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Illinois Environmental Protection Agency
BOW-Permits #15-CCR Coordinator
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P.O. Box 19276
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DATE
3 April 2024

SUBJECT
Eighth Post-Closure Groundwater
Monitoring Report
First Quarter 2024

REFERENCE
Grand Tower Energy Center
Closed Coal Combustion Residuals
Impoundment
1820 Power Plant Rd
Grand Tower, IL 62942
ERM Project No. 0599247

To Whom it May Concern:

Environmental Resources Management (ERM) is submitting this report which provides the results and findings of the Grand Tower Energy Center (GTEC) quarterly post-closure groundwater sampling and coal combustion residuals (CCR) impoundment inspection event conducted during the first quarter 2024 at the GTEC facility located at 1820 Power Plant Rd, Grand Tower, Illinois (the "Site"). The first quarter groundwater sampling event took place between 9 January and 11 January 2024, and the impoundment inspection event was conducted on 11 January 2024. A Site location map is provided in Figure 1.

The first quarter 2024 groundwater sampling event was performed in accordance with the post-closure groundwater monitoring program presented within the Grand Tower Operating Permit Application submitted to the Illinois Environmental Protection Administration (IEPA) on 28 October 2021, which was modified in accordance with the Consolidated IEPA Comments dated 17 March 2022. The purpose of the sampling event was to continue the initial five-year period of quarterly groundwater monitoring for the evaluation of the concentration and areal distribution of impacts related to the closed CCR impoundment in Site groundwater. The parameters detected in the groundwater are associated with the historical CCR impoundment, which was capped and closed in 2020. The quarterly results include a summary of field activities, laboratory analytical, and documentation of other associated Site activity, as necessary.

First quarter 2024 site activities, performed in accordance with the proposed post-closure groundwater monitoring program, the results of which are summarized below, included:

- Inspection of the final cover system of the CCR impoundment.

- Inspection of the groundwater monitoring well array; and
- Groundwater monitoring activity.

QUARTERLY CCR IMPOUNDMENT INSPECTION

During the first quarter of 2024, an inspection of the CCR impoundment cover system and associated features was completed, and the full quarterly inspection report can be found in Appendix A. The woody vegetation (up to 1" diameter) noted to be within the riprap on the north, west, and southern impoundment cap faces during 2022 was treated with herbicide during the first half of 2023. However, a limited amount of live woody vegetation growth continues to be observed within the riprap. The erosion noted above the riprap on the north, west, and southern impoundment cap faces during 2022 and 2023 has increased from 10-inches deep to 13-inches deep in the deepest locations. No significant degradation or issues were noted associated with the overall CCR impoundment cover system.

QUARTERLY MONITORING WELL INSPECTION AND GAUGING

During the first quarter of 2024, monitoring well inspections were conducted. The monitoring well protectors and casings were inspected for damage and/or signs of settling that might impact the integrity of the surface seals. The inspection tasks also included gauging total depths as well as static groundwater elevations. Both measurements were referenced from the top of casing (TOC) at each of the Site monitoring wells. Total depth and groundwater level measurements were obtained from the monitoring wells using a water level meter with an accuracy of 0.01 foot. The quarterly monitoring well inspection forms can be found in Appendix B. Based upon these measurements, a shallow groundwater contour map for the Site was developed for the first quarter of 2024. The groundwater gradient is primarily from east to west towards the Mississippi River except during times of flooding events that may cause a reverse flow from west to east for a short period of time (Natural Resource Technology, Phase 1 Hydrogeologic Assessment Report, March 2013). Figure 2 shows monitoring well locations with a groundwater contour and groundwater flow direction arrow, groundwater elevations at each monitoring well, and the Mississippi River elevation at the time of groundwater level gauging.

QUARTERLY GROUNDWATER MONITORING

The Groundwater Protection Standards (GWPS) for the Site are those provided in 35 IAC §845.600(a). Assessment of corrective measures began on 16 June 2022 with the commencement of the initial post-closure groundwater sampling event. During the first quarter 2024 sampling event, 12 monitoring wells (APW-01R, APW-02, APW-03, APW-04, APW-05R, APW-06D, APW-06S, APW-07, APW-08, APW-09, APW-10D, and APW-10S) were sampled. The monitoring wells were purged prior to sampling using a submersible pump according to United States Environmental Protection

Administration (USEPA) low flow purging and sampling procedures (“Low Stress Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells” revised September 19, 2017). The pump intake was placed within the screened interval of each monitoring well sampled and stabilization measurements were collected using a calibrated YSI ProDSS meter during purging activities for the collection of pH, specific conductivity, temperature, dissolved oxygen, and oxidation reduction potential (ORP) readings. Turbidity readings were also collected from each monitoring well using a Hach 2100Q Turbidimeter. Well purging continued until stabilization of each field parameter was achieved according to USEPA guidelines for low-flow sampling. Once the field parameters stabilized, the YSI meter was disconnected, and groundwater samples were collected for analysis using the same dedicated polyethylene tubing that was used to purge the well. Field parameter measurements collected during this sampling event were recorded on field data forms. Copies of the field data forms are included in Appendix C.

The groundwater samples collected were placed in laboratory-provided sample containers for analysis by Pace Analytical located in Mt. Juliet, TN which is an IEPA-approved laboratory. Samples were transported under chain-of-custody procedures to the laboratory for analytical testing within laboratory provided coolers containing ice. The laboratory analytical report for the first quarter 2024 sampling event is included in Appendix D.

In accordance with the 3 March 2022 draft comments received from the IEPA Groundwater Section associated with the post-closure groundwater monitoring program contained in the Operating Permit Application submitted to the IEPA on 28 October 2021, the IEPA evaluates the efficacy of corrective actions for closed CCR impoundments through the comparison of the groundwater analytical results to the GWPS contained in 35 IAC §845.600. Under 35 IAC §845.600, the following groundwater parameters are to be monitored:

- Antimony
- Arsenic
- Barium
- Beryllium
- Boron
- Cadmium
- Chloride
- Chromium
- Cobalt
- Fluoride
- Lead
- Lithium
- Mercury
- Molybdenum
- pH
- Selenium
- Sulfate
- Thallium
- TDS
- Radium 226/228
- Calcium
- Turbidity

GROUNDWATER ANALYTICAL RESULTS

The analytical results for the post-closure groundwater sampling event conducted during the first quarter 2024 are presented in Table 1. During the first quarter 2024 sampling event, the following analytes were detected in the listed wells above the GWPS:

- Sulfate: APW-02,

- Arsenic: APW-02, APW-06D, APW-10S
- Calcium: APW-02, APW-03, APW-05R, APW-06D, APW-07, APW-10D, APW-10S
- Turbidity: APW-01R, APW02, APW-04, APW-05R, APW-06D, APW-08
- Lithium: APW-02, APW-05R¹, APW-06S
- Molybdenum: APW-02, APW-05R, APW-06S

¹The duplicate sample collected at APW-05R (DUP-01) exceeded the GWPS for lithium; however, the normal sample at APW-05R was below the GWPS during the first quarter 2024 sampling event.

It should be noted that boron analysis was inadvertently left off the analyte list by the analytical laboratory for all samples collected during first quarter 2024. Once this was noted, ERM made an inquiry to the laboratory to determine if there was adequate sample volume remaining and if the samples were still within hold time; however, they were no longer within hold time. Therefore, there are no boron analytical results for the first quarter 2024 sampling event. Through conversations with the analytical laboratory, the omission of boron has been rectified for future sampling events.

APW-10S, located approximately one-half mile south of the closed CCR impoundment, continues to exhibit elevated arsenic concentrations. However, the occurrence of arsenic in this well is not considered to be related to the closed CCR impoundment due to its distance and location hydraulically side gradient in relation to the Site. Additionally, the monitoring wells located between the closed CCR impoundment (APW-03, APW-07, APW-08, and APW-09) and APW-10D do not exhibit arsenic concentration above the GWPS.

The GTEC CCR impoundment is currently in Corrective Action Monitoring (CAM). As reported in the *2023 Grand Tower Energy Center Annual Groundwater Monitoring Report* submitted by ERM and dated January 2024, statistical analysis conducted on the data collected from the first seven quarters of post-closure monitoring (2nd quarter 2022 through 4th quarter 2023) indicates that arsenic, boron, lithium, molybdenum, and sulfate exceed the calculated background concentrations and the IEPA GWPS established in 35 IAC Section 845.600 in monitoring wells on the site. Statistical analysis of the groundwater sampling results will continue to be completed on an annual basis to evaluate if statistically significant increases or decreases have occurred after cap and closure occurred in 2020 in accordance with 35 IAC Section §845.640(f). In accordance with 35 IAC Section §845.550(a) an Annual Groundwater Monitoring and Corrective Action Report will be submitted for the preceding calendar year no later than January 31st of 2025.

At the end of the current five-year monitoring and reporting post-closure time frame, a groundwater performance monitoring report will be submitted to IEPA to either demonstrate restoration of groundwater quality to Class I standards or present a continued groundwater monitoring plan for an additional five years. In addition, the

results will be compared to the modeled concentrations to evaluate if a decreasing trend, as defined through modeling, is occurring at the predicted rate. Significant changes from the model results will lead to additional calibration and assessment of future expected rates of decrease for the constituents of concern (COCs).

SUMMARY AND CONCLUSIONS

Based upon the results of the first quarter 2024 groundwater sampling event, well inspection, and CCR impoundment inspection, the following observations and conclusions have been made:

- Similar to the groundwater sampling results obtained during the eight pre-closure sampling events in 2017 to 2018, and eight post-closure groundwater sampling events, concentrations of COCs above the GWPS continue to be detected at well locations downgradient of the closed CCR impoundment.
- Boron has historically been the key indicator for corrective action and continued monitoring of groundwater at the Site. Incorporating data from the eight rounds of pre-closure groundwater sampling conducted during 2017 and 2018, as well as the eight post groundwater monitoring events, boron had previously demonstrated a decreasing trend in site monitoring wells. As noted above, boron analysis was inadvertently left off the analyte list by the analytical laboratory for all samples collected during first quarter 2024. The omission of boron has been rectified with the analytical laboratory for future sampling events.
- Historically, woody vegetation has been noted on the impoundment cap and treated with herbicide. Live woody vegetation growth is limited in the impoundment riprap. During this event, erosion noted above the riprap has increased from 10-inches to 13-inches in the deepest locations as compared to prior inspections dating back to 2022. ERM will continue to monitor and address woody vegetation and erosion on the impoundment cap and notify facility personnel so they can manage these issues appropriately. No significant degradation or issues were noted associated with the overall CCR impoundment cover system. GTEC will not have a presence on site after July 2024. A plan is being developed for periodic monitoring of site conditions and to manage cap and impoundment maintenance items.



DATE
3 April 2024

REFERENCE
ERM Project No. 0599247
Grand Tower Energy Center

If you have any questions, please contact me at (314) 447-7237

Sincerely,

A handwritten signature in black ink, appearing to read "Randy Homburg".

Randy Homburg
Managing Consultant

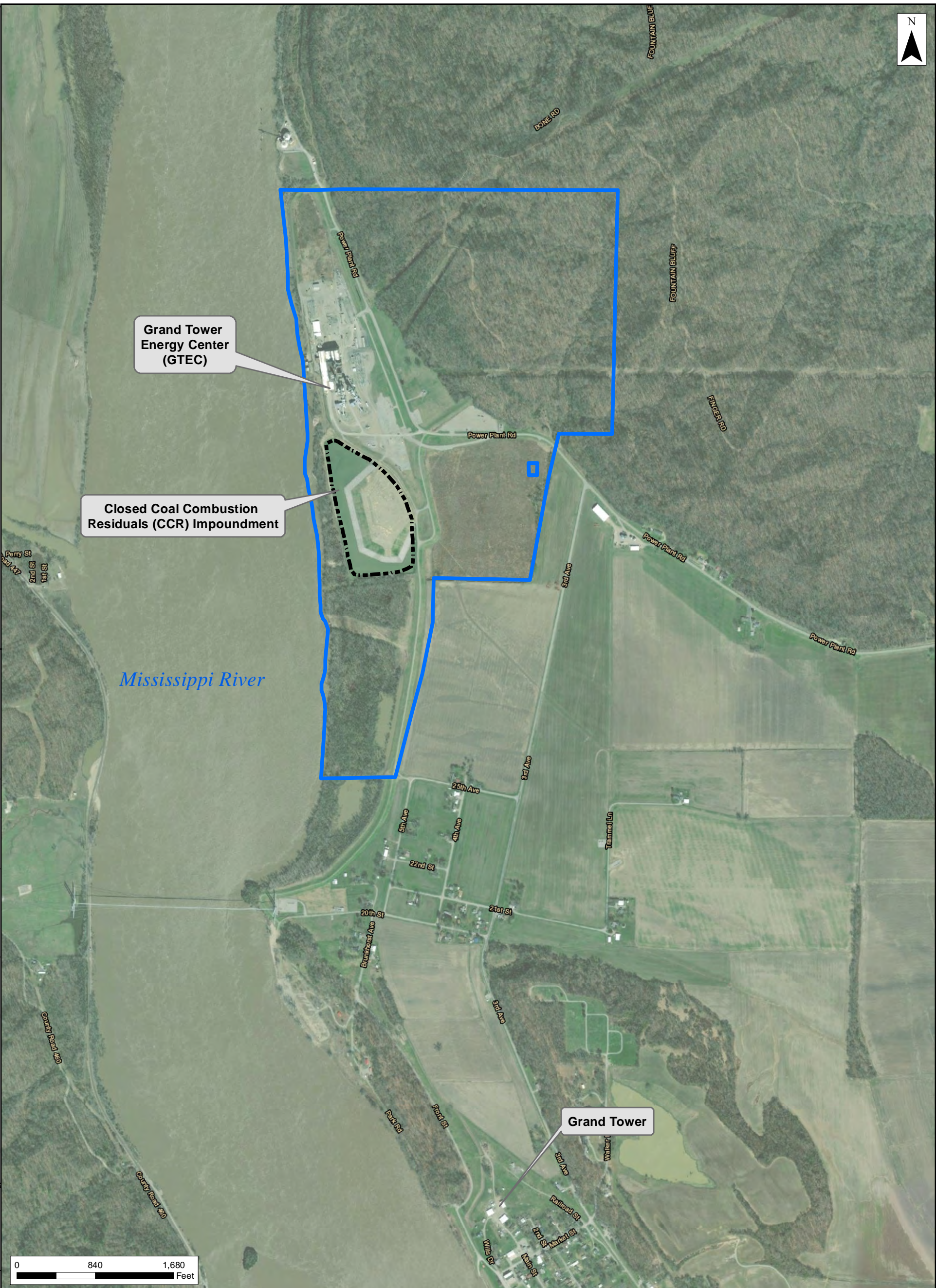
A handwritten signature in black ink, appearing to read "Alan J. Cork".

Alan J. Cork, P.E.
Partner, Engineer

Attachments

cc: Mr. John Brodhead, Grand Tower Energy Center (electronic)

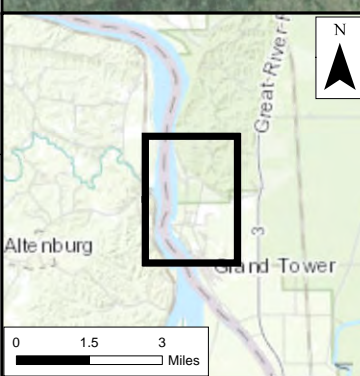
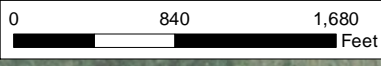
FILE: \\usbd\dfs02\data\Philadelphia\Team\DMV\GIS\Projects\Grand Tower Energy Center\MXD\FIGURE1-SITELLOCATIONMAP_20221003.mxd | REVISED: 10/03/2022 | SCALE: 1:12,000 when printed at 11x17



Grand Tower Energy Center (GTEC)

Closed Coal Combustion Residuals (CCR) Impoundment

Grand Tower



- Legend**
- Closed Coal Combustion Residuals (CCR) Impoundment
 - Approximate Parcel Boundary

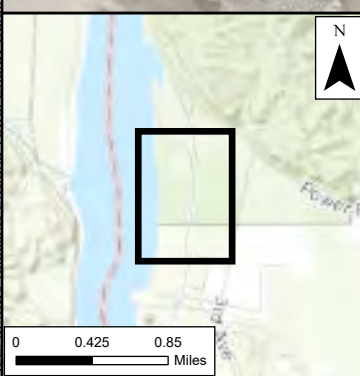
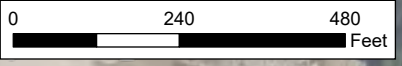
Notes:
 1. CCR Surface Impoundment Closed Prior to July 31, 2021
 2. World Imagery (3/24/2021)

Figure 1
Site Location Map
 Grand Tower Energy Center, LLC
 Grand Tower, Illinois
 Jackson County



Mississippi River

*Mississippi River Elevation = 331.02 Ft



- Legend**
- Monitoring Well Location
 - Groundwater Contour (1 Ft. Interval) - Dashed where inferred
 - Groundwater Flow Direction
 - 328.84 Groundwater Elevation

- Notes:**
1. CCR Surface Impoundment Closed Prior to July 31, 2021
 2. Date of gauging - January 9, 2024
 3. Ft AMSL - Feet Above Mean Sea Level
 4. (D) - Designated Wells not used in contouring
 5. * River stage at Mississippi River Gauge at Grand Tower, IL (NGVD29) (<https://rivergages.mvr.usace.army.mil/WaterControl/shefdata2.cfm?sid=CE358576&d=31&dt=E>)
 6. BING Imagery, 2022

Figure 2: First Quarter 2024 Groundwater Contour Map
 Grand Tower Energy Center, LLC
 Grand Tower, Illinois
 Jackson County



Table 1
Groundwater Summary Table
Grand Tower Energy Center (GTEC)
Grand Tower, US-IL

Parameter/Analyte	Unit	Sample ID	Sampled since the closure of OCR Impoundment												Post-Closure Sampling			
			APW-1R-2017067 APW-01R 09050017	APW-1R-2017097 APW-01R 09070017	APW-1R-2017018 APW-01R 10160017	APW-1R-2017118 APW-01R 11020017	APW-1R-2017117 APW-01R 11020017	APW-1R-2017128 APW-01R 12030017	APW-1R-2018017 APW-01R 01170018	APW-1R-2018027 APW-01R 02070018	APW-1R-WG-20220615 APW-01R 06150022	APW-1R-WG-20220915 APW-01R 09150022	APW-1R-WG-20221138 APW-01R 11090022	APW-1R-WG-20220302 APW-01R 03020023	APW-1R-WG-20230627 APW-01R 06060023	APW-1R-WG-20230920 APW-01R 09090023	APW-1R-WG-20231129 APW-01R 11090023	APW-1R-WG-20240110 APW-01R 01100024
UNDESIRABLE																		
Fluoride	N mg/L	4	0.15	0.17	0.16	0.12	0.14	0.15	0.18	0.21	0.15	0.18	0.17	0.14	0.17	0.17	0.18	
Radon-222	N pCi/L	400	2.54 ± 1.1	0.69 ± 0.49 U	0.427 ± 0.052	0.7 ± 0.76 U	0.47 ± 0.7 U	0.27 ± 0.44 U	1.01 ± 0.95 U	0.22 ± 0.42 U	0.691 ± 0.393	0.67 ± 0.59 U	0.81 ± 0.88 U	0.691 ± 0.330	1.12 ± 0.72 U	0.64 ± 0.67 U	1.21 ± 0.75 U	
Radon-222/228	N pCi/L	5	2.54 ± 1.1	0.69 ± 0.49 U	0.427 ± 0.052	0.7 ± 0.76 U	0.47 ± 0.7 U	0.27 ± 0.44 U	1.01 ± 0.95 U	0.22 ± 0.42 U	0.691 ± 0.393	0.67 ± 0.59 U	0.81 ± 0.88 U	0.691 ± 0.330	1.12 ± 0.72 U	0.64 ± 0.67 U	1.21 ± 0.75 U	
PHYSICAL																		
Turbidity, Field	N NTU	17.89									25.5	31.7	31.7	89.5	85.2	133	96.6	25.6
GEN CHEM																		
Chloride	N mg/L	260	5 U	5 U	5 U	5 U	5 U	9	11	10	2	7	7	4 U	5	5	5	9.07
Dissolved Solids, Total	N mg/L	1800	49	38	38	49	47	47	45	44	49	49	56	64	59	69	69	56
pH, Lab	N pH units	8.22@97	6.4	6.4	6.6	6.6	7.1	6.96	7.09	6.52	6.98	6.91	6.43	6.57	6.53 H	6.66 H	6.59 H	7.19 T8
METALS																		
Antimony	D mg/L	0.006									0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Asbestos	T mg/L	0.008	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Barium	T mg/L	0.01	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Bismuth	T mg/L	0.001	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Boron	T mg/L	2	0.168	0.193	0.18	0.177	0.176	0.166	0.178	0.192	0.16	0.197	0.186	0.196	0.178	0.168	0.202	0.259
Beryllium	D mg/L	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Cadmium	D mg/L	0.005	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Calcium	D mg/L	100.2	93.5	93.5	86.2	91.2	91	86.5	91	91	88.5	83.8	73.9	71.4	66.4	72.1	59.6	76.8
Carbon	D mg/L	0.005	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Copper	D mg/L	0.001	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chromium	D mg/L	0.1	0.002	0.002	0.002	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Cobalt	D mg/L	0.006	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Copper	T mg/L	NS	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Iron	T mg/L	NS	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Lead	T mg/L	0.0075	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Lithium	D mg/L	0.04	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Mercury	T mg/L	NS	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Manganese	T mg/L	NS	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Mercury	T mg/L	0.002	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Molybdenum	D mg/L	0.1	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Molybdenum	T mg/L	0.1	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Nickel	D mg/L	NS	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
Nickel	T mg/L	NS	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
Selenium	T mg/L	0.05	0.0036	0.004	0.0034	0.0044	0.0044	0.004	0.004	0.004	0.0037	0.0038	0.0035	0.0037	0.0033	0.0037	0.0034	0.0034
Selenium	D mg/L	0.05	0.0036	0.004	0.0034	0.0044	0.0044	0.004	0.004	0.004	0.0037	0.0038	0.0035	0.0037	0.0033	0.0037	0.0034	0.0034
Thallium	D mg/L	0.002	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Thallium	T mg/L	0.002	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U

Notes:
 Empty cells = not analyzed
 N = Normal Environmental Sample
 FD = Field Duplicate Sample
 NA = not applicable
 T = Total
 D = Dissolved
 mg/L = milligrams per liter
 pCi/L = picocuries per liter
 NTU = nephelometric turbidity units
 J = holding time exceeded
 J5 = Analyte detected below quantitation limits
 J5 = The associated batch OC was outside the established quality control range for precision
 NS = The sample matrix interfered with the ability to make any accurate determination, spike value is low
 S = Spike Recovery outside recovery limits
 E = EPC credits accepted recovery limits
 U = Not Detected at the Reporting Limit
 TR = Sample received positive close to holding time expiration

1 Standard is from the Upper Tolerable Limit (UTL) calculated from background well APW-01R concentrations from 8 quarterly sampling events from 2017-2021.
 2 Standard is from the Upper Tolerable Limit (UTL) calculated from background well APW-01R concentrations from 8 quarterly sampling events from 2017-2018 and 5.0 is the regulatory standard.
 3 Eight episodes of groundwater sampling were conducted from September 2017 through February 2018 to establish background concentrations for the Site utilizing data from background wells APW-1R and APW-1R. The first Groundwater Protection Standards (GPS) are the higher of the values provided in 35 IAC 845.600(a) and the first background concentrations as found in Table 6 of the 07/25/2019 GAC Application with the exception of turbidity and pH. Radon-222/228 was the only value taken from Table 6.
 4 Highest values exceed action level
 NS = No standard

Table 1
Groundwater Summary Table
Grand Tower Energy Center (GTEC)
Grand Tower, US-IL

Parameter/Analyte	Total or Dissolved	Units	Sampled prior to closure of OCR measurement													Post-Closure Sampling			
			Sample ID Location ID Sample Date Sample Type	APW-3-20170907 APW-03 09/06/2017 N	APW-3-20170929 APW-03 09/20/2017 N	APW-3-20170920 APW-03 10/02/2017 N	APW-3-20171119 APW-03 11/16/2017 N	APW-3-20171119 APW-03 11/20/2017 N	APW-3-20171228 APW-03 12/20/2017 N	APW-3-20180119 APW-03 01/16/2018 N	APW-3-20180208 APW-03 02/08/2018 N	APW-03-WG-20220616 APW-03 06/16/2022 N	APW-03-WG-20220915 APW-03 09/15/2022 N	APW-03-WG-20221130 APW-03 11/30/2022 N	APW-03-WG-20230130 APW-03 01/30/2023 N	APW-03-WG-20230226 APW-03 02/26/2023 N	APW-03-WG-20230319 APW-03 03/19/2023 N	APW-03-WG-20231127 APW-03 11/27/2023 N	APW-03-WG-20240111 APW-03 01/11/2024 N
UNDESIRABLE																			
Fluoride	N	mg/L	4	0.28	0.29	0.29	0.31	0.27	0.29	0.29	0.26	0.2	0.26	0.23	0.23	0.25	0.24	0.202	
Hardness	N	mg/L	180 U	0.16 ± 0.09 U	0.40 ± 0.426	0.40 ± 0.426	0.18 ± 0.1 U	0.33 ± 0.17 U	0.2 ± 0.1 U	0.1 ± 0.1 U	0.07 ± 0.05	0.16 ± 0.1 U	0.12 ± 0.1 U	0.20 ± 0.12	0.2 ± 0.1 U	0.2 ± 0.09 U	0.11 ± 0.05 U	0.18 ± 0.07	
Radon-222	N	pCi/L	NS	1.01 ± 0.57	1.01 ± 0.57	0.49 ± 0.373	0.72 ± 0.37 J	0.31 ± 0.49 J	0.7 ± 0.44 U	1.37 ± 0.69	0.66 ± 0.36 U	1.83 ± 0.26 J3	0.4 ± 0.1020R	0.41 ± 0.59 U	0.119 ± 0.43 U	0.61 ± 0.54 U	0.66 ± 0.52 J	0.0217 ± 0.24 U	
Calcium	N	mg/L	400	175	222	201	207	258	168	162	194	303	150	226	292	280	133	80.1	
Radon-222/228	N	pCi/L	5	2.58 ± 1.14	1.05 ± 0.68 U	0.901 ± 0.759	0.9 ± 0.488 U	0.84 ± 0.68 U	0.57 ± 0.54 U	1.42 ± 0.78 U	0.37 ± 0.51 U	2.09 ± 0.303	0.98 ± 0.63 U	0.86 ± 0.69 U	0.412 ± 0.479 J	0.84 ± 0.65 U	1.05 ± 0.61 U	0.77 ± 0.63 U	3.18 ± 0.717
FIELD PARAM																			
Turbidity Field	N	NTU	17.89 ¹								46.3	56.1	50.5	50.7	6.64	2.72	4	7.12	
Chloride	N	mg/L	200	22	21	21	22	19	20	23	20	21	20	21	17	16	11	8.04	
Dissolved Oxygen Total	N	mg/L	1200	484	486	486	561	564	498	424	498	498	574	574	454	454	498	498	
pH Lab	N	pH units	8.22/9.0 ²	7.88	7.46	7.65	7.63	7.6	7.46	7.26	7.78	7.85	7.46	7.21	7.45	7.77 H	7.84 H	7.478	
METALS																			
Antimony	D	mg/L	0.006									0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0018	0.004 U
Asbestos	T	mg/L	0.008	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.004 U
Arsenic	D	mg/L	0.01	0.002	0.002	0.002	0.0018	0.0024	0.0024	0.0018	0.002	0.0015	0.0014	0.0024	0.002	0.0018	0.0019	0.0019	0.005 U
Barium	T	mg/L	0.01	0.002	0.002	0.002	0.0018	0.0024	0.0024	0.0018	0.002	0.0015	0.0014	0.0024	0.002	0.0018	0.0019	0.0019	0.005 U
Bismuth	T	mg/L	2	0.111	0.148	0.106	0.0814	0.161	0.1	0.15	0.0806	0.158	0.181	0.19	0.136	0.145	0.137	0.137	0.123
Boron	D	mg/L	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Beryllium	T	mg/L	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U
Cadmium	T	mg/L	0.005	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Calcium	D	mg/L	100.2 ¹									174	126	101	121	126	111	121	
Chromium	T	mg/L	100.2 ¹	86.3	104.5	88.3	74.9	118.5	95	101	77.3	174	126	101	121	126	111	121	121
Chromium	T	mg/L	0.1	0.001	0.0053	0.0028	0.001 U	0.005	0.0025	0.001 U	0.001 U	0.001 U	0.001 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.002 U
Cobalt	D	mg/L	0.006	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U
Copper	T	mg/L	0.006	0.001 U	0.0015	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U
Iron	T	mg/L	NS	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.367
Lead	T	mg/L	0.0075	0.001	0.0042	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U
Lithium	D	mg/L	0.04									0.003	0.008	0.006	0.006	0.006	0.006	0.004	0.004
Lithium	T	mg/L	0.04	0.008	0.002	0.002	0.0045	0.027	0.036	0.029	0.044	0.038	0.029	0.018	0.026	0.026	0.026	0.026	0.026
Manganese	T	mg/L	NS									0.004	0.008	0.018	0.0019	0.0019	0.0019	0.0019	0.002 U
Mercury	D	mg/L	0.002									0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Mercury	T	mg/L	0.002	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Molybdenum	D	mg/L	0.1	0.0778	0.0754	0.0761	0.0713	0.0684	0.0746	0.0684	0.0684	0.067	0.0413	0.0621	0.0628	0.0628	0.0628	0.0628	0.0628
Molybdenum	T	mg/L	0.1	0.0778	0.0754	0.0761	0.0713	0.0684	0.0746	0.0684	0.0684	0.067	0.0413	0.0621	0.0628	0.0628	0.0628	0.0628	0.0628
Nickel	D	mg/L	NS									0.006	0.001	0.001	0.001	0.001	0.001	0.001 U	0.002 U
Nickel	T	mg/L	NS	0.005	0.0051	0.0051	0.0019	0.001 U	0.002	0.0025	0.001	0.003	0.001	0.001	0.001	0.001	0.001	0.001 U	0.002 U
Selenium	D	mg/L	0.05	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U
Selenium	T	mg/L	0.05	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U
Strontium	D	mg/L	0.002	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U
Strontium	T	mg/L	0.002	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U

Notes:
 Empty cells = not analyzed
 N = Normal Environmental Sample
 FD = Field Duplicate Sample
 NA = not applicable
 T = Total
 D = Dissolved
 mg/L = milligrams per liter
 pCi/L = picocuries per liter
 NTU = nephelometric turbidity units
 H = Holding time exceeded
 J = Analyte detected below quantitation limits
 JS = The associated batch OC was outside the established quality control range for precision
 AS = The sample matrix interfered with the ability to make any accurate determination, spike value is low
 ZDR =
 S = Spike Recovery outside recovery limits
 R = RPD outside accepted recovery limits
 L = Not Detected at the Reporting Limit
 T8 = Sample received past too close to holding time expiration

1 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-01R concentrations from 8 quarterly sampling events from 2017-2018.
 2 Calculated from background well APW-01R concentrations from 8 quarterly sampling events from 2017-2018 and 5.0 is the regulatory standard.
 3 Eight episodes of groundwater sampling were conducted from September 2017 through February 2018 to establish background concentrations for the Site utilizing data from background wells APW-1R and APW-1B. The final Groundwater Protection Standards (GPS) are the higher of the values provided in 35 IAC 845.800(a) and the final background concentrations as found in Table 6 of the 07/25/2019 GMZ Application with the exception of turbidity and pH. Radon-222/228 was the only value taken from Table 6.
 Highlighted values exceed action level
 NS = No standard

Table 1
Groundwater Summary Table
Grand Tower Energy Center (GTEC)
Grand Tower, US-IL

Parameter/Analyte	Total or Dissolved	Units	Sampled prior to closure of OCR (noncompliance)													Post-Closure Sampling			
			APW-4-20170907	APW-4-20170919	APW-4-20171019	APW-4-20171108	APW-4-20171118	APW-4-20171228	APW-4-20180119	APW-4-20180218	APW-4-20180315	APW-4-20180402	APW-4-20180411	APW-4-20180422	APW-4-20180503	APW-4-20180511	APW-4-20180524	APW-4-20180604	
UNDESIRABLE																			
Fluoride	N	mg/L	4	0.18	0.19	0.18	0.17	0.18	0.17	0.17	0.17	0.2	0.17	0.16	0.16	0.18	0.17		
Iron	N	mg/L	0.3	0.18 U	0.22 ± 0.08 U	0.27 ± 0.09 U	0.18 ± 0.09 U	0.22 ± 0.08 U	0.19 ± 0.08 U	0.13 ± 0.11 U	0.10 ± 0.10 U	0.1 ± 0.11 U	0.11 ± 0.08 U	0.12 ± 0.12 U	0.3 ± 0.12 U	0.19 ± 0.07 U	0.19 ± 0.07 U		
Nitrate-N	N	mg/L	NE	0.96 ± 0.64 J	0.65 ± 0.48 U	0.53 ± 0.39 J	0.64 ± 0.31 J	0.86 ± 0.64 J	0.73 ± 0.58 J	0.34 ± 0.51 U	0.64 ± 0.48 U	0.24 ± 0.29 J	2.15 ± 0.78	1.47 ± 0.87	0.95 ± 0.29 U	0.66 ± 0.54 J	0.62 ± 0.39 U		
pH	N	mg/L	400	126	116	109	120	107	100	99	92	83	88	82	85	84	80 ± 26		
Radon-222	N	pCi/L	5	1.33 ± 0.8 U	0.92 ± 0.76 U	0.53 ± 0.31	0.79 ± 0.4 U	0.92 ± 0.77 U	0.9 ± 0.45 U	0.34 ± 0.59 U	0.77 ± 0.59 U	0.348 ± 0.297 J	2.65 ± 0.91	1.58 ± 0.75 U	1.31 ± 0.376	1.25 ± 0.8 U	0.85 ± 0.71 U	0.85 ± 0.70 U	
Turbidity	N	NTU	17.66 ¹									18.1	18.3	26.5	37.3	38.7	21.6	22.8	28.8
GEN CHEM																			
Chloride	N	mg/L	200	12	11	11	11	11	11	10	11	12	10	11	10	12	9	11	12
Dissolved Solids Total	N	mg/L	1200	400	404	402	402	404	404	420	426	400	426 ¹	446	426	422	416	426	414
pH Lab	N	pH units	8.22 ± 0.07	7.31	7.30	7.31	7.42	7.30	7.33	7.25	7.2	7.41	7.51	7.34	7.21	7.39 H	7.66 H	7.31 H	8.17 H
METALS																			
Antimony	D	mg/L	0.008									0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.004 U
Asbestos	T	mg/L	0.008	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.004 U
Asenic	D	mg/L	0.01									0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.004 U
Barium	T	mg/L	0.01	0.0025	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.002 U
Bismuth	T	mg/L	2	0.145	0.139	0.123	0.13	0.128	0.141	0.155	0.144	0.143	0.145	0.133	0.134	0.138	0.131	0.133	0.139
Boron	D	mg/L	0.004									0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U
Beryllium	T	mg/L	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U
Cadmium	D	mg/L	2									0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U
Calcium	T	mg/L	2	2.37	2.18	2.12	2.21	2.03	1.7	1.38	1.18	1.88	0.873	0.653	0.65	0.876	0.872	0.559	0.601 U
Capitium	D	mg/L	0.005	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chromium	D	mg/L	103.0 ¹									0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U
Chromium	T	mg/L	0.1	0.0041	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.002 U
Cobalt	D	mg/L	0.006									0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U
Copper	T	mg/L	NE	0.0013	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U
Iron	T	mg/L	NE									0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U
Lead	T	mg/L	0.0075	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U
Lithium	D	mg/L	0.08									0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U
Manganese	T	mg/L	NE	0.004	0.0043	0.0043	0.0046	0.0048	0.0048	0.0048	0.0048	0.0048	0.0048	0.0048	0.0048	0.0048	0.0048	0.0048	0.0048
Mercury	D	mg/L	0.002									0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U
Mercury	T	mg/L	0.002	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Molybdenum	D	mg/L	0.1									0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U
Molybdenum	T	mg/L	0.1	0.0091	0.004	0.0093	0.0092	0.0092	0.0092	0.0092	0.0092	0.0092	0.0092	0.0092	0.0092	0.0092	0.0092	0.0092	0.0092
Nickel	D	mg/L	NE									0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U
Nickel	T	mg/L	NE	0.0004	0.0005	0.0009	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
Selenium	D	mg/L	0.05									0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U
Selenium	T	mg/L	0.05	0.0158	0.015	0.0149	0.0161	0.014	0.013	0.0104	0.0102	0.0133	0.0111	0.0085	0.0099	0.0105	0.009	0.015	0.0105
Thallium	D	mg/L	0.002									0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U
Thallium	T	mg/L	0.002	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U

Notes:
 Empty cells = not analyzed
 N = Normal Environmental Sample
 FD = Field Duplicate Sample
 NA = not applicable
 T = Total
 D = Dissolved
 mg/L = milligrams per liter
 pCi/L = picocuries per liter
 NTU = nephelometric turbidity units
 J = Analyte detected below quantitation limits
 U = Analyte not detected
 ± = The associated batch QC was outside the established quality control range for precision
 ± = The sample matrix interfered with the ability to make any accurate determination, spike value is low
 S = Spike Recovery outside recovery limits
 R = RPD outside accepted recovery limits
 U = Not Detected at the Reporting Limit
 TR = Sample received positive close to holding time expiration

¹ Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly samplings events from 2017-2018.
² Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly samplings events from 2017-2018 and 5 is the regulatory standard

8 Eight episodes of groundwater sampling were conducted from September 2017 through February 2018 to establish background concentrations for the Site utilizing data from background wells APW-1R and APW-9. The final Groundwater Protection Standards (GPS) are the higher of the values provided in 35 IAC 846.800(a) and the final background concentrations as found in Table 6 of the 07/02/2018 GAZ Application with the exception of turbidity and pH. Radium 226/228 was the only value taken from Table 6. High-gated values exceed action level
 NS = No Standard

Table 1
 Groundwater Summary Table
 Grand Prairie Water Center (GPWC)

Parameter/Depth	Well ID	Date	Location - Survey Zone	APR-05		APR-06		APR-07		APR-08		APR-09		APR-10		APR-11		APR-12		APR-13		APR-14		APR-15		APR-16		APR-17		APR-18		APR-19		APR-20	
				APR-05	APR-05	APR-05	APR-05	APR-05	APR-05	APR-05	APR-05	APR-05	APR-05	APR-05	APR-05	APR-05	APR-05	APR-05	APR-05	APR-05	APR-05	APR-05	APR-05	APR-05	APR-05	APR-05	APR-05	APR-05	APR-05	APR-05	APR-05	APR-05	APR-05	APR-05	APR-05
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Notes:
 1. Data only - not analyzed
 2. Total Dissolved Solids
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 95. Total Dissolved Solids
 96. Total Dissolved Solids
 97. Total Dissolved Solids
 98. Total Dissolved Solids
 99. Total Dissolved Solids
 100. Total Dissolved Solids

Table 1
Groundwater Summary Table
Grand Tower Energy Center (GTEC)
Grand Tower, US-IL

Parameter/Analyte	Fecal or Dissolved	Units	Sampled sites to closest of GCR Impoundment												Post-Closure Samples				
			APW-6D-20170907 APW-6D-09062017 N	APW-6D-20170927 APW-6D-09062017 N	APW-6D-20170919 APW-6D-10092017 N	APW-6D-20171109 APW-6D-11082017 N	APW-6D-20171127 APW-6D-12072017 N	APW-6D-20180118 APW-6D-01162018 N	APW-6D-20180208 APW-6D-02082018 N	N/A APW-6D-04052022 N	APW-6D-WG-20220913 APW-6D-09132022 N	APW-6D-WG-20221128 APW-6D-11282022 N	APW-6D-WG-20220901 APW-6D-09012022 N	APW-6D-WG-20230920 APW-6D-09202023 N	APW-6D-WG-20231128 APW-6D-11282023 N	APW-6D-WG-20240110 APW-6D-01102024 N			
UNDESIRABLE																			
Radon-222	N	mgl	4	0.22	0.23	0.21	0.22	0.21	0.22	0.23	0.21	N/A	0.2	0.24	0.21	0.2	0.22	0.24	0.212
Radon-222	N	pCi/L	182	4.11 U	4.2	4.11 U	4.2	4.11 U	4.2	4.11 U	4.2	N/A	4.1	4.15 U	4.2	4.15 U	4.2	4.15 U	4.2
Radon-222	N	pCi/L	NB	1.01 x 0.33 U	0.61 x 0.33 U	0.62 x 0.33 U	0.88 x 0.37 U	1.4 x 0.37	0.74 x 0.57 U	0.74 x 0.57 U	0.44 x 0.34 U	N/A	1.46 x 0.71	0.26 x 0.43 U	1.02 x 0.40 U	0.74 x 0.54 U	2.62 x 0.76	1.24 x 0.76	1.24 x 0.76
Radon-222	N	mgl	400	215	228	206	252	230	236	211	189	N/A	272	254	289	270	218	184	180
CALC																			
Radon-222	N	pCi/L	5	1.69 x 0.62 U	0.98 x 0.44 U	1.77 x 1.12	1.12 x 0.52 U	1.78 x 0.83 U	1.08 x 0.6 U	0.77 x 0.55 U	0.44 x 0.47 U	N/A	1.77 x 0.81 U	0.9 x 0.58 U	1.38 x 0.568	1.04 x 0.65 U	2.9 x 0.85	0.87 x 0.55 U	1.82 x 0.654
FIELD PARAM																			
Turbidity, Field	N	NTU	17.89 ¹									N/A	18.5	74.4	26.9	18 ¹	65.5	3.02	16.2
Chloride	N	mgl	260	17	17	16	16	16	17	17	17	N/A	14	17	17	16	16	16	21.2
Dissolved Solids, Total	N	mgl	1200	558	568	564	590	516.8	491	568	568	N/A	630.4	568	650	726	565	626	526
pH, Lab	N	pH units	8.25@97 ²	7.23	7.25	7.25	7.19	7.2	7.22	7.21	7.2	N/A	7.42	7.21	7.29	7.36 H	7.34 H	7.36 H	7.73 18
METALS																			
Antimony	D	mgl	0.008									N/A	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.004 U
Antimony	T	mgl	0.008	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	N/A	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.004 U
Arsenic	D	mgl	0.01									N/A	0.004	0.0116	0.012	0.012	0.012	0.0061	0.0061
Arsenic	T	mgl	0.01	0.0058	0.0058	0.0074	0.009	0.0096	0.0096	0.0096	0.0096	N/A	0.0096	0.0116	0.0107	0.0115	0.0109	0.0058	0.0102
Barium	D	mgl	2									N/A	0.129	0.118.8	0.152	0.13	0.121	0.155	0.156
Barium	T	mgl	2	0.173	0.172	0.142	0.163	0.165	0.163	0.196	0.148	N/A	0.143	0.142	0.134	0.145	0.128	0.151	0.115
Beryllium	D	mgl	0.004									N/A	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Beryllium	T	mgl	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	N/A	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Boron	D	mgl	2									N/A	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Boron	T	mgl	2	3.72	3.87	3.55	3.58	3.8	3.84	3.3	3.09	N/A	5.31	4.22	3.95	4.22	3.81	3.8	
Calcium	D	mgl	0.005									N/A	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Calcium	T	mgl	0.005	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	N/A	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Calcium	D	mgl	100.2 ¹									N/A	118	110	100	118	80.3	100	111
Calcium	T	mgl	100.2 ¹	99.9	110	96.7	100	110	107	105.5	105	N/A	103	110	106	99.4	106	106	
Chromium	D	mgl	0.1									N/A	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U
Chromium	T	mgl	0.1	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	N/A	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U
Cobalt	D	mgl	0.008									N/A	0.0013	0.0012	0.001	0.001 U	0.001 U	0.001 U	0.001 U
Cobalt	T	mgl	0.008	0.0012	0.001	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	N/A	0.0013	0.0012	0.001	0.001 U	0.001 U	0.001 U	0.001 U
Lead	D	mgl	0.0075									N/A	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Lead	T	mgl	0.0075	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	N/A	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Lithium	D	mgl	0.04									N/A	0.0179	0.0155	0.0194	0.016	0.016	0.0161	0.0161
Lithium	T	mgl	0.04	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	N/A	0.0179	0.0155	0.0194	0.016	0.016	0.0161	0.0161
Mercury	D	mgl	0.005									N/A	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Mercury	T	mgl	0.005	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	N/A	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Molybdenum	D	mgl	0.1									N/A	0.0069	0.0076	0.0083	0.0083	0.0083	0.0083	0.0077
Molybdenum	T	mgl	0.1	0.0058	0.0058	0.0058	0.0058	0.0058	0.0058	0.0058	0.0058	N/A	0.0069	0.0076	0.0083	0.0083	0.0083	0.0083	0.0077
Nickel	D	mgl	NB									N/A	0.001	0.0009	0.0009	0.001 U	0.001 U	0.001 U	0.001 U
Nickel	T	mgl	NB	0.0002	0.0002	0.0018	0.002	0.0077	0.0022	0.0002	0.0005	N/A	0.001	0.0009	0.0009	0.001 U	0.001 U	0.001 U	0.001 U
Selenium	D	mgl	0.05									N/A	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Selenium	T	mgl	0.05	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	N/A	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Thallium	D	mgl	0.002									N/A	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Thallium	T	mgl	0.002	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	N/A	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U

Notes:
 Empty cells = not analyzed
 N = Normal Environmental Sample
 FD = Field Duplicate Sample
 N/A = not applicable
 T = Total
 D = Dissolved
 mgl = milligrams per liter
 pCi/L = picocuries per liter
 NTU = nephelometric turbidity units
 U = holding time exceeded
 J = Analyte detected below quantitation limits
 JB = The associated batch QC was outside the established quality control range for precision
 JB = The sample matrix interfered with the ability to make any accurate determination; spike value is low
 S = Spike Recovery outside recovery limits
 E = HPLC exceeds accepted recovery limits
 U = Not Detected at the Reporting Limit
 TR = Sample received post-closure to holding time expiration
 1 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2019
 2 calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2019 and 5.0 is the regulatory standard
 3 September 2017 through February 2018 to establish background concentrations for the Site utilizing data from background wells APW-018 and APW-018. The final Groundwater Protection Standards (GPS) are the higher of the values provided in 35 IAC 845.8000 and the final background concentrations as listed in Table 6 of the 07/25/2019 GMZ Application with the exception of turbidity and pH. Radium 226-228 was the only value taken from Table 6.
 High/low values exceed action level
 NS = No standard

Table 1
Groundwater Summary Table
Grand Tower Energy Center (GTEC)
Grand Tower, US-IL

Parameter/Analyte	Total or Dissolved	Units	Sampled prior to closure of OCR Investigation												Post-Closure Samples				
			APW-65-20170907 APW-065 09/06/2017 N	APW-65-20170928 APW-065 09/28/2017 N	APW-65-20171019 APW-065 10/19/2017 N	APW-65-20171109 APW-065 11/09/2017 N	APW-65-20171127 APW-065 12/07/2017 N	APW-65-20180118 APW-065 01/18/2018 N	APW-65-20180208 APW-065 02/08/2018 N	APW-65-WG-20220616 APW-065 06/16/2022 N	APW-65-WG-20220913 APW-065 09/13/2022 N	APW-65-WG-20221128 APW-065 11/28/2022 N	APW-65-WG-20230201 APW-065 02/01/2023 N	APW-65-WG-20230920 APW-065 09/20/2023 N	APW-65-WG-20231128 APW-065 11/28/2023 N	APW-65-WG-20240110 APW-065 01/10/2024 N			
UNDESIRABLE																			
Fluoride	N	mg/L	4	0.26	0.25	0.26	0.25	0.25	0.27	0.24	0.23	0.26	0.32	0.29	0.26	0.3	0.33	0.277	
Iron	N	mg/L	0.36 ± 0.14 U	0.09 ± 0.08 U	0.37 ± 0.23	0.22 ± 0.11 U	0.18 ± 0.13 U	0.11 ± 0.09 U	0.09 ± 0.09 U	0.11 ± 0.11 U	0.20 ± 0.16	0.2 ± 0.08 U	0.18 ± 0.09 U	0.11 ± 0.08 U	0.12 ± 0.11 U	0.09 ± 0.05 U	0.09 ± 0.05 U	1.01 ± 0.411	
Nitrate-N	N	mg/L	NS	104 ± 0.53	0.401 ± 0.318	0.8 ± 0.4 J	0.52 ± 0.18 J	0.44 ± 0.24 U	0.71 ± 0.53 J	0.89 ± 0.38 J	0.228 ± 0.248 J	0.73 ± 0.3	0.41 ± 0.15 U	1.44 ± 0.618	-0.03 ± 0.09 U	0.41 ± 0.18 U	0.04 ± 0.043	0.04 ± 0.043	
Calcium	N	mg/L	400	127	167	181	189	201	233	220	200	227	243	247	258	221	237	240	
Radon-222 (Rn)	N	pCi/L	5	0.92 ± 0.81 U	1.15 ± 0.61 U	0.708 ± 0.647	1.25 ± 0.52 U	1.1 ± 0.73 U	0.54 ± 0.63 U	0.8 ± 0.62 U	1.04 ± 0.49 U	0.497 ± 0.308	2.83 ± 0.96	0.6 ± 0.59 U	1.47 ± 0.568	0.11 ± 0.67 U	0.74 ± 0.49 U	0.38 ± 0.56 U	1.93 ± 0.477
NEW CHEM																			
Turbidity, Field	N	NTU	17.09 ¹								36.5	15.1	5.56	6.67	9.06	8.99	1.26	3.52	
Chloride	N	mg/L	200	31	28	27	27	26	26	25	24	24	24	23	20	22	20	21.2	
Dissolved Solids, Total	N	mg/L	1200	552	295	274	258	266	268	268	268	268	268	268	268	268	268	268	
pH Lab	N	pH units	8.25@97 ²	7.16	7.06	7.16	7.23	7.09	7.13	7.09	7.02	7.24	7.36	7.04	7.12	7.05 H	7.21 H	7.12 H	7.67 H
METALS																			
Antimony	D	mg/L	0.006								0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Asbestos	T	mg/L	0.008	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Asenic	D	mg/L	0.01								0.0003 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Barium	T	mg/L	0.01	0.007	0.001 U	0.001 U	0.002	0.0013	0.0012	0.0011	0.0011	0.001	0.001	0.001	0.001	0.001	0.001	0.001	
Bismuth	T	mg/L	0.01	0.222	0.237	0.206	0.226	0.214	0.213	0.224	0.206	0.25	0.221	0.19	0.202	0.224	0.206	0.204	
Boron	D	mg/L	0.004								0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Beryllium	T	mg/L	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Cadmium	D	mg/L	0.005								0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Calcium	D	mg/L	100.2 ¹								4.77	8.41	8.31	8.44	8.34	8.79	8.19	8.07 U	
Carbon	T	mg/L	0.005	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Chromium	D	mg/L	0.1								0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Chromium	T	mg/L	0.1	0.027	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	
Cobalt	D	mg/L	0.006								0.0002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Cobalt	T	mg/L	0.006	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Copper	D	mg/L	0.005								0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Copper	T	mg/L	0.005	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Iron	D	mg/L	0.006								0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Iron	T	mg/L	0.006	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Lead	D	mg/L	0.005								0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Lead	T	mg/L	0.005	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Lithium	D	mg/L	0.04								0.005	0.004	0.006	0.004	0.004	0.004	0.004	0.004	
Lithium	T	mg/L	0.04	0.035	0.0413	0.34	0.045	0.042	0.045	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047	
Manganese	D	mg/L	NS								0.53	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	
Manganese	T	mg/L	NS								0.53	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	
Mercury	D	mg/L	0.002								0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	
Mercury	T	mg/L	0.002	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	
Molybdenum	D	mg/L	0.1								0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	
Molybdenum	T	mg/L	0.1	0.249	0.267	0.277	0.243	0.274	0.274	0.274	0.277	0.271	0.267	0.266	0.255	0.267	0.265	0.265	
Nickel	D	mg/L	NS								0.015	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Nickel	T	mg/L	NS	0.009	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	
Selenium	D	mg/L	0.05								0.007	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Selenium	T	mg/L	0.05	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Strontium	D	mg/L	0.002								0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	
Strontium	T	mg/L	0.002	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	

Notes:
 Empty cells = not analyzed
 N = Normal Environmental Sample
 FD = Field Duplicate Sample
 NA = not applicable
 T = Total
 D = Dissolved
 mg/L = milligrams per liter
 pCi/L = picocuries per liter
 NTU = nephelometric turbidity units
 J = Holding time exceeded
 U = Analyte detected below quantitation limits
 S = The associated batch OC was outside the established quality control range for precision
 as = The sample matrix interfered with the ability to make any accurate determination; spike value is low
 S = Spike Recovery outside recovery limits
 E = EPA metals accepted recovery limits
 U = Not Detected at the Reporting Limit
 TB = Sample received positive dose to holding time expiration
 V = The sample concentration is too high to evaluate accurate spike recoveries

1 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018.
 2 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

3 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

4 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

5 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

6 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

7 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

8 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

9 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

10 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

11 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

12 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

13 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

14 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

15 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

16 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

17 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

18 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

19 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

20 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

21 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

22 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

23 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

24 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

25 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

26 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

27 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

28 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

29 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

30 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

31 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

32 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

33 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

34 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

35 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

36 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

37 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

38 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

39 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

40 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

41 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

42 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

43 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

44 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

45 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

46 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

47 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

48 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

49 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

50 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 8 Q1's regulatory standard.

51 Standard is from the Upper Tolerance Limit (UT

Table 1
Groundwater Summary Table
Grand Tower Energy Center (GTEC)
Grand Tower, US-IL

Parameter/Analyte	Total or Dissolved	Units	Sampled per to closure of CCR impoundment													Post-Closure		Sample
			APW-7-20170907 APW-07 09072017 N	APW-7-20170928 APW-07 09282017 N	APW-7-20171019 APW-07 10192017 N	APW-7-20171109 APW-07 11092017 N	APW-7-20171127 APW-07 12072017 N	APW-7-20180118 APW-07 01182018 N	APW-7-20180808 APW-07 08082018 N	APW-07-WG-20220616 APW-07 06162022 N	APW-07-WG-20220914 APW-07 09142022 N	APW-07-WG-20221130 APW-07 11302022 N	APW-07-WG-20230110 APW-07 01102023 N	APW-07-WG-20230626 APW-07 06262023 N	APW-07-WG-20230919 APW-07 09192023 N	APW-07-WG-20231128 APW-07 11282023 N	APW-07-WG-20240111 APW-07 01112024 N	
UNDESIRABLE																		
Fluoride	N	mg/L	4	0.35	0.21	0.19	0.2	0.2	0.19	0.2	0.18	0.17	0.18	0.19	0.17	0.18	0.2	0.172
Hardness	N	mg/L	1200	1.2 x 10 ³ U	0.92 x 10 ³ U	0.92 x 10 ³ U	0.11 x 10 ³ U	0.18 x 10 ³ U	0.22 x 10 ³ U	0.14 x 10 ³ U	0.23 x 10 ³ U	0.23 x 10 ³ U	0.18 x 10 ³ U	0.2 x 10 ³ U	0.27 x 10 ³ U	0.21 x 10 ³ U	0.18 x 10 ³ U	0.17 x 10 ³ U
Radon-222	N	pCi/L	NS	0.4 x 10 ³ U	0.78 x 10 ³ U	0.75 x 10 ³ U	1.13 x 10 ³ U	0.81 x 10 ³ U	0.1 x 10 ³ U	1.19 x 10 ³ U	0.53 x 10 ³ U	0.46 x 10 ³ U	1.13 x 10 ³ U	1.77 x 10 ³ U	1.1 x 10 ³ U	0.99 x 10 ³ U	0.46 x 10 ³ U	1.03 x 10 ³ U
Calc	N	mg/L	400	50	50	52	50	51	63	67	64	72	70	48	48	44	40	68.8
Radon-222/228	N	pCi/L	5	0.47 x 10 ³ U	0.76 x 10 ³ U	1.29 x 10 ³ U	1.24 x 10 ³ U	0.77 x 10 ³ U	0.92 x 10 ³ U	1.33 x 10 ³ U	0.77 x 10 ³ U	1.1 x 10 ³ U	1.63 x 10 ³ U	1.33 x 10 ³ U	2.1 x 10 ³ U	1.1 x 10 ³ U	1.1 x 10 ³ U	2.7 x 10 ³ U
IRON CHEM																		
Turbidity Field	N	NTU	17.89 ¹								86.2	34.8	10.5	79.2	14.8	42.9	21	4.36
Chloride	N	mg/L	200	15	15	14	15	16	15	15	15	12	12	11	10	9	9	11.5
Dissolved Solids Total	N	mg/L	1200	750	828	828	750	750	750	740	750	740	828	828	750	750	750	750
pH Lab	N	pH units	8.22@97 ²	8.84	8.84	8.86	8.87	8.83	8.96	8.97	8.88	8.88	7.62	8.78	7.23	6.79 H	6.84 H	6.86 H
METALS																		
Antimony	D	mg/L	0.008								0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Arsenic	T	mg/L	0.008	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Bismuth	D	mg/L	0.01	0.0014	0.0012	0.0011 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Barium	T	mg/L	0.01	0.0012	0.0011 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Beryllium	T	mg/L	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Boron	D	mg/L	2	0.235	0.308	0.302	0.3	0.278	0.268	0.318	0.188	0.208	0.278	0.246	0.237	0.181	0.274	0.071 U
Calcium	D	mg/L	100.2 ¹	192	204	171	187	196	183	191	185	222	180	204	180	181	181	201
Chromium	T	mg/L	0.1	0.007	0.0083	0.0081 U	0.0081 U	0.0081 U	0.0081 U	0.0081 U	0.0081 U	0.0081 U	0.0081 U	0.0081 U	0.0081 U	0.0081 U	0.0081 U	0.0081 U
Cobalt	D	mg/L	0.008	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Copper	T	mg/L	NS	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Iron	D	mg/L	0.0075	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Lead	T	mg/L	0.0075	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Lithium	D	mg/L	0.04	0.0147	0.0181	0.0172	0.0176	0.0185	0.0193	0.0181	0.0178	0.0176	0.0176	0.0181	0.0176	0.0181	0.0176	0.0176
Manganese	T	mg/L	NS															
Mercury	D	mg/L	0.002								1.11							
Mercury	T	mg/L	0.002	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Molybdenum	D	mg/L	0.1	0.004	0.0036	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033
Molybdenum	T	mg/L	0.1	0.004	0.0036	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033
Nickel	D	mg/L	NS															
Nickel	T	mg/L	NS	0.0014	0.0033	0.0013	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Selenium	D	mg/L	0.05	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Selenium	T	mg/L	0.05	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Thorium	D	mg/L	0.002															
Thorium	T	mg/L	0.002	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U

Notes:
 Empty cells = not analyzed
 N = Normal Environmental Sample
 FD = Field Duplicate Sample
 NA = not applicable
 T = Total
 D = Dissolved
 mg/L = milligrams per liter
 pCi/L = picocuries per liter
 NTU = nephelometric turbidity units
 U = holding time exceeded
 J = Analyte detected below quantitation limits
 JS = The associated batch OC was outside the established quality control range for precision
 AS = The sample matrix interfered with the ability to make any accurate determination, spike value is low
 S = Spike Recovery outside recovery limits
 R = RPD outside accepted recovery limits
 U = Not Detected at the Reporting Limit
 TB = Sample received positive close to holding time expiration

1 Standard is from the Upper Tolerance Limit (ULT) calculated from background well APW-01R concentrations from 8 quarterly sampling events from 2017-2018
 2 Standard value 8.22 is from the Lower Tolerance Limit (LL) calculated from background well APW-01R concentrations from 8 quarterly sampling events from 2017-2018 and 0.0 is the regulatory standard
 3 Eight episodes of groundwater sampling were conducted from September 2017 through February 2018 to establish background concentrations for the Site utilizing data from background wells APW-01R and APW-3. The final Groundwater Protection Standards (GPS) are the higher of the values provided in 35 IAC 845.600(a) and the final background concentrations as found in Table 6 of the 07/25/2019 GMZ Application with the exception of Turbidity and pH. Radium 226-228 was the only value taken from Table 6.
 Highlighted values exceed action level
 NS = No standard

Table 1
Groundwater Summary Table
Grand Tower Energy Center (GTEC)
Grand Tower, US-IL

Parameter/Analyte	Total or Dissolved	Units	Sampled prior to closure of OCR measurement															
			Sample ID Location ID Sample Date Sample Type	APW-8-20170907 APW-08 09/07/2017 N	APW-8-20170928 APW-08 09/28/2017 N	APW-8-20170918 APW-08 10/18/2017 N	APW-8-20171108 APW-08 11/08/2017 N	APW-8-20171117 APW-08 11/27/2017 N	APW-8-20171227 APW-08 12/27/2017 N	APW-8-20180117 APW-08 01/17/2018 N	APW-8-20180208 APW-08 02/08/2018 N	APW-08-WG-20220616 APW-08 06/16/2022 N	APW-08-WG-20220915 APW-08 09/15/2022 N	APW-08-WG-20221130 APW-08 11/30/2022 N	APW-08-WG-20230302 APW-08 03/02/2023 N	APW-08-WG-20230919 APW-08 09/19/2023 N	APW-08-WG-20231128 APW-08 11/28/2023 N	APW-08-WG-20240111 APW-08 01/11/2024 N
UNDESIRABLE																		
Fluoride	N	mg/L	4	0.3	0.3	0.29	0.29	0.28	0.28	0.3	0.28	0.29	0.27	0.28	0.28	0.28	0.28	0.29
Iron	N	mg/L	0.22 ± 0.12 U	0.12 ± 0.08 U	0.2 ± 0.20 U	0.11 ± 0.1 U	0.28 ± 0.18 U	0.18 ± 0.11 U	0.29 ± 0.11 U	0.28 ± 0.11 U	0.28 ± 0.22 U	0.27 ± 0.11 U	0.4 ± 0.11 U	0.247 ± 0.24 U	0.3 ± 0.1 U	0.22 ± 0.20 U	0.1 ± 0.08 U	1.1 ± 0.40 U
Nitrate-N	N	mg/L	NS	1.13 ± 0.23	0.88 ± 0.48 U	1.8 ± 0.54 U	0.37 ± 0.24 U	0.77 ± 0.55 U	1.31 ± 0.58	0.84 ± 0.45 U	0.43 ± 0.43 U	0.526 ± 0.22 U	0.86 ± 0.62 U	1.68 ± 0.77	-0.167 ± 0.20 U	-0.11 ± 0.8 U	0.81 ± 0.42 U	0.16 ± 0.54 U
Calcium	N	mg/L	400	43	40	38	40	39	38	39	39	39	39	34	29	31	23	24
Hardness (20°C)	N	mg/L	5	1.35 ± 0.75 U	1 ± 0.56 U	1.5 ± 1.61	0.49 ± 0.36 U	1.12 ± 0.71 U	1.45 ± 0.86 U	0.85 ± 0.8 U	0.88 ± 0.58 U	0.739 ± 0.305	1.13 ± 0.72 U	2.28 ± 0.9	0.247 ± 0.33 U	0.45 ± 0.72 U	1.04 ± 0.58 U	0.25 ± 0.59 U
Turbidity - Field	N	NTU	17.89									119	139	305	26.9	152	141	699
Chloride	N	mg/L	200	9	10	10	10	11	12	11	12	9	10	11	13	10	10	10.8
Dissolved Oxygen - Total	N	mg/L	1200	458	458	458	458	452	458	458	458	323.4	325	328	420	440	395	378
pH Lab	N	pH units	8.22 @ 97	7.04	7.07	7	7.12	7.25	7.11	7.04	7.04	7.34	7.47	7.25	7.31	7.16 H	7.16 H	7.27 H
METALS																		
Antimony	D	mg/L	0.008									0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Asbestos	T	mg/L	0.008	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Arsenic	D	mg/L	0.01	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Barium	T	mg/L	0.01	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Bismuth	T	mg/L	2	0.207	0.259	0.219	0.24	0.217	0.223	0.228	0.216	0.235	0.19	0.179	0.167	0.225	0.199	0.281
Boron	D	mg/L	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Beryllium	T	mg/L	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Cadmium	D	mg/L	0.005									0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Calcium	D	mg/L	100 ± 1	135	105	101	102	98.8	95	97.8	98.7	93.3	79.7	75.4	72.1	62.8	56.1 H	63.1
Chromium	T	mg/L	0.1	0.018	0.023	0.021 U	0.020 U	0.021 U	0.021 U	0.021 U	0.021 U	0.021 U	0.021 U	0.021 U	0.021 U	0.021 U	0.021 U	0.021 U
Chromium	D	mg/L	0.1	0.018	0.023	0.021 U	0.020 U	0.021 U	0.021 U	0.021 U	0.021 U	0.021 U	0.021 U	0.021 U	0.021 U	0.021 U	0.021 U	0.021 U
Cobalt	D	mg/L	0.008									0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Cobalt	T	mg/L	NS	0.0017	0.0013	0.001	0.0013	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Copper	T	mg/L	0.008	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Iron	D	mg/L	0.005									0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Lead	T	mg/L	0.0025	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Lithium	D	mg/L	0.04									0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Lithium	T	mg/L	0.04	0.006	0.007	0.007	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
Manganese	T	mg/L	NS									0.002	0.002	0.002	0.002	0.002	0.002	0.002
Mercury	D	mg/L	0.002									0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Mercury	T	mg/L	0.002	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Molybdenum	D	mg/L	0.1	0.001	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Molybdenum	T	mg/L	0.1	0.001	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Nickel	D	mg/L	NS									0.001	0.001	0.001	0.001	0.001	0.001	0.001
Nickel	T	mg/L	NS	0.0039	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029
Selenium	D	mg/L	0.05									0.002	0.002	0.002	0.002	0.002	0.002	0.002
Selenium	T	mg/L	0.05	0.008	0.0141	0.0132	0.0149	0.0135	0.0141	0.0149	0.013	0.0029	0.0077	0.011	0.0148	0.0129	0.0122	0.0169
Thallium	D	mg/L	0.002									0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Thallium	T	mg/L	0.002	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U

Notes:
 Empty cells = not analyzed
 N = Normal Environmental Sample
 FD = Field Duplicate Sample
 NA = not applicable
 T = Total
 D = Dissolved
 mg/L = milligrams per liter
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 NTU = nephelometric turbidity units
 J = holding time exceeded
 J = Analyte detected below quantitation limits
 JS = The associated batch OC was outside the established quality control range for precision
 AS = The sample matrix interfered with the ability to make any accurate determination, spike value is low
 S = Spike Recovery outside recovery limits
 R = RPD outside accepted recovery limits
 U = Not Detected at the Reporting Limit
 TR = Sample received positive close to holding time expiration

1 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly samplings events from 2017-2018
 2 Standard is from the Lower Tolerance Limit (LL) calculated from background well APW-018 concentrations from 8 quarterly samplings events from 2017-2018 and 0.5 is the regulatory standard

3 Eight episodes of groundwater sampling were conducted from September 2017 through February 2018 to establish background concentrations for the Site utilizing data from background wells APW-1R and APW-3. The final Groundwater Protection Standards (GPS) are the higher of the values provided in 35 IAC 846.8004 and the final background concentrations as found in Table 6 of the 07/25/2019 GMZ Application with the exception of turbidity and pH. Radium 226-228 was the only value taken from Table 6.
 Highlighted values exceed action level
 NS = No standard

Table 1
Groundwater Summary Table
Grand Tower Energy Center (GTEC)
Grand Tower, US-IL

Parameter/Analyte	Unit	Sampled only by closure of GTEC operations														Post-Closure Samples			
		APW-100-2017067	APW-100-2017027	APW-100-2017019	APW-100-2017100	APW-100-2017118	APW-100-2017128	APW-100-2018018	APW-100-2018018	APW-100-2018018	APW-100-20220615	APW-100-20220916	APW-100-20221129	APW-100-20220626	APW-100-20230919	APW-100-20231127	APW-100-20240111		
Sample ID	Location ID	Sample Date														Sample Type			
Sample Type	Fail or Dissolved	35 (AC 845.600)																	
UNDESIRABLE																			
Fluoride	N	mg/L	4	0.1	0.12	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.12	0.1	0.11	0.14	0.15 U		
Hexachlorocyclopentadiene	N	µg/L	0.36 ± 0.12 U	0.11 ± 0.1 U	0.12 ± 0.07	0.16 ± 0.1 U	0.18 ± 0.1 U	0.22 ± 0.1 U	0.30 ± 0.1 U	0.40 ± 0.1 U	0.49 ± 0.20 U	0.22 ± 0.09 U	0.31 ± 0.11 U	0.18 ± 0.07	0.31 ± 0.12 U	0.21 ± 0.08 U	0.28 ± 0.10 U		
Hexachlorobenzene	N	µg/L	NS	1.18 ± 0.52	1.22 ± 0.64	0.63 ± 0.368	0.98 ± 0.51 J	0.47 ± 0.15 U	0.24 ± 0.1 U	0.98 ± 0.67	0.60 ± 0.43 U	1.12 ± 0.511	0.66 ± 0.48 U	0.28 ± 0.43 U	0.847 ± 0.370	1.38 ± 0.76	1.49 ± 0.95		
Hexachlorocyclopentadiene	N	µg/L	400	38	44	43	42	42	44	44	41	40	42	39	44	31	35		
CALC																			
Radon-222 (222Rn)	N	µg/L	5	1.5 ± 0.68 U	1.22 ± 0.74 U	0.76 ± 0.703	1.17 ± 0.46 U	0.63 ± 0.68 U	0.57 ± 0.47 U	1.08 ± 0.71 U	0.59 ± 0.5 U	1.44 ± 0.374	0.78 ± 0.67 U	0.59 ± 0.54 U	1.03 ± 0.462	1.7 ± 0.88 U	0.64 ± 0.56 U	1.5 ± 0.83 U	
PHYSICAL																			
Turbidity, Field	N	NTU	17.89								46.5	21.9	36.4	46.3	176	160	196	476	
Chloride	N	mg/L	260	24	17	17	15	17	16	16	16	16	14	14	10	10	10	15.4	
Dissolved Solids, Total	N	mg/L	480	404	442	442	468	468	468	452	460 H	460	454	454	468	468	468	496	
pH, Lab	N	pH units	8.25 @ 97	7.12	7.11	7.05	7.11	7.12	7.15	7.03	7.03	7.21	7.29	7.04	7.57	6.98 H	7.22 H	7.68 H	
METALS																			
Antimony	D	mg/L	0.008								0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Antimony	T	mg/L	0.008	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Arsenic	D	mg/L	0.01								0.008 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Arsenic	T	mg/L	0.01	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Barium	D	mg/L	NS								0.342	0.321	0.338	0.348	0.356	0.348	0.348	0.358	
Barium	T	mg/L	NS	0.437	0.304	0.360	0.325	0.284	0.296	0.391	0.367	0.407	0.418	0.376	0.343	0.446	0.339	0.398	
Beryllium	D	mg/L	0.004								0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Beryllium	T	mg/L	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Boron	D	mg/L	NS								0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Boron	T	mg/L	NS	0.0999	0.101	0.0843	0.0713	0.0885	0.0922	0.0906	0.118	0.0731	0.0522	0.073	0.0624	0.066	0.074	0.081	
Calcium	D	mg/L	100.2								0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Calcium	T	mg/L	100.2	118	136	120	121	126	123	148.5	143	124	113	114	116	83.4	119		
Chromium	D	mg/L	0.1								0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Chromium	T	mg/L	0.1	0.008	0.0078	0.0022	0.0021	0.001 U	0.001 U	0.001 U	0.0015 U	0.001 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	
Cobalt	D	mg/L	0.008								0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Cobalt	T	mg/L	0.008	0.0038	0.0034	0.0025	0.0022	0.0017	0.0013	0.0026	0.0025	0.0021	0.0029	0.003	0.0026	0.0028	0.0028	0.0028	
Copper	D	mg/L	0.005								0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Copper	T	mg/L	NS	0.0038	0.0034	0.0025	0.0022	0.0017	0.0013	0.0026	0.0025	0.0021	0.0029	0.003	0.0026	0.0028	0.0028	0.0028	
Iron	D	mg/L	0.0075								0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Iron	T	mg/L	0.0075	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Lead	D	mg/L	0.0075								0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Lead	T	mg/L	0.0075	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Lithium	D	mg/L	0.04								0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Lithium	T	mg/L	0.04	0.047	0.0156	0.0146	0.0146	0.0153	0.0152	0.0142	0.014	0.0136	0.0126	0.0146	0.0146	0.0146	0.0146	0.0146	
Manganese	D	mg/L	NS								0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Manganese	T	mg/L	NS	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	
Mercury	D	mg/L	0.002								0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	
Mercury	T	mg/L	0.002	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	
Molybdenum	D	mg/L	0.1								0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	
Molybdenum	T	mg/L	0.1	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	
Nickel	D	mg/L	NS								0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	
Nickel	T	mg/L	NS	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	
Selenium	D	mg/L	0.05								0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Selenium	T	mg/L	0.05	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Strontium	D	mg/L	0.002								0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Strontium	T	mg/L	0.002	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	

Notes:
 Empty cells = not analyzed
 N = Normal Environmental Sample
 FD = Field Duplicate Sample
 NA = not applicable
 T = Total
 D = Dissolved
 mg/L = milligrams per liter
 µg/L = micrograms per liter
 NTU = nephelometric turbidity units
 J = holding time exceeded
 U = Analyte detected below quantitation limits
 NS = The associated batch OC was outside the established quality control range for precision
 as = The sample matrix interfered with the ability to make any accurate determination, spike value is low
 S = Spike Recovery outside recovery limits
 E = EPA Caddis accepted recovery limits
 U = Not Detected at the Reporting Limit
 TB = Sample received past due to holding time expiration

1 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018
 2 Standard value 0.2 is from the Lower Tolerance Limit (LLT) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 5.0 is the regulatory standard
 3 Eight episodes of groundwater sampling were conducted from September 2017 through February 2018 to establish background concentrations for the Site utilizing data from background wells APW-1R and APW-1. The first Groundwater Protection Standards (GPS) are the higher of the values provided in 35 (AC 845.600) and the first background concentrations as found in Table 6 of the 07/25/2018 GWC Application with the exception of turbidity and pH. Radon 222 (222Rn) was the only value taken from Table 6.
 Highlighted values exceed action level
 NS = No standard

Table 1
Groundwater Summary Table
Grand Tower Energy Center (GTEC)
Grand Tower, US-IL

Parameter/Analyte	Total or Dissolved	Units	Sampled prior to closure of OCR Investigation														Post Closure		
			Sample ID	APW-105-2017067 APW-105-090702017 N	APW-105-2017027 APW-105-0907017 N	APW-105-2017019 APW-105-10010017 N	APW-105-2017110 APW-105-11020017 N	APW-105-2017112 APW-105-11020017 N	APW-105-2017128 APW-105-12020017 N	APW-105-2018018 APW-105-011802018 N	APW-105-2018019 APW-105-02080018 N	APW-105-WO-20220615 APW-105-09150022 N	APW-105-WO-20220915 APW-105-09150022 N	APW-105-WO-20221128 APW-105-11020022 N	APW-105-WO-20230602 APW-105-09060023 N	APW-105-WO-20230919 APW-105-09100023 N	APW-105-WO-20231127 APW-105-11020023 N	APW-105-WO-20240111 APW-105-09110024 N	
UNDESIRABLE																			
Fluoride	N	mg/L	4	0.19	0.21	0.16	0.16	0.16	0.17	0.16	0.17	0.15	0.17	0.15	0.15	0.16	0.18	0.15	
Hardness	N	mg/L	1200	0.4 x 0.18 U	0.19 x 0.11 U	0.71 x 0.42	0.18 x 0.18 U	0.22 x 0.1 U	0.29 x 0.12 U	0.24 x 0.11 U	0.778 x 0.204	0.3 x 0.11 U	0.88 x 0.395	0.27 x 0.13 U	0.59 x 0.14 U	0.2 x 0.09 U	0.33 x 0.208	0.33 x 0.208	
Iron	N	mg/L	NS	0.38 x 0.7 J	0.38 x 0.7 J	0.26 x 0.397	0.71 x 0.31 J	0.68 x 0.32 J	0.63 x 0.33 J	0.71 x 0.78	0.63 x 0.52 J	0.478 x 0.268 J	0.52 x 0.97	1.84 x 0.58	0.162 x 0.21 U	0.18 x 0.47 U	4.24 x 0.91	0.94 x 0.66 J	
Lead	N	mg/L	400	10	10 U	10 U	10 U	10 U	10 U	10 U	21.8	10 U	10 U	10 U	10 U	10 U	10 U	5 U	
CALC																			
Hardness-228	N	mg/L	4	0.78 x 0.81	1.17 x 0.81 U	1.03 x 0.81	0.87 x 0.48 U	0.84 x 0.73 U	0.78 x 0.54 U	3 x 0.9	1.7 x 0.65 U	1.25 x 0.42	2.82 x 1.01	1.95 x 0.79 U	1.24 x 0.542	0.37 x 0.6 U	4.83 x 1.05	1.27 x 0.75 U	2.42 x 0.307
GEN CHEM																			
Turbidity	N	NTU	17.89 ¹								81.5	34.3	52.4	37.3	37.2	63.6	13.1	3.78	
Chloride	N	mg/L	200	10	7	6	6	6	6	6	12	16	18	20	15	20	17.2	20	
Dissolved Solids Total	N	mg/L	1200	728	220	538	731	772	861.6	766	756	720.4	728	680	728	692	662	662	
pH Lab	N	pH units	8.22 x 0.07	6.99	6.96	6.95	6.98	6.97	6.96	6.91	7.09	7.2	6.95	7.2	7.05 H	7.17 H	7.61 H	7.58 H	
METALS																			
Antimony	D	mg/L	0.008								0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Barium	T	mg/L	0.008	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Bismuth	D	mg/L	0.01								0.152	0.012	0.012	0.171	0.176	0.201	0.201	0.201	
Calcium	T	mg/L	0.01	0.188	0.189	0.18	0.203	0.183	0.193	0.23	0.198	0.185	0.182	0.182	0.191	0.196	0.174	0.195	0.188
Cadmium	T	mg/L	0.01	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Copper	T	mg/L	0.01	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Iron	D	mg/L	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Lead	T	mg/L	0.01	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Manganese	T	mg/L	0.01	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Nickel	D	mg/L	0.005	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Vanadium	T	mg/L	0.005	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Zinc	D	mg/L	100.2 ¹	1.8	1.44	1.35	1.52	1.55	1.43	1.45	1.61	1.71.8	1.42	1.46	1.42	1.51	1.52	1.52	
Chromium	T	mg/L	0.1	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Chromium	T	mg/L	0.1	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Cobalt	D	mg/L	0.008	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Cobalt	T	mg/L	NS	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Copper	T	mg/L	0.01	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Iron	D	mg/L	0.005	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Lead	T	mg/L	0.005	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Lithium	D	mg/L	0.04								0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Lithium	T	mg/L	0.04	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Manganese	T	mg/L	NS	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Mercury	D	mg/L	0.002								0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Mercury	T	mg/L	0.002	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	
Molybdenum	D	mg/L	0.1	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Molybdenum	T	mg/L	0.1	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Nickel	D	mg/L	NS	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Nickel	T	mg/L	NS	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Selenium	D	mg/L	0.05	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Selenium	T	mg/L	0.05	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Strontium	D	mg/L	0.002								0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Strontium	T	mg/L	0.002	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Thallium	D	mg/L	0.002								0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Thallium	T	mg/L	0.002	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	

Notes:
 Empty cells = not analyzed
 N = Normal Environmental Sample
 FD = Field Duplicate Sample
 NA = not applicable
 T = Total
 D = Dissolved
 mg/L = milligrams per liter
 mg/L = picograms per liter
 NTU = nephelometric turbidity units
 J = holding time exceeded
 U = Analyte detected below quantitation limits
 S = The associated batch OC was outside the established quality control range for precision
 as = The sample matrix interfered with the ability to make any accurate determination, spike value is low
 S = Spike Recovery outside recovery limits
 E = EPA method accepted recovery limits
 U = Not Detected at the Reporting Limit
 TR = Sample received positive close to holding time expiration

¹ Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018
² Maximum value is 2.1 mg/L from the system concentration limits (SCL) calculated from background well APW-018 concentrations from 8 quarterly sampling events from 2017-2018 and 0.15 is the regulatory standard

³ Eight episodes of groundwater sampling were conducted from September 2017 through February 2018 to establish background concentrations for the Site utilizing data from background wells APW-18 and APW-8. The final Groundwater Protection Standards (GPS) are the higher of the values provided in SIC 245-0004 and the final background concentrations as found in Table 6 of the 07/25/2019 GMZ Application with the exception of turbidity and pH. Radium 228-228 was the only value taken from Table 6.
 Highest values exceed action level
 NS = No standard



**Grand Tower Energy Center
Closed CCR Impoundment
Quarterly Inspection Form**

Date: 1/11/2024
Time: 7:45-8:20
Name: Marshall Arendell
(Inspector)

Weather:

Temperature:

45 deg. F

- Sunny
- Cloudy
- Raining
- Other

Observations:

- Erosion / Gullies
- Cracking / Sloughing
- Ponding / Damp Areas
- No Problems Identified
- Woody Vegetation Growth
- Other

Conditions Limiting Visibility:

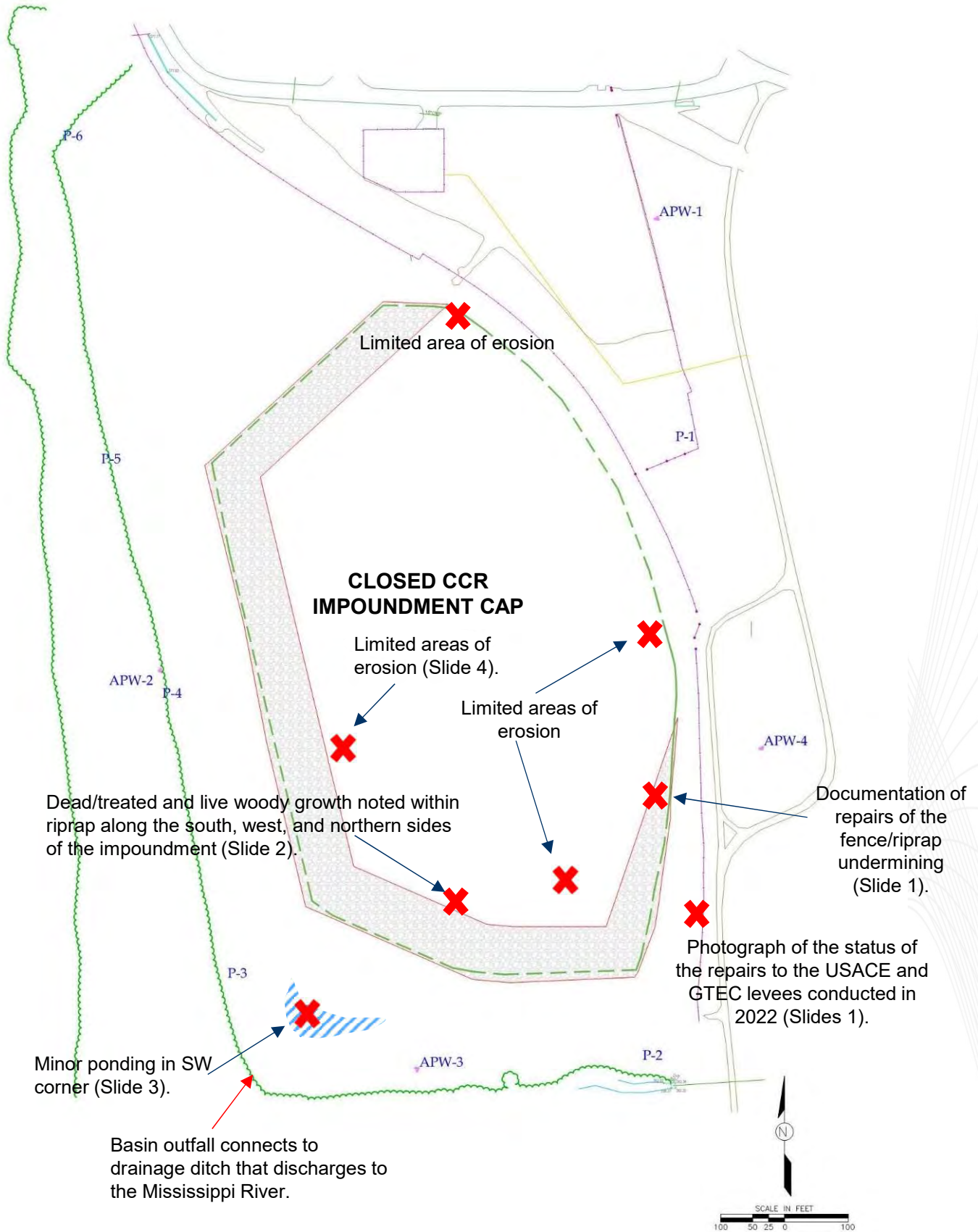
- Snow Cover
- Vegetation
- None
- Other

Observations in Detail Below:

- ERM onsite for the Q1 2024 inspection of the CCR impoundment and groundwater sampling event.
- Repairs to the United States Army Corps of Engineers (USACE) and GTEC levees continue to hold, and successful revegetation of levee face continues to progress.
- Erosion noted across north, west, and southern CCR impoundment cap faces up to 10" deep.
- The woody vegetation (up to 1" diameter) noted to be within the riprap on the north, west, and southern impoundment cap faces during 2022 was treated with herbicide during Q3 2023.
- Ponding continues to be noted in the SW corner of the basin near the outfall.
- The impoundment cap was mowed during Q3 2023 and found to be in generally good condition.
- The inspector recommends continued treatment of woody growth within the riprap with herbicide, and the filling of the erosional channels noted above.

Please see observation locations on figure on the following page.

Observation Locations Map



Grand Tower Energy Center Q1 2024 Closed CCR Impoundment Cap Inspection

Repairs to the Fenceline and Levee area on the SE Side of Closed CCR Impoundment Cap



Facing north along the repaired fence-line, riprap, and levee area.



Facing northeast along the repaired fence-line, riprap, and levee area.

Levee has successfully revegetated since repairs were initiated during 2022.

Woody Growth Observations

Dead/herbicide treated woody vegetation noted within riprap up to 1" diameter. Limited amount of live woody growth remains.



January 9th, 2024, at 12:47:21 PM

Sparse woody vegetation on riprap facing south and west.

Picturing facing northeast towards south facing riprap.



January 11th, 2024, at 7:59:17 AM

Woody vegetation on southeast facing riprap. Picture facing south from impoundment cap.

Ponding in the SW Corner of Site Basin Near the Outfall



Ponded area in southwest corner of site as viewed from mowed impoundment cap.



Ponded area in southwest corner of site and impoundment cap as viewed from southwest corner.

Note: Mississippi River backwater enters the GTEC CCR Impoundment Basin when the river level gage operated by the U.S. Army Corps of Engineers at Grand Tower, IL reaches a stage of approximately 27 ft.

Erosional Channel Observations



Erosion from western side of impoundment cap.

Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-01R Date: 1/9/2024
Total Depth (Actual): 58.30 (BTOC) Time: 1:22 PM
Total Depth (Measured): 58.28 (BTOC) Collection Order: 5
Depth to Water (Measured): 35.36 (BTOC)

Is well screen occluded more than 10%? No
If Yes, list steps for redevelopment: _____

LNAPL Present: No
If Yes, measured thickness = _____
DNAPL Present: No
If Yes, measured thickness = _____

Well Completion Type:

Condition of protector: INTACT Yes
Well ID present and readable: Yes
Locks intact: Yes
Weep hole present: No
Water present in protector: Yes
Are well "markers" (i.e.bumper posts) needed at this location: No
If yes, are current well "markers" adequate around well: _____
Comments: _____

Well Surface Seal: INTACT

Is surrounding area sloped away from well: No
Any observed ponding: Yes
Is surface run-off flow evident around well: No

Well Casing Condition: INTACT

Size of well (diameter) = 2 inches
Marking point present: Yes
Well cap in place: Yes
Comments: _____

General Comments:

Large hole, 3ft southeast of monitoring well.

Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-02 Date: 1/9/2024
Total Depth (Actual): 58.30 (BTOC) Time: 12:58 PM
Total Depth (Measured): 58.37 (BTOC) Collection Order: 4
Depth to Water (Measured): 34.26 (BTOC)

Is well screen occluded more than 10%? No
If Yes, list steps for redevelopment: _____

LNAPL Present: No
If Yes, measured thickness = _____
DNAPL Present: No
If Yes, measured thickness = _____

Well Completion Type:

Condition of protector: INTACT Yes
Well ID present and readable: Yes
Locks intact: Yes
Weep hole present: No
Water present in protector: Yes
Are well "markers" (i.e.bumper posts) needed at this location: No
If yes, are current well "markers" adequate around well: _____
Comments: _____

Well Surface Seal: INTACT

Is surrounding area sloped away from well: Yes
Any observed ponding: No
Is surface run-off flow evident around well: No

Well Casing Condition: INTACT

Size of well (diameter) = 2 inches
Marking point present: Yes
Well cap in place: Yes
Comments: _____

General Comments:

Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-03 Date: 1/9/2024
Total Depth (Actual): 59.90 (BTOC) Time: 2:20 PM
Total Depth (Measured): 59.50 (BTOC) Collection Order: 12
Depth to Water (Measured): 34.56 (BTOC)

Is well screen occluded more than 10%? No
If Yes, list steps for redevelopment: _____

LNAPL Present: No
If Yes, measured thickness = _____
DNAPL Present: No
If Yes, measured thickness = _____

Well Completion Type:

Condition of protector: INTACT Yes
Well ID present and readable: Yes
Locks intact: Yes
Weep hole present: No
Water present in protector: Yes
Are well "markers" (i.e.bumper posts) needed at this location: No
If yes, are current well "markers" adequate around well: _____
Comments: _____

Well Surface Seal: INTACT

Is surrounding area sloped away from well: Yes
Any observed ponding: No
Is surface run-off flow evident around well: No

Well Casing Condition: INTACT

Size of well (diameter) = 2 inches
Marking point present: Yes
Well cap in place: Yes
Comments: _____

General Comments:

Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-04 Date: 1/9/2024
Total Depth (Actual): 60.27 (BTOC) Time: 1:43 PM
Total Depth (Measured): 60.25 (BTOC) Collection Order: 7
Depth to Water (Measured): 36.30 (BTOC)

Is well screen occluded more than 10%? No
If Yes, list steps for redevelopment: _____

LNAPL Present: No
If Yes, measured thickness = _____
DNAPL Present: No
If Yes, measured thickness = _____

Well Completion Type:

Condition of protector: INTACT Yes
Well ID present and readable: No
Locks intact: Yes
Weep hole present: No
Water present in protector: No
Are well "markers" (i.e.bumper posts) needed at this location: No
If yes, are current well "markers" adequate around well: _____
Comments: _____

Well Surface Seal: INTACT

Is surrounding area sloped away from well: No
Any observed ponding: No
Is surface run-off flow evident around well: No

Well Casing Condition: INTACT

Size of well (diameter) = 2 inches
Marking point present: Yes
Well cap in place: Yes
Comments: _____

General Comments:

Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-05R Date: 1/9/2024
Total Depth (Actual): 62.98 (BTOC) Time: 12:51 PM
Total Depth (Measured): 62.90 (BTOC) Collection Order: 3
Depth to Water (Measured): 33.24 (BTOC)

Is well screen occluded more than 10%? No
If Yes, list steps for redevelopment: _____

LNAPL Present: No
If Yes, measured thickness = _____
DNAPL Present: No
If Yes, measured thickness = _____

Well Completion Type:

Condition of protector: INTACT Yes
Well ID present and readable: Yes
Locks intact: Yes
Weep hole present: No
Water present in protector: No
Are well "markers" (i.e.bumper posts) needed at this location: No
If yes, are current well "markers" adequate around well: _____
Comments: _____

Well Surface Seal: INTACT

Is surrounding area sloped away from well: Yes
Any observed ponding: No
Is surface run-off flow evident around well: No

Well Casing Condition: INTACT

Size of well (diameter) = 2 inches
Marking point present: Yes
Well cap in place: Yes
Comments: _____

General Comments:

Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-06D Date: 1/9/2024
Total Depth (Actual): 155.10 (BTOC) Time: 12:20 PM
Total Depth (Measured): 154.75 (BTOC) Collection Order: 2
Depth to Water (Measured): 32.49 (BTOC)

Is well screen occluded more than 10%? No
If Yes, list steps for redevelopment: _____

LNAPL Present: No
If Yes, measured thickness = _____
DNAPL Present: No
If Yes, measured thickness = _____

Well Completion Type:

Condition of protector: INTACT Yes
Well ID present and readable: Yes
Locks intact: Yes
Weep hole present: No
Water present in protector: No
Are well "markers" (i.e.bumper posts) needed at this location: No
If yes, are current well "markers" adequate around well: _____
Comments: _____

Well Surface Seal: INTACT

Is surrounding area sloped away from well: Yes
Any observed ponding: No
Is surface run-off flow evident around well: No

Well Casing Condition: INTACT

Size of well (diameter) = 2 inches
Marking point present: Yes
Well cap in place: Yes
Comments: _____

General Comments:

Well protector surrounded by sand.

Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-06S Date: 1/9/2024
Total Depth (Actual): 63.88 (BTOC) Time: 12:11 PM
Total Depth (Measured): 63.81 (BTOC) Collection Order: 1
Depth to Water (Measured): 32.30 (BTOC)

Is well screen occluded more than 10%? No
If Yes, list steps for redevelopment: _____

LNAPL Present: No
If Yes, measured thickness = _____
DNAPL Present: No
If Yes, measured thickness = _____

Well Completion Type:

Condition of protector: INTACT Yes
Well ID present and readable: Yes
Locks intact: Yes
Weep hole present: No
Water present in protector: No
Are well "markers" (i.e.bumper posts) needed at this location: No
If yes, are current well "markers" adequate around well: _____
Comments: _____

Well Surface Seal: INTACT

Is surrounding area sloped away from well: Yes
Any observed ponding: No
Is surface run-off flow evident around well: No

Well Casing Condition: INTACT

Size of well (diameter) = 2 inches
Marking point present: Yes
Well cap in place: Yes
Comments: _____

General Comments:

Well protector surrounded by sand.

Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-07 Date: 1/9/2024
Total Depth (Actual): 62.39 (BTOC) Time: 2:06 PM
Total Depth (Measured): 63.23 (BTOC) Collection Order: 10
Depth to Water (Measured): 29.64 (BTOC)

Is well screen occluded more than 10%? No
If Yes, list steps for redevelopment: _____

LNAPL Present: No
If Yes, measured thickness = _____
DNAPL Present: No
If Yes, measured thickness = _____

Well Completion Type:

Condition of protector: INTACT Yes
Well ID present and readable: Yes
Locks intact: Yes
Weep hole present: No
Water present in protector: No
Are well "markers" (i.e.bumper posts) needed at this location: No
If yes, are current well "markers" adequate around well: _____
Comments: _____

Well Surface Seal: INTACT

Is surrounding area sloped away from well: No
Any observed ponding: No
Is surface run-off flow evident around well: No

Well Casing Condition: INTACT

Size of well (diameter) = 2 inches
Marking point present: Yes
Well cap in place: Yes
Comments: _____

General Comments:

Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-08 Date: 1/9/2024
Total Depth (Actual): 62.36 (BTOC) Time: 2:11 PM
Total Depth (Measured): 62.00 (BTOC) Collection Order: 11
Depth to Water (Measured): 37.56 (BTOC)

Is well screen occluded more than 10%? No
If Yes, list steps for redevelopment: _____

LNAPL Present: No
If Yes, measured thickness = _____
DNAPL Present: No
If Yes, measured thickness = _____

Well Completion Type:

Condition of protector: INTACT Yes
Well ID present and readable: Yes
Locks intact: Yes
Weep hole present: No
Water present in protector: No
Are well "markers" (i.e.bumper posts) needed at this location: No
If yes, are current well "markers" adequate around well: _____
Comments: _____

Well Surface Seal: INTACT

Is surrounding area sloped away from well: No
Any observed ponding: No
Is surface run-off flow evident around well: No

Well Casing Condition: INTACT

Size of well (diameter) = 2 inches
Marking point present: Yes
Well cap in place: Yes
Comments: _____

General Comments:

Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-09 Date: 1/9/2024
Total Depth (Actual): 63.18 (BTOC) Time: 1:32 PM
Total Depth (Measured): 63.20 (BTOC) Collection Order: 6
Depth to Water (Measured): 35.54 (BTOC)

Is well screen occluded more than 10%? No
If Yes, list steps for redevelopment: _____

LNAPL Present: No
If Yes, measured thickness = _____
DNAPL Present: No
If Yes, measured thickness = _____

Well Completion Type:

Condition of protector: INTACT Yes
Well ID present and readable: Yes
Locks intact: Yes
Weep hole present: No
Water present in protector: No
Are well "markers" (i.e.bumper posts) needed at this location: No
If yes, are current well "markers" adequate around well: _____
Comments: _____

Well Surface Seal: INTACT

Is surrounding area sloped away from well: No
Any observed ponding: No
Is surface run-off flow evident around well: No

Well Casing Condition: INTACT

Size of well (diameter) = 2 inches
Marking point present: Yes
Well cap in place: Yes
Comments: _____

General Comments:

Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-10D Date: 1/9/2024
Total Depth (Actual): 98.09 (BTOC) Time: 1:56 PM
Total Depth (Measured): 98.11 (BTOC) Collection Order: 9
Depth to Water (Measured): 28.31 (BTOC)

Is well screen occluded more than 10%? No
If Yes, list steps for redevelopment: _____

LNAPL Present: No
If Yes, measured thickness = _____
DNAPL Present: No
If Yes, measured thickness = _____

Well Completion Type:

Condition of protector: INTACT Yes
Well ID present and readable: Yes
Locks intact: Yes
Weep hole present: No
Water present in protector: No
Are well "markers" (i.e.bumper posts) needed at this location: No
If yes, are current well "markers" adequate around well: _____
Comments: _____

Well Surface Seal: INTACT

Is surrounding area sloped away from well: No
Any observed ponding: No
Is surface run-off flow evident around well: No

Well Casing Condition: INTACT

Size of well (diameter) = 2 inches
Marking point present: Yes
Well cap in place: Yes
Comments: _____

General Comments:

Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-10S Date: 1/9/2024
Total Depth (Actual): 62.55 (BTOC) Time: 1:53 PM
Total Depth (Measured): 62.75 (BTOC) Collection Order: 8
Depth to Water (Measured): 28.73 (BTOC)

Is well screen occluded more than 10%? No
If Yes, list steps for redevelopment: _____

LNAPL Present: No
If Yes, measured thickness = _____
DNAPL Present: No
If Yes, measured thickness = _____

Well Completion Type:

Condition of protector: INTACT Yes
Well ID present and readable: Yes
Locks intact: Yes
Weep hole present: No
Water present in protector: No
Are well "markers" (i.e.bumper posts) needed at this location: No
If yes, are current well "markers" adequate around well: _____
Comments: _____

Well Surface Seal: INTACT

Is surrounding area sloped away from well: No
Any observed ponding: No
Is surface run-off flow evident around well: No

Well Casing Condition: INTACT

Size of well (diameter) = 2 inches
Marking point present: Yes
Well cap in place: Yes
Comments: _____

General Comments:



Low Flow Groundwater Sampling Field Data Form

Well ID: APW-03
Well Permit No:

Date: 2024/01/11

Site ID GTEC-GRAND-TOWER	Purge Method / Pump Intake Depth Low_Flow / 54.5 (ft)	Reference Elevation 365.79 (ft)
Site Address 1820 Power Plant Road, Grand Tower, US-IL	Purge Equipment NA	Depth to Water / Free Product 34.46 (ft) / None
Project Number 0599247	Sample Equipment NA	Total Well Depth 59.5 (ft)
Project Name 20240108-GWMonitor	Average Purge Rate 481.1 (mL/min)	Well Diameter / Well Screen Interval 2 (in) / 45.7 - 55.7 ()
Sampler Marshall Arendell & Joshua Richards	Volume of Water in Well / Total Volume Purged 4.09 (gal) / 5 (gal)	Well Construction PVC

Well Head Vapor Measurements
PID: NA; FID: NA; CO: NA; CO2: NA; O2: NA; CH4: NA; H2S: NA

Time	DTW (ft)	Flow Rate (mL/min)	Purge Volume (gal)	Temperature (C) ±3%	pH ±0.1pH units	Specific Conductivity (uS/cm) ±3%	Total Conductivity (NA)	Dissolved Oxygen (mg/L) ±10%	ORP (mV) ±10 mV	Turbidity (NTU) ±10%	Total Dissolved Solids(NA)	Comments
14:08	34.5	330	0	14	7.32	720	NM	2.87	40.2	248	NM	CLOUDY, NO ODOR
14:13	34.5	500	0.5	14	7.28	750	NM	0.98	18.4	204	NM	CLOUDY, NO ODOR
14:18	34.5	500	1.25	14.6	7.28	751	NM	0.52	-10.2	80.1	NM	CLOUDY, SLIGHT ROTTEN-EGG LIKE ODOR
14:23	34.5	500	2.25	14.6	7.28	750	NM	0.4	-16.8	28.8	NM	CLEAR, SLIGHT ROTTEN-EGG LIKE ODOR
14:28	34.5	500	3	14.7	7.28	748	NM	0.26	-21.4	17.7	NM	CLEAR, SLIGHT ROTTEN-EGG LIKE ODOR
14:33	34.5	500	3.5	14.7	7.28	747	NM	0.16	-22.7	12	NM	CLEAR, SLIGHT ROTTEN-EGG LIKE ODOR
14:38	34.5	500	4	14.6	7.28	746	NM	0.15	-22.9	7.52	NM	CLEAR, SLIGHT ROTTEN-EGG LIKE ODOR
14:43	34.5	500	4.5	14.6	7.28	746	NM	0.13	-22.9	7.13	NM	CLEAR, SLIGHT ROTTEN-EGG LIKE ODOR
14:48	34.5	500	5	14.6	7.27	746	NM	0.13	-22.9	7.12	NM	CLEAR, SLIGHT ROTTEN-EGG LIKE ODOR

Sample ID(s): APW-03-WG-20240111	Additional Comments	SAMPLER NAME AND SIGNATURE Marshall Arendell 	Date Time 01/29/2024 18:51
Analysis:			



Low Flow Groundwater Sampling Field Data Form

Well ID: APW-04
Well Permit No:

Date: 2024/01/10

Site ID GTEC-GRAND-TOWER	Purge Method / Pump Intake Depth Low_Flow / 55.25 (ft)	Reference Elevation 367.44 (ft)
Site Address 1820 Power Plant Road, Grand Tower, US-IL	Purge Equipment NA	Depth to Water / Free Product 36.36 (ft) / None
Project Number 0599247	Sample Equipment NA	Total Well Depth 60.25 (ft)
Project Name 20240108-GWMonitor	Average Purge Rate 364.3 (mL/min)	Well Diameter / Well Screen Interval 2 (in) / 45.7 - 55.7 ()
Sampler Marshall Arendell & Joshua Richards	Volume of Water in Well / Total Volume Purged 3.9 (gal) / 1.75 (gal)	Well Construction PVC

Well Head Vapor Measurements

PID: NA; FID: NA; CO: NA; CO2: NA; O2: NA; CH4: NA; H2S: NA

Time	DTW (ft)	Flow Rate (mL/min)	Purge Volume (gal)	Temperature (C) ±3%	pH ±0.1pH units	Specific Conductivity (uS/cm) ±3%	Total Conductivity (NA)	Dissolved Oxygen (mg/L) ±10%	ORP (mV) ±10 mV	Turbidity (NTU) ±10%	Total Dissolved Solids(NA)	Comments
16:35	36.36	400	0	9.6	7.24	504	NM	4.01	52.2	30.6	NM	CLEAR, NO ODOR
16:40	36.36	400	0.5	11.5	7.22	560	NM	2.21	57.4	118	NM	TURBID, BROWN, NO ODOR
16:45	36.36	350	0.75	11.2	7.2	563	NM	2.33	64.4	58.4	NM	CLOUDY, BROWN, NO ODOR
16:50	36.36	350	1	11.3	7.2	566	NM	2.28	71	38.6	NM	CLOUDY, BROWN, NO ODOR
16:55	36.36	350	1.25	11.6	7.2	566	NM	2.26	76.1	31.4	NM	CLOUDY, BROWN, NO ODOR
17:00	36.36	350	1.5	11.5	7.2	565	NM	2.25	79.4	31.1	NM	CLOUDY, BROWN, NO ODOR
17:05	36.36	350	1.75	11.5	7.2	565	NM	2.22	79.7	29.8	NM	CLOUDY, BROWN, NO ODOR

Sample ID(s): APW-04-WG-20240110	Additional Comments	SAMPLER NAME AND SIGNATURE Marshall Arendell 	Date Time 01/29/2024 19:17
Analysis:			



Low Flow Groundwater Sampling Field Data Form

Well ID: APW-05R
Well Permit No:


Date: 2024/01/10

Site ID GTEC-GRAND-TOWER	Purge Method / Pump Intake Depth Low_Flow / 57.9 (ft)	Reference Elevation ()
Site Address 1820 Power Plant Road, Grand Tower, US-IL	Purge Equipment NA	Depth to Water / Free Product 33.33 (ft) / None
Project Number 0599247	Sample Equipment NA	Total Well Depth 62.9 (ft)
Project Name 20240108-GWMonitor	Average Purge Rate 387.5 (mL/min)	Well Diameter / Well Screen Interval 2 (in) / - ()
Sampler Marshall Arendell & Joshua Richards	Volume of Water in Well / Total Volume Purged 4.83 (gal) / 5.5 (gal)	Well Construction PVC

Well Head Vapor Measurements

PID: NA; FID: NA; CO: NA; CO2: NA; O2: NA; CH4: NA; H2S: NA

Time	DTW (ft)	Flow Rate (mL/min)	Purge Volume (gal)	Temperature (C) ±3%	pH ±0.1pH units	Specific Conductivity (uS/cm) ±3%	Total Conductivity (NA)	Dissolved Oxygen (mg/L) ±10%	ORP (mV) ±10 mV	Turbidity (NTU) ±10%	Total Dissolved Solids(NA)	Comments
12:05	33.37	250	0	12.5	7.42	895	NM	2.44	-63	32.9	NM	CLOUDY, NO ODOR
12:10	33.4	400	0.5	14.5	7.38	944	NM	0.3	-103	673	NM	TURBID, ROTTEN-EGG LIKE ODOR
12:15	33.4	400	1	14.8	7.37	942	NM	0.14	-124.3	359	NM	TURBID, ROTTEN-EGG LIKE ODOR
12:20	33.4	400	1.5	14.7	7.35	941	NM	0.12	-129.5	227	NM	TURBID, ROTTEN-EGG LIKE ODOR
12:25	33.4	400	2	14.9	7.38	943	NM	0.11	-134.8	133	NM	CLOUDY, ROTTEN-EGG LIKE ODOR
12:30	33.4	400	2.5	15.1	7.37	942	NM	0.08	-136.4	110	NM	CLOUDY, ROTTEN-EGG LIKE ODOR
12:35	33.4	400	3	15.1	7.38	943	NM	0.07	-137.6	84.9	NM	CLOUDY, ROTTEN-EGG LIKE ODOR
12:40	33.4	400	3.5	15.2	7.37	944	NM	0.06	-140.3	60.6	NM	CLOUDY, ROTTEN-EGG LIKE ODOR
12:45	33.4	400	4	15.3	7.37	945	NM	0.06	-142.7	44.4	NM	CLOUDY, ROTTEN-EGG LIKE ODOR
12:50	33.4	400	4.5	15.2	7.37	946	NM	0.05	-144.9	42.8	NM	CLEAR, ROTTEN-EGG LIKE ODOR
12:55	33.4	400	5	15.3	7.37	944	NM	0.05	-145.3	39.3	NM	CLEAR, ROTTEN-EGG LIKE ODOR
13:00	33.4	400	5.5	15.4	7.37	945	NM	0.05	-146.1	38.9	NM	CLEAR, ROTTEN-EGG LIKE ODOR

Sample ID(s): APW-05R-WG-20240110,DUP-01-WG-20240110	Additional Comments	SAMPLER NAME AND SIGNATURE Marshall Arendell 	Date Time 01/31/2024 16:41
Analysis:			



Low Flow Groundwater Sampling Field Data Form


Well ID: APW-06D
Well Permit No:

Date: 2024/01/10

Site ID GTEC-GRAND-TOWER	Purge Method / Pump Intake Depth Low_Flow / 149.75 (ft)	Reference Elevation 363.69 (ft)
Site Address 1820 Power Plant Road, Grand Tower, US-IL	Purge Equipment NA	Depth to Water / Free Product 32.54 (ft) / None
Project Number 0599247	Sample Equipment NA	Total Well Depth 154.75 (ft)
Project Name 20240108-GWMonitor	Average Purge Rate 417.9 (mL/min)	Well Diameter / Well Screen Interval 2 (in) / 140 - 150 (ft)
Sampler Marshall Arendell & Joshua Richards	Volume of Water in Well / Total Volume Purged 19.94 (gal) / 3 (gal)	Well Construction PVC

Well Head Vapor Measurements
PID: NA; FID: NA; CO: NA; CO2: NA; O2: NA; CH4: NA; H2S: NA

Time	DTW (ft)	Flow Rate (mL/min)	Purge Volume (gal)	Temperature (C) ±3%	pH ±0.1pH units	Specific Conductivity (uS/cm) ±3%	Total Conductivity (NA)	Dissolved Oxygen (mg/L) ±10%	ORP (mV) ±10 mV	Turbidity (NTU) ±10%	Total Dissolved Solids(NA)	Comments
10:55	32.6	225	0	14.3	7.34	755	NM	7.31	-75.5	195	NM	TURBID, ROTTEN-EGG LIKE ODOR
11:00	32.6	450	0.5	14.5	7.33	756	NM	4.32	-86.5	84.9	NM	TURBID, ROTTEN-EGG LIKE ODOR
11:05	32.6	450	1	14.6	7.33	756	NM	0.55	-91.5	50.6	NM	TURBID, ROTTEN-EGG LIKE ODOR
11:10	32.6	450	1.5	14.7	7.32	752	NM	0.15	-102.4	27.1	NM	CLOUDY, ROTTEN-EGG LIKE ODOR
11:15	32.6	450	2	14.8	7.32	752	NM	0.13	-103.7	19.6	NM	CLOUDY, ROTTEN-EGG LIKE ODOR
11:20	32.6	450	2.5	14.8	7.33	753	NM	0.13	-105	18.4	NM	CLOUDY, ROTTEN-EGG LIKE ODOR
11:25	32.6	450	3	14.6	7.32	753	NM	0.13	-106	18.2	NM	CLOUDY, ROTTEN-EGG LIKE ODOR

Sample ID(s): APW-06D-WG-20240110	Additional Comments	SAMPLER NAME AND SIGNATURE	Date Time
Analysis:		Marshall Arendell 	01/29/2024 20:23



Low Flow Groundwater Sampling Field Data Form


Well ID: APW-06S
Well Permit No:

Date: 2024/01/10

Site ID GTEC-GRAND-TOWER	Purge Method / Pump Intake Depth Low_Flow / 58.81 (ft)	Reference Elevation 363.51 (ft)
Site Address 1820 Power Plant Road, Grand Tower, US-IL	Purge Equipment NA	Depth to Water / Free Product 32.47 (ft) / None
Project Number 0599247	Sample Equipment NA	Total Well Depth 63.81 (ft)
Project Name 20240108-GWMonitor	Average Purge Rate 300 (mL/min)	Well Diameter / Well Screen Interval 2 (in) / 50 - 60 (ft)
Sampler Marshall Arendell & Joshua Richards	Volume of Water in Well / Total Volume Purged 5.11 (gal) / 3.5 (gal)	Well Construction PVC

Well Head Vapor Measurements
PID: NA; FID: NA; CO: NA; CO2: NA; O2: NA; CH4: NA; H2S: NA

Time	DTW (ft)	Flow Rate (mL/min)	Purge Volume (gal)	Temperature (C) ±3%	pH ±0.1pH units	Specific Conductivity (uS/cm) ±3%	Total Conductivity (NA)	Dissolved Oxygen (mg/L) ±10%	ORP (mV) ±10 mV	Turbidity (NTU) ±10%	Total Dissolved Solids(NA)	Comments
09:30	32.63	300	0	13.6	7.19	820	NM	0.37	-17.9	97.3	NM	TURBID, NO ODOR
09:35	32.63	300	0.5	13.7	7.27	792	NM	0.31	-32.1	40.7	NM	TURBID, NO ODOR
09:40	32.63	300	0.75	13.8	7.2	838	NM	0.21	-60.7	24	NM	TURBID, NO ODOR
09:45	32.63	300	1.25	14	7.2	880	NM	0.16	-82.6	8.55	NM	CLEAR, NO ODOR
09:50	32.63	300	1.75	14.3	7.2	879	NM	0.12	-102.4	5.65	NM	CLEAR, NO ODOR
09:55	32.63	300	2	14.2	7.21	875	NM	0.11	-112	5.35	NM	CLEAR, NO ODOR
10:00	32.63	300	2.5	14.1	7.2	877	NM	0.08	-119.7	3.77	NM	CLEAR, NO ODOR
10:05	32.63	300	3	14	7.21	878	NM	0.07	-125.4	4.1	NM	CLEAR, NO ODOR
10:10	32.63	300	3.5	13.9	7.2	877	NM	0.06	-128.2	3.32	NM	CLEAR, NO ODOR

Sample ID(s): APW-06S-WG-20240110	Additional Comments	SAMPLER NAME AND SIGNATURE Marshall Arendell 	Date Time 01/29/2024 20:35
Analysis:			



Low Flow Groundwater Sampling Field Data Form


Well ID: APW-07
Well Permit No:

Date: 2024/01/11

Site ID GTEC-GRAND-TOWER	Purge Method / Pump Intake Depth Low_Flow / 58.23 (ft)	Reference Elevation 360.61 (ft)
Site Address 1820 Power Plant Road, Grand Tower, US-IL	Purge Equipment NA	Depth to Water / Free Product 29.7 (ft) / None
Project Number 0599247	Sample Equipment NA	Total Well Depth 63.23 (ft)
Project Name 20240108-GWMonitor	Average Purge Rate 411.1 (mL/min)	Well Diameter / Well Screen Interval 2 (in) / 50 - 60 (ft)
Sampler Marshall Arendell & Joshua Richards	Volume of Water in Well / Total Volume Purged 5.47 (gal) / 3.75 (gal)	Well Construction PVC

Well Head Vapor Measurements
PID: NA; FID: NA; CO: NA; CO2: NA; O2: NA; CH4: NA; H2S: NA

Time	DTW (ft)	Flow Rate (mL/min)	Purge Volume (gal)	Temperature (C) ±3%	pH ±0.1pH units	Specific Conductivity (uS/cm) ±3%	Total Conductivity (NA)	Dissolved Oxygen (mg/L) ±10%	ORP (mV) ±10 mV	Turbidity (NTU) ±10%	Total Dissolved Solids(NA)	Comments
11:10	29.74	450	0	13.9	6.82	1181	NM	1.24	-15.8	126	NM	CLOUDY, ROTTEN-EGG LIKE ODOR
11:15	29.74	450	0.5	14.3	6.85	1219	NM	0.32	-52.8	114	NM	CLOUDY, ROTTEN-EGG LIKE ODOR
11:20	29.74	400	1	14.6	6.84	1223	NM	0.15	-67.6	94.5	NM	CLOUDY, ROTTEN-EGG LIKE ODOR
11:25	29.74	400	1.5	14.6	6.84	1223	NM	0.1	73.4	55.2	NM	CLOUDY, ROTTEN-EGG LIKE ODOR
11:30	29.74	400	2	14.5	6.84	1226	NM	0.08	-77.4	37.8	NM	CLOUDY, ROTTEN-EGG LIKE ODOR
11:35	29.74	400	2.5	14.4	6.82	1226	NM	0.06	-80.7	22.3	NM	CLOUDY, ROTTEN-EGG LIKE ODOR
11:40	29.74	400	2.75	14.3	6.85	1226	NM	0.06	-82.8	8.26	NM	CLEAR, ROTTEN-EGG LIKE ODOR
11:45	29.74	400	3.25	14.2	6.85	1226	NM	0.04	-84.3	4.46	NM	CLEAR, ROTTEN-EGG LIKE ODOR
11:50	29.74	400	3.75	14.2	6.85	1225	NM	0.04	-85.9	4.36	NM	CLEAR, ROTTEN-EGG LIKE ODOR

Sample ID(s): APW-07-WG-20240111	Additional Comments	SAMPLER NAME AND SIGNATURE	Date Time
		Marshall Arendell 	01/29/2024 21:31
Analysis:			



Low Flow Groundwater Sampling Field Data Form


Well ID: APW-08
Well Permit No:

Date: 2024/01/11

Site ID GTEC-GRAND-TOWER	Purge Method / Pump Intake Depth Low_Flow / 57 (ft)	Reference Elevation 362.71 (ft)
Site Address 1820 Power Plant Road, Grand Tower, US-IL	Purge Equipment NA	Depth to Water / Free Product 31.54 (ft) / None
Project Number 0599247	Sample Equipment NA	Total Well Depth 62 (ft)
Project Name 20240108-GWMonitor	Average Purge Rate 475 (mL/min)	Well Diameter / Well Screen Interval 2 (in) / 50 - 60 (ft)
Sampler Marshall Arendell & Joshua Richards	Volume of Water in Well / Total Volume Purged 4.97 (gal) / 6.5 (gal)	Well Construction PVC

Well Head Vapor Measurements
PID: NA; FID: NA; CO: NA; CO2: NA; O2: NA; CH4: NA; H2S: NA

Time	DTW (ft)	Flow Rate (mL/min)	Purge Volume (gal)	Temperature (C) ±3%	pH ±0.1pH units	Specific Conductivity (uS/cm) ±3%	Total Conductivity (NA)	Dissolved Oxygen (mg/L) ±10%	ORP (mV) ±10 mV	Turbidity (NTU) ±10%	Total Dissolved Solids(NA)	Comments
12:32	31.58	200	0	15.1	7.31	569.8	NM	1.66	-20.2	1000	NM	TURBID, BROWN, NO ODOR
12:37	31.58	500	0.75	15.6	7.22	571.3	NM	0.21	-15	1000	NM	TURBID, BROWN, NO ODOR
12:42	31.58	500	1.25	15.7	7.21	571	NM	0.2	-14	765	NM	TURBID, BROWN, NO ODOR
12:47	31.58	500	1.75	15.7	7.2	571.9	NM	0.13	-14.4	441	NM	TURBID, BROWN, NO ODOR
12:52	31.58	500	2.5	15.8	7.2	573.9	NM	0.08	-16	217	NM	TURBID, BROWN, NO ODOR
12:57	31.58	500	3.25	15.8	7.2	573.1	NM	0.07	-16.8	156	NM	CLOUDY, NO ODOR
13:02	31.58	500	3.75	15.7	7.2	572.9	NM	0.06	-17.5	90.5	NM	CLOUDY, NO ODOR
13:07	31.58	500	4.5	15.9	7.2	571.4	NM	0.05	-17.7	61.1	NM	CLOUDY, NO ODOR
13:12	31.58	500	5	15.9	7.2	571.2	NM	0.05	-17.3	43.3	NM	CLOUDY, NO ODOR
13:17	31.58	500	5.5	15.9	7.2	572.6	NM	0.04	-16.4	23.7	NM	CLOUDY, NO ODOR
13:22	31.58	500	6	15.9	7.2	571.6	NM	0.03	-16	22.4	NM	CLEAR, NO ODOR
13:27	31.58	500	6.5	15.9	7.2	571.5	NM	0.03	-16	23.1	NM	CLEAR, NO ODOR

Sample ID(s): APW-08-WG-20240111	Additional Comments	SAMPLER NAME AND SIGNATURE Marshall Arendell 	Date Time 01/29/2024 21:47
Analysis:			



Low Flow Groundwater Sampling Field Data Form

Well ID: APW-09
Well Permit No:

Date: 2024/01/11

Site ID GTEC-GRAND-TOWER	Purge Method / Pump Intake Depth Low_Flow / 58.2 (ft)	Reference Elevation 366.84 (ft)
Site Address 1820 Power Plant Road, Grand Tower, US-IL	Purge Equipment NA	Depth to Water / Free Product 35.6 (ft) / None
Project Number 0599247	Sample Equipment NA	Total Well Depth 63.2 (ft)
Project Name 20240108-GWMonitor	Average Purge Rate 500 (mL/min)	Well Diameter / Well Screen Interval 2 (in) / 50 - 60 (ft)
Sampler Marshall Arendell & Joshua Richards	Volume of Water in Well / Total Volume Purged 4.5 (gal) / 7.5 (gal)	Well Construction PVC

Well Head Vapor Measurements
PID: NA; FID: NA; CO: NA; CO2: NA; O2: NA; CH4: NA; H2S: NA

Time	DTW (ft)	Flow Rate (mL/min)	Purge Volume (gal)	Temperature (C) ±3%	pH ±0.1pH units	Specific Conductivity (uS/cm) ±3%	Total Conductivity (NA)	Dissolved Oxygen (mg/L) ±10%	ORP (mV) ±10 mV	Turbidity (NTU) ±10%	Total Dissolved Solids(NA)	Comments
15:17	35.6	500	0	13.8	7.46	509.4	NM	1.83	1.1	144	NM	CLOUDY, NO ODORS
15:22	35.6	500	1	14.9	7.38	538.6	NM	0.74	9.4	140	NM	CLEAR, NO ODORS
15:27	35.6	500	2	15	7.37	539.2	NM	0.53	9.6	85.3	NM	CLEAR, NO ODORS
15:32	35.6	500	3	15	7.37	538.7	NM	0.42	9.2	47	NM	CLEAR, NO ODORS
15:37	35.6	500	4	14.9	7.37	538.9	NM	0.36	8.9	41.5	NM	CLEAR, NO ODORS
15:42	35.6	500	5	15	7.36	538.8	NM	0.33	8.7	28.8	NM	CLEAR, NO ODORS
15:47	35.6	500	5.5	15	7.36	538.3	NM	0.32	8.6	22	NM	CLEAR, NO ODORS
15:52	35.6	500	6	15	7.33	541	NM	0.3	9	18.3	NM	CLEAR, NO ODORS
15:57	35.6	500	6.5	15	7.33	540.7	NM	0.31	8.5	13.6	NM	CLEAR, NO ODORS
16:02	35.6	500	7	15	7.36	540.7	NM	0.3	8.7	13.2	NM	CLEAR, NO ODORS
16:07	35.6	500	7.5	15	7.36	540.7	NM	0.29	8.7	13.4	NM	CLEAR, NO ODORS

Sample ID(s): APW-09-WG-20240111,DUP-02-WG-20240111	Additional Comments	SAMPLER NAME AND SIGNATURE	Date Time
		Marshall Arendell 	01/29/2024 22:07
Analysis:			



Low Flow Groundwater Sampling Field Data Form

Well ID: APW-10D
Well Permit No:


Date: 2024/01/11

Site ID GTEC-GRAND-TOWER	Purge Method / Pump Intake Depth Low_Flow / 93.11 (ft)	Reference Elevation 359.41 (ft)
Site Address 1820 Power Plant Road, Grand Tower, US-IL	Purge Equipment NA	Depth to Water / Free Product 28.3 (ft) / None
Project Number 0599247	Sample Equipment NA	Total Well Depth 98.11 (ft)
Project Name 20240108-GWMonitor	Average Purge Rate 500 (mL/min)	Well Diameter / Well Screen Interval 2 (in) / 86 - 96 (ft)
Sampler Marshall Arendell & Joshua Richards	Volume of Water in Well / Total Volume Purged 11.39 (gal) / 9 (gal)	Well Construction PVC

Well Head Vapor Measurements

PID: NA; FID: NA; CO: NA; CO2: NA; O2: NA; CH4: NA; H2S: NA

Time	DTW (ft)	Flow Rate (mL/min)	Purge Volume (gal)	Temperature (C) ±3%	pH ±0.1pH units	Specific Conductivity (uS/cm) ±3%	Total Conductivity (NA)	Dissolved Oxygen (mg/L) ±10%	ORP (mV) ±10 mV	Turbidity (NTU) ±10%	Total Dissolved Solids(NA)	Comments
09:40	28.32	500	0	12.4	7.32	582.8	NM	3.02	-77.6	84.5	NM	CLOUDY, NO ODOR
09:45	28.32	500	0.5	14.1	7.09	628.5	NM	1	-53.3	1000	NM	CLOUDY, NO ODOR
09:50	28.32	500	1	14.7	7.05	672	NM	0.25	-43.8	620	NM	CLOUDY, NO ODOR
09:55	28.32	500	1.5	14.9	7.05	683	NM	0.16	-37.1	406	NM	CLOUDY, NO ODOR
10:00	28.32	500	2	15	7.05	691	NM	0.14	-33.6	237	NM	CLOUDY, NO ODOR
10:05	28.32	500	3	15	7.05	692	NM	0.12	-30.8	144	NM	CLOUDY, NO ODOR
10:10	28.32	500	4	15.1	7.05	693	NM	0.12	-26.4	53.4	NM	CLOUDY, NO ODOR
10:15	28.32	500	5	15.1	7.05	697	NM	0.1	-25.1	41.8	NM	CLOUDY, NO ODOR
10:20	28.32	500	6	15.1	7.05	697	NM	0.08	-21.6	22.6	NM	CLOUDY, NO ODOR
10:25	28.32	500	7	15.1	7.04	696	NM	0.07	-18.5	6.21	NM	CLEAR, NO ODOR
10:30	28.32	500	8	15.1	7.04	694	NM	0.06	-16.4	5.72	NM	CLEAR, NO ODOR
10:35	28.32	500	9	15.1	7.04	698	NM	0.08	-17.6	4.76	NM	CLEAR, NO ODOR

Sample ID(s): APW-10D-WG-20240111	Additional Comments	SAMPLER NAME AND SIGNATURE Marshall Arendell 	Date Time 01/29/2024 22:36
Analysis:			



Low Flow Groundwater Sampling Field Data Form

Well ID: APW-10S
Well Permit No:


Date: 2024/01/11

Site ID GTEC-GRAND-TOWER	Purge Method / Pump Intake Depth Low_Flow / 57.75 (ft)	Reference Elevation 359.47 (ft)
Site Address 1820 Power Plant Road, Grand Tower, US-IL	Purge Equipment NA	Depth to Water / Free Product 28.85 (ft) / None
Project Number 0599247	Sample Equipment NA	Total Well Depth 62.75 (ft)
Project Name 20240108-GWMonitor	Average Purge Rate 377.8 (mL/min)	Well Diameter / Well Screen Interval 2 (in) / 50 - 60 (ft)
Sampler Marshall Arendell & Joshua Richards	Volume of Water in Well / Total Volume Purged 5.53 (gal) / 4 (gal)	Well Construction PVC

Well Head Vapor Measurements

PID: NA; FID: NA; CO: NA; CO2: NA; O2: NA; CH4: NA; H2S: NA

Time	DTW (ft)	Flow Rate (mL/min)	Purge Volume (gal)	Temperature (C) ±3%	pH ±0.1pH units	Specific Conductivity (uS/cm) ±3%	Total Conductivity (NA)	Dissolved Oxygen (mg/L) ±10%	ORP (mV) ±10 mV	Turbidity (NTU) ±10%	Total Dissolved Solids(NA)	Comments
08:36	29.13	400	0	12.5	7.09	1250	NM	2.29	-107.6	1000	NM	TURBID, GREY, ROTTEN-EGG LIKE ODOR
08:41	29.13	350	0.5	13.2	7.05	1269	NM	0.31	-106.1	1000	NM	TURBID, GREY, ROTTEN-EGG LIKE ODOR
08:46	29.13	350	1	13.6	7.04	1266	NM	0.24	-112.8	196	NM	TURBID, GREY, STRONG ROTTEN-EGG LIKE ODOR
08:51	29.13	350	1.5	13.8	7.04	1274	NM	0.15	-119.8	247	NM	CLOUDY, STRONG ROTTEN-EGG LIKE ODOR
08:56	29.13	350	2	13.8	7.03	1276	NM	0.12	-125.3	60.5	NM	CLOUDY, STRONG ROTTEN-EGG LIKE ODOR
09:01	29.13	400	2.5	14.8	7.03	1272	NM	0.09	-129.3	20.6	NM	CLOUDY, STRONG ROTTEN-EGG LIKE ODOR
09:06	29.13	400	3	14.7	7.01	1267	NM	0.08	-131.6	7.89	NM	CLEAR, STRONG ROTTEN-EGG LIKE ODOR
09:11	29.13	400	3.5	14.5	7.01	1273	NM	0.07	-133.8	5.54	NM	CLEAR, STRONG ROTTEN-EGG LIKE ODOR
09:16	29.13	400	4	14.6	7.02	1274	NM	0.06	-135.3	3.78	NM	CLEAR, STRONG ROTTEN-EGG LIKE ODOR

Sample ID(s): APW-10S-WG-20240111	Additional Comments	SAMPLER NAME AND SIGNATURE Marshall Arendell 	Date Time 01/29/2024 23:20
Analysis:			



Low Flow Groundwater Sampling Field Data Form

Well ID: APW-01R
Well Permit No:


Date: 2024/01/10

Site ID GTEC-GRAND-TOWER	Purge Method / Pump Intake Depth Low_Flow / 53.28 (ft)	Reference Elevation 366.82 (ft)
Site Address 1820 Power Plant Road, Grand Tower, US-IL	Purge Equipment NA	Depth to Water / Free Product 35.43 (ft) / None
Project Number 0599247	Sample Equipment NA	Total Well Depth 58.28 (ft)
Project Name 20240108-GWMonitor	Average Purge Rate 410 (mL/min)	Well Diameter / Well Screen Interval 2 (in) / 48.3 - 58.3 ()
Sampler Marshall Arendell & Joshua Richards	Volume of Water in Well / Total Volume Purged 3.73 (gal) / 3.75 (gal)	Well Construction PVC

Well Head Vapor Measurements

PID: NA; FID: NA; CO: NA; CO2: NA; O2: NA; CH4: NA; H2S: NA

Time	DTW (ft)	Flow Rate (mL/min)	Purge Volume (gal)	Temperature (C) ±3%	pH ±0.1pH units	Specific Conductivity (uS/cm) ±3%	Total Conductivity (NA)	Dissolved Oxygen (mg/L) ±10%	ORP (mV) ±10 mV	Turbidity (NTU) ±10%	Total Dissolved Solids(NA)	Comments
15:15	35.43	500	0	13.2	6.13	399	NM	3.64	12.6	567	NM	TURBID, BROWN, NO ODOR
15:20	35.43	400	0.25	13.2	6.17	426	NM	1.3	49	348	NM	TURBID, BROWN, NO ODOR
15:25	35.43	400	0.5	13.3	6.25	453	NM	1.23	56.1	263	NM	TURBID, BROWN, NO ODOR
15:30	35.43	400	0.75	13.7	6.36	487	NM	1.25	56.5	178	NM	TURBID, BROWN, NO ODOR
15:35	35.43	400	1.25	13.5	6.4	502	NM	1.25	56	133	NM	TURBID, BROWN, NO ODOR
15:40	35.43	400	1.75	13.2	6.43	512	NM	1.22	54.9	97.2	NM	TURBID, BROWN, NO ODOR
15:45	35.43	400	2.25	13.2	6.46	520	NM	1.21	54.7	62.1	NM	TURBID, BROWN, NO ODOR
15:50	35.43	400	2.75	13.3	6.5	536	NM	1.21	56	27.2	NM	CLEAR, NO ODOR
15:55	35.43	400	3.25	13.4	6.51	542	NM	1.22	56.4	26.7	NM	CLEAR, NO ODOR
16:00	35.43	400	3.75	13.5	6.52	545	NM	1.23	56.7	25.6	NM	CLEAR, NO ODOR

Sample ID(s): APW-01R-WG-20240110	Additional Comments	SAMPLER NAME AND SIGNATURE	Date Time
		Marshall Arendell 	01/29/2024 18:00
Analysis:			



Low Flow Groundwater Sampling Field Data Form


Well ID: APW-02
Well Permit No:

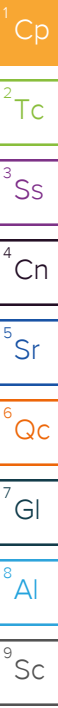
Date: 2024/01/10

Site ID GTEC-GRAND-TOWER	Purge Method / Pump Intake Depth Low_Flow / 53.37 (ft)	Reference Elevation 364.61 (ft)
Site Address 1820 Power Plant Road, Grand Tower, US-IL	Purge Equipment NA	Depth to Water / Free Product 33.61 (ft) / None
Project Number 0599247	Sample Equipment NA	Total Well Depth 58.37 (ft)
Project Name 20240108-GWMonitor	Average Purge Rate 234.4 (mL/min)	Well Diameter / Well Screen Interval 2 (in) / 47.2 - 57.2 ()
Sampler Marshall Arendell & Joshua Richards	Volume of Water in Well / Total Volume Purged 4.04 (gal) / 1.4 (gal)	Well Construction PVC

Well Head Vapor Measurements
PID: NA; FID: NA; CO: NA; CO2: NA; O2: NA; CH4: NA; H2S: NA

Time	DTW (ft)	Flow Rate (mL/min)	Purge Volume (gal)	Temperature (C) ±3%	pH ±0.1pH units	Specific Conductivity (uS/cm) ±3%	Total Conductivity (NA)	Dissolved Oxygen (mg/L) ±10%	ORP (mV) ±10 mV	Turbidity (NTU) ±10%	Total Dissolved Solids(NA)	Comments
13:55	34.33	400	0	12.5	7.22	1068	NM	6.53	-17.7	97.6	NM	CLEAR, NO ODOR
14:00	37.5	375	0.5	14.2	7.2	1080	NM	1.02	-85.5	169	NM	CLOUDY, NO ODOR
14:05	39.06	350	0.75	13.8	7.19	1085	NM	1.05	-87.7	138	NM	CLOUDY, NO ODOR
14:10	39.13	150	1	13.2	7.19	1082	NM	0.26	-85.3	134	NM	CLOUDY, NO ODOR
14:15	39.31	150	1.1	12.7	7.19	1077	NM	0.15	-94.3	77.6	NM	CLOUDY, NO ODOR
14:20	39.56	150	1.2	12.6	7.2	1074	NM	0.14	-97.5	109	NM	CLEAR, NO ODOR
14:25	39.65	150	1.3	12.2	7.2	1075	NM	0.14	-102.4	107	NM	CLEAR, NO ODOR
14:30	39.71	150	1.4	12	7.2	1079	NM	0.13	-104.3	104	NM	CLEAR, NO ODOR

Sample ID(s): APW-02-WG-20240110	Additional Comments	SAMPLER NAME AND SIGNATURE Marshall Arendell 	Date Time 01/29/2024 18:37
Analysis:			



ERM - St. Louis, MO

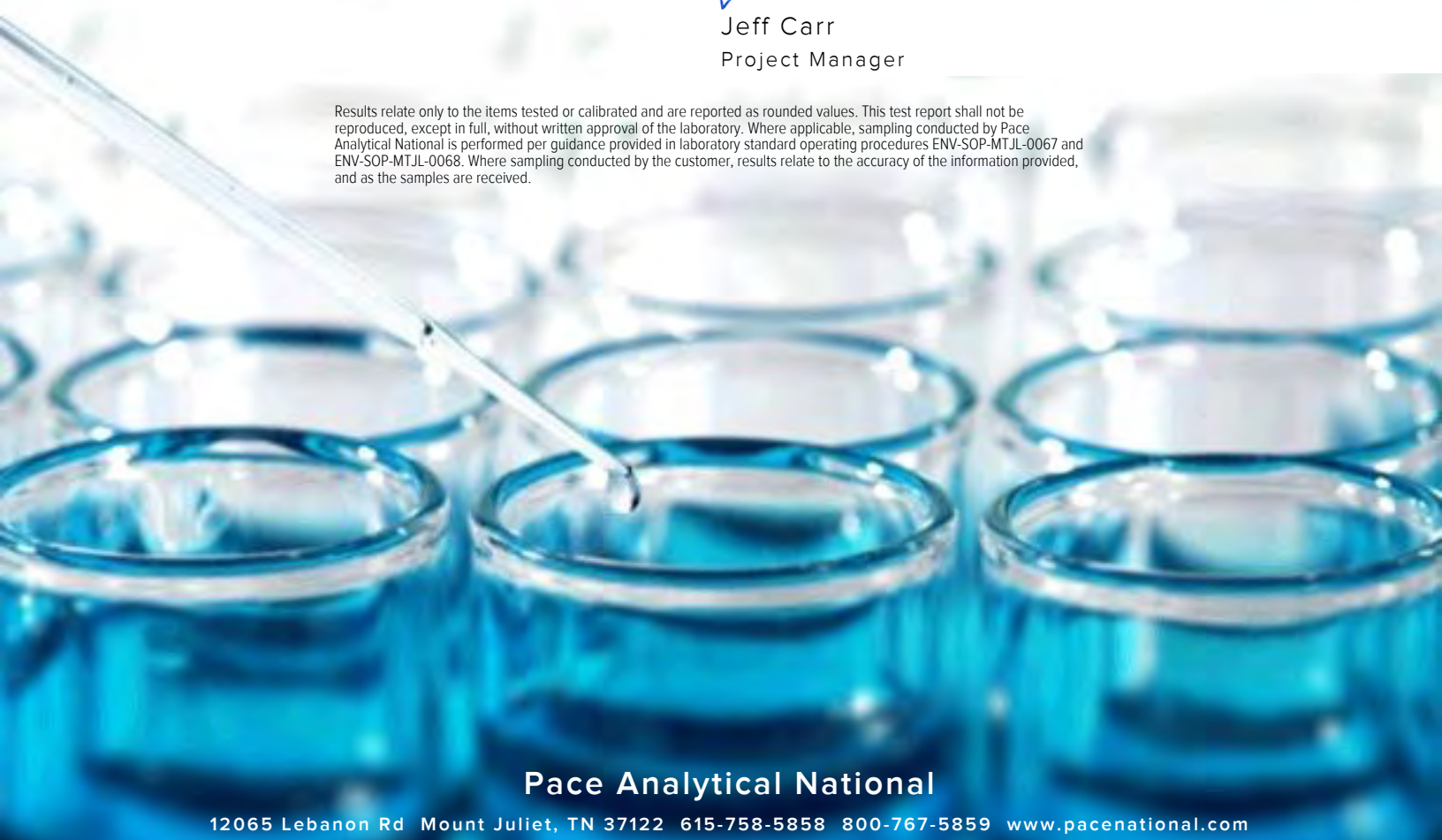
Sample Delivery Group: L1696247
Samples Received: 01/13/2024
Project Number: 0599247
Description: Grand Tower Energy Center Groundwater 1Q24 Sampling
Report To: Randy Homburg
1968 Craig Road, Suite 100
Saint Louis, MO 63146

Entire Report Reviewed By:



Jeff Carr
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

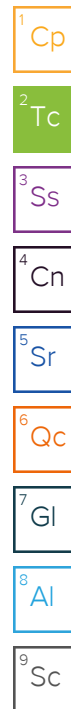


Pace Analytical National

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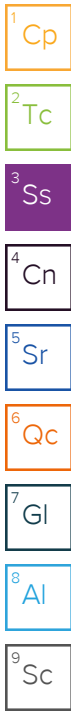


SAMPLE SUMMARY

APW-03-WG-20240111 L1696247-01 GW

Collected by: Marshall A
 Collected date/time: 01/11/24 14:50
 Received date/time: 01/13/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2206960	1	01/13/24 18:28	01/14/24 12:40	DLS	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2206862	1	01/13/24 22:56	01/13/24 22:56	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG2206905	1	01/19/24 16:30	01/19/24 16:30	EPW	Mt. Juliet, TN
Mercury by Method 7470A	WG2206975	1	01/17/24 11:40	01/17/24 20:59	AKB	Mt. Juliet, TN
Mercury by Method 7470A	WG2206981	1	01/14/24 12:28	01/14/24 20:03	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2207294	1	01/18/24 15:05	01/27/24 12:16	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2207294	1	01/18/24 15:05	01/28/24 18:16	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2208511	1	01/18/24 12:25	01/28/24 19:01	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2208511	1	01/18/24 12:25	01/28/24 20:09	LD	Mt. Juliet, TN



APW-08-WG-20240111 L1696247-02 GW

Collected by: Marshall A
 Collected date/time: 01/11/24 13:30
 Received date/time: 01/13/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2206960	1	01/13/24 18:28	01/14/24 12:40	DLS	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2206862	1	01/13/24 23:27	01/13/24 23:27	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG2206905	1	01/19/24 16:30	01/19/24 16:30	EPW	Mt. Juliet, TN
Mercury by Method 7470A	WG2206975	1	01/17/24 11:40	01/17/24 21:02	AKB	Mt. Juliet, TN
Mercury by Method 7470A	WG2206981	1	01/14/24 12:28	01/14/24 20:12	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2207294	1	01/18/24 15:05	01/27/24 12:19	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2207294	1	01/18/24 15:05	01/28/24 18:20	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2208511	1	01/18/24 12:25	01/28/24 19:04	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2208511	1	01/18/24 12:25	01/28/24 20:12	LD	Mt. Juliet, TN

APW-07-WG-20240111 L1696247-03 GW

Collected by: Marshall A
 Collected date/time: 01/11/24 11:55
 Received date/time: 01/13/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2206960	1	01/13/24 18:28	01/14/24 12:40	DLS	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2206862	1	01/14/24 00:15	01/14/24 00:15	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG2206905	1	01/19/24 16:30	01/19/24 16:30	EPW	Mt. Juliet, TN
Mercury by Method 7470A	WG2206975	1	01/17/24 11:40	01/17/24 21:04	AKB	Mt. Juliet, TN
Mercury by Method 7470A	WG2206981	1	01/14/24 12:28	01/14/24 20:14	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2207294	1	01/18/24 15:05	01/27/24 12:58	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2207294	1	01/18/24 15:05	01/28/24 18:23	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2207294	5	01/18/24 15:05	01/28/24 19:06	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2208511	1	01/18/24 12:25	01/28/24 19:07	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2208511	1	01/18/24 12:25	01/28/24 20:15	LD	Mt. Juliet, TN

APW-10S-WG-20240111 L1696247-04 GW

Collected by: Marshall A
 Collected date/time: 01/11/24 10:40
 Received date/time: 01/13/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2206960	1	01/13/24 18:28	01/14/24 12:40	DLS	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2206862	1	01/14/24 00:47	01/14/24 00:47	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG2206905	1	01/19/24 16:30	01/19/24 16:30	EPW	Mt. Juliet, TN
Mercury by Method 7470A	WG2206975	1	01/17/24 11:40	01/17/24 21:07	AKB	Mt. Juliet, TN
Mercury by Method 7470A	WG2206981	1	01/14/24 12:28	01/14/24 20:17	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2207294	1	01/18/24 15:05	01/27/24 13:01	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2207294	1	01/18/24 15:05	01/28/24 18:26	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2207294	5	01/18/24 15:05	01/28/24 19:16	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2208511	1	01/18/24 12:25	01/28/24 19:10	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2208511	1	01/18/24 12:25	01/28/24 20:18	LD	Mt. Juliet, TN

SAMPLE SUMMARY

APW-10D-WG-20240111 L1696247-05 GW

Collected by: Marshall A
 Collected date/time: 01/11/24 09:20
 Received date/time: 01/13/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2206960	1	01/13/24 18:28	01/14/24 12:40	DLS	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2206862	1	01/14/24 01:03	01/14/24 01:03	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG2206905	1	01/19/24 16:30	01/19/24 16:30	EPW	Mt. Juliet, TN
Mercury by Method 7470A	WG2206975	1	01/17/24 11:40	01/17/24 21:09	AKB	Mt. Juliet, TN
Mercury by Method 7470A	WG2206981	1	01/14/24 12:28	01/14/24 20:19	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2207294	1	01/18/24 15:05	01/27/24 13:05	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2207294	1	01/18/24 15:05	01/28/24 18:37	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2207294	5	01/18/24 15:05	01/28/24 19:19	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2208511	1	01/18/24 12:25	01/28/24 19:14	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2208511	1	01/18/24 12:25	01/28/24 20:28	LD	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

APW-06S-WG-20240110 L1696247-06 GW

Collected by: Marshall A
 Collected date/time: 01/10/24 10:15
 Received date/time: 01/13/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2206960	1	01/13/24 18:28	01/14/24 12:40	DLS	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2206862	1	01/14/24 01:19	01/14/24 01:19	GEB	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2206862	10	01/14/24 01:35	01/14/24 01:35	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG2206905	1	01/19/24 16:30	01/19/24 16:30	EPW	Mt. Juliet, TN
Mercury by Method 7470A	WG2206975	1	01/17/24 11:40	01/17/24 21:12	AKB	Mt. Juliet, TN
Mercury by Method 7470A	WG2206981	1	01/14/24 12:28	01/14/24 20:22	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2207294	1	01/18/24 15:05	01/27/24 11:56	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2207294	1	01/18/24 15:05	01/28/24 18:03	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2208511	1	01/18/24 12:25	01/28/24 19:17	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2208511	1	01/18/24 12:25	01/28/24 20:32	LD	Mt. Juliet, TN

7 Gl

8 Al

9 Sc

APW-06D-WG-20240110 L1696247-07 GW

Collected by: Marshall A
 Collected date/time: 01/10/24 11:30
 Received date/time: 01/13/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2206960	1	01/13/24 18:28	01/14/24 12:40	DLS	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2206862	1	01/14/24 01:51	01/14/24 01:51	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG2206905	1	01/19/24 16:30	01/19/24 16:30	EPW	Mt. Juliet, TN
Mercury by Method 7470A	WG2206975	1	01/17/24 11:40	01/17/24 21:14	AKB	Mt. Juliet, TN
Mercury by Method 7470A	WG2206981	1	01/14/24 12:28	01/14/24 20:24	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2207294	1	01/18/24 15:05	01/27/24 13:08	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2207294	1	01/18/24 15:05	01/28/24 18:40	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2208511	1	01/18/24 12:25	01/28/24 19:20	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2208511	1	01/18/24 12:25	01/28/24 20:35	LD	Mt. Juliet, TN

APW-05R-WG-20240110 L1696247-08 GW

Collected by: Marshall A
 Collected date/time: 01/10/24 13:05
 Received date/time: 01/13/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2206960	1	01/13/24 18:28	01/14/24 12:40	DLS	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2206862	1	01/14/24 02:22	01/14/24 02:22	GEB	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2206862	10	01/14/24 02:38	01/14/24 02:38	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG2206905	1	01/19/24 16:30	01/19/24 16:30	EPW	Mt. Juliet, TN
Mercury by Method 7470A	WG2206975	1	01/17/24 11:40	01/17/24 21:22	AKB	Mt. Juliet, TN
Mercury by Method 7470A	WG2206981	1	01/14/24 12:28	01/14/24 20:27	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2207294	1	01/18/24 15:05	01/27/24 13:11	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2207294	1	01/18/24 15:05	01/28/24 18:43	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2208511	1	01/18/24 12:25	01/28/24 18:24	LD	Mt. Juliet, TN

SAMPLE SUMMARY

APW-05R-WG-20240110 L1696247-08 GW

Collected by
Marshall A

Collected date/time
01/10/24 13:05

Received date/time
01/13/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020A	WG2208511	1	01/18/24 12:25	01/28/24 19:56	LD	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

APW-09-WG-20240111 L1696247-09 GW

Collected by
Marshall A

Collected date/time
01/11/24 16:10

Received date/time
01/13/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2207687	1	01/16/24 15:13	01/17/24 10:19	DLS	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2206862	1	01/14/24 03:26	01/14/24 03:26	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG2206905	1	01/19/24 16:30	01/19/24 16:30	EPW	Mt. Juliet, TN
Mercury by Method 7470A	WG2206976	1	01/17/24 13:34	01/18/24 16:45	NDL	Mt. Juliet, TN
Mercury by Method 7470A	WG2206981	1	01/14/24 12:28	01/14/24 20:29	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2207294	1	01/18/24 15:05	01/27/24 13:14	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2207294	1	01/18/24 15:05	01/28/24 18:47	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2208511	1	01/18/24 12:25	01/28/24 19:24	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2208511	1	01/18/24 12:25	01/28/24 20:38	LD	Mt. Juliet, TN

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

APW-02-WG-20240111 L1696247-10 GW

Collected by
Marshall A

Collected date/time
01/11/24 17:35

Received date/time
01/13/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2207687	1	01/16/24 15:13	01/17/24 10:19	DLS	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2206862	1	01/14/24 03:42	01/14/24 03:42	GEB	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2206862	10	01/14/24 03:58	01/14/24 03:58	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG2206905	1	01/19/24 16:30	01/19/24 16:30	EPW	Mt. Juliet, TN
Mercury by Method 7470A	WG2206976	1	01/17/24 13:34	01/18/24 16:47	NDL	Mt. Juliet, TN
Mercury by Method 7470A	WG2206981	1	01/14/24 12:28	01/14/24 20:31	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2207294	1	01/18/24 15:05	01/27/24 13:18	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2207294	1	01/18/24 15:05	01/28/24 18:50	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2208511	1	01/18/24 12:25	01/28/24 19:27	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2208511	1	01/18/24 12:25	01/28/24 20:41	LD	Mt. Juliet, TN

9 Sc

APW-01R-WG-20240110 L1696247-11 GW

Collected by
Marshall A

Collected date/time
01/10/24 16:05

Received date/time
01/13/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2207687	1	01/16/24 15:13	01/17/24 10:19	DLS	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2206862	1	01/14/24 04:14	01/14/24 04:14	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG2206905	1	01/19/24 16:30	01/19/24 16:30	EPW	Mt. Juliet, TN
Mercury by Method 7470A	WG2206976	1	01/17/24 13:34	01/18/24 16:50	NDL	Mt. Juliet, TN
Mercury by Method 7470A	WG2206982	1	01/14/24 11:46	01/14/24 20:43	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2207294	1	01/18/24 15:05	01/27/24 13:21	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2207294	1	01/18/24 15:05	01/28/24 18:53	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2208511	1	01/18/24 12:25	01/28/24 19:30	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2208511	1	01/18/24 12:25	01/28/24 20:45	LD	Mt. Juliet, TN

APW-04-WG-20240110 L1696247-12 GW

Collected by
Marshall A

Collected date/time
01/10/24 17:10

Received date/time
01/13/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2207687	1	01/16/24 15:13	01/17/24 10:19	DLS	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2206862	1	01/14/24 04:30	01/14/24 04:30	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG2206905	1	01/19/24 16:30	01/19/24 16:30	EPW	Mt. Juliet, TN

SAMPLE SUMMARY

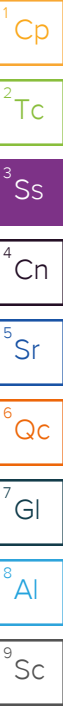
APW-04-WG-20240110 L1696247-12 GW

Collected by
Marshall A

Collected date/time
01/10/24 17:10

Received date/time
01/13/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG2206976	1	01/17/24 13:34	01/18/24 16:52	NDL	Mt. Juliet, TN
Mercury by Method 7470A	WG2206982	1	01/14/24 11:46	01/14/24 20:51	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2207294	1	01/18/24 15:05	01/27/24 13:24	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2207294	1	01/18/24 15:05	01/28/24 18:56	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2208511	1	01/18/24 12:25	01/28/24 19:46	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2208511	1	01/18/24 12:25	01/28/24 20:48	LD	Mt. Juliet, TN



EB-01-WG-20240110 L1696247-13 GW

Collected by
Marshall A

Collected date/time
01/10/24 12:00

Received date/time
01/13/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2207687	1	01/16/24 15:13	01/17/24 10:19	DLS	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2206862	1	01/14/24 05:17	01/14/24 05:17	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG2206905	1	01/19/24 16:30	01/19/24 16:30	EPW	Mt. Juliet, TN
Mercury by Method 7470A	WG2206976	1	01/17/24 13:34	01/18/24 16:54	NDL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2208511	1	01/18/24 12:25	01/28/24 19:50	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2208511	1	01/18/24 12:25	01/28/24 20:51	LD	Mt. Juliet, TN

DUP-01-WG-20240110 L1696247-14 GW

Collected by
Marshall A

Collected date/time
01/10/24 00:01

Received date/time
01/13/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2207687	1	01/16/24 15:13	01/17/24 10:19	DLS	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2206862	1	01/14/24 05:33	01/14/24 05:33	GEB	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2206862	10	01/14/24 05:49	01/14/24 05:49	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG2206905	1	01/19/24 16:30	01/19/24 16:30	EPW	Mt. Juliet, TN
Mercury by Method 7470A	WG2206976	1	01/17/24 13:34	01/18/24 17:01	NDL	Mt. Juliet, TN
Mercury by Method 7470A	WG2206982	1	01/14/24 11:46	01/14/24 20:53	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2207294	1	01/18/24 15:05	01/27/24 13:57	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2207294	1	01/18/24 15:05	01/28/24 18:59	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2208511	1	01/18/24 12:25	01/28/24 19:53	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2208511	1	01/18/24 12:25	01/28/24 20:54	LD	Mt. Juliet, TN

DUP-02-WG-20240111 L1696247-15 GW

Collected by
Marshall A

Collected date/time
01/11/24 00:02

Received date/time
01/13/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2207687	1	01/16/24 15:13	01/17/24 10:19	DLS	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2206862	1	01/14/24 06:37	01/14/24 06:37	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG2206905	1	01/19/24 16:30	01/19/24 16:30	EPW	Mt. Juliet, TN
Mercury by Method 7470A	WG2206976	1	01/17/24 13:34	01/18/24 16:37	NDL	Mt. Juliet, TN
Mercury by Method 7470A	WG2206982	1	01/14/24 11:46	01/14/24 20:56	LAS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2207294	1	01/18/24 15:05	01/27/24 14:00	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2207294	1	01/18/24 15:05	01/28/24 19:03	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2208511	1	01/18/24 12:25	01/28/24 19:56	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2208511	1	01/18/24 12:25	01/28/24 20:58	LD	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Jeff Carr
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	489		10.0	1	01/14/2024 12:40	WG2206960

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	8.04		1.00	1	01/13/2024 22:56	WG2206862
Fluoride	0.202		0.150	1	01/13/2024 22:56	WG2206862
Sulfate	80.1		5.00	1	01/13/2024 22:56	WG2206862

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.40	<u>T8</u>	1	01/19/2024 16:30	WG2206905

Sample Narrative:

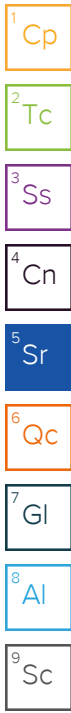
L1696247-01 WG2206905: 7.4 at 18.8C

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	01/17/2024 20:59	WG2206975
Mercury,Dissolved	ND		0.000200	1	01/14/2024 20:03	WG2206981

Metals (ICPMS) by Method 6020A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00400	1	01/28/2024 19:01	WG2208511
Antimony,Dissolved	ND		0.00400	1	01/27/2024 12:16	WG2207294
Arsenic	ND		0.00200	1	01/28/2024 19:01	WG2208511
Arsenic,Dissolved	ND		0.00200	1	01/27/2024 12:16	WG2207294
Barium	0.123		0.00200	1	01/28/2024 19:01	WG2208511
Barium,Dissolved	0.122		0.00200	1	01/27/2024 12:16	WG2207294
Beryllium	ND		0.00200	1	01/28/2024 19:01	WG2208511
Beryllium,Dissolved	ND		0.00200	1	01/27/2024 12:16	WG2207294
Cadmium	ND		0.00100	1	01/28/2024 19:01	WG2208511
Cadmium,Dissolved	ND		0.00100	1	01/27/2024 12:16	WG2207294
Chromium	ND		0.00200	1	01/28/2024 19:01	WG2208511
Chromium,Dissolved	ND		0.00200	1	01/27/2024 12:16	WG2207294
Cobalt	ND		0.00200	1	01/28/2024 19:01	WG2208511
Cobalt,Dissolved	ND		0.00200	1	01/27/2024 12:16	WG2207294
Iron	0.367		0.100	1	01/28/2024 19:01	WG2208511
Iron,Dissolved	ND		0.100	1	01/27/2024 12:16	WG2207294
Lead	ND		0.00200	1	01/28/2024 19:01	WG2208511
Lead,Dissolved	ND		0.00200	1	01/27/2024 12:16	WG2207294
Lithium	0.0316		0.00200	1	01/28/2024 20:09	WG2208511
Lithium,Dissolved	0.0281		0.00200	1	01/28/2024 18:16	WG2207294
Manganese	0.435		0.00500	1	01/28/2024 19:01	WG2208511
Manganese,Dissolved	0.438		0.00500	1	01/27/2024 12:16	WG2207294
Molybdenum	0.0262		0.00500	1	01/28/2024 19:01	WG2208511
Molybdenum,Dissolved	0.0274		0.00500	1	01/27/2024 12:16	WG2207294
Selenium	ND		0.00200	1	01/28/2024 19:01	WG2208511
Selenium,Dissolved	ND		0.00200	1	01/27/2024 12:16	WG2207294
Thallium	ND		0.00200	1	01/28/2024 19:01	WG2208511
Thallium,Dissolved	ND		0.00200	1	01/27/2024 12:16	WG2207294



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	370		10.0	1	01/14/2024 12:40	WG2206960

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	10.6		1.00	1	01/13/2024 23:27	WG2206862
Fluoride	0.232		0.150	1	01/13/2024 23:27	WG2206862
Sulfate	24.7		5.00	1	01/13/2024 23:27	WG2206862

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.68	<u>T8</u>	1	01/19/2024 16:30	WG2206905

Sample Narrative:

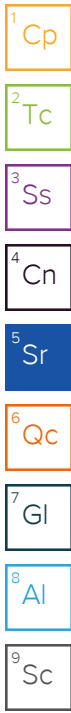
L1696247-02 WG2206905: 7.68 at 18.3C

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	01/17/2024 21:02	WG2206975
Mercury,Dissolved	ND		0.000200	1	01/14/2024 20:12	WG2206981

Metals (ICPMS) by Method 6020A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00400	1	01/28/2024 19:04	WG2208511
Antimony,Dissolved	ND		0.00400	1	01/27/2024 12:19	WG2207294
Arsenic	ND		0.00200	1	01/28/2024 19:04	WG2208511
Arsenic,Dissolved	ND		0.00200	1	01/27/2024 12:19	WG2207294
Barium	0.170		0.00200	1	01/28/2024 19:04	WG2208511
Barium,Dissolved	0.170		0.00200	1	01/27/2024 12:19	WG2207294
Beryllium	ND		0.00200	1	01/28/2024 19:04	WG2208511
Beryllium,Dissolved	ND		0.00200	1	01/27/2024 12:19	WG2207294
Cadmium	ND		0.00100	1	01/28/2024 19:04	WG2208511
Cadmium,Dissolved	ND		0.00100	1	01/27/2024 12:19	WG2207294
Chromium	ND		0.00200	1	01/28/2024 19:04	WG2208511
Chromium,Dissolved	ND		0.00200	1	01/27/2024 12:19	WG2207294
Cobalt	ND		0.00200	1	01/28/2024 19:04	WG2208511
Cobalt,Dissolved	ND		0.00200	1	01/27/2024 12:19	WG2207294
Iron	0.440		0.100	1	01/28/2024 19:04	WG2208511
Iron,Dissolved	ND		0.100	1	01/27/2024 12:19	WG2207294
Lead	ND		0.00200	1	01/28/2024 19:04	WG2208511
Lead,Dissolved	ND		0.00200	1	01/27/2024 12:19	WG2207294
Lithium	0.0142		0.00200	1	01/28/2024 20:12	WG2208511
Lithium,Dissolved	0.0134		0.00200	1	01/28/2024 18:20	WG2207294
Manganese	0.0435		0.00500	1	01/28/2024 19:04	WG2208511
Manganese,Dissolved	0.0443		0.00500	1	01/27/2024 12:19	WG2207294
Molybdenum	ND		0.00500	1	01/28/2024 19:04	WG2208511
Molybdenum,Dissolved	ND		0.00500	1	01/27/2024 12:19	WG2207294
Selenium	0.0169		0.00200	1	01/28/2024 19:04	WG2208511
Selenium,Dissolved	0.0173		0.00200	1	01/27/2024 12:19	WG2207294
Thallium	ND		0.00200	1	01/28/2024 19:04	WG2208511
Thallium,Dissolved	ND		0.00200	1	01/27/2024 12:19	WG2207294



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	734		20.0	1	01/14/2024 12:40	WG2206960

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	11.5		1.00	1	01/14/2024 00:15	WG2206862
Fluoride	0.172		0.150	1	01/14/2024 00:15	WG2206862
Sulfate	68.8		5.00	1	01/14/2024 00:15	WG2206862

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.31	<u>T8</u>	1	01/19/2024 16:30	WG2206905

Sample Narrative:

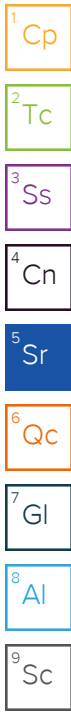
L1696247-03 WG2206905: 7.31 at 18C

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	01/17/2024 21:04	WG2206975
Mercury,Dissolved	ND		0.000200	1	01/14/2024 20:14	WG2206981

Metals (ICPMS) by Method 6020A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00400	1	01/28/2024 19:07	WG2208511
Antimony,Dissolved	ND		0.00400	1	01/27/2024 12:58	WG2207294
Arsenic	ND		0.00200	1	01/28/2024 19:07	WG2208511
Arsenic,Dissolved	ND		0.00200	1	01/27/2024 12:58	WG2207294
Barium	0.360		0.00200	1	01/28/2024 19:07	WG2208511
Barium,Dissolved	0.256		0.0100	5	01/28/2024 19:06	WG2207294
Beryllium	ND		0.00200	1	01/28/2024 20:15	WG2208511
Beryllium,Dissolved	ND		0.00200	1	01/27/2024 12:58	WG2207294
Cadmium	ND		0.00100	1	01/28/2024 20:15	WG2208511
Cadmium,Dissolved	ND		0.00100	1	01/27/2024 12:58	WG2207294
Chromium	ND		0.00200	1	01/28/2024 19:07	WG2208511
Chromium,Dissolved	ND		0.00200	1	01/27/2024 12:58	WG2207294
Cobalt	ND		0.00200	1	01/28/2024 19:07	WG2208511
Cobalt,Dissolved	ND		0.00200	1	01/27/2024 12:58	WG2207294
Iron	18.9		0.100	1	01/28/2024 19:07	WG2208511
Iron,Dissolved	ND		0.100	1	01/27/2024 12:58	WG2207294
Lead	ND		0.00200	1	01/28/2024 19:07	WG2208511
Lead,Dissolved	ND		0.00200	1	01/27/2024 12:58	WG2207294
Lithium	0.0190		0.00200	1	01/28/2024 20:15	WG2208511
Lithium,Dissolved	0.0176		0.00200	1	01/28/2024 18:23	WG2207294
Manganese	1.19		0.00500	1	01/28/2024 19:07	WG2208511
Manganese,Dissolved	1.16		0.00500	1	01/27/2024 12:58	WG2207294
Molybdenum	ND		0.00500	1	01/28/2024 19:07	WG2208511
Molybdenum,Dissolved	ND		0.00500	1	01/27/2024 12:58	WG2207294
Selenium	ND		0.00200	1	01/28/2024 19:07	WG2208511
Selenium,Dissolved	ND		0.00200	1	01/27/2024 12:58	WG2207294
Thallium	ND		0.00200	1	01/28/2024 19:07	WG2208511
Thallium,Dissolved	ND		0.00200	1	01/27/2024 12:58	WG2207294



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	692		20.0	1	01/14/2024 12:40	WG2206960

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	17.2		1.00	1	01/14/2024 00:47	WG2206862
Fluoride	ND		0.150	1	01/14/2024 00:47	WG2206862
Sulfate	ND		5.00	1	01/14/2024 00:47	WG2206862

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.58	<u>T8</u>	1	01/19/2024 16:30	WG2206905

Sample Narrative:

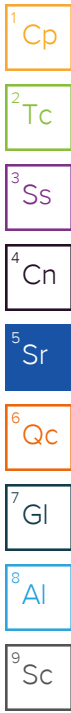
L1696247-04 WG2206905: 7.58 at 18C

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	01/17/2024 21:07	WG2206975
Mercury,Dissolved	ND		0.000200	1	01/14/2024 20:17	WG2206981

Metals (ICPMS) by Method 6020A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00400	1	01/28/2024 19:10	WG2208511
Antimony,Dissolved	ND		0.00400	1	01/27/2024 13:01	WG2207294
Arsenic	0.196		0.00200	1	01/28/2024 19:10	WG2208511
Arsenic,Dissolved	0.0628		0.00200	1	01/27/2024 13:01	WG2207294
Barium	0.597		0.00200	1	01/28/2024 19:10	WG2208511
Barium,Dissolved	0.288		0.0100	5	01/28/2024 19:16	WG2207294
Beryllium	ND		0.00200	1	01/28/2024 19:10	WG2208511
Beryllium,Dissolved	ND		0.00200	1	01/27/2024 13:01	WG2207294
Cadmium	ND		0.00100	1	01/28/2024 19:10	WG2208511
Cadmium,Dissolved	ND		0.00100	1	01/27/2024 13:01	WG2207294
Chromium	ND		0.00200	1	01/28/2024 19:10	WG2208511
Chromium,Dissolved	ND		0.00200	1	01/27/2024 13:01	WG2207294
Cobalt	ND		0.00200	1	01/28/2024 19:10	WG2208511
Cobalt,Dissolved	ND		0.00200	1	01/27/2024 13:01	WG2207294
Iron	17.2		0.100	1	01/28/2024 19:10	WG2208511
Iron,Dissolved	ND		0.100	1	01/27/2024 13:01	WG2207294
Lead	ND		0.00200	1	01/28/2024 19:10	WG2208511
Lead,Dissolved	ND		0.00200	1	01/27/2024 13:01	WG2207294
Lithium	0.0328		0.00200	1	01/28/2024 20:18	WG2208511
Lithium,Dissolved	0.0302		0.00200	1	01/28/2024 18:26	WG2207294
Manganese	0.174		0.00500	1	01/28/2024 19:10	WG2208511
Manganese,Dissolved	0.155		0.00500	1	01/27/2024 13:01	WG2207294
Molybdenum	ND		0.00500	1	01/28/2024 19:10	WG2208511
Molybdenum,Dissolved	ND		0.00500	1	01/27/2024 13:01	WG2207294
Selenium	ND		0.00200	1	01/28/2024 19:10	WG2208511
Selenium,Dissolved	ND		0.00200	1	01/27/2024 13:01	WG2207294
Thallium	ND		0.00200	1	01/28/2024 19:10	WG2208511
Thallium,Dissolved	ND		0.00200	1	01/27/2024 13:01	WG2207294



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	436		10.0	1	01/14/2024 12:40	WG2206960

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	15.4		1.00	1	01/14/2024 01:03	WG2206862
Fluoride	ND		0.150	1	01/14/2024 01:03	WG2206862
Sulfate	35.5		5.00	1	01/14/2024 01:03	WG2206862

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.66	<u>T8</u>	1	01/19/2024 16:30	WG2206905

Sample Narrative:

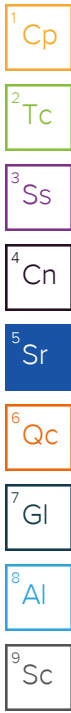
L1696247-05 WG2206905: 7.66 at 18C

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	01/17/2024 21:09	WG2206975
Mercury,Dissolved	ND		0.000200	1	01/14/2024 20:19	WG2206981

Metals (ICPMS) by Method 6020A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00400	1	01/28/2024 19:14	WG2208511
Antimony,Dissolved	ND		0.00400	1	01/27/2024 13:05	WG2207294
Arsenic	ND		0.00200	1	01/28/2024 19:14	WG2208511
Arsenic,Dissolved	ND		0.00200	1	01/27/2024 13:05	WG2207294
Barium	0.341		0.00200	1	01/28/2024 19:14	WG2208511
Barium,Dissolved	0.336		0.0100	5	01/28/2024 19:19	WG2207294
Beryllium	ND		0.00200	1	01/28/2024 19:14	WG2208511
Beryllium,Dissolved	ND		0.00200	1	01/27/2024 13:05	WG2207294
Cadmium	ND		0.00100	1	01/28/2024 19:14	WG2208511
Cadmium,Dissolved	ND		0.00100	1	01/27/2024 13:05	WG2207294
Chromium	ND		0.00200	1	01/28/2024 19:14	WG2208511
Chromium,Dissolved	ND		0.00200	1	01/27/2024 13:05	WG2207294
Cobalt	0.00261		0.00200	1	01/28/2024 19:14	WG2208511
Cobalt,Dissolved	0.00228		0.00200	1	01/27/2024 13:05	WG2207294
Iron	0.175		0.100	1	01/28/2024 19:14	WG2208511
Iron,Dissolved	ND		0.100	1	01/27/2024 13:05	WG2207294
Lead	ND		0.00200	1	01/28/2024 19:14	WG2208511
Lead,Dissolved	ND		0.00200	1	01/27/2024 13:05	WG2207294
Lithium	0.0152		0.00200	1	01/28/2024 20:28	WG2208511
Lithium,Dissolved	0.0135		0.00200	1	01/28/2024 18:37	WG2207294
Manganese	0.880		0.00500	1	01/28/2024 19:14	WG2208511
Manganese,Dissolved	0.857		0.00500	1	01/27/2024 13:05	WG2207294
Molybdenum	ND		0.00500	1	01/28/2024 19:14	WG2208511
Molybdenum,Dissolved	ND		0.00500	1	01/27/2024 13:05	WG2207294
Selenium	0.00269		0.00200	1	01/28/2024 19:14	WG2208511
Selenium,Dissolved	0.00274		0.00200	1	01/27/2024 13:05	WG2207294
Thallium	ND		0.00200	1	01/28/2024 19:14	WG2208511
Thallium,Dissolved	ND		0.00200	1	01/27/2024 13:05	WG2207294



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	644		10.0	1	01/14/2024 12:40	WG2206960

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	21.2		1.00	1	01/14/2024 01:19	WG2206862
Fluoride	0.277		0.150	1	01/14/2024 01:19	WG2206862
Sulfate	240		50.0	10	01/14/2024 01:35	WG2206862

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.67	<u>T8</u>	1	01/19/2024 16:30	WG2206905

Sample Narrative:

L1696247-06 WG2206905: 7.67 at 18.1C

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	01/17/2024 21:12	WG2206975
Mercury,Dissolved	ND		0.000200	1	01/14/2024 20:22	WG2206981

Metals (ICPMS) by Method 6020A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00400	1	01/28/2024 19:17	WG2208511
Antimony,Dissolved	ND		0.00400	1	01/27/2024 11:56	WG2207294
Arsenic	ND		0.00200	1	01/28/2024 19:17	WG2208511
Arsenic,Dissolved	ND		0.00200	1	01/27/2024 11:56	WG2207294
Barium	0.204		0.00200	1	01/28/2024 19:17	WG2208511
Barium,Dissolved	0.155		0.00200	1	01/27/2024 11:56	WG2207294
Beryllium	ND		0.00200	1	01/28/2024 20:32	WG2208511
Beryllium,Dissolved	ND		0.00200	1	01/27/2024 11:56	WG2207294
Cadmium	ND		0.00100	1	01/28/2024 20:32	WG2208511
Cadmium,Dissolved	ND		0.00100	1	01/27/2024 11:56	WG2207294
Chromium	ND		0.00200	1	01/28/2024 19:17	WG2208511
Chromium,Dissolved	ND		0.00200	1	01/27/2024 11:56	WG2207294
Cobalt	ND		0.00200	1	01/28/2024 19:17	WG2208511
Cobalt,Dissolved	ND		0.00200	1	01/27/2024 11:56	WG2207294
Iron	9.18		0.100	1	01/28/2024 19:17	WG2208511
Iron,Dissolved	ND		0.100	1	01/27/2024 11:56	WG2207294
Lead	ND		0.00200	1	01/28/2024 19:17	WG2208511
Lead,Dissolved	ND		0.00200	1	01/27/2024 11:56	WG2207294
Lithium	0.0421		0.00200	1	01/28/2024 20:32	WG2208511
Lithium,Dissolved	0.0383		0.00200	1	01/28/2024 18:03	WG2207294
Manganese	0.512		0.00500	1	01/28/2024 19:17	WG2208511
Manganese,Dissolved	0.478		0.00500	1	01/27/2024 11:56	WG2207294
Molybdenum	0.255		0.00500	1	01/28/2024 19:17	WG2208511
Molybdenum,Dissolved	0.260		0.00500	1	01/27/2024 11:56	WG2207294
Selenium	ND		0.00200	1	01/28/2024 19:17	WG2208511
Selenium,Dissolved	ND		0.00200	1	01/27/2024 11:56	WG2207294
Thallium	ND		0.00200	1	01/28/2024 19:17	WG2208511
Thallium,Dissolved	ND		0.00200	1	01/27/2024 11:56	WG2207294

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	536		10.0	1	01/14/2024 12:40	WG2206960

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	21.2		1.00	1	01/14/2024 01:51	WG2206862
Fluoride	0.212		0.150	1	01/14/2024 01:51	WG2206862
Sulfate	180		5.00	1	01/14/2024 01:51	WG2206862

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.73	<u>T8</u>	1	01/19/2024 16:30	WG2206905

Sample Narrative:

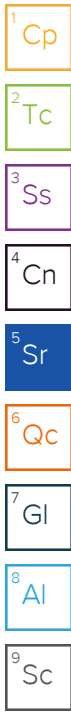
L1696247-07 WG2206905: 7.73 at 18.1C

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	01/17/2024 21:14	WG2206975
Mercury,Dissolved	ND		0.000200	1	01/14/2024 20:24	WG2206981

Metals (ICPMS) by Method 6020A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00400	1	01/28/2024 19:20	WG2208511
Antimony,Dissolved	ND		0.00400	1	01/27/2024 13:08	WG2207294
Arsenic	0.0102		0.00200	1	01/28/2024 19:20	WG2208511
Arsenic,Dissolved	0.00451		0.00200	1	01/27/2024 13:08	WG2207294
Barium	0.115		0.00200	1	01/28/2024 19:20	WG2208511
Barium,Dissolved	0.106		0.00200	1	01/27/2024 13:08	WG2207294
Beryllium	ND		0.00200	1	01/28/2024 20:35	WG2208511
Beryllium,Dissolved	ND		0.00200	1	01/27/2024 13:08	WG2207294
Cadmium	ND		0.00100	1	01/28/2024 20:35	WG2208511
Cadmium,Dissolved	ND		0.00100	1	01/27/2024 13:08	WG2207294
Chromium	0.00861		0.00200	1	01/28/2024 19:20	WG2208511
Chromium,Dissolved	ND		0.00200	1	01/27/2024 13:08	WG2207294
Cobalt	ND		0.00200	1	01/28/2024 19:20	WG2208511
Cobalt,Dissolved	ND		0.00200	1	01/27/2024 13:08	WG2207294
Iron	3.65		0.100	1	01/28/2024 19:20	WG2208511
Iron,Dissolved	ND		0.100	1	01/27/2024 13:08	WG2207294
Lead	ND		0.00200	1	01/28/2024 19:20	WG2208511
Lead,Dissolved	ND		0.00200	1	01/27/2024 13:08	WG2207294
Lithium	0.0173		0.00200	1	01/28/2024 20:35	WG2208511
Lithium,Dissolved	0.0161		0.00200	1	01/28/2024 18:40	WG2207294
Manganese	0.622		0.00500	1	01/28/2024 19:20	WG2208511
Manganese,Dissolved	0.611		0.00500	1	01/27/2024 13:08	WG2207294
Molybdenum	0.0605		0.00500	1	01/28/2024 19:20	WG2208511
Molybdenum,Dissolved	0.0617		0.00500	1	01/27/2024 13:08	WG2207294
Selenium	ND		0.00200	1	01/28/2024 19:20	WG2208511
Selenium,Dissolved	ND		0.00200	1	01/27/2024 13:08	WG2207294
Thallium	ND		0.00200	1	01/28/2024 19:20	WG2208511
Thallium,Dissolved	ND		0.00200	1	01/27/2024 13:08	WG2207294



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	677		13.3	1	01/14/2024 12:40	WG2206960

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	16.9		1.00	1	01/14/2024 02:22	WG2206862
Fluoride	0.298		0.150	1	01/14/2024 02:22	WG2206862
Sulfate	306		50.0	10	01/14/2024 02:38	WG2206862

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.42	<u>T8</u>	1	01/19/2024 16:30	WG2206905

Sample Narrative:

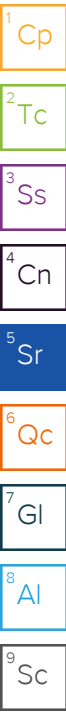
L1696247-08 WG2206905: 7.42 at 18.2C

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	01/17/2024 21:22	WG2206975
Mercury,Dissolved	ND		0.000200	1	01/14/2024 20:27	WG2206981

Metals (ICPMS) by Method 6020A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00400	1	01/28/2024 18:24	WG2208511
Antimony,Dissolved	ND		0.00400	1	01/27/2024 13:11	WG2207294
Arsenic	0.00220		0.00200	1	01/28/2024 18:24	WG2208511
Arsenic,Dissolved	ND		0.00200	1	01/27/2024 13:11	WG2207294
Barium	0.151		0.00200	1	01/28/2024 18:24	WG2208511
Barium,Dissolved	0.113		0.00200	1	01/27/2024 13:11	WG2207294
Beryllium	ND		0.00200	1	01/28/2024 18:24	WG2208511
Beryllium,Dissolved	ND		0.00200	1	01/27/2024 13:11	WG2207294
Cadmium	ND		0.00100	1	01/28/2024 18:24	WG2208511
Cadmium,Dissolved	ND		0.00100	1	01/27/2024 13:11	WG2207294
Chromium	ND		0.00200	1	01/28/2024 18:24	WG2208511
Chromium,Dissolved	ND		0.00200	1	01/27/2024 13:11	WG2207294
Cobalt	ND		0.00200	1	01/28/2024 18:24	WG2208511
Cobalt,Dissolved	ND		0.00200	1	01/27/2024 13:11	WG2207294
Iron	5.89		0.100	1	01/28/2024 18:24	WG2208511
Iron,Dissolved	ND		0.100	1	01/27/2024 13:11	WG2207294
Lead	ND		0.00200	1	01/28/2024 18:24	WG2208511
Lead,Dissolved	ND		0.00200	1	01/27/2024 13:11	WG2207294
Lithium	0.0388		0.00200	1	01/28/2024 19:56	WG2208511
Lithium,Dissolved	0.0377		0.00200	1	01/28/2024 18:43	WG2207294
Manganese	0.554	<u>V</u>	0.00500	1	01/28/2024 18:24	WG2208511
Manganese,Dissolved	0.548		0.00500	1	01/27/2024 13:11	WG2207294
Molybdenum	0.227		0.00500	1	01/28/2024 18:24	WG2208511
Molybdenum,Dissolved	0.235		0.00500	1	01/27/2024 13:11	WG2207294
Selenium	ND		0.00200	1	01/28/2024 18:24	WG2208511
Selenium,Dissolved	ND		0.00200	1	01/27/2024 13:11	WG2207294
Thallium	ND		0.00200	1	01/28/2024 18:24	WG2208511
Thallium,Dissolved	ND		0.00200	1	01/27/2024 13:11	WG2207294



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	354		10.0	1	01/17/2024 10:19	WG2207687

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	12.1		1.00	1	01/14/2024 03:26	WG2206862
Fluoride	0.197		0.150	1	01/14/2024 03:26	WG2206862
Sulfate	35.3		5.00	1	01/14/2024 03:26	WG2206862

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.03	<u>T8</u>	1	01/19/2024 16:30	WG2206905

Sample Narrative:

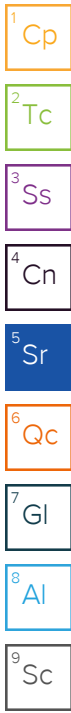
L1696247-09 WG2206905: 8.03 at 18.2C

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	01/18/2024 16:45	WG2206976
Mercury,Dissolved	ND		0.000200	1	01/14/2024 20:29	WG2206981

Metals (ICPMS) by Method 6020A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00400	1	01/28/2024 19:24	WG2208511
Antimony,Dissolved	ND		0.00400	1	01/27/2024 13:14	WG2207294
Arsenic	0.00235		0.00200	1	01/28/2024 19:24	WG2208511
Arsenic,Dissolved	0.00216		0.00200	1	01/27/2024 13:14	WG2207294
Barium	0.138		0.00200	1	01/28/2024 19:24	WG2208511
Barium,Dissolved	0.118		0.00200	1	01/27/2024 13:14	WG2207294
Beryllium	ND		0.00200	1	01/28/2024 20:38	WG2208511
Beryllium,Dissolved	ND		0.00200	1	01/27/2024 13:14	WG2207294
Cadmium	ND		0.00100	1	01/28/2024 19:24	WG2208511
Cadmium,Dissolved	ND		0.00100	1	01/27/2024 13:14	WG2207294
Chromium	ND		0.00200	1	01/28/2024 19:24	WG2208511
Chromium,Dissolved	ND		0.00200	1	01/27/2024 13:14	WG2207294
Cobalt	ND		0.00200	1	01/28/2024 19:24	WG2208511
Cobalt,Dissolved	ND		0.00200	1	01/27/2024 13:14	WG2207294
Iron	0.179		0.100	1	01/28/2024 19:24	WG2208511
Iron,Dissolved	ND		0.100	1	01/27/2024 13:14	WG2207294
Lead	ND		0.00200	1	01/28/2024 19:24	WG2208511
Lead,Dissolved	ND		0.00200	1	01/27/2024 13:14	WG2207294
Lithium	0.0139		0.00200	1	01/28/2024 20:38	WG2208511
Lithium,Dissolved	0.0129		0.00200	1	01/28/2024 18:47	WG2207294
Manganese	0.124		0.00500	1	01/28/2024 19:24	WG2208511
Manganese,Dissolved	ND		0.00500	1	01/27/2024 13:14	WG2207294
Molybdenum	0.0163		0.00500	1	01/28/2024 19:24	WG2208511
Molybdenum,Dissolved	0.0186		0.00500	1	01/27/2024 13:14	WG2207294
Selenium	0.0225		0.00200	1	01/28/2024 19:24	WG2208511
Selenium,Dissolved	0.0220		0.00200	1	01/27/2024 13:14	WG2207294
Thallium	ND		0.00200	1	01/28/2024 19:24	WG2208511
Thallium,Dissolved	ND		0.00200	1	01/27/2024 13:14	WG2207294



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	820		13.3	1	01/17/2024 10:19	WG2207687

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	7.78		1.00	1	01/14/2024 03:42	WG2206862
Fluoride	0.230		0.150	1	01/14/2024 03:42	WG2206862
Sulfate	411		50.0	10	01/14/2024 03:58	WG2206862

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.52	<u>T8</u>	1	01/19/2024 16:30	WG2206905

Sample Narrative:

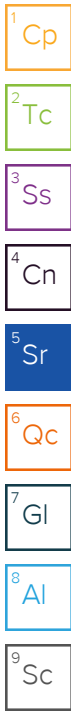
L1696247-10 WG2206905: 7.52 at 18.1C

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	01/18/2024 16:47	WG2206976
Mercury,Dissolved	ND		0.000200	1	01/14/2024 20:31	WG2206981

Metals (ICPMS) by Method 6020A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00400	1	01/28/2024 19:27	WG2208511
Antimony,Dissolved	ND		0.00400	1	01/27/2024 13:18	WG2207294
Arsenic	0.0112		0.00200	1	01/28/2024 19:27	WG2208511
Arsenic,Dissolved	0.00409		0.00200	1	01/27/2024 13:18	WG2207294
Barium	0.155		0.00200	1	01/28/2024 19:27	WG2208511
Barium,Dissolved	0.131		0.00200	1	01/27/2024 13:18	WG2207294
Beryllium	ND		0.00200	1	01/28/2024 20:41	WG2208511
Beryllium,Dissolved	ND		0.00200	1	01/27/2024 13:18	WG2207294
Cadmium	ND		0.00100	1	01/28/2024 20:41	WG2208511
Cadmium,Dissolved	ND		0.00100	1	01/27/2024 13:18	WG2207294
Chromium	ND		0.00200	1	01/28/2024 19:27	WG2208511
Chromium,Dissolved	ND		0.00200	1	01/27/2024 13:18	WG2207294
Cobalt	ND		0.00200	1	01/28/2024 19:27	WG2208511
Cobalt,Dissolved	ND		0.00200	1	01/27/2024 13:18	WG2207294
Iron	7.63		0.100	1	01/28/2024 19:27	WG2208511
Iron,Dissolved	ND		0.100	1	01/27/2024 13:18	WG2207294
Lead	0.00235		0.00200	1	01/28/2024 19:27	WG2208511
Lead,Dissolved	ND		0.00200	1	01/27/2024 13:18	WG2207294
Lithium	0.0416		0.00200	1	01/28/2024 20:41	WG2208511
Lithium,Dissolved	0.0396		0.00200	1	01/28/2024 18:50	WG2207294
Manganese	0.669		0.00500	1	01/28/2024 19:27	WG2208511
Manganese,Dissolved	0.616		0.00500	1	01/27/2024 13:18	WG2207294
Molybdenum	0.158		0.00500	1	01/28/2024 19:27	WG2208511
Molybdenum,Dissolved	0.157		0.00500	1	01/27/2024 13:18	WG2207294
Selenium	ND		0.00200	1	01/28/2024 19:27	WG2208511
Selenium,Dissolved	ND		0.00200	1	01/27/2024 13:18	WG2207294
Thallium	ND		0.00200	1	01/28/2024 19:27	WG2208511
Thallium,Dissolved	ND		0.00200	1	01/27/2024 13:18	WG2207294



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	385		10.0	1	01/17/2024 10:19	WG2207687

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	9.07		1.00	1	01/14/2024 04:14	WG2206862
Fluoride	0.183		0.150	1	01/14/2024 04:14	WG2206862
Sulfate	68.9		5.00	1	01/14/2024 04:14	WG2206862

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.19	<u>T8</u>	1	01/19/2024 16:30	WG2206905

Sample Narrative:

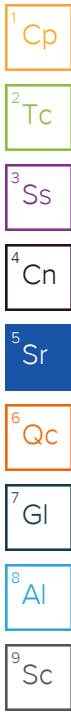
L1696247-11 WG2206905: 7.19 at 18.2C

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	01/18/2024 16:50	WG2206976
Mercury,Dissolved	ND		0.000200	1	01/14/2024 20:43	WG2206982

Metals (ICPMS) by Method 6020A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00400	1	01/28/2024 19:30	WG2208511
Antimony,Dissolved	ND		0.00400	1	01/27/2024 13:21	WG2207294
Arsenic	ND		0.00200	1	01/28/2024 19:30	WG2208511
Arsenic,Dissolved	ND		0.00200	1	01/27/2024 13:21	WG2207294
Barium	0.169		0.00200	1	01/28/2024 19:30	WG2208511
Barium,Dissolved	0.159		0.00200	1	01/27/2024 13:21	WG2207294
Beryllium	ND		0.00200	1	01/28/2024 20:45	WG2208511
Beryllium,Dissolved	ND		0.00200	1	01/27/2024 13:21	WG2207294
Cadmium	ND		0.00100	1	01/28/2024 20:45	WG2208511
Cadmium,Dissolved	ND		0.00100	1	01/27/2024 13:21	WG2207294
Chromium	0.00248		0.00200	1	01/28/2024 19:30	WG2208511
Chromium,Dissolved	ND		0.00200	1	01/27/2024 13:21	WG2207294
Cobalt	ND		0.00200	1	01/28/2024 19:30	WG2208511
Cobalt,Dissolved	ND		0.00200	1	01/27/2024 13:21	WG2207294
Iron	0.405		0.100	1	01/28/2024 19:30	WG2208511
Iron,Dissolved	ND		0.100	1	01/27/2024 13:21	WG2207294
Lead	ND		0.00200	1	01/28/2024 19:30	WG2208511
Lead,Dissolved	ND		0.00200	1	01/27/2024 13:21	WG2207294
Lithium	0.0153		0.00200	1	01/28/2024 20:45	WG2208511
Lithium,Dissolved	0.0140		0.00200	1	01/28/2024 18:53	WG2207294
Manganese	0.0791		0.00500	1	01/28/2024 19:30	WG2208511
Manganese,Dissolved	0.0362		0.00500	1	01/27/2024 13:21	WG2207294
Molybdenum	ND		0.00500	1	01/28/2024 19:30	WG2208511
Molybdenum,Dissolved	0.00523		0.00500	1	01/27/2024 13:21	WG2207294
Selenium	0.00514		0.00200	1	01/28/2024 19:30	WG2208511
Selenium,Dissolved	0.00435		0.00200	1	01/27/2024 13:21	WG2207294
Thallium	ND		0.00200	1	01/28/2024 19:30	WG2208511
Thallium,Dissolved	ND		0.00200	1	01/27/2024 13:21	WG2207294



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	418		10.0	1	01/17/2024 10:19	WG2207687

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	9.21		1.00	1	01/14/2024 04:30	WG2206862
Fluoride	0.170		0.150	1	01/14/2024 04:30	WG2206862
Sulfate	50.9	<u>J6</u>	5.00	1	01/14/2024 04:30	WG2206862

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.17	<u>T8</u>	1	01/19/2024 16:30	WG2206905

Sample Narrative:

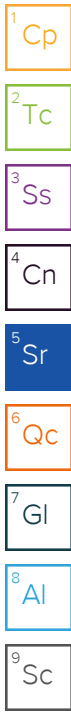
L1696247-12 WG2206905: 8.17 at 19.1C

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	01/18/2024 16:52	WG2206976
Mercury,Dissolved	ND		0.000200	1	01/14/2024 20:51	WG2206982

Metals (ICPMS) by Method 6020A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00400	1	01/28/2024 19:46	WG2208511
Antimony,Dissolved	ND		0.00400	1	01/27/2024 13:24	WG2207294
Arsenic	ND		0.00200	1	01/28/2024 19:46	WG2208511
Arsenic,Dissolved	ND		0.00200	1	01/27/2024 13:24	WG2207294
Barium	0.139		0.00200	1	01/28/2024 19:46	WG2208511
Barium,Dissolved	0.130		0.00200	1	01/27/2024 13:24	WG2207294
Beryllium	ND		0.00200	1	01/28/2024 20:48	WG2208511
Beryllium,Dissolved	ND		0.00200	1	01/27/2024 13:24	WG2207294
Cadmium	ND		0.00100	1	01/28/2024 20:48	WG2208511
Cadmium,Dissolved	ND		0.00100	1	01/27/2024 13:24	WG2207294
Chromium	0.00267		0.00200	1	01/28/2024 19:46	WG2208511
Chromium,Dissolved	ND		0.00200	1	01/27/2024 13:24	WG2207294
Cobalt	ND		0.00200	1	01/28/2024 19:46	WG2208511
Cobalt,Dissolved	ND		0.00200	1	01/27/2024 13:24	WG2207294
Iron	0.709		0.100	1	01/28/2024 19:46	WG2208511
Iron,Dissolved	ND		0.100	1	01/27/2024 13:24	WG2207294
Lead	ND		0.00200	1	01/28/2024 19:46	WG2208511
Lead,Dissolved	ND		0.00200	1	01/27/2024 13:24	WG2207294
Lithium	0.0290		0.00200	1	01/28/2024 20:48	WG2208511
Lithium,Dissolved	0.0266		0.00200	1	01/28/2024 18:56	WG2207294
Manganese	0.210		0.00500	1	01/28/2024 19:46	WG2208511
Manganese,Dissolved	0.171		0.00500	1	01/27/2024 13:24	WG2207294
Molybdenum	0.0332		0.00500	1	01/28/2024 19:46	WG2208511
Molybdenum,Dissolved	0.0370		0.00500	1	01/27/2024 13:24	WG2207294
Selenium	0.0105		0.00200	1	01/28/2024 19:46	WG2208511
Selenium,Dissolved	0.00962		0.00200	1	01/27/2024 13:24	WG2207294
Thallium	ND		0.00200	1	01/28/2024 19:46	WG2208511
Thallium,Dissolved	ND		0.00200	1	01/27/2024 13:24	WG2207294



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	ND		10.0	1	01/17/2024 10:19	WG2207687

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	ND		1.00	1	01/14/2024 05:17	WG2206862
Fluoride	ND		0.150	1	01/14/2024 05:17	WG2206862
Sulfate	ND		5.00	1	01/14/2024 05:17	WG2206862

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	5.63	<u>T8</u>	1	01/19/2024 16:30	WG2206905

Sample Narrative:

L1696247-13 WG2206905: 5.63 at 18.5C

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	01/18/2024 16:54	WG2206976

Metals (ICPMS) by Method 6020A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00400	1	01/28/2024 19:50	WG2208511
Arsenic	ND		0.00200	1	01/28/2024 19:50	WG2208511
Barium	ND		0.00200	1	01/28/2024 19:50	WG2208511
Beryllium	ND		0.00200	1	01/28/2024 20:51	WG2208511
Cadmium	ND		0.00100	1	01/28/2024 20:51	WG2208511
Chromium	ND		0.00200	1	01/28/2024 19:50	WG2208511
Cobalt	ND		0.00200	1	01/28/2024 19:50	WG2208511
Iron	ND		0.100	1	01/28/2024 19:50	WG2208511
Lead	ND		0.00200	1	01/28/2024 19:50	WG2208511
Lithium	ND		0.00200	1	01/28/2024 20:51	WG2208511
Manganese	ND		0.00500	1	01/28/2024 19:50	WG2208511
Molybdenum	ND		0.00500	1	01/28/2024 19:50	WG2208511
Selenium	ND		0.00200	1	01/28/2024 19:50	WG2208511
Thallium	ND		0.00200	1	01/28/2024 19:50	WG2208511

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	691		13.3	1	01/17/2024 10:19	WG2207687

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	17.0		1.00	1	01/14/2024 05:33	WG2206862
Fluoride	0.317		0.150	1	01/14/2024 05:33	WG2206862
Sulfate	305		50.0	10	01/14/2024 05:49	WG2206862

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.82	<u>T8</u>	1	01/19/2024 16:30	WG2206905

Sample Narrative:

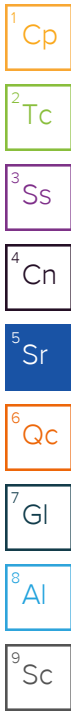
L1696247-14 WG2206905: 7.82 at 18.2C

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	01/18/2024 17:01	WG2206976
Mercury,Dissolved	ND		0.000200	1	01/14/2024 20:53	WG2206982

Metals (ICPMS) by Method 6020A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00400	1	01/28/2024 19:53	WG2208511
Antimony,Dissolved	ND		0.00400	1	01/27/2024 13:57	WG2207294
Arsenic	0.00228		0.00200	1	01/28/2024 19:53	WG2208511
Arsenic,Dissolved	ND		0.00200	1	01/27/2024 13:57	WG2207294
Barium	0.153		0.00200	1	01/28/2024 19:53	WG2208511
Barium,Dissolved	0.114		0.00200	1	01/27/2024 13:57	WG2207294
Beryllium	ND		0.00200	1	01/28/2024 20:54	WG2208511
Beryllium,Dissolved	ND		0.00200	1	01/27/2024 13:57	WG2207294
Cadmium	ND		0.00100	1	01/28/2024 20:54	WG2208511
Cadmium,Dissolved	ND		0.00100	1	01/27/2024 13:57	WG2207294
Chromium	ND		0.00200	1	01/28/2024 19:53	WG2208511
Chromium,Dissolved	ND		0.00200	1	01/27/2024 13:57	WG2207294
Cobalt	ND		0.00200	1	01/28/2024 19:53	WG2208511
Cobalt,Dissolved	ND		0.00200	1	01/27/2024 13:57	WG2207294
Iron	5.91		0.100	1	01/28/2024 19:53	WG2208511
Iron,Dissolved	ND		0.100	1	01/27/2024 13:57	WG2207294
Lead	ND		0.00200	1	01/28/2024 19:53	WG2208511
Lead,Dissolved	ND		0.00200	1	01/27/2024 13:57	WG2207294
Lithium	0.0404		0.00200	1	01/28/2024 20:54	WG2208511
Lithium,Dissolved	0.0390		0.00200	1	01/28/2024 18:59	WG2207294
Manganese	0.553		0.00500	1	01/28/2024 19:53	WG2208511
Manganese,Dissolved	0.537		0.00500	1	01/27/2024 13:57	WG2207294
Molybdenum	0.231		0.00500	1	01/28/2024 19:53	WG2208511
Molybdenum,Dissolved	0.235		0.00500	1	01/27/2024 13:57	WG2207294
Selenium	ND		0.00200	1	01/28/2024 19:53	WG2208511
Selenium,Dissolved	ND		0.00200	1	01/27/2024 13:57	WG2207294
Thallium	ND		0.00200	1	01/28/2024 19:53	WG2208511
Thallium,Dissolved	ND		0.00200	1	01/27/2024 13:57	WG2207294



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	361		10.0	1	01/17/2024 10:19	WG2207687

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	12.1		1.00	1	01/14/2024 06:37	WG2206862
Fluoride	0.186		0.150	1	01/14/2024 06:37	WG2206862
Sulfate	35.4		5.00	1	01/14/2024 06:37	WG2206862

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.10	<u>T8</u>	1	01/19/2024 16:30	WG2206905

Sample Narrative:

L1696247-15 WG2206905: 8.1 at 18C

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	01/18/2024 16:37	WG2206976
Mercury,Dissolved	ND		0.000200	1	01/14/2024 20:56	WG2206982

Metals (ICPMS) by Method 6020A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	ND		0.00400	1	01/28/2024 19:56	WG2208511
Antimony,Dissolved	ND		0.00400	1	01/27/2024 14:00	WG2207294
Arsenic	0.00214		0.00200	1	01/28/2024 19:56	WG2208511
Arsenic,Dissolved	0.00206		0.00200	1	01/27/2024 14:00	WG2207294
Barium	0.136		0.00200	1	01/28/2024 19:56	WG2208511
Barium,Dissolved	0.120		0.00200	1	01/27/2024 14:00	WG2207294
Beryllium	ND		0.00200	1	01/28/2024 20:58	WG2208511
Beryllium,Dissolved	ND		0.00200	1	01/27/2024 14:00	WG2207294
Cadmium	ND		0.00100	1	01/28/2024 20:58	WG2208511
Cadmium,Dissolved	ND		0.00100	1	01/27/2024 14:00	WG2207294
Chromium	ND		0.00200	1	01/28/2024 19:56	WG2208511
Chromium,Dissolved	ND		0.00200	1	01/27/2024 14:00	WG2207294
Cobalt	ND		0.00200	1	01/28/2024 19:56	WG2208511
Cobalt,Dissolved	ND		0.00200	1	01/27/2024 14:00	WG2207294
Iron	0.210		0.100	1	01/28/2024 19:56	WG2208511
Iron,Dissolved	ND		0.100	1	01/27/2024 14:00	WG2207294
Lead	ND		0.00200	1	01/28/2024 19:56	WG2208511
Lead,Dissolved	ND		0.00200	1	01/27/2024 14:00	WG2207294
Lithium	0.0143		0.00200	1	01/28/2024 20:58	WG2208511
Lithium,Dissolved	0.0142		0.00200	1	01/28/2024 19:03	WG2207294
Manganese	0.119		0.00500	1	01/28/2024 19:56	WG2208511
Manganese,Dissolved	ND		0.00500	1	01/27/2024 14:00	WG2207294
Molybdenum	0.0157		0.00500	1	01/28/2024 19:56	WG2208511
Molybdenum,Dissolved	0.0188		0.00500	1	01/27/2024 14:00	WG2207294
Selenium	0.0222		0.00200	1	01/28/2024 19:56	WG2208511
Selenium,Dissolved	0.0216		0.00200	1	01/27/2024 14:00	WG2207294
Thallium	ND		0.00200	1	01/28/2024 19:56	WG2208511
Thallium,Dissolved	ND		0.00200	1	01/27/2024 14:00	WG2207294

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4024377-1 01/14/24 12:40

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		10.0	10.0

¹Cp

²Tc

³Ss

L1695971-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1695971-06 01/14/24 12:40 • (DUP) R4024377-3 01/14/24 12:40

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	212	218	1	2.79		5

⁴Cn

⁵Sr

L1695971-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1695971-07 01/14/24 12:40 • (DUP) R4024377-4 01/14/24 12:40

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	289	292	1	1.03		5

⁶Qc

⁷Gl

⁸Al

Laboratory Control Sample (LCS)

(LCS) R4024377-2 01/14/24 12:40

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Dissolved Solids	8800	8480	96.4	85.0-115	

⁹Sc

Method Blank (MB)

(MB) R4024333-1 01/17/24 10:19

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		10.0	10.0

1 Cp

2 Tc

3 Ss

L1696123-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1696123-02 01/17/24 10:19 • (DUP) R4024333-3 01/17/24 10:19

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	483	500	1	3.46		5

4 Cn

5 Sr

6 Qc

L1696123-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1696123-03 01/17/24 10:19 • (DUP) R4024333-4 01/17/24 10:19

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	420	439	1	4.42		5

7 Gl

8 Al

9 Sc

Laboratory Control Sample (LCS)

(LCS) R4024333-2 01/17/24 10:19

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Dissolved Solids	8800	8620	98.0	85.0-115	

Method Blank (MB)

(MB) R4023539-1 01/13/24 09:15

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Chloride	U		0.379	1.00
Fluoride	U		0.0640	0.150
Sulfate	U		0.594	5.00

L1696237-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1696237-04 01/13/24 21:04 • (DUP) R4023539-3 01/13/24 21:20

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	27.9	27.9	1	0.0918		15
Fluoride	ND	ND	1	0.000		15
Sulfate	ND	ND	1	5.73		15

L1696247-12 Original Sample (OS) • Duplicate (DUP)

(OS) L1696247-12 01/14/24 04:30 • (DUP) R4023539-6 01/14/24 04:46

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Chloride	9.21	9.20	1	0.169		15
Fluoride	0.170	0.160	1	5.70		15
Sulfate	50.9	51.0	1	0.123		15

Laboratory Control Sample (LCS)

(LCS) R4023539-2 01/13/24 09:31

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/l	mg/l	%	%	
Chloride	40.0	39.7	99.2	80.0-120	
Fluoride	8.00	8.29	104	80.0-120	
Sulfate	40.0	39.4	98.4	80.0-120	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1696237-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1696237-04 01/13/24 21:04 • (MS) R4023539-4 01/13/24 21:36 • (MSD) R4023539-5 01/13/24 21:52

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	40.0	27.9	62.5	61.9	86.5	85.0	1	80.0-120			0.973	15
Fluoride	8.00	ND	7.79	7.64	97.3	95.5	1	80.0-120			1.86	15
Sulfate	40.0	ND	39.2	38.4	94.7	92.7	1	80.0-120			2.05	15

L1696247-12 Original Sample (OS) • Matrix Spike (MS)

(OS) L1696247-12 01/14/24 04:30 • (MS) R4023539-7 01/14/24 05:02

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	40.0	9.21	46.5	93.2	1	80.0-120	
Fluoride	8.00	0.170	7.67	93.8	1	80.0-120	
Sulfate	40.0	50.9	80.2	73.3	1	80.0-120	<u>J6</u>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L1696197-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1696197-02 01/19/24 16:30 • (DUP) R4024424-2 01/19/24 16:30

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
su	su	su		%		%
pH	7.83	7.85	1	0.255		1

Sample Narrative:

OS: 7.83 at 18.5C
 DUP: 7.85 at 18.8C

L1696255-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1696255-01 01/19/24 16:30 • (DUP) R4024424-3 01/19/24 16:30

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
su	su	su		%		%
pH	7.81	7.83	1	0.256		1

Sample Narrative:

OS: 7.81 at 18C
 DUP: 7.83 at 18.2C

Laboratory Control Sample (LCS)

(LCS) R4024424-1 01/19/24 16:30

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
su	su	su	%	%	
pH	10.0	10.0	100	99.0-101	

Sample Narrative:

LCS: 10.01 at 18.5C



Method Blank (MB)

(MB) R4023739-1 01/17/24 20:10

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury	U		0.000100	0.000200

1 Cp

2 Tc

3 Ss

Laboratory Control Sample (LCS)

(LCS) R4023739-2 01/17/24 20:19

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.00300	0.00342	114	80.0-120	

4 Cn

5 Sr

L1696236-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1696236-01 01/17/24 20:22 • (MS) R4023739-3 01/17/24 20:24 • (MSD) R4023739-4 01/17/24 20:27

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.00300	ND	0.00295	0.00299	98.2	99.6	1	75.0-125			1.45	20

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4024241-1 01/18/24 16:33

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Mercury	U		0.000100	0.000200

1 Cp

2 Tc

3 Ss

Laboratory Control Sample (LCS)

(LCS) R4024241-2 01/18/24 16:35

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Mercury	0.00300	0.00333	111	80.0-120	

4 Cn

5 Sr

6 Qc

L1696247-15 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1696247-15 01/18/24 16:37 • (MS) R4024241-3 01/18/24 16:40 • (MSD) R4024241-4 01/18/24 16:42

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Mercury	0.00300	ND	0.00331	0.00341	110	114	1	75.0-125			3.24	20

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4023420-1 01/14/24 19:25

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury,Dissolved	U		0.000100	0.000200

Laboratory Control Sample (LCS)

(LCS) R4023420-2 01/14/24 19:27

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury,Dissolved	0.00300	0.00283	94.4	80.0-120	

L1696148-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1696148-04 01/14/24 19:29 • (MS) R4023420-3 01/14/24 19:32 • (MSD) R4023420-4 01/14/24 19:34

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury,Dissolved	0.00300	ND	0.00282	0.00283	94.0	94.5	1	75.0-125			0.541	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4023421-1 01/14/24 20:34

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Mercury,Dissolved	U		0.000100	0.000200

1 Cp

2 Tc

3 Ss

Laboratory Control Sample (LCS)

(LCS) R4023421-2 01/14/24 20:41

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Mercury,Dissolved	0.00300	0.00283	94.3	80.0-120	

4 Cn

5 Sr

L1696247-11 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1696247-11 01/14/24 20:43 • (MS) R4023421-3 01/14/24 20:46 • (MSD) R4023421-4 01/14/24 20:48

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Mercury,Dissolved	0.00300	ND	0.00282	0.00283	94.1	94.2	1	75.0-125			0.173	20

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4026972-1 01/27/24 11:50

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Antimony,Dissolved	U		0.00103	0.00400
Arsenic,Dissolved	U		0.000180	0.00200
Barium,Dissolved	U		0.000381	0.00200
Beryllium,Dissolved	U		0.000190	0.00200
Cadmium,Dissolved	U		0.000150	0.00100
Chromium,Dissolved	U		0.00124	0.00200
Cobalt,Dissolved	U		0.0000596	0.00200
Iron,Dissolved	U		0.0281	0.100
Lead,Dissolved	U		0.000849	0.00200
Lithium,Dissolved	U		0.000695	0.00200
Manganese,Dissolved	U		0.000704	0.00500
Molybdenum,Dissolved	0.000471	J	0.000348	0.00500
Selenium,Dissolved	U		0.000300	0.00200
Thallium,Dissolved	U		0.000121	0.00200

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4027056-1 01/28/24 17:57

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Lithium,Dissolved	U		0.000695	0.00200

Laboratory Control Sample (LCS)

(LCS) R4026972-2 01/27/24 11:53

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Antimony,Dissolved	0.0500	0.0520	104	80.0-120	
Arsenic,Dissolved	0.0500	0.0512	102	80.0-120	
Barium,Dissolved	0.0500	0.0488	97.6	80.0-120	
Beryllium,Dissolved	0.0500	0.0520	104	80.0-120	
Cadmium,Dissolved	0.0500	0.0522	104	80.0-120	
Chromium,Dissolved	0.0500	0.0524	105	80.0-120	
Cobalt,Dissolved	0.0500	0.0525	105	80.0-120	
Iron,Dissolved	1.00	1.06	106	80.0-120	
Lead,Dissolved	0.0500	0.0500	100	80.0-120	
Lithium,Dissolved	0.0500	0.0538	108	80.0-120	
Manganese,Dissolved	0.0500	0.0505	101	80.0-120	
Molybdenum,Dissolved	0.0500	0.0497	99.4	80.0-120	

Laboratory Control Sample (LCS)

(LCS) R4026972-2 01/27/24 11:53

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Selenium,Dissolved	0.0500	0.0492	98.5	80.0-120	
Thallium,Dissolved	0.0500	0.0496	99.3	80.0-120	

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Laboratory Control Sample (LCS)

(LCS) R4027056-2 01/28/24 18:00

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Lithium,Dissolved	0.0500	0.0478	95.6	80.0-120	

L1696247-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1696247-06 01/27/24 11:56 • (MS) R4026972-4 01/27/24 12:03 • (MSD) R4026972-5 01/27/24 12:06

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Antimony,Dissolved	0.0500	ND	0.0506	0.0518	101	104	1	75.0-125			2.48	20
Arsenic,Dissolved	0.0500	ND	0.0514	0.0518	102	103	1	75.0-125			0.739	20
Barium,Dissolved	0.0500	0.155	0.199	0.200	88.2	91.5	1	75.0-125			0.832	20
Beryllium,Dissolved	0.0500	ND	0.0509	0.0504	102	101	1	75.0-125			1.04	20
Cadmium,Dissolved	0.0500	ND	0.0520	0.0526	104	105	1	75.0-125			1.01	20
Chromium,Dissolved	0.0500	ND	0.0516	0.0517	103	103	1	75.0-125			0.163	20
Cobalt,Dissolved	0.0500	ND	0.0525	0.0523	105	104	1	75.0-125			0.392	20
Iron,Dissolved	1.00	ND	1.07	1.05	107	105	1	75.0-125			2.42	20
Lead,Dissolved	0.0500	ND	0.0497	0.0487	99.3	97.4	1	75.0-125			1.95	20
Manganese,Dissolved	0.0500	0.478	0.530	0.529	105	102	1	75.0-125			0.216	20
Molybdenum,Dissolved	0.0500	0.260	0.303	0.310	87.6	99.9	1	75.0-125			2.00	20
Selenium,Dissolved	0.0500	ND	0.0483	0.0490	96.7	98.1	1	75.0-125			1.44	20
Thallium,Dissolved	0.0500	ND	0.0493	0.0489	98.6	97.7	1	75.0-125			0.869	20

L1696247-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1696247-06 01/28/24 18:03 • (MS) R4027056-4 01/28/24 18:10 • (MSD) R4027056-5 01/28/24 18:13

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Lithium,Dissolved	0.0500	0.0383	0.0862	0.0890	95.7	101	1	75.0-125			3.23	20

Method Blank (MB)

(MB) R4027054-1 01/28/24 18:17

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Antimony	U		0.00103	0.00400
Arsenic	U		0.000180	0.00200
Barium	U		0.000381	0.00200
Beryllium	U		0.000190	0.00200
Cadmium	U		0.000150	0.00100
Chromium	U		0.00124	0.00200
Cobalt	U		0.0000596	0.00200
Iron	U		0.0281	0.100
Lead	U		0.000849	0.00200
Manganese	U		0.000704	0.00500
Molybdenum	U		0.000348	0.00500
Selenium	U		0.000300	0.00200
Thallium	0.000143	↓	0.000121	0.00200

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4027064-1 01/28/24 19:49

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Lithium	U		0.000695	0.00200

Laboratory Control Sample (LCS)

(LCS) R4027054-2 01/28/24 18:21

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/l	mg/l	%	%	
Antimony	0.0500	0.0574	115	80.0-120	
Arsenic	0.0500	0.0523	105	80.0-120	
Barium	0.0500	0.0514	103	80.0-120	
Beryllium	0.0500	0.0474	94.8	80.0-120	
Cadmium	0.0500	0.0538	108	80.0-120	
Chromium	0.0500	0.0534	107	80.0-120	
Cobalt	0.0500	0.0542	108	80.0-120	
Iron	1.00	1.07	107	80.0-120	
Lead	0.0500	0.0529	106	80.0-120	
Manganese	0.0500	0.0537	107	80.0-120	
Molybdenum	0.0500	0.0507	101	80.0-120	
Selenium	0.0500	0.0539	108	80.0-120	
Thallium	0.0500	0.0529	106	80.0-120	

Laboratory Control Sample (LCS)

(LCS) R4027064-2 01/28/24 19:52

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Lithium	0.0500	0.0547	109	80.0-120	

L1696247-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1696247-08 01/28/24 18:24 • (MS) R4027054-4 01/28/24 18:31 • (MSD) R4027054-5 01/28/24 18:34

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Antimony	0.0500	ND	0.0570	0.0575	114	115	1	75.0-125			0.920	20
Arsenic	0.0500	0.00220	0.0528	0.0531	101	102	1	75.0-125			0.607	20
Barium	0.0500	0.151	0.197	0.197	93.7	93.6	1	75.0-125			0.0331	20
Beryllium	0.0500	ND	0.0482	0.0485	96.3	97.0	1	75.0-125			0.660	20
Cadmium	0.0500	ND	0.0548	0.0552	110	110	1	75.0-125			0.776	20
Chromium	0.0500	ND	0.0517	0.0511	103	102	1	75.0-125			1.07	20
Cobalt	0.0500	ND	0.0522	0.0516	104	103	1	75.0-125			1.20	20
Iron	1.00	5.89	6.98	6.92	109	103	1	75.0-125			0.857	20
Lead	0.0500	ND	0.0552	0.0554	108	109	1	75.0-125			0.500	20
Manganese	0.0500	0.554	0.604	0.591	99.4	72.3	1	75.0-125		V	2.27	20
Molybdenum	0.0500	0.227	0.278	0.276	102	97.5	1	75.0-125			0.754	20
Selenium	0.0500	ND	0.0533	0.0518	107	104	1	75.0-125			2.80	20
Thallium	0.0500	ND	0.0526	0.0531	105	106	1	75.0-125			0.986	20

L1696247-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1696247-08 01/28/24 19:56 • (MS) R4027064-4 01/28/24 20:02 • (MSD) R4027064-5 01/28/24 20:05

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Lithium	0.0500	0.0388	0.0963	0.0935	115	109	1	75.0-125			3.03	20

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

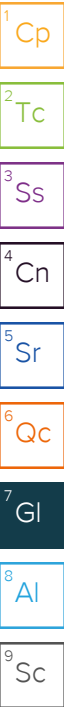
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

J	The identification of the analyte is acceptable; the reported value is an estimate.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.



ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl


⁸ Al

⁹ Sc

Company Name/Address:
ERM - St. Louis, MO
 1968 Craig Road, Suite 100
 Saint Louis, MO 63146

Billing Information:
 Accounts Payable Dept.
 1701 Golf Road, Suite 1-1000
 Rolling Meadows, IL 60008-4242

Pres Chk
 Analysis / Container / Preservative

Chain of Custody Page **2** of **2**

MT JULIET, TN
 12065 Lebanon Rd Mount Juliet, TN 37122
 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: <https://info.pacelabs.com/hubs/pas-standard-terms.pdf>

Report to:
Randy Homburg

Email To: **Randy.Homburg@erm.com**

Project Description:
Grand Tower Energy Center Groundwater 1Q24

City/State Collected: **Grand Tower, IL**

Please Circle:
 PT MT ET

Phone: **314-682-3980**

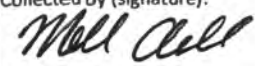
Client Project #
0599247

Lab Project #
ERMSCMO-0599247

Collected by (print):
Marshall Amendell

Site/Facility ID #

P.O. #

Collected by (signature):

 Immediately Packed on Ice N ___ Y

Rush? (Lab MUST Be Notified)
 ___ Same Day ___ Five Day
 ___ Next Day ___ 5 Day (Rad Only)
 ___ Two Day ___ 10 Day (Rad Only)
 ___ Three Day

Quote #
 Date Results Needed
STD TAT

Sample ID Comp/Grab Matrix * Depth Date Time No. of Cntrs

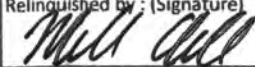
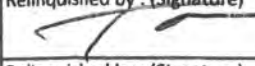
Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Anions 125mlHDPE-NoPres	Dissolved Metals 250mlHDPE-NoPres	TDS IL-HDPE NoPres	Total Metals 250mlHDPE-HNO3	pH 125mlHDPE-NoPres				
APW-01R-WG-2024 0110	Grab	GW	53.28	1/10/24	1605	5	X	X	X	X	X				
APW-04-WG-2024 0110		GW	55.25		1710	5	X	X	X	X	X				
EB-01-WG-2024 0109		GW	—		1200	5	X	X	X	X	X			No dis. on EB	
DUP-01-WG-2024 0110		GW	—		0001	5	X	X	X	X	X				
DUP-02-WG-2024 0111		GW	—	1/11/24	0002	5	X	X	X	X	X				

Remarks	Sample # (lab only)
	11
	12
No dis. on EB	13
	14
	15

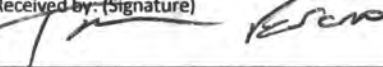
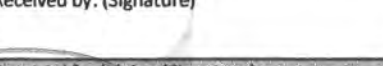

* Matrix:
 SS - Soil AIR - Air F - Filter
 GW - Groundwater B - Bioassay
 WW - WasteWater
 DW - Drinking Water
 OT - Other

Remarks:
 pH _____ Temp _____
 Flow _____ Other _____
 Samples returned via:
 ___ UPS ___ FedEx ___ Courier
 Tracking # _____

Sample Receipt Checklist
 COC Seal Present/Intact: Y N
 COC Signed/Accurate: Y N
 Bottles arrive intact: Y N
 Correct bottles used: Y N
 Sufficient volume sent: Y N
 If Applicable
 VOA Zero Headspace: Y N
 Preservation Correct/Checked: Y N
 RAD Screen <0.5 mR/hr: Y N

Relinquished by: (Signature)

 Relinquished by: (Signature)

 Relinquished by: (Signature)

Date: 1/12/24
 Time: 10:00

Received by: (Signature)

 Received by: (Signature)

 Received for lab by: (Signature)


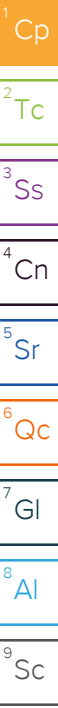
Trip Blank Received: Yes / NO
 HCL / MeOH
 TBR
 Temp: _____ °C
 Bottles Received: **74**
 Date: 1/13/24
 Time: 09:20

If preservation required by Login: Date/Time
 Hold:
 Condition: NCF / OK

<u>Tracking Numbers</u>	<u>Temperature</u>
7127 906 5060	TLMS 0.1 x 0 = 0.1
EEOS 906 52E	TLMS 0.1 x 0 = 0.1
7127 906 5055	TLMS 0.2 x 0 = 0.2

Name

Date



ERM - St. Louis, MO

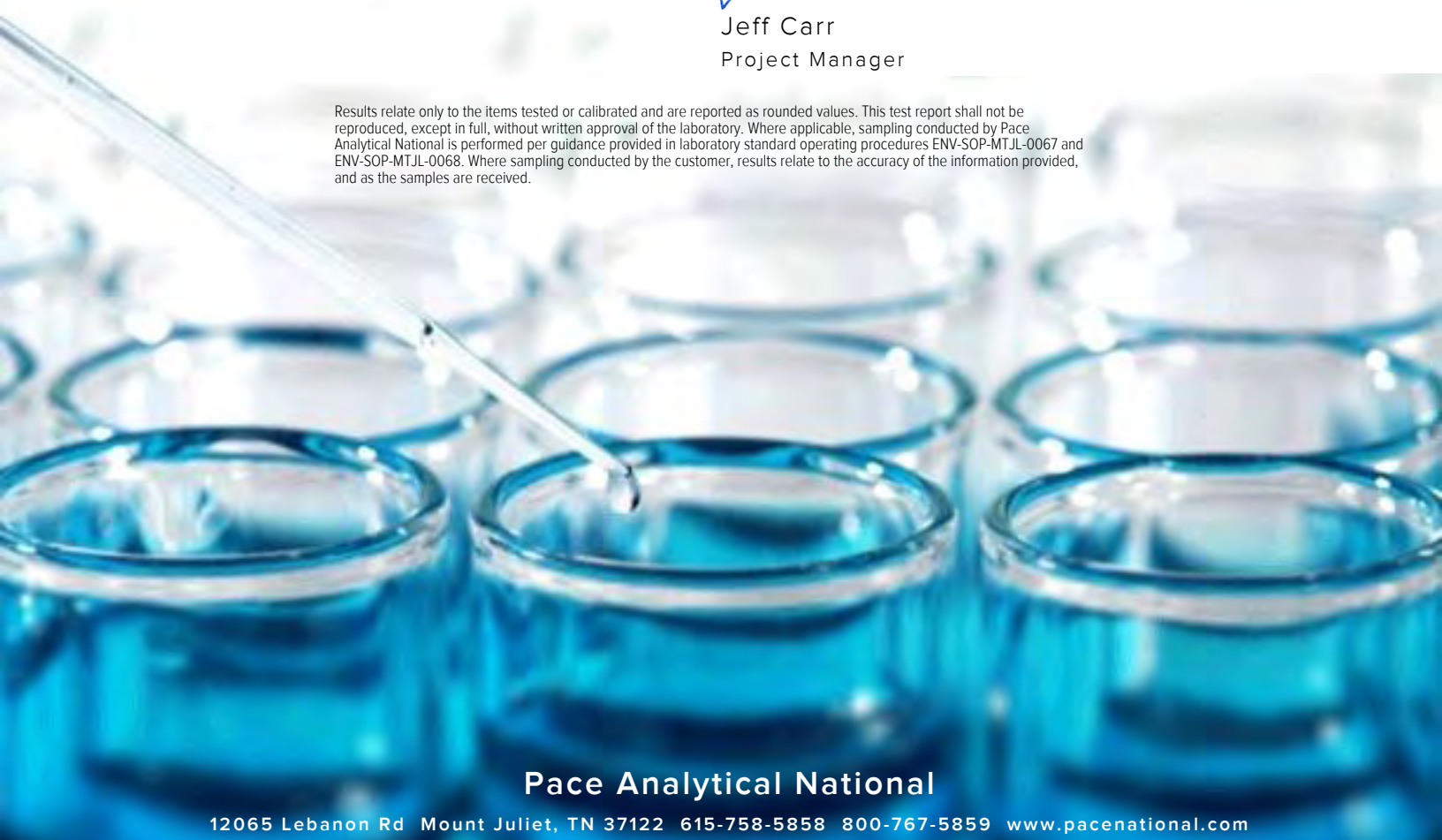
Sample Delivery Group: L1696275
Samples Received: 01/13/2024
Project Number: 0599247
Description: Grand Tower Energy Center Groundwater 1Q24 Sampling
Report To: Randy Homburg
1968 Craig Road, Suite 100
Saint Louis, MO 63146

Entire Report Reviewed By:



Jeff Carr
Project Manager










Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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SAMPLE SUMMARY

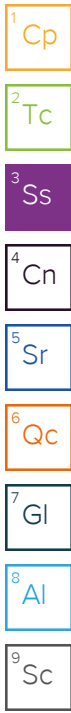
APW-03-WG-20240111 L1696275-01 Non-Potable Water

Collected by
Marshall A

Collected date/time
01/11/24 14:50

Received date/time
01/13/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2209025	1	01/20/24 11:15	01/31/24 20:30	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2208118	1	01/18/24 09:25	01/31/24 20:30	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2208118	1	01/18/24 09:25	01/25/24 12:51	ZRG	Mt. Juliet, TN



APW-08-WG-20240111 L1696275-02 Non-Potable Water

Collected by
Marshall A

Collected date/time
01/11/24 13:30

Received date/time
01/13/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2209025	1	01/20/24 11:15	01/31/24 20:30	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2208118	1	01/18/24 09:25	01/31/24 20:30	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2208118	1	01/18/24 09:25	01/25/24 12:51	ZRG	Mt. Juliet, TN

APW-07-WG-20240111 L1696275-03 Non-Potable Water

Collected by
Marshall A

Collected date/time
01/11/24 11:55

Received date/time
01/13/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2209025	1	01/20/24 11:15	01/31/24 20:30	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2208118	1	01/18/24 09:25	01/31/24 20:30	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2208118	1	01/18/24 09:25	01/25/24 12:51	ZRG	Mt. Juliet, TN

APW-10S-WG-20240111 L1696275-04 Non-Potable Water

Collected by
Marshall A

Collected date/time
01/11/24 09:20

Received date/time
01/13/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2209025	1	01/20/24 11:15	01/31/24 20:30	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2208118	1	01/18/24 09:25	01/31/24 20:30	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2208118	1	01/18/24 09:25	01/25/24 12:51	ZRG	Mt. Juliet, TN

APW-10D-WG-20240111 L1696275-05 Non-Potable Water

Collected by
Marshall A

Collected date/time
01/11/24 10:40

Received date/time
01/13/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2209025	1	01/20/24 11:15	01/31/24 20:30	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2208118	1	01/18/24 09:25	01/31/24 20:30	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2208118	1	01/18/24 09:25	01/25/24 12:51	ZRG	Mt. Juliet, TN

APW-06S-WG-20240110 L1696275-06 Non-Potable Water

Collected by
Marshall A

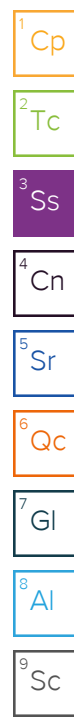
Collected date/time
01/10/24 10:15

Received date/time
01/13/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2209025	1	01/20/24 11:15	01/31/24 20:30	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2208118	1	01/18/24 09:25	01/31/24 20:30	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2208118	1	01/18/24 09:25	01/25/24 12:51	ZRG	Mt. Juliet, TN

SAMPLE SUMMARY

APW-06D-WG-20240110 L1696275-07 Non-Potable Water				Collected by Marshall A	Collected date/time 01/10/24 11:30	Received date/time 01/13/24 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2209025	1	01/20/24 11:15	01/31/24 20:30	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2208118	1	01/18/24 09:25	01/31/24 20:30	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2208118	1	01/18/24 09:25	01/25/24 12:51	ZRG	Mt. Juliet, TN



APW-05R-WG-20240110 L1696275-08 Non-Potable Water				Collected by Marshall A	Collected date/time 01/10/24 13:05	Received date/time 01/13/24 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2209025	1	01/20/24 11:15	01/31/24 20:30	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2208118	1	01/18/24 09:25	01/31/24 20:30	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2208118	1	01/18/24 09:25	01/25/24 12:51	ZRG	Mt. Juliet, TN

APW-09-WG-20240111 L1696275-09 Non-Potable Water				Collected by Marshall A	Collected date/time 01/11/24 00:00	Received date/time 01/13/24 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2209025	1	01/20/24 11:15	01/31/24 20:30	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2208118	1	01/18/24 09:25	01/31/24 20:30	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2208118	1	01/18/24 09:25	01/25/24 12:51	ZRG	Mt. Juliet, TN

APW-02-WG-20240110 L1696275-10 Non-Potable Water				Collected by Marshall A	Collected date/time 01/10/24 14:35	Received date/time 01/13/24 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2209025	1	01/20/24 11:15	01/31/24 20:30	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2208118	1	01/18/24 09:25	01/31/24 20:30	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2208118	1	01/18/24 09:25	01/25/24 12:51	ZRG	Mt. Juliet, TN

APW-01R-WG-20240110 L1696275-11 Non-Potable Water				Collected by Marshall A	Collected date/time 01/10/24 16:05	Received date/time 01/13/24 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2209025	1	01/20/24 11:15	01/31/24 20:30	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2208118	1	01/18/24 09:25	01/31/24 20:30	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2208118	1	01/18/24 09:25	01/25/24 12:51	ZRG	Mt. Juliet, TN

APW-04-WG-20240110 L1696275-12 Non-Potable Water				Collected by Marshall A	Collected date/time 01/10/24 17:10	Received date/time 01/13/24 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2209025	1	01/20/24 11:15	01/31/24 20:30	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2208118	1	01/18/24 09:25	01/31/24 20:30	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2208118	1	01/18/24 09:25	01/25/24 12:51	ZRG	Mt. Juliet, TN

SAMPLE SUMMARY

EB-01-WG-20240110 L1696275-13 Non-Potable Water

Collected by: Marshall A
 Collected date/time: 01/10/24 09:00
 Received date/time: 01/13/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2209025	1	01/20/24 11:15	01/31/24 20:30	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2208118	1	01/18/24 09:25	01/31/24 20:30	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2208118	1	01/18/24 09:25	01/25/24 12:51	ZRG	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

DUP-01-WG-20240110 L1696275-14 Non-Potable Water

Collected by: Marshall A
 Collected date/time: 01/10/24 00:01
 Received date/time: 01/13/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2209025	1	01/20/24 11:15	01/31/24 20:30	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2208118	1	01/18/24 09:25	01/31/24 20:30	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2208118	1	01/18/24 09:25	01/19/24 15:52	ZRG	Mt. Juliet, TN

DUP-02-WG-20240111 L1696275-15 Non-Potable Water

Collected by: Marshall A
 Collected date/time: 01/11/24 00:02
 Received date/time: 01/13/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2211485	1	01/24/24 14:59	01/27/24 13:35	ALG	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2208118	1	01/18/24 09:25	01/27/24 13:35	ALG	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2208118	1	01/18/24 09:25	01/19/24 15:52	ZRG	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Jeff Carr
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	-0.0217	<u>U</u>	0.241	5.81	0.449	0.235	01/31/2024 20:30	WG2209025
(T) Barium	125					30.0-143	01/31/2024 20:30	WG2209025
(T) Yttrium	99.2					30.0-136	01/31/2024 20:30	WG2209025

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	3.18		0.717	0.515	01/31/2024 20:30	WG2208118

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	3.18		0.675	0.360	0.252	0.181	01/25/2024 12:51	WG2208118
(T) Barium-133	97.6					30.0-143	01/25/2024 12:51	WG2208118

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.687		0.215	0.958	0.376	0.198	01/31/2024 20:30	WG2209025
(T) Barium	135					30.0-143	01/31/2024 20:30	WG2209025
(T) Yttrium	110					30.0-136	01/31/2024 20:30	WG2209025

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	2.39		0.507	0.418	01/31/2024 20:30	WG2208118

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	1.71		0.459	0.244	0.182	0.138	01/25/2024 12:51	WG2208118
(T) Barium-133	99.5					30.0-143	01/25/2024 12:51	WG2208118

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	1.93		0.264	0.621	0.432	0.226	01/31/2024 20:30	WG2209025
(T) Barium	126					30.0-143	01/31/2024 20:30	WG2209025
(T) Yttrium	105					30.0-136	01/31/2024 20:30	WG2209025

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	2.70		0.461	0.535	01/31/2024 20:30	WG2208118

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	0.775		0.378	0.168	0.316	0.219	01/25/2024 12:51	WG2208118
(T) Barium-133	88.4					30.0-143	01/25/2024 12:51	WG2208118

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	2.10		0.228	0.554	0.350	0.185	01/31/2024 20:30	WG2209025
(T) Barium	129					30.0-143	01/31/2024 20:30	WG2209025
(T) Yttrium	100					30.0-136	01/31/2024 20:30	WG2209025

1 Cp

2 Tc

3 Ss

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	2.42		0.307	0.390	01/31/2024 20:30	WG2208118

4 Cn

5 Sr

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	0.313		0.206	0.0921	0.172	0.135	01/25/2024 12:51	WG2208118
(T) Barium-133	88.4					30.0-143	01/25/2024 12:51	WG2208118

6 Qc

7 Gl

8 Al

9 Sc

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	1.49		0.351	0.988	0.605	0.317	01/31/2024 20:30	WG2209025
(T) Barium	136					30.0-143	01/31/2024 20:30	WG2209025
(T) Yttrium	104					30.0-136	01/31/2024 20:30	WG2209025

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.53		0.390	0.676	01/31/2024 20:30	WG2208118

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	0.0400	<u>U</u>	0.170	0.0700	0.301	0.201	01/25/2024 12:51	WG2208118
(T) Barium-133	98.4					30.0-143	01/25/2024 12:51	WG2208118

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.688		0.243	1.04	0.429	0.225	01/31/2024 20:30	WG2209025
(T) Barium	110					30.0-143	01/31/2024 20:30	WG2209025
(T) Yttrium	104					30.0-136	01/31/2024 20:30	WG2209025

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.93		0.477	0.472	01/31/2024 20:30	WG2208118

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	1.25		0.411	0.216	0.198	0.151	01/25/2024 12:51	WG2208118
(T) Barium-133	102					30.0-143	01/25/2024 12:51	WG2208118

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	1.24		0.276	0.816	0.474	0.248	01/31/2024 20:30	WG2209025
(T) Barium	119					30.0-143	01/31/2024 20:30	WG2209025
(T) Yttrium	114					30.0-136	01/31/2024 20:30	WG2209025

1 Cp

2 Tc

3 Ss

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.82		0.454	0.610	01/31/2024 20:30	WG2208118

4 Cn

5 Sr

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	0.582		0.361	0.167	0.384	0.252	01/25/2024 12:51	WG2208118
(T) Barium-133	95.8					30.0-143	01/25/2024 12:51	WG2208118

6 Qc

7 Gl

8 Al

9 Sc

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	3.55		0.372	0.654	0.578	0.304	01/31/2024 20:30	WG2209025
(T) Barium	115					30.0-143	01/31/2024 20:30	WG2209025
(T) Yttrium	97.9					30.0-136	01/31/2024 20:30	WG2209025

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	3.86		0.460	0.666	01/31/2024 20:30	WG2208118

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	0.303	J	0.271	0.117	0.330	0.228	01/25/2024 12:51	WG2208118
(T) Barium-133	90.6					30.0-143	01/25/2024 12:51	WG2208118

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	1.09		0.251	0.848	0.430	0.226	01/31/2024 20:30	WG2209025
(T) Barium	129					30.0-143	01/31/2024 20:30	WG2209025
(T) Yttrium	95.3					30.0-136	01/31/2024 20:30	WG2209025

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.29		0.327	0.507	01/31/2024 20:30	WG2208118

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	0.203	J	0.210	0.0957	0.268	0.195	01/25/2024 12:51	WG2208118
(T) Barium-133	94.3					30.0-143	01/25/2024 12:51	WG2208118

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.243	J	0.202	1.60	0.369	0.195	01/31/2024 20:30	WG2209025
(T) Barium	112					30.0-143	01/31/2024 20:30	WG2209025
(T) Yttrium	110					30.0-136	01/31/2024 20:30	WG2209025

1 Cp

2 Tc

3 Ss

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.333	J	0.275	0.476	01/31/2024 20:30	WG2208118

4 Cn

5 Sr

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	0.0909	U	0.186	0.0819	0.300	0.203	01/25/2024 12:51	WG2208118
(T) Barium-133	101					30.0-143	01/25/2024 12:51	WG2208118

6 Qc

7 Gl

8 Al

9 Sc

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	1.44		0.229	0.690	0.376	0.198	01/31/2024 20:30	WG2209025
(T) Barium	126					30.0-143	01/31/2024 20:30	WG2209025
(T) Yttrium	102					30.0-136	01/31/2024 20:30	WG2209025

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	2.18		0.422	0.465	01/31/2024 20:30	WG2208118

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	0.738		0.354	0.171	0.273	0.196	01/25/2024 12:51	WG2208118
(T) Barium-133	95.3					30.0-143	01/25/2024 12:51	WG2208118

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.629		0.280	1.16	0.499	0.260	01/31/2024 20:30	WG2209025
(T) Barium	127					30.0-143	01/31/2024 20:30	WG2209025
(T) Yttrium	117					30.0-136	01/31/2024 20:30	WG2209025

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.852		0.370	0.596	01/31/2024 20:30	WG2208118

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	0.223	J	0.242	0.102	0.325	0.217	01/25/2024 12:51	WG2208118
(T) Barium-133	91.1					30.0-143	01/25/2024 12:51	WG2208118

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.851		0.216	0.868	0.372	0.196	01/31/2024 20:30	WG2209025
(T) Barium	133					30.0-143	01/31/2024 20:30	WG2209025
(T) Yttrium	112					30.0-136	01/31/2024 20:30	WG2209025

1 Cp

2 Tc

3 Ss

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.882		0.240	0.424	01/31/2024 20:30	WG2208118

4 Cn

5 Sr

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	0.0310	<u>U</u>	0.105	0.0429	0.204	0.149	01/25/2024 12:51	WG2208118
(T) Barium-133	93.5					30.0-143	01/25/2024 12:51	WG2208118

6 Qc

7 Gl

8 Al

9 Sc

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.885		0.244	0.897	0.425	0.223	01/31/2024 20:30	WG2209025
(T) Barium	116					30.0-143	01/31/2024 20:30	WG2209025
(T) Yttrium	121					30.0-136	01/31/2024 20:30	WG2209025

1 Cp

2 Tc

3 Ss

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.18		0.321	0.470	01/31/2024 20:30	WG2208118

4 Cn

5 Sr

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	0.297		0.208	0.104	0.201	0.149	01/19/2024 15:52	WG2208118
(T) Barium-133	100					30.0-143	01/19/2024 15:52	WG2208118

6 Qc

7 Gl

8 Al

9 Sc

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.723		0.211	0.926	0.382	0.202	01/27/2024 13:35	WG2211485
(T) Barium	115					30.0-143	01/27/2024 13:35	WG2211485
(T) Yttrium	104					30.0-136	01/27/2024 13:35	WG2211485

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.18		0.356	0.474	01/27/2024 13:35	WG2208118

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	0.459		0.287	0.133	0.280	0.196	01/19/2024 15:52	WG2208118
(T) Barium-133	94.4					30.0-143	01/19/2024 15:52	WG2208118

Method Blank (MB)

(MB) R4030054-1 01/31/24 20:30

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-228	0.520		0.156	0.273	0.144
(T) Barium	139		139		
(T) Yttrium	93.3		93.3		

L1695899-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1695899-08 01/31/24 20:30 • (DUP) R4030054-5 01/31/24 20:30

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	0.205	0.395	0.724	0.377	1.15	0.399	0.705	0.368	139	1.67		20	3
(T) Barium	140				131	131							
(T) Yttrium	94.5				93.9	93.9							

Laboratory Control Sample (LCS)

(LCS) R4030054-2 01/31/24 20:30

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	5.52	110	80.0-120	
(T) Barium			132		
(T) Yttrium			111		

L1696275-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1696275-05 01/31/24 20:30 • (MS) R4030054-3 01/31/24 20:30 • (MSD) R4030054-4 01/31/24 20:30

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	16.7	1.49	18.6	15.7	102	85.1	1	70.0-130			16.9		20
(T) Barium		136			143	140							
(T) Yttrium		104			108	101							

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4027417-1 01/27/24 13:35

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-228	-0.135	<u>U</u>	0.165	0.324	0.169
(T) Barium	111		111		
(T) Yttrium	118		118		

L1697021-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1697021-02 01/27/24 13:35 • (DUP) R4027417-5 01/27/24 13:35

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	1.41	0.321	0.571	0.301	1.06	0.270	0.483	0.256	28.4	0.834		20	3
(T) Barium	115				114	114							
(T) Yttrium	118				108	108							

Laboratory Control Sample (LCS)

(LCS) R4027417-2 01/27/24 13:35

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	5.67	113	80.0-120	
(T) Barium			120		
(T) Yttrium			110		

L1697028-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1697028-10 01/27/24 13:35 • (MS) R4027417-3 01/27/24 13:35 • (MSD) R4027417-4 01/27/24 13:35

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	16.7	0.361	19.3	16.9	113	98.7	1	70.0-130			13.6		20
(T) Barium		119			112	117							
(T) Yttrium		122			106	116							

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4024956-1 01/25/24 12:51

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-226	-0.0244	<u>U</u>	0.0708	0.150	0.0981
(T) Barium-133	55.4		55.4		

L1695879-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1695879-01 01/25/24 12:51 • (DUP) R4024956-5 01/25/24 12:51

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-226	1.01	0.384	0.260	0.182	0.662	0.333	0.273	0.193	41.7	0.685		20	3
(T) Barium-133	94.3				95.2	95.2							

Laboratory Control Sample (LCS)

(LCS) R4024956-2 01/25/24 12:51

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.00	5.15	103	80.0-120	
(T) Barium-133			55.0		

L1696318-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1696318-01 01/19/24 15:52 • (MS) R4024956-3 01/25/24 12:51 • (MSD) R4024956-4 01/25/24 12:51

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-226	20.0	0.391	22.7	20.8	112	102	1	75.0-125			8.87		20
(T) Barium-133		94.0			65.8	70.9							

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDA	Minimum Detectable Activity.
Rec.	Recovery.
RER	Replicate Error Ratio.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(T)	Tracer - A radioisotope of known concentration added to a solution of chemically equivalent radioisotopes at a known concentration to assist in monitoring the yield of the chemical separation.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
U	Below Detectable Limits: Indicates that the analyte was not detected.

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

ERM - St. Louis, MO

1968 Craig Road, Suite 100
Saint Louis, MO 63146

Accounts Payable Dept.
1701 Golf Road, Suite 1-1000
Rolling Meadows, IL 60008-4242

Pres
Chk

HNO3
L

Analysis / Container / Preservative

Chain of Custody Page **1** of **2**

Report to:
Randy Homburg

Email To: Randy.Homburg@erm.com

Project Description:
Grand Tower Energy Center Groundwater 1Q24

City/State
Collected: **Grand Tower, IL**

Please Circle:
PT MT **DET**

Phone: **314-682-3980**

Client Project #
0599247

Lab Project #
ERMSCMO-0599247

Collected by (print):
Marshall Arendell

Site/Facility ID #

P.O. #

Collected by (signature):
Marshall Arendell

Rush? (Lab MUST Be Notified)

Quote #

___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Date Results Needed
STD TAT

Immediately
Packed on Ice N ___ Y **X**

No.
of
Cnts

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cnts												
APW-03-WG-2024 0111	Grab	NPW	54.50	1/11/24	1450	3	X	X										
APW-08-WG-2024 0111		NPW	57.00	1/11/24	1330	3	X	X										
APW-07-WG-2024 0111		NPW	58.23	1/11/24	1155	3	X	X										
APW-10S-WG-2024 0111		NPW	57.75	1/11/24	0920	3	X	X										
APW-10D-WG-2024 0111		NPW	73.11	1/11/24	1040	3	X	X										
APW-06S-WG-2024 0110		NPW	58.81	1/10/24	1015	3	X	X										
APW-06D-WG-2024 0110		NPW	149.75	1/10/24	1130	3	X	X										
APW-05R-WG-2024 0110		NPW	57.90	1/10/24	1305	3	X	X										
APW-09-WG-2024 0111		NPW	58.20	1/11/24	1435	3	X	X										
APW-02-WG-2024 0110		NPW	53.37	1/10/24	1435	3	X	X										



MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: <https://info.pacelabs.com/hubs/ass-standard-terms.pdf>

SPC
G079

Acctnum: **ERMSCMO**

Template: **T243472**

Prelogin: **P1043641**

PM: **206 - Jeff Carr**

PB: **12/13/23**

Shipped Via: **FedEX Ground**

Remarks | Sample # (lab only)

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
UPS ___ FedEx ___ Courier _____

Tracking # **7123 3306 5044**

Sample Receipt Checklist	
COC Seal Present/Intact:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
COC Signed/Accurate:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Bottles arrive intact:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Correct bottles used:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Sufficient volume sent:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
If Applicable	
VOA Zero Headspace:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Preservation Correct/Checked:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
RAD Screen <0.5 mR/hr:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N

Relinquished by: (Signature)

Marshall Arendell
ERM

Date: **1/12/24**

Time: **10:00**

Received by: (Signature)

ESC me

Trip Blank Received: Yes/No
HCL/MeOH
TBR

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Temp **TLA 8°C** Bottles Received:
0.1+0=0.1 44

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Ei Dumont **17**
Date: **1-13-24** Time: **900**

PH-10BDH4321 TPC-2352362
CR6-20221V
PH-10BDH4321 TPC-2352362
CR6-20221V

Condition:
NCF / OK

ERM - St. Louis, MO

1968 Craig Road, Suite 100
Saint Louis, MO 63146

Accounts Payable Dept.
1701 Golf Road, Suite 1-1000
Rolling Meadows, IL 60008-4242

Pres
Chk

Analysis / Container / Preservative

Chain of Custody Page **2** of **2**

Report to:
Randy Homburg

Email To: **Randy.Homburg@erm.com**

Project Description:
Grand Tower Energy Center Groundwater 1Q24

City/State
Collected: **Grand Tower, IL**

Please Circle:
PT MT ET

Phone: **314-682-3980**

Client Project #
0599247

Lab Project #
ERMSCMO-0599247

Collected by (print):
Marshall Arendell

Site/Facility ID #

P.O. #

Collected by (signature):
Marshall Arendell

Rush? (Lab MUST Be Notified)
 Same Day Five Day
 Next Day 5 Day (Rad Only)
 Two Day 10 Day (Rad Only)
 Three Day

Quote #

Date Results Needed
SEE STD DAT

Immediately
Packed on Ice N Y

No.
of
Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs												
APW-01R-WG-2024 0110	Grab	NPW	55.28	1/10/24	1605	3	X	X										
APW-04-WG-2024 0110		NPW	55.25	1/10/24	1710	3	X	X										
EB-01-WG-2024 0110		NPW	—	1/10/24	0900	3	X	X										
DUP-01-WG-2024 0110		NPW	—	1/10/24	0001	3	X	X										
DUP-02-WG-2024 0111		NPW	—	1/11/24	0002	3	X	X										

RA-226-903.1 1L-HDPE-Add-HNO3

RA-228 1L-HDPE-Add-HNO3



MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: <https://info.pacelabs.com/hubfs/pas-standard-terms.pdf>

SDG # **L 16910275**

Table # **1**

Acctnum: **ERMSCMO**

Template: **T243472**

Prelogin: **P1043641**

PM: **206 - Jeff Carr**

PB: **12/13/23**

Shipped Via: **FedEX Ground**

Remarks | Sample # (lab only)

11
12
13
14
15

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
 UPS FedEx Courier

Tracking #

7123 3306 5044

Sample Receipt Checklist

COC Seal Present/Intact: Y N
 COC Signed/Accurate: Y N
 Bottles arrive intact: Y N
 Correct bottles used: Y N
 Sufficient volume sent: Y N
 If Applicable
 VOA Zero Headspace: Y N
 Preservation Correct/Checked: Y N
 RAD Screen <0.5 mR/hr: Y N

Relinquished by: (Signature)

Marshall Arendell (ERM)

Date:

1/12/24

Time:

10:00

Received by: (Signature)

Tom

Trip Blank Received: Yes No

HCL/MeOH
TBR

Relinquished by: (Signature)

Tom

Date:

Time:

Received by: (Signature)

Temp **7.48°C** Bottles Received:

0.1+0=0.1 44

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Li Dunbar 17

Date: Time:

1-13-24 900

Hold:

Condition:

NCF OK

