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3 March 2023

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: Third Post-Closure Groundwater Monitoring Report
Fourth 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 report which provides the results and findings of the Grand Tower Energy Center (GTEC) quarterly post-closure groundwater sampling and coal combustion residuals (CCR) impoundment inspection event conducted during the fourth quarter 2022 at the GTEC facility located at 1820 Power Plant Rd, Grand Tower, Illinois (the "Site") between 28 November and 30 November 2022. A Site location map is provided in Figure 1.

The fourth quarter 2022 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 continue the initial five-year period of quarterly groundwater monitoring for the evaluation of the concentration and areal distribution of impacts related to the closed CCR impoundment in Site groundwater. The parameters detected in the groundwater are associated with the historical CCR 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 to gauge the effectiveness of the closed CCR cell design and implementation. It should be noted that this is the third post-closure sampling event and that a sufficient amount of monitoring data still does not exist to provide an accurate evaluation of post-closure data trends and whether a statistically significant increase or decrease in the data trends exist during the current five-year post-closure monitoring period.

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 fourth quarter of 2022, an inspection of the CCR impoundment cover system and associated features was completed, and the full quarterly inspection report can be found in Appendix A. Growth of a limited but increased amount of woody vegetation (up to 1”diameter) since the third quarter 2022 inspection was observed within the riprap on the north, west, and southern impoundment cap faces. Repair of the U.S. Army Corps of Engineers (USACE) Levee by GTEC to address slumping of the levee face was completed and documented by ERM within the quarterly inspection report. No significant degradation or issues were noted associated with the CCR impoundment cover system.

QUARTERLY MONITORING WELL INSPECTION AND GAUGING

During the fourth quarter of 2022, monitoring well inspections were conducted. The monitoring well inspection forms 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 the fourth 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 shows monitoring well locations with a groundwater contour, groundwater elevations at each monitoring well, and the Mississippi River elevation for the fourth quarter 2022. The monitoring well protectors and casings were inspected for damage and/or signs of settling that might impact the integrity of the surface seals. During the fourth quarter 2022 inspection and sampling event, the well screen of monitoring well APW-05 was still found to be occluded > 40% due to infiltration of filter pack sand into the well casing from a compromised well screen. ERM plans to have the existing APW-05 abandon and re-drilled utilizing an Illinois licensed well driller during the first quarter of 2023.

QUARTERLY GROUNDWATER MONITORING

During the fourth quarter 2022 sampling event, 12 monitoring wells (APW-01R, APW-02, APW-03, APW-04, APW-05, APW-06D, APW-06S, APW-07, APW-08, APW-09, APW-10D, and APW-10S) were sampled. The monitoring wells were purged prior to sampling using a submersible pump according to United States Environmental Protection Administration (USEPA) low flow purging and sampling procedures (“Low Stress Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells” revised September 19, 2017). The pump intake was placed within the screened interval of each monitoring well sampled and stabilization measurements were collected using a calibrated YSI Professional Plus meter during purging activities for the collection of pH, specific conductivity, temperature, dissolved oxygen, and oxidation reduction potential (ORP) readings. Turbidity readings were also collected from each monitoring well using a Hach 2100Q Turbidimeter. Well purging continued until stabilization of each field parameter was

achieved according to USEPA guidelines for low-flow sampling. Once the field parameters stabilized, the YSI meter was disconnected, and groundwater samples were collected for analysis using the same dedicated polyethylene tubing that was used to purge the well.

Field parameter measurements collected during this sampling event were recorded on field data forms. Copies of the field data forms are included in Appendix C.

The groundwater samples collected were placed in laboratory-provided sample containers for analysis by Teklab, Inc. located in Collinsville, IL which is an IEPA-approved laboratory. Samples were transported under chain-of-custody procedures to the laboratory for analytical testing within laboratory provided coolers containing ice. The laboratory analytical report for the fourth quarter 2022 sampling event is included in Appendix D.

In accordance with the 3 March 2022 draft comments received from the IEPA Groundwater Section associated with the post-closure groundwater monitoring program contained in the Operating Permit Application submitted to the IEPA on 28 October 2021, the IEPA evaluates the efficacy of corrective actions for closed CCR impoundments through the comparison of the groundwater analytical results to the 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 post-closure groundwater sampling event conducted during the fourth quarter 2022 are presented in Table 1. During the fourth 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:

- Sulfate: APW-02;
- Arsenic: APW-02, APW-06D, APW-10S;
- Boron: APW-02, APW-03,APW-04, APW-05, APW-06D, APW-06S, APW-10S;
- Calcium: APW-02, APW-03, APW-04, APW-05, APW-06D, APW-07, APW-10D, APW-10S;
- Turbidity: APW-01R, APW-02, APW-03, APW-04, APW-06D, APW-08, APW-10D, APW-10S;
- Lithium: APW-02; and
- Molybdenum: APW-02, APW-04, APW-05, 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 APW-10S 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 constituents of concern (COCs) that have historically or currently exceeded Title 35 Section 845.600 groundwater protection standards between September 2017 and the fourth quarter 2022. 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 second, third, and fourth quarter 2022 post-closure sampling events. Based on the Mann-Kendall statistical analysis, as shown in Table 2, the following wells exhibit a statistically significant increasing or decreasing trend as of November 2022:

- APW-04: decreasing boron,
- APW-05: decreasing boron and sulfate,
- APW-06D: increasing arsenic, and
- APW-08: decreasing calcium.

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 fourth quarter 2022 groundwater sampling event, well inspection, and CCR impoundment inspection, the following observations and conclusions have been made:

- Similar to the groundwater sampling results obtained during the eight pre-closure sampling events in 2017 to 2018, as well as the second and third quarter sampling events of 2022, 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 upon a Mann-Kendall analysis incorporating data from the eight rounds of pre-closure groundwater sampling conducted during 2017 and 2018, as well as the second, third, and fourth quarter 2022 groundwater monitoring events, boron continues to demonstrate a decreasing trend at APW-04 and APW-05.
- The existing APW-05 will be abandoned, re-drilled and replaced by an Illinois licensed well driller during the first quarter of 2023 due to damage to the well screen, which had allowed the sand pack to enter the monitoring well.
- Growth of a limited but increased amount of woody vegetation (up to 1”diameter) since the third quarter 2022 was observed within the riprap on the north, west, and southern impoundment cap faces. 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

DRAWN BY: S. Vickery

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

N

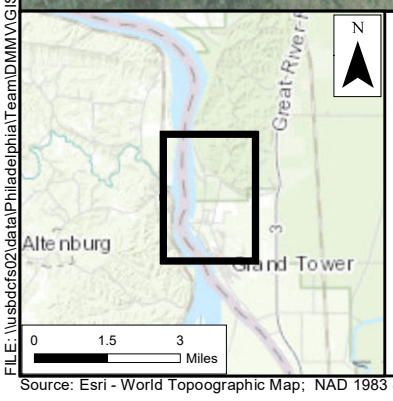
Grand Tower Energy Center (GTEC)

Closed Coal Combustion Residuals (CCR) Impoundment

Mississippi River

Grand Tower

0 840 1,680 Feet



Legend

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

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

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

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

DRAWN BY: S. Vickery

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Power Plant Rd

N

APW-1R
331.21

331.2

331

330.8

APW-05
330.37

330.4

330.2

APW-02
330.08

APW-04
331.04

APW-06D
330.61

APW-06S
330.62

APW-03
331.04

APW-09
331.09

APW-07
330.54

APW-08
331.08

Mississippi River

330.6

*Mississippi River
Elevation = 329.63

APW-10D
331.36

APW-10S
330.57

0 230 460 Feet

25th Ave

N

0 0.45 0.9 Miles

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 November 28, 2022
3. Ft AMSL - Feet Above Mean Sea Level
4. (D) - Desiginated Wells not used in contoruing
5. * River stage at Mississippi River Gauge at Grand Tower, IL (NGVD29) as of November 28, 2022 (https://rivergages.mvr.usace.army.mil/WaterControl/stationinfo2.cfm?sid=CE358576&fid=GDTI2&dt=S&dt=E)
6. Contours are dashed where inferred
7. World Imagery (3/24/2021)

Figure 2
Sampling Event Results
November 2022
Grand Tower Energy Center, LLC
Grand Tower, Ilinois
Jackson County

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

TABLES

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

				Sampled prior to closure of CCR Impoundment								Post-Closure Sampling		
			Sample ID	APW-1R-20170907	APW-1R-20170927	APW-1R-20171018	APW-1R-20171108	APW-1R-20171127	APW-1R-20171228	APW-1R-20180117	APW-1R-20180207	APW-1R-WG-20220615	APW-01R-WG-20220915	APW-01R-WG-20221130
			Location ID	APW-01R	APW-01R	APW-01R	APW-01R	APW-01R	APW-01R	APW-01R	APW-01R	APW-01R	APW-01R	APW-01R
			Sample Date	09/05/2017	09/27/2017	10/18/2017	11/08/2017	11/27/2017	12/28/2017	01/17/2018	02/07/2018	06/15/2022	09/15/2022	11/30/2022
			Sample Type	N	N	N	N	N	N	N	N	N	N	N
Parameter/Analyte	**Total or Dissolved**	**Units**	**35 IAC 845.600**											
UNSPECIFIED														
Fluoride	NA	mg/L	4	0.15	0.17	0.16	0.12	0.14	0.15	0.18	0.16	0.21	0.15	0.18
Radium-226	NA	pCi/L	NS	0.25 ± .12 U	0.18 ± .09 U	0.307 ± .320	0.13 ± 0.43 U	-0.07 ± 0.16 U	0.23 ± 0.1 U	0.03 ± 0.07 U	-0.04 ± 0.08 U	0.0323 ± 0.141 U	0.24 ± 0.1 U	0.4 ± 0.12 U
Radium-228	NA	pCi/L	NS	2.29 ± .98	0.51 ± .39 U	0.12 ± .332	0.57 ± 0.33 U	0.47 ± 0.54 U	0.04 ± 0.34 U	0.98 ± 0.62 J	0.22 ± 0.34 U	0.661 ± 0.257	0.43 ± 0.49 UQM-	0.41 ± 0.56 U
Sulfate	NA	mg/L	400	41	65	65	54	58	88	78	79	33	73 S	69
CALC														
Radium-226/228	NA	pCi/L	5									0.693 ± 0.293	0.67 ± 0.59 U	0.81 ± 0.68 U
FIELD PARAM														
Turbidity, Field	NA	NTU	17.96[1]									33.9	31.7	31.7
GEN CHEM														
Chloride	NA	mg/L	200	5 U	5 U	5 U	5 U	5 U	9	11	10	2	7	7
Dissolved Solids, Total	NA	mg/L	1200	400	428	376	358 R	412	474	434	392	342	420 H	385
pH, Lab	NA	pH units	6.22-9.0[2]	6.64	6.54	6.6	6.8	7.11	6.96	7.09	6.52	6.98	6.91	6.43
METALS														
Antimony	D	mg/L	0.006									0.001 U	0.001 U	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	0.001 U	0.001 U
Arsenic	D	mg/L	0.01									0.0012	0.001 U	0.001 U
Arsenic	T	mg/L	0.01	0.0012	0.0012	0.001 U	0.0012	0.0011	0.001 U	0.0011	0.0011	0.0019	0.0019	0.0021
Barium	D	mg/L	2									0.16	0.153	0.162 B
Barium	T	mg/L	2	0.168	0.193	0.171	0.176	0.165	0.178	0.182	0.18	0.197	0.185	0.199
Beryllium	D	mg/L	0.004									0.001 U	0.001 U	0.001 U
Beryllium	T	mg/L	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Boron	D	mg/L	2									0.163	0.244	0.219
Boron	T	mg/L	2	0.218	0.251	0.238	0.211	0.225	0.329	0.357	0.311	0.228	0.242	0.222
Cadmium	D	mg/L	0.005									0.001 U	0.001 U	0.001 U
Cadmium	T	mg/L	0.005	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Calcium	D	mg/L	103.2[1]									85.6	83.8 S	73.9
Calcium	T	mg/L	103.2[1]	84.3 S	93 S	86.2 S	88.2	91.2 S	91	97.1	85.8 S	90.3	91.4	79.7
Chromium	D	mg/L	0.1									0.0009 J	0.0015 U	0.0015 U
Chromium	T	mg/L	0.1	0.0023	0.0021	0.0033	0.001 U	0.001 U	0.0018	0.0015	0.0015	0.0031	0.0034	0.0041
Cobalt	D	mg/L	0.006									0.0002 J	0.001 U	0.001 U
Cobalt	T	mg/L	0.006	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0017	0.0017	0.0031
Iron	T	mg/L	NS									1.42		
Lead	D	mg/L	0.0075									0.001 U	0.001 U	0.001 U
Lead	T	mg/L	0.0075	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0013	0.0062	0.0014
Lithium	D	mg/L	0.04									0.0127	0.0156	0.0139
Lithium	T	mg/L	0.04	0.0155	0.018	0.0173	0.0175	0.018	0.0179	0.0164	0.0159	0.0171	0.0169	0.0155
Manganese	T	mg/L	NS									0.139		
Mercury	D	mg/L	0.002										0.0002 U	0.0002 U
Mercury	T	mg/L	0.002	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Molybdenum	D	mg/L	0.1									0.0015 U	0.0015 U	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	0.0015 U	0.0015 U
Nickel	D	mg/L	NS									0.0043		0.0061
Nickel	T	mg/L	NS	0.0044	0.0062	0.0054	0.004	0.0038	0.0046	0.005	0.0057	0.0083		0.012
Selenium	D	mg/L	0.05									0.0028	0.0032	0.0033
Selenium	T	mg/L	0.05	0.0038	0.004	0.0034	0.0044	0.0041	0.004	0.004	0.0037	0.0028	0.0038	0.0035
Thallium	D	mg/L	0.002									0.002 U	0.002 U	0.002 U
Thallium	T	mg/L	0.002	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0014	0.001 U	0.002 U	0.002 U	0.002 U

Notes:
Empty cells = not analyzed
N = Normal Environmental Sample
FD = Field Duplicate Sample
NA = not applicable
T = total
D = dissolved
mg/L = milligrams per liter
pCi/L = picocuries per liter
NTU = nephelometric turbidity units
H = Holding times exceeded
J = Analyte detected below quantitation limits
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

				Sampled prior to closure of CCR Impoundment								Post-Closure Sampling				
			Sample ID	APW-2-20170907	APW-2-20170927	APW-2-20171020	APW-2-20171109	APW-2-20171129	APW-2-20171227	APW-2-20180119	APW-2-20180207	APW-02-WG-20220616	APW-02-WG-20220914	DUP-002-WG-20220914	APW-02-WG-20221129	DUP-02-WG-20221129
			Location ID	APW-02	APW-02	APW-02	APW-02	APW-02	APW-02	APW-02	APW-02	APW-02	APW-02	APW-02	APW-02	APW-02
			Sample Date	09/06/2017	09/28/2017	10/20/2017	11/09/2017	11/29/2017	12/27/2017	01/19/2018	02/07/2018	06/16/2022	09/14/2022	09/14/2022	11/29/2022	11/29/2022
			Sample Type	N	N	N	N	N	N	N	N	N	N	FD	N	FD
Parameter/Analyte	**Total or Dissolved**	**Units**	**35 IAC 845.600**													
UNSPECIFIED																
Fluoride	NA	mg/L	4	0.24	0.26	0.25	0.24	0.24	0.25	0.26	0.24	0.25	0.22	0.22	0.25	0.26
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	0.27 ± 0.1 UQDR	0.14 ± 0.07 U	0.5 ± 0.14 U	0.35 ± 0.12 U
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	0.4 ± 0.48 UQDR	2.81 ± 1.03	0.24 ± 0.44 U	0.27 ± 0.55 U
Sulfate	NA	mg/L	400	462	460	472 S	479	472	426	443	416	496	491	490	418	438
CALC																
Radium-226/228	NA	pCi/L	5									0.467 ± 0.297 J	0.67 ± 0.58 U	2.95 ± 1.1	0.74 ± 0.58 U	0.62 ± 0.67 U
FIELD PARAM																
Turbidity, Field	NA	NTU	17.96[1]									38	19.2		132	
GEN CHEM																
Chloride	NA	mg/L	200	13	12	11	11	12	12	12	12	9	11	10	9	9
Dissolved Solids, Total	NA	mg/L	1200	858	880	934	916	870	848	836	888	930	890 H	905 H	885	855
pH, Lab	NA	pH units	6.22-9.0[2]	7.09	7.05	7.08	7.07	7.05	7.14	7.06	6.96	7.21	7.32	7.25	7.01	7.02
METALS																
Antimony	D	mg/L	0.006									0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Antimony	T	mg/L	0.006	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0021	0.0006 J	0.001 U	0.001 U	0.001 U	0.001 U
Arsenic	D	mg/L	0.01									0.0117	0.0048	0.0049	0.0012	0.0187
Arsenic	T	mg/L	0.01	0.0199	0.0147	0.0212	0.017	0.0169	0.0157	0.0148	0.0243	0.0158	0.026	0.0176	0.022	0.0173
Barium	D	mg/L	2									0.154	0.123	0.135	0.125 B	0.148 B
Barium	T	mg/L	2	0.479	0.355	0.685	0.44	0.427	0.338	0.351	0.739	0.237	0.408	0.238	0.254	0.218
Beryllium	D	mg/L	0.004									0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Beryllium	T	mg/L	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0011	0.002 U	0.001 U	0.001 U	0.001 SU	0.001 U
Boron	D	mg/L	2									8.17	7.49 S	7.9	0.656	6.63
Boron	T	mg/L	2	8.16	8.73	8.94 S	9	8.98	8.39	8.19	8.24	8.13	9.43	8.72	8.97 S	7.69
Cadmium	D	mg/L	0.005									0.0003 J	0.001 U	0.001 U	0.001 U	0.001 U
Cadmium	T	mg/L	0.005	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0006 J	0.001 U	0.001 U	0.001 U	0.001 U
Calcium	D	mg/L	103.2[1]									175	136 S	165	96.1	129
Calcium	T	mg/L	103.2[1]	148	145	171 S	157	158	135	134	175	189	198	178	145 S	149
Chromium	D	mg/L	0.1									0.0015 U	0.0015 U	0.0015 U	0.0015 U	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	0.0148	0.0066	0.0064	0.0054
Cobalt	D	mg/L	0.006									0.0003 J	0.001 U	0.001 U	0.001 U	0.001 U
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	0.0044	0.0011	0.0015	0.0011
Iron	T	mg/L	NS									11.7				
Lead	D	mg/L	0.0075									0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Lead	T	mg/L	0.0075	0.0115	0.0054	0.0201	0.0096	0.0075	0.0031	0.0048	0.0239	0.0022	0.0119	0.0033	0.0033	0.0034
Lithium	D	mg/L	0.04									0.037	0.0374	0.0404	0.028	0.0356
Lithium	T	mg/L	0.04	0.05	0.0455	0.0647	0.0521	0.0542	0.0474	0.045	0.0604	0.0507	0.0559	0.0456	0.0386	0.0411
Manganese	T	mg/L	NS									0.752				
Mercury	D	mg/L	0.002										0.0002 U	0.0002 U		
Mercury	T	mg/L	0.002	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00043	0.0002 U	0.0002 U	0.0002 U
Molybdenum	D	mg/L	0.1									0.201	0.139	0.156	0.0337	0.145
Molybdenum	T	mg/L	0.1	0.172	0.147	0.214	0.175	0.165	0.111	0.0951	0.131	0.24	0.174	0.174	0.128	0.119
Nickel	D	mg/L	NS									0.0039			0.0022	0.001 U
Nickel	T	mg/L	NS	0.0288	0.0263	0.0412	0.0202	0.0135	0.0295	0.0631	0.0725	0.0142			0.0045	0.0047
Selenium	D	mg/L	0.05									0.001 U	0.001 U	0.001 U	0.0071	0.001 U
Selenium	T	mg/L	0.05	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Thallium	D	mg/L	0.002									0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Thallium	T	mg/L	0.002	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U

Notes:
Empty cells = not analyzed
N = Normal Environmental Sample
FD = Field Duplicate Sample
NA = not applicable
T = total
D = dissolved
mg/L = milligrams per liter
pCi/L = picocuries per liter
NTU = nephelometric turbidity units
H = Holding times exceeded
J = Analyte detected below quantitation limits
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

				Sampled prior to closure of CCR Impoundment								Post-Closure Sampling		
			Sample ID	APW-3-20170907	APW-3-20170929	APW-3-20171020	APW-3-20171110	APW-3-20171129	APW-3-20171228	APW-3-20180119	APW-3-20180208	APW-03-WG-20220616	APW-03-WG-20220915	APW-03-WG-20221130
			Location ID	APW-03	APW-03	APW-03	APW-03	APW-03	APW-03	APW-03	APW-03	APW-03	APW-03	APW-03
			Sample Date	09/06/2017	09/29/2017	10/20/2017	11/10/2017	11/29/2017	12/28/2017	01/19/2018	02/08/2018	06/16/2022	09/15/2022	11/30/2022
			Sample Type	N	N	N	N	N	N	N	N	N	N	N
Parameter/Analyte	**Total or Dissolved**	**Units**	**35 IAC 845.600**											
UNSPECIFIED														
Fluoride	NA	mg/L	4	0.28	0.29	0.29	0.31	0.27	0.29	0.29	0.34	0.26	0.2	0.26
Radium-226	NA	pCi/L	NS	0.53 ± .18 U	0.04 ± 0.09 U	0.409 ± 0.426	0.18 ± 0.11 U	0.33 ± 0.17 U	0.2 ± 0.1 U	0.1 ± 0.1 U	0.31 ± 0.15 U	0.201 ± 0.155	0.56 ± 0.13 U	0.19 ± 0.1 U
Radium-228	NA	pCi/L	NS	2.05 ± .96	1.01 ± 0.57	0.492 ± 0.373	0.72 ± 0.37 J	0.31 ± 0.49 U	0.37 ± 0.44 U	1.32 ± 0.68	0.06 ± 0.36 U	1.89 ± 0.26 J3	0.4 ± 0.5 UQDR	0.67 ± 0.59 U
Sulfate	NA	mg/L	400	175	222	201	207	204	168	152	194	393	150	226
CALC														
Radium-226/228	NA	pCi/L	5									2.09 ± 0.303	0.96 ± 0.63 U	0.86 ± 0.69 U
FIELD PARAM														
Turbidity, Field	NA	NTU	17.96[1]									40.3	56.1	103
GEN CHEM														
Chloride	NA	mg/L	200	22	21	21	22	19	20	16	23	20	16	20
Dissolved Solids, Total	NA	mg/L	1200	464	514	486	450	554	504	498	456	724	602 H	610
pH, Lab	NA	pH units	6.22-9.0[2]	7.88	7.46	7.65	7.93	7.5	7.48	7.26	7.78	7.85	7.46	7.21
METALS														
Antimony	D	mg/L	0.006									0.001 U	0.001 U	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	0.001 U	0.001 U
Arsenic	D	mg/L	0.01									0.0015	0.0014	0.0024
Arsenic	T	mg/L	0.01	0.0022	0.0029	0.0021	0.0018	0.0023	0.0024	0.0028	0.0018	0.002	0.0046	0.0059
Barium	D	mg/L	2									0.139	0.124	0.108 B
Barium	T	mg/L	2	0.111	0.146	0.104	0.0814	0.121	0.1	0.15	0.0806	0.158	0.181	0.19
Beryllium	D	mg/L	0.004									0.001 U	0.001 U	0.001 U
Beryllium	T	mg/L	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Boron	D	mg/L	2									4.23	1.49	2.99
Boron	T	mg/L	2	4.16	4.21 S	4.7	4.67	4.44 S	4.52	4.08	4.92	4.27	1.84	3.59
Cadmium	D	mg/L	0.005									0.001 U	0.001 U	0.001 U
Cadmium	T	mg/L	0.005	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0002 J	0.001 U	0.001 U
Calcium	D	mg/L	103.2[1]									174	125	101
Calcium	T	mg/L	103.2[1]	86.3	104 S	88.1	74.9	116 S	95	101	77.1	153	143	115
Chromium	D	mg/L	0.1									0.0011 J	0.0015 U	0.0015 U
Chromium	T	mg/L	0.1	0.0081	0.0053	0.0026	0.001 U	0.001 U	0.005	0.0025	0.001 U	0.0044	0.0083	0.0118
Cobalt	D	mg/L	0.006									0.001 U	0.001 U	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	0.0014	0.0021
Iron	T	mg/L	NS									1.66		
Lead	D	mg/L	0.0075									0.001 U	0.001 U	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	0.0023	0.0029
Lithium	D	mg/L	0.04									0.0338	0.0288	0.0266
Lithium	T	mg/L	0.04	0.0258	0.0262	0.0259	0.0245	0.0308	0.027	0.035	0.0239	0.0361	0.0329	0.029
Manganese	T	mg/L	NS									0.321		
Mercury	D	mg/L	0.002										0.0002 U	
Mercury	T	mg/L	0.002	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Molybdenum	D	mg/L	0.1									0.057	0.0342	0.0648
Molybdenum	T	mg/L	0.1	0.0778	0.0754	0.0761	0.0713	0.0684	0.0748	0.0824	0.0849	0.0601	0.0413	0.0621
Nickel	D	mg/L	NS									0.0016		0.0011
Nickel	T	mg/L	NS	0.0055	0.0051	0.0019	0.001 U	0.001 U	0.0026	0.0025	0.001	0.0033		0.01
Selenium	D	mg/L	0.05									0.001 U	0.001 U	0.001 U
Selenium	T	mg/L	0.05	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0011	0.001 U	0.001 U	0.001 U	0.001 U
Thallium	D	mg/L	0.002									0.002 U	0.002 U	0.002 U
Thallium	T	mg/L	0.002	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U

Notes:
Empty cells = not analyzed
N = Normal Environmental Sample
FD = Field Duplicate Sample
NA = not applicable
T = total
D = dissolved
mg/L = milligrams per liter
pCi/L = picocuries per liter
NTU = nephelometric turbidity units
H = Holding times exceeded
J = Analyte detected below quantitation limits
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*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
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NS = No standard

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

				Sampled prior to closure of CCR Impoundment								Post-Closure Sampling		
			Sample ID	APW-4-20170907	APW-4-20170929	APW-4-20171019	APW-4-20171108	APW-4-20171128	APW-4-20171228	APW-4-20180119	APW-4-20180208	APW-04-WG-20220615	APW-04-WG-20220915	APW-04-WG-20221128
			Location ID	APW-04	APW-04	APW-04	APW-04	APW-04	APW-04	APW-04	APW-04	APW-04	APW-04	APW-04
			Sample Date	09/08/2017	09/29/2017	10/19/2017	11/08/2017	11/28/2017	12/28/2017	01/19/2018	02/08/2018	06/15/2022	09/15/2022	11/28/2022
			Sample Type	N	N	N	N	N	N	N	N	N	N	N
Parameter/Analyte	**Total or Dissolved**	**Units**	**35 IAC 845.600**											
UNSPECIFIED														
Fluoride	NA	mg/L	4	0.18	0.19	0.18	0.17	0.18	0.17	0.17	0.16	0.2	0.17	0.17
Radium-226	NA	pCi/L	NS	0.38 ± 0.16 U	0.02 ± 0.08 U	-0.272 ± 0.328	0.15 ± 0.09 U	0.09 ± 0.13 U	0.17 ± 0.09 U	-0.05 ± 0.08 U	0.13 ± 0.11 U	0.103 ± 0.164 J	0.5 ± 0.13 U	0.11 ± 0.08 U
Radium-228	NA	pCi/L	NS	0.95 ± 0.64 J	-0.45 ± 0.68 U	0.53 ± 0.382	0.64 ± 0.31 U	0.88 ± 0.64 J	0.73 ± 0.36 J	0.34 ± 0.51 U	0.64 ± 0.48 U	0.245 ± 0.235 J	2.15 ± 0.78	1.47 ± 0.67
Sulfate	NA	mg/L	400	126	116	109	120	107	100	99	92	94	83	68
CALC														
Radium-226/228	NA	pCi/L	5									0.348 ± 0.287 J	2.65 ± 0.91	1.58 ± 0.75 U
FIELD PARAM														
Turbidity, Field	NA	NTU	17.96[1]									19.1	18.3	26.5
GEN CHEM														
Chloride	NA	mg/L	200	12	11	11	11	11	11	10	11	12	10	11
Dissolved Solids, Total	NA	mg/L	1200	460	484	452	472	492	514	424	528	430	436 H	446
pH, Lab	NA	pH units	6.22-9.0[2]	7.31	7.33	7.31	7.42	7.32	7.33	7.25	7.2	7.41	7.51	7.34
METALS														
Antimony	D	mg/L	0.006									0.001 U	0.001 U	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	0.001 U	0.001 U
Arsenic	D	mg/L	0.01									0.0013	0.0013	0.0021
Arsenic	T	mg/L	0.01	0.0025	0.0018	0.0016	0.0018	0.0016	0.0014	0.0016	0.0015	0.0015	0.0029	0.0016
Barium	D	mg/L	2									0.116	0.132	0.13 B
Barium	T	mg/L	2	0.145	0.139	0.123	0.13	0.128	0.141	0.155	0.144	0.143	0.165	0.133
Beryllium	D	mg/L	0.004									0.001 U	0.001 U	0.001 U
Beryllium	T	mg/L	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Boron	D	mg/L	2									1.41	0.875	7.33
Boron	T	mg/L	2	2.37	2.16	2.12	2.21	2.03	1.7	1.33	1.18	1.88	0.973	0.653
Cadmium	D	mg/L	0.005									0.001 U	0.001 U	0.001 U
Cadmium	T	mg/L	0.005	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Calcium	D	mg/L	103.2[1]									111	93.7	108
Calcium	T	mg/L	103.2[1]	101 S	105	89.4	97.5	107	107	113	113	97.8	108 S	102
Chromium	D	mg/L	0.1									0.0015 U	0.0015 U	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	0.0251	0.0043
Cobalt	D	mg/L	0.006									0.001 U	0.001 U	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	0.0025	0.001 U
Iron	T	mg/L	NS									0.563		
Lead	D	mg/L	0.0075									0.001 U	0.001 U	0.001 U
Lead	T	mg/L	0.0075	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0016	0.001 U
Lithium	D	mg/L	0.04									0.0264	0.0283	0.0355
Lithium	T	mg/L	0.04	0.0404	0.0403	0.0412	0.0406	0.0424	0.0416	0.0411	0.0397	0.036	0.0322	0.0293
Manganese	T	mg/L	NS									0.192		
Mercury	D	mg/L	0.002										0.0002 U	
Mercury	T	mg/L	0.002	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Molybdenum	D	mg/L	0.1									0.0653	0.0445	0.227
Molybdenum	T	mg/L	0.1	0.0891	0.084	0.0793	0.0812	0.0748	0.0714	0.0592	0.057	0.0788	0.0494	0.0406
Nickel	D	mg/L	NS									0.0019		0.0017
Nickel	T	mg/L	NS	0.0065	0.0034	0.0029	0.002	0.002	0.0026	0.0039	0.003	0.0045		0.0051
Selenium	D	mg/L	0.05									0.0134	0.0101	0.001 U
Selenium	T	mg/L	0.05	0.0158	0.015	0.0149	0.0161	0.014	0.013	0.0101	0.0102	0.0133	0.0111	0.0085
Thallium	D	mg/L	0.002									0.002 U	0.002 U	0.002 U
Thallium	T	mg/L	0.002	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U

Notes:
Empty cells = not analyzed
N = Normal Environmental Sample
FD = Field Duplicate Sample
NA = not applicable
T = total
D = dissolved
mg/L = milligrams per liter
pCi/L = picocuries per liter
NTU = nephelometric turbidity units
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J = Analyte detected below quantitation limits
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Table 1
Groundwater Summary Table
Grand Tower Energy Center (GTEC)
Grand Tower, US-IL

				Sampled prior to closure of CCR Impoundment								Post-Closure Sampling					
			Sample ID	APW-5-20170907	APW-5-20170928	APW-5-20171019	APW-5-20171109	APW-5-20171129	APW-5-20171227	APW-5-20180118	APW-5-20180207	APW-05-WG-20220616	DUP-001-WG-20220616	APW-05-WG-20220914	DUP-001-WG-20220914	APW-05-WG-20221128	DUP-01-WG-20221128
			Location ID	APW-05	APW-05	APW-05	APW-05	APW-05	APW-05	APW-05	APW-05	APW-05	APW-05	APW-05	APW-05	APW-05	APW-05
			Sample Date	09/06/2017	09/28/2017	10/19/2017	11/09/2017	11/29/2017	12/27/2017	01/18/2018	02/07/2018	06/16/2022	06/16/2022	09/14/2022	09/14/2022	11/28/2022	11/28/2022
			Sample Type	N	N	N	N	N	N	N	N	N	FD	N	FD	N	FD
Parameter/Analyte	**Total or Dissolved**	**Units**	**35 IAC 845.600**														
UNSPECIFIED																	
Fluoride	NA	mg/L	4	0.34	0.34	0.32	0.32	0.32	0.33	0.36	0.32	0.35	0.33	0.33	0.31	0.37	0.38
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	0.259 ± 0.27 J	0.17 ± 0.08 U	0.11 ± 0.07 U	0.11 ± 0.11 U	0.17 ± 0.08 U
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	0.715 ± 0.31	0.82 ± 0.88 J	0.27 ± 0.55 U	0.49 ± 0.49 U	1.24 ± 0.71
Sulfate	NA	mg/L	400	407	460	399	413	381	394	439	378	224	239	379	403	324	338
CALC																	
Radium-226/228	NA	pCi/L	5									1.75 ± 0.424	0.973 ± 0.411	0.99 ± 0.96 U	0.38 ± 0.62 U	0.6 ± 0.6 U	1.41 ± 0.79 U
FIELD PARAM																	
Turbidity, Field	NA	NTU	17.96[1]									51.8		9.19		4.65	
GEN CHEM																	
Chloride	NA	mg/L	200	15	15	15	14	16	16	16	16	19	19	15	15	19	19
Dissolved Solids, Total	NA	mg/L	1200	842	832	804	826	790	792	552	804	650	690	750 H	774 H	714	728 H
pH, Lab	NA	pH units	6.22-9.0[2]	7.37	7.3	7.26	7.3	7.26	7.31	7.23	7.18	7.35	7.49	7.55	7.57	7.24	7.27
METALS																	
Antimony	D	mg/L	0.006									0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Antimony	T	mg/L	0.006	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0011	0.001 U	0.001 U	0.001 U
Arsenic	D	mg/L	0.01									0.002	0.0021	0.001	0.001	0.001 U	0.0019
Arsenic	T	mg/L	0.01	0.0031	0.0026	0.0015	0.0016	0.0016	0.0019	0.0021	0.0019	0.0048	0.0041	0.0025	0.0023	0.0022	0.0023
Barium	D	mg/L	2									0.133	0.132	0.13	0.128	0.172 B	0.13 B
Barium	T	mg/L	2	0.226	0.233	0.183	0.216	0.193	0.214	0.214	0.195	0.187	0.174	0.154	0.152	0.14	0.136
Beryllium	D	mg/L	0.004									0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Beryllium	T	mg/L	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U
Boron	D	mg/L	2									7.63	7.7	7.42	7.09	6.12	7.03 S
Boron	T	mg/L	2	9.3	10.3	8.89	9.98	9.1	9.83	9.25	8.73	7.67	8.24 S	7.76	7.62	7.48	7.97
Cadmium	D	mg/L	0.005									0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Cadmium	T	mg/L	0.005	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Calcium	D	mg/L	103.2[1]									139	141	119	131	87.4	110 S
Calcium	T	mg/L	103.2[1]	136	142	119	131	123	125	121	124	127	129 S	127	137	117	118
Chromium	D	mg/L	0.1									0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U
Chromium	T	mg/L	0.1	0.0137	0.001 U	0.0041	0.001 U	0.001 U	0.0084	0.0033	0.001 U	0.0016 J	0.003 U	0.0015 U	0.0015 U	0.0015 U	0.0016
Cobalt	D	mg/L	0.006									0.0006 J	0.0005 J	0.001 U	0.001 U	0.001 U	0.001 U
Cobalt	T	mg/L	0.006	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0013 J	0.0011 J	0.001 U	0.001 U	0.001 U	0.001 U
Iron	T	mg/L	NS									2.77	1.89				
Lead	D	mg/L	0.0075									0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Lead	T	mg/L	0.0075	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Lithium	D	mg/L	0.04									0.0282	0.029	0.0381	0.0373	0.0338	0.0365
Lithium	T	mg/L	0.04	0.0363	0.0443	0.0393	0.0405	0.0415	0.0433	0.0404	0.0397	0.0331	0.0363	0.0408	0.0397	0.0373	0.0371
Manganese	T	mg/L	NS									0.9	0.904				
Mercury	D	mg/L	0.002											0.0002 U	0.0002 U		
Mercury	T	mg/L	0.002	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Molybdenum	D	mg/L	0.1									0.172	0.17	0.213	0.206	0.293	0.211 S
Molybdenum	T	mg/L	0.1	0.172	0.195	0.201	0.168	0.193	0.246	0.244	0.249	0.203	0.195	0.235	0.224	0.223	0.226
Nickel	D	mg/L	NS									0.0036	0.0035			0.0011	0.0024
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	0.0039			0.002	0.0029
Selenium	D	mg/L	0.05									0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Selenium	T	mg/L	0.05	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Thallium	D	mg/L	0.002									0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Thallium	T	mg/L	0.002	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U

Notes:
Empty cells = not analyzed
N = Normal Environmental Sample
FD = Field Duplicate Sample
NA = not applicable
T = total
D = dissolved
mg/L = milligrams per liter
pCi/L = picocuries per liter
NTU = nephelometric turbidity units
H = Holding times exceeded
J = Analyte detected below quantitation limits
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 standarc
Highlighted values exceed action level
NS = No standard

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

				Sampled prior to closure of CCR Impoundment								Post-Closure Sampling		
			Sample ID	APW-6D-20170907	APW-6D-20170927	APW-6D-20171019	APW-6D-20171109	APW-6D-20171128	APW-6D-20171227	APW-6D-20180118	APW-6D-20180208	N/A	APW-06D-WG-20220913	APW-06D-WG-20221128
			Location ID	APW-06D	APW-06D	APW-06D	APW-06D	APW-06D	APW-06D	APW-06D	APW-06D	APW-06D	APW-06D	APW-06D
			Sample Date	09/06/2017	09/28/2017	10/19/2017	11/09/2017	11/28/2017	12/27/2017	01/18/2018	02/08/2018	6/16/2022	09/13/2022	11/28/2022
			Sample Type	N	N	N	N	N	N	N	N		N	N
Parameter/Analyte	**Total or Dissolved**	**Units**	**35 IAC 845.600**									**Casing deflected, no sample collected during Q2 2022**		
UNSPECIFIED														
Fluoride	NA	mg/L	4	0.22	0.23	0.21	0.22	0.21	0.22	0.23	0.21	N/A	0.2	0.24
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	0.31 ± 0.1 U	0.62 ± 0.15 U
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	1.46 ± 0.71	0.28 ± 0.43 U
Sulfate	NA	mg/L	400	215	228	206	222	230	236	211	189	N/A	272	254
CALC														
Radium-226/228	NA	pCi/L	5									N/A	1.77 ± 0.81 U	0.9 ± 0.58 U
FIELD PARAM														
Turbidity, Field	NA	NTU	17.96[1]									N/A	18.5	74.4
GEN CHEM														
Chloride	NA	mg/L	200	17	17	16	16	16	16	17	17	N/A	14	17
Dissolved Solids, Total	NA	mg/L	1200	558	560	562	564	590	516 R	482	584	N/A	670 H	580
pH, Lab	NA	pH units	6.22-9.0[2]	7.23	7.25	7.23	7.19	7.2	7.22	7.21	7.2	N/A	7.42	7.21
METALS														
Antimony	D	mg/L	0.006									N/A	0.001 U	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	N/A	0.001 U	0.001 U
Arsenic	D	mg/L	0.01									N/A	0.004	0.0116
Arsenic	T	mg/L	0.01	0.0068	0.0101	0.0075	0.0074	0.009	0.0095	0.0106	0.0096	N/A	0.0104	0.0111
Barium	D	mg/L	2									N/A	0.129	0.118 B
Barium	T	mg/L	2	0.173	0.172	0.142	0.153	0.155	0.163	0.166	0.148	N/A	0.143	0.142
Beryllium	D	mg/L	0.004									N/A	0.001 U	0.001 U
Beryllium	T	mg/L	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	N/A	0.001 U	0.001 U
Boron	D	mg/L	2									N/A	5.32	4.14
Boron	T	mg/L	2	3.72	3.87	3.55	3.58	3.9	3.84	3.3	3.09	N/A	5.51	4.29
Cadmium	D	mg/L	0.005									N/A	0.001 U	0.001 U
Cadmium	T	mg/L	0.005	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	N/A	0.001 U	0.001 U
Calcium	D	mg/L	103.2[1]									N/A	118	105
Calcium	T	mg/L	103.2[1]	99.9	110	96.7	100	110	107	105 S	105	N/A	123	110
Chromium	D	mg/L	0.1									N/A	0.0015 U	0.0015 U
Chromium	T	mg/L	0.1	0.001 U	0.0013	0.001 U	0.001 U	0.001 U	0.0017	0.003	0.0014	N/A	0.0015 U	0.0063
Cobalt	D	mg/L	0.006									N/A	0.0013	0.0012
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	0.001 U	0.0035
Lead	D	mg/L	0.0075									N/A	0.001 U	0.001 U
Lead	T	mg/L	0.0075	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	N/A	0.001 U	0.0012
Lithium	D	mg/L	0.04									N/A	0.0179	0.0155
Lithium	T	mg/L	0.04	0.016	0.0176	0.0161	0.0163	0.0178	0.0181	0.0165	0.0162	N/A	0.0185	0.0175
Mercury	D	mg/L	0.002									N/A	0.0002 U	
Mercury	T	mg/L	0.002	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	N/A	0.0002 U	0.0002 U
Molybdenum	D	mg/L	0.1									N/A	0.0669	0.0796
Molybdenum	T	mg/L	0.1	0.0646	0.0606	0.0582	0.0589	0.06	0.0584	0.0465	0.0463	N/A	0.0719	0.0696
Nickel	D	mg/L	NS									N/A		0.002
Nickel	T	mg/L	NS	0.0032	0.0028	0.0018	0.002	0.0017	0.0022	0.0032	0.0025	N/A		0.0093
Selenium	D	mg/L	0.05									N/A	0.001 U	0.001 U
Selenium	T	mg/L	0.05	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	N/A	0.001 U	0.001 U
Thallium	D	mg/L	0.002									N/A	0.002 U	0.002 U
Thallium	T	mg/L	0.002	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	N/A	0.002 U	0.002 U

Notes:
Empty cells = not analyzed
N = Normal Environmental Sample
FD = Field Duplicate Sample
NA = not applicable
T = total
D = dissolved
mg/L = milligrams per liter
pCi/L = picocuries per liter
NTU = nephelometric turbidity units
H = Holding times exceeded
J = Analyte detected below quantitation limits
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

				Sampled prior to closure of CCR Impoundment								Post-Closure Sampling		
			Sample ID	APW-6S-20170907	APW-6S-20170928	APW-6S-20171019	APW-6S-20171109	APW-6S-20171128	APW-6S-20171227	APW-6S-20180118	APW-6S-20180208	APW-6S-WG-20220616	APW-06S-WG-20220913	APW-06S-WG-20221128
			Location ID	APW-06S	APW-06S	APW-06S	APW-06S	APW-06S	APW-06S	APW-06S	APW-06S	APW-06S	APW-06S	APW-06S
			Sample Date	09/06/2017	09/28/2017	10/19/2017	11/09/2017	11/28/2017	12/27/2017	01/18/2018	02/08/2018	06/16/2022	09/13/2022	11/28/2022
			Sample Type	N	N	N	N	N	N	N	N	N	N	N
Parameter/Analyte	**Total or Dissolved**	**Units**	**35 IAC 845.600**											
UNSPECIFIED														
Fluoride	NA	mg/L	4	0.41	0.26	0.25	0.26	0.25	0.25	0.27	0.24	0.29	0.28	0.32
Radium-226	NA	pCi/L	NS	0.36 ± 0.14 U	0.09 ± 0.08 U	0.317 ± 0.331	0.22 ± 0.11 U	0.18 ± 0.13 U	0.11 ± 0.09 U	0.09 ± 0.09 U	0.15 ± 0.11 U	0.269 ± 0.182	0.2 ± 0.08 U	0.19 ± 0.09 U
Radium-228	NA	pCi/L	NS	0.56 ± 0.77 U	1.06 ± 0.53	0.481 ± 0.316	0.9 ± 0.4 J	0.92 ± 0.6 J	0.44 ± 0.44 U	0.71 ± 0.53 J	0.89 ± 0.38 J	0.228 ± 0.248 J	2.73 ± 0.9	0.41 ± 0.5 U
Sulfate	NA	mg/L	400	127	177	167	151	189	201	233	220	200	227	243
CALC														
Radium-226/228	NA	pCi/L	5									0.497 ± 0.308	2.93 ± 0.98	0.6 ± 0.59 U
FIELD PARAM														
Turbidity, Field	NA	NTU	17.96[1]									30.5	15.1	5.56
GEN CHEM														
Chloride	NA	mg/L	200	31	28	27	27	26	27	26	25	24	25	24
Dissolved Solids, Total	NA	mg/L	1200	500	546	574	528	566	588	598	666	600	630 H	605
pH, Lab	NA	pH units	6.22-9.0[2]	7.16	7.06	7.18	7.23	7.09	7.13	7.09	7.02	7.24	7.38	7.04
METALS														
Antimony	D	mg/L	0.006									0.001 U	0.001 U	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	0.001 U	0.001 U
Arsenic	D	mg/L	0.01									0.0009 J	0.001 U	0.001 U
Arsenic	T	mg/L	0.01	0.0017	0.0016	0.0018	0.002	0.0013	0.0012	0.0011	0.0011	0.0009 J	0.0012	0.001
Barium	D	mg/L	2									0.233	0.146	0.19 B
Barium	T	mg/L	2	0.222	0.237	0.205	0.226	0.214	0.213	0.224	0.205	0.25	0.221	0.19
Beryllium	D	mg/L	0.004									0.001 U	0.001 U	0.001 U
Beryllium	T	mg/L	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Boron	D	mg/L	2									4.92	5.95	6.88
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	6.61	6.31
Cadmium	D	mg/L	0.005									0.001 U	0.001 U	0.001 U
Cadmium	T	mg/L	0.005	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Calcium	D	mg/L	103.2[1]									124	93.7	98
Calcium	T	mg/L	103.2[1]	101	97.2	87.5	96.8 S	99.5	98.1	98.7	97.4	115	105	103
Chromium	D	mg/L	0.1									0.0015 U	0.0015 U	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	0.0015 U	0.0022
Cobalt	D	mg/L	0.006									0.0002 J	0.001 U	0.001 U
Cobalt	T	mg/L	0.006	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0002 J	0.001 U	0.001 U
Iron	T	mg/L	NS									9.35		
Lead	D	mg/L	0.0075									0.001 U	0.001 U	0.001 U
Lead	T	mg/L	0.0075	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0028	0.001 U
Lithium	D	mg/L	0.04									0.0355	0.0384	0.0386
Lithium	T	mg/L	0.04	0.0335	0.0413	0.04	0.0415	0.042	0.0458	0.0451	0.0417	0.0363	0.041	0.0393
Manganese	T	mg/L	NS									0.53		
Mercury	D	mg/L	0.002										0.0002 U	
Mercury	T	mg/L	0.002	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Molybdenum	D	mg/L	0.1									0.229	0.235	0.24
Molybdenum	T	mg/L	0.1	0.249	0.287	0.272	0.243	0.274	0.314	0.324	0.323	0.237	0.271	0.259
Nickel	D	mg/L	NS									0.0015		0.001 U
Nickel	T	mg/L	NS	0.0021	0.009	0.0021	0.0012	0.001 U	0.0031	0.0016	0.0012	0.0027		0.0023
Selenium	D	mg/L	0.05									0.001 U	0.001 U	0.001 U
Selenium	T	mg/L	0.05	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Thallium	D	mg/L	0.002									0.002 U	0.002 U	0.002 U
Thallium	T	mg/L	0.002	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U

Notes:
Empty cells = not analyzed
N = Normal Environmental Sample
FD = Field Duplicate Sample
NA = not applicable
T = total
D = dissolved
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S = Spike Recovery outside recovery limits
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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
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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

				Sampled prior to closure of CCR Impoundment								Post-Closure Sampling		
			Sample ID	APW-7-20170907	APW-7-20170928	APW-7-20171019	APW-7-20171109	APW-7-20171128	APW-7-20171227	APW-7-20180118	APW-7-20180208	APW-07-WG-20220616	APW-07-WG-20220914	APW-07-WG-20221130
			Location ID	APW-07	APW-07	APW-07	APW-07	APW-07	APW-07	APW-07	APW-07	APW-07	APW-07	APW-07
			Sample Date	09/07/2017	09/28/2017	10/19/2017	11/09/2017	11/28/2017	12/27/2017	01/18/2018	02/08/2018	06/16/2022	09/14/2022	11/30/2022
			Sample Type	N	N	N	N	N	N	N	N	N	N	N
Parameter/Analyte	**Total or Dissolved**	**Units**	**35 IAC 845.600**											
UNSPECIFIED														
Fluoride	NA	mg/L	4	0.35	0.21	0.19	0.2	0.2	0.19	0.2	0.18	0.18	0.17	0.18
Radium-226	NA	pCi/L	NS	0.47 ± 0.15 U	0 ± 0.06 U	0.505 ± 0.396	0.11 ± 0.08 U	0.16 ± 0.14 U	0.25 ± 0.1 U	0.14 ± 0.09 U	0.24 ± 0.14 U	0.333 ± 0.208	0.18 ± 0.09 U	0.2 ± 0.11 U
Radium-228	NA	pCi/L	NS	-0.42 ± 0.79 U	0.76 ± 0.61 J	0.785 ± 0.412	1.13 ± 0.39	0.61 ± 0.51 U	0.14 ± 0.35 U	1.19 ± 0.55	0.53 ± 0.4 U	0.766 ± 0.234	1.45 ± 0.72	1.13 ± 0.66
Sulfate	NA	mg/L	400	66	59	52	50	61	63	67	64	72	78	48
CALC														
Radium-226/228	NA	pCi/L	5									1.1 ± 0.313	1.63 ± 0.81 U	1.33 ± 0.77 U
FIELD PARAM														
Turbidity, Field	NA	NTU	17.96[1]									66.2	34.8	10.5
GEN CHEM														
Chloride	NA	mg/L	200	15	15	14	15	16	15	15	15	11	12	12
Dissolved Solids, Total	NA	mg/L	1200	762	786	624	730	742	736	720	740	780	815 H	800
pH, Lab	NA	pH units	6.22-9.0[2]	6.84	6.84	6.86	6.87	6.83	6.96	6.97	6.88	6.88	7.02	6.78
METALS														
Antimony	D	mg/L	0.006									0.001 U	0.001 U	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	0.001 U	0.001 U
Arsenic	D	mg/L	0.01									0.0011	0.001 U	0.001 U
Arsenic	T	mg/L	0.01	0.0014	0.0012	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0023	0.0016	0.0011
Barium	D	mg/L	2									0.334	0.255	0.354 B
Barium	T	mg/L	2	0.465	0.448	0.394	0.401	0.37	0.374	0.38	0.359	0.374	0.382	0.381
Beryllium	D	mg/L	0.004									0.001 U	0.001 U	0.001 U
Beryllium	T	mg/L	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Boron	D	mg/L	2									0.148	0.193	0.199
Boron	T	mg/L	2	0.235	0.308	0.302	0.3	0.278	0.342	0.298	0.318	0.168	0.208	0.217
Cadmium	D	mg/L	0.005									0.001 U	0.001 U	0.001 U
Cadmium	T	mg/L	0.005	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Calcium	D	mg/L	103.2[1]									222	199	204
Calcium	T	mg/L	103.2[1]	192	204	171	187	196	193	191	185	238	210	209
Chromium	D	mg/L	0.1									0.0015 U	0.0015 U	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	0.0021	0.0015 U
Cobalt	D	mg/L	0.006									0.001 U	0.001 U	0.001 U
Cobalt	T	mg/L	0.006	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 J	0.001 U	0.001 U
Iron	T	mg/L	NS									17.3		
Lead	D	mg/L	0.0075									0.001 U	0.001 U	0.001 U
Lead	T	mg/L	0.0075	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0074	0.001 U	0.001 U
Lithium	D	mg/L	0.04									0.0126	0.0148	0.0158
Lithium	T	mg/L	0.04	0.0147	0.0181	0.0172	0.0176	0.0185	0.0191	0.0181	0.0178	0.0143	0.0161	0.0166
Manganese	T	mg/L	NS									1.11		
Mercury	D	mg/L	0.002										0.0002 U	
Mercury	T	mg/L	0.002	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Molybdenum	D	mg/L	0.1									0.0026	0.0026	0.0021
Molybdenum	T	mg/L	0.1	0.0046	0.0036	0.0033	0.0023	0.003	0.0044	0.0037	0.0036	0.0035	0.003	0.0029
Nickel	D	mg/L	NS									0.0008 J		0.001 U
Nickel	T	mg/L	NS	0.0014	0.0033	0.0013	0.001 U	0.001 U	0.015	0.001 U	0.001 U	0.0042		0.001 U
Selenium	D	mg/L	0.05									0.001 U	0.001 U	0.001 U
Selenium	T	mg/L	0.05	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Thallium	D	mg/L	0.002									0.002 U	0.002 U	0.002 U
Thallium	T	mg/L	0.002	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U

Notes:
Empty cells = not analyzed
N = Normal Environmental Sample
FD = Field Duplicate Sample
NA = not applicable
T = total
D = dissolved
mg/L = milligrams per liter
pCi/L = picocuries per liter
NTU = nephelometric turbidity units
H = Holding times exceeded
J = Analyte detected below quantitation limits
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

				Sampled prior to closure of CCR Impoundment								Post-Closure Sampling		
			Sample ID	APW-8-20170907	APW-8-20170928	APW-8-20171018	APW-8-20171108	APW-8-20171127	APW-8-20171227	APW-8-20180117	APW-8-20180208	APW-08-WG-20220616	APW-08-WG-20220915	APW-08-WG-20221130
			Location ID	APW-08	APW-08	APW-08	APW-08	APW-08	APW-08	APW-08	APW-08	APW-08	APW-08	APW-08
			Sample Date	09/07/2017	09/28/2017	10/18/2017	11/08/2017	11/27/2017	12/27/2017	01/17/2018	02/08/2018	06/16/2022	09/15/2022	11/30/2022
			Sample Type	N	N	N	N	N	N	N	N	N	N	N
Parameter/Analyte	**Total or Dissolved**	**Units**	**35 IAC 845.600**											
UNSPECIFIED														
Fluoride	NA	mg/L	4	0.3	0.3	0.29	0.29	0.28	0.28	0.3	0.28	0.29	0.26	0.28
Radium-226	NA	pCi/L	NS	0.22 ± 0.12 U	0.12 ± 0.08 U	0.2 ± 0.393	0.11 ± 0.1 U	0.35 ± 0.16 U	0.14 ± 0.08 U	0.21 ± 0.11 U	0.39 ± 0.15 U	0.208 ± 0.236 J	0.27 ± 0.1 U	0.4 ± 0.13 U
Radium-228	NA	pCi/L	NS	1.13 ± 0.63	0.88 ± 0.48 J	1.3 ± 0.545	0.37 ± 0.25 U	0.77 ± 0.55 J	1.31 ± 0.58	0.64 ± 0.49 U	0.49 ± 0.43 U	0.526 ± 0.224	0.86 ± 0.62 J	1.68 ± 0.77
Sulfate	NA	mg/L	400	43	40	38	40	39	38	39	37	39	39	34
CALC														
Radium-226/228	NA	pCi/L	5									0.735 ± 0.325	1.13 ± 0.72 U	2.08 ± 0.9
FIELD PARAM														
Turbidity, Field	NA	NTU	17.96[1]									119	139	305
GEN CHEM														
Chloride	NA	mg/L	200	9	10	10	10	10	11	12	11	9	11	12
Dissolved Solids, Total	NA	mg/L	1200	438	458	436	446	466	410	398	442	382	372 H	370
pH, Lab	NA	pH units	6.22-9.0[2]	7.04	7.07	7	7.12	7.25	7.11	7.04	7.04	7.34	7.47	7.25
METALS														
Antimony	D	mg/L	0.006									0.001 U	0.001 U	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	0.001 U	0.001 U
Arsenic	D	mg/L	0.01									0.0011	0.001 U	0.0012
Arsenic	T	mg/L	0.01	0.001 U	0.0011	0.001 U	0.001 U	0.001 U	0.001	0.001 U	0.001 U	0.0022	0.0015	0.0017
Barium	D	mg/L	2									0.194	0.163	0.146 B
Barium	T	mg/L	2	0.207	0.256	0.219	0.24	0.217	0.223	0.226	0.215	0.235	0.19	0.179
Beryllium	D	mg/L	0.004									0.001 U	0.001 U	0.001 U
Beryllium	T	mg/L	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Boron	D	mg/L	2									0.0777	0.0993	0.0844
Boron	T	mg/L	2	0.132	0.154	0.135	0.138	0.141	0.145	0.151	0.132	0.115	0.11	0.103
Cadmium	D	mg/L	0.005									0.001 U	0.001 U	0.001 U
Cadmium	T	mg/L	0.005	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0002 J	0.001 U	0.001 U
Calcium	D	mg/L	103.2[1]									108	79.7	75.4
Calcium	T	mg/L	103.2[1]	97.4	105	92.6	101	102	98.6	95	97.8	93.3	85.1	82.8
Chromium	D	mg/L	0.1									0.0015 U	0.0015 U	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	0.0016	0.0036
Cobalt	D	mg/L	0.006									0.0013	0.001 U	0.001 U
Cobalt	T	mg/L	0.006	0.0017	0.0013	0.001	0.0012	0.001 U	0.001 U	0.001 U	0.001 U	0.002	0.0013	0.0016
Iron	T	mg/L	NS									3.14		
Lead	D	mg/L	0.0075									0.001 U	0.001 U	0.001 U
Lead	T	mg/L	0.0075	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0024	0.001 U	0.0012
Lithium	D	mg/L	0.04									0.0141	0.0142	0.0132
Lithium	T	mg/L	0.04	0.0196	0.0206	0.0207	0.0216	0.0223	0.0216	0.0192	0.0196	0.016	0.016	0.0147
Manganese	T	mg/L	NS									0.202		
Mercury	D	mg/L	0.002										0.0002 U	
Mercury	T	mg/L	0.002	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Molybdenum	D	mg/L	0.1									0.0008 J	0.0015 U	0.0015 U
Molybdenum	T	mg/L	0.1	0.0011	0.001 U	0.001 U	0.0011	0.001 U	0.001 U	0.001 U	0.001 U	0.0015 J	0.0015 U	0.0015 U
Nickel	D	mg/L	NS									0.0023		0.0012
Nickel	T	mg/L	NS	0.0039	0.0043	0.0029	0.0062	0.0026	0.0027	0.0026	0.0026	0.0054		0.0077
Selenium	D	mg/L	0.05									0.0027	0.0068	0.0126
Selenium	T	mg/L	0.05	0.008	0.0141	0.0132	0.0149	0.0135	0.0141	0.0149	0.013	0.0036	0.0077	0.011
Thallium	D	mg/L	0.002									0.002 U	0.002 U	0.002 U
Thallium	T	mg/L	0.002	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U

Notes:
Empty cells = not analyzed
N = Normal Environmental Sample
FD = Field Duplicate Sample
NA = not applicable
T = total
D = dissolved
mg/L = milligrams per liter
pCi/L = picocuries per liter
NTU = nephelometric turbidity units
H = Holding times exceeded
J = Analyte detected below quantitation limits
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

				Sampled prior to closure of CCR Impoundment								Post-Closure Sampling		
			Sample ID	APW-9-20170907	APW-9-20170927	APW-9-20171018	APW-9-20171108	APW-9-20171127	APW-9-20171228	APW-9-20180117	APW-9-20180208	APW-09-WG-20220615	APW-09-WG-20220913	APW-09-WG-20221130
			Location ID	APW-09	APW-09	APW-09	APW-09	APW-09	APW-09	APW-09	APW-09	APW-09	APW-09	APW-09
			Sample Date	09/05/2017	09/27/2017	10/18/2017	11/08/2017	11/27/2017	12/28/2017	01/17/2018	02/08/2018	06/15/2022	09/13/2022	11/30/2022
			Sample Type	N	N	N	N	N	N	N	N	N	N	N
Parameter/Analyte	**Total or Dissolved**	**Units**	**35 IAC 845.600**											
UNSPECIFIED														
Fluoride	NA	mg/L	4	0.19	0.22	0.21	0.2	0.2	0.2	0.22	0.19	0.23	0.19	0.2
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	0.24 ± 0.09 U	0.06 ± 0.06 U
Radium-228	NA	pCi/L	NS	0.91 ± .69 J	0.67 ± 0.56 U	0.275 ± 0.316	0.49 ± 0.29 U	1.07 ± 0.48 U	1.06 ± 0.51	0.46 ± 0.46 U	0.23 ± 0.37 U	-0.213 ± 0.244 U	0.22 ± 0.49 U	0.77 ± 0.55 J
Sulfate	NA	mg/L	400	65	47	53	65	50	42	28	25	104	39	36
CALC														
Radium-226/228	NA	pCi/L	5									0.267 ± 0.315 J	0.46 ± 0.58 U	0.83 ± 0.61 U
FIELD PARAM														
Turbidity, Field	NA	NTU	17.96[1]									34.2	7.3	7.28
GEN CHEM														
Chloride	NA	mg/L	200	13	13	13	13	13	13	13	768	13	12	12
Dissolved Solids, Total	NA	mg/L	1200	364 R	372	324	366	392	278	348	3380	424	380 H	372
pH, Lab	NA	pH units	6.22-9.0[2]	7.31	7.35	7.39	7.39	7.52	7.42	7.57	7.33	7.48	7.59	7.32
METALS														
Antimony	D	mg/L	0.006									0.001 U	0.001 U	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	0.001 U	0.001 U
Arsenic	D	mg/L	0.01									0.0019	0.0021	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	0.0025	0.0021
Barium	D	mg/L	2									0.129	0.111	0.109 B
Barium	T	mg/L	2	0.227	0.171	0.118	0.133	0.121	0.129	0.133	0.125	0.186	0.134	0.124
Beryllium	D	mg/L	0.004									0.001 U	0.001 U	0.001 U
Beryllium	T	mg/L	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Boron	D	mg/L	2									1.32	0.327	0.24
Boron	T	mg/L	2	0.877	0.569	0.668	0.792	0.506	0.369	0.317	0.255	1.61	0.329	0.243
Cadmium	D	mg/L	0.005									0.001 U	0.001 U	0.001 U
Cadmium	T	mg/L	0.005	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Calcium	D	mg/L	103.2[1]									107 S	76.5	78.3
Calcium	T	mg/L	103.2[1]	85.9	85.3	76.5	81.9	85.6	81.5 S	80.3	92	110	89.5	80.5
Chromium	D	mg/L	0.1									0.0015 U	0.0015 U	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	0.0015 U	0.0015
Cobalt	D	mg/L	0.006									0.001 U	0.001 U	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	0.001 U	0.001 U
Iron	T	mg/L	NS									0.496		
Lead	D	mg/L	0.0075									0.001 U	0.001 U	0.001 U
Lead	T	mg/L	0.0075	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0039	0.001 U
Lithium	D	mg/L	0.04									0.0184	0.0137	0.0131
Lithium	T	mg/L	0.04	0.0176	0.0173	0.0174	0.018	0.0167	0.0173	0.0155	0.0148	0.0246	0.0143	0.0131
Manganese	T	mg/L	NS									0.599		
Mercury	D	mg/L	0.002										0.0002 U	
Mercury	T	mg/L	0.002	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Molybdenum	D	mg/L	0.1									0.0351	0.0182	0.0139
Molybdenum	T	mg/L	0.1	0.0223	0.0252	0.0327	0.0303	0.0247	0.0246	0.0223	0.0224	0.0455	0.0194	0.015
Nickel	D	mg/L	NS									0.0017		0.001 U
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		0.0019
Selenium	D	mg/L	0.05									0.021	0.0142	0.0147
Selenium	T	mg/L	0.05	0.0126	0.0139	0.017	0.0186	0.0138	0.0143	0.0147	0.0134	0.0219	0.0151	0.0138
Thallium	D	mg/L	0.002									0.002 U	0.002 U	0.002 U
Thallium	T	mg/L	0.002	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001	0.001 U	0.002 U	0.002 U	0.002 U

Notes:
Empty cells = not analyzed
N = Normal Environmental Sample
FD = Field Duplicate Sample
NA = not applicable
T = total
D = dissolved
mg/L = milligrams per liter
pCi/L = picocuries per liter
NTU = nephelometric turbidity units
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J = Analyte detected below quantitation limits
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*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
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Table 1
Groundwater Summary Table
Grand Tower Energy Center (GTEC)
Grand Tower, US-IL

				Sampled prior to closure of CCR Impoundment								Post-Closure Sampling		
			Sample ID	APW-10D-20170907	APW-10D-20170927	APW-10D-20171019	APW-10D-20171109	APW-10D-20171128	APW-10D-20171228	APW-10D-20180118	APW-10D-20180209	APW-10D-WG-20220615	APW-10D-WG-20220916	APW-10D-WG-20221129
			Location ID	APW-10D	APW-10D	APW-10D	APW-10D	APW-10D	APW-10D	APW-10D	APW-10D	APW-10D	APW-10D	APW-10D
			Sample Date	09/07/2017	09/27/2017	10/19/2017	11/09/2017	11/28/2017	12/28/2017	01/18/2018	02/09/2018	06/15/2022	09/16/2022	11/29/2022
			Sample Type	N	N	N	N	N	N	N	N	N	N	N
Parameter/Analyte	**Total or Dissolved**	**Units**	**35 IAC 845.600**											
UNSPECIFIED														
Fluoride	NA	mg/L	4	0.1	0.12	0.1	0.1 U	0.11	0.1	0.11	0.1 U	0.12	0.1	0.12
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	0.22 ± 0.09 U	0.31 ± 0.11 U
Radium-228	NA	pCi/L	NS	1.16 ± 0.52	1.72 ± 0.64	0.633 ± 0.366	0.98 ± 0.33 J	0.47 ± 0.55 U	0.34 ± 0.37 U	0.98 ± 0.6 J	0.59 ± 0.43 U	1.19 ± 0.311	0.56 ± 0.58 U	0.28 ± 0.43 U
Sulfate	NA	mg/L	400	38	44	43	42	42	44	44	44	41	43	42
CALC														
Radium-226/228	NA	pCi/L	5									1.44 ± 0.374	0.78 ± 0.67 U	0.59 ± 0.54 U
FIELD PARAM														
Turbidity, Field	NA	NTU	17.96[1]									46.9	21.9	36.4
GEN CHEM														
Chloride	NA	mg/L	200	24	17	17	15	17	16	14	16	16	18	14
Dissolved Solids, Total	NA	mg/L	1200	466	474	442	468	482	448	448	512	452	460 H	460
pH, Lab	NA	pH units	6.22-9.0[2]	7.12	7.11	7.05	7.11	7.12	7.15	7.03	7.03	7.21	7.29	7.04
METALS														
Antimony	D	mg/L	0.006									0.001 U	0.001 U	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	0.001 U	0.001 U
Arsenic	D	mg/L	0.01									0.0008 J	0.001 U	0.0012
Arsenic	T	mg/L	0.01	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001	0.001 U	0.0017	0.0057	0.0014
Barium	D	mg/L	2									0.342	0.321	0.3 B
Barium	T	mg/L	2	0.437	0.304	0.363	0.325	0.284	0.295	0.391	0.357	0.407	0.418	0.276
Beryllium	D	mg/L	0.004									0.001 U	0.001 U	0.001 U
Beryllium	T	mg/L	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Boron	D	mg/L	2									0.0786	0.0711	0.0841
Boron	T	mg/L	2	0.0999	0.101	0.0843	0.0713	0.0885	0.0922	0.0923	0.0906	0.118	0.0731	0.0522
Cadmium	D	mg/L	0.005									0.001 U	0.001 U	0.001 U
Cadmium	T	mg/L	0.005	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Calcium	D	mg/L	103.2[1]									143	124	113
Calcium	T	mg/L	103.2[1]	118	136	120	121	125	123	148 S	124 S	135	374	115
Chromium	D	mg/L	0.1									0.0015 U	0.0015 U	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	0.0148	0.0024
Cobalt	D	mg/L	0.006									0.0025	0.0021	0.0032
Cobalt	T	mg/L	0.006	0.0039	0.0024	0.0025	0.0032	0.0017	0.0013	0.0026	0.0026	0.0034	0.0049	0.003
Iron	T	mg/L	NS									0.758		
Lead	D	mg/L	0.0075									0.001 U	0.001 U	0.001 U
Lead	T	mg/L	0.0075	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001	0.002	0.001 U
Lithium	D	mg/L	0.04									0.0135	0.0135	0.0133
Lithium	T	mg/L	0.04	0.0147	0.0155	0.0146	0.0146	0.0153	0.0155	0.0142	0.014	0.018	0.0156	0.0126
Manganese	T	mg/L	NS									1.16		
Mercury	D	mg/L	0.002										0.0002 U	
Mercury	T	mg/L	0.002	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Molybdenum	D	mg/L	0.1									0.0015 U	0.0015 U	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	0.0015 U	0.0015 U
Nickel	D	mg/L	NS									0.0054		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		0.0063
Selenium	D	mg/L	0.05									0.001 U	0.0016	0.0015
Selenium	T	mg/L	0.05	0.001 U	0.0011	0.0012	0.0013	0.001 U	0.0014	0.0016	0.0016	0.001 U	0.0021	0.0013
Thallium	D	mg/L	0.002									0.002 U	0.002 U	0.002 U
Thallium	T	mg/L	0.002	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U

Notes:
Empty cells = not analyzed
N = Normal Environmental Sample
FD = Field Duplicate Sample
NA = not applicable
T = total
D = dissolved
mg/L = milligrams per liter
pCi/L = picocuries per liter
NTU = nephelometric turbidity units
H = Holding times exceeded
J = Analyte detected below quantitation limits
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

				Sampled prior to closure of CCR Impoundment								Post-Closure Sampling		
			Sample ID	APW-10S-20170907	APW-10S-20170927	APW-10S-20171019	APW-10S-20171109	APW-10S-20171128	APW-10S-20171228	APW-10S-20180118	APW-10S-20180209	APW-10S-WG-20220615	APW-10S-WG-20220915	APW-10S-WG-20221129
			Location ID	APW-10S	APW-10S	APW-10S	APW-10S	APW-10S	APW-10S	APW-10S	APW-10S	APW-10S	APW-10S	APW-10S
			Sample Date	09/07/2017	09/27/2017	10/19/2017	11/09/2017	11/28/2017	12/28/2017	01/18/2018	02/09/2018	06/15/2022	09/15/2022	11/29/2022
			Sample Type	N	N	N	N	N	N	N	N	N	N	N
Parameter/Analyte	**Total or Dissolved**	**Units**	**35 IAC 845.600**											
UNSPECIFIED														
Fluoride	NA	mg/L	4	0.19	0.21	0.16	0.16	0.16	0.17	0.17	0.16	0.17	0.15	0.17
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	0.3 ± 0.1 U	0.31 ± 0.11 U
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	2.52 ± 0.91	1.64 ± 0.68
Sulfate	NA	mg/L	400	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	21 S	10 U
CALC														
Radium-226/228	NA	pCi/L	5									1.25 ± 0.42	2.82 ± 1.01	1.95 ± 0.79 U
FIELD PARAM														
Turbidity, Field	NA	NTU	17.96[1]									61.5	34.3	52.6
GEN CHEM														
Chloride	NA	mg/L	200	10	7	6	6	6	6	6	6	12	15	18
Dissolved Solids, Total	NA	mg/L	1200	708	720	678	708	734	770	680 R	762	735	770 H	750
pH, Lab	NA	pH units	6.22-9.0[2]	6.99	6.96	6.95	6.98	6.97	6.98	7.06	6.91	7.09	7.2	6.95
METALS														
Antimony	D	mg/L	0.006									0.001 U	0.001 U	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	0.001 U	0.001 U
Arsenic	D	mg/L	0.01									0.152	0.0612	0.0138
Arsenic	T	mg/L	0.01	0.186	0.189	0.18	0.209	0.183	0.193	0.23	0.198	0.185	0.187	0.182
Barium	D	mg/L	2									0.423	0.292	0.162 B
Barium	T	mg/L	2	0.613	0.634	0.543	0.668	0.565	0.598	0.703	0.585	0.575	0.612	0.536
Beryllium	D	mg/L	0.004									0.001 U	0.001 U	0.001 U
Beryllium	T	mg/L	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Boron	D	mg/L	2									0.57	0.541	7.48
Boron	T	mg/L	2	0.525	0.544	0.536	0.595	0.545	0.573	0.645	0.582	0.683	0.565	0.569
Cadmium	D	mg/L	0.005									0.001 U	0.001 U	0.001 U
Cadmium	T	mg/L	0.005	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Calcium	D	mg/L	103.2[1]									169	156	142
Calcium	T	mg/L	103.2[1]	136	144	135	152	150	145	140	140	161	171 S	154
Chromium	D	mg/L	0.1									0.0015 U	0.0015 U	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	0.015	0.0032
Cobalt	D	mg/L	0.006									0.0001 J	0.001 U	0.001 U
Cobalt	T	mg/L	0.006	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0006 J	0.0021	0.0013
Iron	T	mg/L	NS									19.6		
Lead	D	mg/L	0.0075									0.001 U	0.001 U	0.001 U
Lead	T	mg/L	0.0075	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0007 J	0.0043	0.0014
Lithium	D	mg/L	0.04									0.0266	0.0286	0.0387 R
Lithium	T	mg/L	0.04	0.0263	0.0278	0.0272	0.0289	0.0293	0.0308	0.0316	0.0297	0.0353	0.033	0.0307
Manganese	T	mg/L	NS									0.243		
Mercury	D	mg/L	0.002										0.0002 U	
Mercury	T	mg/L	0.002	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Molybdenum	D	mg/L	0.1									0.0015 U	0.0015 U	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	0.0015 U	0.0015 U
Nickel	D	mg/L	NS									0.001 U		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		0.0031
Selenium	D	mg/L	0.05									0.001 U	0.001 U	0.001 U
Selenium	T	mg/L	0.05	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Thallium	D	mg/L	0.002									0.002 U	0.002 U	0.002 U
Thallium	T	mg/L	0.002	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.002 U	0.002 U

Notes:
Empty cells = not analyzed
N = Normal Environmental Sample
FD = Field Duplicate Sample
NA = not applicable
T = total
D = dissolved
mg/L = milligrams per liter
pCi/L = picocuries per liter
NTU = nephelometric turbidity units
H = Holding times exceeded
J = Analyte detected below quantitation limits
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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1 Standard is from the Upper Tolerance Limit (UTL) calculated from background well APW-01R concentrations from 8 quarterly sampling events from 2017-2018
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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^2	tau	Trend
APW-02	Arsenic	11	11	100.00%	Yes	0.445	0.04	0.2	Not Significant
APW-02	Boron	11	11	100.00%	Yes	0.879	0.00298	0.0545	Not Significant
APW-02	Calcium	11	11	100.00%	Yes	0.349	0.0485	0.22	Not Significant
APW-02	Chromium	11	11	100.00%	Yes	0.542	0.0268	-0.164	Not Significant
APW-02	Cobalt	11	11	100.00%	Yes	0.283	0.0744	-0.273	Not Significant
APW-02	Lead	11	11	100.00%	Yes	0.359	0.0559	-0.236	Not Significant
APW-02	Lithium	11	11	100.00%	Yes	0.761	0.00826	-0.0909	Not Significant
APW-02	Molybdenum	11	11	100.00%	Yes	0.542	0.0268	-0.164	Not Significant
APW-02	Sulfate	11	11	100.00%	Yes	0.755	0.00539	-0.0734	Not Significant
APW-03	Boron	11	11	100.00%	Yes	0.359	0.0559	-0.236	Not Significant
APW-03	Calcium	11	11	100.00%	Yes	0.165	0.119	0.345	Not Significant
APW-04	Boron	11	11	100.00%	Yes	<0.001	0.669	-0.818	Decreasing
APW-04	Calcium	11	11	100.00%	Yes	0.183	0.0991	0.315	Not Significant
APW-04	Lithium	11	11	100.00%	Yes	0.0602	0.207	-0.455	Not Significant
APW-05	Boron	11	11	100.00%	Yes	0.00571	0.405	-0.636	Decreasing
APW-05	Calcium	11	11	100.00%	Yes	0.212	0.0862	-0.294	Not Significant
APW-05	Lithium	11	11	100.00%	Yes	0.542	0.0268	-0.164	Not Significant
APW-05	Molybdenum	11	11	100.00%	Yes	0.0866	0.175	0.418	Not Significant
APW-05	Sulfate	11	11	100.00%	Yes	0.0165	0.318	-0.564	Decreasing
APW-06D	Arsenic	10	10	100.00%	Yes	0.00915	0.415	0.644	Increasing
APW-06D	Boron	10	10	100.00%	Yes	0.727	0.0123	0.111	Not Significant
APW-06D	Calcium	10	10	100.00%	Yes	0.121	0.157	0.396	Not Significant
APW-06S	Boron	11	11	100.00%	Yes	0.359	0.0559	0.236	Not Significant
APW-06S	Calcium	11	11	100.00%	Yes	0.121	0.146	0.382	Not Significant
APW-06S	Lithium	11	11	100.00%	Yes	0.879	0.00298	0.0545	Not Significant
APW-06S	Molybdenum	11	11	100.00%	Yes	1	0.000331	0.0182	Not Significant
APW-07	Calcium	11	11	100.00%	Yes	0.283	0.0744	0.273	Not Significant
APW-08	Calcium	11	11	100.00%	Yes	0.0264	0.278	-0.527	Decreasing
APW-09	Calcium	11	11	100.00%	Yes	0.761	0.00826	0.0909	Not Significant
APW-09	Chloride	11	11	100.00%	Yes	0.227	0.101	-0.317	Not Significant
APW-09	Dissolved Solids, Total	11	11	100.00%	Yes	0.274	0.066	0.257	Not Significant
APW-10D	Calcium	11	11	100.00%	Yes	0.283	0.0744	0.273	Not Significant
APW-10S	Arsenic	11	11	100.00%	Yes	1	0.000331	-0.0182	Not Significant
APW-10S	Calcium	11	11	100.00%	Yes	0.0609	0.194	0.44	Not Significant

Notes

Data file input: GTEC_ARII_20230120AT.xlsx
Data date range: 2017-09-05 to 2022-11-30
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^2: 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 (a=0.05)
= Statistically significant decreasing trend
= Statistically significant increasing trend

APPENDIX A FOURTH QUARTER 2022 CCR IMPOUNDMENT INSPECTION REPORTS

Grand Tower Energy Center
Closed CCR Impoundment
Quarterly Inspection Form

Date 11/28/22

Time 1100-1300

Name Matt Halley
(Inspector)

Weather:

Temperature:
50 deg. F

☐ Sunny
☒ Cloudy
☐ Raining
☐ Other

Observations:

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

Conditions Limiting Visibility:

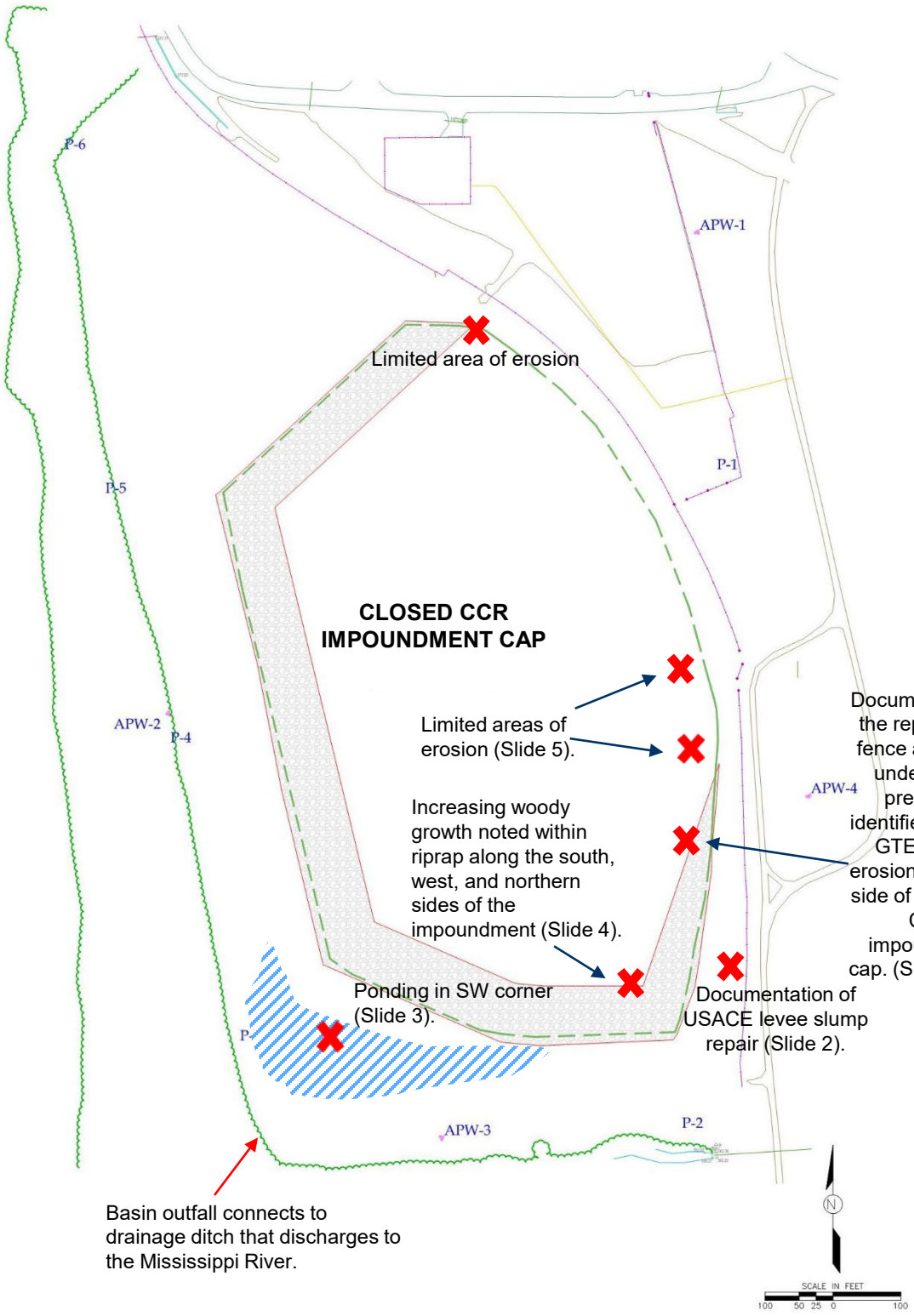
☐ Snow Cover
☐ Vegetation
☒ None
☐ Other

Observations in Detail Below:

- ERM onsite for the Q4 inspection of the closed CCR impoundment and groundwater sampling event.
- Repair of the U.S. Army Corps of Engineers (USACE) Levee by Grand Tower Energy Center (GTEC) to address slumping of the levee face was completed and documented by ERM (see figure and photos).
- Repairs of the erosion and fence undermining on the east/SE side was documented (see figure and photos).
- Post-repair erosion control measures (straw matting) on USACE levee has partially become detached.
- Erosion noted across north, west, and southern CCR impoundment cap faces up to 9” deep.
- Growth of a limited but increased amount of woody vegetation (up to 1”diameter) within the riprap on the north, west, and southern impoundment cap faces was observed.
- Ponding noted in SW corner of the basin near the outfall.
- Impoundment cap was mowed during Q3 of 2022 and found to be in generally good condition.
- Inspector recommends removal of woody growth and repair of erosional channels on the closed CCR impoundment cap, and re-installing straw matting on the USACE levee repair area.

Please see observation locations on figure on the following page.

Observation Locations Map



Grand Tower Energy Center Q4 2022 Closed CCR Impoundment Cap Inspection

Repairs to the Fence and Riprap Undermining, and Levee erosion on the SE Side of Closed CCR Impoundment Cap

Facing south along the repaired fenceline and levee area.
Note: straw matting from repaired levee face has become partially detached and deposited at the bottom of the slope.

Repairs to the Fence and Riprap Undermining, and Levee erosion on the SE Side of Closed CCR Impoundment Cap

Facing north towards impoundment cap – repairs of fence and riprap undermining, and United States Army Corps of Engineers (USACE) levee section are visible.

Facing northeast towards repaired section of USACE levee.

Ponding in the SW Corner of Site Basin Near the Outfall

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

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

Woody Growth Observations

Southern face of impoundment cap with woody growth (up to 1” diameter) within riprap. Increased woody growth since the third quarter 2022 found within riprap along south, west, and northern sides of the impoundment.

Erosional Channel Observations

Erosional channel up to 9" deep. Facing east from center-east side of impoundment cap.

Erosional channel up to 9" deep. Facing east on southeast side of impoundment cap.

APPENDIX B FOURTH QUARTER 2022 GROUNDWATER MONITORING WELL INSPECTION FORMS

Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-01R Date: 11/30/2022

Total Depth (Record):	58.30'
Total Depth (Measured):	58.25'
Depth to Water (Measured):	35.61'

Note: All wells are measured from top of casing.

Is well screen occluded more than 10%? NO

If Yes, list steps for redevelopment:

LNAPL Present:	NO
If Yes, measured thickness =	
DNAPL Present:	NO
If Yes, measured thickness =	

Well Completion Type:

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

Well Surface Seal: INTACT

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

Well Casing Condition: INTACT

Size of well (diameter) = 2 inches

Marking point present:	YES
Well cap in place:	YES
Comments:	

General Comments:

Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-02 Date: 11/29/2022

Total Depth (Record): 58.30'
Total Depth (Measured): 58.57'
Depth to Water (Measured): 34.53'
Note: All wells are measured from top of casing.
Is well screen occluded more than 10%? NO
If Yes, list steps for redevelopment:

LNAPL Present: NO
If Yes, measured thickness =
DNAPL Present: NO
If Yes, measured thickness =

Well Completion Type:

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

Well Surface Seal: INTACT

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

Well Casing Condition: INTACT

Size of well (diameter) = 2 inches

Marking point present:	YES
Well cap in place:	YES
Comments:	

General Comments:

Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-03 Date: 11/30/2022

Total Depth (Record):	59.90'
Total Depth (Measured):	59.47'
Depth to Water (Measured):	34.75'

Note: All wells are measured from top of casing.

Is well screen occluded more than 10%? NO

If Yes, list steps for redevelopment:

LNAPL Present:	NO
If Yes, measured thickness =	
DNAPL Present:	NO
If Yes, measured thickness =	

Well Completion Type:

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

Well Surface Seal: INTACT

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

Well Casing Condition: INTACT

Size of well (diameter) = 2 inches

Marking point present:	YES
Well cap in place:	YES
Comments:	

General Comments:

Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-04 Date: 11/28/2022

Total Depth (Record):	60.27'
Total Depth (Measured):	60.25'
Depth to Water (Measured):	36.40'

Note: All wells are measured from top of casing.

Is well screen occluded more than 10%? NO

If Yes, list steps for redevelopment:

LNAPL Present:	NO
If Yes, measured thickness =	
DNAPL Present:	NO
If Yes, measured thickness =	

Well Completion Type:

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

Well Surface Seal: INTACT

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

Well Casing Condition: INTACT

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

General Comments:

Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID:	APW-05	Date:	11/28/2022
Total Depth (Record):	62.88'		
Total Depth (Measured):	57.51'		
Depth to Water (Measured):	33.43'		

Note: All wells are measured from top of casing.

Is well screen occluded more than 10%? YES

If Yes, list steps for redevelopment: NA

LNAPL Present:	NO
If Yes, measured thickness =	
DNAPL Present:	NO
If Yes, measured thickness =	

Well Completion Type:

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

Well Surface Seal: INTACT

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

Well Casing Condition: INTACT

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

General Comments:

Well screen occluded >40%. APW-05 scheduled to be abandoned and redrilled during Q1 2023.

Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-06S Date: 11/28/2022

Total Depth (Record):	63.88'
Total Depth (Measured):	63.87'
Depth to Water (Measured):	32.89'

Note: All wells are measured from top of casing.

Is well screen occluded more than 10%? NO

If Yes, list steps for redevelopment:

LNAPL Present:	NO
If Yes, measured thickness =	
DNAPL Present:	NO
If Yes, measured thickness =	

Well Completion Type:

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

Well Surface Seal: INTACT

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

Well Casing Condition: INTACT

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

General Comments:

Sand surrounding the marking points and well.

Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-06D Date: 11/28/2022

Total Depth (Record): 155.10'
Total Depth (Measured): 154.94'
Depth to Water (Measured): 32.95'
Note: All wells are measured from top of casing.
Is well screen occluded more than 10%? NO
If Yes, list steps for redevelopment:

LNAPL Present: NO
If Yes, measured thickness =
DNAPL Present: NO
If Yes, measured thickness =

Well Completion Type:

Condition of protector:	INTACT
Well ID present and readable:	YES
Locks intact:	NO
Weep hole present:	YES
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:	

Comments: One well marker has fallen over.

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:

Sand surrounding the marking points and well.
Cut lock in order to access well.

Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-07 Date: 11/30/2022

Total Depth (Record): 62.39'
Total Depth (Measured): 63.46'
Depth to Water (Measured): 30.07'
Note: All wells are measured from top of casing.
Is well screen occluded more than 10%? NO
If Yes, list steps for redevelopment:

LNAPL Present: NO
If Yes, measured thickness =
DNAPL Present: NO
If Yes, measured thickness =

Well Completion Type:

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

Well Surface Seal: INTACT

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

Well Casing Condition: INTACT

Size of well (diameter) = 2 inches

Marking point present:	YES
Well cap in place:	YES
Comments:	

General Comments:

Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-08 Date: 11/30/2022

Total Depth (Record):	62.36'
Total Depth (Measured):	61.83'
Depth to Water (Measured):	31.63'

Note: All wells are measured from top of casing.

Is well screen occluded more than 10%? NO

If Yes, list steps for redevelopment:

LNAPL Present:	NO
If Yes, measured thickness =	
DNAPL Present:	NO
If Yes, measured thickness =	

Well Completion Type:

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

Well Surface Seal: INTACT

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

Well Casing Condition: INTACT

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

General Comments:

Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-09 Date: 11/30/2022

Total Depth (Record): 63.18'
Total Depth (Measured): 63.21'
Depth to Water (Measured): 35.75'
Note: All wells are measured from top of casing.
Is well screen occluded more than 10%? NO
If Yes, list steps for redevelopment:

LNAPL Present: NO
If Yes, measured thickness =
DNAPL Present: NO
If Yes, measured thickness =

Well Completion Type:

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

Well Surface Seal: INTACT

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

Well Casing Condition: INTACT

Size of well (diameter) = 2 inches

Marking point present:	YES
Well cap in place:	YES
Comments:	

General Comments:

Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-10S Date: 11/29/2022

Total Depth (Record): 62.55'
Total Depth (Measured): 62.97'
Depth to Water (Measured): 28.90'
Note: All wells are measured from top of casing.
Is well screen occluded more than 10%? NO
If Yes, list steps for redevelopment:

LNAPL Present: NO
If Yes, measured thickness =
DNAPL Present: NO
If Yes, measured thickness =

Well Completion Type:

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

Well Surface Seal: INTACT

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

Well Casing Condition: INTACT

Size of well (diameter) = 2 inches

Marking point present:	YES
Well cap in place:	YES
Comments:	

General Comments:

Well Inspection Worksheet

Grand Tower Energy Center

Grand Tower, IL

Well ID: APW-10D Date: 11/29/2022

Total Depth (Record): 98.09'
Total Depth (Measured): 98.13'
Depth to Water (Measured): 28.05'
Note: All wells are measured from top of casing.
Is well screen occluded more than 10%? NO
If Yes, list steps for redevelopment:

LNAPL Present: NO
If Yes, measured thickness =
DNAPL Present: NO
If Yes, measured thickness =

Well Completion Type:

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

Well Surface Seal: INTACT

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

Well Casing Condition: INTACT

Size of well (diameter) = 2 inches

Marking point present:	YES
Well cap in place:	YES
Comments:	

General Comments:

APPENDIX C FOURTH QUARTER 2022 FIELD DATA FORMS

Low Flow Groundwater Sampling Field Data Form

Well ID: APW-01R
Well Permit No:

Date: 2022/11/30
Sunny 30 Deg F

Site ID GTEC-GRAND-TOWER	**Purge Method / Pump Intake Depth** Low_Flow / 53.25 (ft)	**Reference Elevation** 366.82 (ft)
Site Address 1820 Power Plant Road, Grand Tower, US-IL	**Purge Equipment** Submersible pump	**Depth to Water / Free Product** 35.61 (ft) / None
Project Number 0599247	**Sample Equipment** Submersible pump	**Total Well Depth** 58.25 (ft)
Project Name 20221201-GWMonitor	**Average Purge Rate** 450 (mL/min)	**Well Diameter / Well Screen Interval** 2 (in) / 48.3 - 58.3ft (ft)
Sampler Clay Sansoucie	**Volume of Water in Well / Total Volume Purged** 3.69 (gal) / 6 (gal)	**Well Construction** 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
08:31	35.63	500	0	11.7	7.86	342.8	NM	3.57	89.7	694	NM	Turbid, brown, no odor
08:36	35.63	500	1	13.1	6.94	389.1	NM	2.26	84.7	427	NM	Turbid, brown, no odor
08:41	35.63	450	1.5	13.5	6.73	395.8	NM	1.89	84	223	NM	Turbid, brown, no odor
08:46	35.63	450	2	13.5	6.4	401.6	NM	1.71	80.5	180	NM	Sl. Turbid, brown, no odor
08:51	35.63	450	2.5	13.7	6.54	406.3	NM	1.52	76.6	130	NM	Sl. Turbid, brown, no odor
08:56	35.63	450	3	13.8	6.5	409	NM	1.4	75	92.9	NM	Cloudy, no odor
09:01	35.63	450	3.5	13.7	6.47	411.4	NM	1.32	74.6	69	NM	Cloudy, no odor
09:06	35.63	450	4	14	6.45	412.6	NM	1.31	74.6	54.5	NM	Clear, no odor
09:11	35.63	350	4.5	14.2	6.46	413.2	NM	1.29	73.8	42.2	NM	Clear, no odor
09:16	35.63	450	5	14.3	6.46	409.1	NM	1.27	74.2	33.4	NM	Clear, no odor
09:21	35.63	450	5.5	14	6.44	400.1	NM	1.27	75	32.9	NM	Clear, no odor
09:26	35.63	450	6	14.3	6.45	403.3	NM	1.26	75.5	31.7	NM	Clear, no odor

Sample ID(s): APW-01R-WG-20221130	**Additional Comments**	**SAMPLER NAME AND SIGNATURE**	**Date Time**
Analysis:		Clay Sansoucie 	12/30/2022 17:02

Low Flow Groundwater Sampling Field Data Form

Well ID: APW-02
Well Permit No:

Date: 2022/11/29
Cloudy 50 Deg F

Site ID GTEC-GRAND-TOWER	**Purge Method / Pump Intake Depth** Low_Flow / 53.57 (ft)	**Reference Elevation** 364.61 (ft)
Site Address 1820 Power Plant Road, Grand Tower, US-IL	**Purge Equipment** Submersible pump	**Depth to Water / Free Product** 34.53 (ft) / None
Project Number 0599247	**Sample Equipment** Submersible pump	**Total Well Depth** 58.57 (ft)
Project Name 20221201-GWMonitor	**Average Purge Rate** 214.3 (mL/min)	**Well Diameter / Well Screen Interval** 2 (in) / 47.2 - 57.2 (ft)
Sampler Clay Sansoucie	**Volume of Water in Well / Total Volume Purged** 3.92 (gal) / 1.6 (gal)	**Well Construction** 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
08:38	35.88	300	0	13.3	7.1	811	NM	3	-34.2	367	NM	Turbid, Lt. Brown, Sl. organic odor
08:43	37.55	200	0.5	14.4	7.23	1070	NM	0.6	-107.3	202	NM	Cloudy, Sl. organic odor
08:48	38.4	200	0.6	14.8	7.24	1085	NM	0.55	-111.8	158	NM	Cloudy, Sl. organic odor
08:53	39.63	200	0.9	15	7.24	1086	NM	0.44	-111.6	132	NM	Cloudy, Sl. organic odor
08:58	40.04	200	1.2	15.4	7.24	1090	NM	0.4	-111.5	160	NM	Cloudy, Sl. organic odor
09:03	40.67	200	1.4	15.5	7.22	1091	NM	0.36	-110.5	169	NM	Cloudy, Sl. organic odor
09:08	41.28	200	1.6	15.2	7.21	1094	NM	0.34	-110.6	164	NM	Cloudy, Sl. organic odor

Sample ID(s):	**Additional Comments**	**SAMPLER NAME AND SIGNATURE**	**Date Time**
APW-02-WG-20221129,DUP-02-WG-20221129		Clay Sansoucie 	12/30/2022 17:02
Analysis:			

Low Flow Groundwater Sampling Field Data Form

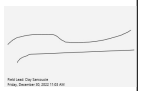
Well ID: APW-03
Well Permit No:

Date: 2022/11/30
Sunny, 40 Deg F

Site ID GTEC-GRAND-TOWER	**Purge Method / Pump Intake Depth** Low_Flow / 54.47 (ft)	**Reference Elevation** 365.79 (ft)
Site Address 1820 Power Plant Road, Grand Tower, US-IL	**Purge Equipment** Submersible pump	**Depth to Water / Free Product** 34.75 (ft) / None
Project Number 0599247	**Sample Equipment** Submersible pump	**Total Well Depth** 59.47 (ft)
Project Name 20221201-GWMonitor	**Average Purge Rate** 243.8 (mL/min)	**Well Diameter / Well Screen Interval** 2 (in) / 45.7 - 55.7 (ft)
Sampler Clay Sansoucie	**Volume of Water in Well / Total Volume Purged** 4.03 (gal) / 3 (gal)	**Well Construction** 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
14:10	34.78	600	0	11.1	7.75	624.5	NM	4	44.6	787	NM	Turbid, Dark Gray, No odor
14:15	34.85	175	0.25	11.1	7.65	666	NM	0.6	-1.7	813	NM	Turbid, Dark Gray, No odor
14:20	35	300	0.5	11.5	7.54	670.4	NM	0.31	-12.3	386	NM	Turbid, Dark Gray, No Odor
14:25	35	250	1	11.8	7.51	676	NM	0.22	-23.4	277	NM	Cloudy, No Odor
14:30	35	200	1.25	11.5	7.48	675	NM	0.21	-27.2	221	NM	Cloudy, no odor
14:35	35	200	1.5	11.3	7.45	674	NM	0.19	-29.3	165	NM	Cloudy, no odor
14:40	35	200	1.75	10.5	7.42	674.6	NM	0.19	-29.6	131	NM	Cloudy, no odor
14:45	35	200	2	11.1	7.33	677.2	NM	0.2	-30.2	108	NM	Cloudy, no odor
14:50	35	200	2.25	10.8	7.37	678	NM	0.21	-31	77.7	NM	Clear, no odor
14:55	35	200	2.5	12.4	7.4	697	NM	0.18	-44.3	113	NM	Clear, no odor
15:00	35	200	2.75	12.2	7.42	701	NM	0.17	-44	109	NM	Clear, no odor
15:05	35	200	3	12.3	7.4	703	NM	0.13	-43.8	103	NM	Clear, no odor

Sample ID(s): APW-03-WG-20221130	**Additional Comments**	**SAMPLER NAME AND SIGNATURE**	**Date Time**
Analysis:		Clay Sansoucie 	12/30/2022 17:03

Low Flow Groundwater Sampling Field Data Form

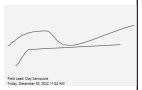
Well ID: APW-05
Well Permit No:

Date: 2022/11/28
Sunny 50 Deg F

Site ID GTEC-GRAND-TOWER	**Purge Method / Pump Intake Depth** Low_Flow / 52.71 (ft)	**Reference Elevation** 363.8 (ft)
Site Address 1820 Power Plant Road, Grand Tower, US-IL	**Purge Equipment** Submersible pump	**Depth to Water / Free Product** 33.43 (ft) / None
Project Number 0599247	**Sample Equipment** Submersible pump	**Total Well Depth** 57.71 (ft)
Project Name 20221201-GWMonitor	**Average Purge Rate** 300 (mL/min)	**Well Diameter / Well Screen Interval** 2 (in) / 50 - 60 (ft)
Sampler Clay Sansoucie	**Volume of Water in Well / Total Volume Purged** 3.96 (gal) / 4.25 (gal)	**Well Construction** 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
12:27	33.44	300	0	13.3	7.39	916	NM	4.28	-26.3	25.8	NM	clear, no odor
12:32	33.44	300	0.5	14.5	7.31	928	NM	1.76	-47	22.5	NM	clear, no odor
12:37	33.44	300	1	15	7.3	931	NM	1.49	-53.6	15	NM	clear, no odor
12:42	33.44	300	1.5	15.1	7.32	932	NM	1.24	-57.4	10.7	NM	clear, no odor
12:47	33.44	300	1.75	15.2	7.32	932	NM	0.86	-59.2	10.9	NM	clear, no odor
12:52	33.44	300	2.25	15.2	7.31	931	NM	0.75	-59.4	7.73	NM	clear, no odor
12:57	33.44	300	2.75	15.2	7.31	932	NM	0.62	-60.6	7.16	NM	clear, no odor
13:02	33.44	300	3	15.3	7.31	931	NM	0.54	-61.3	7.2	NM	clear, no odor
13:07	33.44	300	3.25	15.2	7.29	932	NM	0.44	-60.4	4.75	NM	clear, no odor
13:12	33.44	300	3.75	15.2	7.31	930	NM	0.44	-61.7	5.27	NM	clear, no odor
13:17	33.44	300	4.25	15.2	7.29	930	NM	0.41	-60.9	4.65	NM	clear, no odor

Sample ID(s):	**Additional Comments**	**SAMPLER NAME AND SIGNATURE**	**Date Time**
APW-05-WG-20221128,DUP-01-WG-20221128		Clay Sansoucie 	12/30/2022 17:04
Analysis:			

Low Flow Groundwater Sampling Field Data Form

Well ID: APW-08
Well Permit No:

Date: 2022/11/30
Sunny 30 deg F

Site ID GTEC-GRAND-TOWER	**Purge Method / Pump Intake Depth** Low_Flow / 56.83 (ft)	**Reference Elevation** 362.71 (ft)
Site Address 1820 Power Plant Road, Grand Tower, US-IL	**Purge Equipment** Submersible pump	**Depth to Water / Free Product** 31.63 (ft) / None
Project Number 0599247	**Sample Equipment** Submersible pump	**Total Well Depth** 61.83 (ft)
Project Name 20221201-GWMonitor	**Average Purge Rate** 295 (mL/min)	**Well Diameter / Well Screen Interval** 2 (in) / 50 - 60 (ft)
Sampler Clay Sansoucie	**Volume of Water in Well / Total Volume Purged** 4.93 (gal) / 2.75 (gal)	**Well Construction** 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
15:35	31.63	100	0	11.4	7.58	521.8	NM	1.82	29.7	1000	NM	Turbid, dark gray, no odor
15:40	31.63	200	0.25	13.1	7.37	529	NM	0.13	-5.9	1000	NM	Turbid, dark gray, no odor
15:45	31.63	200	0.5	14	7.39	533	NM	0.06	-18.3	1000	NM	Turbid, dark gray, no odor
15:50	31.63	350	0.75	14.5	7.35	530.5	NM	0.11	-12.1	1000	NM	Turbid, dark gray, no odor
15:55	31.63	350	1.25	14.7	7.31	529.8	NM	0.19	-7.1	748	NM	Turbid, dark gray, no odor
16:00	31.63	350	1.5	14.7	7.28	529	NM	0.15	-4.9	507	NM	Turbid, dark gray, no odor
16:05	31.63	350	2	14.7	7.26	529.3	NM	0.12	-3.7	351	NM	Turbid, dark gray, no odor
16:10	31.63	350	2.25	14.6	7.22	529.5	NM	0.11	-2.1	297	NM	Turbid, dark gray, no odor
16:15	31.63	350	2.5	14.2	7.24	529.2	NM	0.13	-1.2	301	NM	Turbid, dark gray, no odor
16:20	31.63	350	2.75	14.5	7.22	527.9	NM	0.1	-1.3	305	NM	Turbid, dark gray, no odor

Sample ID(s):	**Additional Comments**	**SAMPLER NAME AND SIGNATURE**	**Date Time**
APW-08-WG-20221130		Clay Sansoucie 	12/30/2022 17:06
Analysis:			

Low Flow Groundwater Sampling Field Data Form

Well ID: APW-10D
Well Permit No:

Date: 2022/11/29
50s, Cloudy with Rain

Site ID GTEC-GRAND-TOWER	**Purge Method / Pump Intake Depth** Low_Flow / 93.13 (ft)	**Reference Elevation** 359.41 (ft)
Site Address 1820 Power Plant Road, Grand Tower, US-IL	**Purge Equipment** Submersible pump	**Depth to Water / Free Product** 28.05 (ft) / None
Project Number 0599247	**Sample Equipment** Submersible pump	**Total Well Depth** 98.13 (ft)
Project Name 20221201-GWMonitor	**Average Purge Rate** 351.4 (mL/min)	**Well Diameter / Well Screen Interval** 2 (in) / 86 - 96 (ft)
Sampler Clay Sansoucie	**Volume of Water in Well / Total Volume Purged** 11.44 (gal) / 6 (gal)	**Well Construction** 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
13:57	28.05	270	0	14.4	7.97	624.6	NM	0.87	37.1	1000	NM	Turbid, Dark Gray, No odor
14:02	28.05	250	0.5	14.4	7.37	639	NM	0.15	10.7	1000	NM	Turbid, Dark Gray, No odor
14:07	28.05	200	0.75	14.5	7.2	674	NM	0.18	12.3	391	NM	Sl. Turbid, Gray, No odor
14:12	28.05	350	1.25	14.7	7.13	679	NM	0.23	17	217	NM	Sl. Turbid, Gray, No odor
14:17	28.05	250	1.5	14.9	7.1	678	NM	0.22	20.4	132	NM	Cloudy, No odor
14:22	28.05	400	2	14.9	7.07	678	NM	0.13	22.6	95.6	NM	Cloudy, No odor
14:27	28.05	400	2.5	15.1	7.06	677	NM	0.12	24.3	113	NM	Cloudy, No odor
14:32	28.05	400	3	15	7.05	673	NM	0.14	24.6	86.7	NM	Cloudy, No odor
14:37	28.05	400	3.5	15.1	7.04	673	NM	0.15	25	73.7	NM	Clear, No odor
14:42	28.05	400	4	15.1	7.03	676	NM	0.14	25.4	55.3	NM	Clear, No odor
14:47	28.05	400	4.5	15.1	7.02	677	NM	0.12	25.5	41.9	NM	Clear, No odor
14:52	28.05	400	5	15.1	7.02	675	NM	0.1	25.6	37.5	NM	Clear, No odor
14:57	28.05	400	5.5	15.2	7.02	674	NM	0.1	25.6	38.6	NM	Clear, No odor
15:02	28.05	400	6	15.2	7.02	674	NM	0.09	25.8	36.4	NM	Clear, No odor

Sample ID(s): APW-10D-WG-20221129	**Additional Comments**	**SAMPLER NAME AND SIGNATURE**	**Date Time**
Analysis:		Clay Sansoucie 	12/30/2022 16:25

Low Flow Groundwater Sampling Field Data Form

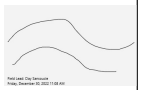
Well ID: APW-10S
Well Permit No:

Date: 2022/11/29
Cloudy, Rainy, 50 deg F

Site ID GTEC-GRAND-TOWER	**Purge Method / Pump Intake Depth** Low_Flow / 57.97 (ft)	**Reference Elevation** 359.47 (ft)
Site Address 1820 Power Plant Road, Grand Tower, US-IL	**Purge Equipment** Submersible pump	**Depth to Water / Free Product** 28.9 (ft) / None
Project Number 0599247	**Sample Equipment** Submersible pump	**Total Well Depth** 62.97 (ft)
Project Name 20221201-GWMonitor	**Average Purge Rate** 411.7 (mL/min)	**Well Diameter / Well Screen Interval** 2 (in) / 50 - 60 (ft)
Sampler Clay Sansoucie	**Volume of Water in Well / Total Volume Purged** 5.56 (gal) / 5 (gal)	**Well Construction** 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
12:30	29.13	550	0	13.8	7.36	1229	NM	1.67	-76.3	1000	NM	Turbid, Dark Gray, Strong rotten egg like odor
12:35	29.13	270	0.25	14.3	6.97	1232	NM	0.46	-105.2	1000	NM	Turbid, Dark Gray, sl. rotten egg like odor
12:40	29.13	270	0.75	14.5	6.95	1229	NM	0.37	-110.5	1000	NM	Turbid, Dark Gray, sl. rotten egg like odor
12:45	29.13	250	1	14.8	6.96	1228	NM	0.28	-113.3	543	NM	Turbid, gray, no odor
12:50	29.13	450	1.5	15.6	6.97	1227	NM	0.17	-116.1	307	NM	Turbid, gray, no odor
12:55	29.13	450	2	15.5	6.99	1227	NM	0.14	-117.8	194	NM	Cloudy, no odor
13:00	29.13	450	2.5	15.3	6.99	1224	NM	0.12	-117.7	141	NM	Cloudy, no odor
13:05	29.13	450	3	15.4	6.99	1226	NM	0.1	-117.3	86	NM	Cloudy, no odor
13:10	29.13	450	3.5	15.4	6.99	1224	NM	0.1	-117.3	74.5	NM	Clear, no odor
13:15	29.13	450	4	15.5	6.99	1224	NM	0.1	-118.2	56.7	NM	Clear, no odor
13:20	29.13	450	4.5	15.5	6.99	1220	NM	0.09	-117.9	54.3	NM	Clear, no odor
13:25	29.13	450	5	15.5	6.99	1220	NM	0.09	-118	52.6	NM	Clear, no odor

Sample ID(s): APW-10S-WG-20221129	**Additional Comments**	**SAMPLER NAME AND SIGNATURE**	**Date Time**
Analysis:		Clay Sansoucie 	12/30/2022 17:08

Low Flow Groundwater Sampling Field Data Form

Well ID: APW-04
Well Permit No:

Date: 2022/11/28
Sunny 50 Deg F

Site ID GTEC-GRAND-TOWER	**Purge Method / Pump Intake Depth** Low_Flow / 55.25 (ft)	**Reference Elevation** 367.44 (ft)
Site Address 1820 Power Plant Road, Grand Tower, US-IL	**Purge Equipment** Submersible pump	**Depth to Water / Free Product** 36.4 (ft) / None
Project Number 0599247	**Sample Equipment** Submersible pump	**Total Well Depth** 60.25 (ft)
Project Name 20221201-GWMonitor	**Average Purge Rate** 328.2 (mL/min)	**Well Diameter / Well Screen Interval** 2 (in) / 45.7 - 55.7 (ft)
Sampler Clay Sansoucie	**Volume of Water in Well / Total Volume Purged** 3.89 (gal) / 5.25 (gal)	**Well Construction** 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
14:10	36.35	230	0	12.7	7.55	537.4	NM	5.69	37.4	310	NM	Sl. Turbid, Brown, no odor
14:15	36.35	260	0.5	13.3	7.29	581.8	NM	3.91	40.7	219	NM	Sl. Turbid, brown, no odor
14:20	36.35	320	0.75	16.7	7.23	609	NM	1.39	42.2	93.5	NM	Cloudy, No odor
14:25	36.35	350	1.25	15.8	7.31	644	NM	0.37	34.1	90.1	NM	Cloudy, No odor
14:30	36.35	350	2	17.4	7.2	640	NM	0.4	36.5	56.8	NM	Cloudy, No odor
14:35	36.35	350	2.75	16.2	7.25	646	NM	0.29	35.1	53.1	NM	Clear, no odor
14:40	36.35	350	3.25	16.1	7.21	647	NM	0.24	38.2	42.9	NM	Clear, no odor
14:45	36.35	350	3.75	16.3	7.19	645	NM	0.23	39.7	31.9	NM	Clear, no odor
14:50	36.35	350	4.25	16.2	7.2	645	NM	0.22	40.1	25.9	NM	Clear, no odor
14:55	36.35	350	4.75	16.3	7.2	645	NM	0.21	40.8	27	NM	Clear, no odor
15:00	36.35	350	5.25	16.3	7.19	645	NM	0.2	41	26.5	NM	Clear, no odor

Sample ID(s): APW-04-WG-20221128	**Additional Comments**	**SAMPLER NAME AND SIGNATURE**	**Date Time**
Analysis:		Clay Sansoucie 	12/30/2022 17:04

Low Flow Groundwater Sampling Field Data Form

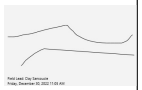
Well ID: APW-06S
Well Permit No:

Date: 2022/11/28
Sunny 50 deg F

Site ID GTEC-GRAND-TOWER	**Purge Method / Pump Intake Depth** Low_Flow / 58.87 (ft)	**Reference Elevation** 363.51 (ft)
Site Address 1820 Power Plant Road, Grand Tower, US-IL	**Purge Equipment** Submersible pump	**Depth to Water / Free Product** 32.89 (ft) / None
Project Number 0599247	**Sample Equipment** Submersible pump	**Total Well Depth** 63.87 (ft)
Project Name 20221201-GWMonitor	**Average Purge Rate** 370 (mL/min)	**Well Diameter / Well Screen Interval** 2 (in) / 50 - 60 (ft)
Sampler Clay Sansoucie	**Volume of Water in Well / Total Volume Purged** 5.06 (gal) / 4.75 (gal)	**Well Construction** 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
11:02	32.91	370	0	14.5	7.24	868	NM	0.36	-84.3	173	NM	Cloudy, no odor
11:07	32.91	370	0.75	14.7	7.22	864	NM	0.31	-104.6	110	NM	Clear, no odor
11:12	32.91	370	1.5	14.7	7.26	858	NM	0.12	-113.7	63.2	NM	Clear, no odor
11:17	32.91	370	2	14.7	7.24	856	NM	0.11	-113.7	42.2	NM	Clear, no odor
11:22	32.91	370	2.5	14.9	7.24	856	NM	0.09	-113.5	22.1	NM	Clear, no odor
11:27	32.91	370	3	14.9	7.24	856	NM	0.12	-112.7	15.5	NM	Clear, no odor
11:32	32.91	370	3.25	14.8	7.23	854	NM	0.13	-111.6	13	NM	Clear, no odor
11:37	32.91	370	3.75	14.8	7.22	853	NM	0.09	-111.1	8.49	NM	Clear, no odor
11:42	32.91	370	4.25	14.9	7.23	864	NM	0.1	-110.3	9.61	NM	Clear, no odor
11:47	32.91	370	4.75	15	7.22	864	NM	0.11	-110.1	5.56	NM	Clear, no odor

Sample ID(s): APW-06S-WG-20221128	**Additional Comments**	**SAMPLER NAME AND SIGNATURE**	**Date Time**
Analysis:		Clay Sansoucie 	12/30/2022 17:05

Low Flow Groundwater Sampling Field Data Form

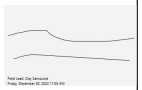
Well ID: APW-06D
Well Permit No:

Date: 2022/11/28
Sunny 40 deg F

Site ID GTEC-GRAND-TOWER	**Purge Method / Pump Intake Depth** Low_Flow / 149.94 (ft)	**Reference Elevation** 363.69 (ft)
Site Address 1820 Power Plant Road, Grand Tower, US-IL	**Purge Equipment** Submersible pump	**Depth to Water / Free Product** 32.95 (ft) / None
Project Number 0599247	**Sample Equipment** Submersible pump	**Total Well Depth** 154.94 (ft)
Project Name 20221201-GWMonitor	**Average Purge Rate** 295.9 (mL/min)	**Well Diameter / Well Screen Interval** 2 (in) / 140 - 150 (ft)
Sampler Clay Sansoucie	**Volume of Water in Well / Total Volume Purged** 19.91 (gal) / 4.1 (gal)	**Well Construction** 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
09:33	32.95	360	0	14	7.75	811	NM	5.13	-90	17.1	NM	Clear, rotten egg like odor
09:38	32.95	130	0.5	13.8	7.58	822	NM	1.44	-89.7	296	NM	Turbid, gray, strong rotten egg like odor
09:43	32.95	375	1	14.3	7.46	822	NM	0.43	-93.1	231	NM	Turbid, gray, strong rotten egg like odor
09:48	32.95	240	1.4	14.3	7.41	815	NM	0.35	-89.7	61.1	NM	Cloudy, no odor
09:53	32.95	240	1.7	14.3	7.37	812	NM	0.32	-86.1	73.3	NM	Cloudy, no odor
09:58	32.95	310	2.1	14.4	7.37	812	NM	0.22	-89	60.6	NM	Clear, no odor
10:03	32.95	320	2.5	14.5	7.35	808	NM	0.17	-89.1	68.4	NM	Clear, no odor
10:08	32.95	320	2.9	14.6	7.35	805	NM	0.15	-90.3	83.2	NM	Clear, no odor
10:13	32.95	320	3.3	14.5	7.34	802	NM	0.13	-89.9	71.1	NM	Clear, no odor
10:18	32.95	320	3.7	14.5	7.34	807	NM	0.14	-89.6	77.5	NM	Clear, no odor
10:23	32.95	320	4.1	14.5	7.34	807	NM	0.14	-89.1	74.4	NM	Clear, no odor

Sample ID(s):	**Additional Comments**	**SAMPLER NAME AND SIGNATURE**	**Date Time**
APW-06D-WG-20221128		Clay Sansoucie 	12/30/2022 17:05
Analysis:			

Low Flow Groundwater Sampling Field Data Form

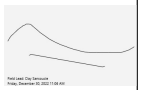
Well ID: APW-07
Well Permit No:

Date: 2022/11/30
Sunny, 30 deg F

Site ID GTEC-GRAND-TOWER	**Purge Method / Pump Intake Depth** Low_Flow / 58.46 (ft)	**Reference Elevation** 360.61 (ft)
Site Address 1820 Power Plant Road, Grand Tower, US-IL	**Purge Equipment** Submersible pump	**Depth to Water / Free Product** 30.07 (ft) / None
Project Number 0599247	**Sample Equipment** Submersible pump	**Total Well Depth** 63.46 (ft)
Project Name 20221201-GWMonitor	**Average Purge Rate** 251.7 (mL/min)	**Well Diameter / Well Screen Interval** 2 (in) / 50 - 60 (ft)
Sampler Clay Sansoucie	**Volume of Water in Well / Total Volume Purged** 5.45 (gal) / 4.25 (gal)	**Well Construction** 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
12:10	30.19	400	0	13.7	6.88	867	NM	0.16	-40.2	288	NM	Sl. Turbid, Brown, rotten egg like odor
12:15	30.19	120	1	13.1	6.89	897	NM	0.21	-45.8	102	NM	Cloudy, rotten egg like odor
12:20	30.19	250	1.5	12.9	6.83	879	NM	0.39	-53.3	88.8	NM	Cloudy, sl. rotten egg like odor
12:25	30.19	250	1.75	13.7	6.83	879	NM	0.2	-58	93.4	NM	Cloudy, sl. rotten egg like odor
12:30	30.19	250	2	13.5	6.84	865	NM	0.17	-60.3	46.4	NM	Clear, no odor
12:35	30.19	250	2.25	13.7	6.83	849	NM	0.18	-61.1	34.5	NM	Clear, no odor
12:40	30.19	250	2.75	13.7	6.83	844	NM	0.18	-61.5	24.2	NM	Clear, no odor
12:45	30.19	250	3	13.6	6.83	838	NM	0.17	-62	23.7	NM	Clear, no odor
12:50	30.19	250	3.5	13.7	6.83	828	NM	0.16	-62.2	13.6	NM	Clear, no odor
12:55	30.19	250	3.75	13.8	6.83	822	NM	0.15	-62.4	11.3	NM	Clear, no odor
13:00	30.19	250	4	13.7	6.85	820	NM	0.14	-62.7	10.8	NM	Clear, no odor
13:05	30.19	250	4.25	13.6	6.83	818	NM	0.14	-62.3	10.5	NM	Clear, no odor

Sample ID(s): APW-07-WG-20221130	**Additional Comments**	**SAMPLER NAME AND SIGNATURE**	**Date Time**
Analysis:		Clay Sansoucie 	12/30/2022 17:06

Low Flow Groundwater Sampling Field Data Form

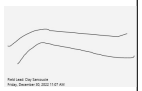
Well ID: APW-09
Well Permit No:

Date: 2022/11/30
Sunny 30 deg F

Site ID GTEC-GRAND-TOWER	**Purge Method / Pump Intake Depth** Low_Flow / 58.21 (ft)	**Reference Elevation** 366.84 (ft)
Site Address 1820 Power Plant Road, Grand Tower, US-IL	**Purge Equipment** Submersible pump	**Depth to Water / Free Product** 35.75 (ft) / None
Project Number 0599247	**Sample Equipment** Submersible pump	**Total Well Depth** 63.21 (ft)
Project Name 20221201-GWMonitor	**Average Purge Rate** 275 (mL/min)	**Well Diameter / Well Screen Interval** 2 (in) / 50 - 60 (ft)
Sampler Clay Sansoucie	**Volume of Water in Well / Total Volume Purged** 4.48 (gal) / 4 (gal)	**Well Construction** 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
10:05	35.75	250	0	12.1	7.53	504.9	NM	1.08	74.1	331	NM	Turbid, brown, no odor
10:10	35.75	250	0.5	11	7.24	510.1	NM	0.87	79.4	355	NM	Turbid, brown, no odor
10:15	35.75	250	0.75	10.8	7.23	512.2	NM	0.86	77.1	143	NM	Cloudy, no odor
10:20	35.75	250	1	11.2	7.33	513.1	NM	0.88	74.8	122	NM	Cloudy, no odor
10:25	35.75	250	1.25	12.2	7.29	518.2	NM	0.82	71	56	NM	Clear, no odor
10:30	35.75	250	1.75	12.6	7.35	521.7	NM	1.05	65.1	36.8	NM	Clear, no odor
10:35	35.75	300	2	12.7	7.36	521.7	NM	1	64.4	21	NM	Clear, no odor
10:40	35.75	300	2.5	12.8	7.35	520.6	NM	0.99	64.2	15.8	NM	Clear, no odor
10:45	35.75	300	2.75	12.9	7.36	523.1	NM	0.97	62.9	12.5	NM	Clear, no odor
10:50	35.75	300	3	13	7.32	522.7	NM	0.95	62.4	7.88	NM	Clear, no odor
10:55	35.75	300	3.5	13.2	7.36	522.2	NM	0.94	61.7	7.32	NM	Clear, no odor
11:00	35.75	300	4	13	7.37	523.1	NM	0.94	61.3	7.28	NM	Clear, no odor

Sample ID(s): APW-09-WG-20221130	**Additional Comments**	**SAMPLER NAME AND SIGNATURE**	**Date Time**
Analysis:		Clay Sansoucie 	12/30/2022 17:07

APPENDIX D FOURTH QUARTER 2022 LABORATORY ANALYTICAL REPORT

January 10, 2023

Matt Halley
ERM
1968 Craig Road
Suite 100
St. Louis, MO 63146
TEL: (314) 952-2760
FAX:

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

RE: GTEC **WorkOrder:** 22120033

Dear Matt Halley:

TEKLAB, INC received 14 samples on 12/1/2022 11:10:00 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

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

Report Contents

Client: ERM
Client Project: GTEC

Work Order: 22120033
Report Date: 10-Jan-23

This reporting package includes the following:

Client: ERM **Work Order:** 22120033

Client Project: GTEC **Report Date:** 10-Jan-23

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:** 22120033

Client Project: GTEC **Report Date:** 10-Jan-23

Qualifiers

- Unknown hydrocarbon

B - Analyte detected in associated Method Blank

C - RL shown is a Client Requested Quantitation Limit

E - Value above quantitation range

H - Holding times exceeded

I - Associated internal standard was outside method criteria

J - Analyte detected below quantitation limits

M - Manual Integration used to determine area response

ND - Not Detected at the Reporting Limit

R - RPD outside accepted recovery limits

S - Spike Recovery outside recovery limits

T - TIC(Tentatively identified compound)

X - Value exceeds Maximum Contaminant Level

Case Narrative

http://www.teklabinc.com/

Client: ERM
Client Project: GTEC

Work Order: 22120033
Report Date: 10-Jan-23

Cooler Receipt Temp: 1.6 °C

Radium-226 and Radium-228 analysis was performed by Summit Environmental Technologies, Inc. See attached report for results.

Locations

Collinsville

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

Springfield

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

Kansas City

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

Collinsville Air

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

Chicago

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

Client: ERM **Work Order:** 22120033

Client Project: GTEC **Report Date:** 10-Jan-23

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	8/31/2023	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

Client: ERM **Work Order:** 22120033

Client Project: GTEC **Report Date:** 10-Jan-23

Lab ID: 22120033-001 **Client Sample ID:** APW-06D-WG-20221128

Matrix: GROUNDWATER **Collection Date:** 11/28/2022 10:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
STANDARD METHODS 2540 C (TOTAL) 1997, 2011								
Total Dissolved Solids	NELAP	50		**580**	mg/L	2.5	12/05/2022 9:10	R322022
SW-846 9036 (TOTAL)								
Sulfate	NELAP	200		**254**	mg/L	20	12/08/2022 10:49	R322146
SW-846 9040B, LABORATORY ANALYZED								
Lab pH	NELAP	1.00		**7.21**		1	12/02/2022 11:07	R321809
SW-846 9214 (TOTAL)								
Fluoride	NELAP	0.10		**0.24**	mg/L	1	12/02/2022 8:41	R321834
SW-846 9251 (TOTAL)								
Chloride	NELAP	4		**17**	mg/L	1	12/07/2022 11:01	R322091
SW-846 3005A, 6020A, METALS BY ICPMS (DISSOLVED)								
Antimony	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 16:44	200649
Arsenic	NELAP	0.0010		**0.0116**	mg/L	5	12/05/2022 18:39	200649
Barium	NELAP	0.0010	B	**0.118**	mg/L	5	12/07/2022 16:44	200649
Beryllium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 16:44	200649
Boron	NELAP	0.0250		**4.14**	mg/L	5	12/07/2022 16:44	200649
Cadmium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 18:39	200649
Calcium	NELAP	0.125		**105**	mg/L	5	12/07/2022 16:44	200649
Chromium	NELAP	0.0015		**< 0.0015**	mg/L	5	12/05/2022 18:39	200649
Cobalt	NELAP	0.0010		**0.0012**	mg/L	5	12/05/2022 18:39	200649
Lead	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 16:44	200649
Lithium	*	0.0030		**0.0155**	mg/L	5	12/06/2022 16:29	200649
Molybdenum	NELAP	0.0015		**0.0796**	mg/L	5	12/05/2022 18:39	200649
Nickel	NELAP	0.0010		**0.0020**	mg/L	5	12/07/2022 16:44	200649
Selenium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 18:39	200649
Thallium	NELAP	0.0020		**< 0.0020**	mg/L	5	12/07/2022 16:44	200649
Sample result(s) for Ba exceed 10 times the method blank contamination. Data is reportable per the TNI Standard.								
SW-846 3005A, 6020A, METALS BY ICPMS (TOTAL)								
Antimony	NELAP	0.0010		**< 0.0010**	mg/L	5	12/02/2022 19:20	200623
Arsenic	NELAP	0.0010		**0.0111**	mg/L	5	12/02/2022 19:20	200623
Barium	NELAP	0.0010		**0.142**	mg/L	5	12/02/2022 19:20	200623
Beryllium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/02/2022 19:20	200623
Boron	NELAP	0.0250		**4.29**	mg/L	5	12/02/2022 19:20	200623
Cadmium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/02/2022 19:20	200623
Calcium	NELAP	0.125		**110**	mg/L	5	12/02/2022 19:20	200623
Chromium	NELAP	0.0015		**0.0063**	mg/L	5	12/02/2022 19:20	200623
Cobalt	NELAP	0.0010		**0.0035**	mg/L	5	12/02/2022 19:20	200623
Lead	NELAP	0.0010		**0.0012**	mg/L	5	12/02/2022 19:20	200623
Lithium	*	0.0030		**0.0175**	mg/L	5	12/02/2022 19:20	200623
Molybdenum	NELAP	0.0015		**0.0696**	mg/L	5	12/02/2022 19:20	200623
Nickel	NELAP	0.0010		**0.0093**	mg/L	5	12/02/2022 19:20	200623
Selenium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/02/2022 19:20	200623
Thallium	NELAP	0.0020		**< 0.0020**	mg/L	5	12/02/2022 19:20	200623
SW-846 7470A (TOTAL)								
Mercury	NELAP	0.00020		**< 0.00020**	mg/L	1	12/05/2022 14:30	200646
EPA 903.0/904.0, RADIUM 226/228								
Radium-226	*	0		**See Attached**	pci/L	1	12/28/2022 0:00	R323269

Client: ERM
Work Order: 22120033
Client Project: GTEC
Report Date: 10-Jan-23
Lab ID: 22120033-001
Client Sample ID: APW-06D-WG-20221128
Matrix: GROUNDWATER
Collection Date: 11/28/2022 10:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 903.0/904.0, RADIUM 226/228								
Radium-228	*	0		**See Attached**	pci/L	1	12/28/2022 0:00	R323269

Client: ERM **Work Order:** 22120033

Client Project: GTEC **Report Date:** 10-Jan-23

Lab ID: 22120033-002 **Client Sample ID:** APW-06S-WG-20221128

Matrix: GROUNDWATER **Collection Date:** 11/28/2022 11:55

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
STANDARD METHODS 2540 C (TOTAL) 1997, 2011								
Total Dissolved Solids	NELAP	50		**605**	mg/L	2.5	12/05/2022 9:10	R322022
SW-846 9036 (TOTAL)								
Sulfate	NELAP	100		**243**	mg/L	10	12/07/2022 11:28	R322090
SW-846 9040B, LABORATORY ANALYZED								
Lab pH	NELAP	1.00		**7.04**		1	12/02/2022 11:08	R321809
SW-846 9214 (TOTAL)								
Fluoride	NELAP	0.10		**0.32**	mg/L	1	12/02/2022 8:43	R321834
SW-846 9251 (TOTAL)								
Chloride	NELAP	4		**24**	mg/L	1	12/07/2022 11:22	R322091
SW-846 3005A, 6020A, METALS BY ICPMS (DISSOLVED)								
Antimony	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 16:51	200649
Arsenic	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 18:45	200649
Barium	NELAP	0.0010	B	**0.190**	mg/L	5	12/07/2022 16:51	200649
Beryllium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 16:51	200649
Boron	NELAP	0.0250		**6.88**	mg/L	5	12/07/2022 16:51	200649
Cadmium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 18:45	200649
Calcium	NELAP	0.125		**98.0**	mg/L	5	12/07/2022 16:51	200649
Chromium	NELAP	0.0015		**< 0.0015**	mg/L	5	12/05/2022 18:45	200649
Cobalt	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 18:45	200649
Lead	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 16:51	200649
Lithium	*	0.0030		**0.0386**	mg/L	5	12/06/2022 16:36	200649
Molybdenum	NELAP	0.0015		**0.240**	mg/L	5	12/05/2022 18:45	200649
Nickel	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 16:51	200649
Selenium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 18:45	200649
Thallium	NELAP	0.0020		**< 0.0020**	mg/L	5	12/07/2022 16:51	200649
Sample result(s) for Ba exceed 10 times the method blank contamination. Data is reportable per the TNI Standard.								
SW-846 3005A, 6020A, METALS BY ICPMS (TOTAL)								
Antimony	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 13:58	200654
Arsenic	NELAP	0.0010		**0.0010**	mg/L	5	12/05/2022 12:07	200654
Barium	NELAP	0.0010		**0.190**	mg/L	5	12/05/2022 12:07	200654
Beryllium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 12:07	200654
Boron	NELAP	0.0250		**6.31**	mg/L	5	12/05/2022 12:07	200654
Cadmium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 12:07	200654
Calcium	NELAP	0.125		**103**	mg/L	5	12/07/2022 13:58	200654
Chromium	NELAP	0.0015		**0.0022**	mg/L	5	12/05/2022 12:07	200654
Cobalt	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 12:07	200654
Lead	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 13:58	200654
Lithium	*	0.0030		**0.0393**	mg/L	5	12/06/2022 13:43	200654
Molybdenum	NELAP	0.0015		**0.259**	mg/L	5	12/05/2022 12:07	200654
Nickel	NELAP	0.0010		**0.0023**	mg/L	5	12/07/2022 13:58	200654
Selenium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 12:07	200654
Thallium	NELAP	0.0020		**< 0.0020**	mg/L	5	12/07/2022 13:58	200654
SW-846 7470A (TOTAL)								
Mercury	NELAP	0.00020		**< 0.00020**	mg/L	1	12/05/2022 14:32	200646
EPA 903.0/904.0, RADIUM 226/228								
Radium-226	*	0		**See Attached**	pci/L	1	12/28/2022 0:00	R323269

Client: ERM
Work Order: 22120033
Client Project: GTEC
Report Date: 10-Jan-23
Lab ID: 22120033-002
Client Sample ID: APW-06S-WG-20221128
Matrix: GROUNDWATER
Collection Date: 11/28/2022 11:55

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 903.0/904.0, RADIUM 226/228								
Radium-228	*	0		**See Attached**	pci/L	1	12/28/2022 0:00	R323269

Client: ERM **Work Order:** 22120033

Client Project: GTEC **Report Date:** 10-Jan-23

Lab ID: 22120033-003 **Client Sample ID:** APW-05-WG-20221128

Matrix: GROUNDWATER **Collection Date:** 11/28/2022 13:25

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
STANDARD METHODS 2540 C (TOTAL) 1997, 2011								
Total Dissolved Solids	NELAP	20		**714**	mg/L	1	12/05/2022 9:10	R322022
SW-846 9036 (TOTAL)								
Sulfate	NELAP	100		**324**	mg/L	10	12/07/2022 11:49	R322090
SW-846 9040B, LABORATORY ANALYZED								
Lab pH	NELAP	1.00		**7.24**		1	12/02/2022 11:10	R321809
SW-846 9214 (TOTAL)								
Fluoride	NELAP	0.10		**0.37**	mg/L	1	12/02/2022 8:45	R321834
SW-846 9251 (TOTAL)								
Chloride	NELAP	4		**19**	mg/L	1	12/07/2022 11:30	R322091
SW-846 3005A, 6020A, METALS BY ICPMS (DISSOLVED)								
Antimony	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 16:57	200649
Arsenic	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 18:52	200649
Barium	NELAP	0.0010	B	**0.172**	mg/L	5	12/07/2022 16:57	200649
Beryllium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 16:57	200649
Boron	NELAP	0.0250		**6.12**	mg/L	5	12/07/2022 16:57	200649
Cadmium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 18:52	200649
Calcium	NELAP	0.125		**87.4**	mg/L	5	12/07/2022 16:57	200649
Chromium	NELAP	0.0015		**< 0.0015**	mg/L	5	12/05/2022 18:52	200649
Cobalt	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 18:52	200649
Lead	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 16:57	200649
Lithium	*	0.0030		**0.0338**	mg/L	5	12/06/2022 16:42	200649
Molybdenum	NELAP	0.0015		**0.293**	mg/L	5	12/05/2022 18:52	200649
Nickel	NELAP	0.0010		**0.0011**	mg/L	5	12/07/2022 16:57	200649
Selenium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 18:52	200649
Thallium	NELAP	0.0020		**< 0.0020**	mg/L	5	12/07/2022 16:57	200649
Sample result(s) for Ba exceed 10 times the method blank contamination. Data is reportable per the TNI Standard.								
SW-846 3005A, 6020A, METALS BY ICPMS (TOTAL)								
Antimony	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 14:04	200654
Arsenic	NELAP	0.0010		**0.0022**	mg/L	5	12/05/2022 12:13	200654
Barium	NELAP	0.0010		**0.140**	mg/L	5	12/05/2022 12:13	200654
Beryllium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 12:13	200654
Boron	NELAP	0.0250		**7.48**	mg/L	5	12/05/2022 12:13	200654
Cadmium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 12:13	200654
Calcium	NELAP	0.125		**117**	mg/L	5	12/07/2022 14:04	200654
Chromium	NELAP	0.0015		**< 0.0015**	mg/L	5	12/05/2022 12:13	200654
Cobalt	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 12:13	200654
Lead	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 14:04	200654
Lithium	*	0.0030		**0.0373**	mg/L	5	12/06/2022 13:49	200654
Molybdenum	NELAP	0.0015		**0.223**	mg/L	5	12/05/2022 12:13	200654
Nickel	NELAP	0.0010		**0.0020**	mg/L	5	12/07/2022 14:04	200654
Selenium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 12:13	200654
Thallium	NELAP	0.0020		**< 0.0020**	mg/L	5	12/07/2022 14:04	200654
SW-846 7470A (TOTAL)								
Mercury	NELAP	0.00020		**< 0.00020**	mg/L	1	12/05/2022 14:35	200646
EPA 903.0/904.0, RADIUM 226/228								
Radium-226	*	0		**See Attached**	pci/L	1	12/28/2022 0:00	R323269

Client: ERM
Work Order: 22120033
Client Project: GTEC
Report Date: 10-Jan-23
Lab ID: 22120033-003
Client Sample ID: APW-05-WG-20221128
Matrix: GROUNDWATER
Collection Date: 11/28/2022 13:25

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 903.0/904.0, RADIUM 226/228								
Radium-228	*	0		**See Attached**	pci/L	1	12/28/2022 0:00	R323269

Client: ERM **Work Order:** 22120033

Client Project: GTEC **Report Date:** 10-Jan-23

Lab ID: 22120033-004 **Client Sample ID:** APW-04-WG-20221128

Matrix: GROUNDWATER **Collection Date:** 11/28/2022 15:10

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
STANDARD METHODS 2540 C (TOTAL) 1997, 2011								
Total Dissolved Solids	NELAP	20		**446**	mg/L	1	12/05/2022 9:11	R322022
SW-846 9036 (TOTAL)								
Sulfate	NELAP	20		**68**	mg/L	2	12/08/2022 11:01	R322146
SW-846 9040B, LABORATORY ANALYZED								
Lab pH	NELAP	1.00		**7.34**		1	12/02/2022 11:12	R321809
SW-846 9214 (TOTAL)								
Fluoride	NELAP	0.10		**0.17**	mg/L	1	12/02/2022 8:47	R321834
SW-846 9251 (TOTAL)								
Chloride	NELAP	4		**11**	mg/L	1	12/07/2022 11:52	R322091
SW-846 3005A, 6020A, METALS BY ICPMS (DISSOLVED)								
Antimony	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 17:03	200649
Arsenic	NELAP	0.0010		**0.0021**	mg/L	5	12/05/2022 18:58	200649
Barium	NELAP	0.0010	B	**0.130**	mg/L	5	12/07/2022 17:03	200649
Beryllium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 17:03	200649
Boron	NELAP	0.0250		**7.33**	mg/L	5	12/07/2022 17:03	200649
Cadmium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 18:58	200649
Calcium	NELAP	0.125		**108**	mg/L	5	12/07/2022 17:03	200649
Chromium	NELAP	0.0015		**< 0.0015**	mg/L	5	12/05/2022 18:58	200649
Cobalt	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 18:58	200649
Lead	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 17:03	200649
Lithium	*	0.0030		**0.0355**	mg/L	5	12/06/2022 16:48	200649
Molybdenum	NELAP	0.0015		**0.227**	mg/L	5	12/05/2022 18:58	200649
Nickel	NELAP	0.0010		**0.0017**	mg/L	5	12/07/2022 17:03	200649
Selenium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 18:58	200649
Thallium	NELAP	0.0020		**< 0.0020**	mg/L	5	12/07/2022 17:03	200649
Sample result(s) for Ba exceed 10 times the method blank contamination. Data is reportable per the TNI Standard.								
SW-846 3005A, 6020A, METALS BY ICPMS (TOTAL)								
Antimony	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 14:11	200654
Arsenic	NELAP	0.0010		**0.0016**	mg/L	5	12/05/2022 12:19	200654
Barium	NELAP	0.0010		**0.133**	mg/L	5	12/05/2022 12:19	200654
Beryllium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 12:19	200654
Boron	NELAP	0.0250		**0.653**	mg/L	5	12/05/2022 12:19	200654
Cadmium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 12:19	200654
Calcium	NELAP	0.125		**102**	mg/L	5	12/07/2022 14:11	200654
Chromium	NELAP	0.0015		**0.0043**	mg/L	5	12/05/2022 12:19	200654
Cobalt	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 12:19	200654
Lead	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 14:11	200654
Lithium	*	0.0030		**0.0293**	mg/L	5	12/06/2022 13:55	200654
Molybdenum	NELAP	0.0015		**0.0406**	mg/L	5	12/05/2022 12:19	200654
Nickel	NELAP	0.0010		**0.0051**	mg/L	5	12/07/2022 14:11	200654
Selenium	NELAP	0.0010		**0.0085**	mg/L	5	12/05/2022 12:19	200654
Thallium	NELAP	0.0020		**< 0.0020**	mg/L	5	12/07/2022 14:11	200654
SW-846 7470A (TOTAL)								
Mercury	NELAP	0.00020		**< 0.00020**	mg/L	1	12/05/2022 14:46	200646
EPA 903.0/904.0, RADIUM 226/228								
Radium-226	*	0		**See Attached**	pci/L	1	12/28/2022 0:00	R323269

Client: ERM
Work Order: 22120033
Client Project: GTEC
Report Date: 10-Jan-23
Lab ID: 22120033-004
Client Sample ID: APW-04-WG-20221128
Matrix: GROUNDWATER
Collection Date: 11/28/2022 15:10

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 903.0/904.0, RADIUM 226/228								
Radium-228	*	0		**See Attached**	pci/L	1	12/28/2022 0:00	R323269

Client: ERM **Work Order:** 22120033

Client Project: GTEC **Report Date:** 10-Jan-23

Lab ID: 22120033-005 **Client Sample ID:** APW-02-WG-20221129

Matrix: GROUNDWATER **Collection Date:** 11/29/2022 9:15

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
STANDARD METHODS 2540 C (TOTAL) 1997, 2011								
Total Dissolved Solids	NELAP	50		**885**	mg/L	2.5	12/05/2022 9:33	R322022
SW-846 9036 (TOTAL)								
Sulfate	NELAP	100		**418**	mg/L	10	12/07/2022 12:05	R322090
SW-846 9040B, LABORATORY ANALYZED								
Lab pH	NELAP	1.00		**7.01**		1	12/02/2022 11:14	R321809
SW-846 9214 (TOTAL)								
Fluoride	NELAP	0.10		**0.25**	mg/L	1	12/02/2022 8:57	R321834
SW-846 9251 (TOTAL)								
Chloride	NELAP	4		**9**	mg/L	1	12/07/2022 12:00	R322091
SW-846 3005A, 6020A, METALS BY ICPMS (DISSOLVED)								
Antimony	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 17:10	200649
Arsenic	NELAP	0.0010		**0.0012**	mg/L	5	12/05/2022 19:04	200649
Barium	NELAP	0.0010	B	**0.125**	mg/L	5	12/07/2022 17:10	200649
Beryllium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 17:10	200649
Boron	NELAP	0.0250		**0.656**	mg/L	5	12/07/2022 17:10	200649
Cadmium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 19:04	200649
Calcium	NELAP	0.125		**96.1**	mg/L	5	12/07/2022 17:10	200649
Chromium	NELAP	0.0015		**< 0.0015**	mg/L	5	12/05/2022 19:04	200649
Cobalt	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 19:04	200649
Lead	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 17:10	200649
Lithium	*	0.0030		**0.0280**	mg/L	5	12/06/2022 16:55	200649
Molybdenum	NELAP	0.0015		**0.0337**	mg/L	5	12/05/2022 19:04	200649
Nickel	NELAP	0.0010		**0.0022**	mg/L	5	12/07/2022 17:10	200649
Selenium	NELAP	0.0010		**0.0071**	mg/L	5	12/05/2022 19:04	200649
Thallium	NELAP	0.0020		**< 0.0020**	mg/L	5	12/07/2022 17:10	200649

Sample result(s) for Ba exceed 10 times the method blank contamination. Data is reportable per the TNI Standard.

SW-846 3005A, 6020A, METALS BY ICPMS (TOTAL)								
Antimony	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 14:17	200654
Arsenic	NELAP	0.0010		**0.0220**	mg/L	5	12/05/2022 12:50	200654
Barium	NELAP	0.0010		**0.254**	mg/L	5	12/05/2022 12:50	200654
Beryllium	NELAP	0.0010	S	**< 0.0010**	mg/L	5	12/05/2022 12:50	200654
Boron	NELAP	0.0250	S	**8.97**	mg/L	5	12/05/2022 12:50	200654
Cadmium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 12:50	200654
Calcium	NELAP	0.125	S	**145**	mg/L	5	12/07/2022 14:17	200654
Chromium	NELAP	0.0015		**0.0064**	mg/L	5	12/05/2022 12:50	200654
Cobalt	NELAP	0.0010		**0.0015**	mg/L	5	12/05/2022 12:50	200654
Lead	NELAP	0.0010		**0.0033**	mg/L	5	12/07/2022 14:17	200654
Lithium	*	0.0030		**0.0386**	mg/L	5	12/06/2022 14:02	200654
Molybdenum	NELAP	0.0015		**0.128**	mg/L	5	12/06/2022 14:02	200654
Nickel	NELAP	0.0010		**0.0045**	mg/L	5	12/07/2022 14:17	200654
Selenium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 12:50	200654
Thallium	NELAP	0.0020		**< 0.0020**	mg/L	5	12/07/2022 14:17	200654

Matrix spike control limits for Ca are not applicable due to high sample/spike ratio.

Matrix spike recovered outside upper control limits for Be. Sample results are below the reporting limit. Data is reportable.

Matrix spike control limits for B are not applicable due to high sample/spike ratio.

Client: ERM
Work Order: 22120033
Client Project: GTEC
Report Date: 10-Jan-23
Lab ID: 22120033-005
Client Sample ID: APW-02-WG-20221129
Matrix: GROUNDWATER
Collection Date: 11/29/2022 9:15

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 7470A (TOTAL)								
Mercury	NELAP	0.00020		**< 0.00020**	mg/L	1	12/05/2022 14:48	200646
EPA 903.0/904.0, RADIUM 226/228								
Radium-226	*	0		**See Attached**	pci/L	1	12/28/2022 0:00	R323269
Radium-228	*	0		**See Attached**	pci/L	1	12/28/2022 0:00	R323269

Client: ERM **Work Order:** 22120033

Client Project: GTEC **Report Date:** 10-Jan-23

Lab ID: 22120033-006 **Client Sample ID:** APW-10S-WG-20221129

Matrix: GROUNDWATER **Collection Date:** 11/29/2022 13:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
STANDARD METHODS 2540 C (TOTAL) 1997, 2011								
Total Dissolved Solids	NELAP	50		**750**	mg/L	2.5	12/05/2022 9:33	R322022
SW-846 9036 (TOTAL)								
Sulfate	NELAP	10		**< 10**	mg/L	1	12/07/2022 12:08	R322090
SW-846 9040B, LABORATORY ANALYZED								
Lab pH	NELAP	1.00		**6.95**		1	12/02/2022 11:15	R321809
SW-846 9214 (TOTAL)								
Fluoride	NELAP	0.10		**0.17**	mg/L	1	12/02/2022 8:59	R321834
SW-846 9251 (TOTAL)								
Chloride	NELAP	4		**18**	mg/L	1	12/07/2022 12:08	R322091
SW-846 3005A, 6020A, METALS BY ICPMS (DISSOLVED)								
Antimony	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 17:16	200649
Arsenic	NELAP	0.0010		**0.0138**	mg/L	5	12/05/2022 19:36	200649
Barium	NELAP	0.0010	B	**0.162**	mg/L	5	12/07/2022 17:16	200649
Beryllium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 17:16	200649
Boron	NELAP	0.0250		**7.48**	mg/L	5	12/07/2022 17:16	200649
Cadmium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 19:36	200649
Calcium	NELAP	0.125		**142**	mg/L	5	12/07/2022 17:16	200649
Chromium	NELAP	0.0015		**< 0.0015**	mg/L	5	12/05/2022 19:36	200649
Cobalt	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 19:36	200649
Lead	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 17:16	200649
Lithium	*	0.0030		**0.0387**	mg/L	5	12/06/2022 17:01	200649
Molybdenum	NELAP	0.0015		**< 0.0015**	mg/L	5	12/15/2022 23:28	201045
Nickel	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 17:16	200649
Selenium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 19:36	200649
Thallium	NELAP	0.0020		**< 0.0020**	mg/L	5	12/07/2022 17:16	200649
Sample result(s) for Ba exceed 10 times the method blank contamination. Data is reportable per the TNI Standard.								
SW-846 3005A, 6020A, METALS BY ICPMS (TOTAL)								
Antimony	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 15:21	200654
Arsenic	NELAP	0.0010		**0.182**	mg/L	5	12/05/2022 12:25	200654
Barium	NELAP	0.0010		**0.536**	mg/L	5	12/05/2022 12:25	200654
Beryllium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 12:25	200654
Boron	NELAP	0.0250		**0.569**	mg/L	5	12/05/2022 12:25	200654
Cadmium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 12:25	200654
Calcium	NELAP	0.125		**154**	mg/L	5	12/07/2022 15:21	200654
Chromium	NELAP	0.0015		**0.0032**	mg/L	5	12/05/2022 12:25	200654
Cobalt	NELAP	0.0010		**0.0013**	mg/L	5	12/05/2022 12:25	200654
Lead	NELAP	0.0010		**0.0014**	mg/L	5	12/07/2022 15:21	200654
Lithium	*	0.0030		**0.0307**	mg/L	5	12/06/2022 15:06	200654
Molybdenum	NELAP	0.0015		**< 0.0015**	mg/L	5	12/05/2022 12:25	200654
Nickel	NELAP	0.0010		**0.0031**	mg/L	5	12/07/2022 15:21	200654
Selenium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 12:25	200654
Thallium	NELAP	0.0020		**< 0.0020**	mg/L	5	12/07/2022 15:21	200654
SW-846 7470A (TOTAL)								
Mercury	NELAP	0.00020		**< 0.00020**	mg/L	1	12/05/2022 14:51	200646
EPA 903.0/904.0, RADIUM 226/228								
Radium-226	*	0		**See Attached**	pci/L	1	12/28/2022 0:00	R323269

Client: ERM
Work Order: 22120033
Client Project: GTEC
Report Date: 10-Jan-23
Lab ID: 22120033-006
Client Sample ID: APW-10S-WG-20221129
Matrix: GROUNDWATER
Collection Date: 11/29/2022 13:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 903.0/904.0, RADIUM 226/228								
Radium-228	*	0		**See Attached**	pci/L	1	12/28/2022 0:00	R323269

Client: ERM **Work Order:** 22120033

Client Project: GTEC **Report Date:** 10-Jan-23

Lab ID: 22120033-007 **Client Sample ID:** APW-10D-WG-20221129

Matrix: GROUNDWATER **Collection Date:** 11/29/2022 15:10

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
STANDARD METHODS 2540 C (TOTAL) 1997, 2011								
Total Dissolved Solids	NELAP	20		**460**	mg/L	1	12/05/2022 9:33	R322022
SW-846 9036 (TOTAL)								
Sulfate	NELAP	10		**42**	mg/L	1	12/07/2022 12:16	R322090
SW-846 9040B, LABORATORY ANALYZED								
Lab pH	NELAP	1.00		**7.04**		1	12/02/2022 11:17	R321809
SW-846 9214 (TOTAL)								
Fluoride	NELAP	0.10		**0.12**	mg/L	1	12/02/2022 9:02	R321834
SW-846 9251 (TOTAL)								
Chloride	NELAP	4		**14**	mg/L	1	12/07/2022 12:16	R322091
SW-846 3005A, 6020A, METALS BY ICPMS (DISSOLVED)								
Antimony	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 17:23	200649
Arsenic	NELAP	0.0010		**0.0012**	mg/L	5	12/05/2022 19:42	200649
Barium	NELAP	0.0010	B	**0.300**	mg/L	5	12/07/2022 17:23	200649
Beryllium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 17:23	200649
Boron	NELAP	0.0250		**0.0841**	mg/L	5	12/07/2022 17:23	200649
Cadmium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 19:42	200649
Calcium	NELAP	0.125		**113**	mg/L	5	12/07/2022 17:23	200649
Chromium	NELAP	0.0015		**< 0.0015**	mg/L	5	12/05/2022 19:42	200649
Cobalt	NELAP	0.0010		**0.0032**	mg/L	5	12/05/2022 19:42	200649
Lead	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 17:23	200649
Lithium	*	0.0030		**0.0133**	mg/L	5	12/06/2022 17:08	200649
Molybdenum	NELAP	0.0015		**< 0.0015**	mg/L	5	12/05/2022 19:42	200649
Nickel	NELAP	0.0010		**0.0054**	mg/L	5	12/07/2022 17:23	200649
Selenium	NELAP	0.0010		**0.0015**	mg/L	5	12/05/2022 19:42	200649
Thallium	NELAP	0.0020		**< 0.0020**	mg/L	5	12/07/2022 17:23	200649
Sample result(s) for Ba exceed 10 times the method blank contamination. Data is reportable per the TNI Standard.								
SW-846 3005A, 6020A, METALS BY ICPMS (TOTAL)								
Antimony	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 15:27	200654
Arsenic	NELAP	0.0010		**0.0014**	mg/L	5	12/05/2022 12:32	200654
Barium	NELAP	0.0010		**0.276**	mg/L	5	12/05/2022 12:32	200654
Beryllium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 12:32	200654
Boron	NELAP	0.0250		**0.0522**	mg/L	5	12/05/2022 12:32	200654
Cadmium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 12:32	200654
Calcium	NELAP	0.125		**115**	mg/L	5	12/07/2022 15:27	200654
Chromium	NELAP	0.0015		**0.0024**	mg/L	5	12/05/2022 12:32	200654
Cobalt	NELAP	0.0010		**0.0030**	mg/L	5	12/05/2022 12:32	200654
Lead	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 15:27	200654
Lithium	*	0.0030		**0.0126**	mg/L	5	12/06/2022 15:12	200654
Molybdenum	NELAP	0.0015		**< 0.0015**	mg/L	5	12/05/2022 12:32	200654
Nickel	NELAP	0.0010		**0.0063**	mg/L	5	12/07/2022 15:27	200654
Selenium	NELAP	0.0010		**0.0013**	mg/L	5	12/05/2022 12:32	200654
Thallium	NELAP	0.0020		**< 0.0020**	mg/L	5	12/07/2022 15:27	200654
SW-846 7470A (TOTAL)								
Mercury	NELAP	0.00020		**< 0.00020**	mg/L	1	12/05/2022 14:53	200646
EPA 903.0/904.0, RADIUM 226/228								
Radium-226	*	0		**See Attached**	pci/L	1	12/28/2022 0:00	R323269

Client: ERM
Work Order: 22120033
Client Project: GTEC
Report Date: 10-Jan-23
Lab ID: 22120033-007
Client Sample ID: APW-10D-WG-20221129
Matrix: GROUNDWATER
Collection Date: 11/29/2022 15:10

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 903.0/904.0, RADIUM 226/228								
Radium-228	*	0		**See Attached**	pci/L	1	12/28/2022 0:00	R323269

Client: ERM **Work Order:** 22120033

Client Project: GTEC **Report Date:** 10-Jan-23

Lab ID: 22120033-008 **Client Sample ID:** APW-01R-WG-20221130

Matrix: GROUNDWATER **Collection Date:** 11/30/2022 9:35

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
STANDARD METHODS 2540 C (TOTAL) 1997, 2011								
Total Dissolved Solids	NELAP	50		**385**	mg/L	2.5	12/05/2022 9:34	R322022
SW-846 9036 (TOTAL)								
Sulfate	NELAP	20		**69**	mg/L	2	12/08/2022 11:05	R322146
SW-846 9040B, LABORATORY ANALYZED								
Lab pH	NELAP	1.00		**6.43**		1	12/02/2022 11:24	R321809
SW-846 9214 (TOTAL)								
Fluoride	NELAP	0.10		**0.18**	mg/L	1	12/02/2022 9:04	R321834
SW-846 9251 (TOTAL)								
Chloride	NELAP	4		**7**	mg/L	1	12/07/2022 12:23	R322091
SW-846 3005A, 6020A, METALS BY ICPMS (DISSOLVED)								
Antimony	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 17:29	200649
Arsenic	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 19:48	200649
Barium	NELAP	0.0010	B	**0.162**	mg/L	5	12/07/2022 17:29	200649
Beryllium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 17:29	200649
Boron	NELAP	0.0250		**0.219**	mg/L	5	12/07/2022 17:29	200649
Cadmium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 19:48	200649
Calcium	NELAP	0.125		**73.9**	mg/L	5	12/07/2022 17:29	200649
Chromium	NELAP	0.0015		**< 0.0015**	mg/L	5	12/05/2022 19:48	200649
Cobalt	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 19:48	200649
Lead	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 17:29	200649
Lithium	*	0.0030		**0.0139**	mg/L	5	12/06/2022 17:14	200649
Molybdenum	NELAP	0.0015		**< 0.0015**	mg/L	5	12/05/2022 19:48	200649
Nickel	NELAP	0.0010		**0.0061**	mg/L	5	12/07/2022 17:29	200649
Selenium	NELAP	0.0010		**0.0033**	mg/L	5	12/05/2022 19:48	200649
Thallium	NELAP	0.0020		**< 0.0020**	mg/L	5	12/07/2022 17:29	200649
Sample result(s) for Ba exceed 10 times the method blank contamination. Data is reportable per the TNI Standard.								
SW-846 3005A, 6020A, METALS BY ICPMS (TOTAL)								
Antimony	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 15:34	200654
Arsenic	NELAP	0.0010		**0.0021**	mg/L	5	12/05/2022 12:38	200654
Barium	NELAP	0.0010		**0.199**	mg/L	5	12/05/2022 12:38	200654
Beryllium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 12:38	200654
Boron	NELAP	0.0250		**0.222**	mg/L	5	12/05/2022 12:38	200654
Cadmium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 12:38	200654
Calcium	NELAP	0.125		**79.7**	mg/L	5	12/07/2022 15:34	200654
Chromium	NELAP	0.0015		**0.0041**	mg/L	5	12/05/2022 12:38	200654
Cobalt	NELAP	0.0010		**0.0031**	mg/L	5	12/05/2022 12:38	200654
Lead	NELAP	0.0010		**0.0014**	mg/L	5	12/07/2022 15:34	200654
Lithium	*	0.0030		**0.0155**	mg/L	5	12/06/2022 15:19	200654
Molybdenum	NELAP	0.0015		**< 0.0015**	mg/L	5	12/05/2022 12:38	200654
Nickel	NELAP	0.0010		**0.0120**	mg/L	5	12/07/2022 15:34	200654
Selenium	NELAP	0.0010		**0.0035**	mg/L	5	12/05/2022 12:38	200654
Thallium	NELAP	0.0020		**< 0.0020**	mg/L	5	12/07/2022 15:34	200654
SW-846 7470A (TOTAL)								
Mercury	NELAP	0.00020		**< 0.00020**	mg/L	1	12/05/2022 15:00	200646
EPA 903.0/904.0, RADIUM 226/228								
Radium-226	*	0		**See Attached**	pci/L	1	12/28/2022 0:00	R323269

Client: ERM
Work Order: 22120033
Client Project: GTEC
Report Date: 10-Jan-23
Lab ID: 22120033-008
Client Sample ID: APW-01R-WG-20221130
Matrix: GROUNDWATER
Collection Date: 11/30/2022 9:35

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 903.0/904.0, RADIUM 226/228								
Radium-228	*	0		**See Attached**	pci/L	1	12/28/2022 0:00	R323269

Client: ERM **Work Order:** 22120033

Client Project: GTEC **Report Date:** 10-Jan-23

Lab ID: 22120033-009 **Client Sample ID:** APW-09-WG-20221130

Matrix: GROUNDWATER **Collection Date:** 11/30/2022 11:10

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
STANDARD METHODS 2540 C (TOTAL) 1997, 2011								
Total Dissolved Solids	NELAP	20		**372**	mg/L	1	12/05/2022 9:34	R322022
SW-846 9036 (TOTAL)								
Sulfate	NELAP	10		**36**	mg/L	1	12/07/2022 12:45	R322090
SW-846 9040B, LABORATORY ANALYZED								
Lab pH	NELAP	1.00		**7.32**		1	12/02/2022 11:26	R321809
SW-846 9214 (TOTAL)								
Fluoride	NELAP	0.10		**0.20**	mg/L	1	12/02/2022 9:06	R321834
SW-846 9251 (TOTAL)								
Chloride	NELAP	4		**12**	mg/L	1	12/07/2022 12:45	R322091
SW-846 3005A, 6020A, METALS BY ICPMS (DISSOLVED)								
Antimony	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 17:35	200649
Arsenic	NELAP	0.0010		**0.0019**	mg/L	5	12/05/2022 19:55	200649
Barium	NELAP	0.0010	B	**0.109**	mg/L	5	12/07/2022 17:35	200649
Beryllium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 17:35	200649
Boron	NELAP	0.0250		**0.240**	mg/L	5	12/07/2022 17:35	200649
Cadmium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 19:55	200649
Calcium	NELAP	0.125		**78.3**	mg/L	5	12/07/2022 17:35	200649
Chromium	NELAP	0.0015		**< 0.0015**	mg/L	5	12/05/2022 19:55	200649
Cobalt	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 19:55	200649
Lead	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 17:35	200649
Lithium	*	0.0030		**0.0131**	mg/L	5	12/06/2022 17:20	200649
Molybdenum	NELAP	0.0015		**0.0139**	mg/L	5	12/05/2022 19:55	200649
Nickel	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 17:35	200649
Selenium	NELAP	0.0010		**0.0147**	mg/L	5	12/05/2022 19:55	200649
Thallium	NELAP	0.0020		**< 0.0020**	mg/L	5	12/07/2022 17:35	200649
Sample result(s) for Ba exceed 10 times the method blank contamination. Data is reportable per the TNI Standard.								
SW-846 3005A, 6020A, METALS BY ICPMS (TOTAL)								
Antimony	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 15:40	200654
Arsenic	NELAP	0.0010		**0.0021**	mg/L	5	12/05/2022 12:44	200654
Barium	NELAP	0.0010		**0.124**	mg/L	5	12/05/2022 12:44	200654
Beryllium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 12:44	200654
Boron	NELAP	0.0250		**0.243**	mg/L	5	12/05/2022 12:44	200654
Cadmium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 12:44	200654
Calcium	NELAP	0.125		**80.5**	mg/L	5	12/07/2022 15:40	200654
Chromium	NELAP	0.0015		**0.0015**	mg/L	5	12/05/2022 12:44	200654
Cobalt	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 12:44	200654
Lead	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 15:40	200654
Lithium	*	0.0030		**0.0131**	mg/L	5	12/06/2022 15:25	200654
Molybdenum	NELAP	0.0015		**0.0150**	mg/L	5	12/05/2022 12:44	200654
Nickel	NELAP	0.0010		**0.0019**	mg/L	5	12/07/2022 15:40	200654
Selenium	NELAP	0.0010		**0.0138**	mg/L	5	12/05/2022 12:44	200654
Thallium	NELAP	0.0020		**< 0.0020**	mg/L	5	12/07/2022 15:40	200654
SW-846 7470A (TOTAL)								
Mercury	NELAP	0.00020		**< 0.00020**	mg/L	1	12/05/2022 15:02	200646
EPA 903.0/904.0, RADIUM 226/228								
Radium-226	*	0		**See Attached**	pci/L	1	12/28/2022 0:00	R323269

Client: ERM
Work Order: 22120033
Client Project: GTEC
Report Date: 10-Jan-23
Lab ID: 22120033-009
Client Sample ID: APW-09-WG-20221130
Matrix: GROUNDWATER
Collection Date: 11/30/2022 11:10

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 903.0/904.0, RADIUM 226/228								
Radium-228	*	0		**See Attached**	pci/L	1	12/28/2022 0:00	R323269

Client: ERM **Work Order:** 22120033

Client Project: GTEC **Report Date:** 10-Jan-23

Lab ID: 22120033-010 **Client Sample ID:** APW-07-WG-20221130

Matrix: GROUNDWATER **Collection Date:** 11/30/2022 13:10

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
STANDARD METHODS 2540 C (TOTAL) 1997, 2011								
Total Dissolved Solids	NELAP	50		**800**	mg/L	2.5	12/05/2022 9:34	R322022
SW-846 9036 (TOTAL)								
Sulfate	NELAP	10		**48**	mg/L	1	12/07/2022 12:53	R322090
SW-846 9040B, LABORATORY ANALYZED								
Lab pH	NELAP	1.00		**6.78**		1	12/02/2022 11:28	R321809
SW-846 9214 (TOTAL)								
Fluoride	NELAP	0.10		**0.18**	mg/L	1	12/02/2022 9:07	R321834
SW-846 9251 (TOTAL)								
Chloride	NELAP	4		**12**	mg/L	1	12/07/2022 12:53	R322091
SW-846 3005A, 6020A, METALS BY ICPMS (DISSOLVED)								
Antimony	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 18:08	200649
Arsenic	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 20:01	200649
Barium	NELAP	0.0010	B	**0.354**	mg/L	5	12/07/2022 18:08	200649
Beryllium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 18:08	200649
Boron	NELAP	0.0250		**0.199**	mg/L	5	12/06/2022 17:53	200649
Cadmium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 20:01	200649
Calcium	NELAP	0.125		**204**	mg/L	5	12/07/2022 18:08	200649
Chromium	NELAP	0.0015		**< 0.0015**	mg/L	5	12/05/2022 20:01	200649
Cobalt	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 20:01	200649
Lead	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 18:08	200649
Lithium	*	0.0030		**0.0158**	mg/L	5	12/06/2022 17:53	200649
Molybdenum	NELAP	0.0015		**0.0021**	mg/L	5	12/05/2022 20:01	200649
Nickel	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 18:08	200649
Selenium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 20:01	200649
Thallium	NELAP	0.0020		**< 0.0020**	mg/L	5	12/07/2022 18:08	200649
Sample result(s) for Ba exceed 10 times the method blank contamination. Data is reportable per the TNI Standard.								
Sample result for Ca exceeds 10 times the CCB. Data is reportable per the TNI Standard.								
SW-846 3005A, 6020A, METALS BY ICPMS (TOTAL)								
Antimony	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 15:47	200654
Arsenic	NELAP	0.0010		**0.0011**	mg/L	5	12/05/2022 13:52	200654
Barium	NELAP	0.0010		**0.381**	mg/L	5	12/05/2022 13:52	200654
Beryllium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 13:52	200654
Boron	NELAP	0.0250		**0.217**	mg/L	5	12/07/2022 15:47	200654
Cadmium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 13:52	200654
Calcium	NELAP	0.125		**209**	mg/L	5	12/07/2022 15:47	200654
Chromium	NELAP	0.0015		**< 0.0015**	mg/L	5	12/05/2022 13:52	200654
Cobalt	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 13:52	200654
Lead	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 15:47	200654
Lithium	*	0.0030		**0.0166**	mg/L	5	12/06/2022 15:32	200654
Molybdenum	NELAP	0.0015		**0.0029**	mg/L	5	12/05/2022 13:52	200654
Nickel	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 15:47	200654
Selenium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 13:52	200654
Thallium	NELAP	0.0020		**< 0.0020**	mg/L	5	12/07/2022 15:47	200654
CCV recovered outside the upper control limits for Be. Sample results are below the reporting limit. Data is reportable per the TNI standard.								
SW-846 7470A (TOTAL)								
Mercury	NELAP	0.00020		**< 0.00020**	mg/L	1	12/05/2022 15:09	200646

Client: ERM
Work Order: 22120033
Client Project: GTEC
Report Date: 10-Jan-23
Lab ID: 22120033-010
Client Sample ID: APW-07-WG-20221130
Matrix: GROUNDWATER
Collection Date: 11/30/2022 13:10

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 903.0/904.0, RADIUM 226/228								
Radium-226	*	0		**See Attached**	pci/L	1	12/28/2022 0:00	R323269
Radium-228	*	0		**See Attached**	pci/L	1	12/28/2022 0:00	R323269

Client: ERM **Work Order:** 22120033

Client Project: GTEC **Report Date:** 10-Jan-23

Lab ID: 22120033-011 **Client Sample ID:** APW-03-WG-20221130

Matrix: GROUNDWATER **Collection Date:** 11/30/2022 15:10

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
STANDARD METHODS 2540 C (TOTAL) 1997, 2011								
Total Dissolved Solids	NELAP	50		**610**	mg/L	2.5	12/05/2022 9:34	R322022
SW-846 9036 (TOTAL)								
Sulfate	NELAP	100		**226**	mg/L	10	12/07/2022 13:14	R322090
SW-846 9040B, LABORATORY ANALYZED								
Lab pH	NELAP	1.00		**7.21**		1	12/02/2022 11:30	R321809
SW-846 9214 (TOTAL)								
Fluoride	NELAP	0.10		**0.26**	mg/L	1	12/02/2022 9:09	R321834
SW-846 9251 (TOTAL)								
Chloride	NELAP	4		**20**	mg/L	1	12/07/2022 13:04	R322091
SW-846 3005A, 6020A, METALS BY ICPMS (DISSOLVED)								
Antimony	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 18:14	200649
Arsenic	NELAP	0.0010		**0.0024**	mg/L	5	12/05/2022 20:07	200649
Barium	NELAP	0.0010	B	**0.108**	mg/L	5	12/07/2022 18:14	200649
Beryllium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 18:14	200649
Boron	NELAP	0.0250		**2.99**	mg/L	5	12/06/2022 17:59	200649
Cadmium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 20:07	200649
Calcium	NELAP	0.125		**101**	mg/L	5	12/07/2022 18:14	200649
Chromium	NELAP	0.0015		**< 0.0015**	mg/L	5	12/05/2022 20:07	200649
Cobalt	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 20:07	200649
Lead	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 18:14	200649
Lithium	*	0.0030		**0.0266**	mg/L	5	12/06/2022 17:59	200649
Molybdenum	NELAP	0.0015		**0.0648**	mg/L	5	12/05/2022 20:07	200649
Nickel	NELAP	0.0010		**0.0011**	mg/L	5	12/07/2022 18:14	200649
Selenium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 20:07	200649
Thallium	NELAP	0.0020		**< 0.0020**	mg/L	5	12/07/2022 18:14	200649
Sample result(s) for Ba exceed 10 times the method blank contamination. Data is reportable per the TNI Standard.								
Sample result for Ca exceeds 10 times the CCB. Data is reportable per the TNI Standard.								
SW-846 3005A, 6020A, METALS BY ICPMS (TOTAL)								
Antimony	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 15:53	200654
Arsenic	NELAP	0.0010		**0.0059**	mg/L	5	12/05/2022 13:58	200654
Barium	NELAP	0.0010		**0.190**	mg/L	5	12/05/2022 13:58	200654
Beryllium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 13:58	200654
Boron	NELAP	0.0250		**3.59**	mg/L	5	12/07/2022 15:53	200654
Cadmium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 13:58	200654
Calcium	NELAP	0.125		**115**	mg/L	5	12/07/2022 15:53	200654
Chromium	NELAP	0.0015		**0.0118**	mg/L	5	12/05/2022 13:58	200654
Cobalt	NELAP	0.0010		**0.0021**	mg/L	5	12/06/2022 15:38	200654
Lead	NELAP	0.0010		**0.0029**	mg/L	5	12/07/2022 15:53	200654
Lithium	*	0.0030		**0.0290**	mg/L	5	12/06/2022 15:38	200654
Molybdenum	NELAP	0.0015		**0.0621**	mg/L	5	12/05/2022 13:58	200654
Nickel	NELAP	0.0010		**0.0100**	mg/L	5	12/07/2022 15:53	200654
Selenium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 13:58	200654
Thallium	NELAP	0.0020		**< 0.0020**	mg/L	5	12/07/2022 15:53	200654
CCV recovered outside the upper control limits for Be. Sample results are below the reporting limit. Data is reportable per the TNI standard.								
SW-846 7470A (TOTAL)								
Mercury	NELAP	0.00020		**< 0.00020**	mg/L	1	12/05/2022 15:11	200646

Client: ERM
Work Order: 22120033
Client Project: GTEC
Report Date: 10-Jan-23
Lab ID: 22120033-011
Client Sample ID: APW-03-WG-20221130
Matrix: GROUNDWATER
Collection Date: 11/30/2022 15:10

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 903.0/904.0, RADIUM 226/228								
Radium-226	*	0		**See Attached**	pci/L	1	12/28/2022 0:00	R323269
Radium-228	*	0		**See Attached**	pci/L	1	12/28/2022 0:00	R323269

Client: ERM **Work Order:** 22120033

Client Project: GTEC **Report Date:** 10-Jan-23

Lab ID: 22120033-012 **Client Sample ID:** APW-08-WG-20221130

Matrix: GROUNDWATER **Collection Date:** 11/30/2022 16:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
STANDARD METHODS 2540 C (TOTAL) 1997, 2011								
Total Dissolved Solids	NELAP	50		**370**	mg/L	2.5	12/05/2022 10:49	R322022
SW-846 9036 (TOTAL)								
Sulfate	NELAP	10		**34**	mg/L	1	12/07/2022 13:41	R322090
SW-846 9040B, LABORATORY ANALYZED								
Lab pH	NELAP	1.00		**7.25**		1	12/02/2022 11:32	R321809
SW-846 9214 (TOTAL)								
Fluoride	NELAP	0.10		**0.28**	mg/L	1	12/02/2022 9:11	R321834
SW-846 9251 (TOTAL)								
Chloride	NELAP	4		**12**	mg/L	1	12/07/2022 13:41	R322091
SW-846 3005A, 6020A, METALS BY ICPMS (DISSOLVED)								
Antimony	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 18:20	200649
Arsenic	NELAP	0.0010		**0.0012**	mg/L	5	12/05/2022 20:13	200649
Barium	NELAP	0.0010	B	**0.146**	mg/L	5	12/07/2022 18:20	200649
Beryllium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 18:20	200649
Boron	NELAP	0.0250		**0.0844**	mg/L	5	12/06/2022 18:05	200649
Cadmium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 20:13	200649
Calcium	NELAP	0.125		**75.4**	mg/L	5	12/07/2022 18:20	200649
Chromium	NELAP	0.0015		**< 0.0015**	mg/L	5	12/05/2022 20:13	200649
Cobalt	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 20:13	200649
Lead	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 18:20	200649
Lithium	*	0.0030		**0.0132**	mg/L	5	12/06/2022 18:05	200649
Molybdenum	NELAP	0.0015		**< 0.0015**	mg/L	5	12/05/2022 20:13	200649
Nickel	NELAP	0.0010		**0.0012**	mg/L	5	12/07/2022 18:20	200649
Selenium	NELAP	0.0010		**0.0126**	mg/L	5	12/05/2022 20:13	200649
Thallium	NELAP	0.0020		**< 0.0020**	mg/L	5	12/07/2022 18:20	200649
Sample result(s) for Ba exceed 10 times the method blank contamination. Data is reportable per the TNI Standard.								
Sample result for Ca exceeds 10 times the CCB. Data is reportable per the TNI Standard.								
SW-846 3005A, 6020A, METALS BY ICPMS (TOTAL)								
Antimony	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 15:59	200654
Arsenic	NELAP	0.0010		**0.0017**	mg/L	5	12/05/2022 14:04	200654
Barium	NELAP	0.0010		**0.179**	mg/L	5	12/05/2022 14:04	200654
Beryllium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 14:04	200654
Boron	NELAP	0.0250		**0.103**	mg/L	5	12/07/2022 15:59	200654
Cadmium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 14:04	200654
Calcium	NELAP	0.125		**82.8**	mg/L	5	12/07/2022 15:59	200654
Chromium	NELAP	0.0015		**0.0036**	mg/L	5	12/05/2022 14:04	200654
Cobalt	NELAP	0.0010		**0.0016**	mg/L	5	12/05/2022 14:04	200654
Lead	NELAP	0.0010		**0.0012**	mg/L	5	12/07/2022 15:59	200654
Lithium	*	0.0030		**0.0147**	mg/L	5	12/06/2022 15:44	200654
Molybdenum	NELAP	0.0015		**< 0.0015**	mg/L	5	12/05/2022 14:04	200654
Nickel	NELAP	0.0010		**0.0077**	mg/L	5	12/07/2022 15:59	200654
Selenium	NELAP	0.0010		**0.0110**	mg/L	5	12/05/2022 14:04	200654
Thallium	NELAP	0.0020		**< 0.0020**	mg/L	5	12/07/2022 15:59	200654
CCV recovered outside the upper control limits for Be. Sample results are below the reporting limit. Data is reportable per the TNI standard.								
SW-846 7470A (TOTAL)								
Mercury	NELAP	0.00020		**< 0.00020**	mg/L	1	12/05/2022 15:13	200646

Client: ERM
Work Order: 22120033
Client Project: GTEC
Report Date: 10-Jan-23
Lab ID: 22120033-012
Client Sample ID: APW-08-WG-20221130
Matrix: GROUNDWATER
Collection Date: 11/30/2022 16:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 903.0/904.0, RADIUM 226/228								
Radium-226	*	0		**See Attached**	pci/L	1	12/28/2022 0:00	R323269
Radium-228	*	0		**See Attached**	pci/L	1	12/28/2022 0:00	R323269

Client: ERM **Work Order:** 22120033

Client Project: GTEC **Report Date:** 10-Jan-23

Lab ID: 22120033-013 **Client Sample ID:** DUP-01-WG-20221128

Matrix: GROUNDWATER **Collection Date:** 11/28/2022 0:01

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
STANDARD METHODS 2540 C (TOTAL) 1997, 2011								
Total Dissolved Solids	NELAP	20	H	**728**	mg/L	1	12/05/2022 10:49	R322022
Sample analysis did not meet hold time requirements.								
SW-846 9036 (TOTAL)								
Sulfate	NELAP	100		**338**	mg/L	10	12/07/2022 13:55	R322090
SW-846 9040B, LABORATORY ANALYZED								
Lab pH	NELAP	1.00		**7.27**		1	12/02/2022 11:34	R321809
SW-846 9214 (TOTAL)								
Fluoride	NELAP	0.10		**0.38**	mg/L	1	12/02/2022 9:20	R321834
SW-846 9251 (TOTAL)								
Chloride	NELAP	4		**19**	mg/L	1	12/07/2022 13:49	R322091
SW-846 3005A, 6020A, METALS BY ICPMS (DISSOLVED)								
Antimony	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 18:52	200649
Arsenic	NELAP	0.0010		**0.0019**	mg/L	5	12/06/2022 18:37	200649
Barium	NELAP	0.0010	B	**0.130**	mg/L	5	12/07/2022 18:52	200649
Beryllium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 18:52	200649
Boron	NELAP	0.0250	S	**7.03**	mg/L	5	12/06/2022 18:37	200649
Cadmium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 20:51	200649
Calcium	NELAP	0.125	S	**110**	mg/L	5	12/07/2022 18:52	200649
Chromium	NELAP	0.0015		**< 0.0015**	mg/L	5	12/05/2022 20:51	200649
Cobalt	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 20:51	200649
Lead	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 18:52	200649
Lithium	*	0.0030		**0.0365**	mg/L	5	12/06/2022 18:37	200649
Molybdenum	NELAP	0.0015	S	**0.211**	mg/L	5	12/06/2022 18:37	200649
Nickel	NELAP	0.0010		**0.0024**	mg/L	5	12/07/2022 18:52	200649
Selenium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 20:51	200649
Thallium	NELAP	0.0020		**< 0.0020**	mg/L	5	12/07/2022 18:52	200649
Sample result(s) for Ba exceed 10 times the method blank contamination. Data is reportable per the TNI Standard.								
Sample result for Ca exceeds 10 times the CCB. Data is reportable per the TNI Standard.								
Matrix spike control limits for Ca are not applicable due to high sample/spike ratio.								
Matrix spike did not recover within control limits for Mo and B due to matrix interference.								
SW-846 3005A, 6020A, METALS BY ICPMS (TOTAL)								
Antimony	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 16:06	200654
Arsenic	NELAP	0.0010		**0.0023**	mg/L	5	12/05/2022 14:11	200654
Barium	NELAP	0.0010		**0.136**	mg/L	5	12/05/2022 14:11	200654
Beryllium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 14:11	200654
Boron	NELAP	0.0250		**7.97**	mg/L	5	12/07/2022 16:06	200654
Cadmium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 14:11	200654
Calcium	NELAP	0.125		**118**	mg/L	5	12/07/2022 16:06	200654
Chromium	NELAP	0.0015		**0.0016**	mg/L	5	12/05/2022 14:11	200654
Cobalt	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 14:11	200654
Lead	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 16:06	200654
Lithium	*	0.0030		**0.0371**	mg/L	5	12/06/2022 15:51	200654
Molybdenum	NELAP	0.0015		**0.226**	mg/L	5	12/05/2022 14:11	200654
Nickel	NELAP	0.0010		**0.0029**	mg/L	5	12/07/2022 16:06	200654
Selenium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 14:11	200654
Thallium	NELAP	0.0020		**< 0.0020**	mg/L	5	12/07/2022 16:06	200654

Client: ERM **Work Order:** 22120033

Client Project: GTEC **Report Date:** 10-Jan-23

Lab ID: 22120033-013 **Client Sample ID:** DUP-01-WG-20221128

Matrix: GROUNDWATER **Collection Date:** 11/28/2022 0:01

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 3005A, 6020A, METALS BY ICPMS (TOTAL)								
CCV recovered outside the upper control limits for Be. Sample results are below the reporting limit. Data is reportable per the TNI standard.								
SW-846 7470A (TOTAL)								
Mercury	NELAP	0.00020		**< 0.00020**	mg/L	1	12/05/2022 15:15	200646
EPA 903.0/904.0, RADIUM 226/228								
Radium-226	*	0		**See Attached**	pci/L	1	12/28/2022 0:00	R323269
Radium-228	*	0		**See Attached**	pci/L	1	12/28/2022 0:00	R323269

Client: ERM **Work Order:** 22120033

Client Project: GTEC **Report Date:** 10-Jan-23

Lab ID: 22120033-014 **Client Sample ID:** DUP-02-WG-20221129

Matrix: GROUNDWATER **Collection Date:** 11/29/2022 0:02

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
STANDARD METHODS 2540 C (TOTAL) 1997, 2011								
Total Dissolved Solids	NELAP	50		**855**	mg/L	2.5	12/05/2022 10:49	R322022
SW-846 9036 (TOTAL)								
Sulfate	NELAP	100		**438**	mg/L	10	12/07/2022 14:02	R322090
SW-846 9040B, LABORATORY ANALYZED								
Lab pH	NELAP	1.00		**7.02**		1	12/02/2022 11:36	R321809
SW-846 9214 (TOTAL)								
Fluoride	NELAP	0.10		**0.26**	mg/L	1	12/02/2022 9:21	R321834
SW-846 9251 (TOTAL)								
Chloride	NELAP	4		**9**	mg/L	1	12/07/2022 13:57	R322091
SW-846 3005A, 6020A, METALS BY ICPMS (DISSOLVED)								
Antimony	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 18:27	200649
Arsenic	NELAP	0.0010		**0.0187**	mg/L	5	12/05/2022 20:20	200649
Barium	NELAP	0.0010	B	**0.148**	mg/L	5	12/07/2022 18:27	200649
Beryllium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 18:27	200649
Boron	NELAP	0.0250		**6.63**	mg/L	5	12/06/2022 18:12	200649
Cadmium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 20:20	200649
Calcium	NELAP	0.125		**129**	mg/L	5	12/07/2022 18:27	200649
Chromium	NELAP	0.0015		**< 0.0015**	mg/L	5	12/05/2022 20:20	200649
Cobalt	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 20:20	200649
Lead	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 18:27	200649
Lithium	*	0.0030		**0.0356**	mg/L	5	12/06/2022 18:12	200649
Molybdenum	NELAP	0.0015		**0.145**	mg/L	5	12/05/2022 20:20	200649
Nickel	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 18:27	200649
Selenium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 20:20	200649
Thallium	NELAP	0.0020		**< 0.0020**	mg/L	5	12/07/2022 18:27	200649
Sample result(s) for Ba exceed 10 times the method blank contamination. Data is reportable per the TNI Standard.								
Sample result for Ca exceeds 10 times the CCB. Data is reportable per the TNI Standard.								
SW-846 3005A, 6020A, METALS BY ICPMS (TOTAL)								
Antimony	NELAP	0.0010		**< 0.0010**	mg/L	5	12/07/2022 16:38	200654
Arsenic	NELAP	0.0010		**0.0173**	mg/L	5	12/05/2022 14:17	200654
Barium	NELAP	0.0010		**0.218**	mg/L	5	12/05/2022 14:17	200654
Beryllium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 14:17	200654
Boron	NELAP	0.0250		**7.69**	mg/L	5	12/07/2022 16:38	200654
Cadmium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 14:17	200654
Calcium	NELAP	0.125		**149**	mg/L	5	12/07/2022 16:38	200654
Chromium	NELAP	0.0015		**0.0054**	mg/L	5	12/05/2022 14:17	200654
Cobalt	NELAP	0.0010		**0.0011**	mg/L	5	12/06/2022 16:23	200654
Lead	NELAP	0.0010		**0.0034**	mg/L	5	12/07/2022 16:38	200654
Lithium	*	0.0030		**0.0411**	mg/L	5	12/06/2022 16:23	200654
Molybdenum	NELAP	0.0015		**0.119**	mg/L	5	12/05/2022 14:17	200654
Nickel	NELAP	0.0010		**0.0047**	mg/L	5	12/07/2022 16:38	200654
Selenium	NELAP	0.0010		**< 0.0010**	mg/L	5	12/05/2022 14:17	200654
Thallium	NELAP	0.0020		**< 0.0020**	mg/L	5	12/07/2022 16:38	200654
CCV recovered outside the upper control limits for Be. Sample results are below the reporting limit. Data is reportable per the TNI standard.								
SW-846 7470A (TOTAL)								
Mercury	NELAP	0.00020		**< 0.00020**	mg/L	1	12/05/2022 15:18	200646

Client: ERM
Work Order: 22120033
Client Project: GTEC
Report Date: 10-Jan-23
Lab ID: 22120033-014
Client Sample ID: DUP-02-WG-20221129
Matrix: GROUNDWATER
Collection Date: 11/29/2022 0:02

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 903.0/904.0, RADIUM 226/228								
Radium-226	*	0		**See Attached**	pci/L	1	12/28/2022 0:00	R323269
Radium-228	*	0		**See Attached**	pci/L	1	12/28/2022 0:00	R323269

Client: ERM
Client Project: GTEC

Work Order: 22120033
Report Date: 10-Jan-23

Lab Sample ID	Client Sample ID	Matrix	Fractions	Collection Date
22120033-001	APW-06D-WG-20221128	Groundwater	4	11/28/2022 10:30
22120033-002	APW-06S-WG-20221128	Groundwater	4	11/28/2022 11:55
22120033-003	APW-05-WG-20221128	Groundwater	4	11/28/2022 13:25
22120033-004	APW-04-WG-20221128	Groundwater	4	11/28/2022 15:10
22120033-005	APW-02-WG-20221129	Groundwater	4	11/29/2022 9:15
22120033-006	APW-10S-WG-20221129	Groundwater	4	11/29/2022 13:30
22120033-007	APW-10D-WG-20221129	Groundwater	4	11/29/2022 15:10
22120033-008	APW-01R-WG-20221130	Groundwater	4	11/30/2022 9:35
22120033-009	APW-09-WG-20221130	Groundwater	4	11/30/2022 11:10
22120033-010	APW-07-WG-20221130	Groundwater	4	11/30/2022 13:10
22120033-011	APW-03-WG-20221130	Groundwater	4	11/30/2022 15:10
22120033-012	APW-08-WG-20221130	Groundwater	4	11/30/2022 16:30
22120033-013	DUP-01-WG-20221128	Groundwater	4	11/28/2022 0:01
22120033-014	DUP-02-WG-20221129	Groundwater	4	11/29/2022 0:02

Client: ERM **Work Order:** 22120033

Client Project: GTEC **Report Date:** 10-Jan-23

Sample ID	Client Sample ID	Collection Date	Received Date		
	Test Name			Prep Date/Time	Analysis Date/Time
22120033-001A	APW-06D-WG-20221128	11/28/2022 10:30	12/01/2022 11:10		
	Standard Methods 2540 C (Total) 1997, 2011				12/05/2022 9:10
	SW-846 9036 (Total)				12/08/2022 10:49
	SW-846 9040B, Laboratory Analyzed				12/02/2022 11:07
	SW-846 9214 (Total)				12/02/2022 8:41
	SW-846 9251 (Total)				12/07/2022 11:01
22120033-001B	APW-06D-WG-20221128	11/28/2022 10:30	12/01/2022 11:10		
	EPA 903.0/904.0, Radium 226/228				12/28/2022 0:00
22120033-001C	APW-06D-WG-20221128	11/28/2022 10:30	12/01/2022 11:10		
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/01/2022 15:52	12/02/2022 19:20
	SW-846 7470A (Total)			12/02/2022 11:49	12/05/2022 14:30
22120033-001D	APW-06D-WG-20221128	11/28/2022 10:30	12/01/2022 11:10		
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/05/2022 18:39
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/06/2022 16:29
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/07/2022 16:44
22120033-002A	APW-06S-WG-20221128	11/28/2022 11:55	12/01/2022 11:10		
	Standard Methods 2540 C (Total) 1997, 2011				12/05/2022 9:10
	SW-846 9036 (Total)				12/07/2022 11:28
	SW-846 9040B, Laboratory Analyzed				12/02/2022 11:08
	SW-846 9214 (Total)				12/02/2022 8:43
	SW-846 9251 (Total)				12/07/2022 11:22
22120033-002B	APW-06S-WG-20221128	11/28/2022 11:55	12/01/2022 11:10		
	EPA 903.0/904.0, Radium 226/228				12/28/2022 0:00
22120033-002C	APW-06S-WG-20221128	11/28/2022 11:55	12/01/2022 11:10		
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/02/2022 13:14	12/05/2022 12:07
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/02/2022 13:14	12/06/2022 13:43
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/02/2022 13:14	12/07/2022 13:58
	SW-846 7470A (Total)			12/02/2022 11:49	12/05/2022 14:32
22120033-002D	APW-06S-WG-20221128	11/28/2022 11:55	12/01/2022 11:10		
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/05/2022 18:45
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/06/2022 16:36
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/07/2022 16:51
22120033-003A	APW-05-WG-20221128	11/28/2022 13:25	12/01/2022 11:10		
	Standard Methods 2540 C (Total) 1997, 2011				12/05/2022 9:10
	SW-846 9036 (Total)				12/07/2022 11:49
	SW-846 9040B, Laboratory Analyzed				12/02/2022 11:10

Client: ERM **Work Order:** 22120033

Client Project: GTEC **Report Date:** 10-Jan-23

Sample ID	Client Sample ID	Collection Date	Received Date		
	Test Name			**Prep Date/Time**	**Analysis Date/Time**
	SW-846 9214 (Total)				12/02/2022 8:45
	SW-846 9251 (Total)				12/07/2022 11:30
22120033-003B	APW-05-WG-20221128	11/28/2022 13:25	12/01/2022 11:10		
	EPA 903.0/904.0, Radium 226/228				12/28/2022 0:00
22120033-003C	APW-05-WG-20221128	11/28/2022 13:25	12/01/2022 11:10		
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/02/2022 13:14	12/05/2022 12:13
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/02/2022 13:14	12/06/2022 13:49
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/02/2022 13:14	12/07/2022 14:04
	SW-846 7470A (Total)			12/02/2022 11:49	12/05/2022 14:35
22120033-003D	APW-05-WG-20221128	11/28/2022 13:25	12/01/2022 11:10		
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/05/2022 18:52
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/06/2022 16:42
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/07/2022 16:57
22120033-004A	APW-04-WG-20221128	11/28/2022 15:10	12/01/2022 11:10		
	Standard Methods 2540 C (Total) 1997, 2011				12/05/2022 9:11
	SW-846 9036 (Total)				12/08/2022 11:01
	SW-846 9040B, Laboratory Analyzed				12/02/2022 11:12
	SW-846 9214 (Total)				12/02/2022 8:47
	SW-846 9251 (Total)				12/07/2022 11:52
22120033-004B	APW-04-WG-20221128	11/28/2022 15:10	12/01/2022 11:10		
	EPA 903.0/904.0, Radium 226/228				12/28/2022 0:00
22120033-004C	APW-04-WG-20221128	11/28/2022 15:10	12/01/2022 11:10		
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/02/2022 13:14	12/05/2022 12:19
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/02/2022 13:14	12/06/2022 13:55
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/02/2022 13:14	12/07/2022 14:11
	SW-846 7470A (Total)			12/02/2022 11:49	12/05/2022 14:46
22120033-004D	APW-04-WG-20221128	11/28/2022 15:10	12/01/2022 11:10		
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/05/2022 18:58
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/06/2022 16:48
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/07/2022 17:03
22120033-005A	APW-02-WG-20221129	11/29/2022 9:15	12/01/2022 11:10		
	Standard Methods 2540 C (Total) 1997, 2011				12/05/2022 9:33
	SW-846 9036 (Total)				12/07/2022 12:05
	SW-846 9040B, Laboratory Analyzed				12/02/2022 11:14
	SW-846 9214 (Total)				12/02/2022 8:57
	SW-846 9251 (Total)				12/07/2022 12:00

Client: ERM **Work Order:** 22120033

Client Project: GTEC **Report Date:** 10-Jan-23

Sample ID	Client Sample ID	Collection Date	Received Date		
	Test Name			**Prep Date/Time**	**Analysis Date/Time**
22120033-005B	APW-02-WG-20221129	11/29/2022 9:15	12/01/2022 11:10		
	EPA 903.0/904.0, Radium 226/228				12/28/2022 0:00
22120033-005C	APW-02-WG-20221129	11/29/2022 9:15	12/01/2022 11:10		
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/02/2022 13:14	12/05/2022 12:50
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/02/2022 13:14	12/06/2022 14:02
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/02/2022 13:14	12/07/2022 14:17
	SW-846 7470A (Total)			12/02/2022 11:49	12/05/2022 14:48
22120033-005D	APW-02-WG-20221129	11/29/2022 9:15	12/01/2022 11:10		
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/05/2022 19:04
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/06/2022 16:55
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/07/2022 17:10
22120033-006A	APW-10S-WG-20221129	11/29/2022 13:30	12/01/2022 11:10		
	Standard Methods 2540 C (Total) 1997, 2011				12/05/2022 9:33
	SW-846 9036 (Total)				12/07/2022 12:08
	SW-846 9040B, Laboratory Analyzed				12/02/2022 11:15
	SW-846 9214 (Total)				12/02/2022 8:59
	SW-846 9251 (Total)				12/07/2022 12:08
22120033-006B	APW-10S-WG-20221129	11/29/2022 13:30	12/01/2022 11:10		
	EPA 903.0/904.0, Radium 226/228				12/28/2022 0:00
22120033-006C	APW-10S-WG-20221129	11/29/2022 13:30	12/01/2022 11:10		
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/02/2022 13:14	12/05/2022 12:25
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/02/2022 13:14	12/06/2022 15:06
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/02/2022 13:14	12/07/2022 15:21
	SW-846 7470A (Total)			12/02/2022 11:49	12/05/2022 14:51
22120033-006D	APW-10S-WG-20221129	11/29/2022 13:30	12/01/2022 11:10		
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/05/2022 19:36
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/06/2022 17:01
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/07/2022 17:16
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/14/2022 17:55	12/15/2022 23:28
22120033-007A	APW-10D-WG-20221129	11/29/2022 15:10	12/01/2022 11:10		
	Standard Methods 2540 C (Total) 1997, 2011				12/05/2022 9:33
	SW-846 9036 (Total)				12/07/2022 12:16
	SW-846 9040B, Laboratory Analyzed				12/02/2022 11:17
	SW-846 9214 (Total)				12/02/2022 9:02
	SW-846 9251 (Total)				12/07/2022 12:16
22120033-007B	APW-10D-WG-20221129	11/29/2022 15:10	12/01/2022 11:10		

Client: ERM **Work Order:** 22120033

Client Project: GTEC **Report Date:** 10-Jan-23

Sample ID	Client Sample ID	Collection Date	Received Date		
	Test Name			Prep Date/Time	Analysis Date/Time
	EPA 903.0/904.0, Radium 226/228				12/28/2022 0:00
22120033-007C	APW-10D-WG-20221129	11/29/2022 15:10	12/01/2022 11:10		
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/02/2022 13:14	12/05/2022 12:32
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/02/2022 13:14	12/06/2022 15:12
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/02/2022 13:14	12/07/2022 15:27
	SW-846 7470A (Total)			12/02/2022 11:49	12/05/2022 14:53
22120033-007D	APW-10D-WG-20221129	11/29/2022 15:10	12/01/2022 11:10		
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/05/2022 19:42
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/06/2022 17:08
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/07/2022 17:23
22120033-008A	APW-01R-WG-20221130	11/30/2022 9:35	12/01/2022 11:10		
	Standard Methods 2540 C (Total) 1997, 2011				12/05/2022 9:34
	SW-846 9036 (Total)				12/08/2022 11:05
	SW-846 9040B, Laboratory Analyzed				12/02/2022 11:24
	SW-846 9214 (Total)				12/02/2022 9:04
	SW-846 9251 (Total)				12/07/2022 12:23
22120033-008B	APW-01R-WG-20221130	11/30/2022 9:35	12/01/2022 11:10		
	EPA 903.0/904.0, Radium 226/228				12/28/2022 0:00
22120033-008C	APW-01R-WG-20221130	11/30/2022 9:35	12/01/2022 11:10		
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/02/2022 13:14	12/05/2022 12:38
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/02/2022 13:14	12/06/2022 15:19
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/02/2022 13:14	12/07/2022 15:34
	SW-846 7470A (Total)			12/02/2022 11:49	12/05/2022 15:00
22120033-008D	APW-01R-WG-20221130	11/30/2022 9:35	12/01/2022 11:10		
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/05/2022 19:48
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/06/2022 17:14
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/07/2022 17:29
22120033-009A	APW-09-WG-20221130	11/30/2022 11:10	12/01/2022 11:10		
	Standard Methods 2540 C (Total) 1997, 2011				12/05/2022 9:34
	SW-846 9036 (Total)				12/07/2022 12:45
	SW-846 9040B, Laboratory Analyzed				12/02/2022 11:26
	SW-846 9214 (Total)				12/02/2022 9:06
	SW-846 9251 (Total)				12/07/2022 12:45
22120033-009B	APW-09-WG-20221130	11/30/2022 11:10	12/01/2022 11:10		
	EPA 903.0/904.0, Radium 226/228				12/28/2022 0:00
22120033-009C	APW-09-WG-20221130	11/30/2022 11:10	12/01/2022 11:10		

Client: ERM **Work Order:** 22120033

Client Project: GTEC **Report Date:** 10-Jan-23

Sample ID	Client Sample ID	Collection Date	Received Date		
	Test Name			**Prep Date/Time**	**Analysis Date/Time**
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/02/2022 13:14	12/05/2022 12:44
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/02/2022 13:14	12/06/2022 15:25
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/02/2022 13:14	12/07/2022 15:40
	SW-846 7470A (Total)			12/02/2022 11:49	12/05/2022 15:02
22120033-009D	APW-09-WG-20221130	11/30/2022 11:10	12/01/2022 11:10		
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/05/2022 19:55
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/06/2022 17:20
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/07/2022 17:35
22120033-010A	APW-07-WG-20221130	11/30/2022 13:10	12/01/2022 11:10		
	Standard Methods 2540 C (Total) 1997, 2011				12/05/2022 9:34
	SW-846 9036 (Total)				12/07/2022 12:53
	SW-846 9040B, Laboratory Analyzed				12/02/2022 11:28
	SW-846 9214 (Total)				12/02/2022 9:07
	SW-846 9251 (Total)				12/07/2022 12:53
22120033-010B	APW-07-WG-20221130	11/30/2022 13:10	12/01/2022 11:10		
	EPA 903.0/904.0, Radium 226/228				12/28/2022 0:00
22120033-010C	APW-07-WG-20221130	11/30/2022 13:10	12/01/2022 11:10		
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/02/2022 13:14	12/05/2022 13:52
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/02/2022 13:14	12/06/2022 15:32
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/02/2022 13:14	12/07/2022 15:47
	SW-846 7470A (Total)			12/02/2022 11:49	12/05/2022 15:09
22120033-010D	APW-07-WG-20221130	11/30/2022 13:10	12/01/2022 11:10		
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/05/2022 20:01
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/06/2022 17:53
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/07/2022 18:08
22120033-011A	APW-03-WG-20221130	11/30/2022 15:10	12/01/2022 11:10		
	Standard Methods 2540 C (Total) 1997, 2011				12/05/2022 9:34
	SW-846 9036 (Total)				12/07/2022 13:14
	SW-846 9040B, Laboratory Analyzed				12/02/2022 11:30
	SW-846 9214 (Total)				12/02/2022 9:09
	SW-846 9251 (Total)				12/07/2022 13:04
22120033-011B	APW-03-WG-20221130	11/30/2022 15:10	12/01/2022 11:10		
	EPA 903.0/904.0, Radium 226/228				12/28/2022 0:00
22120033-011C	APW-03-WG-20221130	11/30/2022 15:10	12/01/2022 11:10		
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/02/2022 13:14	12/05/2022 13:58
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/02/2022 13:14	12/06/2022 15:38
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/02/2022 13:14	12/07/2022 15:53

Client: ERM **Work Order:** 22120033

Client Project: GTEC **Report Date:** 10-Jan-23

Sample ID	Client Sample ID	Collection Date	Received Date		
	Test Name			**Prep Date/Time**	**Analysis Date/Time**
	SW-846 7470A (Total)			12/02/2022 11:49	12/05/2022 15:11
22120033-011D	APW-03-WG-20221130	11/30/2022 15:10	12/01/2022 11:10		
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/05/2022 20:07
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/06/2022 17:59
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/07/2022 18:14
22120033-012A	APW-08-WG-20221130	11/30/2022 16:30	12/01/2022 11:10		
	Standard Methods 2540 C (Total) 1997, 2011				12/05/2022 10:49
	SW-846 9036 (Total)				12/07/2022 13:41
	SW-846 9040B, Laboratory Analyzed				12/02/2022 11:32
	SW-846 9214 (Total)				12/02/2022 9:11
	SW-846 9251 (Total)				12/07/2022 13:41
22120033-012B	APW-08-WG-20221130	11/30/2022 16:30	12/01/2022 11:10		
	EPA 903.0/904.0, Radium 226/228				12/28/2022 0:00
22120033-012C	APW-08-WG-20221130	11/30/2022 16:30	12/01/2022 11:10		
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/02/2022 13:14	12/05/2022 14:04
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/02/2022 13:14	12/06/2022 15:44
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/02/2022 13:14	12/07/2022 15:59
	SW-846 7470A (Total)			12/02/2022 11:49	12/05/2022 15:13
22120033-012D	APW-08-WG-20221130	11/30/2022 16:30	12/01/2022 11:10		
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/05/2022 20:13
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/06/2022 18:05
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/07/2022 18:20
22120033-013A	DUP-01-WG-20221128	11/28/2022 0:01	12/01/2022 11:10		
	Standard Methods 2540 C (Total) 1997, 2011				12/05/2022 10:49
	SW-846 9036 (Total)				12/07/2022 13:55
	SW-846 9040B, Laboratory Analyzed				12/02/2022 11:34
	SW-846 9214 (Total)				12/02/2022 9:20
	SW-846 9251 (Total)				12/07/2022 13:49
22120033-013B	DUP-01-WG-20221128	11/28/2022 0:01	12/01/2022 11:10		
	EPA 903.0/904.0, Radium 226/228				12/28/2022 0:00
22120033-013C	DUP-01-WG-20221128	11/28/2022 0:01	12/01/2022 11:10		
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/02/2022 13:14	12/05/2022 14:11
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/02/2022 13:14	12/06/2022 15:51
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/02/2022 13:14	12/07/2022 16:06
	SW-846 7470A (Total)			12/02/2022 11:49	12/05/2022 15:15
22120033-013D	DUP-01-WG-20221128	11/28/2022 0:01	12/01/2022 11:10		

Client: ERM **Work Order:** 22120033

Client Project: GTEC **Report Date:** 10-Jan-23

Sample ID	Client Sample ID	Collection Date	Received Date		
	Test Name			**Prep Date/Time**	**Analysis Date/Time**
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/05/2022 20:51
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/06/2022 18:37
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/07/2022 18:52
22120033-014A	DUP-02-WG-20221129	11/29/2022 0:02	12/01/2022 11:10		
	Standard Methods 2540 C (Total) 1997, 2011				12/05/2022 10:49
	SW-846 9036 (Total)				12/07/2022 14:02
	SW-846 9040B, Laboratory Analyzed				12/02/2022 11:36
	SW-846 9214 (Total)				12/02/2022 9:21
	SW-846 9251 (Total)				12/07/2022 13:57
22120033-014B	DUP-02-WG-20221129	11/29/2022 0:02	12/01/2022 11:10		
	EPA 903.0/904.0, Radium 226/228				12/28/2022 0:00
22120033-014C	DUP-02-WG-20221129	11/29/2022 0:02	12/01/2022 11:10		
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/02/2022 13:14	12/05/2022 14:17
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/02/2022 13:14	12/06/2022 16:23
	SW-846 3005A, 6020A, Metals by ICPMS (Total)			12/02/2022 13:14	12/07/2022 16:38
	SW-846 7470A (Total)			12/02/2022 11:49	12/05/2022 15:18
22120033-014D	DUP-02-WG-20221129	11/29/2022 0:02	12/01/2022 11:10		
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/05/2022 20:20
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/06/2022 18:12
	SW-846 3005A, 6020A, Metals by ICPMS (Dissolved)			12/02/2022 12:05	12/07/2022 18:27

Client: ERM **Work Order:** 22120033

Client Project: GTEC **Report Date:** 10-Jan-23

STANDARD METHODS 2540 C (TOTAL) 1997, 2011

Batch R322022 **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	12/05/2022
Total Dissolved Solids		20		**< 20**	16.00	0	0	-100	100	12/05/2022
Total Dissolved Solids		20		**< 20**	16.00	0	0	-100	100	12/05/2022

Batch R322022 **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		**980**	1000	0	98.0	90	110	12/05/2022
Total Dissolved Solids		20		**966**	1000	0	96.6	90	110	12/05/2022
Total Dissolved Solids		20		**974**	1000	0	97.4	90	110	12/05/2022

Batch R322022 **SampType:** DUP Units **mg/L** RPD Limit: **5**

SampID: 22120033-004ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Total Dissolved Solids		20		**436**				446.0	2.27	12/05/2022

Batch R322022 **SampType:** DUP Units **mg/L** RPD Limit: **5**

SampID: 22120033-007ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Total Dissolved Solids		20		**462**				460.0	0.43	12/05/2022

SW-846 9036 (TOTAL)

Batch R322090 **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	12/07/2022

Batch R322090 **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		**20**	20.00	0	99.0	90	110	12/07/2022

Batch R322090 **SampType:** MS Units **mg/L**

SampID: 22120033-011AMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate		100		**401**	200.0	225.5	87.8	85	115	12/07/2022

Client: ERM **Work Order:** 22120033

Client Project: GTEC **Report Date:** 10-Jan-23

SW-846 9036 (TOTAL)

Batch R322090 **SampType:** MSD Units **mg/L** RPD Limit: **10**

SampID: 22120033-011AMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Sulfate		100		**397**	200.0	225.5	85.6	401.1	1.09	12/07/2022

Batch R322146 **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	12/08/2022

Batch R322146 **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		**19**	20.00	0	93.6	90	110	12/08/2022

Batch R322146 **SampType:** MS Units **mg/L**

SampID: 22120033-001AMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate		200		**603**	400.0	253.7	87.2	85	115	12/08/2022

Batch R322146 **SampType:** MSD Units **mg/L** RPD Limit: **10**

SampID: 22120033-001AMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Sulfate		200		**623**	400.0	253.7	92.4	602.6	3.35	12/08/2022

SW-846 9040B, LABORATORY ANALYZED

Batch R321809 **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		**7.00**	7.000	0	100.0	99.1	100.8	12/01/2022

Batch R321809 **SampType:** DUP Units RPD Limit: **10**

SampID: 22120033-001ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00		**7.20**				7.210	0.14	12/02/2022

Client: ERM **Work Order:** 22120033

Client Project: GTEC **Report Date:** 10-Jan-23

SW-846 9040B, LABORATORY ANALYZED

Batch R321809 **SampType:** DUP Units RPD Limit: **10**

SampID: 22120033-002ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00		**7.04**				7.040	0.00	12/02/2022

Batch R321809 **SampType:** DUP Units RPD Limit: **10**

SampID: 22120033-003ADUP

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	12/02/2022

Batch R321809 **SampType:** DUP Units RPD Limit: **10**

SampID: 22120033-004ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00		**7.35**				7.340	0.14	12/02/2022

Batch R321809 **SampType:** DUP Units RPD Limit: **10**

SampID: 22120033-005ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00		**7.01**				7.010	0.00	12/02/2022

Batch R321809 **SampType:** DUP Units RPD Limit: **10**

SampID: 22120033-006ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00		**6.97**				6.950	0.29	12/02/2022

Batch R321809 **SampType:** DUP Units RPD Limit: **10**

SampID: 22120033-007ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00		**7.04**				7.040	0.00	12/02/2022

Batch R321809 **SampType:** DUP Units RPD Limit: **10**

SampID: 22120033-008ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00		**6.38**				6.430	0.78	12/02/2022

Batch R321809 **SampType:** DUP Units RPD Limit: **10**

SampID: 22120033-009ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00		**7.34**				7.320	0.27	12/02/2022

Client: ERM **Work Order:** 22120033

Client Project: GTEC **Report Date:** 10-Jan-23

SW-846 9040B, LABORATORY ANALYZED

Batch R321809 **SampType:** DUP Units RPD Limit: **10**

SampID: 22120033-010ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00		**6.79**				6.780	0.15	12/02/2022

Batch R321809 **SampType:** DUP Units RPD Limit: **10**

SampID: 22120033-011ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00		**7.21**				7.210	0.00	12/02/2022

Batch R321809 **SampType:** DUP Units RPD Limit: **10**

SampID: 22120033-012ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00		**7.28**				7.250	0.41	12/02/2022

Batch R321809 **SampType:** DUP Units RPD Limit: **10**

SampID: 22120033-013ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00		**7.29**				7.270	0.27	12/02/2022

Batch R321809 **SampType:** DUP Units RPD Limit: **10**

SampID: 22120033-014ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00		**7.03**				7.020	0.14	12/02/2022

SW-846 9214 (TOTAL)

Batch R321834 **SampType:** MBLK Units **mg/L**

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	12/02/2022

Batch R321834 **SampType:** LCS Units **mg/L**

SampID: LCS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Fluoride		0.10		**1.02**	1.000	0	102.4	90	110	12/02/2022

Client: ERM **Work Order:** 22120033

Client Project: GTEC **Report Date:** 10-Jan-23

SW-846 9214 (TOTAL)

Batch R321834 **SampType:** MS Units **mg/L**
SampID: 22120033-004AMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Fluoride		0.10		**2.33**	2.000	0.1660	108.4	75	125	12/02/2022

Batch R321834 **SampType:** MSD Units **mg/L** RPD Limit: **15**
SampID: 22120033-004AMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Fluoride		0.10		**2.37**	2.000	0.1660	110.1	2.334	1.45	12/02/2022

Batch R321834 **SampType:** MS Units **mg/L**
SampID: 22120033-012AMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Fluoride		0.10		**2.41**	2.000	0.2840	106.3	75	125	12/02/2022

Batch R321834 **SampType:** MSD Units **mg/L** RPD Limit: **15**
SampID: 22120033-012AMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Fluoride		0.10		**2.45**	2.000	0.2840	108.4	2.410	1.69	12/02/2022

Batch R321834 **SampType:** MS Units **mg/L**
SampID: 22120033-014AMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Fluoride		0.10		**2.47**	2.000	0.2560	110.9	75	125	12/02/2022

Batch R321834 **SampType:** MSD Units **mg/L** RPD Limit: **15**
SampID: 22120033-014AMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Fluoride		0.10		**2.43**	2.000	0.2560	108.5	2.474	1.96	12/02/2022

SW-846 9251 (TOTAL)

Batch R322091 **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	12/07/2022

Client: ERM **Work Order:** 22120033

Client Project: GTEC **Report Date:** 10-Jan-23

SW-846 9251 (TOTAL)

Batch R322091 **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		**20**	20.00	0	100.6	90	110	12/07/2022

Batch R322091 **SampType:** MS Units **mg/L**
SampID: 22120033-001AMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride		4		**36**	20.00	17.10	92.0	85	115	12/07/2022

Batch R322091 **SampType:** MSD Units **mg/L** RPD Limit: **15**
SampID: 22120033-001AMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Chloride		4		**35**	20.00	17.10	91.2	35.50	0.48	12/07/2022

Batch R322091 **SampType:** MS Units **mg/L**
SampID: 22120033-011AMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride		4		**38**	20.00	20.49	89.8	85	115	12/07/2022

Batch R322091 **SampType:** MSD Units **mg/L** RPD Limit: **15**
SampID: 22120033-011AMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Chloride		4		**39**	20.00	20.49	93.8	38.45	2.08	12/07/2022

Batch R322148 **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	12/08/2022

Batch R322148 **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		**19**	20.00	0	96.7	90	110	12/08/2022

Client: ERM **Work Order:** 22120033

Client Project: GTEC **Report Date:** 10-Jan-23

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

Batch 200649 **SampType:** MBLK Units **mg/L**

SampID: MBLK-200649

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	12/07/2022
Arsenic		0.0010		**< 0.0010**	0.0004	0	0	-100	100	12/05/2022
Barium		0.0010	S	**0.0016**	0.0007	0	226.5	-100	100	12/07/2022
Beryllium		0.0010		**< 0.0010**	0.0002	0	0	-100	100	12/05/2022
Boron		0.0250		**< 0.0250**	0.0170	0	0	-100	100	12/05/2022
Cadmium		0.0010		**< 0.0010**	0.0001	0	0	-100	100	12/05/2022
Calcium		0.125		**< 0.125**	0.0700	0	0	-100	100	12/08/2022
Chromium		0.0015		**< 0.0015**	0.0007	0	0	-100	100	12/05/2022
Cobalt		0.0010		**< 0.0010**	0.0001	0	0	-100	100	12/05/2022
Lead		0.0010		**< 0.0010**	0.0006	0	0	-100	100	12/07/2022
Lithium	*	0.0030		**< 0.0030**	0.0015	0	0	-100	100	12/06/2022
Molybdenum		0.0015		**< 0.0015**	0.0006	0	0	-100	100	12/05/2022
Nickel		0.0010		**< 0.0010**	0.0004	0	0	-100	100	12/07/2022
Selenium		0.0010		**< 0.0010**	0.0006	0	0	-100	100	12/05/2022
Thallium		0.0020		**< 0.0020**	0.0010	0	0	-100	100	12/07/2022

Batch 200649 **SampType:** LCS Units **mg/L**

SampID: LCS-200649

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Antimony		0.0010		**0.459**	0.5000	0	91.9	80	120	12/07/2022
Arsenic		0.0010		**0.463**	0.5000	0	92.6	80	120	12/05/2022
Barium		0.0010	B	**1.90**	2.000	0	94.8	80	120	12/07/2022
Beryllium		0.0010		**0.0453**	0.0500	0	90.6	80	120	12/07/2022
Boron		0.0250		**0.478**	0.5000	0	95.7	80	120	12/07/2022
Cadmium		0.0010		**0.0441**	0.0500	0	88.3	80	120	12/05/2022
Calcium		0.125		**2.89**	2.500	0	115.6	80	120	12/07/2022
Chromium		0.0015		**0.185**	0.2000	0	92.7	80	120	12/05/2022
Cobalt		0.0010		**0.469**	0.5000	0	93.9	80	120	12/05/2022
Lead		0.0010		**0.441**	0.5000	0	88.3	80	120	12/07/2022
Lithium	*	0.0030		**0.473**	0.5000	0	94.5	80	120	12/06/2022
Molybdenum		0.0015		**0.438**	0.5000	0	87.6	80	120	12/05/2022
Nickel		0.0010		**0.472**	0.5000	0	94.3	80	120	12/07/2022
Selenium		0.0010		**0.414**	0.5000	0	82.7	80	120	12/05/2022
Thallium		0.0020		**0.222**	0.2500	0	88.8	80	120	12/07/2022

Client: ERM **Work Order:** 22120033

Client Project: GTEC **Report Date:** 10-Jan-23

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

Batch 200649 **SampType:** MS Units **mg/L**

SampID: 22120033-013DMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Antimony		0.0010		**0.423**	0.5000	0	84.6	75	125	12/07/2022
Arsenic		0.0010		**0.450**	0.5000	0.001852	89.5	75	125	12/06/2022
Barium		0.0010	B	**1.89**	2.000	0.1303	87.8	75	125	12/07/2022
Beryllium		0.0010		**0.0430**	0.0500	0	86.1	75	125	12/07/2022
Boron		0.0250	S	**7.26**	0.5000	7.030	45.1	75	125	12/06/2022
Cadmium		0.0010		**0.0578**	0.0500	0	115.6	75	125	12/05/2022
Calcium		0.125	S	**105**	2.500	110.3	-197.5	75	125	12/07/2022
Chromium		0.0015		**0.234**	0.2000	0	117.1	75	125	12/05/2022
Cobalt		0.0010		**0.582**	0.5000	0.0006793	116.3	75	125	12/05/2022
Lead		0.0010		**0.452**	0.5000	0	90.5	75	125	12/07/2022
Lithium	*	0.0030		**0.504**	0.5000	0.03648	93.4	75	125	12/06/2022
Molybdenum		0.0015		**0.586**	0.5000	0.2107	75.0	75	125	12/06/2022
Nickel		0.0010		**0.431**	0.5000	0.002386	85.7	75	125	12/07/2022
Selenium		0.0010		**0.554**	0.5000	0	110.9	75	125	12/05/2022
Thallium		0.0020		**0.224**	0.2500	0	89.5	75	125	12/07/2022

Batch 200649 **SampType:** MSD Units **mg/L** RPD Limit: **20**

SampID: 22120033-013DMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Antimony		0.0010		**0.412**	0.5000	0	82.4	0.4230	2.59	12/07/2022
Arsenic		0.0010		**0.426**	0.5000	0.001852	84.8	0.4496	5.46	12/06/2022
Barium		0.0010	B	**1.82**	2.000	0.1303	84.5	1.885	3.52	12/07/2022
Beryllium		0.0010		**0.0423**	0.0500	0	84.6	0.04303	1.78	12/07/2022
Boron		0.0250	S	**6.83**	0.5000	7.030	-40.4	7.255	6.07	12/06/2022
Cadmium		0.0010		**0.0619**	0.0500	0	123.8	0.05782	6.84	12/05/2022
Calcium		0.125	S	**99.9**	2.500	110.3	-414.6	105.4	5.29	12/07/2022
Chromium		0.0015		**0.247**	0.2000	0	123.4	0.2341	5.30	12/05/2022
Cobalt		0.0010		**0.625**	0.5000	0.0006793	124.9	0.5820	7.18	12/05/2022
Lead		0.0010		**0.428**	0.5000	0	85.5	0.4524	5.64	12/07/2022
Lithium	*	0.0030		**0.475**	0.5000	0.03648	87.7	0.5035	5.85	12/06/2022
Molybdenum		0.0015	S	**0.555**	0.5000	0.2107	68.9	0.5859	5.37	12/06/2022
Nickel		0.0010		**0.425**	0.5000	0.002386	84.4	0.4307	1.46	12/07/2022
Selenium		0.0010		**0.604**	0.5000	0	120.7	0.5544	8.52	12/05/2022
Thallium		0.0020		**0.211**	0.2500	0	84.6	0.2238	5.69	12/07/2022

Client: ERM **Work Order:** 22120033

Client Project: GTEC **Report Date:** 10-Jan-23

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

Batch 201045 **SampType:** MBLK Units **mg/L**
SampID: MBLK-201045

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Boron		0.0250		**< 0.0250**	0.0093	0	0	-100	100	12/19/2022
Lead		0.0010		**< 0.0010**	0.0006	0	0	-100	100	12/19/2022
Molybdenum		0.0015		**< 0.0015**	0.0006	0	0	-100	100	12/15/2022
Nickel		0.0010		**< 0.0010**	0.0004	0	0	-100	100	12/15/2022

Batch 201045 **SampType:** LCS Units **mg/L**
SampID: LCS-201045

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Boron		0.0250		**0.474**	0.5000	0	94.9	85	115	12/19/2022
Lead		0.0010		**0.467**	0.5000	0	93.3	85	115	12/19/2022
Molybdenum		0.0015		**0.550**	0.5000	0	109.9	85	115	12/15/2022
Nickel		0.0010		**0.515**	0.5000	0	103.1	85	115	12/19/2022

Batch 201045 **SampType:** MS Units **mg/L**
SampID: 22120033-007DMSDUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Boron		0.0250		**0.964**	1.000	0.06992	89.4	75	125	12/16/2022

Batch 201045 **SampType:** DUP Units **mg/L** RPD Limit: **20**
SampID: 22120033-001DDUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Molybdenum		0.0015		**0.0673**				0.07362	9.00	12/15/2022

Batch 201045 **SampType:** DUP Units **mg/L** RPD Limit: **20**
SampID: 22120033-004DDUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Boron		0.0250		**0.668**				0.6461	3.37	12/16/2022

Batch 201045 **SampType:** DUP Units **mg/L** RPD Limit: **20**
SampID: 22120033-006DDUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Boron		0.0250		**0.531**				0.6016	12.42	12/16/2022

Client: ERM **Work Order:** 22120033

Client Project: GTEC **Report Date:** 10-Jan-23

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

Batch 201045 **SampType:** DUP Units **mg/L** RPD Limit: **20**

SampID: 22120033-007DDUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Boron		0.0250		**0.0699**				0.08467	19.09	12/16/2022

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

Batch 200623 **SampType:** MBLK Units **mg/L**

SampID: MBLK-200623

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	12/02/2022
Arsenic		0.0010		**< 0.0010**	0.0004	0	0	-100	100	12/02/2022
Barium		0.0010		**< 0.0010**	0.0007	0	0	-100	100	12/02/2022
Beryllium		0.0010		**< 0.0010**	0.0002	0	0	-100	100	12/02/2022
Boron		0.0250		**< 0.0250**	0.0093	0	0	-100	100	12/02/2022
Cadmium		0.0010		**< 0.0010**	0.0001	0	0	-100	100	12/02/2022
Calcium		0.125		**< 0.125**	0.0700	0	0	-100	100	12/02/2022
Chromium		0.0015		**< 0.0015**	0.0007	0	0	-100	100	12/02/2022
Cobalt		0.0010		**< 0.0010**	0.0001	0	0	-100	100	12/02/2022
Lead		0.0010		**< 0.0010**	0.0006	0	0	-100	100	12/02/2022
Lithium	*	0.0030		**< 0.0030**	0.0015	0	0	-100	100	12/02/2022
Molybdenum		0.0015		**< 0.0015**	0.0006	0	0	-100	100	12/02/2022
Nickel		0.0010		**< 0.0010**	0.0004	0	0	-100	100	12/02/2022
Selenium		0.0010		**< 0.0010**	0.0006	0	0	-100	100	12/02/2022
Thallium		0.0020		**< 0.0020**	0.0010	0	0	-100	100	12/02/2022

Client: ERM **Work Order:** 22120033

Client Project: GTEC **Report Date:** 10-Jan-23

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

Batch 200623 **SampType:** LCS Units **mg/L**

SampID: LCS-200623

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Antimony		0.0010		**0.506**	0.5000	0	101.1	80	120	12/02/2022
Arsenic		0.0010		**0.514**	0.5000	0	102.8	80	120	12/02/2022
Barium		0.0010		**1.98**	2.000	0	99.1	80	120	12/02/2022
Beryllium		0.0010		**0.0476**	0.0500	0	95.2	80	120	12/02/2022
Boron		0.0250		**0.480**	0.5000	0	96.0	80	120	12/02/2022
Cadmium		0.0010		**0.0495**	0.0500	0	99.0	80	120	12/02/2022
Calcium		0.125		**2.23**	2.500	0	89.1	80	120	12/02/2022
Chromium		0.0015		**0.201**	0.2000	0	100.3	80	120	12/02/2022
Cobalt		0.0010		**0.494**	0.5000	0	98.8	80	120	12/02/2022
Lead		0.0010		**0.493**	0.5000	0	98.5	80	120	12/02/2022
Lithium	*	0.0030		**0.501**	0.5000	0	100.2	80	120	12/02/2022
Molybdenum		0.0015		**0.494**	0.5000	0	98.7	80	120	12/02/2022
Nickel		0.0010		**0.503**	0.5000	0	100.5	80	120	12/02/2022
Selenium		0.0010		**0.461**	0.5000	0	92.3	80	120	12/02/2022
Thallium		0.0020		**0.242**	0.2500	0	97.0	80	120	12/02/2022

Batch 200654 **SampType:** MBLK Units **mg/L**

SampID: MBLK-200654

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	12/07/2022
Arsenic		0.0010		**< 0.0010**	0.0004	0	0	-100	100	12/05/2022
Barium		0.0010		**< 0.0010**	0.0007	0	0	-100	100	12/05/2022
Beryllium		0.0010		**< 0.0010**	0.0002	0	0	-100	100	12/05/2022
Boron		0.0250		**< 0.0250**	0.0093	0	0	-100	100	12/05/2022
Cadmium		0.0010		**< 0.0010**	0.0001	0	0	-100	100	12/05/2022
Calcium		0.125		**< 0.125**	0.0700	0	0	-100	100	12/07/2022
Calcium		0.125		**< 0.125**	0.0700	0	0	-100	100	12/05/2022
Chromium		0.0015		**< 0.0015**	0.0007	0	0	-100	100	12/05/2022
Cobalt		0.0010		**< 0.0010**	0.0001	0	0	-100	100	12/05/2022
Lead		0.0010		**< 0.0010**	0.0006	0	0	-100	100	12/07/2022
Lithium	*	0.0030		**< 0.0030**	0.0015	0	0	-100	100	12/05/2022
Molybdenum		0.0015		**< 0.0015**	0.0006	0	0	-100	100	12/05/2022
Nickel		0.0010		**< 0.0010**	0.0004	0	0	-100	100	12/07/2022
Selenium		0.0010		**< 0.0010**	0.0006	0	0	-100	100	12/05/2022
Thallium		0.0020		**< 0.0020**	0.0010	0	0	-100	100	12/07/2022

Client: ERM **Work Order:** 22120033

Client Project: GTEC **Report Date:** 10-Jan-23

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

Batch 200654 **SampType:** LCS Units **mg/L**

SampID: LCS-200654

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Antimony		0.0010		**0.568**	0.5000	0	113.6	80	120	12/07/2022
Arsenic		0.0010		**0.522**	0.5000	0	104.3	80	120	12/05/2022
Barium		0.0010		**1.98**	2.000	0	99.1	80	120	12/05/2022
Beryllium		0.0010		**0.0484**	0.0500	0	96.8	80	120	12/05/2022
Boron		0.0250		**0.493**	0.5000	0	98.5	80	120	12/05/2022
Cadmium		0.0010		**0.0494**	0.0500	0	98.7	80	120	12/05/2022
Calcium		0.125		**2.59**	2.500	0	103.7	80	120	12/07/2022
Chromium		0.0015		**0.203**	0.2000	0	101.3	80	120	12/05/2022
Cobalt		0.0010		**0.510**	0.5000	0	101.9	80	120	12/05/2022
Lead		0.0010		**0.540**	0.5000	0	108.0	80	120	12/07/2022
Lithium	*	0.0030		**0.539**	0.5000	0	107.8	80	120	12/05/2022
Molybdenum		0.0015		**0.497**	0.5000	0	99.5	80	120	12/05/2022
Nickel		0.0010		**0.548**	0.5000	0	109.5	80	120	12/07/2022
Selenium		0.0010		**0.477**	0.5000	0	95.5	80	120	12/05/2022
Thallium		0.0020		**0.261**	0.2500	0	104.6	80	120	12/07/2022

Batch 200654 **SampType:** MS Units **mg/L**

SampID: 22120033-005CMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Antimony		0.0010		**0.514**	0.5000	0	102.7	75	125	12/07/2022
Arsenic		0.0010		**0.642**	0.5000	0.02202	124.1	75	125	12/05/2022
Barium		0.0010		**2.52**	2.000	0.2543	113.2	75	125	12/05/2022
Beryllium		0.0010	S	**0.0631**	0.0500	0	126.3	75	125	12/05/2022
Boron		0.0250	S	**9.91**	0.5000	8.968	189.0	75	125	12/05/2022
Cadmium		0.0010		**0.0602**	0.0500	0.0003140	119.7	75	125	12/05/2022
Calcium		0.125	S	**152**	2.500	145.0	264.6	75	125	12/07/2022
Chromium		0.0015		**0.243**	0.2000	0.006431	118.5	75	125	12/05/2022
Cobalt		0.0010		**0.597**	0.5000	0.001496	119.1	75	125	12/05/2022
Lead		0.0010		**0.513**	0.5000	0.003286	102.0	75	125	12/07/2022
Lithium	*	0.0030		**0.540**	0.5000	0.03860	100.2	75	125	12/06/2022
Molybdenum		0.0015		**0.566**	0.5000	0.1280	87.7	75	125	12/06/2022
Nickel		0.0010		**0.497**	0.5000	0.004533	98.5	75	125	12/07/2022
Selenium		0.0010		**0.527**	0.5000	0	105.4	75	125	12/05/2022
Thallium		0.0020		**0.249**	0.2500	0	99.7	75	125	12/07/2022

Client: ERM **Work Order:** 22120033

Client Project: GTEC **Report Date:** 10-Jan-23

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

Batch 200654 **SampType:** MSD Units **mg/L** RPD Limit: **20**

SampID: 22120033-005CMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Antimony		0.0010		**0.519**	0.5000	0	103.8	0.5136	1.03	12/07/2022
Arsenic		0.0010		**0.595**	0.5000	0.02202	114.6	0.6424	7.64	12/05/2022
Barium		0.0010		**2.30**	2.000	0.2543	102.2	2.518	9.07	12/05/2022
Beryllium		0.0010		**0.0585**	0.0500	0	116.9	0.06314	7.70	12/05/2022
Boron		0.0250	S	**9.05**	0.5000	8.968	16.8	9.913	9.08	12/05/2022
Cadmium		0.0010		**0.0544**	0.0500	0.0003140	108.1	0.06018	10.12	12/05/2022
Calcium		0.125	S	**155**	2.500	145.0	390.8	151.7	2.06	12/07/2022
Chromium		0.0015		**0.223**	0.2000	0.006431	108.4	0.2435	8.65	12/05/2022
Cobalt		0.0010		**0.565**	0.5000	0.001496	112.6	0.5968	5.54	12/05/2022
Lead		0.0010		**0.516**	0.5000	0.003286	102.6	0.5131	0.66	12/07/2022
Lithium	*	0.0030		**0.539**	0.5000	0.03860	100.2	0.5398	0.07	12/06/2022
Molybdenum		0.0015		**0.577**	0.5000	0.1280	89.9	0.5664	1.91	12/06/2022
Nickel		0.0010		**0.498**	0.5000	0.004533	98.7	0.4968	0.28	12/07/2022
Selenium		0.0010		**0.488**	0.5000	0	97.6	0.5270	7.65	12/05/2022
Thallium		0.0020		**0.253**	0.2500	0	101.2	0.2492	1.50	12/07/2022

SW-846 7470A (TOTAL)

Batch 200646 **SampType:** MBLK Units **mg/L**

SampID: MBLK-200646

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury		0.00020		**< 0.00020**	0.0001	0	0	-100	100	12/05/2022

Batch 200646 **SampType:** LCS Units **mg/L**

SampID: LCS-200646

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury		0.00020		**0.00539**	0.0050	0	107.7	85	115	12/05/2022

Batch 200646 **SampType:** MS Units **mg/L**

SampID: 22120033-003CMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury		0.00020		**0.00518**	0.0050	0	103.6	75	125	12/05/2022

Batch 200646 **SampType:** MSD Units **mg/L** RPD Limit: **15**

SampID: 22120033-003CMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Mercury		0.00020		**0.00516**	0.0050	0	103.3	0.005182	0.34	12/05/2022

Client: ERM **Work Order:** 22120033

Client Project: GTEC **Report Date:** 10-Jan-23

SW-846 7470A (TOTAL)

Batch **200646** **SampType:** **MS** Units **mg/L**

SampID: 22120033-007CMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury		0.00020		**0.00516**	0.0050	0	103.1	75	125	12/05/2022

Batch **200646** **SampType:** **MSD** Units **mg/L** RPD Limit: **15**

SampID: 22120033-007CMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Mercury		0.00020		**0.00510**	0.0050	0	101.9	0.005157	1.21	12/05/2022

Receiving Check List

http://www.teklabinc.com/

Client: ERM
Client Project: GTEC

Work Order: 22120033
Report Date: 10-Jan-23

Carrier: Marshall Arendell

Received By: ANC

Completed by: Lindsey Maddox
On: 01-Dec-22

Reviewed by: Elizabeth A. Hurley
On: 01-Dec-22

Pages to follow: Chain of custody 2 Extra pages included 29

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	Temp °C 1.6
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 ☐	
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 ☑

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.

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

pH strip #83856. - lmaddox - 12/1/2022 4:11:53 PM

Additional preservative HNO3 (86511) was needed in APW-10S-WG-20221129 and APW-10D-WG-20221129 upon arrival at the laboratory. - lmaddox - 12/1/2022 4:12:06 PM

CHAIN OF CUSTODY

pg. 1 of 2 Work order # 22120033

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 1.6 °C LTG# 3

Preserved in: ☒ LAB ☐ FIELD

FOR LAB USE ONLY

Lab Notes pH: 838526 (80511) HNO3 added to -006B (1&2); -007B (2)

Client Comments:
Total and Dissolved: Sb As Ba Be B Cd Ca Cr Co Pb Li Mo Ni Se Tl

Field filtered for dissolved metals.

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

Project Name/Number
GTEC

Sample Collector's Name
clay Sansoucie
Marshall Arendell

Results Requested
☑ Standard ☐ 1-2 Day (100% Surcharge) ☐ Other ____ ☐ 3 Day (50% Surcharge)

Billing Instructions

Lab Use Only	Sample Identification	Date/Time Sampled	# and Type of Containers: UNPRES	HNO3	NaOH	H2SO4	HCL	MeOH	NaHSO4	OTHER	MATRIX: Aqueous	Drinking Water	Soil	Sludge	Special Waste	Groundwater	Chloride	Dissolved Metals	Fluoride	pH	Radium 226/228	Sulfate	TDS	Total Hg	Total Metals
22120033-001	APW-06D-WG-20221128	11/28/22; 1030	1	2		2										X	X	X	X	X	X	X	X	X	X
-002	APW-06S-WG-20221128	11/28/22; 1155	1	2		2										X	X	X	X	X	X	X	X	X	X
-003	APW-05-WG-20221128	11/28/22; 1325	1	2		2										X	X	X	X	X	X	X	X	X	X
-004	APW-04-WG-20221128	11/28/22; 1510	1	2		2										X	X	X	X	X	X	X	X	X	X
-005	APW-02-WG-20221129	11/29/22; 0915	1	2		2										X	X	X	X	X	X	X	X	X	X
-006	APW-10S-WG-20221129	11/29/22; 1330	1	2		2										X	X	X	X	X	X	X	X	X	X
-007	APW-10D-WG-20221129	11/29/22; 1510	1	2		2										X	X	X	X	X	X	X	X	X	X
-008	APW-01R-WG-20221130	11/30/22; 0935	1	2		2										X	X	X	X	X	X	X	X	X	X
-009	APW-09-WG-20221130	11/30/22; 1110	1	2		2										X	X	X	X	X	X	X	X	X	X
-010	APW-07-WG-20221130	11/30/22; 1310	1	2		2										X	X	X	X	X	X	X	X	X	X

Relinquished By	Date/Time	Received By	Date/Time
Marshall Arendell	12/1/22 1110	Allison Colin	12/1/22 11:10

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 for terms and conditions.

BottleOrder: 76547

CHAIN OF CUSTODY

pg. 2 of 2 Work order # 22120033

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 1.6 °C LTG# 3

Preserved In: ☑ LAB ☐ FIELD

FOR LAB USE ONLY

Lab Notes

Client Comments:
Total and Dissolved: Sb As Ba Be B Cd Ca Cr Co Pb Li Mo Ni Se Tl

Field filtered for dissolved metals.

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

Project Name/Number
GTEC

Sample Collector's Name
Clay Sangovic
Marshall Arendell

Results Requested
☑ Standard ☐ 1-2 Day (100% Surcharge)
☐ Other ____ ☐ 3 Day (50% Surcharge)

Billing Instructions

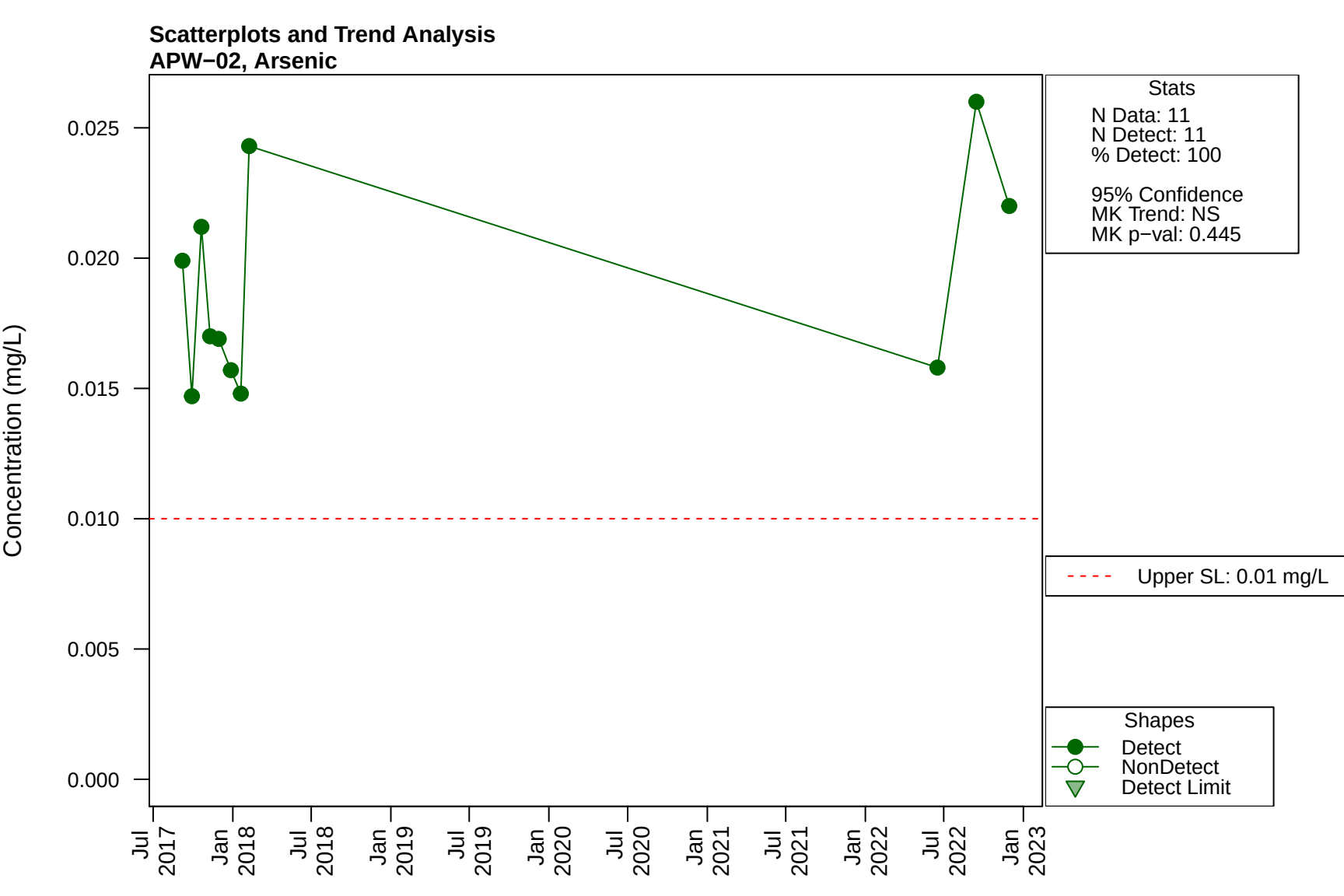
Lab Use Only	Sample Identification	Date/Time Sampled	# and Type of Containers: UNPRES	HNO3	NaOH	H2SO4	HCL	MeOH	NaHSO4	OTHER	MATRIX: Aqueous	Drinking Water	Soil	Sludge	Special Waste	Groundwater	Chloride	Dissolved Metals	Fluoride	pH	Radium 226/228	Sulfate	TDS	Total Hg	Total Metals
22120033-011	APW-03-W6-20221130	11/30/22, 1510	1	2		2										X	X	X	X	X	X	X	X	X	X
-012	APW-08-W6-20221130	11/30/22, 1630	1	2		2										X	X	X	X	X	X	X	X	X	X
-013	DUP-01-W6-20221128	11/28/22, 0001	1	2		2										X	X	X	X	X	X	X	X	X	X
-014	DUP-02-W6-20221129	11/29/22, 0002	1	2		2										X	X	X	X	X	X	X	X	X	X

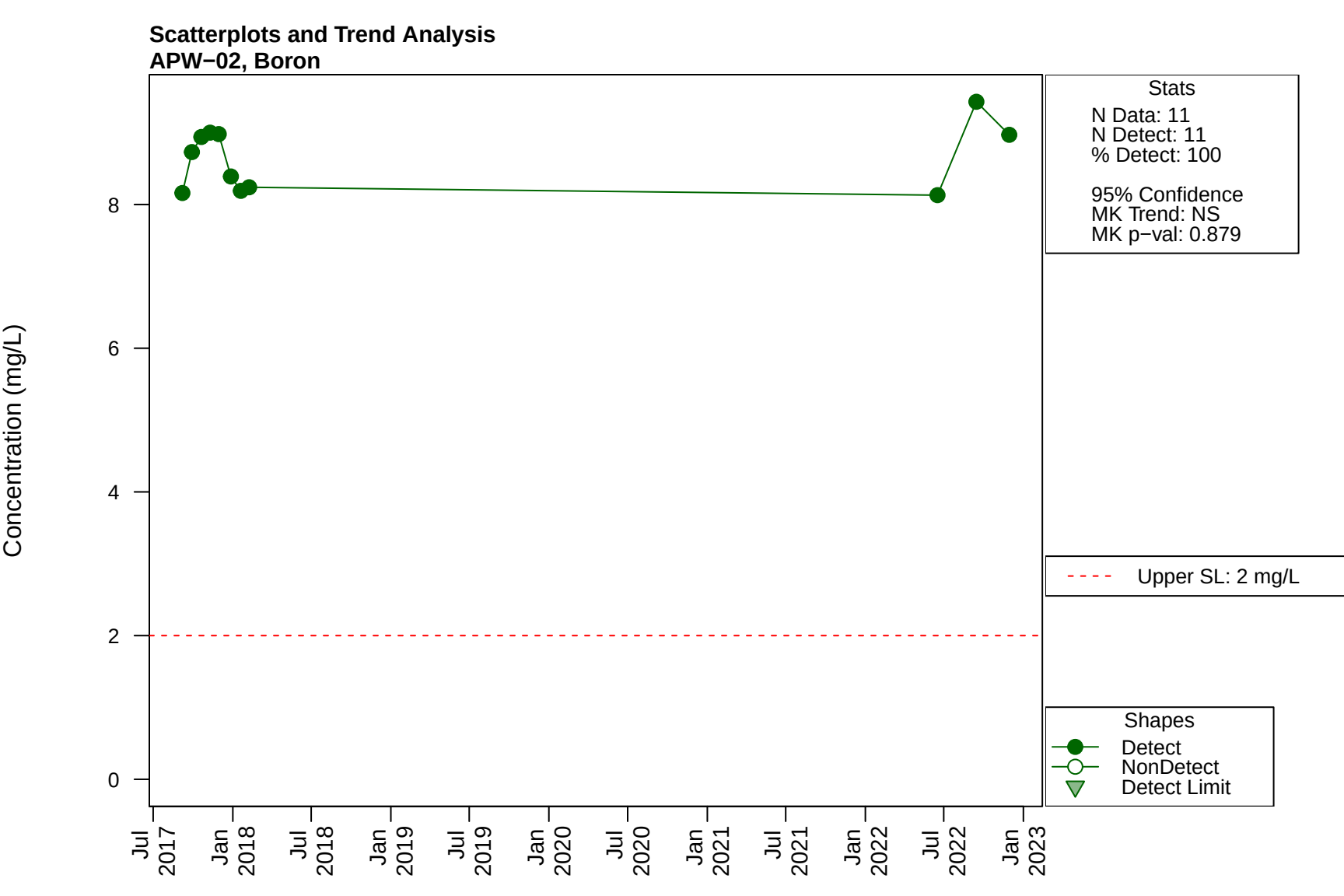
Relinquished By	Date/Time	Received By	Date/Time
Marshall Arendell	12/1/22 1110	Allison Colen	12/1/22 1110

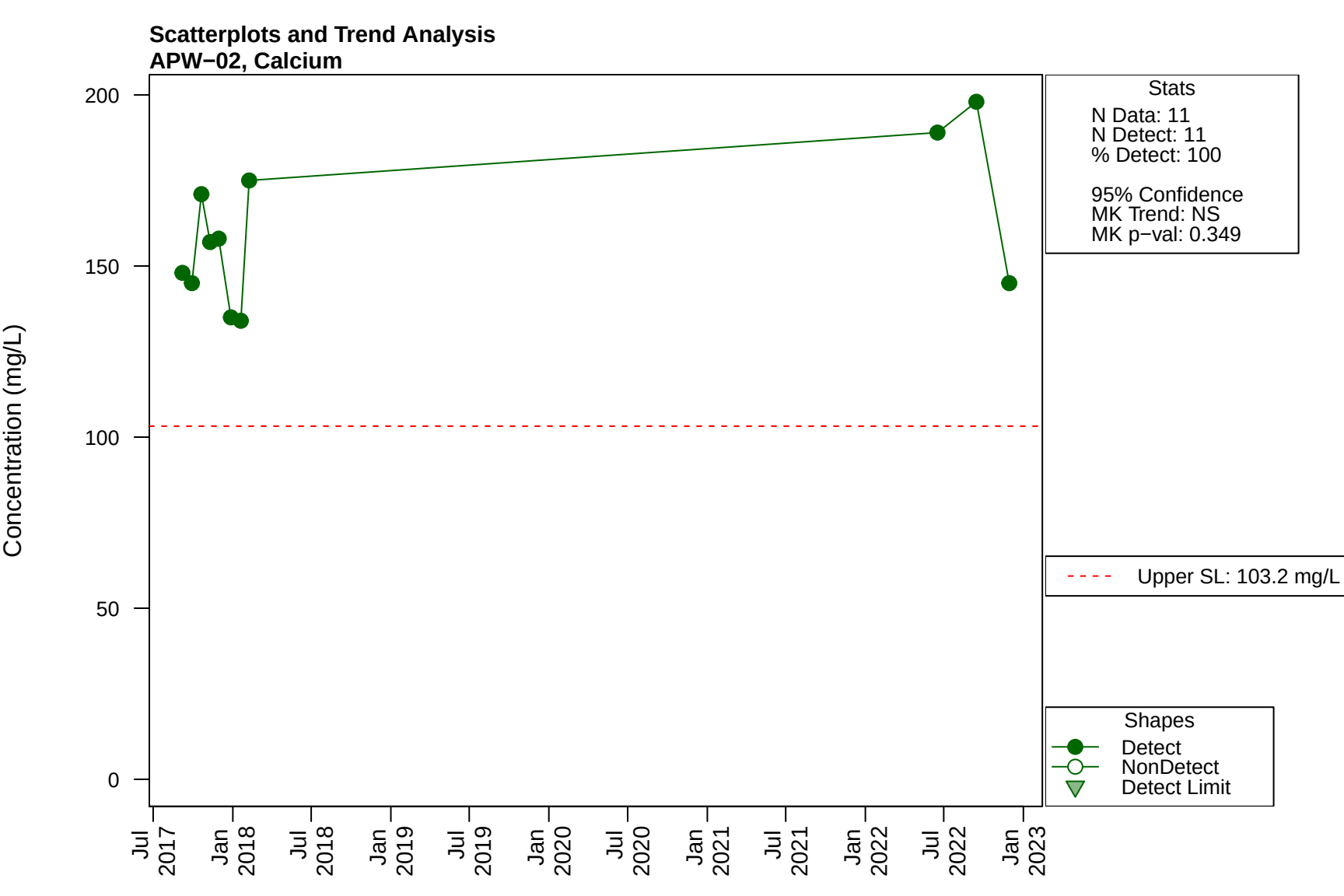
The individual signing this agreement on behalf of the client, acknowledges that he/she has read and understands the terms and conditions of this agreement, and that he/she has the authority to sign on behalf of the client. See www.teklabinc.com for terms and conditions.

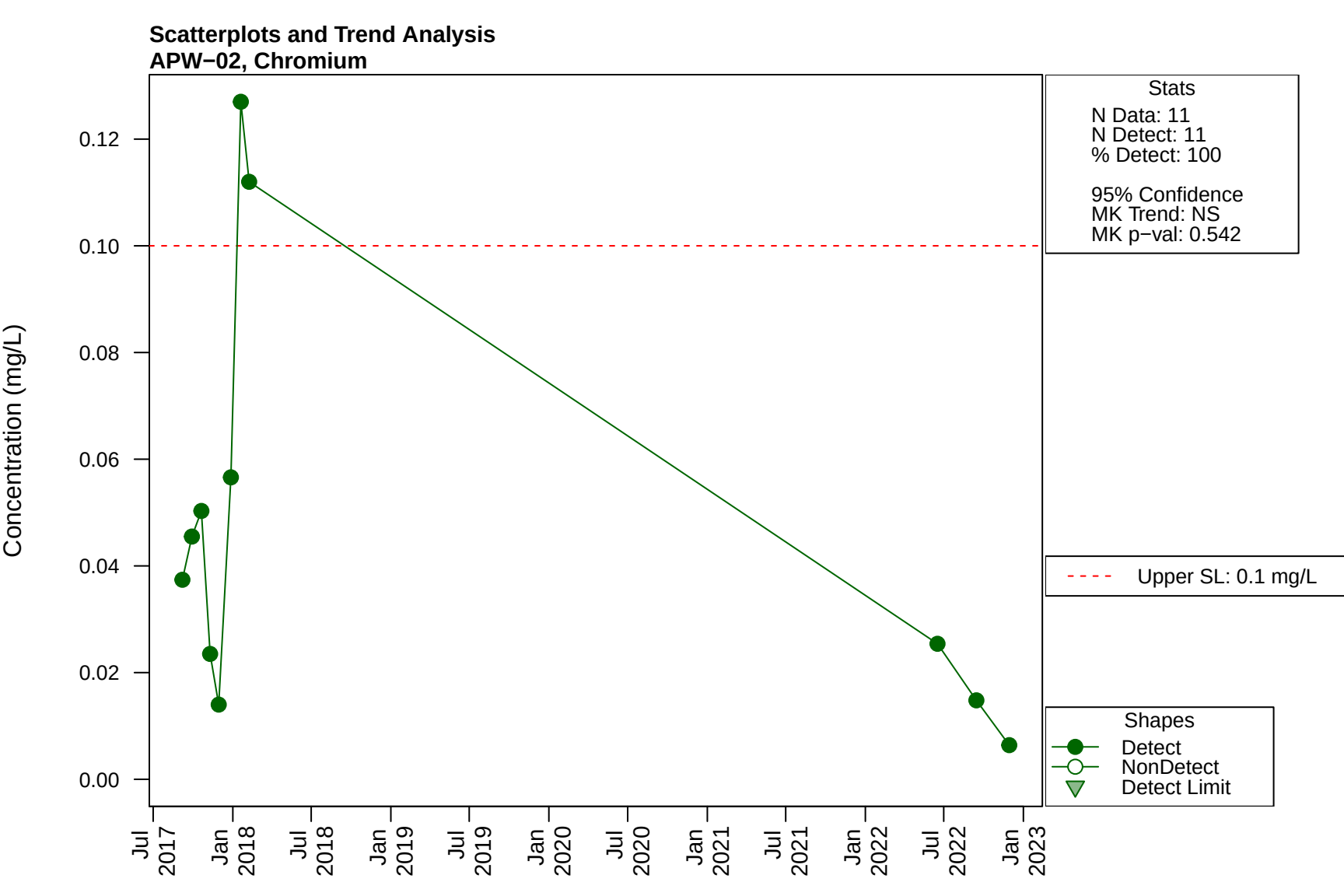
BottleOrder: 76547

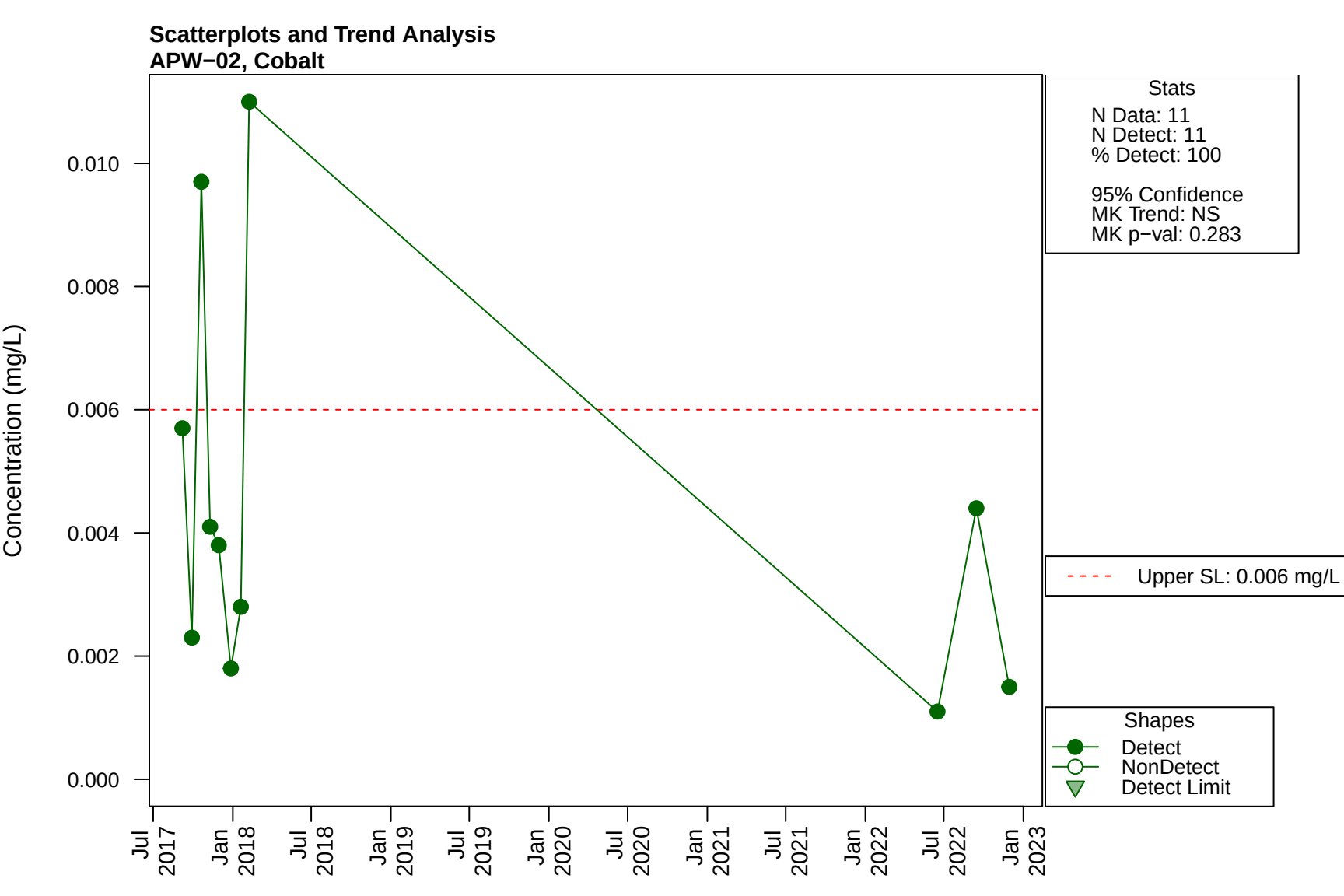
APPENDIX E MANN-KENDALL ANALYSIS GRAPHS

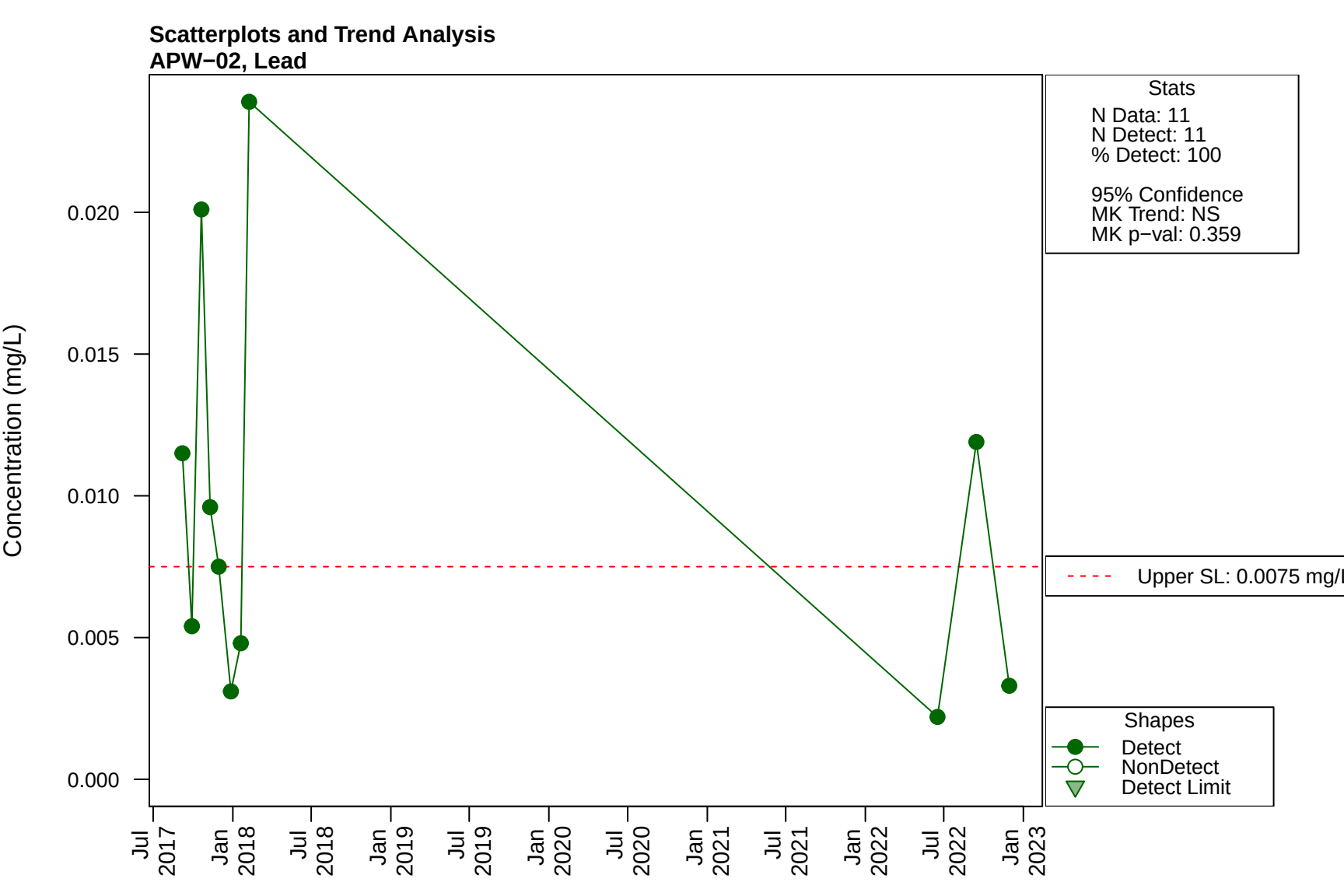

Scatterplots and Trend Analysis
APW−02, Arsenic
Concentration (mg/L)
0.025
0.020
0.015
0.010
0.005
0.000
Jul 2017
Jan 2018
Jul 2018
Jan 2019
Jul 2019
Jan 2020
Jul 2020
Jan 2021
Jul 2021
Jan 2022
Jul 2022
Jan 2023
Stats
N Data: 11
N Detect: 11
% Detect: 100
95% Confidence
MK Trend: NS
MK p−val: 0.445
Upper SL: 0.01 mg/L
Shapes
Detect
NonDetect
Detect Limit

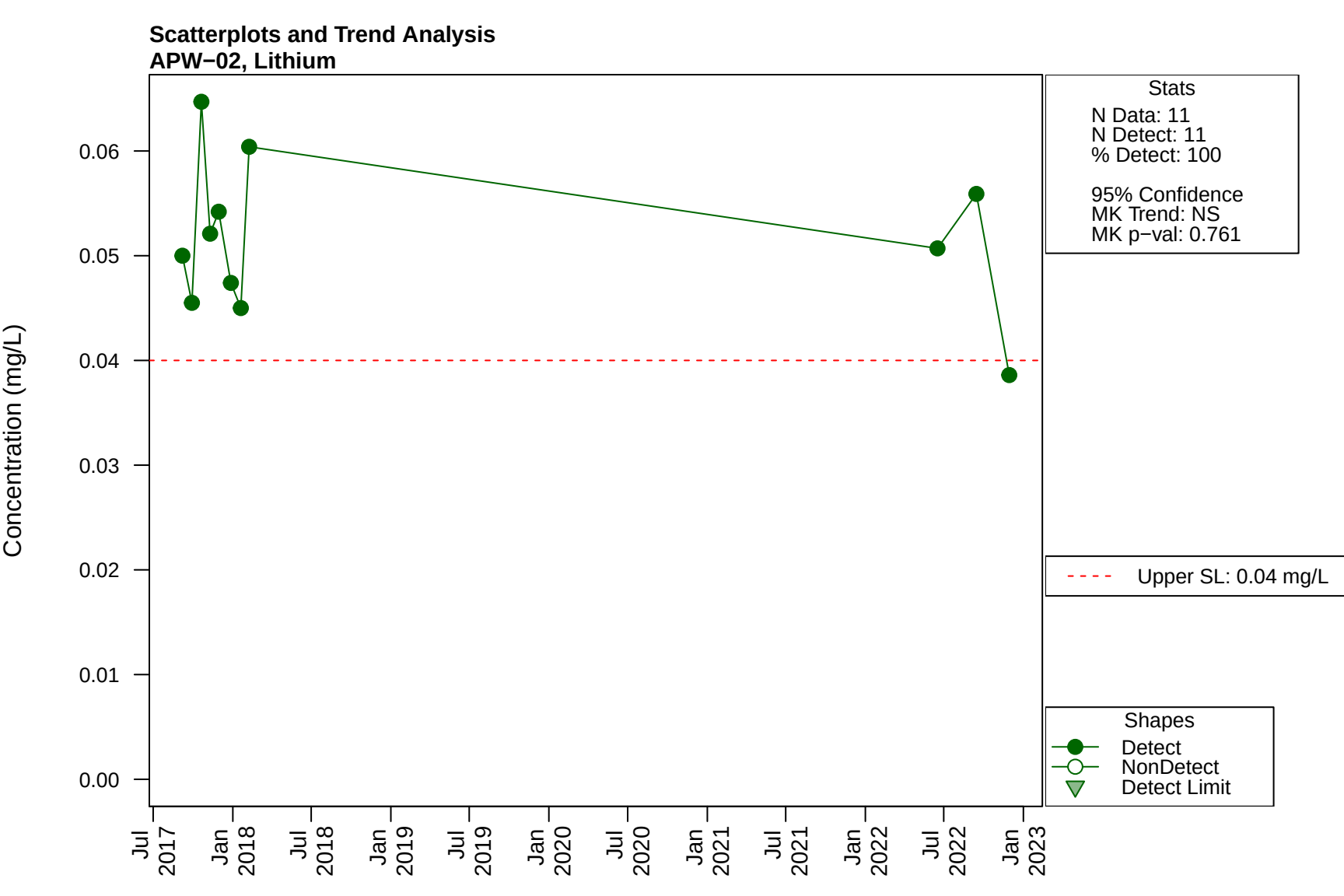

Scatterplots and Trend Analysis
APW−02, Boron
Concentration (mg/L)
0
2
4
6
8
Jul 2017
Jan 2018
Jul 2018
Jan 2019
Jul 2019
Jan 2020
Jul 2020
Jan 2021
Jul 2021
Jan 2022
Jul 2022
Jan 2023
Stats
N Data: 11
N Detect: 11
% Detect: 100
95% Confidence
MK Trend: NS
MK p−val: 0.879
Upper SL: 2 mg/L
Shapes
Detect
NonDetect
Detect Limit

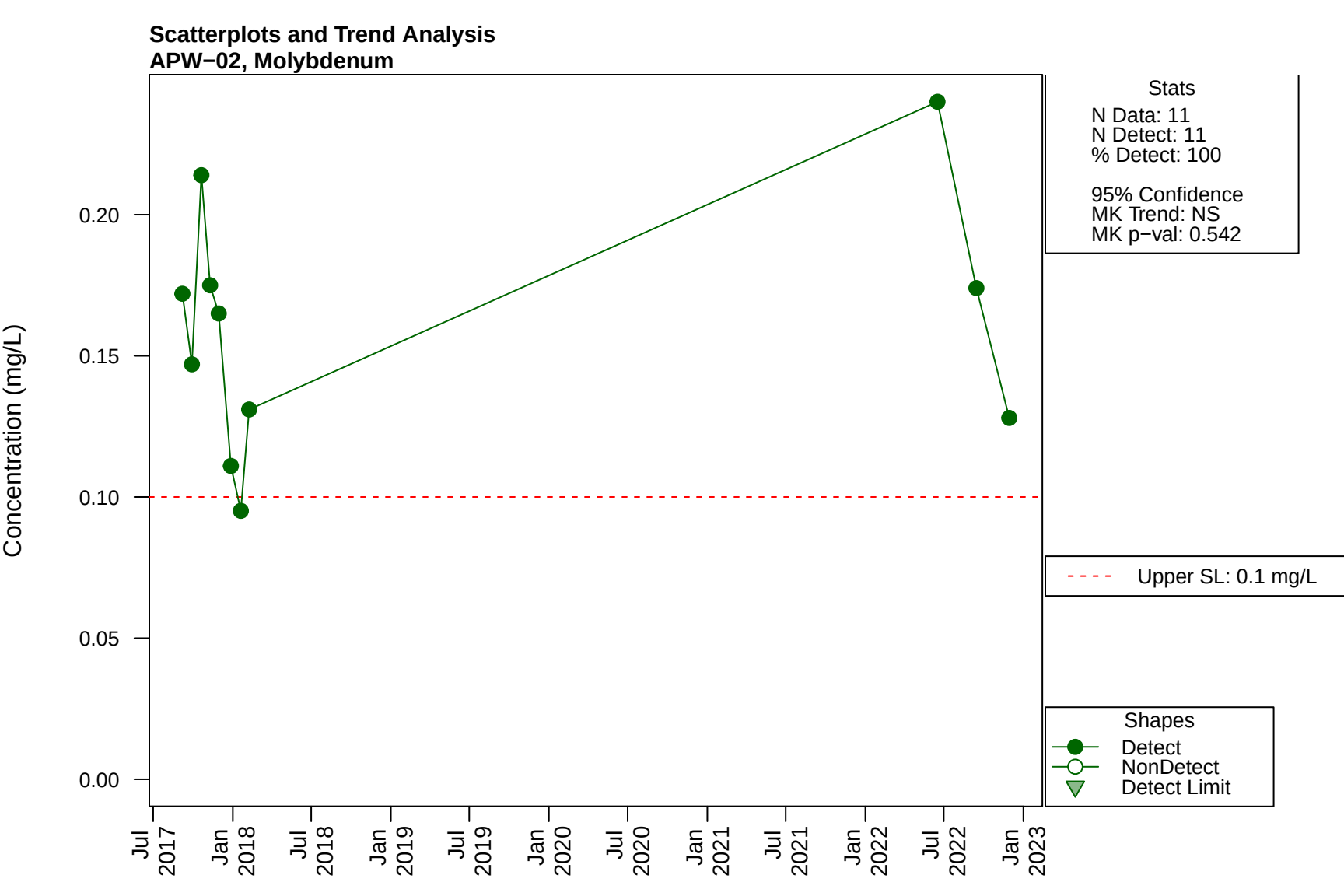

Scatterplots and Trend Analysis
APW−02, Calcium
Concentration (mg/L)
200
150
100
50
0
Jul 2017
Jan 2018
Jul 2018
Jan 2019
Jul 2019
Jan 2020
Jul 2020
Jan 2021
Jul 2021
Jan 2022
Jul 2022
Jan 2023
Stats
N Data: 11
N Detect: 11
% Detect: 100
95% Confidence
MK Trend: NS
MK p−val: 0.349
Upper SL: 103.2 mg/L
Shapes
Detect
NonDetect
Detect Limit

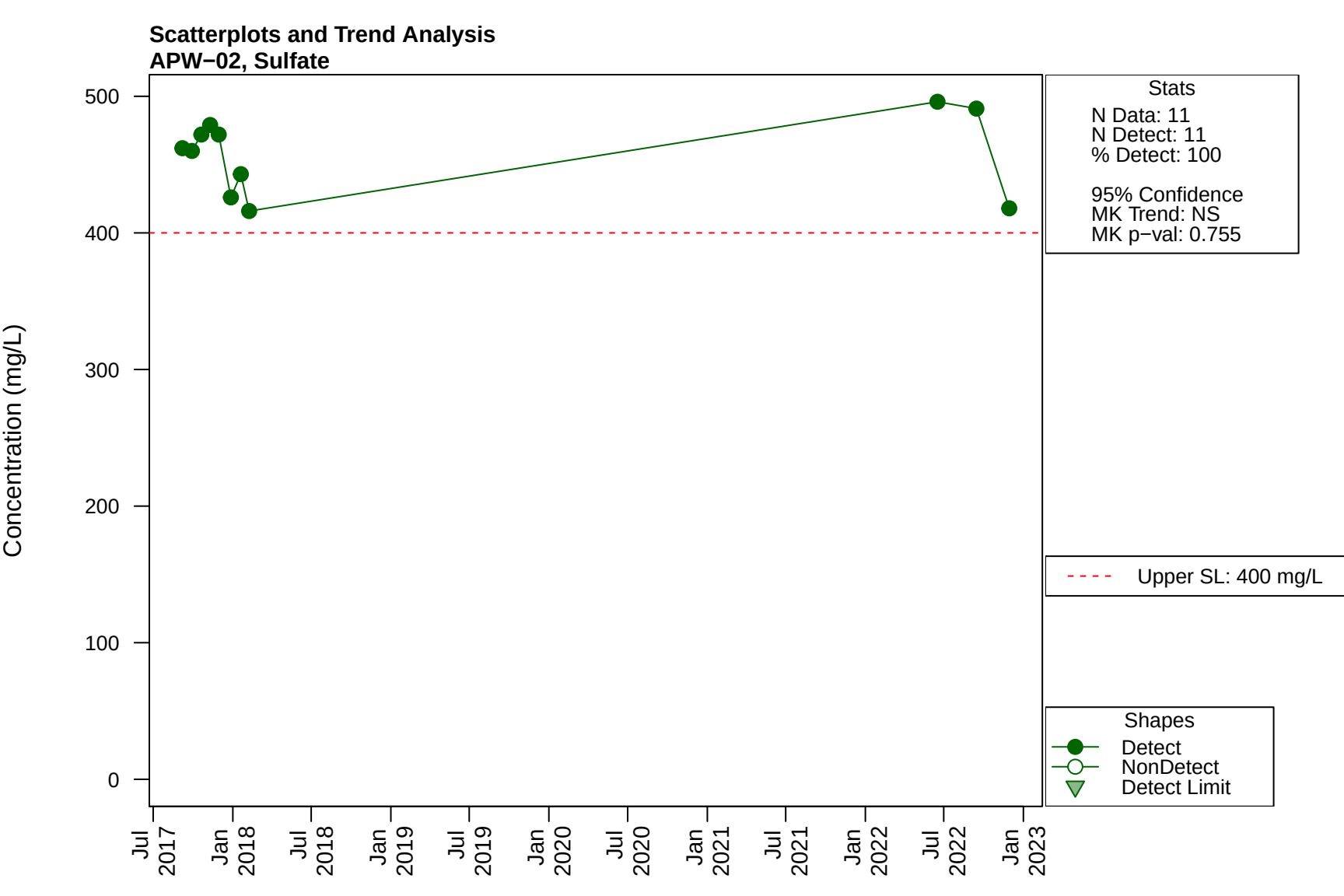

Scatterplots and Trend Analysis
APW−02, Chromium
Concentration (mg/L)
0.00
0.02
0.04
0.06
0.08
0.10
0.12
Jul 2017
Jan 2018
Jul 2018
Jan 2019
Jul 2019
Jan 2020
Jul 2020
Jan 2021
Jul 2021
Jan 2022
Jul 2022
Jan 2023
Stats
N Data: 11
N Detect: 11
% Detect: 100
95% Confidence
MK Trend: NS
MK p−val: 0.542
Upper SL: 0.1 mg/L
Shapes
Detect
NonDetect
Detect Limit

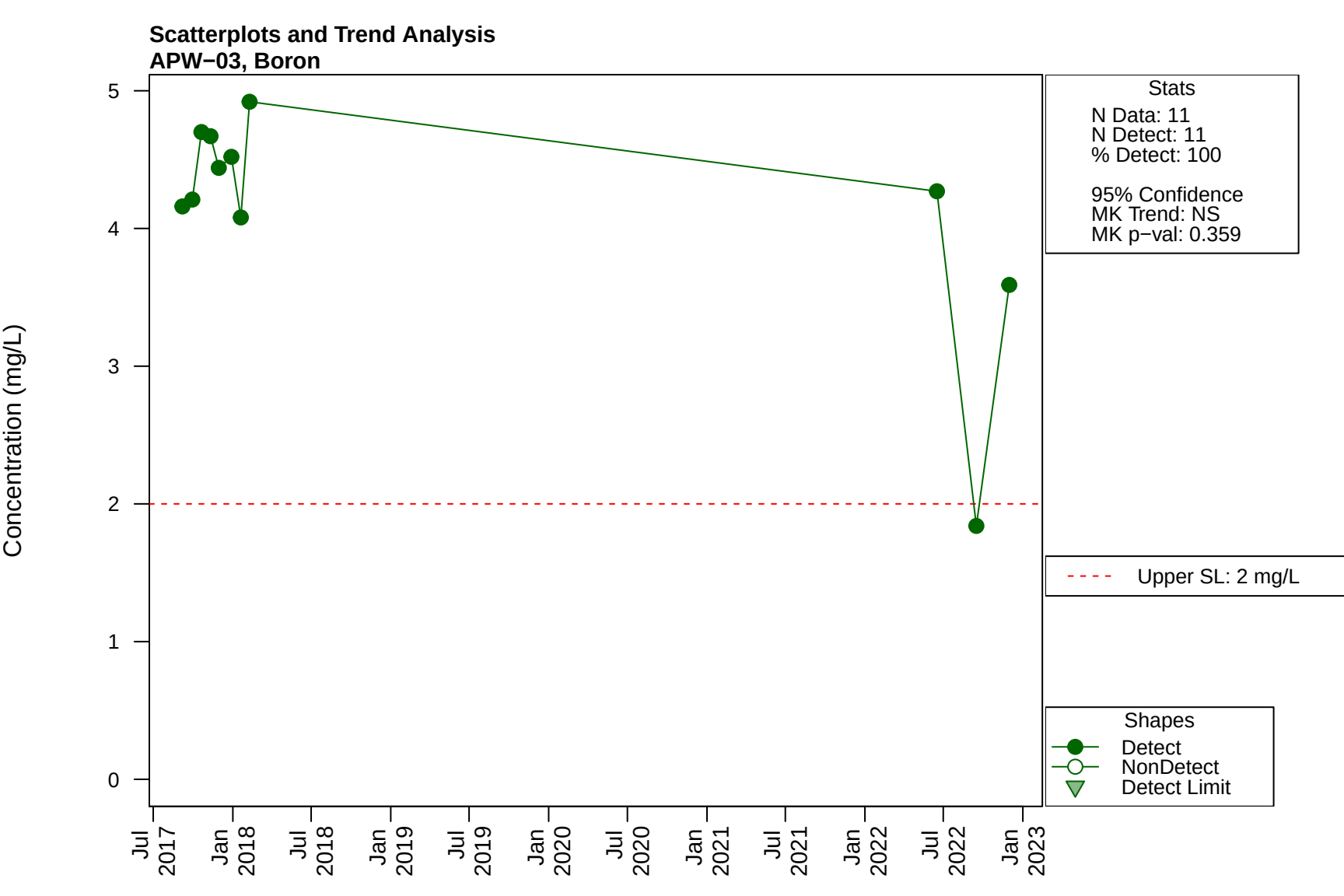

Scatterplots and Trend Analysis
APW−02, Cobalt
Concentration (mg/L)
0.010
0.008
0.006
0.004
0.002
0.000
Jul 2017
Jan 2018
Jul 2018
Jan 2019
Jul 2019
Jan 2020
Jul 2020
Jan 2021
Jul 2021
Jan 2022
Jul 2022
Jan 2023
Stats
N Data: 11
N Detect: 11
% Detect: 100
95% Confidence
MK Trend: NS
MK p−val: 0.283
Upper SL: 0.006 mg/L
Shapes
Detect
NonDetect
Detect Limit

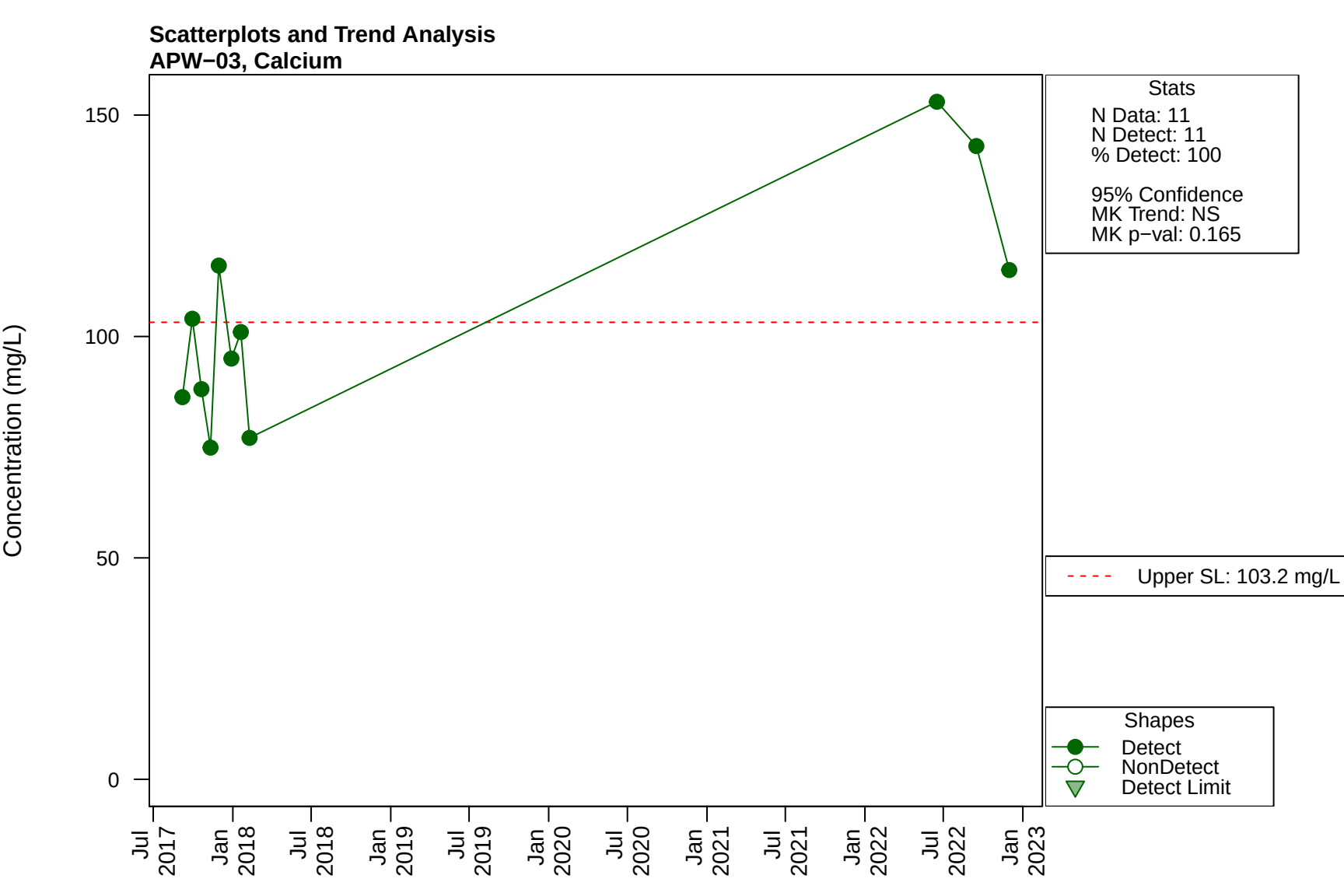

Scatterplots and Trend Analysis
APW−02, Lead
Concentration (mg/L)
0.000
0.005
0.010
0.015
0.020
Jul 2017
Jan 2018
Jul 2018
Jan 2019
Jul 2019
Jan 2020
Jul 2020
Jan 2021
Jul 2021
Jan 2022
Jul 2022
Jan 2023
Stats
N Data: 11
N Detect: 11
% Detect: 100
95% Confidence
MK Trend: NS
MK p−val: 0.359
Upper SL: 0.0075 mg/L
Shapes
Detect
NonDetect
Detect Limit

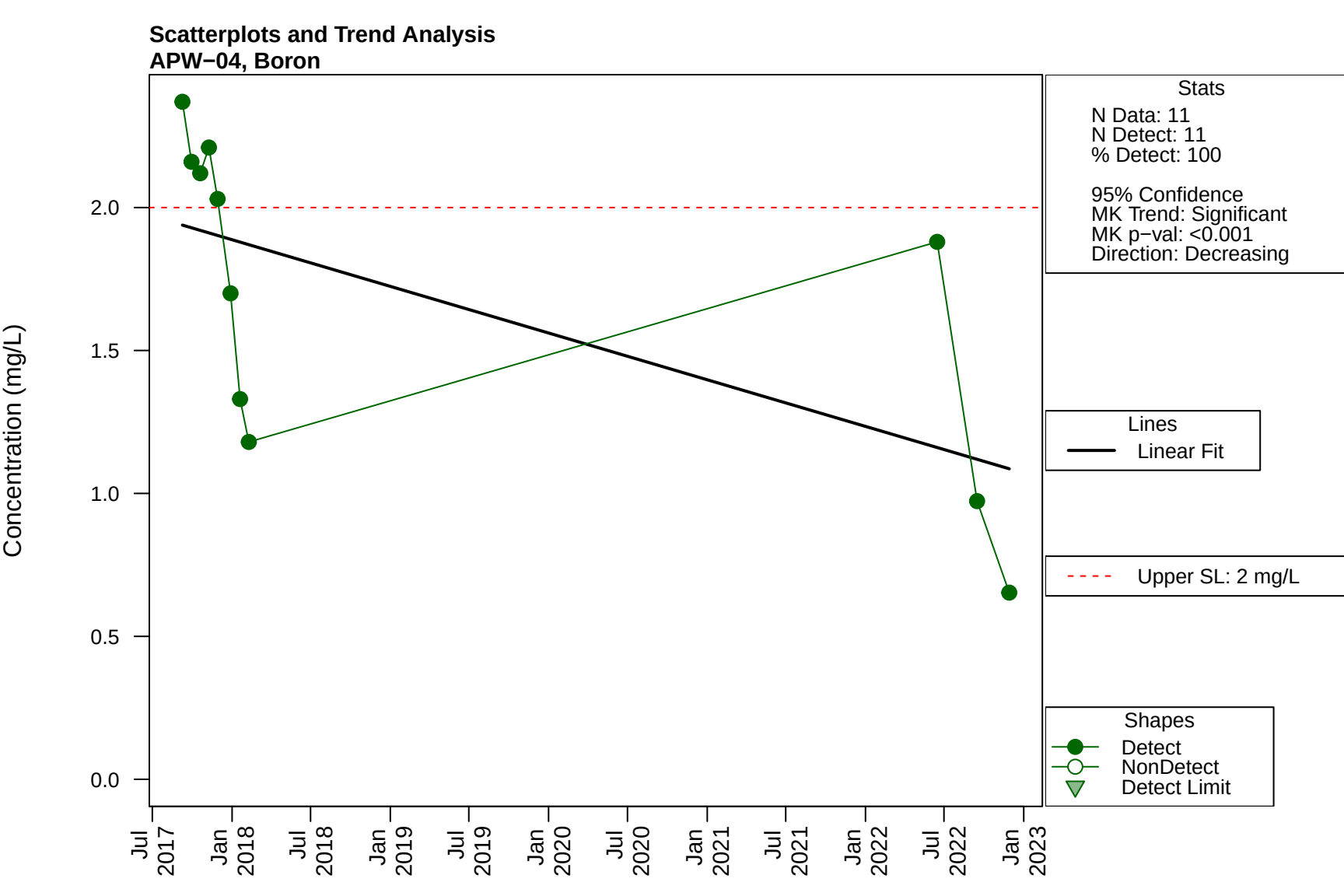

Scatterplots and Trend Analysis
APW−02, Lithium
Concentration (mg/L)
0.00
0.01
0.02
0.03
0.04
0.05
0.06
Jul 2017
Jan 2018
Jul 2018
Jan 2019
Jul 2019
Jan 2020
Jul 2020
Jan 2021
Jul 2021
Jan 2022
Jul 2022
Jan 2023
Stats
N Data: 11
N Detect: 11
% Detect: 100
95% Confidence
MK Trend: NS
MK p−val: 0.761
Upper SL: 0.04 mg/L
Shapes
Detect
NonDetect
Detect Limit

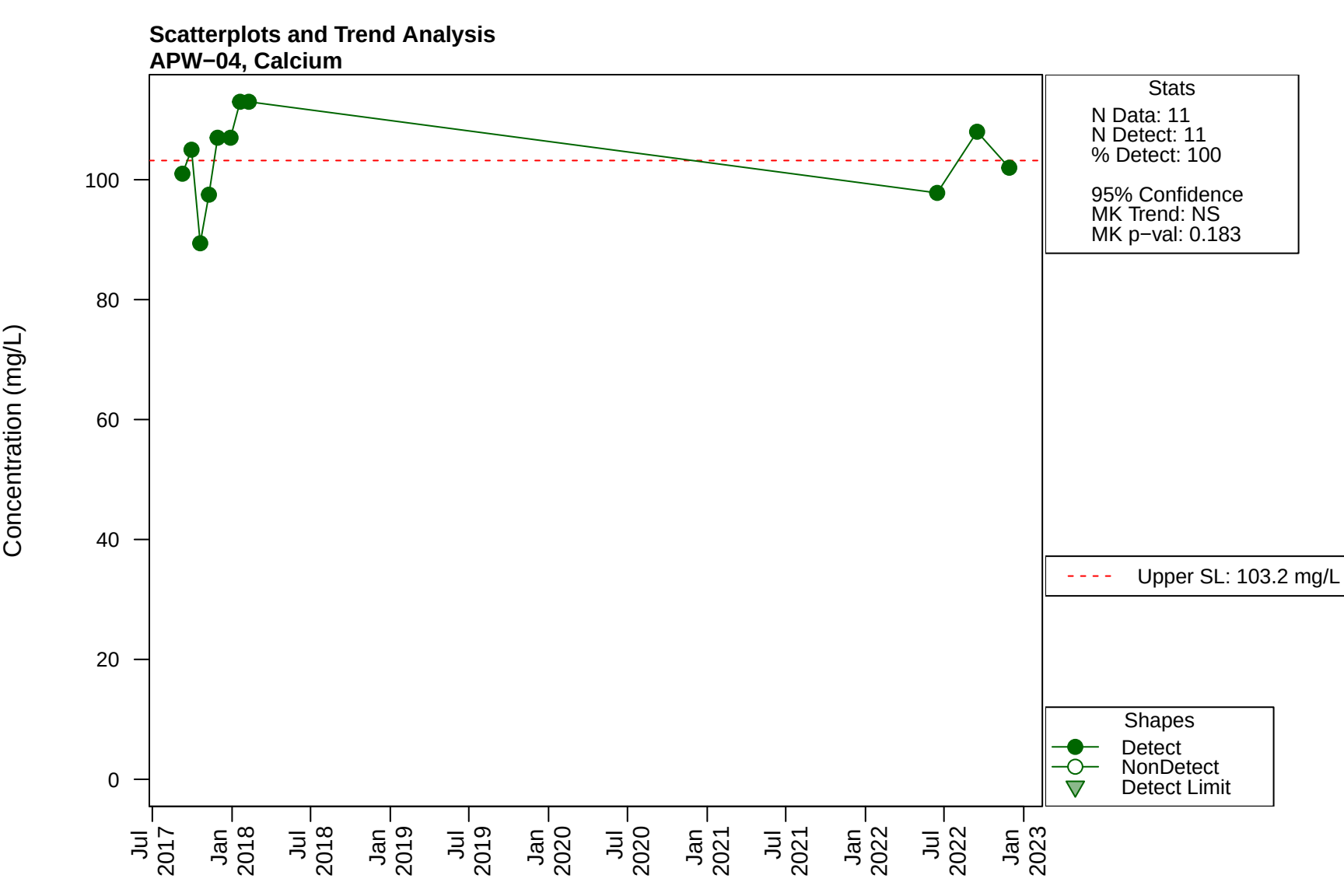

Scatterplots and Trend Analysis
APW−02, Molybdenum
Concentration (mg/L)
0.00
0.05
0.10
0.15
0.20
Jul 2017
Jan 2018
Jul 2018
Jan 2019
Jul 2019
Jan 2020
Jul 2020
Jan 2021
Jul 2021
Jan 2022
Jul 2022
Jan 2023
Stats
N Data: 11
N Detect: 11
% Detect: 100
95% Confidence
MK Trend: NS
MK p−val: 0.542
Upper SL: 0.1 mg/L
Shapes
Detect
NonDetect
Detect Limit

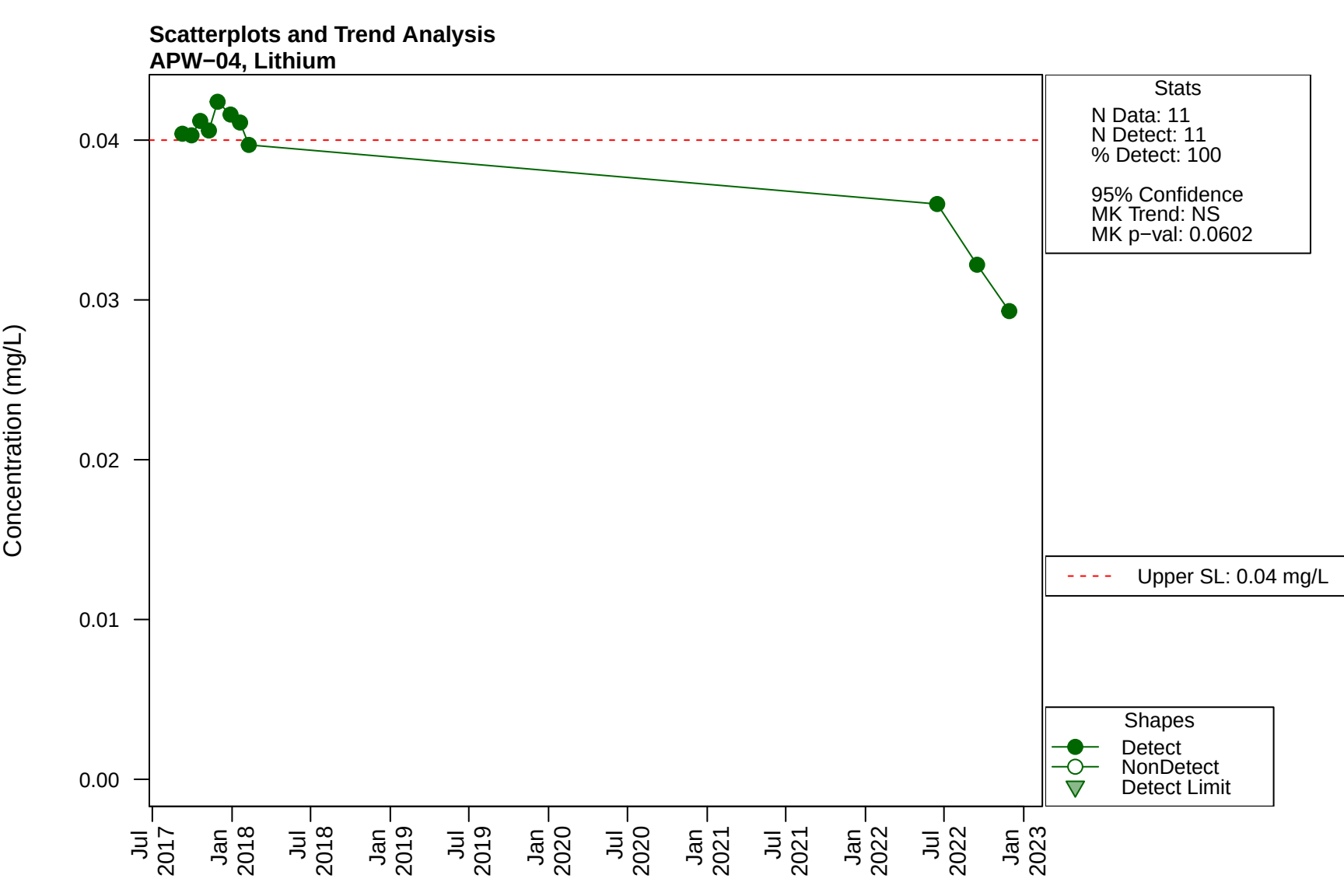

Scatterplots and Trend Analysis
APW−02, Sulfate
Concentration (mg/L)
500
400
300
200
100
0
Jul 2017
Jan 2018
Jul 2018
Jan 2019
Jul 2019
Jan 2020
Jul 2020
Jan 2021
Jul 2021
Jan 2022
Jul 2022
Jan 2023
Stats
N Data: 11
N Detect: 11
% Detect: 100
95% Confidence
MK Trend: NS
MK p−val: 0.755
Upper SL: 400 mg/L
Shapes
Detect
NonDetect
Detect Limit

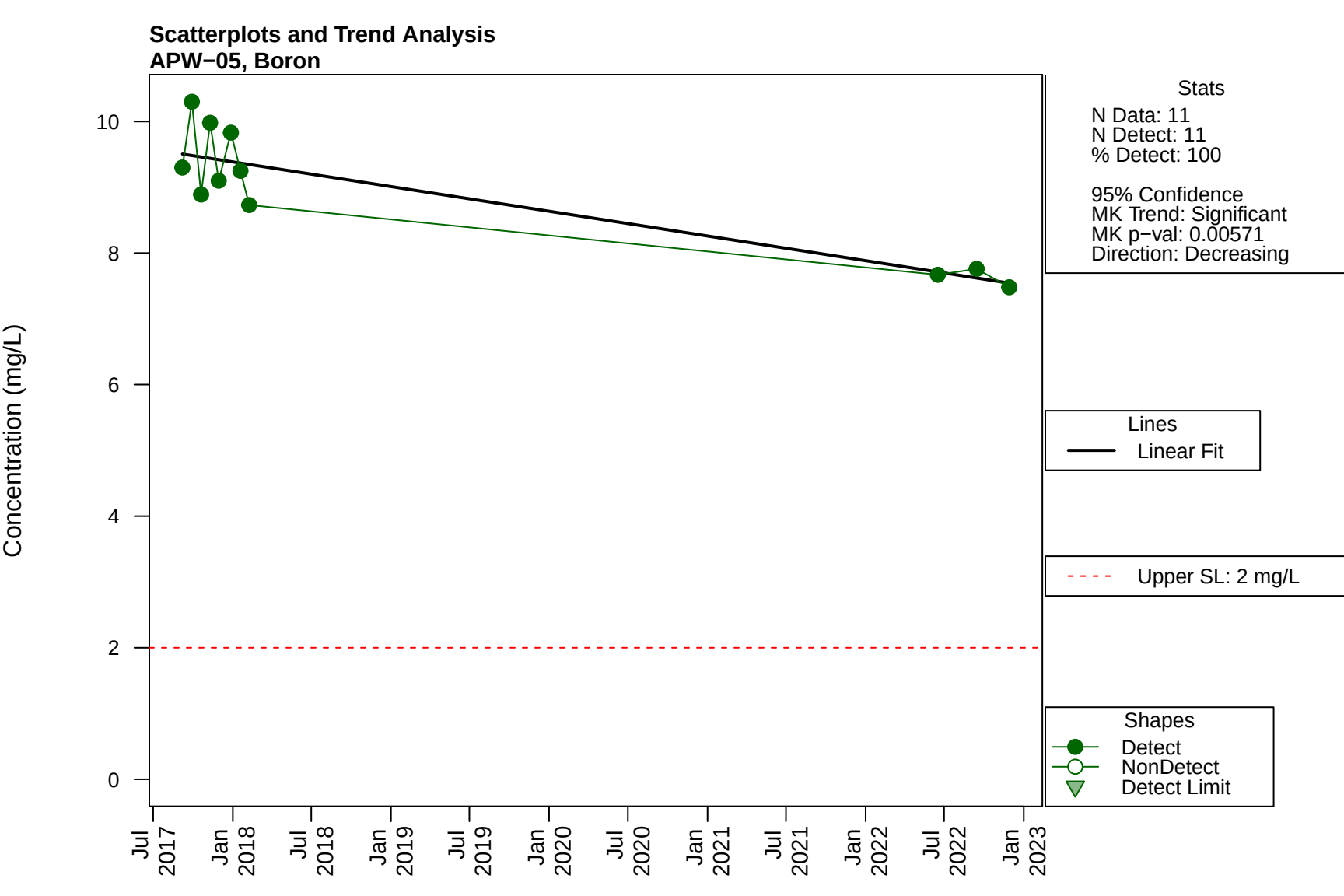

Scatterplots and Trend Analysis
APW−03, Boron
Concentration (mg/L)
0
1
2
3
4
5
Jul 2017
Jan 2018
Jul 2018
Jan 2019
Jul 2019
Jan 2020
Jul 2020
Jan 2021
Jul 2021
Jan 2022
Jul 2022
Jan 2023
Stats
N Data: 11
N Detect: 11
% Detect: 100
95% Confidence
MK Trend: NS
MK p−val: 0.359
Upper SL: 2 mg/L
Shapes
Detect
NonDetect
Detect Limit

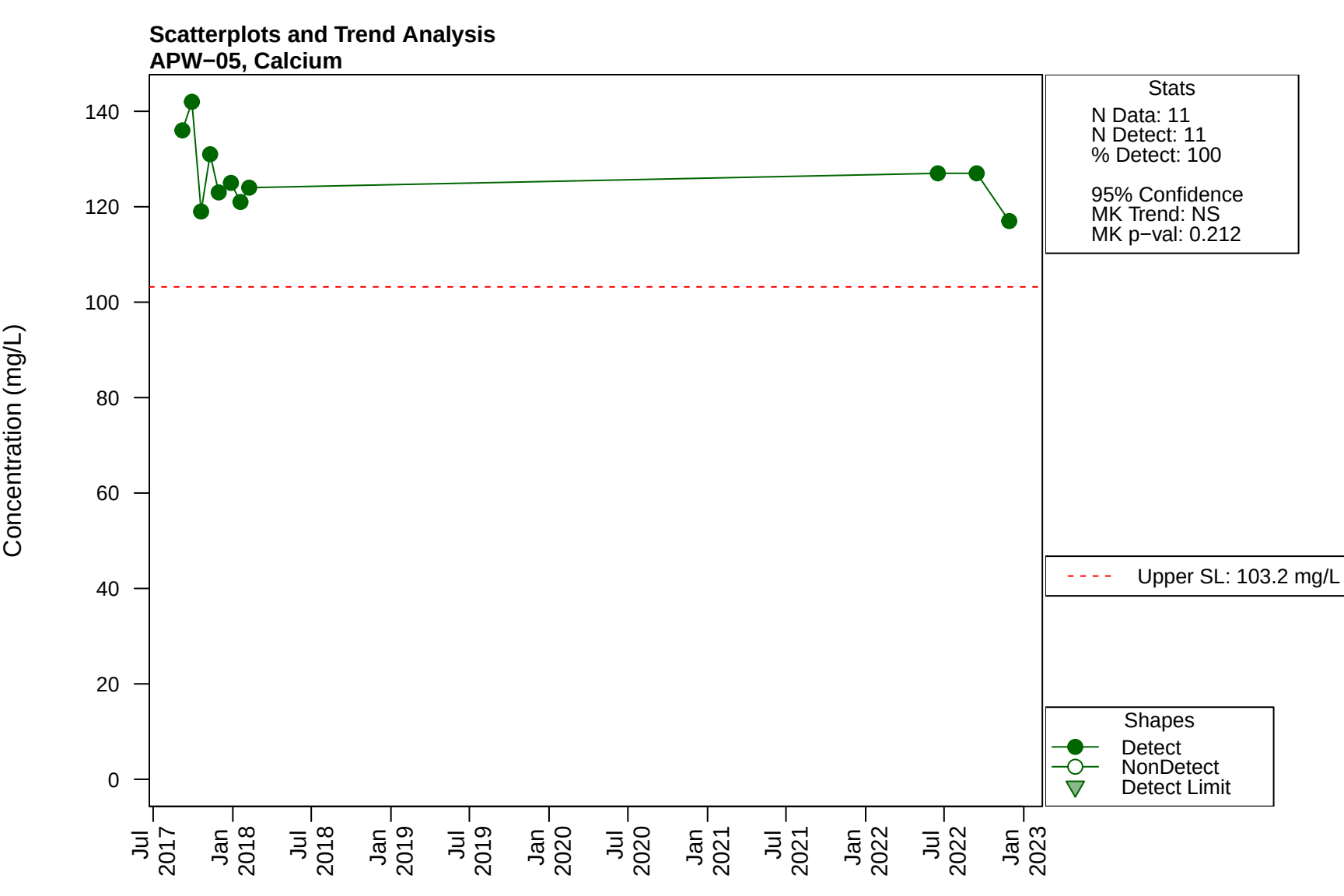

Scatterplots and Trend Analysis
APW−03, Calcium
Concentration (mg/L)
150
100
50
0
Jul 2017
Jan 2018
Jul 2018
Jan 2019
Jul 2019
Jan 2020
Jul 2020
Jan 2021
Jul 2021
Jan 2022
Jul 2022
Jan 2023
Stats
N Data: 11
N Detect: 11
% Detect: 100
95% Confidence
MK Trend: NS
MK p−val: 0.165
Upper SL: 103.2 mg/L
Shapes
Detect
NonDetect
Detect Limit

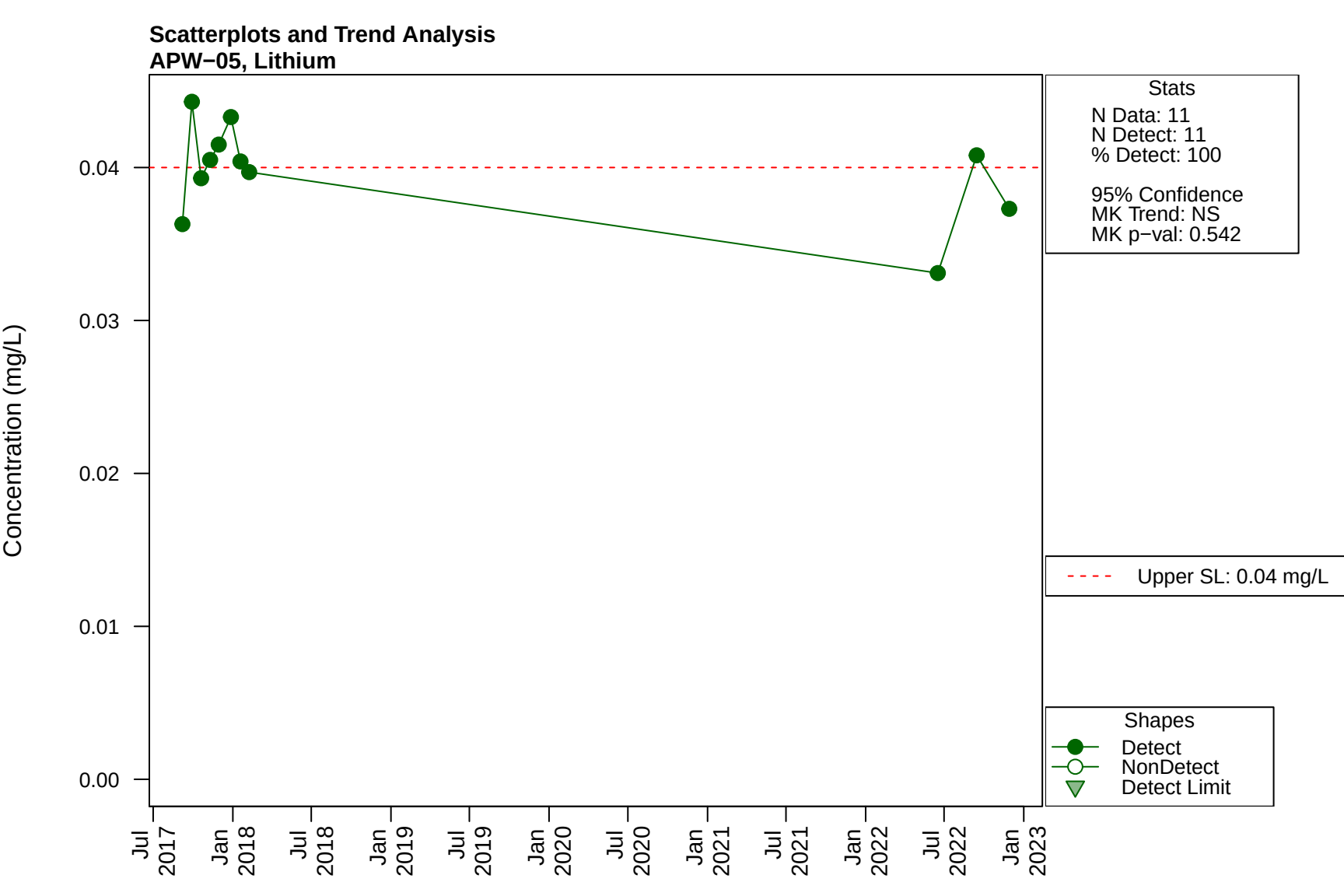

Scatterplots and Trend Analysis
APW−04, Boron
Concentration (mg/L)
0.0
0.5
1.0
1.5
2.0
Jul 2017
Jan 2018
Jul 2018
Jan 2019
Jul 2019
Jan 2020
Jul 2020
Jan 2021
Jul 2021
Jan 2022
Jul 2022
Jan 2023
Stats
N Data: 11
N Detect: 11
% Detect: 100
95% Confidence
MK Trend: Significant
MK p−val: <0.001
Direction: Decreasing
Lines
Linear Fit
Upper SL: 2 mg/L
Shapes
Detect
NonDetect
Detect Limit

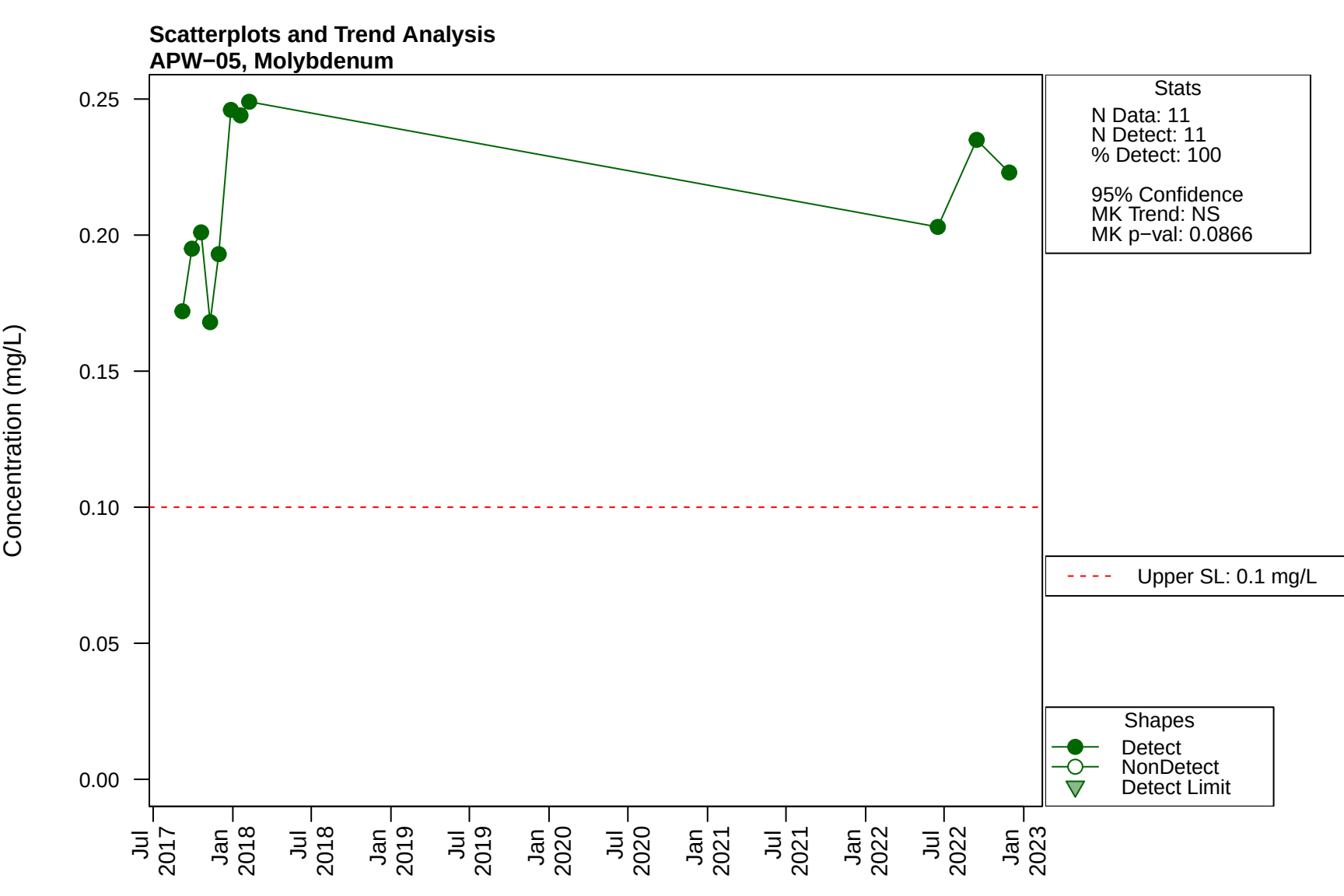

Scatterplots and Trend Analysis
APW−04, Calcium
Concentration (mg/L)
0
20
40
60
80
100
Jul 2017
Jan 2018
Jul 2018
Jan 2019
Jul 2019
Jan 2020
Jul 2020
Jan 2021
Jul 2021
Jan 2022
Jul 2022
Jan 2023
Stats
N Data: 11
N Detect: 11
% Detect: 100
95% Confidence
MK Trend: NS
MK p−val: 0.183
Upper SL: 103.2 mg/L
Shapes
Detect
NonDetect
Detect Limit

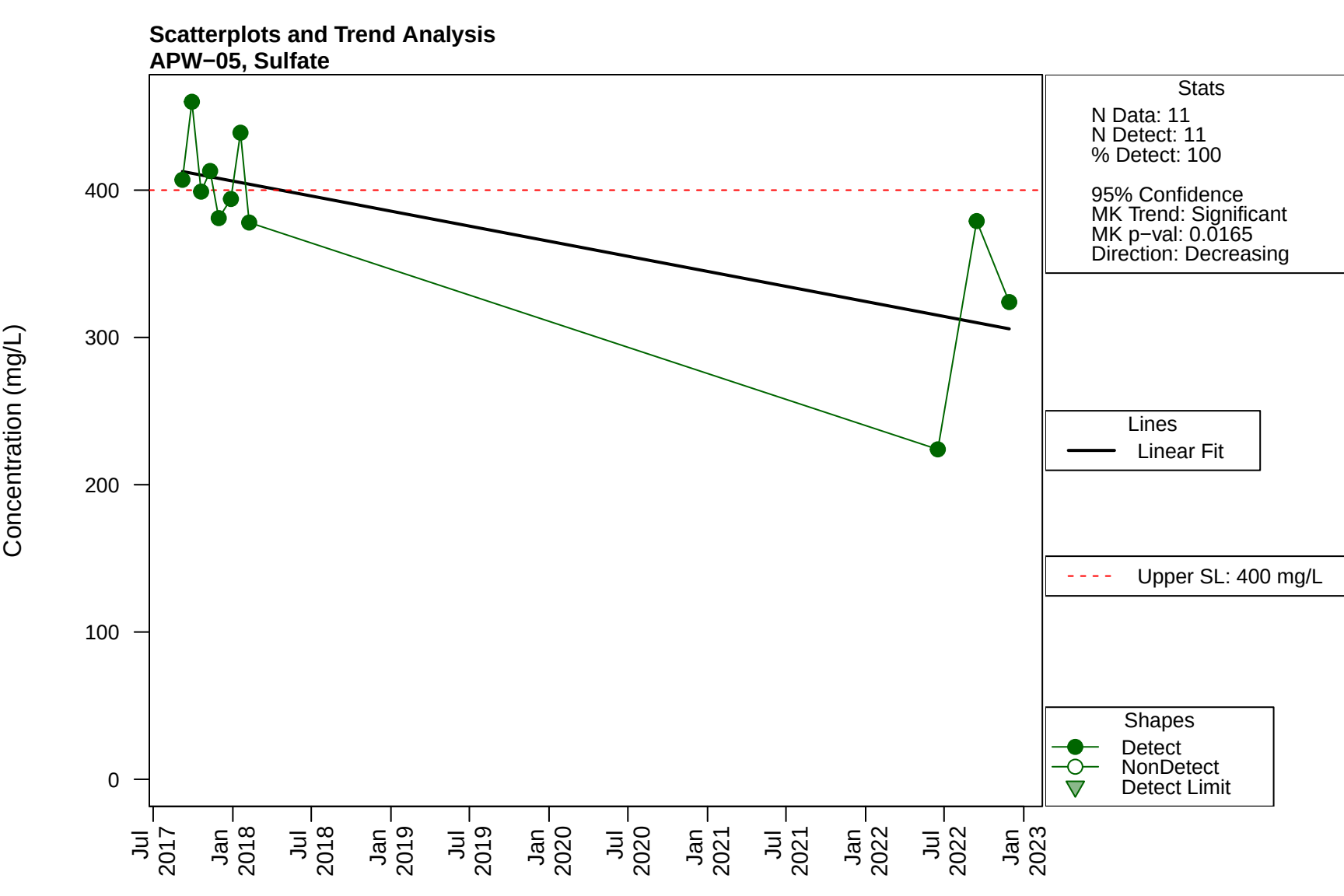

Scatterplots and Trend Analysis
APW−04, Lithium
Concentration (mg/L)
0.00
0.01
0.02
0.03
0.04
Jul 2017
Jan 2018
Jul 2018
Jan 2019
Jul 2019
Jan 2020
Jul 2020
Jan 2021
Jul 2021
Jan 2022
Jul 2022
Jan 2023
Stats
N Data: 11
N Detect: 11
% Detect: 100
95% Confidence
MK Trend: NS
MK p−val: 0.0602
Upper SL: 0.04 mg/L
Shapes
Detect
NonDetect
Detect Limit

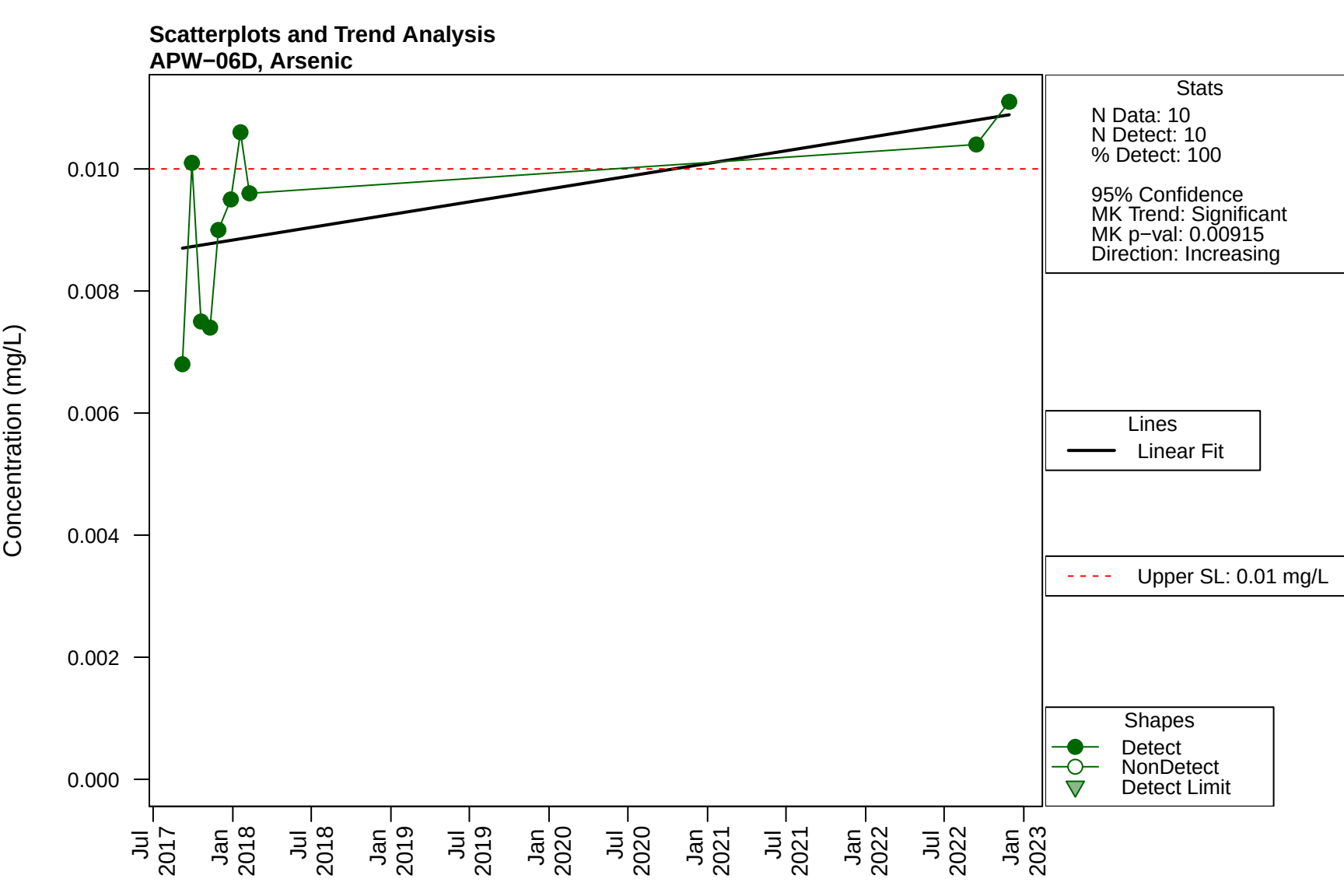

Scatterplots and Trend Analysis
APW−05, Boron
Concentration (mg/L)
0
2
4
6
8
10
Jul 2017
Jan 2018
Jul 2018
Jan 2019
Jul 2019
Jan 2020
Jul 2020
Jan 2021
Jul 2021
Jan 2022
Jul 2022
Jan 2023
Stats
N Data: 11
N Detect: 11
% Detect: 100
95% Confidence
MK Trend: Significant
MK p−val: 0.00571
Direction: Decreasing
Lines
Linear Fit
Upper SL: 2 mg/L
Shapes
Detect
NonDetect
Detect Limit

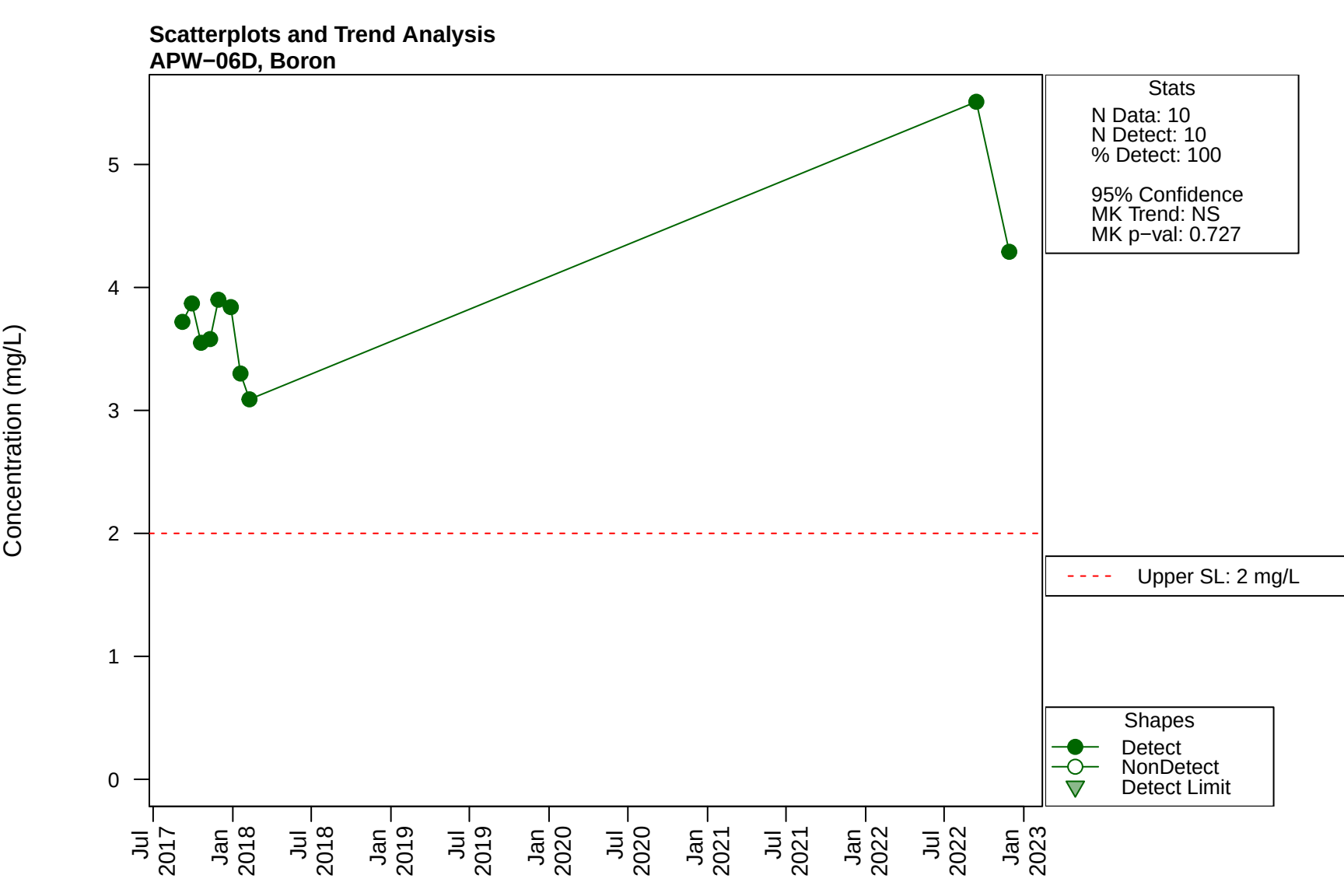

Scatterplots and Trend Analysis
APW−05, Calcium
Concentration (mg/L)
0
20
40
60
80
100
120
140
Jul 2017
Jan 2018
Jul 2018
Jan 2019
Jul 2019
Jan 2020
Jul 2020
Jan 2021
Jul 2021
Jan 2022
Jul 2022
Jan 2023
Stats
N Data: 11
N Detect: 11
% Detect: 100
95% Confidence
MK Trend: NS
MK p−val: 0.212
Upper SL: 103.2 mg/L
Shapes
Detect
NonDetect
Detect Limit

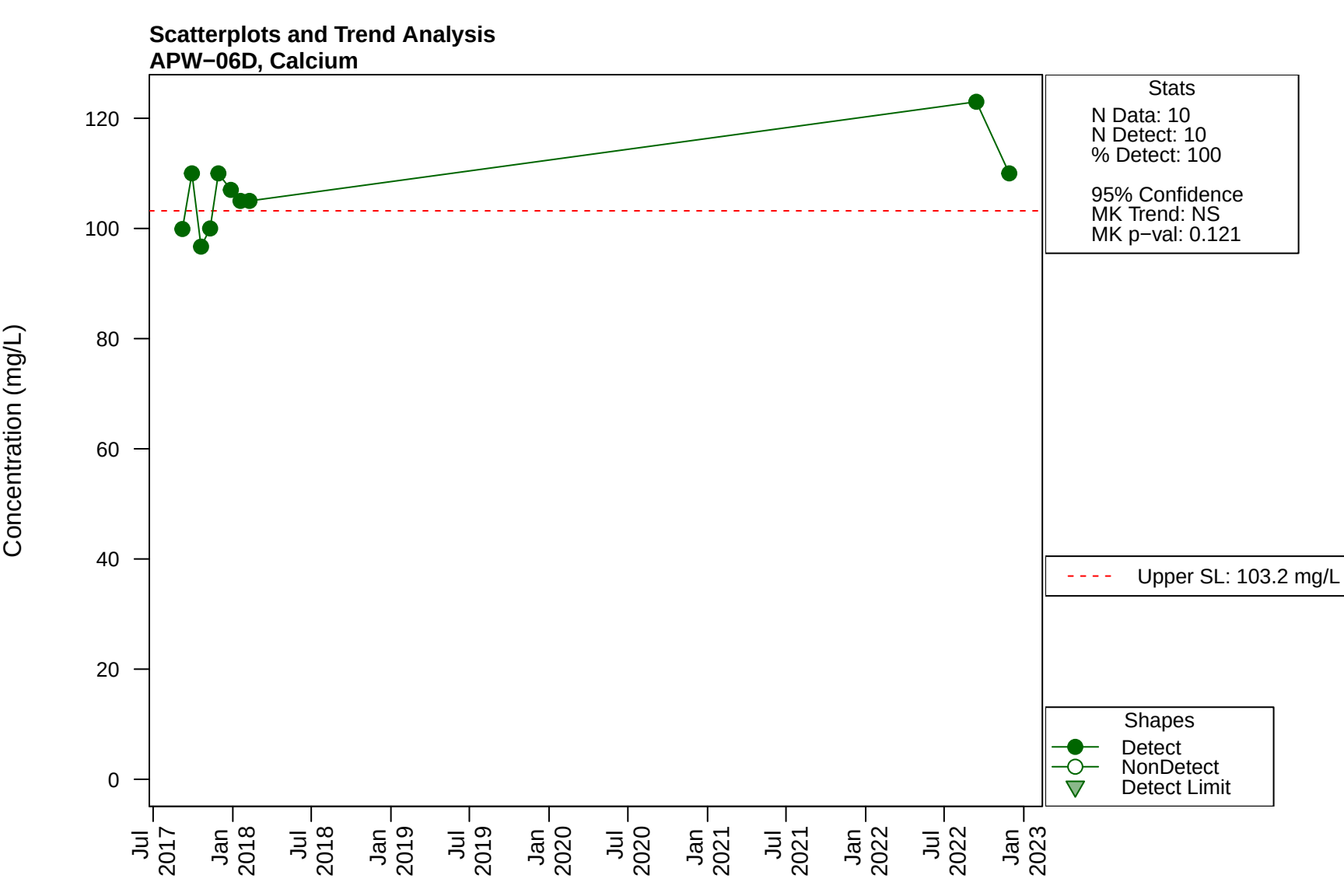

Scatterplots and Trend Analysis
APW−05, Lithium
Concentration (mg/L)
0.00
0.01
0.02
0.03
0.04
Jul 2017
Jan 2018
Jul 2018
Jan 2019
Jul 2019
Jan 2020
Jul 2020
Jan 2021
Jul 2021
Jan 2022
Jul 2022
Jan 2023
Stats
N Data: 11
N Detect: 11
% Detect: 100
95% Confidence
MK Trend: NS
MK p−val: 0.542
Upper SL: 0.04 mg/L
Shapes
Detect
NonDetect
Detect Limit

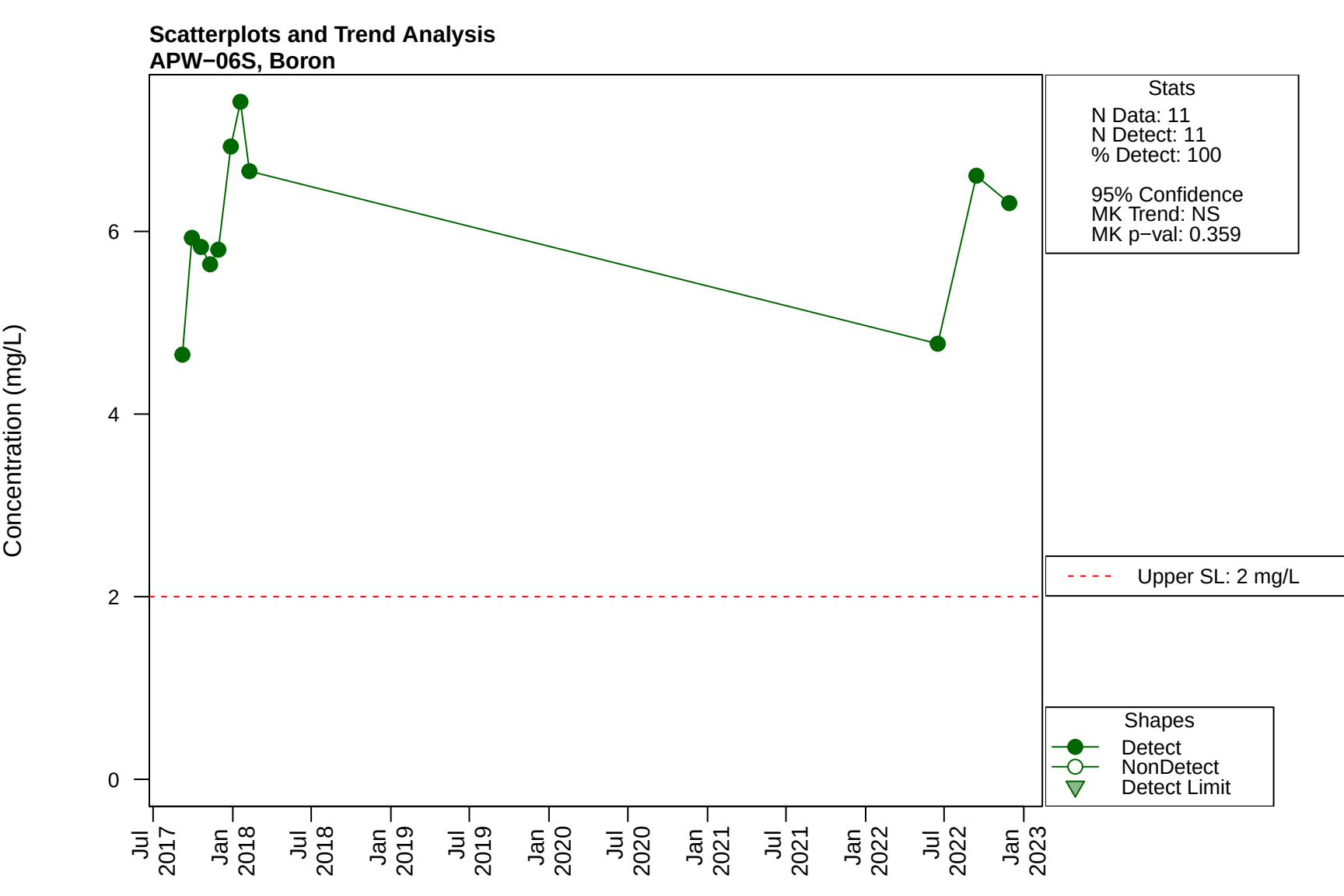

Scatterplots and Trend Analysis
APW−05, Molybdenum
Concentration (mg/L)
0.25
0.20
0.15
0.10
0.05
0.00
Jul 2017
Jan 2018
Jul 2018
Jan 2019
Jul 2019
Jan 2020
Jul 2020
Jan 2021
Jul 2021
Jan 2022
Jul 2022
Jan 2023
Stats
N Data: 11
N Detect: 11
% Detect: 100
95% Confidence
MK Trend: NS
MK p−val: 0.0866
Upper SL: 0.1 mg/L
Shapes
Detect
NonDetect
Detect Limit

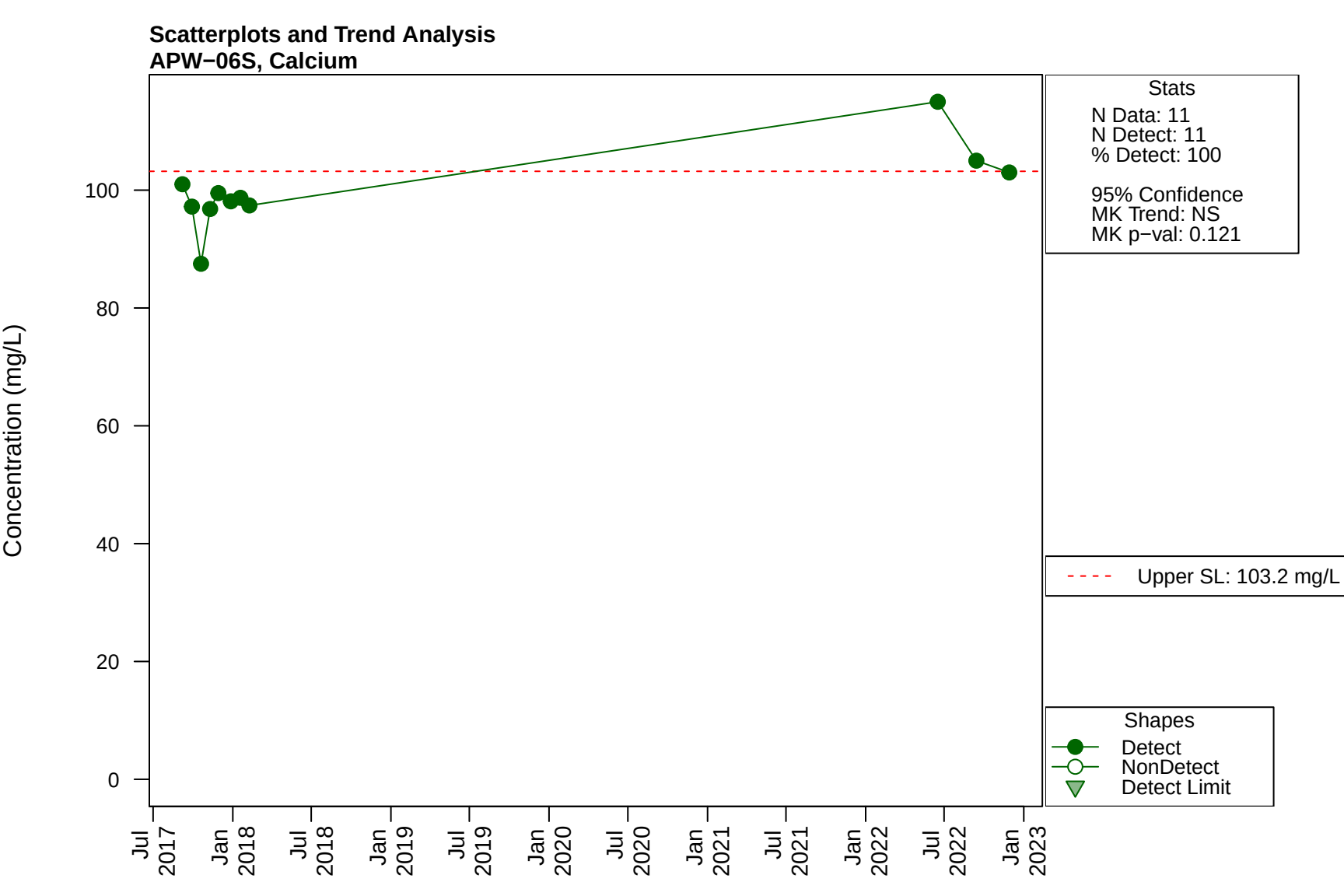

Scatterplots and Trend Analysis
APW−05, Sulfate
Concentration (mg/L)
0
100
200
300
400
Jul 2017
Jan 2018
Jul 2018
Jan 2019
Jul 2019
Jan 2020
Jul 2020
Jan 2021
Jul 2021
Jan 2022
Jul 2022
Jan 2023
Stats
N Data: 11
N Detect: 11
% Detect: 100
95% Confidence
MK Trend: Significant
MK p−val: 0.0165
Direction: Decreasing
Lines
Linear Fit
Upper SL: 400 mg/L
Shapes
Detect
NonDetect
Detect Limit

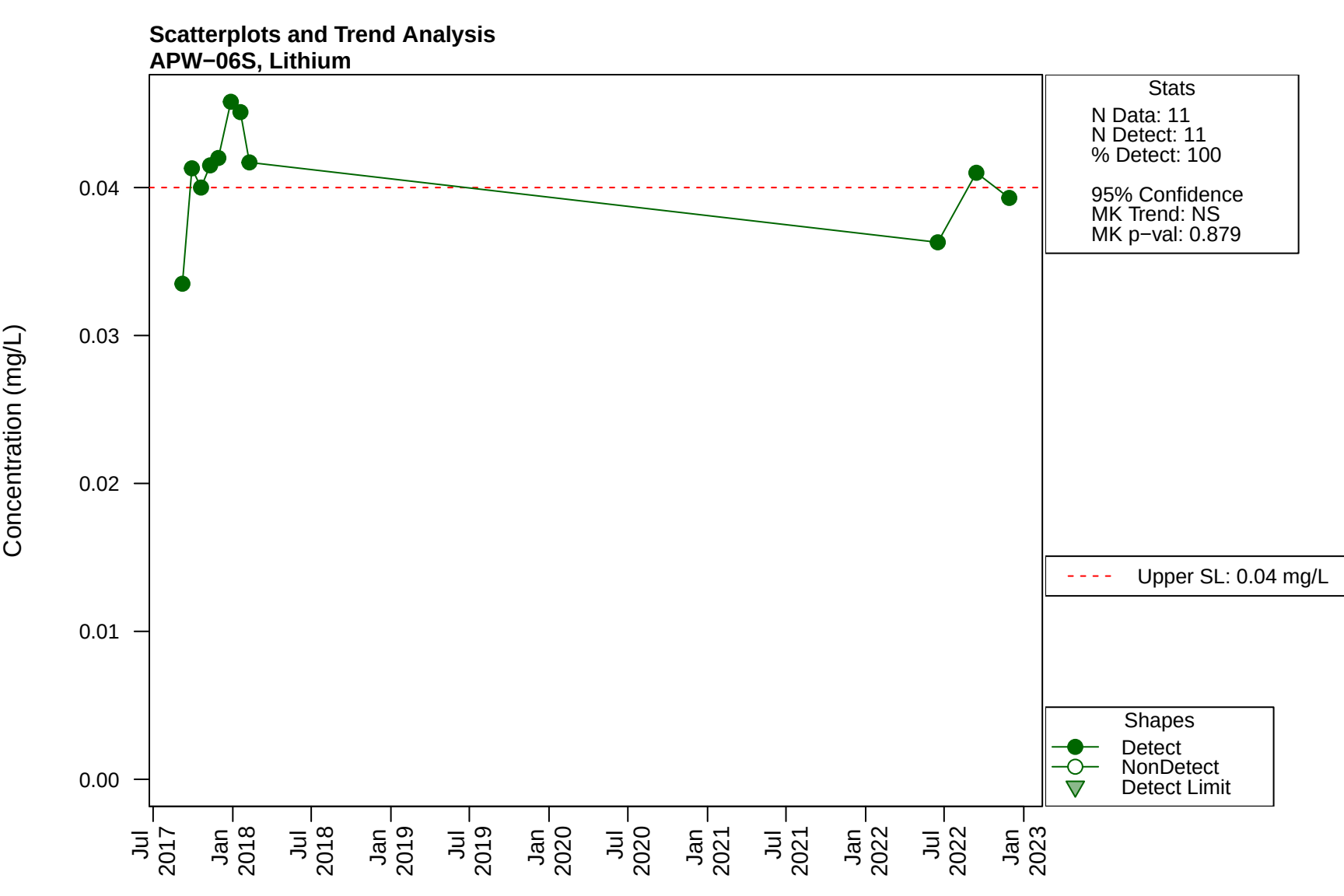

Scatterplots and Trend Analysis
APW−06D, Arsenic
Concentration (mg/L)
0.000
0.002
0.004
0.006
0.008
0.010
Jul 2017
Jan 2018
Jul 2018
Jan 2019
Jul 2019
Jan 2020
Jul 2020
Jan 2021
Jul 2021
Jan 2022
Jul 2022
Jan 2023
Stats
N Data: 10
N Detect: 10
% Detect: 100
95% Confidence
MK Trend: Significant
MK p−val: 0.00915
Direction: Increasing
Lines
Linear Fit
Upper SL: 0.01 mg/L
Shapes
Detect
NonDetect
Detect Limit

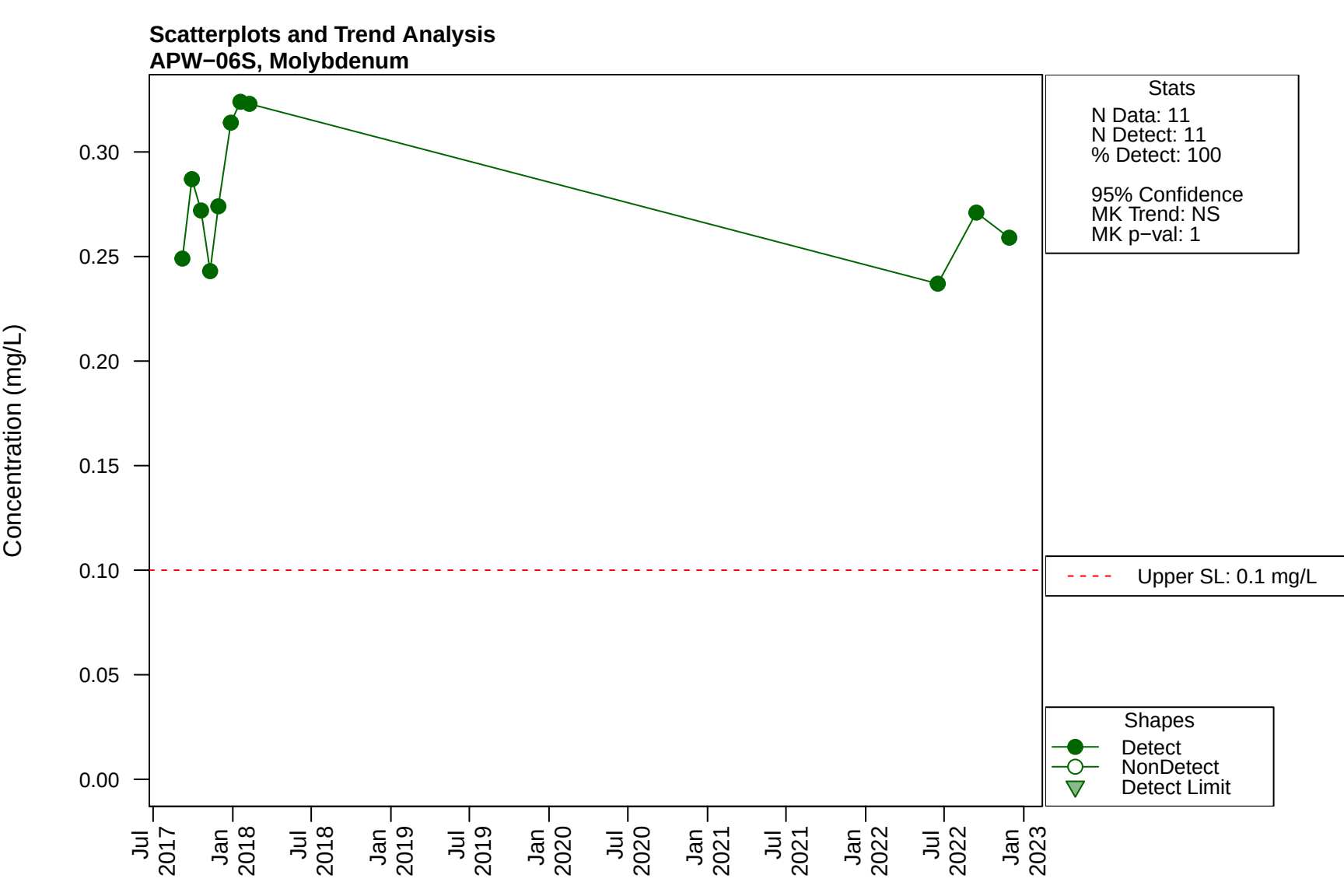

Scatterplots and Trend Analysis
APW−06D, Boron
Concentration (mg/L)
0
1
2
3
4
5
Jul 2017
Jan 2018
Jul 2018
Jan 2019
Jul 2019
Jan 2020
Jul 2020
Jan 2021
Jul 2021
Jan 2022
Jul 2022
Jan 2023
Stats
N Data: 10
N Detect: 10
% Detect: 100
95% Confidence
MK Trend: NS
MK p−val: 0.727
Upper SL: 2 mg/L
Shapes
Detect
NonDetect
Detect Limit

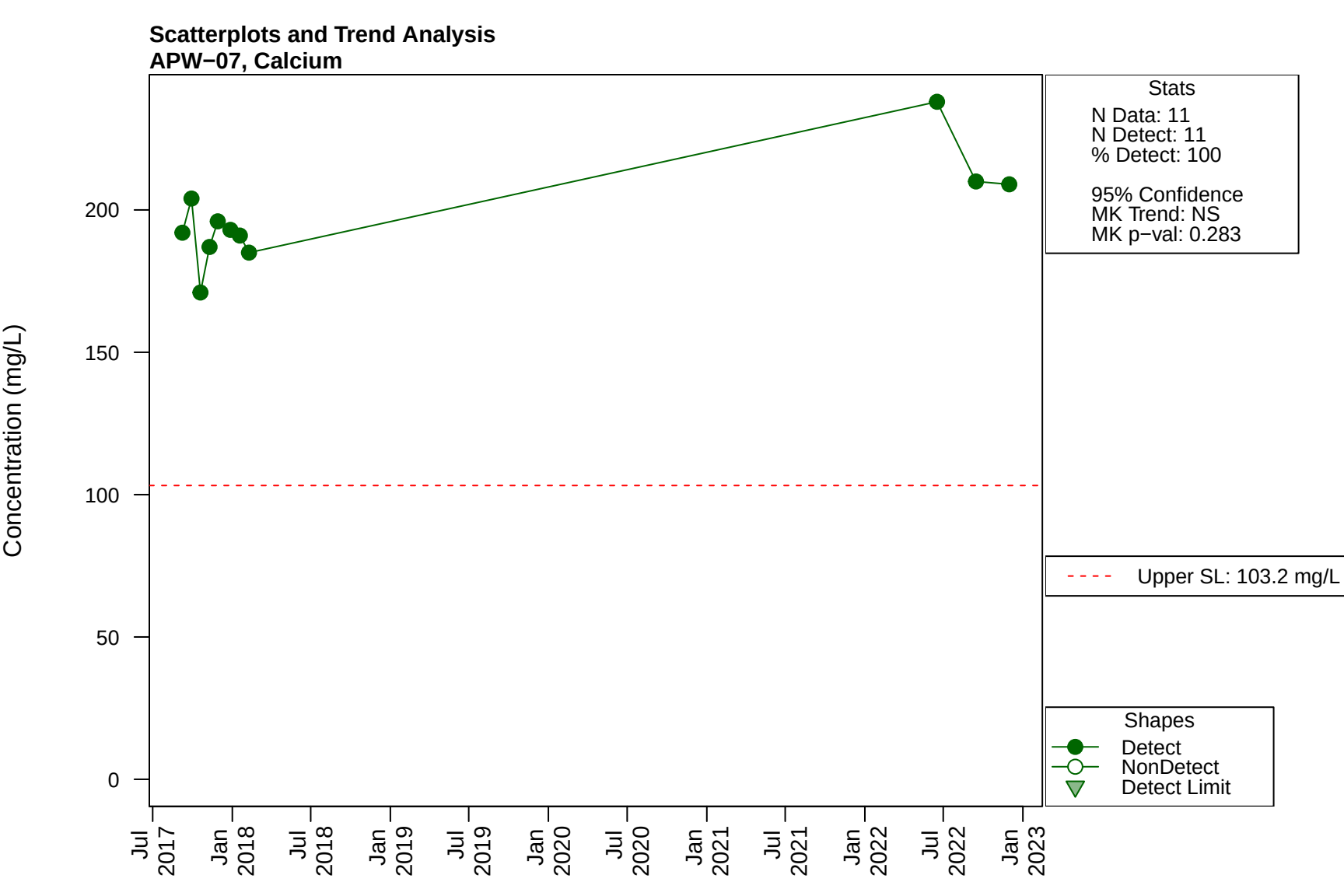

Scatterplots and Trend Analysis
APW−06D, Calcium
Concentration (mg/L)
120
100
80
60
40
20
0
Jul 2017
Jan 2018
Jul 2018
Jan 2019
Jul 2019
Jan 2020
Jul 2020
Jan 2021
Jul 2021
Jan 2022
Jul 2022
Jan 2023
Stats
N Data: 10
N Detect: 10
% Detect: 100
95% Confidence
MK Trend: NS
MK p−val: 0.121
Upper SL: 103.2 mg/L
Shapes
Detect
NonDetect
Detect Limit

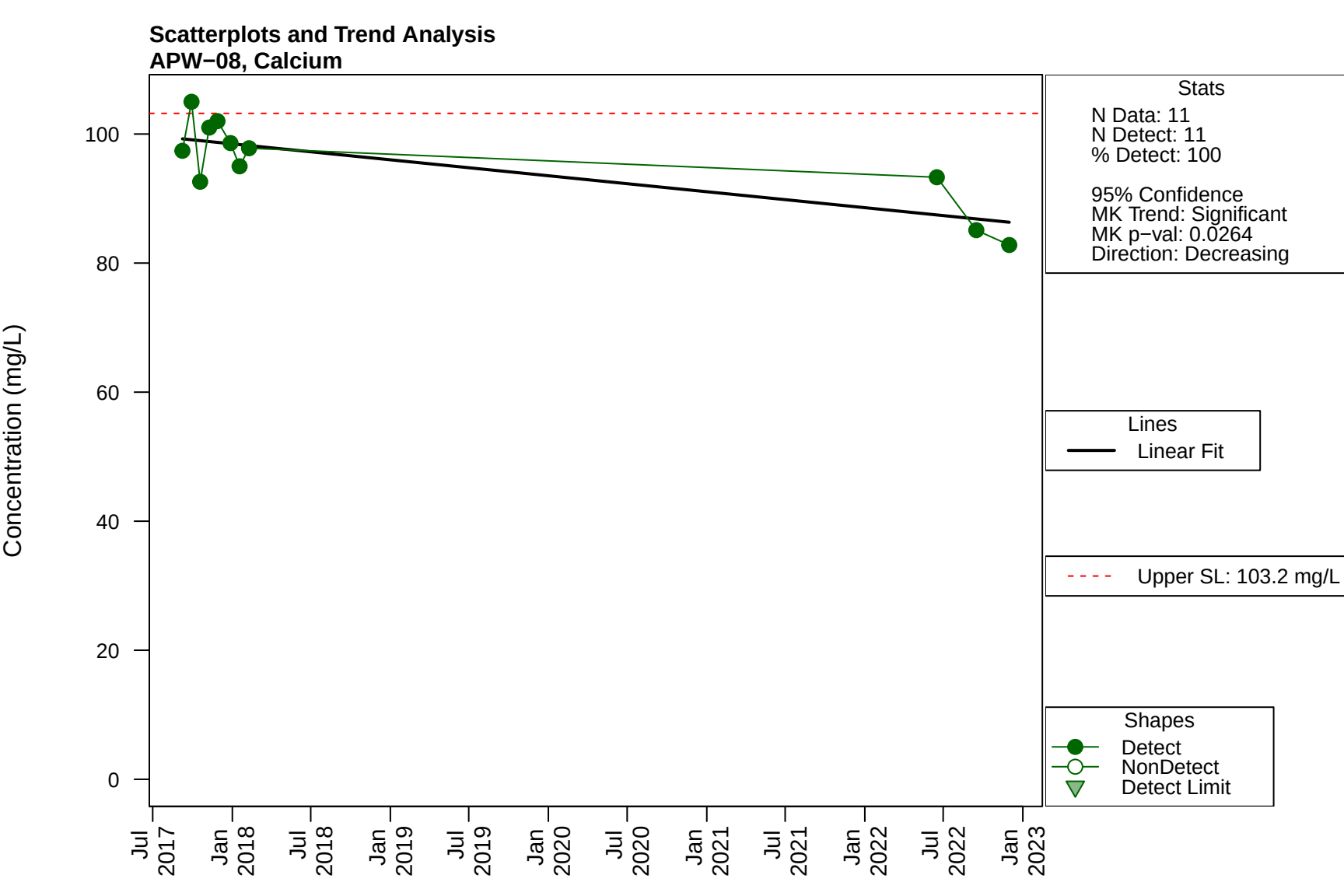

Scatterplots and Trend Analysis
APW−06S, Boron
Concentration (mg/L)
0
2
4
6
Jul 2017
Jan 2018
Jul 2018
Jan 2019
Jul 2019
Jan 2020
Jul 2020
Jan 2021
Jul 2021
Jan 2022
Jul 2022
Jan 2023
Stats
N Data: 11
N Detect: 11
% Detect: 100
95% Confidence
MK Trend: NS
MK p−val: 0.359
Upper SL: 2 mg/L
Shapes
Detect
NonDetect
Detect Limit

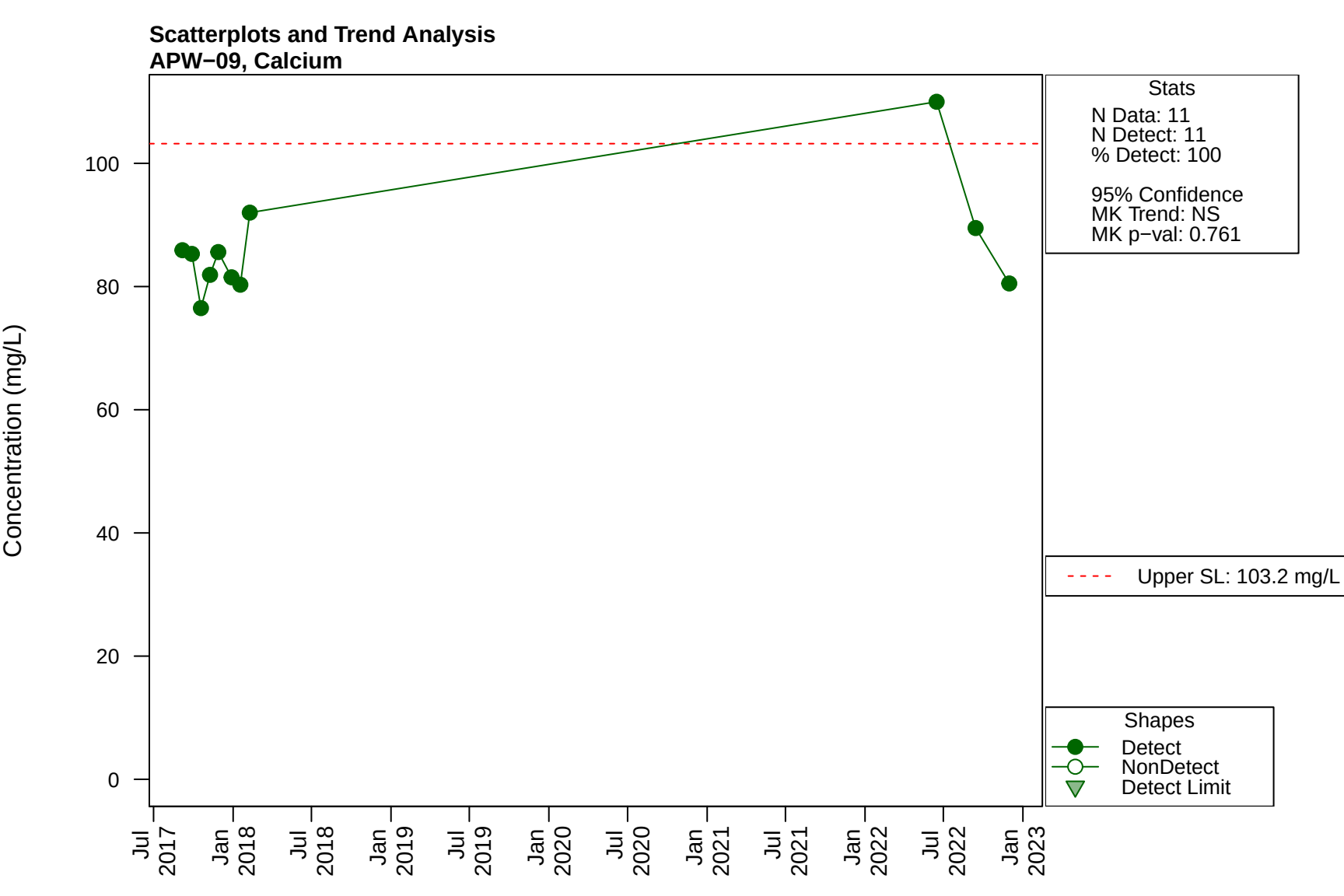

Scatterplots and Trend Analysis
APW−06S, Calcium
Concentration (mg/L)
0
20
40
60
80
100
Jul 2017
Jan 2018
Jul 2018
Jan 2019
Jul 2019
Jan 2020
Jul 2020
Jan 2021
Jul 2021
Jan 2022
Jul 2022
Jan 2023
Stats
N Data: 11
N Detect: 11
% Detect: 100
95% Confidence
MK Trend: NS
MK p−val: 0.121
Upper SL: 103.2 mg/L
Shapes
Detect
NonDetect
Detect Limit

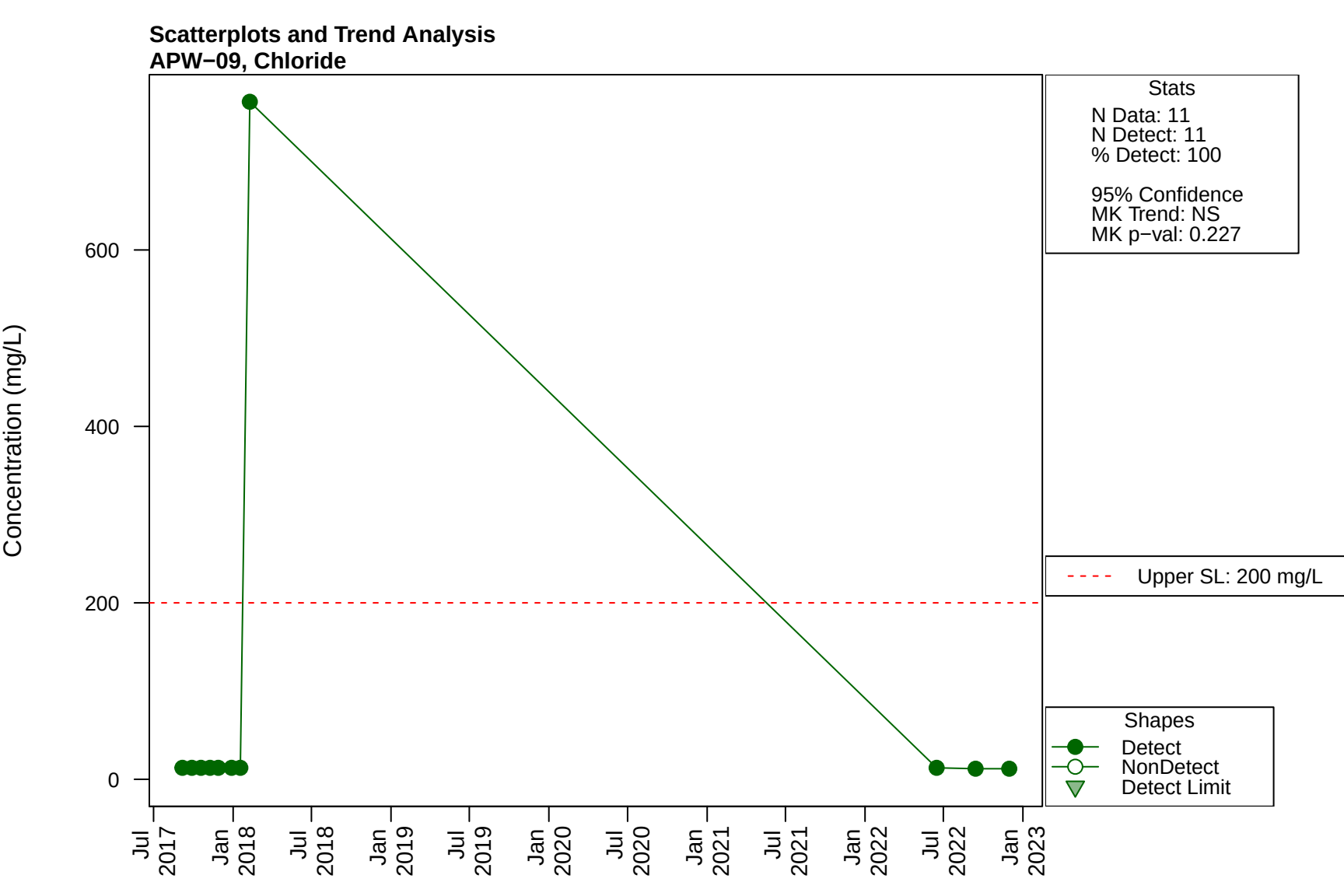

Scatterplots and Trend Analysis
APW−06S, Lithium
Concentration (mg/L)
0.00
0.01
0.02
0.03
0.04
Jul 2017
Jan 2018
Jul 2018
Jan 2019
Jul 2019
Jan 2020
Jul 2020
Jan 2021
Jul 2021
Jan 2022
Jul 2022
Jan 2023
Stats
N Data: 11
N Detect: 11
% Detect: 100
95% Confidence
MK Trend: NS
MK p−val: 0.879
Upper SL: 0.04 mg/L
Shapes
Detect
NonDetect
Detect Limit

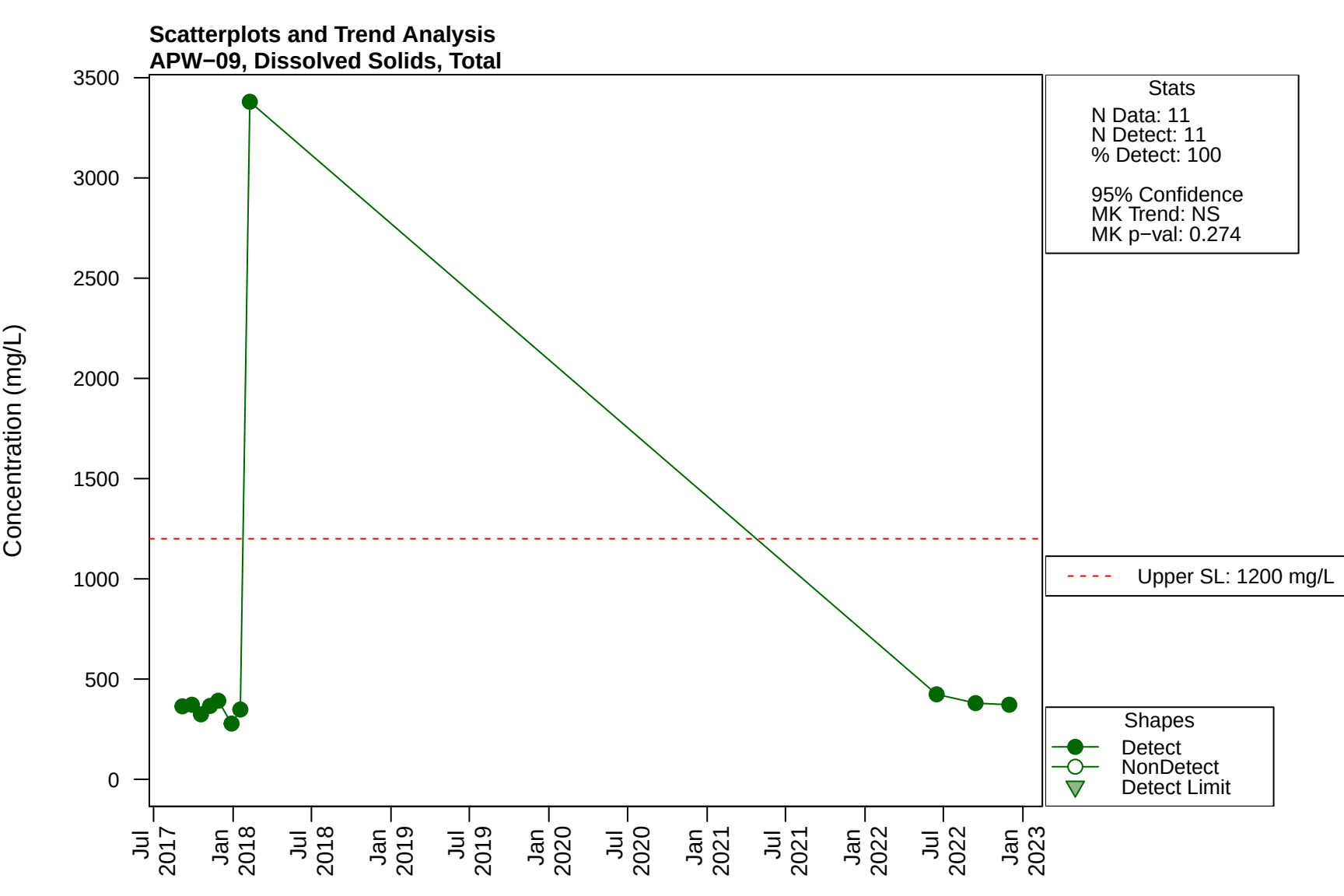

Scatterplots and Trend Analysis
APW−06S, Molybdenum
Concentration (mg/L)
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Jul 2017
Jan 2018
Jul 2018
Jan 2019
Jul 2019
Jan 2020
Jul 2020
Jan 2021
Jul 2021
Jan 2022
Jul 2022
Jan 2023
Stats
N Data: 11
N Detect: 11
% Detect: 100
95% Confidence
MK Trend: NS
MK p−val: 1
Upper SL: 0.1 mg/L
Shapes
Detect
NonDetect
Detect Limit

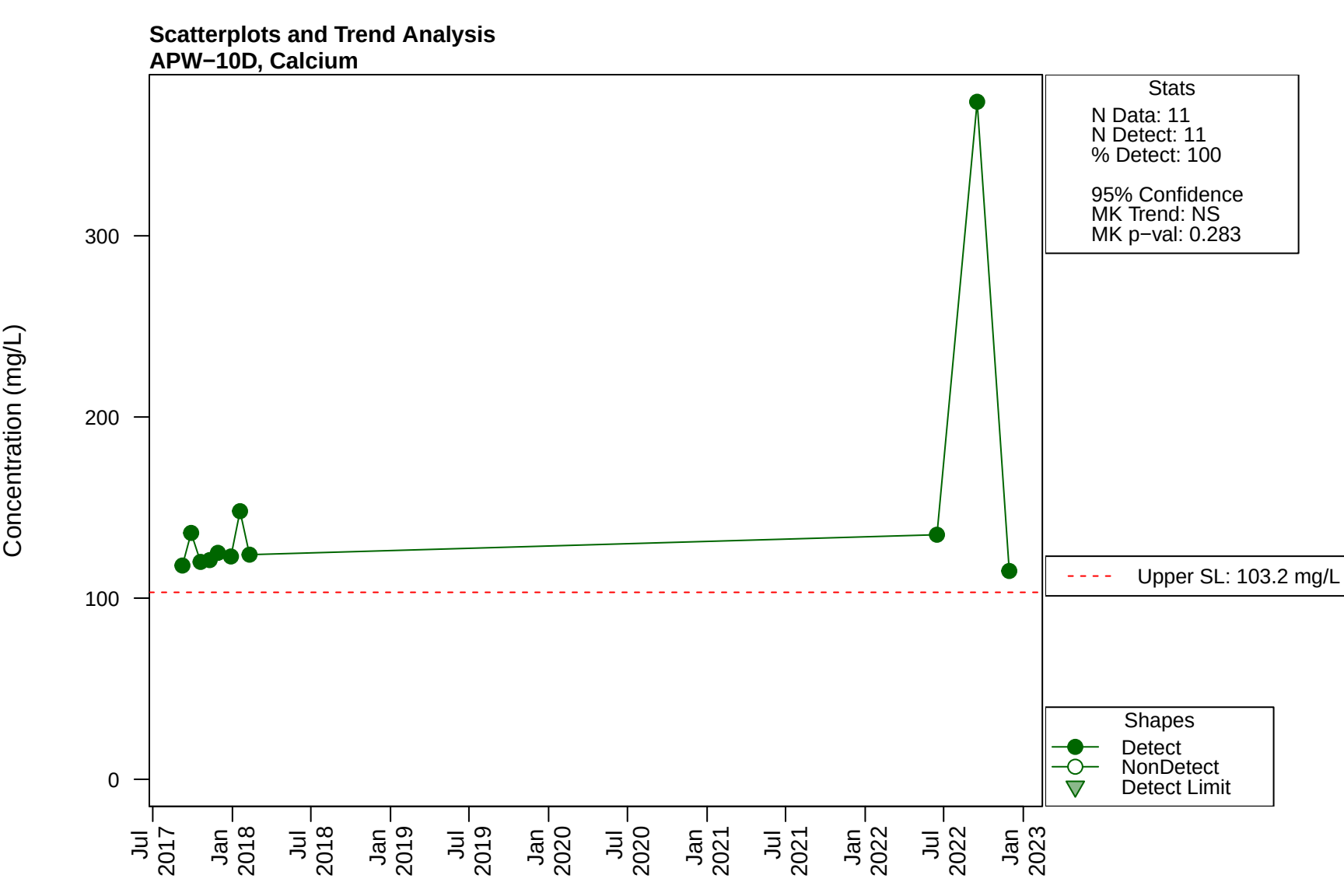

Scatterplots and Trend Analysis
APW−07, Calcium
Concentration (mg/L)
0
50
100
150
200
Jul 2017
Jan 2018
Jul 2018
Jan 2019
Jul 2019
Jan 2020
Jul 2020
Jan 2021
Jul 2021
Jan 2022
Jul 2022
Jan 2023
Stats
N Data: 11
N Detect: 11
% Detect: 100
95% Confidence
MK Trend: NS
MK p−val: 0.283
Upper SL: 103.2 mg/L
Shapes
Detect
NonDetect
Detect Limit

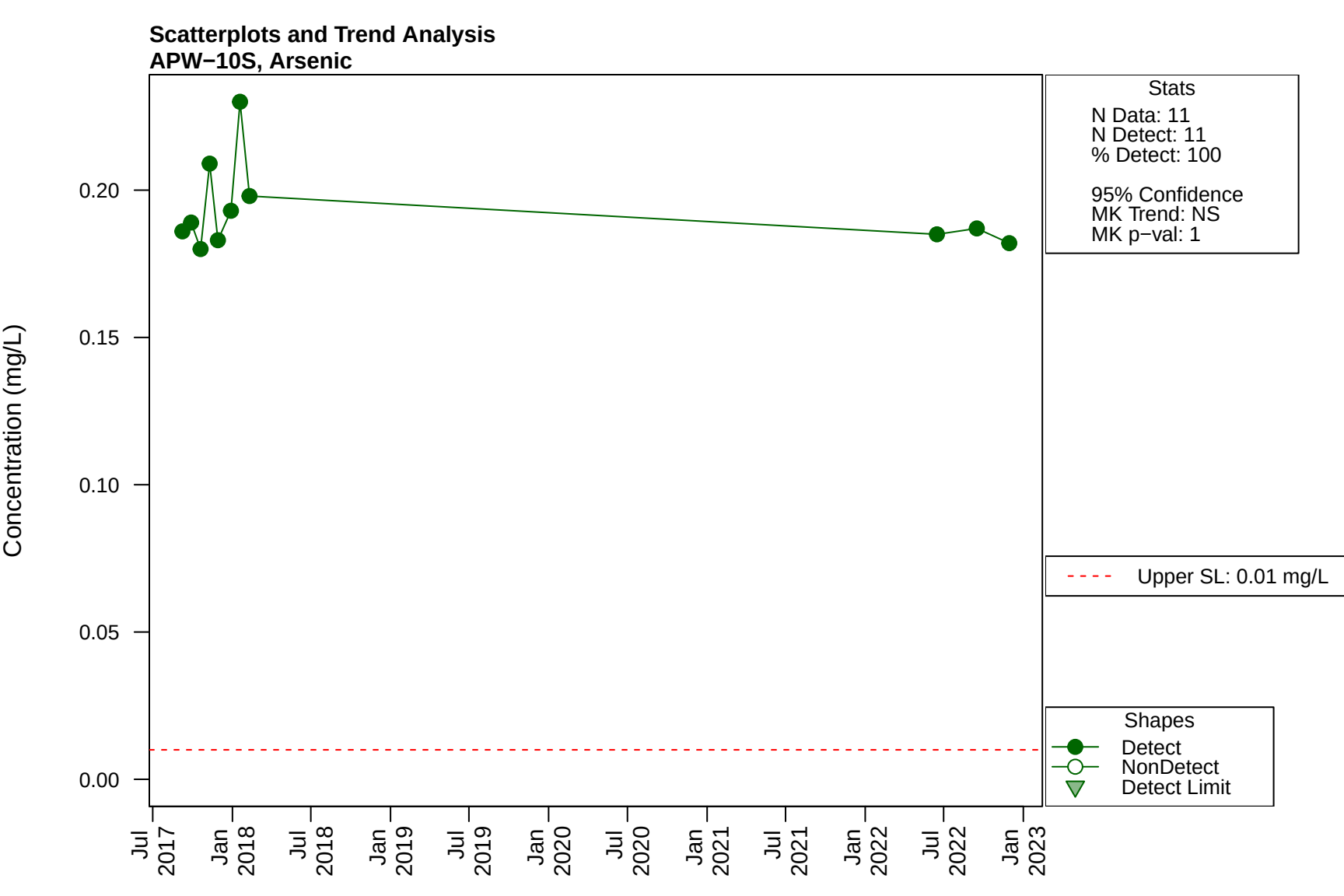

Scatterplots and Trend Analysis
APW−08, Calcium
Concentration (mg/L)
0
20
40
60
80
100
Jul 2017
Jan 2018
Jul 2018
Jan 2019
Jul 2019
Jan 2020
Jul 2020
Jan 2021
Jul 2021
Jan 2022
Jul 2022
Jan 2023
Stats
N Data: 11
N Detect: 11
% Detect: 100
95% Confidence
MK Trend: Significant
MK p−val: 0.0264
Direction: Decreasing
Lines
Linear Fit
Upper SL: 103.2 mg/L
Shapes
Detect
NonDetect
Detect Limit

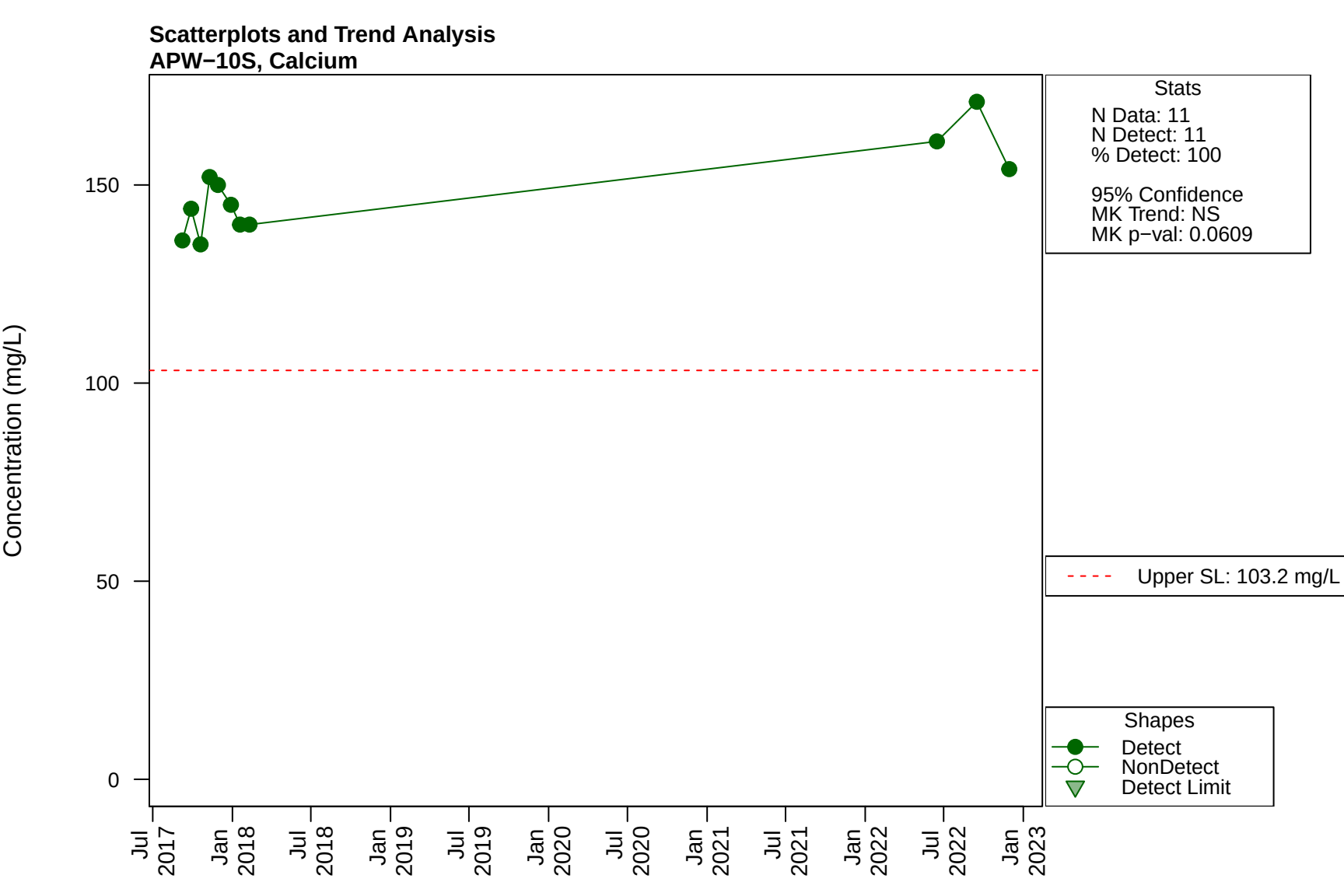

Scatterplots and Trend Analysis
APW−09, Calcium
Concentration (mg/L)
0
20
40
60
80
100
Jul 2017
Jan 2018
Jul 2018
Jan 2019
Jul 2019
Jan 2020
Jul 2020
Jan 2021
Jul 2021
Jan 2022
Jul 2022
Jan 2023
Stats
N Data: 11
N Detect: 11
% Detect: 100
95% Confidence
MK Trend: NS
MK p−val: 0.761
Upper SL: 103.2 mg/L
Shapes
Detect
NonDetect
Detect Limit


Scatterplots and Trend Analysis
APW−09, Chloride
Concentration (mg/L)
0
200
400
600
Jul 2017
Jan 2018
Jul 2018
Jan 2019
Jul 2019
Jan 2020
Jul 2020
Jan 2021
Jul 2021
Jan 2022
Jul 2022
Jan 2023
Stats
N Data: 11
N Detect: 11
% Detect: 100
95% Confidence
MK Trend: NS
MK p−val: 0.227
Upper SL: 200 mg/L
Shapes
Detect
NonDetect
Detect Limit


Scatterplots and Trend Analysis
APW−09, Dissolved Solids, Total
Concentration (mg/L)
3500
3000
2500
2000
1500
1000
500
0
Jul 2017
Jan 2018
Jul 2018
Jan 2019
Jul 2019
Jan 2020
Jul 2020
Jan 2021
Jul 2021
Jan 2022
Jul 2022
Jan 2023
Stats
N Data: 11
N Detect: 11
% Detect: 100
95% Confidence
MK Trend: NS
MK p−val: 0.274
Upper SL: 1200 mg/L
Shapes
Detect
NonDetect
Detect Limit


Scatterplots and Trend Analysis
APW−10D, Calcium
Concentration (mg/L)
0
100
200
300
Jul 2017
Jan 2018
Jul 2018
Jan 2019
Jul 2019
Jan 2020
Jul 2020
Jan 2021
Jul 2021
Jan 2022
Jul 2022
Jan 2023
Stats
N Data: 11
N Detect: 11
% Detect: 100
95% Confidence
MK Trend: NS
MK p−val: 0.283
Upper SL: 103.2 mg/L
Shapes
Detect
NonDetect
Detect Limit


Scatterplots and Trend Analysis
APW−10S, Arsenic
Concentration (mg/L)
0.00
0.05
0.10
0.15
0.20
Jul 2017
Jan 2018
Jul 2018
Jan 2019
Jul 2019
Jan 2020
Jul 2020
Jan 2021
Jul 2021
Jan 2022
Jul 2022
Jan 2023
Stats
N Data: 11
N Detect: 11
% Detect: 100
95% Confidence
MK Trend: NS
MK p−val: 1
Upper SL: 0.01 mg/L
Shapes
Detect
NonDetect
Detect Limit


Scatterplots and Trend Analysis
APW−10S, Calcium
Concentration (mg/L)
150
100
50
0
Jul 2017
Jan 2018
Jul 2018
Jan 2019
Jul 2019
Jan 2020
Jul 2020
Jan 2021
Jul 2021
Jan 2022
Jul 2022
Jan 2023
Stats
N Data: 11
N Detect: 11
% Detect: 100
95% Confidence
MK Trend: NS
MK p−val: 0.0609
Upper SL: 103.2 mg/L
Shapes
Detect
NonDetect
Detect Limit