Cobalt	ND		1.00		ug/L		05/27/25 15:04	05/29/25 20:48	1
Chromium	4.85		3.00		ug/L		05/27/25 15:04	05/28/25 23:45	1
Molybdenum	75.3		2.00		ug/L		05/27/25 15:04	05/28/25 23:45	1
Lead	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:45	1
Antimony	ND		2.00		ug/L		05/27/25 15:04	05/28/25 23:45	1
Selenium	6.96		2.00		ug/L		05/27/25 15:04	05/29/25 20:48	1
Thallium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:45	1

Method: SW846 7470A - Mercury (CVAA)

Client Sample ID: MW-39B-05202025

Date Collected: 05/20/25 15:05

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		05/29/25 18:43	05/30/25 02:55	1

Client Sample ID: MW-32B-05202025

Date Collected: 05/20/25 16:00

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		05/29/25 18:43	05/30/25 02:56	1

Client Sample ID: MW-36B-05202025

Date Collected: 05/20/25 16:40

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		05/29/25 18:43	05/30/25 02:57	1

Eurofins Denver

Client Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

Method: SW846 7470A - Mercury (CVAA)

Client Sample ID: MW-37B-05202025

Date Collected: 05/20/25 17:35

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-4

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		05/29/25 18:43	05/30/25 02:59	1

Client Sample ID: DUP-05212025

Date Collected: 05/21/25 00:00

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-5

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		05/29/25 18:43	05/30/25 03:00	1

Client Sample ID: MW-53BR-05212025

Date Collected: 05/21/25 08:00

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-6

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		05/29/25 18:43	05/30/25 03:04	1

Client Sample ID: MW-38B-05212025

Date Collected: 05/21/25 09:05

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-7

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		05/29/25 18:43	05/30/25 03:06	1

Client Sample ID: MW-49B-05212025

Date Collected: 05/21/25 10:10

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-8

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		05/29/25 18:43	05/30/25 03:13	1

Client Sample ID: MW-40B-05212025

Date Collected: 05/21/25 11:30

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-9

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		05/29/25 18:43	05/30/25 03:14	1

Client Sample ID: MW-20B-05212025

Date Collected: 05/21/25 12:20

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-10

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		05/29/25 18:43	05/30/25 03:15	1

Client Sample ID: MW-14BR-05212025

Date Collected: 05/21/25 13:10

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-11

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		05/29/25 18:43	05/30/25 03:17	1

Client Sample ID: MW-38C-05212025

Date Collected: 05/21/25 13:55

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-12

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		05/29/25 18:43	05/30/25 03:21	1

Eurofins Denver

Client Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

Method: SW846 7470A - Mercury (CVAA)

Client Sample ID: MW-21B-05212025

Date Collected: 05/21/25 14:40

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-13

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		05/29/25 18:43	05/30/25 03:22	1

Client Sample ID: MW-52B-05212025

Date Collected: 05/21/25 17:00

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-14

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		05/29/25 18:43	05/30/25 03:24	1

Client Sample ID: MW-44B-05222025

Date Collected: 05/22/25 07:30

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-15

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		05/29/25 18:43	05/30/25 03:25	1

Client Sample ID: MW-45B-05222025

Date Collected: 05/22/25 08:10

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-16

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		05/29/25 18:43	05/30/25 03:26	1

Client Sample ID: MW-46B-05222025

Date Collected: 05/22/25 09:00

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-17

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		05/29/25 18:43	05/30/25 03:28	1

Client Sample ID: MW-47B-05222025

Date Collected: 05/22/25 09:40

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-18

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		05/29/25 18:43	05/30/25 03:29	1

Client Sample ID: MW-43B-05222025

Date Collected: 05/22/25 10:25

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-19

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		05/29/25 18:43	05/30/25 03:31	1

Client Sample ID: MW-42B-05222025

Date Collected: 05/22/25 11:00

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-20

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		05/29/25 18:43	05/30/25 03:32	1

Client Sample ID: MW-41B-05222025

Date Collected: 05/22/25 11:40

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-21

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		05/29/25 18:43	05/30/25 02:51	1

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Client Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

General Chemistry

Client Sample ID: MW-39B-05202025

Date Collected: 05/20/25 15:05

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	47.4		3.00		mg/L			05/28/25 21:07	1
Fluoride (SW846 9056A)	0.544		0.500		mg/L			05/28/25 21:07	1
Sulfate (SW846 9056A)	562		15.0		mg/L			05/30/25 23:39	5
Total Dissolved Solids (TDS) (SM 2540C)	1360		20.0		mg/L			05/27/25 09:54	1

Client Sample ID: MW-32B-05202025

Date Collected: 05/20/25 16:00

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	118		3.00		mg/L			05/29/25 04:09	1
Fluoride (SW846 9056A)	ND		0.500		mg/L			05/29/25 04:09	1
Sulfate (SW846 9056A)	1050		30.0		mg/L			05/29/25 04:23	10
Total Dissolved Solids (TDS) (SM 2540C)	2210		20.0		mg/L			05/27/25 09:54	1

Client Sample ID: MW-36B-05202025

Date Collected: 05/20/25 16:40

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	44.4		3.00		mg/L			05/28/25 21:21	1
Fluoride (SW846 9056A)	0.564		0.500		mg/L			05/28/25 21:21	1
Sulfate (SW846 9056A)	389		15.0		mg/L			05/30/25 23:53	5
Total Dissolved Solids (TDS) (SM 2540C)	928		10.0		mg/L			05/27/25 09:54	1

Client Sample ID: MW-37B-05202025

Date Collected: 05/20/25 17:35

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-4

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	67.3		3.00		mg/L			05/29/25 02:16	1
Fluoride (SW846 9056A)	ND		0.500		mg/L			05/29/25 02:16	1
Sulfate (SW846 9056A)	505		15.0		mg/L			05/29/25 02:30	5
Total Dissolved Solids (TDS) (SM 2540C)	1180		20.0		mg/L			05/27/25 09:54	1

Client Sample ID: DUP-05212025

Date Collected: 05/21/25 00:00

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-5

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	26.3		3.00		mg/L			05/28/25 21:35	1
Fluoride (SW846 9056A)	ND		0.500		mg/L			05/28/25 21:35	1
Sulfate (SW846 9056A)	337		15.0		mg/L			05/31/25 01:06	5
Total Dissolved Solids (TDS) (SM 2540C)	844		10.0		mg/L			05/27/25 09:54	1

Client Sample ID: MW-53BR-05212025

Date Collected: 05/21/25 08:00

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-6

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	42.4		3.00		mg/L			05/28/25 21:49	1
Fluoride (SW846 9056A)	0.996		0.500		mg/L			05/28/25 21:49	1

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Client Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

General Chemistry (Continued)

Client Sample ID: MW-53BR-05212025

Date Collected: 05/21/25 08:00

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-6

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate (SW846 9056A)	237		15.0		mg/L			05/31/25 00:51	5
Total Dissolved Solids (TDS) (SM 2540C)	766		10.0		mg/L			05/27/25 09:54	1

Client Sample ID: MW-38B-05212025

Date Collected: 05/21/25 09:05

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-7

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	219		150		mg/L			05/29/25 08:45	50
Fluoride (SW846 9056A)	ND	F1	0.500		mg/L			05/29/25 07:48	1
Sulfate (SW846 9056A)	5180		150		mg/L			05/29/25 08:45	50
Total Dissolved Solids (TDS) (SM 2540C)	8470		100		mg/L			05/27/25 09:54	1

Client Sample ID: MW-49B-05212025

Date Collected: 05/21/25 10:10

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-8

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	26.4		3.00		mg/L			05/28/25 22:03	1
Fluoride (SW846 9056A)	ND		0.500		mg/L			05/28/25 22:03	1
Sulfate (SW846 9056A)	342		15.0		mg/L			05/31/25 00:22	5
Total Dissolved Solids (TDS) (SM 2540C)	852		10.0		mg/L			05/27/25 09:54	1

Client Sample ID: MW-40B-05212025

Date Collected: 05/21/25 11:30

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-9

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	29.4		3.00		mg/L			05/28/25 22:17	1
Fluoride (SW846 9056A)	0.782		0.500		mg/L			05/28/25 22:17	1
Sulfate (SW846 9056A)	316		15.0		mg/L			05/30/25 22:26	5
Total Dissolved Solids (TDS) (SM 2540C)	900		10.0		mg/L			05/27/25 09:54	1

Client Sample ID: MW-20B-05212025

Date Collected: 05/21/25 12:20

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-10

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	45.4		3.00		mg/L			05/28/25 22:31	1
Fluoride (SW846 9056A)	0.621		0.500		mg/L			05/28/25 22:31	1
Sulfate (SW846 9056A)	388		15.0		mg/L			05/30/25 22:12	5
Total Dissolved Solids (TDS) (SM 2540C)	932		20.0		mg/L			05/27/25 09:54	1

Client Sample ID: MW-14BR-05212025

Date Collected: 05/21/25 13:10

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-11

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	92.4		3.00		mg/L			05/29/25 01:20	1
Fluoride (SW846 9056A)	ND		0.500		mg/L			05/29/25 01:20	1
Sulfate (SW846 9056A)	475		15.0		mg/L			05/29/25 01:34	5

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Client Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

General Chemistry (Continued)

Client Sample ID: MW-14BR-05212025

Date Collected: 05/21/25 13:10

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-11

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS) (SM 2540C)	1140		20.0		mg/L			05/27/25 09:54	1

Client Sample ID: MW-38C-05212025

Date Collected: 05/21/25 13:55

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-12

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	30.6		3.00		mg/L			05/28/25 22:45	1
Fluoride (SW846 9056A)	ND		0.500		mg/L			05/28/25 22:45	1
Sulfate (SW846 9056A)	236		15.0		mg/L			05/30/25 23:24	5
Total Dissolved Solids (TDS) (SM 2540C)	671		10.0		mg/L			05/28/25 09:45	1

Client Sample ID: MW-21B-05212025

Date Collected: 05/21/25 14:40

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-13

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	422		30.0		mg/L			05/29/25 03:55	10
Fluoride (SW846 9056A)	0.529		0.500		mg/L			05/29/25 03:40	1
Sulfate (SW846 9056A)	1460		30.0		mg/L			05/29/25 03:55	10
Total Dissolved Solids (TDS) (SM 2540C)	2890		40.0		mg/L			05/28/25 09:45	1

Client Sample ID: MW-52B-05212025

Date Collected: 05/21/25 17:00

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-14

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	46.6		3.00		mg/L			05/28/25 22:59	1
Fluoride (SW846 9056A)	ND		0.500		mg/L			05/28/25 22:59	1
Sulfate (SW846 9056A)	493		15.0		mg/L			05/31/25 00:08	5
Total Dissolved Solids (TDS) (SM 2540C)	1170		20.0		mg/L			05/28/25 09:45	1

Client Sample ID: MW-44B-05222025

Date Collected: 05/22/25 07:30

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-15

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	59.9		3.00		mg/L			05/28/25 23:42	1
Fluoride (SW846 9056A)	0.636	F1	0.500		mg/L			05/28/25 23:42	1
Sulfate (SW846 9056A)	456		15.0		mg/L			05/31/25 00:37	5
Total Dissolved Solids (TDS) (SM 2540C)	1130		20.0		mg/L			05/28/25 09:45	1

Client Sample ID: MW-45B-05222025

Date Collected: 05/22/25 08:10

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-16

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	54.0		3.00		mg/L			05/29/25 00:38	1
Fluoride (SW846 9056A)	0.723		0.500		mg/L			05/29/25 00:38	1
Sulfate (SW846 9056A)	386		15.0		mg/L			05/30/25 21:28	5
Total Dissolved Solids (TDS) (SM 2540C)	956		20.0		mg/L			05/28/25 09:45	1

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Client Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

General Chemistry

Client Sample ID: MW-46B-05222025

Date Collected: 05/22/25 09:00

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-17

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	22.9		3.00		mg/L			05/29/25 00:52	1
Fluoride (SW846 9056A)	0.746		0.500		mg/L			05/29/25 00:52	1
Sulfate (SW846 9056A)	186		3.00		mg/L			05/29/25 00:52	1
Total Dissolved Solids (TDS) (SM 2540C)	571		10.0		mg/L			05/28/25 09:45	1

Client Sample ID: MW-47B-05222025

Date Collected: 05/22/25 09:40

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-18

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	34.5		3.00		mg/L			05/29/25 01:06	1
Fluoride (SW846 9056A)	ND		0.500		mg/L			05/29/25 01:06	1
Sulfate (SW846 9056A)	317		15.0		mg/L			05/31/25 01:49	5
Total Dissolved Solids (TDS) (SM 2540C)	793		10.0		mg/L			05/28/25 09:45	1

Client Sample ID: MW-43B-05222025

Date Collected: 05/22/25 10:25

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-19

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	99.9		3.00		mg/L			05/29/25 01:48	1
Fluoride (SW846 9056A)	ND		0.500		mg/L			05/29/25 01:48	1
Sulfate (SW846 9056A)	703		15.0		mg/L			05/29/25 02:02	5
Total Dissolved Solids (TDS) (SM 2540C)	1530		20.0		mg/L			05/28/25 09:45	1

Client Sample ID: MW-42B-05222025

Date Collected: 05/22/25 11:00

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-20

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	531		30.0		mg/L			05/29/25 03:26	10
Fluoride (SW846 9056A)	ND		0.500		mg/L			05/29/25 03:12	1
Sulfate (SW846 9056A)	1620		30.0		mg/L			05/29/25 03:26	10
Total Dissolved Solids (TDS) (SM 2540C)	3490		40.0		mg/L			05/28/25 09:45	1

Client Sample ID: MW-41B-05222025

Date Collected: 05/22/25 11:40

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-21

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	60.2		3.00		mg/L			05/29/25 05:19	1
Fluoride (SW846 9056A)	0.533		0.500		mg/L			05/29/25 05:19	1
Sulfate (SW846 9056A)	516		30.0		mg/L			05/29/25 05:33	10
Total Dissolved Solids (TDS) (SM 2540C)	1200		20.0		mg/L			05/28/25 09:45	1

QC Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 280-697528/1-A
Matrix: Water
Analysis Batch: 697893

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 697528

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		50.0		ug/L		05/27/25 15:04	05/28/25 18:09	1
Calcium	ND		200		ug/L		05/27/25 15:04	05/28/25 18:09	1
Lithium	ND		20.0		ug/L		05/27/25 15:04	05/28/25 18:09	1

Lab Sample ID: LCS 280-697528/2-A
Matrix: Water
Analysis Batch: 697893

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 697528

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2000	2027		ug/L		101	85 - 115
Calcium	50000	49240		ug/L		98	85 - 115
Lithium	1000	966.8		ug/L		97	85 - 115

Lab Sample ID: 280-208132-7 MS
Matrix: Water
Analysis Batch: 697893

Client Sample ID: MW-38B-05212025
Prep Type: Total/NA
Prep Batch: 697528

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	3070		2000	5187		ug/L		106	75 - 125
Calcium	424000		50000	472700	4	ug/L		96	75 - 125
Lithium	110		1000	1207		ug/L		110	75 - 125

Lab Sample ID: 280-208132-7 MSD
Matrix: Water
Analysis Batch: 697893

Client Sample ID: MW-38B-05212025
Prep Type: Total/NA
Prep Batch: 697528

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	3070		2000	5200		ug/L		106	75 - 125	0	20
Calcium	424000		50000	471700	4	ug/L		94	75 - 125	0	20
Lithium	110		1000	1194		ug/L		108	75 - 125	1	20

Lab Sample ID: MB 280-697535/1-A
Matrix: Water
Analysis Batch: 697883

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 697535

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		50.0		ug/L		05/27/25 15:04	05/28/25 18:38	1
Calcium	ND		200		ug/L		05/27/25 15:04	05/28/25 18:38	1
Lithium	ND		20.0		ug/L		05/27/25 15:04	05/28/25 18:38	1

Lab Sample ID: LCS 280-697535/2-A
Matrix: Water
Analysis Batch: 697883

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 697535

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2000	2017		ug/L		101	85 - 115
Calcium	50000	50320		ug/L		101	85 - 115
Lithium	1000	979.3		ug/L		98	85 - 115

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QC Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

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

Lab Sample ID: 280-208132-21 MS

Matrix: Water

Analysis Batch: 697883

Client Sample ID: MW-41B-05222025

Prep Type: Total/NA

Prep Batch: 697535

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	875		2000	2964		ug/L		104	75 - 125
Calcium	97500		50000	149100		ug/L		103	75 - 125
Lithium	39.9		1000	1047		ug/L		101	75 - 125

Lab Sample ID: 280-208132-21 MSD

Matrix: Water

Analysis Batch: 697883

Client Sample ID: MW-41B-05222025

Prep Type: Total/NA

Prep Batch: 697535

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	875		2000	2961		ug/L		104	75 - 125	0	20
Calcium	97500		50000	149900		ug/L		105	75 - 125	1	20
Lithium	39.9		1000	1035		ug/L		100	75 - 125	1	20

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-697528/1-A

Matrix: Water

Analysis Batch: 697879

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 697528

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND		2.00		ug/L		05/27/25 15:04	05/28/25 22:25	1
Beryllium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:25	1
Cadmium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:25	1
Cobalt	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:25	1
Molybdenum	ND		2.00		ug/L		05/27/25 15:04	05/28/25 22:25	1
Lead	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:25	1
Antimony	ND		2.00		ug/L		05/27/25 15:04	05/28/25 22:25	1
Selenium	ND		2.00		ug/L		05/27/25 15:04	05/28/25 22:25	1
Thallium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:25	1

Lab Sample ID: MB 280-697528/1-A

Matrix: Water

Analysis Batch: 698105

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 697528

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	ND	^+	3.00		ug/L		05/27/25 15:04	05/29/25 19:28	1

Lab Sample ID: MB 280-697528/1-A

Matrix: Water

Analysis Batch: 698162

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 697528

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		2.00		ug/L		05/27/25 15:04	05/30/25 08:23	1

Lab Sample ID: LCS 280-697528/25-A

Matrix: Water

Analysis Batch: 697879

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 697528

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Barium	40.0	40.29		ug/L		101	85 - 115

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QC Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

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

Lab Sample ID: LCS 280-697528/25-A

Matrix: Water

Analysis Batch: 697879

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 697528

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Beryllium	40.0	39.49		ug/L		99	85 - 115
Cadmium	40.0	42.31		ug/L		106	85 - 115
Cobalt	40.0	41.39		ug/L		103	85 - 115
Molybdenum	40.0	40.58		ug/L		101	85 - 115
Lead	40.0	39.12		ug/L		98	85 - 115
Antimony	40.0	39.73		ug/L		99	85 - 115
Selenium	40.0	41.62		ug/L		104	85 - 115
Thallium	40.0	39.52		ug/L		99	85 - 115

Lab Sample ID: LCS 280-697528/25-A

Matrix: Water

Analysis Batch: 698105

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 697528

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chromium	40.0	42.42	^+	ug/L		106	85 - 115

Lab Sample ID: LCS 280-697528/25-A

Matrix: Water

Analysis Batch: 698162

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 697528

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	40.0	41.06		ug/L		103	85 - 115

Lab Sample ID: 280-208132-7 MS

Matrix: Water

Analysis Batch: 697879

Client Sample ID: MW-38B-05212025

Prep Type: Total/NA

Prep Batch: 697528

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Barium	15.9		40.0	56.61		ug/L		102	75 - 125
Beryllium	ND		40.0	38.88		ug/L		97	75 - 125
Cadmium	ND		40.0	37.21		ug/L		93	75 - 125
Cobalt	ND		40.0	39.10		ug/L		97	75 - 125
Chromium	5.72		40.0	44.03		ug/L		96	75 - 125
Molybdenum	188		40.0	229.2	4	ug/L		103	75 - 125
Lead	ND		40.0	39.14		ug/L		98	75 - 125
Antimony	ND		40.0	39.71		ug/L		99	75 - 125
Selenium	3.47		40.0	42.61		ug/L		98	75 - 125
Thallium	ND		40.0	39.40		ug/L		98	75 - 125

Lab Sample ID: 280-208132-7 MS

Matrix: Water

Analysis Batch: 698105

Client Sample ID: MW-38B-05212025

Prep Type: Total/NA

Prep Batch: 697528

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	3.90		40.0	44.32		ug/L		101	75 - 125

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QC Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

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

Lab Sample ID: 280-208132-7 MSD

Matrix: Water

Analysis Batch: 697879

Client Sample ID: MW-38B-05212025

Prep Type: Total/NA

Prep Batch: 697528

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Barium	15.9		40.0	55.25		ug/L		98	75 - 125	2	20
Beryllium	ND		40.0	39.60		ug/L		99	75 - 125	2	20
Cadmium	ND		40.0	37.69		ug/L		94	75 - 125	1	20
Cobalt	ND		40.0	39.34		ug/L		97	75 - 125	1	20
Chromium	5.72		40.0	44.22		ug/L		96	75 - 125	0	20
Molybdenum	188		40.0	229.7	4	ug/L		105	75 - 125	0	20
Lead	ND		40.0	38.70		ug/L		97	75 - 125	1	20
Antimony	ND		40.0	39.85		ug/L		100	75 - 125	0	20
Selenium	3.47		40.0	42.55		ug/L		98	75 - 125	0	20
Thallium	ND		40.0	38.36		ug/L		96	75 - 125	3	20

Lab Sample ID: 280-208132-7 MSD

Matrix: Water

Analysis Batch: 698105

Client Sample ID: MW-38B-05212025

Prep Type: Total/NA

Prep Batch: 697528

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	3.90		40.0	44.40		ug/L		101	75 - 125	0	20

Lab Sample ID: MB 280-697535/1-A

Matrix: Water

Analysis Batch: 697879

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 697535

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND		2.00		ug/L		05/27/25 15:04	05/28/25 23:40	1
Beryllium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:40	1
Cadmium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:40	1
Chromium	ND		3.00		ug/L		05/27/25 15:04	05/28/25 23:40	1
Molybdenum	ND		2.00		ug/L		05/27/25 15:04	05/28/25 23:40	1
Lead	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:40	1
Antimony	ND		2.00		ug/L		05/27/25 15:04	05/28/25 23:40	1
Thallium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 23:40	1

Lab Sample ID: MB 280-697535/1-A

Matrix: Water

Analysis Batch: 698105

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 697535

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		2.00		ug/L		05/27/25 15:04	05/29/25 20:43	1
Cobalt	ND		1.00		ug/L		05/27/25 15:04	05/29/25 20:43	1
Selenium	ND		2.00		ug/L		05/27/25 15:04	05/29/25 20:43	1

Lab Sample ID: LCS 280-697535/25-A

Matrix: Water

Analysis Batch: 697879

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 697535

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Barium	40.0	41.04		ug/L		103	85 - 115
Beryllium	40.0	38.59		ug/L		96	85 - 115
Cadmium	40.0	40.00		ug/L		100	85 - 115

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QC Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

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

Lab Sample ID: LCS 280-697535/25-A
Matrix: Water
Analysis Batch: 697879

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 697535

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chromium	40.0	40.98		ug/L		102	85 - 115
Molybdenum	40.0	39.77		ug/L		99	85 - 115
Lead	40.0	39.33		ug/L		98	85 - 115
Antimony	40.0	40.02		ug/L		100	85 - 115
Thallium	40.0	39.05		ug/L		98	85 - 115

Lab Sample ID: LCS 280-697535/25-A
Matrix: Water
Analysis Batch: 698105

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 697535

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	40.0	39.97		ug/L		100	85 - 115
Cobalt	40.0	41.02		ug/L		103	85 - 115
Selenium	40.0	40.20		ug/L		101	85 - 115

Lab Sample ID: 280-208132-21 MS
Matrix: Water
Analysis Batch: 697879

Client Sample ID: MW-41B-05222025
Prep Type: Total/NA
Prep Batch: 697535

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Barium	19.1		40.0	61.42		ug/L		106	75 - 125
Beryllium	ND		40.0	38.13		ug/L		95	75 - 125
Cadmium	ND		40.0	39.56		ug/L		99	75 - 125
Chromium	4.85		40.0	42.38		ug/L		94	75 - 125
Molybdenum	75.3		40.0	116.4		ug/L		103	75 - 125
Lead	ND		40.0	39.15		ug/L		98	75 - 125
Antimony	ND		40.0	40.12		ug/L		100	75 - 125
Thallium	ND		40.0	39.69		ug/L		99	75 - 125

Lab Sample ID: 280-208132-21 MS
Matrix: Water
Analysis Batch: 698105

Client Sample ID: MW-41B-05222025
Prep Type: Total/NA
Prep Batch: 697535

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	5.20		40.0	43.57		ug/L		96	75 - 125
Cobalt	ND		40.0	39.12		ug/L		96	75 - 125
Selenium	6.96		40.0	44.67		ug/L		94	75 - 125

Lab Sample ID: 280-208132-21 MSD
Matrix: Water
Analysis Batch: 697879

Client Sample ID: MW-41B-05222025
Prep Type: Total/NA
Prep Batch: 697535

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Barium	19.1		40.0	60.84		ug/L		104	75 - 125	1	20
Beryllium	ND		40.0	39.81		ug/L		100	75 - 125	4	20
Cadmium	ND		40.0	37.95		ug/L		95	75 - 125	4	20
Chromium	4.85		40.0	42.41		ug/L		94	75 - 125	0	20
Molybdenum	75.3		40.0	114.8		ug/L		99	75 - 125	1	20
Lead	ND		40.0	38.74		ug/L		97	75 - 125	1	20
Antimony	ND		40.0	39.20		ug/L		98	75 - 125	2	20

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QC Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

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

Lab Sample ID: 280-208132-21 MSD
Matrix: Water
Analysis Batch: 697879

Client Sample ID: MW-41B-05222025
Prep Type: Total/NA
Prep Batch: 697535

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Thallium	ND		40.0	39.13		ug/L		98	75 - 125	1	20

Lab Sample ID: 280-208132-21 MSD
Matrix: Water
Analysis Batch: 698105

Client Sample ID: MW-41B-05222025
Prep Type: Total/NA
Prep Batch: 697535

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	5.20		40.0	44.74		ug/L		99	75 - 125	3	20
Cobalt	ND		40.0	39.27		ug/L		97	75 - 125	0	20
Selenium	6.96		40.0	44.65		ug/L		94	75 - 125	0	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-698033/1-A
Matrix: Water
Analysis Batch: 698160

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 698033

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		05/29/25 18:43	05/30/25 02:05	1

Lab Sample ID: LCS 280-698033/2-A
Matrix: Water
Analysis Batch: 698160

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 698033

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.004493		mg/L		90	85 - 115

Lab Sample ID: MB 280-698034/1-A
Matrix: Water
Analysis Batch: 698160

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 698034

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		05/29/25 18:43	05/30/25 02:52	1

Lab Sample ID: LCS 280-698034/2-A
Matrix: Water
Analysis Batch: 698160

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 698034

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.004533		mg/L		91	85 - 115

Lab Sample ID: 280-208132-7 MS
Matrix: Water
Analysis Batch: 698160

Client Sample ID: MW-38B-05212025
Prep Type: Total/NA
Prep Batch: 698034

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		0.00500	0.004568		mg/L		91	80 - 120

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QC Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

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

Lab Sample ID: 280-208132-7 MSD

Matrix: Water

Analysis Batch: 698160

Client Sample ID: MW-38B-05212025

Prep Type: Total/NA

Prep Batch: 698034

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		0.00500	0.004640		mg/L		93	80 - 120	2	20

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-697825/45

Matrix: Water

Analysis Batch: 697825

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00		mg/L			05/29/25 05:05	1
Fluoride	ND		0.500		mg/L			05/29/25 05:05	1
Sulfate	ND		3.00		mg/L			05/29/25 05:05	1

Lab Sample ID: MB 280-697825/6

Matrix: Water

Analysis Batch: 697825

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00		mg/L			05/28/25 19:56	1
Fluoride	ND		0.500		mg/L			05/28/25 19:56	1
Sulfate	ND		3.00		mg/L			05/28/25 19:56	1

Lab Sample ID: LCS 280-697825/4

Matrix: Water

Analysis Batch: 697825

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	96.89		mg/L		97	90 - 110
Fluoride	5.00	4.744		mg/L		95	90 - 110
Sulfate	100	97.69		mg/L		98	90 - 110

Lab Sample ID: LCS 280-697825/43

Matrix: Water

Analysis Batch: 697825

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	97.48		mg/L		97	90 - 110
Fluoride	5.00	4.792		mg/L		96	90 - 110
Sulfate	100	97.91		mg/L		98	90 - 110

Lab Sample ID: LCSD 280-697825/44

Matrix: Water

Analysis Batch: 697825

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	97.41		mg/L		97	90 - 110	0	10
Fluoride	5.00	4.775		mg/L		96	90 - 110	0	10
Sulfate	100	97.88		mg/L		98	90 - 110	0	10

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QC Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

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

Lab Sample ID: LCSD 280-697825/5

Matrix: Water

Analysis Batch: 697825

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	96.90		mg/L		97	90 - 110	0	10
Fluoride	5.00	4.745		mg/L		95	90 - 110	0	10
Sulfate	100	97.67		mg/L		98	90 - 110	0	10

Lab Sample ID: MRL 280-697825/3

Matrix: Water

Analysis Batch: 697825

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	3.00	2.751	J	mg/L		92	50 - 150		
Fluoride	0.500	0.3848	J	mg/L		77	50 - 150		
Sulfate	3.00	2.736	J	mg/L		91	50 - 150		

Lab Sample ID: 280-208132-7 MS

Matrix: Water

Analysis Batch: 697825

Client Sample ID: MW-38B-05212025

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Fluoride	ND	F1	5.00	3.704	F1	mg/L		69	90 - 110		

Lab Sample ID: 280-208132-7 MS

Matrix: Water

Analysis Batch: 697825

Client Sample ID: MW-38B-05212025

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	219		2500	2716		mg/L		100	90 - 110		
Sulfate	5180		2500	7666		mg/L		100	90 - 110		

Lab Sample ID: 280-208132-7 MSD

Matrix: Water

Analysis Batch: 697825

Client Sample ID: MW-38B-05212025

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	3.678	F1	mg/L		68	90 - 110	1	15

Lab Sample ID: 280-208132-7 MSD

Matrix: Water

Analysis Batch: 697825

Client Sample ID: MW-38B-05212025

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	219		2500	2713		mg/L		100	90 - 110	0	15
Sulfate	5180		2500	7654		mg/L		99	90 - 110	0	15

Lab Sample ID: 280-208132-15 MS

Matrix: Water

Analysis Batch: 697825

Client Sample ID: MW-44B-05222025

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	59.9		50.0	109.8		mg/L		100	90 - 110		
Fluoride	0.636	F1	5.00	5.103	F1	mg/L		89	90 - 110		

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QC Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: 280-208132-15 MSD

Matrix: Water

Analysis Batch: 697825

Client Sample ID: MW-44B-05222025

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	59.9		50.0	109.8		mg/L		100	90 - 110	0	15
Fluoride	0.636	F1	5.00	5.083	F1	mg/L		89	90 - 110	0	15

Lab Sample ID: 280-208132-7 DU

Matrix: Water

Analysis Batch: 697825

Client Sample ID: MW-38B-05212025

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

Lab Sample ID: 280-208132-7 DU

Matrix: Water

Analysis Batch: 697825

Client Sample ID: MW-38B-05212025

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	219		217.7		mg/L		0.7	15
Sulfate	5180		5172		mg/L		0.1	15

Lab Sample ID: 280-208132-15 DU

Matrix: Water

Analysis Batch: 697825

Client Sample ID: MW-44B-05222025

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	59.9		60.25		mg/L		0.5	15
Fluoride	0.636	F1	0.6339		mg/L		0.3	15

Lab Sample ID: MB 280-698247/6

Matrix: Water

Analysis Batch: 698247

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00		mg/L			05/30/25 18:19	1
Sulfate	ND		3.00		mg/L			05/30/25 18:19	1

Lab Sample ID: LCS 280-698247/4

Matrix: Water

Analysis Batch: 698247

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	101.1		mg/L		101	90 - 110
Sulfate	100	99.73		mg/L		100	90 - 110

Lab Sample ID: LCSD 280-698247/5

Matrix: Water

Analysis Batch: 698247

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	101.3		mg/L		101	90 - 110	0	10
Sulfate	100	99.47		mg/L		99	90 - 110	0	10

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QC Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

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

Lab Sample ID: MRL 280-698247/3
Matrix: Water
Analysis Batch: 698247

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	3.00	2.790	J	mg/L		93	50 - 150
Sulfate	3.00	2.762	J	mg/L		92	50 - 150

Lab Sample ID: 280-208132-9 MS
Matrix: Water
Analysis Batch: 698247

Client Sample ID: MW-40B-05212025
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	316		250	587.4		mg/L		108	90 - 110

Lab Sample ID: 280-208132-9 MSD
Matrix: Water
Analysis Batch: 698247

Client Sample ID: MW-40B-05212025
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	316		250	592.0		mg/L		110	90 - 110	1	15

Lab Sample ID: 280-208132-9 DU
Matrix: Water
Analysis Batch: 698247

Client Sample ID: MW-40B-05212025
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfate	316		318.0		mg/L		0.5	15

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

Lab Sample ID: MB 280-697513/1
Matrix: Water
Analysis Batch: 697513

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		10.0		mg/L			05/27/25 09:54	1

Lab Sample ID: LCS 280-697513/2
Matrix: Water
Analysis Batch: 697513

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	499.0		mg/L		100	88 - 114

Lab Sample ID: 280-208132-1 DU
Matrix: Water
Analysis Batch: 697513

Client Sample ID: MW-39B-05202025
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids (TDS)	1360		1352		mg/L		0.4	10

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QC Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

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

Lab Sample ID: MB 280-697689/1
Matrix: Water
Analysis Batch: 697689

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		10.0		mg/L			05/28/25 09:45	1

Lab Sample ID: LCS 280-697689/2
Matrix: Water
Analysis Batch: 697689

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	506.0		mg/L		101	88 - 114

QC Association Summary

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

Metals

Prep Batch: 697528

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-208132-1	MW-39B-05202025	Total/NA	Water	3005A	
280-208132-2	MW-32B-05202025	Total/NA	Water	3005A	
280-208132-3	MW-36B-05202025	Total/NA	Water	3005A	
280-208132-4	MW-37B-05202025	Total/NA	Water	3005A	
280-208132-5	DUP-05212025	Total/NA	Water	3005A	
280-208132-6	MW-53BR-05212025	Total/NA	Water	3005A	
280-208132-7	MW-38B-05212025	Total/NA	Water	3005A	
280-208132-7	MW-38B-05212025	Total/NA	Water	3005A	
280-208132-8	MW-49B-05212025	Total/NA	Water	3005A	
280-208132-9	MW-40B-05212025	Total/NA	Water	3005A	
280-208132-10	MW-20B-05212025	Total/NA	Water	3005A	
280-208132-11	MW-14BR-05212025	Total/NA	Water	3005A	
280-208132-12	MW-38C-05212025	Total/NA	Water	3005A	
280-208132-13	MW-21B-05212025	Total/NA	Water	3005A	
280-208132-14	MW-52B-05212025	Total/NA	Water	3005A	
280-208132-15	MW-44B-05222025	Total/NA	Water	3005A	
280-208132-16	MW-45B-05222025	Total/NA	Water	3005A	
280-208132-17	MW-46B-05222025	Total/NA	Water	3005A	
280-208132-18	MW-47B-05222025	Total/NA	Water	3005A	
280-208132-19	MW-43B-05222025	Total/NA	Water	3005A	
280-208132-20	MW-42B-05222025	Total/NA	Water	3005A	
MB 280-697528/1-A	Method Blank	Total/NA	Water	3005A	
LCS 280-697528/25-A	Lab Control Sample	Total/NA	Water	3005A	
LCS 280-697528/2-A	Lab Control Sample	Total/NA	Water	3005A	
280-208132-7 MS	MW-38B-05212025	Total/NA	Water	3005A	
280-208132-7 MS	MW-38B-05212025	Total/NA	Water	3005A	
280-208132-7 MSD	MW-38B-05212025	Total/NA	Water	3005A	
280-208132-7 MSD	MW-38B-05212025	Total/NA	Water	3005A	

Prep Batch: 697535

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-208132-21	MW-41B-05222025	Total/NA	Water	3005A	
280-208132-21	MW-41B-05222025	Total/NA	Water	3005A	
MB 280-697535/1-A	Method Blank	Total/NA	Water	3005A	
LCS 280-697535/25-A	Lab Control Sample	Total/NA	Water	3005A	
LCS 280-697535/2-A	Lab Control Sample	Total/NA	Water	3005A	
280-208132-21 MS	MW-41B-05222025	Total/NA	Water	3005A	
280-208132-21 MS	MW-41B-05222025	Total/NA	Water	3005A	
280-208132-21 MSD	MW-41B-05222025	Total/NA	Water	3005A	
280-208132-21 MSD	MW-41B-05222025	Total/NA	Water	3005A	

Analysis Batch: 697879

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-208132-1	MW-39B-05202025	Total/NA	Water	6020B	697528
280-208132-2	MW-32B-05202025	Total/NA	Water	6020B	697528
280-208132-3	MW-36B-05202025	Total/NA	Water	6020B	697528
280-208132-4	MW-37B-05202025	Total/NA	Water	6020B	697528
280-208132-5	DUP-05212025	Total/NA	Water	6020B	697528
280-208132-6	MW-53BR-05212025	Total/NA	Water	6020B	697528
280-208132-7	MW-38B-05212025	Total/NA	Water	6020B	697528
280-208132-8	MW-49B-05212025	Total/NA	Water	6020B	697528

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QC Association Summary

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

Metals (Continued)

Analysis Batch: 697879 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-208132-9	MW-40B-05212025	Total/NA	Water	6020B	697528
280-208132-10	MW-20B-05212025	Total/NA	Water	6020B	697528
280-208132-11	MW-14BR-05212025	Total/NA	Water	6020B	697528
280-208132-12	MW-38C-05212025	Total/NA	Water	6020B	697528
280-208132-13	MW-21B-05212025	Total/NA	Water	6020B	697528
280-208132-14	MW-52B-05212025	Total/NA	Water	6020B	697528
280-208132-15	MW-44B-05222025	Total/NA	Water	6020B	697528
280-208132-16	MW-45B-05222025	Total/NA	Water	6020B	697528
280-208132-17	MW-46B-05222025	Total/NA	Water	6020B	697528
280-208132-18	MW-47B-05222025	Total/NA	Water	6020B	697528
280-208132-19	MW-43B-05222025	Total/NA	Water	6020B	697528
280-208132-20	MW-42B-05222025	Total/NA	Water	6020B	697528
280-208132-21	MW-41B-05222025	Total/NA	Water	6020B	697535
MB 280-697528/1-A	Method Blank	Total/NA	Water	6020B	697528
MB 280-697535/1-A	Method Blank	Total/NA	Water	6020B	697535
LCS 280-697528/25-A	Lab Control Sample	Total/NA	Water	6020B	697528
LCS 280-697535/25-A	Lab Control Sample	Total/NA	Water	6020B	697535
280-208132-7 MS	MW-38B-05212025	Total/NA	Water	6020B	697528
280-208132-7 MSD	MW-38B-05212025	Total/NA	Water	6020B	697528
280-208132-21 MS	MW-41B-05222025	Total/NA	Water	6020B	697535
280-208132-21 MSD	MW-41B-05222025	Total/NA	Water	6020B	697535

Analysis Batch: 697883

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-208132-21	MW-41B-05222025	Total/NA	Water	6010D	697535
MB 280-697535/1-A	Method Blank	Total/NA	Water	6010D	697535
LCS 280-697535/2-A	Lab Control Sample	Total/NA	Water	6010D	697535
280-208132-21 MS	MW-41B-05222025	Total/NA	Water	6010D	697535
280-208132-21 MSD	MW-41B-05222025	Total/NA	Water	6010D	697535

Analysis Batch: 697893

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-208132-1	MW-39B-05202025	Total/NA	Water	6010D	697528
280-208132-2	MW-32B-05202025	Total/NA	Water	6010D	697528
280-208132-3	MW-36B-05202025	Total/NA	Water	6010D	697528
280-208132-4	MW-37B-05202025	Total/NA	Water	6010D	697528
280-208132-5	DUP-05212025	Total/NA	Water	6010D	697528
280-208132-6	MW-53BR-05212025	Total/NA	Water	6010D	697528
280-208132-7	MW-38B-05212025	Total/NA	Water	6010D	697528
280-208132-8	MW-49B-05212025	Total/NA	Water	6010D	697528
280-208132-9	MW-40B-05212025	Total/NA	Water	6010D	697528
280-208132-10	MW-20B-05212025	Total/NA	Water	6010D	697528
280-208132-11	MW-14BR-05212025	Total/NA	Water	6010D	697528
280-208132-12	MW-38C-05212025	Total/NA	Water	6010D	697528
280-208132-13	MW-21B-05212025	Total/NA	Water	6010D	697528
280-208132-14	MW-52B-05212025	Total/NA	Water	6010D	697528
280-208132-15	MW-44B-05222025	Total/NA	Water	6010D	697528
280-208132-16	MW-45B-05222025	Total/NA	Water	6010D	697528
280-208132-17	MW-46B-05222025	Total/NA	Water	6010D	697528
280-208132-18	MW-47B-05222025	Total/NA	Water	6010D	697528
280-208132-19	MW-43B-05222025	Total/NA	Water	6010D	697528

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QC Association Summary

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

Metals (Continued)

Analysis Batch: 697893 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-208132-20	MW-42B-05222025	Total/NA	Water	6010D	697528
MB 280-697528/1-A	Method Blank	Total/NA	Water	6010D	697528
LCS 280-697528/2-A	Lab Control Sample	Total/NA	Water	6010D	697528
280-208132-7 MS	MW-38B-05212025	Total/NA	Water	6010D	697528
280-208132-7 MSD	MW-38B-05212025	Total/NA	Water	6010D	697528

Prep Batch: 698033

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-208132-21	MW-41B-05222025	Total/NA	Water	7470A	
MB 280-698033/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-698033/2-A	Lab Control Sample	Total/NA	Water	7470A	

Prep Batch: 698034

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-208132-1	MW-39B-05202025	Total/NA	Water	7470A	
280-208132-2	MW-32B-05202025	Total/NA	Water	7470A	
280-208132-3	MW-36B-05202025	Total/NA	Water	7470A	
280-208132-4	MW-37B-05202025	Total/NA	Water	7470A	
280-208132-5	DUP-05212025	Total/NA	Water	7470A	
280-208132-6	MW-53BR-05212025	Total/NA	Water	7470A	
280-208132-7	MW-38B-05212025	Total/NA	Water	7470A	
280-208132-8	MW-49B-05212025	Total/NA	Water	7470A	
280-208132-9	MW-40B-05212025	Total/NA	Water	7470A	
280-208132-10	MW-20B-05212025	Total/NA	Water	7470A	
280-208132-11	MW-14BR-05212025	Total/NA	Water	7470A	
280-208132-12	MW-38C-05212025	Total/NA	Water	7470A	
280-208132-13	MW-21B-05212025	Total/NA	Water	7470A	
280-208132-14	MW-52B-05212025	Total/NA	Water	7470A	
280-208132-15	MW-44B-05222025	Total/NA	Water	7470A	
280-208132-16	MW-45B-05222025	Total/NA	Water	7470A	
280-208132-17	MW-46B-05222025	Total/NA	Water	7470A	
280-208132-18	MW-47B-05222025	Total/NA	Water	7470A	
280-208132-19	MW-43B-05222025	Total/NA	Water	7470A	
280-208132-20	MW-42B-05222025	Total/NA	Water	7470A	
MB 280-698034/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-698034/2-A	Lab Control Sample	Total/NA	Water	7470A	
280-208132-7 MS	MW-38B-05212025	Total/NA	Water	7470A	
280-208132-7 MSD	MW-38B-05212025	Total/NA	Water	7470A	

Analysis Batch: 698105

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-208132-1	MW-39B-05202025	Total/NA	Water	6020B	697528
280-208132-2	MW-32B-05202025	Total/NA	Water	6020B	697528
280-208132-3	MW-36B-05202025	Total/NA	Water	6020B	697528
280-208132-4	MW-37B-05202025	Total/NA	Water	6020B	697528
280-208132-5	DUP-05212025	Total/NA	Water	6020B	697528
280-208132-6	MW-53BR-05212025	Total/NA	Water	6020B	697528
280-208132-7	MW-38B-05212025	Total/NA	Water	6020B	697528
280-208132-8	MW-49B-05212025	Total/NA	Water	6020B	697528
280-208132-9	MW-40B-05212025	Total/NA	Water	6020B	697528
280-208132-10	MW-20B-05212025	Total/NA	Water	6020B	697528

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QC Association Summary

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

Metals (Continued)

Analysis Batch: 698105 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-208132-11	MW-14BR-05212025	Total/NA	Water	6020B	697528
280-208132-12	MW-38C-05212025	Total/NA	Water	6020B	697528
280-208132-13	MW-21B-05212025	Total/NA	Water	6020B	697528
280-208132-14	MW-52B-05212025	Total/NA	Water	6020B	697528
280-208132-15	MW-44B-05222025	Total/NA	Water	6020B	697528
280-208132-16	MW-45B-05222025	Total/NA	Water	6020B	697528
280-208132-17	MW-46B-05222025	Total/NA	Water	6020B	697528
280-208132-18	MW-47B-05222025	Total/NA	Water	6020B	697528
280-208132-19	MW-43B-05222025	Total/NA	Water	6020B	697528
280-208132-20	MW-42B-05222025	Total/NA	Water	6020B	697528
280-208132-21	MW-41B-05222025	Total/NA	Water	6020B	697535
MB 280-697528/1-A	Method Blank	Total/NA	Water	6020B	697528
MB 280-697535/1-A	Method Blank	Total/NA	Water	6020B	697535
LCS 280-697528/25-A	Lab Control Sample	Total/NA	Water	6020B	697528
LCS 280-697535/25-A	Lab Control Sample	Total/NA	Water	6020B	697535
280-208132-7 MS	MW-38B-05212025	Total/NA	Water	6020B	697528
280-208132-7 MSD	MW-38B-05212025	Total/NA	Water	6020B	697528
280-208132-21 MS	MW-41B-05222025	Total/NA	Water	6020B	697535
280-208132-21 MSD	MW-41B-05222025	Total/NA	Water	6020B	697535

Analysis Batch: 698160

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-208132-1	MW-39B-05202025	Total/NA	Water	7470A	698034
280-208132-2	MW-32B-05202025	Total/NA	Water	7470A	698034
280-208132-3	MW-36B-05202025	Total/NA	Water	7470A	698034
280-208132-4	MW-37B-05202025	Total/NA	Water	7470A	698034
280-208132-5	DUP-05212025	Total/NA	Water	7470A	698034
280-208132-6	MW-53BR-05212025	Total/NA	Water	7470A	698034
280-208132-7	MW-38B-05212025	Total/NA	Water	7470A	698034
280-208132-8	MW-49B-05212025	Total/NA	Water	7470A	698034
280-208132-9	MW-40B-05212025	Total/NA	Water	7470A	698034
280-208132-10	MW-20B-05212025	Total/NA	Water	7470A	698034
280-208132-11	MW-14BR-05212025	Total/NA	Water	7470A	698034
280-208132-12	MW-38C-05212025	Total/NA	Water	7470A	698034
280-208132-13	MW-21B-05212025	Total/NA	Water	7470A	698034
280-208132-14	MW-52B-05212025	Total/NA	Water	7470A	698034
280-208132-15	MW-44B-05222025	Total/NA	Water	7470A	698034
280-208132-16	MW-45B-05222025	Total/NA	Water	7470A	698034
280-208132-17	MW-46B-05222025	Total/NA	Water	7470A	698034
280-208132-18	MW-47B-05222025	Total/NA	Water	7470A	698034
280-208132-19	MW-43B-05222025	Total/NA	Water	7470A	698034
280-208132-20	MW-42B-05222025	Total/NA	Water	7470A	698034
280-208132-21	MW-41B-05222025	Total/NA	Water	7470A	698033
MB 280-698033/1-A	Method Blank	Total/NA	Water	7470A	698033
MB 280-698034/1-A	Method Blank	Total/NA	Water	7470A	698034
LCS 280-698033/2-A	Lab Control Sample	Total/NA	Water	7470A	698033
LCS 280-698034/2-A	Lab Control Sample	Total/NA	Water	7470A	698034
280-208132-7 MS	MW-38B-05212025	Total/NA	Water	7470A	698034
280-208132-7 MSD	MW-38B-05212025	Total/NA	Water	7470A	698034

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QC Association Summary

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

Metals

Analysis Batch: 698162

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-208132-1	MW-39B-05202025	Total/NA	Water	6020B	697528
280-208132-2	MW-32B-05202025	Total/NA	Water	6020B	697528
280-208132-3	MW-36B-05202025	Total/NA	Water	6020B	697528
280-208132-4	MW-37B-05202025	Total/NA	Water	6020B	697528
280-208132-5	DUP-05212025	Total/NA	Water	6020B	697528
280-208132-6	MW-53BR-05212025	Total/NA	Water	6020B	697528
MB 280-697528/1-A	Method Blank	Total/NA	Water	6020B	697528
LCS 280-697528/25-A	Lab Control Sample	Total/NA	Water	6020B	697528

Analysis Batch: 698193

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-208132-13	MW-21B-05212025	Total/NA	Water	6010D	697528

General Chemistry

Analysis Batch: 697513

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-208132-1	MW-39B-05202025	Total/NA	Water	SM 2540C	
280-208132-2	MW-32B-05202025	Total/NA	Water	SM 2540C	
280-208132-3	MW-36B-05202025	Total/NA	Water	SM 2540C	
280-208132-4	MW-37B-05202025	Total/NA	Water	SM 2540C	
280-208132-5	DUP-05212025	Total/NA	Water	SM 2540C	
280-208132-6	MW-53BR-05212025	Total/NA	Water	SM 2540C	
280-208132-7	MW-38B-05212025	Total/NA	Water	SM 2540C	
280-208132-8	MW-49B-05212025	Total/NA	Water	SM 2540C	
280-208132-9	MW-40B-05212025	Total/NA	Water	SM 2540C	
280-208132-10	MW-20B-05212025	Total/NA	Water	SM 2540C	
280-208132-11	MW-14BR-05212025	Total/NA	Water	SM 2540C	
MB 280-697513/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-697513/2	Lab Control Sample	Total/NA	Water	SM 2540C	
280-208132-1 DU	MW-39B-05202025	Total/NA	Water	SM 2540C	

Analysis Batch: 697689

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-208132-12	MW-38C-05212025	Total/NA	Water	SM 2540C	
280-208132-13	MW-21B-05212025	Total/NA	Water	SM 2540C	
280-208132-14	MW-52B-05212025	Total/NA	Water	SM 2540C	
280-208132-15	MW-44B-05222025	Total/NA	Water	SM 2540C	
280-208132-16	MW-45B-05222025	Total/NA	Water	SM 2540C	
280-208132-17	MW-46B-05222025	Total/NA	Water	SM 2540C	
280-208132-18	MW-47B-05222025	Total/NA	Water	SM 2540C	
280-208132-19	MW-43B-05222025	Total/NA	Water	SM 2540C	
280-208132-20	MW-42B-05222025	Total/NA	Water	SM 2540C	
280-208132-21	MW-41B-05222025	Total/NA	Water	SM 2540C	
MB 280-697689/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-697689/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 697825

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-208132-1	MW-39B-05202025	Total/NA	Water	9056A	
280-208132-2	MW-32B-05202025	Total/NA	Water	9056A	

Eurofins Denver

QC Association Summary

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

General Chemistry (Continued)

Analysis Batch: 697825 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-208132-2	MW-32B-05202025	Total/NA	Water	9056A	
280-208132-3	MW-36B-05202025	Total/NA	Water	9056A	
280-208132-4	MW-37B-05202025	Total/NA	Water	9056A	
280-208132-4	MW-37B-05202025	Total/NA	Water	9056A	
280-208132-5	DUP-05212025	Total/NA	Water	9056A	
280-208132-6	MW-53BR-05212025	Total/NA	Water	9056A	
280-208132-7	MW-38B-05212025	Total/NA	Water	9056A	
280-208132-7	MW-38B-05212025	Total/NA	Water	9056A	
280-208132-8	MW-49B-05212025	Total/NA	Water	9056A	
280-208132-9	MW-40B-05212025	Total/NA	Water	9056A	
280-208132-10	MW-20B-05212025	Total/NA	Water	9056A	
280-208132-11	MW-14BR-05212025	Total/NA	Water	9056A	
280-208132-11	MW-14BR-05212025	Total/NA	Water	9056A	
280-208132-12	MW-38C-05212025	Total/NA	Water	9056A	
280-208132-13	MW-21B-05212025	Total/NA	Water	9056A	
280-208132-13	MW-21B-05212025	Total/NA	Water	9056A	
280-208132-14	MW-52B-05212025	Total/NA	Water	9056A	
280-208132-15	MW-44B-05222025	Total/NA	Water	9056A	
280-208132-16	MW-45B-05222025	Total/NA	Water	9056A	
280-208132-17	MW-46B-05222025	Total/NA	Water	9056A	
280-208132-18	MW-47B-05222025	Total/NA	Water	9056A	
280-208132-19	MW-43B-05222025	Total/NA	Water	9056A	
280-208132-19	MW-43B-05222025	Total/NA	Water	9056A	
280-208132-20	MW-42B-05222025	Total/NA	Water	9056A	
280-208132-20	MW-42B-05222025	Total/NA	Water	9056A	
280-208132-21	MW-41B-05222025	Total/NA	Water	9056A	
280-208132-21	MW-41B-05222025	Total/NA	Water	9056A	
MB 280-697825/45	Method Blank	Total/NA	Water	9056A	
MB 280-697825/6	Method Blank	Total/NA	Water	9056A	
LCS 280-697825/4	Lab Control Sample	Total/NA	Water	9056A	
LCS 280-697825/43	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-697825/44	Lab Control Sample Dup	Total/NA	Water	9056A	
LCSD 280-697825/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-697825/3	Lab Control Sample	Total/NA	Water	9056A	
280-208132-7 MS	MW-38B-05212025	Total/NA	Water	9056A	
280-208132-7 MS	MW-38B-05212025	Total/NA	Water	9056A	
280-208132-7 MSD	MW-38B-05212025	Total/NA	Water	9056A	
280-208132-7 MSD	MW-38B-05212025	Total/NA	Water	9056A	
280-208132-15 MS	MW-44B-05222025	Total/NA	Water	9056A	
280-208132-15 MSD	MW-44B-05222025	Total/NA	Water	9056A	
280-208132-7 DU	MW-38B-05212025	Total/NA	Water	9056A	
280-208132-7 DU	MW-38B-05212025	Total/NA	Water	9056A	
280-208132-15 DU	MW-44B-05222025	Total/NA	Water	9056A	

Analysis Batch: 698247

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-208132-1	MW-39B-05202025	Total/NA	Water	9056A	
280-208132-3	MW-36B-05202025	Total/NA	Water	9056A	
280-208132-5	DUP-05212025	Total/NA	Water	9056A	
280-208132-6	MW-53BR-05212025	Total/NA	Water	9056A	
280-208132-8	MW-49B-05212025	Total/NA	Water	9056A	

Eurofins Denver

QC Association Summary

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

General Chemistry (Continued)

Analysis Batch: 698247 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-208132-9	MW-40B-05212025	Total/NA	Water	9056A	
280-208132-10	MW-20B-05212025	Total/NA	Water	9056A	
280-208132-12	MW-38C-05212025	Total/NA	Water	9056A	
280-208132-14	MW-52B-05212025	Total/NA	Water	9056A	
280-208132-15	MW-44B-05222025	Total/NA	Water	9056A	
280-208132-16	MW-45B-05222025	Total/NA	Water	9056A	
280-208132-18	MW-47B-05222025	Total/NA	Water	9056A	
MB 280-698247/6	Method Blank	Total/NA	Water	9056A	
LCS 280-698247/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-698247/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-698247/3	Lab Control Sample	Total/NA	Water	9056A	
280-208132-9 MS	MW-40B-05212025	Total/NA	Water	9056A	
280-208132-9 MSD	MW-40B-05212025	Total/NA	Water	9056A	
280-208132-9 DU	MW-40B-05212025	Total/NA	Water	9056A	

Lab Chronicle

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

Client Sample ID: MW-39B-05202025

Lab Sample ID: 280-208132-1

Date Collected: 05/20/25 15:05

Matrix: Water

Date Received: 05/23/25 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6010D		1			697893	05/28/25 18:17	NKC	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			697879	05/28/25 22:29	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			698105	05/29/25 19:32	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			698162	05/30/25 08:28	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	698034	05/29/25 18:43	CAF	EET DEN
Total/NA	Analysis	7470A		1			698160	05/30/25 02:55	AES	EET DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	698247	05/30/25 23:39	IRC	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	697825	05/28/25 21:07	IRC	EET DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	697513	05/27/25 09:54	YBF	EET DEN

Client Sample ID: MW-32B-05202025

Lab Sample ID: 280-208132-2

Date Collected: 05/20/25 16:00

Matrix: Water

Date Received: 05/23/25 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6010D		1			697893	05/28/25 18:22	NKC	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			697879	05/28/25 22:32	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			698105	05/29/25 19:35	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			698162	05/30/25 08:30	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	698034	05/29/25 18:43	CAF	EET DEN
Total/NA	Analysis	7470A		1			698160	05/30/25 02:56	AES	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	697825	05/29/25 04:09	IRC	EET DEN
Total/NA	Analysis	9056A		10	10 mL	10 mL	697825	05/29/25 04:23	IRC	EET DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	697513	05/27/25 09:54	YBF	EET DEN

Client Sample ID: MW-36B-05202025

Lab Sample ID: 280-208132-3

Date Collected: 05/20/25 16:40

Matrix: Water

Date Received: 05/23/25 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6010D		1			697893	05/28/25 18:26	NKC	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			697879	05/28/25 22:34	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			698105	05/29/25 19:37	LMT	EET DEN

Eurofins Denver

Lab Chronicle

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

Client Sample ID: MW-36B-05202025

Lab Sample ID: 280-208132-3

Date Collected: 05/20/25 16:40

Matrix: Water

Date Received: 05/23/25 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			698162	05/30/25 08:33	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	698034	05/29/25 18:43	CAF	EET DEN
Total/NA	Analysis	7470A		1			698160	05/30/25 02:57	AES	EET DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	698247	05/30/25 23:53	IRC	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	697825	05/28/25 21:21	IRC	EET DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	697513	05/27/25 09:54	YBF	EET DEN

Client Sample ID: MW-37B-05202025

Lab Sample ID: 280-208132-4

Date Collected: 05/20/25 17:35

Matrix: Water

Date Received: 05/23/25 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6010D		1			697893	05/28/25 18:30	NKC	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			697879	05/28/25 22:36	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			698105	05/29/25 19:39	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			698162	05/30/25 08:35	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	698034	05/29/25 18:43	CAF	EET DEN
Total/NA	Analysis	7470A		1			698160	05/30/25 02:59	AES	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	697825	05/29/25 02:16	IRC	EET DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	697825	05/29/25 02:30	IRC	EET DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	697513	05/27/25 09:54	YBF	EET DEN

Client Sample ID: DUP-05212025

Lab Sample ID: 280-208132-5

Date Collected: 05/21/25 00:00

Matrix: Water

Date Received: 05/23/25 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6010D		1			697893	05/28/25 18:35	NKC	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			697879	05/28/25 22:39	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			698105	05/29/25 19:42	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			698162	05/30/25 08:37	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	698034	05/29/25 18:43	CAF	EET DEN
Total/NA	Analysis	7470A		1			698160	05/30/25 03:00	AES	EET DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	698247	05/31/25 01:06	IRC	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	697825	05/28/25 21:35	IRC	EET DEN

Eurofins Denver

Lab Chronicle

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

Client Sample ID: DUP-05212025

Lab Sample ID: 280-208132-5

Date Collected: 05/21/25 00:00

Matrix: Water

Date Received: 05/23/25 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	697513	05/27/25 09:54	YBF	EET DEN

Client Sample ID: MW-53BR-05212025

Lab Sample ID: 280-208132-6

Date Collected: 05/21/25 08:00

Matrix: Water

Date Received: 05/23/25 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6010D		1			697893	05/28/25 18:39	NKC	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			697879	05/28/25 22:41	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			698105	05/29/25 19:44	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			698162	05/30/25 08:40	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	698034	05/29/25 18:43	CAF	EET DEN
Total/NA	Analysis	7470A		1			698160	05/30/25 03:04	AES	EET DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	698247	05/31/25 00:51	IRC	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	697825	05/28/25 21:49	IRC	EET DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	697513	05/27/25 09:54	YBF	EET DEN

Client Sample ID: MW-38B-05212025

Lab Sample ID: 280-208132-7

Date Collected: 05/21/25 09:05

Matrix: Water

Date Received: 05/23/25 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6010D		1			697893	05/28/25 18:43	NKC	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			697879	05/28/25 22:48	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			698105	05/29/25 19:51	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	698034	05/29/25 18:43	CAF	EET DEN
Total/NA	Analysis	7470A		1			698160	05/30/25 03:06	AES	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	697825	05/29/25 07:48	IRC	EET DEN
Total/NA	Analysis	9056A		50	10 mL	10 mL	697825	05/29/25 08:45	IRC	EET DEN
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	697513	05/27/25 09:54	YBF	EET DEN

Client Sample ID: MW-49B-05212025

Lab Sample ID: 280-208132-8

Date Collected: 05/21/25 10:10

Matrix: Water

Date Received: 05/23/25 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6010D		1			697893	05/28/25 19:19	NKC	EET DEN

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Lab Chronicle

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

Client Sample ID: MW-49B-05212025

Lab Sample ID: 280-208132-8

Date Collected: 05/21/25 10:10

Matrix: Water

Date Received: 05/23/25 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			697879	05/28/25 23:00	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			698105	05/29/25 20:03	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	698034	05/29/25 18:43	CAF	EET DEN
Total/NA	Analysis	7470A		1			698160	05/30/25 03:13	AES	EET DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	698247	05/31/25 00:22	IRC	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	697825	05/28/25 22:03	IRC	EET DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	697513	05/27/25 09:54	YBF	EET DEN

Client Sample ID: MW-40B-05212025

Lab Sample ID: 280-208132-9

Date Collected: 05/21/25 11:30

Matrix: Water

Date Received: 05/23/25 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6010D		1			697893	05/28/25 19:24	NKC	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			697879	05/28/25 23:02	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			698105	05/29/25 20:05	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	698034	05/29/25 18:43	CAF	EET DEN
Total/NA	Analysis	7470A		1			698160	05/30/25 03:14	AES	EET DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	698247	05/30/25 22:26	IRC	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	697825	05/28/25 22:17	IRC	EET DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	697513	05/27/25 09:54	YBF	EET DEN

Client Sample ID: MW-20B-05212025

Lab Sample ID: 280-208132-10

Date Collected: 05/21/25 12:20

Matrix: Water

Date Received: 05/23/25 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6010D		1			697893	05/28/25 19:28	NKC	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			697879	05/28/25 23:05	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			698105	05/29/25 20:08	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	698034	05/29/25 18:43	CAF	EET DEN
Total/NA	Analysis	7470A		1			698160	05/30/25 03:15	AES	EET DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	698247	05/30/25 22:12	IRC	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	697825	05/28/25 22:31	IRC	EET DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	697513	05/27/25 09:54	YBF	EET DEN

Eurofins Denver

Lab Chronicle

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

Client Sample ID: MW-14BR-05212025

Lab Sample ID: 280-208132-11

Date Collected: 05/21/25 13:10

Matrix: Water

Date Received: 05/23/25 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6010D		1			697893	05/28/25 19:32	NKC	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			697879	05/28/25 23:12	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			698105	05/29/25 20:15	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	698034	05/29/25 18:43	CAF	EET DEN
Total/NA	Analysis	7470A		1			698160	05/30/25 03:17	AES	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	697825	05/29/25 01:20	IRC	EET DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	697825	05/29/25 01:34	IRC	EET DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	697513	05/27/25 09:54	YBF	EET DEN

Client Sample ID: MW-38C-05212025

Lab Sample ID: 280-208132-12

Date Collected: 05/21/25 13:55

Matrix: Water

Date Received: 05/23/25 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6010D		1			697893	05/28/25 19:37	NKC	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			697879	05/28/25 23:14	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			698105	05/29/25 20:17	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	698034	05/29/25 18:43	CAF	EET DEN
Total/NA	Analysis	7470A		1			698160	05/30/25 03:21	AES	EET DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	698247	05/30/25 23:24	IRC	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	697825	05/28/25 22:45	IRC	EET DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	697689	05/28/25 09:45	YBF	EET DEN

Client Sample ID: MW-21B-05212025

Lab Sample ID: 280-208132-13

Date Collected: 05/21/25 14:40

Matrix: Water

Date Received: 05/23/25 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6010D		1			697893	05/28/25 19:41	NKC	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6010D		5			698193	05/30/25 01:24	NKC	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			697879	05/28/25 23:16	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			698105	05/29/25 20:19	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	698034	05/29/25 18:43	CAF	EET DEN
Total/NA	Analysis	7470A		1			698160	05/30/25 03:22	AES	EET DEN

Eurofins Denver

Lab Chronicle

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

Client Sample ID: MW-21B-05212025

Lab Sample ID: 280-208132-13

Date Collected: 05/21/25 14:40

Matrix: Water

Date Received: 05/23/25 09:20

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	10 mL	10 mL	697825	05/29/25 03:40	IRC	EET DEN
Total/NA	Analysis	9056A		10	10 mL	10 mL	697825	05/29/25 03:55	IRC	EET DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	697689	05/28/25 09:45	YBF	EET DEN

Client Sample ID: MW-52B-05212025

Lab Sample ID: 280-208132-14

Date Collected: 05/21/25 17:00

Matrix: Water

Date Received: 05/23/25 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6010D		1			697893	05/28/25 19:45	NKC	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			697879	05/28/25 23:19	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			698105	05/29/25 20:22	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	698034	05/29/25 18:43	CAF	EET DEN
Total/NA	Analysis	7470A		1			698160	05/30/25 03:24	AES	EET DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	698247	05/31/25 00:08	IRC	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	697825	05/28/25 22:59	IRC	EET DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	697689	05/28/25 09:45	YBF	EET DEN

Client Sample ID: MW-44B-05222025

Lab Sample ID: 280-208132-15

Date Collected: 05/22/25 07:30

Matrix: Water

Date Received: 05/23/25 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6010D		1			697893	05/28/25 20:03	NKC	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			697879	05/28/25 23:21	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			698105	05/29/25 20:24	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	698034	05/29/25 18:43	CAF	EET DEN
Total/NA	Analysis	7470A		1			698160	05/30/25 03:25	AES	EET DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	698247	05/31/25 00:37	IRC	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	697825	05/28/25 23:42	IRC	EET DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	697689	05/28/25 09:45	YBF	EET DEN

Lab Chronicle

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

Client Sample ID: MW-45B-05222025

Lab Sample ID: 280-208132-16

Date Collected: 05/22/25 08:10

Matrix: Water

Date Received: 05/23/25 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6010D		1			697893	05/28/25 20:07	NKC	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			697879	05/28/25 23:23	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			698105	05/29/25 20:26	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	698034	05/29/25 18:43	CAF	EET DEN
Total/NA	Analysis	7470A		1			698160	05/30/25 03:26	AES	EET DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	698247	05/30/25 21:28	IRC	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	697825	05/29/25 00:38	IRC	EET DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	697689	05/28/25 09:45	YBF	EET DEN

Client Sample ID: MW-46B-05222025

Lab Sample ID: 280-208132-17

Date Collected: 05/22/25 09:00

Matrix: Water

Date Received: 05/23/25 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6010D		1			697893	05/28/25 20:11	NKC	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			697879	05/28/25 23:26	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			698105	05/29/25 20:29	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	698034	05/29/25 18:43	CAF	EET DEN
Total/NA	Analysis	7470A		1			698160	05/30/25 03:28	AES	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	697825	05/29/25 00:52	IRC	EET DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	697689	05/28/25 09:45	YBF	EET DEN

Client Sample ID: MW-47B-05222025

Lab Sample ID: 280-208132-18

Date Collected: 05/22/25 09:40

Matrix: Water

Date Received: 05/23/25 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6010D		1			697893	05/28/25 20:15	NKC	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			697879	05/28/25 23:28	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			698105	05/29/25 20:31	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	698034	05/29/25 18:43	CAF	EET DEN
Total/NA	Analysis	7470A		1			698160	05/30/25 03:29	AES	EET DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	698247	05/31/25 01:49	IRC	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	697825	05/29/25 01:06	IRC	EET DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	697689	05/28/25 09:45	YBF	EET DEN

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Lab Chronicle

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

Client Sample ID: MW-43B-05222025

Lab Sample ID: 280-208132-19

Date Collected: 05/22/25 10:25

Matrix: Water

Date Received: 05/23/25 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6010D		1			697893	05/28/25 20:20	NKC	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			697879	05/28/25 23:30	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			698105	05/29/25 20:33	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	698034	05/29/25 18:43	CAF	EET DEN
Total/NA	Analysis	7470A		1			698160	05/30/25 03:31	AES	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	697825	05/29/25 01:48	IRC	EET DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	697825	05/29/25 02:02	IRC	EET DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	697689	05/28/25 09:45	YBF	EET DEN

Client Sample ID: MW-42B-05222025

Lab Sample ID: 280-208132-20

Date Collected: 05/22/25 11:00

Matrix: Water

Date Received: 05/23/25 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6010D		1			697893	05/28/25 20:24	NKC	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			697879	05/28/25 23:33	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697528	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			698105	05/29/25 20:36	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	698034	05/29/25 18:43	CAF	EET DEN
Total/NA	Analysis	7470A		1			698160	05/30/25 03:32	AES	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	697825	05/29/25 03:12	IRC	EET DEN
Total/NA	Analysis	9056A		10	10 mL	10 mL	697825	05/29/25 03:26	IRC	EET DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	697689	05/28/25 09:45	YBF	EET DEN

Client Sample ID: MW-41B-05222025

Lab Sample ID: 280-208132-21

Date Collected: 05/22/25 11:40

Matrix: Water

Date Received: 05/23/25 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	697535	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6010D		1			697883	05/28/25 18:45	ADL	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697535	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			697879	05/28/25 23:45	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697535	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			698105	05/29/25 20:48	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	698033	05/29/25 18:43	CAF	EET DEN
Total/NA	Analysis	7470A		1			698160	05/30/25 02:51	AES	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	697825	05/29/25 05:19	IRC	EET DEN
Total/NA	Analysis	9056A		10	10 mL	10 mL	697825	05/29/25 05:33	IRC	EET DEN

Eurofins Denver

Lab Chronicle

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

Client Sample ID: MW-41B-05222025
Date Collected: 05/22/25 11:40
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208132-21
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	697689	05/28/25 09:45	YBF	EET DEN

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

Accreditation/Certification Summary

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208132-2

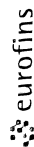
Laboratory: Eurofins Denver

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

Authority	Program	Identification Number	Expiration Date
Oregon	NELAP	4025	01-08-26

1
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13
14

Chain of Custody Record



Environment Testing

Client Information		Sampler	Lab PM	Carrier Tracking No(s)	SGC No
Ms. Katie Abbott		Olivia Helinski	McEntee, Patrick J		280-133855-37095.1
Company		360-333-4002	E-Mail	State of Origin	Page 1 of 2
AECOM Technical Services Inc.			Patrick.McEntee@et.eurofins.com	WY	Job #
Address		Analysis Requested			
6200 S. Quebec Street		Due Date Requested:			
City		TAT Requested (days):			
Greenwood Village		STANDARD			
State, Zip		Compliance Project: ☐ Yes ☐ No			
CO, 80111		PO #			
Phone		AECOM Project# 60632474			
616-574-8327(Tel)		Project #			
Email		28020759			
katie.abbott@aecom.com		SSOW#			
Project Name					
Basin 2025 Support					
Site		Boskin Electric, Bosamine River Station			
Sample Identification		Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=water/oil, B=to-tissue, A=air)
		5/20/25	1505	G	W
MW-39B - 05202025		5/20/25	1600	G	W
MW-32B - 05202025		5/20/25	1646	G	W
MW-36B - 05202025		5/20/25	1735	G	W
MW-37B - 05202025		5/21/25	0800	G	W
DUP - 05212025		5/21/25	0905	G	W
MW-38B - 05212025		5/21/25	1010	G	W
MW-49B - 05212025		5/21/25	1130	G	W
MW-40B - 05212025		5/21/25	1220	G	W
MW-20B - 05212025		5/21/25	1310	G	W
MW-14B - 05212025		5/21/25	1310	G	W
Possible Hazard Identification		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)			
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological		☐ Return To Client ☐ Disposal By Lab ☐ Archive For Months			
Deliverable Requested: I, II, III, IV, Other (specify)		Special Instructions/QC Requirements:			
Empty Kit Relinquished by:		Method of Shipment			
Relinquished by		Date/Time	Received by		
Relinquished by		5/22/25 1700	AECOM		
Relinquished by		Date/Time	Company		
Relinquished by		Date/Time	Company		
Custody Seals Intact: ☐ Yes ☐ No		Cooler Temperature(s) °C and Other Remarks:			
		-0.1, 0.2, 0.4, 0.9, 0.9, 1.6, 2.8, 4.0 (F.O.D)			

Eurofins Denver

4955 Yarrow Street
Arvada, CO 80002

Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record



Environment Testing

Client Information		Sampler Olivia Melinski	Lab PM McEntee, Patrick J	Carrier Tracking No(s)	COC No 280-133855-37095.1									
Client Contact Ms. Katie Abbott		Phone 360-333-9002	E-Mail Patrick McEntee@eurofins.com	State of Origin WY	Page Page 1 of 2									
Company AECOM Technical Services Inc.		PWSID	Job #											
Address 6200 S Quebec Street		Analysis Requested												
City Greenwood Village		Due Date Requested:												
State, Zip CO, 80111		TAT Requested (days): STANDARD												
Phone 616-574-8327(Tel)		Compliance Project: ☐ Yes ☐ No												
Email katie.abbott@aecom.com		PO #												
Project Name Basin 2025 Support		AECOM Project# 60632474												
Site Basin Electric, Laramie River Station		28020759												
		SSOW#												
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=wastewater, L=leachate, A=air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	915 Ra226 - Ra226	930 Ra228 - Ra228	Ra226Ra228 - Combined Ra226 Ra228	9056A, 280 - Chloride, Fluoride, Sulfate	6010D, 6020B, 7470A - App III and IV Total Metals	2540C - Solids, Total Dissolved (TDS)	Total Number of Containers	Special Instructions/Note:
MW-38C-05212025	5/21/25	1355	G	W	N	N	X	X	X	X	X	X	5	
MW-21B-05212025	5/21/25	1440	G	W	N	N	X	X	X	X	X	X	5	
MW-52B-05212025	5/21/25	1700	G	W	N	N	X	X	X	X	X	X	5	
MW-44B-05222025	5/22/25	0730	G	W	N	N	X	X	X	X	X	X	5	
MW-45B-05222025	5/22/25	0810	G	W	N	N	X	X	X	X	X	X	5	
MW-46B-05222025	5/22/25	0900	G	W	N	N	X	X	X	X	X	X	5	
MW-47B-05222025	5/22/25	0940	G	W	N	N	X	X	X	X	X	X	5	
MW-43B-05222025	5/22/25	1025	G	W	N	N	X	X	X	X	X	X	5	
MW-42B-05222025	5/22/25	1100	G	W	N	N	X	X	X	X	X	X	5	
MW-41B-05222025	5/22/25	1140	G	W	N	N	X	X	X	X	X	X	5	
Possible Hazard Identification ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological														
Deliverable Requested: I, II, III, IV, Other (specify)														
Empty Kit Relinquished by:														
Relinquished by: <i>Olivia Melinski</i> Date: 5/22/25 1700 Company: AECOM														
Relinquished by: Date/Time Company														
Relinquished by: Date/Time Company														
Custody Seals Intact: ☐ Yes ☐ No Custody Seal No.:														
Cooler Temperature(s) °C and Other Remarks														



280-208132 Waybill

Part # 156297-435 HROB2 EXP 10/25

ORIGIN ID: FTCA (360) 333-9002
O: VIVIA HELINSKI
REC'D
SHIP DATE: 22MAY25
ACTWGT: 83.95 LB
CAD: 6996907/SSFE2600
DIMS: 24x13x13 IN
BILL THIRD PARTY

1601 PROSPECT PKWY
FORT COLLINS, CO 80525
UNITED STATES US

TO EUROFINS DENVER

4955 YARROW ST

ARVADA CO 80002

(303) 738-0100
REF: 8

DEPT: 1

FedEx
Express

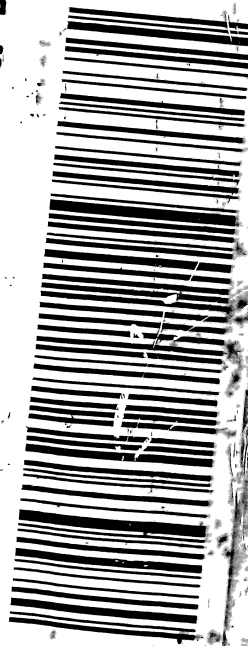


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5 of 6
MP# 2889 6769 7270
Mstr# 8184 6313 1490

72 LAAA

80002
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Environment Testing
TestAmerica

2742716

SIGNATURE

DATE

Custody Seal

5/2

Part # 156297-435 HROB2 EXP 10/25

ORIGIN ID: FTCA (360) 333-9002
O: VIVIA HELINSKI
REC'D

SHIP DATE: 22MAY25
ACTWGT: 65.35 LB
CAD: 6996907/SSFE2600
DIMS: 24x13x13 IN
BILL THIRD PARTY

1601 PROSPECT PKWY

FORT COLLINS, CO 80525
UNITED STATES US

EUROFINS DENVER

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1 of 6
TRK# 8184 6313 1490
MASTER

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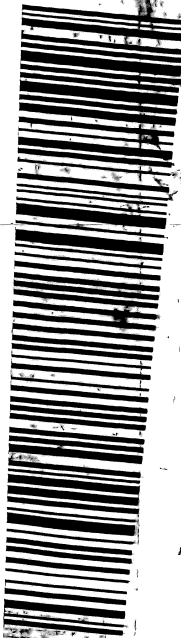
Environment Testing
TestAmerica

2742714

SIGNATURE

DATE

Custody Seal



Login Sample Receipt Checklist

Client: AECOM Technical Services Inc.

Job Number: 280-208132-2

Login Number: 208132

List Source: Eurofins Denver

List Number: 1

Creator: Roehsner, Karen P

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

This receipt checklist is generated for all samples received in this Login. It may not be applicable to all Jobs associated with this Login.

Eurofins Denver

ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katie Abbott
AECOM Technical Services Inc.
6200 S. Quebec Street
Greenwood Village, Colorado 80111

Generated 6/23/2025 3:14:54 PM

JOB DESCRIPTION

Basin 2025 Support

JOB NUMBER

280-208134-1

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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6/23/2025 3:14:54 PM

Authorized for release by
Patrick McEntee, Client Service Manager
Patrick.McEntee@et.eurofinsus.com
(303)736-0107

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Definitions/Glossary

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208134-1

Qualifiers

Rad

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

Glossary

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

Case Narrative

Client: AECOM Technical Services Inc.
Project: Basin 2025 Support

Job ID: 280-208134-1

Job ID: 280-208134-1

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Job Narrative 280-208134-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt

The samples were received on 5/23/2025 9:20 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 6 coolers at receipt time were 0.1°C, 0.4°C, 0.6°C, 1.1°C, 1.1°C and 1.8°C.

Receipt Exceptions

The results for radiochemistry requested on the COC are reported under 280-208134-1.

Method 9315 - Radium-226 (GFPC)

Samples RW-2-05212025 (280-208134-1) and RW-1-05212025 (280-208134-2) were analyzed for Radium-226 (GFPC). The samples were prepared on 5/30/2025 and analyzed on 6/23/2025.

Method 9320 - Radium-228 (GFPC)

Samples RW-2-05212025 (280-208134-1) and RW-1-05212025 (280-208134-2) were analyzed for Radium-228 (GFPC). The samples were prepared on 5/30/2025 and analyzed on 6/22/2025.

Method Ra226_Ra228 - Combined Radium-226 and Radium-228

Samples RW-2-05212025 (280-208134-1) and RW-1-05212025 (280-208134-2) were analyzed for Combined Radium-226 and Radium-228. The samples were analyzed on 6/23/2025.

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Detection Summary

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208134-1

Client Sample ID: RW-2-05212025

Lab Sample ID: 280-208134-1

☐ No Detections.

Client Sample ID: RW-1-05212025

Lab Sample ID: 280-208134-2

☐ No Detections.

This Detection Summary does not include radiochemical test results.

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Method Summary

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208134-1

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: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208134-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-208134-1	RW-2-05212025	Water	05/21/25 13:10	05/23/25 09:20
280-208134-2	RW-1-05212025	Water	05/21/25 17:45	05/23/25 09:20

- 1
- 2
- 3
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- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

Client Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208134-1

Method: SW846 9315 - Radium-226 (GFPC)

Client Sample ID: RW-2-05212025
Date Collected: 05/21/25 13:10
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208134-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.214	U	0.176	0.177	1.00	0.257	pCi/L	05/30/25 07:54	06/23/25 07:21	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.8		30 - 110					05/30/25 07:54	06/23/25 07:21	1

Client Sample ID: RW-1-05212025
Date Collected: 05/21/25 17:45
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208134-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.116	U	0.144	0.144	1.00	0.237	pCi/L	05/30/25 07:54	06/23/25 07:21	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.3		30 - 110					05/30/25 07:54	06/23/25 07:21	1

Method: SW846 9320 - Radium-228 (GFPC)

Client Sample ID: RW-2-05212025
Date Collected: 05/21/25 13:10
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208134-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.249	U	0.373	0.374	1.00	0.631	pCi/L	05/30/25 07:58	06/22/25 10:51	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.8		30 - 110					05/30/25 07:58	06/22/25 10:51	1
Y Carrier	75.5		30 - 110					05/30/25 07:58	06/22/25 10:51	1

Client Sample ID: RW-1-05212025
Date Collected: 05/21/25 17:45
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208134-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.279	U	0.411	0.412	1.00	0.693	pCi/L	05/30/25 07:58	06/22/25 10:51	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.3		30 - 110					05/30/25 07:58	06/22/25 10:51	1
Y Carrier	73.6		30 - 110					05/30/25 07:58	06/22/25 10:51	1

Client Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208134-1

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

Client Sample ID: RW-2-05212025
Date Collected: 05/21/25 13:10
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208134-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.463	U	0.412	0.414	5.00	0.631	pCi/L		06/23/25 15:47	1

Client Sample ID: RW-1-05212025
Date Collected: 05/21/25 17:45
Date Received: 05/23/25 09:20

Lab Sample ID: 280-208134-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.394	U	0.435	0.436	5.00	0.693	pCi/L		06/23/25 15:47	1

QC Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208134-1

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-720084/1-A

Matrix: Water

Analysis Batch: 723862

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 720084

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.008783	U	0.122	0.122	1.00	0.258	pCi/L	05/30/25 07:54	06/23/25 07:21	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.3		30 - 110					05/30/25 07:54	06/23/25 07:21	1

Lab Sample ID: LCS 160-720084/2-A

Matrix: Water

Analysis Batch: 723862

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 720084

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226		9.58	9.086		1.16	1.00	0.242	pCi/L	95	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits							
Ba Carrier	88.8		30 - 110							

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-720089/1-A

Matrix: Water

Analysis Batch: 723691

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 720089

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.3916	U	0.329	0.331	1.00	0.511	pCi/L	05/30/25 07:58	06/22/25 10:49	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.3		30 - 110					05/30/25 07:58	06/22/25 10:49	1
Y Carrier	78.5		30 - 110					05/30/25 07:58	06/22/25 10:49	1

Lab Sample ID: LCS 160-720089/2-A

Matrix: Water

Analysis Batch: 723691

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 720089

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-228		9.33	11.36		1.53	1.00	0.639	pCi/L	122	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits							
Ba Carrier	88.8		30 - 110							
Y Carrier	75.9		30 - 110							

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QC Association Summary

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208134-1

Rad

Prep Batch: 720084

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-208134-1	RW-2-05212025	Total/NA	Water	PrecSep-21	
280-208134-2	RW-1-05212025	Total/NA	Water	PrecSep-21	
MB 160-720084/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-720084/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 720089

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-208134-1	RW-2-05212025	Total/NA	Water	PrecSep_0	
280-208134-2	RW-1-05212025	Total/NA	Water	PrecSep_0	
MB 160-720089/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-720089/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208134-1

Client Sample ID: RW-2-05212025

Lab Sample ID: 280-208134-1

Date Collected: 05/21/25 13:10

Matrix: Water

Date Received: 05/23/25 09:20

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			993.59 mL	1.0 g	720084	05/30/25 07:54	OGC	EET SL
Total/NA	Analysis	9315		1			723862	06/23/25 07:21	SWS	EET SL
Total/NA	Prep	PrecSep_0			993.59 mL	1.0 g	720089	05/30/25 07:58	OGC	EET SL
Total/NA	Analysis	9320		1			723691	06/22/25 10:51	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			723909	06/23/25 15:47	FLC	EET SL

Client Sample ID: RW-1-05212025

Lab Sample ID: 280-208134-2

Date Collected: 05/21/25 17:45

Matrix: Water

Date Received: 05/23/25 09:20

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			1002.29 mL	1.0 g	720084	05/30/25 07:54	OGC	EET SL
Total/NA	Analysis	9315		1			723862	06/23/25 07:21	SWS	EET SL
Total/NA	Prep	PrecSep_0			1002.29 mL	1.0 g	720089	05/30/25 07:58	OGC	EET SL
Total/NA	Analysis	9320		1			723691	06/22/25 10:51	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			723909	06/23/25 15:47	FLC	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: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208134-1

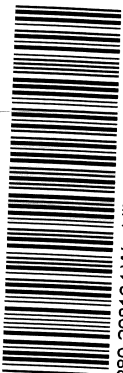
Laboratory: Eurofins St. Louis

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	05-06-27
ANAB	Dept. of Defense ELAP	L2305	04-06-27
ANAB	Dept. of Energy	L2305.01	04-06-27
ANAB	ISO/IEC 17025	L2305	04-06-27
Arizona	State	AZ0813	12-08-25
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-25
Connecticut	State	PH-0241	03-31-27
Florida	NELAP	E87689	06-30-25
HI - RadChem Recognition	State	n/a	06-30-25
Illinois	NELAP	200023	11-30-25
Iowa	State	373	12-01-26
Kansas	NELAP	E-10236	10-31-25
Kentucky (DW)	State	KY90125	12-31-25
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-25
Louisiana (All)	NELAP	106151	06-30-25
Louisiana (DW)	State	LA011	12-31-25
Maryland	State	310	09-30-25
Massachusetts	State	M-MO054	06-30-25
MI - RadChem Recognition	State	9005	06-30-25
Missouri	State	780	06-30-25
Nevada	State	MO00054	07-31-25
New Jersey	NELAP	MO002	06-30-25
New Mexico	State	MO00054	06-30-25
New York	NELAP	11616	03-31-26
North Carolina (DW)	State	29700	08-02-25
North Dakota	State	R-207	06-30-25
Oklahoma	NELAP	9997	08-31-25
Oregon	NELAP	4157	09-01-25
Pennsylvania	NELAP	68-00540	02-28-26
South Carolina	State	85002	06-30-25
Texas	NELAP	T104704193	07-31-25
US Fish & Wildlife	US Federal Programs	058448	07-31-25
USDA	US Federal Programs	525-23-138-94730	05-18-26
Utah	NELAP	MO00054	07-31-25
Virginia	NELAP	460230	06-14-26
Washington	State	C592	08-30-25
West Virginia DEP	State	381	10-31-25

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

Eurofins Denver



280-208134 Waybill

ORIGIN ID: FTCA (360) 333-9002
 VIA HELINSKI
 RECOM

SHIP DATE: 22MAY25
 ACTWGT: 65.35 LB
 CAD: 6996907/SSFE2600
 DIMS: 24x13x13 IN
 BILL THIRD PARTY

1601 PROSPECT PKWY
 FORT COLLINS, CO 80525
 UNITED STATES US

EUROFINS DENVER

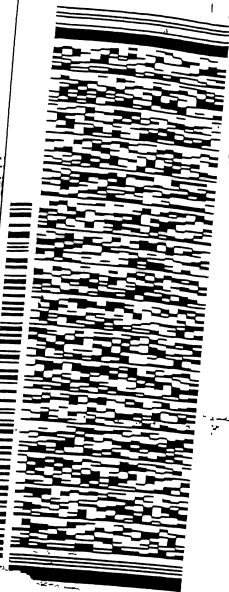
4955 YARROW ST

ARVADA CO 80002

(303) 738-0100
 REF: 201

DEPT:

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 Express



1 of 6

TRK# 8184 6313 1490
 0200
 ## MASTER #

FRI - 23 MAY 10:30A
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SIGNATURE

Environment Testing
 TestAmerica

DATE

2742714

Custody Seal



Part # 156297-435 FROM 2nd EXP 10/25

ORIGIN ID: FTCA (360) 333-9002
 VIA HELINSKI
 RECOM

SHIP DATE: 22MAY25
 ACTWGT: 63.55 LB
 CAD: 6996907/SSFE2600
 DIMS: 24x13x13 IN

BILL THIRD PARTY

1601 PROSPECT PKWY
 FORT COLLINS, CO 80525
 UNITED STATES US

TO EUROFINS DENVER

4955 YARROW ST

ARVADA CO 80002

(303) 738-0100
 REF: 201

DEPT:

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 Express



5 of 6

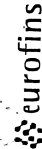
MP# 2889 6769 7270
 0681
 Metr# 8184 6313 1490

72 LAAA

FRI - 23 MAY 10:30A
 PRIORITY OVERNIGHT

0200

80002
 CO - US DEN



SIGNATURE

Environment Testing
 TestAmerica

DATE

2742716

Custody Seal

5/2

Login Sample Receipt Checklist

Client: AECOM Technical Services Inc.

Job Number: 280-208134-1

Login Number: 208134

List Source: Eurofins Denver

List Number: 1

Creator: Roehsner, Karen P

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

This receipt checklist is generated for all samples received in this Login. It may not be applicable to all Jobs associated with this Login.

Eurofins Denver

Login Sample Receipt Checklist

Client: AECOM Technical Services Inc.

Job Number: 280-208134-1

Login Number: 208134

List Number: 2

Creator: Forrest, Cheyenne L

List Source: Eurofins St. Louis

List Creation: 05/28/25 12:25 PM

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

This receipt checklist is generated for all samples received in this Login. It may not be applicable to all Jobs associated with this Login.

Eurofins Denver

Tracer/Carrier Summary

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208134-1

Method: 9315 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (30-110)	
280-208134-1	RW-2-05212025	85.8	
280-208134-2	RW-1-05212025	90.3	
LCS 160-720084/2-A	Lab Control Sample	88.8	
MB 160-720084/1-A	Method Blank	91.3	
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)
280-208134-1	RW-2-05212025	85.8	75.5
280-208134-2	RW-1-05212025	90.3	73.6
LCS 160-720089/2-A	Lab Control Sample	88.8	75.9
MB 160-720089/1-A	Method Blank	91.3	78.5
Tracer/Carrier Legend			
Ba = Ba Carrier			
Y = Y Carrier			

ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katie Abbott
AECOM Technical Services Inc.
6200 S. Quebec Street
Greenwood Village, Colorado 80111

Generated 6/3/2025 1:46:42 PM

JOB DESCRIPTION

Basin 2025 Support

JOB NUMBER

280-208134-2

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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6/3/2025 1:46:42 PM

Authorized for release by
Patrick McEntee, Client Service Manager
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(303)736-0107

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Definitions/Glossary

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208134-2

Qualifiers

General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Case Narrative

Client: AECOM Technical Services Inc.
Project: Basin 2025 Support

Job ID: 280-208134-2

Job ID: 280-208134-2

Eurofins Denver

Job Narrative 280-208134-2

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt

The samples were received on 5/23/2025 9:20 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 6 coolers at receipt time were 0.1°C, 0.4°C, 0.6°C, 1.1°C, 1.1°C and 1.8°C.

Receipt Exceptions

The results for radiochemistry requested on the COC are reported under 280-208134-1.

Method 6010D - Metals (ICP)

Samples RW-2-05212025 (280-208134-1) and RW-1-05212025 (280-208134-2) were analyzed for Metals (ICP). The samples were prepared on 5/29/2025 and analyzed on 5/30/2025.

Method 6020B - Metals (ICP/MS)

Samples RW-2-05212025 (280-208134-1) and RW-1-05212025 (280-208134-2) were analyzed for Metals (ICP/MS). The samples were prepared on 5/27/2025 and analyzed on 5/28/2025 and 6/2/2025.

Method 7470A - Mercury (CVAA)

Samples RW-2-05212025 (280-208134-1) and RW-1-05212025 (280-208134-2) were analyzed for Mercury (CVAA). The samples were prepared on 5/27/2025 and 5/29/2025 and analyzed on 5/28/2025, 5/30/2025 and 6/2/2025.

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

Samples RW-2-05212025 (280-208134-1) and RW-1-05212025 (280-208134-2) were analyzed for Solids, Total Dissolved (TDS). The samples were analyzed on 5/28/2025.

Method 9056A - Anions, Ion Chromatography

Samples RW-2-05212025 (280-208134-1) and RW-1-05212025 (280-208134-2) were analyzed for Anions, Ion Chromatography. The samples were analyzed on 5/30/2025, 5/31/2025 and 6/1/2025.

Samples RW-2-05212025 (280-208134-1)[5x] and RW-1-05212025 (280-208134-2)[5x] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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Detection Summary

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208134-2

Client Sample ID: RW-2-05212025

Lab Sample ID: 280-208134-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	99.5		50.0		ug/L	1		6010D	Total/NA
Calcium	163000		200		ug/L	1		6010D	Total/NA
Lithium	39.6		20.0		ug/L	1		6010D	Total/NA
Arsenic	2.28		2.00		ug/L	1		6020B	Total/NA
Barium	62.6		2.00		ug/L	1		6020B	Total/NA
Molybdenum	10.6		2.00		ug/L	1		6020B	Total/NA
Selenium	13.0		2.00		ug/L	1		6020B	Total/NA
Chloride	81.4		3.00		mg/L	1		9056A	Total/NA
Fluoride	0.578		0.500		mg/L	1		9056A	Total/NA
Sulfate	434		15.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1050		20.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: RW-1-05212025

Lab Sample ID: 280-208134-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	151		50.0		ug/L	1		6010D	Total/NA
Calcium	315000		200		ug/L	1		6010D	Total/NA
Lithium	51.3		20.0		ug/L	1		6010D	Total/NA
Arsenic	3.08		2.00		ug/L	1		6020B	Total/NA
Barium	97.2		2.00		ug/L	1		6020B	Total/NA
Chromium	13.2		3.00		ug/L	1		6020B	Total/NA
Molybdenum	27.9		2.00		ug/L	1		6020B	Total/NA
Selenium	29.1		2.00		ug/L	1		6020B	Total/NA
Chloride	265		15.0		mg/L	5		9056A	Total/NA
Sulfate	889		15.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	2000		20.0		mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

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Method Summary

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208134-2

Method	Method Description	Protocol	Laboratory
6010D	Metals (ICP)	SW846	EET DEN
6020B	Metals (ICP/MS)	SW846	EET DEN
7470A	Mercury (CVAA)	SW846	EET DEN
9056A	Anions, Ion Chromatography	SW846	EET DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET DEN
3005A	Preparation, Total 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: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208134-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-208134-1	RW-2-05212025	Water	05/21/25 13:10	05/23/25 09:20
280-208134-2	RW-1-05212025	Water	05/21/25 17:45	05/23/25 09:20

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

Client Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208134-2

Method: SW846 6010D - Metals (ICP)

Client Sample ID: RW-2-05212025

Date Collected: 05/21/25 13:10

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208134-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	99.5		50.0		ug/L		05/29/25 15:04	05/30/25 19:15	1
Calcium	163000		200		ug/L		05/29/25 15:04	05/30/25 19:15	1
Lithium	39.6		20.0		ug/L		05/29/25 15:04	05/30/25 19:15	1

Client Sample ID: RW-1-05212025

Date Collected: 05/21/25 17:45

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208134-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	151		50.0		ug/L		05/29/25 15:04	05/30/25 19:19	1
Calcium	315000		200		ug/L		05/29/25 15:04	05/30/25 19:19	1
Lithium	51.3		20.0		ug/L		05/29/25 15:04	05/30/25 19:19	1

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

Client Sample ID: RW-2-05212025

Date Collected: 05/21/25 13:10

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208134-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.28		2.00		ug/L		05/27/25 15:04	06/02/25 20:54	1
Barium	62.6		2.00		ug/L		05/27/25 15:04	05/28/25 22:06	1
Beryllium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:06	1
Cadmium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:06	1
Cobalt	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:06	1
Chromium	ND		3.00		ug/L		05/27/25 15:04	06/02/25 20:54	1
Molybdenum	10.6		2.00		ug/L		05/27/25 15:04	05/28/25 22:06	1
Lead	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:06	1
Antimony	ND		2.00		ug/L		05/27/25 15:04	05/28/25 22:06	1
Selenium	13.0		2.00		ug/L		05/27/25 15:04	05/28/25 22:06	1
Thallium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:06	1

Client Sample ID: RW-1-05212025

Date Collected: 05/21/25 17:45

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208134-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	3.08		2.00		ug/L		05/27/25 15:04	06/02/25 21:01	1
Barium	97.2		2.00		ug/L		05/27/25 15:04	05/28/25 22:18	1
Beryllium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:18	1
Cadmium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:18	1
Cobalt	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:18	1
Chromium	13.2		3.00		ug/L		05/27/25 15:04	06/02/25 21:01	1
Molybdenum	27.9		2.00		ug/L		05/27/25 15:04	05/28/25 22:18	1
Lead	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:18	1
Antimony	ND		2.00		ug/L		05/27/25 15:04	05/28/25 22:18	1
Selenium	29.1		2.00		ug/L		05/27/25 15:04	05/28/25 22:18	1
Thallium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 22:18	1

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Client Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208134-2

Method: SW846 7470A - Mercury (CVAA)

Client Sample ID: RW-2-05212025

Date Collected: 05/21/25 13:10

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208134-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		05/29/25 18:43	05/30/25 02:48	1

Client Sample ID: RW-1-05212025

Date Collected: 05/21/25 17:45

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208134-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		05/29/25 18:43	05/30/25 02:49	1

General Chemistry

Client Sample ID: RW-2-05212025

Date Collected: 05/21/25 13:10

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208134-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	81.4		3.00		mg/L			05/30/25 19:34	1
Fluoride (SW846 9056A)	0.578		0.500		mg/L			05/30/25 19:34	1
Sulfate (SW846 9056A)	434		15.0		mg/L			06/01/25 04:49	5
Total Dissolved Solids (TDS) (SM 2540C)	1050		20.0		mg/L			05/28/25 09:45	1

Client Sample ID: RW-1-05212025

Date Collected: 05/21/25 17:45

Date Received: 05/23/25 09:20

Lab Sample ID: 280-208134-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	265		15.0		mg/L			05/31/25 01:39	5
Fluoride (SW846 9056A)	ND		0.500		mg/L			05/31/25 00:57	1
Sulfate (SW846 9056A)	889		15.0		mg/L			05/31/25 01:39	5
Total Dissolved Solids (TDS) (SM 2540C)	2000		20.0		mg/L			05/28/25 09:45	1

QC Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208134-2

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 280-697928/1-A
Matrix: Water
Analysis Batch: 698413

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 697928

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		50.0		ug/L		05/29/25 15:04	05/30/25 19:06	1
Calcium	ND		200		ug/L		05/29/25 15:04	05/30/25 19:06	1
Lithium	ND		20.0		ug/L		05/29/25 15:04	05/30/25 19:06	1

Lab Sample ID: LCS 280-697928/2-A
Matrix: Water
Analysis Batch: 698413

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 697928

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2000	1971		ug/L		99	85 - 115
Calcium	50000	48320		ug/L		97	85 - 115
Lithium	1000	964.3		ug/L		96	85 - 115

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-697518/1-A
Matrix: Water
Analysis Batch: 697879

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 697518

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND		2.00		ug/L		05/27/25 15:04	05/28/25 21:10	1
Beryllium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 21:10	1
Cadmium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 21:10	1
Cobalt	ND		1.00		ug/L		05/27/25 15:04	05/28/25 21:10	1
Molybdenum	ND		2.00		ug/L		05/27/25 15:04	05/28/25 21:10	1
Lead	ND		1.00		ug/L		05/27/25 15:04	05/28/25 21:10	1
Antimony	ND		2.00		ug/L		05/27/25 15:04	05/28/25 21:10	1
Selenium	ND		2.00		ug/L		05/27/25 15:04	05/28/25 21:10	1
Thallium	ND		1.00		ug/L		05/27/25 15:04	05/28/25 21:10	1

Lab Sample ID: MB 280-697518/1-A
Matrix: Water
Analysis Batch: 698543

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 697518

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		2.00		ug/L		05/27/25 15:04	06/02/25 19:56	1
Chromium	ND		3.00		ug/L		05/27/25 15:04	06/02/25 19:56	1

Lab Sample ID: LCS 280-697518/25-A
Matrix: Water
Analysis Batch: 697879

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 697518

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Barium	40.0	41.98		ug/L		105	85 - 115
Beryllium	40.0	41.67		ug/L		104	85 - 115
Cadmium	40.0	41.94		ug/L		105	85 - 115
Cobalt	40.0	42.46		ug/L		106	85 - 115
Molybdenum	40.0	41.82		ug/L		105	85 - 115
Lead	40.0	40.21		ug/L		101	85 - 115
Antimony	40.0	41.80		ug/L		104	85 - 115

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QC Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208134-2

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

Lab Sample ID: LCS 280-697518/25-A
Matrix: Water
Analysis Batch: 697879

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 697518

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Selenium	40.0	42.09		ug/L		105	85 - 115
Thallium	40.0	40.57		ug/L		101	85 - 115

Lab Sample ID: LCS 280-697518/25-A
Matrix: Water
Analysis Batch: 698543

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 697518

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	40.0	40.92		ug/L		102	85 - 115
Chromium	40.0	39.58		ug/L		99	85 - 115

Lab Sample ID: 280-208134-1 MS
Matrix: Water
Analysis Batch: 697879

Client Sample ID: RW-2-05212025
Prep Type: Total/NA
Prep Batch: 697518

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Barium	62.6		40.0	97.34		ug/L		87	75 - 125
Beryllium	ND		40.0	38.27		ug/L		96	75 - 125
Cadmium	ND		40.0	37.82		ug/L		95	75 - 125
Cobalt	ND		40.0	37.17		ug/L		93	75 - 125
Molybdenum	10.6		40.0	48.70		ug/L		95	75 - 125
Lead	ND		40.0	38.18		ug/L		95	75 - 125
Antimony	ND		40.0	38.29		ug/L		96	75 - 125
Selenium	13.0		40.0	51.51		ug/L		96	75 - 125
Thallium	ND		40.0	38.56		ug/L		96	75 - 125

Lab Sample ID: 280-208134-1 MS
Matrix: Water
Analysis Batch: 698543

Client Sample ID: RW-2-05212025
Prep Type: Total/NA
Prep Batch: 697518

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	2.28		40.0	39.83		ug/L		94	75 - 125
Chromium	ND		40.0	37.85		ug/L		95	75 - 125

Lab Sample ID: 280-208134-1 MSD
Matrix: Water
Analysis Batch: 697879

Client Sample ID: RW-2-05212025
Prep Type: Total/NA
Prep Batch: 697518

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Barium	62.6		40.0	102.4		ug/L		100	75 - 125	5	20
Beryllium	ND		40.0	40.60		ug/L		101	75 - 125	6	20
Cadmium	ND		40.0	39.78		ug/L		99	75 - 125	5	20
Cobalt	ND		40.0	37.93		ug/L		95	75 - 125	2	20
Molybdenum	10.6		40.0	50.01		ug/L		99	75 - 125	3	20
Lead	ND		40.0	38.41		ug/L		96	75 - 125	1	20
Antimony	ND		40.0	39.92		ug/L		100	75 - 125	4	20
Selenium	13.0		40.0	53.19		ug/L		100	75 - 125	3	20
Thallium	ND		40.0	38.62		ug/L		97	75 - 125	0	20

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QC Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208134-2

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

Lab Sample ID: 280-208134-1 MSD

Matrix: Water

Analysis Batch: 698543

Client Sample ID: RW-2-05212025

Prep Type: Total/NA

Prep Batch: 697518

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	2.28		40.0	39.39		ug/L		93	75 - 125	1	20
Chromium	ND		40.0	37.50		ug/L		94	75 - 125	1	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-698033/1-A

Matrix: Water

Analysis Batch: 698160

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 698033

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		05/29/25 18:43	05/30/25 02:05	1

Lab Sample ID: LCS 280-698033/2-A

Matrix: Water

Analysis Batch: 698160

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 698033

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.004493		mg/L		90	85 - 115

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-698243/45

Matrix: Water

Analysis Batch: 698243

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00		mg/L			05/31/25 03:46	1
Sulfate	ND		3.00		mg/L			05/31/25 03:46	1

Lab Sample ID: MB 280-698243/6

Matrix: Water

Analysis Batch: 698243

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00		mg/L			05/30/25 18:23	1
Fluoride	ND		0.500		mg/L			05/30/25 18:23	1

Lab Sample ID: LCS 280-698243/4

Matrix: Water

Analysis Batch: 698243

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	97.68		mg/L		98	90 - 110
Fluoride	5.00	4.763		mg/L		95	90 - 110

Eurofins Denver

QC Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208134-2

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

Lab Sample ID: LCS 280-698243/49

Matrix: Water

Analysis Batch: 698243

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	98.23		mg/L		98	90 - 110
Sulfate	100	98.54		mg/L		99	90 - 110

Lab Sample ID: LCSD 280-698243/44

Matrix: Water

Analysis Batch: 698243

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	98.14		mg/L		98	90 - 110	0	10
Sulfate	100	98.47		mg/L		98	90 - 110	0	10

Lab Sample ID: LCSD 280-698243/5

Matrix: Water

Analysis Batch: 698243

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	97.84		mg/L		98	90 - 110	0	10
Fluoride	5.00	4.765		mg/L		95	90 - 110	0	10

Lab Sample ID: MRL 280-698243/3

Matrix: Water

Analysis Batch: 698243

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	3.00	2.901	J	mg/L		97	50 - 150
Fluoride	0.500	0.3973	J	mg/L		79	50 - 150
Sulfate	3.00	2.821	J	mg/L		94	50 - 150

Lab Sample ID: MB 280-698348/39

Matrix: Water

Analysis Batch: 698348

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		3.00		mg/L			06/01/25 03:08	1

Lab Sample ID: LCS 280-698348/37

Matrix: Water

Analysis Batch: 698348

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	100	102.4		mg/L		102	90 - 110

Lab Sample ID: LCSD 280-698348/38

Matrix: Water

Analysis Batch: 698348

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	100	102.2		mg/L		102	90 - 110	0	10

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QC Sample Results

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208134-2

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

Lab Sample ID: MRL 280-698348/3
Matrix: Water
Analysis Batch: 698348

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	3.00	2.565	J	mg/L		86	50 - 150

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

Lab Sample ID: MB 280-697689/1
Matrix: Water
Analysis Batch: 697689

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		10.0		mg/L			05/28/25 09:45	1

Lab Sample ID: LCS 280-697689/2
Matrix: Water
Analysis Batch: 697689

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	506.0		mg/L		101	88 - 114

QC Association Summary

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208134-2

Metals

Prep Batch: 697518

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-208134-1	RW-2-05212025	Total/NA	Water	3005A	
280-208134-2	RW-1-05212025	Total/NA	Water	3005A	
MB 280-697518/1-A	Method Blank	Total/NA	Water	3005A	
LCS 280-697518/25-A	Lab Control Sample	Total/NA	Water	3005A	
280-208134-1 MS	RW-2-05212025	Total/NA	Water	3005A	
280-208134-1 MSD	RW-2-05212025	Total/NA	Water	3005A	

Analysis Batch: 697879

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-208134-1	RW-2-05212025	Total/NA	Water	6020B	697518
280-208134-2	RW-1-05212025	Total/NA	Water	6020B	697518
MB 280-697518/1-A	Method Blank	Total/NA	Water	6020B	697518
LCS 280-697518/25-A	Lab Control Sample	Total/NA	Water	6020B	697518
280-208134-1 MS	RW-2-05212025	Total/NA	Water	6020B	697518
280-208134-1 MSD	RW-2-05212025	Total/NA	Water	6020B	697518

Prep Batch: 697928

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-208134-1	RW-2-05212025	Total/NA	Water	3005A	
280-208134-2	RW-1-05212025	Total/NA	Water	3005A	
MB 280-697928/1-A	Method Blank	Total/NA	Water	3005A	
LCS 280-697928/2-A	Lab Control Sample	Total/NA	Water	3005A	

Prep Batch: 698033

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-208134-1	RW-2-05212025	Total/NA	Water	7470A	
280-208134-2	RW-1-05212025	Total/NA	Water	7470A	
MB 280-698033/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-698033/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 698160

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-208134-1	RW-2-05212025	Total/NA	Water	7470A	698033
280-208134-2	RW-1-05212025	Total/NA	Water	7470A	698033
MB 280-698033/1-A	Method Blank	Total/NA	Water	7470A	698033
LCS 280-698033/2-A	Lab Control Sample	Total/NA	Water	7470A	698033

Analysis Batch: 698413

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-208134-1	RW-2-05212025	Total/NA	Water	6010D	697928
280-208134-2	RW-1-05212025	Total/NA	Water	6010D	697928
MB 280-697928/1-A	Method Blank	Total/NA	Water	6010D	697928
LCS 280-697928/2-A	Lab Control Sample	Total/NA	Water	6010D	697928

Analysis Batch: 698543

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-208134-1	RW-2-05212025	Total/NA	Water	6020B	697518
280-208134-2	RW-1-05212025	Total/NA	Water	6020B	697518
MB 280-697518/1-A	Method Blank	Total/NA	Water	6020B	697518
LCS 280-697518/25-A	Lab Control Sample	Total/NA	Water	6020B	697518
280-208134-1 MS	RW-2-05212025	Total/NA	Water	6020B	697518

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QC Association Summary

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208134-2

Metals (Continued)

Analysis Batch: 698543 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-208134-1 MSD	RW-2-05212025	Total/NA	Water	6020B	697518

General Chemistry

Analysis Batch: 697689

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-208134-1	RW-2-05212025	Total/NA	Water	SM 2540C	
280-208134-2	RW-1-05212025	Total/NA	Water	SM 2540C	
MB 280-697689/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-697689/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 698243

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-208134-1	RW-2-05212025	Total/NA	Water	9056A	
280-208134-2	RW-1-05212025	Total/NA	Water	9056A	
280-208134-2	RW-1-05212025	Total/NA	Water	9056A	
MB 280-698243/45	Method Blank	Total/NA	Water	9056A	
MB 280-698243/6	Method Blank	Total/NA	Water	9056A	
LCS 280-698243/4	Lab Control Sample	Total/NA	Water	9056A	
LCS 280-698243/49	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-698243/44	Lab Control Sample Dup	Total/NA	Water	9056A	
LCSD 280-698243/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-698243/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 698348

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-208134-1	RW-2-05212025	Total/NA	Water	9056A	
MB 280-698348/39	Method Blank	Total/NA	Water	9056A	
LCS 280-698348/37	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-698348/38	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-698348/3	Lab Control Sample	Total/NA	Water	9056A	

Lab Chronicle

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208134-2

Client Sample ID: RW-2-05212025

Lab Sample ID: 280-208134-1

Date Collected: 05/21/25 13:10

Matrix: Water

Date Received: 05/23/25 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	697928	05/29/25 15:04	SLH	EET DEN
Total/NA	Analysis	6010D		1			698413	05/30/25 19:15	NKC	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697518	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			697879	05/28/25 22:06	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697518	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			698543	06/02/25 20:54	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	698033	05/29/25 18:43	CAF	EET DEN
Total/NA	Analysis	7470A		1			698160	05/30/25 02:48	AES	EET DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	698348	06/01/25 04:49	IRC	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	698243	05/30/25 19:34	IRC	EET DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	697689	05/28/25 09:45	YBF	EET DEN

Client Sample ID: RW-1-05212025

Lab Sample ID: 280-208134-2

Date Collected: 05/21/25 17:45

Matrix: Water

Date Received: 05/23/25 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	697928	05/29/25 15:04	SLH	EET DEN
Total/NA	Analysis	6010D		1			698413	05/30/25 19:19	NKC	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697518	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			697879	05/28/25 22:18	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	697518	05/27/25 15:04	TR	EET DEN
Total/NA	Analysis	6020B		1			698543	06/02/25 21:01	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	698033	05/29/25 18:43	CAF	EET DEN
Total/NA	Analysis	7470A		1			698160	05/30/25 02:49	AES	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	698243	05/31/25 00:57	IRC	EET DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	698243	05/31/25 01:39	IRC	EET DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	697689	05/28/25 09:45	YBF	EET DEN

Laboratory References:

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

Accreditation/Certification Summary

Client: AECOM Technical Services Inc.
Project/Site: Basin 2025 Support

Job ID: 280-208134-2

Laboratory: Eurofins Denver

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

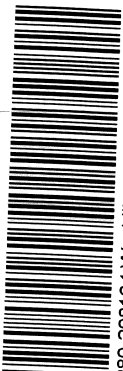
Authority	Program	Identification Number	Expiration Date
Oregon	NELAP	4025	01-08-26

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[illegible]

Ver: 01/16/2019

13



280-208134 Waybill

ORIGIN ID: FTCA (360) 333-9002
 VIA HELINSKI
 RECOM

SHIP DATE: 22MAY25
 ACTWGT: 65.35 LB
 CAD: 6996907/SSFE2600
 DIMS: 24x13x13 IN
 BILL THIRD PARTY

1601 PROSPECT PKWY
 FORT COLLINS, CO 80525
 UNITED STATES US

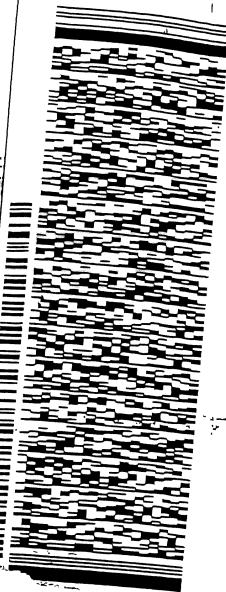
EUROFINS DENVER

4955 YARROW ST

ARVADA CO 80002
 (303) 738-0100
 REF: 201

DEPT:

FedEx
 Express



1 of 6

TRK# 8184 6313 1490
 0200
 ## MASTER #

FRI - 23 MAY 10:30A
 PRIORITY OVERNIGHT



SIGNATURE

Environment Testing
 TestAmerica

DATE

2742714

Custody Seal



Part # 156297-435 FROM 2nd EXP 10/25

ORIGIN ID: FTCA (360) 333-9002
 VIA HELINSKI
 RECOM

SHIP DATE: 22MAY25
 ACTWGT: 63.55 LB
 CAD: 6996907/SSFE2600
 DIMS: 24x13x13 IN
 BILL THIRD PARTY

1601 PROSPECT PKWY
 FORT COLLINS, CO 80525
 UNITED STATES US

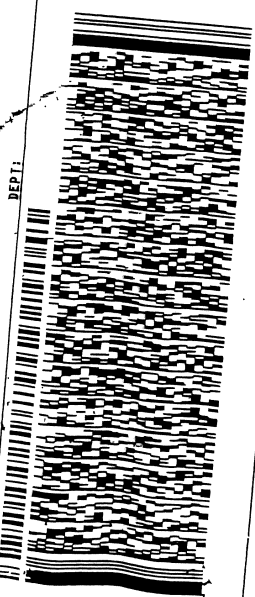
TO EUROFINS DENVER

4955 YARROW ST

ARVADA CO 80002
 (303) 738-0100
 REF: 201

DEPT:

FedEx
 Express



5 of 6

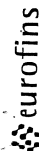
MP# 2889 6769 7270
 0681
 Metr# 8184 6313 1490

72 LAAA

FRI - 23 MAY 10:30A
 PRIORITY OVERNIGHT

0200

80002
 CO - US DEN



SIGNATURE

Environment Testing
 TestAmerica

DATE

2742716

Custody Seal

5/2

Login Sample Receipt Checklist

Client: AECOM Technical Services Inc.

Job Number: 280-208134-2

Login Number: 208134

List Source: Eurofins Denver

List Number: 1

Creator: Roehsner, Karen P

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

This receipt checklist is generated for all samples received in this Login. It may not be applicable to all Jobs associated with this Login.

Eurofins Denver



ANALYTICAL REPORT

PREPARED FOR

Attn: Jeremy Hurshman
AECOM
1601 Prospect Parkway
Fort Collins, Colorado 80525
Generated 10/10/2025 1:55:03 PM

JOB DESCRIPTION

Basin 2025 Support

JOB NUMBER

280-213352-1

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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10/10/2025 1:55:03 PM

Authorized for release by
Patrick McEntee, Client Service Manager
Patrick.McEntee@et.eurofinsus.com
(303)736-0107

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Definitions/Glossary

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-1

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

Case Narrative

Client: AECOM
Project: Basin 2025 Support

Job ID: 280-213352-1

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Job Narrative 280-213352-1

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

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

Receipt

The samples were received on 9/12/2025 9:55 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 5 coolers at receipt time were 1.1°C, 2.6°C, 3.4°C, 5.7°C and 18.9°C.

Receipt Exceptions

The cooler received out of temperature contained volume for radiochemistry analysis which does not require thermal preservation 280-213352-1, 280-213352-2, 280-213352-3, 280-213352-4, 280-213352-5, 280-213352-6, 280-213352-7, 280-213352-8, 280-213352-9, 280-213352-10, 280-213352-10[MS], 280-213352-10[MSD], 280-213352-11, 280-213352-12, 280-213352-13, 280-213352-14, 280-213352-15, 280-213352-16, 280-213352-17, 280-213352-18, 280-213352-19, 280-213352-20 and 280-213352-21

Method 9315 - Radium-226 (GFPC)

Samples MW-44B-09092025 (280-213352-1), MW-45B-09092025 (280-213352-2), MW-46B-09092025 (280-213352-3), MW-47B-09092025 (280-213352-4), MW-43B-09092025 (280-213352-5), MW-42B-09092025 (280-213352-6), MW-37B-09092025 (280-213352-7), MW-36B-09092025 (280-213352-8), MW-32B-09092025 (280-213352-9), MW-41B-09092025 (280-213352-10), MW-41B-09092025 (280-213352-10MS), MW-41B-09092025 (280-213352-10MSD), MW-38C-09102025 (280-213352-11), MW-21B-09102025 (280-213352-12), MW-14BR-09102025 (280-213352-13), MW-20B-09102025 (280-213352-14), MW-49B-09102025 (280-213352-15), MW-39B-09102025 (280-213352-16), MW-40B-09102025 (280-213352-17), MW-52B-09102025 (280-213352-18), MW-53BR-09102025 (280-213352-19), MW-38B-09102025 (280-213352-20) and DUP-09102025 (280-213352-21) were analyzed for Radium-226 (GFPC). The samples were prepared on 9/17/2025 and analyzed on 10/9/2025.

Method 9320 - Radium-228 (GFPC)

Samples MW-44B-09092025 (280-213352-1), MW-45B-09092025 (280-213352-2), MW-46B-09092025 (280-213352-3), MW-47B-09092025 (280-213352-4), MW-43B-09092025 (280-213352-5), MW-42B-09092025 (280-213352-6), MW-37B-09092025 (280-213352-7), MW-36B-09092025 (280-213352-8), MW-32B-09092025 (280-213352-9), MW-41B-09092025 (280-213352-10), MW-41B-09092025 (280-213352-10MS), MW-41B-09092025 (280-213352-10MSD), MW-38C-09102025 (280-213352-11), MW-21B-09102025 (280-213352-12), MW-14BR-09102025 (280-213352-13), MW-20B-09102025 (280-213352-14), MW-49B-09102025 (280-213352-15), MW-39B-09102025 (280-213352-16), MW-40B-09102025 (280-213352-17), MW-52B-09102025 (280-213352-18), MW-53BR-09102025 (280-213352-19), MW-38B-09102025 (280-213352-20) and DUP-09102025 (280-213352-21) were analyzed for Radium-228 (GFPC). The samples were prepared on 9/17/2025 and analyzed on 10/9/2025.

Radium 228 Batch 736376

The MDC for the following sample(s) is flagged as failing; The laboratory considers the detection goal (requested limit) met when rounding to the appropriate place value. 280-213352-20

Method Ra226_Ra228 - Combined Radium-226 and Radium-228

Samples MW-44B-09092025 (280-213352-1), MW-45B-09092025 (280-213352-2), MW-46B-09092025 (280-213352-3), MW-47B-09092025 (280-213352-4), MW-43B-09092025 (280-213352-5), MW-42B-09092025 (280-213352-6), MW-37B-09092025 (280-213352-7), MW-36B-09092025 (280-213352-8), MW-32B-09092025 (280-213352-9), MW-41B-09092025 (280-213352-10), MW-38C-09102025 (280-213352-11), MW-21B-09102025 (280-213352-12), MW-14BR-09102025 (280-213352-13),

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Case Narrative

Client: AECOM
Project: Basin 2025 Support

Job ID: 280-213352-1

Job ID: 280-213352-1 (Continued)

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MW-20B-09102025 (280-213352-14), MW-49B-09102025 (280-213352-15), MW-39B-09102025 (280-213352-16), MW-40B-09102025 (280-213352-17), MW-52B-09102025 (280-213352-18), MW-53BR-09102025 (280-213352-19), MW-38B-09102025 (280-213352-20) and DUP-09102025 (280-213352-21) were analyzed for Combined Radium-226 and Radium-228. The samples were analyzed on 10/10/2025.

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Detection Summary

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-1

Client Sample ID: MW-44B-09092025	Lab Sample ID: 280-213352-1
No Detections.	
Client Sample ID: MW-45B-09092025	Lab Sample ID: 280-213352-2
No Detections.	
Client Sample ID: MW-46B-09092025	Lab Sample ID: 280-213352-3
No Detections.	
Client Sample ID: MW-47B-09092025	Lab Sample ID: 280-213352-4
No Detections.	
Client Sample ID: MW-43B-09092025	Lab Sample ID: 280-213352-5
No Detections.	
Client Sample ID: MW-42B-09092025	Lab Sample ID: 280-213352-6
No Detections.	
Client Sample ID: MW-37B-09092025	Lab Sample ID: 280-213352-7
No Detections.	
Client Sample ID: MW-36B-09092025	Lab Sample ID: 280-213352-8
No Detections.	
Client Sample ID: MW-32B-09092025	Lab Sample ID: 280-213352-9
No Detections.	
Client Sample ID: MW-41B-09092025	Lab Sample ID: 280-213352-10
No Detections.	
Client Sample ID: MW-38C-09102025	Lab Sample ID: 280-213352-11
No Detections.	
Client Sample ID: MW-21B-09102025	Lab Sample ID: 280-213352-12
No Detections.	
Client Sample ID: MW-14BR-09102025	Lab Sample ID: 280-213352-13
No Detections.	
Client Sample ID: MW-20B-09102025	Lab Sample ID: 280-213352-14
No Detections.	
Client Sample ID: MW-49B-09102025	Lab Sample ID: 280-213352-15
No Detections.	
Client Sample ID: MW-39B-09102025	Lab Sample ID: 280-213352-16
No Detections.	

This Detection Summary does not include radiochemical test results.

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Detection Summary

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-1

Client Sample ID: MW-40B-09102025

Lab Sample ID: 280-213352-17

☐ No Detections.

Client Sample ID: MW-52B-09102025

Lab Sample ID: 280-213352-18

☐ No Detections.

Client Sample ID: MW-53BR-09102025

Lab Sample ID: 280-213352-19

☐ No Detections.

Client Sample ID: MW-38B-09102025

Lab Sample ID: 280-213352-20

☐ No Detections.

Client Sample ID: DUP-09102025

Lab Sample ID: 280-213352-21

☐ No Detections.

This Detection Summary does not include radiochemical test results.

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Method Summary

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-1

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: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Sample Origin
280-213352-1	MW-44B-09092025	Water	09/09/25 07:50	09/12/25 09:55	Colorado
280-213352-2	MW-45B-09092025	Water	09/09/25 08:30	09/12/25 09:55	Colorado
280-213352-3	MW-46B-09092025	Water	09/09/25 09:10	09/12/25 09:55	Colorado
280-213352-4	MW-47B-09092025	Water	09/09/25 09:55	09/12/25 09:55	Colorado
280-213352-5	MW-43B-09092025	Water	09/09/25 10:45	09/12/25 09:55	Colorado
280-213352-6	MW-42B-09092025	Water	09/09/25 11:30	09/12/25 09:55	Colorado
280-213352-7	MW-37B-09092025	Water	09/09/25 13:00	09/12/25 09:55	Colorado
280-213352-8	MW-36B-09092025	Water	09/09/25 13:45	09/12/25 09:55	Colorado
280-213352-9	MW-32B-09092025	Water	09/09/25 14:35	09/12/25 09:55	Colorado
280-213352-10	MW-41B-09092025	Water	09/09/25 16:25	09/12/25 09:55	Colorado
280-213352-11	MW-38C-09102025	Water	09/10/25 08:30	09/12/25 09:55	Colorado
280-213352-12	MW-21B-09102025	Water	09/10/25 09:20	09/12/25 09:55	Colorado
280-213352-13	MW-14BR-09102025	Water	09/10/25 10:30	09/12/25 09:55	Colorado
280-213352-14	MW-20B-09102025	Water	09/10/25 11:05	09/12/25 09:55	Colorado
280-213352-15	MW-49B-09102025	Water	09/10/25 12:40	09/12/25 09:55	Colorado
280-213352-16	MW-39B-09102025	Water	09/10/25 13:50	09/12/25 09:55	Colorado
280-213352-17	MW-40B-09102025	Water	09/10/25 14:30	09/12/25 09:55	Colorado
280-213352-18	MW-52B-09102025	Water	09/10/25 15:25	09/12/25 09:55	Colorado
280-213352-19	MW-53BR-09102025	Water	09/10/25 16:20	09/12/25 09:55	Colorado
280-213352-20	MW-38B-09102025	Water	09/10/25 17:20	09/12/25 09:55	Colorado
280-213352-21	DUP-09102025	Water	09/10/25 00:00	09/12/25 09:55	Colorado

Client Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-1

Method: SW846 9315 - Radium-226 (GFPC)

Client Sample ID: MW-44B-09092025
Date Collected: 09/09/25 07:50
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.221	U	0.222	0.223	1.00	0.348	pCi/L	09/17/25 07:59	10/09/25 17:42	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.4		30 - 110					09/17/25 07:59	10/09/25 17:42	1

Client Sample ID: MW-45B-09092025
Date Collected: 09/09/25 08:30
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.267	U	0.201	0.203	1.00	0.280	pCi/L	09/17/25 07:59	10/09/25 17:43	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.6		30 - 110					09/17/25 07:59	10/09/25 17:43	1

Client Sample ID: MW-46B-09092025
Date Collected: 09/09/25 09:10
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0516	U	0.169	0.170	1.00	0.327	pCi/L	09/17/25 07:59	10/09/25 17:43	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	77.8		30 - 110					09/17/25 07:59	10/09/25 17:43	1

Client Sample ID: MW-47B-09092025
Date Collected: 09/09/25 09:55
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.132	U	0.187	0.188	1.00	0.318	pCi/L	09/17/25 07:59	10/09/25 17:43	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	84.9		30 - 110					09/17/25 07:59	10/09/25 17:43	1

Client Sample ID: MW-43B-09092025
Date Collected: 09/09/25 10:45
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0229	U	0.159	0.159	1.00	0.326	pCi/L	09/17/25 07:59	10/09/25 17:43	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	74.9		30 - 110					09/17/25 07:59	10/09/25 17:43	1

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Client Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-1

Method: SW846 9315 - Radium-226 (GFPC)

Client Sample ID: MW-42B-09092025
Date Collected: 09/09/25 11:30
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0152	U	0.199	0.199	1.00	0.411	pCi/L	09/17/25 07:59	10/09/25 17:50	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	74.6		30 - 110					09/17/25 07:59	10/09/25 17:50	1

Client Sample ID: MW-37B-09092025
Date Collected: 09/09/25 13:00
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0972	U	0.153	0.153	1.00	0.363	pCi/L	09/17/25 07:59	10/09/25 17:50	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.1		30 - 110					09/17/25 07:59	10/09/25 17:50	1

Client Sample ID: MW-36B-09092025
Date Collected: 09/09/25 13:45
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.165	U	0.237	0.238	1.00	0.402	pCi/L	09/17/25 07:59	10/09/25 17:50	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.6		30 - 110					09/17/25 07:59	10/09/25 17:50	1

Client Sample ID: MW-32B-09092025
Date Collected: 09/09/25 14:35
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0734	U	0.169	0.169	1.00	0.378	pCi/L	09/17/25 07:59	10/09/25 17:50	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.6		30 - 110					09/17/25 07:59	10/09/25 17:50	1

Client Sample ID: MW-41B-09092025
Date Collected: 09/09/25 16:25
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-10
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0308	U	0.204	0.204	1.00	0.395	pCi/L	09/17/25 07:59	10/09/25 17:50	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	81.5		30 - 110					09/17/25 07:59	10/09/25 17:50	1

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Client Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-1

Method: SW846 9315 - Radium-226 (GFPC)

Client Sample ID: MW-38C-09102025
Date Collected: 09/10/25 08:30
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-11
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0933	U	0.256	0.257	1.00	0.471	pCi/L	09/17/25 08:07	10/09/25 14:33	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	74.4		30 - 110					09/17/25 08:07	10/09/25 14:33	1

Client Sample ID: MW-21B-09102025
Date Collected: 09/10/25 09:20
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-12
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.00472	U	0.172	0.172	1.00	0.351	pCi/L	09/17/25 08:07	10/09/25 14:34	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.5		30 - 110					09/17/25 08:07	10/09/25 14:34	1

Client Sample ID: MW-14BR-09102025
Date Collected: 09/10/25 10:30
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-13
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.311	U	0.283	0.285	1.00	0.434	pCi/L	09/17/25 08:07	10/09/25 14:34	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	71.7		30 - 110					09/17/25 08:07	10/09/25 14:34	1

Client Sample ID: MW-20B-09102025
Date Collected: 09/10/25 11:05
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-14
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0260	U	0.173	0.173	1.00	0.366	pCi/L	09/17/25 08:07	10/09/25 14:34	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.0		30 - 110					09/17/25 08:07	10/09/25 14:34	1

Client Sample ID: MW-49B-09102025
Date Collected: 09/10/25 12:40
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-15
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.258	U	0.232	0.233	1.00	0.349	pCi/L	09/17/25 08:07	10/09/25 14:34	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	80.2		30 - 110					09/17/25 08:07	10/09/25 14:34	1

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Client Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-1

Method: SW846 9315 - Radium-226 (GFPC)

Client Sample ID: MW-39B-09102025

Date Collected: 09/10/25 13:50

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-16

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.221	U	0.305	0.305	1.00	0.513	pCi/L	09/17/25 08:07	10/09/25 14:34	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.9		30 - 110					09/17/25 08:07	10/09/25 14:34	1

Client Sample ID: MW-40B-09102025

Date Collected: 09/10/25 14:30

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-17

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.296	U	0.243	0.244	1.00	0.360	pCi/L	09/17/25 08:07	10/09/25 14:34	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.3		30 - 110					09/17/25 08:07	10/09/25 14:34	1

Client Sample ID: MW-52B-09102025

Date Collected: 09/10/25 15:25

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-18

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.144	U	0.257	0.258	1.00	0.452	pCi/L	09/17/25 08:07	10/09/25 14:34	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	81.0		30 - 110					09/17/25 08:07	10/09/25 14:34	1

Client Sample ID: MW-53BR-09102025

Date Collected: 09/10/25 16:20

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-19

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.229	U	0.242	0.243	1.00	0.385	pCi/L	09/17/25 08:07	10/09/25 14:34	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	81.0		30 - 110					09/17/25 08:07	10/09/25 14:34	1

Client Sample ID: MW-38B-09102025

Date Collected: 09/10/25 17:20

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-20

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.181	U	0.333	0.333	1.00	0.588	pCi/L	09/17/25 08:07	10/09/25 14:34	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	52.7		30 - 110					09/17/25 08:07	10/09/25 14:34	1

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Client Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-1

Method: SW846 9315 - Radium-226 (GFPC)

Client Sample ID: DUP-09102025
Date Collected: 09/10/25 00:00
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-21
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.177	U	0.297	0.297	1.00	0.512	pCi/L	09/17/25 08:07	10/09/25 14:34	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.4		30 - 110					09/17/25 08:07	10/09/25 14:34	1

Method: SW846 9320 - Radium-228 (GFPC)

Client Sample ID: MW-44B-09092025
Date Collected: 09/09/25 07:50
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.714		0.429	0.434	1.00	0.625	pCi/L	09/17/25 08:06	10/09/25 09:45	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.4		30 - 110					09/17/25 08:06	10/09/25 09:45	1
Y Carrier	76.3		30 - 110					09/17/25 08:06	10/09/25 09:45	1

Client Sample ID: MW-45B-09092025
Date Collected: 09/09/25 08:30
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.329	U	0.366	0.367	1.00	0.598	pCi/L	09/17/25 08:06	10/09/25 09:45	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.6		30 - 110					09/17/25 08:06	10/09/25 09:45	1
Y Carrier	80.7		30 - 110					09/17/25 08:06	10/09/25 09:45	1

Client Sample ID: MW-46B-09092025
Date Collected: 09/09/25 09:10
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.911		0.489	0.496	1.00	0.698	pCi/L	09/17/25 08:06	10/09/25 09:45	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	77.8		30 - 110					09/17/25 08:06	10/09/25 09:45	1
Y Carrier	76.6		30 - 110					09/17/25 08:06	10/09/25 09:45	1

Client Sample ID: MW-47B-09092025
Date Collected: 09/09/25 09:55
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.03		0.459	0.468	1.00	0.616	pCi/L	09/17/25 08:06	10/09/25 09:47	1

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Client Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-1

Method: SW846 9320 - Radium-228 (GFPC)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	84.9		30 - 110	09/17/25 08:06	10/09/25 09:47	1
Y Carrier	77.4		30 - 110	09/17/25 08:06	10/09/25 09:47	1

Client Sample ID: MW-43B-09092025
Date Collected: 09/09/25 10:45
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-5
Matrix: Water

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.805		0.384	0.392	1.00	0.499	pCi/L	09/17/25 08:06	10/09/25 09:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	74.9		30 - 110					09/17/25 08:06	10/09/25 09:47	1
Y Carrier	84.9		30 - 110					09/17/25 08:06	10/09/25 09:47	1

Client Sample ID: MW-42B-09092025
Date Collected: 09/09/25 11:30
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-6
Matrix: Water

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.520	U	0.405	0.408	1.00	0.620	pCi/L	09/17/25 08:06	10/09/25 09:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	74.6		30 - 110					09/17/25 08:06	10/09/25 09:47	1
Y Carrier	79.6		30 - 110					09/17/25 08:06	10/09/25 09:47	1

Client Sample ID: MW-37B-09092025
Date Collected: 09/09/25 13:00
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-7
Matrix: Water

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0568	U	0.279	0.279	1.00	0.542	pCi/L	09/17/25 08:06	10/09/25 09:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.1		30 - 110					09/17/25 08:06	10/09/25 09:47	1
Y Carrier	81.9		30 - 110					09/17/25 08:06	10/09/25 09:47	1

Client Sample ID: MW-36B-09092025
Date Collected: 09/09/25 13:45
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.983		0.429	0.439	1.00	0.566	pCi/L	09/17/25 08:06	10/09/25 09:47	1
Carrier	%Yield	Qualifier						Prepared	Analyzed	Dil Fac
Ba Carrier	86.6		30 - 110					09/17/25 08:06	10/09/25 09:47	1
Y Carrier	78.9		30 - 110					09/17/25 08:06	10/09/25 09:47	1

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Client Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-1

Method: SW846 9320 - Radium-228 (GFPC)

Client Sample ID: MW-32B-09092025
Date Collected: 09/09/25 14:35
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.904		0.414	0.422	1.00	0.553	pCi/L	09/17/25 08:06	10/09/25 09:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.6		30 - 110					09/17/25 08:06	10/09/25 09:47	1
Y Carrier	80.7		30 - 110					09/17/25 08:06	10/09/25 09:47	1

Client Sample ID: MW-41B-09092025
Date Collected: 09/09/25 16:25
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-10
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.289	U	0.361	0.362	1.00	0.598	pCi/L	09/17/25 08:06	10/09/25 09:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	81.5		30 - 110					09/17/25 08:06	10/09/25 09:47	1
Y Carrier	79.3		30 - 110					09/17/25 08:06	10/09/25 09:47	1

Client Sample ID: MW-38C-09102025
Date Collected: 09/10/25 08:30
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-11
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.456	U	0.418	0.420	1.00	0.662	pCi/L	09/17/25 08:16	10/09/25 11:46	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	74.4		30 - 110					09/17/25 08:16	10/09/25 11:46	1
Y Carrier	79.3		30 - 110					09/17/25 08:16	10/09/25 11:46	1

Client Sample ID: MW-21B-09102025
Date Collected: 09/10/25 09:20
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-12
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.254	U	0.339	0.340	1.00	0.567	pCi/L	09/17/25 08:16	10/09/25 11:46	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.5		30 - 110					09/17/25 08:16	10/09/25 11:46	1
Y Carrier	77.8		30 - 110					09/17/25 08:16	10/09/25 11:46	1

Client Sample ID: MW-14BR-09102025
Date Collected: 09/10/25 10:30
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-13
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.398	U	0.471	0.473	1.00	0.777	pCi/L	09/17/25 08:16	10/09/25 11:47	1

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Client Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-1

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	71.7		30 - 110	09/17/25 08:16	10/09/25 11:47	1
Y Carrier	71.8		30 - 110	09/17/25 08:16	10/09/25 11:47	1

Client Sample ID: MW-20B-09102025
Date Collected: 09/10/25 11:05
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-14
Matrix: Water

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.217	U	0.304	0.305	1.00	0.512	pCi/L	09/17/25 08:16	10/09/25 11:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.0		30 - 110					09/17/25 08:16	10/09/25 11:47	1
Y Carrier	80.4		30 - 110					09/17/25 08:16	10/09/25 11:47	1

Client Sample ID: MW-49B-09102025
Date Collected: 09/10/25 12:40
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-15
Matrix: Water

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0999	U	0.307	0.307	1.00	0.614	pCi/L	09/17/25 08:16	10/09/25 11:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	80.2		30 - 110					09/17/25 08:16	10/09/25 11:47	1
Y Carrier	72.5		30 - 110					09/17/25 08:16	10/09/25 11:47	1

Client Sample ID: MW-39B-09102025
Date Collected: 09/10/25 13:50
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-16
Matrix: Water

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.447	U	0.406	0.408	1.00	0.643	pCi/L	09/17/25 08:16	10/09/25 11:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.9		30 - 110					09/17/25 08:16	10/09/25 11:47	1
Y Carrier	71.4		30 - 110					09/17/25 08:16	10/09/25 11:47	1

Client Sample ID: MW-40B-09102025
Date Collected: 09/10/25 14:30
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-17
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.23		0.507	0.519	1.00	0.684	pCi/L	09/17/25 08:16	10/09/25 11:47	1
Carrier	%Yield	Qualifier						Prepared	Analyzed	Dil Fac
Ba Carrier	86.3		Limits					09/17/25 08:16	10/09/25 11:47	1
Y Carrier	78.1		30 - 110					09/17/25 08:16	10/09/25 11:47	1

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Client Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-1

Method: SW846 9320 - Radium-228 (GFPC)

Client Sample ID: MW-52B-09102025

Date Collected: 09/10/25 15:25

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-18

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.278	U	0.344	0.345	1.00	0.714	pCi/L	09/17/25 08:16	10/09/25 11:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	81.0		30 - 110					09/17/25 08:16	10/09/25 11:47	1
Y Carrier	72.5		30 - 110					09/17/25 08:16	10/09/25 11:47	1

Client Sample ID: MW-53BR-09102025

Date Collected: 09/10/25 16:20

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-19

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.839		0.483	0.489	1.00	0.706	pCi/L	09/17/25 08:16	10/09/25 11:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	81.0		30 - 110					09/17/25 08:16	10/09/25 11:47	1
Y Carrier	75.5		30 - 110					09/17/25 08:16	10/09/25 11:47	1

Client Sample ID: MW-38B-09102025

Date Collected: 09/10/25 17:20

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-20

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.16	G	0.713	0.721	1.00	1.04	pCi/L	09/17/25 08:16	10/09/25 11:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	52.7		30 - 110					09/17/25 08:16	10/09/25 11:47	1
Y Carrier	71.8		30 - 110					09/17/25 08:16	10/09/25 11:47	1

Client Sample ID: DUP-09102025

Date Collected: 09/10/25 00:00

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-21

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0885	U	0.403	0.403	1.00	0.720	pCi/L	09/17/25 08:16	10/09/25 11:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.4		30 - 110					09/17/25 08:16	10/09/25 11:47	1
Y Carrier	78.9		30 - 110					09/17/25 08:16	10/09/25 11:47	1

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Client Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-1

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

Client Sample ID: MW-44B-09092025
Date Collected: 09/09/25 07:50
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.935		0.483	0.488	5.00	0.625	pCi/L		10/10/25 12:54	1

Client Sample ID: MW-45B-09092025
Date Collected: 09/09/25 08:30
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.596	U	0.418	0.419	5.00	0.598	pCi/L		10/10/25 12:54	1

Client Sample ID: MW-46B-09092025
Date Collected: 09/09/25 09:10
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.963		0.517	0.524	5.00	0.698	pCi/L		10/10/25 12:54	1

Client Sample ID: MW-47B-09092025
Date Collected: 09/09/25 09:55
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.16		0.496	0.504	5.00	0.616	pCi/L		10/10/25 12:54	1

Client Sample ID: MW-43B-09092025
Date Collected: 09/09/25 10:45
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.828		0.416	0.423	5.00	0.499	pCi/L		10/10/25 12:54	1

Client Sample ID: MW-42B-09092025
Date Collected: 09/09/25 11:30
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.505	U	0.451	0.454	5.00	0.620	pCi/L		10/10/25 12:54	1

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Client Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-1

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

Client Sample ID: MW-37B-09092025
Date Collected: 09/09/25 13:00
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.154	U	0.318	0.318	5.00	0.542	pCi/L		10/10/25 12:54	1

Client Sample ID: MW-36B-09092025
Date Collected: 09/09/25 13:45
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.15		0.490	0.499	5.00	0.566	pCi/L		10/10/25 12:54	1

Client Sample ID: MW-32B-09092025
Date Collected: 09/09/25 14:35
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.831		0.447	0.455	5.00	0.553	pCi/L		10/10/25 12:54	1

Client Sample ID: MW-41B-09092025
Date Collected: 09/09/25 16:25
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-10
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.319	U	0.415	0.416	5.00	0.598	pCi/L		10/10/25 12:54	1

Client Sample ID: MW-38C-09102025
Date Collected: 09/10/25 08:30
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-11
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.549	U	0.490	0.492	5.00	0.662	pCi/L		10/10/25 14:22	1

Client Sample ID: MW-21B-09102025
Date Collected: 09/10/25 09:20
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-12
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.258	U	0.380	0.381	5.00	0.567	pCi/L		10/10/25 14:22	1

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Client Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-1

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

Client Sample ID: MW-14BR-09102025
Date Collected: 09/10/25 10:30
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-13
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.709	U	0.549	0.552	5.00	0.777	pCi/L		10/10/25 14:22	1

Client Sample ID: MW-20B-09102025
Date Collected: 09/10/25 11:05
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-14
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.191	U	0.350	0.351	5.00	0.512	pCi/L		10/10/25 14:22	1

Client Sample ID: MW-49B-09102025
Date Collected: 09/10/25 12:40
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-15
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.158	U	0.385	0.385	5.00	0.614	pCi/L		10/10/25 14:22	1

Client Sample ID: MW-39B-09102025
Date Collected: 09/10/25 13:50
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-16
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.668		0.508	0.509	5.00	0.643	pCi/L		10/10/25 14:22	1

Client Sample ID: MW-40B-09102025
Date Collected: 09/10/25 14:30
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-17
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.52		0.562	0.573	5.00	0.684	pCi/L		10/10/25 14:22	1

Client Sample ID: MW-52B-09102025
Date Collected: 09/10/25 15:25
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-18
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.134	U	0.429	0.431	5.00	0.714	pCi/L		10/10/25 14:22	1

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Client Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-1

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

Client Sample ID: MW-53BR-09102025
Date Collected: 09/10/25 16:20
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-19
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.07		0.540	0.546	5.00	0.706	pCi/L		10/10/25 14:22	1

Client Sample ID: MW-38B-09102025
Date Collected: 09/10/25 17:20
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-20
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.34		0.787	0.794	5.00	1.04	pCi/L		10/10/25 14:22	1

Client Sample ID: DUP-09102025
Date Collected: 09/10/25 00:00
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-21
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.266	U	0.501	0.501	5.00	0.720	pCi/L		10/10/25 14:22	1

QC Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-1

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-736373/1-A

Matrix: Water

Analysis Batch: 739914

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 736373

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.1389	U	0.175	0.176	1.00	0.289	pCi/L	09/17/25 07:59	10/09/25 14:35	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.0		30 - 110					09/17/25 07:59	10/09/25 14:35	1

Lab Sample ID: LCS 160-736373/2-A

Matrix: Water

Analysis Batch: 739914

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 736373

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226			9.57	10.38		1.43	1.00	0.363	pCi/L	108	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits								
Ba Carrier	73.9		30 - 110								

Lab Sample ID: 280-213352-10 MS

Matrix: Water

Analysis Batch: 739915

Client Sample ID: MW-41B-09092025

Prep Type: Total/NA

Prep Batch: 736373

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226	0.0308	U	9.51	7.261		1.11	1.00	0.471	pCi/L	76	60 - 140
Carrier	MS %Yield	MS Qualifier	Limits								
Ba Carrier	73.9		30 - 110								

Lab Sample ID: 280-213352-10 MSD

Matrix: Water

Analysis Batch: 739915

Client Sample ID: MW-41B-09092025

Prep Type: Total/NA

Prep Batch: 736373

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-226	0.0308	U	9.69	9.497		1.27	1.00	0.336	pCi/L	98	60 - 140	0.94	1
Carrier	MSD %Yield	MSD Qualifier	Limits										
Ba Carrier	87.1		30 - 110										

Lab Sample ID: MB 160-736375/1-A

Matrix: Water

Analysis Batch: 739915

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 736375

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.01491	U	0.195	0.195	1.00	0.402	pCi/L	09/17/25 08:07	10/09/25 14:33	1

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QC Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-1

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

Lab Sample ID: MB 160-736375/1-A
Matrix: Water
Analysis Batch: 739915

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 736375

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	85.6		30 - 110	09/17/25 08:07	10/09/25 14:33	1

Lab Sample ID: LCS 160-736375/2-A
Matrix: Water
Analysis Batch: 739915

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 736375

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226	9.57	7.927		1.17	1.00	0.419	pCi/L	83	75 - 125

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	80.2		30 - 110

Lab Sample ID: 280-213352-11 DU
Matrix: Water
Analysis Batch: 739915

Client Sample ID: MW-38C-09102025
Prep Type: Total/NA
Prep Batch: 736375

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-226	0.0933	U	-0.06946	U	0.216	1.00	0.455	pCi/L	0.34	1

Carrier	DU %Yield	DU Qualifier	Limits
Ba Carrier	85.9		30 - 110

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-736374/1-A
Matrix: Water
Analysis Batch: 739925

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 736374

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.06480	U	0.310	0.310	1.00	0.559	pCi/L	09/17/25 08:06	10/09/25 09:42	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	89.0		30 - 110	09/17/25 08:06	10/09/25 09:42	1
Y Carrier	81.5		30 - 110	09/17/25 08:06	10/09/25 09:42	1

Lab Sample ID: LCS 160-736374/2-A
Matrix: Water
Analysis Batch: 739925

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 736374

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-228	9.00	9.387		1.37	1.00	0.615	pCi/L	104	75 - 125

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QC Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-1

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

Lab Sample ID: LCS 160-736374/2-A
Matrix: Water
Analysis Batch: 739925

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 736374

LCS LCS			
Carrier	%Yield	Qualifier	Limits
Ba Carrier	73.9		30 - 110
Y Carrier	82.2		30 - 110

Lab Sample ID: 280-213352-10 MS
Matrix: Water
Analysis Batch: 739914

Client Sample ID: MW-41B-09092025
Prep Type: Total/NA
Prep Batch: 736374

Total												
Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
Radium-228	0.289	U	8.94	10.16		1.46	1.00	0.682	pCi/L	111	60 - 140	

MS MS			
Carrier	%Yield	Qualifier	Limits
Ba Carrier	73.9		30 - 110
Y Carrier	79.3		30 - 110

Lab Sample ID: 280-213352-10 MSD
Matrix: Water
Analysis Batch: 739924

Client Sample ID: MW-41B-09092025
Prep Type: Total/NA
Prep Batch: 736374

Total													
Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-228	0.289	U	9.11	8.620		1.22	1.00	0.542	pCi/L	91	60 - 140	0.57	1

MSD MSD			
Carrier	%Yield	Qualifier	Limits
Ba Carrier	87.1		30 - 110
Y Carrier	90.1		30 - 110

Lab Sample ID: MB 160-736376/1-A
Matrix: Water
Analysis Batch: 739915

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 736376

Count												
Analyte	MB Result	MB Qualifier	Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac		
Radium-228	0.3807	U	0.381	0.383	1.00	0.614	pCi/L	09/17/25 08:16	10/09/25 11:46	1		

MB MB											
Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac		Prepared	Analyzed	Dil Fac	
Ba Carrier	85.6		30 - 110	09/17/25 08:16	10/09/25 11:46	1		09/17/25 08:16	10/09/25 11:46	1	
Y Carrier	77.4		30 - 110	09/17/25 08:16	10/09/25 11:46	1		09/17/25 08:16	10/09/25 11:46	1	

Lab Sample ID: LCS 160-736376/2-A
Matrix: Water
Analysis Batch: 739915

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 736376

Total												
Analyte	Spike Added	LCS Result	LCS Qual	Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits			
Radium-228	9.00	10.58		1.48	1.00	0.706	pCi/L	118	75 - 125			

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QC Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-1

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

Lab Sample ID: LCS 160-736376/2-A
Matrix: Water
Analysis Batch: 739915

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 736376

	LCS	LCS	
Carrier	%Yield	Qualifier	Limits
Ba Carrier	80.2		30 - 110
Y Carrier	77.4		30 - 110

Lab Sample ID: 280-213352-11 DU
Matrix: Water
Analysis Batch: 739915

Client Sample ID: MW-38C-09102025
Prep Type: Total/NA
Prep Batch: 736376

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-228	0.456	U	0.1493	U	0.321	1.00	0.561	pCi/L	0.41	1

	DU	DU	
Carrier	%Yield	Qualifier	Limits
Ba Carrier	85.9		30 - 110
Y Carrier	80.4		30 - 110

QC Association Summary

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-1

Rad

Prep Batch: 736373

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-213352-1	MW-44B-09092025	Total/NA	Water	PrecSep-21	
280-213352-2	MW-45B-09092025	Total/NA	Water	PrecSep-21	
280-213352-3	MW-46B-09092025	Total/NA	Water	PrecSep-21	
280-213352-4	MW-47B-09092025	Total/NA	Water	PrecSep-21	
280-213352-5	MW-43B-09092025	Total/NA	Water	PrecSep-21	
280-213352-6	MW-42B-09092025	Total/NA	Water	PrecSep-21	
280-213352-7	MW-37B-09092025	Total/NA	Water	PrecSep-21	
280-213352-8	MW-36B-09092025	Total/NA	Water	PrecSep-21	
280-213352-9	MW-32B-09092025	Total/NA	Water	PrecSep-21	
280-213352-10	MW-41B-09092025	Total/NA	Water	PrecSep-21	
MB 160-736373/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-736373/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
280-213352-10 MS	MW-41B-09092025	Total/NA	Water	PrecSep-21	
280-213352-10 MSD	MW-41B-09092025	Total/NA	Water	PrecSep-21	

Prep Batch: 736374

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-213352-1	MW-44B-09092025	Total/NA	Water	PrecSep_0	
280-213352-2	MW-45B-09092025	Total/NA	Water	PrecSep_0	
280-213352-3	MW-46B-09092025	Total/NA	Water	PrecSep_0	
280-213352-4	MW-47B-09092025	Total/NA	Water	PrecSep_0	
280-213352-5	MW-43B-09092025	Total/NA	Water	PrecSep_0	
280-213352-6	MW-42B-09092025	Total/NA	Water	PrecSep_0	
280-213352-7	MW-37B-09092025	Total/NA	Water	PrecSep_0	
280-213352-8	MW-36B-09092025	Total/NA	Water	PrecSep_0	
280-213352-9	MW-32B-09092025	Total/NA	Water	PrecSep_0	
280-213352-10	MW-41B-09092025	Total/NA	Water	PrecSep_0	
MB 160-736374/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-736374/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
280-213352-10 MS	MW-41B-09092025	Total/NA	Water	PrecSep_0	
280-213352-10 MSD	MW-41B-09092025	Total/NA	Water	PrecSep_0	

Prep Batch: 736375

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-213352-11	MW-38C-09102025	Total/NA	Water	PrecSep-21	
280-213352-12	MW-21B-09102025	Total/NA	Water	PrecSep-21	
280-213352-13	MW-14BR-09102025	Total/NA	Water	PrecSep-21	
280-213352-14	MW-20B-09102025	Total/NA	Water	PrecSep-21	
280-213352-15	MW-49B-09102025	Total/NA	Water	PrecSep-21	
280-213352-16	MW-39B-09102025	Total/NA	Water	PrecSep-21	
280-213352-17	MW-40B-09102025	Total/NA	Water	PrecSep-21	
280-213352-18	MW-52B-09102025	Total/NA	Water	PrecSep-21	
280-213352-19	MW-53BR-09102025	Total/NA	Water	PrecSep-21	
280-213352-20	MW-38B-09102025	Total/NA	Water	PrecSep-21	
280-213352-21	DUP-09102025	Total/NA	Water	PrecSep-21	
MB 160-736375/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-736375/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
280-213352-11 DU	MW-38C-09102025	Total/NA	Water	PrecSep-21	

QC Association Summary

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-1

Rad

Prep Batch: 736376

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-213352-11	MW-38C-09102025	Total/NA	Water	PrecSep_0	
280-213352-12	MW-21B-09102025	Total/NA	Water	PrecSep_0	
280-213352-13	MW-14BR-09102025	Total/NA	Water	PrecSep_0	
280-213352-14	MW-20B-09102025	Total/NA	Water	PrecSep_0	
280-213352-15	MW-49B-09102025	Total/NA	Water	PrecSep_0	
280-213352-16	MW-39B-09102025	Total/NA	Water	PrecSep_0	
280-213352-17	MW-40B-09102025	Total/NA	Water	PrecSep_0	
280-213352-18	MW-52B-09102025	Total/NA	Water	PrecSep_0	
280-213352-19	MW-53BR-09102025	Total/NA	Water	PrecSep_0	
280-213352-20	MW-38B-09102025	Total/NA	Water	PrecSep_0	
280-213352-21	DUP-09102025	Total/NA	Water	PrecSep_0	
MB 160-736376/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-736376/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
280-213352-11 DU	MW-38C-09102025	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-1

Client Sample ID: MW-44B-09092025

Lab Sample ID: 280-213352-1

Date Collected: 09/09/25 07:50

Matrix: Water

Date Received: 09/12/25 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1007.79 mL	1.0 g	736373	09/17/25 07:59	JTR	EET SL
Total/NA	Analysis	9315		1			739914	10/09/25 17:42	SWS	EET SL
Total/NA	Prep	PrecSep_0			1007.79 mL	1.0 g	736374	09/17/25 08:06	JTR	EET SL
Total/NA	Analysis	9320		1			739914	10/09/25 09:45	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			740134	10/10/25 12:54	SCB	EET SL

Client Sample ID: MW-45B-09092025

Lab Sample ID: 280-213352-2

Date Collected: 09/09/25 08:30

Matrix: Water

Date Received: 09/12/25 09:55

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			996.10 mL	1.0 g	736373	09/17/25 07:59	JTR	EET SL
Total/NA	Analysis	9315		1			739914	10/09/25 17:43	SWS	EET SL
Total/NA	Prep	PrecSep_0			996.10 mL	1.0 g	736374	09/17/25 08:06	JTR	EET SL
Total/NA	Analysis	9320		1			739914	10/09/25 09:45	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			740134	10/10/25 12:54	SCB	EET SL

Client Sample ID: MW-46B-09092025

Lab Sample ID: 280-213352-3

Date Collected: 09/09/25 09:10

Matrix: Water

Date Received: 09/12/25 09:55

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			1005.77 mL	1.0 g	736373	09/17/25 07:59	JTR	EET SL
Total/NA	Analysis	9315		1			739914	10/09/25 17:43	SWS	EET SL
Total/NA	Prep	PrecSep_0			1005.77 mL	1.0 g	736374	09/17/25 08:06	JTR	EET SL
Total/NA	Analysis	9320		1			739914	10/09/25 09:45	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			740134	10/10/25 12:54	SCB	EET SL

Client Sample ID: MW-47B-09092025

Lab Sample ID: 280-213352-4

Date Collected: 09/09/25 09:55

Matrix: Water

Date Received: 09/12/25 09:55

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			1002.24 mL	1.0 g	736373	09/17/25 07:59	JTR	EET SL
Total/NA	Analysis	9315		1			739914	10/09/25 17:43	SWS	EET SL
Total/NA	Prep	PrecSep_0			1002.24 mL	1.0 g	736374	09/17/25 08:06	JTR	EET SL
Total/NA	Analysis	9320		1			739914	10/09/25 09:47	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			740134	10/10/25 12:54	SCB	EET SL

Eurofins Denver

Lab Chronicle

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-1

Client Sample ID: MW-43B-09092025

Lab Sample ID: 280-213352-5

Date Collected: 09/09/25 10:45

Matrix: Water

Date Received: 09/12/25 09:55

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			1004.80 mL	1.0 g	736373	09/17/25 07:59	JTR	EET SL
Total/NA	Analysis	9315		1			739914	10/09/25 17:43	SWS	EET SL
Total/NA	Prep	PrecSep_0			1004.80 mL	1.0 g	736374	09/17/25 08:06	JTR	EET SL
Total/NA	Analysis	9320		1			739914	10/09/25 09:47	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			740134	10/10/25 12:54	SCB	EET SL

Client Sample ID: MW-42B-09092025

Lab Sample ID: 280-213352-6

Date Collected: 09/09/25 11:30

Matrix: Water

Date Received: 09/12/25 09:55

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			1002.06 mL	1.0 g	736373	09/17/25 07:59	JTR	EET SL
Total/NA	Analysis	9315		1			739915	10/09/25 17:50	SWS	EET SL
Total/NA	Prep	PrecSep_0			1002.06 mL	1.0 g	736374	09/17/25 08:06	JTR	EET SL
Total/NA	Analysis	9320		1			739914	10/09/25 09:47	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			740134	10/10/25 12:54	SCB	EET SL

Client Sample ID: MW-37B-09092025

Lab Sample ID: 280-213352-7

Date Collected: 09/09/25 13:00

Matrix: Water

Date Received: 09/12/25 09:55

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			1006.06 mL	1.0 g	736373	09/17/25 07:59	JTR	EET SL
Total/NA	Analysis	9315		1			739915	10/09/25 17:50	SWS	EET SL
Total/NA	Prep	PrecSep_0			1006.06 mL	1.0 g	736374	09/17/25 08:06	JTR	EET SL
Total/NA	Analysis	9320		1			739914	10/09/25 09:47	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			740134	10/10/25 12:54	SCB	EET SL

Client Sample ID: MW-36B-09092025

Lab Sample ID: 280-213352-8

Date Collected: 09/09/25 13:45

Matrix: Water

Date Received: 09/12/25 09:55

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			1006.96 mL	1.0 g	736373	09/17/25 07:59	JTR	EET SL
Total/NA	Analysis	9315		1			739915	10/09/25 17:50	SWS	EET SL
Total/NA	Prep	PrecSep_0			1006.96 mL	1.0 g	736374	09/17/25 08:06	JTR	EET SL
Total/NA	Analysis	9320		1			739914	10/09/25 09:47	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			740134	10/10/25 12:54	SCB	EET SL

Eurofins Denver

Lab Chronicle

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-1

Client Sample ID: MW-32B-09092025

Lab Sample ID: 280-213352-9

Date Collected: 09/09/25 14:35

Matrix: Water

Date Received: 09/12/25 09:55

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			1004.24 mL	1.0 g	736373	09/17/25 07:59	JTR	EET SL
Total/NA	Analysis	9315		1			739915	10/09/25 17:50	SWS	EET SL
Total/NA	Prep	PrecSep_0			1004.24 mL	1.0 g	736374	09/17/25 08:06	JTR	EET SL
Total/NA	Analysis	9320		1			739914	10/09/25 09:47	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			740134	10/10/25 12:54	SCB	EET SL

Client Sample ID: MW-41B-09092025

Lab Sample ID: 280-213352-10

Date Collected: 09/09/25 16:25

Matrix: Water

Date Received: 09/12/25 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.32 mL	1.0 g	736373	09/17/25 07:59	JTR	EET SL
Total/NA	Analysis	9315		1			739915	10/09/25 17:50	SWS	EET SL
Total/NA	Prep	PrecSep_0			1000.32 mL	1.0 g	736374	09/17/25 08:06	JTR	EET SL
Total/NA	Analysis	9320		1			739914	10/09/25 09:47	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			740134	10/10/25 12:54	SCB	EET SL

Client Sample ID: MW-38C-09102025

Lab Sample ID: 280-213352-11

Date Collected: 09/10/25 08:30

Matrix: Water

Date Received: 09/12/25 09:55

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			986.94 mL	1.0 g	736375	09/17/25 08:07	JTR	EET SL
Total/NA	Analysis	9315		1			739915	10/09/25 14:33	SWS	EET SL
Total/NA	Prep	PrecSep_0			986.94 mL	1.0 g	736376	09/17/25 08:16	JTR	EET SL
Total/NA	Analysis	9320		1			739915	10/09/25 11:46	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			740141	10/10/25 14:22	SCB	EET SL

Client Sample ID: MW-21B-09102025

Lab Sample ID: 280-213352-12

Date Collected: 09/10/25 09:20

Matrix: Water

Date Received: 09/12/25 09:55

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			995.79 mL	1.0 g	736375	09/17/25 08:07	JTR	EET SL
Total/NA	Analysis	9315		1			739915	10/09/25 14:34	SWS	EET SL
Total/NA	Prep	PrecSep_0			995.79 mL	1.0 g	736376	09/17/25 08:16	JTR	EET SL
Total/NA	Analysis	9320		1			739915	10/09/25 11:46	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			740141	10/10/25 14:22	SCB	EET SL

Lab Chronicle

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-1

Client Sample ID: MW-14BR-09102025

Lab Sample ID: 280-213352-13

Date Collected: 09/10/25 10:30

Matrix: Water

Date Received: 09/12/25 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1007.81 mL	1.0 g	736375	09/17/25 08:07	JTR	EET SL
Total/NA	Analysis	9315		1			739915	10/09/25 14:34	SWS	EET SL
Total/NA	Prep	PrecSep_0			1007.81 mL	1.0 g	736376	09/17/25 08:16	JTR	EET SL
Total/NA	Analysis	9320		1			739915	10/09/25 11:47	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			740141	10/10/25 14:22	SCB	EET SL

Client Sample ID: MW-20B-09102025

Lab Sample ID: 280-213352-14

Date Collected: 09/10/25 11:05

Matrix: Water

Date Received: 09/12/25 09:55

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			1006.74 mL	1.0 g	736375	09/17/25 08:07	JTR	EET SL
Total/NA	Analysis	9315		1			739915	10/09/25 14:34	SWS	EET SL
Total/NA	Prep	PrecSep_0			1006.74 mL	1.0 g	736376	09/17/25 08:16	JTR	EET SL
Total/NA	Analysis	9320		1			739915	10/09/25 11:47	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			740141	10/10/25 14:22	SCB	EET SL

Client Sample ID: MW-49B-09102025

Lab Sample ID: 280-213352-15

Date Collected: 09/10/25 12:40

Matrix: Water

Date Received: 09/12/25 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1007.69 mL	1.0 g	736375	09/17/25 08:07	JTR	EET SL
Total/NA	Analysis	9315		1			739915	10/09/25 14:34	SWS	EET SL
Total/NA	Prep	PrecSep_0			1007.69 mL	1.0 g	736376	09/17/25 08:16	JTR	EET SL
Total/NA	Analysis	9320		1			739915	10/09/25 11:47	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			740141	10/10/25 14:22	SCB	EET SL

Client Sample ID: MW-39B-09102025

Lab Sample ID: 280-213352-16

Date Collected: 09/10/25 13:50

Matrix: Water

Date Received: 09/12/25 09:55

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			1005.32 mL	1.0 g	736375	09/17/25 08:07	JTR	EET SL
Total/NA	Analysis	9315		1			739915	10/09/25 14:34	SWS	EET SL
Total/NA	Prep	PrecSep_0			1005.32 mL	1.0 g	736376	09/17/25 08:16	JTR	EET SL
Total/NA	Analysis	9320		1			739915	10/09/25 11:47	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			740141	10/10/25 14:22	SCB	EET SL

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Lab Chronicle

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-1

Client Sample ID: MW-40B-09102025

Lab Sample ID: 280-213352-17

Date Collected: 09/10/25 14:30

Matrix: Water

Date Received: 09/12/25 09:55

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			1004.00 mL	1.0 g	736375	09/17/25 08:07	JTR	EET SL
Total/NA	Analysis	9315		1			739915	10/09/25 14:34	SWS	EET SL
Total/NA	Prep	PrecSep_0			1004.00 mL	1.0 g	736376	09/17/25 08:16	JTR	EET SL
Total/NA	Analysis	9320		1			739915	10/09/25 11:47	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			740141	10/10/25 14:22	SCB	EET SL

Client Sample ID: MW-52B-09102025

Lab Sample ID: 280-213352-18

Date Collected: 09/10/25 15:25

Matrix: Water

Date Received: 09/12/25 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1007.23 mL	1.0 g	736375	09/17/25 08:07	JTR	EET SL
Total/NA	Analysis	9315		1			739915	10/09/25 14:34	SWS	EET SL
Total/NA	Prep	PrecSep_0			1007.23 mL	1.0 g	736376	09/17/25 08:16	JTR	EET SL
Total/NA	Analysis	9320		1			739915	10/09/25 11:47	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			740141	10/10/25 14:22	SCB	EET SL

Client Sample ID: MW-53BR-09102025

Lab Sample ID: 280-213352-19

Date Collected: 09/10/25 16:20

Matrix: Water

Date Received: 09/12/25 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1003.11 mL	1.0 g	736375	09/17/25 08:07	JTR	EET SL
Total/NA	Analysis	9315		1			739915	10/09/25 14:34	SWS	EET SL
Total/NA	Prep	PrecSep_0			1003.11 mL	1.0 g	736376	09/17/25 08:16	JTR	EET SL
Total/NA	Analysis	9320		1			739915	10/09/25 11:47	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			740141	10/10/25 14:22	SCB	EET SL

Client Sample ID: MW-38B-09102025

Lab Sample ID: 280-213352-20

Date Collected: 09/10/25 17:20

Matrix: Water

Date Received: 09/12/25 09:55

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			1005.17 mL	1.0 g	736375	09/17/25 08:07	JTR	EET SL
Total/NA	Analysis	9315		1			739915	10/09/25 14:34	SWS	EET SL
Total/NA	Prep	PrecSep_0			1005.17 mL	1.0 g	736376	09/17/25 08:16	JTR	EET SL
Total/NA	Analysis	9320		1			739915	10/09/25 11:47	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			740141	10/10/25 14:22	SCB	EET SL

Lab Chronicle

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-1

Client Sample ID: DUP-09102025
Date Collected: 09/10/25 00:00
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-21
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.24 mL	1.0 g	736375	09/17/25 08:07	JTR	EET SL
Total/NA	Analysis	9315		1			739915	10/09/25 14:34	SWS	EET SL
Total/NA	Prep	PrecSep_0			1000.24 mL	1.0 g	736376	09/17/25 08:16	JTR	EET SL
Total/NA	Analysis	9320		1			739915	10/09/25 11:47	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			740141	10/10/25 14:22	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: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-1

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	05-06-27
ANAB	Dept. of Defense ELAP	L2305	04-06-27
ANAB	Dept. of Energy	L2305.01	04-06-27
ANAB	ISO/IEC 17025	L2305	04-06-27
Arizona	State	AZ0813	12-08-25
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	07-01-26
Connecticut	State	PH-0241	03-31-27
Florida	NELAP	E87689	06-30-26
HI - RadChem Recognition	State	n/a	06-30-26
Illinois	NELAP	200023	11-30-25
Iowa	State	373	12-01-26
Kansas	NELAP	E-10236	10-31-25
Kentucky (DW)	State	KY90125	12-31-25
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-25
Louisiana (All)	NELAP	106151	06-30-26
Louisiana (DW)	State	LA011	12-31-25
Maryland	State	310	10-01-26
Massachusetts	State	M-MO054	06-30-26
MI - RadChem Recognition	State	9005	06-30-26
Missouri	State	780	06-30-28
Nevada	State	MO00054	07-31-26
New Jersey	NELAP	MO002	06-30-26
New Mexico	State	MO00054	06-30-26
New York	NELAP	11616	03-31-26
North Carolina (DW)	State	29700	06-30-26
North Dakota	State	R-207	06-30-25 *
Oklahoma	NELAP	9997	12-31-25
Oregon	NELAP	4157	09-01-26
Pennsylvania	NELAP	68-00540	02-28-26
South Carolina	State	85002	06-30-26
Texas	NELAP	T104704193	07-31-26
US Fish & Wildlife	US Federal Programs	058448	07-31-26
USDA	US Federal Programs	525-23-138-94730	05-18-26
Utah	NELAP	MO00054	07-31-26
Virginia	NELAP	460230	06-14-26
Washington	State	C592	08-31-26
West Virginia DEP	State	381	10-31-25

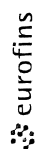
* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins Denver

Chain of Custody Record

Client Information Client Contact: Ms. Katie Abbott Company: AECOM Technical Services Inc. Address: 6200 S. Quebec Street City: Greenwood Village State, Zip: CO, 80111 Phone: 616-574-8327 (Tel) Email: katie.abbott@aecom.com Project Name: Basin 2025 Support Site: Basin Electric, Laramie River Station		Sampler: OLIVIA HELINSKI Phone: 360-333-9602 PWSID: Due Date Requested: TAT Requested (days): STANDARD Compliance Project: ☐ Yes ☐ No PO #: AECOM Project# 60632474 Project #: 28020759 SSOW#:		Lab PM: McEntee, Patrick J E-Mail: Patrick.McEntee@et.eurofins.com Carrier Tracking No(s): State of Origin: WY COC No: 280-133855-37095.1 Page 1 of 2 Job #:																											
Sample Identification		Analysis Requested		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid M - Hexane N - None O - AsNaO2 P - Na2O4S																											
Sample ID		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (Water, Solid, Organic, Aqueous)		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		9315_Ra226 - Ra226		9320_Ra228 - Ra228		Ra226Ra228 - Combined Ra226 Ra228		9056A_ZnB - Chloride, Fluoride, Sulfate		6010D_6020B_7470A - App III and IV Total Metals		7240C - Solids, Total Dissolved (TDS)		Total Number of		Special Instructions/Note:			
MW-44B-09092025		9/9/25		0750		G		W		N		N		D		X		X		X		X		N		X		5		X	
MW-45B-09092025		9/9/25		0830		G		W		N		N		X		X		X		X		X		X		X		5		X	
MW-46B-09092025		9/9/25		0910		G		W		N		N		X		X		X		X		X		X		X		5		X	
MW-47B-09092025		9/9/25		0955		G		W		N		N		X		X		X		X		X		X		X		5		X	
MW-43B-07092025		9/9/25		1045		G		W		N		N		X		X		X		X		X		X		X		5		X	
MW-42B-09092025		9/9/25		1130		G		W		N		N		X		X		X		X		X		X		X		5		X	
MW-37B-09092025		9/9/25		1306		G		W		N		N		X		X		X		X		X		X		X		5		X	
MW-36B-09092025		9/9/25		1345		G		W		N		N		X		X		X		X		X		X		X		5		X	
MW-32B-09092025		9/9/25		1435		G		W		N		N		X		X		X		X		X		X		X		5		X	
MW-41B-09092025		9/9/25		1625		G		W		N		N		X		X		X		X		X		X		X		15		X	
MW-38C-09102025		9/10/25		0830		G		W		N		N		X		X		X		X		X		X		X		5		X	
Possible Hazard Identification ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological Deliverable Requested: I, II, III, IV, Other (specify)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months Special Instructions/QC Requirements:		Empty Kit Relinquished by: Relinquished by: Olivia Helinski Relinquished by: Relinquished by: Custody Seals Intact: ☐ Yes ☐ No Custody Seal No.:		Date: Date/Time: 9/11/25 11200 Date/Time: Date/Time: Date/Time: Cooler Temperature(s) °C and Other Remarks: 1.30 19.1 8.9 8.6 21.8 °C 10.2 IR 440		Received by: Received by: [Signature] Received by: Received by: Company: AECOM Company: Company: Company:		Date/Time: Date/Time: 9/12/25 0955 Date/Time: Date/Time: Date/Time: Company: EETEN Company: Company: Company:		Method of Shipment: Method of Shipment:																			

Chain of Custody Record



Environment Testing

Client Information		Sampler <u>Olivia Helinski</u>		Lab PM <u>McEntee, Patrick J</u>		Carrier Tracking No(s)		SOC No <u>280-133855-37095.1</u>	
Client Contact <u>Ms. Katie Abbott</u>		Phone <u>360-333-9002</u>		E-Mail <u>Patrick.McEntee@et.eurofins.com</u>		State of Origin <u>WY</u>		Page <u>2</u> of <u>2</u>	
Company <u>AECOM Technical Services Inc.</u>		PWSID		Analysis Requested		Job #			
Address <u>6200 S. Quebec Street</u>		Due Date Requested:		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		Preservation Codes:	
City <u>Greenwood Village</u>		TAT Requested (days): <u>STANDARD</u>		Sample Date		Sample Time		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
State, Zip <u>CO, 80111</u>		Compliance Project: <u>STANDARD</u> ☐ Yes ☐ No		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=soil, BT=Tissue, A=Air)		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)	
Phone <u>616-574-8327(Tel)</u>		PO #		Sample Date		Sample Time		Total Number of containers	
Email <u>katie.abbott@aecom.com</u>		AECOM Project# <u>60632474</u>		Sample Date		Sample Time		Special Instructions/Note:	
Project Name <u>Basin Electric, Lawrence River Station</u>		Project # <u>28020759</u>		Sample Date		Sample Time			
Site <u>Basin Electric, Lawrence River Station</u>		SSOW#		Sample Date		Sample Time			
Sample Identification		Sample Date		Sample Time		Matrix			
<u>MW-21B - 09102025</u>		<u>9/10/25</u>		<u>0920</u>		<u>G</u>		<u>W</u>	
<u>MW-14BR - 09102025</u>		<u>9/10/25</u>		<u>1030</u>		<u>G</u>		<u>W</u>	
<u>MW-20B - 09102025</u>		<u>9/10/25</u>		<u>1105</u>		<u>G</u>		<u>W</u>	
<u>MW-49B - 09102025</u>		<u>9/10/25</u>		<u>1240</u>		<u>G</u>		<u>W</u>	
<u>MW-39B - 09102025</u>		<u>9/10/25</u>		<u>1350</u>		<u>G</u>		<u>W</u>	
<u>MW-40B - 09102025</u>		<u>9/10/25</u>		<u>1436</u>		<u>G</u>		<u>W</u>	
<u>MW-52B - 09102025</u>		<u>9/10/25</u>		<u>1525</u>		<u>G</u>		<u>W</u>	
<u>MW-53BR - 09102025</u>		<u>9/10/25</u>		<u>1620</u>		<u>G</u>		<u>W</u>	
<u>MW-38B - 09102025</u>		<u>9/10/25</u>		<u>1720</u>		<u>G</u>		<u>W</u>	
<u>DUF-09102025</u>		<u>9/10/25</u>		<u>1800</u>		<u>G</u>		<u>W</u>	
Possible Hazard Identification		Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological ☐		Deliverable Requested: I, II, III, IV, Other (specify)		Empty Kit Relinquished by:		Date:	
Relinquished by: <u>Olivia Helinski</u>		Date/Time: <u>9/11/25 11200</u>		Company: <u>AECOM</u>		Received by: <u>AM</u>		Date/Time: <u>9/12/25 0955</u>	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:	
Custody Seals Intact: ☐ Yes ☐ No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks		Special Instructions/QC Requirements:		Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months	

Part # 156297-485

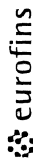
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ACTWGT: 52.50 LB
CAD: 6996907/SSFE2621
DIMS: 26X14X14 IN
BILL THIRD PARTY

ORIGIN ID: FTCA (360) 333-9002

AECOM
7595 E TECHNOLOGY WAY
DENVER, CO 80237
UNITED STATES US

TO

EUROFINS DENVER
4955 YARROW ST



Environment 1
TestAmerica

2400501

ARVADA CO 80002

(308) 738-0100 REF:

DEPT:

INV:

PO:

FedEx
Express



FRI - 12 SEP 10:30A

PRIORITY OVERNIGHT

AHS

80002

CO - US DEN

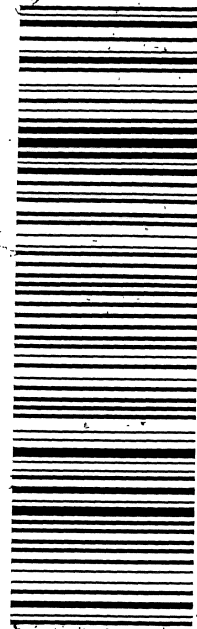
1 of 5

TRK# 3931 1499 2776

0201

MASTER

72 LAAA



Part # 156297-485

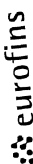
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BILL THIRD PARTY

ORIGIN ID: FTCA (360) 333-9002

AECOM
7595 E TECHNOLOGY WAY
DENVER, CO 80237
UNITED STATES US

TO

EUROFINS DENVER
4955 YARROW ST



Environment Testing
TestAmerica

2400500

ARVADA CO 80002

(308) 738-0100 REF:

DEPT:

INV:

PO:

FedEx
Express



FRI - 12 SEP 10:30

PRIORITY OVERNIGHT

AHS

80002

CO - US DEN

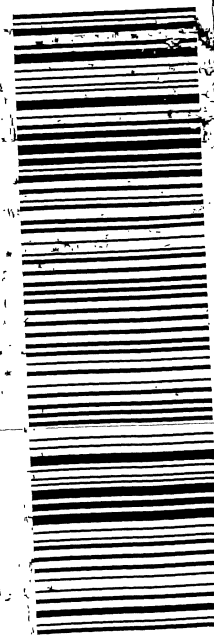
2 of 5

TRK# 3931 1499 2787

0201

Master# 3931 1499 2776

72 LAAA



280-213352 Waybill

1
2
3
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5
6
7
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9
10
11
12
13
14
15

ORIGIN ID: FTCA (360) 333-9002
REC'D
7595 E TECHNOLOGY WAY
DENVER, CO 80237
UNITED STATES US

SHIP DATE: 11SEP25
ACTUAT: 68.95 LB
CAD: 6986907/SSFE2621
DTHS: 25x14x14 IN
BILL THIRD PARTY

Part # 156297-235-400

EUROFINS DENVER
4955 YARROW ST

ARVADA CO 80002

(303) 786-0100
REF: PO: DEPT:

2400503

Environment Testing
TestAmerica

4 of 5
MP# 3931 1499 2802
Met# 3831 1499 2776

0201

FRI - 12 SEP 10:30A
PRIORITY OVERNIGHT
AHS
80002
CO-US DEN

72 LAANA

156297-235-400

FedEx Express
An 1062905203527

ORIGIN ID: FTCA (360) 333-9002
REC'D
7595 E TECHNOLOGY WAY
DENVER, CO 80237
UNITED STATES US

SHIP DATE: 11SEP25
ACTUAT: 67.60 LB
CAD: 6986907/SSFE2621
DTHS: 25x14x14 IN
BILL THIRD PARTY

Part # 156297-235-400

EUROFINS DENVER
4955 YARROW ST

ARVADA CO 80002

(303) 786-0100
REF: PO: DEPT:

2400506

Environment Testing
TestAmerica

5 of 5
MP# 3931 1499 2813
Met# 3831 1499 2776

0201

FRI - 12 SEP 10:30A
PRIORITY OVERNIGHT
AHS
80002
CO-US DEN

72 LAANA

156297-235-400

FedEx Express
An 1062905203527

ORIGIN ID:FTCA (360) 333-9002

AECOM
7595 E TECHNOLOGY WAY

DENVER, CO 80237
UNITED STATES US

SHIP DATE: 11SEP25
ACTWGT: 64.05 LB
CAD: 8996807/SSFE2621
DIMS: 26x14x14 IN

BILL THIRD PARTY

Part # 156297-4885-APR14VZ9EXP 05/26

TO

EUROFINS DENVER
4955 YARROW ST

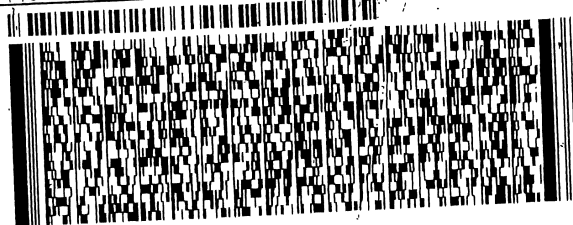
ARVADA CO 80002

(303) 736-0100

REF:

THU:

DEPT:



FedEx
Express



AT103290520527

3 of 5

MPS# 3931 1499 2798

Mstr# 3931 1499 2776

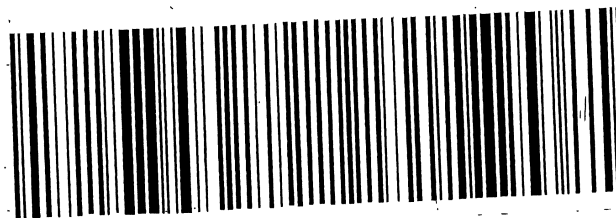
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72 LAAA

FRI - 12 SEP 10:30A
PRIORITY OVERNIGHT

AHS
80002

CO-US DEN



4955 Yarrow Street

Arvada, CO 80002

Phone: 303-736-0100 Fax: 303-431-7171

Chain of Custody Record



Environment Testing

[illegible]

Login Sample Receipt Checklist

Client: AECOM

Job Number: 280-213352-1

Login Number: 213352

List Number: 1

Creator: Little, Matthew L

List Source: Eurofins Denver

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

This receipt checklist is generated for all samples received in this Login. It may not be applicable to all Jobs associated with this Login.

Eurofins Denver

Login Sample Receipt Checklist

Client: AECOM

Job Number: 280-213352-1

Login Number: 213352

List Number: 2

Creator: Forrest, Cheyenne L

List Source: Eurofins St. Louis

List Creation: 09/16/25 01:50 PM

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

This receipt checklist is generated for all samples received in this Login. It may not be applicable to all Jobs associated with this Login.

Eurofins Denver

Tracer/Carrier Summary

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-1

Method: 9315 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)					
		Ba					
Lab Sample ID	Client Sample ID	(30-110)					
280-213352-1	MW-44B-09092025	82.4					
280-213352-2	MW-45B-09092025	86.6					
280-213352-3	MW-46B-09092025	77.8					
280-213352-4	MW-47B-09092025	84.9					
280-213352-5	MW-43B-09092025	74.9					
280-213352-6	MW-42B-09092025	74.6					
280-213352-7	MW-37B-09092025	85.1					
280-213352-8	MW-36B-09092025	86.6					
280-213352-9	MW-32B-09092025	85.6					
280-213352-10	MW-41B-09092025	81.5					
280-213352-10 MS	MW-41B-09092025	73.9					
280-213352-10 MSD	MW-41B-09092025	87.1					
280-213352-11	MW-38C-09102025	74.4					
280-213352-11 DU	MW-38C-09102025	85.9					
280-213352-12	MW-21B-09102025	91.5					
280-213352-13	MW-14BR-09102025	71.7					
280-213352-14	MW-20B-09102025	89.0					
280-213352-15	MW-49B-09102025	80.2					
280-213352-16	MW-39B-09102025	82.9					
280-213352-17	MW-40B-09102025	86.3					
280-213352-18	MW-52B-09102025	81.0					
280-213352-19	MW-53BR-09102025	81.0					
280-213352-20	MW-38B-09102025	52.7					
280-213352-21	DUP-09102025	82.4					
LCS 160-736373/2-A	Lab Control Sample	73.9					
LCS 160-736375/2-A	Lab Control Sample	80.2					
MB 160-736373/1-A	Method Blank	89.0					
MB 160-736375/1-A	Method Blank	85.6					
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)				
280-213352-1	MW-44B-09092025	82.4	76.3				
280-213352-2	MW-45B-09092025	86.6	80.7				
280-213352-3	MW-46B-09092025	77.8	76.6				
280-213352-4	MW-47B-09092025	84.9	77.4				
280-213352-5	MW-43B-09092025	74.9	84.9				
280-213352-6	MW-42B-09092025	74.6	79.6				
280-213352-7	MW-37B-09092025	85.1	81.9				
280-213352-8	MW-36B-09092025	86.6	78.9				
280-213352-9	MW-32B-09092025	85.6	80.7				
280-213352-10	MW-41B-09092025	81.5	79.3				
280-213352-10 MS	MW-41B-09092025	73.9	79.3				
280-213352-10 MSD	MW-41B-09092025	87.1	90.1				

Eurofins Denver

Tracer/Carrier Summary

Client: AECOM

Job ID: 280-213352-1

Project/Site: Basin 2025 Support

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

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (30-110)	Y (30-110)
280-213352-11	MW-38C-09102025	74.4	79.3
280-213352-11 DU	MW-38C-09102025	85.9	80.4
280-213352-12	MW-21B-09102025	91.5	77.8
280-213352-13	MW-14BR-09102025	71.7	71.8
280-213352-14	MW-20B-09102025	89.0	80.4
280-213352-15	MW-49B-09102025	80.2	72.5
280-213352-16	MW-39B-09102025	82.9	71.4
280-213352-17	MW-40B-09102025	86.3	78.1
280-213352-18	MW-52B-09102025	81.0	72.5
280-213352-19	MW-53BR-09102025	81.0	75.5
280-213352-20	MW-38B-09102025	52.7	71.8
280-213352-21	DUP-09102025	82.4	78.9
LCS 160-736374/2-A	Lab Control Sample	73.9	82.2
LCS 160-736376/2-A	Lab Control Sample	80.2	77.4
MB 160-736374/1-A	Method Blank	89.0	81.5
MB 160-736376/1-A	Method Blank	85.6	77.4

Tracer/Carrier Legend

Ba = Ba Carrier

Y = Y Carrier

ANALYTICAL REPORT

PREPARED FOR

Attn: Jeremy Hurshman
AECOM
1601 Prospect Parkway
Fort Collins, Colorado 80525
Generated 9/23/2025 6:32:36 AM

JOB DESCRIPTION

Basin 2025 Support

JOB NUMBER

280-213352-2

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



Generated
9/23/2025 6:32:36 AM

Authorized for release by
Patrick McEntee, Client Service Manager
Patrick.McEntee@et.eurofinsus.com
(303)736-0107



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Definitions/Glossary

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

Qualifiers

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

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

Glossary

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

Case Narrative

Client: AECOM
Project: Basin 2025 Support

Job ID: 280-213352-2

Job ID: 280-213352-2

Eurofins Denver

Job Narrative 280-213352-2

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

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

Receipt

The samples were received on 9/12/2025 9:55 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 5 coolers at receipt time were 1.1°C, 2.6°C, 3.4°C, 5.7°C and 18.9°C.

Receipt Exceptions

The cooler received out of temperature contained volume for radiochemistry analysis which does not require thermal preservation 280-213352-1, 280-213352-2, 280-213352-3, 280-213352-4, 280-213352-5, 280-213352-6, 280-213352-7, 280-213352-8, 280-213352-9, 280-213352-10, 280-213352-10[MS], 280-213352-10[MSD], 280-213352-11, 280-213352-12, 280-213352-13, 280-213352-14, 280-213352-15, 280-213352-16, 280-213352-17, 280-213352-18, 280-213352-19, 280-213352-20 and 280-213352-21

Method 6010D - Metals (ICP)

Samples MW-44B-09092025 (280-213352-1), MW-45B-09092025 (280-213352-2), MW-46B-09092025 (280-213352-3), MW-47B-09092025 (280-213352-4), MW-43B-09092025 (280-213352-5), MW-42B-09092025 (280-213352-6), MW-37B-09092025 (280-213352-7), MW-36B-09092025 (280-213352-8), MW-32B-09092025 (280-213352-9), MW-41B-09092025 (280-213352-10), MW-41B-09092025 (280-213352-10MS), MW-41B-09092025 (280-213352-10MSD), MW-38C-09102025 (280-213352-11), MW-21B-09102025 (280-213352-12), MW-14BR-09102025 (280-213352-13), MW-20B-09102025 (280-213352-14), MW-49B-09102025 (280-213352-15), MW-39B-09102025 (280-213352-16), MW-40B-09102025 (280-213352-17), MW-52B-09102025 (280-213352-18), MW-53BR-09102025 (280-213352-19), MW-38B-09102025 (280-213352-20) and DUP-09102025 (280-213352-21) were analyzed for Metals (ICP). The samples were prepared on 9/15/2025 and analyzed on 9/16/2025 and 9/17/2025.

Method 6020B - Metals (ICP/MS)

Samples MW-44B-09092025 (280-213352-1), MW-45B-09092025 (280-213352-2), MW-46B-09092025 (280-213352-3), MW-47B-09092025 (280-213352-4), MW-43B-09092025 (280-213352-5), MW-42B-09092025 (280-213352-6), MW-37B-09092025 (280-213352-7), MW-36B-09092025 (280-213352-8), MW-32B-09092025 (280-213352-9), MW-41B-09092025 (280-213352-10), MW-41B-09092025 (280-213352-10MS), MW-41B-09092025 (280-213352-10MSD), MW-38C-09102025 (280-213352-11), MW-21B-09102025 (280-213352-12), MW-14BR-09102025 (280-213352-13), MW-20B-09102025 (280-213352-14), MW-49B-09102025 (280-213352-15), MW-39B-09102025 (280-213352-16), MW-40B-09102025 (280-213352-17), MW-52B-09102025 (280-213352-18), MW-53BR-09102025 (280-213352-19), MW-38B-09102025 (280-213352-20) and DUP-09102025 (280-213352-21) were analyzed for Metals (ICP/MS). The samples were prepared on 9/15/2025 and analyzed on 9/17/2025, 9/18/2025 and 9/19/2025.

Method 7470A - Mercury (CVAA)

Samples MW-44B-09092025 (280-213352-1), MW-45B-09092025 (280-213352-2), MW-46B-09092025 (280-213352-3), MW-47B-09092025 (280-213352-4), MW-43B-09092025 (280-213352-5), MW-42B-09092025 (280-213352-6), MW-37B-09092025 (280-213352-7), MW-36B-09092025 (280-213352-8), MW-32B-09092025 (280-213352-9), MW-41B-09092025 (280-213352-10), MW-41B-09092025 (280-213352-10MS), MW-41B-09092025 (280-213352-10MSD), MW-38C-09102025 (280-213352-11), MW-21B-09102025 (280-213352-12), MW-14BR-09102025 (280-213352-13), MW-20B-09102025 (280-213352-14), MW-49B-09102025 (280-213352-15), MW-39B-09102025 (280-213352-16), MW-40B-09102025 (280-213352-17), MW-52B-09102025 (280-213352-18), MW-53BR-09102025 (280-213352-19), MW-38B-09102025 (280-213352-20) and DUP-09102025 (280-213352-21) were analyzed for Mercury (CVAA). The samples were prepared and analyzed on 9/15/2025 and 9/17/2025.

Eurofins Denver

Case Narrative

Client: AECOM
Project: Basin 2025 Support

Job ID: 280-213352-2

Job ID: 280-213352-2 (Continued)

Eurofins Denver

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

Samples MW-44B-09092025 (280-213352-1), MW-45B-09092025 (280-213352-2), MW-46B-09092025 (280-213352-3), MW-47B-09092025 (280-213352-4), MW-43B-09092025 (280-213352-5), MW-42B-09092025 (280-213352-6), MW-37B-09092025 (280-213352-7), MW-36B-09092025 (280-213352-8), MW-32B-09092025 (280-213352-9), MW-41B-09092025 (280-213352-10), MW-38C-09102025 (280-213352-11), MW-21B-09102025 (280-213352-12), MW-14BR-09102025 (280-213352-13), MW-20B-09102025 (280-213352-14), MW-49B-09102025 (280-213352-15), MW-39B-09102025 (280-213352-16), MW-40B-09102025 (280-213352-17), MW-52B-09102025 (280-213352-18), MW-53BR-09102025 (280-213352-19), MW-38B-09102025 (280-213352-20) and DUP-09102025 (280-213352-21) were analyzed for Solids, Total Dissolved (TDS). The samples were analyzed on 9/15/2025 and 9/16/2025.

Method 9056A - Anions, Ion Chromatography

Samples MW-44B-09092025 (280-213352-1), MW-45B-09092025 (280-213352-2), MW-46B-09092025 (280-213352-3), MW-47B-09092025 (280-213352-4), MW-43B-09092025 (280-213352-5), MW-42B-09092025 (280-213352-6), MW-37B-09092025 (280-213352-7), MW-36B-09092025 (280-213352-8), MW-32B-09092025 (280-213352-9), MW-41B-09092025 (280-213352-10), MW-41B-09092025 (280-213352-10MS), MW-41B-09092025 (280-213352-10MSD), MW-38C-09102025 (280-213352-11), MW-21B-09102025 (280-213352-12), MW-14BR-09102025 (280-213352-13), MW-20B-09102025 (280-213352-14), MW-49B-09102025 (280-213352-15), MW-39B-09102025 (280-213352-16), MW-40B-09102025 (280-213352-17), MW-52B-09102025 (280-213352-18), MW-53BR-09102025 (280-213352-19), MW-38B-09102025 (280-213352-20) and DUP-09102025 (280-213352-21) were analyzed for Anions, Ion Chromatography. The samples were analyzed on 9/13/2025, 9/14/2025 and 9/15/2025.

Samples MW-44B-09092025 (280-213352-1)[5x], MW-45B-09092025 (280-213352-2)[5x], MW-46B-09092025 (280-213352-3)[5x], MW-47B-09092025 (280-213352-4)[5x], MW-43B-09092025 (280-213352-5)[10x], MW-42B-09092025 (280-213352-6)[5x], MW-37B-09092025 (280-213352-7)[5x], MW-36B-09092025 (280-213352-8)[5x], MW-32B-09092025 (280-213352-9)[10x], MW-41B-09092025 (280-213352-10)[5x], MW-41B-09092025 (280-213352-10MS)[5x], MW-41B-09092025 (280-213352-10MSD)[5x], MW-38C-09102025 (280-213352-11)[5x], MW-21B-09102025 (280-213352-12)[10x], MW-14BR-09102025 (280-213352-13)[5x], MW-20B-09102025 (280-213352-14)[5x], MW-49B-09102025 (280-213352-15)[5x], MW-39B-09102025 (280-213352-16)[5x], MW-40B-09102025 (280-213352-17)[5x], MW-52B-09102025 (280-213352-18)[5x], MW-53BR-09102025 (280-213352-19)[5x], MW-38B-09102025 (280-213352-20)[5x], MW-38B-09102025 (280-213352-20)[50x] and DUP-09102025 (280-213352-21)[10x] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 280-713247 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 duplicate (MSD) recoveries for analytical batch 280-713247 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits. The matrix spike (MS) is within the recovery control limit.

The following samples have chromatographic interferences that could adversely impact the identification and quantitation of target analytes: 280-213352-1, 280-213352-2, 280-213352-3, 280-213352-6, 280-213352-7, 280-213352-8, 280-213352-10, 280-213352-11, 280-213352-12, 280-213352-13, 280-213352-20, 280-213352-E-2 DU and 280-213352-E-10 DU. These interferences impact fluoride and may cause the value to have a low bias.

Eurofins Denver

Detection Summary

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

Client Sample ID: MW-44B-09092025

Lab Sample ID: 280-213352-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	123		50.0	15.0	ug/L	1		6010D	Total/NA
Calcium	173000		200	60.0	ug/L	1		6010D	Total/NA
Lithium	38.5		20.0	10.0	ug/L	1		6010D	Total/NA
Arsenic	2.64		2.00	0.500	ug/L	1		6020B	Total/NA
Barium	45.5		2.00	0.550	ug/L	1		6020B	Total/NA
Chromium	2.98	J	3.00	1.00	ug/L	1		6020B	Total/NA
Molybdenum	5.59		2.00	0.500	ug/L	1		6020B	Total/NA
Selenium	14.0		2.00	0.500	ug/L	1		6020B	Total/NA
Chloride	65.9		3.00	1.30	mg/L	1		9056A	Total/NA
Fluoride	0.666		0.500	0.200	mg/L	1		9056A	Total/NA
Sulfate	455		15.0	6.50	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1160		20.0	12.0	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-45B-09092025

Lab Sample ID: 280-213352-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	197		50.0	15.0	ug/L	1		6010D	Total/NA
Calcium	154000		200	60.0	ug/L	1		6010D	Total/NA
Lithium	39.8		20.0	10.0	ug/L	1		6010D	Total/NA
Arsenic	3.52		2.00	0.500	ug/L	1		6020B	Total/NA
Barium	46.3		2.00	0.550	ug/L	1		6020B	Total/NA
Molybdenum	7.16		2.00	0.500	ug/L	1		6020B	Total/NA
Selenium	8.43		2.00	0.500	ug/L	1		6020B	Total/NA
Chloride	58.9		3.00	1.30	mg/L	1		9056A	Total/NA
Fluoride	0.785	F1	0.500	0.200	mg/L	1		9056A	Total/NA
Sulfate	390		15.0	6.50	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1010		10.0	6.00	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-46B-09092025

Lab Sample ID: 280-213352-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	79.6		50.0	15.0	ug/L	1		6010D	Total/NA
Calcium	111000		200	60.0	ug/L	1		6010D	Total/NA
Lithium	31.8		20.0	10.0	ug/L	1		6010D	Total/NA
Arsenic	2.51		2.00	0.500	ug/L	1		6020B	Total/NA
Barium	59.2		2.00	0.550	ug/L	1		6020B	Total/NA
Chromium	10.2		3.00	1.00	ug/L	1		6020B	Total/NA
Molybdenum	3.34		2.00	0.500	ug/L	1		6020B	Total/NA
Selenium	4.14		2.00	0.500	ug/L	1		6020B	Total/NA
Chloride	52.3		3.00	1.30	mg/L	1		9056A	Total/NA
Fluoride	0.615		0.500	0.200	mg/L	1		9056A	Total/NA
Sulfate	325		15.0	6.50	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	812		10.0	6.00	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-47B-09092025

Lab Sample ID: 280-213352-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	145		50.0	15.0	ug/L	1		6010D	Total/NA
Calcium	120000		200	60.0	ug/L	1		6010D	Total/NA
Lithium	33.5		20.0	10.0	ug/L	1		6010D	Total/NA
Arsenic	3.02		2.00	0.500	ug/L	1		6020B	Total/NA
Barium	75.4		2.00	0.550	ug/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

Client Sample ID: MW-47B-09092025 (Continued)

Lab Sample ID: 280-213352-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	5.22		3.00	1.00	ug/L	1		6020B	Total/NA
Molybdenum	5.56		2.00	0.500	ug/L	1		6020B	Total/NA
Selenium	5.11		2.00	0.500	ug/L	1		6020B	Total/NA
Chloride	36.9		3.00	1.30	mg/L	1		9056A	Total/NA
Fluoride	0.387	J	0.500	0.200	mg/L	1		9056A	Total/NA
Sulfate	327		15.0	6.50	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	807		10.0	6.00	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-43B-09092025

Lab Sample ID: 280-213352-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	279		50.0	15.0	ug/L	1		6010D	Total/NA
Calcium	181000		200	60.0	ug/L	1		6010D	Total/NA
Lithium	51.1		20.0	10.0	ug/L	1		6010D	Total/NA
Arsenic	3.51		2.00	0.500	ug/L	1		6020B	Total/NA
Barium	57.4		2.00	0.550	ug/L	1		6020B	Total/NA
Chromium	1.28	J	3.00	1.00	ug/L	1		6020B	Total/NA
Molybdenum	13.5		2.00	0.500	ug/L	1		6020B	Total/NA
Selenium	2.21		2.00	0.500	ug/L	1		6020B	Total/NA
Chloride	112		3.00	1.30	mg/L	1		9056A	Total/NA
Fluoride	0.458	J	0.500	0.200	mg/L	1		9056A	Total/NA
Sulfate	767		30.0	13.0	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	1590		20.0	12.0	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-42B-09092025

Lab Sample ID: 280-213352-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	507		50.0	15.0	ug/L	1		6010D	Total/NA
Calcium	95400		200	60.0	ug/L	1		6010D	Total/NA
Lithium	42.8		20.0	10.0	ug/L	1		6010D	Total/NA
Arsenic	5.81		2.00	0.500	ug/L	1		6020B	Total/NA
Barium	21.8		2.00	0.550	ug/L	1		6020B	Total/NA
Chromium	1.56	J	3.00	1.00	ug/L	1		6020B	Total/NA
Molybdenum	25.8		2.00	0.500	ug/L	1		6020B	Total/NA
Selenium	20.9		2.00	0.500	ug/L	1		6020B	Total/NA
Chloride	74.3		3.00	1.30	mg/L	1		9056A	Total/NA
Fluoride	0.642		0.500	0.200	mg/L	1		9056A	Total/NA
Sulfate	470		15.0	6.50	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1100		20.0	12.0	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-37B-09092025

Lab Sample ID: 280-213352-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	195		50.0	15.0	ug/L	1		6010D	Total/NA
Calcium	180000		200	60.0	ug/L	1		6010D	Total/NA
Lithium	45.4		20.0	10.0	ug/L	1		6010D	Total/NA
Arsenic	1.90	J	2.00	0.500	ug/L	1		6020B	Total/NA
Barium	67.0		2.00	0.550	ug/L	1		6020B	Total/NA
Chromium	2.24	J	3.00	1.00	ug/L	1		6020B	Total/NA
Molybdenum	31.2		2.00	0.500	ug/L	1		6020B	Total/NA
Selenium	3.50		2.00	0.500	ug/L	1		6020B	Total/NA
Chloride	68.8		3.00	1.30	mg/L	1		9056A	Total/NA

This Detection Summary does not include radiochemical test results.

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Detection Summary

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

Client Sample ID: MW-37B-09092025 (Continued)

Lab Sample ID: 280-213352-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoride	0.511		0.500	0.200	mg/L	1		9056A	Total/NA
Sulfate	527		15.0	6.50	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1180		20.0	12.0	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-36B-09092025

Lab Sample ID: 280-213352-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	128		50.0	15.0	ug/L	1		6010D	Total/NA
Calcium	118000		200	60.0	ug/L	1		6010D	Total/NA
Lithium	39.0		20.0	10.0	ug/L	1		6010D	Total/NA
Arsenic	2.71		2.00	0.500	ug/L	1		6020B	Total/NA
Barium	69.5		2.00	0.550	ug/L	1		6020B	Total/NA
Molybdenum	7.16		2.00	0.500	ug/L	1		6020B	Total/NA
Selenium	9.58		2.00	0.500	ug/L	1		6020B	Total/NA
Chloride	47.6		3.00	1.30	mg/L	1		9056A	Total/NA
Fluoride	0.698		0.500	0.200	mg/L	1		9056A	Total/NA
Sulfate	361		15.0	6.50	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	870		10.0	6.00	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-32B-09092025

Lab Sample ID: 280-213352-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	319		50.0	15.0	ug/L	1		6010D	Total/NA
Calcium	226000		200	60.0	ug/L	1		6010D	Total/NA
Lithium	94.3		20.0	10.0	ug/L	1		6010D	Total/NA
Arsenic	1.30	J	2.00	0.500	ug/L	1		6020B	Total/NA
Barium	33.5		2.00	0.550	ug/L	1		6020B	Total/NA
Molybdenum	2.72		2.00	0.500	ug/L	1		6020B	Total/NA
Selenium	1.82	J	2.00	0.500	ug/L	1		6020B	Total/NA
Chloride	121		3.00	1.30	mg/L	1		9056A	Total/NA
Fluoride	0.455	J	0.500	0.200	mg/L	1		9056A	Total/NA
Sulfate	1070		30.0	13.0	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	2150		20.0	12.0	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-41B-09092025

Lab Sample ID: 280-213352-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	884		50.0	15.0	ug/L	1		6010D	Total/NA
Calcium	91800		200	60.0	ug/L	1		6010D	Total/NA
Lithium	43.4		20.0	10.0	ug/L	1		6010D	Total/NA
Arsenic	4.43		2.00	0.500	ug/L	1		6020B	Total/NA
Barium	20.0		2.00	0.550	ug/L	1		6020B	Total/NA
Cobalt	0.469	J	1.00	0.250	ug/L	1		6020B	Total/NA
Chromium	4.35		3.00	1.00	ug/L	1		6020B	Total/NA
Molybdenum	70.7		2.00	0.500	ug/L	1		6020B	Total/NA
Selenium	7.66		2.00	0.500	ug/L	1		6020B	Total/NA
Chloride	63.2		3.00	1.30	mg/L	1		9056A	Total/NA
Fluoride	0.585		0.500	0.200	mg/L	1		9056A	Total/NA
Sulfate	538	F1	15.0	6.50	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1200		20.0	12.0	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

Client Sample ID: MW-38C-09102025

Lab Sample ID: 280-213352-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	56.1		50.0	15.0	ug/L	1		6010D	Total/NA
Calcium	101000		200	60.0	ug/L	1		6010D	Total/NA
Lithium	35.1		20.0	10.0	ug/L	1		6010D	Total/NA
Arsenic	2.63		2.00	0.500	ug/L	1		6020B	Total/NA
Barium	50.6		2.00	0.550	ug/L	1		6020B	Total/NA
Molybdenum	5.25		2.00	0.500	ug/L	1		6020B	Total/NA
Selenium	5.06		2.00	0.500	ug/L	1		6020B	Total/NA
Chloride	33.0		3.00	1.30	mg/L	1		9056A	Total/NA
Fluoride	0.581		0.500	0.200	mg/L	1		9056A	Total/NA
Sulfate	235		15.0	6.50	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	687		10.0	6.00	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-21B-09102025

Lab Sample ID: 280-213352-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	160		50.0	15.0	ug/L	1		6010D	Total/NA
Calcium	396000		200	60.0	ug/L	1		6010D	Total/NA
Lithium	58.6		20.0	10.0	ug/L	1		6010D	Total/NA
Arsenic	1.82	J	2.00	0.500	ug/L	1		6020B	Total/NA
Barium	48.8		2.00	0.550	ug/L	1		6020B	Total/NA
Chromium	18.5		3.00	1.00	ug/L	1		6020B	Total/NA
Molybdenum	55.9		2.00	0.500	ug/L	1		6020B	Total/NA
Selenium	18.8		2.00	0.500	ug/L	1		6020B	Total/NA
Chloride	369		30.0	13.0	mg/L	10		9056A	Total/NA
Fluoride	0.492	J	0.500	0.200	mg/L	1		9056A	Total/NA
Sulfate	1290		30.0	13.0	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	2440		20.0	12.0	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-14BR-09102025

Lab Sample ID: 280-213352-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	154		50.0	15.0	ug/L	1		6010D	Total/NA
Calcium	198000		200	60.0	ug/L	1		6010D	Total/NA
Lithium	41.4		20.0	10.0	ug/L	1		6010D	Total/NA
Arsenic	2.21		2.00	0.500	ug/L	1		6020B	Total/NA
Barium	47.4		2.00	0.550	ug/L	1		6020B	Total/NA
Chromium	4.69		3.00	1.00	ug/L	1		6020B	Total/NA
Molybdenum	12.9		2.00	0.500	ug/L	1		6020B	Total/NA
Selenium	18.7		2.00	0.500	ug/L	1		6020B	Total/NA
Chloride	93.7		3.00	1.30	mg/L	1		9056A	Total/NA
Fluoride	0.412	J	0.500	0.200	mg/L	1		9056A	Total/NA
Sulfate	481		15.0	6.50	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1110		20.0	12.0	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-20B-09102025

Lab Sample ID: 280-213352-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	210		50.0	15.0	ug/L	1		6010D	Total/NA
Calcium	130000		200	60.0	ug/L	1		6010D	Total/NA
Lithium	40.0		20.0	10.0	ug/L	1		6010D	Total/NA
Arsenic	2.90		2.00	0.500	ug/L	1		6020B	Total/NA
Barium	73.3		2.00	0.550	ug/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

Client Sample ID: MW-20B-09102025 (Continued)

Lab Sample ID: 280-213352-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Molybdenum	8.53		2.00	0.500	ug/L	1		6020B	Total/NA
Selenium	2.94		2.00	0.500	ug/L	1		6020B	Total/NA
Chloride	48.2		3.00	1.30	mg/L	1		9056A	Total/NA
Fluoride	0.735		0.500	0.200	mg/L	1		9056A	Total/NA
Sulfate	384		15.0	6.50	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	971		10.0	6.00	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-49B-09102025

Lab Sample ID: 280-213352-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	181		50.0	15.0	ug/L	1		6010D	Total/NA
Calcium	127000		200	60.0	ug/L	1		6010D	Total/NA
Lithium	45.4		20.0	10.0	ug/L	1		6010D	Total/NA
Arsenic	2.29		2.00	0.500	ug/L	1		6020B	Total/NA
Barium	60.0		2.00	0.550	ug/L	1		6020B	Total/NA
Molybdenum	2.83		2.00	0.500	ug/L	1		6020B	Total/NA
Selenium	0.655	J	2.00	0.500	ug/L	1		6020B	Total/NA
Chloride	26.5		3.00	1.30	mg/L	1		9056A	Total/NA
Fluoride	0.557		0.500	0.200	mg/L	1		9056A	Total/NA
Sulfate	327		15.0	6.50	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	809		10.0	6.00	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-39B-09102025

Lab Sample ID: 280-213352-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	154		50.0	15.0	ug/L	1		6010D	Total/NA
Calcium	117000		200	60.0	ug/L	1		6010D	Total/NA
Lithium	63.9		20.0	10.0	ug/L	1		6010D	Total/NA
Arsenic	3.16		2.00	0.500	ug/L	1		6020B	Total/NA
Barium	30.3		2.00	0.550	ug/L	1		6020B	Total/NA
Molybdenum	3.19		2.00	0.500	ug/L	1		6020B	Total/NA
Selenium	4.51		2.00	0.500	ug/L	1		6020B	Total/NA
Chloride	49.2		3.00	1.30	mg/L	1		9056A	Total/NA
Fluoride	0.654		0.500	0.200	mg/L	1		9056A	Total/NA
Sulfate	474		15.0	6.50	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1180		20.0	12.0	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-40B-09102025

Lab Sample ID: 280-213352-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	158		50.0	15.0	ug/L	1		6010D	Total/NA
Calcium	126000		200	60.0	ug/L	1		6010D	Total/NA
Lithium	58.1		20.0	10.0	ug/L	1		6010D	Total/NA
Arsenic	4.67		2.00	0.500	ug/L	1		6020B	Total/NA
Barium	29.9		2.00	0.550	ug/L	1		6020B	Total/NA
Molybdenum	6.03		2.00	0.500	ug/L	1		6020B	Total/NA
Selenium	5.11		2.00	0.500	ug/L	1		6020B	Total/NA
Chloride	33.0		3.00	1.30	mg/L	1		9056A	Total/NA
Fluoride	0.846		0.500	0.200	mg/L	1		9056A	Total/NA
Sulfate	326		15.0	6.50	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	915		10.0	6.00	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

Client Sample ID: MW-52B-09102025

Lab Sample ID: 280-213352-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	170		50.0	15.0	ug/L	1		6010D	Total/NA
Calcium	152000		200	60.0	ug/L	1		6010D	Total/NA
Lithium	55.9		20.0	10.0	ug/L	1		6010D	Total/NA
Arsenic	2.07		2.00	0.500	ug/L	1		6020B	Total/NA
Barium	50.9		2.00	0.550	ug/L	1		6020B	Total/NA
Molybdenum	3.90		2.00	0.500	ug/L	1		6020B	Total/NA
Selenium	1.63	J	2.00	0.500	ug/L	1		6020B	Total/NA
Chloride	50.0		3.00	1.30	mg/L	1		9056A	Total/NA
Fluoride	0.215	J	0.500	0.200	mg/L	1		9056A	Total/NA
Sulfate	510		15.0	6.50	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	1180		20.0	12.0	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-53BR-09102025

Lab Sample ID: 280-213352-19

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	111		50.0	15.0	ug/L	1		6010D	Total/NA
Calcium	105000		200	60.0	ug/L	1		6010D	Total/NA
Lithium	51.3		20.0	10.0	ug/L	1		6010D	Total/NA
Arsenic	2.92		2.00	0.500	ug/L	1		6020B	Total/NA
Barium	49.9		2.00	0.550	ug/L	1		6020B	Total/NA
Chromium	1.18	J	3.00	1.00	ug/L	1		6020B	Total/NA
Molybdenum	6.23		2.00	0.500	ug/L	1		6020B	Total/NA
Selenium	11.5		2.00	0.500	ug/L	1		6020B	Total/NA
Chloride	45.5		3.00	1.30	mg/L	1		9056A	Total/NA
Fluoride	1.04		0.500	0.200	mg/L	1		9056A	Total/NA
Sulfate	241		15.0	6.50	mg/L	5		9056A	Total/NA
Total Dissolved Solids (TDS)	787		10.0	6.00	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-38B-09102025

Lab Sample ID: 280-213352-20

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	2910		50.0	15.0	ug/L	1		6010D	Total/NA
Calcium	384000		200	60.0	ug/L	1		6010D	Total/NA
Lithium	108		20.0	10.0	ug/L	1		6010D	Total/NA
Arsenic	3.44		2.00	0.500	ug/L	1		6020B	Total/NA
Barium	17.5		2.00	0.550	ug/L	1		6020B	Total/NA
Cobalt	0.431	J	1.00	0.250	ug/L	1		6020B	Total/NA
Chromium	5.79		3.00	1.00	ug/L	1		6020B	Total/NA
Molybdenum	170		2.00	0.500	ug/L	1		6020B	Total/NA
Selenium	3.39		2.00	0.500	ug/L	1		6020B	Total/NA
Chloride	228		15.0	6.50	mg/L	5		9056A	Total/NA
Fluoride	0.332	J	0.500	0.200	mg/L	1		9056A	Total/NA
Sulfate	5560		150	65.0	mg/L	50		9056A	Total/NA
Total Dissolved Solids (TDS)	8500		100	60.0	mg/L	1		SM 2540C	Total/NA

Client Sample ID: DUP-09102025

Lab Sample ID: 280-213352-21

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	164		50.0	15.0	ug/L	1		6010D	Total/NA
Calcium	404000		200	60.0	ug/L	1		6010D	Total/NA
Lithium	56.0		20.0	10.0	ug/L	1		6010D	Total/NA
Arsenic	2.31		2.00	0.500	ug/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

Client Sample ID: DUP-09102025 (Continued)

Lab Sample ID: 280-213352-21

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Barium	50.0		2.00	0.550	ug/L	1			6020B	Total/NA
Chromium	20.6		3.00	1.00	ug/L	1			6020B	Total/NA
Molybdenum	54.6		2.00	0.500	ug/L	1			6020B	Total/NA
Selenium	17.8		2.00	0.500	ug/L	1			6020B	Total/NA
Chloride	362		30.0	13.0	mg/L	10			9056A	Total/NA
Fluoride	0.561		0.500	0.200	mg/L	1			9056A	Total/NA
Sulfate	1270		30.0	13.0	mg/L	10			9056A	Total/NA
Total Dissolved Solids (TDS)	2500		20.0	12.0	mg/L	1			SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Method Summary

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

Method	Method Description	Protocol	Laboratory
6010D	Metals (ICP)	SW846	EET DEN
6020B	Metals (ICP/MS)	SW846	EET DEN
7470A	Mercury (CVAA)	SW846	EET DEN
9056A	Anions, Ion Chromatography	SW846	EET DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET DEN
3005A	Preparation, Total 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: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Sample Origin
280-213352-1	MW-44B-09092025	Water	09/09/25 07:50	09/12/25 09:55	Colorado
280-213352-2	MW-45B-09092025	Water	09/09/25 08:30	09/12/25 09:55	Colorado
280-213352-3	MW-46B-09092025	Water	09/09/25 09:10	09/12/25 09:55	Colorado
280-213352-4	MW-47B-09092025	Water	09/09/25 09:55	09/12/25 09:55	Colorado
280-213352-5	MW-43B-09092025	Water	09/09/25 10:45	09/12/25 09:55	Colorado
280-213352-6	MW-42B-09092025	Water	09/09/25 11:30	09/12/25 09:55	Colorado
280-213352-7	MW-37B-09092025	Water	09/09/25 13:00	09/12/25 09:55	Colorado
280-213352-8	MW-36B-09092025	Water	09/09/25 13:45	09/12/25 09:55	Colorado
280-213352-9	MW-32B-09092025	Water	09/09/25 14:35	09/12/25 09:55	Colorado
280-213352-10	MW-41B-09092025	Water	09/09/25 16:25	09/12/25 09:55	Colorado
280-213352-11	MW-38C-09102025	Water	09/10/25 08:30	09/12/25 09:55	Colorado
280-213352-12	MW-21B-09102025	Water	09/10/25 09:20	09/12/25 09:55	Colorado
280-213352-13	MW-14BR-09102025	Water	09/10/25 10:30	09/12/25 09:55	Colorado
280-213352-14	MW-20B-09102025	Water	09/10/25 11:05	09/12/25 09:55	Colorado
280-213352-15	MW-49B-09102025	Water	09/10/25 12:40	09/12/25 09:55	Colorado
280-213352-16	MW-39B-09102025	Water	09/10/25 13:50	09/12/25 09:55	Colorado
280-213352-17	MW-40B-09102025	Water	09/10/25 14:30	09/12/25 09:55	Colorado
280-213352-18	MW-52B-09102025	Water	09/10/25 15:25	09/12/25 09:55	Colorado
280-213352-19	MW-53BR-09102025	Water	09/10/25 16:20	09/12/25 09:55	Colorado
280-213352-20	MW-38B-09102025	Water	09/10/25 17:20	09/12/25 09:55	Colorado
280-213352-21	DUP-09102025	Water	09/10/25 00:00	09/12/25 09:55	Colorado

Client Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

Method: SW846 6010D - Metals (ICP)

Client Sample ID: MW-44B-09092025

Date Collected: 09/09/25 07:50

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	123		50.0	15.0	ug/L		09/15/25 15:51	09/17/25 19:38	1
Calcium	173000		200	60.0	ug/L		09/15/25 15:51	09/16/25 21:55	1
Lithium	38.5		20.0	10.0	ug/L		09/15/25 15:51	09/17/25 19:38	1

Client Sample ID: MW-45B-09092025

Date Collected: 09/09/25 08:30

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	197		50.0	15.0	ug/L		09/15/25 15:51	09/17/25 19:42	1
Calcium	154000		200	60.0	ug/L		09/15/25 15:51	09/16/25 21:59	1
Lithium	39.8		20.0	10.0	ug/L		09/15/25 15:51	09/17/25 19:42	1

Client Sample ID: MW-46B-09092025

Date Collected: 09/09/25 09:10

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	79.6		50.0	15.0	ug/L		09/15/25 15:51	09/17/25 20:00	1
Calcium	111000		200	60.0	ug/L		09/15/25 15:51	09/16/25 22:03	1
Lithium	31.8		20.0	10.0	ug/L		09/15/25 15:51	09/17/25 20:00	1

Client Sample ID: MW-47B-09092025

Date Collected: 09/09/25 09:55

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-4

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	145		50.0	15.0	ug/L		09/15/25 15:51	09/17/25 20:15	1
Calcium	120000		200	60.0	ug/L		09/15/25 15:51	09/16/25 22:08	1
Lithium	33.5		20.0	10.0	ug/L		09/15/25 15:51	09/17/25 20:15	1

Client Sample ID: MW-43B-09092025

Date Collected: 09/09/25 10:45

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-5

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	279		50.0	15.0	ug/L		09/15/25 15:51	09/17/25 20:19	1
Calcium	181000		200	60.0	ug/L		09/15/25 15:51	09/16/25 22:25	1
Lithium	51.1		20.0	10.0	ug/L		09/15/25 15:51	09/17/25 20:19	1

Client Sample ID: MW-42B-09092025

Date Collected: 09/09/25 11:30

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-6

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	507		50.0	15.0	ug/L		09/15/25 15:51	09/17/25 20:24	1
Calcium	95400		200	60.0	ug/L		09/15/25 15:51	09/16/25 22:29	1
Lithium	42.8		20.0	10.0	ug/L		09/15/25 15:51	09/17/25 20:24	1

Client Sample ID: MW-37B-09092025

Date Collected: 09/09/25 13:00

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-7

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	195		50.0	15.0	ug/L		09/15/25 15:51	09/17/25 20:29	1
Calcium	180000		200	60.0	ug/L		09/15/25 15:51	09/16/25 22:34	1
Lithium	45.4		20.0	10.0	ug/L		09/15/25 15:51	09/17/25 20:29	1

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Client Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

Method: SW846 6010D - Metals (ICP)

Client Sample ID: MW-36B-09092025

Date Collected: 09/09/25 13:45

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-8

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	128		50.0	15.0	ug/L		09/15/25 15:51	09/17/25 20:34	1
Calcium	118000		200	60.0	ug/L		09/15/25 15:51	09/16/25 22:38	1
Lithium	39.0		20.0	10.0	ug/L		09/15/25 15:51	09/17/25 20:34	1

Client Sample ID: MW-32B-09092025

Date Collected: 09/09/25 14:35

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-9

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	319		50.0	15.0	ug/L		09/15/25 15:51	09/17/25 20:38	1
Calcium	226000		200	60.0	ug/L		09/15/25 15:51	09/16/25 22:42	1
Lithium	94.3		20.0	10.0	ug/L		09/15/25 15:51	09/17/25 20:38	1

Client Sample ID: MW-41B-09092025

Date Collected: 09/09/25 16:25

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-10

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	884		50.0	15.0	ug/L		09/15/25 15:51	09/17/25 20:42	1
Calcium	91800		200	60.0	ug/L		09/15/25 15:51	09/16/25 22:47	1
Lithium	43.4		20.0	10.0	ug/L		09/15/25 15:51	09/17/25 20:42	1

Client Sample ID: MW-38C-09102025

Date Collected: 09/10/25 08:30

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-11

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	56.1		50.0	15.0	ug/L		09/15/25 15:51	09/16/25 23:22	1
Calcium	101000		200	60.0	ug/L		09/15/25 15:51	09/16/25 23:22	1
Lithium	35.1		20.0	10.0	ug/L		09/15/25 15:51	09/16/25 23:22	1

Client Sample ID: MW-21B-09102025

Date Collected: 09/10/25 09:20

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-12

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	160		50.0	15.0	ug/L		09/15/25 15:51	09/16/25 23:26	1
Calcium	396000		200	60.0	ug/L		09/15/25 15:51	09/16/25 23:26	1
Lithium	58.6		20.0	10.0	ug/L		09/15/25 15:51	09/16/25 23:26	1

Client Sample ID: MW-14BR-09102025

Date Collected: 09/10/25 10:30

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-13

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	154		50.0	15.0	ug/L		09/15/25 15:51	09/16/25 23:31	1
Calcium	198000		200	60.0	ug/L		09/15/25 15:51	09/16/25 23:31	1
Lithium	41.4		20.0	10.0	ug/L		09/15/25 15:51	09/16/25 23:31	1

Client Sample ID: MW-20B-09102025

Date Collected: 09/10/25 11:05

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-14

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	210		50.0	15.0	ug/L		09/15/25 15:51	09/16/25 23:35	1
Calcium	130000		200	60.0	ug/L		09/15/25 15:51	09/16/25 23:35	1
Lithium	40.0		20.0	10.0	ug/L		09/15/25 15:51	09/16/25 23:35	1

Eurofins Denver

Client Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

Method: SW846 6010D - Metals (ICP)

Client Sample ID: MW-49B-09102025

Date Collected: 09/10/25 12:40

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-15

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	181		50.0	15.0	ug/L		09/15/25 15:51	09/16/25 23:39	1
Calcium	127000		200	60.0	ug/L		09/15/25 15:51	09/16/25 23:39	1
Lithium	45.4		20.0	10.0	ug/L		09/15/25 15:51	09/16/25 23:39	1

Client Sample ID: MW-39B-09102025

Date Collected: 09/10/25 13:50

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-16

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	154		50.0	15.0	ug/L		09/15/25 15:51	09/16/25 23:44	1
Calcium	117000		200	60.0	ug/L		09/15/25 15:51	09/16/25 23:44	1
Lithium	63.9		20.0	10.0	ug/L		09/15/25 15:51	09/16/25 23:44	1

Client Sample ID: MW-40B-09102025

Date Collected: 09/10/25 14:30

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-17

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	158		50.0	15.0	ug/L		09/15/25 15:51	09/16/25 23:48	1
Calcium	126000		200	60.0	ug/L		09/15/25 15:51	09/16/25 23:48	1
Lithium	58.1		20.0	10.0	ug/L		09/15/25 15:51	09/16/25 23:48	1

Client Sample ID: MW-52B-09102025

Date Collected: 09/10/25 15:25

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-18

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	170		50.0	15.0	ug/L		09/15/25 15:51	09/16/25 23:52	1
Calcium	152000		200	60.0	ug/L		09/15/25 15:51	09/16/25 23:52	1
Lithium	55.9		20.0	10.0	ug/L		09/15/25 15:51	09/16/25 23:52	1

Client Sample ID: MW-53BR-09102025

Date Collected: 09/10/25 16:20

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-19

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	111		50.0	15.0	ug/L		09/15/25 15:51	09/16/25 23:57	1
Calcium	105000		200	60.0	ug/L		09/15/25 15:51	09/16/25 23:57	1
Lithium	51.3		20.0	10.0	ug/L		09/15/25 15:51	09/16/25 23:57	1

Client Sample ID: MW-38B-09102025

Date Collected: 09/10/25 17:20

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-20

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	2910		50.0	15.0	ug/L		09/15/25 15:51	09/17/25 00:01	1
Calcium	384000		200	60.0	ug/L		09/15/25 15:51	09/17/25 00:01	1
Lithium	108		20.0	10.0	ug/L		09/15/25 15:51	09/17/25 00:01	1

Client Sample ID: DUP-09102025

Date Collected: 09/10/25 00:00

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-21

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	164		50.0	15.0	ug/L		09/15/25 16:01	09/16/25 18:17	1
Calcium	404000		200	60.0	ug/L		09/15/25 16:01	09/16/25 18:17	1
Lithium	56.0		20.0	10.0	ug/L		09/15/25 16:01	09/16/25 18:17	1

Eurofins Denver

Client Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

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

Client Sample ID: MW-44B-09092025

Date Collected: 09/09/25 07:50

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.64		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 07:06	1
Barium	45.5		2.00	0.550	ug/L		09/15/25 15:51	09/17/25 07:06	1
Beryllium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 07:06	1
Cadmium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 07:06	1
Cobalt	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 07:06	1
Chromium	2.98	J	3.00	1.00	ug/L		09/15/25 15:51	09/17/25 07:06	1
Molybdenum	5.59		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 07:06	1
Lead	ND		1.00	0.500	ug/L		09/15/25 15:51	09/17/25 07:06	1
Antimony	ND		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 07:06	1
Selenium	14.0		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 07:06	1
Thallium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 07:06	1

Client Sample ID: MW-45B-09092025

Date Collected: 09/09/25 08:30

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	3.52		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 07:09	1
Barium	46.3		2.00	0.550	ug/L		09/15/25 15:51	09/17/25 07:09	1
Beryllium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 07:09	1
Cadmium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 07:09	1
Cobalt	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 07:09	1
Chromium	ND		3.00	1.00	ug/L		09/15/25 15:51	09/17/25 07:09	1
Molybdenum	7.16		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 07:09	1
Lead	ND		1.00	0.500	ug/L		09/15/25 15:51	09/17/25 07:09	1
Antimony	ND		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 07:09	1
Selenium	8.43		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 07:09	1
Thallium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 07:09	1

Client Sample ID: MW-46B-09092025

Date Collected: 09/09/25 09:10

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.51		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 07:12	1
Barium	59.2		2.00	0.550	ug/L		09/15/25 15:51	09/17/25 07:12	1
Beryllium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 07:12	1
Cadmium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 07:12	1
Cobalt	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 07:12	1
Chromium	10.2		3.00	1.00	ug/L		09/15/25 15:51	09/17/25 07:12	1
Molybdenum	3.34		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 07:12	1
Lead	ND		1.00	0.500	ug/L		09/15/25 15:51	09/17/25 07:12	1
Antimony	ND		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 07:12	1
Selenium	4.14		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 07:12	1
Thallium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 07:12	1

Client Sample ID: MW-47B-09092025

Date Collected: 09/09/25 09:55

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-4

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	3.02		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 07:15	1
Barium	75.4		2.00	0.550	ug/L		09/15/25 15:51	09/17/25 07:15	1

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Client Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

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

Client Sample ID: MW-47B-09092025

Date Collected: 09/09/25 09:55

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-4

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 07:15	1
Cadmium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 07:15	1
Cobalt	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 07:15	1
Chromium	5.22		3.00	1.00	ug/L		09/15/25 15:51	09/17/25 07:15	1
Molybdenum	5.56		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 07:15	1
Lead	ND		1.00	0.500	ug/L		09/15/25 15:51	09/17/25 07:15	1
Antimony	ND		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 07:15	1
Selenium	5.11		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 07:15	1
Thallium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 07:15	1

Client Sample ID: MW-43B-09092025

Date Collected: 09/09/25 10:45

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-5

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	3.51		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 07:17	1
Barium	57.4		2.00	0.550	ug/L		09/15/25 15:51	09/17/25 07:17	1
Beryllium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 07:17	1
Cadmium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 07:17	1
Cobalt	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 07:17	1
Chromium	1.28	J	3.00	1.00	ug/L		09/15/25 15:51	09/17/25 07:17	1
Molybdenum	13.5		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 07:17	1
Lead	ND		1.00	0.500	ug/L		09/15/25 15:51	09/17/25 07:17	1
Antimony	ND		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 07:17	1
Selenium	2.21		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 07:17	1
Thallium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 07:17	1

Client Sample ID: MW-42B-09092025

Date Collected: 09/09/25 11:30

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-6

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	5.81		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 07:20	1
Barium	21.8		2.00	0.550	ug/L		09/15/25 15:51	09/17/25 07:20	1
Beryllium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 07:20	1
Cadmium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 07:20	1
Cobalt	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 07:20	1
Chromium	1.56	J	3.00	1.00	ug/L		09/15/25 15:51	09/17/25 07:20	1
Molybdenum	25.8		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 07:20	1
Lead	ND		1.00	0.500	ug/L		09/15/25 15:51	09/17/25 07:20	1
Antimony	ND		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 07:20	1
Selenium	20.9		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 07:20	1
Thallium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 07:20	1

Client Sample ID: MW-37B-09092025

Date Collected: 09/09/25 13:00

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-7

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.90	J	2.00	0.500	ug/L		09/15/25 15:51	09/17/25 01:50	1
Barium	67.0		2.00	0.550	ug/L		09/15/25 15:51	09/17/25 01:50	1
Beryllium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 07:29	1
Cadmium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 01:50	1

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Client Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

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

Client Sample ID: MW-37B-09092025

Date Collected: 09/09/25 13:00

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-7

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 01:50	1
Chromium	2.24	J	3.00	1.00	ug/L		09/15/25 15:51	09/17/25 01:50	1
Molybdenum	31.2		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 01:50	1
Lead	ND		1.00	0.500	ug/L		09/15/25 15:51	09/17/25 01:50	1
Antimony	ND		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 01:50	1
Selenium	3.50		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 01:50	1
Thallium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 01:50	1

Client Sample ID: MW-36B-09092025

Date Collected: 09/09/25 13:45

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-8

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.71		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 01:53	1
Barium	69.5		2.00	0.550	ug/L		09/15/25 15:51	09/17/25 01:53	1
Beryllium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 07:32	1
Cadmium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 01:53	1
Cobalt	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 01:53	1
Chromium	ND		3.00	1.00	ug/L		09/15/25 15:51	09/17/25 01:53	1
Molybdenum	7.16		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 01:53	1
Lead	ND		1.00	0.500	ug/L		09/15/25 15:51	09/17/25 01:53	1
Antimony	ND		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 01:53	1
Selenium	9.58		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 01:53	1
Thallium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 01:53	1

Client Sample ID: MW-32B-09092025

Date Collected: 09/09/25 14:35

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-9

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.30	J	2.00	0.500	ug/L		09/15/25 15:51	09/17/25 01:56	1
Barium	33.5		2.00	0.550	ug/L		09/15/25 15:51	09/17/25 01:56	1
Beryllium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/19/25 15:58	1
Cadmium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 01:56	1
Cobalt	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 01:56	1
Chromium	ND		3.00	1.00	ug/L		09/15/25 15:51	09/17/25 01:56	1
Molybdenum	2.72		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 01:56	1
Lead	ND		1.00	0.500	ug/L		09/15/25 15:51	09/17/25 01:56	1
Antimony	ND		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 01:56	1
Selenium	1.82	J	2.00	0.500	ug/L		09/15/25 15:51	09/17/25 01:56	1
Thallium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 01:56	1

Client Sample ID: MW-41B-09092025

Date Collected: 09/09/25 16:25

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-10

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.43		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 01:59	1
Barium	20.0		2.00	0.550	ug/L		09/15/25 15:51	09/17/25 01:59	1
Beryllium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 07:39	1
Cadmium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 01:59	1
Cobalt	0.469	J	1.00	0.250	ug/L		09/15/25 15:51	09/17/25 01:59	1
Chromium	4.35		3.00	1.00	ug/L		09/15/25 15:51	09/17/25 01:59	1

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Client Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

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

Client Sample ID: MW-41B-09092025

Date Collected: 09/09/25 16:25

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-10

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	70.7		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 01:59	1
Lead	ND		1.00	0.500	ug/L		09/15/25 15:51	09/17/25 01:59	1
Antimony	ND		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 01:59	1
Selenium	7.66		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 01:59	1
Thallium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 01:59	1

Client Sample ID: MW-38C-09102025

Date Collected: 09/10/25 08:30

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-11

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.63		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:18	1
Barium	50.6		2.00	0.550	ug/L		09/15/25 15:51	09/17/25 02:18	1
Beryllium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 08:53	1
Cadmium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 02:18	1
Cobalt	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 02:18	1
Chromium	ND		3.00	1.00	ug/L		09/15/25 15:51	09/17/25 02:18	1
Molybdenum	5.25		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:18	1
Lead	ND		1.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:18	1
Antimony	ND		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:18	1
Selenium	5.06		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:18	1
Thallium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 02:18	1

Client Sample ID: MW-21B-09102025

Date Collected: 09/10/25 09:20

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-12

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.82	J	2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:20	1
Barium	48.8		2.00	0.550	ug/L		09/15/25 15:51	09/17/25 02:20	1
Beryllium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 08:56	1
Cadmium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 02:20	1
Cobalt	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 02:20	1
Chromium	18.5		3.00	1.00	ug/L		09/15/25 15:51	09/17/25 02:20	1
Molybdenum	55.9		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:20	1
Lead	ND		1.00	0.500	ug/L		09/15/25 15:51	09/17/25 08:56	1
Antimony	ND		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:20	1
Selenium	18.8		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:20	1
Thallium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 02:20	1

Client Sample ID: MW-14BR-09102025

Date Collected: 09/10/25 10:30

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-13

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.21		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:23	1
Barium	47.4		2.00	0.550	ug/L		09/15/25 15:51	09/17/25 02:23	1
Beryllium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 08:59	1
Cadmium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 02:23	1
Cobalt	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 02:23	1
Chromium	4.69		3.00	1.00	ug/L		09/15/25 15:51	09/17/25 02:23	1
Molybdenum	12.9		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:23	1
Lead	ND		1.00	0.500	ug/L		09/15/25 15:51	09/17/25 08:59	1

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Client Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

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

Client Sample ID: MW-14BR-09102025

Date Collected: 09/10/25 10:30

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-13

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:23	1
Selenium	18.7		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:23	1
Thallium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 02:23	1

Client Sample ID: MW-20B-09102025

Date Collected: 09/10/25 11:05

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-14

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.90		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:26	1
Barium	73.3		2.00	0.550	ug/L		09/15/25 15:51	09/17/25 02:26	1
Beryllium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 09:01	1
Cadmium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 02:26	1
Cobalt	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 02:26	1
Chromium	ND		3.00	1.00	ug/L		09/15/25 15:51	09/17/25 02:26	1
Molybdenum	8.53		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:26	1
Lead	ND		1.00	0.500	ug/L		09/15/25 15:51	09/17/25 09:01	1
Antimony	ND		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:26	1
Selenium	2.94		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:26	1
Thallium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 02:26	1

Client Sample ID: MW-49B-09102025

Date Collected: 09/10/25 12:40

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-15

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.29		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:29	1
Barium	60.0		2.00	0.550	ug/L		09/15/25 15:51	09/17/25 02:29	1
Beryllium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 09:04	1
Cadmium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 02:29	1
Cobalt	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 02:29	1
Chromium	ND		3.00	1.00	ug/L		09/15/25 15:51	09/17/25 02:29	1
Molybdenum	2.83		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:29	1
Lead	ND		1.00	0.500	ug/L		09/15/25 15:51	09/17/25 09:04	1
Antimony	ND		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:29	1
Selenium	0.655	J	2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:29	1
Thallium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 02:29	1

Client Sample ID: MW-39B-09102025

Date Collected: 09/10/25 13:50

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-16

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	3.16		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:31	1
Barium	30.3		2.00	0.550	ug/L		09/15/25 15:51	09/17/25 02:31	1
Beryllium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 09:07	1
Cadmium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 02:31	1
Cobalt	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 02:31	1
Chromium	ND		3.00	1.00	ug/L		09/15/25 15:51	09/17/25 02:31	1
Molybdenum	3.19		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:31	1
Lead	ND		1.00	0.500	ug/L		09/15/25 15:51	09/17/25 09:07	1
Antimony	ND		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:31	1
Selenium	4.51		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:31	1

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Client Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

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

Client Sample ID: MW-39B-09102025

Date Collected: 09/10/25 13:50

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-16

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 02:31	1

Client Sample ID: MW-40B-09102025

Date Collected: 09/10/25 14:30

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-17

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.67		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:34	1
Barium	29.9		2.00	0.550	ug/L		09/15/25 15:51	09/17/25 02:34	1
Beryllium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 09:10	1
Cadmium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 02:34	1
Cobalt	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 02:34	1
Chromium	ND		3.00	1.00	ug/L		09/15/25 15:51	09/17/25 02:34	1
Molybdenum	6.03		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:34	1
Lead	ND		1.00	0.500	ug/L		09/15/25 15:51	09/17/25 09:10	1
Antimony	ND		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:34	1
Selenium	5.11		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:34	1
Thallium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 02:34	1

Client Sample ID: MW-52B-09102025

Date Collected: 09/10/25 15:25

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-18

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.07		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:37	1
Barium	50.9		2.00	0.550	ug/L		09/15/25 15:51	09/17/25 02:37	1
Beryllium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 09:13	1
Cadmium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 02:37	1
Cobalt	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 02:37	1
Chromium	ND		3.00	1.00	ug/L		09/15/25 15:51	09/17/25 02:37	1
Molybdenum	3.90		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:37	1
Lead	ND		1.00	0.500	ug/L		09/15/25 15:51	09/17/25 09:13	1
Antimony	ND		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:37	1
Selenium	1.63	J	2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:37	1
Thallium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 02:37	1

Client Sample ID: MW-53BR-09102025

Date Collected: 09/10/25 16:20

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-19

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.92		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:40	1
Barium	49.9		2.00	0.550	ug/L		09/15/25 15:51	09/17/25 02:40	1
Beryllium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 09:35	1
Cadmium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 02:40	1
Cobalt	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 02:40	1
Chromium	1.18	J	3.00	1.00	ug/L		09/15/25 15:51	09/17/25 02:40	1
Molybdenum	6.23		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:40	1
Lead	ND		1.00	0.500	ug/L		09/15/25 15:51	09/17/25 09:35	1
Antimony	ND		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:40	1
Selenium	11.5		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:40	1
Thallium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 02:40	1

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Client Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

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

Client Sample ID: MW-38B-09102025

Date Collected: 09/10/25 17:20

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-20

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	3.44		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:42	1
Barium	17.5		2.00	0.550	ug/L		09/15/25 15:51	09/17/25 02:42	1
Beryllium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 09:38	1
Cadmium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 02:42	1
Cobalt	0.431	J	1.00	0.250	ug/L		09/15/25 15:51	09/17/25 02:42	1
Chromium	5.79		3.00	1.00	ug/L		09/15/25 15:51	09/17/25 02:42	1
Molybdenum	170		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:42	1
Lead	ND		1.00	0.500	ug/L		09/15/25 15:51	09/17/25 09:38	1
Antimony	ND		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:42	1
Selenium	3.39		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 02:42	1
Thallium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 02:42	1

Client Sample ID: DUP-09102025

Date Collected: 09/10/25 00:00

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-21

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.31		2.00	0.500	ug/L		09/15/25 16:03	09/18/25 16:39	1
Barium	50.0		2.00	0.550	ug/L		09/15/25 16:03	09/17/25 22:38	1
Beryllium	ND		1.00	0.250	ug/L		09/15/25 16:03	09/18/25 16:39	1
Cadmium	ND		1.00	0.250	ug/L		09/15/25 16:03	09/17/25 22:38	1
Cobalt	ND		1.00	0.250	ug/L		09/15/25 16:03	09/18/25 16:39	1
Chromium	20.6		3.00	1.00	ug/L		09/15/25 16:03	09/18/25 16:39	1
Molybdenum	54.6		2.00	0.500	ug/L		09/15/25 16:03	09/17/25 22:38	1
Lead	ND		1.00	0.500	ug/L		09/15/25 16:03	09/17/25 22:38	1
Antimony	ND		2.00	0.500	ug/L		09/15/25 16:03	09/17/25 22:38	1
Selenium	17.8		2.00	0.500	ug/L		09/15/25 16:03	09/17/25 22:38	1
Thallium	ND		1.00	0.250	ug/L		09/15/25 16:03	09/17/25 22:38	1

Method: SW846 7470A - Mercury (CVAA)

Client Sample ID: MW-44B-09092025

Date Collected: 09/09/25 07:50

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.0000600	mg/L		09/17/25 08:37	09/17/25 16:25	1

Client Sample ID: MW-45B-09092025

Date Collected: 09/09/25 08:30

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.0000600	mg/L		09/17/25 08:37	09/17/25 16:29	1

Client Sample ID: MW-46B-09092025

Date Collected: 09/09/25 09:10

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.0000600	mg/L		09/17/25 08:37	09/17/25 16:31	1

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Client Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

Method: SW846 7470A - Mercury (CVAA)

Client Sample ID: MW-47B-09092025

Date Collected: 09/09/25 09:55

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-4

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.0000600	mg/L		09/17/25 08:37	09/17/25 16:32	1

Client Sample ID: MW-43B-09092025

Date Collected: 09/09/25 10:45

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-5

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.0000600	mg/L		09/17/25 08:37	09/17/25 16:33	1

Client Sample ID: MW-42B-09092025

Date Collected: 09/09/25 11:30

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-6

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.0000600	mg/L		09/17/25 08:37	09/17/25 16:35	1

Client Sample ID: MW-37B-09092025

Date Collected: 09/09/25 13:00

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-7

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.0000600	mg/L		09/17/25 08:37	09/17/25 16:36	1

Client Sample ID: MW-36B-09092025

Date Collected: 09/09/25 13:45

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-8

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.0000600	mg/L		09/17/25 08:37	09/17/25 16:38	1

Client Sample ID: MW-32B-09092025

Date Collected: 09/09/25 14:35

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-9

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.0000600	mg/L		09/17/25 08:37	09/17/25 16:39	1

Client Sample ID: MW-41B-09092025

Date Collected: 09/09/25 16:25

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-10

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.0000600	mg/L		09/17/25 08:37	09/17/25 16:40	1

Client Sample ID: MW-38C-09102025

Date Collected: 09/10/25 08:30

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-11

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.0000600	mg/L		09/17/25 08:37	09/17/25 16:50	1

Client Sample ID: MW-21B-09102025

Date Collected: 09/10/25 09:20

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-12

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.0000600	mg/L		09/17/25 08:37	09/17/25 16:51	1

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Client Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

Method: SW846 7470A - Mercury (CVAA)

Client Sample ID: MW-14BR-09102025

Date Collected: 09/10/25 10:30

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-13

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.0000600	mg/L		09/17/25 08:37	09/17/25 16:53	1

Client Sample ID: MW-20B-09102025

Date Collected: 09/10/25 11:05

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-14

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.0000600	mg/L		09/17/25 08:37	09/17/25 16:54	1

Client Sample ID: MW-49B-09102025

Date Collected: 09/10/25 12:40

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-15

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.0000600	mg/L		09/17/25 08:37	09/17/25 16:55	1

Client Sample ID: MW-39B-09102025

Date Collected: 09/10/25 13:50

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-16

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.0000600	mg/L		09/17/25 08:37	09/17/25 16:57	1

Client Sample ID: MW-40B-09102025

Date Collected: 09/10/25 14:30

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-17

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.0000600	mg/L		09/17/25 08:37	09/17/25 16:58	1

Client Sample ID: MW-52B-09102025

Date Collected: 09/10/25 15:25

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-18

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.0000600	mg/L		09/17/25 08:37	09/17/25 17:02	1

Client Sample ID: MW-53BR-09102025

Date Collected: 09/10/25 16:20

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-19

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.0000600	mg/L		09/17/25 08:37	09/17/25 17:04	1

Client Sample ID: MW-38B-09102025

Date Collected: 09/10/25 17:20

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-20

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.0000600	mg/L		09/17/25 08:37	09/17/25 17:05	1

Client Sample ID: DUP-09102025

Date Collected: 09/10/25 00:00

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-21

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.0000600	mg/L		09/15/25 09:43	09/15/25 18:26	1

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Client Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

General Chemistry

Client Sample ID: MW-44B-09092025

Date Collected: 09/09/25 07:50

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	65.9		3.00	1.30	mg/L			09/13/25 20:23	1
Fluoride (SW846 9056A)	0.666		0.500	0.200	mg/L			09/13/25 20:23	1
Sulfate (SW846 9056A)	455		15.0	6.50	mg/L			09/13/25 20:38	5
Total Dissolved Solids (TDS) (SM 2540C)	1160		20.0	12.0	mg/L			09/15/25 09:38	1

Client Sample ID: MW-45B-09092025

Date Collected: 09/09/25 08:30

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	58.9		3.00	1.30	mg/L			09/13/25 18:17	1
Fluoride (SW846 9056A)	0.785	F1	0.500	0.200	mg/L			09/13/25 18:17	1
Sulfate (SW846 9056A)	390		15.0	6.50	mg/L			09/15/25 17:28	5
Total Dissolved Solids (TDS) (SM 2540C)	1010		10.0	6.00	mg/L			09/15/25 09:38	1

Client Sample ID: MW-46B-09092025

Date Collected: 09/09/25 09:10

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	52.3		3.00	1.30	mg/L			09/13/25 20:52	1
Fluoride (SW846 9056A)	0.615		0.500	0.200	mg/L			09/13/25 20:52	1
Sulfate (SW846 9056A)	325		15.0	6.50	mg/L			09/13/25 21:06	5
Total Dissolved Solids (TDS) (SM 2540C)	812		10.0	6.00	mg/L			09/15/25 09:38	1

Client Sample ID: MW-47B-09092025

Date Collected: 09/09/25 09:55

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-4

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	36.9		3.00	1.30	mg/L			09/13/25 21:48	1
Fluoride (SW846 9056A)	0.387	J	0.500	0.200	mg/L			09/13/25 21:48	1
Sulfate (SW846 9056A)	327		15.0	6.50	mg/L			09/13/25 22:02	5
Total Dissolved Solids (TDS) (SM 2540C)	807		10.0	6.00	mg/L			09/15/25 09:38	1

Client Sample ID: MW-43B-09092025

Date Collected: 09/09/25 10:45

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-5

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	112		3.00	1.30	mg/L			09/14/25 09:45	1
Fluoride (SW846 9056A)	0.458	J	0.500	0.200	mg/L			09/14/25 09:45	1
Sulfate (SW846 9056A)	767		30.0	13.0	mg/L			09/14/25 09:59	10
Total Dissolved Solids (TDS) (SM 2540C)	1590		20.0	12.0	mg/L			09/15/25 09:38	1

Client Sample ID: MW-42B-09092025

Date Collected: 09/09/25 11:30

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-6

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	74.3		3.00	1.30	mg/L			09/13/25 22:16	1
Fluoride (SW846 9056A)	0.642		0.500	0.200	mg/L			09/13/25 22:16	1

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Client Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

General Chemistry (Continued)

Client Sample ID: MW-42B-09092025

Date Collected: 09/09/25 11:30

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-6

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate (SW846 9056A)	470		15.0	6.50	mg/L			09/13/25 22:30	5
Total Dissolved Solids (TDS) (SM 2540C)	1100		20.0	12.0	mg/L			09/15/25 09:38	1

Client Sample ID: MW-37B-09092025

Date Collected: 09/09/25 13:00

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-7

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	68.8		3.00	1.30	mg/L			09/13/25 22:44	1
Fluoride (SW846 9056A)	0.511		0.500	0.200	mg/L			09/13/25 22:44	1
Sulfate (SW846 9056A)	527		15.0	6.50	mg/L			09/13/25 22:58	5
Total Dissolved Solids (TDS) (SM 2540C)	1180		20.0	12.0	mg/L			09/15/25 09:40	1

Client Sample ID: MW-36B-09092025

Date Collected: 09/09/25 13:45

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-8

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	47.6		3.00	1.30	mg/L			09/13/25 23:12	1
Fluoride (SW846 9056A)	0.698		0.500	0.200	mg/L			09/13/25 23:12	1
Sulfate (SW846 9056A)	361		15.0	6.50	mg/L			09/13/25 23:26	5
Total Dissolved Solids (TDS) (SM 2540C)	870		10.0	6.00	mg/L			09/15/25 09:40	1

Client Sample ID: MW-32B-09092025

Date Collected: 09/09/25 14:35

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-9

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	121		3.00	1.30	mg/L			09/14/25 10:13	1
Fluoride (SW846 9056A)	0.455	J	0.500	0.200	mg/L			09/14/25 10:13	1
Sulfate (SW846 9056A)	1070		30.0	13.0	mg/L			09/14/25 10:27	10
Total Dissolved Solids (TDS) (SM 2540C)	2150		20.0	12.0	mg/L			09/15/25 09:40	1

Client Sample ID: MW-41B-09092025

Date Collected: 09/09/25 16:25

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-10

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	63.2		3.00	1.30	mg/L			09/13/25 23:40	1
Fluoride (SW846 9056A)	0.585		0.500	0.200	mg/L			09/13/25 23:40	1
Sulfate (SW846 9056A)	538	F1	15.0	6.50	mg/L			09/14/25 00:37	5
Total Dissolved Solids (TDS) (SM 2540C)	1200		20.0	12.0	mg/L			09/15/25 09:40	1

Client Sample ID: MW-38C-09102025

Date Collected: 09/10/25 08:30

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-11

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	33.0		3.00	1.30	mg/L			09/13/25 19:13	1
Fluoride (SW846 9056A)	0.581		0.500	0.200	mg/L			09/13/25 19:13	1
Sulfate (SW846 9056A)	235		15.0	6.50	mg/L			09/15/25 17:42	5

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Client Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

General Chemistry (Continued)

Client Sample ID: MW-38C-09102025

Date Collected: 09/10/25 08:30

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-11

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS) (SM 2540C)	687		10.0	6.00	mg/L			09/16/25 09:53	1

Client Sample ID: MW-21B-09102025

Date Collected: 09/10/25 09:20

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-12

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	369		30.0	13.0	mg/L			09/14/25 10:56	10
Fluoride (SW846 9056A)	0.492	J	0.500	0.200	mg/L			09/14/25 10:42	1
Sulfate (SW846 9056A)	1290		30.0	13.0	mg/L			09/14/25 10:56	10
Total Dissolved Solids (TDS) (SM 2540C)	2440		20.0	12.0	mg/L			09/16/25 09:53	1

Client Sample ID: MW-14BR-09102025

Date Collected: 09/10/25 10:30

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-13

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	93.7		3.00	1.30	mg/L			09/13/25 19:27	1
Fluoride (SW846 9056A)	0.412	J	0.500	0.200	mg/L			09/13/25 19:27	1
Sulfate (SW846 9056A)	481		15.0	6.50	mg/L			09/15/25 17:56	5
Total Dissolved Solids (TDS) (SM 2540C)	1110		20.0	12.0	mg/L			09/16/25 09:53	1

Client Sample ID: MW-20B-09102025

Date Collected: 09/10/25 11:05

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-14

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	48.2		3.00	1.30	mg/L			09/13/25 19:41	1
Fluoride (SW846 9056A)	0.735		0.500	0.200	mg/L			09/15/25 18:11	1
Sulfate (SW846 9056A)	384		15.0	6.50	mg/L			09/15/25 18:25	5
Total Dissolved Solids (TDS) (SM 2540C)	971		10.0	6.00	mg/L			09/16/25 09:53	1

Client Sample ID: MW-49B-09102025

Date Collected: 09/10/25 12:40

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-15

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	26.5		3.00	1.30	mg/L			09/13/25 19:55	1
Fluoride (SW846 9056A)	0.557		0.500	0.200	mg/L			09/13/25 19:55	1
Sulfate (SW846 9056A)	327		15.0	6.50	mg/L			09/15/25 19:07	5
Total Dissolved Solids (TDS) (SM 2540C)	809		10.0	6.00	mg/L			09/16/25 09:53	1

Client Sample ID: MW-39B-09102025

Date Collected: 09/10/25 13:50

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-16

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	49.2		3.00	1.30	mg/L			09/14/25 02:01	1
Fluoride (SW846 9056A)	0.654		0.500	0.200	mg/L			09/14/25 02:01	1
Sulfate (SW846 9056A)	474		15.0	6.50	mg/L			09/14/25 02:15	5
Total Dissolved Solids (TDS) (SM 2540C)	1180		20.0	12.0	mg/L			09/16/25 09:53	1

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Client Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

General Chemistry

Client Sample ID: MW-40B-09102025

Date Collected: 09/10/25 14:30

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-17

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	33.0		3.00	1.30	mg/L			09/14/25 02:29	1
Fluoride (SW846 9056A)	0.846		0.500	0.200	mg/L			09/14/25 02:29	1
Sulfate (SW846 9056A)	326		15.0	6.50	mg/L			09/14/25 02:43	5
Total Dissolved Solids (TDS) (SM 2540C)	915		10.0	6.00	mg/L			09/16/25 09:53	1

Client Sample ID: MW-52B-09102025

Date Collected: 09/10/25 15:25

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-18

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	50.0		3.00	1.30	mg/L			09/14/25 02:57	1
Fluoride (SW846 9056A)	0.215	J	0.500	0.200	mg/L			09/14/25 02:57	1
Sulfate (SW846 9056A)	510		15.0	6.50	mg/L			09/14/25 03:11	5
Total Dissolved Solids (TDS) (SM 2540C)	1180		20.0	12.0	mg/L			09/16/25 09:53	1

Client Sample ID: MW-53BR-09102025

Date Collected: 09/10/25 16:20

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-19

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	45.5		3.00	1.30	mg/L			09/13/25 20:09	1
Fluoride (SW846 9056A)	1.04		0.500	0.200	mg/L			09/13/25 20:09	1
Sulfate (SW846 9056A)	241		15.0	6.50	mg/L			09/15/25 19:21	5
Total Dissolved Solids (TDS) (SM 2540C)	787		10.0	6.00	mg/L			09/16/25 09:53	1

Client Sample ID: MW-38B-09102025

Date Collected: 09/10/25 17:20

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-20

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	228		15.0	6.50	mg/L			09/14/25 12:48	5
Fluoride (SW846 9056A)	0.332	J	0.500	0.200	mg/L			09/14/25 12:34	1
Sulfate (SW846 9056A)	5560		150	65.0	mg/L			09/14/25 13:02	50
Total Dissolved Solids (TDS) (SM 2540C)	8500		100	60.0	mg/L			09/16/25 09:53	1

Client Sample ID: DUP-09102025

Date Collected: 09/10/25 00:00

Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-21

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	362		30.0	13.0	mg/L			09/14/25 05:04	10
Fluoride (SW846 9056A)	0.561		0.500	0.200	mg/L			09/14/25 04:50	1
Sulfate (SW846 9056A)	1270		30.0	13.0	mg/L			09/14/25 05:04	10
Total Dissolved Solids (TDS) (SM 2540C)	2500		20.0	12.0	mg/L			09/16/25 09:53	1

QC Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 280-713410/1-A
Matrix: Water
Analysis Batch: 713758

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 713410

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		200	60.0	ug/L		09/15/25 15:51	09/16/25 21:46	1

Lab Sample ID: MB 280-713410/1-A
Matrix: Water
Analysis Batch: 713913

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 713410

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		50.0	15.0	ug/L		09/15/25 15:51	09/17/25 19:29	1
Lithium	ND		20.0	10.0	ug/L		09/15/25 15:51	09/17/25 19:29	1

Lab Sample ID: LCS 280-713410/2-A
Matrix: Water
Analysis Batch: 713758

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 713410

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	50000	46940		ug/L		94	85 - 115

Lab Sample ID: LCS 280-713410/2-A
Matrix: Water
Analysis Batch: 713913

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 713410

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2000	1992		ug/L		100	85 - 115
Lithium	1000	981.0		ug/L		98	85 - 115

Lab Sample ID: 280-213352-10 MS
Matrix: Water
Analysis Batch: 713758

Client Sample ID: MW-41B-09092025
Prep Type: Total/NA
Prep Batch: 713410

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	91800		50000	137800		ug/L		92	75 - 125

Lab Sample ID: 280-213352-10 MS
Matrix: Water
Analysis Batch: 713913

Client Sample ID: MW-41B-09092025
Prep Type: Total/NA
Prep Batch: 713410

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	884		2000	2941		ug/L		103	75 - 125
Lithium	43.4		1000	1062		ug/L		102	75 - 125

Lab Sample ID: 280-213352-10 MSD
Matrix: Water
Analysis Batch: 713758

Client Sample ID: MW-41B-09092025
Prep Type: Total/NA
Prep Batch: 713410

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Calcium	91800		50000	138000		ug/L		92	75 - 125	0	20

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QC Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

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

Lab Sample ID: 280-213352-10 MSD

Matrix: Water

Analysis Batch: 713913

Client Sample ID: MW-41B-09092025

Prep Type: Total/NA

Prep Batch: 713410

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	884		2000	3014		ug/L		106	75 - 125	2	20
Lithium	43.4		1000	1078		ug/L		104	75 - 125	2	20

Lab Sample ID: MB 280-713412/1-A

Matrix: Water

Analysis Batch: 713758

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 713412

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		50.0	15.0	ug/L		09/15/25 16:01	09/16/25 16:16	1
Calcium	ND		200	60.0	ug/L		09/15/25 16:01	09/16/25 16:16	1
Lithium	ND		20.0	10.0	ug/L		09/15/25 16:01	09/16/25 16:16	1

Lab Sample ID: LCS 280-713412/2-A

Matrix: Water

Analysis Batch: 713758

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 713412

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2000	1961		ug/L		98	85 - 115
Calcium	50000	48610		ug/L		97	85 - 115
Lithium	1000	973.3		ug/L		97	85 - 115

Lab Sample ID: 280-213352-21 MS

Matrix: Water

Analysis Batch: 713758

Client Sample ID: DUP-09102025

Prep Type: Total/NA

Prep Batch: 713412

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	164		2000	2166		ug/L		100	75 - 125
Calcium	404000		50000	450900	4	ug/L		94	75 - 125
Lithium	56.0		1000	1053		ug/L		100	75 - 125

Lab Sample ID: 280-213352-21 MSD

Matrix: Water

Analysis Batch: 713758

Client Sample ID: DUP-09102025

Prep Type: Total/NA

Prep Batch: 713412

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	164		2000	2188		ug/L		101	75 - 125	1	20
Calcium	404000		50000	449700	4	ug/L		91	75 - 125	0	20
Lithium	56.0		1000	1060		ug/L		100	75 - 125	1	20

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-713410/1-A

Matrix: Water

Analysis Batch: 713715

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 713410

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 07:01	1
Barium	ND		2.00	0.550	ug/L		09/15/25 15:51	09/17/25 07:01	1
Beryllium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 07:01	1
Cadmium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 07:01	1

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QC Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

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

Lab Sample ID: MB 280-713410/1-A
Matrix: Water
Analysis Batch: 713715

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 713410

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 07:01	1
Chromium	ND		3.00	1.00	ug/L		09/15/25 15:51	09/17/25 07:01	1
Molybdenum	ND		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 07:01	1
Lead	ND		1.00	0.500	ug/L		09/15/25 15:51	09/17/25 07:01	1
Antimony	ND		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 07:01	1
Selenium	ND		2.00	0.500	ug/L		09/15/25 15:51	09/17/25 07:01	1
Thallium	ND		1.00	0.250	ug/L		09/15/25 15:51	09/17/25 07:01	1

Lab Sample ID: LCS 280-713410/25-A
Matrix: Water
Analysis Batch: 713715

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 713410

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	40.0	40.75		ug/L		102	85 - 115
Barium	40.0	38.66		ug/L		97	85 - 115
Beryllium	40.0	41.05		ug/L		103	85 - 115
Cadmium	40.0	36.26		ug/L		91	85 - 115
Cobalt	40.0	37.85		ug/L		95	85 - 115
Chromium	40.0	38.25		ug/L		96	85 - 115
Molybdenum	40.0	37.61		ug/L		94	85 - 115
Lead	40.0	38.51		ug/L		96	85 - 115
Antimony	40.0	38.15		ug/L		95	85 - 115
Selenium	40.0	42.21		ug/L		106	85 - 115
Thallium	40.0	39.02		ug/L		98	85 - 115

Lab Sample ID: 280-213352-10 MS
Matrix: Water
Analysis Batch: 713711

Client Sample ID: MW-41B-09092025
Prep Type: Total/NA
Prep Batch: 713410

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	4.43		40.0	41.19		ug/L		92	75 - 125
Barium	20.0		40.0	62.49		ug/L		106	75 - 125
Cadmium	ND		40.0	37.04		ug/L		93	75 - 125
Cobalt	0.469	J	40.0	36.00		ug/L		89	75 - 125
Chromium	4.35		40.0	40.55		ug/L		90	75 - 125
Molybdenum	70.7		40.0	110.4		ug/L		99	75 - 125
Lead	ND		40.0	38.33		ug/L		96	75 - 125
Antimony	ND		40.0	39.83		ug/L		100	75 - 125
Selenium	7.66		40.0	45.28		ug/L		94	75 - 125
Thallium	ND		40.0	38.74		ug/L		97	75 - 125

Lab Sample ID: 280-213352-10 MS
Matrix: Water
Analysis Batch: 713715

Client Sample ID: MW-41B-09092025
Prep Type: Total/NA
Prep Batch: 713410

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Beryllium	ND		40.0	38.27		ug/L		96	75 - 125

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QC Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

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

Lab Sample ID: 280-213352-10 MSD

Matrix: Water

Analysis Batch: 713711

Client Sample ID: MW-41B-09092025

Prep Type: Total/NA

Prep Batch: 713410

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	4.43		40.0	41.25		ug/L		92	75 - 125	0	20
Barium	20.0		40.0	63.37		ug/L		108	75 - 125	1	20
Cadmium	ND		40.0	36.66		ug/L		92	75 - 125	1	20
Cobalt	0.469	J	40.0	36.46		ug/L		90	75 - 125	1	20
Chromium	4.35		40.0	41.71		ug/L		93	75 - 125	3	20
Molybdenum	70.7		40.0	112.7		ug/L		105	75 - 125	2	20
Lead	ND		40.0	38.92		ug/L		97	75 - 125	2	20
Antimony	ND		40.0	39.70		ug/L		99	75 - 125	0	20
Selenium	7.66		40.0	49.39		ug/L		104	75 - 125	9	20
Thallium	ND		40.0	39.25		ug/L		98	75 - 125	1	20

Lab Sample ID: 280-213352-10 MSD

Matrix: Water

Analysis Batch: 713715

Client Sample ID: MW-41B-09092025

Prep Type: Total/NA

Prep Batch: 713410

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Beryllium	ND		40.0	40.69		ug/L		102	75 - 125	6	20

Lab Sample ID: MB 280-713412/1-A

Matrix: Water

Analysis Batch: 713861

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 713412

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND		2.00	0.550	ug/L		09/15/25 16:01	09/17/25 22:33	1
Cadmium	ND		1.00	0.250	ug/L		09/15/25 16:01	09/17/25 22:33	1
Molybdenum	ND		2.00	0.500	ug/L		09/15/25 16:01	09/17/25 22:33	1
Lead	ND		1.00	0.500	ug/L		09/15/25 16:01	09/17/25 22:33	1
Antimony	ND		2.00	0.500	ug/L		09/15/25 16:01	09/17/25 22:33	1
Selenium	ND		2.00	0.500	ug/L		09/15/25 16:01	09/17/25 22:33	1
Thallium	ND		1.00	0.250	ug/L		09/15/25 16:01	09/17/25 22:33	1

Lab Sample ID: MB 280-713412/1-A

Matrix: Water

Analysis Batch: 714045

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 713412

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		2.00	0.500	ug/L		09/15/25 16:01	09/18/25 16:34	1
Beryllium	ND		1.00	0.250	ug/L		09/15/25 16:01	09/18/25 16:34	1
Cobalt	ND		1.00	0.250	ug/L		09/15/25 16:01	09/18/25 16:34	1
Chromium	ND		3.00	1.00	ug/L		09/15/25 16:01	09/18/25 16:34	1

Lab Sample ID: LCS 280-713412/25-A

Matrix: Water

Analysis Batch: 713861

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 713412

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Barium	40.0	38.97		ug/L		97	85 - 115
Cadmium	40.0	36.03		ug/L		90	85 - 115
Molybdenum	40.0	35.44		ug/L		89	85 - 115

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QC Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

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

Lab Sample ID: LCS 280-713412/25-A
Matrix: Water
Analysis Batch: 713861

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 713412

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Lead	40.0	36.40		ug/L		91	85 - 115
Antimony	40.0	37.92		ug/L		95	85 - 115
Selenium	40.0	38.57		ug/L		96	85 - 115
Thallium	40.0	36.87		ug/L		92	85 - 115

Lab Sample ID: LCS 280-713412/25-A
Matrix: Water
Analysis Batch: 714045

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 713412

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	40.0	40.65		ug/L		102	85 - 115
Beryllium	40.0	40.10		ug/L		100	85 - 115
Cobalt	40.0	38.64		ug/L		97	85 - 115
Chromium	40.0	38.34		ug/L		96	85 - 115

Lab Sample ID: 280-213352-21 MS
Matrix: Water
Analysis Batch: 713861

Client Sample ID: DUP-09102025
Prep Type: Total/NA
Prep Batch: 713412

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Barium	50.0		40.0	98.10		ug/L		120	75 - 125
Cadmium	ND		40.0	39.21		ug/L		98	75 - 125
Molybdenum	54.6		40.0	100.9		ug/L		116	75 - 125
Lead	ND		40.0	40.70		ug/L		102	75 - 125
Antimony	ND		40.0	42.40		ug/L		106	75 - 125
Selenium	17.8		40.0	56.85		ug/L		98	75 - 125
Thallium	ND		40.0	41.44		ug/L		104	75 - 125

Lab Sample ID: 280-213352-21 MS
Matrix: Water
Analysis Batch: 714045

Client Sample ID: DUP-09102025
Prep Type: Total/NA
Prep Batch: 713412

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	2.31		40.0	42.66		ug/L		101	75 - 125
Beryllium	ND		40.0	40.55		ug/L		101	75 - 125
Cobalt	ND		40.0	38.11		ug/L		95	75 - 125
Chromium	20.6		40.0	60.27		ug/L		99	75 - 125

Lab Sample ID: 280-213352-21 MSD
Matrix: Water
Analysis Batch: 713861

Client Sample ID: DUP-09102025
Prep Type: Total/NA
Prep Batch: 713412

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Barium	50.0		40.0	88.88		ug/L		97	75 - 125	10	20
Cadmium	ND		40.0	36.11		ug/L		90	75 - 125	8	20
Molybdenum	54.6		40.0	91.31		ug/L		92	75 - 125	10	20
Lead	ND		40.0	37.33		ug/L		93	75 - 125	9	20
Antimony	ND		40.0	39.16		ug/L		98	75 - 125	8	20
Selenium	17.8		40.0	55.61		ug/L		95	75 - 125	2	20
Thallium	ND		40.0	37.64		ug/L		94	75 - 125	10	20

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QC Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: 280-213352-21 MSD

Matrix: Water

Analysis Batch: 714045

Client Sample ID: DUP-09102025

Prep Type: Total/NA

Prep Batch: 713412

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	2.31		40.0	48.83		ug/L		116	75 - 125	13	20
Beryllium	ND		40.0	44.93		ug/L		112	75 - 125	10	20
Cobalt	ND		40.0	42.26		ug/L		106	75 - 125	10	20
Chromium	20.6		40.0	65.98		ug/L		113	75 - 125	9	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-713324/1-A

Matrix: Water

Analysis Batch: 713498

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 713324

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.0000600	mg/L		09/15/25 09:43	09/15/25 17:56	1

Lab Sample ID: LCS 280-713324/2-A

Matrix: Water

Analysis Batch: 713498

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 713324

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.004795		mg/L		96	85 - 115

Lab Sample ID: MB 280-713677/1-A

Matrix: Water

Analysis Batch: 713892

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 713677

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.0000600	mg/L		09/17/25 08:37	09/17/25 16:23	1

Lab Sample ID: LCS 280-713677/2-A

Matrix: Water

Analysis Batch: 713892

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 713677

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.004992		mg/L		100	85 - 115

Lab Sample ID: 280-213352-10 MS

Matrix: Water

Analysis Batch: 713892

Client Sample ID: MW-41B-09092025

Prep Type: Total/NA

Prep Batch: 713677

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		0.00500	0.004883		mg/L		98	80 - 120

Lab Sample ID: 280-213352-10 MSD

Matrix: Water

Analysis Batch: 713892

Client Sample ID: MW-41B-09092025

Prep Type: Total/NA

Prep Batch: 713677

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		0.00500	0.004947		mg/L		99	80 - 120	1	20

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QC Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-713247/58
Matrix: Water
Analysis Batch: 713247

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	1.30	mg/L			09/14/25 06:14	1
Fluoride	ND		0.500	0.200	mg/L			09/14/25 06:14	1
Sulfate	ND		3.00	1.30	mg/L			09/14/25 06:14	1

Lab Sample ID: MB 280-713247/6
Matrix: Water
Analysis Batch: 713247

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	1.30	mg/L			09/13/25 16:25	1
Fluoride	ND		0.500	0.200	mg/L			09/13/25 16:25	1
Sulfate	ND		3.00	1.30	mg/L			09/13/25 16:25	1

Lab Sample ID: LCS 280-713247/4
Matrix: Water
Analysis Batch: 713247

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	102.0		mg/L		102	90 - 110
Fluoride	5.00	4.930		mg/L		99	90 - 110
Sulfate	100	102.1		mg/L		102	90 - 110

Lab Sample ID: LCS 280-713247/56
Matrix: Water
Analysis Batch: 713247

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	101.9		mg/L		102	90 - 110
Fluoride	5.00	4.960		mg/L		99	90 - 110
Sulfate	100	101.7		mg/L		102	90 - 110

Lab Sample ID: LCSD 280-713247/5
Matrix: Water
Analysis Batch: 713247

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	101.9		mg/L		102	90 - 110	0	10
Fluoride	5.00	4.891		mg/L		98	90 - 110	1	10
Sulfate	100	102.0		mg/L		102	90 - 110	0	10

Lab Sample ID: LCSD 280-713247/57
Matrix: Water
Analysis Batch: 713247

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	101.8		mg/L		102	90 - 110	0	10
Fluoride	5.00	4.867		mg/L		97	90 - 110	2	10
Sulfate	100	101.2		mg/L		101	90 - 110	0	10

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QC Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

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

Lab Sample ID: MRL 280-713247/3
Matrix: Water
Analysis Batch: 713247

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	3.00	3.136		mg/L		105	50 - 150
Fluoride	0.500	0.4407	J	mg/L		88	50 - 150
Sulfate	3.00	3.109		mg/L		104	50 - 150

Lab Sample ID: 280-213352-2 MS
Matrix: Water
Analysis Batch: 713247

Client Sample ID: MW-45B-09092025
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	58.9		50.0	113.8		mg/L		110	90 - 110
Fluoride	0.785	F1	5.00	5.263		mg/L		90	90 - 110

Lab Sample ID: 280-213352-2 MSD
Matrix: Water
Analysis Batch: 713247

Client Sample ID: MW-45B-09092025
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	58.9		50.0	113.6		mg/L		110	90 - 110	0	15
Fluoride	0.785	F1	5.00	5.203	F1	mg/L		88	90 - 110	1	15

Lab Sample ID: 280-213352-10 MS
Matrix: Water
Analysis Batch: 713247

Client Sample ID: MW-41B-09092025
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	63.2		50.0	118.1		mg/L		110	90 - 110
Fluoride	0.585		5.00	5.831		mg/L		105	90 - 110

Lab Sample ID: 280-213352-10 MS
Matrix: Water
Analysis Batch: 713247

Client Sample ID: MW-41B-09092025
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	538	F1	250	818.8	F1	mg/L		112	90 - 110

Lab Sample ID: 280-213352-10 MSD
Matrix: Water
Analysis Batch: 713247

Client Sample ID: MW-41B-09092025
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	63.2		50.0	118.4		mg/L		110	90 - 110	0	15
Fluoride	0.585		5.00	5.847		mg/L		105	90 - 110	0	15

Lab Sample ID: 280-213352-10 MSD
Matrix: Water
Analysis Batch: 713247

Client Sample ID: MW-41B-09092025
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	538	F1	250	818.7	F1	mg/L		112	90 - 110	0	15

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QC Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

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

Lab Sample ID: 280-213352-2 DU

Matrix: Water

Analysis Batch: 713247

Client Sample ID: MW-45B-09092025

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	58.9		58.97		mg/L		0.2	15
Fluoride	0.785	F1	0.7827		mg/L		0.3	15

Lab Sample ID: 280-213352-10 DU

Matrix: Water

Analysis Batch: 713247

Client Sample ID: MW-41B-09092025

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	63.2		63.24		mg/L		0	15
Fluoride	0.585		0.5839		mg/L		0.2	15

Lab Sample ID: 280-213352-10 DU

Matrix: Water

Analysis Batch: 713247

Client Sample ID: MW-41B-09092025

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfate	538	F1	536.8		mg/L		0.2	15

Lab Sample ID: MB 280-713346/6

Matrix: Water

Analysis Batch: 713346

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	1.30	mg/L			09/15/25 13:34	1
Fluoride	ND		0.500	0.200	mg/L			09/15/25 13:34	1
Sulfate	ND		3.00	1.30	mg/L			09/15/25 13:34	1

Lab Sample ID: LCS 280-713346/4

Matrix: Water

Analysis Batch: 713346

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	99.48		mg/L		99	90 - 110
Fluoride	5.00	5.035		mg/L		101	90 - 110
Sulfate	100	99.31		mg/L		99	90 - 110

Lab Sample ID: LCSD 280-713346/5

Matrix: Water

Analysis Batch: 713346

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	99.58		mg/L		100	90 - 110	0	10
Fluoride	5.00	5.038		mg/L		101	90 - 110	0	10
Sulfate	100	99.31		mg/L		99	90 - 110	0	10

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QC Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

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

Lab Sample ID: MRL 280-713346/3
Matrix: Water
Analysis Batch: 713346

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	3.00	2.817	J	mg/L		94	50 - 150
Fluoride	0.500	0.4843	J	mg/L		97	50 - 150
Sulfate	3.00	2.842	J	mg/L		95	50 - 150

Lab Sample ID: 280-213352-19 MS
Matrix: Water
Analysis Batch: 713346

Client Sample ID: MW-53BR-09102025
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	241		250	504.2		mg/L		105	90 - 110

Lab Sample ID: 280-213352-19 MSD
Matrix: Water
Analysis Batch: 713346

Client Sample ID: MW-53BR-09102025
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	241		250	504.6		mg/L		106	90 - 110	0	15

Lab Sample ID: 280-213352-19 DU
Matrix: Water
Analysis Batch: 713346

Client Sample ID: MW-53BR-09102025
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfate	241		241.0		mg/L		0.1	15

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

Lab Sample ID: MB 280-713320/1
Matrix: Water
Analysis Batch: 713320

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		10.0	6.00	mg/L			09/15/25 09:38	1

Lab Sample ID: LCS 280-713320/2
Matrix: Water
Analysis Batch: 713320

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	503.0		mg/L		100	88 - 114

Lab Sample ID: MB 280-713322/1
Matrix: Water
Analysis Batch: 713322

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		10.0	6.00	mg/L			09/15/25 09:40	1

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QC Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

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

Lab Sample ID: LCS 280-713322/2
Matrix: Water
Analysis Batch: 713322

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	498.0		mg/L		99	88 - 114

Lab Sample ID: MB 280-713513/1
Matrix: Water
Analysis Batch: 713513

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		10.0	6.00	mg/L			09/16/25 09:53	1

Lab Sample ID: LCS 280-713513/2
Matrix: Water
Analysis Batch: 713513

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	504.0		mg/L		101	88 - 114

QC Association Summary

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

Metals

Prep Batch: 713324

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-213352-21	DUP-09102025	Total/NA	Water	7470A	
MB 280-713324/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-713324/2-A	Lab Control Sample	Total/NA	Water	7470A	

Prep Batch: 713410

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-213352-1	MW-44B-09092025	Total/NA	Water	3005A	
280-213352-2	MW-45B-09092025	Total/NA	Water	3005A	
280-213352-3	MW-46B-09092025	Total/NA	Water	3005A	
280-213352-4	MW-47B-09092025	Total/NA	Water	3005A	
280-213352-5	MW-43B-09092025	Total/NA	Water	3005A	
280-213352-6	MW-42B-09092025	Total/NA	Water	3005A	
280-213352-7	MW-37B-09092025	Total/NA	Water	3005A	
280-213352-8	MW-36B-09092025	Total/NA	Water	3005A	
280-213352-9	MW-32B-09092025	Total/NA	Water	3005A	
280-213352-10	MW-41B-09092025	Total/NA	Water	3005A	
280-213352-10	MW-41B-09092025	Total/NA	Water	3005A	
280-213352-11	MW-38C-09102025	Total/NA	Water	3005A	
280-213352-12	MW-21B-09102025	Total/NA	Water	3005A	
280-213352-13	MW-14BR-09102025	Total/NA	Water	3005A	
280-213352-14	MW-20B-09102025	Total/NA	Water	3005A	
280-213352-15	MW-49B-09102025	Total/NA	Water	3005A	
280-213352-16	MW-39B-09102025	Total/NA	Water	3005A	
280-213352-17	MW-40B-09102025	Total/NA	Water	3005A	
280-213352-18	MW-52B-09102025	Total/NA	Water	3005A	
280-213352-19	MW-53BR-09102025	Total/NA	Water	3005A	
280-213352-20	MW-38B-09102025	Total/NA	Water	3005A	
MB 280-713410/1-A	Method Blank	Total/NA	Water	3005A	
LCS 280-713410/25-A	Lab Control Sample	Total/NA	Water	3005A	
LCS 280-713410/2-A	Lab Control Sample	Total/NA	Water	3005A	
280-213352-10 MS	MW-41B-09092025	Total/NA	Water	3005A	
280-213352-10 MS	MW-41B-09092025	Total/NA	Water	3005A	
280-213352-10 MSD	MW-41B-09092025	Total/NA	Water	3005A	
280-213352-10 MSD	MW-41B-09092025	Total/NA	Water	3005A	

Prep Batch: 713412

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-213352-21	DUP-09102025	Total/NA	Water	3005A	
280-213352-21	DUP-09102025	Total/NA	Water	3005A	
MB 280-713412/1-A	Method Blank	Total/NA	Water	3005A	
LCS 280-713412/25-A	Lab Control Sample	Total/NA	Water	3005A	
LCS 280-713412/2-A	Lab Control Sample	Total/NA	Water	3005A	
280-213352-21 MS	DUP-09102025	Total/NA	Water	3005A	
280-213352-21 MS	DUP-09102025	Total/NA	Water	3005A	
280-213352-21 MSD	DUP-09102025	Total/NA	Water	3005A	
280-213352-21 MSD	DUP-09102025	Total/NA	Water	3005A	

Analysis Batch: 713498

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-213352-21	DUP-09102025	Total/NA	Water	7470A	713324
MB 280-713324/1-A	Method Blank	Total/NA	Water	7470A	713324

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QC Association Summary

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

Metals (Continued)

Analysis Batch: 713498 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 280-713324/2-A	Lab Control Sample	Total/NA	Water	7470A	713324

Prep Batch: 713677

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-213352-1	MW-44B-09092025	Total/NA	Water	7470A	
280-213352-2	MW-45B-09092025	Total/NA	Water	7470A	
280-213352-3	MW-46B-09092025	Total/NA	Water	7470A	
280-213352-4	MW-47B-09092025	Total/NA	Water	7470A	
280-213352-5	MW-43B-09092025	Total/NA	Water	7470A	
280-213352-6	MW-42B-09092025	Total/NA	Water	7470A	
280-213352-7	MW-37B-09092025	Total/NA	Water	7470A	
280-213352-8	MW-36B-09092025	Total/NA	Water	7470A	
280-213352-9	MW-32B-09092025	Total/NA	Water	7470A	
280-213352-10	MW-41B-09092025	Total/NA	Water	7470A	
280-213352-11	MW-38C-09102025	Total/NA	Water	7470A	
280-213352-12	MW-21B-09102025	Total/NA	Water	7470A	
280-213352-13	MW-14BR-09102025	Total/NA	Water	7470A	
280-213352-14	MW-20B-09102025	Total/NA	Water	7470A	
280-213352-15	MW-49B-09102025	Total/NA	Water	7470A	
280-213352-16	MW-39B-09102025	Total/NA	Water	7470A	
280-213352-17	MW-40B-09102025	Total/NA	Water	7470A	
280-213352-18	MW-52B-09102025	Total/NA	Water	7470A	
280-213352-19	MW-53BR-09102025	Total/NA	Water	7470A	
280-213352-20	MW-38B-09102025	Total/NA	Water	7470A	
MB 280-713677/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-713677/2-A	Lab Control Sample	Total/NA	Water	7470A	
280-213352-10 MS	MW-41B-09092025	Total/NA	Water	7470A	
280-213352-10 MSD	MW-41B-09092025	Total/NA	Water	7470A	

Analysis Batch: 713711

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-213352-7	MW-37B-09092025	Total/NA	Water	6020B	713410
280-213352-8	MW-36B-09092025	Total/NA	Water	6020B	713410
280-213352-9	MW-32B-09092025	Total/NA	Water	6020B	713410
280-213352-10	MW-41B-09092025	Total/NA	Water	6020B	713410
280-213352-11	MW-38C-09102025	Total/NA	Water	6020B	713410
280-213352-12	MW-21B-09102025	Total/NA	Water	6020B	713410
280-213352-13	MW-14BR-09102025	Total/NA	Water	6020B	713410
280-213352-14	MW-20B-09102025	Total/NA	Water	6020B	713410
280-213352-15	MW-49B-09102025	Total/NA	Water	6020B	713410
280-213352-16	MW-39B-09102025	Total/NA	Water	6020B	713410
280-213352-17	MW-40B-09102025	Total/NA	Water	6020B	713410
280-213352-18	MW-52B-09102025	Total/NA	Water	6020B	713410
280-213352-19	MW-53BR-09102025	Total/NA	Water	6020B	713410
280-213352-20	MW-38B-09102025	Total/NA	Water	6020B	713410
280-213352-10 MS	MW-41B-09092025	Total/NA	Water	6020B	713410
280-213352-10 MSD	MW-41B-09092025	Total/NA	Water	6020B	713410

Analysis Batch: 713715

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-213352-1	MW-44B-09092025	Total/NA	Water	6020B	713410

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QC Association Summary

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

Metals (Continued)

Analysis Batch: 713715 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-213352-2	MW-45B-09092025	Total/NA	Water	6020B	713410
280-213352-3	MW-46B-09092025	Total/NA	Water	6020B	713410
280-213352-4	MW-47B-09092025	Total/NA	Water	6020B	713410
280-213352-5	MW-43B-09092025	Total/NA	Water	6020B	713410
280-213352-6	MW-42B-09092025	Total/NA	Water	6020B	713410
280-213352-7	MW-37B-09092025	Total/NA	Water	6020B	713410
280-213352-8	MW-36B-09092025	Total/NA	Water	6020B	713410
280-213352-10	MW-41B-09092025	Total/NA	Water	6020B	713410
280-213352-11	MW-38C-09102025	Total/NA	Water	6020B	713410
280-213352-12	MW-21B-09102025	Total/NA	Water	6020B	713410
280-213352-13	MW-14BR-09102025	Total/NA	Water	6020B	713410
280-213352-14	MW-20B-09102025	Total/NA	Water	6020B	713410
280-213352-15	MW-49B-09102025	Total/NA	Water	6020B	713410
280-213352-16	MW-39B-09102025	Total/NA	Water	6020B	713410
280-213352-17	MW-40B-09102025	Total/NA	Water	6020B	713410
280-213352-18	MW-52B-09102025	Total/NA	Water	6020B	713410
280-213352-19	MW-53BR-09102025	Total/NA	Water	6020B	713410
280-213352-20	MW-38B-09102025	Total/NA	Water	6020B	713410
MB 280-713410/1-A	Method Blank	Total/NA	Water	6020B	713410
LCS 280-713410/25-A	Lab Control Sample	Total/NA	Water	6020B	713410
280-213352-10 MS	MW-41B-09092025	Total/NA	Water	6020B	713410
280-213352-10 MSD	MW-41B-09092025	Total/NA	Water	6020B	713410

Analysis Batch: 713758

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-213352-1	MW-44B-09092025	Total/NA	Water	6010D	713410
280-213352-2	MW-45B-09092025	Total/NA	Water	6010D	713410
280-213352-3	MW-46B-09092025	Total/NA	Water	6010D	713410
280-213352-4	MW-47B-09092025	Total/NA	Water	6010D	713410
280-213352-5	MW-43B-09092025	Total/NA	Water	6010D	713410
280-213352-6	MW-42B-09092025	Total/NA	Water	6010D	713410
280-213352-7	MW-37B-09092025	Total/NA	Water	6010D	713410
280-213352-8	MW-36B-09092025	Total/NA	Water	6010D	713410
280-213352-9	MW-32B-09092025	Total/NA	Water	6010D	713410
280-213352-10	MW-41B-09092025	Total/NA	Water	6010D	713410
280-213352-11	MW-38C-09102025	Total/NA	Water	6010D	713410
280-213352-12	MW-21B-09102025	Total/NA	Water	6010D	713410
280-213352-13	MW-14BR-09102025	Total/NA	Water	6010D	713410
280-213352-14	MW-20B-09102025	Total/NA	Water	6010D	713410
280-213352-15	MW-49B-09102025	Total/NA	Water	6010D	713410
280-213352-16	MW-39B-09102025	Total/NA	Water	6010D	713410
280-213352-17	MW-40B-09102025	Total/NA	Water	6010D	713410
280-213352-18	MW-52B-09102025	Total/NA	Water	6010D	713410
280-213352-19	MW-53BR-09102025	Total/NA	Water	6010D	713410
280-213352-20	MW-38B-09102025	Total/NA	Water	6010D	713410
280-213352-21	DUP-09102025	Total/NA	Water	6010D	713412
MB 280-713410/1-A	Method Blank	Total/NA	Water	6010D	713410
MB 280-713412/1-A	Method Blank	Total/NA	Water	6010D	713412
LCS 280-713410/2-A	Lab Control Sample	Total/NA	Water	6010D	713410
LCS 280-713412/2-A	Lab Control Sample	Total/NA	Water	6010D	713412
280-213352-10 MS	MW-41B-09092025	Total/NA	Water	6010D	713410

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QC Association Summary

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

Metals (Continued)

Analysis Batch: 713758 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-213352-10 MSD	MW-41B-09092025	Total/NA	Water	6010D	713410
280-213352-21 MS	DUP-09102025	Total/NA	Water	6010D	713412
280-213352-21 MSD	DUP-09102025	Total/NA	Water	6010D	713412

Analysis Batch: 713861

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-213352-21	DUP-09102025	Total/NA	Water	6020B	713412
MB 280-713412/1-A	Method Blank	Total/NA	Water	6020B	713412
LCS 280-713412/25-A	Lab Control Sample	Total/NA	Water	6020B	713412
280-213352-21 MS	DUP-09102025	Total/NA	Water	6020B	713412
280-213352-21 MSD	DUP-09102025	Total/NA	Water	6020B	713412

Analysis Batch: 713892

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-213352-1	MW-44B-09092025	Total/NA	Water	7470A	713677
280-213352-2	MW-45B-09092025	Total/NA	Water	7470A	713677
280-213352-3	MW-46B-09092025	Total/NA	Water	7470A	713677
280-213352-4	MW-47B-09092025	Total/NA	Water	7470A	713677
280-213352-5	MW-43B-09092025	Total/NA	Water	7470A	713677
280-213352-6	MW-42B-09092025	Total/NA	Water	7470A	713677
280-213352-7	MW-37B-09092025	Total/NA	Water	7470A	713677
280-213352-8	MW-36B-09092025	Total/NA	Water	7470A	713677
280-213352-9	MW-32B-09092025	Total/NA	Water	7470A	713677
280-213352-10	MW-41B-09092025	Total/NA	Water	7470A	713677
280-213352-11	MW-38C-09102025	Total/NA	Water	7470A	713677
280-213352-12	MW-21B-09102025	Total/NA	Water	7470A	713677
280-213352-13	MW-14BR-09102025	Total/NA	Water	7470A	713677
280-213352-14	MW-20B-09102025	Total/NA	Water	7470A	713677
280-213352-15	MW-49B-09102025	Total/NA	Water	7470A	713677
280-213352-16	MW-39B-09102025	Total/NA	Water	7470A	713677
280-213352-17	MW-40B-09102025	Total/NA	Water	7470A	713677
280-213352-18	MW-52B-09102025	Total/NA	Water	7470A	713677
280-213352-19	MW-53BR-09102025	Total/NA	Water	7470A	713677
280-213352-20	MW-38B-09102025	Total/NA	Water	7470A	713677
MB 280-713677/1-A	Method Blank	Total/NA	Water	7470A	713677
LCS 280-713677/2-A	Lab Control Sample	Total/NA	Water	7470A	713677
280-213352-10 MS	MW-41B-09092025	Total/NA	Water	7470A	713677
280-213352-10 MSD	MW-41B-09092025	Total/NA	Water	7470A	713677

Analysis Batch: 713913

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-213352-1	MW-44B-09092025	Total/NA	Water	6010D	713410
280-213352-2	MW-45B-09092025	Total/NA	Water	6010D	713410
280-213352-3	MW-46B-09092025	Total/NA	Water	6010D	713410
280-213352-4	MW-47B-09092025	Total/NA	Water	6010D	713410
280-213352-5	MW-43B-09092025	Total/NA	Water	6010D	713410
280-213352-6	MW-42B-09092025	Total/NA	Water	6010D	713410
280-213352-7	MW-37B-09092025	Total/NA	Water	6010D	713410
280-213352-8	MW-36B-09092025	Total/NA	Water	6010D	713410
280-213352-9	MW-32B-09092025	Total/NA	Water	6010D	713410
280-213352-10	MW-41B-09092025	Total/NA	Water	6010D	713410

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QC Association Summary

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

Metals (Continued)

Analysis Batch: 713913 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-713410/1-A	Method Blank	Total/NA	Water	6010D	713410
LCS 280-713410/2-A	Lab Control Sample	Total/NA	Water	6010D	713410
280-213352-10 MS	MW-41B-09092025	Total/NA	Water	6010D	713410
280-213352-10 MSD	MW-41B-09092025	Total/NA	Water	6010D	713410

Analysis Batch: 714045

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-213352-21	DUP-09102025	Total/NA	Water	6020B	713412
MB 280-713412/1-A	Method Blank	Total/NA	Water	6020B	713412
LCS 280-713412/25-A	Lab Control Sample	Total/NA	Water	6020B	713412
280-213352-21 MS	DUP-09102025	Total/NA	Water	6020B	713412
280-213352-21 MSD	DUP-09102025	Total/NA	Water	6020B	713412

Analysis Batch: 714280

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-213352-9	MW-32B-09092025	Total/NA	Water	6020B	713410

General Chemistry

Analysis Batch: 713247

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-213352-1	MW-44B-09092025	Total/NA	Water	9056A	
280-213352-1	MW-44B-09092025	Total/NA	Water	9056A	
280-213352-2	MW-45B-09092025	Total/NA	Water	9056A	
280-213352-3	MW-46B-09092025	Total/NA	Water	9056A	
280-213352-3	MW-46B-09092025	Total/NA	Water	9056A	
280-213352-4	MW-47B-09092025	Total/NA	Water	9056A	
280-213352-4	MW-47B-09092025	Total/NA	Water	9056A	
280-213352-5	MW-43B-09092025	Total/NA	Water	9056A	
280-213352-5	MW-43B-09092025	Total/NA	Water	9056A	
280-213352-6	MW-42B-09092025	Total/NA	Water	9056A	
280-213352-6	MW-42B-09092025	Total/NA	Water	9056A	
280-213352-7	MW-37B-09092025	Total/NA	Water	9056A	
280-213352-7	MW-37B-09092025	Total/NA	Water	9056A	
280-213352-8	MW-36B-09092025	Total/NA	Water	9056A	
280-213352-8	MW-36B-09092025	Total/NA	Water	9056A	
280-213352-9	MW-32B-09092025	Total/NA	Water	9056A	
280-213352-9	MW-32B-09092025	Total/NA	Water	9056A	
280-213352-10	MW-41B-09092025	Total/NA	Water	9056A	
280-213352-10	MW-41B-09092025	Total/NA	Water	9056A	
280-213352-11	MW-38C-09102025	Total/NA	Water	9056A	
280-213352-12	MW-21B-09102025	Total/NA	Water	9056A	
280-213352-12	MW-21B-09102025	Total/NA	Water	9056A	
280-213352-13	MW-14BR-09102025	Total/NA	Water	9056A	
280-213352-14	MW-20B-09102025	Total/NA	Water	9056A	
280-213352-15	MW-49B-09102025	Total/NA	Water	9056A	
280-213352-16	MW-39B-09102025	Total/NA	Water	9056A	
280-213352-16	MW-39B-09102025	Total/NA	Water	9056A	
280-213352-17	MW-40B-09102025	Total/NA	Water	9056A	
280-213352-17	MW-40B-09102025	Total/NA	Water	9056A	
280-213352-18	MW-52B-09102025	Total/NA	Water	9056A	

Eurofins Denver

QC Association Summary

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

General Chemistry (Continued)

Analysis Batch: 713247 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-213352-18	MW-52B-09102025	Total/NA	Water	9056A	
280-213352-19	MW-53BR-09102025	Total/NA	Water	9056A	
280-213352-20	MW-38B-09102025	Total/NA	Water	9056A	
280-213352-20	MW-38B-09102025	Total/NA	Water	9056A	
280-213352-20	MW-38B-09102025	Total/NA	Water	9056A	
280-213352-21	DUP-09102025	Total/NA	Water	9056A	
280-213352-21	DUP-09102025	Total/NA	Water	9056A	
MB 280-713247/58	Method Blank	Total/NA	Water	9056A	
MB 280-713247/6	Method Blank	Total/NA	Water	9056A	
LCS 280-713247/4	Lab Control Sample	Total/NA	Water	9056A	
LCS 280-713247/56	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-713247/5	Lab Control Sample Dup	Total/NA	Water	9056A	
LCSD 280-713247/57	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-713247/3	Lab Control Sample	Total/NA	Water	9056A	
280-213352-2 MS	MW-45B-09092025	Total/NA	Water	9056A	
280-213352-2 MSD	MW-45B-09092025	Total/NA	Water	9056A	
280-213352-10 MS	MW-41B-09092025	Total/NA	Water	9056A	
280-213352-10 MS	MW-41B-09092025	Total/NA	Water	9056A	
280-213352-10 MSD	MW-41B-09092025	Total/NA	Water	9056A	
280-213352-10 MSD	MW-41B-09092025	Total/NA	Water	9056A	
280-213352-2 DU	MW-45B-09092025	Total/NA	Water	9056A	
280-213352-10 DU	MW-41B-09092025	Total/NA	Water	9056A	
280-213352-10 DU	MW-41B-09092025	Total/NA	Water	9056A	

Analysis Batch: 713320

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-213352-1	MW-44B-09092025	Total/NA	Water	SM 2540C	
280-213352-2	MW-45B-09092025	Total/NA	Water	SM 2540C	
280-213352-3	MW-46B-09092025	Total/NA	Water	SM 2540C	
280-213352-4	MW-47B-09092025	Total/NA	Water	SM 2540C	
280-213352-5	MW-43B-09092025	Total/NA	Water	SM 2540C	
280-213352-6	MW-42B-09092025	Total/NA	Water	SM 2540C	
MB 280-713320/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-713320/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 713322

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-213352-7	MW-37B-09092025	Total/NA	Water	SM 2540C	
280-213352-8	MW-36B-09092025	Total/NA	Water	SM 2540C	
280-213352-9	MW-32B-09092025	Total/NA	Water	SM 2540C	
280-213352-10	MW-41B-09092025	Total/NA	Water	SM 2540C	
MB 280-713322/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-713322/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 713346

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-213352-2	MW-45B-09092025	Total/NA	Water	9056A	
280-213352-11	MW-38C-09102025	Total/NA	Water	9056A	
280-213352-13	MW-14BR-09102025	Total/NA	Water	9056A	
280-213352-14	MW-20B-09102025	Total/NA	Water	9056A	
280-213352-14	MW-20B-09102025	Total/NA	Water	9056A	

Eurofins Denver

QC Association Summary

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

General Chemistry (Continued)

Analysis Batch: 713346 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-213352-15	MW-49B-09102025	Total/NA	Water	9056A	
280-213352-19	MW-53BR-09102025	Total/NA	Water	9056A	
MB 280-713346/6	Method Blank	Total/NA	Water	9056A	
LCS 280-713346/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-713346/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-713346/3	Lab Control Sample	Total/NA	Water	9056A	
280-213352-19 MS	MW-53BR-09102025	Total/NA	Water	9056A	
280-213352-19 MSD	MW-53BR-09102025	Total/NA	Water	9056A	
280-213352-19 DU	MW-53BR-09102025	Total/NA	Water	9056A	

Analysis Batch: 713513

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-213352-11	MW-38C-09102025	Total/NA	Water	SM 2540C	
280-213352-12	MW-21B-09102025	Total/NA	Water	SM 2540C	
280-213352-13	MW-14BR-09102025	Total/NA	Water	SM 2540C	
280-213352-14	MW-20B-09102025	Total/NA	Water	SM 2540C	
280-213352-15	MW-49B-09102025	Total/NA	Water	SM 2540C	
280-213352-16	MW-39B-09102025	Total/NA	Water	SM 2540C	
280-213352-17	MW-40B-09102025	Total/NA	Water	SM 2540C	
280-213352-18	MW-52B-09102025	Total/NA	Water	SM 2540C	
280-213352-19	MW-53BR-09102025	Total/NA	Water	SM 2540C	
280-213352-20	MW-38B-09102025	Total/NA	Water	SM 2540C	
280-213352-21	DUP-09102025	Total/NA	Water	SM 2540C	
MB 280-713513/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-713513/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Lab Chronicle

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

Client Sample ID: MW-44B-09092025

Lab Sample ID: 280-213352-1

Date Collected: 09/09/25 07:50

Matrix: Water

Date Received: 09/12/25 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6010D		1			713758	09/16/25 21:55	ADL	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6010D		1			713913	09/17/25 19:38	ADL	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6020B		1			713715	09/17/25 07:06	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	713677	09/17/25 08:37	AES	EET DEN
Total/NA	Analysis	7470A		1			713892	09/17/25 16:25	SMK	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	713247	09/13/25 20:23	SLH	EET DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	713247	09/13/25 20:38	SLH	EET DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	713320	09/15/25 09:38	YBF	EET DEN

Client Sample ID: MW-45B-09092025

Lab Sample ID: 280-213352-2

Date Collected: 09/09/25 08:30

Matrix: Water

Date Received: 09/12/25 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6010D		1			713758	09/16/25 21:59	ADL	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6010D		1			713913	09/17/25 19:42	ADL	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6020B		1			713715	09/17/25 07:09	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	713677	09/17/25 08:37	AES	EET DEN
Total/NA	Analysis	7470A		1			713892	09/17/25 16:29	SMK	EET DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	713346	09/15/25 17:28	SLH	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	713247	09/13/25 18:17	SLH	EET DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	713320	09/15/25 09:38	YBF	EET DEN

Client Sample ID: MW-46B-09092025

Lab Sample ID: 280-213352-3

Date Collected: 09/09/25 09:10

Matrix: Water

Date Received: 09/12/25 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6010D		1			713758	09/16/25 22:03	ADL	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6010D		1			713913	09/17/25 20:00	ADL	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6020B		1			713715	09/17/25 07:12	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	713677	09/17/25 08:37	AES	EET DEN
Total/NA	Analysis	7470A		1			713892	09/17/25 16:31	SMK	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	713247	09/13/25 20:52	SLH	EET DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	713247	09/13/25 21:06	SLH	EET DEN

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Lab Chronicle

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

Client Sample ID: MW-46B-09092025

Lab Sample ID: 280-213352-3

Date Collected: 09/09/25 09:10

Matrix: Water

Date Received: 09/12/25 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	713320	09/15/25 09:38	YBF	EET DEN

Client Sample ID: MW-47B-09092025

Lab Sample ID: 280-213352-4

Date Collected: 09/09/25 09:55

Matrix: Water

Date Received: 09/12/25 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6010D		1			713758	09/16/25 22:08	ADL	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6010D		1			713913	09/17/25 20:15	ADL	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6020B		1			713715	09/17/25 07:15	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	713677	09/17/25 08:37	AES	EET DEN
Total/NA	Analysis	7470A		1			713892	09/17/25 16:32	SMK	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	713247	09/13/25 21:48	SLH	EET DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	713247	09/13/25 22:02	SLH	EET DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	713320	09/15/25 09:38	YBF	EET DEN

Client Sample ID: MW-43B-09092025

Lab Sample ID: 280-213352-5

Date Collected: 09/09/25 10:45

Matrix: Water

Date Received: 09/12/25 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6010D		1			713758	09/16/25 22:25	ADL	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6010D		1			713913	09/17/25 20:19	ADL	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6020B		1			713715	09/17/25 07:17	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	713677	09/17/25 08:37	AES	EET DEN
Total/NA	Analysis	7470A		1			713892	09/17/25 16:33	SMK	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	713247	09/14/25 09:45	SLH	EET DEN
Total/NA	Analysis	9056A		10	10 mL	10 mL	713247	09/14/25 09:59	SLH	EET DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	713320	09/15/25 09:38	YBF	EET DEN

Client Sample ID: MW-42B-09092025

Lab Sample ID: 280-213352-6

Date Collected: 09/09/25 11:30

Matrix: Water

Date Received: 09/12/25 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6010D		1			713758	09/16/25 22:29	ADL	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6010D		1			713913	09/17/25 20:24	ADL	EET DEN

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Lab Chronicle

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

Client Sample ID: MW-42B-09092025

Lab Sample ID: 280-213352-6

Date Collected: 09/09/25 11:30

Matrix: Water

Date Received: 09/12/25 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6020B		1			713715	09/17/25 07:20	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	713677	09/17/25 08:37	AES	EET DEN
Total/NA	Analysis	7470A		1			713892	09/17/25 16:35	SMK	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	713247	09/13/25 22:16	SLH	EET DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	713247	09/13/25 22:30	SLH	EET DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	713320	09/15/25 09:38	YBF	EET DEN

Client Sample ID: MW-37B-09092025

Lab Sample ID: 280-213352-7

Date Collected: 09/09/25 13:00

Matrix: Water

Date Received: 09/12/25 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6010D		1			713758	09/16/25 22:34	ADL	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6010D		1			713913	09/17/25 20:29	ADL	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6020B		1			713711	09/17/25 01:50	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6020B		1			713715	09/17/25 07:29	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	713677	09/17/25 08:37	AES	EET DEN
Total/NA	Analysis	7470A		1			713892	09/17/25 16:36	SMK	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	713247	09/13/25 22:44	SLH	EET DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	713247	09/13/25 22:58	SLH	EET DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	713322	09/15/25 09:40	YBF	EET DEN

Client Sample ID: MW-36B-09092025

Lab Sample ID: 280-213352-8

Date Collected: 09/09/25 13:45

Matrix: Water

Date Received: 09/12/25 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6010D		1			713758	09/16/25 22:38	ADL	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6010D		1			713913	09/17/25 20:34	ADL	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6020B		1			713711	09/17/25 01:53	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6020B		1			713715	09/17/25 07:32	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	713677	09/17/25 08:37	AES	EET DEN
Total/NA	Analysis	7470A		1			713892	09/17/25 16:38	SMK	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	713247	09/13/25 23:12	SLH	EET DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	713247	09/13/25 23:26	SLH	EET DEN

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Lab Chronicle

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

Client Sample ID: MW-36B-09092025

Lab Sample ID: 280-213352-8

Date Collected: 09/09/25 13:45

Matrix: Water

Date Received: 09/12/25 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	713322	09/15/25 09:40	YBF	EET DEN

Client Sample ID: MW-32B-09092025

Lab Sample ID: 280-213352-9

Date Collected: 09/09/25 14:35

Matrix: Water

Date Received: 09/12/25 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6010D		1			713758	09/16/25 22:42	ADL	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6010D		1			713913	09/17/25 20:38	ADL	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6020B		1			713711	09/17/25 01:56	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6020B		1			714280	09/19/25 15:58	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	713677	09/17/25 08:37	AES	EET DEN
Total/NA	Analysis	7470A		1			713892	09/17/25 16:39	SMK	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	713247	09/14/25 10:13	SLH	EET DEN
Total/NA	Analysis	9056A		10	10 mL	10 mL	713247	09/14/25 10:27	SLH	EET DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	713322	09/15/25 09:40	YBF	EET DEN

Client Sample ID: MW-41B-09092025

Lab Sample ID: 280-213352-10

Date Collected: 09/09/25 16:25

Matrix: Water

Date Received: 09/12/25 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6010D		1			713758	09/16/25 22:47	ADL	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6010D		1			713913	09/17/25 20:42	ADL	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6020B		1			713711	09/17/25 01:59	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6020B		1			713715	09/17/25 07:39	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	713677	09/17/25 08:37	AES	EET DEN
Total/NA	Analysis	7470A		1			713892	09/17/25 16:40	SMK	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	713247	09/13/25 23:40	SLH	EET DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	713247	09/14/25 00:37	SLH	EET DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	713322	09/15/25 09:40	YBF	EET DEN

Eurofins Denver

Lab Chronicle

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

Client Sample ID: MW-38C-09102025

Lab Sample ID: 280-213352-11

Date Collected: 09/10/25 08:30

Matrix: Water

Date Received: 09/12/25 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6010D		1			713758	09/16/25 23:22	ADL	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6020B		1			713711	09/17/25 02:18	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6020B		1			713715	09/17/25 08:53	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	713677	09/17/25 08:37	AES	EET DEN
Total/NA	Analysis	7470A		1			713892	09/17/25 16:50	SMK	EET DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	713346	09/15/25 17:42	SLH	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	713247	09/13/25 19:13	SLH	EET DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	713513	09/16/25 09:53	YBF	EET DEN

Client Sample ID: MW-21B-09102025

Lab Sample ID: 280-213352-12

Date Collected: 09/10/25 09:20

Matrix: Water

Date Received: 09/12/25 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6010D		1			713758	09/16/25 23:26	ADL	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6020B		1			713711	09/17/25 02:20	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6020B		1			713715	09/17/25 08:56	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	713677	09/17/25 08:37	AES	EET DEN
Total/NA	Analysis	7470A		1			713892	09/17/25 16:51	SMK	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	713247	09/14/25 10:42	SLH	EET DEN
Total/NA	Analysis	9056A		10	10 mL	10 mL	713247	09/14/25 10:56	SLH	EET DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	713513	09/16/25 09:53	YBF	EET DEN

Client Sample ID: MW-14BR-09102025

Lab Sample ID: 280-213352-13

Date Collected: 09/10/25 10:30

Matrix: Water

Date Received: 09/12/25 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6010D		1			713758	09/16/25 23:31	ADL	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6020B		1			713711	09/17/25 02:23	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6020B		1			713715	09/17/25 08:59	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	713677	09/17/25 08:37	AES	EET DEN
Total/NA	Analysis	7470A		1			713892	09/17/25 16:53	SMK	EET DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	713346	09/15/25 17:56	SLH	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	713247	09/13/25 19:27	SLH	EET DEN

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Lab Chronicle

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

Client Sample ID: MW-14BR-09102025

Lab Sample ID: 280-213352-13

Date Collected: 09/10/25 10:30

Matrix: Water

Date Received: 09/12/25 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	713513	09/16/25 09:53	YBF	EET DEN

Client Sample ID: MW-20B-09102025

Lab Sample ID: 280-213352-14

Date Collected: 09/10/25 11:05

Matrix: Water

Date Received: 09/12/25 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6010D		1			713758	09/16/25 23:35	ADL	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6020B		1			713711	09/17/25 02:26	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6020B		1			713715	09/17/25 09:01	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	713677	09/17/25 08:37	AES	EET DEN
Total/NA	Analysis	7470A		1			713892	09/17/25 16:54	SMK	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	713346	09/15/25 18:11	SLH	EET DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	713346	09/15/25 18:25	SLH	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	713247	09/13/25 19:41	SLH	EET DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	713513	09/16/25 09:53	YBF	EET DEN

Client Sample ID: MW-49B-09102025

Lab Sample ID: 280-213352-15

Date Collected: 09/10/25 12:40

Matrix: Water

Date Received: 09/12/25 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6010D		1			713758	09/16/25 23:39	ADL	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6020B		1			713711	09/17/25 02:29	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6020B		1			713715	09/17/25 09:04	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	713677	09/17/25 08:37	AES	EET DEN
Total/NA	Analysis	7470A		1			713892	09/17/25 16:55	SMK	EET DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	713346	09/15/25 19:07	SLH	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	713247	09/13/25 19:55	SLH	EET DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	713513	09/16/25 09:53	YBF	EET DEN

Client Sample ID: MW-39B-09102025

Lab Sample ID: 280-213352-16

Date Collected: 09/10/25 13:50

Matrix: Water

Date Received: 09/12/25 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6010D		1			713758	09/16/25 23:44	ADL	EET DEN

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Lab Chronicle

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

Client Sample ID: MW-39B-09102025

Lab Sample ID: 280-213352-16

Date Collected: 09/10/25 13:50

Matrix: Water

Date Received: 09/12/25 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6020B		1			713711	09/17/25 02:31	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6020B		1			713715	09/17/25 09:07	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	713677	09/17/25 08:37	AES	EET DEN
Total/NA	Analysis	7470A		1			713892	09/17/25 16:57	SMK	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	713247	09/14/25 02:01	SLH	EET DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	713247	09/14/25 02:15	SLH	EET DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	713513	09/16/25 09:53	YBF	EET DEN

Client Sample ID: MW-40B-09102025

Lab Sample ID: 280-213352-17

Date Collected: 09/10/25 14:30

Matrix: Water

Date Received: 09/12/25 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6010D		1			713758	09/16/25 23:48	ADL	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6020B		1			713711	09/17/25 02:34	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6020B		1			713715	09/17/25 09:10	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	713677	09/17/25 08:37	AES	EET DEN
Total/NA	Analysis	7470A		1			713892	09/17/25 16:58	SMK	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	713247	09/14/25 02:29	SLH	EET DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	713247	09/14/25 02:43	SLH	EET DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	713513	09/16/25 09:53	YBF	EET DEN

Client Sample ID: MW-52B-09102025

Lab Sample ID: 280-213352-18

Date Collected: 09/10/25 15:25

Matrix: Water

Date Received: 09/12/25 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6010D		1			713758	09/16/25 23:52	ADL	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6020B		1			713711	09/17/25 02:37	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6020B		1			713715	09/17/25 09:13	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	713677	09/17/25 08:37	AES	EET DEN
Total/NA	Analysis	7470A		1			713892	09/17/25 17:02	SMK	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	713247	09/14/25 02:57	SLH	EET DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	713247	09/14/25 03:11	SLH	EET DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	713513	09/16/25 09:53	YBF	EET DEN

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Lab Chronicle

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

Client Sample ID: MW-53BR-09102025

Lab Sample ID: 280-213352-19

Date Collected: 09/10/25 16:20

Matrix: Water

Date Received: 09/12/25 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6010D		1			713758	09/16/25 23:57	ADL	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6020B		1			713711	09/17/25 02:40	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6020B		1			713715	09/17/25 09:35	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	713677	09/17/25 08:37	AES	EET DEN
Total/NA	Analysis	7470A		1			713892	09/17/25 17:04	SMK	EET DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	713346	09/15/25 19:21	SLH	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	713247	09/13/25 20:09	SLH	EET DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	713513	09/16/25 09:53	YBF	EET DEN

Client Sample ID: MW-38B-09102025

Lab Sample ID: 280-213352-20

Date Collected: 09/10/25 17:20

Matrix: Water

Date Received: 09/12/25 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6010D		1			713758	09/17/25 00:01	ADL	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6020B		1			713711	09/17/25 02:42	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713410	09/15/25 15:51	SMK	EET DEN
Total/NA	Analysis	6020B		1			713715	09/17/25 09:38	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	713677	09/17/25 08:37	AES	EET DEN
Total/NA	Analysis	7470A		1			713892	09/17/25 17:05	SMK	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	713247	09/14/25 12:34	SLH	EET DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	713247	09/14/25 12:48	SLH	EET DEN
Total/NA	Analysis	9056A		50	10 mL	10 mL	713247	09/14/25 13:02	SLH	EET DEN
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	713513	09/16/25 09:53	YBF	EET DEN

Client Sample ID: DUP-09102025

Lab Sample ID: 280-213352-21

Date Collected: 09/10/25 00:00

Matrix: Water

Date Received: 09/12/25 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	713412	09/15/25 16:01	SMK	EET DEN
Total/NA	Analysis	6010D		1			713758	09/16/25 18:17	ADL	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713412	09/15/25 16:03	SMK	EET DEN
Total/NA	Analysis	6020B		1			713861	09/17/25 22:38	LMT	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713412	09/15/25 16:03	SMK	EET DEN
Total/NA	Analysis	6020B		1			714045	09/18/25 16:39	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	713324	09/15/25 09:43	AES	EET DEN
Total/NA	Analysis	7470A		1			713498	09/15/25 18:26	SMK	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	713247	09/14/25 04:50	SLH	EET DEN

Eurofins Denver

Lab Chronicle

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

Client Sample ID: DUP-09102025
Date Collected: 09/10/25 00:00
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213352-21
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		10	10 mL	10 mL	713247	09/14/25 05:04	SLH	EET DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	713513	09/16/25 09:53	YBF	EET DEN

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

Accreditation/Certification Summary

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213352-2

Laboratory: Eurofins Denver

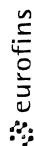
The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Oregon	NELAP	4025	01-08-26

1
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[illegible]

Chain of Custody Record



Environment Testing

Client Information		Sampler	Lab PM	Carrier Tracking No(s)	SOC No								
Client Contact		Olivia Helinski	McEntee, Patrick J		280-133855-37095.1								
Ms. Katie Abbott		Phone: 360-333-9002	E-Mail: Patrick.McEntee@et.eurofins.com	State of Origin: WY	Page 2 of 2								
Company: AECOM Technical Services Inc.		PWSID		Job #									
Address: 6200 S. Quebec Street		Due Date Requested:	Analysis Requested										
City: Greenwood Village		TAT Requested (days): 5											
State, Zip: CO, 80111		Compliance Project: Δ Yes Δ No											
Phone: 616-574-8327(Tel)		PO #											
Email: katie.abbott@aecom.com		AECOM Project# 60632474											
Project Name: Basin 2025 Support		Project # 28020759											
Site: Basin Electric, Lawrence River Station		SSOW#											
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=soil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226 - Ra226	9320_Ra228 - Ra228	9056A_280 - Chloride, Fluoride, Sulfate	6010D, 6020B, 7470A - App III and IV Total Metals	2540C - Solids, Total Dissolved (TDS)	Total Number of Containers	Special Instructions/Note:
MW-21B - 09102025	9/10/25	0920	G	W	N	N	X	X	X	X	X	5	
MW-14BR - 09102025	9/10/25	1030	G	W	N	N	X	X	X	X	X	5	
MW-20B - 09102025	9/10/25	1105	G	W	N	N	X	X	X	X	X	5	
MW-49B - 09102025	9/10/25	1240	G	W	N	N	X	X	X	X	X	5	
MW-39B - 09102025	9/10/25	1350	G	W	N	N	X	X	X	X	X	5	
MW-40B - 09102025	9/10/25	1436	G	W	N	N	X	X	X	X	X	5	
MW-52B - 09102025	9/10/25	1525	G	W	N	N	X	X	X	X	X	5	
MW-53BR - 09102025	9/10/25	1620	G	W	N	N	X	X	X	X	X	5	
MW-38B - 09102025	9/10/25	1720	G	W	N	N	X	X	X	X	X	5	
DUF-09102025	9/10/25	18--	G	W	N	N	X	X	X	X	X	5	
Possible Hazard Identification													
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological													
Deliverable Requested: I, II, III, IV, Other (specify)													
Empty Kit Relinquished by:													
Relinquished by: Olivia Helinski Date/Time: 9/11/25 11200													
Relinquished by: Company: AECOM													
Relinquished by: Company: Company													
Custody Seals Intact: Δ Yes Δ No													
Custody Seal No.:													
Cooler Temperature(s) °C and Other Remarks													

Part # 156297-485

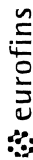
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ACTWGT: 52.50 LB
CAD: 6996907/SSFE2621
DIMS: 26X14X14 IN
BILL THIRD PARTY

ORIGIN ID: FTCA (360) 333-9002

AECOM
7595 E TECHNOLOGY WAY
DENVER, CO 80237
UNITED STATES US

TO

EUROFINS DENVER
4955 YARROW ST



Environment 1
TestAmerica

2400501

ARVADA CO 80002

(308) 738-0100 REF:

DEPT:

INV:

PO:

FedEx
Express



FRI - 12 SEP 10:30A

PRIORITY OVERNIGHT

AHS

80002

CO - US DEN

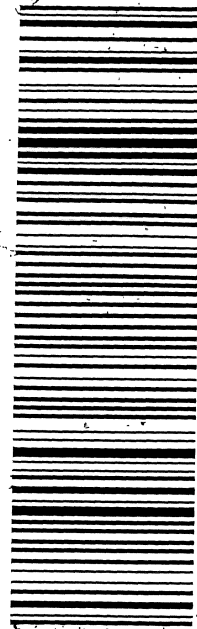
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MPR# 3931 1499 2776

0201

MASTER

72 LAAA



Part # 156297-485

SHIP DATE: 11SEP25
ACTWGT: 53.95 LB
CAD: 6996907/SSFE2621
DIMS: 26X14X14 IN
BILL THIRD PARTY

ORIGIN ID: FTCA (360) 333-9002

AECOM
7595 E TECHNOLOGY WAY
DENVER, CO 80237
UNITED STATES US

TO

EUROFINS DENVER
4955 YARROW ST



Environment Testing
TestAmerica

2400500

ARVADA CO 80002

(308) 738-0100 REF:

DEPT:

INV:

PO:

FedEx
Express



FRI - 12 SEP 10:30

PRIORITY OVERNIGHT

AHS

80002

CO - US DEN

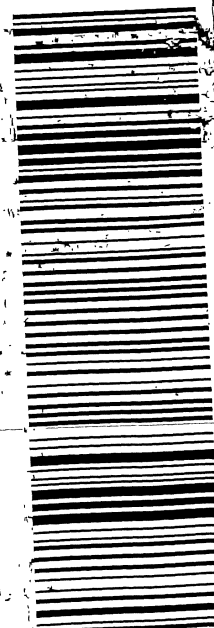
2 of 5

MPR# 3931 1499 2787

0263

Mstr# 3931 1499 2776

72 LAAA



280-213352 Waybill

1
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14

ORIGIN ID: FTCA (360) 333-9002
REC'D
7595 E TECHNOLOGY WAY
DENVER, CO 80237
UNITED STATES US

SHIP DATE: 11SEP25
ACTWT: 68.95 LB
CND: 6986907/SSFE2621
DIMS: 25x14x14 IN
BILL THIRD PARTY

Part # 156297-235-400

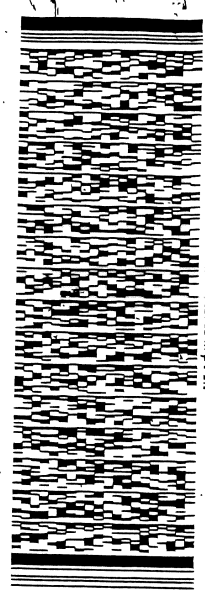
EUROFINS DENVER
4955 YARROW ST

eurofins
Environment Testing
TestAmerica

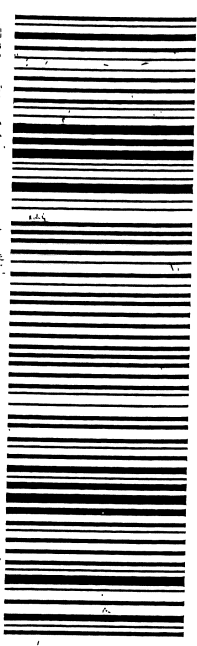
ARVADA CO 80002

2400503

(303) 786-0100
PO: 1
REF: 1
DEPT: 1



4 of 5
MP# 3931 1499 2802
Met# 3931 1499 2776
0201
FRI - 12 SEP 10:30A
PRIORITY OVERNIGHT
AHS
80002
CO-US DEN



ORIGIN ID: FTCA (360) 333-9002
REC'D
7595 E TECHNOLOGY WAY
DENVER, CO 80237
UNITED STATES US

SHIP DATE: 11SEP25
ACTWT: 67.60 LB
CND: 6986907/SSFE2621
DIMS: 25x14x14 IN
BILL THIRD PARTY

Part # 156297-235-400

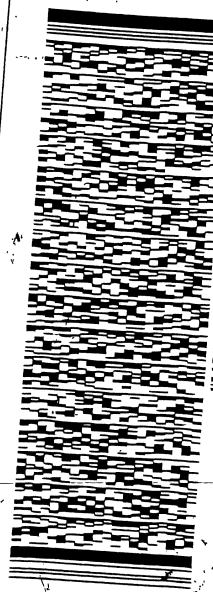
EUROFINS DENVER
4955 YARROW ST

eurofins
Environment Testing
TestAmerica

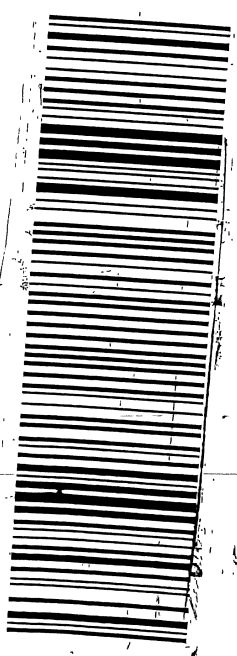
ARVADA CO 80002

2400506

(303) 786-0100
PO: 1
REF: 1
DEPT: 1



5 of 5
MP# 3931 1499 2813
Met# 3931 1499 2776
0201
FRI - 12 SEP 10:30A
PRIORITY OVERNIGHT
AHS
80002
CO-US DEN



ORIGIN ID: FTCA (360) 333-9002

AECOM
7595 E TECHNOLOGY WAY

DENVER, CO 80237
UNITED STATES US

SHIP DATE: 11 SEP 25
ACTWGT: 64.05 LB
CAD: 8996807/SSFE2621
DIMS: 26x14x14 IN

BILL THIRD PARTY

Part # 156297-4885-ARPA/VZ9EXP 05/26

TO

EUROFINS DENVER
4955 YARROW ST

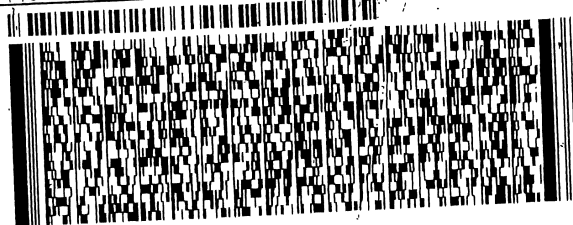
ARVADA CO 80002

(303) 736-0100

REF:

THU:

DEPT:



FedEx
Express



AT103290520527

3 of 5

MPS# 3931 1499 2798

Mstr# 3931 1499 2776

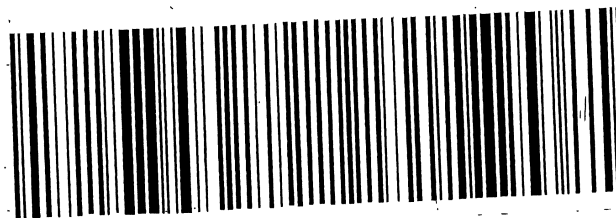
0201

72 LAAA

FRI - 12 SEP 10:30A
PRIORITY OVERNIGHT

AHS
80002

CO-US DEN



Login Sample Receipt Checklist

Client: AECOM

Job Number: 280-213352-2

Login Number: 213352

List Number: 1

Creator: Little, Matthew L

List Source: Eurofins Denver

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

This receipt checklist is generated for all samples received in this Login. It may not be applicable to all Jobs associated with this Login.

Eurofins Denver

ANALYTICAL REPORT

PREPARED FOR

Attn: Jeremy Hurshman
AECOM
1601 Prospect Parkway
Fort Collins, Colorado 80525

Generated 10/10/2025 1:57:18 PM

JOB DESCRIPTION

Basin 2025 Support

JOB NUMBER

280-213366-1

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



Generated
10/10/2025 1:57:18 PM

Authorized for release by
Patrick McEntee, Client Service Manager
Patrick.McEntee@et.eurofinsus.com
(303)736-0107

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Definitions/Glossary

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213366-1

Qualifiers

Rad

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

Glossary

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

Case Narrative

Client: AECOM
Project: Basin 2025 Support

Job ID: 280-213366-1

Job ID: 280-213366-1

Eurofins Denver

Job Narrative 280-213366-1

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

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

Receipt

The sample was received on 9/12/2025 9:55 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 5 coolers at receipt time were 1.1°C, 2.6°C, 3.4°C, 5.7°C and 18.9°C.

Receipt Exceptions

The cooler received out of temperature contained volume for radiochemistry analysis which does not require thermal preservation.280-213366-1

Method 9315 - Radium-226 (GFPC)

Sample RW-2-09102025 (280-213366-1) was analyzed for Radium-226 (GFPC). The sample was prepared on 9/17/2025 and analyzed on 10/9/2025.

Method 9320 - Radium-228 (GFPC)

Sample RW-2-09102025 (280-213366-1) was analyzed for Radium-228 (GFPC). The sample was prepared on 9/17/2025 and analyzed on 10/9/2025.

Method Ra226_Ra228 - Combined Radium-226 and Radium-228

Sample RW-2-09102025 (280-213366-1) was analyzed for Combined Radium-226 and Radium-228. The sample was analyzed on 10/10/2025.

Eurofins Denver

Detection Summary

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213366-1

Client Sample ID: RW-2-09102025 Lab Sample ID: 280-213366-1

No Detections.

- 1
- 2
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This Detection Summary does not include radiochemical test results.

Method Summary

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213366-1

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: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213366-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Sample Origin
280-213366-1	RW-2-09102025	Water	09/10/25 07:40	09/12/25 09:55	Colorado

- 1
- 2
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- 14
- 15

Client Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213366-1

Method: SW846 9315 - Radium-226 (GFPC)

Client Sample ID: RW-2-09102025
Date Collected: 09/10/25 07:40
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213366-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.224	U	0.265	0.266	1.00	0.436	pCi/L	09/17/25 08:07	10/09/25 14:35	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	84.4		30 - 110					09/17/25 08:07	10/09/25 14:35	1

Method: SW846 9320 - Radium-228 (GFPC)

Client Sample ID: RW-2-09102025
Date Collected: 09/10/25 07:40
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213366-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0391	U	0.324	0.324	1.00	0.621	pCi/L	09/17/25 08:16	10/09/25 11:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	84.4		30 - 110					09/17/25 08:16	10/09/25 11:47	1
Y Carrier	73.3		30 - 110					09/17/25 08:16	10/09/25 11:47	1

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

Client Sample ID: RW-2-09102025
Date Collected: 09/10/25 07:40
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213366-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.185	U	0.419	0.419	5.00	0.621	pCi/L		10/10/25 14:22	1

QC Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213366-1

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-736375/1-A

Matrix: Water

Analysis Batch: 739915

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 736375

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.01491	U	0.195	0.195	1.00	0.402	pCi/L	09/17/25 08:07	10/09/25 14:33	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.6		30 - 110					09/17/25 08:07	10/09/25 14:33	1

Lab Sample ID: LCS 160-736375/2-A

Matrix: Water

Analysis Batch: 739915

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 736375

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226		9.57	7.927		1.17	1.00	0.419	pCi/L	83	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits							
Ba Carrier	80.2		30 - 110							

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-736376/1-A

Matrix: Water

Analysis Batch: 739915

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 736376

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.3807	U	0.381	0.383	1.00	0.614	pCi/L	09/17/25 08:16	10/09/25 11:46	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.6		30 - 110					09/17/25 08:16	10/09/25 11:46	1
Y Carrier	77.4		30 - 110					09/17/25 08:16	10/09/25 11:46	1

Lab Sample ID: LCS 160-736376/2-A

Matrix: Water

Analysis Batch: 739915

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 736376

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-228		9.00	10.58		1.48	1.00	0.706	pCi/L	118	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits							
Ba Carrier	80.2		30 - 110							
Y Carrier	77.4		30 - 110							

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QC Association Summary

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213366-1

Rad

Prep Batch: 736375

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-213366-1	RW-2-09102025	Total/NA	Water	PrecSep-21	
MB 160-736375/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-736375/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 736376

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-213366-1	RW-2-09102025	Total/NA	Water	PrecSep_0	
MB 160-736376/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-736376/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213366-1

Client Sample ID: RW-2-09102025
Date Collected: 09/10/25 07:40
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213366-1
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			1003.02 mL	1.0 g	736375	09/17/25 08:07	JTR	EET SL
Total/NA	Analysis	9315		1			739925	10/09/25 14:35	SWS	EET SL
Total/NA	Prep	PrecSep_0			1003.02 mL	1.0 g	736376	09/17/25 08:16	JTR	EET SL
Total/NA	Analysis	9320		1			739915	10/09/25 11:47	SWS	EET SL
Total/NA	Analysis	Ra226_Ra228		1			740141	10/10/25 14:22	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: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213366-1

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	05-06-27
ANAB	Dept. of Defense ELAP	L2305	04-06-27
ANAB	Dept. of Energy	L2305.01	04-06-27
ANAB	ISO/IEC 17025	L2305	04-06-27
Arizona	State	AZ0813	12-08-25
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	07-01-26
Connecticut	State	PH-0241	03-31-27
Florida	NELAP	E87689	06-30-26
HI - RadChem Recognition	State	n/a	06-30-26
Illinois	NELAP	200023	11-30-25
Iowa	State	373	12-01-26
Kansas	NELAP	E-10236	10-31-25
Kentucky (DW)	State	KY90125	12-31-25
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-25
Louisiana (All)	NELAP	106151	06-30-26
Louisiana (DW)	State	LA011	12-31-25
Maryland	State	310	10-01-26
Massachusetts	State	M-MO054	06-30-26
MI - RadChem Recognition	State	9005	06-30-26
Missouri	State	780	06-30-28
Nevada	State	MO00054	07-31-26
New Jersey	NELAP	MO002	06-30-26
New Mexico	State	MO00054	06-30-26
New York	NELAP	11616	03-31-26
North Carolina (DW)	State	29700	06-30-26
North Dakota	State	R-207	06-30-25 *
Oklahoma	NELAP	9997	12-31-25
Oregon	NELAP	4157	09-01-26
Pennsylvania	NELAP	68-00540	02-28-26
South Carolina	State	85002	06-30-26
Texas	NELAP	T104704193	07-31-26
US Fish & Wildlife	US Federal Programs	058448	07-31-26
USDA	US Federal Programs	525-23-138-94730	05-18-26
Utah	NELAP	MO00054	07-31-26
Virginia	NELAP	460230	06-14-26
Washington	State	C592	08-31-26
West Virginia DEP	State	381	10-31-25

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

Eurofins Denver

Chain of Custody Record

Client Information		Sampler: Olivia Helinski		Lab PM: McEntee, Patrick J	Carrier Tracking No(s):	COC No: 280-133855-37095.1
Client Contact: Ms. Katie Abbott		Phone: 360-333-9002		E-Mail: Patrick.McEntee@et.eurofins.com	State of Origin: WY	Page 1 of 1
Company: AECOM Technical Services Inc.		Address:		Job #		
6200 S. Quebec Street		City: Greenwood Village		State: CO		
State: CO		Zip: 80111		PO #		
Phone: 616-574-8327(Tel)		Compliance Project: ☐ Yes ☒ No		Due Date Requested:		
Email: Katie.abbott@aecom.com		Project #		TAT Requested (days): STANDARD		
Basin 2025 Support		SSOW#		Compliance Project: ☐ Yes ☒ No		
Site: Basin Electric, Lawrence River Station		AECOM Project# 60632474		PO #		
Sample Identification		Sample Date		Sample Time		Matrix
RW-2-09162025		9/10/25		0740		G W
Sample Type (C=Comp, G=grab)		Preservation Code:		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)
G		W		W		W
Analysis Requested		9315_Ra226 - Ra228		9320_Ra228 - Ra228		9056A_28D - Chloride, Fluoride, Sulfate
1010D_6020B, 7470A - App III and IV Total Metals		2540C - Solids, Total Dissolved (TDS)		Total Number of Containers		Special Instructions/Note:
280-213366 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)		
Deliverable Requested: I, II, III, IV, Other (specify)				Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months		
Empty Kit Relinquished by:		Date:		Time:		
Relinquished by: Olivia Helinski		Date/Time: 9/10/25 1206		Company: AECOM		Received by: [Signature]
Relinquished by:		Date/Time:		Company:		Received by:
Relinquished by:		Date/Time:		Company:		Received by:
Custody Seals Intact: ☐ Yes ☒ No		Custody Seal No.:		Cooling Temperature: 1.3°C		Remarks: 1.3°C 19.1°C 5.9°C 3.6°C 2.8°C for 2 EXAM



ORIGIN ID:FTCA 280-213366 Waybill

REC'D
7595 E TECHNOLOGY WAY
DENVER, CO 80237
UNITED STATES, US

DIMS: 26x14x14 IN 621
BILL THIRD PARTY

Part # 156297-2851

EUROFINS DENVER
4955 YARROW ST



Environment Testing
TestAmerica

2400500

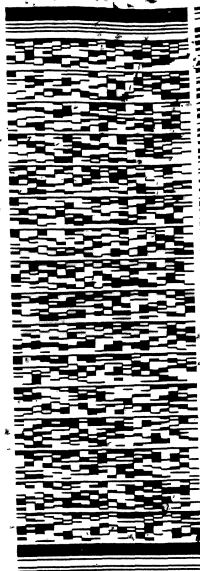
ARRADA CO 80002

(303) 736-0100

REF:

PO:

DEPT:



AR103299062302

2 of 5

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0201

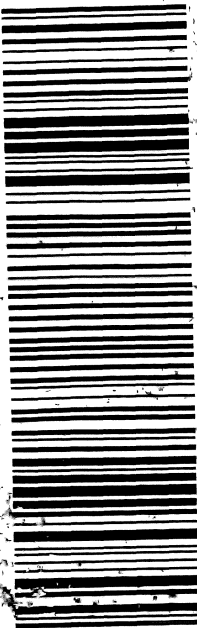
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PRIORITY OVERNIGHT

AHS

80002

CO-US DEN

72 LAANA

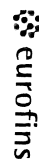


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REC'D
7595 E TECHNOLOGY WAY
DENVER, CO 80237
UNITED STATES US

SHIP DATE: 11SEP25
ACT MET: 62.60 LB
CNO: 6996907/SSFE2621
DIMS: 26x14x14 IN
BILL THIRD PARTY

Part # 156297-2851

EUROFINS DENVER
4955 YARROW ST



Environment
TestAmerica

240

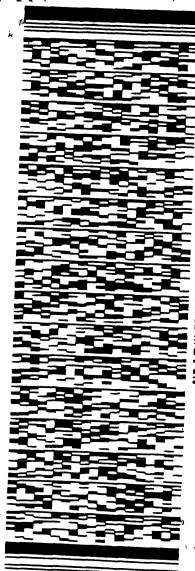
ARRADA CO 80002

(303) 736-0100

REF:

PO:

DEPT:



AR103299062302

1 of 5

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MASTER

0201

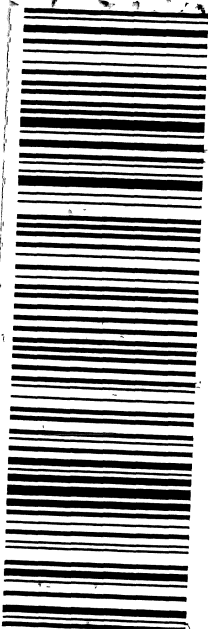
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PRIORITY OVERNIGHT

AHS

80002

CO-US DEN

72 LAANA



Part # 156297-4365

SHIP DATE: 11SEP25
ACTWT: 67.60 LB
CAD: 696907/SSFE2621
DIMS: 26x14x14 IN
BILL THIRD PARTY

ORIGIN ID: FTCA (360) 333-9002
RECOM
7595 E TECHNOLOGY WAY
DENVER, CO 80237
UNITED STATES US

10

EUROFINS DENVER
4955 YARROW ST



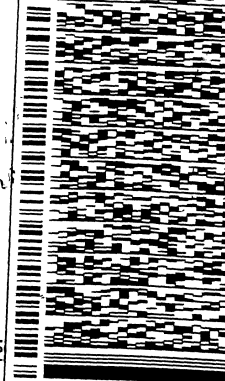
Environment Testing
TestAmerica

ARVADA CO 80002

2400506

(303) 786-0100 REF:
INV
PG1

DEPT:



FedEx
Express



AR 1022905202952F

5 of 5

MPS# 3931 1499 2813
0263

Mstr# 3931 1499 2776

0201

72 LAAA

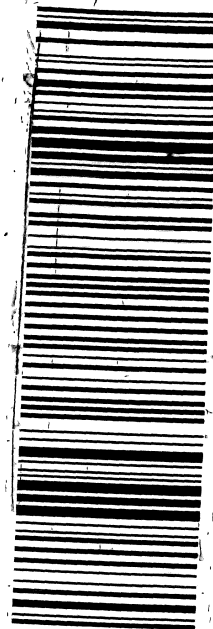
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PRIORITY OVERNIGHT

AHS

80002

CO-US DEN



Part # 156297-4365

SHIP DATE: 11SEP25
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CAD: 696907/SSFE2621
DIMS: 26x14x14 IN
BILL THIRD PARTY

ORIGIN ID: FTCA (360) 333-9002
RECOM
7595 E TECHNOLOGY WAY
DENVER, CO 80237
UNITED STATES US

10

EUROFINS DENVER
4955 YARROW ST



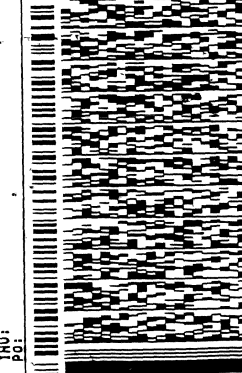
Environment Testing
TestAmerica

ARVADA CO 80002

2400503

(303) 786-0100 REF:
INV
PG1

DEPT:



FedEx
Express



AR 1022905202952F

4 of 5

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0263

Mstr# 3931 1499 2776

0201

72 LAAA

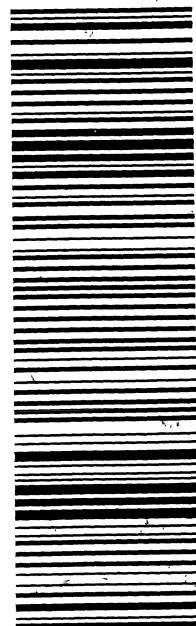
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PRIORITY OVERNIGHT

AHS

80002

CO-US DEN



ORIGIN ID:FTCA (360) 333-9002

AECOM
7595 E TECHNOLOGY WAY

DENVER, CO 80237
UNITED STATES US

SHIP DATE: 1/16/25
ACTWGT: 64.05 LB
CAD: 6996807/SSFE2621
DIMS: 26x14x14 IN
BILL THIRD PARTY

Part # 156297-2485-14904V2-9EXP 05/26

TO

**EUROFINS DENVER
4955 YARROW ST**

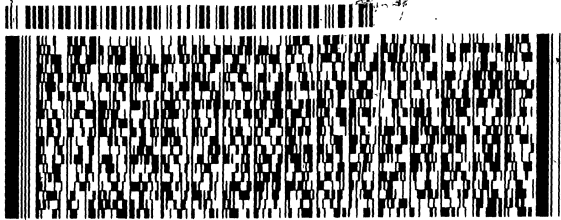
ARVADA CO 80002

(303) 736-0100

REF:

INU:
PO:

DEPT:



FedEx
Express



AN1062905205527

3 of 5

MPS# 3931 1499 2798
0263

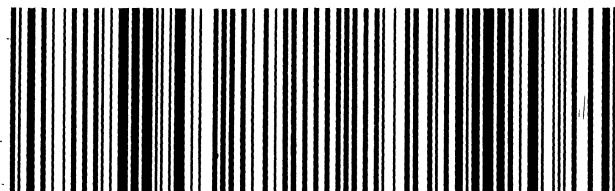
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72 LAAA

**FRI - 12 SEP 10:30A
PRIORITY OVERNIGHT**

**AHS
80002
CO-US DEN**

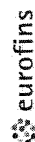


4955 Yarrow Street

Arvada, CO 80002

Phone: 303-736-0100 Fax: 303-431-7171

Chain of Custody Record



Environment Testing

Client Information (Sub Contract Lab)				Sampler: McEntee, Patrick J Phone: N/A E-Mail: Patrick.McEntee@eurofinsus.com		Carrier Tracking No(s): N/A State of Origin: Colorado Page: Page 1 of 1		COC No: 280-763972.1 Job #: 280-213366-1																	
Company: TestAmerica Laboratories, Inc. Address: 13715 Rider Trail North, Earth City, MO, 63045 Phone: 314-298-8566(Tel) 314-298-8757(Fax) Email: N/A Project #: 28020759 Site: N/A				Accreditations Required (See note): NELAP - Oregon Preservation Codes:		Lab PM: McEntee, Patrick J State of Origin: Colorado Page: Page 1 of 1 Job #: 280-213366-1																			
Due Date Requested: 10/13/2025 TAT Requested (days): N/A				Analysis Requested																					
Sample Identification - Client ID (Lab ID) RW-2-09102025 (280-213366-1)				Sample Date 9/10/25		Sample Time 07:40 Mountain		Sample Type (C=comp, G=grab) G		Matrix (W=water, S=solid, O=water, B=115, A=Air) Water		Field Filtered Sample (Yes or No) ☒		Perform MS/MSD (Yes or No) ☒		915_Ra226/PreSep_21Standard Target List ☒		920_Ra228/PreSep_05Standard Target List ☒		Ra226Ra228_GPPC ☒		Total Number of Containers ☒		Special Instructions/Note:	
Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins TestAmerica.																									
Possible Hazard Identification Unconfirmed Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2				Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months																					
Empty Kit Relinquished by: _____ Date: _____ Time: _____				Special Instructions/QC Requirements:																					
Relinquished by: [Signature] Date: 9-15-25 Time: 15:00				Received by: [Signature] Date/Time: 9/16/25 0850																					
Relinquished by: _____ Date/Time: _____				Received by: Cheyenne Forrest Date/Time: _____																					
Relinquished by: _____ Date/Time: _____				Received by: _____ Date/Time: _____																					
Cooler Temperature(s) °C and Other Remarks:																									

Login Sample Receipt Checklist

Client: AECOM

Job Number: 280-213366-1

Login Number: 213366

List Number: 1

Creator: Little, Matthew L

List Source: Eurofins Denver

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

This receipt checklist is generated for all samples received in this Login. It may not be applicable to all Jobs associated with this Login.

Eurofins Denver

Login Sample Receipt Checklist

Client: AECOM

Job Number: 280-213366-1

Login Number: 213366

List Number: 2

Creator: Forrest, Cheyenne L

List Source: Eurofins St. Louis

List Creation: 09/16/25 01:50 PM

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

This receipt checklist is generated for all samples received in this Login. It may not be applicable to all Jobs associated with this Login.

Eurofins Denver

Tracer/Carrier Summary

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213366-1

Method: 9315 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)					
		Ba					
Lab Sample ID	Client Sample ID	(30-110)					
280-213366-1	RW-2-09102025	84.4					
LCS 160-736375/2-A	Lab Control Sample	80.2					
MB 160-736375/1-A	Method Blank	85.6					
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)				
280-213366-1	RW-2-09102025	84.4	73.3				
LCS 160-736376/2-A	Lab Control Sample	80.2	77.4				
MB 160-736376/1-A	Method Blank	85.6	77.4				
Tracer/Carrier Legend							
Ba = Ba Carrier							
Y = Y Carrier							

ANALYTICAL REPORT

PREPARED FOR

Attn: Jeremy Hurshman
AECOM
1601 Prospect Parkway
Fort Collins, Colorado 80525
Generated 9/22/2025 7:09:16 AM

JOB DESCRIPTION

Basin 2025 Support

JOB NUMBER

280-213366-2

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



Generated
9/22/2025 7:09:16 AM

Authorized for release by
Patrick McEntee, Client Service Manager
Patrick.McEntee@et.eurofinsus.com
(303)736-0107

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Definitions/Glossary

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213366-2

Qualifiers

General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Case Narrative

Client: AECOM
Project: Basin 2025 Support

Job ID: 280-213366-2

Job ID: 280-213366-2

Eurofins Denver

Job Narrative 280-213366-2

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

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

Receipt

The sample was received on 9/12/2025 9:55 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 5 coolers at receipt time were 1.1°C, 2.6°C, 3.4°C, 5.7°C and 18.9°C.

Receipt Exceptions

The cooler received out of temperature contained volume for radiochemistry analysis which does not require thermal preservation.280-213366-1

Method 6010D - Metals (ICP)

Sample RW-2-09102025 (280-213366-1) was analyzed for Metals (ICP). The sample was prepared on 9/15/2025 and analyzed on 9/17/2025 and 9/18/2025.

Method 6020B - Metals (ICP/MS)

Sample RW-2-09102025 (280-213366-1) was analyzed for Metals (ICP/MS). The sample was prepared on 9/15/2025 and analyzed on 9/16/2025.

Method 7470A - Mercury (CVAA)

Sample RW-2-09102025 (280-213366-1) was analyzed for Mercury (CVAA). The sample was prepared and analyzed on 9/15/2025.

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

Sample RW-2-09102025 (280-213366-1) was analyzed for Solids, Total Dissolved (TDS). The sample was analyzed on 9/16/2025.

Method 9056A - Anions, Ion Chromatography

Sample RW-2-09102025 (280-213366-1) was analyzed for Anions, Ion Chromatography. The sample was analyzed on 9/14/2025.

Sample RW-2-09102025 (280-213366-1)[10x] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Eurofins Denver

Detection Summary

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213366-2

Client Sample ID: RW-2-09102025

Lab Sample ID: 280-213366-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Boron	99.7		50.0	15.0	ug/L	1			6010D	Total/NA
Calcium	162000		200	60.0	ug/L	1			6010D	Total/NA
Lithium	40.0		20.0	10.0	ug/L	1			6010D	Total/NA
Arsenic	10.6		2.00	0.500	ug/L	1			6020B	Total/NA
Barium	67.8		2.00	0.550	ug/L	1			6020B	Total/NA
Chromium	6.13		3.00	1.00	ug/L	1			6020B	Total/NA
Molybdenum	10.6		2.00	0.500	ug/L	1			6020B	Total/NA
Selenium	12.7		2.00	0.500	ug/L	1			6020B	Total/NA
Chloride	86.2		3.00	1.30	mg/L	1			9056A	Total/NA
Fluoride	0.635		0.500	0.200	mg/L	1			9056A	Total/NA
Sulfate	448		30.0	13.0	mg/L	10			9056A	Total/NA
Total Dissolved Solids (TDS)	1120		20.0	12.0	mg/L	1			SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Method Summary

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213366-2

Method	Method Description	Protocol	Laboratory
6010D	Metals (ICP)	SW846	EET DEN
6020B	Metals (ICP/MS)	SW846	EET DEN
7470A	Mercury (CVAA)	SW846	EET DEN
9056A	Anions, Ion Chromatography	SW846	EET DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET DEN
3005A	Preparation, Total 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: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213366-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Sample Origin
280-213366-1	RW-2-09102025	Water	09/10/25 07:40	09/12/25 09:55	Colorado

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

Client Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213366-2

Method: SW846 6010D - Metals (ICP)

Client Sample ID: RW-2-09102025
Date Collected: 09/10/25 07:40
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213366-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	99.7		50.0	15.0	ug/L		09/15/25 10:00	09/18/25 22:43	1
Calcium	162000		200	60.0	ug/L		09/15/25 10:00	09/17/25 02:24	1
Lithium	40.0		20.0	10.0	ug/L		09/15/25 10:00	09/17/25 02:24	1

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

Client Sample ID: RW-2-09102025
Date Collected: 09/10/25 07:40
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213366-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	10.6		2.00	0.500	ug/L		09/15/25 10:00	09/16/25 22:25	1
Barium	67.8		2.00	0.550	ug/L		09/15/25 10:00	09/16/25 22:25	1
Beryllium	ND		1.00	0.250	ug/L		09/15/25 10:00	09/16/25 22:25	1
Cadmium	ND		1.00	0.250	ug/L		09/15/25 10:00	09/16/25 22:25	1
Cobalt	ND		1.00	0.250	ug/L		09/15/25 10:00	09/16/25 22:25	1
Chromium	6.13		3.00	1.00	ug/L		09/15/25 10:00	09/16/25 22:25	1
Molybdenum	10.6		2.00	0.500	ug/L		09/15/25 10:00	09/16/25 22:25	1
Lead	ND		1.00	0.500	ug/L		09/15/25 10:00	09/16/25 22:25	1
Antimony	ND		2.00	0.500	ug/L		09/15/25 10:00	09/16/25 22:25	1
Selenium	12.7		2.00	0.500	ug/L		09/15/25 10:00	09/16/25 22:25	1
Thallium	ND		1.00	0.250	ug/L		09/15/25 10:00	09/16/25 22:25	1

Method: SW846 7470A - Mercury (CVAA)

Client Sample ID: RW-2-09102025
Date Collected: 09/10/25 07:40
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213366-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.0000600	mg/L		09/15/25 09:43	09/15/25 18:29	1

General Chemistry

Client Sample ID: RW-2-09102025
Date Collected: 09/10/25 07:40
Date Received: 09/12/25 09:55

Lab Sample ID: 280-213366-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	86.2		3.00	1.30	mg/L			09/14/25 06:12	1
Fluoride (SW846 9056A)	0.635		0.500	0.200	mg/L			09/14/25 06:12	1
Sulfate (SW846 9056A)	448		30.0	13.0	mg/L			09/14/25 06:26	10
Total Dissolved Solids (TDS) (SM 2540C)	1120		20.0	12.0	mg/L			09/16/25 09:55	1

QC Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213366-2

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 280-713327/1-A
Matrix: Water
Analysis Batch: 713727

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 713327

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		50.0	15.0	ug/L		09/15/25 10:00	09/17/25 00:19	1
Calcium	ND		200	60.0	ug/L		09/15/25 10:00	09/17/25 00:19	1
Lithium	ND		20.0	10.0	ug/L		09/15/25 10:00	09/17/25 00:19	1

Lab Sample ID: LCS 280-713327/2-A
Matrix: Water
Analysis Batch: 713727

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 713327

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2000	1829		ug/L		91	85 - 115
Calcium	50000	46020		ug/L		92	85 - 115
Lithium	1000	908.3		ug/L		91	85 - 115

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-713327/1-A
Matrix: Water
Analysis Batch: 713656

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 713327

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		2.00	0.500	ug/L		09/15/25 10:00	09/16/25 20:46	1
Barium	ND		2.00	0.550	ug/L		09/15/25 10:00	09/16/25 20:46	1
Beryllium	ND		1.00	0.250	ug/L		09/15/25 10:00	09/16/25 20:46	1
Cadmium	ND		1.00	0.250	ug/L		09/15/25 10:00	09/16/25 20:46	1
Cobalt	ND		1.00	0.250	ug/L		09/15/25 10:00	09/16/25 20:46	1
Chromium	ND		3.00	1.00	ug/L		09/15/25 10:00	09/16/25 20:46	1
Molybdenum	ND		2.00	0.500	ug/L		09/15/25 10:00	09/16/25 20:46	1
Lead	ND		1.00	0.500	ug/L		09/15/25 10:00	09/16/25 20:46	1
Antimony	ND		2.00	0.500	ug/L		09/15/25 10:00	09/16/25 20:46	1
Selenium	ND		2.00	0.500	ug/L		09/15/25 10:00	09/16/25 20:46	1
Thallium	ND		1.00	0.250	ug/L		09/15/25 10:00	09/16/25 20:46	1

Lab Sample ID: LCS 280-713327/24-A
Matrix: Water
Analysis Batch: 713656

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 713327

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	40.0	42.30		ug/L		106	85 - 115
Barium	40.0	41.77		ug/L		104	85 - 115
Beryllium	40.0	39.11		ug/L		98	85 - 115
Cadmium	40.0	37.85		ug/L		95	85 - 115
Cobalt	40.0	39.69		ug/L		99	85 - 115
Chromium	40.0	40.05		ug/L		100	85 - 115
Molybdenum	40.0	38.02		ug/L		95	85 - 115
Lead	40.0	39.77		ug/L		99	85 - 115
Antimony	40.0	40.05		ug/L		100	85 - 115
Selenium	40.0	40.26		ug/L		101	85 - 115
Thallium	40.0	40.25		ug/L		101	85 - 115

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QC Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213366-2

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-713324/1-A
Matrix: Water
Analysis Batch: 713498

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 713324

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.0000600	mg/L		09/15/25 09:43	09/15/25 17:56	1

Lab Sample ID: LCS 280-713324/2-A
Matrix: Water
Analysis Batch: 713498

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 713324

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.004795		mg/L		96	85 - 115

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-713245/40
Matrix: Water
Analysis Batch: 713245

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	1.30	mg/L			09/14/25 00:48	1
Fluoride	ND		0.500	0.200	mg/L			09/14/25 00:48	1
Sulfate	ND		3.00	1.30	mg/L			09/14/25 00:48	1

Lab Sample ID: MB 280-713245/6
Matrix: Water
Analysis Batch: 713245

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	1.30	mg/L			09/13/25 16:28	1
Fluoride	ND		0.500	0.200	mg/L			09/13/25 16:28	1
Sulfate	ND		3.00	1.30	mg/L			09/13/25 16:28	1

Lab Sample ID: LCS 280-713245/38
Matrix: Water
Analysis Batch: 713245

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	98.73		mg/L		99	90 - 110
Fluoride	5.00	5.013		mg/L		100	90 - 110
Sulfate	100	98.12		mg/L		98	90 - 110

Lab Sample ID: LCS 280-713245/4
Matrix: Water
Analysis Batch: 713245

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	98.93		mg/L		99	90 - 110
Fluoride	5.00	5.001		mg/L		100	90 - 110
Sulfate	100	98.86		mg/L		99	90 - 110

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QC Sample Results

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213366-2

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

Lab Sample ID: LCSD 280-713245/39

Matrix: Water

Analysis Batch: 713245

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	98.80		mg/L		99	90 - 110	0	10
Fluoride	5.00	4.969		mg/L		99	90 - 110	1	10
Sulfate	100	98.02		mg/L		98	90 - 110	0	10

Lab Sample ID: LCSD 280-713245/5

Matrix: Water

Analysis Batch: 713245

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	99.01		mg/L		99	90 - 110	0	10
Fluoride	5.00	4.988		mg/L		100	90 - 110	0	10
Sulfate	100	98.78		mg/L		99	90 - 110	0	10

Lab Sample ID: MRL 280-713245/3

Matrix: Water

Analysis Batch: 713245

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	3.00	2.958	J	mg/L		99	50 - 150		
Fluoride	0.500	0.4785	J	mg/L		96	50 - 150		
Sulfate	3.00	2.948	J	mg/L		98	50 - 150		

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

Lab Sample ID: MB 280-713515/1

Matrix: Water

Analysis Batch: 713515

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		10.0	6.00	mg/L			09/16/25 09:55	1

Lab Sample ID: LCS 280-713515/2

Matrix: Water

Analysis Batch: 713515

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	500.0		mg/L		100	88 - 114		

Lab Sample ID: 280-213366-1 DU

Matrix: Water

Analysis Batch: 713515

Client Sample ID: RW-2-09102025

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D		RPD	RPD Limit
Total Dissolved Solids (TDS)	1120		1108		mg/L			1	10

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QC Association Summary

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213366-2

Metals

Prep Batch: 713324

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-213366-1	RW-2-09102025	Total/NA	Water	7470A	
MB 280-713324/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-713324/2-A	Lab Control Sample	Total/NA	Water	7470A	

Prep Batch: 713327

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-213366-1	RW-2-09102025	Total/NA	Water	3005A	
MB 280-713327/1-A	Method Blank	Total/NA	Water	3005A	
LCS 280-713327/24-A	Lab Control Sample	Total/NA	Water	3005A	
LCS 280-713327/2-A	Lab Control Sample	Total/NA	Water	3005A	

Analysis Batch: 713498

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-213366-1	RW-2-09102025	Total/NA	Water	7470A	713324
MB 280-713324/1-A	Method Blank	Total/NA	Water	7470A	713324
LCS 280-713324/2-A	Lab Control Sample	Total/NA	Water	7470A	713324

Analysis Batch: 713656

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-213366-1	RW-2-09102025	Total/NA	Water	6020B	713327
MB 280-713327/1-A	Method Blank	Total/NA	Water	6020B	713327
LCS 280-713327/24-A	Lab Control Sample	Total/NA	Water	6020B	713327

Analysis Batch: 713727

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-213366-1	RW-2-09102025	Total/NA	Water	6010D	713327
MB 280-713327/1-A	Method Blank	Total/NA	Water	6010D	713327
LCS 280-713327/2-A	Lab Control Sample	Total/NA	Water	6010D	713327

Analysis Batch: 714086

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-213366-1	RW-2-09102025	Total/NA	Water	6010D	713327

General Chemistry

Analysis Batch: 713245

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-213366-1	RW-2-09102025	Total/NA	Water	9056A	
280-213366-1	RW-2-09102025	Total/NA	Water	9056A	
MB 280-713245/40	Method Blank	Total/NA	Water	9056A	
MB 280-713245/6	Method Blank	Total/NA	Water	9056A	
LCS 280-713245/38	Lab Control Sample	Total/NA	Water	9056A	
LCS 280-713245/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-713245/39	Lab Control Sample Dup	Total/NA	Water	9056A	
LCSD 280-713245/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-713245/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 713515

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-213366-1	RW-2-09102025	Total/NA	Water	SM 2540C	
MB 280-713515/1	Method Blank	Total/NA	Water	SM 2540C	

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QC Association Summary

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213366-2

General Chemistry (Continued)

Analysis Batch: 713515 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 280-713515/2	Lab Control Sample	Total/NA	Water	SM 2540C	
280-213366-1 DU	RW-2-09102025	Total/NA	Water	SM 2540C	

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Lab Chronicle

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213366-2

Client Sample ID: RW-2-09102025

Lab Sample ID: 280-213366-1

Date Collected: 09/10/25 07:40

Matrix: Water

Date Received: 09/12/25 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			50 mL	50 mL	713327	09/15/25 10:00	TR	EET DEN
Total/NA	Analysis	6010D		1			713727	09/17/25 02:24	ADL	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713327	09/15/25 10:00	TR	EET DEN
Total/NA	Analysis	6010D		1			714086	09/18/25 22:43	ADL	EET DEN
Total/NA	Prep	3005A			50 mL	50 mL	713327	09/15/25 10:00	TR	EET DEN
Total/NA	Analysis	6020B		1			713656	09/16/25 22:25	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	713324	09/15/25 09:43	AES	EET DEN
Total/NA	Analysis	7470A		1			713498	09/15/25 18:29	SMK	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	713245	09/14/25 06:12	SLH	EET DEN
Total/NA	Analysis	9056A		10	10 mL	10 mL	713245	09/14/25 06:26	SLH	EET DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	713515	09/16/25 09:55	YBF	EET DEN

Laboratory References:

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

Accreditation/Certification Summary

Client: AECOM
Project/Site: Basin 2025 Support

Job ID: 280-213366-2

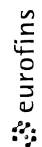
Laboratory: Eurofins Denver

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

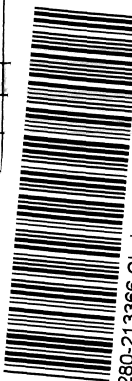
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Oregon	NELAP	4025	01-08-26

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Chain of Custody Record



Environment Testing

Client Information		Sampler		Lab PM	Carrier Tracking No(s)		COC No				
Client Contact: Ms. Katie Abbott		Olivia Helinski		McEntee, Patrick J			280-133855-37095.1				
Company: AECOM Technical Services Inc.		360-333-9002		E-Mail: Patrick.McEntee@et.eurofins.com	State of Origin WY		Page 1 of 1				
Address: 6200 S. Quebec Street City Greenwood Village State, Zip CO, 80111 Phone 616-574-8327(Tel) Email katie.abbott@aecom.com Project Name Basin 2025 Support Site Basin Electric, Lawrence River Station		Due Date Requested: TAT Requested (days): STANDARD Compliance Project: ☐ Yes ☒ No PO # AECOM Project# 60632474 Project # 28020759 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 - EDTA Other: M - Hexane N - None O - AsNaO2 P - Na2OAS Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)					
Sample Identification RW-2-09162025		Sample Date 9/10/25	Sample Time 0740	Sample Type (C=Comp, G=grab) G	Matrix (W=water, S=solid, O=wastefoli, BT=basin, A=air)	Field Filtered Sample (Yes or No) X	Perform MS/MSD (Yes or No) X	9315_Ra226 - Ra228 9320_Ra228 - Ra228 Ra226Ra228 - Combined Ra226 Ra228 9056A_28D - Chloride, Fluoride, Sulfate 6010D_6020B_7470A - App III and IV Total Metals 2540C - Solids, Total Dissolved (TDS)	Total Number of containers 5	Special Instructions/Note:  280-213366 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		Special Instructions/QC Requirements:		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months		Empty Kit Relinquished by:		Date: _____	
Relinquished by: 		Date/Time: 9/11/25 1206		Company: AECOM		Received by: 		Date/Time: 9/12/25 0955		Company: EEDEN	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:	
Custody Seals Intact: ☐ Yes ☒ No		Custody Seal No.:		Cooling Temperature, °C and Other Remarks: 1.3°C 19.1°C 5.9°C 3.6°C 2.8°C 0.2°C 2.8°C							

1
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ORIGIN ID:FTCA 280-213366 Waybill

REC'D
7595 E TECHNOLOGY WAY
DENVER, CO 80237
UNITED STATES, US

DIMS: 26x14x14 IN 621
BILL THIRD PARTY

Part # 156297-2851

EUROFINS DENVER
4955 YARROW ST



Environment Testing
TestAmerica

2400500

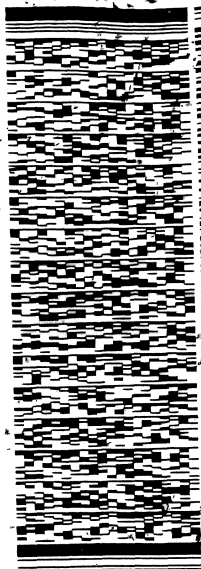
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(303) 736-0100

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PO:

DEPT:



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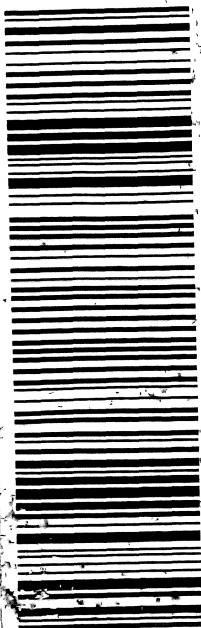
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80002

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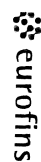


ORIGIN ID:FTCA (360) 333-9002

REC'D
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DENVER, CO 80237
UNITED STATES US

TO

EUROFINS DENVER
4955 YARROW ST



Environment
TestAmerica

240

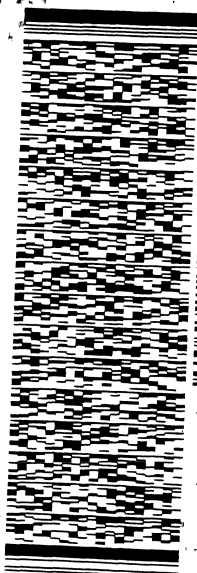
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(303) 736-0100

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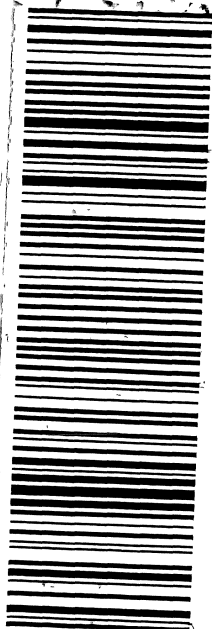
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PRIORITY OVERNIGHT

AHS

80002

CO-US DEN

72 LAANA



Part # 156297-4365-4PM

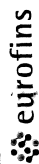
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ACTWT: 66.95 LB
CAD: 696907/SSFE2621
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BILL THIRD PARTY

ORIGIN ID: FTCA (360) 333-9002

RECOM
7595 E TECHNOLOGY WAY
DENVER, CO 80237
UNITED STATES US

10

EUROFINS DENVER
4955 YARROW ST



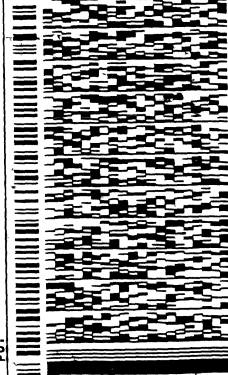
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2400506

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PRIORITY OVERNIGHT

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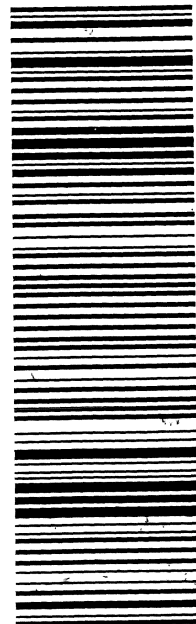
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Mstr# 3931 1499 2776

0201

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CO-US

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ORIGIN ID: FTCA (360) 333-9002

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DENVER, CO 80237
UNITED STATES US

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EUROFINS DENVER
4955 YARROW ST



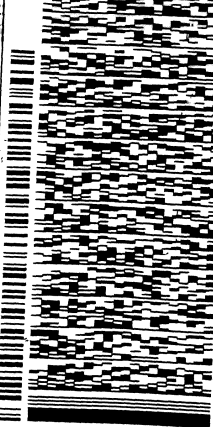
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TestAmerica

ARVADA CO 80002

2400506

(303) 786-0100 REF:
UNIT
PG1

DEPT:



FedEx
Express



J253025062307

FRI - 12 SEP 10:30A
PRIORITY OVERNIGHT

5 of 5

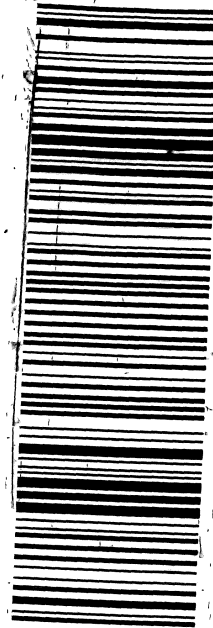
MPS# 3931 1499 2813
0263

Mstr# 3931 1499 2776

0201

AHS
80002
DEN
CO-US

72 LAAA



ORIGIN ID:FTCA (360) 333-9002

AECOM
7595 E TECHNOLOGY WAY

DENVER, CO 80237
UNITED STATES US

SHIP DATE: 11SEP25
ACTWGT: 64.05 LB
CAD: 6996807/SSFE2621
DIMS: 26x14x14 IN
BILL THIRD PARTY

Part # 156297-2485-14904V2-9EXP 09/26

TO

**EUROFINS DENVER
4955 YARROW ST**

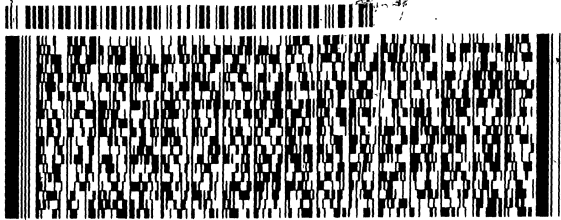
ARVADA CO 80002

(303) 736-0100

REF:

INU:
PO:

DEPT:



FedEx
Express



AN1062905205527

3 of 5

MPS# 3931 1499 2798
0263

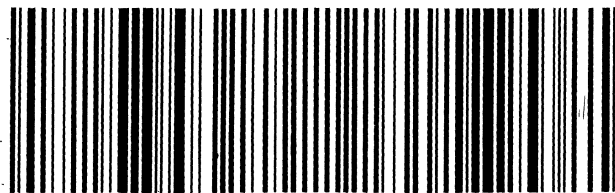
Mstr# 3931 1499 2776

0201

72 LAAA

**FRI - 12 SEP 10:30A
PRIORITY OVERNIGHT**

**AHS
80002
CO-US DEN**



Login Sample Receipt Checklist

Client: AECOM

Job Number: 280-213366-2

Login Number: 213366

List Source: Eurofins Denver

List Number: 1

Creator: Little, Matthew L

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

This receipt checklist is generated for all samples received in this Login. It may not be applicable to all Jobs associated with this Login.

Eurofins Denver

Attachment B

Input and Output Data Files for Calculation of Upper and Lower Prediction Limits (2016-2021)

Attachment B: Input data for Calculation
of Upper and Lower Predictive Limits
CCR Monitoring Wells for Multi-units
Laramie River Station - Wheatland, WY

Pond 1 Unit																					
Well	date	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result
Analyte (Abbreviation)		B	D_B	Ca	D_Ca	Cl	D_Cl	F	D_F	pH	D_pH	SO	D_SO	TDS	D_TDS	Sb	D_Sb	As	D_As	Ba	D_Ba
MW-52B	7/19/2017	0.15	1	120	1	33	1	0.5	1	7.91	1	370	1	820	1	0.002	0	0.005	0	0.13	1
MW-52B	8/25/2017	0.16	1	120	1	41	1	0.5	0	7.54	1	410	1	920	1	0.002	0	0.005	0	0.12	1
MW-52B	8/31/2017	0.16	1	160	1	41	1	0.5	0	7.61	1	420	1	930	1	0.002	0	0.005	0	0.24	1
MW-52B	9/6/2017	0.17	1	140	1	41	1	0.5	0	7.61	1	430	1	980	1	0.002	0	0.005	0	0.11	1
MW-52B	9/14/2017	0.16	1	130	1	43	1	0.5	0	7.46	1	430	1	940	1	0.002	0	0.005	0	0.12	1
MW-52B	9/18/2017	0.15	1	130	1	41	1	0.5	0	7.45	1	420	1	1000	1	0.002	0	0.005	0	0.11	1
MW-52B	9/27/2017	0.15	1	140	1	40	1	0.5	0	7.55	1	430	1	960	1	0.002	0	0.005	0	0.11	1
MW-52B	10/3/2017	0.15	1	130	1	42	1	0.5	0	7.74	1	430	1	1000	1	0.002	0	0.005	0	0.096	1
MW-52B	4/4/2018							0.5	0											0.109	1
MW-52B	6/27/2018	0.16	1	175	1	39.4	1	0.5	0	7.39	1	499	1	1080	1	0.002	0	0.005	0	0.0861	1
MW-52B	10/24/2018	0.159	1	168	1	41.1	1	0.5	0			469	1	1100	1	0.002	0	0.005	0	0.0819	1
MW-52B	6/5/2019	0.152	1	169	1	42.8	1	0.5	0	6.94	1	493	1	1120	1					0.075	1
MW-52B	10/22/2019	0.154	1	174	1	39.3	1	0.5	0	7.55	1	471	1	1040	1	0.002	0	0.005	0	0.0752	1
MW-52B	6/3/2020	0.149	1	167	1	34.8	1	0.5	0	7.53	1	450	1	1890	1	0.002	0	0.005	0	0.0715	1
MW-52B	10/7/2020	0.187	1	161	1	40.7	1	0.5	0	7.58	1	923	1	1140	1	0.002	0	0.005	0	0.0514	1
MW-52B	6/4/2021	0.174	1	158	1	47.7	1	0.5	0	7.66	1	455	1	1130	1	0.002	0	0.005	0	0.0653	1
MW-52B	10/7/2021	0.166	1	159	1	49.1	1	0.5	0	7.52	1	480	1	1090	1	0.002	0	0.005	0	0.0512	1
MW-53B	7/19/2017	0.1	0	95	1	32	1	0.96	1	8.63	1	220	1	570	1	0.002	0	0.005	0	0.1	1
MW-53B	8/25/2017	0.1	0	81	1	34	1	0.91	1	8.48	1	210	1	560	1	0.002	0	0.005	0	0.12	1
MW-53B	8/31/2017	0.1	0	82	1	33	1	0.88	1	8.72	1	220	1	540	1	0.002	0	0.005	0	0.13	1
MW-53B	9/6/2017	0.1	0	79	1	33	1	1	1	8.98	1	210	1	560	1	0.002	0	0.005	0	0.13	1
MW-53B	9/14/2017	0.1	0	77	1	33	1	0.93	1	7.79	1	220	1	590	1	0.002	0	0.005	0	0.094	1
MW-53B	9/18/2017	0.1	0	76	1	33	1	1	1	7.52	1	210	1	580	1	0.002	0	0.005	0	0.094	1
MW-53B	9/27/2017	0.1	0	78	1	32	1	1.1	1	7.96	1	220	1	620	1	0.002	0	0.005	0	0.07	1
MW-53B	10/3/2017	0.1	0	78	1	33	1	1.1	1	7.79	1	220	1	610	1	0.002	0	0.005	0	0.081	1
MW-53B	4/4/2017							1.14	1							0.002	0	0.005	0	0.0546	1
MW-53B	6/27/2018	0.104	1	102	1	36.6	1	1.33	1	7.62	1	242	1	691	1	0.002	0	0.005	0	0.0522	1
MW-53B	10/24/2018	0.106	1	97.8	1	40.5	1	1.21	1			231	1	711	1					0.0531	1
MW-53B	6/5/2019	0.1	0	104	1	45.7	1	1.08	1	7.2	1	247	1	699	1					0.0451	1
MW-53B	10/22/2019	0.1	0	102	1	47	1	0.919	1	7.81	1	222	1	686	1	0.002	0	0.005	0	0.0477	1
MW-53B	6/3/2020	0.1	0	101	1	41.2	1	0.939	1	7.76	1	220	1	697	1	0.002	0	0.005	0	0.0504	1
MW-53B	10/7/2020	0.117	1	102	1	42.1	1	0.958	1	7.74	1	238	1	709	1	0.002	0	0.005	0	0.0427	1
MW-53B	6/4/2021	0.113	1	99.7	1	51.1	1	1.02	1	7.93	1	220	1	698	1	0.002	0	0.005	0	0.0427	1
MW-53B	10/6/2021	0.115	1	103	1	52.7	1	0.948	1	7.78	1	208	1	683	1	0.002	0	0.005	0	0.0527	1

Notes:
results in mg/L

Attachment B: Input data for Calculation
of Upper and Lower Predictive Limits
CCR Monitoring Wells for Multi-units
Laramie River Station - Wheatland, WY

Pond 1 Unit																							
Well	date	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result
Analyte (Abbreviation)		Be	D_Be	Cd	D_Cd	Cr	D_Cr	Co	D_Co	Pb	D_Pb	Li	D_Li	Hg	D_Hg	Mo	D_Mo	Ra	D_Ra	Se	D_Se	Th	D_Th
MW-52B	7/19/2017	0.001	0	0.001	0	0.0058	1	0.0014	1	0.001	0	0.048	1	0.0002	0	0.013	1	0.347	0	0.005	0	0.001	0
MW-52B	8/25/2017	0.001	0	0.001	0	0.002	0	0.001	0	0.001	0	0.039	1	0.0002	0	0.0094	1	0.903	1	0.005	0	0.001	0
MW-52B	8/31/2017	0.001	0	0.001	0	0.011	1	0.004	1	0.0041	1	0.063	1	0.0002	0	0.0088	1	1.25	0	0.005	0	0.001	0
MW-52B	9/6/2017	0.001	0	0.001	0	0.002	0	0.001	0	0.001	0	0.045	1	0.0002	0	0.0083	1	1.2	0	0.005	0	0.001	0
MW-52B	9/14/2017	0.001	0	0.001	0	0.002	0	0.001	0	0.001	0	0.049	1	0.0002	0	0.0071	1	0.482	1	0.005	0	0.001	0
MW-52B	9/18/2017	0.001	0	0.001	0	0.002	0	0.001	0	0.001	0	0.049	1	0.0002	0	0.0066	1	0.566	1	0.005	0	0.001	0
MW-52B	9/27/2017	0.001	0	0.001	0	0.002	0	0.001	1	0.001	0	0.05	1	0.0002	0	0.0063	1	0.37	0	0.005	0	0.001	0
MW-52B	10/3/2017	0.001	0	0.001	0	0.002	0	0.001	0	0.001	0	0.048	1	0.0002	0	0.0056	1	0.576	0	0.005	0	0.001	0
MW-52B	4/4/2018	0.001	0	0.001	0	0.002	0	0.001	0	0.001	0	0.0475	1	0.0002	0	0.00531	1	0.617	1	0.005	0	0.001	0
MW-52B	6/27/2018	0.001	0	0.001	0	0.002	0			0.001	0	0.0476	1	0.0002	0	0.00452	1	0.873	0	0.005	0	0.001	0
MW-52B	10/24/2018					0.002	0	0.001	0			0.0393	1			0.00407	1			0.005	0		
MW-52B	6/5/2019					0.002	0	0.001	0			0.0467	1			0.00417	1			0.005	0		
MW-52B	10/22/2019	0.001	0	0.001	0	0.002	0	0.001	0	0.001	0	0.0403	1	0.0002	0	0.00418	1	0.775	1	0.005	0	0.001	0
MW-52B	6/3/2020	0.001	0	0.001	0	0.002	0	0.001	0	0.001	0	0.0426	1	0.0002	0	0.01	0	0.669	1	0.005	0	0.001	0
MW-52B	10/7/2020	0.001	0	0.001	0	0.002	0	0.001	0	0.001	0	0.0406	0	0.0002	0	0.01	0	0.626	1	0.005	0	0.001	0
MW-52B	6/4/2021	0.001	0	0.001	0	0.005	0	0.001	0	0.001	0	0.0456	1	0.0002	0	0.01	0	1.02	0	0.005	0	0.001	0
MW-52B	10/7/2021	0.001	0	0.001	0	0.005	0	0.001	0	0.001	0	0.0385	1	0.0002	0	0.01	0	0.934	0	0.005	0	0.001	0
MW-53B	7/19/2017	0.001	0	0.001	0	0.0045	1	0.001	0	0.001	0	0.042	1	0.0002	0	0.014	1	0.682	0	0.006	1	0.001	0
MW-53B	8/25/2017	0.001	0	0.001	0	0.0038	1	0.001	0	0.001	0	0.033	1	0.0002	0	0.014	1	1.09	1	0.005	0	0.001	0
MW-53B	8/31/2017	0.001	0	0.001	0	0.0045	1	0.001	0	0.001	0	0.042	1	0.0002	0	0.015	1	0.426	0	0.005	0	0.001	0
MW-53B	9/6/2017	0.001	0	0.001	0	0.0052	1	0.001	0	0.001	0	0.035	1	0.0002	0	0.015	1	0.407	0	0.005	0	0.001	0
MW-53B	9/14/2017	0.001	0	0.001	0	0.0028	1	0.001	0	0.001	0	0.038	1	0.0002	0	0.012	1	0.424	0	0.005	0	0.001	0
MW-53B	9/18/2017	0.001	0	0.001	0	0.0033	1	0.001	0	0.001	0	0.041	1	0.0002	0	0.012	1	0.432	0	0.005	0	0.001	0
MW-53B	9/27/2017	0.001	0	0.001	0	0.002	0	0.001	0	0.001	0	0.042	1	0.0002	0	0.01	1	0.375	0	0.005	0	0.001	0
MW-53B	10/3/2017	0.001	0	0.001	0	0.0022	1	0.001	0	0.001	0	0.04	1	0.0002	0	0.011	1	1.88	0	0.005	0	0.001	0
MW-53B	4/4/2017	0.001	0	0.001	0	0.002	0	0.001	0	0.001	0	0.0418	1	0.0002	0	0.00696	1	0.37	0	0.00689	1	0.001	0
MW-53B	6/27/2018	0.001	0	0.001	0	0.002	0	0.001	0	0.001	0	0.0384	1	0.0002	0	0.00851	1	0.4	0	0.00636	1	0.001	0
MW-53B	10/24/2018					0.002	0	0.001	0	0.001	0	0.0412	1			0.00669	1			0.00708	1		
MW-53B	6/5/2019					0.002	0					0.0375	1			0.00563	1			0.00854	1		
MW-53B	10/22/2019	0.001	0	0.001	0	0.002	0	0.001	0			0.0317	1	0.0002	0	0.00606	1	0.595	0	0.00935	1	0.001	0
MW-53B	6/3/2020	0.001	0	0.001	0	0.0024	1	0.001	0	0.001	0	0.0378	1	0.0002	0	0.01	0	0.505	0	0.00951	1	0.001	0
MW-53B	10/7/2020	0.001	0	0.001	0	0.0027	1	0.001	0	0.001	0	0.0331	0	0.0002	0	0.01	0	0.632	0	0.0106	1	0.001	0
MW-53B	6/4/2021	0.001	0	0.001	0	0.005	0	0.001	0	0.001	0	0.0341	1	0.0002	0	0.01	0	0.767	1	0.0103	1	0.001	0
MW-53B	10/6/2021	0.001	0	0.001	0	0.005	0	0.001	0	0.001	0	0.035	1	0.0002	0	0.01	0	0.749	0	0.0106	1	0.001	0

Notes:
results in mg/L

Attachment B: Input data for Calculation
of Upper and Lower Predictive Limits
CCR Monitoring Wells for Multi-units
Laramie River Station - Wheatland, WY

Pond2,3 Multi-unit

Well	date	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result
Analyte(Abbreviation)		B	D_B	Ca	D_Ca	Cl	D_Cl	F	D_F	pH	D_pH	SO	D_SO	TDS	D_TDS	Sb	D_Sb	As	D_As	Ba	D_Ba
MW-32B	9/1/2016	0.27	1	200	1	83	1	0.54	1	7.21	1	820	1	1700	1	0.002	0	0.005	0	0.077	1
MW-32B	11/11/2016	0.28	1	210	1	83	1	0.6	1	6.37	1	820	1	1700	1	0.002	0	0.005	0	0.057	1
MW-32B	12/15/2016	0.27	1	190	1	84	1	0.59	1	7.5	1	830	1	1700	1	0.002	0	0.005	0	0.053	1
MW-32B	2/13/2017	0.28	1	200	1	84	1	0.63	1	7.6	1	830	1	1700	1	0.002	0	0.005	0	0.047	1
MW-32B	4/4/2017	0.31	1	190	1	83	1	0.59	1	7.19	1	830	1	1700	1	0.02	0	0.05	0	0.038	1
MW-32B	5/16/2017	0.29	1	180	1	84	1	0.6	1	7.23	1	830	1	1700	1	0.002	0	0.005	0	0.04	1
MW-32B	6/13/2017	0.28	1	190	1	84	1	0.64	1	7.29	1	840	1	1800	1	0.002	0	0.005	0	0.041	1
MW-32B	7/26/2017	0.26	1	190	1	86	1	0.53	1	7.28	1	790	1	1700	1	0.002	0	0.005	0	0.044	1
MW-32B	4/3/2018							0.639	1	7.37	1					0.002	0	0.005	0	0.0387	1
MW-32B	6/27/2018	0.294	1	189	1	85.6	1	0.657	1	7.35	1	845	1	1780	1	0.002	0	0.005	0	0.0371	1
MW-32B	6/5/2019	0.293	1	202	1	94.3	1	0.5	0	6.61	1	877	1	1830	1					0.0349	1
MW-32B	10/23/2019	0.295	1	198	1	89.5	1	0.5	0	7.36	1	840	1	1780	1	0.002	0	0.005	0	0.0323	1
MW-32B	6/2/2020	0.305	1	203	1	85.2	1	0.5	0	7.37	1	820	1	1820	1	0.002	0	0.005	0	0.0351	1
MW-32B	10/7/2020	0.306	1	191	1	83.8	1	0.5	0	7.25	1	833	1	1810	1	0.002	0	0.005	0	0.0309	1
MW-32B	6/2/2021	0.313	1	201	1	97.1	1	0.5	0	7.24	1	832	1	1830	1	0.002	0	0.005	0	0.0332	1
MW-32B	10/6/2021	0.296	1	196	1	94.3	1	0.604	1	7.25	1	839	1	1840	1	0.002	0	0.005	0	0.0333	1
MW-39B	9/2/2016	0.17	1	170	1	43	1	0.79	1	7.31	1	450	1	400	1	0.002	0	0.0057	1	0.11	1
MW-39B	11/10/2016	0.19	1	190	1	45	1	0.65	1	7.11	1	530	1	970	1	0.002	0	0.005	0	0.073	1
MW-39B	12/14/2016	0.18	1	180	1	46	1	0.63	1	7.5	1	540	1	1300	1	0.002	0	0.005	0	0.064	1
MW-39B	2/13/2017	0.19	1	200	1	46	1	0.66	1	7.7	1	540	1	1200	1	0.002	0	0.005	0	0.069	1
MW-39B	4/4/2017	0.2	1	180	1	46	1	0.61	1	7.02	1	550	1	1300	1	0.02	0	0.05	0	0.048	1
MW-39B	5/16/2017	0.21	1	170	1	46	1	0.66	1	7.13	1	540	1	1300	1	0.002	0	0.005	0	0.051	1
MW-39B	6/13/2017	0.18	1	170	1	46	1	0.66	1	7.17	1	550	1	1300	1	0.002	0	0.005	0	0.046	1
MW-39B	7/26/2017	0.18	1	180	1	47	1	0.64	1	7.18	1	540	1	1300	1	0.002	0	0.005	0	0.05	1
MW-39B	4/3/2018							0.641	1	7.33	1					0.002	0	0.005	0	0.0472	1
MW-39B	6/27/2018	0.192	1	181	1	46.4	1	0.686	1	7.38	1	582	1	1350	1	0.002	0	0.005	0	0.0404	1
MW-39B	6/5/2019	0.189	1	197	1	49.9	1	0.5	0	6.71	1	602	1	1340	1					0.0402	1
MW-39B	10/23/2019	0.183	1	191	1	45.8	1	0.5	0	7.26	1	542	1	1310	1	0.002	0	0.005	0	0.038	1
MW-39B	6/3/2020	0.185	1	195	1	40.7	1	0.5	0	7.12	1	537	1	1360	1	0.002	0	0.005	0	0.0356	1
MW-39B	10/7/2020	0.192	1	183	1	40.8	1	0.5	0	7.2	1	556	1	1340	1	0.002	0	0.005	0	0.0321	1
MW-39B	6/2/2021	0.189	1	202	1	47.8	1	0.5	0	7.16	1	562	1	1300	1	0.002	0	0.005	0	0.0332	1
MW-39B	10/6/2021	0.173	1	181	1	47	1	1.19	1	7.22	1	659	1	1310	1	0.002	0	0.005	0	0.0342	1

Notes:
results in mg/L

Attachment B: Input data for Calculation
of Upper and Lower Predictive Limits
CCR Monitoring Wells for Multi-units
Laramie River Station - Wheatland, WY

Pond2,3 Multi-unit																							
Well	date	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result
Analyte(Abbreviation)		Be	D_Be	Cd	D_Cd	Cr	D_Cr	Co	D_Co	Pb	D_Pb	Li	D_Li	Hg	D_Hg	Mo	D_Mo	Ra	D_Ra	Se	D_Se	Th	D_Th
MW-32B	9/1/2016	0.001	0	0.001	0	0.002	0	0.001	0	0.001	0	0.074	1	0.0002	0	0.018	1	1.2	1	0.005	0	0.001	0
MW-32B	11/11/2016	0.001	0	0.001	0	0.002	0	0.001	0	0.001	0	0.08	1	0.0002	0	0.0076	1	0.716	1	0.005	0	0.001	0
MW-32B	12/15/2016	0.001	0	0.001	0	0.002	0	0.001	0	0.001	0	0.073	1	0.0002	0	0.0064	1	0.471	1	0.005	0	0.001	0
MW-32B	2/13/2017	0.001	0	0.001	0	0.002	0	0.001	0	0.001	0	0.075	1	0.0002	0	0.0061	1	0.713	1	0.005	0	0.001	0
MW-32B	4/4/2017	0.01	0	0.01	0	0.02	0	0.01	0	0.01	0	0.081	1	0.0002	0	0.02	0	0.375	1	0.05	0	0.01	0
MW-32B	5/16/2017	0.001	0	0.001	0	0.002	0	0.001	0	0.001	0	0.069	1	0.0002	0	0.0085	1	0.752	1	0.005	0	0.001	0
MW-32B	6/13/2017	0.001	0	0.001	0	0.002	0	0.001	0	0.001	0	0.081	1	0.0002	0	0.0079	1	0.793	1	0.005	0	0.001	0
MW-32B	7/26/2017	0.001	0	0.001	0	0.002	0	0.001	0	0.001	0	0.072	1	0.0002	0	0.0095	1	0.915	0	0.005	0	0.001	0
MW-32B	4/3/2018	0.001	0	0.001	0	0.002	0	0.001	0	0.001	0	0.0804	1	0.0002	0	0.00502	1	0.983	1	0.005	0	0.001	0
MW-32B	6/27/2018	0.001	0	0.001	0	0.002	0			0.001	0	0.0769	1	0.0002	0	0.00568	1	0.687	0	0.005	0	0.001	0
MW-32B	6/5/2019					0.002	0					0.0837	1			0.00358	1	0.58	0	0.005	0		
MW-32B	10/23/2019	0.001	0	0.001	0	0.00245	1	0.001	0	0.001	0	0.0739	1	0.0002	0	0.00389	1	0.414	0	0.005	0	0.001	0
MW-32B	6/2/2020	0.001	0	0.001	0	0.002	0	0.001	0	0.001	0	0.0734	1	0.0002	0	0.01	0	0.48	0	0.005	0	0.001	0
MW-32B	10/7/2020	0.001	0	0.001	0	0.002	0	0.001	0	0.001	0	0.0648	0	0.0002	0	0.01	0	0.726	1	0.005	0	0.001	0
MW-32B	6/2/2021	0.001	0	0.001	0	0.005	0	0.001	0	0.001	0	0.0743	1	0.0002	0	0.01	0	0.69	1	0.005	0	0.001	0
MW-32B	10/6/2021	0.001	0	0.001	0	0.005	0	0.001	0	0.001	0	0.0714	1	0.0002	0	0.01	0	1.76	1	0.005	0	0.001	0
MW-39B	9/2/2016	0.001	0	0.001	0	0.002	0	0.0028	1	0.001	0	0.073	1	0.0002	0	0.069	1	0.823	1	0.005	0	0.001	0
MW-39B	11/10/2016	0.001	0	0.001	0	0.002	0	0.0015	1	0.001	0	0.069	1	0.0002	0	0.039	1	0.926	1	0.005	0	0.001	0
MW-39B	12/14/2016	0.001	0	0.001	0	0.002	0	0.0012	1	0.001	0	0.066	1	0.0002	0	0.028	1	0.797	1	0.005	0	0.001	0
MW-39B	2/13/2017	0.001	0	0.001	0	0.002	0	0.001	0	0.001	0	0.068	1	0.0002	0	0.02	1	0.609	1	0.005	0	0.001	0
MW-39B	4/4/2017	0.01	0	0.01	0	0.02	0	0.01	0	0.01	0	0.069	1	0.0002	0	0.02	0	0.556	1	0.05	0	0.01	0
MW-39B	5/16/2017	0.001	0	0.001	0	0.002	0	0.001	0	0.001	0	0.062	1	0.0002	0	0.017	1	0.373	0	0.005	0	0.001	0
MW-39B	6/13/2017	0.001	0	0.001	0	0.002	0	0.001	0	0.001	0	0.064	1	0.0002	0	0.016	1	0.671	1	0.005	0	0.001	0
MW-39B	7/26/2017	0.001	0	0.001	0	0.002	0	0.001	0	0.001	0	0.063	1	0.0002	0	0.017	1	0.426	0	0.005	0	0.001	0
MW-39B	4/3/2018	0.001	0	0.001	0	0.002	0	0.001	0	0.001	0	0.0661	1	0.0002	0	0.0134	1	0.758	1	0.005	0	0.001	0
MW-39B	6/27/2018	0.001	0	0.001	0	0.002	0			0.001	0	0.0608	1	0.0002	0	0.0134	1	0.806	0	0.005	0	0.001	0
MW-39B	6/5/2019					0.002	0					0.0704	1			0.00966	1	0.508	0	0.005	0		
MW-39B	10/23/2019	0.001	0	0.001	0	0.002	0	0.001	0	0.001	0	0.0565	1	0.0002	0	0.00683	1	0.452	1	0.005	0	0.001	0
MW-39B	6/3/2020	0.001	0	0.001	0	0.002	0	0.001	0	0.001	0	0.0588	1	0.0002	0	0.01	0	0.552	1	0.005	0	0.001	0
MW-39B	10/7/2020	0.001	0	0.001	0	0.002	0	0.001	0	0.001	0	0.0555	0	0.0002	0	0.01	0	0.874	1	0.005	0	0.001	0
MW-39B	6/2/2021	0.001	0	0.001	0	0.005	0	0.001	0	0.001	0	0.0579	1	0.0002	0	0.01	0	0.725	1	0.005	0	0.001	0
MW-39B	10/6/2021	0.001	0	0.001	0	0.005	0	0.001	0	0.001	0	0.0529	1	0.0002	0	0.01	0	0.762	1	0.005	0	0.001	0

Notes:
results in mg/L

Attachment B: Input data for Calculation
of Upper and Lower Predictive Limits
CCR Monitoring Wells for Multi-units
Laramie River Station - Wheatland, WY

Emergency Holding Ponds

Well	date	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result
Analyte(abbreviation)		B	D_B	Ca	D_Ca	Cl	D_Cl	F	D_F	pH	D_pH	SO	D_SO	TDS	D_TDS	Sb	D_Sb	As	D_As	Ba	D_Ba
MW-41B	8/31/2016	0.61	1	240	1	160	1	0.5	0	7.41	1	1300	1	2300	1	0.002	0	0.005	0	0.069	1
MW-41B	11/11/2016	0.68	1	270	1	170	1	0.5	0	6.45	1	1800	1	2400	1	0.002	0	0.005	0	0.05	1
MW-41B	12/15/2016	0.66	1	260	1	180	1	0.5	0	7.6	1	1500	1	2500	1	0.002	0	0.005	0	0.045	1
MW-41B	2/14/2017	0.64	1	280	1	180	1	0.5	0	7.7	1	1500	1	2600	1	0.002	0	0.005	0	0.046	1
MW-41B	4/3/2017	0.7	1	270	1	180	1	0.5	0	7.8	1	5	0	2700	1	0.02	0	0.05	0	0.036	1
MW-41B	5/16/2017	0.66	1	270	1	190	1	0.5	0	7.53	1	1600	1	2800	1	0.002	0	0.005	0	0.037	1
MW-41B	6/13/2017	0.6	1	270	1	190	1	0.5	0	7.43	1	1600	1	2800	1	0.002	0	0.005	0	0.032	1
MW-41B	7/26/2017	0.64	1	280	1	200	1	0.5	0	7.9	1	1500	1	2700	1	0.002	0	0.005	0	0.034	1
MW-41B	6/26/2018	0.703	1	351	1	225	1	0.5	0	7.48	1	1660	1	3050	1	0.002	0	0.005	0	0.0334	1
MW-41B	6/4/2019	0.714	1	396	1	277	1	0.5	0	7.47	1	2030	1	3400	1	0.002	0	0.005	0	0.0351	1
MW-41B	10/21/2019	0.862	1	333	1	200	1	1	0	7.56	1	1480	1	2800	1	0.002	0	0.005	0	0.032	1
MW-41B	6/2/2020	0.972	1	284	1	172	1	0.5	0	7.44	1	1300	1	2590	1	0.002	0	0.005	0	0.0273	1
MW-41B	10/6/2020	1.02	1	257	1	155	1	0.5	0	7.35	1	1160	1	2230	1	0.002	0	0.005	0	0.0254	1
MW-41B	6/3/2021	0.857	1	244	1	135	1	0.5	0	7.58	1	1060	1	2020	1	0.002	0	0.005	0	0.0207	1
MW-41B	10/5/2021	0.902	1	195	1	120	1	0.5	0	7.59	1	985	1	1950	1	0.002	0	0.005	0	0.02	1
MW-42B	8/31/2016	0.94	1	530	1	320	1	0.763	1	7.56	1	2200	1	3800	1	0.002	0	0.005	0	0.0193	1
MW-42B	11/11/2016	0.92	1	330	1	230	1	0.5	0	7.6	1	1700	1	2800	1	0.002	0	0.005	0	0.061	1
MW-42B	12/14/2016	0.89	1	320	1	210	1	0.68	1	7.6	1	1600	1	2700	1	0.002	0	0.005	0	0.047	1
MW-42B	2/15/2017	0.91	1	340	1	220	1	0.69	1	7.4	1	1600	1	2900	1	0.02	0	0.05	0	0.046	1
MW-42B	4/3/2017	0.94	1	450	1	320	1	0.7	1	6.52	1	5	0	3900	1	0.002	0	0.005	0	0.046	1
MW-42B	5/17/2017	0.87	1	430	1	320	1	0.5	0	7.6	1	2200	1	3900	1	0.002	0	0.005	0	0.03	1
MW-42B	6/13/2017	0.82	1	450	1	310	1	0.5	0	7.85	1	2200	1	4000	1	0.002	0	0.005	0	0.032	1
MW-42B	7/27/2017	1	1	410	1	300	1	0.5	0	7.8	1	1900	1	3400	1	0.002	0	0.005	0	0.03	1
MW-42B	6/26/2018	1.07	1	384	1	245	1	0.5	0	7.47	1	1760	1	3170	1	0.002	0	0.005	0	0.027	1
MW-42B	6/4/2019	0.897	1	413	1	297	1	0.739	1	7.47	1	2120	1	3470	1	0.002	0	0.005	0	0.0268	1
MW-42B	10/21/2019	0.89	1	332	1	203	1	0.532	1	7.9	1	1470	1	2700	1	0.002	0	0.005	0	0.0252	1
MW-42B	6/3/2020	0.733	1	173	1	133	1	1	0	7.47	1	980	1	1940	1	0.002	0	0.005	0	0.0316	1
MW-42B	10/7/2020	0.767	1	204	1	143	1	0.5	0	7.48	1	1030	1	2090	1	0.002	0	0.005	0	0.0219	1
MW-42B	6/3/2021	0.756	1	163	1	114	1	0.536	1	7.4	1	918	1	1770	1	0.002	0	0.005	0	0.0219	1
MW-42B	10/5/2021	0.621	1	193	1	173	1	0.5	0	7.37	1	1200	1	2260	1	0.002	0	0.005	0	0.0211	1
MW-43B	9/1/2016	0.33	1	180	1	69	1	0.545	1	7.39	1	660	1	1300	1	0.002	0	0.005	0	0.0189	1
MW-43B	11/11/2016	0.35	1	140	1	42	1	1.07	1	7.66	1	470	1	1000	1	0.002	0	0.005	0	0.0262	1
MW-43B	12/14/2016	0.34	1	120	1	40	1	0.5	0	7.68	1	450	1	970	1	0.02	0	0.05	0	0.056	1
MW-43B	2/15/2017	0.35	1	120	1	39	1	0.5	0	7.64	1	410	1	910	1	0.002	0	0.005	0	0.038	1
MW-43B	4/4/2017	0.35	1	100	1	42	1	0.5	0	7.88	1	400	1	890	1	0.002	0	0.005	0	0.034	1
MW-43B	5/17/2017	0.36	1	110	1	47	1	0.5	0	7.58	1	420	1	910	1	0.002	0	0.005	0	0.034	1
MW-43B	6/13/2017	0.32	1	100	1	48	1	0.5	0	7.19	1	420	1	930	1	0.002	0	0.005	0	0.033	1
MW-43B	7/26/2017	0.34	1	110	1	50	1	0.5	0	6.49	1	430	1	930	1	0.002	0	0.005	0	0.031	1
MW-43B	6/26/2018	0.366	1	118	1	47.2	1	0.5	0	7.7	1	423	1	996	1	0.002	0	0.005	0	0.029	1
MW-43B	6/4/2019	0.319	1	146	1	81.7	1	0.5	0	7.62	1	611	1	1170	1	0.002	0	0.005	0	0.03	1
MW-43B	10/21/2019	0.32	1	172	1	67.6	1	0.5	0	7.9	1	663	1	1290	1	0.002	0	0.005	0	0.0383	1
MW-43B	6/3/2020	0.316	1	149	1	52.9	1	0.5	0	7.37	1	550	1	1200	1	0.002	0	0.005	0	0.0309	1
MW-43B	10/7/2020	0.328	1	122	1	31.3	1	0.5	0	7.42	1	413	1	1000	1	0.002	0	0.005	0	0.039	1
MW-43B	6/3/2021	0.296	1	94.4	1	34	1	0.5	0	8	1	343	1	811	1	0.002	0	0.005	0	0.044	1
MW-43B	10/5/2021	0.305	1	92.2	1	36.3	1	0.587	1	7.5	1	342	1	798	1	0.002	0	0.005	0	0.0371	1

Notes:
results in mg/L

Attachment B: Input data for Calculation
of Upper and Lower Predictive Limits
CCR Monitoring Wells for Multi-units
Laramie River Station - Wheatland, WY

Emergency Holding Ponds

Well	date	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result	Result	D-Result
Analyte(abbreviation)		Be	D_Be	Cd	D_Cd	Cr	D_Cr	Co	D_Co	Pb	D_Pb	Li	D_Li	Hg	D_Hg	Mo	D_Mo	Ra	D_Ra	Se	D_Se	Th	D_Th
MW-41B	8/31/2016	0.001	0	0.001	0	0.002	0	0.0016	1	0.001	0	0.05	1	0.0002	0	0.037	1	1.02	1	0.0097	1	0.001	0
MW-41B	11/11/2016	0.001	0	0.001	0	0.0039	1	0.001	0	0.001	0	0.057	1	0.0002	0	0.048	1	0.807	1	0.005	0	0.001	0
MW-41B	12/15/2016	0.001	0	0.001	0	0.0042	1	0.001	0	0.001	0	0.053	1	0.0002	0	0.045	1	0.938	1	0.005	0	0.001	0
MW-41B	2/14/2017	0.001	0	0.001	0	0.0051	1	0.001	0	0.001	0	0.055	1	0.0002	0	0.055	1	0.358	0	0.01	1	0.001	0
MW-41B	4/3/2017	0.01	0	0.01	0	0.02	0	0.01	0	0.01	0	0.062	1	0.0002	0	0.053	1	0.408	1	0.005	0	0.01	0
MW-41B	5/16/2017	0.001	0	0.001	0	0.0048	1	0.001	0	0.001	0	0.054	1	0.0002	0	0.06	1	0.373	1	0.005	0	0.001	0
MW-41B	6/13/2017	0.001	0	0.001	0	0.0042	1	0.001	0	0.001	0	0.058	1	0.0002	0	0.056	1	0.538	1	0.011	1	0.001	0
MW-41B	7/26/2017	0.001	0	0.001	0	0.004	1	0.001	0	0.001	0	0.054	1	0.0002	0	0.054	1	0.609	0	0.005	0	0.001	0
MW-41B	6/26/2018	0.001	0	0.001	0	0.00336	1	0.001	0	0.001	0	0.0655	1	0.0002	0	0.0637	1	0.398	0	0.005	0	0.001	0
MW-41B	6/4/2019	0.001	0	0.001	0	0.00335	1	0.00114	1	0.001	0	0.0631	1	0.0002	0	0.0678	1	0.73	0	0.011	1	0.001	0
MW-41B	10/21/2019	0.001	0	0.001	0	0.00282	1	0.001	0	0.001	0	0.0731	1	0.0002	0	0.097	1	0.483	0	0.005	0	0.001	0
MW-41B	6/2/2020	0.001	0	0.001	0	0.00314	1	0.001	0	0.001	0	0.0601	1	0.0002	0	0.132	1	0.547	0	0.005	0	0.001	0
MW-41B	10/6/2020	0.001	0	0.001	0	0.00327	1	0.00118	1	0.001	0	0.0541	1	0.0002	0	0.14	1	0.486	0	0.05	0	0.001	0
MW-41B	6/3/2021	0.001	0	0.001	0	0.00389	1	0.001	0	0.001	0	0.0507	0	0.0002	0	0.135	1	0.53	1	0.05	0	0.001	0
MW-41B	10/5/2021	0.001	0	0.001	0	0.005	0	0.0012	1	0.001	0	0.0532	1	0.0002	0	0.139	1	0.563	1	0.05	0	0.001	0
MW-42B	8/31/2016	0.001	0	0.001	0	0.002	0	0.001	0	0.001	0	0.0411	1	0.0002	0	0.118	1	0.535	1	0.012	1	0.001	0
MW-42B	11/11/2016	0.001	0	0.001	0	0.0024	1	0.001	0	0.001	0	0.085	1	0.0002	0	0.18	1	0.488	0	0.0065	1	0.001	0
MW-42B	12/14/2016	0.001	0	0.001	0	0.0029	1	0.001	0	0.001	0	0.066	1	0.0002	0	0.15	1	0.59	1	0.005	0	0.001	0
MW-42B	2/15/2017	0.01	0	0.01	0	0.0036	1	0.01	0	0.01	0	0.061	1	0.0002	0	0.13	1	0.509	0	0.011	1	0.01	0
MW-42B	4/3/2017	0.001	0	0.001	0	0.02	0	0.001	0	0.001	0	0.063	1	0.0002	0	0.15	1	0.477	1	0.005	0	0.001	0
MW-42B	5/17/2017	0.001	0	0.001	0	0.0027	1	0.001	0	0.001	0	0.083	1	0.0002	0	0.17	1	0.397	1	0.005	0	0.001	0
MW-42B	6/13/2017	0.001	0	0.001	0	0.0024	1	0.001	0	0.001	0	0.075	1	0.0002	0	0.18	1	0.609	1	0.011	1	0.001	0
MW-42B	7/27/2017	0.001	0	0.001	0	0.0025	1	0.001	0	0.001	0	0.081	1	0.0002	0	0.17	1	0.503	0	0.0055	1	0.001	0
MW-42B	6/26/2018	0.001	0	0.001	0	0.00319	1	0.001	0	0.001	0	0.071	1	0.0002	0	0.15	1	0.508	1	0.005	0	0.001	0
MW-42B	6/4/2019	0.001	0	0.001	0	0.00217	1	0.001	0	0.001	0	0.0684	1	0.0002	0	0.121	1	0.472	0	0.00886	1	0.001	0
MW-42B	10/21/2019	0.001	0	0.001	0	0.00272	1	0.001	0	0.001	0	0.0708	1	0.0002	0	0.143	1	0.413	0	0.0077	1	0.001	0
MW-42B	6/3/2020	0.001	0	0.001	0	0.00235	1	0.001	0	0.001	0	0.0765	1	0.0002	0	0.138	1	0.478	0	0.005	0	0.001	0
MW-42B	10/7/2020	0.001	0	0.001	0	0.0022	1	0.001	0	0.001	0	0.0561	1	0.0002	0	0.106	1	0.475	0	0.00832	1	0.001	0
MW-42B	6/3/2021	0.001	0	0.001	0	0.002	0	0.001	0	0.001	0	0.0428	1	0.0002	0	0.0772	1	0.393	0	0.00714	1	0.001	0
MW-42B	10/5/2021	0.001	0	0.001	0	0.005	0	0.001	0	0.001	0	0.0437	0	0.0002	0	0.0706	1	0.855	0	0.005	0	0.001	0
MW-43B	9/1/2016	0.001	0	0.001	0	0.003	1	0.001	0	0.001	0	0.0431	1	0.0002	0	0.0662	1	0.525	1	0.00611	1	0.001	0
MW-43B	11/11/2016	0.001	0	0.001	0	0.008	1	0.001	1	0.001	0	0.0653	1	0.0002	0	0.0653	1	0.722	1	0.00699	1	0.001	0
MW-43B	12/14/2016	0.01	0	0.01	0	0.0089	1	0.01	0	0.01	0	0.041	1	0.0002	0	0.049	1	0.714	0	0.005	0	0.01	0
MW-43B	2/15/2017	0.001	0	0.001	0	0.0076	1	0.001	0	0.001	0	0.04	1	0.0002	0	0.048	1	0.46	0	0.00638	1	0.001	0
MW-43B	4/4/2017	0.001	0	0.001	0	0.02	0	0.001	0	0.001	0	0.038	1	0.0002	0	0.043	1	0.316	0	0.00998	1	0.001	0
MW-43B	5/17/2017	0.001	0	0.001	0	0.003	1	0.001	0	0.001	0	0.035	1	0.0002	0	0.039	1	0.315	0	0.005	0	0.001	0
MW-43B	6/13/2017	0.001	0	0.001	0	0.0024	1	0.001	0	0.001	0	0.035	1	0.0002	0	0.032	1	0.64	1	0.00562	1	0.001	0
MW-43B	7/26/2017	0.001	0	0.001	0	0.004	1	0.001	0	0.001	0	0.031	1	0.0002	0	0.034	1	0.384	0	0.0124	1	0.001	0
MW-43B	6/26/2018	0.001	0	0.001	0	0.00246	1	0.001	0	0.001	0	0.037	1	0.0002	0	0.031	1	0.393	0	0.005	0	0.001	0
MW-43B	6/4/2019	0.001	0	0.001	0	0.00218	1	0.001	0	0.001	0	0.033	1	0.0002	0	0.03	1	0.322	0	0.00608	1	0.001	0
MW-43B	10/21/2019	0.001	0	0.001	0	0.002	0	0.001	0	0.001	0	0.0399	1	0.0002	0	0.0366	1	0.457	0	0.0119	1	0.001	0
MW-43B	6/3/2020	0.001	0	0.001	0	0.002	0	0.001	0	0.001	0	0.0305	1	0.0002	0	0.0346	1	0.971	1	0.005	0	0.001	0
MW-43B	10/7/2020	0.001	0	0.001	0	0.002	0					0.035	1			0.0196	0.035	0.474	0	0.00652	1	0.001	0
MW-43B	6/3/2021	0.001	0	0.001	0	0.00514	1					0.0328	1			0.0208	1	0.582	0	0.0161	1	0.001	0
MW-43B	10/5/2021	0.001	0	0.001	0	0.005	0					0.0353	1			0.0192	1	1.01	1	0.005	0		

Notes:
results in mg/L

	A	B	C	D	E	F	G	H	I	J	K	L
1				Background Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	Date/Time of Computation			ProUCL 5.110/13/2022 9:04:32 AM								
4	From File			LRS_ProUCL_UPL_Input_2021_v1_b.xls								
5	Full Precision			OFF								
6	Confidence Coefficient			95%								
7	Coverage			95%								
8	Different or Future K Observations			1								
9	Number of Bootstrap Operations			2000								
10												
11	B											
12												
13	General Statistics											
14	Total Number of Observations				45		Number of Distinct Observations				37	
15	Minimum				0.296		First Quartile				0.35	
16	Second Largest				1.02		Median				0.68	
17	Maximum				1.07		Third Quartile				0.89	
18	Mean				0.65		SD				0.253	
19	Coefficient of Variation				0.389		Skewness				-0.145	
20	Mean of logged Data				-0.519		SD of logged Data				0.442	
21												
22	Critical Values for Background Threshold Values (BTVs)											
23	Tolerance Factor K (For UTL)				2.085		d2max (for USL)				2.915	
24												
25	Normal GOF Test											
26	Shapiro Wilk Test Statistic				0.874		Shapiro Wilk GOF Test					
27	5% Shapiro Wilk Critical Value				0.945		Data Not Normal at 5% Significance Level					
28	Lilliefors Test Statistic				0.202		Lilliefors GOF Test					
29	5% Lilliefors Critical Value				0.131		Data Not Normal at 5% Significance Level					
30	Data Not Normal at 5% Significance Level											
31												
32	Background Statistics Assuming Normal Distribution											
33	95% UTL with		95% Coverage		1.177		90% Percentile (z)				0.974	
34			95% UPL (t)		1.079		95% Percentile (z)				1.066	
35			95% USL		1.387		99% Percentile (z)				1.238	
36												
37	Gamma GOF Test											
38	A-D Test Statistic				2.511		Anderson-Darling Gamma GOF Test					
39	5% A-D Critical Value				0.752		Data Not Gamma Distributed at 5% Significance Level					
40	K-S Test Statistic				0.203		Kolmogorov-Smirnov Gamma GOF Test					
41	5% K-S Critical Value				0.132		Data Not Gamma Distributed at 5% Significance Level					
42	Data Not Gamma Distributed at 5% Significance Level											
43												
44	Gamma Statistics											
45	k hat (MLE)				5.864		k star (bias corrected MLE)				5.488	
46	Theta hat (MLE)				0.111		Theta star (bias corrected MLE)				0.118	
47	nu hat (MLE)				527.7		nu star (bias corrected)				493.9	
48	MLE Mean (bias corrected)				0.65		MLE Sd (bias corrected)				0.277	
49												
50	Background Statistics Assuming Gamma Distribution											
51	95% Wilson Hilferty (WH) Approx. Gamma UPL				1.174		90% Percentile				1.021	
52	95% Hawkins Wixley (HW) Approx. Gamma UPL				1.192		95% Percentile				1.163	
53	95% WH Approx. Gamma UTL with		95% Coverage		1.337		99% Percentile				1.461	

	A	B	C	D	E	F	G	H	I	J	K	L	
54	95% HW Approx. Gamma UTL with 95% Coverage				1.369	95% HW USL							1.814
55	95% WH USL				1.736								
56													
57	Lognormal GOF Test												
58	Shapiro Wilk Test Statistic				0.833	Shapiro Wilk Lognormal GOF Test							
59	5% Shapiro Wilk Critical Value				0.945	Data Not Lognormal at 5% Significance Level							
60	Lilliefors Test Statistic				0.198	Lilliefors Lognormal GOF Test							
61	5% Lilliefors Critical Value				0.131	Data Not Lognormal at 5% Significance Level							
62	Data Not Lognormal at 5% Significance Level												
63													
64	Background Statistics assuming Lognormal Distribution												
65	95% UTL with		95% Coverage		1.494	90% Percentile (z)							1.048
66			95% UPL (t)		1.26	95% Percentile (z)							1.23
67			95% USL		2.156	99% Percentile (z)							1.662
68													
69	Nonparametric Distribution Free Background Statistics												
70	Data do not follow a Discernible Distribution (0.05)												
71													
72	Nonparametric Upper Limits for Background Threshold Values												
73	Order of Statistic, r				44	95% UTL with 95% Coverage							1.02
74	Approx, f used to compute achieved CC				1.158	pproximate Actual Confidence Coefficient achieved by UTL							0.665
75						Approximate Sample Size needed to achieve specified CC							93
76	95% Percentile Bootstrap UTL with		95% Coverage		1.06	95% BCA Bootstrap UTL with 95% Coverage							1.05
77			95% UPL		1.014	90% Percentile							0.94
78			90% Chebyshev UPL		1.417	95% Percentile							0.994
79			95% Chebyshev UPL		1.765	99% Percentile							1.048
80			95% USL		1.07								
81													
82	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
83	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
84	and consists of observations collected from clean unimpacted locations.												
85	The use of USL tends to provide a balance between false positives and false negatives provided the data												
86	represents a background data set and when many onsite observations need to be compared with the BTV.												
87													
88	Ca												
89													
90	General Statistics												
91	Total Number of Observations				45	Number of Distinct Observations							37
92	Minimum				92.2	First Quartile							146
93	Second Largest				450	Median							257
94	Maximum				530	Third Quartile							332
95	Mean				248.8	SD							116.5
96	Coefficient of Variation				0.468	Skewness							0.439
97	Mean of logged Data				5.4	SD of logged Data							0.503
98													
99	Critical Values for Background Threshold Values (BTVs)												
100	Tolerance Factor K (For UTL)				2.085	d2max (for USL)							2.915
101													
102	Normal GOF Test												
103	Shapiro Wilk Test Statistic				0.935	Shapiro Wilk GOF Test							
104	5% Shapiro Wilk Critical Value				0.945	Data Not Normal at 5% Significance Level							
105	Lilliefors Test Statistic				0.1	Lilliefors GOF Test							
106	5% Lilliefors Critical Value				0.131	Data appear Normal at 5% Significance Level							

	A	B	C	D	E	F	G	H	I	J	K	L
107	Data appear Approximate Normal at 5% Significance Level											
108												
109	Background Statistics Assuming Normal Distribution											
110	95% UTL with		95% Coverage	491.7			90% Percentile (z)		398.1			
111			95% UPL (t)	446.7			95% Percentile (z)		440.4			
112			95% USL	588.4			99% Percentile (z)		519.8			
113												
114	Gamma GOF Test											
115	A-D Test Statistic			0.662	Anderson-Darling Gamma GOF Test							
116	5% A-D Critical Value			0.753	Detected data appear Gamma Distributed at 5% Significance Level							
117	K-S Test Statistic			0.103	Kolmogorov-Smirnov Gamma GOF Test							
118	5% K-S Critical Value			0.132	Detected data appear Gamma Distributed at 5% Significance Level							
119	Detected data appear Gamma Distributed at 5% Significance Level											
120												
121	Gamma Statistics											
122	k hat (MLE)			4.448			k star (bias corrected MLE)		4.166			
123	Theta hat (MLE)			55.94			Theta star (bias corrected MLE)		59.72			
124	nu hat (MLE)			400.3			nu star (bias corrected)		374.9			
125	MLE Mean (bias corrected)			248.8			MLE Sd (bias corrected)		121.9			
126												
127	Background Statistics Assuming Gamma Distribution											
128	95% Wilson Hilferty (WH) Approx. Gamma UPL			482.3			90% Percentile		412.1			
129	95% Hawkins Wixley (HW) Approx. Gamma UPL			489.8			95% Percentile		477.1			
130	95% WH Approx. Gamma UTL with		95% Coverage	557.7			99% Percentile		615.6			
131	95% HW Approx. Gamma UTL with		95% Coverage	572								
132			95% WH USL	745.4			95% HW USL		783.1			
133												
134	Lognormal GOF Test											
135	Shapiro Wilk Test Statistic			0.935	Shapiro Wilk Lognormal GOF Test							
136	5% Shapiro Wilk Critical Value			0.945	Data Not Lognormal at 5% Significance Level							
137	Lilliefors Test Statistic			0.128	Lilliefors Lognormal GOF Test							
138	5% Lilliefors Critical Value			0.131	Data appear Lognormal at 5% Significance Level							
139	Data appear Approximate Lognormal at 5% Significance Level											
140												
141	Background Statistics assuming Lognormal Distribution											
142	95% UTL with		95% Coverage	631.4			90% Percentile (z)		421.6			
143			95% UPL (t)	520			95% Percentile (z)		506.1			
144			95% USL	958.4			99% Percentile (z)		712.8			
145												
146	Nonparametric Distribution Free Background Statistics											
147	Data appear Approximate Normal at 5% Significance Level											
148												
149	Nonparametric Upper Limits for Background Threshold Values											
150	Order of Statistic, r			44			95% UTL with		95% Coverage		450	
151	Approx, f used to compute achieved CC			1.158	pproximate Actual Confidence Coefficient achieved by UTL		0.665					
152					Approximate Sample Size needed to achieve specified CC		93					
153	95% Percentile Bootstrap UTL with		95% Coverage	514	95% BCA Bootstrap UTL with		95% Coverage		514			
154			95% UPL	450			90% Percentile		411.8			
155			90% Chebyshev UPL	602.1			95% Percentile		446			
156			95% Chebyshev UPL	762.2			99% Percentile		494.8			
157			95% USL	530								
158												
159	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											

	A	B	C	D	E	F	G	H	I	J	K	L
160	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
161	and consists of observations collected from clean unimpacted locations.											
162	The use of USL tends to provide a balance between false positives and false negatives provided the data											
163	represents a background data set and when many onsite observations need to be compared with the BTV.											
164												
165	CI											
166												
167	General Statistics											
168	Total Number of Observations				45	Number of Distinct Observations				38		
169	Minimum				31.3	First Quartile				52.9		
170	Second Largest				320	Median				170		
171	Maximum				320	Third Quartile				210		
172	Mean				155.6	SD				92.44		
173	Coefficient of Variation				0.594	Skewness				0.228		
174	Mean of logged Data				4.815	SD of logged Data				0.75		
175												
176	Critical Values for Background Threshold Values (BTVs)											
177	Tolerance Factor K (For UTL)				2.085	d2max (for USL)				2.915		
178												
179	Normal GOF Test											
180	Shapiro Wilk Test Statistic				0.907	Shapiro Wilk GOF Test						
181	5% Shapiro Wilk Critical Value				0.945	Data Not Normal at 5% Significance Level						
182	Lilliefors Test Statistic				0.137	Lilliefors GOF Test						
183	5% Lilliefors Critical Value				0.131	Data Not Normal at 5% Significance Level						
184	Data Not Normal at 5% Significance Level											
185												
186	Background Statistics Assuming Normal Distribution											
187	95% UTL with	95% Coverage	348.3	90% Percentile (z)				274				
188		95% UPL (t)	312.6	95% Percentile (z)				307.6				
189		95% USL	425	99% Percentile (z)				370.6				
190												
191	Gamma GOF Test											
192	A-D Test Statistic				1.506	Anderson-Darling Gamma GOF Test						
193	5% A-D Critical Value				0.759	Data Not Gamma Distributed at 5% Significance Level						
194	K-S Test Statistic				0.15	Kolmogorov-Smirnov Gamma GOF Test						
195	5% K-S Critical Value				0.133	Data Not Gamma Distributed at 5% Significance Level						
196	Data Not Gamma Distributed at 5% Significance Level											
197												
198	Gamma Statistics											
199	k hat (MLE)				2.308	k star (bias corrected MLE)				2.169		
200	Theta hat (MLE)				67.39	Theta star (bias corrected MLE)				71.71		
201	nu hat (MLE)				207.7	nu star (bias corrected)				195.2		
202	MLE Mean (bias corrected)				155.6	MLE Sd (bias corrected)				105.6		
203												
204	Background Statistics Assuming Gamma Distribution											
205	95% Wilson Hilferty (WH) Approx. Gamma UPL				365.9	90% Percentile				296.8		
206	95% Hawkins Wixley (HW) Approx. Gamma UPL				379.3	95% Percentile				359.7		
207	95% WH Approx. Gamma UTL with	95% Coverage	441.4	99% Percentile				498.4				
208	95% HW Approx. Gamma UTL with	95% Coverage	466									
209	95% WH USL				637.1	95% HW USL				701.8		
210												
211	Lognormal GOF Test											
212	Shapiro Wilk Test Statistic				0.872	Shapiro Wilk Lognormal GOF Test						

	A	B	C	D	E	F	G	H	I	J	K	L	
213	5% Shapiro Wilk Critical Value					0.945	Data Not Lognormal at 5% Significance Level						
214	Lilliefors Test Statistic					0.177	Lilliefors Lognormal GOF Test						
215	5% Lilliefors Critical Value					0.131	Data Not Lognormal at 5% Significance Level						
216	Data Not Lognormal at 5% Significance Level												
217													
218	Background Statistics assuming Lognormal Distribution												
219	95% UTL with		95% Coverage		589	90% Percentile (z)				322.4			
220			95% UPL (t)		440.9	95% Percentile (z)				423.4			
221			95% USL		1098	99% Percentile (z)				705.8			
222													
223	Nonparametric Distribution Free Background Statistics												
224	Data do not follow a Discernible Distribution (0.05)												
225													
226	Nonparametric Upper Limits for Background Threshold Values												
227	Order of Statistic, r				44	95% UTL with 95% Coverage				320			
228	Approx, f used to compute achieved CC					1.158	pproximate Actual Confidence Coefficient achieved by UTL					0.665	
229							Approximate Sample Size needed to achieve specified CC					93	
230	95% Percentile Bootstrap UTL with		95% Coverage		320	95% BCA Bootstrap UTL with		95% Coverage		320			
231			95% UPL		320			90% Percentile		298.8			
232			90% Chebyshev UPL		435.9			95% Percentile		318			
233			95% Chebyshev UPL		562.9			99% Percentile		320			
234			95% USL		320								
235													
236	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
237	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
238	and consists of observations collected from clean unimpacted locations.												
239	The use of USL tends to provide a balance between false positives and false negatives provided the data												
240	represents a background data set and when many onsite observations need to be compared with the BTV.												
241													
242	F												
243													
244	General Statistics												
245	Total Number of Observations				45	Number of Missing Observations				0			
246	Number of Distinct Observations				12								
247	Number of Detects				10	Number of Non-Detects				35			
248	Number of Distinct Detects				10	Number of Distinct Non-Detects				2			
249	Minimum Detect				0.532	Minimum Non-Detect				0.5			
250	Maximum Detect				1.07	Maximum Non-Detect				1			
251	Variance Detected				0.0258	Percent Non-Detects				77.78%			
252	Mean Detected				0.684	SD Detected				0.161			
253	Mean of Detected Logged Data				-0.401	SD of Detected Logged Data				0.214			
254													
255	Critical Values for Background Threshold Values (BTVs)												
256	Tolerance Factor K (For UTL)				2.085	d2max (for USL)				2.915			
257													
258	Normal GOF Test on Detects Only												
259	Shapiro Wilk Test Statistic				0.83	Shapiro Wilk GOF Test							
260	5% Shapiro Wilk Critical Value				0.842	Data Not Normal at 5% Significance Level							
261	Lilliefors Test Statistic				0.212	Lilliefors GOF Test							
262	5% Lilliefors Critical Value				0.262	Detected Data appear Normal at 5% Significance Level							
263	Detected Data appear Approximate Normal at 5% Significance Level												
264													
265	Kaplan Meier (KM) Background Statistics Assuming Normal Distribution												

	A	B	C	D	E	F	G	H	I	J	K	L
266	KM Mean					0.542	KM SD					0.106
267	95% UTL95% Coverage					0.763	95% KM UPL (t)					0.722
268	90% KM Percentile (z)					0.678	95% KM Percentile (z)					0.716
269	99% KM Percentile (z)					0.788	95% KM USL					0.85
270												
271	DL/2 Substitution Background Statistics Assuming Normal Distribution											
272	Mean					0.358	SD					0.198
273	95% UTL95% Coverage					0.77	95% UPL (t)					0.694
274	90% Percentile (z)					0.611	95% Percentile (z)					0.683
275	99% Percentile (z)					0.818	95% USL					0.934
276	DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons											
277												
278	Gamma GOF Tests on Detected Observations Only											
279	A-D Test Statistic					0.506	Anderson-Darling GOF Test					
280	5% A-D Critical Value					0.725	Detected data appear Gamma Distributed at 5% Significance Level					
281	K-S Test Statistic					0.173	Kolmogorov-Smirnov GOF					
282	5% K-S Critical Value					0.266	Detected data appear Gamma Distributed at 5% Significance Level					
283	Detected data appear Gamma Distributed at 5% Significance Level											
284												
285	Gamma Statistics on Detected Data Only											
286	k hat (MLE)					23.09	k star (bias corrected MLE)					16.23
287	Theta hat (MLE)					0.0296	Theta star (bias corrected MLE)					0.0422
288	nu hat (MLE)					461.9	nu star (bias corrected)					324.6
289	MLE Mean (bias corrected)					0.684						
290	MLE Sd (bias corrected)					0.17	95% Percentile of Chisquare (2kstar)					46.75
291												
292	Gamma ROS Statistics using Imputed Non-Detects											
293	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
294	GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)											
295	For such situations, GROS method may yield incorrect values of UCLs and BTVs											
296	This is especially true when the sample size is small.											
297	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
298	Minimum					0.01	Mean					0.31
299	Maximum					1.07	Median					0.274
300	SD					0.253	CV					0.814
301	k hat (MLE)					0.957	k star (bias corrected MLE)					0.908
302	Theta hat (MLE)					0.324	Theta star (bias corrected MLE)					0.342
303	nu hat (MLE)					86.16	nu star (bias corrected)					81.75
304	MLE Mean (bias corrected)					0.31	MLE Sd (bias corrected)					0.326
305	95% Percentile of Chisquare (2kstar)					5.631	90% Percentile					0.732
306	95% Percentile					0.962	99% Percentile					1.501
307	The following statistics are computed using Gamma ROS Statistics on Imputed Data											
308	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods											
309					WH	HW					WH	HW
310	95% Approx. Gamma UTL with 95% Coverage				1.259	1.446	95% Approx. Gamma UPL				0.977	1.078
311	95% Gamma USL				2.039	2.548						
312												
313	Estimates of Gamma Parameters using KM Estimates											
314	Mean (KM)					0.542	SD (KM)					0.106
315	Variance (KM)					0.0112	SE of Mean (KM)					0.0168
316	k hat (KM)					26.31	k star (KM)					24.57
317	nu hat (KM)					2368	nu star (KM)					2212
318	theta hat (KM)					0.0206	theta star (KM)					0.0221

	A	B	C	D	E	F	G	H	I	J	K	L
319	80% gamma percentile (KM)					0.632	90% gamma percentile (KM)					0.686
320	95% gamma percentile (KM)					0.734	99% gamma percentile (KM)					0.829
321												
322	The following statistics are computed using gamma distribution and KM estimates											
323	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods											
324					WH	HW					WH	HW
325	95% Approx. Gamma UTL with 95% Coverage				0.747	0.745	95% Approx. Gamma UPL				0.705	0.703
326	95% KM Gamma Percentile				0.699	0.697	95% Gamma USL				0.844	0.844
327												
328	Lognormal GOF Test on Detected Observations Only											
329	Shapiro Wilk Test Statistic					0.888	Shapiro Wilk GOF Test					
330	5% Shapiro Wilk Critical Value					0.842	Detected Data appear Lognormal at 5% Significance Level					
331	Lilliefors Test Statistic					0.17	Lilliefors GOF Test					
332	5% Lilliefors Critical Value					0.262	Detected Data appear Lognormal at 5% Significance Level					
333	Detected Data appear Lognormal at 5% Significance Level											
334												
335	Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects											
336	Mean in Original Scale					0.405	Mean in Log Scale					-0.998
337	SD in Original Scale					0.187	SD in Log Scale					0.438
338	95% UTL95% Coverage					0.919	95% BCA UTL95% Coverage					1.004
339	95% Bootstrap (%) UTL95% Coverage					1.009	95% UPL (t)					0.776
340	90% Percentile (z)					0.646	95% Percentile (z)					0.758
341	99% Percentile (z)					1.021	95% USL					1.322
342												
343	Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution											
344	KM Mean of Logged Data					-0.626	95% KM UTL (Lognormal)95% Coverage					0.74
345	KM SD of Logged Data					0.156	95% KM UPL (Lognormal)					0.697
346	95% KM Percentile Lognormal (z)					0.691	95% KM USL (Lognormal)					0.842
347												
348	Background DL/2 Statistics Assuming Lognormal Distribution											
349	Mean in Original Scale					0.358	Mean in Log Scale					-1.137
350	SD in Original Scale					0.198	SD in Log Scale					0.434
351	95% UTL95% Coverage					0.792	95% UPL (t)					0.67
352	90% Percentile (z)					0.559	95% Percentile (z)					0.655
353	99% Percentile (z)					0.88	95% USL					1.136
354	DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.											
355												
356	Nonparametric Distribution Free Background Statistics											
357	Data appear to follow a Discernible Distribution at 5% Significance Level											
358												
359	Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)											
360	Order of Statistic, r					44	95% UTL with95% Coverage					1
361	Approx, f used to compute achieved CC					1.158	pproximate Actual Confidence Coefficient achieved by UTL					0.665
362	Approximate Sample Size needed to achieve specified CC					93	95% UPL					1
363	95% USL					1.07	95% KM Chebyshev UPL					1.008
364												
365	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
366	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
367	and consists of observations collected from clean unimpacted locations.											
368	The use of USL tends to provide a balance between false positives and false negatives provided the data											
369	represents a background data set and when many onsite observations need to be compared with the BTV.											
370												
371	pH											

	A	B	C	D	E	F	G	H	I	J	K	L
372												
373	General Statistics											
374	Total Number of Observations					45	Number of Distinct Observations					30
375	Minimum					6.45	First Quartile					7.42
376	Second Largest					7.9	Median					7.56
377	Maximum					8	Third Quartile					7.66
378	Mean					7.507	SD					0.327
379	Coefficient of Variation					0.0436	Skewness					-1.874
380	Mean of logged Data					2.015	SD of logged Data					0.0455
381												
382	Critical Values for Background Threshold Values (BTVs)											
383	Tolerance Factor K (For UTL)					2.085	d2max (for USL)					2.915
384												
385	Normal GOF Test											
386	Shapiro Wilk Test Statistic					0.794	Shapiro Wilk GOF Test					
387	5% Shapiro Wilk Critical Value					0.945	Data Not Normal at 5% Significance Level					
388	Lilliefors Test Statistic					0.227	Lilliefors GOF Test					
389	5% Lilliefors Critical Value					0.131	Data Not Normal at 5% Significance Level					
390	Data Not Normal at 5% Significance Level											
391												
392	Background Statistics Assuming Normal Distribution											
393	95% UTL with	95% Coverage			8.189	90% Percentile (z)					7.926	
394		95% UPL (t)			8.063	95% Percentile (z)					8.045	
395		95% USL			8.461	99% Percentile (z)					8.268	
396												
397	Gamma GOF Test											
398	A-D Test Statistic					3.002	Anderson-Darling Gamma GOF Test					
399	5% A-D Critical Value					0.747	Data Not Gamma Distributed at 5% Significance Level					
400	K-S Test Statistic					0.234	Kolmogorov-Smirnov Gamma GOF Test					
401	5% K-S Critical Value					0.131	Data Not Gamma Distributed at 5% Significance Level					
402	Data Not Gamma Distributed at 5% Significance Level											
403												
404	Gamma Statistics											
405	k hat (MLE)					508.3	k star (bias corrected MLE)					474.4
406	Theta hat (MLE)					0.0148	Theta star (bias corrected MLE)					0.0158
407	nu hat (MLE)					45748	nu star (bias corrected)					42700
408	MLE Mean (bias corrected)					7.507	MLE Sd (bias corrected)					0.345
409												
410	Background Statistics Assuming Gamma Distribution											
411	95% Wilson Hilferty (WH) Approx. Gamma UPL					8.088	90% Percentile					7.952
412	95% Hawkins Wixley (HW) Approx. Gamma UPL					8.092	95% Percentile					8.082
413	95% WH Approx. Gamma UTL with	95% Coverage			8.226	99% Percentile					8.332	
414	95% HW Approx. Gamma UTL with	95% Coverage			8.231							
415		95% WH USL			8.526	95% HW USL					8.535	
416												
417	Lognormal GOF Test											
418	Shapiro Wilk Test Statistic					0.767	Shapiro Wilk Lognormal GOF Test					
419	5% Shapiro Wilk Critical Value					0.945	Data Not Lognormal at 5% Significance Level					
420	Lilliefors Test Statistic					0.24	Lilliefors Lognormal GOF Test					
421	5% Lilliefors Critical Value					0.131	Data Not Lognormal at 5% Significance Level					
422	Data Not Lognormal at 5% Significance Level											
423												
424	Background Statistics assuming Lognormal Distribution											

	A	B	C	D	E	F	G	H	I	J	K	L
425	95% UTL with 95% Coverage				8.246					90% Percentile (z)		7.95
426	95% UPL (t)				8.102					95% Percentile (z)		8.082
427	95% USL				8.564					99% Percentile (z)		8.337
428												
429	Nonparametric Distribution Free Background Statistics											
430	Data do not follow a Discernible Distribution (0.05)											
431												
432	Nonparametric Upper Limits for Background Threshold Values											
433	Order of Statistic, r				44	95% UTL with 95% Coverage				7.9		
434	Approx, f used to compute achieved CC				1.158	pproximate Actual Confidence Coefficient achieved by UTL				0.665		
435						Approximate Sample Size needed to achieve specified CC				93		
436	95% Percentile Bootstrap UTL with 95% Coverage				7.98	95% BCA Bootstrap UTL with 95% Coverage				7.9		
437	95% UPL				7.9					90% Percentile		7.868
438	90% Chebyshev UPL				8.499					95% Percentile		7.9
439	95% Chebyshev UPL				8.949					99% Percentile		7.956
440	95% USL				8							
441												
442	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
443	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
444	and consists of observations collected from clean unimpacted locations.											
445	The use of USL tends to provide a balance between false positives and false negatives provided the data											
446	represents a background data set and when many onsite observations need to be compared with the BTV.											
447												
448	SO											
449												
450	General Statistics											
451	Total Number of Observations				45	Number of Missing Observations				0		
452	Number of Distinct Observations				35							
453	Number of Detects				43	Number of Non-Detects				2		
454	Number of Distinct Detects				34	Number of Distinct Non-Detects				1		
455	Minimum Detect				342	Minimum Non-Detect				5		
456	Maximum Detect				2200	Maximum Non-Detect				5		
457	Variance Detected				372440	Percent Non-Detects				4.444%		
458	Mean Detected				1171	SD Detected				610.3		
459	Mean of Detected Logged Data				6.899	SD of Detected Logged Data				0.622		
460												
461	Critical Values for Background Threshold Values (BTVs)											
462	Tolerance Factor K (For UTL)				2.085	d2max (for USL)				2.915		
463												
464	Normal GOF Test on Detects Only											
465	Shapiro Wilk Test Statistic				0.904	Shapiro Wilk GOF Test						
466	5% Shapiro Wilk Critical Value				0.943	Data Not Normal at 5% Significance Level						
467	Lilliefors Test Statistic				0.146	Lilliefors GOF Test						
468	5% Lilliefors Critical Value				0.134	Data Not Normal at 5% Significance Level						
469	Data Not Normal at 5% Significance Level											
470												
471	Kaplan Meier (KM) Background Statistics Assuming Normal Distribution											
472	KM Mean				1119	KM SD				636.7		
473	95% UTL95% Coverage				2447	95% KM UPL (t)				2201		
474	90% KM Percentile (z)				1935	95% KM Percentile (z)				2167		
475	99% KM Percentile (z)				2600	95% KM USL				2975		
476												
477	DL/2 Substitution Background Statistics Assuming Normal Distribution											

	A	B	C	D	E	F	G	H	I	J	K	L
478					Mean	1119					SD	644.1
479					95% UTL95% Coverage	2462					95% UPL (t)	2213
480					90% Percentile (z)	1945					95% Percentile (z)	2179
481					99% Percentile (z)	2618					95% USL	2997
482	DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons											
483												
484	Gamma GOF Tests on Detected Observations Only											
485					A-D Test Statistic	1.6		Anderson-Darling GOF Test				
486					5% A-D Critical Value	0.755		Data Not Gamma Distributed at 5% Significance Level				
487					K-S Test Statistic	0.169		Kolmogorov-Smirnov GOF				
488					5% K-S Critical Value	0.136		Data Not Gamma Distributed at 5% Significance Level				
489	Data Not Gamma Distributed at 5% Significance Level											
490												
491	Gamma Statistics on Detected Data Only											
492					k hat (MLE)	3.15		k star (bias corrected MLE)				2.945
493					Theta hat (MLE)	371.8		Theta star (bias corrected MLE)				397.6
494					nu hat (MLE)	270.9		nu star (bias corrected)				253.3
495					MLE Mean (bias corrected)	1171						
496					MLE Sd (bias corrected)	682.4		95% Percentile of Chisquare (2kstar)				12.43
497												
498	Gamma ROS Statistics using Imputed Non-Detects											
499	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
500	GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)											
501	For such situations, GROS method may yield incorrect values of UCLs and BTVs											
502	This is especially true when the sample size is small.											
503	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
504					Minimum	194.4		Mean				1129
505					Maximum	2200		Median				1160
506					SD	628		CV				0.556
507					k hat (MLE)	2.696		k star (bias corrected MLE)				2.531
508					Theta hat (MLE)	418.9		Theta star (bias corrected MLE)				446.1
509					nu hat (MLE)	242.6		nu star (bias corrected)				227.8
510					MLE Mean (bias corrected)	1129		MLE Sd (bias corrected)				709.7
511					95% Percentile of Chisquare (2kstar)	11.17		90% Percentile				2080
512					95% Percentile	2491		99% Percentile				3389
513	The following statistics are computed using Gamma ROS Statistics on Imputed Data											
514	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods											
515					WH	HW					WH	HW
516	95% Approx. Gamma UTL with 95% Coverage				3019	3164		95% Approx. Gamma UPL			2530	2609
517	95% Gamma USL				4275	4651						
518												
519	Estimates of Gamma Parameters using KM Estimates											
520					Mean (KM)	1119		SD (KM)				636.7
521					Variance (KM)	405361		SE of Mean (KM)				96.03
522					k hat (KM)	3.091		k star (KM)				2.899
523					nu hat (KM)	278.2		nu star (KM)				260.9
524					theta hat (KM)	362.2		theta star (KM)				386
525					80% gamma percentile (KM)	1603		90% gamma percentile (KM)				2001
526					95% gamma percentile (KM)	2372		99% gamma percentile (KM)				3179
527												
528	The following statistics are computed using gamma distribution and KM estimates											
529	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods											
530					WH	HW					WH	HW

	A	B	C	D	E	F	G	H	I	J	K	L
531	95% Approx. Gamma UTL with 95% Coverage				3536	4041	95% Approx. Gamma UPL				2880	3186
532	95% KM Gamma Percentile				2796	3078	95% Gamma USL				5268	6450
533												
534	Lognormal GOF Test on Detected Observations Only											
535	Shapiro Wilk Test Statistic				0.872	Shapiro Wilk GOF Test						
536	5% Shapiro Wilk Critical Value				0.943	Data Not Lognormal at 5% Significance Level						
537	Lilliefors Test Statistic				0.179	Lilliefors GOF Test						
538	5% Lilliefors Critical Value				0.134	Data Not Lognormal at 5% Significance Level						
539	Data Not Lognormal at 5% Significance Level											
540												
541	Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects											
542	Mean in Original Scale				1129	Mean in Log Scale				6.834		
543	SD in Original Scale				627.4	SD in Log Scale				0.679		
544	95% UTL95% Coverage				3826	95% BCA UTL95% Coverage				2200		
545	95% Bootstrap (%) UTL95% Coverage				2200	95% UPL (t)				2944		
546	90% Percentile (z)				2218	95% Percentile (z)				2838		
547	99% Percentile (z)				4507	95% USL				6723		
548												
549	Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution											
550	KM Mean of Logged Data				6.664	95% KM UTL (Lognormal)95% Coverage				10496		
551	KM SD of Logged Data				1.245	95% KM UPL (Lognormal)				6490		
552	95% KM Percentile Lognormal (z)				6068	95% KM USL (Lognormal)				29499		
553												
554	Background DL/2 Statistics Assuming Lognormal Distribution											
555	Mean in Original Scale				1119	Mean in Log Scale				6.633		
556	SD in Original Scale				644.1	SD in Log Scale				1.387		
557	95% UTL95% Coverage				13694	95% UPL (t)				8014		
558	90% Percentile (z)				4493	95% Percentile (z)				7436		
559	99% Percentile (z)				19136	95% USL				43313		
560	DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.											
561												
562	Nonparametric Distribution Free Background Statistics											
563	Data do not follow a Discernible Distribution (0.05)											
564												
565	Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)											
566	Order of Statistic, r				44	95% UTL with95% Coverage				2200		
567	Approx, f used to compute achieved CC				1.158	pproximate Actual Confidence Coefficient achieved by UTL				0.665		
568	Approximate Sample Size needed to achieve specified CC				93	95% UPL				2200		
569	95% USL				2200	95% KM Chebyshev UPL				3925		
570												
571	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
572	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
573	and consists of observations collected from clean unimpacted locations.											
574	The use of USL tends to provide a balance between false positives and false negatives provided the data											
575	represents a background data set and when many onsite observations need to be compared with the BTV.											
576												
577	TDS											
578												
579	General Statistics											
580	Total Number of Observations				45	Number of Distinct Observations				34		
581	Minimum				798	First Quartile				1170		
582	Second Largest				3900	Median				2300		
583	Maximum				4000	Third Quartile				2800		

	A	B	C	D	E	F	G	H	I	J	K	L
584	Mean					2194	SD					990.7
585	Coefficient of Variation					0.451	Skewness					0.0625
586	Mean of logged Data					7.574	SD of logged Data					0.519
587												
588	Critical Values for Background Threshold Values (BTVs)											
589	Tolerance Factor K (For UTL)					2.085	d2max (for USL)					2.915
590												
591	Normal GOF Test											
592	Shapiro Wilk Test Statistic					0.911	Shapiro Wilk GOF Test					
593	5% Shapiro Wilk Critical Value					0.945	Data Not Normal at 5% Significance Level					
594	Lilliefors Test Statistic					0.15	Lilliefors GOF Test					
595	5% Lilliefors Critical Value					0.131	Data Not Normal at 5% Significance Level					
596	Data Not Normal at 5% Significance Level											
597												
598	Background Statistics Assuming Normal Distribution											
599	95% UTL with	95% Coverage			4260	90% Percentile (z)					3464	
600		95% UPL (t)			3877	95% Percentile (z)					3824	
601		95% USL			5083	99% Percentile (z)					4499	
602												
603	Gamma GOF Test											
604	A-D Test Statistic					1.631	Anderson-Darling Gamma GOF Test					
605	5% A-D Critical Value					0.753	Data Not Gamma Distributed at 5% Significance Level					
606	K-S Test Statistic					0.144	Kolmogorov-Smirnov Gamma GOF Test					
607	5% K-S Critical Value					0.132	Data Not Gamma Distributed at 5% Significance Level					
608	Data Not Gamma Distributed at 5% Significance Level											
609												
610	Gamma Statistics											
611	k hat (MLE)					4.344	k star (bias corrected MLE)					4.069
612	Theta hat (MLE)					505.1	Theta star (bias corrected MLE)					539.2
613	nu hat (MLE)					391	nu star (bias corrected)					366.2
614	MLE Mean (bias corrected)					2194	MLE Sd (bias corrected)					1088
615												
616	Background Statistics Assuming Gamma Distribution											
617	95% Wilson Hilferty (WH) Approx. Gamma UPL					4285	90% Percentile					3652
618	95% Hawkins Wixley (HW) Approx. Gamma UPL					4369	95% Percentile					4234
619	95% WH Approx. Gamma UTL with	95% Coverage			4961	99% Percentile					5476	
620	95% HW Approx. Gamma UTL with	95% Coverage			5113							
621	95% WH USL					6648	95% HW USL					7030
622												
623	Lognormal GOF Test											
624	Shapiro Wilk Test Statistic					0.876	Shapiro Wilk Lognormal GOF Test					
625	5% Shapiro Wilk Critical Value					0.945	Data Not Lognormal at 5% Significance Level					
626	Lilliefors Test Statistic					0.159	Lilliefors Lognormal GOF Test					
627	5% Lilliefors Critical Value					0.131	Data Not Lognormal at 5% Significance Level					
628	Data Not Lognormal at 5% Significance Level											
629												
630	Background Statistics assuming Lognormal Distribution											
631	95% UTL with	95% Coverage			5750	90% Percentile (z)					3788	
632		95% UPL (t)			4705	95% Percentile (z)					4575	
633		95% USL			8850	99% Percentile (z)					6518	
634												
635	Nonparametric Distribution Free Background Statistics											
636	Data do not follow a Discernible Distribution (0.05)											

	A	B	C	D	E	F	G	H	I	J	K	L
637												
638	Nonparametric Upper Limits for Background Threshold Values											
639	Order of Statistic, r					44	95% UTL with 95% Coverage					3900
640	Approx, f used to compute achieved CC					1.158	pproximate Actual Confidence Coefficient achieved by UTL					0.665
641							Approximate Sample Size needed to achieve specified CC					93
642	95% Percentile Bootstrap UTL with 95% Coverage					3980	95% BCA Bootstrap UTL with 95% Coverage					3980
643	95% UPL					3900	90% Percentile					3442
644	90% Chebyshev UPL					5199	95% Percentile					3880
645	95% Chebyshev UPL					6561	99% Percentile					3956
646	95% USL					4000						
647												
648	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
649	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
650	and consists of observations collected from clean unimpacted locations.											
651	The use of USL tends to provide a balance between false positives and false negatives provided the data											
652	represents a background data set and when many onsite observations need to be compared with the BTV.											
653												

	A	B	C	D	E	F	G	H	I	J	K	L
1				Background Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	Date/Time of Computation			ProUCL 5.110/13/2022 9:05:18 AM								
4	From File			LRS_ProUCL_UPL_Input_2021_v1_b.xls								
5	Full Precision			OFF								
6	Confidence Coefficient			95%								
7	Coverage			95%								
8	Different or Future K Observations			1								
9	Number of Bootstrap Operations			2000								
10												
11	Sb											
12												
13	General Statistics											
14	Total Number of Observations			45	Number of Missing Observations							0
15	Number of Distinct Observations			2								
16	Number of Detects			0	Number of Non-Detects							45
17	Number of Distinct Detects			0	Number of Distinct Non-Detects							2
18	Minimum Detect			N/A	Minimum Non-Detect							0.002
19	Maximum Detect			N/A	Maximum Non-Detect							0.02
20	Variance Detected			N/A	Percent Non-Detects							100%
21	Mean Detected			N/A	SD Detected							N/A
22	Mean of Detected Logged Data			N/A	SD of Detected Logged Data							N/A
23												
24	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
25	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
26	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
27												
28	The data set for variable Sb was not processed!											
29												
30												
31	As											
32												
33	General Statistics											
34	Total Number of Observations			45	Number of Missing Observations							0
35	Number of Distinct Observations			2								
36	Number of Detects			0	Number of Non-Detects							45
37	Number of Distinct Detects			0	Number of Distinct Non-Detects							2
38	Minimum Detect			N/A	Minimum Non-Detect							0.005
39	Maximum Detect			N/A	Maximum Non-Detect							0.05
40	Variance Detected			N/A	Percent Non-Detects							100%
41	Mean Detected			N/A	SD Detected							N/A
42	Mean of Detected Logged Data			N/A	SD of Detected Logged Data							N/A
43												
44	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
45	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
46	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
47												
48	The data set for variable As was not processed!											
49												
50												
51	Ba											
52												
53	General Statistics											

	A	B	C	D	E	F	G	H	I	J	K	L
54	Total Number of Observations					45	Number of Distinct Observations					36
55	Minimum					0.0189	First Quartile					0.027
56	Second Largest					0.061	Median					0.032
57	Maximum					0.069	Third Quartile					0.0383
58	Mean					0.0344	SD					0.011
59	Coefficient of Variation					0.32	Skewness					1.067
60	Mean of logged Data					-3.415	SD of logged Data					0.305
61												
62	Critical Values for Background Threshold Values (BTVs)											
63	Tolerance Factor K (For UTL)					2.085	d2max (for USL)					2.915
64												
65	Normal GOF Test											
66	Shapiro Wilk Test Statistic					0.924	Shapiro Wilk GOF Test					
67	5% Shapiro Wilk Critical Value					0.945	Data Not Normal at 5% Significance Level					
68	Lilliefors Test Statistic					0.138	Lilliefors GOF Test					
69	5% Lilliefors Critical Value					0.131	Data Not Normal at 5% Significance Level					
70	Data Not Normal at 5% Significance Level											
71												
72	Background Statistics Assuming Normal Distribution											
73	95% UTL with	95% Coverage				0.0574	90% Percentile (z)					0.0485
74		95% UPL (t)				0.0531	95% Percentile (z)					0.0525
75		95% USL				0.0665	99% Percentile (z)					0.06
76												
77	Gamma GOF Test											
78	A-D Test Statistic					0.399	Anderson-Darling Gamma GOF Test					
79	5% A-D Critical Value					0.748	Detected data appear Gamma Distributed at 5% Significance Level					
80	K-S Test Statistic					0.0983	Kolmogorov-Smirnov Gamma GOF Test					
81	5% K-S Critical Value					0.132	Detected data appear Gamma Distributed at 5% Significance Level					
82	Detected data appear Gamma Distributed at 5% Significance Level											
83												
84	Gamma Statistics											
85	k hat (MLE)					10.95	k star (bias corrected MLE)					10.23
86	Theta hat (MLE)					0.00314	Theta star (bias corrected MLE)					0.00336
87	nu hat (MLE)					985.3	nu star (bias corrected)					921
88	MLE Mean (bias corrected)					0.0344	MLE Sd (bias corrected)					0.0108
89												
90	Background Statistics Assuming Gamma Distribution											
91	95% Wilson Hilferty (WH) Approx. Gamma UPL					0.0541	90% Percentile					0.0487
92	95% Hawkins Wixley (HW) Approx. Gamma UPL					0.0543	95% Percentile					0.0538
93	95% WH Approx. Gamma UTL with	95% Coverage				0.0598	99% Percentile					0.0643
94	95% HW Approx. Gamma UTL with					0.0603						
95	95% WH USL					0.0733	95% HW USL					0.0747
96												
97	Lognormal GOF Test											
98	Shapiro Wilk Test Statistic					0.973	Shapiro Wilk Lognormal GOF Test					
99	5% Shapiro Wilk Critical Value					0.945	Data appear Lognormal at 5% Significance Level					
100	Lilliefors Test Statistic					0.0779	Lilliefors Lognormal GOF Test					
101	5% Lilliefors Critical Value					0.131	Data appear Lognormal at 5% Significance Level					
102	Data appear Lognormal at 5% Significance Level											
103												
104	Background Statistics assuming Lognormal Distribution											
105	95% UTL with	95% Coverage				0.0621	90% Percentile (z)					0.0486
106		95% UPL (t)				0.0552	95% Percentile (z)					0.0543

	A	B	C	D	E	F	G	H	I	J	K	L
107	95% USL				0.08	99% Percentile (z)					0.0668	
108												
109	Nonparametric Distribution Free Background Statistics											
110	Data appear Gamma Distributed at 5% Significance Level											
111												
112	Nonparametric Upper Limits for Background Threshold Values											
113	Order of Statistic, r				44	95% UTL with 95% Coverage					0.061	
114	Approx, f used to compute achieved CC				1.158	pproximate Actual Confidence Coefficient achieved by UTL					0.665	
115						Approximate Sample Size needed to achieve specified CC					93	
116	95% Percentile Bootstrap UTL with 95% Coverage				0.0674	95% BCA Bootstrap UTL with 95% Coverage					0.0664	
117	95% UPL				0.0595	90% Percentile					0.0466	
118	90% Chebyshev UPL				0.0678	95% Percentile					0.0548	
119	95% Chebyshev UPL				0.083	99% Percentile					0.0655	
120	95% USL				0.069							
121												
122	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
123	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
124	and consists of observations collected from clean unimpacted locations.											
125	The use of USL tends to provide a balance between false positives and false negatives provided the data											
126	represents a background data set and when many onsite observations need to be compared with the BTV.											
127												
128	Be											
129												
130	General Statistics											
131	Total Number of Observations				45	Number of Missing Observations					0	
132	Number of Distinct Observations				2							
133	Number of Detects				0	Number of Non-Detects					45	
134	Number of Distinct Detects				0	Number of Distinct Non-Detects					2	
135	Minimum Detect				N/A	Minimum Non-Detect					0.001	
136	Maximum Detect				N/A	Maximum Non-Detect					0.01	
137	Variance Detected				N/A	Percent Non-Detects					100%	
138	Mean Detected				N/A	SD Detected					N/A	
139	Mean of Detected Logged Data				N/A	SD of Detected Logged Data					N/A	
140												
141	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
142	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
143	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
144												
145	The data set for variable Be was not processed!											
146												
147												
148	Cd											
149												
150	General Statistics											
151	Total Number of Observations				45	Number of Missing Observations					0	
152	Number of Distinct Observations				2							
153	Number of Detects				0	Number of Non-Detects					45	
154	Number of Distinct Detects				0	Number of Distinct Non-Detects					2	
155	Minimum Detect				N/A	Minimum Non-Detect					0.001	
156	Maximum Detect				N/A	Maximum Non-Detect					0.01	
157	Variance Detected				N/A	Percent Non-Detects					100%	
158	Mean Detected				N/A	SD Detected					N/A	
159	Mean of Detected Logged Data				N/A	SD of Detected Logged Data					N/A	

	A	B	C	D	E	F	G	H	I	J	K	L
160												
161	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
162	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
163	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
164												
165	The data set for variable Cd was not processed!											
166												
167												
168	Cr											
169												
170	General Statistics											
171	Total Number of Observations					45	Number of Missing Observations					0
172	Number of Distinct Observations					31						
173	Number of Detects					33	Number of Non-Detects					12
174	Number of Distinct Detects					28	Number of Distinct Non-Detects					3
175	Minimum Detect					0.00217	Minimum Non-Detect					0.002
176	Maximum Detect					0.0089	Maximum Non-Detect					0.02
177	Variance Detected					2.7772E-6	Percent Non-Detects					26.67%
178	Mean Detected					0.00369	SD Detected					0.00167
179	Mean of Detected Logged Data					-5.677	SD of Detected Logged Data					0.372
180												
181	Critical Values for Background Threshold Values (BTVs)											
182	Tolerance Factor K (For UTL)					2.085	d2max (for USL)					2.915
183												
184	Normal GOF Test on Detects Only											
185	Shapiro Wilk Test Statistic					0.776	Shapiro Wilk GOF Test					
186	5% Shapiro Wilk Critical Value					0.931	Data Not Normal at 5% Significance Level					
187	Lilliefors Test Statistic					0.198	Lilliefors GOF Test					
188	5% Lilliefors Critical Value					0.152	Data Not Normal at 5% Significance Level					
189	Data Not Normal at 5% Significance Level											
190												
191	Kaplan Meier (KM) Background Statistics Assuming Normal Distribution											
192	KM Mean					0.00339	KM SD					0.00159
193	95% UTL95% Coverage					0.00671	95% KM UPL (t)					0.00609
194	90% KM Percentile (z)					0.00543	95% KM Percentile (z)					0.00601
195	99% KM Percentile (z)					0.00709	95% KM USL					0.00803
196												
197	DL/2 Substitution Background Statistics Assuming Normal Distribution											
198	Mean					0.00367	SD					0.00241
199	95% UTL95% Coverage					0.0087	95% UPL (t)					0.00777
200	90% Percentile (z)					0.00677	95% Percentile (z)					0.00764
201	99% Percentile (z)					0.00929	95% USL					0.0107
202	DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons											
203												
204	Gamma GOF Tests on Detected Observations Only											
205	A-D Test Statistic					1.285	Anderson-Darling GOF Test					
206	5% A-D Critical Value					0.748	Data Not Gamma Distributed at 5% Significance Level					
207	K-S Test Statistic					0.151	Kolmogorov-Smirnov GOF					
208	5% K-S Critical Value					0.153	Detected data appear Gamma Distributed at 5% Significance Level					
209	Detected data follow Appr. Gamma Distribution at 5% Significance Level											
210												
211	Gamma Statistics on Detected Data Only											
212	k hat (MLE)					6.787	k star (bias corrected MLE)					6.19

	A	B	C	D	E	F	G	H	I	J	K	L
213	Theta hat (MLE)				5.4401E-4	Theta star (bias corrected MLE)						5.9646E-4
214	nu hat (MLE)				447.9	nu star (bias corrected)						408.5
215	MLE Mean (bias corrected)				0.00369							
216	MLE Sd (bias corrected)				0.00148	95% Percentile of Chisquare (2kstar)						21.54
217												
218	Gamma ROS Statistics using Imputed Non-Detects											
219	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
220	GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)											
221	For such situations, GROS method may yield incorrect values of UCLs and BTVs											
222	This is especially true when the sample size is small.											
223	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
224	Minimum				0.00217	Mean						0.00537
225	Maximum				0.01	Median						0.0039
226	SD				0.00316	CV						0.588
227	k hat (MLE)				3.186	k star (bias corrected MLE)						2.989
228	Theta hat (MLE)				0.00169	Theta star (bias corrected MLE)						0.0018
229	nu hat (MLE)				286.8	nu star (bias corrected)						269
230	MLE Mean (bias corrected)				0.00537	MLE Sd (bias corrected)						0.00311
231	95% Percentile of Chisquare (2kstar)				12.56	90% Percentile						0.00954
232	95% Percentile				0.0113	99% Percentile						0.0151
233	The following statistics are computed using Gamma ROS Statistics on Imputed Data											
234	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods											
235					WH	HW					WH	HW
236	95% Approx. Gamma UTL with 95% Coverage				0.0135	0.0138	95% Approx. Gamma UPL				0.0114	0.0116
237	95% Gamma USL				0.0187	0.0197						
238												
239	Estimates of Gamma Parameters using KM Estimates											
240	Mean (KM)				0.00339	SD (KM)						0.00159
241	Variance (KM)				2.5228E-6	SE of Mean (KM)						2.5118E-4
242	k hat (KM)				4.568	k star (KM)						4.279
243	nu hat (KM)				411.2	nu star (KM)						385.1
244	theta hat (KM)				7.4313E-4	theta star (KM)						7.9345E-4
245	80% gamma percentile (KM)				0.00464	90% gamma percentile (KM)						0.00559
246	95% gamma percentile (KM)				0.00647	99% gamma percentile (KM)						0.00832
247												
248	The following statistics are computed using gamma distribution and KM estimates											
249	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods											
250					WH	HW					WH	HW
251	95% Approx. Gamma UTL with 95% Coverage				0.00678	0.00681	95% Approx. Gamma UPL				0.00598	0.00598
252	95% KM Gamma Percentile				0.00587	0.00587	95% Gamma USL				0.00873	0.00888
253												
254	Lognormal GOF Test on Detected Observations Only											
255	Shapiro Wilk Test Statistic				0.901	Shapiro Wilk GOF Test						
256	5% Shapiro Wilk Critical Value				0.931	Data Not Lognormal at 5% Significance Level						
257	Lilliefors Test Statistic				0.126	Lilliefors GOF Test						
258	5% Lilliefors Critical Value				0.152	Detected Data appear Lognormal at 5% Significance Level						
259	Detected Data appear Approximate Lognormal at 5% Significance Level											
260												
261	Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects											
262	Mean in Original Scale				0.0033	Mean in Log Scale						-5.811
263	SD in Original Scale				0.00163	SD in Log Scale						0.438
264	95% UTL95% Coverage				0.00746	95% BCA UTL95% Coverage						0.00814
265	95% Bootstrap (%) UTL95% Coverage				0.00872	95% UPL (t)						0.0063

	A	B	C	D	E	F	G	H	I	J	K	L
266				90% Percentile (z)		0.00525				95% Percentile (z)		0.00615
267				99% Percentile (z)		0.00829				95% USL		0.0107
268												
269	Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution											
270				KM Mean of Logged Data		-5.768				95% KM UTL (Lognormal)95% Coverage		0.00694
271				KM SD of Logged Data		0.382				95% KM UPL (Lognormal)		0.00599
272				95% KM Percentile Lognormal (z)		0.00586				95% KM USL (Lognormal)		0.00953
273												
274	Background DL/2 Statistics Assuming Lognormal Distribution											
275				Mean in Original Scale		0.00367				Mean in Log Scale		-5.791
276				SD in Original Scale		0.00241				SD in Log Scale		0.616
277				95% UTL95% Coverage		0.011				95% UPL (t)		0.0087
278				90% Percentile (z)		0.00673				95% Percentile (z)		0.00842
279				99% Percentile (z)		0.0128				95% USL		0.0184
280	DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.											
281												
282	Nonparametric Distribution Free Background Statistics											
283	Data appear to follow a Discernible Distribution at 5% Significance Level											
284												
285	Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)											
286				Order of Statistic, r		44				95% UTL with95% Coverage		0.02
287				Approx, f used to compute achieved CC		1.158				pproximate Actual Confidence Coefficient achieved by UTL		0.665
288				Approximate Sample Size needed to achieve specified CC		93				95% UPL		0.02
289				95% USL		0.02				95% KM Chebyshev UPL		0.0104
290												
291	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
292	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
293	and consists of observations collected from clean unimpacted locations.											
294	The use of USL tends to provide a balance between false positives and false negatives provided the data											
295	represents a background data set and when many onsite observations need to be compared with the BTV.											
296												
297	Co											
298												
299	General Statistics											
300				Total Number of Observations		42				Number of Missing Observations		0
301				Number of Distinct Observations		6						
302				Number of Detects		5				Number of Non-Detects		37
303				Number of Distinct Detects		5				Number of Distinct Non-Detects		2
304				Minimum Detect		0.001				Minimum Non-Detect		0.001
305				Maximum Detect		0.0016				Maximum Non-Detect		0.01
306				Variance Detected		5.0280E-8				Percent Non-Detects		88.1%
307				Mean Detected		0.00122				SD Detected		2.2423E-4
308				Mean of Detected Logged Data		-6.718				SD of Detected Logged Data		0.172
309												
310	Critical Values for Background Threshold Values (BTVs)											
311				Tolerance Factor K (For UTL)		2.104				d2max (for USL)		2.887
312												
313	Normal GOF Test on Detects Only											
314				Shapiro Wilk Test Statistic		0.849				Shapiro Wilk GOF Test		
315				5% Shapiro Wilk Critical Value		0.762				Detected Data appear Normal at 5% Significance Level		
316				Lilliefors Test Statistic		0.343				Lilliefors GOF Test		
317				5% Lilliefors Critical Value		0.343				Detected Data appear Normal at 5% Significance Level		
318	Detected Data appear Normal at 5% Significance Level											

	A	B	C	D	E	F	G	H	I	J	K	L	
319													
320	Kaplan Meier (KM) Background Statistics Assuming Normal Distribution												
321	KM Mean				0.00103		KM SD				1.0375E-4		
322	95% UTL95% Coverage				0.00125		95% KM UPL (t)				0.00121		
323	90% KM Percentile (z)				0.00116		95% KM Percentile (z)				0.0012		
324	99% KM Percentile (z)				0.00127		95% KM USL				0.00133		
325													
326	DL/2 Substitution Background Statistics Assuming Normal Distribution												
327	Mean				9.0762E-4		SD				0.00117		
328	95% UTL95% Coverage				0.00338		95% UPL (t)				0.00291		
329	90% Percentile (z)				0.00241		95% Percentile (z)				0.00284		
330	99% Percentile (z)				0.00364		95% USL				0.0043		
331	DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons												
332													
333	Gamma GOF Tests on Detected Observations Only												
334	A-D Test Statistic				0.47		Anderson-Darling GOF Test						
335	5% A-D Critical Value				0.678		Detected data appear Gamma Distributed at 5% Significance Level						
336	K-S Test Statistic				0.329		Kolmogorov-Smirnov GOF						
337	5% K-S Critical Value				0.357		Detected data appear Gamma Distributed at 5% Significance Level						
338	Detected data appear Gamma Distributed at 5% Significance Level												
339													
340	Gamma Statistics on Detected Data Only												
341	k hat (MLE)				40.65		k star (bias corrected MLE)				16.39		
342	Theta hat (MLE)				3.0111E-5		Theta star (bias corrected MLE)				7.4665E-5		
343	nu hat (MLE)				406.5		nu star (bias corrected)				163.9		
344	MLE Mean (bias corrected)				0.00122								
345	MLE Sd (bias corrected)				3.0231E-4		95% Percentile of Chisquare (2kstar)				47.14		
346													
347	Gamma ROS Statistics using Imputed Non-Detects												
348	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs												
349	GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)												
350	For such situations, GROS method may yield incorrect values of UCLs and BTVs												
351	This is especially true when the sample size is small.												
352	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates												
353	Minimum				0.001		Mean				0.00896		
354	Maximum				0.01		Median				0.01		
355	SD				0.00288		CV				0.321		
356	k hat (MLE)				3.7		k star (bias corrected MLE)				3.452		
357	Theta hat (MLE)				0.00242		Theta star (bias corrected MLE)				0.00259		
358	nu hat (MLE)				310.8		nu star (bias corrected)				289.9		
359	MLE Mean (bias corrected)				0.00896		MLE Sd (bias corrected)				0.00482		
360	95% Percentile of Chisquare (2kstar)				13.93		90% Percentile				0.0154		
361	95% Percentile				0.0181		99% Percentile				0.0238		
362	The following statistics are computed using Gamma ROS Statistics on Imputed Data												
363	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods												
364					WH		HW				WH		HW
365	95% Approx. Gamma UTL with 95% Coverage				0.0214		0.0232		95% Approx. Gamma UPL		0.0183		0.0194
366	95% Gamma USL				0.0285		0.0322						
367													
368	Estimates of Gamma Parameters using KM Estimates												
369	Mean (KM)				0.00103		SD (KM)				1.0375E-4		
370	Variance (KM)				1.0765E-8		SE of Mean (KM)				1.8575E-5		
371	k hat (KM)				98.31		k star (KM)				91.3		

	A	B	C	D	E	F	G	H	I	J	K	L
372					nu hat (KM)	8258					nu star (KM)	7669
373					theta hat (KM)	1.0465E-5					theta star (KM)	1.1268E-5
374					80% gamma percentile (KM)	0.00112					90% gamma percentile (KM)	0.00117
375					95% gamma percentile (KM)	0.00121					99% gamma percentile (KM)	0.0013
376												
377					The following statistics are computed using gamma distribution and KM estimates							
378					Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods							
379						WH	HW				WH	HW
380					95% Approx. Gamma UTL with 95% Coverage	0.00123	0.00123				95% Approx. Gamma UPL	0.00119
381					95% KM Gamma Percentile	0.00118	0.00118				95% Gamma USL	0.00131
382												
383					Lognormal GOF Test on Detected Observations Only							
384					Shapiro Wilk Test Statistic		0.889				Shapiro Wilk GOF Test	
385					5% Shapiro Wilk Critical Value		0.762				Detected Data appear Lognormal at 5% Significance Level	
386					Lilliefors Test Statistic		0.317				Lilliefors GOF Test	
387					5% Lilliefors Critical Value		0.343				Detected Data appear Lognormal at 5% Significance Level	
388					Detected Data appear Lognormal at 5% Significance Level							
389												
390					Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects							
391					Mean in Original Scale		5.9081E-4				Mean in Log Scale	-7.552
392					SD in Original Scale		3.0343E-4				SD in Log Scale	0.491
393					95% UTL95% Coverage		0.00148				95% BCA UTL95% Coverage	0.00158
394					95% Bootstrap (%) UTL95% Coverage		0.00158				95% UPL (t)	0.00121
395					90% Percentile (z)		9.8516E-4				95% Percentile (z)	0.00118
396					99% Percentile (z)		0.00165				95% USL	0.00217
397												
398					Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution							
399					KM Mean of Logged Data		-6.883				95% KM UTL (Lognormal)95% Coverage	0.00122
400					KM SD of Logged Data		0.0841				95% KM UPL (Lognormal)	0.00118
401					95% KM Percentile Lognormal (z)		0.00118				95% KM USL (Lognormal)	0.00131
402												
403					Background DL/2 Statistics Assuming Lognormal Distribution							
404					Mean in Original Scale		9.0762E-4				Mean in Log Scale	-7.331
405					SD in Original Scale		0.00117				SD in Log Scale	0.641
406					95% UTL95% Coverage		0.00252				95% UPL (t)	0.00195
407					90% Percentile (z)		0.00149				95% Percentile (z)	0.00188
408					99% Percentile (z)		0.00291				95% USL	0.00417
409					DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.							
410												
411					Nonparametric Distribution Free Background Statistics							
412					Data appear to follow a Discernible Distribution at 5% Significance Level							
413												
414					Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)							
415					Order of Statistic, r		42				95% UTL with95% Coverage	0.01
416					Approx, f used to compute achieved CC		2.211				pproximate Actual Confidence Coefficient achieved by UTL	0.884
417					Approximate Sample Size needed to achieve specified CC		59				95% UPL	0.01
418					95% USL		0.01				95% KM Chebyshev UPL	0.00149
419												
420					Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.							
421					Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers							
422					and consists of observations collected from clean unimpacted locations.							
423					The use of USL tends to provide a balance between false positives and false negatives provided the data							
424					represents a background data set and when many onsite observations need to be compared with the BTV.							

	A	B	C	D	E	F	G	H	I	J	K	L	
425													
426	Pb												
427													
428	General Statistics												
429	Total Number of Observations					42						Number of Missing Observations	0
430	Number of Distinct Observations					2							
431	Number of Detects					0						Number of Non-Detects	42
432	Number of Distinct Detects					0						Number of Distinct Non-Detects	2
433	Minimum Detect					N/A						Minimum Non-Detect	0.001
434	Maximum Detect					N/A						Maximum Non-Detect	0.01
435	Variance Detected					N/A						Percent Non-Detects	100%
436	Mean Detected					N/A						SD Detected	N/A
437	Mean of Detected Logged Data					N/A						SD of Detected Logged Data	N/A
438													
439	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!												
440	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!												
441	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).												
442													
443	The data set for variable Pb was not processed!												
444													
445													
446	Li												
447													
448	General Statistics												
449	Total Number of Observations					45						Number of Missing Observations	0
450	Number of Distinct Observations					42							
451	Number of Detects					43						Number of Non-Detects	2
452	Number of Distinct Detects					40						Number of Distinct Non-Detects	2
453	Minimum Detect					0.0305						Minimum Non-Detect	0.0437
454	Maximum Detect					0.085						Maximum Non-Detect	0.0507
455	Variance Detected					2.4551E-4						Percent Non-Detects	4.444%
456	Mean Detected					0.0541						SD Detected	0.0157
457	Mean of Detected Logged Data					-2.961						SD of Detected Logged Data	0.301
458													
459	Critical Values for Background Threshold Values (BTVs)												
460	Tolerance Factor K (For UTL)					2.085						d2max (for USL)	2.915
461													
462	Normal GOF Test on Detects Only												
463	Shapiro Wilk Test Statistic					0.942						Shapiro Wilk GOF Test	
464	5% Shapiro Wilk Critical Value					0.943						Data Not Normal at 5% Significance Level	
465	Lilliefors Test Statistic					0.13						Lilliefors GOF Test	
466	5% Lilliefors Critical Value					0.134						Detected Data appear Normal at 5% Significance Level	
467	Detected Data appear Approximate Normal at 5% Significance Level												
468													
469	Kaplan Meier (KM) Background Statistics Assuming Normal Distribution												
470	KM Mean					0.0533						KM SD	0.0156
471	95% UTL95% Coverage					0.0858						95% KM UPL (t)	0.0797
472	90% KM Percentile (z)					0.0733						95% KM Percentile (z)	0.0789
473	99% KM Percentile (z)					0.0895						95% KM USL	0.0987
474													
475	DL/2 Substitution Background Statistics Assuming Normal Distribution												
476	Mean					0.0527						SD	0.0166
477	95% UTL95% Coverage					0.0873						95% UPL (t)	0.0809

	A	B	C	D	E	F	G	H	I	J	K	L	
478				90% Percentile (z)		0.074				95% Percentile (z)		0.08	
479				99% Percentile (z)		0.0913				95% USL		0.101	
480	DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons												
481													
482	Gamma GOF Tests on Detected Observations Only												
483				A-D Test Statistic		0.753		Anderson-Darling GOF Test					
484				5% A-D Critical Value		0.748		Data Not Gamma Distributed at 5% Significance Level					
485				K-S Test Statistic		0.116		Kolmogorov-Smirnov GOF					
486				5% K-S Critical Value		0.135		Detected data appear Gamma Distributed at 5% Significance Level					
487	Detected data follow Appr. Gamma Distribution at 5% Significance Level												
488													
489	Gamma Statistics on Detected Data Only												
490				k hat (MLE)		11.8		k star (bias corrected MLE)				10.99	
491				Theta hat (MLE)		0.00458		Theta star (bias corrected MLE)				0.00492	
492				nu hat (MLE)		1015		nu star (bias corrected)				945.1	
493				MLE Mean (bias corrected)		0.0541		95% Percentile of Chisquare (2kstar)					33.9
494				MLE Sd (bias corrected)		0.0163							
495													
496	Gamma ROS Statistics using Imputed Non-Detects												
497	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs												
498	GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)												
499	For such situations, GROS method may yield incorrect values of UCLs and BTVs												
500	This is especially true when the sample size is small.												
501	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates												
502				Minimum		0.0305		Mean				0.0534	
503				Maximum		0.085		Median				0.054	
504				SD		0.0156		CV				0.292	
505				k hat (MLE)		11.82		k star (bias corrected MLE)				11.04	
506				Theta hat (MLE)		0.00452		Theta star (bias corrected MLE)				0.00484	
507				nu hat (MLE)		1064		nu star (bias corrected)				993.9	
508				MLE Mean (bias corrected)		0.0534		MLE Sd (bias corrected)				0.0161	
509				95% Percentile of Chisquare (2kstar)		34.03		90% Percentile				0.0748	
510				95% Percentile		0.0823		99% Percentile				0.0977	
511	The following statistics are computed using Gamma ROS Statistics on Imputed Data												
512	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods												
513					WH	HW					WH	HW	
514	95% Approx. Gamma UTL with 95% Coverage				0.0912	0.0921		95% Approx. Gamma UPL			0.0828	0.0833	
515				95% Gamma USL	0.111	0.114							
516													
517	Estimates of Gamma Parameters using KM Estimates												
518				Mean (KM)		0.0533		SD (KM)				0.0156	
519				Variance (KM)		2.4200E-4		SE of Mean (KM)				0.00235	
520				k hat (KM)		11.75		k star (KM)				10.98	
521				nu hat (KM)		1057		nu star (KM)				988.1	
522				theta hat (KM)		0.00454		theta star (KM)				0.00486	
523				80% gamma percentile (KM)		0.0662		90% gamma percentile (KM)				0.0747	
524				95% gamma percentile (KM)		0.0822		99% gamma percentile (KM)				0.0977	
525													
526	The following statistics are computed using gamma distribution and KM estimates												
527	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods												
528					WH	HW					WH	HW	
529	95% Approx. Gamma UTL with 95% Coverage				0.091	0.092		95% Approx. Gamma UPL			0.0826	0.0831	
530				95% KM Gamma Percentile	0.0815	0.082		95% Gamma USL			0.111	0.113	

	A	B	C	D	E	F	G	H	I	J	K	L
531												
532	Lognormal GOF Test on Detected Observations Only											
533			Shapiro Wilk Test Statistic			0.935				Shapiro Wilk GOF Test		
534			5% Shapiro Wilk Critical Value			0.943				Data Not Lognormal at 5% Significance Level		
535			Lilliefors Test Statistic			0.135				Lilliefors GOF Test		
536			5% Lilliefors Critical Value			0.134				Data Not Lognormal at 5% Significance Level		
537	Data Not Lognormal at 5% Significance Level											
538												
539	Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects											
540			Mean in Original Scale			0.0534				Mean in Log Scale		-2.973
541			SD in Original Scale			0.0156				SD in Log Scale		0.299
542			95% UTL95% Coverage			0.0955				95% BCA UTL95% Coverage		0.0842
543			95% Bootstrap (%) UTL95% Coverage			0.0846				95% UPL (t)		0.0851
544			90% Percentile (z)			0.0751				95% Percentile (z)		0.0837
545			99% Percentile (z)			0.103				95% USL		0.122
546												
547	Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution											
548			KM Mean of Logged Data			-2.976				95% KM UTL (Lognormal)95% Coverage		0.0953
549			KM SD of Logged Data			0.3				95% KM UPL (Lognormal)		0.0849
550			95% KM Percentile Lognormal (z)			0.0835				95% KM USL (Lognormal)		0.122
551												
552	Background DL/2 Statistics Assuming Lognormal Distribution											
553			Mean in Original Scale			0.0527				Mean in Log Scale		-2.996
554			SD in Original Scale			0.0166				SD in Log Scale		0.337
555			95% UTL95% Coverage			0.101				95% UPL (t)		0.0887
556			90% Percentile (z)			0.077				95% Percentile (z)		0.0871
557			99% Percentile (z)			0.11				95% USL		0.134
558	DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.											
559												
560	Nonparametric Distribution Free Background Statistics											
561	Data appear to follow a Discernible Distribution at 5% Significance Level											
562												
563	Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)											
564			Order of Statistic, r			44				95% UTL with95% Coverage		0.083
565			Approx, f used to compute achieved CC			1.158				pproximate Actual Confidence Coefficient achieved by UTL		0.665
566	Approximate Sample Size needed to achieve specified CC					93				95% UPL		0.0824
567			95% USL			0.085				95% KM Chebyshev UPL		0.122
568												
569	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
570	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
571	and consists of observations collected from clean unimpacted locations.											
572	The use of USL tends to provide a balance between false positives and false negatives provided the data											
573	represents a background data set and when many onsite observations need to be compared with the BTV.											
574												
575	Hg											
576												
577	General Statistics											
578			Total Number of Observations			42				Number of Missing Observations		0
579			Number of Distinct Observations			1						
580			Number of Detects			0				Number of Non-Detects		42
581			Number of Distinct Detects			0				Number of Distinct Non-Detects		1
582			Minimum Detect			N/A				Minimum Non-Detect		2.0000E-4
583			Maximum Detect			N/A				Maximum Non-Detect		2.0000E-4

	A	B	C	D	E	F	G	H	I	J	K	L
584	Variance Detected					N/A	Percent Non-Detects					100%
585	Mean Detected					N/A	SD Detected					N/A
586	Mean of Detected Logged Data					N/A	SD of Detected Logged Data					N/A
587												
588	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
589	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
590	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
591												
592	The data set for variable Hg was not processed!											
593												
594												
595	Mo											
596												
597	General Statistics											
598	Total Number of Observations					45	Number of Distinct Observations					40
599	Minimum					0.0192	First Quartile					0.043
600	Second Largest					0.18	Median					0.0653
601	Maximum					0.18	Third Quartile					0.135
602	Mean					0.0845	SD					0.0509
603	Coefficient of Variation					0.602	Skewness					0.483
604	Mean of logged Data					-2.669	SD of logged Data					0.66
605												
606	Critical Values for Background Threshold Values (BTVs)											
607	Tolerance Factor K (For UTL)					2.085	d2max (for USL)					2.915
608												
609	Normal GOF Test											
610	Shapiro Wilk Test Statistic					0.878	Shapiro Wilk GOF Test					
611	5% Shapiro Wilk Critical Value					0.945	Data Not Normal at 5% Significance Level					
612	Lilliefors Test Statistic					0.186	Lilliefors GOF Test					
613	5% Lilliefors Critical Value					0.131	Data Not Normal at 5% Significance Level					
614	Data Not Normal at 5% Significance Level											
615												
616	Background Statistics Assuming Normal Distribution											
617	95% UTL with	95% Coverage				0.191	90% Percentile (z)					0.15
618		95% UPL (t)				0.171	95% Percentile (z)					0.168
619		95% USL				0.233	99% Percentile (z)					0.203
620												
621	Gamma GOF Test											
622	A-D Test Statistic					1.166	Anderson-Darling Gamma GOF Test					
623	5% A-D Critical Value					0.757	Data Not Gamma Distributed at 5% Significance Level					
624	K-S Test Statistic					0.142	Kolmogorov-Smirnov Gamma GOF Test					
625	5% K-S Critical Value					0.133	Data Not Gamma Distributed at 5% Significance Level					
626	Data Not Gamma Distributed at 5% Significance Level											
627												
628	Gamma Statistics											
629	k hat (MLE)					2.678	k star (bias corrected MLE)					2.514
630	Theta hat (MLE)					0.0316	Theta star (bias corrected MLE)					0.0336
631	nu hat (MLE)					241	nu star (bias corrected)					226.3
632	MLE Mean (bias corrected)					0.0845	MLE Sd (bias corrected)					0.0533
633												
634	Background Statistics Assuming Gamma Distribution											
635	95% Wilson Hilferty (WH) Approx. Gamma UPL					0.189	90% Percentile					0.156
636	95% Hawkins Wixley (HW) Approx. Gamma UPL					0.194	95% Percentile					0.187

	A	B	C	D	E	F	G	H	I	J	K	L
637	95% WH Approx. Gamma UTL with				95% Coverage	0.226	99% Percentile					0.254
638	95% HW Approx. Gamma UTL with				95% Coverage	0.235						
639					95% WH USL	0.321	95% HW USL					0.345
640												
641	Lognormal GOF Test											
642	Shapiro Wilk Test Statistic				0.924	Shapiro Wilk Lognormal GOF Test						
643	5% Shapiro Wilk Critical Value				0.945	Data Not Lognormal at 5% Significance Level						
644	Lilliefors Test Statistic				0.145	Lilliefors Lognormal GOF Test						
645	5% Lilliefors Critical Value				0.131	Data Not Lognormal at 5% Significance Level						
646	Data Not Lognormal at 5% Significance Level											
647												
648	Background Statistics assuming Lognormal Distribution											
649	95% UTL with		95% Coverage	0.275	90% Percentile (z)					0.162		
650			95% UPL (t)	0.213	95% Percentile (z)					0.205		
651			95% USL	0.475	99% Percentile (z)					0.322		
652												
653	Nonparametric Distribution Free Background Statistics											
654	Data do not follow a Discernible Distribution (0.05)											
655												
656	Nonparametric Upper Limits for Background Threshold Values											
657	Order of Statistic, r			44	95% UTL with 95% Coverage					0.18		
658	Approx, f used to compute achieved CC			1.158	pproximate Actual Confidence Coefficient achieved by UTL					0.665		
659					Approximate Sample Size needed to achieve specified CC					93		
660	95% Percentile Bootstrap UTL with		95% Coverage	0.18	95% BCA Bootstrap UTL with		95% Coverage	0.18				
661				95% UPL	0.177	90% Percentile					0.15	
662				90% Chebyshev UPL	0.239	95% Percentile					0.17	
663				95% Chebyshev UPL	0.309	99% Percentile					0.18	
664				95% USL	0.18							
665												
666	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
667	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
668	and consists of observations collected from clean unimpacted locations.											
669	The use of USL tends to provide a balance between false positives and false negatives provided the data											
670	represents a background data set and when many onsite observations need to be compared with the BTV.											
671												
672	Ra											
673												
674	General Statistics											
675	Total Number of Observations			45	Number of Missing Observations					0		
676	Number of Distinct Observations			43								
677	Number of Detects			19	Number of Non-Detects					26		
678	Number of Distinct Detects			19	Number of Distinct Non-Detects					25		
679	Minimum Detect			0.373	Minimum Non-Detect					0.315		
680	Maximum Detect			1.02	Maximum Non-Detect					0.855		
681	Variance Detected			0.0444	Percent Non-Detects					57.78%		
682	Mean Detected			0.64	SD Detected					0.211		
683	Mean of Detected Logged Data			-0.495	SD of Detected Logged Data					0.316		
684												
685	Critical Values for Background Threshold Values (BTVs)											
686	Tolerance Factor K (For UTL)			2.085	d2max (for USL)					2.915		
687												
688	Normal GOF Test on Detects Only											
689	Shapiro Wilk Test Statistic			0.881	Shapiro Wilk GOF Test							

	A	B	C	D	E	F	G	H	I	J	K	L	
690	5% Shapiro Wilk Critical Value					0.901	Data Not Normal at 5% Significance Level						
691	Lilliefors Test Statistic					0.19	Lilliefors GOF Test						
692	5% Lilliefors Critical Value					0.197	Detected Data appear Normal at 5% Significance Level						
693	Detected Data appear Approximate Normal at 5% Significance Level												
694													
695	Kaplan Meier (KM) Background Statistics Assuming Normal Distribution												
696	KM Mean					0.473	KM SD					0.202	
697	95% UTL95% Coverage					0.893	95% KM UPL (t)					0.815	
698	90% KM Percentile (z)					0.731	95% KM Percentile (z)					0.804	
699	99% KM Percentile (z)					0.942	95% KM USL					1.06	
700													
701	DL/2 Substitution Background Statistics Assuming Normal Distribution												
702	Mean					0.41	SD					0.245	
703	95% UTL95% Coverage					0.921	95% UPL (t)					0.826	
704	90% Percentile (z)					0.724	95% Percentile (z)					0.813	
705	99% Percentile (z)					0.98	95% USL					1.124	
706	DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons												
707													
708	Gamma GOF Tests on Detected Observations Only												
709	A-D Test Statistic					0.651	Anderson-Darling GOF Test						
710	5% A-D Critical Value					0.741	Detected data appear Gamma Distributed at 5% Significance Level						
711	K-S Test Statistic					0.154	Kolmogorov-Smirnov GOF						
712	5% K-S Critical Value					0.199	Detected data appear Gamma Distributed at 5% Significance Level						
713	Detected data appear Gamma Distributed at 5% Significance Level												
714													
715	Gamma Statistics on Detected Data Only												
716	k hat (MLE)					10.5	k star (bias corrected MLE)					8.879	
717	Theta hat (MLE)					0.0609	Theta star (bias corrected MLE)					0.0721	
718	nu hat (MLE)					399.1	nu star (bias corrected)					337.4	
719	MLE Mean (bias corrected)					0.64							
720	MLE Sd (bias corrected)					0.215	95% Percentile of Chisquare (2kstar)					28.56	
721													
722	Gamma ROS Statistics using Imputed Non-Detects												
723	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs												
724	GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)												
725	For such situations, GROS method may yield incorrect values of UCLs and BTVs												
726	This is especially true when the sample size is small.												
727	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates												
728	Minimum					0.128	Mean					0.409	
729	Maximum					1.02	Median					0.312	
730	SD					0.245	CV					0.598	
731	k hat (MLE)					3.355	k star (bias corrected MLE)					3.146	
732	Theta hat (MLE)					0.122	Theta star (bias corrected MLE)					0.13	
733	nu hat (MLE)					302	nu star (bias corrected)					283.2	
734	MLE Mean (bias corrected)					0.409	MLE Sd (bias corrected)					0.231	
735	95% Percentile of Chisquare (2kstar)					13.03	90% Percentile					0.719	
736	95% Percentile					0.847	99% Percentile					1.125	
737	The following statistics are computed using Gamma ROS Statistics on Imputed Data												
738	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods												
739					WH	HW					WH	HW	
740	95% Approx. Gamma UTL with 95% Coverage				1.006	1.027	95% Approx. Gamma UPL				0.855	0.864	
741	95% Gamma USL				1.388	1.455							
742													

	A	B	C	D	E	F	G	H	I	J	K	L
743	Estimates of Gamma Parameters using KM Estimates											
744	Mean (KM)				0.473	SD (KM)				0.202		
745	Variance (KM)				0.0406	SE of Mean (KM)				0.0321		
746	k hat (KM)				5.503	k star (KM)				5.151		
747	nu hat (KM)				495.3	nu star (KM)				463.6		
748	theta hat (KM)				0.0859	theta star (KM)				0.0918		
749	80% gamma percentile (KM)				0.634	90% gamma percentile (KM)				0.752		
750	95% gamma percentile (KM)				0.859	99% gamma percentile (KM)				1.086		
751												
752	The following statistics are computed using gamma distribution and KM estimates											
753	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods											
754					WH	HW					WH	HW
755	95% Approx. Gamma UTL with 95% Coverage				0.916	0.921	95% Approx. Gamma UPL				0.812	0.813
756	95% KM Gamma Percentile				0.799	0.799	95% Gamma USL				1.166	1.188
757												
758	Lognormal GOF Test on Detected Observations Only											
759	Shapiro Wilk Test Statistic				0.93	Shapiro Wilk GOF Test						
760	5% Shapiro Wilk Critical Value				0.901	Detected Data appear Lognormal at 5% Significance Level						
761	Lilliefors Test Statistic				0.133	Lilliefors GOF Test						
762	5% Lilliefors Critical Value				0.197	Detected Data appear Lognormal at 5% Significance Level						
763	Detected Data appear Lognormal at 5% Significance Level											
764												
765	Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects											
766	Mean in Original Scale				0.449	Mean in Log Scale				-0.892		
767	SD in Original Scale				0.215	SD in Log Scale				0.408		
768	95% UTL95% Coverage				0.96	95% BCA UTL95% Coverage				1.018		
769	95% Bootstrap (%) UTL95% Coverage				1.018	95% UPL (t)				0.82		
770	90% Percentile (z)				0.692	95% Percentile (z)				0.802		
771	99% Percentile (z)				1.06	95% USL				1.348		
772												
773	Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution											
774	KM Mean of Logged Data				-0.822	95% KM UTL (Lognormal)95% Coverage				0.939		
775	KM SD of Logged Data				0.364	95% KM UPL (Lognormal)				0.816		
776	95% KM Percentile Lognormal (z)				0.8	95% KM USL (Lognormal)				1.271		
777												
778	Background DL/2 Statistics Assuming Lognormal Distribution											
779	Mean in Original Scale				0.41	Mean in Log Scale				-1.045		
780	SD in Original Scale				0.245	SD in Log Scale				0.55		
781	95% UTL95% Coverage				1.108	95% UPL (t)				0.896		
782	90% Percentile (z)				0.712	95% Percentile (z)				0.869		
783	99% Percentile (z)				1.265	95% USL				1.749		
784	DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.											
785												
786	Nonparametric Distribution Free Background Statistics											
787	Data appear to follow a Discernible Distribution at 5% Significance Level											
788												
789	Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)											
790	Order of Statistic, r				44	95% UTL with95% Coverage				1.01		
791	Approx, f used to compute achieved CC				1.158	pproximate Actual Confidence Coefficient achieved by UTL				0.665		
792	Approximate Sample Size needed to achieve specified CC				93	95% UPL				0.998		
793	95% USL				1.02	95% KM Chebyshev UPL				1.361		
794												
795	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											

	A	B	C	D	E	F	G	H	I	J	K	L
796	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
797	and consists of observations collected from clean unimpacted locations.											
798	The use of USL tends to provide a balance between false positives and false negatives provided the data											
799	represents a background data set and when many onsite observations need to be compared with the BTV.											
800												
801	Se											
802												
803	General Statistics											
804	Total Number of Observations				45	Number of Missing Observations				0		
805	Number of Distinct Observations				22							
806	Number of Detects				23	Number of Non-Detects				22		
807	Number of Distinct Detects				20	Number of Distinct Non-Detects				2		
808	Minimum Detect				0.0055	Minimum Non-Detect				0.005		
809	Maximum Detect				0.0161	Maximum Non-Detect				0.05		
810	Variance Detected				7.6042E-6	Percent Non-Detects				48.89%		
811	Mean Detected				0.00903	SD Detected				0.00276		
812	Mean of Detected Logged Data				-4.75	SD of Detected Logged Data				0.301		
813												
814	Critical Values for Background Threshold Values (BTVs)											
815	Tolerance Factor K (For UTL)				2.085	d2max (for USL)				2.915		
816												
817	Normal GOF Test on Detects Only											
818	Shapiro Wilk Test Statistic				0.924	Shapiro Wilk GOF Test						
819	5% Shapiro Wilk Critical Value				0.914	Detected Data appear Normal at 5% Significance Level						
820	Lilliefors Test Statistic				0.145	Lilliefors GOF Test						
821	5% Lilliefors Critical Value				0.18	Detected Data appear Normal at 5% Significance Level						
822	Detected Data appear Normal at 5% Significance Level											
823												
824	Kaplan Meier (KM) Background Statistics Assuming Normal Distribution											
825	KM Mean				0.00721	KM SD				0.00283		
826	95% UTL95% Coverage				0.0131	95% KM UPL (t)				0.012		
827	90% KM Percentile (z)				0.0108	95% KM Percentile (z)				0.0119		
828	99% KM Percentile (z)				0.0138	95% KM USL				0.0155		
829												
830	DL/2 Substitution Background Statistics Assuming Normal Distribution											
831	Mean				0.00734	SD				0.00606		
832	95% UTL95% Coverage				0.02	95% UPL (t)				0.0176		
833	90% Percentile (z)				0.0151	95% Percentile (z)				0.0173		
834	99% Percentile (z)				0.0214	95% USL				0.025		
835	DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons											
836												
837	Gamma GOF Tests on Detected Observations Only											
838	A-D Test Statistic				0.583	Anderson-Darling GOF Test						
839	5% A-D Critical Value				0.744	Detected data appear Gamma Distributed at 5% Significance Level						
840	K-S Test Statistic				0.141	Kolmogorov-Smirnov GOF						
841	5% K-S Critical Value				0.181	Detected data appear Gamma Distributed at 5% Significance Level						
842	Detected data appear Gamma Distributed at 5% Significance Level											
843												
844	Gamma Statistics on Detected Data Only											
845	k hat (MLE)				11.63	k star (bias corrected MLE)				10.15		
846	Theta hat (MLE)				7.7654E-4	Theta star (bias corrected MLE)				8.9046E-4		
847	nu hat (MLE)				535.2	nu star (bias corrected)				466.7		
848	MLE Mean (bias corrected)				0.00903							

	A	B	C	D	E	F	G	H	I	J	K	L
849	MLE Sd (bias corrected)				0.00284	95% Percentile of Chisquare (2kstar)						31.78
850												
851	Gamma ROS Statistics using Imputed Non-Detects											
852	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
853	GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)											
854	For such situations, GROS method may yield incorrect values of UCLs and BTVs											
855	This is especially true when the sample size is small.											
856	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
857	Minimum				0.0055	Mean				0.0095		
858	Maximum				0.0161	Median				0.01		
859	SD				0.00201	CV				0.211		
860	k hat (MLE)				21.38	k star (bias corrected MLE)				19.97		
861	Theta hat (MLE)				4.4462E-4	Theta star (bias corrected MLE)				4.7603E-4		
862	nu hat (MLE)				1924	nu star (bias corrected)				1797		
863	MLE Mean (bias corrected)				0.00951	MLE Sd (bias corrected)				0.00213		
864	95% Percentile of Chisquare (2kstar)				55.69	90% Percentile				0.0123		
865	95% Percentile				0.0133	99% Percentile				0.0151		
866	The following statistics are computed using Gamma ROS Statistics on Imputed Data											
867	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods											
868					WH	HW					WH	HW
869	95% Approx. Gamma UTL with 95% Coverage				0.0143	0.0145	95% Approx. Gamma UPL				0.0133	0.0134
870	95% Gamma USL				0.0167	0.017						
871												
872	Estimates of Gamma Parameters using KM Estimates											
873	Mean (KM)				0.00721	SD (KM)				0.00283		
874	Variance (KM)				8.0161E-6	SE of Mean (KM)				4.4669E-4		
875	k hat (KM)				6.484	k star (KM)				6.067		
876	nu hat (KM)				583.6	nu star (KM)				546		
877	theta hat (KM)				0.00111	theta star (KM)				0.00119		
878	80% gamma percentile (KM)				0.00949	90% gamma percentile (KM)				0.0111		
879	95% gamma percentile (KM)				0.0126	99% gamma percentile (KM)				0.0157		
880												
881	The following statistics are computed using gamma distribution and KM estimates											
882	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods											
883					WH	HW					WH	HW
884	95% Approx. Gamma UTL with 95% Coverage				0.0136	0.0137	95% Approx. Gamma UPL				0.0121	0.0121
885	95% KM Gamma Percentile				0.0119	0.0119	95% Gamma USL				0.0171	0.0174
886												
887	Lognormal GOF Test on Detected Observations Only											
888	Shapiro Wilk Test Statistic				0.941	Shapiro Wilk GOF Test						
889	5% Shapiro Wilk Critical Value				0.914	Detected Data appear Lognormal at 5% Significance Level						
890	Lilliefors Test Statistic				0.135	Lilliefors GOF Test						
891	5% Lilliefors Critical Value				0.18	Detected Data appear Lognormal at 5% Significance Level						
892	Detected Data appear Lognormal at 5% Significance Level											
893												
894	Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects											
895	Mean in Original Scale				0.00674	Mean in Log Scale				-5.11		
896	SD in Original Scale				0.00322	SD in Log Scale				0.479		
897	95% UTL95% Coverage				0.0164	95% BCA UTL95% Coverage				0.0153		
898	95% Bootstrap (%) UTL95% Coverage				0.0154	95% UPL (t)				0.0136		
899	90% Percentile (z)				0.0112	95% Percentile (z)				0.0133		
900	99% Percentile (z)				0.0184	95% USL				0.0244		
901												

	A	B	C	D	E	F	G	H	I	J	K	L
902	Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution											
903	KM Mean of Logged Data				-4.998	95% KM UTL (Lognormal)95% Coverage					0.014	
904	KM SD of Logged Data				0.349	95% KM UPL (Lognormal)					0.0122	
905	95% KM Percentile Lognormal (z)				0.012	95% KM USL (Lognormal)					0.0187	
906												
907	Background DL/2 Statistics Assuming Lognormal Distribution											
908	Mean in Original Scale				0.00734	Mean in Log Scale					-5.204	
909	SD in Original Scale				0.00606	SD in Log Scale					0.76	
910	95% UTL95% Coverage				0.0268	95% UPL (t)					0.02	
911	90% Percentile (z)				0.0146	95% Percentile (z)					0.0192	
912	99% Percentile (z)				0.0322	95% USL					0.0504	
913	DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.											
914												
915	Nonparametric Distribution Free Background Statistics											
916	Data appear to follow a Discernible Distribution at 5% Significance Level											
917												
918	Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)											
919	Order of Statistic, r				44	95% UTL with95% Coverage					0.05	
920	Approx, f used to compute achieved CC				1.158	pproximate Actual Confidence Coefficient achieved by UTL					0.665	
921	Approximate Sample Size needed to achieve specified CC				93	95% UPL					0.05	
922	95% USL				0.05	95% KM Chebyshev UPL					0.0197	
923												
924	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
925	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
926	and consists of observations collected from clean unimpacted locations.											
927	The use of USL tends to provide a balance between false positives and false negatives provided the data											
928	represents a background data set and when many onsite observations need to be compared with the BTV.											
929												
930	Th											
931												
932	General Statistics											
933	Total Number of Observations				44	Number of Missing Observations					0	
934	Number of Distinct Observations				2							
935	Number of Detects				0	Number of Non-Detects					44	
936	Number of Distinct Detects				0	Number of Distinct Non-Detects					2	
937	Minimum Detect				N/A	Minimum Non-Detect					0.001	
938	Maximum Detect				N/A	Maximum Non-Detect					0.01	
939	Variance Detected				N/A	Percent Non-Detects					100%	
940	Mean Detected				N/A	SD Detected					N/A	
941	Mean of Detected Logged Data				N/A	SD of Detected Logged Data					N/A	
942												
943	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
944	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
945	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
946												
947	The data set for variable Th was not processed!											
948												
949												

	A	B	C	D	E	F	G	H	I	J	K	L
1				Background Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	Date/Time of Computation			ProUCL 5.110/13/2022 8:27:37 AM								
4	From File			LRS_ProUCL_UPL_Input_2021_v1.xls								
5	Full Precision			OFF								
6	Confidence Coefficient			95%								
7	Coverage			95%								
8	Different or Future K Observations			1								
9	Number of Bootstrap Operations			2000								
10												
11	B											
12												
13	General Statistics											
14	Total Number of Observations			32	Number of Missing Observations							2
15	Number of Distinct Observations			16								
16	Number of Detects			21	Number of Non-Detects							11
17	Number of Distinct Detects			15	Number of Distinct Non-Detects							1
18	Minimum Detect			0.104	Minimum Non-Detect							0.1
19	Maximum Detect			0.187	Maximum Non-Detect							0.1
20	Variance Detected			5.3729E-4	Percent Non-Detects							34.38%
21	Mean Detected			0.148	SD Detected							0.0232
22	Mean of Detected Logged Data			-1.924	SD of Detected Logged Data							0.169
23												
24	Critical Values for Background Threshold Values (BTVs)											
25	Tolerance Factor K (For UTL)			2.186	d2max (for USL)							2.773
26												
27	Normal GOF Test on Detects Only											
28	Shapiro Wilk Test Statistic			0.879	Shapiro Wilk GOF Test							
29	5% Shapiro Wilk Critical Value			0.908	Data Not Normal at 5% Significance Level							
30	Lilliefors Test Statistic			0.281	Lilliefors GOF Test							
31	5% Lilliefors Critical Value			0.188	Data Not Normal at 5% Significance Level							
32	Data Not Normal at 5% Significance Level											
33												
34	Kaplan Meier (KM) Background Statistics Assuming Normal Distribution											
35	KM Mean			0.131	KM SD							0.0292
36	95% UTL95% Coverage			0.195	95% KM UPL (t)							0.182
37	90% KM Percentile (z)			0.169	95% KM Percentile (z)							0.179
38	99% KM Percentile (z)			0.199	95% KM USL							0.212
39												
40	DL/2 Substitution Background Statistics Assuming Normal Distribution											
41	Mean			0.114	SD							0.0508
42	95% UTL95% Coverage			0.225	95% UPL (t)							0.202
43	90% Percentile (z)			0.179	95% Percentile (z)							0.198
44	99% Percentile (z)			0.232	95% USL							0.255
45	DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons											
46												
47	Gamma GOF Tests on Detected Observations Only											
48	A-D Test Statistic			1.509	Anderson-Darling GOF Test							
49	5% A-D Critical Value			0.742	Data Not Gamma Distributed at 5% Significance Level							
50	K-S Test Statistic			0.302	Kolmogorov-Smirnov GOF							
51	5% K-S Critical Value			0.189	Data Not Gamma Distributed at 5% Significance Level							
52	Data Not Gamma Distributed at 5% Significance Level											
53												

	A	B	C	D	E	F	G	H	I	J	K	L
54	Gamma Statistics on Detected Data Only											
55	k hat (MLE)				38.95		k star (bias corrected MLE)				33.42	
56	Theta hat (MLE)				0.0038		Theta star (bias corrected MLE)				0.00443	
57	nu hat (MLE)				1636		nu star (bias corrected)				1403	
58	MLE Mean (bias corrected)				0.148							
59	MLE Sd (bias corrected)				0.0256		95% Percentile of Chisquare (2kstar)				86.91	
60												
61	Gamma ROS Statistics using Imputed Non-Detects											
62	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
63	GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)											
64	For such situations, GROS method may yield incorrect values of UCLs and BTVs											
65	This is especially true when the sample size is small.											
66	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
67	Minimum				0.0773		Mean				0.132	
68	Maximum				0.187		Median				0.133	
69	SD				0.0303		CV				0.23	
70	k hat (MLE)				18.65		k star (bias corrected MLE)				16.92	
71	Theta hat (MLE)				0.00706		Theta star (bias corrected MLE)				0.00778	
72	nu hat (MLE)				1194		nu star (bias corrected)				1083	
73	MLE Mean (bias corrected)				0.132		MLE Sd (bias corrected)				0.032	
74	95% Percentile of Chisquare (2kstar)				48.42		90% Percentile				0.174	
75	95% Percentile				0.188		99% Percentile				0.217	
76	The following statistics are computed using Gamma ROS Statistics on Imputed Data											
77	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods											
78					WH	HW					WH	HW
79	95% Approx. Gamma UTL with 95% Coverage				0.208	0.21	95% Approx. Gamma UPL				0.189	0.19
80	95% Gamma USL				0.234	0.237						
81												
82	Estimates of Gamma Parameters using KM Estimates											
83	Mean (KM)				0.131		SD (KM)				0.0292	
84	Variance (KM)				8.5350E-4		SE of Mean (KM)				0.00529	
85	k hat (KM)				20.24		k star (KM)				18.36	
86	nu hat (KM)				1295		nu star (KM)				1175	
87	theta hat (KM)				0.00649		theta star (KM)				0.00716	
88	80% gamma percentile (KM)				0.156		90% gamma percentile (KM)				0.172	
89	95% gamma percentile (KM)				0.186		99% gamma percentile (KM)				0.213	
90												
91	The following statistics are computed using gamma distribution and KM estimates											
92	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods											
93					WH	HW					WH	HW
94	95% Approx. Gamma UTL with 95% Coverage				0.203	0.205	95% Approx. Gamma UPL				0.186	0.186
95	95% KM Gamma Percentile				0.183	0.184	95% Gamma USL				0.227	0.23
96												
97	Lognormal GOF Test on Detected Observations Only											
98	Shapiro Wilk Test Statistic				0.845		Shapiro Wilk GOF Test					
99	5% Shapiro Wilk Critical Value				0.908		Data Not Lognormal at 5% Significance Level					
100	Lilliefors Test Statistic				0.31		Lilliefors GOF Test					
101	5% Lilliefors Critical Value				0.188		Data Not Lognormal at 5% Significance Level					
102	Data Not Lognormal at 5% Significance Level											
103												
104	Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects											
105	Mean in Original Scale				0.132		Mean in Log Scale				-2.052	
106	SD in Original Scale				0.0298		SD in Log Scale				0.232	

	A	B	C	D	E	F	G	H	I	J	K	L
107	95% UTL95% Coverage					0.214	95% BCA UTL95% Coverage					0.187
108	95% Bootstrap (%) UTL95% Coverage					0.187	95% UPL (t)					0.192
109	90% Percentile (z)					0.173	95% Percentile (z)					0.188
110	99% Percentile (z)					0.221	95% USL					0.245
111												
112	Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution											
113	KM Mean of Logged Data					-2.054	95% KM UTL (Lognormal)95% Coverage					0.209
114	KM SD of Logged Data					0.224	95% KM UPL (Lognormal)					0.188
115	95% KM Percentile Lognormal (z)					0.185	95% KM USL (Lognormal)					0.239
116												
117	Background DL/2 Statistics Assuming Lognormal Distribution											
118	Mean in Original Scale					0.114	Mean in Log Scale					-2.292
119	SD in Original Scale					0.0508	SD in Log Scale					0.535
120	95% UTL95% Coverage					0.325	95% UPL (t)					0.254
121	90% Percentile (z)					0.2	95% Percentile (z)					0.243
122	99% Percentile (z)					0.35	95% USL					0.445
123	DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.											
124												
125	Nonparametric Distribution Free Background Statistics											
126	Data do not follow a Discernible Distribution (0.05)											
127												
128	Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)											
129	Order of Statistic, r					32	95% UTL with95% Coverage					0.187
130	Approx, f used to compute achieved CC					1.684	pproximate Actual Confidence Coefficient achieved by UTL					0.806
131	Approximate Sample Size needed to achieve specified CC					59	95% UPL					0.179
132	95% USL					0.187	95% KM Chebyshev UPL					0.261
133												
134	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
135	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
136	and consists of observations collected from clean unimpacted locations.											
137	The use of USL tends to provide a balance between false positives and false negatives provided the data											
138	represents a background data set and when many onsite observations need to be compared with the BTV.											
139												
140	Ca											
141												
142	General Statistics											
143	Total Number of Observations					32	Number of Distinct Observations					25
144							Number of Missing Observations					2
145	Minimum					76	First Quartile					97.1
146	Second Largest					174	Median					112
147	Maximum					175	Third Quartile					158.3
148	Mean					120.6	SD					33.87
149	Coefficient of Variation					0.281	Skewness					0.262
150	Mean of logged Data					4.753	SD of logged Data					0.284
151												
152	Critical Values for Background Threshold Values (BTVs)											
153	Tolerance Factor K (For UTL)					2.186	d2max (for USL)					2.773
154												
155	Normal GOF Test											
156	Shapiro Wilk Test Statistic					0.894	Shapiro Wilk GOF Test					
157	5% Shapiro Wilk Critical Value					0.93	Data Not Normal at 5% Significance Level					
158	Lilliefors Test Statistic					0.188	Lilliefors GOF Test					
159	5% Lilliefors Critical Value					0.154	Data Not Normal at 5% Significance Level					

	A	B	C	D	E	F	G	H	I	J	K	L
160	Data Not Normal at 5% Significance Level											
161												
162	Background Statistics Assuming Normal Distribution											
163	95% UTL with		95% Coverage	194.6			90% Percentile (z)		164			
164			95% UPL (t)	178.9			95% Percentile (z)		176.3			
165			95% USL	214.5			99% Percentile (z)		199.4			
166												
167	Gamma GOF Test											
168			A-D Test Statistic	0.962			Anderson-Darling Gamma GOF Test					
169			5% A-D Critical Value	0.746			Data Not Gamma Distributed at 5% Significance Level					
170			K-S Test Statistic	0.166			Kolmogorov-Smirnov Gamma GOF Test					
171			5% K-S Critical Value	0.155			Data Not Gamma Distributed at 5% Significance Level					
172	Data Not Gamma Distributed at 5% Significance Level											
173												
174	Gamma Statistics											
175			k hat (MLE)	13.04			k star (bias corrected MLE)		11.84			
176			Theta hat (MLE)	9.243			Theta star (bias corrected MLE)		10.18			
177			nu hat (MLE)	834.9			nu star (bias corrected)		757.9			
178			MLE Mean (bias corrected)	120.6			MLE Sd (bias corrected)		35.04			
179												
180	Background Statistics Assuming Gamma Distribution											
181	95% Wilson Hilferty (WH) Approx.		Gamma UPL	184.8			90% Percentile		167.1			
182	95% Hawkins Wixley (HW) Approx.		Gamma UPL	185.8			95% Percentile		183.4			
183	95% WH Approx.		Gamma UTL with	95% Coverage	206.6			99% Percentile		216.7		
184	95% HW Approx.		Gamma UTL with	95% Coverage	208.7							
185			95% WH USL	236.5			95% HW USL		240.5			
186												
187	Lognormal GOF Test											
188			Shapiro Wilk Test Statistic	0.903			Shapiro Wilk Lognormal GOF Test					
189			5% Shapiro Wilk Critical Value	0.93			Data Not Lognormal at 5% Significance Level					
190			Lilliefors Test Statistic	0.149			Lilliefors Lognormal GOF Test					
191			5% Lilliefors Critical Value	0.154			Data appear Lognormal at 5% Significance Level					
192	Data appear Approximate Lognormal at 5% Significance Level											
193												
194	Background Statistics assuming Lognormal Distribution											
195	95% UTL with		95% Coverage	216			90% Percentile (z)		167			
196			95% UPL (t)	189.3			95% Percentile (z)		185.2			
197			95% USL	255.3			99% Percentile (z)		224.8			
198												
199	Nonparametric Distribution Free Background Statistics											
200	Data appear Approximate Lognormal at 5% Significance Level											
201												
202	Nonparametric Upper Limits for Background Threshold Values											
203	Order of Statistic, r		32			95% UTL with		95% Coverage		175		
204	Approx, f used to compute achieved CC		1.684	pproximate Actual Confidence Coefficient achieved by UTL		0.806						
205				Approximate Sample Size needed to achieve specified CC		59						
206	95% Percentile Bootstrap UTL with		95% Coverage	175	95% BCA Bootstrap UTL with		95% Coverage		175			
207			95% UPL	174.4			90% Percentile		167.9			
208			90% Chebyshev UPL	223.8			95% Percentile		171.3			
209			95% Chebyshev UPL	270.5			99% Percentile		174.7			
210			95% USL	175								
211												
212	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											

	A	B	C	D	E	F	G	H	I	J	K	L
213	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
214	and consists of observations collected from clean unimpacted locations.											
215	The use of USL tends to provide a balance between false positives and false negatives provided the data											
216	represents a background data set and when many onsite observations need to be compared with the BTV.											
217												
218	CI											
219												
220	General Statistics											
221	Total Number of Observations				32	Number of Distinct Observations				23		
222						Number of Missing Observations				2		
223	Minimum				32	First Quartile				33.75		
224	Second Largest				51.1	Median				40.85		
225	Maximum				52.7	Third Quartile				42.28		
226	Mean				39.9	SD				5.786		
227	Coefficient of Variation				0.145	Skewness				0.366		
228	Mean of logged Data				3.676	SD of logged Data				0.144		
229												
230	Critical Values for Background Threshold Values (BTVs)											
231	Tolerance Factor K (For UTL)				2.186	d2max (for USL)				2.773		
232												
233	Normal GOF Test											
234	Shapiro Wilk Test Statistic				0.919	Shapiro Wilk GOF Test						
235	5% Shapiro Wilk Critical Value				0.93	Data Not Normal at 5% Significance Level						
236	Lilliefors Test Statistic				0.133	Lilliefors GOF Test						
237	5% Lilliefors Critical Value				0.154	Data appear Normal at 5% Significance Level						
238	Data appear Approximate Normal at 5% Significance Level											
239												
240	Background Statistics Assuming Normal Distribution											
241	95% UTL with	95% Coverage	52.55	90% Percentile (z)				47.32				
242		95% UPL (t)	49.86	95% Percentile (z)				49.42				
243		95% USL	55.95	99% Percentile (z)				53.36				
244												
245	Gamma GOF Test											
246	A-D Test Statistic				0.949	Anderson-Darling Gamma GOF Test						
247	5% A-D Critical Value				0.744	Data Not Gamma Distributed at 5% Significance Level						
248	K-S Test Statistic				0.144	Kolmogorov-Smirnov Gamma GOF Test						
249	5% K-S Critical Value				0.155	Detected data appear Gamma Distributed at 5% Significance Level						
250	Detected data follow Appr. Gamma Distribution at 5% Significance Level											
251												
252	Gamma Statistics											
253	k hat (MLE)				49.78	k star (bias corrected MLE)				45.14		
254	Theta hat (MLE)				0.801	Theta star (bias corrected MLE)				0.884		
255	nu hat (MLE)				3186	nu star (bias corrected)				2889		
256	MLE Mean (bias corrected)				39.9	MLE Sd (bias corrected)				5.939		
257												
258	Background Statistics Assuming Gamma Distribution											
259	95% Wilson Hilferty (WH) Approx. Gamma UPL				50.32	90% Percentile				47.68		
260	95% Hawkins Wixley (HW) Approx. Gamma UPL				50.39	95% Percentile				50.14		
261	95% WH Approx. Gamma UTL with	95% Coverage	53.5	99% Percentile				55				
262	95% HW Approx. Gamma UTL with	95% Coverage	53.64									
263		95% WH USL	57.71	95% HW USL				57.98				
264												
265	Lognormal GOF Test											

	A	B	C	D	E	F	G	H	I	J	K	L	
266	Shapiro Wilk Test Statistic					0.919	Shapiro Wilk Lognormal GOF Test						
267	5% Shapiro Wilk Critical Value					0.93	Data Not Lognormal at 5% Significance Level						
268	Lilliefors Test Statistic					0.144	Lilliefors Lognormal GOF Test						
269	5% Lilliefors Critical Value					0.154	Data appear Lognormal at 5% Significance Level						
270	Data appear Approximate Lognormal at 5% Significance Level												
271													
272	Background Statistics assuming Lognormal Distribution												
273	95% UTL with 95% Coverage				54.12					90% Percentile (z)		47.51	
274	95% UPL (t)				50.62					95% Percentile (z)		50.06	
275	95% USL				58.89					99% Percentile (z)		55.22	
276													
277	Nonparametric Distribution Free Background Statistics												
278	Data appear Approximate Normal at 5% Significance Level												
279													
280	Nonparametric Upper Limits for Background Threshold Values												
281	Order of Statistic, r				32	95% UTL with 95% Coverage				52.7			
282	Approx, f used to compute achieved CC				1.684	pproximate Actual Confidence Coefficient achieved by UTL				0.806			
283						Approximate Sample Size needed to achieve specified CC				59			
284	95% Percentile Bootstrap UTL with 95% Coverage				52.7	95% BCA Bootstrap UTL with 95% Coverage				52.7			
285	95% UPL				51.66	90% Percentile				47.63			
286	90% Chebyshev UPL				57.53	95% Percentile				50			
287	95% Chebyshev UPL				65.51	99% Percentile				52.2			
288	95% USL				52.7								
289													
290	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
291	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
292	and consists of observations collected from clean unimpacted locations.												
293	The use of USL tends to provide a balance between false positives and false negatives provided the data												
294	represents a background data set and when many onsite observations need to be compared with the BTV.												
295													
296	F												
297													
298	General Statistics												
299	Total Number of Observations				34	Number of Missing Observations				0			
300	Number of Distinct Observations				16								
301	Number of Detects				18	Number of Non-Detects				16			
302	Number of Distinct Detects				16	Number of Distinct Non-Detects				1			
303	Minimum Detect				0.5	Minimum Non-Detect				0.5			
304	Maximum Detect				1.33	Maximum Non-Detect				0.5			
305	Variance Detected				0.029	Percent Non-Detects				47.06%			
306	Mean Detected				0.996	SD Detected				0.17			
307	Mean of Detected Logged Data				-0.021	SD of Detected Logged Data				0.2			
308													
309	Critical Values for Background Threshold Values (BTVs)												
310	Tolerance Factor K (For UTL)				2.166	d2max (for USL)				2.799			
311													
312	Normal GOF Test on Detects Only												
313	Shapiro Wilk Test Statistic				0.886	Shapiro Wilk GOF Test							
314	5% Shapiro Wilk Critical Value				0.897	Data Not Normal at 5% Significance Level							
315	Lilliefors Test Statistic				0.196	Lilliefors GOF Test							
316	5% Lilliefors Critical Value				0.202	Detected Data appear Normal at 5% Significance Level							
317	Detected Data appear Approximate Normal at 5% Significance Level												
318													

	A	B	C	D	E	F	G	H	I	J	K	L
319	Kaplan Meier (KM) Background Statistics Assuming Normal Distribution											
320	KM Mean				0.762	KM SD				0.275		
321	95% UTL95% Coverage				1.359	95% KM UPL (t)				1.235		
322	90% KM Percentile (z)				1.115	95% KM Percentile (z)				1.215		
323	99% KM Percentile (z)				1.403	95% KM USL				1.533		
324												
325	DL/2 Substitution Background Statistics Assuming Normal Distribution											
326	Mean				0.645	SD				0.397		
327	95% UTL95% Coverage				1.505	95% UPL (t)				1.327		
328	90% Percentile (z)				1.154	95% Percentile (z)				1.298		
329	99% Percentile (z)				1.569	95% USL				1.757		
330	DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons											
331												
332	Gamma GOF Tests on Detected Observations Only											
333	A-D Test Statistic				1.02	Anderson-Darling GOF Test						
334	5% A-D Critical Value				0.739	Data Not Gamma Distributed at 5% Significance Level						
335	K-S Test Statistic				0.225	Kolmogorov-Smirnov GOF						
336	5% K-S Critical Value				0.203	Data Not Gamma Distributed at 5% Significance Level						
337	Data Not Gamma Distributed at 5% Significance Level											
338												
339	Gamma Statistics on Detected Data Only											
340	k hat (MLE)				29.96	k star (bias corrected MLE)				25.01		
341	Theta hat (MLE)				0.0332	Theta star (bias corrected MLE)				0.0398		
342	nu hat (MLE)				1079	nu star (bias corrected)				900.3		
343	MLE Mean (bias corrected)				0.996							
344	MLE Sd (bias corrected)				0.199	95% Percentile of Chisquare (2kstar)				67.52		
345												
346	Gamma ROS Statistics using Imputed Non-Detects											
347	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
348	GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)											
349	For such situations, GROS method may yield incorrect values of UCLs and BTVs											
350	This is especially true when the sample size is small.											
351	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
352	Minimum				0.392	Mean				0.82		
353	Maximum				1.33	Median				0.826		
354	SD				0.238	CV				0.29		
355	k hat (MLE)				11.54	k star (bias corrected MLE)				10.54		
356	Theta hat (MLE)				0.071	Theta star (bias corrected MLE)				0.0778		
357	nu hat (MLE)				784.8	nu star (bias corrected)				716.9		
358	MLE Mean (bias corrected)				0.82	MLE Sd (bias corrected)				0.252		
359	95% Percentile of Chisquare (2kstar)				32.78	90% Percentile				1.155		
360	95% Percentile				1.274	99% Percentile				1.518		
361	The following statistics are computed using Gamma ROS Statistics on Imputed Data											
362	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods											
363				WH	HW					WH	HW	
364	95% Approx. Gamma UTL with 95% Coverage			1.439	1.458	95% Approx. Gamma UPL			1.284	1.295		
365	95% Gamma USL			1.677	1.714							
366												
367	Estimates of Gamma Parameters using KM Estimates											
368	Mean (KM)				0.762	SD (KM)				0.275		
369	Variance (KM)				0.0757	SE of Mean (KM)				0.0486		
370	k hat (KM)				7.677	k star (KM)				7.019		
371	nu hat (KM)				522	nu star (KM)				477.3		

	A	B	C	D	E	F	G	H	I	J	K	L
372	theta hat (KM)				0.0993	theta star (KM)				0.109		
373	80% gamma percentile (KM)				0.988	90% gamma percentile (KM)				1.147		
374	95% gamma percentile (KM)				1.289	99% gamma percentile (KM)				1.586		
375												
376	The following statistics are computed using gamma distribution and KM estimates											
377	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods											
378					WH	HW					WH	HW
379	95% Approx. Gamma UTL with 95% Coverage				1.474	1.495	95% Approx. Gamma UPL				1.291	1.3
380	95% KM Gamma Percentile				1.263	1.271	95% Gamma USL				1.761	1.805
381												
382	Lognormal GOF Test on Detected Observations Only											
383	Shapiro Wilk Test Statistic				0.779	Shapiro Wilk GOF Test						
384	5% Shapiro Wilk Critical Value				0.897	Data Not Lognormal at 5% Significance Level						
385	Lilliefors Test Statistic				0.246	Lilliefors GOF Test						
386	5% Lilliefors Critical Value				0.202	Data Not Lognormal at 5% Significance Level						
387	Data Not Lognormal at 5% Significance Level											
388												
389	Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects											
390	Mean in Original Scale				0.827	Mean in Log Scale				-0.228		
391	SD in Original Scale				0.227	SD in Log Scale				0.283		
392	95% UTL95% Coverage				1.471	95% BCA UTL95% Coverage				1.33		
393	95% Bootstrap (%) UTL95% Coverage				1.33	95% UPL (t)				1.295		
394	90% Percentile (z)				1.145	95% Percentile (z)				1.269		
395	99% Percentile (z)				1.539	95% USL				1.76		
396												
397	Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution											
398	KM Mean of Logged Data				-0.337	95% KM UTL (Lognormal)95% Coverage				1.57		
399	KM SD of Logged Data				0.364	95% KM UPL (Lognormal)				1.334		
400	95% KM Percentile Lognormal (z)				1.299	95% KM USL (Lognormal)				1.978		
401												
402	Background DL/2 Statistics Assuming Lognormal Distribution											
403	Mean in Original Scale				0.645	Mean in Log Scale				-0.663		
404	SD in Original Scale				0.397	SD in Log Scale				0.706		
405	95% UTL95% Coverage				2.38	95% UPL (t)				1.732		
406	90% Percentile (z)				1.274	95% Percentile (z)				1.646		
407	99% Percentile (z)				2.664	95% USL				3.722		
408	DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.											
409												
410	Nonparametric Distribution Free Background Statistics											
411	Data appear to follow a Discernible Distribution at 5% Significance Level											
412												
413	Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)											
414	Order of Statistic, r				34	95% UTL with95% Coverage				1.33		
415	Approx, f used to compute achieved CC				1.789	pproximate Actual Confidence Coefficient achieved by UTL				0.825		
416	Approximate Sample Size needed to achieve specified CC				59	95% UPL				1.24		
417	95% USL				1.33	95% KM Chebyshev UPL				1.98		
418												
419	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
420	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
421	and consists of observations collected from clean unimpacted locations.											
422	The use of USL tends to provide a balance between false positives and false negatives provided the data											
423	represents a background data set and when many onsite observations need to be compared with the BTV.											
424												

	A	B	C	D	E	F	G	H	I	J	K	L
425	pH											
426												
427	General Statistics											
428	Total Number of Observations					30	Number of Distinct Observations					25
429							Number of Missing Observations					4
430	Minimum					6.94	First Quartile					7.533
431	Second Largest					8.72	Median					7.64
432	Maximum					8.98	Third Quartile					7.805
433	Mean					7.758	SD					0.436
434	Coefficient of Variation					0.0561	Skewness					1.277
435	Mean of logged Data					2.047	SD of logged Data					0.0545
436												
437	Critical Values for Background Threshold Values (BTVs)											
438	Tolerance Factor K (For UTL)					2.22	d2max (for USL)					2.745
439												
440	Normal GOF Test											
441	Shapiro Wilk Test Statistic					0.86	Shapiro Wilk GOF Test					
442	5% Shapiro Wilk Critical Value					0.927	Data Not Normal at 5% Significance Level					
443	Lilliefors Test Statistic					0.219	Lilliefors GOF Test					
444	5% Lilliefors Critical Value					0.159	Data Not Normal at 5% Significance Level					
445	Data Not Normal at 5% Significance Level											
446												
447	Background Statistics Assuming Normal Distribution											
448	95% UTL with	95% Coverage		8.725	90% Percentile (z)					8.317		
449		95% UPL (t)		8.511	95% Percentile (z)					8.475		
450		95% USL		8.954	99% Percentile (z)					8.772		
451												
452	Gamma GOF Test											
453	A-D Test Statistic					1.695	Anderson-Darling Gamma GOF Test					
454	5% A-D Critical Value					0.745	Data Not Gamma Distributed at 5% Significance Level					
455	K-S Test Statistic					0.211	Kolmogorov-Smirnov Gamma GOF Test					
456	5% K-S Critical Value					0.16	Data Not Gamma Distributed at 5% Significance Level					
457	Data Not Gamma Distributed at 5% Significance Level											
458												
459	Gamma Statistics											
460	k hat (MLE)					341.4	k star (bias corrected MLE)					307.3
461	Theta hat (MLE)					0.0227	Theta star (bias corrected MLE)					0.0252
462	nu hat (MLE)					20483	nu star (bias corrected)					18436
463	MLE Mean (bias corrected)					7.758	MLE Sd (bias corrected)					0.443
464												
465	Background Statistics Assuming Gamma Distribution											
466	95% Wilson Hilferty (WH) Approx. Gamma UPL					8.511	90% Percentile					8.331
467	95% Hawkins Wixley (HW) Approx. Gamma UPL					8.512	95% Percentile					8.5
468	95% WH Approx. Gamma UTL with	95% Coverage		8.737	99% Percentile					8.825		
469	95% HW Approx. Gamma UTL with	95% Coverage		8.739								
470		95% WH USL		8.982	95% HW USL					8.986		
471												
472	Lognormal GOF Test											
473	Shapiro Wilk Test Statistic					0.878	Shapiro Wilk Lognormal GOF Test					
474	5% Shapiro Wilk Critical Value					0.927	Data Not Lognormal at 5% Significance Level					
475	Lilliefors Test Statistic					0.208	Lilliefors Lognormal GOF Test					
476	5% Lilliefors Critical Value					0.159	Data Not Lognormal at 5% Significance Level					
477	Data Not Lognormal at 5% Significance Level											

	A	B	C	D	E	F	G	H	I	J	K	L
478												
479	Background Statistics assuming Lognormal Distribution											
480	95% UTL with 95% Coverage				8.744		90% Percentile (z)				8.308	
481	95% UPL (t)				8.512		95% Percentile (z)				8.474	
482	95% USL				8.998		99% Percentile (z)				8.795	
483												
484	Nonparametric Distribution Free Background Statistics											
485	Data do not follow a Discernible Distribution (0.05)											
486												
487	Nonparametric Upper Limits for Background Threshold Values											
488	Order of Statistic, r				30		95% UTL with 95% Coverage				8.98	
489	Approx, f used to compute achieved CC				1.579		pproximate Actual Confidence Coefficient achieved by UTL				0.785	
490							Approximate Sample Size needed to achieve specified CC				59	
491	95% Percentile Bootstrap UTL with 95% Coverage				8.98		95% BCA Bootstrap UTL with 95% Coverage				8.98	
492	95% UPL				8.837		90% Percentile				8.495	
493	90% Chebyshev UPL				9.087		95% Percentile				8.68	
494	95% Chebyshev UPL				9.688		99% Percentile				8.905	
495	95% USL				8.98							
496												
497	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
498	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
499	and consists of observations collected from clean unimpacted locations.											
500	The use of USL tends to provide a balance between false positives and false negatives provided the data											
501	represents a background data set and when many onsite observations need to be compared with the BTV.											
502												
503	SO											
504												
505	General Statistics											
506	Total Number of Observations				32		Number of Distinct Observations				20	
507							Number of Missing Observations				2	
508	Minimum				208		First Quartile				220	
509	Second Largest				499		Median				308.5	
510	Maximum				923		Third Quartile				435	
511	Mean				348.1		SD				154.5	
512	Coefficient of Variation				0.444		Skewness				1.638	
513	Mean of logged Data				5.771		SD of logged Data				0.4	
514												
515	Critical Values for Background Threshold Values (BTVs)											
516	Tolerance Factor K (For UTL)				2.186		d2max (for USL)				2.773	
517												
518	Normal GOF Test											
519	Shapiro Wilk Test Statistic				0.768		Shapiro Wilk GOF Test					
520	5% Shapiro Wilk Critical Value				0.93		Data Not Normal at 5% Significance Level					
521	Lilliefors Test Statistic				0.244		Lilliefors GOF Test					
522	5% Lilliefors Critical Value				0.154		Data Not Normal at 5% Significance Level					
523	Data Not Normal at 5% Significance Level											
524												
525	Background Statistics Assuming Normal Distribution											
526	95% UTL with 95% Coverage				685.8		90% Percentile (z)				546	
527	95% UPL (t)				614		95% Percentile (z)				602.1	
528	95% USL				776.4		99% Percentile (z)				707.4	
529												
530	Gamma GOF Test											

	A	B	C	D	E	F	G	H	I	J	K	L	
531	A-D Test Statistic					2.428	Anderson-Darling Gamma GOF Test						
532	5% A-D Critical Value					0.747	Data Not Gamma Distributed at 5% Significance Level						
533	K-S Test Statistic					0.251	Kolmogorov-Smirnov Gamma GOF Test						
534	5% K-S Critical Value					0.156	Data Not Gamma Distributed at 5% Significance Level						
535	Data Not Gamma Distributed at 5% Significance Level												
536													
537	Gamma Statistics												
538	k hat (MLE)					6.289	k star (bias corrected MLE)					5.72	
539	Theta hat (MLE)					55.35	Theta star (bias corrected MLE)					60.85	
540	nu hat (MLE)					402.5	nu star (bias corrected)					366.1	
541	MLE Mean (bias corrected)					348.1	MLE Sd (bias corrected)					145.5	
542													
543	Background Statistics Assuming Gamma Distribution												
544	95% Wilson Hilferty (WH) Approx. Gamma UPL					623.2	90% Percentile					542.7	
545	95% Hawkins Wixley (HW) Approx. Gamma UPL					626.2	95% Percentile					616.8	
546	95% WH Approx. Gamma UTL with 95% Coverage					724.9	99% Percentile					772.3	
547	95% HW Approx. Gamma UTL with 95% Coverage					733.8							
548	95% WH USL					868.4	95% HW USL					888.9	
549													
550	Lognormal GOF Test												
551	Shapiro Wilk Test Statistic					0.821	Shapiro Wilk Lognormal GOF Test						
552	5% Shapiro Wilk Critical Value					0.93	Data Not Lognormal at 5% Significance Level						
553	Lilliefors Test Statistic					0.243	Lilliefors Lognormal GOF Test						
554	5% Lilliefors Critical Value					0.154	Data Not Lognormal at 5% Significance Level						
555	Data Not Lognormal at 5% Significance Level												
556													
557	Background Statistics assuming Lognormal Distribution												
558	95% UTL with 95% Coverage					769.1	90% Percentile (z)					535.6	
559	95% UPL (t)					638.7	95% Percentile (z)					619.3	
560	95% USL					972.6	99% Percentile (z)					813.4	
561													
562	Nonparametric Distribution Free Background Statistics												
563	Data do not follow a Discernible Distribution (0.05)												
564													
565	Nonparametric Upper Limits for Background Threshold Values												
566	Order of Statistic, r					32	95% UTL with 95% Coverage					923	
567	Approx, f used to compute achieved CC					1.684	pproximate Actual Confidence Coefficient achieved by UTL					0.806	
568							Approximate Sample Size needed to achieve specified CC					59	
569	95% Percentile Bootstrap UTL with 95% Coverage					923	95% BCA Bootstrap UTL with 95% Coverage					923	
570	95% UPL					647.4	90% Percentile					479.1	
571	90% Chebyshev UPL					818.6	95% Percentile					495.7	
572	95% Chebyshev UPL					1032	99% Percentile					791.6	
573	95% USL					923							
574													
575	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.												
576	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers												
577	and consists of observations collected from clean unimpacted locations.												
578	The use of USL tends to provide a balance between false positives and false negatives provided the data												
579	represents a background data set and when many onsite observations need to be compared with the BTV.												
580													
581	TDS												
582													
583	General Statistics												

	A	B	C	D	E	F	G	H	I	J	K	L
584	Total Number of Observations					32	Number of Distinct Observations					30
585							Number of Missing Observations					2
586	Minimum					540	First Quartile					667.3
587	Second Largest					1140	Median					765.5
588	Maximum					1890	Third Quartile					1010
589	Mean					854.5	SD					278.4
590	Coefficient of Variation					0.326	Skewness					1.637
591	Mean of logged Data					6.706	SD of logged Data					0.295
592												
593	Critical Values for Background Threshold Values (BTVs)											
594	Tolerance Factor K (For UTL)					2.186	d2max (for USL)					2.773
595												
596	Normal GOF Test											
597	Shapiro Wilk Test Statistic					0.84	Shapiro Wilk GOF Test					
598	5% Shapiro Wilk Critical Value					0.93	Data Not Normal at 5% Significance Level					
599	Lilliefors Test Statistic					0.197	Lilliefors GOF Test					
600	5% Lilliefors Critical Value					0.154	Data Not Normal at 5% Significance Level					
601	Data Not Normal at 5% Significance Level											
602												
603	Background Statistics Assuming Normal Distribution											
604	95% UTL with	95% Coverage				1463	90% Percentile (z)					1211
605		95% UPL (t)				1334	95% Percentile (z)					1312
606		95% USL				1626	99% Percentile (z)					1502
607												
608	Gamma GOF Test											
609	A-D Test Statistic					0.942	Anderson-Darling Gamma GOF Test					
610	5% A-D Critical Value					0.746	Data Not Gamma Distributed at 5% Significance Level					
611	K-S Test Statistic					0.193	Kolmogorov-Smirnov Gamma GOF Test					
612	5% K-S Critical Value					0.155	Data Not Gamma Distributed at 5% Significance Level					
613	Data Not Gamma Distributed at 5% Significance Level											
614												
615	Gamma Statistics											
616	k hat (MLE)					11.44	k star (bias corrected MLE)					10.39
617	Theta hat (MLE)					74.69	Theta star (bias corrected MLE)					82.25
618	nu hat (MLE)					732.2	nu star (bias corrected)					664.9
619	MLE Mean (bias corrected)					854.5	MLE Sd (bias corrected)					265.1
620												
621	Background Statistics Assuming Gamma Distribution											
622	95% Wilson Hilferty (WH) Approx. Gamma UPL					1342	90% Percentile					1207
623	95% Hawkins Wixley (HW) Approx. Gamma UPL					1345	95% Percentile					1332
624	95% WH Approx. Gamma UTL with	95% Coverage				1509	99% Percentile					1589
625	95% HW Approx. Gamma UTL with	95% Coverage				1519						
626	95% WH USL					1740	95% HW USL					1763
627												
628	Lognormal GOF Test											
629	Shapiro Wilk Test Statistic					0.918	Shapiro Wilk Lognormal GOF Test					
630	5% Shapiro Wilk Critical Value					0.93	Data Not Lognormal at 5% Significance Level					
631	Lilliefors Test Statistic					0.182	Lilliefors Lognormal GOF Test					
632	5% Lilliefors Critical Value					0.154	Data Not Lognormal at 5% Significance Level					
633	Data Not Lognormal at 5% Significance Level											
634												
635	Background Statistics assuming Lognormal Distribution											
636	95% UTL with	95% Coverage				1557	90% Percentile (z)					1193

	A	B	C	D	E	F	G	H	I	J	K	L
637					95% UPL (t)	1358					95% Percentile (z)	1328
638					95% USL	1851					99% Percentile (z)	1623
639												
640	Nonparametric Distribution Free Background Statistics											
641	Data do not follow a Discernible Distribution (0.05)											
642												
643	Nonparametric Upper Limits for Background Threshold Values											
644	Order of Statistic, r					32	95% UTL with 95% Coverage					1890
645	Approx, f used to compute achieved CC					1.684	pproximate Actual Confidence Coefficient achieved by UTL					0.806
646							Approximate Sample Size needed to achieve specified CC					59
647	95% Percentile Bootstrap UTL with 95% Coverage					1890	95% BCA Bootstrap UTL with 95% Coverage					1890
648						95% UPL 1403						90% Percentile 1118
649						90% Chebyshev UPL 1703						95% Percentile 1135
650						95% Chebyshev UPL 2087						99% Percentile 1658
651						95% USL 1890						
652												
653	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
654	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
655	and consists of observations collected from clean unimpacted locations.											
656	The use of USL tends to provide a balance between false positives and false negatives provided the data											
657	represents a background data set and when many onsite observations need to be compared with the BTV.											
658												

	A	B	C	D	E	F	G	H	I	J	K	L
1				Background Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	Date/Time of Computation			ProUCL 5.110/13/2022 8:48:58 AM								
4	From File			LRS_ProUCL_UPL_Input_2021_v1.xls								
5	Full Precision			OFF								
6	Confidence Coefficient			95%								
7	Coverage			95%								
8	Different or Future K Observations			1								
9	Number of Bootstrap Operations			2000								
10												
11	Sb											
12												
13	General Statistics											
14	Total Number of Observations			30	Number of Missing Observations							4
15	Number of Distinct Observations			1								
16	Number of Detects			0	Number of Non-Detects							30
17	Number of Distinct Detects			0	Number of Distinct Non-Detects							1
18	Minimum Detect			N/A	Minimum Non-Detect							0.002
19	Maximum Detect			N/A	Maximum Non-Detect							0.002
20	Variance Detected			N/A	Percent Non-Detects							100%
21	Mean Detected			N/A	SD Detected							N/A
22	Mean of Detected Logged Data			N/A	SD of Detected Logged Data							N/A
23												
24	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
25	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
26	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
27												
28	The data set for variable Sb was not processed!											
29												
30												
31	As											
32												
33	General Statistics											
34	Total Number of Observations			30	Number of Missing Observations							4
35	Number of Distinct Observations			1								
36	Number of Detects			0	Number of Non-Detects							30
37	Number of Distinct Detects			0	Number of Distinct Non-Detects							1
38	Minimum Detect			N/A	Minimum Non-Detect							0.005
39	Maximum Detect			N/A	Maximum Non-Detect							0.005
40	Variance Detected			N/A	Percent Non-Detects							100%
41	Mean Detected			N/A	SD Detected							N/A
42	Mean of Detected Logged Data			N/A	SD of Detected Logged Data							N/A
43												
44	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
45	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
46	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
47												
48	The data set for variable As was not processed!											
49												
50												
51	Ba											
52												
53	General Statistics											

	A	B	C	D	E	F	G	H	I	J	K	L
54	Total Number of Observations					34	Number of Distinct Observations					26
55	Minimum					0.0427	First Quartile					0.0528
56	Second Largest					0.13	Median					0.0815
57	Maximum					0.24	Third Quartile					0.11
58	Mean					0.0871	SD					0.0396
59	Coefficient of Variation					0.454	Skewness					1.73
60	Mean of logged Data					-2.527	SD of logged Data					0.415
61												
62	Critical Values for Background Threshold Values (BTVs)											
63	Tolerance Factor K (For UTL)					2.166	d2max (for USL)					2.799
64												
65	Normal GOF Test											
66	Shapiro Wilk Test Statistic					0.847	Shapiro Wilk GOF Test					
67	5% Shapiro Wilk Critical Value					0.933	Data Not Normal at 5% Significance Level					
68	Lilliefors Test Statistic					0.131	Lilliefors GOF Test					
69	5% Lilliefors Critical Value					0.15	Data appear Normal at 5% Significance Level					
70	Data appear Approximate Normal at 5% Significance Level											
71												
72	Background Statistics Assuming Normal Distribution											
73	95% UTL with	95% Coverage				0.173	90% Percentile (z)					0.138
74		95% UPL (t)				0.155	95% Percentile (z)					0.152
75		95% USL				0.198	99% Percentile (z)					0.179
76												
77	Gamma GOF Test											
78	A-D Test Statistic					0.649	Anderson-Darling Gamma GOF Test					
79	5% A-D Critical Value					0.749	Detected data appear Gamma Distributed at 5% Significance Level					
80	K-S Test Statistic					0.143	Kolmogorov-Smirnov Gamma GOF Test					
81	5% K-S Critical Value					0.151	Detected data appear Gamma Distributed at 5% Significance Level					
82	Detected data appear Gamma Distributed at 5% Significance Level											
83												
84	Gamma Statistics											
85	k hat (MLE)					5.941	k star (bias corrected MLE)					5.436
86	Theta hat (MLE)					0.0147	Theta star (bias corrected MLE)					0.016
87	nu hat (MLE)					404	nu star (bias corrected)					369.7
88	MLE Mean (bias corrected)					0.0871	MLE Sd (bias corrected)					0.0374
89												
90	Background Statistics Assuming Gamma Distribution											
91	95% Wilson Hilferty (WH) Approx. Gamma UPL					0.158	90% Percentile					0.137
92	95% Hawkins Wixley (HW) Approx. Gamma UPL					0.159	95% Percentile					0.156
93	95% WH Approx. Gamma UTL with	95% Coverage				0.183	99% Percentile					0.197
94	95% HW Approx. Gamma UTL with					0.186						
95	95% WH USL					0.224	95% HW USL					0.23
96												
97	Lognormal GOF Test											
98	Shapiro Wilk Test Statistic					0.941	Shapiro Wilk Lognormal GOF Test					
99	5% Shapiro Wilk Critical Value					0.933	Data appear Lognormal at 5% Significance Level					
100	Lilliefors Test Statistic					0.144	Lilliefors Lognormal GOF Test					
101	5% Lilliefors Critical Value					0.15	Data appear Lognormal at 5% Significance Level					
102	Data appear Lognormal at 5% Significance Level											
103												
104	Background Statistics assuming Lognormal Distribution											
105	95% UTL with	95% Coverage				0.196	90% Percentile (z)					0.136
106		95% UPL (t)				0.163	95% Percentile (z)					0.158

	A	B	C	D	E	F	G	H	I	J	K	L
107	95% USL				0.256	99% Percentile (z)						0.21
108												
109	Nonparametric Distribution Free Background Statistics											
110	Data appear Approximate Normal at 5% Significance Level											
111												
112	Nonparametric Upper Limits for Background Threshold Values											
113	Order of Statistic, r				34	95% UTL with 95% Coverage					0.24	
114	Approx, f used to compute achieved CC				1.789	pproximate Actual Confidence Coefficient achieved by UTL					0.825	
115						Approximate Sample Size needed to achieve specified CC					59	
116	95% Percentile Bootstrap UTL with 95% Coverage				0.24	95% BCA Bootstrap UTL with 95% Coverage					0.13	
117	95% UPL				0.158	90% Percentile					0.127	
118	90% Chebyshev UPL				0.208	95% Percentile					0.13	
119	95% Chebyshev UPL				0.262	99% Percentile					0.204	
120	95% USL				0.24							
121												
122	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
123	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
124	and consists of observations collected from clean unimpacted locations.											
125	The use of USL tends to provide a balance between false positives and false negatives provided the data											
126	represents a background data set and when many onsite observations need to be compared with the BTV.											
127												
128	Be											
129												
130	General Statistics											
131	Total Number of Observations				30	Number of Missing Observations					4	
132	Number of Distinct Observations				1							
133	Number of Detects				0	Number of Non-Detects					30	
134	Number of Distinct Detects				0	Number of Distinct Non-Detects					1	
135	Minimum Detect				N/A	Minimum Non-Detect					0.001	
136	Maximum Detect				N/A	Maximum Non-Detect					0.001	
137	Variance Detected				N/A	Percent Non-Detects					100%	
138	Mean Detected				N/A	SD Detected					N/A	
139	Mean of Detected Logged Data				N/A	SD of Detected Logged Data					N/A	
140												
141	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
142	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
143	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
144												
145	The data set for variable Be was not processed!											
146												
147												
148	Cd											
149												
150	General Statistics											
151	Total Number of Observations				30	Number of Missing Observations					4	
152	Number of Distinct Observations				1							
153	Number of Detects				0	Number of Non-Detects					30	
154	Number of Distinct Detects				0	Number of Distinct Non-Detects					1	
155	Minimum Detect				N/A	Minimum Non-Detect					0.001	
156	Maximum Detect				N/A	Maximum Non-Detect					0.001	
157	Variance Detected				N/A	Percent Non-Detects					100%	
158	Mean Detected				N/A	SD Detected					N/A	
159	Mean of Detected Logged Data				N/A	SD of Detected Logged Data					N/A	

	A	B	C	D	E	F	G	H	I	J	K	L
160												
161	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
162	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
163	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
164												
165	The data set for variable Cd was not processed!											
166												
167												
168	Cr											
169												
170	General Statistics											
171	Total Number of Observations					34	Number of Missing Observations					0
172	Number of Distinct Observations					12						
173	Number of Detects					11	Number of Non-Detects					23
174	Number of Distinct Detects					10	Number of Distinct Non-Detects					2
175	Minimum Detect					0.0022	Minimum Non-Detect					0.002
176	Maximum Detect					0.011	Maximum Non-Detect					0.005
177	Variance Detected					6.2036E-6	Percent Non-Detects					67.65%
178	Mean Detected					0.00438	SD Detected					0.00249
179	Mean of Detected Logged Data					-5.542	SD of Detected Logged Data					0.468
180												
181	Critical Values for Background Threshold Values (BTVs)											
182	Tolerance Factor K (For UTL)					2.166	d2max (for USL)					2.799
183												
184	Normal GOF Test on Detects Only											
185	Shapiro Wilk Test Statistic					0.778	Shapiro Wilk GOF Test					
186	5% Shapiro Wilk Critical Value					0.85	Data Not Normal at 5% Significance Level					
187	Lilliefors Test Statistic					0.208	Lilliefors GOF Test					
188	5% Lilliefors Critical Value					0.251	Detected Data appear Normal at 5% Significance Level					
189	Detected Data appear Approximate Normal at 5% Significance Level											
190												
191	Kaplan Meier (KM) Background Statistics Assuming Normal Distribution											
192	KM Mean					0.00282	KM SD					0.00175
193	95% UTL95% Coverage					0.00662	95% KM UPL (t)					0.00583
194	90% KM Percentile (z)					0.00506	95% KM Percentile (z)					0.0057
195	99% KM Percentile (z)					0.0069	95% KM USL					0.00773
196												
197	DL/2 Substitution Background Statistics Assuming Normal Distribution											
198	Mean					0.00227	SD					0.00207
199	95% UTL95% Coverage					0.00676	95% UPL (t)					0.00583
200	90% Percentile (z)					0.00493	95% Percentile (z)					0.00568
201	99% Percentile (z)					0.0071	95% USL					0.00808
202	DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons											
203												
204	Gamma GOF Tests on Detected Observations Only											
205	A-D Test Statistic					0.428	Anderson-Darling GOF Test					
206	5% A-D Critical Value					0.732	Detected data appear Gamma Distributed at 5% Significance Level					
207	K-S Test Statistic					0.143	Kolmogorov-Smirnov GOF					
208	5% K-S Critical Value					0.256	Detected data appear Gamma Distributed at 5% Significance Level					
209	Detected data appear Gamma Distributed at 5% Significance Level											
210												
211	Gamma Statistics on Detected Data Only											
212	k hat (MLE)					4.654	k star (bias corrected MLE)					3.446

	A	B	C	D	E	F	G	H	I	J	K	L
213	Theta hat (MLE)				9.4145E-4	Theta star (bias corrected MLE)					0.00127	
214	nu hat (MLE)				102.4	nu star (bias corrected)					75.8	
215	MLE Mean (bias corrected)				0.00438							
216	MLE Sd (bias corrected)				0.00236	95% Percentile of Chisquare (2kstar)					13.91	
217												
218	Gamma ROS Statistics using Imputed Non-Detects											
219	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
220	GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)											
221	For such situations, GROS method may yield incorrect values of UCLs and BTVs											
222	This is especially true when the sample size is small.											
223	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
224	Minimum				0.0022	Mean					0.00818	
225	Maximum				0.011	Median					0.01	
226	SD				0.003	CV					0.367	
227	k hat (MLE)				5.046	k star (bias corrected MLE)					4.621	
228	Theta hat (MLE)				0.00162	Theta star (bias corrected MLE)					0.00177	
229	nu hat (MLE)				343.2	nu star (bias corrected)					314.2	
230	MLE Mean (bias corrected)				0.00818	MLE Sd (bias corrected)					0.00381	
231	95% Percentile of Chisquare (2kstar)				17.26	90% Percentile					0.0133	
232	95% Percentile				0.0153	99% Percentile					0.0195	
233	The following statistics are computed using Gamma ROS Statistics on Imputed Data											
234	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods											
235					WH	HW					WH	HW
236	95% Approx. Gamma UTL with 95% Coverage				0.0182	0.019	95% Approx. Gamma UPL				0.0155	0.016
237	95% Gamma USL				0.0225	0.0239						
238												
239	Estimates of Gamma Parameters using KM Estimates											
240	Mean (KM)				0.00282	SD (KM)					0.00175	
241	Variance (KM)				3.0775E-6	SE of Mean (KM)					3.1934E-4	
242	k hat (KM)				2.575	k star (KM)					2.367	
243	nu hat (KM)				175.1	nu star (KM)					161	
244	theta hat (KM)				0.00109	theta star (KM)					0.00119	
245	80% gamma percentile (KM)				0.00413	90% gamma percentile (KM)					0.00526	
246	95% gamma percentile (KM)				0.00634	99% gamma percentile (KM)					0.00869	
247												
248	The following statistics are computed using gamma distribution and KM estimates											
249	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods											
250					WH	HW					WH	HW
251	95% Approx. Gamma UTL with 95% Coverage				0.00622	0.00619	95% Approx. Gamma UPL				0.00529	0.00524
252	95% KM Gamma Percentile				0.00516	0.0051	95% Gamma USL				0.0077	0.00773
253												
254	Lognormal GOF Test on Detected Observations Only											
255	Shapiro Wilk Test Statistic				0.934	Shapiro Wilk GOF Test						
256	5% Shapiro Wilk Critical Value				0.85	Detected Data appear Lognormal at 5% Significance Level						
257	Lilliefors Test Statistic				0.127	Lilliefors GOF Test						
258	5% Lilliefors Critical Value				0.251	Detected Data appear Lognormal at 5% Significance Level						
259	Detected Data appear Lognormal at 5% Significance Level											
260												
261	Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects											
262	Mean in Original Scale				0.00219	Mean in Log Scale					-6.465	
263	SD in Original Scale				0.00211	SD in Log Scale					0.832	
264	95% UTL95% Coverage				0.00943	95% BCA UTL95% Coverage					0.011	
265	95% Bootstrap (%) UTL95% Coverage				0.011	95% UPL (t)					0.00649	

	A	B	C	D	E	F	G	H	I	J	K	L
266				90% Percentile (z)		0.00452				95% Percentile (z)		0.00611
267				99% Percentile (z)		0.0108				95% USL		0.016
268												
269	Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution											
270				KM Mean of Logged Data		-5.981			95% KM UTL (Lognormal)	95% Coverage		0.00611
271				KM SD of Logged Data		0.408			95% KM UPL (Lognormal)			0.00509
272				95% KM Percentile Lognormal (z)		0.00494			95% KM USL (Lognormal)			0.00791
273												
274	Background DL/2 Statistics Assuming Lognormal Distribution											
275				Mean in Original Scale		0.00227			Mean in Log Scale			-6.358
276				SD in Original Scale		0.00207			SD in Log Scale			0.692
277				95% UTL	95% Coverage	0.00776			95% UPL (t)			0.00569
278				90% Percentile (z)		0.00421			95% Percentile (z)			0.00541
279				99% Percentile (z)		0.00867			95% USL			0.012
280	DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.											
281												
282	Nonparametric Distribution Free Background Statistics											
283	Data appear to follow a Discernible Distribution at 5% Significance Level											
284												
285	Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)											
286				Order of Statistic, r		34			95% UTL with	95% Coverage		0.011
287				Approx, f used to compute achieved CC		1.789			pproximate Actual Confidence Coefficient achieved by UTL			0.825
288				Approximate Sample Size needed to achieve specified CC		59			95% UPL			0.0071
289				95% USL		0.011			95% KM Chebyshev UPL			0.0106
290												
291	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
292	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
293	and consists of observations collected from clean unimpacted locations.											
294	The use of USL tends to provide a balance between false positives and false negatives provided the data											
295	represents a background data set and when many onsite observations need to be compared with the BTV.											
296												
297	Co											
298												
299	General Statistics											
300				Total Number of Observations		32			Number of Missing Observations			2
301				Number of Distinct Observations		3						
302				Number of Detects		3			Number of Non-Detects			29
303				Number of Distinct Detects		3			Number of Distinct Non-Detects			1
304				Minimum Detect		0.001			Minimum Non-Detect			0.001
305				Maximum Detect		0.004			Maximum Non-Detect			0.001
306				Variance Detected		2.6533E-6			Percent Non-Detects			90.63%
307				Mean Detected		0.00213			SD Detected			0.00163
308				Mean of Detected Logged Data		-6.333			SD of Detected Logged Data			0.723
309												
310	Warning: Data set has only 3 Detected Values.											
311	This is not enough to compute meaningful or reliable statistics and estimates.											
312												
313												
314	Critical Values for Background Threshold Values (BTVs)											
315				Tolerance Factor K (For UTL)		2.186			d2max (for USL)			2.773
316												
317	Normal GOF Test on Detects Only											
318				Shapiro Wilk Test Statistic		0.848			Shapiro Wilk GOF Test			

	A	B	C	D	E	F	G	H	I	J	K	L		
319	5% Shapiro Wilk Critical Value					0.767	Detected Data appear Normal at 5% Significance Level							
320	Lilliefors Test Statistic					0.34	Lilliefors GOF Test							
321	5% Lilliefors Critical Value					0.425	Detected Data appear Normal at 5% Significance Level							
322	Detected Data appear Normal at 5% Significance Level													
323														
324	Kaplan Meier (KM) Background Statistics Assuming Normal Distribution													
325	KM Mean					0.00111	KM SD					5.2437E-4		
326	95% UTL95% Coverage					0.00225	95% KM UPL (t)					0.00201		
327	90% KM Percentile (z)					0.00178	95% KM Percentile (z)					0.00197		
328	99% KM Percentile (z)					0.00233	95% KM USL					0.00256		
329														
330	DL/2 Substitution Background Statistics Assuming Normal Distribution													
331	Mean					6.5313E-4	SD					6.3651E-4		
332	95% UTL95% Coverage					0.00204	95% UPL (t)					0.00175		
333	90% Percentile (z)					0.00147	95% Percentile (z)					0.0017		
334	99% Percentile (z)					0.00213	95% USL					0.00242		
335	DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons													
336														
337	Gamma GOF Tests on Detected Observations Only													
338	Not Enough Data to Perform GOF Test													
339														
340	Gamma Statistics on Detected Data Only													
341	k hat (MLE)					2.882	k star (bias corrected MLE)					N/A		
342	Theta hat (MLE)					7.4031E-4	Theta star (bias corrected MLE)					N/A		
343	nu hat (MLE)					17.29	nu star (bias corrected)					N/A		
344	MLE Mean (bias corrected)					N/A								
345	MLE Sd (bias corrected)					N/A	95% Percentile of Chisquare (2kstar)					N/A		
346														
347	Gamma ROS Statistics using Imputed Non-Detects													
348	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs													
349	GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)													
350	For such situations, GROS method may yield incorrect values of UCLs and BTVs													
351	This is especially true when the sample size is small.													
352	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates													
353	Minimum					0.001	Mean					0.00926		
354	Maximum					0.01	Median					0.01		
355	SD					0.00237	CV					0.255		
356	k hat (MLE)					6.015	k star (bias corrected MLE)					5.472		
357	Theta hat (MLE)					0.00154	Theta star (bias corrected MLE)					0.00169		
358	nu hat (MLE)					385	nu star (bias corrected)					350.2		
359	MLE Mean (bias corrected)					0.00926	MLE Sd (bias corrected)					0.00396		
360	95% Percentile of Chisquare (2kstar)					19.6	90% Percentile					0.0146		
361	95% Percentile					0.0166	99% Percentile					0.0209		
362	The following statistics are computed using Gamma ROS Statistics on Imputed Data													
363	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods													
364						WH	HW						WH	HW
365	95% Approx. Gamma UTL with 95% Coverage					0.0194	0.0208	95% Approx. Gamma UPL					0.0167	0.0176
366	95% Gamma USL					0.0233	0.0254							
367														
368	Estimates of Gamma Parameters using KM Estimates													
369	Mean (KM)					0.00111	SD (KM)					5.2437E-4		
370	Variance (KM)					2.7496E-7	SE of Mean (KM)					1.1353E-4		
371	k hat (KM)					4.451	k star (KM)					4.054		

	A	B	C	D	E	F	G	H	I	J	K	L
372					nu hat (KM)	284.8				nu star (KM)		259.5
373					theta hat (KM)	2.4855E-4				theta star (KM)		2.7286E-4
374					80% gamma percentile (KM)	0.00152				90% gamma percentile (KM)		0.00184
375					95% gamma percentile (KM)	0.00214				99% gamma percentile (KM)		0.00276
376												
377	The following statistics are computed using gamma distribution and KM estimates											
378	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods											
379					WH	HW				WH		HW
380	95% Approx. Gamma UTL with 95% Coverage				0.00195	0.00191	95% Approx. Gamma UPL				0.00173	0.0017
381	95% KM Gamma Percentile				0.0017	0.00167	95% Gamma USL				0.00225	0.00221
382												
383	Lognormal GOF Test on Detected Observations Only											
384	Shapiro Wilk Test Statistic					0.919	Shapiro Wilk GOF Test					
385	5% Shapiro Wilk Critical Value					0.767	Detected Data appear Lognormal at 5% Significance Level					
386	Lilliefors Test Statistic					0.296	Lilliefors GOF Test					
387	5% Lilliefors Critical Value					0.425	Detected Data appear Lognormal at 5% Significance Level					
388	Detected Data appear Lognormal at 5% Significance Level											
389												
390	Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects											
391	Mean in Original Scale					2.4648E-4	Mean in Log Scale					-11.03
392	SD in Original Scale					7.4740E-4	SD in Log Scale					2.591
393	95% UTL95% Coverage					0.00469	95% BCA UTL95% Coverage					0.004
394	95% Bootstrap (%) UTL95% Coverage					0.004	95% UPL (t)					0.00141
395	90% Percentile (z)					4.4943E-4	95% Percentile (z)					0.00115
396	99% Percentile (z)					0.00674	95% USL					0.0215
397												
398	Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution											
399	KM Mean of Logged Data					-6.854	95% KM UTL (Lognormal)95% Coverage					0.00181
400	KM SD of Logged Data					0.246	95% KM UPL (Lognormal)					0.00161
401	95% KM Percentile Lognormal (z)					0.00158	95% KM USL (Lognormal)					0.00209
402												
403	Background DL/2 Statistics Assuming Lognormal Distribution											
404	Mean in Original Scale					6.5313E-4	Mean in Log Scale					-7.482
405	SD in Original Scale					6.3651E-4	SD in Log Scale					0.418
406	95% UTL95% Coverage					0.0014	95% UPL (t)					0.00116
407	90% Percentile (z)					9.6193E-4	95% Percentile (z)					0.00112
408	99% Percentile (z)					0.00149	95% USL					0.00179
409	DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.											
410												
411	Nonparametric Distribution Free Background Statistics											
412	Data appear to follow a Discernible Distribution at 5% Significance Level											
413												
414	Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)											
415	Order of Statistic, r					32	95% UTL with95% Coverage					0.004
416	Approx, f used to compute achieved CC					1.684	pproximate Actual Confidence Coefficient achieved by UTL					0.806
417	Approximate Sample Size needed to achieve specified CC					59	95% UPL					0.00231
418	95% USL					0.004	95% KM Chebyshev UPL					0.00343
419												
420	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
421	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
422	and consists of observations collected from clean unimpacted locations.											
423	The use of USL tends to provide a balance between false positives and false negatives provided the data											
424	represents a background data set and when many onsite observations need to be compared with the BTV.											

	A	B	C	D	E	F	G	H	I	J	K	L	
425													
426	Pb												
427													
428	General Statistics												
429	Total Number of Observations					30	Number of Missing Observations					4	
430	Number of Distinct Observations					2							
431	Number of Detects					1	Number of Non-Detects					29	
432	Number of Distinct Detects					1	Number of Distinct Non-Detects					1	
433	Minimum Detect					0.0041	Minimum Non-Detect					0.001	
434	Maximum Detect					0.0041	Maximum Non-Detect					0.001	
435	Variance Detected					N/A	Percent Non-Detects					96.67%	
436	Mean Detected					0.0041	SD Detected					N/A	
437	Mean of Detected Logged Data					-5.497	SD of Detected Logged Data					N/A	
438													
439	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!												
440	s suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BT												
441													
442	The data set for variable Pb was not processed!												
443													
444													
445	Li												
446													
447	General Statistics												
448	Total Number of Observations					34	Number of Missing Observations					0	
449	Number of Distinct Observations					29							
450	Number of Detects					32	Number of Non-Detects					2	
451	Number of Distinct Detects					27	Number of Distinct Non-Detects					2	
452	Minimum Detect					0.0317	Minimum Non-Detect					0.0331	
453	Maximum Detect					0.063	Maximum Non-Detect					0.0406	
454	Variance Detected					3.9726E-5	Percent Non-Detects					5.882%	
455	Mean Detected					0.0422	SD Detected					0.0063	
456	Mean of Detected Logged Data					-3.176	SD of Detected Logged Data					0.144	
457													
458	Critical Values for Background Threshold Values (BTVs)												
459	Tolerance Factor K (For UTL)					2.166	d2max (for USL)					2.799	
460													
461	Normal GOF Test on Detects Only												
462	Shapiro Wilk Test Statistic					0.934	Shapiro Wilk GOF Test						
463	5% Shapiro Wilk Critical Value					0.93	Detected Data appear Normal at 5% Significance Level						
464	Lilliefors Test Statistic					0.136	Lilliefors GOF Test						
465	5% Lilliefors Critical Value					0.154	Detected Data appear Normal at 5% Significance Level						
466	Detected Data appear Normal at 5% Significance Level												
467													
468	Kaplan Meier (KM) Background Statistics Assuming Normal Distribution												
469	KM Mean					0.0417	KM SD					0.00632	
470	95% UTL95% Coverage					0.0554	95% KM UPL (t)					0.0526	
471	90% KM Percentile (z)					0.0498	95% KM Percentile (z)					0.0521	
472	99% KM Percentile (z)					0.0564	95% KM USL					0.0594	
473													
474	DL/2 Substitution Background Statistics Assuming Normal Distribution												
475	Mean					0.0408	SD					0.00835	
476	95% UTL95% Coverage					0.0589	95% UPL (t)					0.0551	
477	90% Percentile (z)					0.0515	95% Percentile (z)					0.0545	

	A	B	C	D	E	F	G	H	I	J	K	L
478	99% Percentile (z)				0.0602	95% USL						0.0642
479	DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons											
480												
481	Gamma GOF Tests on Detected Observations Only											
482	A-D Test Statistic				0.363	Anderson-Darling GOF Test						
483	5% A-D Critical Value				0.744	Detected data appear Gamma Distributed at 5% Significance Level						
484	K-S Test Statistic				0.118	Kolmogorov-Smirnov GOF						
485	5% K-S Critical Value				0.155	Detected data appear Gamma Distributed at 5% Significance Level						
486	Detected data appear Gamma Distributed at 5% Significance Level											
487												
488	Gamma Statistics on Detected Data Only											
489	k hat (MLE)				48.97	k star (bias corrected MLE)						44.4
490	Theta hat (MLE)				8.6126E-4	Theta star (bias corrected MLE)						9.4991E-4
491	nu hat (MLE)				3134	nu star (bias corrected)						2842
492	MLE Mean (bias corrected)				0.0422							
493	MLE Sd (bias corrected)				0.00633	95% Percentile of Chisquare (2kstar)						111.8
494												
495	Gamma ROS Statistics using Imputed Non-Detects											
496	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
497	GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)											
498	For such situations, GROS method may yield incorrect values of UCLs and BTVs											
499	This is especially true when the sample size is small.											
500	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
501	Minimum				0.0312	Mean						0.0417
502	Maximum				0.063	Median						0.0411
503	SD				0.00645	CV						0.155
504	k hat (MLE)				45.46	k star (bias corrected MLE)						41.47
505	Theta hat (MLE)				9.1722E-4	Theta star (bias corrected MLE)						0.00101
506	nu hat (MLE)				3091	nu star (bias corrected)						2820
507	MLE Mean (bias corrected)				0.0417	MLE Sd (bias corrected)						0.00648
508	95% Percentile of Chisquare (2kstar)				105.2	90% Percentile						0.0502
509	95% Percentile				0.0529	99% Percentile						0.0582
510	The following statistics are computed using Gamma ROS Statistics on Imputed Data											
511	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods											
512					WH	HW					WH	HW
513	95% Approx. Gamma UTL with 95% Coverage				0.0564	0.0566	95% Approx. Gamma UPL				0.0531	0.0531
514	95% Gamma USL				0.0615	0.0617						
515												
516	Estimates of Gamma Parameters using KM Estimates											
517	Mean (KM)				0.0417	SD (KM)						0.00632
518	Variance (KM)				3.9990E-5	SE of Mean (KM)						0.00111
519	k hat (KM)				43.53	k star (KM)						39.71
520	nu hat (KM)				2960	nu star (KM)						2700
521	theta hat (KM)				9.5844E-4	theta star (KM)						0.00105
522	80% gamma percentile (KM)				0.0472	90% gamma percentile (KM)						0.0504
523	95% gamma percentile (KM)				0.0532	99% gamma percentile (KM)						0.0587
524												
525	The following statistics are computed using gamma distribution and KM estimates											
526	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods											
527					WH	HW					WH	HW
528	95% Approx. Gamma UTL with 95% Coverage				0.0561	0.0563	95% Approx. Gamma UPL				0.0528	0.0529
529	95% KM Gamma Percentile				0.0523	0.0524	95% Gamma USL				0.061	0.0613
530												

	A	B	C	D	E	F	G	H	I	J	K	L
531	Lognormal GOF Test on Detected Observations Only											
532	Shapiro Wilk Test Statistic					0.969	Shapiro Wilk GOF Test					
533	5% Shapiro Wilk Critical Value					0.93	Detected Data appear Lognormal at 5% Significance Level					
534	Lilliefors Test Statistic					0.108	Lilliefors GOF Test					
535	5% Lilliefors Critical Value					0.154	Detected Data appear Lognormal at 5% Significance Level					
536	Detected Data appear Lognormal at 5% Significance Level											
537												
538	Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects											
539	Mean in Original Scale					0.0417	Mean in Log Scale					-3.188
540	SD in Original Scale					0.00642	SD in Log Scale					0.148
541	95% UTL95% Coverage					0.0569	95% BCA UTL95% Coverage					0.0546
542	95% Bootstrap (%) UTL95% Coverage					0.063	95% UPL (t)					0.0532
543	90% Percentile (z)					0.0499	95% Percentile (z)					0.0527
544	99% Percentile (z)					0.0583	95% USL					0.0625
545												
546	Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution											
547	KM Mean of Logged Data					-3.188	95% KM UTL (Lognormal)95% Coverage					0.0567
548	KM SD of Logged Data					0.146	95% KM UPL (Lognormal)					0.0531
549	95% KM Percentile Lognormal (z)					0.0525	95% KM USL (Lognormal)					0.0621
550												
551	Background DL/2 Statistics Assuming Lognormal Distribution											
552	Mean in Original Scale					0.0408	Mean in Log Scale					-3.225
553	SD in Original Scale					0.00835	SD in Log Scale					0.242
554	95% UTL95% Coverage					0.0672	95% UPL (t)					0.0603
555	90% Percentile (z)					0.0543	95% Percentile (z)					0.0593
556	99% Percentile (z)					0.0699	95% USL					0.0784
557	DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.											
558												
559	Nonparametric Distribution Free Background Statistics											
560	Data appear to follow a Discernible Distribution at 5% Significance Level											
561												
562	Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)											
563	Order of Statistic, r					34	95% UTL with95% Coverage					0.063
564	Approx, f used to compute achieved CC					1.789	pproximate Actual Confidence Coefficient achieved by UTL					0.825
565	Approximate Sample Size needed to achieve specified CC					59	95% UPL					0.0533
566	95% USL					0.063	95% KM Chebyshev UPL					0.0697
567												
568	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
569	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
570	and consists of observations collected from clean unimpacted locations.											
571	The use of USL tends to provide a balance between false positives and false negatives provided the data											
572	represents a background data set and when many onsite observations need to be compared with the BTV.											
573												
574	Hg											
575												
576	General Statistics											
577	Total Number of Observations					30	Number of Missing Observations					4
578	Number of Distinct Observations					1						
579	Number of Detects					0	Number of Non-Detects					30
580	Number of Distinct Detects					0	Number of Distinct Non-Detects					1
581	Minimum Detect					N/A	Minimum Non-Detect					2.0000E-4
582	Maximum Detect					N/A	Maximum Non-Detect					2.0000E-4
583	Variance Detected					N/A	Percent Non-Detects					100%

	A	B	C	D	E	F	G	H	I	J	K	L
584	Mean Detected					N/A	SD Detected					N/A
585	Mean of Detected Logged Data					N/A	SD of Detected Logged Data					N/A
586												
587	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
588	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
589	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
590												
591	The data set for variable Hg was not processed!											
592												
593												
594	Mo											
595												
596	General Statistics											
597	Total Number of Observations					34	Number of Missing Observations					0
598	Number of Distinct Observations					23						
599	Number of Detects					26	Number of Non-Detects					8
600	Number of Distinct Detects					23	Number of Distinct Non-Detects					1
601	Minimum Detect					0.00407	Minimum Non-Detect					0.01
602	Maximum Detect					0.015	Maximum Non-Detect					0.01
603	Variance Detected					1.2820E-5	Percent Non-Detects					23.53%
604	Mean Detected					0.00862	SD Detected					0.00358
605	Mean of Detected Logged Data					-4.838	SD of Detected Logged Data					0.422
606												
607	Critical Values for Background Threshold Values (BTVs)											
608	Tolerance Factor K (For UTL)					2.166	d2max (for USL)					2.799
609												
610	Normal GOF Test on Detects Only											
611	Shapiro Wilk Test Statistic					0.912	Shapiro Wilk GOF Test					
612	5% Shapiro Wilk Critical Value					0.92	Data Not Normal at 5% Significance Level					
613	Lilliefors Test Statistic					0.165	Lilliefors GOF Test					
614	5% Lilliefors Critical Value					0.17	Detected Data appear Normal at 5% Significance Level					
615	Detected Data appear Approximate Normal at 5% Significance Level											
616												
617	Kaplan Meier (KM) Background Statistics Assuming Normal Distribution											
618	KM Mean					0.00809	KM SD					0.00331
619	95% UTL95% Coverage					0.0153	95% KM UPL (t)					0.0138
620	90% KM Percentile (z)					0.0123	95% KM Percentile (z)					0.0135
621	99% KM Percentile (z)					0.0158	95% KM USL					0.0174
622												
623	DL/2 Substitution Background Statistics Assuming Normal Distribution											
624	Mean					0.00777	SD					0.00349
625	95% UTL95% Coverage					0.0153	95% UPL (t)					0.0138
626	90% Percentile (z)					0.0122	95% Percentile (z)					0.0135
627	99% Percentile (z)					0.0159	95% USL					0.0175
628	DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons											
629												
630	Gamma GOF Tests on Detected Observations Only											
631	A-D Test Statistic					0.479	Anderson-Darling GOF Test					
632	5% A-D Critical Value					0.746	Detected data appear Gamma Distributed at 5% Significance Level					
633	K-S Test Statistic					0.128	Kolmogorov-Smirnov GOF					
634	5% K-S Critical Value					0.171	Detected data appear Gamma Distributed at 5% Significance Level					
635	Detected data appear Gamma Distributed at 5% Significance Level											
636												

	A	B	C	D	E	F	G	H	I	J	K	L		
637	Gamma Statistics on Detected Data Only													
638	k hat (MLE)				6.092		k star (bias corrected MLE)				5.415			
639	Theta hat (MLE)				0.00142		Theta star (bias corrected MLE)				0.00159			
640	nu hat (MLE)				316.8		nu star (bias corrected)				281.6			
641	MLE Mean (bias corrected)				0.00862									
642	MLE Sd (bias corrected)				0.00371		95% Percentile of Chisquare (2kstar)				19.44			
643														
644	Gamma ROS Statistics using Imputed Non-Detects													
645	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs													
646	GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)													
647	For such situations, GROS method may yield incorrect values of UCLs and BTVs													
648	This is especially true when the sample size is small.													
649	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates													
650	Minimum				0.00407		Mean				0.00895			
651	Maximum				0.015		Median				0.0097			
652	SD				0.00317		CV				0.355			
653	k hat (MLE)				7.682		k star (bias corrected MLE)				7.024			
654	Theta hat (MLE)				0.00116		Theta star (bias corrected MLE)				0.00127			
655	nu hat (MLE)				522.4		nu star (bias corrected)				477.6			
656	MLE Mean (bias corrected)				0.00895		MLE Sd (bias corrected)				0.00338			
657	95% Percentile of Chisquare (2kstar)				23.75		90% Percentile				0.0135			
658	95% Percentile				0.0151		99% Percentile				0.0186			
659	The following statistics are computed using Gamma ROS Statistics on Imputed Data													
660	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods													
661					WH		HW				WH		HW	
662	95% Approx. Gamma UTL with 95% Coverage				0.0175		0.0178		95% Approx. Gamma UPL		0.0153		0.0155	
663	95% Gamma USL				0.0209		0.0216							
664														
665	Estimates of Gamma Parameters using KM Estimates													
666	Mean (KM)				0.00809		SD (KM)				0.00331			
667	Variance (KM)				1.0969E-5		SE of Mean (KM)				6.0302E-4			
668	k hat (KM)				5.969		k star (KM)				5.462			
669	nu hat (KM)				405.9		nu star (KM)				371.4			
670	theta hat (KM)				0.00136		theta star (KM)				0.00148			
671	80% gamma percentile (KM)				0.0108		90% gamma percentile (KM)				0.0127			
672	95% gamma percentile (KM)				0.0145		99% gamma percentile (KM)				0.0182			
673														
674	The following statistics are computed using gamma distribution and KM estimates													
675	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods													
676					WH		HW				WH		HW	
677	95% Approx. Gamma UTL with 95% Coverage				0.0165		0.0167		95% Approx. Gamma UPL		0.0143		0.0144	
678	95% KM Gamma Percentile				0.014		0.014		95% Gamma USL		0.02		0.0205	
679														
680	Lognormal GOF Test on Detected Observations Only													
681	Shapiro Wilk Test Statistic				0.94		Shapiro Wilk GOF Test							
682	5% Shapiro Wilk Critical Value				0.92		Detected Data appear Lognormal at 5% Significance Level							
683	Lilliefors Test Statistic				0.106		Lilliefors GOF Test							
684	5% Lilliefors Critical Value				0.17		Detected Data appear Lognormal at 5% Significance Level							
685	Detected Data appear Lognormal at 5% Significance Level													
686														
687	Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects													
688	Mean in Original Scale				0.00811		Mean in Log Scale				-4.893			
689	SD in Original Scale				0.00334		SD in Log Scale				0.399			

	A	B	C	D	E	F	G	H	I	J	K	L
690	95% UTL95% Coverage					0.0178	95% BCA UTL95% Coverage					0.015
691	95% Bootstrap (%) UTL95% Coverage					0.015	95% UPL (t)					0.0149
692	90% Percentile (z)					0.0125	95% Percentile (z)					0.0145
693	99% Percentile (z)					0.019	95% USL					0.023
694												
695	Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution											
696	KM Mean of Logged Data					-4.897	95% KM UTL (Lognormal)95% Coverage					0.0177
697	KM SD of Logged Data					0.398	95% KM UPL (Lognormal)					0.0148
698	95% KM Percentile Lognormal (z)					0.0144	95% KM USL (Lognormal)					0.0228
699												
700	Background DL/2 Statistics Assuming Lognormal Distribution											
701	Mean in Original Scale					0.00777	Mean in Log Scale					-4.946
702	SD in Original Scale					0.00349	SD in Log Scale					0.418
703	95% UTL95% Coverage					0.0176	95% UPL (t)					0.0146
704	90% Percentile (z)					0.0121	95% Percentile (z)					0.0141
705	99% Percentile (z)					0.0188	95% USL					0.0229
706	DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.											
707												
708	Nonparametric Distribution Free Background Statistics											
709	Data appear to follow a Discernible Distribution at 5% Significance Level											
710												
711	Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)											
712	Order of Statistic, r					34	95% UTL with95% Coverage					0.015
713	Approx, f used to compute achieved CC					1.789	pproximate Actual Confidence Coefficient achieved by UTL					0.825
714	Approximate Sample Size needed to achieve specified CC					59	95% UPL					0.015
715	95% USL					0.015	95% KM Chebyshev UPL					0.0227
716												
717	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
718	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
719	and consists of observations collected from clean unimpacted locations.											
720	The use of USL tends to provide a balance between false positives and false negatives provided the data											
721	represents a background data set and when many onsite observations need to be compared with the BTV.											
722												
723	Ra											
724												
725	General Statistics											
726	Total Number of Observations					30	Number of Missing Observations					4
727	Number of Distinct Observations					29						
728	Number of Detects					9	Number of Non-Detects					21
729	Number of Distinct Detects					9	Number of Distinct Non-Detects					20
730	Minimum Detect					0.482	Minimum Non-Detect					0.347
731	Maximum Detect					1.09	Maximum Non-Detect					1.88
732	Variance Detected					0.0348	Percent Non-Detects					70%
733	Mean Detected					0.722	SD Detected					0.186
734	Mean of Detected Logged Data					-0.354	SD of Detected Logged Data					0.249
735												
736	Critical Values for Background Threshold Values (BTVs)											
737	Tolerance Factor K (For UTL)					2.22	d2max (for USL)					2.745
738												
739	Normal GOF Test on Detects Only											
740	Shapiro Wilk Test Statistic					0.943	Shapiro Wilk GOF Test					
741	5% Shapiro Wilk Critical Value					0.829	Detected Data appear Normal at 5% Significance Level					
742	Lilliefors Test Statistic					0.167	Lilliefors GOF Test					

	A	B	C	D	E	F	G	H	I	J	K	L	
743	5% Lilliefors Critical Value				0.274	Detected Data appear Normal at 5% Significance Level							
744	Detected Data appear Normal at 5% Significance Level												
745													
746	Kaplan Meier (KM) Background Statistics Assuming Normal Distribution												
747	KM Mean				0.496	KM SD				0.205			
748	95% UTL95% Coverage				0.951	95% KM UPL (t)				0.85			
749	90% KM Percentile (z)				0.758	95% KM Percentile (z)				0.833			
750	99% KM Percentile (z)				0.973	95% KM USL				1.058			
751													
752	DL/2 Substitution Background Statistics Assuming Normal Distribution												
753	Mean				0.457	SD				0.259			
754	95% UTL95% Coverage				1.031	95% UPL (t)				0.904			
755	90% Percentile (z)				0.789	95% Percentile (z)				0.883			
756	99% Percentile (z)				1.059	95% USL				1.167			
757	DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons												
758													
759	Gamma GOF Tests on Detected Observations Only												
760	A-D Test Statistic				0.212	Anderson-Darling GOF Test							
761	5% A-D Critical Value				0.721	Detected data appear Gamma Distributed at 5% Significance Level							
762	K-S Test Statistic				0.15	Kolmogorov-Smirnov GOF							
763	5% K-S Critical Value				0.279	Detected data appear Gamma Distributed at 5% Significance Level							
764	Detected data appear Gamma Distributed at 5% Significance Level												
765													
766	Gamma Statistics on Detected Data Only												
767	k hat (MLE)				17.99	k star (bias corrected MLE)				12.06			
768	Theta hat (MLE)				0.0401	Theta star (bias corrected MLE)				0.0598			
769	nu hat (MLE)				323.7	nu star (bias corrected)				217.2			
770	MLE Mean (bias corrected)				0.722	95% Percentile of Chisquare (2kstar)							36.57
771	MLE Sd (bias corrected)				0.208								
772													
773	Gamma ROS Statistics using Imputed Non-Detects												
774	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs												
775	GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)												
776	For such situations, GROS method may yield incorrect values of UCLs and BTVs												
777	This is especially true when the sample size is small.												
778	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates												
779	Minimum				0.21	Mean				0.454			
780	Maximum				1.09	Median				0.389			
781	SD				0.21	CV				0.462			
782	k hat (MLE)				6.029	k star (bias corrected MLE)				5.448			
783	Theta hat (MLE)				0.0754	Theta star (bias corrected MLE)				0.0834			
784	nu hat (MLE)				361.7	nu star (bias corrected)				326.9			
785	MLE Mean (bias corrected)				0.454	MLE Sd (bias corrected)				0.195			
786	95% Percentile of Chisquare (2kstar)				19.53	90% Percentile				0.715			
787	95% Percentile				0.815	99% Percentile				1.025			
788	The following statistics are computed using Gamma ROS Statistics on Imputed Data												
789	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods												
790					WH	HW					WH	HW	
791	95% Approx. Gamma UTL with 95% Coverage				0.97	0.98	95% Approx. Gamma UPL				0.824	0.826	
792	95% Gamma USL				1.143	1.167							
793													
794	Estimates of Gamma Parameters using KM Estimates												
795	Mean (KM)				0.496	SD (KM)				0.205			

	A	B	C	D	E	F	G	H	I	J	K	L
796	Variance (KM)				0.042	SE of Mean (KM)				0.0449		
797	k hat (KM)				5.852	k star (KM)				5.289		
798	nu hat (KM)				351.1	nu star (KM)				317.3		
799	theta hat (KM)				0.0847	theta star (KM)				0.0937		
800	80% gamma percentile (KM)				0.662	90% gamma percentile (KM)				0.784		
801	95% gamma percentile (KM)				0.895	99% gamma percentile (KM)				1.129		
802												
803	The following statistics are computed using gamma distribution and KM estimates											
804	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods											
805					WH	HW					WH	HW
806	95% Approx. Gamma UTL with 95% Coverage				0.994	1.002	95% Approx. Gamma UPL				0.856	0.857
807	95% KM Gamma Percentile				0.834	0.835	95% Gamma USL				1.157	1.177
808												
809	Lognormal GOF Test on Detected Observations Only											
810	Shapiro Wilk Test Statistic				0.98	Shapiro Wilk GOF Test						
811	5% Shapiro Wilk Critical Value				0.829	Detected Data appear Lognormal at 5% Significance Level						
812	Lilliefors Test Statistic				0.132	Lilliefors GOF Test						
813	5% Lilliefors Critical Value				0.274	Detected Data appear Lognormal at 5% Significance Level						
814	Detected Data appear Lognormal at 5% Significance Level											
815												
816	Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects											
817	Mean in Original Scale				0.497	Mean in Log Scale				-0.75		
818	SD in Original Scale				0.182	SD in Log Scale				0.307		
819	95% UTL95% Coverage				0.934	95% BCA UTL95% Coverage				1.09		
820	95% Bootstrap (%) UTL95% Coverage				1.09	95% UPL (t)				0.803		
821	90% Percentile (z)				0.7	95% Percentile (z)				0.783		
822	99% Percentile (z)				0.965	95% USL				1.098		
823												
824	Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution											
825	KM Mean of Logged Data				-0.773	95% KM UTL (Lognormal)95% Coverage				1.033		
826	KM SD of Logged Data				0.363	95% KM UPL (Lognormal)				0.864		
827	95% KM Percentile Lognormal (z)				0.839	95% KM USL (Lognormal)				1.25		
828												
829	Background DL/2 Statistics Assuming Lognormal Distribution											
830	Mean in Original Scale				0.457	Mean in Log Scale				-0.939		
831	SD in Original Scale				0.259	SD in Log Scale				0.575		
832	95% UTL95% Coverage				1.4	95% UPL (t)				1.055		
833	90% Percentile (z)				0.817	95% Percentile (z)				1.006		
834	99% Percentile (z)				1.489	95% USL				1.894		
835	DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.											
836												
837	Nonparametric Distribution Free Background Statistics											
838	Data appear to follow a Discernible Distribution at 5% Significance Level											
839												
840	Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)											
841	Order of Statistic, r				30	95% UTL with95% Coverage				1.88		
842	Approx, f used to compute achieved CC				1.579	pproximate Actual Confidence Coefficient achieved by UTL				0.785		
843	Approximate Sample Size needed to achieve specified CC				59	95% UPL				1.534		
844	95% USL				1.88	95% KM Chebyshev UPL				1.404		
845												
846	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
847	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
848	and consists of observations collected from clean unimpacted locations.											

	A	B	C	D	E	F	G	H	I	J	K	L
849	The use of USL tends to provide a balance between false positives and false negatives provided the data											
850	represents a background data set and when many onsite observations need to be compared with the BTV.											
851												
852	Se											
853												
854	General Statistics											
855	Total Number of Observations				34	Number of Missing Observations					0	
856	Number of Distinct Observations				10							
857	Number of Detects				10	Number of Non-Detects					24	
858	Number of Distinct Detects				9	Number of Distinct Non-Detects					1	
859	Minimum Detect				0.006	Minimum Non-Detect					0.005	
860	Maximum Detect				0.0106	Maximum Non-Detect					0.005	
861	Variance Detected				3.2486E-6	Percent Non-Detects					70.59%	
862	Mean Detected				0.00852	SD Detected					0.0018	
863	Mean of Detected Logged Data				-4.786	SD of Detected Logged Data					0.22	
864												
865	Critical Values for Background Threshold Values (BTVs)											
866	Tolerance Factor K (For UTL)				2.166	d2max (for USL)					2.799	
867												
868	Normal GOF Test on Detects Only											
869	Shapiro Wilk Test Statistic				0.888	Shapiro Wilk GOF Test						
870	5% Shapiro Wilk Critical Value				0.842	Detected Data appear Normal at 5% Significance Level						
871	Lilliefors Test Statistic				0.188	Lilliefors GOF Test						
872	5% Lilliefors Critical Value				0.262	Detected Data appear Normal at 5% Significance Level						
873	Detected Data appear Normal at 5% Significance Level											
874												
875	Kaplan Meier (KM) Background Statistics Assuming Normal Distribution											
876	KM Mean				0.00604	KM SD					0.00185	
877	95% UTL95% Coverage				0.0101	95% KM UPL (t)					0.00922	
878	90% KM Percentile (z)				0.00841	95% KM Percentile (z)					0.00909	
879	99% KM Percentile (z)				0.0103	95% KM USL					0.0112	
880												
881	DL/2 Substitution Background Statistics Assuming Normal Distribution											
882	Mean				0.00427	SD					0.00294	
883	95% UTL95% Coverage				0.0106	95% UPL (t)					0.00932	
884	90% Percentile (z)				0.00804	95% Percentile (z)					0.00911	
885	99% Percentile (z)				0.0111	95% USL					0.0125	
886	DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons											
887												
888	Gamma GOF Tests on Detected Observations Only											
889	A-D Test Statistic				0.529	Anderson-Darling GOF Test						
890	5% A-D Critical Value				0.725	Detected data appear Gamma Distributed at 5% Significance Level						
891	K-S Test Statistic				0.201	Kolmogorov-Smirnov GOF						
892	5% K-S Critical Value				0.266	Detected data appear Gamma Distributed at 5% Significance Level						
893	Detected data appear Gamma Distributed at 5% Significance Level											
894												
895	Gamma Statistics on Detected Data Only											
896	k hat (MLE)				23.73	k star (bias corrected MLE)					16.67	
897	Theta hat (MLE)				3.5922E-4	Theta star (bias corrected MLE)					5.1113E-4	
898	nu hat (MLE)				474.5	nu star (bias corrected)					333.5	
899	MLE Mean (bias corrected)				0.00852							
900	MLE Sd (bias corrected)				0.00209	95% Percentile of Chisquare (2kstar)					47.82	
901												

	A	B	C	D	E	F	G	H	I	J	K	L
902	Gamma ROS Statistics using Imputed Non-Detects											
903	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
904	GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)											
905	For such situations, GROS method may yield incorrect values of UCLs and BTVs											
906	This is especially true when the sample size is small.											
907	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
908	Minimum				0.006		Mean				0.00957	
909	Maximum				0.0106		Median				0.01	
910	SD				0.00116		CV				0.122	
911	k hat (MLE)				56.77		k star (bias corrected MLE)				51.78	
912	Theta hat (MLE)				1.6850E-4		Theta star (bias corrected MLE)				1.8474E-4	
913	nu hat (MLE)				3860		nu star (bias corrected)				3521	
914	MLE Mean (bias corrected)				0.00957		MLE Sd (bias corrected)				0.00133	
915	95% Percentile of Chisquare (2kstar)				128.3		90% Percentile				0.0113	
916	95% Percentile				0.0119		99% Percentile				0.0129	
917	The following statistics are computed using Gamma ROS Statistics on Imputed Data											
918	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods											
919					WH	HW					WH	HW
920	95% Approx. Gamma UTL with 95% Coverage				0.0126	0.0126	95% Approx. Gamma UPL				0.0119	0.0119
921	95% Gamma USL				0.0136	0.0137						
922												
923	Estimates of Gamma Parameters using KM Estimates											
924	Mean (KM)				0.00604		SD (KM)				0.00185	
925	Variance (KM)				3.4367E-6		SE of Mean (KM)				3.3513E-4	
926	k hat (KM)				10.6		k star (KM)				9.686	
927	nu hat (KM)				720.9		nu star (KM)				658.6	
928	theta hat (KM)				5.6935E-4		theta star (KM)				6.2318E-4	
929	80% gamma percentile (KM)				0.00758		90% gamma percentile (KM)				0.00862	
930	95% gamma percentile (KM)				0.00954		99% gamma percentile (KM)				0.0114	
931												
932	The following statistics are computed using gamma distribution and KM estimates											
933	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods											
934					WH	HW					WH	HW
935	95% Approx. Gamma UTL with 95% Coverage				0.0101	0.0101	95% Approx. Gamma UPL				0.00912	0.00911
936	95% KM Gamma Percentile				0.00897	0.00895	95% Gamma USL				0.0117	0.0118
937												
938	Lognormal GOF Test on Detected Observations Only											
939	Shapiro Wilk Test Statistic				0.884		Shapiro Wilk GOF Test					
940	5% Shapiro Wilk Critical Value				0.842		Detected Data appear Lognormal at 5% Significance Level					
941	Lilliefors Test Statistic				0.198		Lilliefors GOF Test					
942	5% Lilliefors Critical Value				0.262		Detected Data appear Lognormal at 5% Significance Level					
943	Detected Data appear Lognormal at 5% Significance Level											
944												
945	Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects											
946	Mean in Original Scale				0.00538		Mean in Log Scale				-5.324	
947	SD in Original Scale				0.00247		SD in Log Scale				0.452	
948	95% UTL95% Coverage				0.013		95% BCA UTL95% Coverage				0.0106	
949	95% Bootstrap (%) UTL95% Coverage				0.0106		95% UPL (t)				0.0106	
950	90% Percentile (z)				0.00869		95% Percentile (z)				0.0102	
951	99% Percentile (z)				0.0139		95% USL				0.0173	
952												
953	Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution											
954	KM Mean of Logged Data				-5.148		95% KM UTL (Lognormal)95% Coverage				0.0102	

	A	B	C	D	E	F	G	H	I	J	K	L
955	KM SD of Logged Data					0.259	95% KM UPL (Lognormal)					0.00907
956	95% KM Percentile Lognormal (z)					0.00891	95% KM USL (Lognormal)					0.012
957												
958	Background DL/2 Statistics Assuming Lognormal Distribution											
959	Mean in Original Scale					0.00427	Mean in Log Scale					-5.637
960	SD in Original Scale					0.00294	SD in Log Scale					0.569
961	95% UTL95% Coverage					0.0122	95% UPL (t)					0.00947
962	90% Percentile (z)					0.00739	95% Percentile (z)					0.00909
963	99% Percentile (z)					0.0134	95% USL					0.0175
964	DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.											
965												
966	Nonparametric Distribution Free Background Statistics											
967	Data appear to follow a Discernible Distribution at 5% Significance Level											
968												
969	Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)											
970	Order of Statistic, r					34	95% UTL with95% Coverage					0.0106
971	Approx, f used to compute achieved CC					1.789	pproximate Actual Confidence Coefficient achieved by UTL					0.825
972	Approximate Sample Size needed to achieve specified CC					59	95% UPL					0.0106
973	95% USL					0.0106	95% KM Chebyshev UPL					0.0142
974												
975	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
976	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
977	and consists of observations collected from clean unimpacted locations.											
978	The use of USL tends to provide a balance between false positives and false negatives provided the data											
979	represents a background data set and when many onsite observations need to be compared with the BTV.											
980												
981	Th											
982												
983	General Statistics											
984	Total Number of Observations					30	Number of Missing Observations					4
985	Number of Distinct Observations					1						
986	Number of Detects					0	Number of Non-Detects					30
987	Number of Distinct Detects					0	Number of Distinct Non-Detects					1
988	Minimum Detect					N/A	Minimum Non-Detect					0.001
989	Maximum Detect					N/A	Maximum Non-Detect					0.001
990	Variance Detected					N/A	Percent Non-Detects					100%
991	Mean Detected					N/A	SD Detected					N/A
992	Mean of Detected Logged Data					N/A	SD of Detected Logged Data					N/A
993												
994	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
995	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
996	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
997												
998	The data set for variable Th was not processed!											
999												
1000												

	A	B	C	D	E	F	G	H	I	J	K	L
1				Background Statistics for Data Sets with Non-Detects								
2	User Selected Options											
3	Date/Time of Computation			ProUCL 5.110/13/2022 8:50:49 AM								
4	From File			LRS_ProUCL_UPL_Input_2021_v1_a.xls								
5	Full Precision			OFF								
6	Confidence Coefficient			95%								
7	Coverage			95%								
8	Different or Future K Observations			1								
9	Number of Bootstrap Operations			2000								
10												
11	B											
12												
13	General Statistics											
14	Total Number of Observations				30		Number of Distinct Observations				22	
15							Number of Missing Observations				2	
16	Minimum				0.17		First Quartile				0.189	
17	Second Largest				0.31		Median				0.235	
18	Maximum				0.313		Third Quartile				0.292	
19	Mean				0.238		SD				0.0538	
20	Coefficient of Variation				0.226		Skewness				0.0741	
21	Mean of logged Data				-1.46		SD of logged Data				0.229	
22												
23	Critical Values for Background Threshold Values (BTVs)											
24	Tolerance Factor K (For UTL)				2.22		d2max (for USL)				2.745	
25												
26	Normal GOF Test											
27	Shapiro Wilk Test Statistic				0.816		Shapiro Wilk GOF Test					
28	5% Shapiro Wilk Critical Value				0.927		Data Not Normal at 5% Significance Level					
29	Lilliefors Test Statistic				0.238		Lilliefors GOF Test					
30	5% Lilliefors Critical Value				0.159		Data Not Normal at 5% Significance Level					
31	Data Not Normal at 5% Significance Level											
32												
33	Background Statistics Assuming Normal Distribution											
34	95% UTL with		95% Coverage	0.358		90% Percentile (z)				0.307		
35			95% UPL (t)	0.331		95% Percentile (z)				0.327		
36			95% USL	0.386		99% Percentile (z)				0.363		
37												
38	Gamma GOF Test											
39	A-D Test Statistic				2.409		Anderson-Darling Gamma GOF Test					
40	5% A-D Critical Value				0.744		Data Not Gamma Distributed at 5% Significance Level					
41	K-S Test Statistic				0.237		Kolmogorov-Smirnov Gamma GOF Test					
42	5% K-S Critical Value				0.16		Data Not Gamma Distributed at 5% Significance Level					
43	Data Not Gamma Distributed at 5% Significance Level											
44												
45	Gamma Statistics											
46	k hat (MLE)				20.06		k star (bias corrected MLE)				18.08	
47	Theta hat (MLE)				0.0119		Theta star (bias corrected MLE)				0.0132	
48	nu hat (MLE)				1204		nu star (bias corrected)				1085	
49	MLE Mean (bias corrected)				0.238		MLE Sd (bias corrected)				0.056	
50												
51	Background Statistics Assuming Gamma Distribution											
52	95% Wilson Hilferty (WH) Approx. Gamma UPL				0.339		90% Percentile				0.312	
53	95% Hawkins Wixley (HW) Approx. Gamma UPL				0.341		95% Percentile				0.337	

	A	B	C	D	E	F	G	H	I	J	K	L
54	95% WH Approx. Gamma UTL with			95% Coverage	0.374	99% Percentile						0.387
55	95% HW Approx. Gamma UTL with			95% Coverage	0.377							
56	95% WH USL				0.414	95% HW USL						0.419
57												
58	Lognormal GOF Test											
59	Shapiro Wilk Test Statistic				0.816	Shapiro Wilk Lognormal GOF Test						
60	5% Shapiro Wilk Critical Value				0.927	Data Not Lognormal at 5% Significance Level						
61	Lilliefors Test Statistic				0.231	Lilliefors Lognormal GOF Test						
62	5% Lilliefors Critical Value				0.159	Data Not Lognormal at 5% Significance Level						
63	Data Not Lognormal at 5% Significance Level											
64												
65	Background Statistics assuming Lognormal Distribution											
66	95% UTL with		95% Coverage	0.386	90% Percentile (z)						0.311	
67			95% UPL (t)	0.345	95% Percentile (z)						0.338	
68			95% USL	0.435	99% Percentile (z)						0.396	
69												
70	Nonparametric Distribution Free Background Statistics											
71	Data do not follow a Discernible Distribution (0.05)											
72												
73	Nonparametric Upper Limits for Background Threshold Values											
74	Order of Statistic, r			30	95% UTL with 95% Coverage						0.313	
75	Approx, f used to compute achieved CC			1.579	pproximate Actual Confidence Coefficient achieved by UTL						0.785	
76					Approximate Sample Size needed to achieve specified CC						59	
77	95% Percentile Bootstrap UTL with		95% Coverage	0.313	95% BCA Bootstrap UTL with		95% Coverage	0.313				
78				95% UPL	0.311	90% Percentile						0.305
79				90% Chebyshev UPL	0.402	95% Percentile						0.308
80				95% Chebyshev UPL	0.476	99% Percentile						0.312
81				95% USL	0.313							
82												
83	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
84	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
85	and consists of observations collected from clean unimpacted locations.											
86	The use of USL tends to provide a balance between false positives and false negatives provided the data											
87	represents a background data set and when many onsite observations need to be compared with the BTV.											
88												
89	Ca											
90												
91	General Statistics											
92	Total Number of Observations			30	Number of Distinct Observations						16	
93					Number of Missing Observations						2	
94	Minimum			170	First Quartile						181	
95	Second Largest			203	Median						190	
96	Maximum			210	Third Quartile						199.5	
97	Mean			190	SD						10.61	
98	Coefficient of Variation			0.0559	Skewness						-0.328	
99	Mean of logged Data			5.245	SD of logged Data						0.0565	
100												
101	Critical Values for Background Threshold Values (BTVs)											
102	Tolerance Factor K (For UTL)			2.22	d2max (for USL)						2.745	
103												
104	Normal GOF Test											
105	Shapiro Wilk Test Statistic			0.944	Shapiro Wilk GOF Test							
106	5% Shapiro Wilk Critical Value			0.927	Data appear Normal at 5% Significance Level							

	A	B	C	D	E	F	G	H	I	J	K	L	
107	Lilliefors Test Statistic					0.133	Lilliefors GOF Test						
108	5% Lilliefors Critical Value					0.159	Data appear Normal at 5% Significance Level						
109	Data appear Normal at 5% Significance Level												
110													
111	Background Statistics Assuming Normal Distribution												
112	95% UTL with		95% Coverage	213.6		90% Percentile (z)				203.6			
113			95% UPL (t)	208.3		95% Percentile (z)				207.5			
114			95% USL	219.1		99% Percentile (z)				214.7			
115													
116	Gamma GOF Test												
117	A-D Test Statistic		0.656		Anderson-Darling Gamma GOF Test								
118	5% A-D Critical Value		0.745		Detected data appear Gamma Distributed at 5% Significance Level								
119	K-S Test Statistic		0.141		Kolmogorov-Smirnov Gamma GOF Test								
120	5% K-S Critical Value		0.16		Detected data appear Gamma Distributed at 5% Significance Level								
121	Detected data appear Gamma Distributed at 5% Significance Level												
122													
123	Gamma Statistics												
124	k hat (MLE)		326.9		k star (bias corrected MLE)				294.2				
125	Theta hat (MLE)		0.581		Theta star (bias corrected MLE)				0.646				
126	nu hat (MLE)		19612		nu star (bias corrected)				17652				
127	MLE Mean (bias corrected)		190		MLE Sd (bias corrected)				11.08				
128													
129	Background Statistics Assuming Gamma Distribution												
130	95% Wilson Hilferty (WH) Approx. Gamma UPL			208.9		90% Percentile				204.3			
131	95% Hawkins Wixley (HW) Approx. Gamma UPL			208.9		95% Percentile				208.6			
132	95% WH Approx. Gamma UTL with		95% Coverage	214.5		99% Percentile				216.7			
133	95% HW Approx. Gamma UTL with		95% Coverage	214.7									
134	95% WH USL		220.7		95% HW USL				220.9				
135													
136	Lognormal GOF Test												
137	Shapiro Wilk Test Statistic		0.938		Shapiro Wilk Lognormal GOF Test								
138	5% Shapiro Wilk Critical Value		0.927		Data appear Lognormal at 5% Significance Level								
139	Lilliefors Test Statistic		0.144		Lilliefors Lognormal GOF Test								
140	5% Lilliefors Critical Value		0.159		Data appear Lognormal at 5% Significance Level								
141	Data appear Lognormal at 5% Significance Level												
142													
143	Background Statistics assuming Lognormal Distribution												
144	95% UTL with		95% Coverage	215.1		90% Percentile (z)				204			
145			95% UPL (t)	209.2		95% Percentile (z)				208.2			
146			95% USL	221.5		99% Percentile (z)				216.4			
147													
148	Nonparametric Distribution Free Background Statistics												
149	Data appear Normal at 5% Significance Level												
150													
151	Nonparametric Upper Limits for Background Threshold Values												
152	Order of Statistic, r			30		95% UTL with				95% Coverage	210		
153	Approx, f used to compute achieved CC			1.579		pproximate Actual Confidence Coefficient achieved by UTL				0.785			
154						Approximate Sample Size needed to achieve specified CC				59			
155	95% Percentile Bootstrap UTL with		95% Coverage	210		95% BCA Bootstrap UTL with		95% Coverage	206.9				
156			95% UPL	206.2				90% Percentile	202				
157			90% Chebyshev UPL	222.4				95% Percentile	202.6				
158			95% Chebyshev UPL	237				99% Percentile	208				
159			95% USL	210									

	A	B	C	D	E	F	G	H	I	J	K	L		
160														
161	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.													
162	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers													
163	and consists of observations collected from clean unimpacted locations.													
164	The use of USL tends to provide a balance between false positives and false negatives provided the data													
165	represents a background data set and when many onsite observations need to be compared with the BTV.													
166														
167	CI													
168														
169	General Statistics													
170	Total Number of Observations					30		Number of Distinct Observations				19		
171								Number of Missing Observations				2		
172	Minimum					40.7		First Quartile				46		
173	Second Largest					94.3		Median				66.45		
174	Maximum					97.1		Third Quartile				84		
175	Mean					66.14		SD				21.26		
176	Coefficient of Variation					0.321		Skewness				0.0611		
177	Mean of logged Data					4.14		SD of logged Data				0.332		
178														
179	Critical Values for Background Threshold Values (BTVs)													
180	Tolerance Factor K (For UTL)					2.22		d2max (for USL)				2.745		
181														
182	Normal GOF Test													
183	Shapiro Wilk Test Statistic					0.77		Shapiro Wilk GOF Test						
184	5% Shapiro Wilk Critical Value					0.927		Data Not Normal at 5% Significance Level						
185	Lilliefors Test Statistic					0.286		Lilliefors GOF Test						
186	5% Lilliefors Critical Value					0.159		Data Not Normal at 5% Significance Level						
187	Data Not Normal at 5% Significance Level													
188														
189	Background Statistics Assuming Normal Distribution													
190	95% UTL with		95% Coverage		113.3		90% Percentile (z)				93.38			
191			95% UPL (t)		102.9		95% Percentile (z)				101.1			
192			95% USL		124.5		99% Percentile (z)				115.6			
193														
194	Gamma GOF Test													
195	A-D Test Statistic					3.39		Anderson-Darling Gamma GOF Test						
196	5% A-D Critical Value					0.746		Data Not Gamma Distributed at 5% Significance Level						
197	K-S Test Statistic					0.3		Kolmogorov-Smirnov Gamma GOF Test						
198	5% K-S Critical Value					0.16		Data Not Gamma Distributed at 5% Significance Level						
199	Data Not Gamma Distributed at 5% Significance Level													
200														
201	Gamma Statistics													
202	k hat (MLE)					9.729		k star (bias corrected MLE)				8.779		
203	Theta hat (MLE)					6.798		Theta star (bias corrected MLE)				7.534		
204	nu hat (MLE)					583.8		nu star (bias corrected)				526.7		
205	MLE Mean (bias corrected)					66.14		MLE Sd (bias corrected)				22.32		
206														
207	Background Statistics Assuming Gamma Distribution													
208	95% Wilson Hilferty (WH) Approx. Gamma UPL					107.7		90% Percentile				95.87		
209	95% Hawkins Wixley (HW) Approx. Gamma UPL					108.5		95% Percentile				106.6		
210	95% WH Approx. Gamma UTL with		95% Coverage		123.1		99% Percentile				128.8			
211	95% HW Approx. Gamma UTL with		95% Coverage		124.9									
212	95% WH USL					141.1		95% HW USL				144.2		

	A	B	C	D	E	F	G	H	I	J	K	L
213												
214	Lognormal GOF Test											
215	Shapiro Wilk Test Statistic					0.767	Shapiro Wilk Lognormal GOF Test					
216	5% Shapiro Wilk Critical Value					0.927	Data Not Lognormal at 5% Significance Level					
217	Lilliefors Test Statistic					0.3	Lilliefors Lognormal GOF Test					
218	5% Lilliefors Critical Value					0.159	Data Not Lognormal at 5% Significance Level					
219	Data Not Lognormal at 5% Significance Level											
220												
221	Background Statistics assuming Lognormal Distribution											
222	95% UTL with		95% Coverage		131.1	90% Percentile (z)				96.01		
223			95% UPL (t)		111.3	95% Percentile (z)				108.3		
224			95% USL		156	99% Percentile (z)				135.8		
225												
226	Nonparametric Distribution Free Background Statistics											
227	Data do not follow a Discernible Distribution (0.05)											
228												
229	Nonparametric Upper Limits for Background Threshold Values											
230	Order of Statistic, r				30	95% UTL with 95% Coverage				97.1		
231	Approx, f used to compute achieved CC				1.579	pproximate Actual Confidence Coefficient achieved by UTL				0.785		
232						Approximate Sample Size needed to achieve specified CC				59		
233	95% Percentile Bootstrap UTL with		95% Coverage		97.1	95% BCA Bootstrap UTL with		95% Coverage		95.84		
234			95% UPL		95.56			90% Percentile		89.98		
235			90% Chebyshev UPL		131			95% Percentile		94.3		
236			95% Chebyshev UPL		160.3			99% Percentile		96.29		
237			95% USL		97.1							
238												
239	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
240	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
241	and consists of observations collected from clean unimpacted locations.											
242	The use of USL tends to provide a balance between false positives and false negatives provided the data											
243	represents a background data set and when many onsite observations need to be compared with the BTV.											
244												
245	F											
246												
247	General Statistics											
248	Total Number of Observations				32	Number of Missing Observations				0		
249	Number of Distinct Observations				17							
250	Number of Detects				22	Number of Non-Detects				10		
251	Number of Distinct Detects				16	Number of Distinct Non-Detects				1		
252	Minimum Detect				0.53	Minimum Non-Detect				0.5		
253	Maximum Detect				1.19	Maximum Non-Detect				0.5		
254	Variance Detected				0.0169	Percent Non-Detects				31.25%		
255	Mean Detected				0.656	SD Detected				0.13		
256	Mean of Detected Logged Data				-0.435	SD of Detected Logged Data				0.158		
257												
258	Critical Values for Background Threshold Values (BTVs)											
259	Tolerance Factor K (For UTL)				2.186	d2max (for USL)				2.773		
260												
261	Normal GOF Test on Detects Only											
262	Shapiro Wilk Test Statistic				0.573	Shapiro Wilk GOF Test						
263	5% Shapiro Wilk Critical Value				0.911	Data Not Normal at 5% Significance Level						
264	Lilliefors Test Statistic				0.352	Lilliefors GOF Test						
265	5% Lilliefors Critical Value				0.184	Data Not Normal at 5% Significance Level						

	A	B	C	D	E	F	G	H	I	J	K	L
266	Data Not Normal at 5% Significance Level											
267												
268	Kaplan Meier (KM) Background Statistics Assuming Normal Distribution											
269	KM Mean				0.607	KM SD				0.128		
270	95% UTL95% Coverage				0.887	95% KM UPL (t)				0.828		
271	90% KM Percentile (z)				0.771	95% KM Percentile (z)				0.818		
272	99% KM Percentile (z)				0.905	95% KM USL				0.962		
273												
274	DL/2 Substitution Background Statistics Assuming Normal Distribution											
275	Mean				0.529	SD				0.219		
276	95% UTL95% Coverage				1.009	95% UPL (t)				0.907		
277	90% Percentile (z)				0.81	95% Percentile (z)				0.89		
278	99% Percentile (z)				1.039	95% USL				1.137		
279	DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons											
280												
281	Gamma GOF Tests on Detected Observations Only											
282	A-D Test Statistic				2.487	Anderson-Darling GOF Test						
283	5% A-D Critical Value				0.742	Data Not Gamma Distributed at 5% Significance Level						
284	K-S Test Statistic				0.328	Kolmogorov-Smirnov GOF						
285	5% K-S Critical Value				0.185	Data Not Gamma Distributed at 5% Significance Level						
286	Data Not Gamma Distributed at 5% Significance Level											
287												
288	Gamma Statistics on Detected Data Only											
289	k hat (MLE)				36.32	k star (bias corrected MLE)				31.4		
290	Theta hat (MLE)				0.0181	Theta star (bias corrected MLE)				0.0209		
291	nu hat (MLE)				1598	nu star (bias corrected)				1381		
292	MLE Mean (bias corrected)				0.656							
293	MLE Sd (bias corrected)				0.117	95% Percentile of Chisquare (2kstar)				82.29		
294												
295	Gamma ROS Statistics using Imputed Non-Detects											
296	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
297	GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)											
298	For such situations, GROS method may yield incorrect values of UCLs and BTVs											
299	This is especially true when the sample size is small.											
300	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
301	Minimum				0.322	Mean				0.584		
302	Maximum				1.19	Median				0.602		
303	SD				0.156	CV				0.266		
304	k hat (MLE)				16.25	k star (bias corrected MLE)				14.75		
305	Theta hat (MLE)				0.0359	Theta star (bias corrected MLE)				0.0396		
306	nu hat (MLE)				1040	nu star (bias corrected)				943.9		
307	MLE Mean (bias corrected)				0.584	MLE Sd (bias corrected)				0.152		
308	95% Percentile of Chisquare (2kstar)				43.16	90% Percentile				0.786		
309	95% Percentile				0.855	99% Percentile				0.995		
310	The following statistics are computed using Gamma ROS Statistics on Imputed Data											
311	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods											
312				WH	HW					WH	HW	
313	95% Approx. Gamma UTL with 95% Coverage				0.951	0.957	95% Approx. Gamma UPL				0.86	0.862
314	95% Gamma USL				1.076	1.088						
315												
316	Estimates of Gamma Parameters using KM Estimates											
317	Mean (KM)				0.607	SD (KM)				0.128		
318	Variance (KM)				0.0164	SE of Mean (KM)				0.0231		

	A	B	C	D	E	F	G	H	I	J	K	L
319					k hat (KM)	22.56					k star (KM)	20.46
320					nu hat (KM)	1444					nu star (KM)	1310
321					theta hat (KM)	0.0269					theta star (KM)	0.0297
322					80% gamma percentile (KM)	0.717					90% gamma percentile (KM)	0.785
323					95% gamma percentile (KM)	0.844					99% gamma percentile (KM)	0.963
324												
325	The following statistics are computed using gamma distribution and KM estimates											
326	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods											
327					WH	HW					WH	HW
328	95% Approx. Gamma UTL with 95% Coverage				0.878	0.877	95% Approx. Gamma UPL				0.813	0.811
329	95% KM Gamma Percentile				0.802	0.801	95% Gamma USL				0.964	0.966
330												
331	Lognormal GOF Test on Detected Observations Only											
332	Shapiro Wilk Test Statistic					0.686	Shapiro Wilk GOF Test					
333	5% Shapiro Wilk Critical Value					0.911	Data Not Lognormal at 5% Significance Level					
334	Lilliefors Test Statistic					0.314	Lilliefors GOF Test					
335	5% Lilliefors Critical Value					0.184	Data Not Lognormal at 5% Significance Level					
336	Data Not Lognormal at 5% Significance Level											
337												
338	Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects											
339	Mean in Original Scale					0.597	Mean in Log Scale					-0.538
340	SD in Original Scale					0.141	SD in Log Scale					0.208
341	95% UTL95% Coverage					0.92	95% BCA UTL95% Coverage					1.19
342	95% Bootstrap (%) UTL95% Coverage					1.19	95% UPL (t)					0.835
343	90% Percentile (z)					0.762	95% Percentile (z)					0.822
344	99% Percentile (z)					0.947	95% USL					1.04
345												
346	Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution											
347	KM Mean of Logged Data					-0.516	95% KM UTL (Lognormal)95% Coverage					0.876
348	KM SD of Logged Data					0.175	95% KM UPL (Lognormal)					0.808
349	95% KM Percentile Lognormal (z)					0.797	95% KM USL (Lognormal)					0.971
350												
351	Background DL/2 Statistics Assuming Lognormal Distribution											
352	Mean in Original Scale					0.529	Mean in Log Scale					-0.732
353	SD in Original Scale					0.219	SD in Log Scale					0.467
354	95% UTL95% Coverage					1.333	95% UPL (t)					1.074
355	90% Percentile (z)					0.874	95% Percentile (z)					1.036
356	99% Percentile (z)					1.423	95% USL					1.753
357	DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.											
358												
359	Nonparametric Distribution Free Background Statistics											
360	Data do not follow a Discernible Distribution (0.05)											
361												
362	Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)											
363	Order of Statistic, r					32	95% UTL with95% Coverage					1.19
364	Approx, f used to compute achieved CC					1.684	pproximate Actual Confidence Coefficient achieved by UTL					0.806
365	Approximate Sample Size needed to achieve specified CC					59	95% UPL					0.93
366	95% USL					1.19	95% KM Chebyshev UPL					1.174
367												
368	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
369	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
370	and consists of observations collected from clean unimpacted locations.											
371	The use of USL tends to provide a balance between false positives and false negatives provided the data											

	A	B	C	D	E	F	G	H	I	J	K	L
372	represents a background data set and when many onsite observations need to be compared with the BTV.											
373												
374	pH											
375												
376	General Statistics											
377	Total Number of Observations				32		Number of Distinct Observations				29	
378	Minimum				6.37		First Quartile				7.168	
379	Second Largest				7.6		Median				7.245	
380	Maximum				7.7		Third Quartile				7.353	
381	Mean				7.218		SD				0.261	
382	Coefficient of Variation				0.0361		Skewness				-1.446	
383	Mean of logged Data				1.976		SD of logged Data				0.0371	
384												
385	Critical Values for Background Threshold Values (BTVs)											
386	Tolerance Factor K (For UTL)				2.186		d2max (for USL)				2.773	
387												
388	Normal GOF Test											
389	Shapiro Wilk Test Statistic				0.862		Shapiro Wilk GOF Test					
390	5% Shapiro Wilk Critical Value				0.93		Data Not Normal at 5% Significance Level					
391	Lilliefors Test Statistic				0.215		Lilliefors GOF Test					
392	5% Lilliefors Critical Value				0.154		Data Not Normal at 5% Significance Level					
393	Data Not Normal at 5% Significance Level											
394												
395	Background Statistics Assuming Normal Distribution											
396	95% UTL with		95% Coverage		7.788		90% Percentile (z)				7.552	
397			95% UPL (t)		7.667		95% Percentile (z)				7.646	
398			95% USL		7.941		99% Percentile (z)				7.824	
399												
400	Gamma GOF Test											
401	A-D Test Statistic				1.775		Anderson-Darling Gamma GOF Test					
402	5% A-D Critical Value				0.745		Data Not Gamma Distributed at 5% Significance Level					
403	K-S Test Statistic				0.218		Kolmogorov-Smirnov Gamma GOF Test					
404	5% K-S Critical Value				0.155		Data Not Gamma Distributed at 5% Significance Level					
405	Data Not Gamma Distributed at 5% Significance Level											
406												
407	Gamma Statistics											
408	k hat (MLE)				764.1		k star (bias corrected MLE)				692.5	
409	Theta hat (MLE)				0.00945		Theta star (bias corrected MLE)				0.0104	
410	nu hat (MLE)				48903		nu star (bias corrected)				44320	
411	MLE Mean (bias corrected)				7.218		MLE Sd (bias corrected)				0.274	
412												
413	Background Statistics Assuming Gamma Distribution											
414	95% Wilson Hilferty (WH) Approx. Gamma UPL				7.681		90% Percentile				7.571	
415	95% Hawkins Wixley (HW) Approx. Gamma UPL				7.683		95% Percentile				7.675	
416	95% WH Approx. Gamma UTL with		95% Coverage		7.81		99% Percentile				7.871	
417	95% HW Approx. Gamma UTL with		95% Coverage		7.813							
418	95% WH USL				7.975		95% HW USL				7.98	
419												
420	Lognormal GOF Test											
421	Shapiro Wilk Test Statistic				0.844		Shapiro Wilk Lognormal GOF Test					
422	5% Shapiro Wilk Critical Value				0.93		Data Not Lognormal at 5% Significance Level					
423	Lilliefors Test Statistic				0.224		Lilliefors Lognormal GOF Test					
424	5% Lilliefors Critical Value				0.154		Data Not Lognormal at 5% Significance Level					

	A	B	C	D	E	F	G	H	I	J	K	L
425	Data Not Lognormal at 5% Significance Level											
426												
427	Background Statistics assuming Lognormal Distribution											
428	95% UTL with 95% Coverage		7.823		90% Percentile (z)		7.564					
429	95% UPL (t)		7.689		95% Percentile (z)		7.667					
430	95% USL		7.995		99% Percentile (z)		7.863					
431												
432	Nonparametric Distribution Free Background Statistics											
433	Data do not follow a Discernible Distribution (0.05)											
434												
435	Nonparametric Upper Limits for Background Threshold Values											
436	Order of Statistic, r		32		95% UTL with 95% Coverage		7.7					
437	Approx, f used to compute achieved CC		1.684		pproximate Actual Confidence Coefficient achieved by UTL		0.806					
438					Approximate Sample Size needed to achieve specified CC		59					
439	95% Percentile Bootstrap UTL with 95% Coverage		7.7		95% BCA Bootstrap UTL with 95% Coverage		7.645					
440	95% UPL		7.635		90% Percentile		7.488					
441	90% Chebyshev UPL		8.012		95% Percentile		7.545					
442	95% Chebyshev UPL		8.371		99% Percentile		7.669					
443	95% USL		7.7									
444												
445	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
446	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
447	and consists of observations collected from clean unimpacted locations.											
448	The use of USL tends to provide a balance between false positives and false negatives provided the data											
449	represents a background data set and when many onsite observations need to be compared with the BTV.											
450												
451	SO											
452												
453	General Statistics											
454	Total Number of Observations		30		Number of Distinct Observations		20					
455					Number of Missing Observations		2					
456	Minimum		450		First Quartile		544					
457	Second Largest		845		Median		724.5					
458	Maximum		877		Third Quartile		830					
459	Mean		691.9		SD		146					
460	Coefficient of Variation		0.211		Skewness		-0.107					
461	Mean of logged Data		6.517		SD of logged Data		0.218					
462												
463	Critical Values for Background Threshold Values (BTVs)											
464	Tolerance Factor K (For UTL)		2.22		d2max (for USL)		2.745					
465												
466	Normal GOF Test											
467	Shapiro Wilk Test Statistic		0.782		Shapiro Wilk GOF Test							
468	5% Shapiro Wilk Critical Value		0.927		Data Not Normal at 5% Significance Level							
469	Lilliefors Test Statistic		0.277		Lilliefors GOF Test							
470	5% Lilliefors Critical Value		0.159		Data Not Normal at 5% Significance Level							
471	Data Not Normal at 5% Significance Level											
472												
473	Background Statistics Assuming Normal Distribution											
474	95% UTL with 95% Coverage		1016		90% Percentile (z)		879					
475	95% UPL (t)		944.1		95% Percentile (z)		932					
476	95% USL		1093		99% Percentile (z)		1032					
477												

	A	B	C	D	E	F	G	H	I	J	K	L
478	Gamma GOF Test											
479	A-D Test Statistic					3.065	Anderson-Darling Gamma GOF Test					
480	5% A-D Critical Value					0.744	Data Not Gamma Distributed at 5% Significance Level					
481	K-S Test Statistic					0.282	Kolmogorov-Smirnov Gamma GOF Test					
482	5% K-S Critical Value					0.16	Data Not Gamma Distributed at 5% Significance Level					
483	Data Not Gamma Distributed at 5% Significance Level											
484												
485	Gamma Statistics											
486	k hat (MLE)					22.45	k star (bias corrected MLE)					20.22
487	Theta hat (MLE)					30.82	Theta star (bias corrected MLE)					34.21
488	nu hat (MLE)					1347	nu star (bias corrected)					1213
489	MLE Mean (bias corrected)					691.9	MLE Sd (bias corrected)					153.8
490												
491	Background Statistics Assuming Gamma Distribution											
492	95% Wilson Hilferty (WH) Approx. Gamma UPL					968.7	90% Percentile					894.9
493	95% Hawkins Wixley (HW) Approx. Gamma UPL					972.5	95% Percentile					962.8
494	95% WH Approx. Gamma UTL with		95% Coverage		1063	99% Percentile					1099	
495	95% HW Approx. Gamma UTL with		95% Coverage		1071							
496			95% WH USL		1171	95% HW USL					1184	
497												
498	Lognormal GOF Test											
499	Shapiro Wilk Test Statistic					0.79	Shapiro Wilk Lognormal GOF Test					
500	5% Shapiro Wilk Critical Value					0.927	Data Not Lognormal at 5% Significance Level					
501	Lilliefors Test Statistic					0.278	Lilliefors Lognormal GOF Test					
502	5% Lilliefors Critical Value					0.159	Data Not Lognormal at 5% Significance Level					
503	Data Not Lognormal at 5% Significance Level											
504												
505	Background Statistics assuming Lognormal Distribution											
506	95% UTL with		95% Coverage		1096	90% Percentile (z)					894	
507			95% UPL (t)		985	95% Percentile (z)					967.5	
508			95% USL		1229	99% Percentile (z)					1122	
509												
510	Nonparametric Distribution Free Background Statistics											
511	Data do not follow a Discernible Distribution (0.05)											
512												
513	Nonparametric Upper Limits for Background Threshold Values											
514	Order of Statistic, r					30	95% UTL with 95% Coverage					877
515	Approx, f used to compute achieved CC					1.579	pproximate Actual Confidence Coefficient achieved by UTL					0.785
516							Approximate Sample Size needed to achieve specified CC					59
517	95% Percentile Bootstrap UTL with		95% Coverage		877	95% BCA Bootstrap UTL with		95% Coverage		862.6		
518			95% UPL		859.4			90% Percentile		840		
519			90% Chebyshev UPL		1137			95% Percentile		842.8		
520			95% Chebyshev UPL		1339			99% Percentile		867.7		
521			95% USL		877							
522												
523	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
524	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
525	and consists of observations collected from clean unimpacted locations.											
526	The use of USL tends to provide a balance between false positives and false negatives provided the data											
527	represents a background data set and when many onsite observations need to be compared with the BTV.											
528												
529	TDS											
530												

	A	B	C	D	E	F	G	H	I	J	K	L
531	General Statistics											
532	Total Number of Observations					30	Number of Distinct Observations					15
533							Number of Missing Observations					2
534	Minimum					400	First Quartile					1300
535	Second Largest					1830	Median					1530
536	Maximum					1840	Third Quartile					1760
537	Mean					1492	SD					323.9
538	Coefficient of Variation					0.217	Skewness					-1.317
539	Mean of logged Data					7.275	SD of logged Data					0.296
540												
541	Critical Values for Background Threshold Values (BTVs)											
542	Tolerance Factor K (For UTL)					2.22	d2max (for USL)					2.745
543												
544	Normal GOF Test											
545	Shapiro Wilk Test Statistic					0.824	Shapiro Wilk GOF Test					
546	5% Shapiro Wilk Critical Value					0.927	Data Not Normal at 5% Significance Level					
547	Lilliefors Test Statistic					0.239	Lilliefors GOF Test					
548	5% Lilliefors Critical Value					0.159	Data Not Normal at 5% Significance Level					
549	Data Not Normal at 5% Significance Level											
550												
551	Background Statistics Assuming Normal Distribution											
552	95% UTL with	95% Coverage			2211	90% Percentile (z)					1907	
553		95% UPL (t)			2052	95% Percentile (z)					2025	
554		95% USL			2382	99% Percentile (z)					2246	
555												
556	Gamma GOF Test											
557	A-D Test Statistic					2.175	Anderson-Darling Gamma GOF Test					
558	5% A-D Critical Value					0.745	Data Not Gamma Distributed at 5% Significance Level					
559	K-S Test Statistic					0.231	Kolmogorov-Smirnov Gamma GOF Test					
560	5% K-S Critical Value					0.16	Data Not Gamma Distributed at 5% Significance Level					
561	Data Not Gamma Distributed at 5% Significance Level											
562												
563	Gamma Statistics											
564	k hat (MLE)					15.14	k star (bias corrected MLE)					13.65
565	Theta hat (MLE)					98.56	Theta star (bias corrected MLE)					109.3
566	nu hat (MLE)					908.5	nu star (bias corrected)					819
567	MLE Mean (bias corrected)					1492	MLE Sd (bias corrected)					403.9
568												
569	Background Statistics Assuming Gamma Distribution											
570	95% Wilson Hilferty (WH) Approx. Gamma UPL					2227	90% Percentile					2028
571	95% Hawkins Wixley (HW) Approx. Gamma UPL					2263	95% Percentile					2213
572	95% WH Approx. Gamma UTL with	95% Coverage			2486	99% Percentile					2589	
573	95% HW Approx. Gamma UTL with	95% Coverage			2544							
574	95% WH USL					2783	95% HW USL					2872
575												
576	Lognormal GOF Test											
577	Shapiro Wilk Test Statistic					0.673	Shapiro Wilk Lognormal GOF Test					
578	5% Shapiro Wilk Critical Value					0.927	Data Not Lognormal at 5% Significance Level					
579	Lilliefors Test Statistic					0.262	Lilliefors Lognormal GOF Test					
580	5% Lilliefors Critical Value					0.159	Data Not Lognormal at 5% Significance Level					
581	Data Not Lognormal at 5% Significance Level											
582												
583	Background Statistics assuming Lognormal Distribution											

	A	B	C	D	E	F	G	H	I	J	K	L
584	95% UTL with 95% Coverage					2785	90% Percentile (z)					2110
585	95% UPL (t)					2407	95% Percentile (z)					2349
586	95% USL					3254	99% Percentile (z)					2874
587												
588	Nonparametric Distribution Free Background Statistics											
589	Data do not follow a Discernible Distribution (0.05)											
590												
591	Nonparametric Upper Limits for Background Threshold Values											
592	Order of Statistic, r					30	95% UTL with 95% Coverage					1840
593	Approx, f used to compute achieved CC					1.579	pproximate Actual Confidence Coefficient achieved by UTL					0.785
594							Approximate Sample Size needed to achieve specified CC					59
595	95% Percentile Bootstrap UTL with 95% Coverage					1840	95% BCA Bootstrap UTL with 95% Coverage					1836
596	95% UPL					1835	90% Percentile					1821
597	90% Chebyshev UPL					2480	95% Percentile					1830
598	95% Chebyshev UPL					2928	99% Percentile					1837
599	95% USL					1840						
600												
601	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
602	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
603	and consists of observations collected from clean unimpacted locations.											
604	The use of USL tends to provide a balance between false positives and false negatives provided the data											
605	represents a background data set and when many onsite observations need to be compared with the BTV.											
606												

	A	B	C	D	E	F	G	H	I	J	K	L
1	Background Statistics for Data Sets with Non-Detects											
2	User Selected Options											
3	Date/Time of Computation			ProUCL 5.110/13/2022 8:51:40 AM								
4	From File			LRS_ProUCL_UPL_Input_2021_v1_a.xls								
5	Full Precision			OFF								
6	Confidence Coefficient			95%								
7	Coverage			95%								
8	Different or Future K Observations			1								
9	Number of Bootstrap Operations			2000								
10												
11	Sb											
12												
13	General Statistics											
14	Total Number of Observations				30	Number of Missing Observations						2
15	Number of Distinct Observations				2							
16	Number of Detects				0	Number of Non-Detects						30
17	Number of Distinct Detects				0	Number of Distinct Non-Detects						2
18	Minimum Detect				N/A	Minimum Non-Detect						0.002
19	Maximum Detect				N/A	Maximum Non-Detect						0.02
20	Variance Detected				N/A	Percent Non-Detects						100%
21	Mean Detected				N/A	SD Detected						N/A
22	Mean of Detected Logged Data				N/A	SD of Detected Logged Data						N/A
23												
24	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
25	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
26	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
27												
28	The data set for variable Sb was not processed!											
29												
30												
31	As											
32												
33	General Statistics											
34	Total Number of Observations				30	Number of Missing Observations						2
35	Number of Distinct Observations				3							
36	Number of Detects				1	Number of Non-Detects						29
37	Number of Distinct Detects				1	Number of Distinct Non-Detects						2
38	Minimum Detect				0.0057	Minimum Non-Detect						0.005
39	Maximum Detect				0.0057	Maximum Non-Detect						0.05
40	Variance Detected				N/A	Percent Non-Detects						96.67%
41	Mean Detected				0.0057	SD Detected						N/A
42	Mean of Detected Logged Data				-5.167	SD of Detected Logged Data						N/A
43												
44	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
45	is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BT											
46												
47	The data set for variable As was not processed!											
48												
49												
50	Ba											
51												
52	General Statistics											
53	Total Number of Observations				32	Number of Distinct Observations						30

	A	B	C	D	E	F	G	H	I	J	K	L
54					Minimum	0.0309					First Quartile	0.0351
55					Second Largest	0.077					Median	0.0403
56					Maximum	0.11					Third Quartile	0.0503
57					Mean	0.0464					SD	0.0169
58					Coefficient of Variation	0.364					Skewness	2.133
59					Mean of logged Data	-3.12					SD of logged Data	0.3
60												
61					Critical Values for Background Threshold Values (BTVs)							
62					Tolerance Factor K (For UTL)	2.186					d2max (for USL)	2.773
63												
64					Normal GOF Test							
65					Shapiro Wilk Test Statistic	0.78					Shapiro Wilk GOF Test	
66					5% Shapiro Wilk Critical Value	0.93					Data Not Normal at 5% Significance Level	
67					Lilliefors Test Statistic	0.188					Lilliefors GOF Test	
68					5% Lilliefors Critical Value	0.154					Data Not Normal at 5% Significance Level	
69					Data Not Normal at 5% Significance Level							
70												
71					Background Statistics Assuming Normal Distribution							
72					95% UTL with 95% Coverage	0.0833					90% Percentile (z)	0.068
73					95% UPL (t)	0.0754					95% Percentile (z)	0.0741
74					95% USL	0.0932					99% Percentile (z)	0.0856
75												
76					Gamma GOF Test							
77					A-D Test Statistic	1.35					Anderson-Darling Gamma GOF Test	
78					5% A-D Critical Value	0.747					Data Not Gamma Distributed at 5% Significance Level	
79					K-S Test Statistic	0.174					Kolmogorov-Smirnov Gamma GOF Test	
80					5% K-S Critical Value	0.155					Data Not Gamma Distributed at 5% Significance Level	
81					Data Not Gamma Distributed at 5% Significance Level							
82												
83					Gamma Statistics							
84					k hat (MLE)	10.35					k star (bias corrected MLE)	9.399
85					Theta hat (MLE)	0.00448					Theta star (bias corrected MLE)	0.00494
86					nu hat (MLE)	662.3					nu star (bias corrected)	601.5
87					MLE Mean (bias corrected)	0.0464					MLE Sd (bias corrected)	0.0151
88												
89					Background Statistics Assuming Gamma Distribution							
90					95% Wilson Hilferty (WH) Approx. Gamma UPL	0.0743					90% Percentile	0.0665
91					95% Hawkins Wixley (HW) Approx. Gamma UPL	0.0742					95% Percentile	0.0738
92					95% WH Approx. Gamma UTL with 95% Coverage	0.084					99% Percentile	0.0886
93					95% HW Approx. Gamma UTL with 95% Coverage	0.0842						
94					95% WH USL	0.0974					95% HW USL	0.0982
95												
96					Lognormal GOF Test							
97					Shapiro Wilk Test Statistic	0.891					Shapiro Wilk Lognormal GOF Test	
98					5% Shapiro Wilk Critical Value	0.93					Data Not Lognormal at 5% Significance Level	
99					Lilliefors Test Statistic	0.16					Lilliefors Lognormal GOF Test	
100					5% Lilliefors Critical Value	0.154					Data Not Lognormal at 5% Significance Level	
101					Data Not Lognormal at 5% Significance Level							
102												
103					Background Statistics assuming Lognormal Distribution							
104					95% UTL with 95% Coverage	0.0852					90% Percentile (z)	0.0649
105					95% UPL (t)	0.0741					95% Percentile (z)	0.0724
106					95% USL	0.102					99% Percentile (z)	0.0888

	A	B	C	D	E	F	G	H	I	J	K	L
107												
108	Nonparametric Distribution Free Background Statistics											
109	Data do not follow a Discernible Distribution (0.05)											
110												
111	Nonparametric Upper Limits for Background Threshold Values											
112	Order of Statistic, r					32	95% UTL with 95% Coverage					0.11
113	Approx, f used to compute achieved CC					1.684	pproximate Actual Confidence Coefficient achieved by UTL					0.806
114							Approximate Sample Size needed to achieve specified CC					59
115	95% Percentile Bootstrap UTL with 95% Coverage					0.11	95% BCA Bootstrap UTL with 95% Coverage					0.11
116	95% UPL					0.0885	90% Percentile					0.0685
117	90% Chebyshev UPL					0.0978	95% Percentile					0.0748
118	95% Chebyshev UPL					0.121	99% Percentile					0.0998
119	95% USL					0.11						
120												
121	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
122	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
123	and consists of observations collected from clean unimpacted locations.											
124	The use of USL tends to provide a balance between false positives and false negatives provided the data											
125	represents a background data set and when many onsite observations need to be compared with the BTV.											
126												
127	Be											
128												
129	General Statistics											
130	Total Number of Observations					30	Number of Missing Observations					2
131	Number of Distinct Observations					2						
132	Number of Detects					0	Number of Non-Detects					30
133	Number of Distinct Detects					0	Number of Distinct Non-Detects					2
134	Minimum Detect					N/A	Minimum Non-Detect					0.001
135	Maximum Detect					N/A	Maximum Non-Detect					0.01
136	Variance Detected					N/A	Percent Non-Detects					100%
137	Mean Detected					N/A	SD Detected					N/A
138	Mean of Detected Logged Data					N/A	SD of Detected Logged Data					N/A
139												
140	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
141	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
142	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
143												
144	The data set for variable Be was not processed!											
145												
146												
147	Cd											
148												
149	General Statistics											
150	Total Number of Observations					30	Number of Missing Observations					2
151	Number of Distinct Observations					2						
152	Number of Detects					0	Number of Non-Detects					30
153	Number of Distinct Detects					0	Number of Distinct Non-Detects					2
154	Minimum Detect					N/A	Minimum Non-Detect					0.001
155	Maximum Detect					N/A	Maximum Non-Detect					0.01
156	Variance Detected					N/A	Percent Non-Detects					100%
157	Mean Detected					N/A	SD Detected					N/A
158	Mean of Detected Logged Data					N/A	SD of Detected Logged Data					N/A
159												

	A	B	C	D	E	F	G	H	I	J	K	L
160	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
161	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
162	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
163												
164	The data set for variable Cd was not processed!											
165												
166												
167	Cr											
168												
169	General Statistics											
170	Total Number of Observations				32	Number of Missing Observations				0		
171	Number of Distinct Observations				4							
172	Number of Detects				1	Number of Non-Detects				31		
173	Number of Distinct Detects				1	Number of Distinct Non-Detects				3		
174	Minimum Detect				0.00245	Minimum Non-Detect				0.002		
175	Maximum Detect				0.00245	Maximum Non-Detect				0.02		
176	Variance Detected				N/A	Percent Non-Detects				96.88%		
177	Mean Detected				0.00245	SD Detected				N/A		
178	Mean of Detected Logged Data				-6.012	SD of Detected Logged Data				N/A		
179												
180	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
181	s suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BT											
182												
183	The data set for variable Cr was not processed!											
184												
185												
186	Co											
187												
188	General Statistics											
189	Total Number of Observations				28	Number of Missing Observations				4		
190	Number of Distinct Observations				5							
191	Number of Detects				3	Number of Non-Detects				25		
192	Number of Distinct Detects				3	Number of Distinct Non-Detects				2		
193	Minimum Detect				0.0012	Minimum Non-Detect				0.001		
194	Maximum Detect				0.0028	Maximum Non-Detect				0.01		
195	Variance Detected				7.2333E-7	Percent Non-Detects				89.29%		
196	Mean Detected				0.00183	SD Detected				8.5049E-4		
197	Mean of Detected Logged Data				-6.369	SD of Detected Logged Data				0.439		
198												
199	Warning: Data set has only 3 Detected Values.											
200	This is not enough to compute meaningful or reliable statistics and estimates.											
201												
202												
203	Critical Values for Background Threshold Values (BTVs)											
204	Tolerance Factor K (For UTL)				2.246	d2max (for USL)				2.714		
205												
206	Normal GOF Test on Detects Only											
207	Shapiro Wilk Test Statistic				0.885	Shapiro Wilk GOF Test						
208	5% Shapiro Wilk Critical Value				0.767	Detected Data appear Normal at 5% Significance Level						
209	Lilliefors Test Statistic				0.319	Lilliefors GOF Test						
210	5% Lilliefors Critical Value				0.425	Detected Data appear Normal at 5% Significance Level						
211	Detected Data appear Normal at 5% Significance Level											
212												

	A	B	C	D	E	F	G	H	I	J	K	L
213	Kaplan Meier (KM) Background Statistics Assuming Normal Distribution											
214	KM Mean				0.0011	KM SD				3.5570E-4		
215	95% UTL95% Coverage				0.0019	95% KM UPL (t)				0.00171		
216	90% KM Percentile (z)				0.00155	95% KM Percentile (z)				0.00168		
217	99% KM Percentile (z)				0.00192	95% KM USL				0.00206		
218												
219	DL/2 Substitution Background Statistics Assuming Normal Distribution											
220	Mean				9.6429E-4	SD				0.00124		
221	95% UTL95% Coverage				0.00374	95% UPL (t)				0.00311		
222	90% Percentile (z)				0.00255	95% Percentile (z)				0.003		
223	99% Percentile (z)				0.00384	95% USL				0.00432		
224	DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons											
225												
226	Gamma GOF Tests on Detected Observations Only											
227	Not Enough Data to Perform GOF Test											
228												
229	Gamma Statistics on Detected Data Only											
230	k hat (MLE)				7.625	k star (bias corrected MLE)				N/A		
231	Theta hat (MLE)				2.4042E-4	Theta star (bias corrected MLE)				N/A		
232	nu hat (MLE)				45.75	nu star (bias corrected)				N/A		
233	MLE Mean (bias corrected)				N/A							
234	MLE Sd (bias corrected)				N/A	95% Percentile of Chisquare (2kstar)				N/A		
235												
236	Gamma ROS Statistics using Imputed Non-Detects											
237	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
238	GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)											
239	For such situations, GROS method may yield incorrect values of UCLs and BTVs											
240	This is especially true when the sample size is small.											
241	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
242	Minimum				0.0012	Mean				0.00913		
243	Maximum				0.01	Median				0.01		
244	SD				0.00258	CV				0.283		
245	k hat (MLE)				5.296	k star (bias corrected MLE)				4.752		
246	Theta hat (MLE)				0.00172	Theta star (bias corrected MLE)				0.00192		
247	nu hat (MLE)				296.6	nu star (bias corrected)				266.1		
248	MLE Mean (bias corrected)				0.00913	MLE Sd (bias corrected)				0.00419		
249	95% Percentile of Chisquare (2kstar)				17.62	90% Percentile				0.0147		
250	95% Percentile				0.0169	99% Percentile				0.0216		
251	The following statistics are computed using Gamma ROS Statistics on Imputed Data											
252	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods											
253					WH	HW					WH	HW
254	95% Approx. Gamma UTL with 95% Coverage				0.0204	0.0219	95% Approx. Gamma UPL				0.0171	0.018
255	95% Gamma USL				0.0238	0.026						
256												
257	Estimates of Gamma Parameters using KM Estimates											
258	Mean (KM)				0.0011	SD (KM)				3.5570E-4		
259	Variance (KM)				1.2652E-7	SE of Mean (KM)				8.5437E-5		
260	k hat (KM)				9.497	k star (KM)				8.503		
261	nu hat (KM)				531.8	nu star (KM)				476.2		
262	theta hat (KM)				1.1543E-4	theta star (KM)				1.2891E-4		
263	80% gamma percentile (KM)				0.00139	90% gamma percentile (KM)				0.0016		
264	95% gamma percentile (KM)				0.00178	99% gamma percentile (KM)				0.00215		
265												

	A	B	C	D	E	F	G	H	I	J	K	L
266	The following statistics are computed using gamma distribution and KM estimates											
267	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods											
268					WH	HW					WH	HW
269	95% Approx. Gamma UTL with 95% Coverage				0.00177	0.00175	95% Approx. Gamma UPL				0.00159	0.00158
270	95% KM Gamma Percentile				0.00156	0.00155	95% Gamma USL				0.00194	0.00193
271												
272	Lognormal GOF Test on Detected Observations Only											
273	Shapiro Wilk Test Statistic				0.931		Shapiro Wilk GOF Test					
274	5% Shapiro Wilk Critical Value				0.767		Detected Data appear Lognormal at 5% Significance Level					
275	Lilliefors Test Statistic				0.286		Lilliefors GOF Test					
276	5% Lilliefors Critical Value				0.425		Detected Data appear Lognormal at 5% Significance Level					
277	Detected Data appear Lognormal at 5% Significance Level											
278												
279	Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects											
280	Mean in Original Scale				3.4707E-4		Mean in Log Scale				-8.951	
281	SD in Original Scale				5.9599E-4		SD in Log Scale				1.458	
282	95% UTL95% Coverage				0.00342		95% BCA UTL95% Coverage				0.0028	
283	95% Bootstrap (%) UTL95% Coverage				0.0028		95% UPL (t)				0.00162	
284	90% Percentile (z)				8.3950E-4		95% Percentile (z)				0.00143	
285	99% Percentile (z)				0.00385		95% USL				0.00678	
286												
287	Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution											
288	KM Mean of Logged Data				-6.846		95% KM UTL (Lognormal)95% Coverage				0.00171	
289	KM SD of Logged Data				0.211		95% KM UPL (Lognormal)				0.00153	
290	95% KM Percentile Lognormal (z)				0.00151		95% KM USL (Lognormal)				0.00189	
291												
292	Background DL/2 Statistics Assuming Lognormal Distribution											
293	Mean in Original Scale				9.6429E-4		Mean in Log Scale				-7.304	
294	SD in Original Scale				0.00124		SD in Log Scale				0.696	
295	95% UTL95% Coverage				0.00321		95% UPL (t)				0.00225	
296	90% Percentile (z)				0.00164		95% Percentile (z)				0.00211	
297	99% Percentile (z)				0.0034		95% USL				0.00445	
298	DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.											
299												
300	Nonparametric Distribution Free Background Statistics											
301	Data appear to follow a Discernible Distribution at 5% Significance Level											
302												
303	Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)											
304	Order of Statistic, r				28		95% UTL with95% Coverage				0.01	
305	Approx, f used to compute achieved CC				1.474		pproximate Actual Confidence Coefficient achieved by UTL				0.762	
306	Approximate Sample Size needed to achieve specified CC				59		95% UPL				0.01	
307	95% USL				0.01		95% KM Chebyshev UPL				0.00267	
308												
309	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
310	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
311	and consists of observations collected from clean unimpacted locations.											
312	The use of USL tends to provide a balance between false positives and false negatives provided the data											
313	represents a background data set and when many onsite observations need to be compared with the BTV.											
314												
315	Pb											
316												
317	General Statistics											
318	Total Number of Observations				30		Number of Missing Observations				2	

	A	B	C	D	E	F	G	H	I	J	K	L
319	Number of Distinct Observations					2	Number of Non-Detects					30
320	Number of Detects					0	Number of Distinct Non-Detects					2
321	Minimum Detect					N/A	Maximum Non-Detect					0.01
322	Maximum Detect					N/A	Percent Non-Detects					100%
323	Variance Detected					N/A	SD Detected					N/A
324	Mean Detected					N/A	SD of Detected Logged Data					N/A
325	Mean of Detected Logged Data					N/A						
326	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
327	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
328	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
329												
330	The data set for variable Pb was not processed!											
331												
332												
333												
334												
335	Li											
336												
337	General Statistics											
338	Total Number of Observations					32	Number of Missing Observations					0
339	Number of Distinct Observations					28	Number of Non-Detects					2
340	Number of Detects					30	Number of Distinct Non-Detects					2
341	Minimum Detect					0.0529	Minimum Non-Detect					0.0555
342	Maximum Detect					0.0837	Maximum Non-Detect					0.0648
343	Variance Detected					6.2544E-5	Percent Non-Detects					6.25%
344	Mean Detected					0.0699	SD Detected					0.00791
345	Mean of Detected Logged Data					-2.667	SD of Detected Logged Data					0.116
346												
347	Critical Values for Background Threshold Values (BTVs)											
348	Tolerance Factor K (For UTL)					2.186	d2max (for USL)					2.773
349												
350	Normal GOF Test on Detects Only											
351	Shapiro Wilk Test Statistic					0.972	Shapiro Wilk GOF Test					
352	5% Shapiro Wilk Critical Value					0.927	Detected Data appear Normal at 5% Significance Level					
353	Lilliefors Test Statistic					0.089	Lilliefors GOF Test					
354	5% Lilliefors Critical Value					0.159	Detected Data appear Normal at 5% Significance Level					
355	Detected Data appear Normal at 5% Significance Level											
356												
357	Kaplan Meier (KM) Background Statistics Assuming Normal Distribution											
358	KM Mean					0.069	KM SD					0.00832
359	95% UTL95% Coverage					0.0872	95% KM UPL (t)					0.0833
360	90% KM Percentile (z)					0.0797	95% KM Percentile (z)					0.0827
361	99% KM Percentile (z)					0.0884	95% KM USL					0.0921
362												
363	DL/2 Substitution Background Statistics Assuming Normal Distribution											
364	Mean					0.0674	SD					0.0124
365	95% UTL95% Coverage					0.0946	95% UPL (t)					0.0888
366	90% Percentile (z)					0.0833	95% Percentile (z)					0.0878
367	99% Percentile (z)					0.0963	95% USL					0.102
368	DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons											
369												
370												
371	Gamma GOF Tests on Detected Observations Only											

	A	B	C	D	E	F	G	H	I	J	K	L
372				A-D Test Statistic		0.342	Anderson-Darling GOF Test					
373				5% A-D Critical Value		0.745	Detected data appear Gamma Distributed at 5% Significance Level					
374				K-S Test Statistic		0.104	Kolmogorov-Smirnov GOF					
375				5% K-S Critical Value		0.16	Detected data appear Gamma Distributed at 5% Significance Level					
376	Detected data appear Gamma Distributed at 5% Significance Level											
377												
378	Gamma Statistics on Detected Data Only											
379				k hat (MLE)		78.12	k star (bias corrected MLE)				70.33	
380				Theta hat (MLE)		8.9455E-4	Theta star (bias corrected MLE)				9.9363E-4	
381				nu hat (MLE)		4687	nu star (bias corrected)				4220	
382				MLE Mean (bias corrected)		0.0699						
383				MLE Sd (bias corrected)		0.00833	95% Percentile of Chisquare (2kstar)				169.3	
384												
385	Gamma ROS Statistics using Imputed Non-Detects											
386	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
387	GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)											
388	For such situations, GROS method may yield incorrect values of UCLs and BTVs											
389	This is especially true when the sample size is small.											
390	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
391				Minimum		0.0529	Mean				0.0691	
392				Maximum		0.0837	Median				0.0697	
393				SD		0.0083	CV				0.12	
394				k hat (MLE)		69.43	k star (bias corrected MLE)				62.94	
395				Theta hat (MLE)		9.9502E-4	Theta star (bias corrected MLE)				0.0011	
396				nu hat (MLE)		4444	nu star (bias corrected)				4028	
397				MLE Mean (bias corrected)		0.0691	MLE Sd (bias corrected)				0.00871	
398				95% Percentile of Chisquare (2kstar)		153.1	90% Percentile				0.0805	
399				95% Percentile		0.084	99% Percentile				0.0909	
400	The following statistics are computed using Gamma ROS Statistics on Imputed Data											
401	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods											
402				WH		HW					WH	HW
403	95% Approx. Gamma UTL with 95% Coverage			0.0888		0.089	95% Approx. Gamma UPL				0.0843	0.0844
404	95% Gamma USL			0.0948		0.0952						
405												
406	Estimates of Gamma Parameters using KM Estimates											
407				Mean (KM)		0.069	SD (KM)				0.00832	
408				Variance (KM)		6.9254E-5	SE of Mean (KM)				0.0015	
409				k hat (KM)		68.75	k star (KM)				62.33	
410				nu hat (KM)		4400	nu star (KM)				3989	
411				theta hat (KM)		0.001	theta star (KM)				0.00111	
412				80% gamma percentile (KM)		0.0762	90% gamma percentile (KM)				0.0804	
413				95% gamma percentile (KM)		0.084	99% gamma percentile (KM)				0.0909	
414												
415	The following statistics are computed using gamma distribution and KM estimates											
416	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods											
417				WH		HW					WH	HW
418	95% Approx. Gamma UTL with 95% Coverage			0.0888		0.0891	95% Approx. Gamma UPL				0.0842	0.0844
419	95% KM Gamma Percentile			0.0835		0.0836	95% Gamma USL				0.0948	0.0953
420												
421	Lognormal GOF Test on Detected Observations Only											
422				Shapiro Wilk Test Statistic		0.961	Shapiro Wilk GOF Test					
423				5% Shapiro Wilk Critical Value		0.927	Detected Data appear Lognormal at 5% Significance Level					
424				Lilliefors Test Statistic		0.112	Lilliefors GOF Test					

	A	B	C	D	E	F	G	H	I	J	K	L
425	5% Lilliefors Critical Value				0.159	Detected Data appear Lognormal at 5% Significance Level						
426	Detected Data appear Lognormal at 5% Significance Level											
427												
428	Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects											
429	Mean in Original Scale				0.0691	Mean in Log Scale				-2.68		
430	SD in Original Scale				0.00829	SD in Log Scale				0.123		
431	95% UTL95% Coverage				0.0897	95% BCA UTL95% Coverage				0.0822		
432	95% Bootstrap (%) UTL95% Coverage				0.0837	95% UPL (t)				0.0848		
433	90% Percentile (z)				0.0803	95% Percentile (z)				0.084		
434	99% Percentile (z)				0.0913	95% USL				0.0965		
435												
436	Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution											
437	KM Mean of Logged Data				-2.681	95% KM UTL (Lognormal)95% Coverage				0.0898		
438	KM SD of Logged Data				0.124	95% KM UPL (Lognormal)				0.0848		
439	95% KM Percentile Lognormal (z)				0.084	95% KM USL (Lognormal)				0.0966		
440												
441	Background DL/2 Statistics Assuming Lognormal Distribution											
442	Mean in Original Scale				0.0674	Mean in Log Scale				-2.72		
443	SD in Original Scale				0.0124	SD in Log Scale				0.236		
444	95% UTL95% Coverage				0.11	95% UPL (t)				0.0989		
445	90% Percentile (z)				0.0891	95% Percentile (z)				0.0971		
446	99% Percentile (z)				0.114	95% USL				0.127		
447	DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.											
448												
449	Nonparametric Distribution Free Background Statistics											
450	Data appear to follow a Discernible Distribution at 5% Significance Level											
451												
452	Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)											
453	Order of Statistic, r				32	95% UTL with95% Coverage				0.0837		
454	Approx, f used to compute achieved CC				1.684	pproximate Actual Confidence Coefficient achieved by UTL				0.806		
455	Approximate Sample Size needed to achieve specified CC				59	95% UPL				0.0819		
456	95% USL				0.0837	95% KM Chebyshev UPL				0.106		
457												
458	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
459	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
460	and consists of observations collected from clean unimpacted locations.											
461	The use of USL tends to provide a balance between false positives and false negatives provided the data											
462	represents a background data set and when many onsite observations need to be compared with the BTV.											
463												
464	Hg											
465												
466	General Statistics											
467	Total Number of Observations				30	Number of Missing Observations				2		
468	Number of Distinct Observations				1							
469	Number of Detects				0	Number of Non-Detects				30		
470	Number of Distinct Detects				0	Number of Distinct Non-Detects				1		
471	Minimum Detect				N/A	Minimum Non-Detect				2.0000E-4		
472	Maximum Detect				N/A	Maximum Non-Detect				2.0000E-4		
473	Variance Detected				N/A	Percent Non-Detects				100%		
474	Mean Detected				N/A	SD Detected				N/A		
475	Mean of Detected Logged Data				N/A	SD of Detected Logged Data				N/A		
476												
477	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											

	A	B	C	D	E	F	G	H	I	J	K	L
478	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
479	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
480												
481	The data set for variable Hg was not processed!											
482												
483												
484	Mo											
485												
486	General Statistics											
487	Total Number of Observations				32	Number of Missing Observations				0		
488	Number of Distinct Observations				21							
489	Number of Detects				22	Number of Non-Detects				10		
490	Number of Distinct Detects				20	Number of Distinct Non-Detects				2		
491	Minimum Detect				0.00358	Minimum Non-Detect				0.01		
492	Maximum Detect				0.069	Maximum Non-Detect				0.02		
493	Variance Detected				2.1788E-4	Percent Non-Detects				31.25%		
494	Mean Detected				0.0151	SD Detected				0.0148		
495	Mean of Detected Logged Data				-4.495	SD of Detected Logged Data				0.745		
496												
497	Critical Values for Background Threshold Values (BTVs)											
498	Tolerance Factor K (For UTL)				2.186	d2max (for USL)				2.773		
499												
500	Normal GOF Test on Detects Only											
501	Shapiro Wilk Test Statistic				0.688	Shapiro Wilk GOF Test						
502	5% Shapiro Wilk Critical Value				0.911	Data Not Normal at 5% Significance Level						
503	Lilliefors Test Statistic				0.239	Lilliefors GOF Test						
504	5% Lilliefors Critical Value				0.184	Data Not Normal at 5% Significance Level						
505	Data Not Normal at 5% Significance Level											
506												
507	Kaplan Meier (KM) Background Statistics Assuming Normal Distribution											
508	KM Mean				0.0126	KM SD				0.0126		
509	95% UTL95% Coverage				0.0401	95% KM UPL (t)				0.0343		
510	90% KM Percentile (z)				0.0287	95% KM Percentile (z)				0.0333		
511	99% KM Percentile (z)				0.0419	95% KM USL				0.0475		
512												
513	DL/2 Substitution Background Statistics Assuming Normal Distribution											
514	Mean				0.0122	SD				0.0129		
515	95% UTL95% Coverage				0.0405	95% UPL (t)				0.0345		
516	90% Percentile (z)				0.0288	95% Percentile (z)				0.0335		
517	99% Percentile (z)				0.0423	95% USL				0.0481		
518	DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons											
519												
520	Gamma GOF Tests on Detected Observations Only											
521	A-D Test Statistic				0.7	Anderson-Darling GOF Test						
522	5% A-D Critical Value				0.757	Detected data appear Gamma Distributed at 5% Significance Level						
523	K-S Test Statistic				0.163	Kolmogorov-Smirnov GOF						
524	5% K-S Critical Value				0.188	Detected data appear Gamma Distributed at 5% Significance Level						
525	Detected data appear Gamma Distributed at 5% Significance Level											
526												
527	Gamma Statistics on Detected Data Only											
528	k hat (MLE)				1.814	k star (bias corrected MLE)				1.597		
529	Theta hat (MLE)				0.0083	Theta star (bias corrected MLE)				0.00943		
530	nu hat (MLE)				79.84	nu star (bias corrected)				70.28		

	A	B	C	D	E	F	G	H	I	J	K	L	
531	MLE Mean (bias corrected)					0.0151	95% Percentile of Chisquare (2kstar)						8.15
532	MLE Sd (bias corrected)					0.0119							
533													
534	Gamma ROS Statistics using Imputed Non-Detects												
535	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs												
536	GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)												
537	For such situations, GROS method may yield incorrect values of UCLs and BTVs												
538	This is especially true when the sample size is small.												
539	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates												
540	Minimum					0.00358	Mean					0.0136	
541	Maximum					0.069	Median					0.01	
542	SD					0.0124	CV					0.907	
543	k hat (MLE)					2.415	k star (bias corrected MLE)					2.21	
544	Theta hat (MLE)					0.00564	Theta star (bias corrected MLE)					0.00617	
545	nu hat (MLE)					154.6	nu star (bias corrected)					141.4	
546	MLE Mean (bias corrected)					0.0136	MLE Sd (bias corrected)					0.00917	
547	95% Percentile of Chisquare (2kstar)					10.16	90% Percentile					0.0259	
548	95% Percentile					0.0313	99% Percentile					0.0433	
549	The following statistics are computed using Gamma ROS Statistics on Imputed Data												
550	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods												
551					WH	HW					WH	HW	
552	95% Approx. Gamma UTL with 95% Coverage				0.0391	0.0395	95% Approx. Gamma UPL				0.0314	0.0313	
553	95% Gamma USL				0.0506	0.052							
554													
555	Estimates of Gamma Parameters using KM Estimates												
556	Mean (KM)					0.0126	SD (KM)					0.0126	
557	Variance (KM)					1.5875E-4	SE of Mean (KM)					0.0023	
558	k hat (KM)					0.998	k star (KM)					0.926	
559	nu hat (KM)					63.9	nu star (KM)					59.24	
560	theta hat (KM)					0.0126	theta star (KM)					0.0136	
561	80% gamma percentile (KM)					0.0204	90% gamma percentile (KM)					0.0295	
562	95% gamma percentile (KM)					0.0388	99% gamma percentile (KM)					0.0603	
563													
564	The following statistics are computed using gamma distribution and KM estimates												
565	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods												
566					WH	HW					WH	HW	
567	95% Approx. Gamma UTL with 95% Coverage				0.0388	0.0392	95% Approx. Gamma UPL				0.0306	0.0305	
568	95% KM Gamma Percentile				0.0294	0.0292	95% Gamma USL				0.0511	0.0528	
569													
570	Lognormal GOF Test on Detected Observations Only												
571	Shapiro Wilk Test Statistic					0.962	Shapiro Wilk GOF Test						
572	5% Shapiro Wilk Critical Value					0.911	Detected Data appear Lognormal at 5% Significance Level						
573	Lilliefors Test Statistic					0.122	Lilliefors GOF Test						
574	5% Lilliefors Critical Value					0.184	Detected Data appear Lognormal at 5% Significance Level						
575	Detected Data appear Lognormal at 5% Significance Level												
576													
577	Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects												
578	Mean in Original Scale					0.0127	Mean in Log Scale					-4.647	
579	SD in Original Scale					0.0128	SD in Log Scale					0.691	
580	95% UTL95% Coverage					0.0434	95% BCA UTL95% Coverage					0.069	
581	95% Bootstrap (%) UTL95% Coverage					0.069	95% UPL (t)					0.0315	
582	90% Percentile (z)					0.0232	95% Percentile (z)					0.0299	
583	99% Percentile (z)					0.0479	95% USL					0.0652	

	A	B	C	D	E	F	G	H	I	J	K	L
584												
585	Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution											
586	KM Mean of Logged Data					-4.655	95% KM UTL (Lognormal)95% Coverage					0.0419
587	KM SD of Logged Data					0.678	95% KM UPL (Lognormal)					0.0306
588	95% KM Percentile Lognormal (z)					0.029	95% KM USL (Lognormal)					0.0624
589												
590	Background DL/2 Statistics Assuming Lognormal Distribution											
591	Mean in Original Scale					0.0122	Mean in Log Scale					-4.703
592	SD in Original Scale					0.0129	SD in Log Scale					0.706
593	95% UTL95% Coverage					0.0424	95% UPL (t)					0.0306
594	90% Percentile (z)					0.0224	95% Percentile (z)					0.029
595	99% Percentile (z)					0.0469	95% USL					0.0643
596	DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.											
597												
598	Nonparametric Distribution Free Background Statistics											
599	Data appear to follow a Discernible Distribution at 5% Significance Level											
600												
601	Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)											
602	Order of Statistic, r					32	95% UTL with95% Coverage					0.069
603	Approx, f used to compute achieved CC					1.684	pproximate Actual Confidence Coefficient achieved by UTL					0.806
604	Approximate Sample Size needed to achieve specified CC					59	95% UPL					0.0495
605	95% USL					0.069	95% KM Chebyshev UPL					0.0684
606												
607	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
608	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
609	and consists of observations collected from clean unimpacted locations.											
610	The use of USL tends to provide a balance between false positives and false negatives provided the data											
611	represents a background data set and when many onsite observations need to be compared with the BTV.											
612												
613	Ra											
614												
615	General Statistics											
616	Total Number of Observations					32	Number of Missing Observations					0
617	Number of Distinct Observations					32						
618	Number of Detects					23	Number of Non-Detects					9
619	Number of Distinct Detects					23	Number of Distinct Non-Detects					9
620	Minimum Detect					0.375	Minimum Non-Detect					0.373
621	Maximum Detect					1.76	Maximum Non-Detect					0.915
622	Variance Detected					0.0792	Percent Non-Detects					28.13%
623	Mean Detected					0.769	SD Detected					0.281
624	Mean of Detected Logged Data					-0.316	SD of Detected Logged Data					0.323
625												
626	Critical Values for Background Threshold Values (BTVs)											
627	Tolerance Factor K (For UTL)					2.186	d2max (for USL)					2.773
628												
629	Normal GOF Test on Detects Only											
630	Shapiro Wilk Test Statistic					0.817	Shapiro Wilk GOF Test					
631	5% Shapiro Wilk Critical Value					0.914	Data Not Normal at 5% Significance Level					
632	Lilliefors Test Statistic					0.206	Lilliefors GOF Test					
633	5% Lilliefors Critical Value					0.18	Data Not Normal at 5% Significance Level					
634	Data Not Normal at 5% Significance Level											
635												
636	Kaplan Meier (KM) Background Statistics Assuming Normal Distribution											

	A	B	C	D	E	F	G	H	I	J	K	L
637	KM Mean					0.678	KM SD					0.282
638	95% UTL95% Coverage					1.295	95% KM UPL (t)					1.164
639	90% KM Percentile (z)					1.04	95% KM Percentile (z)					1.142
640	99% KM Percentile (z)					1.335	95% KM USL					1.461
641												
642	DL/2 Substitution Background Statistics Assuming Normal Distribution											
643	Mean					0.634	SD					0.327
644	95% UTL95% Coverage					1.348	95% UPL (t)					1.196
645	90% Percentile (z)					1.052	95% Percentile (z)					1.171
646	99% Percentile (z)					1.394	95% USL					1.54
647	DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons											
648												
649	Gamma GOF Tests on Detected Observations Only											
650	A-D Test Statistic					0.674	Anderson-Darling GOF Test					
651	5% A-D Critical Value					0.744	Detected data appear Gamma Distributed at 5% Significance Level					
652	K-S Test Statistic					0.157	Kolmogorov-Smirnov GOF					
653	5% K-S Critical Value					0.182	Detected data appear Gamma Distributed at 5% Significance Level					
654	Detected data appear Gamma Distributed at 5% Significance Level											
655												
656	Gamma Statistics on Detected Data Only											
657	k hat (MLE)					9.648	k star (bias corrected MLE)					8.418
658	Theta hat (MLE)					0.0797	Theta star (bias corrected MLE)					0.0913
659	nu hat (MLE)					443.8	nu star (bias corrected)					387.3
660	MLE Mean (bias corrected)					0.769						
661	MLE Sd (bias corrected)					0.265	95% Percentile of Chisquare (2kstar)					27.38
662												
663	Gamma ROS Statistics using Imputed Non-Detects											
664	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
665	GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)											
666	For such situations, GROS method may yield incorrect values of UCLs and BTVs											
667	This is especially true when the sample size is small.											
668	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
669	Minimum					0.224	Mean					0.663
670	Maximum					1.76	Median					0.681
671	SD					0.299	CV					0.452
672	k hat (MLE)					5.676	k star (bias corrected MLE)					5.165
673	Theta hat (MLE)					0.117	Theta star (bias corrected MLE)					0.128
674	nu hat (MLE)					363.3	nu star (bias corrected)					330.5
675	MLE Mean (bias corrected)					0.663	MLE Sd (bias corrected)					0.292
676	95% Percentile of Chisquare (2kstar)					18.76	90% Percentile					1.053
677	95% Percentile					1.203	99% Percentile					1.521
678	The following statistics are computed using Gamma ROS Statistics on Imputed Data											
679	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods											
680					WH	HW					WH	HW
681	95% Approx. Gamma UTL with 95% Coverage				1.424	1.452	95% Approx. Gamma UPL				1.217	1.229
682	95% Gamma USL				1.719	1.775						
683												
684	Estimates of Gamma Parameters using KM Estimates											
685	Mean (KM)					0.678	SD (KM)					0.282
686	Variance (KM)					0.0798	SE of Mean (KM)					0.0519
687	k hat (KM)					5.759	k star (KM)					5.24
688	nu hat (KM)					368.6	nu star (KM)					335.3
689	theta hat (KM)					0.118	theta star (KM)					0.129

	A	B	C	D	E	F	G	H	I	J	K	L
690	80% gamma percentile (KM)					0.906	90% gamma percentile (KM)					1.074
691	95% gamma percentile (KM)					1.227	99% gamma percentile (KM)					1.548
692												
693	The following statistics are computed using gamma distribution and KM estimates											
694	Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods											
695					WH	HW					WH	HW
696	95% Approx. Gamma UTL with 95% Coverage				1.357	1.372	95% Approx. Gamma UPL				1.176	1.181
697	95% KM Gamma Percentile				1.147	1.152	95% Gamma USL				1.611	1.646
698												
699	Lognormal GOF Test on Detected Observations Only											
700	Shapiro Wilk Test Statistic					0.947	Shapiro Wilk GOF Test					
701	5% Shapiro Wilk Critical Value					0.914	Detected Data appear Lognormal at 5% Significance Level					
702	Lilliefors Test Statistic					0.137	Lilliefors GOF Test					
703	5% Lilliefors Critical Value					0.18	Detected Data appear Lognormal at 5% Significance Level					
704	Detected Data appear Lognormal at 5% Significance Level											
705												
706	Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects											
707	Mean in Original Scale					0.677	Mean in Log Scale					-0.46
708	SD in Original Scale					0.283	SD in Log Scale					0.372
709	95% UTL95% Coverage					1.424	95% BCA UTL95% Coverage					1.76
710	95% Bootstrap (%) UTL95% Coverage					1.76	95% UPL (t)					1.198
711	90% Percentile (z)					1.017	95% Percentile (z)					1.164
712	99% Percentile (z)					1.501	95% USL					1.772
713												
714	Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution											
715	KM Mean of Logged Data					-0.463	95% KM UTL (Lognormal)95% Coverage					1.436
716	KM SD of Logged Data					0.377	95% KM UPL (Lognormal)					1.205
717	95% KM Percentile Lognormal (z)					1.171	95% KM USL (Lognormal)					1.792
718												
719	Background DL/2 Statistics Assuming Lognormal Distribution											
720	Mean in Original Scale					0.634	Mean in Log Scale					-0.589
721	SD in Original Scale					0.327	SD in Log Scale					0.545
722	95% UTL95% Coverage					1.825	95% UPL (t)					1.417
723	90% Percentile (z)					1.115	95% Percentile (z)					1.359
724	99% Percentile (z)					1.97	95% USL					2.512
725	DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.											
726												
727	Nonparametric Distribution Free Background Statistics											
728	Data appear to follow a Discernible Distribution at 5% Significance Level											
729												
730	Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)											
731	Order of Statistic, r					32	95% UTL with95% Coverage					1.76
732	Approx, f used to compute achieved CC					1.684	pproximate Actual Confidence Coefficient achieved by UTL					0.806
733	Approximate Sample Size needed to achieve specified CC					59	95% UPL					1.396
734	95% USL					1.76	95% KM Chebyshev UPL					1.928
735												
736	Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.											
737	Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers											
738	and consists of observations collected from clean unimpacted locations.											
739	The use of USL tends to provide a balance between false positives and false negatives provided the data											
740	represents a background data set and when many onsite observations need to be compared with the BTV.											
741												
742	Se											

	A	B	C	D	E	F	G	H	I	J	K	L
743												
744	General Statistics											
745	Total Number of Observations					32	Number of Missing Observations					0
746	Number of Distinct Observations					2						
747	Number of Detects					0	Number of Non-Detects					32
748	Number of Distinct Detects					0	Number of Distinct Non-Detects					2
749	Minimum Detect					N/A	Minimum Non-Detect					0.005
750	Maximum Detect					N/A	Maximum Non-Detect					0.05
751	Variance Detected					N/A	Percent Non-Detects					100%
752	Mean Detected					N/A	SD Detected					N/A
753	Mean of Detected Logged Data					N/A	SD of Detected Logged Data					N/A
754												
755	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
756	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
757	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
758												
759	The data set for variable Se was not processed!											
760												
761												
762	Th											
763												
764	General Statistics											
765	Total Number of Observations					30	Number of Missing Observations					2
766	Number of Distinct Observations					2						
767	Number of Detects					0	Number of Non-Detects					30
768	Number of Distinct Detects					0	Number of Distinct Non-Detects					2
769	Minimum Detect					N/A	Minimum Non-Detect					0.001
770	Maximum Detect					N/A	Maximum Non-Detect					0.01
771	Variance Detected					N/A	Percent Non-Detects					100%
772	Mean Detected					N/A	SD Detected					N/A
773	Mean of Detected Logged Data					N/A	SD of Detected Logged Data					N/A
774												
775	Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!											
776	Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!											
777	The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).											
778												
779	The data set for variable Th was not processed!											
780												
781												