

**2024 ANNUAL GROUNDWATER MONITORING  
AND CORRECTIVE ACTION REPORT  
COAL COMBUSTION RESIDUALS (CCR) RULE**

**HOLLOW ROCK FACILITY  
JEFFERSON COUNTY, OHIO**

*Prepared for:*

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## **ABBREVIATIONS/ACRONYMS**

ASD	Alternative Source Demonstration
CCR	Coal Combustion Residuals
CFR	Code of Federal Regulations
ETEM	ETEM Remediation One, LLC
FTS	Field & Technical Services LLC
ft/yr	Feet per Year
HRF	Hollow Rock Facility Landfill, Jefferson County, Ohio
MCL	Maximum Contaminant Limit
mg/L	Milligrams per Liter
msl	Mean Sea Level
SSI	Statistical Significant Increase
SSD	Statistical Significant Decrease
SSL	Statistical Significant Level
TDS	Total Dissolved Solids
USEPA	United States Environmental Protection Agency

## EXECUTIVE SUMMARY

This report summarizes groundwater monitoring activities completed between January 1 and December 31, 2024 at the ETEM Remediation One, LLC (ETEM) Hollow Rock Facility Landfill (HRF) as required by 40 CFR 257.90(e) of the United States Environmental Protection Agency (USEPA) Coal Combustion Residuals (CCR) Rule. No monitoring wells were installed, modified or abandoned during the reporting period.

Detection mode groundwater monitoring of HRF was initiated in August 2017 following the Baseline monitoring period (establishment of background per 257.93(d)). Statistically significant increases (SSIs) of the Appendix III constituents chloride, sulfate, and total dissolved solids (TDS) were previously identified in the downgradient monitoring wells MW-23S and MW-41. An Alternative Source Demonstration (ASD) was conducted in March 2018 to evaluate whether a source other than HRF was responsible for the SSIs. The ASD determined that the source of the observed impacts was not the landfill. Instead, the source of impact was attributed to the presence of mine spoils and the natural variability of groundwater conditions and chemistry. The original ASD and subsequent updates were prepared and included in annual groundwater monitoring reports.

The ASD determination allowed the groundwater monitoring program to remain in detection mode. Detection monitoring was in place at the start and the end of the current annual reporting period (2024). Conditions presented in 40 CFR 257.90(e)(6) of the CCR Rule are not addressed in this report as HRF is not in the assessment monitoring phase.

Groundwater monitoring data for 2024 have reported the detection of the Appendix III constituents boron, calcium, chloride, pH, and sulfate in downgradient wells at concentrations that represent SSIs over background. SSIs identified in the 2024 annual reporting period are as follows:

Appendix III Constituent	Downgradient Wells with SSIs
Boron	MW-12S, MW-23S, MW-24S, MW-41, MW-42, MW-43
Calcium	MW-12S, MW-22S, MW-41S
Chloride	MW-11S, MW-12S, MW-22S, MW-23S, MW-24S, MW-25S, MW-40, MW-41, MW-43



Appendix III Constituent	Downgradient Wells with SSIs
pH	SSI at MW-43 and SSDs at MW-12S
Sulfate	MW-11S, MW-12S, MW-13S, MW-23S, MW-25S, MW-41

Other activities and conditions for the 2024 annual reporting period include:

- Semiannual detection mode groundwater monitoring events were conducted March 25 through 28, 2024 and September 23 through 27, 2024. Monitoring involved sampling of eleven (11) downgradient monitoring wells (MW-11S, MW-12S, MW-13S, MW-22S, MW-23S, MW-24S, MW-25S, MW-40, MW-41, MW-42, and MW-43);
- An ASD update was prepared and included in this report;
- No monitoring well installation, repair, or decommissioning was conducted;
- No program transitions (detection to assessment or vice versa) were triggered; and,
- No programmatic problems were encountered, so no remedies were required.

Anticipated activities for the next annual reporting period include:

- Completion of two semiannual detection mode groundwater monitoring events; and,
- Prepare an ASD update as appropriate.

## **1.0 INTRODUCTION**

On behalf of ETEM Remediation One, LLC (ETEM), Field & Technical Services, LLC (FTS) has prepared this Annual Groundwater Monitoring and Corrective Action Report for the Hollow Rock Facility Landfill (HRF), located near Toronto, in Knox Township, Jefferson County, Ohio. The HRF, a state-permitted landfill subject to the Coal Combustion Residuals (CCR) Rule, operates pursuant to the detection monitoring program under 40 Code of Federal Regulations (CFR) 257.94. Detection monitoring at HRF began in August 2017. Statistically significant increases (SSIs) identified during 2024 include: boron in monitoring wells MW-12S, MW-23S, MW-24S, MW-41, MW-42, and MW-43; calcium in monitoring wells MW-12S, MW-22S, and MW-41S; chloride in monitoring wells MW-11S, MW-12S, MW-22S, MW-23S, MW-24S, MW-25S, MW-40, MW-41, and MW-43; sulfate in monitoring wells MW-11S, MW-12S, MW-13S, MW-23S, MW-25S, and MW-41; and pH in monitoring well MW-43S. Statistically significant decreases (SSDs) in pH were identified in monitoring well MW-12S. Alternative Source Demonstrations (ASD) were previously completed and indicated, through multiple lines of evidence, that detection monitoring SSIs or SSDs were related to historic mine spoils placed throughout the area.

This report was prepared in accordance with 40 CFR 257.90(e), of the United States Environmental Protection Agency (USEPA) CCR Rule, which requires annual groundwater monitoring and corrective action reports to include the information listed below:

- 1) A map, aerial image, or diagram showing the CCR unit and all background (or upgradient) and downgradient monitoring wells, to include the well identification numbers, that are part of the groundwater monitoring program for the CCR unit (see Figure 3);
- 2) Identification of any monitoring wells that were installed or decommissioned during the preceding year, along with a narrative description of why those actions were taken (no monitoring wells were installed or decommissioned in 2024);
- 3) In addition to all the monitoring data obtained under 40 CFR 257.90 through 257.98, a summary including the number of groundwater samples that were collected for analysis for each background and downgradient well, the dates the samples were collected, and whether the sample was required by the detection monitoring or assessment monitoring programs (referenced in Section 4.2 and presented in full in Appendix A);
- 4) A narrative discussion regarding a transition between monitoring programs, if any has occurred; and,



- 5) Other information required to be included in the annual report as specified in 40 CFR 257.90 through 257.98 (i.e., groundwater monitoring results, alternative sources, and extension of schedules). An ASD update is provided in Section 4.3.



## **2.0 SITE BACKGROUND**

The HRF is located in Knox Township, Jefferson County, Ohio (Figure 1), and is approximately 2.5 miles west of the Sammis Power Station, on Route 152. HRF is a state-permitted landfill that receives residual solid wastes generated by burning coal (CCRs) from the Sammis Power Station located in Stratton, Ohio. A Site location map of the HRF is provided as Figure 1. The permitted HRF footprint (approximately 140 acres) is divided into fourteen (14) cells as shown on Figure 2.

The HRF is located in the upland area of Jefferson County where numerous surface coal mines operated. HRF occupies one such formerly mined area that has been re-contoured/reclaimed with mine spoil. At the HRF, the uppermost weathered bedrock near the interface between mine spoil deposits and the underlying bedrock comprises the uppermost aquifer system on Site. The direction of groundwater flow at the Site is partly controlled by the topography of the mine spoil/bedrock interface, which generally directs flow towards nearby stream valleys. In general, the landfill occupies the upgradient position such that the downgradient direction is generally away from the HRF in all directions, though the flow is likely to be more pronounced to the southeast along the southern boundary as shown in Figures 4A and 4B.

### 3.0 2024 ACTIVITIES SUMMARY

The first semiannual 2024 detection monitoring sampling event was performed on March 25 through 28, 2024. The second semiannual 2024 detection monitoring sampling event was performed on September 23 through 27, 2024. All eleven (11) CCR program wells were sampled during the March and September 2024 events.

The CCR monitoring well system at HRF consists of eleven (11) monitoring well locations (MW-11S, MW-12S, MW-13S, MW-22S, MW-23S, MW-24, MW-25S, MW-40, MW-41, MW-42, and MW-43). Monitoring wells MW-12S and MW-13S were incorporated into CCR monitoring program in August 2017, and their baseline monitoring was completed in 2018. Prior to incorporation into the CCR monitoring program, monitoring wells MW-12S and MW-13S were used for potentiometric evaluations under the CCR program. Monitoring well locations are shown on Figure 3. Table 1 contains information regarding CCR well locations, pump depths, and construction details. Details regarding the establishment of the monitoring well system are presented in the *Groundwater Monitoring System Certification* document dated October 2017.

A comprehensive round of groundwater elevations was measured within a 24-hour time period to avoid temporal variations in groundwater flow in accordance with 40 CFR 257.93(c). Monitoring wells were sampled using low-flow sampling methods. All wells were sampled for Appendix III parameters in accordance with 40 CFR 257.94(a).

## 4.0 MONITORING RESULTS

The following sections present details about the HRF groundwater flow evaluations, groundwater sampling results, and ASD update.

### 4.1 GROUNDWATER FLOW

Water level data and calculated groundwater elevations for 2024 are presented in Table 2 and groundwater flow maps for the 2024 monitoring period are presented as Figures 4A and 4B. Flow rates were calculated using estimated aquifer porosity and hydraulic conductivity values from historical reports, and hydraulic gradients that were calculated using potentiometric contour elevations over distance. Generally, groundwater elevations are highest at monitoring wells MW-23S, MW-24S, and MW-25S with flow radiating outward from the vicinity of these wells towards stream valleys. Estimated groundwater flow velocity in the vicinity of these wells is approximately 1 ft/yr to 8 ft/yr during the 2024 events. The landfill occupies the upgradient position and downgradient is generally radially away from the HRF, though the flow is likely to be more pronounced to the southeast along the southern Site boundary. Groundwater flow patterns observed during the 2024 detection monitoring events were consistent with the patterns observed throughout the baseline sampling periods and previous detection monitoring events.

### 4.2 SAMPLING RESULTS

The results of groundwater monitoring conducted for detection monitoring events in 2024 are presented below.

#### 2024 Semiannual Detection Monitoring

Analytical results from the March and September 2024 semiannual detection monitoring events are summarized in Table 3 with the full laboratory reports available in Appendix A.

#### Statistical Evaluations

The following is a summary of the statistical evaluations conducted in 2024. Appendix III statistical evaluations were performed, using an intrawell approach, in accordance with 40 CFR 257.93 (f)(1) and the rationale for each method selected is outlined in *Statistical Methods Certification* document dated October 17, 2017 (AECOM, 2017). The intrawell statistical approach is appropriate for the monitored aquifer because the CCR Unit occupies the upgradient position on a topographic high with radial groundwater flow away from the landfill in all directions.



The following Appendix III constituents were identified as having SSIs during 2024:

- Boron in monitoring wells: MW-12S, MW-23S, MW-24S, MW-41S, MW-42S, and MW-43S.
- Calcium in monitoring wells: MW-12S, MW-22S, and MW-41S.
- Chloride in monitoring wells MW-11S, MW-12S, MW-22S, MW-23S, MW-24S, MW-25S, MW-40, MW-41, and MW-43.
- pH in monitoring wells: SSI in MW-43S and SSDs in MW-12S.
- Sulfate in monitoring wells MW-11S, MW-12S, MW-13S, MW-23S, MW-25S, and MW-41.

#### **4.3 ALTERNATIVE SOURCE DEMONSTRATION UPDATE**

An ASD was completed for detection monitoring constituents at the HRF in March 2018. The ASD was included in the *2018 Annual Groundwater Monitoring and Corrective Action Report* (AECOM, January 2019) and subsequent ASD updates have been provided with each annual report. This ASD update is provided to further document previous findings that historic mine spoil material placed at the Site likely serves as an alternative source of detection monitoring constituents in groundwater. Technical evaluations and multiple lines of evidence that were completed in previous ASD updates remain valid. Multiple lines of evidence including, but not limited to, the following suggest that groundwater impacts are not related to the HRF, but are a result of the mine spoils that have been historically placed throughout the Site:

##### **Landfill Design, Construction and Operation**

The Hollow Rock Facility is an engineered landfill designed with protective measures in place (e.g., composite liner installed in each landfill cell and leachate collection systems) to mitigate the potential for fluids to leach into the underlying groundwater zones. Records of landfill construction and operation do not suggest any potential failure of the engineered containment, which indicates that the observed SSIs are attributable to an alternate source and are not a result of leaching of fluids from the landfill.

##### **Reduced Infiltration to Groundwater**

As evidenced by the radial flow of groundwater away from the current landfill footprint in Figures 4A and 4B, the primary source of groundwater recharge is infiltration within the areas adjacent to the closed landfill cells. As landfill construction has progressed,



more of the existing land surface is covered by engineered surfaces that do not allow for infiltration. As a consequence, there is less recharge to groundwater, less difference in hydraulic head to drive groundwater movement (i.e., slower groundwater flow rates), and longer residence time for groundwater before reaching the groundwater monitoring system wells. This condition is expected to continue to influence the character of groundwater quality over the operational life of the unit and into closure, however, the changes in groundwater quality are not the result of leaching from CCR materials placed in the lined cells.

### **Historical Background Concentrations**

Historical background concentrations from monitoring wells sampled prior to the landfill construction indicated detection monitoring constituents at similar or higher levels in comparison to SSIs. Chloride SSIs, reported under the solid waste permit monitoring program, have been attributed to natural variability in groundwater owing to the presence of mine spoil in the saturated zone, the irregularity of groundwater quality resulting from the heterogeneous nature of those deposits, and the marine origin of the bedrock formations. The mine spoils consist primarily of clayey gravel and silty gravel extending from, or near, the ground surface to the underlying bedrock. These materials are the result of extensive surface mining performed in the area during the 1980s. The mining removed shale, sandstone, siltstone, coal and limestone seams of the Conemaugh Group bedrock. Following mining, the area was re-contoured/reclaimed with mine spoil material.

## **5.0 GENERAL INFORMATION**

The following sections summarize any problems encountered in the CCR program through 2024, if any, and resolutions to those problems if needed, and upcoming actions planned for 2025.

### **5.1 PROBLEMS ENCOUNTERED AND RESOLUTIONS**

No issues were encountered under the groundwater monitoring program for the HRF in 2024.

### **5.2 ACTIONS PLANNED FOR 2025**

The following CCR groundwater compliance activities are planned for 2025:

- Continue with semiannual detection monitoring events in accordance with 40 CFR 257.94(a);
- Perform statistical analysis of detection monitoring results in accordance with 40 CFR 257.93 (f);
- If appropriate, prepare an ASD update to determine if a source other than the CCR unit may be causing any new SSIs (or changes in previously detected constituents) at the HRF; and,
- Perform any notifications required by 40 CFR 257.106(h), and its sub-parts, as applicable.

## 6.0 REFERENCES

- FTS, January 2024. *Annual Groundwater Monitoring and Corrective Action Report, Coal Combustion Residuals (CCR) Rule, Hollow Rock Facility.*
- AECOM, January 2023. *Annual Groundwater Monitoring and Corrective Action Report, Coal Combustion Residuals (CCR) Rule, Hollow Rock Facility.*
- AECOM, January 2022. *Annual Groundwater Monitoring and Corrective Action Report, Coal Combustion Residuals (CCR) Rule, Hollow Rock Facility.*
- AECOM, January 2021. *Annual Groundwater Monitoring and Corrective Action Report, Coal Combustion Residuals (CCR) Rule, Hollow Rock Facility.*
- AECOM, January 2020. *Annual Groundwater Monitoring and Corrective Action Report, Coal Combustion Residuals (CCR) Rule, Hollow Rock Facility.*
- AECOM, January 2019. *Annual Groundwater Monitoring and Corrective Action Report, Coal Combustion Residuals (CCR) Rule, Hollow Rock Facility.*
- AECOM, January 2018. *Annual Groundwater Monitoring and Corrective Action Report, Coal Combustion Residuals (CCR) Rule, Hollow Rock Facility.*
- AECOM, October 2017. *Coal Combustion Residuals Rule Groundwater Monitoring System Certification, Hollow Rock Facility, October 17, 2017.*
- AECOM, October 2017. *Coal Combustion Residual Rule Statistical Methods Certification, Hollow Rock Facility, October 17, 2017.*
- AECOM, October 2017. *Hydrogeologic Investigation Report Coal Combustion Residuals (CCR) Rule, Hollow Rock Facility, October 13, 2017.*
- AECOM, April 2016. *Groundwater Evaluation Work Plan Coal Combustion Residuals (CCR) Rule (Work Plan), Hollow Rock Facility, April 7, 2016.*
- United States Environmental Protection Agency, 2015. Part 257, Coal Combustion Residuals Rule, last amended December 29, 2023.



## **TABLES**



Table 1  
Monitoring Well Construction Summary  
2024 Annual Groundwater Monitoring and Corrective Action Report  
Coal Combustion Residuals (CCR) Rule  
Hollow Rock Facility  
Jefferson County, Ohio

Well ID	Latitude	Longitude	Well Installation Date	TOC Elevation (ft MSL)	Ground Surface Elevation (ft MSL)	Total Depth (feet)	Bottom Elevation (ft MSL)	Screen Length (feet)	Top of Screen (feet bgs)	Bottom of Screen (feet bgs)	Top of Screen Elevation (ft MSL)	Bottom of Screen Elevation (ft MSL)	Pump Depth (ft bgs)	Well Casing Material	Well Screen Material and Slot Size	Groundwater Flow Location	Program Use
MW-11S	314336.5	2476224.3	Sep-08	1165.82	1166.00 <sup>a</sup>	80.00 <sup>b</sup>	1086.00	10	70	80	1096.00 <sup>c</sup>	1086.00 <sup>c</sup>	79.00	2-inch Schedule 40 PVC	2-inch Schedule 40 PVC and 0.01-inch slot	Downgradient	Detection
MW-12S	313417.0	2475970.0	Nov-08	1143.34	1143.00 <sup>a</sup>	56.00 <sup>b</sup>	1087.00	10	46	56	1097.00 <sup>c</sup>	1087.00 <sup>c</sup>	53.00				
MW-13S	313064.2	2475709.0	Sep-08	1162.69	1163.00 <sup>a</sup>	68.00 <sup>b</sup>	1095.00	10	56	66	1107.00 <sup>c</sup>	1097.00 <sup>c</sup>	65.00				
MW-22S	314217.5	2474457.6	Sep-08	1182.16	1175.00 <sup>a</sup>	88.00 <sup>b</sup>	1087.00	10	78	88	1097.00 <sup>c</sup>	1087.00 <sup>c</sup>	90.00				
MW-23S	315044.4	2474963.6	Sep-08	1156.56	1148.00 <sup>a</sup>	43.00 <sup>b</sup>	1105.00	10	33	43	1115.00 <sup>c</sup>	1105.00 <sup>c</sup>	55.00				
MW-24S	315406.9	2475841.0	Sep-08	1166.82	1167.00 <sup>a</sup>	75.00 <sup>b</sup>	1092.00	10	65	75	1102.00 <sup>c</sup>	1092.00 <sup>c</sup>	78.00				
MW-25S	315002.8	2476190.1	Sep-08	1191.81	1192.00 <sup>a</sup>	100.00 <sup>b</sup>	1092.50	15	89.5	100	1102.50 <sup>c</sup>	1092.50 <sup>c</sup>	96.00				
MW-40	313860.6	2474212.6	May-16	1166.74	1164.59	84.49	1082.25	10	72	82	1094.74	1084.74	81.00				
MW-41	313303.6	2474918.7	May-16	1188.15	1186.16	91.26	1096.89	10	79	89	1109.15	1099.15	88.00				
MW-42	312814.1	2475602.5	May-16	1184.04	1182.10	91.57	1092.47	10	79	89	1105.04	1095.04	88.00				
MW-43	312990.9	2474613.6	May-16	1168.74	1166.44	80.36	1088.38	10	68	78	1100.74	1090.74	77.00				

**Notes:**  
bgs - below ground surface  
TOC - Top of Casing  
ft MSL - feet above Mean Sea Level  
ft BTOC - feet below top of casing  
PVC - Polyvinyl Chloride  
a - Ground Surface Elevation are approximate values from well construction logs  
b - Total Depth is based on feet below ground surface from well construction logs  
c - Screen Elevation calculated from approximate ground surface elvation from well construction logs

**Table 2**  
**Monitoring Well Groundwater Elevations**  
**2024 Annual Groundwater Monitoring and Corrective Action Report**  
**Coal Combustion Residuals (CCR) Rule**  
**Hollow Rock Facility**  
**Jefferson County, Ohio**

Well ID		Reference Elevation Top of Casing (feet, msl)	Detection Monitoring Event 14		Detection Monitoring Event 15	
			3/25/2024		9/23/2024	
			Depth to Water (feet)	Groundwater Elevation (feet, msl)	Depth to Water (feet)	Groundwater Elevation (feet, msl)
MW-11S	CCR Program Well	1165.82	61.40	1104.42	65.71	1100.11
MW-12S		1143.34	41.79	1101.55	42.74	1100.60
MW-13S		1162.69	56.99	1105.70	60.82	1101.87
MW-22S		1182.16	73.09	1109.07	72.89	1109.27
MW-23S		1156.56	45.23	1111.33	44.85	1111.71
MW-24S		1166.82	53.93	1112.89	55.62	1111.20
MW-25S		1191.81	76.22	1115.59	79.10	1112.71
MW-40		1166.74	62.64	1104.10	62.72	1104.02
MW-41		1188.15	82.28	1105.87	82.15	1106.00
MW-42		1184.04	82.75	1101.29	82.64	1101.40
MW-43		1168.74	67.09	1101.65	67.04	1101.70
MW-14S	Non-program Well	1124.89	26.95	1097.94	28.13	1096.76
MW-15S		1137.44	45.50	1091.94	46.15	1091.29
MW-16S		1126.97	28.93	1098.04	29.92	1097.05
MW-17S		1143.06	44.37	1098.69	45.98	1097.08
MW-18S		1125.39	33.28	1092.11	35.45	1089.94
MW-19S		1175.32	73.66	1101.66	73.52	1101.80
MW-20S		1175.85	74.38	1101.47	74.86	1100.99
MW-21S		1152.67	51.00	1101.67	51.36	1101.31
MW-26S		1156.81	55.08	1101.73	57.43	1099.38
MW-27S		1158.36	69.73	1088.63	70.01	1088.35
MW-33S		1182.64	80.87	1101.77	81.55	1101.09
MW-34S		1144.91	43.48	1101.43	44.02	1100.89

**Notes:**

msl = mean sea level

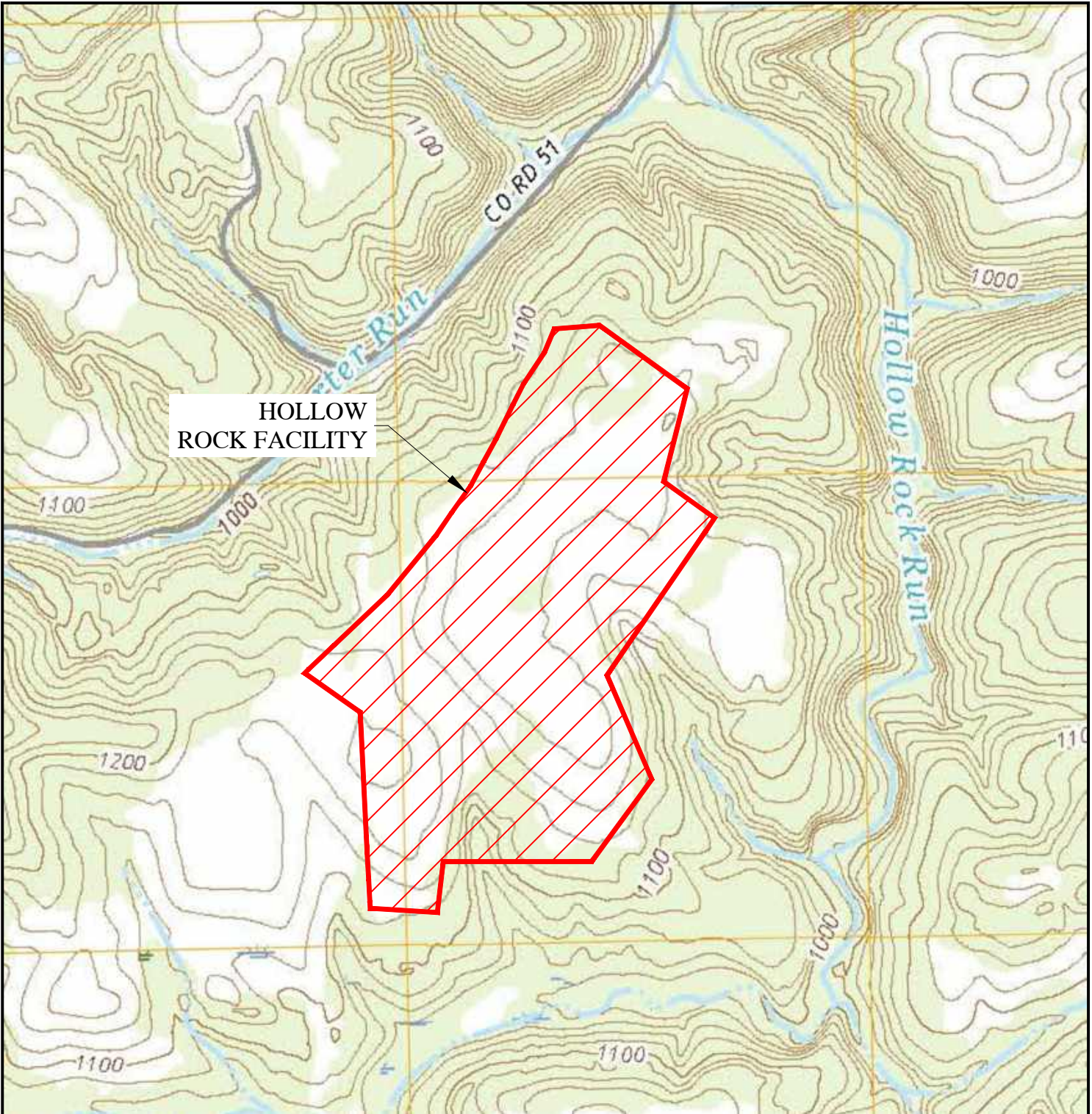
**Table 3**  
**Groundwater Analytical Results**  
**2024 Annual Groundwater Monitoring and Corrective Action Report**  
**Coal Combustion Residuals (CCR) Rule**  
**Hollow Rock Facility**  
**Jefferson County, Ohio**

Appendix III Constituents									
Analyte Name		Boron	Calcium	Chloride	Fluoride	pH	Sulfate	TDS	
Units		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L	
MCL		NE	NE	NE	4		NE	NE	
MW-11S		UPL	0.074	566	13.6	0.070	6.47-7.11	1234	2834
		3/27/2024	0.041	480	16.4 J-	1 U	6.57	2220 J-	2200
		9/25/2024	0.2 U	484	16 U	1.6 U	6.60	1420	2100
MW-12S		UPL	0.365	548	73.7	0.330	6.38-6.72	1492	3802
		3/28/2024	2.0	620	326	1 U	6.35	1690	3200
		9/27/2024	2.74	659	361	1.6 U	6.36	2000	3420
MW-13S		UPL	0.271	539	3.4	0.170	6.30-7.08	1194	2778
		3/26/2024	0.2 U	480	2.72 J	0.4 U	6.45	1250	2200
		9/26/2024	0.0424	454	16 U	1.6 U	6.39	1240	1930
MW-22S		UPL	0.369	463	6.8	0.220	6.14-7.21	1620	3329
		3/27/2024	0.19	500	20.7	1 U	6.45	1360	2300
		9/26/2024	0.203	458	41.6	1.6 U	6.44	1440	2270
MW-23S		UPL	0.286	408	14.8	0.170	6.10-7.19	1264	2834
		3/27/2024	0.19	390	13.2	1 U	6.43	1290	1700
		9/25/2024	0.594	396	37	1.6 U	6.26	1580	2010
MW-24S		Duplicate	0.567	397	36.3	1.6 U	-	1470 J-	2070
		UPL	0.122	649	30.7	0.060	6.23-6.92	2400	4064
		3/26/2024	0.1	560	30.7	0.4 U	6.81	1490	2400
MW-25S		9/26/2024	0.452	503	90.8	1.6 U	6.34	1320	2010
		UPL	0.403	167	3.8	0.009	6.86-7.59	312	959
		3/26/2024	0.31	150	8.24	0.4 U	6.98	409	780
MW-40		9/23/2024	0.331	149	8.34	0.1 U	7.07	386	893
		UPL	0.237	307	4.6	0.310	6.35-7.45	854	1941
		3/25/2024	0.15	260	6.99	0.4 U	6.79	655	1500
MW-41		9/23/2024	0.137	227	7.91	0.159	6.87	761	1360
		UPL	0.292	445	10.2	0.210	5.95-7.16	1501	3258
		3/26/2024	0.28	450	25.6	0.4 U	6.35	1600	2700
MW-42		9/26/2024	4.16	466	203	1.6 U	6.22	1510	2890
		UPL	0.119	667	3.7	0.270	6.11-7.16	2539	4774
		3/27/2024	0.092	590	10 U	1 U	6.38	2050	3400
MW-43		Duplicate	0.093	580	10 U	1 U	-	2000	3500
		9/27/2024	0.158	475	16 U	1.6 U	6.31	1860	2970
		UPL	0.317	551	8.2	0.270	6.15-7.18	1753	4099
		3/27/2024	0.46	480	19.2	1 U	7.32	1240	2300
		9/27/2024	0.515	474	92	1.6 U	6.47	1560	2920

**Notes:**  
  = Statistically Significant Increase or Decrease  
 UPL = Upper Prediction Limit  
 TDS = Total Dissolved Solids  
 Both UPL and lower prediction limit (LPL) provided for pH  
 mg/L = milligrams per liter  
 SU = Standard Units  
 0.1 = Concentration below the Reporting Limit  
 NE = Not established  
 J = Estimated value  
 J- = Estimated value biased low  
 U = Not detected at reported limit

## FIGURES

q:\projects\key projects\etem\hollow rock landfill\cadd\2024 annual ccr report\figure 1 site location map.dwg Last Saved By: KChintella 3/25/2024 2:34 PM Plotted By: Kendra Chintella 3/25/2024 2:34 PM Scale: 1:1



PROJECT LOCATION  
(JEFFERSON COUNTY)

### LEGEND

 PERMIT BOUNDARY

OHIO

REFERENCE: USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE:  
- KNOXVILLE AND WELLSVILLE, OH, 2019

0 1000 2000  
FEET

ETEM REMEDIATION ONE, LLC

DRWN:	SCC	DATE:	03/25/24
CHKD:	JK	DATE:	03/25/24
APPD:	DRF	DATE:	04/15/24
SCALE:	AS SHOWN		
ISSUE DATE:			



FIELD & TECHNICAL  
SERVICES, LLC.  
200 THIRD AVENUE  
CARNEGIE, PA 15106

2024 ANNUAL CCR REPORT  
HOLLOW ROCK FACILITY  
JEFFERSON COUNTY, OHIO

SITE LOCATION MAP





PROJECT NO: 22-497  
DRAWING NUMBER  
FIGURE 1

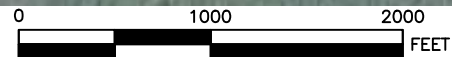


q:\projects\key projects\etem\hollow rock landfill\cadd\2024 annual ccr report\figure 2 hollow rock facility map.dwg Last Saved By: KChintella 3/25/2024 2:38 PM Plotted By: Kendra Chintella 3/25/2024 2:38 PM Scale: 1:1



## LEGEND

-  INACTIVE CELL (CLOSED 2010)
-  ACTIVE CELL
-  CELLS TO BE USED NEXT IN SERIES
-  CELLS TO BE USED FOR FURTHER EXPANSION



### ETEM REMEDIATION ONE, LLC

DRWN:	SCC	DATE:	03/25/24
CHKD:	JK	DATE:	03/25/24
APPD:	DRF	DATE:	04/15/24
SCALE:	AS SHOWN		
ISSUE DATE:			



FIELD & TECHNICAL  
SERVICES, LLC.  
200 THIRD AVENUE  
CARNEGIE, PA 15106

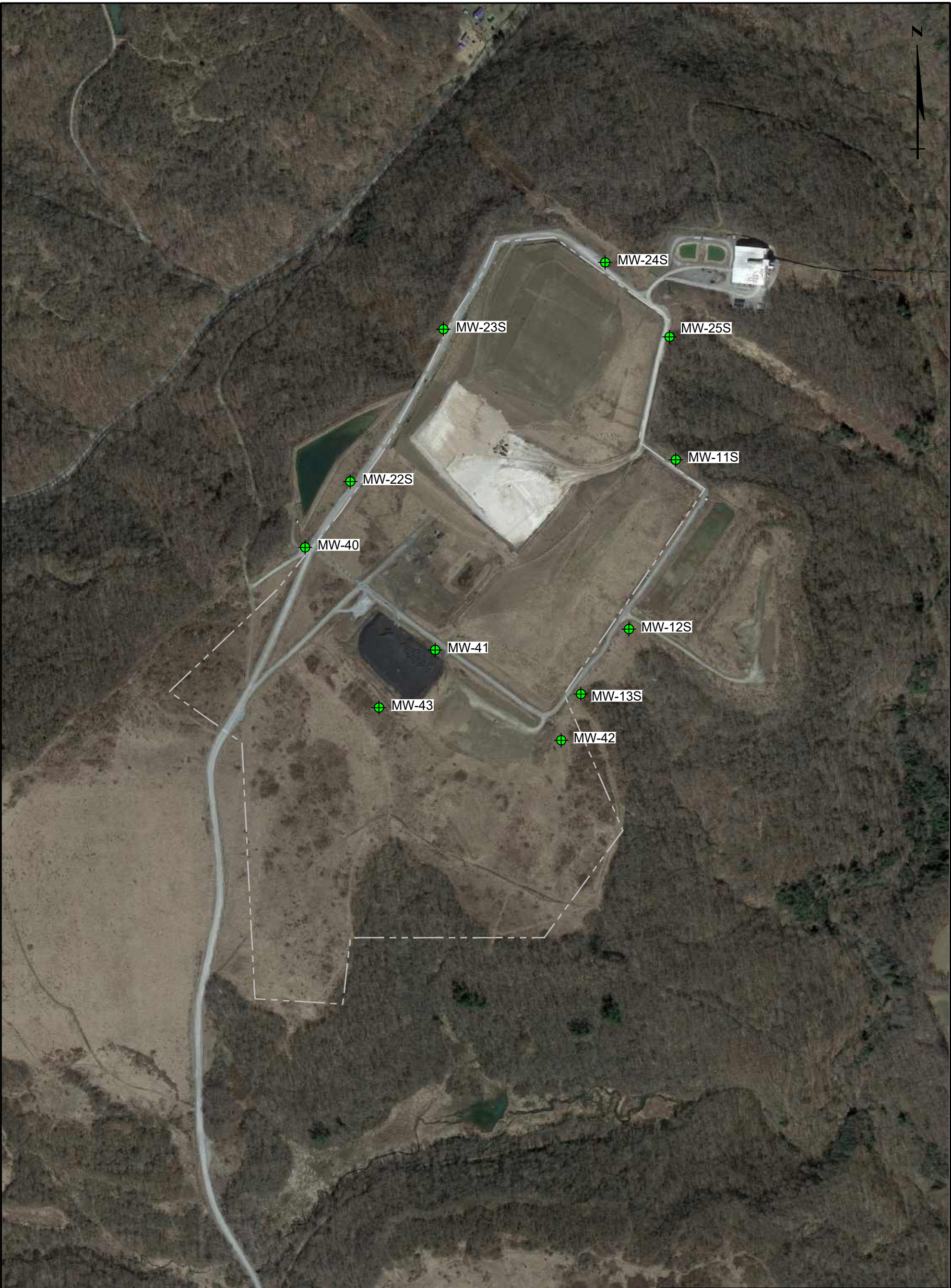
2024 ANNUAL CCR REPORT  
HOLLOW ROCK LFACILITY  
JEFFERSON COUNTY, OHIO

HOLLOW ROCK FACILITY MAP

PROJECT NO: 22-497  
DRAWING NUMBER  
FIGURE 2

REFERENCE:





LEGEND

- HRF FACILITY FOOTPRINT
- ⊕ CCR MONITORING WELLS



△			
△			
△			
REV #	DATE	DESCRIPTION	APPD

REFERENCE:

ETEM REMEDIATION ONE, LLC

DRWN:	SCC	DATE:	03/25/24
CHKD:	JK	DATE:	03/25/24
APPD:	DRF	DATE:	04/15/24
SCALE:	AS SHOWN		
ISSUE DATE:			



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SERVICES, LLC.  
200 THIRD AVENUE  
CARNEGIE, PA 15106

2024 ANNUAL CCR REPORT  
HOLLOW ROCK FACILITY  
JEFFERSON COUNTY, OHIO

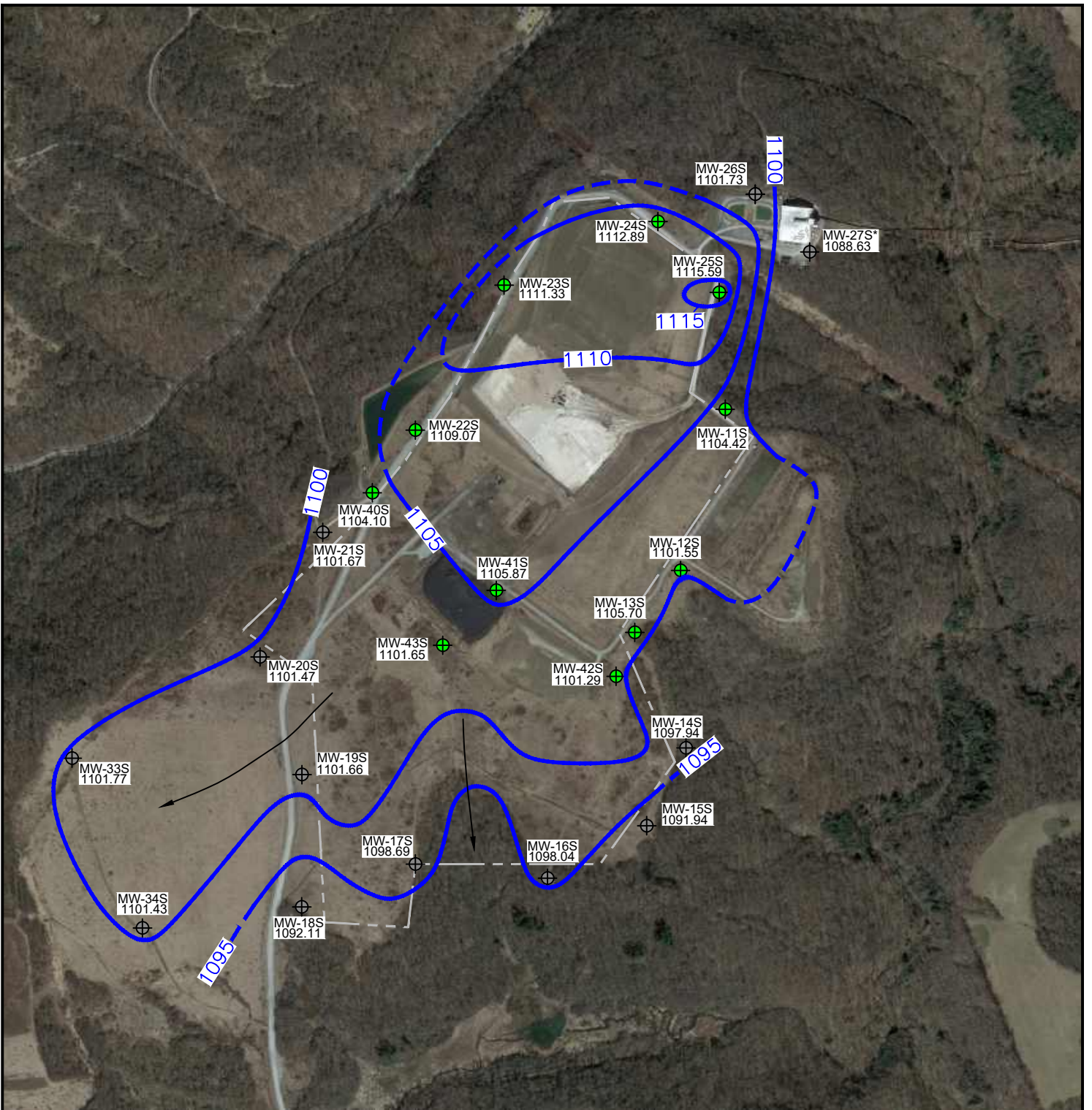
CCR GROUNDWATER MONITORING SYSTEM

PROJECT NO: 22-497  
DRAWING NUMBER  
FIGURE 3

c:\projects\key\_projects\etem\hollow rock landfill\cadd\2024 annual ccr report\figure 3 ccr gw mon sys.dwg    Last Saved By: KChintella 3/25/2024 2:41 PM    Plotted By: Kendra Chintella 3/25/2024 2:41 PM    Scale: 1:1



q:\projects\key projects\etem\hollow rock landfill\cadd\2024 annual ccr report\figure 4a gw contour map march 25, 2024.dwg Last Saved By: KChintella 5/2/2024 10:46 AM Plotted By: Kendra Chintella 5/2/2024 10:46 AM Scale: 1:1



## LEGEND

- HRF FACILITY PERMIT BOUNDARY
- CCR PROGRAM WELL
- ⊕ HRF PERMIT WELL
- 1100 — GROUNDWATER CONTOUR (FT, MSL)  
DASHED WHERE INFERRED
- 1101.66 GROUNDWATER ELEVATION MARCH 25, 2024
- GROUNDWATER FLOW DIRECTION

NOTE:  
\* — WATER LEVEL OMITTED FROM POTENTIOMETRIC INTERPELLATION.

REFERENCE:



0 800 1600  
FEET

### ETEM REMEDIATION ONE, LLC

DRWN: SCC	DATE: 03/25/24
CHKD: RMW	DATE: 03/25/24
APPD: DRF	DATE: 04/15/24
SCALE: AS SHOWN	
ISSUE DATE:	



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SERVICES, LLC.  
200 THIRD AVENUE  
CARNEGIE, PA 15106

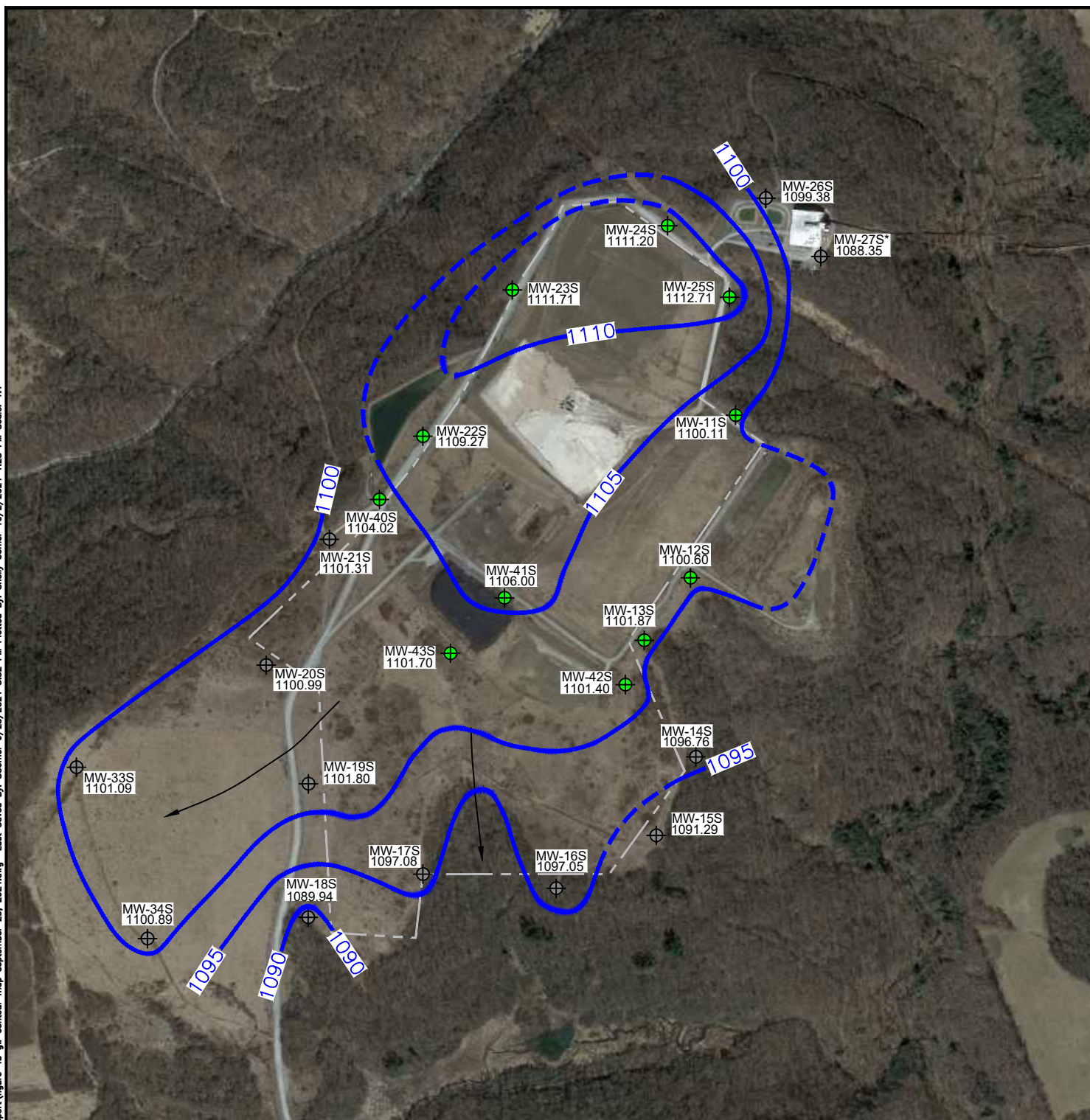
2024 ANNUAL CCR REPORT  
HOLLOW ROCK FACILITY  
JEFFERSON COUNTY, OHIO

DETECTION MONITORING EVENT 14  
GROUNDWATER ELEVATION CONTOUR MAP  
MARCH 25, 2024

PROJECT NO: 22-497  
DRAWING NUMBER  
FIGURE 4A



q:\projects\key projects\etem\hollow rock landfill\cadd\2024 annual ccr report\figure 4b gw contour map september 23, 2024.dwg Last Saved By: SComer 9/23/2024 3:32 PM Plotted By: Shelly Comer 10/2/2024 1:28 PM Scale: 1:1



## LEGEND

- HRF FACILITY PERMIT BOUNDARY
- CCR PROGRAM WELL
- ⊕ HRF PERMIT WELL
- 1100 — GROUNDWATER CONTOUR (FT, MSL)  
DASHED WHERE INFERRED
- 1101.80 GROUNDWATER ELEVATION SEPTEMBER 23, 2024
- GROUNDWATER FLOW DIRECTION

NOTE:  
\* — WATER LEVEL OMITTED FROM POTENTIOMETRIC INTERPELLATION.

REFERENCE:



0 800 1600  
FEET

## ETEM REMEDIATION ONE, LLC

DRWN: SCC	DATE: 09/23/24
CHKD: RMW	DATE: 09/23/24
APPD: DRF	DATE: 10/14/24
SCALE: AS SHOWN	
ISSUE DATE:	



FIELD & TECHNICAL  
SERVICES, LLC.  
200 THIRD AVENUE  
CARNEGIE, PA 15106

2024 ANNUAL CCR REPORT  
HOLLOW ROCK FACILITY  
JEFFERSON COUNTY, OHIO

DETECTION MONITORING EVENT 15  
GROUNDWATER ELEVATION CONTOUR MAP  
SEPTEMBER 23, 2024

PROJECT NO: 22-497  
DRAWING NUMBER  
FIGURE 4B

# **APPENDIX A**

## **Laboratory Reports**



09-Apr-2024

Angela Gatchie  
ETEM  
200 Third Ave.  
Carnegie, PA 15106

Re: **Hollow Rock 2024 1SA Sampling**

Work Order: **24031772**

Dear Angela,

ALS Environmental received 12 samples on 26-Mar-2024 through 29-Mar-2024 for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 56.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA  
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

**Jodi Blouw**

Electronically approved by: Jodi Blouw

Jodi Blouw

### **Report of Laboratory Analysis**

Certificate No: FL E871106

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Client: ETEM

Project: Hollow Rock 2024 ISA Sampling

Work Order: 24031772

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
24031772-01	HLRK-MW-40-032524	Groundwater		3/25/2024 13:14	3/26/2024 11:00	<input type="checkbox"/>
24031852-01	HLRK-MW-13S-032624	Groundwater		3/26/2024 12:12	3/27/2024 10:00	<input type="checkbox"/>
24031852-02	HLRK-MW-41-032624	Groundwater		3/26/2024 13:14	3/27/2024 10:00	<input type="checkbox"/>
24031883-01	HLRK-MW-25S-032624	Groundwater		3/26/2024 12:25	3/27/2024 10:00	<input type="checkbox"/>
24031883-02	HLRK-MW-24S-032624	Groundwater		3/26/2024 13:32	3/27/2024 10:00	<input type="checkbox"/>
24031975-01	HLRK-MW-42-032724	Groundwater		3/27/2024 10:13	3/28/2024 09:00	<input type="checkbox"/>
24031975-02	HLRK-M-99B-032724	Groundwater		3/27/2024 11:42	3/28/2024 09:00	<input type="checkbox"/>
24031975-03	HLRK-MW-43-032724	Groundwater		3/27/2024 14:06	3/28/2024 09:00	<input type="checkbox"/>
24031990-01	HLRK-MW-11S-032724	Groundwater		3/27/2024 10:20	3/28/2024 09:00	<input type="checkbox"/>
24031990-02	HLRK-MW-23S-032724	Groundwater		3/27/2024 12:40	3/28/2024 09:00	<input type="checkbox"/>
24031990-03	HLRK-MW-22S-032724	Groundwater		3/27/2024 14:05	3/28/2024 09:00	<input type="checkbox"/>
24032112-01	HLRK-MW-12S-032824	Groundwater		3/28/2024 09:55	3/29/2024 09:00	<input type="checkbox"/>

Client:

ETEM

Project:

Hollow Rock 2024 1SA Sampling

WorkOrder:

24031772

QUALIFIERS,  
ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Analyte accreditation is not offered
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
mg/L	Milligrams per Liter

**Client:** ETEM  
**Project:** Hollow Rock 2024 1SA Sampling  
**Work Order:** 24031772

## Case Narrative

Samples for the above noted Work Order were received on 3/26/2024. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

### Metals:

Batch 237715, Method SW6020B, Sample HLRK-MW-13S-032624 (24031852-01B): The reporting limit is elevated due to dilution for high concentrations of non-target analytes.

Batch 237715, Method SW6020B, Sample 24031852-02BMS: The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Ca, Mg

Batch 237715, Method SW6020B, Sample 24031852-02BMDS: The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Ca, Mg

Batch 237782, Method SW6020B, Sample 24031883-02BMS: The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Mg

Batch 237782, Method SW6020B, Sample 24031883-02BMS: The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Ca

Batch 237782, Method SW6020B, Sample 24031883-02BMDS: The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Mg

---

**Client:** ETEM  
**Project:** Hollow Rock 2024 1SA Sampling  
**Work Order:** 24031772

## Case Narrative

---

Batch 237782, Method SW6020B, Sample 24031883-02BMSD: The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Ca

Batch 237858, Method SW6020B, Sample 24031990-01BMS: The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Mg

Batch 237858, Method SW6020B, Sample 24031990-01BMS: The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Ca

Batch 237858, Method SW6020B, Sample 24031990-01BMSD: The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Mg

Batch 237858, Method SW6020B, Sample 24031990-01BMSD: The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Ca  
No other deviations or anomalies were noted.

### Wet Chemistry:

Batch R399478A, Method SW9056A, Sample HLRK-MW-40-032524 (24031772-01A): The reporting limit is elevated due to dilution needed to eliminate matrix-related interference.

Batch R399478A, Method SW9056A, Sample HLRK-MW-13S-032624 (24031852-01A): The reporting limit is elevated due to dilution needed to eliminate matrix-related interference.

Batch R399478A, Method SW9056A, Sample HLRK-MW-41-032624 (24031852-02A): The reporting limit is elevated due to dilution needed to eliminate matrix-related interference.

Batch R399478A, Method SW9056A, Sample 24031852-02A MS: The MS recovery was above the upper control limit. The corresponding result in the parent sample may be biased high for this analyte: Sulfate

Batch R399478A, Method SW9056A, Sample 24031852-02A MSD: The MSD recovery was above the upper control limit. The corresponding result in the parent sample may be biased high for this analyte: Sulfate

Batch R399478A, Method SW9056A, Sample 24031852-02A MS: Matrix spike value was outside upper limit of calibration. Processed at equivalent dilution level as the parent. Sulfate

---

**Client:** ETEM  
**Project:** Hollow Rock 2024 1SA Sampling  
**Work Order:** 24031772

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## Case Narrative

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Batch R399478A, Method SW9056A, Sample 24031852-02A MSD: Matrix spike duplicate value was outside upper limit of calibration. Processed at equivalent dilution level as the parent. Sulfate

Batch R399543A, Method SW9056A, Sample HLRK-MW-25S-032624 (24031883-01A): The reporting limit is elevated due to dilution needed to eliminate matrix-related interference. Fluoride

Batch R399543A, Method SW9056A, Sample HLRK-MW-24S-032624 (24031883-02A): The reporting limit is elevated due to dilution needed to eliminate matrix-related interference. Fluoride

Batch R399553A, Method SW9056A, Sample HLRK-MW-25S-032624 (24031883-01A): The reporting limit is elevated due to dilution needed to eliminate matrix-related interference. Fluoride

Batch R399553A, Method SW9056A, Sample HLRK-MW-24S-032624 (24031883-02A): The reporting limit is elevated due to dilution needed to eliminate matrix-related interference. Fluoride

Batch R399553A, Method SW9056A, Sample HLRK-MW-42-032724 (24031975-01A): The reporting limit is elevated due to dilution needed to eliminate matrix-related interference. Fluoride

Batch R399553A, Method SW9056A, Sample HLRK-M-99B-032724 (24031975-02A): The reporting limit is elevated due to dilution needed to eliminate matrix-related interference. Fluoride

Batch R399553A, Method SW9056A, Sample HLRK-MW-43-032724 (24031975-03A): The reporting limit is elevated due to dilution needed to eliminate matrix-related interference. Fluoride

Batch R399553A, Method SW9056A, Sample HLRK-MW-11S-032724 (24031990-01A): The reporting limit is elevated due to dilution needed to eliminate matrix-related interference. Fluoride

Batch R399553A, Method SW9056A, Sample HLRK-MW-23S-032724 (24031990-02A): The reporting limit is elevated due to dilution needed to eliminate matrix-related interference. Fluoride

Batch R399585A, Method SW9056A, Sample HLRK-MW-22S-032724 (24031990-03A): The reporting limit is elevated due to dilution needed to eliminate matrix-related interference.

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**Client:** ETEM  
**Project:** Hollow Rock 2024 1SA Sampling  
**Work Order:** 24031772

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## Case Narrative

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### Fluoride

Batch R399553A, Method SW9056A, Sample 24031990-01A MS: The MS recovery was below the lower control limit. The corresponding result in the parent sample may be biased low for this analyte: CL

Batch R399585A, Method SW9056A, Sample 24031990-01A MS: The MS recovery was below the lower control limit. The corresponding result in the parent sample may be biased low for this analyte: Sulfate

Batch R399553A, Method SW9056A, Sample 24031990-01A MS: The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: SO4

Batch R399553A, Method SW9056A, Sample 24031990-01A MSD: The MSD recovery was below the lower control limit. The corresponding result in the parent sample may be biased low for the following analyte(s): CL

Batch R399585A, Method SW9056A, Sample 24031990-01A MSD: The MSD recovery was below the lower control limit. The corresponding result in the parent sample may be biased low for the following analyte(s): Sulfate

Batch R399553A, Method SW9056A, Sample 24031990-01A MSD: The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: SO4

Batch R399553A, Method SW9056A, Sample 24031990-01A MS: Matrix spike value was outside upper limit of calibration. Processed at equivalent dilution level as the parent. SO4

Batch R399553A, Method SW9056A, Sample 24031990-01A MSD: Matrix spike duplicate value was outside upper limit of calibration. Processed at equivalent dilution level as the parent. SO4

Batch R399585A, Method SW9056A, Sample HLRK-MW-12S-032824 (24032112-01A): The reporting limit is elevated due to dilution needed to eliminate matrix-related interference.  
Fluoride  
No other deviations or anomalies were noted.

Client:	ETEM	
Project:	Hollow Rock 2024 ISA Sampling	Work Order: 24031772
Sample ID:	HLRK-MW-40-032524	Lab ID: 24031772-01
Collection Date:	3/25/2024 01:14 PM	Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: SW6020B		Prep: SW3015A / 3/29/24		Analyst: STP
Boron	0.15		0.015	0.020	mg/L	1	3/29/2024 19:58
Calcium	260		2.2	5.0	mg/L	10	4/1/2024 13:57
Magnesium	110		0.037	0.20	mg/L	1	3/29/2024 19:58
Potassium	4.7		0.034	0.20	mg/L	1	3/29/2024 19:58
Sodium	33		0.13	0.20	mg/L	1	3/29/2024 19:58
ALKALINITY			Method: A2320 B-11				Analyst: MGS
Alkalinity, Total (as CaCO3)	474		8.4	10	mg/L	1	3/26/2024 12:05
ANIONS BY ION CHROMATOGRAPHY			Method: SW9056A				Analyst: QTN
Chloride	6.99		1.2	4.0	mg/L	4	3/28/2024 16:07
Fluoride	U		0.27	0.40	mg/L	4	3/28/2024 16:07
Sulfate	655		7.6	40	mg/L	40	3/28/2024 16:17
TOTAL DISSOLVED SOLIDS			Method: A2540 C-15		Prep: FILTER / 3/27/24		Analyst: LAD
Total Dissolved Solids	1,500		74	100	mg/L	1	3/29/2024 13:52

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client:	ETEM		
Project:	Hollow Rock 2024 ISA Sampling	Work Order:	24031772
Sample ID:	HLRK-MW-13S-032624	Lab ID:	24031852-01
Collection Date:	3/26/2024 12:12 PM	Matrix:	GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: SW6020B		Prep: SW3015A / 4/2/24		Analyst: STP
Boron	U		0.15	0.20	mg/L	10	4/3/2024 12:50
Calcium	480		2.2	5.0	mg/L	10	4/3/2024 12:50
Magnesium	130		0.037	0.20	mg/L	1	4/2/2024 19:52
Potassium	5.0		0.034	0.20	mg/L	1	4/2/2024 19:52
Sodium	4.6		0.13	0.20	mg/L	1	4/2/2024 19:52
ALKALINITY			Method: A2320 B-11				Analyst: MGS
Alkalinity, Total (as CaCO3)	581		8.4	10	mg/L	1	3/27/2024 11:37
ANIONS BY ION CHROMATOGRAPHY			Method: SW9056A				Analyst: QTN
Chloride	2.72	J	1.2	4.0	mg/L	4	3/28/2024 17:05
Fluoride	U		0.27	0.40	mg/L	4	3/28/2024 17:05
Sulfate	1,250		30	160	mg/L	160	3/28/2024 17:15
TOTAL DISSOLVED SOLIDS			Method: A2540 C-15		Prep: FILTER / 3/28/24		Analyst: LAD
Total Dissolved Solids	2,200		74	100	mg/L	1	4/2/2024 07:55

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client:	ETEM	
Project:	Hollow Rock 2024 ISA Sampling	Work Order: 24031772
Sample ID:	HLRK-MW-41-032624	Lab ID: 24031852-02
Collection Date:	3/26/2024 01:14 PM	Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: SW6020B		Prep: SW3015A / 4/2/24		Analyst: STP
Boron	0.28		0.015	0.020	mg/L	1	4/2/2024 19:58
Calcium	450		2.2	5.0	mg/L	10	4/3/2024 12:52
Magnesium	260		0.37	2.0	mg/L	10	4/3/2024 12:52
Potassium	8.0		0.034	0.20	mg/L	1	4/2/2024 19:58
Sodium	16		0.13	0.20	mg/L	1	4/2/2024 19:58
ALKALINITY			Method: A2320 B-11				Analyst: MGS
Alkalinity, Total (as CaCO3)	581		8.4	10	mg/L	1	3/27/2024 11:37
ANIONS BY ION CHROMATOGRAPHY			Method: SW9056A				Analyst: QTN
Chloride	25.6		5.0	16	mg/L	16	3/27/2024 17:32
Fluoride	U		0.27	0.40	mg/L	4	3/28/2024 17:25
Sulfate	1,600		30	160	mg/L	160	3/28/2024 17:35
TOTAL DISSOLVED SOLIDS			Method: A2540 C-15		Prep: FILTER / 3/28/24		Analyst: LAD
Total Dissolved Solids	2,700		74	100	mg/L	1	4/2/2024 07:55

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client:	ETEM		
Project:	Hollow Rock 2024 1SA Sampling	Work Order:	24031772
Sample ID:	HLRK-MW-25S-032624	Lab ID:	24031883-01
Collection Date:	3/26/2024 12:25 PM	Matrix:	GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: SW6020B		Prep: SW3015A / 4/2/24		Analyst: STP
Boron	0.31		0.015	0.020	mg/L	1	4/2/2024 20:03
Calcium	150		0.22	0.50	mg/L	1	4/2/2024 20:03
Magnesium	52		0.037	0.20	mg/L	1	4/2/2024 20:03
Potassium	6.0		0.034	0.20	mg/L	1	4/2/2024 20:03
Sodium	38		0.13	0.20	mg/L	1	4/2/2024 20:03
ALKALINITY			Method: A2320 B-11				Analyst: MGS
Alkalinity, Total (as CaCO3)	376		8.4	10	mg/L	1	3/28/2024 09:40
ANIONS BY ION CHROMATOGRAPHY			Method: SW9056A				Analyst: CLJ
Chloride	8.24		1.2	4.0	mg/L	4	3/29/2024 18:12
Fluoride	U		0.27	0.40	mg/L	4	3/29/2024 18:12
Sulfate	409		7.6	40	mg/L	40	3/30/2024 14:31
TOTAL DISSOLVED SOLIDS			Method: A2540 C-15		Prep: FILTER / 3/28/24		Analyst: LAD
Total Dissolved Solids	780		37	50	mg/L	1	4/2/2024 07:55

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client:	ETEM	
Project:	Hollow Rock 2024 ISA Sampling	Work Order: 24031772
Sample ID:	HLRK-MW-24S-032624	Lab ID: 24031883-02
Collection Date:	3/26/2024 01:32 PM	Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: SW6020B		Prep: SW3015A / 4/3/24		Analyst: STP
Boron	0.10		0.015	0.020	mg/L	1	4/4/2024 16:02
Calcium	560		2.2	5.0	mg/L	10	4/5/2024 12:42
Magnesium	160		0.037	0.20	mg/L	1	4/4/2024 16:02
Potassium	3.6		0.034	0.20	mg/L	1	4/4/2024 16:02
Sodium	6.9		0.13	0.20	mg/L	1	4/4/2024 16:02
ALKALINITY			Method: A2320 B-11				Analyst: MGS
Alkalinity, Total (as CaCO3)	558		8.4	10	mg/L	1	3/28/2024 09:40
ANIONS BY ION CHROMATOGRAPHY			Method: SW9056A				Analyst: CLJ
Chloride	30.7		1.2	4.0	mg/L	4	3/29/2024 18:22
Fluoride	U		0.27	0.40	mg/L	4	3/29/2024 18:22
Sulfate	1,490		19	100	mg/L	100	4/5/2024 00:26
TOTAL DISSOLVED SOLIDS			Method: A2540 C-15		Prep: FILTER / 3/28/24		Analyst: LAD
Total Dissolved Solids	2,400		74	100	mg/L	1	4/2/2024 07:55

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client:	ETEM	Work Order:	24031772
Project:	Hollow Rock 2024 ISA Sampling	Lab ID:	24031975-01
Sample ID:	HLRK-MW-42-032724	Matrix:	GROUNDWATER
Collection Date:	3/27/2024 10:13 AM		

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: SW6020B		Prep: SW3015A / 4/4/24		Analyst: STP
Boron	0.092		0.015	0.020	mg/L	1	4/4/2024 20:41
Calcium	590		2.2	5.0	mg/L	10	4/5/2024 13:36
Magnesium	360		0.37	2.0	mg/L	10	4/5/2024 13:36
Potassium	7.7		0.034	0.20	mg/L	1	4/4/2024 20:41
Sodium	19		0.13	0.20	mg/L	1	4/4/2024 20:41
ALKALINITY			Method: A2320 B-11				Analyst: MGS
Alkalinity, Total (as CaCO3)	650		8.4	10	mg/L	1	4/4/2024 09:18
ANIONS BY ION CHROMATOGRAPHY			Method: SW9056A				Analyst: CLJ
Chloride	U		3.1	10	mg/L	10	3/30/2024 15:41
Fluoride	U		0.67	1.0	mg/L	10	3/30/2024 15:41
Sulfate	2,050		76	400	mg/L	400	3/31/2024 13:12
TOTAL DISSOLVED SOLIDS			Method: A2540 C-15		Prep: FILTER / 3/29/24		Analyst: LAD
Total Dissolved Solids	3,400		110	150	mg/L	1	4/2/2024 09:19

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client:	ETEM		
Project:	Hollow Rock 2024 1SA Sampling	Work Order:	24031772
Sample ID:	HLRK-M-99B-032724	Lab ID:	24031975-02
Collection Date:	3/27/2024 11:42 AM	Matrix:	GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: SW6020B		Prep: SW3015A / 4/4/24		Analyst: STP
Boron	0.093		0.015	0.020	mg/L	1	4/4/2024 20:43
Calcium	580		2.2	5.0	mg/L	10	4/5/2024 13:38
Magnesium	350		0.37	2.0	mg/L	10	4/5/2024 13:38
Potassium	7.8		0.034	0.20	mg/L	1	4/4/2024 20:43
Sodium	19		0.13	0.20	mg/L	1	4/4/2024 20:43
ALKALINITY			Method: A2320 B-11				Analyst: MGS
Alkalinity, Total (as CaCO3)	670		8.4	10	mg/L	1	4/4/2024 09:18
ANIONS BY ION CHROMATOGRAPHY			Method: SW9056A				Analyst: CLJ
Chloride	U		3.1	10	mg/L	10	3/30/2024 15:51
Fluoride	U		0.67	1.0	mg/L	10	3/30/2024 15:51
Sulfate	2,000		76	400	mg/L	400	3/31/2024 13:22
TOTAL DISSOLVED SOLIDS			Method: A2540 C-15		Prep: FILTER / 4/1/24		Analyst: LAD
Total Dissolved Solids	3,500		110	150	mg/L	1	4/3/2024 13:24

Note: See Qualifiers page for a list of qualifiers and their definitions.



Client:	ETEM		
Project:	Hollow Rock 2024 1SA Sampling	Work Order:	24031772
Sample ID:	HLRK-MW-43-032724	Lab ID:	24031975-03
Collection Date:	3/27/2024 02:06 PM	Matrix:	GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: SW6020B		Prep: SW3015A / 4/4/24		Analyst: STP
Boron	0.46		0.015	0.020	mg/L	1	4/4/2024 20:45
Calcium	480		2.2	5.0	mg/L	10	4/5/2024 13:43
Magnesium	260		0.37	2.0	mg/L	10	4/5/2024 13:43
Potassium	8.5		0.034	0.20	mg/L	1	4/4/2024 20:45
Sodium	16		0.13	0.20	mg/L	1	4/4/2024 20:45
ALKALINITY			Method: A2320 B-11				Analyst: MGS
Alkalinity, Total (as CaCO3)	650		8.4	10	mg/L	1	4/4/2024 09:18
ANIONS BY ION CHROMATOGRAPHY			Method: SW9056A				Analyst: CLJ
Chloride	19.2		3.1	10	mg/L	10	3/30/2024 16:00
Fluoride	U		0.67	1.0	mg/L	10	3/30/2024 16:00
Sulfate	1,240		76	400	mg/L	400	3/31/2024 13:31
TOTAL DISSOLVED SOLIDS			Method: A2540 C-15		Prep: FILTER / 4/1/24		Analyst: LAD
Total Dissolved Solids	2,300		74	100	mg/L	1	4/3/2024 13:24

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client:	ETEM	
Project:	Hollow Rock 2024 ISA Sampling	Work Order: 24031772
Sample ID:	HLRK-MW-11S-032724	Lab ID: 24031990-01
Collection Date:	3/27/2024 10:20 AM	Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: SW6020B		Prep: SW3015A / 4/4/24		Analyst: STP
Boron	0.041		0.015	0.020	mg/L	1	4/4/2024 20:47
Calcium	480		2.2	5.0	mg/L	10	4/5/2024 13:45
Magnesium	120		0.037	0.20	mg/L	1	4/4/2024 20:47
Potassium	2.4		0.034	0.20	mg/L	1	4/4/2024 20:47
Sodium	12		0.13	0.20	mg/L	1	4/4/2024 20:47
ALKALINITY			Method: A2320 B-11				Analyst: MGS
Alkalinity, Total (as CaCO3)	490		8.4	10	mg/L	1	4/4/2024 09:18
ANIONS BY ION CHROMATOGRAPHY			Method: SW9056A				Analyst: CLJ
Chloride	16.4		3.1	10	mg/L	10	3/30/2024 17:38
Fluoride	U		0.67	1.0	mg/L	10	3/30/2024 17:38
Sulfate	2,220		30	160	mg/L	160	3/31/2024 15:09
TOTAL DISSOLVED SOLIDS			Method: A2540 C-15		Prep: FILTER / 3/29/24		Analyst: LAD
Total Dissolved Solids	2,200		74	100	mg/L	1	4/2/2024 09:19

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client:	ETEM	
Project:	Hollow Rock 2024 1SA Sampling	Work Order: 24031772
Sample ID:	HLRK-MW-23S-032724	Lab ID: 24031990-02
Collection Date:	3/27/2024 12:40 PM	Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: SW6020B		Prep: SW3015A / 4/4/24		Analyst: STP
Boron	0.19		0.015	0.020	mg/L	1	4/4/2024 20:56
Calcium	390		2.2	5.0	mg/L	10	4/5/2024 13:53
Magnesium	97		0.037	0.20	mg/L	1	4/4/2024 20:56
Potassium	3.8		0.034	0.20	mg/L	1	4/4/2024 20:56
Sodium	8.2		0.13	0.20	mg/L	1	4/4/2024 20:56
ALKALINITY			Method: A2320 B-11				Analyst: MGS
Alkalinity, Total (as CaCO3)	350		8.4	10	mg/L	1	4/4/2024 09:18
ANIONS BY ION CHROMATOGRAPHY			Method: SW9056A				Analyst: CLJ
Chloride	13.2		3.1	10	mg/L	10	3/30/2024 18:07
Fluoride	U		0.67	1.0	mg/L	10	3/30/2024 18:07
Sulfate	1,290		30	160	mg/L	160	3/31/2024 15:38
TOTAL DISSOLVED SOLIDS			Method: A2540 C-15		Prep: FILTER / 4/1/24		Analyst: LAD
Total Dissolved Solids	1,700		74	100	mg/L	1	4/3/2024 13:24

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client:	ETEM		
Project:	Hollow Rock 2024 1SA Sampling	Work Order:	24031772
Sample ID:	HLRK-MW-22S-032724	Lab ID:	24031990-03
Collection Date:	3/27/2024 02:05 PM	Matrix:	GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: SW6020B		Prep: SW3015A / 4/4/24		Analyst: STP
Boron	0.19		0.015	0.020	mg/L	1	4/4/2024 20:58
Calcium	500		2.2	5.0	mg/L	10	4/5/2024 13:55
Magnesium	170		0.037	0.20	mg/L	1	4/4/2024 20:58
Potassium	4.5		0.034	0.20	mg/L	1	4/4/2024 20:58
Sodium	20		0.13	0.20	mg/L	1	4/4/2024 20:58
ALKALINITY			Method: A2320 B-11				Analyst: MGS
Alkalinity, Total (as CaCO3)	530		8.4	10	mg/L	1	4/4/2024 09:18
ANIONS BY ION CHROMATOGRAPHY			Method: SW9056A				Analyst: QTN
Chloride	20.7		3.1	10	mg/L	10	3/31/2024 15:48
Fluoride	U		0.67	1.0	mg/L	10	3/31/2024 15:48
Sulfate	1,360		30	160	mg/L	160	4/4/2024 01:17
TOTAL DISSOLVED SOLIDS			Method: A2540 C-15		Prep: FILTER / 4/1/24		Analyst: LAD
Total Dissolved Solids	2,300		74	100	mg/L	1	4/3/2024 13:24

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client:	ETEM		
Project:	Hollow Rock 2024 1SA Sampling	Work Order:	24031772
Sample ID:	HLRK-MW-12S-032824	Lab ID:	24032112-01
Collection Date:	3/28/2024 09:55 AM	Matrix:	GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			Method: SW6020B		Prep: SW3015A / 4/4/24		Analyst: STP
Boron	2.0		0.15	0.20	mg/L	10	4/5/2024 13:58
Calcium	620		2.2	5.0	mg/L	10	4/5/2024 13:58
Magnesium	200		0.037	0.20	mg/L	1	4/4/2024 21:22
Potassium	6.1		0.034	0.20	mg/L	1	4/4/2024 21:22
Sodium	43		0.13	0.20	mg/L	1	4/4/2024 21:22
ALKALINITY			Method: A2320 B-11				Analyst: MGS
Alkalinity, Total (as CaCO3)	440		8.4	10	mg/L	1	4/4/2024 09:18
ANIONS BY ION CHROMATOGRAPHY			Method: SW9056A				Analyst: QTN
Chloride	326		50	160	mg/L	160	4/4/2024 01:27
Fluoride	U		0.67	1.0	mg/L	10	3/31/2024 16:17
Sulfate	1,690		30	160	mg/L	160	4/4/2024 01:27
TOTAL DISSOLVED SOLIDS			Method: A2540 C-15		Prep: FILTER / 4/1/24		Analyst: LAD
Total Dissolved Solids	3,200		110	150	mg/L	1	4/3/2024 13:24

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: 237548

Instrument ID ICPMS3

Method: SW6020B

MBLK		Sample ID: MBLK-237548-237548				Units: mg/L		Analysis Date: 3/29/2024 07:25 PM			
Client ID:		Run ID: ICPMS3_240329A				SeqNo: 10613366		Prep Date: 3/29/2024		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	U	0.015	0.020								
Calcium	U	0.22	0.50								
Magnesium	U	0.037	0.20								
Potassium	U	0.034	0.20								
Sodium	U	0.13	0.20								

LCS		Sample ID: LCS-237548-237548				Units: mg/L		Analysis Date: 3/29/2024 07:26 PM			
Client ID:		Run ID: ICPMS3_240329A				SeqNo: 10613367		Prep Date: 3/29/2024		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	0.5358	0.015	0.020	0.5	0	107	80-120	0			
Calcium	10.98	0.22	0.50	10	0	110	80-120	0			
Magnesium	11.06	0.037	0.20	10	0	111	80-120	0			
Potassium	11	0.034	0.20	10	0	110	80-120	0			
Sodium	10.91	0.13	0.20	10	0	109	80-120	0			

MS		Sample ID: 24031580-01CMS				Units: mg/L		Analysis Date: 3/29/2024 07:55 PM			
Client ID:		Run ID: ICPMS3_240329A				SeqNo: 10613389		Prep Date: 3/29/2024		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	0.5151	0.015	0.020	0.5	0.002854	102	75-125	0			
Calcium	32.6	0.22	0.50	10	23.35	92.6	75-125	0			
Magnesium	22.12	0.037	0.20	10	12.52	96	75-125	0			
Potassium	22.66	0.034	0.20	10	12.98	96.8	75-125	0			
Sodium	352.3	0.13	0.20	10	352.5	-1.83	75-125	0			SEO

MSD		Sample ID: 24031580-01CMSD				Units: mg/L		Analysis Date: 3/29/2024 07:57 PM			
Client ID:		Run ID: ICPMS3_240329A				SeqNo: 10613391		Prep Date: 3/29/2024		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	0.5312	0.015	0.020	0.5	0.002854	106	75-125	0.5151	3.08	20	
Calcium	32.76	0.22	0.50	10	23.35	94.2	75-125	32.6	0.487	20	
Magnesium	22.35	0.037	0.20	10	12.52	98.4	75-125	22.12	1.06	20	
Potassium	22.83	0.034	0.20	10	12.98	98.5	75-125	22.66	0.746	20	
Sodium	351.4	0.13	0.20	10	352.5	-11.3	75-125	352.3	0.269	20	SEO

The following samples were analyzed in this batch:

24031772-01B

Batch ID: 237715

Instrument ID ICPMS3

Method: SW6020B

MBLK		Sample ID: MBLK-237715-237715				Units: mg/L		Analysis Date: 4/2/2024 07:25 PM			
Client ID:		Run ID: ICPMS3_240402A				SeqNo: 10620337		Prep Date: 4/2/2024		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	U	0.22	0.50								
Magnesium	U	0.037	0.20								
Potassium	U	0.034	0.20								
Sodium	U	0.13	0.20								

MBLK		Sample ID: MBLK-237715-237715				Units: mg/L		Analysis Date: 4/3/2024 12:40 PM			
Client ID:		Run ID: ICPMS3_240403A				SeqNo: 10622457		Prep Date: 4/2/2024		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	U	0.015	0.020								

LCS		Sample ID: LCS-237715-237715				Units: mg/L		Analysis Date: 4/2/2024 07:26 PM			
Client ID:		Run ID: ICPMS3_240402A				SeqNo: 10620338		Prep Date: 4/2/2024		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	11.16	0.22	0.50	10	0	112	80-120	0			
Magnesium	11.66	0.037	0.20	10	0	117	80-120	0			
Potassium	11.41	0.034	0.20	10	0	114	80-120	0			
Sodium	11.29	0.13	0.20	10	0	113	80-120	0			

LCS		Sample ID: LCS-237715-237715				Units: mg/L		Analysis Date: 4/3/2024 12:41 PM			
Client ID:		Run ID: ICPMS3_240403A				SeqNo: 10622458		Prep Date: 4/2/2024		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	0.5327	0.015	0.020	0.5	0	107	80-120	0			

MS		Sample ID: 24031852-02BMS				Units: mg/L		Analysis Date: 4/2/2024 07:59 PM			
Client ID: HLRK-MW-41-032624		Run ID: ICPMS3_240402A				SeqNo: 10620357		Prep Date: 4/2/2024		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	0.7711	0.015	0.020	0.5	0.2842	97.4	75-125	0			
Potassium	19.01	0.034	0.20	10	7.958	111	75-125	0			
Sodium	27.15	0.13	0.20	10	16.17	110	75-125	0			

MS		Sample ID: 24031852-02BMS				Units: mg/L		Analysis Date: 4/3/2024 12:53 PM			
Client ID: HLRK-MW-41-032624		Run ID: ICPMS3_240403A				SeqNo: 10622465		Prep Date: 4/2/2024		DF: 10	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	420.9	2.2	5.0	10	449.8	-288	75-125	0			SO
Magnesium	245.5	0.37	2.0	10	257.8	-123	75-125	0			SO

Client: ETEM  
Work Order: 24031772  
Project: Hollow Rock 2024 1SA Sampling

QC BATCH REPORT

Batch ID: 237715      Instrument ID ICPMS3      Method: SW6020B

MSD		Sample ID: 24031852-02BMSD				Units: mg/L		Analysis Date: 4/2/2024 08:01 PM			
Client ID: HLRK-MW-41-032624		Run ID: ICPMS3_240402A				SeqNo: 10620358		Prep Date: 4/2/2024		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Boron	0.7378	0.015	0.020	0.5	0.2842	90.7	75-125	0.7711	4.41	20	
Potassium	18.38	0.034	0.20	10	7.958	104	75-125	19.01	3.35	20	
Sodium	26.26	0.13	0.20	10	16.17	101	75-125	27.15	3.3	20	

MSD		Sample ID: 24031852-02BMSD				Units: mg/L		Analysis Date: 4/3/2024 12:55 PM			
Client ID: HLRK-MW-41-032624		Run ID: ICPMS3_240403A				SeqNo: 10622466		Prep Date: 4/2/2024		DF: 10	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Calcium	449.9	2.2	5.0	10	449.8	1.14	75-125	420.9	6.65	20	SO
Magnesium	259.1	0.37	2.0	10	257.8	12.7	75-125	245.5	5.38	20	SO

The following samples were analyzed in this batch:      24031852-01B      24031852-02B      24031883-01B     

Note: See Qualifiers Page for a list of Qualifiers and their explanation.



Batch ID: 237782

Instrument ID ICPMS3

Method: SW6020B

MBLK		Sample ID: MBLK-237782-237782				Units: mg/L		Analysis Date: 4/4/2024 03:59 PM			
Client ID:		Run ID: ICPMS3_240404A				SeqNo: 10627613		Prep Date: 4/3/2024		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	U	0.015	0.020								
Calcium	U	0.22	0.50								
Magnesium	U	0.037	0.20								
Potassium	U	0.034	0.20								
Sodium	U	0.13	0.20								

LCS		Sample ID: LCS-237782-237782				Units: mg/L		Analysis Date: 4/4/2024 04:00 PM			
Client ID:		Run ID: ICPMS3_240404A				SeqNo: 10627614		Prep Date: 4/3/2024		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	0.5597	0.015	0.020	0.5	0	112	80-120	0			
Calcium	11.25	0.22	0.50	10	0	113	80-120	0			
Magnesium	11.65	0.037	0.20	10	0	116	80-120	0			
Potassium	11.14	0.034	0.20	10	0	111	80-120	0			
Sodium	11.52	0.13	0.20	10	0	115	80-120	0			

MS		Sample ID: 24031883-02BMS				Units: mg/L		Analysis Date: 4/4/2024 04:04 PM			
Client ID: HLRK-MW-24S-032624		Run ID: ICPMS3_240404A				SeqNo: 10627616		Prep Date: 4/3/2024		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	0.656	0.015	0.020	0.5	0.09997	111	75-125	0			
Magnesium	160.2	0.037	0.20	10	162.8	-26.6	75-125	0			SO
Potassium	14.58	0.034	0.20	10	3.593	110	75-125	0			
Sodium	17.86	0.13	0.20	10	6.868	110	75-125	0			

MS		Sample ID: 24031858-03CMS				Units: mg/L		Analysis Date: 4/4/2024 04:04 PM			
Client ID:		Run ID: ICPMS3_240404A				SeqNo: 10627835		Prep Date: 4/3/2024		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	0.656	0.015	0.020	0.5	0.09997	111	75-125	0			
Magnesium	160.2	0.037	0.20	10	162.8	-26.6	75-125	0			SO
Potassium	14.58	0.034	0.20	10	3.593	110	75-125	0			
Sodium	17.86	0.13	0.20	10	6.868	110	75-125	0			

MS		Sample ID: 24031883-02BMS				Units: mg/L		Analysis Date: 4/5/2024 12:44 PM			
Client ID: HLRK-MW-24S-032624		Run ID: ICPMS3_240405A				SeqNo: 10630143		Prep Date: 4/3/2024		DF: 10	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	548.3	2.2	5.0	10	557.9	-95.6	75-125	0			SO

Batch ID: 237782

Instrument ID ICPMS3

Method: SW6020B

MS		Sample ID: 24031858-03CMS				Units: mg/L		Analysis Date: 4/5/2024 12:44 PM			
Client ID:		Run ID: ICPMS3_240405A				SeqNo: 10630195		Prep Date: 4/3/2024		DF: 10	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	548.3	2.2	5.0	10	557.9	-95.6	75-125	0			SO

MSD		Sample ID: 24031883-02BMSD				Units: mg/L		Analysis Date: 4/4/2024 04:06 PM			
Client ID: HLRK-MW-24S-032624		Run ID: ICPMS3_240404A				SeqNo: 10627617		Prep Date: 4/3/2024		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	0.6636	0.015	0.020	0.5	0.09997	113	75-125	0.656	1.15	20	
Magnesium	160.5	0.037	0.20	10	162.8	-23.7	75-125	160.2	0.183	20	SO
Potassium	14.47	0.034	0.20	10	3.593	109	75-125	14.58	0.779	20	
Sodium	17.79	0.13	0.20	10	6.868	109	75-125	17.86	0.389	20	

MSD		Sample ID: 24031858-03CMSD				Units: mg/L		Analysis Date: 4/4/2024 04:06 PM			
Client ID:		Run ID: ICPMS3_240404A				SeqNo: 10627836		Prep Date: 4/3/2024		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	0.6636	0.015	0.020	0.5	0.09997	113	75-125	0.656	1.15	20	
Magnesium	160.5	0.037	0.20	10	162.8	-23.7	75-125	160.2	0.183	20	SO
Potassium	14.47	0.034	0.20	10	3.593	109	75-125	14.58	0.779	20	
Sodium	17.79	0.13	0.20	10	6.868	109	75-125	17.86	0.389	20	

MSD		Sample ID: 24031883-02BMSD				Units: mg/L		Analysis Date: 4/5/2024 12:45 PM			
Client ID: HLRK-MW-24S-032624		Run ID: ICPMS3_240405A				SeqNo: 10630144		Prep Date: 4/3/2024		DF: 10	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	542.3	2.2	5.0	10	557.9	-156	75-125	548.3	1.11	20	SO

MSD		Sample ID: 24031858-03CMSD				Units: mg/L		Analysis Date: 4/5/2024 12:45 PM			
Client ID:		Run ID: ICPMS3_240405A				SeqNo: 10630196		Prep Date: 4/3/2024		DF: 10	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	542.3	2.2	5.0	10	557.9	-156	75-125	548.3	1.11	20	SO

The following samples were analyzed in this batch:

24031883-02B

Batch ID: 237858

Instrument ID ICPMS3

Method: SW6020B

MBLK		Sample ID: MBLK-237858-237858				Units: mg/L		Analysis Date: 4/4/2024 08:24 PM			
Client ID:		Run ID: ICPMS3_240404A				SeqNo: 10627764		Prep Date: 4/4/2024		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	U	0.015	0.020								
Calcium	U	0.22	0.50								
Magnesium	U	0.037	0.20								
Potassium	U	0.034	0.20								
Sodium	U	0.13	0.20								

LCS		Sample ID: LCS-237858-237858				Units: mg/L		Analysis Date: 4/4/2024 08:26 PM			
Client ID:		Run ID: ICPMS3_240404A				SeqNo: 10627765		Prep Date: 4/4/2024		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	0.5829	0.015	0.020	0.5	0	117	80-120	0			
Calcium	10.87	0.22	0.50	10	0	109	80-120	0			
Magnesium	10.67	0.037	0.20	10	0	107	80-120	0			
Potassium	10.44	0.034	0.20	10	0	104	80-120	0			
Sodium	10.6	0.13	0.20	10	0	106	80-120	0			

MS		Sample ID: 24031990-01BMS				Units: mg/L		Analysis Date: 4/4/2024 08:49 PM			
Client ID: HLRK-MW-11S-032724		Run ID: ICPMS3_240404A				SeqNo: 10627778		Prep Date: 4/4/2024		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	0.5912	0.015	0.020	0.5	0.04076	110	75-125	0			
Magnesium	123.9	0.037	0.20	10	119.1	48	75-125	0			SO
Potassium	12.57	0.034	0.20	10	2.353	102	75-125	0			
Sodium	21.28	0.13	0.20	10	11.75	95.3	75-125	0			

MS		Sample ID: 24031992-02CMS				Units: mg/L		Analysis Date: 4/4/2024 08:49 PM			
Client ID:		Run ID: ICPMS3_240404A				SeqNo: 10627838		Prep Date: 4/4/2024		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	0.5912	0.015	0.020	0.5	0.04076	110	75-125	0			
Magnesium	123.9	0.037	0.20	10	119.1	48	75-125	0			SO
Potassium	12.57	0.034	0.20	10	2.353	102	75-125	0			
Sodium	21.28	0.13	0.20	10	11.75	95.3	75-125	0			

MS		Sample ID: 24031990-01BMS				Units: mg/L		Analysis Date: 4/5/2024 01:46 PM			
Client ID: HLRK-MW-11S-032724		Run ID: ICPMS3_240405A				SeqNo: 10630180		Prep Date: 4/4/2024		DF: 10	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	545.1	2.2	5.0	10	477.2	679	75-125	0			SO

Client: ETEM  
Work Order: 24031772  
Project: Hollow Rock 2024 1SA Sampling

QC BATCH REPORT

Batch ID: 237858      Instrument ID ICPMS3      Method: SW6020B

MS					Sample ID: 24031992-02CMS			Units: mg/L		Analysis Date: 4/5/2024 01:46 PM		
Client ID:					Run ID: ICPMS3_240405A			SeqNo: 10630246		Prep Date: 4/4/2024		DF: 10
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Calcium	545.1	2.2	5.0	10	477.2	679	75-125	0			SO	

MSD					Sample ID: 24031990-01BMSD			Units: mg/L		Analysis Date: 4/4/2024 08:54 PM		
Client ID: HLRK-MW-11S-032724					Run ID: ICPMS3_240404A			SeqNo: 10627781		Prep Date: 4/4/2024		DF: 1
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Boron	0.5881	0.015	0.020	0.5	0.04076	109	75-125	0.5912	0.535	20		
Magnesium	122.4	0.037	0.20	10	119.1	33.8	75-125	123.9	1.16	20	SO	
Potassium	12.65	0.034	0.20	10	2.353	103	75-125	12.57	0.695	20		
Sodium	20.93	0.13	0.20	10	11.75	91.9	75-125	21.28	1.63	20		

MSD					Sample ID: 24031992-02CMSD			Units: mg/L		Analysis Date: 4/4/2024 08:54 PM		
Client ID:					Run ID: ICPMS3_240404A			SeqNo: 10627839		Prep Date: 4/4/2024		DF: 1
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Boron	0.5881	0.015	0.020	0.5	0.04076	109	75-125	0.5912	0.535	20		
Magnesium	122.4	0.037	0.20	10	119.1	33.8	75-125	123.9	1.16	20	SO	
Potassium	12.65	0.034	0.20	10	2.353	103	75-125	12.57	0.695	20		
Sodium	20.93	0.13	0.20	10	11.75	91.9	75-125	21.28	1.63	20		

MSD					Sample ID: 24031990-01BMSD			Units: mg/L		Analysis Date: 4/5/2024 01:48 PM		
Client ID: HLRK-MW-11S-032724					Run ID: ICPMS3_240405A			SeqNo: 10630181		Prep Date: 4/4/2024		DF: 10
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Calcium	466.8	2.2	5.0	10	477.2	-104	75-125	545.1	15.5	20	SO	

MSD					Sample ID: 24031992-02CMSD			Units: mg/L		Analysis Date: 4/5/2024 01:48 PM		
Client ID:					Run ID: ICPMS3_240405A			SeqNo: 10630247		Prep Date: 4/4/2024		DF: 10
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Calcium	466.8	2.2	5.0	10	477.2	-104	75-125	545.1	15.5	20	SO	

The following samples were analyzed in this batch:	24031975-01B	24031975-02B	24031975-03B
	24031990-01B	24031990-02B	24031990-03B
	24032112-01B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: 237382Instrument ID TDSMethod: A2540 C-15

MBLK		Sample ID: MBLK-237382-237382				Units: mg/L			Analysis Date: 3/29/2024 01:52 PM			
Client ID:		Run ID: TDS_240329A				SeqNo: 10610033			Prep Date: 3/27/2024		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Total Dissolved Solids	U	22	30									

LCS		Sample ID: LCS-237382-237382				Units: mg/L			Analysis Date: 3/29/2024 01:52 PM			
Client ID:		Run ID: TDS_240329A				SeqNo: 10610032			Prep Date: 3/27/2024		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Total Dissolved Solids	500	22	30	495	0	101	85-109	0				

DUP		Sample ID: 24031792-01A DUP				Units: mg/L			Analysis Date: 3/29/2024 01:52 PM			
Client ID:		Run ID: TDS_240329A				SeqNo: 10610027			Prep Date: 3/27/2024		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Total Dissolved Solids	2847	74	100	0	0	0	0-0	2787	2.13	10		

DUP		Sample ID: 24031793-01B DUP				Units: mg/L			Analysis Date: 3/29/2024 01:52 PM			
Client ID:		Run ID: TDS_240329A				SeqNo: 10610029			Prep Date: 3/27/2024		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Total Dissolved Solids	2827	74	100	0	0	0	0-0	2853	0.939	10		

The following samples were analyzed in this batch:

24031772-01A

Client: ETEM  
Work Order: 24031772  
Project: Hollow Rock 2024 1SA Sampling

QC BATCH REPORT

Batch ID: 237480 Instrument ID TDS Method: A2540 C-15

MBLK		Sample ID: MBLK-237480-237480				Units: mg/L		Analysis Date: 4/2/2024 07:55 AM			
Client ID:		Run ID: TDS_240402A				SeqNo: 10618379		Prep Date: 3/28/2024		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Total Dissolved Solids U 22 30

LCS		Sample ID: LCS-237480-237480				Units: mg/L		Analysis Date: 4/2/2024 07:55 AM			
Client ID:		Run ID: TDS_240402A				SeqNo: 10618378		Prep Date: 3/28/2024		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Total Dissolved Solids 482 22 30 495 0 97.4 85-109 0

DUP		Sample ID: 24031852-02A DUP				Units: mg/L		Analysis Date: 4/2/2024 07:55 AM			
Client ID: HLRK-MW-41-032624		Run ID: TDS_240402A				SeqNo: 10618363		Prep Date: 3/28/2024		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Total Dissolved Solids 2680 74 100 0 0 0 0-0 2660 0.749 10

DUP		Sample ID: 24031954-02B DUP				Units: mg/L		Analysis Date: 4/2/2024 07:55 AM			
Client ID:		Run ID: TDS_240402A				SeqNo: 10618364		Prep Date: 3/28/2024		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Total Dissolved Solids 476.7 37 50 0 0 0 0-0 476.7 0 10

The following samples were analyzed in this batch:

24031852-01A	24031852-02A	24031883-01A
24031883-02A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: 237552

Instrument ID TDS

Method: A2540 C-15

MBLK		Sample ID: MBLK-237552-237552				Units: mg/L		Analysis Date: 4/2/2024 09:19 AM			
Client ID:		Run ID: TDS_240402B				SeqNo: 10616927		Prep Date: 3/29/2024		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Total Dissolved Solids

U

22

30

LCS		Sample ID: LCS-237552-237552				Units: mg/L		Analysis Date: 4/2/2024 09:19 AM			
Client ID:		Run ID: TDS_240402B				SeqNo: 10616926		Prep Date: 3/29/2024		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Total Dissolved Solids

500

22

30

495

0

101

85-109

0

DUP		Sample ID: 24031982-04B DUP				Units: mg/L		Analysis Date: 4/2/2024 09:19 AM			
Client ID:		Run ID: TDS_240402B				SeqNo: 10616913		Prep Date: 3/29/2024		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Total Dissolved Solids

986.7

74

100

0

0

0

0-0

993.3

0.673

10

DUP		Sample ID: 24031990-01A DUP				Units: mg/L		Analysis Date: 4/2/2024 09:19 AM			
Client ID: HLRK-MW-11S-032724		Run ID: TDS_240402B				SeqNo: 10616929		Prep Date: 3/29/2024		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Total Dissolved Solids

2193

74

100

0

0

0

0-0

2193

0

10

DUP		Sample ID: 24031992-02A DUP				Units: mg/L		Analysis Date: 4/2/2024 09:19 AM			
Client ID:		Run ID: TDS_240402B				SeqNo: 10616931		Prep Date: 3/29/2024		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Total Dissolved Solids

2227

74

100

0

0

0

0-0

2227

0

10

The following samples were analyzed in this batch:

24031975-01A24031990-01A

Client: ETEM  
Work Order: 24031772  
Project: Hollow Rock 2024 1SA Sampling

QC BATCH REPORT

Batch ID: 237639 Instrument ID TDS Method: A2540 C-15

MBLK		Sample ID: MBLK-237639-237639					Units: mg/L		Analysis Date: 4/3/2024 01:24 PM			
Client ID:		Run ID: TDS_240403A					SeqNo: 10622590		Prep Date: 4/1/2024		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Total Dissolved Solids U 22 30

LCS		Sample ID: LCS-237639-237639					Units: mg/L		Analysis Date: 4/3/2024 01:24 PM			
Client ID:		Run ID: TDS_240403A					SeqNo: 10622589		Prep Date: 4/1/2024		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Total Dissolved Solids 516 22 30 495 0 104 85-109 0

DUP		Sample ID: 24032116-01A DUP					Units: mg/L		Analysis Date: 4/3/2024 01:24 PM			
Client ID:		Run ID: TDS_240403A					SeqNo: 10622585		Prep Date: 4/1/2024		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Total Dissolved Solids 3070 110 150 0 0 0 0-0 3000 2.31 10

DUP		Sample ID: 24032116-02A DUP					Units: mg/L		Analysis Date: 4/3/2024 01:24 PM			
Client ID:		Run ID: TDS_240403A					SeqNo: 10622587		Prep Date: 4/1/2024		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Total Dissolved Solids 2880 110 150 0 0 0 0-0 2960 2.74 10

The following samples were analyzed in this batch:

24031975-02A	24031975-03A	24031990-02A
24031990-03A	24032112-01A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.



Batch ID: R399185

Instrument ID Titrator 1

Method: A2320 B-11

MBLK		Sample ID: MB-R399185-R399185				Units: mg/L		Analysis Date: 3/26/2024 12:05 PM			
Client ID:		Run ID: TITRATOR 1_240326A				SeqNo: 10597436		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (as CaCO3)	U	8.4	10								

LCS		Sample ID: LCS-R399185-R399185				Units: mg/L		Analysis Date: 3/26/2024 12:05 PM			
Client ID:		Run ID: TITRATOR 1_240326A				SeqNo: 10597437		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (as CaCO3)	971.5	8.4	10	1000	0	97.2	90-110	0			

DUP		Sample ID: 24031713-02A DUP				Units: mg/L		Analysis Date: 3/26/2024 12:05 PM			
Client ID:		Run ID: TITRATOR 1_240326A				SeqNo: 10597440		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (as CaCO3)	353.8	8.4	10	0	0	0	0-0	375.5	5.93	10	

DUP		Sample ID: 24031713-12A DUP				Units: mg/L		Analysis Date: 3/26/2024 12:05 PM			
Client ID:		Run ID: TITRATOR 1_240326A				SeqNo: 10597451		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (as CaCO3)	296.5	8.4	10	0	0	0	0-0	305.4	2.96	10	

The following samples were analyzed in this batch:

24031772-01A

Batch ID: R399296Instrument ID Titrator 1Method: A2320 B-11

MBLK		Sample ID: MB-R399296-R399296				Units: mg/L			Analysis Date: 3/27/2024 11:37 AM			
Client ID:		Run ID: TITRATOR 1_240327A				SeqNo: 10601616			Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Alkalinity, Total (as CaCO3)	U	8.4	10									

LCS		Sample ID: LCS-R399296-R399296				Units: mg/L			Analysis Date: 3/27/2024 11:37 AM			
Client ID:		Run ID: TITRATOR 1_240327A				SeqNo: 10601617			Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Alkalinity, Total (as CaCO3)	936.5	8.4	10	1000	0	93.6	90-110	0				

DUP		Sample ID: 24031796-01A DUP				Units: mg/L			Analysis Date: 3/27/2024 11:37 AM			
Client ID:		Run ID: TITRATOR 1_240327A				SeqNo: 10601619			Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Alkalinity, Total (as CaCO3)	402.3	8.4	10	0	0	0	0-0	415	3.11	10		

DUP		Sample ID: 24031852-02A DUP				Units: mg/L			Analysis Date: 3/27/2024 11:37 AM			
Client ID: HLRK-MW-41-032624		Run ID: TITRATOR 1_240327A				SeqNo: 10601633			Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Alkalinity, Total (as CaCO3)	572.7	8.4	10	0	0	0	0-0	581.1	1.45	10		

The following samples were analyzed in this batch:

24031852-01A24031852-02A

Batch ID: R399373

Instrument ID Titrator 1

Method: A2320 B-11

MBLK		Sample ID: MB-R399373-R399373				Units: mg/L			Analysis Date: 3/28/2024 09:40 AM			
Client ID:		Run ID: TITRATOR 1_240328A				SeqNo: 10604594			Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Alkalinity, Total (as CaCO3)	U	8.4	10									

LCS		Sample ID: LCS-R399373-R399373				Units: mg/L			Analysis Date: 3/28/2024 09:40 AM			
Client ID:		Run ID: TITRATOR 1_240328A				SeqNo: 10604595			Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Alkalinity, Total (as CaCO3)	945.5	8.4	10	1000	0	94.6	90-110		0			

DUP		Sample ID: 24031883-02A DUP				Units: mg/L			Analysis Date: 3/28/2024 09:40 AM			
Client ID: HLRK-MW-24S-032624		Run ID: TITRATOR 1_240328A				SeqNo: 10604605			Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Alkalinity, Total (as CaCO3)	560.7	8.4	10	0	0	0	0-0	558.3	0.425	10		

DUP		Sample ID: 24031913-02A DUP				Units: mg/L			Analysis Date: 3/28/2024 09:40 AM			
Client ID:		Run ID: TITRATOR 1_240328A				SeqNo: 10604608			Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Alkalinity, Total (as CaCO3)	33.03	8.4	10	0	0	0	0-0	32.31	2.2	10		

The following samples were analyzed in this batch:

24031883-01A24031883-02A

Batch ID: R399386BInstrument ID IC4Method: SW9056A

MBLK		Sample ID: MBLK-R399386B				Units: mg/L		Analysis Date: 3/27/2024 04:53 PM			
Client ID:		Run ID: IC4_240327A				SeqNo: 10605126		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	U	0.31	1.0								

LCS		Sample ID: LCS-R399386B				Units: mg/L		Analysis Date: 3/27/2024 04:44 PM			
Client ID:		Run ID: IC4_240327A				SeqNo: 10605125		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.352	0.31	1.0	10	0	93.5	88-110	0			

MS		Sample ID: 24031852-02A MS				Units: mg/L		Analysis Date: 3/27/2024 05:42 PM			
Client ID: HLRK-MW-41-032624		Run ID: IC4_240327A				SeqNo: 10605131		Prep Date:		DF: 16	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	174.7	5	16	160	25.62	93.2	88-110	0			

MSD		Sample ID: 24031852-02A MSD				Units: mg/L		Analysis Date: 3/27/2024 05:52 PM			
Client ID: HLRK-MW-41-032624		Run ID: IC4_240327A				SeqNo: 10605132		Prep Date:		DF: 16	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	176.3	5	16	160	25.62	94.2	88-110	174.7	0.959	15	

The following samples were analyzed in this batch:

24031772-01A24031852-01A24031852-02A

Batch ID: R399478A

Instrument ID IC4

Method: SW9056A

MBLK		Sample ID: MBLK-R399478A				Units: mg/L		Analysis Date: 3/28/2024 12:35 PM			
Client ID:		Run ID: IC4_240328A				SeqNo: 10608402		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	U	0.31	1.0								
Fluoride	U	0.067	0.10								
Sulfate	U	0.19	1.0								

LCS		Sample ID: LCS-R399478A				Units: mg/L		Analysis Date: 3/28/2024 12:25 PM			
Client ID:		Run ID: IC4_240328A				SeqNo: 10608401		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.409	0.31	1.0	10	0	94.1	88-110	0			
Fluoride	1.93	0.067	0.10	2	0	96.5	86-121	0			
Sulfate	9.647	0.19	1.0	10	0	96.5	90-110	0			

MS		Sample ID: 24031852-02A MS				Units: mg/L		Analysis Date: 3/28/2024 05:44 PM			
Client ID: HLRK-MW-41-032624		Run ID: IC4_240328A				SeqNo: 10608421		Prep Date:		DF: 160	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1545	50	160	1600	44.98	93.8	88-110	0			
Fluoride	317.1	11	16	320	0	99.1	86-121	0			
Sulfate	3911	30	160	1600	1598	145	90-110	0			SE

MSD		Sample ID: 24031852-02A MSD				Units: mg/L		Analysis Date: 3/28/2024 05:54 PM			
Client ID: HLRK-MW-41-032624		Run ID: IC4_240328A				SeqNo: 10608422		Prep Date:		DF: 160	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1530	50	160	1600	44.98	92.8	88-110	1545	1.01	15	
Fluoride	319.2	11	16	320	0	99.8	86-121	317.1	0.659	15	
Sulfate	3882	30	160	1600	1598	143	90-110	3911	0.733	15	SE

The following samples were analyzed in this batch:

24031772-01A24031852-01A24031852-02A

Batch ID: R399543A

Instrument ID IC4

Method: SW9056A

MBLK		Sample ID: MBLK-R399543A				Units: mg/L		Analysis Date: 3/29/2024 12:02 PM			
Client ID:		Run ID: IC4_240329A				SeqNo: 10611849		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	U	0.31	1.0								
Fluoride	U	0.067	0.10								

LCS		Sample ID: LCS-R399543A				Units: mg/L		Analysis Date: 3/29/2024 11:52 AM			
Client ID:		Run ID: IC4_240329A				SeqNo: 10611848		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.32	0.31	1.0	10	0	93.2	88-110	0			
Fluoride	1.946	0.067	0.10	2	0	97.3	86-121	0			

MS		Sample ID: 24031997-01A MS				Units: mg/L		Analysis Date: 3/29/2024 03:08 PM			
Client ID:		Run ID: IC4_240329A				SeqNo: 10611857		Prep Date:		DF: 10	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	123.4	3.1	10	100	33.5	89.9	88-110	0			
Fluoride	20.97	0.67	1.0	20	0	105	86-121	0			

MSD		Sample ID: 24031997-01A MSD				Units: mg/L		Analysis Date: 3/29/2024 03:18 PM			
Client ID:		Run ID: IC4_240329A				SeqNo: 10611858		Prep Date:		DF: 10	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	123.9	3.1	10	100	33.5	90.4	88-110	123.4	0.395	15	
Fluoride	21.07	0.67	1.0	20	0	105	86-121	20.97	0.466	15	

The following samples were analyzed in this batch:

24031883-01A24031883-02A

Batch ID: R399553A

Instrument ID IC4

Method: SW9056A

MBLK		Sample ID: MBLK-R399553A				Units: mg/L		Analysis Date: 3/30/2024 12:54 PM			
Client ID:		Run ID: IC4_240330A				SeqNo: 10612034		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	U	0.31	1.0								
Fluoride	U	0.067	0.10								
Sulfate	U	0.19	1.0								

LCS		Sample ID: LCS-R399553A				Units: mg/L		Analysis Date: 3/30/2024 12:44 PM			
Client ID:		Run ID: IC4_240330A				SeqNo: 10612033		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.57	0.31	1.0	10	0	95.7	88-110	0			
Fluoride	1.954	0.067	0.10	2	0	97.7	86-121	0			
Sulfate	9.836	0.19	1.0	10	0	98.4	90-110	0			

MS		Sample ID: 24031990-01A MS				Units: mg/L		Analysis Date: 3/30/2024 05:47 PM			
Client ID: HLRK-MW-11S-032724		Run ID: IC4_240330A				SeqNo: 10612054		Prep Date:		DF: 10	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	103.5	3.1	10	100	16.38	87.1	88-110	0			S
Fluoride	20.55	0.67	1.0	20	0	103	86-121	0			
Sulfate	1534	1.9	10	100	1689	-155	90-110	0			SEO

MS		Sample ID: 24031992-02A MS				Units: mg/L		Analysis Date: 3/30/2024 05:47 PM			
Client ID:		Run ID: IC4_240330A				SeqNo: 10612640		Prep Date:		DF: 10	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	103.5	3.1	10	100	16.38	87.1	88-110	0			S
Fluoride	20.55	0.67	1.0	20	0	103	86-121	0			
Sulfate	1534	1.9	10	100	1689	-155	90-110	0			SEO

MSD		Sample ID: 24031990-01A MSD				Units: mg/L		Analysis Date: 3/30/2024 05:57 PM			
Client ID: HLRK-MW-11S-032724		Run ID: IC4_240330A				SeqNo: 10612055		Prep Date:		DF: 10	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	103.9	3.1	10	100	16.38	87.5	88-110	103.5	0.373	15	S
Fluoride	20.77	0.67	1.0	20	0	104	86-121	20.55	1.09	15	
Sulfate	1548	1.9	10	100	1689	-141	90-110	1534	0.874	15	SEO

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: ETEM  
Work Order: 24031772  
Project: Hollow Rock 2024 1SA Sampling

QC BATCH REPORT

Batch ID: R399553A      Instrument ID IC4      Method: SW9056A

MSD		Sample ID: 24031992-02A MSD				Units: mg/L		Analysis Date: 3/30/2024 05:57 PM			
Client ID:		Run ID: IC4_240330A				SeqNo: 10612641		Prep Date:		DF: 10	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	103.9	3.1	10	100	16.38	87.5	88-110	103.5	0.373	15	S
Fluoride	20.77	0.67	1.0	20	0	104	86-121	20.55	1.09	15	
Sulfate	1548	1.9	10	100	1689	-141	90-110	1534	0.874	15	SEO

The following samples were analyzed in this batch:

24031883-01A	24031883-02A	24031975-01A
24031975-02A	24031975-03A	24031990-01A
24031990-02A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.



Batch ID: R399585A

Instrument ID IC4

Method: SW9056A

MBLK		Sample ID: MBLK-R399585A				Units: mg/L		Analysis Date: 3/31/2024 11:31 AM			
Client ID:		Run ID: IC4_240331A				SeqNo: 10613848		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	U	0.31	1.0								
Fluoride	U	0.067	0.10								
Sulfate	U	0.19	1.0								

LCS		Sample ID: LCS-R399585A				Units: mg/L		Analysis Date: 3/31/2024 11:22 AM			
Client ID:		Run ID: IC4_240331A				SeqNo: 10613847		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.232	0.31	1.0	10	0	92.3	88-110	0			
Fluoride	1.871	0.067	0.10	2	0	93.6	86-121	0			
Sulfate	9.603	0.19	1.0	10	0	96	90-110	0			

MS		Sample ID: 24031990-01A MS				Units: mg/L		Analysis Date: 3/31/2024 03:18 PM			
Client ID: HLRK-MW-11S-032724		Run ID: IC4_240331A				SeqNo: 10613866		Prep Date:		DF: 160	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1505	50	160	1600	55.12	90.6	88-110	0			
Fluoride	311.4	11	16	320	0	97.3	86-121	0			
Sulfate	2837	30	160	1600	2215	38.9	90-110	0			S

MS		Sample ID: 24031992-02A MS				Units: mg/L		Analysis Date: 3/31/2024 03:18 PM			
Client ID:		Run ID: IC4_240331A				SeqNo: 10613924		Prep Date:		DF: 160	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1505	50	160	1600	55.12	90.6	88-110	0			
Fluoride	311.4	11	16	320	0	97.3	86-121	0			
Sulfate	2837	30	160	1600	2215	38.9	90-110	0			S

MSD		Sample ID: 24031992-02A MSD				Units: mg/L		Analysis Date: 3/31/2024 03:28 PM			
Client ID:		Run ID: IC4_240331A				SeqNo: 10613867		Prep Date:		DF: 160	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1500	50	160	1600	55.12	90.3	88-110	1505	0.317	15	
Fluoride	308.6	11	16	320	0	96.4	86-121	311.4	0.908	15	
Sulfate	2816	30	160	1600	2215	37.5	90-110	2837	0.767	15	S

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: ETEM  
Work Order: 24031772  
Project: Hollow Rock 2024 1SA Sampling

QC BATCH REPORT

Batch ID: R399585A      Instrument ID IC4      Method: SW9056A

MSD		Sample ID: 24031990-01A MSD				Units: mg/L		Analysis Date: 3/31/2024 03:28 PM			
Client ID: HLRK-MW-11S-032724		Run ID: IC4_240331A				SeqNo: 10613925		Prep Date:		DF: 160	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1500	50	160	1600	55.12	90.3	88-110	1505	0.317	15	
Fluoride	308.6	11	16	320	0	96.4	86-121	311.4	0.908	15	
Sulfate	2816	30	160	1600	2215	37.5	90-110	2837	0.767	15	S

The following samples were analyzed in this batch:

24031883-02A	24031975-01A	24031975-02A
24031975-03A	24031990-01A	24031990-02A
24031990-03A	24032112-01A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: R399858

Instrument ID WETCHEM

Method: A2320 B-11

MBLK		Sample ID: MB-R399858-R399858				Units: mg/L		Analysis Date: 4/4/2024 09:18 AM			
Client ID:		Run ID: WETCHEM_240404C				SeqNo: 10625947		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Alkalinity, Total (as CaCO3)

U

8.4

10

LCS		Sample ID: LCS-R399858-R399858				Units: mg/L		Analysis Date: 4/4/2024 09:18 AM			
Client ID:		Run ID: WETCHEM_240404C				SeqNo: 10625948		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Alkalinity, Total (as CaCO3)

980

8.4

10

1000

0

98

90-110

0

DUP		Sample ID: 24031990-01A DUP				Units: mg/L		Analysis Date: 4/4/2024 09:18 AM			
Client ID: HLRK-MW-11S-032724		Run ID: WETCHEM_240404C				SeqNo: 10625953		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Alkalinity, Total (as CaCO3)

490

8.4

10

0

0

0

0-0

490

0

10

DUP		Sample ID: 24031992-02A DUP				Units: mg/L		Analysis Date: 4/4/2024 09:18 AM			
Client ID:		Run ID: WETCHEM_240404C				SeqNo: 10625957		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Alkalinity, Total (as CaCO3)

490

8.4

10

0

0

0

0-0

490

0

10

DUP		Sample ID: 24032117-12A DUP				Units: mg/L		Analysis Date: 4/4/2024 09:18 AM			
Client ID:		Run ID: WETCHEM_240404C				SeqNo: 10625973		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Alkalinity, Total (as CaCO3)

380

8.4

10

0

0

0

0-0

380

0

10

The following samples were analyzed in this batch:

24031975-01A

24031975-02A

24031975-03A

24031990-01A

24031990-02A

24031990-03A

24032112-01A

Batch ID: R399882C

Instrument ID IC4

Method: E300.0

MBLK		Sample ID: MBLK-R399882C				Units: mg/L		Analysis Date: 4/4/2024 12:28 AM			
Client ID:		Run ID: IC4_240403A				SeqNo: 10626976		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	U	0.31	1.0								
Sulfate	U	0.19	1.0								

LCS		Sample ID: LCS-R399882C				Units: mg/L		Analysis Date: 4/4/2024 12:19 AM			
Client ID:		Run ID: IC4_240403A				SeqNo: 10626975		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.692	0.31	1.0	10	0	96.9	90-110	0			
Sulfate	9.843	0.19	1.0	10	0	98.4	90-110	0			

MS		Sample ID: 24031858-03A MS				Units: mg/L		Analysis Date: 4/4/2024 12:48 AM			
Client ID:		Run ID: IC4_240403A				SeqNo: 10626988		Prep Date:		DF: 40	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	417	12	40	400	41.29	93.9	88-110	0			
Sulfate	1928	7.6	40	400	1464	116	90-110	0			SE

MS		Sample ID: 24031883-02A MS				Units: mg/L		Analysis Date: 4/4/2024 12:48 AM			
Client ID: HLRK-MW-24S-032624		Run ID: IC4_240403A				SeqNo: 10626999		Prep Date:		DF: 40	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	417	12	40	400	41.29	93.9	88-110	0			
Sulfate	1928	7.6	40	400	1464	116	90-110	0			SE

MSD		Sample ID: 24031883-02A MSD				Units: mg/L		Analysis Date: 4/4/2024 12:58 AM			
Client ID: HLRK-MW-24S-032624		Run ID: IC4_240403A				SeqNo: 10626989		Prep Date:		DF: 40	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	414.8	12	40	400	41.29	93.4	88-110	417	0.536	15	
Sulfate	1918	7.6	40	400	1464	113	90-110	1928	0.542	15	SE

MSD		Sample ID: 24031858-03A MSD				Units: mg/L		Analysis Date: 4/4/2024 12:58 AM			
Client ID:		Run ID: IC4_240403A				SeqNo: 10627000		Prep Date:		DF: 40	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	414.8	12	40	400	41.29	93.4	88-110	417	0.536	15	
Sulfate	1918	7.6	40	400	1464	113	90-110	1928	0.542	15	SE

The following samples were analyzed in this batch:

24031883-02A24031990-03A24032112-01A

Batch ID: R399915B

Instrument ID IC3

Method: E300.0

MBLK		Sample ID: MBLK-R399915B				Units: mg/L		Analysis Date: 4/4/2024 10:20 PM			
Client ID:		Run ID: IC3_240404A				SeqNo: 10628825		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	U	0.19	1.0								

LCS		Sample ID: LCS-R399915B				Units: mg/L		Analysis Date: 4/4/2024 10:10 PM			
Client ID:		Run ID: IC3_240404A				SeqNo: 10628824		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	9.817	0.19	1.0	10	0	98.2	90-110	0			

MS		Sample ID: 24040008-08E MS				Units: mg/L		Analysis Date: 4/4/2024 10:39 PM			
Client ID:		Run ID: IC3_240404A				SeqNo: 10628827		Prep Date:		DF: 4	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	41.14	0.76	4.0	40	1.429	99.3	90-110	0			

MSD		Sample ID: 24040008-08E MSD				Units: mg/L		Analysis Date: 4/4/2024 10:49 PM			
Client ID:		Run ID: IC3_240404A				SeqNo: 10628828		Prep Date:		DF: 4	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	40.82	0.76	4.0	40	1.429	98.5	90-110	41.14	0.764	10	

The following samples were analyzed in this batch:

24031883-02A



CHAIN OF CUSTODY RECORD/LABORATORY ANALYSIS  
REQUEST FORM

24031772

ELEM: ELEM  
Project: Hollow Rock 2024 1SA Sampling



cauch.2006@f-ts.com

Project Name: Hollow Rock 2024 Sampling  
Project Number: HLRK-1005-24  
Laboratory: ALS  
Shipment Method: FTS  
Program: Hollow Rock 2024 1SA Sampling

Company: Field & Technical Services  
Address: 200 Third Avenue  
Carnegie, PA 15106  
(412) 279-3363

Sample Date	Sample Time	Matrix	Sample Identification	Analysis	2320B_9056A_2540C	6020B-Total B_Ca_Mg_K_Na																																	
				Preservative																		None	HNO3																
				Total Bottle Count																																			
03/25/2024	1314	GW	HLRK-MW-40-032524	2	1	1																																	

Relinquished by:	Received by:	Relinquished by:	Received by:	Turnaround Requirements
	Signature:	Signature:	Signature:	<input type="checkbox"/> Rush  <input checked="" type="checkbox"/> Standard
Printed Name: Carter Auch	Printed Name: ALS	Printed Name: ALS	Printed Name: Diane F. Shaw	
Firm: FTS	Firm: ALS	Firm: ALS	Firm: ALS	
Date/Time: 03/25/2024 1519	Date/Time: 3-25-24 1630	Date/Time: 3-25-24 1700	Date/Time: 3/26/24 1100	

DF2  
2.8°C  
PH37





Ref 210311

# CHAIN OF CUSTODY RECORD/LABORATORY ANALYSIS REQUEST FORM

24031883

EITEM: EITEM  
Project: Hollow Rock 2024 1SA Sampling



24031883

Project Name: Hollow Rock 2024 Sampling  
Project Number: HLRK-1005-24  
Laboratory: ALS  
Shipment Method: FTS  
Program: Hollow Rock 2024 1SA Sampling

Company: Field & Technical Services  
Address: 200 Third Avenue  
Carnegie, PA 15106  
(412) 279-3363

Sample Date	Sample Time	Matrix	Sample Identification	Analysis	6020B-Total B_Ca_Mg_K_Na	2320B_9056A_2540C														
				Preservative	HNO3	None														
				Total Bottle Count																Notes:
03/26/2024	1200	GW	HLRK-MW-99A-032624	0	0	0														
03/26/2024	1225	GW	HLRK-MW-25S-032624	2	1	1														
03/26/2024	1332	GW	HLRK-MW-24S-032624	2	1	1														

Relinquished by:	Received by:	Relinquished by:	Received by:	Turnaround Requirements
	Signature:	Signature:	Signature:	<input type="checkbox"/> Rush  <input checked="" type="checkbox"/> Standard
Printed Name: Abigail Slaubaugh	Printed Name: ALS	Printed Name: ALS	Printed Name: Diane F. Shaw	
Firm FTS	Firm ALS	Firm ALS	Firm ALS	
Date/Time: 3/26/24 1536	Date/Time: 3-26-24 340	Date/Time: 3-26-24 1700	Date/Time: 3/27/24 1000	

1R3  
1.7c  
pH/37





Ref 210311

# CHAIN OF CUSTODY RECORD/LABORATORY ANALYSIS REQUEST FORM

24031975

ETEM: ETEM  
Project: Hollow Rock 2024 1SA Sampling



cauch.2000@fts.com

Project Name: Hollow Rock 2024 Sampling  
Project Number: HLRK-1005-24  
Laboratory: ALS  
Shipment Method: FTS  
Program: Hollow Rock 2024 1SA Sampling

Company: Field & Technical Services  
Address: 200 Third Avenue  
Carnegie, PA 15106  
(412) 279-3363

Sample Date	Sample Time	Matrix	Sample Identification	Analysis	6020B-Total B_Ca_Mg_K_Na	2320B_9056A_2540C															
				Preservative			HNO3	None													
				Total Bottle Count																	Notes:
03/27/2024	1013	GW	HLRK-MW-42-032724	2	1	1															
03/27/2024	1142	GW	HLRK-M-99B-032724	2	1	1															
03/27/2024	1406	GW	HLRK-MW-43-032724	2	1	1															

Relinquished by:	Received by:	Relinquished by:	Received by:	Turnaround Requirements
	Signature:	Signature:	Signature:	<input type="checkbox"/> Rush  <input checked="" type="checkbox"/> Standard
Printed Name: Carter Auch	Printed Name: ALS	Printed Name: ALS	Printed Name: Diane F. Shaw	
Firm: FTS	Firm: ALS	Firm: ALS	Firm: ALS	
Date/Time: 03/27/2024 1619	Date/Time: 3-27-24 1610	Date/Time: 3-27-24 1700	Date/Time: 3/28/24 0900	

DF2  
1.92  
pH37



Ref 210311

# CHAIN OF CUSTODY RECORD/LABORATORY AI REQUEST FORM

24031990

ETEM: ETEM  
Project: Hollow Rock 2024 1SA Sampling



asiaubaught.2000@fts.com

Project Name: Hollow Rock 2024 Sampling  
Project Number: HLRK-1005-24  
Laboratory: ALS2  
Shipment Method: FTS  
Program: Hollow Rock 2024 1SA Sampling

Company: Field & Technical Services  
Address: 200 Third Avenue  
Carnegie, PA 15106  
(412) 279-3363

Sample Date	Sample Time	Matrix	Sample Identification	Analysis	2320B_9056A_2540C	5310C_TOC	Turbidity_LAB	9310-Gross Alpha-Beta particle	6020B-16 Total Metals	6020B-156Total Metals											
				Preservative	None	H2SO4	None	None	HNO3	HNO3											
				Total Bottle Count																	Notes:
03/27/2024	0910	GW	HLRK-MW-26S-032724	8	1	3	1	2	1	0											
03/27/2024	1020	GW	HLRK-MW-11S MS/MSD-032724	14	0	6	2	4	2	0											
03/27/2024	1020	GW	HLRK-MW-11S-032724	8	1	3	1	2	1	0											
03/27/2024	1240	GW	HLRK-MW-23S-032724	8	1	3	1	2	0	1											
03/27/2024	1405	GW	HLRK-MW-22S-032724	8	1	3	1	2	1	0											
03/27/2024	1445	GW	HLRK-MW-27S-032724	6	1	3	1	0	1	0											

Relinquished by:	Received by:	Relinquished by:	Received by:	Turnaround Requirements
	Signature:	Signature:	Signature:	<div><input type="checkbox"/> Rush</div> <div><input checked="" type="checkbox"/> Standard</div>
Printed Name: Abigail Slaubaugh	Printed Name: ALS	Printed Name: ALS	Printed Name: Diane F. Shaw	
Firm: FTS	Firm: ALS	Firm: ALS	Firm: ALS	
Date/Time: 03/27/2024 1604	Date/Time: 3-27-24 1615	Date/Time: 3-27-24 1700	Date/Time: 3/28/24 0900	

DFZ  
1.7c  
PH37



CHAIN OF CUSTODY RECORD/LABORATORY ANALYSIS  
REQUEST FORM

24031990

STEM: ETEM  
Project: Hollow Rock 2024 1SA Sampling



aslaubaugh.2006@f-ts.com

Project Name: Hollow Rock 2024 Sampling  
Project Number: HLRK-1005-24  
Laboratory: ALS  
Shipment Method: FTS  
Program: Hollow Rock 2024 1SA Sampling

Company: Field & Technical Services  
Address: 200 Third Avenue  
Carnegie, PA 15106  
(412) 279-3363

Sample Date	Sample Time	Matrix	Sample Identification	Analysis	2320B_9056A_2540C	6020B-Total B_Ca_Mg_K_Na															
				Preservative			None	HNO3													
				Total Bottle Count																Notes:	
03/27/2024	1020	GW	HLRK-MW-11S MS/MSD-032724	0	0	0															
03/27/2024	1020	GW	HLRK-MW-11S-032724	2	1	1															
03/27/2024	1240	GW	HLRK-MW-23S-032724	2	1	1															
03/27/2024	1405	GW	HLRK-MW-22S-032724	2	1	1															

Relinquished by:	Received by:	Relinquished by:	Received by:	Turnaround Requirements
	Signature:	Signature:	Signature:	<input type="checkbox"/> Rush  <input checked="" type="checkbox"/> Standard
Printed Name: Abigail Slaubaugh	Printed Name: ALS	Printed Name: ALS	Printed Name: Diane F. Shaw	
Firm FTS	Firm ALS	Firm ALS	Firm ALS	
Date/Time: 03/27/2024 1604	Date/Time: 3-27-24 1615	Date/Time: 3-27-24 1700	Date/Time: 3/28/24 0900	

DF2  
1.7'C  
pH37



Ref 210311

# CHAIN OF CUSTODY RECORD/LABORATORY ANALYSIS REQUEST FORM

24032112

ETEM: ETEM  
Project: Hollow Rock 2024 1SA Sampling



Project Name: Hollow Rock 2024 Sampling  
Project Number: HLRK-1005-24  
Laboratory: ALS  
Shipment Method: FTS  
Program: Hollow Rock 2024 1SA Sampling

Company: Field & Technical Services  
Address: 200 Third Avenue  
Carnegie, PA 15106  
(412) 279-3363

Contact: aslaubaugh.2006@f-ts.com

Sample Date	Sample Time	Matrix	Sample Identification	Analysis	6020B-Total B_Ca_Mg_K_Na	2320B_9056A_2540C															
				Preservative	HNO3	None															
				Total Bottle Count																	Notes:
03/28/2024	0955	GW	HLRK-MW-12S-032824	2	1	1															

Relinquished by:	Received by:	Relinquished by:	Received by:	Turnaround Requirements
	Signature:  ALS	Signature:	Signature:	<input type="checkbox"/> Rush  <input checked="" type="checkbox"/> Standard
Printed Name: Abigail Slaubaugh	Printed Name: Patrick McAdams	Printed Name: ALS	Printed Name: Diane F. Shaw	
Firm FTS	Firm ALS	Firm ALS	Firm ALS	
Date/Time: 03/28/2024 1318	Date/Time: 1318 3/28/24	Date/Time: 3-28-24 1700	Date/Time: 3/29/24 0900	

LR3  
4.9c  
PH3.7

Sample Receipt Checklist

Client Name: **ETEM**

Date/Time Received: **26-Mar-24 11:00**

Work Order: **24031772**

Received by: **DS**

Checklist completed by **Diane Shaw**

26-Mar-24

Reviewed by: **Jodi Blouw**

26-Mar-24

eSignature

Date

eSignature

Date

Matrices: **Groundwater**

Carrier name: **FedEx**

Shipping container/cooler in good condition?

Yes ☒

No ☐

Not Present ☐

Custody seals intact on shipping container/cooler?

Yes ☐

No ☐

Not Present ☒

Custody seals intact on sample bottles?

Yes ☐

No ☐

Not Present ☒

Chain of custody present?

Yes ☒

No ☐

Chain of custody signed when relinquished and received?

Yes ☒

No ☐

Chain of custody agrees with sample labels?

Yes ☒

No ☐

Samples in proper container/bottle?

Yes ☒

No ☐

Sample containers intact?

Yes ☒

No ☐

Sufficient sample volume for indicated test?

Yes ☒

No ☐

All samples received within holding time?

Yes ☒

No ☐

Container/Temp Blank temperature in compliance?

Yes ☒

No ☐

Sample(s) received on ice?

Yes ☒

No ☐

Temperature(s)/Thermometer(s):

2.8/2.8 c

DF2

Cooler(s)/Kit(s):

Date/Time sample(s) sent to storage:

3/26/2024 1:03:14 PM

Water - VOA vials have zero headspace?

Yes ☐

No ☐

No VOA vials submitted ☒

Water - pH acceptable upon receipt?

Yes ☒

No ☐

N/A ☐

pH adjusted?

Yes ☐

No ☒

N/A ☐

pH adjusted by:

-

Login Notes: **pH check <2.**

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:

# ALS Group, USA

Holland, Michigan

## Sample Receipt Checklist

Client Name: **ETEM**

Date/Time Received: **27-Mar-24 10:00**

Work Order: **24031852**

Received by: **DS**

Checklist completed by **Diane Shaw**

27-Mar-24

Reviewed by: **Jodi Blouw**

27-Mar-24

eSignature

Date

eSignature

Date

Matrices: Groundwater

Carrier name: FedEx

Shipping container/cooler in good condition?

Yes ☒

No ☐

Not Present ☐

Custody seals intact on shipping container/cooler?

Yes ☐

No ☐

Not Present ☒

Custody seals intact on sample bottles?

Yes ☐

No ☐

Not Present ☒

Chain of custody present?

Yes ☒

No ☐

Chain of custody signed when relinquished and received?

Yes ☒

No ☐

Chain of custody agrees with sample labels?

Yes ☒

No ☐

Samples in proper container/bottle?

Yes ☒

No ☐

Sample containers intact?

Yes ☒

No ☐

Sufficient sample volume for indicated test?

Yes ☒

No ☐

All samples received within holding time?

Yes ☒

No ☐

Container/Temp Blank temperature in compliance?

Yes ☒

No ☐

Sample(s) received on ice?

Yes ☒

No ☐

Temperature(s)/Thermometer(s):

3.1/4.1 c

IR3

Cooler(s)/Kit(s):

Date/Time sample(s) sent to storage:

3/27/2024 11:17:52 AM

Water - VOA vials have zero headspace?

Yes ☐

No ☐

No VOA vials submitted ☒

Water - pH acceptable upon receipt?

Yes ☒

No ☐

N/A ☐

pH adjusted?

Yes ☐

No ☒

N/A ☐

pH adjusted by:

-

Login Notes: pH check <2.

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:

# ALS Group, USA

Holland, Michigan

## Sample Receipt Checklist

Client Name: **ETEM**

Date/Time Received: **27-Mar-24 10:00**

Work Order: **24031883**

Received by: **DS**

Checklist completed by **Diane Shaw**

27-Mar-24

Reviewed by:

eSignature

Date

eSignature

Date

Matrices: Groundwater

Carrier name: FedEx

Shipping container/cooler in good condition?

Yes ☒

No ☐

Not Present ☐

Custody seals intact on shipping container/cooler?

Yes ☐

No ☐

Not Present ☒

Custody seals intact on sample bottles?

Yes ☐

No ☐

Not Present ☒

Chain of custody present?

Yes ☒

No ☐

Chain of custody signed when relinquished and received?

Yes ☒

No ☐

Chain of custody agrees with sample labels?

Yes ☒

No ☐

Samples in proper container/bottle?

Yes ☒

No ☐

Sample containers intact?

Yes ☒

No ☐

Sufficient sample volume for indicated test?

Yes ☒

No ☐

All samples received within holding time?

Yes ☒

No ☐

Container/Temp Blank temperature in compliance?

Yes ☒

No ☐

Sample(s) received on ice?

Yes ☒

No ☐

Temperature(s)/Thermometer(s):

1.7/2.7 c

IR3

Cooler(s)/Kit(s):

Date/Time sample(s) sent to storage:

3/27/2024 2:03:56 PM

Water - VOA vials have zero headspace?

Yes ☐

No ☐

No VOA vials submitted ☒

Water - pH acceptable upon receipt?

Yes ☒

No ☐

N/A ☐

pH adjusted?

Yes ☐

No ☒

N/A ☐

pH adjusted by:

-

Login Notes: pH check <2.

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:

Sample Receipt Checklist

Client Name: **ETEM**

Date/Time Received: **28-Mar-24 09:00**

Work Order: **24031975**

Received by: **DS**

Checklist completed by **Diane Shaw**

28-Mar-24

Reviewed by: **Jodi Blouw**

28-Mar-24

eSignature

Date

eSignature

Date

Matrices: **Groundwater**

Carrier name: **FedEx**

Shipping container/cooler in good condition?

Yes ☒

No ☐

Not Present ☐

Custody seals intact on shipping container/cooler?

Yes ☐

No ☐

Not Present ☒

Custody seals intact on sample bottles?

Yes ☐

No ☐

Not Present ☒

Chain of custody present?

Yes ☒

No ☐

Chain of custody signed when relinquished and received?

Yes ☒

No ☐

Chain of custody agrees with sample labels?

Yes ☒

No ☐

Samples in proper container/bottle?

Yes ☒

No ☐

Sample containers intact?

Yes ☒

No ☐

Sufficient sample volume for indicated test?

Yes ☒

No ☐

All samples received within holding time?

Yes ☒

No ☐

Container/Temp Blank temperature in compliance?

Yes ☒

No ☐

Sample(s) received on ice?

Yes ☒

No ☐

Temperature(s)/Thermometer(s):

1.9/1.9 c

DF2

Cooler(s)/Kit(s):

Date/Time sample(s) sent to storage:

3/28/2024 11:15:05 AM

Water - VOA vials have zero headspace?

Yes ☐

No ☐

No VOA vials submitted ☒

Water - pH acceptable upon receipt?

Yes ☒

No ☐

N/A ☐

pH adjusted?

Yes ☐

No ☒

N/A ☐

pH adjusted by:

-

Login Notes: **pH check <2.**

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



Sample Receipt Checklist

Client Name: **ETEM**

Date/Time Received: **28-Mar-24 09:00**

Work Order: **24031990**

Received by: **DS**

Checklist completed by **Diane Shaw**

28-Mar-24

Reviewed by: **Jodi Blouw**

28-Mar-24

eSignature

Date

eSignature

Date

Matrices: **Groundwater**

Carrier name: **FedEx**

Shipping container/cooler in good condition?

Yes ☒

No ☐

Not Present ☐

Custody seals intact on shipping container/cooler?

Yes ☐

No ☐

Not Present ☒

Custody seals intact on sample bottles?

Yes ☐

No ☐

Not Present ☒

Chain of custody present?

Yes ☒

No ☐

Chain of custody signed when relinquished and received?

Yes ☒

No ☐

Chain of custody agrees with sample labels?

Yes ☒

No ☐

Samples in proper container/bottle?

Yes ☒

No ☐

Sample containers intact?

Yes ☒

No ☐

Sufficient sample volume for indicated test?

Yes ☒

No ☐

All samples received within holding time?

Yes ☒

No ☐

Container/Temp Blank temperature in compliance?

Yes ☒

No ☐

Sample(s) received on ice?

Yes ☒

No ☐

Temperature(s)/Thermometer(s):

1.7/1.7 c

DF2

Cooler(s)/Kit(s):

Date/Time sample(s) sent to storage:

3/28/2024 12:22:47 PM

Water - VOA vials have zero headspace?

Yes ☐

No ☐

No VOA vials submitted ☒

Water - pH acceptable upon receipt?

Yes ☒

No ☐

N/A ☐

pH adjusted?

Yes ☐

No ☒

N/A ☐

pH adjusted by:

-

Login Notes: **pH check <2.**

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:

# ALS Group, USA

Holland, Michigan

## Sample Receipt Checklist

Client Name: **ETEM**

Date/Time Received: **29-Mar-24 09:00**

Work Order: **24032112**

Received by: **DS**

Checklist completed by **Diane Shaw**

29-Mar-24

Reviewed by: **Jodi Blouw**

29-Mar-24

eSignature

Date

eSignature

Date

Matrices: Groundwater

Carrier name: FedEx

Shipping container/cooler in good condition?

Yes ☒

No ☐

Not Present ☐

Custody seals intact on shipping container/cooler?

Yes ☐

No ☐

Not Present ☒

Custody seals intact on sample bottles?

Yes ☐

No ☐

Not Present ☒

Chain of custody present?

Yes ☒

No ☐

Chain of custody signed when relinquished and received?

Yes ☒

No ☐

Chain of custody agrees with sample labels?

Yes ☒

No ☐

Samples in proper container/bottle?

Yes ☒

No ☐

Sample containers intact?

Yes ☒

No ☐

Sufficient sample volume for indicated test?

Yes ☒

No ☐

All samples received within holding time?

Yes ☒

No ☐

Container/Temp Blank temperature in compliance?

Yes ☒

No ☐

Sample(s) received on ice?

Yes ☒

No ☐

Temperature(s)/Thermometer(s):

4.9/5.9 c

IR3

Cooler(s)/Kit(s):

Date/Time sample(s) sent to storage:

3/29/2024 1:52:09 PM

Water - VOA vials have zero headspace?

Yes ☐

No ☐

No VOA vials submitted ☒

Water - pH acceptable upon receipt?

Yes ☒

No ☐

N/A ☐

pH adjusted?

Yes ☐

No ☒

N/A ☐

pH adjusted by:

-

Login Notes: pH check <2.

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:

November 06, 2024

Angela Gatchie  
Field & Technical Services, LLC  
200 Third Ave.  
Carnegie, PA 15106

Re: **EITEM- HOLLOWROCK**

Work Order: **HN2406805**

Revision: **2**

Dear Angela,

Enclosed are the results of the sample(s) submitted to our laboratory.

The analytical data provided relates to the samples received by ALS Environmental and for the analysis requested.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

**Jodi Blouw**

/S/ CHAD WHELTON on behalf of PM listed above

**Project Manager**



# Narrative Documents



**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK

**Work Order:** HN2406805  
**Date Received:** 24-Sep-2024

## CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier II level requested by the client.

### Sample Receipt

17 groundwater samples were received for analysis at ALS Environmental on 24-Sep-2024. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

### Inorganics

#### EPA 9056A (High)

##### Batch ID: 2639655

The MS recovery was above the upper control limit. The corresponding result in the parent sample may be biased high for this analyte: Fluoride

The LCS recovery was below the lower control limit. The sample results for this batch may be biased low for this analyte: Bromide

The MS recovery was below the lower control limit. The corresponding result in the parent sample may be biased low for this analyte: Sulfate

##### Batch ID: 2639425

Matrix spike value was outside upper limit of calibration. Processed at equivalent dilution level as the parent - Sulfate.

Matrix spike duplicate value was outside upper limit of calibration. Processed at equivalent dilution level as the parent - Sulfate.

The MSD recovery was above the upper control limit. The corresponding result in the parent sample may be biased high for this analyte: Fluoride

The MS recovery was above the upper control limit. The corresponding result in the parent sample may be biased high for this analyte: Fluoride

##### Batch ID: 2607376

Matrix spike value was outside upper limit of calibration. Processed at equivalent dilution level as the parent.

Matrix spike duplicate value was outside upper limit of calibration. Processed at equivalent dilution level as the parent.

Matrix spike value was outside upper limit of calibration. Processed at equivalent dilution level as the parent.

Matrix spike duplicate value was outside upper limit of calibration. Processed at equivalent dilution level as the parent.

Matrix spike duplicate value was outside upper limit of calibration. Processed at equivalent dilution level as the parent.

Matrix spike value was outside upper limit of calibration. Processed at equivalent dilution level as the parent.

##### Batch ID: 2642579

Matrix spike value was outside upper limit of calibration. Processed at equivalent dilution level as the parent. Sulfate

Matrix spike duplicate value was outside upper limit of calibration. Processed at equivalent dilution level as the parent. Sulfate



**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK

**Work Order:** HN2406805  
**Date Received:** 24-Sep-2024

### **CASE NARRATIVE**

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier II level requested by the client.

#### **Batch ID: 2603459**

Matrix spike value was outside upper limit of calibration. Processed at equivalent dilution level as the parent.  
The MS recovery was above the upper control limit. The corresponding result in the parent sample may be biased high for this analyte: Sulfate, Chloride  
Matrix spike duplicate value was outside upper limit of calibration. Processed at equivalent dilution level as the parent.  
The MSD recovery was above the upper control limit. The corresponding result in the parent sample may be biased high for this analyte: Sulfate, Chloride  
Sample was analyzed outside of holding time due to laboratory error. Sample results should be considered as estimated.

#### **Batch ID: 2646908**

The MSD recovery was below the lower control limit. The corresponding result in the parent sample may be biased low for the following analyte(s): Bromide, Nitrite, Nitrate  
Matrix spike duplicate value was outside upper limit of calibration. Processed at equivalent dilution level as the parent - Chloride, Sulfate.  
The LCS recovery was below the lower control limit. The sample results for this batch may be biased low for this analyte: Bromide  
The MS recovery was below the lower control limit. The corresponding result in the parent sample may be biased low for this analyte: Bromide, Nitrite, Nitrate  
Sample was not added to spike  
Matrix spike value was outside upper limit of calibration. Processed at equivalent dilution level as the parent - Chloride, Sulfate.

#### **Batch ID: 2599083**

Matrix spike value was outside upper limit of calibration. Processed at equivalent dilution level as the parent.  
The MS recovery was below the lower control limit. The corresponding result in the parent sample may be biased low for this analyte: Bromide  
The MS recovery was below the lower control limit. The corresponding result in the parent sample may be biased low for this analyte: Chloride  
Matrix spike duplicate value was outside upper limit of calibration. Processed at equivalent dilution level as the parent.  
The MS recovery was above the upper control limit. The corresponding result in the parent sample may be biased high for this analyte: Chloride, Sulfate  
The MSD recovery was below the lower control limit. The corresponding result in the parent sample may be biased low for the following analyte(s): Bromide  
The MSD recovery was above the upper control limit. The corresponding result in the parent sample may be biased high for this analyte: Chloride, Sulfate

### **Metals**

**EPA 6020B-3015A-T**



**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK

**Work Order:** HN2406805  
**Date Received:** 24-Sep-2024

### CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier II level requested by the client.

#### **Batch ID: 2641273**

The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Ca batch 1680802  
The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Ca batch 1680731  
The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Ca batch 1680731  
The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Ca batch 1680802  
The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: B, Ca, Mg batch 1682226  
The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Ca batch 1680802  
The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Ca batch 1680731  
The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Ca batch 1680802  
The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Ca batch 1680731  
The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: B, Ca, Mg batch 1682226  
HN2406805-010: Boron - The reporting limit is elevated due to dilution for high concentrations of non-target analytes. B

#### **Batch ID: 2680259**

The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Mg batch 1714638  
The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Mg batch 1714638

#### **Batch ID: 2626793**

The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte:Ca batch 1680840  
The MSD recovery was outside of the control limit. However, the MS recovery and the RPD between the MS and MSD was in control. No qualification is required for this analyte:B batch 1680840  
The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte:Ca batch 1680840

#### **Batch ID: 2631612**

The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte:Ca, Mn batch 1689797  
The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte:Ca, Sr batch 1680695  
The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte:Ca, Mn batch 1689797  
The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte:Ca, Sr batch 1680695



**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK

**Work Order:** HN2406805  
**Date Received:** 24-Sep-2024

### CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier II level requested by the client.

#### **Batch ID: 2631442**

The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte:Mg, Sr batch 1680802

The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte:Mg, Mn, Sr batch 1680802

The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte:Mg, Mn, Sr batch 1680802

The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte:Mn, Sr batch 1682226

The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte:Mg, Sr batch 1680731

The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte:Mg, Sr batch 1680731

The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte:Mn, Sr batch 1682226

The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte:Mg, Mn, Sr batch 1680731

The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte:Mg, Sr batch 1680802

The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte:Mg, Mn, Sr batch 1680731

#### **Batch ID: 2611144**

The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte:Ca batch 1673896

The concentration in the Method Blank was greater than the quantitation limit. Positive results in the batch may be biased high for this analyte: Ca batch 1673896

The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte:Ca batch 1673896

HN2406805-002: Calcium - The concentration in the Method Blank was greater than the quantitation limit. The sample result was greater than 10x the concentration in the Method Blank; therefore, no qualification is necessary for this analyte: Ca

#### **Batch ID: 2624286**

The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Ca, Na, Sr batch 1684750

The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Al, Mg, Mn, Sr batch 1680840

The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Al, Mg, Mn, Sr batch 1680840

The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Ca, Na, Sr batch 1684750

#### **Batch ID: 2614110**

HN2406805-001: Calcium - The concentration in the Method Blank was greater than the quantitation limit. The sample result was greater than 10x the concentration in the Method Blank; therefore, no qualification is necessary for this analyte: Ca





## SAMPLE DETECTION SUMMARY

This form includes only detections above the reporting limits.

For a full listing of sample results, continue to the Sample Results section of this Report.



<b>CLIENT ID: HLRK-MW-40-092324</b>	<b>Lab ID: HN2406805-001</b>
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Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity as CaCO <sub>3</sub>	424		1.43	2.00	mg/L	SM 2320 B-2011
Boron	0.137		0.0154	0.0200	mg/L	EPA 6020B
Calcium	227	B	2.21	5.00	mg/L	EPA 6020B
Chloride	7.91		0.310	1.00	mg/L	EPA 9056A
Fluoride	0.159		0.0670	0.100	mg/L	EPA 9056A
Magnesium	98.4		0.0370	0.200	mg/L	EPA 6020B
Potassium	4.72		0.0340	0.200	mg/L	EPA 6020B
Residue-filterable (TDS)	1360		111	150	mg/L	SM 2540 C-2015
Sodium	30.1		0.129	0.200	mg/L	EPA 6020B
Sulfate	761		30.4	160	mg/L	EPA 9056A

<b>CLIENT ID: HLRK-MW-25S-092324</b>	<b>Lab ID: HN2406805-002</b>
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Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity as CaCO <sub>3</sub>	332		1.43	2.00	mg/L	SM 2320 B-2011
Boron	0.331		0.0154	0.0200	mg/L	EPA 6020B
Calcium	149	B	0.221	0.500	mg/L	EPA 6020B
Chloride	8.34		0.310	1.00	mg/L	EPA 9056A
Magnesium	50.5		0.0370	0.200	mg/L	EPA 6020B
Potassium	5.67		0.0340	0.200	mg/L	EPA 6020B
Residue-filterable (TDS)	893		73.8	100	mg/L	SM 2540 C-2015
Sodium	32.1		0.129	0.200	mg/L	EPA 6020B
Sulfate	386		7.60	40.0	mg/L	EPA 9056A

<b>CLIENT ID: HLRK-MW-99A-092524</b>	<b>Lab ID: HN2406805-008</b>
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Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity as CaCO <sub>3</sub>	324		1.43	2.00	mg/L	SM 2320 B-2011
Boron	0.567		0.154	0.200	mg/L	EPA 6020B
Calcium	397		2.21	5.00	mg/L	EPA 6020B
Chloride	36.3		4.96	16.0	mg/L	EPA 9056A
Magnesium	126		0.0370	0.200	mg/L	EPA 6020B
Potassium	4.56		0.0340	0.200	mg/L	EPA 6020B
Residue-filterable (TDS)	2070		73.8	100	mg/L	SM 2540 C-2015
Sodium	10.6		1.29	2.00	mg/L	EPA 6020B
Sulfate	1470	S	30.4	160	mg/L	EPA 9056A

<b>CLIENT ID: HLRK-MW-23S-092524</b>	<b>Lab ID: HN2406805-009</b>
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Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity as CaCO <sub>3</sub>	319		1.43	2.00	mg/L	SM 2320 B-2011
Boron	0.594		0.154	0.200	mg/L	EPA 6020B
Calcium	396		2.21	5.00	mg/L	EPA 6020B
Chloride	37.0		4.96	16.0	mg/L	EPA 9056A
Magnesium	125		0.0370	0.200	mg/L	EPA 6020B

## SAMPLE DETECTION SUMMARY

This form includes only detections above the reporting limits.

For a full listing of sample results, continue to the Sample Results section of this Report.



<b>CLIENT ID: HLRK-MW-23S-092524</b>	<b>Lab ID: HN2406805-009</b>
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Analyte	Results	Flag	MDL	MRL	Units	Method
Potassium	4.50		0.0340	0.200	mg/L	EPA 6020B
Residue-filterable (TDS)	2010		73.8	100	mg/L	SM 2540 C-2015
Sodium	10.6		1.29	2.00	mg/L	EPA 6020B
Sulfate	1580		30.4	160	mg/L	EPA 9056A

<b>CLIENT ID: HLRK-MW-11S-092524</b>	<b>Lab ID: HN2406805-010</b>
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Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity as CaCO <sub>3</sub>	482		1.43	2.00	mg/L	SM 2320 B-2011
Calcium	484		2.21	5.00	mg/L	EPA 6020B
Magnesium	115		0.0370	0.200	mg/L	EPA 6020B
Potassium	2.42		0.0340	0.200	mg/L	EPA 6020B
Residue-filterable (TDS)	2100		73.8	100	mg/L	SM 2540 C-2015
Sodium	13.2		1.29	2.00	mg/L	EPA 6020B
Sulfate	1420		30.4	160	mg/L	EPA 9056A

<b>CLIENT ID: HLRK-MW-22S-092624</b>	<b>Lab ID: HN2406805-011</b>
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Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity as CaCO <sub>3</sub>	532		1.43	2.00	mg/L	SM 2320 B-2011
Boron	0.203		0.0154	0.0200	mg/L	EPA 6020B
Calcium	458		2.21	5.00	mg/L	EPA 6020B
Chloride	41.6		4.96	16.0	mg/L	EPA 9056A
Magnesium	155		0.0370	0.200	mg/L	EPA 6020B
Potassium	4.23		0.0340	0.200	mg/L	EPA 6020B
Residue-filterable (TDS)	2270		73.8	100	mg/L	SM 2540 C-2015
Sodium	22.7		1.29	2.00	mg/L	EPA 6020B
Sulfate	1440		30.4	160	mg/L	EPA 9056A

<b>CLIENT ID: HLRK-MW-24S-092624</b>	<b>Lab ID: HN2406805-012</b>
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Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity as CaCO <sub>3</sub>	354		1.43	2.00	mg/L	SM 2320 B-2011
Boron	0.452		0.0154	0.0200	mg/L	EPA 6020B
Calcium	503		2.21	5.00	mg/L	EPA 6020B
Chloride	90.8		4.96	16.0	mg/L	EPA 9056A
Magnesium	110		0.0370	0.200	mg/L	EPA 6020B
Potassium	5.32		0.0340	0.200	mg/L	EPA 6020B
Residue-filterable (TDS)	2010		73.8	100	mg/L	SM 2540 C-2015
Sodium	6.44		0.129	0.200	mg/L	EPA 6020B
Sulfate	1320		30.4	160	mg/L	EPA 9056A

<b>CLIENT ID: HLRK-MW-41-092624</b>	<b>Lab ID: HN2406805-013</b>
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Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity as CaCO <sub>3</sub>	546		1.43	2.00	mg/L	SM 2320 B-2011

## SAMPLE DETECTION SUMMARY

This form includes only detections above the reporting limits.

For a full listing of sample results, continue to the Sample Results section of this Report.



<b>CLIENT ID: HLRK-MW-41-092624</b>	<b>Lab ID: HN2406805-013</b>
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Analyte	Results	Flag	MDL	MRL	Units	Method
Boron	4.16		0.154	0.200	mg/L	EPA 6020B
Calcium	466		2.21	5.00	mg/L	EPA 6020B
Chloride	203		4.96	16.0	mg/L	EPA 9056A
Magnesium	292		0.370	2.00	mg/L	EPA 6020B
Potassium	8.07		0.0340	0.200	mg/L	EPA 6020B
Residue-filterable (TDS)	2890		111	150	mg/L	SM 2540 C-2015
Sodium	18.8		0.129	0.200	mg/L	EPA 6020B
Sulfate	1510		30.4	160	mg/L	EPA 9056A

<b>CLIENT ID: HLRK-MW-13S-092624</b>	<b>Lab ID: HN2406805-014</b>
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Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity as CaCO <sub>3</sub>	576		1.43	2.00	mg/L	SM 2320 B-2011
Boron	0.0424	B	0.0154	0.0200	mg/L	EPA 6020B
Calcium	454		2.21	5.00	mg/L	EPA 6020B
Magnesium	129		0.370	2.00	mg/L	EPA 6020B
Potassium	4.68		0.0340	0.200	mg/L	EPA 6020B
Residue-filterable (TDS)	1930		73.8	100	mg/L	SM 2540 C-2015
Sodium	4.99		1.29	2.00	mg/L	EPA 6020B
Sulfate	1240		30.4	160	mg/L	EPA 9056A

<b>CLIENT ID: HLRK-MW-12S-092724</b>	<b>Lab ID: HN2406805-015</b>
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Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity as CaCO <sub>3</sub>	444		1.43	2.00	mg/L	SM 2320 B-2011
Boron	2.74		0.154	0.200	mg/L	EPA 6020B
Calcium	659		2.21	5.00	mg/L	EPA 6020B
Chloride	361		49.6	160	mg/L	EPA 9056A
Magnesium	212		0.370	2.00	mg/L	EPA 6020B
Potassium	5.50		0.0340	0.200	mg/L	EPA 6020B
Residue-filterable (TDS)	3420		111	150	mg/L	SM 2540 C-2015
Sodium	34.2		1.29	2.00	mg/L	EPA 6020B
Sulfate	2000		30.4	160	mg/L	EPA 9056A

<b>CLIENT ID: HLRK-MW-42-092724</b>	<b>Lab ID: HN2406805-016</b>
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Analyte	Results	Flag	MDL	MRL	Units	Method
Alkalinity as CaCO <sub>3</sub>	631		1.43	2.00	mg/L	SM 2320 B-2011
Boron	0.158		0.0154	0.0200	mg/L	EPA 6020B
Calcium	475		2.21	5.00	mg/L	EPA 6020B
Magnesium	286		0.370	2.00	mg/L	EPA 6020B
Potassium	7.18		0.0340	0.200	mg/L	EPA 6020B
Residue-filterable (TDS)	2970		111	150	mg/L	SM 2540 C-2015
Sodium	20.5		1.29	2.00	mg/L	EPA 6020B
Sulfate	1860		30.4	160	mg/L	EPA 9056A

## SAMPLE DETECTION SUMMARY

This form includes only detections above the reporting limits.

For a full listing of sample results, continue to the Sample Results section of this Report.



CLIENT ID: HLRK-MW-42-092724			Lab ID: HN2406805-016			
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Analyte	Results	Flag	MDL	MRL	Units	Method
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CLIENT ID: HLRK-MW-43-092724			Lab ID: HN2406805-017			
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Analyte	Results	Flag	MDL	MRL	Units	Method
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Alkalinity as CaCO <sub>3</sub>	607		1.43	2.00	mg/L	SM 2320 B-2011
Boron	0.515		0.0154	0.0200	mg/L	EPA 6020B
Calcium	474		2.21	5.00	mg/L	EPA 6020B
Chloride	92.0		4.96	16.0	mg/L	EPA 9056A
Magnesium	276		0.370	2.00	mg/L	EPA 6020B
Potassium	7.85		0.0340	0.200	mg/L	EPA 6020B
Residue-filterable (TDS)	2920		111	150	mg/L	SM 2540 C-2015
Sodium	20.8		1.29	2.00	mg/L	EPA 6020B
Sulfate	1560		30.4	160	mg/L	EPA 9056A



## Sample Receipt Information

## SAMPLE SUMMARY



**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Workorder:** HN2406805

Laboratory Sample ID	Client Sample ID	Sample Matrix	Collection Date	Date Received
HN2406805-001	HLRK-MW-40-092324	GROUNDWATER	09/23/24 13:37	09/24/24 09:30
HN2406805-002	HLRK-MW-25S-092324	GROUNDWATER	09/23/24 12:30	09/24/24 09:30
HN2406805-008	HLRK-MW-99A-092524	GROUNDWATER	09/25/24 12:00	09/26/24 09:30
HN2406805-009	HLRK-MW-23S-092524	GROUNDWATER	09/25/24 12:45	09/26/24 09:30
HN2406805-010	HLRK-MW-11S-092524	GROUNDWATER	09/25/24 13:25	09/26/24 09:30
HN2406805-011	HLRK-MW-22S-092624	GROUNDWATER	09/26/24 10:45	09/27/24 09:30
HN2406805-012	HLRK-MW-24S-092624	GROUNDWATER	09/26/24 11:37	09/27/24 09:30
HN2406805-013	HLRK-MW-41-092624	GROUNDWATER	09/26/24 13:35	09/27/24 09:30
HN2406805-014	HLRK-MW-13S-092624	GROUNDWATER	09/26/24 13:36	09/27/24 09:30
HN2406805-015	HLRK-MW-12S-092724	GROUNDWATER	09/27/24 11:15	09/28/24 10:00
HN2406805-016	HLRK-MW-42-092724	GROUNDWATER	09/27/24 12:10	09/28/24 10:00
HN2406805-017	HLRK-MW-43-092724	GROUNDWATER	09/27/24 15:10	09/28/24 10:00



# CHAIN OF CUSTODY RECORD/LABORATORY ANALYSIS REQUEST FORM

REF.# 502095



Ref 210311

Project Name: Hollow Rock 2024 Sampling

Company: Field & Technical Services

Client: ETEM

Project Number: HLRK-1005-24

Address: 200 Third Avenue

Contact:

Laboratory: ALS

Carnegie, PA 15106

aslaubaugh.2006@f-ts.com

Shipment Method: Courier

(412) 279-3363

Program: Hollow Rock 2024 2SA Sampling

Sample Date	Sample Time	Matrix	Sample Identification	Analysis	2320B_9056A_2540C	6020B-Total B_Ca_Mg_K_Na															
				Preservative	None	HNO3															
				Total Bottle Count																	Notes:
09/23/2024	1230	GW	HLRK-MW-25S-092324	0	1	1															CCR
09/23/2024	1337	GW	HLRK-MW-40-092324	2	1	1															CCR

Environmental Division  
Holland  
Work Order Reference  
HN2406805



Telephone : + 1 616 399 6070

Relinquished by:	Received by:	Relinquished by:	Received by:	Turnaround Requirements
	Signature:	Signature:	Signature:	<input type="checkbox"/> Rush  <input checked="" type="checkbox"/> Standard
Printed Name: Abigail Slaubaugh	Printed Name: Patrick McAdams	Printed Name: Patrick McAdams	Printed Name: Kevin Wierwille	
Firm FTS	Firm ALS	Firm ALS	Firm ALS	
Date/Time: 9/23/24 1551	Date/Time: 9/23/24 1552	Date/Time: 9/23/24 1700	Date/Time: 9/24/24 0930	

3.2°

183  
PH39





## ALS Holland Sample Receiving Checklist

Received by:

Kerru

Date/Time:

9/24/24 0930

Carrier Name:

FEDEx

Shipping container/cooler in good condition?

~~Yes~~ / No / Not Present

Custody seals intact on shipping container/cooler?

~~Yes~~ / No / Not Present

Custody seals intact on sample bottles?

~~Yes~~ / No / Not Present

Chain of Custody present?

~~Yes~~ / No

COC signed when relinquished and received?

~~Yes~~ / No

COC agrees with sample labels?

~~Yes~~ / No

Samples in proper container/bottle?

~~Yes~~ / No

Sample containers intact?

~~Yes~~ / No

Sufficient sample volume for indicated test?

~~Yes~~ / No

All samples received within holding time?

~~Yes~~ / No

Container/Temp Blank temperature in compliance?

~~Yes~~ / No

Temperature(s) (°C):

3.2/4.2°C

Thermometer(s):

IR3

Sample(s) received on ice?

~~Yes~~ / No

Matrix/Matrices:

WATER

Cooler(s)/Kit(s):

Date/Time sample(s) sent to storage:

9/24/24 1450

Water – VOA vials have zero headspace?

~~Yes~~ / No / No Vials

Water – pH acceptable upon receipt?

~~Yes~~ / No / N/ApH strip lot #: 39< 2 ✓

&gt; 12 \_\_\_\_\_ Other \_\_\_\_\_

pH adjusted (note adjustments below)?

~~Yes~~ / No / N/A

pH adjusted by:

Login Notes:



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Page 1 of 1



816 399 6077

Environmental Division  
Holland  
Work Order Reference  
HN2406805



## ALS Holland Sample Receiving Checklist

Received by:

Date/Time:

Carrier Name:

Shipping container/cooler in good condition?

Custody seals intact on shipping container/cooler?

Custody seals intact on sample bottles?

Chain of Custody present?

COC signed when relinquished and received?

COC agrees with sample labels?

Samples in proper container/bottle?

Sample containers intact?

Sufficient sample volume for indicated test?

All samples received within holding time?

Container/Temp Blank temperature in compliance?

Temperature(s) (°C):

Thermometer(s):

Sample(s) received on ice?

Matrix/Matrices:

Cooler(s)/Kit(s):

Date/Time sample(s) sent to storage:

Water – VOA vials have zero headspace?

Water – pH acceptable upon receipt?

pH strip lot #:

&lt; 2

✓

&gt; 12

Other

pH adjusted (note adjustments below)?

pH adjusted by:

Login Notes:

--

CHAIN OF CUSTODY DOCUMENTATION (Failure to complete all sections of this form may delay analysis.)

Part 1: Reporting Information

Company Name: Field & Technical Services  
 Client Contact Name: Andrew Clark  
 E-mail: aclark@f-ts.com  
 Phone: 412 279 3363  
 Report Address: 200 Third Ave  
 Carnegie, PA 15106

Part 2: Billing Information for Invoice ( If different from Reporting Information )

Company Name:  
 Client Contact Name:  
 E-mail:  
 Tele:  
 Invoice Address:

COC No.:

Office use only



ALS Technichem (HK) Pty Ltd

Part 3: Project & Sample Information

P.O. / Client Order No:  
 Project Name / ID:  
 Site Name / ID: Hollow Rock 2024 Sampling

Part 4: Test Required

6020B - Total B\_Ca\_Mg\_K\_Na  
 2320B\_9056A\_2540C

Service Request (Working Day): Regular ☐ / Express(5) ☐ / Double Express (3) ☐  
 Others (Pls specify date required \_\_\_\_\_)  
 Cooler Security Seal: Sealed ☐ / Broken ☐ / Not Available ☐  
 Package: Cooler box ☐ / Carton box ☐ / Plastic bag ☐ / Others:( \_\_\_\_\_ ) ☐  
 Temperature Condition: Chilled ☐ / Ambient ☐ / Frozen ☐ \_\_\_\_\_ °C

ALS ID (This description will be appeared on report)	Sample ID / Sample Name	Matrix	Sampling Date	Sampling Time	Total nos of Containers	(v) Tick the requested test											
	HLRK-MW-225-092624	GW	9/26/2024	1045	2	1	1										
	HLRK-MW-245-092624	GW	9/26/2024	1137	2	1	1										
	HLRK-MW-41-092624	GW	9/26/2024	1335	2	1	1										
	HLRK-MW-157002421	GW	9/26/24	1336	2	1	1										

Part 5: Handling Information

Sampling Conducted by: AP		Sampling Supervised by: AS		Samples Picked up & Delivered By: FEOK		Samples Received by: AS	
Company Name:	FTS	Company Name:	ALS	Company Name:	FEOK	Company Name:	ALS
Responsible Person:	Byungh	Responsible Person:	John (Wright)	Responsible Person:		Responsible Person:	
Date & Time:		Date & Time:	9-26-24 16:10	Date & Time:		Date & Time:	9/26/24 0930
Signature:		Signature:		Signature:		Signature:	

ALS Technichem (HK) Pty Ltd Address: 11/F, Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kowloon, N.T., Hong Kong Tel: +852 2610 1044 Fax: +852 2610 2021 Email: HongKong@alsglobal.com WHITE: LAB; YELLOW: CLIENT; PINK: BOOK COPY



Environmental Division  
 Holland  
 Work Order Reference  
 HN2406805

1196 1123  
 PM39



## ALS Holland Sample Receiving Checklist

Page 1 of 1

Received by: Keira

Date/Time: 9/27/24 0930

Carrier Name: FedEx

Shipping container/cooler in good condition? Yes / No / Not Present

Custody seals intact on shipping container/cooler? Yes / No / Not Present

Custody seals intact on sample bottles? Yes / No / Not Present

Chain of Custody present? Yes / No

COC signed when relinquished and received? Yes / No

COC agrees with sample labels? Yes / No

Samples in proper container/bottle? Yes / No

Sample containers intact? Yes / No

Sufficient sample volume for indicated test? Yes / No

All samples received within holding time? Yes / No

Container/Temp Blank temperature in compliance? Yes / No

Temperature(s) (°C): 1.9 / 2.9 °C

Thermometer(s): 123

Sample(s) received on ice? Yes / No

Matrix/Matrices: WATER

Cooler(s)/Kit(s): 9/27/24 1515

Date/Time sample(s) sent to storage: 9/27/24 1515

Water – VOA vials have zero headspace? Yes / No / No Vials

Water – pH acceptable upon receipt? Yes / No / N/A

pH strip lot #: 39 < 2 ✓ > 12 Other

pH adjusted (note adjustments below)? Yes / No / N/A

pH adjusted by:

Login Notes:





# Chain of Custody Record

ALS ENVIRONMENTAL

3352 1258th Avenue  
Holland, MI 49424  
(616) 399-6070

Page 1 of 1

ALS Project Manager:

Les Arnold

ALS Work Order #:

## Customer Information

## Project Information

## Parameter/Method Request for Analysis

Purchase Order

Project Name

Hollow Rock SA

Work Order

Project Number

60205 Total B, Calcium, K, Na  
2320B-9050A-2540c

Company Name

Bill To Company

A

B

C

D

E

F

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H

I

J

Send Report To

Invoice Attn.

A

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Address

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e-Mail Address

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I

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No.

Date

Time

Matrix

Pres.

#

Bottles

A

B

Sample Description

Date

Time

Matrix

Pres.

#

Bottles

A

B

1

9/27/24

11:15

GW

2.8

2.8

2.8

2.8

2.8

2

9/27/24

12:00

GW

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2.8

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3

9/27/24

1:50

GW

2.8

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2.8

2.8

2.8

4

9/27/24

1:50

GW

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9/27/24

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6

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GW

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9/27/24

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GW

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10

9/27/24

1:50

GW

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2.8

Field Comments:

Shipment Method:

Required Turnaround Time: (Check Box)

10 WK Days

5 WK Days

3 WK Days

2 WK Days

24 Hour

Other

Shipment(s) Please Print & Sign

Shipment Method:

Required Turnaround Time: (Check Box)

10 WK Days

5 WK Days

3 WK Days

2 WK Days

24 Hour

Other

Requisitioned by:

Date:

Time:

Received by:

Date:

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## ALS Holland Sample Receiving Checklist

Received by:

Kerr

Date/Time:

7/28/24 1000

Carrier Name:

FedEx

Shipping container/cooler in good condition?

Yes / No / Not Present

Custody seals intact on shipping container/cooler?

Yes / No / Not Present

Custody seals intact on sample bottles?

Yes / No / Not Present

Chain of Custody present?

Yes / No

COC signed when relinquished and received?

Yes / No

COC agrees with sample labels?

Yes / No

Samples in proper container/bottle?

Yes / No

Sample containers intact?

Yes / No

Sufficient sample volume for indicated test?

Yes / No

All samples received within holding time?

Yes / No

Container/Temp Blank temperature in compliance?

Yes / No

Temperature(s) (°C):

4.0/5.0°

Thermometer(s):

1K3

Sample(s) received on ice?

Yes / No

Matrix/Matrices:

WATER

Cooler(s)/Kit(s):

Date/Time sample(s) sent to storage:

7/30/24 1040

Water – VOA vials have zero headspace?

Yes / No / No Vials

Water – pH acceptable upon receipt?

Yes / No / N/A

pH strip lot #:

39< 2 ✓

&gt; 12

Other

pH adjusted (note adjustments below)?

Yes / No / N/A

pH adjusted by:

Login Notes:



## Miscellaneous Forms



## **REPORT QUALIFIERS AND DEFINITIONS**

*	Value exceeds Regulatory Limit (if MCL displayed)
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Analyte accreditation is not offered
NC	Not Calculated
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
V	The Continuing Calibration Verification was outside of control criteria
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

### **Holland Laboratory Certifications<sup>1</sup>**

Agency	Type	ID	Issued	Expires
Alabama	Drinking Water (Secondary)	42500	1/1/2024	12/31/2024
Colorado	UST		6/21/2024	6/30/2025
Connecticut	Drinking Water (Secondary)	PH-0155	1/23/2023	12/31/2024
Florida	NELAP (Primary)	E871106	7/1/2024	6/30/2025
Illinois	NELAP (Secondary)	200076	12/14/2023	12/31/2024
Indiana	Drinking Water (Secondary)	C-MI-08	4/4/2024	9/4/2026
Iowa	State Specific	403	9/18/2023	9/1/2025
Kansas	NELAP (Secondary)	E-10411	7/09/2024	7/31/2025
Kentucky	Waste Water	KY98004	12/5/2023	12/31/2024
Kentucky	UST	120474	6/24/24	6/30/2025
Michigan	Drinking Water (Primary)	0022	12/19/2023	9/4/2026
Minnesota	NELAP (Secondary)	026-999-449	12/29/2023	12/31/2024
New Jersey	NELAP (Secondary)	MI015	7/1/2024	6/30/2025
New York	Drinking Water (Secondary)	12128	3/29/2024	4/1/2025
North Dakota	State Specific	R-192	9/12/2023	6/30/2024
Ohio	Drinking Water (Secondary)	87783	7/1/2024	6/30/2025
Pennsylvania	NELAP (Secondary)	68-03827	6/14/2024	7/31/2025
Texas	NELAP (Secondary)	T104704494	2/1/2024	1/31/2025
USDA	Domestic CA	Soil-MI-007	8/21/2023	2/18/2025
USDA	Soil Import	P330-19-00039	3/3/2023	3/3/2026
West Virginia	State Specific	355	6/24/2024	8/31/2025
Wisconsin	State Specific	399084510	8/15/2024	8/31/2025

<sup>1</sup> - Scope available upon request

## ANALYST SUMMARY



**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK

**Work Order:** HN2406805

**Sample Name:** HLRK-MW-40-092324  
**Laboratory Code:** HN2406805-001  
**Sample Matrix:** GROUNDWATER

**Date Collected:** 09/23/24  
**Date Received:** 09/24/24

Analysis Method	Preparation Lot	Prepared By	Analysis Lot	Analyzed By
EPA 6020B	1673896	Chloe Patrick	2611144	Matthew Kiel
EPA 6020B	1673896	Chloe Patrick	2614110	Matthew Kiel
EPA 9056A	1670322	Quoc Nguyen	2599083	Quoc Nguyen
EPA 9056A	1672641	Quoc Nguyen	2603459	Quoc Nguyen
SM 2320 B-2011	1673941	Dylan Launiere	2604539	Dylan Launiere
SM 2540 C-2015	1671445	Laci Denbleyker	2609898	Laci Denbleyker

**Sample Name:** HLRK-MW-25S-092324  
**Laboratory Code:** HN2406805-002  
**Sample Matrix:** GROUNDWATER

**Date Collected:** 09/23/24  
**Date Received:** 09/24/24

Analysis Method	Preparation Lot	Prepared By	Analysis Lot	Analyzed By
EPA 6020B	1673896	Chloe Patrick	2611144	Matthew Kiel
EPA 9056A	1671485	Quoc Nguyen	2603459	Quoc Nguyen
EPA 9056A	1675036	Jessica Bacon	2607376	Quoc Nguyen
SM 2320 B-2011	1673941	Dylan Launiere	2604539	Dylan Launiere
SM 2540 C-2015	1671445	Laci Denbleyker	2609898	Laci Denbleyker

**Sample Name:** HLRK-MW-99A-092524  
**Laboratory Code:** HN2406805-008  
**Sample Matrix:** GROUNDWATER

**Date Collected:** 09/25/24  
**Date Received:** 09/26/24

Analysis Method	Preparation Lot	Prepared By	Analysis Lot	Analyzed By
EPA 6020B	1680802	Denise Coffey	2641273	Stephanie Pierson
EPA 6020B	1680802	Denise Coffey	2631442	Denise Coffey
EPA 9056A	1695934	Quoc Nguyen	2639425	Quoc Nguyen
EPA 9056A	1696065	Quoc Nguyen	2639655	Quoc Nguyen
SM 2320 B-2011	1680735	Dylan Launiere	2615085	Quoc Nguyen
SM 2540 C-2015	1677167	Laci Denbleyker	2616452	Quoc Nguyen

## ANALYST SUMMARY



**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK

**Work Order:** HN2406805

**Sample Name:** HLRK-MW-23S-092524  
**Laboratory Code:** HN2406805-009  
**Sample Matrix:** GROUNDWATER

**Date Collected:** 09/25/24  
**Date Received:** 09/26/24

Analysis Method	Preparation Lot	Prepared By	Analysis Lot	Analyzed By
EPA 6020B	1680802	Denise Coffey	2641273	Denise Coffey
EPA 6020B	1680802	Denise Coffey	2631442	Denise Coffey
EPA 6020B	1714638	Elisabeth Yskes	2684153	Matthew Kiel
EPA 9056A	1696886	Quoc Nguyen	2642579	Quoc Nguyen
SM 2320 B-2011	1680735	Dylan Launiere	2615085	Quoc Nguyen
SM 2540 C-2015	1677167	Laci Denbleyker	2616452	Quoc Nguyen

**Sample Name:** HLRK-MW-11S-092524  
**Laboratory Code:** HN2406805-010  
**Sample Matrix:** GROUNDWATER

**Date Collected:** 09/25/24  
**Date Received:** 09/26/24

Analysis Method	Preparation Lot	Prepared By	Analysis Lot	Analyzed By
EPA 6020B	1680802	Denise Coffey	2641273	Stephanie Pierson
EPA 6020B	1680802	Denise Coffey	2631442	Denise Coffey
EPA 9056A	1695934	Quoc Nguyen	2639425	Quoc Nguyen
EPA 9056A	1696886	Quoc Nguyen	2642579	Quoc Nguyen
SM 2320 B-2011	1680735	Dylan Launiere	2615085	Dylan Launiere
SM 2540 C-2015	1677167	Laci Denbleyker	2616452	Quoc Nguyen

**Sample Name:** HLRK-MW-22S-092624  
**Laboratory Code:** HN2406805-011  
**Sample Matrix:** GROUNDWATER

**Date Collected:** 09/26/24  
**Date Received:** 09/27/24

Analysis Method	Preparation Lot	Prepared By	Analysis Lot	Analyzed By
EPA 6020B	1680802	Denise Coffey	2641273	Denise Coffey
EPA 6020B	1680802	Denise Coffey	2631442	Denise Coffey
EPA 6020B	1714638	Elisabeth Yskes	2688879	Stephanie Pierson
EPA 9056A	1695934	Quoc Nguyen	2639425	Quoc Nguyen
EPA 9056A	1696065	Quoc Nguyen	2639655	Quoc Nguyen
SM 2320 B-2011	1680735	Dylan Launiere	2615085	Quoc Nguyen
SM 2540 C-2015	1680726	Laci Denbleyker	2623472	Quoc Nguyen

# ANALYST SUMMARY



**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK

**Work Order:** HN2406805

**Sample Name:** HLRK-MW-22S-092624  
**Laboratory Code:** HN2406805-011  
**Sample Matrix:** GROUNDWATER

**Date Collected:** 09/26/24  
**Date Received:** 09/27/24

Analysis Method	Preparation Lot	Prepared By	Analysis Lot	Analyzed By
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**Sample Name:** HLRK-MW-24S-092624  
**Laboratory Code:** HN2406805-012  
**Sample Matrix:** GROUNDWATER

**Date Collected:** 09/26/24  
**Date Received:** 09/27/24

Analysis Method	Preparation Lot	Prepared By	Analysis Lot	Analyzed By
EPA 6020B	1680695	Denise Coffey	2641273	Denise Coffey
EPA 6020B	1680695	Denise Coffey	2631612	Denise Coffey
EPA 6020B	1714638	Elisabeth Yskes	2688879	Stephanie Pierson
EPA 9056A	1695934	Quoc Nguyen	2639425	Quoc Nguyen
EPA 9056A	1696065	Quoc Nguyen	2639655	Quoc Nguyen
SM 2320 B-2011	1680735	Dylan Launiere	2615085	Quoc Nguyen
SM 2540 C-2015	1680726	Laci Denbleyker	2623472	Quoc Nguyen

**Sample Name:** HLRK-MW-41-092624  
**Laboratory Code:** HN2406805-013  
**Sample Matrix:** GROUNDWATER

**Date Collected:** 09/26/24  
**Date Received:** 09/27/24

Analysis Method	Preparation Lot	Prepared By	Analysis Lot	Analyzed By
EPA 6020B	1680840	Elisabeth Yskes	2624286	Denise Coffey
EPA 6020B	1680840	Elisabeth Yskes	2626793	Denise Coffey
EPA 9056A	1696886	Quoc Nguyen	2642579	Quoc Nguyen
EPA 9056A	1699190	Quoc Nguyen	2646908	Quoc Nguyen
SM 2320 B-2011	1680735	Dylan Launiere	2615085	Dylan Launiere
SM 2540 C-2015	1680726	Laci Denbleyker	2623472	Laci Denbleyker

## ANALYST SUMMARY



**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK

**Work Order:** HN2406805

**Sample Name:** HLRK-MW-13S-092624  
**Laboratory Code:** HN2406805-014  
**Sample Matrix:** GROUNDWATER

**Date Collected:** 09/26/24  
**Date Received:** 09/27/24

Analysis Method	Preparation Lot	Prepared By	Analysis Lot	Analyzed By
EPA 6020B	1680802	Denise Coffey	2641273	Stephanie Pierson
EPA 6020B	1680802	Denise Coffey	2631442	Denise Coffey
EPA 9056A	1695934	Quoc Nguyen	2639425	Quoc Nguyen
EPA 9056A	1696065	Quoc Nguyen	2639655	Quoc Nguyen
SM 2320 B-2011	1680735	Dylan Launiere	2615085	Quoc Nguyen
SM 2540 C-2015	1680726	Quoc Nguyen	2623472	Quoc Nguyen

**Sample Name:** HLRK-MW-12S-092724  
**Laboratory Code:** HN2406805-015  
**Sample Matrix:** GROUNDWATER

**Date Collected:** 09/27/24  
**Date Received:** 09/28/24

Analysis Method	Preparation Lot	Prepared By	Analysis Lot	Analyzed By
EPA 6020B	1714638	Elisabeth Yskes	2684153	Matthew Kiel
EPA 6020B	1714638	Elisabeth Yskes	2694937	Denise Coffey
EPA 6020B	1714638	Elisabeth Yskes	2695663	Denise Coffey
EPA 9056A	1695934	Quoc Nguyen	2639425	Quoc Nguyen
EPA 9056A	1696065	Quoc Nguyen	2639655	Quoc Nguyen
EPA 9056A	1696065	Quoc Nguyen	2695114	Quoc Nguyen
SM 2320 B-2011	1681507	Dylan Launiere	2616457	Quoc Nguyen
SM 2540 C-2015	1682117	Laci Denbleyker	2627045	Quoc Nguyen

**Sample Name:** HLRK-MW-42-092724  
**Laboratory Code:** HN2406805-016  
**Sample Matrix:** GROUNDWATER

**Date Collected:** 09/27/24  
**Date Received:** 09/28/24

Analysis Method	Preparation Lot	Prepared By	Analysis Lot	Analyzed By
EPA 6020B	1682226	Elisabeth Yskes	2631442	Denise Coffey
EPA 6020B	1682226	Elisabeth Yskes	2641273	Stephanie Pierson
EPA 9056A	1696886	Quoc Nguyen	2642579	Quoc Nguyen
EPA 9056A	1699190	Quoc Nguyen	2646908	Quoc Nguyen
SM 2320 B-2011	1681507	Dylan Launiere	2616457	Dylan Launiere

## ANALYST SUMMARY



**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK

**Work Order:** HN2406805

**Sample Name:** HLRK-MW-42-092724  
**Laboratory Code:** HN2406805-016  
**Sample Matrix:** GROUNDWATER

**Date Collected:** 09/27/24  
**Date Received:** 09/28/24

Analysis Method	Preparation Lot	Prepared By	Analysis Lot	Analyzed By
SM 2540 C-2015	1682117	Laci Denbleyker	2627045	Laci Denbleyker

**Sample Name:** HLRK-MW-43-092724  
**Laboratory Code:** HN2406805-017  
**Sample Matrix:** GROUNDWATER

**Date Collected:** 09/27/24  
**Date Received:** 09/28/24

Analysis Method	Preparation Lot	Prepared By	Analysis Lot	Analyzed By
EPA 6020B	1682226	Elisabeth Yskes	2631442	Denise Coffey
EPA 6020B	1682226	Elisabeth Yskes	2641273	Stephanie Pierson
EPA 9056A	1696886	Quoc Nguyen	2642579	Quoc Nguyen
EPA 9056A	1699190	Quoc Nguyen	2646908	Quoc Nguyen
SM 2320 B-2011	1681507	Dylan Launiere	2616457	Dylan Launiere
SM 2540 C-2015	1682117	Laci Denbleyker	2627045	Laci Denbleyker



## Sample Results



# Metals



Analytical Report

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** GROUNDWATER  
  
**Sample Name:** HLRK-MW-40-092324  
**Laboratory Code:** HN2406805-001

**Work Order:** HN2406805  
**Date Collected:** 09/23/24 13:37  
**Date Received:** 09/24/24 09:30

Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Boron	EPA 6020B	0.137	mg/L	0.0200	1	09/27/24 21:19	09/26/24 12:01	
Calcium	EPA 6020B	227 B	mg/L	5.00	10	09/29/24 13:05	09/26/24 12:01	
Magnesium	EPA 6020B	98.4	mg/L	0.200	1	09/27/24 21:19	09/26/24 12:01	
Potassium	EPA 6020B	4.72	mg/L	0.200	1	09/27/24 21:19	09/26/24 12:01	
Sodium	EPA 6020B	30.1	mg/L	0.200	1	09/27/24 21:19	09/26/24 12:01	

Analytical Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: GROUNDWATER  
  
Sample Name: HLRK-MW-25S-092324  
Laboratory Code: HN2406805-002

Work Order: HN2406805  
Date Collected: 09/23/24 12:30  
Date Received: 09/24/24 09:30

Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Boron	EPA 6020B	0.331	mg/L	0.0200	1	09/27/24 21:15	09/26/24 12:01	
Calcium	EPA 6020B	149 B	mg/L	0.500	1	09/27/24 21:15	09/26/24 12:01	
Magnesium	EPA 6020B	50.5	mg/L	0.200	1	09/27/24 21:15	09/26/24 12:01	
Potassium	EPA 6020B	5.67	mg/L	0.200	1	09/27/24 21:15	09/26/24 12:01	
Sodium	EPA 6020B	32.1	mg/L	0.200	1	09/27/24 21:15	09/26/24 12:01	

Analytical Report

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** GROUNDWATER  
  
**Sample Name:** HLRK-MW-99A-092524  
**Laboratory Code:** HN2406805-008

**Work Order:** HN2406805  
**Date Collected:** 09/25/24 12:00  
**Date Received:** 09/26/24 09:30

Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Boron	EPA 6020B	0.567	mg/L	0.200	10	10/08/24 18:05	10/04/24 15:02	
Calcium	EPA 6020B	397	mg/L	5.00	10	10/08/24 18:05	10/04/24 15:02	
Magnesium	EPA 6020B	126	mg/L	0.200	1	10/04/24 18:06	10/04/24 15:02	
Potassium	EPA 6020B	4.56	mg/L	0.200	1	10/04/24 18:06	10/04/24 15:02	
Sodium	EPA 6020B	10.6	mg/L	2.00	10	10/08/24 18:05	10/04/24 15:02	

Analytical Report

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** GROUNDWATER  
  
**Sample Name:** HLRK-MW-23S-092524  
**Laboratory Code:** HN2406805-009

**Work Order:** HN2406805  
**Date Collected:** 09/25/24 12:45  
**Date Received:** 09/26/24 09:30

Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Boron	EPA 6020B	0.594	mg/L	0.200	10	10/22/24 15:02	10/18/24 13:55	
Calcium	EPA 6020B	396	mg/L	5.00	10	10/08/24 18:10	10/04/24 15:02	
Magnesium	EPA 6020B	125	mg/L	0.200	1	10/04/24 18:12	10/04/24 15:02	
Potassium	EPA 6020B	4.50	mg/L	0.200	1	10/04/24 18:12	10/04/24 15:02	
Sodium	EPA 6020B	10.6	mg/L	2.00	10	10/08/24 18:10	10/04/24 15:02	

Analytical Report

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** GROUNDWATER  
  
**Sample Name:** HLRK-MW-11S-092524  
**Laboratory Code:** HN2406805-010

**Work Order:** HN2406805  
**Date Collected:** 09/25/24 13:25  
**Date Received:** 09/26/24 09:30

Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Boron	EPA 6020B	ND U	mg/L	0.200	10	10/08/24 18:11	10/04/24 15:02	
Calcium	EPA 6020B	484	mg/L	5.00	10	10/08/24 18:11	10/04/24 15:02	
Magnesium	EPA 6020B	115	mg/L	0.200	1	10/04/24 18:13	10/04/24 15:02	
Potassium	EPA 6020B	2.42	mg/L	0.200	1	10/04/24 18:13	10/04/24 15:02	
Sodium	EPA 6020B	13.2	mg/L	2.00	10	10/08/24 18:11	10/04/24 15:02	

Analytical Report

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** GROUNDWATER  
  
**Sample Name:** HLRK-MW-22S-092624  
**Laboratory Code:** HN2406805-011

**Work Order:** HN2406805  
**Date Collected:** 09/26/24 10:45  
**Date Received:** 09/27/24 09:30

Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Boron	EPA 6020B	0.203	mg/L	0.0200	1	10/23/24 18:09	10/18/24 13:55	
Calcium	EPA 6020B	458	mg/L	5.00	10	10/08/24 18:16	10/04/24 15:02	
Magnesium	EPA 6020B	155	mg/L	0.200	1	10/04/24 18:19	10/04/24 15:02	
Potassium	EPA 6020B	4.23	mg/L	0.200	1	10/04/24 18:19	10/04/24 15:02	
Sodium	EPA 6020B	22.7	mg/L	2.00	10	10/08/24 18:16	10/04/24 15:02	

Analytical Report

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** GROUNDWATER  
  
**Sample Name:** HLRK-MW-24S-092624  
**Laboratory Code:** HN2406805-012

**Work Order:** HN2406805  
**Date Collected:** 09/26/24 11:37  
**Date Received:** 09/27/24 09:30

Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Boron	EPA 6020B	0.452	mg/L	0.0200	1	10/23/24 18:11	10/18/24 13:55	
Calcium	EPA 6020B	503	mg/L	5.00	10	10/08/24 18:54	09/30/24 08:34	
Magnesium	EPA 6020B	110	mg/L	0.200	1	10/04/24 20:47	09/30/24 08:34	
Potassium	EPA 6020B	5.32	mg/L	0.200	1	10/04/24 20:47	09/30/24 08:34	
Sodium	EPA 6020B	6.44	mg/L	0.200	1	10/04/24 20:47	09/30/24 08:34	

Analytical Report

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** GROUNDWATER  
  
**Sample Name:** HLRK-MW-41-092624  
**Laboratory Code:** HN2406805-013

**Work Order:** HN2406805  
**Date Collected:** 09/26/24 13:35  
**Date Received:** 09/27/24 09:30

Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Boron	EPA 6020B	4.16	mg/L	0.200	10	10/03/24 14:27	09/30/24 12:49	
Calcium	EPA 6020B	466	mg/L	5.00	10	10/03/24 14:27	09/30/24 12:49	
Magnesium	EPA 6020B	292	mg/L	2.00	10	10/03/24 14:27	09/30/24 12:49	
Potassium	EPA 6020B	8.07	mg/L	0.200	1	10/02/24 22:43	09/30/24 12:49	
Sodium	EPA 6020B	18.8	mg/L	0.200	1	10/02/24 22:43	09/30/24 12:49	



Analytical Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: GROUNDWATER  
  
Sample Name: HLRK-MW-13S-092624  
Laboratory Code: HN2406805-014

Work Order: HN2406805  
Date Collected: 09/26/24 13:36  
Date Received: 09/27/24 09:30

Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Boron	EPA 6020B	0.0424 B	mg/L	0.0200	1	10/04/24 18:24	10/04/24 15:02	
Calcium	EPA 6020B	454	mg/L	5.00	10	10/08/24 18:18	10/04/24 15:02	
Magnesium	EPA 6020B	129	mg/L	2.00	10	10/08/24 18:18	10/04/24 15:02	
Potassium	EPA 6020B	4.68	mg/L	0.200	1	10/04/24 18:24	10/04/24 15:02	
Sodium	EPA 6020B	4.99	mg/L	2.00	10	10/08/24 18:18	10/04/24 15:02	

Analytical Report

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** GROUNDWATER  
  
**Sample Name:** HLRK-MW-12S-092724  
**Laboratory Code:** HN2406805-015

**Work Order:** HN2406805  
**Date Collected:** 09/27/24 11:15  
**Date Received:** 09/28/24 10:00

Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Boron	EPA 6020B	2.74	mg/L	0.200	10	10/22/24 15:05	10/18/24 13:55	
Calcium	EPA 6020B	659	mg/L	5.00	10	10/25/24 08:22	10/18/24 13:55	
Magnesium	EPA 6020B	212	mg/L	2.00	10	10/22/24 15:05	10/18/24 13:55	
Potassium	EPA 6020B	5.50	mg/L	0.200	1	10/25/24 11:17	10/18/24 13:55	
Sodium	EPA 6020B	34.2	mg/L	2.00	10	10/25/24 08:22	10/18/24 13:55	

Analytical Report

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** GROUNDWATER  
  
**Sample Name:** HLRK-MW-42-092724  
**Laboratory Code:** HN2406805-016

**Work Order:** HN2406805  
**Date Collected:** 09/27/24 12:10  
**Date Received:** 09/28/24 10:00

Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Boron	EPA 6020B	0.158	mg/L	0.0200	1	10/04/24 18:53	10/01/24 13:58	
Calcium	EPA 6020B	475	mg/L	5.00	10	10/08/24 18:43	10/01/24 13:58	
Magnesium	EPA 6020B	286	mg/L	2.00	10	10/08/24 18:43	10/01/24 13:58	
Potassium	EPA 6020B	7.18	mg/L	0.200	1	10/04/24 18:53	10/01/24 13:58	
Sodium	EPA 6020B	20.5	mg/L	2.00	10	10/08/24 18:43	10/01/24 13:58	

Analytical Report

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** GROUNDWATER  
  
**Sample Name:** HLRK-MW-43-092724  
**Laboratory Code:** HN2406805-017

**Work Order:** HN2406805  
**Date Collected:** 09/27/24 15:10  
**Date Received:** 09/28/24 10:00

Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Boron	EPA 6020B	0.515	mg/L	0.0200	1	10/04/24 18:54	10/01/24 13:58	
Calcium	EPA 6020B	474	mg/L	5.00	10	10/08/24 18:45	10/01/24 13:58	
Magnesium	EPA 6020B	276	mg/L	2.00	10	10/08/24 18:45	10/01/24 13:58	
Potassium	EPA 6020B	7.85	mg/L	0.200	1	10/04/24 18:54	10/01/24 13:58	
Sodium	EPA 6020B	20.8	mg/L	2.00	10	10/08/24 18:45	10/01/24 13:58	



# General Chemistry

# Analytical Report

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** GROUNDWATER  
  
**Sample Name:** HLRK-MW-40-092324  
**Laboratory Code:** HN2406805-001

**Work Order:** HN2406805  
**Date Collected:** 09/23/24 13:37  
**Date Received:** 09/24/24 09:30

## General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity as CaCO3	SM 2320 B-2011	424	mg/L	2.00	1	09/26/24 10:20	09/26/24 09:19	
Chloride	EPA 9056A	7.91	mg/L	1.00	1	09/24/24 19:17	09/24/24 19:12	
Fluoride	EPA 9056A	0.159	mg/L	0.100	1	09/24/24 19:17	09/24/24 19:12	
Residue-filterable (TDS)	SM 2540 C-2015	1360	mg/L	150	1	09/27/24 13:19	09/25/24 13:18	
Sulfate	EPA 9056A	761	mg/L	160	160	09/25/24 19:25	09/25/24 19:22	

Analytical Report

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** GROUNDWATER  
  
**Sample Name:** HLRK-MW-25S-092324  
**Laboratory Code:** HN2406805-002

**Work Order:** HN2406805  
**Date Collected:** 09/23/24 12:30  
**Date Received:** 09/24/24 09:30

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity as CaCO3	SM 2320 B-2011	332	mg/L	2.00	1	09/26/24 09:37	09/26/24 09:19	
Chloride	EPA 9056A	8.34	mg/L	1.00	1	09/25/24 19:25	09/25/24 17:49	
Fluoride	EPA 9056A	ND U	mg/L	0.100	1	09/25/24 19:25	09/25/24 17:49	
Residue-filterable (TDS)	SM 2540 C-2015	893	mg/L	100	1	09/27/24 13:19	09/25/24 13:18	
Sulfate	EPA 9056A	386	mg/L	40.0	40	09/26/24 18:52	09/26/24 14:00	

Analytical Report

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** GROUNDWATER  
  
**Sample Name:** HLRK-MW-99A-092524  
**Laboratory Code:** HN2406805-008

**Work Order:** HN2406805  
**Date Collected:** 09/25/24 12:00  
**Date Received:** 09/26/24 09:30

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity as CaCO3	SM 2320 B-2011	324	mg/L	2.00	1	09/30/24 11:03	09/30/24 09:40	
Chloride	EPA 9056A	36.3	mg/L	16.0	16	10/08/24 08:53	10/08/24 08:52	
Fluoride	EPA 9056A	ND U	mg/L	1.60	16	10/08/24 08:53	10/08/24 08:52	
Residue-filterable (TDS)	SM 2540 C-2015	2070	mg/L	100	1	09/30/24 14:48	09/27/24 15:17	
Sulfate	EPA 9056A	1470 S	mg/L	160	160	10/08/24 10:12	10/08/24 10:11	



Analytical Report

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** GROUNDWATER  
  
**Sample Name:** HLRK-MW-23S-092524  
**Laboratory Code:** HN2406805-009

**Work Order:** HN2406805  
**Date Collected:** 09/25/24 12:45  
**Date Received:** 09/26/24 09:30

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity as CaCO3	SM 2320 B-2011	319	mg/L	2.00	1	09/30/24 11:06	09/30/24 09:40	
Chloride	EPA 9056A	37.0	mg/L	16.0	16	10/08/24 20:18	10/08/24 19:48	
Fluoride	EPA 9056A	ND U	mg/L	1.60	16	10/08/24 20:18	10/08/24 19:48	
Residue-filterable (TDS)	SM 2540 C-2015	2010	mg/L	100	1	09/30/24 14:48	09/27/24 15:17	
Sulfate	EPA 9056A	1580	mg/L	160	160	10/08/24 20:27	10/08/24 19:48	

Analytical Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: GROUNDWATER  
  
Sample Name: HLRK-MW-11S-092524  
Laboratory Code: HN2406805-010

Work Order: HN2406805  
Date Collected: 09/25/24 13:25  
Date Received: 09/26/24 09:30

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity as CaCO3	SM 2320 B-2011	482	mg/L	2.00	1	09/30/24 11:10	09/30/24 09:40	
Chloride	EPA 9056A	ND U	mg/L	16.0	16	10/08/24 08:53	10/08/24 08:52	
Fluoride	EPA 9056A	ND SU	mg/L	1.60	16	10/08/24 08:53	10/08/24 08:52	
Residue-filterable (TDS)	SM 2540 C-2015	2100	mg/L	100	1	09/30/24 14:48	09/27/24 15:17	
Sulfate	EPA 9056A	1420	mg/L	160	160	10/08/24 19:49	10/08/24 19:48	

# Analytical Report

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** GROUNDWATER  
  
**Sample Name:** HLRK-MW-22S-092624  
**Laboratory Code:** HN2406805-011

**Work Order:** HN2406805  
**Date Collected:** 09/26/24 10:45  
**Date Received:** 09/27/24 09:30

## General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity as CaCO3	SM 2320 B-2011	532	mg/L	2.00	1	09/30/24 11:16	09/30/24 09:40	
Chloride	EPA 9056A	41.6	mg/L	16.0	16	10/08/24 08:53	10/08/24 08:52	
Fluoride	EPA 9056A	ND U	mg/L	1.60	16	10/08/24 08:53	10/08/24 08:52	
Residue-filterable (TDS)	SM 2540 C-2015	2270	mg/L	100	1	10/02/24 15:06	09/30/24 14:45	
Sulfate	EPA 9056A	1440	mg/L	160	160	10/08/24 10:12	10/08/24 10:11	

# Analytical Report

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** GROUNDWATER  
  
**Sample Name:** HLRK-MW-24S-092624  
**Laboratory Code:** HN2406805-012

**Work Order:** HN2406805  
**Date Collected:** 09/26/24 11:37  
**Date Received:** 09/27/24 09:30

## General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity as CaCO3	SM 2320 B-2011	354	mg/L	2.00	1	09/30/24 11:20	09/30/24 09:40	
Chloride	EPA 9056A	90.8	mg/L	16.0	16	10/08/24 08:53	10/08/24 08:52	
Fluoride	EPA 9056A	ND U	mg/L	1.60	16	10/08/24 08:53	10/08/24 08:52	
Residue-filterable (TDS)	SM 2540 C-2015	2010	mg/L	100	1	10/02/24 15:06	09/30/24 14:45	
Sulfate	EPA 9056A	1320	mg/L	160	160	10/08/24 10:12	10/08/24 10:11	

Analytical Report

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** GROUNDWATER  
  
**Sample Name:** HLRK-MW-41-092624  
**Laboratory Code:** HN2406805-013

**Work Order:** HN2406805  
**Date Collected:** 09/26/24 13:35  
**Date Received:** 09/27/24 09:30

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity as CaCO3	SM 2320 B-2011	546	mg/L	2.00	1	09/30/24 11:24	09/30/24 09:40	
Chloride	EPA 9056A	203	mg/L	16.0	16	10/08/24 20:37	10/08/24 19:48	
Fluoride	EPA 9056A	ND U	mg/L	1.60	16	10/08/24 20:37	10/08/24 19:48	
Residue-filterable (TDS)	SM 2540 C-2015	2890	mg/L	150	1	10/02/24 15:06	09/30/24 14:45	
Sulfate	EPA 9056A	1510	mg/L	160	160	10/09/24 20:09	10/09/24 18:56	

Analytical Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: GROUNDWATER  
  
Sample Name: HLRK-MW-13S-092624  
Laboratory Code: HN2406805-014

Work Order: HN2406805  
Date Collected: 09/26/24 13:36  
Date Received: 09/27/24 09:30

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity as CaCO3	SM 2320 B-2011	576	mg/L	2.00	1	09/30/24 11:27	09/30/24 09:40	
Chloride	EPA 9056A	ND U	mg/L	16.0	16	10/08/24 08:53	10/08/24 08:52	
Fluoride	EPA 9056A	ND U	mg/L	1.60	16	10/08/24 08:53	10/08/24 08:52	
Residue-filterable (TDS)	SM 2540 C-2015	1930	mg/L	100	1	10/02/24 15:06	09/30/24 14:45	
Sulfate	EPA 9056A	1240	mg/L	160	160	10/08/24 10:12	10/08/24 10:11	

# Analytical Report

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** GROUNDWATER  
  
**Sample Name:** HLRK-MW-12S-092724  
**Laboratory Code:** HN2406805-015

**Work Order:** HN2406805  
**Date Collected:** 09/27/24 11:15  
**Date Received:** 09/28/24 10:00

## General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity as CaCO3	SM 2320 B-2011	444	mg/L	2.00	1	09/30/24 15:59	09/30/24 15:22	
Chloride	EPA 9056A	361	mg/L	160	160	10/25/24 09:33	10/03/24 08:50	
Fluoride	EPA 9056A	ND U	mg/L	1.60	16	10/08/24 08:53	10/08/24 08:52	
Residue-filterable (TDS)	SM 2540 C-2015	3420	mg/L	150	1	10/03/24 13:07	10/01/24 15:14	
Sulfate	EPA 9056A	2000	mg/L	160	160	10/08/24 10:12	10/08/24 10:11	

Analytical Report

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** GROUNDWATER  
  
**Sample Name:** HLRK-MW-42-092724  
**Laboratory Code:** HN2406805-016

**Work Order:** HN2406805  
**Date Collected:** 09/27/24 12:10  
**Date Received:** 09/28/24 10:00

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity as CaCO3	SM 2320 B-2011	631	mg/L	2.00	1	09/30/24 16:06	09/30/24 15:22	
Chloride	EPA 9056A	ND U	mg/L	16.0	16	10/08/24 20:47	10/08/24 19:48	
Fluoride	EPA 9056A	ND U	mg/L	1.60	16	10/08/24 20:47	10/08/24 19:48	
Residue-filterable (TDS)	SM 2540 C-2015	2970	mg/L	150	1	10/03/24 13:07	10/01/24 15:14	
Sulfate	EPA 9056A	1860	mg/L	160	160	10/09/24 20:19	10/09/24 18:56	



Analytical Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: GROUNDWATER  
  
Sample Name: HLRK-MW-43-092724  
Laboratory Code: HN2406805-017

Work Order: HN2406805  
Date Collected: 09/27/24 15:10  
Date Received: 09/28/24 10:00

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity as CaCO3	SM 2320 B-2011	607	mg/L	2.00	1	09/30/24 16:11	09/30/24 15:22	
Chloride	EPA 9056A	92.0	mg/L	16.0	16	10/08/24 20:57	10/08/24 19:48	
Fluoride	EPA 9056A	ND U	mg/L	1.60	16	10/08/24 20:57	10/08/24 19:48	
Residue-filterable (TDS)	SM 2540 C-2015	2920	mg/L	150	1	10/03/24 13:07	10/01/24 15:14	
Sulfate	EPA 9056A	1560	mg/L	160	160	10/09/24 20:29	10/09/24 18:56	



## QC Summary Forms



# Metals

Analytical Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order: HN2406805  
Date Collected: NA  
Date Received: NA

Sample Name: Method Blank  
Laboratory Code: QC-1673896-001

Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Boron	EPA 6020B	ND U	mg/L	0.0200	1	09/29/24 13:02	09/26/24 12:02	
Calcium	EPA 6020B	1.12	mg/L	0.500	1	09/27/24 20:48	09/26/24 12:02	
Magnesium	EPA 6020B	ND U	mg/L	0.200	1	09/27/24 20:48	09/26/24 12:02	
Potassium	EPA 6020B	ND U	mg/L	0.200	1	09/27/24 20:48	09/26/24 12:02	
Sodium	EPA 6020B	ND U	mg/L	0.200	1	09/29/24 13:02	09/26/24 12:02	

Analytical Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order: HN2406805  
Date Collected: NA  
Date Received: NA

Sample Name: Method Blank  
Laboratory Code: QC-1680695-001

Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Boron	EPA 6020B	ND U	mg/L	0.0200	1	10/04/24 20:33	09/30/24 08:35	
Calcium	EPA 6020B	ND U	mg/L	0.500	1	10/04/24 20:33	09/30/24 08:35	
Magnesium	EPA 6020B	ND U	mg/L	0.200	1	10/04/24 20:33	09/30/24 08:35	
Potassium	EPA 6020B	ND U	mg/L	0.200	1	10/04/24 20:33	09/30/24 08:35	
Sodium	EPA 6020B	ND U	mg/L	0.200	1	10/04/24 20:33	09/30/24 08:35	

Analytical Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order: HN2406805  
Date Collected: NA  
Date Received: NA

Sample Name: Method Blank  
Laboratory Code: QC-1680791-001

Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Boron	EPA 6020B	ND U	mg/L	0.0200	1	09/30/24 09:44	09/30/24 09:43	
Calcium	EPA 6020B	ND U	mg/L	0.500	1	09/30/24 09:44	09/30/24 09:43	
Magnesium	EPA 6020B	ND U	mg/L	0.200	1	09/30/24 09:44	09/30/24 09:43	
Potassium	EPA 6020B	29.164	mg/L	0.2	1	09/30/24 09:44	09/30/24 09:43	
Sodium	EPA 6020B	ND U	mg/L	0.200	1	09/30/24 09:44	09/30/24 09:43	

Analytical Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order: HN2406805  
Date Collected: NA  
Date Received: NA

Sample Name: Method Blank  
Laboratory Code: QC-1680802-001

Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Boron	EPA 6020B	ND U	mg/L	0.0200	1	10/08/24 17:31	10/04/24 15:03	
Calcium	EPA 6020B	ND U	mg/L	0.500	1	10/04/24 18:03	10/04/24 15:03	
Magnesium	EPA 6020B	ND U	mg/L	0.200	1	10/04/24 18:03	10/04/24 15:03	
Potassium	EPA 6020B	ND U	mg/L	0.200	1	10/04/24 18:03	10/04/24 15:03	
Sodium	EPA 6020B	ND U	mg/L	0.200	1	10/08/24 17:31	10/04/24 15:03	

Analytical Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order: HN2406805  
Date Collected: NA  
Date Received: NA

Sample Name: Method Blank  
Laboratory Code: QC-1680840-001

Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Boron	EPA 6020B	ND U	mg/L	0.0200	1	10/02/24 22:33	09/30/24 12:50	
Calcium	EPA 6020B	ND U	mg/L	0.500	1	10/02/24 22:33	09/30/24 12:50	
Magnesium	EPA 6020B	ND U	mg/L	0.200	1	10/02/24 22:33	09/30/24 12:50	
Potassium	EPA 6020B	ND U	mg/L	0.200	1	10/02/24 22:33	09/30/24 12:50	
Sodium	EPA 6020B	ND U	mg/L	0.200	1	10/02/24 22:33	09/30/24 12:50	



Analytical Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order: HN2406805  
Date Collected: NA  
Date Received: NA

Sample Name: Method Blank  
Laboratory Code: QC-1682226-001

Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Boron	EPA 6020B	ND U	mg/L	0.0200	1	10/04/24 18:37	10/01/24 13:59	
Calcium	EPA 6020B	ND U	mg/L	0.500	1	10/04/24 18:37	10/01/24 13:59	
Magnesium	EPA 6020B	ND U	mg/L	0.200	1	10/08/24 18:32	10/01/24 13:59	
Potassium	EPA 6020B	ND U	mg/L	0.200	1	10/04/24 18:37	10/01/24 13:59	
Sodium	EPA 6020B	ND U	mg/L	0.200	1	10/08/24 18:32	10/01/24 13:59	

Analytical Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order: HN2406805  
Date Collected: NA  
Date Received: NA

Sample Name: Method Blank  
Laboratory Code: QC-1714638-001

Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Boron	EPA 6020B	ND U	mg/L	0.0200	1	10/23/24 18:02	10/18/24 13:56	
Magnesium	EPA 6020B	ND U	mg/L	0.200	1	10/21/24 17:02	10/18/24 13:56	
Sodium	EPA 6020B	ND U	mg/L	0.200	1	10/21/24 17:02	10/18/24 13:56	

## QA/QC Report

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** GROUNDWATER

**Work Order:** HN2406805  
**Date Collected:** 09/25/2024  
**Date Received:** 09/26/2024  
**Date Analyzed:** 10/08/2024  
**Date Extracted:** 10/04/2024

### Matrix Spike Summary Metals

**Sample Name:** HLRK-MW-99A-092524  
**Laboratory Code:** HN2406805-008  
**Analysis Method:** EPA 6020B  
**Prep Method:** EPA 3015A

**Units:** mg/L  
**Analysis Lab Lot:** 2641273

### Matrix Spike QC-1680802-004

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Boron	0.567	1.09	0.5	104	75-125
Calcium	397	408 O	10	NC	75-125
Sodium	10.6	21.7	10	111	75-125

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** GROUNDWATER

**Work Order:** HN2406805  
**Date Collected:** 09/25/2024  
**Date Received:** 09/26/2024  
**Date Analyzed:** 10/04/2024  
**Date Extracted:** 10/04/2024

### Matrix Spike Summary Metals

**Sample Name:** HLRK-MW-99A-092524  
**Laboratory Code:** HN2406805-008  
**Analysis Method:** EPA 6020B  
**Prep Method:** EPA 3015A

**Units:** mg/L  
**Analysis Lab Lot:** 2631442

### Matrix Spike QC-1680802-004

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Magnesium	126	131 O	10	NC	75-125
Potassium	4.56	13.9	10	93.4	75-125

## QA/QC Report

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** GROUNDWATER

**Work Order:** HN2406805  
**Date Collected:** 09/25/2024  
**Date Received:** 09/26/2024  
**Date Analyzed:** 10/08/2024  
**Date Extracted:** 10/04/2024

### Matrix Spike Summary Metals

**Sample Name:** HLRK-MW-11S-092524  
**Laboratory Code:** HN2406805-010  
**Analysis Method:** EPA 6020B  
**Prep Method:** EPA 3015A

**Units:** mg/L  
**Analysis Lab Lot:** 2641273

### Matrix Spike QC-1680802-016

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Boron	ND	0.525	0.5	97.4	75-125
Calcium	484	479 O	10	NC	75-125
Sodium	13.2	23.3	10	101	75-125

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** GROUNDWATER

**Work Order:** HN2406805  
**Date Collected:** 09/25/2024  
**Date Received:** 09/26/2024  
**Date Analyzed:** 10/04/2024  
**Date Extracted:** 10/04/2024

### Matrix Spike Summary Metals

**Sample Name:** HLRK-MW-11S-092524  
**Laboratory Code:** HN2406805-010  
**Analysis Method:** EPA 6020B  
**Prep Method:** EPA 3015A

**Units:** mg/L  
**Analysis Lab Lot:** 2631442

### Matrix Spike QC-1680802-016

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Magnesium	115	112 O	10	NC	75-125
Potassium	2.42	11.6	10	91.5	75-125

## QA/QC Report

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** GROUNDWATER

**Work Order:** HN2406805  
**Date Collected:** 09/25/2024  
**Date Received:** 09/26/2024  
**Date Analyzed:** 10/08/2024  
**Date Extracted:** 10/04/2024

### Duplicate Matrix Spike Summary Metals

**Sample Name:** HLRK-MW-99A-092524  
**Laboratory Code:** HN2406805-008  
**Analysis Method:** EPA 6020B  
**Prep Method:** EPA 3015A

**Units:** mg/L  
**Analysis Lab Lot:** 2641273

**Matrix Spike**  
QC-1680802-004

**Duplicate Matrix Spike**  
QC-1680802-005

Analyte Name	Sample Result	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Boron	0.567	1.09	0.5	104	1.06	0.5	99.5	75-125	2.28	20
Calcium	397	408 O	10	NC	396 O	10	NC	75-125	3.13	20
Sodium	10.6	21.7	10	111	21.7	10	111	75-125	0.0886	20

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** GROUNDWATER

**Work Order:** HN2406805  
**Date Collected:** 09/25/2024  
**Date Received:** 09/26/2024  
**Date Analyzed:** 10/04/2024  
**Date Extracted:** 10/04/2024

### Duplicate Matrix Spike Summary Metals

**Sample Name:** HLRK-MW-99A-092524  
**Laboratory Code:** HN2406805-008  
**Analysis Method:** EPA 6020B  
**Prep Method:** EPA 3015A

**Units:** mg/L  
**Analysis Lab Lot:** 2631442

**Matrix Spike**  
QC-1680802-004

**Duplicate Matrix Spike**  
QC-1680802-005

Analyte Name	Sample Result	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Magnesium	126	131 O	10	NC	129 O	10	NC	75-125	1.34	20
Potassium	4.56	13.9	10	93.4	13.7	10	91.6	75-125	1.32	20

## QA/QC Report

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** GROUNDWATER

**Work Order:** HN2406805  
**Date Collected:** 09/25/2024  
**Date Received:** 09/26/2024  
**Date Analyzed:** 10/08/2024  
**Date Extracted:** 10/04/2024

### Duplicate Matrix Spike Summary Metals

**Sample Name:** HLRK-MW-11S-092524  
**Laboratory Code:** HN2406805-010  
**Analysis Method:** EPA 6020B  
**Prep Method:** EPA 3015A

**Units:** mg/L  
**Analysis Lab Lot:** 2641273

**Matrix Spike**  
QC-1680802-016

**Duplicate Matrix Spike**  
QC-1680802-017

Analyte Name	Sample Result	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Boron	ND	0.525	0.5	97.4	0.494	0.5	91.1	75-125	6.16	20
Calcium	484	479 O	10	NC	455 O	10	NC	75-125	5.05	20
Sodium	13.2	23.3	10	101	22.6	10	94.1	75-125	2.91	20

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** GROUNDWATER

**Work Order:** HN2406805  
**Date Collected:** 09/25/2024  
**Date Received:** 09/26/2024  
**Date Analyzed:** 10/04/2024  
**Date Extracted:** 10/04/2024

### Duplicate Matrix Spike Summary Metals

**Sample Name:** HLRK-MW-11S-092524  
**Laboratory Code:** HN2406805-010  
**Analysis Method:** EPA 6020B  
**Prep Method:** EPA 3015A

**Units:** mg/L  
**Analysis Lab Lot:** 2631442

**Matrix Spike**  
QC-1680802-016

**Duplicate Matrix Spike**  
QC-1680802-017

Analyte Name	Sample Result	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Magnesium	115	112 O	10	NC	112 O	10	NC	75-125	0.0637	20
Potassium	2.42	11.6	10	91.5	11.7	10	92.5	75-125	0.789	20

QA/QC Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order:HN2406805  
Date Analyzed:09/27/2024  
Date Extracted:09/26/2024

Laboratory Control Sample Summary  
Metals

Analysis Method: EPA 6020B  
Prep Method: EPA 3015A

Units:mg/L  
Analysis Lab Lot:2611144

QC-1673896-002

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Boron	0.513	0.5	102	80-120
Calcium	9.94	10	99.4	80-120
Magnesium	10.1	10	101	80-120
Potassium	9.78	10	97.8	80-120
Sodium	10.0	10	100	80-120

QA/QC Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order:HN2406805  
Date Analyzed:10/04/2024  
Date Extracted:09/30/2024

Laboratory Control Sample Summary  
Metals

Analysis Method: EPA 6020B  
Prep Method: EPA 3015A

Units:mg/L  
Analysis Lab Lot:2631612

QC-1680695-002

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Boron	0.495	0.5	99.1	80-120
Calcium	10.7	10	107	80-120
Magnesium	10.9	10	109	80-120
Potassium	10.6	10	106	80-120
Sodium	10.8	10	108	80-120



QA/QC Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order:HN2406805  
Date Analyzed:09/30/2024  
Date Extracted:09/30/2024

Laboratory Control Sample Summary  
Metals

Analysis Method: EPA 6020B  
Prep Method: EPA 3015A

Units:mg/L  
Analysis Lab Lot:2615094

QC-1680791-002

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Boron	0.488	0.5	97.7	80-120
Calcium	10.2	10	102	80-120
Magnesium	10.3	10	103	80-120
Potassium	8562.2	10		80-120
Sodium	10.4	10	104	80-120

QA/QC Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order:HN2406805  
Date Analyzed:10/08/2024  
Date Extracted:10/04/2024

Laboratory Control Sample Summary  
Metals

Analysis Method: EPA 6020B  
Prep Method: EPA 3015A

Units:mg/L  
Analysis Lab Lot:2641273

QC-1680802-002

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Boron	0.519	0.5	104	80-120
Sodium	10.4	10	104	80-120

QA/QC Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order:HN2406805  
Date Analyzed:10/04/2024  
Date Extracted:10/04/2024

Laboratory Control Sample Summary  
Metals

Analysis Method: EPA 6020B  
Prep Method: EPA 3015A

Units:mg/L  
Analysis Lab Lot:2631442

QC-1680802-002

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Calcium	9.95	10	99.5	80-120
Magnesium	9.34	10	93.4	80-120
Potassium	9.42	10	94.2	80-120

QA/QC Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order:HN2406805  
Date Analyzed:10/03/2024  
Date Extracted:09/30/2024

Laboratory Control Sample Summary  
Metals

Analysis Method: EPA 6020B  
Prep Method: EPA 3015A

Units:mg/L  
Analysis Lab Lot:2626793

QC-1680840-002

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Boron	0.518	0.5	104	80-120

QA/QC Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order:HN2406805  
Date Analyzed:10/02/2024  
Date Extracted:09/30/2024

Laboratory Control Sample Summary  
Metals

Analysis Method: EPA 6020B  
Prep Method: EPA 3015A

Units:mg/L  
Analysis Lab Lot:2624286

QC-1680840-002

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Calcium	10.2	10	102	80-120
Magnesium	9.93	10	99.3	80-120
Potassium	10.4	10	104	80-120
Sodium	9.95	10	99.5	80-120

QA/QC Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order:HN2406805  
Date Analyzed:10/04/2024  
Date Extracted:10/01/2024

Laboratory Control Sample Summary  
Metals

Analysis Method: EPA 6020B  
Prep Method: EPA 3015A

Units:mg/L  
Analysis Lab Lot:2631442

QC-1682226-002

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Boron	0.460	0.5	92.0	80-120
Calcium	9.78	10	97.8	80-120
Potassium	9.35	10	93.5	80-120

QA/QC Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order:HN2406805  
Date Analyzed:10/08/2024  
Date Extracted:10/01/2024

Laboratory Control Sample Summary  
Metals

Analysis Method: EPA 6020B  
Prep Method: EPA 3015A

Units:mg/L  
Analysis Lab Lot:2641273

QC-1682226-002

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Magnesium	10.6	10	106	80-120
Sodium	10.2	10	102	80-120

QA/QC Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order:HN2406805  
Date Analyzed:10/23/2024  
Date Extracted:10/18/2024

Laboratory Control Sample Summary  
Metals

Analysis Method: EPA 6020B  
Prep Method: EPA 3015A

Units:mg/L  
Analysis Lab Lot:2688879

QC-1714638-002

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Boron	0.488	0.5	97.7	80-120



QA/QC Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order:HN2406805  
Date Analyzed:10/21/2024  
Date Extracted:10/18/2024

Laboratory Control Sample Summary  
Metals

Analysis Method: EPA 6020B  
Prep Method: EPA 3015A

Units:mg/L  
Analysis Lab Lot:2680259

QC-1714638-002

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Magnesium	10.5	10	105	80-120
Sodium	10.3	10	103	80-120



# General Chemistry

Analytical Report

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** WATER  
  
**Sample Name:** Method Blank  
**Laboratory Code:** QC-1671445-001

**Work Order:** HN2406805  
**Date Collected:** NA  
**Date Received:** NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Residue-filterable (TDS)	SM 2540 C-2015	ND U	mg/L	30.0	1	09/27/24 13:19	09/25/24 13:19	

Analytical Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order: HN2406805  
Date Collected: NA  
Date Received: NA

Sample Name: Method Blank  
Laboratory Code: QC-1672641-001

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Chloride	EPA 9056A	ND U	mg/L	1.00	1	09/25/24 19:26	09/25/24 19:23	
Fluoride	EPA 9056A	ND U	mg/L	0.100	1	09/25/24 19:26	09/25/24 19:23	
Sulfate	EPA 9056A	ND U	mg/L	1.00	1	09/25/24 19:26	09/25/24 19:23	

Analytical Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER  
  
Sample Name: Method Blank  
Laboratory Code: QC-1673941-001

Work Order: HN2406805  
Date Collected: NA  
Date Received: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity as CaCO3	SM 2320 B-2011	ND U	mg/L	2.00	1	09/26/24 09:38	09/26/24 09:20	

Analytical Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order: HN2406805  
Date Collected: NA  
Date Received: NA

Sample Name: Method Blank  
Laboratory Code: QC-1675036-001

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Chloride	EPA 9056A	ND U	mg/L	1.00	1	09/26/24 18:33	09/26/24 14:00	
Fluoride	EPA 9056A	ND U	mg/L	0.100	1	09/26/24 18:33	09/26/24 14:00	
Sulfate	EPA 9056A	ND U	mg/L	1.00	1	09/26/24 18:33	09/26/24 14:00	

Analytical Report

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** WATER  
  
**Sample Name:** Method Blank  
**Laboratory Code:** QC-1676889-001

**Work Order:** HN2406805  
**Date Collected:** NA  
**Date Received:** NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity as CaCO3	SM 2320 B-2011	ND U	mg/L	2.00	1	09/27/24 11:00	09/27/24 10:59	

Analytical Report

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** WATER  
  
**Sample Name:** Method Blank  
**Laboratory Code:** QC-1676928-001

**Work Order:** HN2406805  
**Date Collected:** NA  
**Date Received:** NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity as CaCO3	SM 2320 B-2011	ND U	mg/L	2.00	1	09/27/24 11:10	09/27/24 11:10	



Analytical Report

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** WATER  
  
**Sample Name:** Method Blank  
**Laboratory Code:** QC-1677167-001

**Work Order:** HN2406805  
**Date Collected:** NA  
**Date Received:** NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Residue-filterable (TDS)	SM 2540 C-2015	ND U	mg/L	30.0	1	09/30/24 14:48	09/27/24 15:18	

Analytical Report

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** WATER  
  
**Sample Name:** Method Blank  
**Laboratory Code:** QC-1680726-001

**Work Order:** HN2406805  
**Date Collected:** NA  
**Date Received:** NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Residue-filterable (TDS)	SM 2540 C-2015	ND U	mg/L	30.0	1	10/02/24 15:06	09/30/24 14:46	

Analytical Report

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** WATER  
  
**Sample Name:** Method Blank  
**Laboratory Code:** QC-1680735-001

**Work Order:** HN2406805  
**Date Collected:** NA  
**Date Received:** NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity as CaCO3	SM 2320 B-2011	ND U	mg/L	2.00	1	09/30/24 09:42	09/30/24 09:41	

Analytical Report

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** WATER  
  
**Sample Name:** Method Blank  
**Laboratory Code:** QC-1681507-001

**Work Order:** HN2406805  
**Date Collected:** NA  
**Date Received:** NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Alkalinity as CaCO3	SM 2320 B-2011	ND U	mg/L	2.00	1	09/30/24 15:23	09/30/24 15:23	

Analytical Report

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** WATER  
  
**Sample Name:** Method Blank  
**Laboratory Code:** QC-1682117-001

**Work Order:** HN2406805  
**Date Collected:** NA  
**Date Received:** NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Residue-filterable (TDS)	SM 2540 C-2015	ND U	mg/L	30.0	1	10/03/24 13:07	10/01/24 15:15	

Analytical Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order: HN2406805  
Date Collected: NA  
Date Received: NA

Sample Name: Method Blank  
Laboratory Code: QC-1695934-001

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Chloride	EPA 9056A	ND U	mg/L	1.00	1	10/08/24 08:54	10/08/24 08:53	
Fluoride	EPA 9056A	ND U	mg/L	0.100	1	10/08/24 08:54	10/08/24 08:53	
Sulfate	EPA 9056A	ND U	mg/L	1.00	1	10/08/24 08:54	10/08/24 08:53	

Analytical Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order: HN2406805  
Date Collected: NA  
Date Received: NA

Sample Name: Method Blank  
Laboratory Code: QC-1696065-001

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Chloride	EPA 9056A	ND U	mg/L	1.00	1	10/08/24 10:13	10/08/24 10:12	
Fluoride	EPA 9056A	ND U	mg/L	0.100	1	10/08/24 10:13	10/08/24 10:12	
Sulfate	EPA 9056A	ND U	mg/L	1.00	1	10/08/24 10:13	10/08/24 10:12	

Analytical Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order: HN2406805  
Date Collected: NA  
Date Received: NA

Sample Name: Method Blank  
Laboratory Code: QC-1696886-001

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Chloride	EPA 9056A	ND U	mg/L	1.00	1	10/08/24 19:51	10/08/24 19:49	
Fluoride	EPA 9056A	ND U	mg/L	0.100	1	10/08/24 19:51	10/08/24 19:49	
Sulfate	EPA 9056A	ND U	mg/L	1.00	1	10/08/24 19:51	10/08/24 19:49	



Analytical Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order: HN2406805  
Date Collected: NA  
Date Received: NA

Sample Name: Method Blank  
Laboratory Code: QC-1699190-001

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Chloride	EPA 9056A	ND U	mg/L	1.00	1	10/09/24 19:30	10/09/24 18:57	
Fluoride	EPA 9056A	ND U	mg/L	0.100	1	10/09/24 19:30	10/09/24 18:57	
Sulfate	EPA 9056A	ND U	mg/L	1.00	1	10/09/24 19:30	10/09/24 18:57	

Analytical Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order: HN2406805  
Date Collected: NA  
Date Received: NA

Sample Name: Method Blank  
Laboratory Code: QC-MRG2-1670321001

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Chloride	EPA 9056A	ND U	mg/L	1.00	1	09/24/24 19:20	09/24/24 19:13	
Fluoride	EPA 9056A	ND U	mg/L	0.100	1	09/24/24 19:20	09/24/24 19:13	
Sulfate	EPA 9056A	ND U	mg/L	1.00	1	09/24/24 19:20	09/24/24 19:13	

Analytical Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order: HN2406805  
Date Collected: NA  
Date Received: NA

Sample Name: Method Blank  
Laboratory Code: QC-MRG2-1671485001

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Chloride	EPA 9056A	ND U	mg/L	1.00	1	09/25/24 19:26	09/25/24 17:50	
Fluoride	EPA 9056A	ND U	mg/L	0.100	1	09/25/24 19:26	09/25/24 17:50	
Sulfate	EPA 9056A	ND U	mg/L	1.00	1	09/25/24 19:26	09/25/24 17:50	

## QA/QC Report

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** GROUNDWATER

**Work Order:** HN2406805  
**Date Collected:** 09/25/2024  
**Date Received:** 09/26/2024  
**Date Analyzed:** 10/08/2024  
**Date Extracted:** 10/08/2024

### Matrix Spike Summary General Chemistry Parameters

**Sample Name:** HLRK-MW-11S-092524  
**Laboratory Code:** HN2406805-010  
**Analysis Method:** EPA 9056A  
**Prep Method:** Method

**Units:** mg/L  
**Analysis Lab Lot:** 2639425

### Matrix Spike QC-1695934-004

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Chloride	12.8	177	160	103	88-110
Fluoride	ND	40.5 S	32	126 S	86-121

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** GROUNDWATER

**Work Order:** HN2406805  
**Date Collected:** 09/25/2024  
**Date Received:** 09/26/2024  
**Date Analyzed:** 10/08/2024  
**Date Extracted:** 10/08/2024

### Matrix Spike Summary General Chemistry Parameters

**Sample Name:** HLRK-MW-11S-092524  
**Laboratory Code:** HN2406805-010  
**Analysis Method:** EPA 9056A  
**Prep Method:** Method

**Units:** mg/L  
**Analysis Lab Lot:** 2642579

### Matrix Spike QC-1695934-004

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Sulfate	1420	3030	1600	101	90-110

QA/QC Report

Client:

Field & Technical Services, LLC

Project:

ETEM- HOLLOWROCK

Sample Matrix:

GROUNDWATER

Work Order:

HN2406805

Date Collected:

09/25/2024

Date Received:

09/26/2024

Date Analyzed:

10/08/2024

Date Extracted:

10/08/2024

Matrix Spike Summary  
General Chemistry Parameters

Sample Name:

HLRK-MW-99A-092524

Laboratory Code:

HN2406805-008

Analysis Method:

EPA 9056A

Prep Method:

Method

Units:

mg/L

Analysis Lab Lot:

2639655

Matrix Spike  
QC-1696065-004

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Sulfate	1470	2790 S	1600	82.5 S	90-110

## QA/QC Report

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** GROUNDWATER

**Work Order:** HN2406805  
**Date Collected:** 09/25/2024  
**Date Received:** 09/26/2024  
**Date Analyzed:** 10/08/2024  
**Date Extracted:** 10/08/2024

### Duplicate Matrix Spike Summary General Chemistry Parameters

**Sample Name:** HLRK-MW-11S-092524  
**Laboratory Code:** HN2406805-010  
**Analysis Method:** EPA 9056A  
**Prep Method:** Method

**Units:** mg/L  
**Analysis Lab Lot:** 2639425

**Matrix Spike**  
QC-1695934-004

**Duplicate Matrix Spike**  
QC-1695934-005

Analyte Name	Sample Result	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Chloride	12.8	177	160	103	177	160	103	88-110	0.0660	15
Fluoride	ND	40.5 S	32	126 S	40.7 S	32	127 S	86-121	0.501	15

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** GROUNDWATER

**Work Order:** HN2406805  
**Date Collected:** 09/25/2024  
**Date Received:** 09/26/2024  
**Date Analyzed:** 10/08/2024  
**Date Extracted:** 10/08/2024

### Duplicate Matrix Spike Summary General Chemistry Parameters

**Sample Name:** HLRK-MW-11S-092524  
**Laboratory Code:** HN2406805-010  
**Analysis Method:** EPA 9056A  
**Prep Method:** Method

**Units:** mg/L  
**Analysis Lab Lot:** 2642579

**Matrix Spike**  
QC-1695934-004

**Duplicate Matrix Spike**  
QC-1695934-005

Analyte Name	Sample Result	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Sulfate	1420	3030	1600	101	3060	1600	102	90-110	0.770	15

QA/QC Report

Client:

Field & Technical Services, LLC

Project:

ETEM- HOLLOWROCK

Sample Matrix:

GROUNDWATER

Work Order:

HN2406805

Date Collected:

09/25/2024

Date Received:

09/26/2024

Date Analyzed:

10/08/2024

Date Extracted:

10/08/2024

Duplicate Matrix Spike Summary  
General Chemistry Parameters

Sample Name:

HLRK-MW-99A-092524

Laboratory Code:

HN2406805-008

Analysis Method:

EPA 9056A

Prep Method:

Method

Units:

mg/L

Analysis Lab Lot:

2639655

Matrix Spike

QC-1696065-004

Duplicate Matrix Spike

QC-1696065-005

Analyte Name	Sample Result	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Sulfate	1470	2790 S	1600	82.5 S	3190	1600	108	90-110	13.5	15

QA/QC Report

Client: Field & Technical Services, LLC  
Project ETEM- HOLLOWROCK  
Sample Matrix: GROUNDWATER

Work Order: HN2406805  
Date Collected: 09/25/2024  
Date Received: 09/26/2024  
Date Analyzed: 09/27/2024

Replicate Sample Summary  
General Chemistry Parameters

Sample Name: HLRK-MW-11S-092524 Units: mg/L  
Laboratory Code: HN2406805-007

		Duplicate Sample QC-1676928-004				
Analyte Name	Analysis Method	MRL	Sample Result	Result	RPD	RPD Limit
Alkalinity as CaCO3	SM 2320 B-2011	2.00	482	462	4.28	10



QA/QC Report

Client: Field & Technical Services, LLC  
Project ETEM- HOLLOWROCK  
Sample Matrix: GROUNDWATER

Work Order: HN2406805  
Date Collected: 09/25/2024  
Date Received: 09/26/2024  
Date Analyzed: 09/30/2024

Replicate Sample Summary  
General Chemistry Parameters

Sample Name: HLRK-MW-11S-092524 Units: mg/L  
Laboratory Code: HN2406805-007

				Duplicate Sample QC-1677167-015		
Analyte Name	Analysis Method	MRL	Sample Result	Result	RPD	RPD Limit
Residue-filterable (TDS)	SM 2540 C-2015	100	2070	2150	3.78	10

QA/QC Report

Client:

Field & Technical Services, LLC

Project

ETEM- HOLLOWROCK

Sample Matrix:

GROUNDWATER

Work Order:

HN2406805

Date Collected:

09/25/2024

Date Received:

09/26/2024

Date Analyzed:

09/30/2024

Replicate Sample Summary  
General Chemistry Parameters

Sample Name:

HLRK-MW-11S-092524

Units:

mg/L

Laboratory Code:

HN2406805-010

		Duplicate Sample QC-1680735-004				
Analyte Name	Analysis Method	MRL	Sample Result	Result	RPD	RPD Limit
Alkalinity as CaCO3	SM 2320 B-2011	2.00	482	481	0.189	10

QA/QC Report

**Client:**  
**Project**  
**Sample Matrix:**

Field & Technical Services, LLC  
ETEM- HOLLOWROCK  
GROUNDWATER

**Work Order:** HN2406805  
**Date Collected:** 09/27/2024  
**Date Received:** 09/28/2024  
**Date Analyzed:** 09/30/2024

Replicate Sample Summary  
General Chemistry Parameters

**Sample Name:** HLRK-MW-12S-092724  
**Laboratory Code:** HN2406805-015

**Units:** mg/L

		Duplicate Sample QC-1681507-004				
Analyte Name	Analysis Method	MRL	Sample Result	Result	RPD	RPD Limit
Alkalinity as CaCO3	SM 2320 B-2011	2.00	444	455	2.32	10

QA/QC Report

**Client:**  
**Project**  
**Sample Matrix:**

Field & Technical Services, LLC  
ETEM- HOLLOWROCK  
GROUNDWATER

**Work Order:** HN2406805  
**Date Collected:** 09/27/2024  
**Date Received:** 09/28/2024  
**Date Analyzed:** 10/03/2024

Replicate Sample Summary  
General Chemistry Parameters

**Sample Name:**  
**Laboratory Code:**

HLRK-MW-12S-092724  
HN2406805-015

**Units:** mg/L

		Duplicate Sample QC-1682117-004				
Analyte Name	Analysis Method	MRL	Sample Result	Result	RPD	RPD Limit
Residue-filterable (TDS)	SM 2540 C-2015	150	3420	3380	1.18	10

QA/QC Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order:HN2406805  
Date Analyzed:09/27/2024  
Date Extracted:09/25/2024

Laboratory Control Sample Summary  
General Chemistry Parameters  
Residue-filterable (TDS)

Analysis Method: SM 2540 C-2015  
Prep Method: SM 2540 C-2015

Units:mg/L  
Analysis Lab Lot:2609898

Sample Name	Laboratory Code	Result	Spike Amount	% Rec	% Rec Limits
Laboratory Control Sample	QC-1671445-002	496	495	100	85-109

QA/QC Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order:HN2406805  
Date Analyzed:09/25/2024  
Date Extracted:09/25/2024

Laboratory Control Sample Summary  
General Chemistry Parameters

Analysis Method: EPA 9056A  
Prep Method: Method

Units:mg/L  
Analysis Lab Lot:2603459

QC-1672641-002

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Chloride	10.0	10	100	88-110
Fluoride	2.08	2	104	86-121
Sulfate	10.7	10	107	90-110

## QA/QC Report

**Client:** Field & Technical Services, LLC  
**Project:** ETEM- HOLLOWROCK  
**Sample Matrix:** WATER

**Work Order:**HN2406805  
**Date Analyzed:**09/26/2024  
**Date Extracted:**09/26/2024

**Laboratory Control Sample Summary**  
**General Chemistry Parameters**  
**Alkalinity as CaCO<sub>3</sub>**

**Analysis Method:** SM 2320 B-2011  
**Prep Method:** SM 2320 B-2011

**Units:**mg/L  
**Analysis Lab Lot:**2604539

Sample Name	Laboratory Code	Result	Spike Amount	% Rec	% Rec Limits
Laboratory Control Sample	QC-1673941-002	1000	1000	100	90-110

QA/QC Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order:HN2406805  
Date Analyzed:09/26/2024  
Date Extracted:09/26/2024

Laboratory Control Sample Summary  
General Chemistry Parameters

Analysis Method: EPA 9056A  
Prep Method: Method

Units:mg/L  
Analysis Lab Lot:2607376

QC-1675036-002

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Chloride	10.0	10	100	88-110
Sulfate	11.0	10	110	90-110



QA/QC Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order:HN2406805  
Date Analyzed:09/27/2024  
Date Extracted:09/27/2024

Laboratory Control Sample Summary  
General Chemistry Parameters  
Alkalinity as CaCO3

Analysis Method: SM 2320 B-2011  
Prep Method: SM 2320 B-2011

Units:mg/L  
Analysis Lab Lot:2609018

Sample Name	Laboratory Code	Result	Spike Amount	% Rec	% Rec Limits
Laboratory Control Sample	QC-1676889-002	1010	1000	101	90-110

QA/QC Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order:HN2406805  
Date Analyzed:09/27/2024  
Date Extracted:09/27/2024

Laboratory Control Sample Summary  
General Chemistry Parameters  
Alkalinity as CaCO3

Analysis Method: SM 2320 B-2011  
Prep Method: SM 2320 B-2011

Units:mg/L  
Analysis Lab Lot:2609083

Sample Name	Laboratory Code	Result	Spike Amount	% Rec	% Rec Limits
Laboratory Control Sample	QC-1676928-002	1010	1000	101	90-110

QA/QC Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order:HN2406805  
Date Analyzed:09/30/2024  
Date Extracted:09/27/2024

Laboratory Control Sample Summary  
General Chemistry Parameters  
Residue-filterable (TDS)

Analysis Method: SM 2540 C-2015  
Prep Method: SM 2540 C-2015

Units:mg/L  
Analysis Lab Lot:2616452

Sample Name	Laboratory Code	Result	Spike Amount	% Rec	% Rec Limits
Laboratory Control Sample	QC-1677167-002	476	495	96.2	85-109

QA/QC Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order:HN2406805  
Date Analyzed:10/02/2024  
Date Extracted:09/30/2024

Laboratory Control Sample Summary  
General Chemistry Parameters  
Residue-filterable (TDS)

Analysis Method: SM 2540 C-2015  
Prep Method: SM 2540 C-2015

Units:mg/L  
Analysis Lab Lot:2623472

Sample Name	Laboratory Code	Result	Spike Amount	% Rec	% Rec Limits
Laboratory Control Sample	QC-1680726-002	474	495	95.8	85-109

QA/QC Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order:HN2406805  
Date Analyzed:09/30/2024  
Date Extracted:09/30/2024

Laboratory Control Sample Summary  
General Chemistry Parameters  
Alkalinity as CaCO3

Analysis Method: SM 2320 B-2011  
Prep Method: SM 2320 B-2011

Units:mg/L  
Analysis Lab Lot:2615085

Sample Name	Laboratory Code	Result	Spike Amount	% Rec	% Rec Limits
Laboratory Control Sample	QC-1680735-002	1000	1000	100	90-110

QA/QC Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order:HN2406805  
Date Analyzed:09/30/2024  
Date Extracted:09/30/2024

Laboratory Control Sample Summary  
General Chemistry Parameters  
Alkalinity as CaCO3

Analysis Method: SM 2320 B-2011  
Prep Method: SM 2320 B-2011

Units:mg/L  
Analysis Lab Lot:2616457

Sample Name	Laboratory Code	Result	Spike Amount	% Rec	% Rec Limits
Laboratory Control Sample	QC-1681507-002	1010	1000	101	90-110

QA/QC Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order:HN2406805  
Date Analyzed:10/03/2024  
Date Extracted:10/01/2024

Laboratory Control Sample Summary  
General Chemistry Parameters  
Residue-filterable (TDS)

Analysis Method: SM 2540 C-2015  
Prep Method: SM 2540 C-2015

Units:mg/L  
Analysis Lab Lot:2627045

Sample Name	Laboratory Code	Result	Spike Amount	% Rec	% Rec Limits
Laboratory Control Sample	QC-1682117-002	468	495	94.5	85-109

QA/QC Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order:HN2406805  
Date Analyzed:10/08/2024  
Date Extracted:10/08/2024

Laboratory Control Sample Summary  
General Chemistry Parameters

Analysis Method: EPA 9056A  
Prep Method: Method

Units:mg/L  
Analysis Lab Lot:2639425

QC-1695934-002

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Chloride	10.2	10	102	88-110
Fluoride	2.06	2	103	86-121
Sulfate	10.4	10	104	90-110



QA/QC Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order:HN2406805  
Date Analyzed:10/08/2024  
Date Extracted:10/08/2024

Laboratory Control Sample Summary  
General Chemistry Parameters

Analysis Method: EPA 9056A  
Prep Method: Method

Units:mg/L  
Analysis Lab Lot:2639655

QC-1696065-002

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Chloride	9.81	10	98.1	88-110
Fluoride	2.18	2	109	86-121
Sulfate	10.8	10	108	90-110

QA/QC Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order:HN2406805  
Date Analyzed:10/08/2024  
Date Extracted:10/08/2024

Laboratory Control Sample Summary  
General Chemistry Parameters

Analysis Method: EPA 9056A  
Prep Method: Method

Units:mg/L  
Analysis Lab Lot:2642579

QC-1696886-002

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Chloride	9.86	10	98.6	88-110
Fluoride	2.03	2	102	86-121
Sulfate	9.99	10	99.9	90-110

QA/QC Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order:HN2406805  
Date Analyzed:10/09/2024  
Date Extracted:10/09/2024

Laboratory Control Sample Summary  
General Chemistry Parameters

Analysis Method: EPA 9056A  
Prep Method: Method

Units:mg/L  
Analysis Lab Lot:2646908

QC-1699190-002

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Chloride	9.57	10	95.7	88-110
Fluoride	2.10	2	105	86-121
Sulfate	9.92	10	99.2	90-110

QA/QC Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order:HN2406805  
Date Analyzed:09/24/2024  
Date Extracted:09/24/2024

Laboratory Control Sample Summary  
General Chemistry Parameters

Analysis Method: EPA 9056A  
Prep Method: Method

Units:mg/L  
Analysis Lab Lot:2599083

QC-MRG2-1670321002

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Chloride	9.91	10	99.1	88-110
Fluoride	2.20	2	110	86-121
Sulfate	10.6	10	106	90-110

QA/QC Report

Client: Field & Technical Services, LLC  
Project: ETEM- HOLLOWROCK  
Sample Matrix: WATER

Work Order:HN2406805  
Date Analyzed:09/25/2024  
Date Extracted:09/25/2024

Laboratory Control Sample Summary  
General Chemistry Parameters

Analysis Method: EPA 9056A  
Prep Method: Method

Units:mg/L  
Analysis Lab Lot:2603459

QC-MRG2-1671485002

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Chloride	9.96	10	99.6	88-110
Fluoride	2.01	2	100	86-121
Sulfate	10.2	10	102	90-110