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BOW-Permits #15-CCR Coordinator
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DATE
14 October 2024

SUBJECT
Tenth Post-Closure Groundwater Monitoring Report
Third 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 Inc. (ERM) is submitting this report which provides the results and findings of the Grand Tower Energy Center (GTEC) quarterly post-closure groundwater sampling and closed coal combustion residuals (CCR) impoundment inspection event conducted during the third quarter 2024 at the GTEC facility located at 1820 Power Plant Rd, Grand Tower, Illinois (the “Site”). The third quarter groundwater sampling event took place between 04 September and 06 September 2024, and the closed impoundment inspection event was conducted on 06 September 2024. A Site location map is provided in Figure 1.

The third 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.

Third 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 closed CCR impoundment.

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

QUARTERLY CLOSED CCR IMPOUNDMENT INSPECTION

During the third quarter of 2024, an inspection of the closed 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. These erosional features will be addressed prior to the next sampling event. No significant degradation or issues were noted associated with the overall closed CCR impoundment cover system.

QUARTERLY MONITORING WELL INPSECTION AND GAUGING

During the third 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 third 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 gradient direction arrow(s), 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 third 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 via FedEx under chain-of-custody procedures to the laboratory for analytical testing within laboratory provided coolers containing ice. The laboratory analytical reports for the third quarter 2024 sampling event are included in Appendices D & E.

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 third quarter 2024 are presented in Table 1. During the third quarter 2024 sampling event, the following analytes were detected in the listed wells above the GWPS:

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

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 closed 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 at 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 third quarter 2024 groundwater sampling event, well inspection, and closed 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 ten 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 ten post groundwater monitoring events, boron had previously demonstrated a decreasing trend in Site monitoring wells.
- Historically, woody vegetation has been noted on the impoundment cap and treated with herbicide in early 2023. 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 the woody vegetation and erosion on the impoundment cap, and the erosional features noted on the cap will be addressed prior to the next sampling event. No other significant degradation or issues were noted associated with the overall closed CCR impoundment cover system. ERM will periodically monitor Site conditions and cap and impoundment maintenance items.

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

Sincerely,

Randy Homburg
Managing Consultant

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

Attachments

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

FIGURES

DRAWN BY: S. Vickery

Grand Tower Energy Center (GTEC)

Closed Coal Combustion Residuals (CCR) Impoundment

Mississippi River

Grand Tower

N

0 840 1,680 Feet

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

Environmental Resources Management
www.erm.com

Source: Esri - World Topoographic Map; NAD 1983 StatePlane Illinois West FIPS 1202 Feet

FILE: \\usbdcfs02\data\Philadelphia\Team\DMMV\GIS\Projects\Grand Tower Energy Center\ MXD\FIGURE1-SITELOCATIONMAP_20221003.mxd | REVISED: 10/03/2022 | SCALE: 1:12,000 when printed at 11x17

DRAWN BY: ECLW

APW-1R
336.15

APW-05R
333.40

APW-02
333.71

APW-04
336.03

APW-06S
333.74

APW-06D**
335.06

APW-03
335.84

APW-09
336.49

APW-07
334.51

APW-08
336.16

Mississippi River

*Mississippi River
Elevation = 347.74 Ft

APW-10D
336.41

APW-10S
333.22

334
334.5
335
335.5
336

0 240 480 Feet

0 0.425 0.85 Miles

Legend

- Monitoring Well Location
- Groundwater Contour (0.5 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 - September 4, 2024
3. ** - Measurement taken on September 5, 2024
4. Ft AMSL - Feet Above Mean Sea Level
5. (D) - Designated Wells not used in contouring
6. * 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)
7. BING Imagery, 2022

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

ERM

Source: Esri - World Topoographic Map; NAD 1983 StatePlane Illinois West FIPS 1202 Feet

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TABLES

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

				Sampled prior to closure of CCR Impoundment									Post-Closure Sampling									
			Sample ID	APW-1R-20170907	APW-1R-20170927	APW-1R-20171018	APW-1R-20171108	APW-1R-20171127	APW-1R-20171228	APW-1R-20180117	APW-1R-20180207	APW-1R-WG-20220615	APW-01R-WG-20220915	APW-01R-WG-20221130	APW-01R-WG-20230202	APW-01R-WG-20230627	APW-01R-WG-20230920	APW-01R-WG-20231129	APW-01R-WG-20240110	APW-01R-WG-20240501	APW-01R-WG-20240905
			Location ID	APW-01R	APW-01R	APW-01R	APW-01R	APW-01R	APW-01R	APW-01R	APW-01R	APW-01R	APW-01R	APW-01R	APW-01R	APW-01R	APW-01R	APW-01R	APW-01R	APW-01R	APW-01R
			Sample Date	09/05/2017	09/27/2017	10/18/2017	11/08/2017	11/27/2017	12/28/2017	01/17/2018	02/07/2018	06/15/2022	09/15/2022	11/30/2022	02/02/2023	06/27/2023	09/20/2023	11/29/2023	01/10/2024	05/01/2024	09/05/2024
			Sample Type	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter / Analyte	**Total or Dissolved**	**Units**	**Groundwater Protection Standards[1]**																		
UNSPECIFIED																					
Fluoride	NA	mg/L	4	0.15	0.17	0.16	0.12	0.14	0.15	0.18	0.16	0.21	0.15	0.18	0.17	0.14	0.17	0.17	0.183	0.326	0.201
Radium-226	NA	pCi/L	NS	0.25 ± .12 U	0.18 ± .09 U	0.307 ± .320	0.13 ± 0.43 U	-0.07 ± 0.16 U	0.23 ± 0.1 U	0.03 ± 0.07 U	-0.04 ± 0.08 U	0.0323 ± 0.141 U	0.24 ± 0.1 U	0.4 ± 0.12 U	0.16 ± 0.169 J	0.27 ± 0.11 U	0.32 ± 0.11 U	0.24 ± 0.08 U	0.738 ± 0.354	0.383 ± 0.294	0.167 ± 0.164 J
Radium-228	NA	pCi/L	NS	2.29 ± .98	0.51 ± .39 U	0.12 ± .332	0.57 ± 0.33 U	0.47 ± 0.54 U	0.04 ± 0.34 U	0.98 ± 0.62 J	0.22 ± 0.34 U	0.661 ± 0.257	0.43 ± 0.49 UQM-	0.41 ± 0.56 U	0.531 ± 0.284	0.85 ± 0.61 J	0.32 ± 0.56 U	0.97 ± 0.67 J	1.44 ± 0.229	0.671 ± 0.262	-0.199 ± 0.295 U
Sulfate	NA	mg/L	400	41	65	65	54	58	88	78	79	33	73 S	69	74	37	79	73	68.9	61.7	34
CALC																					
Radium-226/228	NA	pCi/L	7.002	2.54 ± 1.1	0.69 ± 0.48 U	0.427 ± 0.652	0.7 ± 0.76 U	0.47 ± 0.7 U	0.27 ± 0.44 U	1.01 ± 0.69 U	0.22 ± 0.42 U	0.693 ± 0.293	0.67 ± 0.59 U	0.81 ± 0.68 U	0.691 ± 0.330	1.12 ± 0.72 U	0.64 ± 0.67 U	1.21 ± 0.75 U	2.18 ± 0.422	1.05 ± 0.394	0.167 ± 0.338 U
FIELD PARAM																					
Turbidity, Field	NA	NTU	17.96[1]									33.9	31.7	31.7	89.5	83.2	133	95.6	25.6	71.3	19.2
GEN CHEM																					
Chloride	NA	mg/L	200	5 U	5 U	5 U	5 U	5 U	9	11	10	2	7	7	7	4 U	5	7	9.07	7.19	1.97
Dissolved Solids (Total)	NA	mg/L	1200	400	428	376	358 R	412	474	434	392	342	420 H	385	384	328	355	300	385	439	372
pH, Lab	NA	pH units	6.22-9.0[2]	6.64	6.54	6.6	6.8	7.11	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	7.04 T8	6.88 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	0.004 U	0.004 U F1	0.004 U
Antimony	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	0.004 U	0.004 U	0.004 U
Arsenic	D	mg/L	0.01									0.0012	0.001 U	0.001 U	0.001 U	0.0011	0.0016	0.0015	0.002 U	0.002 U F1	0.002 U
Arsenic	T	mg/L	0.01	0.0012	0.0012	0.001 U	0.0012	0.0011	0.001 U	0.0011	0.0011	0.0019	0.0019	0.0021	0.0016	0.0013	0.0029	0.0033	0.002 U	0.002 U	0.002 U
Barium	D	mg/L	2									0.16	0.153	0.162 B	0.155	0.164	0.21	0.245	0.159	0.154 F1	0.154
Barium	T	mg/L	2	0.168	0.193	0.171	0.176	0.165	0.178	0.182	0.18	0.197	0.185	0.199	0.178	0.168	0.202	0.259	0.169	0.204	0.155
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	0.002 U	0.002 U F1	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	0.002 U	0.002 U
Boron	D	mg/L	2									0.163	0.244	0.219	0.205	0.249	0.204	0.279		0.238 F1	0.205
Boron	T	mg/L	2	0.218	0.251	0.238	0.211	0.225	0.329	0.357	0.311	0.228	0.242	0.222	0.221	0.176	0.18	0.263		0.247	0.2 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 F1	0.001 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	0.001 U	0.001 U
Calcium	D	mg/L	103.2									85.6	83.8 S	73.9	71.4	68.4	72.1	57.6	76.8	101 F1	94.1
Calcium	T	mg/L	103.2	84.3 S	93 S	86.2 S	88.2	91.2 S	91	97.1	85.8 S	90.3	91.4	79.7	75.5 S	66.8 B	59.2 S	94.3	78.4	98	89.5
Chromium	D	mg/L	0.1									0.0059 J	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.002 U	0.002 U F1	0.002 U
Chromium	T	mg/L	0.1	0.0023	0.0021	0.0033	0.001 U	0.001 U	0.0018	0.0015	0.0015	0.0031	0.0034	0.0041	0.0022	0.0015 U	0.0085	0.0049	0.00248	0.00322	0.002 U
Cobalt	D	mg/L	0.006									0.0002 J	0.001 U	0.001 U	0.001 U	0.001 U	0.0012	0.0013	0.002 U	0.002 U F1	0.002 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	0.0017	0.0017	0.0031	0.0013	0.0014	0.0041	0.0027	0.002 U	0.00225	0.002 U
Iron	D	mg/L	NS																0.1 U		
Iron	T	mg/L	NS									1.42							0.405		
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	0.002 U	0.002 U F1	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	0.0013	0.0062	0.0014	0.001 U	0.001 U	0.0026	0.002	0.002 U	0.002 U	0.002 U
Lithium	D	mg/L	0.04									0.0127	0.0156	0.0139	0.0135	0.015	0.0211	0.0193	0.014	0.0143 F1	0.013
Lithium	T	mg/L	0.04	0.0155	0.018	0.0173	0.0175	0.018	0.0179	0.0164	0.0159	0.0171	0.0169	0.0155	0.0157	0.0142	0.0147	0.0189	0.0153	0.015	0.0133
Manganese	D	mg/L	NS																0.0362		
Manganese	T	mg/L	NS									0.139							0.0791		
Mercury	D	mg/L	0.002										0.0002 U						0.0002 U	0.0002 U F1	0.0002
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	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	0.00523	0.005 U F1	0.005 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	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.005 U	0.005 U	0.005 U
Nickel	D	mg/L	NS									0.0043		0.0061					0.00864		
Nickel	T	mg/L	NS	0.0044	0.0062	0.0054	0.004	0.0038	0.0046	0.005	0.0057	0.0083		0.012					0.00804		
Selenium	D	mg/L	0.05									0.0028	0.0032	0.0033	0.0032	0.0032	0.0037	0.0058	0.00435	0.00444 F1	0.00289
Selenium	T	mg/L	0.05	0.0038	0.004	0.0034	0.0044	0.0041	0.004	0.004	0.0037	0.0028	0.0038	0.0035	0.0037	0.0033	0.0037	0.0054	0.00514	0.00437	0.00351
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	0.002 U	0.002 U F1	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	0.0014	0.001 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

Notes:
Empty cells = not analyzed
N = Normal Environmental Samole
FD = Field Duplicate Samole
NA = not applicable
T = total
D = dissolved
mg/L = milligrams per liter
pCi/L = picocuries per liter
NTU = nephelometric turbidity units
H = Holding times exceeded
J = Analyte detected below quantitation limits
F1 = Sample filtration was performed in the laboratory
J3 = The associated batch QC was outside the established quality control range for precision
J6 = 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
T8 = Sample received past/too close to holding time expiration

1 Standard is from the Upper Tolerance Limit (UTL) calculated from background
2 Standard value 6.22 is from the Lower Tolerance Limit (LTL) calculated from
3 Eight episodes of groundwater sampling were conducted from September 2017
4 Well was redrilled in February with Location ID of APW-05R
Highlighted values exceed action level
NS = No standard

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

Sampled Prior to Closure of CCR Impoundment

Parameter / Analyte	Total or Dissolved	Units	Groundwater Protection Standards[3]	APW-2-20170907	APW-2-20170927	APW-2-20171020	APW-2-20171109	APW-2-20171129	APW-2-20171227	APW-2-20180119	APW-2-20180207
			Location ID	APW-02	APW-02	APW-02	APW-02	APW-02	APW-02	APW-02	APW-02
			Sample Date	09/06/2017	09/28/2017	10/20/2017	11/09/2017	11/29/2017	12/27/2017	01/19/2018	02/07/2018
			Sample Type	N	N	N	N	N	N	N	N
UNSPECIFIED											
Fluoride	NA	mg/L	4	0.24	0.26	0.25	0.24	0.24	0.25	0.26	0.24
Radium-226	NA	pCi/L	NS	1.06 ± 0.21	0.03 ± 0.1 U	-0.132 ± 0.410	1.47 ± 0.26		0.33 ± 0.12 U	0.47 ± 0.15 U	0.97 ± 0.23 J
Radium-228	NA	pCi/L	NS	1.98 ± 0.95	-0.01 ± 0.6 U	0.504 ± 0.378	0.91 ± 0.36 J		0.95 ± 0.52 J	1.08 ± 0.59	0.99 ± 0.5 J
Sulfate	NA	mg/L	400	462	460	472 S	479	472	426	443	416
CALC											
Radium-226/228	NA	pCi/L	7.002	3.04 ± 1.16	0.03 ± 0.7 U	0.504 ± 0.788	2.38 ± 0.62		1.28 ± 0.64 U	1.55 ± 0.74 U	1.96 ± 0.73 U
FIELD PARAM											
Turbidity, Field	NA	NTU	17.96[1]								
GEN CHEM											
Chloride	NA	mg/L	200	13	12	11	11	12	12	12	12
Dissolved Solids, Total	NA	mg/L	1200	858	880	934	916	870	848	836	888
pH, Lab	NA	pH units	6.22-9.0[2]	7.09	7.05	7.08	7.07	7.05	7.14	7.06	6.96
METALS											
Antimony	D	mg/L	0.006								
Antimony	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	0.0021
Arsenic	D	mg/L	0.01								
Arsenic	T	mg/L	0.01	0.0199	0.0147	0.0212	0.017	0.0169	0.0157	0.0148	0.0243
Barium	D	mg/L	2								
Barium	T	mg/L	2	0.479	0.355	0.685	0.44	0.427	0.338	0.351	0.739
Beryllium	D	mg/L	0.004								
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	0.0011
Boron	D	mg/L	2								
Boron	T	mg/L	2	8.16	8.73	8.94 S	9	8.98	8.39	8.19	8.24
Cadmium	D	mg/L	0.005								
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
Calcium	D	mg/L	103.2								
Calcium	T	mg/L	103.2	148	145	171 S	157	158	135	134	175
Chromium	D	mg/L	0.1								
Chromium	T	mg/L	0.1	0.0374	0.0455	0.0503	0.0235	0.014	0.0566	0.127	0.112
Cobalt	D	mg/L	0.006								
Cobalt	T	mg/L	0.006	0.0057	0.0023	0.0097	0.0041	0.0038	0.0018	0.0028	0.011
Iron	D	mg/L	NS								
Iron	T	mg/L	NS								
Lead	D	mg/L	0.0075								
Lead	T	mg/L	0.0075	0.0115	0.0054	0.0201	0.0096	0.0075	0.0031	0.0048	0.0239
Lithium	D	mg/L	0.04								
Lithium	T	mg/L	0.04	0.05	0.0455	0.0647	0.0521	0.0542	0.0474	0.045	0.0604
Manganese	D	mg/L	NS								
Manganese	T	mg/L	NS								
Mercury	D	mg/L	0.002								
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
Molybdenum	D	mg/L	0.1								
Molybdenum	T	mg/L	0.1	0.172	0.147	0.214	0.175	0.165	0.111	0.0951	0.131
Nickel	D	mg/L	NS								
Nickel	T	mg/L	NS	0.0288	0.0263	0.0412	0.0202	0.0135	0.0295	0.0631	0.0725
Selenium	D	mg/L	0.05								
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
Thallium	D	mg/L	0.002								
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

Post-Closure Sampling

Parameter / Analyte	Total or Dissolved	Units	Groundwater Protection Standards[3]	APW-02-WG-20220616	APW-02-WG-20220914	DUP-002-WG-20220914	APW-02-WG-20221129	DUP-02-WG-20221129	APW-02-WG-20230201	DUP-02-WG-20230201
			Location ID	APW-02	APW-02	APW-02	APW-02	APW-02	APW-02	APW-02
			Sample Date	06/16/2022	09/14/2022	09/14/2022	11/29/2022	11/29/2022	02/01/2023	02/01/2023
			Sample Type	N	N	FD	N	FD	N	FD
UNSPECIFIED										
Fluoride	NA	mg/L	4	0.25	0.22	0.22	0.25	0.26	0.23	0.22
Radium-226	NA	pCi/L	NS	0.159 ± 0.181 J	0.27 ± 0.1 UQDR	0.14 ± 0.07 U	0.5 ± 0.14 U	0.35 ± 0.12 U	0.0737 ± 0.256 U	0.175 ± 0.279 J
Radium-228	NA	pCi/L	NS	0.308 ± 0.236 J3U	0.4 ± 0.48 UQDR	2.81 ± 1.03	0.24 ± 0.44 U	0.27 ± 0.55 U	1.07 ± 0.466	0.981 ± 0.290
Sulfate	NA	mg/L	400	496	491	490	418	438	459	455
CALC										
Radium-226/228	NA	pCi/L	7.002	0.467 ± 0.297 J	0.67 ± 0.58 U	2.95 ± 1.1	0.74 ± 0.58 U	0.62 ± 0.67 U	1.14 ± 0.532	1.16 ± 0.402
FIELD PARAM										
Turbidity, Field	NA	NTU	17.96[1]	38	19.2		132		93.6	
GEN CHEM										
Chloride	NA	mg/L	200	9	11	10	9	9	10	10
Dissolved Solids, Total	NA	mg/L	1200	930	890 H	905 H	885	855	852	866
pH, Lab	NA	pH units	6.22-9.0[2]	7.21	7.32	7.25	7.01	7.02	6.98	7.05
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
Antimony	T	mg/L	0.006	0.0006 J	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Arsenic	D	mg/L	0.01	0.0117	0.0048	0.0049	0.0012	0.0187	0.016	0.0138
Arsenic	T	mg/L	0.01	0.0158	0.026	0.0176	0.022	0.0173	0.0185	0.0175
Barium	D	mg/L	2	0.154	0.123	0.135	0.125 B	0.148 B	0.187	0.154
Barium	T	mg/L	2	0.237	0.408	0.238	0.254	0.218	0.214	0.159
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
Beryllium	T	mg/L	0.004	0.002 U	0.001 U	0.001 U	0.001 SU	0.001 U	0.001 U	0.001 U
Boron	D	mg/L	2	8.17	7.49 S	7.9	0.656	6.63	8.21	7.39
Boron	T	mg/L	2	8.13	9.43	8.72	8.97 S	7.69	7.75	8.32 S
Cadmium	D	mg/L	0.005	0.0003 J	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Cadmium	T	mg/L	0.005	0.0006 J	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Calcium	D	mg/L	103.2	175	136 S	165	96.1	129	108	144
Calcium	T	mg/L	103.2	189	198	178	145 S	149	144	149 S
Chromium	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
Chromium	T	mg/L	0.1	0.0254	0.0148	0.0066	0.0064	0.0054	0.0052	0.0022
Cobalt	D	mg/L	0.006	0.0003 J	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Cobalt	T	mg/L	0.006	0.0011 J	0.0044	0.0011	0.0015	0.0011	0.001 U	0.001 U
Iron	D	mg/L	NS							
Iron	T	mg/L	NS	11.7						
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
Lead	T	mg/L	0.0075	0.0022	0.0119	0.0033	0.0033	0.0034	0.0027	0.0023
Lithium	D	mg/L	0.04	0.037	0.0374	0.0404	0.028	0.0356	0.0425	0.0387
Lithium	T	mg/L	0.04	0.0507	0.0559	0.0456	0.0386	0.0411	0.0417	0.044
Manganese	D	mg/L	NS							
Manganese	T	mg/L	NS	0.752						
Mercury	D	mg/L	0.002		0.0002 U	0.0002 U				
Mercury	T	mg/L	0.002	0.0002 U	0.00043	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Molybdenum	D	mg/L	0.1	0.201	0.139	0.156	0.0337	0.145	0.151	0.155
Molybdenum	T	mg/L	0.1	0.24	0.174	0.174	0.128	0.119	0.165	0.16
Nickel	D	mg/L	NS	0.0039			0.0022	0.001 U		
Nickel	T	mg/L	NS	0.0142			0.0045	0.0047		
Selenium	D	mg/L	0.05	0.001 U	0.001 U	0.001 U	0.0071	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
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	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U

Parameter / Analyte	Total or Dissolved	Units	Groundwater Protection Standards[3]	APW-02-WG-20230627	DUP-02-WG-20230627	APW-02-WG-20230920	APW-02-WG-20231128	APW-02-WG-20240110	APW-02-WG-20240501	APW-02-WG-20240905
			Location ID	APW-02	APW-02	APW-02	APW-02	APW-02	APW-02	APW-02
			Sample Date	06/27/2023	06/27/2023	09/20/2023	11/28/2023	01/10/2024	05/01/2024	09/05/2024
			Sample Type	N	FD	N	N	N	N	N
UNSPECIFIED										
Fluoride	NA	mg/L	4	0.22	0.22	0.24	0.26	0.23	0.25	0.197
Radium-226	NA	pCi/L	NS	0.21 ± 0.1 U	-0.05 ± 0.07 U	0.38 ± 0.12 U	0.12 ± 0.06 U	0.0909 ± 0.186 U	0.326 ± 0.259	0.402 ± 0.233
Radium-228	NA	pCi/L	NS	-0.42 ± 0.6 U	0.13 ± 0.52 U	3.71 ± 0.93	0.56 ± 0.64 U	0.243 ± 0.202 J	0.966 ± 0.329	1.15 ± 0.464
Sulfate	NA	mg/L	400	500	465	460	440	411	510	376
CALC										
Radium-226/228	NA	pCi/L	7.002	0.21 ± 0.7 U	0.13 ± 0.59 U	4.09 ± 1.05	0.68 ± 0.7 U	0.333 ± 0.275 J	1.29 ± 0.419	1.55 ± 0.519
FIELD PARAM										
Turbidity, Field	NA	NTU	17.96[1]	104.3		97	169	104	66.1	174
GEN CHEM										
Chloride	NA	mg/L	200	7	8	7	8	7.78	5.38	7.55
Dissolved Solids, Total	NA	mg/L	1200	920	870	845	920	820	845	783
pH, Lab	NA	pH units	6.22-9.0[2]	6.9 H	7.03 H	7.15 H	7.11 H	7.52 T8	7.14 T8	7.18 T8
METALS										
Antimony	D	mg/L	0.006	0.001 U	0.001 U	0.001 U	0.001 U	0.004 U	0.004 U F1	0.004 U
Antimony	T	mg/L	0.006	0.001 U	0.001 U	0.001 U	0.001 U	0.004 U	0.004 U	0.004 U
Arsenic	D	mg/L	0.01	0.011	0.0107	0.0072	0.0168	0.00409	0.00255 F1	0.00426
Arsenic	T	mg/L	0.01	0.0148	0.0146	0.0093	0.0237	0.0112	0.0101	0.0178
Barium	D	mg/L	2	0.142	0.145	0.133	0.205	0.131	0.137 F1	0.124
Barium	T	mg/L	2	0.149	0.206	0.152	0.303	0.155	0.145	0.162
Beryllium	D	mg/L	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.002 U F1	0.002 U
Beryllium	T	mg/L	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U
Boron	D	mg/L	2	8.97	9.24	8.91	9.57 S		9.91 F1	8.28
Boron	T	mg/L	2	9.14	9.51 S	8.24	9.62		10.2	8.24
Cadmium	D	mg/L	0.005	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U F1	0.001 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
Calcium	D	mg/L	103.2	147	148	151	121 S	144	162 F1	156
Calcium	T	mg/L	103.2	161 B	167 S	132	132	146	161	156
Chromium	D	mg/L	0.1	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.002 U	0.002 U F1	0.002 U
Chromium	T	mg/L	0.1	0.0024	0.0079	0.008	0.0092	0.002 U	0.002 U	0.00658
Cobalt	D	mg/L	0.006	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.002 U F1	0.002 U
Cobalt	T	mg/L	0.006	0.001 U	0.0016	0.001 U	0.0027	0.002 U	0.002 U	0.00232
Iron	D	mg/L	NS					0.1 U		
Iron	T	mg/L	NS					7.63		
Lead	D	mg/L	0.0075	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.002 U F1	0.002 U
Lead	T	mg/L	0.0075	0.0025	0.0029	0.002	0.0057	0.00235	0.002 U	0.00662
Lithium	D	mg/L	0.04	0.0442	0.0455	0.0583	0.0506	0.0396	0.0432 F1	0.038
Lithium	T	mg/L	0.04	0.0459	0.048	0.0422	0.056	0.0416	0.045	0.0408
Manganese	D	mg/L	NS					0.616		
Manganese	T	mg/L	NS					0.669		
Mercury	D	mg/L	0.002					0.0002 U	0.0002 U F1	0.000214
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
Molybdenum	D	mg/L	0.1	0.227	0.227	0.214	0.205	0.157	0.34 F1	0.172
Molybdenum	T	mg/L	0.1	0.229	0.252	0.198	0.147	0.158	0.332	0.162
Nickel	D	mg/L	NS					0.002 U		
Nickel	T	mg/L	NS					0.00237		
Selenium	D	mg/L	0.05	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.002 U F1	0.002 U
Selenium	T	mg/L	0.05	0.001 U	0.001 U	0.001 U	0.0015	0.002 U	0.002 U	0.002 U
Thallium	D	mg/L	0.002	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U F1	0.002 U
Thallium	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

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 times exceeded
J = Analyte detected below quantitation limits
F1 = Sample filtration was performed in the laboratory
J3 = The associated batch QC was outside the established quality control range for precision
J6 = 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
T8 = Sample received past/too close to holding time expiration

1 Standard is from the Upper Tolerance Limit (UTL) calculated from background
2 Standard value 6.22 is from the Lower Tolerance Limit (LTL) calculated from
3 Eight episodes of groundwater sampling were conducted from September
4 Well was redrilled in February with Location ID of APW-05R
Highlighted values exceed action level
NS = No standard

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

				Sampled Prior to Closure of CCR Impoundment								Post-Closure Sampling									
			Sample ID	APW-3-20170907	APW-3-20170929	APW-3-20171020	APW-3-20171110	APW-3-20171129	APW-3-20171228	APW-3-20180119	APW-3-20180208	APW-03-WG-20220616	APW-03-WG-20220915	APW-03-WG-20221130	APW-03-WG-20230130	APW-03-WG-20230626	APW-03-WG-20230919	APW-03-WG-20231127	APW-03-WG-20240111	APW-03-WG-20240430	APW-03-WG-20240904
			Location ID	APW-03	APW-03	APW-03	APW-03	APW-03	APW-03	APW-03	APW-03	APW-03	APW-03	APW-03	APW-03	APW-03	APW-03	APW-03	APW-03	APW-03	APW-03
			Sample Date	09/06/2017	09/29/2017	10/20/2017	11/10/2017	11/29/2017	12/28/2017	01/19/2018	02/08/2018	06/16/2022	09/15/2022	11/30/2022	01/30/2023	06/26/2023	09/19/2023	11/27/2023	01/11/2024	04/30/2024	09/04/2024
			Sample Type	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter/Analyte	Total or Dissolved	Units	Groundwater Protection Standards[a]																		
UNSPECIFIED																					
Fluoride	NA	mg/L	4	0.28	0.29	0.29	0.31	0.27	0.29	0.29	0.34	0.26	0.2	0.26	0.23	0.23	0.25	0.24	0.202	0.37	0.285
Radium-226	NA	pCi/L	NS	0.53 ± .18 U	0.04 ± 0.09 U	0.409 ± 0.426	0.18 ± 0.11 U	0.33 ± 0.17 U	0.2 ± 0.1 U	0.1 ± 0.1 U	0.31 ± 0.15 U	0.201 ± 0.155	0.56 ± 0.13 U	0.19 ± 0.1 U	0.293 ± 0.212	0.23 ± 0.11 U	0.2 ± 0.09 U	0.11 ± 0.05 U	3.18 ± 0.675	0.584 ± 0.383	0.493 ± 0.251
Radium-228	NA	pCi/L	NS	2.05 ± .96	1.01 ± 0.57	0.492 ± 0.373	0.72 ± 0.37 J	0.31 ± 0.49 U	0.37 ± 0.44 U	1.32 ± 0.68	0.06 ± 0.36 U	1.89 ± 0.26 J3	0.4 ± 0.5 UQDR	0.67 ± 0.59 U	0.119 ± 0.430 U	0.61 ± 0.54 U	0.85 ± 0.52 J	0.66 ± 0.58 JQDR	-0.0217 ± 0.241 U	0.585 ± 0.256	1.4 ± 0.319
Sulfate	NA	mg/L	400	175	222	201	207	204	168	152	194	393	150	226	322	292	280	133	80.1	285	259
CALC																					
Radium-226/228	NA	pCi/L	7.002	2.58 ± 1.14	1.05 ± 0.66 U	0.901 ± 0.799	0.9 ± 0.48 U	0.64 ± 0.66 U	0.57 ± 0.54 U	1.42 ± 0.78 U	0.37 ± 0.51 U	2.09 ± 0.303	0.96 ± 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	1.18 ± 0.461	1.9 ± 0.406
FIELD PARAM																					
Turbidity, Field	NA	NTU	17.96[1]									40.3	56.1	103	50.7	6.04	2.72	4	7.12	2.53	1.94
GEN CHEM																					
Chloride	NA	mg/L	200	22	21	21	22	19	20	16	23	20	16	20	21	17	16	11	8.04	15	11.6
Dissolved Solids, Total	NA	mg/L	1200	464	514	486	450	554	504	498	456	724	602 H	610	524	614	636	556	489	627	567
pH, Lab	NA	pH units	6.22-9.0[2]	7.88	7.46	7.65	7.93	7.5	7.48	7.26	7.78	7.85	7.46	7.21	7.45	7.77 H	7.84 H	7.24 H	7.4 T8	7.8 T8	7.88 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	0.0018	0.004 U	0.004 U F1	0.004 U
Antimony	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	0.004 U	0.004 U	0.004 U
Arsenic	D	mg/L	0.01									0.0015	0.0014	0.0024	0.002	0.0016	0.0019	0.0013	0.002 U	0.00219 F1	0.002 U
Arsenic	T	mg/L	0.01	0.0022	0.0029	0.0021	0.0018	0.0023	0.0024	0.0028	0.0018	0.002	0.0046	0.0059	0.003	0.004	0.0017	0.002	0.002 U	0.00254	0.002 U
Barium	D	mg/L	2									0.139	0.124	0.108 B	0.139	0.13	0.136	0.122	0.122	0.122 F1	0.114
Barium	T	mg/L	2	0.111	0.146	0.104	0.0814	0.121	0.1	0.15	0.0806	0.158	0.181	0.19	0.135	0.155	0.137	0.167	0.123	0.119	0.116
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	0.002 U	0.002 U F1	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	0.002 U	0.002 U
Boron	D	mg/L	2									4.23	1.49	2.99	4.96	4.64	4.11	1.69		4.2 F1	4.07
Boron	T	mg/L	2	4.16	4.21 S	4.7	4.67	4.44 S	4.52	4.08	4.92	4.27	1.84	3.59	4.94	4.67	4.19 S	2.22	4.67	4.28	4.22
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 F1	0.001 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	0.0002 J	0.001 U	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	103.2									174	125	101	121	125	137	111	123	125 F1	122
Calcium	T	mg/L	103.2	86.3	104 S	88.1	74.9	116 S	95	101	77.1	153	143	115	111	139 B	124 S	115	122	121	125
Chromium	D	mg/L	0.1									0.0011 J	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.002 U	0.002 U F1	0.002 U
Chromium	T	mg/L	0.1	0.0081	0.0053	0.0026	0.001 U	0.001 U	0.005	0.0025	0.001 U	0.0044	0.0083	0.0118	0.0019	0.0241	0.0015 U	0.0015 U	0.002 U	0.002 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	0.002 U	0.002 U F1	0.002 U
Cobalt	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	0.0005 J	0.0014	0.0021	0.001 U	0.0014	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U
Iron	D	mg/L	NS																0.1 U		
Iron	T	mg/L	NS									1.66							0.367		
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	0.002 U	0.002 U F1	0.002 U
Lead	T	mg/L	0.0075	0.0021	0.0042	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0013	0.0023	0.0029	0.001 U	0.0044	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U
Lithium	D	mg/L	0.04									0.0338	0.0288	0.0266	0.0275	0.0242	0.0408	0.0256	0.0281	0.0289 F1	0.0314
Lithium	T	mg/L	0.04	0.0258	0.0262	0.0259	0.0245	0.0308	0.027	0.035	0.0239	0.0361	0.0329	0.029	0.0276	0.0352	0.0312	0.0324	0.0316	0.0327	0.0315
Manganese	D	mg/L	NS																0.438		
Manganese	T	mg/L	NS									0.321							0.435		
Mercury	D	mg/L	0.002										0.0002 U						0.0002 U	0.0002 U F1	0.0002 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	0.0002 U	0.0002 U
Molybdenum	D	mg/L	0.1									0.057	0.0342	0.0648	0.0521	0.0656	0.0487	0.0303	0.0274	0.0642 F1	0.0656
Molybdenum	T	mg/L	0.1	0.0778	0.0754	0.0761	0.0713	0.0684	0.0748	0.0824	0.0849	0.0601	0.0413	0.0621	0.0528	0.0553	0.0558	0.0319	0.0262	0.0608	0.0656
Nickel	D	mg/L	NS									0.0016		0.0011					0.002 U		
Nickel	T	mg/L	NS	0.0055	0.0051	0.0019	0.001 U	0.001 U	0.0026	0.0025	0.001	0.0033		0.01					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	0.0012	0.002 U	0.002 U F1	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	0.0011	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0019	0.002 U	0.002 U	0.002 U
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	0.002 U	0.002 U F1	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	0.002 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

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 times exceeded
J = Analyte detected below quantitation limits
F1 = Sample filtration was performed in the laboratory
J3 = The associated batch QC was outside the established quality control range for precision
J6 = 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
T8 = Sample received past/too close to holding time expiration

1 Standard is from the Upper Tolerance Limit (UTL) calculated from background
2 Standard value 6.22 is from the Lower Tolerance Limit (LTL) calculated from
3 Eight episodes of groundwater sampling were conducted from September 2017
4 Well was redrilled in February with Location ID of APW-05R
Highlighted values exceed action level
NS = No standard

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

				Sampled Prior to Closure of CCR Impoundment								Post-Closure Sampling									
			Sample ID	APW-4-20170907	APW-4-20170929	APW-4-20171019	APW-4-20171108	APW-4-20171128	APW-4-20171228	APW-4-20180119	APW-4-20180208	APW-04-WG-20220615	APW-04-WG-20220915	APW-04-WG-20221128	APW-04-WG-20230202	APW-04-WG-20230627	APW-04-WG-20230920	APW-04-WG-20231129	APW-04-WG-20240110	APW-04-WG-20240501	APW-04-WG-20240904
			Location ID	APW-04	APW-04	APW-04	APW-04	APW-04	APW-04	APW-04	APW-04	APW-04	APW-04	APW-04	APW-04	APW-04	APW-04	APW-04	APW-04	APW-04	APW-04
			Sample Date	09/08/2017	09/29/2017	10/19/2017	11/08/2017	11/28/2017	12/28/2017	01/19/2018	02/08/2018	06/15/2022	09/15/2022	11/28/2022	02/02/2023	06/27/2023	09/20/2023	11/30/2023	01/10/2024	05/01/2024	09/04/2024
			Sample Type	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter/Analyte	Total or Dissolved	Units	Groundwater Protection Standards[4]																		
UNSPECIFIED																					
Fluoride	NA	mg/L	4	0.18	0.19	0.18	0.17	0.18	0.17	0.17	0.16	0.2	0.17	0.17	0.15	0.16	0.15	0.18	0.17	0.201	0.178
Radium-226	NA	pCi/L	NS	0.38 ± 0.16 U	0.02 ± 0.08 U	-0.272 ± 0.328	0.15 ± 0.09 U	0.09 ± 0.13 U	0.17 ± 0.09 U	-0.05 ± 0.08 U	0.13 ± 0.11 U	0.103 ± 0.164 J	0.5 ± 0.13 U	0.11 ± 0.08 U	0.352 ± 0.232	0.33 ± 0.12 U	0.09 ± 0.07 U	0.19 ± 0.07 U	0.223 ± 0.242 J	0.146 ± 0.275 U	0.302 ± 0.252
Radium-228	NA	pCi/L	NS	0.95 ± 0.64 J	-0.45 ± 0.68 U	0.53 ± 0.382	0.64 ± 0.31 U	0.88 ± 0.64 J	0.73 ± 0.36 J	0.34 ± 0.51 U	0.64 ± 0.48 U	0.245 ± 0.235 J	2.15 ± 0.78	1.47 ± 0.67	0.961 ± 0.296	0.92 ± 0.68 J	1.18 ± 0.67	0.66 ± 0.64 J	0.629 ± 0.280	0.451 ± 0.288 J	0.51 ± 0.209
Sulfate	NA	mg/L	400	126	116	109	120	107	100	99	92	94	83	68	62	65	66	54	50.9 J6	53.9	86.2
CALC																					
Radium-226/228	NA	pCi/L	7.002	1.33 ± 0.8 U	0.02 ± 0.76 U	0.53 ± 0.71	0.79 ± 0.4 U	0.97 ± 0.77 U	0.9 ± 0.45 U	0.34 ± 0.59 U	0.77 ± 0.59 U	0.348 ± 0.287 J	2.65 ± 0.91	1.58 ± 0.75 U	1.31 ± 0.376	1.25 ± 0.8 U	1.27 ± 0.74 U	0.85 ± 0.71 U	0.852 ± 0.370	0.597 ± 0.398 J	0.811 ± 0.327
FIELD PARAM																					
Turbidity, Field	NA	NTU	17.96[1]									19.1	18.3	26.5	37.3	38.7	21.6	22.8	29.8	91.7	30.2
GEN CHEM																					
Chloride	NA	mg/L	200	12	11	11	11	11	11	10	11	12	10	11	10	12	9	11	9.21	11.6	9.98
Dissolved Solids, Total	NA	mg/L	1200	460	484	452	472	492	514	424	528	430	436 H	446	416	432	476	430	418	404	442
pH, Lab	NA	pH units	6.22-9.0[2]	7.31	7.33	7.31	7.42	7.32	7.33	7.25	7.2	7.41	7.51	7.34	7.21	7.39 H	7.56 H	7.31 H	8.17 T8	7.5 T8	7.65 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	0.004 U	0.004 U F1	0.004 U
Antimony	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	0.004 U	0.004 U	0.004 U
Arsenic	D	mg/L	0.01									0.0013	0.0013	0.0021	0.0011	0.0014	0.0016	0.002	0.002 U	0.002 U F1	0.002 U
Arsenic	T	mg/L	0.01	0.0025	0.0018	0.0016	0.0018	0.0016	0.0014	0.0016	0.0015	0.0015	0.0029	0.0016	0.0017	0.002	0.0019	0.0028	0.002 U	0.002 U	0.002 U
Barium	D	mg/L	2									0.116	0.132	0.13 B	0.116	0.122	0.138	0.165	0.13	0.128 F1	0.134
Barium	T	mg/L	2	0.145	0.139	0.123	0.13	0.128	0.141	0.155	0.144	0.143	0.165	0.133	0.134	0.138	0.131	0.153	0.139	0.12	0.14
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	0.002 U	0.002 U F1	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	0.002 U	0.002 U
Boron	D	mg/L	2									1.41	0.875	7.33	0.619	0.908	0.591	0.645		0.556 F1	1.85
Boron	T	mg/L	2	2.37	2.16	2.12	2.21	2.03	1.7	1.33	1.18	1.88	0.973	0.653	0.65	0.876	0.572	0.559		0.578	1.79
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 F1	0.001 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	0.001 U	0.001 U
Calcium	D	mg/L	103.2									111	93.7	108	93.3 S	88.3	101 S	77.9	90.6	93.1 F1	110
Calcium	T	mg/L	103.2	101 S	105	89.4	97.5	107	107	113	113	97.8	108 S	102	100	97.5 B	87.9	124	94.1	93.4	107
Chromium	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	0.002 U	0.002 U F1	0.002 U
Chromium	T	mg/L	0.1	0.0041	0.0025	0.0017	0.001 U	0.001 U	0.0027	0.0037	0.001 U	0.0015 U	0.0251	0.0043	0.0016	0.0015 U	0.0023	0.0033	0.00267	0.002 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	0.002 U	0.002 U F1	0.002 U
Cobalt	T	mg/L	0.006	0.0013	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0006 J	0.0025	0.001 U	0.001 U	0.001 U	0.001 U	0.0012	0.002 U	0.002 U	0.002 U
Iron	D	mg/L	NS																0.1 U		
Iron	T	mg/L	NS									0.563							0.709		
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	0.002 U	0.002 U F1	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	0.0016	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U
Lithium	D	mg/L	0.04									0.0264	0.0283	0.0355	0.0292	0.0311	0.0411	0.0333	0.0266	0.0264 F1	0.0277
Lithium	T	mg/L	0.04	0.0404	0.0403	0.0412	0.0406	0.0424	0.0416	0.0411	0.0397	0.036	0.0322	0.0293	0.0326	0.0314	0.0299	0.0298	0.029	0.0277	0.0284
Manganese	D	mg/L	NS																0.171		
Manganese	T	mg/L	NS									0.192							0.21		
Mercury	D	mg/L	0.002										0.0002 U						0.0002 U	0.0002 U F1	0.0002 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	0.0002 U	0.0002 U
Molybdenum	D	mg/L	0.1									0.0653	0.0445	0.227	0.0383	0.0503	0.0367	0.0461	0.037	0.0511 F1	0.0543
Molybdenum	T	mg/L	0.1	0.0891	0.084	0.0793	0.0812	0.0748	0.0714	0.0592	0.057	0.0788	0.0494	0.0406	0.0377	0.0449	0.0299	0.0347	0.0332	0.0494	0.0517
Nickel	D	mg/L	NS									0.0019		0.0017					0.00313		
Nickel	T	mg/L	NS	0.0065	0.0034	0.0029	0.002	0.002	0.0026	0.0039	0.003	0.0045		0.0051					0.00557		
Selenium	D	mg/L	0.05									0.0134	0.0101	0.001 U	0.009	0.0165	0.0096	0.0139	0.00962	0.0221 F1	0.0176
Selenium	T	mg/L	0.05	0.0158	0.015	0.0149	0.0161	0.014	0.013	0.0101	0.0102	0.0133	0.0111	0.0085	0.0099	0.0165	0.009	0.015	0.0105	0.0218	0.0186
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	0.002 U	0.002 U F1	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	0.002 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

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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1 Standard is from the Upper Tolerance Limit (UTL) calculated from background
2 Standard value 6.22 is from the Lower Tolerance Limit (LTL) calculated from
3 Eight episodes of groundwater sampling were conducted from September 2017
4 Well was redrilled in February with Location ID of APW-05R
Highlighted values exceed action level
NS = No standard

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

Sampled Prior to Closure of CCR Impoundment

Parameter/Analyte	Total or Dissolved	Units	Groundwater Protection Standards[3]	APW-5-20170907	APW-5-20170928	APW-5-20171019	APW-5-20171109	APW-5-20171129	APW-5-20171227	APW-5-20180118	APW-5-20180207
Location ID				APW-05	APW-05	APW-05	APW-05	APW-05	APW-05	APW-05	APW-05
Sample Date				09/06/2017	09/28/2017	10/19/2017	11/09/2017	11/29/2017	12/27/2017	01/18/2018	02/07/2018
Sample Type				N	N	N	N	N	N	N	N
UNSPECIFIED											
Fluoride	NA	mg/L	4	0.34	0.34	0.32	0.32	0.32	0.33	0.36	0.32
Radium-226	NA	pCi/L	NS	0.37 ± 0.14 U	0.19 ± 0.1 U	0.133 ± 0.370	0.48 ± 0.15 U		0.35 ± 0.12 U	0.13 ± 0.1 U	0.26 ± 0.13 U
Radium-228	NA	pCi/L	NS	1.07 ± 0.8	0.89 ± 0.55 J	0.661 ± 0.418	1.17 ± 0.33		0.49 ± 0.42 U	1.04 ± 0.56	0.35 ± 0.4 U
Sulfate	NA	mg/L	400	407	460	399	413	381	394	439	378
CALC											
Radium-226/228	NA	pCi/L	7.002	1.44 ± 0.94 U	1.08 ± 0.65 U	0.794 ± 0.78	1.65 ± 0.48 U		0.84 ± 0.54 U	1.17 ± 0.66 U	0.61 ± 0.53 U
FIELD PARAM											
Turbidity, Field	NA	NTU	17.96[1]								
GEN CHEM											
Chloride	NA	mg/L	200	15	15	15	14	16	16	16	16
Dissolved Solids, Total	NA	mg/L	1200	842	832	804	826	790	792	552	804
pH, Lab	NA	pH units	6.22-9.0[2]	7.37	7.3	7.26	7.3	7.26	7.31	7.23	7.18
METALS											
Antimony	D	mg/L	0.006								
Antimony	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
Arsenic	D	mg/L	0.01								
Arsenic	T	mg/L	0.01	0.0031	0.0026	0.0015	0.0016	0.0016	0.0019	0.0021	0.0019
Barium	D	mg/L	2								
Barium	T	mg/L	2	0.226	0.233	0.183	0.216	0.193	0.214	0.214	0.195
Beryllium	D	mg/L	0.004								
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
Boron	D	mg/L	2								
Boron	T	mg/L	2	9.3	10.3	8.89	9.98	9.1	9.83	9.25	8.73
Cadmium	D	mg/L	0.005								
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
Calcium	D	mg/L	103.2								
Calcium	T	mg/L	103.2	136	142	119	131	123	125	121	124
Chromium	D	mg/L	0.1								
Chromium	T	mg/L	0.1	0.0137	0.001 U	0.0041	0.001 U	0.001 U	0.0084	0.0033	0.001 U
Cobalt	D	mg/L	0.006								
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
Iron	D	mg/L	NS								
Iron	T	mg/L	NS								
Lead	D	mg/L	0.0075								
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
Lithium	D	mg/L	0.04								
Lithium	T	mg/L	0.04	0.0363	0.0443	0.0393	0.0405	0.0415	0.0433	0.0404	0.0397
Manganese	D	mg/L	NS								
Manganese	T	mg/L	NS								
Mercury	D	mg/L	0.002								
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
Molybdenum	D	mg/L	0.1								
Molybdenum	T	mg/L	0.1	0.172	0.195	0.201	0.168	0.193	0.246	0.244	0.249
Nickel	D	mg/L	NS								
Nickel	T	mg/L	NS	0.0074	0.0012	0.0023	0.001 U	0.001 U	0.0043	0.0021	0.001 U
Selenium	D	mg/L	0.05								
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
Thallium	D	mg/L	0.002								
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

Post-Closure Sampling

Parameter/Analyte	Total or Dissolved	Units	Groundwater Protection Standards[3]	APW-05-WG-20220616	DUP-001-WG-20220616	APW-05-WG-20220914	DUP-001-WG-20220914	APW-05-WG-20221128	DUP-01-WG-20221128	APW-05-WG-20230201	DUP-01-WG-20230201	APW-05R-WG-20230627	DUP-01-WG-20230627
Location ID				APW-05	APW-05	APW-05	APW-05	APW-05	APW-05	APW-05	APW-05	APW-05R[4]	APW-05R[4]
Sample Date				06/16/2022	06/16/2022	09/14/2022	09/14/2022	11/28/2022	11/28/2022	02/01/2023	02/01/2023	06/27/2023	06/27/2023
Sample Type				N	FD	N	FD	N	FD	N	FD	N	FD
UNSPECIFIED													
Fluoride	NA	mg/L	4	0.35	0.33	0.33	0.31	0.37	0.38	0.33	0.33	0.3	0.32
Radium-226	NA	pCi/L	NS	0.649 ± 0.316	0.259 ± 0.27 J	0.17 ± 0.08 U	0.11 ± 0.07 U	0.11 ± 0.11 U	0.17 ± 0.08 U	0.209 ± 0.245 J	0.205 ± 0.241 J	0.23 ± 0.1 U	0.11 ± 0.08 U
Radium-228	NA	pCi/L	NS	1.1 ± 0.282	0.715 ± 0.31	0.82 ± 0.88 J	0.27 ± 0.55 U	0.49 ± 0.49 U	1.24 ± 0.71	0.399 ± 0.422 J	0.249 ± 0.228 J	0.31 ± 0.5 UQDR	0.61 ± 0.67 U
Sulfate	NA	mg/L	400	224	239	379	403	324	338	325	305	335	326
CALC													
Radium-226/228	NA	pCi/L	7.002	1.75 ± 0.424	0.973 ± 0.411	0.99 ± 0.96 U	0.38 ± 0.62 U	0.6 ± 0.6 U	1.41 ± 0.79 U	0.608 ± 0.488 J	0.454 ± 0.332 J	0.54 ± 0.6 U	0.72 ± 0.75 U
FIELD PARAM													
Turbidity, Field	NA	NTU	17.96[1]	51.8		9.19		4.65		8.21		42.6	
GEN CHEM													
Chloride	NA	mg/L	200	19	19	15	15	19	19	18	18	17	18
Dissolved Solids, Total	NA	mg/L	1200	650	690	750 H	774 H	714	728 H	696	670	740	695
pH, Lab	NA	pH units	6.22-9.0[2]	7.35	7.49	7.55	7.57	7.24	7.27	7.31	7.33	7.27 H	7.3 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	0.001 U	0.001 U
Antimony	T	mg/L	0.006	0.001 U	0.001 U	0.0011	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	0.002	0.0021	0.001	0.001	0.001 U	0.0019	0.0026	0.0018	0.0024	0.0025
Arsenic	T	mg/L	0.01	0.0048	0.0041	0.0025	0.0023	0.0022	0.0023	0.0024	0.0025	0.003	0.003
Barium	D	mg/L	2	0.133	0.132	0.13	0.128	0.172 B	0.13 B	0.175	0.135	0.168	0.167
Barium	T	mg/L	2	0.187	0.174	0.154	0.152	0.14	0.136	0.145	0.148	0.183	0.181
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
Beryllium	T	mg/L	0.004	0.002 U	0.002 U	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	7.63	7.7	7.42	7.09	6.12	7.03 S	8.68 S	6.76	8.64	8.37
Boron	T	mg/L	2	7.67	8.24 S	7.76	7.62	7.48	7.97	7.35	7.59	8.76	8.68
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
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
Calcium	D	mg/L	103.2	139	141	119	131	87.4	110 S	106 S	111	120	120
Calcium	T	mg/L	103.2	127	129 S	127	137	117	118	112	114	136 B	133 B
Chromium	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	0.0015 U	0.0015 U
Chromium	T	mg/L	0.1	0.0016 J	0.003 U	0.0015 U	0.0015 U	0.0015 U	0.0016	0.0015 U	0.0015 U	0.0015 U	0.0015 U
Cobalt	D	mg/L	0.006	0.0006 J	0.0005 J	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	0.006	0.0013 J	0.0011 J	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	NS										
Iron	T	mg/L	NS	2.77	1.89								
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	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	0.0011	0.001
Lithium	D	mg/L	0.04	0.0282	0.029	0.0381	0.0373	0.0338	0.0365	0.045	0.0375	0.0384	0.0398
Lithium	T	mg/L	0.04	0.0331	0.0363	0.0408	0.0397	0.0373	0.0371	0.0399	0.0402	0.0423	0.0415
Manganese	D	mg/L	NS										
Manganese	T	mg/L	NS	0.9	0.904								
Mercury	D	mg/L	0.002			0.0002 U	0.0002 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
Molybdenum	D	mg/L	0.1	0.172	0.17	0.213	0.206	0.293	0.211 S	0.187	0.199	0.213	0.204
Molybdenum	T	mg/L	0.1	0.203	0.195	0.235	0.224	0.223	0.226	0.217	0.212	0.212	0.21
Nickel	D	mg/L	NS	0.0036	0.0035			0.0011	0.0024				
Nickel	T	mg/L	NS	0.0037	0.0039			0.002	0.0029				
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
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
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	0.002 U	0.002 U	0.002 U
Thallium	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

Post-Closure Sampling (continued)

Parameter/Analyte	Total or Dissolved	Units	Groundwater Protection Standards[3]	APW-05R-WG-20230920	DUP-01-WG-20230920	APW-05R-WG-20231128	DUP-01-WG-20231128	APW-05R-WG-20240110	DUP-01-WG-20240110	APW-05R-WG-20240501	DUP-01-WG-20240501	APW-05R-WG-20240905	DUP-01-WG-20240905
Location ID				APW-05R[4]	APW-05R[4]	APW-05R[4]	APW-05R[4]	APW-05R[4]	APW-05R[4]	APW-05R[4]	APW-05R[4]	APW-05R[4]	APW-05R[4]
Sample Date				09/20/2023	09/20/2023	11/28/2023	11/28/2023	01/10/2024	01/10/2024	05/01/2024	05/01/2024	09/05/2024	09/05/2024
Sample Type				N	FD	N	FD	N	FD	N	FD	N	FD
UNSPECIFIED													
Fluoride	NA	mg/L	4	0.35	0.34	0.38	0.35	0.298	0.317	0.15 U	0.301	0.347	0.342
Radium-226	NA	pCi/L	NS	0.49 ± 0.13 U	0.36 ± 0.13 U	0.15 ± 0.06 U	0.05 ± 0.04 U	0.303 ± 0.271 J	0.297 ± 0.208	0.18 ± 0.189 J	0.427 ± 0.329	0.0135 ± 0.0835 U	1.33 ± 0.415
Radium-228	NA	pCi/L	NS	5.85 ± 1.14 *	0.42 ± 0.71 U	0.73 ± 0.57 J	0.75 ± 0.67 J	3.55 ± 0.372	0.885 ± 0.244	0.94 ± 0.271	1.08 ± 0.284	0.46 ± 0.343 J	1.1 ± 0.203
Sulfate	NA	mg/L	400	343	333	330	321	306	305	365	368	70.5	70.6
CALC													
Radium-226/228	NA	pCi/L	7.002	6.34 ± 1.53	0.78 ± 0.84 U	0.88 ± 0.63 U	0.8 ± 0.71 U	3.86 ± 0.460	1.18 ± 0.321	1.12 ± 0.330	1.5 ± 0.435	0.473 ± 0.353 J	2.43 ± 0.462
FIELD PARAM													
Turbidity, Field	NA	NTU	17.96[1]	33.7		76.1		38.9		8.02		64.1	
GEN CHEM													
Chloride	NA	mg/L	200	14	14	16	16	16.9	17	15.8	16.1	28.1	28.1
Dissolved Solids, Total	NA	mg/L	1200	680	710	705	690	677	691	764	740	354	359
pH, Lab	NA	pH units	6.22-9.0[2]	7.36 H	7.36 H	7.33 H	7.34 H	7.42 T8	7.82 T8	7.6 T8	7.62 T8	7.56 T8	7.56 T8
METALS													
Antimony	D	mg/L	0.006	0.001 U	0.001 U	0.001 U	0.001 SU	0.004 U	0.004 U	0.004 U F1	0.004 U F1	0.004 U	0.004 U
Antimony	T	mg/L	0.006	0.001 U	0.001 U	0.001 U	0.001 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U
Arsenic	D	mg/L	0.01	0.0023	0.0024	0.0029	0.0018	0.002 U	0.002 U	0.002 U F1	0.002 U F1	0.00215	0.00201
Arsenic	T	mg/L	0.01	0.0028	0.0026	0.0042	0.0031	0.0022	0.00228	0.00228	0.00235	0.00305	0.003
Barium	D	mg/L	2	0.167	0.172	0.186	0.127	0.113	0.114	0.161 F1	0.151 F1	0.0718	0.072
Barium	T	mg/L	2	0.162	0.158	0.225	0.158	0.151	0.153	0.195	0.19	0.102	0.0999
Beryllium	D	mg/L	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U F1	0.002 U F1	0.002 U	0.002 U
Beryllium	T	mg/L	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Boron	D	mg/L	2	7.91	8.05	8.71	6.44 S			8.86 F1	8.89 F1	2.23	2.22
Boron	T	mg/L	2	7.12	8.33 S	9.62	6.77			9.28	9.26	2.18	2.17
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 F1	0.001 U F1	0.001 U	0.001 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
Calcium	D	mg/L	103.2	118	119	98.4	91.9 S	112	111	142 F1	142 F1	76.7	76.5
Calcium	T	mg/L	103.2	105	126 S	97.1	134	114	115	141	139	74	73.3
Chromium	D	mg/L	0.1	0.0015 U	0.0015 U	0.0015 U	0.0015 SU	0.002 U	0.002 U	0.002 U F1	0.002 U F1	0.002 U	0.002 U
Chromium	T	mg/L	0.1	0.0031	0.0016	0.002	0.0023	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Cobalt	D	mg/L	0.006	0.001 U	0.001 U	0.001 U	0.001 SU	0.002 U	0.002 U	0.002 U F1	0.002 U F1	0.002 U	0.002 U
Cobalt	T	mg/L	0.006	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Iron	D	mg/L	NS					0.1 U	0.1 U				
Iron	T	mg/L	NS					5.89	5.91				
Lead	D	mg/L	0.0075	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U F1	0.002 U F1	0.002 U	0.002 U
Lead	T	mg/L	0.0075	0.0026	0.0021	0.002	0.0014	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Lithium	D	mg/L	0.04	0.0624	0.0509	0.0455	0.0343	0.0377	0.039	0.0362 F1	0.0394 F1	0.0172	0.0175
Lithium	T	mg/L	0.04	0.0367	0.0425	0.0523	0.0371	0.0388	0.0404	0.0385	0.0377	0.0179	0.0176
Manganese	D	mg/L	NS					0.548	0.537				
Manganese	T	mg/L	NS					0.554 V	0.553				
Mercury	D	mg/L	0.002					0.0002 U	0.0002 U	0.0002 U F1	0.0002 U F1	0.0002 U	0.000207
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
Molybdenum	D	mg/L	0.1	0.235	0.233	0.282	0.192	0.235	0.235	0.213 F1	0.215 F1	0.11	0.111
Molybdenum	T	mg/L	0.1	0.223	0.235	0.203	0.215	0.227	0.231	0.221	0.214	0.109	0.107
Nickel	D	mg/L	NS					0.002 U	0.002 U				
Nickel	T	mg/L	NS					0.002 U	0.002 U				
Selenium	D	mg/L	0.05	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U F1	0.002 U F1	0.002 U	0.002 U
Selenium	T	mg/L	0.05	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
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 F1	0.002 U F1	0.002 U	0.002 U
Thallium	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

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 times exceeded
J = Analyte detected below quantitation limits
F1 = Sample filtration was performed in the laboratory
J3 = The associated batch QC was outside the established quality control range for precision
J6 = 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
T8 = Sample received past/too close to holding time expiration

1 Standard is from the Upper Tolerance Limit (UTL) calculated from background
2 Standard value 6.22 is from the Lower Tolerance Limit (LTL) calculated from
3 Eight episodes of groundwater sampling were conducted from September 2017
4 Well was redrilled in February with Location ID of APW-05R
Highlighted values exceed action level
NS = No standard

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

				Sampled Prior to Closure of CCR Impoundment									Post-Closure Sampling								
			Sample ID	APW-6D-20170907	APW-6D-20170927	APW-6D-20171019	APW-6D-20171109	APW-6D-20171128	APW-6D-20171227	APW-6D-20180118	APW-6D-20180208	APW-06D-WG-20220913	APW-06D-WG-20221128	APW-06D-WG-20230201	APW-06D-WG-20230627	APW-06D-WG-20230920	APW-06D-WG-20231128	APW-06D-WG-20240110	APW-06D-WG-20240501	APW-06D-WG-20240905
			Location ID	APW-06D	APW-06D	APW-06D	APW-06D	APW-06D	APW-06D	APW-06D	APW-06D	APW-06D	APW-06D	APW-06D	APW-06D	APW-06D	APW-06D	APW-06D	APW-06D	APW-06D
			Sample Date	09/06/2017	09/28/2017	10/19/2017	11/09/2017	11/28/2017	12/27/2017	01/18/2018	02/08/2018	09/13/2022	11/28/2022	02/01/2023	06/27/2023	09/20/2023	11/28/2023	01/10/2024	05/01/2024	09/05/2024
			Sample Type	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter/Analyte	**Total or Dissolved**	**Units**	**Groundwater Protection Standards[4]**																	
UNSPECIFIED																				
Fluoride	NA	mg/L	4	0.22	0.23	0.21	0.22	0.21	0.22	0.23	0.21	0.2	0.24	0.21	0.2	0.22	0.24	0.212	0.15 U	0.205
Radium-226	NA	pCi/L	NS	0.62 ± 0.17 U	0.37 ± 0.11 U	1.22 ± 0.744	0.39 ± 0.15 U	0.38 ± 0.18 U	0.3 ± 0.12 U	0.03 ± 0.08 U	0.2 ± 0.13 U	0.31 ± 0.1 U	0.62 ± 0.15 U	0.355 ± 0.275	0.3 ± 0.12 U	0.18 ± 0.09 U	0.11 ± 0.05 U	0.582 ± 0.361	0.422 ± 0.235	0.447 ± 0.249
Radium-228	NA	pCi/L	NS	1.07 ± 0.65	0.61 ± 0.33 U	0.549 ± 0.377	0.86 ± 0.37 J	1.4 ± 0.71	0.78 ± 0.48 J	0.74 ± 0.57 J	0.24 ± 0.34 U	1.46 ± 0.71	0.28 ± 0.43 U	1.02 ± 0.451	0.74 ± 0.54 J	2.62 ± 0.76	0.76 ± 0.6 J	1.24 ± 0.276	1.1 ± 0.285	1.83 ± 0.372
Sulfate	NA	mg/L	400	215	228	206	222	230	236	211	189	272	254	269	270	218	184	180	184	242
CALC																				
Radium-226/228	NA	pCi/L	7.002	1.69 ± 0.82 U	0.98 ± 0.44 U	1.77 ± 1.12	1.12 ± 0.51 U	1.78 ± 0.89 U	1.08 ± 0.6 U	0.77 ± 0.65 U	0.44 ± 0.47 U	1.77 ± 0.81 U	0.9 ± 0.58 U	1.38 ± 0.528	1.04 ± 0.66 U	2.8 ± 0.85	0.87 ± 0.65 U	1.82 ± 0.454	1.52 ± 0.369	2.27 ± 0.448
FIELD PARAM																				
Turbidity, Field	NA	NTU	17.96[1]									18.5	74.4	26.9	181	65.5	3.02	18.2	35.8	21.8
GEN CHEM																				
Chloride	NA	mg/L	200	17	17	16	16	16	16	17	17	14	17	16	15	16	22	21.2	21.5	15
Dissolved Solids, Total	NA	mg/L	1200	558	560	562	564	590	516 R	482	584	670 H	580	582	735	565	560	536	549	624
pH, Lab	NA	pH units	6.22-9.0[2]	7.23	7.25	7.23	7.19	7.2	7.22	7.21	7.2	7.42	7.21	7.29	7.39 H	7.3 H	7.36 H	7.73 T8	7.54 T8	7.46 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	0.004 U	0.004 U F1	0.004 U
Antimony	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	0.004 U	0.004 U	0.004 U
Arsenic	D	mg/L	0.01									0.004	0.0116	0.012	0.0102	0.01	0.0161	0.00451	0.00585 F1	0.00479
Arsenic	T	mg/L	0.01	0.0068	0.0101	0.0075	0.0074	0.009	0.0095	0.0106	0.0096	0.0104	0.0111	0.0107	0.0115	0.0109	0.0135	0.0102	0.0108	0.0103
Barium	D	mg/L	2									0.129	0.118 B	0.152	0.13	0.121	0.185	0.106	0.115 F1	0.121
Barium	T	mg/L	2	0.173	0.172	0.142	0.153	0.155	0.163	0.166	0.148	0.143	0.142	0.134	0.145	0.128	0.151	0.115	0.119	0.129
Beryllium	D	mg/L	0.004									0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.002 U F1	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	0.002 U	0.002 U	0.002 U
Boron	D	mg/L	2									5.32	4.14	4.39	5.01	3.77	4.67		2.98 F1	4.36
Boron	T	mg/L	2	3.72	3.87	3.55	3.58	3.9	3.84	3.3	3.09	5.51	4.29	3.95	4.99	3.81	3.8		3.13	4.31
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 F1	0.001 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	0.001 U
Calcium	D	mg/L	103.2									118	105	109	118	114	80.3	106	114 F1	130
Calcium	T	mg/L	103.2	99.9	110	96.7	100	110	107	105 S	105	123	110	116	128 B	106	98.4	111	114	124
Chromium	D	mg/L	0.1									0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.002 U	0.002 U F1	0.002 U
Chromium	T	mg/L	0.1	0.001 U	0.0013	0.001 U	0.001 U	0.001 U	0.0017	0.003	0.0014	0.0015 U	0.0063	0.0015 U	0.0057	0.0727	0.0015 U	0.00861	0.002 U	0.002 U
Cobalt	D	mg/L	0.006									0.0013	0.0012	0.001	0.001 U	0.001 U	0.0012	0.002 U	0.002 U F1	0.002 U
Cobalt	T	mg/L	0.006	0.0012	0.001	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0035	0.0013	0.0054	0.0035	0.0013	0.002 U	0.002 U	0.002 U
Iron	D	mg/L	NS															0.1 U		
Iron	T	mg/L	NS															3.65		
Lead	D	mg/L	0.0075									0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.002 U F1	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	0.0012	0.001 U	0.0016	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U
Lithium	D	mg/L	0.04									0.0179	0.0155	0.0194	0.016	0.0197	0.0241	0.0161	0.0159 F1	0.0156
Lithium	T	mg/L	0.04	0.016	0.0176	0.0161	0.0163	0.0178	0.0181	0.0165	0.0162	0.0185	0.0175	0.0172	0.0184	0.0169	0.0199	0.0173	0.0171	0.0163
Manganese	D	mg/L	NS															0.611		
Manganese	T	mg/L	NS															0.622		
Mercury	D	mg/L	0.002									0.0002 U						0.0002 U	0.0002 U F1	0.000209
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	0.0002 U
Molybdenum	D	mg/L	0.1									0.0669	0.0796	0.0583	0.0643	0.0659	0.0949	0.0617	0.0748 F1	0.0647
Molybdenum	T	mg/L	0.1	0.0646	0.0606	0.0582	0.0589	0.06	0.0584	0.0465	0.0463	0.0719	0.0696	0.0683	0.0602	0.0672	0.0557	0.0605	0.072	0.0628
Nickel	D	mg/L	NS										0.002					0.00219		
Nickel	T	mg/L	NS	0.0032	0.0028	0.0018	0.002	0.0017	0.0022	0.0032	0.0025		0.0093					0.00825		
Selenium	D	mg/L	0.05									0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.002 U F1	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	0.002 U	0.002 U	0.002 U
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	0.002 U F1	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	0.002 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

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 times exceeded
J = Analyte detected below quantitation limits
F1 = Sample filtration was performed in the laboratory
J3 = The associated batch QC was outside the established quality control range for precision
J6 = 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
T8 = Sample received past/too close to holding time expiration

1 Standard is from the Upper Tolerance Limit (UTL) calculated from background
2 Standard value 6.22 is from the Lower Tolerance Limit (LTL) calculated from
3 Eight episodes of groundwater sampling were conducted from September 2017
4 Well was redrilled in February with Location ID of APW-05R
Highlighted values exceed action level
NS = No standard

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

				Sampled Prior to Closure of CCR Impoundment								Post-Closure Sampling									
			Sample ID	APW-6S-20170907	APW-6S-20170928	APW-6S-20171019	APW-6S-20171109	APW-6S-20171128	APW-6S-20171227	APW-6S-20180118	APW-6S-20180208	APW-6S-WG-20220616	APW-06S-WG-20220913	APW-06S-WG-20221128	APW-06S-WG-20230201	APW-06S-WG-20230627	APW-06S-WG-20230920	APW-06S-WG-20231128	APW-06S-WG-20240110	APW-06S-WG-20240501	APW-06S-WG-20240905
			Location ID	APW-06S	APW-06S	APW-06S	APW-06S	APW-06S	APW-06S	APW-06S	APW-06S	APW-06S	APW-06S	APW-06S	APW-06S	APW-06S	APW-06S	APW-06S	APW-06S	APW-06S	APW-06S
			Sample Date	09/06/2017	09/28/2017	10/19/2017	11/09/2017	11/28/2017	12/27/2017	01/18/2018	02/08/2018	06/16/2022	09/13/2022	11/28/2022	02/01/2023	06/27/2023	09/20/2023	11/28/2023	01/10/2024	05/01/2024	09/05/2024
			Sample Type	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter / Analyte	Total or Dissolved	Units	Groundwater Protection Standards[3]																		
UNSPECIFIED																					
Fluoride	NA	mg/L	4	0.41	0.26	0.25	0.26	0.25	0.25	0.27	0.24	0.29	0.28	0.32	0.29	0.26	0.3	0.33	0.277	0.15 U	0.242
Radium-226	NA	pCi/L	NS	0.36 ± 0.14 U	0.09 ± 0.08 U	0.317 ± 0.331	0.22 ± 0.11 U	0.18 ± 0.13 U	0.11 ± 0.09 U	0.09 ± 0.09 U	0.15 ± 0.11 U	0.269 ± 0.182	0.2 ± 0.08 U	0.19 ± 0.09 U	0.0283 ± 0.232 U	0.11 ± 0.08 U	0.32 ± 0.11 U	0.09 ± 0.05 U	1.25 ± 0.411	0.707 ± 0.335	0.31 ± 0.217
Radium-228	NA	pCi/L	NS	0.56 ± 0.77 U	1.06 ± 0.53	0.481 ± 0.316	0.9 ± 0.4 J	0.92 ± 0.6 J	0.44 ± 0.44 U	0.71 ± 0.53 J	0.89 ± 0.38 J	0.228 ± 0.248 J	2.73 ± 0.9	0.41 ± 0.5 U	1.44 ± 0.518	-0.03 ± 0.59 U	0.41 ± 0.38 U	0.29 ± 0.51 U	0.688 ± 0.243	0.951 ± 0.345	0.667 ± 0.386 J
Sulfate	NA	mg/L	400	127	177	167	151	189	201	233	220	200	227	243	247	208	221	237	240	211	133
CALC																					
Radium-226/228	NA	pCi/L	7.002	0.92 ± 0.91 U	1.15 ± 0.61 U	0.798 ± 0.647	1.25 ± 0.52 U	1.1 ± 0.73 U	0.55 ± 0.53 U	0.8 ± 0.62 U	1.04 ± 0.49 U	0.497 ± 0.308	2.93 ± 0.98	0.6 ± 0.59 U	1.47 ± 0.568	0.11 ± 0.67 U	0.73 ± 0.49 U	0.38 ± 0.56 U	1.93 ± 0.477	1.66 ± 0.481	0.977 ± 0.443
FIELD PARAM																					
Turbidity, Field	NA	NTU	17.99[1]									30.5	15.1	5.56	6.67	9.06	8.99	1.26	3.32	3.81	5.09
GEN CHEM																					
Chloride	NA	mg/L	200	31	28	27	27	26	27	26	25	24	25	24	24	23	20	22	21.2	21.6	21.1
Dissolved Solids, Total	NA	mg/L	1200	500	546	574	528	566	588	598	666	600	630 H	605	638	615	565	635	644	678 Q	599
pH, Lab	NA	pH units	6.22-9.0[2]	7.16	7.06	7.18	7.23	7.09	7.13	7.09	7.02	7.24	7.38	7.04	7.12	7.05 H	7.21 H	7.12 H	7.67 T8	7.35 T8	7.2 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	0.004 U	0.004 U F1	0.004 U
Antimony	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	0.004 U	0.004 U	0.004 U
Arsenic	D	mg/L	0.01									0.0009 J	0.001 U	0.001 U	0.0013	0.001 U	0.001 U	0.0019	0.002 U	0.002 U F1	0.002 U
Arsenic	T	mg/L	0.01	0.0017	0.0016	0.0018	0.002	0.0013	0.0012	0.0011	0.0011	0.0009 J	0.0012	0.001	0.0011	0.001 U	0.0012	0.0016	0.002 U	0.002 U	0.002 U
Barium	D	mg/L	2									0.233	0.146	0.19 B	0.219	0.21	0.216	0.269	0.155	0.199 F1	0.18
Barium	T	mg/L	2	0.222	0.237	0.205	0.226	0.214	0.213	0.224	0.205	0.25	0.221	0.19	0.202	0.224	0.206	0.305	0.204	0.23	0.232
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	0.002 U	0.002 U F1	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	0.002 U	0.002 U
Boron	D	mg/L	2									4.92	5.95	6.88	7.12	5.83	6.85	8.41		5.38 F1	4.1
Boron	T	mg/L	2	4.65	5.93	5.83	5.84 S	5.8	6.93 S	7.42	6.66	4.77	6.81	6.31	6.84 S	5.84	5.79	9.16		5.54	4.05
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 F1	0.001 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	0.001 U	0.001 U
Calcium	D	mg/L	103.2									124	93.7	99	94.1	100	107	88.8	100 V	120 F1	136
Calcium	T	mg/L	103.2	101	97.2	87.5	96.8 S	99.5	98.1	98.7	97.4	115	105	103	97.1 S	109 B	92.7	90	101	120	131
Chromium	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	0.002 U	0.002 U F1	0.002 U
Chromium	T	mg/L	0.1	0.0027	0.0173	0.0028	0.001 U	0.001 U	0.0048	0.0012	0.001 U	0.0028	0.0015 U	0.0022	0.0015 U	0.0019	0.0067	0.0015 U	0.002 U	0.002 U	0.002 U
Cobalt	D	mg/L	0.006									0.0002 J	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.002 U F1	0.002 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	0.0002 J	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U
Iron	D	mg/L	NS																0.1 U		
Iron	T	mg/L	NS									9.35							9.18		
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	0.002 U	0.002 U F1	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	0.0028	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U
Lithium	D	mg/L	0.04									0.0355	0.0384	0.0386	0.0409	0.0411	0.0487	0.0498	0.0383	0.038 F1	0.0318
Lithium	T	mg/L	0.04	0.0335	0.0413	0.04	0.0415	0.042	0.0458	0.0451	0.0417	0.0363	0.041	0.0393	0.0406	0.0412	0.0369	0.0564	0.0421	0.0408	0.032
Manganese	D	mg/L	NS																0.478		
Manganese	T	mg/L	NS									0.53							0.512		
Mercury	D	mg/L	0.002										0.0002 U						0.0002 U	0.0002 U F1	0.000221
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	0.0002 U	0.0002 U
Molybdenum	D	mg/L	0.1									0.229	0.235	0.24	0.244	0.232	0.234	0.309	0.26	0.24 F1	0.178
Molybdenum	T	mg/L	0.1	0.249	0.287	0.272	0.243	0.274	0.314	0.324	0.323	0.237	0.271	0.259	0.265	0.235	0.225	0.207	0.255	0.231	0.176
Nickel	D	mg/L	NS									0.0015		0.001 U					0.002 U		
Nickel	T	mg/L	NS	0.0021	0.009	0.0021	0.0012	0.001 U	0.0031	0.0016	0.0012	0.0027		0.0023					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	0.002 U	0.002 U F1	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	0.002 U	0.002 U
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	0.002 U	0.002 U F1	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	0.002 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

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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T8 = Sample received past/too close to holding time expiration

1 Standard is from the Upper Tolerance Limit (UTL) calculated from background
2 Standard value 6.22 is from the Lower Tolerance Limit (LTL) calculated from
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4 Well was redrilled in February with Location ID of APW-05R
Highlighted values exceed action level
NS = No standard

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

				Sampled Prior to Closure of CCR Impoundment								Post-Closure Sampling									
			Sample ID	APW-7-20170907	APW-7-20170928	APW-7-20171019	APW-7-20171109	APW-7-20171128	APW-7-20171227	APW-7-20180118	APW-7-20180208	APW-07-WG-20220616	APW-07-WG-20220914	APW-07-WG-20221130	APW-07-WG-20230130	APW-07-WG-20230626	APW-07-WG-20230919	APW-07-WG-20231128	APW-07-WG-20240111	APW-07-WG-20240430	APW-07-WG-20240904
			Location ID	APW-07	APW-07	APW-07	APW-07	APW-07	APW-07	APW-07	APW-07	APW-07	APW-07	APW-07	APW-07	APW-07	APW-07	APW-07	APW-07	APW-07	APW-07
			Sample Date	09/07/2017	09/28/2017	10/19/2017	11/09/2017	11/28/2017	12/27/2017	01/18/2018	02/08/2018	06/16/2022	09/14/2022	11/30/2022	01/30/2023	06/26/2023	09/19/2023	11/28/2023	01/11/2024	04/30/2024	09/04/2024
			Sample Type	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter/Analyte	Total or Dissolved	Units	Groundwater Protection Standards[4]																		
UNSPECIFIED																					
Fluoride	NA	mg/L	4	0.35	0.21	0.19	0.2	0.2	0.19	0.2	0.18	0.18	0.17	0.18	0.19	0.17	0.18	0.2	0.172	0.15 U	0.199 P1
Radium-226	NA	pCi/L	NS	0.47 ± 0.15 U	0 ± 0.06 U	0.505 ± 0.396	0.11 ± 0.08 U	0.16 ± 0.14 U	0.25 ± 0.1 U	0.14 ± 0.09 U	0.24 ± 0.14 U	0.333 ± 0.208	0.18 ± 0.09 U	0.2 ± 0.11 U	0.337 ± 0.265	-0.01 ± 0.06 U	0.11 ± 0.07 U	0.18 ± 0.06 U	0.775 ± 0.378	0.617 ± 0.356	0.197 ± 0.174
Radium-228	NA	pCi/L	NS	-0.42 ± 0.79 U	0.76 ± 0.61 J	0.785 ± 0.412	1.13 ± 0.39	0.61 ± 0.51 U	0.14 ± 0.35 U	1.19 ± 0.55	0.53 ± 0.4 U	0.766 ± 0.234	1.45 ± 0.72	1.13 ± 0.66	1.77 ± 0.352	1.11 ± 0.74	0.99 ± 0.62 JQDR	0.45 ± 0.57 U	1.93 ± 0.264	0.803 ± 0.291	0.736 ± 0.361
Sulfate	NA	mg/L	400	66	59	52	50	61	63	67	64	72	78	48	48	54	44	40	68.8	56.3	34.7 J6
CALC																					
Radium-226/228	NA	pCi/L	7.002	0.47 ± 0.94 U	0.76 ± 0.67 U	1.29 ± 0.808	1.24 ± 0.47 U	0.77 ± 0.65 U	0.39 ± 0.45 U	1.33 ± 0.64 U	0.77 ± 0.54 U	1.1 ± 0.313	1.63 ± 0.81 U	1.33 ± 0.77 U	2.1 ± 0.441	1.11 ± 0.8 U	1.1 ± 0.69 U	0.61 ± 0.63 U	2.7 ± 0.461	1.42 ± 0.460	0.933 ± 0.401
FIELD PARAM																					
Turbidity, Field	NA	NTU	17.96[1]									66.2	34.8	10.5	79.2	14.8	42.9	21	4.36	3.34	5.27
GEN CHEM																					
Chloride	NA	mg/L	200	15	15	14	15	16	15	15	15	11	12	12	14	10	9	11	11.5	9.63	11.5
Dissolved Solids, Total	NA	mg/L	1200	762	786	624	730	742	736	720	740	780	815 H	800	824	665	740	790	734	737	673
pH, Lab	NA	pH units	6.22-9.0[2]	6.84	6.84	6.86	6.87	6.83	6.96	6.97	6.88	6.88	7.02	6.78	7.23	6.79 H	6.94 H	6.86 H	7.31 T8	7.02 T8	7.03 T8
METALS																					
Antimony	D	mg/L	0.006									0.001 U	0.001 U	0.001 U	0.0015	0.001 U	0.001 U	0.004 U	0.004 U F1	0.004 U	
Antimony	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	0.004 U	0.004 U	0.004 U
Arsenic	D	mg/L	0.01									0.0011	0.001 U	0.001 U	0.001 U	0.0012	0.0013	0.0016	0.002 U	0.002 U F1	0.002 U
Arsenic	T	mg/L	0.01	0.0014	0.0012	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0023	0.0016	0.0011	0.0014	0.0014	0.0018	0.0022	0.002 U	0.002 U	0.002 U
Barium	D	mg/L	2									0.334	0.255	0.354 B	0.411	0.303	0.336	0.465	0.256	0.28 F1	0.252
Barium	T	mg/L	2	0.465	0.448	0.394	0.401	0.37	0.374	0.38	0.359	0.374	0.382	0.381	0.371	0.312	0.303	0.522	0.36	0.349	0.309
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	0.002 U	0.002 U F1	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	0.002 U	0.002 U
Boron	D	mg/L	2									0.148	0.193	0.199	0.267	0.208	0.192	0.243		0.2 U F1	0.505
Boron	T	mg/L	2	0.235	0.308	0.302	0.3	0.278	0.342	0.298	0.318	0.168	0.208	0.217	0.246	0.237	0.181	0.274		0.2 U	0.526
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 F1	0.001 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	0.001 U	0.001 U
Calcium	D	mg/L	103.2									222	199	204	199	180 S	196	162	203	216 F1	185
Calcium	T	mg/L	103.2	192	204	171	187	196	193	191	185	238	210	209	200	183 BS	161	177	209	213	192
Chromium	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	0.002 U	0.002 U F1	0.002 U
Chromium	T	mg/L	0.1	0.0017	0.0063	0.0026	0.001 U	0.001 U	0.0329	0.001 U	0.001 U	0.0041	0.0021	0.0015 U	0.0034	0.0015 U	0.0057	0.0024	0.002 U	0.002 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	0.002 U	0.002 U F1	0.002 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 J	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0013	0.002 U	0.002 U	0.002 U
Iron	D	mg/L	NS																0.1 U		
Iron	T	mg/L	NS									17.3							18.9		
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	0.002 U	0.002 U F1	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	0.0074	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U
Lithium	D	mg/L	0.04									0.0126	0.0148	0.0158	0.0191	0.0136	0.0184	0.0212	0.0176	0.0167 F1	0.0151
Lithium	T	mg/L	0.04	0.0147	0.0181	0.0172	0.0176	0.0185	0.0191	0.0181	0.0178	0.0143	0.0161	0.0166	0.0181	0.0153	0.0141	0.0231	0.019	0.0174	0.0152
Manganese	D	mg/L	NS																1.16		
Manganese	T	mg/L	NS									1.11							1.19		
Mercury	D	mg/L	0.002										0.0002 U						0.0002 U	0.0002 U F1	0.0002 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	0.0002 U	0.0002 U
Molybdenum	D	mg/L	0.1									0.0026	0.0028	0.0021	0.0027	0.0027	0.0029	0.004	0.005 U	0.005 U F1	0.005 U
Molybdenum	T	mg/L	0.1	0.0046	0.0036	0.0033	0.0023	0.003	0.0044	0.0037	0.0036	0.0035	0.003	0.0029	0.0031	0.0028	0.0029	0.0042	0.005 U	0.005 U	0.005 U
Nickel	D	mg/L	NS									0.0008 J		0.001 U					0.002 U		
Nickel	T	mg/L	NS	0.0014	0.0033	0.0013	0.001 U	0.001 U	0.015	0.001 U	0.001 U	0.0042		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	0.002 U	0.002 U F1	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	0.002 U	0.002 U
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	0.002 U	0.002 U F1	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	0.002 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

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 times exceeded
J = Analyte detected below quantitation limits
F1 = Sample filtration was performed in the laboratory
J3 = The associated batch QC was outside the established quality control range for precision
J6 = 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
T8 = Sample received past/too close to holding time expiration

1 Standard is from the Upper Tolerance Limit (UTL) calculated from background
2 Standard value 6.22 is from the Lower Tolerance Limit (LTL) calculated from
3 Eight episodes of groundwater sampling were conducted from September 2017
4 Well was redrilled in February with Location ID of APW-05R
Highlighted values exceed action level
NS = No standard

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

				Sampled Prior to Closure of CCR Impoundment								Post-Closure Sampling									
			Sample ID	APW-8-20170907	APW-8-20170928	APW-8-20171018	APW-8-20171108	APW-8-20171127	APW-8-20171227	APW-8-20180117	APW-8-20180208	APW-08-WG-20220616	APW-08-WG-20220915	APW-08-WG-20221130	APW-08-WG-20230202	APW-08-WG-20230626	APW-08-WG-20230919	APW-08-WG-20231128	APW-08-WG-20240111	APW-08-WG-20240430	APW-08-WG-20240904
			Location ID	APW-08	APW-08	APW-08	APW-08	APW-08	APW-08	APW-08	APW-08	APW-08	APW-08	APW-08	APW-08	APW-08	APW-08	APW-08	APW-08	APW-08	APW-08
			Sample Date	09/07/2017	09/28/2017	10/18/2017	11/08/2017	11/27/2017	12/27/2017	01/17/2018	02/08/2018	06/16/2022	09/15/2022	11/30/2022	02/02/2023	06/26/2023	09/19/2023	11/28/2023	01/11/2024	04/30/2024	09/04/2024
			Sample Type	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter/Analyte	Total or Dissolved	Units	Groundwater Protection Standards[4]																		
UNSPECIFIED																					
Fluoride	NA	mg/L	4	0.3	0.3	0.29	0.29	0.28	0.28	0.3	0.28	0.29	0.26	0.28	0.26	0.26	0.26	0.29	0.232	0.336	0.254
Radium-226	NA	pCi/L	NS	0.22 ± 0.12 U	0.12 ± 0.08 U	0.2 ± 0.393	0.11 ± 0.1 U	0.35 ± 0.16 U	0.14 ± 0.08 U	0.21 ± 0.11 U	0.39 ± 0.15 U	0.208 ± 0.236 J	0.27 ± 0.1 U	0.4 ± 0.13 U	0.247 ± 0.244 J	0.34 ± 0.12 U	0.23 ± 0.09 U	0.1 ± 0.05 U	1.71 ± 0.459	0.341 ± 0.271	0.296 ± 0.200
Radium-228	NA	pCi/L	NS	1.13 ± 0.63	0.88 ± 0.48 J	1.3 ± 0.545	0.37 ± 0.25 U	0.77 ± 0.55 J	1.31 ± 0.58	0.64 ± 0.49 U	0.49 ± 0.43 U	0.526 ± 0.224	0.86 ± 0.62 J	1.68 ± 0.77	-0.157 ± 0.282 U	0.11 ± 0.6 U	0.81 ± 0.49 JQDR	0.15 ± 0.54 U	0.687 ± 0.215	-0.254 ± 0.268 U	0.959 ± 0.240
Sulfate	NA	mg/L	400	43	40	38	40	39	38	39	37	39	39	34	29	31	23	24	24.7	28.6	33.4 J6
CALC																					
Radium-226/228	NA	pCi/L	7.002	1.35 ± 0.75 U	1 ± 0.56 U	1.5 ± 1.61	0.48 ± 0.35 U	1.12 ± 0.71 U	1.45 ± 0.66 U	0.85 ± 0.6 U	0.88 ± 0.58 U	0.735 ± 0.325	1.13 ± 0.72 U	2.08 ± 0.9	0.247 ± 0.373 J	0.45 ± 0.72 U	1.04 ± 0.58 U	0.25 ± 0.59 U	2.39 ± 0.507	0.341 ± 0.381 J	1.26 ± 0.312
FIELD PARAM																					
Turbidity, Field	NA	NTU	17.96[1]									119	139	305	26.9	152	141	169	23.1	136	97.4
GEN CHEM																					
Chloride	NA	mg/L	200	9	10	10	10	10	11	12	11	9	11	12	13	10	10	11	10.6	10.2	8.97
Dissolved Solids, Total	NA	mg/L	1200	438	458	436	446	466	410	398	442	382	372 H	370	378	420	440	395	370	371	393
pH, Lab	NA	pH units	6.22-9.0[2]	7.04	7.07	7	7.12	7.25	7.11	7.04	7.04	7.34	7.47	7.25	7.31	7.18 H	7.16 H	7.27 H	7.68 T8	7.53 T8	7.2 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	0.004 U	0.004 U F1	0.004 U
Antimony	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	0.004 U	0.004 U	0.004 U
Arsenic	D	mg/L	0.01									0.0011	0.001 U	0.0012	0.001	0.001	0.0014	0.0019	0.002 U	0.002 U F1	0.002 U
Arsenic	T	mg/L	0.01	0.001 U	0.0011	0.001 U	0.001 U	0.001 U	0.001	0.001 U	0.001 U	0.0022	0.0015	0.0017	0.0016	0.002	0.0018	0.0025	0.002 U	0.002 U	0.002 U
Barium	D	mg/L	2									0.194	0.163	0.146 B	0.15	0.191	0.236	0.255	0.17	0.172 F1	0.194
Barium	T	mg/L	2	0.207	0.256	0.219	0.24	0.217	0.223	0.226	0.215	0.235	0.19	0.179	0.167	0.225	0.199	0.261	0.17	0.173	0.197
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	0.002 U	0.002 U F1	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	0.002 U	0.002 U
Boron	D	mg/L	2									0.0777	0.0993	0.0844	0.0895	0.124	0.117	0.154		0.2 U F1	0.2 U
Boron	T	mg/L	2	0.132	0.154	0.135	0.138	0.141	0.145	0.151	0.132	0.115	0.11	0.103	0.095	0.103	0.116	0.155		0.2 U	0.2 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 F1	0.001 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	0.0002 J	0.001 U	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	103.2									108	79.7	75.4	72.1	92.6	94.1 S	71.3	83.1	88.4 F1	94.9
Calcium	T	mg/L	103.2	97.4	105	92.6	101	102	98.6	95	97.8	93.3	85.1	82.8	79.4	99.4 B	86.4	81.2	82.8	87.8	98.3
Chromium	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	0.002 U	0.002 U F1	0.002 U
Chromium	T	mg/L	0.1	0.0018	0.0023	0.001 U	0.0059	0.001 U	0.0021	0.001 U	0.001 U	0.0054	0.0018	0.0036	0.0027	0.0082	0.0031	0.0049	0.002 U	0.002 U	0.002 U
Cobalt	D	mg/L	0.006									0.0013	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.002 U F1	0.002 U
Cobalt	T	mg/L	0.006	0.0017	0.0013	0.001	0.0012	0.001 U	0.001 U	0.001 U	0.001 U	0.002	0.0013	0.0016	0.0012	0.0019	0.0014	0.0021	0.002 U	0.002 U	0.002 U
Iron	D	mg/L	NS																0.1 U		
Iron	T	mg/L	NS									3.14							0.44		
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	0.002 U	0.002 U F1	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	0.0024	0.001 U	0.0012	0.001 U	0.0028	0.0015	0.0018	0.002 U	0.002 U	0.002 U
Lithium	D	mg/L	0.04									0.0141	0.0142	0.0132	0.0131	0.0125	0.022	0.0204	0.0134	0.0137 F1	0.0168
Lithium	T	mg/L	0.04	0.0196	0.0206	0.0207	0.0216	0.0223	0.0216	0.0192	0.0196	0.016	0.016	0.0147	0.0155	0.0157	0.0177	0.0211	0.0142	0.0147	0.0173
Manganese	D	mg/L	NS																0.0443		
Manganese	T	mg/L	NS									0.202							0.0435		
Mercury	D	mg/L	0.002										0.0002 U						0.0002 U	0.0002 U F1	0.0002 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	0.0002 U	0.0002 U
Molybdenum	D	mg/L	0.1									0.0008 J	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.005 U	0.005 U F1	0.005 U
Molybdenum	T	mg/L	0.1	0.0011	0.001 U	0.001 U	0.0011	0.001 U	0.001 U	0.001 U	0.001 U	0.0015 J	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.005 U	0.005 U	0.005 U
Nickel	D	mg/L	NS									0.0023		0.0012					0.00227		
Nickel	T	mg/L	NS	0.0039	0.0043	0.0029	0.0062	0.0026	0.0027	0.0026	0.0026	0.0054		0.0077					0.00354		
Selenium	D	mg/L	0.05									0.0027	0.0068	0.0126	0.0128	0.0113	0.0121	0.0231	0.0173	0.0185 F1	0.00425
Selenium	T	mg/L	0.05	0.008	0.0141	0.0132	0.0149	0.0135	0.0141	0.0149	0.013	0.0036	0.0077	0.011	0.0148	0.0129	0.0122	0.0221	0.0169	0.0182	0.00529
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	0.002 U	0.002 U F1	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	0.002 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

Notes:
Empty cells = not analyzed
N = Normal Environmental Sample
FD = Field Duplicate Sample
NA = not applicable
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T8 = Sample received past/too close to holding time expiration

1 Standard is from the Upper Tolerance Limit (UTL) calculated from background
2 Standard value 6.22 is from the Lower Tolerance Limit (LTL) calculated from
3 Eight episodes of groundwater sampling were conducted from September 2017
4 Well was redrilled in February with Location ID of APW-05R
Highlighted values exceed action level
NS = No standard

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

Sampled Prior to Closure of CCR Impoundment

Parameter/Analyte	Total or Dissolved	Units	Groundwater Protection Standards[3]	APW-9-20170907 APW-09 09/05/2017 N	APW-9-20170927 APW-09 09/27/2017 N	APW-9-20171018 APW-09 10/18/2017 N	APW-9-20171108 APW-09 11/08/2017 N	APW-9-20171127 APW-09 11/27/2017 N	APW-9-20171228 APW-09 12/28/2017 N	APW-9-20180117 APW-09 01/17/2018 N	APW-9-20180208 APW-09 02/08/2018 N
UNSPECIFIED											
Fluoride	NA	mg/L	4	0.19	0.22	0.21	0.2	0.2	0.2	0.22	0.19
Radium-226	NA	pCi/L	NS	0.17 ± .12 U	0.03 ± 0.07 U	-0.229 ± 0.389	0.14 ± 0.09 U	-0.06 ± 0.1 U	0.14 ± 0.08 U	0.05 ± 0.08 U	0.13 ± 0.13 U
Radium-228	NA	pCi/L	NS	0.91 ± .69 J	0.67 ± 0.56 U	0.275 ± 0.316	0.49 ± 0.29 U	1.07 ± 0.48 U	1.06 ± 0.51	0.46 ± 0.46 U	0.23 ± 0.37 U
Sulfate	NA	mg/L	400	65	47	53	65	50	42	28	25
CALC											
Radium-226/228	NA	pCi/L	7.002	1.08 ± 0.81 U	0.7 ± 0.63 U	0.275 ± 0.705	0.63 ± 0.38 U	1.07 ± 0.58 U	1.2 ± 0.59 U	0.51 ± 0.54 U	0.36 ± 0.5 U
FIELD PARAM											
Turbidity, Field	NA	NTU	17.96[1]								
GEN CHEM											
Chloride	NA	mg/L	200	13	13	13	13	13	13	13	768
Dissolved Solids, Total	NA	mg/L	1200	364 R	372	324	366	392	278	348	3380
pH, Lab	NA	pH units	6.22-9.0[2]	7.31	7.35	7.39	7.39	7.52	7.42	7.57	7.33
METALS											
Antimony	D	mg/L	0.006								
Antimony	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
Arsenic	D	mg/L	0.01								
Arsenic	T	mg/L	0.01	0.0031	0.0024	0.0018	0.0022	0.002	0.002	0.0022	0.0022
Barium	D	mg/L	2								
Barium	T	mg/L	2	0.227	0.171	0.118	0.133	0.121	0.129	0.133	0.125
Beryllium	D	mg/L	0.004								
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
Boron	D	mg/L	2								
Boron	T	mg/L	2	0.877	0.569	0.668	0.792	0.506	0.369	0.317	0.255
Cadmium	D	mg/L	0.005								
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
Calcium	D	mg/L	103.2								
Calcium	T	mg/L	103.2	85.9	85.3	76.5	81.9	85.6	81.5 S	80.3	92
Chromium	D	mg/L	0.1								
Chromium	T	mg/L	0.1	0.0148	0.0021	0.001 U	0.001 U	0.001 U	0.0011	0.0016	0.001 U
Cobalt	D	mg/L	0.006								
Cobalt	T	mg/L	0.006	0.0031	0.0014	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Iron	D	mg/L	NS								
Iron	T	mg/L	NS								
Lead	D	mg/L	0.0075								
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
Lithium	D	mg/L	0.04								
Lithium	T	mg/L	0.04	0.0176	0.0173	0.0174	0.018	0.0167	0.0173	0.0155	0.0148
Manganese	D	mg/L	NS								
Manganese	T	mg/L	NS								
Mercury	D	mg/L	0.002								
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
Molybdenum	D	mg/L	0.1								
Molybdenum	T	mg/L	0.1	0.0223	0.0252	0.0327	0.0303	0.0247	0.0246	0.0223	0.0224
Nickel	D	mg/L	NS								
Nickel	T	mg/L	NS	0.012	0.0032	0.001 U	0.001	0.001 U	0.001 U	0.0012	0.001 U
Selenium	D	mg/L	0.05								
Selenium	T	mg/L	0.05	0.0126	0.0139	0.017	0.0186	0.0138	0.0143	0.0147	0.0134
Thallium	D	mg/L	0.002								
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	0.001 U

Post-Closure Sampling

Parameter/Analyte	Total or Dissolved	APW-09-WG-20220615 APW-09 06/15/2022 N	APW-09-WG-20220913 APW-09 09/13/2022 N	APW-09-WG-20221130 APW-09 11/30/2022 N	APW-09-WG-20230201 APW-09 02/01/2023 N	APW-09-WG-20230627 APW-09 06/27/2023 N	APW-09-WG-20230920 APW-09 09/20/2023 N
UNSPECIFIED							
Fluoride	NA	0.23	0.19	0.2	0.19	0.19	0.2
Radium-226	NA	0.267 ± 0.199	0.24 ± 0.09 U	0.06 ± 0.06 U	0.0975 ± 0.156 J	0.18 ± 0.09 U	0 ± 0.05 U
Radium-228	NA	-0.213 ± 0.244 U	0.22 ± 0.49 U	0.77 ± 0.55 J	0.023 ± 0.243 U	0.35 ± 0.65 U	1.17 ± 0.6
Sulfate	NA	104	39	36	38	47	32
CALC							
Radium-226/228	NA	0.267 ± 0.315 J	0.46 ± 0.58 U	0.83 ± 0.61 U	0.12 ± 0.289 U	0.53 ± 0.74 U	1.17 ± 0.65 U
FIELD PARAM							
Turbidity, Field	NA	34.2	7.3	7.28	23.6	24.7	5.64
GEN CHEM							
Chloride	NA	13	12	12	13	12	11
Dissolved Solids, Total	NA	424	380 H	372	360	386	372
pH, Lab	NA	7.48	7.59	7.32	7.72	7.32 H	7.56 H
METALS							
Antimony	D	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Antimony	T	0.001 U	0.001 U	0.001 U	0.001 U	0.001	0.001 U
Arsenic	D	0.0019	0.0021	0.0019	0.0019	0.0021	0.0022
Arsenic	T	0.0026	0.0025	0.0021	0.0024	0.0021	0.002
Barium	D	0.129	0.111	0.109 B	0.107	0.116	0.114
Barium	T	0.186	0.134	0.124	0.122	0.123	0.12
Beryllium	D	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Beryllium	T	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Boron	D	1.32	0.327	0.24	0.239	0.572	0.234
Boron	T	1.61	0.329	0.243	0.225	0.473	0.209
Cadmium	D	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Cadmium	T	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Calcium	D	107 S	76.5	78.3	76.3	82.8 S	81
Calcium	T	110	89.5	80.5	80.3	86.9 B	69.5
Chromium	D	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U
Chromium	T	0.0011 J	0.0015 U	0.0015	0.0015 U	0.0015 U	0.0018
Cobalt	D	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Cobalt	T	0.001	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Iron	D						
Iron	T	0.496					
Lead	D	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Lead	T	0.001 U	0.0039	0.001 U	0.001 U	0.001 U	0.001 U
Lithium	D	0.0184	0.0137	0.0131	0.0125	0.0163	0.0196
Lithium	T	0.0246	0.0143	0.0131	0.0137	0.0157	0.0134
Manganese	D						
Manganese	T	0.599					
Mercury	D		0.0002 U				
Mercury	T	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Molybdenum	D	0.0351	0.0182	0.0139	0.0165	0.0211	0.0167
Molybdenum	T	0.0455	0.0194	0.015	0.0173	0.0189	0.0162
Nickel	D	0.0017		0.001 U			
Nickel	T	0.004		0.0019			
Selenium	D	0.021	0.0142	0.0147	0.0179	0.0186	0.0155
Selenium	T	0.0219	0.0151	0.0138	0.0196	0.0198	0.0153
Thallium	D	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Thallium	T	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U

Parameter/Analyte	Total or Dissolved	DUP-02-WG-20230920 APW-09 09/20/2023 FD	APW-09-WG-20231129 APW-09 11/29/2023 N	DUP-02-WG-20231129 APW-09 11/29/2023 FD	APW-09-WG-20240111 APW-09 01/11/2024 N	DUP-02-WG-20240111 APW-09 01/11/2024 FD	APW-09-WG-20240430 APW-09 04/30/2024 N
UNSPECIFIED							
Fluoride	NA	0.19	0.2	0.21	0.197	0.186	0.339
Radium-226	NA	-0.02 ± 0.05 U	0 ± 0.02 U	0.03 ± 0.03 U	0.203 ± 0.210 J	0.459 ± 0.287	0.252 ± 0.234 J
Radium-228	NA	0.22 ± 0.41 U	0.8 ± 0.65 J	0.2 ± 0.66 U	1.09 ± 0.251	0.723 ± 0.211	0.614 ± 0.214
Sulfate	NA	31	34	35	35.3	35.4	53.6
CALC							
Radium-226/228	NA	0.22 ± 0.46 U	0.8 ± 0.67 U	0.23 ± 0.69 U	1.29 ± 0.327	1.18 ± 0.356	0.866 ± 0.317
FIELD PARAM							
Turbidity, Field	NA		3.82		13.4		5.69
GEN CHEM							
Chloride	NA	11	12	12	12.1	12.1	14.3
Dissolved Solids, Total	NA	386	380	376	354	361	367
pH, Lab	NA	7.65 H	7.5 H	7.45 H	8.03 T8	8.1 T8	7.7 T8
METALS							
Antimony	D	0.001 U	0.0011	0.001 U	0.004 U	0.004 U	0.004 U F1
Antimony	T	0.001 U	0.001 U	0.001 U	0.004 U	0.004 U	0.004 U
Arsenic	D	0.0021	0.002	0.002	0.00216	0.00206	0.00222 F1
Arsenic	T	0.0023	0.0026	0.0028	0.00235	0.00214	0.00227
Barium	D	0.117	0.109	0.108	0.118	0.12	0.114 F1
Barium	T	0.125	0.131	0.143	0.138	0.136	0.113
Beryllium	D	0.001 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U F1
Beryllium	T	0.001 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U
Boron	D	0.236	0.169	0.166			0.481 F1
Boron	T	0.239	0.191	0.221			0.501
Cadmium	D	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U F1
Cadmium	T	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Calcium	D	81.1	73.5	73.6	80.2	78.4	88.5 F1
Calcium	T	87.5	80.9	111	80.4	80.9	88.3
Chromium	D	0.0015 U	0.0015 U	0.0015 U	0.002 U	0.002 U	0.002 U F1
Chromium	T	0.0015 U	0.0015 U	0.0015 U	0.002 U	0.002 U	0.002 U
Cobalt	D	0.001 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U F1
Cobalt	T	0.001 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U
Iron	D				0.1 U	0.1 U	
Iron	T				0.179	0.21	
Lead	D	0.001 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U F1
Lead	T	0.001 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U
Lithium	D	0.0184	0.0121	0.012	0.0129	0.0142	0.0159 F1
Lithium	T	0.015	0.0138	0.0163	0.0139	0.0143	0.0163
Manganese	D				0.005 U	0.005 U	
Manganese	T				0.124	0.119	
Mercury	D				0.0002 U	0.0002 U	0.0002 U F1
Mercury	T	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Molybdenum	D	0.0173	0.0154	0.0146	0.0186	0.0188	0.0311 F1
Molybdenum	T	0.0173	0.0188	0.0171	0.0163	0.0157	0.031
Nickel	D				0.002 U	0.002 U	
Nickel	T				0.002 U	0.002 U	
Selenium	D	0.0162	0.0163	0.0159	0.022	0.0216	0.0319 F1
Selenium	T	0.0182	0.0214	0.0194	0.0225	0.0222	0.0334
Thallium	D	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U F1
Thallium	T	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U

Parameter/Analyte	Total or Dissolved	DUP-02-WG-20240430 APW-09 04/30/2024 FD	APW-09-WG-20240906 APW-09 09/06/2024 N	DUP-02-WG-20240906 APW-09 09/06/2024 FD
UNSPECIFIED				
Fluoride	NA	0.23	0.215	0.198
Radium-226	NA	0.0618 ± 0.185 U	0.0956 ± 0.120 J	0.671 ± 0.288
Radium-228	NA	0.51 ± 0.220	0.997 ± 0.496	0.552 ± 0.263
Sulfate	NA	53.5 J6	56.1	55.7
CALC				
Radium-226/228	NA	0.572 ± 0.287	1.09 ± 0.510	1.22 ± 0.390
FIELD PARAM				
Turbidity, Field	NA		13.8	
GEN CHEM				
Chloride	NA	14	11	11
Dissolved Solids, Total	NA	365	389	387
pH, Lab	NA	7.81 T8	7.45 T8	7.6 T8
METALS				
Antimony	D	0.004 U F1	0.004 U	0.004 U
Antimony	T	0.004 U	0.004 U	0.004 U
Arsenic	D	0.00223 F1	0.00211	0.00215
Arsenic	T	0.00216	0.0023	0.00204
Barium	D	0.117 F1	0.112	0.109
Barium	T	0.109	0.117	0.119
Beryllium	D	0.002 U F1	0.002 U	0.002 U
Beryllium	T	0.002 U	0.002 U	0.002 U
Boron	D	0.466 F1	0.833	0.834
Boron	T	0.493	0.829	0.833
Cadmium	D	0.001 U F1	0.001 U	0.001 U
Cadmium	T	0.001 U	0.001 U	0.001 U
Calcium	D	88.3 F1	94.7	95.2
Calcium	T	87.9	90.4	91.7
Chromium	D	0.002 U F1	0.002 U	0.002 U
Chromium	T	0.002 U	0.002 U	0.002 U
Cobalt	D	0.002 U F1	0.002 U	0.002 U
Cobalt	T	0.002 U	0.002 U	0.002 U
Iron	D			
Iron	T			
Lead	D	0.002 U F1	0.002 U	0.002 U
Lead	T	0.002 U	0.002 U	0.002 U
Lithium	D	0.017 F1	0.0159	0.0159
Lithium	T	0.0191	0.0163	0.0163
Manganese	D			
Manganese	T			
Mercury	D	0.0002 U F1	0.000236	0.0002 U
Mercury	T	0.0002 U	0.0002 U	0.0002 U
Molybdenum	D	0.0309 F1	0.0255	0.0256
Molybdenum	T	0.0295	0.0259	0.0251
Nickel	D			
Nickel	T			
Selenium	D	0.0354 F1	0.0186	0.0182
Selenium	T	0.0328	0.0178	0.0186
Thallium	D	0.002 U F1	0.002 U	0.002 U
Thallium	T	0.002 U	0.002 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 times exceeded
J = Analyte detected below quantitation limits
F1 = Sample filtration was performed in the laboratory
J3 = The associated batch QC was outside the established quality control range for precision
J6 = 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
T8 = Sample received past/too close to holding time expiration

1 Standard is from the Upper Tolerance Limit (UTL) calculated from background
2 Standard value 6.22 is from the Lower Tolerance Limit (LTL) calculated from
3 Eight episodes of groundwater sampling were conducted from September
4 Well was redrilled in February with Location ID of APW-05R
Highlighted values exceed action level
NS = No standard

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

				Sampled Prior to Closure of CCR Impoundment									Post-Closure Sampling								
			Sample ID	APW-10D-20170907	APW-10D-20170927	APW-10D-20171019	APW-10D-20171108	APW-10D-20171128	APW-10D-20171228	APW-10D-20180118	APW-10D-20180209	APW-10D-WG-20220615	APW-10D-WG-20220916	APW-10D-WG-20221129	APW-10D-WG-20230202	APW-10D-WG-20230626	APW-10D-WG-20230918	APW-10D-WG-20231127	APW-10D-WG-20240111	APW-10D-WG-20240430	APW-10D-WG-20240905
			Location ID	APW-10D	APW-10D	APW-10D	APW-10D	APW-10D	APW-10D	APW-10D	APW-10D	APW-10D	APW-10D	APW-10D	APW-10D	APW-10D	APW-10D	APW-10D	APW-10D	APW-10D	APW-10D
			Sample Date	09/07/2017	09/27/2017	10/19/2017	11/09/2017	11/28/2017	12/28/2017	01/18/2018	02/09/2018	06/15/2022	09/16/2022	11/29/2022	02/02/2023	06/26/2023	09/19/2023	11/27/2023	01/11/2024	04/30/2024	09/05/2024
			Sample Type	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter/Analyte	Total or Dissolved	Units	Groundwater Protection Standards[1]																		
UNSPECIFIED																					
Fluoride	NA	mg/L	4	0.1	0.12	0.1	0.1 U	0.11	0.1	0.11	0.1 U	0.12	0.1	0.12	0.12	0.11	0.11	0.14	0.15 U	0.15 U	0.15 U
Radium-226	NA	pCi/L	NS	0.34 ± 0.12 U	-0.11 ± 0.1 U	0.121 ± 0.337	0.19 ± 0.12 U	0.16 ± 0.13 U	0.23 ± 0.1 U	0.68 ± 0.1 U	0 ± 0.07 U	0.249 ± 0.207	0.22 ± 0.09 U	0.31 ± 0.11 U	0.186 ± 0.157	0.31 ± 0.12 U	0.21 ± 0.09 U	0.14 ± 0.06 U	0.04 ± 0.179 U	0.134 ± 0.199 J	0.183 ± 0.151
Radium-228	NA	pCi/L	NS	1.16 ± 0.52	1.72 ± 0.64	0.633 ± 0.366	0.98 ± 0.33 J	0.47 ± 0.55 U	0.34 ± 0.37 U	0.98 ± 0.6 J	0.59 ± 0.43 U	1.19 ± 0.311	0.56 ± 0.58 U	0.28 ± 0.43 U	0.847 ± 0.370	1.39 ± 0.76	0.61 ± 0.49 U	1.36 ± 0.77	1.49 ± 0.351	0.886 ± 0.294	-0.266 ± 0.253 U
Sulfate	NA	mg/L	400	38	44	43	42	42	44	44	44	41	43	42	39	44	31	26	35.5	35.3	37.1
CALC																					
Radium-226/228	NA	pCi/L	7.002	1.5 ± 0.64 U	1.72 ± 0.74 U	0.754 ± 0.703	1.17 ± 0.45 U	0.63 ± 0.68 U	0.57 ± 0.47 U	1.06 ± 0.7 U	0.59 ± 0.5 U	1.44 ± 0.374	0.78 ± 0.67 U	0.59 ± 0.54 U	1.03 ± 0.402	1.7 ± 0.88 U	0.82 ± 0.58 U	1.5 ± 0.83 U	1.53 ± 0.390	1.02 ± 0.355	0.163 ± 0.295 U
FIELD PARAM																					
Turbidity, Field	NA	NTU	17.94[2]									46.9	21.9	36.4	45.3	176	169	196	4.76	198	5.56
GEN CHEM																					
Chloride	NA	mg/L	200	24	17	17	15	17	16	14	16	16	18	14	13	14	10	10	15.4	10.9	25.5
Dissolved Solids, Total	NA	mg/L	1200	466	474	442	468	482	448	448	512	452	460 H	460	454	485	468	445	436	459	351
pH, Lab	NA	pH units	6.22-9.0[3]	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	7.06 H	7.46 T8	7.38 T8	7.28 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	0.0013	0.004 U	0.004 U F1	0.004 U
Antimony	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	0.004 U	0.004 U	0.004 U
Arsenic	D	mg/L	0.01									0.0008 J	0.001 U	0.0012	0.0011	0.0011	0.0011	0.0018	0.002 U	0.002 U F1	0.002 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	0.001 U	0.0017	0.0057	0.0014	0.0017	0.0019	0.0016	0.0021	0.002 U	0.002 U	0.002 U
Barium	D	mg/L	2									0.342	0.321	0.3 B	0.304	0.348	0.355	0.448	0.336	0.369 F1	0.217
Barium	T	mg/L	2	0.437	0.304	0.363	0.325	0.284	0.295	0.391	0.357	0.407	0.418	0.276	0.343	0.485	0.339	0.398	0.341	0.351	0.22
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	0.002 U	0.002 U F1	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	0.002 U	0.002 U
Boron	D	mg/L	2									0.0786	0.0711	0.0841	0.0578	0.0704	0.0639	0.0823		0.2 U F1	0.2 U
Boron	T	mg/L	2	0.0999	0.101	0.0843	0.0713	0.0885	0.0922	0.0923	0.0906	0.118	0.0731	0.0522	0.073	0.0674	0.066	0.0754		0.2 U	0.2 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 F1	0.001 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	0.0011	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Calcium	D	mg/L	103.2									143	124	113	114	114	116	83.4	119	121 F1	101
Calcium	T	mg/L	103.2	118	136	120	121	125	123	148 S	124 S	135	374	115	122	811 B	118	120	125	141	98.5
Chromium	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	0.002 U	0.002 U F1	0.002 U
Chromium	T	mg/L	0.1	0.0036	0.0078	0.0022	0.0011	0.001 U	0.001 U	0.0042	0.001 U	0.0015 U	0.0148	0.0024	0.0015 U	0.0015	0.0042	0.0021	0.002 U	0.002 U	0.002 U
Cobalt	D	mg/L	0.006									0.0025	0.0021	0.0032	0.003	0.0026	0.0026	0.0038	0.00228	0.00238 F1	0.002 U
Cobalt	T	mg/L	0.006	0.0039	0.0024	0.0025	0.0032	0.0017	0.0013	0.0026	0.0026	0.0034	0.0049	0.003	0.0033	0.007	0.0031	0.0039	0.00261	0.00271	0.002 U
Iron	D	mg/L	NS																0.1 U		
Iron	T	mg/L	NS									0.758							0.175		
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	0.002 U	0.002 U F1	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	0.002	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U
Lithium	D	mg/L	0.04									0.0135	0.0135	0.0133	0.012	0.0148	0.02	0.0176	0.0135	0.014 F1	0.0118
Lithium	T	mg/L	0.04	0.0147	0.0155	0.0146	0.0146	0.0153	0.0155	0.0142	0.014	0.018	0.0156	0.0126	0.0146	0.0158	0.0148	0.0154	0.0152	0.0142	0.0113
Manganese	D	mg/L	NS																0.857		
Manganese	T	mg/L	NS									1.16							0.88		
Mercury	D	mg/L	0.002										0.0002 U						0.0002 U	0.0002 U F1	0.000229
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	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	0.0025	0.005 U	0.005 U F1	0.005 U
Molybdenum	T	mg/L	0.1	0.0024	0.001 U	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	0.005 U	0.005 U	0.005 U
Nickel	D	mg/L	NS									0.0054		0.0054					0.00474		
Nickel	T	mg/L	NS	0.0095	0.0077	0.0065	0.0057	0.0035	0.0025	0.0072	0.0053	0.007		0.0063					0.00513		
Selenium	D	mg/L	0.05									0.001 U	0.0016	0.0015	0.0024	0.0013	0.0016	0.0043	0.00274	0.00238 F1	0.002 U
Selenium	T	mg/L	0.05	0.001 U	0.0011	0.0012	0.0013	0.001 U	0.0014	0.0016	0.0016	0.001 U	0.0021	0.0013	0.0027	0.0016	0.0012	0.0033	0.00269	0.00264	0.002 U
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	0.002 U	0.002 U F1	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	0.002 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

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 times exceeded
J = Analyte detected below quantitation limits
F1 = Sample filtration was performed in the laboratory
J3 = The associated batch QC was outside the established quality control range for precision
J6 = 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
T8 = Sample received past/too close to holding time expiration

1 Standard is from the Upper Tolerance Limit (UTL) calculated from background
2 Standard value 6.22 is from the Lower Tolerance Limit (LTL) calculated from
3 Eight episodes of groundwater sampling were conducted from September 2017
4 Well was redrilled in February with Location ID of APW-05R
Highlighted values exceed action level
NS = No standard

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

				Sampled Prior to Closure of CCR Impoundment									Post-Closure Sampling								
			Sample ID	APW-10S-20170907	APW-10S-20170927	APW-10S-20171019	APW-10S-20171109	APW-10S-20171128	APW-10S-20171228	APW-10S-20180118	APW-10S-20180209	APW-10S-WG-20220615	APW-10S-WG-20220915	APW-10S-WG-20221129	APW-10S-WG-20230202	APW-10S-WG-20230626	APW-10S-WG-20230919	APW-10S-WG-20231127	APW-10S-WG-20240111	APW-10S-WG-20240430	APW-10S-WG-20240905
			Location ID	APW-10S	APW-10S	APW-10S	APW-10S	APW-10S	APW-10S	APW-10S	APW-10S	APW-10S	APW-10S	APW-10S	APW-10S	APW-10S	APW-10S	APW-10S	APW-10S	APW-10S	APW-10S
			Sample Date	09/07/2017	09/27/2017	10/19/2017	11/09/2017	11/28/2017	12/28/2017	01/18/2018	02/09/2018	06/15/2022	09/15/2022	11/29/2022	02/02/2023	06/26/2023	09/19/2023	11/27/2023	01/11/2024	04/30/2024	09/05/2024
			Sample Type	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter/Analyte	Total or Dissolved	Units	Groundwater Protection Standards[1]																		
UNSPECIFIED																					
Fluoride	NA	mg/L	4	0.19	0.21	0.16	0.16	0.16	0.17	0.17	0.16	0.17	0.15	0.17	0.15	0.15	0.16	0.18	0.15 U	0.15 U	0.251
Radium-226	NA	pCi/L	NS	0.4 ± 0.14 U	0.19 ± 0.11 U	0.774 ± 0.430	0.16 ± 0.11 U	0.18 ± 0.16 U	0.23 ± 0.1 U	0.26 ± 0.12 U	0.24 ± 0.13 U	0.778 ± 0.324	0.3 ± 0.1 U	0.31 ± 0.11 U	1.08 ± 0.395	0.37 ± 0.13 U	0.59 ± 0.14 U	0.32 ± 0.09 U	0.313 ± 0.208	0.347 ± 0.299 J	0.498 ± 0.257
Radium-228	NA	pCi/L	NS	0.38 ± 0.47 U	0.98 ± 0.7 J	0.856 ± 0.391	0.71 ± 0.33 J	0.46 ± 0.57 U	0.56 ± 0.43 U	2.71 ± 0.78	0.93 ± 0.52 J	0.475 ± 0.268 J	2.52 ± 0.91	1.64 ± 0.68	0.162 ± 0.371 U	-0.18 ± 0.47 U	4.24 ± 0.91	0.95 ± 0.66 J	2.1 ± 0.228	0.234 ± 0.289 U	-0.0143 ± 0.345 U
Sulfate	NA	mg/L	400	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	21 S	10 U	10 U	10 U	10 SU	10 U	5 U	5 U	5 U
CALC																					
Radium-226/228	NA	pCi/L	7.002	0.78 ± 0.61	1.17 ± 0.81 U	1.63 ± 0.821	0.87 ± 0.44 U	0.84 ± 0.73 U	0.79 ± 0.54 U	3 ± 0.9	1.17 ± 0.65 U	1.25 ± 0.42	2.82 ± 1.01	1.95 ± 0.79 U	1.24 ± 0.542	0.37 ± 0.6 U	4.83 ± 1.05	1.27 ± 0.75 U	2.42 ± 0.307	0.582 ± 0.416 J	0.498 ± 0.430 J
FIELD PARAM																					
Turbidity, Field	NA	NTU	17.94[2]									61.5	34.3	52.6	37.3	57.2	63.6	13.1	3.78	17.1	9.12
GEN CHEM																					
Chloride	NA	mg/L	200	10	7	6	6	6	6	6	6	12	15	18	21	14	15	20	17.2	11.4	10.3
Dissolved Solids, Total	NA	mg/L	1200	708	720	678	708	734	770	680 R	762	735	770 H	750	780	725	775	900	692	744	751
pH, Lab	NA	pH units	6.22-9.0[3]	6.99	6.96	6.95	6.98	6.97	6.98	7.06	6.91	7.09	7.2	6.95	7.2	7.01 H	7.17 H	7.01 H	7.58 T8	7.18 T8	6.96 T8
METALS																					
Antimony	D	mg/L	0.006									0.001 U	0.001 U	0.001 U	0.0016	0.001 U	0.001 U	0.001 U	0.004 U	0.004 U F1	0.004 U
Antimony	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	0.004 U	0.004 U	0.004 U
Arsenic	D	mg/L	0.01									0.152	0.0612	0.0138	0.171	0.166	0.176	0.251	0.0628	0.0659 F1	0.062
Arsenic	T	mg/L	0.01	0.186	0.189	0.18	0.209	0.183	0.193	0.23	0.198	0.185	0.187	0.182	0.191	0.194	0.174	0.276	0.196	0.198	0.19
Barium	D	mg/L	2									0.423	0.292	0.162 B	0.506	0.506	0.567	0.711	0.288	0.339 F1	0.299
Barium	T	mg/L	2	0.613	0.634	0.543	0.668	0.565	0.598	0.703	0.585	0.575	0.612	0.536	0.575	0.589	0.591	0.804	0.597	0.559	0.567
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	0.002 U	0.002 U F1	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	0.002 U	0.002 U
Boron	D	mg/L	2									0.57	0.541	7.48	0.497	0.578	0.571	0.682		0.544 F1	0.535
Boron	T	mg/L	2	0.525	0.544	0.536	0.595	0.545	0.573	0.645	0.582	0.683	0.565	0.569	0.592	0.582	0.553	0.555		0.571	0.554
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 F1	0.001 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	0.001 U	0.001 U
Calcium	D	mg/L	103.2									169	156	142	145	142	151	137	152	160 F1	154
Calcium	T	mg/L	103.2	136	144	135	152	150	145	140	140	161	171 S	154	145	153 B	134	129 S	162	163	163
Chromium	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	0.002 U	0.002 U F1	0.002 U
Chromium	T	mg/L	0.1	0.0091	0.0019	0.001	0.0016	0.001 U	0.0016	0.0019	0.001 U	0.0015 J	0.015	0.0032	0.0023	0.0025	0.0087	0.0018	0.002 U	0.002 U	0.002 U
Cobalt	D	mg/L	0.006									0.0001 J	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.002 U F1	0.002 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	0.0006 J	0.0021	0.0013	0.001 U	0.001 U	0.0021	0.0013	0.002 U	0.002 U	0.002 U
Iron	D	mg/L	NS																0.1 U		
Iron	T	mg/L	NS									19.6							17.2		
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	0.002 U	0.002 U F1	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	0.0007 J	0.0043	0.0014	0.001 U	0.0016	0.0031	0.001 U	0.002 U	0.002 U	0.002 U
Lithium	D	mg/L	0.04									0.0268	0.0286	0.0387 R	0.0288	0.0278	0.0349	0.0359	0.0302	0.0284 F1	0.0288
Lithium	T	mg/L	0.04	0.0263	0.0278	0.0272	0.0289	0.0293	0.0308	0.0316	0.0297	0.0353	0.033	0.0307	0.0323	0.0291	0.0301	0.0401	0.0328	0.0293	0.0272
Manganese	D	mg/L	NS																0.155		
Manganese	T	mg/L	NS									0.243							0.174		
Mercury	D	mg/L	0.002										0.0002 U						0.0002 U	0.0002 U F1	0.0002 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	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	0.005 U	0.005 U F1	0.005 U
Molybdenum	T	mg/L	0.1	0.0017	0.0016	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	0.0021	0.005 U	0.005 U	0.005 U
Nickel	D	mg/L	NS									0.001 U		0.001 U					0.002 U		
Nickel	T	mg/L	NS	0.0051	0.0012	0.001 U	0.0015	0.001 U	0.001 U	0.0014	0.001 U	0.0014		0.0031					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	0.002 U	0.002 U F1	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	0.002 U	0.002 U
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	0.002 U	0.002 U F1	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	0.002 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

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 times exceeded
J = Analyte detected below quantitation limits
F1 = Sample filtration was performed in the laboratory
J3 = The associated batch QC was outside the established quality control range for precision
J6 = 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
T8 = Sample received past/too close to holding time expiration

1 Standard is from the Upper Tolerance Limit (UTL) calculated from background
2 Standard value 6.22 is from the Lower Tolerance Limit (LTL) calculated from
3 Eight episodes of groundwater sampling were conducted from September 2017
4 Well was redrilled in February with Location ID of APW-05R
Highlighted values exceed action level
NS = No standard

APPENDIX A THIRD QUARTER 2024 CCR IMPOUNDMENT INSPECTION REPORT

Grand Tower Energy Center
Closed CCR Impoundment
Quarterly Inspection Form

Date: 9/6/2024

Time: 7:40 – 8:10

Name: Marshall Arendell
(Inspector)

Weather:

Temperature:
80 deg. F

☒ Sunny
☐ Cloudy
☐ Raining
☐ Other

Observations:

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

Conditions Limiting Visibility:

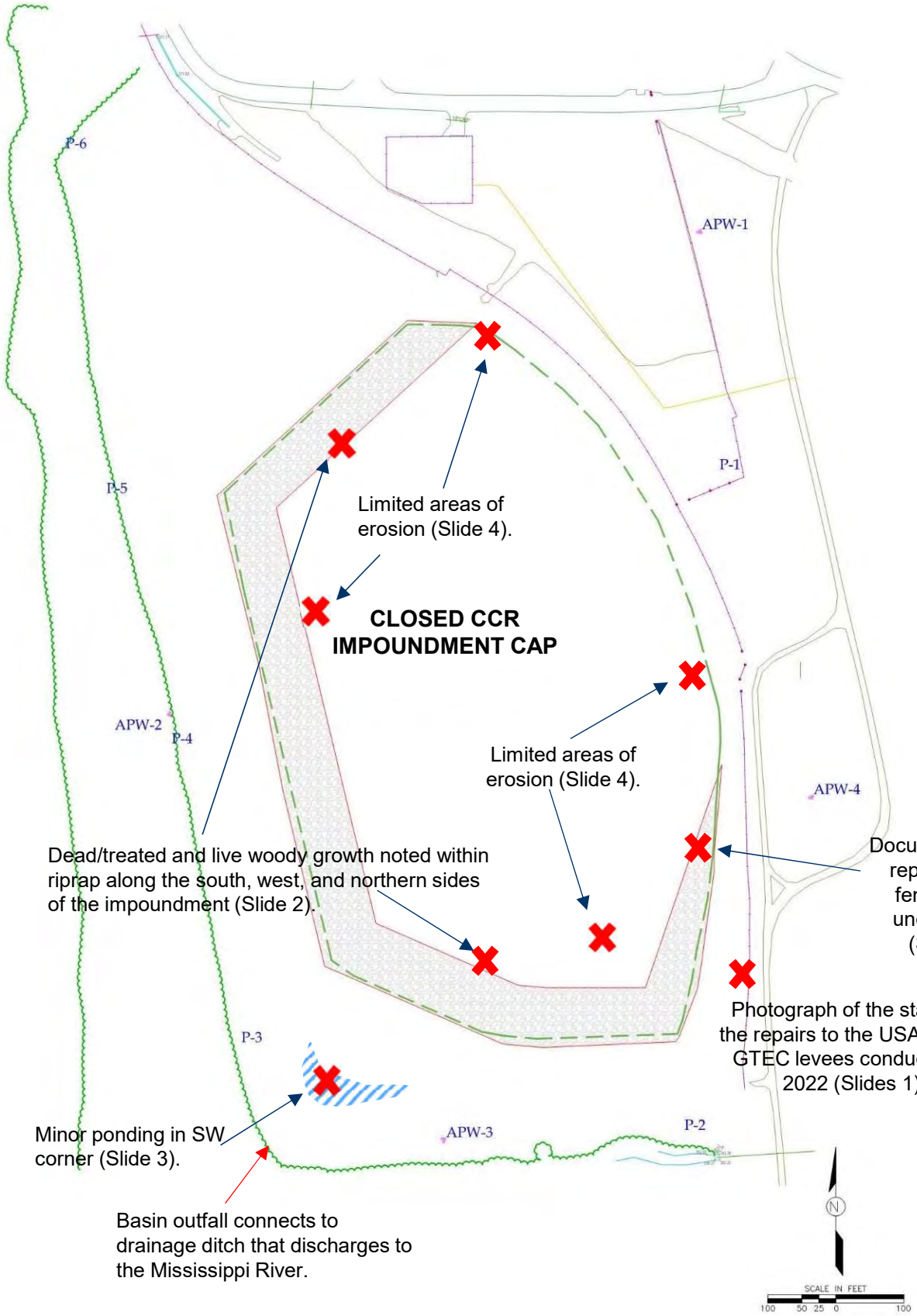
☐ Snow Cover
☒ Vegetation
☐ None
☐ Other

Observations in Detail Below:

- ERM onsite for the Q3 2024 inspection of the closed 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 channels noted across north, west, east, and southern closed CCR impoundment cap faces up to 13” deep.
- Ponding continues to be noted in the SW corner of the basin near the outfall.
- The impoundment cap was mowed during Q3 2024 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 Q3 2024 Closed CCR Impoundment Cap Inspection

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

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

Facing south 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.

Sparse woody vegetation on riprap facing north.

Picture facing south towards impoundment cap.

Woody vegetation on south 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.

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 channel on north side of impoundment cap.

Erosion channel on west side of impoundment cap.

Erosion channel on south side of impoundment cap.

Erosion channel on east side of impoundment cap.

APPENDIX B THIRD QUARTER 2024 GROUDNWATER MONITORING WELL INSPECTION FORMS

Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID:	APW-01R		Date:	9/4/2024
Total Depth (Actual):	58.30	(BTOC)	Time:	12:59 PM
Total Depth (Measured):	59.20	(BTOC)	Collection Order:	5
Depth to Water (Measured):	30.67	(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:

Large hole, 3ft southeast of monitoring well.

Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID:	APW-02		Date:	9/4/2024
Total Depth (Actual):	58.75	(BTOC)	Time:	12:37 PM
Total Depth (Measured):	59.30	(BTOC)	Collection Order:	4
Depth to Water (Measured):	30.90	(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:	9/4/2024
Total Depth (Actual):	54.65	(BTOC)	Time:	1:57 PM
Total Depth (Measured):	60.80	(BTOC)	Collection Order:	12
Depth to Water (Measured):	29.95	(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:	9/4/2024
Total Depth (Actual):	60.40	(BTOC)	Time:	1:25 PM
Total Depth (Measured):	61.30	(BTOC)	Collection Order:	7
Depth to Water (Measured):	31.41	(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:	2 ballards are very lose.

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:	9/4/2024
Total Depth (Actual):	56.90	(BTOC)	Time:	12:14 PM
Total Depth (Measured):	63.50	(BTOC)	Collection Order:	3
Depth to Water (Measured):	30.40	(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:	No ballards present.

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:	9/4 - 9/5/2024
Total Depth (Actual):	152.57	(BTOC)	Time:	12:01 PM
Total Depth (Measured):	158.05	(BTOC)	Collection Order:	2
Depth to Water (Measured):	28.50	(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:	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. Wasp nest in protector lid, removed on 9/4 and finished inspection on 9/5.

Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID:	APW-06S		Date:	9/4/2024
Total Depth (Actual):	63.98	(BTOC)	Time:	11:58 AM
Total Depth (Measured):	64.62	(BTOC)	Collection Order:	1
Depth to Water (Measured):	29.77	(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:	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:	9/4/2024
Total Depth (Actual):	63.35	(BTOC)	Time:	1:43 PM
Total Depth (Measured):	64.45	(BTOC)	Collection Order:	10
Depth to Water (Measured):	26.10	(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:	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 was pressurized.

Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID:	APW-08		Date:	9/4/2024
Total Depth (Actual):	61.89	(BTOC)	Time:	1:51 PM
Total Depth (Measured):	63.34	(BTOC)	Collection Order:	11
Depth to Water (Measured):	26.55	(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-09		Date:	9/4/2024
Total Depth (Actual):	63.40	(BTOC)	Time:	1:09 PM
Total Depth (Measured):	64.18	(BTOC)	Collection Order:	6
Depth to Water (Measured):	30.35	(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:	9/4/2024
Total Depth (Actual):	98.19	(BTOC)	Time:	1:32 AM
Total Depth (Measured):	100.05	(BTOC)	Collection Order:	9
Depth to Water (Measured):	23.00	(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:	9/4/2024
Total Depth (Actual):	62.84	(BTOC)	Time:	1:31 PM
Total Depth (Measured):	63.65	(BTOC)	Collection Order:	8
Depth to Water (Measured):	26.25	(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:

APPENDIX C THIRD QUARTER 2024 FIELD DATA FORMS

Low Flow Groundwater Sampling Field Data Form	Well ID: APW-01R Well Permit No:	Date: 2024/09/05

Site ID GTEC-GRAND-TOWER	**Purge Method / Pump Intake Depth** Low_Flow / 54.2 (ft)	**Reference Elevation** 366.82 (ft)
Site Address 1820 Power Plant Road, Grand Tower, US-IL	**Purge Equipment** NA	**Depth to Water / Free Product** 30.8 (ft) / None
Project Number 0599247	**Sample Equipment** NA	**Total Well Depth** 59.2 (ft)
Project Name 20240429-GWMonitor	**Average Purge Rate** 450 (mL/min)	**Well Diameter / Well Screen Interval** 2 (in) / 48.3 - 58.3 ()
Sampler marshall arendell	**Volume of Water in Well / Total Volume Purged** 4.63 (gal) / 4.5 (gal)	**Well Construction**

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
15:22	30.8	450	0	18.7	6.27	0.3	NM	3.21	101.2	455	NM	TURBID, NO ODORS
15:27	30.8	450	0.5	16.8	6.34	0.3	NM	2.1	98.7	434	NM	TURBID, NO ODORS
15:32	30.8	450	1	16.6	6.49	0.3	NM	1.66	101.1	209	NM	TURBID, NO ODORS
15:37	30.8	450	1.5	16.7	6.6	0.3	NM	1.57	102.7	103	NM	CLOUDY, NO ODORS
15:42	30.8	450	2	16.6	6.6	0.3	NM	1.6	104.4	58.5	NM	CLOUDY, NO ODORS
15:47	30.8	450	2.5	16.3	6.64	0.3	NM	1.57	105.9	48.4	NM	CLOUDY, NO ODORS
15:52	30.8	450	3	16.5	6.65	0.3	NM	1.53	107.8	26.4	NM	CLEAR, NO ODORS
15:57	30.8	450	3.5	16.3	6.59	0.3	NM	1.52	110.2	19.6	NM	CLEAR, NO ODORS
16:02	30.8	450	4	16.3	6.54	0.3	NM	1.52	112.2	18.6	NM	CLEAR, NO ODORS
16:07	30.8	450	4.5	16.3	6.55	0.3	NM	1.51	113.6	19.2	NM	CLEAR, NO ODORS

Sample ID(s):	Additional Comments	SAMPLER NAME AND SIGNATURE	Date Time
APW-01R-WG-20240905		Marshall Arendell 	09/11/2024 18:00
Analysis:			

Low Flow Groundwater Sampling Field Data Form	Well ID: APW-02 Well Permit No:	Date: 2024/09/05

Site ID GTEC-GRAND-TOWER	**Purge Method / Pump Intake Depth** Low_Flow / 54.3 (ft)	**Reference Elevation** 364.61 (ft)
Site Address 1820 Power Plant Road, Grand Tower, US-IL	**Purge Equipment** NA	**Depth to Water / Free Product** 28.5 (ft) / None
Project Number 0599247	**Sample Equipment** NA	**Total Well Depth** 59.3 (ft)
Project Name 20240429-GWMonitor	**Average Purge Rate** 193.8 (mL/min)	**Well Diameter / Well Screen Interval** 2 (in) / 47.2 - 57.2 ()
Sampler marshall arendell	**Volume of Water in Well / Total Volume Purged** 5.03 (gal) / 1.3 (gal)	**Well Construction**

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
10:05	31	250	0	18.7	7.07	0.6	NM	3	80.1	65.8	NM	CLEAR, NO ODOR
10:10	33.25	250	0.25	19.2	7.1	0.5	NM	2.72	38.7	1000	NM	TURBID, BROWN, NO ODOR
10:15	34.41	200	0.5	19.6	7.09	0.5	NM	2.48	31.6	416	NM	CLOUDY, NO ODORS
10:20	35.03	200	0.75	20.5	7.1	0.5	NM	2.28	26	307	NM	CLOUDY, NO ODORS
10:25	35.57	200	1	20.7	7.11	0.5	NM	1.66	27.5	410	NM	CLOUDY, NO ODORS
10:30	35.94	150	1.1	21.4	7.1	0.5	NM	1.43	33.4	177	NM	CLOUDY, NO ODORS
10:35	36.18	150	1.2	21.7	7.1	0.5	NM	1.36	39.1	171	NM	CLOUDY, NO ODORS
10:40	36.59	150	1.3	21.9	7.1	0.5	NM	1.28	40.5	174	NM	CLOUDY, NO ODORS

Sample ID(s):	Additional Comments	SAMPLER NAME AND SIGNATURE	Date Time
APW-02-WG-20240905		Marshall Arendell 	09/11/2024 19:46
Analysis:			

Low Flow Groundwater Sampling Field Data Form	Well ID: APW-03 Well Permit No:	Date: 2024/09/04

Site ID GTEC-GRAND-TOWER	**Purge Method / Pump Intake Depth** Low_Flow / 55.8 (ft)	**Reference Elevation** 365.79 (ft)
Site Address 1820 Power Plant Road, Grand Tower, US-IL	**Purge Equipment** NA	**Depth to Water / Free Product** 29.95 (ft) / None
Project Number 0599247	**Sample Equipment** NA	**Total Well Depth** 60.8 (ft)
Project Name 20240429-GWMonitor	**Average Purge Rate** 450 (mL/min)	**Well Diameter / Well Screen Interval** 2 (in) / 45.7 - 55.7 ()
Sampler marshall arendell	**Volume of Water in Well / Total Volume Purged** 5.03 (gal) / 2.5 (gal)	**Well Construction**

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
14:25	29.95	450	0	16.2	7.47	0.7	NM	2.59	83.2	54.8	NM	CLEAR, NO ODORS
14:30	29.95	450	0.5	15.4	7.85	0.7	NM	0.52	7.9	10.7	NM	CLEAR, NO ODORS
14:35	29.95	450	1	15.5	7.86	0.6	NM	0.37	10.1	4.32	NM	CLEAR, NO ODORS
14:40	29.95	450	1.5	15.6	7.87	0.6	NM	0.3	11.6	2.87	NM	CLEAR, NO ODORS
14:45	29.95	450	2	15.4	7.87	0.6	NM	0.25	16.9	2.14	NM	CLEAR, NO ODORS
14:50	29.95	450	2.5	15.3	7.88	0.6	NM	0.22	16.3	1.94	NM	CLEAR, NO ODORS

Sample ID(s):	Additional Comments	SAMPLER NAME AND SIGNATURE	Date Time
APW-03-WG-20240904		Marshall Arendell 	09/11/2024 19:54
Analysis:			

Low Flow Groundwater Sampling Field Data Form	Well ID: APW-04 Well Permit No:	Date: 2024/09/04

Site ID GTEC-GRAND-TOWER	**Purge Method / Pump Intake Depth** Low_Flow / 56.3 (ft)	**Reference Elevation** 367.44 (ft)
Site Address 1820 Power Plant Road, Grand Tower, US-IL	**Purge Equipment** NA	**Depth to Water / Free Product** 31.41 (ft) / None
Project Number 0599247	**Sample Equipment** NA	**Total Well Depth** 61.3 (ft)
Project Name 20240429-GWMonitor	**Average Purge Rate** 500 (mL/min)	**Well Diameter / Well Screen Interval** 2 (in) / 45.7 - 55.7 ()
Sampler marshall arendell	**Volume of Water in Well / Total Volume Purged** 4.88 (gal) / 3 (gal)	**Well Construction**

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
17:40	31.41	500	0	18	7.09	0.4	NM	1.27	111.4	230	NM	CLOUDY, NO ODORS
17:45	31.41	500	0.5	17.6	7.16	0.4	NM	0.5	106	110	NM	CLOUDY, NO ODORS
17:50	31.41	500	1	17.6	7.17	0.4	NM	0.21	108.7	57.1	NM	CLOUDY, NO ODORS
17:55	31.41	500	1.5	17.5	7.17	0.4	NM	0.14	110.7	43.1	NM	CLOUDY, NO ODORS
18:00	31.41	500	2	17.4	7.17	0.4	NM	0.11	112.1	33.6	NM	CLOUDY, NO ODORS
18:05	31.41	500	2.5	17.5	7.17	0.4	NM	0.1	112.9	30.6	NM	CLOUDY, NO ODORS
18:10	31.41	500	3	17.5	7.17	0.4	NM	0.09	113.4	30.2	NM	CLOUDY, NO ODORS

Sample ID(s):	Additional Comments	SAMPLER NAME AND SIGNATURE	Date Time
APW-04-WG-20240904		Marshall Arendell 	09/11/2024 20:06
Analysis:			

Low Flow Groundwater Sampling Field Data Form	Well ID: APW-05R Well Permit No:	Date: 2024/09/05

Site ID GTEC-GRAND-TOWER	**Purge Method / Pump Intake Depth** Low_Flow / 58.5 (ft)	**Reference Elevation** ()
Site Address 1820 Power Plant Road, Grand Tower, US-IL	**Purge Equipment** NA	**Depth to Water / Free Product** 30.5 (ft) / None
Project Number 0599247	**Sample Equipment** NA	**Total Well Depth** 63.5 (ft)
Project Name 20240429-GWMonitor	**Average Purge Rate** 450 (mL/min)	**Well Diameter / Well Screen Interval** 2 (in) / - ()
Sampler marshall arendell	**Volume of Water in Well / Total Volume Purged** 5.39 (gal) / 4.5 (gal)	**Well Construction**

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
11:43	30.5	450	0	17.9	7.48	0.4	NM	2.01	114.1	805	NM	TURBID, LIGHT BROWN, NO ODORS
11:48	30.5	450	0.5	17.3	7.4	0.4	NM	1.05	78.7	579	NM	TURBID, LIGHT BROWN, NO ODORS
11:53	30.5	450	1	17.4	7.44	0.4	NM	0.74	62.7	413	NM	TURBID, LIGHT BROWN, NO ODORS
11:58	30.5	450	1.5	17.3	7.5	0.4	NM	0.52	52.1	301	NM	TURBID, LIGHT BROWN, NO ODORS
12:03	30.5	450	2	17.3	7.5	0.4	NM	0.24	45.5	160	NM	CLOUDY, LIGHT BROWN, NO ODORS
12:08	30.5	450	2.5	17.3	7.5	0.4	NM	0.26	40.2	94.8	NM	CLOUDY, LIGHT BROWN, NO ODORS
12:13	30.5	450	3	17.4	7.52	0.4	NM	0.21	35.6	67.1	NM	CLEAR, NO ODORS
12:18	30.5	450	3.5	17.4	7.5	0.4	NM	0.2	33.1	59.5	NM	CLEAR, NO ODORS
12:23	30.5	450	4	17.4	7.53	0.4	NM	0.07	27.7	62.1	NM	CLEAR, NO ODORS
12:28	30.5	450	4.5	17.3	7.53	0.4	NM	0.07	24.4	64.1	NM	CLEAR, NO ODORS

Sample ID(s):	Additional Comments	SAMPLER NAME AND SIGNATURE	Date Time
APW-05R-WG-20240905,DUP-01-WG-20240905		Marshall Arendell 	09/11/2024 21:18
Analysis:			

Low Flow Groundwater Sampling Field Data Form	Well ID: APW-06D Well Permit No:	Date: 2024/09/05

Site ID GTEC-GRAND-TOWER	**Purge Method / Pump Intake Depth** Low_Flow / 153.05 (ft)	**Reference Elevation** 363.69 (ft)
Site Address 1820 Power Plant Road, Grand Tower, US-IL	**Purge Equipment** NA	**Depth to Water / Free Product** 28.45 (ft) / None
Project Number 0599247	**Sample Equipment** NA	**Total Well Depth** 158.05 (ft)
Project Name 20240429-GWMonitor	**Average Purge Rate** 450 (mL/min)	**Well Diameter / Well Screen Interval** 2 (in) / 140 - 150 (ft)
Sampler marshall arendell	**Volume of Water in Well / Total Volume Purged** 21.15 (gal) / 2.5 (gal)	**Well Construction**

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
08:45	28.47	450	0	15.7	7.25	0.5	NM	4.03	68.1	33.9	NM	CLEAR, ROTTEN EGG-LIKE ODOR
08:50	28.47	450	0.5	16.5	7.23	0.5	NM	0.87	55.3	190	NM	CLOUDY, ROTTEN EGG-LIKE ODOR
08:55	28.47	450	1	15.5	7.21	0.5	NM	0.2	48.9	70.6	NM	CLOUDY, ROTTEN EGG-LIKE ODOR
09:00	28.47	450	1.5	15.4	7.21	0.5	NM	0.1	44.1	23.1	NM	CLOUDY, ROTTEN EGG-LIKE ODOR
09:05	28.47	450	2	15.6	7.21	0.5	NM	0.07	38.9	23.2	NM	CLOUDY, ROTTEN EGG-LIKE ODOR
09:10	28.47	450	2.5	15.6	7.21	0.5	NM	0.07	36.9	21.8	NM	CLOUDY, ROTTEN EGG-LIKE ODOR

Sample ID(s):	Additional Comments	SAMPLER NAME AND SIGNATURE	Date Time
APW-06D-WG-20240905		Marshall Arendell 	09/11/2024 20:24
Analysis:			

Low Flow Groundwater Sampling Field Data Form	Well ID: APW-06S Well Permit No:	Date: 2024/09/05

Site ID GTEC-GRAND-TOWER	**Purge Method / Pump Intake Depth** Low_Flow / 59.62 (ft)	**Reference Elevation** 363.51 (ft)
Site Address 1820 Power Plant Road, Grand Tower, US-IL	**Purge Equipment** NA	**Depth to Water / Free Product** 29.77 (ft) / None
Project Number 0599247	**Sample Equipment** NA	**Total Well Depth** 64.62 (ft)
Project Name 20240429-GWMonitor	**Average Purge Rate** 450 (mL/min)	**Well Diameter / Well Screen Interval** 2 (in) / 50 - 60 (ft)
Sampler marshall arendell	**Volume of Water in Well / Total Volume Purged** 5.69 (gal) / 2.5 (gal)	**Well Construction**

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
07:52	30.09	450	0	16.1	7.12	0.5	NM	0.89	94.6	258	NM	CLOUDY, NO ODORS
07:57	30.1	450	0.5	14.6	7.05	0.5	NM	0.16	37.8	9.61	NM	CLEAR, NO ODORS
08:02	30.1	450	1	14.6	7.06	0.5	NM	0.13	18.8	7.83	NM	CLEAR, NO ODORS
08:07	30.1	450	1.5	14.6	7.06	0.5	NM	0.13	10.2	9.3	NM	CLEAR, NO ODORS
08:12	30.1	450	2	14.6	7.07	0.5	NM	0.12	4	7.5	NM	CLEAR, NO ODORS
08:17	30.1	450	2.5	14.6	7.07	0.5	NM	0.11	0.4	5.09	NM	CLEAR, NO ODORS

Sample ID(s):	Additional Comments	SAMPLER NAME AND SIGNATURE	Date Time
APW-06S-WG-20240905		Marshall Arendell 	09/11/2024 20:45
Analysis:			

Low Flow Groundwater Sampling Field Data Form	Well ID: APW-07 Well Permit No:	Date: 2024/09/04

Site ID GTEC-GRAND-TOWER	**Purge Method / Pump Intake Depth** Low_Flow / 59.45 (ft)	**Reference Elevation** 360.61 (ft)
Site Address 1820 Power Plant Road, Grand Tower, US-IL	**Purge Equipment** NA	**Depth to Water / Free Product** 25.96 (ft) / None
Project Number 0599247	**Sample Equipment** NA	**Total Well Depth** 64.45 (ft)
Project Name 20240429-GWMonitor	**Average Purge Rate** 450 (mL/min)	**Well Diameter / Well Screen Interval** 2 (in) / 50 - 60 (ft)
Sampler marshall arendell	**Volume of Water in Well / Total Volume Purged** 6.28 (gal) / 2 (gal)	**Well Construction**

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	26.14	450	0	19.5	6.83	0.6	NM	1.64	101.4	105	NM	CLOUDY, ROTTEN EGG-LIKE ODOR
16:40	26.19	450	0.5	15.6	6.76	0.5	NM	0.1	48.8	33.3	NM	CLEAR, ROTTEN EGG-LIKE ODOR
16:45	26.19	450	1	15.7	6.76	0.5	NM	0.07	35.8	9.31	NM	CLEAR, ROTTEN EGG-LIKE ODOR
16:50	26.19	450	1.5	15.6	6.75	0.5	NM	0.07	29.9	7.16	NM	CLEAR, ROTTEN EGG-LIKE ODOR
16:55	26.19	450	2	15.7	6.75	0.5	NM	0.09	26.3	5.27	NM	CLEAR, ROTTEN EGG-LIKE ODOR

Sample ID(s):	Additional Comments	SAMPLER NAME AND SIGNATURE	Date Time
APW-07-WG-20240904		Marshall Arendell 	09/11/2024 20:57
Analysis:			

Low Flow Groundwater Sampling Field Data Form	Well ID: APW-08 Well Permit No:	Date: 2024/09/04

Site ID GTEC-GRAND-TOWER	**Purge Method / Pump Intake Depth** Low_Flow / 58.34 (ft)	**Reference Elevation** 362.71 (ft)
Site Address 1820 Power Plant Road, Grand Tower, US-IL	**Purge Equipment** NA	**Depth to Water / Free Product** 26.55 (ft) / None
Project Number 0599247	**Sample Equipment** NA	**Total Well Depth** 63.34 (ft)
Project Name 20240429-GWMonitor	**Average Purge Rate** 450 (mL/min)	**Well Diameter / Well Screen Interval** 2 (in) / 50 - 60 (ft)
Sampler marshall arendell	**Volume of Water in Well / Total Volume Purged** 6 (gal) / 2.5 (gal)	**Well Construction**

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
15:48	26.47	450	0	17.3	7	0.5	NM	1.28	99.9	1000	NM	TURBID, BROWN, NO ODORS
15:53	26.47	450	0.5	16.6	6.99	0.5	NM	0.23	93.9	379	NM	CLOUDY, BROWN, NO ODORS
15:58	26.47	450	1	16.6	6.97	0.4	NM	0.09	98.5	222	NM	CLOUDY, BROWN, NO ODORS
16:03	26.47	450	1.5	16.7	6.97	0.4	NM	0.07	102.7	104	NM	CLOUDY, BROWN, NO ODORS
16:08	26.47	450	2	16.7	6.95	0.4	NM	0.05	104.6	101	NM	CLOUDY, BROWN, NO ODORS
16:13	26.47	450	2.5	16.7	6.95	0.4	NM	0.07	106.4	97.4	NM	CLOUDY, BROWN, NO ODORS

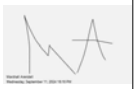
Sample ID(s):	Additional Comments	SAMPLER NAME AND SIGNATURE	Date Time
APW-08-WG-20240904		Marshall Arendell	09/11/2024 21:04
Analysis:			

Low Flow Groundwater Sampling Field Data Form	Well ID: APW-09 Well Permit No:	Date: 2024/09/06

Site ID GTEC-GRAND-TOWER	**Purge Method / Pump Intake Depth** Low_Flow / 59.18 (ft)	**Reference Elevation** 366.84 (ft)
Site Address 1820 Power Plant Road, Grand Tower, US-IL	**Purge Equipment** NA	**Depth to Water / Free Product** 30.57 (ft) / None
Project Number 0599247	**Sample Equipment** NA	**Total Well Depth** 64.18 (ft)
Project Name 20240429-GWMonitor	**Average Purge Rate** 500 (mL/min)	**Well Diameter / Well Screen Interval** 2 (in) / 50 - 60 (ft)
Sampler marshall arendell	**Volume of Water in Well / Total Volume Purged** 5.49 (gal) / 3 (gal)	**Well Construction**

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
08:20	30.57	500	0	17	7.35	0.3	NM	0.73	128.7	246	NM	CLOUDY, NO ODORS
08:25	30.57	500	0.5	15.5	7.17	0.3	NM	0.21	125.3	129	NM	CLOUDY, NO ODORS
08:30	30.57	500	1	15.4	7.15	0.3	NM	0.19	127.1	55	NM	CLEAR, NO ODORS
08:35	30.57	500	1.5	15.2	7.13	0.3	NM	0.15	128.5	16.7	NM	CLEAR, NO ODORS
08:40	30.57	500	2	15.3	7.12	0.3	NM	0.1	129.1	15.2	NM	CLEAR, NO ODORS
08:45	30.57	500	2.5	15.3	7.12	0.3	NM	0.08	129.7	14.1	NM	CLEAR, NO ODORS
08:50	30.57	500	3	15.3	7.11	0.3	NM	0.07	130.4	13.8	NM	CLEAR, NO ODORS

Sample ID(s):	Additional Comments	SAMPLER NAME AND SIGNATURE	Date Time
APW-09-WG-20240906,DUP-02-WG-20240906		Marshall Arendell 	09/11/2024 21:16
Analysis:			

Low Flow Groundwater Sampling Field Data Form	Well ID: APW-10D Well Permit No:	Date: 2024/09/05

Site ID GTEC-GRAND-TOWER	**Purge Method / Pump Intake Depth** Low_Flow / 95.05 (ft)	**Reference Elevation** 359.41 (ft)
Site Address 1820 Power Plant Road, Grand Tower, US-IL	**Purge Equipment** NA	**Depth to Water / Free Product** 23.1 (ft) / None
Project Number 0599247	**Sample Equipment** NA	**Total Well Depth** 100.05 (ft)
Project Name 20240429-GWMonitor	**Average Purge Rate** 500 (mL/min)	**Well Diameter / Well Screen Interval** 2 (in) / 86 - 96 (ft)
Sampler marshall arendell	**Volume of Water in Well / Total Volume Purged** 12.56 (gal) / 4.5 (gal)	**Well Construction**

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
13:25	23.1	500	0	19.9	7.22	0.4	NM	2.2	122.6	61.4	NM	CLOUDY, NO ODORS
13:30	23.1	500	0.5	18.2	7.15	0.4	NM	0.26	117.9	1000	NM	TURBID, WHITE, NO ODORS
13:35	23.1	500	1	16	7.1	0.3	NM	0.11	123.9	484	NM	TURBID, WHITE, NO ODORS
13:40	23.1	500	1.5	15.8	7.13	0.3	NM	0.08	128.3	237	NM	TURBID, WHITE, NO ODORS
13:45	23.1	500	2	15.8	7.13	0.3	NM	0.07	131.1	48.1	NM	CLOUDY, NO ODORS
13:50	23.1	500	2.5	15.8	7.04	0.3	NM	0.07	132.3	18.4	NM	CLEAR, NO ODORS
13:55	23.1	500	3	15.8	7.03	0.3	NM	0.06	133.1	11.2	NM	CLEAR, NO ODORS
14:00	23.1	500	3.5	15.8	7.02	0.3	NM	0.06	133.3	7.19	NM	CLEAR, NO ODORS
14:05	23.1	500	4	15.8	7.03	0.3	NM	0.06	133.7	6.05	NM	CLEAR, NO ODORS
14:10	23.1	500	4.5	15.8	7.03	0.3	NM	0.05	133.6	5.56	NM	CLEAR, NO ODORS

Sample ID(s):	Additional Comments	SAMPLER NAME AND SIGNATURE	Date Time
APW-10D-WG-20240905		Marshall Arendell 	09/11/2024 21:29
Analysis:			

Low Flow Groundwater Sampling Field Data Form	Well ID: APW-10S Well Permit No:	Date: 2024/09/05

Site ID GTEC-GRAND-TOWER	**Purge Method / Pump Intake Depth** Low_Flow / 58.65 (ft)	**Reference Elevation** 359.47 (ft)
Site Address 1820 Power Plant Road, Grand Tower, US-IL	**Purge Equipment** NA	**Depth to Water / Free Product** 26.09 (ft) / None
Project Number 0599247	**Sample Equipment** NA	**Total Well Depth** 63.65 (ft)
Project Name 20240429-GWMonitor	**Average Purge Rate** 500 (mL/min)	**Well Diameter / Well Screen Interval** 2 (in) / 50 - 60 (ft)
Sampler marshall arendell	**Volume of Water in Well / Total Volume Purged** 6.13 (gal) / 2.5 (gal)	**Well Construction**

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
14:29	26.65	500	0	16.1	6.81	0.5	NM	0.46	77.1	204	NM	CLOUDY, NO ODORS
14:34	26.79	500	0.5	15.7	6.77	0.5	NM	0.21	19.3	68.6	NM	CLOUDY, NO ODORS
14:39	26.84	500	1	15.7	6.72	0.4	NM	0.17	-3.9	23.5	NM	CLEAR, NO ODORS
14:44	26.84	500	1.5	15.7	6.73	0.4	NM	0.14	-15.6	8.98	NM	CLEAR, NO ODORS
14:49	26.9	500	2	15.6	6.75	0.4	NM	0.13	-20.2	9.33	NM	CLEAR, NO ODORS
14:54	26.9	500	2.5	15.6	6.75	0.4	NM	0.13	-22.9	9.12	NM	CLEAR, NO ODORS

Sample ID(s):	Additional Comments	SAMPLER NAME AND SIGNATURE	Date Time
APW-10S-WG-20240905		Marshall Arendell 	09/11/2024 21:51
Analysis:			

APPENDIX D – THIRD QUARTER 2024 LABORATORY ANALYTICAL REPORT

ANALYTICAL REPORT

October 02, 2024

ERM - St. Louis, MO

Sample Delivery Group:	L1775404
Samples Received:	09/07/2024
Project Number:	0599247
Description:	Grand Tower Energy Center Groundwater 3Q24 Sampling
Report To:	Randy Homburg
	1968 Craig Road, Suite 100
	Saint Louis, MO 63146

Entire Report Reviewed By:

Jeff Carr
Project Manager

Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

TABLE OF CONTENTS

APW-03-WG-20240904 L1775404-01 Non-Potable Water

Collected by: Marshell Arendell | Collected date/time: 09/04/24 15:00 | Received date/time: 09/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2356942	1	09/11/24 18:43	09/20/24 16:03	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2358602	1	09/09/24 10:48	09/20/24 16:03	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2358602	1	09/09/24 10:48	09/11/24 13:29	ZRG	Mt. Juliet, TN

APW-08-WG-20240904 L1775404-02 Non-Potable Water

Collected by: Marshell Arendell | Collected date/time: 09/04/24 16:15 | Received date/time: 09/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2356942	1	09/11/24 18:43	09/20/24 16:03	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2358602	1	09/09/24 10:48	09/20/24 16:03	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2358602	1	09/09/24 10:48	09/11/24 13:29	ZRG	Mt. Juliet, TN

APW-07-WG-20240904 L1775404-03 Non-Potable Water

Collected by: Marshell Arendell | Collected date/time: 09/04/24 17:00 | Received date/time: 09/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2356942	1	09/11/24 18:43	09/20/24 16:03	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2358602	1	09/09/24 10:48	09/20/24 16:03	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2358602	1	09/09/24 10:48	09/11/24 13:29	ZRG	Mt. Juliet, TN

APW-10S-WG-20240905 L1775404-04 Non-Potable Water

Collected by: Marshell Arendell | Collected date/time: 09/05/24 14:55 | Received date/time: 09/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2356942	1	09/11/24 18:43	09/20/24 16:03	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2358602	1	09/09/24 10:48	09/20/24 16:03	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2358602	1	09/09/24 10:48	09/11/24 13:29	ZRG	Mt. Juliet, TN

APW-10D-WG-20240905 L1775404-05 Non-Potable Water

Collected by: Marshell Arendell | Collected date/time: 09/05/24 14:15 | Received date/time: 09/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2356942	1	09/11/24 17:13	09/20/24 16:03	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2358602	1	09/09/24 10:48	09/20/24 16:03	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2358602	1	09/09/24 10:48	09/11/24 13:29	ZRG	Mt. Juliet, TN

APW-06S-WG-20240905 L1775404-06 Non-Potable Water

Collected by: Marshell Arendell | Collected date/time: 09/05/24 08:20 | Received date/time: 09/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2356942	1	09/11/24 17:13	09/20/24 16:03	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2358602	1	09/09/24 10:48	09/20/24 16:03	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2358602	1	09/09/24 10:48	09/11/24 13:29	ZRG	Mt. Juliet, TN

APW-06D-WG-20240905 L1775404-07 Non-Potable Water

Collected by: Marshell Arendell | Collected date/time: 09/05/24 09:15 | Received date/time: 09/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2356942	1	09/11/24 17:13	09/20/24 16:03	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2358602	1	09/09/24 10:48	09/20/24 16:03	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2358602	1	09/09/24 10:48	09/11/24 13:29	ZRG	Mt. Juliet, TN

APW-05R-WG-20240905 L1775404-08 Non-Potable Water

Collected by: Marshell Arendell | Collected date/time: 09/05/24 12:30 | Received date/time: 09/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2356942	1	09/11/24 17:14	09/20/24 16:03	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2358602	1	09/09/24 10:48	09/20/24 16:03	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2358602	1	09/09/24 10:48	09/11/24 13:29	ZRG	Mt. Juliet, TN

APW-09-WG-20240906 L1775404-09 Non-Potable Water

Collected by: Marshell Arendell | Collected date/time: 09/06/24 09:00 | Received date/time: 09/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2361562	1	09/12/24 18:43	09/24/24 21:02	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2358602	1	09/09/24 10:48	09/24/24 21:02	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2358602	1	09/09/24 10:48	09/11/24 13:29	ZRG	Mt. Juliet, TN

APW-02-WG-20240905 L1775404-10 Non-Potable Water

Collected by: Marshell Arendell | Collected date/time: 09/05/24 10:45 | Received date/time: 09/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2361562	1	09/12/24 18:43	09/24/24 21:02	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2358602	1	09/09/24 10:48	09/24/24 21:02	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2358602	1	09/09/24 10:48	09/11/24 13:29	ZRG	Mt. Juliet, TN

APW-01R-WG-20240905 L1775404-11 Non-Potable Water

Collected by: Marshell Arendell | Collected date/time: 09/05/24 16:10 | Received date/time: 09/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2361562	1	09/12/24 18:43	09/24/24 21:02	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2358602	1	09/09/24 10:48	09/24/24 21:02	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2358602	1	09/09/24 10:48	09/11/24 13:29	ZRG	Mt. Juliet, TN

APW-04-WG-20240904 L1775404-12 Non-Potable Water

Collected by: Marshell Arendell | Collected date/time: 09/04/24 18:15 | Received date/time: 09/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2361562	1	09/12/24 18:43	09/24/24 21:02	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2360503	1	09/11/24 14:55	09/24/24 21:02	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2360503	1	09/11/24 14:55	09/13/24 19:55	ZRG	Mt. Juliet, TN

SAMPLE SUMMARY

EB-01-WG-20240904 L1775404-13 Non-Potable Water

Collected by: Marshell Arendell
Collected date/time: 09/04/24 11:30
Received date/time: 09/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2361562	1	09/12/24 18:43	09/24/24 21:02	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2360503	1	09/11/24 14:55	09/24/24 21:02	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2360503	1	09/11/24 14:55	09/13/24 19:55	ZRG	Mt. Juliet, TN

DUP-01-WG-20240905 L1775404-14 Non-Potable Water

Collected by: Marshell Arendell
Collected date/time: 09/05/24 00:01
Received date/time: 09/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2361562	1	09/12/24 18:43	09/24/24 21:02	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2360503	1	09/11/24 14:55	09/24/24 21:02	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2360503	1	09/11/24 14:55	09/13/24 19:55	ZRG	Mt. Juliet, TN

DUP-02-WG-20240906 L1775404-15 Non-Potable Water

Collected by: Marshell Arendell
Collected date/time: 09/06/24 00:02
Received date/time: 09/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2361562	1	09/12/24 18:43	09/24/24 21:02	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2360503	1	09/11/24 14:55	09/24/24 21:02	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2360503	1	09/11/24 14:55	09/13/24 19:55	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

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	1.40		0.319	0.596	0.542	0.285	09/20/2024 16:03	WG2356942
(T) Barium	*101*					*30.0-143*	*09/20/2024 16:03*	WG2356942
(T) Yttrium	*118*					*30.0-136*	*09/20/2024 16:03*	WG2356942

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.90		0.406	0.567	09/20/2024 16:03	WG2358602

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	0.493		0.251	0.521	0.167	0.131	09/11/2024 13:29	WG2358602
(T) Barium-133	*98.3*					*30.0-143*	*09/11/2024 13:29*	WG2358602

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	0.959		0.240	0.438	0.412	0.216	09/20/2024 16:03	WG2356942
(T) Barium	*118*					*30.0-143*	*09/20/2024 16:03*	WG2356942
(T) Yttrium	*108*					*30.0-136*	*09/20/2024 16:03*	WG2356942

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.26		0.312	0.440	09/20/2024 16:03	WG2358602

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	0.296		0.200	0.403	0.155	0.128	09/11/2024 13:29	WG2358602
(T) Barium-133	*102*					*30.0-143*	*09/11/2024 13:29*	WG2358602

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	0.736		0.361	0.639	0.640	0.334	09/20/2024 16:03	WG2356942
(T) Barium	*112*					*30.0-143*	*09/20/2024 16:03*	WG2356942
(T) Yttrium	*120*					*30.0-136*	*09/20/2024 16:03*	WG2356942

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.933		0.401	0.666	09/20/2024 16:03	WG2358602

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	0.197		0.174	0.326	0.185	0.145	09/11/2024 13:29	WG2358602
(T) Barium-133	*95.2*					*30.0-143*	*09/11/2024 13:29*	WG2358602

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-228	-0.0143	U	0.345	0.624	0.633	0.330	09/20/2024 16:03	WG2356942
(T) Barium	*126*					*30.0-143*	*09/20/2024 16:03*	WG2356942
(T) Yttrium	*99.3*					*30.0-136*	*09/20/2024 16:03*	WG2356942

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.498	J	0.430	0.652	09/20/2024 16:03	WG2358602

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.498		0.257	0.530	0.155	0.128	09/11/2024 13:29	WG2358602
(T) Barium-133	*101*					*30.0-143*	*09/11/2024 13:29*	WG2358602

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-228	-0.266	U	0.253	0.451	0.469	0.245	09/20/2024 16:03	WG2356942
(T) Barium	*117*					*30.0-143*	*09/20/2024 16:03*	WG2356942
(T) Yttrium	*115*					*30.0-136*	*09/20/2024 16:03*	WG2356942

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.163	U	0.295	0.494	09/20/2024 16:03	WG2358602

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.163		0.151	0.293	0.156	0.129	09/11/2024 13:29	WG2358602
(T) Barium-133	*101*					*30.0-143*	*09/11/2024 13:29*	WG2358602

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 pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.667	J	0.386	0.663	0.687	0.358	09/20/2024 16:03	WG2356942
(T) Barium	*101*					*30.0-143*	*09/20/2024 16:03*	WG2356942
(T) Yttrium	*112*					*30.0-136*	*09/20/2024 16:03*	WG2356942

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.977		0.443	0.718	09/20/2024 16:03	WG2358602

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.310		0.217	0.406	0.210	0.155	09/11/2024 13:29	WG2358602
(T) Barium-133	*99.5*					*30.0-143*	*09/11/2024 13:29*	WG2358602

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	1.83		0.372	0.650	0.629	0.329	09/20/2024 16:03	WG2356942
(T) Barium	*110*					*30.0-143*	*09/20/2024 16:03*	WG2356942
(T) Yttrium	*119*					*30.0-136*	*09/20/2024 16:03*	WG2356942

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	2.27		0.448	0.649	09/20/2024 16:03	WG2358602

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	0.447		0.249	0.481	0.161	0.133	09/11/2024 13:29	WG2358602
(T) Barium-133	*96.3*					*30.0-143*	*09/11/2024 13:29*	WG2358602

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.460	J	0.343	0.620	0.615	0.322	09/20/2024 16:03	WG2356942
(T) Barium	*122*					*30.0-143*	*09/20/2024 16:03*	WG2356942
(T) Yttrium	*107*					*30.0-136*	*09/20/2024 16:03*	WG2356942

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.473	J	0.353	0.645	09/20/2024 16:03	WG2358602

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.0135	U	0.0835	0.127	0.195	0.148	09/11/2024 13:29	WG2358602
(T) Barium-133	*99.0*					*30.0-143*	*09/11/2024 13:29*	WG2358602

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	0.997		0.496	0.959	0.884	0.466	09/24/2024 21:02	WG2361562
(T) Barium	*115*					*30.0-143*	*09/24/2024 21:02*	WG2361562
(T) Yttrium	*100*					*30.0-136*	*09/24/2024 21:02*	WG2361562

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.09		0.510	0.898	09/24/2024 21:02	WG2358602

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	0.0956	J	0.120	0.203	0.157	0.130	09/11/2024 13:29	WG2358602
(T) Barium-133	*93.8*					*30.0-143*	*09/11/2024 13:29*	WG2358602

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	1.15		0.464	0.801	0.818	0.430	09/24/2024 21:02	WG2361562
(T) Barium	*71.9*					*30.0-143*	*09/24/2024 21:02*	WG2361562
(T) Yttrium	*98.1*					*30.0-136*	*09/24/2024 21:02*	WG2361562

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.55		0.519	0.833	09/24/2024 21:02	WG2358602

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	0.402		0.233	0.468	0.157	0.130	09/11/2024 13:29	WG2358602
(T) Barium-133	*94.7*					*30.0-143*	*09/11/2024 13:29*	WG2358602

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	-0.199	U	0.295	0.516	0.549	0.287	09/24/2024 21:02	WG2361562
(T) Barium	*81.9*					*30.0-143*	*09/24/2024 21:02*	WG2361562
(T) Yttrium	*107*					*30.0-136*	*09/24/2024 21:02*	WG2361562

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.167	U	0.338	0.584	09/24/2024 21:02	WG2358602

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	0.167	J	0.164	0.293	0.199	0.148	09/11/2024 13:29	WG2358602
(T) Barium-133	*103*					*30.0-143*	*09/11/2024 13:29*	WG2358602

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	0.510		0.209	0.407	0.369	0.195	09/24/2024 21:02	WG2361562
(T) Barium	*107*					*30.0-143*	*09/24/2024 21:02*	WG2361562
(T) Yttrium	*105*					*30.0-136*	*09/24/2024 21:02*	WG2361562

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.811		0.327	0.476	09/24/2024 21:02	WG2360503

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	0.302		0.252	0.456	0.301	0.203	09/13/2024 19:55	WG2360503
(T) Barium-133	*100*					*30.0-143*	*09/13/2024 19:55*	WG2360503

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	-0.0548	U	0.206	0.404	0.384	0.203	09/24/2024 21:02	WG2361562
(T) Barium	*120*					*30.0-143*	*09/24/2024 21:02*	WG2361562
(T) Yttrium	*104*					*30.0-136*	*09/24/2024 21:02*	WG2361562

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.000	U	0.211	0.433	09/24/2024 21:02	WG2360503

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	-0.0150	U	0.0466	0.0888	0.199	0.156	09/13/2024 19:55	WG2360503
(T) Barium-133	*98.4*					*30.0-143*	*09/13/2024 19:55*	WG2360503

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	1.10		0.203	0.401	0.335	0.178	09/24/2024 21:02	WG2361562
(T) Barium	*100*					*30.0-143*	*09/24/2024 21:02*	WG2361562
(T) Yttrium	*102*					*30.0-136*	*09/24/2024 21:02*	WG2361562

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	2.43		0.462	0.369	09/24/2024 21:02	WG2360503

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	1.33		0.415	0.993	0.154	0.127	09/13/2024 19:55	WG2360503
(T) Barium-133	*104*					*30.0-143*	*09/13/2024 19:55*	WG2360503

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	0.552		0.263	0.480	0.468	0.247	09/24/2024 21:02	WG2361562
(T) Barium	*93.8*					*30.0-143*	*09/24/2024 21:02*	WG2361562
(T) Yttrium	*89.5*					*30.0-136*	*09/24/2024 21:02*	WG2361562

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.22		0.390	0.496	09/24/2024 21:02	WG2360503

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	0.671		0.288	0.628	0.164	0.129	09/13/2024 19:55	WG2360503
(T) Barium-133	*106*					*30.0-143*	*09/13/2024 19:55*	WG2360503

QUALITY CONTROL SUMMARY

L1775404-01,02,03,04,05,06,07,08

Method Blank (MB)

(MB) R4125059-1 09/20/24 16:03

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-228	-0.430	U	0.181	0.346	0.181
(T) Barium	*122*		*122*		
(T) Yttrium	*93.1*		*93.1*		

L1775404-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1775404-08 09/20/24 16:03 • (DUP) R4125059-5 09/20/24 16:03

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	0.460	0.343	0.615	0.322	0.664	0.291	0.516	0.272	36.4	0.455		20	3
(T) Barium	*122*				*109*	*109*							
(T) Yttrium	*107*				*103*	*103*							

Laboratory Control Sample (LCS)

(LCS) R4125059-2 09/20/24 16:03

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	4.18	83.5	80.0-120	
(T) Barium			*123*		
(T) Yttrium			*113*		

L1773936-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1773936-06 09/20/24 16:03 • (MS) R4125059-3 09/20/24 16:03 • (MSD) R4125059-4 09/20/24 16:03

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	0.0260	15.1	12.5	90.4	74.8	1	70.0-130			18.9		20
(T) Barium		*124*			*124*	*98.3*							
(T) Yttrium		*114*			*113*	*110*							

Method Blank (MB)

(MB) R4126991-1 09/24/24 21:02

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-228	0.247	J	0.185	0.334	0.175
(T) Barium	*97.8*		*97.8*		
(T) Yttrium	*112*		*112*		

L1776572-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1776572-02 09/24/24 21:02 • (DUP) R4126991-5 09/24/24 21:02

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	0.816	0.362	0.640	0.334	0.171	0.273	0.502	0.266	131	1.42	U	20	3
(T) Barium	*98.1*				*102*	*102*							
(T) Yttrium	*112*				*116*	*116*							

Laboratory Control Sample (LCS)

(LCS) R4126991-2 09/24/24 21:02

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	4.05	81.0	80.0-120	
(T) Barium			*112*		
(T) Yttrium			*93.9*		

L1775404-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1775404-09 09/24/24 21:02 • (MS) R4126991-3 09/24/24 21:02 • (MSD) R4126991-4 09/24/24 21:02

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	0.997	12.7	12.8	70.1	70.7	1	70.0-130			0.784		20
(T) Barium		*115*			*91.3*	*120*							
(T) Yttrium		*100*			*107*	*89.8*							

Method Blank (MB)

(MB) R4118915-1 09/11/24 13:29

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-226	0.0116	U	0.0272	0.0462	0.0290
(T) Barium-133	*102*		*102*		

L1774968-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1774968-02 09/11/24 13:29 • (DUP) R4118915-5 09/11/24 13:29

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	0.761	0.315	0.154	0.127	0.562	0.332	0.330	0.223	30.2	0.437		20	3
(T) Barium-133	*105*				*107*	*107*							

Laboratory Control Sample (LCS)

(LCS) R4118915-2 09/11/24 13:29

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.00	4.54	90.8	75.0-125	
(T) Barium-133			*98.3*		

L1775404-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1775404-05 09/11/24 13:29 • (MS) R4118915-3 09/11/24 13:29 • (MSD) R4118915-4 09/11/24 13:29

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	0.163	18.1	17.9	89.7	88.9	1	75.0-125			0.943		20
(T) Barium-133		*101*			*101*	*100*							

Method Blank (MB)

(MB) R4120671-1 09/13/24 19:55

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-226	0.00603	U	0.0233	0.0530	0.0416
(T) Barium-133	*92.8*		*92.8*		

L1775404-12 Original Sample (OS) • Duplicate (DUP)

(OS) L1775404-12 09/13/24 19:55 • (DUP) R4120671-4 09/13/24 19:55

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	0.302	0.252	0.301	0.203	0.429	0.262	0.247	0.175	34.9	0.350		20	3
(T) Barium-133	*100*				*107*	*107*							

Laboratory Control Sample (LCS)

(LCS) R4120671-2 09/13/24 19:55

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.00	4.91	98.2	75.0-125	
(T) Barium-133			*95.7*		

L1775404-13 Original Sample (OS) • Matrix Spike (MS)

(OS) L1775404-13 09/13/24 19:55 • (MS) R4120671-3 09/13/24 19:55

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Radium-226	20.0	-0.0150	20.5	102	1	75.0-125	
(T) Barium-133		*98.4*		*103*			

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.

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	LAO000356
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.

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

Report to: **Randy Homburg**

Email To: Randy.Homburg@erm.com;Tim.Wilson@erm.co

Project Description: **Grand Tower Energy Center Groundwater 3Q24**

City/State Collected: Grand Tower, IL

Please Circle: PT MT CT 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

Immediately Packed on Ice N ___ Y X

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

Quote #

Date Results Needed

Analysis / Container / Preservative

Pres Chk

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	RA-226 1L-HDPE-Add HNO3	RA-228 1L-HDPE-Add HNO3								Remarks	Sample # (lab only)
APW-03-WG-2024 0904	Grab	NPW		9/4/24	1500	3	X	X									-01
APW-08-WG-2024 0904		NPW		9/4/24	1615	3	X	X									-02
APW-07-WG-2024 0904		NPW		9/4/24	1700	3	X	X									-03
APW-10S-WG-2024 0905		NPW		9/5/24	1455	3	X	X									-04
APW-10D-WG-2024 0905		NPW		9/5/24	1415	3	X	X									-05
APW-06S-WG-2024 0905		NPW		9/5/24	0820	3	X	X									-06
APW-06D-WG-2024 0905		NPW		9/5/24	0915	3	X	X									-07
APW-05R-WG-2024 0905		NPW		9/5/24	1230	3	X	X									-08
APW-09-WG-2024 0906		NPW		9/6/24	0900	3	X	X									-09
APW-02-WG-2024 0905		NPW		9/5/24	1045	3	X	X									-10

* 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 #

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
Marshall Arendell ERM	9/6/24		Escorted	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received: 45
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 09.07.24 Time: 0900

Sample Receipt Checklist

COC Seal Present/Intact:	NP	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

If p... PH-10BDH5021 TRC-3223A2026 ...Date/Time

Hold:

Condition: NCF / OK

Chain of Custody Page 1 of 2

Pace
PEOPLE ADVANCING SCIENCE

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 # L1754104
L-052

Acctnum: **ERMSCMO**
Template: **T243472**
Prelogin: **P1087429**
PM: **206 - Jeff Carr**
PB:

Shipped Via: **FedEX Ground**

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

Report to: **Randy Homburg**

Email To: Randy.Homburg@erm.com;Tim.Wilson@erm.co

Project Description: **Grand Tower Energy Center Groundwater 3Q24**

City/State Collected: Grand Tower, IL

Please Circle: PT MT CT 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

Immediately Packed on Ice N ___ Y X

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

Quote #

Date Results Needed

Analysis / Container / Preservative

Pres Chk

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	RA-226 1L-HDPE-Add HNO3	RA-228 1L-HDPE-Add-HNO3	Remarks	Sample # (lab only)
APW-01R-WG-2024 0905	Grab	NPW		9/5/24	1610	3	X	X		-11
APW-04-WG-2024 0904		NPW		9/4/24	1815	3	X	X		-12
EB-01-WG-2024 0904		NPW		9/4/24	1130	3	X	X		-13
DUP-01-WG-2024 0905		NPW		9/5/24	0001	3	X	X		-14
DUP-02-WG-2024 0906		NPW		9/6/24	0002	3	X	X		-15

Chain of Custody Page 2 of 2

Pace
PEOPLE ADVANCING SCIENCE

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 # L1175404

Table #

Acctnum: **ERMSCMO**

Template: **T243472**

Prelogin: **P1087429**

PM: **206 - Jeff Carr**

PB:

Shipped Via: **FedEX Ground**

* 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:	NP	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)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
Marshall Arendell ERM	9/6/24	12:33		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received: 45
				If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 09.07.24 Time: 0900
			CROBERTS	Hold: Condition: NCF / OK

L1775404

Fed Ex tracking #	Gun ID	Temperature
7123 3301 4872	TLA9	0.8+0.3=1.1
4040 5533 8765	TLA9	2.0+0.3=2.3
7123 3304 4894	TLA9	2.4+0.3=2.7

Name

Date

APPENDIX E – THIRD QUARTER 2024 RADIOLOGICAL LABORATORY ANALYTICAL REPORT

ANALYTICAL REPORT

September 26, 2024

ERM - St. Louis, MO

Sample Delivery Group:	L1775426
Samples Received:	09/07/2024
Project Number:	0599247
Description:	Grand Tower Energy Center Groundwater 3Q24 Sampling
Report To:	Randy Homburg
	1968 Craig Road, Suite 100
	Saint Louis, MO 63146

Entire Report Reviewed By:

Jeff Carr
Project Manager

Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

TABLE OF CONTENTS

APW-03-WG-20240904 L1775426-01 GW

Collected by: Marshall Avendell | Collected date/time: 09/04/24 15:00 | Received date/time: 09/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2358895	1	09/09/24 15:50	09/09/24 18:52	MMF	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2358129	1	09/09/24 03:48	09/09/24 03:48	DLH	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2358129	10	09/09/24 04:05	09/09/24 04:05	DLH	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG2358157	1	09/07/24 17:35	09/07/24 17:35	KRB	Mt. Juliet, TN
Mercury by Method 7470A	WG2358151	1	09/09/24 12:59	09/09/24 22:20	SDG	Mt. Juliet, TN
Mercury by Method 7470A	WG2358153	1	09/09/24 13:05	09/09/24 22:54	SDG	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2360872	1	09/20/24 11:27	09/20/24 21:16	MAP	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2362180	1	09/25/24 13:08	09/25/24 22:02	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2362186	1	09/25/24 13:16	09/26/24 02:11	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2362203	1	09/25/24 15:18	09/25/24 22:59	UNP	Mt. Juliet, TN

APW-08-WG-20240904 L1775426-02 GW

Collected by: Marshall Avendell | Collected date/time: 09/04/24 16:15 | Received date/time: 09/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2358895	1	09/09/24 15:50	09/09/24 18:52	MMF	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2358129	1	09/09/24 04:23	09/09/24 04:23	DLH	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG2358157	1	09/07/24 17:35	09/07/24 17:35	KRB	Mt. Juliet, TN
Mercury by Method 7470A	WG2358151	1	09/09/24 12:59	09/09/24 22:22	SDG	Mt. Juliet, TN
Mercury by Method 7470A	WG2358153	1	09/09/24 13:05	09/09/24 22:57	SDG	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2360872	1	09/20/24 11:27	09/20/24 21:17	MAP	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2362180	1	09/25/24 13:08	09/25/24 22:04	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2362186	1	09/25/24 13:16	09/26/24 02:15	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2362203	1	09/25/24 15:18	09/25/24 22:46	UNP	Mt. Juliet, TN

APW-07-WG-20240904 L1775426-03 GW

Collected by: Marshall Avendell | Collected date/time: 09/04/24 17:00 | Received date/time: 09/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2360092	1	09/11/24 08:17	09/11/24 15:28	DLS	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2358129	1	09/09/24 05:35	09/09/24 05:35	DLH	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG2358423	1	09/10/24 11:13	09/10/24 11:13	KA	Mt. Juliet, TN
Mercury by Method 7470A	WG2358153	1	09/09/24 13:05	09/09/24 22:59	SDG	Mt. Juliet, TN
Mercury by Method 7470A	WG2359509	1	09/10/24 16:22	09/11/24 14:16	NDL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2360872	1	09/20/24 11:27	09/20/24 21:19	MAP	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2362180	1	09/25/24 13:08	09/25/24 22:05	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2362186	1	09/25/24 13:16	09/26/24 02:18	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2362203	1	09/25/24 15:18	09/25/24 23:02	UNP	Mt. Juliet, TN

APW-10S-WG-20240905 L1775426-04 GW

Collected by: Marshall Avendell | Collected date/time: 09/05/24 14:55 | Received date/time: 09/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2358912	1	09/11/24 11:10	09/11/24 11:15	JAC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2358129	1	09/09/24 06:29	09/09/24 06:29	DLH	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG2358157	1	09/07/24 17:35	09/07/24 17:35	KRB	Mt. Juliet, TN
Mercury by Method 7470A	WG2358153	1	09/09/24 13:05	09/09/24 23:02	SDG	Mt. Juliet, TN
Mercury by Method 7470A	WG2359509	1	09/10/24 16:22	09/11/24 14:18	NDL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2360872	1	09/20/24 11:27	09/20/24 21:21	MAP	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2362180	1	09/25/24 13:08	09/25/24 22:07	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2362186	1	09/25/24 13:16	09/26/24 02:21	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2362203	1	09/25/24 15:18	09/26/24 00:42	UNP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2362203	5	09/25/24 15:18	09/25/24 23:05	UNP	Mt. Juliet, TN

APW-10D-WG-20240905 L1775426-05 GW

Collected by: Marshall Avendell | Collected date/time: 09/05/24 14:15 | Received date/time: 09/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2358912	1	09/11/24 11:10	09/11/24 11:15	JAC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2358129	1	09/09/24 06:47	09/09/24 06:47	DLH	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG2358157	1	09/07/24 17:35	09/07/24 17:35	KRB	Mt. Juliet, TN
Mercury by Method 7470A	WG2358153	1	09/09/24 13:05	09/09/24 23:04	SDG	Mt. Juliet, TN
Mercury by Method 7470A	WG2359509	1	09/10/24 16:22	09/11/24 14:20	NDL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2360872	1	09/20/24 11:27	09/20/24 21:23	MAP	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2362181	1	09/20/24 10:17	09/20/24 20:03	MAP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2362186	1	09/25/24 13:15	09/26/24 02:34	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2362203	1	09/25/24 15:18	09/25/24 23:08	UNP	Mt. Juliet, TN

APW-06S-WG-20240905 L1775426-06 GW

Collected by: Marshall Avendell | Collected date/time: 09/05/24 08:20 | Received date/time: 09/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2358911	1	09/09/24 16:44	09/09/24 22:34	MMF	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2358129	1	09/09/24 07:05	09/09/24 07:05	DLH	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG2358157	1	09/07/24 17:35	09/07/24 17:35	KRB	Mt. Juliet, TN
Mercury by Method 7470A	WG2358153	1	09/09/24 13:05	09/09/24 23:12	SDG	Mt. Juliet, TN
Mercury by Method 7470A	WG2359509	1	09/10/24 16:22	09/11/24 14:23	NDL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2360872	1	09/20/24 11:27	09/20/24 21:25	MAP	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2362181	1	09/20/24 10:17	09/20/24 20:06	MAP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2362186	1	09/25/24 13:15	09/26/24 02:37	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2362203	1	09/25/24 15:18	09/26/24 00:01	UNP	Mt. Juliet, TN

APW-06D-WG-20240905 L1775426-07 GW

Collected by: Marshall Avendell | Collected date/time: 09/05/24 09:15 | Received date/time: 09/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2358912	1	09/11/24 11:10	09/11/24 11:15	JAC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2358129	1	09/09/24 07:41	09/09/24 07:41	DLH	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2358129	10	09/09/24 08:35	09/09/24 08:35	DLH	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG2358157	1	09/07/24 17:35	09/07/24 17:35	KRB	Mt. Juliet, TN
Mercury by Method 7470A	WG2358153	1	09/09/24 13:05	09/09/24 23:14	SDG	Mt. Juliet, TN
Mercury by Method 7470A	WG2359509	1	09/10/24 16:22	09/11/24 14:25	NDL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2360872	1	09/20/24 11:27	09/20/24 21:30	MAP	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2362181	1	09/20/24 10:17	09/20/24 20:09	MAP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2362186	1	09/25/24 13:15	09/26/24 02:41	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2362203	1	09/25/24 15:18	09/26/24 00:04	UNP	Mt. Juliet, TN

APW-05R-WG-20240905 L1775426-08 GW

Collected by: Marshall Avendell | Collected date/time: 09/05/24 12:30 | Received date/time: 09/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2358912	1	09/11/24 11:10	09/11/24 11:15	JAC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2358129	1	09/09/24 08:53	09/09/24 08:53	DLH	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG2358157	1	09/07/24 17:35	09/07/24 17:35	KRB	Mt. Juliet, TN
Mercury by Method 7470A	WG2358153	1	09/09/24 13:05	09/09/24 23:17	SDG	Mt. Juliet, TN
Mercury by Method 7470A	WG2359509	1	09/10/24 16:22	09/11/24 14:28	NDL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2360872	1	09/20/24 11:27	09/20/24 21:32	MAP	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2362181	1	09/20/24 10:17	09/20/24 20:12	MAP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2362186	1	09/25/24 13:15	09/26/24 02:44	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2362203	1	09/25/24 15:18	09/26/24 00:07	UNP	Mt. Juliet, TN

APW-09-WG-20240906 L1775426-09 GW

Collected by: Marshall Avendell | Collected date/time: 09/06/24 09:00 | Received date/time: 09/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2358912	1	09/11/24 11:10	09/11/24 11:15	JAC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2358129	1	09/09/24 09:11	09/09/24 09:11	DLH	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG2358157	1	09/07/24 17:35	09/07/24 17:35	KRB	Mt. Juliet, TN
Mercury by Method 7470A	WG2358153	1	09/09/24 13:05	09/09/24 23:19	SDG	Mt. Juliet, TN
Mercury by Method 7470A	WG2359509	1	09/10/24 16:22	09/11/24 14:01	NDL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2360872	1	09/20/24 11:27	09/20/24 21:33	MAP	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2362181	1	09/20/24 10:17	09/20/24 20:20	MAP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2362186	1	09/25/24 13:15	09/26/24 02:47	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2362203	1	09/25/24 15:18	09/26/24 00:10	UNP	Mt. Juliet, TN

APW-02-WG-20240905 L1775426-10 GW

Collected by: Marshall Avendell | Collected date/time: 09/05/24 10:45 | Received date/time: 09/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2358895	1	09/09/24 15:50	09/09/24 18:52	MMF	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2358129	1	09/09/24 09:29	09/09/24 09:29	DLH	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2358129	10	09/09/24 09:47	09/09/24 09:47	DLH	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG2358157	1	09/07/24 17:35	09/07/24 17:35	KRB	Mt. Juliet, TN
Mercury by Method 7470A	WG2358153	1	09/09/24 13:05	09/09/24 23:22	SDG	Mt. Juliet, TN
Mercury by Method 7470A	WG2359509	1	09/10/24 16:22	09/11/24 14:30	NDL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2360872	1	09/20/24 11:27	09/20/24 21:35	MAP	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2362181	1	09/20/24 10:17	09/20/24 20:23	MAP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2362186	1	09/25/24 13:15	09/26/24 02:50	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2362203	1	09/25/24 15:18	09/26/24 00:14	UNP	Mt. Juliet, TN

APW-01R-WG-20240905 L1775426-11 GW

Collected by: Marshall Avendell | Collected date/time: 09/05/24 16:10 | Received date/time: 09/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2358912	1	09/11/24 11:10	09/11/24 11:15	JAC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2358129	1	09/09/24 10:04	09/09/24 10:04	DLH	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG2358157	1	09/07/24 17:35	09/07/24 17:35	KRB	Mt. Juliet, TN
Mercury by Method 7470A	WG2358153	1	09/09/24 13:05	09/09/24 23:24	SDG	Mt. Juliet, TN
Mercury by Method 7470A	WG2359509	1	09/10/24 16:22	09/11/24 14:32	NDL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2360872	1	09/20/24 11:27	09/20/24 21:37	MAP	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2362181	1	09/20/24 10:17	09/20/24 20:26	MAP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2362186	1	09/25/24 13:15	09/26/24 02:54	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2362203	1	09/25/24 15:18	09/26/24 00:17	UNP	Mt. Juliet, TN

APW-04-WG-20240904 L1775426-12 GW

Collected by: Marshall Avendell | Collected date/time: 09/05/24 18:15 | Received date/time: 09/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2358911	1	09/09/24 16:44	09/09/24 22:34	MMF	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2358129	1	09/09/24 10:22	09/09/24 10:22	DLH	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG2358157	1	09/07/24 17:35	09/07/24 17:35	KRB	Mt. Juliet, TN
Mercury by Method 7470A	WG2358153	1	09/09/24 13:05	09/09/24 23:27	SDG	Mt. Juliet, TN
Mercury by Method 7470A	WG2359509	1	09/10/24 16:22	09/11/24 14:40	NDL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2360874	1	09/25/24 21:10	09/26/24 00:58	MAP	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2362181	1	09/20/24 10:17	09/20/24 20:29	MAP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2362186	1	09/25/24 13:15	09/26/24 02:57	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2362203	1	09/25/24 15:18	09/26/24 00:20	UNP	Mt. Juliet, TN

EB-01-WG-20240904 L1775426-13 GW

Collected by: Marshall Avendell | Collected date/time: 09/05/24 11:30 | Received date/time: 09/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2358912	1	09/11/24 11:10	09/11/24 11:15	JAC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2358129	1	09/09/24 10:58	09/09/24 10:58	DLH	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG2358157	1	09/07/24 17:35	09/07/24 17:35	KRB	Mt. Juliet, TN
Mercury by Method 7470A	WG2359509	1	09/10/24 16:22	09/11/24 14:42	NDL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2360874	1	09/25/24 21:10	09/26/24 01:00	MAP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2362203	1	09/25/24 15:18	09/26/24 00:23	UNP	Mt. Juliet, TN

DUP-01-WG-20240905 L1775426-14 GW

Collected by: Marshall Avendell | Collected date/time: 09/05/24 00:01 | Received date/time: 09/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2358895	1	09/09/24 15:50	09/09/24 18:52	MMF	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2358129	1	09/09/24 11:16	09/09/24 11:16	DLH	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG2358157	1	09/07/24 17:35	09/07/24 17:35	KRB	Mt. Juliet, TN
Mercury by Method 7470A	WG2358153	1	09/09/24 13:05	09/09/24 23:29	SDG	Mt. Juliet, TN
Mercury by Method 7470A	WG2359509	1	09/10/24 16:22	09/11/24 14:45	NDL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2360874	1	09/25/24 21:10	09/26/24 01:02	MAP	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2362181	1	09/20/24 10:17	09/20/24 20:32	MAP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2362186	1	09/25/24 13:15	09/26/24 03:00	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2362203	1	09/25/24 15:18	09/26/24 00:27	UNP	Mt. Juliet, TN

DUP-02-WG-20240906 L1775426-15 GW

Collected by: Marshall Avendell | Collected date/time: 09/05/24 00:02 | Received date/time: 09/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2358912	1	09/11/24 11:10	09/11/24 11:15	JAC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2358129	1	09/09/24 13:50	09/09/24 13:50	DLH	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG2358157	1	09/07/24 17:35	09/07/24 17:35	KRB	Mt. Juliet, TN
Mercury by Method 7470A	WG2358153	1	09/09/24 13:05	09/09/24 23:32	SDG	Mt. Juliet, TN
Mercury by Method 7470A	WG2359509	1	09/10/24 16:22	09/11/24 14:47	NDL	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2360874	1	09/25/24 21:10	09/26/24 01:03	MAP	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2362181	1	09/20/24 10:17	09/20/24 20:35	MAP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2362186	1	09/25/24 13:15	09/26/24 03:03	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020A	WG2362203	1	09/25/24 15:18	09/26/24 00:30	UNP	Mt. Juliet, TN

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

Sample Delivery Group (SDG) Narrative

Analysis was filtered in the laboratory.

Lab Sample ID	Project Sample ID	Method
L1775426-01	APW-03-WG-20240904	6020A, 6010D, 7470A
L1775426-02	APW-08-WG-20240904	6020A, 6010D, 7470A
L1775426-03	APW-07-WG-20240904	7470A, 6020A, 6010D
L1775426-04	APW-10S-WG-20240905	6010D, 6020A, 7470A
L1775426-05	APW-10D-WG-20240905	6020A, 7470A
L1775426-06	APW-06S-WG-20240905	6020A, 6010D, 7470A
L1775426-07	APW-06D-WG-20240905	6020A, 7470A, 6010D
L1775426-08	APW-05R-WG-20240905	6010D, 6020A, 7470A
L1775426-09	APW-09-WG-20240906	6020A, 7470A, 6010D
L1775426-10	APW-02-WG-20240905	6010D, 6020A, 7470A
L1775426-11	APW-01R-WG-20240905	6020A, 7470A, 6010D
L1775426-12	APW-04-WG-20240904	6010D, 6020A, 7470A
L1775426-14	DUP-01-WG-20240905	6010D, 6020A, 7470A
L1775426-15	DUP-02-WG-20240906	6010D, 6020A, 7470A
R4124471-3		6010D
R4124609-3		6020A
R4124735-1		6010D

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	567		10.0	1	09/09/2024 18:52	WG2358895

Wet Chemistry by Method 300.0

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Chloride	11.6		1.00	1	09/09/2024 03:48	WG2358129
Fluoride	0.285		0.150	1	09/09/2024 03:48	WG2358129
Sulfate	259		50.0	10	09/09/2024 04:05	WG2358129

Wet Chemistry by Method 9040C

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.88	T8	1	09/07/2024 17:35	WG2358157

Sample Narrative:

L1775426-01 WG2358157: 7.88 at 20.7C

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	09/09/2024 22:20	WG2358151
Mercury,Dissolved	ND		0.000200	1	09/09/2024 22:54	WG2358153

Metals (ICP) by Method 6010D

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Boron	4.22		0.200	1	09/20/2024 21:16	WG2360872
Boron,Dissolved	4.07		0.200	1	09/25/2024 22:02	WG2362180
Calcium	125		1.00	1	09/20/2024 21:16	WG2360872
Calcium,Dissolved	122		1.00	1	09/25/2024 22:02	WG2362180

Metals (ICPMS) by Method 6020A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Antimony	ND		0.00400	1	09/25/2024 22:59	WG2362203
Antimony,Dissolved	ND		0.00400	1	09/26/2024 02:11	WG2362186
Arsenic	ND		0.00200	1	09/25/2024 22:59	WG2362203
Arsenic,Dissolved	ND		0.00200	1	09/26/2024 02:11	WG2362186
Barium	0.116		0.00200	1	09/25/2024 22:59	WG2362203
Barium,Dissolved	0.114		0.00200	1	09/26/2024 02:11	WG2362186
Beryllium	ND		0.00200	1	09/25/2024 22:59	WG2362203
Beryllium,Dissolved	ND		0.00200	1	09/26/2024 02:11	WG2362186
Cadmium	ND		0.00100	1	09/25/2024 22:59	WG2362203
Cadmium,Dissolved	ND		0.00100	1	09/26/2024 02:11	WG2362186
Chromium	ND		0.00200	1	09/25/2024 22:59	WG2362203
Chromium,Dissolved	ND		0.00200	1	09/26/2024 02:11	WG2362186
Cobalt	ND		0.00200	1	09/25/2024 22:59	WG2362203
Cobalt,Dissolved	ND		0.00200	1	09/26/2024 02:11	WG2362186
Lead	ND		0.00200	1	09/25/2024 22:59	WG2362203
Lead,Dissolved	ND		0.00200	1	09/26/2024 02:11	WG2362186
Lithium	0.0315		0.00200	1	09/25/2024 22:59	WG2362203
Lithium,Dissolved	0.0314		0.00200	1	09/26/2024 02:11	WG2362186
Molybdenum	0.0656		0.00500	1	09/25/2024 22:59	WG2362203

Metals (ICPMS) by Method 6020A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Molybdenum,Dissolved	0.0656		0.00500	1	09/26/2024 02:11	WG2362186
Selenium	ND		0.00200	1	09/25/2024 22:59	WG2362203
Selenium,Dissolved	ND		0.00200	1	09/26/2024 02:11	WG2362186
Thallium	ND		0.00200	1	09/25/2024 22:59	WG2362203
Thallium,Dissolved	ND		0.00200	1	09/26/2024 02:11	WG2362186

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	393		10.0	1	09/09/2024 18:52	WG2358895

Wet Chemistry by Method 300.0

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Chloride	8.97		1.00	1	09/09/2024 04:23	WG2358129
Fluoride	0.254		0.150	1	09/09/2024 04:23	WG2358129
Sulfate	33.4	J6	5.00	1	09/09/2024 04:23	WG2358129

Wet Chemistry by Method 9040C

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.20	T8	1	09/07/2024 17:35	WG2358157

Sample Narrative:
L1775426-02 WG2358157: 7.2 at 20.3C

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	09/09/2024 22:22	WG2358151
Mercury,Dissolved	ND		0.000200	1	09/09/2024 22:57	WG2358153

Metals (ICP) by Method 6010D

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Boron	ND		0.200	1	09/20/2024 21:17	WG2360872
Boron,Dissolved	ND		0.200	1	09/25/2024 22:04	WG2362180
Calcium	98.3		1.00	1	09/20/2024 21:17	WG2360872
Calcium,Dissolved	94.9		1.00	1	09/25/2024 22:04	WG2362180

Metals (ICPMS) by Method 6020A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Antimony	ND		0.00400	1	09/25/2024 22:46	WG2362203
Antimony,Dissolved	ND		0.00400	1	09/26/2024 02:15	WG2362186
Arsenic	ND		0.00200	1	09/25/2024 22:46	WG2362203
Arsenic,Dissolved	ND		0.00200	1	09/26/2024 02:15	WG2362186
Barium	0.197		0.00200	1	09/25/2024 22:46	WG2362203
Barium,Dissolved	0.194		0.00200	1	09/26/2024 02:15	WG2362186
Beryllium	ND		0.00200	1	09/25/2024 22:46	WG2362203
Beryllium,Dissolved	ND		0.00200	1	09/26/2024 02:15	WG2362186
Cadmium	ND		0.00100	1	09/25/2024 22:46	WG2362203
Cadmium,Dissolved	ND		0.00100	1	09/26/2024 02:15	WG2362186
Chromium	ND		0.00200	1	09/25/2024 22:46	WG2362203
Chromium,Dissolved	ND		0.00200	1	09/26/2024 02:15	WG2362186
Cobalt	ND		0.00200	1	09/25/2024 22:46	WG2362203
Cobalt,Dissolved	ND		0.00200	1	09/26/2024 02:15	WG2362186
Lead	ND		0.00200	1	09/25/2024 22:46	WG2362203
Lead,Dissolved	ND		0.00200	1	09/26/2024 02:15	WG2362186
Lithium	0.0173		0.00200	1	09/25/2024 22:46	WG2362203
Lithium,Dissolved	0.0168		0.00200	1	09/26/2024 02:15	WG2362186
Molybdenum	ND		0.00500	1	09/25/2024 22:46	WG2362203

Metals (ICPMS) by Method 6020A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Molybdenum,Dissolved	ND		0.00500	1	09/26/2024 02:15	WG2362186
Selenium	0.00529		0.00200	1	09/25/2024 22:46	WG2362203
Selenium,Dissolved	0.00425		0.00200	1	09/26/2024 02:15	WG2362186
Thallium	ND		0.00200	1	09/25/2024 22:46	WG2362203
Thallium,Dissolved	ND		0.00200	1	09/26/2024 02:15	WG2362186

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	673		13.3	1	09/11/2024 15:28	WG2360092

Wet Chemistry by Method 300.0

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Chloride	11.5		1.00	1	09/09/2024 05:35	WG2358129
Fluoride	0.199	P1	0.150	1	09/09/2024 05:35	WG2358129
Sulfate	34.7	J6	5.00	1	09/09/2024 05:35	WG2358129

Wet Chemistry by Method 9040C

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.03	T8	1	09/10/2024 11:13	WG2358423

Sample Narrative:
L1775426-03 WG2358423: 7.03 at 19.6C

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	09/11/2024 14:16	WG2359509
Mercury,Dissolved	ND		0.000200	1	09/09/2024 22:59	WG2358153

Metals (ICP) by Method 6010D

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Boron	0.526		0.200	1	09/20/2024 21:19	WG2360872
Boron,Dissolved	0.505		0.200	1	09/25/2024 22:05	WG2362180
Calcium	192		1.00	1	09/20/2024 21:19	WG2360872
Calcium,Dissolved	185		1.00	1	09/25/2024 22:05	WG2362180

Metals (ICPMS) by Method 6020A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Antimony	ND		0.00400	1	09/25/2024 23:02	WG2362203
Antimony,Dissolved	ND		0.00400	1	09/26/2024 02:18	WG2362186
Arsenic	ND		0.00200	1	09/25/2024 23:02	WG2362203
Arsenic,Dissolved	ND		0.00200	1	09/26/2024 02:18	WG2362186
Barium	0.309		0.00200	1	09/25/2024 23:02	WG2362203
Barium,Dissolved	0.252		0.00200	1	09/26/2024 02:18	WG2362186
Beryllium	ND		0.00200	1	09/25/2024 23:02	WG2362203
Beryllium,Dissolved	ND		0.00200	1	09/26/2024 02:18	WG2362186
Cadmium	ND		0.00100	1	09/25/2024 23:02	WG2362203
Cadmium,Dissolved	ND		0.00100	1	09/26/2024 02:18	WG2362186
Chromium	ND		0.00200	1	09/25/2024 23:02	WG2362203
Chromium,Dissolved	ND		0.00200	1	09/26/2024 02:18	WG2362186
Cobalt	ND		0.00200	1	09/25/2024 23:02	WG2362203
Cobalt,Dissolved	ND		0.00200	1	09/26/2024 02:18	WG2362186
Lead	ND		0.00200	1	09/25/2024 23:02	WG2362203
Lead,Dissolved	ND		0.00200	1	09/26/2024 02:18	WG2362186
Lithium	0.0152		0.00200	1	09/25/2024 23:02	WG2362203
Lithium,Dissolved	0.0151		0.00200	1	09/26/2024 02:18	WG2362186
Molybdenum	ND		0.00500	1	09/25/2024 23:02	WG2362203

Metals (ICPMS) by Method 6020A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Molybdenum,Dissolved	ND		0.00500	1	09/26/2024 02:18	WG2362186
Selenium	ND		0.00200	1	09/25/2024 23:02	WG2362203
Selenium,Dissolved	ND		0.00200	1	09/26/2024 02:18	WG2362186
Thallium	ND		0.00200	1	09/25/2024 23:02	WG2362203
Thallium,Dissolved	ND		0.00200	1	09/26/2024 02:18	WG2362186

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	751		13.3	1	09/11/2024 11:15	WG2358912

Wet Chemistry by Method 300.0

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Chloride	10.3		1.00	1	09/09/2024 06:29	WG2358129
Fluoride	0.251		0.150	1	09/09/2024 06:29	WG2358129
Sulfate	ND		5.00	1	09/09/2024 06:29	WG2358129

Wet Chemistry by Method 9040C

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	6.96	T8	1	09/07/2024 17:35	WG2358157

Sample Narrative:
L1775426-04 WG2358157: 6.96 at 20.3C

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	09/11/2024 14:18	WG2359509
Mercury,Dissolved	ND		0.000200	1	09/09/2024 23:02	WG2358153

Metals (ICP) by Method 6010D

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Boron	0.554		0.200	1	09/20/2024 21:21	WG2360872
Boron,Dissolved	0.535		0.200	1	09/25/2024 22:07	WG2362180
Calcium	163		1.00	1	09/20/2024 21:21	WG2360872
Calcium,Dissolved	154		1.00	1	09/25/2024 22:07	WG2362180

Metals (ICPMS) by Method 6020A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Antimony	ND		0.00400	1	09/26/2024 00:42	WG2362203
Antimony,Dissolved	ND		0.00400	1	09/26/2024 02:21	WG2362186
Arsenic	0.190		0.00200	1	09/26/2024 00:42	WG2362203
Arsenic,Dissolved	0.0620		0.00200	1	09/26/2024 02:21	WG2362186
Barium	0.567		0.0100	5	09/25/2024 23:05	WG2362203
Barium,Dissolved	0.299		0.00200	1	09/26/2024 02:21	WG2362186
Beryllium	ND		0.00200	1	09/26/2024 00:42	WG2362203
Beryllium,Dissolved	ND		0.00200	1	09/26/2024 02:21	WG2362186
Cadmium	ND		0.00100	1	09/26/2024 00:42	WG2362203
Cadmium,Dissolved	ND		0.00100	1	09/26/2024 02:21	WG2362186
Chromium	ND		0.00200	1	09/26/2024 00:42	WG2362203
Chromium,Dissolved	ND		0.00200	1	09/26/2024 02:21	WG2362186
Cobalt	ND		0.00200	1	09/26/2024 00:42	WG2362203
Cobalt,Dissolved	ND		0.00200	1	09/26/2024 02:21	WG2362186
Lead	ND		0.00200	1	09/26/2024 00:42	WG2362203
Lead,Dissolved	ND		0.00200	1	09/26/2024 02:21	WG2362186
Lithium	0.0272		0.00200	1	09/26/2024 00:42	WG2362203
Lithium,Dissolved	0.0268		0.00200	1	09/26/2024 02:21	WG2362186
Molybdenum	ND		0.00500	1	09/26/2024 00:42	WG2362203

Metals (ICPMS) by Method 6020A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Molybdenum,Dissolved	ND		0.00500	1	09/26/2024 02:21	WG2362186
Selenium	ND		0.00200	1	09/26/2024 00:42	WG2362203
Selenium,Dissolved	ND		0.00200	1	09/26/2024 02:21	WG2362186
Thallium	ND		0.00200	1	09/26/2024 00:42	WG2362203
Thallium,Dissolved	ND		0.00200	1	09/26/2024 02:21	WG2362186

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	351		10.0	1	09/11/2024 11:15	WG2358912

Wet Chemistry by Method 300.0

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Chloride	25.5		1.00	1	09/09/2024 06:47	WG2358129
Fluoride	ND		0.150	1	09/09/2024 06:47	WG2358129
Sulfate	37.1		5.00	1	09/09/2024 06:47	WG2358129

Wet Chemistry by Method 9040C

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.28	T8	1	09/07/2024 17:35	WG2358157

Sample Narrative:
L1775426-05 WG2358157: 7.28 at 20.9C

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	09/11/2024 14:20	WG2359509
Mercury,Dissolved	0.000229		0.000200	1	09/09/2024 23:04	WG2358153

Metals (ICP) by Method 6010D

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Boron	ND		0.200	1	09/20/2024 21:23	WG2360872
Boron,Dissolved	ND		0.200	1	09/20/2024 20:03	WG2362181
Calcium	98.5		1.00	1	09/20/2024 21:23	WG2360872
Calcium,Dissolved	101		1.00	1	09/20/2024 20:03	WG2362181

Metals (ICPMS) by Method 6020A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Antimony	ND		0.00400	1	09/25/2024 23:08	WG2362203
Antimony,Dissolved	ND		0.00400	1	09/26/2024 02:34	WG2362186
Arsenic	ND		0.00200	1	09/25/2024 23:08	WG2362203
Arsenic,Dissolved	ND		0.00200	1	09/26/2024 02:34	WG2362186
Barium	0.220		0.00200	1	09/25/2024 23:08	WG2362203
Barium,Dissolved	0.217		0.00200	1	09/26/2024 02:34	WG2362186
Beryllium	ND		0.00200	1	09/25/2024 23:08	WG2362203
Beryllium,Dissolved	ND		0.00200	1	09/26/2024 02:34	WG2362186
Cadmium	ND		0.00100	1	09/25/2024 23:08	WG2362203
Cadmium,Dissolved	ND		0.00100	1	09/26/2024 02:34	WG2362186
Chromium	ND		0.00200	1	09/25/2024 23:08	WG2362203
Chromium,Dissolved	ND		0.00200	1	09/26/2024 02:34	WG2362186
Cobalt	ND		0.00200	1	09/25/2024 23:08	WG2362203
Cobalt,Dissolved	ND		0.00200	1	09/26/2024 02:34	WG2362186
Lead	ND		0.00200	1	09/25/2024 23:08	WG2362203
Lead,Dissolved	ND		0.00200	1	09/26/2024 02:34	WG2362186
Lithium	0.0113		0.00200	1	09/25/2024 23:08	WG2362203
Lithium,Dissolved	0.0116		0.00200	1	09/26/2024 02:34	WG2362186
Molybdenum	ND		0.00500	1	09/25/2024 23:08	WG2362203

Metals (ICPMS) by Method 6020A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Molybdenum,Dissolved	ND		0.00500	1	09/26/2024 02:34	WG2362186
Selenium	ND		0.00200	1	09/25/2024 23:08	WG2362203
Selenium,Dissolved	ND		0.00200	1	09/26/2024 02:34	WG2362186
Thallium	ND		0.00200	1	09/25/2024 23:08	WG2362203
Thallium,Dissolved	ND		0.00200	1	09/26/2024 02:34	WG2362186

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	599		10.0	1	09/09/2024 22:34	WG2358911

Wet Chemistry by Method 300.0

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Chloride	21.1		1.00	1	09/09/2024 07:05	WG2358129
Fluoride	0.242		0.150	1	09/09/2024 07:05	WG2358129
Sulfate	133		5.00	1	09/09/2024 07:05	WG2358129

Wet Chemistry by Method 9040C

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.20	T8	1	09/07/2024 17:35	WG2358157

Sample Narrative:
L1775426-06 WG2358157: 7.2 at 21.5C

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	09/11/2024 14:23	WG2359509
Mercury,Dissolved	0.000221		0.000200	1	09/09/2024 23:12	WG2358153

Metals (ICP) by Method 6010D

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Boron	4.05		0.200	1	09/20/2024 21:25	WG2360872
Boron,Dissolved	4.10		0.200	1	09/20/2024 20:06	WG2362181
Calcium	131		1.00	1	09/20/2024 21:25	WG2360872
Calcium,Dissolved	136		1.00	1	09/20/2024 20:06	WG2362181

Metals (ICPMS) by Method 6020A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Antimony	ND		0.00400	1	09/26/2024 00:01	WG2362203
Antimony,Dissolved	ND		0.00400	1	09/26/2024 02:37	WG2362186
Arsenic	ND		0.00200	1	09/26/2024 00:01	WG2362203
Arsenic,Dissolved	ND		0.00200	1	09/26/2024 02:37	WG2362186
Barium	0.232		0.00200	1	09/26/2024 00:01	WG2362203
Barium,Dissolved	0.180		0.00200	1	09/26/2024 02:37	WG2362186
Beryllium	ND		0.00200	1	09/26/2024 00:01	WG2362203
Beryllium,Dissolved	ND		0.00200	1	09/26/2024 02:37	WG2362186
Cadmium	ND		0.00100	1	09/26/2024 00:01	WG2362203
Cadmium,Dissolved	ND		0.00100	1	09/26/2024 02:37	WG2362186
Chromium	ND		0.00200	1	09/26/2024 00:01	WG2362203
Chromium,Dissolved	ND		0.00200	1	09/26/2024 02:37	WG2362186
Cobalt	ND		0.00200	1	09/26/2024 00:01	WG2362203
Cobalt,Dissolved	ND		0.00200	1	09/26/2024 02:37	WG2362186
Lead	ND		0.00200	1	09/26/2024 00:01	WG2362203
Lead,Dissolved	ND		0.00200	1	09/26/2024 02:37	WG2362186
Lithium	0.0320		0.00200	1	09/26/2024 00:01	WG2362203
Lithium,Dissolved	0.0318		0.00200	1	09/26/2024 02:37	WG2362186
Molybdenum	0.176		0.00500	1	09/26/2024 00:01	WG2362203

Metals (ICPMS) by Method 6020A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Molybdenum,Dissolved	0.178		0.00500	1	09/26/2024 02:37	WG2362186
Selenium	ND		0.00200	1	09/26/2024 00:01	WG2362203
Selenium,Dissolved	ND		0.00200	1	09/26/2024 02:37	WG2362186
Thallium	ND		0.00200	1	09/26/2024 00:01	WG2362203
Thallium,Dissolved	ND		0.00200	1	09/26/2024 02:37	WG2362186

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	624		10.0	1	09/11/2024 11:15	WG2358912

Wet Chemistry by Method 300.0

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Chloride	15.0		1.00	1	09/09/2024 07:41	WG2358129
Fluoride	0.205		0.150	1	09/09/2024 07:41	WG2358129
Sulfate	242		50.0	10	09/09/2024 08:35	WG2358129

Wet Chemistry by Method 9040C

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.46	T8	1	09/07/2024 17:35	WG2358157

Sample Narrative:

L1775426-07 WG2358157: 7.46 at 21.2C

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	09/11/2024 14:25	WG2359509
Mercury,Dissolved	0.000209		0.000200	1	09/09/2024 23:14	WG2358153

Metals (ICP) by Method 6010D

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Boron	4.31		0.200	1	09/20/2024 21:30	WG2360872
Boron,Dissolved	4.36		0.200	1	09/20/2024 20:09	WG2362181
Calcium	124		1.00	1	09/20/2024 21:30	WG2360872
Calcium,Dissolved	130		1.00	1	09/20/2024 20:09	WG2362181

Metals (ICPMS) by Method 6020A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Antimony	ND		0.00400	1	09/26/2024 00:04	WG2362203
Antimony,Dissolved	ND		0.00400	1	09/26/2024 02:41	WG2362186
Arsenic	0.0103		0.00200	1	09/26/2024 00:04	WG2362203
Arsenic,Dissolved	0.00479		0.00200	1	09/26/2024 02:41	WG2362186
Barium	0.129		0.00200	1	09/26/2024 00:04	WG2362203
Barium,Dissolved	0.121		0.00200	1	09/26/2024 02:41	WG2362186
Beryllium	ND		0.00200	1	09/26/2024 00:04	WG2362203
Beryllium,Dissolved	ND		0.00200	1	09/26/2024 02:41	WG2362186
Cadmium	ND		0.00100	1	09/26/2024 00:04	WG2362203
Cadmium,Dissolved	ND		0.00100	1	09/26/2024 02:41	WG2362186
Chromium	ND		0.00200	1	09/26/2024 00:04	WG2362203
Chromium,Dissolved	ND		0.00200	1	09/26/2024 02:41	WG2362186
Cobalt	ND		0.00200	1	09/26/2024 00:04	WG2362203
Cobalt,Dissolved	ND		0.00200	1	09/26/2024 02:41	WG2362186
Lead	ND		0.00200	1	09/26/2024 00:04	WG2362203
Lead,Dissolved	ND		0.00200	1	09/26/2024 02:41	WG2362186
Lithium	0.0163		0.00200	1	09/26/2024 00:04	WG2362203
Lithium,Dissolved	0.0156		0.00200	1	09/26/2024 02:41	WG2362186
Molybdenum	0.0628		0.00500	1	09/26/2024 00:04	WG2362203

Metals (ICPMS) by Method 6020A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Molybdenum,Dissolved	0.0647		0.00500	1	09/26/2024 02:41	WG2362186
Selenium	ND		0.00200	1	09/26/2024 00:04	WG2362203
Selenium,Dissolved	ND		0.00200	1	09/26/2024 02:41	WG2362186
Thallium	ND		0.00200	1	09/26/2024 00:04	WG2362203
Thallium,Dissolved	ND		0.00200	1	09/26/2024 02:41	WG2362186

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	354		10.0	1	09/11/2024 11:15	WG2358912

Wet Chemistry by Method 300.0

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Chloride	28.1		1.00	1	09/09/2024 08:53	WG2358129
Fluoride	0.347		0.150	1	09/09/2024 08:53	WG2358129
Sulfate	70.5		5.00	1	09/09/2024 08:53	WG2358129

Wet Chemistry by Method 9040C

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.56	T8	1	09/07/2024 17:35	WG2358157

Sample Narrative:
L1775426-08 WG2358157: 7.56 at 20.9C

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	09/11/2024 14:28	WG2359509
Mercury,Dissolved	ND		0.000200	1	09/09/2024 23:17	WG2358153

Metals (ICP) by Method 6010D

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Boron	2.18		0.200	1	09/20/2024 21:32	WG2360872
Boron,Dissolved	2.23		0.200	1	09/20/2024 20:12	WG2362181
Calcium	74.0		1.00	1	09/20/2024 21:32	WG2360872
Calcium,Dissolved	76.7		1.00	1	09/20/2024 20:12	WG2362181

Metals (ICPMS) by Method 6020A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Antimony	ND		0.00400	1	09/26/2024 00:07	WG2362203
Antimony,Dissolved	ND		0.00400	1	09/26/2024 02:44	WG2362186
Arsenic	0.00305		0.00200	1	09/26/2024 00:07	WG2362203
Arsenic,Dissolved	0.00215		0.00200	1	09/26/2024 02:44	WG2362186
Barium	0.102		0.00200	1	09/26/2024 00:07	WG2362203
Barium,Dissolved	0.0718		0.00200	1	09/26/2024 02:44	WG2362186
Beryllium	ND		0.00200	1	09/26/2024 00:07	WG2362203
Beryllium,Dissolved	ND		0.00200	1	09/26/2024 02:44	WG2362186
Cadmium	ND		0.00100	1	09/26/2024 00:07	WG2362203
Cadmium,Dissolved	ND		0.00100	1	09/26/2024 02:44	WG2362186
Chromium	ND		0.00200	1	09/26/2024 00:07	WG2362203
Chromium,Dissolved	ND		0.00200	1	09/26/2024 02:44	WG2362186
Cobalt	ND		0.00200	1	09/26/2024 00:07	WG2362203
Cobalt,Dissolved	ND		0.00200	1	09/26/2024 02:44	WG2362186
Lead	ND		0.00200	1	09/26/2024 00:07	WG2362203
Lead,Dissolved	ND		0.00200	1	09/26/2024 02:44	WG2362186
Lithium	0.0179		0.00200	1	09/26/2024 00:07	WG2362203
Lithium,Dissolved	0.0172		0.00200	1	09/26/2024 02:44	WG2362186
Molybdenum	0.109		0.00500	1	09/26/2024 00:07	WG2362203

Metals (ICPMS) by Method 6020A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Molybdenum,Dissolved	0.110		0.00500	1	09/26/2024 02:44	WG2362186
Selenium	ND		0.00200	1	09/26/2024 00:07	WG2362203
Selenium,Dissolved	ND		0.00200	1	09/26/2024 02:44	WG2362186
Thallium	ND		0.00200	1	09/26/2024 00:07	WG2362203
Thallium,Dissolved	ND		0.00200	1	09/26/2024 02:44	WG2362186

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	389		10.0	1	09/11/2024 11:15	WG2358912

Wet Chemistry by Method 300.0

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Chloride	11.0		1.00	1	09/09/2024 09:11	WG2358129
Fluoride	0.215		0.150	1	09/09/2024 09:11	WG2358129
Sulfate	56.1		5.00	1	09/09/2024 09:11	WG2358129

Wet Chemistry by Method 9040C

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.45	T8	1	09/07/2024 17:35	WG2358157

Sample Narrative:
L1775426-09 WG2358157: 7.45 at 20.9C

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	09/11/2024 14:01	WG2359509
Mercury,Dissolved	0.000236		0.000200	1	09/09/2024 23:19	WG2358153

Metals (ICP) by Method 6010D

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Boron	0.829		0.200	1	09/20/2024 21:33	WG2360872
Boron,Dissolved	0.833		0.200	1	09/20/2024 20:20	WG2362181
Calcium	90.4		1.00	1	09/20/2024 21:33	WG2360872
Calcium,Dissolved	94.7		1.00	1	09/20/2024 20:20	WG2362181

Metals (ICPMS) by Method 6020A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Antimony	ND		0.00400	1	09/26/2024 00:10	WG2362203
Antimony,Dissolved	ND		0.00400	1	09/26/2024 02:47	WG2362186
Arsenic	0.00230		0.00200	1	09/26/2024 00:10	WG2362203
Arsenic,Dissolved	0.00211		0.00200	1	09/26/2024 02:47	WG2362186
Barium	0.117		0.00200	1	09/26/2024 00:10	WG2362203
Barium,Dissolved	0.112		0.00200	1	09/26/2024 02:47	WG2362186
Beryllium	ND		0.00200	1	09/26/2024 00:10	WG2362203
Beryllium,Dissolved	ND		0.00200	1	09/26/2024 02:47	WG2362186
Cadmium	ND		0.00100	1	09/26/2024 00:10	WG2362203
Cadmium,Dissolved	ND		0.00100	1	09/26/2024 02:47	WG2362186
Chromium	ND		0.00200	1	09/26/2024 00:10	WG2362203
Chromium,Dissolved	ND		0.00200	1	09/26/2024 02:47	WG2362186
Cobalt	ND		0.00200	1	09/26/2024 00:10	WG2362203
Cobalt,Dissolved	ND		0.00200	1	09/26/2024 02:47	WG2362186
Lead	ND		0.00200	1	09/26/2024 00:10	WG2362203
Lead,Dissolved	ND		0.00200	1	09/26/2024 02:47	WG2362186
Lithium	0.0163		0.00200	1	09/26/2024 00:10	WG2362203
Lithium,Dissolved	0.0159		0.00200	1	09/26/2024 02:47	WG2362186
Molybdenum	0.0259		0.00500	1	09/26/2024 00:10	WG2362203

Metals (ICPMS) by Method 6020A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Molybdenum,Dissolved	0.0255		0.00500	1	09/26/2024 02:47	WG2362186
Selenium	0.0178		0.00200	1	09/26/2024 00:10	WG2362203
Selenium,Dissolved	0.0186		0.00200	1	09/26/2024 02:47	WG2362186
Thallium	ND		0.00200	1	09/26/2024 00:10	WG2362203
Thallium,Dissolved	ND		0.00200	1	09/26/2024 02:47	WG2362186

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	783		13.3	1	09/09/2024 18:52	WG2358895

Wet Chemistry by Method 300.0

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Chloride	7.55		1.00	1	09/09/2024 09:29	WG2358129
Fluoride	0.197		0.150	1	09/09/2024 09:29	WG2358129
Sulfate	376		50.0	10	09/09/2024 09:47	WG2358129

Wet Chemistry by Method 9040C

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.18	T8	1	09/07/2024 17:35	WG2358157

Sample Narrative:
L1775426-10 WG2358157: 7.18 at 21.2C

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	09/11/2024 14:30	WG2359509
Mercury,Dissolved	0.000214		0.000200	1	09/09/2024 23:22	WG2358153

Metals (ICP) by Method 6010D

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Boron	8.24		0.200	1	09/20/2024 21:35	WG2360872
Boron,Dissolved	8.28		0.200	1	09/20/2024 20:23	WG2362181
Calcium	156		1.00	1	09/20/2024 21:35	WG2360872
Calcium,Dissolved	156		1.00	1	09/20/2024 20:23	WG2362181

Metals (ICPMS) by Method 6020A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Antimony	ND		0.00400	1	09/26/2024 00:14	WG2362203
Antimony,Dissolved	ND		0.00400	1	09/26/2024 02:50	WG2362186
Arsenic	0.0178		0.00200	1	09/26/2024 00:14	WG2362203
Arsenic,Dissolved	0.00426		0.00200	1	09/26/2024 02:50	WG2362186
Barium	0.162		0.00200	1	09/26/2024 00:14	WG2362203
Barium,Dissolved	0.124		0.00200	1	09/26/2024 02:50	WG2362186
Beryllium	ND		0.00200	1	09/26/2024 00:14	WG2362203
Beryllium,Dissolved	ND		0.00200	1	09/26/2024 02:50	WG2362186
Cadmium	ND		0.00100	1	09/26/2024 00:14	WG2362203
Cadmium,Dissolved	ND		0.00100	1	09/26/2024 02:50	WG2362186
Chromium	0.00658		0.00200	1	09/26/2024 00:14	WG2362203
Chromium,Dissolved	ND		0.00200	1	09/26/2024 02:50	WG2362186
Cobalt	0.00232		0.00200	1	09/26/2024 00:14	WG2362203
Cobalt,Dissolved	ND		0.00200	1	09/26/2024 02:50	WG2362186
Lead	0.00662		0.00200	1	09/26/2024 00:14	WG2362203
Lead,Dissolved	ND		0.00200	1	09/26/2024 02:50	WG2362186
Lithium	0.0408		0.00200	1	09/26/2024 00:14	WG2362203
Lithium,Dissolved	0.0380		0.00200	1	09/26/2024 02:50	WG2362186
Molybdenum	0.162		0.00500	1	09/26/2024 00:14	WG2362203

Metals (ICPMS) by Method 6020A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Molybdenum,Dissolved	0.172		0.00500	1	09/26/2024 02:50	WG2362186
Selenium	ND		0.00200	1	09/26/2024 00:14	WG2362203
Selenium,Dissolved	ND		0.00200	1	09/26/2024 02:50	WG2362186
Thallium	ND		0.00200	1	09/26/2024 00:14	WG2362203
Thallium,Dissolved	ND		0.00200	1	09/26/2024 02:50	WG2362186

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	372		10.0	1	09/11/2024 11:15	WG2358912

Wet Chemistry by Method 300.0

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Chloride	1.97		1.00	1	09/09/2024 10:04	WG2358129
Fluoride	0.201		0.150	1	09/09/2024 10:04	WG2358129
Sulfate	34.0		5.00	1	09/09/2024 10:04	WG2358129

Wet Chemistry by Method 9040C

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	6.88	T8	1	09/07/2024 17:35	WG2358157

Sample Narrative:
L1775426-11 WG2358157: 6.88 at 21C

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	09/11/2024 14:32	WG2359509
Mercury,Dissolved	0.000200		0.000200	1	09/09/2024 23:24	WG2358153

Metals (ICP) by Method 6010D

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Boron	ND		0.200	1	09/20/2024 21:37	WG2360872
Boron,Dissolved	0.205		0.200	1	09/20/2024 20:26	WG2362181
Calcium	89.5		1.00	1	09/20/2024 21:37	WG2360872
Calcium,Dissolved	94.1		1.00	1	09/20/2024 20:26	WG2362181

Metals (ICPMS) by Method 6020A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Antimony	ND		0.00400	1	09/26/2024 00:17	WG2362203
Antimony,Dissolved	ND		0.00400	1	09/26/2024 02:54	WG2362186
Arsenic	ND		0.00200	1	09/26/2024 00:17	WG2362203
Arsenic,Dissolved	ND		0.00200	1	09/26/2024 02:54	WG2362186
Barium	0.155		0.00200	1	09/26/2024 00:17	WG2362203
Barium,Dissolved	0.154		0.00200	1	09/26/2024 02:54	WG2362186
Beryllium	ND		0.00200	1	09/26/2024 00:17	WG2362203
Beryllium,Dissolved	ND		0.00200	1	09/26/2024 02:54	WG2362186
Cadmium	ND		0.00100	1	09/26/2024 00:17	WG2362203
Cadmium,Dissolved	ND		0.00100	1	09/26/2024 02:54	WG2362186
Chromium	ND		0.00200	1	09/26/2024 00:17	WG2362203
Chromium,Dissolved	ND		0.00200	1	09/26/2024 02:54	WG2362186
Cobalt	ND		0.00200	1	09/26/2024 00:17	WG2362203
Cobalt,Dissolved	ND		0.00200	1	09/26/2024 02:54	WG2362186
Lead	ND		0.00200	1	09/26/2024 00:17	WG2362203
Lead,Dissolved	ND		0.00200	1	09/26/2024 02:54	WG2362186
Lithium	0.0133		0.00200	1	09/26/2024 00:17	WG2362203
Lithium,Dissolved	0.0130		0.00200	1	09/26/2024 02:54	WG2362186
Molybdenum	ND		0.00500	1	09/26/2024 00:17	WG2362203

Metals (ICPMS) by Method 6020A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Molybdenum,Dissolved	ND		0.00500	1	09/26/2024 02:54	WG2362186
Selenium	0.00351		0.00200	1	09/26/2024 00:17	WG2362203
Selenium,Dissolved	0.00289		0.00200	1	09/26/2024 02:54	WG2362186
Thallium	ND		0.00200	1	09/26/2024 00:17	WG2362203
Thallium,Dissolved	ND		0.00200	1	09/26/2024 02:54	WG2362186

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	442		10.0	1	09/09/2024 22:34	WG2358911

Wet Chemistry by Method 300.0

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Chloride	9.98		1.00	1	09/09/2024 10:22	WG2358129
Fluoride	0.178		0.150	1	09/09/2024 10:22	WG2358129
Sulfate	86.2		5.00	1	09/09/2024 10:22	WG2358129

Wet Chemistry by Method 9040C

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.65	T8	1	09/07/2024 17:35	WG2358157

Sample Narrative:
L1775426-12 WG2358157: 7.65 at 21C

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	09/11/2024 14:40	WG2359509
Mercury,Dissolved	ND		0.000200	1	09/09/2024 23:27	WG2358153

Metals (ICP) by Method 6010D

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Boron	1.79		0.200	1	09/26/2024 00:58	WG2360874
Boron,Dissolved	1.85		0.200	1	09/20/2024 20:29	WG2362181
Calcium	107		1.00	1	09/26/2024 00:58	WG2360874
Calcium,Dissolved	110		1.00	1	09/20/2024 20:29	WG2362181

Metals (ICPMS) by Method 6020A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Antimony	ND		0.00400	1	09/26/2024 00:20	WG2362203
Antimony,Dissolved	ND		0.00400	1	09/26/2024 02:57	WG2362186
Arsenic	ND		0.00200	1	09/26/2024 00:20	WG2362203
Arsenic,Dissolved	ND		0.00200	1	09/26/2024 02:57	WG2362186
Barium	0.140		0.00200	1	09/26/2024 00:20	WG2362203
Barium,Dissolved	0.134		0.00200	1	09/26/2024 02:57	WG2362186
Beryllium	ND		0.00200	1	09/26/2024 00:20	WG2362203
Beryllium,Dissolved	ND		0.00200	1	09/26/2024 02:57	WG2362186
Cadmium	ND		0.00100	1	09/26/2024 00:20	WG2362203
Cadmium,Dissolved	ND		0.00100	1	09/26/2024 02:57	WG2362186
Chromium	ND		0.00200	1	09/26/2024 00:20	WG2362203
Chromium,Dissolved	ND		0.00200	1	09/26/2024 02:57	WG2362186
Cobalt	ND		0.00200	1	09/26/2024 00:20	WG2362203
Cobalt,Dissolved	ND		0.00200	1	09/26/2024 02:57	WG2362186
Lead	ND		0.00200	1	09/26/2024 00:20	WG2362203
Lead,Dissolved	ND		0.00200	1	09/26/2024 02:57	WG2362186
Lithium	0.0284		0.00200	1	09/26/2024 00:20	WG2362203
Lithium,Dissolved	0.0277		0.00200	1	09/26/2024 02:57	WG2362186
Molybdenum	0.0517		0.00500	1	09/26/2024 00:20	WG2362203

Metals (ICPMS) by Method 6020A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Molybdenum,Dissolved	0.0543		0.00500	1	09/26/2024 02:57	WG2362186
Selenium	0.0186		0.00200	1	09/26/2024 00:20	WG2362203
Selenium,Dissolved	0.0176		0.00200	1	09/26/2024 02:57	WG2362186
Thallium	ND		0.00200	1	09/26/2024 00:20	WG2362203
Thallium,Dissolved	ND		0.00200	1	09/26/2024 02:57	WG2362186

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	ND		10.0	1	09/11/2024 11:15	WG2358912

Wet Chemistry by Method 300.0

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Chloride	ND		1.00	1	09/09/2024 10:58	WG2358129
Fluoride	ND		0.150	1	09/09/2024 10:58	WG2358129
Sulfate	ND		5.00	1	09/09/2024 10:58	WG2358129

Wet Chemistry by Method 9040C

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	6.71	T8	1	09/07/2024 17:35	WG2358157

Sample Narrative:
L1775426-13 WG2358157: 6.71 at 21.6C

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	09/11/2024 14:42	WG2359509

Metals (ICP) by Method 6010D

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Boron	ND		0.200	1	09/26/2024 01:00	WG2360874
Calcium	ND		1.00	1	09/26/2024 01:00	WG2360874

Metals (ICPMS) by Method 6020A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Antimony	ND		0.00400	1	09/26/2024 00:23	WG2362203
Arsenic	ND		0.00200	1	09/26/2024 00:23	WG2362203
Barium	ND		0.00200	1	09/26/2024 00:23	WG2362203
Beryllium	ND		0.00200	1	09/26/2024 00:23	WG2362203
Cadmium	ND		0.00100	1	09/26/2024 00:23	WG2362203
Chromium	ND		0.00200	1	09/26/2024 00:23	WG2362203
Cobalt	ND		0.00200	1	09/26/2024 00:23	WG2362203
Lead	ND		0.00200	1	09/26/2024 00:23	WG2362203
Lithium	ND		0.00200	1	09/26/2024 00:23	WG2362203
Molybdenum	ND		0.00500	1	09/26/2024 00:23	WG2362203
Selenium	ND		0.00200	1	09/26/2024 00:23	WG2362203
Thallium	ND		0.00200	1	09/26/2024 00:23	WG2362203

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	359		10.0	1	09/09/2024 18:52	WG2358895

Wet Chemistry by Method 300.0

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Chloride	28.1		1.00	1	09/09/2024 11:16	WG2358129
Fluoride	0.342		0.150	1	09/09/2024 11:16	WG2358129
Sulfate	70.6		5.00	1	09/09/2024 11:16	WG2358129

Wet Chemistry by Method 9040C

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.56	T8	1	09/07/2024 17:35	WG2358157

Sample Narrative:
L1775426-14 WG2358157: 7.56 at 21.2C

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	09/11/2024 14:45	WG2359509
Mercury,Dissolved	0.000207		0.000200	1	09/09/2024 23:29	WG2358153

Metals (ICP) by Method 6010D

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Boron	2.17		0.200	1	09/26/2024 01:02	WG2360874
Boron,Dissolved	2.22		0.200	1	09/20/2024 20:32	WG2362181
Calcium	73.3		1.00	1	09/26/2024 01:02	WG2360874
Calcium,Dissolved	76.5		1.00	1	09/20/2024 20:32	WG2362181

Metals (ICPMS) by Method 6020A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Antimony	ND		0.00400	1	09/26/2024 00:27	WG2362203
Antimony,Dissolved	ND		0.00400	1	09/26/2024 03:00	WG2362186
Arsenic	0.00300		0.00200	1	09/26/2024 00:27	WG2362203
Arsenic,Dissolved	0.00201		0.00200	1	09/26/2024 03:00	WG2362186
Barium	0.0999		0.00200	1	09/26/2024 00:27	WG2362203
Barium,Dissolved	0.0720		0.00200	1	09/26/2024 03:00	WG2362186
Beryllium	ND		0.00200	1	09/26/2024 00:27	WG2362203
Beryllium,Dissolved	ND		0.00200	1	09/26/2024 03:00	WG2362186
Cadmium	ND		0.00100	1	09/26/2024 00:27	WG2362203
Cadmium,Dissolved	ND		0.00100	1	09/26/2024 03:00	WG2362186
Chromium	ND		0.00200	1	09/26/2024 00:27	WG2362203
Chromium,Dissolved	ND		0.00200	1	09/26/2024 03:00	WG2362186
Cobalt	ND		0.00200	1	09/26/2024 00:27	WG2362203
Cobalt,Dissolved	ND		0.00200	1	09/26/2024 03:00	WG2362186
Lead	ND		0.00200	1	09/26/2024 00:27	WG2362203
Lead,Dissolved	ND		0.00200	1	09/26/2024 03:00	WG2362186
Lithium	0.0176		0.00200	1	09/26/2024 00:27	WG2362203
Lithium,Dissolved	0.0175		0.00200	1	09/26/2024 03:00	WG2362186
Molybdenum	0.107		0.00500	1	09/26/2024 00:27	WG2362203

Metals (ICPMS) by Method 6020A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Molybdenum,Dissolved	0.111		0.00500	1	09/26/2024 03:00	WG2362186
Selenium	ND		0.00200	1	09/26/2024 00:27	WG2362203
Selenium,Dissolved	ND		0.00200	1	09/26/2024 03:00	WG2362186
Thallium	ND		0.00200	1	09/26/2024 00:27	WG2362203
Thallium,Dissolved	ND		0.00200	1	09/26/2024 03:00	WG2362186

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	387		10.0	1	09/11/2024 11:15	WG2358912

Wet Chemistry by Method 300.0

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Chloride	11.0		1.00	1	09/09/2024 13:50	WG2358129
Fluoride	0.198		0.150	1	09/09/2024 13:50	WG2358129
Sulfate	55.7		5.00	1	09/09/2024 13:50	WG2358129

Wet Chemistry by Method 9040C

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.60	T8	1	09/07/2024 17:35	WG2358157

Sample Narrative:
L1775426-15 WG2358157: 7.6 at 21.7C

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	09/11/2024 14:47	WG2359509
Mercury,Dissolved	ND		0.000200	1	09/09/2024 23:32	WG2358153

Metals (ICP) by Method 6010D

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Boron	0.833		0.200	1	09/26/2024 01:03	WG2360874
Boron,Dissolved	0.834		0.200	1	09/20/2024 20:35	WG2362181
Calcium	91.7		1.00	1	09/26/2024 01:03	WG2360874
Calcium,Dissolved	95.2		1.00	1	09/20/2024 20:35	WG2362181

Metals (ICPMS) by Method 6020A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Antimony	ND		0.00400	1	09/26/2024 00:30	WG2362203
Antimony,Dissolved	ND		0.00400	1	09/26/2024 03:03	WG2362186
Arsenic	0.00204		0.00200	1	09/26/2024 00:30	WG2362203
Arsenic,Dissolved	0.00215		0.00200	1	09/26/2024 03:03	WG2362186
Barium	0.119		0.00200	1	09/26/2024 00:30	WG2362203
Barium,Dissolved	0.109		0.00200	1	09/26/2024 03:03	WG2362186
Beryllium	ND		0.00200	1	09/26/2024 00:30	WG2362203
Beryllium,Dissolved	ND		0.00200	1	09/26/2024 03:03	WG2362186
Cadmium	ND		0.00100	1	09/26/2024 00:30	WG2362203
Cadmium,Dissolved	ND		0.00100	1	09/26/2024 03:03	WG2362186
Chromium	ND		0.00200	1	09/26/2024 00:30	WG2362203
Chromium,Dissolved	ND		0.00200	1	09/26/2024 03:03	WG2362186
Cobalt	ND		0.00200	1	09/26/2024 00:30	WG2362203
Cobalt,Dissolved	ND		0.00200	1	09/26/2024 03:03	WG2362186
Lead	ND		0.00200	1	09/26/2024 00:30	WG2362203
Lead,Dissolved	ND		0.00200	1	09/26/2024 03:03	WG2362186
Lithium	0.0163		0.00200	1	09/26/2024 00:30	WG2362203
Lithium,Dissolved	0.0159		0.00200	1	09/26/2024 03:03	WG2362186
Molybdenum	0.0251		0.00500	1	09/26/2024 00:30	WG2362203

Metals (ICPMS) by Method 6020A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Molybdenum,Dissolved	0.0256		0.00500	1	09/26/2024 03:03	WG2362186
Selenium	0.0186		0.00200	1	09/26/2024 00:30	WG2362203
Selenium,Dissolved	0.0182		0.00200	1	09/26/2024 03:03	WG2362186
Thallium	ND		0.00200	1	09/26/2024 00:30	WG2362203
Thallium,Dissolved	ND		0.00200	1	09/26/2024 03:03	WG2362186

Method Blank (MB)

(MB) R4118967-1 09/09/24 18:52

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Dissolved Solids	U		10.0	10.0

L1775037-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1775037-02 09/09/24 18:52 • (DUP) R4118967-3 09/09/24 18:52

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	1190	1190	1	0.337		10

L1775463-12 Original Sample (OS) • Duplicate (DUP)

(OS) L1775463-12 09/09/24 18:52 • (DUP) R4118967-4 09/09/24 18:52

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	2710	2880	1	6.09		10

Laboratory Control Sample (LCS)

(LCS) R4118967-2 09/09/24 18:52

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800	8460	96.1	85.0-115	

Method Blank (MB)

(MB) R4119251-1 09/09/24 22:34

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Dissolved Solids	U		10.0	10.0

L1774840-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1774840-01 09/09/24 22:34 • (DUP) R4119251-3 09/09/24 22:34

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	1070	1100	1	3.31		10

L1775426-12 Original Sample (OS) • Duplicate (DUP)

(OS) L1775426-12 09/09/24 22:34 • (DUP) R4119251-4 09/09/24 22:34

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	442	462	1	4.42		10

Laboratory Control Sample (LCS)

(LCS) R4119251-2 09/09/24 22:34

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800	8540	97.0	85.0-115	

Method Blank (MB)

(MB) R4120027-1 09/11/24 11:15

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Dissolved Solids	U		10.0	10.0

L1774977-12 Original Sample (OS) • Duplicate (DUP)

(OS) L1774977-12 09/11/24 11:15 • (DUP) R4120027-3 09/11/24 11:15

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	2940	3340	1	12.6	J3	10

Sample Narrative:

OS: Duplicate Analysis performed due to QC failure. Results confirm; reporting in hold data

L1775523-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1775523-05 09/11/24 11:15 • (DUP) R4120027-4 09/11/24 11:15

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	4990	5090	1	1.98		10

Laboratory Control Sample (LCS)

(LCS) R4120027-2 09/11/24 11:15

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800	8690	98.8	85.0-115	

Method Blank (MB)

(MB) R4119893-1 09/11/24 15:28

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Dissolved Solids	U		10.0	10.0

L1774983-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1774983-01 09/11/24 15:28 • (DUP) R4119893-3 09/11/24 15:28

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Dissolved Solids	5050	5060	1	0.198		10

L1775882-12 Original Sample (OS) • Duplicate (DUP)

(OS) L1775882-12 09/11/24 15:28 • (DUP) R4119893-4 09/11/24 15:28

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Dissolved Solids	130	128	1	1.55		10

Laboratory Control Sample (LCS)

(LCS) R4119893-2 09/11/24 15:28

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/l	mg/l	%	%	
Dissolved Solids	8800	8750	99.4	85.0-115	

Method Blank (MB)

(MB) R4119484-1 09/09/24 03:12

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Chloride	U		0.547	1.00
Fluoride	U		0.0761	0.150
Sulfate	U		0.637	5.00

L1775426-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1775426-02 09/09/24 04:23 • (DUP) R4119484-3 09/09/24 04:41

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	8.97	8.92	1	0.667		15
Fluoride	0.254	0.245	1	3.77		15
Sulfate	33.4	33.4	1	0.0838		15

L1775426-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1775426-03 09/09/24 05:35 • (DUP) R4119484-6 09/09/24 05:53

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	11.5	11.6	1	0.843		15
Fluoride	0.199	ND	1	37.6	P1	15
Sulfate	34.7	34.7	1	0.131		15

Laboratory Control Sample (LCS)

(LCS) R4119484-2 09/09/24 03:30

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40.0	37.7	94.3	80.0-120	
Fluoride	8.00	7.49	93.7	80.0-120	
Sulfate	40.0	37.4	93.6	80.0-120	

L1775426-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1775426-02 09/09/24 04:23 • (MS) R4119484-4 09/09/24 04:59 • (MSD) R4119484-5 09/09/24 05:17

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	8.97	44.8	45.0	89.6	90.0	1	80.0-120			0.368	15
Fluoride	8.00	0.254	7.60	7.64	91.8	92.3	1	80.0-120			0.526	15
Sulfate	40.0	33.4	63.7	64.1	75.8	76.8	1	80.0-120	J6	J6	0.619	15

L1775426-03 Original Sample (OS) • Matrix Spike (MS)

(OS) L1775426-03 09/09/24 05:35 • (MS) R4119484-7 09/09/24 06:11

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	40.0	11.5	47.1	89.1	1	80.0-120	
Fluoride	8.00	0.199	7.60	92.5	1	80.0-120	
Sulfate	40.0	34.7	65.0	75.7	1	80.0-120	J6

L1775150-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1775150-01 09/07/24 17:35 • (DUP) R4116881-2 09/07/24 17:35

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.88	7.88	1	0.000		1

Sample Narrative:
OS: 7.88 at 19.1C
DUP: 7.88 at 19C

L1775426-15 Original Sample (OS) • Duplicate (DUP)

(OS) L1775426-15 09/07/24 17:35 • (DUP) R4116881-3 09/07/24 17:35

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.60	7.60	1	0.000		1

Sample Narrative:
OS: 7.6 at 21.7C
DUP: 7.6 at 21.8C

Laboratory Control Sample (LCS)

(LCS) R4116881-1 09/07/24 17:35

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

Sample Narrative:
LCS: 10 at 20.5C

L1774991-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1774991-01 09/10/24 11:13 • (DUP) R4117860-2 09/10/24 11:13

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.16	8.16	1	0.000		1

Sample Narrative:
OS: 8.16 at 20.6C
DUP: 8.16 at 20.5C

L1775714-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1775714-01 09/10/24 11:13 • (DUP) R4117860-3 09/10/24 11:13

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	6.75	6.76	1	0.148		1

Sample Narrative:
OS: 6.75 at 20C
DUP: 6.76 at 21C

Laboratory Control Sample (LCS)

(LCS) R4117860-1 09/10/24 11:13

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

Sample Narrative:
LCS: 10 at 20.9C

Method Blank (MB)

(MB) R4117477-1 09/09/24 21:10

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

Laboratory Control Sample (LCS)

(LCS) R4117477-2 09/09/24 21:12

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.00300	0.00290	96.5	80.0-120	

L1774969-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1774969-05 09/09/24 21:15 • (MS) R4117477-4 09/09/24 21:24 • (MSD) R4117477-5 09/09/24 21:26

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	0.00309	0.00311	103	104	1	75.0-125			0.616	20

Method Blank (MB)

(MB) R4117490-1 09/09/24 22:25

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) R4117490-2 09/09/24 22:27

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury,Dissolved	0.00300	0.00301	100	80.0-120	

L1775340-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1775340-01 09/09/24 22:30 • (MS) R4117490-4 09/09/24 22:42 • (MSD) R4117490-5 09/09/24 22:45

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	0.00293	0.00303	97.8	101	1	75.0-125			3.33	20

Method Blank (MB)

(MB) R4118499-1 09/11/24 13:56

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

Laboratory Control Sample (LCS)

(LCS) R4118499-2 09/11/24 13:58

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.00300	0.00284	94.6	80.0-120	

L1775426-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1775426-09 09/11/24 14:01 • (MS) R4118499-4 09/11/24 14:10 • (MSD) R4118499-5 09/11/24 14:13

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 %
Mercury	0.00300	ND	0.00279	0.00291	93.0	97.0	1	75.0-125			4.27	20

Method Blank (MB)

(MB) R4122595-1 09/20/24 20:48

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Boron	U		0.0200	0.200
Calcium	U		0.0793	1.00

Laboratory Control Sample (LCS)

(LCS) R4122595-2 09/20/24 20:50

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Boron	1.00	0.978	97.8	80.0-120	
Calcium	10.0	10.2	102	80.0-120	

L1775409-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1775409-06 09/20/24 20:51 • (MS) R4122595-4 09/20/24 20:55 • (MSD) R4122595-5 09/20/24 20:56

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 %
Boron	1.00	ND	1.08	1.08	96.0	96.4	1	75.0-125			0.337	20
Calcium	10.0	103	111	111	87.3	81.5	1	75.0-125			0.526	20

Method Blank (MB)

(MB) R4124528-1 09/26/24 00:46

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Boron	U		0.0200	0.200
Calcium	U		0.0793	1.00

Laboratory Control Sample (LCS)

(LCS) R4124528-2 09/26/24 00:48

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Boron	1.00	0.945	94.5	80.0-120	
Calcium	10.0	9.86	98.6	80.0-120	

L1775463-14 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1775463-14 09/26/24 00:50 • (MS) R4124528-4 09/26/24 00:53 • (MSD) R4124528-5 09/26/24 00:56

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 %
Boron	1.00	ND	1.06	1.06	95.8	96.6	1	75.0-125			0.720	20
Calcium	10.0	123	132	131	88.9	74.4	1	75.0-125		V	1.10	20

Method Blank (MB)

(MB) R4124471-1 09/25/24 21:19

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Boron,Dissolved	U		0.0200	0.200
Calcium,Dissolved	U		0.0793	1.00

Laboratory Control Sample (LCS)

(LCS) R4124471-2 09/25/24 21:21

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Boron,Dissolved	1.00	0.917	91.7	80.0-120	
Calcium,Dissolved	10.0	9.54	95.4	80.0-120	

L1775411-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1775411-01 09/25/24 21:22 • (MS) R4124471-4 09/25/24 21:26 • (MSD) R4124471-5 09/25/24 21:28

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 %
Boron,Dissolved	1.00	2.71	3.58	3.59	87.3	87.8	1	75.0-125			0.142	20
Calcium,Dissolved	10.0	609	606	608	0.000	0.000	1	75.0-125	V	V	0.257	20

Method Blank (MB)

(MB) R4122578-1 09/20/24 19:47

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Boron,Dissolved	U		0.0200	0.200
Calcium,Dissolved	U		0.0793	1.00

Laboratory Control Sample (LCS)

(LCS) R4122578-2 09/20/24 19:49

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Boron,Dissolved	1.00	0.992	99.2	80.0-120	
Calcium,Dissolved	10.0	10.3	103	80.0-120	

L1775430-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1775430-09 09/20/24 19:52 • (MS) R4122578-4 09/20/24 19:58 • (MSD) R4122578-5 09/20/24 20:01

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 %
Boron,Dissolved	1.00	ND	1.00	0.969	100	96.9	1	75.0-125			3.61	20
Calcium,Dissolved	10.0	ND	10.4	10.2	104	102	1	75.0-125			1.73	20

Method Blank (MB)

(MB) R4124609-1 09/26/24 01:52

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
Lead,Dissolved	U		0.000849	0.00200
Lithium,Dissolved	U		0.000695	0.00200
Molybdenum,Dissolved	U		0.000348	0.00500
Selenium,Dissolved	U		0.000300	0.00200
Thallium,Dissolved	U		0.000121	0.00200

Laboratory Control Sample (LCS)

(LCS) R4124609-2 09/26/24 01:55

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Antimony,Dissolved	0.0500	0.0478	95.7	80.0-120	
Arsenic,Dissolved	0.0500	0.0499	99.7	80.0-120	
Barium,Dissolved	0.0500	0.0453	90.7	80.0-120	
Beryllium,Dissolved	0.0500	0.0464	92.9	80.0-120	
Cadmium,Dissolved	0.0500	0.0484	96.7	80.0-120	
Chromium,Dissolved	0.0500	0.0507	101	80.0-120	
Cobalt,Dissolved	0.0500	0.0507	101	80.0-120	
Lead,Dissolved	0.0500	0.0502	100	80.0-120	
Lithium,Dissolved	0.0500	0.0475	95.0	80.0-120	
Molybdenum,Dissolved	0.0500	0.0473	94.6	80.0-120	
Selenium,Dissolved	0.0500	0.0485	97.0	80.0-120	
Thallium,Dissolved	0.0500	0.0511	102	80.0-120	

L1775882-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1775882-01 09/26/24 01:58 • (MS) R4124609-4 09/26/24 02:05 • (MSD) R4124609-5 09/26/24 02:08

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	0.0513	0.0509	103	102	1	75.0-125			0.693	20
Arsenic,Dissolved	0.0500	0.00278	0.0552	0.0527	105	99.8	1	75.0-125			4.65	20
Barium,Dissolved	0.0500	0.0719	0.123	0.118	103	91.6	1	75.0-125			4.60	20

L1775882-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1775882-01 09/26/24 01:58 • (MS) R4124609-4 09/26/24 02:05 • (MSD) R4124609-5 09/26/24 02:08

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 %
Beryllium,Dissolved	0.0500	ND	0.0497	0.0465	99.3	93.0	1	75.0-125			6.52	20
Cadmium,Dissolved	0.0500	ND	0.0525	0.0487	105	97.4	1	75.0-125			7.52	20
Chromium,Dissolved	0.0500	ND	0.0541	0.0506	108	101	1	75.0-125			6.63	20
Cobalt,Dissolved	0.0500	ND	0.0546	0.0513	109	102	1	75.0-125			6.22	20
Lead,Dissolved	0.0500	ND	0.0533	0.0498	107	99.7	1	75.0-125			6.63	20
Lithium,Dissolved	0.0500	0.00986	0.0589	0.0572	98.1	94.7	1	75.0-125			2.92	20
Molybdenum,Dissolved	0.0500	ND	0.0509	0.0493	101	97.4	1	75.0-125			3.23	20
Selenium,Dissolved	0.0500	ND	0.0503	0.0469	101	93.9	1	75.0-125			7.00	20
Thallium,Dissolved	0.0500	ND	0.0541	0.0513	108	103	1	75.0-125			5.37	20

Method Blank (MB)

(MB) R4124519-1 09/25/24 22:39

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL 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
Lead	U		0.000849	0.00200
Lithium	U		0.000695	0.00200
Molybdenum	U		0.000348	0.00500
Selenium	U		0.000300	0.00200
Thallium	U		0.000121	0.00200

Laboratory Control Sample (LCS)

(LCS) R4124519-2 09/25/24 22:42

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Antimony	0.0500	0.0480	96.0	80.0-120	
Arsenic	0.0500	0.0496	99.3	80.0-120	
Barium	0.0500	0.0462	92.4	80.0-120	
Beryllium	0.0500	0.0465	93.1	80.0-120	
Cadmium	0.0500	0.0476	95.3	80.0-120	
Chromium	0.0500	0.0501	100	80.0-120	
Cobalt	0.0500	0.0502	100	80.0-120	
Lead	0.0500	0.0482	96.3	80.0-120	
Lithium	0.0500	0.0474	94.8	80.0-120	
Molybdenum	0.0500	0.0476	95.2	80.0-120	
Selenium	0.0500	0.0475	95.0	80.0-120	
Thallium	0.0500	0.0497	99.4	80.0-120	

L1775426-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1775426-02 09/25/24 22:46 • (MS) R4124519-4 09/25/24 22:52 • (MSD) R4124519-5 09/25/24 22:55

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	0.0500	ND	0.0509	0.0512	102	102	1	75.0-125			0.567	20
Arsenic	0.0500	ND	0.0525	0.0510	103	99.6	1	75.0-125			2.87	20
Barium	0.0500	0.197	0.241	0.244	87.8	94.0	1	75.0-125			1.27	20

L1775426-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1775426-02 09/25/24 22:46 • (MS) R4124519-4 09/25/24 22:52 • (MSD) R4124519-5 09/25/24 22:55

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 %
Beryllium	0.0500	ND	0.0472	0.0463	94.4	92.7	1	75.0-125			1.89	20
Cadmium	0.0500	ND	0.0502	0.0486	100	97.2	1	75.0-125			3.17	20
Chromium	0.0500	ND	0.0521	0.0512	104	102	1	75.0-125			1.69	20
Cobalt	0.0500	ND	0.0509	0.0514	99.7	101	1	75.0-125			1.04	20
Lead	0.0500	ND	0.0509	0.0498	101	98.5	1	75.0-125			2.12	20
Lithium	0.0500	0.0173	0.0649	0.0640	95.3	93.4	1	75.0-125			1.47	20
Molybdenum	0.0500	ND	0.0498	0.0493	99.5	98.7	1	75.0-125			0.857	20
Selenium	0.0500	0.00529	0.0545	0.0533	98.4	96.0	1	75.0-125			2.23	20
Thallium	0.0500	ND	0.0522	0.0506	104	101	1	75.0-125			2.93	20

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
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.

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.

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

Report to: **Randy Homburg**

Email To: **Randy.Homburg@erm.com;Tim.Wilson@erm.co**

Project Description: **Grand Tower Energy Center Groundwater 3Q24**

City/State Collected: Grand Tower, IL

Please Circle: PT MT CT 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):

Immediately Packed on Ice N ___ Y X

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

Quote #

Date Results Needed

No. of Cntrs

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Anions 125mlHDPE-NoPres	Dissolved Metals 250mlHDPE-NoPres	TDS 1L-HDPE NoPres	Total Metals 250mlHDPE-HNO3	pH 125mlHDPE-NoPres					Remarks	Sample # (lab only)
APW-03-WG-2024 0904	Grab	GW		9/4/24	1500	5	X	X	X	X	X						01
APW-08-WG-2024 0904		GW		9/4/24	1615	5	X	X	X	X	X						02
APW-07-WG-2024 0904		GW		9/4/24	1700	5	X	X	X	X	X						03
APW-10S-WG-2024 0905		GW		9/5/24	1455	5	X	X	X	X	X						04
APW-10D-WG-2024 0905		GW		9/5/24	1415	5	X	X	X	X	X						05
APW-06S-WG-2024 0905		GW			0820	5	X	X	X	X	X						06
APW-06D-WG-2024 0905		GW			0915	5	X	X	X	X	X						07
APW-05R-WG-2024 0905		GW			1230	5	X	X	X	X	X						08
APW-09-WG-2024 0906		GW		9/6/24	0900	5	X	X	X	X	X						09
APW-02-WG-2024 0905		GW		9/5/24	1045	5	X	X	X	X	X						10

* 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 3300 4861

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
ERM	9/6/24	12:33	ESCORT	0
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 1.5 °C Bottles Received: 18 69
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 09-07-24 Time: 0900

Sample Receipt Checklist

COC Seal Present/Intact:	NP	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

If p... PH-10BDH0941 TRC-3223A228 ...ate/Time

Hold: Condition: NCF / OK

Chain of Custody Page 1 of 2

Pace
PEOPLE ADVANCING SCIENCE

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

L1975106

SDG # J087

Acctnum: **ERMSCMO**
Template: **T243415**
Prelogin: **P1087428**
PM: **206 - Jeff Carr**
PB:

Shipped Via: **FedEX Ground**

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

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Email To: **Randy.Homburg@erm.com;Tim.Wilson@erm.co**

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City/State Collected: Grand Tower, IL

Please Circle: PT MT CT ET

Phone: **314-682-3980**

Client Project # **0599247**

Lab Project # **ERMSCMO-0599247**

Collected by (print): Marshall Arendall

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

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

Quote #

Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Anions 125mlHDPE-NoPres	Dissolved Metals 250mlHDPE-NoPres	TDS 1L-HDPE NoPres	Total Metals 250mlHDPE-HNO3	pH 125mlHDPE-NoPres					Remarks	Sample # (lab only)
APW-01R-WG-2024 0905	Grab	GW			1610	5	X	X	X	X	X						-11
APW-04-WG-2024 0904		GW			1815	5	X	X	X	X	X						-12
EB-01-WG-2024 0904		GW	—		1130	4	X	X	X	X	X					No dissolved collected on EB-01	-13
DUP-01-WG-2024 0905		GW	—		0001	5	X	X	X	X	X						-14
DUP-02-WG-2024 0906		GW	—		0002	5	X	X	X	X	X						-15

Analysis / Container / Preservative

Chain of Custody Page 2 of 2

Pace PEOPLE ADVANCING SCIENCE

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

SDG # L1475476

Table #

Acctnum: **ERMSCMO**
Template: **T243415**
Prelogin: **P1087428**
PM: **206 - Jeff Carr**
PB:

Shipped Via: **FedEX Ground**

* 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 4861

Sample Receipt Checklist

COC Seal Present/Intact:	NP	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:		N
Preservation Correct/Checked:	Y	N
RAD Screen <0.5 mR/hr:	Y	N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
ERM	9/6/24	12:33		0	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 1.5 °C Bottles Received: 1.5+3-1.8 69	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 09-07-24 Time: 0010	Hold: Condition: NCF / OK

Fed Ex tracking #	Gun ID	Temperature
7123 3300 4861	TLAB	25 to 3 = 28
7123 3300 4883		2.1 to 3 = 2.4
6040 5533 0176		4.6 to 3 = 4.9

Troy C.
Name

09-07-24
Date