

11 November 2022

Lauren Hunt Martin, MS  
Illinois Environmental Protection Agency  
Bureau of Water  
Division of Public Water Supplies  
Groundwater Section  
1021 N. Grand Avenue  
Springfield, IL 62702

Subject: Initial Post-Closure Groundwater Monitoring Report  
Second Quarter 2022  
Grand Tower Energy Center  
Closed Coal Combustion Residuals Impoundment  
1820 Power Plant Rd  
Grand Tower, IL 62942  
ERM Project No. 0599247

Dear Lauren:

Environmental Resources Management (ERM) is submitting this letter report, which provides the results and findings of the initial Grand Tower Energy Center (GTEC) quarterly post-closure groundwater sampling and coal combustion residuals (CCR) impoundment inspection event conducted during the second quarter 2022 at 1820 Power Plant Rd, Grand Tower, Illinois (the "Site") between June 15 and June 17, 2022. A Site location map is provided in Figure 1.

The initial 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 and further modified according to the Consolidated IEPA Comments dated 17 March 2022. The purpose of the sampling event was to initiate 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 ash basin which was capped and closed in 2020. The quarterly results include a summary of field activities, laboratory analytical and constituent trends and evaluation of statistically significant increases or decreases for constituent concentrations in order to gauge the effectiveness of the closed CCR cell design and implementation. It should be noted that this is the initial post-closure sampling event and that a sufficient amount of monitoring data does not exist to provide an accurate evaluation of data trends and whether a statistically significant increase or decrease in the data trends exist.

Quarterly site activities, performed in accordance with the proposed post-closure groundwater monitoring program, the results of which are summarized below, include:

- Inspection of the final cover system of the CCR impoundment;
- Inspection of the groundwater monitoring well array;
- Groundwater monitoring;
- Preparation of a quarterly groundwater monitoring results report; and
- Preparation of a quarterly CCR impoundment inspection report.

## QUARTERLY CCR IMPOUNDMENT INSPECTION

During the first and second quarters of 2022, an inspection of the CCR impoundment cover system and associated features was completed and quarterly inspection reports were generated. Quarterly groundwater monitoring wasn't initiated until the second quarter 2022 based on approval of the post-closure monitoring program by the IEPA; therefore, the results of both the first and second quarter 2022 CCR impoundment inspections are included with this report and can be found in Appendix A.

## QUARTERLY MONITORING WELL INSPECTION AND GAUGING

During the first and second quarter of 2022 monitoring well inspections were conducted. The initial quarterly groundwater monitoring wasn't initiated until second quarter 2022; therefore the results of both the first and second quarter 2022 monitoring well inspections are included with this report and can be found in Appendix B. The inspection tasks 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. Based upon these measurements, a shallow groundwater contour map for the Site was developed for both the first and second quarter of 2022. The groundwater gradient is primarily from east to west towards the Mississippi River except for 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 and Figure 3 shows monitoring well locations with a groundwater contour, groundwater elevations at each monitoring well, and the Mississippi River elevation for first and second quarter 2022, respectively.

The above ground well protectors and monitoring well casings were inspected for damage and/or signs of settling that might impact the integrity of the surface seals. During the second quarter 2022 inspection and sampling event, the well casing at APW-06D was found to be slightly deflected at a point approximately 4.5 feet below the TOC; therefore, a groundwater sample was not able to be collected from this well during the second quarter sampling event due to the inability to insert a sampling pump past the deflection. The deflection in the casing was corrected prior to the third quarter 2022 groundwater sampling event, which was conducted from 15 September to 17 September 2022. Additionally, the well screen of monitoring well APW-05 was found to be over 40% occluded during the first and second quarter 2022 well inspection events. An attempt was made during the second quarter 2022 to remove the occlusion in APW-05 with a submersible pump; however, the attempt was unsuccessful due to the large grain size of the material. Upon further evaluation it was determined that the material occluding the well appeared to be well sand pack materials and a breach of the well screen was the suspected cause of the well screen occlusion. ERM is currently in the process of scheduling an Illinois licensed well driller to re-drill APW-05.

## QUARTERLY GROUNDWATER MONITORING

During the second quarter 2022 sampling event, 11 monitoring wells (APW-01R, APW-02, APW-03, APW-04, APW-05, APW-06S, APW-07, APW-08, APW-09, APW-10D, and APW-10S) were sampled. APW-06D was unable to be sampled due to damage to the monitoring well casing. The remaining 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 Professional Plus meter during purging activities for pH, specific conductivity, temperature, dissolved oxygen, and ORP. Turbidity readings were also collected 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 Teklab, Inc located in Collinsville, IL which is an Illinois EPA-approved laboratory. Samples were transported under chain-of-custody procedures to the laboratory for analytical testing within laboratory provided coolers containing ice. The laboratory analytical report for the second quarter 2022 sampling event is included in Appendix D.

In accordance with the 3 March 2022 draft comments received from the IEPA Groundwater Section on 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 groundwater protection standards contained in the Illinois Administrative Code (IAC) Title 35 Section 845.600. Under Section 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 initial post-closure groundwater sampling event conducted during the second quarter 2022 are presented in Table 1. Additionally, Table 1 also presents the results of the eight pre-closure sampling events conducted from September 2017 through February 2018 prior to the closure and capping of the CCR impoundment. During the second quarter 2022 sampling event, the following analytes were detected in the listed wells above their respective Title 35 Section 845.600 groundwater protection standards for CCR impoundments, which includes the Upper Tolerance Limit (UTL) calculated for calcium, turbidity, and radium 226/226, and the Lower Tolerance Limit (LTL) calculated for pH:

- Sulfate: APW-02.
- Arsenic: APW-02 and APW-10S.
- Boron: APW-02, APW-03, APW-05, and APW-06S.
- Calcium: APW-02, APW-03, APW-04, APW-05, APW-06S, APW-07, APW-08, APW-09, APW-10D, and APW-10S.
- Turbidity: APW-01R, APW-02, APW-03, APW-04, APW-05, APW-06S, APW-07, APW-08, APW-09, APW-10D, and APW-10S.
- Lithium: APW-02.
- Molybdenum: APW-02, APW-05, and APW-06S.

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 the APW-10S well do not exhibit arsenic concentration above the groundwater protection standards in Title 35 Section 845.600.

A Mann-Kendall statistical analysis was performed on groundwater analytical results from monitoring wells with COCs that exceeded Title 35 Section 845.600 groundwater protection standards. Graphs of the results are included within Attachment E, while Table 2 provides a summary of the Mann-Kendall Test for Trends. The analysis incorporated analytical data from the eight pre-closure groundwater sampling events conducted from September 2017 until February 2018 as well as the June 2022 second quarter post-closure sampling event. Based on the Mann-Kendall statistical analysis, as shown in Table 2 the only statistically significant increasing or decreasing trend as of June 2022 is boron at APW-04, which exhibits a decreasing trend.

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 COCs.

## SUMMARY AND CONCLUSIONS

Based upon the results of the second quarter 2022 groundwater sampling event, the first and second quarter 2022 well inspections, and the first and second quarter 2022 CCR impoundment inspections, 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, concentrations of boron, arsenic and sulfate 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. Based on the eight rounds of pre-closure groundwater sampling conducted during 2017 and 2018, as well as the second quarter 2022 groundwater monitoring event, which is the first event of the current five year monitoring period, the only statistically significant increasing or decreasing trend as of June 2022 is boron at APW-04, which exhibits a decreasing trend.

- It has been determined that monitoring well APW-05 will require repair or replacement by an Illinois licensed well driller to correct suspected damage to the well screen which has allowed the sandpack to enter the monitoring well.
- Several maintenance items were noted within the attached CCR impoundment inspection reports from first and second quarter 2022, most notably the observed slumping of the adjacent United States Army Corps of Engineers (USACE) levee and erosion along the Site perimeter security fencing and along the GTEC levee. As of October 2022 the USACE levee has been repaired. No significant degradation or issues were noted associated with the CCR impoundment cover system.

If you have any questions, please contact me at (314) 733-4495.

Sincerely,



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



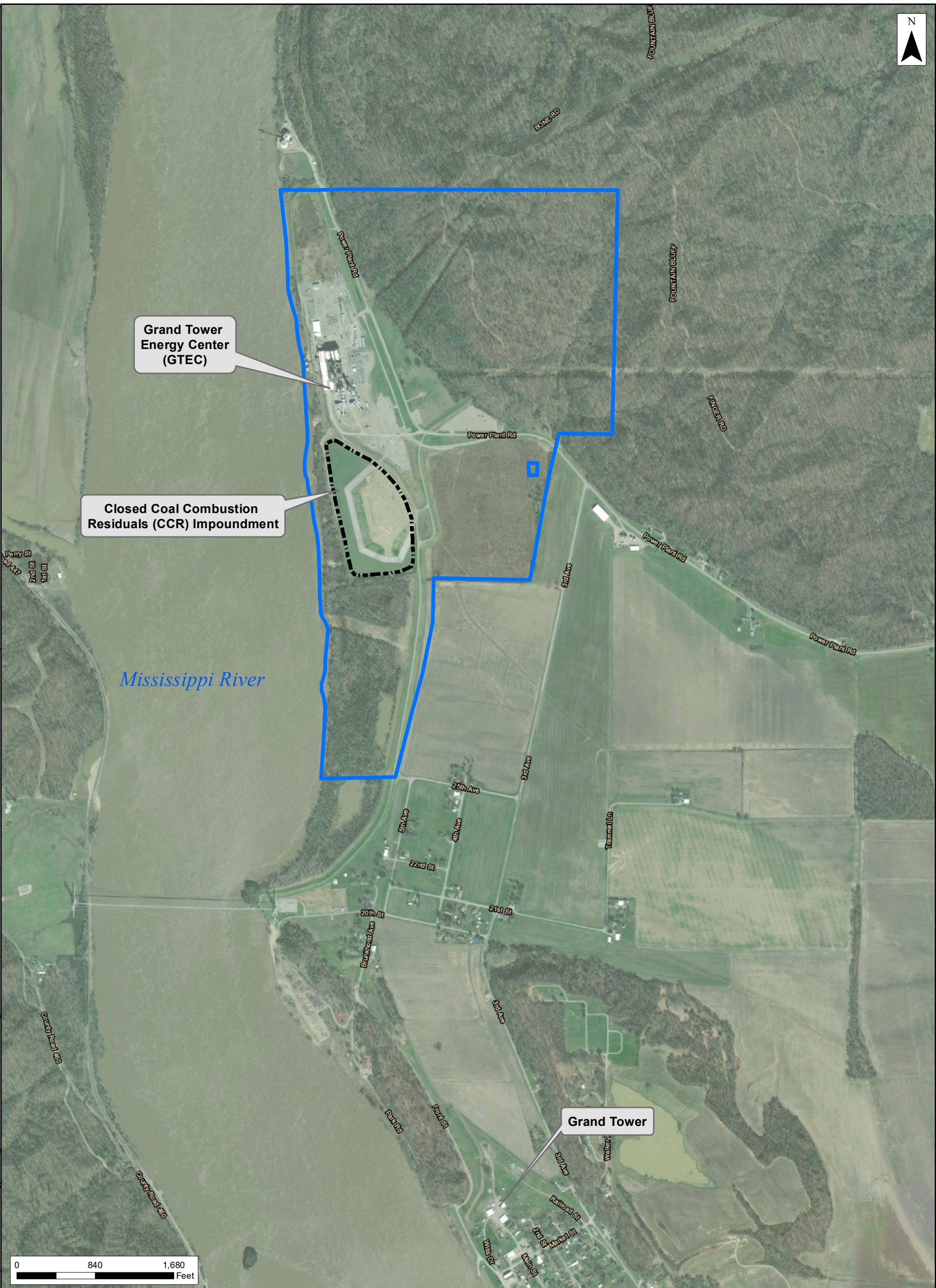
Matt Halley, CHMM  
*Senior Consultant*

Attachments

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

## FIGURES

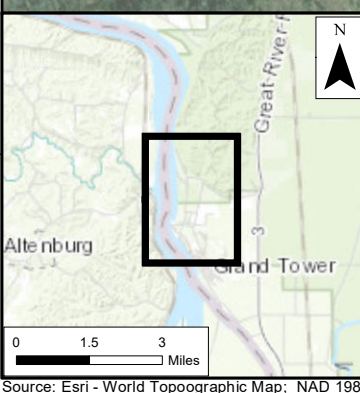
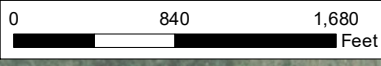
FILE: \\usbdfs02\data\Philadelphia\Team\DM\GIS\Projects\Grand Tower Energy Center\ MXD\FIGURE1-SITELLOCATIONMAP\_20221003.mxd | REVISED: 10/03/2022 | SCALE: 1:12,000 when printed at 11x17



Grand Tower Energy Center (GTEC)

Closed Coal Combustion Residuals (CCR) Impoundment

Grand Tower

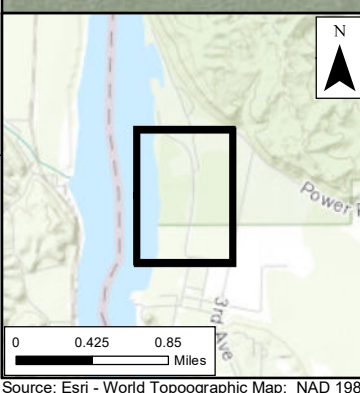


- Legend**
- Closed Coal Combustion Residuals (CCR) Impoundment
  - Approximate Parcel Boundary

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

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

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**Legend**

- Monitoring Well Location
- Groundwater Contour (0.2 Ft. Interval)
- 348.37 Groundwater Elevation

**Notes:**

1. CCR Surface Impoundment Closed Prior to July 31, 2021
2. Date of gauging March 23, 2022
3. Ft AMSL - Feet Above Mean Sea Level
4. (D) - Designated Wells not used in contouring
5. \* River stage at Mississippi River Gauge at Grand Tower, IL (NGVD29) (<https://rivergages.mvr.usace.army.mil/WaterControl/shefdata2.cfm?sid=CE358576&d=31&dt=E>)
6. World Imagery (3/24/2021)

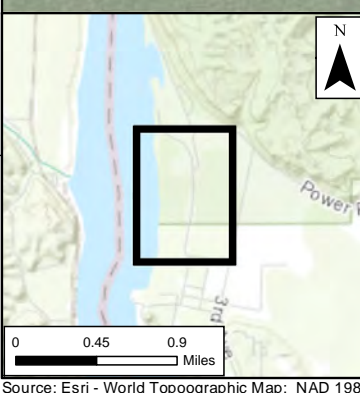
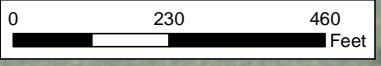
**Figure 2**  
**Monitoring Well Locations and Groundwater Contour Map**  
**March 2022**  
 Grand Tower Energy Center, LLC  
 Grand Tower, Illinois  
 Jackson County

Environmental Resources Management  
 www.erm.com

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\*Mississippi River Elevation = 354.89



- Legend**
- Monitoring Well Location
  - Groundwater Contour (0.2 Ft. Interval)
  - 348.37 Groundwater Elevation

- Notes:**
1. CCR Surface Impoundment Closed Prior to July 31, 2021
  2. Date of gauging June 14, 2022
  3. Ft AMSL - Feet Above Mean Sea Level
  4. (D) - Designated Wells not used in contouring
  5. \* River stage at Mississippi River Gauge at Grand Tower, IL (NGVD29) (<https://rivergages.mvr.usace.army.mil/WaterControl/shefdata2.cfm?sid=CE358576&d=31&dt=E>)
  6. World Imagery (3/24/2021)

**Figure 3**  
**Monitoring Well Locations and Groundwater Contour Map**  
**June 2022**  
 Grand Tower Energy Center, LLC  
 Grand Tower, Illinois  
 Jackson County

## TABLES

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

Sample ID Location ID Sample Date Sample Type	Sampled prior to closure of CCR Impoundment										Post-Closure Sampling	
	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 09/05/2017 N	APW-01R 09/27/2017 N	APW-01R 10/18/2017 N	APW-01R 11/08/2017 N	APW-01R 11/27/2017 N	APW-01R 12/28/2017 N	APW-01R 01/17/2018 N	APW-01R 02/07/2018 N	APW-01R 06/15/2022 N			
<b>Parameter/Analyte</b>	<b>Total or Dissolved</b>	<b>Units</b>	<b>35 IAC 845.600*</b>									
<b>UNSPECIFIED</b>												
Fluoride	NA	mg/L	4	0.15	0.17	0.16	0.12	0.14	0.15	0.18	0.16	0.21
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
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
Sulfate	NA	mg/L	400	41	65	65	54	58	88	78	79	33
<b>CALC</b>												
Radium-226/228	NA	pCi/L	5									0.693 ± 0.293
<b>FIELD PARAM</b>												
Turbidity, Field	NA	NTU	17.96 <sup>1</sup>									33.9
<b>GEN CHEM</b>												
Chloride	NA	mg/L	200	5 U	5 U	5 U	5 U	5 U	9	11	10	2
Dissolved Solids, Total	NA	mg/L	1200	400	428	376	358 R	412	474	434	392	342
pH, Lab	NA	pH units	6.22-9.0 <sup>2</sup>	6.64	6.54	6.6	6.8	7.11	6.96	7.09	6.52	6.98
<b>METALS</b>												
Antimony	D	mg/L	0.006									0.001 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
Arsenic	D	mg/L	0.01									0.0012
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
Barium	D	mg/L	2									0.16
Barium	T	mg/L	2	0.168	0.193	0.171	0.176	0.165	0.178	0.182	0.18	0.197
Beryllium	D	mg/L	0.004									0.001 U
Beryllium	T	mg/L	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Boron	D	mg/L	2									0.163
Boron	T	mg/L	2	0.218	0.251	0.238	0.211	0.225	0.329	0.357	0.311	0.228
Cadmium	D	mg/L	0.005									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
Calcium	D	mg/L	103.2 <sup>1</sup>									85.6
Calcium	T	mg/L	103.2 <sup>1</sup>	84.3 S	93 S	86.2 S	88.2	91.2 S	91	97.1	85.8 S	90.3
Chromium	D	mg/L	0.1									0.0009 J
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
Cobalt	D	mg/L	0.006									0.0002 J
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
Iron	T	mg/L	NS									1.42
Lead	D	mg/L	0.0075									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	0.0013
Lithium	D	mg/L	0.04									0.0127
Lithium	T	mg/L	0.04	0.0155	0.018	0.0173	0.0175	0.018	0.0179	0.0164	0.0159	0.0171
Manganese	T	mg/L	NS									0.139
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
Molybdenum	D	mg/L	0.1									0.0015 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
Nickel	D	mg/L	NS									0.0043
Nickel	T	mg/L	NS	0.0044	0.0062	0.0054	0.004	0.0038	0.0046	0.005	0.0057	0.0083
Selenium	D	mg/L	0.05									0.0028
Selenium	T	mg/L	0.05	0.0038	0.004	0.0034	0.0044	0.0041	0.004	0.004	0.0037	0.0028
Thallium	D	mg/L	0.002									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

Notes:  
Empty cells = not analyzed  
N = Normal Environmental Sample  
FD = Field Duplicate Sample  
NA = not applicable  
T = total  
D = dissolved  
mg/L = milligrams per liter  
pCi/L = picocuries per liter  
NTU = nephelometric turbidity units  
J = Analyte detected below quantitation limits  
J3 = The associated batch QC was outside the established quality control range for precision  
S = Spike Recovery outside recovery limits  
R = RPD outside accepted recovery limits  
U = Not Detected at the Reporting Limit

\*Protection Standard is from Title 35 Section 845.600 unless otherwise noted  
1 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-01R concentrations from 8 quarterly sampling events from 2017-2018  
2 Standard value 6.22 is from the Lower Tolerance Limit (LTL) calculated from background well APW-01R concentrations from 8 quarterly sampling events from 2017-2018 and 9.0 is the regulatory standard  
Highlighted values exceed action level  
NS = No standard

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

Sample ID Location ID Sample Date Sample Type	Sampled prior to closure of CCR Impoundment.										Post-Closure Sampling	
	APW-2-20170907 APW-02 09/06/2017 N	APW-2-20170927 APW-02 09/28/2017 N	APW-2-20171020 APW-02 10/20/2017 N	APW-2-20171109 APW-02 11/09/2017 N	APW-2-20171129 APW-02 11/29/2017 N	APW-2-20171227 APW-02 12/27/2017 N	APW-2-20180119 APW-02 01/19/2018 N	APW-2-20180207 APW-02 02/07/2018 N	APW-02-WG-20220616 APW-02 06/16/2022 N			
<b>Parameter/Analyte</b>	<b>Total or Dissolved</b>	<b>Units</b>	<b>35 IAC 845.600*</b>									
<b>UNSPECIFIED</b>												
Fluoride	NA	mg/L	4	0.24	0.26	0.25	0.24	0.24	0.25	0.26	0.24	0.25
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	0.159 ± 0.181 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	0.308 ± 0.236 J3U
Sulfate	NA	mg/L	400	462	460	472 S	479	472	426	443	416	496
<b>CALC</b>												
Radium-226/228	NA	pCi/L	5									0.467 ± 0.297 J
<b>FIELD PARAM</b>												
Turbidity, Field	NA	NTU	17.96 <sup>1</sup>									38
<b>GEN CHEM</b>												
Chloride	NA	mg/L	200	13	12	11	11	12	12	12	12	9
Dissolved Solids, Total	NA	mg/L	1200	858	880	934	916	870	848	836	888	930
pH, Lab	NA	pH units	6.22-9.0 <sup>2</sup>	7.09	7.05	7.08	7.07	7.05	7.14	7.06	6.96	7.21
<b>METALS</b>												
Antimony	D	mg/L	0.006									0.001 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	0.0021	0.0006 J
Arsenic	D	mg/L	0.01									0.0117
Arsenic	T	mg/L	0.01	0.0199	0.0147	0.0212	0.017	0.0169	0.0157	0.0148	0.0243	0.0158
Barium	D	mg/L	2									0.154
Barium	T	mg/L	2	0.479	0.355	0.685	0.44	0.427	0.338	0.351	0.739	0.237
Beryllium	D	mg/L	0.004									0.001 U
Beryllium	T	mg/L	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0011	0.002 U
Boron	D	mg/L	2									8.17
Boron	T	mg/L	2	8.16	8.73	8.94 S	9	8.98	8.39	8.19	8.24	8.13
Cadmium	D	mg/L	0.005									0.0003 J
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	0.0006 J
Calcium	D	mg/L	103.2 <sup>1</sup>									175
Calcium	T	mg/L	103.2 <sup>1</sup>	148	145	171 S	157	158	135	134	175	189
Chromium	D	mg/L	0.1									0.0015 U
Chromium	T	mg/L	0.1	0.0374	0.0455	0.0503	0.0235	0.014	0.0566	0.127	0.112	0.0254
Cobalt	D	mg/L	0.006									0.0003 J
Cobalt	T	mg/L	0.006	0.0057	0.0023	0.0097	0.0041	0.0038	0.0018	0.0028	0.011	0.0011 J
Iron	T	mg/L	NS									11.7
Lead	D	mg/L	0.0075									0.001 U
Lead	T	mg/L	0.0075	0.0115	0.0054	0.0201	0.0096	0.0075	0.0031	0.0048	0.0239	0.0022
Lithium	D	mg/L	0.04									0.037
Lithium	T	mg/L	0.04	0.05	0.0455	0.0647	0.0521	0.0542	0.0474	0.045	0.0604	0.0507
Manganese	T	mg/L	NS									0.752
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
Molybdenum	D	mg/L	0.1									0.201
Molybdenum	T	mg/L	0.1	0.172	0.147	0.214	0.175	0.165	0.111	0.0951	0.131	0.24
Nickel	D	mg/L	NS									0.0039
Nickel	T	mg/L	NS	0.0288	0.0263	0.0412	0.0202	0.0135	0.0295	0.0631	0.0725	0.0142
Selenium	D	mg/L	0.05									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
Thallium	D	mg/L	0.002									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

Notes:  
 Empty cells = not analyzed  
 N = Normal Environmental Sample  
 FD = Field Duplicate Sample  
 NA = not applicable  
 T = total  
 D = dissolved  
 mg/L = milligrams per liter  
 pCi/L = picocuries per liter  
 NTU = nephelometric turbidity units  
 J = Analyte detected below quantitation limits  
 J3 = The associated batch QC was outside the established quality control range for precision  
 S = Spike Recovery outside recovery limits  
 R = RPD outside accepted recovery limits  
 U = Not Detected at the Reporting Limit

\*Protection Standard is from Title 35 Section 845.600 unless otherwise noted  
 1 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-01R concentrations from 8 quarterly sampling events from 2017-2018  
 2 Standard value 6.22 is from the Lower Tolerance Limit (LTL) calculated from background well APW-01R concentrations from 8 quarterly sampling events from 2017-2018 and 9.0 is the regulatory standard  
 Highlighted values exceed action level  
 NS = No standard

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

Sample ID Location ID Sample Date Sample Type	Sampled prior to closure of CCR Impoundment.										Post-Closure Sampling	
	APW-3-20170907 APW-03 09/06/2017 N	APW-3-20170929 APW-03 09/29/2017 N	APW-3-20171020 APW-03 10/20/2017 N	APW-3-20171110 APW-03 11/10/2017 N	APW-3-20171129 APW-03 11/29/2017 N	APW-3-20171228 APW-03 12/28/2017 N	APW-3-20180119 APW-03 01/19/2018 N	APW-3-20180208 APW-03 02/08/2018 N	APW-03-WG-20220616 APW-03 06/16/2022 N			
<b>Parameter/Analyte</b>	<b>Total or Dissolved</b>	<b>Units</b>	<b>35 IAC 845.600*</b>									
<b>UNSPECIFIED</b>												
Fluoride	NA	mg/L	4	0.28	0.29	0.29	0.31	0.27	0.29	0.29	0.34	0.26
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
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
Sulfate	NA	mg/L	400	175	222	201	207	204	168	152	194	393
<b>CALC</b>												
Radium-226/228	NA	pCi/L	5									2.09 ± 0.303
<b>FIELD PARAM</b>												
Turbidity, Field	NA	NTU	17.96 <sup>1</sup>									40.3
<b>GEN CHEM</b>												
Chloride	NA	mg/L	200	22	21	21	22	19	20	16	23	20
Dissolved Solids, Total	NA	mg/L	1200	464	514	486	450	554	504	498	456	724
pH, Lab	NA	pH units	6.22-9.0 <sup>2</sup>	7.88	7.46	7.65	7.93	7.5	7.48	7.26	7.78	7.85
<b>METALS</b>												
Antimony	D	mg/L	0.006									0.001 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
Arsenic	D	mg/L	0.01									0.0015
Arsenic	T	mg/L	0.01	0.0022	0.0029	0.0021	0.0018	0.0023	0.0024	0.0028	0.0018	0.002
Barium	D	mg/L	2									0.139
Barium	T	mg/L	2	0.111	0.146	0.104	0.0814	0.121	0.1	0.15	0.0806	0.158
Beryllium	D	mg/L	0.004									0.001 U
Beryllium	T	mg/L	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Boron	D	mg/L	2									4.23
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
Cadmium	D	mg/L	0.005									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
Calcium	D	mg/L	103.2 <sup>1</sup>									174
Calcium	T	mg/L	103.2 <sup>1</sup>	86.3	104 S	88.1	74.9	116 S	95	101	77.1	153
Chromium	D	mg/L	0.1									0.0011 J
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
Cobalt	D	mg/L	0.006									0.001 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
Iron	T	mg/L	NS									1.66
Lead	D	mg/L	0.0075									0.001 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
Lithium	D	mg/L	0.04									0.0338
Lithium	T	mg/L	0.04	0.0258	0.0262	0.0259	0.0245	0.0308	0.027	0.035	0.0239	0.0361
Manganese	T	mg/L	NS									0.321
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
Molybdenum	D	mg/L	0.1									0.057
Molybdenum	T	mg/L	0.1	0.0778	0.0754	0.0761	0.0713	0.0684	0.0748	0.0824	0.0849	0.0601
Nickel	D	mg/L	NS									0.0016
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
Selenium	D	mg/L	0.05									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	0.0011	0.001 U	0.001 U
Thallium	D	mg/L	0.002									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

Notes:  
Empty cells = not analyzed  
N = Normal Environmental Sample  
FD = Field Duplicate Sample  
NA = not applicable  
T = total  
D = dissolved  
mg/L = milligrams per liter  
pCi/L = picocuries per liter  
NTU = nephelometric turbidity units  
J = Analyte detected below quantitation limits  
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\*Protection Standard is from Title 35 Section 845.600 unless otherwise noted  
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Highlighted values exceed action level  
NS = No standard

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

Sample ID Location ID Sample Date Sample Type	Sampled prior to closure of CCR Impoundment.										Post-Closure Sampling	
	APW-4-20170907 APW-04 09/08/2017 N	APW-4-20170929 APW-04 09/29/2017 N	APW-4-20171019 APW-04 10/19/2017 N	APW-4-20171108 APW-04 11/08/2017 N	APW-4-20171128 APW-04 11/28/2017 N	APW-4-20171228 APW-04 12/28/2017 N	APW-4-20180119 APW-04 01/19/2018 N	APW-4-20180208 APW-04 02/08/2018 N	APW-04-WG-20220615 APW-04 06/15/2022 N			
<b>Parameter/Analyte</b>	<b>Total or Dissolved</b>	<b>Units</b>	<b>35 IAC 845.600*</b>									
<b>UNSPECIFIED</b>												
Fluoride	NA	mg/L	4	0.18	0.19	0.18	0.17	0.18	0.17	0.17	0.16	0.2
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
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
Sulfate	NA	mg/L	400	126	116	109	120	107	100	99	92	94
<b>CALC</b>												
Radium-226/228	NA	pCi/L	5									0.348 ± 0.287 J
<b>FIELD PARAM</b>												
Turbidity, Field	NA	NTU	17.96 <sup>1</sup>									19.1
<b>GEN CHEM</b>												
Chloride	NA	mg/L	200	12	11	11	11	11	11	10	11	12
Dissolved Solids, Total	NA	mg/L	1200	460	484	452	472	492	514	424	528	430
pH, Lab	NA	pH units	6.22-9.0 <sup>2</sup>	7.31	7.33	7.31	7.42	7.32	7.33	7.25	7.2	7.41
<b>METALS</b>												
Antimony	D	mg/L	0.006									0.001 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
Arsenic	D	mg/L	0.01									0.0013
Arsenic	T	mg/L	0.01	0.0025	0.0018	0.0016	0.0018	0.0016	0.0014	0.0016	0.0015	0.0015
Barium	D	mg/L	2									0.116
Barium	T	mg/L	2	0.145	0.139	0.123	0.13	0.128	0.141	0.155	0.144	0.143
Beryllium	D	mg/L	0.004									0.001 U
Beryllium	T	mg/L	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Boron	D	mg/L	2									1.41
Boron	T	mg/L	2	2.37	2.16	2.12	2.21	2.03	1.7	1.33	1.18	1.88
Cadmium	D	mg/L	0.005									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
Calcium	D	mg/L	103.2 <sup>1</sup>									111
Calcium	T	mg/L	103.2 <sup>1</sup>	101 S	105	89.4	97.5	107	107	113	113	97.8
Chromium	D	mg/L	0.1									0.0015 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
Cobalt	D	mg/L	0.006									0.001 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
Iron	T	mg/L	NS									0.563
Lead	D	mg/L	0.0075									0.001 U
Lead	T	mg/L	0.0075	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Lithium	D	mg/L	0.04									0.0264
Lithium	T	mg/L	0.04	0.0404	0.0403	0.0412	0.0406	0.0424	0.0416	0.0411	0.0397	0.036
Manganese	T	mg/L	NS									0.192
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
Molybdenum	D	mg/L	0.1									0.0653
Molybdenum	T	mg/L	0.1	0.0891	0.084	0.0793	0.0812	0.0748	0.0714	0.0592	0.057	0.0788
Nickel	D	mg/L	NS									0.0019
Nickel	T	mg/L	NS	0.0065	0.0034	0.0029	0.002	0.002	0.0026	0.0039	0.003	0.0045
Selenium	D	mg/L	0.05									0.0134
Selenium	T	mg/L	0.05	0.0158	0.015	0.0149	0.0161	0.014	0.013	0.0101	0.0102	0.0133
Thallium	D	mg/L	0.002									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

Notes:  
Empty cells = not analyzed  
N = Normal Environmental Sample  
FD = Field Duplicate Sample  
NA = not applicable  
T = total  
D = dissolved  
mg/L = milligrams per liter  
pCi/L = picocuries per liter  
NTU = nephelometric turbidity units  
J = Analyte detected below quantitation limits  
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\*Protection Standard is from Title 35 Section 845.600 unless otherwise noted  
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2 Standard value 6.22 is from the Lower Tolerance Limit (LTL) calculated from background well APW-01R concentrations from 8 quarterly sampling events from 2017-2018 and 9.0 is the regulatory standard  
Highlighted values exceed action level  
NS = No standard

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

Sample ID Location ID Sample Date Sample Type	Sampled prior to closure of CCR Impoundment.										Post-Closure Sampling	
	APW-5-20170907 APW-05 09/06/2017 N	APW-5-20170928 APW-05 09/28/2017 N	APW-5-20171019 APW-05 10/19/2017 N	APW-5-20171109 APW-05 11/09/2017 N	APW-5-20171129 APW-05 11/29/2017 N	APW-5-20171227 APW-05 12/27/2017 N	APW-5-20180118 APW-05 01/18/2018 N	APW-5-20180207 APW-05 02/07/2018 N	APW-05-WG-20220616 APW-05 06/16/2022 N			
<b>Parameter/Analyte</b>	<b>Total or Dissolved</b>	<b>Units</b>	<b>35 IAC 845.600*</b>									
<b>UNSPECIFIED</b>												
Fluoride	NA	mg/L	4	0.34	0.34	0.32	0.32	0.32	0.33	0.36	0.32	0.35
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	0.649 ± 0.316
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	1.1 ± 0.282
Sulfate	NA	mg/L	400	407	460	399	413	381	394	439	378	224
<b>CALC</b>												
Radium-226/228	NA	pCi/L	5									1.75 ± 0.424
<b>FIELD PARAM</b>												
Turbidity, Field	NA	NTU	17.96 <sup>1</sup>									51.8
<b>GEN CHEM</b>												
Chloride	NA	mg/L	200	15	15	15	14	16	16	16	16	19
Dissolved Solids, Total	NA	mg/L	1200	842	832	804	826	790	792	552	804	650
pH, Lab	NA	pH units	6.22-9.0 <sup>2</sup>	7.37	7.3	7.26	7.3	7.26	7.31	7.23	7.18	7.35
<b>METALS</b>												
Antimony	D	mg/L	0.006									0.001 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
Arsenic	D	mg/L	0.01									0.002
Arsenic	T	mg/L	0.01	0.0031	0.0026	0.0015	0.0016	0.0016	0.0019	0.0021	0.0019	0.0048
Barium	D	mg/L	2									0.133
Barium	T	mg/L	2	0.226	0.233	0.183	0.216	0.193	0.214	0.214	0.195	0.187
Beryllium	D	mg/L	0.004									0.001 U
Beryllium	T	mg/L	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U
Boron	D	mg/L	2									7.63
Boron	T	mg/L	2	9.3	10.3	8.89	9.98	9.1	9.83	9.25	8.73	7.67
Cadmium	D	mg/L	0.005									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
Calcium	D	mg/L	103.2 <sup>1</sup>									139
Calcium	T	mg/L	103.2 <sup>1</sup>	136	142	119	131	123	125	121	124	127
Chromium	D	mg/L	0.1									0.0015 U
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	0.0016 J
Cobalt	D	mg/L	0.006									0.0006 J
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	0.0013 J
Iron	T	mg/L	NS									2.77
Lead	D	mg/L	0.0075									0.001 U
Lead	T	mg/L	0.0075	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Lithium	D	mg/L	0.04									0.0282
Lithium	T	mg/L	0.04	0.0363	0.0443	0.0393	0.0405	0.0415	0.0433	0.0404	0.0397	0.0331
Manganese	T	mg/L	NS									0.9
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
Molybdenum	D	mg/L	0.1									0.172
Molybdenum	T	mg/L	0.1	0.172	0.195	0.201	0.168	0.193	0.246	0.244	0.249	0.203
Nickel	D	mg/L	NS									0.0036
Nickel	T	mg/L	NS	0.0074	0.0012	0.0023	0.001 U	0.001 U	0.0043	0.0021	0.001 U	0.0037
Selenium	D	mg/L	0.05									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
Thallium	D	mg/L	0.002									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

Notes:  
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 FD = Field Duplicate Sample  
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 T = total  
 D = dissolved  
 mg/L = milligrams per liter  
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 2 Standard value 6.22 is from the Lower Tolerance Limit (LTL) calculated from background well APW-01R concentrations from 8 quarterly sampling events from 2017-2018 and 9.0 is the regulatory standard  
 Highlighted values exceed action level  
 NS = No standard

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

Sample ID Location ID Sample Date Sample Type	Sampled prior to closure of CCR Impoundment.										Post-Closure Sampling	
	APW-6D-20170907	APW-6D-20170927	APW-6D-20171019	APW-6D-20171109	APW-6D-20171128	APW-6D-20171227	APW-6D-20180118	APW-6D-20180208	N/A			
	APW-06D 09/06/2017 N	APW-06D 09/28/2017 N	APW-06D 10/19/2017 N	APW-06D 11/09/2017 N	APW-06D 11/28/2017 N	APW-06D 12/27/2017 N	APW-06D 01/18/2018 N	APW-06D 02/08/2018 N	APW-06D 6/16/2022			
Parameter/Analyte	Total or Dissolved	Units	35 IAC 845.600*								Casing deflected, no sample collected during Q2 2022	
<b>UNSPECIFIED</b>												
Fluoride	NA	mg/L	4	0.22	0.23	0.21	0.22	0.21	0.22	0.23	0.21	N/A
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	N/A
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	N/A
Sulfate	NA	mg/L	400	215	228	206	222	230	236	211	189	N/A
<b>GEN CHEM</b>												
Chloride	NA	mg/L	200	17	17	16	16	16	16	17	17	N/A
Dissolved Solids, Total	NA	mg/L	1200	558	560	562	564	590	516 R	482	584	N/A
pH, Lab	NA	pH units	6.22-9.0 <sup>2</sup>	7.23	7.25	7.23	7.19	7.2	7.22	7.21	7.2	N/A
<b>METALS</b>												
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	N/A
Arsenic	T	mg/L	0.01	0.0068	0.0101	0.0075	0.0074	0.009	0.0095	0.0106	0.0096	N/A
Barium	T	mg/L	2	0.173	0.172	0.142	0.153	0.155	0.163	0.166	0.148	N/A
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	N/A
Boron	T	mg/L	2	3.72	3.87	3.55	3.58	3.9	3.84	3.3	3.09	N/A
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	N/A
Calcium	T	mg/L	103.2 <sup>1</sup>	99.9	110	96.7	100	110	107	105 S	105	N/A
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	N/A
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	N/A
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	N/A
Lithium	T	mg/L	0.04	0.016	0.0176	0.0161	0.0163	0.0178	0.0181	0.0165	0.0162	N/A
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	N/A
Molybdenum	T	mg/L	0.1	0.0646	0.0606	0.0582	0.0589	0.06	0.0584	0.0465	0.0463	N/A
Nickel	T	mg/L	NS	0.0032	0.0028	0.0018	0.002	0.0017	0.0022	0.0032	0.0025	N/A
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	N/A
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	N/A

Notes:  
 Empty cells = not analyzed  
 N = Normal Environmental Sample  
 FD = Field Duplicate Sample  
 NA = not applicable  
 T = total  
 D = dissolved  
 mg/L = milligrams per liter  
 pCi/L = picocuries per liter  
 NTU = nephelometric turbidity units  
 J = Analyte detected below quantitation limits  
 J3 = The associated batch QC was outside the established quality control range for precision  
 S = Spike Recovery outside recovery limits  
 R = RPD outside accepted recovery limits  
 U = Not Detected at the Reporting Limit

\*Protection Standard is from Title 35 Section 845.600 unless otherwise noted  
 1 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-01R concentrations from 8 quarterly sampling events from 2017-2018  
 2 Standard value 6.22 is from the Lower Tolerance Limit (LTL) calculated from background well APW-01R concentrations from 8 quarterly sampling events from 2017-2018 and 9.0 is the regulatory standard  
 Bolded values exceed action level  
 NS = No standard

Highlighted values exceed action level

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

Parameter/Analyte	Total or Dissolved	Units	Sample ID Location ID Sample Date Sample Type	Sampled prior to closure of CCR Impoundment.								Post-Closure Sampling
				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 09/06/2017 N	APW-06S 09/28/2017 N	APW-06S 10/19/2017 N	APW-06S 11/09/2017 N	APW-06S 11/28/2017 N	APW-06S 12/27/2017 N	APW-06S 01/18/2018 N	APW-06S 02/08/2018 N	APW-06S 06/16/2022 N
<b>UNSPECIFIED</b>												
Fluoride	NA	mg/L	4	0.41	0.26	0.25	0.26	0.25	0.25	0.27	0.24	0.29
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
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
Sulfate	NA	mg/L	400	127	177	167	151	189	201	233	220	200
<b>CALC</b>												
Radium-226/228	NA	pCi/L	5									0.497 ± 0.308
<b>FIELD PARAM</b>												
Turbidity, Field	NA	NTU	17.96 <sup>1</sup>									30.5
<b>GEN CHEM</b>												
Chloride	NA	mg/L	200	31	28	27	27	26	27	26	25	24
Dissolved Solids, Total	NA	mg/L	1200	500	546	574	528	566	588	598	666	600
pH, Lab	NA	pH units	6.22-9.0 <sup>2</sup>	7.16	7.06	7.18	7.23	7.09	7.13	7.09	7.02	7.24
<b>METALS</b>												
Antimony	D	mg/L	0.006									0.001 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
Arsenic	D	mg/L	0.01									0.0009 J
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
Barium	D	mg/L	2									0.233
Barium	T	mg/L	2	0.222	0.237	0.205	0.226	0.214	0.213	0.224	0.205	0.25
Beryllium	D	mg/L	0.004									0.001 U
Beryllium	T	mg/L	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Boron	D	mg/L	2									4.92
Boron	T	mg/L	2	4.65	5.93	5.83	5.64 S	5.8	6.93 S	7.42	6.66	4.77
Cadmium	D	mg/L	0.005									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
Calcium	D	mg/L	103.2 <sup>1</sup>									124
Calcium	T	mg/L	103.2 <sup>1</sup>	101	97.2	87.5	96.8 S	99.5	98.1	98.7	97.4	115
Chromium	D	mg/L	0.1									0.0015 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
Cobalt	D	mg/L	0.006									0.0002 J
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
Iron	T	mg/L	NS									9.35
Lead	D	mg/L	0.0075									0.001 U
Lead	T	mg/L	0.0075	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Lithium	D	mg/L	0.04									0.0355
Lithium	T	mg/L	0.04	0.0335	0.0413	0.04	0.0415	0.042	0.0458	0.0451	0.0417	0.0363
Manganese	T	mg/L	NS									0.53
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
Molybdenum	D	mg/L	0.1									0.229
Molybdenum	T	mg/L	0.1	0.249	0.287	0.272	0.243	0.274	0.314	0.324	0.323	0.237
Nickel	D	mg/L	NS									0.0015
Nickel	T	mg/L	NS	0.0021	0.009	0.0021	0.0012	0.001 U	0.0031	0.0016	0.0012	0.0027
Selenium	D	mg/L	0.05									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
Thallium	D	mg/L	0.002									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

Notes:  
Empty cells = not analyzed  
N = Normal Environmental Sample  
FD = Field Duplicate Sample  
NA = not applicable  
T = total  
D = dissolved  
mg/L = milligrams per liter  
pCi/L = picocuries per liter  
NTU = nephelometric turbidity units  
J = Analyte detected below quantitation limits  
J3 = The associated batch QC was outside the established quality control range for precision  
S = Spike Recovery outside recovery limits  
R = RPD outside accepted recovery limits  
U = Not Detected at the Reporting Limit

\*Protection Standard is from Title 35 Section 845.600 unless otherwise noted  
1 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-01R concentrations from 8 quarterly sampling events from 2017-2018  
2 Standard value 6.22 is from the Lower Tolerance Limit (LTL) calculated from background well APW-01R concentrations from 8 quarterly sampling events from 2017-2018 and 9.0 is the regulatory standard  
Highlighted values exceed action level  
NS = No standard

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

Parameter/Analyte	Total or Dissolved	Units	Sample ID Location ID Sample Date Sample Type	Sampled prior to closure of CCR Impoundment.								Post-Closure Sampling
				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 09/07/2017 N	APW-07 09/28/2017 N	APW-07 10/19/2017 N	APW-07 11/09/2017 N	APW-07 11/28/2017 N	APW-07 12/27/2017 N	APW-07 01/18/2018 N	APW-07 02/08/2018 N	APW-07 06/16/2022 N
<b>UNSPECIFIED</b>												
Fluoride	NA	mg/L	4	0.35	0.21	0.19	0.2	0.2	0.19	0.2	0.18	0.18
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
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
Sulfate	NA	mg/L	400	66	59	52	50	61	63	67	64	72
<b>CALC</b>												
Radium-226/228	NA	pCi/L	5									1.1 ± 0.313
<b>FIELD PARAM</b>												
Turbidity, Field	NA	NTU	17.96 <sup>1</sup>									66.2
<b>GEN CHEM</b>												
Chloride	NA	mg/L	200	15	15	14	15	16	15	15	15	11
Dissolved Solids, Total	NA	mg/L	1200	762	786	624	730	742	736	720	740	780
pH, Lab	NA	pH units	6.22-9.0 <sup>2</sup>	6.84	6.84	6.86	6.87	6.83	6.96	6.97	6.88	6.88
<b>METALS</b>												
Antimony	D	mg/L	0.006									0.001 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
Arsenic	D	mg/L	0.01									0.0011
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
Barium	D	mg/L	2									0.334
Barium	T	mg/L	2	0.465	0.448	0.394	0.401	0.37	0.374	0.38	0.359	0.374
Beryllium	D	mg/L	0.004									0.001 U
Beryllium	T	mg/L	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Boron	D	mg/L	2									0.148
Boron	T	mg/L	2	0.235	0.308	0.302	0.3	0.278	0.342	0.298	0.318	0.168
Cadmium	D	mg/L	0.005									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
Calcium	D	mg/L	103.2 <sup>1</sup>									222
Calcium	T	mg/L	103.2 <sup>1</sup>	192	204	171	187	196	193	191	185	238
Chromium	D	mg/L	0.1									0.0015 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
Cobalt	D	mg/L	0.006									0.001 U
Cobalt	T	mg/L	0.006	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 J
Iron	T	mg/L	NS									17.3
Lead	D	mg/L	0.0075									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	0.0074
Lithium	D	mg/L	0.04									0.0126
Lithium	T	mg/L	0.04	0.0147	0.0181	0.0172	0.0176	0.0185	0.0191	0.0181	0.0178	0.0143
Manganese	T	mg/L	NS									1.11
Mercury	T	mg/L	0.002	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Molybdenum	D	mg/L	0.1									0.0026
Molybdenum	T	mg/L	0.1	0.0046	0.0036	0.0033	0.0023	0.003	0.0044	0.0037	0.0036	0.0035
Nickel	D	mg/L	NS									0.0008 J
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
Selenium	D	mg/L	0.05									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
Thallium	D	mg/L	0.002									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

Notes:  
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N = Normal Environmental Sample  
FD = Field Duplicate Sample  
NA = not applicable  
T = total  
D = dissolved  
mg/L = milligrams per liter  
pCi/L = picocuries per liter  
NTU = nephelometric turbidity units  
J = Analyte detected below quantitation limits  
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\*Protection Standard is from Title 35 Section 845.600 unless otherwise noted  
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Highlighted values exceed action level  
NS = No standard

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

Sample ID Location ID Sample Date Sample Type	Sampled prior to closure of CCR Impoundment.										Post-Closure Sampling	
	APW-8-20170907 APW-08 09/07/2017 N	APW-8-20170928 APW-08 09/28/2017 N	APW-8-20171018 APW-08 10/18/2017 N	APW-8-20171108 APW-08 11/08/2017 N	APW-8-20171127 APW-08 11/27/2017 N	APW-8-20171227 APW-08 12/27/2017 N	APW-8-20180117 APW-08 01/17/2018 N	APW-8-20180208 APW-08 02/08/2018 N	APW-08-WG-20220616 APW-08 06/16/2022 N			
<b>Parameter/Analyte</b>	<b>Total or Dissolved</b>	<b>Units</b>	<b>35 IAC 845.600*</b>									
<b>UNSPECIFIED</b>												
Fluoride	NA	mg/L	4	0.3	0.3	0.29	0.29	0.28	0.28	0.3	0.28	0.29
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
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
Sulfate	NA	mg/L	400	43	40	38	40	39	38	39	37	39
<b>CALC</b>												
Radium-226/228	NA	pCi/L	5									0.735 ± 0.325
<b>FIELD PARAM</b>												
Turbidity, Field	NA	NTU	17.96 <sup>1</sup>									119
<b>GEN CHEM</b>												
Chloride	NA	mg/L	200	9	10	10	10	10	11	12	11	9
Dissolved Solids, Total	NA	mg/L	1200	438	458	436	446	466	410	398	442	382
pH, Lab	NA	pH units	6.22-9.0 <sup>2</sup>	7.04	7.07	7	7.12	7.25	7.11	7.04	7.04	7.34
<b>METALS</b>												
Antimony	D	mg/L	0.006									0.001 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
Arsenic	D	mg/L	0.01									0.0011
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
Barium	D	mg/L	2									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
Beryllium	D	mg/L	0.004									0.001 U
Beryllium	T	mg/L	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Boron	D	mg/L	2									0.0777
Boron	T	mg/L	2	0.132	0.154	0.135	0.138	0.141	0.145	0.151	0.132	0.115
Cadmium	D	mg/L	0.005									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
Calcium	D	mg/L	103.2 <sup>1</sup>									108
Calcium	T	mg/L	103.2 <sup>1</sup>	97.4	105	92.6	101	102	98.6	95	97.8	93.3
Chromium	D	mg/L	0.1									0.0015 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
Cobalt	D	mg/L	0.006									0.0013
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
Iron	T	mg/L	NS									3.14
Lead	D	mg/L	0.0075									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	0.0024
Lithium	D	mg/L	0.04									0.0141
Lithium	T	mg/L	0.04	0.0196	0.0206	0.0207	0.0216	0.0223	0.0216	0.0192	0.0196	0.016
Manganese	T	mg/L	NS									0.202
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
Molybdenum	D	mg/L	0.1									0.0008 J
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
Nickel	D	mg/L	NS									0.0023
Nickel	T	mg/L	NS	0.0039	0.0043	0.0029	0.0062	0.0026	0.0027	0.0026	0.0026	0.0054
Selenium	D	mg/L	0.05									0.0027
Selenium	T	mg/L	0.05	0.008	0.0141	0.0132	0.0149	0.0135	0.0141	0.0149	0.013	0.0036
Thallium	D	mg/L	0.002									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

Notes:  
 Empty cells = not analyzed  
 N = Normal Environmental Sample  
 FD = Field Duplicate Sample  
 NA = not applicable  
 T = total  
 D = dissolved  
 mg/L = milligrams per liter  
 pCi/L = picocuries per liter  
 NTU = nephelometric turbidity units  
 J = Analyte detected below quantitation limits  
 J3 = The associated batch QC was outside the established quality control range for precision  
 S = Spike Recovery outside recovery limits  
 R = RPD outside accepted recovery limits  
 U = Not Detected at the Reporting Limit

\*Protection Standard is from Title 35 Section 845.600 unless otherwise noted  
 1 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-01R concentrations from 8 quarterly sampling events from 2017-2018  
 2 Standard value 6.22 is from the Lower Tolerance Limit (LTL) calculated from background well APW-01R concentrations from 8 quarterly sampling events from 2017-2018 and 9.0 is the regulatory standard  
 Highlighted values exceed action level  
 NS = No standard

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

Sample ID Location ID Sample Date Sample Type	Sampled prior to closure of CCR Impoundment.										Post-Closure Sampling	
	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	APW-09-WG-20220615 APW-09 06/15/2022 N			
<b>Parameter/Analyte</b>	<b>Total or Dissolved</b>	<b>Units</b>	<b>35 IAC 845.600*</b>									
<b>UNSPECIFIED</b>												
Fluoride	NA	mg/L	4	0.19	0.22	0.21	0.2	0.2	0.2	0.22	0.19	0.23
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	0.267 ± 0.199
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	-0.213 ± 0.244 U
Sulfate	NA	mg/L	400	65	47	53	65	50	42	28	25	104
<b>CALC</b>												
Radium-226/228	NA	pCi/L	5									0.267 ± 0.315 J
<b>FIELD PARAM</b>												
Turbidity, Field	NA	NTU	17.96 <sup>1</sup>									34.2
<b>GEN CHEM</b>												
Chloride	NA	mg/L	200	13	13	13	13	13	13	13	768	13
Dissolved Solids, Total	NA	mg/L	1200	364 R	372	324	366	392	278	348	3380	424
pH, Lab	NA	pH units	6.22-9.0 <sup>2</sup>	7.31	7.35	7.39	7.39	7.52	7.42	7.57	7.33	7.48
<b>METALS</b>												
Antimony	D	mg/L	0.006									0.001 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
Arsenic	D	mg/L	0.01									0.0019
Arsenic	T	mg/L	0.01	0.0031	0.0024	0.0018	0.0022	0.002	0.002	0.0022	0.0022	0.0026
Barium	D	mg/L	2									0.129
Barium	T	mg/L	2	0.227	0.171	0.118	0.133	0.121	0.129	0.133	0.125	0.186
Beryllium	D	mg/L	0.004									0.001 U
Beryllium	T	mg/L	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Boron	D	mg/L	2									1.32
Boron	T	mg/L	2	0.877	0.569	0.668	0.792	0.506	0.369	0.317	0.255	1.61
Cadmium	D	mg/L	0.005									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
Calcium	D	mg/L	103.2 <sup>1</sup>									107 S
Calcium	T	mg/L	103.2 <sup>1</sup>	85.9	85.3	76.5	81.9	85.6	81.5 S	80.3	92	110
Chromium	D	mg/L	0.1									0.0015 U
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	0.0011 J
Cobalt	D	mg/L	0.006									0.001 U
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	0.001
Iron	T	mg/L	NS									0.496
Lead	D	mg/L	0.0075									0.001 U
Lead	T	mg/L	0.0075	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Lithium	D	mg/L	0.04									0.0184
Lithium	T	mg/L	0.04	0.0176	0.0173	0.0174	0.018	0.0167	0.0173	0.0155	0.0148	0.0246
Manganese	T	mg/L	NS									0.599
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
Molybdenum	D	mg/L	0.1									0.0351
Molybdenum	T	mg/L	0.1	0.0223	0.0252	0.0327	0.0303	0.0247	0.0246	0.0223	0.0224	0.0455
Nickel	D	mg/L	NS									0.0017
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	0.004
Selenium	D	mg/L	0.05									0.021
Selenium	T	mg/L	0.05	0.0126	0.0139	0.017	0.0186	0.0138	0.0143	0.0147	0.0134	0.0219
Thallium	D	mg/L	0.002									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	0.001 U	0.002 U

Notes:  
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FD = Field Duplicate Sample  
NA = not applicable  
T = total  
D = dissolved  
mg/L = milligrams per liter  
pCi/L = picocuries per liter  
NTU = nephelometric turbidity units  
J = Analyte detected below quantitation limits  
J3 = The associated batch QC was outside the established quality control range for precision  
S = Spike Recovery outside recovery limits  
R = RPD outside accepted recovery limits  
U = Not Detected at the Reporting Limit

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2 Standard value 6.22 is from the Lower Tolerance Limit (LTL) calculated from background well APW-01R concentrations from 8 quarterly sampling events from 2017-2018 and 9.0 is the regulatory standard  
Highlighted values exceed action level  
NS = No standard

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

Sample ID Location ID Sample Date Sample Type	Sampled prior to closure of CCR Impoundment.										Post-Closure Sampling	
	APW-10D-20170907 APW-10D 09/07/2017 N	APW-10D-20170927 APW-10D 09/27/2017 N	APW-10D-20171019 APW-10D 10/19/2017 N	APW-10D-20171109 APW-10D 11/09/2017 N	APW-10D-20171128 APW-10D 11/28/2017 N	APW-10D-20171228 APW-10D 12/28/2017 N	APW-10D-20180118 APW-10D 01/18/2018 N	APW-10D-20180209 APW-10D 02/09/2018 N	APW-10D-WG-20220615 APW-10D 06/15/2022 N			
<b>Parameter/Analyte</b>	<b>Total or Dissolved</b>	<b>Units</b>	<b>35 IAC 845.600*</b>									
<b>UNSPECIFIED</b>												
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
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	0.08 ± 0.1 U	0 ± 0.07 U	0.249 ± 0.207
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
Sulfate	NA	mg/L	400	38	44	43	42	42	44	44	44	41
<b>CALC</b>												
Radium-226/228	NA	pCi/L	5									1.44 ± 0.374
<b>FIELD PARAM</b>												
Turbidity, Field	NA	NTU	17.96 <sup>1</sup>									46.9
<b>GEN CHEM</b>												
Chloride	NA	mg/L	200	24	17	17	15	17	16	14	16	16
Dissolved Solids, Total	NA	mg/L	1200	466	474	442	468	482	448	448	512	452
pH, Lab	NA	pH units	6.22-9.0 <sup>2</sup>	7.12	7.11	7.05	7.11	7.12	7.15	7.03	7.03	7.21
<b>METALS</b>												
Antimony	D	mg/L	0.006									0.001 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
Arsenic	D	mg/L	0.01									0.0008 J
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
Barium	D	mg/L	2									0.342
Barium	T	mg/L	2	0.437	0.304	0.363	0.325	0.284	0.295	0.391	0.357	0.407
Beryllium	D	mg/L	0.004									0.001 U
Beryllium	T	mg/L	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Boron	D	mg/L	2									0.0786
Boron	T	mg/L	2	0.0999	0.101	0.0843	0.0713	0.0885	0.0922	0.0923	0.0906	0.118
Cadmium	D	mg/L	0.005									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
Calcium	D	mg/L	103.2 <sup>1</sup>									143
Calcium	T	mg/L	103.2 <sup>1</sup>	118	136	120	121	125	123	148 S	124 S	135
Chromium	D	mg/L	0.1									0.0015 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
Cobalt	D	mg/L	0.006									0.0025
Cobalt	T	mg/L	0.006	0.0039	0.0024	0.0025	0.0032	0.0017	0.0013	0.0026	0.0026	0.0034
Iron	T	mg/L	NS									0.758
Lead	D	mg/L	0.0075									0.001 U
Lead	T	mg/L	0.0075	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001
Lithium	D	mg/L	0.04									0.0135
Lithium	T	mg/L	0.04	0.0147	0.0155	0.0146	0.0146	0.0153	0.0155	0.0142	0.014	0.018
Manganese	T	mg/L	NS									1.16
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
Molybdenum	D	mg/L	0.1									0.0015 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
Nickel	D	mg/L	NS									0.0054
Nickel	T	mg/L	NS	0.0095	0.0077	0.0065	0.0057	0.0035	0.0025	0.0072	0.0053	0.007
Selenium	D	mg/L	0.05									0.001 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
Thallium	D	mg/L	0.002									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

Notes:  
Empty cells = not analyzed  
N = Normal Environmental Sample  
FD = Field Duplicate Sample  
NA = not applicable  
T = total  
D = dissolved  
mg/L = milligrams per liter  
pCi/L = picocuries per liter  
NTU = nephelometric turbidity units  
J = Analyte detected below quantitation limits  
J3 = The associated batch QC was outside the established quality control range for precision  
S = Spike Recovery outside recovery limits  
R = RPD outside accepted recovery limits  
U = Not Detected at the Reporting Limit

\*Protection Standard is from Title 35 Section 845.600 unless otherwise noted  
1 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-01R concentrations from 8 quarterly sampling events from 2017-2018  
2 Standard value 6.22 is from the Lower Tolerance Limit (LTL) calculated from background well APW-01R concentrations from 8 quarterly sampling events from 2017-2018 and 9.0 is the regulatory standard  
Highlighted values exceed action level  
NS = No standard

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

Sample ID Location ID Sample Date Sample Type	Sampled prior to closure of CCR Impoundment.										Post-Closure Sampling	
	APW-10S-20170907 APW-10S 09/07/2017 N	APW-10S-20170927 APW-10S 09/27/2017 N	APW-10S-20171019 APW-10S 10/19/2017 N	APW-10S-20171109 APW-10S 11/09/2017 N	APW-10S-20171128 APW-10S 11/28/2017 N	APW-10S-20171228 APW-10S 12/28/2017 N	APW-10S-20180118 APW-10S 01/18/2018 N	APW-10S-20180209 APW-10S 02/09/2018 N	APW-10S-20220615 APW-10S 06/15/2022 N			
<b>Parameter/Analyte</b>	<b>Total or Dissolved</b>	<b>Units</b>	<b>35 IAC 845.600*</b>									
<b>UNSPECIFIED</b>												
Fluoride	NA	mg/L	4	0.19	0.21	0.16	0.16	0.16	0.17	0.17	0.16	0.17
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	0.29 ± 0.12 U	0.24 ± 0.13 U	0.778 ± 0.324
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	0.66 ± 0.57 U	0.56 ± 0.43 U	2.71 ± 0.78	0.93 ± 0.52 J	0.475 ± 0.268 J
Sulfate	NA	mg/L	400	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
<b>CALC</b>												
Radium-226/228	NA	pCi/L	5									1.25 ± 0.42
<b>FIELD PARAM</b>												
Turbidity, Field	NA	NTU	17.96 <sup>1</sup>									61.5
<b>GEN CHEM</b>												
Chloride	NA	mg/L	200	10	7	6	6	6	6	6	6	12
Dissolved Solids, Total	NA	mg/L	1200	708	720	678	708	734	770	680 R	762	735
pH, Lab	NA	pH units	6.22-9.0 <sup>2</sup>	6.99	6.96	6.95	6.98	6.97	6.98	7.06	6.91	7.09
<b>METALS</b>												
Antimony	D	mg/L	0.006									0.001 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
Arsenic	D	mg/L	0.01									0.152
Arsenic	T	mg/L	0.01	0.186	0.189	0.18	0.209	0.183	0.193	0.23	0.198	0.185
Barium	D	mg/L	2									0.423
Barium	T	mg/L	2	0.613	0.634	0.543	0.668	0.565	0.598	0.703	0.585	0.575
Beryllium	D	mg/L	0.004									0.001 U
Beryllium	T	mg/L	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Boron	D	mg/L	2									0.57
Boron	T	mg/L	2	0.525	0.544	0.536	0.595	0.545	0.573	0.645	0.582	0.683
Cadmium	D	mg/L	0.005									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
Calcium	D	mg/L	103.2 <sup>1</sup>									169
Calcium	T	mg/L	103.2 <sup>1</sup>	136	144	135	152	150	145	140	140	161
Chromium	D	mg/L	0.1									0.0015 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
Cobalt	D	mg/L	0.006									0.0001 J
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
Iron	T	mg/L	NS									19.6
Lead	D	mg/L	0.0075									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	0.0007 J
Lithium	D	mg/L	0.04									0.0266
Lithium	T	mg/L	0.04	0.0263	0.0278	0.0272	0.0289	0.0293	0.0308	0.0316	0.0297	0.0353
Manganese	T	mg/L	NS									0.243
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
Molybdenum	D	mg/L	0.1									0.0015 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
Nickel	D	mg/L	NS									0.001 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
Selenium	D	mg/L	0.05									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
Thallium	D	mg/L	0.002									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

Notes:  
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N = Normal Environmental Sample  
FD = Field Duplicate Sample  
NA = not applicable  
T = total  
D = dissolved  
mg/L = milligrams per liter  
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Highlighted values exceed action level  
NS = No standard

**Table 2**  
**Mann-Kendall Analysis Results Summary for Parameters Exceeding Title 35 Section 845.600 Groundwater Protection Standards**  
**Grand Tower Energy Center (GTEC)**  
**Grand Tower, US-IL**

Site Monitoring Well ID	Parameters	Number of Samples	Number of Detects	Percent Detects	Meet Data Reqs?	p-value	tau <sup>2</sup>	tau	Trend
APW-02	Arsenic	9	9	100.00%	Yes	0.761	0.0123	-0.111	Not Significant
APW-02	Boron	9	9	100.00%	Yes	0.358	0.0772	-0.278	Not Significant
APW-02	Calcium	9	9	100.00%	Yes	0.477	0.0494	0.222	Not Significant
APW-02	Chromium	9	9	100.00%	Yes	0.477	0.0494	0.222	Not Significant
APW-02	Cobalt	9	9	100.00%	Yes	0.358	0.0772	-0.278	Not Significant
APW-02	Lead	9	9	100.00%	Yes	0.26	0.111	-0.333	Not Significant
APW-02	Lithium	9	9	100.00%	Yes	1	0	0	Not Significant
APW-02	Molybdenum	9	9	100.00%	Yes	0.612	0.0278	-0.167	Not Significant
APW-02	Sulfate	9	9	100.00%	Yes	0.753	0.00714	-0.0845	Not Significant
APW-03	Boron	9	9	100.00%	Yes	0.761	0.0123	0.111	Not Significant
APW-03	Calcium	9	9	100.00%	Yes	0.477	0.0494	0.222	Not Significant
APW-04	Boron	9	9	100.00%	Yes	0.00589	0.522	-0.722	Decreasing
APW-04	Calcium	9	9	100.00%	Yes	0.14	0.16	0.4	Not Significant
APW-04	Lithium	9	9	100.00%	Yes	0.612	0.0278	-0.167	Not Significant
APW-05	Boron	9	9	100.00%	Yes	0.0752	0.25	-0.5	Not Significant
APW-05	Calcium	9	9	100.00%	Yes	0.477	0.0494	-0.222	Not Significant
APW-05	Lithium	9	9	100.00%	Yes	0.612	0.0278	-0.167	Not Significant
APW-05	Molybdenum	9	9	100.00%	Yes	0.0752	0.25	0.5	Not Significant
APW-05	Sulfate	9	9	100.00%	Yes	0.0752	0.25	-0.5	Not Significant
APW-06D	Arsenic	8	8	100.00%	Yes	0.109	0.25	0.5	Not Significant
APW-06D	Boron	8	8	100.00%	Yes	0.275	0.128	-0.357	Not Significant
APW-06D	Calcium	8	8	100.00%	Yes	0.615	0.022	0.148	Not Significant
APW-06S	Boron	9	9	100.00%	Yes	0.477	0.0494	0.222	Not Significant
APW-06S	Calcium	9	9	100.00%	Yes	0.477	0.0494	0.222	Not Significant
APW-06S	Lithium	9	9	100.00%	Yes	0.26	0.111	0.333	Not Significant
APW-06S	Molybdenum	9	9	100.00%	Yes	0.477	0.0494	0.222	Not Significant
APW-07	Calcium	9	9	100.00%	Yes	0.919	0.00309	0.0556	Not Significant
APW-08	Calcium	9	9	100.00%	Yes	0.358	0.0772	-0.278	Not Significant
APW-09	Calcium	9	9	100.00%	Yes	0.612	0.0278	0.167	Not Significant
APW-09	Chloride	9	9	100.00%	Yes	0.245	0.125	0.354	Not Significant
APW-09	Dissolved Solids, Total	9	9	100.00%	Yes	0.358	0.0772	0.278	Not Significant
APW-10D	Calcium	9	9	100.00%	Yes	0.119	0.198	0.444	Not Significant
APW-10S	Arsenic	9	9	100.00%	Yes	0.477	0.0494	0.222	Not Significant
APW-10S	Calcium	9	9	100.00%	Yes	0.345	0.0643	0.254	Not Significant

**Notes**

Data file input: GTEC\_ARII\_20221012AT\_rev.xlsx

Data date range: 2017-09-05 to 2022-06-16

Non-detects were substituted with the lowest value of half the reporting limit value for trend analysis

N: number of data points

Meet Data Reqs?: Trend tests were performed only if the dataset had ≥8 detected values and ≥50 percent detects.

tau<sup>2</sup>: measure of linear model fit

tau: Kendall's tau statistic

p-value: A two-sided p-value describing the probability of the H0 being true (α=0.05)

  = Statistically significant trend

**APPENDIX A: FIRST AND SECOND QUARTER 2022 CCR  
IMPOUNDMENT INSPECTION REPORTS**



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

Date 3/22/22  
Time 1100  
Name Matt Halley  
(Inspector)

**Weather:**

Temperature:

45 deg. F

- Sunny
- Cloudy
- Raining
- Other

**Observations:**

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

**Conditions Limiting Visibility:**

- Snow Cover
- Vegetation
- None
- Other

Light Rainfall/Mist

Undermining of Landfill Fencing

Observations in Detail Below:

- Onsite for the inspection of US Army Corps of Engineers (COE) Levee and quarterly inspection.

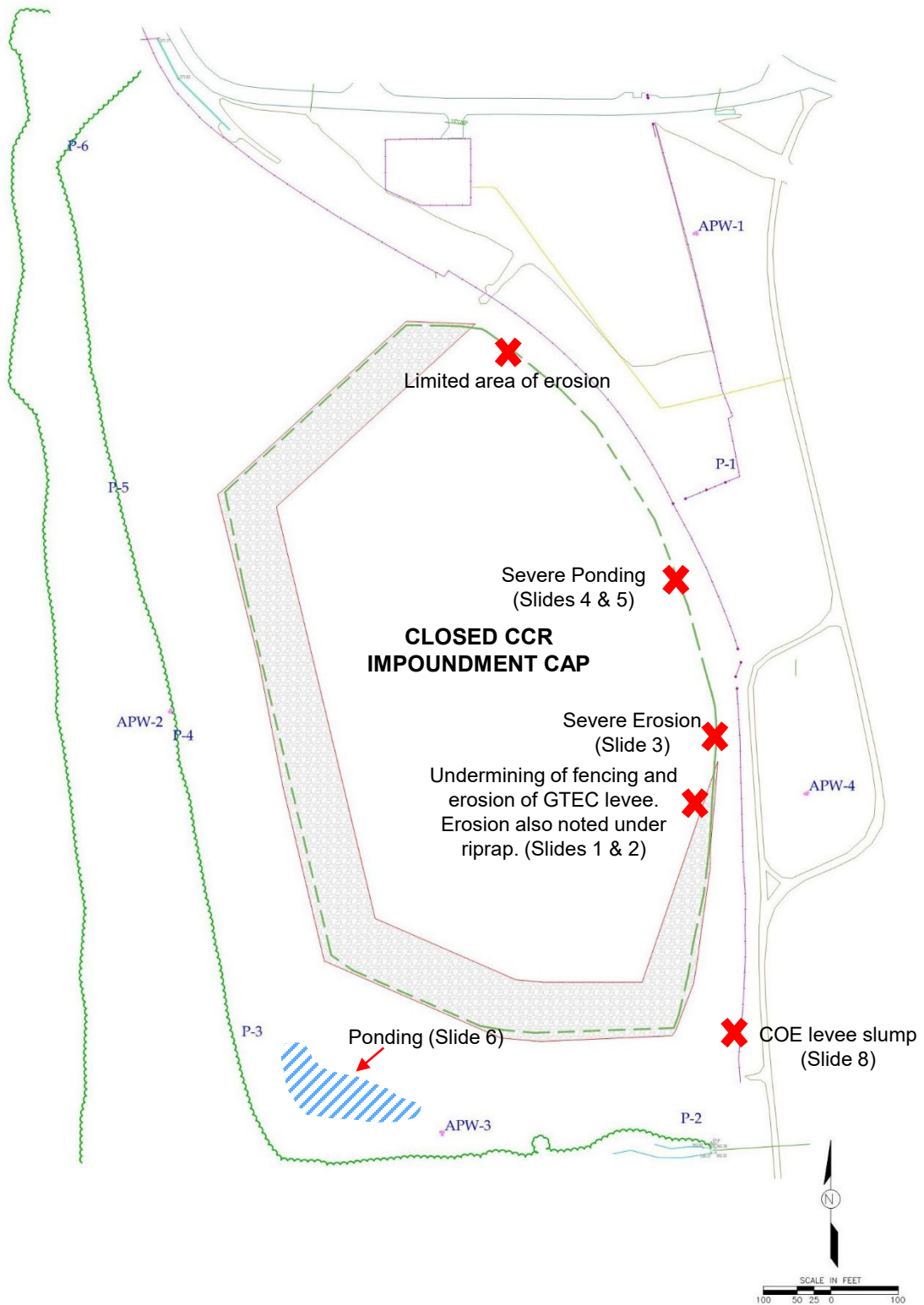
Slumping on the COE levee near the SE side of the site was documented (see figure).

- Erosion and fence undermining noted on east side of CCR impoundment cap (see figure). Ponding noted in NE area along GTEC levee. Limited area of erosion noted on NE side of CCR impoundment cap. No woody growth noted at this time. Minor erosion noted across north, west, and southern CCR impoundment cap faces up to 6" deep. Ponding noted in basin at the SW corner of site. CCR impoundment cap liner remains intact.

- Inspector recommends addressing erosion and fence undermining on east side of the site by adding soil and riprap around undermined fencing and on the eroded face of GTEC levee as determined by qualified personnel. Inspector also recommends repair of the slumped area of the Army Corps of Engineers levee in accordance with applicable regulations, and backfill or grading to address ponding on NE side of site.

Please see observation locations on figure on the following page.

# Observation Locations Map



# Grand Tower Energy Center Q1 2022 Closed CCR Impoundment Cap Inspection

Fence undermining and GTEC levee erosion on SE side of closed CCR impoundment cap.



Fence undermining and GTEC levee erosion on SE side of closed CCR impoundment cap.



GTEC levee erosion and riprap undermining on SE side of closed CCR impoundment cap.



Ponding on NE side of closed CCR impoundment cap along GTEC levee (looking north).



Ponding on NE side of closed CCR impoundment cap along GTEC levee (looking south).



Ponding in SW corner of site at drainage.

Mar 22, 2022 at 10:33:46 AM



Closed CCR impoundment cap condition looking north from top center and the western face of cap.

Mar 22, 2022 at 10:32:07 AM



Mar 22, 2022 at 10:29:58 AM

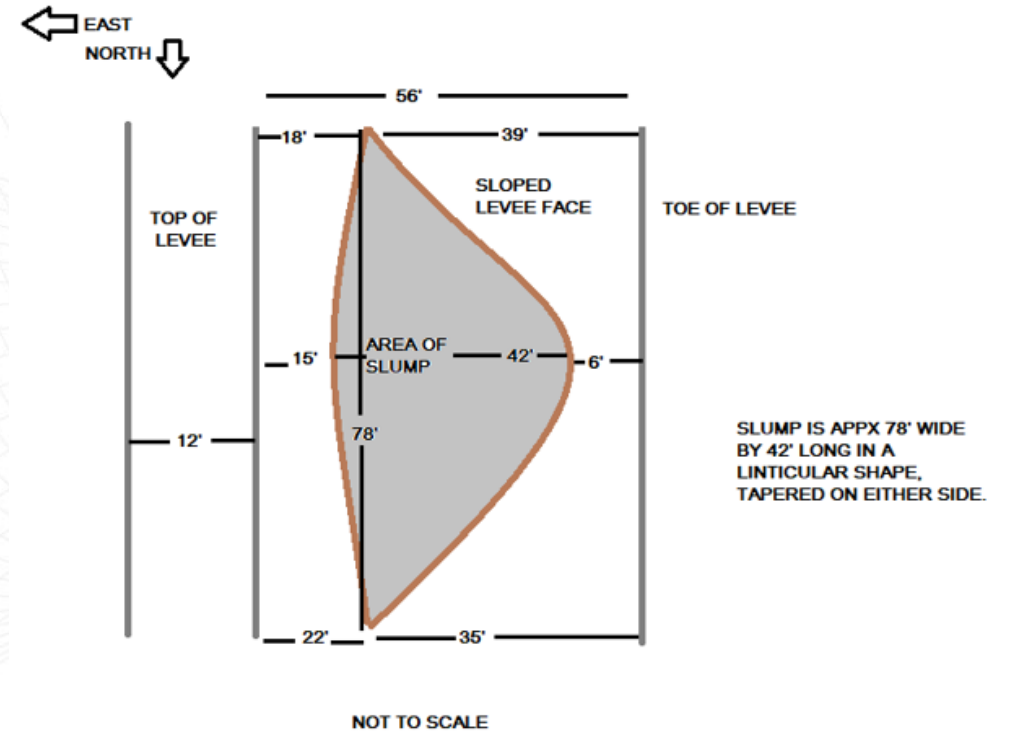


# Army Corps of Engineers Levee Slump

Facing east toward COE levee.



## General dimensions of slumped area





# Grand Tower Energy Center Closed CCR Impoundment Quarterly Inspection Form

Date	<u>6/14/22</u>
Time	<u>1100-1400</u>
Name	<u>Matt Halley</u> (Inspector)

**Weather:**

Temperature:

95 deg. F

- Sunny
- Cloudy
- Raining
- Other

**Observations:**

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

**Conditions Limiting Visibility:**

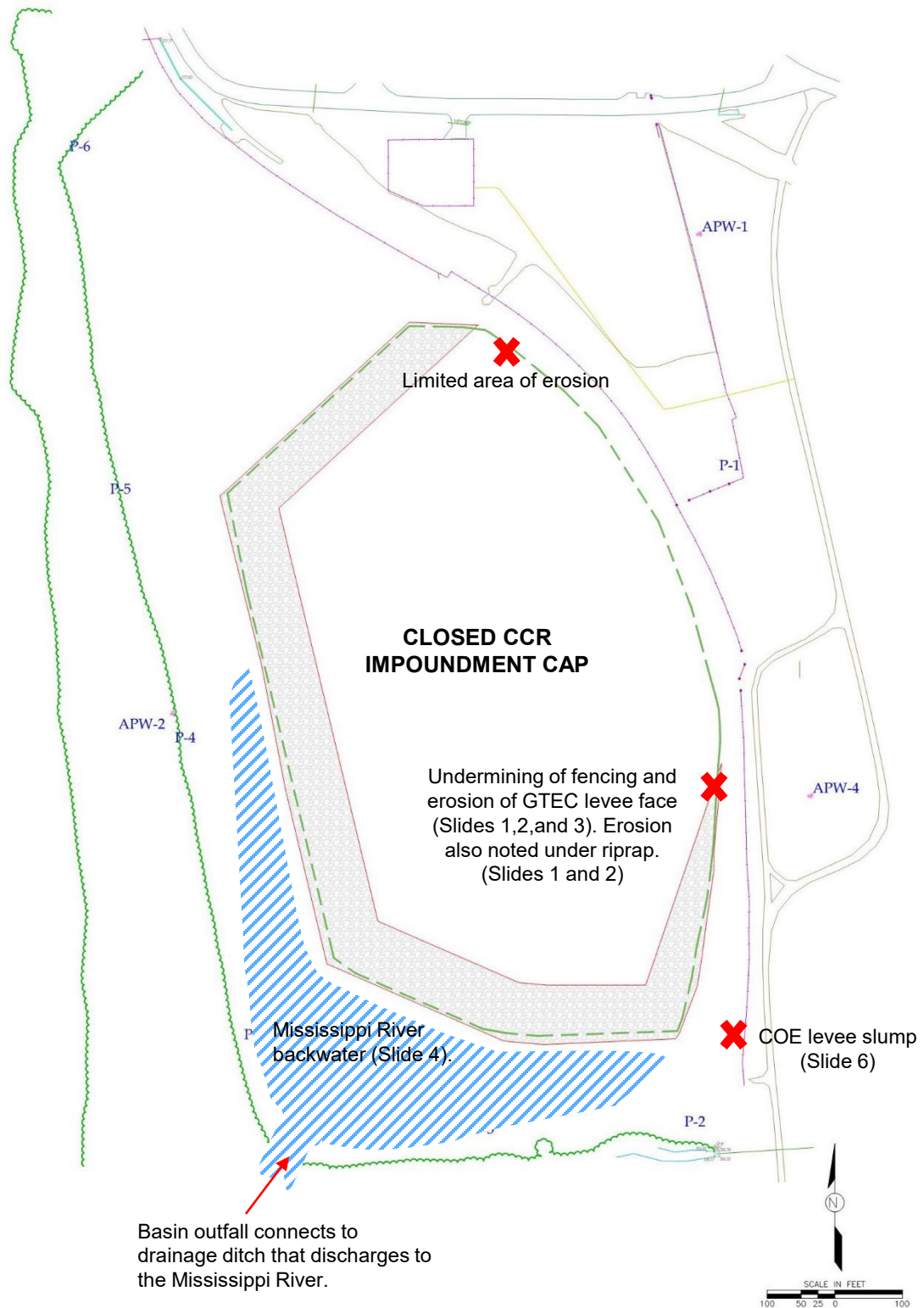
- Snow Cover
- Vegetation
- None
- Other

Undermining of Impoundment Perimeter Fencing**Observations in Detail Below:**

- ERM onsite for the Q2 impoundment inspection and ground water sampling event.
- The U.S. Army Corps of Engineers (USACE) Levee was found to be in the same condition as Q1 (see Q1 GTEC Impoundment Inspection Report). Slumping on west face of levee noted.
- Erosion and fence undermining continues to be noted on east/SE side of site (see figure). Limited area of erosion noted on NE side of CCR impoundment adjacent to basin access ramp. No woody growth noted at this time. Minor erosion noted across north, west, and southern CCR impoundment cap faces up to 6" deep.
- Backwater of the Mississippi River noted in SW corner of the basin.
- Overall impoundment condition was found to be similar to Q1 2022.
- Inspector recommends addressing erosion and fence undermining on east side of the site by adding soil and riprap around undermined fencing and on the eroded face of GTEC levee. Inspector also recommends repair of the slumped area of the USACE levee in accordance with applicable regulations.

Please see observation locations on figure on the following page.

# Observation Locations Map



# Grand Tower Energy Center Q2 2022 Closed CCR Impoundment Cap Inspection

Fence Undermining, Riprap Undermining, and GTEC Levee Erosion on the SE Side of Closed CCR Impoundment Cap.



## Fence Undermining, Riprap Undermining, and GTEC Levee Erosion on the SE Side of Closed CCR Impoundment Cap.



Close-up of exposed GTEC levee material.



Undermined fenceline and riprap.

## Fence Undermining on the SE Side of Closed CCR Impoundment Cap.



Facing north along fenceline.



Facing south along fenceline.

## Mississippi River Backwater in the SW Corner of Site.



Mississippi River backwater in CCR impoundment drainage basin.



Mississippi River backwater connected to basin through drainage channel.

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

## Closed CCR Impoundment Cap.



Looking west from Army Corps of Engineers Levee.



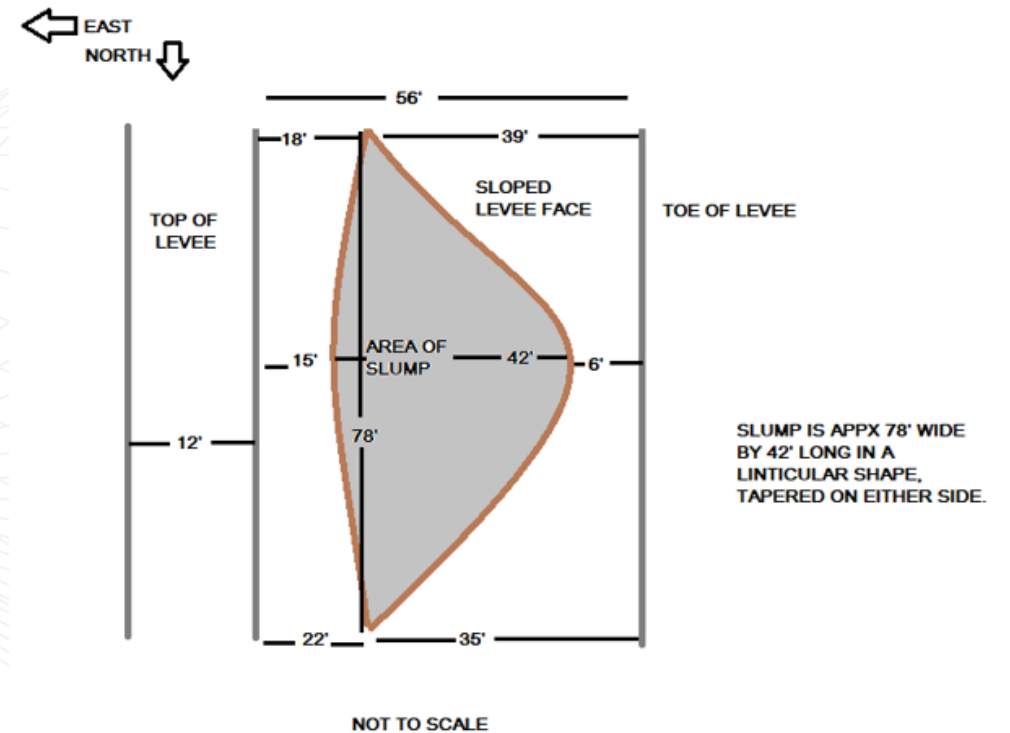
Impoundment cap top surface.

# Army Corps of Engineers Levee Slump



Close-up of slumped area.

## General dimensions of slumped area



**APPENDIX B: FIRST AND SECOND QUARTER 2022 GROUNDWATER  
MONITORING WELL INSPECTION FORMS**

# Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID:

APW-1R

Date:

3/23/2022

Total Depth (Actual): 58.30 (BTOC)

Total Depth (Measured): 58.38' (hard bottom)

Is well screen occluded more than 10%?

If Yes, list steps for redevelopment: No

LNAPL Present: No

If Yes, measured thickness =

DNAPL Present: No

If Yes, measured thickness =

## Well Completion Type: ABOVE GRADE

Condition of protector:  Intact  Non Intact

Well ID present and readable: No, will relabel.

Locks intact: No, will replace.

Weep hole present: Unknown.

Water present in protector: No

Are well "markers" (i.e.bumper posts) needed at this location: Yes

If yes, are current well "markers" adequate around well: Yes

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:

All site locks to be replaced

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# Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-2

Date: 3/23/22

Total Depth (Actual): 58.30'

Total Depth (Measured): 58.75' with soft bottom.

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: ABOVE GRADE

Condition of protector:  Intact  Non Intact

Well ID present and readable: No, will relabel

Locks intact: No, will add new lock

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: Yes

Comments:

## Well Surface Seal: INTACT

Is surrounding area sloped away from well: Yes

Any observed ponding: Yes

Is surface run-off flow evident around well: No

## Well Casing Condition: INTACT

Size of well (diameter) = 2 inches

Marking point present: Yes

Well cap in place: Yes

Comments:

## General Comments:

Weep hole needed.

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# Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-3

Date: 3/23/2022

Total Depth (Actual): 59.90'

Total Depth (Measured): 59.65'

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: ABOVE GRADE

Condition of protector:  Intact  Non Intact

Well ID present and readable:  No, will relabel

Locks intact:  No, will replace

Weep hole present:  No

Water present in protector:  Yes

Are well "markers" (i.e.bumper posts) needed at this location:

If yes, are current well "markers" adequate around well:  Yes

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:

Flaking paint. Needs new lock. Needs weep hole. Foliage encroaching upon access.

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# Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-4

Date: 3/23/2022

Total Depth (Actual): 60.27'

Total Depth (Measured): 60.40'

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: ABOVE GRADE

Condition of protector:  Intact  Non Intact

Well ID present and readable: No, will relabel

Locks intact: No, will replace lock

Weep hole present: No

Water present in protector: No

Are well "markers" (i.e. bumper posts) needed at this location: Yes

If yes, are current well "markers" adequate around well: No, missing 1 bumper post.

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:

Paint in poor condition, needs new lock.

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# Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-5

Date: 3/23/2022

Total Depth (Actual): 62.62 (BTOC)

Total Depth (Measured): 56.90' (soft bottom)

Is well screen occluded more than 10%? Yes

If Yes, list steps for redevelopment: \_\_\_\_\_

---

LNAPL Present: No

If Yes, measured thickness = \_\_\_\_\_

DNAPL Present: No

If Yes, measured thickness = \_\_\_\_\_

## Well Completion Type: ABOVE GRADE

Condition of protector:  Intact  Non Intact

Well ID present and readable: Yes

Locks intact: No, will replace

Weep hole present: No

Water present in protector: No

Are well "markers" (i.e.bumper posts) needed at this location: Yes

If yes, are current well "markers" adequate around well: Yes

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 will be redeveloped before first ground water sampling event.

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# Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, L

Well ID: APW-6S

Date: 3/23/2022

Total Depth (Actual): 62.65 (BTOC)

Total Depth (Measured): 63.98' (soft bottom)

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: ABOVE GRADE

Condition of protector:  Intact  Non Intact

Well ID present and readable: No, will relabel

Locks intact: No, will replace

Weep hole present: No

Water present in protector: No

Are well "markers" (i.e.bumper posts) needed at this location: Yes

If yes, are current well "markers" adequate around well: Yes

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:

Needs new lock. Well completion is partially buried in sand.

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# Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-6D

Date: 3/23/2022

Total Depth (Actual): 152.57 (BTOC)

Total Depth (Measured): 155.59' (soft bottom)

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: ABOVE GRADE

Condition of protector:  Intact  Non Intact

Well ID present and readable: No, will relabel

Locks intact: No, will replace lock

Weep hole present: No

Water present in protector: No

Are well "markers" (i.e. bumper posts) needed at this location: Yes

If yes, are current well "markers" adequate around well: No

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 stick up partially buried in sand, will need to uncover. Needs new lock and  
repair to hinged lid to allow to close fully.

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# Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-7

Date: 3/23/2022

Total Depth (Actual): 62.40 (BTOC)

Total Depth (Measured): 63.35 (soft bottom)

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: ABOVE GRADE

Condition of protector:  Intact  Non Intact

Well ID present and readable: Yes

Locks intact: No, will replace

Weep hole present: No

Water present in protector: No

Are well "markers" (i.e.bumper posts) needed at this location: Yes

If yes, are current well "markers" adequate around well: Yes

Comments:

## Well Surface Seal: INTACT

Is surrounding area sloped away from well: Yes

Any observed ponding: Yes

Is surface run-off flow evident around well: No

## Well Casing Condition: INTACT

Size of well (diameter) = 2 inches

Marking point present: Yes

Well cap in place: Yes

Comments:

## General Comments:

Needs new lock

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# Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-8

Date: 3/23/2022

Total Depth (Actual): 62.83 (BTOC)

Total Depth (Measured): 61.89 (soft bottom)

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: ABOVE GRADE

Condition of protector:  Intact  Non Intact

Well ID present and readable: Yes

Locks intact: No, will replace

Weep hole present: No

Water present in protector: No

Are well "markers" (i.e.bumper posts) needed at this location: Yes

If yes, are current well "markers" adequate around well: Yes

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:

Needs new lock

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# Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-9

Date: 3/23/2022

Total Depth (Actual): 62.76 (BTOC)

Total Depth (Measured): 63.40 (soft bottom)

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: ABOVE GRADE

Condition of protector:  Intact  Non Intact

Well ID present and readable: No, will relabel

Locks intact: No, will replace

Weep hole present: No

Water present in protector: No

Are well "markers" (i.e.bumper posts) needed at this location: Yes

If yes, are current well "markers" adequate around well: No

Comments: 1 bumper is loose

## 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:

Needs new lock

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# Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-10S

Date: 3/23/2022

Total Depth (Actual): 62.41 (BT0C)

Total Depth (Measured): 62.84 (soft bottom)

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: ABOVE GRADE

Condition of protector:  Intact  Non Intact

Well ID present and readable: Yes

Locks intact: No, will replace

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: Yes

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:

Needs new lock

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# Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-10D

Date: 3/23/2022

Total Depth (Actual): 98.47' (BTOC)

Total Depth (Measured): 98.19' (soft bottom)

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: ABOVE GRADE

Condition of protector:  Intact  Non Intact

Well ID present and readable: Yes

Locks intact: No, will replace

Weep hole present: No

Water present in protector: No

Are well "markers" (i.e.bumper posts) needed at this location: Yes

If yes, are current well "markers" adequate around well: Yes

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:

Needs new lock

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# Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID:

APW-1R

Date:

6/14/2022

Total Depth (Actual): 58.30 (BTOC)

Total Depth (Measured): 58.38'

Is well screen occluded more than 10%?

If Yes, list steps for redevelopment: No

LNAPL Present: No

If Yes, measured thickness =

DNAPL Present: No

If Yes, measured thickness =

## Well Completion Type: ABOVE GRADE

Condition of protector:  Intact  Non Intact

Well ID present and readable: No, will relabel.

Locks intact: No, will replace.

Weep hole present: Unknown.

Water present in protector: No

Are well "markers" (i.e.bumper posts) needed at this location: Yes

If yes, are current well "markers" adequate around well: Yes

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:

All site locks to be replaced

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# Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-2

Date: 6/14/2022

Total Depth (Actual): 58.30'

Total Depth (Measured): 58.75' with soft bottom.

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: ABOVE GRADE

Condition of protector:  Intact  Non Intact

Well ID present and readable: No, will relabel

Locks intact: No, will add new lock

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: Yes

Comments:

## Well Surface Seal: INTACT

Is surrounding area sloped away from well: Yes

Any observed ponding: Yes

Is surface run-off flow evident around well: No

## Well Casing Condition: INTACT

Size of well (diameter) = 2 inches

Marking point present: Yes

Well cap in place: Yes

Comments:

## General Comments:

Weep hole needed.

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# Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-3

Date: 6/14/2022

Total Depth (Actual): 59.90'

Total Depth (Measured): 59.65'

Is well screen occluded more than 10%?  No

If Yes, list steps for redevelopment: \_\_\_\_\_

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LNAPL Present:  No

If Yes, measured thickness = \_\_\_\_\_

DNAPL Present:  No

If Yes, measured thickness = \_\_\_\_\_

## Well Completion Type: ABOVE GRADE

Condition of protector:  Intact  Non Intact

Well ID present and readable:  No, will relabel

Locks intact:  No, will replace

Weep hole present:  No

Water present in protector:  Yes

Are well "markers" (i.e.bumper posts) needed at this location:

If yes, are current well "markers" adequate around well:  Yes

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:

Flaking paint. Needs new lock. Needs weep hole. Foliage encroaching upon access.

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# Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-4

Date: 6/14/2022

Total Depth (Actual): 60.27'

Total Depth (Measured): 60.40'

Is well screen occluded more than 10%? No

If Yes, list steps for redevelopment: \_\_\_\_\_

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LNAPL Present: No

If Yes, measured thickness = \_\_\_\_\_

DNAPL Present: No

If Yes, measured thickness = \_\_\_\_\_

## Well Completion Type: ABOVE GRADE

Condition of protector:  Intact  Non Intact

Well ID present and readable: No, will relabel

Locks intact: No, will replace lock

Weep hole present: No

Water present in protector: No

Are well "markers" (i.e. bumper posts) needed at this location: Yes

If yes, are current well "markers" adequate around well: No, missing 1 bumper post.

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:

Paint in poor condition, needs new lock.

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# Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-5

Date: 6/14/2022

Total Depth (Actual): 62.62 (BTOC)

Total Depth (Measured): 58.45' (soft bottom)

Is well screen occluded more than 10%? Yes

If Yes, list steps for redevelopment: Used submersible pump to attempt redevelopment.

Unable to extract material due to large grain size.

LNAPL Present: No

If Yes, measured thickness = \_\_\_\_\_

DNAPL Present: No

If Yes, measured thickness = \_\_\_\_\_

## Well Completion Type: ABOVE GRADE

Condition of protector:  Intact  Non Intact

Well ID present and readable: Yes

Locks intact: No, will replace

Weep hole present: No

Water present in protector: No

Are well "markers" (i.e. bumper posts) needed at this location: Yes

If yes, are current well "markers" adequate around well: Yes

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:

Attempted to be redeveloped - well screen is suspected of being breached.

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# Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-6S

Date: 6/14/2022

Total Depth (Actual): 62.65 (BTOC)

Total Depth (Measured): 63.98' (soft bottom)

Is well screen occluded more than 10%? No

If Yes, list steps for redevelopment: \_\_\_\_\_

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LNAPL Present: No

If Yes, measured thickness = \_\_\_\_\_

DNAPL Present: No

If Yes, measured thickness = \_\_\_\_\_

## Well Completion Type: ABOVE GRADE

Condition of protector:  Intact  Non Intact

Well ID present and readable: No, will relabel

Locks intact: No, will replace

Weep hole present: No

Water present in protector: No

Are well "markers" (i.e. bumper posts) needed at this location: Yes

If yes, are current well "markers" adequate around well: Yes

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:

Needs new lock. Well completion is partially buried in sand.

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# Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-6D

Date: 6/14/2022

Total Depth (Actual): 152.57 (BTOC)

Total Depth (Measured): 155.10' (soft bottom)

Is well screen occluded more than 10%? No

If Yes, list steps for redevelopment: \_\_\_\_\_

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LNAPL Present: No

If Yes, measured thickness = \_\_\_\_\_

DNAPL Present: No

If Yes, measured thickness = \_\_\_\_\_

## Well Completion Type: ABOVE GRADE

Condition of protector:  Intact  Non Intact

Well ID present and readable: No, will relabel

Locks intact: No, will replace lock

Weep hole present: No

Water present in protector: No

Are well "markers" (i.e.bumper posts) needed at this location: Yes

If yes, are current well "markers" adequate around well: No

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 stick up partially buried in sand, will need to uncover. Needs new lock and  
repair to hinged lid to allow to close fully.

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# Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-7

Date: 6/14/2022

Total Depth (Actual): 62.40 (BTOC)

Total Depth (Measured): 63.35 (soft bottom)

Is well screen occluded more than 10%? No

If Yes, list steps for redevelopment: \_\_\_\_\_

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LNAPL Present: No

If Yes, measured thickness = \_\_\_\_\_

DNAPL Present: No

If Yes, measured thickness = \_\_\_\_\_

## Well Completion Type: ABOVE GRADE

Condition of protector:  Intact  Non Intact

Well ID present and readable: Yes

Locks intact: No, will replace

Weep hole present: No

Water present in protector: No

Are well "markers" (i.e.bumper posts) needed at this location: Yes

If yes, are current well "markers" adequate around well: Yes

Comments:

## Well Surface Seal: INTACT

Is surrounding area sloped away from well: Yes

Any observed ponding: Yes

Is surface run-off flow evident around well: No

## Well Casing Condition: INTACT

Size of well (diameter) = 2 inches

Marking point present: Yes

Well cap in place: Yes

Comments:

## General Comments:

Needs new lock

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# Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-8

Date: 6/14/2022

Total Depth (Actual): 62.83 (BTOC)

Total Depth (Measured): 61.89 (soft bottom)

Is well screen occluded more than 10%? No

If Yes, list steps for redevelopment: \_\_\_\_\_

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LNAPL Present: No

If Yes, measured thickness = \_\_\_\_\_

DNAPL Present: No

If Yes, measured thickness = \_\_\_\_\_

## Well Completion Type: ABOVE GRADE

Condition of protector:  Intact  Non Intact

Well ID present and readable: Yes

Locks intact: No, will replace

Weep hole present: No

Water present in protector: No

Are well "markers" (i.e.bumper posts) needed at this location: Yes

If yes, are current well "markers" adequate around well: Yes

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:

Needs new lock

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# Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-9

Date: 6/14/2022

Total Depth (Actual): 62.76 (BTOC)

Total Depth (Measured): 63.40 (soft bottom)

Is well screen occluded more than 10%? No

If Yes, list steps for redevelopment: \_\_\_\_\_

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LNAPL Present: No

If Yes, measured thickness = \_\_\_\_\_

DNAPL Present: No

If Yes, measured thickness = \_\_\_\_\_

## Well Completion Type: ABOVE GRADE

Condition of protector:  Intact  Non Intact

Well ID present and readable: No, will relabel

Locks intact: No, will replace

Weep hole present: No

Water present in protector: No

Are well "markers" (i.e.bumper posts) needed at this location: Yes

If yes, are current well "markers" adequate around well: No

Comments: 1 bumper is loose

## 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:

Needs new lock

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# Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-10S

Date: 6/14/2022

Total Depth (Actual): 62.41 (BT0C)

Total Depth (Measured): 62.84 (soft bottom)

Is well screen occluded more than 10%? No

If Yes, list steps for redevelopment: \_\_\_\_\_

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LNAPL Present: No

If Yes, measured thickness = \_\_\_\_\_

DNAPL Present: No

If Yes, measured thickness = \_\_\_\_\_

## Well Completion Type: ABOVE GRADE

Condition of protector:  Intact  Non Intact

Well ID present and readable: Yes

Locks intact: No, will replace

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: Yes

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:

Needs new lock

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# Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-10D

Date: 6/14/2022

Total Depth (Actual): 98.47' (BTOC)

Total Depth (Measured): 98.19' (soft bottom)

Is well screen occluded more than 10%? No

If Yes, list steps for redevelopment: \_\_\_\_\_

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LNAPL Present: No

If Yes, measured thickness = \_\_\_\_\_

DNAPL Present: No

If Yes, measured thickness = \_\_\_\_\_

## Well Completion Type: ABOVE GRADE

Condition of protector:  Intact  Non Intact

Well ID present and readable: Yes

Locks intact: No, will replace

Weep hole present: No

Water present in protector: No

Are well "markers" (i.e.bumper posts) needed at this location: Yes

If yes, are current well "markers" adequate around well: Yes

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:

Needs new lock

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**APPENDIX C: SECOND QUARTER 2022 FIELD DATA FORMS**



# Low Flow Groundwater Sampling Field Data Form

Well ID: APW-05


Date: 06/16/2022

<b>Site ID</b> GTEC-GRAND-TOWER	<b>Purge Method / Pump Intake Depth</b> Low Flow / 51.9 (ft)	<b>Reference Elevation</b> 363.8 (ft)
<b>Site Address</b> 1820 Power Plant Road, Grand Tower, US-IL	<b>Purge Equipment</b> Submersible pump	<b>Depth to Water / Free Product</b> 16.86 (ft) / None
<b>Project Number</b> 0599247	<b>Sample Equipment</b> Submersible pump	<b>Total Well Depth</b> 56.9 (ft)
<b>Project Name</b> 20220613-GWMonitor	<b>Average Purge Rate</b> 300 (mL/min)	<b>Well Diameter / Well Screen Interval</b> 2 (in) / 50 - 60 (ft)
<b>Sampler</b> Clay Sansoucie & Michael Abegg	<b>Volume of Water in Well / Total Volume Purged</b> 6.53 (gal) / 2.0 (gal)	<b>Well Construction</b> PVC

### Well Head Vapor Measurements

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 (uS/cm) ±3%	Dissolved Oxygen (mg/L) ±10%	ORP (mV) ±10 mV	Turbidity (NTU) ±10%	Total Dissolved Solids(ppm) ±10%	Comments
12:50	16.88	300	0.00	20.5	7.04	864	NM	3.78	-629.0	77.0	NM	Cloudy
12:55	16.90	300	0.50	21.2	7.02	867	NM	0.27	-66.8	167.0	NM	Turbid
13:00	16.90	300	1.00	21.0	7.16	869	NM	0.09	-67.3	65.8	NM	Turbid
13:05	16.90	300	1.50	21.6	7.18	870	NM	0.07	-71.5	55.8	NM	Turbid
13:10	16.90	300	1.75	21.8	7.18	880	NM	0.11	-74.2	52.3	NM	Turbid
13:15	16.90	300	2.00	21.9	7.19	877	NM	0.10	-75.2	51.8	NM	Turbid

<b>Sample ID(s):</b> APW-05-WG-20220616	<b>Additional Comments</b>	<b>SAMPLER NAME AND SIGNATURE</b>	<b>Date Time</b>
<b>Analysis:</b> IAC Title 34 Section 845.600 groundwater parameters		Michael Abegg 	07/05/2022 19:01



# Low Flow Groundwater Sampling Field Data Form

Well ID: APW-06S


Date: 06/16/2022

<b>Site ID</b> GTEC-GRAND-TOWER	<b>Purge Method / Pump Intake Depth</b> Low Flow / 58.98 (ft)	<b>Reference Elevation</b> 363.51 (ft)
<b>Site Address</b> 1820 Power Plant Road, Grand Tower, US-IL	<b>Purge Equipment</b> Submersible pump	<b>Depth to Water / Free Product</b> 16.48 (ft) / None
<b>Project Number</b> 0599247	<b>Sample Equipment</b> Submersible pump	<b>Total Well Depth</b> 63.98 (ft)
<b>Project Name</b> 20220613-GWMonitor	<b>Average Purge Rate</b> 400 (mL/min)	<b>Well Diameter / Well Screen Interval</b> 2 (in) / 50 - 60 (ft)
<b>Sampler</b> Clay Sansoucie & Michael Abegg	<b>Volume of Water in Well / Total Volume Purged</b> 7.75 (gal) / 3.0 (gal)	<b>Well Construction</b> PVC

### Well Head Vapor Measurements

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 (uS/cm) ±3%	Dissolved Oxygen (mg/L) ±10%	ORP (mV) ±10 mV	Turbidity (NTU) ±10%	Total Dissolved Solids(ppm) ±10%	Comments
11:27	16.55	400	0.0	21.3	7.09	485	NM	4.42	-140.7	72.1	NM	Cloudy
11:30	16.55	400	0.5	19.1	7.07	927	NM	0.63	-143.7	252.0	NM	Cloudy
11:35	16.55	400	1.0	19.0	7.08	922	NM	0.48	-128.1	155.0	NM	Cloudy
11:40	16.55	400	1.5	19.0	7.11	918	NM	0.42	-125.8	55.6	NM	Clear
11:45	16.55	400	2.0	18.9	7.12	914	NM	0.38	-124.9	33.5	NM	Clear
11:50	16.55	400	2.5	18.9	7.12	912	NM	0.36	-123.8	32.3	NM	Clear
11:55	16.55	400	3.0	18.9	7.11	910	NM	0.33	-122.1	30.5	NM	Clear

<b>Sample ID(s):</b> APW-6S-WG-20220616	<b>Additional Comments</b>	<b>SAMPLER NAME AND SIGNATURE</b>	<b>Date Time</b>
<b>Analysis:</b> IAC Title 34 Section 845.600 groundwater parameters		Michael Abegg 	07/05/2022 19:04



## Low Flow Groundwater Sampling Field Data Form

**Well ID: APW-07**

**Date: 06/16/2022**

<b>Site ID</b> GTEC-GRAND-TOWER	<b>Purge Method / Pump Intake Depth</b> Low Flow / 58.35 (ft)	<b>Reference Elevation</b> 360.61 (ft)
<b>Site Address</b> 1820 Power Plant Road, Grand Tower, US-IL	<b>Purge Equipment</b> Submersible pump	<b>Depth to Water / Free Product</b> 13.56 (ft) / None
<b>Project Number</b> 0599247	<b>Sample Equipment</b> Submersible pump	<b>Total Well Depth</b> 63.35 (ft)
<b>Project Name</b> 20220613-GWMonitor	<b>Average Purge Rate</b> 350 (mL/min)	<b>Well Diameter / Well Screen Interval</b> 2 (in) / 50 - 60 (ft)
<b>Sampler</b> Clay Sansoucie & Michael Abegg	<b>Volume of Water in Well / Total Volume Purged</b> 8.13 (gal) / 2.5 (gal)	<b>Well Construction</b> PVC

**Well Head Vapor Measurements**

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 (uS/cm) ±3%	Dissolved Oxygen (mg/L) ±10%	ORP (mV) ±10 mV	Turbidity (NTU) ±10%	Total Dissolved Solids(ppm) ±10%	Comments
06:45	13.59	350	0.0	17.2	6.71	1082	NM	0.35	118.2	71.7	NM	Clear
06:50	13.59	350	0.5	17.5	6.71	1088	NM	0.34	119.7	49.7	NM	Clear
06:55	13.59	350	1.0	17.9	6.73	1106	NM	0.17	124.4	48.3	NM	Clear
07:00	13.59	350	1.5	18.0	6.72	1118	NM	0.12	127.3	61.2	NM	Clear
07:05	13.59	350	2.0	17.7	6.72	1125	NM	0.10	129.6	64.3	NM	Clear
07:10	13.59	350	2.5	17.9	6.72	1128	NM	0.08	129.4	66.2	NM	Clear

<b>Sample ID(s):</b> APW-07-WG-20220616	<b>Additional Comments</b>	<b>SAMPLER NAME AND SIGNATURE</b>	<b>Date Time</b>
<b>Analysis:</b> IAC Title 34 Section 845.600 groundwater parameters		Michael Abegg 	07/05/2022 19:07



# Low Flow Groundwater Sampling Field Data Form

Well ID: APW-08


Date: 06/16/2022

<b>Site ID</b> GTEC-GRAND-TOWER	<b>Purge Method / Pump Intake Depth</b> Low Flow / 56.89 (ft)	<b>Reference Elevation</b> 362.71 (ft)
<b>Site Address</b> 1820 Power Plant Road, Grand Tower, US-IL	<b>Purge Equipment</b> Submersible pump	<b>Depth to Water / Free Product</b> 15.82 (ft) / None
<b>Project Number</b> 0599247	<b>Sample Equipment</b> Submersible pump	<b>Total Well Depth</b> 61.89 (ft)
<b>Project Name</b> 20220613-GWMonitor	<b>Average Purge Rate</b> 313 (mL/min)	<b>Well Diameter / Well Screen Interval</b> 2 (in) / 50 - 60 (ft)
<b>Sampler</b> Clay Sansoucie & Michael Abegg	<b>Volume of Water in Well / Total Volume Purged</b> 7.52 (gal) / 3.5 (gal)	<b>Well Construction</b> PVC

### Well Head Vapor Measurements

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 (uS/cm) ±3%	Dissolved Oxygen (mg/L) ±10%	ORP (mV) ±10 mV	Turbidity (NTU) ±10%	Total Dissolved Solids(ppm) ±10%	Comments
07:45	15.85	500	0.00	18.5	7.27	548	NM	4.00	-77.1	75.4	NM	Clear
07:50	15.85	500	0.50	16.5	7.02	574	NM	0.85	-55.6	1000.0	NM	Turbid, brown
07:55	15.85	500	1.00	16.3	7.07	581	NM	0.47	-62.7	1000.0	NM	Turbid, brown
08:00	15.85	250	1.50	16.6	7.02	587	NM	0.41	-68.4	1000.0	NM	Turbid brown, turned pump down
08:05	15.86	250	1.75	17.7	7.07	588	NM	0.32	-73.6	755.0	NM	Turbid brown
08:10	15.86	250	2.00	17.7	7.04	590	NM	0.28	-76.2	494.0	NM	Turbid brown
08:15	15.86	250	2.25	17.6	7.04	590	NM	0.22	-81.4	359.0	NM	Cloudy
08:20	15.86	250	2.50	18.1	7.05	591	NM	0.18	-85.9	271.0	NM	Cloudy
08:25	15.86	250	2.75	18.3	7.05	591	NM	0.17	-87.6	224.0	NM	Cloudy
08:30	15.86	250	3.00	18.6	7.06	591	NM	0.14	-90.6	178.0	NM	Cloudy
08:35	15.86	250	3.25	18.9	7.07	593	NM	0.13	-95.1	221.0	NM	Cloudy
08:40	15.86	250	3.50	19.1	6.96	593	NM	0.12	-98.4	147.0	NM	Cloudy
08:45	15.86	250	3.75	19.0	7.06	593	NM	0.12	-99.2	126.0	NM	Cloudy
08:50	15.86	250	4.00	18.9	7.06	593	NM	0.11	-99.7	120.0	NM	Cloudy
08:55	15.86	250	4.25	18.9	7.06	593	NM	0.11	-100	119.0	NM	Silty, cloudy

<b>Sample ID(s):</b> APW-08-WG-20220616	<b>Additional Comments</b>	<b>SAMPLER NAME AND SIGNATURE</b>	<b>Date Time</b>
<b>Analysis:</b> IAC Title 34 Section 845.600 groundwater parameters		Michael Abegg 	07/05/2022 19:11



# Low Flow Groundwater Sampling Field Data Form

Well ID: APW-09


Date: 06/15/2022

<b>Site ID</b> GTEC-GRAND-TOWER	<b>Purge Method / Pump Intake Depth</b> Low Flow / 58.4 (ft)	<b>Reference Elevation</b> 366.84 (ft)
<b>Site Address</b> 1820 Power Plant Road, Grand Tower, US-IL	<b>Purge Equipment</b> Submersible pump	<b>Depth to Water / Free Product</b> 19.59 (ft) / None
<b>Project Number</b> 0599247	<b>Sample Equipment</b> Submersible pump	<b>Total Well Depth</b> 63.4 (ft)
<b>Project Name</b> 20220613-GWMonitor	<b>Average Purge Rate</b> 500 (mL/min)	<b>Well Diameter / Well Screen Interval</b> 2 (in) / 50 - 60 (ft)
<b>Sampler</b> Clay Sansoucie & Michael Abegg	<b>Volume of Water in Well / Total Volume Purged</b> 7.15 (gal) / 4.5 (gal)	<b>Well Construction</b> PVC

### Well Head Vapor Measurements

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 (uS/cm) ±3%	Dissolved Oxygen (mg/L) ±10%	ORP (mV) ±10 mV	Turbidity (NTU) ±10%	Total Dissolved Solids(ppm) ±10%	Comments
11:15	19.59	500	0.0	20.6	7.33	525	NM	2.42	-148.3	36.5	NM	Clear
11:20	19.59	500	0.5	21.5	7.14	633	NM	0.16	-164.0	254.0	NM	Cloudy
11:25	19.59	500	1.0	21.3	7.23	633	NM	0.10	-167.5	144.0	NM	Cloudy
11:30	19.59	500	1.5	21.8	7.26	632	NM	0.08	-167.9	117.0	NM	Cloudy
11:35	19.59	500	2.0	22.5	7.26	634	NM	0.08	-167.4	90.7	NM	Cloudy
11:40	19.59	500	2.5	22.4	7.24	633	NM	0.11	-164.6	66.5	NM	Cloudy
11:45	19.59	500	3.0	22.7	7.23	632	NM	0.07	-168.4	50.3	NM	Cloudy
11:50	19.59	500	3.5	22.6	7.24	635	NM	0.06	-169.6	37.1	NM	Cloudy
11:55	19.59	500	4.0	22.6	7.21	633	NM	0.06	-161.3	35.6	NM	Cloudy
12:00	19.59	500	4.5	22.7	7.22	633	NM	0.05	-160.7	34.2	NM	Cloudy

<b>Sample ID(s):</b> APW-09-WG-20220615	<b>Additional Comments</b>	<b>SAMPLER NAME AND SIGNATURE</b>	<b>Date Time</b>
<b>Analysis:</b> IAC Title 34 Section 845.600 groundwater parameters		Michael Abegg 	07/05/2022 19:10



# Low Flow Groundwater Sampling Field Data Form

Well ID: APW-10D


Date: 06/15/2022

<b>Site ID</b> GTEC-GRAND-TOWER	<b>Purge Method / Pump Intake Depth</b> Low Flow / 93.19 (ft)	<b>Reference Elevation</b> 359.41 (ft)
<b>Site Address</b> 1820 Power Plant Road, Grand Tower, US-IL	<b>Purge Equipment</b> Submersible pump	<b>Depth to Water / Free Product</b> 12.01 (ft) / None
<b>Project Number</b> 0599247	<b>Sample Equipment</b> Submersible pump	<b>Total Well Depth</b> 98.19 (ft)
<b>Project Name</b> 20220613-GWMonitor	<b>Average Purge Rate</b> 450 (mL/min)	<b>Well Diameter / Well Screen Interval</b> 2 (in) / 86 - 96 (ft)
<b>Sampler</b> Clay Sansoucie & Michael Abegg	<b>Volume of Water in Well / Total Volume Purged</b> 14.06 (gal) / 5.5 (gal)	<b>Well Construction</b> PVC

### Well Head Vapor Measurements

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 (uS/cm) ±3%	Dissolved Oxygen (mg/L) ±10%	ORP (mV) ±10 mV	Turbidity (NTU) ±10%	Total Dissolved Solids(ppm) ±10%	Comments
13:50	12.01	450	0.0	22.1	7.01	715	NM	1.15	-77.0	40.3	NM	Clear
13:55	12.03	450	0.5	18.8	6.86	689	NM	0.15	-59.8	996.0	NM	Turbid, brown
14:00	12.03	450	1.0	18.5	6.88	688	NM	0.11	-55.9	710.0	NM	Turbid, brown
14:05	12.03	450	1.5	18.2	6.89	686	NM	0.07	-56.7	411.0	NM	Turbid, brown
14:10	12.03	450	2.0	17.9	6.90	685	NM	0.06	-58.5	285.0	NM	Turbid brown
14:15	12.03	450	2.5	17.9	6.90	689	NM	0.05	-60.8	193.0	NM	Turbid brown
14:20	12.03	450	3.0	17.6	6.91	689	NM	0.04	-62.2	137.0	NM	Turbid, brown
14:25	12.03	450	3.5	17.5	6.90	688	NM	0.03	-63.1	107.0	NM	Turbid, brown
14:30	12.03	450	4.0	17.5	6.91	681	NM	0.03	-64.1	73.6	NM	Turbid brown
14:35	12.03	450	4.5	17.5	6.92	685	NM	0.03	-63.9	49.9	NM	Clear
14:40	12.03	450	5.0	17.5	6.92	689	NM	0.03	-63.1	47.3	NM	Clear
14:45	12.03	450	5.5	17.5	6.91	688	NM	0.03	-63.0	46.9	NM	Clear

<b>Sample ID(s):</b> APW-10D-WG-20220615	<b>Additional Comments</b>	<b>SAMPLER NAME AND SIGNATURE</b>	<b>Date Time</b>
<b>Analysis:</b> IAC Title 34 Section 845.600 groundwater parameters		Michael Abegg 	07/05/2022 19:12



## Low Flow Groundwater Sampling Field Data Form

**Well ID: APW-10S**

**Date: 06/15/2022**

<b>Site ID</b> GTEC-GRAND-TOWER	<b>Purge Method / Pump Intake Depth</b> Low Flow / 57.84 (ft)	<b>Reference Elevation</b> 359.47 (ft)
<b>Site Address</b> 1820 Power Plant Road, Grand Tower, US-IL	<b>Purge Equipment</b> Submersible pump	<b>Depth to Water / Free Product</b> 11.99 (ft) / None
<b>Project Number</b> 0599247	<b>Sample Equipment</b> Submersible pump	<b>Total Well Depth</b> 62.84 (ft)
<b>Project Name</b> 20220613-GWMonitor	<b>Average Purge Rate</b> 473 (mL/min)	<b>Well Diameter / Well Screen Interval</b> 2 (in) / 50 - 60 (ft)
<b>Sampler</b> Clay Sansoucie & Michael Abegg	<b>Volume of Water in Well / Total Volume Purged</b> 8.30 (gal) / 5.0 (gal)	<b>Well Construction</b> PVC

**Well Head Vapor Measurements**

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 (uS/cm) ±3%	Dissolved Oxygen (mg/L) ±10%	ORP (mV) ±10 mV	Turbidity (NTU) ±10%	Total Dissolved Solids(ppm) ±10%	Comments
12:42	12.25	200	0.0	19.1	6.94	1216	NM	0.11	-182.3	1000.0	NM	Turbid, black
12:45	12.25	500	0.5	19.4	6.93	1230	NM	0.09	-182.1	1000.0	NM	Turbid, black
12:50	12.25	500	1.0	19.5	6.95	1234	NM	0.06	-182.1	645.0	NM	Turbid, black
12:55	12.25	500	1.5	19.4	6.93	1236	NM	0.05	-181.5	391.0	NM	Cloudy
13:00	12.25	500	2.0	19.1	6.91	1238	NM	0.04	-181.8	288.0	NM	Cloudy
13:05	12.25	500	2.5	18.9	6.92	1238	NM	0.03	-180.9	141.0	NM	Cloudy
13:10	12.25	500	3.0	19.0	6.91	1237	NM	0.03	-180.5	110.0	NM	Cloudy
13:15	12.25	500	3.5	18.7	6.91	1239	NM	0.02	-180.4	92.1	NM	Cloudy
13:20	12.25	500	4.0	18.7	6.90	1238	NM	0.02	-179.9	60.0	NM	Cloudy
13:25	12.25	500	4.5	18.7	6.91	1238	NM	0.20	-178.3	63.2	NM	Cloudy
13:30	12.25	500	5.0	18.7	6.91	1239	NM	0.20	-177.9	61.5	NM	Cloudy

<b>Sample ID(s):</b> APW-10S-WG-20220615	<b>Additional Comments</b>	<b>SAMPLER NAME AND SIGNATURE</b>	<b>Date Time</b>
<b>Analysis:</b> IAC Title 34 Section 845.600 groundwater parameters		Michael Abegg 	07/05/2022 19:13



# Low Flow Groundwater Sampling Field Data Form

Well ID: APW-02


Date: 06/16/2022

<b>Site ID</b> GTEC-GRAND-TOWER	<b>Purge Method / Pump Intake Depth</b> Low Flow / 53.75 (ft)	<b>Reference Elevation</b> 364.61 (ft)
<b>Site Address</b> 1820 Power Plant Road, Grand Tower, US-IL	<b>Purge Equipment</b> Submersible pump	<b>Depth to Water / Free Product</b> 15.85 (ft) / None
<b>Project Number</b> 0599247	<b>Sample Equipment</b> Submersible pump	<b>Total Well Depth</b> 58.75 (ft)
<b>Project Name</b> 20220613-GWMonitor	<b>Average Purge Rate</b> 196 (mL/min)	<b>Well Diameter / Well Screen Interval</b> 2 (in) / 48 - 58 (ft)
<b>Sampler</b> Clay Sansoucie & Michael Abegg	<b>Volume of Water in Well / Total Volume Purged</b> 7.00 (gal) / 1.6 (gal)	<b>Well Construction</b> PVC

### Well Head Vapor Measurements

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 (uS/cm) ±3%	Dissolved Oxygen (mg/L) ±10%	ORP (mV) ±10 mV	Turbidity (NTU) ±10%	Total Dissolved Solids(ppm) ±10%	Comments
14:21	18.80	480	0.0	18.9	7.00	1128	NM	0.44	-124.1	36.0	NM	Clear
14:25	20.59	300	0.5	21.5	7.05	1105	NM	0.22	-123.6	55.7	NM	Clear, turn down pump
14:30	21.24	140	1.0	24.4	7.05	1114	NM	0.28	-118.6	37.6	NM	Clear, turn down pump
14:35	21.63	140	1.1	24.6	6.90	1123	NM	0.32	-107.1	78.8	NM	Clear
14:40	22.03	140	1.2	25.5	6.98	1108	NM	0.36	-103.1	92.8	NM	Clear
14:45	22.35	140	1.3	25.9	6.96	1110	NM	0.54	-99.1	52.3	NM	Clear
14:50	22.60	140	1.4	26.0	6.93	1111	NM	0.43	-95.9	39.8	NM	Clear
14:55	22.65	140	1.5	26.0	6.92	1113	NM	0.42	-96.2	38.4	NM	Clear
15:00	22.65	140	1.6	26.0	6.93	1114	NM	0.41	-97.1	38.0	NM	Clear

<b>Sample ID(s):</b> APW-02-WG-20220616	<b>Additional Comments</b>	<b>SAMPLER NAME AND SIGNATURE</b>	<b>Date Time</b>
<b>Analysis:</b> IAC Title 34 Section 845.600 groundwater parameters		Michael Abegg 	07/05/2022 18:41



## Low Flow Groundwater Sampling Field Data Form

**Well ID: APW-03**

**Date: 06/16/2022**

<b>Site ID</b> GTEC-GRAND-TOWER	<b>Purge Method / Pump Intake Depth</b> Low Flow / 54.65 (ft)	<b>Reference Elevation</b> 365.79 (ft)
<b>Site Address</b> 1820 Power Plant Road, Grand Tower, US-IL	<b>Purge Equipment</b> Submersible pump	<b>Depth to Water / Free Product</b> 18.7 (ft) / None
<b>Project Number</b> 0599247	<b>Sample Equipment</b> Submersible pump	<b>Total Well Depth</b> 59.65 (ft)
<b>Project Name</b> 20220613-GWMonitor	<b>Average Purge Rate</b> 320 (mL/min)	<b>Well Diameter / Well Screen Interval</b> 2 (in) / 50 - 60 (ft)
<b>Sampler</b> Clay Sansoucie & Michael Abegg	<b>Volume of Water in Well / Total Volume Purged</b> 6.68 (gal) / 4.5 (gal)	<b>Well Construction</b> PVC

**Well Head Vapor Measurements**

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 (uS/cm) ±3%	Dissolved Oxygen (mg/L) ±10%	ORP (mV) ±10 mV	Turbidity (NTU) ±10%	Total Dissolved Solids(ppm) ±10%	Comments
09:40	18.72	320	0.0	23.7	7.52	676	NM	5.46	-85.0	131.0	NM	Cloudy
09:45	18.74	320	0.5	18.6	7.78	879	NM	0.84	-157.2	726.0	NM	Turbid, brown
09:50	18.74	320	1.0	18.8	7.82	884	NM	0.71	-159.8	476.0	NM	Turbid, Brown
09:55	18.74	320	1.5	18.8	7.84	904	NM	0.95	-155.9	232.0	NM	Turbid, brown
10:00	18.74	320	2.0	18.8	7.85	907	NM	0.85	-156.7	121.0	NM	Turbid, brown
10:05	18.74	320	2.5	18.6	7.85	909	NM	0.71	-157.2	85.5	NM	Cloudy
10:10	18.74	320	3.0	18.6	7.85	912	NM	0.60	-159.7	57.9	NM	Clear
10:15	18.74	320	3.5	18.9	7.83	914	NM	0.53	-162.0	44.4	NM	Clear
10:20	18.74	320	4.0	19.1	7.87	915	NM	0.51	-163.0	42.6	NM	Clear
10:25	18.74	320	4.5	19.1	7.57	917	NM	0.50	-163.0	40.3	NM	Clear

<b>Sample ID(s):</b> APW-03-WG-20220616	<b>Additional Comments</b>	<b>SAMPLER NAME AND SIGNATURE</b>	<b>Date Time</b>
<b>Analysis:</b> IAC Title 34 Section 845.600 groundwater parameters		Michael Abegg	07/05/2022 18:56



## Low Flow Groundwater Sampling Field Data Form

**Well ID: APW-04**

**Date: 06/15/2022**

<b>Site ID</b> GTEC-GRAND-TOWER	<b>Purge Method / Pump Intake Depth</b> Low Flow / 55.4 (ft)	<b>Reference Elevation</b> 367.44 (ft)
<b>Site Address</b> 1820 Power Plant Road, Grand Tower, US-IL	<b>Purge Equipment</b> Submersible pump	<b>Depth to Water / Free Product</b> 19.99 (ft) / None
<b>Project Number</b> 0599247	<b>Sample Equipment</b> Submersible pump	<b>Total Well Depth</b> 60.4 (ft)
<b>Project Name</b> 20220613-GWMonitor	<b>Average Purge Rate</b> 400 (mL/min)	<b>Well Diameter / Well Screen Interval</b> 2 (in) / 50 - 60 (ft)
<b>Sampler</b> Clay Sansoucie & Michael Abegg	<b>Volume of Water in Well / Total Volume Purged</b> 6.59 (gal) / 5.5 (gal)	<b>Well Construction</b> PVC

**Well Head Vapor Measurements**

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 (uS/cm) ±3%	Dissolved Oxygen (mg/L) ±10%	ORP (mV) ±10 mV	Turbidity (NTU) ±10%	Total Dissolved Solids(ppm) ±10%	Comments
08:16	19.99	400	0.0	17.5	7.07	603	NM	2.20	-121.3	63.7	NM	Cloudy, no odor
08:20	20.04	400	1.0	17.6	7.17	614	NM	0.55	-123.6	46.5	NM	Clear
08:25	20.04	400	1.5	17.5	7.25	620	NM	0.26	-130.3	66.0	NM	Clear
08:30	20.05	400	2.0	17.6	7.26	622	NM	0.20	-131.0	59.1	NM	Clear
08:35	20.05	400	2.5	17.6	7.23	623	NM	0.15	-128.1	49.5	NM	Clear
08:40	20.05	400	3.0	17.5	7.23	623	NM	0.15	-128.3	39.8	NM	Clear
08:50	20.05	400	3.5	17.6	7.24	625	NM	0.14	-127.5	46.7	NM	Clear
08:55	20.05	400	4.0	17.6	7.24	623	NM	0.14	-126.2	26.0	NM	Clear
09:00	20.05	400	4.5	17.7	7.24	621	NM	0.13	-119.2	20.1	NM	Clear
09:05	20.05	400	5.0	17.7	7.24	622	NM	0.13	-120.3	18.3	NM	Clear
09:10	20.05	400	5.5	17.7	7.23	623	NM	0.13	-120.4	19.1	NM	Clear

<b>Sample ID(s):</b> APW-04-WG-20220615	<b>Additional Comments</b>	<b>SAMPLER NAME AND SIGNATURE</b>	<b>Date Time</b>
<b>Analysis:</b> IAC Title 34 Section 845.600 groundwater parameters		Michael Abegg 	07/05/2022 18:59



## Low Flow Groundwater Sampling Field Data Form

**Well ID: APW-01R**

**Date: 06/15/2022**

<b>Site ID</b> GTEC-GRAND-TOWER	<b>Purge Method / Pump Intake Depth</b> Low_Flow / 53.38 (ft)	<b>Reference Elevation</b> 366.82 (ft)
<b>Site Address</b> 1820 Power Plant Road, Grand Tower, US-IL	<b>Purge Equipment</b> Submersible pump	<b>Depth to Water / Free Product</b> 18.96 (ft) / None
<b>Project Number</b> 0599247	<b>Sample Equipment</b> Submersible pump	<b>Total Well Depth</b> 58.38 (ft)
<b>Project Name</b> 20220613-GWMonitor	<b>Average Purge Rate</b> 450 (mL/min)	<b>Well Diameter / Well Screen Interval</b> 2 (in) / 48 - 58 (ft)
<b>Sampler</b> Clay Sansoucie & Michael Abegg	<b>Volume of Water in Well / Total Volume Purged</b> 6.43 (gal) / 5.0 (gal)	<b>Well Construction</b> PVC

**Well Head Vapor Measurements**

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 (uS/cm) ±3%	Dissolved Oxygen (mg/L) ±10%	ORP (mV) ±10 mV	Turbidity (NTU) ±10%	Total Dissolved Solids(ppm) ±10%	Comments
09:47	18.96	450	0.0	18.3	6.34	356.0	NM	4.56	-69.8	12.0	NM	Turbid rusty brown
09:50	18.95	450	0.5	18.3	6.16	391.0	NM	2.52	-66.5	744.0	NM	Turbid, rusty brown
09:55	18.95	450	1.0	18.2	6.33	425.8	NM	1.92	-67.0	282.0	NM	Turbid, rusty brown
10:00	18.96	450	1.5	18.2	6.43	446.3	NM	1.73	-71.3	197.0	NM	Rusty, turbid brown
10:05	18.97	450	2.0	18.2	6.48	469.0	NM	1.62	-72.6	126.0	NM	Cloudy
10:10	18.97	450	2.5	18.3	6.53	485.6	NM	1.55	-72.4	68.8	NM	Cloudy
10:15	18.97	450	3.0	18.4	6.54	491.1	NM	1.54	-71.4	59.5	NM	Cloudy
10:20	18.97	450	3.5	18.8	6.55	493.2	NM	1.53	-69.1	45.4	NM	Clear
10:25	18.97	450	4.5	18.7	6.54	498.1	NM	1.45	-64.6	36.2	NM	Clear
10:30	18.97	450	4.5	18.9	6.56	501.3	NM	1.42	-64.6	34.7	NM	Clear
10:35	18.97	450	5.0	18.9	6.56	500.8	NM	1.42	-64.3	33.9	NM	Clear

<b>Sample ID(s):</b> APW-1R-WG-20220615	<b>Additional Comments</b>	<b>SAMPLER NAME AND SIGNATURE</b>	<b>Date Time</b>
<b>Analysis:</b> IAC Title 34 Section 845.600 groundwater parameters		Michael Abegg	07/05/2022 18:34



## Low Flow Groundwater Sampling Field Data Form

**Well ID: APW-06D**

**Date:**

<b>Site ID</b> GTEC-GRAND-TOWER	<b>Purge Method / Pump Intake Depth</b> Low Flow / (ft)	<b>Reference Elevation</b> 363.69 (ft)
<b>Site Address</b> 1820 Power Plant Road, Grand Tower, US-IL	<b>Purge Equipment</b> NA	<b>Depth to Water / Free Product</b> (ft) / None
<b>Project Number</b> 0599247	<b>Sample Equipment</b> NA	<b>Total Well Depth</b> 155.59(ft)
<b>Project Name</b> 20220613-GWMonitor	<b>Average Purge Rate</b> ( )	<b>Well Diameter / Well Screen Interval</b> 2 (in) / 140 - 150 (ft)
<b>Sampler</b>	<b>Volume of Water in Well / Total Volume Purged</b> ( ) / (gal)	<b>Well Construction</b> PVC

**Well Head Vapor Measurements**

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 (uS/cm) ±3%	Dissolved Oxygen (mg/L) ±10%	ORP (mV) ±10 mV	Turbidity (NTU) ±10%	Total Dissolved Solids(ppm) ±10%	Comments

<b>Sample ID(s):</b>	<b>Additional Comments</b>	<b>SAMPLER NAME AND SIGNATURE</b>	<b>Date Time</b>
<b>Analysis:</b>	Unable to insert submersible pump into well due to obstruction. No sample.		

**APPENDIX D: SECOND QUARTER 2022 LABORATORY ANALYTICAL REPORT**

July 20, 2022

Matt Halley  
ERM  
68 Villa Grove  
Springfield, IL 62712  
TEL: (217) 529-0914  
FAX:



Illinois	100226
Kansas	E-10374
Louisiana	05002
Louisiana	05003
Oklahoma	9978

**RE: GTEC**

**WorkOrder: 22061207**

Dear Matt Halley:

TEKLAB, INC received 14 samples on 6/17/2022 8:12:00 AM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,



Elizabeth A. Hurley  
Director of Customer Service  
(618)344-1004 ex 33  
[ehurley@teklabinc.com](mailto:ehurley@teklabinc.com)



## Report Contents

<http://www.teklabinc.com/>

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Client: ERM

Work Order: 22061207

Client Project: GTEC

Report Date: 20-Jul-22

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This reporting package includes the following:

Cover Letter	1
Report Contents	2
Definitions	3
Case Narrative	5
Accreditations	6
Laboratory Results	7
Sample Summary	35
Dates Report	36
Quality Control Results	43
Receiving Check List	60
Chain of Custody	Appended

**Client:** ERM

**Work Order:** 22061207

**Client Project:** GTEC

**Report Date:** 20-Jul-22

### Abbr Definition

\* Analytes on report marked with an asterisk are not NELAP accredited

CCV Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.

CRQL A Client Requested Quantitation Limit is a reporting limit that varies according to customer request. The CRQL may not be less than the MDL.

DF Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilution factors.

DNI Did not ignite

DUP Laboratory duplicate is a replicate aliquot prepared under the same laboratory conditions and independently analyzed to obtain a measure of precision.

ICV Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.

IDPH IL Dept. of Public Health

LCS Laboratory control sample is a sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes and analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system.

LCSD Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).

MBLK Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.

MDL "The method detection limit is defined as the minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results."

MS Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).

MSD Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).

MW Molecular weight

NC Data is not acceptable for compliance purposes

ND Not Detected at the Reporting Limit

NELAP NELAP Accredited

PQL Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions.

RL The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.

RPD Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).

SPK The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.

Surr Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.

TIC Tentatively identified compound: Analytes tentatively identified in the sample by using a library search. Only results not in the calibration standard will be reported as tentatively identified compounds. Results for tentatively identified compounds that are not present in the calibration standard, but are assigned a specific chemical name based upon the library search, are calculated using total peak areas from reconstructed ion chromatograms and a response factor of one. The nearest Internal Standard is used for the calculation. The results of any TICs must be considered estimated, and are flagged with a "T". If the estimated result is above the calibration range it is flagged "ET"

TNTC Too numerous to count (> 200 CFU)

**Client:** ERM

**Work Order:** 22061207

**Client Project:** GTEC

**Report Date:** 20-Jul-22

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### Qualifiers

- # - Unknown hydrocarbon
- C - RL shown is a Client Requested Quantitation Limit
- H - Holding times exceeded
- J - Analyte detected below quantitation limits
- ND - Not Detected at the Reporting Limit
- S - Spike Recovery outside recovery limits
- X - Value exceeds Maximum Contaminant Level
- B - Analyte detected in associated Method Blank
- E - Value above quantitation range
- I - Associated internal standard was outside method criteria
- M - Manual Integration used to determine area response
- R - RPD outside accepted recovery limits
- T - TIC(Tentatively identified compound)

**Client:** ERM

**Work Order:** 22061207

**Client Project:** GTEC

**Report Date:** 20-Jul-22

**Cooler Receipt Temp:** 3.2 °C

Radium-226 and Radium-228 analysis was performed by Pace Analytical National. See attached report for results.

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**Locations**

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**Collinsville**

**Address** 5445 Horseshoe Lake Road  
Collinsville, IL 62234-7425  
**Phone** (618) 344-1004  
**Fax** (618) 344-1005  
**Email** jhriley@teklabinc.com

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**Collinsville Air**

**Address** 5445 Horseshoe Lake Road  
Collinsville, IL 62234-7425  
**Phone** (618) 344-1004  
**Fax** (618) 344-1005  
**Email** EHurley@teklabinc.com

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**Springfield**

**Address** 3920 Pintail Dr  
Springfield, IL 62711-9415  
**Phone** (217) 698-1004  
**Fax** (217) 698-1005  
**Email** KKlostermann@teklabinc.com

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**Chicago**

**Address** 1319 Butterfield Rd.  
Downers Grove, IL 60515  
**Phone** (630) 324-6855  
**Fax**  
**Email** arenner@teklabinc.com

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**Kansas City**

**Address** 8421 Nieman Road  
Lenexa, KS 66214  
**Phone** (913) 541-1998  
**Fax** (913) 541-1998  
**Email** jhriley@teklabinc.com



## Accreditations

<http://www.teklabinc.com/>

Client: ERM

Work Order: 22061207

Client Project: GTEC

Report Date: 20-Jul-22

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2023	Collinsville
Kansas	KDHE	E-10374	NELAP	4/30/2023	Collinsville
Louisiana	LDEQ	05002	NELAP	6/30/2023	Collinsville
Louisiana	LDEQ	05003	NELAP	6/30/2023	Collinsville
Oklahoma	ODEQ	9978	NELAP	8/31/2022	Collinsville
Arkansas	ADEQ	88-0966		3/14/2023	Collinsville
Illinois	IDPH	17584		5/31/2023	Collinsville
Iowa	IDNR	430		6/1/2024	Collinsville
Kentucky	UST	0073		1/31/2023	Collinsville
Missouri	MDNR	00930		5/31/2023	Collinsville
Missouri	MDNR	930		1/31/2025	Collinsville



# Laboratory Results

<http://www.teklabinc.com/>

Client: ERM  
 Client Project: GTEC  
 Lab ID: 22061207-001  
 Matrix: GROUNDWATER

Work Order: 22061207  
 Report Date: 20-Jul-22  
 Client Sample ID: EB-01-WQ-20220615  
 Collection Date: 06/15/2022 7:30

Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed	Batch
<b>STANDARD METHODS 2540 C (TOTAL) 1997, 2011</b>									
Total Dissolved Solids	NELAP	16	20		< 20	mg/L	1	06/20/2022 9:38	R313502
<b>SW-846 9036 (TOTAL)</b>									
Sulfate	NELAP	6	10		< 10	mg/L	1	06/21/2022 20:35	R313491
<b>SW-846 9040B, LABORATORY ANALYZED</b>									
Lab pH	NELAP	0	1.00		6.05		1	06/22/2022 12:45	R313558
<b>SW-846 9214 (TOTAL)</b>									
Fluoride	NELAP	0.04	0.10		< 0.10	mg/L	1	06/21/2022 10:38	R313505
<b>SW-846 9251 (TOTAL)</b>									
Chloride	NELAP	1	1		< 1	mg/L	1	06/21/2022 20:35	R313492
<b>SW-846 3005A, 6020A, METALS BY ICPMS (DISSOLVED)</b>									
Antimony	NELAP	0.0004	0.0010		< 0.0010	mg/L	5	06/29/2022 3:29	193827
Arsenic	NELAP	0.0004	0.0010		< 0.0010	mg/L	5	06/26/2022 8:31	193827
Barium	NELAP	0.0007	0.0010		< 0.0010	mg/L	5	06/29/2022 3:29	193827
Beryllium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	06/29/2022 3:29	193827
Boron	NELAP	0.0092	0.0250		< 0.0250	mg/L	5	06/26/2022 8:31	193827
Cadmium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	06/29/2022 3:29	193827
Calcium	NELAP	0.080	0.12	J	0.12	mg/L	5	07/01/2022 14:06	193827
Chromium	NELAP	0.0007	0.0015	J	0.0007	mg/L	5	06/29/2022 3:29	193827
Cobalt	NELAP	0.0001	0.0010		< 0.0010	mg/L	5	06/29/2022 3:29	193827
Lead	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	06/29/2022 3:29	193827
Lithium	*	0.0015	0.0030		< 0.0030	mg/L	5	06/29/2022 3:29	193827
Molybdenum	NELAP	0.0006	0.0015		< 0.0015	mg/L	5	06/29/2022 3:29	193827
Nickel	NELAP	0.0004	0.0010		< 0.0010	mg/L	5	07/01/2022 14:06	193827
Selenium	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	06/26/2022 8:31	193827
Thallium	NELAP	0.0010	0.0020		< 0.0020	mg/L	5	06/29/2022 3:29	193827
<b>SW-846 3005A, 6020A, METALS BY ICPMS (TOTAL)</b>									
Antimony	NELAP	0.0004	0.0010		< 0.0010	mg/L	5	07/01/2022 11:45	191827
Arsenic	NELAP	0.0004	0.0010		< 0.0010	mg/L	5	07/05/2022 11:11	191827
Barium	NELAP	0.0007	0.0010	J	0.0007	mg/L	5	07/01/2022 11:45	191827
Beryllium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	07/01/2022 11:45	191827
Boron	NELAP	0.0092	0.025	J	0.014	mg/L	5	07/01/2022 11:45	191827
Cadmium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	07/01/2022 11:45	191827
Calcium	NELAP	0.070	0.12	J	0.085	mg/L	5	07/05/2022 11:11	191827
Chromium	NELAP	0.0007	0.0015		< 0.0015	mg/L	5	07/05/2022 11:11	191827
Cobalt	NELAP	0.0001	0.0010		< 0.0010	mg/L	5	07/01/2022 11:45	191827
Iron	NELAP	0.012	0.025	J	0.020	mg/L	5	07/01/2022 11:45	191827
Lead	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	07/01/2022 11:45	191827
Lithium	*	0.0015	0.0030		< 0.0030	mg/L	5	07/05/2022 11:11	191827
Manganese	NELAP	0.0008	0.0020		< 0.0020	mg/L	5	07/01/2022 11:45	191827
Molybdenum	NELAP	0.0006	0.0015		< 0.0015	mg/L	5	07/01/2022 11:45	191827
Nickel	NELAP	0.0004	0.0010		< 0.0010	mg/L	5	07/01/2022 11:45	191827
Selenium	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	07/05/2022 11:11	191827
Thallium	NELAP	0.0010	0.0020		< 0.0020	mg/L	5	07/01/2022 11:45	191827
<b>SW-846 7470A (TOTAL)</b>									
Mercury	NELAP	0.00006	0.00020		< 0.00020	mg/L	1	06/21/2022 18:21	193766



# Laboratory Results

<http://www.teklabinc.com/>

Client: ERM  
Client Project: GTEC  
Lab ID: 22061207-001  
Matrix: GROUNDWATER

Work Order: 22061207  
Report Date: 20-Jul-22  
Client Sample ID: EB-01-WQ-20220615  
Collection Date: 06/15/2022 7:30

Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed	Batch
<b>EPA 903.0/904.0, RADIUM 226/228</b>									
Radium-226	*	0	0		See Attached	pci/L	1	07/05/2022 0:00	R314646
Radium-228	*	0	0		See Attached	pci/L	1	07/05/2022 0:00	R314646



# Laboratory Results

<http://www.teklabinc.com/>

Client: ERM  
 Client Project: GTEC  
 Lab ID: 22061207-002  
 Matrix: GROUNDWATER

Work Order: 22061207  
 Report Date: 20-Jul-22  
 Client Sample ID: APW-04-WG-20220615  
 Collection Date: 06/15/2022 9:15

Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed	Batch
<b>STANDARD METHODS 2540 C (TOTAL) 1997, 2011</b>									
Total Dissolved Solids	NELAP	16	20		430	mg/L	1	06/20/2022 9:38	R313502
<b>SW-846 9036 (TOTAL)</b>									
Sulfate	NELAP	31	50		94	mg/L	5	06/23/2022 14:21	R313623
<b>SW-846 9040B, LABORATORY ANALYZED</b>									
Lab pH	NELAP	0	1.00		7.41		1	06/22/2022 15:58	R313558
<b>SW-846 9214 (TOTAL)</b>									
Fluoride	NELAP	0.04	0.10		0.20	mg/L	1	06/21/2022 10:41	R313505
<b>SW-846 9251 (TOTAL)</b>									
Chloride	NELAP	1	1		12	mg/L	1	06/21/2022 20:57	R313492
<b>SW-846 3005A, 6020A, METALS BY ICPMS (DISSOLVED)</b>									
Antimony	NELAP	0.0004	0.0010		< 0.0010	mg/L	5	06/29/2022 3:36	193827
Arsenic	NELAP	0.0004	0.0010		0.0013	mg/L	5	06/29/2022 3:36	193827
Barium	NELAP	0.0007	0.0010		0.116	mg/L	5	06/29/2022 3:36	193827
Beryllium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	06/29/2022 3:36	193827
Boron	NELAP	0.0092	0.0250		1.41	mg/L	5	06/26/2022 8:36	193827
Cadmium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	06/29/2022 3:36	193827
Calcium	NELAP	0.0800	0.125		111	mg/L	5	07/01/2022 14:11	193827
Chromium	NELAP	0.0007	0.0015		< 0.0015	mg/L	5	06/29/2022 3:36	193827
Cobalt	NELAP	0.0001	0.0010		< 0.0010	mg/L	5	06/29/2022 3:36	193827
Lead	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	06/29/2022 3:36	193827
Lithium	*	0.0015	0.0030		0.0264	mg/L	5	06/29/2022 3:36	193827
Molybdenum	NELAP	0.0006	0.0015		0.0653	mg/L	5	06/29/2022 3:36	193827
Nickel	NELAP	0.0004	0.0010		0.0019	mg/L	5	07/01/2022 14:11	193827
Selenium	NELAP	0.0006	0.0010		0.0134	mg/L	5	06/26/2022 8:36	193827
Thallium	NELAP	0.0010	0.0020		< 0.0020	mg/L	5	06/29/2022 3:36	193827
<b>SW-846 3005A, 6020A, METALS BY ICPMS (TOTAL)</b>									
Antimony	NELAP	0.0004	0.0010		< 0.0010	mg/L	5	07/01/2022 11:16	191827
Arsenic	NELAP	0.0004	0.0010		0.0015	mg/L	5	06/26/2022 12:47	191827
Barium	NELAP	0.0007	0.0010		0.143	mg/L	5	07/01/2022 11:16	191827
Beryllium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	07/01/2022 11:16	191827
Boron	NELAP	0.0092	0.0250		1.88	mg/L	5	07/01/2022 11:16	191827
Cadmium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	07/01/2022 11:16	191827
Calcium	NELAP	0.0700	0.125		97.8	mg/L	5	07/05/2022 10:42	191827
Chromium	NELAP	0.0007	0.0015		< 0.0015	mg/L	5	07/05/2022 10:42	191827
Cobalt	NELAP	0.0001	0.0010	J	0.0006	mg/L	5	07/01/2022 11:16	191827
Iron	NELAP	0.0115	0.0250		0.563	mg/L	5	07/01/2022 11:16	191827
Lead	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	07/01/2022 11:16	191827
Lithium	*	0.0015	0.0030		0.0360	mg/L	5	07/01/2022 11:16	191827
Manganese	NELAP	0.0008	0.0020		0.192	mg/L	5	07/01/2022 11:16	191827
Molybdenum	NELAP	0.0006	0.0015		0.0788	mg/L	5	07/01/2022 11:16	191827
Nickel	NELAP	0.0004	0.0010		0.0045	mg/L	5	07/01/2022 11:16	191827
Selenium	NELAP	0.0006	0.0010		0.0133	mg/L	5	06/26/2022 12:47	191827
Thallium	NELAP	0.0010	0.0020		< 0.0020	mg/L	5	07/01/2022 11:16	191827
<b>SW-846 7470A (TOTAL)</b>									
Mercury	NELAP	0.00006	0.00020		< 0.00020	mg/L	1	06/21/2022 18:23	193766



# Laboratory Results

<http://www.teklabinc.com/>

Client: ERM  
Client Project: GTEC  
Lab ID: 22061207-002  
Matrix: GROUNDWATER

Work Order: 22061207  
Report Date: 20-Jul-22  
Client Sample ID: APW-04-WG-20220615  
Collection Date: 06/15/2022 9:15

Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed	Batch
<b>EPA 903.0/904.0, RADIUM 226/228</b>									
Radium-226	*	0	0		See Attached	pci/L	1	07/05/2022 0:00	R314646
Radium-228	*	0	0		See Attached	pci/L	1	07/05/2022 0:00	R314646



# Laboratory Results

<http://www.teklabinc.com/>

Client: ERM  
 Client Project: GTEC  
 Lab ID: 22061207-003  
 Matrix: GROUNDWATER

Work Order: 22061207  
 Report Date: 20-Jul-22  
 Client Sample ID: APW-1R-WG-20220615  
 Collection Date: 06/15/2022 10:40

Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed	Batch
<b>STANDARD METHODS 2540 C (TOTAL) 1997, 2011</b>									
Total Dissolved Solids	NELAP	16	20		342	mg/L	1	06/20/2022 9:38	R313502
<b>SW-846 9036 (TOTAL)</b>									
Sulfate	NELAP	6	10		33	mg/L	1	06/21/2022 21:05	R313491
<b>SW-846 9040B, LABORATORY ANALYZED</b>									
Lab pH	NELAP	0	1.00		6.98		1	06/22/2022 12:56	R313558
<b>SW-846 9214 (TOTAL)</b>									
Fluoride	NELAP	0.04	0.10		0.21	mg/L	1	06/21/2022 10:43	R313505
<b>SW-846 9251 (TOTAL)</b>									
Chloride	NELAP	1	1		2	mg/L	1	06/21/2022 21:05	R313492
<b>SW-846 3005A, 6020A, METALS BY ICPMS (DISSOLVED)</b>									
Antimony	NELAP	0.0004	0.0010		< 0.0010	mg/L	5	06/29/2022 4:07	193827
Arsenic	NELAP	0.0004	0.0010		0.0012	mg/L	5	06/26/2022 8:42	193827
Barium	NELAP	0.0007	0.0010		0.160	mg/L	5	06/29/2022 4:07	193827
Beryllium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	06/29/2022 4:07	193827
Boron	NELAP	0.0092	0.0250		0.163	mg/L	5	06/26/2022 8:42	193827
Cadmium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	06/29/2022 4:07	193827
Calcium	NELAP	0.0800	0.125		85.6	mg/L	5	07/01/2022 14:17	193827
Chromium	NELAP	0.0007	0.0015	J	0.0009	mg/L	5	06/29/2022 4:07	193827
Cobalt	NELAP	0.0001	0.0010	J	0.0002	mg/L	5	06/29/2022 4:07	193827
Lead	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	06/29/2022 4:07	193827
Lithium	*	0.0015	0.0030		0.0127	mg/L	5	06/29/2022 4:07	193827
Molybdenum	NELAP	0.0006	0.0015		< 0.0015	mg/L	5	06/29/2022 4:07	193827
Nickel	NELAP	0.0004	0.0010		0.0043	mg/L	5	07/01/2022 14:17	193827
Selenium	NELAP	0.0006	0.0010		0.0028	mg/L	5	06/26/2022 8:42	193827
Thallium	NELAP	0.0010	0.0020		< 0.0020	mg/L	5	06/29/2022 4:07	193827
<b>SW-846 3005A, 6020A, METALS BY ICPMS (TOTAL)</b>									
Antimony	NELAP	0.0004	0.0010		< 0.0010	mg/L	5	07/01/2022 11:22	191827
Arsenic	NELAP	0.0004	0.0010		0.0019	mg/L	5	06/26/2022 12:52	191827
Barium	NELAP	0.0007	0.0010		0.197	mg/L	5	07/01/2022 11:22	191827
Beryllium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	07/01/2022 11:22	191827
Boron	NELAP	0.0092	0.0250		0.228	mg/L	5	07/01/2022 11:22	191827
Cadmium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	07/01/2022 11:22	191827
Calcium	NELAP	0.0700	0.125		90.3	mg/L	5	07/05/2022 10:48	191827
Chromium	NELAP	0.0007	0.0015		0.0031	mg/L	5	07/05/2022 10:48	191827
Cobalt	NELAP	0.0001	0.0010		0.0017	mg/L	5	07/01/2022 11:22	191827
Iron	NELAP	0.0115	0.0250		1.42	mg/L	5	07/01/2022 11:22	191827
Lead	NELAP	0.0006	0.0010		0.0013	mg/L	5	07/01/2022 11:22	191827
Lithium	*	0.0015	0.0030		0.0171	mg/L	5	07/01/2022 11:22	191827
Manganese	NELAP	0.0008	0.0020		0.139	mg/L	5	07/01/2022 11:22	191827
Molybdenum	NELAP	0.0006	0.0015		< 0.0015	mg/L	5	07/01/2022 11:22	191827
Nickel	NELAP	0.0004	0.0010		0.0083	mg/L	5	07/01/2022 11:22	191827
Selenium	NELAP	0.0006	0.0010		0.0028	mg/L	5	06/26/2022 12:52	191827
Thallium	NELAP	0.0010	0.0020		< 0.0020	mg/L	5	07/01/2022 11:22	191827
<b>SW-846 7470A (TOTAL)</b>									
Mercury	NELAP	0.00006	0.00020		< 0.00020	mg/L	1	06/21/2022 18:30	193766



# Laboratory Results

<http://www.teklabinc.com/>

Client: ERM  
Client Project: GTEC  
Lab ID: 22061207-003  
Matrix: GROUNDWATER

Work Order: 22061207  
Report Date: 20-Jul-22  
Client Sample ID: APW-1R-WG-20220615  
Collection Date: 06/15/2022 10:40

Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed	Batch
<b>EPA 903.0/904.0, RADIUM 226/228</b>									
Radium-226	*	0	0		See Attached	pci/L	1	07/05/2022 0:00	R314646
Radium-228	*	0	0		See Attached	pci/L	1	07/05/2022 0:00	R314646



# Laboratory Results

<http://www.teklabinc.com/>

Client: ERM  
 Client Project: GTEC  
 Lab ID: 22061207-004  
 Matrix: GROUNDWATER

Work Order: 22061207  
 Report Date: 20-Jul-22  
 Client Sample ID: APW-09-WG-20220615  
 Collection Date: 06/15/2022 12:10

Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed	Batch
<b>STANDARD METHODS 2540 C (TOTAL) 1997, 2011</b>									
Total Dissolved Solids	NELAP	16	20		424	mg/L	1	06/20/2022 9:39	R313502
<b>SW-846 9036 (TOTAL)</b>									
Sulfate	NELAP	61	100		104	mg/L	10	06/21/2022 21:34	R313491
<b>SW-846 9040B, LABORATORY ANALYZED</b>									
Lab pH	NELAP	0	1.00		7.48		1	06/22/2022 12:59	R313558
<b>SW-846 9214 (TOTAL)</b>									
Fluoride	NELAP	0.04	0.10		0.23	mg/L	1	06/21/2022 10:45	R313505
<b>SW-846 9251 (TOTAL)</b>									
Chloride	NELAP	1	1		13	mg/L	1	06/21/2022 21:29	R313492
<b>SW-846 3005A, 6020A, METALS BY ICPMS (DISSOLVED)</b>									
Antimony	NELAP	0.0004	0.0010		< 0.0010	mg/L	5	06/29/2022 4:51	193827
Arsenic	NELAP	0.0004	0.0010		0.0019	mg/L	5	06/26/2022 8:58	193827
Barium	NELAP	0.0007	0.0010		0.129	mg/L	5	06/29/2022 4:51	193827
Beryllium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	06/29/2022 4:51	193827
Boron	NELAP	0.0092	0.0250		1.32	mg/L	5	06/26/2022 8:58	193827
Cadmium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	06/29/2022 4:51	193827
Calcium	NELAP	0.0800	0.125	S	107	mg/L	5	07/01/2022 14:28	193827
Chromium	NELAP	0.0007	0.0015		< 0.0015	mg/L	5	06/29/2022 4:51	193827
Cobalt	NELAP	0.0001	0.0010		< 0.0010	mg/L	5	06/29/2022 4:51	193827
Lead	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	06/29/2022 4:51	193827
Lithium	*	0.0015	0.0030		0.0184	mg/L	5	06/29/2022 4:51	193827
Molybdenum	NELAP	0.0006	0.0015		0.0351	mg/L	5	06/29/2022 4:51	193827
Nickel	NELAP	0.0004	0.0010		0.0017	mg/L	5	07/01/2022 14:28	193827
Selenium	NELAP	0.0006	0.0010		0.0210	mg/L	5	06/26/2022 8:58	193827
Thallium	NELAP	0.0010	0.0020		< 0.0020	mg/L	5	06/29/2022 4:51	193827
<i>Matrix spike control limits for Ca are not applicable due to high sample/spike ratio.</i>									
<b>SW-846 3005A, 6020A, METALS BY ICPMS (TOTAL)</b>									
Antimony	NELAP	0.0004	0.0010		< 0.0010	mg/L	5	07/01/2022 11:28	191827
Arsenic	NELAP	0.0004	0.0010		0.0026	mg/L	5	06/26/2022 12:58	191827
Barium	NELAP	0.0007	0.0010		0.186	mg/L	5	07/01/2022 11:28	191827
Beryllium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	07/01/2022 11:28	191827
Boron	NELAP	0.0092	0.0250		1.61	mg/L	5	07/01/2022 11:28	191827
Cadmium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	07/01/2022 11:28	191827
Calcium	NELAP	0.0700	0.125		110	mg/L	5	07/05/2022 10:54	191827
Chromium	NELAP	0.0007	0.0015	J	0.0011	mg/L	5	07/05/2022 10:54	191827
Cobalt	NELAP	0.0001	0.0010		0.0010	mg/L	5	07/01/2022 11:28	191827
Iron	NELAP	0.0115	0.0250		0.496	mg/L	5	07/01/2022 11:28	191827
Lead	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	07/01/2022 11:28	191827
Lithium	*	0.0015	0.0030		0.0246	mg/L	5	07/01/2022 11:28	191827
Manganese	NELAP	0.0008	0.0020		0.599	mg/L	5	07/01/2022 11:28	191827
Molybdenum	NELAP	0.0006	0.0015		0.0455	mg/L	5	07/01/2022 11:28	191827
Nickel	NELAP	0.0004	0.0010		0.0040	mg/L	5	07/01/2022 11:28	191827
Selenium	NELAP	0.0006	0.0010		0.0219	mg/L	5	06/26/2022 12:58	191827
Thallium	NELAP	0.0010	0.0020		< 0.0020	mg/L	5	07/01/2022 11:28	191827
<b>SW-846 7470A (TOTAL)</b>									
Mercury	NELAP	0.00006	0.00020		< 0.00020	mg/L	1	06/21/2022 18:37	193766



# Laboratory Results

<http://www.teklabinc.com/>

Client: ERM  
Client Project: GTEC  
Lab ID: 22061207-004  
Matrix: GROUNDWATER

Work Order: 22061207  
Report Date: 20-Jul-22  
Client Sample ID: APW-09-WG-20220615  
Collection Date: 06/15/2022 12:10

Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed	Batch
<b>EPA 903.0/904.0, RADIUM 226/228</b>									
Radium-226	*	0	0		See Attached	pci/L	1	07/05/2022 0:00	R314646
Radium-228	*	0	0		See Attached	pci/L	1	07/05/2022 0:00	R314646



# Laboratory Results

<http://www.teklabinc.com/>

Client: ERM  
 Client Project: GTEC  
 Lab ID: 22061207-005  
 Matrix: GROUNDWATER

Work Order: 22061207  
 Report Date: 20-Jul-22  
 Client Sample ID: APW-10S-WG-20220615  
 Collection Date: 06/15/2022 13:40

Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed	Batch
<b>STANDARD METHODS 2540 C (TOTAL) 1997, 2011</b>									
Total Dissolved Solids	NELAP	40	50		735	mg/L	2.5	06/20/2022 9:39	R313502
<b>SW-846 9036 (TOTAL)</b>									
Sulfate	NELAP	6	10		< 10	mg/L	1	06/21/2022 21:37	R313491
<b>SW-846 9040B, LABORATORY ANALYZED</b>									
Lab pH	NELAP	0	1.00		7.09		1	06/22/2022 16:00	R313558
<b>SW-846 9214 (TOTAL)</b>									
Fluoride	NELAP	0.04	0.10		0.17	mg/L	1	06/21/2022 10:47	R313505
<b>SW-846 9251 (TOTAL)</b>									
Chloride	NELAP	1	1		12	mg/L	1	06/21/2022 21:37	R313492
<b>SW-846 3005A, 6020A, METALS BY ICPMS (DISSOLVED)</b>									
Antimony	NELAP	0.0004	0.0010		< 0.0010	mg/L	5	06/29/2022 4:13	193827
Arsenic	NELAP	0.0004	0.0010		0.152	mg/L	5	06/26/2022 8:47	193827
Barium	NELAP	0.0007	0.0010		0.423	mg/L	5	06/29/2022 4:13	193827
Beryllium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	06/29/2022 4:13	193827
Boron	NELAP	0.0092	0.0250		0.570	mg/L	5	06/26/2022 8:47	193827
Cadmium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	06/29/2022 4:13	193827
Calcium	NELAP	0.0800	0.125		169	mg/L	5	07/01/2022 14:23	193827
Chromium	NELAP	0.0007	0.0015		< 0.0015	mg/L	5	06/29/2022 4:13	193827
Cobalt	NELAP	0.0001	0.0010	J	0.0001	mg/L	5	06/29/2022 4:13	193827
Lead	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	06/29/2022 4:13	193827
Lithium	*	0.0015	0.0030		0.0266	mg/L	5	06/29/2022 4:13	193827
Molybdenum	NELAP	0.0006	0.0015		< 0.0015	mg/L	5	06/29/2022 4:13	193827
Nickel	NELAP	0.0004	0.0010		< 0.0010	mg/L	5	07/01/2022 14:23	193827
Selenium	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	06/26/2022 8:47	193827
Thallium	NELAP	0.0010	0.0020		< 0.0020	mg/L	5	06/29/2022 4:13	193827
<b>SW-846 3005A, 6020A, METALS BY ICPMS (TOTAL)</b>									
Antimony	NELAP	0.0004	0.0010		< 0.0010	mg/L	5	07/01/2022 11:33	191827
Arsenic	NELAP	0.0004	0.0010		0.185	mg/L	5	06/26/2022 13:59	191827
Barium	NELAP	0.0007	0.0010		0.575	mg/L	5	07/01/2022 11:33	191827
Beryllium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	07/01/2022 11:33	191827
Boron	NELAP	0.0092	0.0250		0.683	mg/L	5	07/01/2022 11:33	191827
Cadmium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	07/01/2022 11:33	191827
Calcium	NELAP	0.0700	0.125		161	mg/L	5	07/05/2022 11:00	191827
Chromium	NELAP	0.0007	0.0015	J	0.0015	mg/L	5	07/05/2022 11:00	191827
Cobalt	NELAP	0.0001	0.0010	J	0.0006	mg/L	5	07/01/2022 11:33	191827
Iron	NELAP	0.0115	0.0250		19.6	mg/L	5	07/01/2022 11:33	191827
Lead	NELAP	0.0006	0.0010	J	0.0007	mg/L	5	07/01/2022 11:33	191827
Lithium	*	0.0015	0.0030		0.0353	mg/L	5	07/01/2022 11:33	191827
Manganese	NELAP	0.0008	0.0020		0.243	mg/L	5	07/01/2022 11:33	191827
Molybdenum	NELAP	0.0006	0.0015		< 0.0015	mg/L	5	07/01/2022 11:33	191827
Nickel	NELAP	0.0004	0.0010		0.0014	mg/L	5	07/01/2022 11:33	191827
Selenium	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	06/26/2022 13:59	191827
Thallium	NELAP	0.0010	0.0020		< 0.0020	mg/L	5	07/01/2022 11:33	191827
<b>SW-846 7470A (TOTAL)</b>									
Mercury	NELAP	0.00006	0.00020		< 0.00020	mg/L	1	06/21/2022 18:39	193766



# Laboratory Results

<http://www.teklabinc.com/>

Client: ERM  
Client Project: GTEC  
Lab ID: 22061207-005  
Matrix: GROUNDWATER

Work Order: 22061207  
Report Date: 20-Jul-22  
Client Sample ID: APW-10S-WG-20220615  
Collection Date: 06/15/2022 13:40

Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed	Batch
<b>EPA 903.0/904.0, RADIUM 226/228</b>									
Radium-226	*	0	0		See Attached	pci/L	1	07/05/2022 0:00	R314646
Radium-228	*	0	0		See Attached	pci/L	1	07/05/2022 0:00	R314646



# Laboratory Results

<http://www.teklabinc.com/>

Client: ERM  
 Client Project: GTEC  
 Lab ID: 22061207-006  
 Matrix: GROUNDWATER

Work Order: 22061207  
 Report Date: 20-Jul-22  
 Client Sample ID: APW-10D-WG-20220615  
 Collection Date: 06/15/2022 14:55

Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed	Batch
<b>STANDARD METHODS 2540 C (TOTAL) 1997, 2011</b>									
Total Dissolved Solids	NELAP	16	20		452	mg/L	1	06/20/2022 10:25	R313502
<b>SW-846 9036 (TOTAL)</b>									
Sulfate	NELAP	6	10		41	mg/L	1	06/21/2022 21:45	R313491
<b>SW-846 9040B, LABORATORY ANALYZED</b>									
Lab pH	NELAP	0	1.00		7.21		1	06/22/2022 13:19	R313558
<b>SW-846 9214 (TOTAL)</b>									
Fluoride	NELAP	0.04	0.10		0.12	mg/L	1	06/21/2022 10:50	R313505
<b>SW-846 9251 (TOTAL)</b>									
Chloride	NELAP	1	1		16	mg/L	1	06/21/2022 21:45	R313492
<b>SW-846 3005A, 6020A, METALS BY ICPMS (DISSOLVED)</b>									
Antimony	NELAP	0.0004	0.0010		< 0.0010	mg/L	5	06/29/2022 4:20	193827
Arsenic	NELAP	0.0004	0.0010	J	0.0008	mg/L	5	06/26/2022 8:53	193827
Barium	NELAP	0.0007	0.0010		0.342	mg/L	5	06/29/2022 4:20	193827
Beryllium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	06/29/2022 4:20	193827
Boron	NELAP	0.0092	0.0250		0.0786	mg/L	5	06/29/2022 4:20	193827
Cadmium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	06/29/2022 4:20	193827
Calcium	NELAP	0.0800	0.125		143	mg/L	5	07/01/2022 15:08	193827
Chromium	NELAP	0.0007	0.0015		< 0.0015	mg/L	5	06/29/2022 4:20	193827
Cobalt	NELAP	0.0001	0.0010		0.0025	mg/L	5	06/29/2022 4:20	193827
Lead	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	06/29/2022 4:20	193827
Lithium	*	0.0015	0.0030		0.0135	mg/L	5	06/29/2022 4:20	193827
Molybdenum	NELAP	0.0006	0.0015		< 0.0015	mg/L	5	06/29/2022 4:20	193827
Nickel	NELAP	0.0004	0.0010		0.0054	mg/L	5	07/01/2022 15:08	193827
Selenium	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	06/26/2022 8:53	193827
Thallium	NELAP	0.0010	0.0020		< 0.0020	mg/L	5	06/29/2022 4:20	193827
<b>SW-846 3005A, 6020A, METALS BY ICPMS (TOTAL)</b>									
Antimony	NELAP	0.0004	0.0010		< 0.0010	mg/L	5	07/01/2022 11:39	191827
Arsenic	NELAP	0.0004	0.0010		0.0017	mg/L	5	06/26/2022 14:04	191827
Barium	NELAP	0.0007	0.0010		0.407	mg/L	5	07/01/2022 11:39	191827
Beryllium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	07/01/2022 11:39	191827
Boron	NELAP	0.0092	0.0250		0.118	mg/L	5	07/01/2022 11:39	191827
Cadmium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	07/01/2022 11:39	191827
Calcium	NELAP	0.0700	0.125		135	mg/L	5	07/05/2022 11:05	191827
Chromium	NELAP	0.0007	0.0015		< 0.0015	mg/L	5	07/05/2022 11:05	191827
Cobalt	NELAP	0.0001	0.0010		0.0034	mg/L	5	07/01/2022 11:39	191827
Iron	NELAP	0.0115	0.0250		0.758	mg/L	5	07/01/2022 11:39	191827
Lead	NELAP	0.0006	0.0010		0.0010	mg/L	5	07/01/2022 11:39	191827
Lithium	*	0.0015	0.0030		0.0180	mg/L	5	07/01/2022 11:39	191827
Manganese	NELAP	0.0008	0.0020		1.16	mg/L	5	07/01/2022 11:39	191827
Molybdenum	NELAP	0.0006	0.0015		< 0.0015	mg/L	5	07/01/2022 11:39	191827
Nickel	NELAP	0.0004	0.0010		0.0070	mg/L	5	07/01/2022 11:39	191827
Selenium	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	06/26/2022 14:04	191827
Thallium	NELAP	0.0010	0.0020		< 0.0020	mg/L	5	07/01/2022 11:39	191827
<b>SW-846 7470A (TOTAL)</b>									
Mercury	NELAP	0.00006	0.00020		< 0.00020	mg/L	1	06/21/2022 18:41	181135



# Laboratory Results

<http://www.teklabinc.com/>

Client: ERM  
Client Project: GTEC  
Lab ID: 22061207-006  
Matrix: GROUNDWATER

Work Order: 22061207  
Report Date: 20-Jul-22  
Client Sample ID: APW-10D-WG-20220615  
Collection Date: 06/15/2022 14:55

Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed	Batch
<b>EPA 903.0/904.0, RADIUM 226/228</b>									
Radium-226	*	0	0		See Attached	pci/L	1	07/05/2022 0:00	R314646
Radium-228	*	0	0		See Attached	pci/L	1	07/05/2022 0:00	R314646



# Laboratory Results

<http://www.teklabinc.com/>

Client: ERM  
 Client Project: GTEC  
 Lab ID: 22061207-007  
 Matrix: GROUNDWATER

Work Order: 22061207  
 Report Date: 20-Jul-22  
 Client Sample ID: APW-07-WG-20220616  
 Collection Date: 06/16/2022 7:15

Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed	Batch
<b>STANDARD METHODS 2540 C (TOTAL) 1997, 2011</b>									
Total Dissolved Solids	NELAP	40	50		780	mg/L	2.5	06/20/2022 10:25	R313502
<b>SW-846 9036 (TOTAL)</b>									
Sulfate	NELAP	12	20		72	mg/L	2	06/23/2022 14:23	R313623
<b>SW-846 9040B, LABORATORY ANALYZED</b>									
Lab pH	NELAP	0	1.00		6.88		1	06/22/2022 13:20	R313558
<b>SW-846 9214 (TOTAL)</b>									
Fluoride	NELAP	0.04	0.10		0.18	mg/L	1	06/21/2022 10:53	R313505
<b>SW-846 9251 (TOTAL)</b>									
Chloride	NELAP	1	1		11	mg/L	1	06/21/2022 21:53	R313492
<b>SW-846 3005A, 6020A, METALS BY ICPMS (DISSOLVED)</b>									
Antimony	NELAP	0.0004	0.0010		< 0.0010	mg/L	5	06/29/2022 4:26	193827
Arsenic	NELAP	0.0004	0.0010		0.0011	mg/L	5	06/26/2022 9:54	193827
Barium	NELAP	0.0007	0.0010		0.334	mg/L	5	06/29/2022 4:26	193827
Beryllium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	06/29/2022 4:26	193827
Boron	NELAP	0.0092	0.0250		0.148	mg/L	5	06/26/2022 9:54	193827
Cadmium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	06/29/2022 4:26	193827
Calcium	NELAP	0.0800	0.125		222	mg/L	5	07/01/2022 15:14	193827
Chromium	NELAP	0.0007	0.0015		< 0.0015	mg/L	5	06/29/2022 4:26	193827
Cobalt	NELAP	0.0001	0.0010		< 0.0010	mg/L	5	06/29/2022 4:26	193827
Lead	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	06/29/2022 4:26	193827
Lithium	*	0.0015	0.0030		0.0126	mg/L	5	06/29/2022 4:26	193827
Molybdenum	NELAP	0.0006	0.0015		0.0026	mg/L	5	06/29/2022 4:26	193827
Nickel	NELAP	0.0004	0.0010	J	0.0008	mg/L	5	07/01/2022 15:14	193827
Selenium	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	06/26/2022 9:54	193827
Thallium	NELAP	0.0010	0.0020		< 0.0020	mg/L	5	06/29/2022 4:26	193827
<b>SW-846 3005A, 6020A, METALS BY ICPMS (TOTAL)</b>									
Antimony	NELAP	0.0004	0.0010		< 0.0010	mg/L	5	06/29/2022 6:19	193823
Arsenic	NELAP	0.0004	0.0010		0.0023	mg/L	5	06/26/2022 11:01	193823
Barium	NELAP	0.0007	0.0010		0.374	mg/L	5	06/29/2022 6:19	193823
Beryllium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	06/29/2022 6:19	193823
Boron	NELAP	0.0092	0.0250		0.168	mg/L	5	06/26/2022 11:01	193823
Cadmium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	06/29/2022 6:19	193823
Calcium	NELAP	0.0700	0.125		238	mg/L	5	07/01/2022 12:24	193823
Chromium	NELAP	0.0007	0.0015		0.0041	mg/L	5	06/29/2022 6:19	193823
Cobalt	NELAP	0.0001	0.0010	J	0.0010	mg/L	5	06/29/2022 6:19	193823
Iron	NELAP	0.0150	0.0250		17.3	mg/L	5	06/29/2022 6:19	193823
Lead	NELAP	0.0006	0.0010		0.0074	mg/L	5	06/29/2022 6:19	193823
Lithium	*	0.0015	0.0030		0.0143	mg/L	5	06/29/2022 6:19	193823
Manganese	NELAP	0.0020	0.0020		1.11	mg/L	5	06/29/2022 6:19	193823
Molybdenum	NELAP	0.0006	0.0015		0.0035	mg/L	5	07/01/2022 12:24	193823
Nickel	NELAP	0.0004	0.0010		0.0042	mg/L	5	06/29/2022 6:19	193823
Selenium	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	06/26/2022 11:01	193823
Thallium	NELAP	0.0010	0.0020		< 0.0020	mg/L	5	06/29/2022 6:19	193823
<i>Sample result(s) for B exceed 10 times the CCB. Data is reportable per the TNI Standard.</i>									
<b>SW-846 7470A (TOTAL)</b>									
Mercury	NELAP	0.00006	0.00020		< 0.00020	mg/L	1	06/21/2022 18:48	181135



# Laboratory Results

<http://www.teklabinc.com/>

Client: ERM  
Client Project: GTEC  
Lab ID: 22061207-007  
Matrix: GROUNDWATER

Work Order: 22061207  
Report Date: 20-Jul-22  
Client Sample ID: APW-07-WG-20220616  
Collection Date: 06/16/2022 7:15

Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed	Batch
<b>EPA 903.0/904.0, RADIUM 226/228</b>									
Radium-226	*	0	0		See Attached	pci/L	1	07/05/2022 0:00	R314646
Radium-228	*	0	0		See Attached	pci/L	1	07/05/2022 0:00	R314646



# Laboratory Results

<http://www.teklabinc.com/>

Client: ERM  
 Client Project: GTEC  
 Lab ID: 22061207-008  
 Matrix: GROUNDWATER

Work Order: 22061207  
 Report Date: 20-Jul-22  
 Client Sample ID: APW-08-WG-20220616  
 Collection Date: 06/16/2022 9:00

Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed	Batch
<b>STANDARD METHODS 2540 C (TOTAL) 1997, 2011</b>									
Total Dissolved Solids	NELAP	16	20		382	mg/L	1	06/20/2022 10:26	R313502
<b>SW-846 9036 (TOTAL)</b>									
Sulfate	NELAP	6	10		39	mg/L	1	06/21/2022 22:01	R313491
<b>SW-846 9040B, LABORATORY ANALYZED</b>									
Lab pH	NELAP	0	1.00		7.34		1	06/22/2022 13:23	R313558
<b>SW-846 9214 (TOTAL)</b>									
Fluoride	NELAP	0.04	0.10		0.29	mg/L	1	06/21/2022 10:55	R313505
<b>SW-846 9251 (TOTAL)</b>									
Chloride	NELAP	1	1		9	mg/L	1	06/21/2022 22:01	R313492
<b>SW-846 3005A, 6020A, METALS BY ICPMS (DISSOLVED)</b>									
Antimony	NELAP	0.0004	0.0010		< 0.0010	mg/L	5	06/29/2022 4:32	193827
Arsenic	NELAP	0.0004	0.0010		0.0011	mg/L	5	06/26/2022 10:00	193827
Barium	NELAP	0.0007	0.0010		0.194	mg/L	5	06/29/2022 4:32	193827
Beryllium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	06/29/2022 4:32	193827
Boron	NELAP	0.0092	0.0250		0.0777	mg/L	5	06/26/2022 10:00	193827
Cadmium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	06/29/2022 4:32	193827
Calcium	NELAP	0.0800	0.125		108	mg/L	5	07/01/2022 15:19	193827
Chromium	NELAP	0.0007	0.0015		< 0.0015	mg/L	5	06/29/2022 4:32	193827
Cobalt	NELAP	0.0001	0.0010		0.0013	mg/L	5	06/29/2022 4:32	193827
Lead	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	06/29/2022 4:32	193827
Lithium	*	0.0015	0.0030		0.0141	mg/L	5	06/29/2022 4:32	193827
Molybdenum	NELAP	0.0006	0.0015	J	0.0008	mg/L	5	06/29/2022 4:32	193827
Nickel	NELAP	0.0004	0.0010		0.0023	mg/L	5	07/01/2022 15:19	193827
Selenium	NELAP	0.0006	0.0010		0.0027	mg/L	5	06/26/2022 10:00	193827
Thallium	NELAP	0.0010	0.0020		< 0.0020	mg/L	5	06/29/2022 4:32	193827
<b>SW-846 3005A, 6020A, METALS BY ICPMS (TOTAL)</b>									
Antimony	NELAP	0.0004	0.0010		< 0.0010	mg/L	5	06/29/2022 6:25	193823
Arsenic	NELAP	0.0004	0.0010		0.0022	mg/L	5	06/26/2022 11:07	193823
Barium	NELAP	0.0007	0.0010		0.235	mg/L	5	06/29/2022 6:25	193823
Beryllium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	06/29/2022 6:25	193823
Boron	NELAP	0.0092	0.0250		0.115	mg/L	5	06/29/2022 6:25	193823
Cadmium	NELAP	0.0002	0.0010	J	0.0002	mg/L	5	06/29/2022 6:25	193823
Calcium	NELAP	0.140	0.250		93.3	mg/L	10	07/05/2022 11:58	193823
Chromium	NELAP	0.0007	0.0015		0.0054	mg/L	5	06/29/2022 6:25	193823
Cobalt	NELAP	0.0001	0.0010		0.0020	mg/L	5	06/29/2022 6:25	193823
Iron	NELAP	0.0150	0.0250		3.14	mg/L	5	06/29/2022 6:25	193823
Lead	NELAP	0.0006	0.0010		0.0024	mg/L	5	06/29/2022 6:25	193823
Lithium	*	0.0015	0.0030		0.0160	mg/L	5	06/29/2022 6:25	193823
Manganese	NELAP	0.0020	0.0020		0.202	mg/L	5	06/29/2022 6:25	193823
Molybdenum	NELAP	0.0006	0.0015	J	0.0015	mg/L	5	06/29/2022 6:25	193823
Nickel	NELAP	0.0004	0.0010		0.0054	mg/L	5	06/29/2022 6:25	193823
Selenium	NELAP	0.0006	0.0010		0.0036	mg/L	5	06/26/2022 11:07	193823
Thallium	NELAP	0.0010	0.0020		< 0.0020	mg/L	5	06/29/2022 6:25	193823
<b>SW-846 7470A (TOTAL)</b>									
Mercury	NELAP	0.00006	0.00020		< 0.00020	mg/L	1	06/21/2022 18:51	181135



# Laboratory Results

<http://www.teklabinc.com/>

Client: ERM  
Client Project: GTEC  
Lab ID: 22061207-008  
Matrix: GROUNDWATER

Work Order: 22061207  
Report Date: 20-Jul-22  
Client Sample ID: APW-08-WG-20220616  
Collection Date: 06/16/2022 9:00

Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed	Batch
<b>EPA 903.0/904.0, RADIUM 226/228</b>									
Radium-226	*	0	0		See Attached	pci/L	1	07/05/2022 0:00	R314646
Radium-228	*	0	0		See Attached	pci/L	1	07/05/2022 0:00	R314646



# Laboratory Results

<http://www.teklabinc.com/>

Client: ERM  
 Client Project: GTEC  
 Lab ID: 22061207-009  
 Matrix: GROUNDWATER

Work Order: 22061207  
 Report Date: 20-Jul-22  
 Client Sample ID: APW-03-WG-20220616  
 Collection Date: 06/16/2022 10:30

Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed	Batch
<b>STANDARD METHODS 2540 C (TOTAL) 1997, 2011</b>									
Total Dissolved Solids	NELAP	16	20		724	mg/L	1	06/20/2022 10:26	R313502
<b>SW-846 9036 (TOTAL)</b>									
Sulfate	NELAP	61	100		393	mg/L	10	06/21/2022 22:30	R313491
<b>SW-846 9040B, LABORATORY ANALYZED</b>									
Lab pH	NELAP	0	1.00		7.85		1	06/22/2022 13:26	R313558
<b>SW-846 9214 (TOTAL)</b>									
Fluoride	NELAP	0.04	0.10		0.26	mg/L	1	06/21/2022 11:06	R313505
<b>SW-846 9251 (TOTAL)</b>									
Chloride	NELAP	1	4		20	mg/L	1	06/23/2022 14:26	R313624
<b>SW-846 3005A, 6020A, METALS BY ICPMS (DISSOLVED)</b>									
Antimony	NELAP	0.0004	0.0010		< 0.0010	mg/L	5	06/29/2022 4:38	193827
Arsenic	NELAP	0.0004	0.0010		0.0015	mg/L	5	06/26/2022 10:05	193827
Barium	NELAP	0.0007	0.0010		0.139	mg/L	5	06/29/2022 4:38	193827
Beryllium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	06/29/2022 4:38	193827
Boron	NELAP	0.0092	0.0250		4.23	mg/L	5	06/26/2022 10:05	193827
Cadmium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	06/29/2022 4:38	193827
Calcium	NELAP	0.0800	0.125		174	mg/L	5	07/01/2022 15:25	193827
Chromium	NELAP	0.0007	0.0015	J	0.0011	mg/L	5	06/29/2022 4:38	193827
Cobalt	NELAP	0.0001	0.0010		< 0.0010	mg/L	5	06/29/2022 4:38	193827
Lead	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	06/29/2022 4:38	193827
Lithium	*	0.0015	0.0030		0.0338	mg/L	5	06/29/2022 4:38	193827
Molybdenum	NELAP	0.0006	0.0015		0.0570	mg/L	5	06/29/2022 4:38	193827
Nickel	NELAP	0.0004	0.0010		0.0016	mg/L	5	07/01/2022 15:25	193827
Selenium	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	06/26/2022 10:05	193827
Thallium	NELAP	0.0010	0.0020		< 0.0020	mg/L	5	06/29/2022 4:38	193827
<b>SW-846 3005A, 6020A, METALS BY ICPMS (TOTAL)</b>									
Antimony	NELAP	0.0004	0.0010		< 0.0010	mg/L	5	06/29/2022 6:31	193823
Arsenic	NELAP	0.0004	0.0010		0.0020	mg/L	5	06/26/2022 11:12	193823
Barium	NELAP	0.0007	0.0010		0.158	mg/L	5	06/29/2022 6:31	193823
Beryllium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	06/29/2022 6:31	193823
Boron	NELAP	0.0092	0.0250		4.27	mg/L	5	06/26/2022 11:12	193823
Cadmium	NELAP	0.0002	0.0010	J	0.0002	mg/L	5	06/29/2022 6:31	193823
Calcium	NELAP	0.140	0.250		153	mg/L	10	07/05/2022 12:04	193823
Chromium	NELAP	0.0007	0.0015		0.0044	mg/L	5	06/29/2022 6:31	193823
Cobalt	NELAP	0.0001	0.0010	J	0.0005	mg/L	5	06/29/2022 6:31	193823
Iron	NELAP	0.0150	0.0250		1.66	mg/L	5	06/29/2022 6:31	193823
Lead	NELAP	0.0006	0.0010		0.0013	mg/L	5	06/29/2022 6:31	193823
Lithium	*	0.0015	0.0030		0.0361	mg/L	5	06/29/2022 6:31	193823
Manganese	NELAP	0.0020	0.0020		0.321	mg/L	5	06/29/2022 6:31	193823
Molybdenum	NELAP	0.0006	0.0015		0.0601	mg/L	5	06/29/2022 6:31	193823
Nickel	NELAP	0.0004	0.0010		0.0033	mg/L	5	06/29/2022 6:31	193823
Selenium	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	06/26/2022 11:12	193823
Thallium	NELAP	0.0010	0.0020		< 0.0020	mg/L	5	06/29/2022 6:31	193823
<i>Sample result(s) for B exceed 10 times the CCB. Data is reportable per the TNI Standard.</i>									
<b>SW-846 7470A (TOTAL)</b>									
Mercury	NELAP	0.00006	0.00020		< 0.00020	mg/L	1	06/21/2022 18:57	181135



# Laboratory Results

<http://www.teklabinc.com/>

Client: ERM Work Order: 22061207  
Client Project: GTEC Report Date: 20-Jul-22  
Lab ID: 22061207-009 Client Sample ID: APW-03-WG-20220616  
Matrix: GROUNDWATER Collection Date: 06/16/2022 10:30

Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed	Batch
<b>EPA 903.0/904.0, RADIUM 226/228</b>									
Radium-226	*	0	0		See Attached	pci/L	1	07/05/2022 0:00	R314646
Radium-228	*	0	0		See Attached	pci/L	1	07/05/2022 0:00	R314646



## Laboratory Results

<http://www.teklabinc.com/>

Client: ERM  
 Client Project: GTEC  
 Lab ID: 22061207-010  
 Matrix: GROUNDWATER

Work Order: 22061207  
 Report Date: 20-Jul-22  
 Client Sample ID: APW-6S-WG-20220616  
 Collection Date: 06/16/2022 12:00

Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed	Batch
<b>STANDARD METHODS 2540 C (TOTAL) 1997, 2011</b>									
Total Dissolved Solids	NELAP	40	50		600	mg/L	2.5	06/20/2022 10:26	R313502
<b>SW-846 9036 (TOTAL)</b>									
Sulfate	NELAP	61	100		200	mg/L	10	06/21/2022 22:43	R313491
<b>SW-846 9040B, LABORATORY ANALYZED</b>									
Lab pH	NELAP	0	1.00		7.24		1	06/22/2022 13:28	R313558
<b>SW-846 9214 (TOTAL)</b>									
Fluoride	NELAP	0.04	0.10		0.29	mg/L	1	06/21/2022 11:08	R313505
<b>SW-846 9251 (TOTAL)</b>									
Chloride	NELAP	1	8		24	mg/L	2	06/23/2022 16:07	R313624
<b>SW-846 3005A, 6020A, METALS BY ICPMS (DISSOLVED)</b>									
Antimony	NELAP	0.0004	0.0010		< 0.0010	mg/L	5	06/29/2022 4:45	193827
Arsenic	NELAP	0.0004	0.0010	J	0.0009	mg/L	5	06/26/2022 10:11	193827
Barium	NELAP	0.0007	0.0010		0.233	mg/L	5	06/29/2022 4:45	193827
Beryllium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	06/29/2022 4:45	193827
Boron	NELAP	0.0092	0.0250		4.92	mg/L	5	06/26/2022 10:11	193827
Cadmium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	06/29/2022 4:45	193827
Calcium	NELAP	0.0800	0.125		124	mg/L	5	07/01/2022 15:31	193827
Chromium	NELAP	0.0007	0.0015		< 0.0015	mg/L	5	06/29/2022 4:45	193827
Cobalt	NELAP	0.0001	0.0010	J	0.0002	mg/L	5	06/29/2022 4:45	193827
Lead	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	06/29/2022 4:45	193827
Lithium	*	0.0015	0.0030		0.0355	mg/L	5	06/29/2022 4:45	193827
Molybdenum	NELAP	0.0006	0.0015		0.229	mg/L	5	06/29/2022 4:45	193827
Nickel	NELAP	0.0004	0.0010		0.0015	mg/L	5	07/01/2022 15:31	193827
Selenium	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	06/26/2022 10:11	193827
Thallium	NELAP	0.0010	0.0020		< 0.0020	mg/L	5	06/29/2022 4:45	193827
<b>SW-846 3005A, 6020A, METALS BY ICPMS (TOTAL)</b>									
Antimony	NELAP	0.0004	0.0010		< 0.0010	mg/L	5	06/29/2022 6:38	193823
Arsenic	NELAP	0.0004	0.0010	J	0.0009	mg/L	5	06/26/2022 11:18	193823
Barium	NELAP	0.0007	0.0010		0.250	mg/L	5	06/29/2022 6:38	193823
Beryllium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	06/29/2022 6:38	193823
Boron	NELAP	0.0092	0.0250		4.77	mg/L	5	06/26/2022 11:18	193823
Cadmium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	06/29/2022 6:38	193823
Calcium	NELAP	0.140	0.250		115	mg/L	10	07/05/2022 12:10	193823
Chromium	NELAP	0.0007	0.0015		0.0028	mg/L	5	06/29/2022 6:38	193823
Cobalt	NELAP	0.0001	0.0010	J	0.0002	mg/L	5	06/29/2022 6:38	193823
Iron	NELAP	0.0150	0.0250		9.35	mg/L	5	06/29/2022 6:38	193823
Lead	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	06/29/2022 6:38	193823
Lithium	*	0.0015	0.0030		0.0363	mg/L	5	06/29/2022 6:38	193823
Manganese	NELAP	0.0020	0.0020		0.530	mg/L	5	06/29/2022 6:38	193823
Molybdenum	NELAP	0.0006	0.0015		0.237	mg/L	5	06/29/2022 6:38	193823
Nickel	NELAP	0.0004	0.0010		0.0027	mg/L	5	06/29/2022 6:38	193823
Selenium	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	06/26/2022 11:18	193823
Thallium	NELAP	0.0010	0.0020		< 0.0020	mg/L	5	06/29/2022 6:38	193823
<i>Sample result(s) for B exceed 10 times the CCB. Data is reportable per the TNI Standard.</i>									
<b>SW-846 7470A (TOTAL)</b>									
Mercury	NELAP	0.00006	0.00020		< 0.00020	mg/L	1	06/21/2022 19:00	181135



# Laboratory Results

<http://www.teklabinc.com/>

Client: ERM  
Client Project: GTEC  
Lab ID: 22061207-010  
Matrix: GROUNDWATER

Work Order: 22061207  
Report Date: 20-Jul-22  
Client Sample ID: APW-6S-WG-20220616  
Collection Date: 06/16/2022 12:00

Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed	Batch
<b>EPA 903.0/904.0, RADIUM 226/228</b>									
Radium-226	*	0	0		See Attached	pci/L	1	07/05/2022 0:00	R314646
Radium-228	*	0	0		See Attached	pci/L	1	07/05/2022 0:00	R314646



# Laboratory Results

<http://www.teklabinc.com/>

Client: ERM  
 Client Project: GTEC  
 Lab ID: 22061207-011  
 Matrix: GROUNDWATER

Work Order: 22061207  
 Report Date: 20-Jul-22  
 Client Sample ID: APW-05-WG-20220616  
 Collection Date: 06/16/2022 13:00

Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed	Batch
<b>STANDARD METHODS 2540 C (TOTAL) 1997, 2011</b>									
Total Dissolved Solids	NELAP	40	50		650	mg/L	2.5	06/20/2022 10:26	R313502
<b>SW-846 9036 (TOTAL)</b>									
Sulfate	NELAP	61	100		224	mg/L	10	06/21/2022 22:59	R313491
<b>SW-846 9040B, LABORATORY ANALYZED</b>									
Lab pH	NELAP	0	1.00		7.35		1	06/22/2022 13:31	R313558
<b>SW-846 9214 (TOTAL)</b>									
Fluoride	NELAP	0.04	0.10		0.35	mg/L	1	06/21/2022 11:10	R313505
<b>SW-846 9251 (TOTAL)</b>									
Chloride	NELAP	1	4		19	mg/L	1	06/23/2022 14:42	R313624
<b>SW-846 3005A, 6020A, METALS BY ICPMS (DISSOLVED)</b>									
Antimony	NELAP	0.0004	0.0010		< 0.0010	mg/L	5	06/29/2022 5:54	193827
Arsenic	NELAP	0.0004	0.0010		0.0020	mg/L	5	06/26/2022 10:16	193827
Barium	NELAP	0.0007	0.0010		0.133	mg/L	5	06/29/2022 5:54	193827
Beryllium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	06/29/2022 5:54	193827
Boron	NELAP	0.0092	0.0250		7.63	mg/L	5	06/26/2022 10:16	193827
Cadmium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	06/29/2022 5:54	193827
Calcium	NELAP	0.0800	0.125		139	mg/L	5	07/01/2022 15:36	193827
Chromium	NELAP	0.0007	0.0015		< 0.0015	mg/L	5	06/29/2022 5:54	193827
Cobalt	NELAP	0.0001	0.0010	J	0.0006	mg/L	5	06/29/2022 5:54	193827
Lead	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	06/29/2022 5:54	193827
Lithium	*	0.0015	0.0030		0.0282	mg/L	5	06/29/2022 5:54	193827
Molybdenum	NELAP	0.0006	0.0015		0.172	mg/L	5	06/29/2022 5:54	193827
Nickel	NELAP	0.0004	0.0010		0.0036	mg/L	5	07/01/2022 15:36	193827
Selenium	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	06/26/2022 10:16	193827
Thallium	NELAP	0.0010	0.0020		< 0.0020	mg/L	5	06/29/2022 5:54	193827
<b>SW-846 3005A, 6020A, METALS BY ICPMS (TOTAL)</b>									
Antimony	NELAP	0.0004	0.0010		< 0.0010	mg/L	5	07/01/2022 12:47	193823
Arsenic	NELAP	0.0004	0.0010		0.0048	mg/L	5	06/26/2022 11:23	193823
Barium	NELAP	0.0007	0.0010		0.187	mg/L	5	07/01/2022 12:47	193823
Beryllium	NELAP	0.0005	0.0020		< 0.0020	mg/L	10	07/06/2022 10:10	193823
Boron	NELAP	0.0092	0.0250		7.67	mg/L	5	06/26/2022 11:23	193823
Cadmium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	07/01/2022 12:47	193823
Calcium	NELAP	0.140	0.250		127	mg/L	10	07/05/2022 12:16	193823
Chromium	NELAP	0.0014	0.0030	J	0.0016	mg/L	10	07/05/2022 12:16	193823
Cobalt	NELAP	0.0002	0.0020	J	0.0013	mg/L	10	07/05/2022 12:16	193823
Iron	NELAP	0.0230	0.0500		2.77	mg/L	10	07/05/2022 12:16	193823
Lead	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	07/01/2022 12:47	193823
Lithium	*	0.0029	0.0060		0.0331	mg/L	10	07/05/2022 12:16	193823
Manganese	NELAP	0.0015	0.0040		0.900	mg/L	10	07/05/2022 12:16	193823
Molybdenum	NELAP	0.0006	0.0015		0.203	mg/L	5	07/01/2022 12:47	193823
Nickel	NELAP	0.0009	0.0020		0.0037	mg/L	10	07/05/2022 12:16	193823
Selenium	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	06/26/2022 11:23	193823
Thallium	NELAP	0.0010	0.0020		< 0.0020	mg/L	5	07/01/2022 12:47	193823

Be - Elevated reporting limit due to matrix interference.

Cr and Co - Elevated reporting limit due to matrix interference.

Sample result(s) for B exceed 10 times the CCB. Data is reportable per the TNI Standard.



# Laboratory Results

<http://www.teklabinc.com/>

Client: ERM  
 Client Project: GTEC  
 Lab ID: 22061207-011  
 Matrix: GROUNDWATER

Work Order: 22061207  
 Report Date: 20-Jul-22  
 Client Sample ID: APW-05-WG-20220616  
 Collection Date: 06/16/2022 13:00

Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed	Batch
<b>SW-846 7470A (TOTAL)</b>									
Mercury	NELAP	0.00006	0.00020		< 0.00020	mg/L	1	06/21/2022 19:02	181135
<b>EPA 903.0/904.0, RADIUM 226/228</b>									
Radium-226	*	0	0		See Attached	pci/L	1	07/05/2022 0:00	R314646
Radium-228	*	0	0		See Attached	pci/L	1	07/05/2022 0:00	R314646



# Laboratory Results

<http://www.teklabinc.com/>

Client: ERM  
 Client Project: GTEC  
 Lab ID: 22061207-012  
 Matrix: GROUNDWATER

Work Order: 22061207  
 Report Date: 20-Jul-22  
 Client Sample ID: DUP-001-WG-20220616  
 Collection Date: 06/16/2022 0:00

Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed	Batch
<b>STANDARD METHODS 2540 C (TOTAL) 1997, 2011</b>									
Total Dissolved Solids	NELAP	16	20		690	mg/L	1	06/20/2022 10:27	R313502
<b>SW-846 9036 (TOTAL)</b>									
Sulfate	NELAP	61	100		239	mg/L	10	06/21/2022 23:24	R313491
<b>SW-846 9040B, LABORATORY ANALYZED</b>									
Lab pH	NELAP	0	1.00		7.49		1	06/22/2022 13:34	R313558
<b>SW-846 9214 (TOTAL)</b>									
Fluoride	NELAP	0.07	0.20		0.33	mg/L	2	06/21/2022 16:23	R313505
<b>SW-846 9251 (TOTAL)</b>									
Chloride	NELAP	1	4		19	mg/L	1	06/23/2022 14:45	R313624
<b>SW-846 3005A, 6020A, METALS BY ICPMS (DISSOLVED)</b>									
Antimony	NELAP	0.0004	0.0010		< 0.0010	mg/L	5	06/29/2022 6:00	193827
Arsenic	NELAP	0.0004	0.0010		0.0021	mg/L	5	06/26/2022 10:22	193827
Barium	NELAP	0.0007	0.0010		0.132	mg/L	5	06/29/2022 6:00	193827
Beryllium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	06/29/2022 6:00	193827
Boron	NELAP	0.0092	0.0250		7.70	mg/L	5	06/26/2022 10:22	193827
Cadmium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	06/29/2022 6:00	193827
Calcium	NELAP	0.0800	0.125		141	mg/L	5	07/01/2022 15:42	193827
Chromium	NELAP	0.0007	0.0015		< 0.0015	mg/L	5	06/29/2022 6:00	193827
Cobalt	NELAP	0.0001	0.0010	J	0.0005	mg/L	5	06/29/2022 6:00	193827
Lead	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	06/29/2022 6:00	193827
Lithium	*	0.0015	0.0030		0.0290	mg/L	5	06/29/2022 6:00	193827
Molybdenum	NELAP	0.0006	0.0015		0.170	mg/L	5	06/29/2022 6:00	193827
Nickel	NELAP	0.0004	0.0010		0.0035	mg/L	5	07/01/2022 15:42	193827
Selenium	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	06/26/2022 10:22	193827
Thallium	NELAP	0.0010	0.0020		< 0.0020	mg/L	5	06/29/2022 6:00	193827
<b>SW-846 3005A, 6020A, METALS BY ICPMS (TOTAL)</b>									
Antimony	NELAP	0.0004	0.0010		< 0.0010	mg/L	5	07/01/2022 13:04	193823
Arsenic	NELAP	0.0004	0.0010		0.0041	mg/L	5	06/26/2022 11:40	193823
Barium	NELAP	0.0007	0.0010		0.174	mg/L	5	07/01/2022 13:04	193823
Beryllium	NELAP	0.0005	0.0020		< 0.0020	mg/L	10	07/06/2022 10:27	193823
Boron	NELAP	0.0092	0.0250	S	8.24	mg/L	5	06/26/2022 11:40	193823
Cadmium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	07/01/2022 13:04	193823
Calcium	NELAP	0.140	0.250	S	129	mg/L	10	07/06/2022 10:27	193823
Chromium	NELAP	0.0014	0.0030		< 0.0030	mg/L	10	07/05/2022 12:39	193823
Cobalt	NELAP	0.0002	0.0020	J	0.0011	mg/L	10	07/05/2022 12:39	193823
Iron	NELAP	0.0230	0.0500		1.89	mg/L	10	07/06/2022 10:27	193823
Lead	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	07/01/2022 13:04	193823
Lithium	*	0.0029	0.0060		0.0363	mg/L	10	07/06/2022 10:27	193823
Manganese	NELAP	0.0015	0.0040		0.904	mg/L	10	07/06/2022 10:27	193823
Molybdenum	NELAP	0.0006	0.0015		0.195	mg/L	5	07/01/2022 13:04	193823
Nickel	NELAP	0.0009	0.0020		0.0039	mg/L	10	07/05/2022 12:39	193823
Selenium	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	06/26/2022 11:40	193823
Thallium	NELAP	0.0010	0.0020		< 0.0020	mg/L	5	07/01/2022 13:04	193823



# Laboratory Results

<http://www.teklabinc.com/>

Client: ERM	Work Order: 22061207
Client Project: GTEC	Report Date: 20-Jul-22
Lab ID: 22061207-012	Client Sample ID: DUP-001-WG-20220616
Matrix: GROUNDWATER	Collection Date: 06/16/2022 0:00

Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed	Batch
<b>SW-846 3005A, 6020A, METALS BY ICPMS (TOTAL)</b>									
<i>Matrix spike control limits for Ca are not applicable due to high sample/spike ratio.</i>									
<i>Be - Elevated reporting limit due to matrix interference.</i>									
<i>Cr and Co - Elevated reporting limit due to matrix interference.</i>									
<i>Sample result(s) for B exceed 10 times the CCB. Data is reportable per the TNI Standard.</i>									
<i>Matrix spike control limits for B are not applicable due to high sample/spike ratio.</i>									
<b>SW-846 7470A (TOTAL)</b>									
Mercury	NELAP	0.00006	0.00020		< 0.00020	mg/L	1	06/21/2022 19:04	181135
<b>EPA 903.0/904.0, RADIUM 226/228</b>									
Radium-226	*	0	0		See Attached	pci/L	1	07/05/2022 0:00	R314646
Radium-228	*	0	0		See Attached	pci/L	1	07/05/2022 0:00	R314646



# Laboratory Results

<http://www.teklabinc.com/>

Client: ERM  
 Client Project: GTEC  
 Lab ID: 22061207-013  
 Matrix: GROUNDWATER

Work Order: 22061207  
 Report Date: 20-Jul-22  
 Client Sample ID: APW-02-WG-20220616  
 Collection Date: 06/16/2022 15:10

Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed	Batch
<b>STANDARD METHODS 2540 C (TOTAL) 1997, 2011</b>									
Total Dissolved Solids	NELAP	40	50		930	mg/L	2.5	06/20/2022 10:27	R313502
<b>SW-846 9036 (TOTAL)</b>									
Sulfate	NELAP	123	200		496	mg/L	20	06/23/2022 14:53	R313623
<b>SW-846 9040B, LABORATORY ANALYZED</b>									
Lab pH	NELAP	0	1.00		7.21		1	06/22/2022 13:37	R313558
<b>SW-846 9214 (TOTAL)</b>									
Fluoride	NELAP	0.04	0.10		0.25	mg/L	1	06/21/2022 11:12	R313505
<b>SW-846 9251 (TOTAL)</b>									
Chloride	NELAP	1	4		9	mg/L	1	06/23/2022 14:47	R313624
<b>SW-846 3005A, 6020A, METALS BY ICPMS (DISSOLVED)</b>									
Antimony	NELAP	0.0004	0.0010		< 0.0010	mg/L	5	06/29/2022 6:06	193827
Arsenic	NELAP	0.0004	0.0010		0.0117	mg/L	5	06/26/2022 10:28	193827
Barium	NELAP	0.0007	0.0010		0.154	mg/L	5	06/29/2022 6:06	193827
Beryllium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	06/29/2022 6:06	193827
Boron	NELAP	0.0092	0.0250		8.17	mg/L	5	06/26/2022 10:28	193827
Cadmium	NELAP	0.0002	0.0010	J	0.0003	mg/L	5	06/29/2022 6:06	193827
Calcium	NELAP	0.0800	0.125		175	mg/L	5	07/01/2022 15:48	193827
Chromium	NELAP	0.0007	0.0015		< 0.0015	mg/L	5	06/29/2022 6:06	193827
Cobalt	NELAP	0.0001	0.0010	J	0.0003	mg/L	5	06/29/2022 6:06	193827
Lead	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	06/29/2022 6:06	193827
Lithium	*	0.0015	0.0030		0.0370	mg/L	5	06/29/2022 6:06	193827
Molybdenum	NELAP	0.0006	0.0015		0.201	mg/L	5	06/29/2022 6:06	193827
Nickel	NELAP	0.0004	0.0010		0.0039	mg/L	5	07/01/2022 15:48	193827
Selenium	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	06/26/2022 10:28	193827
Thallium	NELAP	0.0010	0.0020		< 0.0020	mg/L	5	06/29/2022 6:06	193827
<b>SW-846 3005A, 6020A, METALS BY ICPMS (TOTAL)</b>									
Antimony	NELAP	0.0004	0.0010	J	0.0006	mg/L	5	07/01/2022 12:53	193823
Arsenic	NELAP	0.0004	0.0010		0.0158	mg/L	5	06/26/2022 11:29	193823
Barium	NELAP	0.0007	0.0010		0.237	mg/L	5	07/01/2022 12:53	193823
Beryllium	NELAP	0.0005	0.0020		< 0.0020	mg/L	10	07/06/2022 10:16	193823
Boron	NELAP	0.0092	0.0250		8.13	mg/L	5	06/26/2022 11:29	193823
Cadmium	NELAP	0.0002	0.0010	J	0.0006	mg/L	5	07/01/2022 12:53	193823
Calcium	NELAP	0.140	0.250		189	mg/L	10	07/05/2022 12:22	193823
Chromium	NELAP	0.0014	0.0030		0.0254	mg/L	10	07/05/2022 12:22	193823
Cobalt	NELAP	0.0002	0.0020	J	0.0011	mg/L	10	07/05/2022 12:22	193823
Iron	NELAP	0.0230	0.0500		11.7	mg/L	10	07/05/2022 12:22	193823
Lead	NELAP	0.0006	0.0010		0.0022	mg/L	5	07/01/2022 12:53	193823
Lithium	*	0.0029	0.0060		0.0507	mg/L	10	07/05/2022 12:22	193823
Manganese	NELAP	0.0015	0.0040		0.752	mg/L	10	07/05/2022 12:22	193823
Molybdenum	NELAP	0.0006	0.0015		0.240	mg/L	5	07/01/2022 12:53	193823
Nickel	NELAP	0.0009	0.0020		0.0142	mg/L	10	07/05/2022 12:22	193823
Selenium	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	06/26/2022 11:29	193823
Thallium	NELAP	0.0010	0.0020		< 0.0020	mg/L	5	07/01/2022 12:53	193823

Be - Elevated reporting limit due to matrix interference.

Co - Elevated reporting limit due to matrix interference.

Sample result(s) for B exceed 10 times the CCB. Data is reportable per the TNI Standard.



## Laboratory Results

<http://www.teklabinc.com/>

<p>Client: ERM</p> <p>Client Project: GTEC</p> <p>Lab ID: 22061207-013</p> <p>Matrix: GROUNDWATER</p>	<p>Work Order: 22061207</p> <p>Report Date: 20-Jul-22</p> <p>Client Sample ID: APW-02-WG-20220616</p> <p>Collection Date: 06/16/2022 15:10</p>
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Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed	Batch
<b>SW-846 7470A (TOTAL)</b>									
Mercury	NELAP	0.00006	0.00020		< 0.00020	mg/L	1	06/21/2022 19:06	181135
<b>EPA 903.0/904.0, RADIUM 226/228</b>									
Radium-226	*	0	0		See Attached	pci/L	1	07/05/2022 0:00	R314646
Radium-228	*	0	0		See Attached	pci/L	1	07/05/2022 0:00	R314646



# Laboratory Results

<http://www.teklabinc.com/>

Client: ERM  
 Client Project: GTEC  
 Lab ID: 22061207-014  
 Matrix: GROUNDWATER

Work Order: 22061207  
 Report Date: 20-Jul-22  
 Client Sample ID: DUP-002-WG-20220616  
 Collection Date: 06/16/2022 0:00

Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed	Batch
<b>STANDARD METHODS 2540 C (TOTAL) 1997, 2011</b>									
Total Dissolved Solids	NELAP	40	50		905	mg/L	2.5	06/20/2022 10:27	R313502
<b>SW-846 9036 (TOTAL)</b>									
Sulfate	NELAP	123	200		511	mg/L	20	06/23/2022 15:17	R313623
<b>SW-846 9040B, LABORATORY ANALYZED</b>									
Lab pH	NELAP	0	1.00		7.18		1	06/22/2022 13:40	R313558
<b>SW-846 9214 (TOTAL)</b>									
Fluoride	NELAP	0.04	0.10		0.26	mg/L	1	06/21/2022 11:14	R313505
<b>SW-846 9251 (TOTAL)</b>									
Chloride	NELAP	1	4		8	mg/L	1	06/23/2022 15:11	R313624
<b>SW-846 3005A, 6020A, METALS BY ICPMS (DISSOLVED)</b>									
Antimony	NELAP	0.0004	0.0010		< 0.0010	mg/L	5	06/29/2022 6:12	193827
Arsenic	NELAP	0.0004	0.0010		0.0115	mg/L	5	06/26/2022 10:33	193827
Barium	NELAP	0.0007	0.0010		0.157	mg/L	5	06/29/2022 6:12	193827
Beryllium	NELAP	0.0002	0.0010		< 0.0010	mg/L	5	06/29/2022 6:12	193827
Boron	NELAP	0.0092	0.0250		8.16	mg/L	5	06/26/2022 10:33	193827
Cadmium	NELAP	0.0002	0.0010	J	0.0003	mg/L	5	06/29/2022 6:12	193827
Calcium	NELAP	0.0800	0.125		177	mg/L	5	07/01/2022 15:53	193827
Chromium	NELAP	0.0007	0.0015		< 0.0015	mg/L	5	06/29/2022 6:12	193827
Cobalt	NELAP	0.0001	0.0010	J	0.0002	mg/L	5	06/29/2022 6:12	193827
Lead	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	06/29/2022 6:12	193827
Lithium	*	0.0015	0.0030		0.0375	mg/L	5	06/29/2022 6:12	193827
Molybdenum	NELAP	0.0006	0.0015		0.198	mg/L	5	06/29/2022 6:12	193827
Nickel	NELAP	0.0004	0.0010		0.0041	mg/L	5	07/01/2022 15:53	193827
Selenium	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	06/26/2022 10:33	193827
Thallium	NELAP	0.0010	0.0020		< 0.0020	mg/L	5	06/29/2022 6:12	193827
<b>SW-846 3005A, 6020A, METALS BY ICPMS (TOTAL)</b>									
Antimony	NELAP	0.0004	0.0010	J	0.0006	mg/L	5	07/01/2022 12:58	193823
Arsenic	NELAP	0.0004	0.0010		0.0165	mg/L	5	06/26/2022 11:34	193823
Barium	NELAP	0.0007	0.0010		0.234	mg/L	5	07/01/2022 12:58	193823
Beryllium	NELAP	0.0005	0.0020		< 0.0020	mg/L	10	07/06/2022 10:22	193823
Boron	NELAP	0.0092	0.0250		8.50	mg/L	5	06/26/2022 11:34	193823
Cadmium	NELAP	0.0002	0.0010	J	0.0005	mg/L	5	07/01/2022 12:58	193823
Calcium	NELAP	0.140	0.250		182	mg/L	10	07/05/2022 12:28	193823
Chromium	NELAP	0.0014	0.0030		0.0235	mg/L	10	07/05/2022 12:28	193823
Cobalt	NELAP	0.0002	0.0020	J	0.0009	mg/L	10	07/05/2022 12:28	193823
Iron	NELAP	0.0230	0.0500		10.1	mg/L	10	07/05/2022 12:28	193823
Lead	NELAP	0.0006	0.0010		0.0014	mg/L	5	07/01/2022 12:58	193823
Lithium	*	0.0029	0.0060		0.0480	mg/L	10	07/05/2022 12:28	193823
Manganese	NELAP	0.0015	0.0040		0.692	mg/L	10	07/05/2022 12:28	193823
Molybdenum	NELAP	0.0006	0.0015		0.242	mg/L	5	07/01/2022 12:58	193823
Nickel	NELAP	0.0009	0.0020		0.0127	mg/L	10	07/05/2022 12:28	193823
Selenium	NELAP	0.0006	0.0010		< 0.0010	mg/L	5	06/26/2022 11:34	193823
Thallium	NELAP	0.0010	0.0020		< 0.0020	mg/L	5	07/01/2022 12:58	193823

Co - Elevated reporting limit due to matrix interference.

Be - Elevated reporting limit due to matrix interference.

Sample result(s) for B exceed 10 times the CCB. Data is reportable per the TNI Standard.



## Laboratory Results

<http://www.teklabinc.com/>

Client: ERM  
 Client Project: GTEC  
 Lab ID: 22061207-014  
 Matrix: GROUNDWATER

Work Order: 22061207  
 Report Date: 20-Jul-22  
 Client Sample ID: DUP-002-WG-20220616  
 Collection Date: 06/16/2022 0:00

Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed	Batch
<b>SW-846 7470A (TOTAL)</b>									
Mercury	NELAP	0.00006	0.00020		< 0.00020	mg/L	1	06/21/2022 19:09	181135
<b>EPA 903.0/904.0, RADIUM 226/228</b>									
Radium-226	*	0	0		See Attached	pci/L	1	07/05/2022 0:00	R314646
Radium-228	*	0	0		See Attached	pci/L	1	07/05/2022 0:00	R314646

**Client:** ERM

**Work Order:** 22061207

**Client Project:** GTEC

**Report Date:** 20-Jul-22

Lab Sample ID	Client Sample ID	Matrix	Fractions	Collection Date
22061207-001	EB-01-WQ-20220615	Groundwater	4	06/15/2022 7:30
22061207-002	APW-04-WG-20220615	Groundwater	4	06/15/2022 9:15
22061207-003	APW-1R-WG-20220615	Groundwater	4	06/15/2022 10:40
22061207-004	APW-09-WG-20220615	Groundwater	4	06/15/2022 12:10
22061207-005	APW-10S-WG-20220615	Groundwater	4	06/15/2022 13:40
22061207-006	APW-10D-WG-20220615	Groundwater	4	06/15/2022 14:55
22061207-007	APW-07-WG-20220616	Groundwater	4	06/16/2022 7:15
22061207-008	APW-08-WG-20220616	Groundwater	4	06/16/2022 9:00
22061207-009	APW-03-WG-20220616	Groundwater	4	06/16/2022 10:30
22061207-010	APW-6S-WG-20220616	Groundwater	4	06/16/2022 12:00
22061207-011	APW-05-WG-20220616	Groundwater	4	06/16/2022 13:00
22061207-012	DUP-001-WG-20220616	Groundwater	4	06/16/2022 0:00
22061207-013	APW-02-WG-20220616	Groundwater	4	06/16/2022 15:10
22061207-014	DUP-002-WG-20220616	Groundwater	4	06/16/2022 0:00



## Dates Report

<http://www.teklabinc.com/>

Client: ERM

Work Order: 22061207

Client Project: GTEC

Report Date: 20-Jul-22

Sample ID	Client Sample ID	Collection Date	Received Date	Prep Date/Time	Analysis Date/Time
Test Name					
22061207-001A	EB-01-WQ-20220615	06/15/2022 7:30	06/17/2022 8:12		
	Standard Methods 2540 C (Total) 1997, 2011				06/20/2022 9:38
	SW-846 9036 (Total)				06/21/2022 20:35
	SW-846 9040B, Laboratory Analyzed				06/22/2022 12:45
	SW-846 9214 (Total)				06/21/2022 10:38
	SW-846 9251 (Total)				06/21/2022 20:35
22061207-001B	EB-01-WQ-20220615	06/15/2022 7:30	06/17/2022 8:12		
	EPA 903.0/904.0, Radium 226/228				07/05/2022 0:00
22061207-001C	EB-01-WQ-20220615	06/15/2022 7:30	06/17/2022 8:12		
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/20/2022 13:23	06/30/2022 23:39
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/20/2022 13:23	07/01/2022 11:45
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/20/2022 13:23	07/05/2022 11:11
	SW-846 7470A (Total)			06/21/2022 11:09	06/21/2022 18:21
22061207-001D	EB-01-WQ-20220615	06/15/2022 7:30	06/17/2022 8:12		
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	06/26/2022 8:31
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	06/29/2022 3:29
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	07/01/2022 14:06
22061207-002A	APW-04-WG-20220615	06/15/2022 9:15	06/17/2022 8:12		
	Standard Methods 2540 C (Total) 1997, 2011				06/20/2022 9:38
	SW-846 9036 (Total)				06/23/2022 14:21
	SW-846 9040B, Laboratory Analyzed				06/22/2022 15:58
	SW-846 9214 (Total)				06/21/2022 10:41
	SW-846 9251 (Total)				06/21/2022 20:57
22061207-002B	APW-04-WG-20220615	06/15/2022 9:15	06/17/2022 8:12		
	EPA 903.0/904.0, Radium 226/228				07/05/2022 0:00
22061207-002C	APW-04-WG-20220615	06/15/2022 9:15	06/17/2022 8:12		
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/20/2022 13:23	06/26/2022 12:47
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/20/2022 13:23	06/30/2022 23:11
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/20/2022 13:23	07/01/2022 11:16
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/20/2022 13:23	07/05/2022 10:42
	SW-846 7470A (Total)			06/21/2022 11:09	06/21/2022 18:23
22061207-002D	APW-04-WG-20220615	06/15/2022 9:15	06/17/2022 8:12		
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	06/26/2022 8:36
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	06/29/2022 3:36
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	07/01/2022 14:11
22061207-003A	APW-1R-WG-20220615	06/15/2022 10:40	06/17/2022 8:12		



## Dates Report

<http://www.teklabinc.com/>

Client: ERM

Work Order: 22061207

Client Project: GTEC

Report Date: 20-Jul-22

Sample ID	Client Sample ID	Collection Date	Received Date	Prep Date/Time	Analysis Date/Time
	Test Name				
	Standard Methods 2540 C (Total) 1997, 2011				06/20/2022 9:38
	SW-846 9036 (Total)				06/21/2022 21:05
	SW-846 9040B, Laboratory Analyzed				06/22/2022 12:56
	SW-846 9214 (Total)				06/21/2022 10:43
	SW-846 9251 (Total)				06/21/2022 21:05
22061207-003B	APW-1R-WG-20220615	06/15/2022 10:40	06/17/2022 8:12		
	EPA 903.0/904.0, Radium 226/228				07/05/2022 0:00
22061207-003C	APW-1R-WG-20220615	06/15/2022 10:40	06/17/2022 8:12		
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/20/2022 13:23	06/26/2022 12:52
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/20/2022 13:23	06/30/2022 23:17
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/20/2022 13:23	07/01/2022 11:22
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/20/2022 13:23	07/05/2022 10:48
	SW-846 7470A (Total)			06/21/2022 11:09	06/21/2022 18:30
22061207-003D	APW-1R-WG-20220615	06/15/2022 10:40	06/17/2022 8:12		
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	06/26/2022 8:42
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	06/29/2022 4:07
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	07/01/2022 14:17
22061207-004A	APW-09-WG-20220615	06/15/2022 12:10	06/17/2022 8:12		
	Standard Methods 2540 C (Total) 1997, 2011				06/20/2022 9:39
	SW-846 9036 (Total)				06/21/2022 21:34
	SW-846 9040B, Laboratory Analyzed				06/22/2022 12:59
	SW-846 9214 (Total)				06/21/2022 10:45
	SW-846 9251 (Total)				06/21/2022 21:29
22061207-004B	APW-09-WG-20220615	06/15/2022 12:10	06/17/2022 8:12		
	EPA 903.0/904.0, Radium 226/228				07/05/2022 0:00
22061207-004C	APW-09-WG-20220615	06/15/2022 12:10	06/17/2022 8:12		
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/20/2022 13:23	06/26/2022 12:58
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/20/2022 13:23	06/30/2022 23:22
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/20/2022 13:23	07/01/2022 11:28
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/20/2022 13:23	07/05/2022 10:54
	SW-846 7470A (Total)			06/21/2022 11:09	06/21/2022 18:37
22061207-004D	APW-09-WG-20220615	06/15/2022 12:10	06/17/2022 8:12		
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	06/26/2022 8:58
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	06/29/2022 4:51
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	07/01/2022 14:28
22061207-005A	APW-10S-WG-20220615	06/15/2022 13:40	06/17/2022 8:12		
	Standard Methods 2540 C (Total) 1997, 2011				06/20/2022 9:39



## Dates Report

<http://www.teklabinc.com/>

Client: ERM

Work Order: 22061207

Client Project: GTEC

Report Date: 20-Jul-22

Sample ID	Client Sample ID	Collection Date	Received Date	Prep Date/Time	Analysis Date/Time
	Test Name				
	SW-846 9036 (Total)				06/21/2022 21:37
	SW-846 9040B, Laboratory Analyzed				06/22/2022 16:00
	SW-846 9214 (Total)				06/21/2022 10:47
	SW-846 9251 (Total)				06/21/2022 21:37
22061207-005B	APW-10S-WG-20220615	06/15/2022 13:40	06/17/2022 8:12		
	EPA 903.0/904.0, Radium 226/228				07/05/2022 0:00
22061207-005C	APW-10S-WG-20220615	06/15/2022 13:40	06/17/2022 8:12		
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/20/2022 13:23	06/26/2022 13:59
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/20/2022 13:23	06/30/2022 23:28
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/20/2022 13:23	07/01/2022 11:33
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/20/2022 13:23	07/05/2022 11:00
	SW-846 7470A (Total)			06/21/2022 11:09	06/21/2022 18:39
22061207-005D	APW-10S-WG-20220615	06/15/2022 13:40	06/17/2022 8:12		
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	06/26/2022 8:47
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	06/29/2022 4:13
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	07/01/2022 14:23
22061207-006A	APW-10D-WG-20220615	06/15/2022 14:55	06/17/2022 8:12		
	Standard Methods 2540 C (Total) 1997, 2011				06/20/2022 10:25
	SW-846 9036 (Total)				06/21/2022 21:45
	SW-846 9040B, Laboratory Analyzed				06/22/2022 13:19
	SW-846 9214 (Total)				06/21/2022 10:50
	SW-846 9251 (Total)				06/21/2022 21:45
22061207-006B	APW-10D-WG-20220615	06/15/2022 14:55	06/17/2022 8:12		
	EPA 903.0/904.0, Radium 226/228				07/05/2022 0:00
22061207-006C	APW-10D-WG-20220615	06/15/2022 14:55	06/17/2022 8:12		
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/20/2022 13:23	06/26/2022 14:04
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/20/2022 13:23	06/30/2022 23:34
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/20/2022 13:23	07/01/2022 11:39
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/20/2022 13:23	07/05/2022 11:05
	SW-846 7470A (Total)			06/21/2022 6:31	06/21/2022 18:41
22061207-006D	APW-10D-WG-20220615	06/15/2022 14:55	06/17/2022 8:12		
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	06/26/2022 8:53
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	06/29/2022 4:20
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	07/01/2022 15:08
22061207-007A	APW-07-WG-20220616	06/16/2022 7:15	06/17/2022 8:12		
	Standard Methods 2540 C (Total) 1997, 2011				06/20/2022 10:25
	SW-846 9036 (Total)				06/23/2022 14:23



## Dates Report

<http://www.teklabinc.com/>

Client: ERM

Work Order: 22061207

Client Project: GTEC

Report Date: 20-Jul-22

Sample ID	Client Sample ID	Collection Date	Received Date	Prep Date/Time	Analysis Date/Time
	Test Name				
	SW-846 9040B, Laboratory Analyzed				06/22/2022 13:20
	SW-846 9214 (Total)				06/21/2022 10:53
	SW-846 9251 (Total)				06/21/2022 21:53
22061207-007B	APW-07-WG-20220616	06/16/2022 7:15	06/17/2022 8:12		
	EPA 903.0/904.0, Radium 226/228				07/05/2022 0:00
22061207-007C	APW-07-WG-20220616	06/16/2022 7:15	06/17/2022 8:12		
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/21/2022 11:42	06/26/2022 11:01
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/21/2022 11:42	06/29/2022 6:19
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/21/2022 11:42	07/01/2022 0:19
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/21/2022 11:42	07/01/2022 12:24
	SW-846 7470A (Total)			06/21/2022 6:31	06/21/2022 18:48
22061207-007D	APW-07-WG-20220616	06/16/2022 7:15	06/17/2022 8:12		
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	06/26/2022 9:54
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	06/29/2022 4:26
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	07/01/2022 15:14
22061207-008A	APW-08-WG-20220616	06/16/2022 9:00	06/17/2022 8:12		
	Standard Methods 2540 C (Total) 1997, 2011				06/20/2022 10:26
	SW-846 9036 (Total)				06/21/2022 22:01
	SW-846 9040B, Laboratory Analyzed				06/22/2022 13:23
	SW-846 9214 (Total)				06/21/2022 10:55
	SW-846 9251 (Total)				06/21/2022 22:01
22061207-008B	APW-08-WG-20220616	06/16/2022 9:00	06/17/2022 8:12		
	EPA 903.0/904.0, Radium 226/228				07/05/2022 0:00
22061207-008C	APW-08-WG-20220616	06/16/2022 9:00	06/17/2022 8:12		
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/21/2022 11:42	06/26/2022 11:07
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/21/2022 11:42	06/29/2022 6:25
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/21/2022 11:42	07/01/2022 0:25
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/21/2022 11:42	07/01/2022 12:30
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/21/2022 11:42	07/05/2022 11:58
	SW-846 7470A (Total)			06/21/2022 6:31	06/21/2022 18:51
22061207-008D	APW-08-WG-20220616	06/16/2022 9:00	06/17/2022 8:12		
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	06/26/2022 10:00
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	06/29/2022 4:32
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	07/01/2022 15:19
22061207-009A	APW-03-WG-20220616	06/16/2022 10:30	06/17/2022 8:12		
	Standard Methods 2540 C (Total) 1997, 2011				06/20/2022 10:26
	SW-846 9036 (Total)				06/21/2022 22:30



## Dates Report

<http://www.teklabinc.com/>

Client: ERM

Work Order: 22061207

Client Project: GTEC

Report Date: 20-Jul-22

Sample ID	Client Sample ID	Collection Date	Received Date	Prep Date/Time	Analysis Date/Time
Test Name					
	SW-846 9040B, Laboratory Analyzed				06/22/2022 13:26
	SW-846 9214 (Total)				06/21/2022 11:06
	SW-846 9251 (Total)				06/23/2022 14:26
22061207-009B	APW-03-WG-20220616	06/16/2022 10:30	06/17/2022 8:12		
	EPA 903.0/904.0, Radium 226/228				07/05/2022 0:00
22061207-009C	APW-03-WG-20220616	06/16/2022 10:30	06/17/2022 8:12		
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/21/2022 11:42	06/26/2022 11:12
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/21/2022 11:42	06/29/2022 6:31
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/21/2022 11:42	07/01/2022 0:30
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/21/2022 11:42	07/01/2022 12:36
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/21/2022 11:42	07/05/2022 12:04
	SW-846 7470A (Total)			06/21/2022 6:31	06/21/2022 18:57
22061207-009D	APW-03-WG-20220616	06/16/2022 10:30	06/17/2022 8:12		
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	06/26/2022 10:05
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	06/29/2022 4:38
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	07/01/2022 15:25
22061207-010A	APW-6S-WG-20220616	06/16/2022 12:00	06/17/2022 8:12		
	Standard Methods 2540 C (Total) 1997, 2011				06/20/2022 10:26
	SW-846 9036 (Total)				06/21/2022 22:43
	SW-846 9040B, Laboratory Analyzed				06/22/2022 13:28
	SW-846 9214 (Total)				06/21/2022 11:08
	SW-846 9251 (Total)				06/23/2022 16:07
22061207-010B	APW-6S-WG-20220616	06/16/2022 12:00	06/17/2022 8:12		
	EPA 903.0/904.0, Radium 226/228				07/05/2022 0:00
22061207-010C	APW-6S-WG-20220616	06/16/2022 12:00	06/17/2022 8:12		
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/21/2022 11:42	06/26/2022 11:18
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/21/2022 11:42	06/29/2022 6:38
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/21/2022 11:42	07/01/2022 0:36
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/21/2022 11:42	07/01/2022 12:41
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/21/2022 11:42	07/05/2022 12:10
	SW-846 7470A (Total)			06/21/2022 6:31	06/21/2022 19:00
22061207-010D	APW-6S-WG-20220616	06/16/2022 12:00	06/17/2022 8:12		
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	06/26/2022 10:11
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	06/29/2022 4:45
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	07/01/2022 15:31
22061207-011A	APW-05-WG-20220616	06/16/2022 13:00	06/17/2022 8:12		
	Standard Methods 2540 C (Total) 1997, 2011				06/20/2022 10:26



## Dates Report

<http://www.teklabinc.com/>

Client: ERM

Work Order: 22061207

Client Project: GTEC

Report Date: 20-Jul-22

Sample ID	Client Sample ID	Collection Date	Received Date	Prep Date/Time	Analysis Date/Time
Test Name					
	SW-846 9036 (Total)				06/21/2022 22:59
	SW-846 9040B, Laboratory Analyzed				06/22/2022 13:31
	SW-846 9214 (Total)				06/21/2022 11:10
	SW-846 9251 (Total)				06/23/2022 14:42
22061207-011B	APW-05-WG-20220616	06/16/2022 13:00	06/17/2022 8:12		
	EPA 903.0/904.0, Radium 226/228				07/05/2022 0:00
22061207-011C	APW-05-WG-20220616	06/16/2022 13:00	06/17/2022 8:12		
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/21/2022 11:42	06/26/2022 11:23
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/21/2022 11:42	07/01/2022 0:42
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/21/2022 11:42	07/01/2022 12:47
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/21/2022 11:42	07/05/2022 12:16
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/21/2022 11:42	07/06/2022 10:10
	SW-846 7470A (Total)			06/21/2022 6:31	06/21/2022 19:02
22061207-011D	APW-05-WG-20220616	06/16/2022 13:00	06/17/2022 8:12		
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	06/26/2022 10:16
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	06/29/2022 5:54
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	07/01/2022 15:36
22061207-012A	DUP-001-WG-20220616	06/16/2022 0:00	06/17/2022 8:12		
	Standard Methods 2540 C (Total) 1997, 2011				06/20/2022 10:27
	SW-846 9036 (Total)				06/21/2022 23:24
	SW-846 9040B, Laboratory Analyzed				06/22/2022 13:34
	SW-846 9214 (Total)				06/21/2022 16:23
	SW-846 9251 (Total)				06/23/2022 14:45
22061207-012B	DUP-001-WG-20220616	06/16/2022 0:00	06/17/2022 8:12		
	EPA 903.0/904.0, Radium 226/228				07/05/2022 0:00
22061207-012C	DUP-001-WG-20220616	06/16/2022 0:00	06/17/2022 8:12		
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/21/2022 11:42	06/26/2022 11:40
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/21/2022 11:42	07/01/2022 0:59
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/21/2022 11:42	07/01/2022 13:04
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/21/2022 11:42	07/05/2022 12:39
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/21/2022 11:42	07/06/2022 10:27
	SW-846 7470A (Total)			06/21/2022 6:31	06/21/2022 19:04
22061207-012D	DUP-001-WG-20220616	06/16/2022 0:00	06/17/2022 8:12		
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	06/26/2022 10:22
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	06/29/2022 6:00
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	07/01/2022 15:42
22061207-013A	APW-02-WG-20220616	06/16/2022 15:10	06/17/2022 8:12		



## Dates Report

<http://www.teklabinc.com/>

Client: ERM

Work Order: 22061207

Client Project: GTEC

Report Date: 20-Jul-22

Sample ID	Client Sample ID	Collection Date	Received Date	Prep Date/Time	Analysis Date/Time
	Standard Methods 2540 C (Total) 1997, 2011				06/20/2022 10:27
	SW-846 9036 (Total)				06/23/2022 14:53
	SW-846 9040B, Laboratory Analyzed				06/22/2022 13:37
	SW-846 9214 (Total)				06/21/2022 11:12
	SW-846 9251 (Total)				06/23/2022 14:47
22061207-013B	APW-02-WG-20220616	06/16/2022 15:10	06/17/2022 8:12		
	EPA 903.0/904.0, Radium 226/228				07/05/2022 0:00
22061207-013C	APW-02-WG-20220616	06/16/2022 15:10	06/17/2022 8:12		
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/21/2022 11:42	06/26/2022 11:29
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/21/2022 11:42	07/01/2022 0:47
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/21/2022 11:42	07/01/2022 12:53
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/21/2022 11:42	07/05/2022 12:22
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/21/2022 11:42	07/06/2022 10:16
	SW-846 7470A (Total)			06/21/2022 6:31	06/21/2022 19:06
22061207-013D	APW-02-WG-20220616	06/16/2022 15:10	06/17/2022 8:12		
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	06/26/2022 10:28
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	06/29/2022 6:06
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	07/01/2022 15:48
22061207-014A	DUP-002-WG-20220616	06/16/2022 0:00	06/17/2022 8:12		
	Standard Methods 2540 C (Total) 1997, 2011				06/20/2022 10:27
	SW-846 9036 (Total)				06/23/2022 15:17
	SW-846 9040B, Laboratory Analyzed				06/22/2022 13:40
	SW-846 9214 (Total)				06/21/2022 11:14
	SW-846 9251 (Total)				06/23/2022 15:11
22061207-014B	DUP-002-WG-20220616	06/16/2022 0:00	06/17/2022 8:12		
	EPA 903.0/904.0, Radium 226/228				07/05/2022 0:00
22061207-014C	DUP-002-WG-20220616	06/16/2022 0:00	06/17/2022 8:12		
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/21/2022 11:42	06/26/2022 11:34
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/21/2022 11:42	07/01/2022 0:53
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/21/2022 11:42	07/01/2022 12:58
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/21/2022 11:42	07/05/2022 12:28
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			06/21/2022 11:42	07/06/2022 10:22
	SW-846 7470A (Total)			06/21/2022 6:31	06/21/2022 19:09
22061207-014D	DUP-002-WG-20220616	06/16/2022 0:00	06/17/2022 8:12		
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	06/26/2022 10:33
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	06/29/2022 6:12
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			06/21/2022 12:40	07/01/2022 15:53



## Quality Control Results

<http://www.teklabinc.com/>

**Client:** ERM  
**Client Project:** GTEC

**Work Order:** 22061207  
**Report Date:** 20-Jul-22

### STANDARD METHODS 2540 C (TOTAL) 1997, 2011

Batch R313502		SampType: MBLK		Units mg/L						
SampID: MBLK										
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Dissolved Solids		20		< 20	16.00	0	0	-100	100	06/20/2022
Total Dissolved Solids		20		< 20	16.00	0	0	-100	100	06/20/2022

Batch R313502		SampType: LCS		Units mg/L						
SampID: LCS										
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Dissolved Solids		20		964	1000	0	96.4	90	110	06/20/2022
Total Dissolved Solids		20		958	1000	0	95.8	90	110	06/20/2022

Batch R313502		SampType: DUP		Units mg/L						
SampID: 22061207-001ADUP										
										RPD Limit: 5
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Total Dissolved Solids		20		< 20				0	0.00	06/20/2022

Batch R313502		SampType: DUP		Units mg/L						
SampID: 22061207-004ADUP										
										RPD Limit: 5
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Total Dissolved Solids		20		434				424.0	2.33	06/20/2022

### SW-846 9036 (TOTAL)

Batch R313491		SampType: MBLK		Units mg/L						
SampID: ICB/MBLK										
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate		10		< 10	6.140	0	0	-100	100	06/21/2022

Batch R313491		SampType: LCS		Units mg/L						
SampID: ICB/LCS										
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate		10		20	20.00	0	100.2	90	110	06/21/2022

Batch R313491		SampType: MS		Units mg/L						
SampID: 22061207-001AMS										
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate		10		19	20.00	0	96.4	85	115	06/21/2022



## Quality Control Results

<http://www.teklabinc.com/>

Client: ERM

Work Order: 22061207

Client Project: GTEC

Report Date: 20-Jul-22

### SW-846 9036 (TOTAL)

Batch R313491		SampType: MSD		Units mg/L				RPD Limit: 10			
SampID: 22061207-001AMSD											
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed	
Sulfate		10		<b>20</b>	20.00	0	99.2	19.27	2.91	06/21/2022	

Batch R313491		SampType: MS		Units mg/L							
SampID: 22061207-010AMS											
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed	
Sulfate		100		<b>387</b>	200.0	199.5	93.8	85	115	06/21/2022	

Batch R313491		SampType: MSD		Units mg/L				RPD Limit: 10			
SampID: 22061207-010AMSD											
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed	
Sulfate		100		<b>387</b>	200.0	199.5	93.5	387.0	0.12	06/21/2022	

Batch R313623		SampType: MBLK		Units mg/L							
SampID: ICB/MBLK											
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed	
Sulfate		10		<b>&lt; 10</b>	6.140	0	0	-100	100	06/23/2022	

Batch R313623		SampType: LCS		Units mg/L							
SampID: ICV/LCS											
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed	
Sulfate		10		<b>20</b>	20.00	0	98.0	90	110	06/23/2022	

### SW-846 9040B, LABORATORY ANALYZED

Batch R313558		SampType: LCS		Units							
SampID: LCS											
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed	
Lab pH		1.00		<b>6.98</b>	7.000	0	99.7	99.1	100.8	06/22/2022	

Batch R313558		SampType: DUP		Units				RPD Limit: 10			
SampID: 22061207-001ADUP											
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed	
Lab pH		1.00		<b>5.97</b>				6.050	1.33	06/22/2022	



## Quality Control Results

<http://www.teklabinc.com/>

Client: ERM

Work Order: 22061207

Client Project: GTEC

Report Date: 20-Jul-22

### SW-846 9040B, LABORATORY ANALYZED

Batch R313558		SampType: DUP		Units		RPD Limit: 10				Date Analyzed
SampID: 22061207-002ADUP										
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	
Lab pH		1.00		<b>7.39</b>				7.410	0.27	06/22/2022

Batch R313558		SampType: DUP		Units		RPD Limit: 10				Date Analyzed
SampID: 22061207-003ADUP										
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	
Lab pH		1.00		<b>6.95</b>				6.980	0.43	06/22/2022

Batch R313558		SampType: DUP		Units		RPD Limit: 10				Date Analyzed
SampID: 22061207-004ADUP										
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	
Lab pH		1.00		<b>7.52</b>				7.480	0.53	06/22/2022

Batch R313558		SampType: DUP		Units		RPD Limit: 10				Date Analyzed
SampID: 22061207-005ADUP										
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	
Lab pH		1.00		<b>7.08</b>				7.090	0.14	06/22/2022

Batch R313558		SampType: DUP		Units		RPD Limit: 10				Date Analyzed
SampID: 22061207-006ADUP										
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	
Lab pH		1.00		<b>7.20</b>				7.210	0.14	06/22/2022

Batch R313558		SampType: DUP		Units		RPD Limit: 10				Date Analyzed
SampID: 22061207-007ADUP										
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	
Lab pH		1.00		<b>6.92</b>				6.880	0.58	06/22/2022

Batch R313558		SampType: DUP		Units		RPD Limit: 10				Date Analyzed
SampID: 22061207-008ADUP										
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	
Lab pH		1.00		<b>7.33</b>				7.340	0.14	06/22/2022

Batch R313558		SampType: DUP		Units		RPD Limit: 10				Date Analyzed
SampID: 22061207-009ADUP										
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	
Lab pH		1.00		<b>7.87</b>				7.850	0.25	06/22/2022



## Quality Control Results

<http://www.teklabinc.com/>

Client: ERM

Work Order: 22061207

Client Project: GTEC

Report Date: 20-Jul-22

### SW-846 9040B, LABORATORY ANALYZED

Batch R313558		SampType: DUP		Units				RPD Limit: 10			
SampID: 22061207-010ADUP											
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed	
Lab pH		1.00		7.25				7.240	0.14	06/22/2022	

Batch R313558		SampType: DUP		Units				RPD Limit: 10			
SampID: 22061207-011ADUP											
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed	
Lab pH		1.00		7.34				7.350	0.14	06/22/2022	

Batch R313558		SampType: DUP		Units				RPD Limit: 10			
SampID: 22061207-012ADUP											
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed	
Lab pH		1.00		7.48				7.490	0.13	06/22/2022	

Batch R313558		SampType: DUP		Units				RPD Limit: 10			
SampID: 22061207-013ADUP											
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed	
Lab pH		1.00		7.13				7.210	1.12	06/22/2022	

Batch R313558		SampType: DUP		Units				RPD Limit: 10			
SampID: 22061207-014ADUP											
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed	
Lab pH		1.00		7.17				7.180	0.14	06/22/2022	

### SW-846 9214 (TOTAL)

Batch R313505		SampType: MBLK		Units mg/L				RPD Limit: 10			
SampID: MBLK											
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed	
Fluoride		0.10		< 0.10	0.0370	0	0	-100	100	06/21/2022	

Batch R313505		SampType: LCS		Units mg/L				RPD Limit: 10			
SampID: LCS											
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed	
Fluoride		0.10		1.01	1.000	0	100.6	90	110	06/21/2022	



## Quality Control Results

<http://www.teklabinc.com/>

Client: ERM

Work Order: 22061207

Client Project: GTEC

Report Date: 20-Jul-22

### SW-846 9214 (TOTAL)

Batch R313505		SampType: MS		Units mg/L						
SampID: 22061207-008AMS										
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Fluoride		0.10		2.49	2.000	0.2910	109.9	75	125	06/21/2022

Batch R313505		SampType: MSD		Units mg/L						
SampID: 22061207-008AMSD										
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Fluoride		0.10		2.48	2.000	0.2910	109.2	2.489	0.52	06/21/2022

Batch R313505		SampType: MS		Units mg/L						
SampID: 22061207-012AMS										
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Fluoride		0.20		4.38	4.000	0.3340	101.2	75	125	06/21/2022

Batch R313505		SampType: MSD		Units mg/L						
SampID: 22061207-012AMSD										
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Fluoride		0.20		4.44	4.000	0.3340	102.8	4.382	1.40	06/21/2022

### SW-846 9251 (TOTAL)

Batch R313492		SampType: MBLK		Units mg/L						
SampID: ICB/MBLK										
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride		1		< 1	0.5000	0	0	-100	100	06/21/2022

Batch R313492		SampType: LCS		Units mg/L						
SampID: ICV/LCS										
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride		1		19	20.00	0	95.6	90	110	06/21/2022

Batch R313492		SampType: MS		Units mg/L						
SampID: 22061207-001AMS										
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride		1		18	20.00	0	88.7	85	115	06/21/2022



## Quality Control Results

<http://www.teklabinc.com/>

Client: ERM

Work Order: 22061207

Client Project: GTEC

Report Date: 20-Jul-22

### SW-846 9251 (TOTAL)

Batch R313492		SampType: MSD		Units mg/L				RPD Limit: 15			
SampID: 22061207-001AMSD											
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed	
Chloride		1		17	20.00	0	87.1	17.74	1.82	06/21/2022	

Batch R313624		SampType: MBLK		Units mg/L							
SampID: ICB/MBLK											
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed	
Chloride		4		< 4	0.5000	0	0	-100	100	06/23/2022	

Batch R313624		SampType: LCS		Units mg/L							
SampID: ICV/LCS											
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed	
Chloride		4		21	20.00	0	103.2	90	110	06/23/2022	

Batch R313624		SampType: MS		Units mg/L							
SampID: 22061207-010AMS											
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed	
Chloride		8		61	40.00	23.71	93.4	85	115	06/23/2022	

Batch R313624		SampType: MSD		Units mg/L				RPD Limit: 15			
SampID: 22061207-010AMSD											
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed	
Chloride		8		61	40.00	23.71	94.4	61.08	0.65	06/23/2022	



## Quality Control Results

<http://www.teklabinc.com/>

Client: ERM

Work Order: 22061207

Client Project: GTEC

Report Date: 20-Jul-22

### SW-846 3005A, 6020A, METALS BY ICPMS (DISSOLVED)

Batch 193827    SampType: MBLK    Units mg/L

SampID: MBLK-193827

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Antimony		0.0010		< 0.0010	0.0004	0	0	-100	100	06/29/2022
Arsenic		0.0010		< 0.0010	0.0004	0	0	-100	100	06/26/2022
Barium		0.0010		< 0.0010	0.0007	0	0	-100	100	06/29/2022
Beryllium		0.0010		< 0.0010	0.0002	0	0	-100	100	06/29/2022
Boron		0.0250		< 0.0250	0.0093	0	0	-100	100	06/26/2022
Cadmium		0.0010		< 0.0010	0.0001	0	0	-100	100	06/29/2022
Calcium		0.125		< 0.125	0.0800	0	0	-100	100	07/01/2022
Chromium		0.0015		< 0.0015	0.0007	0	0	-100	100	06/29/2022
Cobalt		0.0010		< 0.0010	0.0001	0	0	-100	100	06/29/2022
Lead		0.0010		< 0.0010	0.0006	0	0	-100	100	06/29/2022
Lithium	*	0.0030		< 0.0030	0.0015	0	0	-100	100	06/29/2022
Molybdenum		0.0015		< 0.0015	0.0006	0	0	-100	100	06/29/2022
Nickel		0.0010		< 0.0010	0.0004	0	0	-100	100	07/05/2022
Selenium		0.0010		< 0.0010	0.0006	0	0	-100	100	06/26/2022
Thallium		0.0020		< 0.0020	0.0010	0	0	-100	100	06/29/2022

Batch 193827    SampType: LCS    Units mg/L

SampID: LCS-193827

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Antimony		0.0010		0.501	0.5000	0	100.3	80	120	06/29/2022
Arsenic		0.0010		0.507	0.5000	0	101.5	80	120	06/26/2022
Barium		0.0010		2.01	2.000	0	100.6	80	120	06/29/2022
Beryllium		0.0010		0.0462	0.0500	0	92.4	80	120	06/29/2022
Boron		0.0250		0.481	0.5000	0	96.2	80	120	06/26/2022
Cadmium		0.0010		0.0487	0.0500	0	97.5	80	120	06/29/2022
Calcium		0.125		2.80	2.500	0	111.9	80	120	07/01/2022
Chromium		0.0015		0.183	0.2000	0	91.3	80	120	06/29/2022
Cobalt		0.0010		0.471	0.5000	0	94.3	80	120	06/29/2022
Lead		0.0010		0.448	0.5000	0	89.6	80	120	06/29/2022
Lithium	*	0.0030		0.514	0.5000	0	102.9	80	120	06/29/2022
Molybdenum		0.0015		0.451	0.5000	0	90.2	80	120	06/29/2022
Nickel		0.0010		0.517	0.5000	0	103.5	80	120	07/01/2022
Selenium		0.0010		0.455	0.5000	0	91.1	80	120	06/26/2022
Thallium		0.0020		0.242	0.2500	0	96.9	80	120	06/29/2022



## Quality Control Results

<http://www.teklabinc.com/>

Client: ERM

Work Order: 22061207

Client Project: GTEC

Report Date: 20-Jul-22

### SW-846 3005A, 6020A, METALS BY ICPMS (DISSOLVED)

Batch 193827		SampType: MS		Units mg/L							Date Analyzed
SampID: 22061207-004DMS											
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed	
Antimony		0.0010		<b>0.474</b>	0.5000	0	94.8	75	125	06/29/2022	
Arsenic		0.0010		<b>0.489</b>	0.5000	0.001883	97.5	75	125	06/26/2022	
Barium		0.0010		<b>2.06</b>	2.000	0.1293	96.6	75	125	06/29/2022	
Beryllium		0.0010		<b>0.0427</b>	0.0500	0	85.5	75	125	06/29/2022	
Boron		0.0250		<b>1.73</b>	0.5000	1.322	82.4	75	125	06/26/2022	
Cadmium		0.0010		<b>0.0469</b>	0.0500	0	93.9	75	125	06/29/2022	
Calcium		0.125		<b>109</b>	2.500	106.6	82.8	75	125	07/01/2022	
Chromium		0.0015		<b>0.180</b>	0.2000	0	90.1	75	125	06/29/2022	
Cobalt		0.0010		<b>0.439</b>	0.5000	0	87.9	75	125	06/29/2022	
Lead		0.0010		<b>0.458</b>	0.5000	0	91.5	75	125	06/29/2022	
Lithium	*	0.0030		<b>0.500</b>	0.5000	0.01842	96.4	75	125	06/29/2022	
Molybdenum		0.0015		<b>0.471</b>	0.5000	0.03512	87.1	75	125	06/29/2022	
Nickel		0.0010		<b>0.487</b>	0.5000	0.001683	97.1	75	125	07/01/2022	
Selenium		0.0010		<b>0.446</b>	0.5000	0.02099	84.9	75	125	06/26/2022	
Thallium		0.0020		<b>0.243</b>	0.2500	0	97.3	75	125	06/29/2022	

Batch 193827		SampType: MSD		Units mg/L							RPD Limit: 20	Date Analyzed
SampID: 22061207-004DMSD												
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed		
Antimony		0.0010		<b>0.487</b>	0.5000	0	97.5	0.4738	2.85	06/29/2022		
Arsenic		0.0010		<b>0.497</b>	0.5000	0.001883	99.1	0.4893	1.61	06/26/2022		
Barium		0.0010		<b>2.11</b>	2.000	0.1293	98.8	2.060	2.19	06/29/2022		
Beryllium		0.0010		<b>0.0456</b>	0.0500	0	91.1	0.04274	6.39	06/29/2022		
Boron		0.0250		<b>1.76</b>	0.5000	1.322	86.8	1.734	1.25	06/26/2022		
Cadmium		0.0010		<b>0.0469</b>	0.0500	0	93.8	0.04693	0.09	06/29/2022		
Calcium		0.125	S	<b>108</b>	2.500	106.6	39.9	108.7	0.99	07/01/2022		
Chromium		0.0015		<b>0.183</b>	0.2000	0	91.4	0.1802	1.38	06/29/2022		
Cobalt		0.0010		<b>0.453</b>	0.5000	0	90.6	0.4394	3.01	06/29/2022		
Lead		0.0010		<b>0.489</b>	0.5000	0	97.7	0.4576	6.56	06/29/2022		
Lithium	*	0.0030		<b>0.515</b>	0.5000	0.01842	99.3	0.5004	2.85	06/29/2022		
Molybdenum		0.0015		<b>0.523</b>	0.5000	0.03512	97.7	0.4708	10.58	06/29/2022		
Nickel		0.0010		<b>0.495</b>	0.5000	0.001683	98.6	0.4870	1.59	07/01/2022		
Selenium		0.0010		<b>0.452</b>	0.5000	0.02099	86.1	0.4457	1.30	06/26/2022		
Thallium		0.0020		<b>0.266</b>	0.2500	0	106.3	0.2433	8.86	06/29/2022		



## Quality Control Results

<http://www.teklabinc.com/>

Client: ERM

Work Order: 22061207

Client Project: GTEC

Report Date: 20-Jul-22

### SW-846 3005A, 6020A, METALS BY ICPMS (TOTAL)

Batch 191827    SampType: MBLK    Units mg/L

SampID: MBLK-191827

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Antimony		0.0010		< 0.0010	0.0004	0	0	-100	100	06/29/2022
Arsenic		0.0010		< 0.0010	0.0004	0	0	-100	100	06/26/2022
Barium		0.0010		< 0.0010	0.0007	0	0	-100	100	06/29/2022
Beryllium		0.0010		< 0.0010	0.0002	0	0	-100	100	06/29/2022
Boron		0.0250		< 0.0250	0.0150	0	0	-100	100	06/29/2022
Cadmium		0.0010		< 0.0010	0.0001	0	0	-100	100	06/29/2022
Calcium		0.125		< 0.125	0.0800	0	0	-100	100	06/29/2022
Chromium		0.0015		< 0.0015	0.0007	0	0	-100	100	06/29/2022
Cobalt		0.0010		< 0.0010	0.0001	0	0	-100	100	06/29/2022
Iron		0.0250		< 0.0250	0.0150	0	0	-100	100	06/29/2022
Lead		0.0010		< 0.0010	0.0006	0	0	-100	100	06/29/2022
Lithium	*	0.0030		< 0.0030	0.0015	0	0	-100	100	06/29/2022
Manganese		0.0020		< 0.0020	0.0008	0	0	-100	100	06/29/2022
Molybdenum		0.0015		< 0.0015	0.0006	0	0	-100	100	06/29/2022
Nickel		0.0010		< 0.0010	0.0004	0	0	-100	100	06/29/2022
Selenium		0.0010		< 0.0010	0.0006	0	0	-100	100	06/26/2022
Thallium		0.0020		< 0.0020	0.0010	0	0	-100	100	06/29/2022



## Quality Control Results

<http://www.teklabinc.com/>

Client: ERM

Work Order: 22061207

Client Project: GTEC

Report Date: 20-Jul-22

### SW-846 3005A, 6020A, METALS BY ICPMS (TOTAL)

Batch 191827    SampType: LCS    Units mg/L

SampID: LCS-191827

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Antimony		0.0010		<b>0.565</b>	0.5000	0	112.9	85	115	06/29/2022
Arsenic		0.0010		<b>0.535</b>	0.5000	0	107.1	85	115	06/26/2022
Barium		0.0010		<b>2.19</b>	2.000	0	109.5	85	115	06/29/2022
Beryllium		0.0010		<b>0.0460</b>	0.0500	0	91.9	85	115	06/29/2022
Boron		0.0250		<b>0.476</b>	0.5000	0	95.2	85	115	06/29/2022
Cadmium		0.0010		<b>0.0538</b>	0.0500	0	107.7	85	115	06/29/2022
Calcium		0.125		<b>2.54</b>	2.500	0	101.5	85	115	07/05/2022
Chromium		0.0015		<b>0.192</b>	0.2000	0	96.1	85	115	06/29/2022
Cobalt		0.0010		<b>0.469</b>	0.5000	0	93.9	85	115	06/29/2022
Iron		0.0250		<b>1.78</b>	2.000	0	89.0	85	115	06/29/2022
Lead		0.0010		<b>0.524</b>	0.5000	0	104.8	85	115	06/29/2022
Lithium	*	0.0030		<b>0.505</b>	0.5000	0	101.0	85	115	06/29/2022
Manganese		0.0020		<b>0.489</b>	0.5000	0	97.8	85	115	06/29/2022
Molybdenum		0.0015		<b>0.516</b>	0.5000	0	103.2	85	115	06/29/2022
Nickel		0.0010		<b>0.471</b>	0.5000	0	94.2	85	115	06/29/2022
Selenium		0.0010		<b>0.475</b>	0.5000	0	95.1	85	115	06/26/2022
Thallium		0.0020		<b>0.248</b>	0.2500	0	99.1	85	115	06/29/2022



## Quality Control Results

<http://www.teklabinc.com/>

Client: ERM

Work Order: 22061207

Client Project: GTEC

Report Date: 20-Jul-22

### SW-846 3005A, 6020A, METALS BY ICPMS (TOTAL)

Batch 191827      SampType: MS      Units mg/L

SampID: 22061207-001CMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Antimony		0.0010		<b>0.554</b>	0.5000	0	110.9	75	125	07/01/2022
Arsenic		0.0010		<b>0.488</b>	0.5000	0	97.7	75	125	07/05/2022
Barium		0.0010		<b>2.23</b>	2.000	0.0007276	111.2	75	125	07/01/2022
Beryllium		0.0010		<b>0.0582</b>	0.0500	0	116.4	75	125	07/01/2022
Boron		0.0250		<b>0.612</b>	0.5000	0.01384	119.6	75	125	07/01/2022
Cadmium		0.0010		<b>0.0555</b>	0.0500	0	111.1	75	125	07/01/2022
Calcium		0.125		<b>2.35</b>	2.500	0.08483	90.4	75	125	07/05/2022
Chromium		0.0015		<b>0.194</b>	0.2000	0	97.0	75	125	07/05/2022
Cobalt		0.0010		<b>0.552</b>	0.5000	0	110.4	75	125	07/01/2022
Iron		0.0250		<b>2.38</b>	2.000	0.02040	118.0	75	125	07/01/2022
Lead		0.0010		<b>0.537</b>	0.5000	0	107.4	75	125	07/01/2022
Lithium	*	0.0030		<b>0.535</b>	0.5000	0	107.0	75	125	07/05/2022
Manganese		0.0020		<b>0.556</b>	0.5000	0	111.1	75	125	07/01/2022
Molybdenum		0.0015		<b>0.561</b>	0.5000	0	112.2	75	125	07/01/2022
Nickel		0.0010		<b>0.555</b>	0.5000	0	110.9	75	125	07/01/2022
Selenium		0.0010		<b>0.485</b>	0.5000	0	97.1	75	125	07/05/2022
Thallium		0.0020		<b>0.272</b>	0.2500	0	108.8	75	125	07/01/2022



## Quality Control Results

<http://www.teklabinc.com/>

Client: ERM

Work Order: 22061207

Client Project: GTEC

Report Date: 20-Jul-22

### SW-846 3005A, 6020A, METALS BY ICPMS (TOTAL)

Batch	191827	SampType:	MSD	Units mg/L						RPD Limit: 20		Date Analyzed
SampID: 22061207-001CMSD												
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD			
Antimony		0.0010		<b>0.550</b>	0.5000	0	110.1	0.5544	0.74	07/01/2022		
Arsenic		0.0010		<b>0.488</b>	0.5000	0	97.6	0.4883	0.10	07/05/2022		
Barium		0.0010		<b>2.23</b>	2.000	0.0007276	111.4	2.225	0.15	07/01/2022		
Beryllium		0.0010		<b>0.0583</b>	0.0500	0	116.6	0.05819	0.17	07/01/2022		
Boron		0.0250		<b>0.611</b>	0.5000	0.01384	119.5	0.6117	0.04	07/01/2022		
Cadmium		0.0010		<b>0.0555</b>	0.0500	0	110.9	0.05554	0.14	07/01/2022		
Calcium		0.125		<b>2.44</b>	2.500	0.08483	94.1	2.346	3.78	07/05/2022		
Chromium		0.0015		<b>0.192</b>	0.2000	0	95.9	0.1940	1.15	07/05/2022		
Cobalt		0.0010		<b>0.564</b>	0.5000	0	112.8	0.5522	2.09	07/01/2022		
Iron		0.0250		<b>2.34</b>	2.000	0.02040	116.2	2.381	1.58	07/01/2022		
Lead		0.0010		<b>0.574</b>	0.5000	0	114.8	0.5368	6.66	07/01/2022		
Lithium	*	0.0030		<b>0.536</b>	0.5000	0	107.1	0.5352	0.10	07/05/2022		
Manganese		0.0020		<b>0.558</b>	0.5000	0	111.5	0.5555	0.38	07/01/2022		
Molybdenum		0.0015		<b>0.549</b>	0.5000	0	109.8	0.5612	2.20	07/01/2022		
Nickel		0.0010		<b>0.563</b>	0.5000	0	112.5	0.5547	1.42	07/01/2022		
Selenium		0.0010		<b>0.485</b>	0.5000	0	97.0	0.4854	0.08	07/05/2022		
Thallium		0.0020		<b>0.283</b>	0.2500	0	113.4	0.2720	4.16	07/01/2022		



## Quality Control Results

<http://www.teklabinc.com/>

Client: ERM

Work Order: 22061207

Client Project: GTEC

Report Date: 20-Jul-22

### SW-846 3005A, 6020A, METALS BY ICPMS (TOTAL)

Batch 193823      SampType: MBLK      Units mg/L

SampID: MBLK-193823

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Antimony		0.0010		< 0.0010	0.0004	0	0	-100	100	06/29/2022
Arsenic		0.0010		< 0.0010	0.0004	0	0	-100	100	06/26/2022
Barium		0.0010		< 0.0010	0.0007	0	0	-100	100	06/29/2022
Beryllium		0.0010		< 0.0010	0.0002	0	0	-100	100	06/29/2022
Boron		0.0250		< 0.0250	0.0093	0	0	-100	100	06/26/2022
Cadmium		0.0010		< 0.0010	0.0001	0	0	-100	100	06/29/2022
Calcium		0.125		< 0.125	0.0700	0	0	-100	100	06/29/2022
Chromium		0.0015		< 0.0015	0.0007	0	0	-100	100	06/29/2022
Cobalt		0.0010		< 0.0010	0.0002	0	0	-100	100	06/29/2022
Iron		0.0250		< 0.0250	0.0150	0	0	-100	100	06/29/2022
Lead		0.0010		< 0.0010	0.0006	0	0	-100	100	06/29/2022
Lithium	*	0.0030		< 0.0030	0.0015	0	0	-100	100	06/29/2022
Manganese		0.0020		< 0.0020	0.0020	0	0	-100	100	06/29/2022
Molybdenum		0.0015		< 0.0015	0.0006	0	0	-100	100	06/29/2022
Nickel		0.0010		< 0.0010	0.0004	0	0	-100	100	06/29/2022
Selenium		0.0010		< 0.0010	0.0006	0	0	-100	100	06/26/2022
Thallium		0.0020		< 0.0020	0.0010	0	0	-100	100	06/29/2022



## Quality Control Results

<http://www.teklabinc.com/>

Client: ERM

Work Order: 22061207

Client Project: GTEC

Report Date: 20-Jul-22

### SW-846 3005A, 6020A, METALS BY ICPMS (TOTAL)

Batch 193823      SampType: LCS      Units mg/L

SampID: LCS-193823

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Antimony		0.0010		<b>0.548</b>	0.5000	0	109.6	85	115	06/29/2022
Arsenic		0.0010		<b>0.550</b>	0.5000	0	110.0	85	115	06/26/2022
Barium		0.0010		<b>2.16</b>	2.000	0	107.9	85	115	06/29/2022
Beryllium		0.0010		<b>0.0469</b>	0.0500	0	93.9	85	115	06/29/2022
Boron		0.0250		<b>0.544</b>	0.5000	0	108.9	85	115	06/26/2022
Cadmium		0.0010		<b>0.0529</b>	0.0500	0	105.9	85	115	06/29/2022
Calcium		0.125		<b>2.37</b>	2.500	0	94.7	80	120	07/05/2022
Chromium		0.0015		<b>0.205</b>	0.2000	0	102.3	85	115	06/29/2022
Cobalt		0.0010		<b>0.474</b>	0.5000	0	94.8	85	115	06/29/2022
Iron		0.0250		<b>1.86</b>	2.000	0	92.9	85	115	06/29/2022
Lead		0.0010		<b>0.503</b>	0.5000	0	100.6	85	115	06/29/2022
Lithium	*	0.0030		<b>0.524</b>	0.5000	0	104.9	85	115	06/29/2022
Manganese		0.0020		<b>0.508</b>	0.5000	0	101.6	85	115	06/29/2022
Molybdenum		0.0015		<b>0.487</b>	0.5000	0	97.5	85	115	06/29/2022
Nickel		0.0010		<b>0.488</b>	0.5000	0	97.5	85	115	06/29/2022
Selenium		0.0010		<b>0.487</b>	0.5000	0	97.4	85	115	06/26/2022
Thallium		0.0020		<b>0.271</b>	0.2500	0	108.3	85	115	06/29/2022



## Quality Control Results

<http://www.teklabinc.com/>

Client: ERM

Work Order: 22061207

Client Project: GTEC

Report Date: 20-Jul-22

### SW-846 3005A, 6020A, METALS BY ICPMS (TOTAL)

Batch 193823      SampType: MS      Units mg/L

SampID: 22061207-012CMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Antimony		0.0010		<b>0.563</b>	0.5000	0	112.5	75	125	07/01/2022
Arsenic		0.0010		<b>0.544</b>	0.5000	0.004092	108.0	75	125	06/26/2022
Barium		0.0010		<b>2.40</b>	2.000	0.1736	111.3	75	125	07/01/2022
Beryllium		0.0020		<b>0.0547</b>	0.0500	0	109.5	75	125	07/06/2022
Boron		0.0250	S	<b>8.54</b>	0.5000	8.235	61.8	75	125	06/26/2022
Cadmium		0.0010		<b>0.0555</b>	0.0500	0	111.0	75	125	07/01/2022
Calcium		0.250	S	<b>133</b>	2.500	128.6	190.5	75	125	07/06/2022
Chromium		0.0030		<b>0.197</b>	0.2000	0	98.3	75	125	07/05/2022
Cobalt		0.0020		<b>0.479</b>	0.5000	0.001104	95.7	75	125	07/05/2022
Iron		0.0500		<b>4.16</b>	2.000	1.891	113.4	75	125	07/06/2022
Lead		0.0010		<b>0.560</b>	0.5000	0	112.1	75	125	07/01/2022
Lithium	*	0.0060		<b>0.650</b>	0.5000	0.03630	122.8	75	125	07/06/2022
Manganese		0.0040		<b>1.43</b>	0.5000	0.9043	104.6	75	125	07/06/2022
Molybdenum		0.0015		<b>0.774</b>	0.5000	0.1948	115.9	75	125	07/01/2022
Nickel		0.0020		<b>0.474</b>	0.5000	0.003881	94.1	75	125	07/05/2022
Selenium		0.0010		<b>0.485</b>	0.5000	0	97.0	75	125	06/26/2022
Thallium		0.0020		<b>0.285</b>	0.2500	0	113.9	75	125	07/01/2022



## Quality Control Results

<http://www.teklabinc.com/>

Client: ERM

Work Order: 22061207

Client Project: GTEC

Report Date: 20-Jul-22

### SW-846 3005A, 6020A, METALS BY ICPMS (TOTAL)

Batch 193823		SampType: MSD		Units mg/L				RPD Limit: 20			Date Analyzed
SampID: 22061207-012CMSD											
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed	
Antimony		0.0010		<b>0.544</b>	0.5000	0	108.8	0.5626	3.40	07/01/2022	
Arsenic		0.0010		<b>0.542</b>	0.5000	0.004092	107.6	0.5440	0.32	06/26/2022	
Barium		0.0010		<b>2.34</b>	2.000	0.1736	108.3	2.400	2.56	07/01/2022	
Beryllium		0.0020		<b>0.0540</b>	0.0500	0	107.9	0.05474	1.43	07/06/2022	
Boron		0.0250	S	<b>8.28</b>	0.5000	8.235	8.1	8.544	3.19	06/26/2022	
Cadmium		0.0010		<b>0.0546</b>	0.0500	0	109.3	0.05550	1.55	07/01/2022	
Calcium		0.250	S	<b>132</b>	2.500	128.6	131.9	133.3	1.10	07/06/2022	
Chromium		0.0030		<b>0.220</b>	0.2000	0	110.1	0.1966	11.34	07/05/2022	
Cobalt		0.0020		<b>0.533</b>	0.5000	0.001104	106.3	0.4795	10.53	07/05/2022	
Iron		0.0500		<b>4.00</b>	2.000	1.891	105.5	4.159	3.85	07/06/2022	
Lead		0.0010		<b>0.471</b>	0.5000	0	94.3	0.5604	17.24	07/01/2022	
Lithium	*	0.0060		<b>0.645</b>	0.5000	0.03630	121.7	0.6503	0.86	07/06/2022	
Manganese		0.0040		<b>1.41</b>	0.5000	0.9043	102.0	1.427	0.92	07/06/2022	
Molybdenum		0.0015		<b>0.772</b>	0.5000	0.1948	115.5	0.7743	0.26	07/01/2022	
Nickel		0.0020		<b>0.535</b>	0.5000	0.003881	106.2	0.4742	12.05	07/05/2022	
Selenium		0.0010		<b>0.488</b>	0.5000	0	97.7	0.4850	0.70	06/26/2022	
Thallium		0.0020		<b>0.248</b>	0.2500	0	99.3	0.2848	13.76	07/01/2022	

### SW-846 7470A (TOTAL)

Batch 181135		SampType: MBLK		Units mg/L							Date Analyzed
SampID: MBLK-181135											
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed	
Mercury		0.00020		<b>&lt; 0.00020</b>	0.0001	0	0	-100	100	06/21/2022	

Batch 181135		SampType: LCS		Units mg/L							Date Analyzed
SampID: LCS-181135											
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed	
Mercury		0.00020		<b>0.00456</b>	0.0050	0	91.3	85	115	06/21/2022	

Batch 181135		SampType: MS		Units mg/L							Date Analyzed
SampID: 22061207-006CMS											
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed	
Mercury		0.00020		<b>0.00446</b>	0.0050	0	89.2	75	125	06/21/2022	



## Quality Control Results

<http://www.teklabinc.com/>

Client: ERM

Work Order: 22061207

Client Project: GTEC

Report Date: 20-Jul-22

### SW-846 7470A (TOTAL)

Batch 181135		SampType: MSD		Units mg/L				RPD Limit: 15			Date Analyzed
SampID: 22061207-006CMSD											
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed	
Mercury		0.00020		<b>0.00463</b>	0.0050	0	92.5	0.004460	3.68	06/21/2022	

Batch 193766		SampType: MBLK		Units mg/L						Date Analyzed
SampID: MBLK-193766										
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury		0.00020		< <b>0.00020</b>	0.0001	0	0	-100	100	06/21/2022

Batch 193766		SampType: LCS		Units mg/L						Date Analyzed
SampID: LCS-193766										
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury		0.00020		<b>0.00475</b>	0.0050	0	95.0	85	115	06/21/2022

Batch 193766		SampType: MS		Units mg/L						Date Analyzed
SampID: 22061207-003CMS										
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury		0.00020		<b>0.00486</b>	0.0050	0	97.1	75	125	06/21/2022

Batch 193766		SampType: MSD		Units mg/L				RPD Limit: 15			Date Analyzed
SampID: 22061207-003CMSD											
Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed	
Mercury		0.00020		<b>0.00481</b>	0.0050	0	96.2	0.004857	0.92	06/21/2022	



# Receiving Check List

<http://www.teklabinc.com/>

Client: ERM

Work Order: 22061207

Client Project: GTEC

Report Date: 20-Jul-22

Carrier: Michael Abegg

Received By: PWR

Completed by:

Reviewed by:

On:

On:

17-Jun-22

17-Jun-22

Ellie Hopkins

Elizabeth A. Hurley

Pages to follow: Chain of custody

Extra pages included

- Shipping container/cooler in good condition? Yes  No  Not Present  Temp °C **3.2**
- Type of thermal preservation? None  Ice  Blue Ice  Dry Ice
- Chain of custody present? Yes  No
- Chain of custody signed when relinquished and received? Yes  No
- Chain of custody agrees with sample labels? Yes  No
- Samples in proper container/bottle? Yes  No
- Sample containers intact? Yes  No
- Sufficient sample volume for indicated test? Yes  No
- All samples received within holding time? Yes  No
- Reported field parameters measured: Field  Lab  NA

Sample analyses to be measured in the field and/or within 15 minutes of collection were analyzed in the lab as soon as practicable. These analyses include Chlorine (demand, free and/or residual), Carbon Dioxide, Dissolved Oxygen, Ferrous Iron, pH, and Sulfite.

Container/Temp Blank temperature in compliance? Yes  No

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

- Water – at least one vial per sample has zero headspace? Yes  No  No VOA vials
- Water - TOX containers have zero headspace? Yes  No  No TOX containers
- Water - pH acceptable upon receipt? Yes  No  NA
- NPDES/CWA TCN interferences checked/treated in the field? Yes  No  NA

**Any No responses must be detailed below or on the COC.**

pH strip #78198 - CET 6/17/22

Additional nitric acid (82107) was needed in all Ra226/228 containers except EB-01 upon arrival at the laboratory. - CET 6/17/22

# CHAIN OF CUSTODY

pg. 1 of 2 Work order # 22061207

TEKLAB, INC. 5445 Horseshoe Lake Road - Collinsville, IL 62234 - Phone: (618) 344-1004 - Fax: (618) 344-1005

**Client:** ERM  
**Address:** 68 Villa Grove  
**City / State / Zip:** Springfield, IL 62712  
**Contact:** Matt Halley **Phone:** (217) 529-0914  
**E-Mail:** matt.halley@erm.com **Fax:** \_\_\_\_\_

**Samples on:**  ICE  BLUE ICE  NO ICE 3.2 °C LTG# 5  
**Preserved in:**  LAB  FIELD **FOR LAB USE ONLY**  
**Lab Notes:** Add HNO3 @ 207 to all two liters except EB-01's. DW/ASAP. CES 6-17-22

Are these samples known to be involved in litigation? If yes, a surcharge will apply  Yes  No  
 Are these samples known to be hazardous?  Yes  No  
 Are there any required reporting limits to be met on the requested analysis?. If yes, please provide limits in the comment section.  Yes  No

**Client Comments:**  
 Total/Dissolved Metals: Sb As Ba Be B Cd Ca Cr Co Pb Li Mo Se Tl  
 Dissolved Metals are to be field-filtered.  
bottles w/ red dot is field filtered

Project Name/Number GTEC		Sample Collector's Name <u>Abess / Senoucie</u>		MATRIX		INDICATE ANALYSIS REQUESTED														
Results Requested <input checked="" type="checkbox"/> Standard <input type="checkbox"/> 1-2 Day (100% Surcharge) <input type="checkbox"/> Other _____ <input type="checkbox"/> 3 Day (50% Surcharge)		Billing Instructions		# and Type of Containers		Aqueous	Drinking Water	Soil	Sludge	Special Waste	Groundwater	Dissolved Metals ICP/MS Chloride	Fluoride	pH	Ra226/228 (SUB)	Sulfate	TDS	Total Fe/Mn	Total Hg	Total Metals ICP/MS
Lab Use Only	Sample Identification	Date/Time Sampled	UNPRES	HNO3	NaOH															
<u>22061207-021</u>	<u>EB-01-WA-20220615</u>	<u>6/15/22 0730</u>	<u>1</u>	<u>Y</u>							X	X	X	X	X	X	X	X	X	X
<u>002</u>	<u>APW-04-WG-20220615</u>	<u>0915</u>																		
<u>003</u>	<u>APW-1R-WG-20220615</u>	<u>1040</u>																		
<u>004</u>	<u>APW-01-WG-20220615</u>	<u>1210</u>																		
<u>005</u>	<u>APW-05-WG-20220615</u>	<u>1340</u>																		
<u>006</u>	<u>APW-10D-WG-20220615</u>	<u>1455</u>																		
<u>007</u>	<u>APW-07-WG-20220615</u>	<u>6/16/22 0715</u>																		
<u>008</u>	<u>APW-08-WG-20220616</u>	<u>0900</u>																		
<u>009</u>	<u>APW-03-WG-20220616</u>	<u>1030</u>																		
<u>010</u>	<u>APW-05-WG-20220616</u>	<u>1200</u>																		
Relinquished By		Date/Time		Received By		Date/Time														
<u>Michael Abess (ERM)</u>		<u>6/17/22</u>		<u>[Signature]</u>		<u>6/17/22</u>		<u>0812</u>												

The individual signing this agreement on behalf of the client, acknowledges that he/she has read and understands the terms and conditions of this agreement, and that he/she has the authority to sign on behalf of the client. See [www.teklabinc.com](http://www.teklabinc.com) for terms and conditions.

BottleOrder: 72606



CES 6-17-22

# CHAIN OF CUSTODY

pg. 2 of 2 Work order # 22061207

TEKLAB, INC. 5445 Horseshoe Lake Road - Collinsville, IL 62234 - Phone: (618) 344-1004 - Fax: (618) 344-1005

**Client:** ERM  
**Address:** 68 Villa Grove  
**City / State / Zip:** Springfield, IL 62712  
**Contact:** Matt Halley **Phone:** (217) 529-0914  
**E-Mail:** matt.halley@erm.com **Fax:** \_\_\_\_\_

**Samples on:**  ICE  BLUE ICE  NO ICE 3.2 °C LTG# 5  
**Preserved in:**  LAB  FIELD **FOR LAB USE ONLY**  
**Lab Notes**

Are these samples known to be involved in litigation? If yes, a surcharge will apply  Yes  No  
 Are these samples known to be hazardous?  Yes  No  
 Are there any required reporting limits to be met on the requested analysis?. If yes, please provide limits in the comment section.  Yes  No

**Client Comments:**  
 Total/Dissolved Metals: Sb As Ba Be B Cd Ca Cr Co Pb Li Mo Se Tl  
 Dissolved Metals are to be field-filtered.

Project Name/Number GTEC		Sample Collector's Name <i>Paul / Simpson</i>										MATRIX		INDICATE ANALYSIS REQUESTED													
Results Requested <input checked="" type="checkbox"/> Standard <input type="checkbox"/> 1-2 Day (100% Surcharge) <input type="checkbox"/> Other <input type="checkbox"/> 3 Day (50% Surcharge)		Billing Instructions		# and Type of Containers								Aqueous	Drinking Water	Soil	Sludge	Special Waste	Groundwater	Dissolved Metals ICP/MS Chloride	Fluoride	pH	Ra226/228 (SUB)	Sulfate	TDS	Total Fe/Mn	Total Hg	Total Metals ICP/MS	
Lab Use Only	Sample Identification		Date/Time Sampled		UNPRES	HNO3	NaOH	H2SO4	HCL	MeOH	NaHSO4																OTHER
	22061207-011	RAW-05-WB-20220610	6/10/22	130												X	X	X	X	X	X	X	X	X	X	X	X
	012	DUP-001-WB-20220610	6/10/22																								
	013	RAW-02-WB-20220610	6/10/22	150																							
	014	DUP-002-WB-20220610	6/10/22																								
Relinquished By <i>[Signature]</i>			Date/Time 6/17/22			Received By <i>[Signature]</i>			Date/Time 6/17/22 0812																		

## TEKLAB, Inc.

Sample Delivery Group: L1507552  
Samples Received: 06/22/2022  
Project Number:  
Description:

Report To: Elizabeth Hurley  
5445 Horseshoe Lake Road  
Collinsville, IL 62234

Entire Report Reviewed By:



Mark W. Beasley  
Project Manager

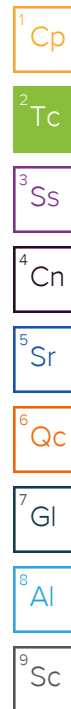
Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory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

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 [www.pacenational.com](http://www.pacenational.com)

# TABLE OF CONTENTS

<b>Cp: Cover Page</b>	<b>1</b>
<b>Tc: Table of Contents</b>	<b>2</b>
<b>Ss: Sample Summary</b>	<b>3</b>
<b>Cn: Case Narrative</b>	<b>6</b>
<b>Sr: Sample Results</b>	<b>7</b>
22061207-001 L1507552-01	7
22061207-002 L1507552-02	8
22061207-003 L1507552-03	9
22061207-004 L1507552-04	10
22061207-005 L1507552-05	11
22061207-006 L1507552-06	12
22061207-007 L1507552-07	13
22061207-008 L1507552-08	14
22061207-009 L1507552-09	15
22061207-010 L1507552-10	16
22061207-011 L1507552-11	17
22061207-012 L1507552-12	18
22061207-013 L1507552-13	19
22061207-014 L1507552-14	20
<b>Qc: Quality Control Summary</b>	<b>21</b>
Radiochemistry by Method 904/9320	21
Radiochemistry by Method SM7500Ra B M	23
<b>Gl: Glossary of Terms</b>	<b>24</b>
<b>Al: Accreditations &amp; Locations</b>	<b>25</b>
<b>Sc: Sample Chain of Custody</b>	<b>26</b>



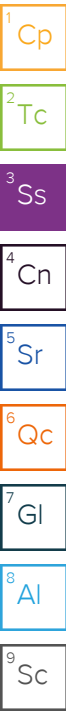
# SAMPLE SUMMARY

## 22061207-001 L1507552-01 Non-Potable Water

Collected by  
Collected date/time  
Received date/time

06/15/22 07:30 06/22/22 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG1888819	1	07/06/22 10:53	07/14/22 15:50	SWM	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1888214	1	07/04/22 09:22	07/14/22 15:50	SWM	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1888214	1	07/04/22 09:22	07/05/22 14:28	RGT	Mt. Juliet, TN



## 22061207-002 L1507552-02 Non-Potable Water

Collected by  
Collected date/time  
Received date/time

06/15/22 09:15 06/22/22 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG1888819	1	07/06/22 10:53	07/14/22 15:50	SWM	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1888214	1	07/04/22 09:22	07/14/22 15:50	SWM	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1888214	1	07/04/22 09:22	07/05/22 14:28	RGT	Mt. Juliet, TN

## 22061207-003 L1507552-03 Non-Potable Water

Collected by  
Collected date/time  
Received date/time

06/15/22 10:40 06/22/22 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG1888819	1	07/06/22 10:53	07/14/22 15:50	SWM	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1888214	1	07/04/22 09:22	07/14/22 15:50	SWM	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1888214	1	07/04/22 09:22	07/05/22 14:28	RGT	Mt. Juliet, TN

## 22061207-004 L1507552-04 Non-Potable Water

Collected by  
Collected date/time  
Received date/time

06/15/22 12:10 06/22/22 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG1888819	1	07/06/22 10:53	07/14/22 15:50	SWM	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1888214	1	07/04/22 09:22	07/14/22 15:50	SWM	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1888214	1	07/04/22 09:22	07/05/22 14:28	RGT	Mt. Juliet, TN

## 22061207-005 L1507552-05 Non-Potable Water

Collected by  
Collected date/time  
Received date/time

06/15/22 13:40 06/22/22 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG1888819	1	07/06/22 10:53	07/14/22 15:50	SWM	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1888214	1	07/04/22 09:22	07/14/22 15:50	SWM	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1888214	1	07/04/22 09:22	07/05/22 14:28	RGT	Mt. Juliet, TN

## 22061207-006 L1507552-06 Non-Potable Water

Collected by  
Collected date/time  
Received date/time

06/15/22 14:55 06/22/22 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG1888819	1	07/06/22 10:53	07/14/22 15:50	SWM	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1888214	1	07/04/22 09:22	07/14/22 15:50	SWM	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1888214	1	07/04/22 09:22	07/05/22 14:28	RGT	Mt. Juliet, TN

# SAMPLE SUMMARY

## 22061207-007 L1507552-07 Non-Potable Water

Collected by  
Collected date/time  
Received date/time

06/16/22 07:15 06/22/22 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG1888819	1	07/06/22 10:53	07/14/22 15:50	SWM	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1888214	1	07/04/22 09:22	07/14/22 15:50	SWM	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1888214	1	07/04/22 09:22	07/05/22 14:28	RGT	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

## 22061207-008 L1507552-08 Non-Potable Water

Collected by  
Collected date/time  
Received date/time

06/16/22 09:00 06/22/22 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG1888819	1	07/06/22 10:53	07/14/22 15:50	SWM	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1888214	1	07/04/22 09:22	07/14/22 15:50	SWM	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1888214	1	07/04/22 09:22	07/05/22 14:28	RGT	Mt. Juliet, TN

4 Cn

5 Sr

6 Qc

## 22061207-009 L1507552-09 Non-Potable Water

Collected by  
Collected date/time  
Received date/time

06/16/22 10:30 06/22/22 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG1888819	1	07/06/22 10:53	07/18/22 12:00	SWM	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1888214	1	07/04/22 09:22	07/18/22 12:00	SWM	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1888214	1	07/04/22 09:22	07/05/22 14:28	RGT	Mt. Juliet, TN

7 Gl

8 Al

9 Sc

## 22061207-010 L1507552-10 Non-Potable Water

Collected by  
Collected date/time  
Received date/time

06/16/22 12:00 06/22/22 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG1888819	1	07/06/22 10:53	07/14/22 15:50	SWM	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1888214	1	07/04/22 09:22	07/14/22 15:50	SWM	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1888214	1	07/04/22 09:22	07/05/22 14:28	RGT	Mt. Juliet, TN

## 22061207-011 L1507552-11 Non-Potable Water

Collected by  
Collected date/time  
Received date/time

06/16/22 13:00 06/22/22 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG1888819	1	07/06/22 10:53	07/14/22 15:50	SWM	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1888214	1	07/04/22 09:22	07/14/22 15:50	SWM	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1888214	1	07/04/22 09:22	07/05/22 14:28	RGT	Mt. Juliet, TN

## 22061207-012 L1507552-12 Non-Potable Water

Collected by  
Collected date/time  
Received date/time

06/16/22 00:00 06/22/22 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG1888820	1	07/06/22 16:04	07/13/22 16:39	SWM	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1888214	1	07/04/22 09:22	07/13/22 16:39	SWM	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1888214	1	07/04/22 09:22	07/05/22 14:28	RGT	Mt. Juliet, TN

# SAMPLE SUMMARY

## 22061207-013 L1507552-13 Non-Potable Water

Collected by  
Collected date/time  
Received date/time

06/16/22 15:10      06/22/22 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG1888820	1	07/06/22 16:04	07/18/22 15:42	SWM	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1888214	1	07/04/22 09:22	07/18/22 15:42	SWM	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1888214	1	07/04/22 09:22	07/05/22 14:28	RGT	Mt. Juliet, TN

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

## 22061207-014 L1507552-14 Non-Potable Water

Collected by  
Collected date/time  
Received date/time

06/16/22 00:00      06/22/22 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG1888820	1	07/06/22 16:04	07/13/22 16:39	SWM	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG1888214	1	07/04/22 09:22	07/13/22 16:39	SWM	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1888214	1	07/04/22 09:22	07/05/22 14:28	RGT	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.



Mark W. Beasley  
Project Manager

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	-0.210	<u>U</u>	0.223	0.420	07/14/2022 15:50	<a href="#">WG1888819</a>
(T) Barium	108			62.0-143	07/14/2022 15:50	<a href="#">WG1888819</a>
(T) Yttrium	102			79.0-136	07/14/2022 15:50	<a href="#">WG1888819</a>

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.572		0.380	0.497	07/14/2022 15:50	<a href="#">WG1888214</a>

<sup>4</sup>Cn

<sup>5</sup>Sr

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.572		0.308	0.266	07/05/2022 14:28	<a href="#">WG1888214</a>
(T) Barium-133	87.9			30.0-143	07/05/2022 14:28	<a href="#">WG1888214</a>

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	0.245	J	0.235	0.427	07/14/2022 15:50	<a href="#">WG1888819</a>
(T) Barium	89.7			62.0-143	07/14/2022 15:50	<a href="#">WG1888819</a>
(T) Yttrium	103			79.0-136	07/14/2022 15:50	<a href="#">WG1888819</a>

1 Cp

2 Tc

3 Ss

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.348	J	0.287	0.497	07/14/2022 15:50	<a href="#">WG1888214</a>

4 Cn

5 Sr

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.103	J	0.164	0.255	07/05/2022 14:28	<a href="#">WG1888214</a>
(T) Barium-133	96.0			30.0-143	07/05/2022 14:28	<a href="#">WG1888214</a>

6 Qc

7 Gl

8 Al

9 Sc

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	0.661		0.257	0.452	07/14/2022 15:50	<a href="#">WG1888819</a>
(T) Barium	91.4			62.0-143	07/14/2022 15:50	<a href="#">WG1888819</a>
(T) Yttrium	100			79.0-136	07/14/2022 15:50	<a href="#">WG1888819</a>

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

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.693		0.293	0.522	07/14/2022 15:50	<a href="#">WG1888214</a>

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.0323	<u>U</u>	0.141	0.261	07/05/2022 14:28	<a href="#">WG1888214</a>
(T) Barium-133	94.8			30.0-143	07/05/2022 14:28	<a href="#">WG1888214</a>

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	-0.213	<u>U</u>	0.244	0.457	07/14/2022 15:50	<a href="#">WG1888819</a>
(T) Barium	92.2			62.0-143	07/14/2022 15:50	<a href="#">WG1888819</a>
(T) Yttrium	99.8			79.0-136	07/14/2022 15:50	<a href="#">WG1888819</a>

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

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.267	<u>J</u>	0.315	0.503	07/14/2022 15:50	<a href="#">WG1888214</a>

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.267		0.199	0.211	07/05/2022 14:28	<a href="#">WG1888214</a>
(T) Barium-133	91.0			30.0-143	07/05/2022 14:28	<a href="#">WG1888214</a>

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	0.475	J	0.268	0.478	07/14/2022 15:50	<a href="#">WG1888819</a>
(T) Barium	95.4			62.0-143	07/14/2022 15:50	<a href="#">WG1888819</a>
(T) Yttrium	105			79.0-136	07/14/2022 15:50	<a href="#">WG1888819</a>

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

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.25		0.420	0.530	07/14/2022 15:50	<a href="#">WG1888214</a>

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.778		0.324	0.230	07/05/2022 14:28	<a href="#">WG1888214</a>
(T) Barium-133	96.9			30.0-143	07/05/2022 14:28	<a href="#">WG1888214</a>

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	1.19		0.311	0.534	07/14/2022 15:50	<a href="#">WG1888819</a>
(T) Barium	99.2			62.0-143	07/14/2022 15:50	<a href="#">WG1888819</a>
(T) Yttrium	95.1			79.0-136	07/14/2022 15:50	<a href="#">WG1888819</a>

1 Cp

2 Tc

3 Ss

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.44		0.374	0.585	07/14/2022 15:50	<a href="#">WG1888214</a>

4 Cn

5 Sr

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.249		0.207	0.238	07/05/2022 14:28	<a href="#">WG1888214</a>
(T) Barium-133	101			30.0-143	07/05/2022 14:28	<a href="#">WG1888214</a>

6 Qc

7 Gl

8 Al

9 Sc

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	0.766		0.234	0.406	07/14/2022 15:50	<a href="#">WG1888819</a>
(T) Barium	99.4			62.0-143	07/14/2022 15:50	<a href="#">WG1888819</a>
(T) Yttrium	101			79.0-136	07/14/2022 15:50	<a href="#">WG1888819</a>

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

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.10		0.313	0.439	07/14/2022 15:50	<a href="#">WG1888214</a>

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.333		0.208	0.166	07/05/2022 14:28	<a href="#">WG1888214</a>
(T) Barium-133	107			30.0-143	07/05/2022 14:28	<a href="#">WG1888214</a>

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	0.526		0.224	0.397	07/14/2022 15:50	<a href="#">WG1888819</a>
(T) Barium	102			62.0-143	07/14/2022 15:50	<a href="#">WG1888819</a>
(T) Yttrium	102			79.0-136	07/14/2022 15:50	<a href="#">WG1888819</a>

1 Cp

2 Tc

3 Ss

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.735		0.325	0.511	07/14/2022 15:50	<a href="#">WG1888214</a>

4 Cn

5 Sr

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.208	J	0.236	0.321	07/05/2022 14:28	<a href="#">WG1888214</a>
(T) Barium-133	103			30.0-143	07/05/2022 14:28	<a href="#">WG1888214</a>

6 Qc

7 Gl

8 Al

9 Sc

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	1.89	<u>J3</u>	0.260	0.652	07/18/2022 12:00	<a href="#">WG1888819</a>
(T) Barium	86.8			62.0-143	07/18/2022 12:00	<a href="#">WG1888819</a>
(T) Yttrium	114			79.0-136	07/18/2022 12:00	<a href="#">WG1888819</a>

1 Cp

2 Tc

3 Ss

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	2.09		0.303	0.666	07/18/2022 12:00	<a href="#">WG1888214</a>

4 Cn

5 Sr

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.201		0.155	0.136	07/05/2022 14:28	<a href="#">WG1888214</a>
(T) Barium-133	102			30.0-143	07/05/2022 14:28	<a href="#">WG1888214</a>

6 Qc

7 Gl

8 Al

9 Sc

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	0.228	J	0.248	0.451	07/14/2022 15:50	<a href="#">WG1888819</a>
(T) Barium	98.0			62.0-143	07/14/2022 15:50	<a href="#">WG1888819</a>
(T) Yttrium	95.8			79.0-136	07/14/2022 15:50	<a href="#">WG1888819</a>

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

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.497		0.308	0.473	07/14/2022 15:50	<a href="#">WG1888214</a>

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.269		0.182	0.141	07/05/2022 14:28	<a href="#">WG1888214</a>
(T) Barium-133	102			30.0-143	07/05/2022 14:28	<a href="#">WG1888214</a>

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	1.10		0.282	0.484	07/14/2022 15:50	<a href="#">WG1888819</a>
(T) Barium	93.0			62.0-143	07/14/2022 15:50	<a href="#">WG1888819</a>
(T) Yttrium	100			79.0-136	07/14/2022 15:50	<a href="#">WG1888819</a>

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

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.75		0.424	0.559	07/14/2022 15:50	<a href="#">WG1888214</a>

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.649		0.316	0.280	07/05/2022 14:28	<a href="#">WG1888214</a>
(T) Barium-133	101			30.0-143	07/05/2022 14:28	<a href="#">WG1888214</a>

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	0.715		0.310	0.551	07/13/2022 16:39	<a href="#">WG1888820</a>
(T) Barium	78.5			62.0-143	07/13/2022 16:39	<a href="#">WG1888820</a>
(T) Yttrium	96.5			79.0-136	07/13/2022 16:39	<a href="#">WG1888820</a>

1 Cp

2 Tc

3 Ss

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.973		0.411	0.656	07/13/2022 16:39	<a href="#">WG1888214</a>

4 Cn

5 Sr

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.259	J	0.270	0.356	07/05/2022 14:28	<a href="#">WG1888214</a>
(T) Barium-133	79.6			30.0-143	07/05/2022 14:28	<a href="#">WG1888214</a>

6 Qc

7 Gl

8 Al

9 Sc

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	0.308	<u>J3 U</u>	0.236	0.672	07/18/2022 15:42	<a href="#">WG1888820</a>
(T) Barium	91.1			62.0-143	07/18/2022 15:42	<a href="#">WG1888820</a>
(T) Yttrium	101			79.0-136	07/18/2022 15:42	<a href="#">WG1888820</a>

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

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.467	<u>J</u>	0.297	0.711	07/18/2022 15:42	<a href="#">WG1888214</a>

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.159	<u>J</u>	0.181	0.233	07/05/2022 14:28	<a href="#">WG1888214</a>
(T) Barium-133	83.1			30.0-143	07/05/2022 14:28	<a href="#">WG1888214</a>

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	-0.165	<u>U</u>	0.280	0.525	07/13/2022 16:39	<a href="#">WG1888820</a>
(T) Barium	84.9			62.0-143	07/13/2022 16:39	<a href="#">WG1888820</a>
(T) Yttrium	110			79.0-136	07/13/2022 16:39	<a href="#">WG1888820</a>

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.218	<u>U</u>	0.420	0.695	07/13/2022 16:39	<a href="#">WG1888214</a>

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.218	<u>J</u>	0.313	0.456	07/05/2022 14:28	<a href="#">WG1888214</a>
(T) Barium-133	67.7			30.0-143	07/05/2022 14:28	<a href="#">WG1888214</a>

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

Method Blank (MB)

(MB) R3816298-4 07/18/22 12:00

Analyte	MB Result pCi/l	MB Qualifier	MB Uncertainty + / -	MB MDA pCi/l
Radium-228	0.469	<u>J</u>	0.185	0.514
(T) Barium	86.6		86.6	
(T) Yttrium	109		109	

L1507552-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1507552-09 07/18/22 12:00 • (DUP) R3816298-5 07/18/22 12:00

Analyte	Original Result pCi/l	Original Uncertainty + / -	Original MDA pCi/l	DUP Result pCi/l	DUP Uncertainty + / -	DUP MDA pCi/l	Dilution	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	1.89	0.260	0.652	0.490	0.326	0.652	1	118	3.36	<u>J3 U</u>	20	3
(T) Barium	86.8			93.0	93.0							
(T) Yttrium	114			105	105							

Laboratory Control Sample (LCS)

(LCS) R3816298-1 07/14/22 15:50

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	4.60	92.0	80.0-120	
(T) Barium			102		
(T) Yttrium			99.1		

L1507552-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1507552-01 07/14/22 15:50 • (MS) R3816298-2 07/14/22 15:50 • (MSD) R3816298-3 07/14/22 15:50

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	10.0	-0.210	9.18	8.81	91.8	88.1	1	70.0-130			4.15		20
(T) Barium		108			99.2	101							
(T) Yttrium		102			97.2	106							

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3816456-1 07/13/22 16:39

Analyte	MB Result pCi/l	MB Qualifier	MB Uncertainty + / -	MB MDA pCi/l
Radium-228	-0.123	<u>U</u>	0.211	0.194
(T) Barium	104		104	
(T) Yttrium	93.9		93.9	

L1507552-13 Original Sample (OS) • Duplicate (DUP)

(OS) L1507552-13 07/18/22 15:42 • (DUP) R3816456-5 07/18/22 15:42

Analyte	Original Result pCi/l	Original Uncertainty + / -	Original MDA pCi/l	DUP Result pCi/l	DUP Uncertainty + / -	DUP MDA pCi/l	Dilution	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	0.308	0.236	0.672	1.56	0.337	0.672	1	134	3.05	<u>J3</u>	20	3
(T) Barium	91.1			98.9	98.9							
(T) Yttrium	101			105	105							

Laboratory Control Sample (LCS)

(LCS) R3816456-2 07/13/22 16:39

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	4.01	80.3	80.0-120	
(T) Barium			106		
(T) Yttrium			105		

L1507552-12 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1507552-12 07/13/22 16:39 • (MS) R3816456-3 07/13/22 16:39 • (MSD) R3816456-4 07/13/22 16:39

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	10.0	0.715	10.3	10.3	95.7	95.5	1	70.0-130			0.195		20
(T) Barium		78.5			96.3	104							
(T) Yttrium		96.5			100	105							

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3812631-1 07/05/22 14:28

Analyte	MB Result pCi/l	MB Qualifier	MB Uncertainty + / -	MB MDA pCi/l
Radium-226	-0.0152	<u>U</u>	0.0210	0.0613
(T) Barium-133	113		113	

L1507552-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1507552-01 07/05/22 14:28 • (DUP) R3812631-5 07/05/22 14:28

Analyte	Original Result pCi/l	Original Uncertainty + / -	Original MDA pCi/l	DUP Result pCi/l	DUP Uncertainty + / -	DUP MDA pCi/l	Dilution	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-226	0.572	0.308	0.266	0.0145	0.0897	0.266	1	190	1.74	<u>U</u>	20	3
(T) Barium-133	87.9			91.7	91.7							

Laboratory Control Sample (LCS)

(LCS) R3812631-2 07/05/22 14:28

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.02	4.32	86.1	80.0-120	
(T) Barium-133			93.7		

L1507552-14 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1507552-14 07/05/22 14:28 • (MS) R3812631-3 07/05/22 14:28 • (MSD) R3812631-4 07/05/22 14:28

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	0.218	19.3	19.3	95.3	95.4	1	75.0-125			0.0519		20
(T) Barium-133		67.7			110	107							

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

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

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

### Abbreviations and Definitions

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.
J3	The associated batch QC was outside the established quality control range for precision.
U	Below Detectable Limits: Indicates that the analyte was not detected.

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

# ACCREDITATIONS & LOCATIONS

## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	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 <sup>1,6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	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 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> 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.

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc





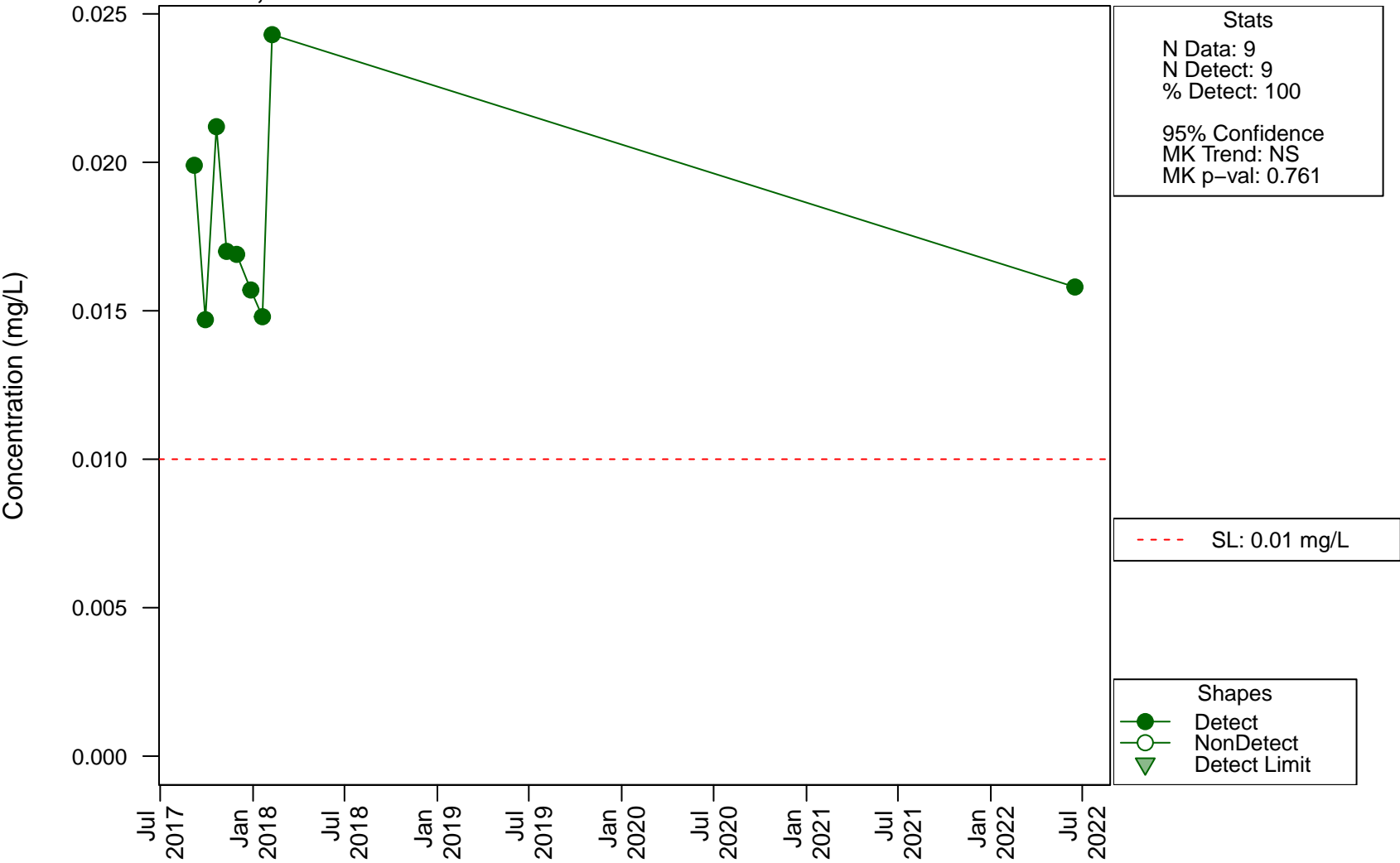
U50 7552

<u>Tracking Numbers</u>		<u>Temperature</u>
		MMAG 25.6 #0 225,6
		MMAG 26.2 #0 226,2
		MMAG 28.2 #0 223,2
		MMAG 29.2 #0 224,2

**APPENDIX E: MANN-KENDALL ANALYSIS GRAPHS**

# Scatterplots and Trend Analysis

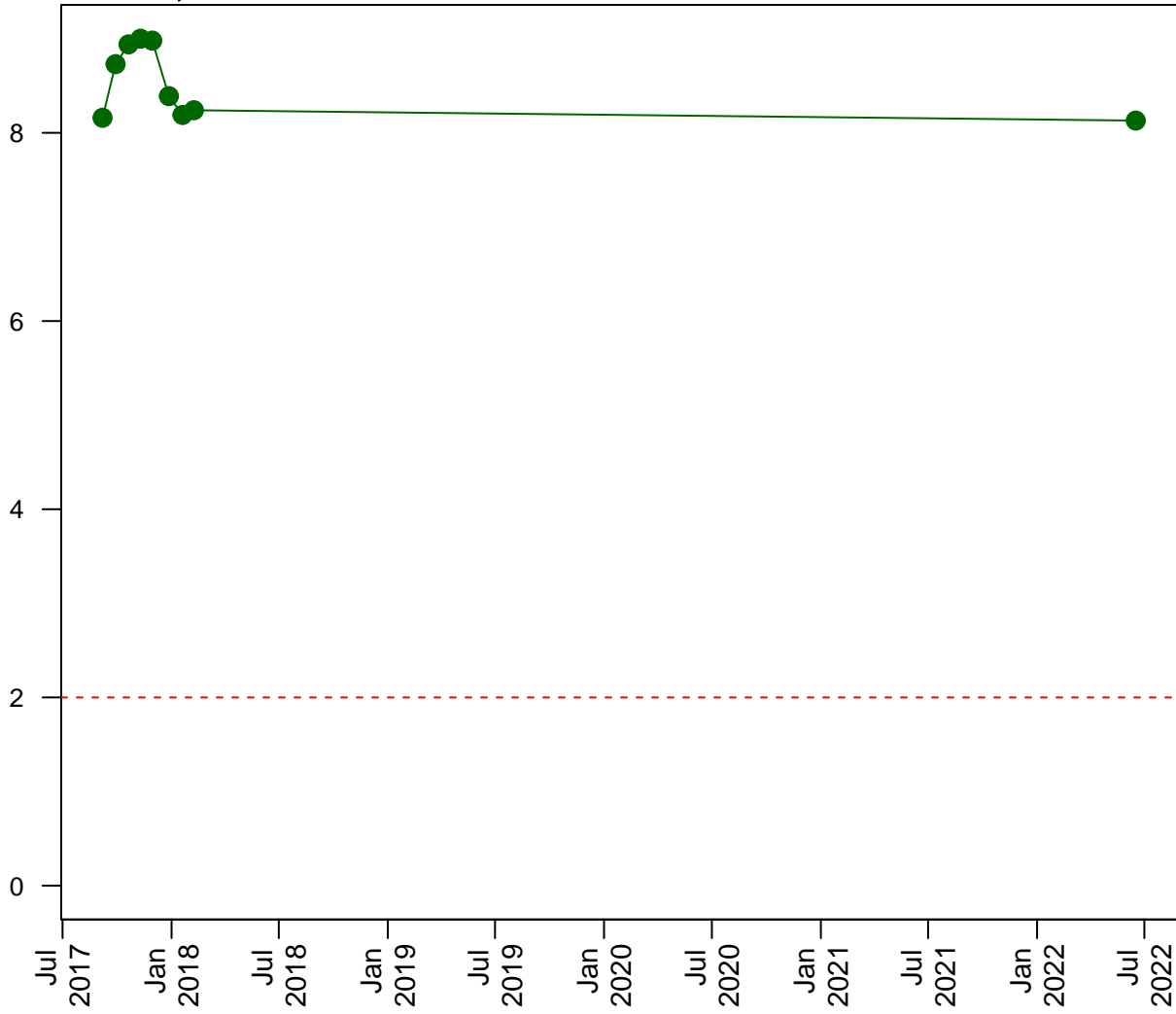
## APW-02, Arsenic



# Scatterplots and Trend Analysis

## APW-02, Boron

Concentration (mg/L)



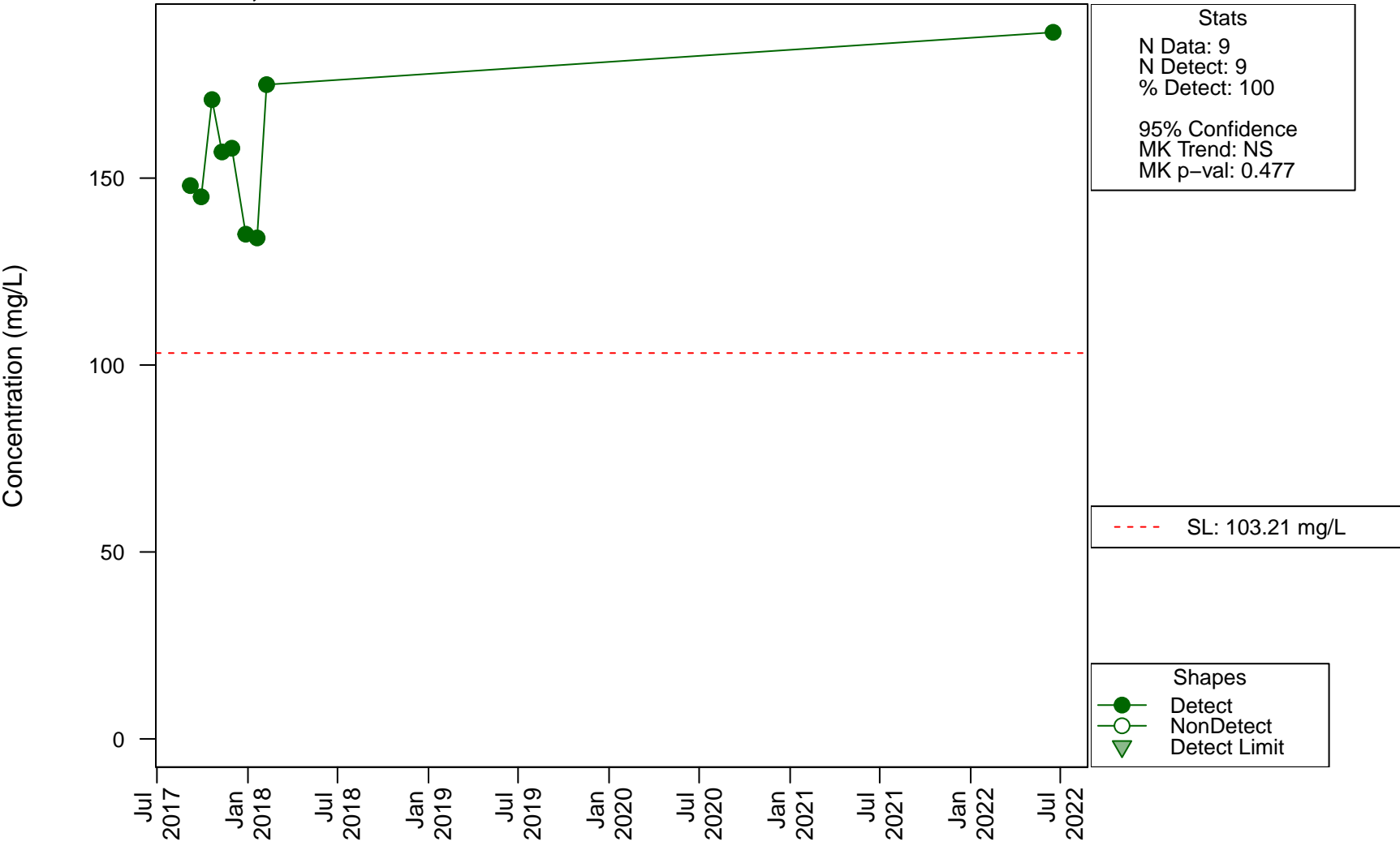
Stats  
N Data: 9  
N Detect: 9  
% Detect: 100  
  
95% Confidence  
MK Trend: NS  
MK p-val: 0.358

--- SL: 2 mg/L

Shapes  
● Detect  
○ NonDetect  
▼ Detect Limit

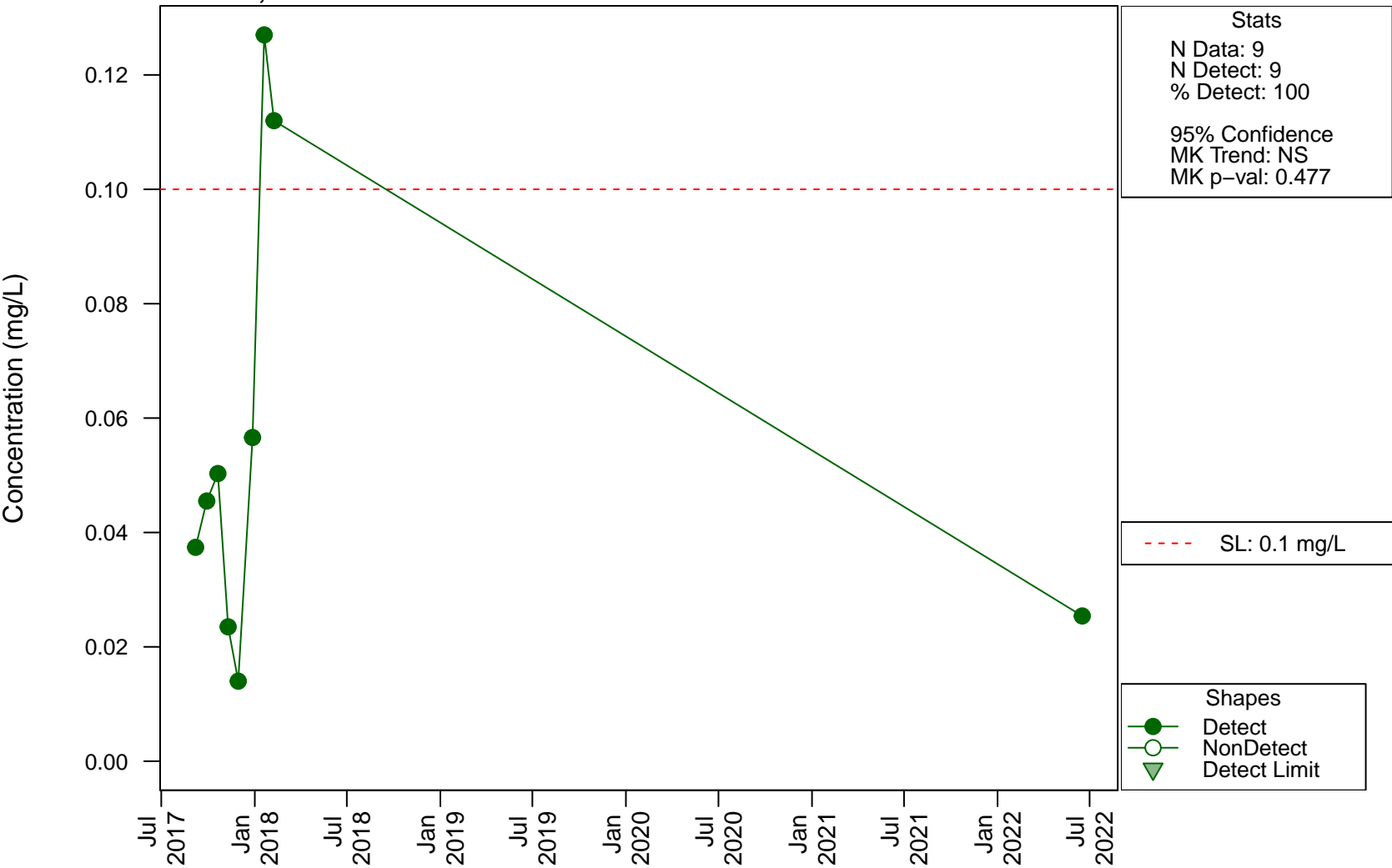
# Scatterplots and Trend Analysis

## APW-02, Calcium



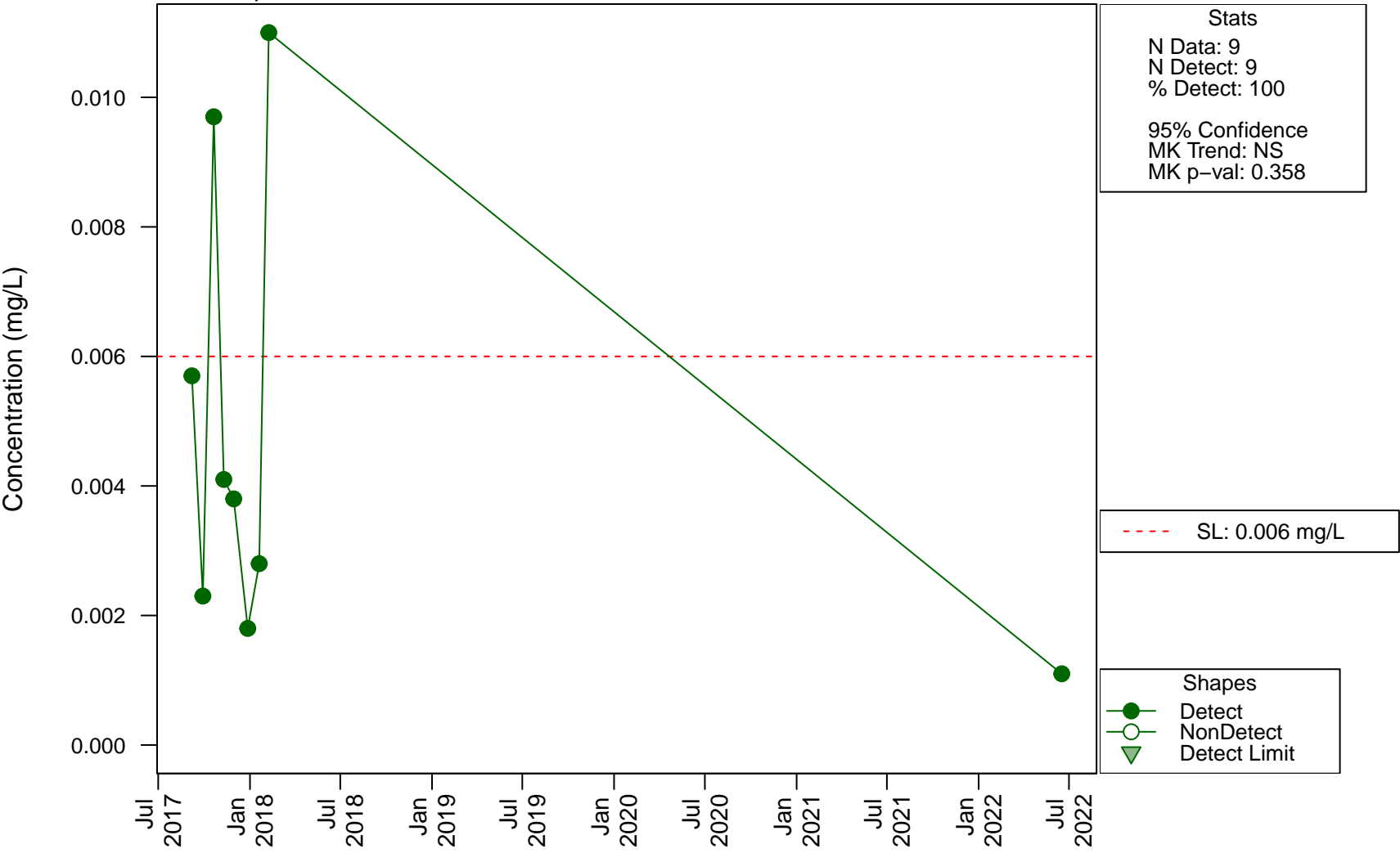
# Scatterplots and Trend Analysis

## APW-02, Chromium



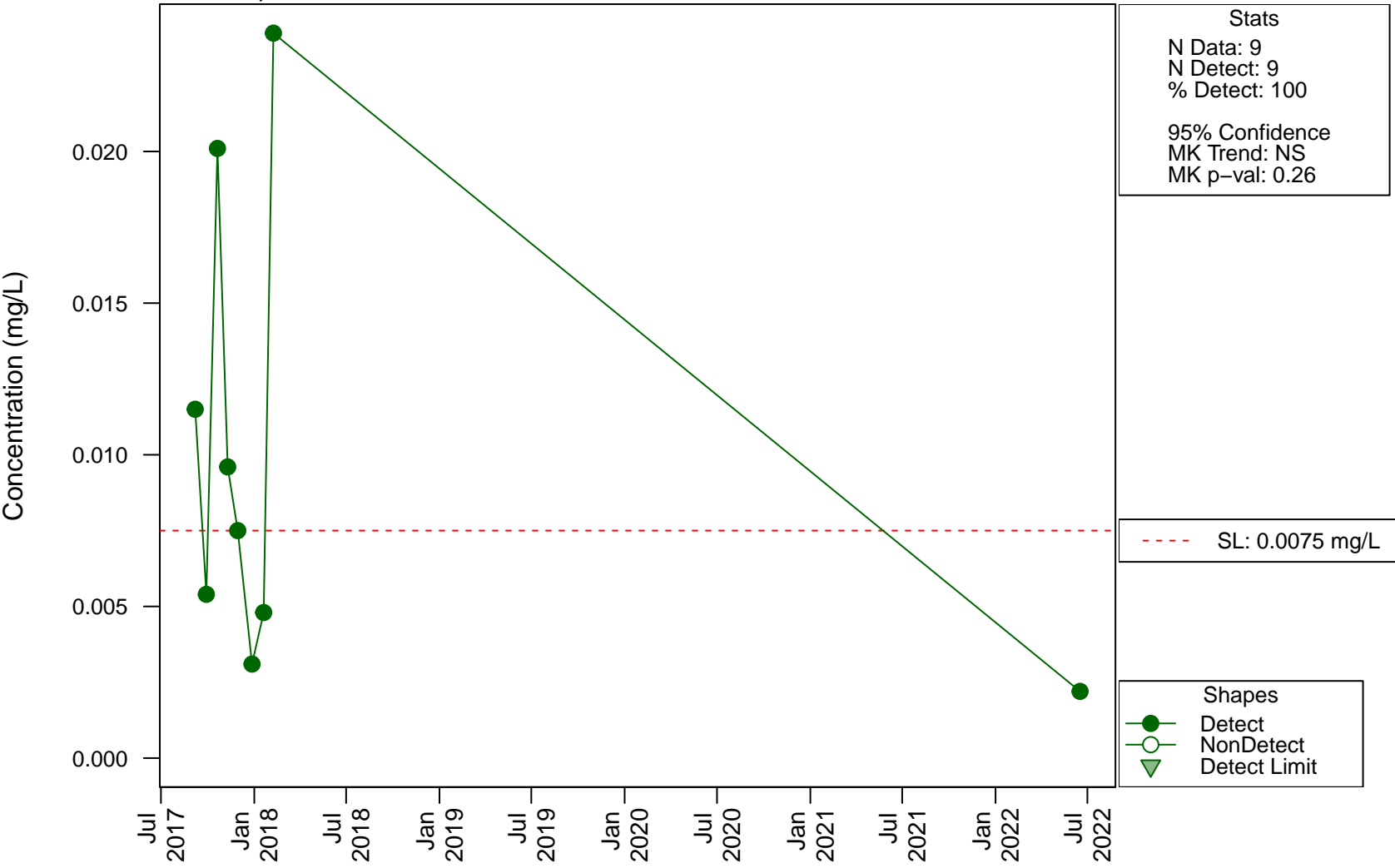
# Scatterplots and Trend Analysis

## APW-02, Cobalt



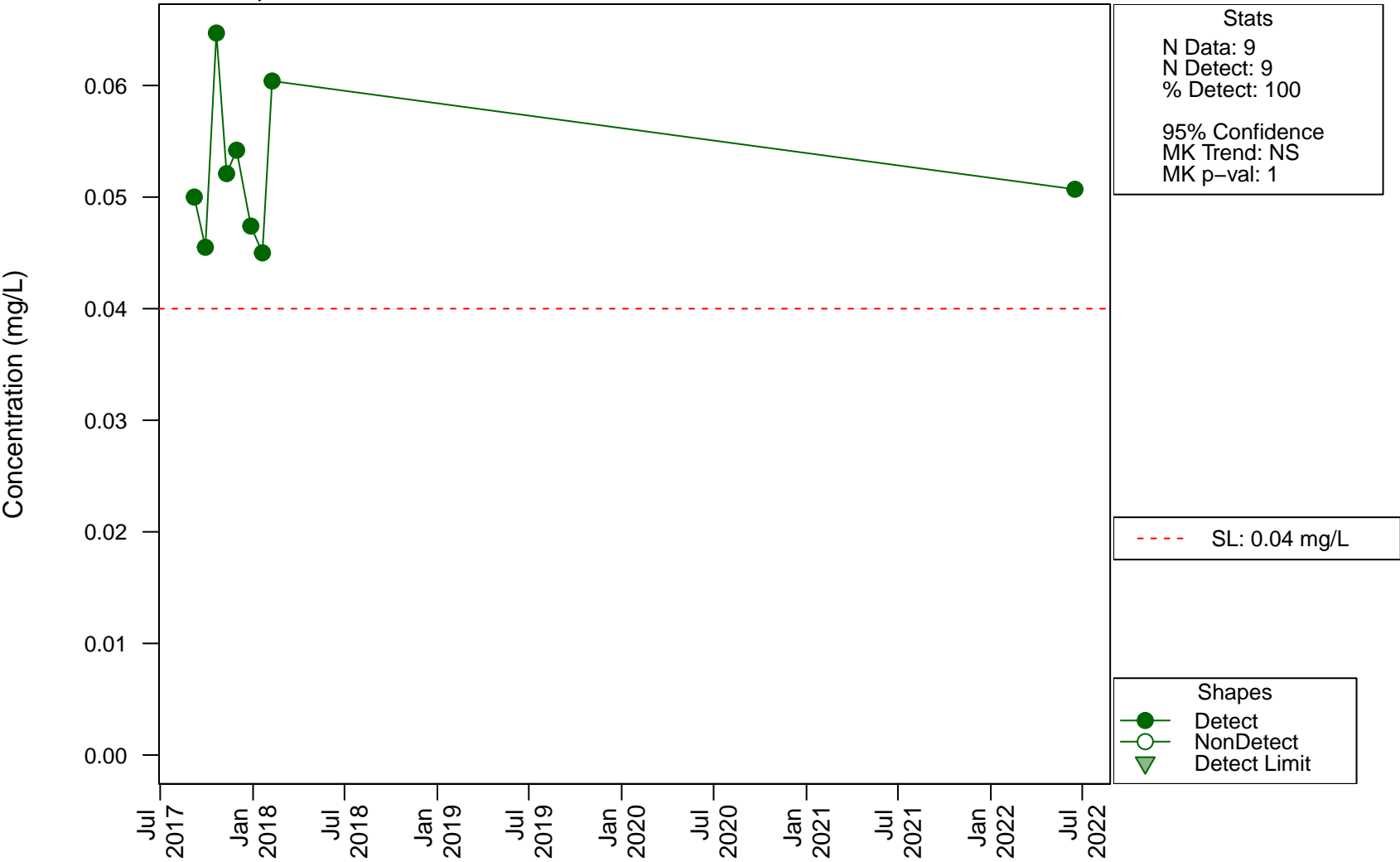
# Scatterplots and Trend Analysis

## APW-02, Lead



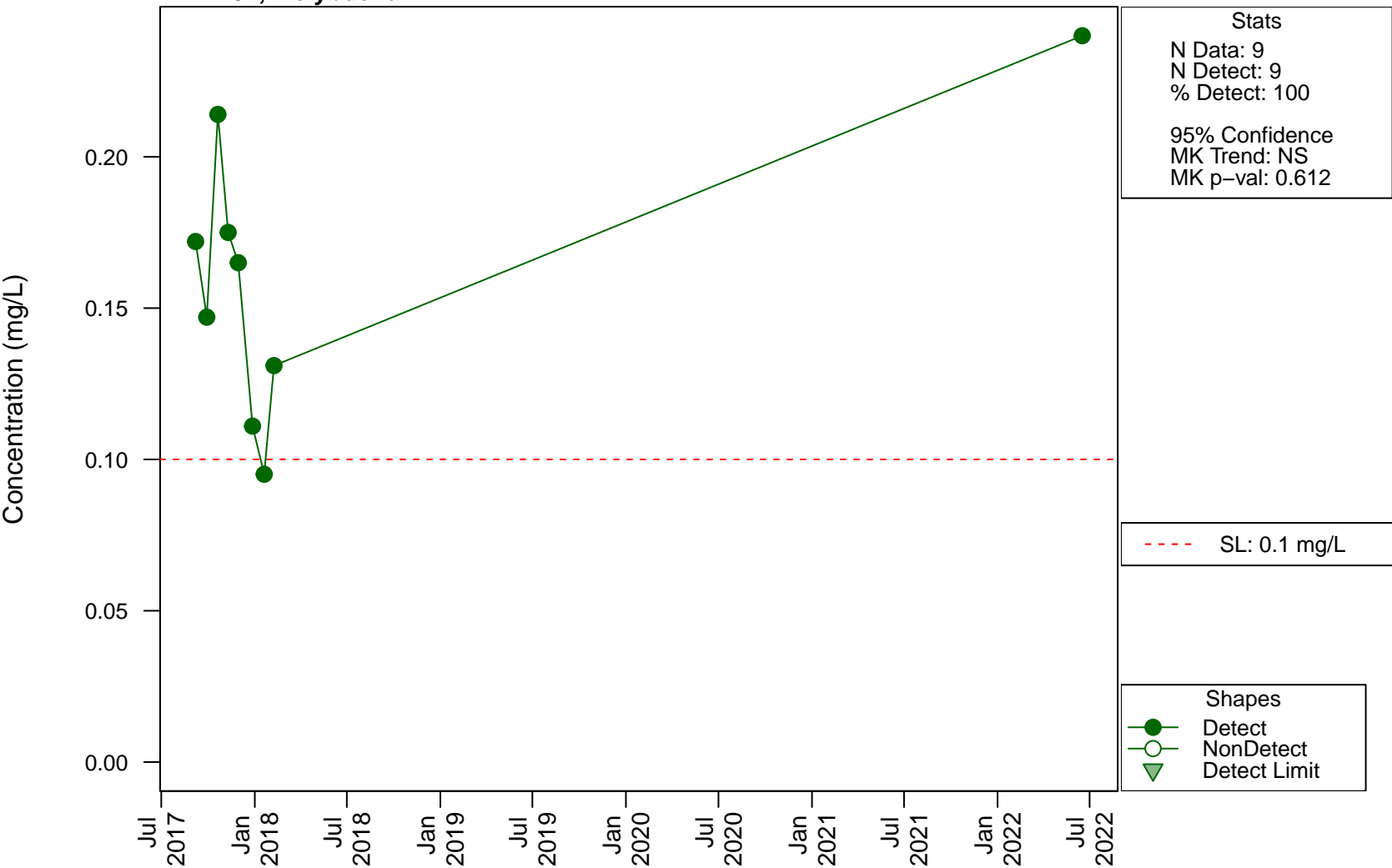
# Scatterplots and Trend Analysis

## APW-02, Lithium



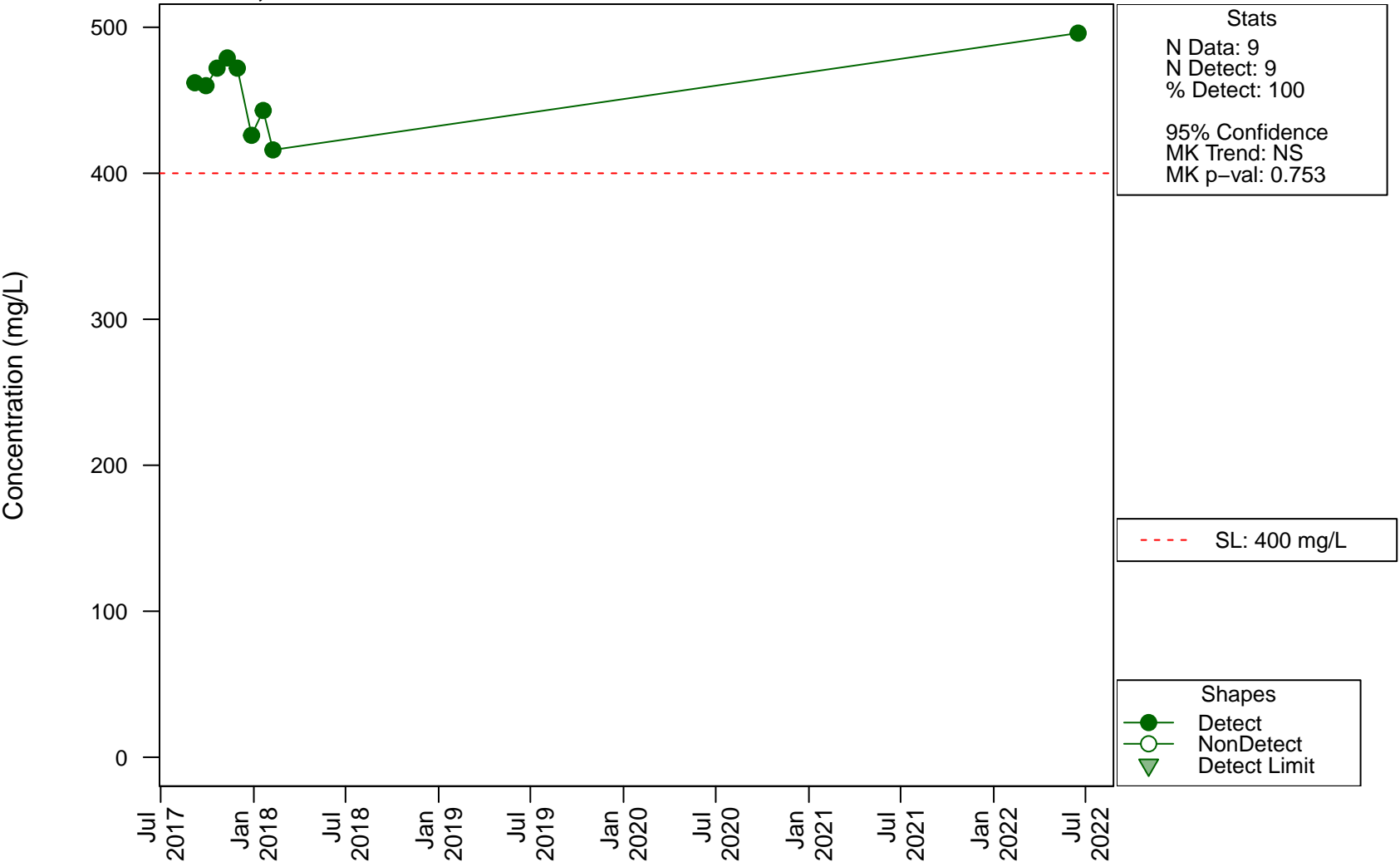
# Scatterplots and Trend Analysis

## APW-02, Molybdenum



# Scatterplots and Trend Analysis

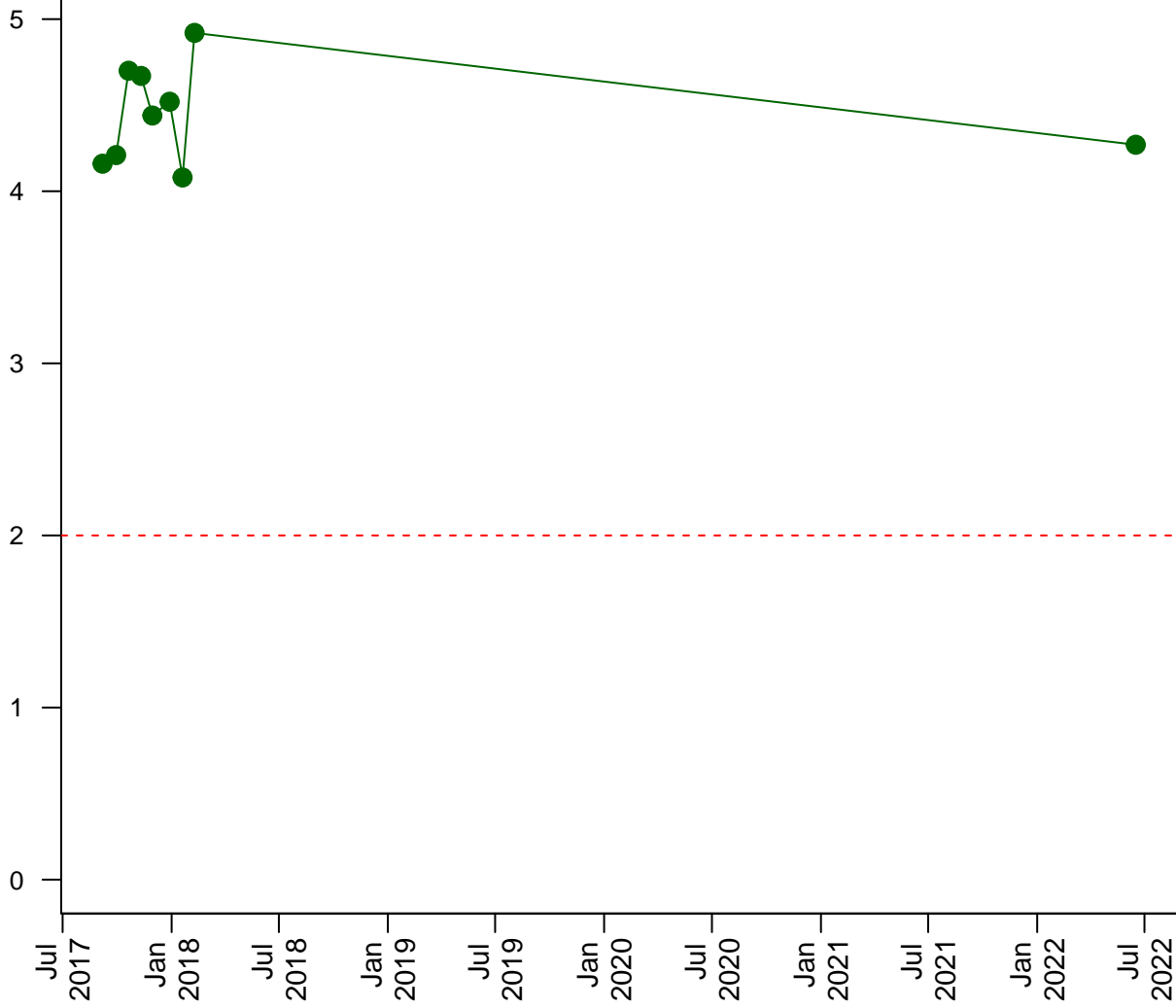
## APW-02, Sulfate



# Scatterplots and Trend Analysis

## APW-03, Boron

Concentration (mg/L)



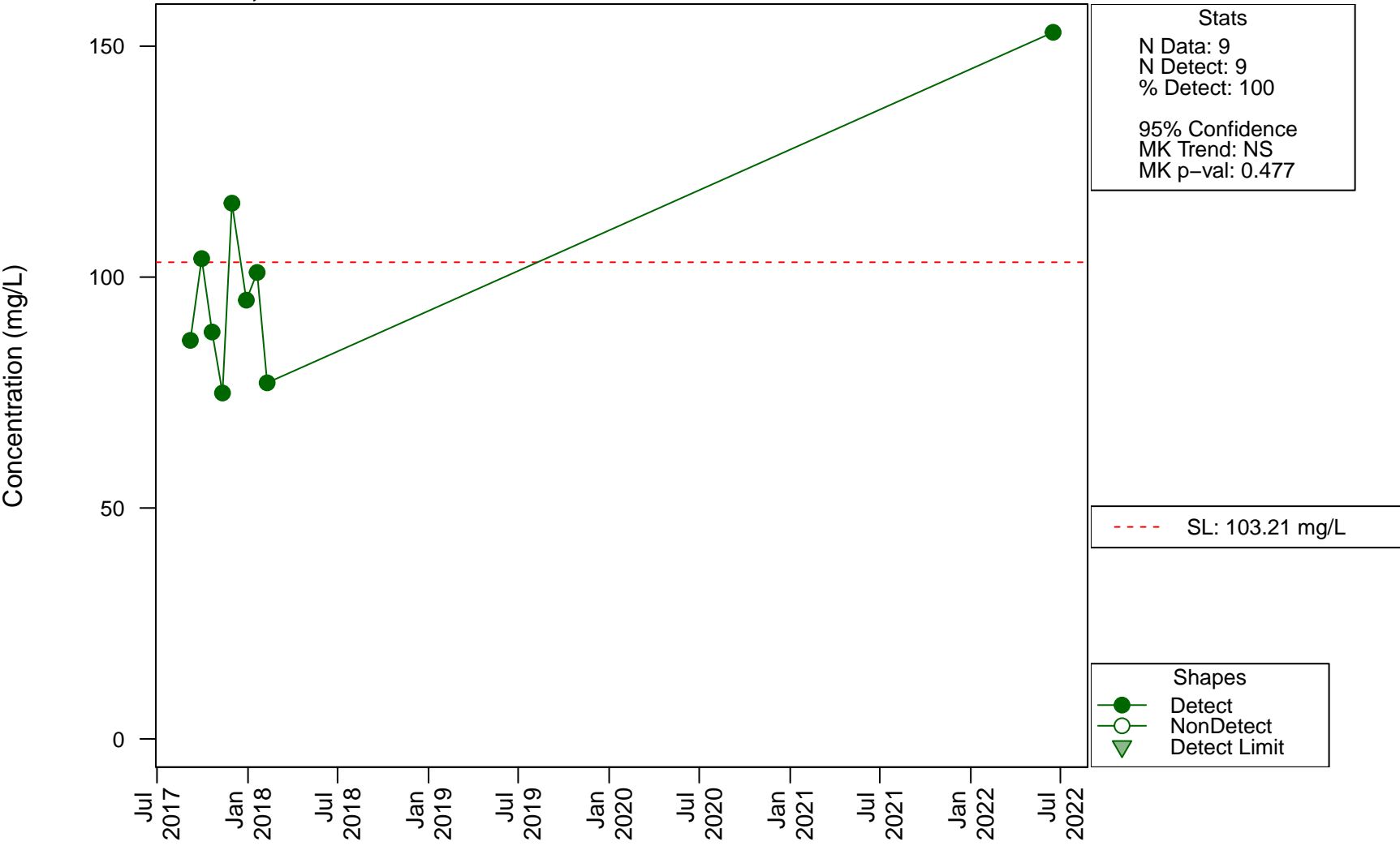
Stats  
N Data: 9  
N Detect: 9  
% Detect: 100  
  
95% Confidence  
MK Trend: NS  
MK p-val: 0.761

--- SL: 2 mg/L

Shapes  
● Detect  
○ NonDetect  
▼ Detect Limit

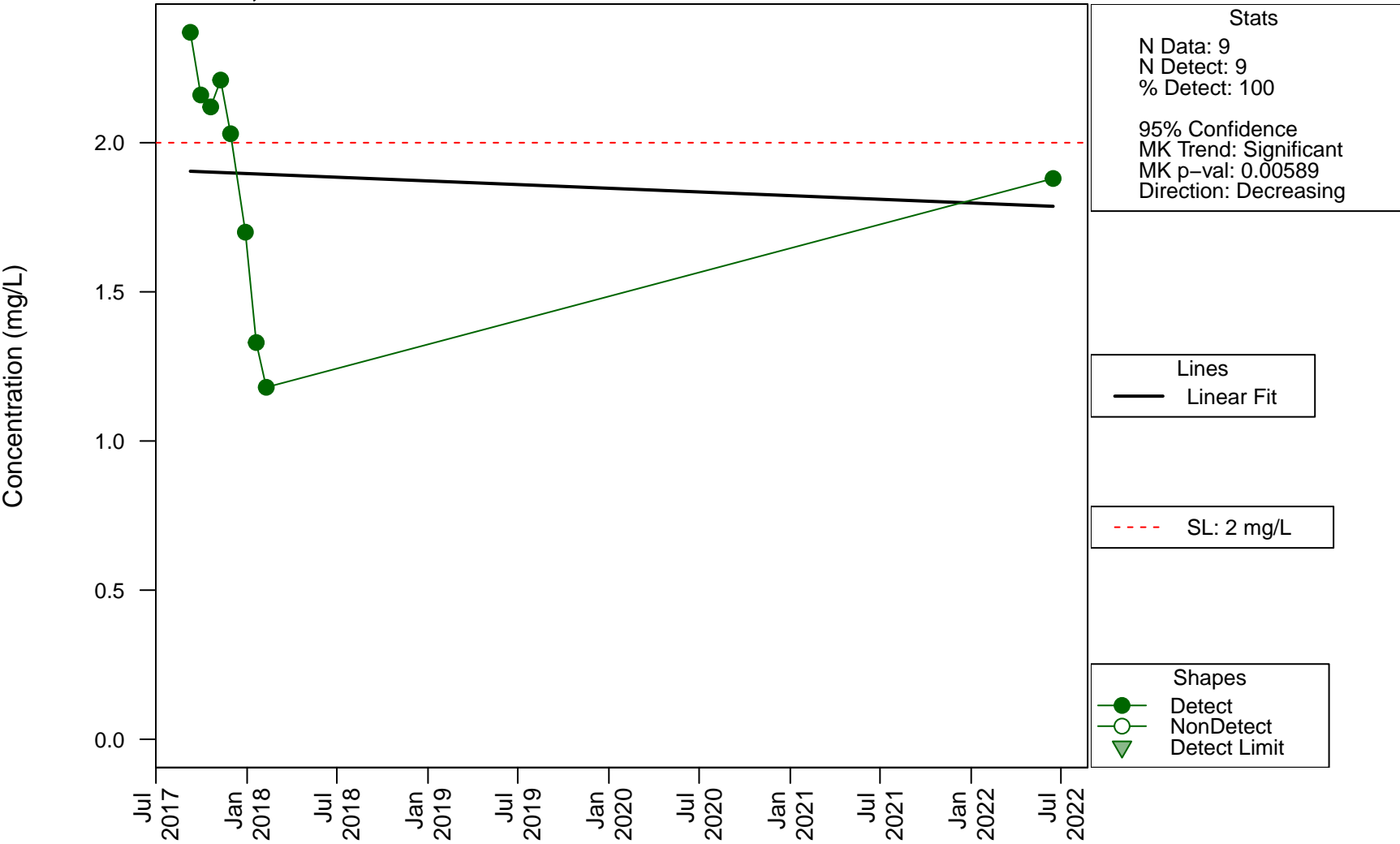
# Scatterplots and Trend Analysis

## APW-03, Calcium



# Scatterplots and Trend Analysis

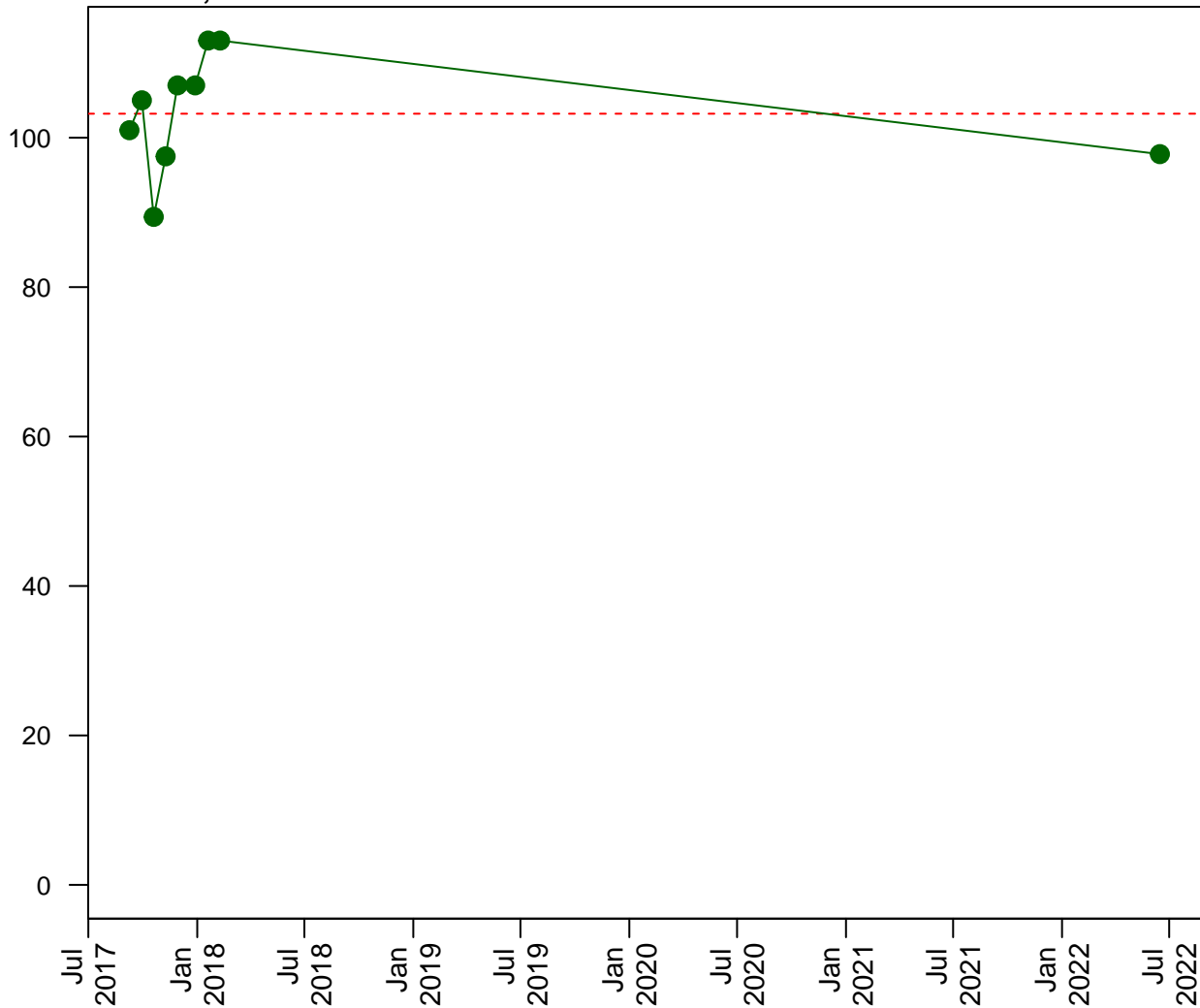
## APW-04, Boron



# Scatterplots and Trend Analysis

## APW-04, Calcium

Concentration (mg/L)



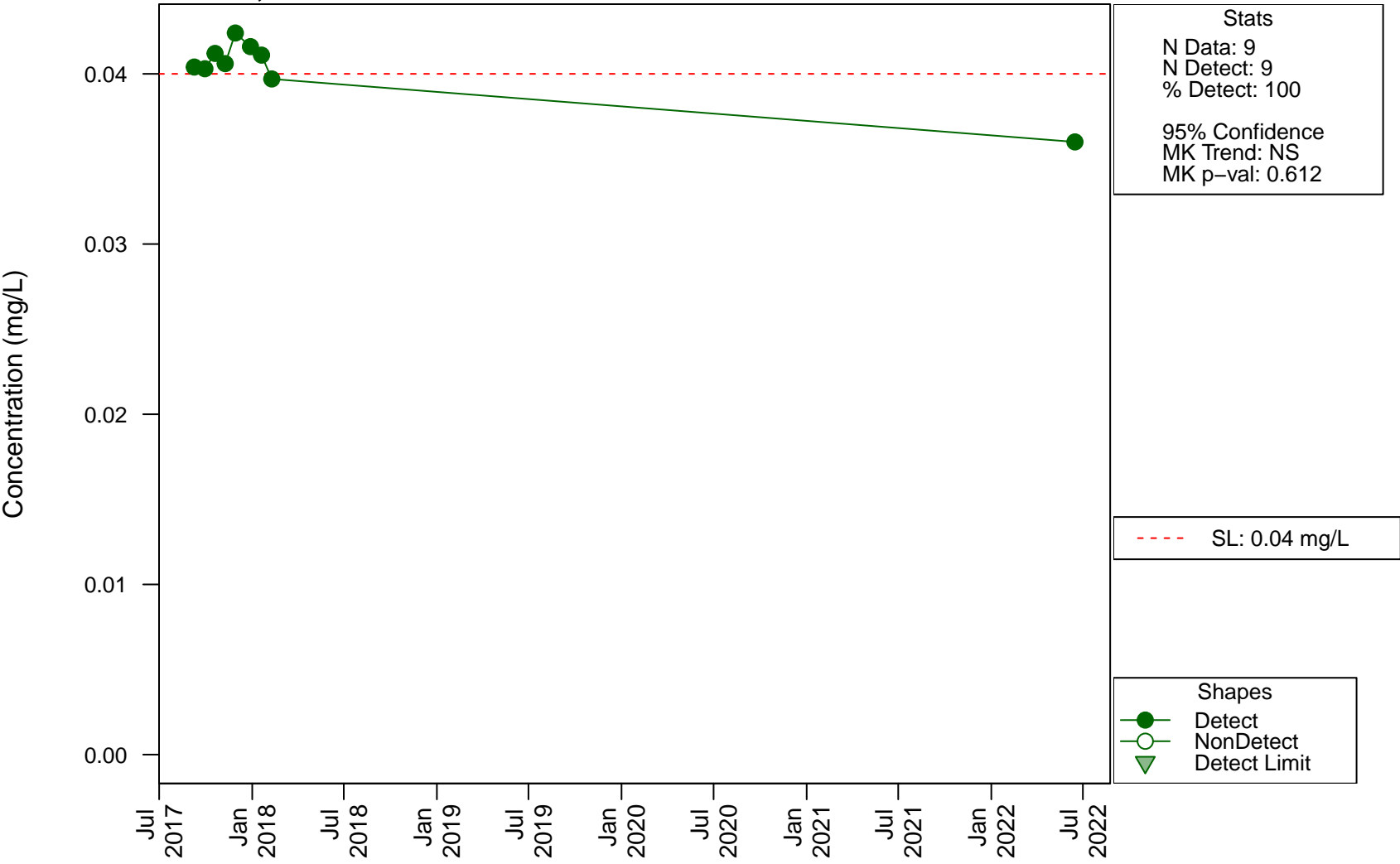
Stats  
N Data: 9  
N Detect: 9  
% Detect: 100  
  
95% Confidence  
MK Trend: NS  
MK p-val: 0.14

--- SL: 103.21 mg/L

Shapes  
● Detect  
○ NonDetect  
▼ Detect Limit

# Scatterplots and Trend Analysis

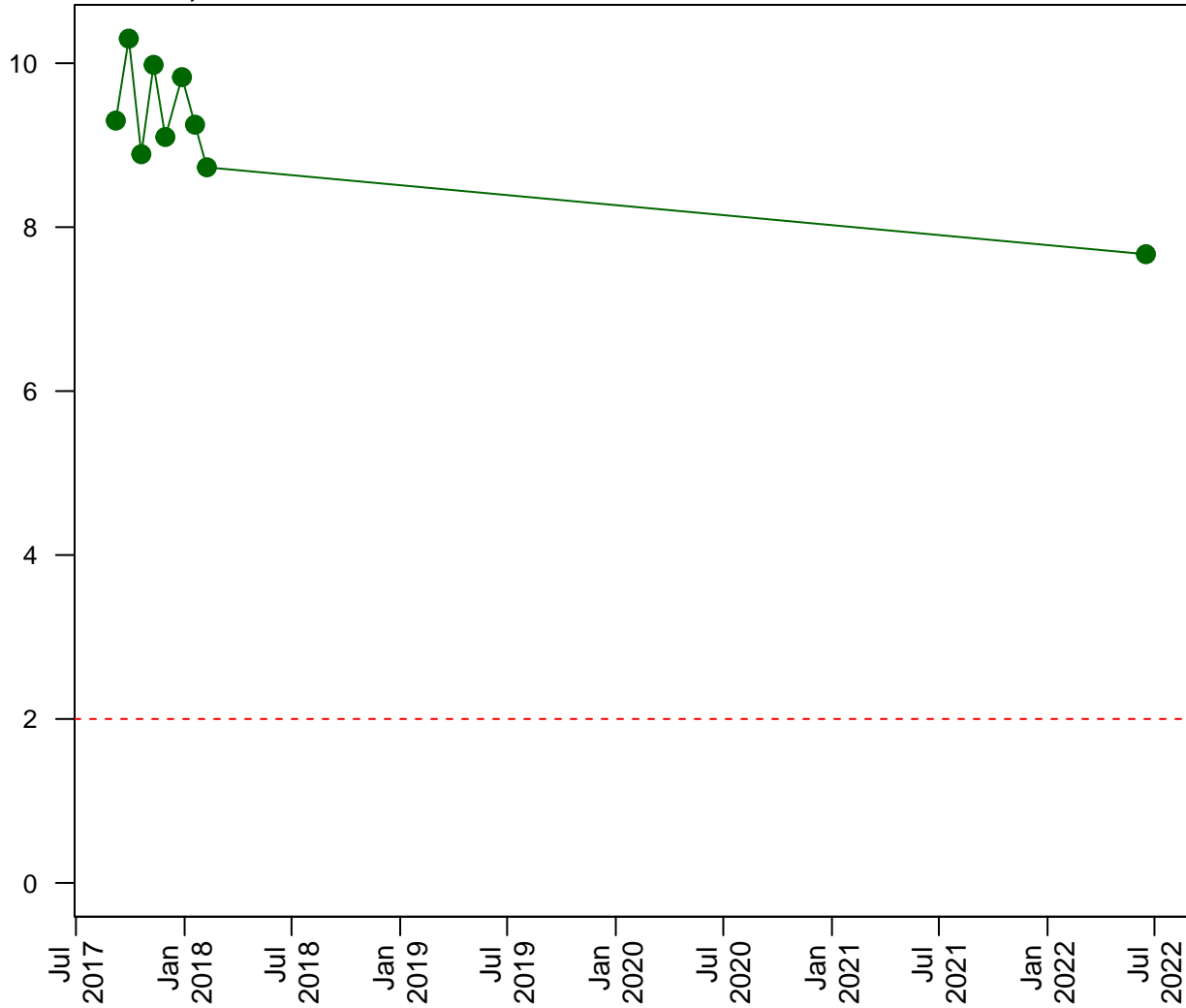
## APW-04, Lithium



# Scatterplots and Trend Analysis

## APW-05, Boron

Concentration (mg/L)



### Stats

N Data: 9  
N Detect: 9  
% Detect: 100

95% Confidence  
MK Trend: NS  
MK p-val: 0.0752

--- SL: 2 mg/L

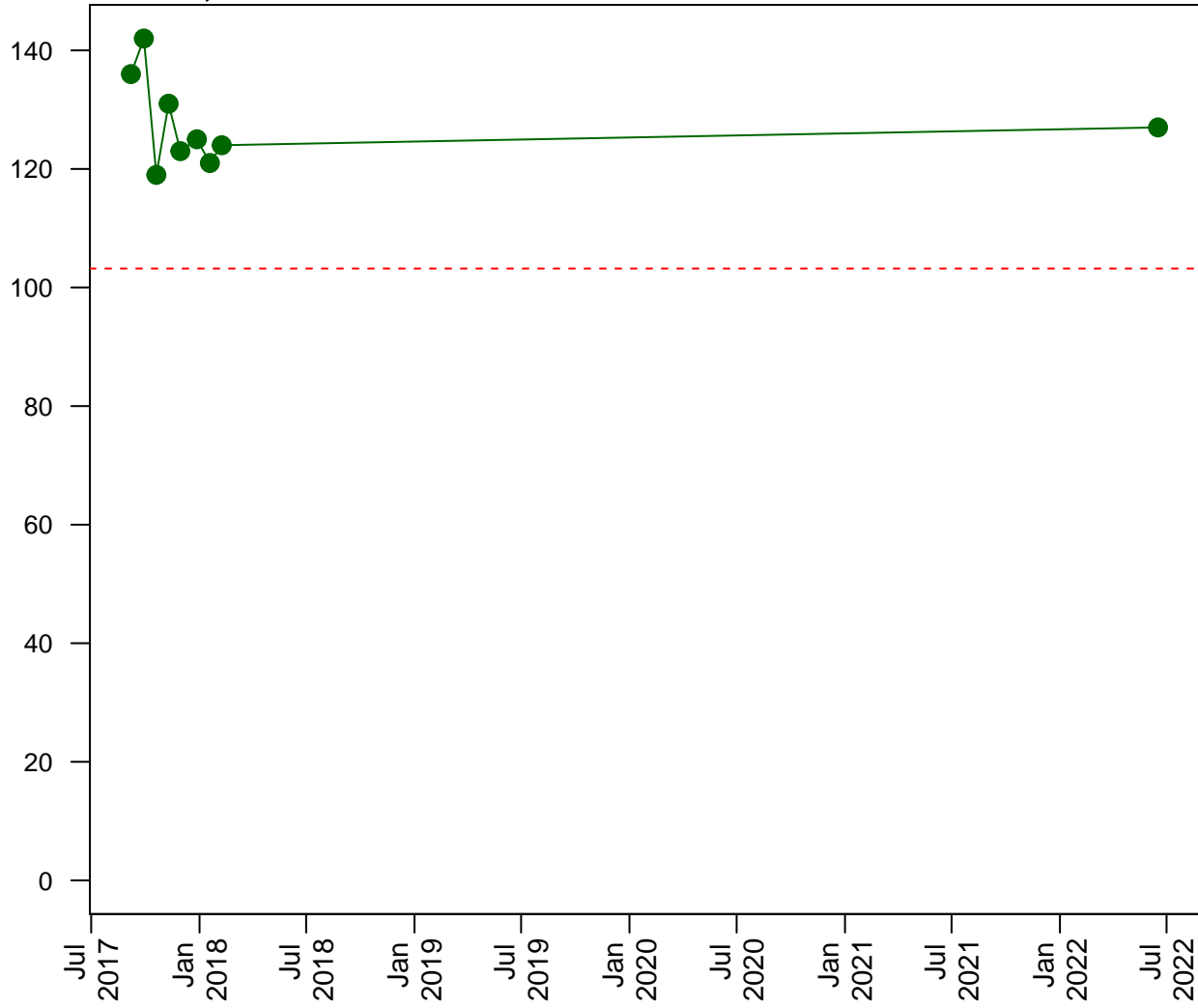
### Shapes

● Detect  
○ NonDetect  
▼ Detect Limit

# Scatterplots and Trend Analysis

## APW-05, Calcium

Concentration (mg/L)



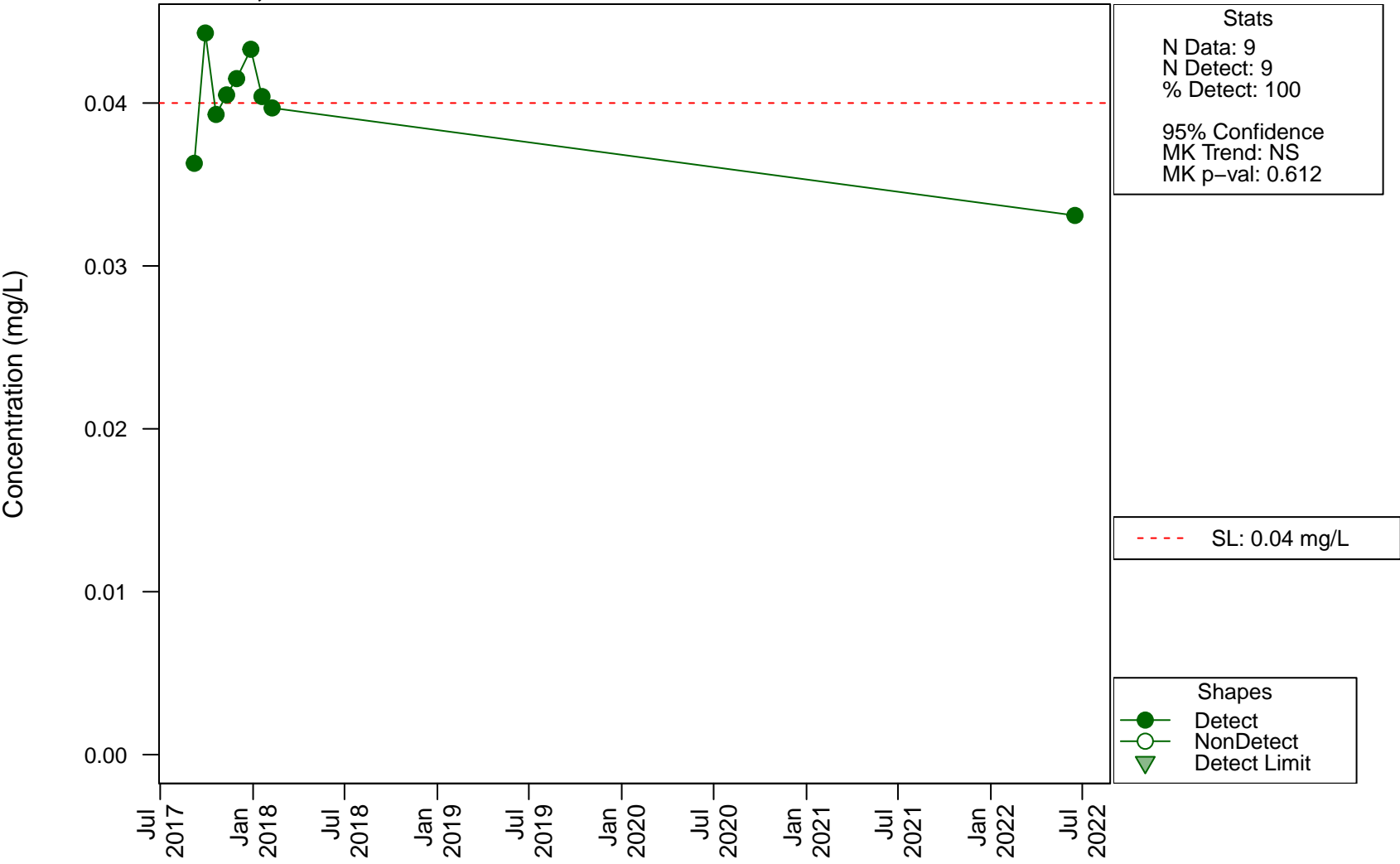
Stats  
N Data: 9  
N Detect: 9  
% Detect: 100  
  
95% Confidence  
MK Trend: NS  
MK p-val: 0.477

--- SL: 103.21 mg/L

Shapes  
● Detect  
○ NonDetect  
▼ Detect Limit

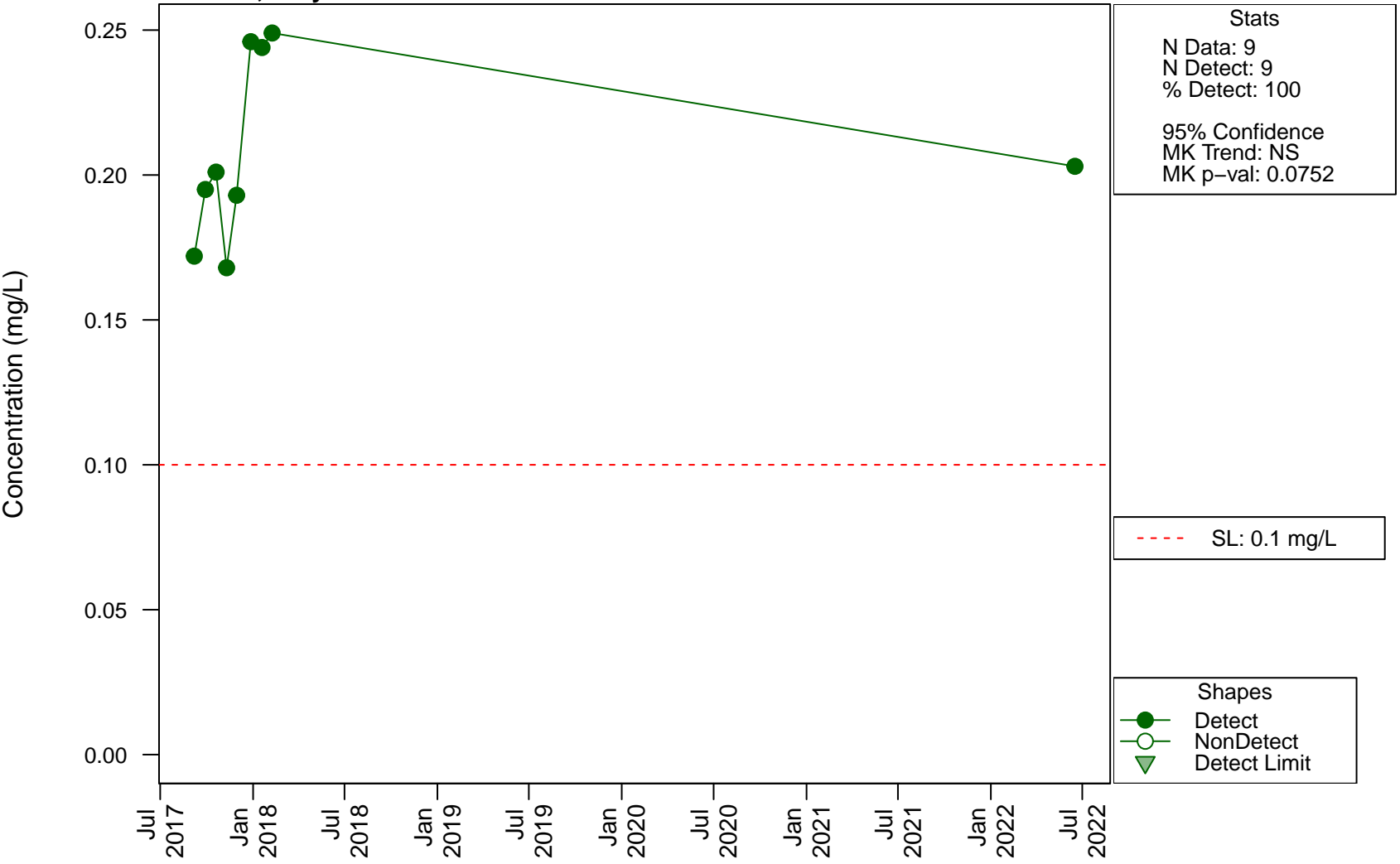
# Scatterplots and Trend Analysis

## APW-05, Lithium



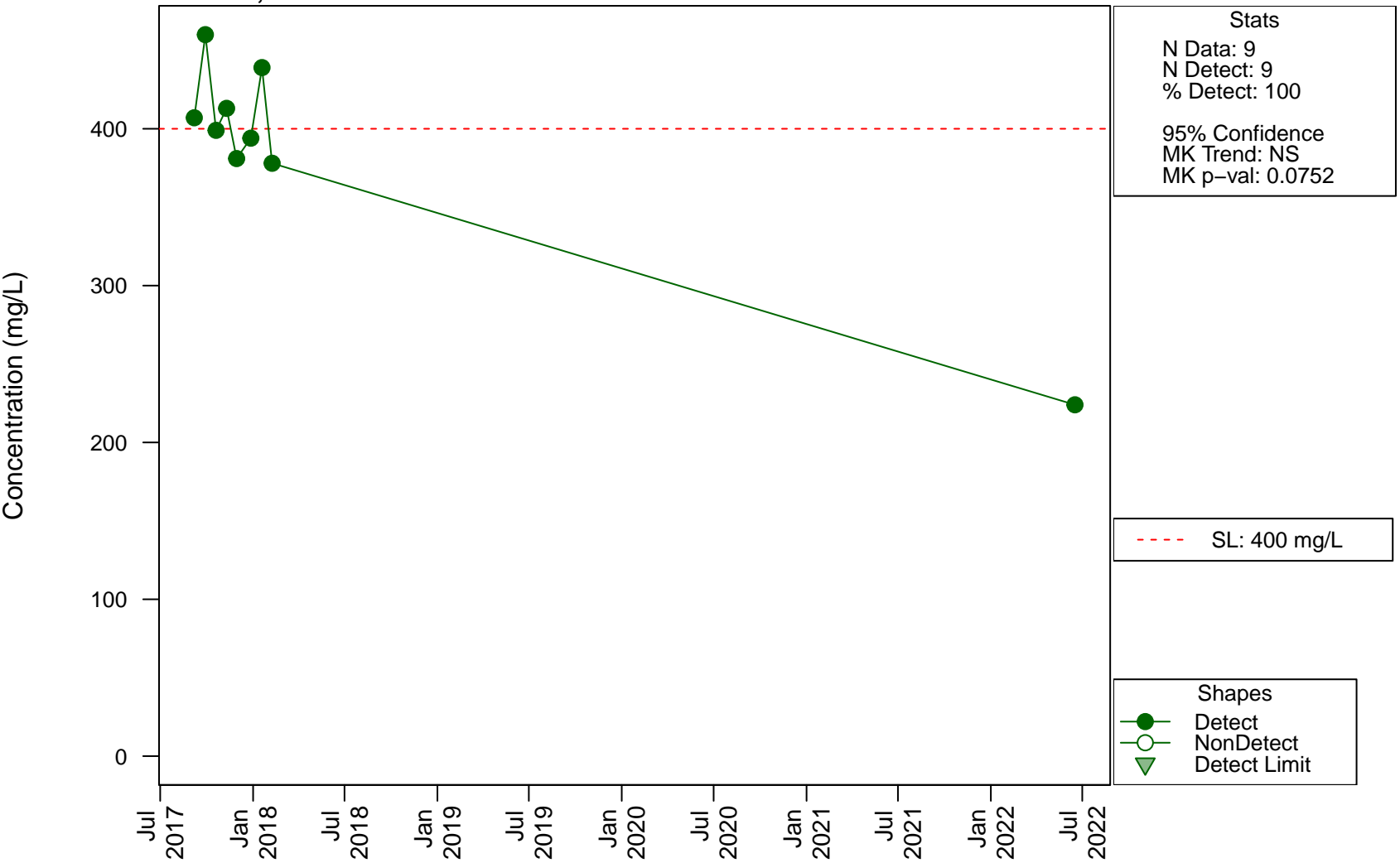
# Scatterplots and Trend Analysis

## APW-05, Molybdenum



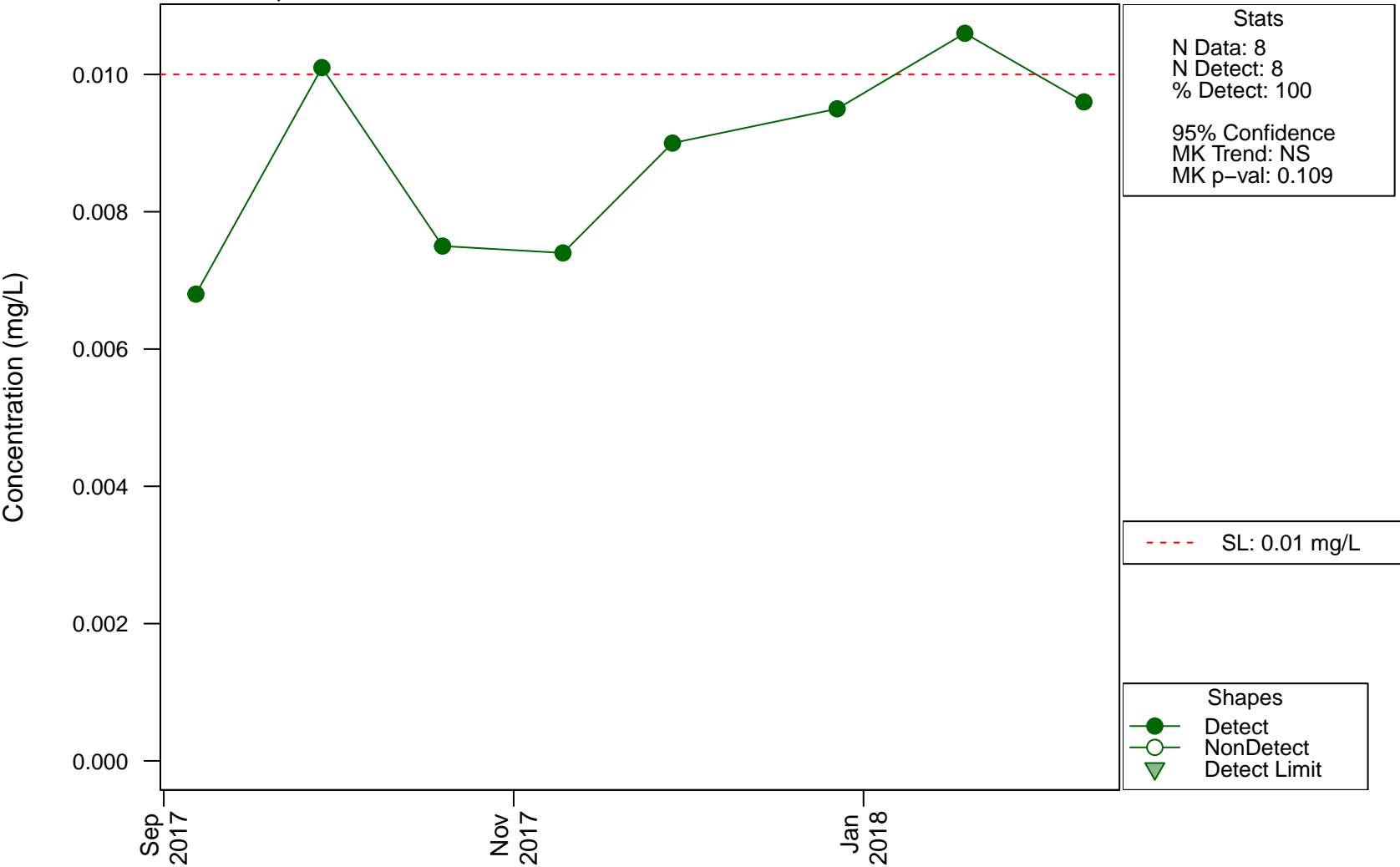
# Scatterplots and Trend Analysis

## APW-05, Sulfate



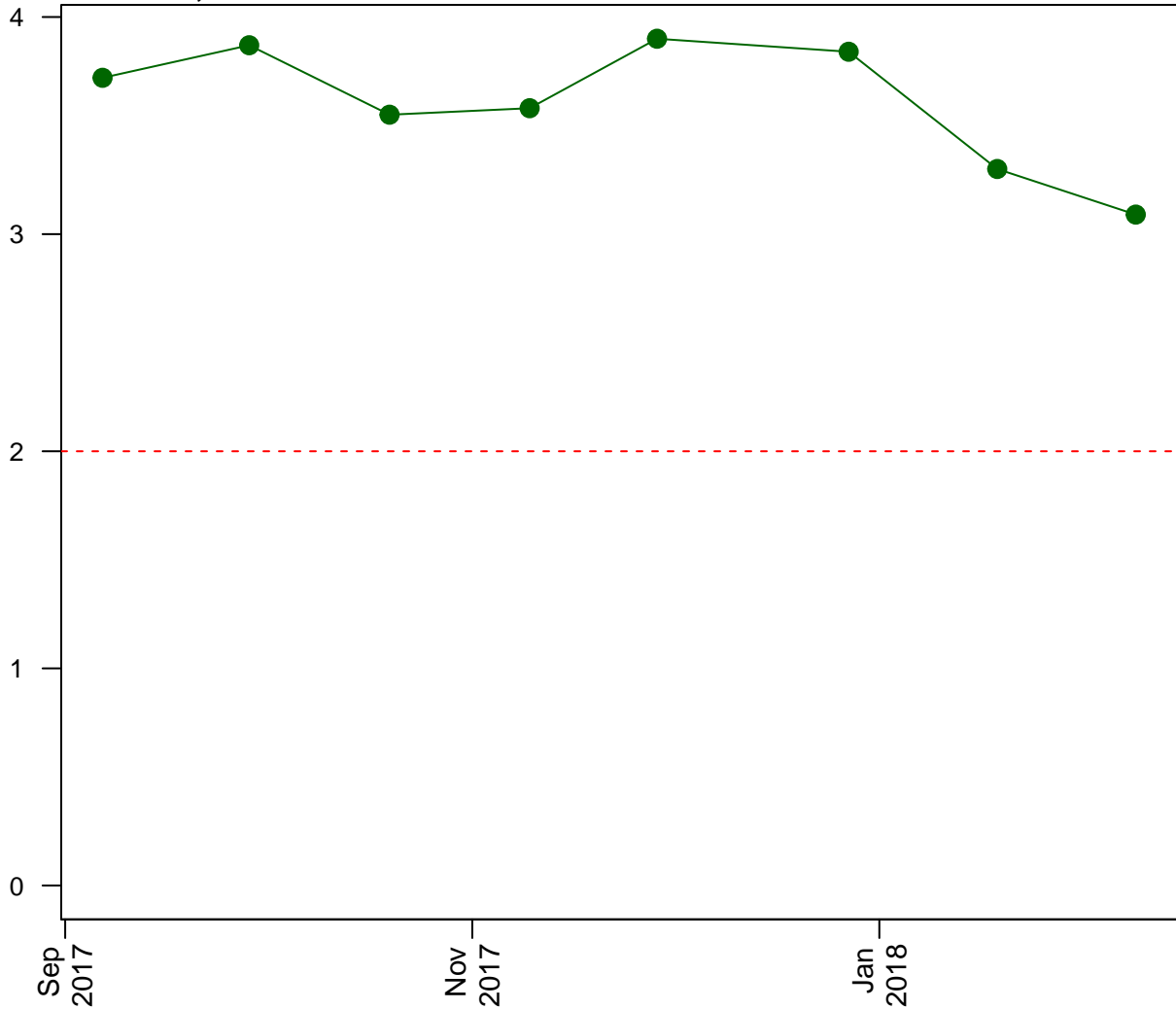
# Scatterplots and Trend Analysis

## APW-06D, Arsenic



# Scatterplots and Trend Analysis

## APW-06D, Boron



Stats  
N Data: 8  
N Detect: 8  
% Detect: 100  
  
95% Confidence  
MK Trend: NS  
MK p-val: 0.275

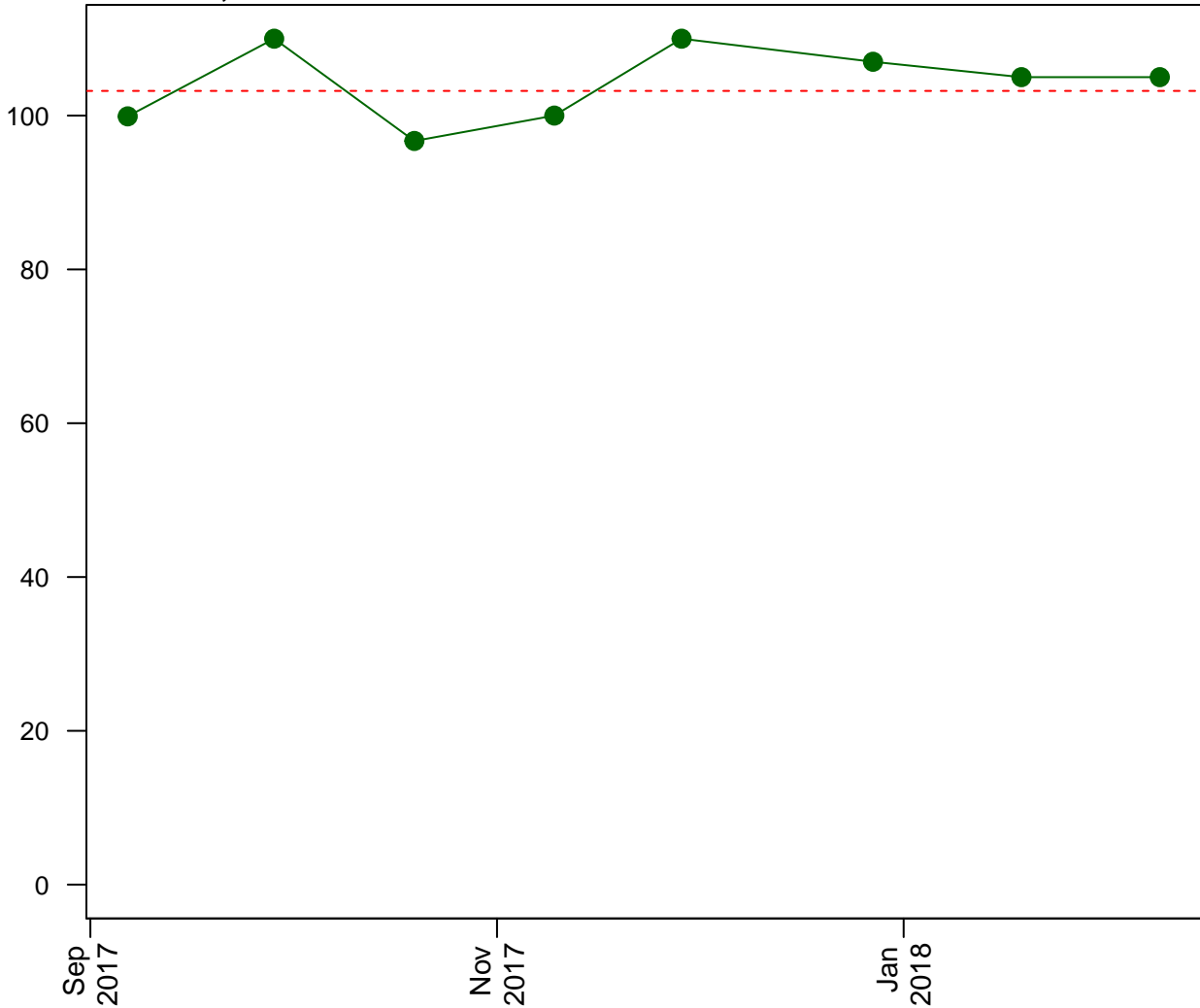
--- SL: 2 mg/L

Shapes  
● Detect  
○ NonDetect  
▼ Detect Limit

# Scatterplots and Trend Analysis

## APW-06D, Calcium

Concentration (mg/L)



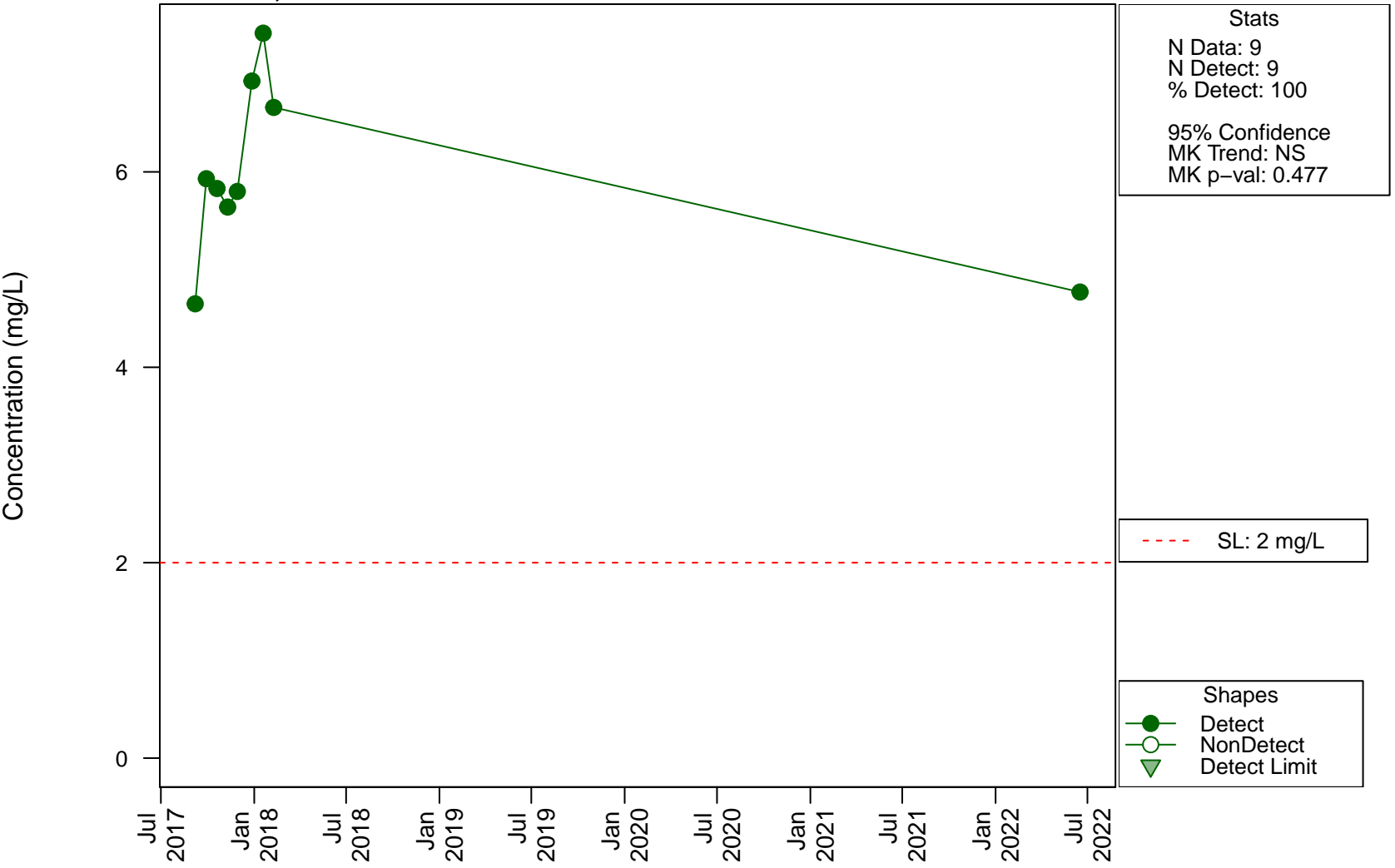
Stats  
N Data: 8  
N Detect: 8  
% Detect: 100  
  
95% Confidence  
MK Trend: NS  
MK p-val: 0.615

--- SL: 103.21 mg/L

Shapes  
● Detect  
○ NonDetect  
▼ Detect Limit

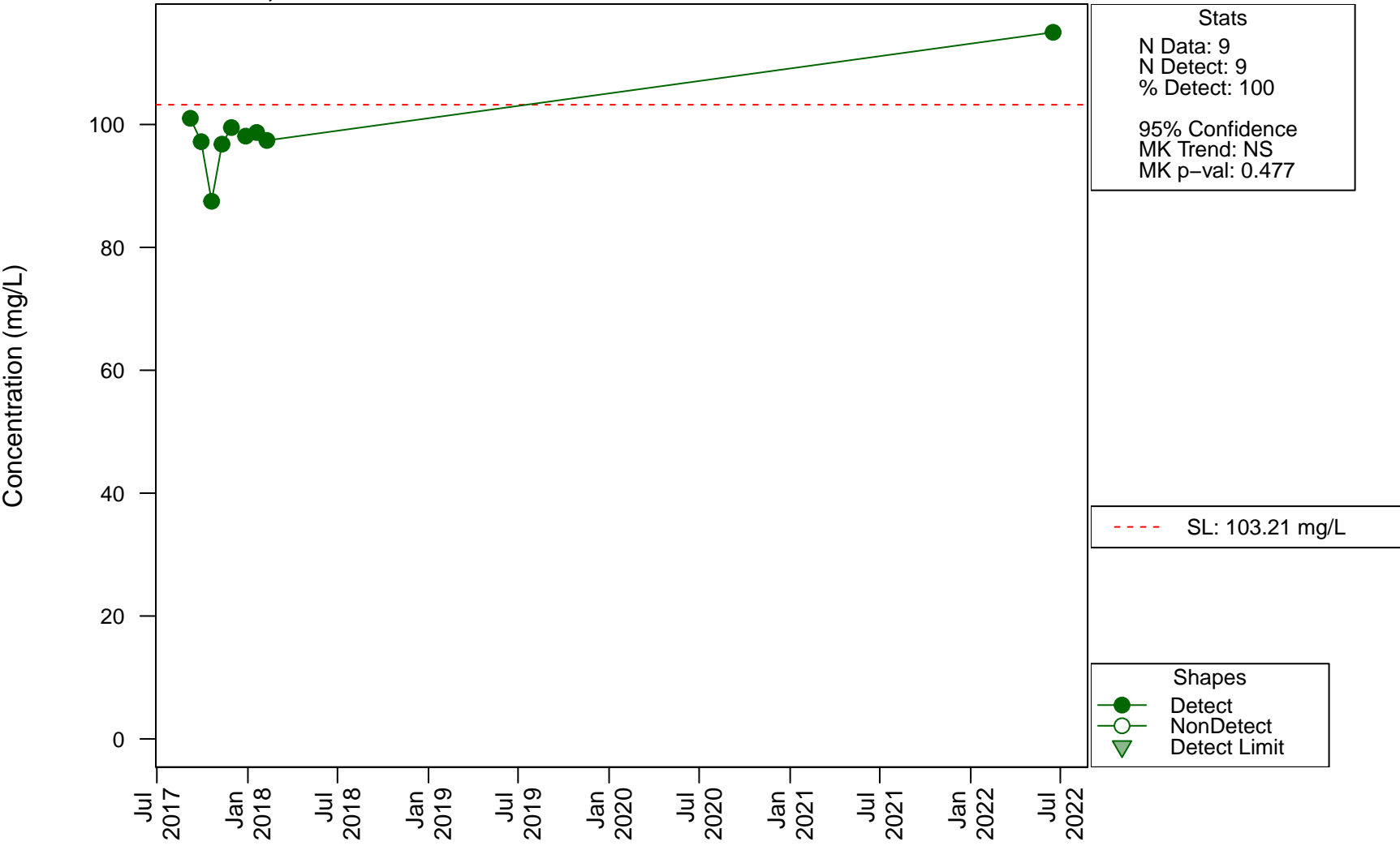
# Scatterplots and Trend Analysis

## APW-06S, Boron



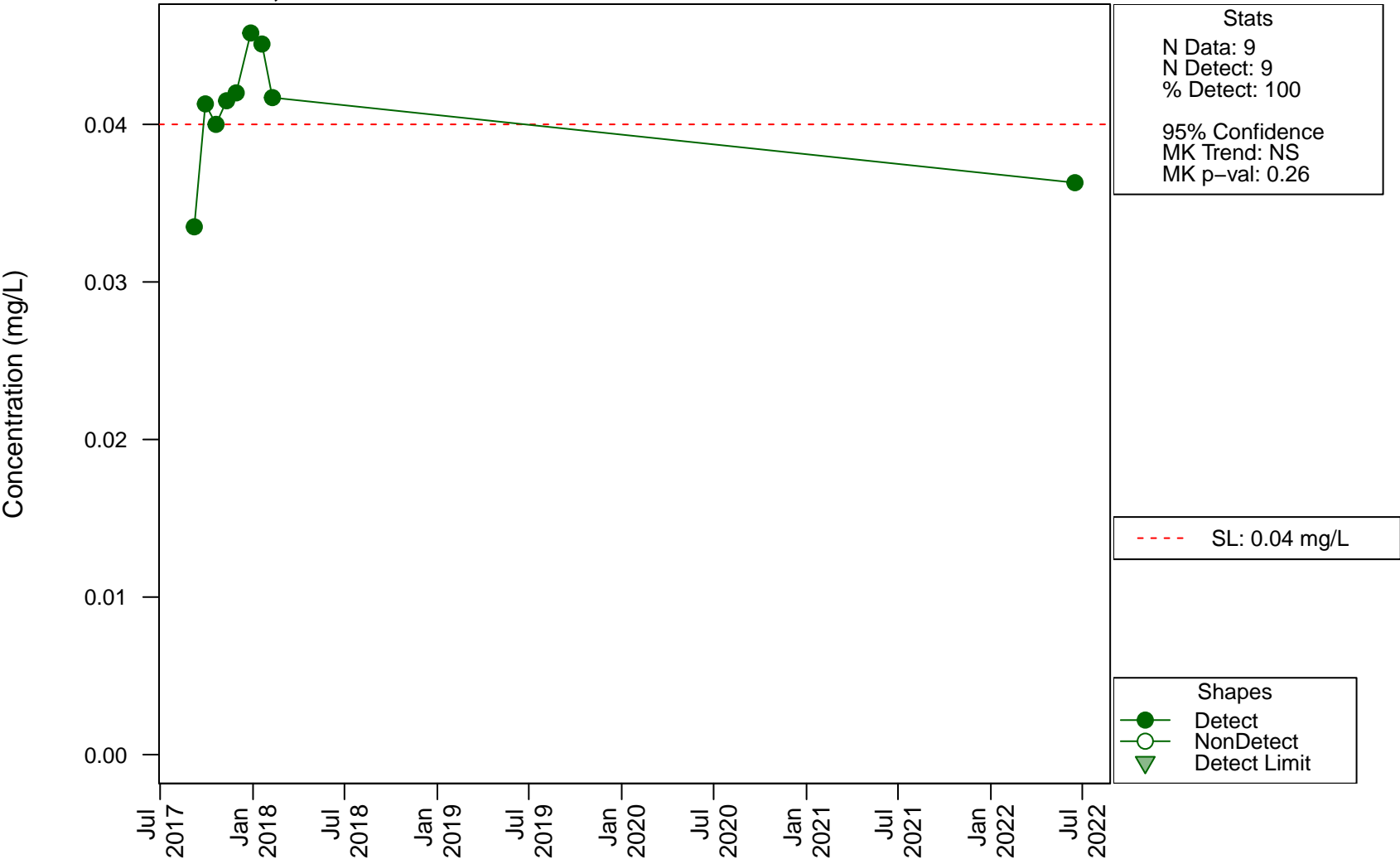
# Scatterplots and Trend Analysis

## APW-06S, Calcium

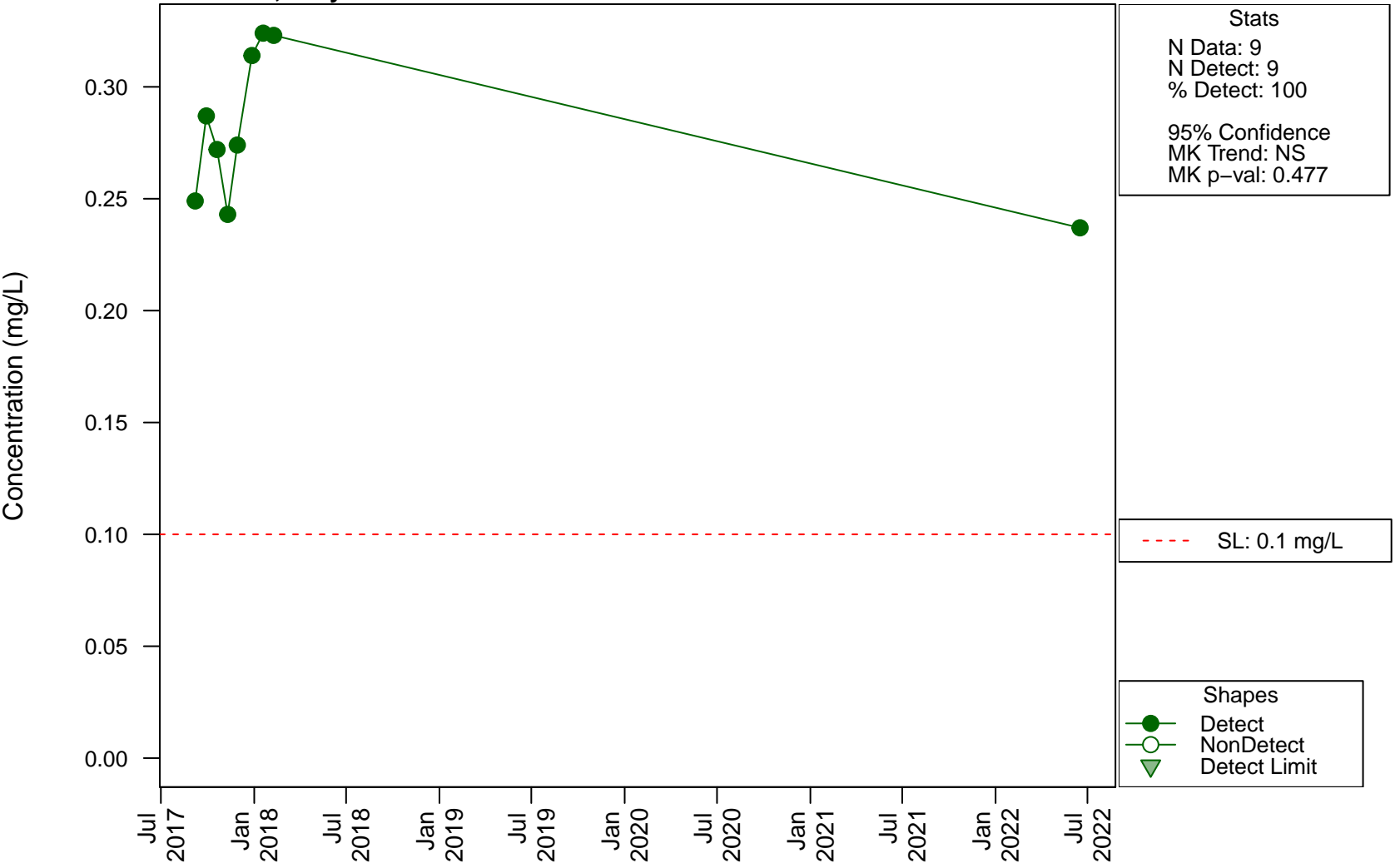


# Scatterplots and Trend Analysis

## APW-06S, Lithium

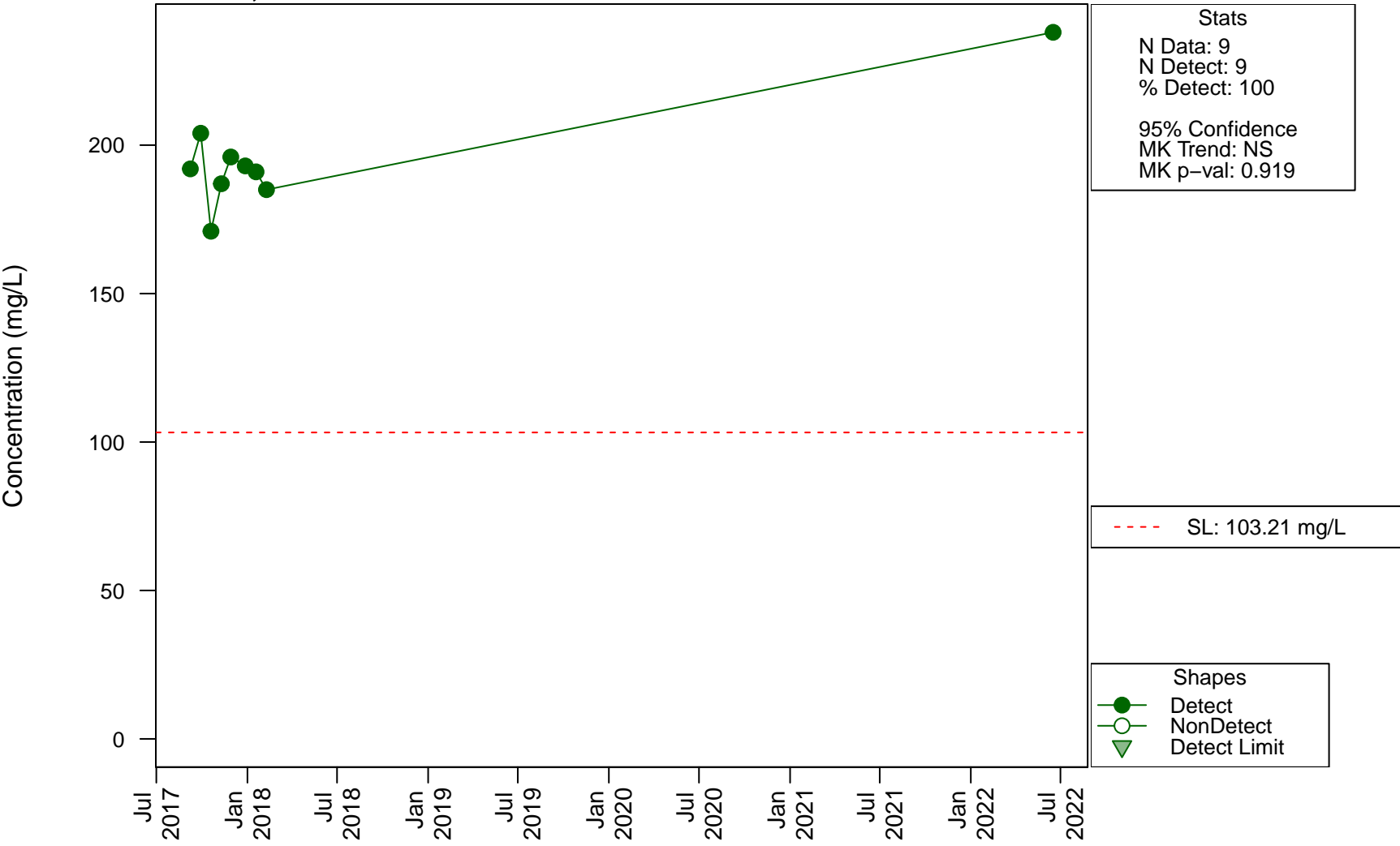


# Scatterplots and Trend Analysis APW-06S, Molybdenum



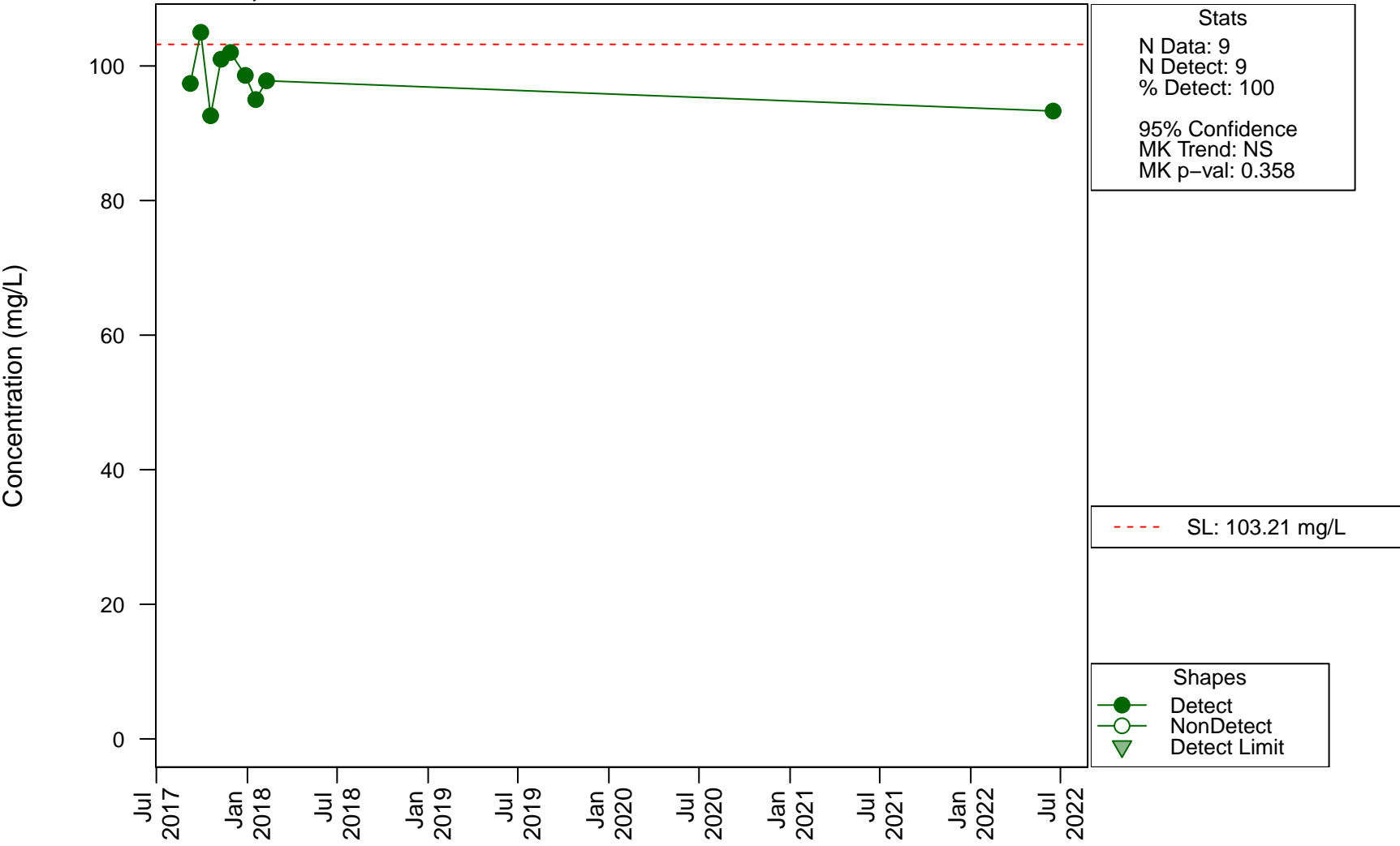
# Scatterplots and Trend Analysis

## APW-07, Calcium



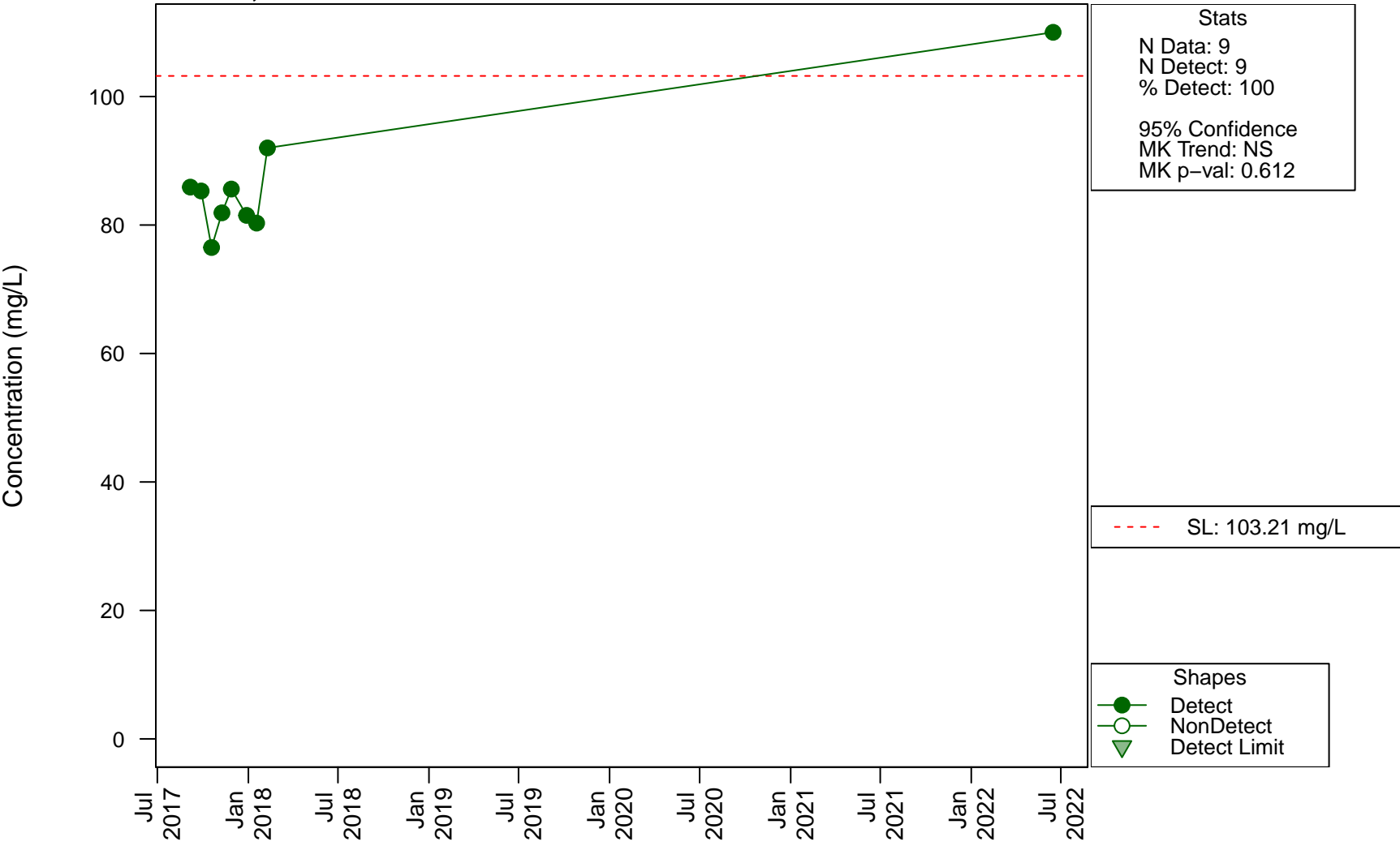
# Scatterplots and Trend Analysis

## APW-08, Calcium



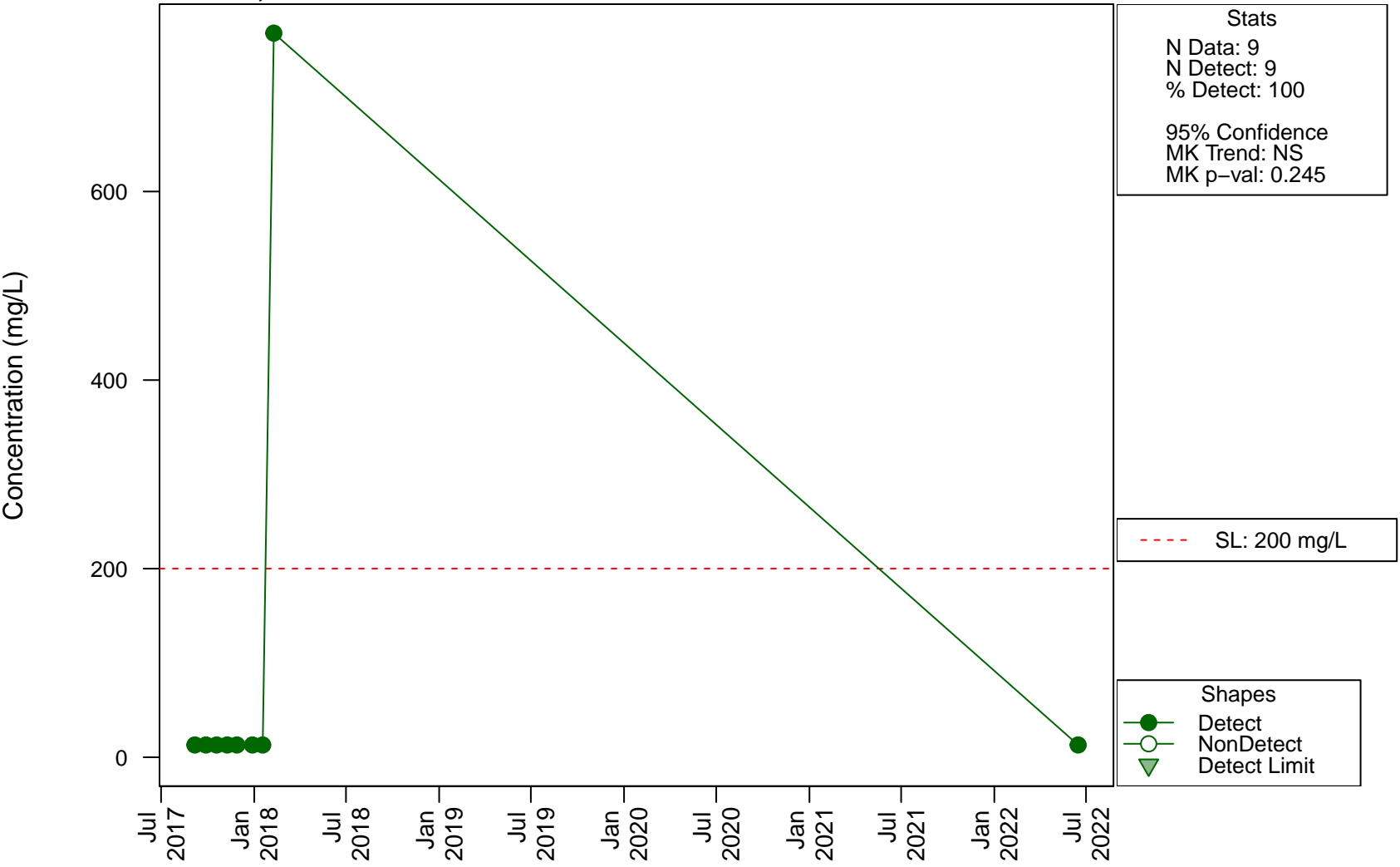
# Scatterplots and Trend Analysis

## APW-09, Calcium



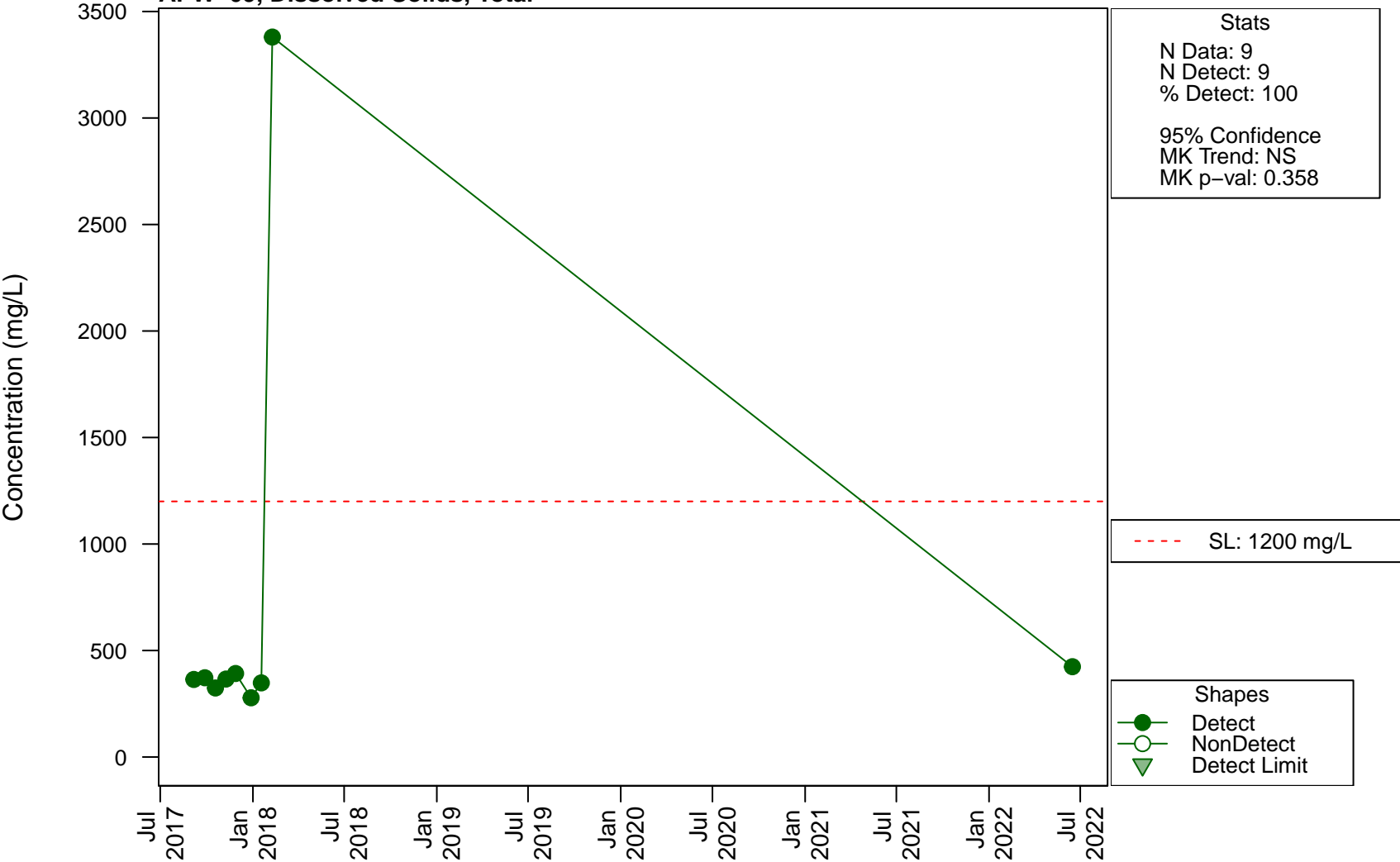
# Scatterplots and Trend Analysis

## APW-09, Chloride



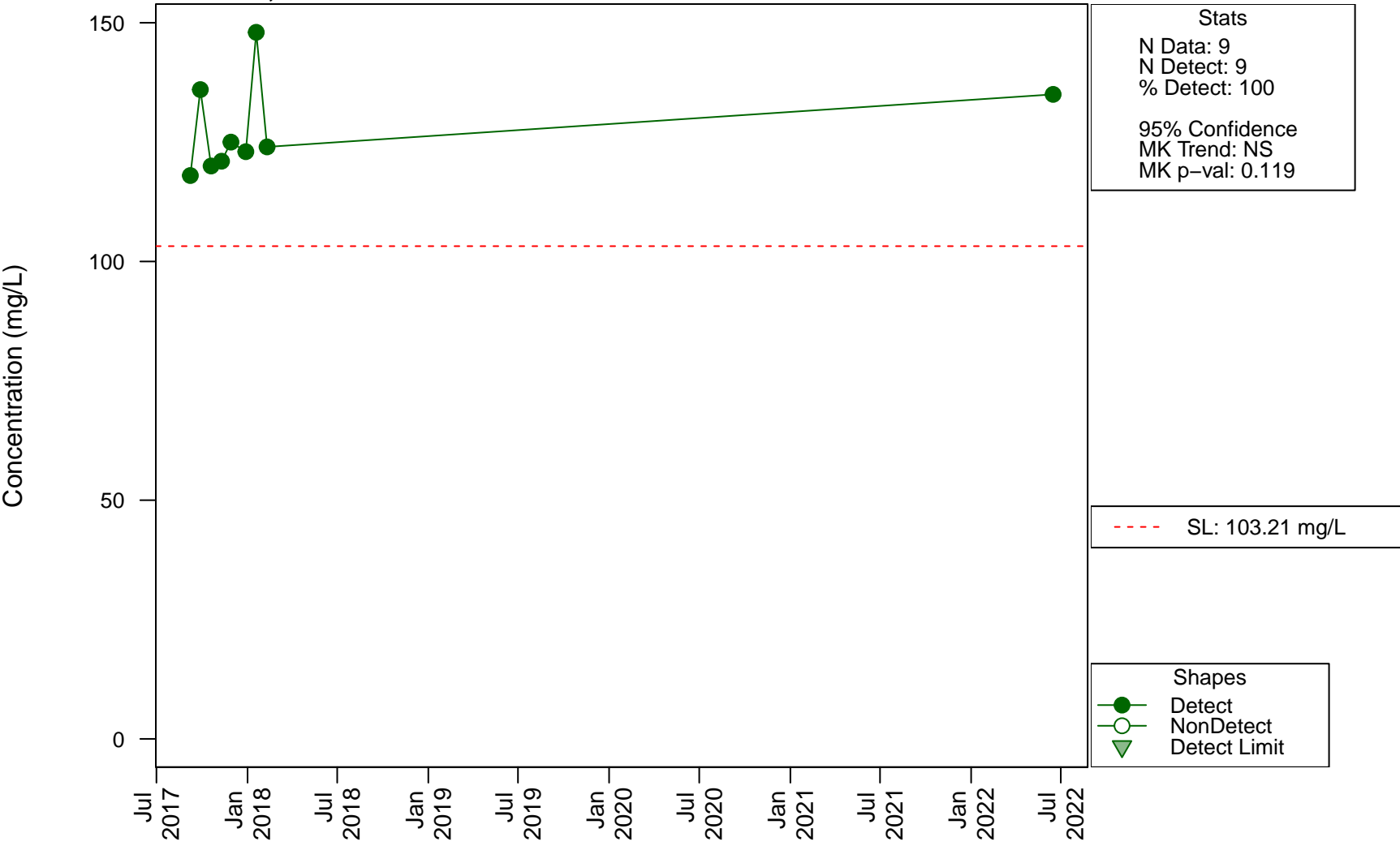
# Scatterplots and Trend Analysis

## APW-09, Dissolved Solids, Total



# Scatterplots and Trend Analysis

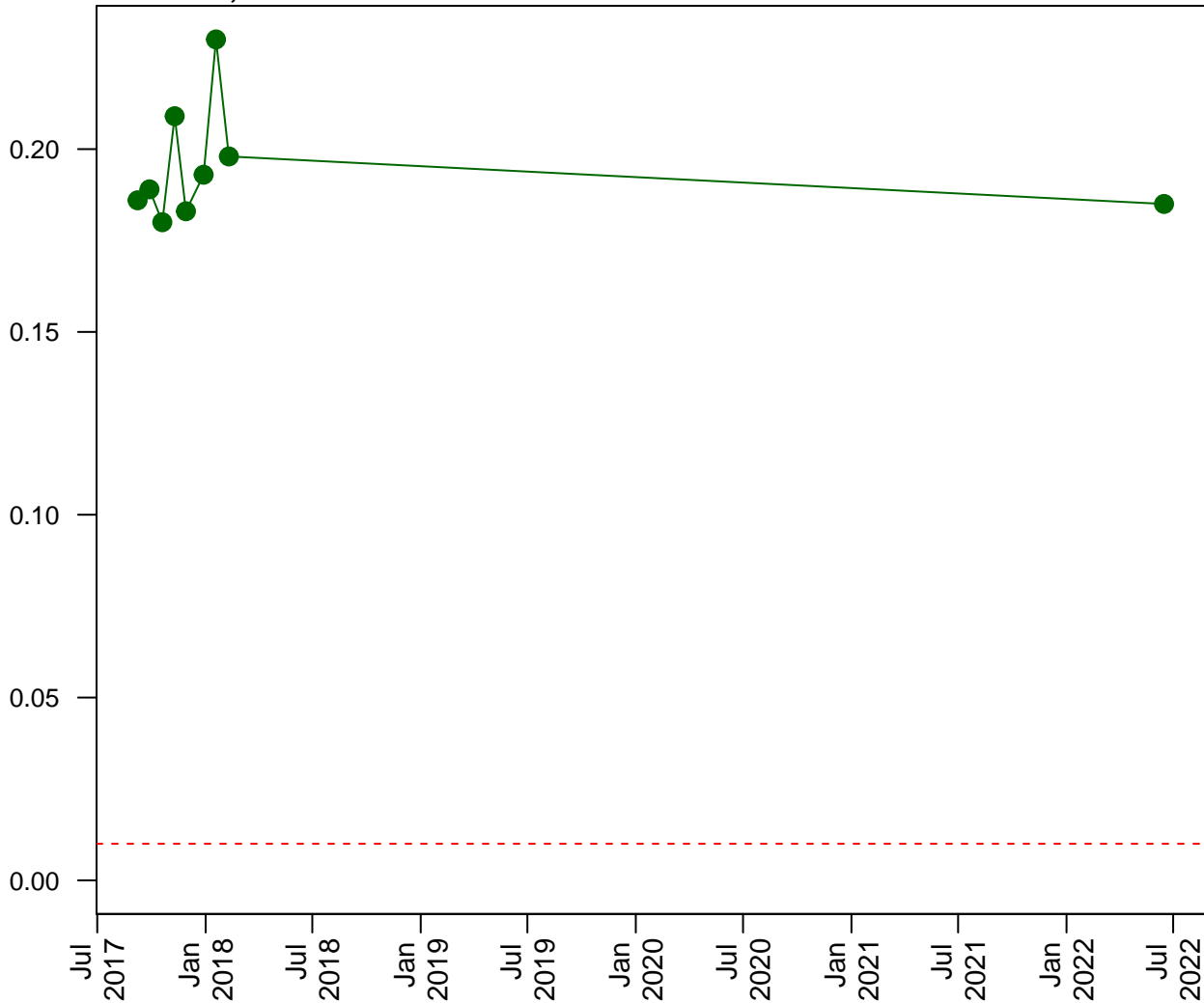
## APW-10D, Calcium



# Scatterplots and Trend Analysis

## APW-10S, Arsenic

Concentration (mg/L)



Stats  
N Data: 9  
N Detect: 9  
% Detect: 100  
  
95% Confidence  
MK Trend: NS  
MK p-val: 0.477

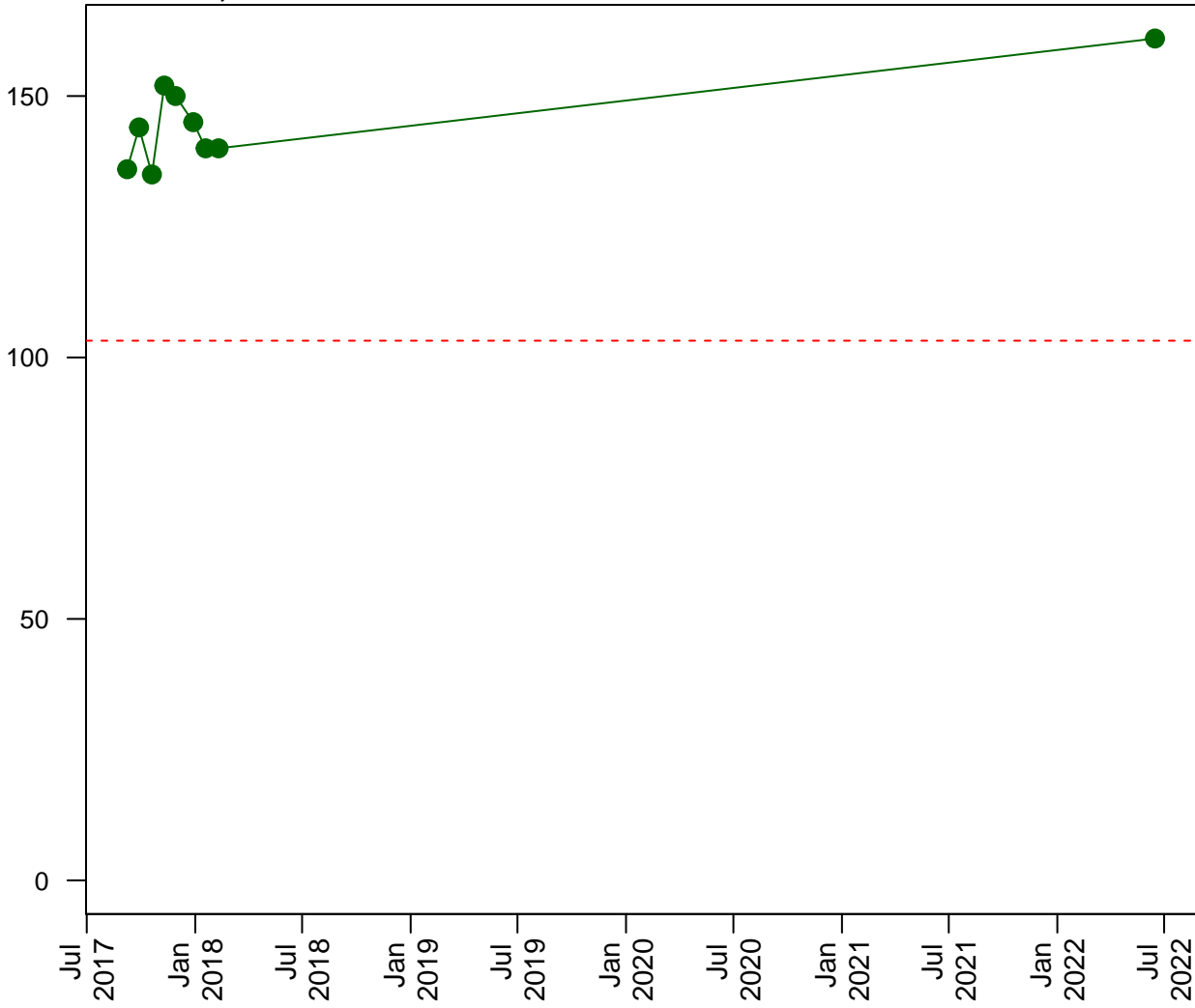
--- SL: 0.01 mg/L

Shapes  
● Detect  
○ NonDetect  
▼ Detect Limit

# Scatterplots and Trend Analysis

## APW-10S, Calcium

Concentration (mg/L)



Stats  
N Data: 9  
N Detect: 9  
% Detect: 100  
  
95% Confidence  
MK Trend: NS  
MK p-val: 0.345

--- SL: 103.21 mg/L

Shapes  
● Detect  
○ NonDetect  
▼ Detect Limit