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March 28, 2025

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Subject: **2024 Annual Plume Stability Evaluation Monitoring Report**
U.S. Vanadium, LLC (Former EVRAZ Stratcor, Inc.) Plant Site,
Hot Springs, Arkansas
Consent Administrative Order (CAO) LIS-85-075

Please find attached the 2024 Annual Plume Stability Evaluation Monitoring Report submitted in accordance with CAO LIS-85-075 for the U.S. Vanadium, LLC (former EVRAZ Stratcor, Inc.) Plant Site at Hot Springs, Arkansas. The Professional Geologist (PG)-stamped hardcopy version will follow the submittal of this electronic version of the report.

If you have any questions regarding this information, please contact me at (936) 548-9341.

Sincerely,

Meredith C. Harris

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2024 Annual Plume Stability Evaluation Monitoring Report

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Umetco Minerals Corporation

Plant Site, Hot Springs, Arkansas
March 2025



2024 Annual Plume Stability Evaluation Monitoring Report

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Certification

This report, titled *2024 Annual Plume Stability Evaluation Monitoring Report, Plant Site, Hot Springs, Arkansas,* has been reviewed and approved by a Registered Professional Geologist (RPG) licensed in the State of Arkansas.

Ryan Bitely, RPG
No. 2019

3/27/25
Date



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Acronyms and Abbreviations

°C	degree(s) Celsius
ADPC&E	Arkansas Department of Pollution Control and Ecology
DEQ	Division of Environmental Quality
EPA	U.S. Environmental Protection Agency
EVRAZ Stratcor	EVRAZ Stratcor, Inc.
MG	million gallons
mg/L	milligram(s) per liter
N	nitrogen
PSE	plume stability evaluation
Q1	first quarter (January through March)
Q2	second quarter (April through June)
Q3	third quarter (July through September)
Q4	fourth quarter (October through December)
Plant Site	U.S. Vanadium, LLC Plant Site
RPG	Registered Professional Geologist
TCG	Target Cleanup Goal
TDS	total dissolved solids
U.S.	United States
Umetco	Umetco Minerals Corporation
UO	Umetco observation (monitoring well)
UR	Umetco recovery (recovery well)
U.S. Vanadium	U.S. Vanadium, LLC

1. Introduction

This report summarizes the results of 2024 groundwater monitoring at the U.S. Vanadium, LLC (U.S. Vanadium) Plant Site (Plant Site) in Hot Springs, Arkansas. The Plant Site is currently owned and operated by U.S. Vanadium, formerly EVRAZ Stratcor Inc. (EVRAZ Stratcor).

Pursuant to Consent Administrative Order LIS 85-075 (ADPC&E and Umetco 1986), Umetco Minerals Corporation (Umetco) has been monitoring groundwater quality using an approved monitoring well network since 1987. A groundwater recovery system was installed in 1991, and consists of 13 recovery wells and a groundwater interceptor trench (French drain). The groundwater recovery system came online in August 1993. The French drain became operational in October 1993 (Umetco 1994).

Umetco contracted Jacobs to perform groundwater monitoring and recovery well operations during 2024, including the following tasks:

- Pumping and treatment of groundwater (through April 24, 2024)
- Implementation of a plume stability evaluation (PSE) with the pumping system turned off
- Quarterly groundwater monitoring
- System maintenance (through April 24, 2024)

On February 26, 2024, The Division of Environmental Quality (DEQ) approved the PSE Work Plan that was originally submitted to DEQ on August 8, 2023. After the first quarterly (Q1) sampling event of 2024 (January to March), the recovery well system was shut down on April 24, 2024, and the PSE began. The PSE is designed to monitor groundwater concentration trends of the following parameters in the Alluvium and Stanley Shale hydrogeologic, or water bearing, units for 3 years, with the groundwater recovery system shut off:

- Chloride
- Sulfate
- Total dissolved solids (TDS)

Recommendations will be made after all the data and trends are evaluated after this three year shutdown period.

2. Background

This section provides general information about the Plant Site.

2.1 Site Location and History

The Plant Site is located in Garland County, Arkansas, approximately 7 miles east of Hot Springs (Figure 2-1). The Plant Site lies within portions of Sections 16, 17, and 21 of Township 3 South, Range 18 West.

The Plant Site's groundwater recovery system began operations in August 1993 (Umetco 1994). When in operation, the recovered groundwater is routed to the Northeast Effluent Pond before it is discharged with U.S. Vanadium Plant effluent through Outfall 001 under U.S. Vanadium's approved National Pollutant Discharge Elimination System permit (Permit Number AR0000523).

A network consisting of 36 monitoring wells is used to assess groundwater conditions at the Plant Site. In addition, 13 recovery wells were used to recover groundwater beneath the Plant Site since the recovery well began to operate in 1993. A 262-foot-long groundwater interceptor trench (French drain) along the southern boundary of the Plant Site augmented the groundwater recovery system, capturing groundwater from the uppermost water-bearing zone. Pumping operations, which included the recovery wells and the French drain, ceased operation for the PSE in April 2024.

2.2 Site Hydrogeology

Shallow groundwater beneath the Plant Site exists in two water-bearing zones:

1. Quaternary Alluvium
2. Mississippian Stanley Shale

Previous studies used boring logs and field mapping to delineate the lateral extent and thickness of the Alluvium (Owens and Hollingsworth 1986; B&F 1988a, 1988b). Those studies describe that although the Alluvium has a limited areal extent, it is present beneath most of the Plant Site. The Stanley Shale represents the uppermost bedrock layer beneath the Alluvium.

Groundwater in the Alluvium exists under unconfined conditions, and groundwater flows through primary porosity. Groundwater in the Stanley Shale exists under unconfined and leaky confined conditions. Groundwater within the Stanley Shale flows predominantly through secondary fracture porosity (Yancey and Associates 1998). The Stanley Shale is hydraulically connected to the Alluvium.

The natural (unaffected by pumping) depth to groundwater at the Plant Site ranges from a few feet to approximately 20 feet below ground surface. Seasonal fluctuations in water levels typically cause the saturated thickness in the Alluvium to vary by an average of 6 feet, based on historical records (CH2M[1] 2015, 2016, 2017, 2018; Jacobs 2019, 2020, 2021, 2022, 2023a, 2024).

[1] Jacobs acquired CH2M HILL, Inc. (CH2M) in 2017.

2.3 Groundwater Monitoring

There are 36 Umetco observation (UO) monitoring wells at the Plant Site to assess groundwater conditions:

- 19 monitoring wells are screened in the Alluvium
- 17 monitoring wells are screened in the Stanley Shale

Many of the monitoring wells were installed as nested pairs, with the upper well completed in the Alluvium, and the lower well completed in the Stanley Shale. Figure 2-2 shows the well locations in both zones.

2.4 Groundwater Recovery System

Five recovery wells are screened in the Alluvium, and eight recovery wells are screened in the Stanley Shale. Figure 2-2 shows the 13 recovery well locations in both zones. Each recovery well name begins with a "UR" prefix (indicating Umetco recovery [UR] well).

The recovery wells are equipped with totalizing flow meters to record the volume of water pumped from each well, when in operation. Section 4.4 discusses the groundwater volumes recovered to date. With the cessation of recovery well pumping in April 2024, the totalizer data represent all pumping volumes completed through April 2024, when the recovery well pumping operations were shut down and the PSE began.

3. Field Activities

During 2024, groundwater samples and groundwater elevation data were collected from the Plant Site monitoring and recovery wells on a quarterly basis:

- February and March (first quarter [Q1])
- May and June (second quarter [Q2]; first PSE quarterly event)
- August and September (third quarter [Q3]; second PSE quarterly event)
- October (fourth quarter [Q4]; third PSE quarterly event)

This section summarizes the monitoring program and field activities.

3.1 Groundwater Elevation Monitoring

During each sampling event, depths to groundwater were measured during a single day in the Plant Site monitoring wells. The water level measurements were subtracted from the surveyed top-of-casing (TOC) elevation of the wells to obtain groundwater elevations. Tables 3-1 and 3-2 summarize construction details for the monitoring wells and recovery wells, respectively, including water-bearing zone, ground surface elevation, and top-of-casing elevation.

3.2 Groundwater Sample Collection

Groundwater samples were collected at the locations listed in Tables 3-1 and 3-2 and shown on Figure 2-2. All 36 monitoring wells and 13 recovery wells were sampled during each 2024 quarterly sampling period.

The monitoring wells were sampled using a low-flow method. The first step was to evacuate one casing volume from the monitoring well using either a dedicated bladder pump and dedicated tubing, or a peristaltic pump and dedicated tubing in wells that are not currently outfitted with a dedicated bladder pump. Once a well casing volume was evacuated, at least 3 rounds of field parameters were collected at approximately 5-minute intervals to determine parameter stability. Once stability conditions (field parameters indicating readings within 0.1 pH units, and +/-3% stability for specific conductance and temperature) were reached, a groundwater sample was collected.

The Plant Site recovery wells do not require standard purging methods, because they are outfitted with high-flow recovery well submersible electric pumps. The field technician purged groundwater from the recovery wells using the dedicated submersible electric pumps through the sampling line for approximately 5 minutes before sample collection began. Each recovery well has a sampling port through which samples were collected. If the submersible electric pump was out of service due to maintenance or malfunction, the recovery well was purged using a peristaltic pump, with sample tubing set in the midpoint of the screened interval, to evacuate half the calculated casing well volume because of the significant volume in these wells. Once half a casing volume was achieved, at least 3 rounds of field parameters were collected to achieve stability conditions, and then a sample was collected directly from the sampling port into the laboratory-supplied sample containers. The field filtered samples for metals collected in Q1 were collected using a disposable 0.45-micrometer filter threaded onto the sampling port and was discharged directly into the laboratory-supplied containers.

Once sampling at each well was complete, the samples were labeled and placed in an ice-filled cooler for shipment to the laboratory by overnight carrier for analysis. The samples were maintained under chain-of-custody during shipment and upon receipt at the laboratory.

Field duplicate samples were collected at a rate of 1 duplicate per 10 monitoring wells sampled. The sample collection techniques for field duplicates were the same as those used to collect the primary groundwater samples.

3.3 Laboratory Methods

Before the approval and initiation of the PSE, and as specified by the Arkansas Department of Pollution Control and Ecology (ADPC&E) in a letter dated February 28, 1990, groundwater at the Plant Site was monitored for the following parameters (ADPC&E and Umetco 1990):

- Calcium
- Chloride
- Nitrate
- Sodium
- Sulfate
- Vanadium
- TDS
- pH
- Specific conductance

As approved in the letter dated February 2024 (DEQ 2024), the following PSE parameters were monitored for April through December 2024 (Q2 through Q4):

- Chloride
- Sulfate
- TDS
- pH
- Specific conductance

The pH and specific conductance are measured in the field. For clarification, specific conductance is commonly referred to as conductivity, although the term conductivity implies measurements are collected at the standard 25 degrees Celsius (°C). Specific conductance measurements were corrected for sample temperature because conductivity varies with temperature.

Eurofins Lancaster Laboratories Environmental in Lancaster, Pennsylvania, analyzed the 2024 Q1 groundwater samples for the following parameters:

- Dissolved metals (calcium, sodium, and vanadium) by U.S. Environmental Protection Agency (EPA) Methods 200.7 and 200.8
- Chloride and sulfate by EPA Method 300.0
- Nitrogen by EPA Method 353.2
- TDS by Standard Method 2540 C-1997

Eurofins Lancaster Laboratories Environmental in Lancaster, Pennsylvania, analyzed the 2024 second, third, and fourth quarter groundwater samples for the following parameters:

- Chloride and sulfate by EPA Method 300.0
- TDS by Standard Method 2540 C1997

Following reporting of final data by the laboratory, data were validated as described in the Quality Assurance Project Plan (QAPP) and National Functional Guidelines for Data Review. Appropriate data qualifiers were added to the validated results to identify useability. Appendix C includes the Data Quality Evaluation (DQE) for samples collected during 2024 groundwater monitoring.

3.4 Operations and Maintenance Activities

Routine operations and maintenance activities took place during 2024, including cleaning or replacing pumps, valves, flow meters, totalizers, and associated equipment in the groundwater recovery system.

4. Results

This section describes results of the 2024 groundwater monitoring at the Plant Site. Appendix A includes analytical laboratory reports for the 2024 samples, and Appendix B contains tables that summarize the 2024 sampling locations, results and comparison to target cleanup levels.

4.1 Groundwater Flow

Figures 4-1 and 4-2 show the groundwater elevations and potentiometric contours for the Alluvium and Stanley Shale, respectively, for Q4 2024. Groundwater elevations from Q4 were selected for plotting because October through December is typically a dry time of year in the region, resulting in lower groundwater elevations that represent hydrologic base flow conditions.

During 2024, groundwater in both water-bearing zones generally flowed to the south-southeast, consistent with the groundwater flow directions observed under baseflow conditions in previous years. Minor changes occurred to the potentiometric surfaces in both water-bearing zones as compared between pumping (Jacobs 2024) and non-pumping conditions associated with the PSE (Figures 4-1 and 4-2).

4.2 Hydrographs

Hydrographs were prepared for select monitoring well pairs to show groundwater-level fluctuations since 1990. The hydrographs also show the hydraulic relationship between the Alluvium and Stanley Shale. Well identification numbers ending with ".1" are screened in the Alluvium, and those ending with ".2" are screened in the Stanley Shale. The following well pairs and vertical gradients were observed through time and depicted on the associated figures:

- Figure 4-3A – UO-87-3.1 and UO-87-3.2 – Main Plume Area – Slight downward vertical gradient
- Figure 4-3B – UO-87-6.1 and UO-87-6.2 – Downgradient – Slight upward vertical gradient
- Figure 4-4A – UO-87-8.1 and UO-87-8.2 – Cross-gradient – No vertical gradient
- Figure 4-4B – UO-87-9.1 and UO-87-9.2 – Main Plume Area – Varied - No vertical gradient (PSE)
- Figure 4-5 – UO-88-13.1 and UO-88-13.2 – Upgradient – Downward vertical gradient

4.3 Groundwater Quality

This section summarizes the groundwater quality results.

4.3.1 Field Parameters

Tables 4-1 and 4-2 provide quarterly field parameter data. Field parameter measurements were collected from all wells during the 2024 quarterly events.

In 2024, observed pH, temperature, and specific conductance variations were consistent with previous sampling events at each location (CH2M 2015, 2016, 2017, 2018; Jacobs 2019, 2020, 2021, 2022, 2023a, 2024).

4.3.2 Analytical Parameters

Tables 4-3, 4-4, 4-5, and 4-6 list the groundwater concentrations for each analytical parameter during each 2024 quarter for the Alluvium monitoring wells. Tables 4-7, 4-8, 4-9, and 4-10 show the concentrations for the Stanley Shale monitoring wells. Time-series concentration graphs (Figures 4-6 through 4-25) were

prepared for select wells to show the trends in constituent concentrations in Alluvium and Stanley Shale monitoring wells. Select wells are presented to provide a general indication of trends in the following areas:

- Upgradient plume area (UO-88-13.1 and UO-88-13.2)
- Main plume area (UO-87-3.1, UO-87-3.2, UO-87-9.1, and UO-87-9.2)
- Cross-gradient area (UO-87-8.1 and UO-87-8.2)
- Downgradient, offsite area (UO-87-6.1 and UO-87-6.2)

The summary of constituent concentration behavior in select monitoring wells is presented on Figures 4-6A through 4-11B; 4-14A through 4-15B; and 4-18 through 4-25. Shown on these graphs are the detected constituent concentrations as are the associated reporting limits. Constituents with Target Cleanup Goals (TCGs) (chloride, sulfate, and TDS) are discussed in the sections below.

These TCGs are based on the EPA secondary maximum contaminant levels. The TCGs are required per the conditional approval letter response to Amendment 6 of the Consent Administrative Order (ADPC&E 1990). Other monitored parameters (calcium, sodium, nitrate, and vanadium) are also discussed below following the chloride, sulfate and TDS discussions.

Chloride, sulfate, TDS, calcium, sodium, nitrate, and vanadium were collected during Q1 of 2024 during recovery well operations. For each of the PSE events (Q2 through Q4) after recovery well pumping ceased, only chloride, sulfate and TDS were collected.

Figures 4-8, 4-9, 4-12, 4-13, 4-16, and 4-17 show isoconcentration contours for chloride, sulfate, and TDS for both zones using data from Q4 2024. Q4 of each year has historically been selected to present potentiometric and isoconcentration plume figures, because this is seasonally the driest and most stable period of the year for annual comparison.

4.3.3 Chloride

Figures 4-6A and 4-6B show chloride concentrations in select Alluvium monitoring wells using linear and semilogarithmic scales, respectively. Figures 4-7A and 4-7B show Stanley Shale monitoring wells using linear and semilogarithmic scales, respectively. Both linear and semilogarithmic scales are represented for these data to visually disseminate high- and low-concentration trend data together. High-concentration data overwhelm the relative visual comparison of low concentrations on linear graphs, although linear graphs better show changes in high-concentration trends over time. Comparison of low- and high-concentration trends together are easier to visualize on semilogarithmic graphs than linear graphs. The chloride TCG of 250 milligrams per liter (mg/L) is shown on each of the figures, with analytical results summarized in Tables 4-3 to 4-6 for the Alluvium and Tables 4-7 to 4-10 for the Stanley Shale.

Chloride isoconcentration maps are shown on Figures 4-8 (Alluvium) and 4-9 (Stanley Shale), which depict 250 mg/L and 2,500 mg/L isopleths for chloride in each water-bearing unit.

4.3.4 Sulfate

Figures 4-10A and 4-10B show sulfate concentrations in selected Alluvium monitoring wells using linear and semilogarithmic scales, respectively. Figures 4-11A and 4-11B show Stanley Shale monitoring wells using linear and semilogarithmic scales, respectively.

Each figure shows the sulfate TCG of 250 mg/L, with analytical results summarized in Tables 4-3 to 4-6 for the Alluvium and Tables 4-7 to 4-10 for the Stanley Shale.

Sulfate isoconcentration maps are shown on Figures 4-12 (Alluvium) and 4-13 (Stanley Shale), which depict the 250 mg/L isopleth for sulfate in each water-bearing unit.

4.3.5 Total Dissolved Solids

Figures 4-14A and 4-14B show TDS concentrations in selected Alluvium monitoring wells using linear and semilogarithmic scales, respectively. Figures 4-15A and 4-15B show Stanley Shale monitoring wells using linear and semilogarithmic scales, respectively.

Each figure shows the TDS TCG of 500 mg/L, with analytical results summarized in Tables 4-3 to 4-6 for the Alluvium and Tables 4-7 to 4-10 for the Stanley Shale.

TDS isoconcentration maps are shown on Figures 4-16 (Alluvium) and 4-17 (Stanley Shale), which depict the 500 mg/L and 5,000 mg/L isopleths for TDS in each water-bearing unit.

4.3.6 Calcium

Figures 4-18 and 4-19 show the calcium concentrations in selected Alluvium and Stanley Shale monitoring wells, respectively, and results are similar to what has been historically observed.

Per the PSE approval letter (DEQ 2024), the analysis of calcium ended with the initiation of the PSE in Q2 (beginning April 1) of 2024.

4.3.7 Sodium

Figures 4-20 and 4-21 show the sodium concentrations in selected Alluvium and Stanley Shale monitoring wells, respectively, and results are similar to what has been historically observed.

Per the PSE approval letter (DEQ 2024), the analysis of sodium ended with the initiation of the PSE in Q2 (beginning April 1) of 2024.

4.3.8 Nitrate-nitrite (as Nitrogen)

Nitrate-nitrite concentrations (reported as N) have been analyzed since January 1998; before that time, only nitrate was analyzed. This change was made because of the short 48-hour holding time required for nitrate analysis (Pfaff 1993).

Figures 4-22 (Alluvium) and 4-23 (Stanley Shale) show data since 1998, when the switch was made to the combined nitrate-nitrite analysis. Results are similar to what has been historically observed.

Per the PSE approval letter (DEQ 2024), the analysis of Nitrate-nitrite ended with the initiation of the PSE in Q2 (beginning April 1) of 2024.

4.3.9 Vanadium

Figures 4-24 (Alluvium) and 4-25 (Stanley Shale) show the dissolved vanadium concentrations for select monitoring wells. Results are similar to what has been historically observed.

Per the PSE approval letter (DEQ 2024), the analysis of vanadium ended with the initiation of the PSE in Q2 (beginning April 1) of 2024.

4.3.10 Summary

The behavior of chloride and TDS concentrations is similar between the Alluvium and Stanley Shale over time, as shown by the paired wells on Figures 4-6, 4-7, 4-14, and 4-15. These two constituents are known

to be related to the historical operations of the East Effluent and Scrubber Bleed Ponds. Changes in TDS concentrations are generally consistent with the changes in chloride concentrations, because chloride is the predominant TDS component in the Plant Site groundwater. This dependence of TDS on chloride concentrations explains much of the decreased TDS concentrations observed in Stanley Shale monitoring wells UO-87-3.2, UO-87-9.2, and UO-88-13.2 since the mid-1990s, because chloride concentrations decreased at these wells during the same time frame. Generally, TDS and chloride concentrations have decreased by an order of magnitude between 1993, when groundwater recovery operations began, and by 2003, after which time concentrations became stable or continued to decrease much less significantly, through Q1 2024 when the system was turned off for the PSE. Since around 2020 and through the first year of the PSE, TDS and chloride concentrations have generally remained stable or continued to decrease with low magnitude increases identified at UO-87-6.1 in the Alluvium and UO-87-10.2 in the Stanley Shale.

The data observed in 2024 (and before) provide the following results for the groundwater parameters being evaluated at the Plant Site:

- Concentrations of all parameters have remained relatively consistent in 2024, including after the recovery system was shut down in April.
- Downgradient Alluvium well UO-87-6.1 decreased to or less than the TCG of 250 mg/L for chloride in 2024, with a similar decrease to less than the TDS TCG limit of 500 mg/L.
- Chloride and TDS concentrations in the historical downgradient well pairs, UO-87-6.1 and UO-87-6.2 and UO-87-7.1 and UO-87-7.2, have remained relatively consistent in 2024. This trend suggests the plume is not expanding downgradient.
- With the addition of the downgradient nested pair, UO-20-21.1 and UO-20-21.2, both chloride and TDS concentrations have been measured exceeding the TCGs of 250 and 500 mg/L, respectively, in the Stanley Shale well. However, they have remained less than these respective TCG concentrations in the Alluvium during 2024 at this paired well location.

4.4 Groundwater Recovery System Performance

The groundwater recovery system includes 13 groundwater recovery wells and the groundwater interceptor trench (that is, the French drain). In 2023, the recovery system captured nearly 3.5 million gallons (MG) of groundwater. In 2024, the recovery wells operated from the beginning of the year through April 24, when the system was shut down at the beginning of the PSE. As a result, recovered groundwater volumes in 2024 only account for the first 4 months of the year. During this time, the recovery system captured approximately 1.7 MG of groundwater (Figure 4-26).

Since pumping began in 1993, nearly 320.4 MG of groundwater have been recovered, with approximately 105.7 MG removed from the Alluvium monitoring wells and 214.7 MG pumped from the Stanley Shale monitoring wells. Figure 4-26 shows the volume of recovered groundwater per year.

The groundwater recovery system was designed to address the Plant Site groundwater plumes by removing 2 to 4 pore volumes each from the Alluvium and Stanley Shale. The size of 1 pore volume was estimated at 36 MG for the Alluvium and at 81 MG for the Stanley Shale in the *Amended Groundwater Response Plan for the Paleozoic and Quaternary Formations* (Umetco 1991). To date, approximately 2.94 pore volumes of groundwater have been extracted from the Alluvium, and approximately 2.65 pore volumes have been removed from the Stanley Shale.

5. Planned Actions for 2025

Umetco will continue to implement the PSE through quarterly monitoring in 2025. Quarterly updates will be provided to DEQ, including the monitoring results. Umetco will continue to submit an Annual Groundwater Monitoring Report in accordance with the PSE Work Plan and approval letter.

6. References

Arkansas Department of Pollution Control and Ecology (ADPC&E) and Umetco Minerals Corporation (Umetco). 1986. *Consent Administrative Order LIS 85-075*. April.

Arkansas Department of Pollution Control and Ecology (ADPC&E) and Umetco Minerals Corporation (Umetco). 1990. *Letter of Conditional Approval for Remedial Action Proposal, Component 6: Consent Administrative Order LIS 85-075*. To R. R. Evans, Umetco Minerals Corporation. February 28.

B&F Engineering, Inc. (B&F). 1988a. *Groundwater Investigations of Paleozoic and Quaternary Formations South of Umetco/Stratcor Vanadium Facility, Hot Springs*. Prepared for Umetco Minerals Corporation. Revised October 15.

B&F Engineering, Inc. (B&F). 1988b. *Groundwater Studies at Umetco/Stratcor Vanadium Facilities – Component 4.* Prepared for Umetco Minerals Corporation. March.

CH2M HILL Engineers, Inc (CH2M). 2015. *2014 Annual Groundwater Report, EVRAZ Stratcor Plant Site, Hot Springs, Arkansas.* Prepared for Umetco Minerals Corporation. March.

CH2M HILL Engineers, Inc (CH2M). 2016. *2015 Annual Groundwater Report, EVRAZ Stratcor Plant Site, Hot Springs, Arkansas.* Prepared for Umetco Minerals Corporation. March.

CH2M HILL Engineers, Inc (CH2M). 2017. *2016 Annual Groundwater Report, EVRAZ Stratcor Plant Site, Hot Springs, Arkansas.* Prepared for Umetco Minerals Corporation. March.

CH2M HILL Engineers, Inc (CH2M). 2018. *2017 Annual Groundwater Report, EVRAZ Stratcor Plant Site, Hot Springs, Arkansas.* Prepared for Umetco Minerals Corporation. March.

Jacobs. 2019. *2018 Annual Groundwater Report, EVRAZ Stratcor Plant Site, Hot Springs, Arkansas.* Prepared for Umetco Minerals Corporation. March.

Jacobs. 2020. *2019 Annual Groundwater Report, EVRAZ Stratcor Plant Site, Hot Springs, Arkansas.* Prepared for Umetco Minerals Corporation. March.

Jacobs. 2021. *2020 Annual Groundwater Report, US Vanadium Plant Site, Hot Springs, Arkansas.* Prepared for Umetco Minerals Corporation. April.

Jacobs. 2022. *2021 Annual Groundwater Report, US Vanadium Plant Site, Hot Springs, Arkansas.* Prepared for Umetco Minerals Corporation. March.

Jacobs. 2023a. 2022 Annual Groundwater Report, *US Vanadium Plant Site, Hot Springs, Arkansas*. Prepared for Umetco Minerals Corporation. March.

Jacobs. 2023b. *Work Plan for Plant Site Plume Stability Evaluation.* Prepared for Umetco Minerals Corporation. August.

Jacobs. 2024. 2023 Annual Groundwater Report, *US Vanadium Plant Site, Hot Springs, Arkansas*. Prepared for Umetco Minerals Corporation. March.

Owens, D.R., and J.S. Hollingsworth. 1986. *Investigation of Chloride Anomalism in Paleozoic and Quaternary Formations Underlying the Umetco Minerals Corporation Vanadium Mill and Vicinity, Garland County, Arkansas.* Prepared for Umetco Minerals Corporation. June.

Pfaff, John D. 1993. *Method 300.0 Determination of Inorganic Anions by Ion Chromatography, Revision 2.1*. EPA. August.

Umetco Minerals Corporation (Umetco). 1991. *Amended Groundwater Response Plan for the Paleozoic and Quaternary Formations, South of the Umetco/U.S. Vanadium Facility, Hot Springs, Arkansas*. January 21.

Umetco Minerals Corporation (Umetco). 1994. *Ground Water Recovery Operation and Maintenance Procedures.* April.

Yancey and Associates, Inc. (Yancy and Associates). 1998. *1997 Annual Report of Groundwater Conditions at the U.S. Vanadium Plant Site, Hot Springs, Arkansas*. Prepared for Umetco Minerals Corporation. March.

Tables

Table 3-1. Monitoring Well Construction Details and Measured Groundwater Elevations
Plant Site
Hot Springs, Arkansas
Umetco Minerals Corporation
2024 Annual Plume Stability Evaluation Monitoring Report

						Measurement Date	2/9/2024		4/30/2024		7/19/2024		10/4/2024	
Well Name	Water-bearing Zone	Ground Surface Elevation	Top-of-Casing Elevation	Total Depth	Screen Interval		Groundwater Elevations	Water Level Record	Groundwater Elevations	Water Level Record	Groundwater Elevations	Water Level Record	Groundwater Elevations	Water Level Record
UO-87-01.1A	Alluvium	404.41	404.42	23.0	18.0 - 23.0		395.22	9.20	396.08	8.34	395.23	9.19	390.75	13.67
UO-87-01.1B	Alluvium	404.55	404.83	37.0	31.0 - 36.0		395.30	9.53	393.87	10.96	392.30	12.53	388.61	16.22
UO-87-02.1A	Alluvium	404.74	405.03	26.0	21.0 - 26.0		393.82	11.21	394.24	10.79	393.23	11.80	389.82	15.21
UO-87-02.1B	Alluvium	404.82	405.08	38.0	33.0 - 38.0		394.86	10.22	394.26	10.82	392.87	12.21	389.25	15.83
UO-88-02.2	Stanley Shale	405.05	405.35	58.0	48.0 - 58.0		395.18	10.17	394.44	10.91	392.99	12.36	389.37	15.98
UO-87-03.1	Alluvium	411.80	411.84	50.0	45.0 - 50.0		394.92	16.92	395.80	16.04	394.15	17.69	390.04	21.80
UO-87-03.2	Stanley Shale	411.89	412.05	73.0	68.0 - 73.0		393.74	18.31	395.56	16.49	393.91	18.14	389.87	22.18
UO-87-04.1	Alluvium	420.90	421.57	30.0	17.0 - 22.0		405.86	15.71	407.86	13.71	405.46	16.11	398.61	22.96
UO-87-06.1	Alluvium	378.73	379.04	12.5	7.5 - 12.5		372.84	6.20	371.82	7.22	370.83	8.21	368.29	10.75
UO-87-06.2	Stanley Shale	378.90	379.06	32.0	27.0 - 32.0		373.50	5.56	372.31	6.75	371.21	7.85	368.61	10.45
UO-87-07.1	Alluvium	385.92	386.60	21.0	16.0 - 21.0		376.75	9.85	374.34	12.26	371.98	14.62	369.64	16.96
UO-87-07.2	Stanley Shale	385.98	386.26	46.0	41.0 - 46.0		377.88	8.38	375.79	10.47	373.51	12.75	370.60	15.66
UO-87-08.1	Alluvium	405.89	406.31	19.0	14.0 - 19.0		400.32	5.99	399.92	6.39	399.07	7.24	392.29	14.02
UO-87-08.2	Stanley Shale	405.84	405.99	51.5	46.5 - 51.5		395.43	10.56	393.96	12.03	392.37	13.62	388.63	17.36
UO-87-09.1	Alluvium	412.74	413.16	30.0	25.0 - 30.0		385.75	27.41	385.57	27.59	394.14	19.02	390.17	22.99
UO-87-09.2	Stanley Shale	412.83	413.18	55.6	50.6 - 55.6		396.67	16.51	395.57	17.61	393.89	19.29	389.96	23.22
UO-87-10.2	Stanley Shale	388.78	389.43	31.0	26.0 - 31.0		385.85	3.58	385.27	4.16	383.65	5.78	379.97	9.46
UO-88-11.2	Stanley Shale	403.64	404.38	38.5	28.5 - 38.5		387.12	17.26	384.25	20.13	382.92	21.46	381.60	22.78
UO-88-12.2R	Stanley Shale	473.00	470.01	33.0	23.0 - 33.0		466.54	3.47	466.74	3.27	467.04	2.97	462.47	7.54
UO-88-13.1	Alluvium	437.71	438.46	9.5	6.0 - 9.0		435.25	3.21	435.80	2.66	435.55	2.91	432.64	5.82
UO-88-13.2	Stanley Shale	438.32	437.87	35.0	25.0 - 35.0		432.79	5.08	433.74	4.13	432.11	5.76	431.51	6.36
UO-88-14.1	Alluvium	441.06	441.22	22.0	12.0 - 22.0		435.11	6.11	435.83	5.39	432.00	9.22	432.39	8.83
UO-88-14.2	Stanley Shale	440.08	440.08	55.7	45.7 - 55.7		421.01	19.07	426.22	13.86	426.56	13.52	424.34	15.74
UO-88-15.1	Alluvium	426.72	426.82	22.0	12.0 - 22.0		419.14	7.68	419.06	7.76	417.80	9.02	412.55	14.27
UO-88-15.2	Stanley Shale	427.23	427.40	53.0	43.0 - 53.0		417.56	9.84	417.24	10.16	415.99	11.41	411.88	15.52
UO-91-16.1B	Alluvium	418.40	419.64	45.0	35.0 - 45.0		404.92	14.72	403.98	15.66	402.28	17.36	397.59	22.05
UO-91-16.2	Stanley Shale	417.99	419.17	80.0	70.0 - 80.0		404.77	14.40	403.79	15.38	402.10	17.07	397.61	21.56
UO-91-17.1A	Alluvium	410.79	412.08	18.9	13.9 - 18.9		407.85	4.23	406.82	5.26	403.84	8.24	397.12	14.96
UO-91-17.1B	Alluvium	410.76	412.09	40.0	30.0 - 40.0		406.01	6.08	404.98	7.11	402.70	9.39	396.68	15.41
UO-91-17.2	Stanley Shale	410.73	412.04	74.7	64.6 - 74.6		403.20	8.84	402.16	9.88	400.46	11.58	396.18	15.86
UO-91-18.2	Stanley Shale	406.79	408.62	62.5	52.5 - 62.5		387.58	21.04	384.20	24.42	382.72	25.90	381.02	27.60
UO-91-19.2	Stanley Shale	406.85	407.25	88.7	48.7 - 88.7		394.99	12.26	394.03	13.22	392.53	14.72	388.93	18.32
UO-91-20.1B	Alluvium	417.71	418.62	43.0	33.0 - 43.0		401.35	17.27	401.03	17.59	399.78	18.84	395.62	23.00
UO-20-21.1	Alluvium	387.90	390.56	25.0	20.0 - 25.0		370.82	19.74	370.72	19.84	370.65	19.91	368.12	22.44
UO-20-21.2	Stanley Shale	387.55	391.08	83.0	73.0 - 83.0		373.03	18.05	372.40	18.68	371.74	19.34	368.60	22.48
UO-20-22.1	Alluvium	384.57	387.22	20.0	15.0 - 20.0		379.69	7.53	380.09	7.13	379.19	8.03	373.58	13.64

[a]Screen intervals are estimated from the well boring logs

Notes:
ft amsl = foot (feet) above mean sea level
ft bgs = foot (feet) below ground surface
ft btoc = foot (feet) below top of casing

Table 3-2. Recovery Well Construction Details and Measured Groundwater Elevations
Plant Site
Hot Springs, Arkansas
Umetco Minerals Corporation
2024 Annual Plume Stability Evaluation Monitoring Report

						Measurement Date	2/9/2024		4/30/2024		7/19/2024		10/4/2024	
Well Name	Water-bearing Zone	Ground Surface Elevation	Top-of-Casing Elevation	Total Depth	Screen Interval		Groundwater Elevations	Water Level Record	Groundwater Elevations	Water Level Record	Groundwater Elevations	Water Level Record	Groundwater Elevations	Water Level Record
UR-91-03.1B	Alluvium	409.99	409.67	43.6	8.6 - 38.6		394.96	14.71	395.59	14.08	393.93	15.74	387.85	21.82
UR-91-03.1C	Alluvium	411.35	411.13	43.6	8.6 - 38.6		395.38	15.75	395.19	15.94	393.55	17.58	389.37	21.76
UR-91-03.1D	Alluvium	412.10	411.95	43.3	8.3 - 38.3		393.91	18.04	394.55	17.40	392.84	19.11	388.63	23.32
UR-91-03.1E	Alluvium	413.57	413.34	43.5	3.5 - 38.5		397.52	15.82	396.03	17.31	393.80	19.54	389.63	23.71
UR-91-03.2B	Stanley Shale	409.81	409.40	98.1	58.1 - 98.1		390.82	18.58	395.04	14.36	393.31	16.09	389.36	20.04
UR-91-03.2C	Stanley Shale	411.23	411.00	98.1	58.1 - 98.1		384.92	26.08	386.79	24.21	393.67	17.33	389.78	21.22
UR-91-03.2D	Stanley Shale	412.04	411.94	97.8	57.8 - 97.8		394.17	17.77	394.97	16.97	393.71	18.23	389.63	22.31
UR-91-03.2E	Stanley Shale	413.37	413.64	98.0	58.0 - 98.0		353.91	59.73	395.72	17.92	394.11	19.53	390.00	23.64
UR-91-04.1A	Alluvium	423.10	422.86	23.6	8.6 - 23.6		412.84	10.02	416.28	6.58	413.24	9.62	402.50	DRY
UR-91-04.2A	Stanley Shale	422.25	421.87	78.7	38.7 - 78.7		383.12	38.75	407.84	14.03	405.57	16.30	398.66	23.21
UR-91-09.2A	Stanley Shale	410.47	410.18	83.1	43.1 - 83.1		353.12	57.06	390.57	19.61	390.26	19.92	386.95	23.23
UR-91-20.2A	Stanley Shale	425.83	422.75	67.4	27.4 - 67.4		387.45	35.30	422.75	0.00	422.75	0.00	420.75	2.00
UR-91-20.2B	Stanley Shale	423.11	425.96	72.9	32.9 - 72.9		402.98	22.98	424.99	0.97	425.96	0.00	423.27	2.69

[a]Screen intervals are estimated from the well boring logs

Notes:

DRY = well was dry or not able to be sampled because of low water level - measured value represents the top of the dedicated recovery well pump

ft amsl = foot (feet) above mean sea level

ft bgs = foot (feet) below ground surface

ft btoc = foot (feet) below top of casing

Table 4-1. 2024 Groundwater Field Parameter Results Measured in the Alluvium
Plant Site
Hot Springs, Arkansas
Umetco Minerals Corporation
2024 Annual Plume Stability Evaluation Monitoring Report

Well Number	Sampling Date	Field pH (s.u.)	Field Temperature (°C)	Specific Conductivity
UO-87-01.1A	2/23/2024	5.52	16.0	281
UO-87-01.1A	5/22/2024	5.62	17.5	282
UO-87-01.1A	8/6/2024	5.35	18.4	189
UO-87-01.1A	10/16/2024	5.28	18.3	199
UO-87-01.1B	2/23/2024	6.29	16.6	2,915
UO-87-01.1B	5/22/2024	6.20	17.2	3,028
UO-87-01.1B	8/6/2024	5.93	17.8	2,526
UO-87-01.1B	10/16/2024	6.03	17.9	2,594
UO-87-02.1A	2/20/2024	3.78	17.1	1,561
UO-87-02.1A	5/16/2024	3.85	17.7	1,672
UO-87-02.1A	7/29/2024	3.88	19.8	1,949
UO-87-02.1A	10/14/2024	3.81	20.7	2,050
UO-87-02.1B	2/20/2024	9.18	18.5	1,174
UO-87-02.1B	5/16/2024	7.48	18.2	1,036
UO-87-02.1B	7/29/2024	8.47	19.7	955
UO-87-02.1B	10/14/2024	8.98	20.9	1,129
UO-87-03.1	2/28/2024	5.09	18.3	7,391
UO-87-03.1	5/24/2024	5.07	19.9	7,382
UO-87-03.1	8/7/2024	5.19	21.0	8,453
UO-87-03.1	10/17/2024	5.27	19.8	6,896
UO-87-04.1	2/27/2024	3.99	17.7	843
UO-87-04.1	5/22/2024	3.95	17.0	882
UO-87-04.1	8/6/2024	3.99	18.2	730
UO-87-04.1	10/16/2024	3.97	19.3	804
UO-87-06.1	2/12/2024	5.23	12.7	409
UO-87-06.1	5/1/2024	4.96	16.0	560
UO-87-06.1	7/22/2024	5.01	20.7	769
UO-87-06.1	10/8/2024	5.91	19.4	536
UO-87-07.1	2/12/2024	7.27	14.0	634
UO-87-07.1	5/1/2024	7.18	15.8	660
UO-87-07.1	7/22/2024	7.10	18.2	684
UO-87-07.1	10/8/2024	7.14	18.7	766
UO-87-08.1	2/19/2024	5.47	15.6	47
UO-87-08.1	5/14/2024	5.02	17.6	50
UO-87-08.1	7/29/2024	4.87	20.8	45
UO-87-08.1	10/14/2024	4.89	19.5	46
UO-87-09.1	2/26/2024	12.06	18.7	2,081
UO-87-09.1	5/23/2024	12.09	23.4	2,731
UO-87-09.1	8/6/2024	11.47	26.3	858
UO-87-09.1	10/17/2024	11.30	18.9	488
UO-88-13.1	2/27/2024	4.00	17.0	1,272
UO-88-13.1	5/23/2024	4.69	20.9	917
UO-88-13.1	8/7/2024	4.68	28.3	952
UO-88-13.1	10/17/2024	4.23	23.1	848
UO-88-14.1	2/22/2024	4.68	16.2	208
UO-88-14.1	5/21/2024	4.45	18.2	240

Table 4-1. 2024 Groundwater Field Parameter Results Measured in the Alluvium
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Well Number	Sampling Date	Field pH (s.u.)	Field Temperature (°C)	Specific Conductivity
UO-88-14.1	7/31/2024	4.54	24.5	201
UO-88-14.1	10/15/2024	4.47	23.2	203
UO-88-15.1	2/21/2024	5.06	14.9	390
UO-88-15.1	5/20/2024	4.66	23.1	375
UO-88-15.1	7/31/2024	4.60	21.0	310
UO-88-15.1	10/15/2024	4.98	20.9	312
UO-91-16.1B	2/14/2024	6.04	17.2	43
UO-91-16.1B	5/8/2024	5.79	18.1	41
UO-91-16.1B	7/25/2024	5.77	19.2	43
UO-91-16.1B	10/10/2024	5.78	18.0	45
UO-91-17.1A	2/15/2024	6.18	14.0	94
UO-91-17.1A	5/14/2024	5.99	17.7	122.9
UO-91-17.1A	7/25/2024	5.70	21.1	93
UO-91-17.1A	10/10/2024	5.83	19.9	98
UO-91-17.1B	2/15/2024	5.18	15.8	46
UO-91-17.1B	5/14/2024	4.99	17.1	54
UO-91-17.1B	7/25/2024	4.96	18.9	50
UO-91-17.1B	10/10/2024	4.66	17.7	45
UO-91-20.1B	2/27/2024	6.09	19.8	961
UO-91-20.1B	5/22/2024	5.92	20.4	1,089
UO-91-20.1B	8/6/2024	5.87	22.5	1,109
UO-91-20.1B	10/16/2024	5.86	20.4	1,328
UO-20-21.1	2/12/2024	7.10	15.2	403
UO-20-21.1	5/1/2024	6.75	21.9	501
UO-20-21.1	7/23/2024	6.54	23.0	372
UO-20-21.1	10/9/2024	5.69	22.1	350
UO-20-22.1	2/12/2024	6.69	14.7	243
UO-20-22.1	5/1/2024	6.46	17.8	254
UO-20-22.1	7/23/2024	6.30	20.1	254
UO-20-22.1	10/8/2024	6.28	21.8	267
UR-91-03.1B	2/29/2024	3.76	17.2	4,307
UR-91-03.1B	5/3/2024	3.97	20.9	1,357
UR-91-03.1B	8/8/2024	4.58	26.6	2,135
UR-91-03.1B	10/21/2024	4.16	20.8	4,240
UR-91-03.1C	2/29/2024	4.12	16.6	474
UR-91-03.1C	5/3/2024	3.54	20.9	4,262
UR-91-03.1C	8/8/2024	3.97	26.5	1,326
UR-91-03.1C	10/21/2024	3.58	21.0	2,796
UR-91-03.1D	2/29/2024	3.82	16.2	6,446
UR-91-03.1D	5/3/2024	3.71	21.0	6,889
UR-91-03.1D	8/8/2024	3.73	27.3	7,163
UR-91-03.1D	10/21/2024	3.72	20.9	6,343
UR-91-03.1E	2/29/2024	4.70	15.6	2,164
UR-91-03.1E	5/3/2024	4.76	21.5	654
UR-91-03.1E	8/8/2024	5.90	27.6	208
UR-91-03.1E	10/21/2024	6.47	21.0	242

Table 4-1. 2024 Groundwater Field Parameter Results Measured in the Alluvium
Plant Site
Hot Springs, Arkansas
Umetco Minerals Corporation
2024 Annual Plume Stability Evaluation Monitoring Report

Well Number	Sampling Date	Field pH (s.u.)	Field Temperature (°C)	Specific Conductivity
UR-91-04.1A	2/29/2024	4.51	12.9	138
UR-91-04.1A	5/3/2024	4.41	16.0	110
UR-91-04.1A	8/8/2024	5.59	20.8	160
UR-91-04.1A	10/21/2024	DRY	DRY	DRY

Notes:
°C = degree(s) Celsius
DRY = well was dry or not able to be sampled due to low water level and field parameters were not collected for this date
µS/cm = microsiemen(s) per centimeter
s.u. = standard unit

Table 4-2. 2024 Groundwater Field Parameter Results Measured in the Stanley Shale
Plant Site
Hot Springs, Arkansas
Umetco Minerals Corporation
2024 Annual Plume Stability Evaluation Monitoring Report

Well Number	Sampling Date	Field pH (s.u.)	Field Temperature (°C)	Specific Conductivity
UO-88-02.2	2/20/2024	7.95	17.7	1,129
UO-88-02.2	5/16/2024	7.89	18.1	1,095
UO-88-02.2	7/29/2024	7.83	19.0	984
UO-88-02.2	10/14/2024	7.85	18.7	955
UO-87-03.2	2/28/2024	6.29	18.7	11,215
UO-87-03.2	5/24/2024	6.22	19.6	11,326
UO-87-03.2	8/7/2024	6.23	20.6	13,344
UO-87-03.2	10/17/2024	6.27	19.4	10,905
UO-87-06.2	2/12/2024	7.66	15.8	577
UO-87-06.2	5/1/2024	7.41	15.9	555
UO-87-06.2	7/22/2024	7.33	17.7	554
UO-87-06.2	10/10/2024	7.45	17.2	595
UO-87-07.2	2/12/2024	7.48	15.5	1,090
UO-87-07.2	5/1/2024	7.37	16.0	1,055
UO-87-07.2	7/22/2024	7.30	16.7	1,195
UO-87-07.2	10/8/2024	7.44	18.5	1,116
UO-87-08.2	2/19/2024	6.63	17.2	130
UO-87-08.2	5/14/2024	6.45	18.9	151
UO-87-08.2	7/29/2024	6.36	20.2	140
UO-87-08.2	10/14/2024	6.41	18.8	140
UO-87-09.2	2/26/2024	7.39	19.1	1,816
UO-87-09.2	5/23/2024	7.47	20.1	1,824
UO-87-09.2	8/6/2024	7.47	20.4	1,395
UO-87-09.2	10/17/2024	7.49	18.4	1,472
UO-87-10.2	2/12/2024	7.13	16.3	458
UO-87-10.2	5/1/2024	6.93	17.1	375
UO-87-10.2	7/23/2024	6.94	18.2	390.8
UO-87-10.2	10/9/2024	6.94	17.7	425.8
UO-88-11.2	2/20/2024	7.86	18.4	248.2
UO-88-11.2	5/20/2024	7.50	18.7	228.9
UO-88-11.2	7/31/2024	7.58	22.7	213
UO-88-11.2	10/15/2024	7.57	17.3	215
UO-88-12.2R	2/13/2024	5.86	16.8	530
UO-88-12.2R	5/8/2024	6.04	18.6	478
UO-88-12.2R	7/24/2024	6.09	20.3	479
UO-88-12.2R	10/10/2024	6.12	20.6	503
UO-88-13.2	2/27/2024	6.51	18.8	7,688
UO-88-13.2	5/23/2024	6.41	20.0	7,952
UO-88-13.2	8/7/2024	6.43	20.8	7,731
UO-88-13.2	10/17/2024	6.48	19.3	7,620
UO-88-14.2	2/22/2024	6.95	19.0	793
UO-88-14.2	5/21/2024	6.90	20.0	833
UO-88-14.2	7/31/2024	6.74	20.2	763
UO-88-14.2	10/15/2024	6.79	19.3	730
UO-88-15.2	2/21/2024	6.51	17.6	568
UO-88-15.2	5/20/2024	6.27	19.5	587

Table 4-2. 2024 Groundwater Field Parameter Results Measured in the Stanley Shale
Plant Site
Hot Springs, Arkansas
Umetco Minerals Corporation
2024 Annual Plume Stability Evaluation Monitoring Report

Well Number	Sampling Date	Field pH (s.u.)	Field Temperature (°C)	Specific Conductivity
UO-88-15.2	7/31/2024	6.37	21.4	584
UO-88-15.2	10/15/2024	6.45	18.7	568
UO-91-16.2	2/14/2024	8.15	17.9	242
UO-91-16.2	5/8/2024	8.02	18.4	234
UO-91-16.2	7/25/2024	8.07	19.2	242
UO-91-16.2	10/10/2024	7.95	18.1	254
UO-91-17.2	2/15/2024	8.18	16.5	231
UO-91-17.2	5/14/2024	7.87	17.4	273
UO-91-17.2	7/25/2024	8.04	20.3	229
UO-91-17.2	10/10/2024	7.95	17.8	246
UO-91-18.2	2/13/2024	6.55	16.9	990
UO-91-18.2	5/1/2024	6.42	17.5	954
UO-91-18.2	7/24/2024	6.41	17.4	949
UO-91-18.2	10/9/2024	6.48	18.6	1,019
UO-91-19.2	2/16/2024	7.97	17.4	1,310
UO-91-19.2	5/16/2024	7.87	17.4	1,261
UO-91-19.2	7/26/2024	7.96	19.5	1,028
UO-91-19.2	10/11/2024	7.96	18.7	922
UO-20-21.2	2/12/2024	7.23	16.5	684
UO-20-21.2	5/1/2024	7.05	20.5	748
UO-20-21.2	7/23/2024	7.06	22.8	860
UO-20-21.2	10/9/2024	7.05	21.4	893
UR-91-03.2B	2/29/2024	6.34	17.0	8,359
UR-91-03.2B	5/3/2024	6.43	21.4	8,730
UR-91-03.2B	8/8/2024	6.42	27.3	10,424
UR-91-03.2B	10/21/2024	6.88	22.1	9,146
UR-91-03.2C	2/29/2024	5.70	17.3	5,967
UR-91-03.2C	5/3/2024	5.68	21.3	6,343
UR-91-03.2C	8/8/2024	6.13	22.9	7,515
UR-91-03.2C	10/21/2024	5.76	21.4	6,690
UR-91-03.2D	2/29/2024	3.73	16.8	7,423
UR-91-03.2D	5/3/2024	3.72	18.9	8,122
UR-91-03.2D	8/12/2024	4.20	18.6	8,740
UR-91-03.2D	10/21/2024	4.14	18.9	8,190
UR-91-03.2E	2/29/2024	5.48	15.8	5,565
UR-91-03.2E	5/3/2024	5.63	19.0	5,154
UR-91-03.2E	8/8/2024	5.53	28.4	5,342
UR-91-03.2E	10/21/2024	5.62	21.0	4,719
UR-91-04.2A	2/29/2024	4.80	15.7	1,446
UR-91-04.2A	5/3/2024	4.87	17.9	1,088
UR-91-04.2A	8/8/2024	5.24	21.6	1,005
UR-91-04.2A	10/21/2024	5.09	17.8	831
UR-91-09.2A	2/29/2024	7.12	16.5	751
UR-91-09.2A	5/3/2024	6.82	18.7	608
UR-91-09.2A	8/8/2024	6.93	21.1	662
UR-91-09.2A	10/21/2024	7.02	18.9	615

Table 4-2. 2024 Groundwater Field Parameter Results Measured in the Stanley Shale
Plant Site
Hot Springs, Arkansas
Umetco Minerals Corporation
2024 Annual Plume Stability Evaluation Monitoring Report

Well Number	Sampling Date	Field pH (s.u.)	Field Temperature (°C)	Specific Conductivity
UR-91-20.2A	2/29/2024	6.19	17.2	6,307
UR-91-20.2A	5/3/2024	6.48	19.9	7,169
UR-91-20.2A	8/8/2024	6.83	22.1	5,305
UR-91-20.2A	10/21/2024	7.21	22.2	4,602
UR-91-20.2B	2/29/2024	6.15	18.0	7,048
UR-91-20.2B	5/3/2024	6.11	20.0	7,040
UR-91-20.2B	8/8/2024	6.11	20.9	5,960
UR-91-20.2B	10/21/2024	6.26	20.2	5,963

Notes:
°C = degree(s) Celsius
µS/cm = microsiemen(s) per centimeter
s.u. = standard unit

Table 4-3. First Quarter Sampling Results - Alluvium
Plant Site
Hot Springs, Arkansas
Umetco Minerals Corporation
2024 Annual Plume Stability Evaluation Monitoring Report

Location ID	UO-87-1.1A		UO-87-1.1B		UO-87-2.1A		UO-87-2.1B		UO-87-3.1		UO-87-4.1		UO-87-6.1		UO-87-7.1		UO-87-8.1		UO-87-9.1		UO-88-13.1		UO-88-14.1	
Sample Date	2/23/2024		2/23/2024		2/20/2024		2/20/2024		2/28/2024		2/27/2024		2/12/2024		2/12/2024		2/19/2024		2/26/2024		2/27/2024		2/22/2024	
Parameter	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Dissolved Calcium	15	--	260	--	40	--	56	--	1100	--	120	--	32	--	100	--	1.5	--	220	--	110	--	15	--
Chloride	25	--	1100	--	370	--	230	--	2600	--	250	--	81	--	100	--	7.2	J	58	--	62	--	11	--
Nitrate-Nitrite (as N)	3	--	3.8	--	4.2	--	0.23	--	1.8	--	7.4	--	1.2	--	0.1	U	1.8	--	1.1	--	11	--	0.69	--
Dissolved Sodium	36	--	180	--	200	--	180	--	610	--	18	--	30	--	22	--	4.7	--	8.2	--	160	--	22	--
Sulfate	75	--	29	--	180	--	150	--	880	--	7.5	U	38	--	4.5	J	7.5	U	2.6	J	540	--	77	--
Total Dissolved Solids	200	--	1700	--	830	--	550	--	7000	--	480	--	200	--	380	--	32	--	640	--	870	--	140	--
Dissolved Vanadium	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.31	--	0.003	J	0.01	U	0.01	U	0.014	--	0.1	--

Location ID	UO-88-15.1		UO-91-16.1B		UO-91-17.1A		UO-91-17.1B		UO-91-20.1B		UO-20-21.1		UO-20-22.1		UR-91-3.1B		UR-91-3.1C		UR-91-3.1D		UR-91-3.1E		UR-91-4.1A	
Sample Date	2/21/2024		2/14/2024		2/15/2024		2/15/2024		2/27/2024		2/12/2024		2/12/2024		2/29/2024		2/29/2024		2/29/2024		2/29/2024		2/29/2024	
Parameter	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Dissolved Calcium	4.8	--	3.1	--	12	--	1.2	--	130	--	51	--	27	--	440	--	120	--	990	--	310	--	15	--
Chloride	28	--	7.5	U	9.5	--	5.1	J	320	--	55	--	12	--	1700	--	350	--	2300	--	880	--	18	--
Nitrate-Nitrite (as N)	1	--	0.78	--	2.5	--	3.2	--	0.1	U	0.19	--	0.1	U	2.5	--	1.8	--	0.58	J	2.3	--	6.9	--
Dissolved Sodium	70	--	4	--	10	--	5.9	--	29	--	17	--	9.3	--	380	--	65	--	340	--	98	--	5.7	--
Sulfate	140	--	7.5	U	2.8	J	7.5	U	5.9	J	7.3	J	15	--	740	--	76	--	560	--	41	--	7.6	--
Total Dissolved Solids	270	--	38	--	78	--	44	--	490	--	230	--	160	--	3400	--	630	--	5000	--	1600	--	43	J
Dissolved Vanadium	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U

Notes:
-- = no data qualifiers
Concentrations in mg/L
Cl = chloride
ID = identification
mg/L = milligram(s) per liter
J = estimated
U = nondetect

Table 4-4. Second Quarter Sampling Results - Alluvium
Plant Site
Hot Springs, Arkansas
Umetco Minerals Corporation
2024 Annual Plume Stability Evaluation Monitoring Report

Location ID	UO-87-1.1A		UO-87-1.1B		UO-87-2.1A		UO-87-2.1B		UO-87-3.1		UO-87-4.1		UO-87-6.1		UO-87-7.1		UO-87-8.1		UO-87-9.1		UO-88-13.1		UO-88-14.1	
Sample Date	5/22/2024		5/22/2024		5/16/2024		5/16/2024		5/24/2024		5/22/2024		5/1/2024		5/1/2024		5/14/2024		5/23/2024		5/23/2024		5/21/2024	
Parameter	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Chloride	20	--	990	--	390	--	200	--	2800	--	260	--	150	--	120	--	8.4	--	60	--	72	J	34	--
Sulfate	68	--	25	--	250	--	130	--	810	--	3.1	--	38	--	4.8	J	7.5	--	3.5	J	320	--	71	--
Total Dissolved Solids	170	--	200	--	830	--	570	--	4100	--	410	--	350	--	290	--	32	--	920	--	490	--	150	--

Location ID	UO-88-15.1		UO-91-16.1B		UO-91-17.1A		UO-91-17.1B		UO-91-20.1B		UO-20-21.1		UO-20-22.1		UR-91-3.1B		UR-91-3.1C		UR-91-3.1D		UR-91-3.1E		UR-91-4.1A	
Sample Date	5/20/2024		5/8/2024		5/14/2024		5/14/2024		5/22/2024		5/1/2024		5/1/2024		5/3/2024		5/3/2024		5/3/2024		5/3/2024		5/3/2024	
Parameter	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Chloride	22	--	3.9	J	10	--	6.4	--	400	--	79	--	9.4	--	280	--	1600	--	2800	--	210	--	10	--
Sulfate	130	--	4.4	J	3.5	--	2.5	--	6.2	--	9.1	--	21	--	300	--	320	--	510	--	13	--	8.6	--
Total Dissolved Solids	230	--	36	--	81	--	39	--	590	--	200	--	190	--	1000	--	2900	--	5300	--	400	--	89	--

Notes:
-- = no data qualifiers
Concentrations in mg/L
Cl = chloride
ID = identification
mg/L = milligram(s) per liter
J = estimated
U = nondetect

Table 4-5. Third Quarter Sampling Results - Alluvium
Plant Site
Hot Springs, Arkansas
Umetco Minerals Corporation
2024 Annual Plume Stability Evaluation Monitoring Report

Location ID	UO-87-1.1A		UO-87-1.1B		UO-87-2.1A		UO-87-2.1B		UO-87-3.1		UO-87-4.1		UO-87-6.1		UO-87-7.1		UO-87-8.1		UO-87-9.1		UO-88-13.1		UO-88-14.1	
Sample Date	8/6/2024		8/6/2024		7/29/2024		7/29/2024		8/7/2024		8/6/2024		7/22/2024		7/22/2024		7/29/2024		8/6/2024		8/7/2024		7/31/2024	
Parameter	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Chloride	14	--	920	--	420	--	200	--	2200	--	240	--	250	--	120	--	7.4	J	57	--	64	--	16	--
Sulfate	55	--	27	--	400	--	130	--	930	--	7.5	U	39	--	2.6	J	7.5	U	7.5	U	320	--	68	--
Total Dissolved Solids	150	--	1700	--	1100	--	650	--	5400	--	450	--	420	--	420	--	33	--	340	--	570	--	120	--

Location ID	UO-88-15.1		UO-91-16.1B		UO-91-17.1A		UO-91-17.1B		UO-91-20.1B		UO-20-21.1		UO-20-22.1		UR-91-3.1B		UR-91-3.1C		UR-91-3.1D		UR-91-3.1E		UR-91-4.1A	
Sample Date	7/31/2024		7/25/2024		7/25/2024		7/25/2024		8/6/2024		7/23/2024		7/23/2024		8/8/2024		8/8/2024		8/8/2024		8/8/2024		8/8/2024	
Parameter	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Chloride	20	--	3.1	J	10	--	6.3	J	450	--	57	--	9	--	520	--	120	--	2300	--	31	--	13	--
Sulfate	120	--	2.9	J	2.9	J	7.5	U	4.9	J	6	J	27	--	340	--	36	--	470	--	6.7	J	9	--
Total Dissolved Solids	220	--	47	--	80	--	46	--	810	--	240	--	190	--	1100	--	190	--	4300	--	110	--	77	--

Notes:
-- = no data qualifiers
Concentrations in mg/L
Cl = chloride
ID = identification
mg/L = milligram(s) per liter
J = estimated
U = nondetect

Table 4-6. Fourth Quarter Sampling Results - Alluvium
Plant Site
Hot Springs, Arkansas
Umetco Minerals Corporation
2024 Annual Plume Stability Evaluation Monitoring Report

Location ID	UO-87-1.1A		UO-87-1.1B		UO-87-2.1A		UO-87-2.1B		UO-87-3.1		UO-87-4.1		UO-87-6.1		UO-87-7.1		UO-87-8.1		UO-87-9.1		UO-88-13.1		UO-88-14.1	
Sample Date	10/16/2024		10/16/2024		10/14/2024		10/14/2024		10/17/2024		10/16/2024		10/8/2024		10/8/2024		10/14/2024		10/17/2024		10/17/2024		10/15/2024	
Parameter	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Chloride	15	--	960	--	470	--	260	--	2600	J	250	--	150	--	140	--	8.5	--	57	J	57	--	16	--
Sulfate	53	--	37	--	500	--	160	--	850	--	7.5	U	17	--	4.8	J	7.5	U	7.5	U	340	--	68	--
Total Dissolved Solids	140	--	1700	--	1500	--	800	--	5200	--	440	--	320	--	480	--	36	--	220	--	580	--	150	--

Location ID	UO-88-15.1		UO-91-16.1B		UO-91-17.1A		UO-91-17.1B		UO-91-20.1B		UO-20-21.1		UO-20-22.1		UR-91-3.1B		UR-91-3.1C		UR-91-3.1D		UR-91-3.1E		UR-91-4.1A	
Sample Date	10/15/2024		10/10/2024		10/10/2024		10/10/2024		10/16/2024		10/9/2024		10/8/2024		10/21/2024		10/21/2024		10/21/2024		10/21/2024		8/8/2024	
Parameter	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Chloride	29	--	7.5	U	9.8	--	5.5	J	490	--	93	--	10	--	1500	--	1100	--	2200	--	34	--	DRY	--
Sulfate	110	--	3.2	J	7.5	U	7.5	U	5	J	8.4	--	19	--	380	--	220	--	540	--	5.7	J	DRY	--
Total Dissolved Solids	240	--	46	--	80	--	42	--	890	--	210	--	170	--	2900	--	2000	--	4400	--	180	--	DRY	--

Notes:
-- = no data qualifiers
Concentrations in mg/L
Cl = chloride
DRY = well was dry or not able to be sampled due to low water level and a sample was not collected for this date
ID = identification
mg/L = milligram(s) per liter
J = estimated
U = nondetect

Table 4-7. First Quarter Sampling Results - Stanley Shale
Plant Site
Hot Springs, Arkansas
Umetco Minerals Corporation
2024 Annual Plume Stability Evaluation Monitoring Report

Location ID	UO-88-2.2		UO-87-3.2		UO-87-6.2		UO-87-7.2		UO-87-8.2		UO-87-9.2		UO-87-10.2		UO-88-11.2		UO-88-12.2R		UO-88-13.2		UO-88-14.2		UO-88-15.2	
Sample Date	2/20/2024		2/28/2024		2/12/2024		2/12/2024		2/19/2024		2/26/2024		2/12/2024		2/20/2024		2/13/2024		2/27/2024		2/22/2024		2/21/2024	
Parameter	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Dissolved Calcium	51	--	1900	--	73	--	160	--	15	--	250	--	48	--	32	--	40	--	1200	--	92	--	50	--
Chloride	300	--	5500	--	150	--	280	--	4.7	J	600	--	58	--	22	--	43	--	3300	--	210	--	150	--
Nitrate-Nitrite (as N)	0.1	U	0.1	U	0.1	U	0.1	U	0.17	--	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Dissolved Sodium	160	--	760	--	28	--	29	--	12	--	57	--	20	--	11	--	30	--	200	--	21	--	26	--
Sulfate	7.5	U	870	--	6.4	J	3.5	J	3.6	J	14	--	8.6	--	6.7	J	150	--	47	--	46	--	16	--
Total Dissolved Solids	490	--	8200	--	160	--	530	--	100	--	1200	--	260	--	150	--	340	--	5100	J	520	--	340	--
Dissolved Vanadium	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U

Location ID	UO-91-16.2		UO-91-17.2		UO-91-18.2		UO-91-19.2		UO-20-21.2		UR-91-3.2B		UR-91-3.2C		UR-91-3.2D		UR-91-3.2E		UR-91-4.2A		UR-91-9.2A		UR-91-20.2A	
Sample Date	2/14/2024		2/15/2024		2/13/2024		2/16/2024		2/12/2024		2/29/2024		2/29/2024		2/29/2024		2/29/2024		2/29/2024		2/29/2024		2/29/2024	
Parameter	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Dissolved Calcium	14	--	19	--	200	--	53	--	100	--	1500	--	960	--	1200	--	950	--	190	--	97	--	980	--
Chloride	7.5	U	7.5	U	13	--	380	--	160	--	4000	--	2200	--	2700	--	2100	--	590	--	230	--	2400	--
Nitrate-Nitrite (as N)	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.39	--	1.3	--	1.9	--	0.79	--	0.1	U	0.1	U
Dissolved Sodium	47	--	34	--	19	--	200	--	53	--	540	--	450	--	490	--	250	--	61	--	23	--	160	--
Sulfate	3	J	3.2	J	510	--	7.5	U	18	--	490	--	560	--	670	--	220	--	27	--	5.7	J	32	--
Total Dissolved Solids	170	--	160	--	820	--	520	--	450	--	7400	--	4800	--	5700	--	4200	--	960	--	520	--	4400	--
Dissolved Vanadium	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U

Notes:
-- = no data qualifiers
Concentrations in mg/L
Cl = chloride
ID = identification
mg/L = milligram(s) per liter
J = estimated
U = nondetect

Table 4-8. Second Quarter Sampling Results - Stanley Shale
Plant Site
Hot Springs, Arkansas
Umetco Minerals Corporation
2024 Annual Plume Stability Evaluation Monitoring Report

Location ID	UO-88-2.2		UO-87-3.2		UO-87-6.2		UO-87-7.2		UO-87-8.2		UO-87-9.2		UO-87-10.2		UO-88-11.2		UO-88-12.2R		UO-88-13.2		UO-88-14.2		UO-88-15.2	
Sample Date	5/16/2024		5/24/2024		5/1/2024		5/1/2024		5/14/2024		5/23/2024		5/1/2024		5/20/2024		5/8/2024		5/23/2024		5/21/2024		5/20/2024	
Parameter	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Chloride	270	--	5300	--	140	--	280	--	4.7	--	570	--	59	--	21	--	41	--	3400	--	190	--	160	--
Sulfate	2.5	--	700	--	6.9	J	4	J	4.2	--	15	--	9.3	--	7.5	--	160	--	41	--	45	--	17	--
Total Dissolved Solids	560	--	3100	--	300	--	570	--	99	--	850	--	260	--	150	--	370	--	4000	--	480	--	320	--

Location ID	UO-91-16.2		UO-91-17.2		UO-91-18.2		UO-91-19.2		UO-20-21.2		UR-91-3.2B		UR-91-3.2C		UR-91-3.2D		UR-91-3.2E		UR-91-4.2A		UR-91-9.2A		UR-91-20.2A	
Sample Date	5/8/2024		5/14/2024		5/1/2024		5/16/2024		5/1/2024		5/3/2024		5/3/2024		5/3/2024		5/3/2024		5/3/2024		5/3/2024		5/3/2024	
Parameter	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Chloride	7.5	U	7.5	--	12	--	350	--	160	--	3600	--	2500	--	3300	--	1900	--	350	--	160	--	3300	--
Sulfate	5.2	J	4.4	--	510	--	7.5	--	20	--	440	--	470	--	600	--	130	--	24	--	5.6	J	20	--
Total Dissolved Solids	170	--	160	--	870	--	640	--	590	--	6400	--	3900	--	6200	--	3300	--	690	--	420	--	4300	--

Notes:
-- = no data qualifiers
Concentrations in mg/L
Cl = chloride
ID = identification
mg/L = milligram(s) per liter
J = estimated
U = nondetect

Table 4-9. Third Quarter Sampling Results - Stanley Shale
Plant Site
Hot Springs, Arkansas
Umetco Minerals Corporation
2024 Annual Plume Stability Evaluation Monitoring Report

Location ID	UO-88-2.2		UO-87-3.2		UO-87-6.2		UO-87-7.2		UO-87-8.2		UO-87-9.2		UO-87-10.2		UO-88-11.2		UO-88-12.2R		UO-88-13.2		UO-88-14.2		UO-88-15.2	
Sample Date	7/29/2024		8/7/2024		7/22/2024		7/22/2024		7/29/2024		8/6/2024		7/23/2024		7/31/2024		7/24/2024		8/7/2024		7/31/2024		7/31/2024	
Parameter	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Chloride	270	--	4300	--	150	--	350	--	4.6	J	460	--	60	--	22	--	41	--	2400	--	190	--	150	--
Sulfate	7.5	U	770	--	5.4	J	7.5	U	3.6	J	11	--	9.1	--	6.5	J	150	--	36	--	44	--	17	--
Total Dissolved Solids	590	--	4000	--	330	--	650	--	27	J	900	--	290	--	170	--	400	--	4000	--	500	--	360	--

Location ID	UO-91-16.2		UO-91-17.2		UO-91-18.2		UO-91-19.2		UO-20-21.2		UR-91-3.2B		UR-91-3.2C		UR-91-3.2D		UR-91-3.2E		UR-91-4.2A		UR-91-9.2A		UR-91-20.2A	
Sample Date	7/25/2024		7/25/2024		7/24/2024		7/26/2024		7/23/2024		8/8/2024		8/8/2024		8/12/2024		8/8/2024		8/8/2024		8/8/2024		8/8/2024	
Parameter	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Chloride	7.5	U	7.5	U	13	--	310	--	220	--	4200	--	2300	--	3400	--	2000	--	340	--	170	--	2200	--
Sulfate	7.5	U	4	J	490	--	7.5	U	18	--	470	--	500	--	610	--	120	--	29	--	3.5	J	5	J
Total Dissolved Solids	180	--	180	--	950	--	710	--	580	--	6600	--	4800	--	6300	--	3100	--	670	--	440	--	3100	--

Notes:
-- = no data qualifiers
Concentrations in mg/L
Cl = chloride
ID = identification
mg/L = milligram(s) per liter
J = estimated
U = nondetect

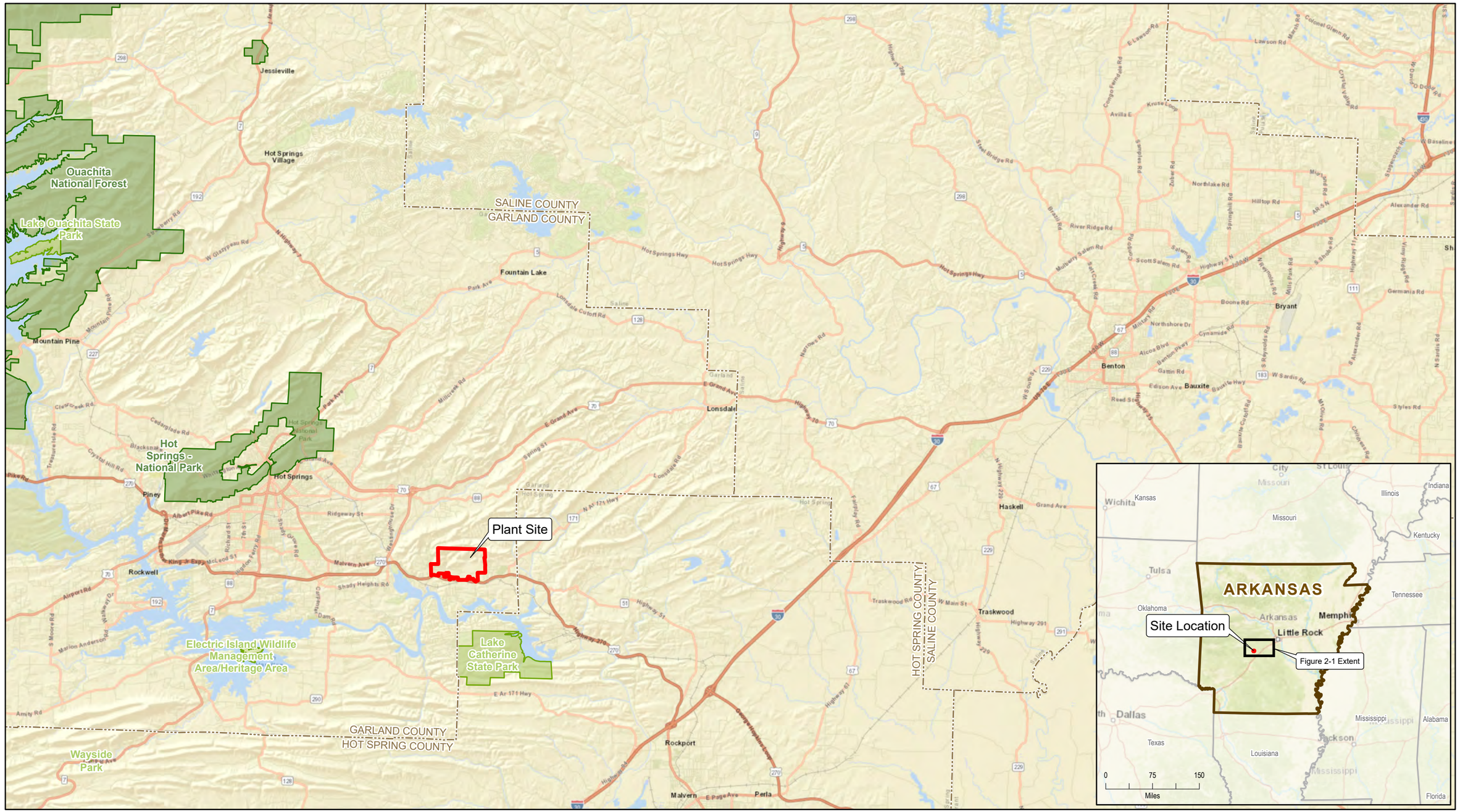
Table 4-10. Fourth Quarter Sampling Results - Stanley Shale
Plant Site
Hot Springs, Arkansas
Umetco Minerals Corporation
2024 Annual Plume Stability Evaluation Monitoring Report

Location ID	UO-88-2.2		UO-87-3.2		UO-87-6.2		UO-87-7.2		UO-87-8.2		UO-87-9.2		UO-87-10.2		UO-88-11.2		UO-88-12.2R		UO-88-13.2		UO-88-14.2		UO-88-15.2	
Sample Date	10/14/2024		10/17/2024		10/10/2024		10/8/2024		10/14/2024		10/17/2024		10/9/2024		10/15/2024		10/10/2024		10/17/2024		10/15/2024		10/15/2024	
Parameter	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Chloride	270	--	4200	--	140	--	280	--	5.9	J	480	--	64	--	27	--	40	--	3100	--	200	--	160	--
Sulfate	7.5	U	590	--	7	J	4.1	J	3.4	J	13	--	9.2	--	4.7	J	150	--	32	--	43	--	18	--
Total Dissolved Solids	570	--	9300	--	370	--	660	--	120	--	930	--	280	--	170	--	390	--	5400	--	510	--	370	--

Location ID	UO-91-16.2		UO-91-17.2		UO-91-18.2		UO-91-19.2		UO-20-21.2		UR-91-03.2B		UR-91-3.2C		UR-91-3.2D		UR-91-3.2E		UR-91-4.2A		UR-91-9.2A		UR-91-20.2A	
Sample Date	10/10/2024		10/10/2024		10/9/2024		10/11/2024		10/9/2024		10/21/2024		10/21/2024		10/21/2024		10/21/2024		10/21/2024		10/21/2024		10/21/2024	
Parameter	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Chloride	7.5	U	7.5	U	12	--	280	--	200	--	3500	--	2500	--	3100	--	1700	--	260	--	170	--	1700	--
Sulfate	3.7	J	7.5	U	540	--	7.5	U	17	--	420	--	570	--	560	--	120	--	27	--	4.1	J	15	U
Total Dissolved Solids	180	--	180	--	750	--	600	--	560	--	6300	--	4700	--	6000	--	3000	--	520	--	410	--	2900	--

Notes:
-- = no data qualifiers
Concentrations in mg/L
Cl = chloride
ID = identification
mg/L = milligram(s) per liter
J = estimated
U = nondetect

Figures



LEGEND

- Expressway/Highway
- Watercourse
- Water Body
- County
- US Vanadium Property Line

Parks/Protected Area

- Federal Land
- State Land

0 1.5 3
Miles

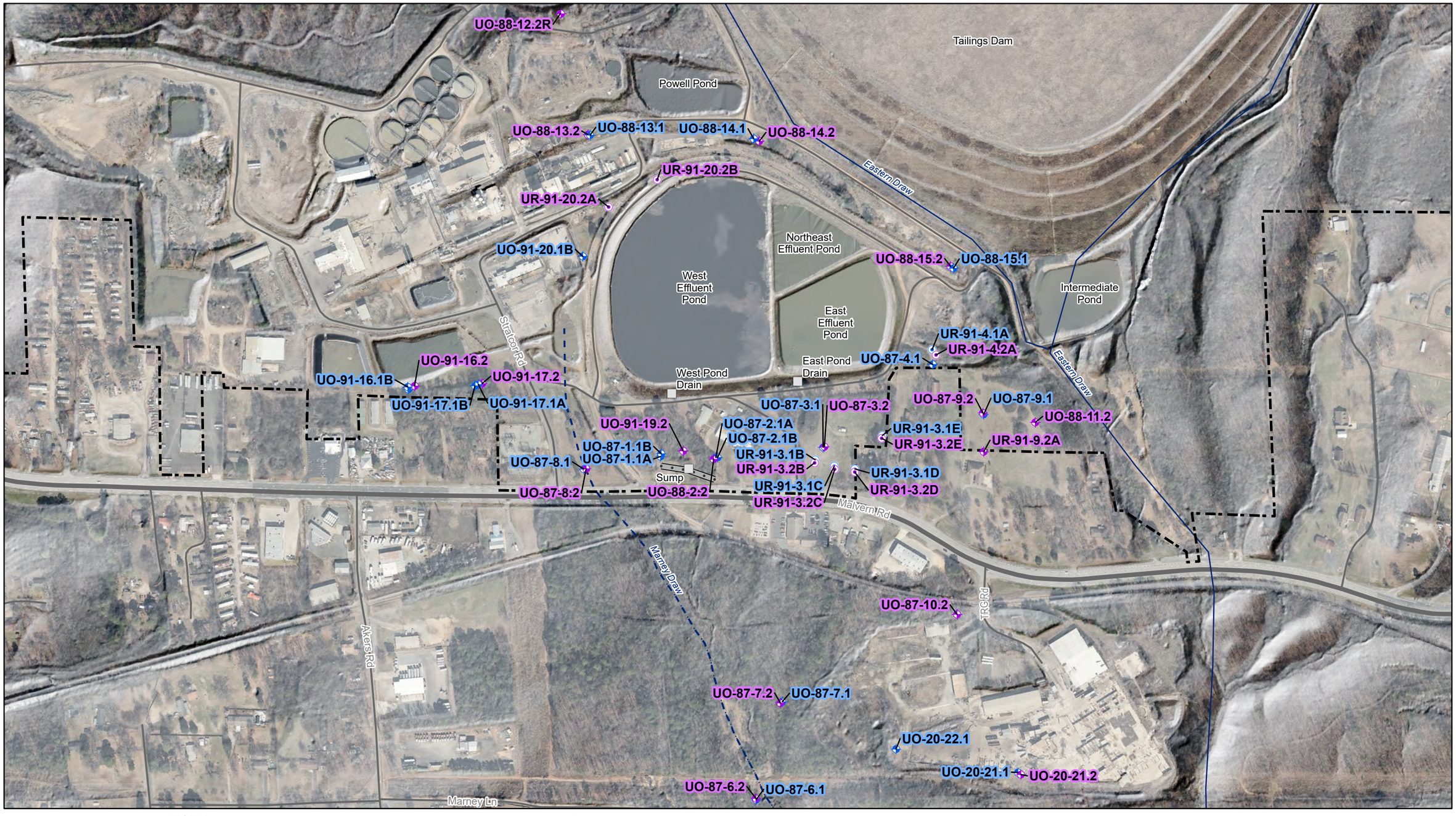
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Note:
Basemap World Street Map: Esri, HERE, Garmin, NGA, USGS, NPS
World Street Map: Esri, HERE, Garmin, NGA, USGS

Figure 2-1. Site Location
US Vanadium Plant Site
2024 Annual Groundwater Report
Hot Springs, Arkansas Umetco Minerals Corporation

Jacobs

\\DC1VS01\GISPROJ\D\DOWCHEMICALS\HOTSPRINGS\MAPFILES\2024\PLANTSITE_2024_Q4\PLANTSITE_2024_Q4.APRX JHANSEN1 3/10/2025 11:43 AM

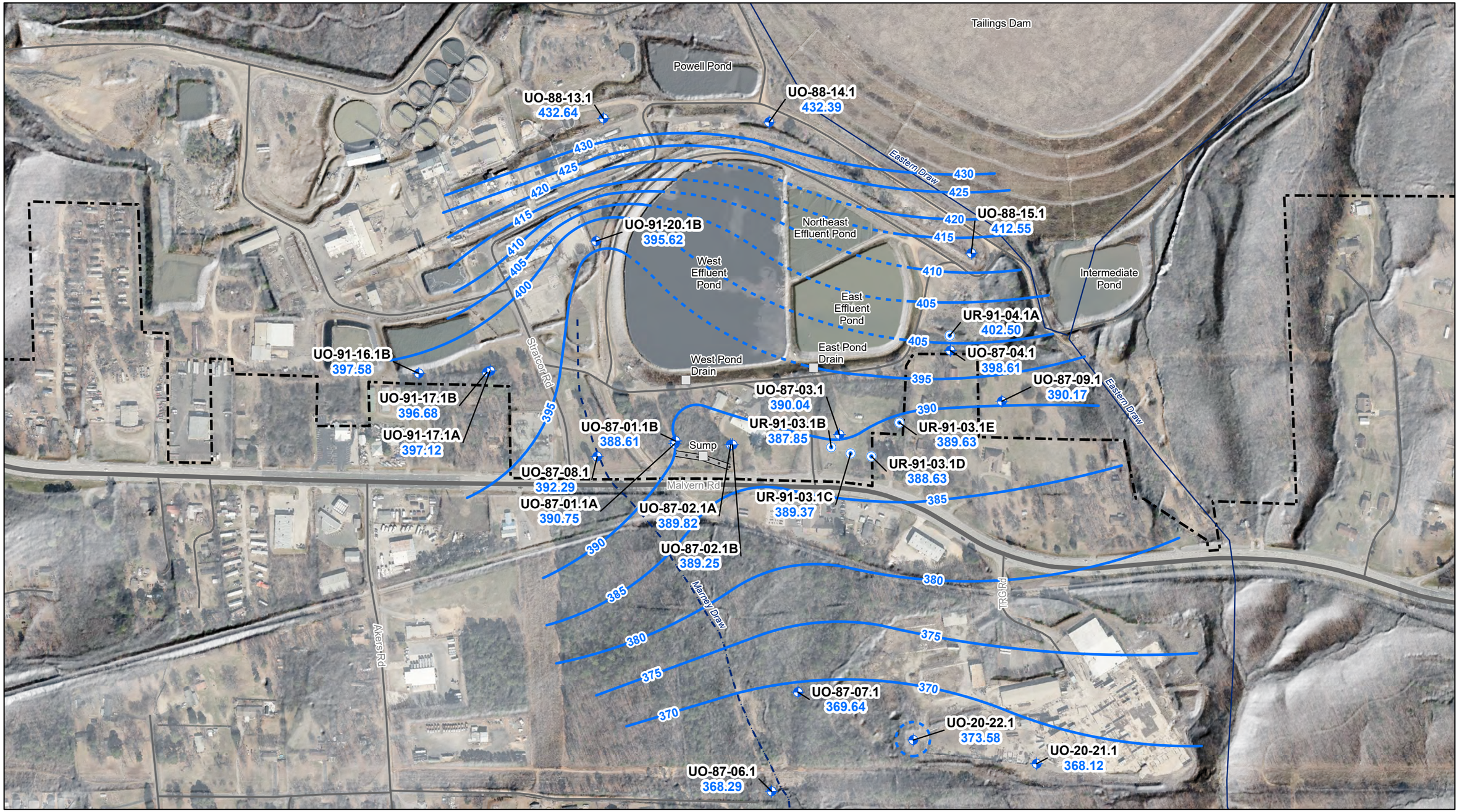


Note:
1. Basemap Image Source: Arkansas GIS Office, 2023

Figure 2-2. Monitoring and Recovery Well Location Map
US Vanadium Plant Site
2024 Annual Groundwater Report
Hot Springs, Arkansas Umetco Minerals Corporation

Jacobs

\\DC1VS01\GISPROJ\D\DOWCHEMICALS\HOTSPRINGS\MAPFILES\2024\PLANTSITE_2024_Q4\PLANTSITE_2024_Q4.APRX JHANSEN1 3/10/2025 11:43 AM



LEGEND

Alluvium Locations
- Monitoring Well
- Recovery Well
- Drain or Sump Sampling Point

- Inferred Groundwater Elevation Contour (5-ft Interval)
- Groundwater Elevation Contour (5-ft Interval)
- French Drain
- Intermittent Stream
- Perennial Stream
- US Vanadium Property Line

0 200 400 Feet

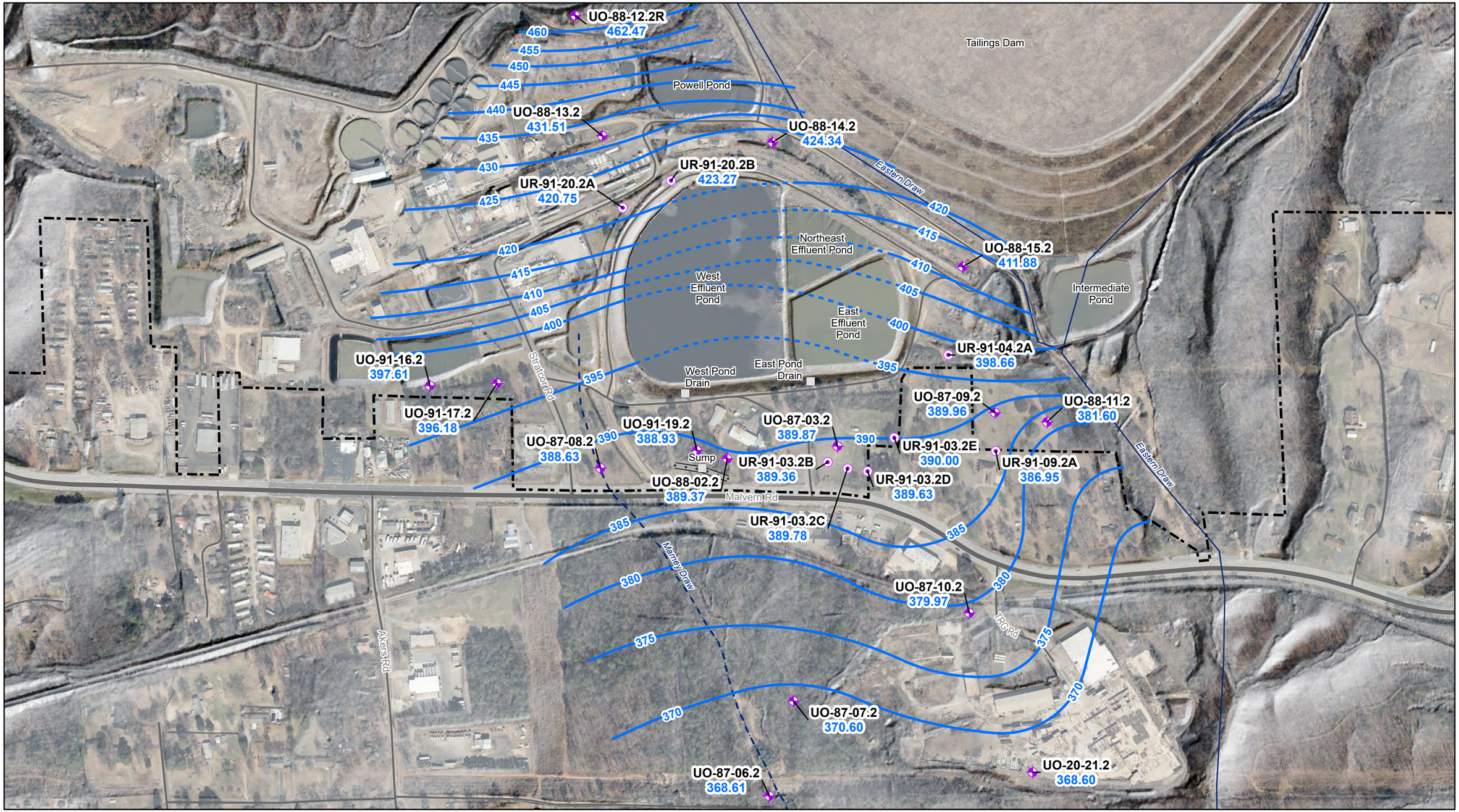
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Notes:
1. Data contoured are from the fourth quarter of 2024.
2. Water elevation values are shown in ft amsl
4. UO-91-17.1A and UO-91-17.1B both are screened within the Alluvium. The UO-91-17.1B data were used to develop the groundwater contours displayed
4. Basemap Image Source: Arkansas GIS Office, 2023

Figure 4-1. Alluvium Potentiometric Surface Map - Q4
US Vanadium Plant Site
2024 Annual Groundwater Report
Hot Springs, Arkansas Umetco Minerals Corporation

Jacobs

\\DC1VS01\GISPROJ\D\DOWCHEMICALS\HOTSPRINGS\MAPFILES\2024\PLANTSITE_2024_Q4\PLANTSITE_2024_Q4.APRX\FIGURE4-1_ALLUVIUM_POTENTIOMETRICSURFACE_4Q_2024 JHANSEN1 3/10/2025 3:48 PM



N

0 200 400
Feet

LEGEND

Stanley Shale Locations
- Monitoring Well
- Recovery Well
- Drain or Sump Sampling Point

- Inferred Groundwater Elevation Contour (5-ft Interval)
- Groundwater Elevation Contour (5-ft Interval)
- French Drain
- Intermittent Stream

- Perennial Stream
- US Vanadium Property Line

Notes:
1. Data contoured are from the fourth quarter of 2024.
2. Water elevation values are shown in ft amsl
3. Basemap Image Source: Arkansas GIS Office, 2023

Figure 4-2. Stanley Shale Potentiometric Surface Map - Q4
US Vanadium Plant Site
2024 Annual Groundwater Report
Hot Springs, Arkansas Umetco Minerals Corporation

Jacobs

\\DC1VS01\GISPROJ\D\DOWCHEMICALS\HOTSPRINGS\MAPFILES\2024\PLANTSITE_2024_Q4\PLANTSITE_2024_Q4.APRX\FIGURE4-2_STANLEYSHALE_POTENTIOMETRICSURFACE4Q_2024 JHANSEN1 3/11/2025 4:59 PM

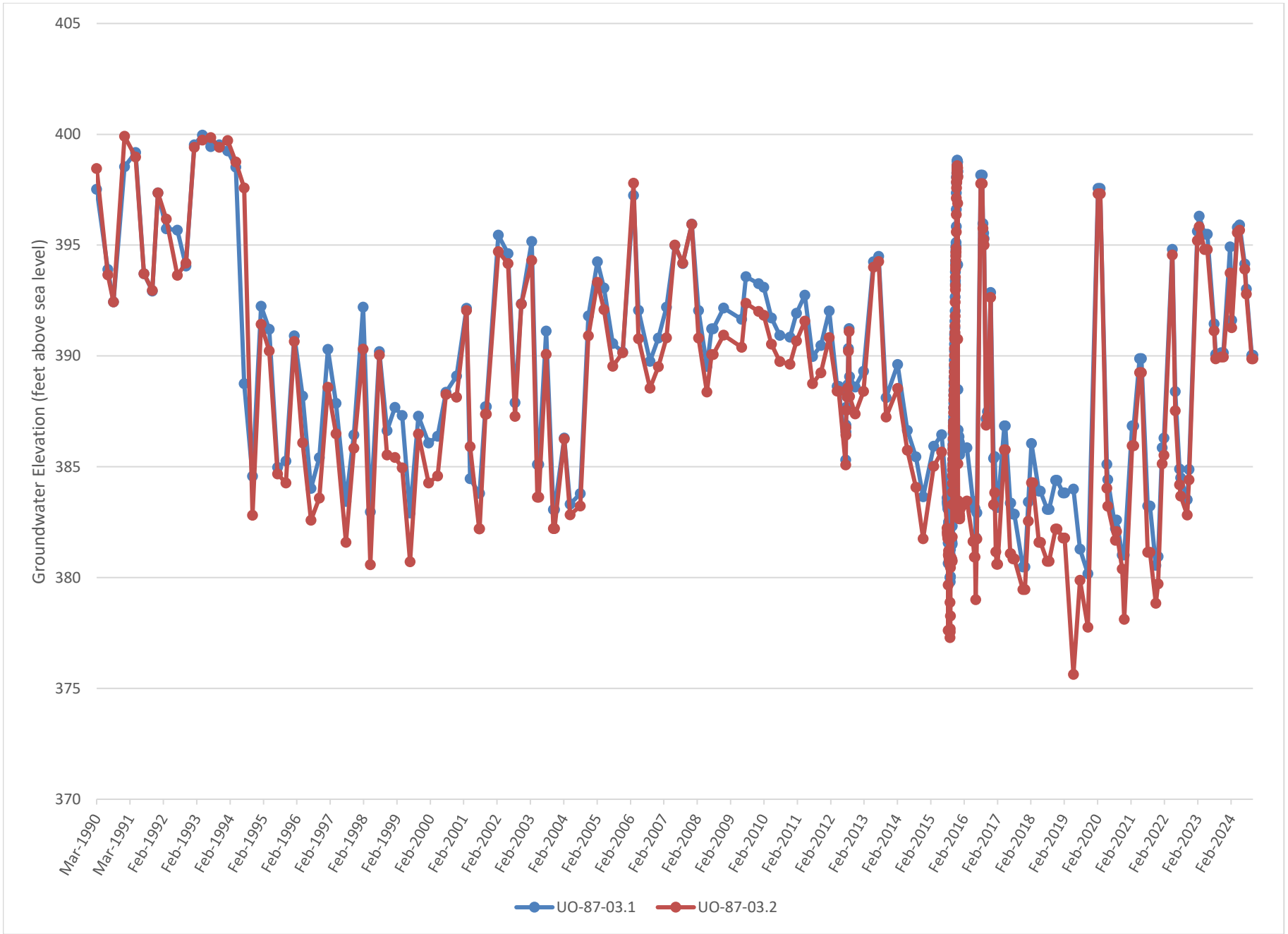


Figure 4-3A
Hydrograph: Monitoring Wells UO-87-3.1 and UO-87-3.2
2024 Annual Groundwater Report
Hot Springs, Arkansas Umetco Minerals Corporation
Jacobs

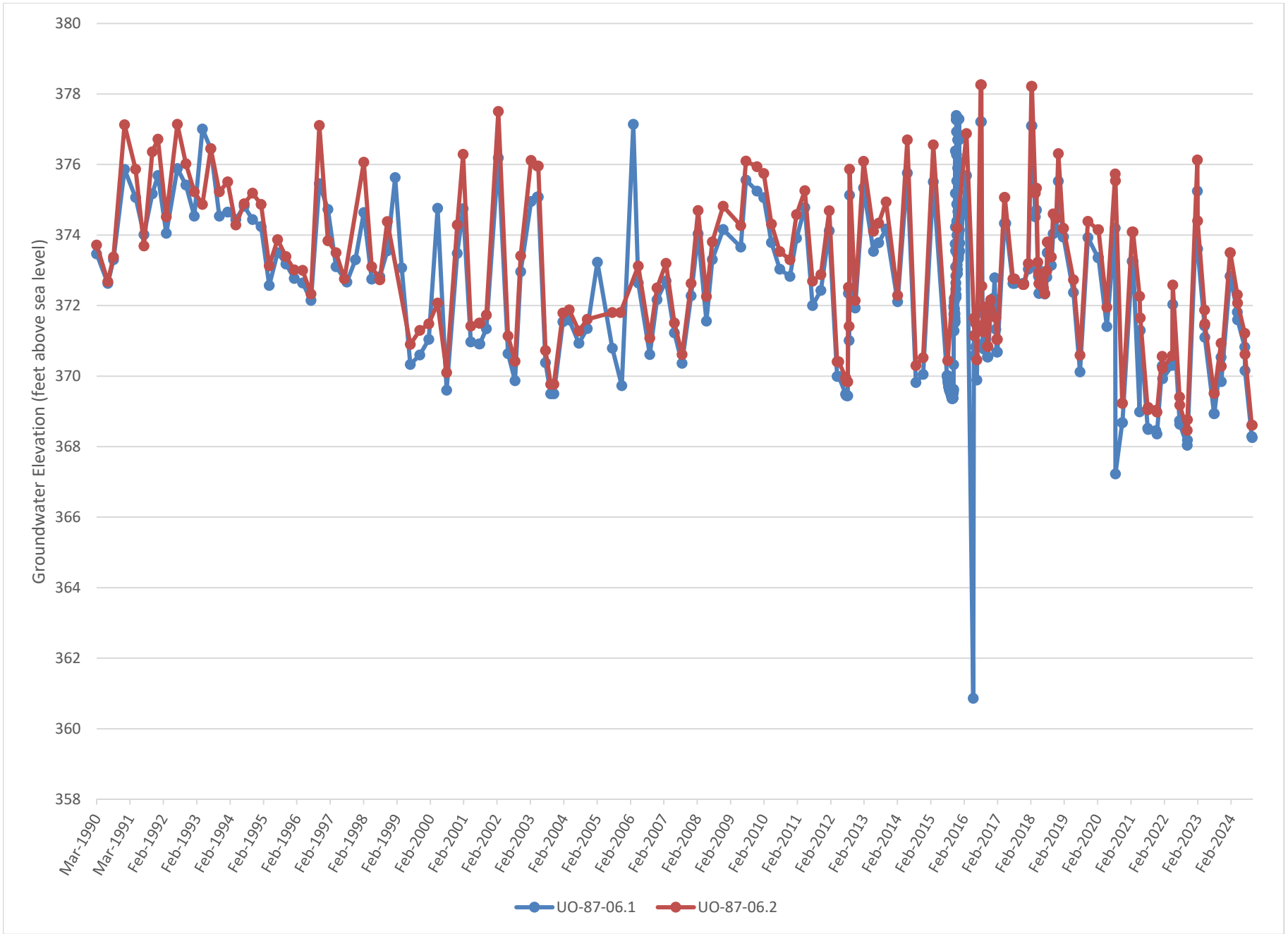


Figure 4-3B
Hydrograph: Monitoring Wells UO-87-6.1 and UO-87-6.2
2024 Annual Groundwater Report
Hot Springs, Arkansas Umetco Minerals Corporation
Jacobs

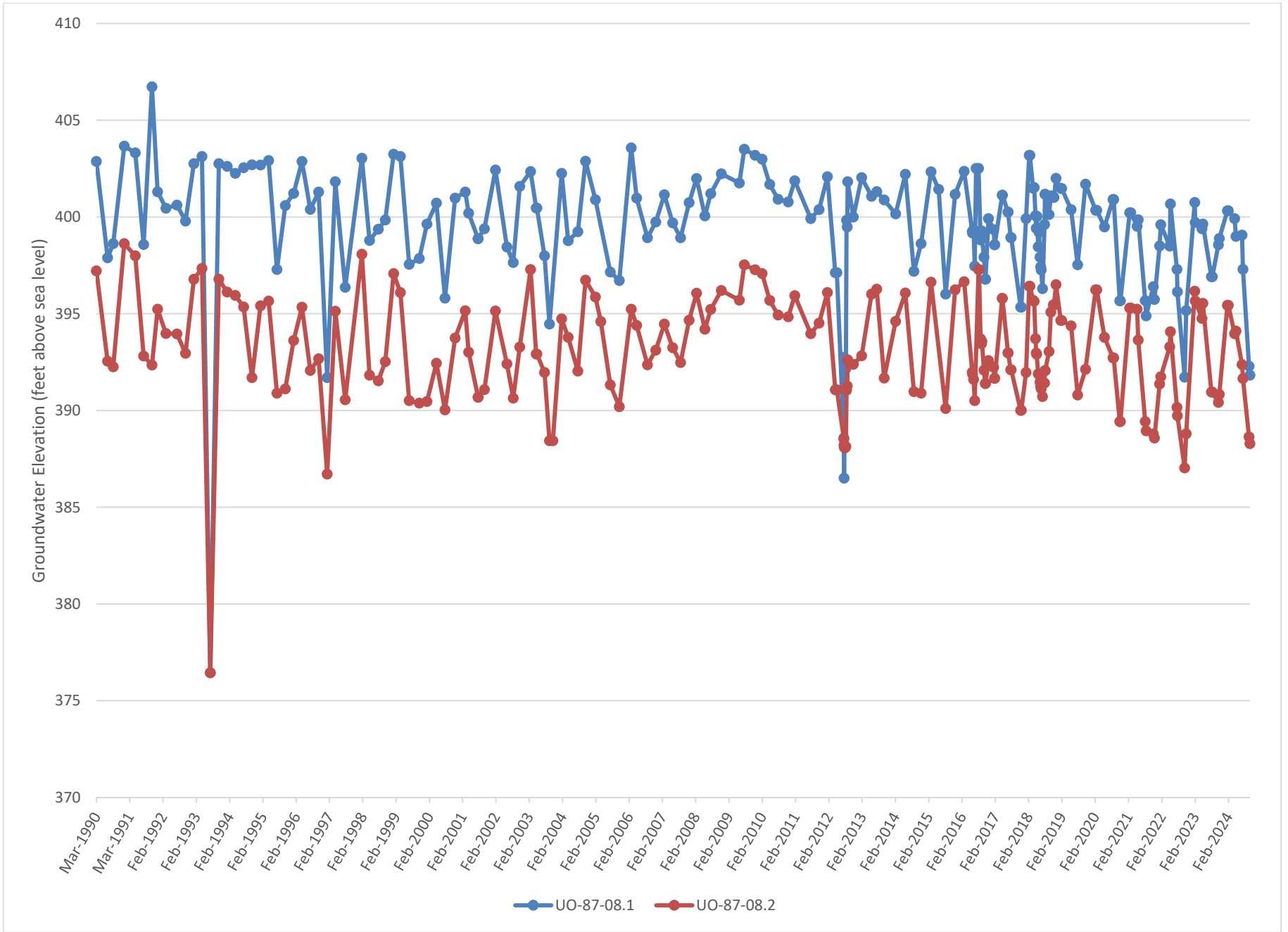


Figure 4-4A
Hydrograph: Monitoring Wells UO-87-8.1 and UO-87-8.2
2024 Annual Groundwater Report
Hot Springs, Arkansas Umetco Minerals Corporation

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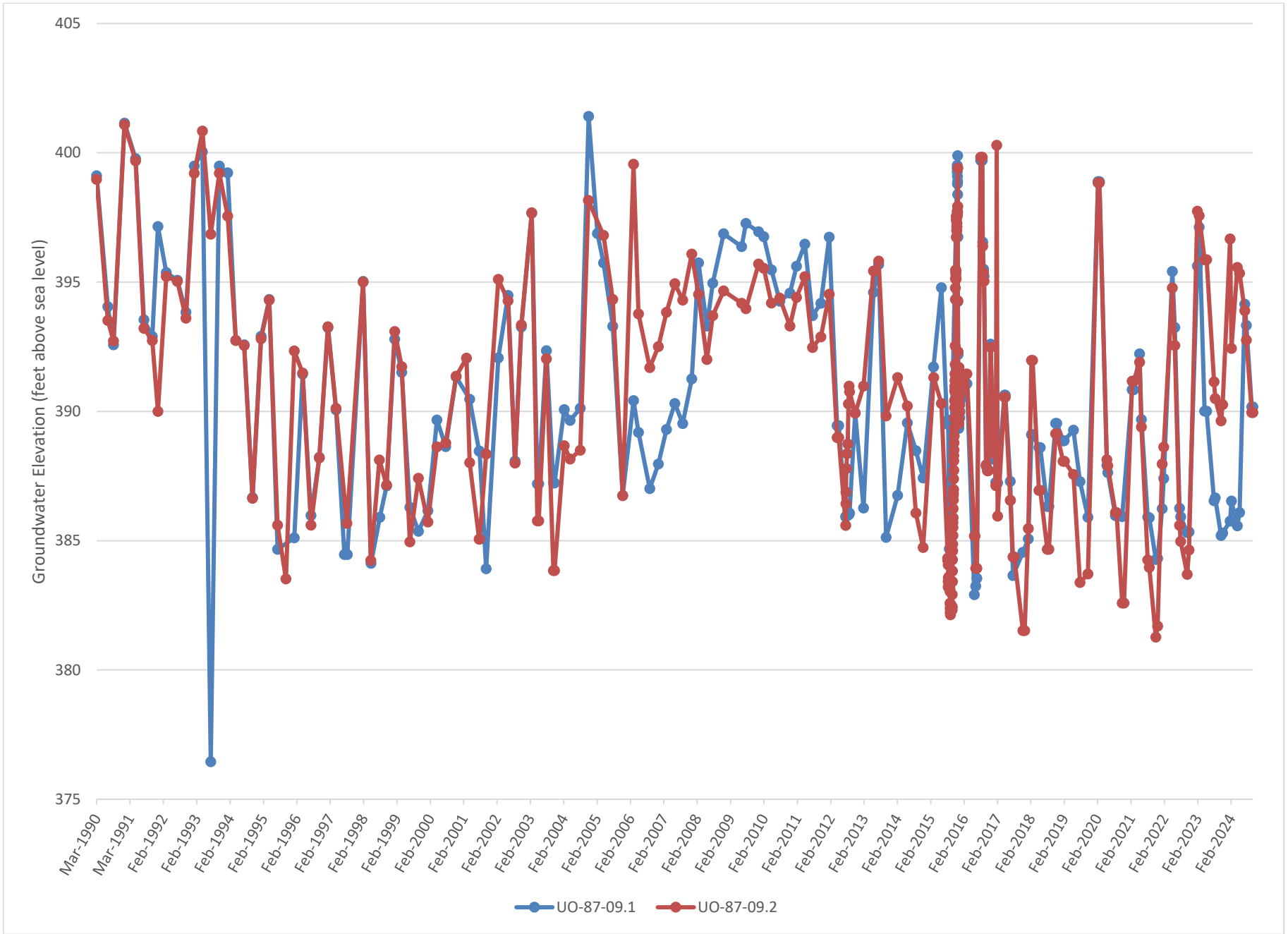


Figure 4-4B
Hydrograph: Monitoring Wells UO-87-9.1 and UO-87-9.2
2024 Annual Groundwater Report
Hot Springs, Arkansas Umetco Minerals Corporation

Jacobs

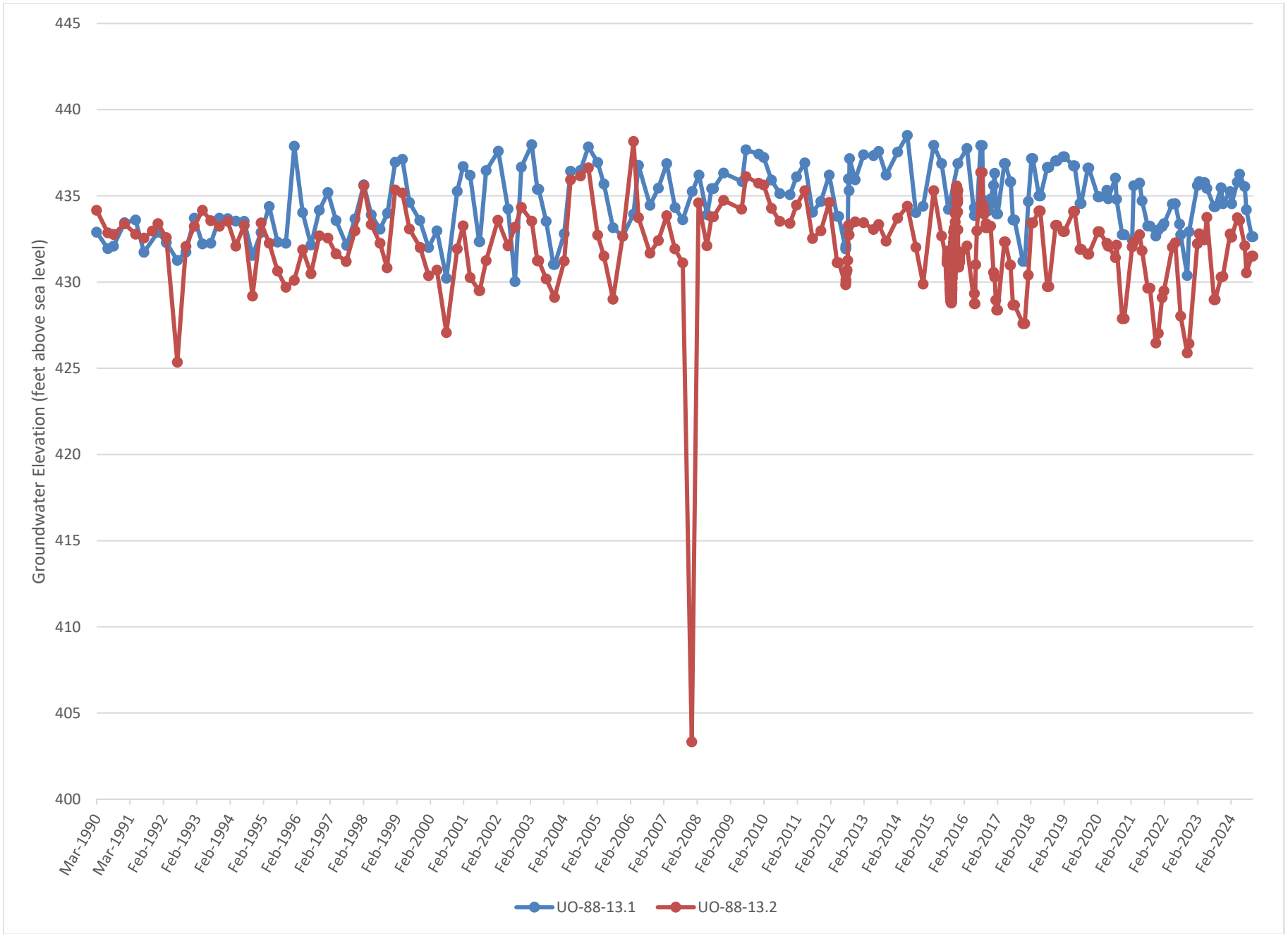


Figure 4-5
Hydrograph: Monitoring Wells UO-88-13.1 and UO-88-13.2
2024 Annual Groundwater Report
Hot Springs, Arkansas Umetco Minerals Corporation
Jacobs

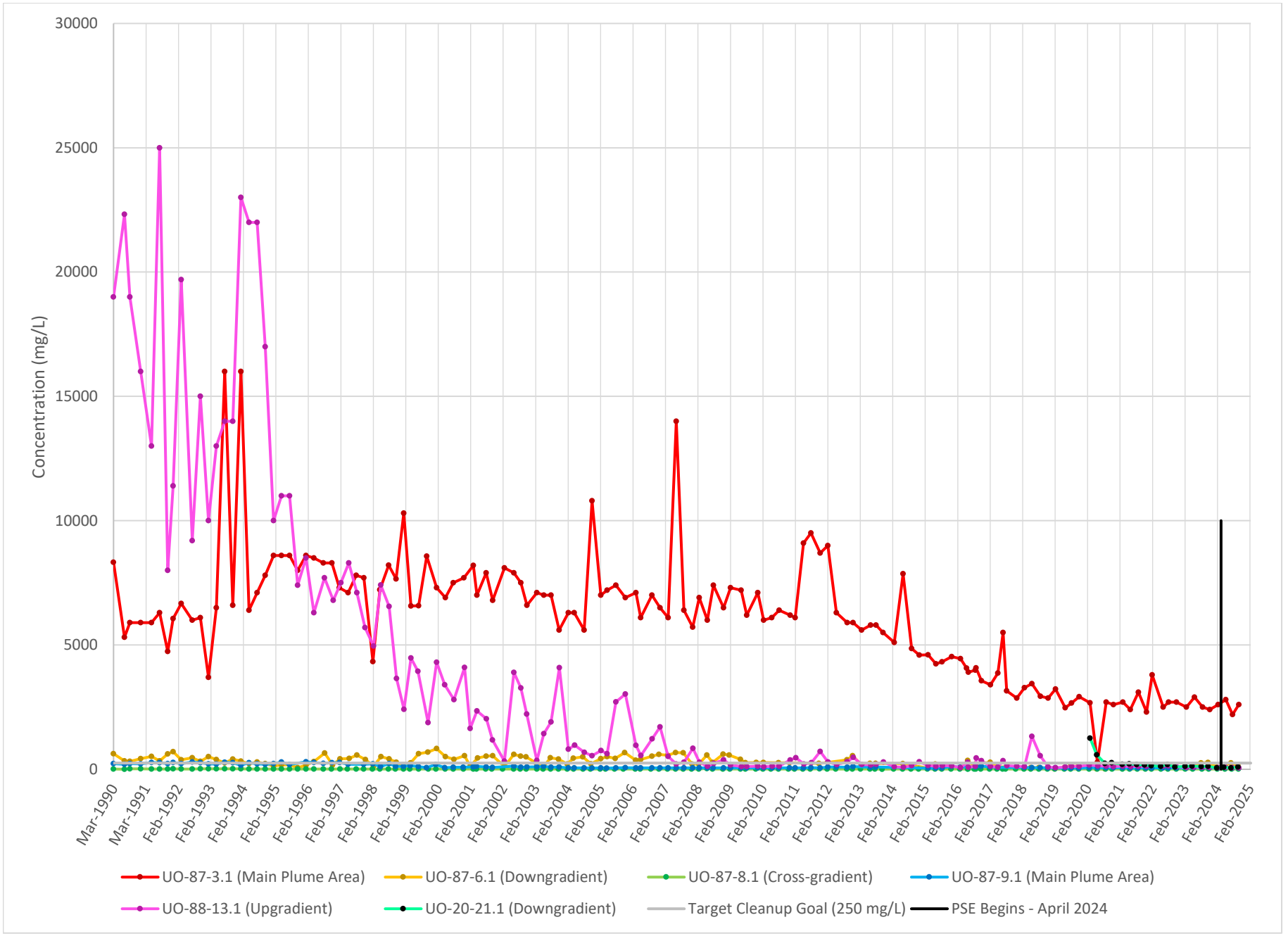


Figure 4-6A
Chloride Concentrations in Alluvium Groundwater - Linear Scale
2024 Annual Groundwater Report
Hot Springs, Arkansas Umetco Minerals Corporation
Jacobs

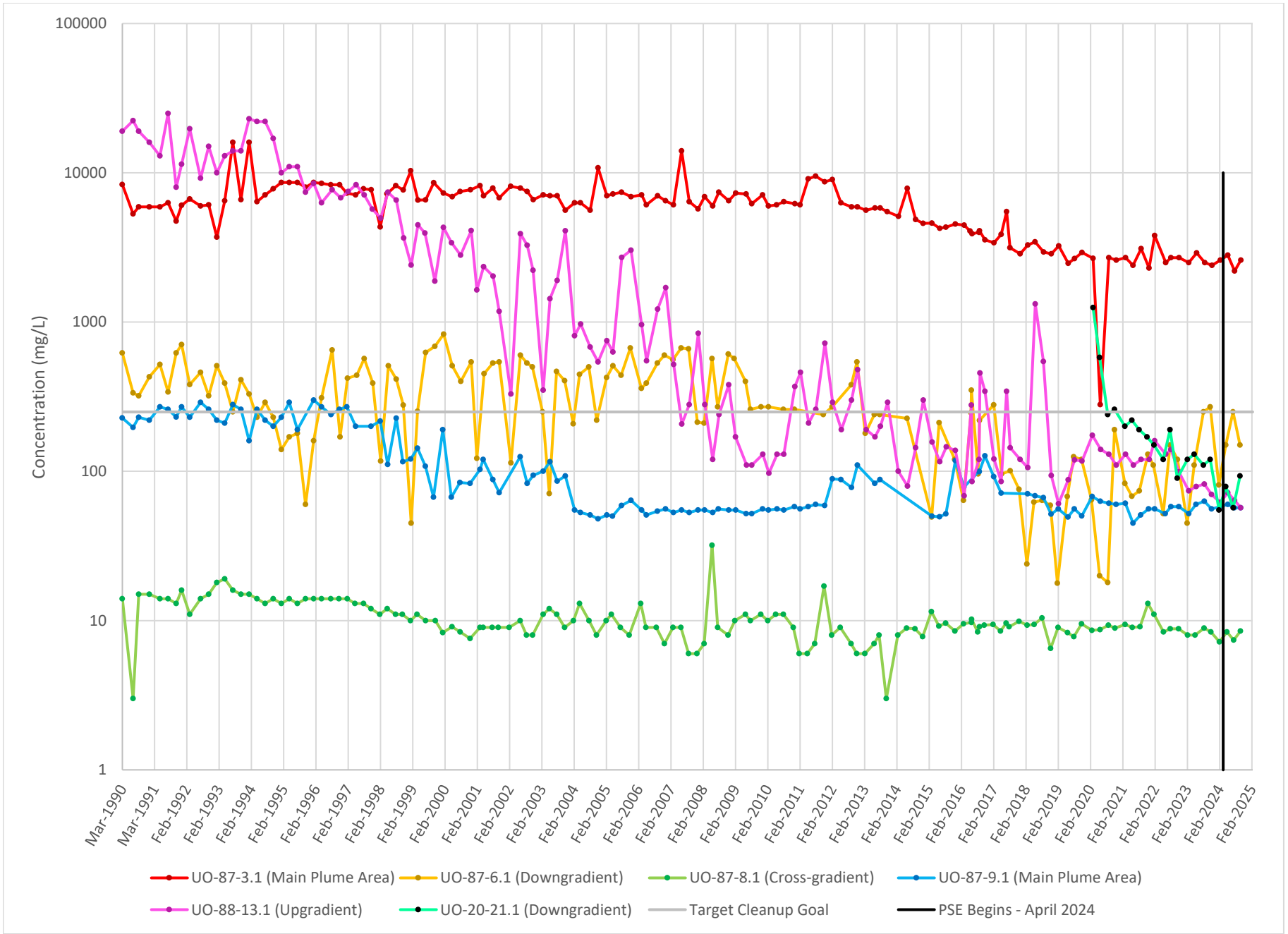


Figure 4-6B
Chloride Concentrations in Alluvium Groundwater -Semilogarithmic Scale
2024 Annual Groundwater Report
Hot Springs, Arkansas Umetco Minerals Corporation
Jacobs

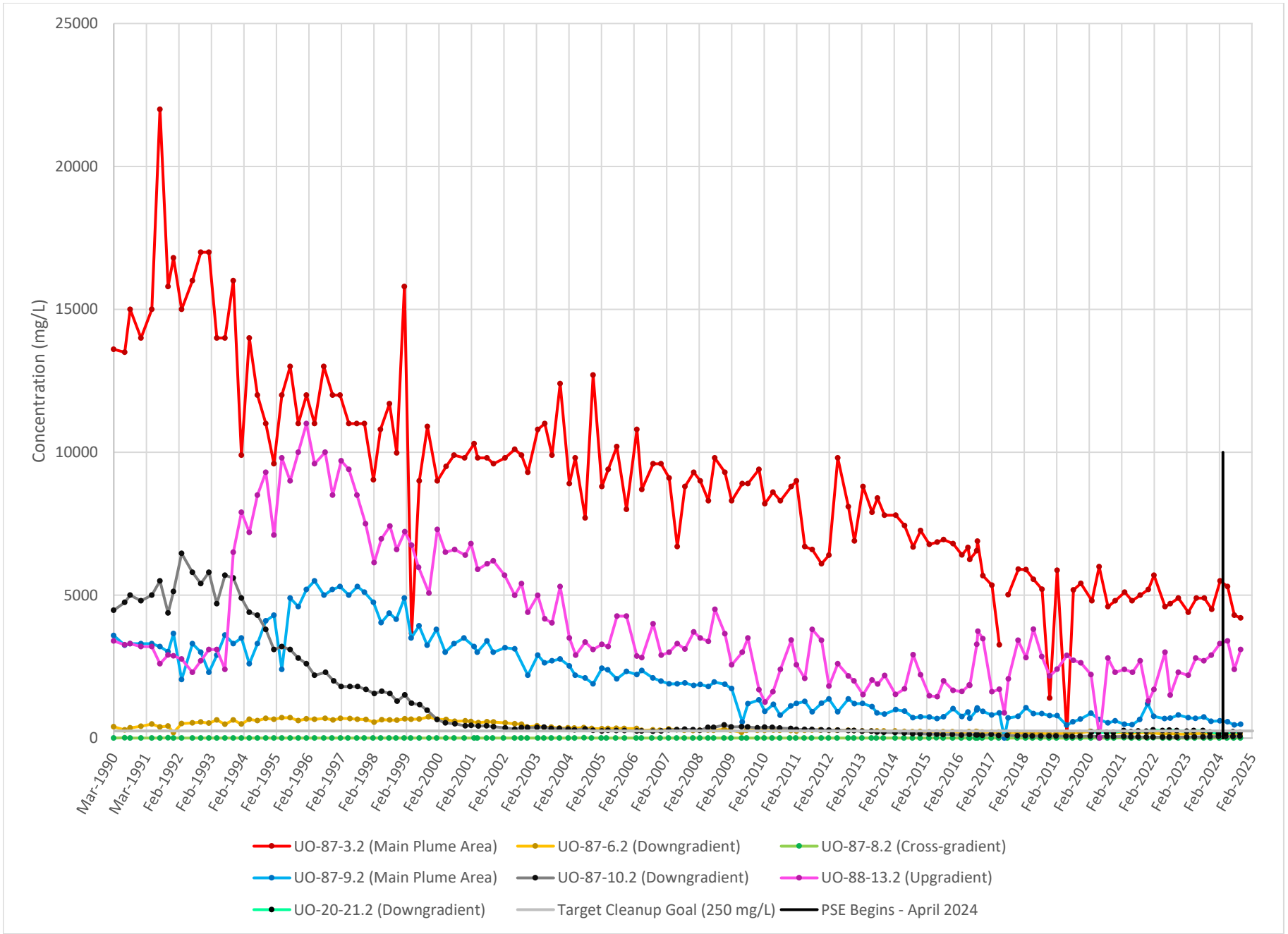


Figure 4-7A
Chloride Concentrations in Stanley Shale Groundwater - Linear Scale
2024 Annual Groundwater Report
Hot Springs, Arkansas Umetco Minerals Corporation

Jacobs

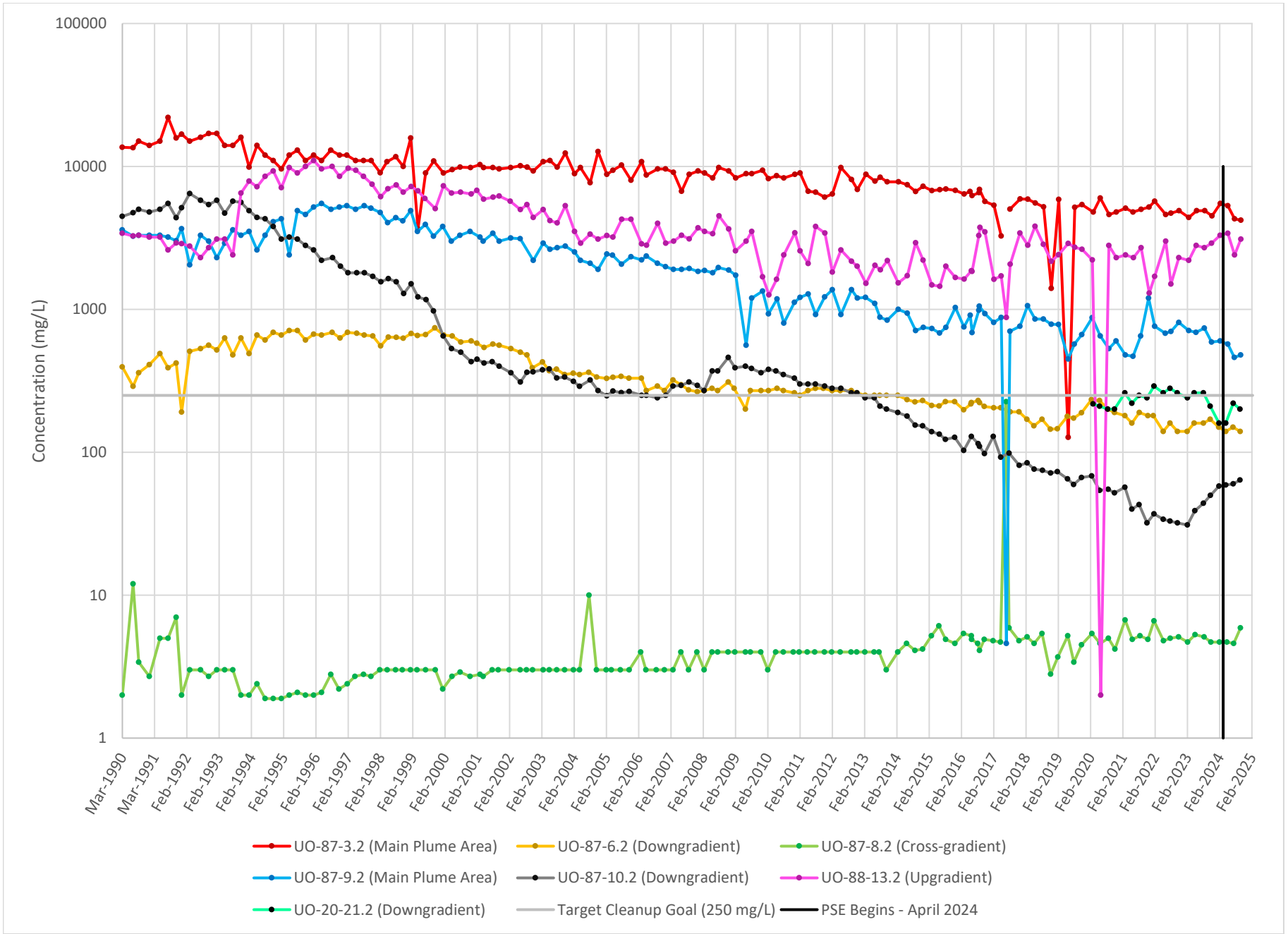
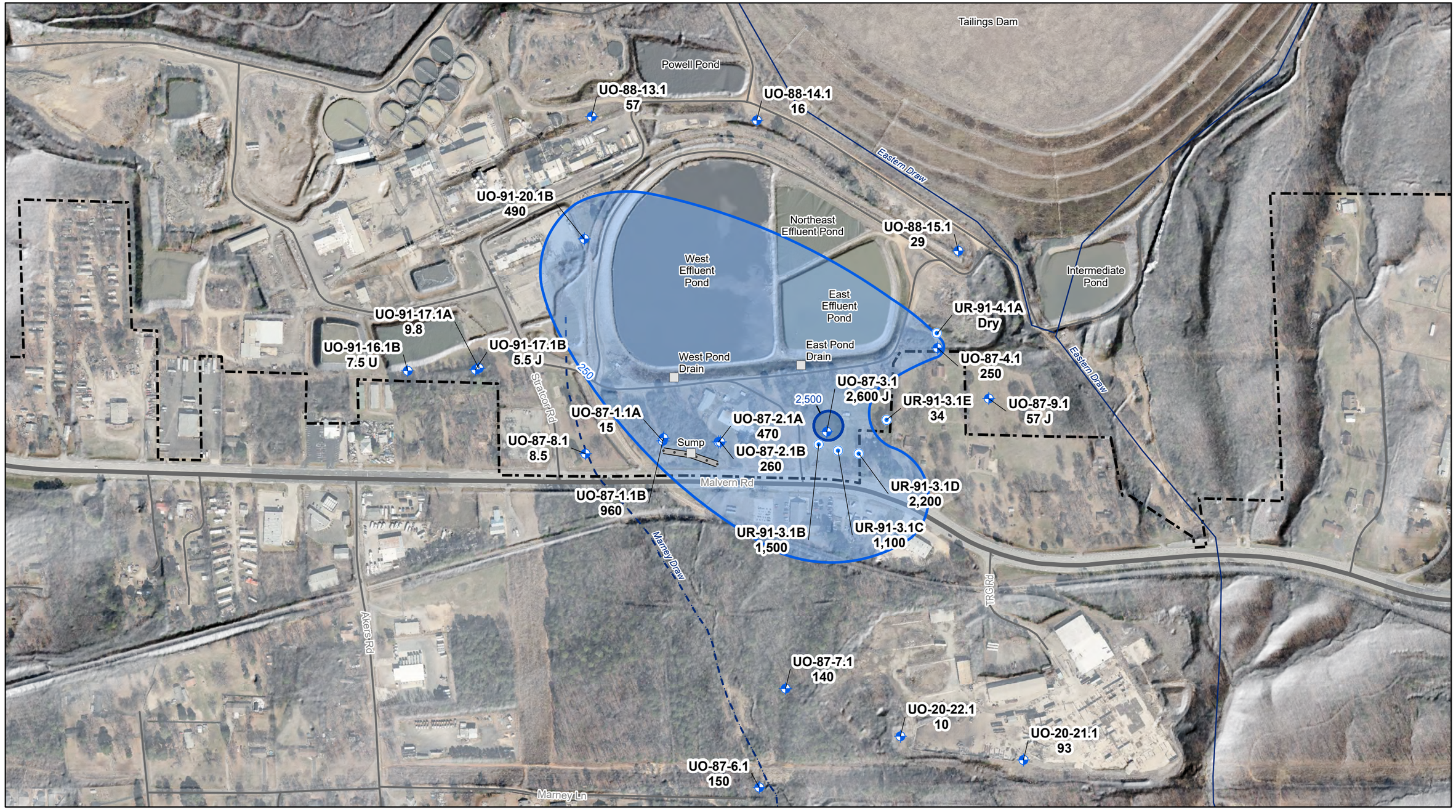


Figure 4-7B
Chloride Concentrations in Stanley Shale Groundwater - Semilogarithmic Scale
2024 Annual Groundwater Report
Hot Springs, Arkansas Umetco Minerals Corporation
Jacobs



LEGEND

Alluvium Locations
- Monitoring Well
- Recovery Well
- Drain or Sump Sampling Point

- French Drain
- Intermittent Stream
- Perennial Stream
- US Vanadium Property Line

Concentration Contours
- 250 mg/L
- 2,500 mg/L

N

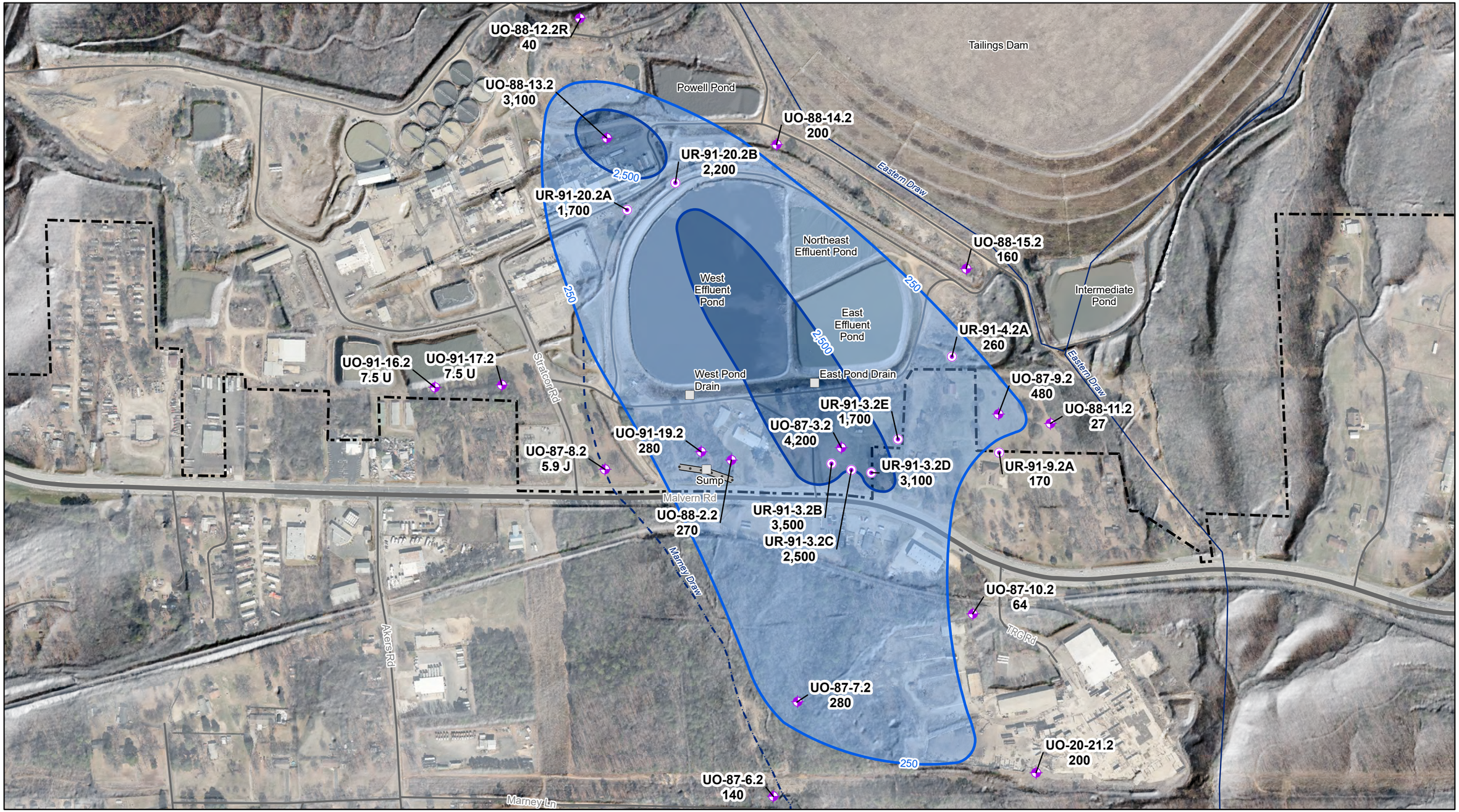
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Feet

Notes:
1. Results are in mg/L.
2. Data contoured are from the Fourth Quarter of 2024 Sampling Event.
3. mg/L = Milligrams per Liter
4. J = estimated value
5. U = non-detect
6. Basemap Image Source: Arkansas GIS Office, 2023

Figure 4-8. Isoconcentration Figure: Chloride in Alluvium Groundwater
US Vanadium Plant Site
2024 Annual Groundwater Report
Hot Springs, Arkansas Umetco Minerals Corporation

Jacobs

\\DC1VS01\GISPROJ\D\DOWCHEMICALS\HOTSPRINGS\MAPFILES\2024\PLANTSITE_2024_Q4\PLANTSITE_2024_Q4.APRX JHANSEN1 3/10/2025 3:04 PM



N

0 200 400

Feet

LEGEND

Stanley Shale Locations
- Monitoring Well
- Recovery Well
- Drain or Sump Sampling Point

- French Drain
- Intermittent Stream
- Perennial Stream
- US Vanadium Property Line

Concentration Contours
- 250 mg/L
- 2,500 mg/L

Notes:
1. Results are in mg/L.
2. Data contoured are from the Fourth Quarter of 2024 Sampling Event.
3. mg/L = Milligrams per Liter
4. J = Estimated value.
5. U = non-detect
6. Basemap Image Source: Arkansas GIS Office, 2023

Figure 4-9. Isoconcentration Figure: Chloride in Stanley Shale Groundwater
US Vanadium Plant Site
2024 Annual Groundwater Report
Hot Springs, Arkansas Umetco Minerals Corporation

Jacobs

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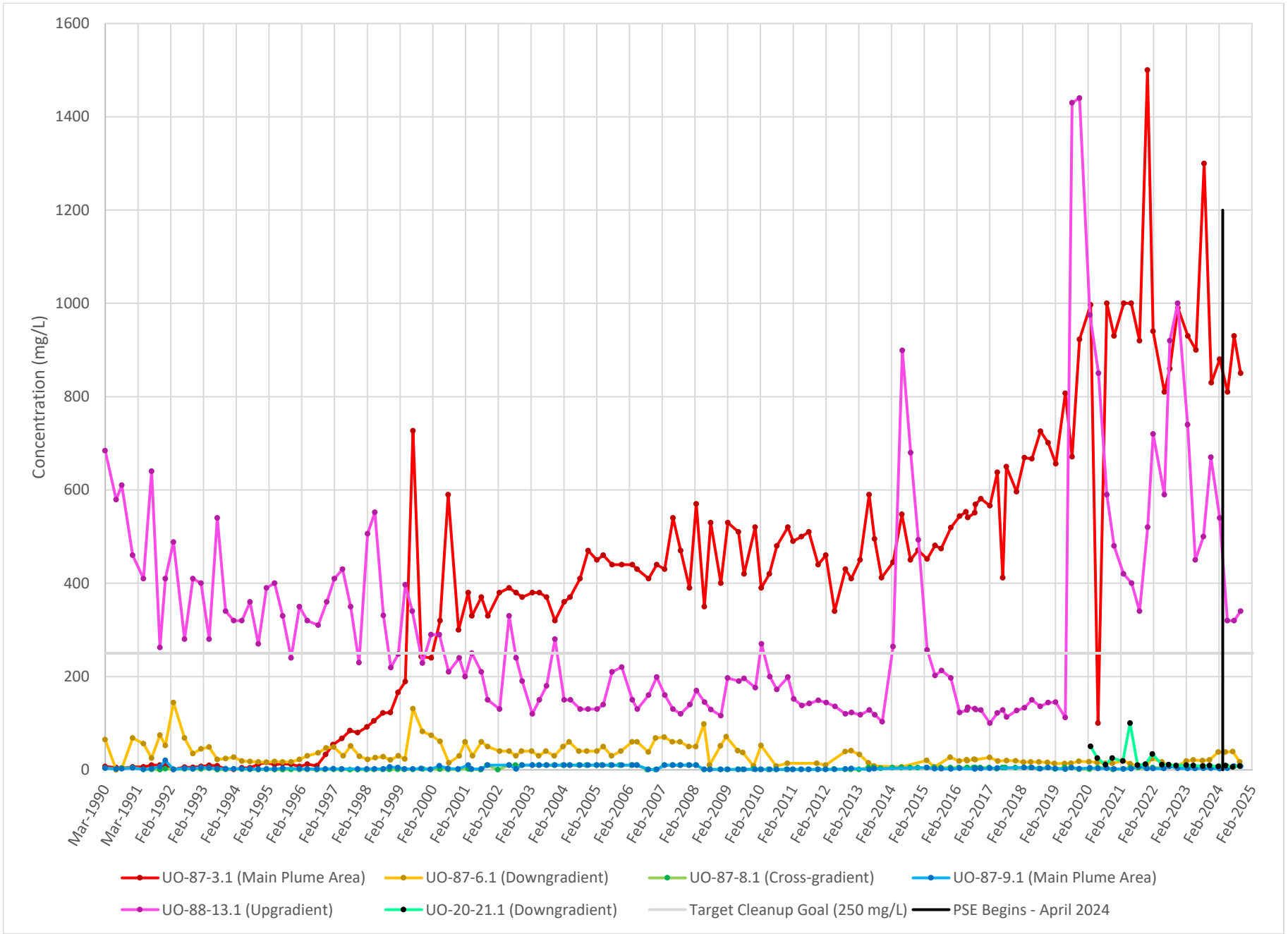


Figure 4-10A
Sulfate Concentrations in Alluvium Groundwater - Linear Scale
2024 Annual Groundwater Report
Hot Springs, Arkansas Umetco Minerals Corporation

Jacobs

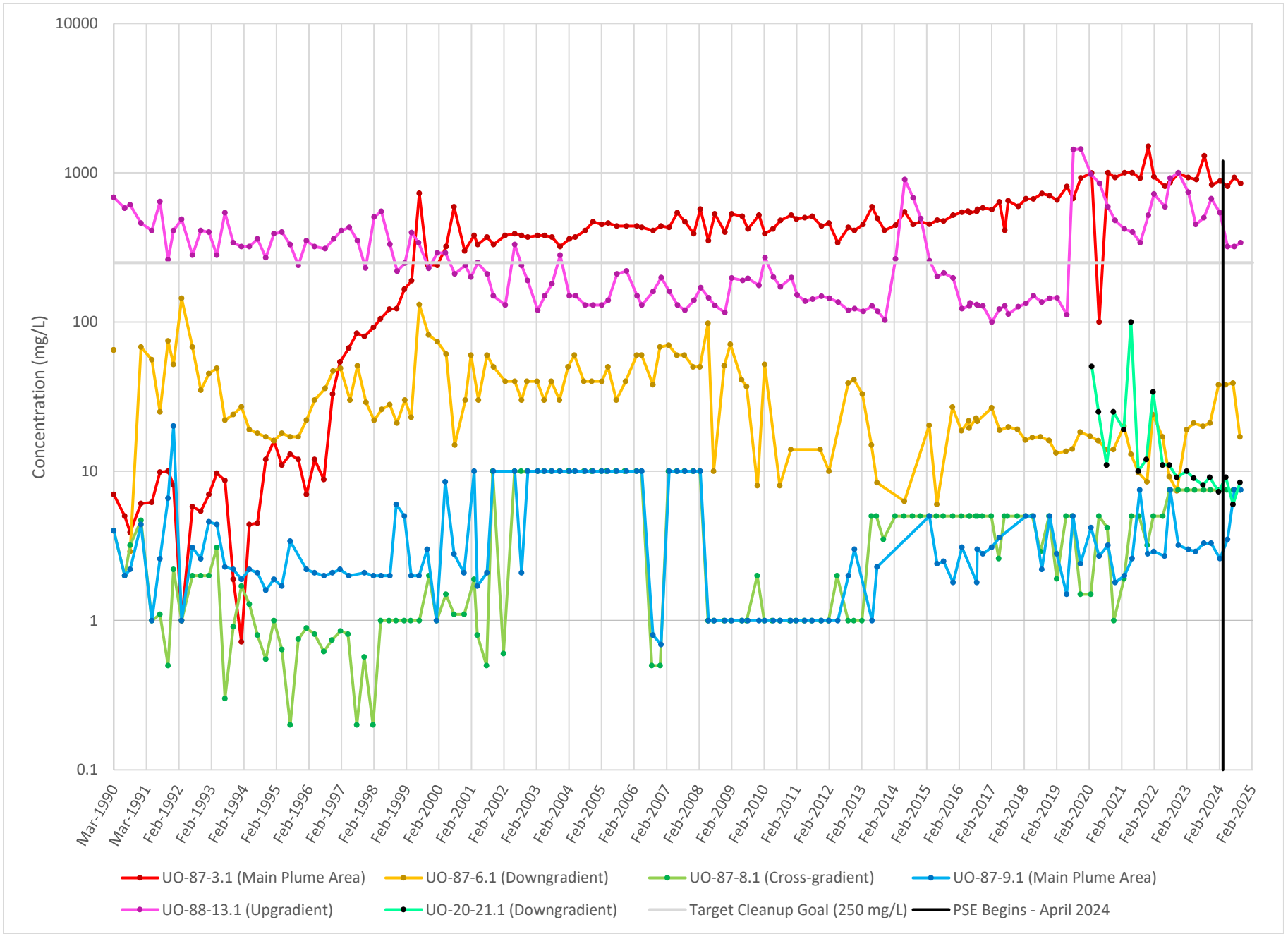


Figure 4-10B
Sulfate Concentrations in Alluvium Groundwater - Semilogarithmic Scale
2024 Annual Groundwater Report
Hot Springs, Arkansas Umetco Minerals Corporation

Jacobs

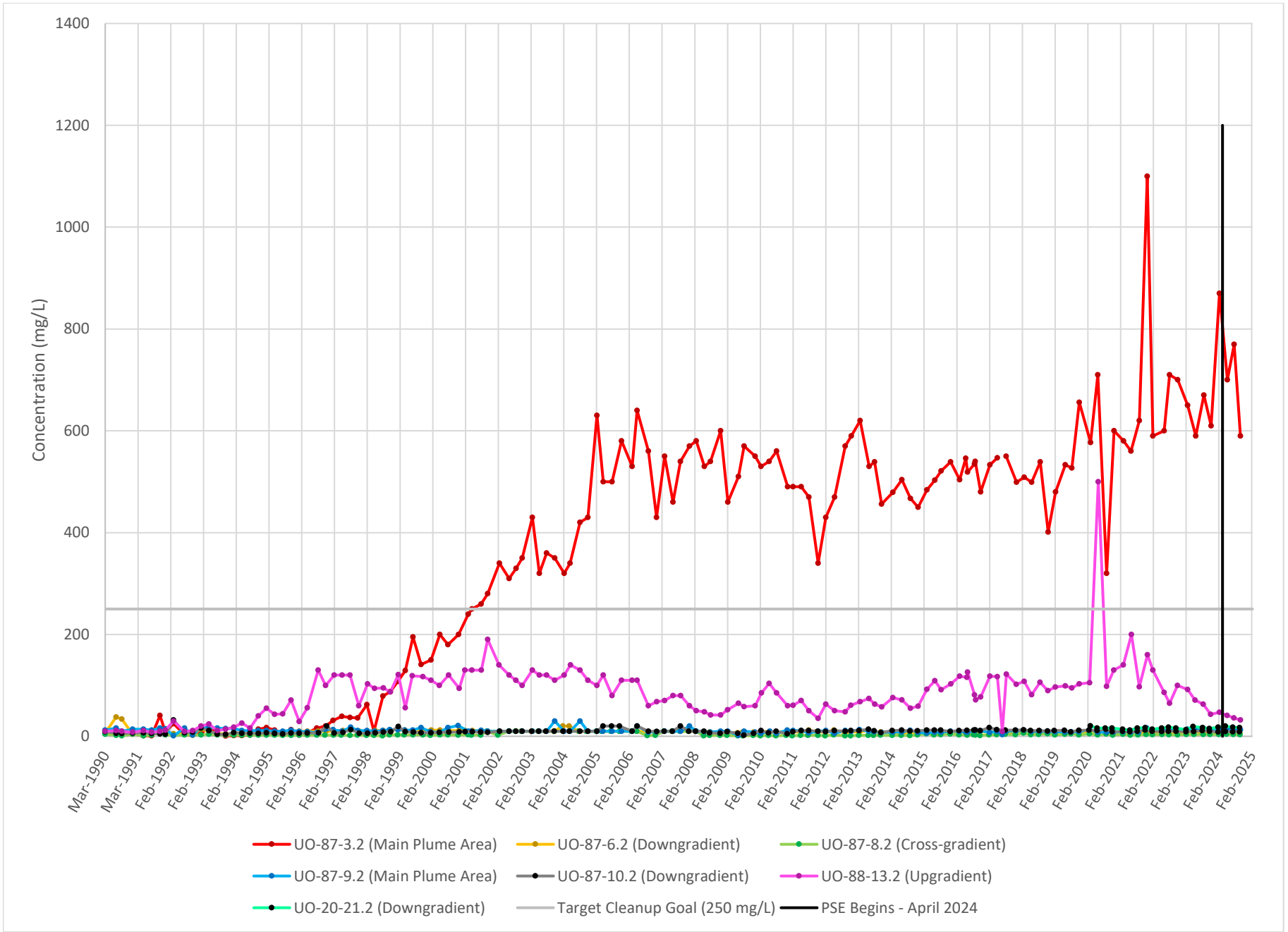


Figure 4-11A
Sulfate Concentrations in Stanley Shale Groundwater - Linear Scale
2024 Annual Groundwater Report
Hot Springs, Arkansas Umetco Minerals Corporation

Jacobs

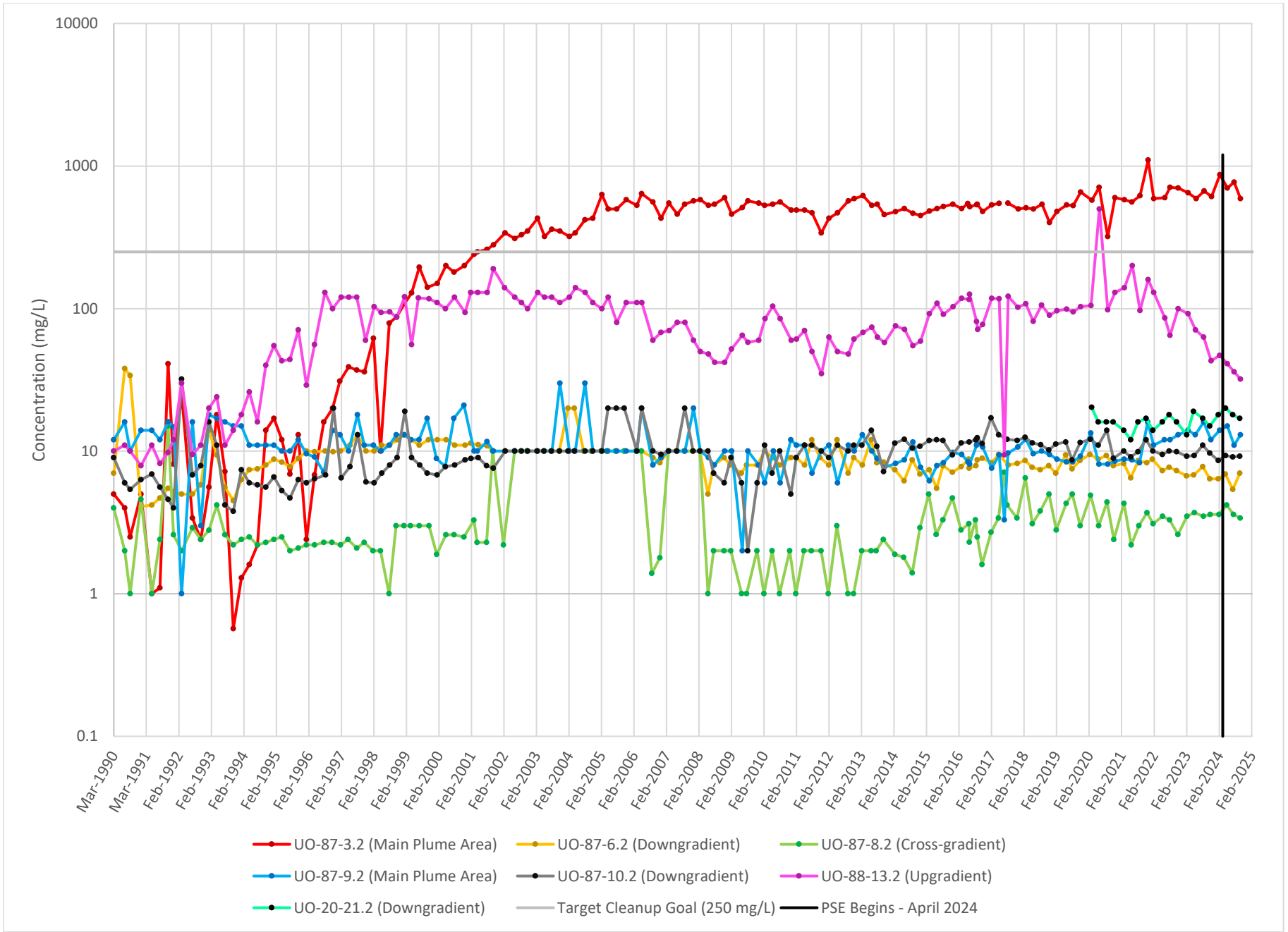


Figure 4-11B
Sulfate Concentrations in Stanley Shale Groundwater - Semilogarithmic Scale
2024 Annual Groundwater Report
Hot Springs, Arkansas Umetco Minerals Corporation
Jacobs



LEGEND

Alluvium Locations
- Monitoring Well
- Recovery Well
- Drain or Sump Sampling Point

- French Drain
- Intermittent Stream
- Perennial Stream
- US Vanadium Property Line

Concentration Contours
- 250 mg/L

N

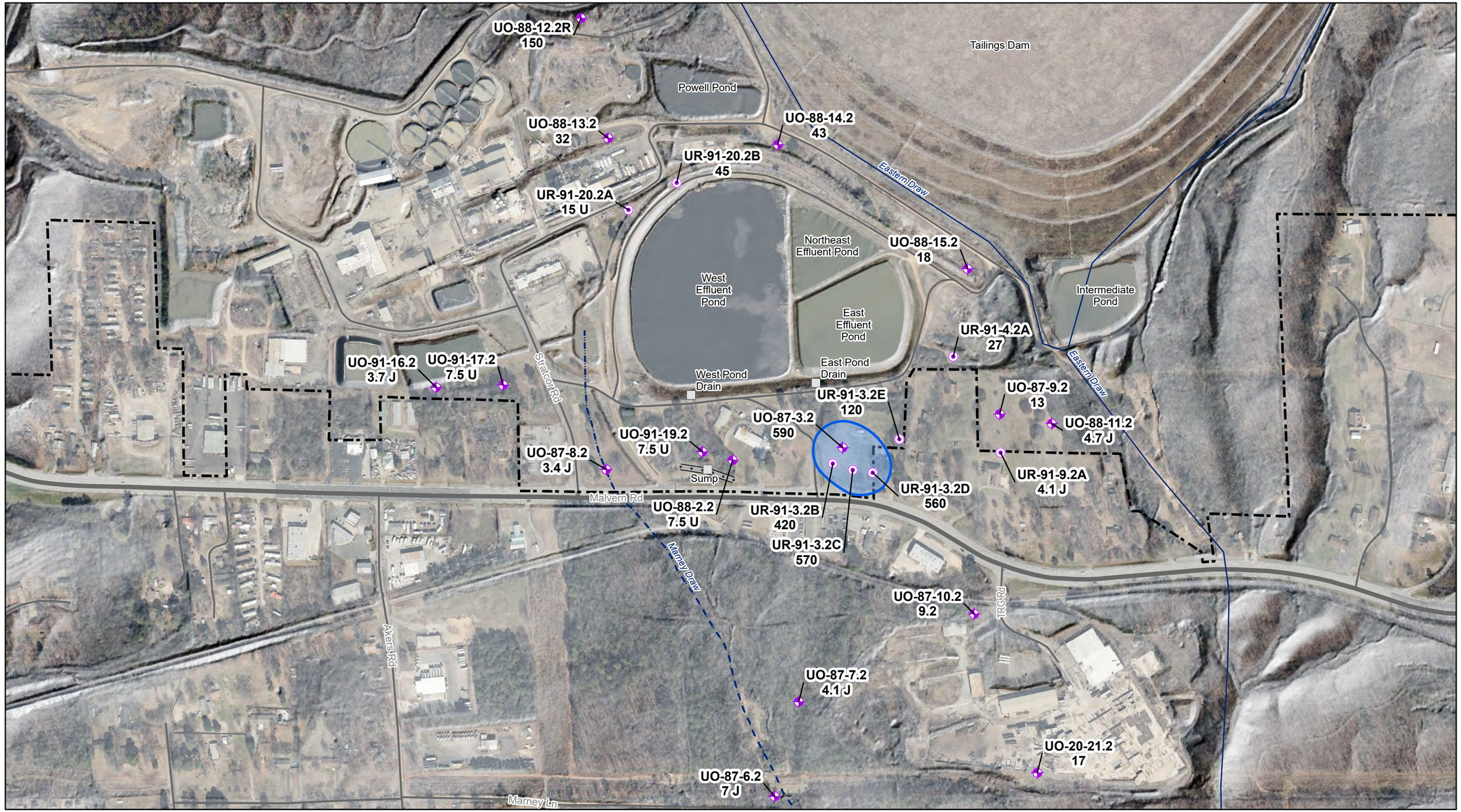
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Feet

Notes:
1. Results are in mg/L.
2. Data contoured are from the Fourth Quarter of 2024 Sampling Event.
3. mg/L = Milligrams per Liter
4. J = Estimated value.
5. U = non-detect
6. Basemap Image Source: Arkansas GIS Office, 2023

Figure 4-12. Isoconcentration Figure: Sulfate in Alluvium Groundwater
US Vanadium Plant Site
2024 Annual Groundwater Report
Hot Springs, Arkansas Umetco Minerals Corporation

Jacobs

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N

0 200 400
Feet

LEGEND

Stanley Shale Locations
- Monitoring Well
- Recovery Well
- Drain or Sump Sampling Point

- French Drain
- Intermittent Stream
- Perennial Stream
- US Vanadium Property Line

Concentration Contours
- 250 mg/L

Notes:
1. Results are in mg/L.
2. Data contoured are from the Fourth Quarter of 2024 Sampling Event.
3. mg/L = Milligrams per Liter
4. J = Estimated value.
5. U = non-detect
6. Basemap Image Source: Arkansas GIS Office, 2023

Figure 4-13. Isoconcentration Figure: Sulfate in Stanley Shale Groundwater
US Vanadium Plant Site
2024 Annual Groundwater Report
Hot Springs, Arkansas Umetco Minerals Corporation

Jacobs

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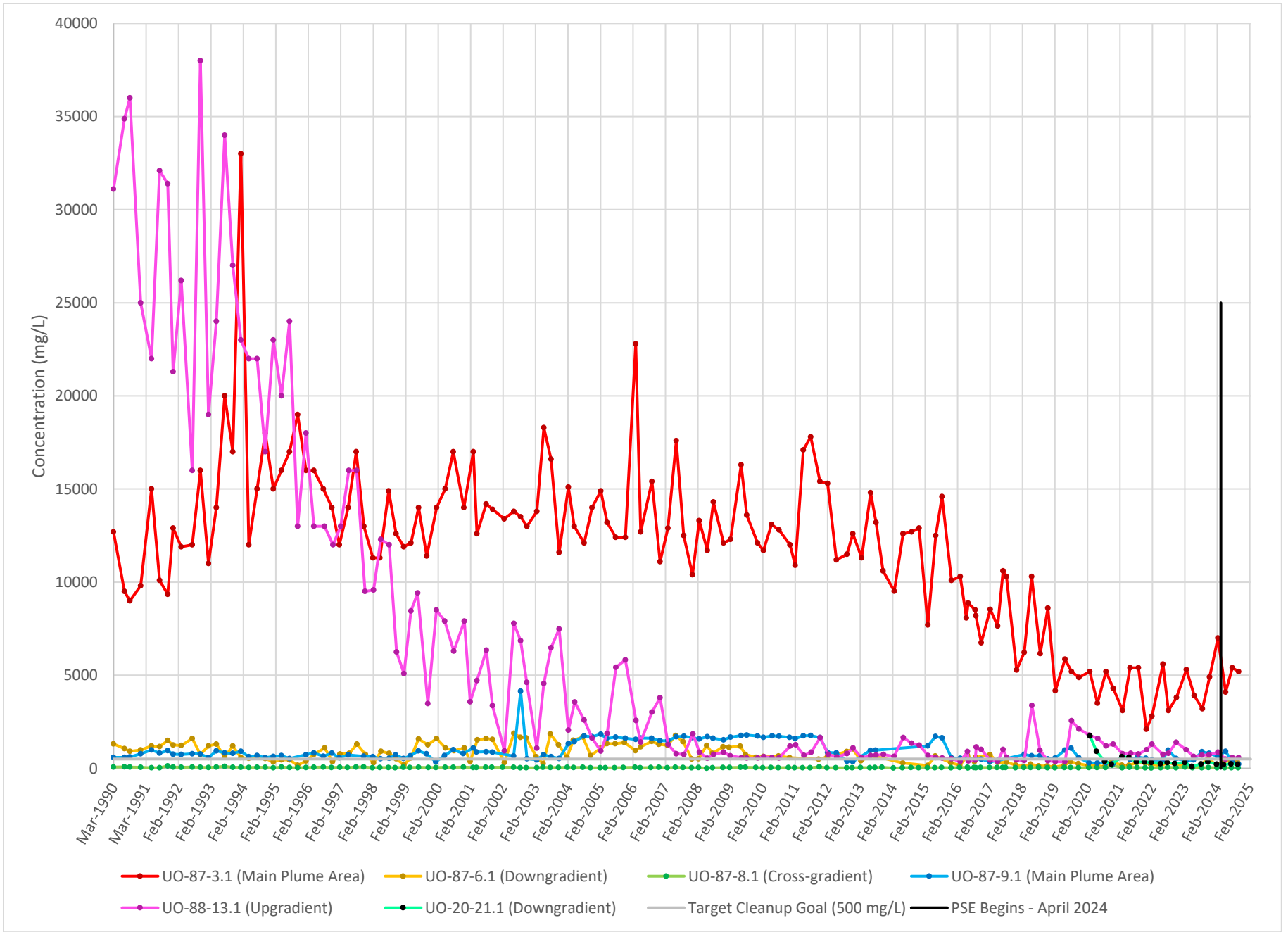


Figure 4-14A
TDS Concentrations in Alluvium Groundwater - Linear Scale
2024 Annual Groundwater Report
Hot Springs, Arkansas Umetco Minerals Corporation

Jacobs

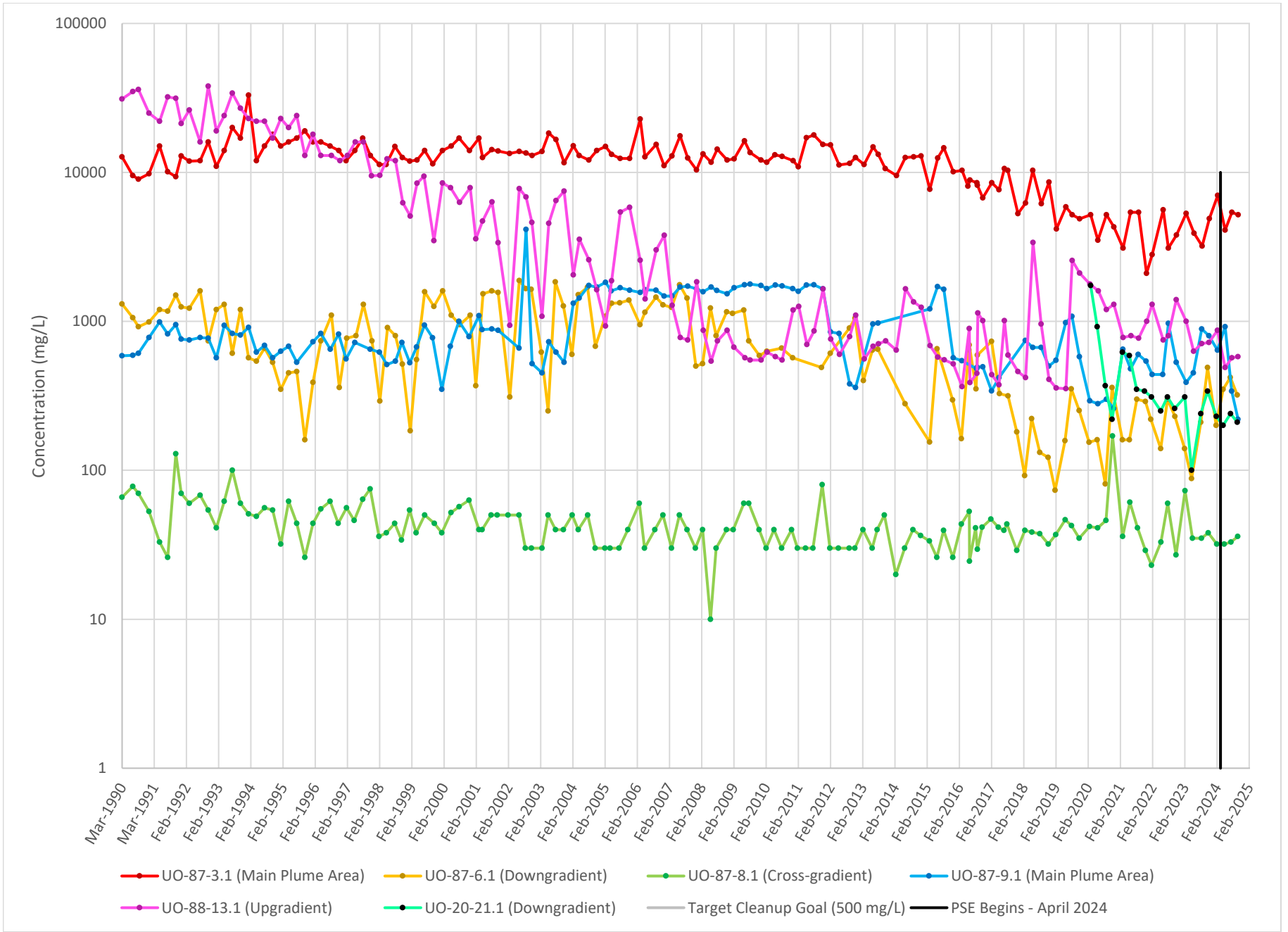


Figure 4-14B
TDS Concentrations in Alluvium Groundwater - Semilogarithmic Scale
2024 Annual Groundwater Report
Hot Springs, Arkansas Umetco Minerals Corporation
Jacobs

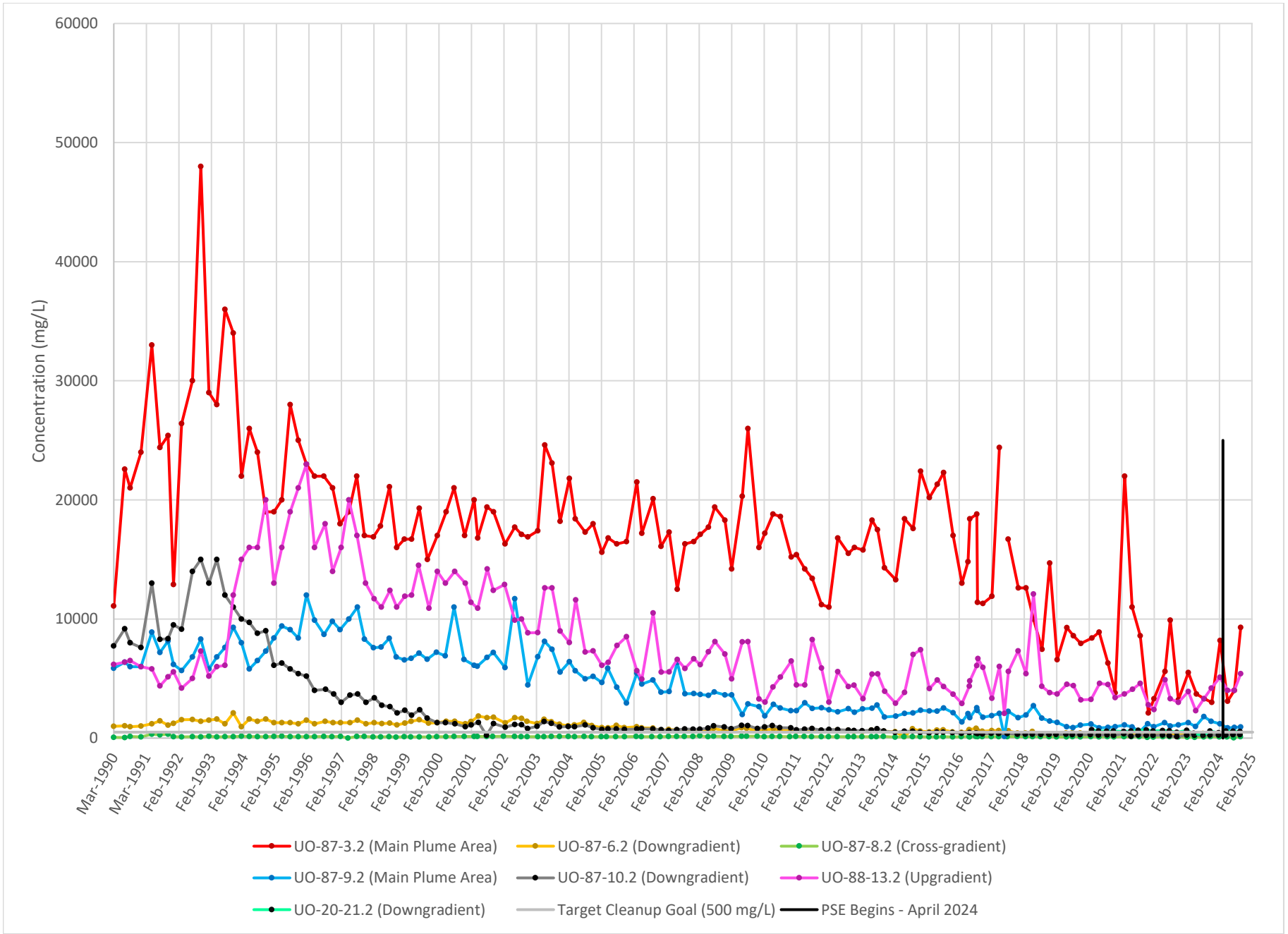


Figure 4-15A
TDS Concentrations in Stanley Shale Groundwater - Linear Scale
2024 Annual Groundwater Report
Hot Springs, Arkansas Umetco Minerals Corporation
Jacobs

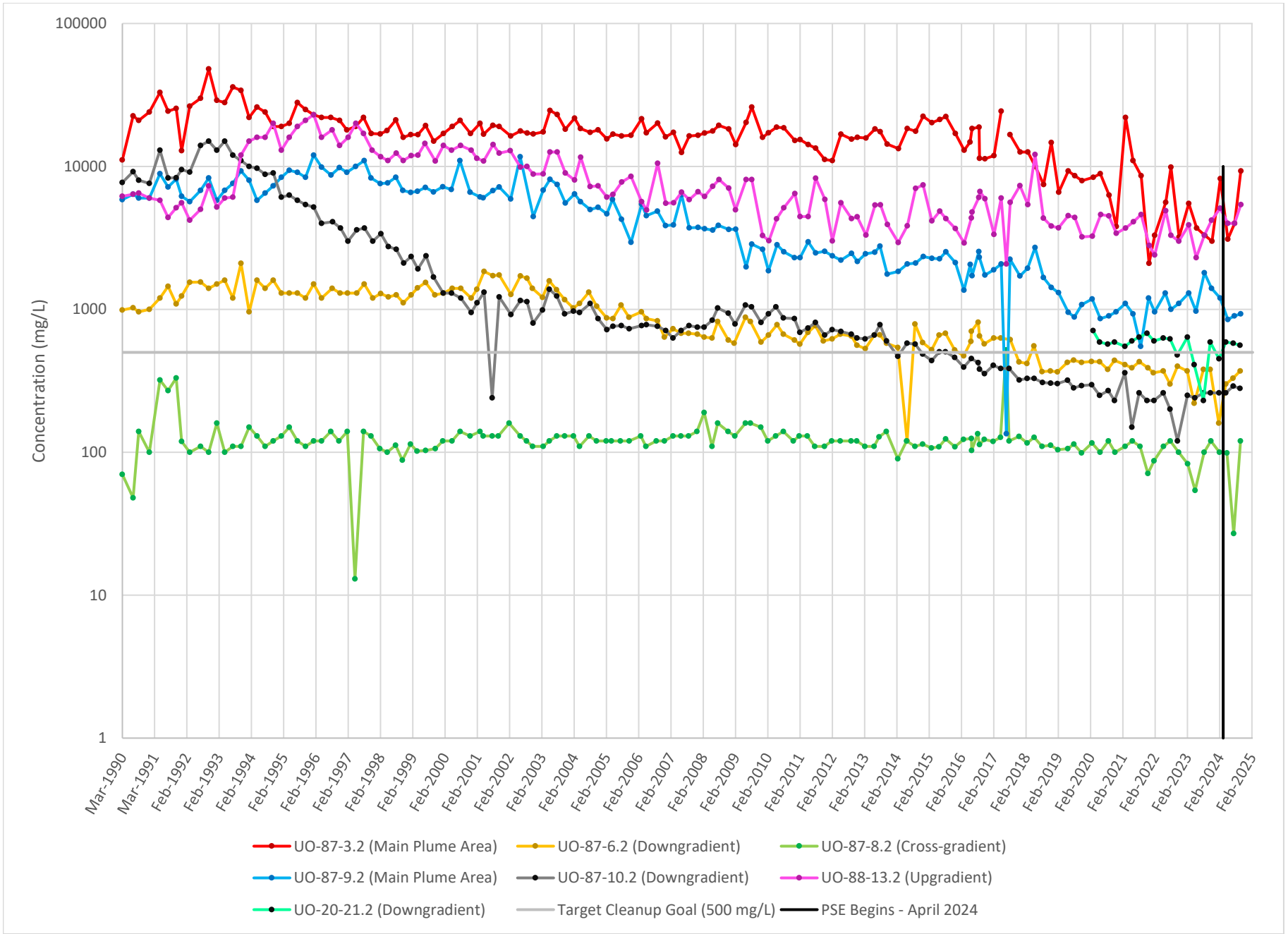
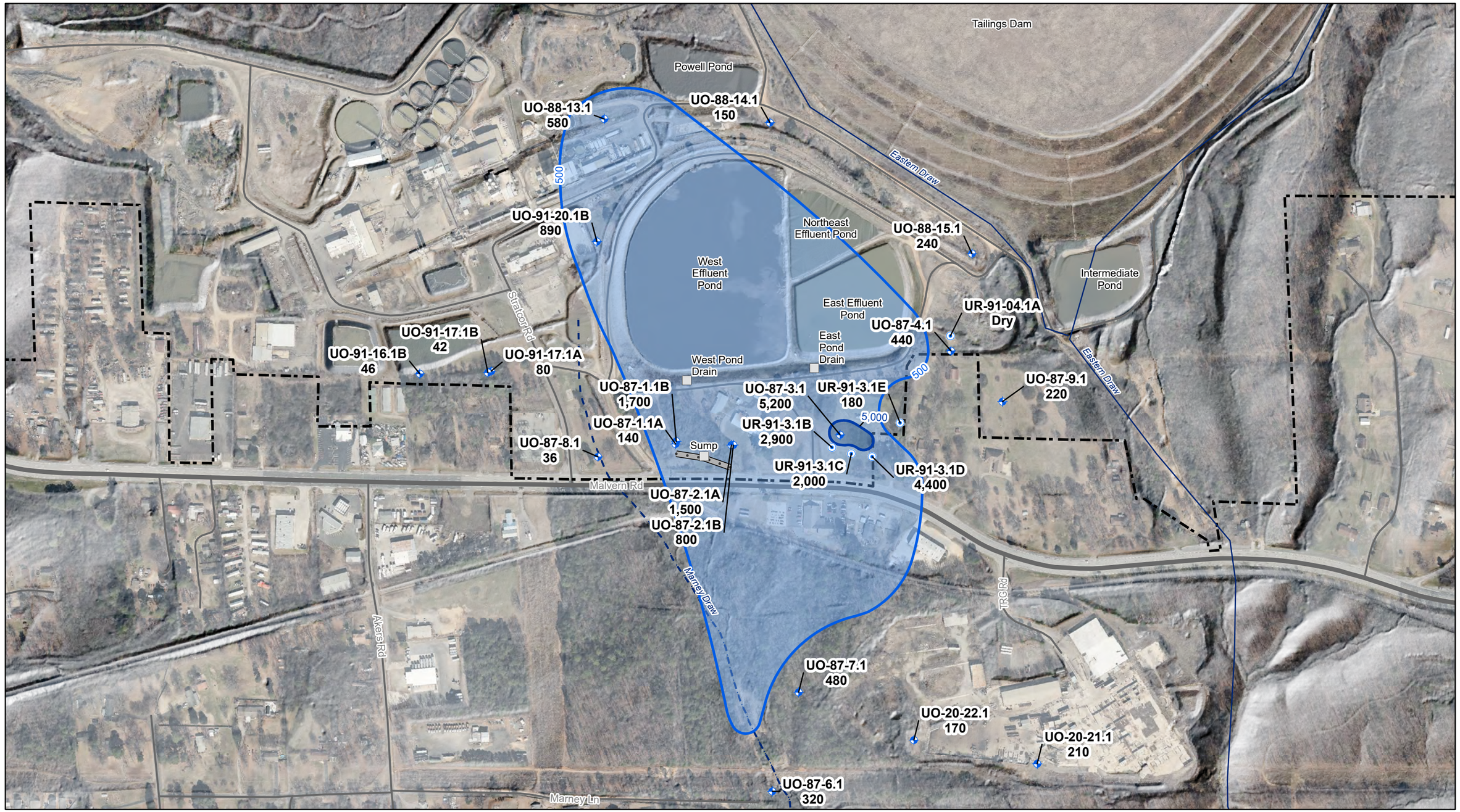


Figure 4-15B
TDS Concentrations in Stanley Shale Groundwater - Semilogarithmic Scale
2024 Annual Groundwater Report
Hot Springs, Arkansas Umetco Minerals Corporation

Jacobs



LEGEND

Alluvium Locations
- Montoring Well
- Recovery Well
- Drain or Sump Sampling Point

- French Drain
- Intermittent Stream
- Perennial Stream
- US Vanadium Property Line

Concentration Contours
- 500 mg/L
- 5,000 mg/L

N

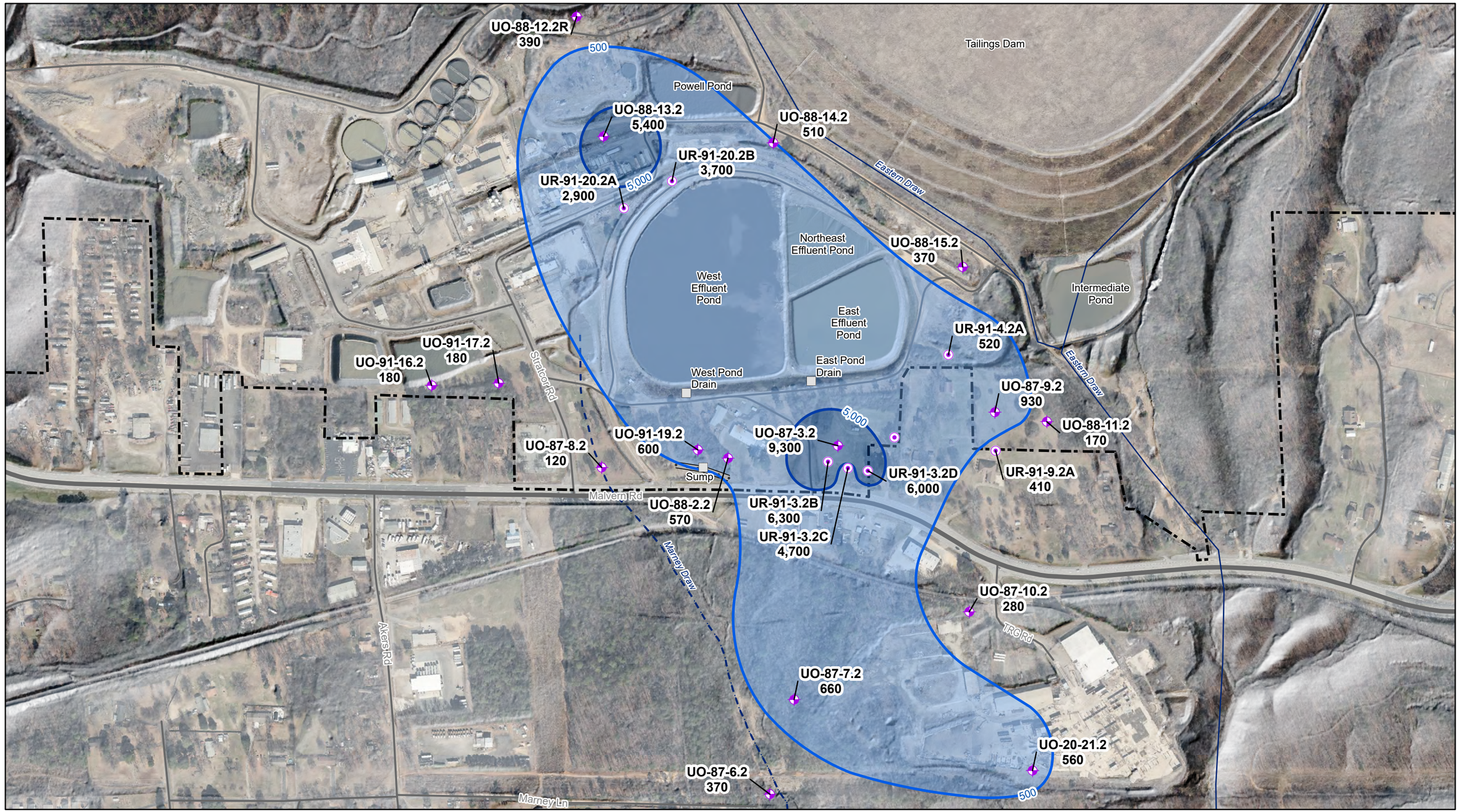
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Notes:
1. Results are in mg/L.
2. Data contoured are from the Fourth Quarter of 2024 Sampling Event.
3. mg/L = Milligrams per Liter
4. J = Estimated value.
5. Basemap Image Source: Arkansas GIS Office, 2023

Figure 4-16. Isoconcentration Figure: Total Dissolved Solids in Alluvium Groundwater
US Vanadium Plant Site
2024 Annual Groundwater Report
Hot Springs, Arkansas Umetco Minerals Corporation

Jacobs

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LEGEND

Stanley Shale Locations
- Monitoring Well
- Recovery Well
- Drain or Sump Sampling Point

French Drain
Intermittent Stream
Perennial Stream
US Vanadium Property Line

Concentration Contours
- 500 mg/L
- 5,000 mg/L

0 200 400
Feet

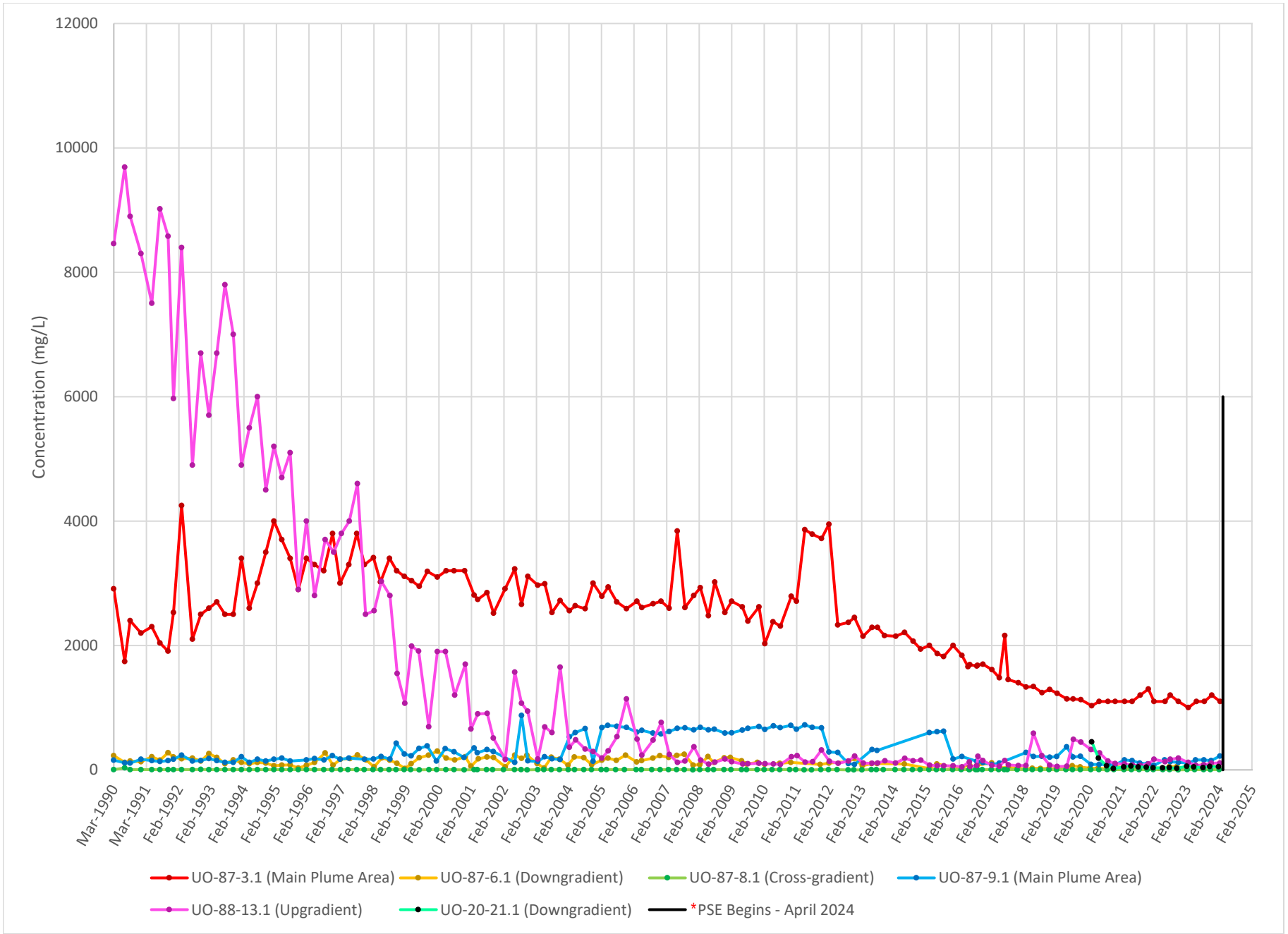
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Notes:
1. Results are in mg/L.
2. Data contoured are from the Fourth Quarter of 2024 Sampling Event.
3. mg/L = Milligrams per Liter
4. J = Estimated value.
5. Basemap Image Source: Arkansas GIS Office, 2023

Figure 4-17. Isoconcentration Figure: Total Dissolved Solids in Stanley Shale Groundwater
US Vanadium Plant Site
2024 Annual Groundwater Report
Hot Springs, Arkansas Umetco Minerals Corporation

Jacobs

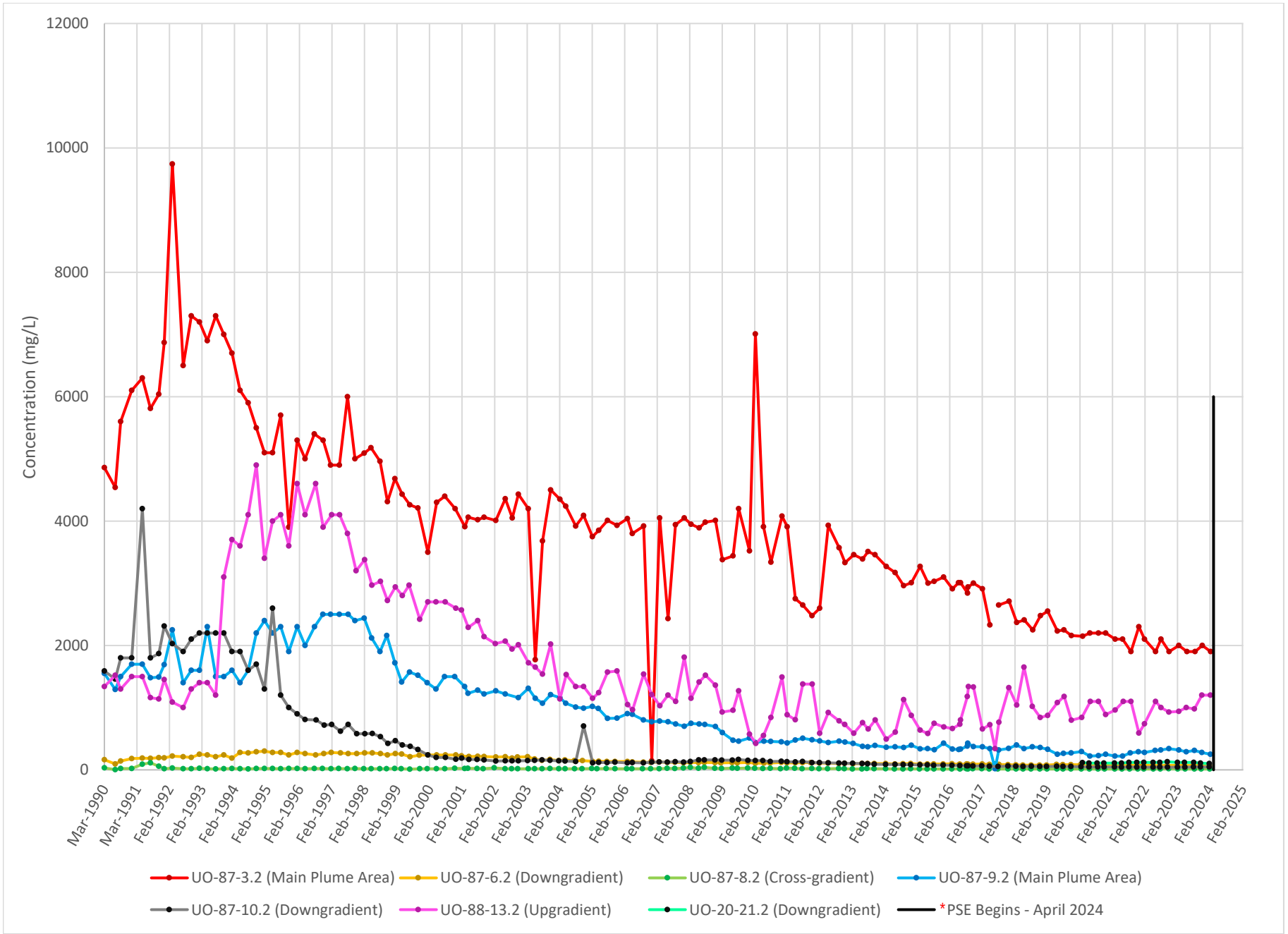
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*Sampling discontinued for Calcium after January to March 2024 (Q1) due to PSE start in April 2024 (Q2)

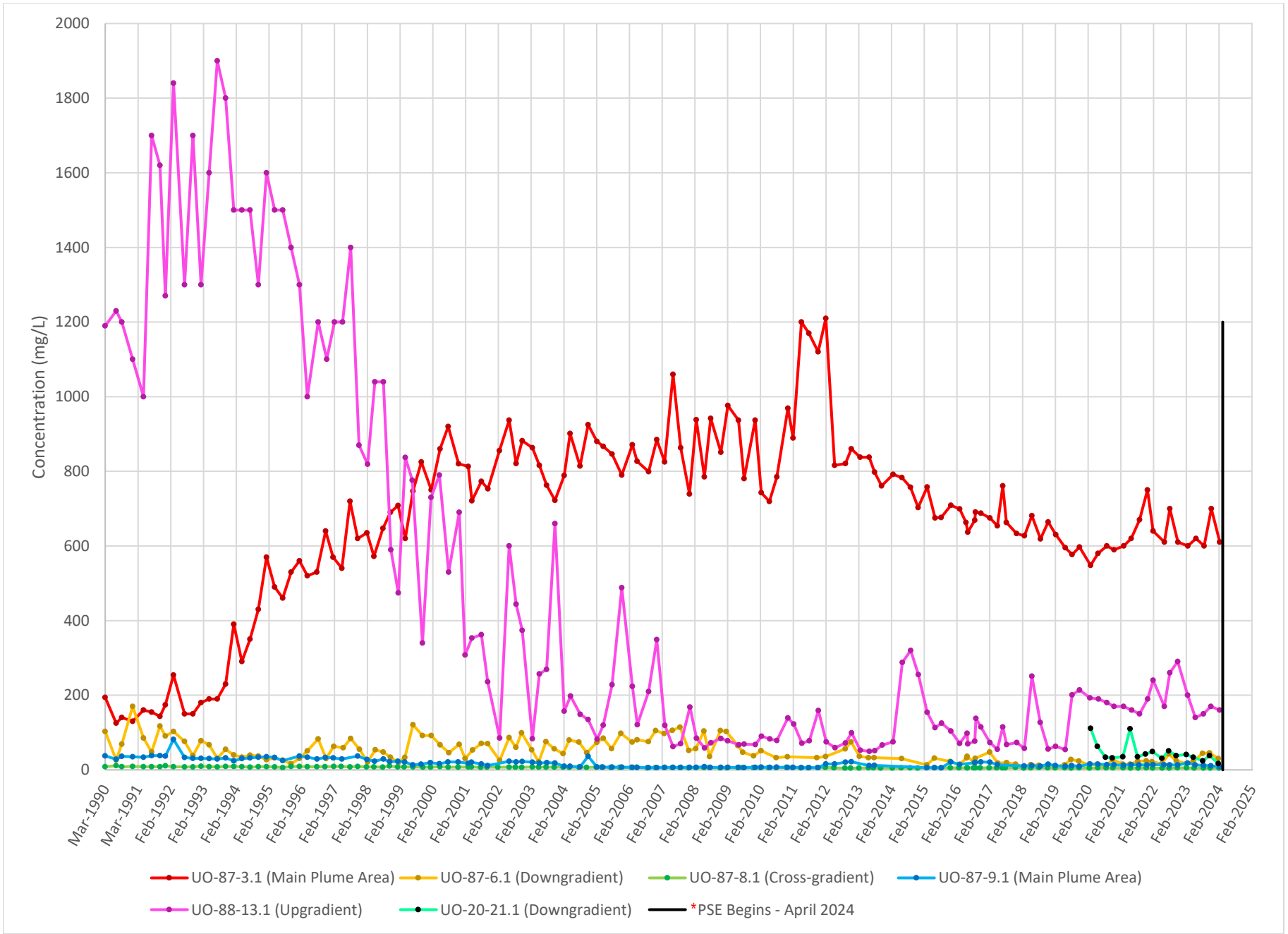
Figure 4-18
Calcium Concentrations in Alluvium Groundwater - Linear Scale
2024 Annual Groundwater Report
Hot Springs, Arkansas Umetco Minerals Corporation

Jacobs



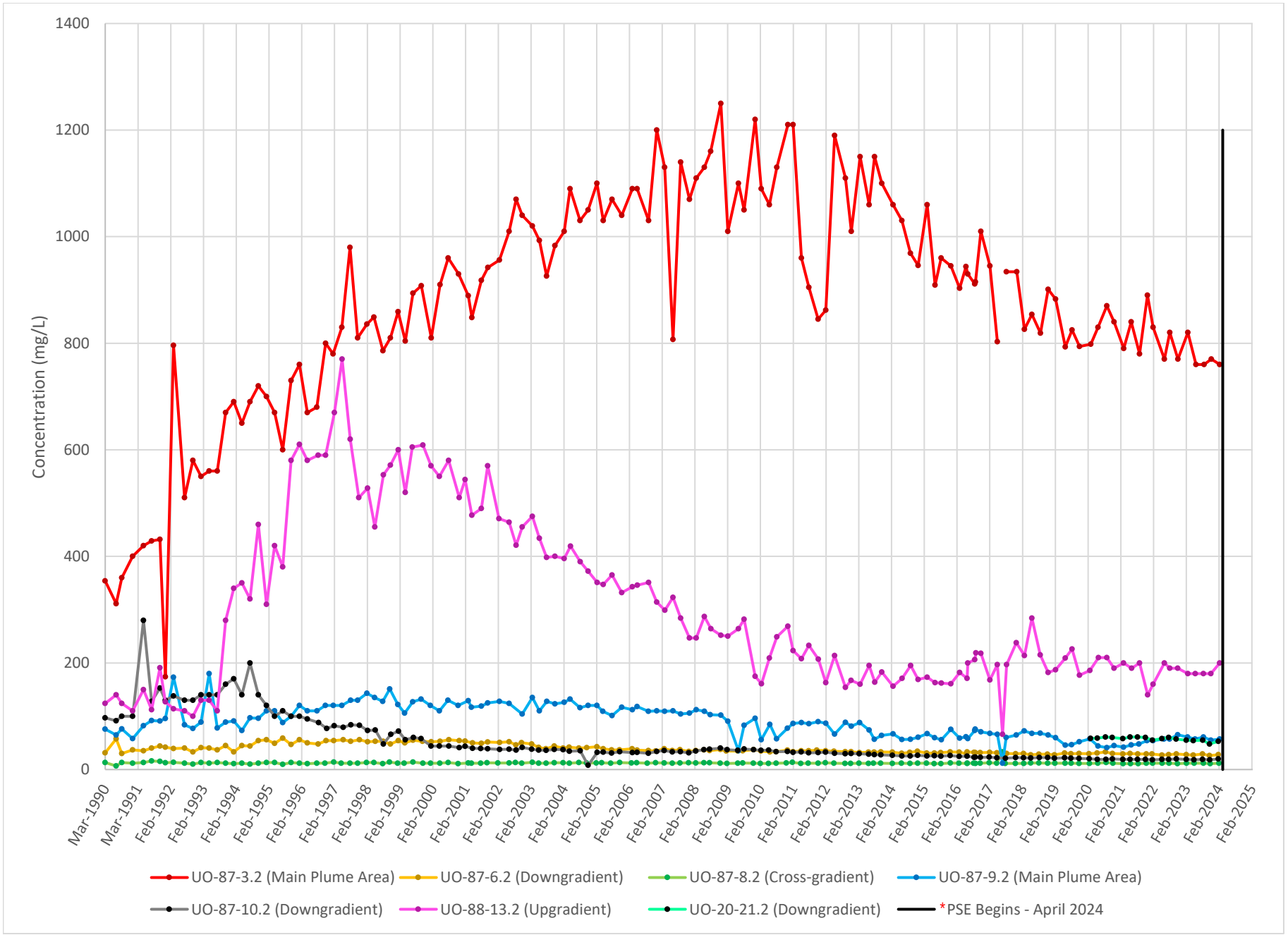
*Sampling discontinued for Calcium after January to March 2024 (Q1) due to PSE start in April 2024 (Q2)

Figure 4-19
Calcium Concentrations in Stanley Shale Groundwater - Linear Scale
2024 Annual Groundwater Report
Hot Springs, Arkansas Umetco Minerals Corporation
Jacobs



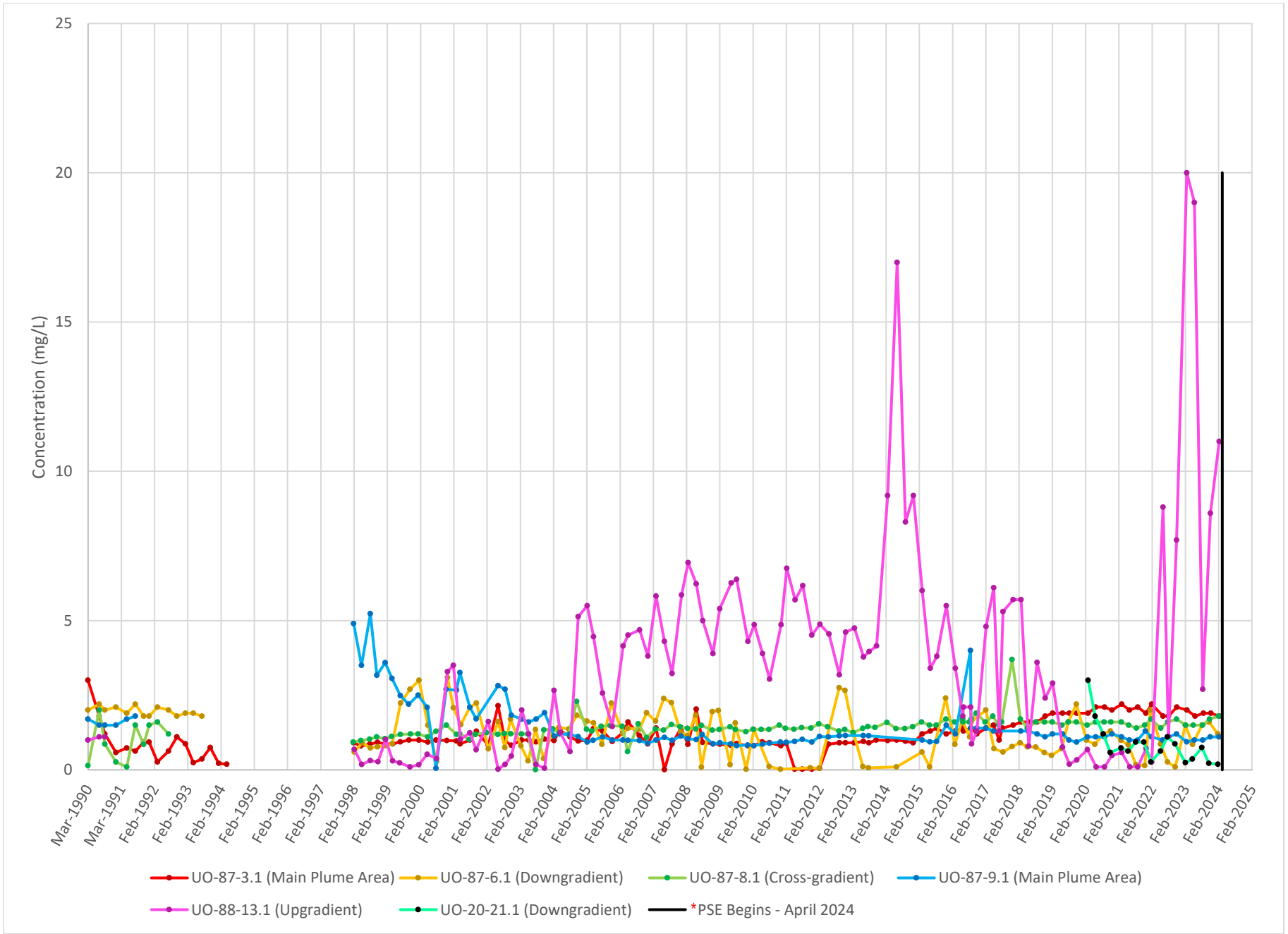
*Sampling discontinued for Sodium after January to March 2024 (Q1) due to PSE start in April 2024 (Q2)

Figure 4-20
Sodium Concentrations in Alluvium Groundwater - Linear Scale
2024 Annual Groundwater Report
Hot Springs, Arkansas Umetco Minerals Corporation



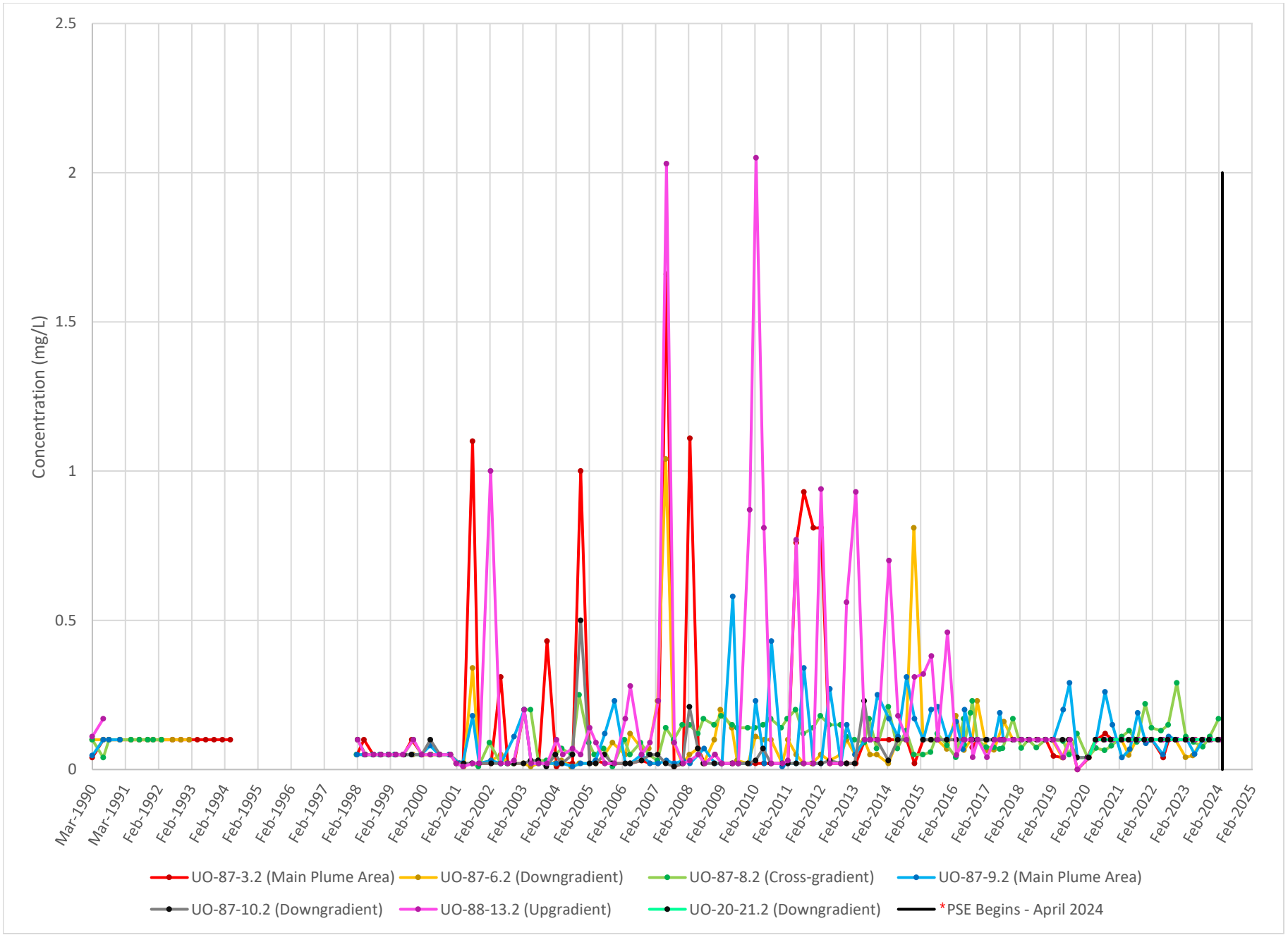
*Sampling discontinued for Sodium after January to March 2024 (Q1) due to PSE start in April 2024 (Q2)

Figure 4-21
Sodium Concentrations in Stanley Shale Groundwater - Linear Scale
2024 Annual Groundwater Report
Hot Springs, Arkansas Umetco Minerals Corporation



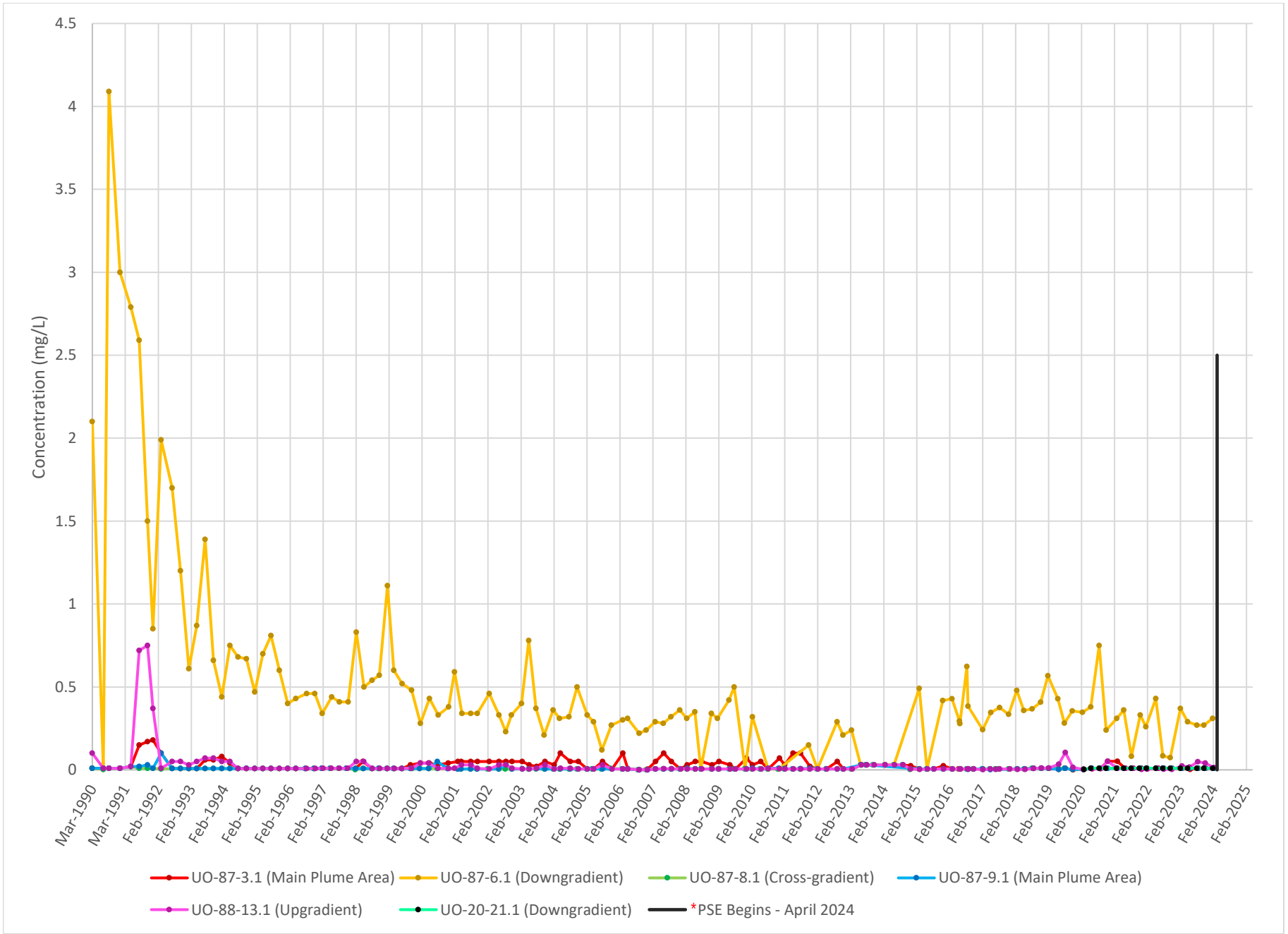
*Sampling discontinued for Nitrate-Nitrite after January to March 2024 (Q1) due to PSE start in April 2024 (Q2)

Figure 4-22
Nitrate-Nitrite Concentrations in Alluvium Groundwater - Linear Scale
2024 Annual Groundwater Report
Hot Springs, Arkansas Umetco Minerals Corporation



*Sampling discontinued for Nitrate-Nitrite after January to March 2024 (Q1) due to PSE start in April 2024 (Q2)

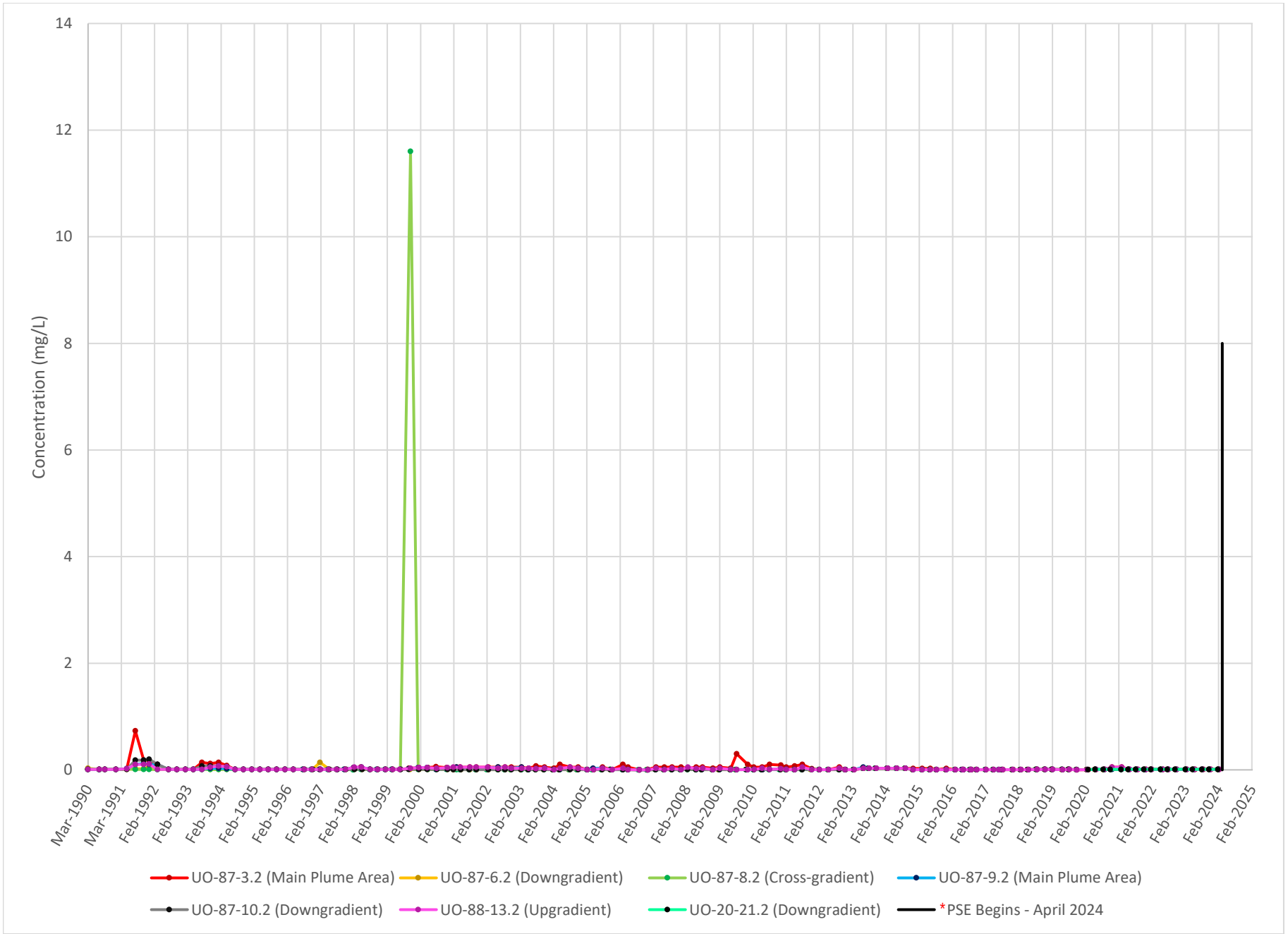
Figure 4-23
Nitrate-Nitrite Concentrations in Stanley Shale Groundwater - Linear Scale
2024 Annual Groundwater Report
Hot Springs, Arkansas Umetco Minerals Corporation



*Sampling discontinued for Vanadium after January to March 2024 (Q1) due to PSE start in April 2024 (Q2)

Figure 4-24
Vanadium Concentrations in Alluvium Groundwater - Linear Scale
2024 Annual Groundwater Report
Hot Springs, Arkansas Umetco Minerals Corporation

Jacobs



*Sampling discontinued for Vanadium after January to March 2024 (Q1) due to PSE start in April 2024 (Q2)

Figure 4-25
Vanadium Concentrations in Stanley Shale Groundwater - Linear Scale
2024 Annual Groundwater Report
Hot Springs, Arkansas Umetco Minerals Corporation

Jacobs

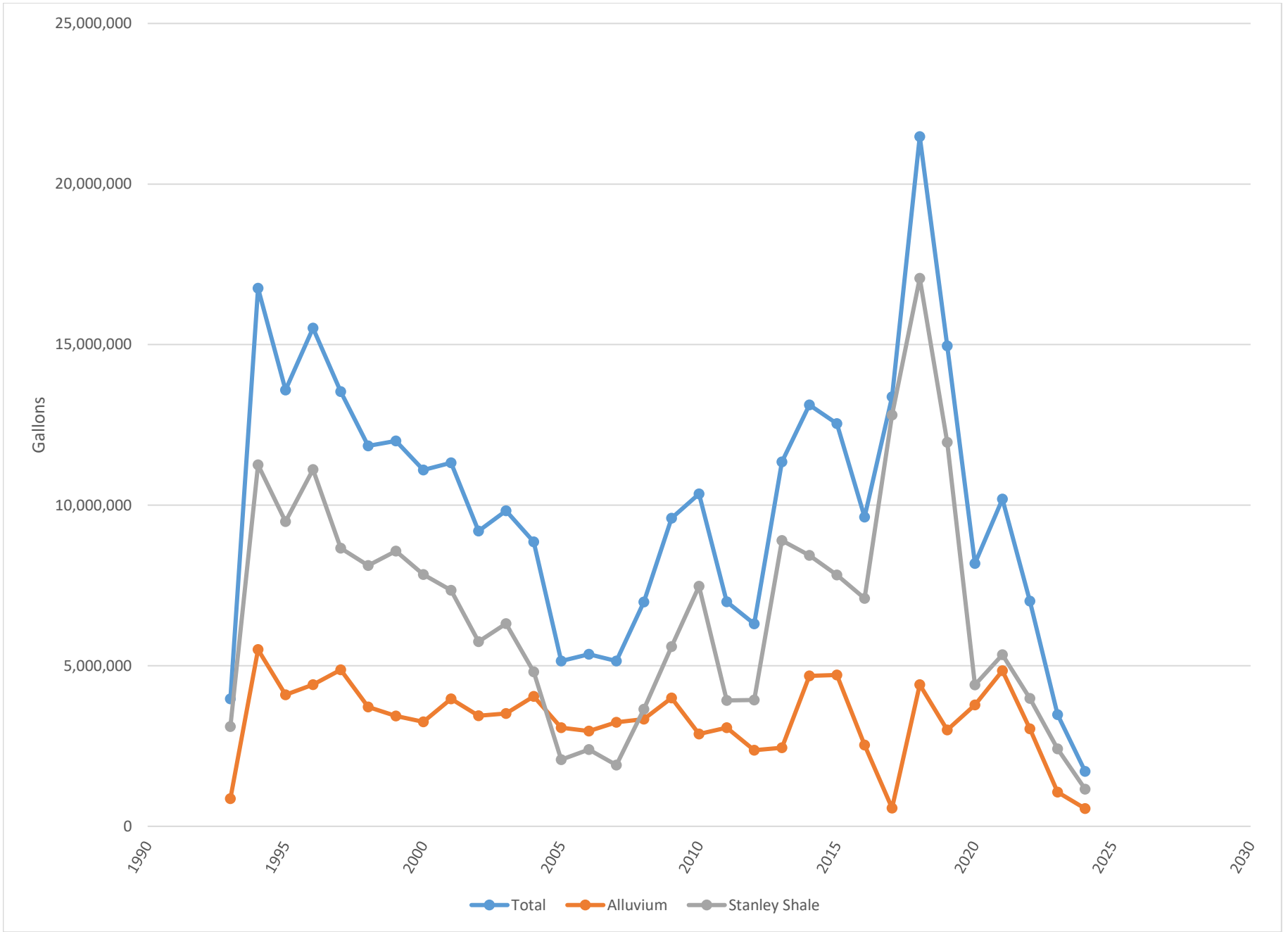


Figure 4-26
Groundwater Recovery System Volumes
2024 Annual Groundwater Report
Hot Springs, Arkansas Umetco Minerals Corporation

Appendix A
2024 Analytical Laboratory Data Packages

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Mark Stinnett
Jacobs Engineering Group, Inc.
3011 SW Willston Road
Gainesville, Florida 32608-3964

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JOB DESCRIPTION

Umetco Hot Springs-UMP Quarterly Groundwater

JOB NUMBER

410-160683-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

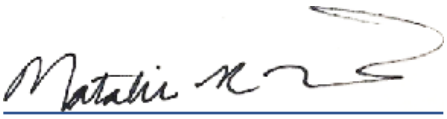
See page two for job notes and contact information.

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.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



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Authorized for release by
Natalie Luciano, Principal Project Manager
Natalie.Luciano@et.eurofinsus.com
(717)556-7258

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is 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.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

This report shall not be reproduced except in full, without the written approval of the laboratory.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. The foregoing express warranty is exclusive and is given in lieu of all other warranties, expressed or implied, except as otherwise agreed. We disclaim any other warranties, expressed or implied, including a warranty of fitness for particular purpose and warranty of merchantability. In no event shall Eurofins Lancaster Laboratories Environmental, LLC be liable for indirect, special, consequential, or incidental damages including, but not limited to, damages for loss of profit or goodwill regardless of (A) the negligence (either sole or concurrent) of Eurofins Lancaster Laboratories Environmental and (B) whether Eurofins Lancaster Laboratories Environmental has been informed of the possibility of such damages. We accept no legal responsibility for the purposes for which the client uses the test results. Except as otherwise agreed, no purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

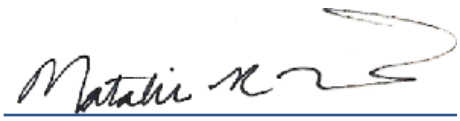


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Definitions/Glossary

Client: Jacobs Engineering Group, Inc. Job ID: 410-160683-1
Project/Site: Umetco Hot Springs-UMP Quarterly Groundwater

Qualifiers

HPLC/IC

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.
U	Indicates the analyte was analyzed for but not detected.

Metals

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Job ID: 410-160683-1 Eurofins Lancaster Laboratories Environment

Job Narrative
410-160683-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

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

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

Receipt
The samples were received on 2/14/2024 10:35 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.0°C

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

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

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

Detection Summary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-160683-1
Project/Site: Umetco Hot Springs-UMP Quarterly Groundwater

Client Sample ID: UO-87-06.1_20240212_N_WG
Lab Sample ID: 410-160683-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	38		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	81		38	15	mg/L	25		EPA 300.0 R2.1	Total/NA
Calcium	32		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	5.6		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	30		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Vanadium	0.31		0.010	0.0020	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	100		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	200		30	12	mg/L	1		2540C - 2015	Total/NA
Nitrate Nitrite as N	1.2		0.10	0.040	mg/L	1		353.2	Total/NA

Client Sample ID: UO-87-06.2_20240212_N_WG
Lab Sample ID: 410-160683-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	6.4	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	150		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Calcium	73		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	17		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	28		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	250		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	160		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-10.2_20240212_FD_WG
Lab Sample ID: 410-160683-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	8.5		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	57		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Calcium	48		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	14		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	20		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	180		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	260		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-10.2_20240212_N_WG
Lab Sample ID: 410-160683-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	8.6		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	58		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Calcium	48		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	14		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	20		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	180		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	260		30	12	mg/L	1		2540C - 2015	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Jacobs Engineering Group, Inc. Job ID: 410-160683-1
Project/Site: Umetco Hot Springs-UMP Quarterly Groundwater

Client Sample ID: UO-87-06.1_20240212_N_WG — Lab Sample ID: 410-160683-1

Date Collected: 02/12/24 10:35 **Matrix: Water**
Date Received: 02/14/24 10:35

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	38		7.5	2.5	mg/L			02/16/24 12:47	5
Chloride	81		38	15	mg/L			02/17/24 18:07	25

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	32		0.52	0.24	mg/L		02/15/24 09:12	02/15/24 17:51	1
Magnesium	5.6		0.21	0.082	mg/L		02/15/24 09:12	02/15/24 17:51	1
Sodium	30		1.0	0.41	mg/L		02/15/24 09:12	02/15/24 17:51	1
Vanadium	0.31		0.010	0.0020	mg/L		02/15/24 09:12	02/15/24 17:51	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	100		0.91	0.41	mg/L			02/15/24 04:23	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	200		30	12	mg/L			02/15/24 06:37	1
Nitrate Nitrite as N (EPA 353.2)	1.2		0.10	0.040	mg/L			02/15/24 13:02	1

Client Sample ID: UO-87-06.2_20240212_N_WG — Lab Sample ID: 410-160683-2

Date Collected: 02/12/24 10:51 **Matrix: Water**
Date Received: 02/14/24 10:35

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	6.4	J	7.5	2.5	mg/L			02/16/24 13:12	5
Chloride	150		75	30	mg/L			02/16/24 13:24	50

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	73		0.52	0.24	mg/L		02/15/24 09:12	02/15/24 17:54	1
Magnesium	17		0.21	0.082	mg/L		02/15/24 09:12	02/15/24 17:54	1
Sodium	28		1.0	0.41	mg/L		02/15/24 09:12	02/15/24 17:54	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/15/24 09:12	02/15/24 17:54	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	250		0.91	0.41	mg/L			02/15/24 04:23	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	160		30	12	mg/L			02/15/24 06:37	1
Nitrate Nitrite as N (EPA 353.2)	0.040	U	0.10	0.040	mg/L			02/15/24 13:04	1

Client Sample ID: UO-87-10.2_20240212_FD_WG

Lab Sample ID: 410-160683-3
Date Collected: 02/12/24 13:08
Matrix: Water
Date Received: 02/14/24 10:35

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	8.5		7.5	2.5	mg/L			02/16/24 13:37	5
Chloride	57		7.5	3.0	mg/L			02/16/24 13:37	5

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	48		0.52	0.24	mg/L		02/15/24 09:12	02/15/24 17:57	1
Magnesium	14		0.21	0.082	mg/L		02/15/24 09:12	02/15/24 17:57	1
Sodium	20		1.0	0.41	mg/L		02/15/24 09:12	02/15/24 17:57	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/15/24 09:12	02/15/24 17:57	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	180		0.91	0.41	mg/L			02/15/24 04:23	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	260		30	12	mg/L			02/15/24 06:37	1
Nitrate Nitrite as N (EPA 353.2)	0.040	U	0.10	0.040	mg/L			02/15/24 13:06	1

Client Sample ID: UO-87-10.2_20240212_N_WG

Lab Sample ID: 410-160683-4
Date Collected: 02/12/24 13:08
Matrix: Water
Date Received: 02/14/24 10:35

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	8.6		7.5	2.5	mg/L			02/16/24 14:02	5
Chloride	58		7.5	3.0	mg/L			02/16/24 14:02	5

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	48		0.52	0.24	mg/L		02/15/24 09:12	02/15/24 18:25	1
Magnesium	14		0.21	0.082	mg/L		02/15/24 09:12	02/15/24 18:25	1
Sodium	20		1.0	0.41	mg/L		02/15/24 09:12	02/15/24 18:25	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/15/24 09:12	02/15/24 18:25	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	180		0.91	0.41	mg/L			02/15/24 04:23	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	260		30	12	mg/L			02/15/24 06:37	1
Nitrate Nitrite as N (EPA 353.2)	0.040	U	0.10	0.040	mg/L			02/16/24 11:15	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-473894/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 473894

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			02/15/24 22:10	1
Chloride	0.60	U	1.5	0.60	mg/L			02/15/24 22:10	1

Lab Sample ID: LCS 410-473894/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 473894

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.22		mg/L		96	90 - 110
Chloride	3.00	2.84		mg/L		95	90 - 110

Lab Sample ID: LCSD 410-473894/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 473894

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.50	7.21		mg/L		96	90 - 110	0	20
Chloride	3.00	2.84		mg/L		95	90 - 110	0	20

Lab Sample ID: MB 410-474379/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 474379

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			02/17/24 16:55	1
Chloride	0.60	U	1.5	0.60	mg/L			02/17/24 16:55	1

Lab Sample ID: LCS 410-474379/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 474379

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	6.92		mg/L		92	90 - 110
Chloride	3.00	2.79		mg/L		93	90 - 110

Lab Sample ID: LCSD 410-474379/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 474379

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.50	6.95		mg/L		93	90 - 110	0	20
Chloride	3.00	2.80		mg/L		93	90 - 110	1	20

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 410-473632/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 473943 — **Prep Batch: 473632**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	0.24	U	0.52	0.24	mg/L		02/15/24 09:12	02/15/24 17:16	1
Magnesium	0.082	U	0.21	0.082	mg/L		02/15/24 09:12	02/15/24 17:16	1
Sodium	0.41	U	1.0	0.41	mg/L		02/15/24 09:12	02/15/24 17:16	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/15/24 09:12	02/15/24 17:16	1

Lab Sample ID: LCS 410-473632/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 473943 — **Prep Batch: 473632**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	5.00	5.36		mg/L		107	85 - 115
Magnesium	5.00	5.32		mg/L		106	85 - 115
Sodium	5.00	5.20		mg/L		104	85 - 115
Vanadium	0.500	0.529		mg/L		106	85 - 115

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 410-473499/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 473499

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12	U	30	12	mg/L			02/15/24 06:37	1

Lab Sample ID: LCS 410-473499/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 473499

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	200	192		mg/L		96	90 - 110

Lab Sample ID: LCSD 410-473499/3 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 473499

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	200	191		mg/L		96	90 - 110	1	10

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 410-473764/87 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 473764

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.040	U	0.10	0.040	mg/L			02/15/24 12:10	1

Method: 353.2 - Nitrogen, Nitrate-Nitrite (Continued)

Lab Sample ID: LCS 410-473764/85 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 473764

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Nitrate Nitrite as N			2.00	1.84		mg/L		92	90 - 110		

Lab Sample ID: LCSD 410-473764/86 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 473764

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrate Nitrite as N			2.00	1.97		mg/L		99	90 - 110	7	20

Lab Sample ID: MB 410-474209/87 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 474209

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.040	U	0.10	0.040	mg/L			02/16/24 11:03	1

Lab Sample ID: LCS 410-474209/85 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 474209

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Nitrate Nitrite as N			2.00	2.11		mg/L		105	90 - 110		

Lab Sample ID: LCSD 410-474209/86 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 474209

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrate Nitrite as N			2.00	2.01		mg/L		100	90 - 110	5	20

HPLC/IC

Analysis Batch: 473894

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-160683-1	UO-87-06.1_20240212_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-160683-2	UO-87-06.2_20240212_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-160683-2	UO-87-06.2_20240212_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-160683-3	UO-87-10.2_20240212_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
410-160683-4	UO-87-10.2_20240212_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-473894/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-473894/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-473894/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 474379

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-160683-1	UO-87-06.1_20240212_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-474379/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-474379/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-474379/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Metals

Analysis Batch: 470792

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-160683-1	UO-87-06.1_20240212_N_WG	Dissolved	Water	2340B-2011	
410-160683-2	UO-87-06.2_20240212_N_WG	Dissolved	Water	2340B-2011	
410-160683-3	UO-87-10.2_20240212_FD_WG	Dissolved	Water	2340B-2011	
410-160683-4	UO-87-10.2_20240212_N_WG	Dissolved	Water	2340B-2011	

Prep Batch: 473632

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-160683-1	UO-87-06.1_20240212_N_WG	Dissolved	Water	Non-Digest Prep	
410-160683-2	UO-87-06.2_20240212_N_WG	Dissolved	Water	Non-Digest Prep	
410-160683-3	UO-87-10.2_20240212_FD_WG	Dissolved	Water	Non-Digest Prep	
410-160683-4	UO-87-10.2_20240212_N_WG	Dissolved	Water	Non-Digest Prep	
MB 410-473632/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-473632/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	

Analysis Batch: 473943

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-160683-1	UO-87-06.1_20240212_N_WG	Dissolved	Water	200.7 Rev 4.4	473632
410-160683-2	UO-87-06.2_20240212_N_WG	Dissolved	Water	200.7 Rev 4.4	473632
410-160683-3	UO-87-10.2_20240212_FD_WG	Dissolved	Water	200.7 Rev 4.4	473632
410-160683-4	UO-87-10.2_20240212_N_WG	Dissolved	Water	200.7 Rev 4.4	473632
MB 410-473632/1-A	Method Blank	Total/NA	Water	200.7 Rev 4.4	473632
LCS 410-473632/2-A	Lab Control Sample	Total/NA	Water	200.7 Rev 4.4	473632

General Chemistry

Analysis Batch: 473499

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-160683-1	UO-87-06.1_20240212_N_WG	Total/NA	Water	2540C - 2015	
410-160683-2	UO-87-06.2_20240212_N_WG	Total/NA	Water	2540C - 2015	
410-160683-3	UO-87-10.2_20240212_FD_WG	Total/NA	Water	2540C - 2015	
410-160683-4	UO-87-10.2_20240212_N_WG	Total/NA	Water	2540C - 2015	
MB 410-473499/1	Method Blank	Total/NA	Water	2540C - 2015	

General Chemistry (Continued)

Analysis Batch: 473499 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 410-473499/2	Lab Control Sample	Total/NA	Water	2540C - 2015	
LCSD 410-473499/3	Lab Control Sample Dup	Total/NA	Water	2540C - 2015	

Analysis Batch: 473764

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-160683-1	UO-87-06.1_20240212_N_WG	Total/NA	Water	353.2	
410-160683-2	UO-87-06.2_20240212_N_WG	Total/NA	Water	353.2	
410-160683-3	UO-87-10.2_20240212_FD_WG	Total/NA	Water	353.2	
MB 410-473764/87	Method Blank	Total/NA	Water	353.2	
LCS 410-473764/85	Lab Control Sample	Total/NA	Water	353.2	
LCSD 410-473764/86	Lab Control Sample Dup	Total/NA	Water	353.2	

Analysis Batch: 474209

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-160683-4	UO-87-10.2_20240212_N_WG	Total/NA	Water	353.2	
MB 410-474209/87	Method Blank	Total/NA	Water	353.2	
LCS 410-474209/85	Lab Control Sample	Total/NA	Water	353.2	
LCSD 410-474209/86	Lab Control Sample Dup	Total/NA	Water	353.2	

Lab Chronicle

Client: Jacobs Engineering Group, Inc.
Job ID: 410-160683-1
Project/Site: Umetco Hot Springs-UMP Quarterly Groundwater

Client Sample ID: UO-87-06.1_20240212_N_WG
Lab Sample ID: 410-160683-1
Date Collected: 02/12/24 10:35
Matrix: Water
Date Received: 02/14/24 10:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	473894	L4QM	ELLE	02/16/24 12:47
Total/NA	Analysis	EPA 300.0 R2.1		25	474379	L4QM	ELLE	02/17/24 18:07
Dissolved	Prep	Non-Digest Prep			473632	NU9R	ELLE	02/15/24 09:12
Dissolved	Analysis	200.7 Rev 4.4		1	473943	T8CQ	ELLE	02/15/24 17:51
Dissolved	Analysis	2340B-2011		1	470792	USJM	ELLE	02/15/24 04:23
Total/NA	Analysis	2540C - 2015		1	473499	M98K	ELLE	02/15/24 06:37 - 02/16/24 10:11 [1]
Total/NA	Analysis	353.2		1	473764	Q3HN	ELLE	02/15/24 13:02

Client Sample ID: UO-87-06.2_20240212_N_WG
Lab Sample ID: 410-160683-2
Date Collected: 02/12/24 10:51
Matrix: Water
Date Received: 02/14/24 10:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	473894	L4QM	ELLE	02/16/24 13:12
Total/NA	Analysis	EPA 300.0 R2.1		50	473894	L4QM	ELLE	02/16/24 13:24
Dissolved	Prep	Non-Digest Prep			473632	NU9R	ELLE	02/15/24 09:12
Dissolved	Analysis	200.7 Rev 4.4		1	473943	T8CQ	ELLE	02/15/24 17:54
Dissolved	Analysis	2340B-2011		1	470792	USJM	ELLE	02/15/24 04:23
Total/NA	Analysis	2540C - 2015		1	473499	M98K	ELLE	02/15/24 06:37 - 02/16/24 10:11 [1]
Total/NA	Analysis	353.2		1	473764	Q3HN	ELLE	02/15/24 13:04

Client Sample ID: UO-87-10.2_20240212_FD_WG
Lab Sample ID: 410-160683-3
Date Collected: 02/12/24 13:08
Matrix: Water
Date Received: 02/14/24 10:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	473894	L4QM	ELLE	02/16/24 13:37
Dissolved	Prep	Non-Digest Prep			473632	NU9R	ELLE	02/15/24 09:12
Dissolved	Analysis	200.7 Rev 4.4		1	473943	T8CQ	ELLE	02/15/24 17:57
Dissolved	Analysis	2340B-2011		1	470792	USJM	ELLE	02/15/24 04:23
Total/NA	Analysis	2540C - 2015		1	473499	M98K	ELLE	02/15/24 06:37 - 02/16/24 10:11 [1]
Total/NA	Analysis	353.2		1	473764	Q3HN	ELLE	02/15/24 13:06

Client Sample ID: UO-87-10.2_20240212_N_WG
Lab Sample ID: 410-160683-4
Date Collected: 02/12/24 13:08
Matrix: Water
Date Received: 02/14/24 10:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	473894	L4QM	ELLE	02/16/24 14:02
Dissolved	Prep	Non-Digest Prep			473632	NU9R	ELLE	02/15/24 09:12
Dissolved	Analysis	200.7 Rev 4.4		1	473943	T8CQ	ELLE	02/15/24 18:25
Dissolved	Analysis	2340B-2011		1	470792	USJM	ELLE	02/15/24 04:23
Total/NA	Analysis	2540C - 2015		1	473499	M98K	ELLE	02/15/24 06:37 - 02/16/24 10:11 [1]

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-160683-1
Project/Site: Umetco Hot Springs-UMP Quarterly Groundwater

Client Sample ID: UO-87-10.2_20240212_N_WG **Lab Sample ID: 410-160683-4**
Date Collected: 02/12/24 13:08 **Matrix: Water**
Date Received: 02/14/24 10:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	353.2		1	474209	Q3HN	ELLE	02/16/24 11:15

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-160683-1
Project/Site: Umetco Hot Springs-UMP Quarterly Groundwater

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00660	08-09-24

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

Analysis Method	Prep Method	Matrix	Analyte
2340B-2011		Water	Hardness as calcium carbonate

Method Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-160683-1
Project/Site: Umetco Hot Springs-UMP Quarterly Groundwater

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
200.7 Rev 4.4	Metals (ICP)	EPA	ELLE
2340B-2011	Total Hardness (as CaCO3) by calculation	SM	ELLE
2540C - 2015	Total Dissolved Solids (Dried at 180 °C)	SM	ELLE
353.2	Nitrogen, Nitrate-Nitrite	EPA	ELLE
Non-Digest Prep	Preparation, Non-Digested Aqueous Metals	EPA	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-160683-1
Project/Site: Umetco Hot Springs-UMP Quarterly Groundwater

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-160683-1	UO-87-06.1_20240212_N_WG	Water	02/12/24 10:35	02/14/24 10:35
410-160683-2	UO-87-06.2_20240212_N_WG	Water	02/12/24 10:51	02/14/24 10:35
410-160683-3	UO-87-10.2_20240212_FD_WG	Water	02/12/24 13:08	02/14/24 10:35
410-160683-4	UO-87-10.2_20240212_N_WG	Water	02/12/24 13:08	02/14/24 10:35

Jacobs 410-160683 Chain of Custody

E ANALYSIS REQUEST | COC No: EuroFins Lan-45335471 | Cooler No. 1 of 1

| | | |

Login Sample Receipt Checklist

Client: Jacobs Engineering Group, Inc.

Job Number: 410-160683-1

Login Number: 160683

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Santiago, Nathaniel

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

eurofins | Environment Testing

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

ANALYTICAL REPORT

PREPARED FOR

Attn: Mark Stinnett
Jacobs Engineering Group, Inc.
3011 SW Willston Road
Gainesville, Florida 32608-3964

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JOB DESCRIPTION

Umetco Hot Springs - UMP Quarterly Groundwater

JOB NUMBER

410-160684-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

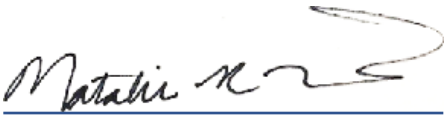
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Job Notes

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.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



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Authorized for release by
Natalie Luciano, Principal Project Manager
Natalie.Luciano@et.eurofinsus.com
(717)556-7258

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is 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.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

This report shall not be reproduced except in full, without the written approval of the laboratory.

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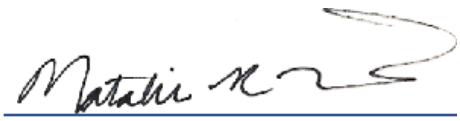


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Definitions/Glossary

Client: Jacobs Engineering Group, Inc. Job ID: 410-160684-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

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.
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Job ID: 410-160684-1 Eurofins Lancaster Laboratories Environment

Job Narrative
410-160684-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

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

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

Receipt
The sample was received on 2/14/2024 10:35 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.0°C

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

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

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

Detection Summary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-160684-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Client Sample ID: UO-88-12.2R_20240213_N_WG
Lab Sample ID: 410-160684-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	150		75	25	mg/L	50		EPA 300.0 R2.1	Total/NA
Chloride	43		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Calcium	40		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	17		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	30		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	170		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	340		30	12	mg/L	1		2540C - 2015	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Jacobs Engineering Group, Inc. Job ID: 410-160684-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Client Sample ID: UO-88-12.2R_20240213_N_WG
Lab Sample ID: 410-160684-1
Date Collected: 02/13/24 10:40
Matrix: Water
Date Received: 02/14/24 10:35

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**150**		75	25	mg/L			02/16/24 14:39	50
Chloride	**43**		7.5	3.0	mg/L			02/16/24 14:27	5

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**40**		0.52	0.24	mg/L		02/15/24 09:12	02/15/24 18:32	1
Magnesium	**17**		0.21	0.082	mg/L		02/15/24 09:12	02/15/24 18:32	1
Sodium	**30**		1.0	0.41	mg/L		02/15/24 09:12	02/15/24 18:32	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/15/24 09:12	02/15/24 18:32	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**170**		0.91	0.41	mg/L			02/15/24 04:23	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	**340**		30	12	mg/L			02/15/24 06:37	1
Nitrate Nitrite as N (EPA 353.2)	0.040	U	0.10	0.040	mg/L			02/16/24 11:17	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-473894/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 473894

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			02/15/24 22:10	1
Chloride	0.60	U	1.5	0.60	mg/L			02/15/24 22:10	1

Lab Sample ID: LCS 410-473894/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 473894

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.22		mg/L		96	90 - 110
Chloride	3.00	2.84		mg/L		95	90 - 110

Lab Sample ID: LCSD 410-473894/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 473894

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.50	7.21		mg/L		96	90 - 110	0	20
Chloride	3.00	2.84		mg/L		95	90 - 110	0	20

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 410-473632/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 473943 — **Prep Batch: 473632**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	0.24	U	0.52	0.24	mg/L		02/15/24 09:12	02/15/24 17:16	1
Magnesium	0.082	U	0.21	0.082	mg/L		02/15/24 09:12	02/15/24 17:16	1
Sodium	0.41	U	1.0	0.41	mg/L		02/15/24 09:12	02/15/24 17:16	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/15/24 09:12	02/15/24 17:16	1

Lab Sample ID: LCS 410-473632/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 473943 — **Prep Batch: 473632**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	5.00	5.36		mg/L		107	85 - 115
Magnesium	5.00	5.32		mg/L		106	85 - 115
Sodium	5.00	5.20		mg/L		104	85 - 115
Vanadium	0.500	0.529		mg/L		106	85 - 115

Lab Sample ID: 410-160684-1 MS — **Client Sample ID: UO-88-12.2R_20240213_N_WG**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 473943 — **Prep Batch: 473632**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	40		5.00	45.2	4	mg/L		110	70 - 130
Magnesium	17		5.00	22.0		mg/L		103	70 - 130
Sodium	30		5.00	34.7	4	mg/L		102	70 - 130
Vanadium	0.0020	U	0.500	0.514		mg/L		103	70 - 130

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: 410-160684-1 MSD
Client Sample ID: UO-88-12.2R_20240213_N_WG
Matrix: Water
Prep Type: Dissolved
Analysis Batch: 473943
Prep Batch: 473632

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	40		5.00	45.1	4	mg/L		107	70 - 130	0	20
Magnesium	17		5.00	21.9		mg/L		102	70 - 130	0	20
Sodium	30		5.00	34.7	4	mg/L		101	70 - 130	0	20
Vanadium	0.0020	U	0.500	0.509		mg/L		102	70 - 130	1	20

Lab Sample ID: 410-160684-1 DU
Client Sample ID: UO-88-12.2R_20240213_N_WG
Matrix: Water
Prep Type: Dissolved
Analysis Batch: 473943
Prep Batch: 473632

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Calcium	40		40.0		mg/L		0.6	20
Magnesium	17		16.9		mg/L		0.2	20
Sodium	30		29.6		mg/L		0	20
Vanadium	0.0020	U	0.0020	U	mg/L		NC	20

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 410-473499/1
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 473499

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12	U	30	12	mg/L			02/15/24 06:37	1

Lab Sample ID: LCS 410-473499/2
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 473499

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	200	192		mg/L		96	90 - 110

Lab Sample ID: LCSD 410-473499/3
Client Sample ID: Lab Control Sample Dup
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 473499

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	200	191		mg/L		96	90 - 110	1	10

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 410-474209/87
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 474209

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.040	U	0.10	0.040	mg/L			02/16/24 11:03	1

Method: 353.2 - Nitrogen, Nitrate-Nitrite (Continued)

Lab Sample ID: LCS 410-474209/85
Matrix: Water
Analysis Batch: 474209

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Nitrate Nitrite as N			2.00	2.11		mg/L		105	90 - 110		

Lab Sample ID: LCSD 410-474209/86
Matrix: Water
Analysis Batch: 474209

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrate Nitrite as N			2.00	2.01		mg/L		100	90 - 110	5	20

QC Association Summary

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Job ID: 410-160684-1

HPLC/IC

Analysis Batch: 473894

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-160684-1	UO-88-12.2R_20240213_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-160684-1	UO-88-12.2R_20240213_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-473894/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-473894/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-473894/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Metals

Analysis Batch: 470792

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-160684-1	UO-88-12.2R_20240213_N_WG	Dissolved	Water	2340B-2011	

Prep Batch: 473632

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-160684-1	UO-88-12.2R_20240213_N_WG	Dissolved	Water	Non-Digest Prep	
MB 410-473632/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-473632/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	
410-160684-1 MS	UO-88-12.2R_20240213_N_WG	Dissolved	Water	Non-Digest Prep	
410-160684-1 MSD	UO-88-12.2R_20240213_N_WG	Dissolved	Water	Non-Digest Prep	
410-160684-1 DU	UO-88-12.2R_20240213_N_WG	Dissolved	Water	Non-Digest Prep	

Analysis Batch: 473943

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-160684-1	UO-88-12.2R_20240213_N_WG	Dissolved	Water	200.7 Rev 4.4	473632
MB 410-473632/1-A	Method Blank	Total/NA	Water	200.7 Rev 4.4	473632
LCS 410-473632/2-A	Lab Control Sample	Total/NA	Water	200.7 Rev 4.4	473632
410-160684-1 MS	UO-88-12.2R_20240213_N_WG	Dissolved	Water	200.7 Rev 4.4	473632
410-160684-1 MSD	UO-88-12.2R_20240213_N_WG	Dissolved	Water	200.7 Rev 4.4	473632
410-160684-1 DU	UO-88-12.2R_20240213_N_WG	Dissolved	Water	200.7 Rev 4.4	473632

General Chemistry

Analysis Batch: 473499

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-160684-1	UO-88-12.2R_20240213_N_WG	Total/NA	Water	2540C - 2015	
MB 410-473499/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-473499/2	Lab Control Sample	Total/NA	Water	2540C - 2015	
LCSD 410-473499/3	Lab Control Sample Dup	Total/NA	Water	2540C - 2015	

Analysis Batch: 474209

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-160684-1	UO-88-12.2R_20240213_N_WG	Total/NA	Water	353.2	
MB 410-474209/87	Method Blank	Total/NA	Water	353.2	
LCS 410-474209/85	Lab Control Sample	Total/NA	Water	353.2	
LCSD 410-474209/86	Lab Control Sample Dup	Total/NA	Water	353.2	

Lab Chronicle

Client: Jacobs Engineering Group, Inc.
Job ID: 410-160684-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Client Sample ID: UO-88-12.2R_20240213_N_WG
Lab Sample ID: 410-160684-1

Date Collected: 02/13/24 10:40
Matrix: Water
Date Received: 02/14/24 10:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	473894	L4QM	ELLE	02/16/24 14:27
Total/NA	Analysis	EPA 300.0 R2.1		50	473894	L4QM	ELLE	02/16/24 14:39
Dissolved	Prep	Non-Digest Prep			473632	NU9R	ELLE	02/15/24 09:12
Dissolved	Analysis	200.7 Rev 4.4		1	473943	T8CQ	ELLE	02/15/24 18:32
Dissolved	Analysis	2340B-2011		1	470792	USJM	ELLE	02/15/24 04:23
Total/NA	Analysis	2540C - 2015		1	473499	M98K	ELLE	02/15/24 06:37 - 02/16/24 10:11 [1]
Total/NA	Analysis	353.2		1	474209	Q3HN	ELLE	02/16/24 11:17

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-160684-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00660	08-09-24

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

Analysis Method	Prep Method	Matrix	Analyte
2340B-2011		Water	Hardness as calcium carbonate

Method Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-160684-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
200.7 Rev 4.4	Metals (ICP)	EPA	ELLE
2340B-2011	Total Hardness (as CaCO3) by calculation	SM	ELLE
2540C - 2015	Total Dissolved Solids (Dried at 180 °C)	SM	ELLE
353.2	Nitrogen, Nitrate-Nitrite	EPA	ELLE
Non-Digest Prep	Preparation, Non-Digested Aqueous Metals	EPA	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-160684-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-160684-1	UO-88-12.2R_20240213_N_WG	Water	02/13/24 10:40	02/14/24 10:35

Jacobs

410-160684 Chain of Custody

: ANALYSIS REQUEST

COC No: EuroFins Lan-45335467

Cooler No. of

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 7
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number** 4508165277
Project Chemist Mark Stinnett 352-359-5937	**Shipping Company / Airbill No** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 02/13/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Analysis: Filtered		Yes																					
								Preserve		HNO3	H2SO4																					
								Analysis	Chloride and Sulfate E300.0	Hardness SM2340B	Nitrate-Nitrite E353.2	TDS SM2540C	ssolved Metals E200.7 (Ca Mg Na V)																			
UO-88-12.2R_20240213_N_WG	UO-88-12.2R	WG	G		02/13/2024 10:40	4			X	X	X	X	X																		

Additional Comments/Special Instructions	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	[signature]	2/13/24 1700	[signature]	
	[signature]		MMP UMT	2/14/24 1035
	SHIPPING METHOD: (mark as appropriate)		**SAMPLER NAME AND SIGNATURE**	**Date Time**
Email Report To				
Email Invoice To Mark.Stinnett@jacobs.com Dow_Umetco@jacobs.com				

R1.1.0 C 1.0

2/19/2024

Login Sample Receipt Checklist

Client: Jacobs Engineering Group, Inc. Job Number: 410-160684-1

Login Number: 160684 **List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**
List Number: 1
Creator: Santiago, Nathaniel

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

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

ANALYTICAL REPORT

PREPARED FOR

Attn: Mark Stinnett
Jacobs Engineering Group, Inc.
3011 SW Willston Road
Gainesville, Florida 32608-3964

Generated 2/18/2024 11:30:57 PM

JOB DESCRIPTION

Umetco Hot Springs-UMP Quarterly Groundwater

JOB NUMBER

410-160685-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

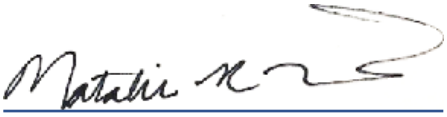
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Job Notes

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.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



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Authorized for release by
Natalie Luciano, Principal Project Manager
Natalie.Luciano@et.eurofinsus.com
(717)556-7258

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is 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.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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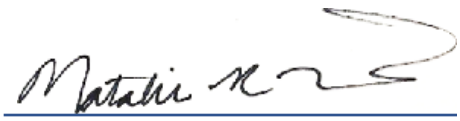


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Qualifiers

HPLC/IC

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.
U	Indicates the analyte was analyzed for but not detected.

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.
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Job Narrative
410-160685-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

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

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

Receipt
The samples were received on 2/14/2024 10:35 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.0°C

Receipt Exceptions
One container (50mL container) for the following sample was spilled out during labeling: UO-20-22.1_20240212_N_WG (410-160685-3).

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

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

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

Detection Summary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-160685-1
Project/Site: Umetco Hot Springs-UMP Quarterly Groundwater

Client Sample ID: UO-87-07.1_20240212_N_WG — Lab Sample ID: 410-160685-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	4.5	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	100		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Calcium	100		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	24		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	22		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Vanadium	0.0030	J	0.010	0.0020	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	350		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	380		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-07.2_20240212_N_WG — Lab Sample ID: 410-160685-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	3.5	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	280		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Calcium	160		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	40		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	29		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	570		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	530		120	48	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-20-22.1_20240212_N_WG — Lab Sample ID: 410-160685-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	15		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	12		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Calcium	27		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	13		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	9.3		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	120		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	160		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-20-21.2_20240212_N_WG — Lab Sample ID: 410-160685-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	18		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	160		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Calcium	100		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	20		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	53		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	340		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	450		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-20-21.1_20240212_N_WG — Lab Sample ID: 410-160685-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	7.3	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	55		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Calcium	51		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	6.7		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	17		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	150		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	230		30	12	mg/L	1		2540C - 2015	Total/NA
Nitrate Nitrite as N	0.19		0.10	0.040	mg/L	1		353.2	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-160685-1
Project/Site: Umetco Hot Springs-UMP Quarterly Groundwater

Client Sample ID: UO-91-18.2_20240213_FD_WG
Lab Sample ID: 410-160685-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	500		75	25	mg/L	50		EPA 300.0 R2.1	Total/NA
Chloride	13		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Calcium	200		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	28		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	19		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	610		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	820		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-91-18.2_20240213_N_WG
Lab Sample ID: 410-160685-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	510		75	25	mg/L	50		EPA 300.0 R2.1	Total/NA
Chloride	13		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Calcium	200		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	28		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	19		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	610		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	820		60	24	mg/L	1		2540C - 2015	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: UO-87-07.1_20240212_N_WG — Lab Sample ID: 410-160685-1

Date Collected: 02/12/24 10:06 **Matrix: Water**
Date Received: 02/14/24 10:35

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	4.5	J	7.5	2.5	mg/L			02/16/24 07:09	5
Chloride	100		75	30	mg/L			02/16/24 07:21	50

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	100		0.52	0.24	mg/L		02/15/24 09:12	02/15/24 18:29	1
Magnesium	24		0.21	0.082	mg/L		02/15/24 09:12	02/15/24 18:29	1
Sodium	22		1.0	0.41	mg/L		02/15/24 09:12	02/15/24 18:29	1
Vanadium	0.0030	J	0.010	0.0020	mg/L		02/15/24 09:12	02/15/24 18:29	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	350		0.91	0.41	mg/L			02/15/24 04:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	380		60	24	mg/L			02/15/24 06:37	1
Nitrate Nitrite as N (EPA 353.2)	0.040	U	0.10	0.040	mg/L			02/16/24 11:23	1

Client Sample ID: UO-87-07.2_20240212_N_WG — Lab Sample ID: 410-160685-2

Date Collected: 02/12/24 10:49 **Matrix: Water**
Date Received: 02/14/24 10:35

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	3.5	J	7.5	2.5	mg/L			02/16/24 07:33	5
Chloride	280		75	30	mg/L			02/16/24 07:45	50

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	160		0.52	0.24	mg/L		02/15/24 09:12	02/15/24 18:10	1
Magnesium	40		0.21	0.082	mg/L		02/15/24 09:12	02/15/24 18:10	1
Sodium	29		1.0	0.41	mg/L		02/15/24 09:12	02/15/24 18:10	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/15/24 09:12	02/15/24 18:10	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	570		0.91	0.41	mg/L			02/15/24 04:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	530		120	48	mg/L			02/15/24 06:34	1
Nitrate Nitrite as N (EPA 353.2)	0.040	U	0.10	0.040	mg/L			02/16/24 11:25	1

Client Sample ID: UO-20-22.1_20240212_N_WG — Lab Sample ID: 410-160685-3

Date Collected: 02/12/24 11:42 **Matrix: Water**
Date Received: 02/14/24 10:35

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	15		7.5	2.5	mg/L			02/16/24 07:57	5
Chloride	12		7.5	3.0	mg/L			02/16/24 07:57	5

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	27		0.52	0.24	mg/L		02/15/24 09:12	02/15/24 18:13	1
Magnesium	13		0.21	0.082	mg/L		02/15/24 09:12	02/15/24 18:13	1
Sodium	9.3		1.0	0.41	mg/L		02/15/24 09:12	02/15/24 18:13	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/15/24 09:12	02/15/24 18:13	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	120		0.91	0.41	mg/L			02/15/24 04:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	160		30	12	mg/L			02/15/24 06:34	1
Nitrate Nitrite as N (EPA 353.2)	0.040	U	0.10	0.040	mg/L			02/16/24 11:27	1

Client Sample ID: UO-20-21.2_20240212_N_WG — Lab Sample ID: 410-160685-4

Date Collected: 02/12/24 14:00 **Matrix: Water**
Date Received: 02/14/24 10:35

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	18		7.5	2.5	mg/L			02/16/24 08:21	5
Chloride	160		75	30	mg/L			02/16/24 08:33	50

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	100		0.52	0.24	mg/L		02/15/24 09:12	02/15/24 17:22	1
Magnesium	20		0.21	0.082	mg/L		02/15/24 09:12	02/15/24 17:22	1
Sodium	53		1.0	0.41	mg/L		02/15/24 09:12	02/15/24 17:22	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/15/24 09:12	02/15/24 17:22	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	340		0.91	0.41	mg/L			02/15/24 04:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	450		60	24	mg/L			02/15/24 06:34	1
Nitrate Nitrite as N (EPA 353.2)	0.040	U	0.10	0.040	mg/L			02/16/24 11:29	1

Client Sample ID: UO-20-21.1_20240212_N_WG — Lab Sample ID: 410-160685-5

Date Collected: 02/12/24 14:39 **Matrix: Water**
Date Received: 02/14/24 10:35

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	7.3	J	7.5	2.5	mg/L			02/16/24 08:45	5
Chloride	55		7.5	3.0	mg/L			02/16/24 08:45	5

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	51		0.52	0.24	mg/L		02/15/24 09:12	02/15/24 18:03	1
Magnesium	6.7		0.21	0.082	mg/L		02/15/24 09:12	02/15/24 18:03	1
Sodium	17		1.0	0.41	mg/L		02/15/24 09:12	02/15/24 18:03	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/15/24 09:12	02/15/24 18:03	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	150		0.91	0.41	mg/L			02/15/24 04:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	230		30	12	mg/L			02/15/24 06:34	1
Nitrate Nitrite as N (EPA 353.2)	0.19		0.10	0.040	mg/L			02/16/24 11:39	1

Client Sample ID: UO-91-18.2_20240213_FD_WG — Lab Sample ID: 410-160685-6

Date Collected: 02/13/24 11:39 **Matrix: Water**
Date Received: 02/14/24 10:35

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	500		75	25	mg/L			02/16/24 09:46	50
Chloride	13		7.5	3.0	mg/L			02/16/24 09:34	5

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	200		0.52	0.24	mg/L		02/15/24 09:12	02/15/24 18:00	1
Magnesium	28		0.21	0.082	mg/L		02/15/24 09:12	02/15/24 18:00	1
Sodium	19		1.0	0.41	mg/L		02/15/24 09:12	02/15/24 18:00	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/15/24 09:12	02/15/24 18:00	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	610		0.91	0.41	mg/L			02/15/24 04:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	820		60	24	mg/L			02/15/24 06:34	1
Nitrate Nitrite as N (EPA 353.2)	0.040	U	0.10	0.040	mg/L			02/16/24 11:31	1

Client: Jacobs Engineering Group, Inc. Job ID: 410-160685-1
Project/Site: Umetco Hot Springs-UMP Quarterly Groundwater

Client Sample ID: UO-91-18.2_20240213_N_WG **Lab Sample ID: 410-160685-7**
Date Collected: 02/13/24 11:39 **Matrix: Water**
Date Received: 02/14/24 10:35

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**510**		75	25	mg/L			02/16/24 10:10	50
Chloride	**13**		7.5	3.0	mg/L			02/16/24 09:58	5

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**200**		0.52	0.24	mg/L		02/15/24 09:12	02/15/24 18:07	1
Magnesium	**28**		0.21	0.082	mg/L		02/15/24 09:12	02/15/24 18:07	1
Sodium	**19**		1.0	0.41	mg/L		02/15/24 09:12	02/15/24 18:07	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/15/24 09:12	02/15/24 18:07	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**610**		0.91	0.41	mg/L			02/15/24 04:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	**820**		60	24	mg/L			02/15/24 06:34	1
Nitrate Nitrite as N (EPA 353.2)	0.040	U	0.10	0.040	mg/L			02/16/24 11:41	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-473927/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 473927

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			02/16/24 06:32	1
Chloride	0.60	U	1.5	0.60	mg/L			02/16/24 06:32	1

Lab Sample ID: LCS 410-473927/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 473927

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.06		mg/L		94	90 - 110
Chloride	3.00	2.88		mg/L		96	90 - 110

Lab Sample ID: LCSD 410-473927/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 473927

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.50	7.08		mg/L		94	90 - 110	0	20
Chloride	3.00	2.89		mg/L		96	90 - 110	0	20

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 410-473632/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 473943 — **Prep Batch: 473632**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	0.24	U	0.52	0.24	mg/L		02/15/24 09:12	02/15/24 17:16	1
Magnesium	0.082	U	0.21	0.082	mg/L		02/15/24 09:12	02/15/24 17:16	1
Sodium	0.41	U	1.0	0.41	mg/L		02/15/24 09:12	02/15/24 17:16	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/15/24 09:12	02/15/24 17:16	1

Lab Sample ID: LCS 410-473632/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 473943 — **Prep Batch: 473632**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	5.00	5.36		mg/L		107	85 - 115
Magnesium	5.00	5.32		mg/L		106	85 - 115
Sodium	5.00	5.20		mg/L		104	85 - 115
Vanadium	0.500	0.529		mg/L		106	85 - 115

Lab Sample ID: 410-160685-4 MS — **Client Sample ID: UO-20-21.2_20240212_N_WG**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 473943 — **Prep Batch: 473632**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	100		5.00	106	4	mg/L		106	70 - 130
Magnesium	20		5.00	26.1	4	mg/L		113	70 - 130
Sodium	53		5.00	58.8	4	mg/L		115	70 - 130
Vanadium	0.0020	U	0.500	0.571		mg/L		114	70 - 130

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: 410-160685-4 MSD — **Client Sample ID: UO-20-21.2_20240212_N_WG**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 473943 — **Prep Batch: 473632**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	100		5.00	107	4	mg/L		126	70 - 130	1	20
Magnesium	20		5.00	26.2	4	mg/L		116	70 - 130	1	20
Sodium	53		5.00	59.1	4	mg/L		122	70 - 130	1	20
Vanadium	0.0020	U	0.500	0.565		mg/L		113	70 - 130	1	20

Lab Sample ID: 410-160685-4 DU — **Client Sample ID: UO-20-21.2_20240212_N_WG**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 473943 — **Prep Batch: 473632**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Calcium	100		102		mg/L		0.8	20
Magnesium	20		20.6		mg/L		1	20
Sodium	53		53.7		mg/L		1	20
Vanadium	0.0020	U	0.0020	U	mg/L		NC	20

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 410-473497/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 473497

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12	U	30	12	mg/L			02/15/24 06:34	1

Lab Sample ID: LCS 410-473497/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 473497

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	200	189		mg/L		95	90 - 110

Lab Sample ID: 410-160685-2 MS — **Client Sample ID: UO-87-07.2_20240212_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 473497

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	530		800	1310		mg/L		98	90 - 110

Lab Sample ID: 410-160685-2 DU — **Client Sample ID: UO-87-07.2_20240212_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 473497

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	530		576		mg/L		9	10

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C) (Continued)

Lab Sample ID: 410-160685-7 DU — **Client Sample ID: UO-91-18.2_20240213_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 473497

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	820		839		mg/L		2	10

Lab Sample ID: MB 410-473499/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 473499

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12	U	30	12	mg/L			02/15/24 06:37	1

Lab Sample ID: LCS 410-473499/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 473499

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	200	192		mg/L		96	90 - 110

Lab Sample ID: LCSD 410-473499/3 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 473499

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	200	191		mg/L		96	90 - 110	1	10

Lab Sample ID: 410-160685-1 DU — **Client Sample ID: UO-87-07.1_20240212_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 473499

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	380		371		mg/L		3	10

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 410-474209/87 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 474209

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.040	U	0.10	0.040	mg/L			02/16/24 11:03	1

Lab Sample ID: LCS 410-474209/85 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 474209

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate Nitrite as N	2.00	2.11		mg/L		105	90 - 110

Client: Jacobs Engineering Group, Inc.
Job ID: 410-160685-1
Project/Site: Umetco Hot Springs-UMP Quarterly Groundwater

Method: 353.2 - Nitrogen, Nitrate-Nitrite (Continued)

Lab Sample ID: LCSD 410-474209/86
Matrix: Water
Analysis Batch: 474209

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrate Nitrite as N			2.00	2.01		mg/L		100	90 - 110	5	20

HPLC/IC

Analysis Batch: 473927

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-160685-1	UO-87-07.1_20240212_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-160685-1	UO-87-07.1_20240212_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-160685-2	UO-87-07.2_20240212_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-160685-2	UO-87-07.2_20240212_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-160685-3	UO-20-22.1_20240212_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-160685-4	UO-20-21.2_20240212_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-160685-4	UO-20-21.2_20240212_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-160685-5	UO-20-21.1_20240212_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-160685-6	UO-91-18.2_20240213_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
410-160685-6	UO-91-18.2_20240213_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
410-160685-7	UO-91-18.2_20240213_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-160685-7	UO-91-18.2_20240213_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-473927/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-473927/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-473927/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Metals

Analysis Batch: 473485

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-160685-1	UO-87-07.1_20240212_N_WG	Dissolved	Water	2340B-2011	
410-160685-2	UO-87-07.2_20240212_N_WG	Dissolved	Water	2340B-2011	
410-160685-3	UO-20-22.1_20240212_N_WG	Dissolved	Water	2340B-2011	
410-160685-4	UO-20-21.2_20240212_N_WG	Dissolved	Water	2340B-2011	
410-160685-5	UO-20-21.1_20240212_N_WG	Dissolved	Water	2340B-2011	
410-160685-6	UO-91-18.2_20240213_FD_WG	Dissolved	Water	2340B-2011	
410-160685-7	UO-91-18.2_20240213_N_WG	Dissolved	Water	2340B-2011	

Prep Batch: 473632

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-160685-1	UO-87-07.1_20240212_N_WG	Dissolved	Water	Non-Digest Prep	
410-160685-2	UO-87-07.2_20240212_N_WG	Dissolved	Water	Non-Digest Prep	
410-160685-3	UO-20-22.1_20240212_N_WG	Dissolved	Water	Non-Digest Prep	
410-160685-4	UO-20-21.2_20240212_N_WG	Dissolved	Water	Non-Digest Prep	
410-160685-5	UO-20-21.1_20240212_N_WG	Dissolved	Water	Non-Digest Prep	
410-160685-6	UO-91-18.2_20240213_FD_WG	Dissolved	Water	Non-Digest Prep	
410-160685-7	UO-91-18.2_20240213_N_WG	Dissolved	Water	Non-Digest Prep	
MB 410-473632/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-473632/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	
410-160685-4 MS	UO-20-21.2_20240212_N_WG	Dissolved	Water	Non-Digest Prep	
410-160685-4 MSD	UO-20-21.2_20240212_N_WG	Dissolved	Water	Non-Digest Prep	
410-160685-4 DU	UO-20-21.2_20240212_N_WG	Dissolved	Water	Non-Digest Prep	

Analysis Batch: 473943

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-160685-1	UO-87-07.1_20240212_N_WG	Dissolved	Water	200.7 Rev 4.4	473632
410-160685-2	UO-87-07.2_20240212_N_WG	Dissolved	Water	200.7 Rev 4.4	473632
410-160685-3	UO-20-22.1_20240212_N_WG	Dissolved	Water	200.7 Rev 4.4	473632
410-160685-4	UO-20-21.2_20240212_N_WG	Dissolved	Water	200.7 Rev 4.4	473632
410-160685-5	UO-20-21.1_20240212_N_WG	Dissolved	Water	200.7 Rev 4.4	473632
410-160685-6	UO-91-18.2_20240213_FD_WG	Dissolved	Water	200.7 Rev 4.4	473632

Metals (Continued)

Analysis Batch: 473943 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-160685-7	UO-91-18.2_20240213_N_WG	Dissolved	Water	200.7 Rev 4.4	473632
MB 410-473632/1-A	Method Blank	Total/NA	Water	200.7 Rev 4.4	473632
LCS 410-473632/2-A	Lab Control Sample	Total/NA	Water	200.7 Rev 4.4	473632
410-160685-4 MS	UO-20-21.2_20240212_N_WG	Dissolved	Water	200.7 Rev 4.4	473632
410-160685-4 MSD	UO-20-21.2_20240212_N_WG	Dissolved	Water	200.7 Rev 4.4	473632
410-160685-4 DU	UO-20-21.2_20240212_N_WG	Dissolved	Water	200.7 Rev 4.4	473632

General Chemistry

Analysis Batch: 473497

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-160685-2	UO-87-07.2_20240212_N_WG	Total/NA	Water	2540C - 2015	
410-160685-3	UO-20-22.1_20240212_N_WG	Total/NA	Water	2540C - 2015	
410-160685-4	UO-20-21.2_20240212_N_WG	Total/NA	Water	2540C - 2015	
410-160685-5	UO-20-21.1_20240212_N_WG	Total/NA	Water	2540C - 2015	
410-160685-6	UO-91-18.2_20240213_FD_WG	Total/NA	Water	2540C - 2015	
410-160685-7	UO-91-18.2_20240213_N_WG	Total/NA	Water	2540C - 2015	
MB 410-473497/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-473497/2	Lab Control Sample	Total/NA	Water	2540C - 2015	
410-160685-2 MS	UO-87-07.2_20240212_N_WG	Total/NA	Water	2540C - 2015	
410-160685-2 DU	UO-87-07.2_20240212_N_WG	Total/NA	Water	2540C - 2015	
410-160685-7 DU	UO-91-18.2_20240213_N_WG	Total/NA	Water	2540C - 2015	

Analysis Batch: 473499

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-160685-1	UO-87-07.1_20240212_N_WG	Total/NA	Water	2540C - 2015	
MB 410-473499/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-473499/2	Lab Control Sample	Total/NA	Water	2540C - 2015	
LCSD 410-473499/3	Lab Control Sample Dup	Total/NA	Water	2540C - 2015	
410-160685-1 DU	UO-87-07.1_20240212_N_WG	Total/NA	Water	2540C - 2015	

Analysis Batch: 474209

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-160685-1	UO-87-07.1_20240212_N_WG	Total/NA	Water	353.2	
410-160685-2	UO-87-07.2_20240212_N_WG	Total/NA	Water	353.2	
410-160685-3	UO-20-22.1_20240212_N_WG	Total/NA	Water	353.2	
410-160685-4	UO-20-21.2_20240212_N_WG	Total/NA	Water	353.2	
410-160685-5	UO-20-21.1_20240212_N_WG	Total/NA	Water	353.2	
410-160685-6	UO-91-18.2_20240213_FD_WG	Total/NA	Water	353.2	
410-160685-7	UO-91-18.2_20240213_N_WG	Total/NA	Water	353.2	
MB 410-474209/87	Method Blank	Total/NA	Water	353.2	
LCS 410-474209/85	Lab Control Sample	Total/NA	Water	353.2	
LCSD 410-474209/86	Lab Control Sample Dup	Total/NA	Water	353.2	

Client Sample ID: UO-87-07.1_20240212_N_WG — Lab Sample ID: 410-160685-1

Date Collected: 02/12/24 10:06 **Matrix: Water**
Date Received: 02/14/24 10:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	473927	L4QM	ELLE	02/16/24 07:09
Total/NA	Analysis	EPA 300.0 R2.1		50	473927	L4QM	ELLE	02/16/24 07:21
Dissolved	Prep	Non-Digest Prep			473632	NU9R	ELLE	02/15/24 09:12
Dissolved	Analysis	200.7 Rev 4.4		1	473943	T8CQ	ELLE	02/15/24 18:29
Dissolved	Analysis	2340B-2011		1	473485	USJM	ELLE	02/15/24 04:30
Total/NA	Analysis	2540C - 2015		1	473499	M98K	ELLE	02/15/24 06:37 - 02/16/24 10:11 [1]
Total/NA	Analysis	353.2		1	474209	Q3HN	ELLE	02/16/24 11:23

Client Sample ID: UO-87-07.2_20240212_N_WG — Lab Sample ID: 410-160685-2

Date Collected: 02/12/24 10:49 **Matrix: Water**
Date Received: 02/14/24 10:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	473927	L4QM	ELLE	02/16/24 07:33
Total/NA	Analysis	EPA 300.0 R2.1		50	473927	L4QM	ELLE	02/16/24 07:45
Dissolved	Prep	Non-Digest Prep			473632	NU9R	ELLE	02/15/24 09:12
Dissolved	Analysis	200.7 Rev 4.4		1	473943	T8CQ	ELLE	02/15/24 18:10
Dissolved	Analysis	2340B-2011		1	473485	USJM	ELLE	02/15/24 04:30
Total/NA	Analysis	2540C - 2015		1	473497	M98K	ELLE	02/15/24 06:34 - 02/16/24 10:11 [1]
Total/NA	Analysis	353.2		1	474209	Q3HN	ELLE	02/16/24 11:25

Client Sample ID: UO-20-22.1_20240212_N_WG — Lab Sample ID: 410-160685-3

Date Collected: 02/12/24 11:42 **Matrix: Water**
Date Received: 02/14/24 10:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	473927	L4QM	ELLE	02/16/24 07:57
Dissolved	Prep	Non-Digest Prep			473632	NU9R	ELLE	02/15/24 09:12
Dissolved	Analysis	200.7 Rev 4.4		1	473943	T8CQ	ELLE	02/15/24 18:13
Dissolved	Analysis	2340B-2011		1	473485	USJM	ELLE	02/15/24 04:30
Total/NA	Analysis	2540C - 2015		1	473497	M98K	ELLE	02/15/24 06:34 - 02/16/24 10:11 [1]
Total/NA	Analysis	353.2		1	474209	Q3HN	ELLE	02/16/24 11:27

Client Sample ID: UO-20-21.2_20240212_N_WG — Lab Sample ID: 410-160685-4

Date Collected: 02/12/24 14:00 **Matrix: Water**
Date Received: 02/14/24 10:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	473927	L4QM	ELLE	02/16/24 08:21
Total/NA	Analysis	EPA 300.0 R2.1		50	473927	L4QM	ELLE	02/16/24 08:33
Dissolved	Prep	Non-Digest Prep			473632	NU9R	ELLE	02/15/24 09:12
Dissolved	Analysis	200.7 Rev 4.4		1	473943	T8CQ	ELLE	02/15/24 17:22
Dissolved	Analysis	2340B-2011		1	473485	USJM	ELLE	02/15/24 04:30

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-160685-1
Project/Site: Umetco Hot Springs-UMP Quarterly Groundwater

Client Sample ID: UO-20-21.2_20240212_N_WG — Lab Sample ID: 410-160685-4

Date Collected: 02/12/24 14:00 **Matrix: Water**
Date Received: 02/14/24 10:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	2540C - 2015		1	473497	M98K	ELLE	02/15/24 06:34 - 02/16/24 10:11 [1]
Total/NA	Analysis	353.2		1	474209	Q3HN	ELLE	02/16/24 11:29

Client Sample ID: UO-20-21.1_20240212_N_WG — Lab Sample ID: 410-160685-5

Date Collected: 02/12/24 14:39 **Matrix: Water**
Date Received: 02/14/24 10:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	473927	L4QM	ELLE	02/16/24 08:45
Dissolved	Prep	Non-Digest Prep			473632	NU9R	ELLE	02/15/24 09:12
Dissolved	Analysis	200.7 Rev 4.4		1	473943	T8CQ	ELLE	02/15/24 18:03
Dissolved	Analysis	2340B-2011		1	473485	USJM	ELLE	02/15/24 04:30
Total/NA	Analysis	2540C - 2015		1	473497	M98K	ELLE	02/15/24 06:34 - 02/16/24 10:11 [1]
Total/NA	Analysis	353.2		1	474209	Q3HN	ELLE	02/16/24 11:39

Client Sample ID: UO-91-18.2_20240213_FD_WG — Lab Sample ID: 410-160685-6

Date Collected: 02/13/24 11:39 **Matrix: Water**
Date Received: 02/14/24 10:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	473927	L4QM	ELLE	02/16/24 09:34
Total/NA	Analysis	EPA 300.0 R2.1		50	473927	L4QM	ELLE	02/16/24 09:46
Dissolved	Prep	Non-Digest Prep			473632	NU9R	ELLE	02/15/24 09:12
Dissolved	Analysis	200.7 Rev 4.4		1	473943	T8CQ	ELLE	02/15/24 18:00
Dissolved	Analysis	2340B-2011		1	473485	USJM	ELLE	02/15/24 04:30
Total/NA	Analysis	2540C - 2015		1	473497	M98K	ELLE	02/15/24 06:34 - 02/16/24 10:11 [1]
Total/NA	Analysis	353.2		1	474209	Q3HN	ELLE	02/16/24 11:31

Client Sample ID: UO-91-18.2_20240213_N_WG — Lab Sample ID: 410-160685-7

Date Collected: 02/13/24 11:39 **Matrix: Water**
Date Received: 02/14/24 10:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	473927	L4QM	ELLE	02/16/24 09:58
Total/NA	Analysis	EPA 300.0 R2.1		50	473927	L4QM	ELLE	02/16/24 10:10
Dissolved	Prep	Non-Digest Prep			473632	NU9R	ELLE	02/15/24 09:12
Dissolved	Analysis	200.7 Rev 4.4		1	473943	T8CQ	ELLE	02/15/24 18:07
Dissolved	Analysis	2340B-2011		1	473485	USJM	ELLE	02/15/24 04:30
Total/NA	Analysis	2540C - 2015		1	473497	M98K	ELLE	02/15/24 06:34 - 02/16/24 10:11 [1]
Total/NA	Analysis	353.2		1	474209	Q3HN	ELLE	02/16/24 11:41

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-160685-1
Project/Site: Umetco Hot Springs-UMP Quarterly Groundwater

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00660	08-09-24

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

Analysis Method	Prep Method	Matrix	Analyte
2340B-2011		Water	Hardness as calcium carbonate

Method Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-160685-1
Project/Site: Umetco Hot Springs-UMP Quarterly Groundwater

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
200.7 Rev 4.4	Metals (ICP)	EPA	ELLE
2340B-2011	Total Hardness (as CaCO3) by calculation	SM	ELLE
2540C - 2015	Total Dissolved Solids (Dried at 180 °C)	SM	ELLE
353.2	Nitrogen, Nitrate-Nitrite	EPA	ELLE
Non-Digest Prep	Preparation, Non-Digested Aqueous Metals	EPA	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-160685-1
Project/Site: Umetco Hot Springs-UMP Quarterly Groundwater

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-160685-1	UO-87-07.1_20240212_N_WG	Water	02/12/24 10:06	02/14/24 10:35
410-160685-2	UO-87-07.2_20240212_N_WG	Water	02/12/24 10:49	02/14/24 10:35
410-160685-3	UO-20-22.1_20240212_N_WG	Water	02/12/24 11:42	02/14/24 10:35
410-160685-4	UO-20-21.2_20240212_N_WG	Water	02/12/24 14:00	02/14/24 10:35
410-160685-5	UO-20-21.1_20240212_N_WG	Water	02/12/24 14:39	02/14/24 10:35
410-160685-6	UO-91-18.2_20240213_FD_WG	Water	02/13/24 11:39	02/14/24 10:35
410-160685-7	UO-91-18.2_20240213_N_WG	Water	02/13/24 11:39	02/14/24 10:35

Jacobs

410-160685 Chain of Custody

: ANALYSIS REQUEST

COC No: EuroFins Lan-45335493

Cooler No. of

| | | |

Login Sample Receipt Checklist

Client: Jacobs Engineering Group, Inc.

Job Number: 410-160685-1

Login Number: 160685

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Santiago, Nathaniel

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	False	Refer to Job Narrative for details.
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

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

ANALYTICAL REPORT

PREPARED FOR

Attn: Mark Stinnett
Jacobs Engineering Group, Inc.
3011 SW Willston Road
Gainesville, Florida 32608-3964

Generated 2/20/2024 8:33:02 AM

JOB DESCRIPTION

Umetco Hot Springs - UMP Quarterly Groundwater

JOB NUMBER

410-160804-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

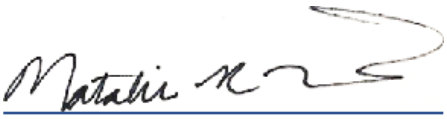
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Job Notes

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.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



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Authorized for release by
Natalie Luciano, Principal Project Manager
Natalie.Luciano@et.eurofinsus.com
(717)556-7258

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is 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.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

This report shall not be reproduced except in full, without the written approval of the laboratory.

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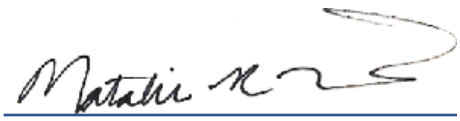


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Client: Jacobs Engineering Group, Inc. Job ID: 410-160804-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Qualifiers

HPLC/IC

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.
U	Indicates the analyte was analyzed for but not detected.

Metals

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Job Narrative
410-160804-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

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

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

Receipt
The samples were received on 2/15/2024 10:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.2°C.

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

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

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

Detection Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-160804-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-91-16.1B_20240214_N_WG — Lab Sample ID: 410-160804-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	3.1		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	1.4		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	4.0		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	13		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	38		30	12	mg/L	1		2540C - 2015	Total/NA
Nitrate Nitrite as N	0.78		0.10	0.040	mg/L	1		353.2	Total/NA

Client Sample ID: UO-91-16.2_20240214_N_WG — Lab Sample ID: 410-160804-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	3.0	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Calcium	14		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	5.1		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	47		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	56		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	170		30	12	mg/L	1		2540C - 2015	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: UO-91-16.1B_20240214_N_WG — Lab Sample ID: 410-160804-1

Date Collected: 02/14/24 10:06 — **Matrix: Water**
Date Received: 02/15/24 10:00

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.5	U	7.5	2.5	mg/L			02/16/24 23:00	5
Chloride	3.0	U	7.5	3.0	mg/L			02/16/24 23:00	5

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**3.1**		0.52	0.24	mg/L		02/16/24 02:30	02/16/24 17:51	1
Magnesium	**1.4**		0.21	0.082	mg/L		02/16/24 02:30	02/16/24 17:51	1
Sodium	**4.0**		1.0	0.41	mg/L		02/16/24 02:30	02/16/24 17:51	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/16/24 02:30	02/16/24 17:51	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**13**		0.91	0.41	mg/L			02/16/24 04:18	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	**38**		30	12	mg/L			02/16/24 06:35	1
Nitrate Nitrite as N (EPA 353.2)	**0.78**		0.10	0.040	mg/L			02/17/24 08:41	1

Client Sample ID: UO-91-16.2_20240214_N_WG — Lab Sample ID: 410-160804-2

Date Collected: 02/14/24 12:14 — **Matrix: Water**
Date Received: 02/15/24 10:00

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**3.0**	**J**	7.5	2.5	mg/L			02/16/24 23:25	5
Chloride	3.0	U	7.5	3.0	mg/L			02/16/24 23:25	5

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**14**		0.52	0.24	mg/L		02/16/24 02:30	02/16/24 17:48	1
Magnesium	**5.1**		0.21	0.082	mg/L		02/16/24 02:30	02/16/24 17:48	1
Sodium	**47**		1.0	0.41	mg/L		02/16/24 02:30	02/16/24 17:48	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/16/24 02:30	02/16/24 17:48	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**56**		0.91	0.41	mg/L			02/16/24 04:18	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	**170**		30	12	mg/L			02/16/24 06:35	1
Nitrate Nitrite as N (EPA 353.2)	0.040	U	0.10	0.040	mg/L			02/17/24 08:43	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-473932/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 473932

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			02/16/24 17:22	1
Chloride	0.60	U	1.5	0.60	mg/L			02/16/24 17:22	1

Lab Sample ID: LCS 410-473932/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 473932

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.44		mg/L		99	90 - 110
Chloride	3.00	2.93		mg/L		98	90 - 110

Lab Sample ID: LCSD 410-473932/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 473932

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.50	7.43		mg/L		99	90 - 110	0	20
Chloride	3.00	2.93		mg/L		98	90 - 110	0	20

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 410-473959/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 474331 — **Prep Batch: 473959**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	0.24	U	0.52	0.24	mg/L		02/16/24 02:30	02/16/24 16:26	1
Magnesium	0.082	U	0.21	0.082	mg/L		02/16/24 02:30	02/16/24 16:26	1
Sodium	0.41	U	1.0	0.41	mg/L		02/16/24 02:30	02/16/24 16:26	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/16/24 02:30	02/16/24 16:26	1

Lab Sample ID: LCS 410-473959/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 474331 — **Prep Batch: 473959**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	5.00	5.10		mg/L		102	85 - 115
Magnesium	5.00	5.09		mg/L		102	85 - 115
Sodium	5.00	5.07		mg/L		101	85 - 115
Vanadium	0.500	0.521		mg/L		104	85 - 115

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 410-473991/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 473991

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12	U	30	12	mg/L			02/16/24 06:35	1

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C) (Continued)

Lab Sample ID: LCS 410-473991/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 473991

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Dissolved Solids			200	191		mg/L		96	90 - 110		

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 410-474367/21 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 474367

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.040	U	0.10	0.040	mg/L			02/17/24 08:29	1

Lab Sample ID: LCS 410-474367/19 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 474367

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Nitrate Nitrite as N			2.00	1.96		mg/L		98	90 - 110		

Lab Sample ID: LCSD 410-474367/20 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 474367

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrate Nitrite as N			2.00	2.01		mg/L		101	90 - 110	3	20

HPLC/IC

Analysis Batch: 473932

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-160804-1	UO-91-16.1B_20240214_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-160804-2	UO-91-16.2_20240214_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-473932/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-473932/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-473932/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Metals

Analysis Batch: 473485

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-160804-1	UO-91-16.1B_20240214_N_WG	Dissolved	Water	2340B-2011	
410-160804-2	UO-91-16.2_20240214_N_WG	Dissolved	Water	2340B-2011	

Prep Batch: 473959

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-160804-1	UO-91-16.1B_20240214_N_WG	Dissolved	Water	Non-Digest Prep	
410-160804-2	UO-91-16.2_20240214_N_WG	Dissolved	Water	Non-Digest Prep	
MB 410-473959/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-473959/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	

Analysis Batch: 474331

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-160804-1	UO-91-16.1B_20240214_N_WG	Dissolved	Water	200.7 Rev 4.4	473959
410-160804-2	UO-91-16.2_20240214_N_WG	Dissolved	Water	200.7 Rev 4.4	473959
MB 410-473959/1-A	Method Blank	Total/NA	Water	200.7 Rev 4.4	473959
LCS 410-473959/2-A	Lab Control Sample	Total/NA	Water	200.7 Rev 4.4	473959

General Chemistry

Analysis Batch: 473991

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-160804-1	UO-91-16.1B_20240214_N_WG	Total/NA	Water	2540C - 2015	
410-160804-2	UO-91-16.2_20240214_N_WG	Total/NA	Water	2540C - 2015	
MB 410-473991/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-473991/2	Lab Control Sample	Total/NA	Water	2540C - 2015	

Analysis Batch: 474367

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-160804-1	UO-91-16.1B_20240214_N_WG	Total/NA	Water	353.2	
410-160804-2	UO-91-16.2_20240214_N_WG	Total/NA	Water	353.2	
MB 410-474367/21	Method Blank	Total/NA	Water	353.2	
LCS 410-474367/19	Lab Control Sample	Total/NA	Water	353.2	
LCSD 410-474367/20	Lab Control Sample Dup	Total/NA	Water	353.2	

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-160804-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-91-16.1B_20240214_N_WG — Lab Sample ID: 410-160804-1

Date Collected: 02/14/24 10:06 **Matrix: Water**
Date Received: 02/15/24 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	473932	L4QM	ELLE	02/16/24 23:00
Dissolved	Prep	Non-Digest Prep			473959	UAMX	ELLE	02/16/24 02:30
Dissolved	Analysis	200.7 Rev 4.4		1	474331	T8CQ	ELLE	02/16/24 17:51
Dissolved	Analysis	2340B-2011		1	473485	USJM	ELLE	02/16/24 04:18
Total/NA	Analysis	2540C - 2015		1	473991	M98K	ELLE	02/16/24 06:35 - 02/19/24 10:09 [1]
Total/NA	Analysis	353.2		1	474367	Q3HN	ELLE	02/17/24 08:41

Client Sample ID: UO-91-16.2_20240214_N_WG — Lab Sample ID: 410-160804-2

Date Collected: 02/14/24 12:14 **Matrix: Water**
Date Received: 02/15/24 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	473932	L4QM	ELLE	02/16/24 23:25
Dissolved	Prep	Non-Digest Prep			473959	UAMX	ELLE	02/16/24 02:30
Dissolved	Analysis	200.7 Rev 4.4		1	474331	T8CQ	ELLE	02/16/24 17:48
Dissolved	Analysis	2340B-2011		1	473485	USJM	ELLE	02/16/24 04:18
Total/NA	Analysis	2540C - 2015		1	473991	M98K	ELLE	02/16/24 06:35 - 02/19/24 10:09 [1]
Total/NA	Analysis	353.2		1	474367	Q3HN	ELLE	02/17/24 08:43

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-160804-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00660	08-09-24

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

Analysis Method	Prep Method	Matrix	Analyte
2340B-2011		Water	Hardness as calcium carbonate

Method Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-160804-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
200.7 Rev 4.4	Metals (ICP)	EPA	ELLE
2340B-2011	Total Hardness (as CaCO3) by calculation	SM	ELLE
2540C - 2015	Total Dissolved Solids (Dried at 180 °C)	SM	ELLE
353.2	Nitrogen, Nitrate-Nitrite	EPA	ELLE
Non-Digest Prep	Preparation, Non-Digested Aqueous Metals	EPA	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-160804-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-160804-1	UO-91-16.1B_20240214_N_WG	Water	02/14/24 10:06	02/15/24 10:00
410-160804-2	UO-91-16.2_20240214_N_WG	Water	02/14/24 12:14	02/15/24 10:00

Jacobs

410-160804 Chain of Custody

NALYSIS REQUEST | COC No: EuroFins Lan-45336552 | Cooler No. of

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 7
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number** 4508165277
Project Chemist Mark Stinnett 352-359-5937	**Shipping Company / Airbill No.** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 02/14/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Filtered	Preserve	Analysis: Chloride and Sulfate - E300.0	Hardness - SM2340B	Nitrate-Nitrite - E353.2	TDS - SM2540C	Dissolved Metals - E200.7 (Ca Mg Na V)
											Yes			
											HNO3	H2SO4		
UO-91-16.1B_20240214_N_WG	UO-91-1 6.1B	WG	G		02/14/2024 10:06	4				X	X	X	X	X
UO-91-16.2_20240214_N_WG	UO-91-1 6.2	WG	G		02/14/2024 12:14	4				X	X	X	X	X

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	Jordan Carnahan	02-14-24 1730		
			MR UMT	2/15/24 1000
	SHIPPING METHOD: (mark as appropriate)		SAMPLER NAME AND SIGNATURE	Date Time
Email Report To :				
Email Invoice To : Mark.Stinnett@jacobs.com, Dow_Umetco@jacobs.com			R: 0.3 C: 0.2	

Login Sample Receipt Checklist

Client: Jacobs Engineering Group, Inc.

Job Number: 410-160804-1

Login Number: 160804

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: McBeth, Jessica

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Mark Stinnett
Jacobs Engineering Group, Inc.
3011 SW Willston Road
Gainesville, Florida 32608-3964

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JOB DESCRIPTION

Umetco Hot Springs - UMP Quarterly Groundwater

JOB NUMBER

410-161096-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

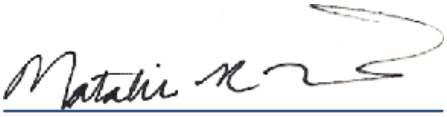
See page two for job notes and contact information.

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.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



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Authorized for release by
Natalie Luciano, Principal Project Manager
Natalie.Luciano@et.eurofinsus.com
(717)556-7258

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is 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.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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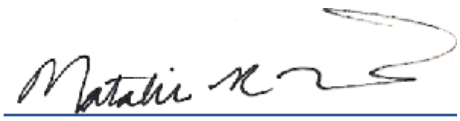


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Definitions/Glossary

Client: Jacobs Engineering Group, Inc. Job ID: 410-161096-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Qualifiers

HPLC/IC

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.
U	Indicates the analyte was analyzed for but not detected.

Metals

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Job ID: 410-161096-1 Eurofins Lancaster Laboratories Environment

Job Narrative
410-161096-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

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

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

Receipt
The samples were received on 2/17/2024 9:25 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.4°C.

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

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

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

Detection Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-161096-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-91-17.1A_20240215_N_WG — Lab Sample ID: 410-161096-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	2.8	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	9.5		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Calcium	12		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	0.47		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	10		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	31		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	78		30	12	mg/L	1		2540C - 2015	Total/NA
Nitrate Nitrite as N	2.5		0.20	0.080	mg/L	2		353.2	Total/NA

Client Sample ID: UO-91-17.1B_20240215_N_WG — Lab Sample ID: 410-161096-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.1	J	7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Calcium	1.2		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	1.2		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	5.9		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	8.0		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	44		30	12	mg/L	1		2540C - 2015	Total/NA
Nitrate Nitrite as N	3.2		0.20	0.080	mg/L	2		353.2	Total/NA

Client Sample ID: UO-91-17.2_20240215_N_WG — Lab Sample ID: 410-161096-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	3.2	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Calcium	19		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	7.4		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	34		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	79		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	160		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-91-19.2_20240215_N_WG — Lab Sample ID: 410-161096-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	380		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Calcium	53		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	19		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	200		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	210		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	520		120	48	mg/L	1		2540C - 2015	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: UO-91-17.1A_20240215_N_WG

Lab Sample ID: 410-161096-1
Date Collected: 02/15/24 10:35
Matrix: Water
Date Received: 02/17/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.8	J	7.5	2.5	mg/L			02/21/24 04:50	5
Chloride	9.5		7.5	3.0	mg/L			02/21/24 04:50	5

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	12		0.52	0.24	mg/L		02/18/24 23:30	02/19/24 10:27	1
Magnesium	0.47		0.21	0.082	mg/L		02/18/24 23:30	02/19/24 10:27	1
Sodium	10		1.0	0.41	mg/L		02/18/24 23:30	02/19/24 10:27	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/18/24 23:30	02/19/24 10:27	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	31		0.91	0.41	mg/L			02/19/24 04:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	78		30	12	mg/L			02/19/24 06:44	1
Nitrate Nitrite as N (EPA 353.2)	2.5		0.20	0.080	mg/L			02/20/24 11:16	2

Client Sample ID: UO-91-17.1B_20240215_N_WG

Lab Sample ID: 410-161096-2
Date Collected: 02/15/24 11:03
Matrix: Water
Date Received: 02/17/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.5	U	7.5	2.5	mg/L			02/21/24 05:15	5
Chloride	5.1	J	7.5	3.0	mg/L			02/21/24 05:15	5

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	1.2		0.52	0.24	mg/L		02/18/24 23:30	02/19/24 10:49	1
Magnesium	1.2		0.21	0.082	mg/L		02/18/24 23:30	02/19/24 10:49	1
Sodium	5.9		1.0	0.41	mg/L		02/18/24 23:30	02/19/24 10:49	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/18/24 23:30	02/19/24 10:49	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	8.0		0.91	0.41	mg/L			02/19/24 04:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	44		30	12	mg/L			02/19/24 06:44	1
Nitrate Nitrite as N (EPA 353.2)	3.2		0.20	0.080	mg/L			02/20/24 11:18	2

Client Sample ID: UO-91-17.2_20240215_N_WG — Lab Sample ID: 410-161096-3

Date Collected: 02/15/24 11:22 **Matrix: Water**
Date Received: 02/17/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**3.2**	**J**	7.5	2.5	mg/L			02/21/24 05:40	5
Chloride	3.0	U	7.5	3.0	mg/L			02/21/24 05:40	5

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**19**		0.52	0.24	mg/L		02/18/24 23:30	02/19/24 10:53	1
Magnesium	**7.4**		0.21	0.082	mg/L		02/18/24 23:30	02/19/24 10:53	1
Sodium	**34**		1.0	0.41	mg/L		02/18/24 23:30	02/19/24 10:53	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/18/24 23:30	02/19/24 10:53	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**79**		0.91	0.41	mg/L			02/19/24 04:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	**160**		30	12	mg/L			02/19/24 06:44	1
Nitrate Nitrite as N (EPA 353.2)	0.040	U	0.10	0.040	mg/L			02/20/24 11:20	1

Client Sample ID: UO-91-19.2_20240215_N_WG — Lab Sample ID: 410-161096-4

Date Collected: 02/16/24 13:34 **Matrix: Water**
Date Received: 02/17/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.5	U	7.5	2.5	mg/L			02/21/24 06:05	5
Chloride	**380**		75	30	mg/L			02/21/24 06:43	50

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**53**		0.52	0.24	mg/L		02/18/24 23:30	02/19/24 10:46	1
Magnesium	**19**		0.21	0.082	mg/L		02/18/24 23:30	02/19/24 10:46	1
Sodium	**200**		1.0	0.41	mg/L		02/18/24 23:30	02/19/24 10:46	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/18/24 23:30	02/19/24 10:46	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**210**		0.91	0.41	mg/L			02/19/24 04:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	**520**		120	48	mg/L			02/19/24 06:44	1
Nitrate Nitrite as N (EPA 353.2)	0.040	U	0.10	0.040	mg/L			02/20/24 11:26	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-475253/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 475253

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			02/21/24 01:05	1
Chloride	0.60	U	1.5	0.60	mg/L			02/21/24 01:05	1

Lab Sample ID: LCS 410-475253/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 475253

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.06		mg/L		94	90 - 110
Chloride	3.00	2.79		mg/L		93	90 - 110

Lab Sample ID: LCSD 410-475253/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 475253

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.50	7.06		mg/L		94	90 - 110	0	20
Chloride	3.00	2.80		mg/L		93	90 - 110	0	20

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 410-474433/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 474669 — **Prep Batch: 474433**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	0.24	U	0.52	0.24	mg/L		02/18/24 23:30	02/19/24 09:47	1
Magnesium	0.082	U	0.21	0.082	mg/L		02/18/24 23:30	02/19/24 09:47	1
Sodium	0.41	U	1.0	0.41	mg/L		02/18/24 23:30	02/19/24 09:47	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/18/24 23:30	02/19/24 09:47	1

Lab Sample ID: LCS 410-474433/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 474669 — **Prep Batch: 474433**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	5.00	5.19		mg/L		104	85 - 115
Magnesium	5.00	5.23		mg/L		105	85 - 115
Sodium	5.00	5.12		mg/L		102	85 - 115
Vanadium	0.500	0.519		mg/L		104	85 - 115

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 410-474480/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 474480

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12	U	30	12	mg/L			02/19/24 06:44	1

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C) (Continued)

Lab Sample ID: LCS 410-474480/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 474480

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Dissolved Solids			200	190		mg/L		95	90 - 110		

Lab Sample ID: 410-161096-4 MS — **Client Sample ID: UO-91-19.2_20240215_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 474480

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Dissolved Solids	520		800	1340		mg/L		102	90 - 110		

Lab Sample ID: 410-161096-4 DU — **Client Sample ID: UO-91-19.2_20240215_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 474480

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	520			518		mg/L				0.8	10

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 410-475142/21 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 475142

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.040	U	0.10	0.040	mg/L			02/20/24 11:06	1

Lab Sample ID: LCS 410-475142/19 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 475142

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Nitrate Nitrite as N			2.00	2.00		mg/L		100	90 - 110		

Lab Sample ID: LCSD 410-475142/20 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 475142

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrate Nitrite as N			2.00	2.03		mg/L		102	90 - 110	2	20

HPLC/IC

Analysis Batch: 475253

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-161096-1	UO-91-17.1A_20240215_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-161096-2	UO-91-17.1B_20240215_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-161096-3	UO-91-17.2_20240215_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-161096-4	UO-91-19.2_20240215_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-161096-4	UO-91-19.2_20240215_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-475253/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-475253/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-475253/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Metals

Analysis Batch: 473485

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-161096-1	UO-91-17.1A_20240215_N_WG	Dissolved	Water	2340B-2011	
410-161096-2	UO-91-17.1B_20240215_N_WG	Dissolved	Water	2340B-2011	
410-161096-3	UO-91-17.2_20240215_N_WG	Dissolved	Water	2340B-2011	
410-161096-4	UO-91-19.2_20240215_N_WG	Dissolved	Water	2340B-2011	

Prep Batch: 474433

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-161096-1	UO-91-17.1A_20240215_N_WG	Dissolved	Water	Non-Digest Prep	
410-161096-2	UO-91-17.1B_20240215_N_WG	Dissolved	Water	Non-Digest Prep	
410-161096-3	UO-91-17.2_20240215_N_WG	Dissolved	Water	Non-Digest Prep	
410-161096-4	UO-91-19.2_20240215_N_WG	Dissolved	Water	Non-Digest Prep	
MB 410-474433/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-474433/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	

Analysis Batch: 474669

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-161096-1	UO-91-17.1A_20240215_N_WG	Dissolved	Water	200.7 Rev 4.4	474433
410-161096-2	UO-91-17.1B_20240215_N_WG	Dissolved	Water	200.7 Rev 4.4	474433
410-161096-3	UO-91-17.2_20240215_N_WG	Dissolved	Water	200.7 Rev 4.4	474433
410-161096-4	UO-91-19.2_20240215_N_WG	Dissolved	Water	200.7 Rev 4.4	474433
MB 410-474433/1-A	Method Blank	Total/NA	Water	200.7 Rev 4.4	474433
LCS 410-474433/2-A	Lab Control Sample	Total/NA	Water	200.7 Rev 4.4	474433

General Chemistry

Analysis Batch: 474480

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-161096-1	UO-91-17.1A_20240215_N_WG	Total/NA	Water	2540C - 2015	
410-161096-2	UO-91-17.1B_20240215_N_WG	Total/NA	Water	2540C - 2015	
410-161096-3	UO-91-17.2_20240215_N_WG	Total/NA	Water	2540C - 2015	
410-161096-4	UO-91-19.2_20240215_N_WG	Total/NA	Water	2540C - 2015	
MB 410-474480/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-474480/2	Lab Control Sample	Total/NA	Water	2540C - 2015	
410-161096-4 MS	UO-91-19.2_20240215_N_WG	Total/NA	Water	2540C - 2015	
410-161096-4 DU	UO-91-19.2_20240215_N_WG	Total/NA	Water	2540C - 2015	

Analysis Batch: 475142

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-161096-1	UO-91-17.1A_20240215_N_WG	Total/NA	Water	353.2	

General Chemistry (Continued)

Analysis Batch: 475142 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-161096-2	UO-91-17.1B_20240215_N_WG	Total/NA	Water	353.2	
410-161096-3	UO-91-17.2_20240215_N_WG	Total/NA	Water	353.2	
410-161096-4	UO-91-19.2_20240215_N_WG	Total/NA	Water	353.2	
MB 410-475142/21	Method Blank	Total/NA	Water	353.2	
LCS 410-475142/19	Lab Control Sample	Total/NA	Water	353.2	
LCSD 410-475142/20	Lab Control Sample Dup	Total/NA	Water	353.2	

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-161096-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-91-17.1A_20240215_N_WG — Lab Sample ID: 410-161096-1

Date Collected: 02/15/24 10:35 **Matrix: Water**
Date Received: 02/17/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	475253	L4QM	ELLE	02/21/24 04:50
Dissolved	Prep	Non-Digest Prep			474433	UAMX	ELLE	02/18/24 23:30
Dissolved	Analysis	200.7 Rev 4.4		1	474669	MT26	ELLE	02/19/24 10:27
Dissolved	Analysis	2340B-2011		1	473485	USJM	ELLE	02/19/24 04:54
Total/NA	Analysis	2540C - 2015		1	474480	M98K	ELLE	02/19/24 06:44 - 02/20/24 09:54 [1]
Total/NA	Analysis	353.2		2	475142	Q3HN	ELLE	02/20/24 11:16

Client Sample ID: UO-91-17.1B_20240215_N_WG — Lab Sample ID: 410-161096-2

Date Collected: 02/15/24 11:03 **Matrix: Water**
Date Received: 02/17/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	475253	L4QM	ELLE	02/21/24 05:15
Dissolved	Prep	Non-Digest Prep			474433	UAMX	ELLE	02/18/24 23:30
Dissolved	Analysis	200.7 Rev 4.4		1	474669	MT26	ELLE	02/19/24 10:49
Dissolved	Analysis	2340B-2011		1	473485	USJM	ELLE	02/19/24 04:54
Total/NA	Analysis	2540C - 2015		1	474480	M98K	ELLE	02/19/24 06:44 - 02/20/24 09:54 [1]
Total/NA	Analysis	353.2		2	475142	Q3HN	ELLE	02/20/24 11:18

Client Sample ID: UO-91-17.2_20240215_N_WG — Lab Sample ID: 410-161096-3

Date Collected: 02/15/24 11:22 **Matrix: Water**
Date Received: 02/17/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	475253	L4QM	ELLE	02/21/24 05:40
Dissolved	Prep	Non-Digest Prep			474433	UAMX	ELLE	02/18/24 23:30
Dissolved	Analysis	200.7 Rev 4.4		1	474669	MT26	ELLE	02/19/24 10:53
Dissolved	Analysis	2340B-2011		1	473485	USJM	ELLE	02/19/24 04:54
Total/NA	Analysis	2540C - 2015		1	474480	M98K	ELLE	02/19/24 06:44 - 02/20/24 09:54 [1]
Total/NA	Analysis	353.2		1	475142	Q3HN	ELLE	02/20/24 11:20

Client Sample ID: UO-91-19.2_20240215_N_WG — Lab Sample ID: 410-161096-4

Date Collected: 02/16/24 13:34 **Matrix: Water**
Date Received: 02/17/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	475253	L4QM	ELLE	02/21/24 06:05
Total/NA	Analysis	EPA 300.0 R2.1		50	475253	L4QM	ELLE	02/21/24 06:43
Dissolved	Prep	Non-Digest Prep			474433	UAMX	ELLE	02/18/24 23:30
Dissolved	Analysis	200.7 Rev 4.4		1	474669	MT26	ELLE	02/19/24 10:46
Dissolved	Analysis	2340B-2011		1	473485	USJM	ELLE	02/19/24 04:54
Total/NA	Analysis	2540C - 2015		1	474480	M98K	ELLE	02/19/24 06:44 - 02/20/24 09:54 [1]
Total/NA	Analysis	353.2		1	475142	Q3HN	ELLE	02/20/24 11:26

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-161096-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-161096-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00660	08-09-24

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

Analysis Method	Prep Method	Matrix	Analyte
2340B-2011		Water	Hardness as calcium carbonate

Method Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-161096-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
200.7 Rev 4.4	Metals (ICP)	EPA	ELLE
2340B-2011	Total Hardness (as CaCO3) by calculation	SM	ELLE
2540C - 2015	Total Dissolved Solids (Dried at 180 °C)	SM	ELLE
353.2	Nitrogen, Nitrate-Nitrite	EPA	ELLE
Non-Digest Prep	Preparation, Non-Digested Aqueous Metals	EPA	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-161096-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-161096-1	UO-91-17.1A_20240215_N_WG	Water	02/15/24 10:35	02/17/24 09:25
410-161096-2	UO-91-17.1B_20240215_N_WG	Water	02/15/24 11:03	02/17/24 09:25
410-161096-3	UO-91-17.2_20240215_N_WG	Water	02/15/24 11:22	02/17/24 09:25
410-161096-4	UO-91-19.2_20240215_N_WG	Water	02/16/24 13:34	02/17/24 09:25

Jacobs

410-161096 Chain of Custody

ANALYSIS REQUEST | **COC No: EuroFins Lan-45338580** | **Cooler No. of**

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 7
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number** 4508165277
Project Chemist Mark Stinnett 352-359-5937	**Shipping Company / Airbill No.** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 02/16/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Filtered	Preserve	Analysis: Chloride and Sulfate - E300.0	Hardness - SM2340B	Nitrate-Nitrite - E353.2	TDS - SM2540C	ssolved Metals - E200.7 (Ca Mg Na V)
											Yes	HNO3	H2SO4	
UO-91-17.1A_20240215_N_WG	UO-91-17.1A	WG	G		02/15/2024 10:35	4				X	X	X	X	X
UO-91-17.1B_20240215_N_WG	UO-91-17.1B	WG	G		02/15/2024 11:03	4				X	X	X	X	X
UO-91-17.2_20240215_N_WG	UO-91-17.2	WG	G		02/15/2024 11:22	4				X	X	X	X	X
UO-91-19.2_20240216_N_WG	UO-91-19.2	WG	G		02/16/2024 13:34	4				X	X	X	X	X

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	Jordan Carnahan	02-16-24 1730		
			ELLET	2/17/24 09:25
	SHIPPING METHOD: (mark as appropriate)		SAMPLER NAME AND SIGNATURE	Date Time
Email Report To :				
Email Invoice To : Mark.Stinnett@jacobs.com, Dow_Umetco@jacobs.com				

R:0.4 C:0.4

Login Sample Receipt Checklist

Client: Jacobs Engineering Group, Inc.

Job Number: 410-161096-1

Login Number: 161096

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Santiago, Nathaniel

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

eurofins | Environment Testing

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

ANALYTICAL REPORT

PREPARED FOR

Attn: Mark Stinnett
Jacobs Engineering Group, Inc.
3011 SW Willston Road
Gainesville, Florida 32608-3964

Generated 2/23/2024 5:01:54 PM

JOB DESCRIPTION

Umetco Hot Springs- UMP Quarterly GW Sampling

JOB NUMBER

410-161192-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

my EOL

Job Notes

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

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



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Authorized for release by
Stephen Gordon, Senior Project Manager
Stephen.Gordon@et.eurofinsus.com
Designee for
Natalie Luciano, Principal Project Manager
Natalie.Luciano@et.eurofinsus.com
(717)556-7258

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is 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.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

This report shall not be reproduced except in full, without the written approval of the laboratory.

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Definitions/Glossary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-161192-1
Project/Site: Umetco Hot Springs- UMP Quarterly GW Sampling

Qualifiers

HPLC/IC

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.
U	Indicates the analyte was analyzed for but not detected.

Metals

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Job ID: 410-161192-1 Eurofins Lancaster Laboratories Environment

Job Narrative
410-161192-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

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

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

Receipt
The samples were received on 2/20/2024 9:55 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.4°C.

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

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

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

Detection Summary

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs- UMP Quarterly GW Sampling

Job ID: 410-161192-1

Client Sample ID: UO-87-08.1_20240219_N_WG — Lab Sample ID: 410-161192-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	7.2	J	7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Calcium	1.5		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	1.1		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	4.7		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	8.3		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	32		30	12	mg/L	1		2540C - 2015	Total/NA
Nitrate Nitrite as N	1.8		0.10	0.040	mg/L	1		353.2	Total/NA

Client Sample ID: UO-87-08.2_20240219_N_WG — Lab Sample ID: 410-161192-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	3.6	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	4.7	J	7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Calcium	15		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	4.4		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	12		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	55		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	100		30	12	mg/L	1		2540C - 2015	Total/NA
Nitrate Nitrite as N	0.17		0.10	0.040	mg/L	1		353.2	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: UO-87-08.1_20240219_N_WG
Lab Sample ID: 410-161192-1
Date Collected: 02/19/24 10:30
Matrix: Water
Date Received: 02/20/24 09:55

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.5	U	7.5	2.5	mg/L			02/21/24 19:04	5
Chloride	**7.2**	**J**	7.5	3.0	mg/L			02/21/24 19:04	5

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**1.5**		0.52	0.24	mg/L		02/20/24 23:20	02/21/24 11:09	1
Magnesium	**1.1**		0.21	0.082	mg/L		02/20/24 23:20	02/21/24 11:09	1
Sodium	**4.7**		1.0	0.41	mg/L		02/20/24 23:20	02/21/24 11:09	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/20/24 23:20	02/21/24 11:09	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**8.3**		0.91	0.41	mg/L			02/21/24 04:05	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	**32**		30	12	mg/L			02/21/24 06:30	1
Nitrate Nitrite as N (EPA 353.2)	**1.8**		0.10	0.040	mg/L			02/21/24 10:21	1

Client Sample ID: UO-87-08.2_20240219_N_WG
Lab Sample ID: 410-161192-2
Date Collected: 02/19/24 11:00
Matrix: Water
Date Received: 02/20/24 09:55

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**3.6**	**J**	7.5	2.5	mg/L			02/21/24 19:29	5
Chloride	**4.7**	**J**	7.5	3.0	mg/L			02/21/24 19:29	5

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**15**		0.52	0.24	mg/L		02/20/24 23:20	02/21/24 10:39	1
Magnesium	**4.4**		0.21	0.082	mg/L		02/20/24 23:20	02/21/24 10:39	1
Sodium	**12**		1.0	0.41	mg/L		02/20/24 23:20	02/21/24 10:39	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/20/24 23:20	02/21/24 10:39	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**55**		0.91	0.41	mg/L			02/21/24 04:05	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	**100**		30	12	mg/L			02/21/24 06:30	1
Nitrate Nitrite as N (EPA 353.2)	**0.17**		0.10	0.040	mg/L			02/21/24 10:23	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-475286/5
Matrix: Water
Analysis Batch: 475286

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			02/21/24 14:36	1
Chloride	0.60	U	1.5	0.60	mg/L			02/21/24 14:36	1

Lab Sample ID: LCS 410-475286/3
Matrix: Water
Analysis Batch: 475286

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.08		mg/L		94	90 - 110
Chloride	3.00	2.89		mg/L		96	90 - 110

Lab Sample ID: LCSD 410-475286/4
Matrix: Water
Analysis Batch: 475286

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	7.50	7.08		mg/L		94	90 - 110	0	20
Chloride	3.00	2.89		mg/L		96	90 - 110	0	20

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 410-475299/1-A
Matrix: Water
Analysis Batch: 475617

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 475299

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	0.24	U	0.52	0.24	mg/L		02/20/24 23:20	02/21/24 10:33	1
Magnesium	0.082	U	0.21	0.082	mg/L		02/20/24 23:20	02/21/24 10:33	1
Sodium	0.41	U	1.0	0.41	mg/L		02/20/24 23:20	02/21/24 10:33	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/20/24 23:20	02/21/24 10:33	1

Lab Sample ID: LCS 410-475299/2-A
Matrix: Water
Analysis Batch: 475617

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 475299

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	5.00	5.04		mg/L		101	85 - 115
Magnesium	5.00	5.06		mg/L		101	85 - 115
Sodium	5.00	5.01		mg/L		100	85 - 115
Vanadium	0.500	0.511		mg/L		102	85 - 115

Lab Sample ID: 410-161192-2 MS
Matrix: Water
Analysis Batch: 475617

Client Sample ID: UO-87-08.2_20240219_N_WG
Prep Type: Dissolved
Prep Batch: 475299

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	15		5.00	19.3		mg/L		94	70 - 130
Magnesium	4.4		5.00	9.30		mg/L		98	70 - 130
Sodium	12		5.00	16.4		mg/L		96	70 - 130

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: 410-161192-2 MS
Matrix: Water
Analysis Batch: 475617

Client Sample ID: UO-87-08.2_20240219_N_WG
Prep Type: Dissolved
Prep Batch: 475299

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Vanadium	0.0020	U	0.500	0.517		mg/L		103	70 - 130

Lab Sample ID: 410-161192-2 MSD
Matrix: Water
Analysis Batch: 475617

Client Sample ID: UO-87-08.2_20240219_N_WG
Prep Type: Dissolved
Prep Batch: 475299

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	15		5.00	19.4		mg/L		95	70 - 130	0	20
Magnesium	4.4		5.00	9.35		mg/L		99	70 - 130	1	20
Sodium	12		5.00	16.4		mg/L		97	70 - 130	0	20
Vanadium	0.0020	U	0.500	0.517		mg/L		103	70 - 130	0	20

Lab Sample ID: 410-161192-2 DU
Matrix: Water
Analysis Batch: 475617

Client Sample ID: UO-87-08.2_20240219_N_WG
Prep Type: Dissolved
Prep Batch: 475299

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Calcium	15		14.3		mg/L		2	20
Magnesium	4.4		4.26		mg/L		3	20
Sodium	12		11.3		mg/L		2	20
Vanadium	0.0020	U	0.0020	U	mg/L		NC	20

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 410-475337/1
Matrix: Water
Analysis Batch: 475337

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	12	U	30	12	mg/L			02/21/24 06:30	1

Lab Sample ID: LCS 410-475337/2
Matrix: Water
Analysis Batch: 475337

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	200	192		mg/L		96	90 - 110

Lab Sample ID: LCSD 410-475337/3
Matrix: Water
Analysis Batch: 475337

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	200	196		mg/L		98	90 - 110	2	10

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs- UMP Quarterly GW Sampling

Job ID: 410-161192-1

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 410-475614/21
Matrix: Water
Analysis Batch: 475614

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.040	U	0.10	0.040	mg/L			02/21/24 09:59	1

Lab Sample ID: LCS 410-475614/19
Matrix: Water
Analysis Batch: 475614

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate Nitrite as N	2.00	1.96		mg/L		98	90 - 110

Lab Sample ID: LCSD 410-475614/20
Matrix: Water
Analysis Batch: 475614

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrate Nitrite as N	2.00	2.09		mg/L		104	90 - 110	6	20

QC Association Summary

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs- UMP Quarterly GW Sampling

Job ID: 410-161192-1

HPLC/IC

Analysis Batch: 475286

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-161192-1	UO-87-08.1_20240219_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-161192-2	UO-87-08.2_20240219_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-475286/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-475286/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-475286/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Metals

Analysis Batch: 473485

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-161192-1	UO-87-08.1_20240219_N_WG	Dissolved	Water	2340B-2011	
410-161192-2	UO-87-08.2_20240219_N_WG	Dissolved	Water	2340B-2011	

Prep Batch: 475299

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-161192-1	UO-87-08.1_20240219_N_WG	Dissolved	Water	Non-Digest Prep	
410-161192-2	UO-87-08.2_20240219_N_WG	Dissolved	Water	Non-Digest Prep	
MB 410-475299/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-475299/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	
410-161192-2 MS	UO-87-08.2_20240219_N_WG	Dissolved	Water	Non-Digest Prep	
410-161192-2 MSD	UO-87-08.2_20240219_N_WG	Dissolved	Water	Non-Digest Prep	
410-161192-2 DU	UO-87-08.2_20240219_N_WG	Dissolved	Water	Non-Digest Prep	

Analysis Batch: 475617

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-161192-1	UO-87-08.1_20240219_N_WG	Dissolved	Water	200.7 Rev 4.4	475299
410-161192-2	UO-87-08.2_20240219_N_WG	Dissolved	Water	200.7 Rev 4.4	475299
MB 410-475299/1-A	Method Blank	Total/NA	Water	200.7 Rev 4.4	475299
LCS 410-475299/2-A	Lab Control Sample	Total/NA	Water	200.7 Rev 4.4	475299
410-161192-2 MS	UO-87-08.2_20240219_N_WG	Dissolved	Water	200.7 Rev 4.4	475299
410-161192-2 MSD	UO-87-08.2_20240219_N_WG	Dissolved	Water	200.7 Rev 4.4	475299
410-161192-2 DU	UO-87-08.2_20240219_N_WG	Dissolved	Water	200.7 Rev 4.4	475299

General Chemistry

Analysis Batch: 475337

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-161192-1	UO-87-08.1_20240219_N_WG	Total/NA	Water	2540C - 2015	
410-161192-2	UO-87-08.2_20240219_N_WG	Total/NA	Water	2540C - 2015	
MB 410-475337/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-475337/2	Lab Control Sample	Total/NA	Water	2540C - 2015	
LCSD 410-475337/3	Lab Control Sample Dup	Total/NA	Water	2540C - 2015	

Analysis Batch: 475614

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-161192-1	UO-87-08.1_20240219_N_WG	Total/NA	Water	353.2	
410-161192-2	UO-87-08.2_20240219_N_WG	Total/NA	Water	353.2	
MB 410-475614/21	Method Blank	Total/NA	Water	353.2	
LCS 410-475614/19	Lab Control Sample	Total/NA	Water	353.2	
LCSD 410-475614/20	Lab Control Sample Dup	Total/NA	Water	353.2	

Lab Chronicle

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs- UMP Quarterly GW Sampling

Job ID: 410-161192-1

Client Sample ID: UO-87-08.1_20240219_N_WG

Lab Sample ID: 410-161192-1
Date Collected: 02/19/24 10:30
Matrix: Water
Date Received: 02/20/24 09:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	475286	W7FX	ELLE	02/21/24 19:04
Dissolved	Prep	Non-Digest Prep			475299	UAMX	ELLE	02/20/24 23:20
Dissolved	Analysis	200.7 Rev 4.4		1	475617	MT26	ELLE	02/21/24 11:09
Dissolved	Analysis	2340B-2011		1	473485	USJM	ELLE	02/21/24 04:05
Total/NA	Analysis	2540C - 2015		1	475337	M98K	ELLE	02/21/24 06:30 - 02/23/24 08:10 [1]
Total/NA	Analysis	353.2		1	475614	Q3HN	ELLE	02/21/24 10:21

Client Sample ID: UO-87-08.2_20240219_N_WG

Lab Sample ID: 410-161192-2
Date Collected: 02/19/24 11:00
Matrix: Water
Date Received: 02/20/24 09:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	475286	W7FX	ELLE	02/21/24 19:29
Dissolved	Prep	Non-Digest Prep			475299	UAMX	ELLE	02/20/24 23:20
Dissolved	Analysis	200.7 Rev 4.4		1	475617	MT26	ELLE	02/21/24 10:39
Dissolved	Analysis	2340B-2011		1	473485	USJM	ELLE	02/21/24 04:05
Total/NA	Analysis	2540C - 2015		1	475337	M98K	ELLE	02/21/24 06:30 - 02/23/24 08:10 [1]
Total/NA	Analysis	353.2		1	475614	Q3HN	ELLE	02/21/24 10:23

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-161192-1
Project/Site: Umetco Hot Springs- UMP Quarterly GW Sampling

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00660	08-09-24

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

Analysis Method	Prep Method	Matrix	Analyte
2340B-2011		Water	Hardness as calcium carbonate

Method Summary

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs- UMP Quarterly GW Sampling

Job ID: 410-161192-1

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
200.7 Rev 4.4	Metals (ICP)	EPA	ELLE
2340B-2011	Total Hardness (as CaCO3) by calculation	SM	ELLE
2540C - 2015	Total Dissolved Solids (Dried at 180 °C)	SM	ELLE
353.2	Nitrogen, Nitrate-Nitrite	EPA	ELLE
Non-Digest Prep	Preparation, Non-Digested Aqueous Metals	EPA	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-161192-1
Project/Site: Umetco Hot Springs- UMP Quarterly GW Sampling

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-161192-1	UO-87-08.1_20240219_N_WG	Water	02/19/24 10:30	02/20/24 09:55
410-161192-2	UO-87-08.2_20240219_N_WG	Water	02/19/24 11:00	02/20/24 09:55

Jacobs

410-161192 Chain of Custody

: ANALYSIS REQUEST

COC No: EuroFins Lan-45341463

Cooler No. of

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 7
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number** 4508165277
Project Chemist Mark Stinnett 352-359-5937	**Shipping Company / Airbill No.** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 02/19/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Analysis: Chloride and Sulfate - E300.0	Hardness - SM2340B	Nitrate-Nitrite - E353.2	TDS - SM2540C	ssolved Metals - E200.7 (Ca Mg Na V)	Filtered: Yes	Preserve: HNO3	Preserve: H2SO4
UO-87-08.1_20240219_N_WG	UO-87-08.1	WG	G		02/19/2024 10:30	4		X	X	X	X	X			
UO-87-08.2_20240219_N_WG	UO-87-08.2	WG	G		02/19/2024 11:00	4		X	X	X	X	X			

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	[signature]	2/19/24 1700	[signature]	
	[signature]		[signature]	2/20/24 0965
	SHIPPING METHOD: (mark as appropriate)		SAMPLER NAME AND SIGNATURE	Date Time
Email Report To :				
Email Invoice To : Mark.Stinnett@jacobs.com, Dow_Umetco@jacobs.com				

R: 0.4 C: 0.4

Login Sample Receipt Checklist

Client: Jacobs Engineering Group, Inc. Job Number: 410-161192-1

Login Number: 161192 **List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**
List Number: 1
Creator: Santiago, Nathaniel

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

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

ANALYTICAL REPORT

PREPARED FOR

Attn: Mark Stinnett
Jacobs Engineering Group, Inc.
3011 SW Willston Road
Gainesville, Florida 32608-3964

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JOB DESCRIPTION

Umetco Hot Springs-UMP Quarterly GW Sampling

JOB NUMBER

410-161616-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

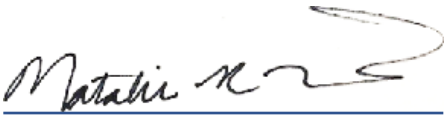
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Job Notes

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.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



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Authorized for release by
Natalie Luciano, Principal Project Manager
Natalie.Luciano@et.eurofinsus.com
(717)556-7258

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is 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.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

This report shall not be reproduced except in full, without the written approval of the laboratory.

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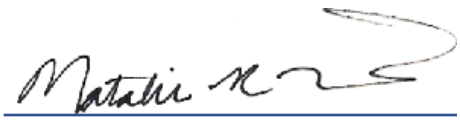


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Definitions/Glossary

Client: Jacobs Engineering Group, Inc. Job ID: 410-161616-1
Project/Site: Umetco Hot Springs-UMP Quarterly GW Sampling

Qualifiers

HPLC/IC

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.
U	Indicates the analyte was analyzed for but not detected.

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.
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Job ID: 410-161616-1 Eurofins Lancaster Laboratories Environment

Job Narrative
410-161616-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

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

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

Receipt
The samples were received on 2/23/2024 10:20 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.5°C.

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

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

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

Detection Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-161616-1
Project/Site: Umetco Hot Springs-UMP Quarterly GW Sampling

Client Sample ID: UO-87-02.1A_20240220_N_WG — Lab Sample ID: 410-161616-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	180		75	25	mg/L	50		EPA 300.0 R2.1	Total/NA
Chloride	370		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Calcium	40		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	11		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	200		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	150		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	830		60	24	mg/L	1		2540C - 2015	Total/NA
Nitrate Nitrite as N	4.2		0.50	0.20	mg/L	5		353.2	Total/NA

Client Sample ID: UO-87-02.1B_20240220_N_WG — Lab Sample ID: 410-161616-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	150		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	230		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Calcium	56		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	10		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	180		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	180		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	550		60	24	mg/L	1		2540C - 2015	Total/NA
Nitrate Nitrite as N	0.23		0.10	0.040	mg/L	1		353.2	Total/NA

Client Sample ID: UO-88-02.2_20240220_N_WG — Lab Sample ID: 410-161616-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	300		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Calcium	51		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	15		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	160		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	190		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	490		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-88-11.2_20240220_N_WG — Lab Sample ID: 410-161616-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	6.7	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	22		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Calcium	32		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	4.7		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	11		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	99		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	150		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-88-15.1_20240221_N_WG — Lab Sample ID: 410-161616-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	140		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	28		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Calcium	4.8		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	3.2		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	70		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	25		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	270		30	12	mg/L	1		2540C - 2015	Total/NA
Nitrate Nitrite as N	1.0		0.10	0.040	mg/L	1		353.2	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-161616-1
Project/Site: Umetco Hot Springs-UMP Quarterly GW Sampling

Client Sample ID: UO-88-15.2_20240221_FD_WG
Lab Sample ID: 410-161616-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	16		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	160		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Calcium	51		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	22		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	26		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	220		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	340		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-88-15.2_20240221_N_WG
Lab Sample ID: 410-161616-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	16		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	150		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Calcium	50		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	22		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	26		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	210		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	340		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-88-14.1_20240222_N_WG
Lab Sample ID: 410-161616-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	77		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	11		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Calcium	15		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	1.7		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	22		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Vanadium	0.10		0.010	0.0020	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	46		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	140		30	12	mg/L	1		2540C - 2015	Total/NA
Nitrate Nitrite as N	0.69		0.10	0.040	mg/L	1		353.2	Total/NA

Client Sample ID: UO-88-14.2_20240222_N_WG
Lab Sample ID: 410-161616-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	46		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	210		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Calcium	92		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	30		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	21		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	350		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	520		60	24	mg/L	1		2540C - 2015	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: UO-87-02.1A_20240220_N_WG

Lab Sample ID: 410-161616-1

Date Collected: 02/20/24 09:23

Matrix: Water

Date Received: 02/23/24 10:20

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	180		75	25	mg/L			02/24/24 16:20	50
Chloride	370		75	30	mg/L			02/24/24 16:20	50

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	40		0.52	0.24	mg/L		02/25/24 23:30	02/26/24 18:58	1
Magnesium	11		0.21	0.082	mg/L		02/25/24 23:30	02/26/24 18:58	1
Sodium	200		1.0	0.41	mg/L		02/25/24 23:30	02/26/24 18:58	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/25/24 23:30	02/26/24 18:58	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	150		0.91	0.41	mg/L			02/26/24 04:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	830		60	24	mg/L			02/23/24 10:43	1
Nitrate Nitrite as N (EPA 353.2)	4.2		0.50	0.20	mg/L			02/24/24 13:18	5

Client Sample ID: UO-87-02.1B_20240220_N_WG

Lab Sample ID: 410-161616-2

Date Collected: 02/20/24 10:46

Matrix: Water

Date Received: 02/23/24 10:20

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	150		7.5	2.5	mg/L			02/24/24 16:57	5
Chloride	230		75	30	mg/L			02/24/24 17:10	50

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	56		0.52	0.24	mg/L		02/25/24 23:30	02/26/24 19:01	1
Magnesium	10		0.21	0.082	mg/L		02/25/24 23:30	02/26/24 19:01	1
Sodium	180		1.0	0.41	mg/L		02/25/24 23:30	02/26/24 19:01	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/25/24 23:30	02/26/24 19:01	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	180		0.91	0.41	mg/L			02/26/24 04:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	550		60	24	mg/L			02/23/24 10:43	1
Nitrate Nitrite as N (EPA 353.2)	0.23		0.10	0.040	mg/L			02/24/24 13:20	1

Client Sample ID: UO-88-02.2_20240220_N_WG — Lab Sample ID: 410-161616-3

Date Collected: 02/20/24 11:09 — **Matrix: Water**
Date Received: 02/23/24 10:20

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.5	U	7.5	2.5	mg/L			02/24/24 17:22	5
Chloride	**300**		75	30	mg/L			02/24/24 17:35	50

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**51**		0.52	0.24	mg/L		02/25/24 23:30	02/26/24 18:51	1
Magnesium	**15**		0.21	0.082	mg/L		02/25/24 23:30	02/26/24 18:51	1
Sodium	**160**		1.0	0.41	mg/L		02/25/24 23:30	02/26/24 18:51	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/25/24 23:30	02/26/24 18:51	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**190**		0.91	0.41	mg/L			02/26/24 04:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	**490**		60	24	mg/L			02/23/24 12:32	1
Nitrate Nitrite as N (EPA 353.2)	0.040	U	0.10	0.040	mg/L			02/24/24 13:22	1

Client Sample ID: UO-88-11.2_20240220_N_WG — Lab Sample ID: 410-161616-4

Date Collected: 02/20/24 12:11 — **Matrix: Water**
Date Received: 02/23/24 10:20

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**6.7**	**J**	7.5	2.5	mg/L			02/24/24 17:47	5
Chloride	**22**		7.5	3.0	mg/L			02/24/24 17:47	5

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**32**		0.52	0.24	mg/L		02/25/24 23:30	02/26/24 18:48	1
Magnesium	**4.7**		0.21	0.082	mg/L		02/25/24 23:30	02/26/24 18:48	1
Sodium	**11**		1.0	0.41	mg/L		02/25/24 23:30	02/26/24 18:48	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/25/24 23:30	02/26/24 18:48	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**99**		0.91	0.41	mg/L			02/26/24 04:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	**150**		30	12	mg/L			02/23/24 10:43	1
Nitrate Nitrite as N (EPA 353.2)	0.040	U	0.10	0.040	mg/L			02/24/24 13:24	1

Client Sample ID: UO-88-15.1_20240221_N_WG — Lab Sample ID: 410-161616-5

Date Collected: 02/21/24 11:01 **Matrix: Water**
Date Received: 02/23/24 10:20

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	140		7.5	2.5	mg/L			02/24/24 18:12	5
Chloride	28		7.5	3.0	mg/L			02/24/24 18:12	5

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	4.8		0.52	0.24	mg/L		02/25/24 23:30	02/26/24 18:54	1
Magnesium	3.2		0.21	0.082	mg/L		02/25/24 23:30	02/26/24 18:54	1
Sodium	70		1.0	0.41	mg/L		02/25/24 23:30	02/26/24 18:54	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/25/24 23:30	02/26/24 18:54	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	25		0.91	0.41	mg/L			02/26/24 04:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	270		30	12	mg/L			02/26/24 08:01	1
Nitrate Nitrite as N (EPA 353.2)	1.0		0.10	0.040	mg/L			02/24/24 13:42	1

Client Sample ID: UO-88-15.2_20240221_FD_WG — Lab Sample ID: 410-161616-6

Date Collected: 02/21/24 12:17 **Matrix: Water**
Date Received: 02/23/24 10:20

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	16		7.5	2.5	mg/L			02/24/24 18:37	5
Chloride	160		75	30	mg/L			02/24/24 18:50	50

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	51		0.52	0.24	mg/L		02/25/24 23:30	02/26/24 18:20	1
Magnesium	22		0.21	0.082	mg/L		02/25/24 23:30	02/26/24 18:20	1
Sodium	26		1.0	0.41	mg/L		02/25/24 23:30	02/26/24 18:20	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/25/24 23:30	02/26/24 18:20	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	220		0.91	0.41	mg/L			02/26/24 04:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	340		60	24	mg/L			02/26/24 08:01	1
Nitrate Nitrite as N (EPA 353.2)	0.040	U	0.10	0.040	mg/L			02/24/24 13:36	1

Client Sample ID: UO-88-15.2_20240221_N_WG — Lab Sample ID: 410-161616-7

Date Collected: 02/21/24 12:17 **Matrix: Water**
Date Received: 02/23/24 10:20

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	16		7.5	2.5	mg/L			02/24/24 19:27	5
Chloride	150		75	30	mg/L			02/24/24 19:40	50

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	50		0.52	0.24	mg/L		02/25/24 23:30	02/26/24 19:10	1
Magnesium	22		0.21	0.082	mg/L		02/25/24 23:30	02/26/24 19:10	1
Sodium	26		1.0	0.41	mg/L		02/25/24 23:30	02/26/24 19:10	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/25/24 23:30	02/26/24 19:10	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	210		0.91	0.41	mg/L			02/26/24 04:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	340		60	24	mg/L			02/26/24 08:01	1
Nitrate Nitrite as N (EPA 353.2)	0.040	U	0.10	0.040	mg/L			02/24/24 13:44	1

Client Sample ID: UO-88-14.1_20240222_N_WG — Lab Sample ID: 410-161616-8

Date Collected: 02/22/24 11:54 **Matrix: Water**
Date Received: 02/23/24 10:20

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	77		7.5	2.5	mg/L			02/24/24 19:53	5
Chloride	11		7.5	3.0	mg/L			02/24/24 19:53	5

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	15		0.52	0.24	mg/L		02/25/24 23:30	02/26/24 19:07	1
Magnesium	1.7		0.21	0.082	mg/L		02/25/24 23:30	02/26/24 19:07	1
Sodium	22		1.0	0.41	mg/L		02/25/24 23:30	02/26/24 19:07	1
Vanadium	0.10		0.010	0.0020	mg/L		02/25/24 23:30	02/26/24 19:07	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	46		0.91	0.41	mg/L			02/26/24 04:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	140		30	12	mg/L			02/26/24 08:01	1
Nitrate Nitrite as N (EPA 353.2)	0.69		0.10	0.040	mg/L			02/24/24 13:46	1

Client: Jacobs Engineering Group, Inc. Job ID: 410-161616-1
Project/Site: Umetco Hot Springs-UMP Quarterly GW Sampling

Client Sample ID: UO-88-14.2_20240222_N_WG **Lab Sample ID: 410-161616-9**
Date Collected: 02/22/24 13:30 **Matrix: Water**
Date Received: 02/23/24 10:20

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**46**		7.5	2.5	mg/L			02/24/24 20:18	5
Chloride	**210**		75	30	mg/L			02/24/24 20:30	50

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**92**		0.52	0.24	mg/L		02/25/24 23:30	02/26/24 19:04	1
Magnesium	**30**		0.21	0.082	mg/L		02/25/24 23:30	02/26/24 19:04	1
Sodium	**21**		1.0	0.41	mg/L		02/25/24 23:30	02/26/24 19:04	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/25/24 23:30	02/26/24 19:04	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**350**		0.91	0.41	mg/L			02/26/24 04:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	**520**		60	24	mg/L			02/26/24 08:01	1
Nitrate Nitrite as N (EPA 353.2)	0.040	U	0.10	0.040	mg/L			02/24/24 13:48	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-476656/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 476656

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			02/24/24 13:40	1
Chloride	0.60	U	1.5	0.60	mg/L			02/24/24 13:40	1

Lab Sample ID: LCS 410-476656/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 476656

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.05		mg/L		94	90 - 110
Chloride	3.00	2.78		mg/L		93	90 - 110

Lab Sample ID: LCSD 410-476656/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 476656

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.50	7.05		mg/L		94	90 - 110	0	20
Chloride	3.00	2.78		mg/L		93	90 - 110	0	20

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 410-476737/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 477172 — **Prep Batch: 476737**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	0.24	U	0.52	0.24	mg/L		02/25/24 23:30	02/26/24 18:14	1
Magnesium	0.082	U	0.21	0.082	mg/L		02/25/24 23:30	02/26/24 18:14	1
Sodium	0.41	U	1.0	0.41	mg/L		02/25/24 23:30	02/26/24 18:14	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/25/24 23:30	02/26/24 18:14	1

Lab Sample ID: LCS 410-476737/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 477172 — **Prep Batch: 476737**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	5.00	5.04		mg/L		101	85 - 115
Magnesium	5.00	5.04		mg/L		101	85 - 115
Sodium	5.00	5.11		mg/L		102	85 - 115
Vanadium	0.500	0.506		mg/L		101	85 - 115

Lab Sample ID: 410-161616-6 MS — **Client Sample ID: UO-88-15.2_20240221_FD_WG**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 477172 — **Prep Batch: 476737**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	51		5.00	55.8	4	mg/L		105	70 - 130
Magnesium	22		5.00	27.1	4	mg/L		106	70 - 130
Sodium	26		5.00	31.4	4	mg/L		105	70 - 130
Vanadium	0.0020	U	0.500	0.512		mg/L		102	70 - 130

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: 410-161616-6 MSD **Client Sample ID: UO-88-15.2_20240221_FD_WG**
Matrix: Water **Prep Type: Dissolved**
Analysis Batch: 477172 **Prep Batch: 476737**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	51		5.00	55.6	4	mg/L		101	70 - 130	0	20
Magnesium	22		5.00	27.0	4	mg/L		104	70 - 130	0	20
Sodium	26		5.00	31.4	4	mg/L		105	70 - 130	0	20
Vanadium	0.0020	U	0.500	0.507		mg/L		101	70 - 130	1	20

Lab Sample ID: 410-161616-6 DU **Client Sample ID: UO-88-15.2_20240221_FD_WG**
Matrix: Water **Prep Type: Dissolved**
Analysis Batch: 477172 **Prep Batch: 476737**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Calcium	51		50.5		mg/L		0.2	20
Magnesium	22		21.9		mg/L		0.5	20
Sodium	26		26.3		mg/L		0.7	20
Vanadium	0.0020	U	0.0020	U	mg/L		NC	20

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 410-476248/1 **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 476248

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12	U	30	12	mg/L			02/23/24 06:41	1

Lab Sample ID: LCS 410-476248/2 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 476248

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	200	186		mg/L		93	90 - 110

Lab Sample ID: MB 410-477086/1 **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 477086

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12	U	30	12	mg/L			02/26/24 08:01	1

Lab Sample ID: LCS 410-477086/2 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 477086

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	200	220		mg/L		110	90 - 110

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C) (Continued)

Lab Sample ID: 410-161616-6 DU — **Client Sample ID: UO-88-15.2_20240221_FD_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 477086

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	340		347		mg/L		3	10

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 410-476654/120 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 476654

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.040	U	0.10	0.040	mg/L			02/24/24 12:28	1

Lab Sample ID: MB 410-476654/153 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 476654

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.040	U	0.10	0.040	mg/L			02/24/24 13:34	1

Lab Sample ID: LCS 410-476654/118 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 476654

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate Nitrite as N	2.00	1.88		mg/L		94	90 - 110

Lab Sample ID: LCS 410-476654/151 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 476654

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate Nitrite as N	2.00	1.80		mg/L		90	90 - 110

Lab Sample ID: LCSD 410-476654/119 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 476654

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrate Nitrite as N	2.00	1.90		mg/L		95	90 - 110	1	20

Lab Sample ID: LCSD 410-476654/152 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 476654

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrate Nitrite as N	2.00	1.85		mg/L		93	90 - 110	3	20

Method: 353.2 - Nitrogen, Nitrate-Nitrite (Continued)

Lab Sample ID: 410-161616-6 MS **Client Sample ID: UO-88-15.2_20240221_FD_WG**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 476654

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Nitrate Nitrite as N	0.040	U	1.00	1.05		mg/L		105	90 - 110		

Lab Sample ID: 410-161616-6 DU **Client Sample ID: UO-88-15.2_20240221_FD_WG**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 476654

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Nitrate Nitrite as N	0.040	U		0.040	U	mg/L				NC	10

HPLC/IC

Analysis Batch: 476656

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-161616-1	UO-87-02.1A_20240220_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-161616-2	UO-87-02.1B_20240220_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-161616-2	UO-87-02.1B_20240220_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-161616-3	UO-88-02.2_20240220_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-161616-3	UO-88-02.2_20240220_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-161616-4	UO-88-11.2_20240220_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-161616-5	UO-88-15.1_20240221_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-161616-6	UO-88-15.2_20240221_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
410-161616-6	UO-88-15.2_20240221_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
410-161616-7	UO-88-15.2_20240221_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-161616-7	UO-88-15.2_20240221_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-161616-8	UO-88-14.1_20240222_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-161616-9	UO-88-14.2_20240222_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-161616-9	UO-88-14.2_20240222_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-476656/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-476656/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-476656/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Metals

Analysis Batch: 476227

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-161616-1	UO-87-02.1A_20240220_N_WG	Dissolved	Water	2340B-2011	
410-161616-2	UO-87-02.1B_20240220_N_WG	Dissolved	Water	2340B-2011	
410-161616-3	UO-88-02.2_20240220_N_WG	Dissolved	Water	2340B-2011	
410-161616-4	UO-88-11.2_20240220_N_WG	Dissolved	Water	2340B-2011	
410-161616-5	UO-88-15.1_20240221_N_WG	Dissolved	Water	2340B-2011	
410-161616-6	UO-88-15.2_20240221_FD_WG	Dissolved	Water	2340B-2011	
410-161616-7	UO-88-15.2_20240221_N_WG	Dissolved	Water	2340B-2011	
410-161616-8	UO-88-14.1_20240222_N_WG	Dissolved	Water	2340B-2011	
410-161616-9	UO-88-14.2_20240222_N_WG	Dissolved	Water	2340B-2011	

Prep Batch: 476737

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-161616-1	UO-87-02.1A_20240220_N_WG	Dissolved	Water	Non-Digest Prep	
410-161616-2	UO-87-02.1B_20240220_N_WG	Dissolved	Water	Non-Digest Prep	
410-161616-3	UO-88-02.2_20240220_N_WG	Dissolved	Water	Non-Digest Prep	
410-161616-4	UO-88-11.2_20240220_N_WG	Dissolved	Water	Non-Digest Prep	
410-161616-5	UO-88-15.1_20240221_N_WG	Dissolved	Water	Non-Digest Prep	
410-161616-6	UO-88-15.2_20240221_FD_WG	Dissolved	Water	Non-Digest Prep	
410-161616-7	UO-88-15.2_20240221_N_WG	Dissolved	Water	Non-Digest Prep	
410-161616-8	UO-88-14.1_20240222_N_WG	Dissolved	Water	Non-Digest Prep	
410-161616-9	UO-88-14.2_20240222_N_WG	Dissolved	Water	Non-Digest Prep	
MB 410-476737/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-476737/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	
410-161616-6 MS	UO-88-15.2_20240221_FD_WG	Dissolved	Water	Non-Digest Prep	
410-161616-6 MSD	UO-88-15.2_20240221_FD_WG	Dissolved	Water	Non-Digest Prep	
410-161616-6 DU	UO-88-15.2_20240221_FD_WG	Dissolved	Water	Non-Digest Prep	

Metals

Analysis Batch: 477172

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-161616-1	UO-87-02.1A_20240220_N_WG	Dissolved	Water	200.7 Rev 4.4	476737
410-161616-2	UO-87-02.1B_20240220_N_WG	Dissolved	Water	200.7 Rev 4.4	476737
410-161616-3	UO-88-02.2_20240220_N_WG	Dissolved	Water	200.7 Rev 4.4	476737
410-161616-4	UO-88-11.2_20240220_N_WG	Dissolved	Water	200.7 Rev 4.4	476737
410-161616-5	UO-88-15.1_20240221_N_WG	Dissolved	Water	200.7 Rev 4.4	476737
410-161616-6	UO-88-15.2_20240221_FD_WG	Dissolved	Water	200.7 Rev 4.4	476737
410-161616-7	UO-88-15.2_20240221_N_WG	Dissolved	Water	200.7 Rev 4.4	476737
410-161616-8	UO-88-14.1_20240222_N_WG	Dissolved	Water	200.7 Rev 4.4	476737
410-161616-9	UO-88-14.2_20240222_N_WG	Dissolved	Water	200.7 Rev 4.4	476737
MB 410-476737/1-A	Method Blank	Total/NA	Water	200.7 Rev 4.4	476737
LCS 410-476737/2-A	Lab Control Sample	Total/NA	Water	200.7 Rev 4.4	476737
410-161616-6 MS	UO-88-15.2_20240221_FD_WG	Dissolved	Water	200.7 Rev 4.4	476737
410-161616-6 MSD	UO-88-15.2_20240221_FD_WG	Dissolved	Water	200.7 Rev 4.4	476737
410-161616-6 DU	UO-88-15.2_20240221_FD_WG	Dissolved	Water	200.7 Rev 4.4	476737

General Chemistry

Analysis Batch: 476248

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-161616-1	UO-87-02.1A_20240220_N_WG	Total/NA	Water	2540C - 2015	
410-161616-2	UO-87-02.1B_20240220_N_WG	Total/NA	Water	2540C - 2015	
410-161616-3	UO-88-02.2_20240220_N_WG	Total/NA	Water	2540C - 2015	
410-161616-4	UO-88-11.2_20240220_N_WG	Total/NA	Water	2540C - 2015	
MB 410-476248/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-476248/2	Lab Control Sample	Total/NA	Water	2540C - 2015	

Analysis Batch: 476654

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-161616-1	UO-87-02.1A_20240220_N_WG	Total/NA	Water	353.2	
410-161616-2	UO-87-02.1B_20240220_N_WG	Total/NA	Water	353.2	
410-161616-3	UO-88-02.2_20240220_N_WG	Total/NA	Water	353.2	
410-161616-4	UO-88-11.2_20240220_N_WG	Total/NA	Water	353.2	
410-161616-5	UO-88-15.1_20240221_N_WG	Total/NA	Water	353.2	
410-161616-6	UO-88-15.2_20240221_FD_WG	Total/NA	Water	353.2	
410-161616-7	UO-88-15.2_20240221_N_WG	Total/NA	Water	353.2	
410-161616-8	UO-88-14.1_20240222_N_WG	Total/NA	Water	353.2	
410-161616-9	UO-88-14.2_20240222_N_WG	Total/NA	Water	353.2	
MB 410-476654/120	Method Blank	Total/NA	Water	353.2	
MB 410-476654/153	Method Blank	Total/NA	Water	353.2	
LCS 410-476654/118	Lab Control Sample	Total/NA	Water	353.2	
LCS 410-476654/151	Lab Control Sample	Total/NA	Water	353.2	
LCSD 410-476654/119	Lab Control Sample Dup	Total/NA	Water	353.2	
LCSD 410-476654/152	Lab Control Sample Dup	Total/NA	Water	353.2	
410-161616-6 MS	UO-88-15.2_20240221_FD_WG	Total/NA	Water	353.2	
410-161616-6 DU	UO-88-15.2_20240221_FD_WG	Total/NA	Water	353.2	

Analysis Batch: 477086

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-161616-5	UO-88-15.1_20240221_N_WG	Total/NA	Water	2540C - 2015	
410-161616-6	UO-88-15.2_20240221_FD_WG	Total/NA	Water	2540C - 2015	
410-161616-7	UO-88-15.2_20240221_N_WG	Total/NA	Water	2540C - 2015	

General Chemistry (Continued)

Analysis Batch: 477086 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-161616-8	UO-88-14.1_20240222_N_WG	Total/NA	Water	2540C - 2015	
410-161616-9	UO-88-14.2_20240222_N_WG	Total/NA	Water	2540C - 2015	
MB 410-477086/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-477086/2	Lab Control Sample	Total/NA	Water	2540C - 2015	
410-161616-6 DU	UO-88-15.2_20240221_FD_WG	Total/NA	Water	2540C - 2015	

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-161616-1
Project/Site: Umetco Hot Springs-UMP Quarterly GW Sampling

Client Sample ID: UO-87-02.1A_20240220_N_WG — Lab Sample ID: 410-161616-1

Date Collected: 02/20/24 09:23 **Matrix: Water**
Date Received: 02/23/24 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		50	476656	W7FX	ELLE	02/24/24 16:20
Dissolved	Prep	Non-Digest Prep			476737	UAMX	ELLE	02/25/24 23:30
Dissolved	Analysis	200.7 Rev 4.4		1	477172	T8CQ	ELLE	02/26/24 18:58
Dissolved	Analysis	2340B-2011		1	476227	USJM	ELLE	02/26/24 04:20
Total/NA	Analysis	2540C - 2015		1	476248	M98K	ELLE	02/23/24 10:43 - 02/26/24 10:26 [1]
Total/NA	Analysis	353.2		5	476654	Q3HN	ELLE	02/24/24 13:18

Client Sample ID: UO-87-02.1B_20240220_N_WG — Lab Sample ID: 410-161616-2

Date Collected: 02/20/24 10:46 **Matrix: Water**
Date Received: 02/23/24 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	476656	W7FX	ELLE	02/24/24 16:57
Total/NA	Analysis	EPA 300.0 R2.1		50	476656	W7FX	ELLE	02/24/24 17:10
Dissolved	Prep	Non-Digest Prep			476737	UAMX	ELLE	02/25/24 23:30
Dissolved	Analysis	200.7 Rev 4.4		1	477172	T8CQ	ELLE	02/26/24 19:01
Dissolved	Analysis	2340B-2011		1	476227	USJM	ELLE	02/26/24 04:20
Total/NA	Analysis	2540C - 2015		1	476248	M98K	ELLE	02/23/24 10:43 - 02/26/24 10:26 [1]
Total/NA	Analysis	353.2		1	476654	Q3HN	ELLE	02/24/24 13:20

Client Sample ID: UO-88-02.2_20240220_N_WG — Lab Sample ID: 410-161616-3

Date Collected: 02/20/24 11:09 **Matrix: Water**
Date Received: 02/23/24 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	476656	W7FX	ELLE	02/24/24 17:22
Total/NA	Analysis	EPA 300.0 R2.1		50	476656	W7FX	ELLE	02/24/24 17:35
Dissolved	Prep	Non-Digest Prep			476737	UAMX	ELLE	02/25/24 23:30
Dissolved	Analysis	200.7 Rev 4.4		1	477172	T8CQ	ELLE	02/26/24 18:51
Dissolved	Analysis	2340B-2011		1	476227	USJM	ELLE	02/26/24 04:20
Total/NA	Analysis	2540C - 2015		1	476248	M98K	ELLE	02/23/24 12:32 - 02/26/24 10:26 [1]
Total/NA	Analysis	353.2		1	476654	Q3HN	ELLE	02/24/24 13:22

Client Sample ID: UO-88-11.2_20240220_N_WG — Lab Sample ID: 410-161616-4

Date Collected: 02/20/24 12:11 **Matrix: Water**
Date Received: 02/23/24 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	476656	W7FX	ELLE	02/24/24 17:47
Dissolved	Prep	Non-Digest Prep			476737	UAMX	ELLE	02/25/24 23:30
Dissolved	Analysis	200.7 Rev 4.4		1	477172	T8CQ	ELLE	02/26/24 18:48
Dissolved	Analysis	2340B-2011		1	476227	USJM	ELLE	02/26/24 04:20
Total/NA	Analysis	2540C - 2015		1	476248	M98K	ELLE	02/23/24 10:43 - 02/26/24 10:26 [1]

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-161616-1
Project/Site: Umetco Hot Springs-UMP Quarterly GW Sampling

Client Sample ID: UO-88-11.2_20240220_N_WG — Lab Sample ID: 410-161616-4

Date Collected: 02/20/24 12:11 **Matrix: Water**
Date Received: 02/23/24 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	353.2		1	476654	Q3HN	ELLE	02/24/24 13:24

Client Sample ID: UO-88-15.1_20240221_N_WG — Lab Sample ID: 410-161616-5

Date Collected: 02/21/24 11:01 **Matrix: Water**
Date Received: 02/23/24 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	476656	W7FX	ELLE	02/24/24 18:12
Dissolved	Prep	Non-Digest Prep			476737	UAMX	ELLE	02/25/24 23:30
Dissolved	Analysis	200.7 Rev 4.4		1	477172	T8CQ	ELLE	02/26/24 18:54
Dissolved	Analysis	2340B-2011		1	476227	USJM	ELLE	02/26/24 04:20
Total/NA	Analysis	2540C - 2015		1	477086	UOCA	ELLE	02/26/24 08:01 - 02/27/24 20:17 [1]
Total/NA	Analysis	353.2		1	476654	Q3HN	ELLE	02/24/24 13:42

Client Sample ID: UO-88-15.2_20240221_FD_WG — Lab Sample ID: 410-161616-6

Date Collected: 02/21/24 12:17 **Matrix: Water**
Date Received: 02/23/24 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	476656	W7FX	ELLE	02/24/24 18:37
Total/NA	Analysis	EPA 300.0 R2.1		50	476656	W7FX	ELLE	02/24/24 18:50
Dissolved	Prep	Non-Digest Prep			476737	UAMX	ELLE	02/25/24 23:30
Dissolved	Analysis	200.7 Rev 4.4		1	477172	T8CQ	ELLE	02/26/24 18:20
Dissolved	Analysis	2340B-2011		1	476227	USJM	ELLE	02/26/24 04:20
Total/NA	Analysis	2540C - 2015		1	477086	UOCA	ELLE	02/26/24 08:01 - 02/27/24 20:17 [1]
Total/NA	Analysis	353.2		1	476654	Q3HN	ELLE	02/24/24 13:36

Client Sample ID: UO-88-15.2_20240221_N_WG — Lab Sample ID: 410-161616-7

Date Collected: 02/21/24 12:17 **Matrix: Water**
Date Received: 02/23/24 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	476656	W7FX	ELLE	02/24/24 19:27
Total/NA	Analysis	EPA 300.0 R2.1		50	476656	W7FX	ELLE	02/24/24 19:40
Dissolved	Prep	Non-Digest Prep			476737	UAMX	ELLE	02/25/24 23:30
Dissolved	Analysis	200.7 Rev 4.4		1	477172	T8CQ	ELLE	02/26/24 19:10
Dissolved	Analysis	2340B-2011		1	476227	USJM	ELLE	02/26/24 04:20
Total/NA	Analysis	2540C - 2015		1	477086	UOCA	ELLE	02/26/24 08:01 - 02/27/24 20:17 [1]
Total/NA	Analysis	353.2		1	476654	Q3HN	ELLE	02/24/24 13:44

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-161616-1
Project/Site: Umetco Hot Springs-UMP Quarterly GW Sampling

Client Sample ID: UO-88-14.1_20240222_N_WG — Lab Sample ID: 410-161616-8

Date Collected: 02/22/24 11:54 **Matrix: Water**
Date Received: 02/23/24 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	476656	W7FX	ELLE	02/24/24 19:53
Dissolved	Prep	Non-Digest Prep			476737	UAMX	ELLE	02/25/24 23:30
Dissolved	Analysis	200.7 Rev 4.4		1	477172	T8CQ	ELLE	02/26/24 19:07
Dissolved	Analysis	2340B-2011		1	476227	USJM	ELLE	02/26/24 04:20
Total/NA	Analysis	2540C - 2015		1	477086	UOCA	ELLE	02/26/24 08:01 - 02/27/24 20:17 [1]
Total/NA	Analysis	353.2		1	476654	Q3HN	ELLE	02/24/24 13:46

Client Sample ID: UO-88-14.2_20240222_N_WG — Lab Sample ID: 410-161616-9

Date Collected: 02/22/24 13:30 **Matrix: Water**
Date Received: 02/23/24 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	476656	W7FX	ELLE	02/24/24 20:18
Total/NA	Analysis	EPA 300.0 R2.1		50	476656	W7FX	ELLE	02/24/24 20:30
Dissolved	Prep	Non-Digest Prep			476737	UAMX	ELLE	02/25/24 23:30
Dissolved	Analysis	200.7 Rev 4.4		1	477172	T8CQ	ELLE	02/26/24 19:04
Dissolved	Analysis	2340B-2011		1	476227	USJM	ELLE	02/26/24 04:20
Total/NA	Analysis	2540C - 2015		1	477086	UOCA	ELLE	02/26/24 08:01 - 02/27/24 20:17 [1]
Total/NA	Analysis	353.2		1	476654	Q3HN	ELLE	02/24/24 13:48

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-161616-1
Project/Site: Umetco Hot Springs-UMP Quarterly GW Sampling

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00660	08-09-24

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

Analysis Method	Prep Method	Matrix	Analyte
2340B-2011		Water	Hardness as calcium carbonate

Method Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-161616-1
Project/Site: Umetco Hot Springs-UMP Quarterly GW Sampling

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
200.7 Rev 4.4	Metals (ICP)	EPA	ELLE
2340B-2011	Total Hardness (as CaCO3) by calculation	SM	ELLE
2540C - 2015	Total Dissolved Solids (Dried at 180 °C)	SM	ELLE
353.2	Nitrogen, Nitrate-Nitrite	EPA	ELLE
Non-Digest Prep	Preparation, Non-Digested Aqueous Metals	EPA	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-161616-1
Project/Site: Umetco Hot Springs-UMP Quarterly GW Sampling

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-161616-1	UO-87-02.1A_20240220_N_WG	Water	02/20/24 09:23	02/23/24 10:20
410-161616-2	UO-87-02.1B_20240220_N_WG	Water	02/20/24 10:46	02/23/24 10:20
410-161616-3	UO-88-02.2_20240220_N_WG	Water	02/20/24 11:09	02/23/24 10:20
410-161616-4	UO-88-11.2_20240220_N_WG	Water	02/20/24 12:11	02/23/24 10:20
410-161616-5	UO-88-15.1_20240221_N_WG	Water	02/21/24 11:01	02/23/24 10:20
410-161616-6	UO-88-15.2_20240221_FD_WG	Water	02/21/24 12:17	02/23/24 10:20
410-161616-7	UO-88-15.2_20240221_N_WG	Water	02/21/24 12:17	02/23/24 10:20
410-161616-8	UO-88-14.1_20240222_N_WG	Water	02/22/24 11:54	02/23/24 10:20
410-161616-9	UO-88-14.2_20240222_N_WG	Water	02/22/24 13:30	02/23/24 10:20

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410-161616 Chain of Custody

E ANALYSIS REQUEST

COC No: EuroFins Lan-45344633

Cooler No. of

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 7	Filtered	Yes
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster		
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano	Preserve	HNO3
Site ID UMP	**Lab Phone/Fax** 717.556.7258		H2SO4
Project Manager Charles Toburen 214-649-7412	**PO Number** 4508165277	Analysis	Chloride and Sulfate - E300.0
Project Chemist Mark Stinnett 352-359-5937	**Shipping Company / Airbill No.** UPS /		Hardness - SM2340B
Sampler Miguel Izquierdo	**Shipping Date** 02/22/2024		Nitrate-Nitrite - E353.2
			TDS - SM2540C
			ssolved Metals - E200.7 (Ca Mg Na V)

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments						
UO-87-02.1A_20240220_N_WG	UO-87-02.1A	WG	G		02/20/2024 09:23	4		X	X	X	X	X	
UO-87-02.1B_20240220_N_WG	UO-87-02.1B	WG	G		02/20/2024 10:46	4		X	X	X	X	X	
UO-88-02.2_20240220_N_WG	UO-88-02.2	WG	G		02/20/2024 11:09	4		X	X	X	X	X	
UO-88-11.2_20240220_N_WG	UO-88-11.2	WG	G		02/20/2024 12:11	4		X	X	X	X	X	
UO-88-15.1_20240221_N_WG	UO-88-15.1	WG	G		02/21/2024 11:01	4		X	X	X	X	X	
UO-88-15.2_20240221_FD_WG	UO-88-15.2	WG	G		02/21/2024 12:17	4		X	X	X	X	X	
UO-88-15.2_20240221_N_WG	UO-88-15.2	WG	G		02/21/2024 12:17	4		X	X	X	X	X	

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	Jordan Carnahan	02-22-24 1730	\	
	\		[signature] – ELUET	2/23/24 1020
	SHIPPING METHOD: (mark as appropriate)		SAMPLER NAME AND SIGNATURE	Date Time
Email Report To :				
Email Invoice To : Mark.Stinnett@jacobs.com, Dow_Umetco@jacobs.com				

R:1.9 C:1.5

2/28/2024

Jacobs

CHAIN OF CUSTODY / SAMPLE ANALYSIS REQUEST

COC No: EuroFins Lan-45344633

Cooler No. of

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 7
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number** 4508165277
Project Chemist Mark Stinnett 352-359-5937	**Shipping Company / Airbill No.** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 02/22/2024

								Filtered		Yes																					
								Preserve		HNO3	H2SO4																				
								Analysis	Chloride and Sulfate - E300.0	Hardness - SM2340B	Nitrate-Nitrite - E353.2	TDS - SM2540C	Dissolved Metals - E200.7 (Ca Mg Na V)																		
Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments																								
UO-88-14.1_20240222_N_WG	UO-88-14.1	WG	G		02/22/2024 11:54	4			X	X	X	X	X																	
UO-88-14.2_20240222_N_WG	UO-88-14.2	WG	G		02/22/2024 13:30	4			X	X	X	X	X																	

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	Jordan Carnahan	02-22-24 1730		
			EMET	2/23/24 1020
	SHIPPING METHOD: (mark as appropriate)		SAMPLER NAME AND SIGNATURE	Date Time
Email Report To :				
Email Invoice To : Mark.Stinnett@jacobs.com, Dow_Umetco@jacobs.com				

R:1.7 C:1.5

Login Sample Receipt Checklist

Client: Jacobs Engineering Group, Inc.

Job Number: 410-161616-1

Login Number: 161616

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Santiago, Nathaniel

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

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ANALYTICAL REPORT

PREPARED FOR

Attn: Mark Stinnett
Jacobs Engineering Group, Inc.
3011 SW Willston Road
Gainesville, Florida 32608-3964

Generated 3/3/2024 10:18:41 PM

JOB DESCRIPTION

Umetco Hot Springs - UMP Quarterly Groundwater

JOB NUMBER

410-161858-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

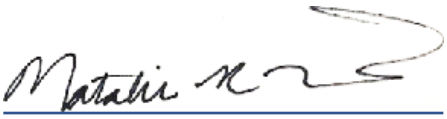
See page two for job notes and contact information.

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.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



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Authorized for release by
Natalie Luciano, Principal Project Manager
Natalie.Luciano@et.eurofinsus.com
(717)556-7258

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is 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.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

This report shall not be reproduced except in full, without the written approval of the laboratory.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. The foregoing express warranty is exclusive and is given in lieu of all other warranties, expressed or implied, except as otherwise agreed. We disclaim any other warranties, expressed or implied, including a warranty of fitness for particular purpose and warranty of merchantability. In no event shall Eurofins Lancaster Laboratories Environmental, LLC be liable for indirect, special, consequential, or incidental damages including, but not limited to, damages for loss of profit or goodwill regardless of (A) the negligence (either sole or concurrent) of Eurofins Lancaster Laboratories Environmental and (B) whether Eurofins Lancaster Laboratories Environmental has been informed of the possibility of such damages. We accept no legal responsibility for the purposes for which the client uses the test results. Except as otherwise agreed, no purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

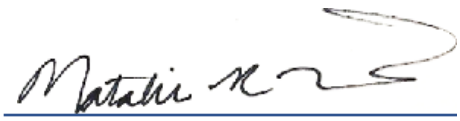


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Client: Jacobs Engineering Group, Inc. Job ID: 410-161858-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Qualifiers

HPLC/IC

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.
U	Indicates the analyte was analyzed for but not detected.

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.
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Job ID: 410-161858-1 Eurofins Lancaster Laboratories Environment

Job Narrative
410-161858-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

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

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

Receipt
The samples were received on 2/27/2024 9:40 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.8°C.

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

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

General Chemistry
Method 2540C_Calcd: The reference method requires samples to be unpreserved. The following sample was received with a pH of 12 which indicates preservation was performed: UO-87-09.1_20240226_N_WG (410-161858-5) This does not meet regulatory requirements.

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

Detection Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-161858-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-87-01.1A_20240223_N_WG — Lab Sample ID: 410-161858-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	75		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	25		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Calcium	15		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	1.0		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	36		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	41		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	200		30	12	mg/L	1		2540C - 2015	Total/NA
Nitrate Nitrite as N	3.0		0.50	0.20	mg/L	5		353.2	Total/NA

Client Sample ID: UO-87-01.1B_20240223_N_WG — Lab Sample ID: 410-161858-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	29		15	5.0	mg/L	10		EPA 300.0 R2.1	Total/NA
Chloride	1100		150	60	mg/L	100		EPA 300.0 R2.1	Total/NA
Calcium	260		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	110		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	180		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	1100		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	1700		240	96	mg/L	1		2540C - 2015	Total/NA
Nitrate Nitrite as N	3.8		0.50	0.20	mg/L	5		353.2	Total/NA

Client Sample ID: UO-87-09.2_20240226_FD_WG — Lab Sample ID: 410-161858-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	14		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	580		300	120	mg/L	200		EPA 300.0 R2.1	Total/NA
Calcium	250		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	55		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	57		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	840		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	1200		120	48	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-09.2_20240226_N_WG — Lab Sample ID: 410-161858-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	14		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	600		300	120	mg/L	200		EPA 300.0 R2.1	Total/NA
Calcium	250		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	55		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	57		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	850		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	1200		120	48	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-09.1_20240226_N_WG — Lab Sample ID: 410-161858-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	2.6	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	58		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Calcium	220		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	8.2		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	560		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	640	cn	120	48	mg/L	1		2540C - 2015	Total/NA
Nitrate Nitrite as N	1.1		0.10	0.040	mg/L	1		353.2	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: UO-87-01.1A_20240223_N_WG

Lab Sample ID: 410-161858-1
Date Collected: 02/23/24 09:34
Matrix: Water
Date Received: 02/27/24 09:40

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	75		7.5	2.5	mg/L			02/27/24 17:55	5
Chloride	25		7.5	3.0	mg/L			02/27/24 17:55	5

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	15		0.52	0.24	mg/L		02/28/24 08:53	02/28/24 14:36	1
Magnesium	1.0		0.21	0.082	mg/L		02/28/24 08:53	02/28/24 14:36	1
Sodium	36		1.0	0.41	mg/L		02/28/24 08:53	02/28/24 14:36	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/28/24 08:53	02/28/24 14:36	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	41		0.91	0.41	mg/L			02/28/24 09:19	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	200		30	12	mg/L			02/28/24 07:22	1
Nitrate Nitrite as N (EPA 353.2)	3.0		0.50	0.20	mg/L			02/28/24 11:44	5

Client Sample ID: UO-87-01.1B_20240223_N_WG

Lab Sample ID: 410-161858-2
Date Collected: 02/23/24 10:18
Matrix: Water
Date Received: 02/27/24 09:40

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	29		15	5.0	mg/L			02/27/24 17:31	10
Chloride	1100		150	60	mg/L			02/27/24 17:43	100

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	260		0.52	0.24	mg/L		02/28/24 08:53	02/28/24 14:39	1
Magnesium	110		0.21	0.082	mg/L		02/28/24 08:53	02/28/24 14:39	1
Sodium	180		1.0	0.41	mg/L		02/28/24 08:53	02/28/24 14:39	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/28/24 08:53	02/28/24 14:39	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	1100		0.91	0.41	mg/L			02/28/24 09:19	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	1700		240	96	mg/L			02/28/24 07:22	1
Nitrate Nitrite as N (EPA 353.2)	3.8		0.50	0.20	mg/L			02/28/24 11:46	5

Client Sample ID: UO-87-09.2_20240226_FD_WG

Lab Sample ID: 410-161858-3
Date Collected: 02/23/24 11:16
Matrix: Water
Date Received: 02/27/24 09:40

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**14**		7.5	2.5	mg/L			02/27/24 18:19	5
Chloride	**580**		300	120	mg/L			02/29/24 07:34	200

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**250**		0.52	0.24	mg/L		02/28/24 08:53	02/28/24 14:45	1
Magnesium	**55**		0.21	0.082	mg/L		02/28/24 08:53	02/28/24 14:45	1
Sodium	**57**		1.0	0.41	mg/L		02/28/24 08:53	02/28/24 14:45	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/28/24 08:53	02/28/24 14:45	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**840**		0.91	0.41	mg/L			02/28/24 09:19	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	**1200**		120	48	mg/L			02/28/24 07:22	1
Nitrate Nitrite as N (EPA 353.2)	0.040	U	0.10	0.040	mg/L			02/28/24 11:52	1

Client Sample ID: UO-87-09.2_20240226_N_WG

Lab Sample ID: 410-161858-4
Date Collected: 02/23/24 11:16
Matrix: Water
Date Received: 02/27/24 09:40

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**14**		7.5	2.5	mg/L			02/27/24 18:43	5
Chloride	**600**		300	120	mg/L			02/29/24 14:54	200

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**250**		0.52	0.24	mg/L		02/28/24 08:53	02/28/24 14:42	1
Magnesium	**55**		0.21	0.082	mg/L		02/28/24 08:53	02/28/24 14:42	1
Sodium	**57**		1.0	0.41	mg/L		02/28/24 08:53	02/28/24 14:42	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/28/24 08:53	02/28/24 14:42	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**850**		0.91	0.41	mg/L			02/28/24 09:19	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	**1200**		120	48	mg/L			02/28/24 07:22	1
Nitrate Nitrite as N (EPA 353.2)	0.040	U	0.10	0.040	mg/L			02/28/24 11:54	1

Client: Jacobs Engineering Group, Inc. Job ID: 410-161858-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-87-09.1_20240226_N_WG **Lab Sample ID: 410-161858-5**
Date Collected: 02/23/24 11:53 **Matrix: Water**
Date Received: 02/27/24 09:40

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.6	J	7.5	2.5	mg/L			02/27/24 19:08	5
Chloride	58		7.5	3.0	mg/L			02/27/24 19:08	5

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	220		0.52	0.24	mg/L		02/28/24 08:53	02/28/24 14:04	1
Magnesium	0.082	U	0.21	0.082	mg/L		02/28/24 08:53	02/28/24 14:04	1
Sodium	8.2		1.0	0.41	mg/L		02/28/24 08:53	02/28/24 14:04	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/28/24 08:53	02/28/24 14:04	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	560		0.91	0.41	mg/L			02/28/24 09:19	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	640	cn	120	48	mg/L			02/28/24 07:22	1
Nitrate Nitrite as N (EPA 353.2)	1.1		0.10	0.040	mg/L			02/28/24 11:56	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-477180/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 477180

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			02/27/24 10:22	1
Chloride	0.60	U	1.5	0.60	mg/L			02/27/24 10:22	1

Lab Sample ID: LCS 410-477180/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 477180

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.51		mg/L		100	90 - 110
Chloride	3.00	3.05		mg/L		102	90 - 110

Lab Sample ID: LCSD 410-477180/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 477180

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.50	7.54		mg/L		101	90 - 110	0	20
Chloride	3.00	3.05		mg/L		102	90 - 110	0	20

Lab Sample ID: MB 410-477630/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 477630

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			02/29/24 02:58	1
Chloride	0.60	U	1.5	0.60	mg/L			02/29/24 02:58	1

Lab Sample ID: LCS 410-477630/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 477630

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	8.01		mg/L		107	90 - 110
Chloride	3.00	3.06		mg/L		102	90 - 110

Lab Sample ID: LCSD 410-477630/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 477630

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.50	7.99		mg/L		107	90 - 110	0	20
Chloride	3.00	3.06		mg/L		102	90 - 110	0	20

Lab Sample ID: MB 410-478211/11 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 478211

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			02/29/24 10:17	1
Chloride	0.60	U	1.5	0.60	mg/L			02/29/24 10:17	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: LCS 410-478211/9
Matrix: Water
Analysis Batch: 478211

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Sulfate			7.50	8.10		mg/L		108	90 - 110		
Chloride			3.00	3.10		mg/L		103	90 - 110		

Lab Sample ID: LCSD 410-478211/10
Matrix: Water
Analysis Batch: 478211

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			7.50	8.09		mg/L		108	90 - 110	0	20
Chloride			3.00	3.10		mg/L		103	90 - 110	0	20

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 410-477772/1-A
Matrix: Water
Analysis Batch: 478090

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 477772

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	0.24	U	0.52	0.24	mg/L		02/28/24 08:53	02/28/24 13:58	1
Magnesium	0.082	U	0.21	0.082	mg/L		02/28/24 08:53	02/28/24 13:58	1
Sodium	0.41	U	1.0	0.41	mg/L		02/28/24 08:53	02/28/24 13:58	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/28/24 08:53	02/28/24 13:58	1

Lab Sample ID: LCS 410-477772/2-A
Matrix: Water
Analysis Batch: 478261

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 477772

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Calcium			5.00	4.84		mg/L		97	85 - 115		
Magnesium			5.00	4.88		mg/L		98	85 - 115		
Sodium			5.00	4.89		mg/L		98	85 - 115		
Vanadium			0.500	0.494		mg/L		99	85 - 115		

Lab Sample ID: 410-161858-5 MS
Matrix: Water
Analysis Batch: 478090

Client Sample ID: UO-87-09.1_20240226_N_WG
Prep Type: Dissolved
Prep Batch: 477772

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Calcium	220		5.00	233	4	mg/L		171	70 - 130		
Magnesium	0.082	U	5.00	6.04		mg/L		121	70 - 130		
Sodium	8.2		5.00	14.3		mg/L		122	70 - 130		
Vanadium	0.0020	U	0.500	0.607		mg/L		121	70 - 130		

Lab Sample ID: 410-161858-5 MSD
Matrix: Water
Analysis Batch: 478090

Client Sample ID: UO-87-09.1_20240226_N_WG
Prep Type: Dissolved
Prep Batch: 477772

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	220		5.00	232	4	mg/L		166	70 - 130	0	20
Magnesium	0.082	U	5.00	5.85		mg/L		117	70 - 130	3	20

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: 410-161858-5 MSD — **Client Sample ID: UO-87-09.1_20240226_N_WG**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 478090 — **Prep Batch: 477772**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sodium	8.2		5.00	14.1		mg/L		119	70 - 130	1	20
Vanadium	0.0020	U	0.500	0.586		mg/L		117	70 - 130	4	20

Lab Sample ID: 410-161858-5 DU — **Client Sample ID: UO-87-09.1_20240226_N_WG**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 478090 — **Prep Batch: 477772**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Calcium	220		226		mg/L		1	20
Magnesium	0.082	U	0.082	U	mg/L		NC	20
Sodium	8.2		8.33		mg/L		2	20
Vanadium	0.0020	U	0.0020	U	mg/L		NC	20

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 410-477567/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 477567

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12	U	30	12	mg/L			02/28/24 07:22	1

Lab Sample ID: LCS 410-477567/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 477567

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	200	202		mg/L		101	90 - 110

Lab Sample ID: 410-161858-2 MS — **Client Sample ID: UO-87-01.1B_20240223_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 477567

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1700		1600	3330		mg/L		101	90 - 110

Lab Sample ID: 410-161858-2 DU — **Client Sample ID: UO-87-01.1B_20240223_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 477567

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	1700		1720		mg/L		0.9	10

Lab Sample ID: 410-161858-5 DU — **Client Sample ID: UO-87-09.1_20240226_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 477567

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	640	cn	610		mg/L		4	10

Client: Jacobs Engineering Group, Inc.
Job ID: 410-161858-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 410-477927/21
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 477927

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.040	U	0.10	0.040	mg/L			02/28/24 11:32	1

Lab Sample ID: LCS 410-477927/19
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 477927

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate Nitrite as N	2.00	2.03		mg/L		101	90 - 110

Lab Sample ID: LCSD 410-477927/20
Client Sample ID: Lab Control Sample Dup
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 477927

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrate Nitrite as N	2.00	2.14		mg/L		107	90 - 110	5	20

HPLC/IC

Analysis Batch: 477180

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-161858-1	UO-87-01.1A_20240223_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-161858-2	UO-87-01.1B_20240223_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-161858-2	UO-87-01.1B_20240223_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-161858-3	UO-87-09.2_20240226_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
410-161858-4	UO-87-09.2_20240226_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-161858-5	UO-87-09.1_20240226_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-477180/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-477180/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-477180/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 477630

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-161858-3	UO-87-09.2_20240226_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-477630/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-477630/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-477630/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 478211

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-161858-4	UO-87-09.2_20240226_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-478211/11	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-478211/9	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-478211/10	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Metals

Analysis Batch: 476227

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-161858-1	UO-87-01.1A_20240223_N_WG	Dissolved	Water	2340B-2011	
410-161858-2	UO-87-01.1B_20240223_N_WG	Dissolved	Water	2340B-2011	
410-161858-3	UO-87-09.2_20240226_FD_WG	Dissolved	Water	2340B-2011	
410-161858-4	UO-87-09.2_20240226_N_WG	Dissolved	Water	2340B-2011	
410-161858-5	UO-87-09.1_20240226_N_WG	Dissolved	Water	2340B-2011	

Prep Batch: 477772

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-161858-1	UO-87-01.1A_20240223_N_WG	Dissolved	Water	Non-Digest Prep	
410-161858-2	UO-87-01.1B_20240223_N_WG	Dissolved	Water	Non-Digest Prep	
410-161858-3	UO-87-09.2_20240226_FD_WG	Dissolved	Water	Non-Digest Prep	
410-161858-4	UO-87-09.2_20240226_N_WG	Dissolved	Water	Non-Digest Prep	
410-161858-5	UO-87-09.1_20240226_N_WG	Dissolved	Water	Non-Digest Prep	
MB 410-477772/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-477772/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	
410-161858-5 MS	UO-87-09.1_20240226_N_WG	Dissolved	Water	Non-Digest Prep	
410-161858-5 MSD	UO-87-09.1_20240226_N_WG	Dissolved	Water	Non-Digest Prep	
410-161858-5 DU	UO-87-09.1_20240226_N_WG	Dissolved	Water	Non-Digest Prep	

Analysis Batch: 478090

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-161858-1	UO-87-01.1A_20240223_N_WG	Dissolved	Water	200.7 Rev 4.4	477772
410-161858-2	UO-87-01.1B_20240223_N_WG	Dissolved	Water	200.7 Rev 4.4	477772

Metals (Continued)

Analysis Batch: 478090 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-161858-3	UO-87-09.2_20240226_FD_WG	Dissolved	Water	200.7 Rev 4.4	477772
410-161858-4	UO-87-09.2_20240226_N_WG	Dissolved	Water	200.7 Rev 4.4	477772
410-161858-5	UO-87-09.1_20240226_N_WG	Dissolved	Water	200.7 Rev 4.4	477772
MB 410-477772/1-A	Method Blank	Total/NA	Water	200.7 Rev 4.4	477772
410-161858-5 MS	UO-87-09.1_20240226_N_WG	Dissolved	Water	200.7 Rev 4.4	477772
410-161858-5 MSD	UO-87-09.1_20240226_N_WG	Dissolved	Water	200.7 Rev 4.4	477772
410-161858-5 DU	UO-87-09.1_20240226_N_WG	Dissolved	Water	200.7 Rev 4.4	477772

Analysis Batch: 478261

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 410-477772/2-A	Lab Control Sample	Total/NA	Water	200.7 Rev 4.4	477772

General Chemistry

Analysis Batch: 477567

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-161858-1	UO-87-01.1A_20240223_N_WG	Total/NA	Water	2540C - 2015	
410-161858-2	UO-87-01.1B_20240223_N_WG	Total/NA	Water	2540C - 2015	
410-161858-3	UO-87-09.2_20240226_FD_WG	Total/NA	Water	2540C - 2015	
410-161858-4	UO-87-09.2_20240226_N_WG	Total/NA	Water	2540C - 2015	
410-161858-5	UO-87-09.1_20240226_N_WG	Total/NA	Water	2540C - 2015	
MB 410-477567/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-477567/2	Lab Control Sample	Total/NA	Water	2540C - 2015	
410-161858-2 MS	UO-87-01.1B_20240223_N_WG	Total/NA	Water	2540C - 2015	
410-161858-2 DU	UO-87-01.1B_20240223_N_WG	Total/NA	Water	2540C - 2015	
410-161858-5 DU	UO-87-09.1_20240226_N_WG	Total/NA	Water	2540C - 2015	

Analysis Batch: 477927

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-161858-1	UO-87-01.1A_20240223_N_WG	Total/NA	Water	353.2	
410-161858-2	UO-87-01.1B_20240223_N_WG	Total/NA	Water	353.2	
410-161858-3	UO-87-09.2_20240226_FD_WG	Total/NA	Water	353.2	
410-161858-4	UO-87-09.2_20240226_N_WG	Total/NA	Water	353.2	
410-161858-5	UO-87-09.1_20240226_N_WG	Total/NA	Water	353.2	
MB 410-477927/21	Method Blank	Total/NA	Water	353.2	
LCS 410-477927/19	Lab Control Sample	Total/NA	Water	353.2	
LCSD 410-477927/20	Lab Control Sample Dup	Total/NA	Water	353.2	

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-161858-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-87-01.1A_20240223_N_WG — Lab Sample ID: 410-161858-1

Date Collected: 02/23/24 09:34 **Matrix: Water**
Date Received: 02/27/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	477180	W7FX	ELLE	02/27/24 17:55
Dissolved	Prep	Non-Digest Prep			477772	NU9R	ELLE	02/28/24 08:53
Dissolved	Analysis	200.7 Rev 4.4		1	478090	T8CQ	ELLE	02/28/24 14:36
Dissolved	Analysis	2340B-2011		1	476227	USJM	ELLE	02/28/24 09:19
Total/NA	Analysis	2540C - 2015		1	477567	UOCA	ELLE	02/28/24 07:22 - 02/28/24 18:10 ¹
Total/NA	Analysis	353.2		5	477927	Q3HN	ELLE	02/28/24 11:44

Client Sample ID: UO-87-01.1B_20240223_N_WG — Lab Sample ID: 410-161858-2

Date Collected: 02/23/24 10:18 **Matrix: Water**
Date Received: 02/27/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		10	477180	W7FX	ELLE	02/27/24 17:31
Total/NA	Analysis	EPA 300.0 R2.1		100	477180	W7FX	ELLE	02/27/24 17:43
Dissolved	Prep	Non-Digest Prep			477772	NU9R	ELLE	02/28/24 08:53
Dissolved	Analysis	200.7 Rev 4.4		1	478090	T8CQ	ELLE	02/28/24 14:39
Dissolved	Analysis	2340B-2011		1	476227	USJM	ELLE	02/28/24 09:19
Total/NA	Analysis	2540C - 2015		1	477567	UOCA	ELLE	02/28/24 07:22 - 02/28/24 18:10 ¹
Total/NA	Analysis	353.2		5	477927	Q3HN	ELLE	02/28/24 11:46

Client Sample ID: UO-87-09.2_20240226_FD_WG — Lab Sample ID: 410-161858-3

Date Collected: 02/23/24 11:16 **Matrix: Water**
Date Received: 02/27/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		200	477630	L4QM	ELLE	02/29/24 07:34
Total/NA	Analysis	EPA 300.0 R2.1		5	477180	W7FX	ELLE	02/27/24 18:19
Dissolved	Prep	Non-Digest Prep			477772	NU9R	ELLE	02/28/24 08:53
Dissolved	Analysis	200.7 Rev 4.4		1	478090	T8CQ	ELLE	02/28/24 14:45
Dissolved	Analysis	2340B-2011		1	476227	USJM	ELLE	02/28/24 09:19
Total/NA	Analysis	2540C - 2015		1	477567	UOCA	ELLE	02/28/24 07:22 - 02/28/24 18:10 ¹
Total/NA	Analysis	353.2		1	477927	Q3HN	ELLE	02/28/24 11:52

Client Sample ID: UO-87-09.2_20240226_N_WG — Lab Sample ID: 410-161858-4

Date Collected: 02/23/24 11:16 **Matrix: Water**
Date Received: 02/27/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		200	478211	W7FX	ELLE	02/29/24 14:54
Total/NA	Analysis	EPA 300.0 R2.1		5	477180	W7FX	ELLE	02/27/24 18:43
Dissolved	Prep	Non-Digest Prep			477772	NU9R	ELLE	02/28/24 08:53
Dissolved	Analysis	200.7 Rev 4.4		1	478090	T8CQ	ELLE	02/28/24 14:42
Dissolved	Analysis	2340B-2011		1	476227	USJM	ELLE	02/28/24 09:19

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-161858-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-87-09.2_20240226_N_WG — Lab Sample ID: 410-161858-4

Date Collected: 02/23/24 11:16 **Matrix: Water**
Date Received: 02/27/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	2540C - 2015		1	477567	UOCA	ELLE	02/28/24 07:22 - 02/28/24 18:10 [1]
Total/NA	Analysis	353.2		1	477927	Q3HN	ELLE	02/28/24 11:54

Client Sample ID: UO-87-09.1_20240226_N_WG — Lab Sample ID: 410-161858-5

Date Collected: 02/23/24 11:53 **Matrix: Water**
Date Received: 02/27/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	477180	W7FX	ELLE	02/27/24 19:08
Dissolved	Prep	Non-Digest Prep			477772	NU9R	ELLE	02/28/24 08:53
Dissolved	Analysis	200.7 Rev 4.4		1	478090	T8CQ	ELLE	02/28/24 14:04
Dissolved	Analysis	2340B-2011		1	476227	USJM	ELLE	02/28/24 09:19
Total/NA	Analysis	2540C - 2015		1	477567	UOCA	ELLE	02/28/24 07:22 - 02/28/24 18:10 [1]
Total/NA	Analysis	353.2		1	477927	Q3HN	ELLE	02/28/24 11:56

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-161858-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00660	08-09-24

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

Analysis Method	Prep Method	Matrix	Analyte
2340B-2011		Water	Hardness as calcium carbonate

Method Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-161858-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
200.7 Rev 4.4	Metals (ICP)	EPA	ELLE
2340B-2011	Total Hardness (as CaCO3) by calculation	SM	ELLE
2540C - 2015	Total Dissolved Solids (Dried at 180 °C)	SM	ELLE
353.2	Nitrogen, Nitrate-Nitrite	EPA	ELLE
Non-Digest Prep	Preparation, Non-Digested Aqueous Metals	EPA	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-161858-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-161858-1	UO-87-01.1A_20240223_N_WG	Water	02/23/24 09:34	02/27/24 09:40
410-161858-2	UO-87-01.1B_20240223_N_WG	Water	02/23/24 10:18	02/27/24 09:40
410-161858-3	UO-87-09.2_20240226_FD_WG	Water	02/23/24 11:16	02/27/24 09:40
410-161858-4	UO-87-09.2_20240226_N_WG	Water	02/23/24 11:16	02/27/24 09:40
410-161858-5	UO-87-09.1_20240226_N_WG	Water	02/23/24 11:53	02/27/24 09:40

Jacobs

410-161858 Chain of Custody

ANALYSIS REQUEST | COC No: EuroFins Lan-45348541 | Cooler No. of

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 7
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number** 4508165277
Project Chemist Mark Stinnett 352-359-5937	**Shipping Company / Airbill No.** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 02/26/2024

Sample ID	Sample Location	Matrix	Grab/Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Filtered	Preserve	Analysis: Chloride and Sulfate - E300.0	Hardness - SM2340B	Nitrate-Nitrite - E353.2	TDS - SM2540C	Dissolved Metals - E200.7 (Ca Mg Na V)
									Yes					
									HNO3					
									H2SO4					
UO-87-01.1A_20240223_N_WG	UO-87-01.1A	WG	G		02/23/2024 09:34	4				X	X	X	X	X
UO-87-01.1B_20240223_N_WG	UO-87-01.1B	WG	G		02/23/2024 10:18	4				X	X	X	X	X
UO-87-09.2_20240226_FD_WG	UO-87-09.2	WG	G		02/26/2024 11:16	4				X	X	X	X	X
UO-87-09.2_20240226_N_WG	UO-87-09.2	WG	G		02/26/2024 11:16	4				X	X	X	X	X
UO-87-09.1_20240226_N_WG	UO-87-09.1	WG	G		02/26/2024 11:53	4				X	X	X	X	X

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	Jordan Carnahan	02-26-24 1730		
			Holly Arp	2/27/24 0940
	SHIPPING METHOD: (mark as appropriate)		SAMPLER NAME AND SIGNATURE	Date Time
Email Report To :				
Email Invoice To : Mark.Stinnett@jacobs.com, Dow_Umetco@jacobs.com				

R: 1.8 C: 1.8

Login Sample Receipt Checklist

Client: Jacobs Engineering Group, Inc.

Job Number: 410-161858-1

Login Number: 161858

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Santiago, Nathaniel

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

Sample Preservation Checks (performed by the laboratory)

Question	Answer	Comment
Did the sample containers checked meet expected preservation conditions?	False	Refer to Job Narrative for details.

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Mark Stinnett
Jacobs Engineering Group, Inc.
3011 SW Willston Road
Gainesville, Florida 32608-3964

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JOB DESCRIPTION

Umetco Hot Springs - UMP Quarterly Groundwater

JOB NUMBER

410-162179-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

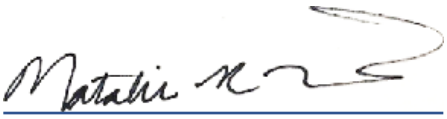
See page two for job notes and contact information.

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.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



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Authorized for release by
Natalie Luciano, Principal Project Manager
Natalie.Luciano@et.eurofinsus.com
(717)556-7258

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is 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.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

This report shall not be reproduced except in full, without the written approval of the laboratory.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. The foregoing express warranty is exclusive and is given in lieu of all other warranties, expressed or implied, except as otherwise agreed. We disclaim any other warranties, expressed or implied, including a warranty of fitness for particular purpose and warranty of merchantability. In no event shall Eurofins Lancaster Laboratories Environmental, LLC be liable for indirect, special, consequential, or incidental damages including, but not limited to, damages for loss of profit or goodwill regardless of (A) the negligence (either sole or concurrent) of Eurofins Lancaster Laboratories Environmental and (B) whether Eurofins Lancaster Laboratories Environmental has been informed of the possibility of such damages. We accept no legal responsibility for the purposes for which the client uses the test results. Except as otherwise agreed, no purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

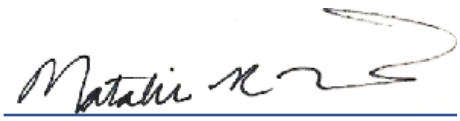


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Client: Jacobs Engineering Group, Inc. Job ID: 410-162179-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Qualifiers

HPLC/IC

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.
U	Indicates the analyte was analyzed for but not detected.

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.
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Job Narrative
410-162179-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

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

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

Receipt
The samples were received on 2/29/2024 9:45 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.8°C.

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

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

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

Detection Summary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-162179-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-88-13.1_20240227_N_WG
Lab Sample ID: 410-162179-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	540		75	25	mg/L	50		EPA 300.0 R2.1	Total/NA
Chloride	62		30	12	mg/L	20		EPA 300.0 R2.1	Total/NA
Calcium	110		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	3.9		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	160		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Vanadium	0.014		0.010	0.0020	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	280		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	870		120	48	mg/L	1		2540C - 2015	Total/NA
Nitrate Nitrite as N	11		1.0	0.40	mg/L	10		353.2	Total/NA

Client Sample ID: UO-88-13.2_20240227_FD_WG
Lab Sample ID: 410-162179-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	43		30	10	mg/L	20		EPA 300.0 R2.1	Total/NA
Chloride	3000		750	300	mg/L	500		EPA 300.0 R2.1	Total/NA
Calcium	1200		5.2	2.4	mg/L	10		200.7 Rev 4.4	Dissolved
Magnesium	240		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	200		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	4000		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	59000		6000	2400	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-88-13.2_20240227_N_WG
Lab Sample ID: 410-162179-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	47		30	10	mg/L	20		EPA 300.0 R2.1	Total/NA
Chloride	3300		750	300	mg/L	500		EPA 300.0 R2.1	Total/NA
Calcium	1200		5.2	2.4	mg/L	10		200.7 Rev 4.4	Dissolved
Magnesium	240		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	200		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	4000		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	68000		6000	2400	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-04.1_20240227_N_WG
Lab Sample ID: 410-162179-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	250		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Calcium	120		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	1.6		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	18		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	310		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	480		60	24	mg/L	1		2540C - 2015	Total/NA
Nitrate Nitrite as N	7.4		1.0	0.40	mg/L	10		353.2	Total/NA

Client Sample ID: UO-91-20.1B_20240227_N_WG
Lab Sample ID: 410-162179-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	5.9	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	320		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Calcium	130		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	36		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	29		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	460		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	490		60	24	mg/L	1		2540C - 2015	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-162179-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-87-03.1_20240228_N_WG
Lab Sample ID: 410-162179-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	880		300	100	mg/L	200		EPA 300.0 R2.1	Total/NA
Chloride	2600		750	300	mg/L	500		EPA 300.0 R2.1	Total/NA
Calcium	1100		5.2	2.4	mg/L	10		200.7 Rev 4.4	Dissolved
Magnesium	110		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	610		10	4.1	mg/L	10		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	3100		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	7000		600	240	mg/L	1		2540C - 2015	Total/NA
Nitrate Nitrite as N	1.8		0.10	0.040	mg/L	1		353.2	Total/NA

Client Sample ID: UO-87-03.2_20240228_N_WG
Lab Sample ID: 410-162179-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	870		75	25	mg/L	50		EPA 300.0 R2.1	Total/NA
Chloride	5500		1500	600	mg/L	1000		EPA 300.0 R2.1	Total/NA
Calcium	1900		5.2	2.4	mg/L	10		200.7 Rev 4.4	Dissolved
Magnesium	110		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	760		10	4.1	mg/L	10		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	5200		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	8200		1200	480	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: FDRAIN_20240228_FD_WS
Lab Sample ID: 410-162179-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	110		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	68		30	12	mg/L	20		EPA 300.0 R2.1	Total/NA
Calcium	22		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	5.2		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	57		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Vanadium	0.0086	J	0.010	0.0020	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	78		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	290		30	12	mg/L	1		2540C - 2015	Total/NA
Nitrate Nitrite as N	3.1		0.20	0.080	mg/L	2		353.2	Total/NA

Client Sample ID: FDRAIN_20240228_N_WS
Lab Sample ID: 410-162179-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	110		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	65		30	12	mg/L	20		EPA 300.0 R2.1	Total/NA
Calcium	22		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	5.2		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	57		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Vanadium	0.0085	J	0.010	0.0020	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	77		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	300		30	12	mg/L	1		2540C - 2015	Total/NA
Nitrate Nitrite as N	3.3		0.20	0.080	mg/L	2		353.2	Total/NA

Client Sample ID: WDRAIN_20240228_N_WS
Lab Sample ID: 410-162179-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	2100		150	50	mg/L	100		EPA 300.0 R2.1	Total/NA
Chloride	380		150	60	mg/L	100		EPA 300.0 R2.1	Total/NA
Calcium	290		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	10		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved

This Detection Summary does not include radiochemical test results.

Client: Jacobs Engineering Group, Inc. Job ID: 410-162179-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: WDRAIN_20240228_N_WS (Continued) Lab Sample ID: 410-162179-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	900		10	4.1	mg/L	10		200.7 Rev 4.4	Dissolved
Vanadium	0.10		0.010	0.0020	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	750		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	3800		240	96	mg/L	1		2540C - 2015	Total/NA
Nitrate Nitrite as N	6.0		1.0	0.40	mg/L	10		353.2	Total/NA

Client Sample ID: EDRAIN_20240228_N_WS Lab Sample ID: 410-162179-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	4100		300	100	mg/L	200		EPA 300.0 R2.1	Total/NA
Chloride	850		300	120	mg/L	200		EPA 300.0 R2.1	Total/NA
Calcium	490		5.2	2.4	mg/L	10		200.7 Rev 4.4	Dissolved
Iron	26		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	7.1		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	2100		10	4.1	mg/L	10		200.7 Rev 4.4	Dissolved
Vanadium	0.10		0.010	0.0020	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	1300		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	7700		1200	480	mg/L	1		2540C - 2015	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: UO-88-13.1_20240227_N_WG

Lab Sample ID: 410-162179-1

Date Collected: 02/27/24 10:12

Matrix: Water

Date Received: 02/29/24 09:45

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	540		75	25	mg/L			03/01/24 11:35	50
Chloride	62		30	12	mg/L			03/03/24 06:24	20

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	110		0.52	0.24	mg/L		02/29/24 22:10	03/01/24 08:21	1
Magnesium	3.9		0.21	0.082	mg/L		02/29/24 22:10	03/01/24 08:21	1
Sodium	160		1.0	0.41	mg/L		02/29/24 22:10	03/01/24 08:21	1
Vanadium	0.014		0.010	0.0020	mg/L		02/29/24 22:10	03/01/24 08:21	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	280		0.91	0.41	mg/L			03/01/24 08:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	870		120	48	mg/L			03/01/24 22:56	1
Nitrate Nitrite as N (EPA 353.2)	11		1.0	0.40	mg/L			03/01/24 10:01	10

Client Sample ID: UO-88-13.2_20240227_FD_WG

Lab Sample ID: 410-162179-2

Date Collected: 02/27/24 10:49

Matrix: Water

Date Received: 02/29/24 09:45

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	43		30	10	mg/L			03/01/24 11:47	20
Chloride	3000		750	300	mg/L			03/02/24 23:07	500

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	1200		5.2	2.4	mg/L		02/29/24 22:10	03/01/24 11:52	10
Magnesium	240		0.21	0.082	mg/L		02/29/24 22:10	03/01/24 08:14	1
Sodium	200		1.0	0.41	mg/L		02/29/24 22:10	03/01/24 08:14	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/29/24 22:10	03/01/24 08:14	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	4000		0.91	0.41	mg/L			03/01/24 08:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	59000		6000	2400	mg/L			03/01/24 22:56	1
Nitrate Nitrite as N (EPA 353.2)	0.040	U	0.10	0.040	mg/L			03/01/24 10:03	1

Client Sample ID: UO-88-13.2_20240227_N_WG — Lab Sample ID: 410-162179-3

Date Collected: 02/27/24 10:49 — **Matrix: Water**
Date Received: 02/29/24 09:45

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**47**		30	10	mg/L			03/01/24 09:14	20
Chloride	**3300**		750	300	mg/L			03/04/24 16:45	500

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**1200**		5.2	2.4	mg/L		02/29/24 22:10	03/01/24 11:49	10
Magnesium	**240**		0.21	0.082	mg/L		02/29/24 22:10	03/01/24 08:04	1
Sodium	**200**		1.0	0.41	mg/L		02/29/24 22:10	03/01/24 08:04	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/29/24 22:10	03/01/24 08:04	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**4000**		0.91	0.41	mg/L			03/01/24 08:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	**68000**		6000	2400	mg/L			03/01/24 22:56	1
Nitrate Nitrite as N (EPA 353.2)	0.040	U	0.10	0.040	mg/L			03/01/24 10:05	1

Client Sample ID: UO-87-04.1_20240227_N_WG — Lab Sample ID: 410-162179-4

Date Collected: 02/27/24 12:17 — **Matrix: Water**
Date Received: 02/29/24 09:45

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.5	U	7.5	2.5	mg/L			03/01/24 11:15	5
Chloride	**250**		75	30	mg/L			03/01/24 11:27	50

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**120**		0.52	0.24	mg/L		02/29/24 22:10	03/01/24 08:08	1
Magnesium	**1.6**		0.21	0.082	mg/L		02/29/24 22:10	03/01/24 08:08	1
Sodium	**18**		1.0	0.41	mg/L		02/29/24 22:10	03/01/24 08:08	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/29/24 22:10	03/01/24 08:08	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**310**		0.91	0.41	mg/L			03/01/24 08:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	**480**		60	24	mg/L			03/01/24 22:56	1
Nitrate Nitrite as N (EPA 353.2)	**7.4**		1.0	0.40	mg/L			03/01/24 10:07	10

Client Sample ID: UO-91-20.1B_20240227_N_WG

Lab Sample ID: 410-162179-5

Date Collected: 02/27/24 12:59

Matrix: Water

Date Received: 02/29/24 09:45

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	5.9	J	7.5	2.5	mg/L			03/01/24 11:39	5
Chloride	320		75	30	mg/L			03/01/24 11:51	50

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	130		0.52	0.24	mg/L		02/29/24 22:10	03/01/24 08:11	1
Magnesium	36		0.21	0.082	mg/L		02/29/24 22:10	03/01/24 08:11	1
Sodium	29		1.0	0.41	mg/L		02/29/24 22:10	03/01/24 08:11	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/29/24 22:10	03/01/24 08:11	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	460		0.91	0.41	mg/L			03/01/24 08:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	490		60	24	mg/L			03/01/24 22:56	1
Nitrate Nitrite as N (EPA 353.2)	0.040	U	0.10	0.040	mg/L			03/01/24 10:13	1

Client Sample ID: UO-87-03.1_20240228_N_WG

Lab Sample ID: 410-162179-6

Date Collected: 02/28/24 11:13

Matrix: Water

Date Received: 02/29/24 09:45

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	880		300	100	mg/L			03/01/24 09:50	200
Chloride	2600		750	300	mg/L			03/04/24 16:57	500

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	1100		5.2	2.4	mg/L		02/29/24 22:10	03/01/24 11:59	10
Magnesium	110		0.21	0.082	mg/L		02/29/24 22:10	03/01/24 08:34	1
Sodium	610		10	4.1	mg/L		02/29/24 22:10	03/01/24 11:59	10
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/29/24 22:10	03/01/24 08:34	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	3100		0.91	0.41	mg/L			03/01/24 08:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	7000		600	240	mg/L			03/01/24 22:56	1
Nitrate Nitrite as N (EPA 353.2)	1.8		0.10	0.040	mg/L			03/01/24 10:15	1

Client Sample ID: UO-87-03.2_20240228_N_WG — Lab Sample ID: 410-162179-7

Date Collected: 02/28/24 12:22 **Matrix: Water**
Date Received: 02/29/24 09:45

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	870		75	25	mg/L			03/01/24 12:52	50
Chloride	5500		1500	600	mg/L			03/04/24 18:25	1000

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	1900		5.2	2.4	mg/L		02/29/24 22:10	03/01/24 11:56	10
Magnesium	110		0.21	0.082	mg/L		02/29/24 22:10	03/01/24 08:18	1
Sodium	760		10	4.1	mg/L		02/29/24 22:10	03/01/24 11:56	10
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/29/24 22:10	03/01/24 08:18	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	5200		0.91	0.41	mg/L			03/01/24 08:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	8200		1200	480	mg/L			03/01/24 22:56	1
Nitrate Nitrite as N (EPA 353.2)	0.040	U	0.10	0.040	mg/L			03/01/24 10:17	1

Client Sample ID: FDRAIN_20240228_FD_WS — Lab Sample ID: 410-162179-8

Date Collected: 02/28/24 13:32 **Matrix: Water**
Date Received: 02/29/24 09:45

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	110		7.5	2.5	mg/L			03/01/24 12:03	5
Chloride	68		30	12	mg/L			03/04/24 17:35	20

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	22		0.52	0.24	mg/L		02/29/24 22:10	03/01/24 07:49	1
Iron	0.082	U	0.21	0.082	mg/L		02/29/24 22:10	03/01/24 07:49	1
Magnesium	5.2		0.21	0.082	mg/L		02/29/24 22:10	03/01/24 07:49	1
Sodium	57		1.0	0.41	mg/L		02/29/24 22:10	03/01/24 07:49	1
Vanadium	0.0086	J	0.010	0.0020	mg/L		02/29/24 22:10	03/01/24 07:49	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	78		0.91	0.41	mg/L			03/01/24 08:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	290		30	12	mg/L			03/01/24 22:56	1
Nitrate Nitrite as N (EPA 353.2)	3.1		0.20	0.080	mg/L			03/01/24 10:19	2

Client Sample ID: FDRAIN_20240228_N_WS

Lab Sample ID: 410-162179-9
Date Collected: 02/28/24 13:32
Matrix: Water
Date Received: 02/29/24 09:45

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	110		7.5	2.5	mg/L			03/01/24 12:28	5
Chloride	65		30	12	mg/L			03/04/24 18:13	20

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	22		0.52	0.24	mg/L		02/29/24 22:10	03/01/24 07:30	1
Iron	0.082	U	0.21	0.082	mg/L		02/29/24 22:10	03/01/24 07:30	1
Magnesium	5.2		0.21	0.082	mg/L		02/29/24 22:10	03/01/24 07:30	1
Sodium	57		1.0	0.41	mg/L		02/29/24 22:10	03/01/24 07:30	1
Vanadium	0.0085	J	0.010	0.0020	mg/L		02/29/24 22:10	03/01/24 07:30	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	77		0.91	0.41	mg/L			03/01/24 08:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	300		30	12	mg/L			03/01/24 22:56	1
Nitrate Nitrite as N (EPA 353.2)	3.3		0.20	0.080	mg/L			03/01/24 10:21	2

Client Sample ID: WDRAIN_20240228_N_WS

Lab Sample ID: 410-162179-10
Date Collected: 02/28/24 14:03
Matrix: Water
Date Received: 02/29/24 09:45

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2100		150	50	mg/L			03/01/24 11:03	100
Chloride	380		150	60	mg/L			03/01/24 11:03	100

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	290		0.52	0.24	mg/L		02/29/24 22:10	03/01/24 08:01	1
Iron	0.082	U	0.21	0.082	mg/L		02/29/24 22:10	03/01/24 08:01	1
Magnesium	10		0.21	0.082	mg/L		02/29/24 22:10	03/01/24 08:01	1
Sodium	900		10	4.1	mg/L		02/29/24 22:10	03/01/24 11:46	10
Vanadium	0.10		0.010	0.0020	mg/L		02/29/24 22:10	03/01/24 08:01	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	750		0.91	0.41	mg/L			03/01/24 08:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	3800		240	96	mg/L			03/01/24 22:56	1
Nitrate Nitrite as N (EPA 353.2)	6.0		1.0	0.40	mg/L			03/01/24 10:29	10

Client: Jacobs Engineering Group, Inc. Job ID: 410-162179-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: EDRAIN_20240228_N_WS **Lab Sample ID: 410-162179-11**
Date Collected: 02/28/24 14:17 **Matrix: Water**
Date Received: 02/29/24 09:45

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	4100		300	100	mg/L			03/01/24 10:15	200
Chloride	850		300	120	mg/L			03/01/24 10:15	200

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	490		5.2	2.4	mg/L		02/29/24 22:10	03/01/24 12:02	10
Iron	26		0.21	0.082	mg/L		02/29/24 22:10	03/01/24 10:59	1
Magnesium	7.1		0.21	0.082	mg/L		02/29/24 22:10	03/01/24 10:59	1
Sodium	2100		10	4.1	mg/L		02/29/24 22:10	03/01/24 12:02	10
Vanadium	0.10		0.010	0.0020	mg/L		02/29/24 22:10	03/01/24 10:59	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	1300		0.91	0.41	mg/L			03/01/24 08:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	7700		1200	480	mg/L			03/01/24 22:56	1
Nitrate Nitrite as N (EPA 353.2)	0.040	U	0.10	0.040	mg/L			03/01/24 10:31	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-478560/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 478560

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			03/01/24 07:49	1
Chloride	0.60	U	1.5	0.60	mg/L			03/01/24 07:49	1

Lab Sample ID: LCS 410-478560/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 478560

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.90		mg/L		105	90 - 110
Chloride	3.00	3.02		mg/L		101	90 - 110

Lab Sample ID: LCSD 410-478560/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 478560

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.50	7.89		mg/L		105	90 - 110	0	20
Chloride	3.00	3.02		mg/L		101	90 - 110	0	20

Lab Sample ID: MB 410-478579/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 478579

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			03/01/24 08:01	1
Chloride	0.60	U	1.5	0.60	mg/L			03/01/24 08:01	1

Lab Sample ID: LCS 410-478579/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 478579

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.27		mg/L		97	90 - 110
Chloride	3.00	2.78		mg/L		93	90 - 110

Lab Sample ID: LCSD 410-478579/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 478579

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.50	7.29		mg/L		97	90 - 110	0	20
Chloride	3.00	2.79		mg/L		93	90 - 110	0	20

Lab Sample ID: MB 410-479033/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 479033

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			03/02/24 21:32	1
Chloride	0.60	U	1.5	0.60	mg/L			03/02/24 21:32	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: LCS 410-479033/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 479033

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	6.95		mg/L		93	90 - 110
Chloride	3.00	2.77		mg/L		92	90 - 110

Lab Sample ID: LCSD 410-479033/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 479033

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.50	6.92		mg/L		92	90 - 110	0	20
Chloride	3.00	2.76		mg/L		92	90 - 110	0	20

Lab Sample ID: MB 410-479037/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 479037

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			03/02/24 14:32	1
Chloride	0.60	U	1.5	0.60	mg/L			03/02/24 14:32	1

Lab Sample ID: LCS 410-479037/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 479037

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.16		mg/L		95	90 - 110
Chloride	3.00	2.78		mg/L		93	90 - 110

Lab Sample ID: LCSD 410-479037/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 479037

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.50	7.14		mg/L		95	90 - 110	0	20
Chloride	3.00	2.77		mg/L		92	90 - 110	0	20

Lab Sample ID: MB 410-479440/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 479440

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			03/04/24 14:26	1
Chloride	0.60	U	1.5	0.60	mg/L			03/04/24 14:26	1

Lab Sample ID: LCS 410-479440/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 479440

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.01		mg/L		93	90 - 110
Chloride	3.00	2.76		mg/L		92	90 - 110

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: LCSD 410-479440/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 479440

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate			7.50	7.07		mg/L		94	90 - 110	1	20
Chloride			3.00	2.77		mg/L		92	90 - 110	0	20

Lab Sample ID: 410-162179-8 MS — **Client Sample ID: FDRAIN_20240228_FD_WS**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 479440

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	68		40.0	106		mg/L		95	90 - 110

Lab Sample ID: 410-162179-8 DU — **Client Sample ID: FDRAIN_20240228_FD_WS**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 479440

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	68		68.4		mg/L		0.8	15

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 410-478574/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 478774 — **Prep Batch: 478574**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	0.24	U	0.52	0.24	mg/L		02/29/24 22:10	03/01/24 07:24	1
Iron	0.082	U	0.21	0.082	mg/L		02/29/24 22:10	03/01/24 07:24	1
Magnesium	0.082	U	0.21	0.082	mg/L		02/29/24 22:10	03/01/24 07:24	1
Sodium	0.41	U	1.0	0.41	mg/L		02/29/24 22:10	03/01/24 07:24	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/29/24 22:10	03/01/24 07:24	1

Lab Sample ID: LCS 410-478574/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 478774 — **Prep Batch: 478574**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium			5.00	5.46		mg/L		109	85 - 115
Iron			5.00	5.48		mg/L		110	85 - 115
Magnesium			5.00	5.52		mg/L		110	85 - 115
Sodium			5.00	5.45		mg/L		109	85 - 115
Vanadium			0.500	0.538		mg/L		108	85 - 115

Lab Sample ID: 410-162179-9 MS — **Client Sample ID: FDRAIN_20240228_N_WS**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 478774 — **Prep Batch: 478574**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	22		5.00	28.3	4	mg/L		122	70 - 130
Iron	0.082	U	5.00	5.70		mg/L		114	70 - 130
Magnesium	5.2		5.00	10.9		mg/L		114	70 - 130
Sodium	57		5.00	63.0	4	mg/L		125	70 - 130

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: 410-162179-9 MS — **Client Sample ID: FDRAIN_20240228_N_WS**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 478774 — **Prep Batch: 478574**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Vanadium	0.0085	J	0.500	0.568		mg/L		112	70 - 130

Lab Sample ID: 410-162179-9 MSD — **Client Sample ID: FDRAIN_20240228_N_WS**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 478774 — **Prep Batch: 478574**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	22		5.00	28.4	4	mg/L		125	70 - 130	0	20
Iron	0.082	U	5.00	5.69		mg/L		114	70 - 130	0	20
Magnesium	5.2		5.00	10.9		mg/L		115	70 - 130	0	20
Sodium	57		5.00	63.8	4	mg/L		142	70 - 130	1	20
Vanadium	0.0085	J	0.500	0.556		mg/L		110	70 - 130	2	20

Lab Sample ID: 410-162179-9 DU — **Client Sample ID: FDRAIN_20240228_N_WS**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 478774 — **Prep Batch: 478574**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Calcium	22		22.6		mg/L		2	20
Iron	0.082	U	0.082	U	mg/L		NC	20
Magnesium	5.2		5.24		mg/L		1	20
Sodium	57		57.4		mg/L		1	20
Vanadium	0.0085	J	0.00843	J	mg/L		0.4	20

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 410-478999/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 478999

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12	U	30	12	mg/L			03/01/24 22:56	1

Lab Sample ID: LCS 410-478999/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 478999

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	200	207		mg/L		104	90 - 110

Lab Sample ID: 410-162179-1 MS — **Client Sample ID: UO-88-13.1_20240227_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 478999

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	870		800	1720		mg/L		106	90 - 110

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C) (Continued)

Lab Sample ID: 410-162179-1 DU — **Client Sample ID: UO-88-13.1_20240227_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 478999

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	870			892		mg/L				2	10

Lab Sample ID: 410-162179-5 DU — **Client Sample ID: UO-91-20.1B_20240227_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 478999

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	490			491		mg/L				0	10

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 410-478871/21 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 478871

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.040	U	0.10	0.040	mg/L			03/01/24 09:53	1

Lab Sample ID: LCS 410-478871/19 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 478871

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Nitrate Nitrite as N			2.00	1.90		mg/L		95	90 - 110		

Lab Sample ID: LCSD 410-478871/20 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 478871

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrate Nitrite as N			2.00	1.98		mg/L		99	90 - 110	4	20

HPLC/IC

Analysis Batch: 478560

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162179-1	UO-88-13.1_20240227_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-162179-2	UO-88-13.2_20240227_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-478560/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-478560/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-478560/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 478579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162179-3	UO-88-13.2_20240227_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-162179-4	UO-87-04.1_20240227_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-162179-4	UO-87-04.1_20240227_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-162179-5	UO-91-20.1B_20240227_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-162179-5	UO-91-20.1B_20240227_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-162179-6	UO-87-03.1_20240228_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-162179-7	UO-87-03.2_20240228_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-162179-8	FDRAIN_20240228_FD_WS	Total/NA	Water	EPA 300.0 R2.1	
410-162179-9	FDRAIN_20240228_N_WS	Total/NA	Water	EPA 300.0 R2.1	
410-162179-10	WDRAIN_20240228_N_WS	Total/NA	Water	EPA 300.0 R2.1	
410-162179-11	EDRAIN_20240228_N_WS	Total/NA	Water	EPA 300.0 R2.1	
MB 410-478579/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-478579/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-478579/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 479033

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162179-1	UO-88-13.1_20240227_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-479033/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-479033/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-479033/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 479037

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162179-2	UO-88-13.2_20240227_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-479037/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-479037/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-479037/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 479440

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162179-3	UO-88-13.2_20240227_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-162179-6	UO-87-03.1_20240228_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-162179-7	UO-87-03.2_20240228_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-162179-8	FDRAIN_20240228_FD_WS	Total/NA	Water	EPA 300.0 R2.1	
410-162179-9	FDRAIN_20240228_N_WS	Total/NA	Water	EPA 300.0 R2.1	
MB 410-479440/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-479440/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-479440/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	
410-162179-8 MS	FDRAIN_20240228_FD_WS	Total/NA	Water	EPA 300.0 R2.1	
410-162179-8 DU	FDRAIN_20240228_FD_WS	Total/NA	Water	EPA 300.0 R2.1	

Metals

Analysis Batch: 476227

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162179-1	UO-88-13.1_20240227_N_WG	Dissolved	Water	2340B-2011	
410-162179-2	UO-88-13.2_20240227_FD_WG	Dissolved	Water	2340B-2011	
410-162179-3	UO-88-13.2_20240227_N_WG	Dissolved	Water	2340B-2011	
410-162179-4	UO-87-04.1_20240227_N_WG	Dissolved	Water	2340B-2011	
410-162179-5	UO-91-20.1B_20240227_N_WG	Dissolved	Water	2340B-2011	
410-162179-6	UO-87-03.1_20240228_N_WG	Dissolved	Water	2340B-2011	
410-162179-7	UO-87-03.2_20240228_N_WG	Dissolved	Water	2340B-2011	
410-162179-8	FDRAIN_20240228_FD_WS	Dissolved	Water	2340B-2011	
410-162179-9	FDRAIN_20240228_N_WS	Dissolved	Water	2340B-2011	
410-162179-10	WDRAIN_20240228_N_WS	Dissolved	Water	2340B-2011	
410-162179-11	EDRAIN_20240228_N_WS	Dissolved	Water	2340B-2011	

Prep Batch: 478574

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162179-1	UO-88-13.1_20240227_N_WG	Dissolved	Water	Non-Digest Prep	
410-162179-2	UO-88-13.2_20240227_FD_WG	Dissolved	Water	Non-Digest Prep	
410-162179-3	UO-88-13.2_20240227_N_WG	Dissolved	Water	Non-Digest Prep	
410-162179-4	UO-87-04.1_20240227_N_WG	Dissolved	Water	Non-Digest Prep	
410-162179-5	UO-91-20.1B_20240227_N_WG	Dissolved	Water	Non-Digest Prep	
410-162179-6	UO-87-03.1_20240228_N_WG	Dissolved	Water	Non-Digest Prep	
410-162179-7	UO-87-03.2_20240228_N_WG	Dissolved	Water	Non-Digest Prep	
410-162179-8	FDRAIN_20240228_FD_WS	Dissolved	Water	Non-Digest Prep	
410-162179-9	FDRAIN_20240228_N_WS	Dissolved	Water	Non-Digest Prep	
410-162179-10	WDRAIN_20240228_N_WS	Dissolved	Water	Non-Digest Prep	
410-162179-11	EDRAIN_20240228_N_WS	Dissolved	Water	Non-Digest Prep	
MB 410-478574/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-478574/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	
410-162179-9 MS	FDRAIN_20240228_N_WS	Dissolved	Water	Non-Digest Prep	
410-162179-9 MSD	FDRAIN_20240228_N_WS	Dissolved	Water	Non-Digest Prep	
410-162179-9 DU	FDRAIN_20240228_N_WS	Dissolved	Water	Non-Digest Prep	

Analysis Batch: 478774

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162179-1	UO-88-13.1_20240227_N_WG	Dissolved	Water	200.7 Rev 4.4	478574
410-162179-2	UO-88-13.2_20240227_FD_WG	Dissolved	Water	200.7 Rev 4.4	478574
410-162179-3	UO-88-13.2_20240227_N_WG	Dissolved	Water	200.7 Rev 4.4	478574
410-162179-4	UO-87-04.1_20240227_N_WG	Dissolved	Water	200.7 Rev 4.4	478574
410-162179-5	UO-91-20.1B_20240227_N_WG	Dissolved	Water	200.7 Rev 4.4	478574
410-162179-6	UO-87-03.1_20240228_N_WG	Dissolved	Water	200.7 Rev 4.4	478574
410-162179-7	UO-87-03.2_20240228_N_WG	Dissolved	Water	200.7 Rev 4.4	478574
410-162179-8	FDRAIN_20240228_FD_WS	Dissolved	Water	200.7 Rev 4.4	478574
410-162179-9	FDRAIN_20240228_N_WS	Dissolved	Water	200.7 Rev 4.4	478574
410-162179-10	WDRAIN_20240228_N_WS	Dissolved	Water	200.7 Rev 4.4	478574
MB 410-478574/1-A	Method Blank	Total/NA	Water	200.7 Rev 4.4	478574
LCS 410-478574/2-A	Lab Control Sample	Total/NA	Water	200.7 Rev 4.4	478574
410-162179-9 MS	FDRAIN_20240228_N_WS	Dissolved	Water	200.7 Rev 4.4	478574
410-162179-9 MSD	FDRAIN_20240228_N_WS	Dissolved	Water	200.7 Rev 4.4	478574
410-162179-9 DU	FDRAIN_20240228_N_WS	Dissolved	Water	200.7 Rev 4.4	478574

Metals

Analysis Batch: 478843

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162179-2	UO-88-13.2_20240227_FD_WG	Dissolved	Water	200.7 Rev 4.4	478574
410-162179-3	UO-88-13.2_20240227_N_WG	Dissolved	Water	200.7 Rev 4.4	478574
410-162179-6	UO-87-03.1_20240228_N_WG	Dissolved	Water	200.7 Rev 4.4	478574
410-162179-7	UO-87-03.2_20240228_N_WG	Dissolved	Water	200.7 Rev 4.4	478574
410-162179-10	WDRAIN_20240228_N_WS	Dissolved	Water	200.7 Rev 4.4	478574
410-162179-11	EDRAIN_20240228_N_WS	Dissolved	Water	200.7 Rev 4.4	478574
410-162179-11	EDRAIN_20240228_N_WS	Dissolved	Water	200.7 Rev 4.4	478574

General Chemistry

Analysis Batch: 478871

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162179-1	UO-88-13.1_20240227_N_WG	Total/NA	Water	353.2	
410-162179-2	UO-88-13.2_20240227_FD_WG	Total/NA	Water	353.2	
410-162179-3	UO-88-13.2_20240227_N_WG	Total/NA	Water	353.2	
410-162179-4	UO-87-04.1_20240227_N_WG	Total/NA	Water	353.2	
410-162179-5	UO-91-20.1B_20240227_N_WG	Total/NA	Water	353.2	
410-162179-6	UO-87-03.1_20240228_N_WG	Total/NA	Water	353.2	
410-162179-7	UO-87-03.2_20240228_N_WG	Total/NA	Water	353.2	
410-162179-8	FDRAIN_20240228_FD_WS	Total/NA	Water	353.2	
410-162179-9	FDRAIN_20240228_N_WS	Total/NA	Water	353.2	
410-162179-10	WDRAIN_20240228_N_WS	Total/NA	Water	353.2	
410-162179-11	EDRAIN_20240228_N_WS	Total/NA	Water	353.2	
MB 410-478871/21	Method Blank	Total/NA	Water	353.2	
LCS 410-478871/19	Lab Control Sample	Total/NA	Water	353.2	
LCSD 410-478871/20	Lab Control Sample Dup	Total/NA	Water	353.2	

Analysis Batch: 478999

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162179-1	UO-88-13.1_20240227_N_WG	Total/NA	Water	2540C - 2015	
410-162179-2	UO-88-13.2_20240227_FD_WG	Total/NA	Water	2540C - 2015	
410-162179-3	UO-88-13.2_20240227_N_WG	Total/NA	Water	2540C - 2015	
410-162179-4	UO-87-04.1_20240227_N_WG	Total/NA	Water	2540C - 2015	
410-162179-5	UO-91-20.1B_20240227_N_WG	Total/NA	Water	2540C - 2015	
410-162179-6	UO-87-03.1_20240228_N_WG	Total/NA	Water	2540C - 2015	
410-162179-7	UO-87-03.2_20240228_N_WG	Total/NA	Water	2540C - 2015	
410-162179-8	FDRAIN_20240228_FD_WS	Total/NA	Water	2540C - 2015	
410-162179-9	FDRAIN_20240228_N_WS	Total/NA	Water	2540C - 2015	
410-162179-10	WDRAIN_20240228_N_WS	Total/NA	Water	2540C - 2015	
410-162179-11	EDRAIN_20240228_N_WS	Total/NA	Water	2540C - 2015	
MB 410-478999/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-478999/2	Lab Control Sample	Total/NA	Water	2540C - 2015	
410-162179-1 MS	UO-88-13.1_20240227_N_WG	Total/NA	Water	2540C - 2015	
410-162179-1 DU	UO-88-13.1_20240227_N_WG	Total/NA	Water	2540C - 2015	
410-162179-5 DU	UO-91-20.1B_20240227_N_WG	Total/NA	Water	2540C - 2015	

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-162179-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-88-13.1_20240227_N_WG — Lab Sample ID: 410-162179-1

Date Collected: 02/27/24 10:12 **Matrix: Water**
Date Received: 02/29/24 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		50	478560	W7FX	ELLE	03/01/24 11:35
Total/NA	Analysis	EPA 300.0 R2.1		20	479033	W7FX	ELLE	03/03/24 06:24
Dissolved	Prep	Non-Digest Prep			478574	UAMX	ELLE	02/29/24 22:10
Dissolved	Analysis	200.7 Rev 4.4		1	478774	MT26	ELLE	03/01/24 08:21
Dissolved	Analysis	2340B-2011		1	476227	USJM	ELLE	03/01/24 08:38
Total/NA	Analysis	2540C - 2015		1	478999	UOCA	ELLE	03/01/24 22:56 - 03/04/24 06:30 [1]
Total/NA	Analysis	353.2		10	478871	Q3HN	ELLE	03/01/24 10:01

Client Sample ID: UO-88-13.2_20240227_FD_WG — Lab Sample ID: 410-162179-2

Date Collected: 02/27/24 10:49 **Matrix: Water**
Date Received: 02/29/24 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		20	478560	W7FX	ELLE	03/01/24 11:47
Total/NA	Analysis	EPA 300.0 R2.1		500	479037	L4QM	ELLE	03/02/24 23:07
Dissolved	Prep	Non-Digest Prep			478574	UAMX	ELLE	02/29/24 22:10
Dissolved	Analysis	200.7 Rev 4.4		1	478774	MT26	ELLE	03/01/24 08:14
Dissolved	Prep	Non-Digest Prep			478574	UAMX	ELLE	02/29/24 22:10
Dissolved	Analysis	200.7 Rev 4.4		10	478843	MT26	ELLE	03/01/24 11:52
Dissolved	Analysis	2340B-2011		1	476227	USJM	ELLE	03/01/24 08:38
Total/NA	Analysis	2540C - 2015		1	478999	UOCA	ELLE	03/01/24 22:56 - 03/04/24 06:30 [1]
Total/NA	Analysis	353.2		1	478871	Q3HN	ELLE	03/01/24 10:03

Client Sample ID: UO-88-13.2_20240227_N_WG — Lab Sample ID: 410-162179-3

Date Collected: 02/27/24 10:49 **Matrix: Water**
Date Received: 02/29/24 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		500	479440	W7FX	ELLE	03/04/24 16:45
Total/NA	Analysis	EPA 300.0 R2.1		20	478579	L4QM	ELLE	03/01/24 09:14
Dissolved	Prep	Non-Digest Prep			478574	UAMX	ELLE	02/29/24 22:10
Dissolved	Analysis	200.7 Rev 4.4		1	478774	MT26	ELLE	03/01/24 08:04
Dissolved	Prep	Non-Digest Prep			478574	UAMX	ELLE	02/29/24 22:10
Dissolved	Analysis	200.7 Rev 4.4		10	478843	MT26	ELLE	03/01/24 11:49
Dissolved	Analysis	2340B-2011		1	476227	USJM	ELLE	03/01/24 08:38
Total/NA	Analysis	2540C - 2015		1	478999	UOCA	ELLE	03/01/24 22:56 - 03/04/24 06:30 [1]
Total/NA	Analysis	353.2		1	478871	Q3HN	ELLE	03/01/24 10:05

Client Sample ID: UO-87-04.1_20240227_N_WG — Lab Sample ID: 410-162179-4

Date Collected: 02/27/24 12:17 **Matrix: Water**
Date Received: 02/29/24 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	478579	L4QM	ELLE	03/01/24 11:15

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-162179-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-87-04.1_20240227_N_WG — Lab Sample ID: 410-162179-4

Date Collected: 02/27/24 12:17 **Matrix: Water**
Date Received: 02/29/24 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		50	478579	L4QM	ELLE	03/01/24 11:27
Dissolved	Prep	Non-Digest Prep			478574	UAMX	ELLE	02/29/24 22:10
Dissolved	Analysis	200.7 Rev 4.4		1	478774	MT26	ELLE	03/01/24 08:08
Dissolved	Analysis	2340B-2011		1	476227	USJM	ELLE	03/01/24 08:38
Total/NA	Analysis	2540C - 2015		1	478999	UOCA	ELLE	03/01/24 22:56 - 03/04/24 06:30 [1]
Total/NA	Analysis	353.2		10	478871	Q3HN	ELLE	03/01/24 10:07

Client Sample ID: UO-91-20.1B_20240227_N_WG — Lab Sample ID: 410-162179-5

Date Collected: 02/27/24 12:59 **Matrix: Water**
Date Received: 02/29/24 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	478579	L4QM	ELLE	03/01/24 11:39
Total/NA	Analysis	EPA 300.0 R2.1		50	478579	L4QM	ELLE	03/01/24 11:51
Dissolved	Prep	Non-Digest Prep			478574	UAMX	ELLE	02/29/24 22:10
Dissolved	Analysis	200.7 Rev 4.4		1	478774	MT26	ELLE	03/01/24 08:11
Dissolved	Analysis	2340B-2011		1	476227	USJM	ELLE	03/01/24 08:38
Total/NA	Analysis	2540C - 2015		1	478999	UOCA	ELLE	03/01/24 22:56 - 03/04/24 06:30 [1]
Total/NA	Analysis	353.2		1	478871	Q3HN	ELLE	03/01/24 10:13

Client Sample ID: UO-87-03.1_20240228_N_WG — Lab Sample ID: 410-162179-6

Date Collected: 02/28/24 11:13 **Matrix: Water**
Date Received: 02/29/24 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		500	479440	W7FX	ELLE	03/04/24 16:57
Total/NA	Analysis	EPA 300.0 R2.1		200	478579	L4QM	ELLE	03/01/24 09:50
Dissolved	Prep	Non-Digest Prep			478574	UAMX	ELLE	02/29/24 22:10
Dissolved	Analysis	200.7 Rev 4.4		1	478774	MT26	ELLE	03/01/24 08:34
Dissolved	Prep	Non-Digest Prep			478574	UAMX	ELLE	02/29/24 22:10
Dissolved	Analysis	200.7 Rev 4.4		10	478843	MT26	ELLE	03/01/24 11:59
Dissolved	Analysis	2340B-2011		1	476227	USJM	ELLE	03/01/24 08:38
Total/NA	Analysis	2540C - 2015		1	478999	UOCA	ELLE	03/01/24 22:56 - 03/04/24 06:30 [1]
Total/NA	Analysis	353.2		1	478871	Q3HN	ELLE	03/01/24 10:15

Client Sample ID: UO-87-03.2_20240228_N_WG — Lab Sample ID: 410-162179-7

Date Collected: 02/28/24 12:22 **Matrix: Water**
Date Received: 02/29/24 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		1000	479440	W7FX	ELLE	03/04/24 18:25
Total/NA	Analysis	EPA 300.0 R2.1		50	478579	L4QM	ELLE	03/01/24 12:52
Dissolved	Prep	Non-Digest Prep			478574	UAMX	ELLE	02/29/24 22:10
Dissolved	Analysis	200.7 Rev 4.4		1	478774	MT26	ELLE	03/01/24 08:18

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-162179-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-87-03.2_20240228_N_WG — Lab Sample ID: 410-162179-7

Date Collected: 02/28/24 12:22 **Matrix: Water**
Date Received: 02/29/24 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			478574	UAMX	ELLE	02/29/24 22:10
Dissolved	Analysis	200.7 Rev 4.4		10	478843	MT26	ELLE	03/01/24 11:56
Dissolved	Analysis	2340B-2011		1	476227	USJM	ELLE	03/01/24 08:38
Total/NA	Analysis	2540C - 2015		1	478999	UOCA	ELLE	03/01/24 22:56 - 03/04/24 06:30 [1]
Total/NA	Analysis	353.2		1	478871	Q3HN	ELLE	03/01/24 10:17

Client Sample ID: FDRAIN_20240228_FD_WS — Lab Sample ID: 410-162179-8

Date Collected: 02/28/24 13:32 **Matrix: Water**
Date Received: 02/29/24 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		20	479440	W7FX	ELLE	03/04/24 17:35
Total/NA	Analysis	EPA 300.0 R2.1		5	478579	L4QM	ELLE	03/01/24 12:03
Dissolved	Prep	Non-Digest Prep			478574	UAMX	ELLE	02/29/24 22:10
Dissolved	Analysis	200.7 Rev 4.4		1	478774	MT26	ELLE	03/01/24 07:49
Dissolved	Analysis	2340B-2011		1	476227	USJM	ELLE	03/01/24 08:38
Total/NA	Analysis	2540C - 2015		1	478999	UOCA	ELLE	03/01/24 22:56 - 03/04/24 06:30 [1]
Total/NA	Analysis	353.2		2	478871	Q3HN	ELLE	03/01/24 10:19

Client Sample ID: FDRAIN_20240228_N_WS — Lab Sample ID: 410-162179-9

Date Collected: 02/28/24 13:32 **Matrix: Water**
Date Received: 02/29/24 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		20	479440	W7FX	ELLE	03/04/24 18:13
Total/NA	Analysis	EPA 300.0 R2.1		5	478579	L4QM	ELLE	03/01/24 12:28
Dissolved	Prep	Non-Digest Prep			478574	UAMX	ELLE	02/29/24 22:10
Dissolved	Analysis	200.7 Rev 4.4		1	478774	MT26	ELLE	03/01/24 07:30
Dissolved	Analysis	2340B-2011		1	476227	USJM	ELLE	03/01/24 08:38
Total/NA	Analysis	2540C - 2015		1	478999	UOCA	ELLE	03/01/24 22:56 - 03/04/24 06:30 [1]
Total/NA	Analysis	353.2		2	478871	Q3HN	ELLE	03/01/24 10:21

Client Sample ID: WDRAIN_20240228_N_WS — Lab Sample ID: 410-162179-10

Date Collected: 02/28/24 14:03 **Matrix: Water**
Date Received: 02/29/24 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		100	478579	L4QM	ELLE	03/01/24 11:03
Dissolved	Prep	Non-Digest Prep			478574	UAMX	ELLE	02/29/24 22:10
Dissolved	Analysis	200.7 Rev 4.4		1	478774	MT26	ELLE	03/01/24 08:01
Dissolved	Prep	Non-Digest Prep			478574	UAMX	ELLE	02/29/24 22:10
Dissolved	Analysis	200.7 Rev 4.4		10	478843	MT26	ELLE	03/01/24 11:46
Dissolved	Analysis	2340B-2011		1	476227	USJM	ELLE	03/01/24 08:38
Total/NA	Analysis	2540C - 2015		1	478999	UOCA	ELLE	03/01/24 22:56 - 03/04/24 06:30 [1]

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-162179-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: WDRAIN_20240228_N_WS — Lab Sample ID: 410-162179-10

Date Collected: 02/28/24 14:03 — **Matrix: Water**
Date Received: 02/29/24 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	353.2		10	478871	Q3HN	ELLE	03/01/24 10:29

Client Sample ID: EDRAIN_20240228_N_WS — Lab Sample ID: 410-162179-11

Date Collected: 02/28/24 14:17 — **Matrix: Water**
Date Received: 02/29/24 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		200	478579	L4QM	ELLE	03/01/24 10:15
Dissolved	Prep	Non-Digest Prep			478574	UAMX	ELLE	02/29/24 22:10
Dissolved	Analysis	200.7 Rev 4.4		1	478843	MT26	ELLE	03/01/24 10:59
Dissolved	Prep	Non-Digest Prep			478574	UAMX	ELLE	02/29/24 22:10
Dissolved	Analysis	200.7 Rev 4.4		10	478843	MT26	ELLE	03/01/24 12:02
Dissolved	Analysis	2340B-2011		1	476227	USJM	ELLE	03/01/24 08:38
Total/NA	Analysis	2540C - 2015		1	478999	UOCA	ELLE	03/01/24 22:56 - 03/04/24 06:30 [1]
Total/NA	Analysis	353.2		1	478871	Q3HN	ELLE	03/01/24 10:31

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-162179-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00660	08-09-24

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

Analysis Method	Prep Method	Matrix	Analyte
2340B-2011		Water	Hardness as calcium carbonate

Method Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-162179-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
200.7 Rev 4.4	Metals (ICP)	EPA	ELLE
2340B-2011	Total Hardness (as CaCO3) by calculation	SM	ELLE
2540C - 2015	Total Dissolved Solids (Dried at 180 °C)	SM	ELLE
353.2	Nitrogen, Nitrate-Nitrite	EPA	ELLE
Non-Digest Prep	Preparation, Non-Digested Aqueous Metals	EPA	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-162179-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-162179-1	UO-88-13.1_20240227_N_WG	Water	02/27/24 10:12	02/29/24 09:45
410-162179-2	UO-88-13.2_20240227_FD_WG	Water	02/27/24 10:49	02/29/24 09:45
410-162179-3	UO-88-13.2_20240227_N_WG	Water	02/27/24 10:49	02/29/24 09:45
410-162179-4	UO-87-04.1_20240227_N_WG	Water	02/27/24 12:17	02/29/24 09:45
410-162179-5	UO-91-20.1B_20240227_N_WG	Water	02/27/24 12:59	02/29/24 09:45
410-162179-6	UO-87-03.1_20240228_N_WG	Water	02/28/24 11:13	02/29/24 09:45
410-162179-7	UO-87-03.2_20240228_N_WG	Water	02/28/24 12:22	02/29/24 09:45
410-162179-8	FDRAIN_20240228_FD_WS	Water	02/28/24 13:32	02/29/24 09:45
410-162179-9	FDRAIN_20240228_N_WS	Water	02/28/24 13:32	02/29/24 09:45
410-162179-10	WDRAIN_20240228_N_WS	Water	02/28/24 14:03	02/29/24 09:45
410-162179-11	EDRAIN_20240228_N_WS	Water	02/28/24 14:17	02/29/24 09:45

Jacobs

410-162179 Chain of Custody

ANALYSIS REQUEST | **COC No: EuroFins Lan-45350613** | **Cooler No. of**

| | | |

Jacobs

CHAIN OF CUSTODY / SAMPLE ANALYSIS REQUEST

COC No: EuroFins Lan-45350613

Cooler No. of

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 7
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number** 4508165277
Project Chemist Mark Stinnett 352-359-5937	**Shipping Company / Airbill No.** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 02/28/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Analysis: Filtered																									
								Preserve			HNO3	H2SO4																						
								Analysis	Chloride and Sulfate - E300.0	Hardness - SM2340B	Nitrate-Nitrite - E353.2	TDS - SM2540C	ssolved Metals - E200.7 (Ca Mg Na V)	solved Metals - E200.7 (Ca Mg Fe Na V)																			
FDRAIN_20240228_FD_WS	FDRAIN	WS	G		02/28/2024 13:32	4			X	X	X	X		X																			
FDRAIN_20240228_N_WS	FDRAIN	WS	G		02/28/2024 13:32	4			X	X	X	X		X																			
WDRAIN_20240228_N_WS	WDRAIN	WS	G		02/28/2024 14:03	4			X	X	X	X		X																			
EDRAIN_20240228_N_WS	EDRAIN	WS	G		02/28/2024 14:17	4			X	X	X	X		X																			

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	Jordan Carnahan	02-28-24 1730		
			JA QLET	2/29/24 9:45
	SHIPPING METHOD: (mark as appropriate)		SAMPLER NAME AND SIGNATURE	Date Time
Email Report To :				
Email Invoice To : Mark.Stinnett@jacobs.com, Dow_Umetco@jacobs.com			Raw 1.9- COR 1.8	

mB

Login Sample Receipt Checklist

Client: Jacobs Engineering Group, Inc.

Job Number: 410-162179-1

Login Number: 162179

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Ballard, Megan

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Mark Stinnett
Jacobs Engineering Group, Inc.
3011 SW Willston Road
Gainesville, Florida 32608-3964

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JOB DESCRIPTION

Umetco Hot Springs - UMP Quarterly Groundwater

JOB NUMBER

410-162179-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

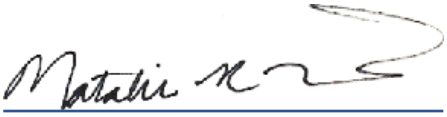
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Job Notes

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.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



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Revision 1

Authorized for release by
Natalie Luciano, Principal Project Manager
Natalie.Luciano@et.eurofinsus.com
(717)556-7258

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is 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.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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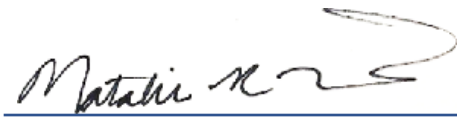


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Definitions/Glossary

Client: Jacobs Engineering Group, Inc. Job ID: 410-162179-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Qualifiers

HPLC/IC

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.
U	Indicates the analyte was analyzed for but not detected.

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.
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail
H	Sample was prepped or analyzed beyond the specified holding time. This does not meet regulatory requirements.
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Job ID: 410-162179-1 Eurofins Lancaster Laboratories Environment

Job Narrative
410-162179-1

REVISION

The report being provided is a revision of the original report sent on 3/6/2024. The report (revision 1) is being revised due to the inclusion of out of hold time re-analysis data for TDS.

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

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

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

Receipt
The samples were received on 2/29/2024 9:45 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.8°C.

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

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

General Chemistry
Method 2540C_Calcd: Reanalysis of the following samples were performed outside of the analytical holding time due to a client inquiry from a different container: UO-88-13.2_20240227_FD_WG (410-162179-2) and UO-88-13.2_20240227_N_WG (410-162179-3).

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

Detection Summary

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Job ID: 410-162179-1

Client Sample ID: UO-88-13.1_20240227_N_WG — Lab Sample ID: 410-162179-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	540		75	25	mg/L	50		EPA 300.0 R2.1	Total/NA
Chloride	62		30	12	mg/L	20		EPA 300.0 R2.1	Total/NA
Calcium	110		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	3.9		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	160		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Vanadium	0.014		0.010	0.0020	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	280		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	870		120	48	mg/L	1		2540C - 2015	Total/NA
Nitrate Nitrite as N	11		1.0	0.40	mg/L	10		353.2	Total/NA

Client Sample ID: UO-88-13.2_20240227_FD_WG — Lab Sample ID: 410-162179-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	43		30	10	mg/L	20		EPA 300.0 R2.1	Total/NA
Chloride	3000		750	300	mg/L	500		EPA 300.0 R2.1	Total/NA
Calcium	1200		5.2	2.4	mg/L	10		200.7 Rev 4.4	Dissolved
Magnesium	240		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	200		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	4000		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	59000		6000	2400	mg/L	1		2540C - 2015	Total/NA
Total Dissolved Solids	5200	H cn	240	96	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-88-13.2_20240227_N_WG — Lab Sample ID: 410-162179-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	47		30	10	mg/L	20		EPA 300.0 R2.1	Total/NA
Chloride	3300		750	300	mg/L	500		EPA 300.0 R2.1	Total/NA
Calcium	1200		5.2	2.4	mg/L	10		200.7 Rev 4.4	Dissolved
Magnesium	240		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	200		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	4000		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	68000		6000	2400	mg/L	1		2540C - 2015	Total/NA
Total Dissolved Solids	5100	H cn	240	96	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-04.1_20240227_N_WG — Lab Sample ID: 410-162179-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	250		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Calcium	120		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	1.6		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	18		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	310		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	480		60	24	mg/L	1		2540C - 2015	Total/NA
Nitrate Nitrite as N	7.4		1.0	0.40	mg/L	10		353.2	Total/NA

Client Sample ID: UO-91-20.1B_20240227_N_WG — Lab Sample ID: 410-162179-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	5.9	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	320		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Calcium	130		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	36		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	29		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved

This Detection Summary does not include radiochemical test results.

Client Sample ID: UO-91-20.1B_20240227_N_WG (Continued) — Lab Sample ID: 410-162179-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Hardness as calcium carbonate	460		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	490		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-03.1_20240228_N_WG — Lab Sample ID: 410-162179-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	880		300	100	mg/L	200		EPA 300.0 R2.1	Total/NA
Chloride	2600		750	300	mg/L	500		EPA 300.0 R2.1	Total/NA
Calcium	1100		5.2	2.4	mg/L	10		200.7 Rev 4.4	Dissolved
Magnesium	110		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	610		10	4.1	mg/L	10		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	3100		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	7000		600	240	mg/L	1		2540C - 2015	Total/NA
Nitrate Nitrite as N	1.8		0.10	0.040	mg/L	1		353.2	Total/NA

Client Sample ID: UO-87-03.2_20240228_N_WG — Lab Sample ID: 410-162179-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	870		75	25	mg/L	50		EPA 300.0 R2.1	Total/NA
Chloride	5500		1500	600	mg/L	1000		EPA 300.0 R2.1	Total/NA
Calcium	1900		5.2	2.4	mg/L	10		200.7 Rev 4.4	Dissolved
Magnesium	110		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	760		10	4.1	mg/L	10		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	5200		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	8200		1200	480	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: FDRAIN_20240228_FD_WS — Lab Sample ID: 410-162179-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	110		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	68		30	12	mg/L	20		EPA 300.0 R2.1	Total/NA
Calcium	22		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	5.2		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	57		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Vanadium	0.0086	J	0.010	0.0020	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	78		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	290		30	12	mg/L	1		2540C - 2015	Total/NA
Nitrate Nitrite as N	3.1		0.20	0.080	mg/L	2		353.2	Total/NA

Client Sample ID: FDRAIN_20240228_N_WS — Lab Sample ID: 410-162179-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	110		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	65		30	12	mg/L	20		EPA 300.0 R2.1	Total/NA
Calcium	22		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	5.2		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	57		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Vanadium	0.0085	J	0.010	0.0020	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	77		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	300		30	12	mg/L	1		2540C - 2015	Total/NA
Nitrate Nitrite as N	3.3		0.20	0.080	mg/L	2		353.2	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-162179-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Client Sample ID: WDRAIN_20240228_N_WS
Lab Sample ID: 410-162179-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	2100		150	50	mg/L	100		EPA 300.0 R2.1	Total/NA
Chloride	380		150	60	mg/L	100		EPA 300.0 R2.1	Total/NA
Calcium	290		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	10		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	900		10	4.1	mg/L	10		200.7 Rev 4.4	Dissolved
Vanadium	0.10		0.010	0.0020	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	750		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	3800		240	96	mg/L	1		2540C - 2015	Total/NA
Nitrate Nitrite as N	6.0		1.0	0.40	mg/L	10		353.2	Total/NA

Client Sample ID: EDRAIN_20240228_N_WS
Lab Sample ID: 410-162179-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	4100		300	100	mg/L	200		EPA 300.0 R2.1	Total/NA
Chloride	850		300	120	mg/L	200		EPA 300.0 R2.1	Total/NA
Calcium	490		5.2	2.4	mg/L	10		200.7 Rev 4.4	Dissolved
Iron	26		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	7.1		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	2100		10	4.1	mg/L	10		200.7 Rev 4.4	Dissolved
Vanadium	0.10		0.010	0.0020	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	1300		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	7700		1200	480	mg/L	1		2540C - 2015	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: UO-88-13.1_20240227_N_WG — Lab Sample ID: 410-162179-1

Date Collected: 02/27/24 10:12 — **Matrix: Water**
Date Received: 02/29/24 09:45

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	540		75	25	mg/L			03/01/24 11:35	50
Chloride	62		30	12	mg/L			03/03/24 06:24	20

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	110		0.52	0.24	mg/L		02/29/24 22:10	03/01/24 08:21	1
Magnesium	3.9		0.21	0.082	mg/L		02/29/24 22:10	03/01/24 08:21	1
Sodium	160		1.0	0.41	mg/L		02/29/24 22:10	03/01/24 08:21	1
Vanadium	0.014		0.010	0.0020	mg/L		02/29/24 22:10	03/01/24 08:21	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	280		0.91	0.41	mg/L			03/01/24 08:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	870		120	48	mg/L			03/01/24 22:56	1
Nitrate Nitrite as N (EPA 353.2)	11		1.0	0.40	mg/L			03/01/24 10:01	10

Client Sample ID: UO-88-13.2_20240227_FD_WG — Lab Sample ID: 410-162179-2

Date Collected: 02/27/24 10:49 — **Matrix: Water**
Date Received: 02/29/24 09:45

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	43		30	10	mg/L			03/01/24 11:47	20
Chloride	3000		750	300	mg/L			03/02/24 23:07	500

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	1200		5.2	2.4	mg/L		02/29/24 22:10	03/01/24 11:52	10
Magnesium	240		0.21	0.082	mg/L		02/29/24 22:10	03/01/24 08:14	1
Sodium	200		1.0	0.41	mg/L		02/29/24 22:10	03/01/24 08:14	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/29/24 22:10	03/01/24 08:14	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	4000		0.91	0.41	mg/L			03/01/24 08:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	59000		6000	2400	mg/L			03/01/24 22:56	1
Total Dissolved Solids (SM 2540C - 2015)	5200	H cn	240	96	mg/L			07/13/24 13:12	1
Nitrate Nitrite as N (EPA 353.2)	0.040	U	0.10	0.040	mg/L			03/01/24 10:03	1

Client Sample ID: UO-88-13.2_20240227_N_WG — Lab Sample ID: 410-162179-3

Date Collected: 02/27/24 10:49 **Matrix: Water**
Date Received: 02/29/24 09:45

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**47**		30	10	mg/L			03/01/24 09:14	20
Chloride	**3300**		750	300	mg/L			03/04/24 16:45	500

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**1200**		5.2	2.4	mg/L		02/29/24 22:10	03/01/24 11:49	10
Magnesium	**240**		0.21	0.082	mg/L		02/29/24 22:10	03/01/24 08:04	1
Sodium	**200**		1.0	0.41	mg/L		02/29/24 22:10	03/01/24 08:04	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/29/24 22:10	03/01/24 08:04	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**4000**		0.91	0.41	mg/L			03/01/24 08:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	**68000**		6000	2400	mg/L			03/01/24 22:56	1
Total Dissolved Solids (SM 2540C - 2015)	**5100**	**H cn**	240	96	mg/L			07/13/24 13:12	1
Nitrate Nitrite as N (EPA 353.2)	0.040	U	0.10	0.040	mg/L			03/01/24 10:05	1

Client Sample ID: UO-87-04.1_20240227_N_WG — Lab Sample ID: 410-162179-4

Date Collected: 02/27/24 12:17 **Matrix: Water**
Date Received: 02/29/24 09:45

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.5	U	7.5	2.5	mg/L			03/01/24 11:15	5
Chloride	**250**		75	30	mg/L			03/01/24 11:27	50

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**120**		0.52	0.24	mg/L		02/29/24 22:10	03/01/24 08:08	1
Magnesium	**1.6**		0.21	0.082	mg/L		02/29/24 22:10	03/01/24 08:08	1
Sodium	**18**		1.0	0.41	mg/L		02/29/24 22:10	03/01/24 08:08	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/29/24 22:10	03/01/24 08:08	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**310**		0.91	0.41	mg/L			03/01/24 08:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	**480**		60	24	mg/L			03/01/24 22:56	1
Nitrate Nitrite as N (EPA 353.2)	**7.4**		1.0	0.40	mg/L			03/01/24 10:07	10

Client Sample ID: UO-91-20.1B_20240227_N_WG — Lab Sample ID: 410-162179-5

Date Collected: 02/27/24 12:59 **Matrix: Water**
Date Received: 02/29/24 09:45

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	5.9	J	7.5	2.5	mg/L			03/01/24 11:39	5
Chloride	320		75	30	mg/L			03/01/24 11:51	50

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	130		0.52	0.24	mg/L		02/29/24 22:10	03/01/24 08:11	1
Magnesium	36		0.21	0.082	mg/L		02/29/24 22:10	03/01/24 08:11	1
Sodium	29		1.0	0.41	mg/L		02/29/24 22:10	03/01/24 08:11	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/29/24 22:10	03/01/24 08:11	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	460		0.91	0.41	mg/L			03/01/24 08:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	490		60	24	mg/L			03/01/24 22:56	1
Nitrate Nitrite as N (EPA 353.2)	0.040	U	0.10	0.040	mg/L			03/01/24 10:13	1

Client Sample ID: UO-87-03.1_20240228_N_WG — Lab Sample ID: 410-162179-6

Date Collected: 02/28/24 11:13 **Matrix: Water**
Date Received: 02/29/24 09:45

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	880		300	100	mg/L			03/01/24 09:50	200
Chloride	2600		750	300	mg/L			03/04/24 16:57	500

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	1100		5.2	2.4	mg/L		02/29/24 22:10	03/01/24 11:59	10
Magnesium	110		0.21	0.082	mg/L		02/29/24 22:10	03/01/24 08:34	1
Sodium	610		10	4.1	mg/L		02/29/24 22:10	03/01/24 11:59	10
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/29/24 22:10	03/01/24 08:34	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	3100		0.91	0.41	mg/L			03/01/24 08:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	7000		600	240	mg/L			03/01/24 22:56	1
Nitrate Nitrite as N (EPA 353.2)	1.8		0.10	0.040	mg/L			03/01/24 10:15	1

Client: Jacobs Engineering Group, Inc. Job ID: 410-162179-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Client Sample ID: UO-87-03.2_20240228_N_WG — Lab Sample ID: 410-162179-7

Date Collected: 02/28/24 12:22 **Matrix: Water**
Date Received: 02/29/24 09:45

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**870**		75	25	mg/L			03/01/24 12:52	50
Chloride	**5500**		1500	600	mg/L			03/04/24 18:25	1000

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**1900**		5.2	2.4	mg/L		02/29/24 22:10	03/01/24 11:56	10
Magnesium	**110**		0.21	0.082	mg/L		02/29/24 22:10	03/01/24 08:18	1
Sodium	**760**		10	4.1	mg/L		02/29/24 22:10	03/01/24 11:56	10
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/29/24 22:10	03/01/24 08:18	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**5200**		0.91	0.41	mg/L			03/01/24 08:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	**8200**		1200	480	mg/L			03/01/24 22:56	1
Nitrate Nitrite as N (EPA 353.2)	0.040	U	0.10	0.040	mg/L			03/01/24 10:17	1

Client Sample ID: FDRAIN_20240228_FD_WS — Lab Sample ID: 410-162179-8

Date Collected: 02/28/24 13:32 **Matrix: Water**
Date Received: 02/29/24 09:45

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**110**		7.5	2.5	mg/L			03/01/24 12:03	5
Chloride	**68**		30	12	mg/L			03/04/24 17:35	20

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**22**		0.52	0.24	mg/L		02/29/24 22:10	03/01/24 07:49	1
Iron	0.082	U	0.21	0.082	mg/L		02/29/24 22:10	03/01/24 07:49	1
Magnesium	**5.2**		0.21	0.082	mg/L		02/29/24 22:10	03/01/24 07:49	1
Sodium	**57**		1.0	0.41	mg/L		02/29/24 22:10	03/01/24 07:49	1
Vanadium	**0.0086**	**J**	0.010	0.0020	mg/L		02/29/24 22:10	03/01/24 07:49	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**78**		0.91	0.41	mg/L			03/01/24 08:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	**290**		30	12	mg/L			03/01/24 22:56	1
Nitrate Nitrite as N (EPA 353.2)	**3.1**		0.20	0.080	mg/L			03/01/24 10:19	2

Client Sample ID: FDRAIN_20240228_N_WS

Lab Sample ID: 410-162179-9
Date Collected: 02/28/24 13:32
Matrix: Water
Date Received: 02/29/24 09:45

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	110		7.5	2.5	mg/L			03/01/24 12:28	5
Chloride	65		30	12	mg/L			03/04/24 18:13	20

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	22		0.52	0.24	mg/L		02/29/24 22:10	03/01/24 07:30	1
Iron	0.082	U	0.21	0.082	mg/L		02/29/24 22:10	03/01/24 07:30	1
Magnesium	5.2		0.21	0.082	mg/L		02/29/24 22:10	03/01/24 07:30	1
Sodium	57		1.0	0.41	mg/L		02/29/24 22:10	03/01/24 07:30	1
Vanadium	0.0085	J	0.010	0.0020	mg/L		02/29/24 22:10	03/01/24 07:30	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	77		0.91	0.41	mg/L			03/01/24 08:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	300		30	12	mg/L			03/01/24 22:56	1
Nitrate Nitrite as N (EPA 353.2)	3.3		0.20	0.080	mg/L			03/01/24 10:21	2

Client Sample ID: WDRAIN_20240228_N_WS

Lab Sample ID: 410-162179-10
Date Collected: 02/28/24 14:03
Matrix: Water
Date Received: 02/29/24 09:45

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2100		150	50	mg/L			03/01/24 11:03	100
Chloride	380		150	60	mg/L			03/01/24 11:03	100

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	290		0.52	0.24	mg/L		02/29/24 22:10	03/01/24 08:01	1
Iron	0.082	U	0.21	0.082	mg/L		02/29/24 22:10	03/01/24 08:01	1
Magnesium	10		0.21	0.082	mg/L		02/29/24 22:10	03/01/24 08:01	1
Sodium	900		10	4.1	mg/L		02/29/24 22:10	03/01/24 11:46	10
Vanadium	0.10		0.010	0.0020	mg/L		02/29/24 22:10	03/01/24 08:01	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	750		0.91	0.41	mg/L			03/01/24 08:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	3800		240	96	mg/L			03/01/24 22:56	1
Nitrate Nitrite as N (EPA 353.2)	6.0		1.0	0.40	mg/L			03/01/24 10:29	10

Client: Jacobs Engineering Group, Inc. Job ID: 410-162179-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Client Sample ID: EDRAIN_20240228_N_WS
Lab Sample ID: 410-162179-11
Date Collected: 02/28/24 14:17
Matrix: Water
Date Received: 02/29/24 09:45

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	4100		300	100	mg/L			03/01/24 10:15	200
Chloride	850		300	120	mg/L			03/01/24 10:15	200

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	490		5.2	2.4	mg/L		02/29/24 22:10	03/01/24 12:02	10
Iron	26		0.21	0.082	mg/L		02/29/24 22:10	03/01/24 10:59	1
Magnesium	7.1		0.21	0.082	mg/L		02/29/24 22:10	03/01/24 10:59	1
Sodium	2100		10	4.1	mg/L		02/29/24 22:10	03/01/24 12:02	10
Vanadium	0.10		0.010	0.0020	mg/L		02/29/24 22:10	03/01/24 10:59	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	1300		0.91	0.41	mg/L			03/01/24 08:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	7700		1200	480	mg/L			03/01/24 22:56	1
Nitrate Nitrite as N (EPA 353.2)	0.040	U	0.10	0.040	mg/L			03/01/24 10:31	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-478560/5
Matrix: Water
Analysis Batch: 478560

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			03/01/24 07:49	1
Chloride	0.60	U	1.5	0.60	mg/L			03/01/24 07:49	1

Lab Sample ID: LCS 410-478560/3
Matrix: Water
Analysis Batch: 478560

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.90		mg/L		105	90 - 110
Chloride	3.00	3.02		mg/L		101	90 - 110

Lab Sample ID: LCSD 410-478560/4
Matrix: Water
Analysis Batch: 478560

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	7.50	7.89		mg/L		105	90 - 110	0	20
Chloride	3.00	3.02		mg/L		101	90 - 110	0	20

Lab Sample ID: MB 410-478579/5
Matrix: Water
Analysis Batch: 478579

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			03/01/24 08:01	1
Chloride	0.60	U	1.5	0.60	mg/L			03/01/24 08:01	1

Lab Sample ID: LCS 410-478579/3
Matrix: Water
Analysis Batch: 478579

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.27		mg/L		97	90 - 110
Chloride	3.00	2.78		mg/L		93	90 - 110

Lab Sample ID: LCSD 410-478579/4
Matrix: Water
Analysis Batch: 478579

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	7.50	7.29		mg/L		97	90 - 110	0	20
Chloride	3.00	2.79		mg/L		93	90 - 110	0	20

Lab Sample ID: MB 410-479033/5
Matrix: Water
Analysis Batch: 479033

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			03/02/24 21:32	1
Chloride	0.60	U	1.5	0.60	mg/L			03/02/24 21:32	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: LCS 410-479033/3
Matrix: Water
Analysis Batch: 479033

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	6.95		mg/L		93	90 - 110
Chloride	3.00	2.77		mg/L		92	90 - 110

Lab Sample ID: LCSD 410-479033/4
Matrix: Water
Analysis Batch: 479033

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	7.50	6.92		mg/L		92	90 - 110	0	20
Chloride	3.00	2.76		mg/L		92	90 - 110	0	20

Lab Sample ID: MB 410-479037/5
Matrix: Water
Analysis Batch: 479037

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			03/02/24 14:32	1
Chloride	0.60	U	1.5	0.60	mg/L			03/02/24 14:32	1

Lab Sample ID: LCS 410-479037/3
Matrix: Water
Analysis Batch: 479037

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.16		mg/L		95	90 - 110
Chloride	3.00	2.78		mg/L		93	90 - 110

Lab Sample ID: LCSD 410-479037/4
Matrix: Water
Analysis Batch: 479037

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	7.50	7.14		mg/L		95	90 - 110	0	20
Chloride	3.00	2.77		mg/L		92	90 - 110	0	20

Lab Sample ID: MB 410-479440/5
Matrix: Water
Analysis Batch: 479440

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			03/04/24 14:26	1
Chloride	0.60	U	1.5	0.60	mg/L			03/04/24 14:26	1

Lab Sample ID: LCS 410-479440/3
Matrix: Water
Analysis Batch: 479440

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.01		mg/L		93	90 - 110
Chloride	3.00	2.76		mg/L		92	90 - 110

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: LCSD 410-479440/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 479440

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate			7.50	7.07		mg/L		94	90 - 110	1	20
Chloride			3.00	2.77		mg/L		92	90 - 110	0	20

Lab Sample ID: 410-162179-8 MS — **Client Sample ID: FDRAIN_20240228_FD_WS**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 479440

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	68		40.0	106		mg/L		95	90 - 110

Lab Sample ID: 410-162179-8 DU — **Client Sample ID: FDRAIN_20240228_FD_WS**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 479440

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	68		68.4		mg/L		0.8	15

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 410-478574/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 478774 — **Prep Batch: 478574**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	0.24	U	0.52	0.24	mg/L		02/29/24 22:10	03/01/24 07:24	1
Iron	0.082	U	0.21	0.082	mg/L		02/29/24 22:10	03/01/24 07:24	1
Magnesium	0.082	U	0.21	0.082	mg/L		02/29/24 22:10	03/01/24 07:24	1
Sodium	0.41	U	1.0	0.41	mg/L		02/29/24 22:10	03/01/24 07:24	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		02/29/24 22:10	03/01/24 07:24	1

Lab Sample ID: LCS 410-478574/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 478774 — **Prep Batch: 478574**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium			5.00	5.46		mg/L		109	85 - 115
Iron			5.00	5.48		mg/L		110	85 - 115
Magnesium			5.00	5.52		mg/L		110	85 - 115
Sodium			5.00	5.45		mg/L		109	85 - 115
Vanadium			0.500	0.538		mg/L		108	85 - 115

Lab Sample ID: 410-162179-9 MS — **Client Sample ID: FDRAIN_20240228_N_WS**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 478774 — **Prep Batch: 478574**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	22		5.00	28.3	4	mg/L		122	70 - 130
Iron	0.082	U	5.00	5.70		mg/L		114	70 - 130
Magnesium	5.2		5.00	10.9		mg/L		114	70 - 130
Sodium	57		5.00	63.0	4	mg/L		125	70 - 130

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: 410-162179-9 MS — **Client Sample ID: FDRAIN_20240228_N_WS**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 478774 — **Prep Batch: 478574**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Vanadium	0.0085	J	0.500	0.568		mg/L		112	70 - 130

Lab Sample ID: 410-162179-9 MSD — **Client Sample ID: FDRAIN_20240228_N_WS**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 478774 — **Prep Batch: 478574**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	22		5.00	28.4	4	mg/L		125	70 - 130	0	20
Iron	0.082	U	5.00	5.69		mg/L		114	70 - 130	0	20
Magnesium	5.2		5.00	10.9		mg/L		115	70 - 130	0	20
Sodium	57		5.00	63.8	4	mg/L		142	70 - 130	1	20
Vanadium	0.0085	J	0.500	0.556		mg/L		110	70 - 130	2	20

Lab Sample ID: 410-162179-9 DU — **Client Sample ID: FDRAIN_20240228_N_WS**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 478774 — **Prep Batch: 478574**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Calcium	22		22.6		mg/L		2	20
Iron	0.082	U	0.082	U	mg/L		NC	20
Magnesium	5.2		5.24		mg/L		1	20
Sodium	57		57.4		mg/L		1	20
Vanadium	0.0085	J	0.00843	J	mg/L		0.4	20

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 410-478999/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 478999

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12	U	30	12	mg/L			03/01/24 22:56	1

Lab Sample ID: LCS 410-478999/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 478999

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	200	207		mg/L		104	90 - 110

Lab Sample ID: 410-162179-1 MS — **Client Sample ID: UO-88-13.1_20240227_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 478999

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	870		800	1720		mg/L		106	90 - 110

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C) (Continued)

Lab Sample ID: 410-162179-1 DU — **Client Sample ID: UO-88-13.1_20240227_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 478999

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	870		892		mg/L		2	10

Lab Sample ID: 410-162179-5 DU — **Client Sample ID: UO-91-20.1B_20240227_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 478999

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	490		491		mg/L		0	10

Lab Sample ID: MB 410-527909/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 527909

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12	U	30	12	mg/L			07/13/24 13:12	1

Lab Sample ID: LCS 410-527909/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 527909

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	200	199		mg/L		100	90 - 110

Lab Sample ID: LCSD 410-527909/3 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 527909

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	200	192		mg/L		96	90 - 110	4	10

Lab Sample ID: 410-162179-2 DU — **Client Sample ID: UO-88-13.2_20240227_FD_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 527909

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	5200	H cn	5330		mg/L		2	10

Lab Sample ID: 410-162179-3 DU — **Client Sample ID: UO-88-13.2_20240227_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 527909

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	5100	H cn	5000		mg/L		2	10

Client: Jacobs Engineering Group, Inc.
Job ID: 410-162179-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 410-478871/21
Matrix: Water
Analysis Batch: 478871

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.040	U	0.10	0.040	mg/L			03/01/24 09:53	1

Lab Sample ID: LCS 410-478871/19
Matrix: Water
Analysis Batch: 478871

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Nitrate Nitrite as N			2.00	1.90		mg/L		95	90 - 110		

Lab Sample ID: LCSD 410-478871/20
Matrix: Water
Analysis Batch: 478871

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrate Nitrite as N			2.00	1.98		mg/L		99	90 - 110	4	20

HPLC/IC

Analysis Batch: 478560

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162179-1	UO-88-13.1_20240227_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-162179-2	UO-88-13.2_20240227_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-478560/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-478560/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-478560/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 478579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162179-3	UO-88-13.2_20240227_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-162179-4	UO-87-04.1_20240227_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-162179-4	UO-87-04.1_20240227_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-162179-5	UO-91-20.1B_20240227_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-162179-5	UO-91-20.1B_20240227_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-162179-6	UO-87-03.1_20240228_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-162179-7	UO-87-03.2_20240228_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-162179-8	FDRAIN_20240228_FD_WS	Total/NA	Water	EPA 300.0 R2.1	
410-162179-9	FDRAIN_20240228_N_WS	Total/NA	Water	EPA 300.0 R2.1	
410-162179-10	WDRAIN_20240228_N_WS	Total/NA	Water	EPA 300.0 R2.1	
410-162179-11	EDRAIN_20240228_N_WS	Total/NA	Water	EPA 300.0 R2.1	
MB 410-478579/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-478579/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-478579/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 479033

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162179-1	UO-88-13.1_20240227_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-479033/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-479033/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-479033/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 479037

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162179-2	UO-88-13.2_20240227_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-479037/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-479037/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-479037/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 479440

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162179-3	UO-88-13.2_20240227_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-162179-6	UO-87-03.1_20240228_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-162179-7	UO-87-03.2_20240228_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-162179-8	FDRAIN_20240228_FD_WS	Total/NA	Water	EPA 300.0 R2.1	
410-162179-9	FDRAIN_20240228_N_WS	Total/NA	Water	EPA 300.0 R2.1	
MB 410-479440/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-479440/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-479440/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	
410-162179-8 MS	FDRAIN_20240228_FD_WS	Total/NA	Water	EPA 300.0 R2.1	
410-162179-8 DU	FDRAIN_20240228_FD_WS	Total/NA	Water	EPA 300.0 R2.1	

Metals

Analysis Batch: 476227

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162179-1	UO-88-13.1_20240227_N_WG	Dissolved	Water	2340B-2011	
410-162179-2	UO-88-13.2_20240227_FD_WG	Dissolved	Water	2340B-2011	
410-162179-3	UO-88-13.2_20240227_N_WG	Dissolved	Water	2340B-2011	
410-162179-4	UO-87-04.1_20240227_N_WG	Dissolved	Water	2340B-2011	
410-162179-5	UO-91-20.1B_20240227_N_WG	Dissolved	Water	2340B-2011	
410-162179-6	UO-87-03.1_20240228_N_WG	Dissolved	Water	2340B-2011	
410-162179-7	UO-87-03.2_20240228_N_WG	Dissolved	Water	2340B-2011	
410-162179-8	FDRAIN_20240228_FD_WS	Dissolved	Water	2340B-2011	
410-162179-9	FDRAIN_20240228_N_WS	Dissolved	Water	2340B-2011	
410-162179-10	WDRAIN_20240228_N_WS	Dissolved	Water	2340B-2011	
410-162179-11	EDRAIN_20240228_N_WS	Dissolved	Water	2340B-2011	

Prep Batch: 478574

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162179-1	UO-88-13.1_20240227_N_WG	Dissolved	Water	Non-Digest Prep	
410-162179-2	UO-88-13.2_20240227_FD_WG	Dissolved	Water	Non-Digest Prep	
410-162179-3	UO-88-13.2_20240227_N_WG	Dissolved	Water	Non-Digest Prep	
410-162179-4	UO-87-04.1_20240227_N_WG	Dissolved	Water	Non-Digest Prep	
410-162179-5	UO-91-20.1B_20240227_N_WG	Dissolved	Water	Non-Digest Prep	
410-162179-6	UO-87-03.1_20240228_N_WG	Dissolved	Water	Non-Digest Prep	
410-162179-7	UO-87-03.2_20240228_N_WG	Dissolved	Water	Non-Digest Prep	
410-162179-8	FDRAIN_20240228_FD_WS	Dissolved	Water	Non-Digest Prep	
410-162179-9	FDRAIN_20240228_N_WS	Dissolved	Water	Non-Digest Prep	
410-162179-10	WDRAIN_20240228_N_WS	Dissolved	Water	Non-Digest Prep	
410-162179-11	EDRAIN_20240228_N_WS	Dissolved	Water	Non-Digest Prep	
MB 410-478574/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-478574/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	
410-162179-9 MS	FDRAIN_20240228_N_WS	Dissolved	Water	Non-Digest Prep	
410-162179-9 MSD	FDRAIN_20240228_N_WS	Dissolved	Water	Non-Digest Prep	
410-162179-9 DU	FDRAIN_20240228_N_WS	Dissolved	Water	Non-Digest Prep	

Analysis Batch: 478774

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162179-1	UO-88-13.1_20240227_N_WG	Dissolved	Water	200.7 Rev 4.4	478574
410-162179-2	UO-88-13.2_20240227_FD_WG	Dissolved	Water	200.7 Rev 4.4	478574
410-162179-3	UO-88-13.2_20240227_N_WG	Dissolved	Water	200.7 Rev 4.4	478574
410-162179-4	UO-87-04.1_20240227_N_WG	Dissolved	Water	200.7 Rev 4.4	478574
410-162179-5	UO-91-20.1B_20240227_N_WG	Dissolved	Water	200.7 Rev 4.4	478574
410-162179-6	UO-87-03.1_20240228_N_WG	Dissolved	Water	200.7 Rev 4.4	478574
410-162179-7	UO-87-03.2_20240228_N_WG	Dissolved	Water	200.7 Rev 4.4	478574
410-162179-8	FDRAIN_20240228_FD_WS	Dissolved	Water	200.7 Rev 4.4	478574
410-162179-9	FDRAIN_20240228_N_WS	Dissolved	Water	200.7 Rev 4.4	478574
410-162179-10	WDRAIN_20240228_N_WS	Dissolved	Water	200.7 Rev 4.4	478574
MB 410-478574/1-A	Method Blank	Total/NA	Water	200.7 Rev 4.4	478574
LCS 410-478574/2-A	Lab Control Sample	Total/NA	Water	200.7 Rev 4.4	478574
410-162179-9 MS	FDRAIN_20240228_N_WS	Dissolved	Water	200.7 Rev 4.4	478574
410-162179-9 MSD	FDRAIN_20240228_N_WS	Dissolved	Water	200.7 Rev 4.4	478574
410-162179-9 DU	FDRAIN_20240228_N_WS	Dissolved	Water	200.7 Rev 4.4	478574

Metals

Analysis Batch: 478843

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162179-2	UO-88-13.2_20240227_FD_WG	Dissolved	Water	200.7 Rev 4.4	478574
410-162179-3	UO-88-13.2_20240227_N_WG	Dissolved	Water	200.7 Rev 4.4	478574
410-162179-6	UO-87-03.1_20240228_N_WG	Dissolved	Water	200.7 Rev 4.4	478574
410-162179-7	UO-87-03.2_20240228_N_WG	Dissolved	Water	200.7 Rev 4.4	478574
410-162179-10	WDRAIN_20240228_N_WS	Dissolved	Water	200.7 Rev 4.4	478574
410-162179-11	EDRAIN_20240228_N_WS	Dissolved	Water	200.7 Rev 4.4	478574
410-162179-11	EDRAIN_20240228_N_WS	Dissolved	Water	200.7 Rev 4.4	478574

General Chemistry

Analysis Batch: 478871

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162179-1	UO-88-13.1_20240227_N_WG	Total/NA	Water	353.2	
410-162179-2	UO-88-13.2_20240227_FD_WG	Total/NA	Water	353.2	
410-162179-3	UO-88-13.2_20240227_N_WG	Total/NA	Water	353.2	
410-162179-4	UO-87-04.1_20240227_N_WG	Total/NA	Water	353.2	
410-162179-5	UO-91-20.1B_20240227_N_WG	Total/NA	Water	353.2	
410-162179-6	UO-87-03.1_20240228_N_WG	Total/NA	Water	353.2	
410-162179-7	UO-87-03.2_20240228_N_WG	Total/NA	Water	353.2	
410-162179-8	FDRAIN_20240228_FD_WS	Total/NA	Water	353.2	
410-162179-9	FDRAIN_20240228_N_WS	Total/NA	Water	353.2	
410-162179-10	WDRAIN_20240228_N_WS	Total/NA	Water	353.2	
410-162179-11	EDRAIN_20240228_N_WS	Total/NA	Water	353.2	
MB 410-478871/21	Method Blank	Total/NA	Water	353.2	
LCS 410-478871/19	Lab Control Sample	Total/NA	Water	353.2	
LCSD 410-478871/20	Lab Control Sample Dup	Total/NA	Water	353.2	

Analysis Batch: 478999

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162179-1	UO-88-13.1_20240227_N_WG	Total/NA	Water	2540C - 2015	
410-162179-2	UO-88-13.2_20240227_FD_WG	Total/NA	Water	2540C - 2015	
410-162179-3	UO-88-13.2_20240227_N_WG	Total/NA	Water	2540C - 2015	
410-162179-4	UO-87-04.1_20240227_N_WG	Total/NA	Water	2540C - 2015	
410-162179-5	UO-91-20.1B_20240227_N_WG	Total/NA	Water	2540C - 2015	
410-162179-6	UO-87-03.1_20240228_N_WG	Total/NA	Water	2540C - 2015	
410-162179-7	UO-87-03.2_20240228_N_WG	Total/NA	Water	2540C - 2015	
410-162179-8	FDRAIN_20240228_FD_WS	Total/NA	Water	2540C - 2015	
410-162179-9	FDRAIN_20240228_N_WS	Total/NA	Water	2540C - 2015	
410-162179-10	WDRAIN_20240228_N_WS	Total/NA	Water	2540C - 2015	
410-162179-11	EDRAIN_20240228_N_WS	Total/NA	Water	2540C - 2015	
MB 410-478999/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-478999/2	Lab Control Sample	Total/NA	Water	2540C - 2015	
410-162179-1 MS	UO-88-13.1_20240227_N_WG	Total/NA	Water	2540C - 2015	
410-162179-1 DU	UO-88-13.1_20240227_N_WG	Total/NA	Water	2540C - 2015	
410-162179-5 DU	UO-91-20.1B_20240227_N_WG	Total/NA	Water	2540C - 2015	

Analysis Batch: 527909

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162179-2	UO-88-13.2_20240227_FD_WG	Total/NA	Water	2540C - 2015	
410-162179-3	UO-88-13.2_20240227_N_WG	Total/NA	Water	2540C - 2015	
MB 410-527909/1	Method Blank	Total/NA	Water	2540C - 2015	

General Chemistry (Continued)

Analysis Batch: 527909 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 410-527909/2	Lab Control Sample	Total/NA	Water	2540C - 2015	
LCSD 410-527909/3	Lab Control Sample Dup	Total/NA	Water	2540C - 2015	
410-162179-2 DU	UO-88-13.2_20240227_FD_WG	Total/NA	Water	2540C - 2015	
410-162179-3 DU	UO-88-13.2_20240227_N_WG	Total/NA	Water	2540C - 2015	

Lab Chronicle

Client: Jacobs Engineering Group, Inc.
Job ID: 410-162179-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Client Sample ID: UO-88-13.1_20240227_N_WG
Lab Sample ID: 410-162179-1
Date Collected: 02/27/24 10:12
Matrix: Water
Date Received: 02/29/24 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		50	478560	W7FX	ELLE	03/01/24 11:35
Total/NA	Analysis	EPA 300.0 R2.1		20	479033	W7FX	ELLE	03/03/24 06:24
Dissolved	Prep	Non-Digest Prep			478574	UAMX	ELLE	02/29/24 22:10
Dissolved	Analysis	200.7 Rev 4.4		1	478774	MT26	ELLE	03/01/24 08:21
Dissolved	Analysis	2340B-2011		1	476227	USJM	ELLE	03/01/24 08:38
Total/NA	Analysis	2540C - 2015		1	478999	UOCA	ELLE	03/01/24 22:56 - 03/04/24 06:30 [1]
Total/NA	Analysis	353.2		10	478871	Q3HN	ELLE	03/01/24 10:01

Client Sample ID: UO-88-13.2_20240227_FD_WG
Lab Sample ID: 410-162179-2
Date Collected: 02/27/24 10:49
Matrix: Water
Date Received: 02/29/24 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		20	478560	W7FX	ELLE	03/01/24 11:47
Total/NA	Analysis	EPA 300.0 R2.1		500	479037	L4QM	ELLE	03/02/24 23:07
Dissolved	Prep	Non-Digest Prep			478574	UAMX	ELLE	02/29/24 22:10
Dissolved	Analysis	200.7 Rev 4.4		1	478774	MT26	ELLE	03/01/24 08:14
Dissolved	Prep	Non-Digest Prep			478574	UAMX	ELLE	02/29/24 22:10
Dissolved	Analysis	200.7 Rev 4.4		10	478843	MT26	ELLE	03/01/24 11:52
Dissolved	Analysis	2340B-2011		1	476227	USJM	ELLE	03/01/24 08:38
Total/NA	Analysis	2540C - 2015		1	478999	UOCA	ELLE	03/01/24 22:56 - 03/04/24 06:30 [1]
Total/NA	Analysis	2540C - 2015		1	527909	UOCA	ELLE	07/13/24 13:12 - 07/15/24 13:40 [1]
Total/NA	Analysis	353.2		1	478871	Q3HN	ELLE	03/01/24 10:03

Client Sample ID: UO-88-13.2_20240227_N_WG
Lab Sample ID: 410-162179-3
Date Collected: 02/27/24 10:49
Matrix: Water
Date Received: 02/29/24 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		500	479440	W7FX	ELLE	03/04/24 16:45
Total/NA	Analysis	EPA 300.0 R2.1		20	478579	L4QM	ELLE	03/01/24 09:14
Dissolved	Prep	Non-Digest Prep			478574	UAMX	ELLE	02/29/24 22:10
Dissolved	Analysis	200.7 Rev 4.4		1	478774	MT26	ELLE	03/01/24 08:04
Dissolved	Prep	Non-Digest Prep			478574	UAMX	ELLE	02/29/24 22:10
Dissolved	Analysis	200.7 Rev 4.4		10	478843	MT26	ELLE	03/01/24 11:49
Dissolved	Analysis	2340B-2011		1	476227	USJM	ELLE	03/01/24 08:38
Total/NA	Analysis	2540C - 2015		1	478999	UOCA	ELLE	03/01/24 22:56 - 03/04/24 06:30 [1]
Total/NA	Analysis	2540C - 2015		1	527909	UOCA	ELLE	07/13/24 13:12 - 07/15/24 13:40 [1]
Total/NA	Analysis	353.2		1	478871	Q3HN	ELLE	03/01/24 10:05

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-162179-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Client Sample ID: UO-87-04.1_20240227_N_WG — Lab Sample ID: 410-162179-4

Date Collected: 02/27/24 12:17 **Matrix: Water**
Date Received: 02/29/24 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	478579	L4QM	ELLE	03/01/24 11:15
Total/NA	Analysis	EPA 300.0 R2.1		50	478579	L4QM	ELLE	03/01/24 11:27
Dissolved	Prep	Non-Digest Prep			478574	UAMX	ELLE	02/29/24 22:10
Dissolved	Analysis	200.7 Rev 4.4		1	478774	MT26	ELLE	03/01/24 08:08
Dissolved	Analysis	2340B-2011		1	476227	USJM	ELLE	03/01/24 08:38
Total/NA	Analysis	2540C - 2015		1	478999	UOCA	ELLE	03/01/24 22:56 - 03/04/24 06:30 [1]
Total/NA	Analysis	353.2		10	478871	Q3HN	ELLE	03/01/24 10:07

Client Sample ID: UO-91-20.1B_20240227_N_WG — Lab Sample ID: 410-162179-5

Date Collected: 02/27/24 12:59 **Matrix: Water**
Date Received: 02/29/24 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	478579	L4QM	ELLE	03/01/24 11:39
Total/NA	Analysis	EPA 300.0 R2.1		50	478579	L4QM	ELLE	03/01/24 11:51
Dissolved	Prep	Non-Digest Prep			478574	UAMX	ELLE	02/29/24 22:10
Dissolved	Analysis	200.7 Rev 4.4		1	478774	MT26	ELLE	03/01/24 08:11
Dissolved	Analysis	2340B-2011		1	476227	USJM	ELLE	03/01/24 08:38
Total/NA	Analysis	2540C - 2015		1	478999	UOCA	ELLE	03/01/24 22:56 - 03/04/24 06:30 [1]
Total/NA	Analysis	353.2		1	478871	Q3HN	ELLE	03/01/24 10:13

Client Sample ID: UO-87-03.1_20240228_N_WG — Lab Sample ID: 410-162179-6

Date Collected: 02/28/24 11:13 **Matrix: Water**
Date Received: 02/29/24 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		500	479440	W7FX	ELLE	03/04/24 16:57
Total/NA	Analysis	EPA 300.0 R2.1		200	478579	L4QM	ELLE	03/01/24 09:50
Dissolved	Prep	Non-Digest Prep			478574	UAMX	ELLE	02/29/24 22:10
Dissolved	Analysis	200.7 Rev 4.4		1	478774	MT26	ELLE	03/01/24 08:34
Dissolved	Prep	Non-Digest Prep			478574	UAMX	ELLE	02/29/24 22:10
Dissolved	Analysis	200.7 Rev 4.4		10	478843	MT26	ELLE	03/01/24 11:59
Dissolved	Analysis	2340B-2011		1	476227	USJM	ELLE	03/01/24 08:38
Total/NA	Analysis	2540C - 2015		1	478999	UOCA	ELLE	03/01/24 22:56 - 03/04/24 06:30 [1]
Total/NA	Analysis	353.2		1	478871	Q3HN	ELLE	03/01/24 10:15

Client Sample ID: UO-87-03.2_20240228_N_WG — Lab Sample ID: 410-162179-7

Date Collected: 02/28/24 12:22 **Matrix: Water**
Date Received: 02/29/24 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		1000	479440	W7FX	ELLE	03/04/24 18:25
Total/NA	Analysis	EPA 300.0 R2.1		50	478579	L4QM	ELLE	03/01/24 12:52

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-162179-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Client Sample ID: UO-87-03.2_20240228_N_WG — Lab Sample ID: 410-162179-7

Date Collected: 02/28/24 12:22 **Matrix: Water**
Date Received: 02/29/24 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			478574	UAMX	ELLE	02/29/24 22:10
Dissolved	Analysis	200.7 Rev 4.4		1	478774	MT26	ELLE	03/01/24 08:18
Dissolved	Prep	Non-Digest Prep			478574	UAMX	ELLE	02/29/24 22:10
Dissolved	Analysis	200.7 Rev 4.4		10	478843	MT26	ELLE	03/01/24 11:56
Dissolved	Analysis	2340B-2011		1	476227	USJM	ELLE	03/01/24 08:38
Total/NA	Analysis	2540C - 2015		1	478999	UOCA	ELLE	03/01/24 22:56 - 03/04/24 06:30 [1]
Total/NA	Analysis	353.2		1	478871	Q3HN	ELLE	03/01/24 10:17

Client Sample ID: FDRAIN_20240228_FD_WS — Lab Sample ID: 410-162179-8

Date Collected: 02/28/24 13:32 **Matrix: Water**
Date Received: 02/29/24 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		20	479440	W7FX	ELLE	03/04/24 17:35
Total/NA	Analysis	EPA 300.0 R2.1		5	478579	L4QM	ELLE	03/01/24 12:03
Dissolved	Prep	Non-Digest Prep			478574	UAMX	ELLE	02/29/24 22:10
Dissolved	Analysis	200.7 Rev 4.4		1	478774	MT26	ELLE	03/01/24 07:49
Dissolved	Analysis	2340B-2011		1	476227	USJM	ELLE	03/01/24 08:38
Total/NA	Analysis	2540C - 2015		1	478999	UOCA	ELLE	03/01/24 22:56 - 03/04/24 06:30 [1]
Total/NA	Analysis	353.2		2	478871	Q3HN	ELLE	03/01/24 10:19

Client Sample ID: FDRAIN_20240228_N_WS — Lab Sample ID: 410-162179-9

Date Collected: 02/28/24 13:32 **Matrix: Water**
Date Received: 02/29/24 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		20	479440	W7FX	ELLE	03/04/24 18:13
Total/NA	Analysis	EPA 300.0 R2.1		5	478579	L4QM	ELLE	03/01/24 12:28
Dissolved	Prep	Non-Digest Prep			478574	UAMX	ELLE	02/29/24 22:10
Dissolved	Analysis	200.7 Rev 4.4		1	478774	MT26	ELLE	03/01/24 07:30
Dissolved	Analysis	2340B-2011		1	476227	USJM	ELLE	03/01/24 08:38
Total/NA	Analysis	2540C - 2015		1	478999	UOCA	ELLE	03/01/24 22:56 - 03/04/24 06:30 [1]
Total/NA	Analysis	353.2		2	478871	Q3HN	ELLE	03/01/24 10:21

Client Sample ID: WDRAIN_20240228_N_WS — Lab Sample ID: 410-162179-10

Date Collected: 02/28/24 14:03 **Matrix: Water**
Date Received: 02/29/24 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		100	478579	L4QM	ELLE	03/01/24 11:03
Dissolved	Prep	Non-Digest Prep			478574	UAMX	ELLE	02/29/24 22:10
Dissolved	Analysis	200.7 Rev 4.4		1	478774	MT26	ELLE	03/01/24 08:01
Dissolved	Prep	Non-Digest Prep			478574	UAMX	ELLE	02/29/24 22:10
Dissolved	Analysis	200.7 Rev 4.4		10	478843	MT26	ELLE	03/01/24 11:46

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-162179-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Client Sample ID: WDRAIN_20240228_N_WS — Lab Sample ID: 410-162179-10

Date Collected: 02/28/24 14:03 **Matrix: Water**
Date Received: 02/29/24 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Analysis	2340B-2011		1	476227	USJM	ELLE	03/01/24 08:38
Total/NA	Analysis	2540C - 2015		1	478999	UOCA	ELLE	03/01/24 22:56 - 03/04/24 06:30 [1]
Total/NA	Analysis	353.2		10	478871	Q3HN	ELLE	03/01/24 10:29

Client Sample ID: EDRAIN_20240228_N_WS — Lab Sample ID: 410-162179-11

Date Collected: 02/28/24 14:17 **Matrix: Water**
Date Received: 02/29/24 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		200	478579	L4QM	ELLE	03/01/24 10:15
Dissolved	Prep	Non-Digest Prep			478574	UAMX	ELLE	02/29/24 22:10
Dissolved	Analysis	200.7 Rev 4.4		1	478843	MT26	ELLE	03/01/24 10:59
Dissolved	Prep	Non-Digest Prep			478574	UAMX	ELLE	02/29/24 22:10
Dissolved	Analysis	200.7 Rev 4.4		10	478843	MT26	ELLE	03/01/24 12:02
Dissolved	Analysis	2340B-2011		1	476227	USJM	ELLE	03/01/24 08:38
Total/NA	Analysis	2540C - 2015		1	478999	UOCA	ELLE	03/01/24 22:56 - 03/04/24 06:30 [1]
Total/NA	Analysis	353.2		1	478871	Q3HN	ELLE	03/01/24 10:31

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-162179-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00660	08-09-24

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

Analysis Method	Prep Method	Matrix	Analyte
2340B-2011		Water	Hardness as calcium carbonate

Method Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-162179-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
200.7 Rev 4.4	Metals (ICP)	EPA	ELLE
2340B-2011	Total Hardness (as CaCO3) by calculation	SM	ELLE
2540C - 2015	Total Dissolved Solids (Dried at 180 °C)	SM	ELLE
353.2	Nitrogen, Nitrate-Nitrite	EPA	ELLE
Non-Digest Prep	Preparation, Non-Digested Aqueous Metals	EPA	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-162179-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-162179-1	UO-88-13.1_20240227_N_WG	Water	02/27/24 10:12	02/29/24 09:45
410-162179-2	UO-88-13.2_20240227_FD_WG	Water	02/27/24 10:49	02/29/24 09:45
410-162179-3	UO-88-13.2_20240227_N_WG	Water	02/27/24 10:49	02/29/24 09:45
410-162179-4	UO-87-04.1_20240227_N_WG	Water	02/27/24 12:17	02/29/24 09:45
410-162179-5	UO-91-20.1B_20240227_N_WG	Water	02/27/24 12:59	02/29/24 09:45
410-162179-6	UO-87-03.1_20240228_N_WG	Water	02/28/24 11:13	02/29/24 09:45
410-162179-7	UO-87-03.2_20240228_N_WG	Water	02/28/24 12:22	02/29/24 09:45
410-162179-8	FDRAIN_20240228_FD_WS	Water	02/28/24 13:32	02/29/24 09:45
410-162179-9	FDRAIN_20240228_N_WS	Water	02/28/24 13:32	02/29/24 09:45
410-162179-10	WDRAIN_20240228_N_WS	Water	02/28/24 14:03	02/29/24 09:45
410-162179-11	EDRAIN_20240228_N_WS	Water	02/28/24 14:17	02/29/24 09:45

Jacobs

410-162179 Chain of Custody

ANALYSIS REQUEST | **COC No: EuroFins Lan-45350613** | **Cooler No. of**

| | | |

Jacobs

CHAIN OF CUSTODY / SAMPLE ANALYSIS REQUEST

COC No: EuroFins Lan-45350613

Cooler No. of

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 7
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number** 4508165277
Project Chemist Mark Stinnett 352-359-5937	**Shipping Company / Airbill No.** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 02/28/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Analysis: Chloride and Sulfate - E300.0	Hardness - SM2340B	Nitrate-Nitrite - E353.2	TDS - SM2540C	Dissolved Metals - E200.7 (Ca Mg Na V)	Dissolved Metals - E200.7 (Ca Mg Fe Na V)
							Filtered		Yes				
							Preserve		HNO3	H2SO4			
FDRAIN_20240228_FD_WS	FDRAIN	WS	G		02/28/2024 13:32	4		X	X	X	X		X
FDRAIN_20240228_N_WS	FDRAIN	WS	G		02/28/2024 13:32	4		X	X	X	X		X
WDRAIN_20240228_N_WS	WDRAIN	WS	G		02/28/2024 14:03	4		X	X	X	X		X
EDRAIN_20240228_N_WS	EDRAIN	WS	G		02/28/2024 14:17	4		X	X	X	X		X

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	Jordan Carnahan	02-28-24 1730		
			JA ALS	2/29/24 9:45
	SHIPPING METHOD: (mark as appropriate)		SAMPLER NAME AND SIGNATURE	Date Time
Email Report To :				
Email Invoice To : Mark.Stinnett@jacobs.com, Dow_Umetco@jacobs.com			Raw 1.9- COR 1.8	

mB

Login Sample Receipt Checklist

Client: Jacobs Engineering Group, Inc. Job Number: 410-162179-1

Login Number: 162179 **List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**
List Number: 1
Creator: Ballard, Megan

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

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

ANALYTICAL REPORT

PREPARED FOR

Attn: Mark Stinnett
Jacobs Engineering Group, Inc.
3011 SW Willston Road
Gainesville, Florida 32608-3964

Generated 3/8/2024 2:58:15 PM

JOB DESCRIPTION

Umetco Hot Springs - UMP Quarterly Groundwater

JOB NUMBER

410-162586-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

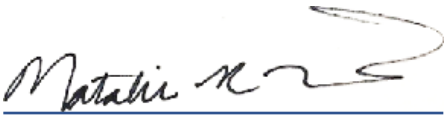
my EOL

Job Notes

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

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



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Authorized for release by
Natalie Luciano, Principal Project Manager
Natalie.Luciano@et.eurofinsus.com
(717)556-7258

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is 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.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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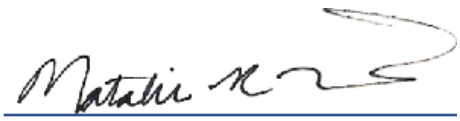


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Definitions/Glossary

Client: Jacobs Engineering Group, Inc. Job ID: 410-162586-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Qualifiers

HPLC/IC

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.
U	Indicates the analyte was analyzed for but not detected.

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.
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail
F5	Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL, and the absolute difference between results is < the upper reporting limits for both.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Job ID: 410-162586-1 Eurofins Lancaster Laboratories Environment

Job Narrative
410-162586-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

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

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

Receipt
The samples were received on 3/2/2024 12:00 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.0°C.

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

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

General Chemistry
Method 2540C_Calcd: Total dissolved solids was re-analyzed in duplicate using more sample volume due to raised limits yielding results of 43 mg/L and 89 mg/L. All trials are being reported.
UR-91-04.1A_20240229_N_WG (410-162586-1)

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

Detection Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-162586-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UR-91-04.1A_20240229_N_WG — Lab Sample ID: 410-162586-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	7.6		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	18		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Calcium	15		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	1.6		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	5.7		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	44		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	110	J cn	120	48	mg/L	1		2540C - 2015	Total/NA
Total Dissolved Solids	43	J	60	24	mg/L	1		2540C - 2015	Total/NA
Nitrate Nitrite as N	6.9		1.0	0.40	mg/L	10		353.2	Total/NA

Client Sample ID: UR-91-04.2A_20240229_N_WG — Lab Sample ID: 410-162586-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	27		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	590		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Calcium	190		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	30		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	61		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	600		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	960		120	48	mg/L	1		2540C - 2015	Total/NA
Nitrate Nitrite as N	0.79		0.10	0.040	mg/L	1		353.2	Total/NA

Client Sample ID: UR-91-09.2A_20240229_N_WG — Lab Sample ID: 410-162586-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	5.7	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	230		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Calcium	97		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	22		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	23		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	330		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	520		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UR-91-20.2B_20240229_N_WG — Lab Sample ID: 410-162586-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	33		30	10	mg/L	20		EPA 300.0 R2.1	Total/NA
Chloride	2400		1500	600	mg/L	1000		EPA 300.0 R2.1	Total/NA
Calcium	1100		5.2	2.4	mg/L	10		200.7 Rev 4.4	Dissolved
Magnesium	210		2.1	0.82	mg/L	10		200.7 Rev 4.4	Dissolved
Sodium	170		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	3600		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	4900		240	96	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UR-91-20.2A_20240229_N_WG — Lab Sample ID: 410-162586-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	32		30	10	mg/L	20		EPA 300.0 R2.1	Total/NA
Chloride	2400		1500	600	mg/L	1000		EPA 300.0 R2.1	Total/NA
Calcium	980		5.2	2.4	mg/L	10		200.7 Rev 4.4	Dissolved
Magnesium	210		2.1	0.82	mg/L	10		200.7 Rev 4.4	Dissolved
Sodium	160		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	3300		0.91	0.41	mg/L	1		2340B-2011	Dissolved

This Detection Summary does not include radiochemical test results.

Client: Jacobs Engineering Group, Inc.
Job ID: 410-162586-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UR-91-20.2A_20240229_N_WG (Continued) **Lab Sample ID: 410-162586-5**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Dissolved Solids	4400		240	96	mg/L	1		2540C - 2015	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: UR-91-04.1A_20240229_N_WG

Lab Sample ID: 410-162586-1
Date Collected: 02/29/24 08:48
Matrix: Water
Date Received: 03/02/24 12:00

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	7.6		7.5	2.5	mg/L			03/06/24 02:49	5
Chloride	18		7.5	3.0	mg/L			03/06/24 02:49	5

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	15		0.52	0.24	mg/L		03/03/24 23:30	03/04/24 10:16	1
Magnesium	1.6		0.21	0.082	mg/L		03/03/24 23:30	03/04/24 10:16	1
Sodium	5.7		1.0	0.41	mg/L		03/03/24 23:30	03/04/24 10:16	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		03/03/24 23:30	03/04/24 10:16	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	44		0.91	0.41	mg/L			03/04/24 07:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	110	J cn	120	48	mg/L			03/04/24 17:44	1
Total Dissolved Solids (SM 2540C - 2015)	43	J	60	24	mg/L			03/06/24 20:29	1
Nitrate Nitrite as N (EPA 353.2)	6.9		1.0	0.40	mg/L			03/06/24 09:32	10

Client Sample ID: UR-91-04.2A_20240229_N_WG

Lab Sample ID: 410-162586-2
Date Collected: 02/29/24 09:08
Matrix: Water
Date Received: 03/02/24 12:00

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	27		7.5	2.5	mg/L			03/06/24 03:14	5
Chloride	590		75	30	mg/L			03/06/24 03:52	50

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	190		0.52	0.24	mg/L		03/03/24 23:30	03/04/24 09:50	1
Magnesium	30		0.21	0.082	mg/L		03/03/24 23:30	03/04/24 09:50	1
Sodium	61		1.0	0.41	mg/L		03/03/24 23:30	03/04/24 09:50	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		03/03/24 23:30	03/04/24 09:50	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	600		0.91	0.41	mg/L			03/04/24 07:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	960		120	48	mg/L			03/04/24 17:44	1
Nitrate Nitrite as N (EPA 353.2)	0.79		0.10	0.040	mg/L			03/06/24 09:34	1

Client Sample ID: UR-91-09.2A_20240229_N_WG

Lab Sample ID: 410-162586-3

Date Collected: 02/29/24 09:42

Matrix: Water

Date Received: 03/02/24 12:00

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**5.7**	**J**	7.5	2.5	mg/L			03/06/24 04:04	5
Chloride	**230**		75	30	mg/L			03/06/24 04:17	50

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**97**		0.52	0.24	mg/L		03/03/24 23:30	03/04/24 10:13	1
Magnesium	**22**		0.21	0.082	mg/L		03/03/24 23:30	03/04/24 10:13	1
Sodium	**23**		1.0	0.41	mg/L		03/03/24 23:30	03/04/24 10:13	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		03/03/24 23:30	03/04/24 10:13	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**330**		0.91	0.41	mg/L			03/04/24 07:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	**520**		60	24	mg/L			03/04/24 17:44	1
Nitrate Nitrite as N (EPA 353.2)	0.040	U	0.10	0.040	mg/L			03/06/24 09:40	1

Client Sample ID: UR-91-20.2B_20240229_N_WG

Lab Sample ID: 410-162586-4

Date Collected: 02/29/24 10:05

Matrix: Water

Date Received: 03/02/24 12:00

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**33**		30	10	mg/L			03/06/24 02:24	20
Chloride	**2400**		1500	600	mg/L			03/07/24 13:12	1000

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**1100**		5.2	2.4	mg/L		03/03/24 23:30	03/04/24 11:03	10
Magnesium	**210**		2.1	0.82	mg/L		03/03/24 23:30	03/04/24 11:03	10
Sodium	**170**		1.0	0.41	mg/L		03/03/24 23:30	03/04/24 10:10	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		03/03/24 23:30	03/04/24 10:10	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**3600**		0.91	0.41	mg/L			03/04/24 07:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	**4900**		240	96	mg/L			03/04/24 17:44	1
Nitrate Nitrite as N (EPA 353.2)	0.040	U	0.10	0.040	mg/L			03/06/24 09:42	1

Client: Jacobs Engineering Group, Inc. Job ID: 410-162586-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UR-91-20.2A_20240229_N_WG **Lab Sample ID: 410-162586-5**
Date Collected: 02/29/24 10:25 **Matrix: Water**
Date Received: 03/02/24 12:00

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**32**		30	10	mg/L			03/05/24 21:21	20
Chloride	**2400**		1500	600	mg/L			03/06/24 19:11	1000

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**980**		5.2	2.4	mg/L		03/03/24 23:30	03/04/24 11:00	10
Magnesium	**210**		2.1	0.82	mg/L		03/03/24 23:30	03/04/24 11:00	10
Sodium	**160**		1.0	0.41	mg/L		03/03/24 23:30	03/04/24 10:06	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		03/03/24 23:30	03/04/24 10:06	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**3300**		0.91	0.41	mg/L			03/04/24 07:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	**4400**		240	96	mg/L			03/04/24 17:44	1
Nitrate Nitrite as N (EPA 353.2)	0.040	U	0.10	0.040	mg/L			03/06/24 09:48	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-479562/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 479562

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			03/05/24 10:00	1
Chloride	0.60	U	1.5	0.60	mg/L			03/05/24 10:00	1

Lab Sample ID: LCS 410-479562/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 479562

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.28		mg/L		97	90 - 110
Chloride	3.00	2.82		mg/L		94	90 - 110

Lab Sample ID: LCSD 410-479562/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 479562

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.50	7.28		mg/L		97	90 - 110	0	20
Chloride	3.00	2.82		mg/L		94	90 - 110	0	20

Lab Sample ID: MB 410-479938/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 479938

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			03/05/24 19:43	1
Chloride	0.60	U	1.5	0.60	mg/L			03/05/24 19:43	1

Lab Sample ID: LCS 410-479938/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 479938

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.74		mg/L		103	90 - 110
Chloride	3.00	2.92		mg/L		97	90 - 110

Lab Sample ID: LCSD 410-479938/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 479938

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.50	7.75		mg/L		103	90 - 110	0	20
Chloride	3.00	2.92		mg/L		97	90 - 110	0	20

Lab Sample ID: MB 410-480069/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 480069

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			03/06/24 16:53	1
Chloride	0.60	U	1.5	0.60	mg/L			03/06/24 16:53	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: LCS 410-480069/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 480069

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	8.02		mg/L		107	90 - 110
Chloride	3.00	2.95		mg/L		98	90 - 110

Lab Sample ID: LCSD 410-480069/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 480069

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.50	8.00		mg/L		107	90 - 110	0	20
Chloride	3.00	2.95		mg/L		98	90 - 110	0	20

Lab Sample ID: MB 410-481019/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 481019

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			03/07/24 12:34	1
Chloride	0.60	U	1.5	0.60	mg/L			03/07/24 12:34	1

Lab Sample ID: LCS 410-481019/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 481019

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	8.11		mg/L		108	90 - 110
Chloride	3.00	2.99		mg/L		100	90 - 110

Lab Sample ID: LCSD 410-481019/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 481019

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.50	8.09		mg/L		108	90 - 110	0	20
Chloride	3.00	2.99		mg/L		100	90 - 110	0	20

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 410-479119/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 479367 — **Prep Batch: 479119**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	0.24	U	0.52	0.24	mg/L		03/03/24 23:30	03/04/24 08:54	1
Magnesium	0.082	U	0.21	0.082	mg/L		03/03/24 23:30	03/04/24 08:54	1
Sodium	0.41	U	1.0	0.41	mg/L		03/03/24 23:30	03/04/24 08:54	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		03/03/24 23:30	03/04/24 08:54	1

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: LCS 410-479119/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 479367 — **Prep Batch: 479119**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Calcium			5.00	4.95		mg/L		99	85 - 115		
Magnesium			5.00	5.01		mg/L		100	85 - 115		
Sodium			5.00	5.14		mg/L		103	85 - 115		
Vanadium			0.500	0.502		mg/L		100	85 - 115		

Lab Sample ID: 410-162586-4 MS — **Client Sample ID: UR-91-20.2B_20240229_N_WG**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 479367 — **Prep Batch: 479119**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Sodium	170		5.00	173	4	mg/L		95	70 - 130		
Vanadium	0.0020	U	0.500	0.502		mg/L		100	70 - 130		

Lab Sample ID: 410-162586-4 MS — **Client Sample ID: UR-91-20.2B_20240229_N_WG**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 479367 — **Prep Batch: 479119**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Calcium	1100		5.00	1100	4	mg/L		-58	70 - 130		
Magnesium	210		5.00	214	4	mg/L		15	70 - 130		

Lab Sample ID: 410-162586-4 MSD — **Client Sample ID: UR-91-20.2B_20240229_N_WG**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 479367 — **Prep Batch: 479119**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sodium	170		5.00	178	4	mg/L		194	70 - 130	3	20
Vanadium	0.0020	U	0.500	0.503		mg/L		101	70 - 130	0	20

Lab Sample ID: 410-162586-4 MSD — **Client Sample ID: UR-91-20.2B_20240229_N_WG**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 479367 — **Prep Batch: 479119**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	1100		5.00	1080	4	mg/L		-390	70 - 130	2	20
Magnesium	210		5.00	211	4	mg/L		-55	70 - 130	2	20

Lab Sample ID: 410-162586-4 DU — **Client Sample ID: UR-91-20.2B_20240229_N_WG**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 479367 — **Prep Batch: 479119**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sodium	170		169		mg/L		0.3	20
Vanadium	0.0020	U	0.0020	U	mg/L		NC	20

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: 410-162586-4 DU — **Client Sample ID: UR-91-20.2B_20240229_N_WG**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 479367 — **Prep Batch: 479119**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Calcium	1100		1090		mg/L		1	20
Magnesium	210		209		mg/L		2	20

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 410-479494/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 479494

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12	U	30	12	mg/L			03/04/24 17:44	1

Lab Sample ID: LCS 410-479494/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 479494

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	200	205		mg/L		103	90 - 110

Lab Sample ID: MB 410-480591/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 480591

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12	U	30	12	mg/L			03/06/24 20:29	1

Lab Sample ID: LCS 410-480591/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 480591

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	200	198		mg/L		99	90 - 110

Lab Sample ID: 410-162586-1 DU — **Client Sample ID: UR-91-04.1A_20240229_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 480591

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	43	J	89.0	F5	mg/L		70	10

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 410-480383/21 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 480383

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.040	U	0.10	0.040	mg/L			03/06/24 09:04	1

Method: 353.2 - Nitrogen, Nitrate-Nitrite (Continued)

Lab Sample ID: LCS 410-480383/19 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 480383

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Nitrate Nitrite as N			2.00	1.91		mg/L		96	90 - 110		

Lab Sample ID: LCSD 410-480383/20 **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 480383

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrate Nitrite as N			2.00	2.04		mg/L		102	90 - 110	6	20

Lab Sample ID: 410-162586-2 MS **Client Sample ID: UR-91-04.2A_20240229_N_WG**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 480383

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Nitrate Nitrite as N	0.79		1.00	1.81		mg/L		102	90 - 110		

Lab Sample ID: 410-162586-2 DU **Client Sample ID: UR-91-04.2A_20240229_N_WG**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 480383

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Nitrate Nitrite as N	0.79		0.742		mg/L		6	10

HPLC/IC

Analysis Batch: 479562

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162586-5	UR-91-20.2A_20240229_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-479562/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-479562/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-479562/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 479938

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162586-1	UR-91-04.1A_20240229_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-162586-2	UR-91-04.2A_20240229_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-162586-2	UR-91-04.2A_20240229_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-162586-3	UR-91-09.2A_20240229_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-162586-3	UR-91-09.2A_20240229_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-162586-4	UR-91-20.2B_20240229_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-479938/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-479938/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-479938/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 480069

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162586-5	UR-91-20.2A_20240229_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-480069/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-480069/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-480069/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 481019

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162586-4	UR-91-20.2B_20240229_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-481019/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-481019/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-481019/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Metals

Prep Batch: 479119

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162586-1	UR-91-04.1A_20240229_N_WG	Dissolved	Water	Non-Digest Prep	
410-162586-2	UR-91-04.2A_20240229_N_WG	Dissolved	Water	Non-Digest Prep	
410-162586-3	UR-91-09.2A_20240229_N_WG	Dissolved	Water	Non-Digest Prep	
410-162586-4	UR-91-20.2B_20240229_N_WG	Dissolved	Water	Non-Digest Prep	
410-162586-5	UR-91-20.2A_20240229_N_WG	Dissolved	Water	Non-Digest Prep	
MB 410-479119/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-479119/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	
410-162586-4 MS	UR-91-20.2B_20240229_N_WG	Dissolved	Water	Non-Digest Prep	
410-162586-4 MSD	UR-91-20.2B_20240229_N_WG	Dissolved	Water	Non-Digest Prep	
410-162586-4 DU	UR-91-20.2B_20240229_N_WG	Dissolved	Water	Non-Digest Prep	

Analysis Batch: 479182

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162586-1	UR-91-04.1A_20240229_N_WG	Dissolved	Water	2340B-2011	
410-162586-2	UR-91-04.2A_20240229_N_WG	Dissolved	Water	2340B-2011	
410-162586-3	UR-91-09.2A_20240229_N_WG	Dissolved	Water	2340B-2011	

Metals (Continued)

Analysis Batch: 479182 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162586-4	UR-91-20.2B_20240229_N_WG	Dissolved	Water	2340B-2011	
410-162586-5	UR-91-20.2A_20240229_N_WG	Dissolved	Water	2340B-2011	

Analysis Batch: 479367

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162586-1	UR-91-04.1A_20240229_N_WG	Dissolved	Water	200.7 Rev 4.4	479119
410-162586-2	UR-91-04.2A_20240229_N_WG	Dissolved	Water	200.7 Rev 4.4	479119
410-162586-3	UR-91-09.2A_20240229_N_WG	Dissolved	Water	200.7 Rev 4.4	479119
410-162586-4	UR-91-20.2B_20240229_N_WG	Dissolved	Water	200.7 Rev 4.4	479119
410-162586-4	UR-91-20.2B_20240229_N_WG	Dissolved	Water	200.7 Rev 4.4	479119
410-162586-5	UR-91-20.2A_20240229_N_WG	Dissolved	Water	200.7 Rev 4.4	479119
410-162586-5	UR-91-20.2A_20240229_N_WG	Dissolved	Water	200.7 Rev 4.4	479119
MB 410-479119/1-A	Method Blank	Total/NA	Water	200.7 Rev 4.4	479119
LCS 410-479119/2-A	Lab Control Sample	Total/NA	Water	200.7 Rev 4.4	479119
410-162586-4 MS	UR-91-20.2B_20240229_N_WG	Dissolved	Water	200.7 Rev 4.4	479119
410-162586-4 MS	UR-91-20.2B_20240229_N_WG	Dissolved	Water	200.7 Rev 4.4	479119
410-162586-4 MSD	UR-91-20.2B_20240229_N_WG	Dissolved	Water	200.7 Rev 4.4	479119
410-162586-4 MSD	UR-91-20.2B_20240229_N_WG	Dissolved	Water	200.7 Rev 4.4	479119
410-162586-4 DU	UR-91-20.2B_20240229_N_WG	Dissolved	Water	200.7 Rev 4.4	479119
410-162586-4 DU	UR-91-20.2B_20240229_N_WG	Dissolved	Water	200.7 Rev 4.4	479119

General Chemistry

Analysis Batch: 479494

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162586-1	UR-91-04.1A_20240229_N_WG	Total/NA	Water	2540C - 2015	
410-162586-2	UR-91-04.2A_20240229_N_WG	Total/NA	Water	2540C - 2015	
410-162586-3	UR-91-09.2A_20240229_N_WG	Total/NA	Water	2540C - 2015	
410-162586-4	UR-91-20.2B_20240229_N_WG	Total/NA	Water	2540C - 2015	
410-162586-5	UR-91-20.2A_20240229_N_WG	Total/NA	Water	2540C - 2015	
MB 410-479494/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-479494/2	Lab Control Sample	Total/NA	Water	2540C - 2015	

Analysis Batch: 480383

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162586-1	UR-91-04.1A_20240229_N_WG	Total/NA	Water	353.2	
410-162586-2	UR-91-04.2A_20240229_N_WG	Total/NA	Water	353.2	
410-162586-3	UR-91-09.2A_20240229_N_WG	Total/NA	Water	353.2	
410-162586-4	UR-91-20.2B_20240229_N_WG	Total/NA	Water	353.2	
410-162586-5	UR-91-20.2A_20240229_N_WG	Total/NA	Water	353.2	
MB 410-480383/21	Method Blank	Total/NA	Water	353.2	
LCS 410-480383/19	Lab Control Sample	Total/NA	Water	353.2	
LCSD 410-480383/20	Lab Control Sample Dup	Total/NA	Water	353.2	
410-162586-2 MS	UR-91-04.2A_20240229_N_WG	Total/NA	Water	353.2	
410-162586-2 DU	UR-91-04.2A_20240229_N_WG	Total/NA	Water	353.2	

Analysis Batch: 480591

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162586-1	UR-91-04.1A_20240229_N_WG	Total/NA	Water	2540C - 2015	
MB 410-480591/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-480591/2	Lab Control Sample	Total/NA	Water	2540C - 2015	

General Chemistry (Continued)

Analysis Batch: 480591 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162586-1 DU	UR-91-04.1A_20240229_N_WG	Total/NA	Water	2540C - 2015	

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-162586-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UR-91-04.1A_20240229_N_WG — Lab Sample ID: 410-162586-1

Date Collected: 02/29/24 08:48 **Matrix: Water**
Date Received: 03/02/24 12:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	479938	W7FX	ELLE	03/06/24 02:49
Dissolved	Prep	Non-Digest Prep			479119	UAMX	ELLE	03/03/24 23:30
Dissolved	Analysis	200.7 Rev 4.4		1	479367	MT26	ELLE	03/04/24 10:16
Dissolved	Analysis	2340B-2011		1	479182	MRD6	ELLE	03/04/24 07:22
Total/NA	Analysis	2540C - 2015		1	479494	UOCA	ELLE	03/04/24 17:44 - 03/05/24 18:02 [1]
Total/NA	Analysis	2540C - 2015		1	480591	UOCA	ELLE	03/06/24 20:29 - 03/08/24 06:10 [1]
Total/NA	Analysis	353.2		10	480383	Q3HN	ELLE	03/06/24 09:32

Client Sample ID: UR-91-04.2A_20240229_N_WG — Lab Sample ID: 410-162586-2

Date Collected: 02/29/24 09:08 **Matrix: Water**
Date Received: 03/02/24 12:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	479938	W7FX	ELLE	03/06/24 03:14
Total/NA	Analysis	EPA 300.0 R2.1		50	479938	W7FX	ELLE	03/06/24 03:52
Dissolved	Prep	Non-Digest Prep			479119	UAMX	ELLE	03/03/24 23:30
Dissolved	Analysis	200.7 Rev 4.4		1	479367	MT26	ELLE	03/04/24 09:50
Dissolved	Analysis	2340B-2011		1	479182	MRD6	ELLE	03/04/24 07:22
Total/NA	Analysis	2540C - 2015		1	479494	UOCA	ELLE	03/04/24 17:44 - 03/05/24 18:02 [1]
Total/NA	Analysis	353.2		1	480383	Q3HN	ELLE	03/06/24 09:34

Client Sample ID: UR-91-09.2A_20240229_N_WG — Lab Sample ID: 410-162586-3

Date Collected: 02/29/24 09:42 **Matrix: Water**
Date Received: 03/02/24 12:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	479938	W7FX	ELLE	03/06/24 04:04
Total/NA	Analysis	EPA 300.0 R2.1		50	479938	W7FX	ELLE	03/06/24 04:17
Dissolved	Prep	Non-Digest Prep			479119	UAMX	ELLE	03/03/24 23:30
Dissolved	Analysis	200.7 Rev 4.4		1	479367	MT26	ELLE	03/04/24 10:13
Dissolved	Analysis	2340B-2011		1	479182	MRD6	ELLE	03/04/24 07:22
Total/NA	Analysis	2540C - 2015		1	479494	UOCA	ELLE	03/04/24 17:44 - 03/05/24 18:02 [1]
Total/NA	Analysis	353.2		1	480383	Q3HN	ELLE	03/06/24 09:40

Client Sample ID: UR-91-20.2B_20240229_N_WG — Lab Sample ID: 410-162586-4

Date Collected: 02/29/24 10:05 **Matrix: Water**
Date Received: 03/02/24 12:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		20	479938	W7FX	ELLE	03/06/24 02:24
Total/NA	Analysis	EPA 300.0 R2.1		1000	481019	W7FX	ELLE	03/07/24 13:12
Dissolved	Prep	Non-Digest Prep			479119	UAMX	ELLE	03/03/24 23:30
Dissolved	Analysis	200.7 Rev 4.4		1	479367	MT26	ELLE	03/04/24 10:10

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-162586-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UR-91-20.2B_20240229_N_WG — Lab Sample ID: 410-162586-4

Date Collected: 02/29/24 10:05 — **Matrix: Water**
Date Received: 03/02/24 12:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			479119	UAMX	ELLE	03/03/24 23:30
Dissolved	Analysis	200.7 Rev 4.4		10	479367	MT26	ELLE	03/04/24 11:03
Dissolved	Analysis	2340B-2011		1	479182	MRD6	ELLE	03/04/24 07:22
Total/NA	Analysis	2540C - 2015		1	479494	UOCA	ELLE	03/04/24 17:44 - 03/05/24 18:02 [1]
Total/NA	Analysis	353.2		1	480383	Q3HN	ELLE	03/06/24 09:42

Client Sample ID: UR-91-20.2A_20240229_N_WG — Lab Sample ID: 410-162586-5

Date Collected: 02/29/24 10:25 — **Matrix: Water**
Date Received: 03/02/24 12:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		1000	480069	W7FX	ELLE	03/06/24 19:11
Total/NA	Analysis	EPA 300.0 R2.1		20	479562	W7FX	ELLE	03/05/24 21:21
Dissolved	Prep	Non-Digest Prep			479119	UAMX	ELLE	03/03/24 23:30
Dissolved	Analysis	200.7 Rev 4.4		1	479367	MT26	ELLE	03/04/24 10:06
Dissolved	Prep	Non-Digest Prep			479119	UAMX	ELLE	03/03/24 23:30
Dissolved	Analysis	200.7 Rev 4.4		10	479367	MT26	ELLE	03/04/24 11:00
Dissolved	Analysis	2340B-2011		1	479182	MRD6	ELLE	03/04/24 07:22
Total/NA	Analysis	2540C - 2015		1	479494	UOCA	ELLE	03/04/24 17:44 - 03/05/24 18:02 [1]
Total/NA	Analysis	353.2		1	480383	Q3HN	ELLE	03/06/24 09:48

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-162586-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00660	08-09-24

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

Analysis Method	Prep Method	Matrix	Analyte
2340B-2011		Water	Hardness as calcium carbonate

Method Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-162586-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
200.7 Rev 4.4	Metals (ICP)	EPA	ELLE
2340B-2011	Total Hardness (as CaCO3) by calculation	SM	ELLE
2540C - 2015	Total Dissolved Solids (Dried at 180 °C)	SM	ELLE
353.2	Nitrogen, Nitrate-Nitrite	EPA	ELLE
Non-Digest Prep	Preparation, Non-Digested Aqueous Metals	EPA	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-162586-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-162586-1	UR-91-04.1A_20240229_N_WG	Water	02/29/24 08:48	03/02/24 12:00
410-162586-2	UR-91-04.2A_20240229_N_WG	Water	02/29/24 09:08	03/02/24 12:00
410-162586-3	UR-91-09.2A_20240229_N_WG	Water	02/29/24 09:42	03/02/24 12:00
410-162586-4	UR-91-20.2B_20240229_N_WG	Water	02/29/24 10:05	03/02/24 12:00
410-162586-5	UR-91-20.2A_20240229_N_WG	Water	02/29/24 10:25	03/02/24 12:00

Jacobs

410-162586 Chain of Custody

NALYSIS REQUEST | COC No: EuroFins Lan-45351443 | Cooler No. 1 of 1

| | | |

Login Sample Receipt Checklist

Client: Jacobs Engineering Group, Inc.

Job Number: 410-162586-1

Login Number: 162586

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Santiago, Nathaniel

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Mark Stinnett
Jacobs Engineering Group, Inc.
3011 SW Willston Road
Gainesville, Florida 32608-3964

Generated 3/8/2024 12:03:59 AM

JOB DESCRIPTION

Umetco Hot Springs - UMP Quarterly Groundwater

JOB NUMBER

410-162590-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

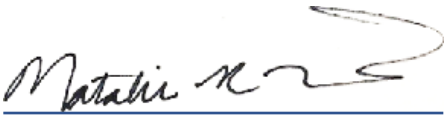
See page two for job notes and contact information.

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.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



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Authorized for release by
Natalie Luciano, Principal Project Manager
Natalie.Luciano@et.eurofinsus.com
(717)556-7258

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is 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.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

This report shall not be reproduced except in full, without the written approval of the laboratory.

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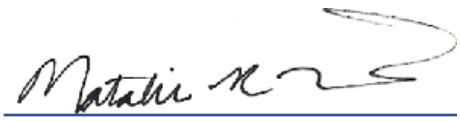


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Definitions/Glossary

Client: Jacobs Engineering Group, Inc. Job ID: 410-162590-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Metals

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F3	Duplicate RPD exceeds the control limit
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Job ID: 410-162590-1 Eurofins Lancaster Laboratories Environment

Job Narrative
410-162590-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

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

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

Receipt
The samples were received on 3/2/2024 12:00 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.8°C.

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

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

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

Detection Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-162590-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UR-91-03.1E_20240229_N_WG — Lab Sample ID: 410-162590-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	41		15	5.0	mg/L	10		EPA 300.0 R2.1	Total/NA
Chloride	880		150	60	mg/L	100		EPA 300.0 R2.1	Total/NA
Calcium	310		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	49		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	98		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	980		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	1600		240	96	mg/L	1		2540C - 2015	Total/NA
Nitrate Nitrite as N	2.3		0.20	0.080	mg/L	2		353.2	Total/NA

Client Sample ID: UR-91-03.2E_20240229_N_WG — Lab Sample ID: 410-162590-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	220		30	10	mg/L	20		EPA 300.0 R2.1	Total/NA
Chloride	2100		1500	600	mg/L	1000		EPA 300.0 R2.1	Total/NA
Calcium	950		5.2	2.4	mg/L	10		200.7 Rev 4.4	Dissolved
Magnesium	120		2.1	0.82	mg/L	10		200.7 Rev 4.4	Dissolved
Sodium	250		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	2900		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	4200		240	96	mg/L	1		2540C - 2015	Total/NA
Nitrate Nitrite as N	1.9		0.10	0.040	mg/L	1		353.2	Total/NA

Client Sample ID: UR-91-03.1D_20240229_N_WG — Lab Sample ID: 410-162590-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	560		300	100	mg/L	200		EPA 300.0 R2.1	Total/NA
Chloride	2300		1500	600	mg/L	1000		EPA 300.0 R2.1	Total/NA
Calcium	990		5.2	2.4	mg/L	10		200.7 Rev 4.4	Dissolved
Magnesium	97		2.1	0.82	mg/L	10		200.7 Rev 4.4	Dissolved
Sodium	340		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	2900		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	5000		240	96	mg/L	1		2540C - 2015	Total/NA
Nitrate Nitrite as N	0.58	F1	0.10	0.040	mg/L	1		353.2	Total/NA

Client Sample ID: UR-91-03.2D_20240229_N_WG — Lab Sample ID: 410-162590-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	670		300	100	mg/L	200		EPA 300.0 R2.1	Total/NA
Chloride	2700		1500	600	mg/L	1000		EPA 300.0 R2.1	Total/NA
Calcium	1200		5.2	2.4	mg/L	10		200.7 Rev 4.4	Dissolved
Magnesium	100		2.1	0.82	mg/L	10		200.7 Rev 4.4	Dissolved
Sodium	490		10	4.1	mg/L	10		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	3400		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	5700		600	240	mg/L	1		2540C - 2015	Total/NA
Nitrate Nitrite as N	1.3		0.10	0.040	mg/L	1		353.2	Total/NA

Client Sample ID: UR-91-03.2C_20240229_N_WG — Lab Sample ID: 410-162590-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	560		300	100	mg/L	200		EPA 300.0 R2.1	Total/NA
Chloride	2200		1500	600	mg/L	1000		EPA 300.0 R2.1	Total/NA
Calcium	960		5.2	2.4	mg/L	10		200.7 Rev 4.4	Dissolved
Magnesium	96		2.1	0.82	mg/L	10		200.7 Rev 4.4	Dissolved
Sodium	450		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved

This Detection Summary does not include radiochemical test results.

Client Sample ID: UR-91-03.2C_20240229_N_WG (Continued) — Lab Sample ID: 410-162590-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Hardness as calcium carbonate	2800		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	4800		240	96	mg/L	1		2540C - 2015	Total/NA
Nitrate Nitrite as N	0.39		0.10	0.040	mg/L	1		353.2	Total/NA

Client Sample ID: UR-91-03.1C_20240229_N_WG — Lab Sample ID: 410-162590-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	76		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	350		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Calcium	120		0.52	0.24	mg/L	1		200.7 Rev 4.4	Dissolved
Magnesium	9.4		0.21	0.082	mg/L	1		200.7 Rev 4.4	Dissolved
Sodium	65		1.0	0.41	mg/L	1		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	330		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	630		120	48	mg/L	1		2540C - 2015	Total/NA
Nitrate Nitrite as N	1.8		0.10	0.040	mg/L	1		353.2	Total/NA

Client Sample ID: UR-91-03.2B_20240229_N_WG — Lab Sample ID: 410-162590-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	490		75	25	mg/L	50		EPA 300.0 R2.1	Total/NA
Chloride	4000		1500	600	mg/L	1000		EPA 300.0 R2.1	Total/NA
Calcium	1500		5.2	2.4	mg/L	10		200.7 Rev 4.4	Dissolved
Magnesium	180		2.1	0.82	mg/L	10		200.7 Rev 4.4	Dissolved
Sodium	540		10	4.1	mg/L	10		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	4500		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	7400		1200	480	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UR-91-03.1B_20240229_N_WG — Lab Sample ID: 410-162590-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	740		300	100	mg/L	200		EPA 300.0 R2.1	Total/NA
Chloride	1700		300	120	mg/L	200		EPA 300.0 R2.1	Total/NA
Calcium	440		1.0	0.47	mg/L	2		200.7 Rev 4.4	Dissolved
Magnesium	28		0.41	0.16	mg/L	2		200.7 Rev 4.4	Dissolved
Sodium	380		2.1	0.82	mg/L	2		200.7 Rev 4.4	Dissolved
Hardness as calcium carbonate	1200		0.91	0.41	mg/L	1		2340B-2011	Dissolved
Total Dissolved Solids	3400		240	96	mg/L	1		2540C - 2015	Total/NA
Nitrate Nitrite as N	2.5		0.20	0.080	mg/L	2		353.2	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: UR-91-03.1E_20240229_N_WG

Lab Sample ID: 410-162590-1
Date Collected: 02/29/24 09:38
Matrix: Water
Date Received: 03/02/24 12:00

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	41		15	5.0	mg/L			03/06/24 00:10	10
Chloride	880		150	60	mg/L			03/06/24 00:22	100

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	310		0.52	0.24	mg/L		03/03/24 23:30	03/04/24 09:47	1
Magnesium	49		0.21	0.082	mg/L		03/03/24 23:30	03/04/24 09:47	1
Sodium	98		1.0	0.41	mg/L		03/03/24 23:30	03/04/24 09:47	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		03/03/24 23:30	03/04/24 09:47	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	980		0.91	0.41	mg/L			03/04/24 07:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	1600		240	96	mg/L			03/04/24 17:44	1
Nitrate Nitrite as N (EPA 353.2)	2.3		0.20	0.080	mg/L			03/06/24 10:18	2

Client Sample ID: UR-91-03.2E_20240229_N_WG

Lab Sample ID: 410-162590-2
Date Collected: 02/29/24 09:56
Matrix: Water
Date Received: 03/02/24 12:00

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	220		30	10	mg/L			03/05/24 21:45	20
Chloride	2100		1500	600	mg/L			03/06/24 19:24	1000

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	950		5.2	2.4	mg/L		03/03/24 23:30	03/04/24 10:54	10
Magnesium	120		2.1	0.82	mg/L		03/03/24 23:30	03/04/24 10:54	10
Sodium	250		1.0	0.41	mg/L		03/03/24 23:30	03/04/24 09:44	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		03/03/24 23:30	03/04/24 09:44	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	2900		0.91	0.41	mg/L			03/04/24 07:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	4200		240	96	mg/L			03/04/24 17:44	1
Nitrate Nitrite as N (EPA 353.2)	1.9		0.10	0.040	mg/L			03/06/24 10:20	1

Client Sample ID: UR-91-03.1D_20240229_N_WG

Lab Sample ID: 410-162590-3
Date Collected: 02/29/24 10:09
Matrix: Water
Date Received: 03/02/24 12:00

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	560		300	100	mg/L			03/05/24 22:21	200
Chloride	2300		1500	600	mg/L			03/06/24 16:19	1000

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	990		5.2	2.4	mg/L		03/03/24 23:30	03/04/24 10:57	10
Magnesium	97		2.1	0.82	mg/L		03/03/24 23:30	03/04/24 10:57	10
Sodium	340		1.0	0.41	mg/L		03/03/24 23:30	03/04/24 10:03	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		03/03/24 23:30	03/04/24 10:03	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	2900		0.91	0.41	mg/L			03/04/24 07:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	5000		240	96	mg/L			03/04/24 17:44	1
Nitrate Nitrite as N (EPA 353.2)	0.58	F1	0.10	0.040	mg/L			03/06/24 10:12	1

Client Sample ID: UR-91-03.2D_20240229_N_WG

Lab Sample ID: 410-162590-4
Date Collected: 02/29/24 10:23
Matrix: Water
Date Received: 03/02/24 12:00

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	670		300	100	mg/L			03/05/24 22:46	200
Chloride	2700		1500	600	mg/L			03/06/24 16:31	1000

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	1200		5.2	2.4	mg/L		03/03/24 23:30	03/04/24 10:47	10
Magnesium	100		2.1	0.82	mg/L		03/03/24 23:30	03/04/24 10:47	10
Sodium	490		10	4.1	mg/L		03/03/24 23:30	03/04/24 10:47	10
Vanadium	0.0020	U	0.010	0.0020	mg/L		03/03/24 23:30	03/04/24 09:34	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	3400		0.91	0.41	mg/L			03/04/24 07:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	5700		600	240	mg/L			03/04/24 17:44	1
Nitrate Nitrite as N (EPA 353.2)	1.3		0.10	0.040	mg/L			03/06/24 10:22	1

Client Sample ID: UR-91-03.2C_20240229_N_WG

Lab Sample ID: 410-162590-5
Date Collected: 02/29/24 10:36
Matrix: Water
Date Received: 03/02/24 12:00

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	560		300	100	mg/L			03/05/24 23:10	200
Chloride	2200		1500	600	mg/L			03/06/24 16:43	1000

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	960		5.2	2.4	mg/L		03/03/24 23:30	03/04/24 10:50	10
Magnesium	96		2.1	0.82	mg/L		03/03/24 23:30	03/04/24 10:50	10
Sodium	450		1.0	0.41	mg/L		03/03/24 23:30	03/04/24 09:37	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		03/03/24 23:30	03/04/24 09:37	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	2800		0.91	0.41	mg/L			03/04/24 07:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	4800		240	96	mg/L			03/04/24 17:44	1
Nitrate Nitrite as N (EPA 353.2)	0.39		0.10	0.040	mg/L			03/06/24 10:24	1

Client Sample ID: UR-91-03.1C_20240229_N_WG

Lab Sample ID: 410-162590-6
Date Collected: 02/29/24 10:57
Matrix: Water
Date Received: 03/02/24 12:00

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	76		7.5	2.5	mg/L			03/06/24 00:35	5
Chloride	350		75	30	mg/L			03/06/24 00:47	50

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	120		0.52	0.24	mg/L		03/03/24 23:30	03/04/24 09:41	1
Magnesium	9.4		0.21	0.082	mg/L		03/03/24 23:30	03/04/24 09:41	1
Sodium	65		1.0	0.41	mg/L		03/03/24 23:30	03/04/24 09:41	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		03/03/24 23:30	03/04/24 09:41	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	330		0.91	0.41	mg/L			03/04/24 07:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	630		120	48	mg/L			03/04/24 17:44	1
Nitrate Nitrite as N (EPA 353.2)	1.8		0.10	0.040	mg/L			03/06/24 10:30	1

Client Sample ID: UR-91-03.2B_20240229_N_WG

Lab Sample ID: 410-162590-7
Date Collected: 02/29/24 11:10
Matrix: Water
Date Received: 03/02/24 12:00

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	490		75	25	mg/L			03/06/24 00:59	50
Chloride	4000		1500	600	mg/L			03/06/24 21:54	1000

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	1500		5.2	2.4	mg/L		03/03/24 23:30	03/04/24 10:44	10
Magnesium	180		2.1	0.82	mg/L		03/03/24 23:30	03/04/24 10:44	10
Sodium	540		10	4.1	mg/L		03/03/24 23:30	03/04/24 10:44	10
Vanadium	0.0020	U	0.010	0.0020	mg/L		03/03/24 23:30	03/04/24 09:27	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	4500		0.91	0.41	mg/L			03/04/24 07:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	7400		1200	480	mg/L			03/04/24 17:44	1
Nitrate Nitrite as N (EPA 353.2)	0.040	U	0.10	0.040	mg/L			03/06/24 10:32	1

Client Sample ID: UR-91-03.1B_20240229_N_WG

Lab Sample ID: 410-162590-8
Date Collected: 02/29/24 11:23
Matrix: Water
Date Received: 03/02/24 12:00

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	740		300	100	mg/L			03/05/24 23:58	200
Chloride	1700		300	120	mg/L			03/05/24 23:58	200

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	440		1.0	0.47	mg/L		03/03/24 23:30	03/04/24 16:23	2
Magnesium	28		0.41	0.16	mg/L		03/03/24 23:30	03/04/24 16:23	2
Sodium	380		2.1	0.82	mg/L		03/03/24 23:30	03/04/24 16:23	2
Vanadium	0.0020	U	0.010	0.0020	mg/L		03/03/24 23:30	03/04/24 09:30	1

Method: SM 2340B-2011 - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	1200		0.91	0.41	mg/L			03/04/24 07:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	3400		240	96	mg/L			03/04/24 17:44	1
Nitrate Nitrite as N (EPA 353.2)	2.5		0.20	0.080	mg/L			03/06/24 10:34	2

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-479562/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 479562

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			03/05/24 10:00	1
Chloride	0.60	U	1.5	0.60	mg/L			03/05/24 10:00	1

Lab Sample ID: LCS 410-479562/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 479562

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.28		mg/L		97	90 - 110
Chloride	3.00	2.82		mg/L		94	90 - 110

Lab Sample ID: LCSD 410-479562/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 479562

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.50	7.28		mg/L		97	90 - 110	0	20
Chloride	3.00	2.82		mg/L		94	90 - 110	0	20

Lab Sample ID: MB 410-480069/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 480069

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			03/06/24 16:53	1
Chloride	0.60	U	1.5	0.60	mg/L			03/06/24 16:53	1

Lab Sample ID: LCS 410-480069/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 480069

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	8.02		mg/L		107	90 - 110
Chloride	3.00	2.95		mg/L		98	90 - 110

Lab Sample ID: LCSD 410-480069/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 480069

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.50	8.00		mg/L		107	90 - 110	0	20
Chloride	3.00	2.95		mg/L		98	90 - 110	0	20

Lab Sample ID: MB 410-480484/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 480484

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			03/06/24 15:43	1
Chloride	0.60	U	1.5	0.60	mg/L			03/06/24 15:43	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: LCS 410-480484/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 480484

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.95		mg/L		106	90 - 110
Chloride	3.00	2.99		mg/L		100	90 - 110

Lab Sample ID: LCSD 410-480484/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 480484

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.50	7.98		mg/L		106	90 - 110	0	20
Chloride	3.00	3.00		mg/L		100	90 - 110	0	20

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 410-479119/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 479367 — **Prep Batch: 479119**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	0.24	U	0.52	0.24	mg/L		03/03/24 23:30	03/04/24 08:54	1
Magnesium	0.082	U	0.21	0.082	mg/L		03/03/24 23:30	03/04/24 08:54	1
Sodium	0.41	U	1.0	0.41	mg/L		03/03/24 23:30	03/04/24 08:54	1
Vanadium	0.0020	U	0.010	0.0020	mg/L		03/03/24 23:30	03/04/24 08:54	1

Lab Sample ID: LCS 410-479119/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 479367 — **Prep Batch: 479119**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	5.00	4.95		mg/L		99	85 - 115
Magnesium	5.00	5.01		mg/L		100	85 - 115
Sodium	5.00	5.14		mg/L		103	85 - 115
Vanadium	0.500	0.502		mg/L		100	85 - 115

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 410-479494/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 479494

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12	U	30	12	mg/L			03/04/24 17:44	1

Lab Sample ID: LCS 410-479494/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 479494

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	200	205		mg/L		103	90 - 110

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C) (Continued)

Lab Sample ID: 410-162590-1 MS — **Client Sample ID: UR-91-03.1E_20240229_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 479494

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Dissolved Solids	1600		1600	3130		mg/L		98	90 - 110		

Lab Sample ID: 410-162590-1 DU — **Client Sample ID: UR-91-03.1E_20240229_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 479494

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	1600			1570		mg/L				0.3	10

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 410-480383/21 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 480383

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.040	U	0.10	0.040	mg/L			03/06/24 09:04	1

Lab Sample ID: MB 410-480383/54 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 480383

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.040	U	0.10	0.040	mg/L			03/06/24 10:10	1

Lab Sample ID: LCS 410-480383/52 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 480383

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Nitrate Nitrite as N			2.00	1.81		mg/L		91	90 - 110		

Lab Sample ID: LCSD 410-480383/53 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 480383

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrate Nitrite as N			2.00	1.86		mg/L		93	90 - 110	2	20

Lab Sample ID: 410-162590-3 MS — **Client Sample ID: UR-91-03.1D_20240229_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 480383

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Nitrate Nitrite as N	0.58	F1	1.00	1.11	F1	mg/L		53	90 - 110		

Client: Jacobs Engineering Group, Inc.
Job ID: 410-162590-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Method: 353.2 - Nitrogen, Nitrate-Nitrite (Continued)

Lab Sample ID: 410-162590-3 DU
Client Sample ID: UR-91-03.1D_20240229_N_WG
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 480383

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Nitrate Nitrite as N	0.58	F1		0.512	F3	mg/L				13	10

HPLC/IC

Analysis Batch: 479562

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162590-1	UR-91-03.1E_20240229_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-162590-1	UR-91-03.1E_20240229_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-162590-2	UR-91-03.2E_20240229_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-162590-3	UR-91-03.1D_20240229_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-162590-4	UR-91-03.2D_20240229_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-162590-5	UR-91-03.2C_20240229_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-162590-6	UR-91-03.1C_20240229_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-162590-6	UR-91-03.1C_20240229_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-162590-7	UR-91-03.2B_20240229_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-162590-8	UR-91-03.1B_20240229_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-479562/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-479562/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-479562/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 480069

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162590-2	UR-91-03.2E_20240229_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-162590-7	UR-91-03.2B_20240229_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-480069/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-480069/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-480069/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 480484

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162590-3	UR-91-03.1D_20240229_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-162590-4	UR-91-03.2D_20240229_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-162590-5	UR-91-03.2C_20240229_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-480484/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-480484/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-480484/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Metals

Prep Batch: 479119

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162590-1	UR-91-03.1E_20240229_N_WG	Dissolved	Water	Non-Digest Prep	
410-162590-2	UR-91-03.2E_20240229_N_WG	Dissolved	Water	Non-Digest Prep	
410-162590-3	UR-91-03.1D_20240229_N_WG	Dissolved	Water	Non-Digest Prep	
410-162590-4	UR-91-03.2D_20240229_N_WG	Dissolved	Water	Non-Digest Prep	
410-162590-5	UR-91-03.2C_20240229_N_WG	Dissolved	Water	Non-Digest Prep	
410-162590-6	UR-91-03.1C_20240229_N_WG	Dissolved	Water	Non-Digest Prep	
410-162590-7	UR-91-03.2B_20240229_N_WG	Dissolved	Water	Non-Digest Prep	
410-162590-8	UR-91-03.1B_20240229_N_WG	Dissolved	Water	Non-Digest Prep	
MB 410-479119/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-479119/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	

Analysis Batch: 479182

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162590-1	UR-91-03.1E_20240229_N_WG	Dissolved	Water	2340B-2011	
410-162590-2	UR-91-03.2E_20240229_N_WG	Dissolved	Water	2340B-2011	
410-162590-3	UR-91-03.1D_20240229_N_WG	Dissolved	Water	2340B-2011	

Metals (Continued)

Analysis Batch: 479182 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162590-4	UR-91-03.2D_20240229_N_WG	Dissolved	Water	2340B-2011	
410-162590-5	UR-91-03.2C_20240229_N_WG	Dissolved	Water	2340B-2011	
410-162590-6	UR-91-03.1C_20240229_N_WG	Dissolved	Water	2340B-2011	
410-162590-7	UR-91-03.2B_20240229_N_WG	Dissolved	Water	2340B-2011	
410-162590-8	UR-91-03.1B_20240229_N_WG	Dissolved	Water	2340B-2011	

Analysis Batch: 479367

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162590-1	UR-91-03.1E_20240229_N_WG	Dissolved	Water	200.7 Rev 4.4	479119
410-162590-2	UR-91-03.2E_20240229_N_WG	Dissolved	Water	200.7 Rev 4.4	479119
410-162590-2	UR-91-03.2E_20240229_N_WG	Dissolved	Water	200.7 Rev 4.4	479119
410-162590-3	UR-91-03.1D_20240229_N_WG	Dissolved	Water	200.7 Rev 4.4	479119
410-162590-3	UR-91-03.1D_20240229_N_WG	Dissolved	Water	200.7 Rev 4.4	479119
410-162590-4	UR-91-03.2D_20240229_N_WG	Dissolved	Water	200.7 Rev 4.4	479119
410-162590-4	UR-91-03.2D_20240229_N_WG	Dissolved	Water	200.7 Rev 4.4	479119
410-162590-5	UR-91-03.2C_20240229_N_WG	Dissolved	Water	200.7 Rev 4.4	479119
410-162590-5	UR-91-03.2C_20240229_N_WG	Dissolved	Water	200.7 Rev 4.4	479119
410-162590-6	UR-91-03.1C_20240229_N_WG	Dissolved	Water	200.7 Rev 4.4	479119
410-162590-7	UR-91-03.2B_20240229_N_WG	Dissolved	Water	200.7 Rev 4.4	479119
410-162590-7	UR-91-03.2B_20240229_N_WG	Dissolved	Water	200.7 Rev 4.4	479119
410-162590-8	UR-91-03.1B_20240229_N_WG	Dissolved	Water	200.7 Rev 4.4	479119
MB 410-479119/1-A	Method Blank	Total/NA	Water	200.7 Rev 4.4	479119
LCS 410-479119/2-A	Lab Control Sample	Total/NA	Water	200.7 Rev 4.4	479119

Analysis Batch: 479564

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162590-8	UR-91-03.1B_20240229_N_WG	Dissolved	Water	200.7 Rev 4.4	479119

General Chemistry

Analysis Batch: 479494

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162590-1	UR-91-03.1E_20240229_N_WG	Total/NA	Water	2540C - 2015	
410-162590-2	UR-91-03.2E_20240229_N_WG	Total/NA	Water	2540C - 2015	
410-162590-3	UR-91-03.1D_20240229_N_WG	Total/NA	Water	2540C - 2015	
410-162590-4	UR-91-03.2D_20240229_N_WG	Total/NA	Water	2540C - 2015	
410-162590-5	UR-91-03.2C_20240229_N_WG	Total/NA	Water	2540C - 2015	
410-162590-6	UR-91-03.1C_20240229_N_WG	Total/NA	Water	2540C - 2015	
410-162590-7	UR-91-03.2B_20240229_N_WG	Total/NA	Water	2540C - 2015	
410-162590-8	UR-91-03.1B_20240229_N_WG	Total/NA	Water	2540C - 2015	
MB 410-479494/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-479494/2	Lab Control Sample	Total/NA	Water	2540C - 2015	
410-162590-1 MS	UR-91-03.1E_20240229_N_WG	Total/NA	Water	2540C - 2015	
410-162590-1 DU	UR-91-03.1E_20240229_N_WG	Total/NA	Water	2540C - 2015	

Analysis Batch: 480383

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162590-1	UR-91-03.1E_20240229_N_WG	Total/NA	Water	353.2	
410-162590-2	UR-91-03.2E_20240229_N_WG	Total/NA	Water	353.2	
410-162590-3	UR-91-03.1D_20240229_N_WG	Total/NA	Water	353.2	
410-162590-4	UR-91-03.2D_20240229_N_WG	Total/NA	Water	353.2	

General Chemistry (Continued)

Analysis Batch: 480383 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-162590-5	UR-91-03.2C_20240229_N_WG	Total/NA	Water	353.2	
410-162590-6	UR-91-03.1C_20240229_N_WG	Total/NA	Water	353.2	
410-162590-7	UR-91-03.2B_20240229_N_WG	Total/NA	Water	353.2	
410-162590-8	UR-91-03.1B_20240229_N_WG	Total/NA	Water	353.2	
MB 410-480383/21	Method Blank	Total/NA	Water	353.2	
MB 410-480383/54	Method Blank	Total/NA	Water	353.2	
LCS 410-480383/52	Lab Control Sample	Total/NA	Water	353.2	
LCSD 410-480383/53	Lab Control Sample Dup	Total/NA	Water	353.2	
410-162590-3 MS	UR-91-03.1D_20240229_N_WG	Total/NA	Water	353.2	
410-162590-3 DU	UR-91-03.1D_20240229_N_WG	Total/NA	Water	353.2	

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-162590-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UR-91-03.1E_20240229_N_WG — Lab Sample ID: 410-162590-1

Date Collected: 02/29/24 09:38 **Matrix: Water**
Date Received: 03/02/24 12:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		10	479562	W7FX	ELLE	03/06/24 00:10
Total/NA	Analysis	EPA 300.0 R2.1		100	479562	W7FX	ELLE	03/06/24 00:22
Dissolved	Prep	Non-Digest Prep			479119	UAMX	ELLE	03/03/24 23:30
Dissolved	Analysis	200.7 Rev 4.4		1	479367	MT26	ELLE	03/04/24 09:47
Dissolved	Analysis	2340B-2011		1	479182	MRD6	ELLE	03/04/24 07:22
Total/NA	Analysis	2540C - 2015		1	479494	UOCA	ELLE	03/04/24 17:44 - 03/05/24 18:02 [1]
Total/NA	Analysis	353.2		2	480383	Q3HN	ELLE	03/06/24 10:18

Client Sample ID: UR-91-03.2E_20240229_N_WG — Lab Sample ID: 410-162590-2

Date Collected: 02/29/24 09:56 **Matrix: Water**
Date Received: 03/02/24 12:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		1000	480069	W7FX	ELLE	03/06/24 19:24
Total/NA	Analysis	EPA 300.0 R2.1		20	479562	W7FX	ELLE	03/05/24 21:45
Dissolved	Prep	Non-Digest Prep			479119	UAMX	ELLE	03/03/24 23:30
Dissolved	Analysis	200.7 Rev 4.4		1	479367	MT26	ELLE	03/04/24 09:44
Dissolved	Prep	Non-Digest Prep			479119	UAMX	ELLE	03/03/24 23:30
Dissolved	Analysis	200.7 Rev 4.4		10	479367	MT26	ELLE	03/04/24 10:54
Dissolved	Analysis	2340B-2011		1	479182	MRD6	ELLE	03/04/24 07:22
Total/NA	Analysis	2540C - 2015		1	479494	UOCA	ELLE	03/04/24 17:44 - 03/05/24 18:02 [1]
Total/NA	Analysis	353.2		1	480383	Q3HN	ELLE	03/06/24 10:20

Client Sample ID: UR-91-03.1D_20240229_N_WG — Lab Sample ID: 410-162590-3

Date Collected: 02/29/24 10:09 **Matrix: Water**
Date Received: 03/02/24 12:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		200	479562	W7FX	ELLE	03/05/24 22:21
Total/NA	Analysis	EPA 300.0 R2.1		1000	480484	W7FX	ELLE	03/06/24 16:19
Dissolved	Prep	Non-Digest Prep			479119	UAMX	ELLE	03/03/24 23:30
Dissolved	Analysis	200.7 Rev 4.4		1	479367	MT26	ELLE	03/04/24 10:03
Dissolved	Prep	Non-Digest Prep			479119	UAMX	ELLE	03/03/24 23:30
Dissolved	Analysis	200.7 Rev 4.4		10	479367	MT26	ELLE	03/04/24 10:57
Dissolved	Analysis	2340B-2011		1	479182	MRD6	ELLE	03/04/24 07:22
Total/NA	Analysis	2540C - 2015		1	479494	UOCA	ELLE	03/04/24 17:44 - 03/05/24 18:02 [1]
Total/NA	Analysis	353.2		1	480383	Q3HN	ELLE	03/06/24 10:12

Client Sample ID: UR-91-03.2D_20240229_N_WG — Lab Sample ID: 410-162590-4

Date Collected: 02/29/24 10:23 **Matrix: Water**
Date Received: 03/02/24 12:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		200	479562	W7FX	ELLE	03/05/24 22:46

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-162590-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UR-91-03.2D_20240229_N_WG — Lab Sample ID: 410-162590-4

Date Collected: 02/29/24 10:23 **Matrix: Water**
Date Received: 03/02/24 12:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		1000	480484	W7FX	ELLE	03/06/24 16:31
Dissolved	Prep	Non-Digest Prep			479119	UAMX	ELLE	03/03/24 23:30
Dissolved	Analysis	200.7 Rev 4.4		1	479367	MT26	ELLE	03/04/24 09:34
Dissolved	Prep	Non-Digest Prep			479119	UAMX	ELLE	03/03/24 23:30
Dissolved	Analysis	200.7 Rev 4.4		10	479367	MT26	ELLE	03/04/24 10:47
Dissolved	Analysis	2340B-2011		1	479182	MRD6	ELLE	03/04/24 07:22
Total/NA	Analysis	2540C - 2015		1	479494	UOCA	ELLE	03/04/24 17:44 - 03/05/24 18:02 [1]
Total/NA	Analysis	353.2		1	480383	Q3HN	ELLE	03/06/24 10:22

Client Sample ID: UR-91-03.2C_20240229_N_WG — Lab Sample ID: 410-162590-5

Date Collected: 02/29/24 10:36 **Matrix: Water**
Date Received: 03/02/24 12:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		200	479562	W7FX	ELLE	03/05/24 23:10
Total/NA	Analysis	EPA 300.0 R2.1		1000	480484	W7FX	ELLE	03/06/24 16:43
Dissolved	Prep	Non-Digest Prep			479119	UAMX	ELLE	03/03/24 23:30
Dissolved	Analysis	200.7 Rev 4.4		1	479367	MT26	ELLE	03/04/24 09:37
Dissolved	Prep	Non-Digest Prep			479119	UAMX	ELLE	03/03/24 23:30
Dissolved	Analysis	200.7 Rev 4.4		10	479367	MT26	ELLE	03/04/24 10:50
Dissolved	Analysis	2340B-2011		1	479182	MRD6	ELLE	03/04/24 07:22
Total/NA	Analysis	2540C - 2015		1	479494	UOCA	ELLE	03/04/24 17:44 - 03/05/24 18:02 [1]
Total/NA	Analysis	353.2		1	480383	Q3HN	ELLE	03/06/24 10:24

Client Sample ID: UR-91-03.1C_20240229_N_WG — Lab Sample ID: 410-162590-6

Date Collected: 02/29/24 10:57 **Matrix: Water**
Date Received: 03/02/24 12:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	479562	W7FX	ELLE	03/06/24 00:35
Total/NA	Analysis	EPA 300.0 R2.1		50	479562	W7FX	ELLE	03/06/24 00:47
Dissolved	Prep	Non-Digest Prep			479119	UAMX	ELLE	03/03/24 23:30
Dissolved	Analysis	200.7 Rev 4.4		1	479367	MT26	ELLE	03/04/24 09:41
Dissolved	Analysis	2340B-2011		1	479182	MRD6	ELLE	03/04/24 07:22
Total/NA	Analysis	2540C - 2015		1	479494	UOCA	ELLE	03/04/24 17:44 - 03/05/24 18:02 [1]
Total/NA	Analysis	353.2		1	480383	Q3HN	ELLE	03/06/24 10:30

Client Sample ID: UR-91-03.2B_20240229_N_WG — Lab Sample ID: 410-162590-7

Date Collected: 02/29/24 11:10 **Matrix: Water**
Date Received: 03/02/24 12:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		1000	480069	W7FX	ELLE	03/06/24 21:54
Total/NA	Analysis	EPA 300.0 R2.1		50	479562	W7FX	ELLE	03/06/24 00:59

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-162590-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UR-91-03.2B_20240229_N_WG — Lab Sample ID: 410-162590-7

Date Collected: 02/29/24 11:10 — **Matrix: Water**
Date Received: 03/02/24 12:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			479119	UAMX	ELLE	03/03/24 23:30
Dissolved	Analysis	200.7 Rev 4.4		1	479367	MT26	ELLE	03/04/24 09:27
Dissolved	Prep	Non-Digest Prep			479119	UAMX	ELLE	03/03/24 23:30
Dissolved	Analysis	200.7 Rev 4.4		10	479367	MT26	ELLE	03/04/24 10:44
Dissolved	Analysis	2340B-2011		1	479182	MRD6	ELLE	03/04/24 07:22
Total/NA	Analysis	2540C - 2015		1	479494	UOCA	ELLE	03/04/24 17:44 - 03/05/24 18:02 [1]
Total/NA	Analysis	353.2		1	480383	Q3HN	ELLE	03/06/24 10:32

Client Sample ID: UR-91-03.1B_20240229_N_WG — Lab Sample ID: 410-162590-8

Date Collected: 02/29/24 11:23 — **Matrix: Water**
Date Received: 03/02/24 12:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		200	479562	W7FX	ELLE	03/05/24 23:58
Dissolved	Prep	Non-Digest Prep			479119	UAMX	ELLE	03/03/24 23:30
Dissolved	Analysis	200.7 Rev 4.4		1	479367	MT26	ELLE	03/04/24 09:30
Dissolved	Prep	Non-Digest Prep			479119	UAMX	ELLE	03/03/24 23:30
Dissolved	Analysis	200.7 Rev 4.4		2	479564	T8CQ	ELLE	03/04/24 16:23
Dissolved	Analysis	2340B-2011		1	479182	MRD6	ELLE	03/04/24 07:22
Total/NA	Analysis	2540C - 2015		1	479494	UOCA	ELLE	03/04/24 17:44 - 03/05/24 18:02 [1]
Total/NA	Analysis	353.2		2	480383	Q3HN	ELLE	03/06/24 10:34

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-162590-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00660	08-09-24

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

Analysis Method	Prep Method	Matrix	Analyte
2340B-2011		Water	Hardness as calcium carbonate

Method Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-162590-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
200.7 Rev 4.4	Metals (ICP)	EPA	ELLE
2340B-2011	Total Hardness (as CaCO3) by calculation	SM	ELLE
2540C - 2015	Total Dissolved Solids (Dried at 180 °C)	SM	ELLE
353.2	Nitrogen, Nitrate-Nitrite	EPA	ELLE
Non-Digest Prep	Preparation, Non-Digested Aqueous Metals	EPA	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-162590-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-162590-1	UR-91-03.1E_20240229_N_WG	Water	02/29/24 09:38	03/02/24 12:00
410-162590-2	UR-91-03.2E_20240229_N_WG	Water	02/29/24 09:56	03/02/24 12:00
410-162590-3	UR-91-03.1D_20240229_N_WG	Water	02/29/24 10:09	03/02/24 12:00
410-162590-4	UR-91-03.2D_20240229_N_WG	Water	02/29/24 10:23	03/02/24 12:00
410-162590-5	UR-91-03.2C_20240229_N_WG	Water	02/29/24 10:36	03/02/24 12:00
410-162590-6	UR-91-03.1C_20240229_N_WG	Water	02/29/24 10:57	03/02/24 12:00
410-162590-7	UR-91-03.2B_20240229_N_WG	Water	02/29/24 11:10	03/02/24 12:00
410-162590-8	UR-91-03.1B_20240229_N_WG	Water	02/29/24 11:23	03/02/24 12:00

Jacobs

410-162590 Chain of Custody

ANALYSIS REQUEST | **COC No: EuroFins Lan-45352615** | **Cooler No. of**

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 7
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number** 4508165277
Project Chemist Mark Stinnett 352-359-5937	**Shipping Company / Airbill No.** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 03/01/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Analysis: Chloride and Sulfate - E300.0	Hardness - SM2340B	Nitrate-Nitrite - E353.2	TDS - SM2540C	Dissolved Metals - E200.7 (Ca Mg Na V)
							Filtered		Yes			
							Preserve		HNO3	H2SO4		
UR-91-03.1E_20240229_N_WG	UR-91-03 .1E	WG	G		02/29/2024 09:38	4		X	X	X	X	X
UR-91-03.2E_20240229_N_WG	UR-91-03 .2E	WG	G		02/29/2024 09:56	4		X	X	X	X	X
UR-91-03.1D_20240229_N_WG	UR-91-03 .1D	WG	G		02/29/2024 10:09	4		X	X	X	X	X
UR-91-03.2D_20240229_N_WG	UR-91-03 .2D	WG	G		02/29/2024 10:23	4		X	X	X	X	X
UR-91-03.2C_20240229_N_WG	UR-91-03 .2C	WG	G		02/29/2024 10:36	4		X	X	X	X	X
UR-91-03.1C_20240229_N_WG	UR-91-03 .1C	WG	G		02/29/2024 10:57	4		X	X	X	X	X
UR-91-03.2B_20240229_N_WG	UR-91-03 .2B	WG	G		02/29/2024 11:10	4		X	X	X	X	X

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	Jordan Carnahan	03-01-24 1730		
			ELLET	3/2/24 12:00
	SHIPPING METHOD: (mark as appropriate)		**SAMPLER NAME AND SIGNATURE**	**Date Time**
Email Report To :				
Email Invoice To : Mark.Stinnett@jacobs.com, Dow_Umetco@jacobs.com				

R:2.9 C:2.8

Jacobs

CHAIN OF CUSTODY / SAMPLE ANALYSIS REQUEST

COC No: EuroFins Lan-45352615

Cooler No. of

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 7
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number** 4508165277
Project Chemist Mark Stinnett 352-359-5937	**Shipping Company / Airbill No.** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 03/01/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Filtered																							
								Preserve		Yes																						
								Analysis		HNO3	H2SO4																					
									Chloride and Sulfate - E300.0	Hardness - SM2340B	Nitrate-Nitrite - E353.2	TDS - SM2540C	ssolved Metals - E200.7 (Ca Mg Na V)																		
UR-91-03.1B_20240229_N_WG	UR-91-03 .1B	WG	G		02/29/2024 11:23	4			X	X	X	X	X																		

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	Jordan Carnahan	03-01-24 1730		
			ELLET	3/2/24 12:00
	SHIPPING METHOD: (mark as appropriate)		SAMPLER NAME AND SIGNATURE	Date Time
Email Report To :				
Email Invoice To : Mark.Stinnett@jacobs.com, Dow_Umetco@jacobs.com				

R:2.9 C:2.8

Login Sample Receipt Checklist

Client: Jacobs Engineering Group, Inc.

Job Number: 410-162590-1

Login Number: 162590

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Santiago, Nathaniel

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

eurofins | Environment Testing

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

ANALYTICAL REPORT

PREPARED FOR

Attn: Mark Stinnett
Jacobs Engineering Group, Inc.
3011 SW Willston Road
Gainesville, Florida 32608-3964

Generated 5/7/2024 12:58:07 PM

JOB DESCRIPTION

Umetco Hot Springs - UMP Quarterly Groundwater

JOB NUMBER

410-170171-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

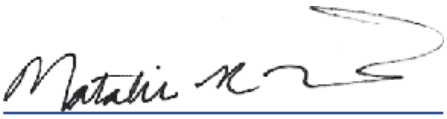
myEOL

Job Notes

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

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



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Authorized for release by
Natalie Luciano, Principal Project Manager
Natalie.Luciano@et.eurofinsus.com
(717)556-7258

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is 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.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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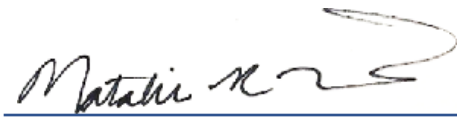


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Definitions/Glossary

Client: Jacobs Engineering Group, Inc. Job ID: 410-170171-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Qualifiers

HPLC/IC

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.
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Job Narrative
410-170171-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

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

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

Receipt
The samples were received on 5/2/2024 9:30 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.4°C.

Receipt Exceptions
The Chain-of-Custody (COC) was incomplete as received. The COC is missing Sample Preservation. This does not meet regulatory requirements.

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

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

Detection Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-170171-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-87-06.1_20240501_N_WG — Lab Sample ID: 410-170171-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	38		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	150		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	350		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-06.2_20240501_N_WG — Lab Sample ID: 410-170171-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	6.9	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	140		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	300		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-07.1_20240501_N_WG — Lab Sample ID: 410-170171-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	4.8	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	120		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	290		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-07.2_20240501_N_WG — Lab Sample ID: 410-170171-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	4.0	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	280		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	570		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-20-22.1_20240501_N_WG — Lab Sample ID: 410-170171-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	21		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	9.4		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	190		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-20-21.1_20240501_N_WG — Lab Sample ID: 410-170171-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	9.1		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	79		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	200		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-20-21.2_20240501_N_WG — Lab Sample ID: 410-170171-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	20		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	160		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	590		60	24	mg/L	1		2540C - 2015	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Jacobs Engineering Group, Inc. Job ID: 410-170171-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-87-06.1_20240501_N_WG — Lab Sample ID: 410-170171-1

Date Collected: 05/01/24 09:39 **Matrix: Water**
Date Received: 05/02/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	38		7.5	2.5	mg/L			05/04/24 11:41	5
Chloride	150		75	30	mg/L			05/04/24 11:53	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	350		60	24	mg/L			05/06/24 17:45	1

Client Sample ID: UO-87-06.2_20240501_N_WG — Lab Sample ID: 410-170171-2

Date Collected: 05/01/24 10:00 **Matrix: Water**
Date Received: 05/02/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	6.9	J	7.5	2.5	mg/L			05/04/24 12:28	5
Chloride	140		75	30	mg/L			05/04/24 12:39	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	300		60	24	mg/L			05/06/24 17:45	1

Client Sample ID: UO-87-07.1_20240501_N_WG — Lab Sample ID: 410-170171-3

Date Collected: 05/01/24 11:02 **Matrix: Water**
Date Received: 05/02/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	4.8	J	7.5	2.5	mg/L			05/04/24 12:51	5
Chloride	120		75	30	mg/L			05/04/24 13:02	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	290		60	24	mg/L			05/06/24 17:45	1

Client Sample ID: UO-87-07.2_20240501_N_WG — Lab Sample ID: 410-170171-4

Date Collected: 05/01/24 11:20 **Matrix: Water**
Date Received: 05/02/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	4.0	J	7.5	2.5	mg/L			05/04/24 14:46	5
Chloride	280		75	30	mg/L			05/04/24 14:57	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	570		60	24	mg/L			05/06/24 17:45	1

Client Sample ID: UO-20-22.1_20240501_N_WG — Lab Sample ID: 410-170171-5

Date Collected: 05/01/24 11:56 **Matrix: Water**
Date Received: 05/02/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	21		7.5	2.5	mg/L			05/04/24 15:09	5
Chloride	9.4		7.5	3.0	mg/L			05/04/24 15:09	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	190		30	12	mg/L			05/06/24 17:45	1

Client Sample ID: UO-20-21.1_20240501_N_WG — Lab Sample ID: 410-170171-6

Date Collected: 05/01/24 12:28 **Matrix: Water**
Date Received: 05/02/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	9.1		7.5	2.5	mg/L			05/05/24 04:50	5
Chloride	79		75	30	mg/L			05/05/24 05:02	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	200		30	12	mg/L			05/06/24 17:45	1

Client Sample ID: UO-20-21.2_20240501_N_WG — Lab Sample ID: 410-170171-7

Date Collected: 05/01/24 13:12 **Matrix: Water**
Date Received: 05/02/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	20		7.5	2.5	mg/L			05/05/24 05:14	5
Chloride	160		75	30	mg/L			05/05/24 05:27	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	590		60	24	mg/L			05/06/24 17:45	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-502121/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 502121

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			05/04/24 09:35	1
Chloride	0.60	U	1.5	0.60	mg/L			05/04/24 09:35	1

Lab Sample ID: LCS 410-502121/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 502121

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.12		mg/L		95	90 - 110
Chloride	3.00	2.81		mg/L		94	90 - 110

Lab Sample ID: LCSD 410-502121/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 502121

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.50	7.10		mg/L		95	90 - 110	0	20
Chloride	3.00	2.81		mg/L		94	90 - 110	0	20

Lab Sample ID: MB 410-502124/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 502124

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			05/05/24 03:50	1
Chloride	0.60	U	1.5	0.60	mg/L			05/05/24 03:50	1

Lab Sample ID: LCS 410-502124/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 502124

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.05		mg/L		94	90 - 110
Chloride	3.00	2.80		mg/L		93	90 - 110

Lab Sample ID: LCSD 410-502124/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 502124

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.50	7.01		mg/L		93	90 - 110	1	20
Chloride	3.00	2.79		mg/L		93	90 - 110	0	20

Client: Jacobs Engineering Group, Inc.
Job ID: 410-170171-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 410-502725/1
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 502725

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12	U	30	12	mg/L			05/06/24 17:45	1

Lab Sample ID: LCS 410-502725/2
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 502725

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Dissolved Solids			200	193		mg/L		97	90 - 110		

Lab Sample ID: LCSD 410-502725/3
Client Sample ID: Lab Control Sample Dup
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 502725

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids			200	202		mg/L		101	90 - 110	5	10

QC Association Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-170171-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

HPLC/IC

Analysis Batch: 502121

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-170171-1	UO-87-06.1_20240501_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-170171-1	UO-87-06.1_20240501_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-170171-2	UO-87-06.2_20240501_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-170171-2	UO-87-06.2_20240501_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-170171-3	UO-87-07.1_20240501_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-170171-3	UO-87-07.1_20240501_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-170171-4	UO-87-07.2_20240501_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-170171-4	UO-87-07.2_20240501_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-170171-5	UO-20-22.1_20240501_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-502121/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-502121/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-502121/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 502124

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-170171-6	UO-20-21.1_20240501_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-170171-6	UO-20-21.1_20240501_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-170171-7	UO-20-21.2_20240501_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-170171-7	UO-20-21.2_20240501_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-502124/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-502124/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-502124/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

General Chemistry

Analysis Batch: 502725

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-170171-1	UO-87-06.1_20240501_N_WG	Total/NA	Water	2540C - 2015	
410-170171-2	UO-87-06.2_20240501_N_WG	Total/NA	Water	2540C - 2015	
410-170171-3	UO-87-07.1_20240501_N_WG	Total/NA	Water	2540C - 2015	
410-170171-4	UO-87-07.2_20240501_N_WG	Total/NA	Water	2540C - 2015	
410-170171-5	UO-20-22.1_20240501_N_WG	Total/NA	Water	2540C - 2015	
410-170171-6	UO-20-21.1_20240501_N_WG	Total/NA	Water	2540C - 2015	
410-170171-7	UO-20-21.2_20240501_N_WG	Total/NA	Water	2540C - 2015	
MB 410-502725/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-502725/2	Lab Control Sample	Total/NA	Water	2540C - 2015	
LCSD 410-502725/3	Lab Control Sample Dup	Total/NA	Water	2540C - 2015	

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-170171-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-87-06.1_20240501_N_WG — Lab Sample ID: 410-170171-1

Date Collected: 05/01/24 09:39 **Matrix: Water**
Date Received: 05/02/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	502121	L4QM	ELLE	05/04/24 11:41
Total/NA	Analysis	EPA 300.0 R2.1		50	502121	L4QM	ELLE	05/04/24 11:53
Total/NA	Analysis	2540C - 2015		1	502725	UOCA	ELLE	05/06/24 17:45 - 05/07/24 10:20 [1]

Client Sample ID: UO-87-06.2_20240501_N_WG — Lab Sample ID: 410-170171-2

Date Collected: 05/01/24 10:00 **Matrix: Water**
Date Received: 05/02/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	502121	L4QM	ELLE	05/04/24 12:28
Total/NA	Analysis	EPA 300.0 R2.1		50	502121	L4QM	ELLE	05/04/24 12:39
Total/NA	Analysis	2540C - 2015		1	502725	UOCA	ELLE	05/06/24 17:45 - 05/07/24 10:20 [1]

Client Sample ID: UO-87-07.1_20240501_N_WG — Lab Sample ID: 410-170171-3

Date Collected: 05/01/24 11:02 **Matrix: Water**
Date Received: 05/02/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	502121	L4QM	ELLE	05/04/24 12:51
Total/NA	Analysis	EPA 300.0 R2.1		50	502121	L4QM	ELLE	05/04/24 13:02
Total/NA	Analysis	2540C - 2015		1	502725	UOCA	ELLE	05/06/24 17:45 - 05/07/24 10:20 [1]

Client Sample ID: UO-87-07.2_20240501_N_WG — Lab Sample ID: 410-170171-4

Date Collected: 05/01/24 11:20 **Matrix: Water**
Date Received: 05/02/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	502121	L4QM	ELLE	05/04/24 14:46
Total/NA	Analysis	EPA 300.0 R2.1		50	502121	L4QM	ELLE	05/04/24 14:57
Total/NA	Analysis	2540C - 2015		1	502725	UOCA	ELLE	05/06/24 17:45 - 05/07/24 10:20 [1]

Client Sample ID: UO-20-22.1_20240501_N_WG — Lab Sample ID: 410-170171-5

Date Collected: 05/01/24 11:56 **Matrix: Water**
Date Received: 05/02/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	502121	L4QM	ELLE	05/04/24 15:09
Total/NA	Analysis	2540C - 2015		1	502725	UOCA	ELLE	05/06/24 17:45 - 05/07/24 10:20 [1]

Client Sample ID: UO-20-21.1_20240501_N_WG — Lab Sample ID: 410-170171-6

Date Collected: 05/01/24 12:28 **Matrix: Water**
Date Received: 05/02/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	502124	L4QM	ELLE	05/05/24 04:50

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-170171-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-20-21.1_20240501_N_WG — Lab Sample ID: 410-170171-6

Date Collected: 05/01/24 12:28 **Matrix: Water**
Date Received: 05/02/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		50	502124	L4QM	ELLE	05/05/24 05:02
Total/NA	Analysis	2540C - 2015		1	502725	UOCA	ELLE	05/06/24 17:45 - 05/07/24 10:20 [1]

Client Sample ID: UO-20-21.2_20240501_N_WG — Lab Sample ID: 410-170171-7

Date Collected: 05/01/24 13:12 **Matrix: Water**
Date Received: 05/02/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	502124	L4QM	ELLE	05/05/24 05:14
Total/NA	Analysis	EPA 300.0 R2.1		50	502124	L4QM	ELLE	05/05/24 05:27
Total/NA	Analysis	2540C - 2015		1	502725	UOCA	ELLE	05/06/24 17:45 - 05/07/24 10:20 [1]

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-170171-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00660	08-09-24

Method Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-170171-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
2540C - 2015	Total Dissolved Solids (Dried at 180 °C)	SM	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-170171-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-170171-1	UO-87-06.1_20240501_N_WG	Water	05/01/24 09:39	05/02/24 09:30
410-170171-2	UO-87-06.2_20240501_N_WG	Water	05/01/24 10:00	05/02/24 09:30
410-170171-3	UO-87-07.1_20240501_N_WG	Water	05/01/24 11:02	05/02/24 09:30
410-170171-4	UO-87-07.2_20240501_N_WG	Water	05/01/24 11:20	05/02/24 09:30
410-170171-5	UO-20-22.1_20240501_N_WG	Water	05/01/24 11:56	05/02/24 09:30
410-170171-6	UO-20-21.1_20240501_N_WG	Water	05/01/24 12:28	05/02/24 09:30
410-170171-7	UO-20-21.2_20240501_N_WG	Water	05/01/24 13:12	05/02/24 09:30

Jacobs

410-170171 Chain of Custody

: ANALYSIS REQUEST

COC No: EuroFins Lan-45413645

Cooler No. of

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 7
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number/Script** 4508165277
Project Chemist Mark Stinnett 352-359-5937	**Shipping Company / Airbill No.** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 05/01/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Filtered	Preserve	Analysis: Chloride and Sulfate E300.0	Analysis: TDS SM2540C
UO-87-06 1_20240501_N_WG	UO-87-06.1	WG	G		05/01/2024 09:39	2				X	X
UO-87-06.2_20240501_N_WG	UO-87-06.2	WG	G		05/01/2024 10:00	2				X	X
UO-87-07 1_20240501_N_WG	UO-87-07 1	WG	G		05/01/2024 11:02	2				X	X
UO-87-07.2_20240501_N_WG	UO-87-07.2	WG	G		05/01/2024 11:20	2				X	X
UO-20-22 1_20240501_N_WG	UO-20-22.1	WG	G		05/01/2024 11:56	2				X	X
UO-20-21 1_20240501_N_WG	UO-20-21 1	WG	G		05/01/2024 12:28	2				X	X
UO-20-21.2_20240501_N_WG	UO-20-21.2	WG	G		05/01/2024 13 12	2				X	X

Additional Comments/Special Instructions.	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	Jadan Carnal	05-01-24 1730		
				5/1/24 0930
	SHIPPING METHOD: (mark as appropriate)		SAMPLER NAME AND SIGNATURE	Date Time
Email Report To				
Email Invoice To Mark Stinnett@jacobs.com, Dow_Umetco@jacobs.com			Law 25 - COR 2 4	

Login Sample Receipt Checklist

Client: Jacobs Engineering Group, Inc.

Job Number: 410-170171-1

Login Number: 170171

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Ballard, Megan

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	Refer to Job Narrative for details.
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

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ANALYTICAL REPORT

PREPARED FOR

Attn: Mark Stinnett
Jacobs Engineering Group, Inc.
3011 SW Willston Road
Gainesville, Florida 32608-3964

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JOB DESCRIPTION

Umetco Hot Springs - UMP Quarterly Groundwater

JOB NUMBER

410-170173-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

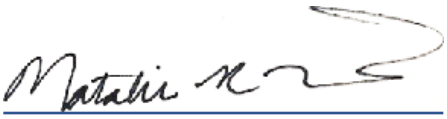
See page two for job notes and contact information.

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.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



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Authorized for release by
Natalie Luciano, Principal Project Manager
Natalie.Luciano@et.eurofinsus.com
(717)556-7258

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is 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.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

This report shall not be reproduced except in full, without the written approval of the laboratory.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. The foregoing express warranty is exclusive and is given in lieu of all other warranties, expressed or implied, except as otherwise agreed. We disclaim any other warranties, expressed or implied, including a warranty of fitness for particular purpose and warranty of merchantability. In no event shall Eurofins Lancaster Laboratories Environmental, LLC be liable for indirect, special, consequential, or incidental damages including, but not limited to, damages for loss of profit or goodwill regardless of (A) the negligence (either sole or concurrent) of Eurofins Lancaster Laboratories Environmental and (B) whether Eurofins Lancaster Laboratories Environmental has been informed of the possibility of such damages. We accept no legal responsibility for the purposes for which the client uses the test results. Except as otherwise agreed, no purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

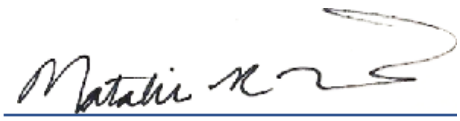


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Definitions/Glossary

Client: Jacobs Engineering Group, Inc. Job ID: 410-170173-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Job ID: 410-170173-1 Eurofins Lancaster Laboratories Environment

Job Narrative
410-170173-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

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

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

Receipt
The samples were received on 5/2/2024 9:30 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.4°C.

Receipt Exceptions
The Chain-of-Custody (COC) was incomplete as received. The COC is missing Sample Preservation. This does not meet regulatory requirements.

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

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

Detection Summary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-170173-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-87-10.2_20240501_FD_WG
Lab Sample ID: 410-170173-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	9.4		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	52		30	12	mg/L	20		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	230		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-10.2_20240501_N_WG
Lab Sample ID: 410-170173-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	9.3		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	59		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	260		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-91-18.2_20240501_FD_WG
Lab Sample ID: 410-170173-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	540		75	25	mg/L	50		EPA 300.0 R2.1	Total/NA
Chloride	12		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	740		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-91-18.2_20240501_N_WG
Lab Sample ID: 410-170173-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	510		75	25	mg/L	50		EPA 300.0 R2.1	Total/NA
Chloride	12		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	870		60	24	mg/L	1		2540C - 2015	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Jacobs Engineering Group, Inc. Job ID: 410-170173-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-87-10.2_20240501_FD_WG — Lab Sample ID: 410-170173-1

Date Collected: 05/01/24 12:07 **Matrix: Water**
Date Received: 05/02/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	9.4		7.5	2.5	mg/L			05/05/24 05:39	5
Chloride	52		30	12	mg/L			05/06/24 13:30	20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	230		30	12	mg/L			05/06/24 17:45	1

Client Sample ID: UO-87-10.2_20240501_N_WG — Lab Sample ID: 410-170173-2

Date Collected: 05/01/24 12:07 **Matrix: Water**
Date Received: 05/02/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	9.3		7.5	2.5	mg/L			05/05/24 06:03	5
Chloride	59		7.5	3.0	mg/L			05/05/24 06:03	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	260		30	12	mg/L			05/06/24 18:48	1

Client Sample ID: UO-91-18.2_20240501_FD_WG — Lab Sample ID: 410-170173-3

Date Collected: 05/01/24 15:15 **Matrix: Water**
Date Received: 05/02/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	540		75	25	mg/L			05/05/24 07:03	50
Chloride	12		7.5	3.0	mg/L			05/05/24 06:51	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	740		60	24	mg/L			05/06/24 18:48	1

Client Sample ID: UO-91-18.2_20240501_N_WG — Lab Sample ID: 410-170173-4

Date Collected: 05/01/24 15:15 **Matrix: Water**
Date Received: 05/02/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	510		75	25	mg/L			05/05/24 07:28	50
Chloride	12		7.5	3.0	mg/L			05/05/24 07:15	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	870		60	24	mg/L			05/06/24 18:48	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-502124/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 502124

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			05/05/24 03:50	1
Chloride	0.60	U	1.5	0.60	mg/L			05/05/24 03:50	1

Lab Sample ID: LCS 410-502124/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 502124

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.05		mg/L		94	90 - 110
Chloride	3.00	2.80		mg/L		93	90 - 110

Lab Sample ID: LCSD 410-502124/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 502124

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.50	7.01		mg/L		93	90 - 110	1	20
Chloride	3.00	2.79		mg/L		93	90 - 110	0	20

Lab Sample ID: MB 410-502700/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 502700

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			05/06/24 11:33	1
Chloride	0.60	U	1.5	0.60	mg/L			05/06/24 11:33	1

Lab Sample ID: LCS 410-502700/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 502700

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	6.78		mg/L		90	90 - 110
Chloride	3.00	2.84		mg/L		95	90 - 110

Lab Sample ID: LCSD 410-502700/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 502700

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.50	6.72		mg/L		90	90 - 110	1	20
Chloride	3.00	2.84		mg/L		95	90 - 110	0	20

Lab Sample ID: 410-170173-1 MS — **Client Sample ID: UO-87-10.2_20240501_FD_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 502700

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	52		40.0	90.8		mg/L		96	90 - 110

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 410-170173-1 DU **Client Sample ID: UO-87-10.2_20240501_FD_WG**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 502700

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	52		52.4		mg/L		0.2	15

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 410-502725/1 **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 502725

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12	U	30	12	mg/L			05/06/24 17:45	1

Lab Sample ID: LCS 410-502725/2 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 502725

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	200	193		mg/L		97	90 - 110

Lab Sample ID: LCSD 410-502725/3 **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 502725

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	200	202		mg/L		101	90 - 110	5	10

Lab Sample ID: MB 410-502745/1 **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 502745

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12	U	30	12	mg/L			05/06/24 18:48	1

Lab Sample ID: LCS 410-502745/2 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 502745

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	200	192		mg/L		96	90 - 110

HPLC/IC

Analysis Batch: 502124

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-170173-1	UO-87-10.2_20240501_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
410-170173-2	UO-87-10.2_20240501_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-170173-3	UO-91-18.2_20240501_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
410-170173-3	UO-91-18.2_20240501_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
410-170173-4	UO-91-18.2_20240501_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-170173-4	UO-91-18.2_20240501_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-502124/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-502124/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-502124/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 502700

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-170173-1	UO-87-10.2_20240501_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-502700/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-502700/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-502700/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	
410-170173-1 MS	UO-87-10.2_20240501_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
410-170173-1 DU	UO-87-10.2_20240501_FD_WG	Total/NA	Water	EPA 300.0 R2.1	

General Chemistry

Analysis Batch: 502725

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-170173-1	UO-87-10.2_20240501_FD_WG	Total/NA	Water	2540C - 2015	
MB 410-502725/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-502725/2	Lab Control Sample	Total/NA	Water	2540C - 2015	
LCSD 410-502725/3	Lab Control Sample Dup	Total/NA	Water	2540C - 2015	

Analysis Batch: 502745

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-170173-2	UO-87-10.2_20240501_N_WG	Total/NA	Water	2540C - 2015	
410-170173-3	UO-91-18.2_20240501_FD_WG	Total/NA	Water	2540C - 2015	
410-170173-4	UO-91-18.2_20240501_N_WG	Total/NA	Water	2540C - 2015	
MB 410-502745/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-502745/2	Lab Control Sample	Total/NA	Water	2540C - 2015	

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-170173-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-87-10.2_20240501_FD_WG — Lab Sample ID: 410-170173-1

Date Collected: 05/01/24 12:07 **Matrix: Water**
Date Received: 05/02/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		20	502700	W7FX	ELLE	05/06/24 13:30
Total/NA	Analysis	EPA 300.0 R2.1		5	502124	L4QM	ELLE	05/05/24 05:39
Total/NA	Analysis	2540C - 2015		1	502725	UOCA	ELLE	05/06/24 17:45 - 05/07/24 10:20 [1]

Client Sample ID: UO-87-10.2_20240501_N_WG — Lab Sample ID: 410-170173-2

Date Collected: 05/01/24 12:07 **Matrix: Water**
Date Received: 05/02/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	502124	L4QM	ELLE	05/05/24 06:03
Total/NA	Analysis	2540C - 2015		1	502745	UOCA	ELLE	05/06/24 18:48 - 05/08/24 06:20 [1]

Client Sample ID: UO-91-18.2_20240501_FD_WG — Lab Sample ID: 410-170173-3

Date Collected: 05/01/24 15:15 **Matrix: Water**
Date Received: 05/02/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	502124	L4QM	ELLE	05/05/24 06:51
Total/NA	Analysis	EPA 300.0 R2.1		50	502124	L4QM	ELLE	05/05/24 07:03
Total/NA	Analysis	2540C - 2015		1	502745	UOCA	ELLE	05/06/24 18:48 - 05/08/24 06:20 [1]

Client Sample ID: UO-91-18.2_20240501_N_WG — Lab Sample ID: 410-170173-4

Date Collected: 05/01/24 15:15 **Matrix: Water**
Date Received: 05/02/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	502124	L4QM	ELLE	05/05/24 07:15
Total/NA	Analysis	EPA 300.0 R2.1		50	502124	L4QM	ELLE	05/05/24 07:28
Total/NA	Analysis	2540C - 2015		1	502745	UOCA	ELLE	05/06/24 18:48 - 05/08/24 06:20 [1]

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-170173-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00660	08-09-24

Method Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-170173-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
2540C - 2015	Total Dissolved Solids (Dried at 180 °C)	SM	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-170173-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-170173-1	UO-87-10.2_20240501_FD_WG	Water	05/01/24 12:07	05/02/24 09:30
410-170173-2	UO-87-10.2_20240501_N_WG	Water	05/01/24 12:07	05/02/24 09:30
410-170173-3	UO-91-18.2_20240501_FD_WG	Water	05/01/24 15:15	05/02/24 09:30
410-170173-4	UO-91-18.2_20240501_N_WG	Water	05/01/24 15:15	05/02/24 09:30

Jacobs

410-170173 Chain of Custody

E ANALYSIS REQUEST | **COC No: EuroFins Lan-45413643** | **Cooler No. 1 of 1**

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 7
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number/Script** 4508165277
Project Chemist Mark Stinnett 352-359-5937	**Shipping Company / Airbill No.** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 05/01/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Analysis: Filtered	Preserve	Chloride and Sulfate E300.0	TDS SM2540C
UO-87-10.2_20240501_FD_WG	UO-87 10.2	WG	G		05/01/2024 12:07	2				X	X
UO-87 10.2_20240501_N_WG	UO-87 10.2	WG	G		05/01/2024 12:07	2				X	X
UO-91 18.2_20240501_FD_WG	UO-91 18.2	WG	G		05/01/2024 15 15	2				X	X
UO-91 18.2_20240501_N_WG	UO-91 18.2	WG	G		05/01/2024 15:15	2				X	X

Additional Comments/Special Instructions.	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	Miguel Izquierdo	5-1-24 1730		
				5/2/24 0930
	SHIPPING METHOD: (mark as appropriate)		SAMPLER NAME AND SIGNATURE	Date Time
Email Report To				
Email Invoice To Mark.Stinnett@jacobs.com, Dow_Umetco@jacobs.com			Raw 2.5- COR 24	

Login Sample Receipt Checklist

Client: Jacobs Engineering Group, Inc.

Job Number: 410-170173-1

Login Number: 170173

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Ballard, Megan

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	Refer to Job Narrative for details.
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Mark Stinnett
Jacobs Engineering Group, Inc.
3011 SW Willston Road
Gainesville, Florida 32608-3964

Generated 5/15/2024 5:04:02 PM

JOB DESCRIPTION

Umetco Hot Springs - UMP Quarterly Groundwater

JOB NUMBER

410-170926-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

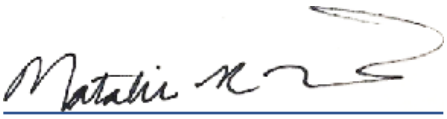
See page two for job notes and contact information.

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.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



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5/15/2024 5:04:02 PM

Authorized for release by
Natalie Luciano, Principal Project Manager
Natalie.Luciano@et.eurofinsus.com
(717)556-7258

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is 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.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

This report shall not be reproduced except in full, without the written approval of the laboratory.

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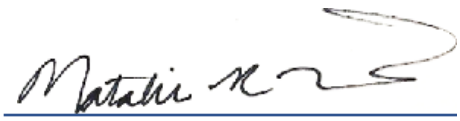


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Definitions/Glossary

Client: Jacobs Engineering Group, Inc. Job ID: 410-170926-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Qualifiers

HPLC/IC

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.
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Job Narrative
410-170926-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

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

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

Receipt
The samples were received on 5/8/2024 9:25 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.5°C.

Receipt Exceptions
The Chain-of-Custody (COC) was incomplete as received. The COC is missing Sample Preservation. This does not meet regulatory requirements.

The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): UR-91-03.2E_20240503_N_WG (410-170926-2). The container labels list time collection of 1042, while the COC lists 1044.

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

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

Detection Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-170926-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Client Sample ID: UR-91-03.1E_20240503_N_WG — Lab Sample ID: 410-170926-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	13		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	210		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	400		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UR-91-03.2E_20240503_N_WG — Lab Sample ID: 410-170926-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	130		15	5.0	mg/L	10		EPA 300.0 R2.1	Total/NA
Chloride	1900		750	300	mg/L	500		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	3300		240	96	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UR-91-03.1D_20240503_N_WG — Lab Sample ID: 410-170926-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	510		150	50	mg/L	100		EPA 300.0 R2.1	Total/NA
Chloride	2800		1500	600	mg/L	1000		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	5300		240	96	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UR-91-03.2C_20240503_N_WG — Lab Sample ID: 410-170926-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	470		150	50	mg/L	100		EPA 300.0 R2.1	Total/NA
Chloride	2500		1500	600	mg/L	1000		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	3900		240	96	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UR-91-03.1C_20240503_N_WG — Lab Sample ID: 410-170926-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	320		150	50	mg/L	100		EPA 300.0 R2.1	Total/NA
Chloride	1600		750	300	mg/L	500		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	2900		240	96	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UR-91-03.2B_20240503_N_WG — Lab Sample ID: 410-170926-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	440		30	10	mg/L	20		EPA 300.0 R2.1	Total/NA
Chloride	3600		1500	600	mg/L	1000		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	6400		600	240	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UR-91-03.1B_20240503_N_WG — Lab Sample ID: 410-170926-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	300		75	25	mg/L	50		EPA 300.0 R2.1	Total/NA
Chloride	280		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	1000		120	48	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UR-91-09.2A_20240503_N_WG — Lab Sample ID: 410-170926-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	5.6	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	160		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	420		60	24	mg/L	1		2540C - 2015	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-170926-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Client Sample ID: UR-91-04.1A_20240503_N_WG — Lab Sample ID: 410-170926-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	8.6		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	10		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	89		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UR-91-04.2A_20240503_N_WG — Lab Sample ID: 410-170926-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	24		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	350		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	690		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UR-91-20.2A_20240503_N_WG — Lab Sample ID: 410-170926-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	20		15	5.0	mg/L	10		EPA 300.0 R2.1	Total/NA
Chloride	3300		1500	600	mg/L	1000		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	4300		240	96	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UR-91-20.2B_20240503_N_WG — Lab Sample ID: 410-170926-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	37		15	5.0	mg/L	10		EPA 300.0 R2.1	Total/NA
Chloride	2900		1500	600	mg/L	1000		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	5000		240	96	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UR-91-03.2D_20240503_N_WG — Lab Sample ID: 410-170926-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	600		300	100	mg/L	200		EPA 300.0 R2.1	Total/NA
Chloride	3300		1500	600	mg/L	1000		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	6200		240	96	mg/L	1		2540C - 2015	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: UR-91-03.1E_20240503_N_WG — Lab Sample ID: 410-170926-1

Date Collected: 05/03/24 10:32 — **Matrix: Water**
Date Received: 05/08/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	13		7.5	2.5	mg/L			05/12/24 17:08	5
Chloride	210		75	30	mg/L			05/12/24 17:20	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	400		60	24	mg/L			05/09/24 16:59	1

Client Sample ID: UR-91-03.2E_20240503_N_WG — Lab Sample ID: 410-170926-2

Date Collected: 05/03/24 10:44 — **Matrix: Water**
Date Received: 05/08/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	130		15	5.0	mg/L			05/12/24 18:45	10
Chloride	1900		750	300	mg/L			05/15/24 01:58	500

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	3300		240	96	mg/L			05/09/24 16:59	1

Client Sample ID: UR-91-03.1D_20240503_N_WG — Lab Sample ID: 410-170926-3

Date Collected: 05/03/24 10:56 — **Matrix: Water**
Date Received: 05/08/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	510		150	50	mg/L			05/12/24 19:21	100
Chloride	2800		1500	600	mg/L			05/15/24 01:23	1000

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	5300		240	96	mg/L			05/09/24 16:59	1

Client Sample ID: UR-91-03.2C_20240503_N_WG — Lab Sample ID: 410-170926-4

Date Collected: 05/03/24 11:09 — **Matrix: Water**
Date Received: 05/08/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	470		150	50	mg/L			05/12/24 19:45	100
Chloride	2500		1500	600	mg/L			05/15/24 01:35	1000

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	3900		240	96	mg/L			05/09/24 16:59	1

Client Sample ID: UR-91-03.1C_20240503_N_WG — Lab Sample ID: 410-170926-5

Date Collected: 05/03/24 11:18 **Matrix: Water**
Date Received: 05/08/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	320		150	50	mg/L			05/12/24 20:09	100
Chloride	1600		750	300	mg/L			05/15/24 02:09	500

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	2900		240	96	mg/L			05/09/24 16:59	1

Client Sample ID: UR-91-03.2B_20240503_N_WG — Lab Sample ID: 410-170926-6

Date Collected: 05/03/24 11:29 **Matrix: Water**
Date Received: 05/08/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	440		30	10	mg/L			05/12/24 16:19	20
Chloride	3600		1500	600	mg/L			05/15/24 01:46	1000

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	6400		600	240	mg/L			05/09/24 16:59	1

Client Sample ID: UR-91-03.1B_20240503_N_WG — Lab Sample ID: 410-170926-7

Date Collected: 05/03/24 11:38 **Matrix: Water**
Date Received: 05/08/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	300		75	25	mg/L			05/12/24 17:44	50
Chloride	280		75	30	mg/L			05/12/24 17:44	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	1000		120	48	mg/L			05/09/24 16:59	1

Client Sample ID: UR-91-09.2A_20240503_N_WG — Lab Sample ID: 410-170926-8

Date Collected: 05/03/24 12:39 **Matrix: Water**
Date Received: 05/08/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	5.6	J	7.5	2.5	mg/L			05/12/24 17:56	5
Chloride	160		75	30	mg/L			05/12/24 18:08	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	420		60	24	mg/L			05/09/24 16:59	1

Client Sample ID: UR-91-04.1A_20240503_N_WG — Lab Sample ID: 410-170926-9

Date Collected: 05/03/24 13:09 **Matrix: Water**
Date Received: 05/08/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	8.6		7.5	2.5	mg/L			05/12/24 22:47	5
Chloride	10		7.5	3.0	mg/L			05/12/24 22:47	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	89		30	12	mg/L			05/09/24 16:59	1

Client Sample ID: UR-91-04.2A_20240503_N_WG — Lab Sample ID: 410-170926-10

Date Collected: 05/03/24 13:20 **Matrix: Water**
Date Received: 05/08/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	24		7.5	2.5	mg/L			05/12/24 23:35	5
Chloride	350		75	30	mg/L			05/12/24 23:47	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	690		60	24	mg/L			05/09/24 16:59	1

Client Sample ID: UR-91-20.2A_20240503_N_WG — Lab Sample ID: 410-170926-11

Date Collected: 05/03/24 13:37 **Matrix: Water**
Date Received: 05/08/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	20		15	5.0	mg/L			05/13/24 00:24	10
Chloride	3300		1500	600	mg/L			05/15/24 02:21	1000

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	4300		240	96	mg/L			05/09/24 16:59	1

Client Sample ID: UR-91-20.2B_20240503_N_WG — Lab Sample ID: 410-170926-12

Date Collected: 05/03/24 13:54 **Matrix: Water**
Date Received: 05/08/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	37		15	5.0	mg/L			05/13/24 00:48	10
Chloride	2900		1500	600	mg/L			05/15/24 02:32	1000

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	5000		240	96	mg/L			05/09/24 16:59	1

Client Sample Results

Client: Jacobs Engineering Group, Inc. Job ID: 410-170926-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Client Sample ID: UR-91-03.2D_20240503_N_WG **Lab Sample ID: 410-170926-13**
Date Collected: 05/03/24 14:37 **Matrix: Water**
Date Received: 05/08/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	600		300	100	mg/L			05/13/24 00:12	200
Chloride	3300		1500	600	mg/L			05/15/24 03:07	1000

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	6200		240	96	mg/L			05/09/24 16:59	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-505398/5
Matrix: Water
Analysis Batch: 505398

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			05/12/24 15:43	1
Chloride	0.60	U	1.5	0.60	mg/L			05/12/24 15:43	1

Lab Sample ID: LCS 410-505398/3
Matrix: Water
Analysis Batch: 505398

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.27		mg/L		97	90 - 110
Chloride	3.00	2.96		mg/L		99	90 - 110

Lab Sample ID: LCSD 410-505398/4
Matrix: Water
Analysis Batch: 505398

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	7.50	7.23		mg/L		96	90 - 110	1	20
Chloride	3.00	2.94		mg/L		98	90 - 110	1	20

Lab Sample ID: MB 410-506120/5
Matrix: Water
Analysis Batch: 506120

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			05/14/24 22:53	1
Chloride	0.60	U	1.5	0.60	mg/L			05/14/24 22:53	1

Lab Sample ID: LCS 410-506120/3
Matrix: Water
Analysis Batch: 506120

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.19		mg/L		96	90 - 110
Chloride	3.00	2.89		mg/L		96	90 - 110

Lab Sample ID: LCSD 410-506120/4
Matrix: Water
Analysis Batch: 506120

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	7.50	7.15		mg/L		95	90 - 110	0	20
Chloride	3.00	2.89		mg/L		96	90 - 110	0	20

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 410-504326/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 504326

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12	U	30	12	mg/L			05/09/24 16:59	1

Lab Sample ID: LCS 410-504326/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 504326

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Dissolved Solids			200	197		mg/L		99	90 - 110		

Lab Sample ID: 410-170926-4 MS — **Client Sample ID: UR-91-03.2C_20240503_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 504326

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Dissolved Solids	3900		1600	5420		mg/L		94	90 - 110		

Lab Sample ID: 410-170926-4 DU — **Client Sample ID: UR-91-03.2C_20240503_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 504326

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	3900			4000		mg/L				2	10

Lab Sample ID: 410-170926-12 DU — **Client Sample ID: UR-91-20.2B_20240503_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 504326

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	5000			4930		mg/L				2	10

HPLC/IC

Analysis Batch: 505398

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-170926-1	UR-91-03.1E_20240503_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-170926-1	UR-91-03.1E_20240503_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-170926-2	UR-91-03.2E_20240503_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-170926-3	UR-91-03.1D_20240503_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-170926-4	UR-91-03.2C_20240503_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-170926-5	UR-91-03.1C_20240503_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-170926-6	UR-91-03.2B_20240503_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-170926-7	UR-91-03.1B_20240503_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-170926-8	UR-91-09.2A_20240503_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-170926-8	UR-91-09.2A_20240503_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-170926-9	UR-91-04.1A_20240503_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-170926-10	UR-91-04.2A_20240503_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-170926-10	UR-91-04.2A_20240503_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-170926-11	UR-91-20.2A_20240503_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-170926-12	UR-91-20.2B_20240503_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-170926-13	UR-91-03.2D_20240503_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-505398/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-505398/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-505398/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 506120

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-170926-2	UR-91-03.2E_20240503_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-170926-3	UR-91-03.1D_20240503_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-170926-4	UR-91-03.2C_20240503_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-170926-5	UR-91-03.1C_20240503_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-170926-6	UR-91-03.2B_20240503_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-170926-11	UR-91-20.2A_20240503_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-170926-12	UR-91-20.2B_20240503_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-170926-13	UR-91-03.2D_20240503_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-506120/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-506120/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-506120/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

General Chemistry

Analysis Batch: 504326

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-170926-1	UR-91-03.1E_20240503_N_WG	Total/NA	Water	2540C - 2015	
410-170926-2	UR-91-03.2E_20240503_N_WG	Total/NA	Water	2540C - 2015	
410-170926-3	UR-91-03.1D_20240503_N_WG	Total/NA	Water	2540C - 2015	
410-170926-4	UR-91-03.2C_20240503_N_WG	Total/NA	Water	2540C - 2015	
410-170926-5	UR-91-03.1C_20240503_N_WG	Total/NA	Water	2540C - 2015	
410-170926-6	UR-91-03.2B_20240503_N_WG	Total/NA	Water	2540C - 2015	
410-170926-7	UR-91-03.1B_20240503_N_WG	Total/NA	Water	2540C - 2015	
410-170926-8	UR-91-09.2A_20240503_N_WG	Total/NA	Water	2540C - 2015	
410-170926-9	UR-91-04.1A_20240503_N_WG	Total/NA	Water	2540C - 2015	
410-170926-10	UR-91-04.2A_20240503_N_WG	Total/NA	Water	2540C - 2015	
410-170926-11	UR-91-20.2A_20240503_N_WG	Total/NA	Water	2540C - 2015	
410-170926-12	UR-91-20.2B_20240503_N_WG	Total/NA	Water	2540C - 2015	
410-170926-13	UR-91-03.2D_20240503_N_WG	Total/NA	Water	2540C - 2015	

General Chemistry (Continued)

Analysis Batch: 504326 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 410-504326/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-504326/2	Lab Control Sample	Total/NA	Water	2540C - 2015	
410-170926-4 MS	UR-91-03.2C_20240503_N_WG	Total/NA	Water	2540C - 2015	
410-170926-4 DU	UR-91-03.2C_20240503_N_WG	Total/NA	Water	2540C - 2015	
410-170926-12 DU	UR-91-20.2B_20240503_N_WG	Total/NA	Water	2540C - 2015	

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-170926-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Client Sample ID: UR-91-03.1E_20240503_N_WG — Lab Sample ID: 410-170926-1

Date Collected: 05/03/24 10:32 **Matrix: Water**
Date Received: 05/08/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	505398	W7FX	ELLE	05/12/24 17:08
Total/NA	Analysis	EPA 300.0 R2.1		50	505398	W7FX	ELLE	05/12/24 17:20
Total/NA	Analysis	2540C - 2015		1	504326	UOCA	ELLE	05/09/24 16:59 - 05/10/24 10:20 [1]

Client Sample ID: UR-91-03.2E_20240503_N_WG — Lab Sample ID: 410-170926-2

Date Collected: 05/03/24 10:44 **Matrix: Water**
Date Received: 05/08/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		500	506120	W7FX	ELLE	05/15/24 01:58
Total/NA	Analysis	EPA 300.0 R2.1		10	505398	W7FX	ELLE	05/12/24 18:45
Total/NA	Analysis	2540C - 2015		1	504326	UOCA	ELLE	05/09/24 16:59 - 05/10/24 10:20 [1]

Client Sample ID: UR-91-03.1D_20240503_N_WG — Lab Sample ID: 410-170926-3

Date Collected: 05/03/24 10:56 **Matrix: Water**
Date Received: 05/08/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		1000	506120	W7FX	ELLE	05/15/24 01:23
Total/NA	Analysis	EPA 300.0 R2.1		100	505398	W7FX	ELLE	05/12/24 19:21
Total/NA	Analysis	2540C - 2015		1	504326	UOCA	ELLE	05/09/24 16:59 - 05/10/24 10:20 [1]

Client Sample ID: UR-91-03.2C_20240503_N_WG — Lab Sample ID: 410-170926-4

Date Collected: 05/03/24 11:09 **Matrix: Water**
Date Received: 05/08/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		1000	506120	W7FX	ELLE	05/15/24 01:35
Total/NA	Analysis	EPA 300.0 R2.1		100	505398	W7FX	ELLE	05/12/24 19:45
Total/NA	Analysis	2540C - 2015		1	504326	UOCA	ELLE	05/09/24 16:59 - 05/10/24 10:20 [1]

Client Sample ID: UR-91-03.1C_20240503_N_WG — Lab Sample ID: 410-170926-5

Date Collected: 05/03/24 11:18 **Matrix: Water**
Date Received: 05/08/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		500	506120	W7FX	ELLE	05/15/24 02:09
Total/NA	Analysis	EPA 300.0 R2.1		100	505398	W7FX	ELLE	05/12/24 20:09
Total/NA	Analysis	2540C - 2015		1	504326	UOCA	ELLE	05/09/24 16:59 - 05/10/24 10:20 [1]

Client Sample ID: UR-91-03.2B_20240503_N_WG — Lab Sample ID: 410-170926-6

Date Collected: 05/03/24 11:29 **Matrix: Water**
Date Received: 05/08/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		1000	506120	W7FX	ELLE	05/15/24 01:46
Total/NA	Analysis	EPA 300.0 R2.1		20	505398	W7FX	ELLE	05/12/24 16:19
Total/NA	Analysis	2540C - 2015		1	504326	UOCA	ELLE	05/09/24 16:59 - 05/10/24 10:20 [1]

Client Sample ID: UR-91-03.1B_20240503_N_WG — Lab Sample ID: 410-170926-7

Date Collected: 05/03/24 11:38 **Matrix: Water**
Date Received: 05/08/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		50	505398	W7FX	ELLE	05/12/24 17:44
Total/NA	Analysis	2540C - 2015		1	504326	UOCA	ELLE	05/09/24 16:59 - 05/10/24 10:20 [1]

Client Sample ID: UR-91-09.2A_20240503_N_WG — Lab Sample ID: 410-170926-8

Date Collected: 05/03/24 12:39 **Matrix: Water**
Date Received: 05/08/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	505398	W7FX	ELLE	05/12/24 17:56
Total/NA	Analysis	EPA 300.0 R2.1		50	505398	W7FX	ELLE	05/12/24 18:08
Total/NA	Analysis	2540C - 2015		1	504326	UOCA	ELLE	05/09/24 16:59 - 05/10/24 10:20 [1]

Client Sample ID: UR-91-04.1A_20240503_N_WG — Lab Sample ID: 410-170926-9

Date Collected: 05/03/24 13:09 **Matrix: Water**
Date Received: 05/08/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	505398	W7FX	ELLE	05/12/24 22:47
Total/NA	Analysis	2540C - 2015		1	504326	UOCA	ELLE	05/09/24 16:59 - 05/10/24 10:20 [1]

Client Sample ID: UR-91-04.2A_20240503_N_WG — Lab Sample ID: 410-170926-10

Date Collected: 05/03/24 13:20 **Matrix: Water**
Date Received: 05/08/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	505398	W7FX	ELLE	05/12/24 23:35
Total/NA	Analysis	EPA 300.0 R2.1		50	505398	W7FX	ELLE	05/12/24 23:47
Total/NA	Analysis	2540C - 2015		1	504326	UOCA	ELLE	05/09/24 16:59 - 05/10/24 10:20 [1]

Client Sample ID: UR-91-20.2A_20240503_N_WG — Lab Sample ID: 410-170926-11

Date Collected: 05/03/24 13:37 **Matrix: Water**
Date Received: 05/08/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		1000	506120	W7FX	ELLE	05/15/24 02:21
Total/NA	Analysis	EPA 300.0 R2.1		10	505398	W7FX	ELLE	05/13/24 00:24

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-170926-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Client Sample ID: UR-91-20.2A_20240503_N_WG — Lab Sample ID: 410-170926-11

Date Collected: 05/03/24 13:37 **Matrix: Water**
Date Received: 05/08/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	2540C - 2015		1	504326	UOCA	ELLE	05/09/24 16:59 - 05/10/24 10:20 [1]

Client Sample ID: UR-91-20.2B_20240503_N_WG — Lab Sample ID: 410-170926-12

Date Collected: 05/03/24 13:54 **Matrix: Water**
Date Received: 05/08/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		1000	506120	W7FX	ELLE	05/15/24 02:32
Total/NA	Analysis	EPA 300.0 R2.1		10	505398	W7FX	ELLE	05/13/24 00:48
Total/NA	Analysis	2540C - 2015		1	504326	UOCA	ELLE	05/09/24 16:59 - 05/10/24 10:20 [1]

Client Sample ID: UR-91-03.2D_20240503_N_WG — Lab Sample ID: 410-170926-13

Date Collected: 05/03/24 14:37 **Matrix: Water**
Date Received: 05/08/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		1000	506120	W7FX	ELLE	05/15/24 03:07
Total/NA	Analysis	EPA 300.0 R2.1		200	505398	W7FX	ELLE	05/13/24 00:12
Total/NA	Analysis	2540C - 2015		1	504326	UOCA	ELLE	05/09/24 16:59 - 05/10/24 10:20 [1]

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-170926-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00660	08-09-24

Method Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-170926-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
2540C - 2015	Total Dissolved Solids (Dried at 180 °C)	SM	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-170926-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-170926-1	UR-91-03.1E_20240503_N_WG	Water	05/03/24 10:32	05/08/24 09:25
410-170926-2	UR-91-03.2E_20240503_N_WG	Water	05/03/24 10:44	05/08/24 09:25
410-170926-3	UR-91-03.1D_20240503_N_WG	Water	05/03/24 10:56	05/08/24 09:25
410-170926-4	UR-91-03.2C_20240503_N_WG	Water	05/03/24 11:09	05/08/24 09:25
410-170926-5	UR-91-03.1C_20240503_N_WG	Water	05/03/24 11:18	05/08/24 09:25
410-170926-6	UR-91-03.2B_20240503_N_WG	Water	05/03/24 11:29	05/08/24 09:25
410-170926-7	UR-91-03.1B_20240503_N_WG	Water	05/03/24 11:38	05/08/24 09:25
410-170926-8	UR-91-09.2A_20240503_N_WG	Water	05/03/24 12:39	05/08/24 09:25
410-170926-9	UR-91-04.1A_20240503_N_WG	Water	05/03/24 13:09	05/08/24 09:25
410-170926-10	UR-91-04.2A_20240503_N_WG	Water	05/03/24 13:20	05/08/24 09:25
410-170926-11	UR-91-20.2A_20240503_N_WG	Water	05/03/24 13:37	05/08/24 09:25
410-170926-12	UR-91-20.2B_20240503_N_WG	Water	05/03/24 13:54	05/08/24 09:25
410-170926-13	UR-91-03.2D_20240503_N_WG	Water	05/03/24 14:37	05/08/24 09:25

Jacobs

410-170926 Chain of Custody

: ANALYSIS REQUEST | **COC No: EuroFins Lan-45419342** | **Cooler No. of**

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 7
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number/Script** 4508165277
Project Chemist Mark Stinnett 352-359-5937	**Shipping Company / Airbill No.** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 05/07/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Analysis: Chloride and Sulfate - E300.0	Analysis: TDS - SM2540C	Filtered	Preserve
UR-91-03.1E_20240503_N_WG	UR-91-03 .1E	WG	G		05/03/2024 10:32	2		X	X		
UR-91-03.2E_20240503_N_WG	UR-91-03 .2E	WG	G		05/03/2024 10:44	2		X	X		
UR-91-03.1D_20240503_N_WG	UR-91-03 .1D	WG	G		05/03/2024 10:56	2		X	X		
UR-91-03.2C_20240503_N_WG	UR-91-03 .2C	WG	G		05/03/2024 11:09	2		X	X		
UR-91-03.1C_20240503_N_WG	UR-91-03 .1C	WG	G		05/03/2024 11:18	2		X	X		
UR-91-03.2B_20240503_N_WG	UR-91-03 .2B	WG	G		05/03/2024 11:29	2		X	X		
UR-91-03.1B_20240503_N_WG	UR-91-03 .1B	WG	G		05/03/2024 11:38	2		X	X		

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	Jordan Carnahan	05-07-24 1730		
			Holly Arp	5/8/24 0925
	SHIPPING METHOD: (mark as appropriate)		SAMPLER NAME AND SIGNATURE	Date Time
Email Report To : Mark.Stinnett@jacobs.com, Dow_Umetco@jacobs.com				
Email Invoice To :			Raw 1.5- COR 1.5	

Jacobs

CHAIN OF CUSTODY / SAMPLE ANALYSIS REQUEST

COC No: EuroFins Lan-45419342

Cooler No. of

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 7
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number/Script** 4508165277
Project Chemist Mark Stinnett 352-359-5937	**Shipping Company / Airbill No.** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 05/07/2024

Analysis: Filtered; Preserve; Chloride and Sulfate - E300.0; TDS - SM2540C

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Chloride and Sulfate - E300.0	TDS - SM2540C
UR-91-09.2A_20240503_N_WG	UR-91-09 .2A	WG	G		05/03/2024 12:39	2		X	X
UR-91-04.1A_20240503_N_WG	UR-91-04 .1A	WG	G		05/03/2024 13:09	2		X	X
UR-91-04.2A_20240503_N_WG	UR-91-04 .2A	WG	G		05/03/2024 13:20	2		X	X
UR-91-20.2A_20240503_N_WG	UR-91-20 .2A	WG	G		05/03/2024 13:37	2		X	X
UR-91-20.2B_20240503_N_WG	UR-91-20 .2B	WG	G		05/03/2024 13:54	2		X	X
UR-91-03.2D_20240503_N_WG	UR-91-03 .2D	WG	G		05/03/2024 14:37	2		X	X

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	Jordan Carnahan	05-07-24 1730		
			Holly Arp	5/8/24 0925
	SHIPPING METHOD: (mark as appropriate)		SAMPLER NAME AND SIGNATURE	Date Time
Email Report To :				
Email Invoice To : Mark.Stinnett@jacobs.com, Dow_Umetco@jacobs.com			Law 1-5- COR 1-5	

Login Sample Receipt Checklist

Client: Jacobs Engineering Group, Inc. Job Number: 410-170926-1

Login Number: 170926 **List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**
List Number: 1
Creator: Ballard, Megan

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	Refer to Job Narrative for details.
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Mark Stinnett
Jacobs Engineering Group, Inc.
3011 SW Willston Road
Gainesville, Florida 32608-3964

Generated 5/16/2024 6:42:59 PM

JOB DESCRIPTION

Umetco Hot Springs - UMP Quarterly GW Sampling

JOB NUMBER

410-171132-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

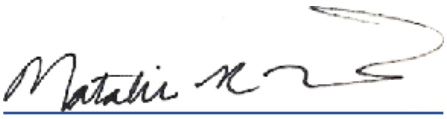
my EOL

Job Notes

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

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



Generated
5/16/2024 6:42:59 PM

Authorized for release by
Natalie Luciano, Principal Project Manager
Natalie.Luciano@et.eurofinsus.com
(717)556-7258

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is 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.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

This report shall not be reproduced except in full, without the written approval of the laboratory.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. The foregoing express warranty is exclusive and is given in lieu of all other warranties, expressed or implied, except as otherwise agreed. We disclaim any other warranties, expressed or implied, including a warranty of fitness for particular purpose and warranty of merchantability. In no event shall Eurofins Lancaster Laboratories Environmental, LLC be liable for indirect, special, consequential, or incidental damages including, but not limited to, damages for loss of profit or goodwill regardless of (A) the negligence (either sole or concurrent) of Eurofins Lancaster Laboratories Environmental and (B) whether Eurofins Lancaster Laboratories Environmental has been informed of the possibility of such damages. We accept no legal responsibility for the purposes for which the client uses the test results. Except as otherwise agreed, no purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

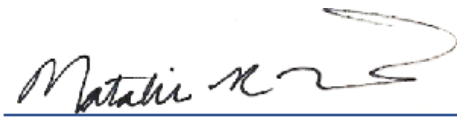


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Definitions/Glossary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-171132-1
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Qualifiers

HPLC/IC

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.
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Job Narrative
410-171132-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

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

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

Receipt
The samples were received on 5/9/2024 9:40 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.7°C.

Receipt Exceptions
The Chain-of-Custody (COC) was incomplete as received. The COC is missing Sample Preservation. This does not meet regulatory requirements.

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

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

Detection Summary

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-171132-1

Client Sample ID: UO-88-12.2R_20240508_N_WG — Lab Sample ID: 410-171132-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	160		75	25	mg/L	50		EPA 300.0 R2.1	Total/NA
Chloride	41		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	370		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-91-16.1B_20240508_N_WG — Lab Sample ID: 410-171132-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	4.4	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	3.9	J	7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	36		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-91-16.2_20240508_N_WG — Lab Sample ID: 410-171132-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	5.2	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	170		30	12	mg/L	1		2540C - 2015	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: UO-88-12.2R_20240508_N_WG
Lab Sample ID: 410-171132-1

Date Collected: 05/08/24 10:52
Matrix: Water
Date Received: 05/09/24 09:40

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	160		75	25	mg/L			05/15/24 15:50	50
Chloride	41		7.5	3.0	mg/L			05/15/24 15:38	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	370		30	12	mg/L			05/13/24 06:37	1

Client Sample ID: UO-91-16.1B_20240508_N_WG
Lab Sample ID: 410-171132-2

Date Collected: 05/08/24 13:24
Matrix: Water
Date Received: 05/09/24 09:40

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	4.4	J	7.5	2.5	mg/L			05/15/24 16:03	5
Chloride	3.9	J	7.5	3.0	mg/L			05/15/24 16:03	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	36		30	12	mg/L			05/13/24 06:37	1

Client Sample ID: UO-91-16.2_20240508_N_WG
Lab Sample ID: 410-171132-3

Date Collected: 05/08/24 13:49
Matrix: Water
Date Received: 05/09/24 09:40

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	5.2	J	7.5	2.5	mg/L			05/15/24 16:27	5
Chloride	3.0	U	7.5	3.0	mg/L			05/15/24 16:27	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	170		30	12	mg/L			05/13/24 06:37	1

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-171132-1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-506142/5
Matrix: Water
Analysis Batch: 506142

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			05/15/24 10:23	1
Chloride	0.60	U	1.5	0.60	mg/L			05/15/24 10:23	1

Lab Sample ID: LCS 410-506142/3
Matrix: Water
Analysis Batch: 506142

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.32		mg/L		98	90 - 110
Chloride	3.00	2.86		mg/L		95	90 - 110

Lab Sample ID: LCSD 410-506142/4
Matrix: Water
Analysis Batch: 506142

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	7.50	7.33		mg/L		98	90 - 110	0	20
Chloride	3.00	2.88		mg/L		96	90 - 110	1	20

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 410-505171/1
Matrix: Water
Analysis Batch: 505171

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	12	U	30	12	mg/L			05/13/24 06:37	1

Lab Sample ID: LCS 410-505171/2
Matrix: Water
Analysis Batch: 505171

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	200	206		mg/L		103	90 - 110

Lab Sample ID: LCSD 410-505171/3
Matrix: Water
Analysis Batch: 505171

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	200	200		mg/L		100	90 - 110	3	10

QC Association Summary

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-171132-1

HPLC/IC

Analysis Batch: 506142

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-171132-1	UO-88-12.2R_20240508_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-171132-1	UO-88-12.2R_20240508_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-171132-2	UO-91-16.1B_20240508_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-171132-3	UO-91-16.2_20240508_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-506142/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-506142/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-506142/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

General Chemistry

Analysis Batch: 505171

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-171132-1	UO-88-12.2R_20240508_N_WG	Total/NA	Water	2540C - 2015	
410-171132-2	UO-91-16.1B_20240508_N_WG	Total/NA	Water	2540C - 2015	
410-171132-3	UO-91-16.2_20240508_N_WG	Total/NA	Water	2540C - 2015	
MB 410-505171/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-505171/2	Lab Control Sample	Total/NA	Water	2540C - 2015	
LCSD 410-505171/3	Lab Control Sample Dup	Total/NA	Water	2540C - 2015	

Lab Chronicle

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-171132-1

Client Sample ID: UO-88-12.2R_20240508_N_WG

Lab Sample ID: 410-171132-1

Date Collected: 05/08/24 10:52
Matrix: Water
Date Received: 05/09/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	506142	W7FX	ELLE	05/15/24 15:38
Total/NA	Analysis	EPA 300.0 R2.1		50	506142	W7FX	ELLE	05/15/24 15:50
Total/NA	Analysis	2540C - 2015		1	505171	M98K	ELLE	05/13/24 06:37 - 05/14/24 10:00 [1]

Client Sample ID: UO-91-16.1B_20240508_N_WG

Lab Sample ID: 410-171132-2

Date Collected: 05/08/24 13:24
Matrix: Water
Date Received: 05/09/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	506142	W7FX	ELLE	05/15/24 16:03
Total/NA	Analysis	2540C - 2015		1	505171	M98K	ELLE	05/13/24 06:37 - 05/14/24 10:00 [1]

Client Sample ID: UO-91-16.2_20240508_N_WG

Lab Sample ID: 410-171132-3

Date Collected: 05/08/24 13:49
Matrix: Water
Date Received: 05/09/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	506142	W7FX	ELLE	05/15/24 16:27
Total/NA	Analysis	2540C - 2015		1	505171	M98K	ELLE	05/13/24 06:37 - 05/14/24 10:00 [1]

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-171132-1
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00660	08-09-24

Method Summary

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-171132-1

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
2540C - 2015	Total Dissolved Solids (Dried at 180 °C)	SM	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-171132-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-171132-1	UO-88-12.2R_20240508_N_WG	Water	05/08/24 10:52	05/09/24 09:40
410-171132-2	UO-91-16.1B_20240508_N_WG	Water	05/08/24 13:24	05/09/24 09:40
410-171132-3	UO-91-16.2_20240508_N_WG	Water	05/08/24 13:49	05/09/24 09:40

Jacobs 410-171132 Chain of Custody

E ANALYSIS REQUEST | **COC No: EuroFins Lan-45420574** | **Cooler No. of**

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 7	Filtered
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster	
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano	Preserve
Site ID UMP	**Lab Phone/Fax** 717.556.7258	
Project Manager Charles Toburen 214-649-7412	**PO Number/Script** 4508165277	Analysis
Project Chemist Mark Stinnett 352-359-5937	**Shipping Company / Airbill No.** UPS /	
Sampler Miguel Izquierdo	**Shipping Date** 05/08/2024	

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Chloride and Sulfate - E300.0	TDS - SM2540C
UO-88-12.2R_20240508_N_WG	UO-88-1 2.2R	WG	G		05/08/2024 10:52	2		X	X
UO-91-16.1B_20240508_N_WG	UO-91-1 6.1B	WG	G		05/08/2024 13:24	2		X	X
UO-91-16.2_20240508_N_WG	UO-91-1 6.2	WG	G		05/08/2024 13:49	2		X	X

R: 1.5 C: 0.7

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	Jordan Carnahan	05-08-24 1730		
	SHIPPING METHOD: (mark as appropriate)		SAMPLER NAME AND SIGNATURE	Date Time
Email Report To :				
Email Invoice To : Mark.Stinnett@jacobs.com, Dow_Umetco@jacobs.com				

Login Sample Receipt Checklist

Client: Jacobs Engineering Group, Inc.

Job Number: 410-171132-1

Login Number: 171132

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Arroyo, Haley

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	Refer to Job Narrative for details.
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Mark Stinnett
Jacobs Engineering Group, Inc.
3011 SW Willston Road
Gainesville, Florida 32608-3964

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JOB DESCRIPTION

Umetco Hot Springs - UMP Quarterly Groundwater

JOB NUMBER

410-172333-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

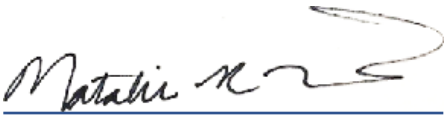
See page two for job notes and contact information.

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.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



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5/24/2024 5:17:20 PM

Authorized for release by
Natalie Luciano, Principal Project Manager
Natalie.Luciano@et.eurofinsus.com
(717)556-7258

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is 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.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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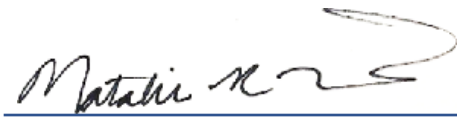


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Definitions/Glossary

Client: Jacobs Engineering Group, Inc. Job ID: 410-172333-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Qualifiers

HPLC/IC

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.
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Job Narrative
410-172333-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

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

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

Receipt
The samples were received on 5/17/2024 9:25 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.9°C.

Receipt Exceptions
The Chain-of-Custody (COC) was incomplete as received. The COC is missing Sample Preservation. This does not meet regulatory requirements.

HPLC/IC
Method 300_ORGFM_28D: (CCV 410-509998/13) is compliant under method criteria for fluoride. The software does not display the data to the whole number as is listed in the method. When applying the evaluation to a whole number, the QC passes the criteria.

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

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

Detection Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-172333-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-91-17.1A_20240514_N_WG — Lab Sample ID: 410-172333-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	3.5	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	10		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	81		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-91-17.1B_20240514_N_WG — Lab Sample ID: 410-172333-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	2.5	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	6.4	J	7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	39		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-91-17.2_20240514_N_WG — Lab Sample ID: 410-172333-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	4.4	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	160		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-08.1_20240514_N_WG — Lab Sample ID: 410-172333-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	8.4		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	32		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-08.2_20240514_N_WG — Lab Sample ID: 410-172333-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	4.2	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	4.7	J	7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	99		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-88-02.2_20240516_N_WG — Lab Sample ID: 410-172333-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	2.5	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	270		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	560		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-02.1A_20240516_N_WG — Lab Sample ID: 410-172333-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	250		75	25	mg/L	50		EPA 300.0 R2.1	Total/NA
Chloride	390		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	830		120	48	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-02.1B_20240516_N_WG — Lab Sample ID: 410-172333-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	130		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	200		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	570		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-91-19.2_20240516_N_WG — Lab Sample ID: 410-172333-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	350		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: UO-91-19.2_20240516_N_WG (Continued) **Lab Sample ID: 410-172333-9**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Dissolved Solids	640		60	24	mg/L	1		2540C - 2015	Total/NA

Client: Jacobs Engineering Group, Inc. Job ID: 410-172333-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-91-17.1A_20240514_N_WG — Lab Sample ID: 410-172333-1

Date Collected: 05/14/24 11:17 **Matrix: Water**
Date Received: 05/17/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	3.5	J	7.5	2.5	mg/L			05/23/24 22:57	5
Chloride	10		7.5	3.0	mg/L			05/23/24 22:57	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	81		30	12	mg/L			05/17/24 06:31	1

Client Sample ID: UO-91-17.1B_20240514_N_WG — Lab Sample ID: 410-172333-2

Date Collected: 05/14/24 11:35 **Matrix: Water**
Date Received: 05/17/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.5	J	7.5	2.5	mg/L			05/23/24 23:20	5
Chloride	6.4	J	7.5	3.0	mg/L			05/23/24 23:20	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	39		30	12	mg/L			05/17/24 06:31	1

Client Sample ID: UO-91-17.2_20240514_N_WG — Lab Sample ID: 410-172333-3

Date Collected: 05/14/24 11:54 **Matrix: Water**
Date Received: 05/17/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	4.4	J	7.5	2.5	mg/L			05/23/24 18:00	5
Chloride	3.0	U	7.5	3.0	mg/L			05/23/24 18:00	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	160		30	12	mg/L			05/17/24 06:31	1

Client Sample ID: UO-87-08.1_20240514_N_WG — Lab Sample ID: 410-172333-4

Date Collected: 05/14/24 13:31 **Matrix: Water**
Date Received: 05/17/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.5	U	7.5	2.5	mg/L			05/23/24 18:24	5
Chloride	8.4		7.5	3.0	mg/L			05/23/24 18:24	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	32		30	12	mg/L			05/17/24 11:59	1

Client Sample ID: UO-87-08.2_20240514_N_WG — Lab Sample ID: 410-172333-5

Date Collected: 05/14/24 14:46 **Matrix: Water**
Date Received: 05/17/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	4.2	J	7.5	2.5	mg/L			05/23/24 18:49	5
Chloride	4.7	J	7.5	3.0	mg/L			05/23/24 18:49	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	99		30	12	mg/L			05/17/24 06:31	1

Client Sample ID: UO-88-02.2_20240516_N_WG — Lab Sample ID: 410-172333-6

Date Collected: 05/16/24 09:27 **Matrix: Water**
Date Received: 05/17/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.5	J	7.5	2.5	mg/L			05/23/24 19:13	5
Chloride	270		75	30	mg/L			05/23/24 19:25	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	560		60	24	mg/L			05/20/24 07:01	1

Client Sample ID: UO-87-02.1A_20240516_N_WG — Lab Sample ID: 410-172333-7

Date Collected: 05/16/24 10:17 **Matrix: Water**
Date Received: 05/17/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	250		75	25	mg/L			05/23/24 19:49	50
Chloride	390		75	30	mg/L			05/23/24 19:49	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	830		120	48	mg/L			05/20/24 07:01	1

Client Sample ID: UO-87-02.1B_20240516_N_WG — Lab Sample ID: 410-172333-8

Date Collected: 05/16/24 11:13 **Matrix: Water**
Date Received: 05/17/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	130		7.5	2.5	mg/L			05/23/24 20:25	5
Chloride	200		75	30	mg/L			05/23/24 20:37	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	570		60	24	mg/L			05/20/24 07:01	1

Client Sample Results

Client: Jacobs Engineering Group, Inc. Job ID: 410-172333-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-91-19.2_20240516_N_WG **Lab Sample ID: 410-172333-9**
Date Collected: 05/16/24 13:25 **Matrix: Water**
Date Received: 05/17/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.5	U	7.5	2.5	mg/L			05/23/24 20:49	5
Chloride	**350**		75	30	mg/L			05/23/24 21:02	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	**640**		60	24	mg/L			05/20/24 07:01	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-509933/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 509933

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			05/23/24 16:25	1
Chloride	0.60	U	1.5	0.60	mg/L			05/23/24 16:25	1

Lab Sample ID: LCS 410-509933/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 509933

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Sulfate			7.50	7.03		mg/L		94	90 - 110		
Chloride			3.00	2.83		mg/L		94	90 - 110		

Lab Sample ID: LCSD 410-509933/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 509933

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate			7.50	7.01		mg/L		93	90 - 110	0	20
Chloride			3.00	2.83		mg/L		94	90 - 110	0	20

Lab Sample ID: MB 410-509998/48 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 509998

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			05/24/24 03:05	1
Chloride	0.60	U	1.5	0.60	mg/L			05/24/24 03:05	1

Lab Sample ID: LCS 410-509998/46 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 509998

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Sulfate			7.50	7.07		mg/L		94	90 - 110		
Chloride			3.00	2.81		mg/L		94	90 - 110		

Lab Sample ID: LCSD 410-509998/47 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 509998

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate			7.50	7.08		mg/L		94	90 - 110	0	20
Chloride			3.00	2.81		mg/L		94	90 - 110	0	20

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 410-507309/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 507309

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12	U	30	12	mg/L			05/17/24 06:31	1

Lab Sample ID: LCS 410-507309/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 507309

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	200	190		mg/L		95	90 - 110

Lab Sample ID: MB 410-507966/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 507966

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12	U	30	12	mg/L			05/20/24 07:01	1

Lab Sample ID: LCS 410-507966/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 507966

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	200	191		mg/L		96	90 - 110

Lab Sample ID: 410-172333-7 MS — **Client Sample ID: UO-87-02.1A_20240516_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 507966

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	830		800	1590		mg/L		95	90 - 110

Lab Sample ID: 410-172333-7 DU — **Client Sample ID: UO-87-02.1A_20240516_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 507966

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	830		804		mg/L		4	10

HPLC/IC

Analysis Batch: 509933

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-172333-1	UO-91-17.1A_20240514_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-172333-2	UO-91-17.1B_20240514_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-509933/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-509933/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-509933/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 509998

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-172333-3	UO-91-17.2_20240514_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-172333-4	UO-87-08.1_20240514_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-172333-5	UO-87-08.2_20240514_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-172333-6	UO-88-02.2_20240516_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-172333-6	UO-88-02.2_20240516_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-172333-7	UO-87-02.1A_20240516_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-172333-8	UO-87-02.1B_20240516_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-172333-8	UO-87-02.1B_20240516_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-172333-9	UO-91-19.2_20240516_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-172333-9	UO-91-19.2_20240516_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-509998/48	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-509998/46	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-509998/47	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

General Chemistry

Analysis Batch: 507309

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-172333-1	UO-91-17.1A_20240514_N_WG	Total/NA	Water	2540C - 2015	
410-172333-2	UO-91-17.1B_20240514_N_WG	Total/NA	Water	2540C - 2015	
410-172333-3	UO-91-17.2_20240514_N_WG	Total/NA	Water	2540C - 2015	
410-172333-4	UO-87-08.1_20240514_N_WG	Total/NA	Water	2540C - 2015	
410-172333-5	UO-87-08.2_20240514_N_WG	Total/NA	Water	2540C - 2015	
MB 410-507309/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-507309/2	Lab Control Sample	Total/NA	Water	2540C - 2015	

Analysis Batch: 507966

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-172333-6	UO-88-02.2_20240516_N_WG	Total/NA	Water	2540C - 2015	
410-172333-7	UO-87-02.1A_20240516_N_WG	Total/NA	Water	2540C - 2015	
410-172333-8	UO-87-02.1B_20240516_N_WG	Total/NA	Water	2540C - 2015	
410-172333-9	UO-91-19.2_20240516_N_WG	Total/NA	Water	2540C - 2015	
MB 410-507966/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-507966/2	Lab Control Sample	Total/NA	Water	2540C - 2015	
410-172333-7 MS	UO-87-02.1A_20240516_N_WG	Total/NA	Water	2540C - 2015	
410-172333-7 DU	UO-87-02.1A_20240516_N_WG	Total/NA	Water	2540C - 2015	

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-172333-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-91-17.1A_20240514_N_WG — Lab Sample ID: 410-172333-1

Date Collected: 05/14/24 11:17 **Matrix: Water**
Date Received: 05/17/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	509933	L4QM	ELLE	05/23/24 22:57
Total/NA	Analysis	2540C - 2015		1	507309	M98K	ELLE	05/17/24 06:31 - 05/20/24 10:10 ¹

Client Sample ID: UO-91-17.1B_20240514_N_WG — Lab Sample ID: 410-172333-2

Date Collected: 05/14/24 11:35 **Matrix: Water**
Date Received: 05/17/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	509933	L4QM	ELLE	05/23/24 23:20
Total/NA	Analysis	2540C - 2015		1	507309	M98K	ELLE	05/17/24 06:31 - 05/20/24 10:10 ¹

Client Sample ID: UO-91-17.2_20240514_N_WG — Lab Sample ID: 410-172333-3

Date Collected: 05/14/24 11:54 **Matrix: Water**
Date Received: 05/17/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	509998	L4QM	ELLE	05/23/24 18:00
Total/NA	Analysis	2540C - 2015		1	507309	M98K	ELLE	05/17/24 06:31 - 05/20/24 10:10 ¹

Client Sample ID: UO-87-08.1_20240514_N_WG — Lab Sample ID: 410-172333-4

Date Collected: 05/14/24 13:31 **Matrix: Water**
Date Received: 05/17/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	509998	L4QM	ELLE	05/23/24 18:24
Total/NA	Analysis	2540C - 2015		1	507309	M98K	ELLE	05/17/24 11:59 - 05/20/24 10:10 ¹

Client Sample ID: UO-87-08.2_20240514_N_WG — Lab Sample ID: 410-172333-5

Date Collected: 05/14/24 14:46 **Matrix: Water**
Date Received: 05/17/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	509998	L4QM	ELLE	05/23/24 18:49
Total/NA	Analysis	2540C - 2015		1	507309	M98K	ELLE	05/17/24 06:31 - 05/20/24 10:10 ¹

Client Sample ID: UO-88-02.2_20240516_N_WG — Lab Sample ID: 410-172333-6

Date Collected: 05/16/24 09:27 **Matrix: Water**
Date Received: 05/17/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	509998	L4QM	ELLE	05/23/24 19:13
Total/NA	Analysis	EPA 300.0 R2.1		50	509998	L4QM	ELLE	05/23/24 19:25
Total/NA	Analysis	2540C - 2015		1	507966	M98K	ELLE	05/20/24 07:01 - 05/21/24 09:55 ¹

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-172333-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-87-02.1A_20240516_N_WG — Lab Sample ID: 410-172333-7

Date Collected: 05/16/24 10:17 **Matrix: Water**
Date Received: 05/17/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		50	509998	L4QM	ELLE	05/23/24 19:49
Total/NA	Analysis	2540C - 2015		1	507966	M98K	ELLE	05/20/24 07:01 - 05/21/24 09:55 [1]

Client Sample ID: UO-87-02.1B_20240516_N_WG — Lab Sample ID: 410-172333-8

Date Collected: 05/16/24 11:13 **Matrix: Water**
Date Received: 05/17/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	509998	L4QM	ELLE	05/23/24 20:25
Total/NA	Analysis	EPA 300.0 R2.1		50	509998	L4QM	ELLE	05/23/24 20:37
Total/NA	Analysis	2540C - 2015		1	507966	M98K	ELLE	05/20/24 07:01 - 05/21/24 09:55 [1]

Client Sample ID: UO-91-19.2_20240516_N_WG — Lab Sample ID: 410-172333-9

Date Collected: 05/16/24 13:25 **Matrix: Water**
Date Received: 05/17/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	509998	L4QM	ELLE	05/23/24 20:49
Total/NA	Analysis	EPA 300.0 R2.1		50	509998	L4QM	ELLE	05/23/24 21:02
Total/NA	Analysis	2540C - 2015		1	507966	M98K	ELLE	05/20/24 07:01 - 05/21/24 09:55 [1]

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-172333-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00660	08-09-24

Method Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-172333-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
2540C - 2015	Total Dissolved Solids (Dried at 180 °C)	SM	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-172333-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-172333-1	UO-91-17.1A_20240514_N_WG	Water	05/14/24 11:17	05/17/24 09:25
410-172333-2	UO-91-17.1B_20240514_N_WG	Water	05/14/24 11:35	05/17/24 09:25
410-172333-3	UO-91-17.2_20240514_N_WG	Water	05/14/24 11:54	05/17/24 09:25
410-172333-4	UO-87-08.1_20240514_N_WG	Water	05/14/24 13:31	05/17/24 09:25
410-172333-5	UO-87-08.2_20240514_N_WG	Water	05/14/24 14:46	05/17/24 09:25
410-172333-6	UO-88-02.2_20240516_N_WG	Water	05/16/24 09:27	05/17/24 09:25
410-172333-7	UO-87-02.1A_20240516_N_WG	Water	05/16/24 10:17	05/17/24 09:25
410-172333-8	UO-87-02.1B_20240516_N_WG	Water	05/16/24 11:13	05/17/24 09:25
410-172333-9	UO-91-19.2_20240516_N_WG	Water	05/16/24 13:25	05/17/24 09:25

Jacobs

410-172333 Chain of Custody

ANALYSIS REQUEST | **COC No: EuroFins Lan-45428636** | **Cooler No. of**

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 7
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number/Script** 4508165277
Project Chemist Mark Stinnett 352-359-5937	**Shipping Company / Airbill No.** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 05/16/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Analysis: Filtered	Preserve	Chloride and Sulfate - E300.0	TDS - SM2540C
UO-91-17.1A_20240514_N_WG	UO-91-17.1A	WG	G		05/14/2024 11:17	2				X	X
UO-91-17.1B_20240514_N_WG	UO-91-17.1B	WG	G		05/14/2024 11:35	2				X	X
UO-91-17.2_20240514_N_WG	UO-91-17.2	WG	G		05/14/2024 11:54	2				X	X
UO-87-08.1_20240514_N_WG	UO-87-08.1	WG	G		05/14/2024 13:31	2				X	X
UO-87-08.2_20240514_N_WG	UO-87-08.2	WG	G		05/14/2024 14:46	2				X	X
UO-88-02.2_20240516_N_WG	UO-88-02.2	WG	G		05/16/2024 09:27	2				X	X
UO-87-02.1A_20240516_N_WG	UO-87-02.1A	WG	G		05/16/2024 10:17	2				X	X

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	Jordan Connolan	05-16-24 1730		
			[signature]	5-17-24 0925
	SHIPPING METHOD: (mark as appropriate)		SAMPLER NAME AND SIGNATURE	Date Time
Email Report To :				
Email Invoice To : Mark.Stinnett@jacobs.com, Dow_Umetco@jacobs.com				

Jacobs

CHAIN OF CUSTODY / SAMPLE ANALYSIS REQUEST

COC No: EuroFins Lan-45428636

Cooler No. of

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 7
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number/Script** 4508165277
Project Chemist Mark Stinnett 352-359-5937	**Shipping Company / Airbill No.** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 05/16/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Analysis: Filtered	Preserve	Chloride and Sulfate - E300.0	TDS - SM2540C
UO-87-02.1B_20240516_N_WG	UO-87-02.1B	WG	G		05/16/2024 11:13	2				X	X
UO-91-19.2_20240516_N_WG	UO-91-19.2	WG	G		05/16/2024 13:25	2				X	X

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	Jordan Camacho	05-16-24 1730		
				5-17-24 0725
	SHIPPING METHOD: (mark as appropriate)		SAMPLER NAME AND SIGNATURE	Date Time
Email Report To :				
Email Invoice To : Mark.Stinnett@jacobs.com, Dow_Umetco@jacobs.com				

Login Sample Receipt Checklist

Client: Jacobs Engineering Group, Inc.

Job Number: 410-172333-1

Login Number: 172333

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Santiago, Nathaniel

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	True	
WV: Container Temperature is recorded.	N/A	
COC is present.	N/A	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	Container preservation not listed on COC.
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

eurofins | Environment Testing

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

ANALYTICAL REPORT

PREPARED FOR

Attn: Mark Stinnett
Jacobs Engineering Group, Inc.
3011 SW Willston Road
Gainesville, Florida 32608-3964

Generated 5/29/2024 8:46:37 AM

JOB DESCRIPTION

Umetco Hot Springs - UMP Quarterly GW Sampling

JOB NUMBER

410-172694-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

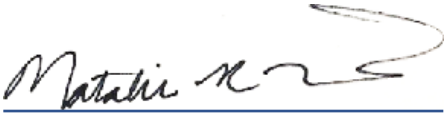
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Job Notes

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.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



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Authorized for release by
Natalie Luciano, Principal Project Manager
Natalie.Luciano@et.eurofinsus.com
(717)556-7258

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is 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.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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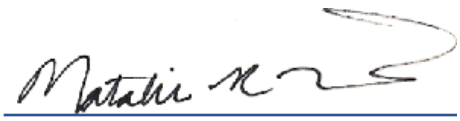


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Definitions/Glossary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-172694-1
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Job Narrative
410-172694-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

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

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

Receipt
The samples were received on 5/21/2024 9:30 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.8°C.

Receipt Exceptions
The Chain-of-Custody (COC) was incomplete as received. The COC is missing Sample Preservation. This does not meet regulatory requirements.

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

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

Detection Summary

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-172694-1

Client Sample ID: UO-88-15.1_20240520_N_WG — Lab Sample ID: 410-172694-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	130		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	22		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	230		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-88-15.2_20240520_FD_WG — Lab Sample ID: 410-172694-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	17		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	160		38	15	mg/L	25		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	330		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-88-15.2_20240520_N_WG — Lab Sample ID: 410-172694-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	17		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	160		38	15	mg/L	25		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	320		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-88-11.2_20240520_N_WG — Lab Sample ID: 410-172694-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	7.5		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	21		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	150		30	12	mg/L	1		2540C - 2015	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: UO-88-15.1_20240520_N_WG
Lab Sample ID: 410-172694-1

Date Collected: 05/20/24 10:40
Matrix: Water
Date Received: 05/21/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	130		7.5	2.5	mg/L			05/28/24 18:53	5
Chloride	22		7.5	3.0	mg/L			05/28/24 18:53	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	230		30	12	mg/L			05/22/24 06:33	1

Client Sample ID: UO-88-15.2_20240520_FD_WG
Lab Sample ID: 410-172694-2

Date Collected: 05/20/24 11:16
Matrix: Water
Date Received: 05/21/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	17		7.5	2.5	mg/L			05/28/24 19:17	5
Chloride	160		38	15	mg/L			05/28/24 19:29	25

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	330		30	12	mg/L			05/22/24 06:33	1

Client Sample ID: UO-88-15.2_20240520_N_WG
Lab Sample ID: 410-172694-3

Date Collected: 05/20/24 11:16
Matrix: Water
Date Received: 05/21/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	17		7.5	2.5	mg/L			05/28/24 19:41	5
Chloride	160		38	15	mg/L			05/28/24 19:53	25

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	320		30	12	mg/L			05/22/24 06:33	1

Client Sample ID: UO-88-11.2_20240520_N_WG
Lab Sample ID: 410-172694-4

Date Collected: 05/20/24 13:20
Matrix: Water
Date Received: 05/21/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	7.5		7.5	2.5	mg/L			05/28/24 20:05	5
Chloride	21		7.5	3.0	mg/L			05/28/24 20:05	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	150		30	12	mg/L			05/22/24 06:33	1

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-172694-1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-511308/5
Matrix: Water
Analysis Batch: 511308

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			05/28/24 15:51	1
Chloride	0.60	U	1.5	0.60	mg/L			05/28/24 15:51	1

Lab Sample ID: LCS 410-511308/3
Matrix: Water
Analysis Batch: 511308

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	6.72		mg/L		90	90 - 110
Chloride	3.00	2.79		mg/L		93	90 - 110

Lab Sample ID: LCSD 410-511308/4
Matrix: Water
Analysis Batch: 511308

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	7.50	6.84		mg/L		91	90 - 110	2	20
Chloride	3.00	2.84		mg/L		95	90 - 110	2	20

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 410-509002/1
Matrix: Water
Analysis Batch: 509002

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	12	U	30	12	mg/L			05/22/24 06:33	1

Lab Sample ID: LCS 410-509002/2
Matrix: Water
Analysis Batch: 509002

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	200	195		mg/L		98	90 - 110

QC Association Summary

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-172694-1

HPLC/IC

Analysis Batch: 511308

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-172694-1	UO-88-15.1_20240520_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-172694-2	UO-88-15.2_20240520_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
410-172694-2	UO-88-15.2_20240520_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
410-172694-3	UO-88-15.2_20240520_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-172694-3	UO-88-15.2_20240520_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-172694-4	UO-88-11.2_20240520_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-511308/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-511308/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-511308/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

General Chemistry

Analysis Batch: 509002

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-172694-1	UO-88-15.1_20240520_N_WG	Total/NA	Water	2540C - 2015	
410-172694-2	UO-88-15.2_20240520_FD_WG	Total/NA	Water	2540C - 2015	
410-172694-3	UO-88-15.2_20240520_N_WG	Total/NA	Water	2540C - 2015	
410-172694-4	UO-88-11.2_20240520_N_WG	Total/NA	Water	2540C - 2015	
MB 410-509002/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-509002/2	Lab Control Sample	Total/NA	Water	2540C - 2015	

Lab Chronicle

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-172694-1

Client Sample ID: UO-88-15.1_20240520_N_WG

Lab Sample ID: 410-172694-1
Matrix: Water
Date Collected: 05/20/24 10:40
Date Received: 05/21/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	511308	L4QM	ELLE	05/28/24 18:53
Total/NA	Analysis	2540C - 2015		1	509002	M98K	ELLE	05/22/24 06:33 - 05/23/24 10:20 [1]

Client Sample ID: UO-88-15.2_20240520_FD_WG

Lab Sample ID: 410-172694-2
Matrix: Water
Date Collected: 05/20/24 11:16
Date Received: 05/21/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	511308	L4QM	ELLE	05/28/24 19:17
Total/NA	Analysis	EPA 300.0 R2.1		25	511308	L4QM	ELLE	05/28/24 19:29
Total/NA	Analysis	2540C - 2015		1	509002	M98K	ELLE	05/22/24 06:33 - 05/23/24 10:20 [1]

Client Sample ID: UO-88-15.2_20240520_N_WG

Lab Sample ID: 410-172694-3
Matrix: Water
Date Collected: 05/20/24 11:16
Date Received: 05/21/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	511308	L4QM	ELLE	05/28/24 19:41
Total/NA	Analysis	EPA 300.0 R2.1		25	511308	L4QM	ELLE	05/28/24 19:53
Total/NA	Analysis	2540C - 2015		1	509002	M98K	ELLE	05/22/24 06:33 - 05/23/24 10:20 [1]

Client Sample ID: UO-88-11.2_20240520_N_WG

Lab Sample ID: 410-172694-4
Matrix: Water
Date Collected: 05/20/24 13:20
Date Received: 05/21/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	511308	L4QM	ELLE	05/28/24 20:05
Total/NA	Analysis	2540C - 2015		1	509002	M98K	ELLE	05/22/24 06:33 - 05/23/24 10:20 [1]

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-172694-1
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00660	08-09-24

Method Summary

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-172694-1

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
2540C - 2015	Total Dissolved Solids (Dried at 180 °C)	SM	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-172694-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-172694-1	UO-88-15.1_20240520_N_WG	Water	05/20/24 10:40	05/21/24 09:30
410-172694-2	UO-88-15.2_20240520_FD_WG	Water	05/20/24 11:16	05/21/24 09:30
410-172694-3	UO-88-15.2_20240520_N_WG	Water	05/20/24 11:16	05/21/24 09:30
410-172694-4	UO-88-11.2_20240520_N_WG	Water	05/20/24 13:20	05/21/24 09:30

410-172694 Chain of Custody

/ / SAMPLE ANALYSIS REQUEST

COC No: EuroFins Lan-45432584

Cooler No. of

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 7
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number/Script** 4508165277
Project Chemist Mark Stinnett 352-359-5937	**Shipping Company / Airbill No.** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 05/20/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Analysis: Filtered	Preserve	Chloride and Sulfate - E300.0	TDS - SM2540C
UO-88-15.1_20240520_N_WG	UO-88-15.1	WG	G		05/20/2024 10:40	2				X	X
UO-88-15.2_20240520_FD_WG	UO-88-15.2	WG	G		05/20/2024 11:16	2				X	X
UO-88-15.2_20240520_N_WG	UO-88-15.2	WG	G		05/20/2024 11:16	2				X	X
UO-88-11.2_20240520_N_WG	UO-88-11.2	WG	G		05/20/2024 13:20	2				X	X

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	Jordan Carnahan	05-20-24 1730		
				5/21/24 0935
	SHIPPING METHOD: (mark as appropriate)		SAMPLER NAME AND SIGNATURE	Date Time
Email Report To :				
Email Invoice To : Mark.Stinnett@jacobs.com, Dow_Umetco@jacobs.com			Raw 0.8- con 08	

Login Sample Receipt Checklist

Client: Jacobs Engineering Group, Inc.

Job Number: 410-172694-1

Login Number: 172694

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Ballard, Megan

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	Refer to Job Narrative for details.
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

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

ANALYTICAL REPORT

PREPARED FOR

Attn: Mark Stinnett
Jacobs Engineering Group, Inc.
3011 SW Willston Road
Gainesville, Florida 32608-3964

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JOB DESCRIPTION

Umetco Hot Springs - UMP Quarterly GW Sampling

JOB NUMBER

410-173067-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

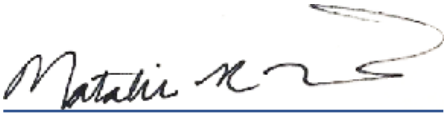
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Job Notes

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.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



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Authorized for release by
Natalie Luciano, Principal Project Manager
Natalie.Luciano@et.eurofinsus.com
(717)556-7258

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is 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.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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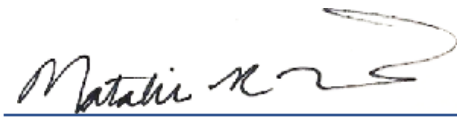


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Definitions/Glossary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-173067-1
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Job ID: 410-173067-1 Eurofins Lancaster Laboratories Environment

Job Narrative
410-173067-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

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

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

Receipt
The samples were received on 5/23/2024 9:35 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.0°C.

Receipt Exceptions
The Chain-of-Custody (COC) was incomplete as received. The COC is missing Sample Preservation. This does not meet regulatory requirements.

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

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

Detection Summary

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-173067-1

Client Sample ID: UO-88-14.1_20240521_6.17-7.6_ft_N_WG — Lab Sample ID: 410-173067-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	71		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	34		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	150		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-88-14.2_20240521_13.03-14.05_ft_N_WG — Lab Sample ID: 410-173067-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	45		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	190		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	480		60	24	mg/L	1		2540C - 2015	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Jacobs Engineering Group, Inc.
Job ID: 410-173067-1
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Client Sample ID: UO-88-14.1_20240521_6.17-7.6_ft_N_WG
Lab Sample ID: 410-173067-1

Date Collected: 05/21/24 10:10
Matrix: Water
Date Received: 05/23/24 09:35

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	71		7.5	2.5	mg/L			05/30/24 23:05	5
Chloride	34		7.5	3.0	mg/L			05/30/24 23:05	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	150		30	12	mg/L			05/23/24 08:28	1

Client Sample ID: UO-88-14.2_20240521_13.03-14.05_ft_N_WG
Lab Sample ID: 410-173067-2

Date Collected: 05/21/24 10:55
Matrix: Water
Date Received: 05/23/24 09:35

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	45		7.5	2.5	mg/L			05/30/24 23:28	5
Chloride	190		75	30	mg/L			05/30/24 23:40	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	480		60	24	mg/L			05/23/24 08:28	1

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-173067-1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-512140/63
Matrix: Water
Analysis Batch: 512140

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			05/31/24 07:32	1
Chloride	0.60	U	1.5	0.60	mg/L			05/31/24 07:32	1

Lab Sample ID: LCS 410-512140/61
Matrix: Water
Analysis Batch: 512140

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.07		mg/L		94	90 - 110
Chloride	3.00	2.84		mg/L		95	90 - 110

Lab Sample ID: LCSD 410-512140/62
Matrix: Water
Analysis Batch: 512140

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	7.50	7.04		mg/L		94	90 - 110	0	20
Chloride	3.00	2.84		mg/L		95	90 - 110	0	20

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 410-509711/1
Matrix: Water
Analysis Batch: 509711

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	12	U	30	12	mg/L			05/23/24 08:28	1

Lab Sample ID: LCS 410-509711/2
Matrix: Water
Analysis Batch: 509711

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	200	194		mg/L		97	90 - 110

QC Association Summary

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-173067-1

HPLC/IC

Analysis Batch: 512140

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-173067-1	UO-88-14.1_20240521_6.17-7.6_ft_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-173067-2	UO-88-14.2_20240521_13.03-14.05_ft_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-173067-2	UO-88-14.2_20240521_13.03-14.05_ft_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-512140/63	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-512140/61	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-512140/62	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

General Chemistry

Analysis Batch: 509711

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-173067-1	UO-88-14.1_20240521_6.17-7.6_ft_N_WG	Total/NA	Water	2540C - 2015	
410-173067-2	UO-88-14.2_20240521_13.03-14.05_ft_N_WG	Total/NA	Water	2540C - 2015	
MB 410-509711/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-509711/2	Lab Control Sample	Total/NA	Water	2540C - 2015	

Lab Chronicle

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-173067-1

Client Sample ID: UO-88-14.1_20240521_6.17-7.6_ft_N_WG

Lab Sample ID: 410-173067-1

Date Collected: 05/21/24 10:10
Matrix: Water
Date Received: 05/23/24 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	512140	L4QM	ELLE	05/30/24 23:05
Total/NA	Analysis	2540C - 2015		1	509711	M98K	ELLE	05/23/24 08:28 - 05/28/24 07:50 [1]

Client Sample ID: UO-88-14.2_20240521_13.03-14.05_ft_N_WG

Lab Sample ID: 410-173067-2

Date Collected: 05/21/24 10:55
Matrix: Water
Date Received: 05/23/24 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	512140	L4QM	ELLE	05/30/24 23:28
Total/NA	Analysis	EPA 300.0 R2.1		50	512140	L4QM	ELLE	05/30/24 23:40
Total/NA	Analysis	2540C - 2015		1	509711	M98K	ELLE	05/23/24 08:28 - 05/28/24 07:50 [1]

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-173067-1
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00660	08-09-24

Method Summary

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-173067-1

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
2540C - 2015	Total Dissolved Solids (Dried at 180 °C)	SM	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-173067-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-173067-1	UO-88-14.1_20240521_6.17-7.6_ft_N_WG	Water	05/21/24 10:10	05/23/24 09:35
410-173067-2	UO-88-14.2_20240521_13.03-14.05_ft_N_WG	Water	05/21/24 10:55	05/23/24 09:35

Jacobs

410-173067 Chain of Custody

: ANALYSIS REQUEST | COC No: EuroFins Lan-45434470 | Cooler No. of

Project Name UMP Quarterly Groundwater Sampling	**urnaround Time** 7
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number/Script** 4508165277
Project Chemist Mark Stinnett 352-359-5937	**Shipping Company / Airbill No.** UPS /
Sampler Shaun Holland	**Shipping Date** 05/22/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Analysis: Chloride and Sulfate - E300.0	Analysis: TDS - SM2540C	Filtered	Preserve
UO-88-14.1_20240521_6.17-7.6_ft_N_WG	UO-88-14.1	WG	G	6.17 - 7.6 ft	05/21/2024 10:10	2		X	X		
UO-88-14.2_20240521_13.03-14.05_ft_N_WG	UO-88-14.2	WG	G	13.03 - 14.05 ft	05/21/2024 10:55	2		X	X		

R: 2.1
C: 2.0

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	[signature]	5/22/24 1700	[signature]	
	[signature]		[signature]	5/23/24 0935
	SHIPPING METHOD: (mark as appropriate)		SAMPLER NAME AND SIGNATURE	Date Time
Email Report To : Mark.Stinnett@jacobs.com, Dow_Umetco@jacobs.com				
Email Invoice To :				

HA

Login Sample Receipt Checklist

Client: Jacobs Engineering Group, Inc.

Job Number: 410-173067-1

Login Number: 173067

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Arroyo, Haley

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	Refer to Job Narrative for details.
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

eurofins | Environment Testing

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

ANALYTICAL REPORT

PREPARED FOR

Attn: Mark Stinnett
Jacobs Engineering Group, Inc.
3011 SW Willston Road
Gainesville, Florida 32608-3964

Generated 5/31/2024 12:37:07 PM

JOB DESCRIPTION

Umetco Hot Springs - UMP Quarterly GW Sampling

JOB NUMBER

410-173070-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

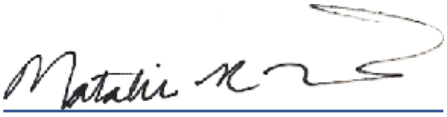
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Job Notes

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.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



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Authorized for release by
Natalie Luciano, Principal Project Manager
Natalie.Luciano@et.eurofinsus.com
(717)556-7258

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is 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.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

This report shall not be reproduced except in full, without the written approval of the laboratory.

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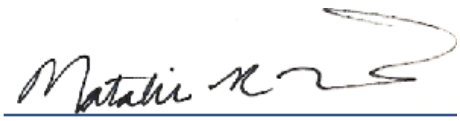


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Definitions/Glossary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-173070-1
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Qualifiers

HPLC/IC

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.
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Job Narrative
410-173070-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

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

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

Receipt
The samples were received on 5/23/2024 9:35 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.0°C.

Receipt Exceptions
The Chain-of-Custody (COC) was incomplete as received. The COC is missing Sample Preservation. This does not meet regulatory requirements.

HPLC/IC
Method 300_ORGFM_28D: (ICV 410-499879/7) is compliant under method criteria for sulfate. The software does not display the data to the whole number as is listed in the method. When applying the evaluation to a whole number of +/-10%D, the QC passes the criteria.

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

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

Detection Summary

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-173070-1

Client Sample ID: UO-87-01.1A_20240522_N_WG — Lab Sample ID: 410-173070-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	68		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	20		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	170		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-01.1B_20240522_N_WG — Lab Sample ID: 410-173070-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	25		15	5.0	mg/L	10		EPA 300.0 R2.1	Total/NA
Chloride	990		750	300	mg/L	500		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	200		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-91-20.1B_20240522_N_WG — Lab Sample ID: 410-173070-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	6.2	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	400		150	60	mg/L	100		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	590		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-04.1_20240522_N_WG — Lab Sample ID: 410-173070-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	3.1	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	260		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	410		60	24	mg/L	1		2540C - 2015	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: UO-87-01.1A_20240522_N_WG
Lab Sample ID: 410-173070-1

Date Collected: 05/22/24 09:42
Matrix: Water
Date Received: 05/23/24 09:35

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	68		7.5	2.5	mg/L			05/30/24 23:51	5
Chloride	20		7.5	3.0	mg/L			05/30/24 23:51	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	170		30	12	mg/L			05/23/24 08:28	1

Client Sample ID: UO-87-01.1B_20240522_N_WG
Lab Sample ID: 410-173070-2

Date Collected: 05/22/24 10:16
Matrix: Water
Date Received: 05/23/24 09:35

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	25		15	5.0	mg/L			05/31/24 00:37	10
Chloride	990		750	300	mg/L			05/31/24 00:49	500

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	200		30	12	mg/L			05/23/24 08:28	1

Client Sample ID: UO-91-20.1B_20240522_N_WG
Lab Sample ID: 410-173070-3

Date Collected: 05/22/24 11:20
Matrix: Water
Date Received: 05/23/24 09:35

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	6.2	J	7.5	2.5	mg/L			05/31/24 01:01	5
Chloride	400		150	60	mg/L			05/31/24 01:12	100

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	590		60	24	mg/L			05/23/24 08:28	1

Client Sample ID: UO-87-04.1_20240522_N_WG
Lab Sample ID: 410-173070-4

Date Collected: 05/22/24 12:52
Matrix: Water
Date Received: 05/23/24 09:35

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	3.1	J	7.5	2.5	mg/L			05/31/24 03:42	5
Chloride	260		75	30	mg/L			05/31/24 03:53	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	410		60	24	mg/L			05/23/24 08:28	1

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-173070-1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-512140/63
Matrix: Water
Analysis Batch: 512140

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			05/31/24 07:32	1
Chloride	0.60	U	1.5	0.60	mg/L			05/31/24 07:32	1

Lab Sample ID: LCS 410-512140/61
Matrix: Water
Analysis Batch: 512140

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.07		mg/L		94	90 - 110
Chloride	3.00	2.84		mg/L		95	90 - 110

Lab Sample ID: LCSD 410-512140/62
Matrix: Water
Analysis Batch: 512140

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	7.50	7.04		mg/L		94	90 - 110	0	20
Chloride	3.00	2.84		mg/L		95	90 - 110	0	20

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 410-509711/1
Matrix: Water
Analysis Batch: 509711

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	12	U	30	12	mg/L			05/23/24 08:28	1

Lab Sample ID: LCS 410-509711/2
Matrix: Water
Analysis Batch: 509711

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	200	194		mg/L		97	90 - 110

QC Association Summary

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-173070-1

HPLC/IC

Analysis Batch: 512140

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-173070-1	UO-87-01.1A_20240522_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-173070-2	UO-87-01.1B_20240522_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-173070-2	UO-87-01.1B_20240522_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-173070-3	UO-91-20.1B_20240522_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-173070-3	UO-91-20.1B_20240522_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-173070-4	UO-87-04.1_20240522_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-173070-4	UO-87-04.1_20240522_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-512140/63	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-512140/61	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-512140/62	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

General Chemistry

Analysis Batch: 509711

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-173070-1	UO-87-01.1A_20240522_N_WG	Total/NA	Water	2540C - 2015	
410-173070-2	UO-87-01.1B_20240522_N_WG	Total/NA	Water	2540C - 2015	
410-173070-3	UO-91-20.1B_20240522_N_WG	Total/NA	Water	2540C - 2015	
410-173070-4	UO-87-04.1_20240522_N_WG	Total/NA	Water	2540C - 2015	
MB 410-509711/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-509711/2	Lab Control Sample	Total/NA	Water	2540C - 2015	

Lab Chronicle

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-173070-1

Client Sample ID: UO-87-01.1A_20240522_N_WG

Lab Sample ID: 410-173070-1

Date Collected: 05/22/24 09:42
Matrix: Water
Date Received: 05/23/24 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	512140	L4QM	ELLE	05/30/24 23:51
Total/NA	Analysis	2540C - 2015		1	509711	M98K	ELLE	05/23/24 08:28 - 05/28/24 07:50 [1]

Client Sample ID: UO-87-01.1B_20240522_N_WG

Lab Sample ID: 410-173070-2

Date Collected: 05/22/24 10:16
Matrix: Water
Date Received: 05/23/24 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		10	512140	L4QM	ELLE	05/31/24 00:37
Total/NA	Analysis	EPA 300.0 R2.1		500	512140	L4QM	ELLE	05/31/24 00:49
Total/NA	Analysis	2540C - 2015		1	509711	M98K	ELLE	05/23/24 08:28 - 05/28/24 07:50 [1]

Client Sample ID: UO-91-20.1B_20240522_N_WG

Lab Sample ID: 410-173070-3

Date Collected: 05/22/24 11:20
Matrix: Water
Date Received: 05/23/24 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	512140	L4QM	ELLE	05/31/24 01:01
Total/NA	Analysis	EPA 300.0 R2.1		100	512140	L4QM	ELLE	05/31/24 01:12
Total/NA	Analysis	2540C - 2015		1	509711	M98K	ELLE	05/23/24 08:28 - 05/28/24 07:50 [1]

Client Sample ID: UO-87-04.1_20240522_N_WG

Lab Sample ID: 410-173070-4

Date Collected: 05/22/24 12:52
Matrix: Water
Date Received: 05/23/24 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	512140	L4QM	ELLE	05/31/24 03:42
Total/NA	Analysis	EPA 300.0 R2.1		50	512140	L4QM	ELLE	05/31/24 03:53
Total/NA	Analysis	2540C - 2015		1	509711	M98K	ELLE	05/23/24 08:28 - 05/28/24 07:50 [1]

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-173070-1
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00660	08-09-24

Method Summary

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-173070-1

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
2540C - 2015	Total Dissolved Solids (Dried at 180 °C)	SM	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-173070-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-173070-1	UO-87-01.1A_20240522_N_WG	Water	05/22/24 09:42	05/23/24 09:35
410-173070-2	UO-87-01.1B_20240522_N_WG	Water	05/22/24 10:16	05/23/24 09:35
410-173070-3	UO-91-20.1B_20240522_N_WG	Water	05/22/24 11:20	05/23/24 09:35
410-173070-4	UO-87-04.1_20240522_N_WG	Water	05/22/24 12:52	05/23/24 09:35

Jacobs

410-173070 Chain of Custody

E ANALYSIS REQUEST | **COC No: EuroFins Lan-45434546** | **Cooler No. of**

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 7
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number/Script** 4508165277
Project Chemist Mark Stinnett 352-359-5937	**Shipping Company / Airbill No.** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 05/22/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Analysis: Filtered	Preserve	Chloride and Sulfate - E300.0	TDS - SM2540C
UO-87-01.1A_20240522_N_WG	UO-87-01.1A	WG	G		05/22/2024 09:42	2				X	X
UO-87-01.1B_20240522_N_WG	UO-87-01.1B	WG	G		05/22/2024 10:16	2				X	X
UO-91-20.1B_20240522_N_WG	UO-91-20.1B	WG	G		05/22/2024 11:20	2				X	X
UO-87-04.1_20240522_N_WG	UO-87-04.1	WG	G		05/22/2024 12:52	2				X	X

R: 2.1
C: 2.0

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	Jordan Carvalho	05-22-24 1430		
				5/23/24 0935
	SHIPPING METHOD: (mark as appropriate)		SAMPLER NAME AND SIGNATURE	Date Time
Email Report To :				
Email Invoice To : Mark.Stinnett@jacobs.com, Dow_Umetco@jacobs.com				

Login Sample Receipt Checklist

Client: Jacobs Engineering Group, Inc.

Job Number: 410-173070-1

Login Number: 173070

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Arroyo, Haley

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	Refer to Job Narrative for details.
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Mark Stinnett
Jacobs Engineering Group, Inc.
3011 SW Willston Road
Gainesville, Florida 32608-3964

Generated 6/4/2024 6:09:07 PM

JOB DESCRIPTION

Umetco Hot Springs - UMP Quarterly GW Sampling

JOB NUMBER

410-173483-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

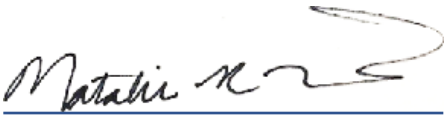
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Job Notes

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.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



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Authorized for release by
Natalie Luciano, Principal Project Manager
Natalie.Luciano@et.eurofinsus.com
(717)556-7258

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is 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.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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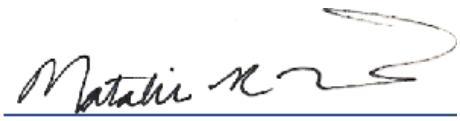


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Definitions/Glossary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-173483-1
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail
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.
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Job Narrative
410-173483-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

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

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

Receipt
The samples were received on 5/25/2024 10:20 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.4°C.

Receipt Exceptions
The Chain-of-Custody (COC) was incomplete as received. The COC is missing Sample Preservation. This does not meet regulatory requirements.

HPLC/IC
Method 300_ORGFM_28D: The reference method requires samples to be unpreserved. The following sample was received with a pH of 12 which indicates preservation was performed: UO-87-09.1_20240523_N_WG (410-173483-1) This does not meet regulatory requirements.

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

General Chemistry
Method 2540C_Calcd: The reference method requires samples to be unpreserved. The following sample was received with a pH of 12 which indicates preservation was performed: UO-87-09.1_20240523_N_WG (410-173483-1) This does not meet regulatory requirements.

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

Detection Summary

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-173483-1

Client Sample ID: UO-87-09.1_20240523_N_WG — Lab Sample ID: 410-173483-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	3.5	J cn	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	60	cn	7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	920	cn	240	96	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-09.2_20240523_FD_WG — Lab Sample ID: 410-173483-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	15		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	570		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	960		120	48	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-09.2_20240523_N_WG — Lab Sample ID: 410-173483-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	15		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	570		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	850		120	48	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-88-13.1_20240523_N_WG — Lab Sample ID: 410-173483-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	320		75	25	mg/L	50		EPA 300.0 R2.1	Total/NA
Chloride	72	F1	30	12	mg/L	20		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	490		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-88-13.2_20240523_FD_WG — Lab Sample ID: 410-173483-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	37		15	5.0	mg/L	10		EPA 300.0 R2.1	Total/NA
Chloride	4100		1500	600	mg/L	1000		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	4000		240	96	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-88-13.2_20240523_N_WG — Lab Sample ID: 410-173483-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	41		30	10	mg/L	20		EPA 300.0 R2.1	Total/NA
Chloride	3400		1500	600	mg/L	1000		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	4000		240	96	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-03.1_20240524_N_WG — Lab Sample ID: 410-173483-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	810		300	100	mg/L	200		EPA 300.0 R2.1	Total/NA
Chloride	2800		1500	600	mg/L	1000		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	4100		240	96	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-03.2_20240524_N_WG — Lab Sample ID: 410-173483-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	700		300	100	mg/L	200		EPA 300.0 R2.1	Total/NA
Chloride	5300		1500	600	mg/L	1000		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	3100		600	240	mg/L	1		2540C - 2015	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-173483-1

Client Sample ID: FDRAIN_20240524_FD_WS — Lab Sample ID: 410-173483-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	80		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	34		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	200		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: FDRAIN_20240524_N_WS — Lab Sample ID: 410-173483-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	79		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	34		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	190		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: WDRAIN_20240524_N_WS — Lab Sample ID: 410-173483-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	1300		150	50	mg/L	100		EPA 300.0 R2.1	Total/NA
Chloride	250		150	60	mg/L	100		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	2300		240	96	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: EDRAIN_20240524_N_WS — Lab Sample ID: 410-173483-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	970		75	25	mg/L	50		EPA 300.0 R2.1	Total/NA
Chloride	190		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	1600		240	96	mg/L	1		2540C - 2015	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: UO-87-09.1_20240523_N_WG
Lab Sample ID: 410-173483-1
Date Collected: 05/23/24 11:58
Matrix: Water
Date Received: 05/25/24 10:20

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	3.5	J cn	7.5	2.5	mg/L			06/02/24 17:17	5
Chloride	60	cn	7.5	3.0	mg/L			06/02/24 17:17	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	920	cn	240	96	mg/L			05/28/24 07:42	1

Client Sample ID: UO-87-09.2_20240523_FD_WG
Lab Sample ID: 410-173483-2
Date Collected: 05/23/24 12:20
Matrix: Water
Date Received: 05/25/24 10:20

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	15		7.5	2.5	mg/L			06/02/24 17:58	5
Chloride	570		75	30	mg/L			06/02/24 18:09	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	960		120	48	mg/L			05/28/24 07:42	1

Client Sample ID: UO-87-09.2_20240523_N_WG
Lab Sample ID: 410-173483-3
Date Collected: 05/23/24 12:20
Matrix: Water
Date Received: 05/25/24 10:20

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	15		7.5	2.5	mg/L			06/02/24 18:19	5
Chloride	570		75	30	mg/L			06/02/24 18:29	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	850		120	48	mg/L			05/28/24 07:42	1

Client Sample ID: UO-88-13.1_20240523_N_WG
Lab Sample ID: 410-173483-4
Date Collected: 05/23/24 14:07
Matrix: Water
Date Received: 05/25/24 10:20

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	320		75	25	mg/L			06/02/24 18:50	50
Chloride	72	F1	30	12	mg/L			06/04/24 14:27	20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	490		60	24	mg/L			05/28/24 07:51	1

Client Sample ID: UO-88-13.2_20240523_FD_WG
Lab Sample ID: 410-173483-5

Date Collected: 05/23/24 14:51
Matrix: Water
Date Received: 05/25/24 10:20

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	37		15	5.0	mg/L			06/02/24 19:00	10
Chloride	4100		1500	600	mg/L			06/04/24 14:16	1000

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	4000		240	96	mg/L			05/28/24 07:42	1

Client Sample ID: UO-88-13.2_20240523_N_WG
Lab Sample ID: 410-173483-6

Date Collected: 05/23/24 14:51
Matrix: Water
Date Received: 05/25/24 10:20

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	41		30	10	mg/L			06/02/24 19:21	20
Chloride	3400		1500	600	mg/L			06/04/24 13:43	1000

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	4000		240	96	mg/L			05/28/24 07:42	1

Client Sample ID: UO-87-03.1_20240524_N_WG
Lab Sample ID: 410-173483-7

Date Collected: 05/24/24 10:01
Matrix: Water
Date Received: 05/25/24 10:20

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	810		300	100	mg/L			06/02/24 20:12	200
Chloride	2800		1500	600	mg/L			06/04/24 13:54	1000

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	4100		240	96	mg/L			05/28/24 07:42	1

Client Sample ID: UO-87-03.2_20240524_N_WG
Lab Sample ID: 410-173483-8

Date Collected: 05/24/24 11:03
Matrix: Water
Date Received: 05/25/24 10:20

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	700		300	100	mg/L			06/02/24 20:33	200
Chloride	5300		1500	600	mg/L			06/04/24 14:05	1000

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	3100		600	240	mg/L			05/28/24 07:42	1

Client Sample ID: FDRAIN_20240524_FD_WS
Lab Sample ID: 410-173483-9

Date Collected: 05/24/24 13:14
Matrix: Water
Date Received: 05/25/24 10:20

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	80		7.5	2.5	mg/L			06/02/24 20:43	5
Chloride	34		7.5	3.0	mg/L			06/02/24 20:43	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	200		30	12	mg/L			05/28/24 07:42	1

Client Sample ID: FDRAIN_20240524_N_WS
Lab Sample ID: 410-173483-10

Date Collected: 05/24/24 13:14
Matrix: Water
Date Received: 05/25/24 10:20

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	79		7.5	2.5	mg/L			06/02/24 21:04	5
Chloride	34		7.5	3.0	mg/L			06/02/24 21:04	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	190		30	12	mg/L			05/28/24 07:42	1

Client Sample ID: WDRAIN_20240524_N_WS
Lab Sample ID: 410-173483-11

Date Collected: 05/24/24 13:31
Matrix: Water
Date Received: 05/25/24 10:20

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	1300		150	50	mg/L			06/02/24 21:55	100
Chloride	250		150	60	mg/L			06/02/24 21:55	100

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	2300		240	96	mg/L			05/28/24 07:42	1

Client Sample ID: EDRAIN_20240524_N_WS
Lab Sample ID: 410-173483-12

Date Collected: 05/24/24 13:43
Matrix: Water
Date Received: 05/25/24 10:20

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	970		75	25	mg/L			06/02/24 22:16	50
Chloride	190		75	30	mg/L			06/02/24 22:16	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	1600		240	96	mg/L			05/28/24 07:42	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-512709/5
Matrix: Water
Analysis Batch: 512709

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			06/02/24 15:13	1
Chloride	0.60	U	1.5	0.60	mg/L			06/02/24 15:13	1

Lab Sample ID: LCS 410-512709/3
Matrix: Water
Analysis Batch: 512709

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.10		mg/L		95	90 - 110
Chloride	3.00	2.91		mg/L		97	90 - 110

Lab Sample ID: LCSD 410-512709/4
Matrix: Water
Analysis Batch: 512709

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	7.50	7.03		mg/L		94	90 - 110	1	20
Chloride	3.00	2.87		mg/L		96	90 - 110	1	20

Lab Sample ID: MB 410-513587/5
Matrix: Water
Analysis Batch: 513587

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			06/04/24 13:32	1
Chloride	0.60	U	1.5	0.60	mg/L			06/04/24 13:32	1

Lab Sample ID: LCS 410-513587/3
Matrix: Water
Analysis Batch: 513587

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.14		mg/L		95	90 - 110
Chloride	3.00	2.87		mg/L		96	90 - 110

Lab Sample ID: LCSD 410-513587/4
Matrix: Water
Analysis Batch: 513587

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	7.50	7.16		mg/L		95	90 - 110	0	20
Chloride	3.00	2.87		mg/L		96	90 - 110	0	20

Lab Sample ID: 410-173483-4 MS
Matrix: Water
Analysis Batch: 513587

Client Sample ID: UO-88-13.1_20240523_N_WG
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	72	F1	40.0	138	F1	mg/L		164	90 - 110

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-173483-1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: 410-173483-4 DU
Matrix: Water
Analysis Batch: 513587

Client Sample ID: UO-88-13.1_20240523_N_WG
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Chloride	72	F1		72.1		mg/L				0	15

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 410-510828/1
Matrix: Water
Analysis Batch: 510828

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	12	U	30	12	mg/L			05/28/24 07:42	1

Lab Sample ID: LCS 410-510828/2
Matrix: Water
Analysis Batch: 510828

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			200	200		mg/L		100	90 - 110		

Lab Sample ID: MB 410-510842/1
Matrix: Water
Analysis Batch: 510842

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	12	U	30	12	mg/L			05/28/24 07:51	1

Lab Sample ID: LCS 410-510842/2
Matrix: Water
Analysis Batch: 510842

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			200	196		mg/L		98	90 - 110		

Lab Sample ID: LCSD 410-510842/3
Matrix: Water
Analysis Batch: 510842

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids			200	192		mg/L		96	90 - 110	2	10

Client: Jacobs Engineering Group, Inc.
Job ID: 410-173483-1
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

HPLC/IC

Analysis Batch: 512709

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-173483-1	UO-87-09.1_20240523_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-173483-2	UO-87-09.2_20240523_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
410-173483-2	UO-87-09.2_20240523_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
410-173483-3	UO-87-09.2_20240523_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-173483-3	UO-87-09.2_20240523_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-173483-4	UO-88-13.1_20240523_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-173483-5	UO-88-13.2_20240523_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
410-173483-6	UO-88-13.2_20240523_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-173483-7	UO-87-03.1_20240524_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-173483-8	UO-87-03.2_20240524_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-173483-9	FDRAIN_20240524_FD_WS	Total/NA	Water	EPA 300.0 R2.1	
410-173483-10	FDRAIN_20240524_N_WS	Total/NA	Water	EPA 300.0 R2.1	
410-173483-11	WDRAIN_20240524_N_WS	Total/NA	Water	EPA 300.0 R2.1	
410-173483-12	EDRAIN_20240524_N_WS	Total/NA	Water	EPA 300.0 R2.1	
MB 410-512709/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-512709/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-512709/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 513587

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-173483-4	UO-88-13.1_20240523_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-173483-5	UO-88-13.2_20240523_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
410-173483-6	UO-88-13.2_20240523_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-173483-7	UO-87-03.1_20240524_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-173483-8	UO-87-03.2_20240524_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-513587/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-513587/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-513587/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	
410-173483-4 MS	UO-88-13.1_20240523_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-173483-4 DU	UO-88-13.1_20240523_N_WG	Total/NA	Water	EPA 300.0 R2.1	

General Chemistry

Analysis Batch: 510828

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-173483-1	UO-87-09.1_20240523_N_WG	Total/NA	Water	2540C - 2015	
410-173483-2	UO-87-09.2_20240523_FD_WG	Total/NA	Water	2540C - 2015	
410-173483-3	UO-87-09.2_20240523_N_WG	Total/NA	Water	2540C - 2015	
410-173483-5	UO-88-13.2_20240523_FD_WG	Total/NA	Water	2540C - 2015	
410-173483-6	UO-88-13.2_20240523_N_WG	Total/NA	Water	2540C - 2015	
410-173483-7	UO-87-03.1_20240524_N_WG	Total/NA	Water	2540C - 2015	
410-173483-8	UO-87-03.2_20240524_N_WG	Total/NA	Water	2540C - 2015	
410-173483-9	FDRAIN_20240524_FD_WS	Total/NA	Water	2540C - 2015	
410-173483-10	FDRAIN_20240524_N_WS	Total/NA	Water	2540C - 2015	
410-173483-11	WDRAIN_20240524_N_WS	Total/NA	Water	2540C - 2015	
410-173483-12	EDRAIN_20240524_N_WS	Total/NA	Water	2540C - 2015	
MB 410-510828/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-510828/2	Lab Control Sample	Total/NA	Water	2540C - 2015	

QC Association Summary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-173483-1
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

General Chemistry

Analysis Batch: 510842

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-173483-4	UO-88-13.1_20240523_N_WG	Total/NA	Water	2540C - 2015	
MB 410-510842/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-510842/2	Lab Control Sample	Total/NA	Water	2540C - 2015	
LCSD 410-510842/3	Lab Control Sample Dup	Total/NA	Water	2540C - 2015	

Lab Chronicle

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-173483-1

Client Sample ID: UO-87-09.1_20240523_N_WG

Lab Sample ID: 410-173483-1
Date Collected: 05/23/24 11:58
Matrix: Water
Date Received: 05/25/24 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	512709	L4QM	ELLE	06/02/24 17:17
Total/NA	Analysis	2540C - 2015		1	510828	M98K	ELLE	05/28/24 07:42 - 05/29/24 10:01 [1]

Client Sample ID: UO-87-09.2_20240523_FD_WG

Lab Sample ID: 410-173483-2
Date Collected: 05/23/24 12:20
Matrix: Water
Date Received: 05/25/24 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	512709	L4QM	ELLE	06/02/24 17:58
Total/NA	Analysis	EPA 300.0 R2.1		50	512709	L4QM	ELLE	06/02/24 18:09
Total/NA	Analysis	2540C - 2015		1	510828	M98K	ELLE	05/28/24 07:42 - 05/29/24 10:01 [1]

Client Sample ID: UO-87-09.2_20240523_N_WG

Lab Sample ID: 410-173483-3
Date Collected: 05/23/24 12:20
Matrix: Water
Date Received: 05/25/24 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	512709	L4QM	ELLE	06/02/24 18:19
Total/NA	Analysis	EPA 300.0 R2.1		50	512709	L4QM	ELLE	06/02/24 18:29
Total/NA	Analysis	2540C - 2015		1	510828	M98K	ELLE	05/28/24 07:42 - 05/29/24 10:01 [1]

Client Sample ID: UO-88-13.1_20240523_N_WG

Lab Sample ID: 410-173483-4
Date Collected: 05/23/24 14:07
Matrix: Water
Date Received: 05/25/24 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		20	513587	L4QM	ELLE	06/04/24 14:27
Total/NA	Analysis	EPA 300.0 R2.1		50	512709	L4QM	ELLE	06/02/24 18:50
Total/NA	Analysis	2540C - 2015		1	510842	M98K	ELLE	05/28/24 07:51 - 05/29/24 10:01 [1]

Client Sample ID: UO-88-13.2_20240523_FD_WG

Lab Sample ID: 410-173483-5
Date Collected: 05/23/24 14:51
Matrix: Water
Date Received: 05/25/24 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		1000	513587	L4QM	ELLE	06/04/24 14:16
Total/NA	Analysis	EPA 300.0 R2.1		10	512709	L4QM	ELLE	06/02/24 19:00
Total/NA	Analysis	2540C - 2015		1	510828	M98K	ELLE	05/28/24 07:42 - 05/29/24 10:01 [1]

Lab Chronicle

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-173483-1

Client Sample ID: UO-88-13.2_20240523_N_WG

Lab Sample ID: 410-173483-6

Date Collected: 05/23/24 14:51
Matrix: Water
Date Received: 05/25/24 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		1000	513587	L4QM	ELLE	06/04/24 13:43
Total/NA	Analysis	EPA 300.0 R2.1		20	512709	L4QM	ELLE	06/02/24 19:21
Total/NA	Analysis	2540C - 2015		1	510828	M98K	ELLE	05/28/24 07:42 - 05/29/24 10:01 [1]

Client Sample ID: UO-87-03.1_20240524_N_WG

Lab Sample ID: 410-173483-7

Date Collected: 05/24/24 10:01
Matrix: Water
Date Received: 05/25/24 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		1000	513587	L4QM	ELLE	06/04/24 13:54
Total/NA	Analysis	EPA 300.0 R2.1		200	512709	L4QM	ELLE	06/02/24 20:12
Total/NA	Analysis	2540C - 2015		1	510828	M98K	ELLE	05/28/24 07:42 - 05/29/24 10:01 [1]

Client Sample ID: UO-87-03.2_20240524_N_WG

Lab Sample ID: 410-173483-8

Date Collected: 05/24/24 11:03
Matrix: Water
Date Received: 05/25/24 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		1000	513587	L4QM	ELLE	06/04/24 14:05
Total/NA	Analysis	EPA 300.0 R2.1		200	512709	L4QM	ELLE	06/02/24 20:33
Total/NA	Analysis	2540C - 2015		1	510828	M98K	ELLE	05/28/24 07:42 - 05/29/24 10:01 [1]

Client Sample ID: FDRAIN_20240524_FD_WS

Lab Sample ID: 410-173483-9

Date Collected: 05/24/24 13:14
Matrix: Water
Date Received: 05/25/24 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	512709	L4QM	ELLE	06/02/24 20:43
Total/NA	Analysis	2540C - 2015		1	510828	M98K	ELLE	05/28/24 07:42 - 05/29/24 10:01 [1]

Client Sample ID: FDRAIN_20240524_N_WS

Lab Sample ID: 410-173483-10

Date Collected: 05/24/24 13:14
Matrix: Water
Date Received: 05/25/24 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	512709	L4QM	ELLE	06/02/24 21:04
Total/NA	Analysis	2540C - 2015		1	510828	M98K	ELLE	05/28/24 07:42 - 05/29/24 10:01 [1]

Client Sample ID: WDRAIN_20240524_N_WS

Lab Sample ID: 410-173483-11

Date Collected: 05/24/24 13:31
Matrix: Water
Date Received: 05/25/24 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		100	512709	L4QM	ELLE	06/02/24 21:55

Lab Chronicle

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-173483-1

Client Sample ID: WDRAIN_20240524_N_WS

Lab Sample ID: 410-173483-11

Date Collected: 05/24/24 13:31

Matrix: Water

Date Received: 05/25/24 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	2540C - 2015		1	510828	M98K	ELLE	05/28/24 07:42 - 05/29/24 10:01 [1]

Client Sample ID: EDRAIN_20240524_N_WS

Lab Sample ID: 410-173483-12

Date Collected: 05/24/24 13:43

Matrix: Water

Date Received: 05/25/24 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		50	512709	L4QM	ELLE	06/02/24 22:16
Total/NA	Analysis	2540C - 2015		1	510828	M98K	ELLE	05/28/24 07:42 - 05/29/24 10:01 [1]

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-173483-1
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00660	08-09-24

Method Summary

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-173483-1

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
2540C - 2015	Total Dissolved Solids (Dried at 180 °C)	SM	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-173483-1
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-173483-1	UO-87-09.1_20240523_N_WG	Water	05/23/24 11:58	05/25/24 10:20
410-173483-2	UO-87-09.2_20240523_FD_WG	Water	05/23/24 12:20	05/25/24 10:20
410-173483-3	UO-87-09.2_20240523_N_WG	Water	05/23/24 12:20	05/25/24 10:20
410-173483-4	UO-88-13.1_20240523_N_WG	Water	05/23/24 14:07	05/25/24 10:20
410-173483-5	UO-88-13.2_20240523_FD_WG	Water	05/23/24 14:51	05/25/24 10:20
410-173483-6	UO-88-13.2_20240523_N_WG	Water	05/23/24 14:51	05/25/24 10:20
410-173483-7	UO-87-03.1_20240524_N_WG	Water	05/24/24 10:01	05/25/24 10:20
410-173483-8	UO-87-03.2_20240524_N_WG	Water	05/24/24 11:03	05/25/24 10:20
410-173483-9	FDRAIN_20240524_FD_WS	Water	05/24/24 13:14	05/25/24 10:20
410-173483-10	FDRAIN_20240524_N_WS	Water	05/24/24 13:14	05/25/24 10:20
410-173483-11	WDRAIN_20240524_N_WS	Water	05/24/24 13:31	05/25/24 10:20
410-173483-12	EDRAIN_20240524_N_WS	Water	05/24/24 13:43	05/25/24 10:20

410-173483 Chain of Custody

/ SAMPLE ANALYSIS REQUEST

COC No: EuroFins Lan-45436585

Cooler No. of

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 7
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number/Script** 4508165277
Project Chemist Mark Stinnett 352-359-5937	**Shipping Company / Airbill No.** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 05/24/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Analysis: Filtered	Preserve	Chloride and Sulfate - E300.0	TDS - SM2540C
UO-87-09.1_20240523_N_WG	UO-87-09.1	WG	G		05/23/2024 11:58	2				X	X
UO-87-09.2_20240523_FD_WG	UO-87-09.2	WG	G		05/23/2024 12:20	2				X	X
UO-87-09.2_20240523_N_WG	UO-87-09.2	WG	G		05/23/2024 12:20	2				X	X
UO-88-13.1_20240523_N_WG	UO-88-13.1	WG	G		05/23/2024 14:07	2				X	X
UO-88-13.2_20240523_FD_WG	UO-88-13.2	WG	G		05/23/2024 14:51	2				X	X
UO-88-13.2_20240523_N_WG	UO-88-13.2	WG	G		05/23/2024 14:51	2				X	X
UO-87-03.1_20240524_N_WG	UO-87-03.1	WG	G		05/24/2024 10:01	2				X	X

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
Jordan Carnahan	05-24-24 1730		
		John	5/25/24 0955 1020

SHIPPING METHOD: (mark as appropriate)	SAMPLER NAME AND SIGNATURE	Date Time

Email Report To : Mark.Stinnett@jacobs.com, Dow_Umetco@jacobs.com

Email Invoice To :

Raw 2.3 - COC 2.4

Jacobs

CHAIN OF CUSTODY / SAMPLE ANALYSIS REQUEST

COC No: EuroFins Lan-45436585

Cooler No. of

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 7
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number/Script** 4508165277
Project Chemist Mark Stinnett 352-359-5937	**Shipping Company / Airbill No.** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 05/24/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Analysis: Filtered	Preserve	Chloride and Sulfate - E300.0	TDS - SM2540C
UO-87-03.2_20240524_N_WG	UO-87-03.2	WG	G		05/24/2024 11:03	2				X	X
FDRAIN_20240524_FD_WS	FDRAIN	WS	G		05/24/2024 13:14	2				X	X
FDRAIN_20240524_N_WS	FDRAIN	WS	G		05/24/2024 13:14	2				X	X
WDRAIN_20240524_N_WS	WDRAIN	WS	G		05/24/2024 13:31	2				X	X
EDRAIN_20240524_N_WS	EDRAIN	WS	G		05/24/2024 13:43	2				X	X

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	Jordan Carnahan	05-24-24 1730		
				5/25/24 0955
	SHIPPING METHOD: (mark as appropriate)		SAMPLER NAME AND SIGNATURE	Date Time
Email Report To :				
Email Invoice To : Mark.Stinnett@jacobs.com, Dow_Umetco@jacobs.com			Rec 2-3- 2024	

Login Sample Receipt Checklist

Client: Jacobs Engineering Group, Inc.

Job Number: 410-173483-1

Login Number: 173483

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Ballard, Megan

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	Refer to Job Narrative for details.
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

Sample Preservation Checks (performed by the laboratory)

Question	Answer	Comment
Did the sample containers checked meet expected preservation conditions?	False	Refer to Job Narrative for details.

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Jeremy Bishop
Jacobs Engineering Group, Inc.
1100 NE Circle Blvd
Suite 300
Corvallis, Oregon 97330

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JOB DESCRIPTION

Umetco Hot Springs - UMP Quarterly GW Sampling

JOB NUMBER

410-180936-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

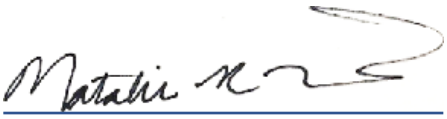
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Job Notes

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.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



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Authorized for release by
Natalie Luciano, Principal Project Manager
Natalie.Luciano@et.eurofinsus.com
(717)556-7258

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is 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.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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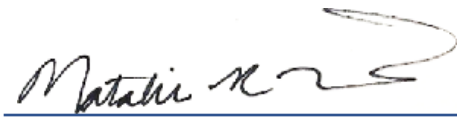


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Definitions/Glossary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-180936-1
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Qualifiers

HPLC/IC

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.
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Job ID: 410-180936-1 Eurofins Lancaster Laboratories Environment

Job Narrative
410-180936-1

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 7/23/2024 10:05 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.9°C.

Receipt Exceptions
The Chain-of-Custody (COC) was incomplete as received. The COC is missing Sample Preservation. This does not meet regulatory requirements.

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

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

Detection Summary

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-180936-1

Client Sample ID: UO-87-06.1_20240722_N_WG — Lab Sample ID: 410-180936-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	39		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	250		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	420		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-06.2_20240722_N_WG — Lab Sample ID: 410-180936-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	5.4	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	150		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	330		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-07.1_20240722_N_WG — Lab Sample ID: 410-180936-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	2.6	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	120		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	420		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-07.2_20240722_N_WG — Lab Sample ID: 410-180936-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	350		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	650		120	48	mg/L	1		2540C - 2015	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Jacobs Engineering Group, Inc.
Job ID: 410-180936-1
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Client Sample ID: UO-87-06.1_20240722_N_WG
Lab Sample ID: 410-180936-1
Date Collected: 07/22/24 09:56
Matrix: Water
Date Received: 07/23/24 10:05

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	39		7.5	2.5	mg/L			07/23/24 23:09	5
Chloride	250		75	30	mg/L			07/23/24 23:21	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	420		60	24	mg/L			07/24/24 08:06	1

Client Sample ID: UO-87-06.2_20240722_N_WG
Lab Sample ID: 410-180936-2
Date Collected: 07/22/24 10:20
Matrix: Water
Date Received: 07/23/24 10:05

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	5.4	J	7.5	2.5	mg/L			07/23/24 23:56	5
Chloride	150		75	30	mg/L			07/24/24 00:07	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	330		60	24	mg/L			07/24/24 08:06	1

Client Sample ID: UO-87-07.1_20240722_N_WG
Lab Sample ID: 410-180936-3
Date Collected: 07/22/24 11:48
Matrix: Water
Date Received: 07/23/24 10:05

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.6	J	7.5	2.5	mg/L			07/24/24 02:14	5
Chloride	120		75	30	mg/L			07/24/24 02:26	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	420		60	24	mg/L			07/24/24 08:06	1

Client Sample ID: UO-87-07.2_20240722_N_WG
Lab Sample ID: 410-180936-4
Date Collected: 07/22/24 12:05
Matrix: Water
Date Received: 07/23/24 10:05

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.5	U	7.5	2.5	mg/L			07/24/24 02:37	5
Chloride	350		75	30	mg/L			07/24/24 02:49	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	650		120	48	mg/L			07/24/24 08:06	1

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-180936-1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-531577/5
Matrix: Water
Analysis Batch: 531577

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			07/23/24 13:52	1
Chloride	0.60	U	1.5	0.60	mg/L			07/23/24 13:52	1

Lab Sample ID: LCS 410-531577/3
Matrix: Water
Analysis Batch: 531577

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Sulfate			7.50	7.60		mg/L		101	90 - 110		
Chloride			3.00	3.03		mg/L		101	90 - 110		

Lab Sample ID: LCSD 410-531577/4
Matrix: Water
Analysis Batch: 531577

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			7.50	7.60		mg/L		101	90 - 110	0	20
Chloride			3.00	3.03		mg/L		101	90 - 110	0	20

Lab Sample ID: MB 410-531603/5
Matrix: Water
Analysis Batch: 531603

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			07/24/24 01:39	1
Chloride	0.60	U	1.5	0.60	mg/L			07/24/24 01:39	1

Lab Sample ID: LCS 410-531603/3
Matrix: Water
Analysis Batch: 531603

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Sulfate			7.50	7.67		mg/L		102	90 - 110		
Chloride			3.00	3.06		mg/L		102	90 - 110		

Lab Sample ID: LCSD 410-531603/4
Matrix: Water
Analysis Batch: 531603

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			7.50	7.68		mg/L		102	90 - 110	0	20
Chloride			3.00	3.07		mg/L		102	90 - 110	0	20

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-180936-1

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 410-531754/1
Matrix: Water
Analysis Batch: 531754

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	12	U	30	12	mg/L			07/24/24 08:06	1

Lab Sample ID: LCS 410-531754/2
Matrix: Water
Analysis Batch: 531754

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	200	193		mg/L		97	90 - 110

QC Association Summary

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-180936-1

HPLC/IC

Analysis Batch: 531577

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-180936-1	UO-87-06.1_20240722_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-180936-1	UO-87-06.1_20240722_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-180936-2	UO-87-06.2_20240722_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-180936-2	UO-87-06.2_20240722_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-531577/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-531577/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-531577/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 531603

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-180936-3	UO-87-07.1_20240722_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-180936-3	UO-87-07.1_20240722_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-180936-4	UO-87-07.2_20240722_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-180936-4	UO-87-07.2_20240722_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-531603/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-531603/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-531603/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

General Chemistry

Analysis Batch: 531754

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-180936-1	UO-87-06.1_20240722_N_WG	Total/NA	Water	2540C - 2015	
410-180936-2	UO-87-06.2_20240722_N_WG	Total/NA	Water	2540C - 2015	
410-180936-3	UO-87-07.1_20240722_N_WG	Total/NA	Water	2540C - 2015	
410-180936-4	UO-87-07.2_20240722_N_WG	Total/NA	Water	2540C - 2015	
MB 410-531754/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-531754/2	Lab Control Sample	Total/NA	Water	2540C - 2015	

Lab Chronicle

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-180936-1

Client Sample ID: UO-87-06.1_20240722_N_WG

Lab Sample ID: 410-180936-1

Date Collected: 07/22/24 09:56
Matrix: Water
Date Received: 07/23/24 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	531577	W7FX	ELLE	07/23/24 23:09
Total/NA	Analysis	EPA 300.0 R2.1		50	531577	W7FX	ELLE	07/23/24 23:21
Total/NA	Analysis	2540C - 2015		1	531754	M98K	ELLE	07/24/24 08:06 - 07/25/24 10:05 [1]

Client Sample ID: UO-87-06.2_20240722_N_WG

Lab Sample ID: 410-180936-2

Date Collected: 07/22/24 10:20
Matrix: Water
Date Received: 07/23/24 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	531577	W7FX	ELLE	07/23/24 23:56
Total/NA	Analysis	EPA 300.0 R2.1		50	531577	W7FX	ELLE	07/24/24 00:07
Total/NA	Analysis	2540C - 2015		1	531754	M98K	ELLE	07/24/24 08:06 - 07/25/24 10:05 [1]

Client Sample ID: UO-87-07.1_20240722_N_WG

Lab Sample ID: 410-180936-3

Date Collected: 07/22/24 11:48
Matrix: Water
Date Received: 07/23/24 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	531603	W7FX	ELLE	07/24/24 02:14
Total/NA	Analysis	EPA 300.0 R2.1		50	531603	W7FX	ELLE	07/24/24 02:26
Total/NA	Analysis	2540C - 2015		1	531754	M98K	ELLE	07/24/24 08:06 - 07/25/24 10:05 [1]

Client Sample ID: UO-87-07.2_20240722_N_WG

Lab Sample ID: 410-180936-4

Date Collected: 07/22/24 12:05
Matrix: Water
Date Received: 07/23/24 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	531603	W7FX	ELLE	07/24/24 02:37
Total/NA	Analysis	EPA 300.0 R2.1		50	531603	W7FX	ELLE	07/24/24 02:49
Total/NA	Analysis	2540C - 2015		1	531754	M98K	ELLE	07/24/24 08:06 - 07/25/24 10:05 [1]

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-180936-1
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00660	08-09-24

Method Summary

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-180936-1

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
2540C - 2015	Total Dissolved Solids (Dried at 180 °C)	SM	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-180936-1
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-180936-1	UO-87-06.1_20240722_N_WG	Water	07/22/24 09:56	07/23/24 10:05
410-180936-2	UO-87-06.2_20240722_N_WG	Water	07/22/24 10:20	07/23/24 10:05
410-180936-3	UO-87-07.1_20240722_N_WG	Water	07/22/24 11:48	07/23/24 10:05
410-180936-4	UO-87-07.2_20240722_N_WG	Water	07/22/24 12:05	07/23/24 10:05

410-180936 Chain of Custody

/ SAMPLE ANALYSIS REQUEST

COC No: EuroFins Lan-45495561

Cooler No. of

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 7
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number/Script** 4508165277
Project Chemist Jeremy Bishop 541.223.3856	**Shipping Company / Airbill No.** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 07/22/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Analysis: Filtered	Preserve	Chloride and Sulfate - E300.0	TDS - SM2540C
UO-87-06.1_20240722_N_WG	UO-87-06.1	WG	G		07/22/2024 09:56	2				X	X
UO-87-06.2_20240722_N_WG	UO-87-06.2	WG	G		07/22/2024 10:20	2				X	X
UO-87-07.1_20240722_N_WG	UO-87-07.1	WG	G		07/22/2024 11:48	2				X	X
UO-87-07.2_20240722_N_WG	UO-87-07.2	WG	G		07/22/2024 12:05	2				X	X

R=1.2
C: 0.9

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	Jordan Camacho	07-22-24 1730		
				7/23/24 1005
	SHIPPING METHOD: (mark as appropriate)		SAMPLER NAME AND SIGNATURE	Date Time
Email Report To :				
Email Invoice To : Jeremy.Bishop@jacobs.com,Dow_Umetco@jacobs.com				

HA JM

Login Sample Receipt Checklist

Client: Jacobs Engineering Group, Inc.

Job Number: 410-180936-1

Login Number: 180936

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Arroyo, Haley

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	Refer to Job Narrative for details.
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

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

ANALYTICAL REPORT

PREPARED FOR

Attn: Jeremy Bishop
Jacobs Engineering Group, Inc.
1100 NE Circle Blvd
Suite 300
Corvallis, Oregon 97330

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JOB DESCRIPTION

Umetco Hot Springs - UMP Quarterly Groundwater

JOB NUMBER

410-181529-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

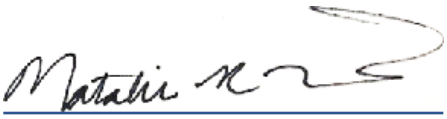
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Job Notes

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.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



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Authorized for release by
Natalie Luciano, Principal Project Manager
Natalie.Luciano@et.eurofinsus.com
(717)556-7258

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is 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.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

This report shall not be reproduced except in full, without the written approval of the laboratory.

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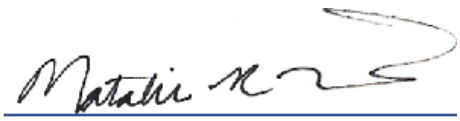


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Definitions/Glossary

Client: Jacobs Engineering Group, Inc. Job ID: 410-181529-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Job ID: 410-181529-1 Eurofins Lancaster Laboratories Environment

Job Narrative
410-181529-1

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 7/26/2024 9:35 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.2°C.

Receipt Exceptions
The Chain-of-Custody (COC) was incomplete as received. The COC is missing Sample Preservation. This does not meet regulatory requirements.

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

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

Detection Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-181529-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-91-18.2_20240724_N_WG — Lab Sample ID: 410-181529-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	490		75	25	mg/L	50		EPA 300.0 R2.1	Total/NA
Chloride	13		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	950		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-91-18.2_20240724_FD_WG — Lab Sample ID: 410-181529-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	520		75	25	mg/L	50		EPA 300.0 R2.1	Total/NA
Chloride	13		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	1000		60	24	mg/L	1		2540C - 2015	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Jacobs Engineering Group, Inc. Job ID: 410-181529-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-91-18.2_20240724_N_WG — Lab Sample ID: 410-181529-1

Date Collected: 07/24/24 11:05 **Matrix: Water**
Date Received: 07/26/24 09:35

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	490		75	25	mg/L			07/26/24 21:17	50
Chloride	13		7.5	3.0	mg/L			07/26/24 20:38	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	950		60	24	mg/L			07/29/24 14:02	1

Client Sample ID: UO-91-18.2_20240724_FD_WG — Lab Sample ID: 410-181529-2

Date Collected: 07/24/24 11:05 **Matrix: Water**
Date Received: 07/26/24 09:35

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	520		75	25	mg/L			07/26/24 21:41	50
Chloride	13		7.5	3.0	mg/L			07/26/24 21:29	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	1000		60	24	mg/L			07/29/24 14:02	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-533105/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 533105

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			07/26/24 12:10	1
Chloride	0.60	U	1.5	0.60	mg/L			07/26/24 12:10	1

Lab Sample ID: LCS 410-533105/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 533105

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Sulfate			7.50	7.34		mg/L		98	90 - 110		
Chloride			3.00	3.10		mg/L		103	90 - 110		

Lab Sample ID: LCSD 410-533105/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 533105

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate			7.50	7.35		mg/L		98	90 - 110	0	20
Chloride			3.00	3.10		mg/L		103	90 - 110	0	20

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 410-533538/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 533538

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12	U	30	12	mg/L			07/29/24 14:02	1

Lab Sample ID: LCS 410-533538/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 533538

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Dissolved Solids			200	192		mg/L		96	90 - 110		

Lab Sample ID: 410-181529-1 DU — **Client Sample ID: UO-91-18.2_20240724_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 533538

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	950			961		mg/L				0.7	10

QC Association Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-181529-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

HPLC/IC

Analysis Batch: 533105

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-181529-1	UO-91-18.2_20240724_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-181529-1	UO-91-18.2_20240724_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-181529-2	UO-91-18.2_20240724_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
410-181529-2	UO-91-18.2_20240724_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-533105/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-533105/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-533105/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

General Chemistry

Analysis Batch: 533538

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-181529-1	UO-91-18.2_20240724_N_WG	Total/NA	Water	2540C - 2015	
410-181529-2	UO-91-18.2_20240724_FD_WG	Total/NA	Water	2540C - 2015	
MB 410-533538/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-533538/2	Lab Control Sample	Total/NA	Water	2540C - 2015	
410-181529-1 DU	UO-91-18.2_20240724_N_WG	Total/NA	Water	2540C - 2015	

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-181529-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-91-18.2_20240724_N_WG — Lab Sample ID: 410-181529-1

Date Collected: 07/24/24 11:05 **Matrix: Water**
Date Received: 07/26/24 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	533105	L4QM	ELLE	07/26/24 20:38
Total/NA	Analysis	EPA 300.0 R2.1		50	533105	L4QM	ELLE	07/26/24 21:17
Total/NA	Analysis	2540C - 2015		1	533538	UOCA	ELLE	07/29/24 14:02 - 07/30/24 18:10 [1]

Client Sample ID: UO-91-18.2_20240724_FD_WG — Lab Sample ID: 410-181529-2

Date Collected: 07/24/24 11:05 **Matrix: Water**
Date Received: 07/26/24 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	533105	L4QM	ELLE	07/26/24 21:29
Total/NA	Analysis	EPA 300.0 R2.1		50	533105	L4QM	ELLE	07/26/24 21:41
Total/NA	Analysis	2540C - 2015		1	533538	UOCA	ELLE	07/29/24 14:02 - 07/30/24 18:10 [1]

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-181529-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00660	08-09-24

Method Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-181529-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
2540C - 2015	Total Dissolved Solids (Dried at 180 °C)	SM	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-181529-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-181529-1	UO-91-18.2_20240724_N_WG	Water	07/24/24 11:05	07/26/24 09:35
410-181529-2	UO-91-18.2_20240724_FD_WG	Water	07/24/24 11:05	07/26/24 09:35

410-181529 Chain of Custody

)Y / SAMPLE ANALYSIS REQUEST | COC No: EuroFins Lan-45498660 | Cooler No. of

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time**
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number/Script** 4508165277
Project Chemist Jeremy Bishop 541.223.3856	**Shipping Company / Airbill No.** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 07/25/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Filtered	Preserve	Analysis	Chloride and Sulfate - E300.0	TDS - SM2540C
UO-91-18.2_20240724_N_WG	UO-91-18.2	WG	G		07/24/2024 11:05	2					X	X
UO-91-18.2_20240724_FD_WG	UO-91-18.2	WG	G		07/24/2024 11:05	2					X	X

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	Jordan Carroll	07-25-24 1730		
			EAGLE	7/26/24 09:35
	SHIPPING METHOD: (mark as appropriate)		SAMPLER NAME AND SIGNATURE	Date Time
Email Report To :				
Email Invoice To : Jeremy.Bishop@jacobs.com,Dow_Umetco@jacobs.com				

NJ

R:1.3 C:1.2

Login Sample Receipt Checklist

Client: Jacobs Engineering Group, Inc.

Job Number: 410-181529-1

Login Number: 181529

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Santiago, Nathaniel

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	Container preservation not listed on COC.
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Jeremy Bishop
Jacobs Engineering Group, Inc.
1100 NE Circle Blvd
Suite 300
Corvallis, Oregon 97330

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JOB DESCRIPTION

Umetco Hot Springs - UMP Quarterly Groundwater

JOB NUMBER

410-181530-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

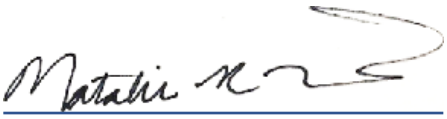
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Job Notes

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.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



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Authorized for release by
Natalie Luciano, Principal Project Manager
Natalie.Luciano@et.eurofinsus.com
(717)556-7258

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is 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.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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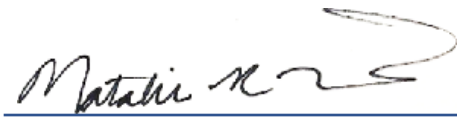


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Definitions/Glossary

Client: Jacobs Engineering Group, Inc. Job ID: 410-181530-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Qualifiers

HPLC/IC

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.
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Job ID: 410-181530-1 Eurofins Lancaster Laboratories Environment

Job Narrative
410-181530-1

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 7/26/2024 9:35 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.2°C.

Receipt Exceptions
The Chain-of-Custody (COC) was incomplete as received. The COC is missing Sample Preservation. This does not meet regulatory requirements.

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

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

Detection Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-181530-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-20-22.1_20240723_N_WG — Lab Sample ID: 410-181530-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	27		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	9.0		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	190		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-20-21.1_20240723_N_WG — Lab Sample ID: 410-181530-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	6.0	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	57		30	12	mg/L	20		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	240		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-20-21.2_20240723_N_WG — Lab Sample ID: 410-181530-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	18		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	220		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	580		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-10.2_20240723_N_WG — Lab Sample ID: 410-181530-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	9.1		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	60		30	12	mg/L	20		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	290		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-10.2_20240723_FD_WG — Lab Sample ID: 410-181530-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	8.1		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	59		30	12	mg/L	20		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	280		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-88-12.2R_20240724_N_WG — Lab Sample ID: 410-181530-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	150		75	25	mg/L	50		EPA 300.0 R2.1	Total/NA
Chloride	41		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	400		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-91-16.1B_20240725_N_WG — Lab Sample ID: 410-181530-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	2.9	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	3.1	J	7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	47		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-91-16.2_20240725_N_WG — Lab Sample ID: 410-181530-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Dissolved Solids	180		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-91-17.1A_20240725_N_WG — Lab Sample ID: 410-181530-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	2.9	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: UO-91-17.1A_20240725_N_WG (Continued) — Lab Sample ID: 410-181530-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	10		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	80		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-91-17.1B_20240725_N_WG — Lab Sample ID: 410-181530-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	6.3	J	7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	46		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-91-17.2_20240725_N_WG — Lab Sample ID: 410-181530-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	4.0	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	180		30	12	mg/L	1		2540C - 2015	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Jacobs Engineering Group, Inc. Job ID: 410-181530-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-20-22.1_20240723_N_WG — Lab Sample ID: 410-181530-1

Date Collected: 07/23/24 09:02 — **Matrix: Water**
Date Received: 07/26/24 09:35

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	27		7.5	2.5	mg/L			07/26/24 22:17	5
Chloride	9.0		7.5	3.0	mg/L			07/26/24 22:17	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	190		30	12	mg/L			07/29/24 14:02	1

Client Sample ID: UO-20-21.1_20240723_N_WG — Lab Sample ID: 410-181530-2

Date Collected: 07/23/24 11:44 — **Matrix: Water**
Date Received: 07/26/24 09:35

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	6.0	J	7.5	2.5	mg/L			07/26/24 22:41	5
Chloride	57		30	12	mg/L			07/27/24 14:50	20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	240		30	12	mg/L			07/29/24 14:02	1

Client Sample ID: UO-20-21.2_20240723_N_WG — Lab Sample ID: 410-181530-3

Date Collected: 07/23/24 12:01 — **Matrix: Water**
Date Received: 07/26/24 09:35

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	18		7.5	2.5	mg/L			07/26/24 23:05	5
Chloride	220		75	30	mg/L			07/26/24 23:17	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	580		60	24	mg/L			07/29/24 14:02	1

Client Sample ID: UO-87-10.2_20240723_N_WG — Lab Sample ID: 410-181530-4

Date Collected: 07/23/24 13:58 — **Matrix: Water**
Date Received: 07/26/24 09:35

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	9.1		7.5	2.5	mg/L			07/26/24 23:29	5
Chloride	60		30	12	mg/L			07/27/24 15:01	20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	290		30	12	mg/L			07/29/24 14:02	1

Client Sample ID: UO-87-10.2_20240723_FD_WG — Lab Sample ID: 410-181530-5

Date Collected: 07/23/24 13:58 **Matrix: Water**
Date Received: 07/26/24 09:35

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	8.1		7.5	2.5	mg/L			07/27/24 02:15	5
Chloride	59		30	12	mg/L			07/27/24 13:29	20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	280		30	12	mg/L			07/29/24 14:02	1

Client Sample ID: UO-88-12.2R_20240724_N_WG — Lab Sample ID: 410-181530-6

Date Collected: 07/24/24 11:04 **Matrix: Water**
Date Received: 07/26/24 09:35

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	150		75	25	mg/L			07/27/24 02:49	50
Chloride	41		7.5	3.0	mg/L			07/27/24 02:38	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	400		30	12	mg/L			07/29/24 14:02	1

Client Sample ID: UO-91-16.1B_20240725_N_WG — Lab Sample ID: 410-181530-7

Date Collected: 07/25/24 11:08 **Matrix: Water**
Date Received: 07/26/24 09:35

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.9	J	7.5	2.5	mg/L			07/26/24 19:53	5
Chloride	3.1	J	7.5	3.0	mg/L			07/26/24 19:53	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	47		30	12	mg/L			07/29/24 14:02	1

Client Sample ID: UO-91-16.2_20240725_N_WG — Lab Sample ID: 410-181530-8

Date Collected: 07/25/24 11:27 **Matrix: Water**
Date Received: 07/26/24 09:35

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.5	U	7.5	2.5	mg/L			07/27/24 03:01	5
Chloride	3.0	U	7.5	3.0	mg/L			07/27/24 03:01	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	180		30	12	mg/L			07/29/24 14:02	1

Client: Jacobs Engineering Group, Inc. Job ID: 410-181530-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-91-17.1A_20240725_N_WG — Lab Sample ID: 410-181530-9

Date Collected: 07/25/24 14:25 **Matrix: Water**
Date Received: 07/26/24 09:35

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.9	J	7.5	2.5	mg/L			07/26/24 20:15	5
Chloride	10		7.5	3.0	mg/L			07/26/24 20:15	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	80		30	12	mg/L			07/29/24 14:02	1

Client Sample ID: UO-91-17.1B_20240725_N_WG — Lab Sample ID: 410-181530-10

Date Collected: 07/25/24 14:52 **Matrix: Water**
Date Received: 07/26/24 09:35

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.5	U	7.5	2.5	mg/L			07/26/24 20:37	5
Chloride	6.3	J	7.5	3.0	mg/L			07/26/24 20:37	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	46		30	12	mg/L			07/29/24 14:02	1

Client Sample ID: UO-91-17.2_20240725_N_WG — Lab Sample ID: 410-181530-11

Date Collected: 07/25/24 15:11 **Matrix: Water**
Date Received: 07/26/24 09:35

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	4.0	J	7.5	2.5	mg/L			07/26/24 20:59	5
Chloride	3.0	U	7.5	3.0	mg/L			07/26/24 20:59	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	180		30	12	mg/L			07/29/24 14:02	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-533102/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 533102

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			07/26/24 13:00	1
Chloride	0.60	U	1.5	0.60	mg/L			07/26/24 13:00	1

Lab Sample ID: LCS 410-533102/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 533102

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.21		mg/L		96	90 - 110
Chloride	3.00	2.92		mg/L		97	90 - 110

Lab Sample ID: LCSD 410-533102/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 533102

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.50	7.22		mg/L		96	90 - 110	0	20
Chloride	3.00	2.92		mg/L		97	90 - 110	0	20

Lab Sample ID: MB 410-533105/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 533105

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			07/26/24 12:10	1
Chloride	0.60	U	1.5	0.60	mg/L			07/26/24 12:10	1

Lab Sample ID: LCS 410-533105/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 533105

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.34		mg/L		98	90 - 110
Chloride	3.00	3.10		mg/L		103	90 - 110

Lab Sample ID: LCSD 410-533105/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 533105

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.50	7.35		mg/L		98	90 - 110	0	20
Chloride	3.00	3.10		mg/L		103	90 - 110	0	20

Lab Sample ID: MB 410-533153/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 533153

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			07/26/24 22:24	1
Chloride	0.60	U	1.5	0.60	mg/L			07/26/24 22:24	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: LCS 410-533153/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 533153

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Sulfate			7.50	7.48		mg/L		100	90 - 110		
Chloride			3.00	3.00		mg/L		100	90 - 110		

Lab Sample ID: LCSD 410-533153/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 533153

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate			7.50	7.49		mg/L		100	90 - 110	0	20
Chloride			3.00	3.00		mg/L		100	90 - 110	0	20

Lab Sample ID: MB 410-533194/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 533194

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			07/27/24 12:54	1
Chloride	0.60	U	1.5	0.60	mg/L			07/27/24 12:54	1

Lab Sample ID: LCS 410-533194/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 533194

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Sulfate			7.50	7.59		mg/L		101	90 - 110		
Chloride			3.00	3.05		mg/L		102	90 - 110		

Lab Sample ID: LCSD 410-533194/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 533194

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate			7.50	7.59		mg/L		101	90 - 110	0	20
Chloride			3.00	3.05		mg/L		102	90 - 110	0	20

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 410-533538/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 533538

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12	U	30	12	mg/L			07/29/24 14:02	1

Lab Sample ID: LCS 410-533538/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 533538

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Dissolved Solids			200	192		mg/L		96	90 - 110		

HPLC/IC

Analysis Batch: 533102

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-181530-7	UO-91-16.1B_20240725_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-181530-9	UO-91-17.1A_20240725_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-181530-10	UO-91-17.1B_20240725_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-181530-11	UO-91-17.2_20240725_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-533102/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-533102/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-533102/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 533105

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-181530-1	UO-20-22.1_20240723_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-181530-2	UO-20-21.1_20240723_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-181530-3	UO-20-21.2_20240723_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-181530-3	UO-20-21.2_20240723_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-181530-4	UO-87-10.2_20240723_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-533105/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-533105/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-533105/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 533153

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-181530-5	UO-87-10.2_20240723_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
410-181530-6	UO-88-12.2R_20240724_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-181530-6	UO-88-12.2R_20240724_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-181530-8	UO-91-16.2_20240725_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-533153/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-533153/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-533153/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 533194

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-181530-2	UO-20-21.1_20240723_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-181530-4	UO-87-10.2_20240723_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-181530-5	UO-87-10.2_20240723_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-533194/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-533194/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-533194/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

General Chemistry

Analysis Batch: 533538

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-181530-1	UO-20-22.1_20240723_N_WG	Total/NA	Water	2540C - 2015	
410-181530-2	UO-20-21.1_20240723_N_WG	Total/NA	Water	2540C - 2015	
410-181530-3	UO-20-21.2_20240723_N_WG	Total/NA	Water	2540C - 2015	
410-181530-4	UO-87-10.2_20240723_N_WG	Total/NA	Water	2540C - 2015	
410-181530-5	UO-87-10.2_20240723_FD_WG	Total/NA	Water	2540C - 2015	
410-181530-6	UO-88-12.2R_20240724_N_WG	Total/NA	Water	2540C - 2015	
410-181530-7	UO-91-16.1B_20240725_N_WG	Total/NA	Water	2540C - 2015	
410-181530-8	UO-91-16.2_20240725_N_WG	Total/NA	Water	2540C - 2015	
410-181530-9	UO-91-17.1A_20240725_N_WG	Total/NA	Water	2540C - 2015	

General Chemistry (Continued)

Analysis Batch: 533538 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-181530-10	UO-91-17.1B_20240725_N_WG	Total/NA	Water	2540C - 2015	
410-181530-11	UO-91-17.2_20240725_N_WG	Total/NA	Water	2540C - 2015	
MB 410-533538/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-533538/2	Lab Control Sample	Total/NA	Water	2540C - 2015	

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-181530-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-20-22.1_20240723_N_WG — Lab Sample ID: 410-181530-1

Date Collected: 07/23/24 09:02 **Matrix: Water**
Date Received: 07/26/24 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	533105	L4QM	ELLE	07/26/24 22:17
Total/NA	Analysis	2540C - 2015		1	533538	UOCA	ELLE	07/29/24 14:02 - 07/30/24 18:10 [1]

Client Sample ID: UO-20-21.1_20240723_N_WG — Lab Sample ID: 410-181530-2

Date Collected: 07/23/24 11:44 **Matrix: Water**
Date Received: 07/26/24 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		20	533194	W7FX	ELLE	07/27/24 14:50
Total/NA	Analysis	EPA 300.0 R2.1		5	533105	L4QM	ELLE	07/26/24 22:41
Total/NA	Analysis	2540C - 2015		1	533538	UOCA	ELLE	07/29/24 14:02 - 07/30/24 18:10 [1]

Client Sample ID: UO-20-21.2_20240723_N_WG — Lab Sample ID: 410-181530-3

Date Collected: 07/23/24 12:01 **Matrix: Water**
Date Received: 07/26/24 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	533105	L4QM	ELLE	07/26/24 23:05
Total/NA	Analysis	EPA 300.0 R2.1		50	533105	L4QM	ELLE	07/26/24 23:17
Total/NA	Analysis	2540C - 2015		1	533538	UOCA	ELLE	07/29/24 14:02 - 07/30/24 18:10 [1]

Client Sample ID: UO-87-10.2_20240723_N_WG — Lab Sample ID: 410-181530-4

Date Collected: 07/23/24 13:58 **Matrix: Water**
Date Received: 07/26/24 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		20	533194	W7FX	ELLE	07/27/24 15:01
Total/NA	Analysis	EPA 300.0 R2.1		5	533105	L4QM	ELLE	07/26/24 23:29
Total/NA	Analysis	2540C - 2015		1	533538	UOCA	ELLE	07/29/24 14:02 - 07/30/24 18:10 [1]

Client Sample ID: UO-87-10.2_20240723_FD_WG — Lab Sample ID: 410-181530-5

Date Collected: 07/23/24 13:58 **Matrix: Water**
Date Received: 07/26/24 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	533153	L4QM	ELLE	07/27/24 02:15
Total/NA	Analysis	EPA 300.0 R2.1		20	533194	W7FX	ELLE	07/27/24 13:29
Total/NA	Analysis	2540C - 2015		1	533538	UOCA	ELLE	07/29/24 14:02 - 07/30/24 18:10 [1]

Client Sample ID: UO-88-12.2R_20240724_N_WG — Lab Sample ID: 410-181530-6

Date Collected: 07/24/24 11:04 **Matrix: Water**
Date Received: 07/26/24 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	533153	L4QM	ELLE	07/27/24 02:38

Client Sample ID: UO-88-12.2R_20240724_N_WG — Lab Sample ID: 410-181530-6

Date Collected: 07/24/24 11:04 **Matrix: Water**
Date Received: 07/26/24 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		50	533153	L4QM	ELLE	07/27/24 02:49
Total/NA	Analysis	2540C - 2015		1	533538	UOCA	ELLE	07/29/24 14:02 - 07/30/24 18:10 [1]

Client Sample ID: UO-91-16.1B_20240725_N_WG — Lab Sample ID: 410-181530-7

Date Collected: 07/25/24 11:08 **Matrix: Water**
Date Received: 07/26/24 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	533102	L4QM	ELLE	07/26/24 19:53
Total/NA	Analysis	2540C - 2015		1	533538	UOCA	ELLE	07/29/24 14:02 - 07/30/24 18:10 [1]

Client Sample ID: UO-91-16.2_20240725_N_WG — Lab Sample ID: 410-181530-8

Date Collected: 07/25/24 11:27 **Matrix: Water**
Date Received: 07/26/24 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	533153	L4QM	ELLE	07/27/24 03:01
Total/NA	Analysis	2540C - 2015		1	533538	UOCA	ELLE	07/29/24 14:02 - 07/30/24 18:10 [1]

Client Sample ID: UO-91-17.1A_20240725_N_WG — Lab Sample ID: 410-181530-9

Date Collected: 07/25/24 14:25 **Matrix: Water**
Date Received: 07/26/24 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	533102	L4QM	ELLE	07/26/24 20:15
Total/NA	Analysis	2540C - 2015		1	533538	UOCA	ELLE	07/29/24 14:02 - 07/30/24 18:10 [1]

Client Sample ID: UO-91-17.1B_20240725_N_WG — Lab Sample ID: 410-181530-10

Date Collected: 07/25/24 14:52 **Matrix: Water**
Date Received: 07/26/24 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	533102	L4QM	ELLE	07/26/24 20:37
Total/NA	Analysis	2540C - 2015		1	533538	UOCA	ELLE	07/29/24 14:02 - 07/30/24 18:10 [1]

Client Sample ID: UO-91-17.2_20240725_N_WG — Lab Sample ID: 410-181530-11

Date Collected: 07/25/24 15:11 **Matrix: Water**
Date Received: 07/26/24 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	533102	L4QM	ELLE	07/26/24 20:59
Total/NA	Analysis	2540C - 2015		1	533538	UOCA	ELLE	07/29/24 14:02 - 07/30/24 18:10 [1]

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-181530-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00660	08-09-24

Method Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-181530-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
2540C - 2015	Total Dissolved Solids (Dried at 180 °C)	SM	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-181530-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-181530-1	UO-20-22.1_20240723_N_WG	Water	07/23/24 09:02	07/26/24 09:35
410-181530-2	UO-20-21.1_20240723_N_WG	Water	07/23/24 11:44	07/26/24 09:35
410-181530-3	UO-20-21.2_20240723_N_WG	Water	07/23/24 12:01	07/26/24 09:35
410-181530-4	UO-87-10.2_20240723_N_WG	Water	07/23/24 13:58	07/26/24 09:35
410-181530-5	UO-87-10.2_20240723_FD_WG	Water	07/23/24 13:58	07/26/24 09:35
410-181530-6	UO-88-12.2R_20240724_N_WG	Water	07/24/24 11:04	07/26/24 09:35
410-181530-7	UO-91-16.1B_20240725_N_WG	Water	07/25/24 11:08	07/26/24 09:35
410-181530-8	UO-91-16.2_20240725_N_WG	Water	07/25/24 11:27	07/26/24 09:35
410-181530-9	UO-91-17.1A_20240725_N_WG	Water	07/25/24 14:25	07/26/24 09:35
410-181530-10	UO-91-17.1B_20240725_N_WG	Water	07/25/24 14:52	07/26/24 09:35
410-181530-11	UO-91-17.2_20240725_N_WG	Water	07/25/24 15:11	07/26/24 09:35

410-181530 Chain of Custody

OY / SAMPLE ANALYSIS REQUEST

COC No: EuroFins Lan-45498654

Cooler No. of

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 14
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number/Script** 4508165277
Project Chemist Jeremy Bishop 541.223.3856	**Shipping Company / Airbill No.** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 07/25/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Analysis: Chloride and Sulfate - E300.0	Analysis: TDS - SM2540C
UO-20-22.1_20240723_N_WG	UO-20-22.1	WG	G		07/23/2024 09:02	2		X	X
UO-20-21.1_20240723_N_WG	UO-20-21.1	WG	G		07/23/2024 11:44	2		X	X
UO-20-21.2_20240723_N_WG	UO-20-21.2	WG	G		07/23/2024 12:01	2		X	X
UO-87-10.2_20240723_N_WG	UO-87-10.2	WG	G		07/23/2024 13:58	2		X	X
UO-87-10.2_20240723_FD_WG	UO-87-10.2	WG	G		07/23/2024 13:58	2		X	X
UO-88-12.2R_20240724_N_WG	UO-88-12.2R	WG	G		07/24/2024 11:04	2		X	X
UO-91-16.1B_20240725_N_WG	UO-91-16.1B	WG	G		07/25/2024 11:08	2		X	X

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	Jordan Canahan	07-25-24 1730		
			ECMET	7/26/24 09:35
	SHIPPING METHOD: (mark as appropriate)		SAMPLER NAME AND SIGNATURE	Date Time
Email Report To :				
Email Invoice To : Jeremy.Bishop@jacobs.com,Dow_Umetco@jacobs.com				

R:1.3 C:1.2

CHAIN OF CUSTODY / SAMPLE ANALYSIS REQUEST

COC No: EuroFins Lan-45498654

Cooler No. of

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 14
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number/Script** 4508165277
Project Chemist Jeremy Bishop 541.223.3856	**Shipping Company / Airbill No.** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 07/25/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Filtered	Preserve	Analysis: Chloride and Sulfate - E300.0	Analysis: TDS - SM2540C
UO-91-16.2_20240725_N_WG	UO-91-16.2	WG	G		07/25/2024 11:27	2				X	X
UO-91-17.1A_20240725_N_WG	UO-91-17.1A	WG	G		07/25/2024 14:25	2				X	X
UO-91-17.1B_20240725_N_WG	UO-91-17.1B	WG	G		07/25/2024 14:52	2				X	X
UO-91-17.2_20240725_N_WG	UO-91-17.2	WG	G		07/25/2024 15:11	2				X	X

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	Jordan Cunahan	07-25-24 1730		
			BLUE T	7/26/24 09:35
	SHIPPING METHOD: (mark as appropriate)		SAMPLER NAME AND SIGNATURE	Date Time
Email Report To :				
Email Invoice To : Jeremy.Bishop@jacobs.com,Dow_Umetco@jacobs.com				

R:1.3 C:1.2

Login Sample Receipt Checklist

Client: Jacobs Engineering Group, Inc.

Job Number: 410-181530-1

Login Number: 181530

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Santiago, Nathaniel

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	Container preservation not listed on COC.
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Jeremy Bishop
Jacobs Engineering Group, Inc.
1100 NE Circle Blvd
Suite 300
Corvallis, Oregon 97330

Generated 8/5/2024 12:50:46 PM

JOB DESCRIPTION

Umetco Hot Springs UMP Quarterly GW Sampling

JOB NUMBER

410-182239-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

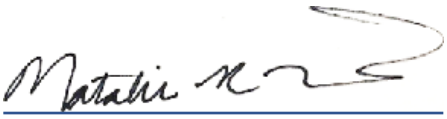
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Job Notes

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.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



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Authorized for release by
Natalie Luciano, Principal Project Manager
Natalie.Luciano@et.eurofinsus.com
(717)556-7258

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is 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.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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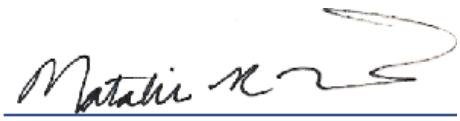


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Client: Jacobs Engineering Group, Inc. Job ID: 410-182239-1
Project/Site: Umetco Hot Springs UMP Quarterly GW Sampling

Qualifiers

HPLC/IC

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.
U	Indicates the analyte was analyzed for but not detected.

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.
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Job Narrative
410-182239-1

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 8/1/2024 9:20 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.2°C.

Receipt Exceptions
The Chain-of-Custody (COC) was incomplete as received. The COC is missing Sample Preservation. This does not meet regulatory requirements.

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

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

Detection Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-182239-1
Project/Site: Umetco Hot Springs UMP Quarterly GW Sampling

Client Sample ID: UO-91-19.2_20240726_N_WG — Lab Sample ID: 410-182239-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	310		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	710		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-08.1_20240729_N_WG — Lab Sample ID: 410-182239-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	7.4	J	7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	33		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-08.2_20240729_N_WG — Lab Sample ID: 410-182239-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	3.6	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	4.6	J	7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	27	J	30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-02.1A_20240729_N_WG — Lab Sample ID: 410-182239-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	400		75	25	mg/L	50		EPA 300.0 R2.1	Total/NA
Chloride	420		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	1100		120	48	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-88-02.2_20240729_N_WG — Lab Sample ID: 410-182239-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	270		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	590		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-02.1B_20240729_N_WG — Lab Sample ID: 410-182239-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	130		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	200		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	650		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-88-15.1_20240731_N_WG — Lab Sample ID: 410-182239-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	120		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	20		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	220		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-88-15.2_20240731_N_WG — Lab Sample ID: 410-182239-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	17		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	150		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	360		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-88-15.2_20240731_FD_WG — Lab Sample ID: 410-182239-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	17		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	150		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-182239-1
Project/Site: Umetco Hot Springs UMP Quarterly GW Sampling

Client Sample ID: UO-88-15.2_20240731_FD_WG (Continued)
Lab Sample ID: 410-182239-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Dissolved Solids	360		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-88-11.2_20240731_N_WG
Lab Sample ID: 410-182239-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	6.5	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	22		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	170		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-88-14.1_20240731_N_WG
Lab Sample ID: 410-182239-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	68		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	16		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	120		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-88-14.2_20240731_N_WG
Lab Sample ID: 410-182239-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	44		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	190		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	500		60	24	mg/L	1		2540C - 2015	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: UO-91-19.2_20240726_N_WG — Lab Sample ID: 410-182239-1

Date Collected: 07/26/24 15:14 **Matrix: Water**
Date Received: 08/01/24 09:20

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.5	U	7.5	2.5	mg/L			08/01/24 18:13	5
Chloride	**310**		75	30	mg/L			08/01/24 18:24	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	**710**		60	24	mg/L			08/01/24 17:15	1

Client Sample ID: UO-87-08.1_20240729_N_WG — Lab Sample ID: 410-182239-2

Date Collected: 07/29/24 10:13 **Matrix: Water**
Date Received: 08/01/24 09:20

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.5	U	7.5	2.5	mg/L			08/02/24 03:36	5
Chloride	**7.4**	**J**	7.5	3.0	mg/L			08/02/24 03:36	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	**33**		30	12	mg/L			08/02/24 17:59	1

Client Sample ID: UO-87-08.2_20240729_N_WG — Lab Sample ID: 410-182239-3

Date Collected: 07/29/24 11:34 **Matrix: Water**
Date Received: 08/01/24 09:20

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**3.6**	**J**	7.5	2.5	mg/L			08/02/24 03:59	5
Chloride	**4.6**	**J**	7.5	3.0	mg/L			08/02/24 03:59	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	**27**	**J**	30	12	mg/L			08/02/24 17:59	1

Client Sample ID: UO-87-02.1A_20240729_N_WG — Lab Sample ID: 410-182239-4

Date Collected: 07/29/24 13:07 **Matrix: Water**
Date Received: 08/01/24 09:20

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**400**		75	25	mg/L			08/02/24 04:32	50
Chloride	**420**		75	30	mg/L			08/02/24 04:32	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	**1100**		120	48	mg/L			08/02/24 17:59	1

Client Sample ID: UO-88-02.2_20240729_N_WG — Lab Sample ID: 410-182239-5

Date Collected: 07/29/24 14:30 **Matrix: Water**
Date Received: 08/01/24 09:20

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.5	U	7.5	2.5	mg/L			08/02/24 04:43	5
Chloride	**270**		75	30	mg/L			08/02/24 04:54	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	**590**		60	24	mg/L			08/02/24 17:59	1

Client Sample ID: UO-87-02.1B_20240729_N_WG — Lab Sample ID: 410-182239-6

Date Collected: 07/29/24 14:51 **Matrix: Water**
Date Received: 08/01/24 09:20

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**130**		7.5	2.5	mg/L			08/02/24 05:05	5
Chloride	**200**		75	30	mg/L			08/02/24 05:16	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	**650**		60	24	mg/L			08/02/24 17:59	1

Client Sample ID: UO-88-15.1_20240731_N_WG — Lab Sample ID: 410-182239-7

Date Collected: 07/31/24 09:53 **Matrix: Water**
Date Received: 08/01/24 09:20

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**120**		7.5	2.5	mg/L			08/01/24 23:22	5
Chloride	**20**		7.5	3.0	mg/L			08/01/24 23:22	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	**220**		30	12	mg/L			08/02/24 17:59	1

Client Sample ID: UO-88-15.2_20240731_N_WG — Lab Sample ID: 410-182239-8

Date Collected: 07/31/24 10:15 **Matrix: Water**
Date Received: 08/01/24 09:20

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**17**		7.5	2.5	mg/L			08/02/24 05:49	5
Chloride	**150**		75	30	mg/L			08/02/24 06:00	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	**360**		30	12	mg/L			08/02/24 17:59	1

Client Sample ID: UO-88-15.2_20240731_FD_WG — Lab Sample ID: 410-182239-9

Date Collected: 07/31/24 10:15 **Matrix: Water**
Date Received: 08/01/24 09:20

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	17		7.5	2.5	mg/L			08/01/24 23:44	5
Chloride	150		75	30	mg/L			08/01/24 23:55	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	360		30	12	mg/L			08/02/24 17:59	1

Client Sample ID: UO-88-11.2_20240731_N_WG — Lab Sample ID: 410-182239-10

Date Collected: 07/31/24 11:51 **Matrix: Water**
Date Received: 08/01/24 09:20

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	6.5	J	7.5	2.5	mg/L			08/02/24 00:06	5
Chloride	22		7.5	3.0	mg/L			08/02/24 00:06	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	170		30	12	mg/L			08/02/24 17:59	1

Client Sample ID: UO-88-14.1_20240731_N_WG — Lab Sample ID: 410-182239-11

Date Collected: 07/31/24 13:57 **Matrix: Water**
Date Received: 08/01/24 09:20

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	68		7.5	2.5	mg/L			08/02/24 06:11	5
Chloride	16		7.5	3.0	mg/L			08/02/24 06:11	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	120		30	12	mg/L			08/02/24 17:59	1

Client Sample ID: UO-88-14.2_20240731_N_WG — Lab Sample ID: 410-182239-12

Date Collected: 07/31/24 14:44 **Matrix: Water**
Date Received: 08/01/24 09:20

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	44		7.5	2.5	mg/L			08/02/24 00:29	5
Chloride	190		75	30	mg/L			08/02/24 00:40	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	500		60	24	mg/L			08/02/24 17:59	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-535240/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 535240

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			08/01/24 11:59	1
Chloride	0.60	U	1.5	0.60	mg/L			08/01/24 11:59	1

Lab Sample ID: LCS 410-535240/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 535240

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.75		mg/L		103	90 - 110
Chloride	3.00	3.11		mg/L		104	90 - 110

Lab Sample ID: LCSD 410-535240/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 535240

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.50	7.74		mg/L		103	90 - 110	0	20
Chloride	3.00	3.12		mg/L		104	90 - 110	0	20

Lab Sample ID: MB 410-535300/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 535300

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			08/02/24 03:03	1
Chloride	0.60	U	1.5	0.60	mg/L			08/02/24 03:03	1

Lab Sample ID: LCS 410-535300/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 535300

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.80		mg/L		104	90 - 110
Chloride	3.00	3.15		mg/L		105	90 - 110

Lab Sample ID: LCSD 410-535300/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 535300

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.50	7.80		mg/L		104	90 - 110	0	20
Chloride	3.00	3.15		mg/L		105	90 - 110	0	20

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 410-535207/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 535207

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12	U	30	12	mg/L			08/01/24 17:15	1

Lab Sample ID: LCS 410-535207/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 535207

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	200	199		mg/L		100	90 - 110

Lab Sample ID: MB 410-535747/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 535747

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12	U	30	12	mg/L			08/02/24 17:59	1

Lab Sample ID: LCS 410-535747/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 535747

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	200	199		mg/L		100	90 - 110

Lab Sample ID: 410-182239-4 MS — **Client Sample ID: UO-87-02.1A_20240729_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 535747

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1100		800	1900		mg/L		106	90 - 110

Lab Sample ID: 410-182239-4 DU — **Client Sample ID: UO-87-02.1A_20240729_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 535747

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	1100		1100		mg/L		4	10

HPLC/IC

Analysis Batch: 535240

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-182239-1	UO-91-19.2_20240726_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-182239-1	UO-91-19.2_20240726_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-182239-7	UO-88-15.1_20240731_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-182239-9	UO-88-15.2_20240731_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
410-182239-9	UO-88-15.2_20240731_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
410-182239-10	UO-88-11.2_20240731_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-182239-12	UO-88-14.2_20240731_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-182239-12	UO-88-14.2_20240731_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-535240/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-535240/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-535240/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 535300

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-182239-2	UO-87-08.1_20240729_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-182239-3	UO-87-08.2_20240729_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-182239-4	UO-87-02.1A_20240729_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-182239-5	UO-88-02.2_20240729_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-182239-5	UO-88-02.2_20240729_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-182239-6	UO-87-02.1B_20240729_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-182239-6	UO-87-02.1B_20240729_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-182239-8	UO-88-15.2_20240731_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-182239-8	UO-88-15.2_20240731_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-182239-11	UO-88-14.1_20240731_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-535300/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-535300/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-535300/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

General Chemistry

Analysis Batch: 535207

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-182239-1	UO-91-19.2_20240726_N_WG	Total/NA	Water	2540C - 2015	
MB 410-535207/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-535207/2	Lab Control Sample	Total/NA	Water	2540C - 2015	

Analysis Batch: 535747

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-182239-2	UO-87-08.1_20240729_N_WG	Total/NA	Water	2540C - 2015	
410-182239-3	UO-87-08.2_20240729_N_WG	Total/NA	Water	2540C - 2015	
410-182239-4	UO-87-02.1A_20240729_N_WG	Total/NA	Water	2540C - 2015	
410-182239-5	UO-88-02.2_20240729_N_WG	Total/NA	Water	2540C - 2015	
410-182239-6	UO-87-02.1B_20240729_N_WG	Total/NA	Water	2540C - 2015	
410-182239-7	UO-88-15.1_20240731_N_WG	Total/NA	Water	2540C - 2015	
410-182239-8	UO-88-15.2_20240731_N_WG	Total/NA	Water	2540C - 2015	
410-182239-9	UO-88-15.2_20240731_FD_WG	Total/NA	Water	2540C - 2015	
410-182239-10	UO-88-11.2_20240731_N_WG	Total/NA	Water	2540C - 2015	
410-182239-11	UO-88-14.1_20240731_N_WG	Total/NA	Water	2540C - 2015	
410-182239-12	UO-88-14.2_20240731_N_WG	Total/NA	Water	2540C - 2015	
MB 410-535747/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-535747/2	Lab Control Sample	Total/NA	Water	2540C - 2015	

General Chemistry (Continued)

Analysis Batch: 535747 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-182239-4 MS	UO-87-02.1A_20240729_N_WG	Total/NA	Water	2540C - 2015	
410-182239-4 DU	UO-87-02.1A_20240729_N_WG	Total/NA	Water	2540C - 2015	

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-182239-1
Project/Site: Umetco Hot Springs UMP Quarterly GW Sampling

Client Sample ID: UO-91-19.2_20240726_N_WG — Lab Sample ID: 410-182239-1

Date Collected: 07/26/24 15:14 **Matrix: Water**
Date Received: 08/01/24 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	535240	W7FX	ELLE	08/01/24 18:13
Total/NA	Analysis	EPA 300.0 R2.1		50	535240	W7FX	ELLE	08/01/24 18:24
Total/NA	Analysis	2540C - 2015		1	535207	UOCA	ELLE	08/01/24 17:15 - 08/02/24 19:43 ¹

Client Sample ID: UO-87-08.1_20240729_N_WG — Lab Sample ID: 410-182239-2

Date Collected: 07/29/24 10:13 **Matrix: Water**
Date Received: 08/01/24 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	535300	W7FX	ELLE	08/02/24 03:36
Total/NA	Analysis	2540C - 2015		1	535747	UOCA	ELLE	08/02/24 17:59 - 08/05/24 07:40 ¹

Client Sample ID: UO-87-08.2_20240729_N_WG — Lab Sample ID: 410-182239-3

Date Collected: 07/29/24 11:34 **Matrix: Water**
Date Received: 08/01/24 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	535300	W7FX	ELLE	08/02/24 03:59
Total/NA	Analysis	2540C - 2015		1	535747	UOCA	ELLE	08/02/24 17:59 - 08/05/24 07:40 ¹

Client Sample ID: UO-87-02.1A_20240729_N_WG — Lab Sample ID: 410-182239-4

Date Collected: 07/29/24 13:07 **Matrix: Water**
Date Received: 08/01/24 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		50	535300	W7FX	ELLE	08/02/24 04:32
Total/NA	Analysis	2540C - 2015		1	535747	UOCA	ELLE	08/02/24 17:59 - 08/05/24 07:40 ¹

Client Sample ID: UO-88-02.2_20240729_N_WG — Lab Sample ID: 410-182239-5

Date Collected: 07/29/24 14:30 **Matrix: Water**
Date Received: 08/01/24 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	535300	W7FX	ELLE	08/02/24 04:43
Total/NA	Analysis	EPA 300.0 R2.1		50	535300	W7FX	ELLE	08/02/24 04:54
Total/NA	Analysis	2540C - 2015		1	535747	UOCA	ELLE	08/02/24 17:59 - 08/05/24 07:40 ¹

Client Sample ID: UO-87-02.1B_20240729_N_WG — Lab Sample ID: 410-182239-6

Date Collected: 07/29/24 14:51 **Matrix: Water**
Date Received: 08/01/24 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	535300	W7FX	ELLE	08/02/24 05:05
Total/NA	Analysis	EPA 300.0 R2.1		50	535300	W7FX	ELLE	08/02/24 05:16
Total/NA	Analysis	2540C - 2015		1	535747	UOCA	ELLE	08/02/24 17:59 - 08/05/24 07:40 ¹

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-182239-1
Project/Site: Umetco Hot Springs UMP Quarterly GW Sampling

Client Sample ID: UO-88-15.1_20240731_N_WG — Lab Sample ID: 410-182239-7

Date Collected: 07/31/24 09:53 **Matrix: Water**
Date Received: 08/01/24 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	535240	W7FX	ELLE	08/01/24 23:22
Total/NA	Analysis	2540C - 2015		1	535747	UOCA	ELLE	08/02/24 17:59 - 08/05/24 07:40 ¹

Client Sample ID: UO-88-15.2_20240731_N_WG — Lab Sample ID: 410-182239-8

Date Collected: 07/31/24 10:15 **Matrix: Water**
Date Received: 08/01/24 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	535300	W7FX	ELLE	08/02/24 05:49
Total/NA	Analysis	EPA 300.0 R2.1		50	535300	W7FX	ELLE	08/02/24 06:00
Total/NA	Analysis	2540C - 2015		1	535747	UOCA	ELLE	08/02/24 17:59 - 08/05/24 07:40 ¹

Client Sample ID: UO-88-15.2_20240731_FD_WG — Lab Sample ID: 410-182239-9

Date Collected: 07/31/24 10:15 **Matrix: Water**
Date Received: 08/01/24 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	535240	W7FX	ELLE	08/01/24 23:44
Total/NA	Analysis	EPA 300.0 R2.1		50	535240	W7FX	ELLE	08/01/24 23:55
Total/NA	Analysis	2540C - 2015		1	535747	UOCA	ELLE	08/02/24 17:59 - 08/05/24 07:40 ¹

Client Sample ID: UO-88-11.2_20240731_N_WG — Lab Sample ID: 410-182239-10

Date Collected: 07/31/24 11:51 **Matrix: Water**
Date Received: 08/01/24 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	535240	W7FX	ELLE	08/02/24 00:06
Total/NA	Analysis	2540C - 2015		1	535747	UOCA	ELLE	08/02/24 17:59 - 08/05/24 07:40 ¹

Client Sample ID: UO-88-14.1_20240731_N_WG — Lab Sample ID: 410-182239-11

Date Collected: 07/31/24 13:57 **Matrix: Water**
Date Received: 08/01/24 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	535300	W7FX	ELLE	08/02/24 06:11
Total/NA	Analysis	2540C - 2015		1	535747	UOCA	ELLE	08/02/24 17:59 - 08/05/24 07:40 ¹

Client Sample ID: UO-88-14.2_20240731_N_WG — Lab Sample ID: 410-182239-12

Date Collected: 07/31/24 14:44 **Matrix: Water**
Date Received: 08/01/24 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	535240	W7FX	ELLE	08/02/24 00:29
Total/NA	Analysis	EPA 300.0 R2.1		50	535240	W7FX	ELLE	08/02/24 00:40
Total/NA	Analysis	2540C - 2015		1	535747	UOCA	ELLE	08/02/24 17:59 - 08/05/24 07:40 ¹

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-182239-1

Project/Site: Umetco Hot Springs UMP Quarterly GW Sampling

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-182239-1
Project/Site: Umetco Hot Springs UMP Quarterly GW Sampling

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00660	08-09-24

Method Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-182239-1
Project/Site: Umetco Hot Springs UMP Quarterly GW Sampling

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
2540C - 2015	Total Dissolved Solids (Dried at 180 °C)	SM	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-182239-1
Project/Site: Umetco Hot Springs UMP Quarterly GW Sampling

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-182239-1	UO-91-19.2_20240726_N_WG	Water	07/26/24 15:14	08/01/24 09:20
410-182239-2	UO-87-08.1_20240729_N_WG	Water	07/29/24 10:13	08/01/24 09:20
410-182239-3	UO-87-08.2_20240729_N_WG	Water	07/29/24 11:34	08/01/24 09:20
410-182239-4	UO-87-02.1A_20240729_N_WG	Water	07/29/24 13:07	08/01/24 09:20
410-182239-5	UO-88-02.2_20240729_N_WG	Water	07/29/24 14:30	08/01/24 09:20
410-182239-6	UO-87-02.1B_20240729_N_WG	Water	07/29/24 14:51	08/01/24 09:20
410-182239-7	UO-88-15.1_20240731_N_WG	Water	07/31/24 09:53	08/01/24 09:20
410-182239-8	UO-88-15.2_20240731_N_WG	Water	07/31/24 10:15	08/01/24 09:20
410-182239-9	UO-88-15.2_20240731_FD_WG	Water	07/31/24 10:15	08/01/24 09:20
410-182239-10	UO-88-11.2_20240731_N_WG	Water	07/31/24 11:51	08/01/24 09:20
410-182239-11	UO-88-14.1_20240731_N_WG	Water	07/31/24 13:57	08/01/24 09:20
410-182239-12	UO-88-14.2_20240731_N_WG	Water	07/31/24 14:44	08/01/24 09:20

410-182239 Chain of Custody

/ SAMPLE ANALYSIS REQUEST

COC No: EuroFins Lan-45504622

Cooler No. of

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 14
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number/Script** 4508165277
Project Chemist Jeremy Bishop 541.223.3856	**Shipping Company / Airbill No.** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 07/31/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Analysis: Filtered	Preserve	Chloride and Sulfate - E300.0	TDS - SM2540C
UO-91-19.2_20240726_N_WG	UO-91-19.2	WG	G		07/26/2024 15:14	2				X	X
UO-87-08.1_20240729_N_WG	UO-87-08.1	WG	G		07/29/2024 10:13	2				X	X
UO-87-08.2_20240729_N_WG	UO-87-08.2	WG	G		07/29/2024 11:34	2				X	X
UO-87-02.1A_20240729_N_WG	UO-87-02.1A	WG	G		07/29/2024 13:07	2				X	X
UO-88-02.2_20240729_N_WG	UO-88-02.2	WG	G		07/29/2024 14:30	2				X	X
UO-87-02.1B_20240729_N_WG	UO-87-02.1B	WG	G		07/29/2024 14:51	2				X	X
UO-88-15.1_20240731_N_WG	UO-88-15.1	WG	G		07/31/2024 09:53	2				X	X

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	Jordan Carnaha	07-31-24 1730		
			MVP LMS	8/1/24 0920
	SHIPPING METHOD: (mark as appropriate)		**SAMPLER NAME AND SIGNATURE**	**Date Time**
Email Report To :				
Email Invoice To : Jeremy.Bishop@jacobs.com,Dow_Umetco@jacobs.com			R1.2-C1.2	

CHAIN OF CUSTODY / SAMPLE ANALYSIS REQUEST

COC No: EuroFins Lan-45504622

Cooler No. of

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 14
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number/Script** 4508165277
Project Chemist Jeremy Bishop 541.223.3856	**Shipping Company / Airbill No.** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 07/31/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Analysis: Filtered	Preserve	Chloride and Sulfate - E300.0	TDS - SM2540C
UO-88-15.2_20240731_N_WG	UO-88-15.2	WG	G		07/31/2024 10:15	2				X	X
UO-88-15.2_20240731_FD_WG	UO-88-15.2	WG	G		07/31/2024 10:15	2				X	X
UO-88-11.2_20240731_N_WG	UO-88-11.2	WG	G		07/31/2024 11:51	2				X	X
UO-88-14.1_20240731_N_WG	UO-88-14.1	WG	G		07/31/2024 13:57	2				X	X
UO-88-14.2_20240731_N_WG	UO-88-14.2	WG	G		07/31/2024 14:44	2				X	X

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	Jordan Carnahan	07-31-24 1730		
			[illegible] 8/1/24 0920	
	SHIPPING METHOD: (mark as appropriate)		SAMPLER NAME AND SIGNATURE	Date Time
Email Report To :				
Email Invoice To : Jeremy.Bishop@jacobs.com,Dow_Umetco@jacobs.com			R1.2- C1.2	

Login Sample Receipt Checklist

Client: Jacobs Engineering Group, Inc.

Job Number: 410-182239-1

Login Number: 182239

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Ballard, Megan

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	Refer to Job Narrative for details.
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Jeremy Bishop
Jacobs Engineering Group, Inc.
1100 NE Circle Blvd
Suite 300
Corvallis, Oregon 97330

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JOB DESCRIPTION

Umetco Hot Springs - UMP Quarterly Groundwater

JOB NUMBER

410-183299-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

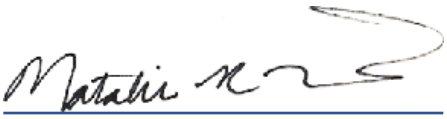
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Job Notes

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.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



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Authorized for release by
Natalie Luciano, Principal Project Manager
Natalie.Luciano@et.eurofinsus.com
(717)556-7258

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is 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.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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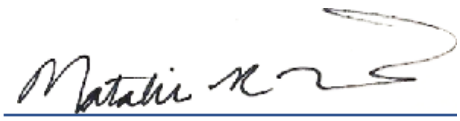


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Definitions/Glossary

Client: Jacobs Engineering Group, Inc. Job ID: 410-183299-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Qualifiers

HPLC/IC

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.
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Job Narrative
410-183299-1

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 8/8/2024 9:30 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.9°C.

Receipt Exceptions
The Chain-of-Custody (COC) was incomplete as received. The COC is missing the Sample Preservation. This does not meet regulatory requirements.

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

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

Detection Summary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-183299-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-87-01.1A_20240806_N_WG — Lab Sample ID: 410-183299-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	55		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	14		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	150		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-01.1B_20240806_N_WG — Lab Sample ID: 410-183299-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	27		15	5.0	mg/L	10		EPA 300.0 R2.1	Total/NA
Chloride	920		150	60	mg/L	100		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	1700		240	96	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-09.1_20240806_N_WG — Lab Sample ID: 410-183299-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	57		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	340		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-09.2_20240806_N_WG — Lab Sample ID: 410-183299-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	11		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	460		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	900		120	48	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-09.2_20240806_FD_WG — Lab Sample ID: 410-183299-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	11		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	490		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	930		120	48	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-91-20.1B_20240806_N_WG — Lab Sample ID: 410-183299-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	4.9	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	450		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	810		120	48	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-04.1_20240806_N_WG — Lab Sample ID: 410-183299-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	240		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	450		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-88-13.1_20240807_N_WG — Lab Sample ID: 410-183299-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	320		75	25	mg/L	50		EPA 300.0 R2.1	Total/NA
Chloride	64		30	12	mg/L	20		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	570		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-88-13.2_20240807_N_WG — Lab Sample ID: 410-183299-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	36		30	10	mg/L	20		EPA 300.0 R2.1	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-183299-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-88-13.2_20240807_N_WG (Continued) Lab Sample ID: 410-183299-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	2400		750	300	mg/L	500		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	4000		240	96	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-88-13.2_20240807_FD_WG Lab Sample ID: 410-183299-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	35		30	10	mg/L	20		EPA 300.0 R2.1	Total/NA
Chloride	2400		750	300	mg/L	500		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	4400		240	96	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-03.1_20240807_N_WG Lab Sample ID: 410-183299-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	930		150	50	mg/L	100		EPA 300.0 R2.1	Total/NA
Chloride	2200		1500	600	mg/L	1000		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	5400		240	96	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-03.2_20240807_N_WG Lab Sample ID: 410-183299-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	770		150	50	mg/L	100		EPA 300.0 R2.1	Total/NA
Chloride	4300		1500	600	mg/L	1000		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	4000		1200	480	mg/L	1		2540C - 2015	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Jacobs Engineering Group, Inc. Job ID: 410-183299-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-87-01.1A_20240806_N_WG — Lab Sample ID: 410-183299-1

Date Collected: 08/06/24 09:11 — **Matrix: Water**
Date Received: 08/08/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	55		7.5	2.5	mg/L			08/09/24 21:18	5
Chloride	14		7.5	3.0	mg/L			08/09/24 21:18	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	150		30	12	mg/L			08/09/24 17:19	1

Client Sample ID: UO-87-01.1B_20240806_N_WG — Lab Sample ID: 410-183299-2

Date Collected: 08/06/24 09:32 — **Matrix: Water**
Date Received: 08/08/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	27		15	5.0	mg/L			08/09/24 20:30	10
Chloride	920		150	60	mg/L			08/09/24 21:06	100

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	1700		240	96	mg/L			08/09/24 17:19	1

Client Sample ID: UO-87-09.1_20240806_N_WG — Lab Sample ID: 410-183299-3

Date Collected: 08/06/24 11:43 — **Matrix: Water**
Date Received: 08/08/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.5	U	7.5	2.5	mg/L			08/09/24 21:42	5
Chloride	57		7.5	3.0	mg/L			08/09/24 21:42	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	340		60	24	mg/L			08/09/24 17:19	1

Client Sample ID: UO-87-09.2_20240806_N_WG — Lab Sample ID: 410-183299-4

Date Collected: 08/06/24 12:05 — **Matrix: Water**
Date Received: 08/08/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	11		7.5	2.5	mg/L			08/09/24 22:06	5
Chloride	460		75	30	mg/L			08/09/24 22:18	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	900		120	48	mg/L			08/09/24 17:19	1

Client Sample ID: UO-87-09.2_20240806_FD_WG — Lab Sample ID: 410-183299-5

Date Collected: 08/06/24 12:05 **Matrix: Water**
Date Received: 08/08/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	11		7.5	2.5	mg/L			08/09/24 22:30	5
Chloride	490		75	30	mg/L			08/09/24 22:42	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	930		120	48	mg/L			08/09/24 17:19	1

Client Sample ID: UO-91-20.1B_20240806_N_WG — Lab Sample ID: 410-183299-6

Date Collected: 08/06/24 13:44 **Matrix: Water**
Date Received: 08/08/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	4.9	J	7.5	2.5	mg/L			08/09/24 22:54	5
Chloride	450		75	30	mg/L			08/09/24 23:30	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	810		120	48	mg/L			08/09/24 17:19	1

Client Sample ID: UO-87-04.1_20240806_N_WG — Lab Sample ID: 410-183299-7

Date Collected: 08/06/24 14:41 **Matrix: Water**
Date Received: 08/08/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.5	U	7.5	2.5	mg/L			08/09/24 23:42	5
Chloride	240		75	30	mg/L			08/09/24 23:54	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	450		60	24	mg/L			08/09/24 17:19	1

Client Sample ID: UO-88-13.1_20240807_N_WG — Lab Sample ID: 410-183299-8

Date Collected: 08/07/24 10:08 **Matrix: Water**
Date Received: 08/08/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	320		75	25	mg/L			08/10/24 00:18	50
Chloride	64		30	12	mg/L			08/12/24 20:51	20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	570		60	24	mg/L			08/09/24 16:43	1

Client Sample ID: UO-88-13.2_20240807_N_WG — Lab Sample ID: 410-183299-9

Date Collected: 08/07/24 10:26 **Matrix: Water**
Date Received: 08/08/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	36		30	10	mg/L			08/09/24 19:41	20
Chloride	2400		750	300	mg/L			08/12/24 23:59	500

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	4000		240	96	mg/L			08/09/24 16:43	1

Client Sample ID: UO-88-13.2_20240807_FD_WG — Lab Sample ID: 410-183299-10

Date Collected: 08/07/24 10:26 **Matrix: Water**
Date Received: 08/08/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	35		30	10	mg/L			08/09/24 20:05	20
Chloride	2400		750	300	mg/L			08/13/24 13:13	500

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	4400		240	96	mg/L			08/09/24 16:43	1

Client Sample ID: UO-87-03.1_20240807_N_WG — Lab Sample ID: 410-183299-11

Date Collected: 08/07/24 13:32 **Matrix: Water**
Date Received: 08/08/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	930		150	50	mg/L			08/10/24 00:30	100
Chloride	2200		1500	600	mg/L			08/13/24 00:32	1000

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	5400		240	96	mg/L			08/09/24 16:43	1

Client Sample ID: UO-87-03.2_20240807_N_WG — Lab Sample ID: 410-183299-12

Date Collected: 08/07/24 13:54 **Matrix: Water**
Date Received: 08/08/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	770		150	50	mg/L			08/10/24 00:53	100
Chloride	4300		1500	600	mg/L			08/13/24 00:43	1000

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	4000		1200	480	mg/L			08/09/24 16:43	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-538667/7 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 538667

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			08/09/24 11:20	1
Chloride	0.60	U	1.5	0.60	mg/L			08/09/24 11:20	1

Lab Sample ID: LCS 410-538667/5 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 538667

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	6.90		mg/L		92	90 - 110
Chloride	3.00	2.77		mg/L		92	90 - 110

Lab Sample ID: LCSD 410-538667/6 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 538667

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.50	6.90		mg/L		92	90 - 110	0	20
Chloride	3.00	2.76		mg/L		92	90 - 110	0	20

Lab Sample ID: MB 410-538706/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 538706

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			08/09/24 23:44	1
Chloride	0.60	U	1.5	0.60	mg/L			08/09/24 23:44	1

Lab Sample ID: LCS 410-538706/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 538706

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.76		mg/L		104	90 - 110
Chloride	3.00	3.11		mg/L		104	90 - 110

Lab Sample ID: LCSD 410-538706/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 538706

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.50	7.76		mg/L		103	90 - 110	0	20
Chloride	3.00	3.11		mg/L		104	90 - 110	0	20

Lab Sample ID: MB 410-539352/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 539352

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			08/12/24 15:50	1
Chloride	0.60	U	1.5	0.60	mg/L			08/12/24 15:50	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: LCS 410-539352/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 539352

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.58		mg/L		101	90 - 110
Chloride	3.00	3.02		mg/L		101	90 - 110

Lab Sample ID: LCSD 410-539352/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 539352

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.50	7.52		mg/L		100	90 - 110	1	20
Chloride	3.00	3.02		mg/L		101	90 - 110	0	20

Lab Sample ID: MB 410-539423/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 539423

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			08/12/24 23:15	1
Chloride	0.60	U	1.5	0.60	mg/L			08/12/24 23:15	1

Lab Sample ID: LCS 410-539423/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 539423

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.62		mg/L		102	90 - 110
Chloride	3.00	3.03		mg/L		101	90 - 110

Lab Sample ID: LCSD 410-539423/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 539423

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.50	7.60		mg/L		101	90 - 110	0	20
Chloride	3.00	3.03		mg/L		101	90 - 110	0	20

Lab Sample ID: 410-183299-9 MS — **Client Sample ID: UO-88-13.2_20240807_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 539423

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	250	U	2500	2390		mg/L		96	90 - 110
Chloride	2400		1000	3390		mg/L		99	90 - 110

Lab Sample ID: 410-183299-9 DU — **Client Sample ID: UO-88-13.2_20240807_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 539423

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfate	250	U	250	U	mg/L		NC	15
Chloride	2400		2400		mg/L		0.1	15

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-539427/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 539427

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			08/13/24 10:43	1
Chloride	0.60	U	1.5	0.60	mg/L			08/13/24 10:43	1

Lab Sample ID: LCS 410-539427/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 539427

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.62		mg/L		102	90 - 110
Chloride	3.00	3.03		mg/L		101	90 - 110

Lab Sample ID: LCSD 410-539427/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 539427

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.50	7.64		mg/L		102	90 - 110	0	20
Chloride	3.00	3.03		mg/L		101	90 - 110	0	20

Lab Sample ID: 410-183299-10 MS — **Client Sample ID: UO-88-13.2_20240807_FD_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 539427

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	2400		1000	3510		mg/L		108	90 - 110

Lab Sample ID: 410-183299-10 DU — **Client Sample ID: UO-88-13.2_20240807_FD_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 539427

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	2400		2420		mg/L		0.4	15

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 410-538662/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 538662

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12	U	30	12	mg/L			08/09/24 16:43	1

Lab Sample ID: LCS 410-538662/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 538662

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	200	201		mg/L		101	90 - 110

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C) (Continued)

Lab Sample ID: 410-183299-9 MS — **Client Sample ID: UO-88-13.2_20240807_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 538662

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	4000		1600	5770		mg/L		109	90 - 110

Lab Sample ID: 410-183299-9 DU — **Client Sample ID: UO-88-13.2_20240807_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 538662

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	4000		4120		mg/L		2	10

Lab Sample ID: MB 410-538685/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 538685

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12	U	30	12	mg/L			08/09/24 17:19	1

Lab Sample ID: LCS 410-538685/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 538685

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	200	194		mg/L		97	90 - 110

Lab Sample ID: 410-183299-4 DU — **Client Sample ID: UO-87-09.2_20240806_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 538685

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	900		964		mg/L		7	10

HPLC/IC

Analysis Batch: 538667

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-183299-1	UO-87-01.1A_20240806_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-183299-2	UO-87-01.1B_20240806_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-183299-2	UO-87-01.1B_20240806_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-183299-3	UO-87-09.1_20240806_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-183299-4	UO-87-09.2_20240806_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-183299-4	UO-87-09.2_20240806_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-183299-5	UO-87-09.2_20240806_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
410-183299-5	UO-87-09.2_20240806_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
410-183299-6	UO-91-20.1B_20240806_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-183299-6	UO-91-20.1B_20240806_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-183299-7	UO-87-04.1_20240806_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-183299-7	UO-87-04.1_20240806_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-183299-8	UO-88-13.1_20240807_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-183299-9	UO-88-13.2_20240807_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-183299-10	UO-88-13.2_20240807_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-538667/7	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-538667/5	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-538667/6	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 538706

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-183299-11	UO-87-03.1_20240807_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-183299-12	UO-87-03.2_20240807_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-538706/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-538706/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-538706/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 539352

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-183299-8	UO-88-13.1_20240807_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-539352/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-539352/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-539352/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 539423

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-183299-9	UO-88-13.2_20240807_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-183299-11	UO-87-03.1_20240807_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-183299-12	UO-87-03.2_20240807_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-539423/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-539423/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-539423/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	
410-183299-9 MS	UO-88-13.2_20240807_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-183299-9 DU	UO-88-13.2_20240807_N_WG	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 539427

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-183299-10	UO-88-13.2_20240807_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-539427/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-539427/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-539427/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

HPLC/IC (Continued)

Analysis Batch: 539427 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-183299-10 MS	UO-88-13.2_20240807_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
410-183299-10 DU	UO-88-13.2_20240807_FD_WG	Total/NA	Water	EPA 300.0 R2.1	

General Chemistry

Analysis Batch: 538662

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-183299-8	UO-88-13.1_20240807_N_WG	Total/NA	Water	2540C - 2015	
410-183299-9	UO-88-13.2_20240807_N_WG	Total/NA	Water	2540C - 2015	
410-183299-10	UO-88-13.2_20240807_FD_WG	Total/NA	Water	2540C - 2015	
410-183299-11	UO-87-03.1_20240807_N_WG	Total/NA	Water	2540C - 2015	
410-183299-12	UO-87-03.2_20240807_N_WG	Total/NA	Water	2540C - 2015	
MB 410-538662/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-538662/2	Lab Control Sample	Total/NA	Water	2540C - 2015	
410-183299-9 MS	UO-88-13.2_20240807_N_WG	Total/NA	Water	2540C - 2015	
410-183299-9 DU	UO-88-13.2_20240807_N_WG	Total/NA	Water	2540C - 2015	

Analysis Batch: 538685

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-183299-1	UO-87-01.1A_20240806_N_WG	Total/NA	Water	2540C - 2015	
410-183299-2	UO-87-01.1B_20240806_N_WG	Total/NA	Water	2540C - 2015	
410-183299-3	UO-87-09.1_20240806_N_WG	Total/NA	Water	2540C - 2015	
410-183299-4	UO-87-09.2_20240806_N_WG	Total/NA	Water	2540C - 2015	
410-183299-5	UO-87-09.2_20240806_FD_WG	Total/NA	Water	2540C - 2015	
410-183299-6	UO-91-20.1B_20240806_N_WG	Total/NA	Water	2540C - 2015	
410-183299-7	UO-87-04.1_20240806_N_WG	Total/NA	Water	2540C - 2015	
MB 410-538685/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-538685/2	Lab Control Sample	Total/NA	Water	2540C - 2015	
410-183299-4 DU	UO-87-09.2_20240806_N_WG	Total/NA	Water	2540C - 2015	

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-183299-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-87-01.1A_20240806_N_WG — Lab Sample ID: 410-183299-1

Date Collected: 08/06/24 09:11 **Matrix: Water**
Date Received: 08/08/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	538667	L4QM	ELLE	08/09/24 21:18
Total/NA	Analysis	2540C - 2015		1	538685	UOCA	ELLE	08/09/24 17:19 - 08/12/24 10:00 ¹

Client Sample ID: UO-87-01.1B_20240806_N_WG — Lab Sample ID: 410-183299-2

Date Collected: 08/06/24 09:32 **Matrix: Water**
Date Received: 08/08/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		10	538667	L4QM	ELLE	08/09/24 20:30
Total/NA	Analysis	EPA 300.0 R2.1		100	538667	L4QM	ELLE	08/09/24 21:06
Total/NA	Analysis	2540C - 2015		1	538685	UOCA	ELLE	08/09/24 17:19 - 08/12/24 10:00 ¹

Client Sample ID: UO-87-09.1_20240806_N_WG — Lab Sample ID: 410-183299-3

Date Collected: 08/06/24 11:43 **Matrix: Water**
Date Received: 08/08/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	538667	L4QM	ELLE	08/09/24 21:42
Total/NA	Analysis	2540C - 2015		1	538685	UOCA	ELLE	08/09/24 17:19 - 08/12/24 10:00 ¹

Client Sample ID: UO-87-09.2_20240806_N_WG — Lab Sample ID: 410-183299-4

Date Collected: 08/06/24 12:05 **Matrix: Water**
Date Received: 08/08/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	538667	L4QM	ELLE	08/09/24 22:06
Total/NA	Analysis	EPA 300.0 R2.1		50	538667	L4QM	ELLE	08/09/24 22:18
Total/NA	Analysis	2540C - 2015		1	538685	UOCA	ELLE	08/09/24 17:19 - 08/12/24 10:00 ¹

Client Sample ID: UO-87-09.2_20240806_FD_WG — Lab Sample ID: 410-183299-5

Date Collected: 08/06/24 12:05 **Matrix: Water**
Date Received: 08/08/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	538667	L4QM	ELLE	08/09/24 22:30
Total/NA	Analysis	EPA 300.0 R2.1		50	538667	L4QM	ELLE	08/09/24 22:42
Total/NA	Analysis	2540C - 2015		1	538685	UOCA	ELLE	08/09/24 17:19 - 08/12/24 10:00 ¹

Client Sample ID: UO-91-20.1B_20240806_N_WG — Lab Sample ID: 410-183299-6

Date Collected: 08/06/24 13:44 **Matrix: Water**
Date Received: 08/08/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	538667	L4QM	ELLE	08/09/24 22:54
Total/NA	Analysis	EPA 300.0 R2.1		50	538667	L4QM	ELLE	08/09/24 23:30

Client Sample ID: UO-91-20.1B_20240806_N_WG — Lab Sample ID: 410-183299-6

Date Collected: 08/06/24 13:44 **Matrix: Water**
Date Received: 08/08/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	2540C - 2015		1	538685	UOCA	ELLE	08/09/24 17:19 - 08/12/24 10:00 ¹

Client Sample ID: UO-87-04.1_20240806_N_WG — Lab Sample ID: 410-183299-7

Date Collected: 08/06/24 14:41 **Matrix: Water**
Date Received: 08/08/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	538667	L4QM	ELLE	08/09/24 23:42
Total/NA	Analysis	EPA 300.0 R2.1		50	538667	L4QM	ELLE	08/09/24 23:54
Total/NA	Analysis	2540C - 2015		1	538685	UOCA	ELLE	08/09/24 17:19 - 08/12/24 10:00 ¹

Client Sample ID: UO-88-13.1_20240807_N_WG — Lab Sample ID: 410-183299-8

Date Collected: 08/07/24 10:08 **Matrix: Water**
Date Received: 08/08/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		20	539352	W7FX	ELLE	08/12/24 20:51
Total/NA	Analysis	EPA 300.0 R2.1		50	538667	L4QM	ELLE	08/10/24 00:18
Total/NA	Analysis	2540C - 2015		1	538662	UOCA	ELLE	08/09/24 16:43 - 08/12/24 10:00 ¹

Client Sample ID: UO-88-13.2_20240807_N_WG — Lab Sample ID: 410-183299-9

Date Collected: 08/07/24 10:26 **Matrix: Water**
Date Received: 08/08/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		500	539423	W7FX	ELLE	08/12/24 23:59
Total/NA	Analysis	EPA 300.0 R2.1		20	538667	L4QM	ELLE	08/09/24 19:41
Total/NA	Analysis	2540C - 2015		1	538662	UOCA	ELLE	08/09/24 16:43 - 08/12/24 10:00 ¹

Client Sample ID: UO-88-13.2_20240807_FD_WG — Lab Sample ID: 410-183299-10

Date Collected: 08/07/24 10:26 **Matrix: Water**
Date Received: 08/08/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		500	539427	W7FX	ELLE	08/13/24 13:13
Total/NA	Analysis	EPA 300.0 R2.1		20	538667	L4QM	ELLE	08/09/24 20:05
Total/NA	Analysis	2540C - 2015		1	538662	UOCA	ELLE	08/09/24 16:43 - 08/12/24 10:00 ¹

Client Sample ID: UO-87-03.1_20240807_N_WG — Lab Sample ID: 410-183299-11

Date Collected: 08/07/24 13:32 **Matrix: Water**
Date Received: 08/08/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		100	538706	W7FX	ELLE	08/10/24 00:30
Total/NA	Analysis	EPA 300.0 R2.1		1000	539423	W7FX	ELLE	08/13/24 00:32

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-183299-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-87-03.1_20240807_N_WG — Lab Sample ID: 410-183299-11

Date Collected: 08/07/24 13:32 — **Matrix: Water**
Date Received: 08/08/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	2540C - 2015		1	538662	UOCA	ELLE	08/09/24 16:43 - 08/12/24 10:00 [1]

Client Sample ID: UO-87-03.2_20240807_N_WG — Lab Sample ID: 410-183299-12

Date Collected: 08/07/24 13:54 — **Matrix: Water**
Date Received: 08/08/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		100	538706	W7FX	ELLE	08/10/24 00:53
Total/NA	Analysis	EPA 300.0 R2.1		1000	539423	W7FX	ELLE	08/13/24 00:43
Total/NA	Analysis	2540C - 2015		1	538662	UOCA	ELLE	08/09/24 16:43 - 08/12/24 10:00 [1]

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-183299-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	0001.01	11-30-24
A2LA	ISO/IEC 17025	0001.01	11-30-24
Alabama	State	43200	01-31-25
Alaska	State	PA00009	06-30-25
Alaska (UST)	State	17-027	02-28-25
Arizona	State	AZ0780	03-12-25
California	State	2792	11-30-24
Colorado	State	PA00009	06-30-25
Connecticut	State	PH-0746	06-30-25
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-25
Delaware (DW)	State	N/A	01-31-25
Florida	NELAP	E87997	06-30-25
Georgia (DW)	State	C048	01-31-25
Hawaii	State	N/A	01-31-25
Illinois	NELAP	200027	01-31-25
Iowa	State	361	03-01-26
Kansas	NELAP	E-10151	10-31-24
Kentucky (DW)	State	KY90088	12-31-24
Kentucky (UST)	State	0001.01	11-30-24
Kentucky (WW)	State	KY90088	12-31-24
Louisiana (All)	NELAP	02055	06-30-25
Maine	State	2019012	03-12-25
Maryland	State	100	06-30-25
Massachusetts	State	M-PA009	06-30-25
Michigan	State	9930	01-31-25
Minnesota	NELAP	042-999-487	12-31-24
Mississippi	State	023	01-31-25
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-25
Nebraska	State	NE-OS-32-17	01-31-25
New Hampshire	NELAP	2730	01-10-25
New Jersey	NELAP	PA011	06-30-25
New York	NELAP	10670	04-01-25
North Carolina (DW)	State	42705	07-31-25
North Carolina (WW/SW)	State	521	12-31-25
North Dakota	State	R-205	01-31-24 *
Oklahoma	NELAP	9804	08-31-24
Oregon	NELAP	PA200001	09-11-24
Pennsylvania	NELAP	36-00037	01-31-25
Quebec Ministry of Environment and Fight against Climate Change	PALA	507	09-16-24
Rhode Island	State	LAO00338	12-30-24
South Carolina	State	89002	01-31-25
Tennessee	State	02838	01-31-25
Texas	NELAP	T104704194-23-46	08-31-24
USDA	US Federal Programs	525-22-298-19481	10-25-25
Vermont	State	VT - 36037	10-28-24
Virginia	NELAP	460182	06-14-25
Washington	State	C457	04-11-25
West Virginia (DW)	State	9906 C	01-31-25

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

Accreditation/Certification Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-183299-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

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

Authority	Program	Identification Number	Expiration Date
West Virginia DEP	State	055	07-31-25
Wyoming	State	8TMS-L	01-31-25
Wyoming (UST)	A2LA	0001.01	11-30-24

Method Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-183299-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
2540C - 2015	Total Dissolved Solids (Dried at 180 °C)	SM	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-183299-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-183299-1	UO-87-01.1A_20240806_N_WG	Water	08/06/24 09:11	08/08/24 09:30
410-183299-2	UO-87-01.1B_20240806_N_WG	Water	08/06/24 09:32	08/08/24 09:30
410-183299-3	UO-87-09.1_20240806_N_WG	Water	08/06/24 11:43	08/08/24 09:30
410-183299-4	UO-87-09.2_20240806_N_WG	Water	08/06/24 12:05	08/08/24 09:30
410-183299-5	UO-87-09.2_20240806_FD_WG	Water	08/06/24 12:05	08/08/24 09:30
410-183299-6	UO-91-20.1B_20240806_N_WG	Water	08/06/24 13:44	08/08/24 09:30
410-183299-7	UO-87-04.1_20240806_N_WG	Water	08/06/24 14:41	08/08/24 09:30
410-183299-8	UO-88-13.1_20240807_N_WG	Water	08/07/24 10:08	08/08/24 09:30
410-183299-9	UO-88-13.2_20240807_N_WG	Water	08/07/24 10:26	08/08/24 09:30
410-183299-10	UO-88-13.2_20240807_FD_WG	Water	08/07/24 10:26	08/08/24 09:30
410-183299-11	UO-87-03.1_20240807_N_WG	Water	08/07/24 13:32	08/08/24 09:30
410-183299-12	UO-87-03.2_20240807_N_WG	Water	08/07/24 13:54	08/08/24 09:30

410-183299 Chain of Custody

DY / SAMPLE ANALYSIS REQUEST

COC No: EuroFins Lan-45511595

Cooler No. of

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 14
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number/Script** 4508165277
Project Chemist Jeremy Bishop 541.223.3856	**Shipping Company / Airbill No.** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 08/07/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Filtered	Preserve	Analysis: Chloride and Sulfate - E300.0	Analysis: TDS - SM2540C
UO-87-01.1A_20240806_N_WG	UO-87-01.1A	WG	G		08/06/2024 09:11	2				X	X
UO-87-01.1B_20240806_N_WG	UO-87-01.1B	WG	G		08/06/2024 09:32	2				X	X
UO-87-09.1_20240806_N_WG	UO-87-09.1	WG	G		08/06/2024 11:43	2				X	X
UO-87-09.2_20240806_N_WG	UO-87-09.2	WG	G		08/06/2024 12:05	2				X	X
UO-87-09.2_20240806_FD_WG	UO-87-09.2	WG	G		08/06/2024 12:05	2				X	X
UO-91-20.1B_20240806_N_WG	UO-91-20.1B	WG	G		08/06/2024 13:44	2				X	X
UO-87-04.1_20240806_N_WG	UO-87-04.1	WG	G		08/06/2024 14:41	2				X	X

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	Jordan Carnahan	08-07-24 1730		
			Holly Arp / Cliff	8/8/24 0930
	SHIPPING METHOD		SAMPLER NAME AND SIGNATURE	Date Time
Email Report To :				
Email Invoice To : Jeremy.Bishop@jacobs.com,Dow_Umetco@jacobs.com				

R = 2.2 C = 1.9

CHAIN OF CUSTODY / SAMPLE ANALYSIS REQUEST

COC No: EuroFins Lan-45511595

Cooler No. of

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 14
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager ~~Charles Toburen 214-649-7412~~	**PO Number/Script** ~~4508165277~~
Project Chemist Jeremy Bishop 541.223.3856	**Shipping Company / Airbill No.** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 08/07/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Filtered	Preserve	Analysis: Chloride and Sulfate - E300.0	Analysis: TDS - SM2540C
UO-88-13.1_20240807_N_WG	UO-88-13.1	WG	G		08/07/2024 10:08	2				X	X
UO-88-13.2_20240807_N_WG	UO-88-13.2	WG	G		08/07/2024 10:26	2				X	X
UO-88-13.2_20240807_FD_WG	UO-88-13.2	WG	G		08/07/2024 10:26	2				X	X
UO-87-03.1_20240807_N_WG	UO-87-03.1	WG	G		08/07/2024 13:32	2				X	X
UO-87-03.2_20240807_N_WG	UO-87-03.2	WG	G		08/07/2024 13:54	2				X	X

Cl: 2.2 Cl: 1.9

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	Jordan Carnaha	08-07-24 1730		
			Haley Arp / ellutt	8/8/24 0930
	SHIPPING METHOD: (mark as appropriate)		SAMPLER NAME AND SIGNATURE	Date Time
Email Report To :				
Email Invoice To : Jeremy.Bishop@jacobs.com,Dow_Umetco@jacobs.com				

HAA

Login Sample Receipt Checklist

Client: Jacobs Engineering Group, Inc.

Job Number: 410-183299-1

Login Number: 183299

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Arroyo, Haley

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	Container preservation not listed on COC.
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

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

ANALYTICAL REPORT

PREPARED FOR

Attn: Jeremy Bishop
Jacobs Engineering Group, Inc.
1100 NE Circle Blvd
Suite 300
Corvallis, Oregon 97330

Generated 8/22/2024 1:44:50 PM

JOB DESCRIPTION

Umetco Hot Springs - UMP Quarterly Groundwater

JOB NUMBER

410-183869-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

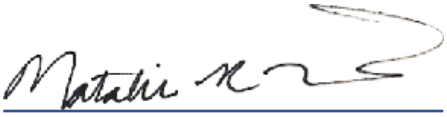
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Job Notes

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.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



Generated
8/22/2024 1:44:50 PM

Authorized for release by
Natalie Luciano, Principal Project Manager
Natalie.Luciano@et.eurofinsus.com
(717)556-7258

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is 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.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

This report shall not be reproduced except in full, without the written approval of the laboratory.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. The foregoing express warranty is exclusive and is given in lieu of all other warranties, expressed or implied, except as otherwise agreed. We disclaim any other warranties, expressed or implied, including a warranty of fitness for particular purpose and warranty of merchantability. In no event shall Eurofins Lancaster Laboratories Environmental, LLC be liable for indirect, special, consequential, or incidental damages including, but not limited to, damages for loss of profit or goodwill regardless of (A) the negligence (either sole or concurrent) of Eurofins Lancaster Laboratories Environmental and (B) whether Eurofins Lancaster Laboratories Environmental has been informed of the possibility of such damages. We accept no legal responsibility for the purposes for which the client uses the test results. Except as otherwise agreed, no purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

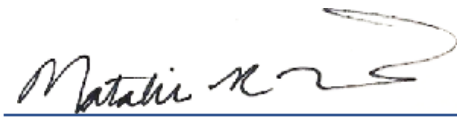


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Definitions/Glossary

Client: Jacobs Engineering Group, Inc. Job ID: 410-183869-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Qualifiers

HPLC/IC

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.
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Job Narrative
410-183869-1

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 8/13/2024 9:30 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.8°C.

Receipt Exceptions
The Chain-of-Custody (COC) was incomplete as received. The COC is missing Sample Preservation. This does not meet regulatory requirements.

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

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

Detection Summary

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Job ID: 410-183869-1

Client Sample ID: UR-91-03.1E_20240808_N_WG — Lab Sample ID: 410-183869-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	6.7	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	31		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	110		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UR-91-03.2E_20240808_N_WG — Lab Sample ID: 410-183869-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	120		15	5.0	mg/L	10		EPA 300.0 R2.1	Total/NA
Chloride	2000		750	300	mg/L	500		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	3100		240	96	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UR-91-03.1D_20240808_N_WG — Lab Sample ID: 410-183869-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	470		150	50	mg/L	100		EPA 300.0 R2.1	Total/NA
Chloride	2300		1500	600	mg/L	1000		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	4300		240	96	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UR-91-03.2C_20240808_N_WG — Lab Sample ID: 410-183869-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	500		150	50	mg/L	100		EPA 300.0 R2.1	Total/NA
Chloride	2300		1500	600	mg/L	1000		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	4800		240	96	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UR-91-03.1C_20240808_N_WG — Lab Sample ID: 410-183869-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	36		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	120		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	190		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UR-91-03.2B_20240808_N_WG — Lab Sample ID: 410-183869-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	470		30	10	mg/L	20		EPA 300.0 R2.1	Total/NA
Chloride	4200		1500	600	mg/L	1000		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	6600		600	240	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UR-91-03.1B_20240808_N_WG — Lab Sample ID: 410-183869-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	340		75	25	mg/L	50		EPA 300.0 R2.1	Total/NA
Chloride	520		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	1100		120	48	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UR-91-03.2D_20240812_N_WG — Lab Sample ID: 410-183869-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	610		150	50	mg/L	100		EPA 300.0 R2.1	Total/NA
Chloride	3400		1500	600	mg/L	1000		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	6300		600	240	mg/L	1		2540C - 2015	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-183869-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Client Sample ID: FDRAIN_20240812_N_WS — Lab Sample ID: 410-183869-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	55		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	24		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	140		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: FDRAIN_20240812_FD_WS — Lab Sample ID: 410-183869-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	55		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	24		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	150		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: WDRAIN_20240812_N_WS — Lab Sample ID: 410-183869-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	1100		75	25	mg/L	50		EPA 300.0 R2.1	Total/NA
Chloride	230		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	1800		240	96	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: EDRAIN_20240812_N_WS — Lab Sample ID: 410-183869-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	5300		380	130	mg/L	250		EPA 300.0 R2.1	Total/NA
Chloride	720		380	150	mg/L	250		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	9400		1200	480	mg/L	1		2540C - 2015	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: UR-91-03.1E_20240808_N_WG — Lab Sample ID: 410-183869-1

Date Collected: 08/08/24 09:14 — **Matrix: Water**
Date Received: 08/13/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	6.7	J	7.5	2.5	mg/L			08/14/24 22:21	5
Chloride	31		7.5	3.0	mg/L			08/14/24 22:21	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	110		30	12	mg/L			08/14/24 17:24	1

Client Sample ID: UR-91-03.2E_20240808_N_WG — Lab Sample ID: 410-183869-2

Date Collected: 08/08/24 09:26 — **Matrix: Water**
Date Received: 08/13/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	120		15	5.0	mg/L			08/14/24 20:45	10
Chloride	2000		750	300	mg/L			08/15/24 20:55	500

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	3100		240	96	mg/L			08/14/24 17:24	1

Client Sample ID: UR-91-03.1D_20240808_N_WG — Lab Sample ID: 410-183869-3

Date Collected: 08/08/24 09:44 — **Matrix: Water**
Date Received: 08/13/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	470		150	50	mg/L			08/14/24 21:21	100
Chloride	2300		1500	600	mg/L			08/15/24 21:07	1000

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	4300		240	96	mg/L			08/14/24 17:24	1

Client Sample ID: UR-91-03.2C_20240808_N_WG — Lab Sample ID: 410-183869-4

Date Collected: 08/08/24 10:20 — **Matrix: Water**
Date Received: 08/13/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	500		150	50	mg/L			08/14/24 22:09	100
Chloride	2300		1500	600	mg/L			08/15/24 19:08	1000

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	4800		240	96	mg/L			08/14/24 17:24	1

Client Sample ID: UR-91-03.1C_20240808_N_WG — Lab Sample ID: 410-183869-5

Date Collected: 08/08/24 10:42 **Matrix: Water**
Date Received: 08/13/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	36		7.5	2.5	mg/L			08/14/24 22:45	5
Chloride	120		75	30	mg/L			08/14/24 22:57	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	190		30	12	mg/L			08/14/24 17:24	1

Client Sample ID: UR-91-03.2B_20240808_N_WG — Lab Sample ID: 410-183869-6

Date Collected: 08/08/24 11:05 **Matrix: Water**
Date Received: 08/13/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	470		30	10	mg/L			08/14/24 19:57	20
Chloride	4200		1500	600	mg/L			08/15/24 19:20	1000

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	6600		600	240	mg/L			08/14/24 17:24	1

Client Sample ID: UR-91-03.1B_20240808_N_WG — Lab Sample ID: 410-183869-7

Date Collected: 08/08/24 11:20 **Matrix: Water**
Date Received: 08/13/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	340		75	25	mg/L			08/14/24 23:21	50
Chloride	520		75	30	mg/L			08/14/24 23:21	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	1100		120	48	mg/L			08/14/24 17:24	1

Client Sample ID: UR-91-03.2D_20240812_N_WG — Lab Sample ID: 410-183869-8

Date Collected: 08/12/24 08:55 **Matrix: Water**
Date Received: 08/13/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	610		150	50	mg/L			08/14/24 20:33	100
Chloride	3400		1500	600	mg/L			08/15/24 19:31	1000

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	6300		600	240	mg/L			08/14/24 17:24	1

Client Sample ID: FDRAIN_20240812_N_WS — Lab Sample ID: 410-183869-9

Date Collected: 08/12/24 09:53 **Matrix: Water**
Date Received: 08/13/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	55		7.5	2.5	mg/L			08/14/24 23:33	5
Chloride	24		7.5	3.0	mg/L			08/14/24 23:33	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	140		30	12	mg/L			08/14/24 17:55	1

Client Sample ID: FDRAIN_20240812_FD_WS — Lab Sample ID: 410-183869-10

Date Collected: 08/12/24 09:53 **Matrix: Water**
Date Received: 08/13/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	55		7.5	2.5	mg/L			08/15/24 00:21	5
Chloride	24		7.5	3.0	mg/L			08/15/24 00:21	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	150		30	12	mg/L			08/14/24 17:55	1

Client Sample ID: WDRAIN_20240812_N_WS — Lab Sample ID: 410-183869-11

Date Collected: 08/12/24 10:18 **Matrix: Water**
Date Received: 08/13/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	1100		75	25	mg/L			08/15/24 00:58	50
Chloride	230		75	30	mg/L			08/15/24 00:58	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	1800		240	96	mg/L			08/14/24 17:55	1

Client Sample ID: EDRAIN_20240812_N_WS — Lab Sample ID: 410-183869-12

Date Collected: 08/12/24 10:30 **Matrix: Water**
Date Received: 08/13/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	5300		380	130	mg/L			08/15/24 22:07	250
Chloride	720		380	150	mg/L			08/15/24 22:07	250

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	9400		1200	480	mg/L			08/14/24 17:55	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-540493/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 540493

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			08/14/24 18:39	1
Chloride	0.60	U	1.5	0.60	mg/L			08/14/24 18:39	1

Lab Sample ID: LCS 410-540493/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 540493

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.12		mg/L		95	90 - 110
Chloride	3.00	2.89		mg/L		96	90 - 110

Lab Sample ID: LCSD 410-540493/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 540493

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.50	7.14		mg/L		95	90 - 110	0	20
Chloride	3.00	2.89		mg/L		96	90 - 110	0	20

Lab Sample ID: MB 410-540983/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 540983

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			08/15/24 14:37	1
Chloride	0.60	U	1.5	0.60	mg/L			08/15/24 14:37	1

Lab Sample ID: LCS 410-540983/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 540983

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.22		mg/L		96	90 - 110
Chloride	3.00	2.95		mg/L		98	90 - 110

Lab Sample ID: LCSD 410-540983/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 540983

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.50	7.21		mg/L		96	90 - 110	0	20
Chloride	3.00	2.95		mg/L		98	90 - 110	0	20

Lab Sample ID: MB 410-540984/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 540984

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			08/15/24 13:41	1
Chloride	0.60	U	1.5	0.60	mg/L			08/15/24 13:41	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: LCS 410-540984/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 540984

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.54		mg/L		101	90 - 110
Chloride	3.00	2.98		mg/L		99	90 - 110

Lab Sample ID: LCSD 410-540984/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 540984

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.50	7.55		mg/L		101	90 - 110	0	20
Chloride	3.00	2.98		mg/L		99	90 - 110	0	20

Lab Sample ID: MB 410-541046/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 541046

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			08/15/24 21:12	1
Chloride	0.60	U	1.5	0.60	mg/L			08/15/24 21:12	1

Lab Sample ID: LCS 410-541046/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 541046

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.53		mg/L		100	90 - 110
Chloride	3.00	2.96		mg/L		99	90 - 110

Lab Sample ID: LCSD 410-541046/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 541046

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.50	7.51		mg/L		100	90 - 110	0	20
Chloride	3.00	2.96		mg/L		99	90 - 110	0	20

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 410-540444/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 540444

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12	U	30	12	mg/L			08/14/24 17:24	1

Lab Sample ID: LCS 410-540444/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 540444

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	200	210		mg/L		105	90 - 110

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C) (Continued)

Lab Sample ID: 410-183869-2 MS — **Client Sample ID: UR-91-03.2E_20240808_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 540444

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	3100		1600	4810		mg/L		104	90 - 110

Lab Sample ID: 410-183869-2 DU — **Client Sample ID: UR-91-03.2E_20240808_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 540444

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	3100		3160		mg/L		0.3	10

Lab Sample ID: MB 410-540459/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 540459

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12	U	30	12	mg/L			08/14/24 17:55	1

Lab Sample ID: LCS 410-540459/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 540459

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	200	198		mg/L		99	90 - 110

Lab Sample ID: 410-183869-11 MS — **Client Sample ID: WDRAIN_20240812_N_WS**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 540459

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1800		1600	3500		mg/L		106	90 - 110

Lab Sample ID: 410-183869-11 DU — **Client Sample ID: WDRAIN_20240812_N_WS**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 540459

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	1800		1720		mg/L		5	10

HPLC/IC

Analysis Batch: 540493

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-183869-1	UR-91-03.1E_20240808_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-183869-2	UR-91-03.2E_20240808_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-183869-3	UR-91-03.1D_20240808_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-183869-4	UR-91-03.2C_20240808_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-183869-5	UR-91-03.1C_20240808_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-183869-5	UR-91-03.1C_20240808_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-183869-6	UR-91-03.2B_20240808_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-183869-7	UR-91-03.1B_20240808_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-183869-8	UR-91-03.2D_20240812_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-183869-9	FDRAIN_20240812_N_WS	Total/NA	Water	EPA 300.0 R2.1	
410-183869-10	FDRAIN_20240812_FD_WS	Total/NA	Water	EPA 300.0 R2.1	
410-183869-11	WDRAIN_20240812_N_WS	Total/NA	Water	EPA 300.0 R2.1	
MB 410-540493/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-540493/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-540493/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 540983

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-183869-2	UR-91-03.2E_20240808_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-183869-3	UR-91-03.1D_20240808_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-540983/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-540983/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-540983/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 540984

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-183869-4	UR-91-03.2C_20240808_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-183869-6	UR-91-03.2B_20240808_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-183869-8	UR-91-03.2D_20240812_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-540984/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-540984/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-540984/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 541046

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-183869-12	EDRAIN_20240812_N_WS	Total/NA	Water	EPA 300.0 R2.1	
MB 410-541046/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-541046/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-541046/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

General Chemistry

Analysis Batch: 540444

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-183869-1	UR-91-03.1E_20240808_N_WG	Total/NA	Water	2540C - 2015	
410-183869-2	UR-91-03.2E_20240808_N_WG	Total/NA	Water	2540C - 2015	
410-183869-3	UR-91-03.1D_20240808_N_WG	Total/NA	Water	2540C - 2015	
410-183869-4	UR-91-03.2C_20240808_N_WG	Total/NA	Water	2540C - 2015	
410-183869-5	UR-91-03.1C_20240808_N_WG	Total/NA	Water	2540C - 2015	
410-183869-6	UR-91-03.2B_20240808_N_WG	Total/NA	Water	2540C - 2015	
410-183869-7	UR-91-03.1B_20240808_N_WG	Total/NA	Water	2540C - 2015	

General Chemistry (Continued)

Analysis Batch: 540444 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-183869-8	UR-91-03.2D_20240812_N_WG	Total/NA	Water	2540C - 2015	
MB 410-540444/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-540444/2	Lab Control Sample	Total/NA	Water	2540C - 2015	
410-183869-2 MS	UR-91-03.2E_20240808_N_WG	Total/NA	Water	2540C - 2015	
410-183869-2 DU	UR-91-03.2E_20240808_N_WG	Total/NA	Water	2540C - 2015	

Analysis Batch: 540459

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-183869-9	FDRAIN_20240812_N_WS	Total/NA	Water	2540C - 2015	
410-183869-10	FDRAIN_20240812_FD_WS	Total/NA	Water	2540C - 2015	
410-183869-11	WDRAIN_20240812_N_WS	Total/NA	Water	2540C - 2015	
410-183869-12	EDRAIN_20240812_N_WS	Total/NA	Water	2540C - 2015	
MB 410-540459/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-540459/2	Lab Control Sample	Total/NA	Water	2540C - 2015	
410-183869-11 MS	WDRAIN_20240812_N_WS	Total/NA	Water	2540C - 2015	
410-183869-11 DU	WDRAIN_20240812_N_WS	Total/NA	Water	2540C - 2015	

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-183869-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Client Sample ID: UR-91-03.1E_20240808_N_WG — Lab Sample ID: 410-183869-1

Date Collected: 08/08/24 09:14 **Matrix: Water**
Date Received: 08/13/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	540493	W7FX	ELLE	08/14/24 22:21
Total/NA	Analysis	2540C - 2015		1	540444	UOCA	ELLE	08/14/24 17:24 - 08/16/24 06:30 [1]

Client Sample ID: UR-91-03.2E_20240808_N_WG — Lab Sample ID: 410-183869-2

Date Collected: 08/08/24 09:26 **Matrix: Water**
Date Received: 08/13/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		10	540493	W7FX	ELLE	08/14/24 20:45
Total/NA	Analysis	EPA 300.0 R2.1		500	540983	W7FX	ELLE	08/15/24 20:55
Total/NA	Analysis	2540C - 2015		1	540444	UOCA	ELLE	08/14/24 17:24 - 08/16/24 06:30 [1]

Client Sample ID: UR-91-03.1D_20240808_N_WG — Lab Sample ID: 410-183869-3

Date Collected: 08/08/24 09:44 **Matrix: Water**
Date Received: 08/13/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		100	540493	W7FX	ELLE	08/14/24 21:21
Total/NA	Analysis	EPA 300.0 R2.1		1000	540983	W7FX	ELLE	08/15/24 21:07
Total/NA	Analysis	2540C - 2015		1	540444	UOCA	ELLE	08/14/24 17:24 - 08/16/24 06:30 [1]

Client Sample ID: UR-91-03.2C_20240808_N_WG — Lab Sample ID: 410-183869-4

Date Collected: 08/08/24 10:20 **Matrix: Water**
Date Received: 08/13/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		1000	540984	W7FX	ELLE	08/15/24 19:08
Total/NA	Analysis	EPA 300.0 R2.1		100	540493	W7FX	ELLE	08/14/24 22:09
Total/NA	Analysis	2540C - 2015		1	540444	UOCA	ELLE	08/14/24 17:24 - 08/16/24 06:30 [1]

Client Sample ID: UR-91-03.1C_20240808_N_WG — Lab Sample ID: 410-183869-5

Date Collected: 08/08/24 10:42 **Matrix: Water**
Date Received: 08/13/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	540493	W7FX	ELLE	08/14/24 22:45
Total/NA	Analysis	EPA 300.0 R2.1		50	540493	W7FX	ELLE	08/14/24 22:57
Total/NA	Analysis	2540C - 2015		1	540444	UOCA	ELLE	08/14/24 17:24 - 08/16/24 06:30 [1]

Client Sample ID: UR-91-03.2B_20240808_N_WG — Lab Sample ID: 410-183869-6

Date Collected: 08/08/24 11:05 **Matrix: Water**
Date Received: 08/13/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		1000	540984	W7FX	ELLE	08/15/24 19:20

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-183869-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Client Sample ID: UR-91-03.2B_20240808_N_WG — Lab Sample ID: 410-183869-6

Date Collected: 08/08/24 11:05 **Matrix: Water**
Date Received: 08/13/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		20	540493	W7FX	ELLE	08/14/24 19:57
Total/NA	Analysis	2540C - 2015		1	540444	UOCA	ELLE	08/14/24 17:24 - 08/16/24 06:30 [1]

Client Sample ID: UR-91-03.1B_20240808_N_WG — Lab Sample ID: 410-183869-7

Date Collected: 08/08/24 11:20 **Matrix: Water**
Date Received: 08/13/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		50	540493	W7FX	ELLE	08/14/24 23:21
Total/NA	Analysis	2540C - 2015		1	540444	UOCA	ELLE	08/14/24 17:24 - 08/16/24 06:30 [1]

Client Sample ID: UR-91-03.2D_20240812_N_WG — Lab Sample ID: 410-183869-8

Date Collected: 08/12/24 08:55 **Matrix: Water**
Date Received: 08/13/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		1000	540984	W7FX	ELLE	08/15/24 19:31
Total/NA	Analysis	EPA 300.0 R2.1		100	540493	W7FX	ELLE	08/14/24 20:33
Total/NA	Analysis	2540C - 2015		1	540444	UOCA	ELLE	08/14/24 17:24 - 08/16/24 06:30 [1]

Client Sample ID: FDRAIN_20240812_N_WS — Lab Sample ID: 410-183869-9

Date Collected: 08/12/24 09:53 **Matrix: Water**
Date Received: 08/13/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	540493	W7FX	ELLE	08/14/24 23:33
Total/NA	Analysis	2540C - 2015		1	540459	UOCA	ELLE	08/14/24 17:55 - 08/16/24 06:30 [1]

Client Sample ID: FDRAIN_20240812_FD_WS — Lab Sample ID: 410-183869-10

Date Collected: 08/12/24 09:53 **Matrix: Water**
Date Received: 08/13/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	540493	W7FX	ELLE	08/15/24 00:21
Total/NA	Analysis	2540C - 2015		1	540459	UOCA	ELLE	08/14/24 17:55 - 08/16/24 06:30 [1]

Client Sample ID: WDRAIN_20240812_N_WS — Lab Sample ID: 410-183869-11

Date Collected: 08/12/24 10:18 **Matrix: Water**
Date Received: 08/13/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		50	540493	W7FX	ELLE	08/15/24 00:58
Total/NA	Analysis	2540C - 2015		1	540459	UOCA	ELLE	08/14/24 17:55 - 08/16/24 06:30 [1]

Lab Chronicle

Client: Jacobs Engineering Group, Inc.
Job ID: 410-183869-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Client Sample ID: EDRAIN_20240812_N_WS
Lab Sample ID: 410-183869-12

Date Collected: 08/12/24 10:30
Matrix: Water
Date Received: 08/13/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		250	541046	L4QM	ELLE	08/15/24 22:07
Total/NA	Analysis	2540C - 2015		1	540459	UOCA	ELLE	08/14/24 17:55 - 08/16/24 06:30 [1]

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-183869-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00660	08-09-24 *

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

Method Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-183869-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
2540C - 2015	Total Dissolved Solids (Dried at 180 °C)	SM	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-183869-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-183869-1	UR-91-03.1E_20240808_N_WG	Water	08/08/24 09:14	08/13/24 09:30
410-183869-2	UR-91-03.2E_20240808_N_WG	Water	08/08/24 09:26	08/13/24 09:30
410-183869-3	UR-91-03.1D_20240808_N_WG	Water	08/08/24 09:44	08/13/24 09:30
410-183869-4	UR-91-03.2C_20240808_N_WG	Water	08/08/24 10:20	08/13/24 09:30
410-183869-5	UR-91-03.1C_20240808_N_WG	Water	08/08/24 10:42	08/13/24 09:30
410-183869-6	UR-91-03.2B_20240808_N_WG	Water	08/08/24 11:05	08/13/24 09:30
410-183869-7	UR-91-03.1B_20240808_N_WG	Water	08/08/24 11:20	08/13/24 09:30
410-183869-8	UR-91-03.2D_20240812_N_WG	Water	08/12/24 08:55	08/13/24 09:30
410-183869-9	FDRAIN_20240812_N_WS	Water	08/12/24 09:53	08/13/24 09:30
410-183869-10	FDRAIN_20240812_FD_WS	Water	08/12/24 09:53	08/13/24 09:30
410-183869-11	WDRAIN_20240812_N_WS	Water	08/12/24 10:18	08/13/24 09:30
410-183869-12	EDRAIN_20240812_N_WS	Water	08/12/24 10:30	08/13/24 09:30

410-183869 Chain of Custody

/ SAMPLE ANALYSIS REQUEST

COC No: EuroFins Lan-45516520

Cooler No. of

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 14
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number/Script** 4508165277
Project Chemist Jeremy Bishop 541.223.3856	**Shipping Company / Airbill No.** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 08/12/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Analysis: Filtered	Preserve	Chloride and Sulfate - E300.0	TDS - SM2540C
UR-91-03.1E_20240808_N_WG	UR-91-03 .1E	WG	G		08/08/2024 09:14	2				X	X
UR-91-03.2E_20240808_N_WG	UR-91-03 .2E	WG	G		08/08/2024 09:26	2				X	X
UR-91-03.1D_20240808_N_WG	UR-91-03 .1D	WG	G		08/08/2024 09:44	2				X	X
UR-91-03.2C_20240808_N_WG	UR-91-03 .2C	WG	G		08/08/2024 10:20	2				X	X
UR-91-03.1C_20240808_N_WG	UR-91-03 .1C	WG	G		08/08/2024 10:42	2				X	X
UR-91-03.2B_20240808_N_WG	UR-91-03 .2B	WG	G		08/08/2024 11:05	2				X	X
UR-91-03.1B_20240808_N_WG	UR-91-03 .1B	WG	G		08/08/2024 11:20	2				X	X

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
Rain: 0.1 Corr: 0.8	Jordan Carnes	08-12-24 1730		
			[illegible]	8/13/24 0930
	SHIPPING METHOD: (mark as appropriate)		**SAMPLER NAME AND SIGNATURE**	**Date Time**
Email Report To :				
Email Invoice To : Jeremy.Bishop@jacobs.com,Dow_Umetco@jacobs.com				

CHAIN OF CUSTODY / SAMPLE ANALYSIS REQUEST

COC No: EuroFins Lan-45516520

Cooler No. of

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 14
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number/Script** 4508165277
Project Chemist Jeremy Bishop 541.223.3856	**Shipping Company / Airbill No.** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 08/12/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Analysis: Filtered	Preserve	Chloride and Sulfate - E300.0	TDS - SM2540C
UR-91-03.2D_20240812_N_WG	UR-91-03 .2D	WG	G		08/12/2024 08:55	2				X	X
FDRAIN_20240812_N_WS	FDRAIN	WS	G		08/12/2024 09:53	2				X	X
FDRAIN_20240812_FD_WS	FDRAIN	WS	G		08/12/2024 09:53	2				X	X
WDRAIN_20240812_N_WS	WDRAIN	WS	G		08/12/2024 10:18	2				X	X
EDRAIN_20240812_N_WS	EDRAIN	WS	G		08/12/2024 10:30	2				X	X

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
RAW 0.1 COPR 0.8	Jordan Cannaha	08-12-24 1730		
				08/13/24 0930
	SHIPPING METHOD: (mark as appropriate)		**SAMPLER NAME AND SIGNATURE**	**Date Time**
Email Report To :				
Email Invoice To : Jeremy.Bishop@jacobs.com,Dow_Umetco@jacobs.com				

Login Sample Receipt Checklist

Client: Jacobs Engineering Group, Inc. Job Number: 410-183869-1

Login Number: 183869 **List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**
List Number: 1
Creator: Moeller, Colin

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	Refer to Job Narrative for details.
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

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

ANALYTICAL REPORT

PREPARED FOR

Attn: Jeremy Bishop
Jacobs Engineering Group, Inc.
1100 NE Circle Blvd
Suite 300
Corvallis, Oregon 97330

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JOB DESCRIPTION

Umetco Hot Springs - UMP Quarterly Groundwater

JOB NUMBER

410-183882-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

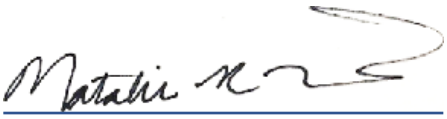
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Job Notes

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.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



Generated
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Authorized for release by
Natalie Luciano, Principal Project Manager
Natalie.Luciano@et.eurofinsus.com
(717)556-7258

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is 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.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

This report shall not be reproduced except in full, without the written approval of the laboratory.

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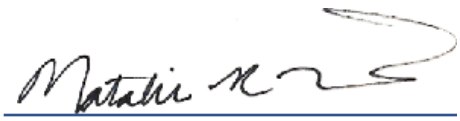


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Definitions/Glossary

Client: Jacobs Engineering Group, Inc. Job ID: 410-183882-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Qualifiers

HPLC/IC

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.
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Job ID: 410-183882-1 Eurofins Lancaster Laboratories Environment

Job Narrative
410-183882-1

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 8/13/2024 9:30 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.5°C.

Receipt Exceptions
The Chain-of-Custody (COC) was incomplete as received. The COC is missing Sample Preservation. This does not meet regulatory requirements.

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

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

Detection Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-183882-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Client Sample ID: UR-91-09.2A_20240808_N_WG — Lab Sample ID: 410-183882-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	3.5	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	170		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	440		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UR-91-04.2A_20240808_N_WG — Lab Sample ID: 410-183882-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	29		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	340		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	670		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UR-91-04.1A_20240808_N_WG — Lab Sample ID: 410-183882-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	9.0		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	13		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	77		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UR-91-20.2B_20240808_N_WG — Lab Sample ID: 410-183882-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	50		15	5.0	mg/L	10		EPA 300.0 R2.1	Total/NA
Chloride	2600		1500	600	mg/L	1000		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	3600		240	96	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UR-91-20.2A_20240808_N_WG — Lab Sample ID: 410-183882-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	5.0	J	15	5.0	mg/L	10		EPA 300.0 R2.1	Total/NA
Chloride	2200		1500	600	mg/L	1000		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	3100		240	96	mg/L	1		2540C - 2015	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: UR-91-09.2A_20240808_N_WG — Lab Sample ID: 410-183882-1

Date Collected: 08/08/24 09:54 **Matrix: Water**
Date Received: 08/13/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	3.5	J	7.5	2.5	mg/L			08/15/24 02:53	5
Chloride	170		75	30	mg/L			08/15/24 03:04	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	440		60	24	mg/L			08/14/24 17:24	1

Client Sample ID: UR-91-04.2A_20240808_N_WG — Lab Sample ID: 410-183882-2

Date Collected: 08/08/24 10:38 **Matrix: Water**
Date Received: 08/13/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	29		7.5	2.5	mg/L			08/15/24 03:39	5
Chloride	340		75	30	mg/L			08/15/24 03:51	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	670		60	24	mg/L			08/14/24 17:24	1

Client Sample ID: UR-91-04.1A_20240808_N_WG — Lab Sample ID: 410-183882-3

Date Collected: 08/08/24 11:11 **Matrix: Water**
Date Received: 08/13/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	9.0		7.5	2.5	mg/L			08/15/24 04:02	5
Chloride	13		7.5	3.0	mg/L			08/15/24 04:02	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	77		30	12	mg/L			08/14/24 17:24	1

Client Sample ID: UR-91-20.2B_20240808_N_WG — Lab Sample ID: 410-183882-4

Date Collected: 08/08/24 12:04 **Matrix: Water**
Date Received: 08/13/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	50		15	5.0	mg/L			08/15/24 01:21	10
Chloride	2600		1500	600	mg/L			08/16/24 22:15	1000

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	3600		240	96	mg/L			08/14/24 17:24	1

Client Sample Results

Client: Jacobs Engineering Group, Inc. Job ID: 410-183882-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Client Sample ID: UR-91-20.2A_20240808_N_WG **Lab Sample ID: 410-183882-5**
Date Collected: 08/08/24 12:50 **Matrix: Water**
Date Received: 08/13/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	5.0	J	15	5.0	mg/L			08/15/24 01:44	10
Chloride	2200		1500	600	mg/L			08/16/24 22:27	1000

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	3100		240	96	mg/L			08/14/24 17:24	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-540426/22 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 540426

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			08/15/24 00:46	1
Chloride	0.60	U	1.5	0.60	mg/L			08/15/24 00:46	1

Lab Sample ID: LCS 410-540426/20 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 540426

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.57		mg/L		101	90 - 110
Chloride	3.00	3.00		mg/L		100	90 - 110

Lab Sample ID: LCSD 410-540426/21 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 540426

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.50	7.60		mg/L		101	90 - 110	0	20
Chloride	3.00	3.00		mg/L		100	90 - 110	0	20

Lab Sample ID: MB 410-541498/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 541498

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			08/16/24 17:14	1
Chloride	0.60	U	1.5	0.60	mg/L			08/16/24 17:14	1

Lab Sample ID: LCS 410-541498/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 541498

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.50	7.23		mg/L		96	90 - 110
Chloride	3.00	2.96		mg/L		99	90 - 110

Lab Sample ID: LCSD 410-541498/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 541498

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.50	7.24		mg/L		96	90 - 110	0	20
Chloride	3.00	2.96		mg/L		99	90 - 110	0	20

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 410-540444/1 **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 540444

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12	U	30	12	mg/L			08/14/24 17:24	1

Lab Sample ID: LCS 410-540444/2 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 540444

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	200	210		mg/L		105	90 - 110

Lab Sample ID: 410-183882-4 DU **Client Sample ID: UR-91-20.2B_20240808_N_WG**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 540444

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	3600		3520		mg/L		3	10

QC Association Summary

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Job ID: 410-183882-1

HPLC/IC

Analysis Batch: 540426

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-183882-1	UR-91-09.2A_20240808_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-183882-1	UR-91-09.2A_20240808_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-183882-2	UR-91-04.2A_20240808_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-183882-2	UR-91-04.2A_20240808_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-183882-3	UR-91-04.1A_20240808_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-183882-4	UR-91-20.2B_20240808_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-183882-5	UR-91-20.2A_20240808_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-540426/22	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-540426/20	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-540426/21	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 541498

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-183882-4	UR-91-20.2B_20240808_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-183882-5	UR-91-20.2A_20240808_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-541498/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-541498/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-541498/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

General Chemistry

Analysis Batch: 540444

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-183882-1	UR-91-09.2A_20240808_N_WG	Total/NA	Water	2540C - 2015	
410-183882-2	UR-91-04.2A_20240808_N_WG	Total/NA	Water	2540C - 2015	
410-183882-3	UR-91-04.1A_20240808_N_WG	Total/NA	Water	2540C - 2015	
410-183882-4	UR-91-20.2B_20240808_N_WG	Total/NA	Water	2540C - 2015	
410-183882-5	UR-91-20.2A_20240808_N_WG	Total/NA	Water	2540C - 2015	
MB 410-540444/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-540444/2	Lab Control Sample	Total/NA	Water	2540C - 2015	
410-183882-4 DU	UR-91-20.2B_20240808_N_WG	Total/NA	Water	2540C - 2015	

Lab Chronicle

Client: Jacobs Engineering Group, Inc.
Job ID: 410-183882-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Client Sample ID: UR-91-09.2A_20240808_N_WG
Lab Sample ID: 410-183882-1
Date Collected: 08/08/24 09:54
Matrix: Water
Date Received: 08/13/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	540426	W7FX	ELLE	08/15/24 02:53
Total/NA	Analysis	EPA 300.0 R2.1		50	540426	W7FX	ELLE	08/15/24 03:04
Total/NA	Analysis	2540C - 2015		1	540444	UOCA	ELLE	08/14/24 17:24 - 08/16/24 06:30 [1]

Client Sample ID: UR-91-04.2A_20240808_N_WG
Lab Sample ID: 410-183882-2
Date Collected: 08/08/24 10:38
Matrix: Water
Date Received: 08/13/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	540426	W7FX	ELLE	08/15/24 03:39
Total/NA	Analysis	EPA 300.0 R2.1		50	540426	W7FX	ELLE	08/15/24 03:51
Total/NA	Analysis	2540C - 2015		1	540444	UOCA	ELLE	08/14/24 17:24 - 08/16/24 06:30 [1]

Client Sample ID: UR-91-04.1A_20240808_N_WG
Lab Sample ID: 410-183882-3
Date Collected: 08/08/24 11:11
Matrix: Water
Date Received: 08/13/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	540426	W7FX	ELLE	08/15/24 04:02
Total/NA	Analysis	2540C - 2015		1	540444	UOCA	ELLE	08/14/24 17:24 - 08/16/24 06:30 [1]

Client Sample ID: UR-91-20.2B_20240808_N_WG
Lab Sample ID: 410-183882-4
Date Collected: 08/08/24 12:04
Matrix: Water
Date Received: 08/13/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		10	540426	W7FX	ELLE	08/15/24 01:21
Total/NA	Analysis	EPA 300.0 R2.1		1000	541498	L4QM	ELLE	08/16/24 22:15
Total/NA	Analysis	2540C - 2015		1	540444	UOCA	ELLE	08/14/24 17:24 - 08/16/24 06:30 [1]

Client Sample ID: UR-91-20.2A_20240808_N_WG
Lab Sample ID: 410-183882-5
Date Collected: 08/08/24 12:50
Matrix: Water
Date Received: 08/13/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		10	540426	W7FX	ELLE	08/15/24 01:44
Total/NA	Analysis	EPA 300.0 R2.1		1000	541498	L4QM	ELLE	08/16/24 22:27
Total/NA	Analysis	2540C - 2015		1	540444	UOCA	ELLE	08/14/24 17:24 - 08/16/24 06:30 [1]

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:
ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-183882-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00660	08-09-24 *

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

Method Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-183882-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
2540C - 2015	Total Dissolved Solids (Dried at 180 °C)	SM	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-183882-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-183882-1	UR-91-09.2A_20240808_N_WG	Water	08/08/24 09:54	08/13/24 09:30
410-183882-2	UR-91-04.2A_20240808_N_WG	Water	08/08/24 10:38	08/13/24 09:30
410-183882-3	UR-91-04.1A_20240808_N_WG	Water	08/08/24 11:11	08/13/24 09:30
410-183882-4	UR-91-20.2B_20240808_N_WG	Water	08/08/24 12:04	08/13/24 09:30
410-183882-5	UR-91-20.2A_20240808_N_WG	Water	08/08/24 12:50	08/13/24 09:30

410-183882 Chain of Custody

/ SAMPLE ANALYSIS REQUEST

COC No: EuroFins Lan-45516475

Cooler No. of

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time**
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number/Script** 4508165277
Project Chemist Jeremy Bishop 541.223.3856	**Shipping Company / Airbill No.** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 08/12/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Filtered / Preserve / Analysis: Chloride and Sulfate - E300.0	Analysis: TDS - SM2540C
UR-91-09.2A_20240808_N_WG	UR-91-09 .2A	WG	G		08/08/2024 09:54	2		X	X
UR-91-04.2A_20240808_N_WG	UR-91-04 .2A	WG	G		08/08/2024 10:38	2		X	X
UR-91-04.1A_20240808_N_WG	UR-91-04 .1A	WG	G		08/08/2024 11:11	2		X	X
UR-91-20.2B_20240808_N_WG	UR-91-20 .2B	WG	G		08/08/2024 12:04	2		X	X
UR-91-20.2A_20240808_N_WG	UR-91-20 .2A	WG	G		08/08/2024 12:50	2		X	X

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
RPD 1.6 Corr 1.5	Josh Walter	8-12-24 1730		
				8/13 124 0930
	SHIPPING METHOD: (mark as appropriate)		**SAMPLER NAME AND SIGNATURE**	**Date Time**
Email Report To :				
Email Invoice To : Jeremy.Bishop@jacobs.com,Dow_Umetco@jacobs.com				

CM

Login Sample Receipt Checklist

Client: Jacobs Engineering Group, Inc. Job Number: 410-183882-1

Login Number: 183882 **List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**
List Number: 1
Creator: Moeller, Colin

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	Refer to Job Narrative for details.
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

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

ANALYTICAL REPORT

PREPARED FOR

Attn: Jeremy Bishop
Jacobs Engineering Group, Inc.
1100 NE Circle Blvd
Suite 300
Corvallis, Oregon 97330

Generated 10/21/2024 8:16:14 AM

JOB DESCRIPTION

Umetco Hot Springs - UMP Quarterly Groundwater

JOB NUMBER

410-191981-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

my EOL

Job Notes

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

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization

Generated
10/21/2024 8:16:14 AM

Authorized for release by
Natalie Luciano, Principal Project Manager
Natalie.Luciano@et.eurofinsus.com
(717)556-7258

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is 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.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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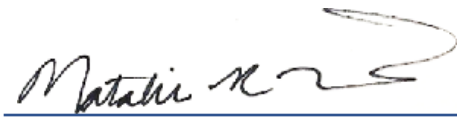


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Definitions/Glossary

Client: Jacobs Engineering Group, Inc. Job ID: 410-191981-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Qualifiers

HPLC/IC

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.
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Job Narrative
410-191981-1

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 10/11/2024 9:25 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.2°C.

Receipt Exceptions
The Chain-of-Custody (COC) was incomplete as received. The COC is missing Sample Preservation. This does not meet regulatory requirements.

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

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

Detection Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-191981-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-91-16.1B_20241010_22.05-22.78_ft_N_WG — Lab Sample ID: 410-191981-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	3.2	J F1	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	46		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-91-16.2_20241010_21.56-30.81_ft_N_WG — Lab Sample ID: 410-191981-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	3.7	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	180		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-91-17.1B_20241010_15.41-21.62_ft_N_WG — Lab Sample ID: 410-191981-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.5	J	7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	42		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-91-17.2_20241010_15.86-22.72_ft_N_WG — Lab Sample ID: 410-191981-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Dissolved Solids	180		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-91-17.1A_20241010_14.96-17.5_ft_N_WG — Lab Sample ID: 410-191981-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	9.8		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	80		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-88-12.2R_20241010_7.54-11.22_ft_N_WG — Lab Sample ID: 410-191981-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	150		75	25	mg/L	50		EPA 300.0 R2.1	Total/NA
Chloride	40		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	390		30	12	mg/L	1		2540C - 2015	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: UO-91-16.1B_20241010_22.05-22.78_ft_N_WG **Lab Sample ID: 410-191981-1**
Date Collected: 10/10/24 09:50 **Matrix: Water**
Date Received: 10/11/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**3.2**	**J F1**	7.5	2.5	mg/L			10/15/24 19:03	5
Chloride	3.0	U F1	7.5	3.0	mg/L			10/15/24 19:03	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	**46**		30	12	mg/L			10/15/24 16:09	1

Client Sample ID: UO-91-16.2_20241010_21.56-30.81_ft_N_WG **Lab Sample ID: 410-191981-2**
Date Collected: 10/10/24 10:15 **Matrix: Water**
Date Received: 10/11/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**3.7**	**J**	7.5	2.5	mg/L			10/15/24 19:58	5
Chloride	3.0	U	7.5	3.0	mg/L			10/15/24 19:58	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	**180**		30	12	mg/L			10/15/24 16:09	1

Client Sample ID: UO-91-17.1B_20241010_15.41-21.62_ft_N_WG **Lab Sample ID: 410-191981-3**
Date Collected: 10/10/24 11:55 **Matrix: Water**
Date Received: 10/11/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.5	U	7.5	2.5	mg/L			10/15/24 19:10	5
Chloride	**5.5**	**J**	7.5	3.0	mg/L			10/15/24 19:10	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	**42**		30	12	mg/L			10/15/24 16:09	1

Client Sample ID: UO-91-17.2_20241010_15.86-22.72_ft_N_WG **Lab Sample ID: 410-191981-4**
Date Collected: 10/10/24 12:15 **Matrix: Water**
Date Received: 10/11/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.5	U	7.5	2.5	mg/L			10/15/24 19:56	5
Chloride	3.0	U	7.5	3.0	mg/L			10/15/24 19:56	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	**180**		30	12	mg/L			10/15/24 16:09	1

Client Sample Results

Client: Jacobs Engineering Group, Inc. Job ID: 410-191981-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-91-17.1A_20241010_14.96-17.5_ft_N_WG — Lab Sample ID: 410-191981-5

Date Collected: 10/10/24 13:35 — **Matrix: Water**
Date Received: 10/11/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.5	U	7.5	2.5	mg/L			10/15/24 20:19	5
Chloride	**9.8**		7.5	3.0	mg/L			10/15/24 20:19	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	**80**		30	12	mg/L			10/15/24 16:09	1

Client Sample ID: UO-88-12.2R_20241010_7.54-11.22_ft_N_WG — Lab Sample ID: 410-191981-6

Date Collected: 10/10/24 14:55 — **Matrix: Water**
Date Received: 10/11/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**150**		75	25	mg/L			10/15/24 20:31	50
Chloride	**40**		7.5	3.0	mg/L			10/15/24 20:20	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	**390**		30	12	mg/L			10/15/24 16:09	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-563555/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 563555

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			10/15/24 16:50	1
Chloride	0.60	U	1.5	0.60	mg/L			10/15/24 16:50	1

Lab Sample ID: LCS 410-563555/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 563555

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.39	6.96		mg/L		94	90 - 110
Chloride	3.00	2.82		mg/L		94	90 - 110

Lab Sample ID: LCSD 410-563555/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 563555

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.39	6.91		mg/L		94	90 - 110	1	20
Chloride	3.00	2.81		mg/L		94	90 - 110	0	20

Lab Sample ID: 410-191981-1 MS — **Client Sample ID: UO-91-16.1B_20241010_22.05-22.78_ft_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 563555

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	3.2	J F1	24.6	24.9	F1	mg/L		88	90 - 110
Chloride	3.0	U F1	10.0	12.0	F1	mg/L		120	90 - 110

Lab Sample ID: 410-191981-1 DU — **Client Sample ID: UO-91-16.1B_20241010_22.05-22.78_ft_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 563555

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfate	3.2	J F1	3.15	J	mg/L		0.6	15
Chloride	3.0	U F1	3.0	U	mg/L		NC	15

Lab Sample ID: MB 410-563593/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 563593

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			10/15/24 16:51	1
Chloride	0.60	U	1.5	0.60	mg/L			10/15/24 16:51	1

Lab Sample ID: LCS 410-563593/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 563593

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.39	7.28		mg/L		98	90 - 110
Chloride	3.00	2.87		mg/L		96	90 - 110

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: LCSD 410-563593/4 **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 563593

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate			7.39	7.25		mg/L		98	90 - 110	0	20
Chloride			3.00	2.87		mg/L		96	90 - 110	0	20

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 410-563526/1 **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 563526

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12	U	30	12	mg/L			10/15/24 16:09	1

Lab Sample ID: LCS 410-563526/2 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 563526

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Dissolved Solids			200	200		mg/L		100	90 - 110		

HPLC/IC

Analysis Batch: 563555

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-191981-1	UO-91-16.1B_20241010_22.05-22.78_ft_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-191981-2	UO-91-16.2_20241010_21.56-30.81_ft_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-191981-6	UO-88-12.2R_20241010_7.54-11.22_ft_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-191981-6	UO-88-12.2R_20241010_7.54-11.22_ft_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-563555/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-563555/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-563555/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	
410-191981-1 MS	UO-91-16.1B_20241010_22.05-22.78_ft_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-191981-1 DU	UO-91-16.1B_20241010_22.05-22.78_ft_N_WG	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 563593

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-191981-3	UO-91-17.1B_20241010_15.41-21.62_ft_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-191981-4	UO-91-17.2_20241010_15.86-22.72_ft_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-191981-5	UO-91-17.1A_20241010_14.96-17.5_ft_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-563593/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-563593/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-563593/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

General Chemistry

Analysis Batch: 563526

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-191981-1	UO-91-16.1B_20241010_22.05-22.78_ft_N_WG	Total/NA	Water	2540C - 2015	
410-191981-2	UO-91-16.2_20241010_21.56-30.81_ft_N_WG	Total/NA	Water	2540C - 2015	
410-191981-3	UO-91-17.1B_20241010_15.41-21.62_ft_N_WG	Total/NA	Water	2540C - 2015	
410-191981-4	UO-91-17.2_20241010_15.86-22.72_ft_N_WG	Total/NA	Water	2540C - 2015	
410-191981-5	UO-91-17.1A_20241010_14.96-17.5_ft_N_WG	Total/NA	Water	2540C - 2015	
410-191981-6	UO-88-12.2R_20241010_7.54-11.22_ft_N_WG	Total/NA	Water	2540C - 2015	
MB 410-563526/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-563526/2	Lab Control Sample	Total/NA	Water	2540C - 2015	

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-191981-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-91-16.1B_20241010_22.05-22.78_ft_N_WG **Lab Sample ID: 410-191981-1**
Date Collected: 10/10/24 09:50 **Matrix: Water**
Date Received: 10/11/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	563555	W7FX	ELLE	10/15/24 19:03
Total/NA	Analysis	2540C - 2015		1	563526	UOCA	ELLE	10/15/24 16:09 - 10/17/24 21:28 [1]

Client Sample ID: UO-91-16.2_20241010_21.56-30.81_ft_N_WG **Lab Sample ID: 410-191981-2**
Date Collected: 10/10/24 10:15 **Matrix: Water**
Date Received: 10/11/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	563555	W7FX	ELLE	10/15/24 19:58
Total/NA	Analysis	2540C - 2015		1	563526	UOCA	ELLE	10/15/24 16:09 - 10/17/24 21:28 [1]

Client Sample ID: UO-91-17.1B_20241010_15.41-21.62_ft_N_WG **Lab Sample ID: 410-191981-3**
Date Collected: 10/10/24 11:55 **Matrix: Water**
Date Received: 10/11/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	563593	W7FX	ELLE	10/15/24 19:10
Total/NA	Analysis	2540C - 2015		1	563526	UOCA	ELLE	10/15/24 16:09 - 10/17/24 21:28 [1]

Client Sample ID: UO-91-17.2_20241010_15.86-22.72_ft_N_WG **Lab Sample ID: 410-191981-4**
Date Collected: 10/10/24 12:15 **Matrix: Water**
Date Received: 10/11/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	563593	W7FX	ELLE	10/15/24 19:56
Total/NA	Analysis	2540C - 2015		1	563526	UOCA	ELLE	10/15/24 16:09 - 10/17/24 21:28 [1]

Client Sample ID: UO-91-17.1A_20241010_14.96-17.5_ft_N_WG **Lab Sample ID: 410-191981-5**
Date Collected: 10/10/24 13:35 **Matrix: Water**
Date Received: 10/11/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	563593	W7FX	ELLE	10/15/24 20:19
Total/NA	Analysis	2540C - 2015		1	563526	UOCA	ELLE	10/15/24 16:09 - 10/17/24 21:28 [1]

Client Sample ID: UO-88-12.2R_20241010_7.54-11.22_ft_N_WG **Lab Sample ID: 410-191981-6**
Date Collected: 10/10/24 14:55 **Matrix: Water**
Date Received: 10/11/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	563555	W7FX	ELLE	10/15/24 20:20
Total/NA	Analysis	EPA 300.0 R2.1		50	563555	W7FX	ELLE	10/15/24 20:31
Total/NA	Analysis	2540C - 2015		1	563526	UOCA	ELLE	10/15/24 16:09 - 10/17/24 21:28 [1]

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-191981-1

Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-191981-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00660	08-09-25

Method Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-191981-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
2540C - 2015	Total Dissolved Solids (Dried at 180 °C)	SM	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-191981-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-191981-1	UO-91-16.1B_20241010_22.05-22.78_ft_N_WG	Water	10/10/24 09:50	10/11/24 09:25
410-191981-2	UO-91-16.2_20241010_21.56-30.81_ft_N_WG	Water	10/10/24 10:15	10/11/24 09:25
410-191981-3	UO-91-17.1B_20241010_15.41-21.62_ft_N_WG	Water	10/10/24 11:55	10/11/24 09:25
410-191981-4	UO-91-17.2_20241010_15.86-22.72_ft_N_WG	Water	10/10/24 12:15	10/11/24 09:25
410-191981-5	UO-91-17.1A_20241010_14.96-17.5_ft_N_WG	Water	10/10/24 13:35	10/11/24 09:25
410-191981-6	UO-88-12.2R_20241010_7.54-11.22_ft_N_WG	Water	10/10/24 14:55	10/11/24 09:25

410-191981 Chain of Custody

ANALYSIS REQUEST | **COC No: EuroFins Lan-45575638** | **Cooler No. of**

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 14
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number/Script** 4508165277
Project Chemist Jeremy Bishop 541.223.3856	**Shipping Company / Airbill No.** UPS /
Sampler Shaun Holland	**Shipping Date** 10/10/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Filtered	Preserve	Analysis: Chloride and Sulfate - E300.0	Analysis: TDS - SM2540C
UO-91-16.1B_20241010_22.05-22.78_ft_N_WG	UO-91-16.1B	WG	G	22.05 - 22.78 ft	10/10/2024 09:50	2				X	X
UO-91-16.2_20241010_21.56-30.81_ft_N_WG	UO-91-16.2	WG	G	21.56 - 30.81 ft	10/10/2024 10:15	2				X	X
UO-91-17.1B_20241010_15.41-21.62_ft_N_WG	UO-91-17.1B	WG	G	15.41 - 21.62 ft	10/10/2024 11:55	2				X	X
UO-91-17.2_20241010_15.86-22.72_ft_N_WG	UO-91-17.2	WG	G	15.86 - 22.72 ft	10/10/2024 12:15	2				X	X
UO-91-17.1A_20241010_14.96-17.5_ft_N_WG	UO-91-17.1A	WG	G	14.96 - 17.5 ft	10/10/2024 13:35	2				X	X
UO-88-12.2R_20241010_7.54-11.22_ft_N_WG	UO-88-12.2R	WG	G	7.54 - 11.22 ft	10/10/2024 14:55	2				X	X

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	[signature]	10/10 1700	[signature]	
	[signature]		[signature] ENVI	10/11/24 0925
	SHIPPING METHOD: (mark as appropriate)		SAMPLER NAME AND SIGNATURE	Date Time
Email Report To :				
Email Invoice To : Jeremy.Bishop@jacobs.com,Dow_Umetco@jacobs.com			R:1.2 C:1.2	

Login Sample Receipt Checklist

Client: Jacobs Engineering Group, Inc.

Job Number: 410-191981-1

Login Number: 191981

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Santiago, Nathaniel

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	Container preservation not listed on COC.
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Jeremy Bishop
Jacobs Engineering Group, Inc.
1100 NE Circle Blvd
Suite 300
Corvallis, Oregon 97330

Generated 10/18/2024 9:29:21 AM

JOB DESCRIPTION

Umetco Hot Springs - UMP Quarterly Groundwater

JOB NUMBER

410-191984-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

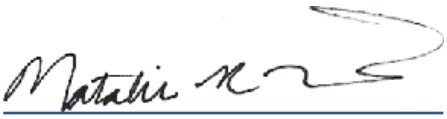
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Job Notes

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.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



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Authorized for release by
Natalie Luciano, Principal Project Manager
Natalie.Luciano@et.eurofinsus.com
(717)556-7258

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is 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.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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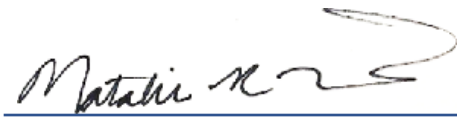


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Definitions/Glossary

Client: Jacobs Engineering Group, Inc. Job ID: 410-191984-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Qualifiers

HPLC/IC

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.
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Job ID: 410-191984-1 Eurofins Lancaster Laboratories Environment

Job Narrative
410-191984-1

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 10/11/2024 9:25 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.2°C.

Receipt Exceptions
The Chain-of-Custody (COC) was incomplete as received. The COC is missing Sample Preservation. This does not meet regulatory requirements.

The container label for the following samples did not match the information listed on the Chain-of-Custody (COC): UO-87-10.2_20241009_N_WG (410-191984-7) and UO-87-10.2_20241009_FD_WG (410-191984-8). The container labels list 10:41, while the COC lists 11:41. Entered per COC.

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

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

Detection Summary

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Job ID: 410-191984-1

Client Sample ID: UO-87-06.1_20241008_N_WG — Lab Sample ID: 410-191984-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	17		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	150		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	320		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-07.1_20241008_N_WG — Lab Sample ID: 410-191984-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	4.8	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	140		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	480		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-07.2_20241008_N_WG — Lab Sample ID: 410-191984-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	4.1	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	280		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	660		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-20-22.1_20241008_N_WG — Lab Sample ID: 410-191984-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	19		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	10		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	170		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-20-21.1_20241009_N_WG — Lab Sample ID: 410-191984-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	8.4		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	93		38	15	mg/L	25		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	210		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-20-21.2_20241009_N_WG — Lab Sample ID: 410-191984-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	17		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	200		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	560		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-10.2_20241009_N_WG — Lab Sample ID: 410-191984-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	9.2		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	64		38	15	mg/L	25		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	280		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-10.2_20241009_FD_WG — Lab Sample ID: 410-191984-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	9.2		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	65		38	15	mg/L	25		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	280		30	12	mg/L	1		2540C - 2015	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-191984-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Client Sample ID: UO-91-18.2_20241009_N_WG
Lab Sample ID: 410-191984-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	540		75	25	mg/L	50		EPA 300.0 R2.1	Total/NA
Chloride	12		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	750		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-91-18.2_20241009_FD_WG
Lab Sample ID: 410-191984-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	530		75	25	mg/L	50		EPA 300.0 R2.1	Total/NA
Chloride	11		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	850		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-06.2_20241010_N_WG
Lab Sample ID: 410-191984-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	7.0	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	140		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	370		60	24	mg/L	1		2540C - 2015	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: UO-87-06.1_20241008_N_WG — Lab Sample ID: 410-191984-1

Date Collected: 10/08/24 10:08 — **Matrix: Water**
Date Received: 10/11/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	17		7.5	2.5	mg/L			10/15/24 20:42	5
Chloride	150		75	30	mg/L			10/15/24 20:53	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	320		60	24	mg/L			10/11/24 20:39	1

Client Sample ID: UO-87-07.1_20241008_N_WG — Lab Sample ID: 410-191984-2

Date Collected: 10/08/24 12:29 — **Matrix: Water**
Date Received: 10/11/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	4.8	J	7.5	2.5	mg/L			10/15/24 21:04	5
Chloride	140		75	30	mg/L			10/15/24 21:15	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	480		60	24	mg/L			10/11/24 20:39	1

Client Sample ID: UO-87-07.2_20241008_N_WG — Lab Sample ID: 410-191984-3

Date Collected: 10/08/24 12:47 — **Matrix: Water**
Date Received: 10/11/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	4.1	J	7.5	2.5	mg/L			10/15/24 21:48	5
Chloride	280		75	30	mg/L			10/15/24 21:59	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	660		60	24	mg/L			10/11/24 20:39	1

Client Sample ID: UO-20-22.1_20241008_N_WG — Lab Sample ID: 410-191984-4

Date Collected: 10/08/24 13:24 — **Matrix: Water**
Date Received: 10/11/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	19		7.5	2.5	mg/L			10/15/24 22:11	5
Chloride	10		7.5	3.0	mg/L			10/15/24 22:11	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	170		30	12	mg/L			10/11/24 20:39	1

Client Sample ID: UO-20-21.1_20241009_N_WG — Lab Sample ID: 410-191984-5

Date Collected: 10/09/24 10:18 **Matrix: Water**
Date Received: 10/11/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	8.4		7.5	2.5	mg/L			10/16/24 00:23	5
Chloride	93		38	15	mg/L			10/16/24 20:11	25

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	210		30	12	mg/L			10/11/24 20:39	1

Client Sample ID: UO-20-21.2_20241009_N_WG — Lab Sample ID: 410-191984-6

Date Collected: 10/09/24 10:40 **Matrix: Water**
Date Received: 10/11/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	17		7.5	2.5	mg/L			10/15/24 22:33	5
Chloride	200		75	30	mg/L			10/15/24 22:44	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	560		60	24	mg/L			10/11/24 20:39	1

Client Sample ID: UO-87-10.2_20241009_N_WG — Lab Sample ID: 410-191984-7

Date Collected: 10/09/24 11:41 **Matrix: Water**
Date Received: 10/11/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	9.2		7.5	2.5	mg/L			10/15/24 22:55	5
Chloride	64		38	15	mg/L			10/16/24 20:22	25

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	280		30	12	mg/L			10/11/24 20:39	1

Client Sample ID: UO-87-10.2_20241009_FD_WG — Lab Sample ID: 410-191984-8

Date Collected: 10/09/24 11:41 **Matrix: Water**
Date Received: 10/11/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	9.2		7.5	2.5	mg/L			10/15/24 23:17	5
Chloride	65		38	15	mg/L			10/16/24 20:34	25

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	280		30	12	mg/L			10/11/24 20:39	1

Client Sample ID: UO-91-18.2_20241009_N_WG — Lab Sample ID: 410-191984-9

Date Collected: 10/09/24 14:24 **Matrix: Water**
Date Received: 10/11/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	540		75	25	mg/L			10/16/24 00:12	50
Chloride	12		7.5	3.0	mg/L			10/16/24 00:01	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	750		60	24	mg/L			10/11/24 20:39	1

Client Sample ID: UO-91-18.2_20241009_FD_WG — Lab Sample ID: 410-191984-10

Date Collected: 10/09/24 14:24 **Matrix: Water**
Date Received: 10/11/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	530		75	25	mg/L			10/16/24 14:12	50
Chloride	11		7.5	3.0	mg/L			10/16/24 14:01	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	850		60	24	mg/L			10/11/24 20:39	1

Client Sample ID: UO-87-06.2_20241010_N_WG — Lab Sample ID: 410-191984-11

Date Collected: 10/10/24 10:46 **Matrix: Water**
Date Received: 10/11/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	7.0	J	7.5	2.5	mg/L			10/16/24 14:23	5
Chloride	140		75	30	mg/L			10/16/24 14:34	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	370		60	24	mg/L			10/11/24 20:39	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-563555/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 563555

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			10/15/24 16:50	1
Chloride	0.60	U	1.5	0.60	mg/L			10/15/24 16:50	1

Lab Sample ID: LCS 410-563555/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 563555

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.39	6.96		mg/L		94	90 - 110
Chloride	3.00	2.82		mg/L		94	90 - 110

Lab Sample ID: LCSD 410-563555/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 563555

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.39	6.91		mg/L		94	90 - 110	1	20
Chloride	3.00	2.81		mg/L		94	90 - 110	0	20

Lab Sample ID: 410-191984-5 MS — **Client Sample ID: UO-20-21.1_20241009_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 563555

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	8.4		24.6	32.0		mg/L		96	90 - 110

Lab Sample ID: 410-191984-5 DU — **Client Sample ID: UO-20-21.1_20241009_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 563555

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfate	8.4		8.42		mg/L		0.2	15

Lab Sample ID: MB 410-563568/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 563568

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			10/16/24 11:04	1
Chloride	0.60	U	1.5	0.60	mg/L			10/16/24 11:04	1

Lab Sample ID: LCS 410-563568/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 563568

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.39	7.18		mg/L		97	90 - 110
Chloride	3.00	2.87		mg/L		96	90 - 110

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 410-563568/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 563568

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate			7.39	7.16		mg/L		97	90 - 110	0	20
Chloride			3.00	2.87		mg/L		96	90 - 110	0	20

Lab Sample ID: MB 410-564126/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 564126

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			10/16/24 14:23	1
Chloride	0.60	U	1.5	0.60	mg/L			10/16/24 14:23	1

Lab Sample ID: LCS 410-564126/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 564126

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Sulfate			7.39	7.45		mg/L		101	90 - 110		
Chloride			3.00	2.98		mg/L		99	90 - 110		

Lab Sample ID: LCSD 410-564126/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 564126

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate			7.39	7.47		mg/L		101	90 - 110	0	20
Chloride			3.00	2.99		mg/L		100	90 - 110	0	20

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 410-562399/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 562399

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12	U	30	12	mg/L			10/11/24 20:39	1

Lab Sample ID: LCS 410-562399/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 562399

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Dissolved Solids			200	196		mg/L		98	90 - 110		

HPLC/IC

Analysis Batch: 563555

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-191984-1	UO-87-06.1_20241008_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-191984-1	UO-87-06.1_20241008_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-191984-2	UO-87-07.1_20241008_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-191984-2	UO-87-07.1_20241008_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-191984-3	UO-87-07.2_20241008_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-191984-3	UO-87-07.2_20241008_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-191984-4	UO-20-22.1_20241008_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-191984-5	UO-20-21.1_20241009_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-191984-6	UO-20-21.2_20241009_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-191984-6	UO-20-21.2_20241009_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-191984-7	UO-87-10.2_20241009_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-191984-8	UO-87-10.2_20241009_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
410-191984-9	UO-91-18.2_20241009_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-191984-9	UO-91-18.2_20241009_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-563555/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-563555/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-563555/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	
410-191984-5 MS	UO-20-21.1_20241009_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-191984-5 DU	UO-20-21.1_20241009_N_WG	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 563568

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-191984-10	UO-91-18.2_20241009_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
410-191984-10	UO-91-18.2_20241009_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
410-191984-11	UO-87-06.2_20241010_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-191984-11	UO-87-06.2_20241010_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-563568/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-563568/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-563568/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 564126

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-191984-5	UO-20-21.1_20241009_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-191984-7	UO-87-10.2_20241009_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-191984-8	UO-87-10.2_20241009_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-564126/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-564126/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-564126/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

General Chemistry

Analysis Batch: 562399

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-191984-1	UO-87-06.1_20241008_N_WG	Total/NA	Water	2540C - 2015	
410-191984-2	UO-87-07.1_20241008_N_WG	Total/NA	Water	2540C - 2015	
410-191984-3	UO-87-07.2_20241008_N_WG	Total/NA	Water	2540C - 2015	
410-191984-4	UO-20-22.1_20241008_N_WG	Total/NA	Water	2540C - 2015	
410-191984-5	UO-20-21.1_20241009_N_WG	Total/NA	Water	2540C - 2015	
410-191984-6	UO-20-21.2_20241009_N_WG	Total/NA	Water	2540C - 2015	
410-191984-7	UO-87-10.2_20241009_N_WG	Total/NA	Water	2540C - 2015	
410-191984-8	UO-87-10.2_20241009_FD_WG	Total/NA	Water	2540C - 2015	

General Chemistry (Continued)

Analysis Batch: 562399 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-191984-9	UO-91-18.2_20241009_N_WG	Total/NA	Water	2540C - 2015	
410-191984-10	UO-91-18.2_20241009_FD_WG	Total/NA	Water	2540C - 2015	
410-191984-11	UO-87-06.2_20241010_N_WG	Total/NA	Water	2540C - 2015	
MB 410-562399/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-562399/2	Lab Control Sample	Total/NA	Water	2540C - 2015	

Lab Chronicle

Client: Jacobs Engineering Group, Inc.
Job ID: 410-191984-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Client Sample ID: UO-87-06.1_20241008_N_WG
Lab Sample ID: 410-191984-1
Date Collected: 10/08/24 10:08
Matrix: Water
Date Received: 10/11/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	563555	W7FX	ELLE	10/15/24 20:42
Total/NA	Analysis	EPA 300.0 R2.1		50	563555	W7FX	ELLE	10/15/24 20:53
Total/NA	Analysis	2540C - 2015		1	562399	UOCA	ELLE	10/11/24 20:39 - 10/14/24 09:50 [1]

Client Sample ID: UO-87-07.1_20241008_N_WG
Lab Sample ID: 410-191984-2
Date Collected: 10/08/24 12:29
Matrix: Water
Date Received: 10/11/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	563555	W7FX	ELLE	10/15/24 21:04
Total/NA	Analysis	EPA 300.0 R2.1		50	563555	W7FX	ELLE	10/15/24 21:15
Total/NA	Analysis	2540C - 2015		1	562399	UOCA	ELLE	10/11/24 20:39 - 10/14/24 09:50 [1]

Client Sample ID: UO-87-07.2_20241008_N_WG
Lab Sample ID: 410-191984-3
Date Collected: 10/08/24 12:47
Matrix: Water
Date Received: 10/11/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	563555	W7FX	ELLE	10/15/24 21:48
Total/NA	Analysis	EPA 300.0 R2.1		50	563555	W7FX	ELLE	10/15/24 21:59
Total/NA	Analysis	2540C - 2015		1	562399	UOCA	ELLE	10/11/24 20:39 - 10/14/24 09:50 [1]

Client Sample ID: UO-20-22.1_20241008_N_WG
Lab Sample ID: 410-191984-4
Date Collected: 10/08/24 13:24
Matrix: Water
Date Received: 10/11/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	563555	W7FX	ELLE	10/15/24 22:11
Total/NA	Analysis	2540C - 2015		1	562399	UOCA	ELLE	10/11/24 20:39 - 10/14/24 09:50 [1]

Client Sample ID: UO-20-21.1_20241009_N_WG
Lab Sample ID: 410-191984-5
Date Collected: 10/09/24 10:18
Matrix: Water
Date Received: 10/11/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	563555	W7FX	ELLE	10/16/24 00:23
Total/NA	Analysis	EPA 300.0 R2.1		25	564126	W7FX	ELLE	10/16/24 20:11
Total/NA	Analysis	2540C - 2015		1	562399	UOCA	ELLE	10/11/24 20:39 - 10/14/24 09:50 [1]

Client Sample ID: UO-20-21.2_20241009_N_WG
Lab Sample ID: 410-191984-6
Date Collected: 10/09/24 10:40
Matrix: Water
Date Received: 10/11/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	563555	W7FX	ELLE	10/15/24 22:33

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-191984-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Client Sample ID: UO-20-21.2_20241009_N_WG — Lab Sample ID: 410-191984-6

Date Collected: 10/09/24 10:40 **Matrix: Water**
Date Received: 10/11/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		50	563555	W7FX	ELLE	10/15/24 22:44
Total/NA	Analysis	2540C - 2015		1	562399	UOCA	ELLE	10/11/24 20:39 - 10/14/24 09:50 ¹

Client Sample ID: UO-87-10.2_20241009_N_WG — Lab Sample ID: 410-191984-7

Date Collected: 10/09/24 11:41 **Matrix: Water**
Date Received: 10/11/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	563555	W7FX	ELLE	10/15/24 22:55
Total/NA	Analysis	EPA 300.0 R2.1		25	564126	W7FX	ELLE	10/16/24 20:22
Total/NA	Analysis	2540C - 2015		1	562399	UOCA	ELLE	10/11/24 20:39 - 10/14/24 09:50 ¹

Client Sample ID: UO-87-10.2_20241009_FD_WG — Lab Sample ID: 410-191984-8

Date Collected: 10/09/24 11:41 **Matrix: Water**
Date Received: 10/11/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	563555	W7FX	ELLE	10/15/24 23:17
Total/NA	Analysis	EPA 300.0 R2.1		25	564126	W7FX	ELLE	10/16/24 20:34
Total/NA	Analysis	2540C - 2015		1	562399	UOCA	ELLE	10/11/24 20:39 - 10/14/24 09:50 ¹

Client Sample ID: UO-91-18.2_20241009_N_WG — Lab Sample ID: 410-191984-9

Date Collected: 10/09/24 14:24 **Matrix: Water**
Date Received: 10/11/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	563555	W7FX	ELLE	10/16/24 00:01
Total/NA	Analysis	EPA 300.0 R2.1		50	563555	W7FX	ELLE	10/16/24 00:12
Total/NA	Analysis	2540C - 2015		1	562399	UOCA	ELLE	10/11/24 20:39 - 10/14/24 09:50 ¹

Client Sample ID: UO-91-18.2_20241009_FD_WG — Lab Sample ID: 410-191984-10

Date Collected: 10/09/24 14:24 **Matrix: Water**
Date Received: 10/11/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	563568	W7FX	ELLE	10/16/24 14:01
Total/NA	Analysis	EPA 300.0 R2.1		50	563568	W7FX	ELLE	10/16/24 14:12
Total/NA	Analysis	2540C - 2015		1	562399	UOCA	ELLE	10/11/24 20:39 - 10/14/24 09:50 ¹

Client Sample ID: UO-87-06.2_20241010_N_WG — Lab Sample ID: 410-191984-11

Date Collected: 10/10/24 10:46 **Matrix: Water**
Date Received: 10/11/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	563568	W7FX	ELLE	10/16/24 14:23

Lab Chronicle

Client: Jacobs Engineering Group, Inc.
Job ID: 410-191984-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Client Sample ID: UO-87-06.2_20241010_N_WG
Lab Sample ID: 410-191984-11

Date Collected: 10/10/24 10:46
Matrix: Water
Date Received: 10/11/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		50	563568	W7FX	ELLE	10/16/24 14:34
Total/NA	Analysis	2540C - 2015		1	562399	UOCA	ELLE	10/11/24 20:39 - 10/14/24 09:50 [1]

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-191984-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00660	08-09-25

Method Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-191984-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
2540C - 2015	Total Dissolved Solids (Dried at 180 °C)	SM	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-191984-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwate

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-191984-1	UO-87-06.1_20241008_N_WG	Water	10/08/24 10:08	10/11/24 09:25
410-191984-2	UO-87-07.1_20241008_N_WG	Water	10/08/24 12:29	10/11/24 09:25
410-191984-3	UO-87-07.2_20241008_N_WG	Water	10/08/24 12:47	10/11/24 09:25
410-191984-4	UO-20-22.1_20241008_N_WG	Water	10/08/24 13:24	10/11/24 09:25
410-191984-5	UO-20-21.1_20241009_N_WG	Water	10/09/24 10:18	10/11/24 09:25
410-191984-6	UO-20-21.2_20241009_N_WG	Water	10/09/24 10:40	10/11/24 09:25
410-191984-7	UO-87-10.2_20241009_N_WG	Water	10/09/24 11:41	10/11/24 09:25
410-191984-8	UO-87-10.2_20241009_FD_WG	Water	10/09/24 11:41	10/11/24 09:25
410-191984-9	UO-91-18.2_20241009_N_WG	Water	10/09/24 14:24	10/11/24 09:25
410-191984-10	UO-91-18.2_20241009_FD_WG	Water	10/09/24 14:24	10/11/24 09:25
410-191984-11	UO-87-06.2_20241010_N_WG	Water	10/10/24 10:46	10/11/24 09:25

410-191984 Chain of Custody

: ANALYSIS REQUEST | COC No: EuroFins Lan-45575540 | Cooler No. of

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 14
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number/Script** 4508165277
Project Chemist Jeremy Bishop 541.223.3856	**Shipping Company / Airbill No.** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 10/10/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Filtered	Preserve	Analysis: Chloride and Sulfate - E300.0	Analysis: TDS - SM2540C
UO-87-06.1_20241008_N_WG	UO-87-06.1	WG	G		10/08/2024 10:08	2				X	X
UO-87-07.1_20241008_N_WG	UO-87-07.1	WG	G		10/08/2024 12:29	2				X	X
UO-87-07.2_20241008_N_WG	UO-87-07.2	WG	G		10/08/2024 12:47	2				X	X
UO-20-22.1_20241008_N_WG	UO-20-22.1	WG	G		10/08/2024 13:24	2				X	X
UO-20-21.1_20241009_N_WG	UO-20-21.1	WG	G		10/09/2024 10:18	2				X	X
UO-20-21.2_20241009_N_WG	UO-20-21.2	WG	G		10/09/2024 10:40	2				X	X
UO-87-10.2_20241009_N_WG	UO-87-10.2	WG	G		10/09/2024 11:41	2				X	X

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	Jordan Cole	10-10-24 1736		
				10/11/24 0925
	SHIPPING METHOD: (mark as appropriate)		SAMPLER NAME AND SIGNATURE	Date Time
Email Report To :				
Email Invoice To : Jeremy.Bishop@jacobs.com,Dow_Umetco@jacobs.com			R:1.2 C:1.2	

NJ

CHAIN OF CUSTODY / SAMPLE ANALYSIS REQUEST

COC No: EuroFins Lan-45575540

Cooler No. of

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 14
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number/Script** 4508165277
Project Chemist Jeremy Bishop 541.223.3856	**Shipping Company / Airbill No.** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 10/10/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Analysis: Filtered	Preserve	Chloride and Sulfate - E300.0	TDS - SM2540C
UO-87-10.2_20241009_FD_WG	UO-87-10.2	WG	G		10/09/2024 11:41	2				X	X
UO-91-18.2_20241009_N_WG	UO-91-18.2	WG	G		10/09/2024 14:24	2				X	X
UO-91-18.2_20241009_FD_WG	UO-91-18.2	WG	G		10/09/2024 14:24	2				X	X
UO-87-06.2_20241010_N_WG	UO-87-06.2	WG	G		10/10/2024 10:46	2				X	X

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	Jordan Carl	10-10-24 1730		
			UMS	10/11/24 0925
	SHIPPING METHOD: (mark as appropriate)		SAMPLER NAME AND SIGNATURE	Date Time
Email Report To :				
Email Invoice To : Jeremy.Bishop@jacobs.com,Dow_Umetco@jacobs.com			R:1.2 C:1.2	

Login Sample Receipt Checklist

Client: Jacobs Engineering Group, Inc. Job Number: 410-191984-1

Login Number: 191984 **List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**
List Number: 1
Creator: Santiago, Nathaniel

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	Container preservation not listed on COC.
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

eurofins | Environment Testing

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

ANALYTICAL REPORT

PREPARED FOR

Attn: Jeremy Bishop
Jacobs Engineering Group, Inc.
1100 NE Circle Blvd
Suite 300
Corvallis, Oregon 97330

Generated 10/21/2024 8:18:30 AM

JOB DESCRIPTION

Umetco Hot Springs - UMP Quarterly Groundwater

JOB NUMBER

410-192219-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

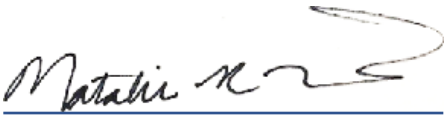
my EOL

Job Notes

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

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



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10/21/2024 8:18:30 AM

Authorized for release by
Natalie Luciano, Principal Project Manager
Natalie.Luciano@et.eurofinsus.com
(717)556-7258

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is 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.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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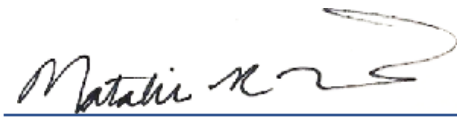


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Definitions/Glossary

Client: Jacobs Engineering Group, Inc. Job ID: 410-192219-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Job Narrative
410-192219-1

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 sample was received on 10/12/2024 9:50 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.0°C.

Receipt Exceptions
The Chain-of-Custody (COC) was incomplete as received. The COC is missing Sample Preservation. This does not meet regulatory requirements.

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

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

Detection Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-192219-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-91-19.2_20241011_N_WG Lab Sample ID: 410-192219-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	280		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	600		60	24	mg/L	1		2540C - 2015	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Jacobs Engineering Group, Inc. Job ID: 410-192219-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-91-19.2_20241011_N_WG **Lab Sample ID: 410-192219-1**
Date Collected: 10/11/24 12:01 **Matrix: Water**
Date Received: 10/12/24 09:50

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.5	U	7.5	2.5	mg/L			10/18/24 19:17	5
Chloride	**280**		75	30	mg/L			10/18/24 19:28	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	**600**		60	24	mg/L			10/15/24 16:09	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-565199/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 565199

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			10/18/24 16:29	1
Chloride	0.60	U	1.5	0.60	mg/L			10/18/24 16:29	1

Lab Sample ID: LCS 410-565199/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 565199

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.39	7.28		mg/L		99	90 - 110
Chloride	3.00	3.01		mg/L		100	90 - 110

Lab Sample ID: LCSD 410-565199/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 565199

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.39	7.23		mg/L		98	90 - 110	1	20
Chloride	3.00	2.99		mg/L		100	90 - 110	1	20

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 410-563526/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 563526

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12	U	30	12	mg/L			10/15/24 16:09	1

Lab Sample ID: LCS 410-563526/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 563526

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	200	200		mg/L		100	90 - 110

Lab Sample ID: 410-192219-1 DU — **Client Sample ID: UO-91-19.2_20241011_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 563526

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	600		598		mg/L		0.7	10

QC Association Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-192219-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

HPLC/IC

Analysis Batch: 565199

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-192219-1	UO-91-19.2_20241011_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-192219-1	UO-91-19.2_20241011_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-565199/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-565199/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-565199/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

General Chemistry

Analysis Batch: 563526

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-192219-1	UO-91-19.2_20241011_N_WG	Total/NA	Water	2540C - 2015	
MB 410-563526/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-563526/2	Lab Control Sample	Total/NA	Water	2540C - 2015	
410-192219-1 DU	UO-91-19.2_20241011_N_WG	Total/NA	Water	2540C - 2015	

Lab Chronicle

Client: Jacobs Engineering Group, Inc.
Job ID: 410-192219-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-91-19.2_20241011_N_WG
Lab Sample ID: 410-192219-1
Date Collected: 10/11/24 12:01
Matrix: Water
Date Received: 10/12/24 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	565199	L4QM	ELLE	10/18/24 19:17
Total/NA	Analysis	EPA 300.0 R2.1		50	565199	L4QM	ELLE	10/18/24 19:28
Total/NA	Analysis	2540C - 2015		1	563526	UOCA	ELLE	10/15/24 16:09 - 10/17/24 21:28 [1]

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-192219-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00660	08-09-25

Method Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-192219-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
2540C - 2015	Total Dissolved Solids (Dried at 180 °C)	SM	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-192219-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-192219-1	UO-91-19.2_20241011_N_WG	Water	10/11/24 12:01	10/12/24 09:50

410-192219 Chain of Custody

ANALYSIS REQUEST | **COC No: EuroFins Lan-45576514** | **Cooler No. of**

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 14
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number/Script** 4508165277
Project Chemist Jeremy Bishop 541.223.3856	**Shipping Company / Airbill No.** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 10/11/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Analysis: Filtered	Analysis: Preserve	Analysis: Chloride and Sulfate - E300.0	Analysis: TDS - SM2540C
UO-91-19.2_20241011_N_WG	UO-91-19.2	WG	G		10/11/2024 12:01	2				X	X

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	Jordan Canahan	10-11-24 1730		
			[signature]	10/12/24 9:50
	SHIPPING METHOD: (mark as appropriate)		**SAMPLER NAME AND SIGNATURE**	**Date Time**
Email Report To :				
Email Invoice To : Jeremy.Bishop@jacobs.com,Dow_Umetco@jacobs.com				

KF

ravi 2.4 cor. 2.0

Login Sample Receipt Checklist

Client: Jacobs Engineering Group, Inc.

Job Number: 410-192219-1

Login Number: 192219

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Foreman, Kai

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	Container preservation not listed on COC.
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

eurofins | Environment Testing

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

ANALYTICAL REPORT

PREPARED FOR

Attn: Jeremy Bishop
Jacobs Engineering Group, Inc.
1100 NE Circle Blvd
Suite 300
Corvallis, Oregon 97330

Generated 10/21/2024 1:19:26 PM

JOB DESCRIPTION

Umetco Hot Springs - UMP Quarterly GW Sampling

JOB NUMBER

410-192464-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

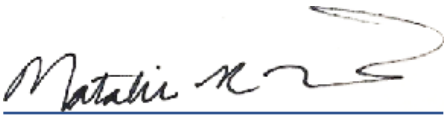
myEOL

Job Notes

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

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



Generated
10/21/2024 1:19:26 PM

Authorized for release by
Natalie Luciano, Principal Project Manager
Natalie.Luciano@et.eurofinsus.com
(717)556-7258

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is 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.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

This report shall not be reproduced except in full, without the written approval of the laboratory.

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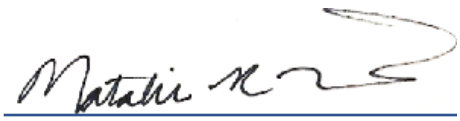


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Definitions/Glossary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-192464-1
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Qualifiers

HPLC/IC

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.
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Job Narrative
410-192464-1

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 10/15/2024 9:40 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.7°C.

Receipt Exceptions
The Chain-of-Custody (COC) was incomplete as received and/or improperly completed. The COC is missing Sample Preservation. This does not meet regulatory requirement.

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

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

Detection Summary

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-192464-1

Client Sample ID: UO-87-08.1_20241014_N_WG — Lab Sample ID: 410-192464-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	8.5		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	36		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-08.2_20241014_N_WG — Lab Sample ID: 410-192464-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	3.4	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	5.9	J	7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	120		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-02.1A_20241014_N_WG — Lab Sample ID: 410-192464-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	500		75	25	mg/L	50		EPA 300.0 R2.1	Total/NA
Chloride	470		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	1500		240	96	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-02.1B_20241014_N_WG — Lab Sample ID: 410-192464-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	160		75	25	mg/L	50		EPA 300.0 R2.1	Total/NA
Chloride	260		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	800		120	48	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-88-02.2_20241014_N_WG — Lab Sample ID: 410-192464-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	270		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	570		60	24	mg/L	1		2540C - 2015	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-192464-1

Client Sample ID: UO-87-08.1_20241014_N_WG

Lab Sample ID: 410-192464-1

Date Collected: 10/14/24 09:49
Matrix: Water
Date Received: 10/15/24 09:40

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.5	U	7.5	2.5	mg/L			10/18/24 19:58	5
Chloride	8.5		7.5	3.0	mg/L			10/18/24 19:58	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	36		30	12	mg/L			10/17/24 17:19	1

Client Sample ID: UO-87-08.2_20241014_N_WG

Lab Sample ID: 410-192464-2

Date Collected: 10/14/24 11:03
Matrix: Water
Date Received: 10/15/24 09:40

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	3.4	J	7.5	2.5	mg/L			10/18/24 20:39	5
Chloride	5.9	J	7.5	3.0	mg/L			10/18/24 20:39	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	120		30	12	mg/L			10/17/24 17:19	1

Client Sample ID: UO-87-02.1A_20241014_N_WG

Lab Sample ID: 410-192464-3

Date Collected: 10/14/24 12:25
Matrix: Water
Date Received: 10/15/24 09:40

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	500		75	25	mg/L			10/18/24 21:10	50
Chloride	470		75	30	mg/L			10/18/24 21:10	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	1500		240	96	mg/L			10/17/24 17:19	1

Client Sample ID: UO-87-02.1B_20241014_N_WG

Lab Sample ID: 410-192464-4

Date Collected: 10/14/24 13:26
Matrix: Water
Date Received: 10/15/24 09:40

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	160		75	25	mg/L			10/18/24 21:30	50
Chloride	260		75	30	mg/L			10/18/24 21:30	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	800		120	48	mg/L			10/17/24 17:19	1

Client: Jacobs Engineering Group, Inc.
Job ID: 410-192464-1
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Client Sample ID: UO-88-02.2_20241014_N_WG
Lab Sample ID: 410-192464-5
Date Collected: 10/14/24 14:17
Matrix: Water
Date Received: 10/15/24 09:40

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.5	U	7.5	2.5	mg/L			10/18/24 21:40	5
Chloride	**270**		75	30	mg/L			10/18/24 21:51	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	**570**		60	24	mg/L			10/17/24 17:19	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-565199/5
Matrix: Water
Analysis Batch: 565199

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			10/18/24 16:29	1
Chloride	0.60	U	1.5	0.60	mg/L			10/18/24 16:29	1

Lab Sample ID: LCS 410-565199/3
Matrix: Water
Analysis Batch: 565199

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Sulfate			7.39	7.28		mg/L		99	90 - 110		
Chloride			3.00	3.01		mg/L		100	90 - 110		

Lab Sample ID: LCSD 410-565199/4
Matrix: Water
Analysis Batch: 565199

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			7.39	7.23		mg/L		98	90 - 110	1	20
Chloride			3.00	2.99		mg/L		100	90 - 110	1	20

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 410-564633/1
Matrix: Water
Analysis Batch: 564633

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	12	U	30	12	mg/L			10/17/24 17:19	1

Lab Sample ID: LCS 410-564633/2
Matrix: Water
Analysis Batch: 564633

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			200	194		mg/L		97	90 - 110		

Lab Sample ID: 410-192464-3 MS
Matrix: Water
Analysis Batch: 564633

Client Sample ID: UO-87-02.1A_20241014_N_WG
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Dissolved Solids	1500		1600	3040		mg/L		95	90 - 110		

Lab Sample ID: 410-192464-3 DU
Matrix: Water
Analysis Batch: 564633

Client Sample ID: UO-87-02.1A_20241014_N_WG
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	1500			1480		mg/L				3	10

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-192464-1

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C) (Continued)

Lab Sample ID: 410-192464-4 DU
Matrix: Water
Analysis Batch: 564633

Client Sample ID: UO-87-02.1B_20241014_N_WG
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	800			780		mg/L				2	10

QC Association Summary

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-192464-1

HPLC/IC

Analysis Batch: 565199

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-192464-1	UO-87-08.1_20241014_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-192464-2	UO-87-08.2_20241014_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-192464-3	UO-87-02.1A_20241014_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-192464-4	UO-87-02.1B_20241014_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-192464-5	UO-88-02.2_20241014_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-192464-5	UO-88-02.2_20241014_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-565199/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-565199/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-565199/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

General Chemistry

Analysis Batch: 564633

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-192464-1	UO-87-08.1_20241014_N_WG	Total/NA	Water	2540C - 2015	
410-192464-2	UO-87-08.2_20241014_N_WG	Total/NA	Water	2540C - 2015	
410-192464-3	UO-87-02.1A_20241014_N_WG	Total/NA	Water	2540C - 2015	
410-192464-4	UO-87-02.1B_20241014_N_WG	Total/NA	Water	2540C - 2015	
410-192464-5	UO-88-02.2_20241014_N_WG	Total/NA	Water	2540C - 2015	
MB 410-564633/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-564633/2	Lab Control Sample	Total/NA	Water	2540C - 2015	
410-192464-3 MS	UO-87-02.1A_20241014_N_WG	Total/NA	Water	2540C - 2015	
410-192464-3 DU	UO-87-02.1A_20241014_N_WG	Total/NA	Water	2540C - 2015	
410-192464-4 DU	UO-87-02.1B_20241014_N_WG	Total/NA	Water	2540C - 2015	

Lab Chronicle

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-192464-1

Client Sample ID: UO-87-08.1_20241014_N_WG

Lab Sample ID: 410-192464-1
Matrix: Water
Date Collected: 10/14/24 09:49
Date Received: 10/15/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	565199	L4QM	ELLE	10/18/24 19:58
Total/NA	Analysis	2540C - 2015		1	564633	UOCA	ELLE	10/17/24 17:19 - 10/18/24 21:09 [1]

Client Sample ID: UO-87-08.2_20241014_N_WG

Lab Sample ID: 410-192464-2
Matrix: Water
Date Collected: 10/14/24 11:03
Date Received: 10/15/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	565199	L4QM	ELLE	10/18/24 20:39
Total/NA	Analysis	2540C - 2015		1	564633	UOCA	ELLE	10/17/24 17:19 - 10/18/24 21:09 [1]

Client Sample ID: UO-87-02.1A_20241014_N_WG

Lab Sample ID: 410-192464-3
Matrix: Water
Date Collected: 10/14/24 12:25
Date Received: 10/15/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		50	565199	L4QM	ELLE	10/18/24 21:10
Total/NA	Analysis	2540C - 2015		1	564633	UOCA	ELLE	10/17/24 17:19 - 10/18/24 21:09 [1]

Client Sample ID: UO-87-02.1B_20241014_N_WG

Lab Sample ID: 410-192464-4
Matrix: Water
Date Collected: 10/14/24 13:26
Date Received: 10/15/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		50	565199	L4QM	ELLE	10/18/24 21:30
Total/NA	Analysis	2540C - 2015		1	564633	UOCA	ELLE	10/17/24 17:19 - 10/18/24 21:09 [1]

Client Sample ID: UO-88-02.2_20241014_N_WG

Lab Sample ID: 410-192464-5
Matrix: Water
Date Collected: 10/14/24 14:17
Date Received: 10/15/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	565199	L4QM	ELLE	10/18/24 21:40
Total/NA	Analysis	EPA 300.0 R2.1		50	565199	L4QM	ELLE	10/18/24 21:51
Total/NA	Analysis	2540C - 2015		1	564633	UOCA	ELLE	10/17/24 17:19 - 10/18/24 21:09 [1]

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Jacobs Engineering Group, Inc.
Job ID: 410-192464-1
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00660	08-09-25

Method Summary

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-192464-1

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
2540C - 2015	Total Dissolved Solids (Dried at 180 °C)	SM	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Jacobs Engineering Group, Inc.
Project/Site: Umetco Hot Springs - UMP Quarterly GW Sampling

Job ID: 410-192464-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-192464-1	UO-87-08.1_20241014_N_WG	Water	10/14/24 09:49	10/15/24 09:40
410-192464-2	UO-87-08.2_20241014_N_WG	Water	10/14/24 11:03	10/15/24 09:40
410-192464-3	UO-87-02.1A_20241014_N_WG	Water	10/14/24 12:25	10/15/24 09:40
410-192464-4	UO-87-02.1B_20241014_N_WG	Water	10/14/24 13:26	10/15/24 09:40
410-192464-5	UO-88-02.2_20241014_N_WG	Water	10/14/24 14:17	10/15/24 09:40

410-192464 Chain of Custody

CHAIN OF CUSTODY / SAMPLE ANALYSIS REQUEST

COC No: EuroFins Lan-45579601

Cooler No. of

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 14
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number/Script** 4508165277
Project Chemist Jeremy Bishop 541.223.3856	**Shipping Company / Airbill No.** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 10/14/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Analysis: Filtered	Preserve	Chloride and Sulfate - E300.0	TDS - SM2540C
UO-87-08.1_20241014_N_WG	UO-87-08.1	WG	G		10/14/2024 09:49	2				X	X
UO-87-08.2_20241014_N_WG	UO-87-08.2	WG	G		10/14/2024 11:03	2				X	X
UO-87-02.1A_20241014_N_WG	UO-87-02.1A	WG	G		10/14/2024 12:25	2				X	X
UO-87-02.1B_20241014_N_WG	UO-87-02.1B	WG	G		10/14/2024 13:26	2				X	X
UO-88-02.2_20241014_N_WG	UO-88-02.2	WG	G		10/14/2024 14:17	2				X	X

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	Jordan Connatser	10-14-24 1730		
				10/15/24 0940
	SHIPPING METHOD: (mark as appropriate)		SAMPLER NAME AND SIGNATURE	Date Time
Email Report To :				
Email Invoice To : Jeremy.Bishop@jacobs.com,Dow_Umetco@jacobs.com			R:3.7 C:3.7	

Login Sample Receipt Checklist

Client: Jacobs Engineering Group, Inc.

Job Number: 410-192464-1

Login Number: 192464

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Santiago, Nathaniel

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

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

ANALYTICAL REPORT

PREPARED FOR

Attn: Jeremy Bishop
Jacobs Engineering Group, Inc.
1100 NE Circle Blvd
Suite 300
Corvallis, Oregon 97330

Generated 10/23/2024 12:13:46 AM

JOB DESCRIPTION

Umetco Hot Springs - UMP Quarterly Groundwater

JOB NUMBER

410-192766-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

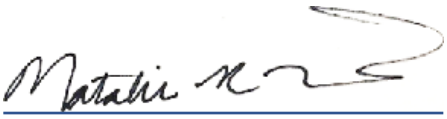
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Job Notes

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.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



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10/23/2024 12:13:46 AM

Authorized for release by
Natalie Luciano, Principal Project Manager
Natalie.Luciano@et.eurofinsus.com
(717)556-7258

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is 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.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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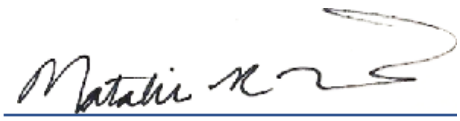


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Definitions/Glossary

Client: Jacobs Engineering Group, Inc. Job ID: 410-192766-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Qualifiers

HPLC/IC

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.
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Job ID: 410-192766-1 Eurofins Lancaster Laboratories Environment

Job Narrative
410-192766-1

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 10/17/2024 9:50 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 4.0°C.

Receipt Exceptions
The Chain-of-Custody (COC) was incomplete as received and/or improperly completed. The COC is missing Samples Preservation. This does not meet regulatory requirement.

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

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

Detection Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-192766-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-87-01.1A_20241016_N_WG — Lab Sample ID: 410-192766-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	53		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	15		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	140		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-01.1B_20241016_N_WG — Lab Sample ID: 410-192766-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	37		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	960		380	150	mg/L	250		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	1700		240	96	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-04.1_20241016_N_WG — Lab Sample ID: 410-192766-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	250		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	440		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-91-20.1B_20241016_N_WG — Lab Sample ID: 410-192766-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	5.0	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	490		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	890		120	48	mg/L	1		2540C - 2015	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Jacobs Engineering Group, Inc. Job ID: 410-192766-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-87-01.1A_20241016_N_WG — Lab Sample ID: 410-192766-1

Date Collected: 10/16/24 10:43 **Matrix: Water**
Date Received: 10/17/24 09:50

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	53		7.5	2.5	mg/L			10/18/24 21:26	5
Chloride	15		7.5	3.0	mg/L			10/18/24 21:26	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	140		30	12	mg/L			10/18/24 16:09	1

Client Sample ID: UO-87-01.1B_20241016_N_WG — Lab Sample ID: 410-192766-2

Date Collected: 10/16/24 11:39 **Matrix: Water**
Date Received: 10/17/24 09:50

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	37		7.5	2.5	mg/L			10/18/24 21:49	5
Chloride	960		380	150	mg/L			10/21/24 16:54	250

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	1700		240	96	mg/L			10/18/24 16:09	1

Client Sample ID: UO-87-04.1_20241016_N_WG — Lab Sample ID: 410-192766-3

Date Collected: 10/16/24 12:36 **Matrix: Water**
Date Received: 10/17/24 09:50

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.5	U	7.5	2.5	mg/L			10/18/24 22:12	5
Chloride	250		75	30	mg/L			10/18/24 22:24	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	440		60	24	mg/L			10/18/24 16:09	1

Client Sample ID: UO-91-20.1B_20241016_N_WG — Lab Sample ID: 410-192766-4

Date Collected: 10/16/24 13:30 **Matrix: Water**
Date Received: 10/17/24 09:50

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	5.0	J	7.5	2.5	mg/L			10/18/24 22:35	5
Chloride	490		75	30	mg/L			10/18/24 22:47	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	890		120	48	mg/L			10/18/24 16:09	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-565213/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 565213

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			10/18/24 17:30	1
Chloride	0.60	U	1.5	0.60	mg/L			10/18/24 17:30	1

Lab Sample ID: LCS 410-565213/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 565213

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.39	7.36		mg/L		100	90 - 110
Chloride	3.00	3.00		mg/L		100	90 - 110

Lab Sample ID: LCSD 410-565213/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 565213

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.39	7.35		mg/L		99	90 - 110	0	20
Chloride	3.00	3.00		mg/L		100	90 - 110	0	20

Lab Sample ID: MB 410-566011/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 566011

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			10/21/24 12:08	1
Chloride	0.60	U	1.5	0.60	mg/L			10/21/24 12:08	1

Lab Sample ID: LCS 410-566011/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 566011

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.39	7.00		mg/L		95	90 - 110
Chloride	3.00	2.84		mg/L		95	90 - 110

Lab Sample ID: LCSD 410-566011/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 566011

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.39	6.98		mg/L		94	90 - 110	0	20
Chloride	3.00	2.83		mg/L		94	90 - 110	0	20

Client: Jacobs Engineering Group, Inc.
Job ID: 410-192766-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 410-565146/1
Matrix: Water
Analysis Batch: 565146

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	12	U	30	12	mg/L			10/18/24 16:09	1

Lab Sample ID: LCS 410-565146/2
Matrix: Water
Analysis Batch: 565146

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	200	205		mg/L		103	90 - 110

Lab Sample ID: 410-192766-2 MS
Matrix: Water
Analysis Batch: 565146

Client Sample ID: UO-87-01.1B_20241016_N_WG
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1700		1600	3140		mg/L		91	90 - 110

Lab Sample ID: 410-192766-2 DU
Matrix: Water
Analysis Batch: 565146

Client Sample ID: UO-87-01.1B_20241016_N_WG
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	1700		1590		mg/L		6	10

Lab Sample ID: 410-192766-4 DU
Matrix: Water
Analysis Batch: 565146

Client Sample ID: UO-91-20.1B_20241016_N_WG
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	890		838		mg/L		6	10

HPLC/IC

Analysis Batch: 565213

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-192766-1	UO-87-01.1A_20241016_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-192766-2	UO-87-01.1B_20241016_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-192766-3	UO-87-04.1_20241016_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-192766-3	UO-87-04.1_20241016_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-192766-4	UO-91-20.1B_20241016_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-192766-4	UO-91-20.1B_20241016_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-565213/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-565213/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-565213/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 566011

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-192766-2	UO-87-01.1B_20241016_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-566011/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-566011/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-566011/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

General Chemistry

Analysis Batch: 565146

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-192766-1	UO-87-01.1A_20241016_N_WG	Total/NA	Water	2540C - 2015	
410-192766-2	UO-87-01.1B_20241016_N_WG	Total/NA	Water	2540C - 2015	
410-192766-3	UO-87-04.1_20241016_N_WG	Total/NA	Water	2540C - 2015	
410-192766-4	UO-91-20.1B_20241016_N_WG	Total/NA	Water	2540C - 2015	
MB 410-565146/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-565146/2	Lab Control Sample	Total/NA	Water	2540C - 2015	
410-192766-2 MS	UO-87-01.1B_20241016_N_WG	Total/NA	Water	2540C - 2015	
410-192766-2 DU	UO-87-01.1B_20241016_N_WG	Total/NA	Water	2540C - 2015	
410-192766-4 DU	UO-91-20.1B_20241016_N_WG	Total/NA	Water	2540C - 2015	

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-192766-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-87-01.1A_20241016_N_WG — Lab Sample ID: 410-192766-1

Date Collected: 10/16/24 10:43 **Matrix: Water**
Date Received: 10/17/24 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	565213	L4QM	ELLE	10/18/24 21:26
Total/NA	Analysis	2540C - 2015		1	565146	UOCA	ELLE	10/18/24 16:09 - 10/21/24 07:50 [1]

Client Sample ID: UO-87-01.1B_20241016_N_WG — Lab Sample ID: 410-192766-2

Date Collected: 10/16/24 11:39 **Matrix: Water**
Date Received: 10/17/24 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	565213	L4QM	ELLE	10/18/24 21:49
Total/NA	Analysis	EPA 300.0 R2.1		250	566011	W7FX	ELLE	10/21/24 16:54
Total/NA	Analysis	2540C - 2015		1	565146	UOCA	ELLE	10/18/24 16:09 - 10/21/24 07:50 [1]

Client Sample ID: UO-87-04.1_20241016_N_WG — Lab Sample ID: 410-192766-3

Date Collected: 10/16/24 12:36 **Matrix: Water**
Date Received: 10/17/24 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	565213	L4QM	ELLE	10/18/24 22:12
Total/NA	Analysis	EPA 300.0 R2.1		50	565213	L4QM	ELLE	10/18/24 22:24
Total/NA	Analysis	2540C - 2015		1	565146	UOCA	ELLE	10/18/24 16:09 - 10/21/24 07:50 [1]

Client Sample ID: UO-91-20.1B_20241016_N_WG — Lab Sample ID: 410-192766-4

Date Collected: 10/16/24 13:30 **Matrix: Water**
Date Received: 10/17/24 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	565213	L4QM	ELLE	10/18/24 22:35
Total/NA	Analysis	EPA 300.0 R2.1		50	565213	L4QM	ELLE	10/18/24 22:47
Total/NA	Analysis	2540C - 2015		1	565146	UOCA	ELLE	10/18/24 16:09 - 10/21/24 07:50 [1]

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-192766-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00660	08-09-25

Method Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-192766-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
2540C - 2015	Total Dissolved Solids (Dried at 180 °C)	SM	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-192766-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-192766-1	UO-87-01.1A_20241016_N_WG	Water	10/16/24 10:43	10/17/24 09:50
410-192766-2	UO-87-01.1B_20241016_N_WG	Water	10/16/24 11:39	10/17/24 09:50
410-192766-3	UO-87-04.1_20241016_N_WG	Water	10/16/24 12:36	10/17/24 09:50
410-192766-4	UO-91-20.1B_20241016_N_WG	Water	10/16/24 13:30	10/17/24 09:50

410-192766 Chain of Custody

ODY / SAMPLE ANALYSIS REQUEST

COC No: EuroFins Lan-45581579

Cooler No. of

UMP Quarterly Groundwater Sampling	**Turnaround Time** 14
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number/Script** 4508165277
Project Chemist Jeremy Bishop 541.223.3856	**Shipping Company / Airbill No.** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 10/16/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Analysis: Filtered	Preserve	Chloride and Sulfate - E300.0	TDS - SM2540C
UO-87-01.1A_20241016_N_WG	UO-87-01.1A	WG	G		10/16/2024 10:43	2				X	X
UO-87-01.1B_20241016_N_WG	UO-87-01.1B	WG	G		10/16/2024 11:39	2				X	X
UO-87-04.1_20241016_N_WG	UO-87-04.1	WG	G		10/16/2024 12:36	2				X	X
UO-91-20.1B_20241016_N_WG	UO-91-20.1B	WG	G		10/16/2024 13:30	2				X	X

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	Jordan Canal	10-16-24 1730		
			Hailey Arp	10/17/24 0950
	SHIPPING METHOD: (mark as appropriate)		SAMPLER NAME AND SIGNATURE	Date Time
Email Report To :				
Email Invoice To : Jeremy.Bishop@jacobs.com,Dow_Umetco@jacobs.com			R4.4-C4.0	

Login Sample Receipt Checklist

Client: Jacobs Engineering Group, Inc.

Job Number: 410-192766-1

Login Number: 192766

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Ballard, Megan

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

eurofins | Environment Testing

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

ANALYTICAL REPORT

PREPARED FOR

Attn: Jeremy Bishop
Jacobs Engineering Group, Inc.
1100 NE Circle Blvd
Suite 300
Corvallis, Oregon 97330

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JOB DESCRIPTION

Umetco Hot Springs - UMP Quarterly Groundwater

JOB NUMBER

410-192769-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

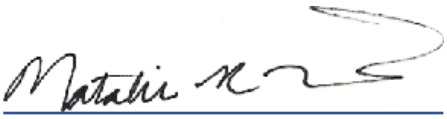
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Job Notes

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.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



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Authorized for release by
Natalie Luciano, Principal Project Manager
Natalie.Luciano@et.eurofinsus.com
(717)556-7258

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is 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.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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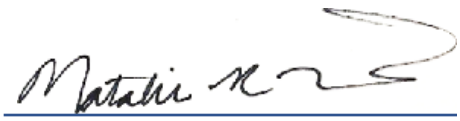


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Definitions/Glossary

Client: Jacobs Engineering Group, Inc. Job ID: 410-192769-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Qualifiers

HPLC/IC

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.
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Job Narrative
410-192769-1

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 10/17/2024 9:50 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 4.0°C.

Receipt Exceptions
The Chain-of-Custody (COC) was incomplete as received. The COC is missing Sample Preservation. This does not meet regulatory requirements.

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

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

Detection Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-192769-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-88-11.2_20241015_N_WG — Lab Sample ID: 410-192769-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	4.7	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	27		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	170		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-88-15.1_20241015_N_WG — Lab Sample ID: 410-192769-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	110		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	29		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	240		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-88-15.2_20241015_N_WG — Lab Sample ID: 410-192769-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	18		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	160		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	370		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-88-15.2_20241015_FD_WG — Lab Sample ID: 410-192769-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	18		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	160		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	380		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-88-14.1_20241015_N_WG — Lab Sample ID: 410-192769-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	68		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	16		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	150		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-88-14.2_20241015_N_WG — Lab Sample ID: 410-192769-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	43		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	200		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	510		60	24	mg/L	1		2540C - 2015	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Jacobs Engineering Group, Inc. Job ID: 410-192769-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-88-11.2_20241015_N_WG — Lab Sample ID: 410-192769-1

Date Collected: 10/15/24 10:08 **Matrix: Water**
Date Received: 10/17/24 09:50

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	4.7	J	7.5	2.5	mg/L			10/18/24 20:03	5
Chloride	27		7.5	3.0	mg/L			10/18/24 20:03	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	170		30	12	mg/L			10/18/24 16:09	1

Client Sample ID: UO-88-15.1_20241015_N_WG — Lab Sample ID: 410-192769-2

Date Collected: 10/15/24 11:25 **Matrix: Water**
Date Received: 10/17/24 09:50

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	110		7.5	2.5	mg/L			10/18/24 20:26	5
Chloride	29		7.5	3.0	mg/L			10/18/24 20:26	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	240		30	12	mg/L			10/18/24 16:09	1

Client Sample ID: UO-88-15.2_20241015_N_WG — Lab Sample ID: 410-192769-3

Date Collected: 10/15/24 12:50 **Matrix: Water**
Date Received: 10/17/24 09:50

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	18		7.5	2.5	mg/L			10/18/24 20:49	5
Chloride	160		75	30	mg/L			10/18/24 21:01	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	370		60	24	mg/L			10/18/24 16:09	1

Client Sample ID: UO-88-15.2_20241015_FD_WG — Lab Sample ID: 410-192769-4

Date Collected: 10/15/24 12:50 **Matrix: Water**
Date Received: 10/17/24 09:50

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	18		7.5	2.5	mg/L			10/18/24 21:12	5
Chloride	160		75	30	mg/L			10/18/24 21:24	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	380		60	24	mg/L			10/18/24 16:09	1

Client Sample Results

Client: Jacobs Engineering Group, Inc. Job ID: 410-192769-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-88-14.1_20241015_N_WG — Lab Sample ID: 410-192769-5

Date Collected: 10/15/24 14:08 **Matrix: Water**
Date Received: 10/17/24 09:50

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	68		7.5	2.5	mg/L			10/18/24 21:35	5
Chloride	16		7.5	3.0	mg/L			10/18/24 21:35	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	150		30	12	mg/L			10/18/24 16:09	1

Client Sample ID: UO-88-14.2_20241015_N_WG — Lab Sample ID: 410-192769-6

Date Collected: 10/15/24 14:40 **Matrix: Water**
Date Received: 10/17/24 09:50

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	43		7.5	2.5	mg/L			10/18/24 22:22	5
Chloride	200		75	30	mg/L			10/18/24 22:33	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	510		60	24	mg/L			10/18/24 16:09	1

Client: Jacobs Engineering Group, Inc.
Job ID: 410-192769-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-565230/5
Matrix: Water
Analysis Batch: 565230

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			10/18/24 19:25	1
Chloride	0.60	U	1.5	0.60	mg/L			10/18/24 19:25	1

Lab Sample ID: LCS 410-565230/3
Matrix: Water
Analysis Batch: 565230

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.39	7.32		mg/L		99	90 - 110
Chloride	3.00	2.92		mg/L		97	90 - 110

Lab Sample ID: LCSD 410-565230/4
Matrix: Water
Analysis Batch: 565230

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	7.39	7.32		mg/L		99	90 - 110	0	20
Chloride	3.00	2.92		mg/L		97	90 - 110	0	20

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 410-565146/1
Matrix: Water
Analysis Batch: 565146

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	12	U	30	12	mg/L			10/18/24 16:09	1

Lab Sample ID: LCS 410-565146/2
Matrix: Water
Analysis Batch: 565146

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	200	205		mg/L		103	90 - 110

QC Association Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-192769-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

HPLC/IC

Analysis Batch: 565230

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-192769-1	UO-88-11.2_20241015_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-192769-2	UO-88-15.1_20241015_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-192769-3	UO-88-15.2_20241015_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-192769-3	UO-88-15.2_20241015_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-192769-4	UO-88-15.2_20241015_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
410-192769-4	UO-88-15.2_20241015_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
410-192769-5	UO-88-14.1_20241015_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-192769-6	UO-88-14.2_20241015_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-192769-6	UO-88-14.2_20241015_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-565230/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-565230/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-565230/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

General Chemistry

Analysis Batch: 565146

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-192769-1	UO-88-11.2_20241015_N_WG	Total/NA	Water	2540C - 2015	
410-192769-2	UO-88-15.1_20241015_N_WG	Total/NA	Water	2540C - 2015	
410-192769-3	UO-88-15.2_20241015_N_WG	Total/NA	Water	2540C - 2015	
410-192769-4	UO-88-15.2_20241015_FD_WG	Total/NA	Water	2540C - 2015	
410-192769-5	UO-88-14.1_20241015_N_WG	Total/NA	Water	2540C - 2015	
410-192769-6	UO-88-14.2_20241015_N_WG	Total/NA	Water	2540C - 2015	
MB 410-565146/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-565146/2	Lab Control Sample	Total/NA	Water	2540C - 2015	

Client Sample ID: UO-88-11.2_20241015_N_WG — Lab Sample ID: 410-192769-1

Date Collected: 10/15/24 10:08 **Matrix: Water**
Date Received: 10/17/24 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	565230	W7FX	ELLE	10/18/24 20:03
Total/NA	Analysis	2540C - 2015		1	565146	UOCA	ELLE	10/18/24 16:09 - 10/21/24 07:50 [1]

Client Sample ID: UO-88-15.1_20241015_N_WG — Lab Sample ID: 410-192769-2

Date Collected: 10/15/24 11:25 **Matrix: Water**
Date Received: 10/17/24 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	565230	W7FX	ELLE	10/18/24 20:26
Total/NA	Analysis	2540C - 2015		1	565146	UOCA	ELLE	10/18/24 16:09 - 10/21/24 07:50 [1]

Client Sample ID: UO-88-15.2_20241015_N_WG — Lab Sample ID: 410-192769-3

Date Collected: 10/15/24 12:50 **Matrix: Water**
Date Received: 10/17/24 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	565230	W7FX	ELLE	10/18/24 20:49
Total/NA	Analysis	EPA 300.0 R2.1		50	565230	W7FX	ELLE	10/18/24 21:01
Total/NA	Analysis	2540C - 2015		1	565146	UOCA	ELLE	10/18/24 16:09 - 10/21/24 07:50 [1]

Client Sample ID: UO-88-15.2_20241015_FD_WG — Lab Sample ID: 410-192769-4

Date Collected: 10/15/24 12:50 **Matrix: Water**
Date Received: 10/17/24 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	565230	W7FX	ELLE	10/18/24 21:12
Total/NA	Analysis	EPA 300.0 R2.1		50	565230	W7FX	ELLE	10/18/24 21:24
Total/NA	Analysis	2540C - 2015		1	565146	UOCA	ELLE	10/18/24 16:09 - 10/21/24 07:50 [1]

Client Sample ID: UO-88-14.1_20241015_N_WG — Lab Sample ID: 410-192769-5

Date Collected: 10/15/24 14:08 **Matrix: Water**
Date Received: 10/17/24 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	565230	W7FX	ELLE	10/18/24 21:35
Total/NA	Analysis	2540C - 2015		1	565146	UOCA	ELLE	10/18/24 16:09 - 10/21/24 07:50 [1]

Client Sample ID: UO-88-14.2_20241015_N_WG — Lab Sample ID: 410-192769-6

Date Collected: 10/15/24 14:40 **Matrix: Water**
Date Received: 10/17/24 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	565230	W7FX	ELLE	10/18/24 22:22
Total/NA	Analysis	EPA 300.0 R2.1		50	565230	W7FX	ELLE	10/18/24 22:33
Total/NA	Analysis	2540C - 2015		1	565146	UOCA	ELLE	10/18/24 16:09 - 10/21/24 07:50 [1]

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-192769-1

Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-192769-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00660	08-09-25

Method Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-192769-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
2540C - 2015	Total Dissolved Solids (Dried at 180 °C)	SM	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-192769-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-192769-1	UO-88-11.2_20241015_N_WG	Water	10/15/24 10:08	10/17/24 09:50
410-192769-2	UO-88-15.1_20241015_N_WG	Water	10/15/24 11:25	10/17/24 09:50
410-192769-3	UO-88-15.2_20241015_N_WG	Water	10/15/24 12:50	10/17/24 09:50
410-192769-4	UO-88-15.2_20241015_FD_WG	Water	10/15/24 12:50	10/17/24 09:50
410-192769-5	UO-88-14.1_20241015_N_WG	Water	10/15/24 14:08	10/17/24 09:50
410-192769-6	UO-88-14.2_20241015_N_WG	Water	10/15/24 14:40	10/17/24 09:50

410-192769 Chain of Custody

Y / SAMPLE ANALYSIS REQUEST

COC No: EuroFins Lan-45581379

Cooler No. 1 of 1

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 7
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number/Script** 4508165277
Project Chemist Jeremy Bishop 541.223.3856	**Shipping Company / Airbill No.** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 10/16/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Filtered / Preserve / Analysis: Chloride and Sulfate - E300.0	Analysis: TDS - SM2540C
UO-88-11.2_20241015_N_WG	UO-88-1 1.2	WG	G		10/15/2024 10:08	2		X	X
UO-88-15.1_20241015_N_WG	UO-88-1 5.1	WG	G		10/15/2024 11:25	2		X	X
UO-88-15.2_20241015_N_WG	UO-88-1 5.2	WG	G		10/15/2024 12:50	2		X	X
UO-88-15.2_20241015_FD_WG	UO-88-1 5.2	WG	G		10/15/2024 12:50	2		X	X
UO-88-14.1_20241015_N_WG	UO-88-1 4.1	WG	G		10/15/2024 14:08	2		X	X
UO-88-14.2_20241015_N_WG	UO-88-1 4.2	WG	G		10/15/2024 14:40	2		X	X

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	Jordan Connaha	10-16-24 1730		
			Hay Cyp	10/17/24 0950
	SHIPPING METHOD: (mark as appropriate)		SAMPLER NAME AND SIGNATURE	Date Time
Email Report To :				
Email Invoice To : Jeremy.Bishop@jacobs.com,Dow_Umetco@jacobs.com			R.Y.-C.Y.P	

Login Sample Receipt Checklist

Client: Jacobs Engineering Group, Inc.

Job Number: 410-192769-1

Login Number: 192769

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Ballard, Megan

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	Refer to Job Narrative for details.
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

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ANALYTICAL REPORT

PREPARED FOR

Attn: Jeremy Bishop
Jacobs Engineering Group, Inc.
1100 NE Circle Blvd
Suite 300
Corvallis, Oregon 97330

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JOB DESCRIPTION

Umetco Hot Springs - UMP Quarterly Groundwater

JOB NUMBER

410-192948-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

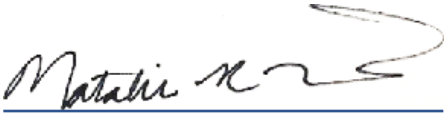
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Job Notes

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.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



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Authorized for release by
Natalie Luciano, Principal Project Manager
Natalie.Luciano@et.eurofinsus.com
(717)556-7258

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is 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.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

This report shall not be reproduced except in full, without the written approval of the laboratory.

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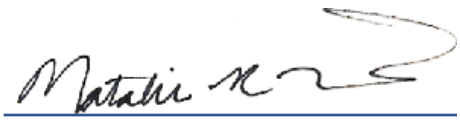


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Client: Jacobs Engineering Group, Inc. Job ID: 410-192948-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Job ID: 410-192948-1 Eurofins Lancaster Laboratories Environment

Job Narrative
410-192948-1

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 10/18/2024 9:30 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.0°C.

Receipt Exceptions
The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): UO-87-09.2_20241017_23.22-30.98_ft_FD_WG (410-192948-2). The container labels list 10:30, while the COC lists 10:25. Entered per COC.

The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): UO-88-13.2_20241017_6.36-9.59_ft_FD_WG (410-192948-6). The container labels list 12:50, while the COC lists 12:45. Entered per COC.

The Chain-of-Custody (COC) was incomplete as received. The COC is missing Sample Preservation. This does not meet regulatory requirements.

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

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

Detection Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-192948-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-87-09.1_20241017_22.99-28.83_ft_N_WG — Lab Sample ID: 410-192948-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	57	F1	30	12	mg/L	20		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	220		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-09.2_20241017_23.22-30.98_ft_FD_WG — Lab Sample ID: 410-192948-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	13		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	480		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	940		120	48	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-09.2_20241017_23.22-30.98_ft_N_WG — Lab Sample ID: 410-192948-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	13		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	480		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	930		120	48	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-88-13.1_20241017_5.82-7.06_ft_N_WG — Lab Sample ID: 410-192948-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	340		75	25	mg/L	50		EPA 300.0 R2.1	Total/NA
Chloride	57		38	15	mg/L	25		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	580		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-88-13.2_20241017_6.36-9.59_ft_N_WG — Lab Sample ID: 410-192948-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	32		15	5.0	mg/L	10		EPA 300.0 R2.1	Total/NA
Chloride	3100		1500	600	mg/L	1000		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	5400		600	240	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-88-13.2_20241017_6.36-9.59_ft_FD_WG — Lab Sample ID: 410-192948-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	32		15	5.0	mg/L	10		EPA 300.0 R2.1	Total/NA
Chloride	3000		1500	600	mg/L	1000		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	5400		600	240	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-03.2_20241017_22.18-23.3_ft_N_WG — Lab Sample ID: 410-192948-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	590		300	100	mg/L	200		EPA 300.0 R2.1	Total/NA
Chloride	4200		3000	1200	mg/L	2000		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	9300		1200	480	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UO-87-03.1_20241017_21.8-23.78_ft_N_WG — Lab Sample ID: 410-192948-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	850		75	25	mg/L	50		EPA 300.0 R2.1	Total/NA
Chloride	2600	F1	750	300	mg/L	500		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	5200		240	96	mg/L	1		2540C - 2015	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: UO-87-09.1_20241017_22.99-28.83_ft_N_WG — Lab Sample ID: 410-192948-1

Date Collected: 10/17/24 10:00 — **Matrix: Water**
Date Received: 10/18/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.5	U	7.5	2.5	mg/L			10/21/24 23:01	5
Chloride	57	F1	30	12	mg/L			10/22/24 17:40	20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	220		60	24	mg/L			10/21/24 19:30	1

Client Sample ID: UO-87-09.2_20241017_23.22-30.98_ft_FD_WG — Lab Sample ID: 410-192948-2

Date Collected: 10/17/24 10:25 — **Matrix: Water**
Date Received: 10/18/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	13		7.5	2.5	mg/L			10/21/24 21:29	5
Chloride	480		75	30	mg/L			10/21/24 21:40	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	940		120	48	mg/L			10/21/24 19:30	1

Client Sample ID: UO-87-09.2_20241017_23.22-30.98_ft_N_WG — Lab Sample ID: 410-192948-3

Date Collected: 10/17/24 10:25 — **Matrix: Water**
Date Received: 10/18/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	13		7.5	2.5	mg/L			10/21/24 21:51	5
Chloride	480		75	30	mg/L			10/21/24 22:02	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	930		120	48	mg/L			10/21/24 19:30	1

Client Sample ID: UO-88-13.1_20241017_5.82-7.06_ft_N_WG — Lab Sample ID: 410-192948-4

Date Collected: 10/17/24 12:15 — **Matrix: Water**
Date Received: 10/18/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	340		75	25	mg/L			10/21/24 22:24	50
Chloride	57		38	15	mg/L			10/22/24 16:31	25

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	580		60	24	mg/L			10/21/24 19:30	1

Client Sample ID: UO-88-13.2_20241017_6.36-9.59_ft_N_WG — Lab Sample ID: 410-192948-5

Date Collected: 10/17/24 12:45 — **Matrix: Water**
Date Received: 10/18/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	32		15	5.0	mg/L			10/21/24 23:20	10
Chloride	3100		1500	600	mg/L			10/22/24 15:59	1000

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	5400		600	240	mg/L			10/21/24 19:30	1

Client Sample ID: UO-88-13.2_20241017_6.36-9.59_ft_FD_WG — Lab Sample ID: 410-192948-6

Date Collected: 10/17/24 12:45 — **Matrix: Water**
Date Received: 10/18/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	32		15	5.0	mg/L			10/21/24 23:42	10
Chloride	3000		1500	600	mg/L			10/22/24 16:09	1000

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	5400		600	240	mg/L			10/21/24 19:30	1

Client Sample ID: UO-87-03.2_20241017_22.18-23.3_ft_N_WG — Lab Sample ID: 410-192948-7

Date Collected: 10/17/24 14:40 — **Matrix: Water**
Date Received: 10/18/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	590		300	100	mg/L			10/22/24 16:19	200
Chloride	4200		3000	1200	mg/L			10/22/24 16:30	2000

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	9300		1200	480	mg/L			10/21/24 19:30	1

Client Sample ID: UO-87-03.1_20241017_21.8-23.78_ft_N_WG — Lab Sample ID: 410-192948-8

Date Collected: 10/17/24 15:00 — **Matrix: Water**
Date Received: 10/18/24 09:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	850		75	25	mg/L			10/21/24 20:58	50
Chloride	2600	F1	750	300	mg/L			10/23/24 10:35	500

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	5200		240	96	mg/L			10/21/24 19:30	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-565999/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 565999

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			10/21/24 12:13	1
Chloride	0.60	U	1.5	0.60	mg/L			10/21/24 12:13	1

Lab Sample ID: LCS 410-565999/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 565999

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.39	6.99		mg/L		95	90 - 110
Chloride	3.00	2.76		mg/L		92	90 - 110

Lab Sample ID: LCSD 410-565999/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 565999

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.39	6.98		mg/L		94	90 - 110	0	20
Chloride	3.00	2.75		mg/L		92	90 - 110	0	20

Lab Sample ID: MB 410-566011/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 566011

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			10/21/24 12:08	1
Chloride	0.60	U	1.5	0.60	mg/L			10/21/24 12:08	1

Lab Sample ID: LCS 410-566011/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 566011

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.39	7.00		mg/L		95	90 - 110
Chloride	3.00	2.84		mg/L		95	90 - 110

Lab Sample ID: LCSD 410-566011/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 566011

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.39	6.98		mg/L		94	90 - 110	0	20
Chloride	3.00	2.83		mg/L		94	90 - 110	0	20

Lab Sample ID: MB 410-566022/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 566022

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			10/21/24 12:14	1
Chloride	0.60	U	1.5	0.60	mg/L			10/21/24 12:14	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: LCS 410-566022/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 566022

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.39	7.35		mg/L		99	90 - 110
Chloride	3.00	2.80		mg/L		93	90 - 110

Lab Sample ID: LCSD 410-566022/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 566022

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.39	7.26		mg/L		98	90 - 110	1	20
Chloride	3.00	2.80		mg/L		93	90 - 110	0	20

Lab Sample ID: MB 410-566559/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 566559

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			10/22/24 12:49	1
Chloride	0.60	U	1.5	0.60	mg/L			10/22/24 12:49	1

Lab Sample ID: LCS 410-566559/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 566559

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.39	7.36		mg/L		100	90 - 110
Chloride	3.00	2.94		mg/L		98	90 - 110

Lab Sample ID: LCSD 410-566559/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 566559

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.39	7.38		mg/L		100	90 - 110	0	20
Chloride	3.00	2.94		mg/L		98	90 - 110	0	20

Lab Sample ID: MB 410-566585/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 566585

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			10/22/24 17:05	1
Chloride	0.60	U	1.5	0.60	mg/L			10/22/24 17:05	1

Lab Sample ID: LCS 410-566585/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 566585

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.39	7.48		mg/L		101	90 - 110
Chloride	3.00	2.85		mg/L		95	90 - 110

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: LCSD 410-566585/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 566585

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate			7.39	7.48		mg/L		101	90 - 110	0	20
Chloride			3.00	2.85		mg/L		95	90 - 110	0	20

Lab Sample ID: 410-192948-1 MS — **Client Sample ID: UO-87-09.1_20241017_22.99-28.83_ft_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 566585

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	57	F1	40.0	104	F1	mg/L		116	90 - 110		

Lab Sample ID: 410-192948-1 DU — **Client Sample ID: UO-87-09.1_20241017_22.99-28.83_ft_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 566585

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Chloride	57	F1		57.1		mg/L				0.3	15

Lab Sample ID: MB 410-566610/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 566610

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			10/22/24 12:52	1
Chloride	0.60	U	1.5	0.60	mg/L			10/22/24 12:52	1

Lab Sample ID: LCS 410-566610/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 566610

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Sulfate			7.39	7.18		mg/L		97	90 - 110		
Chloride			3.00	2.81		mg/L		94	90 - 110		

Lab Sample ID: LCSD 410-566610/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 566610

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate			7.39	7.18		mg/L		97	90 - 110	0	20
Chloride			3.00	2.80		mg/L		93	90 - 110	0	20

Lab Sample ID: MB 410-566619/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 566619

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			10/23/24 02:17	1
Chloride	0.60	U	1.5	0.60	mg/L			10/23/24 02:17	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 410-566619/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 566619

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Sulfate			7.39	7.24		mg/L		98	90 - 110		
Chloride			3.00	2.83		mg/L		94	90 - 110		

Lab Sample ID: LCSD 410-566619/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 566619

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate			7.39	7.24		mg/L		98	90 - 110	0	20
Chloride			3.00	2.83		mg/L		94	90 - 110	0	20

Lab Sample ID: 410-192948-8 MS — **Client Sample ID: UO-87-03.1_20241017_21.8-23.78_ft_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 566619

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	2600	F1	1000	3860	F1	mg/L		128	90 - 110		

Lab Sample ID: 410-192948-8 DU — **Client Sample ID: UO-87-03.1_20241017_21.8-23.78_ft_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 566619

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	2600	F1	2560		mg/L		0.6	15

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 410-565983/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 565983

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12	U	30	12	mg/L			10/21/24 19:30	1

Lab Sample ID: LCS 410-565983/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 565983

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Dissolved Solids			200	198		mg/L		99	90 - 110		

HPLC/IC

Analysis Batch: 565999

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-192948-2	UO-87-09.2_20241017_23.22-30.98_ft_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
410-192948-2	UO-87-09.2_20241017_23.22-30.98_ft_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
410-192948-3	UO-87-09.2_20241017_23.22-30.98_ft_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-192948-3	UO-87-09.2_20241017_23.22-30.98_ft_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-192948-4	UO-88-13.1_20241017_5.82-7.06_ft_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-192948-5	UO-88-13.2_20241017_6.36-9.59_ft_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-192948-6	UO-88-13.2_20241017_6.36-9.59_ft_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-565999/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-565999/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-565999/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 566011

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-192948-8	UO-87-03.1_20241017_21.8-23.78_ft_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-566011/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-566011/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-566011/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 566022

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-192948-1	UO-87-09.1_20241017_22.99-28.83_ft_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-566022/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-566022/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-566022/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 566559

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-192948-5	UO-88-13.2_20241017_6.36-9.59_ft_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-192948-6	UO-88-13.2_20241017_6.36-9.59_ft_FD_WG	Total/NA	Water	EPA 300.0 R2.1	
410-192948-7	UO-87-03.2_20241017_22.18-23.3_ft_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-192948-7	UO-87-03.2_20241017_22.18-23.3_ft_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-566559/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-566559/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-566559/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 566585

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-192948-1	UO-87-09.1_20241017_22.99-28.83_ft_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-566585/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-566585/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-566585/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	
410-192948-1 MS	UO-87-09.1_20241017_22.99-28.83_ft_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-192948-1 DU	UO-87-09.1_20241017_22.99-28.83_ft_N_WG	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 566610

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-192948-4	UO-88-13.1_20241017_5.82-7.06_ft_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-566610/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-566610/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-566610/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Client: Jacobs Engineering Group, Inc. Job ID: 410-192948-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

HPLC/IC

Analysis Batch: 566619

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-192948-8	UO-87-03.1_20241017_21.8-23.78_ft_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-566619/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-566619/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-566619/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	
410-192948-8 MS	UO-87-03.1_20241017_21.8-23.78_ft_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-192948-8 DU	UO-87-03.1_20241017_21.8-23.78_ft_N_WG	Total/NA	Water	EPA 300.0 R2.1	

General Chemistry

Analysis Batch: 565983

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-192948-1	UO-87-09.1_20241017_22.99-28.83_ft_N_WG	Total/NA	Water	2540C - 2015	
410-192948-2	UO-87-09.2_20241017_23.22-30.98_ft_FD_WG	Total/NA	Water	2540C - 2015	
410-192948-3	UO-87-09.2_20241017_23.22-30.98_ft_N_WG	Total/NA	Water	2540C - 2015	
410-192948-4	UO-88-13.1_20241017_5.82-7.06_ft_N_WG	Total/NA	Water	2540C - 2015	
410-192948-5	UO-88-13.2_20241017_6.36-9.59_ft_N_WG	Total/NA	Water	2540C - 2015	
410-192948-6	UO-88-13.2_20241017_6.36-9.59_ft_FD_WG	Total/NA	Water	2540C - 2015	
410-192948-7	UO-87-03.2_20241017_22.18-23.3_ft_N_WG	Total/NA	Water	2540C - 2015	
410-192948-8	UO-87-03.1_20241017_21.8-23.78_ft_N_WG	Total/NA	Water	2540C - 2015	
MB 410-565983/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-565983/2	Lab Control Sample	Total/NA	Water	2540C - 2015	

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-192948-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-87-09.1_20241017_22.99-28.83_ft_N_WG — Lab Sample ID: 410-192948-1

Date Collected: 10/17/24 10:00 **Matrix: Water**
Date Received: 10/18/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	566022	W7FX	ELLE	10/21/24 23:01
Total/NA	Analysis	EPA 300.0 R2.1		20	566585	W7FX	ELLE	10/22/24 17:40
Total/NA	Analysis	2540C - 2015		1	565983	UOCA	ELLE	10/21/24 19:30 - 10/23/24 11:10 [1]

Client Sample ID: UO-87-09.2_20241017_23.22-30.98_ft_FD_WG — Lab Sample ID: 410-192948-2

Date Collected: 10/17/24 10:25 **Matrix: Water**
Date Received: 10/18/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	565999	W7FX	ELLE	10/21/24 21:29
Total/NA	Analysis	EPA 300.0 R2.1		50	565999	W7FX	ELLE	10/21/24 21:40
Total/NA	Analysis	2540C - 2015		1	565983	UOCA	ELLE	10/21/24 19:30 - 10/23/24 11:10 [1]

Client Sample ID: UO-87-09.2_20241017_23.22-30.98_ft_N_WG — Lab Sample ID: 410-192948-3

Date Collected: 10/17/24 10:25 **Matrix: Water**
Date Received: 10/18/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	565999	W7FX	ELLE	10/21/24 21:51
Total/NA	Analysis	EPA 300.0 R2.1		50	565999	W7FX	ELLE	10/21/24 22:02
Total/NA	Analysis	2540C - 2015		1	565983	UOCA	ELLE	10/21/24 19:30 - 10/23/24 11:10 [1]

Client Sample ID: UO-88-13.1_20241017_5.82-7.06_ft_N_WG — Lab Sample ID: 410-192948-4

Date Collected: 10/17/24 12:15 **Matrix: Water**
Date Received: 10/18/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		50	565999	W7FX	ELLE	10/21/24 22:24
Total/NA	Analysis	EPA 300.0 R2.1		25	566610	W7FX	ELLE	10/22/24 16:31
Total/NA	Analysis	2540C - 2015		1	565983	UOCA	ELLE	10/21/24 19:30 - 10/23/24 11:10 [1]

Client Sample ID: UO-88-13.2_20241017_6.36-9.59_ft_N_WG — Lab Sample ID: 410-192948-5

Date Collected: 10/17/24 12:45 **Matrix: Water**
Date Received: 10/18/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		10	565999	W7FX	ELLE	10/21/24 23:20
Total/NA	Analysis	EPA 300.0 R2.1		1000	566559	W7FX	ELLE	10/22/24 15:59
Total/NA	Analysis	2540C - 2015		1	565983	UOCA	ELLE	10/21/24 19:30 - 10/23/24 11:10 [1]

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-192948-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UO-88-13.2_20241017_6.36-9.59_ft_FD_WG — Lab Sample ID: 410-192948-6

Date Collected: 10/17/24 12:45 **Matrix: Water**
Date Received: 10/18/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		10	565999	W7FX	ELLE	10/21/24 23:42
Total/NA	Analysis	EPA 300.0 R2.1		1000	566559	W7FX	ELLE	10/22/24 16:09
Total/NA	Analysis	2540C - 2015		1	565983	UOCA	ELLE	10/21/24 19:30 - 10/23/24 11:10 [1]

Client Sample ID: UO-87-03.2_20241017_22.18-23.3_ft_N_WG — Lab Sample ID: 410-192948-7

Date Collected: 10/17/24 14:40 **Matrix: Water**
Date Received: 10/18/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		200	566559	W7FX	ELLE	10/22/24 16:19
Total/NA	Analysis	EPA 300.0 R2.1		2000	566559	W7FX	ELLE	10/22/24 16:30
Total/NA	Analysis	2540C - 2015		1	565983	UOCA	ELLE	10/21/24 19:30 - 10/23/24 11:10 [1]

Client Sample ID: UO-87-03.1_20241017_21.8-23.78_ft_N_WG — Lab Sample ID: 410-192948-8

Date Collected: 10/17/24 15:00 **Matrix: Water**
Date Received: 10/18/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		500	566619	L4QM	ELLE	10/23/24 10:35
Total/NA	Analysis	EPA 300.0 R2.1		50	566011	W7FX	ELLE	10/21/24 20:58
Total/NA	Analysis	2540C - 2015		1	565983	UOCA	ELLE	10/21/24 19:30 - 10/23/24 11:10 [1]

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-192948-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00660	08-09-25

Method Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-192948-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
2540C - 2015	Total Dissolved Solids (Dried at 180 °C)	SM	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-192948-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-192948-1	UO-87-09.1_20241017_22.99-28.83_ft_N_WG	Water	10/17/24 10:00	10/18/24 09:30
410-192948-2	UO-87-09.2_20241017_23.22-30.98_ft_FD_WG	Water	10/17/24 10:25	10/18/24 09:30
410-192948-3	UO-87-09.2_20241017_23.22-30.98_ft_N_WG	Water	10/17/24 10:25	10/18/24 09:30
410-192948-4	UO-88-13.1_20241017_5.82-7.06_ft_N_WG	Water	10/17/24 12:15	10/18/24 09:30
410-192948-5	UO-88-13.2_20241017_6.36-9.59_ft_N_WG	Water	10/17/24 12:45	10/18/24 09:30
410-192948-6	UO-88-13.2_20241017_6.36-9.59_ft_FD_WG	Water	10/17/24 12:45	10/18/24 09:30
410-192948-7	UO-87-03.2_20241017_22.18-23.3_ft_N_WG	Water	10/17/24 14:40	10/18/24 09:30
410-192948-8	UO-87-03.1_20241017_21.8-23.78_ft_N_WG	Water	10/17/24 15:00	10/18/24 09:30

410-192948 Chain of Custody

CHAIN OF | **EQUEST** | **COC No: EuroFins Lan-45582630** | **Cooler No. 1 of 1**

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 14
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number/Script** 4508165277
Project Chemist Jeremy Bishop 541.223.3856	**Shipping Company / Airbill No.** UPS /
Sampler Shaun Holland	**Shipping Date** 10/17/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Filtered	Preserve	Analysis: Chloride and Sulfate E300.0	Analysis: TDS SM2540C
UO-87-09.1_20241017_22.99-28.83_ft_N_WG	UO-87-09.1	WG	G	22.99 28.83 ft	10/17/2024 10:00	2				X	X
UO-87-09.2_20241017_23.22-30.98_ft_FD_WG	UO-87-09.2	WG	G	23.22 30.98 ft	10/17/2024 10:25	2				X	X
UO-87-09.2_20241017_23.22-30.98_ft_N_WG	UO-87-09.2	WG	G	23.22 30.98 ft	10/17/2024 10:25	2				X	X
UO-88-13.1_20241017_5.82-7.06_ft_N_WG	UO-88-13.1	WG	G	5.82 7.06 ft	10/17/2024 12:15	2				X	X
UO-88-13.2_20241017_6.36-9.59_ft_N_WG	UO-88-13.2	WG	G	6.36 9.59 ft	10/17/2024 12:45	2				X	X
UO-88-13.2_20241017_6.36-9.59_ft_FD_WG	UO-88-13.2	WG	G	6.36 9.59 ft	10/17/2024 12:45	2				X	X
UO-87-03.2_20241017_22.18-23.3_ft_N_WG	UO-87-03.2	WG	G	22 18 23.3 ft	10/17/2024 14:40	2				X	X

Additional Comments/Special Instructions:

1,0/1,0

RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
SH	10/17/24 1730		
		MP ENS	10/18/24 0930

SHIPPING METHOD: (mark as appropriate) | **SAMPLER NAME AND SIGNATURE** | **Date Time**

Email Report To

Jeremy Bishop@jacobs.com Dow_Umetco@jacobs.com

Email Invoice To :

CHAIN OF CUSTODY / SAMPLE ANALYSIS REQUEST

COC No: EuroFins Lan-45582630

Cooler No. 1 of 1

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 14
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717 556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number/Script** 4508165277
Project Chemist Jeremy Bishop 541.223.3856	**Shipping Company / Airbill No.** UPS /
Sampler Shaun Holland	**Shipping Date** 10/17/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Analysis: Filtered	Preserve	Chloride and Sulfate E300.0	TDS SM2540C																				
UO-87-03.1_20241017_21 8-23.78_ft_N_WG	UO-87-03.1	WG	G	21.8 23.78 ft	10/17/2024 15:00	2				X	X																				

Additional Comments/Special Instructions:

10/10

RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	10/17/24 1730		
			10/18/24 0930

SHIPPING METHOD: (mark as appropriate)	SAMPLER NAME AND SIGNATURE	Date Time

Email Report To :

Email Invoice To : Jeremy Bishop@jacobs.com,Dow_Umetco@jacobs.com

Login Sample Receipt Checklist

Client: Jacobs Engineering Group, Inc.

Job Number: 410-192948-1

Login Number: 192948

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: McCaskey, Jonathan

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	Container preservation not listed on COC.
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

eurofins | Environment Testing

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

ANALYTICAL REPORT

PREPARED FOR

Attn: Jeremy Bishop
Jacobs Engineering Group, Inc.
1100 NE Circle Blvd
Suite 300
Corvallis, Oregon 97330

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JOB DESCRIPTION

Umetco Hot Springs - UMP Quarterly Groundwater

JOB NUMBER

410-193295-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

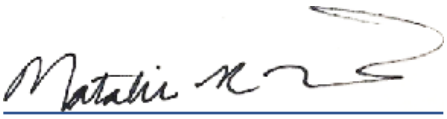
my EOL

Job Notes

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

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



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Authorized for release by
Natalie Luciano, Principal Project Manager
Natalie.Luciano@et.eurofinsus.com
(717)556-7258

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is 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.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

This report shall not be reproduced except in full, without the written approval of the laboratory.

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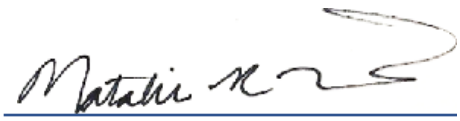


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Definitions/Glossary

Client: Jacobs Engineering Group, Inc. Job ID: 410-193295-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail
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.
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Job Narrative
410-193295-1

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 10/22/2024 9:25 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.1°C.

Receipt Exceptions
The Chain-of-Custody (COC) was incomplete as received and/or improperly completed. The COC is missing Sample Preservation. This does not meet regulatory requirement.

HPLC/IC
Method 300_ORGFM_28D: The following sample was diluted due to the nature of the sample matrix: UR-91-20.2A_20241021_N_WG (410-193295-11). Elevated reporting limits (RLs) are provided.

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

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

Detection Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-193295-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UR-91-03.1E_20241021_N_WG — Lab Sample ID: 410-193295-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	5.7	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	34		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	180		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UR-91-03.2E_20241021_N_WG — Lab Sample ID: 410-193295-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	120		15	5.0	mg/L	10		EPA 300.0 R2.1	Total/NA
Chloride	1700		750	300	mg/L	500		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	3000		240	96	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UR-91-03.1D_20241021_N_WG — Lab Sample ID: 410-193295-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	540		30	10	mg/L	20		EPA 300.0 R2.1	Total/NA
Chloride	2200		1500	600	mg/L	1000		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	4400		240	96	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UR-91-03.2C_20241021_N_WG — Lab Sample ID: 410-193295-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	570		30	10	mg/L	20		EPA 300.0 R2.1	Total/NA
Chloride	2500		1500	600	mg/L	1000		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	4700		240	96	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UR-91-03.1C_20241021_N_WG — Lab Sample ID: 410-193295-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	220		15	5.0	mg/L	10		EPA 300.0 R2.1	Total/NA
Chloride	1100		380	150	mg/L	250		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	2000		240	96	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UR-91-03.2B_20241021_N_WG — Lab Sample ID: 410-193295-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	420		30	10	mg/L	20		EPA 300.0 R2.1	Total/NA
Chloride	3500		1500	600	mg/L	1000		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	6300		1200	480	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UR-91-03.1B_20241021_N_WG — Lab Sample ID: 410-193295-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	380		75	25	mg/L	50		EPA 300.0 R2.1	Total/NA
Chloride	1500		750	300	mg/L	500		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	2900		240	96	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UR-91-09.2A_20241021_N_WG — Lab Sample ID: 410-193295-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	4.1	J	7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	170		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	410		60	24	mg/L	1		2540C - 2015	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-193295-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UR-91-04.2A_20241021_N_WG — Lab Sample ID: 410-193295-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	27		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	260		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	520		60	24	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UR-91-20.2B_20241021_N_WG — Lab Sample ID: 410-193295-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	45		30	10	mg/L	20		EPA 300.0 R2.1	Total/NA
Chloride	2200		1500	600	mg/L	1000		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	3700		240	96	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UR-91-20.2A_20241021_N_WG — Lab Sample ID: 410-193295-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	1700		750	300	mg/L	500		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	2900		240	96	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: UR-91-03.2D_20241021_N_WG — Lab Sample ID: 410-193295-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	560		150	50	mg/L	100		EPA 300.0 R2.1	Total/NA
Chloride	3100		1500	600	mg/L	1000		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	6000		600	240	mg/L	1		2540C - 2015	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Jacobs Engineering Group, Inc. Job ID: 410-193295-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UR-91-03.1E_20241021_N_WG — Lab Sample ID: 410-193295-1

Date Collected: 10/21/24 09:25 **Matrix: Water**
Date Received: 10/22/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	5.7	J	7.5	2.5	mg/L			10/24/24 04:09	5
Chloride	34		7.5	3.0	mg/L			10/24/24 04:09	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	180		30	12	mg/L			10/22/24 19:21	1

Client Sample ID: UR-91-03.2E_20241021_N_WG — Lab Sample ID: 410-193295-2

Date Collected: 10/21/24 09:37 **Matrix: Water**
Date Received: 10/22/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	120		15	5.0	mg/L			10/24/24 05:18	10
Chloride	1700		750	300	mg/L			10/28/24 18:46	500

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	3000		240	96	mg/L			10/22/24 19:04	1

Client Sample ID: UR-91-03.1D_20241021_N_WG — Lab Sample ID: 410-193295-3

Date Collected: 10/21/24 09:49 **Matrix: Water**
Date Received: 10/22/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	540		30	10	mg/L			10/24/24 02:36	20
Chloride	2200		1500	600	mg/L			10/28/24 18:02	1000

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	4400		240	96	mg/L			10/22/24 19:04	1

Client Sample ID: UR-91-03.2C_20241021_N_WG — Lab Sample ID: 410-193295-4

Date Collected: 10/21/24 10:00 **Matrix: Water**
Date Received: 10/22/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	570		30	10	mg/L			10/24/24 02:59	20
Chloride	2500		1500	600	mg/L			10/28/24 18:13	1000

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	4700		240	96	mg/L			10/22/24 19:04	1

Client Sample ID: UR-91-03.1C_20241021_N_WG — Lab Sample ID: 410-193295-5

Date Collected: 10/21/24 10:14 **Matrix: Water**
Date Received: 10/22/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	220		15	5.0	mg/L			10/24/24 05:41	10
Chloride	1100		380	150	mg/L			10/26/24 20:06	250

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	2000		240	96	mg/L			10/22/24 19:04	1

Client Sample ID: UR-91-03.2B_20241021_N_WG — Lab Sample ID: 410-193295-6

Date Collected: 10/21/24 10:32 **Matrix: Water**
Date Received: 10/22/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	420		30	10	mg/L			10/24/24 03:22	20
Chloride	3500		1500	600	mg/L			10/28/24 18:24	1000

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	6300		1200	480	mg/L			10/22/24 19:04	1

Client Sample ID: UR-91-03.1B_20241021_N_WG — Lab Sample ID: 410-193295-7

Date Collected: 10/21/24 10:43 **Matrix: Water**
Date Received: 10/22/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	380		75	25	mg/L			10/24/24 06:15	50
Chloride	1500		750	300	mg/L			10/31/24 22:25	500

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	2900		240	96	mg/L			10/22/24 19:04	1

Client Sample ID: UR-91-09.2A_20241021_N_WG — Lab Sample ID: 410-193295-8

Date Collected: 10/21/24 12:00 **Matrix: Water**
Date Received: 10/22/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	4.1	J	7.5	2.5	mg/L			10/24/24 04:55	5
Chloride	170		75	30	mg/L			10/24/24 05:06	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	410		60	24	mg/L			10/22/24 19:08	1

Client: Jacobs Engineering Group, Inc. Job ID: 410-193295-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UR-91-04.2A_20241021_N_WG — Lab Sample ID: 410-193295-9

Date Collected: 10/21/24 12:19 **Matrix: Water**
Date Received: 10/22/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	27		7.5	2.5	mg/L			10/24/24 01:22	5
Chloride	260		75	30	mg/L			10/24/24 01:33	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	520		60	24	mg/L			10/22/24 19:08	1

Client Sample ID: UR-91-20.2B_20241021_N_WG — Lab Sample ID: 410-193295-10

Date Collected: 10/21/24 12:54 **Matrix: Water**
Date Received: 10/22/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	45		30	10	mg/L			10/24/24 00:38	20
Chloride	2200		1500	600	mg/L			10/28/24 18:57	1000

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	3700		240	96	mg/L			10/22/24 19:08	1

Client Sample ID: UR-91-20.2A_20241021_N_WG — Lab Sample ID: 410-193295-11

Date Collected: 10/21/24 14:23 **Matrix: Water**
Date Received: 10/22/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	5.0	U cn	15	5.0	mg/L			10/24/24 01:44	10
Chloride	1700		750	300	mg/L			10/28/24 19:18	500

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	2900		240	96	mg/L			10/22/24 19:08	1

Client Sample ID: UR-91-03.2D_20241021_N_WG — Lab Sample ID: 410-193295-12

Date Collected: 10/21/24 15:16 **Matrix: Water**
Date Received: 10/22/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	560		150	50	mg/L			10/24/24 01:11	100
Chloride	3100		1500	600	mg/L			10/28/24 18:32	1000

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	6000		600	240	mg/L			10/22/24 19:08	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-567156/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 567156

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			10/23/24 19:35	1
Chloride	0.60	U	1.5	0.60	mg/L			10/23/24 19:35	1

Lab Sample ID: LCS 410-567156/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 567156

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.39	7.77		mg/L		105	90 - 110
Chloride	3.00	2.89		mg/L		96	90 - 110

Lab Sample ID: LCSD 410-567156/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 567156

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.39	7.75		mg/L		105	90 - 110	0	20
Chloride	3.00	2.89		mg/L		96	90 - 110	0	20

Lab Sample ID: MB 410-567167/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 567167

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			10/24/24 00:05	1
Chloride	0.60	U	1.5	0.60	mg/L			10/24/24 00:05	1

Lab Sample ID: LCS 410-567167/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 567167

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.39	7.44		mg/L		101	90 - 110
Chloride	3.00	2.87		mg/L		96	90 - 110

Lab Sample ID: LCSD 410-567167/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 567167

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.39	7.42		mg/L		100	90 - 110	0	20
Chloride	3.00	2.86		mg/L		95	90 - 110	0	20

Lab Sample ID: MB 410-568298/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 568298

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			10/26/24 16:39	1
Chloride	0.60	U	1.5	0.60	mg/L			10/26/24 16:39	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: LCS 410-568298/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 568298

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Sulfate			7.39	7.02		mg/L		95	90 - 110		
Chloride			3.00	2.85		mg/L		95	90 - 110		

Lab Sample ID: LCSD 410-568298/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 568298

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate			7.39	7.01		mg/L		95	90 - 110	0	20
Chloride			3.00	2.85		mg/L		95	90 - 110	0	20

Lab Sample ID: MB 410-568759/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 568759

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			10/28/24 17:29	1
Chloride	0.60	U	1.5	0.60	mg/L			10/28/24 17:29	1

Lab Sample ID: LCS 410-568759/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 568759

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Sulfate			7.39	6.79		mg/L		92	90 - 110		
Chloride			3.00	2.85		mg/L		95	90 - 110		

Lab Sample ID: LCSD 410-568759/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 568759

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate			7.39	6.77		mg/L		92	90 - 110	0	20
Chloride			3.00	2.84		mg/L		95	90 - 110	0	20

Lab Sample ID: 410-193295-10 MS — **Client Sample ID: UR-91-20.2B_20241021_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 568759

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Sulfate	550	J F1	4930	4750	F1	mg/L		85	90 - 110		
Chloride	2200		2000	4230		mg/L		103	90 - 110		

Lab Sample ID: 410-193295-10 DU — **Client Sample ID: UR-91-20.2B_20241021_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 568759

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Sulfate	550	J F1		559	J	mg/L				2	15
Chloride	2200			2170		mg/L				0.07	15

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-568779/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 568779

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			10/28/24 17:34	1
Chloride	0.60	U	1.5	0.60	mg/L			10/28/24 17:34	1

Lab Sample ID: LCS 410-568779/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 568779

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.39	7.29		mg/L		99	90 - 110
Chloride	3.00	3.02		mg/L		101	90 - 110

Lab Sample ID: LCSD 410-568779/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 568779

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.39	7.27		mg/L		98	90 - 110	0	20
Chloride	3.00	3.02		mg/L		101	90 - 110	0	20

Lab Sample ID: 410-193295-12 MS — **Client Sample ID: UR-91-03.2D_20241021_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 568779

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	3100		2000	5140		mg/L		104	90 - 110

Lab Sample ID: 410-193295-12 DU — **Client Sample ID: UR-91-03.2D_20241021_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 568779

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	3100		3060		mg/L		0.1	15

Lab Sample ID: MB 410-570142/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 570142

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			10/31/24 11:14	1
Chloride	0.60	U	1.5	0.60	mg/L			10/31/24 11:14	1

Lab Sample ID: LCS 410-570142/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 570142

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.39	7.69		mg/L		104	90 - 110
Chloride	3.00	3.11		mg/L		104	90 - 110

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 410-570142/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 570142

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate			7.39	7.69		mg/L		104	90 - 110	0	20
Chloride			3.00	3.11		mg/L		104	90 - 110	0	20

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 410-566547/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 566547

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12	U	30	12	mg/L			10/22/24 19:04	1

Lab Sample ID: LCS 410-566547/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 566547

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Dissolved Solids			200	202		mg/L		101	90 - 110		

Lab Sample ID: 410-193295-2 MS — **Client Sample ID: UR-91-03.2E_20241021_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 566547

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Dissolved Solids	3000		1600	4620		mg/L		99	90 - 110		

Lab Sample ID: 410-193295-2 DU — **Client Sample ID: UR-91-03.2E_20241021_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 566547

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	3000			3110		mg/L				3	10

Lab Sample ID: 410-193295-10 DU — **Client Sample ID: UR-91-20.2B_20241021_N_WG**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 566547

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	3700			3740		mg/L				2	10

Lab Sample ID: MB 410-566551/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 566551

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12	U	30	12	mg/L			10/22/24 19:21	1

Client: Jacobs Engineering Group, Inc.
Job ID: 410-193295-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C) (Continued)

Lab Sample ID: LCS 410-566551/2
Matrix: Water
Analysis Batch: 566551

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	200	197		mg/L		99	90 - 110

HPLC/IC

Analysis Batch: 567156

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-193295-1	UR-91-03.1E_20241021_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-193295-2	UR-91-03.2E_20241021_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-193295-3	UR-91-03.1D_20241021_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-193295-4	UR-91-03.2C_20241021_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-193295-5	UR-91-03.1C_20241021_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-193295-6	UR-91-03.2B_20241021_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-193295-7	UR-91-03.1B_20241021_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-193295-8	UR-91-09.2A_20241021_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-193295-8	UR-91-09.2A_20241021_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-567156/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-567156/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-567156/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 567167

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-193295-9	UR-91-04.2A_20241021_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-193295-9	UR-91-04.2A_20241021_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-193295-10	UR-91-20.2B_20241021_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-193295-11	UR-91-20.2A_20241021_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-193295-12	UR-91-03.2D_20241021_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-567167/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-567167/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-567167/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 568298

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-193295-5	UR-91-03.1C_20241021_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-568298/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-568298/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-568298/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 568759

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-193295-2	UR-91-03.2E_20241021_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-193295-3	UR-91-03.1D_20241021_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-193295-4	UR-91-03.2C_20241021_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-193295-6	UR-91-03.2B_20241021_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-193295-10	UR-91-20.2B_20241021_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-568759/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-568759/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-568759/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	
410-193295-10 MS	UR-91-20.2B_20241021_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-193295-10 DU	UR-91-20.2B_20241021_N_WG	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 568779

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-193295-11	UR-91-20.2A_20241021_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-193295-12	UR-91-03.2D_20241021_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-568779/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-568779/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-568779/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

HPLC/IC (Continued)

Analysis Batch: 568779 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-193295-12 MS	UR-91-03.2D_20241021_N_WG	Total/NA	Water	EPA 300.0 R2.1	
410-193295-12 DU	UR-91-03.2D_20241021_N_WG	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 570142

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-193295-7	UR-91-03.1B_20241021_N_WG	Total/NA	Water	EPA 300.0 R2.1	
MB 410-570142/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-570142/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-570142/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

General Chemistry

Analysis Batch: 566547

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-193295-2	UR-91-03.2E_20241021_N_WG	Total/NA	Water	2540C - 2015	
410-193295-3	UR-91-03.1D_20241021_N_WG	Total/NA	Water	2540C - 2015	
410-193295-4	UR-91-03.2C_20241021_N_WG	Total/NA	Water	2540C - 2015	
410-193295-5	UR-91-03.1C_20241021_N_WG	Total/NA	Water	2540C - 2015	
410-193295-6	UR-91-03.2B_20241021_N_WG	Total/NA	Water	2540C - 2015	
410-193295-7	UR-91-03.1B_20241021_N_WG	Total/NA	Water	2540C - 2015	
410-193295-8	UR-91-09.2A_20241021_N_WG	Total/NA	Water	2540C - 2015	
410-193295-9	UR-91-04.2A_20241021_N_WG	Total/NA	Water	2540C - 2015	
410-193295-10	UR-91-20.2B_20241021_N_WG	Total/NA	Water	2540C - 2015	
410-193295-11	UR-91-20.2A_20241021_N_WG	Total/NA	Water	2540C - 2015	
410-193295-12	UR-91-03.2D_20241021_N_WG	Total/NA	Water	2540C - 2015	
MB 410-566547/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-566547/2	Lab Control Sample	Total/NA	Water	2540C - 2015	
410-193295-2 MS	UR-91-03.2E_20241021_N_WG	Total/NA	Water	2540C - 2015	
410-193295-2 DU	UR-91-03.2E_20241021_N_WG	Total/NA	Water	2540C - 2015	
410-193295-10 DU	UR-91-20.2B_20241021_N_WG	Total/NA	Water	2540C - 2015	

Analysis Batch: 566551

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-193295-1	UR-91-03.1E_20241021_N_WG	Total/NA	Water	2540C - 2015	
MB 410-566551/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-566551/2	Lab Control Sample	Total/NA	Water	2540C - 2015	

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-193295-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UR-91-03.1E_20241021_N_WG — Lab Sample ID: 410-193295-1

Date Collected: 10/21/24 09:25 **Matrix: Water**
Date Received: 10/22/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	567156	L4QM	ELLE	10/24/24 04:09
Total/NA	Analysis	2540C - 2015		1	566551	UOCA	ELLE	10/22/24 19:21 - 10/24/24 06:30 [1]

Client Sample ID: UR-91-03.2E_20241021_N_WG — Lab Sample ID: 410-193295-2

Date Collected: 10/21/24 09:37 **Matrix: Water**
Date Received: 10/22/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		10	567156	L4QM	ELLE	10/24/24 05:18
Total/NA	Analysis	EPA 300.0 R2.1		500	568759	W7FX	ELLE	10/28/24 18:46
Total/NA	Analysis	2540C - 2015		1	566547	UOCA	ELLE	10/22/24 19:04 - 10/23/24 21:35 [1]

Client Sample ID: UR-91-03.1D_20241021_N_WG — Lab Sample ID: 410-193295-3

Date Collected: 10/21/24 09:49 **Matrix: Water**
Date Received: 10/22/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		20	567156	L4QM	ELLE	10/24/24 02:36
Total/NA	Analysis	EPA 300.0 R2.1		1000	568759	W7FX	ELLE	10/28/24 18:02
Total/NA	Analysis	2540C - 2015		1	566547	UOCA	ELLE	10/22/24 19:04 - 10/23/24 21:35 [1]

Client Sample ID: UR-91-03.2C_20241021_N_WG — Lab Sample ID: 410-193295-4

Date Collected: 10/21/24 10:00 **Matrix: Water**
Date Received: 10/22/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		20	567156	L4QM	ELLE	10/24/24 02:59
Total/NA	Analysis	EPA 300.0 R2.1		1000	568759	W7FX	ELLE	10/28/24 18:13
Total/NA	Analysis	2540C - 2015		1	566547	UOCA	ELLE	10/22/24 19:04 - 10/23/24 21:35 [1]

Client Sample ID: UR-91-03.1C_20241021_N_WG — Lab Sample ID: 410-193295-5

Date Collected: 10/21/24 10:14 **Matrix: Water**
Date Received: 10/22/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		10	567156	L4QM	ELLE	10/24/24 05:41
Total/NA	Analysis	EPA 300.0 R2.1		250	568298	W7FX	ELLE	10/26/24 20:06
Total/NA	Analysis	2540C - 2015		1	566547	UOCA	ELLE	10/22/24 19:04 - 10/23/24 21:35 [1]

Client Sample ID: UR-91-03.2B_20241021_N_WG — Lab Sample ID: 410-193295-6

Date Collected: 10/21/24 10:32 **Matrix: Water**
Date Received: 10/22/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		20	567156	L4QM	ELLE	10/24/24 03:22

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-193295-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UR-91-03.2B_20241021_N_WG — Lab Sample ID: 410-193295-6

Date Collected: 10/21/24 10:32 **Matrix: Water**
Date Received: 10/22/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		1000	568759	W7FX	ELLE	10/28/24 18:24
Total/NA	Analysis	2540C - 2015		1	566547	UOCA	ELLE	10/22/24 19:04 - 10/23/24 21:35 ¹

Client Sample ID: UR-91-03.1B_20241021_N_WG — Lab Sample ID: 410-193295-7

Date Collected: 10/21/24 10:43 **Matrix: Water**
Date Received: 10/22/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		50	567156	L4QM	ELLE	10/24/24 06:15
Total/NA	Analysis	EPA 300.0 R2.1		500	570142	W7FX	ELLE	10/31/24 22:25
Total/NA	Analysis	2540C - 2015		1	566547	UOCA	ELLE	10/22/24 19:04 - 10/23/24 21:35 ¹

Client Sample ID: UR-91-09.2A_20241021_N_WG — Lab Sample ID: 410-193295-8

Date Collected: 10/21/24 12:00 **Matrix: Water**
Date Received: 10/22/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	567156	L4QM	ELLE	10/24/24 04:55
Total/NA	Analysis	EPA 300.0 R2.1		50	567156	L4QM	ELLE	10/24/24 05:06
Total/NA	Analysis	2540C - 2015		1	566547	UOCA	ELLE	10/22/24 19:08 - 10/23/24 21:35 ¹

Client Sample ID: UR-91-04.2A_20241021_N_WG — Lab Sample ID: 410-193295-9

Date Collected: 10/21/24 12:19 **Matrix: Water**
Date Received: 10/22/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	567167	W7FX	ELLE	10/24/24 01:22
Total/NA	Analysis	EPA 300.0 R2.1		50	567167	W7FX	ELLE	10/24/24 01:33
Total/NA	Analysis	2540C - 2015		1	566547	UOCA	ELLE	10/22/24 19:08 - 10/23/24 21:35 ¹

Client Sample ID: UR-91-20.2B_20241021_N_WG — Lab Sample ID: 410-193295-10

Date Collected: 10/21/24 12:54 **Matrix: Water**
Date Received: 10/22/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		20	567167	W7FX	ELLE	10/24/24 00:38
Total/NA	Analysis	EPA 300.0 R2.1		1000	568759	W7FX	ELLE	10/28/24 18:57
Total/NA	Analysis	2540C - 2015		1	566547	UOCA	ELLE	10/22/24 19:08 - 10/23/24 21:35 ¹

Client Sample ID: UR-91-20.2A_20241021_N_WG — Lab Sample ID: 410-193295-11

Date Collected: 10/21/24 14:23 **Matrix: Water**
Date Received: 10/22/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		10	567167	W7FX	ELLE	10/24/24 01:44

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-193295-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: UR-91-20.2A_20241021_N_WG — Lab Sample ID: 410-193295-11

Date Collected: 10/21/24 14:23 **Matrix: Water**
Date Received: 10/22/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		500	568779	W7FX	ELLE	10/28/24 19:18
Total/NA	Analysis	2540C - 2015		1	566547	UOCA	ELLE	10/22/24 19:08 - 10/23/24 21:35 [1]

Client Sample ID: UR-91-03.2D_20241021_N_WG — Lab Sample ID: 410-193295-12

Date Collected: 10/21/24 15:16 **Matrix: Water**
Date Received: 10/22/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		100	567167	W7FX	ELLE	10/24/24 01:11
Total/NA	Analysis	EPA 300.0 R2.1		1000	568779	W7FX	ELLE	10/28/24 18:32
Total/NA	Analysis	2540C - 2015		1	566547	UOCA	ELLE	10/22/24 19:08 - 10/23/24 21:35 [1]

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-193295-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00660	08-09-25

Method Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-193295-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
2540C - 2015	Total Dissolved Solids (Dried at 180 °C)	SM	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-193295-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-193295-1	UR-91-03.1E_20241021_N_WG	Water	10/21/24 09:25	10/22/24 09:25
410-193295-2	UR-91-03.2E_20241021_N_WG	Water	10/21/24 09:37	10/22/24 09:25
410-193295-3	UR-91-03.1D_20241021_N_WG	Water	10/21/24 09:49	10/22/24 09:25
410-193295-4	UR-91-03.2C_20241021_N_WG	Water	10/21/24 10:00	10/22/24 09:25
410-193295-5	UR-91-03.1C_20241021_N_WG	Water	10/21/24 10:14	10/22/24 09:25
410-193295-6	UR-91-03.2B_20241021_N_WG	Water	10/21/24 10:32	10/22/24 09:25
410-193295-7	UR-91-03.1B_20241021_N_WG	Water	10/21/24 10:43	10/22/24 09:25
410-193295-8	UR-91-09.2A_20241021_N_WG	Water	10/21/24 12:00	10/22/24 09:25
410-193295-9	UR-91-04.2A_20241021_N_WG	Water	10/21/24 12:19	10/22/24 09:25
410-193295-10	UR-91-20.2B_20241021_N_WG	Water	10/21/24 12:54	10/22/24 09:25
410-193295-11	UR-91-20.2A_20241021_N_WG	Water	10/21/24 14:23	10/22/24 09:25
410-193295-12	UR-91-03.2D_20241021_N_WG	Water	10/21/24 15:16	10/22/24 09:25

410-193295 Chain of Custody

E ANALYSIS REQUEST | **COC No: EuroFins Lan-45586652** | **Cooler No. of**

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 14
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number/Script** 4508165277
Project Chemist Jeremy Bishop 541.223.3856	**Shipping Company / Airbill No.** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 10/21/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Filtered	Preserve	Analysis: Chloride and Sulfate - E300.0	Analysis: TDS - SM2540C
UR-91-03.1E_20241021_N_WG	UR-91-03 .1E	WG	G		10/21/2024 09:25	2				X	X
UR-91-03.2E_20241021_N_WG	UR-91-03 .2E	WG	G		10/21/2024 09:37	2				X	X
UR-91-03.1D_20241021_N_WG	UR-91-03 .1D	WG	G		10/21/2024 09:49	2				X	X
UR-91-03.2C_20241021_N_WG	UR-91-03 .2C	WG	G		10/21/2024 10:00	2				X	X
UR-91-03.1C_20241021_N_WG	UR-91-03 .1C	WG	G		10/21/2024 10:14	2				X	X
UR-91-03.2B_20241021_N_WG	UR-91-03 .2B	WG	G		10/21/2024 10:32	2				X	X
UR-91-03.1B_20241021_N_WG	UR-91-03 .1B	WG	G		10/21/2024 10:43	2				X	X

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	Jordan Camacho	10-21-24 1730		
			Holly Applewhite	10/22/24 0925
	SHIPPING METHOD: (mark as appropriate)		SAMPLER NAME AND SIGNATURE	Date Time
Email Report To :				
Email Invoice To : Jeremy.Bishop@jacobs.com,Dow_Umetco@jacobs.com			R: L.I	C: L.I

CHAIN OF CUSTODY / SAMPLE ANALYSIS REQUEST

COC No: EuroFins Lan-45586652

Cooler No. of

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 14
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number/Script** 4508165277
Project Chemist Jeremy Bishop 541.223.3856	**Shipping Company / Airbill No.** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 10/21/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Analysis: Chloride and Sulfate - E300.0	Analysis: TDS - SM2540C	Filtered	Preserve
UR-91-09.2A_20241021_N_WG	UR-91-09 .2A	WG	G		10/21/2024 12:00	2		X	X		
UR-91-04.2A_20241021_N_WG	UR-91-04 .2A	WG	G		10/21/2024 12:19	2		X	X		
UR-91-20.2B_20241021_N_WG	UR-91-20 .2B	WG	G		10/21/2024 12:54	2		X	X		
UR-91-20.2A_20241021_N_WG	UR-91-20 .2A	WG	G		10/21/2024 14:23	2		X	X		
UR-91-03.2D_20241021_N_WG	UR-91-03 .2D	WG	G		10/21/2024 15:16	2		X	X		

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	Jordan Camacho	10-21-24 1230		
			Holly Applewhite	10/22/24 0925
	SHIPPING METHOD: (mark as appropriate)		SAMPLER NAME AND SIGNATURE	Date Time
Email Report To :				
Email Invoice To : Jeremy.Bishop@jacobs.com,Dow_Umetco@jacobs.com			R:1.1 C:1.1	

Login Sample Receipt Checklist

Client: Jacobs Engineering Group, Inc.

Job Number: 410-193295-1

Login Number: 193295

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Santiago, Nathaniel

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

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

ANALYTICAL REPORT

PREPARED FOR

Attn: Jeremy Bishop
Jacobs Engineering Group, Inc.
1100 NE Circle Blvd
Suite 300
Corvallis, Oregon 97330

Generated 10/28/2024 12:18:33 AM

JOB DESCRIPTION

Umetco Hot Springs - UMP Quarterly Groundwater

JOB NUMBER

410-193302-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

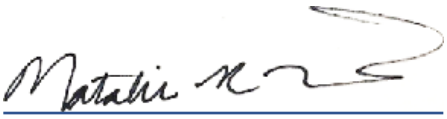
my EOL

Job Notes

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

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



Generated
10/28/2024 12:18:33 AM

Authorized for release by
Natalie Luciano, Principal Project Manager
Natalie.Luciano@et.eurofinsus.com
(717)556-7258

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is 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.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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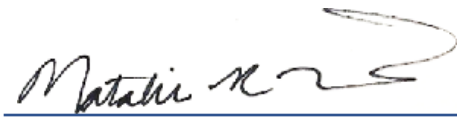


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Definitions/Glossary

Client: Jacobs Engineering Group, Inc. Job ID: 410-193302-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Job Narrative
410-193302-1

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 10/22/2024 9:25 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.1°C.

Receipt Exceptions
The Chain-of-Custody (COC) was incomplete as received and/or improperly completed. The COC is missing SamplePreservation. This does not meet regulatory requirement.

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

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

Detection Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-193302-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: FDRAIN_20241018_N_WS — Lab Sample ID: 410-193302-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	84		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	25		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	200		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: FDRAIN_20241018_FD_WS — Lab Sample ID: 410-193302-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	83		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	25		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	200		30	12	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: WDRAIN_20241018_N_WS — Lab Sample ID: 410-193302-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	860		75	25	mg/L	50		EPA 300.0 R2.1	Total/NA
Chloride	170		75	30	mg/L	50		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	1700		240	96	mg/L	1		2540C - 2015	Total/NA

Client Sample ID: EDRAIN_20241018_N_WS — Lab Sample ID: 410-193302-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	4800		1500	500	mg/L	1000		EPA 300.0 R2.1	Total/NA
Chloride	700		150	60	mg/L	100		EPA 300.0 R2.1	Total/NA
Total Dissolved Solids	9400		1200	480	mg/L	1		2540C - 2015	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Jacobs Engineering Group, Inc. Job ID: 410-193302-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: FDRAIN_20241018_N_WS — Lab Sample ID: 410-193302-1

Date Collected: 10/18/24 09:45 **Matrix: Water**
Date Received: 10/22/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	84		7.5	2.5	mg/L			10/23/24 03:57	5
Chloride	25		7.5	3.0	mg/L			10/23/24 03:57	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	200		30	12	mg/L			10/22/24 19:21	1

Client Sample ID: FDRAIN_20241018_FD_WS — Lab Sample ID: 410-193302-2

Date Collected: 10/18/24 09:45 **Matrix: Water**
Date Received: 10/22/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	83		7.5	2.5	mg/L			10/23/24 04:19	5
Chloride	25		7.5	3.0	mg/L			10/23/24 04:19	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	200		30	12	mg/L			10/22/24 19:21	1

Client Sample ID: WDRAIN_20241018_N_WS — Lab Sample ID: 410-193302-3

Date Collected: 10/18/24 10:10 **Matrix: Water**
Date Received: 10/22/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	860		75	25	mg/L			10/23/24 05:14	50
Chloride	170		75	30	mg/L			10/23/24 05:14	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	1700		240	96	mg/L			10/22/24 19:21	1

Client Sample ID: EDRAIN_20241018_N_WS — Lab Sample ID: 410-193302-4

Date Collected: 10/18/24 10:22 **Matrix: Water**
Date Received: 10/22/24 09:25

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	4800		1500	500	mg/L			10/23/24 18:46	1000
Chloride	700		150	60	mg/L			10/23/24 03:02	100

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C - 2015)	9400		1200	480	mg/L			10/22/24 19:21	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-566619/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 566619

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			10/23/24 02:17	1
Chloride	0.60	U	1.5	0.60	mg/L			10/23/24 02:17	1

Lab Sample ID: LCS 410-566619/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 566619

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.39	7.24		mg/L		98	90 - 110
Chloride	3.00	2.83		mg/L		94	90 - 110

Lab Sample ID: LCSD 410-566619/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 566619

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.39	7.24		mg/L		98	90 - 110	0	20
Chloride	3.00	2.83		mg/L		94	90 - 110	0	20

Lab Sample ID: MB 410-567144/8 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 567144

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	0.50	U	1.5	0.50	mg/L			10/23/24 12:53	1
Chloride	0.60	U	1.5	0.60	mg/L			10/23/24 12:53	1

Lab Sample ID: LCS 410-567144/6 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 567144

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7.39	7.37		mg/L		100	90 - 110
Chloride	3.00	2.88		mg/L		96	90 - 110

Lab Sample ID: LCSD 410-567144/7 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 567144

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7.39	7.36		mg/L		100	90 - 110	0	20
Chloride	3.00	2.89		mg/L		96	90 - 110	0	20

Client: Jacobs Engineering Group, Inc.
Job ID: 410-193302-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Method: 2540C - 2015 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 410-566551/1
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 566551

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12	U	30	12	mg/L			10/22/24 19:21	1

Lab Sample ID: LCS 410-566551/2
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 566551

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Dissolved Solids			200	197		mg/L		99	90 - 110		

Lab Sample ID: 410-193302-3 MS
Client Sample ID: WDRAIN_20241018_N_WS
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 566551

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Dissolved Solids	1700		1600	3300		mg/L		101	90 - 110		

Lab Sample ID: 410-193302-3 DU
Client Sample ID: WDRAIN_20241018_N_WS
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 566551

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	1700			1700		mg/L				2	10

QC Association Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-193302-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

HPLC/IC

Analysis Batch: 566619

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-193302-1	FDRAIN_20241018_N_WS	Total/NA	Water	EPA 300.0 R2.1	
410-193302-2	FDRAIN_20241018_FD_WS	Total/NA	Water	EPA 300.0 R2.1	
410-193302-3	WDRAIN_20241018_N_WS	Total/NA	Water	EPA 300.0 R2.1	
410-193302-4	EDRAIN_20241018_N_WS	Total/NA	Water	EPA 300.0 R2.1	
MB 410-566619/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-566619/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-566619/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 567144

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-193302-4	EDRAIN_20241018_N_WS	Total/NA	Water	EPA 300.0 R2.1	
MB 410-567144/8	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-567144/6	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-567144/7	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

General Chemistry

Analysis Batch: 566551

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-193302-1	FDRAIN_20241018_N_WS	Total/NA	Water	2540C - 2015	
410-193302-2	FDRAIN_20241018_FD_WS	Total/NA	Water	2540C - 2015	
410-193302-3	WDRAIN_20241018_N_WS	Total/NA	Water	2540C - 2015	
410-193302-4	EDRAIN_20241018_N_WS	Total/NA	Water	2540C - 2015	
MB 410-566551/1	Method Blank	Total/NA	Water	2540C - 2015	
LCS 410-566551/2	Lab Control Sample	Total/NA	Water	2540C - 2015	
410-193302-3 MS	WDRAIN_20241018_N_WS	Total/NA	Water	2540C - 2015	
410-193302-3 DU	WDRAIN_20241018_N_WS	Total/NA	Water	2540C - 2015	

Lab Chronicle

Client: Jacobs Engineering Group, Inc. Job ID: 410-193302-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Client Sample ID: FDRAIN_20241018_N_WS — Lab Sample ID: 410-193302-1

Date Collected: 10/18/24 09:45 **Matrix: Water**
Date Received: 10/22/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	566619	L4QM	ELLE	10/23/24 03:57
Total/NA	Analysis	2540C - 2015		1	566551	UOCA	ELLE	10/22/24 19:21 - 10/24/24 06:30 [1]

Client Sample ID: FDRAIN_20241018_FD_WS — Lab Sample ID: 410-193302-2

Date Collected: 10/18/24 09:45 **Matrix: Water**
Date Received: 10/22/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	566619	L4QM	ELLE	10/23/24 04:19
Total/NA	Analysis	2540C - 2015		1	566551	UOCA	ELLE	10/22/24 19:21 - 10/24/24 06:30 [1]

Client Sample ID: WDRAIN_20241018_N_WS — Lab Sample ID: 410-193302-3

Date Collected: 10/18/24 10:10 **Matrix: Water**
Date Received: 10/22/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		50	566619	L4QM	ELLE	10/23/24 05:14
Total/NA	Analysis	2540C - 2015		1	566551	UOCA	ELLE	10/22/24 19:21 - 10/24/24 06:30 [1]

Client Sample ID: EDRAIN_20241018_N_WS — Lab Sample ID: 410-193302-4

Date Collected: 10/18/24 10:22 **Matrix: Water**
Date Received: 10/22/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		100	566619	L4QM	ELLE	10/23/24 03:02
Total/NA	Analysis	EPA 300.0 R2.1		1000	567144	L4QM	ELLE	10/23/24 18:46
Total/NA	Analysis	2540C - 2015		1	566551	UOCA	ELLE	10/22/24 19:21 - 10/24/24 06:30 [1]

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-193302-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00660	08-09-25

Method Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-193302-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
2540C - 2015	Total Dissolved Solids (Dried at 180 °C)	SM	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Jacobs Engineering Group, Inc. Job ID: 410-193302-1
Project/Site: Umetco Hot Springs - UMP Quarterly Groundwater

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-193302-1	FDRAIN_20241018_N_WS	Water	10/18/24 09:45	10/22/24 09:25
410-193302-2	FDRAIN_20241018_FD_WS	Water	10/18/24 09:45	10/22/24 09:25
410-193302-3	WDRAIN_20241018_N_WS	Water	10/18/24 10:10	10/22/24 09:25
410-193302-4	EDRAIN_20241018_N_WS	Water	10/18/24 10:22	10/22/24 09:25

410-193302 Chain of Custody

: ANALYSIS REQUEST | COC No: EuroFins Lan-45586338 | Cooler No. 1 of 1

Project Name UMP Quarterly Groundwater Sampling	**Turnaround Time** 7
Site Address 271 Indian Springs Rd, Hot Springs,AR	**Lab Name** EuroFins Lancaster
Project Number Plant Site Quarterly Groundwater Event	**Lab PM** Natalie Luciano
Site ID UMP	**Lab Phone/Fax** 717.556.7258
Project Manager Charles Toburen 214-649-7412	**PO Number/Script** 4508165277
Project Chemist Jeremy Bishop 541.223.3856	**Shipping Company / Airbill No.** UPS /
Sampler Miguel Izquierdo	**Shipping Date** 10/21/2024

Sample ID	Sample Location	Matrix	G=Grab C=Comp	Depth	Sample Date Time	# of Containers	Sample Comments	Filtered	Preserve	Analysis: Chloride and Sulfate - E300.0	Analysis: TDS - SM2540C
FDRAIN_20241018_N_WS	FDRAIN	WS	G		10/18/2024 09:45	2				X	X
FDRAIN_20241018_FD_WS	FDRAIN	WS	G		10/18/2024 09:45	2				X	X
WDRAIN_20241018_N_WS	WDRAIN	WS	G		10/18/2024 10:10	2				X	X
EDRAIN_20241018_N_WS	EDRAIN	WS	G		10/18/2024 10:22	2				X	X

Additional Comments/Special Instructions:	RELINQUISHED BY / AFFILIATION	Date Time	ACCEPTED BY / AFFILIATION	Date Time
	[redacted]	10[redacted] 1730		
			Holly Arp / cutt	10/22/24 0825
	SHIPPING METHOD: (mark as appropriate)		SAMPLER NAME AND SIGNATURE	Date Time
Email Report To :				
Email Invoice To : Jeremy.Bishop@jacobs.com,Dow_Umetco@jacobs.com			L: I.I C: I.I	

Login Sample Receipt Checklist

Client: Jacobs Engineering Group, Inc.

Job Number: 410-193302-1

Login Number: 193302

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Santiago, Nathaniel

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	Container preservation not listed on COC.
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

Appendix B
2024 Data Tables

Table B-1. 2024 Groundwater Monitoring Data - Alluvium

Plant Site

Hot Springs, Arkansas

Umetco Minerals Corporation

2024 Annual Plume Stability Evaluation Monitoring Report

Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UO-87-01.1A	23-Feb-24	D	Dissolved Calcium	15	0.24	Y	mg/l	--	NL	--
UO-87-01.1A	23-Feb-24	T	Chloride (as Cl)	25	3.0	Y	mg/l	--	250	--
UO-87-01.1A	23-Feb-24	D	Hardness (as CACO3)	41	0.41	Y	mg/l	--	NL	--
UO-87-01.1A	23-Feb-24	D	Dissolved Magnesium	1	0.082	Y	mg/l	--	NL	--
UO-87-01.1A	23-Feb-24	T	Nitrogen, Nitrate-Nitrite	3	0.20	Y	mg/l	--	NL	--
UO-87-01.1A	23-Feb-24	D	Dissolved Sodium	36	0.41	Y	mg/l	--	NL	--
UO-87-01.1A	23-Feb-24	T	Sulfate	75	2.5	Y	mg/l	--	250	--
UO-87-01.1A	23-Feb-24	T	Total dissolved solids	200	12	Y	mg/l	--	500	--
UO-87-01.1A	23-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UO-87-01.1A	23-Feb-24	N	pH (field)	5.52	--	Y	s.u.	--	NL	--
UO-87-01.1A	23-Feb-24	N	Specific Conductance (field)	281.4	--	Y	us/cm	--	NL	--
UO-87-01.1A	23-Feb-24	N	Temperature (field)	16	--	Y	deg c	--	NL	--
UO-87-01.1A	22-May-24	T	Chloride (as Cl)	20	3.0	Y	mg/l	--	250	--
UO-87-01.1A	22-May-24	T	Sulfate	68	2.5	Y	mg/l	--	250	--
UO-87-01.1A	22-May-24	T	Total dissolved solids	170	12	Y	mg/l	--	500	--
UO-87-01.1A	22-May-24	N	pH (field)	5.62	--	Y	s.u.	--	NL	--
UO-87-01.1A	22-May-24	N	Specific Conductance (field)	282.1	--	Y	us/cm	--	NL	--
UO-87-01.1A	22-May-24	N	Temperature (field)	17.5	--	Y	deg c	--	NL	--
UO-87-01.1A	06-Aug-24	T	Chloride (as Cl)	14	3.0	Y	mg/l	--	250	--
UO-87-01.1A	06-Aug-24	T	Sulfate	55	2.5	Y	mg/l	--	250	--
UO-87-01.1A	06-Aug-24	T	Total dissolved solids	150	12	Y	mg/l	--	500	--
UO-87-01.1A	06-Aug-24	N	pH (field)	5.35	--	Y	s.u.	--	NL	--
UO-87-01.1A	06-Aug-24	N	Specific Conductance (field)	189.2	--	Y	us/cm	--	NL	--
UO-87-01.1A	06-Aug-24	N	Temperature (field)	18.4	--	Y	deg c	--	NL	--
UO-87-01.1A	16-Oct-24	T	Chloride (as Cl)	15	3.0	Y	mg/l	--	250	--
UO-87-01.1A	16-Oct-24	T	Sulfate	53	2.5	Y	mg/l	--	250	--
UO-87-01.1A	16-Oct-24	T	Total dissolved solids	140	12	Y	mg/l	--	500	--
UO-87-01.1A	16-Oct-24	N	pH (field)	5.28	--	Y	s.u.	--	NL	--
UO-87-01.1A	16-Oct-24	N	Specific Conductance (field)	198.8	--	Y	us/cm	--	NL	--
UO-87-01.1A	16-Oct-24	N	Temperature (field)	18.3	--	Y	deg c	--	NL	--
UO-87-01.1B	23-Feb-24	D	Dissolved Calcium	260	0.24	Y	mg/l	--	NL	--

Table B-1. 2024 Groundwater Monitoring Data - Alluvium

Plant Site

Hot Springs, Arkansas

Umetco Minerals Corporation

2024 Annual Plume Stability Evaluation Monitoring Report

Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UO-87-01.1B	23-Feb-24	T	Chloride (as Cl)	1,100	60	Y	mg/l	--	250	x
UO-87-01.1B	23-Feb-24	D	Hardness (as CACO3)	1,100	0.41	Y	mg/l	--	NL	--
UO-87-01.1B	23-Feb-24	D	Dissolved Magnesium	110	0.082	Y	mg/l	--	NL	--
UO-87-01.1B	23-Feb-24	T	Nitrogen, Nitrate-Nitrite	3.8	0.20	Y	mg/l	--	NL	--
UO-87-01.1B	23-Feb-24	D	Dissolved Sodium	180	0.41	Y	mg/l	--	NL	--
UO-87-01.1B	23-Feb-24	T	Sulfate	29	5.0	Y	mg/l	--	250	--
UO-87-01.1B	23-Feb-24	T	Total dissolved solids	1,700	96	Y	mg/l	--	500	x
UO-87-01.1B	23-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UO-87-01.1B	23-Feb-24	N	pH (field)	6.29	--	Y	s.u.	--	NL	--
UO-87-01.1B	23-Feb-24	N	Specific Conductance (field)	2,915	--	Y	us/cm	--	NL	--
UO-87-01.1B	23-Feb-24	N	Temperature (field)	16.6	--	Y	deg c	--	NL	--
UO-87-01.1B	22-May-24	T	Chloride (as Cl)	990	300	Y	mg/l	--	250	x
UO-87-01.1B	22-May-24	T	Sulfate	25	5.0	Y	mg/l	--	250	--
UO-87-01.1B	22-May-24	T	Total dissolved solids	200	12	Y	mg/l	--	500	--
UO-87-01.1B	22-May-24	N	pH (field)	6.2	--	Y	s.u.	--	NL	--
UO-87-01.1B	22-May-24	N	Specific Conductance (field)	3,028	--	Y	us/cm	--	NL	--
UO-87-01.1B	22-May-24	N	Temperature (field)	17.2	--	Y	deg c	--	NL	--
UO-87-01.1B	06-Aug-24	T	Chloride (as Cl)	920	60	Y	mg/l	--	250	x
UO-87-01.1B	06-Aug-24	T	Sulfate	27	5.0	Y	mg/l	--	250	--
UO-87-01.1B	06-Aug-24	T	Total dissolved solids	1,700	96	Y	mg/l	--	500	x
UO-87-01.1B	06-Aug-24	N	pH (field)	5.93	--	Y	s.u.	--	NL	--
UO-87-01.1B	06-Aug-24	N	Specific Conductance (field)	2,526	--	Y	us/cm	--	NL	--
UO-87-01.1B	06-Aug-24	N	Temperature (field)	17.8	--	Y	deg c	--	NL	--
UO-87-01.1B	16-Oct-24	T	Chloride (as Cl)	960	150	Y	mg/l	--	250	x
UO-87-01.1B	16-Oct-24	T	Sulfate	37	2.5	Y	mg/l	--	250	--
UO-87-01.1B	16-Oct-24	T	Total dissolved solids	1,700	96	Y	mg/l	--	500	x
UO-87-01.1B	16-Oct-24	N	pH (field)	6.03	--	Y	s.u.	--	NL	--
UO-87-01.1B	16-Oct-24	N	Specific Conductance (field)	2,594	--	Y	us/cm	--	NL	--
UO-87-01.1B	16-Oct-24	N	Temperature (field)	17.9	--	Y	deg c	--	NL	--
UO-87-02.1A	20-Feb-24	D	Dissolved Calcium	40	0.24	Y	mg/l	--	NL	--
UO-87-02.1A	20-Feb-24	T	Chloride (as Cl)	370	30	Y	mg/l	--	250	x

Table B-1. 2024 Groundwater Monitoring Data - Alluvium

Plant Site

Hot Springs, Arkansas

Umetco Minerals Corporation

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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UO-87-02.1A	20-Feb-24	D	Hardness (as CACO3)	150	0.41	Y	mg/l	--	NL	--
UO-87-02.1A	20-Feb-24	D	Dissolved Magnesium	11	0.082	Y	mg/l	--	NL	--
UO-87-02.1A	20-Feb-24	T	Nitrogen, Nitrate-Nitrite	4.2	0.20	Y	mg/l	--	NL	--
UO-87-02.1A	20-Feb-24	D	Dissolved Sodium	200	0.41	Y	mg/l	--	NL	--
UO-87-02.1A	20-Feb-24	T	Sulfate	180	25	Y	mg/l	--	250	--
UO-87-02.1A	20-Feb-24	T	Total dissolved solids	830	24	Y	mg/l	--	500	x
UO-87-02.1A	20-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UO-87-02.1A	20-Feb-24	N	pH (field)	3.78	--	Y	s.u.	--	NL	--
UO-87-02.1A	20-Feb-24	N	Specific Conductance (field)	1,561	--	Y	us/cm	--	NL	--
UO-87-02.1A	20-Feb-24	N	Temperature (field)	17.1	--	Y	deg c	--	NL	--
UO-87-02.1A	16-May-24	T	Chloride (as Cl)	390	30	Y	mg/l	--	250	x
UO-87-02.1A	16-May-24	T	Sulfate	250	25	Y	mg/l	--	250	x
UO-87-02.1A	16-May-24	T	Total dissolved solids	830	48	Y	mg/l	--	500	x
UO-87-02.1A	16-May-24	N	pH (field)	3.85	--	Y	s.u.	--	NL	--
UO-87-02.1A	16-May-24	N	Specific Conductance (field)	1,672	--	Y	us/cm	--	NL	--
UO-87-02.1A	16-May-24	N	Temperature (field)	17.7	--	Y	deg c	--	NL	--
UO-87-02.1A	29-Jul-24	T	Chloride (as Cl)	420	30	Y	mg/l	--	250	x
UO-87-02.1A	29-Jul-24	T	Sulfate	400	25	Y	mg/l	--	250	x
UO-87-02.1A	29-Jul-24	T	Total dissolved solids	1,100	48	Y	mg/l	--	500	x
UO-87-02.1A	29-Jul-24	N	pH (field)	3.88	--	Y	s.u.	--	NL	--
UO-87-02.1A	29-Jul-24	N	Specific Conductance (field)	1,949	--	Y	us/cm	--	NL	--
UO-87-02.1A	29-Jul-24	N	Temperature (field)	19.8	--	Y	deg c	--	NL	--
UO-87-02.1A	14-Oct-24	T	Chloride (as Cl)	470	30	Y	mg/l	--	250	x
UO-87-02.1A	14-Oct-24	T	Sulfate	500	25	Y	mg/l	--	250	x
UO-87-02.1A	14-Oct-24	T	Total dissolved solids	1,500	96	Y	mg/l	--	500	x
UO-87-02.1A	14-Oct-24	N	pH (field)	3.81	--	Y	s.u.	--	NL	--
UO-87-02.1A	14-Oct-24	N	Specific Conductance (field)	2,050	--	Y	us/cm	--	NL	--
UO-87-02.1A	14-Oct-24	N	Temperature (field)	20.7	--	Y	deg c	--	NL	--
UO-87-02.1B	20-Feb-24	D	Dissolved Calcium	56	0.24	Y	mg/l	--	NL	--
UO-87-02.1B	20-Feb-24	T	Chloride (as Cl)	230	30	Y	mg/l	--	250	--
UO-87-02.1B	20-Feb-24	D	Hardness (as CACO3)	180	0.41	Y	mg/l	--	NL	--

Table B-1. 2024 Groundwater Monitoring Data - Alluvium
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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UO-87-02.1B	20-Feb-24	D	Dissolved Magnesium	10	0.082	Y	mg/l	--	NL	--
UO-87-02.1B	20-Feb-24	T	Nitrogen, Nitrate-Nitrite	0.23	0.040	Y	mg/l	--	NL	--
UO-87-02.1B	20-Feb-24	D	Dissolved Sodium	180	0.41	Y	mg/l	--	NL	--
UO-87-02.1B	20-Feb-24	T	Sulfate	150	2.5	Y	mg/l	--	250	--
UO-87-02.1B	20-Feb-24	T	Total dissolved solids	550	24	Y	mg/l	--	500	x
UO-87-02.1B	20-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UO-87-02.1B	20-Feb-24	N	pH (field)	9.18	--	Y	s.u.	--	NL	--
UO-87-02.1B	20-Feb-24	N	Specific Conductance (field)	1,174	--	Y	us/cm	--	NL	--
UO-87-02.1B	20-Feb-24	N	Temperature (field)	18.5	--	Y	deg c	--	NL	--
UO-87-02.1B	16-May-24	T	Chloride (as Cl)	200	30	Y	mg/l	--	250	--
UO-87-02.1B	16-May-24	T	Sulfate	130	2.5	Y	mg/l	--	250	--
UO-87-02.1B	16-May-24	T	Total dissolved solids	570	24	Y	mg/l	--	500	x
UO-87-02.1B	16-May-24	N	pH (field)	7.48	--	Y	s.u.	--	NL	--
UO-87-02.1B	16-May-24	N	Specific Conductance (field)	1,036	--	Y	us/cm	--	NL	--
UO-87-02.1B	16-May-24	N	Temperature (field)	18.2	--	Y	deg c	--	NL	--
UO-87-02.1B	29-Jul-24	T	Chloride (as Cl)	200	30	Y	mg/l	--	250	--
UO-87-02.1B	29-Jul-24	T	Sulfate	130	2.5	Y	mg/l	--	250	--
UO-87-02.1B	29-Jul-24	T	Total dissolved solids	650	24	Y	mg/l	--	500	x
UO-87-02.1B	29-Jul-24	N	pH (field)	8.47	--	Y	s.u.	--	NL	--
UO-87-02.1B	29-Jul-24	N	Specific Conductance (field)	955	--	Y	us/cm	--	NL	--
UO-87-02.1B	29-Jul-24	N	Temperature (field)	19.7	--	Y	deg c	--	NL	--
UO-87-02.1B	14-Oct-24	T	Chloride (as Cl)	260	30	Y	mg/l	--	250	x
UO-87-02.1B	14-Oct-24	T	Sulfate	160	25	Y	mg/l	--	250	--
UO-87-02.1B	14-Oct-24	T	Total dissolved solids	800	48	Y	mg/l	--	500	x
UO-87-02.1B	14-Oct-24	N	pH (field)	8.98	--	Y	s.u.	--	NL	--
UO-87-02.1B	14-Oct-24	N	Specific Conductance (field)	1,129	--	Y	us/cm	--	NL	--
UO-87-02.1B	14-Oct-24	N	Temperature (field)	20.9	--	Y	deg c	--	NL	--
UO-87-03.1	28-Feb-24	D	Dissolved Calcium	1,100	2.4	Y	mg/l	--	NL	--
UO-87-03.1	28-Feb-24	T	Chloride (as Cl)	2,600	300	Y	mg/l	--	250	x
UO-87-03.1	28-Feb-24	D	Hardness (as CACO3)	3,100	0.41	Y	mg/l	--	NL	--
UO-87-03.1	28-Feb-24	D	Dissolved Magnesium	110	0.082	Y	mg/l	--	NL	--

Table B-1. 2024 Groundwater Monitoring Data - Alluvium

Plant Site

Hot Springs, Arkansas

Umetco Minerals Corporation

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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UO-87-03.1	28-Feb-24	T	Nitrogen, Nitrate-Nitrite	1.8	0.040	Y	mg/l	--	NL	--
UO-87-03.1	28-Feb-24	D	Dissolved Sodium	610	4.1	Y	mg/l	--	NL	--
UO-87-03.1	28-Feb-24	T	Sulfate	880	100	Y	mg/l	--	250	x
UO-87-03.1	28-Feb-24	T	Total dissolved solids	7,000	240	Y	mg/l	--	500	x
UO-87-03.1	28-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UO-87-03.1	28-Feb-24	N	pH (field)	5.09	--	Y	s.u.	--	NL	--
UO-87-03.1	28-Feb-24	N	Specific Conductance (field)	7,391	--	Y	us/cm	--	NL	--
UO-87-03.1	28-Feb-24	N	Temperature (field)	18.3	--	Y	deg c	--	NL	--
UO-87-03.1	24-May-24	T	Chloride (as Cl)	2,800	600	Y	mg/l	--	250	x
UO-87-03.1	24-May-24	T	Sulfate	810	100	Y	mg/l	--	250	x
UO-87-03.1	24-May-24	T	Total dissolved solids	4,100	96	Y	mg/l	--	500	x
UO-87-03.1	24-May-24	N	pH (field)	5.07	--	Y	s.u.	--	NL	--
UO-87-03.1	24-May-24	N	Specific Conductance (field)	7,382	--	Y	us/cm	--	NL	--
UO-87-03.1	24-May-24	N	Temperature (field)	19.9	--	Y	deg c	--	NL	--
UO-87-03.1	07-Aug-24	T	Chloride (as Cl)	2,200	600	Y	mg/l	--	250	x
UO-87-03.1	07-Aug-24	T	Sulfate	930	50	Y	mg/l	--	250	x
UO-87-03.1	07-Aug-24	T	Total dissolved solids	5,400	96	Y	mg/l	--	500	x
UO-87-03.1	07-Aug-24	N	pH (field)	5.19	--	Y	s.u.	--	NL	--
UO-87-03.1	07-Aug-24	N	Specific Conductance (field)	8,453	--	Y	us/cm	--	NL	--
UO-87-03.1	07-Aug-24	N	Temperature (field)	21	--	Y	deg c	--	NL	--
UO-87-03.1	17-Oct-24	T	Chloride (as Cl)	2,600	300	Y	mg/l	J	250	x
UO-87-03.1	17-Oct-24	T	Sulfate	850	25	Y	mg/l	--	250	x
UO-87-03.1	17-Oct-24	T	Total dissolved solids	5,200	96	Y	mg/l	--	500	x
UO-87-03.1	17-Oct-24	N	pH (field)	5.27	--	Y	s.u.	--	NL	--
UO-87-03.1	17-Oct-24	N	Specific Conductance (field)	6,896	--	Y	us/cm	--	NL	--
UO-87-03.1	17-Oct-24	N	Temperature (field)	19.8	--	Y	deg c	--	NL	--
UO-87-04.1	27-Feb-24	D	Dissolved Calcium	120	0.24	Y	mg/l	--	NL	--
UO-87-04.1	27-Feb-24	T	Chloride (as Cl)	250	30	Y	mg/l	--	250	x
UO-87-04.1	27-Feb-24	D	Hardness (as CACO3)	310	0.41	Y	mg/l	--	NL	--
UO-87-04.1	27-Feb-24	D	Dissolved Magnesium	1.6	0.082	Y	mg/l	--	NL	--
UO-87-04.1	27-Feb-24	T	Nitrogen, Nitrate-Nitrite	7.4	0.40	Y	mg/l	--	NL	--

Table B-1. 2024 Groundwater Monitoring Data - Alluvium
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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UO-87-04.1	27-Feb-24	D	Dissolved Sodium	18	0.41	Y	mg/l	--	NL	--
UO-87-04.1	27-Feb-24	T	Sulfate	7.5	2.5	N	mg/l	U	250	--
UO-87-04.1	27-Feb-24	T	Total dissolved solids	480	24	Y	mg/l	--	500	--
UO-87-04.1	27-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UO-87-04.1	27-Feb-24	N	pH (field)	3.99	--	Y	s.u.	--	NL	--
UO-87-04.1	27-Feb-24	N	Specific Conductance (field)	843	--	Y	us/cm	--	NL	--
UO-87-04.1	27-Feb-24	N	Temperature (field)	17.7	--	Y	deg c	--	NL	--
UO-87-04.1	22-May-24	T	Chloride (as Cl)	260	30	Y	mg/l	--	250	x
UO-87-04.1	22-May-24	T	Sulfate	3.1	2.5	Y	mg/l	--	250	--
UO-87-04.1	22-May-24	T	Total dissolved solids	410	24	Y	mg/l	--	500	--
UO-87-04.1	22-May-24	N	pH (field)	3.95	--	Y	s.u.	--	NL	--
UO-87-04.1	22-May-24	N	Specific Conductance (field)	882	--	Y	us/cm	--	NL	--
UO-87-04.1	22-May-24	N	Temperature (field)	17	--	Y	deg c	--	NL	--
UO-87-04.1	06-Aug-24	T	Chloride (as Cl)	240	30	Y	mg/l	--	250	--
UO-87-04.1	06-Aug-24	T	Sulfate	7.5	2.5	N	mg/l	U	250	--
UO-87-04.1	06-Aug-24	T	Total dissolved solids	450	24	Y	mg/l	--	500	--
UO-87-04.1	06-Aug-24	N	pH (field)	3.99	--	Y	s.u.	--	NL	--
UO-87-04.1	06-Aug-24	N	Specific Conductance (field)	730	--	Y	us/cm	--	NL	--
UO-87-04.1	06-Aug-24	N	Temperature (field)	18.2	--	Y	deg c	--	NL	--
UO-87-04.1	16-Oct-24	T	Chloride (as Cl)	250	30	Y	mg/l	--	250	x
UO-87-04.1	16-Oct-24	T	Sulfate	7.5	2.5	N	mg/l	U	250	--
UO-87-04.1	16-Oct-24	T	Total dissolved solids	440	24	Y	mg/l	--	500	--
UO-87-04.1	16-Oct-24	N	pH (field)	3.97	--	Y	s.u.	--	NL	--
UO-87-04.1	16-Oct-24	N	Specific Conductance (field)	804	--	Y	us/cm	--	NL	--
UO-87-04.1	16-Oct-24	N	Temperature (field)	19.3	--	Y	deg c	--	NL	--
UO-87-06.1	12-Feb-24	D	Dissolved Calcium	32	0.24	Y	mg/l	--	NL	--
UO-87-06.1	12-Feb-24	T	Chloride (as Cl)	81	15	Y	mg/l	--	250	--
UO-87-06.1	12-Feb-24	D	Hardness (as CACO3)	100	0.41	Y	mg/l	--	NL	--
UO-87-06.1	12-Feb-24	D	Dissolved Magnesium	5.6	0.082	Y	mg/l	--	NL	--
UO-87-06.1	12-Feb-24	T	Nitrogen, Nitrate-Nitrite	1.2	0.040	Y	mg/l	--	NL	--
UO-87-06.1	12-Feb-24	D	Dissolved Sodium	30	0.41	Y	mg/l	--	NL	--

Table B-1. 2024 Groundwater Monitoring Data - Alluvium
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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UO-87-06.1	12-Feb-24	T	Sulfate	38	2.5	Y	mg/l	--	250	--
UO-87-06.1	12-Feb-24	T	Total dissolved solids	200	12	Y	mg/l	--	500	--
UO-87-06.1	12-Feb-24	D	Dissolved Vanadium	0.31	0.0020	Y	mg/l	--	NL	--
UO-87-06.1	12-Feb-24	N	pH (field)	5.23	--	Y	s.u.	--	NL	--
UO-87-06.1	12-Feb-24	N	Specific Conductance (field)	409	--	Y	us/cm	--	NL	--
UO-87-06.1	12-Feb-24	N	Temperature (field)	12.7	--	Y	deg c	--	NL	--
UO-87-06.1	01-May-24	T	Chloride (as Cl)	150	30	Y	mg/l	--	250	--
UO-87-06.1	01-May-24	T	Sulfate	38	2.5	Y	mg/l	--	250	--
UO-87-06.1	01-May-24	T	Total dissolved solids	350	24	Y	mg/l	--	500	--
UO-87-06.1	01-May-24	N	pH (field)	4.96	--	Y	s.u.	--	NL	--
UO-87-06.1	01-May-24	N	Specific Conductance (field)	560	--	Y	us/cm	--	NL	--
UO-87-06.1	01-May-24	N	Temperature (field)	16	--	Y	deg c	--	NL	--
UO-87-06.1	22-Jul-24	T	Chloride (as Cl)	250	30	Y	mg/l	--	250	x
UO-87-06.1	22-Jul-24	T	Sulfate	39	2.5	Y	mg/l	--	250	--
UO-87-06.1	22-Jul-24	T	Total dissolved solids	420	24	Y	mg/l	--	500	--
UO-87-06.1	22-Jul-24	N	pH (field)	5.01	--	Y	s.u.	--	NL	--
UO-87-06.1	22-Jul-24	N	Specific Conductance (field)	769	--	Y	us/cm	--	NL	--
UO-87-06.1	22-Jul-24	N	Temperature (field)	20.7	--	Y	deg c	--	NL	--
UO-87-06.1	08-Oct-24	T	Chloride (as Cl)	150	30	Y	mg/l	--	250	--
UO-87-06.1	08-Oct-24	T	Sulfate	17	2.5	Y	mg/l	--	250	--
UO-87-06.1	08-Oct-24	T	Total dissolved solids	320	24	Y	mg/l	--	500	--
UO-87-06.1	08-Oct-24	N	pH (field)	5.91	--	Y	s.u.	--	NL	--
UO-87-06.1	08-Oct-24	N	Specific Conductance (field)	536	--	Y	us/cm	--	NL	--
UO-87-06.1	08-Oct-24	N	Temperature (field)	19.4	--	Y	deg c	--	NL	--
UO-87-07.1	12-Feb-24	D	Dissolved Calcium	100	0.24	Y	mg/l	--	NL	--
UO-87-07.1	12-Feb-24	T	Chloride (as Cl)	100	30	Y	mg/l	--	250	--
UO-87-07.1	12-Feb-24	D	Hardness (as CACO3)	350	0.41	Y	mg/l	--	NL	--
UO-87-07.1	12-Feb-24	D	Dissolved Magnesium	24	0.082	Y	mg/l	--	NL	--
UO-87-07.1	12-Feb-24	T	Nitrogen, Nitrate-Nitrite	0.1	0.040	N	mg/l	U	NL	--
UO-87-07.1	12-Feb-24	D	Dissolved Sodium	22	0.41	Y	mg/l	--	NL	--
UO-87-07.1	12-Feb-24	T	Sulfate	4.5	2.5	Y	mg/l	J	250	--

Table B-1. 2024 Groundwater Monitoring Data - Alluvium

Plant Site

Hot Springs, Arkansas

Umetco Minerals Corporation

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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UO-87-07.1	12-Feb-24	T	Total dissolved solids	380	24	Y	mg/l	--	500	--
UO-87-07.1	12-Feb-24	D	Dissolved Vanadium	0.003	0.0020	Y	mg/l	J	NL	--
UO-87-07.1	12-Feb-24	N	pH (field)	7.27	--	Y	s.u.	--	NL	--
UO-87-07.1	12-Feb-24	N	Specific Conductance (field)	634	--	Y	us/cm	--	NL	--
UO-87-07.1	12-Feb-24	N	Temperature (field)	14	--	Y	deg c	--	NL	--
UO-87-07.1	01-May-24	T	Chloride (as Cl)	120	30	Y	mg/l	--	250	--
UO-87-07.1	01-May-24	T	Sulfate	4.8	2.5	Y	mg/l	J	250	--
UO-87-07.1	01-May-24	T	Total dissolved solids	290	24	Y	mg/l	--	500	--
UO-87-07.1	01-May-24	N	pH (field)	7.18	--	Y	s.u.	--	NL	--
UO-87-07.1	01-May-24	N	Specific Conductance (field)	660	--	Y	us/cm	--	NL	--
UO-87-07.1	01-May-24	N	Temperature (field)	15.8	--	Y	deg c	--	NL	--
UO-87-07.1	22-Jul-24	T	Chloride (as Cl)	120	30	Y	mg/l	--	250	--
UO-87-07.1	22-Jul-24	T	Sulfate	2.6	2.5	Y	mg/l	J	250	--
UO-87-07.1	22-Jul-24	T	Total dissolved solids	420	24	Y	mg/l	--	500	--
UO-87-07.1	22-Jul-24	N	pH (field)	7.1	--	Y	s.u.	--	NL	--
UO-87-07.1	22-Jul-24	N	Specific Conductance (field)	684	--	Y	us/cm	--	NL	--
UO-87-07.1	22-Jul-24	N	Temperature (field)	18.2	--	Y	deg c	--	NL	--
UO-87-07.1	08-Oct-24	T	Chloride (as Cl)	140	30	Y	mg/l	--	250	--
UO-87-07.1	08-Oct-24	T	Sulfate	4.8	2.5	Y	mg/l	J	250	--
UO-87-07.1	08-Oct-24	T	Total dissolved solids	480	24	Y	mg/l	--	500	--
UO-87-07.1	08-Oct-24	N	pH (field)	7.14	--	Y	s.u.	--	NL	--
UO-87-07.1	08-Oct-24	N	Specific Conductance (field)	766	--	Y	us/cm	--	NL	--
UO-87-07.1	08-Oct-24	N	Temperature (field)	18.7	--	Y	deg c	--	NL	--
UO-87-08.1	19-Feb-24	D	Dissolved Calcium	1.5	0.24	Y	mg/l	--	NL	--
UO-87-08.1	19-Feb-24	T	Chloride (as Cl)	7.2	3.0	Y	mg/l	J	250	--
UO-87-08.1	19-Feb-24	D	Hardness (as CACO3)	8.3	0.41	Y	mg/l	--	NL	--
UO-87-08.1	19-Feb-24	D	Dissolved Magnesium	1.1	0.082	Y	mg/l	--	NL	--
UO-87-08.1	19-Feb-24	T	Nitrogen, Nitrate-Nitrite	1.8	0.040	Y	mg/l	--	NL	--
UO-87-08.1	19-Feb-24	D	Dissolved Sodium	4.7	0.41	Y	mg/l	--	NL	--
UO-87-08.1	19-Feb-24	T	Sulfate	7.5	2.5	N	mg/l	U	250	--
UO-87-08.1	19-Feb-24	T	Total dissolved solids	32	12	Y	mg/l	--	500	--

Table B-1. 2024 Groundwater Monitoring Data - Alluvium

Plant Site

Hot Springs, Arkansas

Umetco Minerals Corporation

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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UO-87-08.1	19-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UO-87-08.1	19-Feb-24	N	pH (field)	5.47	--	Y	s.u.	--	NL	--
UO-87-08.1	19-Feb-24	N	Specific Conductance (field)	47	--	Y	us/cm	--	NL	--
UO-87-08.1	19-Feb-24	N	Temperature (field)	15.6	--	Y	deg c	--	NL	--
UO-87-08.1	14-May-24	T	Chloride (as Cl)	8.4	3.0	Y	mg/l	--	250	--
UO-87-08.1	14-May-24	T	Sulfate	7.5	2.5	N	mg/l	--	250	--
UO-87-08.1	14-May-24	T	Total dissolved solids	32	12	Y	mg/l	--	500	--
UO-87-08.1	14-May-24	N	pH (field)	5.02	--	Y	s.u.	--	NL	--
UO-87-08.1	14-May-24	N	Specific Conductance (field)	49.7	--	Y	us/cm	--	NL	--
UO-87-08.1	14-May-24	N	Temperature (field)	17.6	--	Y	deg c	--	NL	--
UO-87-08.1	29-Jul-24	T	Chloride (as Cl)	7.4	3.0	Y	mg/l	J	250	--
UO-87-08.1	29-Jul-24	T	Sulfate	7.5	2.5	N	mg/l	U	250	--
UO-87-08.1	29-Jul-24	T	Total dissolved solids	33	12	Y	mg/l	--	500	--
UO-87-08.1	29-Jul-24	N	pH (field)	4.87	--	Y	s.u.	--	NL	--
UO-87-08.1	29-Jul-24	N	Specific Conductance (field)	44.7	--	Y	us/cm	--	NL	--
UO-87-08.1	29-Jul-24	N	Temperature (field)	20.8	--	Y	deg c	--	NL	--
UO-87-08.1	14-Oct-24	T	Chloride (as Cl)	8.5	3.0	Y	mg/l	--	250	--
UO-87-08.1	14-Oct-24	T	Sulfate	7.5	2.5	N	mg/l	U	250	--
UO-87-08.1	14-Oct-24	T	Total dissolved solids	36	12	Y	mg/l	--	500	--
UO-87-08.1	14-Oct-24	N	pH (field)	4.89	--	Y	s.u.	--	NL	--
UO-87-08.1	14-Oct-24	N	Specific Conductance (field)	46.1	--	Y	us/cm	--	NL	--
UO-87-08.1	14-Oct-24	N	Temperature (field)	19.5	--	Y	deg c	--	NL	--
UO-87-09.1	26-Feb-24	D	Dissolved Calcium	220	0.24	Y	mg/l	--	NL	--
UO-87-09.1	26-Feb-24	T	Chloride (as Cl)	58	3.0	Y	mg/l	--	250	--
UO-87-09.1	26-Feb-24	D	Hardness (as CACO3)	560	0.41	Y	mg/l	--	NL	--
UO-87-09.1	26-Feb-24	D	Dissolved Magnesium	0.21	0.082	N	mg/l	U	NL	--
UO-87-09.1	26-Feb-24	T	Nitrogen, Nitrate-Nitrite	1.1	0.040	Y	mg/l	--	NL	--
UO-87-09.1	26-Feb-24	D	Dissolved Sodium	8.2	0.41	Y	mg/l	--	NL	--
UO-87-09.1	26-Feb-24	T	Sulfate	2.6	2.5	Y	mg/l	J	250	--
UO-87-09.1	26-Feb-24	T	Total dissolved solids	640	48	Y	mg/l	--	500	x
UO-87-09.1	26-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--

Table B-1. 2024 Groundwater Monitoring Data - Alluvium
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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UO-87-09.1	26-Feb-24	N	pH (field)	12.06	--	Y	s.u.	--	NL	--
UO-87-09.1	26-Feb-24	N	Specific Conductance (field)	2,081	--	Y	us/cm	--	NL	--
UO-87-09.1	26-Feb-24	N	Temperature (field)	18.7	--	Y	deg c	--	NL	--
UO-87-09.1	23-May-24	T	Chloride (as Cl)	60	3.0	Y	mg/l	--	250	--
UO-87-09.1	23-May-24	T	Sulfate	3.5	2.5	Y	mg/l	J	250	--
UO-87-09.1	23-May-24	T	Total dissolved solids	920	96	Y	mg/l	--	500	x
UO-87-09.1	23-May-24	N	pH (field)	12.09	--	Y	s.u.	--	NL	--
UO-87-09.1	23-May-24	N	Specific Conductance (field)	2,731	--	Y	us/cm	--	NL	--
UO-87-09.1	23-May-24	N	Temperature (field)	23.4	--	Y	deg c	--	NL	--
UO-87-09.1	06-Aug-24	T	Chloride (as Cl)	57	3.0	Y	mg/l	--	250	--
UO-87-09.1	06-Aug-24	T	Sulfate	7.5	2.5	N	mg/l	U	250	--
UO-87-09.1	06-Aug-24	T	Total dissolved solids	340	24	Y	mg/l	--	500	--
UO-87-09.1	06-Aug-24	N	pH (field)	11.47	--	Y	s.u.	--	NL	--
UO-87-09.1	06-Aug-24	N	Specific Conductance (field)	858	--	Y	us/cm	--	NL	--
UO-87-09.1	06-Aug-24	N	Temperature (field)	26.3	--	Y	deg c	--	NL	--
UO-87-09.1	17-Oct-24	T	Chloride (as Cl)	57	12	Y	mg/l	J	250	--
UO-87-09.1	17-Oct-24	T	Sulfate	7.5	2.5	N	mg/l	U	250	--
UO-87-09.1	17-Oct-24	T	Total dissolved solids	220	24	Y	mg/l	--	500	--
UO-87-09.1	17-Oct-24	N	pH (field)	11.3	--	Y	s.u.	--	NL	--
UO-87-09.1	17-Oct-24	N	Specific Conductance (field)	488	--	Y	us/cm	--	NL	--
UO-87-09.1	17-Oct-24	N	Temperature (field)	18.9	--	Y	deg c	--	NL	--
UO-88-13.1	27-Feb-24	D	Dissolved Calcium	110	0.24	Y	mg/l	--	NL	--
UO-88-13.1	27-Feb-24	T	Chloride (as Cl)	62	12	Y	mg/l	--	250	--
UO-88-13.1	27-Feb-24	D	Hardness (as CACO3)	280	0.41	Y	mg/l	--	NL	--
UO-88-13.1	27-Feb-24	D	Dissolved Magnesium	3.9	0.082	Y	mg/l	--	NL	--
UO-88-13.1	27-Feb-24	T	Nitrogen, Nitrate-Nitrite	11	0.40	Y	mg/l	--	NL	--
UO-88-13.1	27-Feb-24	D	Dissolved Sodium	160	0.41	Y	mg/l	--	NL	--
UO-88-13.1	27-Feb-24	T	Sulfate	540	25	Y	mg/l	--	250	x
UO-88-13.1	27-Feb-24	T	Total dissolved solids	870	48	Y	mg/l	--	500	x
UO-88-13.1	27-Feb-24	D	Dissolved Vanadium	0.014	0.0020	Y	mg/l	--	NL	--
UO-88-13.1	27-Feb-24	N	pH (field)	4	--	Y	s.u.	--	NL	--

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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UO-88-13.1	27-Feb-24	N	Specific Conductance (field)	1,272	--	Y	us/cm	--	NL	--
UO-88-13.1	27-Feb-24	N	Temperature (field)	17	--	Y	deg c	--	NL	--
UO-88-13.1	23-May-24	T	Chloride (as Cl)	72	12	Y	mg/l	J	250	--
UO-88-13.1	23-May-24	T	Sulfate	320	25	Y	mg/l	--	250	x
UO-88-13.1	23-May-24	T	Total dissolved solids	490	24	Y	mg/l	--	500	--
UO-88-13.1	23-May-24	N	pH (field)	4.69	--	Y	s.u.	--	NL	--
UO-88-13.1	23-May-24	N	Specific Conductance (field)	917	--	Y	us/cm	--	NL	--
UO-88-13.1	23-May-24	N	Temperature (field)	20.9	--	Y	deg c	--	NL	--
UO-88-13.1	07-Aug-24	T	Chloride (as Cl)	64	12	Y	mg/l	--	250	--
UO-88-13.1	07-Aug-24	T	Sulfate	320	25	Y	mg/l	--	250	x
UO-88-13.1	07-Aug-24	T	Total dissolved solids	570	24	Y	mg/l	--	500	x
UO-88-13.1	07-Aug-24	N	pH (field)	4.68	--	Y	s.u.	--	NL	--
UO-88-13.1	07-Aug-24	N	Specific Conductance (field)	952	--	Y	us/cm	--	NL	--
UO-88-13.1	07-Aug-24	N	Temperature (field)	28.3	--	Y	deg c	--	NL	--
UO-88-13.1	17-Oct-24	T	Chloride (as Cl)	57	15	Y	mg/l	--	250	--
UO-88-13.1	17-Oct-24	T	Sulfate	340	25	Y	mg/l	--	250	x
UO-88-13.1	17-Oct-24	T	Total dissolved solids	580	24	Y	mg/l	--	500	x
UO-88-13.1	17-Oct-24	N	pH (field)	4.23	--	Y	s.u.	--	NL	--
UO-88-13.1	17-Oct-24	N	Specific Conductance (field)	848	--	Y	us/cm	--	NL	--
UO-88-13.1	17-Oct-24	N	Temperature (field)	23.1	--	Y	deg c	--	NL	--
UO-88-14.1	22-Feb-24	D	Dissolved Calcium	15	0.24	Y	mg/l	--	NL	--
UO-88-14.1	22-Feb-24	T	Chloride (as Cl)	11	3.0	Y	mg/l	--	250	--
UO-88-14.1	22-Feb-24	D	Hardness (as CACO3)	46	0.41	Y	mg/l	--	NL	--
UO-88-14.1	22-Feb-24	D	Dissolved Magnesium	1.7	0.082	Y	mg/l	--	NL	--
UO-88-14.1	22-Feb-24	T	Nitrogen, Nitrate-Nitrite	0.69	0.040	Y	mg/l	--	NL	--
UO-88-14.1	22-Feb-24	D	Dissolved Sodium	22	0.41	Y	mg/l	--	NL	--
UO-88-14.1	22-Feb-24	T	Sulfate	77	2.5	Y	mg/l	--	250	--
UO-88-14.1	22-Feb-24	T	Total dissolved solids	140	12	Y	mg/l	--	500	--
UO-88-14.1	22-Feb-24	D	Dissolved Vanadium	0.1	0.0020	Y	mg/l	--	NL	--
UO-88-14.1	22-Feb-24	N	pH (field)	4.68	--	Y	s.u.	--	NL	--
UO-88-14.1	22-Feb-24	N	Specific Conductance (field)	208.3	--	Y	us/cm	--	NL	--

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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UO-88-14.1	22-Feb-24	N	Temperature (field)	16.2	--	Y	deg c	--	NL	--
UO-88-14.1	21-May-24	T	Chloride (as Cl)	34	3.0	Y	mg/l	--	250	--
UO-88-14.1	21-May-24	T	Sulfate	71	2.5	Y	mg/l	--	250	--
UO-88-14.1	21-May-24	T	Total dissolved solids	150	12	Y	mg/l	--	500	--
UO-88-14.1	21-May-24	N	pH (field)	4.45	--	Y	s.u.	--	NL	--
UO-88-14.1	21-May-24	N	Specific Conductance (field)	240	--	Y	us/cm	--	NL	--
UO-88-14.1	21-May-24	N	Temperature (field)	18.2	--	Y	deg c	--	NL	--
UO-88-14.1	31-Jul-24	T	Chloride (as Cl)	16	3.0	Y	mg/l	--	250	--
UO-88-14.1	31-Jul-24	T	Sulfate	68	2.5	Y	mg/l	--	250	--
UO-88-14.1	31-Jul-24	T	Total dissolved solids	120	12	Y	mg/l	--	500	--
UO-88-14.1	31-Jul-24	N	pH (field)	4.54	--	Y	s.u.	--	NL	--
UO-88-14.1	31-Jul-24	N	Specific Conductance (field)	200.8	--	Y	us/cm	--	NL	--
UO-88-14.1	31-Jul-24	N	Temperature (field)	24.5	--	Y	deg c	--	NL	--
UO-88-14.1	15-Oct-24	T	Chloride (as Cl)	16	3.0	Y	mg/l	--	250	--
UO-88-14.1	15-Oct-24	T	Sulfate	68	2.5	Y	mg/l	--	250	--
UO-88-14.1	15-Oct-24	T	Total dissolved solids	150	12	Y	mg/l	--	500	--
UO-88-14.1	15-Oct-24	N	pH (field)	4.47	--	Y	s.u.	--	NL	--
UO-88-14.1	15-Oct-24	N	Specific Conductance (field)	203	--	Y	us/cm	--	NL	--
UO-88-14.1	15-Oct-24	N	Temperature (field)	23.2	--	Y	deg c	--	NL	--
UO-88-15.1	21-Feb-24	D	Dissolved Calcium	4.8	0.24	Y	mg/l	--	NL	--
UO-88-15.1	21-Feb-24	T	Chloride (as Cl)	28	3.0	Y	mg/l	--	250	--
UO-88-15.1	21-Feb-24	D	Hardness (as CACO3)	25	0.41	Y	mg/l	--	NL	--
UO-88-15.1	21-Feb-24	D	Dissolved Magnesium	3.2	0.082	Y	mg/l	--	NL	--
UO-88-15.1	21-Feb-24	T	Nitrogen, Nitrate-Nitrite	1	0.040	Y	mg/l	--	NL	--
UO-88-15.1	21-Feb-24	D	Dissolved Sodium	70	0.41	Y	mg/l	--	NL	--
UO-88-15.1	21-Feb-24	T	Sulfate	140	2.5	Y	mg/l	--	250	--
UO-88-15.1	21-Feb-24	T	Total dissolved solids	270	12	Y	mg/l	--	500	--
UO-88-15.1	21-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UO-88-15.1	21-Feb-24	N	pH (field)	5.06	--	Y	s.u.	--	NL	--
UO-88-15.1	21-Feb-24	N	Specific Conductance (field)	390.2	--	Y	us/cm	--	NL	--
UO-88-15.1	21-Feb-24	N	Temperature (field)	14.9	--	Y	deg c	--	NL	--

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Umetco Minerals Corporation

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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UO-88-15.1	20-May-24	T	Chloride (as Cl)	22	3.0	Y	mg/l	--	250	--
UO-88-15.1	20-May-24	T	Sulfate	130	2.5	Y	mg/l	--	250	--
UO-88-15.1	20-May-24	T	Total dissolved solids	230	12	Y	mg/l	--	500	--
UO-88-15.1	20-May-24	N	pH (field)	4.66	--	Y	s.u.	--	NL	--
UO-88-15.1	20-May-24	N	Specific Conductance (field)	375.3	--	Y	us/cm	--	NL	--
UO-88-15.1	20-May-24	N	Temperature (field)	23.1	--	Y	deg c	--	NL	--
UO-88-15.1	31-Jul-24	T	Chloride (as Cl)	20	3.0	Y	mg/l	--	250	--
UO-88-15.1	31-Jul-24	T	Sulfate	120	2.5	Y	mg/l	--	250	--
UO-88-15.1	31-Jul-24	T	Total dissolved solids	220	12	Y	mg/l	--	500	--
UO-88-15.1	31-Jul-24	N	pH (field)	4.6	--	Y	s.u.	--	NL	--
UO-88-15.1	31-Jul-24	N	Specific Conductance (field)	309.5	--	Y	us/cm	--	NL	--
UO-88-15.1	31-Jul-24	N	Temperature (field)	21	--	Y	deg c	--	NL	--
UO-88-15.1	15-Oct-24	T	Chloride (as Cl)	29	3.0	Y	mg/l	--	250	--
UO-88-15.1	15-Oct-24	T	Sulfate	110	2.5	Y	mg/l	--	250	--
UO-88-15.1	15-Oct-24	T	Total dissolved solids	240	12	Y	mg/l	--	500	--
UO-88-15.1	15-Oct-24	N	pH (field)	4.98	--	Y	s.u.	--	NL	--
UO-88-15.1	15-Oct-24	N	Specific Conductance (field)	312	--	Y	us/cm	--	NL	--
UO-88-15.1	15-Oct-24	N	Temperature (field)	20.9	--	Y	deg c	--	NL	--
UO-91-16.1B	14-Feb-24	D	Dissolved Calcium	3.1	0.24	Y	mg/l	--	NL	--
UO-91-16.1B	14-Feb-24	T	Chloride (as Cl)	7.5	3.0	N	mg/l	U	250	--
UO-91-16.1B	14-Feb-24	D	Hardness (as CACO3)	13	0.41	Y	mg/l	--	NL	--
UO-91-16.1B	14-Feb-24	D	Dissolved Magnesium	1.4	0.082	Y	mg/l	--	NL	--
UO-91-16.1B	14-Feb-24	T	Nitrogen, Nitrate-Nitrite	0.78	0.040	Y	mg/l	--	NL	--
UO-91-16.1B	14-Feb-24	D	Dissolved Sodium	4	0.41	Y	mg/l	--	NL	--
UO-91-16.1B	14-Feb-24	T	Sulfate	7.5	2.5	N	mg/l	U	250	--
UO-91-16.1B	14-Feb-24	T	Total dissolved solids	38	12	Y	mg/l	--	500	--
UO-91-16.1B	14-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UO-91-16.1B	14-Feb-24	N	pH (field)	6.04	--	Y	s.u.	--	NL	--
UO-91-16.1B	14-Feb-24	N	Specific Conductance (field)	42.6	--	Y	us/cm	--	NL	--
UO-91-16.1B	14-Feb-24	N	Temperature (field)	17.2	--	Y	deg c	--	NL	--
UO-91-16.1B	08-May-24	T	Chloride (as Cl)	3.9	3.0	Y	mg/l	J	250	--

Table B-1. 2024 Groundwater Monitoring Data - Alluvium
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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UO-91-16.1B	08-May-24	T	Sulfate	4.4	2.5	Y	mg/l	J	250	--
UO-91-16.1B	08-May-24	T	Total dissolved solids	36	12	Y	mg/l	--	500	--
UO-91-16.1B	08-May-24	N	pH (field)	5.79	--	Y	s.u.	--	NL	--
UO-91-16.1B	08-May-24	N	Specific Conductance (field)	41.3	--	Y	us/cm	--	NL	--
UO-91-16.1B	08-May-24	N	Temperature (field)	18.1	--	Y	deg c	--	NL	--
UO-91-16.1B	25-Jul-24	T	Chloride (as Cl)	3.1	3.0	Y	mg/l	J	250	--
UO-91-16.1B	25-Jul-24	T	Sulfate	2.9	2.5	Y	mg/l	J	250	--
UO-91-16.1B	25-Jul-24	T	Total dissolved solids	47	12	Y	mg/l	--	500	--
UO-91-16.1B	25-Jul-24	N	pH (field)	5.77	--	Y	s.u.	--	NL	--
UO-91-16.1B	25-Jul-24	N	Specific Conductance (field)	42.5	--	Y	us/cm	--	NL	--
UO-91-16.1B	25-Jul-24	N	Temperature (field)	19.2	--	Y	deg c	--	NL	--
UO-91-16.1B	10-Oct-24	T	Chloride (as Cl)	7.5	3.0	N	mg/l	U	250	--
UO-91-16.1B	10-Oct-24	T	Sulfate	3.2	2.5	Y	mg/l	J	250	--
UO-91-16.1B	10-Oct-24	T	Total dissolved solids	46	12	Y	mg/l	--	500	--
UO-91-16.1B	10-Oct-24	N	pH (field)	5.78	--	Y	s.u.	--	NL	--
UO-91-16.1B	10-Oct-24	N	Specific Conductance (field)	45	--	Y	us/cm	--	NL	--
UO-91-16.1B	10-Oct-24	N	Temperature (field)	18	--	Y	deg c	--	NL	--
UO-91-17.1A	15-Feb-24	D	Dissolved Calcium	12	0.24	Y	mg/l	--	NL	--
UO-91-17.1A	15-Feb-24	T	Chloride (as Cl)	9.5	3.0	Y	mg/l	--	250	--
UO-91-17.1A	15-Feb-24	D	Hardness (as CACO3)	31	0.41	Y	mg/l	--	NL	--
UO-91-17.1A	15-Feb-24	D	Dissolved Magnesium	0.47	0.082	Y	mg/l	--	NL	--
UO-91-17.1A	15-Feb-24	T	Nitrogen, Nitrate-Nitrite	2.5	0.080	Y	mg/l	--	NL	--
UO-91-17.1A	15-Feb-24	D	Dissolved Sodium	10	0.41	Y	mg/l	--	NL	--
UO-91-17.1A	15-Feb-24	T	Sulfate	2.8	2.5	Y	mg/l	J	250	--
UO-91-17.1A	15-Feb-24	T	Total dissolved solids	78	12	Y	mg/l	--	500	--
UO-91-17.1A	15-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UO-91-17.1A	15-Feb-24	N	pH (field)	6.18	--	Y	s.u.	--	NL	--
UO-91-17.1A	15-Feb-24	N	Specific Conductance (field)	94.1	--	Y	us/cm	--	NL	--
UO-91-17.1A	15-Feb-24	N	Temperature (field)	14	--	Y	deg c	--	NL	--
UO-91-17.1A	14-May-24	T	Chloride (as Cl)	10	3.0	Y	mg/l	--	250	--
UO-91-17.1A	14-May-24	T	Sulfate	3.5	2.5	Y	mg/l	--	250	--

Table B-1. 2024 Groundwater Monitoring Data - Alluvium
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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UO-91-17.1A	14-May-24	T	Total dissolved solids	81	12	Y	mg/l	--	500	--
UO-91-17.1A	14-May-24	N	pH (field)	5.99	--	Y	s.u.	--	NL	--
UO-91-17.1A	14-May-24	N	Specific Conductance (field)	122.9	--	Y	us/cm	--	NL	--
UO-91-17.1A	14-May-24	N	Temperature (field)	17.7	--	Y	deg c	--	NL	--
UO-91-17.1A	25-Jul-24	T	Chloride (as Cl)	10	3.0	Y	mg/l	--	250	--
UO-91-17.1A	25-Jul-24	T	Sulfate	2.9	2.5	Y	mg/l	J	250	--
UO-91-17.1A	25-Jul-24	T	Total dissolved solids	80	12	Y	mg/l	--	500	--
UO-91-17.1A	25-Jul-24	N	pH (field)	5.7	--	Y	s.u.	--	NL	--
UO-91-17.1A	25-Jul-24	N	Specific Conductance (field)	93.3	--	Y	us/cm	--	NL	--
UO-91-17.1A	25-Jul-24	N	Temperature (field)	21.1	--	Y	deg c	--	NL	--
UO-91-17.1A	10-Oct-24	T	Chloride (as Cl)	9.8	3.0	Y	mg/l	--	250	--
UO-91-17.1A	10-Oct-24	T	Sulfate	7.5	2.5	N	mg/l	U	250	--
UO-91-17.1A	10-Oct-24	T	Total dissolved solids	80	12	Y	mg/l	--	500	--
UO-91-17.1A	10-Oct-24	N	pH (field)	5.83	--	Y	s.u.	--	NL	--
UO-91-17.1A	10-Oct-24	N	Specific Conductance (field)	98	--	Y	us/cm	--	NL	--
UO-91-17.1A	10-Oct-24	N	Temperature (field)	19.9	--	Y	deg c	--	NL	--
UO-91-17.1B	15-Feb-24	D	Dissolved Calcium	1.2	0.24	Y	mg/l	--	NL	--
UO-91-17.1B	15-Feb-24	T	Chloride (as Cl)	5.1	3.0	Y	mg/l	J	250	--
UO-91-17.1B	15-Feb-24	D	Hardness (as CACO3)	8	0.41	Y	mg/l	--	NL	--
UO-91-17.1B	15-Feb-24	D	Dissolved Magnesium	1.2	0.082	Y	mg/l	--	NL	--
UO-91-17.1B	15-Feb-24	T	Nitrogen, Nitrate-Nitrite	3.2	0.080	Y	mg/l	--	NL	--
UO-91-17.1B	15-Feb-24	D	Dissolved Sodium	5.9	0.41	Y	mg/l	--	NL	--
UO-91-17.1B	15-Feb-24	T	Sulfate	7.5	2.5	N	mg/l	U	250	--
UO-91-17.1B	15-Feb-24	T	Total dissolved solids	44	12	Y	mg/l	--	500	--
UO-91-17.1B	15-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UO-91-17.1B	15-Feb-24	N	pH (field)	5.18	--	Y	s.u.	--	NL	--
UO-91-17.1B	15-Feb-24	N	Specific Conductance (field)	45.8	--	Y	us/cm	--	NL	--
UO-91-17.1B	15-Feb-24	N	Temperature (field)	15.8	--	Y	deg c	--	NL	--
UO-91-17.1B	14-May-24	T	Chloride (as Cl)	6.4	3.0	Y	mg/l	--	250	--
UO-91-17.1B	14-May-24	T	Sulfate	2.5	2.5	Y	mg/l	--	250	--
UO-91-17.1B	14-May-24	T	Total dissolved solids	39	12	Y	mg/l	--	500	--

Table B-1. 2024 Groundwater Monitoring Data - Alluvium
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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UO-91-17.1B	14-May-24	N	pH (field)	4.99	--	Y	s.u.	--	NL	--
UO-91-17.1B	14-May-24	N	Specific Conductance (field)	53.8	--	Y	us/cm	--	NL	--
UO-91-17.1B	14-May-24	N	Temperature (field)	17.1	--	Y	deg c	--	NL	--
UO-91-17.1B	25-Jul-24	T	Chloride (as Cl)	6.3	3.0	Y	mg/l	J	250	--
UO-91-17.1B	25-Jul-24	T	Sulfate	7.5	2.5	N	mg/l	U	250	--
UO-91-17.1B	25-Jul-24	T	Total dissolved solids	46	12	Y	mg/l	--	500	--
UO-91-17.1B	25-Jul-24	N	pH (field)	4.96	--	Y	s.u.	--	NL	--
UO-91-17.1B	25-Jul-24	N	Specific Conductance (field)	44.9	--	Y	us/cm	--	NL	--
UO-91-17.1B	25-Jul-24	N	Temperature (field)	18.9	--	Y	deg c	--	NL	--
UO-91-17.1B	10-Oct-24	T	Chloride (as Cl)	5.5	3.0	Y	mg/l	J	250	--
UO-91-17.1B	10-Oct-24	T	Sulfate	7.5	2.5	N	mg/l	U	250	--
UO-91-17.1B	10-Oct-24	T	Total dissolved solids	42	12	Y	mg/l	--	500	--
UO-91-17.1B	10-Oct-24	N	pH (field)	4.66	--	Y	s.u.	--	NL	--
UO-91-17.1B	10-Oct-24	N	Specific Conductance (field)	45.2	--	Y	us/cm	--	NL	--
UO-91-17.1B	10-Oct-24	N	Temperature (field)	17.7	--	Y	deg c	--	NL	--
UO-91-20.1B	27-Feb-24	D	Dissolved Calcium	130	0.24	Y	mg/l	--	NL	--
UO-91-20.1B	27-Feb-24	T	Chloride (as Cl)	320	30	Y	mg/l	--	250	x
UO-91-20.1B	27-Feb-24	D	Hardness (as CACO3)	460	0.41	Y	mg/l	--	NL	--
UO-91-20.1B	27-Feb-24	D	Dissolved Magnesium	36	0.082	Y	mg/l	--	NL	--
UO-91-20.1B	27-Feb-24	T	Nitrogen, Nitrate-Nitrite	0.1	0.040	N	mg/l	U	NL	--
UO-91-20.1B	27-Feb-24	D	Dissolved Sodium	29	0.41	Y	mg/l	--	NL	--
UO-91-20.1B	27-Feb-24	T	Sulfate	5.9	2.5	Y	mg/l	J	250	--
UO-91-20.1B	27-Feb-24	T	Total dissolved solids	490	24	Y	mg/l	--	500	--
UO-91-20.1B	27-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UO-91-20.1B	27-Feb-24	N	pH (field)	6.09	--	Y	s.u.	--	NL	--
UO-91-20.1B	27-Feb-24	N	Specific Conductance (field)	961	--	Y	us/cm	--	NL	--
UO-91-20.1B	27-Feb-24	N	Temperature (field)	19.8	--	Y	deg c	--	NL	--
UO-91-20.1B	22-May-24	T	Chloride (as Cl)	400	60	Y	mg/l	--	250	x
UO-91-20.1B	22-May-24	T	Sulfate	6.2	2.5	Y	mg/l	--	250	--
UO-91-20.1B	22-May-24	T	Total dissolved solids	590	24	Y	mg/l	--	500	x
UO-91-20.1B	22-May-24	N	pH (field)	5.92	--	Y	s.u.	--	NL	--

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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UO-91-20.1B	22-May-24	N	Specific Conductance (field)	1,089	--	Y	us/cm	--	NL	--
UO-91-20.1B	22-May-24	N	Temperature (field)	20.4	--	Y	deg c	--	NL	--
UO-91-20.1B	06-Aug-24	T	Chloride (as Cl)	450	30	Y	mg/l	--	250	x
UO-91-20.1B	06-Aug-24	T	Sulfate	4.9	2.5	Y	mg/l	J	250	--
UO-91-20.1B	06-Aug-24	T	Total dissolved solids	810	48	Y	mg/l	--	500	x
UO-91-20.1B	06-Aug-24	N	pH (field)	5.87	--	Y	s.u.	--	NL	--
UO-91-20.1B	06-Aug-24	N	Specific Conductance (field)	1,109	--	Y	us/cm	--	NL	--
UO-91-20.1B	06-Aug-24	N	Temperature (field)	22.5	--	Y	deg c	--	NL	--
UO-91-20.1B	16-Oct-24	T	Chloride (as Cl)	490	30	Y	mg/l	--	250	x
UO-91-20.1B	16-Oct-24	T	Sulfate	5	2.5	Y	mg/l	J	250	--
UO-91-20.1B	16-Oct-24	T	Total dissolved solids	890	48	Y	mg/l	--	500	x
UO-91-20.1B	16-Oct-24	N	pH (field)	5.86	--	Y	s.u.	--	NL	--
UO-91-20.1B	16-Oct-24	N	Specific Conductance (field)	1,328	--	Y	us/cm	--	NL	--
UO-91-20.1B	16-Oct-24	N	Temperature (field)	20.4	--	Y	deg c	--	NL	--
UO-20-21.1	12-Feb-24	D	Dissolved Calcium	51	0.24	Y	mg/l	--	NL	--
UO-20-21.1	12-Feb-24	T	Chloride (as Cl)	55	3.0	Y	mg/l	--	250	--
UO-20-21.1	12-Feb-24	D	Hardness (as CACO3)	150	0.41	Y	mg/l	--	NL	--
UO-20-21.1	12-Feb-24	D	Dissolved Magnesium	6.7	0.082	Y	mg/l	--	NL	--
UO-20-21.1	12-Feb-24	T	Nitrogen, Nitrate-Nitrite	0.19	0.040	Y	mg/l	--	NL	--
UO-20-21.1	12-Feb-24	D	Dissolved Sodium	17	0.41	Y	mg/l	--	NL	--
UO-20-21.1	12-Feb-24	T	Sulfate	7.3	2.5	Y	mg/l	J	250	--
UO-20-21.1	12-Feb-24	T	Total dissolved solids	230	12	Y	mg/l	--	500	--
UO-20-21.1	12-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UO-20-21.1	12-Feb-24	N	pH (field)	7.1	--	Y	s.u.	--	NL	--
UO-20-21.1	12-Feb-24	N	Specific Conductance (field)	403.2	--	Y	us/cm	--	NL	--
UO-20-21.1	12-Feb-24	N	Temperature (field)	15.2	--	Y	deg c	--	NL	--
UO-20-21.1	01-May-24	T	Chloride (as Cl)	79	30	Y	mg/l	--	250	--
UO-20-21.1	01-May-24	T	Sulfate	9.1	2.5	Y	mg/l	--	250	--
UO-20-21.1	01-May-24	T	Total dissolved solids	200	12	Y	mg/l	--	500	--
UO-20-21.1	01-May-24	N	pH (field)	6.75	--	Y	s.u.	--	NL	--
UO-20-21.1	01-May-24	N	Specific Conductance (field)	501	--	Y	us/cm	--	NL	--

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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UO-20-21.1	01-May-24	N	Temperature (field)	21.9	--	Y	deg c	--	NL	--
UO-20-21.1	23-Jul-24	T	Chloride (as Cl)	57	12	Y	mg/l	--	250	--
UO-20-21.1	23-Jul-24	T	Sulfate	6	2.5	Y	mg/l	J	250	--
UO-20-21.1	23-Jul-24	T	Total dissolved solids	240	12	Y	mg/l	--	500	--
UO-20-21.1	23-Jul-24	N	pH (field)	6.54	--	Y	s.u.	--	NL	--
UO-20-21.1	23-Jul-24	N	Specific Conductance (field)	372.4	--	Y	us/cm	--	NL	--
UO-20-21.1	23-Jul-24	N	Temperature (field)	23	--	Y	deg c	--	NL	--
UO-20-21.1	09-Oct-24	T	Chloride (as Cl)	93	15	Y	mg/l	--	250	--
UO-20-21.1	09-Oct-24	T	Sulfate	8.4	2.5	Y	mg/l	--	250	--
UO-20-21.1	09-Oct-24	T	Total dissolved solids	210	12	Y	mg/l	--	500	--
UO-20-21.1	09-Oct-24	N	pH (field)	5.69	--	Y	s.u.	--	NL	--
UO-20-21.1	09-Oct-24	N	Specific Conductance (field)	350.1	--	Y	us/cm	--	NL	--
UO-20-21.1	09-Oct-24	N	Temperature (field)	22.1	--	Y	deg c	--	NL	--
UO-20-22.1	12-Feb-24	D	Dissolved Calcium	27	0.24	Y	mg/l	--	NL	--
UO-20-22.1	12-Feb-24	T	Chloride (as Cl)	12	3.0	Y	mg/l	--	250	--
UO-20-22.1	12-Feb-24	D	Hardness (as CACO3)	120	0.41	Y	mg/l	--	NL	--
UO-20-22.1	12-Feb-24	D	Dissolved Magnesium	13	0.082	Y	mg/l	--	NL	--
UO-20-22.1	12-Feb-24	T	Nitrogen, Nitrate-Nitrite	0.1	0.040	N	mg/l	U	NL	--
UO-20-22.1	12-Feb-24	D	Dissolved Sodium	9.3	0.41	Y	mg/l	--	NL	--
UO-20-22.1	12-Feb-24	T	Sulfate	15	2.5	Y	mg/l	--	250	--
UO-20-22.1	12-Feb-24	T	Total dissolved solids	160	12	Y	mg/l	--	500	--
UO-20-22.1	12-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UO-20-22.1	12-Feb-24	N	pH (field)	6.69	--	Y	s.u.	--	NL	--
UO-20-22.1	12-Feb-24	N	Specific Conductance (field)	242.8	--	Y	us/cm	--	NL	--
UO-20-22.1	12-Feb-24	N	Temperature (field)	14.7	--	Y	deg c	--	NL	--
UO-20-22.1	01-May-24	T	Chloride (as Cl)	9.4	3.0	Y	mg/l	--	250	--
UO-20-22.1	01-May-24	T	Sulfate	21	2.5	Y	mg/l	--	250	--
UO-20-22.1	01-May-24	T	Total dissolved solids	190	12	Y	mg/l	--	500	--
UO-20-22.1	01-May-24	N	pH (field)	6.46	--	Y	s.u.	--	NL	--
UO-20-22.1	01-May-24	N	Specific Conductance (field)	254.1	--	Y	us/cm	--	NL	--
UO-20-22.1	01-May-24	N	Temperature (field)	17.8	--	Y	deg c	--	NL	--

Table B-1. 2024 Groundwater Monitoring Data - Alluvium

Plant Site

Hot Springs, Arkansas

Umetco Minerals Corporation

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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UO-20-22.1	23-Jul-24	T	Chloride (as Cl)	9	3.0	Y	mg/l	--	250	--
UO-20-22.1	23-Jul-24	T	Sulfate	27	2.5	Y	mg/l	--	250	--
UO-20-22.1	23-Jul-24	T	Total dissolved solids	190	12	Y	mg/l	--	500	--
UO-20-22.1	23-Jul-24	N	pH (field)	6.3	--	Y	s.u.	--	NL	--
UO-20-22.1	23-Jul-24	N	Specific Conductance (field)	254	--	Y	us/cm	--	NL	--
UO-20-22.1	23-Jul-24	N	Temperature (field)	20.1	--	Y	deg c	--	NL	--
UO-20-22.1	08-Oct-24	T	Chloride (as Cl)	10	3.0	Y	mg/l	--	250	--
UO-20-22.1	08-Oct-24	T	Sulfate	19	2.5	Y	mg/l	--	250	--
UO-20-22.1	08-Oct-24	T	Total dissolved solids	170	12	Y	mg/l	--	500	--
UO-20-22.1	08-Oct-24	N	pH (field)	6.28	--	Y	s.u.	--	NL	--
UO-20-22.1	08-Oct-24	N	Specific Conductance (field)	266.9	--	Y	us/cm	--	NL	--
UO-20-22.1	08-Oct-24	N	Temperature (field)	21.8	--	Y	deg c	--	NL	--
UR-91-03.1B	29-Feb-24	D	Dissolved Calcium	440	0.47	Y	mg/l	--	NL	--
UR-91-03.1B	29-Feb-24	T	Chloride (as Cl)	1,700	120	Y	mg/l	--	250	x
UR-91-03.1B	29-Feb-24	D	Hardness (as CACO3)	1,200	0.41	Y	mg/l	--	NL	--
UR-91-03.1B	29-Feb-24	D	Dissolved Magnesium	28	0.16	Y	mg/l	--	NL	--
UR-91-03.1B	29-Feb-24	T	Nitrogen, Nitrate-Nitrite	2.5	0.080	Y	mg/l	--	NL	--
UR-91-03.1B	29-Feb-24	D	Dissolved Sodium	380	0.82	Y	mg/l	--	NL	--
UR-91-03.1B	29-Feb-24	T	Sulfate	740	100	Y	mg/l	--	250	x
UR-91-03.1B	29-Feb-24	T	Total dissolved solids	3,400	96	Y	mg/l	--	500	x
UR-91-03.1B	29-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UR-91-03.1B	29-Feb-24	N	pH (field)	3.76	--	Y	s.u.	--	NL	--
UR-91-03.1B	29-Feb-24	N	Specific Conductance (field)	4,307	--	Y	us/cm	--	NL	--
UR-91-03.1B	29-Feb-24	N	Temperature (field)	17.2	--	Y	deg c	--	NL	--
UR-91-03.1B	03-May-24	T	Chloride (as Cl)	280	30	Y	mg/l	--	250	x
UR-91-03.1B	03-May-24	T	Sulfate	300	25	Y	mg/l	--	250	x
UR-91-03.1B	03-May-24	T	Total dissolved solids	1,000	48	Y	mg/l	--	500	x
UR-91-03.1B	03-May-24	N	pH (field)	3.97	--	Y	s.u.	--	NL	--
UR-91-03.1B	03-May-24	N	Specific Conductance (field)	1,357	--	Y	us/cm	--	NL	--
UR-91-03.1B	03-May-24	N	Temperature (field)	20.9	--	Y	deg c	--	NL	--
UR-91-03.1B	08-Aug-24	T	Chloride (as Cl)	520	30	Y	mg/l	--	250	x

Table B-1. 2024 Groundwater Monitoring Data - Alluvium
Plant Site
Hot Springs, Arkansas
Umetco Minerals Corporation
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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UR-91-03.1B	08-Aug-24	T	Sulfate	340	25	Y	mg/l	--	250	x
UR-91-03.1B	08-Aug-24	T	Total dissolved solids	1,100	48	Y	mg/l	--	500	x
UR-91-03.1B	08-Aug-24	N	pH (field)	4.58	--	Y	s.u.	--	NL	--
UR-91-03.1B	08-Aug-24	N	Specific Conductance (field)	2,135	--	Y	us/cm	--	NL	--
UR-91-03.1B	08-Aug-24	N	Temperature (field)	26.6	--	Y	deg c	--	NL	--
UR-91-03.1B	21-Oct-24	T	Chloride (as Cl)	1,500	300	Y	mg/l	--	250	x
UR-91-03.1B	21-Oct-24	T	Sulfate	380	25	Y	mg/l	--	250	x
UR-91-03.1B	21-Oct-24	T	Total dissolved solids	2,900	96	Y	mg/l	--	500	x
UR-91-03.1B	21-Oct-24	N	pH (field)	4.16	--	Y	s.u.	--	NL	--
UR-91-03.1B	21-Oct-24	N	Specific Conductance (field)	4,240	--	Y	us/cm	--	NL	--
UR-91-03.1B	21-Oct-24	N	Temperature (field)	20.8	--	Y	deg c	--	NL	--
UR-91-03.1C	29-Feb-24	D	Dissolved Calcium	120	0.24	Y	mg/l	--	NL	--
UR-91-03.1C	29-Feb-24	T	Chloride (as Cl)	350	30	Y	mg/l	--	250	x
UR-91-03.1C	29-Feb-24	D	Hardness (as CACO3)	330	0.41	Y	mg/l	--	NL	--
UR-91-03.1C	29-Feb-24	D	Dissolved Magnesium	9.4	0.082	Y	mg/l	--	NL	--
UR-91-03.1C	29-Feb-24	T	Nitrogen, Nitrate-Nitrite	1.8	0.040	Y	mg/l	--	NL	--
UR-91-03.1C	29-Feb-24	D	Dissolved Sodium	65	0.41	Y	mg/l	--	NL	--
UR-91-03.1C	29-Feb-24	T	Sulfate	76	2.5	Y	mg/l	--	250	--
UR-91-03.1C	29-Feb-24	T	Total dissolved solids	630	48	Y	mg/l	--	500	x
UR-91-03.1C	29-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UR-91-03.1C	29-Feb-24	N	pH (field)	4.12	--	Y	s.u.	--	NL	--
UR-91-03.1C	29-Feb-24	N	Specific Conductance (field)	474	--	Y	us/cm	--	NL	--
UR-91-03.1C	29-Feb-24	N	Temperature (field)	16.6	--	Y	deg c	--	NL	--
UR-91-03.1C	03-May-24	T	Chloride (as Cl)	1,600	300	Y	mg/l	--	250	x
UR-91-03.1C	03-May-24	T	Sulfate	320	50	Y	mg/l	--	250	x
UR-91-03.1C	03-May-24	T	Total dissolved solids	2,900	96	Y	mg/l	--	500	x
UR-91-03.1C	03-May-24	N	pH (field)	3.54	--	Y	s.u.	--	NL	--
UR-91-03.1C	03-May-24	N	Specific Conductance (field)	4,262	--	Y	us/cm	--	NL	--
UR-91-03.1C	03-May-24	N	Temperature (field)	20.9	--	Y	deg c	--	NL	--
UR-91-03.1C	08-Aug-24	T	Chloride (as Cl)	120	30	Y	mg/l	--	250	--
UR-91-03.1C	08-Aug-24	T	Sulfate	36	2.5	Y	mg/l	--	250	--

Table B-1. 2024 Groundwater Monitoring Data - Alluvium
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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UR-91-03.1C	08-Aug-24	T	Total dissolved solids	190	12	Y	mg/l	--	500	--
UR-91-03.1C	08-Aug-24	N	pH (field)	3.97	--	Y	s.u.	--	NL	--
UR-91-03.1C	08-Aug-24	N	Specific Conductance (field)	1,326	--	Y	us/cm	--	NL	--
UR-91-03.1C	08-Aug-24	N	Temperature (field)	26.5	--	Y	deg c	--	NL	--
UR-91-03.1C	21-Oct-24	T	Chloride (as Cl)	1,100	150	Y	mg/l	--	250	x
UR-91-03.1C	21-Oct-24	T	Sulfate	220	5.0	Y	mg/l	--	250	--
UR-91-03.1C	21-Oct-24	T	Total dissolved solids	2,000	96	Y	mg/l	--	500	x
UR-91-03.1C	21-Oct-24	N	pH (field)	3.58	--	Y	s.u.	--	NL	--
UR-91-03.1C	21-Oct-24	N	Specific Conductance (field)	2,796	--	Y	us/cm	--	NL	--
UR-91-03.1C	21-Oct-24	N	Temperature (field)	21	--	Y	deg c	--	NL	--
UR-91-03.1D	29-Feb-24	D	Dissolved Calcium	990	2.4	Y	mg/l	--	NL	--
UR-91-03.1D	29-Feb-24	T	Chloride (as Cl)	2,300	600	Y	mg/l	--	250	x
UR-91-03.1D	29-Feb-24	D	Hardness (as CACO3)	2,900	0.41	Y	mg/l	--	NL	--
UR-91-03.1D	29-Feb-24	D	Dissolved Magnesium	97	0.82	Y	mg/l	--	NL	--
UR-91-03.1D	29-Feb-24	T	Nitrogen, Nitrate-Nitrite	0.58	0.040	Y	mg/l	J	NL	--
UR-91-03.1D	29-Feb-24	D	Dissolved Sodium	340	0.41	Y	mg/l	--	NL	--
UR-91-03.1D	29-Feb-24	T	Sulfate	560	100	Y	mg/l	--	250	x
UR-91-03.1D	29-Feb-24	T	Total dissolved solids	5,000	96	Y	mg/l	--	500	x
UR-91-03.1D	29-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UR-91-03.1D	29-Feb-24	N	pH (field)	3.82	--	Y	s.u.	--	NL	--
UR-91-03.1D	29-Feb-24	N	Specific Conductance (field)	6,446	--	Y	us/cm	--	NL	--
UR-91-03.1D	29-Feb-24	N	Temperature (field)	16.2	--	Y	deg c	--	NL	--
UR-91-03.1D	03-May-24	T	Chloride (as Cl)	2,800	600	Y	mg/l	--	250	x
UR-91-03.1D	03-May-24	T	Sulfate	510	50	Y	mg/l	--	250	x
UR-91-03.1D	03-May-24	T	Total dissolved solids	5,300	96	Y	mg/l	--	500	x
UR-91-03.1D	03-May-24	N	pH (field)	3.71	--	Y	s.u.	--	NL	--
UR-91-03.1D	03-May-24	N	Specific Conductance (field)	6,889	--	Y	us/cm	--	NL	--
UR-91-03.1D	03-May-24	N	Temperature (field)	21	--	Y	deg c	--	NL	--
UR-91-03.1D	08-Aug-24	T	Chloride (as Cl)	2,300	600	Y	mg/l	--	250	x
UR-91-03.1D	08-Aug-24	T	Sulfate	470	50	Y	mg/l	--	250	x
UR-91-03.1D	08-Aug-24	T	Total dissolved solids	4,300	96	Y	mg/l	--	500	x

Table B-1. 2024 Groundwater Monitoring Data - Alluvium
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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UR-91-03.1D	08-Aug-24	N	pH (field)	3.73	--	Y	s.u.	--	NL	--
UR-91-03.1D	08-Aug-24	N	Specific Conductance (field)	7,163	--	Y	us/cm	--	NL	--
UR-91-03.1D	08-Aug-24	N	Temperature (field)	27.3	--	Y	deg c	--	NL	--
UR-91-03.1D	21-Oct-24	T	Chloride (as Cl)	2,200	600	Y	mg/l	--	250	x
UR-91-03.1D	21-Oct-24	T	Sulfate	540	10	Y	mg/l	--	250	x
UR-91-03.1D	21-Oct-24	T	Total dissolved solids	4,400	96	Y	mg/l	--	500	x
UR-91-03.1D	21-Oct-24	N	pH (field)	3.72	--	Y	s.u.	--	NL	--
UR-91-03.1D	21-Oct-24	N	Specific Conductance (field)	6,343	--	Y	us/cm	--	NL	--
UR-91-03.1D	21-Oct-24	N	Temperature (field)	20.9	--	Y	deg c	--	NL	--
UR-91-03.1E	29-Feb-24	D	Dissolved Calcium	310	0.24	Y	mg/l	--	NL	--
UR-91-03.1E	29-Feb-24	T	Chloride (as Cl)	880	60	Y	mg/l	--	250	x
UR-91-03.1E	29-Feb-24	D	Hardness (as CACO3)	980	0.41	Y	mg/l	--	NL	--
UR-91-03.1E	29-Feb-24	D	Dissolved Magnesium	49	0.082	Y	mg/l	--	NL	--
UR-91-03.1E	29-Feb-24	T	Nitrogen, Nitrate-Nitrite	2.3	0.080	Y	mg/l	--	NL	--
UR-91-03.1E	29-Feb-24	D	Dissolved Sodium	98	0.41	Y	mg/l	--	NL	--
UR-91-03.1E	29-Feb-24	T	Sulfate	41	5.0	Y	mg/l	--	250	--
UR-91-03.1E	29-Feb-24	T	Total dissolved solids	1,600	96	Y	mg/l	--	500	x
UR-91-03.1E	29-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UR-91-03.1E	29-Feb-24	N	pH (field)	4.7	--	Y	s.u.	--	NL	--
UR-91-03.1E	29-Feb-24	N	Specific Conductance (field)	2,164	--	Y	us/cm	--	NL	--
UR-91-03.1E	29-Feb-24	N	Temperature (field)	15.6	--	Y	deg c	--	NL	--
UR-91-03.1E	03-May-24	T	Chloride (as Cl)	210	30	Y	mg/l	--	250	--
UR-91-03.1E	03-May-24	T	Sulfate	13	2.5	Y	mg/l	--	250	--
UR-91-03.1E	03-May-24	T	Total dissolved solids	400	24	Y	mg/l	--	500	--
UR-91-03.1E	03-May-24	N	pH (field)	4.76	--	Y	s.u.	--	NL	--
UR-91-03.1E	03-May-24	N	Specific Conductance (field)	654	--	Y	us/cm	--	NL	--
UR-91-03.1E	03-May-24	N	Temperature (field)	21.5	--	Y	deg c	--	NL	--
UR-91-03.1E	08-Aug-24	T	Chloride (as Cl)	31	3.0	Y	mg/l	--	250	--
UR-91-03.1E	08-Aug-24	T	Sulfate	6.7	2.5	Y	mg/l	J	250	--
UR-91-03.1E	08-Aug-24	T	Total dissolved solids	110	12	Y	mg/l	--	500	--
UR-91-03.1E	08-Aug-24	N	pH (field)	5.9	--	Y	s.u.	--	NL	--

Table B-1. 2024 Groundwater Monitoring Data - Alluvium
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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UR-91-03.1E	08-Aug-24	N	Specific Conductance (field)	208.2	--	Y	us/cm	--	NL	--
UR-91-03.1E	08-Aug-24	N	Temperature (field)	27.6	--	Y	deg c	--	NL	--
UR-91-03.1E	21-Oct-24	T	Chloride (as Cl)	34	3.0	Y	mg/l	--	250	--
UR-91-03.1E	21-Oct-24	T	Sulfate	5.7	2.5	Y	mg/l	J	250	--
UR-91-03.1E	21-Oct-24	T	Total dissolved solids	180	12	Y	mg/l	--	500	--
UR-91-03.1E	21-Oct-24	N	pH (field)	6.47	--	Y	s.u.	--	NL	--
UR-91-03.1E	21-Oct-24	N	Specific Conductance (field)	242	--	Y	us/cm	--	NL	--
UR-91-03.1E	21-Oct-24	N	Temperature (field)	21	--	Y	deg c	--	NL	--
UR-91-04.1A	29-Feb-24	D	Dissolved Calcium	15	0.24	Y	mg/l	--	NL	--
UR-91-04.1A	29-Feb-24	T	Chloride (as Cl)	18	3.0	Y	mg/l	--	250	--
UR-91-04.1A	29-Feb-24	D	Hardness (as CACO3)	44	0.41	Y	mg/l	--	NL	--
UR-91-04.1A	29-Feb-24	D	Dissolved Magnesium	1.6	0.082	Y	mg/l	--	NL	--
UR-91-04.1A	29-Feb-24	T	Nitrogen, Nitrate-Nitrite	6.9	0.40	Y	mg/l	--	NL	--
UR-91-04.1A	29-Feb-24	D	Dissolved Sodium	5.7	0.41	Y	mg/l	--	NL	--
UR-91-04.1A	29-Feb-24	T	Sulfate	7.6	2.5	Y	mg/l	--	250	--
UR-91-04.1A	29-Feb-24	T	Total dissolved solids	43	24	Y	mg/l	J	500	--
UR-91-04.1A	29-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UR-91-04.1A	29-Feb-24	N	pH (field)	4.51	--	Y	s.u.	--	NL	--
UR-91-04.1A	29-Feb-24	N	Specific Conductance (field)	138	--	Y	us/cm	--	NL	--
UR-91-04.1A	29-Feb-24	N	Temperature (field)	12.9	--	Y	deg c	--	NL	--
UR-91-04.1A	03-May-24	T	Chloride (as Cl)	10	3.0	Y	mg/l	--	250	--
UR-91-04.1A	03-May-24	T	Sulfate	8.6	2.5	Y	mg/l	--	250	--
UR-91-04.1A	03-May-24	T	Total dissolved solids	89	12	Y	mg/l	--	500	--
UR-91-04.1A	03-May-24	N	pH (field)	4.41	--	Y	s.u.	--	NL	--
UR-91-04.1A	03-May-24	N	Specific Conductance (field)	109.8	--	Y	us/cm	--	NL	--
UR-91-04.1A	03-May-24	N	Temperature (field)	16	--	Y	deg c	--	NL	--
UR-91-04.1A	08-Aug-24	T	Chloride (as Cl)	13	3.0	Y	mg/l	--	250	--
UR-91-04.1A	08-Aug-24	T	Sulfate	9	2.5	Y	mg/l	--	250	--

Table B-1. 2024 Groundwater Monitoring Data - Alluvium
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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UR-91-04.1A	08-Aug-24	T	Total dissolved solids	77	12	Y	mg/l	--	500	--
UR-91-04.1A	08-Aug-24	N	pH (field)	5.59	--	Y	s.u.	--	NL	--
UR-91-04.1A	08-Aug-24	N	Specific Conductance (field)	159.9	--	Y	us/cm	--	NL	--
UR-91-04.1A	08-Aug-24	N	Temperature (field)	20.8	--	Y	deg c	--	NL	--

Notes:
°C = degree(s) Celsius
µS/cm = microsiemen(s) per centimeter
CaCO3 = calcium carbonate
Cl = chlorine
D = dissolved
J = estimated
MDL = maximum detection level
mg/L = milligram(s) per liter
N = nitrogen
NL = no limit
s.u. = standard units
T = Total
TDS = total dissolved solids
U = undetected

Table B-2. 2024 Groundwater Monitoring Data - Stanley Shale

Plant Site

Hot Springs, Arkansas

Umetco Minerals Corporation

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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UO-88-02.2	20-Feb-24	D	Dissolved Calcium	51	0.24	Y	mg/l	--	NL	--
UO-88-02.2	20-Feb-24	T	Chloride (as Cl)	300	30	Y	mg/l	--	250	x
UO-88-02.2	20-Feb-24	D	Hardness (as CACO3)	190	0.41	Y	mg/l	--	NL	--
UO-88-02.2	20-Feb-24	D	Dissolved Magnesium	15	0.082	Y	mg/l	--	NL	--
UO-88-02.2	20-Feb-24	T	Nitrogen, Nitrate-Nitrite	0.1	0.040	N	mg/l	U	NL	--
UO-88-02.2	20-Feb-24	D	Dissolved Sodium	160	0.41	Y	mg/l	--	NL	--
UO-88-02.2	20-Feb-24	T	Sulfate	7.5	2.5	N	mg/l	U	250	--
UO-88-02.2	20-Feb-24	T	Total dissolved solids	490	24	Y	mg/l	--	500	--
UO-88-02.2	20-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UO-88-02.2	20-Feb-24	N	pH (field)	7.95	--	Y	s.u.	--	NL	--
UO-88-02.2	20-Feb-24	N	Specific Conductance (field)	1,129	--	Y	us/cm	--	NL	--
UO-88-02.2	20-Feb-24	N	Temperature (field)	17.7	--	Y	deg c	--	NL	--
UO-88-02.2	16-May-24	T	Chloride (as Cl)	270	30	Y	mg/l	--	250	x
UO-88-02.2	16-May-24	T	Sulfate	2.5	2.5	Y	mg/l	--	250	--
UO-88-02.2	16-May-24	T	Total dissolved solids	560	24	Y	mg/l	--	500	x
UO-88-02.2	16-May-24	N	pH (field)	7.89	--	Y	s.u.	--	NL	--
UO-88-02.2	16-May-24	N	Specific Conductance (field)	1,095	--	Y	us/cm	--	NL	--
UO-88-02.2	16-May-24	N	Temperature (field)	18.1	--	Y	deg c	--	NL	--
UO-88-02.2	29-Jul-24	T	Chloride (as Cl)	270	30	Y	mg/l	--	250	x
UO-88-02.2	29-Jul-24	T	Sulfate	7.5	2.5	N	mg/l	U	250	--
UO-88-02.2	29-Jul-24	T	Total dissolved solids	590	24	Y	mg/l	--	500	x
UO-88-02.2	29-Jul-24	N	pH (field)	7.83	--	Y	s.u.	--	NL	--
UO-88-02.2	29-Jul-24	N	Specific Conductance (field)	984	--	Y	us/cm	--	NL	--
UO-88-02.2	29-Jul-24	N	Temperature (field)	19	--	Y	deg c	--	NL	--
UO-88-02.2	14-Oct-24	T	Chloride (as Cl)	270	30	Y	mg/l	--	250	x
UO-88-02.2	14-Oct-24	T	Sulfate	7.5	2.5	N	mg/l	U	250	--
UO-88-02.2	14-Oct-24	T	Total dissolved solids	570	24	Y	mg/l	--	500	x
UO-88-02.2	14-Oct-24	N	pH (field)	7.85	--	Y	s.u.	--	NL	--
UO-88-02.2	14-Oct-24	N	Specific Conductance (field)	955	--	Y	us/cm	--	NL	--
UO-88-02.2	14-Oct-24	N	Temperature (field)	18.7	--	Y	deg c	--	NL	--
UO-87-03.2	28-Feb-24	D	Dissolved Calcium	1,900	2.4	Y	mg/l	--	NL	--
UO-87-03.2	28-Feb-24	T	Chloride (as Cl)	5,500	600	Y	mg/l	--	250	x

Table B-2. 2024 Groundwater Monitoring Data - Stanley Shale

Plant Site

Hot Springs, Arkansas

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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UO-87-03.2	28-Feb-24	D	Hardness (as CACO3)	5,200	0.41	Y	mg/l	--	NL	--
UO-87-03.2	28-Feb-24	D	Dissolved Magnesium	110	0.082	Y	mg/l	--	NL	--
UO-87-03.2	28-Feb-24	T	Nitrogen, Nitrate-Nitrite	0.1	0.040	N	mg/l	U	NL	--
UO-87-03.2	28-Feb-24	D	Dissolved Sodium	760	4.1	Y	mg/l	--	NL	--
UO-87-03.2	28-Feb-24	T	Sulfate	870	25	Y	mg/l	--	250	x
UO-87-03.2	28-Feb-24	T	Total dissolved solids	8,200	480	Y	mg/l	--	500	x
UO-87-03.2	28-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UO-87-03.2	28-Feb-24	N	pH (field)	6.29	--	Y	s.u.	--	NL	--
UO-87-03.2	28-Feb-24	N	Specific Conductance (field)	11,215	--	Y	us/cm	--	NL	--
UO-87-03.2	28-Feb-24	N	Temperature (field)	18.7	--	Y	deg c	--	NL	--
UO-87-03.2	24-May-24	T	Chloride (as Cl)	5,300	600	Y	mg/l	--	250	x
UO-87-03.2	24-May-24	T	Sulfate	700	100	Y	mg/l	--	250	x
UO-87-03.2	24-May-24	T	Total dissolved solids	3,100	240	Y	mg/l	--	500	x
UO-87-03.2	24-May-24	N	pH (field)	6.22	--	Y	s.u.	--	NL	--
UO-87-03.2	24-May-24	N	Specific Conductance (field)	11,326	--	Y	us/cm	--	NL	--
UO-87-03.2	24-May-24	N	Temperature (field)	19.6	--	Y	deg c	--	NL	--
UO-87-03.2	07-Aug-24	T	Chloride (as Cl)	4,300	600	Y	mg/l	--	250	x
UO-87-03.2	07-Aug-24	T	Sulfate	770	50	Y	mg/l	--	250	x
UO-87-03.2	07-Aug-24	T	Total dissolved solids	4,000	480	Y	mg/l	--	500	x
UO-87-03.2	07-Aug-24	N	pH (field)	6.23	--	Y	s.u.	--	NL	--
UO-87-03.2	07-Aug-24	N	Specific Conductance (field)	13,344	--	Y	us/cm	--	NL	--
UO-87-03.2	07-Aug-24	N	Temperature (field)	20.6	--	Y	deg c	--	NL	--
UO-87-03.2	17-Oct-24	T	Chloride (as Cl)	4,200	1200	Y	mg/l	--	250	x
UO-87-03.2	17-Oct-24	T	Sulfate	590	100	Y	mg/l	--	250	x
UO-87-03.2	17-Oct-24	T	Total dissolved solids	9,300	480	Y	mg/l	--	500	x
UO-87-03.2	17-Oct-24	N	pH (field)	6.27	--	Y	s.u.	--	NL	--
UO-87-03.2	17-Oct-24	N	Specific Conductance (field)	10,905	--	Y	us/cm	--	NL	--
UO-87-03.2	17-Oct-24	N	Temperature (field)	19.4	--	Y	deg c	--	NL	--
UO-87-06.2	12-Feb-24	D	Dissolved Calcium	73	0.24	Y	mg/l	--	NL	--
UO-87-06.2	12-Feb-24	T	Chloride (as Cl)	150	30	Y	mg/l	--	250	--
UO-87-06.2	12-Feb-24	D	Hardness (as CACO3)	250	0.41	Y	mg/l	--	NL	--
UO-87-06.2	12-Feb-24	D	Dissolved Magnesium	17	0.082	Y	mg/l	--	NL	--

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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UO-87-06.2	12-Feb-24	T	Nitrogen, Nitrate-Nitrite	0.1	0.040	N	mg/l	U	NL	--
UO-87-06.2	12-Feb-24	D	Dissolved Sodium	28	0.41	Y	mg/l	--	NL	--
UO-87-06.2	12-Feb-24	T	Sulfate	6.4	2.5	Y	mg/l	J	250	--
UO-87-06.2	12-Feb-24	T	Total dissolved solids	160	12	Y	mg/l	--	500	--
UO-87-06.2	12-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UO-87-06.2	12-Feb-24	N	pH (field)	7.66	--	Y	s.u.	--	NL	--
UO-87-06.2	12-Feb-24	N	Specific Conductance (field)	577	--	Y	us/cm	--	NL	--
UO-87-06.2	12-Feb-24	N	Temperature (field)	15.8	--	Y	deg c	--	NL	--
UO-87-06.2	01-May-24	T	Chloride (as Cl)	140	30	Y	mg/l	--	250	--
UO-87-06.2	01-May-24	T	Sulfate	6.9	2.5	Y	mg/l	J	250	--
UO-87-06.2	01-May-24	T	Total dissolved solids	300	24	Y	mg/l	--	500	--
UO-87-06.2	01-May-24	N	pH (field)	7.41	--	Y	s.u.	--	NL	--
UO-87-06.2	01-May-24	N	Specific Conductance (field)	555	--	Y	us/cm	--	NL	--
UO-87-06.2	01-May-24	N	Temperature (field)	15.9	--	Y	deg c	--	NL	--
UO-87-06.2	22-Jul-24	T	Chloride (as Cl)	150	30	Y	mg/l	--	250	--
UO-87-06.2	22-Jul-24	T	Sulfate	5.4	2.5	Y	mg/l	J	250	--
UO-87-06.2	22-Jul-24	T	Total dissolved solids	330	24	Y	mg/l	--	500	--
UO-87-06.2	22-Jul-24	N	pH (field)	7.33	--	Y	s.u.	--	NL	--
UO-87-06.2	22-Jul-24	N	Specific Conductance (field)	554	--	Y	us/cm	--	NL	--
UO-87-06.2	22-Jul-24	N	Temperature (field)	17.7	--	Y	deg c	--	NL	--
UO-87-06.2	10-Oct-24	T	Chloride (as Cl)	140	30	Y	mg/l	--	250	--
UO-87-06.2	10-Oct-24	T	Sulfate	7	2.5	Y	mg/l	J	250	--
UO-87-06.2	10-Oct-24	T	Total dissolved solids	370	24	Y	mg/l	--	500	--
UO-87-06.2	10-Oct-24	N	pH (field)	7.45	--	Y	s.u.	--	NL	--
UO-87-06.2	10-Oct-24	N	Specific Conductance (field)	595	--	Y	us/cm	--	NL	--
UO-87-06.2	10-Oct-24	N	Temperature (field)	17.2	--	Y	deg c	--	NL	--
UO-87-07.2	12-Feb-24	D	Dissolved Calcium	160	0.24	Y	mg/l	--	NL	--
UO-87-07.2	12-Feb-24	T	Chloride (as Cl)	280	30	Y	mg/l	--	250	x
UO-87-07.2	12-Feb-24	D	Hardness (as CACO3)	570	0.41	Y	mg/l	--	NL	--
UO-87-07.2	12-Feb-24	D	Dissolved Magnesium	40	0.082	Y	mg/l	--	NL	--
UO-87-07.2	12-Feb-24	T	Nitrogen, Nitrate-Nitrite	0.1	0.040	N	mg/l	U	NL	--
UO-87-07.2	12-Feb-24	D	Dissolved Sodium	29	0.41	Y	mg/l	--	NL	--

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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UO-87-07.2	12-Feb-24	T	Sulfate	3.5	2.5	Y	mg/l	J	250	--
UO-87-07.2	12-Feb-24	T	Total dissolved solids	530	48	Y	mg/l	--	500	x
UO-87-07.2	12-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UO-87-07.2	12-Feb-24	N	pH (field)	7.48	--	Y	s.u.	--	NL	--
UO-87-07.2	12-Feb-24	N	Specific Conductance (field)	1,090	--	Y	us/cm	--	NL	--
UO-87-07.2	12-Feb-24	N	Temperature (field)	15.5	--	Y	deg c	--	NL	--
UO-87-07.2	01-May-24	T	Chloride (as Cl)	280	30	Y	mg/l	--	250	x
UO-87-07.2	01-May-24	T	Sulfate	4	2.5	Y	mg/l	J	250	--
UO-87-07.2	01-May-24	T	Total dissolved solids	570	24	Y	mg/l	--	500	x
UO-87-07.2	01-May-24	N	pH (field)	7.37	--	Y	s.u.	--	NL	--
UO-87-07.2	01-May-24	N	Specific Conductance (field)	1,055	--	Y	us/cm	--	NL	--
UO-87-07.2	01-May-24	N	Temperature (field)	16	--	Y	deg c	--	NL	--
UO-87-07.2	22-Jul-24	T	Chloride (as Cl)	350	30	Y	mg/l	--	250	x
UO-87-07.2	22-Jul-24	T	Sulfate	7.5	2.5	N	mg/l	U	250	--
UO-87-07.2	22-Jul-24	T	Total dissolved solids	650	48	Y	mg/l	--	500	x
UO-87-07.2	22-Jul-24	N	pH (field)	7.3	--	Y	s.u.	--	NL	--
UO-87-07.2	22-Jul-24	N	Specific Conductance (field)	1,195	--	Y	us/cm	--	NL	--
UO-87-07.2	22-Jul-24	N	Temperature (field)	16.7	--	Y	deg c	--	NL	--
UO-87-07.2	08-Oct-24	T	Chloride (as Cl)	280	30	Y	mg/l	--	250	x
UO-87-07.2	08-Oct-24	T	Sulfate	4.1	2.5	Y	mg/l	J	250	--
UO-87-07.2	08-Oct-24	T	Total dissolved solids	660	24	Y	mg/l	--	500	x
UO-87-07.2	08-Oct-24	N	pH (field)	7.44	--	Y	s.u.	--	NL	--
UO-87-07.2	08-Oct-24	N	Specific Conductance (field)	1,116	--	Y	us/cm	--	NL	--
UO-87-07.2	08-Oct-24	N	Temperature (field)	18.5	--	Y	deg c	--	NL	--
UO-87-08.2	19-Feb-24	D	Dissolved Calcium	15	0.24	Y	mg/l	--	NL	--
UO-87-08.2	19-Feb-24	T	Chloride (as Cl)	4.7	3.0	Y	mg/l	J	250	--
UO-87-08.2	19-Feb-24	D	Hardness (as CACO3)	55	0.41	Y	mg/l	--	NL	--
UO-87-08.2	19-Feb-24	D	Dissolved Magnesium	4.4	0.082	Y	mg/l	--	NL	--
UO-87-08.2	19-Feb-24	T	Nitrogen, Nitrate-Nitrite	0.17	0.040	Y	mg/l	--	NL	--
UO-87-08.2	19-Feb-24	D	Dissolved Sodium	12	0.41	Y	mg/l	--	NL	--
UO-87-08.2	19-Feb-24	T	Sulfate	3.6	2.5	Y	mg/l	J	250	--
UO-87-08.2	19-Feb-24	T	Total dissolved solids	100	12	Y	mg/l	--	500	--

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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UO-87-08.2	19-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UO-87-08.2	19-Feb-24	N	pH (field)	6.63	--	Y	s.u.	--	NL	--
UO-87-08.2	19-Feb-24	N	Specific Conductance (field)	130	--	Y	us/cm	--	NL	--
UO-87-08.2	19-Feb-24	N	Temperature (field)	17.2	--	Y	deg c	--	NL	--
UO-87-08.2	14-May-24	T	Chloride (as Cl)	4.7	3.0	Y	mg/l	--	250	--
UO-87-08.2	14-May-24	T	Sulfate	4.2	2.5	Y	mg/l	--	250	--
UO-87-08.2	14-May-24	T	Total dissolved solids	99	12	Y	mg/l	--	500	--
UO-87-08.2	14-May-24	N	pH (field)	6.45	--	Y	s.u.	--	NL	--
UO-87-08.2	14-May-24	N	Specific Conductance (field)	151.1	--	Y	us/cm	--	NL	--
UO-87-08.2	14-May-24	N	Temperature (field)	18.9	--	Y	deg c	--	NL	--
UO-87-08.2	29-Jul-24	T	Chloride (as Cl)	4.6	3.0	Y	mg/l	J	250	--
UO-87-08.2	29-Jul-24	T	Sulfate	3.6	2.5	Y	mg/l	J	250	--
UO-87-08.2	29-Jul-24	T	Total dissolved solids	27	12	Y	mg/l	J	500	--
UO-87-08.2	29-Jul-24	N	pH (field)	6.36	--	Y	s.u.	--	NL	--
UO-87-08.2	29-Jul-24	N	Specific Conductance (field)	140.4	--	Y	us/cm	--	NL	--
UO-87-08.2	29-Jul-24	N	Temperature (field)	20.2	--	Y	deg c	--	NL	--
UO-87-08.2	14-Oct-24	T	Chloride (as Cl)	5.9	3.0	Y	mg/l	J	250	--
UO-87-08.2	14-Oct-24	T	Sulfate	3.4	2.5	Y	mg/l	J	250	--
UO-87-08.2	14-Oct-24	T	Total dissolved solids	120	12	Y	mg/l	--	500	--
UO-87-08.2	14-Oct-24	N	pH (field)	6.41	--	Y	s.u.	--	NL	--
UO-87-08.2	14-Oct-24	N	Specific Conductance (field)	140.1	--	Y	us/cm	--	NL	--
UO-87-08.2	14-Oct-24	N	Temperature (field)	18.8	--	Y	deg c	--	NL	--
UO-87-09.2	26-Feb-24	D	Dissolved Calcium	250	0.24	Y	mg/l	--	NL	--
UO-87-09.2	26-Feb-24	T	Chloride (as Cl)	600	120	Y	mg/l	--	250	x
UO-87-09.2	26-Feb-24	D	Hardness (as CACO3)	850	0.41	Y	mg/l	--	NL	--
UO-87-09.2	26-Feb-24	D	Dissolved Magnesium	55	0.082	Y	mg/l	--	NL	--
UO-87-09.2	26-Feb-24	T	Nitrogen, Nitrate-Nitrite	0.1	0.040	N	mg/l	U	NL	--
UO-87-09.2	26-Feb-24	D	Dissolved Sodium	57	0.41	Y	mg/l	--	NL	--
UO-87-09.2	26-Feb-24	T	Sulfate	14	2.5	Y	mg/l	--	250	--
UO-87-09.2	26-Feb-24	T	Total dissolved solids	1,200	48	Y	mg/l	--	500	x
UO-87-09.2	26-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UO-87-09.2	26-Feb-24	N	pH (field)	7.39	--	Y	s.u.	--	NL	--

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UO-87-09.2	26-Feb-24	N	Specific Conductance (field)	1,816	--	Y	us/cm	--	NL	--
UO-87-09.2	26-Feb-24	N	Temperature (field)	19.1	--	Y	deg c	--	NL	--
UO-87-09.2	23-May-24	T	Chloride (as Cl)	570	30	Y	mg/l	--	250	x
UO-87-09.2	23-May-24	T	Sulfate	15	2.5	Y	mg/l	--	250	--
UO-87-09.2	23-May-24	T	Total dissolved solids	850	48	Y	mg/l	--	500	x
UO-87-09.2	23-May-24	N	pH (field)	7.47	--	Y	s.u.	--	NL	--
UO-87-09.2	23-May-24	N	Specific Conductance (field)	1,824	--	Y	us/cm	--	NL	--
UO-87-09.2	23-May-24	N	Temperature (field)	20.1	--	Y	deg c	--	NL	--
UO-87-09.2	06-Aug-24	T	Chloride (as Cl)	460	30	Y	mg/l	--	250	x
UO-87-09.2	06-Aug-24	T	Sulfate	11	2.5	Y	mg/l	--	250	--
UO-87-09.2	06-Aug-24	T	Total dissolved solids	900	48	Y	mg/l	--	500	x
UO-87-09.2	06-Aug-24	N	pH (field)	7.47	--	Y	s.u.	--	NL	--
UO-87-09.2	06-Aug-24	N	Specific Conductance (field)	1,395	--	Y	us/cm	--	NL	--
UO-87-09.2	06-Aug-24	N	Temperature (field)	20.4	--	Y	deg c	--	NL	--
UO-87-09.2	17-Oct-24	T	Chloride (as Cl)	480	30	Y	mg/l	--	250	x
UO-87-09.2	17-Oct-24	T	Sulfate	13	2.5	Y	mg/l	--	250	--
UO-87-09.2	17-Oct-24	T	Total dissolved solids	930	48	Y	mg/l	--	500	x
UO-87-09.2	17-Oct-24	N	pH (field)	7.49	--	Y	s.u.	--	NL	--
UO-87-09.2	17-Oct-24	N	Specific Conductance (field)	1,472	--	Y	us/cm	--	NL	--
UO-87-09.2	17-Oct-24	N	Temperature (field)	18.4	--	Y	deg c	--	NL	--
UO-87-10.2	12-Feb-24	D	Dissolved Calcium	48	0.24	Y	mg/l	--	NL	--
UO-87-10.2	12-Feb-24	T	Chloride (as Cl)	58	3.0	Y	mg/l	--	250	--
UO-87-10.2	12-Feb-24	D	Hardness (as CACO3)	180	0.41	Y	mg/l	--	NL	--
UO-87-10.2	12-Feb-24	D	Dissolved Magnesium	14	0.082	Y	mg/l	--	NL	--
UO-87-10.2	12-Feb-24	T	Nitrogen, Nitrate-Nitrite	0.1	0.040	N	mg/l	U	NL	--
UO-87-10.2	12-Feb-24	D	Dissolved Sodium	20	0.41	Y	mg/l	--	NL	--
UO-87-10.2	12-Feb-24	T	Sulfate	8.6	2.5	Y	mg/l	--	250	--
UO-87-10.2	12-Feb-24	T	Total dissolved solids	260	12	Y	mg/l	--	500	--
UO-87-10.2	12-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UO-87-10.2	12-Feb-24	N	pH (field)	7.13	--	Y	s.u.	--	NL	--
UO-87-10.2	12-Feb-24	N	Specific Conductance (field)	458	--	Y	us/cm	--	NL	--
UO-87-10.2	12-Feb-24	N	Temperature (field)	16.3	--	Y	deg c	--	NL	--

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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UO-87-10.2	01-May-24	T	Chloride (as Cl)	59	3.0	Y	mg/l	--	250	--
UO-87-10.2	01-May-24	T	Sulfate	9.3	2.5	Y	mg/l	--	250	--
UO-87-10.2	01-May-24	T	Total dissolved solids	260	12	Y	mg/l	--	500	--
UO-87-10.2	01-May-24	N	pH (field)	6.93	--	Y	s.u.	--	NL	--
UO-87-10.2	01-May-24	N	Specific Conductance (field)	375	--	Y	us/cm	--	NL	--
UO-87-10.2	01-May-24	N	Temperature (field)	17.1	--	Y	deg c	--	NL	--
UO-87-10.2	23-Jul-24	T	Chloride (as Cl)	60	12	Y	mg/l	--	250	--
UO-87-10.2	23-Jul-24	T	Sulfate	9.1	2.5	Y	mg/l	--	250	--
UO-87-10.2	23-Jul-24	T	Total dissolved solids	290	12	Y	mg/l	--	500	--
UO-87-10.2	23-Jul-24	N	pH (field)	6.94	--	Y	s.u.	--	NL	--
UO-87-10.2	23-Jul-24	N	Specific Conductance (field)	390.8	--	Y	us/cm	--	NL	--
UO-87-10.2	23-Jul-24	N	Temperature (field)	18.2	--	Y	deg c	--	NL	--
UO-87-10.2	09-Oct-24	T	Chloride (as Cl)	64	15	Y	mg/l	--	250	--
UO-87-10.2	09-Oct-24	T	Sulfate	9.2	2.5	Y	mg/l	--	250	--
UO-87-10.2	09-Oct-24	T	Total dissolved solids	280	12	Y	mg/l	--	500	--
UO-87-10.2	09-Oct-24	N	pH (field)	6.94	--	Y	s.u.	--	NL	--
UO-87-10.2	09-Oct-24	N	Specific Conductance (field)	425.8	--	Y	us/cm	--	NL	--
UO-87-10.2	09-Oct-24	N	Temperature (field)	17.7	--	Y	deg c	--	NL	--
UO-88-11.2	20-Feb-24	D	Dissolved Calcium	32	0.24	Y	mg/l	--	NL	--
UO-88-11.2	20-Feb-24	T	Chloride (as Cl)	22	3.0	Y	mg/l	--	250	--
UO-88-11.2	20-Feb-24	D	Hardness (as CACO3)	99	0.41	Y	mg/l	--	NL	--
UO-88-11.2	20-Feb-24	D	Dissolved Magnesium	4.7	0.082	Y	mg/l	--	NL	--
UO-88-11.2	20-Feb-24	T	Nitrogen, Nitrate-Nitrite	0.1	0.040	N	mg/l	U	NL	--
UO-88-11.2	20-Feb-24	D	Dissolved Sodium	11	0.41	Y	mg/l	--	NL	--
UO-88-11.2	20-Feb-24	T	Sulfate	6.7	2.5	Y	mg/l	J	250	--
UO-88-11.2	20-Feb-24	T	Total dissolved solids	150	12	Y	mg/l	--	500	--
UO-88-11.2	20-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UO-88-11.2	20-Feb-24	N	pH (field)	7.86	--	Y	s.u.	--	NL	--
UO-88-11.2	20-Feb-24	N	Specific Conductance (field)	248.2	--	Y	us/cm	--	NL	--
UO-88-11.2	20-Feb-24	N	Temperature (field)	18.4	--	Y	deg c	--	NL	--
UO-88-11.2	20-May-24	T	Chloride (as Cl)	21	3.0	Y	mg/l	--	250	--
UO-88-11.2	20-May-24	T	Sulfate	7.5	2.5	Y	mg/l	--	250	--

Table B-2. 2024 Groundwater Monitoring Data - Stanley Shale

Plant Site

Hot Springs, Arkansas

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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UO-88-11.2	20-May-24	T	Total dissolved solids	150	12	Y	mg/l	--	500	--
UO-88-11.2	20-May-24	N	pH (field)	7.5	--	Y	s.u.	--	NL	--
UO-88-11.2	20-May-24	N	Specific Conductance (field)	228.9	--	Y	us/cm	--	NL	--
UO-88-11.2	20-May-24	N	Temperature (field)	18.7	--	Y	deg c	--	NL	--
UO-88-11.2	31-Jul-24	T	Chloride (as Cl)	22	3.0	Y	mg/l	--	250	--
UO-88-11.2	31-Jul-24	T	Sulfate	6.5	2.5	Y	mg/l	J	250	--
UO-88-11.2	31-Jul-24	T	Total dissolved solids	170	12	Y	mg/l	--	500	--
UO-88-11.2	31-Jul-24	N	pH (field)	7.58	--	Y	s.u.	--	NL	--
UO-88-11.2	31-Jul-24	N	Specific Conductance (field)	213	--	Y	us/cm	--	NL	--
UO-88-11.2	31-Jul-24	N	Temperature (field)	22.7	--	Y	deg c	--	NL	--
UO-88-11.2	15-Oct-24	T	Chloride (as Cl)	27	3.0	Y	mg/l	--	250	--
UO-88-11.2	15-Oct-24	T	Sulfate	4.7	2.5	Y	mg/l	J	250	--
UO-88-11.2	15-Oct-24	T	Total dissolved solids	170	12	Y	mg/l	--	500	--
UO-88-11.2	15-Oct-24	N	pH (field)	7.57	--	Y	s.u.	--	NL	--
UO-88-11.2	15-Oct-24	N	Specific Conductance (field)	215	--	Y	us/cm	--	NL	--
UO-88-11.2	15-Oct-24	N	Temperature (field)	17.3	--	Y	deg c	--	NL	--
UO-88-12.2R	13-Feb-24	D	Dissolved Calcium	40	0.24	Y	mg/l	--	NL	--
UO-88-12.2R	13-Feb-24	T	Chloride (as Cl)	43	3.0	Y	mg/l	--	250	--
UO-88-12.2R	13-Feb-24	D	Hardness (as CACO3)	170	0.41	Y	mg/l	--	NL	--
UO-88-12.2R	13-Feb-24	D	Dissolved Magnesium	17	0.082	Y	mg/l	--	NL	--
UO-88-12.2R	13-Feb-24	T	Nitrogen, Nitrate-Nitrite	0.1	0.040	N	mg/l	U	NL	--
UO-88-12.2R	13-Feb-24	D	Dissolved Sodium	30	0.41	Y	mg/l	--	NL	--
UO-88-12.2R	13-Feb-24	T	Sulfate	150	25	Y	mg/l	--	250	--
UO-88-12.2R	13-Feb-24	T	Total dissolved solids	340	12	Y	mg/l	--	500	--
UO-88-12.2R	13-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UO-88-12.2R	13-Feb-24	N	pH (field)	5.86	--	Y	s.u.	--	NL	--
UO-88-12.2R	13-Feb-24	N	Specific Conductance (field)	530	--	Y	us/cm	--	NL	--
UO-88-12.2R	13-Feb-24	N	Temperature (field)	16.8	--	Y	deg c	--	NL	--
UO-88-12.2R	08-May-24	T	Chloride (as Cl)	41	3.0	Y	mg/l	--	250	--
UO-88-12.2R	08-May-24	T	Sulfate	160	25	Y	mg/l	--	250	--
UO-88-12.2R	08-May-24	T	Total dissolved solids	370	12	Y	mg/l	--	500	--
UO-88-12.2R	08-May-24	N	pH (field)	6.04	--	Y	s.u.	--	NL	--

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Hot Springs, Arkansas

Umetco Minerals Corporation

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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UO-88-12.2R	08-May-24	N	Specific Conductance (field)	478	--	Y	us/cm	--	NL	--
UO-88-12.2R	08-May-24	N	Temperature (field)	18.6	--	Y	deg c	--	NL	--
UO-88-12.2R	24-Jul-24	T	Chloride (as Cl)	41	3.0	Y	mg/l	--	250	--
UO-88-12.2R	24-Jul-24	T	Sulfate	150	25	Y	mg/l	--	250	--
UO-88-12.2R	24-Jul-24	T	Total dissolved solids	400	12	Y	mg/l	--	500	--
UO-88-12.2R	24-Jul-24	N	pH (field)	6.09	--	Y	s.u.	--	NL	--
UO-88-12.2R	24-Jul-24	N	Specific Conductance (field)	479	--	Y	us/cm	--	NL	--
UO-88-12.2R	24-Jul-24	N	Temperature (field)	20.3	--	Y	deg c	--	NL	--
UO-88-12.2R	10-Oct-24	T	Chloride (as Cl)	40	3.0	Y	mg/l	--	250	--
UO-88-12.2R	10-Oct-24	T	Sulfate	150	25	Y	mg/l	--	250	--
UO-88-12.2R	10-Oct-24	T	Total dissolved solids	390	12	Y	mg/l	--	500	--
UO-88-12.2R	10-Oct-24	N	pH (field)	6.12	--	Y	s.u.	--	NL	--
UO-88-12.2R	10-Oct-24	N	Specific Conductance (field)	503	--	Y	us/cm	--	NL	--
UO-88-12.2R	10-Oct-24	N	Temperature (field)	20.6	--	Y	deg c	--	NL	--
UO-88-13.2	27-Feb-24	D	Dissolved Calcium	1,200	2.4	Y	mg/l	--	NL	--
UO-88-13.2	27-Feb-24	T	Chloride (as Cl)	3,300	300	Y	mg/l	--	250	x
UO-88-13.2	27-Feb-24	D	Hardness (as CACO3)	4,000	0.41	Y	mg/l	--	NL	--
UO-88-13.2	27-Feb-24	D	Dissolved Magnesium	240	0.082	Y	mg/l	--	NL	--
UO-88-13.2	27-Feb-24	T	Nitrogen, Nitrate-Nitrite	0.1	0.040	N	mg/l	U	NL	--
UO-88-13.2	27-Feb-24	D	Dissolved Sodium	200	0.41	Y	mg/l	--	NL	--
UO-88-13.2	27-Feb-24	T	Sulfate	47	10	Y	mg/l	--	250	--
UO-88-13.2	27-Feb-24	T	Total dissolved solids	5,100	96	Y	mg/l	J	500	x
UO-88-13.2	27-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UO-88-13.2	27-Feb-24	N	pH (field)	6.51	--	Y	s.u.	--	NL	--
UO-88-13.2	27-Feb-24	N	Specific Conductance (field)	7,688	--	Y	us/cm	--	NL	--
UO-88-13.2	27-Feb-24	N	Temperature (field)	18.8	--	Y	deg c	--	NL	--
UO-88-13.2	23-May-24	T	Chloride (as Cl)	3,400	600	Y	mg/l	--	250	x
UO-88-13.2	23-May-24	T	Sulfate	41	10	Y	mg/l	--	250	--
UO-88-13.2	23-May-24	T	Total dissolved solids	4,000	96	Y	mg/l	--	500	x
UO-88-13.2	23-May-24	N	pH (field)	6.41	--	Y	s.u.	--	NL	--
UO-88-13.2	23-May-24	N	Specific Conductance (field)	7,952	--	Y	us/cm	--	NL	--
UO-88-13.2	23-May-24	N	Temperature (field)	20	--	Y	deg c	--	NL	--

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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UO-88-13.2	07-Aug-24	T	Chloride (as Cl)	2,400	300	Y	mg/l	--	250	x
UO-88-13.2	07-Aug-24	T	Sulfate	36	10	Y	mg/l	--	250	--
UO-88-13.2	07-Aug-24	T	Total dissolved solids	4,000	96	Y	mg/l	--	500	x
UO-88-13.2	07-Aug-24	N	pH (field)	6.43	--	Y	s.u.	--	NL	--
UO-88-13.2	07-Aug-24	N	Specific Conductance (field)	7,731	--	Y	us/cm	--	NL	--
UO-88-13.2	07-Aug-24	N	Temperature (field)	20.8	--	Y	deg c	--	NL	--
UO-88-13.2	17-Oct-24	T	Chloride (as Cl)	3,100	600	Y	mg/l	--	250	x
UO-88-13.2	17-Oct-24	T	Sulfate	32	5.0	Y	mg/l	--	250	--
UO-88-13.2	17-Oct-24	T	Total dissolved solids	5,400	240	Y	mg/l	--	500	x
UO-88-13.2	17-Oct-24	N	pH (field)	6.48	--	Y	s.u.	--	NL	--
UO-88-13.2	17-Oct-24	N	Specific Conductance (field)	7,620	--	Y	us/cm	--	NL	--
UO-88-13.2	17-Oct-24	N	Temperature (field)	19.3	--	Y	deg c	--	NL	--
UO-88-14.2	22-Feb-24	D	Dissolved Calcium	92	0.24	Y	mg/l	--	NL	--
UO-88-14.2	22-Feb-24	T	Chloride (as Cl)	210	30	Y	mg/l	--	250	--
UO-88-14.2	22-Feb-24	D	Hardness (as CACO3)	350	0.41	Y	mg/l	--	NL	--
UO-88-14.2	22-Feb-24	D	Dissolved Magnesium	30	0.082	Y	mg/l	--	NL	--
UO-88-14.2	22-Feb-24	T	Nitrogen, Nitrate-Nitrite	0.1	0.040	N	mg/l	U	NL	--
UO-88-14.2	22-Feb-24	D	Dissolved Sodium	21	0.41	Y	mg/l	--	NL	--
UO-88-14.2	22-Feb-24	T	Sulfate	46	2.5	Y	mg/l	--	250	--
UO-88-14.2	22-Feb-24	T	Total dissolved solids	520	24	Y	mg/l	--	500	x
UO-88-14.2	22-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UO-88-14.2	22-Feb-24	N	pH (field)	6.95	--	Y	s.u.	--	NL	--
UO-88-14.2	22-Feb-24	N	Specific Conductance (field)	793	--	Y	us/cm	--	NL	--
UO-88-14.2	22-Feb-24	N	Temperature (field)	19	--	Y	deg c	--	NL	--
UO-88-14.2	21-May-24	T	Chloride (as Cl)	190	30	Y	mg/l	--	250	--
UO-88-14.2	21-May-24	T	Sulfate	45	2.5	Y	mg/l	--	250	--
UO-88-14.2	21-May-24	T	Total dissolved solids	480	24	Y	mg/l	--	500	--
UO-88-14.2	21-May-24	N	pH (field)	6.9	--	Y	s.u.	--	NL	--
UO-88-14.2	21-May-24	N	Specific Conductance (field)	833	--	Y	us/cm	--	NL	--
UO-88-14.2	21-May-24	N	Temperature (field)	20	--	Y	deg c	--	NL	--
UO-88-14.2	31-Jul-24	T	Chloride (as Cl)	190	30	Y	mg/l	--	250	--
UO-88-14.2	31-Jul-24	T	Sulfate	44	2.5	Y	mg/l	--	250	--

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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UO-88-14.2	31-Jul-24	T	Total dissolved solids	500	24	Y	mg/l	--	500	x
UO-88-14.2	31-Jul-24	N	pH (field)	6.74	--	Y	s.u.	--	NL	--
UO-88-14.2	31-Jul-24	N	Specific Conductance (field)	763	--	Y	us/cm	--	NL	--
UO-88-14.2	31-Jul-24	N	Temperature (field)	20.2	--	Y	deg c	--	NL	--
UO-88-14.2	15-Oct-24	T	Chloride (as Cl)	200	30	Y	mg/l	--	250	--
UO-88-14.2	15-Oct-24	T	Sulfate	43	2.5	Y	mg/l	--	250	--
UO-88-14.2	15-Oct-24	T	Total dissolved solids	510	24	Y	mg/l	--	500	x
UO-88-14.2	15-Oct-24	N	pH (field)	6.79	--	Y	s.u.	--	NL	--
UO-88-14.2	15-Oct-24	N	Specific Conductance (field)	730	--	Y	us/cm	--	NL	--
UO-88-14.2	15-Oct-24	N	Temperature (field)	19.3	--	Y	deg c	--	NL	--
UO-88-15.2	21-Feb-24	D	Dissolved Calcium	50	0.24	Y	mg/l	--	NL	--
UO-88-15.2	21-Feb-24	T	Chloride (as Cl)	150	30	Y	mg/l	--	250	--
UO-88-15.2	21-Feb-24	D	Hardness (as CACO3)	210	0.41	Y	mg/l	--	NL	--
UO-88-15.2	21-Feb-24	D	Dissolved Magnesium	22	0.082	Y	mg/l	--	NL	--
UO-88-15.2	21-Feb-24	T	Nitrogen, Nitrate-Nitrite	0.1	0.040	N	mg/l	U	NL	--
UO-88-15.2	21-Feb-24	D	Dissolved Sodium	26	0.41	Y	mg/l	--	NL	--
UO-88-15.2	21-Feb-24	T	Sulfate	16	2.5	Y	mg/l	--	250	--
UO-88-15.2	21-Feb-24	T	Total dissolved solids	340	24	Y	mg/l	--	500	--
UO-88-15.2	21-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UO-88-15.2	21-Feb-24	N	pH (field)	6.51	--	Y	s.u.	--	NL	--
UO-88-15.2	21-Feb-24	N	Specific Conductance (field)	568	--	Y	us/cm	--	NL	--
UO-88-15.2	21-Feb-24	N	Temperature (field)	17.6	--	Y	deg c	--	NL	--
UO-88-15.2	20-May-24	T	Chloride (as Cl)	160	15	Y	mg/l	--	250	--
UO-88-15.2	20-May-24	T	Sulfate	17	2.5	Y	mg/l	--	250	--
UO-88-15.2	20-May-24	T	Total dissolved solids	320	12	Y	mg/l	--	500	--
UO-88-15.2	20-May-24	N	pH (field)	6.27	--	Y	s.u.	--	NL	--
UO-88-15.2	20-May-24	N	Specific Conductance (field)	587	--	Y	us/cm	--	NL	--
UO-88-15.2	20-May-24	N	Temperature (field)	19.5	--	Y	deg c	--	NL	--
UO-88-15.2	31-Jul-24	T	Chloride (as Cl)	150	30	Y	mg/l	--	250	--
UO-88-15.2	31-Jul-24	T	Sulfate	17	2.5	Y	mg/l	--	250	--
UO-88-15.2	31-Jul-24	T	Total dissolved solids	360	12	Y	mg/l	--	500	--
UO-88-15.2	31-Jul-24	N	pH (field)	6.37	--	Y	s.u.	--	NL	--

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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UO-88-15.2	31-Jul-24	N	Specific Conductance (field)	584	--	Y	us/cm	--	NL	--
UO-88-15.2	31-Jul-24	N	Temperature (field)	21.4	--	Y	deg c	--	NL	--
UO-88-15.2	15-Oct-24	T	Chloride (as Cl)	160	30	Y	mg/l	--	250	--
UO-88-15.2	15-Oct-24	T	Sulfate	18	2.5	Y	mg/l	--	250	--
UO-88-15.2	15-Oct-24	T	Total dissolved solids	370	24	Y	mg/l	--	500	--
UO-88-15.2	15-Oct-24	N	pH (field)	6.45	--	Y	s.u.	--	NL	--
UO-88-15.2	15-Oct-24	N	Specific Conductance (field)	568	--	Y	us/cm	--	NL	--
UO-88-15.2	15-Oct-24	N	Temperature (field)	18.7	--	Y	deg c	--	NL	--
UO-91-16.2	14-Feb-24	D	Dissolved Calcium	14	0.24	Y	mg/l	--	NL	--
UO-91-16.2	14-Feb-24	T	Chloride (as Cl)	7.5	3.0	N	mg/l	U	250	--
UO-91-16.2	14-Feb-24	D	Hardness (as CACO3)	56	0.41	Y	mg/l	--	NL	--
UO-91-16.2	14-Feb-24	D	Dissolved Magnesium	5.1	0.082	Y	mg/l	--	NL	--
UO-91-16.2	14-Feb-24	T	Nitrogen, Nitrate-Nitrite	0.1	0.040	N	mg/l	U	NL	--
UO-91-16.2	14-Feb-24	D	Dissolved Sodium	47	0.41	Y	mg/l	--	NL	--
UO-91-16.2	14-Feb-24	T	Sulfate	3	2.5	Y	mg/l	J	250	--
UO-91-16.2	14-Feb-24	T	Total dissolved solids	170	12	Y	mg/l	--	500	--
UO-91-16.2	14-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UO-91-16.2	14-Feb-24	N	pH (field)	8.15	--	Y	s.u.	--	NL	--
UO-91-16.2	14-Feb-24	N	Specific Conductance (field)	242	--	Y	us/cm	--	NL	--
UO-91-16.2	14-Feb-24	N	Temperature (field)	17.9	--	Y	deg c	--	NL	--
UO-91-16.2	08-May-24	T	Chloride (as Cl)	7.5	3.0	N	mg/l	U	250	--
UO-91-16.2	08-May-24	T	Sulfate	5.2	2.5	Y	mg/l	J	250	--
UO-91-16.2	08-May-24	T	Total dissolved solids	170	12	Y	mg/l	--	500	--
UO-91-16.2	08-May-24	N	pH (field)	8.02	--	Y	s.u.	--	NL	--
UO-91-16.2	08-May-24	N	Specific Conductance (field)	234.1	--	Y	us/cm	--	NL	--
UO-91-16.2	08-May-24	N	Temperature (field)	18.4	--	Y	deg c	--	NL	--
UO-91-16.2	25-Jul-24	T	Chloride (as Cl)	7.5	3.0	N	mg/l	U	250	--
UO-91-16.2	25-Jul-24	T	Sulfate	7.5	2.5	N	mg/l	U	250	--
UO-91-16.2	25-Jul-24	T	Total dissolved solids	180	12	Y	mg/l	--	500	--
UO-91-16.2	25-Jul-24	N	pH (field)	8.07	--	Y	s.u.	--	NL	--
UO-91-16.2	25-Jul-24	N	Specific Conductance (field)	242.1	--	Y	us/cm	--	NL	--
UO-91-16.2	25-Jul-24	N	Temperature (field)	19.2	--	Y	deg c	--	NL	--

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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UO-91-16.2	10-Oct-24	T	Chloride (as Cl)	7.5	3.0	N	mg/l	U	250	--
UO-91-16.2	10-Oct-24	T	Sulfate	3.7	2.5	Y	mg/l	J	250	--
UO-91-16.2	10-Oct-24	T	Total dissolved solids	180	12	Y	mg/l	--	500	--
UO-91-16.2	10-Oct-24	N	pH (field)	7.95	--	Y	s.u.	--	NL	--
UO-91-16.2	10-Oct-24	N	Specific Conductance (field)	253.7	--	Y	us/cm	--	NL	--
UO-91-16.2	10-Oct-24	N	Temperature (field)	18.1	--	Y	deg c	--	NL	--
UO-91-17.2	15-Feb-24	D	Dissolved Calcium	19	0.24	Y	mg/l	--	NL	--
UO-91-17.2	15-Feb-24	T	Chloride (as Cl)	7.5	3.0	N	mg/l	U	250	--
UO-91-17.2	15-Feb-24	D	Hardness (as CACO3)	79	0.41	Y	mg/l	--	NL	--
UO-91-17.2	15-Feb-24	D	Dissolved Magnesium	7.4	0.082	Y	mg/l	--	NL	--
UO-91-17.2	15-Feb-24	T	Nitrogen, Nitrate-Nitrite	0.1	0.040	N	mg/l	U	NL	--
UO-91-17.2	15-Feb-24	D	Dissolved Sodium	34	0.41	Y	mg/l	--	NL	--
UO-91-17.2	15-Feb-24	T	Sulfate	3.2	2.5	Y	mg/l	J	250	--
UO-91-17.2	15-Feb-24	T	Total dissolved solids	160	12	Y	mg/l	--	500	--
UO-91-17.2	15-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UO-91-17.2	15-Feb-24	N	pH (field)	8.18	--	Y	s.u.	--	NL	--
UO-91-17.2	15-Feb-24	N	Specific Conductance (field)	230.9	--	Y	us/cm	--	NL	--
UO-91-17.2	15-Feb-24	N	Temperature (field)	16.5	--	Y	deg c	--	NL	--
UO-91-17.2	14-May-24	T	Chloride (as Cl)	7.5	3.0	N	mg/l	--	250	--
UO-91-17.2	14-May-24	T	Sulfate	4.4	2.5	Y	mg/l	--	250	--
UO-91-17.2	14-May-24	T	Total dissolved solids	160	12	Y	mg/l	--	500	--
UO-91-17.2	14-May-24	N	pH (field)	7.87	--	Y	s.u.	--	NL	--
UO-91-17.2	14-May-24	N	Specific Conductance (field)	272.9	--	Y	us/cm	--	NL	--
UO-91-17.2	14-May-24	N	Temperature (field)	17.4	--	Y	deg c	--	NL	--
UO-91-17.2	25-Jul-24	T	Chloride (as Cl)	7.5	3.0	N	mg/l	U	250	--
UO-91-17.2	25-Jul-24	T	Sulfate	4	2.5	Y	mg/l	J	250	--
UO-91-17.2	25-Jul-24	T	Total dissolved solids	180	12	Y	mg/l	--	500	--
UO-91-17.2	25-Jul-24	N	pH (field)	8.04	--	Y	s.u.	--	NL	--
UO-91-17.2	25-Jul-24	N	Specific Conductance (field)	229	--	Y	us/cm	--	NL	--
UO-91-17.2	25-Jul-24	N	Temperature (field)	20.3	--	Y	deg c	--	NL	--
UO-91-17.2	10-Oct-24	T	Chloride (as Cl)	7.5	3.0	N	mg/l	U	250	--
UO-91-17.2	10-Oct-24	T	Sulfate	7.5	2.5	N	mg/l	U	250	--

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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UO-91-17.2	10-Oct-24	T	Total dissolved solids	180	12	Y	mg/l	--	500	--
UO-91-17.2	10-Oct-24	N	pH (field)	7.95	--	Y	s.u.	--	NL	--
UO-91-17.2	10-Oct-24	N	Specific Conductance (field)	246.3	--	Y	us/cm	--	NL	--
UO-91-17.2	10-Oct-24	N	Temperature (field)	17.8	--	Y	deg c	--	NL	--
UO-91-18.2	13-Feb-24	D	Dissolved Calcium	200	0.24	Y	mg/l	--	NL	--
UO-91-18.2	13-Feb-24	T	Chloride (as Cl)	13	3.0	Y	mg/l	--	250	--
UO-91-18.2	13-Feb-24	D	Hardness (as CACO3)	610	0.41	Y	mg/l	--	NL	--
UO-91-18.2	13-Feb-24	D	Dissolved Magnesium	28	0.082	Y	mg/l	--	NL	--
UO-91-18.2	13-Feb-24	T	Nitrogen, Nitrate-Nitrite	0.1	0.040	N	mg/l	U	NL	--
UO-91-18.2	13-Feb-24	D	Dissolved Sodium	19	0.41	Y	mg/l	--	NL	--
UO-91-18.2	13-Feb-24	T	Sulfate	510	25	Y	mg/l	--	250	x
UO-91-18.2	13-Feb-24	T	Total dissolved solids	820	24	Y	mg/l	--	500	x
UO-91-18.2	13-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UO-91-18.2	13-Feb-24	N	pH (field)	6.55	--	Y	s.u.	--	NL	--
UO-91-18.2	13-Feb-24	N	Specific Conductance (field)	990	--	Y	us/cm	--	NL	--
UO-91-18.2	13-Feb-24	N	Temperature (field)	16.9	--	Y	deg c	--	NL	--
UO-91-18.2	01-May-24	T	Chloride (as Cl)	12	3.0	Y	mg/l	--	250	--
UO-91-18.2	01-May-24	T	Sulfate	510	25	Y	mg/l	--	250	x
UO-91-18.2	01-May-24	T	Total dissolved solids	870	24	Y	mg/l	--	500	x
UO-91-18.2	01-May-24	N	pH (field)	6.42	--	Y	s.u.	--	NL	--
UO-91-18.2	01-May-24	N	Specific Conductance (field)	954	--	Y	us/cm	--	NL	--
UO-91-18.2	01-May-24	N	Temperature (field)	17.5	--	Y	deg c	--	NL	--
UO-91-18.2	24-Jul-24	T	Chloride (as Cl)	13	3.0	Y	mg/l	--	250	--
UO-91-18.2	24-Jul-24	T	Sulfate	490	25	Y	mg/l	--	250	x
UO-91-18.2	24-Jul-24	T	Total dissolved solids	950	24	Y	mg/l	--	500	x
UO-91-18.2	24-Jul-24	N	pH (field)	6.41	--	Y	s.u.	--	NL	--
UO-91-18.2	24-Jul-24	N	Specific Conductance (field)	949	--	Y	us/cm	--	NL	--
UO-91-18.2	24-Jul-24	N	Temperature (field)	17.4	--	Y	deg c	--	NL	--
UO-91-18.2	09-Oct-24	T	Chloride (as Cl)	12	3.0	Y	mg/l	--	250	--
UO-91-18.2	09-Oct-24	T	Sulfate	540	25	Y	mg/l	--	250	x
UO-91-18.2	09-Oct-24	T	Total dissolved solids	750	24	Y	mg/l	--	500	x
UO-91-18.2	09-Oct-24	N	pH (field)	6.48	--	Y	s.u.	--	NL	--

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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UO-91-18.2	09-Oct-24	N	Specific Conductance (field)	1,019	--	Y	us/cm	--	NL	--
UO-91-18.2	09-Oct-24	N	Temperature (field)	18.6	--	Y	deg c	--	NL	--
UO-91-19.2	16-Feb-24	D	Dissolved Calcium	53	0.24	Y	mg/l	--	NL	--
UO-91-19.2	16-Feb-24	T	Chloride (as Cl)	380	30	Y	mg/l	--	250	x
UO-91-19.2	16-Feb-24	D	Hardness (as CACO3)	210	0.41	Y	mg/l	--	NL	--
UO-91-19.2	16-Feb-24	D	Dissolved Magnesium	19	0.082	Y	mg/l	--	NL	--
UO-91-19.2	16-Feb-24	T	Nitrogen, Nitrate-Nitrite	0.1	0.040	N	mg/l	U	NL	--
UO-91-19.2	16-Feb-24	D	Dissolved Sodium	200	0.41	Y	mg/l	--	NL	--
UO-91-19.2	16-Feb-24	T	Sulfate	7.5	2.5	N	mg/l	U	250	--
UO-91-19.2	16-Feb-24	T	Total dissolved solids	520	48	Y	mg/l	--	500	x
UO-91-19.2	16-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UO-91-19.2	16-Feb-24	N	pH (field)	7.97	--	Y	s.u.	--	NL	--
UO-91-19.2	16-Feb-24	N	Specific Conductance (field)	1,310	--	Y	us/cm	--	NL	--
UO-91-19.2	16-Feb-24	N	Temperature (field)	17.4	--	Y	deg c	--	NL	--
UO-91-19.2	16-May-24	T	Chloride (as Cl)	350	30	Y	mg/l	--	250	x
UO-91-19.2	16-May-24	T	Sulfate	7.5	2.5	N	mg/l	--	250	--
UO-91-19.2	16-May-24	T	Total dissolved solids	640	24	Y	mg/l	--	500	x
UO-91-19.2	16-May-24	N	pH (field)	7.87	--	Y	s.u.	--	NL	--
UO-91-19.2	16-May-24	N	Specific Conductance (field)	1,261	--	Y	us/cm	--	NL	--
UO-91-19.2	16-May-24	N	Temperature (field)	17.4	--	Y	deg c	--	NL	--
UO-91-19.2	26-Jul-24	T	Chloride (as Cl)	310	30	Y	mg/l	--	250	x
UO-91-19.2	26-Jul-24	T	Sulfate	7.5	2.5	N	mg/l	U	250	--
UO-91-19.2	26-Jul-24	T	Total dissolved solids	710	24	Y	mg/l	--	500	x
UO-91-19.2	26-Jul-24	N	pH (field)	7.96	--	Y	s.u.	--	NL	--
UO-91-19.2	26-Jul-24	N	Specific Conductance (field)	1,028	--	Y	us/cm	--	NL	--
UO-91-19.2	26-Jul-24	N	Temperature (field)	19.5	--	Y	deg c	--	NL	--
UO-91-19.2	11-Oct-24	T	Chloride (as Cl)	280	30	Y	mg/l	--	250	x
UO-91-19.2	11-Oct-24	T	Sulfate	7.5	2.5	N	mg/l	U	250	--
UO-91-19.2	11-Oct-24	T	Total dissolved solids	600	24	Y	mg/l	--	500	x
UO-91-19.2	11-Oct-24	N	pH (field)	7.96	--	Y	s.u.	--	NL	--
UO-91-19.2	11-Oct-24	N	Specific Conductance (field)	922	--	Y	us/cm	--	NL	--
UO-91-19.2	11-Oct-24	N	Temperature (field)	18.7	--	Y	deg c	--	NL	--

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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UO-20-21.2	12-Feb-24	D	Dissolved Calcium	100	0.24	Y	mg/l	--	NL	--
UO-20-21.2	12-Feb-24	T	Chloride (as Cl)	160	30	Y	mg/l	--	250	--
UO-20-21.2	12-Feb-24	D	Hardness (as CACO3)	340	0.41	Y	mg/l	--	NL	--
UO-20-21.2	12-Feb-24	D	Dissolved Magnesium	20	0.082	Y	mg/l	--	NL	--
UO-20-21.2	12-Feb-24	T	Nitrogen, Nitrate-Nitrite	0.1	0.040	N	mg/l	U	NL	--
UO-20-21.2	12-Feb-24	D	Dissolved Sodium	53	0.41	Y	mg/l	--	NL	--
UO-20-21.2	12-Feb-24	T	Sulfate	18	2.5	Y	mg/l	--	250	--
UO-20-21.2	12-Feb-24	T	Total dissolved solids	450	24	Y	mg/l	--	500	--
UO-20-21.2	12-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UO-20-21.2	12-Feb-24	N	pH (field)	7.23	--	Y	s.u.	--	NL	--
UO-20-21.2	12-Feb-24	N	Specific Conductance (field)	684	--	Y	us/cm	--	NL	--
UO-20-21.2	12-Feb-24	N	Temperature (field)	16.5	--	Y	deg c	--	NL	--
UO-20-21.2	01-May-24	T	Chloride (as Cl)	160	30	Y	mg/l	--	250	--
UO-20-21.2	01-May-24	T	Sulfate	20	2.5	Y	mg/l	--	250	--
UO-20-21.2	01-May-24	T	Total dissolved solids	590	24	Y	mg/l	--	500	x
UO-20-21.2	01-May-24	N	pH (field)	7.05	--	Y	s.u.	--	NL	--
UO-20-21.2	01-May-24	N	Specific Conductance (field)	748	--	Y	us/cm	--	NL	--
UO-20-21.2	01-May-24	N	Temperature (field)	20.5	--	Y	deg c	--	NL	--
UO-20-21.2	23-Jul-24	T	Chloride (as Cl)	220	30	Y	mg/l	--	250	--
UO-20-21.2	23-Jul-24	T	Sulfate	18	2.5	Y	mg/l	--	250	--
UO-20-21.2	23-Jul-24	T	Total dissolved solids	580	24	Y	mg/l	--	500	x
UO-20-21.2	23-Jul-24	N	pH (field)	7.06	--	Y	s.u.	--	NL	--
UO-20-21.2	23-Jul-24	N	Specific Conductance (field)	860	--	Y	us/cm	--	NL	--
UO-20-21.2	23-Jul-24	N	Temperature (field)	22.8	--	Y	deg c	--	NL	--
UO-20-21.2	09-Oct-24	T	Chloride (as Cl)	200	30	Y	mg/l	--	250	--
UO-20-21.2	09-Oct-24	T	Sulfate	17	2.5	Y	mg/l	--	250	--
UO-20-21.2	09-Oct-24	T	Total dissolved solids	560	24	Y	mg/l	--	500	x
UO-20-21.2	09-Oct-24	N	pH (field)	7.05	--	Y	s.u.	--	NL	--
UO-20-21.2	09-Oct-24	N	Specific Conductance (field)	893	--	Y	us/cm	--	NL	--
UO-20-21.2	09-Oct-24	N	Temperature (field)	21.4	--	Y	deg c	--	NL	--
UR-91-03.2B	29-Feb-24	D	Dissolved Calcium	1,500	2.4	Y	mg/l	--	NL	--
UR-91-03.2B	29-Feb-24	T	Chloride (as Cl)	4,000	600	Y	mg/l	--	250	x

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UR-91-03.2B	29-Feb-24	D	Hardness (as CACO3)	4,500	0.41	Y	mg/l	--	NL	--
UR-91-03.2B	29-Feb-24	D	Dissolved Magnesium	180	0.82	Y	mg/l	--	NL	--
UR-91-03.2B	29-Feb-24	T	Nitrogen, Nitrate-Nitrite	0.1	0.040	N	mg/l	U	NL	--
UR-91-03.2B	29-Feb-24	D	Dissolved Sodium	540	4.1	Y	mg/l	--	NL	--
UR-91-03.2B	29-Feb-24	T	Sulfate	490	25	Y	mg/l	--	250	x
UR-91-03.2B	29-Feb-24	T	Total dissolved solids	7,400	480	Y	mg/l	--	500	x
UR-91-03.2B	29-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UR-91-03.2B	29-Feb-24	N	pH (field)	6.34	--	Y	s.u.	--	NL	--
UR-91-03.2B	29-Feb-24	N	Specific Conductance (field)	8,359	--	Y	us/cm	--	NL	--
UR-91-03.2B	29-Feb-24	N	Temperature (field)	17	--	Y	deg c	--	NL	--
UR-91-03.2B	03-May-24	T	Chloride (as Cl)	3,600	600	Y	mg/l	--	250	x
UR-91-03.2B	03-May-24	T	Sulfate	440	10	Y	mg/l	--	250	x
UR-91-03.2B	03-May-24	T	Total dissolved solids	6,400	240	Y	mg/l	--	500	x
UR-91-03.2B	03-May-24	N	pH (field)	6.43	--	Y	s.u.	--	NL	--
UR-91-03.2B	03-May-24	N	Specific Conductance (field)	8,730	--	Y	us/cm	--	NL	--
UR-91-03.2B	03-May-24	N	Temperature (field)	21.4	--	Y	deg c	--	NL	--
UR-91-03.2B	08-Aug-24	T	Chloride (as Cl)	4,200	600	Y	mg/l	--	250	x
UR-91-03.2B	08-Aug-24	T	Sulfate	470	10	Y	mg/l	--	250	x
UR-91-03.2B	08-Aug-24	T	Total dissolved solids	6,600	240	Y	mg/l	--	500	x
UR-91-03.2B	08-Aug-24	N	pH (field)	6.42	--	Y	s.u.	--	NL	--
UR-91-03.2B	08-Aug-24	N	Specific Conductance (field)	10,424	--	Y	us/cm	--	NL	--
UR-91-03.2B	08-Aug-24	N	Temperature (field)	27.3	--	Y	deg c	--	NL	--
UR-91-03.2B	21-Oct-24	T	Chloride (as Cl)	3,500	600	Y	mg/l	--	250	x
UR-91-03.2B	21-Oct-24	T	Sulfate	420	10	Y	mg/l	--	250	x
UR-91-03.2B	21-Oct-24	T	Total dissolved solids	6,300	480	Y	mg/l	--	500	x
UR-91-03.2B	21-Oct-24	N	pH (field)	6.88	--	Y	s.u.	--	NL	--
UR-91-03.2B	21-Oct-24	N	Specific Conductance (field)	9,146	--	Y	us/cm	--	NL	--
UR-91-03.2B	21-Oct-24	N	Temperature (field)	22.1	--	Y	deg c	--	NL	--
UR-91-03.2C	29-Feb-24	D	Dissolved Calcium	960	2.4	Y	mg/l	--	NL	--
UR-91-03.2C	29-Feb-24	T	Chloride (as Cl)	2,200	600	Y	mg/l	--	250	x
UR-91-03.2C	29-Feb-24	D	Hardness (as CACO3)	2,800	0.41	Y	mg/l	--	NL	--
UR-91-03.2C	29-Feb-24	D	Dissolved Magnesium	96	0.82	Y	mg/l	--	NL	--

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UR-91-03.2C	29-Feb-24	T	Nitrogen, Nitrate-Nitrite	0.39	0.040	Y	mg/l	--	NL	--
UR-91-03.2C	29-Feb-24	D	Dissolved Sodium	450	0.41	Y	mg/l	--	NL	--
UR-91-03.2C	29-Feb-24	T	Sulfate	560	100	Y	mg/l	--	250	x
UR-91-03.2C	29-Feb-24	T	Total dissolved solids	4,800	96	Y	mg/l	--	500	x
UR-91-03.2C	29-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UR-91-03.2C	29-Feb-24	N	pH (field)	5.7	--	Y	s.u.	--	NL	--
UR-91-03.2C	29-Feb-24	N	Specific Conductance (field)	5,967	--	Y	us/cm	--	NL	--
UR-91-03.2C	29-Feb-24	N	Temperature (field)	17.3	--	Y	deg c	--	NL	--
UR-91-03.2C	03-May-24	T	Chloride (as Cl)	2,500	600	Y	mg/l	--	250	x
UR-91-03.2C	03-May-24	T	Sulfate	470	50	Y	mg/l	--	250	x
UR-91-03.2C	03-May-24	T	Total dissolved solids	3,900	96	Y	mg/l	--	500	x
UR-91-03.2C	03-May-24	N	pH (field)	5.68	--	Y	s.u.	--	NL	--
UR-91-03.2C	03-May-24	N	Specific Conductance (field)	6,343	--	Y	us/cm	--	NL	--
UR-91-03.2C	03-May-24	N	Temperature (field)	21.3	--	Y	deg c	--	NL	--
UR-91-03.2C	08-Aug-24	T	Chloride (as Cl)	2,300	600	Y	mg/l	--	250	x
UR-91-03.2C	08-Aug-24	T	Sulfate	500	50	Y	mg/l	--	250	x
UR-91-03.2C	08-Aug-24	T	Total dissolved solids	4,800	96	Y	mg/l	--	500	x
UR-91-03.2C	08-Aug-24	N	pH (field)	6.13	--	Y	s.u.	--	NL	--
UR-91-03.2C	08-Aug-24	N	Specific Conductance (field)	7,515	--	Y	us/cm	--	NL	--
UR-91-03.2C	08-Aug-24	N	Temperature (field)	22.9	--	Y	deg c	--	NL	--
UR-91-03.2C	21-Oct-24	T	Chloride (as Cl)	2,500	600	Y	mg/l	--	250	x
UR-91-03.2C	21-Oct-24	T	Sulfate	570	10	Y	mg/l	--	250	x
UR-91-03.2C	21-Oct-24	T	Total dissolved solids	4,700	96	Y	mg/l	--	500	x
UR-91-03.2C	21-Oct-24	N	pH (field)	5.76	--	Y	s.u.	--	NL	--
UR-91-03.2C	21-Oct-24	N	Specific Conductance (field)	6,690	--	Y	us/cm	--	NL	--
UR-91-03.2C	21-Oct-24	N	Temperature (field)	21.4	--	Y	deg c	--	NL	--
UR-91-03.2D	29-Feb-24	D	Dissolved Calcium	1,200	2.4	Y	mg/l	--	NL	--
UR-91-03.2D	29-Feb-24	T	Chloride (as Cl)	2,700	600	Y	mg/l	--	250	x
UR-91-03.2D	29-Feb-24	D	Hardness (as CACO3)	3,400	0.41	Y	mg/l	--	NL	--
UR-91-03.2D	29-Feb-24	D	Dissolved Magnesium	100	0.82	Y	mg/l	--	NL	--
UR-91-03.2D	29-Feb-24	T	Nitrogen, Nitrate-Nitrite	1.3	0.040	Y	mg/l	--	NL	--
UR-91-03.2D	29-Feb-24	D	Dissolved Sodium	490	4.1	Y	mg/l	--	NL	--

Table B-2. 2024 Groundwater Monitoring Data - Stanley Shale

Plant Site

Hot Springs, Arkansas

Umetco Minerals Corporation

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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UR-91-03.2D	29-Feb-24	T	Sulfate	670	100	Y	mg/l	--	250	x
UR-91-03.2D	29-Feb-24	T	Total dissolved solids	5,700	240	Y	mg/l	--	500	x
UR-91-03.2D	29-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UR-91-03.2D	29-Feb-24	N	pH (field)	3.73	--	Y	s.u.	--	NL	--
UR-91-03.2D	29-Feb-24	N	Specific Conductance (field)	7,423	--	Y	us/cm	--	NL	--
UR-91-03.2D	29-Feb-24	N	Temperature (field)	16.8	--	Y	deg c	--	NL	--
UR-91-03.2D	03-May-24	T	Chloride (as Cl)	3,300	600	Y	mg/l	--	250	x
UR-91-03.2D	03-May-24	T	Sulfate	600	100	Y	mg/l	--	250	x
UR-91-03.2D	03-May-24	T	Total dissolved solids	6,200	96	Y	mg/l	--	500	x
UR-91-03.2D	03-May-24	N	pH (field)	3.72	--	Y	s.u.	--	NL	--
UR-91-03.2D	03-May-24	N	Specific Conductance (field)	8,122	--	Y	us/cm	--	NL	--
UR-91-03.2D	03-May-24	N	Temperature (field)	18.9	--	Y	deg c	--	NL	--
UR-91-03.2D	12-Aug-24	T	Chloride (as Cl)	3,400	600	Y	mg/l	--	250	x
UR-91-03.2D	12-Aug-24	T	Sulfate	610	50	Y	mg/l	--	250	x
UR-91-03.2D	12-Aug-24	T	Total dissolved solids	6,300	240	Y	mg/l	--	500	x
UR-91-03.2D	12-Aug-24	N	pH (field)	4.2	--	Y	s.u.	--	NL	--
UR-91-03.2D	12-Aug-24	N	Specific Conductance (field)	8,740	--	Y	us/cm	--	NL	--
UR-91-03.2D	12-Aug-24	N	Temperature (field)	18.6	--	Y	deg c	--	NL	--
UR-91-03.2D	21-Oct-24	T	Chloride (as Cl)	3,100	600	Y	mg/l	--	250	x
UR-91-03.2D	21-Oct-24	T	Sulfate	560	50	Y	mg/l	--	250	x
UR-91-03.2D	21-Oct-24	T	Total dissolved solids	6,000	240	Y	mg/l	--	500	x
UR-91-03.2D	21-Oct-24	N	pH (field)	4.14	--	Y	s.u.	--	NL	--
UR-91-03.2D	21-Oct-24	N	Specific Conductance (field)	8,190	--	Y	us/cm	--	NL	--
UR-91-03.2D	21-Oct-24	N	Temperature (field)	18.9	--	Y	deg c	--	NL	--
UR-91-03.2E	29-Feb-24	D	Dissolved Calcium	950	2.4	Y	mg/l	--	NL	--
UR-91-03.2E	29-Feb-24	T	Chloride (as Cl)	2,100	600	Y	mg/l	--	250	x
UR-91-03.2E	29-Feb-24	D	Hardness (as CACO3)	2,900	0.41	Y	mg/l	--	NL	--
UR-91-03.2E	29-Feb-24	D	Dissolved Magnesium	120	0.82	Y	mg/l	--	NL	--
UR-91-03.2E	29-Feb-24	T	Nitrogen, Nitrate-Nitrite	1.9	0.040	Y	mg/l	--	NL	--
UR-91-03.2E	29-Feb-24	D	Dissolved Sodium	250	0.41	Y	mg/l	--	NL	--
UR-91-03.2E	29-Feb-24	T	Sulfate	220	10	Y	mg/l	--	250	--
UR-91-03.2E	29-Feb-24	T	Total dissolved solids	4,200	96	Y	mg/l	--	500	x

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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UR-91-03.2E	29-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UR-91-03.2E	29-Feb-24	N	pH (field)	5.48	--	Y	s.u.	--	NL	--
UR-91-03.2E	29-Feb-24	N	Specific Conductance (field)	5,565	--	Y	us/cm	--	NL	--
UR-91-03.2E	29-Feb-24	N	Temperature (field)	15.8	--	Y	deg c	--	NL	--
UR-91-03.2E	03-May-24	T	Chloride (as Cl)	1,900	300	Y	mg/l	--	250	x
UR-91-03.2E	03-May-24	T	Sulfate	130	5.0	Y	mg/l	--	250	--
UR-91-03.2E	03-May-24	T	Total dissolved solids	3,300	96	Y	mg/l	--	500	x
UR-91-03.2E	03-May-24	N	pH (field)	5.63	--	Y	s.u.	--	NL	--
UR-91-03.2E	03-May-24	N	Specific Conductance (field)	5,154	--	Y	us/cm	--	NL	--
UR-91-03.2E	03-May-24	N	Temperature (field)	19	--	Y	deg c	--	NL	--
UR-91-03.2E	08-Aug-24	T	Chloride (as Cl)	2,000	300	Y	mg/l	--	250	x
UR-91-03.2E	08-Aug-24	T	Sulfate	120	5.0	Y	mg/l	--	250	--
UR-91-03.2E	08-Aug-24	T	Total dissolved solids	3,100	96	Y	mg/l	--	500	x
UR-91-03.2E	08-Aug-24	N	pH (field)	5.53	--	Y	s.u.	--	NL	--
UR-91-03.2E	08-Aug-24	N	Specific Conductance (field)	5,342	--	Y	us/cm	--	NL	--
UR-91-03.2E	08-Aug-24	N	Temperature (field)	28.4	--	Y	deg c	--	NL	--
UR-91-03.2E	21-Oct-24	T	Chloride (as Cl)	1,700	300	Y	mg/l	--	250	x
UR-91-03.2E	21-Oct-24	T	Sulfate	120	5.0	Y	mg/l	--	250	--
UR-91-03.2E	21-Oct-24	T	Total dissolved solids	3,000	96	Y	mg/l	--	500	x
UR-91-03.2E	21-Oct-24	N	pH (field)	5.62	--	Y	s.u.	--	NL	--
UR-91-03.2E	21-Oct-24	N	Specific Conductance (field)	4,719	--	Y	us/cm	--	NL	--
UR-91-03.2E	21-Oct-24	N	Temperature (field)	21	--	Y	deg c	--	NL	--
UR-91-04.2A	29-Feb-24	D	Dissolved Calcium	190	0.24	Y	mg/l	--	NL	--
UR-91-04.2A	29-Feb-24	T	Chloride (as Cl)	590	30	Y	mg/l	--	250	x
UR-91-04.2A	29-Feb-24	D	Hardness (as CACO3)	600	0.41	Y	mg/l	--	NL	--
UR-91-04.2A	29-Feb-24	D	Dissolved Magnesium	30	0.082	Y	mg/l	--	NL	--
UR-91-04.2A	29-Feb-24	T	Nitrogen, Nitrate-Nitrite	0.79	0.040	Y	mg/l	--	NL	--
UR-91-04.2A	29-Feb-24	D	Dissolved Sodium	61	0.41	Y	mg/l	--	NL	--
UR-91-04.2A	29-Feb-24	T	Sulfate	27	2.5	Y	mg/l	--	250	--
UR-91-04.2A	29-Feb-24	T	Total dissolved solids	960	48	Y	mg/l	--	500	x
UR-91-04.2A	29-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UR-91-04.2A	29-Feb-24	N	pH (field)	4.8	--	Y	s.u.	--	NL	--

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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UR-91-04.2A	29-Feb-24	N	Specific Conductance (field)	1,446	--	Y	us/cm	--	NL	--
UR-91-04.2A	29-Feb-24	N	Temperature (field)	15.7	--	Y	deg c	--	NL	--
UR-91-04.2A	03-May-24	T	Chloride (as Cl)	350	30	Y	mg/l	--	250	x
UR-91-04.2A	03-May-24	T	Sulfate	24	2.5	Y	mg/l	--	250	--
UR-91-04.2A	03-May-24	T	Total dissolved solids	690	24	Y	mg/l	--	500	x
UR-91-04.2A	03-May-24	N	pH (field)	4.87	--	Y	s.u.	--	NL	--
UR-91-04.2A	03-May-24	N	Specific Conductance (field)	1,088	--	Y	us/cm	--	NL	--
UR-91-04.2A	03-May-24	N	Temperature (field)	17.9	--	Y	deg c	--	NL	--
UR-91-04.2A	08-Aug-24	T	Chloride (as Cl)	340	30	Y	mg/l	--	250	x
UR-91-04.2A	08-Aug-24	T	Sulfate	29	2.5	Y	mg/l	--	250	--
UR-91-04.2A	08-Aug-24	T	Total dissolved solids	670	24	Y	mg/l	--	500	x
UR-91-04.2A	08-Aug-24	N	pH (field)	5.24	--	Y	s.u.	--	NL	--
UR-91-04.2A	08-Aug-24	N	Specific Conductance (field)	1,005	--	Y	us/cm	--	NL	--
UR-91-04.2A	08-Aug-24	N	Temperature (field)	21.6	--	Y	deg c	--	NL	--
UR-91-04.2A	21-Oct-24	T	Chloride (as Cl)	260	30	Y	mg/l	--	250	x
UR-91-04.2A	21-Oct-24	T	Sulfate	27	2.5	Y	mg/l	--	250	--
UR-91-04.2A	21-Oct-24	T	Total dissolved solids	520	24	Y	mg/l	--	500	x
UR-91-04.2A	21-Oct-24	N	pH (field)	5.09	--	Y	s.u.	--	NL	--
UR-91-04.2A	21-Oct-24	N	Specific Conductance (field)	831	--	Y	us/cm	--	NL	--
UR-91-04.2A	21-Oct-24	N	Temperature (field)	17.8	--	Y	deg c	--	NL	--
UR-91-09.2A	29-Feb-24	D	Dissolved Calcium	97	0.24	Y	mg/l	--	NL	--
UR-91-09.2A	29-Feb-24	T	Chloride (as Cl)	230	30	Y	mg/l	--	250	--
UR-91-09.2A	29-Feb-24	D	Hardness (as CACO3)	330	0.41	Y	mg/l	--	NL	--
UR-91-09.2A	29-Feb-24	D	Dissolved Magnesium	22	0.082	Y	mg/l	--	NL	--
UR-91-09.2A	29-Feb-24	T	Nitrogen, Nitrate-Nitrite	0.1	0.040	N	mg/l	U	NL	--
UR-91-09.2A	29-Feb-24	D	Dissolved Sodium	23	0.41	Y	mg/l	--	NL	--
UR-91-09.2A	29-Feb-24	T	Sulfate	5.7	2.5	Y	mg/l	J	250	--
UR-91-09.2A	29-Feb-24	T	Total dissolved solids	520	24	Y	mg/l	--	500	x
UR-91-09.2A	29-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UR-91-09.2A	29-Feb-24	N	pH (field)	7.12	--	Y	s.u.	--	NL	--
UR-91-09.2A	29-Feb-24	N	Specific Conductance (field)	751	--	Y	us/cm	--	NL	--
UR-91-09.2A	29-Feb-24	N	Temperature (field)	16.5	--	Y	deg c	--	NL	--

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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UR-91-09.2A	03-May-24	T	Chloride (as Cl)	160	30	Y	mg/l	--	250	--
UR-91-09.2A	03-May-24	T	Sulfate	5.6	2.5	Y	mg/l	J	250	--
UR-91-09.2A	03-May-24	T	Total dissolved solids	420	24	Y	mg/l	--	500	--
UR-91-09.2A	03-May-24	N	pH (field)	6.82	--	Y	s.u.	--	NL	--
UR-91-09.2A	03-May-24	N	Specific Conductance (field)	608	--	Y	us/cm	--	NL	--
UR-91-09.2A	03-May-24	N	Temperature (field)	18.7	--	Y	deg c	--	NL	--
UR-91-09.2A	08-Aug-24	T	Chloride (as Cl)	170	30	Y	mg/l	--	250	--
UR-91-09.2A	08-Aug-24	T	Sulfate	3.5	2.5	Y	mg/l	J	250	--
UR-91-09.2A	08-Aug-24	T	Total dissolved solids	440	24	Y	mg/l	--	500	--
UR-91-09.2A	08-Aug-24	N	pH (field)	6.93	--	Y	s.u.	--	NL	--
UR-91-09.2A	08-Aug-24	N	Specific Conductance (field)	662	--	Y	us/cm	--	NL	--
UR-91-09.2A	08-Aug-24	N	Temperature (field)	21.1	--	Y	deg c	--	NL	--
UR-91-09.2A	21-Oct-24	T	Chloride (as Cl)	170	30	Y	mg/l	--	250	--
UR-91-09.2A	21-Oct-24	T	Sulfate	4.1	2.5	Y	mg/l	J	250	--
UR-91-09.2A	21-Oct-24	T	Total dissolved solids	410	24	Y	mg/l	--	500	--
UR-91-09.2A	21-Oct-24	N	pH (field)	7.02	--	Y	s.u.	--	NL	--
UR-91-09.2A	21-Oct-24	N	Specific Conductance (field)	615	--	Y	us/cm	--	NL	--
UR-91-09.2A	21-Oct-24	N	Temperature (field)	18.9	--	Y	deg c	--	NL	--
UR-91-20.2A	29-Feb-24	D	Dissolved Calcium	980	2.4	Y	mg/l	--	NL	--
UR-91-20.2A	29-Feb-24	T	Chloride (as Cl)	2,400	600	Y	mg/l	--	250	x
UR-91-20.2A	29-Feb-24	D	Hardness (as CACO3)	3,300	0.41	Y	mg/l	--	NL	--
UR-91-20.2A	29-Feb-24	D	Dissolved Magnesium	210	0.82	Y	mg/l	--	NL	--
UR-91-20.2A	29-Feb-24	T	Nitrogen, Nitrate-Nitrite	0.1	0.040	N	mg/l	U	NL	--
UR-91-20.2A	29-Feb-24	D	Dissolved Sodium	160	0.41	Y	mg/l	--	NL	--
UR-91-20.2A	29-Feb-24	T	Sulfate	32	10	Y	mg/l	--	250	--
UR-91-20.2A	29-Feb-24	T	Total dissolved solids	4,400	96	Y	mg/l	--	500	x
UR-91-20.2A	29-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UR-91-20.2A	29-Feb-24	N	pH (field)	6.19	--	Y	s.u.	--	NL	--
UR-91-20.2A	29-Feb-24	N	Specific Conductance (field)	6,307	--	Y	us/cm	--	NL	--
UR-91-20.2A	29-Feb-24	N	Temperature (field)	17.2	--	Y	deg c	--	NL	--
UR-91-20.2A	03-May-24	T	Chloride (as Cl)	3,300	600	Y	mg/l	--	250	x
UR-91-20.2A	03-May-24	T	Sulfate	20	5.0	Y	mg/l	--	250	--

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Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UR-91-20.2A	03-May-24	T	Total dissolved solids	4,300	96	Y	mg/l	--	500	x
UR-91-20.2A	03-May-24	N	pH (field)	6.48	--	Y	s.u.	--	NL	--
UR-91-20.2A	03-May-24	N	Specific Conductance (field)	7,169	--	Y	us/cm	--	NL	--
UR-91-20.2A	03-May-24	N	Temperature (field)	19.9	--	Y	deg c	--	NL	--
UR-91-20.2A	08-Aug-24	T	Chloride (as Cl)	2,200	600	Y	mg/l	--	250	x
UR-91-20.2A	08-Aug-24	T	Sulfate	5	5.0	Y	mg/l	J	250	--
UR-91-20.2A	08-Aug-24	T	Total dissolved solids	3,100	96	Y	mg/l	--	500	x
UR-91-20.2A	08-Aug-24	N	pH (field)	6.83	--	Y	s.u.	--	NL	--
UR-91-20.2A	08-Aug-24	N	Specific Conductance (field)	5,305	--	Y	us/cm	--	NL	--
UR-91-20.2A	08-Aug-24	N	Temperature (field)	22.1	--	Y	deg c	--	NL	--
UR-91-20.2A	21-Oct-24	T	Chloride (as Cl)	1,700	300	Y	mg/l	--	250	x
UR-91-20.2A	21-Oct-24	T	Sulfate	15	5.0	N	mg/l	U	250	--
UR-91-20.2A	21-Oct-24	T	Total dissolved solids	2,900	96	Y	mg/l	--	500	x
UR-91-20.2A	21-Oct-24	N	pH (field)	7.21	--	Y	s.u.	--	NL	--
UR-91-20.2A	21-Oct-24	N	Specific Conductance (field)	4,602	--	Y	us/cm	--	NL	--
UR-91-20.2A	21-Oct-24	N	Temperature (field)	22.2	--	Y	deg c	--	NL	--
UR-91-20.2B	29-Feb-24	D	Dissolved Calcium	1,100	2.4	Y	mg/l	--	NL	--
UR-91-20.2B	29-Feb-24	T	Chloride (as Cl)	2,400	600	Y	mg/l	--	250	x
UR-91-20.2B	29-Feb-24	D	Hardness (as CACO3)	3,600	0.41	Y	mg/l	--	NL	--
UR-91-20.2B	29-Feb-24	D	Dissolved Magnesium	210	0.82	Y	mg/l	--	NL	--
UR-91-20.2B	29-Feb-24	T	Nitrogen, Nitrate-Nitrite	0.1	0.040	N	mg/l	U	NL	--
UR-91-20.2B	29-Feb-24	D	Dissolved Sodium	170	0.41	Y	mg/l	--	NL	--
UR-91-20.2B	29-Feb-24	T	Sulfate	33	10	Y	mg/l	--	250	--
UR-91-20.2B	29-Feb-24	T	Total dissolved solids	4,900	96	Y	mg/l	--	500	x
UR-91-20.2B	29-Feb-24	D	Dissolved Vanadium	0.01	0.0020	N	mg/l	U	NL	--
UR-91-20.2B	29-Feb-24	N	pH (field)	6.15	--	Y	s.u.	--	NL	--
UR-91-20.2B	29-Feb-24	N	Specific Conductance (field)	7,048	--	Y	us/cm	--	NL	--
UR-91-20.2B	29-Feb-24	N	Temperature (field)	18	--	Y	deg c	--	NL	--
UR-91-20.2B	03-May-24	T	Chloride (as Cl)	2,900	600	Y	mg/l	--	250	x
UR-91-20.2B	03-May-24	T	Sulfate	37	5.0	Y	mg/l	--	250	--
UR-91-20.2B	03-May-24	T	Total dissolved solids	5,000	96	Y	mg/l	--	500	x
UR-91-20.2B	03-May-24	N	pH (field)	6.11	--	Y	s.u.	--	NL	--

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Umetco Minerals Corporation

2024 Annual Plume Stability Evaluation Monitoring Report

Well Name	Date	Total or Dissolved	Analyte	Result	MDL	Detected?	Units	Qualifier	Target Cleanup Level	Exceeds Target Cleanup Level
UR-91-20.2B	03-May-24	N	Specific Conductance (field)	7,040	--	Y	us/cm	--	NL	--
UR-91-20.2B	03-May-24	N	Temperature (field)	20	--	Y	deg c	--	NL	--
UR-91-20.2B	08-Aug-24	T	Chloride (as Cl)	2,600	600	Y	mg/l	--	250	x
UR-91-20.2B	08-Aug-24	T	Sulfate	50	5.0	Y	mg/l	--	250	--
UR-91-20.2B	08-Aug-24	T	Total dissolved solids	3,600	96	Y	mg/l	--	500	x
UR-91-20.2B	08-Aug-24	N	pH (field)	6.11	--	Y	s.u.	--	NL	--
UR-91-20.2B	08-Aug-24	N	Specific Conductance (field)	5,960	--	Y	us/cm	--	NL	--
UR-91-20.2B	08-Aug-24	N	Temperature (field)	20.9	--	Y	deg c	--	NL	--
UR-91-20.2B	21-Oct-24	T	Chloride (as Cl)	2,200	600	Y	mg/l	--	250	x
UR-91-20.2B	21-Oct-24	T	Sulfate	45	10	Y	mg/l	J	250	--
UR-91-20.2B	21-Oct-24	T	Total dissolved solids	3,700	96	Y	mg/l	--	500	x
UR-91-20.2B	21-Oct-24	N	pH (field)	6.26	--	Y	s.u.	--	NL	--
UR-91-20.2B	21-Oct-24	N	Specific Conductance (field)	5,963	--	Y	us/cm	--	NL	--
UR-91-20.2B	21-Oct-24	N	Temperature (field)	20.2	--	Y	deg c	--	NL	--

Notes:

°C = degree(s) Celsius

µS/cm = microsiemen(s) per centimeter

CaCO3 = calcium carbonate

Cl = chlorine

D = dissolved

J = estimated

MDL = maximum detection level

mg/L = milligram(s) per liter

N = nitrogen

NL = no limit

s.u. = standard units

T = Total

TDS = total dissolved solids

U = undetected

Appendix C
Data Quality Evaluation

Jacobs

Memorandum

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Subject	**Data Validation Summary**
Project Name	Umetco Hot Springs – Plants Area Surface Water – 2024
Attention	Peter Schlater/Jacobs
From	Pat Ocado/Jacobs
Date	March 12, 2025
Copies to	Ryan Bitely/Jacobs, Alec Ongjoco/Jacobs, Jeremy Bishop/Jacobs

1. Introduction

The purpose of this memorandum is to present the results of the data validation process for the samples collected at the Umetco Hot Springs, Plant Site Surface Locations in Hot Springs, Arkansas.

The purpose of this data quality evaluation (DQE) process is to assess the effect of the analytical process on the usability of the resulting data. The two major categories of data evaluation are laboratory performance and matrix interferences. Laboratory performance is determined by review of the data for compliance with the cited analytical methods and by review of quality assurance/quality control (QA/QC) data such as method blanks, and laboratory control samples data. Evaluation of matrix interferences includes the review of QA/QC data such as matrix spike recoveries and duplicate sample (field and laboratory generated duplicates) results. The data validation and review process are independent of the laboratory's internal assessment and focuses on the usability of the data to support the project data interpretation and decision-making processes.

Native samples were collected in 2024 from the following locations:

- UO-87-06.1
- UO-87-06.2
- UO-87-10.2
- UO-88-12.2R
- UO-20-21.1
- UO-20-21.2
- UO-20-22.1
- UO-87-07.1
- UO-87-07.2
- UO-91-18.2
- UO-91-16.1B
- UO-91-16.2
- UO-91-17.1A
- UO-91-17.1B
- UO-87-01.1A
- UO-87-01.1B
- UO-87-09.1
- UO-87-09.2
- UR-91-04.1A
- UR-91-04.2A
- UR-91-09.2A
- UR-91-20.2A
- UR-91-20.2B
- UR-91-03.1B
- UR-91-03.1C
- UR-91-03.1D
- UR-91-03.1E
- UR-91-03.2B

- UO-91-17.2
- UO-91-19.2
- UO-87-08.1
- UO-87-08.2
- UO-87-02.1A
- UO-87-02.1B
- UO-88-02.2
- UO-88-11.2
- UO-88-14.1
- UO-88-14.2
- UO-88-15.1
- UO-88-15.2
- UR-91-03.2C
- UR-91-03.2D
- UR-91-03.2E
- EDRAIN
- FDRAIN
- UO-87-03.1
- UO-87-03.2
- UO-87-04.1
- UO-88-13.1
- UO-88-13.2
- UO-91-20.1B
- WDRAIN

The quality control areas that were reviewed and the resulting findings are documented below. The data reports provided by the laboratory were validated for compliance with the cited analytical methods. The validation process included a review of the data to assess the accuracy, precision, and completeness based upon procedures described in the Environmental Protection Agency (EPA) guidance document *National Functional Guidelines for Inorganic Data Review* (USEPA 2017).

2. Analytical Methods

Field samples were submitted to Eurofins Lancaster Laboratories Environmental Testing, LLC. Samples were analyzed by the following analytical methods:

Analysis Method	Analytes
E200.7	Magnesium, Sodium, Vanadium, Calcium, Iron,
E300.0	Sulfate, Chloride
E353.2	Nitrogen, Nitrate-Nitrite
SM2340B	Hardness (as CACO3)
SM2540C	Total dissolved solids

Data were reported by the laboratory in the following sample delivery groups (SDGs):

- 410-160683-1
- 410-160684-1
- 410-160685-1
- 410-160804-1
- 410-161096-1
- 410-161192-1
- 410-161616-1
- 410-161858-1
- 410-162586-1
- 410-162590-1
- 410-162179-1
- 410-170171-1
- 410-170173-1
- 410-170926-1
- 410-171132-1
- 410-172333-1
- 410-172694-1
- 410-173067-1
- 410-173070-1
- 410-173483-1
- 410-180936-1
- 410-181529-1
- 410-181530-1
- 410-182239-1
- 410-183869-1
- 410-183882-1
- 410-183299-1
- 410-191984-1
- 410-191981-1
- 410-192219-1
- 410-192464-1
- 410-192766-1
- 410-192769-1
- 410-192948-1
- 410-193302-1
- 410-193295-1

The QA/QC limits implemented during the DQE are those listed in the site-specific QAPP. Standard data qualifiers are added as a means of classifying conformance to QA/QC requirements. The data qualifiers are defined as follows:

Primary Data Qualifier Code	Meaning	Description
R	Rejected	The data are rejected because of deficiencies in meeting QC criteria and may not be used for decision making.
J	Estimated	The analyte was positively identified; the quantitation is an estimation because of discrepancies in meeting certain analyte-specific QC criteria.
J+	Estimated (biased high)	The analyte was positively identified; the quantitation is a high estimation because of discrepancies in meeting certain analyte-specific QC criteria
J-	Estimated (biased low)	The analyte was positively identified; the quantitation is a low estimation because of discrepancies in meeting certain analyte-specific QC criteria.
U	Undetected	The analyte was analyzed for, but not detected.
UJ	Detection Limit Estimated	The analyte was not detected; however, the result is estimated because of discrepancies in meeting certain analyte-specific QC criteria.

The validation reason codes provide the reasoning behind the assignment of a data qualifier to the data. Validation reason codes are assigned as needed based on the data quality evaluation process. The validation reason codes along with their descriptions are presented below:

Reason Code	Description
IB	Result between the MDL and RL
HT	Analytical holding time exceeded
MSH	Matrix spike recovery criteria greater than the upper limit
MSL	Matrix spike recovery criteria less than the lower limit
LDP	Laboratory duplicate precision out
X-RE	Data not used due to reanalysis, another value is more appropriate, or data were not requested

3. Data Validation Findings

The following list outlines the QA/QC measures that were reviewed and any data validation findings.

- **Holding Times –** All samples were analyzed within the method required holding times with the following exception:
    - Samples UO-88-13.2_20240227_N_WG and UO-88-13.2_20240227_FD_WG exceeded the recommended holding time for the analysis of Total Dissolved Solids (SM2540C).
- **Blank Samples –** There were no data qualified because of detections in the blank samples.
- **Surrogate Recoveries –** Not applicable for this dataset.
- **Laboratory Control Samples (LCS) –** All LCS criteria were met for this sample set.
- **Method Detection Limit (MDL) and Practical Quantitation Limit (PQL) -** Positive detections above the MDL but lower than the PQL (MDL< conc. < PQL) were reported for 114 analytes in 49 Samples for methods E200.7, E300.0, and SM2540C have been qualified as "J" and should be considered estimates.

- **Matrix Spike/Matrix Spike Duplicate (MS/MSD) –** MS and MSD recoveries and RPDs were within the established QC limits, with the following exceptions:
    - The MS recoveries of three samples were below the lower control limit (LCL):
        - Sample UR-91-03.1D_20240229_N_WG had MSD recovery below LCL for Nitrate-Nitrite as Nitrogen fractions (E353.2).
        - Samples UO-91-16.1B_20241010_22.05_22.78_ft_N_WG and UR-91-20.2B_20241021_N_WG were below the LCL for Sulfate (E300.0).
    - The MS recoveries of four samples were above the upper control limit (UCL):
        - Samples UO-88-13.1_20240523_N_WG, UO-87-03.1_20241017_21.8-23.78_ft_N_WG, UO-87-09.1_20241017_22.99-28.83_ft_N_WG, and UO-91-16.1B_20241010_22.05-22.78_ft_N_WG were above the UCL for Chloride (E300.0).
    - Detects associated with these exceedances were qualified as "J" and should be considered estimates. Non-detects were not qualified.
- **Field Duplicate Samples –** Field duplicate precision were criteria met for this sample set.
- **Laboratory Duplicate Samples –** Laboratory duplicate precision criteria were met except for Nitrate-Nitrite as Nitrogen fractions (E353.2) in the sample UR-91-03.1D_20240229_N_WG. The data were qualified as "J" and should be considered estimates.
- **Rejected and Excluded Data –** The data rejected or excluded due to reanalysis of TDS (SM2540C) were UO-88-13.2_20240227_N_WG and UO-88-13.2_20240227_FD_WG.

4. Conclusion

A review of the data indicates that the Plant Site Surface Water samples collected during 2024 were submitted to the laboratory and analyzed by the appropriate methods. The laboratory did not note any additional issues with sample receipt or analysis. The laboratory noted analytical precision exceedances with the Sulfate, Chloride, and Nitrate-Nitrite fractions. The affected sample sets were flagged as estimated 'J' quantitation. Two results for TDS were excluded during the validation process due to reanalysis. Two results were flagged as estimated 'J' quantitation for TDS based on exceedance of the holding time

The data results as flagged can be used in the project decision-making process.

Table 1. Qualified Data

Dow UMETCO Hotsprings – Plant Evaluation

Method	Sample ID	Analyte	Result	Qualifier	Units	Reason code
E300.0	UO-87-06.2_20240212_N_WG	Sulfate	6.4	J	mg/l	IB
E300.0	UO-20-21.1_20240212_N_WG	Sulfate	7.3	J	mg/l	IB
E200.7	UO-87-07.1_20240212_N_WG	Vanadium	0.0030	J	mg/l	IB
E300.0	UO-87-07.1_20240212_N_WG	Sulfate	4.5	J	mg/l	IB
E300.0	UO-87-07.2_20240212_N_WG	Sulfate	3.5	J	mg/l	IB
E300.0	UO-91-16.2_20240214_N_WG	Sulfate	3.0	J	mg/l	IB
E300.0	UO-91-17.1A_20240215_N_WG	Sulfate	2.8	J	mg/l	IB
E300.0	UO-91-17.1B_20240215_N_WG	Chloride (as Cl)	5.1	J	mg/l	IB
E300.0	UO-91-17.2_20240215_N_WG	Sulfate	3.2	J	mg/l	IB
E300.0	UO-87-08.1_20240219_N_WG	Chloride (as Cl)	7.2	J	mg/l	IB
E300.0	UO-87-08.2_20240219_N_WG	Chloride (as Cl)	4.7	J	mg/l	IB
E300.0	UO-87-08.2_20240219_N_WG	Sulfate	3.6	J	mg/l	IB
E300.0	UO-88-11.2_20240220_N_WG	Sulfate	6.7	J	mg/l	IB
E300.0	UO-87-09.1_20240226_N_WG	Sulfate	2.6	J	mg/l	IB
SM2540C	UR-91-04.1A_20240229_N_WG	Total dissolved solids	110	J	mg/l	IB
SM2540C	UR-91-04.1A_20240229_N_WG	Total dissolved solids	43	J	mg/l	IB
E300.0	UR-91-09.2A_20240229_N_WG	Sulfate	5.7	J	mg/l	IB
E200.7	FDRAIN_20240228_FD_WS	Vanadium	0.0086	J	mg/l	IB
E200.7	FDRAIN_20240228_N_WS	Vanadium	0.0085	J	mg/l	IB
E300.0	UO-91-20.1B_20240227_N_WG	Sulfate	5.9	J	mg/l	IB
E300.0	UO-87-06.2_20240501_N_WG	Sulfate	6.9	J	mg/l	IB
E300.0	UO-87-07.1_20240501_N_WG	Sulfate	4.8	J	mg/l	IB
E300.0	UO-87-07.2_20240501_N_WG	Sulfate	4.0	J	mg/l	IB
E300.0	UR-91-09.2A_20240503_N_WG	Sulfate	5.6	J	mg/l	IB
E300.0	UO-91-16.1B_20240508_N_WG	Chloride (as Cl)	3.9	J	mg/l	IB
E300.0	UO-91-16.1B_20240508_N_WG	Sulfate	4.4	J	mg/l	IB
E300.0	UO-91-16.2_20240508_N_WG	Sulfate	5.2	J	mg/l	IB
E300.0	UO-87-09.1_20240523_N_WG	Sulfate	3.5	J	mg/l	IB
E300.0	UO-87-06.2_20240722_N_WG	Sulfate	5.4	J	mg/l	IB
E300.0	UO-87-07.1_20240722_N_WG	Sulfate	2.6	J	mg/l	IB
E300.0	UO-20-21.1_20240723_N_WG	Sulfate	6.0	J	mg/l	IB
E300.0	UO-91-16.1B_20240725_N_WG	Chloride (as Cl)	3.1	J	mg/l	IB
E300.0	UO-91-16.1B_20240725_N_WG	Sulfate	2.9	J	mg/l	IB
E300.0	UO-91-17.1A_20240725_N_WG	Sulfate	2.9	J	mg/l	IB
E300.0	UO-91-17.1B_20240725_N_WG	Chloride (as Cl)	6.3	J	mg/l	IB
E300.0	UO-91-17.2_20240725_N_WG	Sulfate	4.0	J	mg/l	IB
E300.0	UO-87-08.1_20240729_N_WG	Chloride (as Cl)	7.4	J	mg/l	IB
E300.0	UO-87-08.2_20240729_N_WG	Chloride (as Cl)	4.6	J	mg/l	IB
E300.0	UO-87-08.2_20240729_N_WG	Sulfate	3.6	J	mg/l	IB
SM2540C	UO-87-08.2_20240729_N_WG	Total dissolved solids	27	J	mg/l	IB
E300.0	UO-88-11.2_20240731_N_WG	Sulfate	6.5	J	mg/l	IB
E300.0	UR-91-03.1E_20240808_N_WG	Sulfate	6.7	J	mg/l	IB
E300.0	UR-91-09.2A_20240808_N_WG	Sulfate	3.5	J	mg/l	IB
E300.0	UR-91-20.2A_20240808_N_WG	Sulfate	5.0	J	mg/l	IB
E300.0	UO-91-20.1B_20240806_N_WG	Sulfate	4.9	J	mg/l	IB
E300.0	UO-87-06.2_20241010_N_WG	Sulfate	7.0	J	mg/l	IB
E300.0	UO-87-07.1_20241008_N_WG	Sulfate	4.8	J	mg/l	IB
E300.0	UO-87-07.2_20241008_N_WG	Sulfate	4.1	J	mg/l	IB
E300.0	UO-91-16.2_20241010_21.56-30.81_ft_N_WG	Sulfate	3.7	J	mg/l	IB
E300.0	UO-91-17.1B_20241010_15.41-21.62_ft_N_WG	Chloride (as Cl)	5.5	J	mg/l	IB

Method	Sample ID	Analyte	Result	Qualifier	Units	Reason code
E300.0	UO-87-08.2_20241014_N_WG	Chloride (as Cl)	5.9	J	mg/l	IB
E300.0	UO-87-08.2_20241014_N_WG	Sulfate	3.4	J	mg/l	IB
E300.0	UO-91-20.1B_20241016_N_WG	Sulfate	5.0	J	mg/l	IB
E300.0	UO-88-11.2_20241015_N_WG	Sulfate	4.7	J	mg/l	IB
E300.0	UR-91-03.1E_20241021_N_WG	Sulfate	5.7	J	mg/l	IB
E300.0	UR-91-09.2A_20241021_N_WG	Sulfate	4.1	J	mg/l	IB
E300.0	UO-87-06.2_20240212_N_WG	Sulfate	6.4	J	mg/l	IB
E300.0	UO-20-21.1_20240212_N_WG	Sulfate	7.3	J	mg/l	IB
E200.7	UO-87-07.1_20240212_N_WG	Vanadium	0.0030	J	mg/l	IB
E300.0	UO-87-07.1_20240212_N_WG	Sulfate	4.5	J	mg/l	IB
E300.0	UO-87-07.2_20240212_N_WG	Sulfate	3.5	J	mg/l	IB
E300.0	UO-91-16.2_20240214_N_WG	Sulfate	3.0	J	mg/l	IB
E300.0	UO-91-17.1A_20240215_N_WG	Sulfate	2.8	J	mg/l	IB
E300.0	UO-91-17.1B_20240215_N_WG	Chloride (as Cl)	5.1	J	mg/l	IB
E300.0	UO-91-17.2_20240215_N_WG	Sulfate	3.2	J	mg/l	IB
E300.0	UO-87-08.1_20240219_N_WG	Chloride (as Cl)	7.2	J	mg/l	IB
E300.0	UO-87-08.2_20240219_N_WG	Chloride (as Cl)	4.7	J	mg/l	IB
E300.0	UO-87-08.2_20240219_N_WG	Sulfate	3.6	J	mg/l	IB
E300.0	UO-88-11.2_20240220_N_WG	Sulfate	6.7	J	mg/l	IB
E300.0	UO-87-09.1_20240226_N_WG	Sulfate	2.6	J	mg/l	IB
SM2540C	UR-91-04.1A_20240229_N_WG	Total dissolved solids	110	J	mg/l	IB
SM2540C	UR-91-04.1A_20240229_N_WG	Total dissolved solids	43	J	mg/l	IB
E300.0	UR-91-09.2A_20240229_N_WG	Sulfate	5.7	J	mg/l	IB
E200.7	FDRAIN_20240228_FD_WS	Vanadium	0.0086	J	mg/l	IB
E200.7	FDRAIN_20240228_N_WS	Vanadium	0.0085	J	mg/l	IB
E300.0	UO-91-20.1B_20240227_N_WG	Sulfate	5.9	J	mg/l	IB
E300.0	UO-87-06.2_20240501_N_WG	Sulfate	6.9	J	mg/l	IB
E300.0	UO-87-07.1_20240501_N_WG	Sulfate	4.8	J	mg/l	IB
E300.0	UO-87-07.2_20240501_N_WG	Sulfate	4.0	J	mg/l	IB
E300.0	UR-91-09.2A_20240503_N_WG	Sulfate	5.6	J	mg/l	IB
E300.0	UO-91-16.1B_20240508_N_WG	Chloride (as Cl)	3.9	J	mg/l	IB
E300.0	UO-91-16.1B_20240508_N_WG	Sulfate	4.4	J	mg/l	IB
E300.0	UO-91-16.2_20240508_N_WG	Sulfate	5.2	J	mg/l	IB
E300.0	UO-87-09.1_20240523_N_WG	Sulfate	3.5	J	mg/l	IB
E300.0	UO-87-06.2_20240722_N_WG	Sulfate	5.4	J	mg/l	IB
E300.0	UO-87-07.1_20240722_N_WG	Sulfate	2.6	J	mg/l	IB
E300.0	UO-20-21.1_20240723_N_WG	Sulfate	6.0	J	mg/l	IB
E300.0	UO-91-16.1B_20240725_N_WG	Chloride (as Cl)	3.1	J	mg/l	IB
E300.0	UO-91-16.1B_20240725_N_WG	Sulfate	2.9	J	mg/l	IB
E300.0	UO-91-17.1A_20240725_N_WG	Sulfate	2.9	J	mg/l	IB
E300.0	UO-91-17.1B_20240725_N_WG	Chloride (as Cl)	6.3	J	mg/l	IB
E300.0	UO-91-17.2_20240725_N_WG	Sulfate	4.0	J	mg/l	IB
E300.0	UO-87-08.1_20240729_N_WG	Chloride (as Cl)	7.4	J	mg/l	IB
E300.0	UO-87-08.2_20240729_N_WG	Chloride (as Cl)	4.6	J	mg/l	IB
E300.0	UO-87-08.2_20240729_N_WG	Sulfate	3.6	J	mg/l	IB
SM2540C	UO-87-08.2_20240729_N_WG	Total dissolved solids	27	J	mg/l	IB
E300.0	UO-88-11.2_20240731_N_WG	Sulfate	6.5	J	mg/l	IB
E300.0	UR-91-03.1E_20240808_N_WG	Sulfate	6.7	J	mg/l	IB
E300.0	UR-91-09.2A_20240808_N_WG	Sulfate	3.5	J	mg/l	IB
E300.0	UR-91-20.2A_20240808_N_WG	Sulfate	5.0	J	mg/l	IB
E300.0	UO-91-20.1B_20240806_N_WG	Sulfate	4.9	J	mg/l	IB
E300.0	UO-87-06.2_20241010_N_WG	Sulfate	7.0	J	mg/l	IB

Method	Sample ID	Analyte	Result	Qualifier	Units	Reason code
E300.0	UO-87-07.1_20241008_N_WG	Sulfate	4.8	J	mg/l	IB
E300.0	UO-87-07.2_20241008_N_WG	Sulfate	4.1	J	mg/l	IB
E300.0	UO-91-16.2_20241010_21.56-30.81_ft_N_WG	Sulfate	3.7	J	mg/l	IB
E300.0	UO-91-17.1B_20241010_15.41-21.62_ft_N_WG	Chloride (as Cl)	5.5	J	mg/l	IB
E300.0	UO-87-08.2_20241014_N_WG	Chloride (as Cl)	5.9	J	mg/l	IB
E300.0	UO-87-08.2_20241014_N_WG	Sulfate	3.4	J	mg/l	IB
E300.0	UO-91-20.1B_20241016_N_WG	Sulfate	5.0	J	mg/l	IB
E300.0	UO-88-11.2_20241015_N_WG	Sulfate	4.7	J	mg/l	IB
E300.0	UR-91-03.1E_20241021_N_WG	Sulfate	5.7	J	mg/l	IB
E300.0	UR-91-09.2A_20241021_N_WG	Sulfate	4.1	J	mg/l	IB
E300.0	UO-91-16.1B_20241010_22.05-22.78_ft_N_WG	Sulfate	3.2	J	mg/l	IB
E300.0	UO-91-16.1B_20241010_22.05-22.78_ft_N_WG	Sulfate	3.2	J	mg/l	IB
E353.2	UR-91-03.1D_20240229_N_WG	Nitrogen, Nitrate-Nitrite	0.58	J	mg/l	MSL
E300.0	UO-91-16.1B_20241010_22.05-22.78_ft_N_WG	Sulfate	3.2	J	mg/l	MSL
E300.0	UR-91-20.2B_20241021_N_WG	Sulfate	45	J	mg/l	MSL
E300.0	UO-88-13.1_20240523_N_WG	Chloride (as Cl)	72	J	mg/l	MSH
E300.0	UO-87-03.1_20241017_21.8-23.78_ft_N_WG	Chloride (as Cl)	2600	J	mg/l	MSH
E300.0	UO-87-09.1_20241017_22.99-28.83_ft_N_WG	Chloride (as Cl)	57	J	mg/l	MSH
E353.2	UR-91-03.1D_20240229_N_WG	Nitrogen, Nitrate-Nitrite	0.58	J	mg/l	LDP
SM2540C	UO-88-13.2_20240227_FD_WG	Total dissolved solids	5200	J	mg/l	HT
SM2540C	UO-88-13.2_20240227_N_WG	Total dissolved solids	5100	J	mg/l	HT
SM2540C	UO-88-13.2_20240227_N_WG	Total dissolved solids	68000	J	mg/l	X-RE
SM2540C	UO-88-13.2_20240227_FD_WG	Total dissolved solids	59000	J	mg/l	X-RE

Notes:

mg/L = milligram(s) per liter

MSL = matrix spike recovery below the lower control limit

MSH = matrix spike recovery greater than upper control limit

HT = holding time exceeded

IB = Result between the MDL and RL

LDP = Laboratory duplicate precision out

X-RE = Data not used due to reanalysis, another value is more appropriate, or data were not requested

J = Estimated. The analyte was detected between the method detection limit and the reporting limit.