ANNUAL CCR GROUNDWATER MONITORING & CORRECTIVE ACTION REPORT

Spurlock Impoundment

January 31, 2023

Reporting Year – 2022

EAST KENTUCKY POWER COOPERATIVE

A Touchstone Energy® Cooperative

Executive Summary

This annual report documents the status of the groundwater monitoring and corrective action program for Spurlock Station's Coal Combustion Residual (CCR) Surface Impoundment (herein "Spurlock Impoundment", "Impoundment", or "the Unit") pursuant to 40 Code of Federal Regulations (CFR) §257.90(e). Table 1-1 provides an overview of the status of the groundwater monitoring and corrective action program for the Unit during the reporting period.

Table 1-1 Overview of the Status of the Groundwater Monitoring & Corrective Action Program for the Unit

Information Required by 40 CFR §257.90(e)(6)	Unit Information
Identify whether the unit was operating at the start of the reporting period under the detection monitoring program or the assessment monitoring program.	Assessment monitoring
Identify whether the unit was operating at the end of the reporting period under the detection monitoring program or the assessment monitoring program.	Assessment monitoring
If applicable, list all Appendix III (statistically significant increases (SSIs) pursuant to §257.94(e) and the associated monitoring location(s).	MW-6: Boron, calcium, chloride, pH, sulfate, & TDS (detected November 2021 and May 2022). MW-7: Boron, calcium, chloride, & sulfate (detected November 2021). Boron, calcium, and TDS (detected May 2022). MW-8: Boron (detected November 2021). Boron, calcium, & TDS (detected May 2022).
If applicable, provide date when the assessment monitoring program was initiated.	April 15, 2018
If applicable, list all Appendix IV statistically significant levels (SSLs) pursuant to §257.95(g) and the associated monitoring location(s).	Not Applicable
If applicable, provide the date when the assessment of corrective measures was initiated.	Not Applicable
If applicable, provide the date when the public meeting was held for the assessment of corrective measures.	Not Applicable
If applicable, provide the date when the assessment of corrective measures was completed.	Not Applicable
If applicable, provide the date when a remedy was selected pursuant to §257.97.	Not Applicable
If applicable, provide the date when remedial activities were initiated or identify if they are ongoing.	Not Applicable

Table of Contents

1.0 Introduction

On April 17, 2015, the EPA issued the final version of the federal Coal Combustion Residual (CCR) Rule to regulate the disposal of CCR materials generated at coal-fired units. The CCR Rule is administered as part of the Resource Conservation and Recovery Act (RCRA, 42 United States Code [U.S.C.] §6901 et seq.) using the Subtitle D approach.

East Kentucky Power Cooperative (EKPC) is subject to the CCR Rule and as such must prepare an annual groundwater monitoring and corrective action report for all CCR Units per 40 Code of Federal Regulations (CFR) §257.90(e). The annual report must document the status of the groundwater monitoring and corrective action program for the CCR Unit, summarize key actions completed, describe any problems encountered, discuss actions to resolve problems, and project key activities for the upcoming year.

This document has been prepared to meet those requirements for the Spurlock CCR Surface Impoundment at H.L. Spurlock Power Station (Spurlock) located near Maysville, Kentucky. This report covers the 2022 reporting period, January 1, 2022 through December 31, 2022.

2.0 CCR Rule Compliance

In accordance with 40 CFR §257.90(e), EKPC is required to, at a minimum, provide the following information, to the extent available:

- A map, aerial image, or diagram showing the CCR unit and all background and downgradient monitoring wells/locations that are a part of the groundwater monitoring system, including identification numbers;
- Identify any monitoring wells/locations that were installed and/or decommissioned during the reporting period, along with a narrative description of why those actions were taken;
- Monitoring data obtained under §257.90 through §257.98, including a summary of the number of samples collected, the dates sampling occurred, and which program those samples were required by;
- A narrative description of any transition between monitoring programs (dates, circumstances, and identifying constituents detected at a SSI over background levels); and
- Other information required to be included in the annual report as specified in §257.90 through §257.98, such as:
    - Alternative monitoring frequency;
    - Alternate Source Demonstrations;
    - Assessment monitoring concentrations;
    - Demonstrations of additional time to complete the assessment of corrective measures due to site-specific conditions; and
    - A section at the beginning of the annual report that provides an overview of the current status of groundwater monitoring and corrective action programs for the unit that contains all the information specified by §257.90(e)(6).

Other information being provided in this report includes, but is not limited to:

- Groundwater elevation data;
- Laboratory analytical reports and quantification limits; and

- Statistical analysis packages prepared for each compliance monitoring event during the reporting year.

3.0 Facility Information

The Spurlock CCR Surface Impoundment at Spurlock is located along Kentucky State Route 8 in Mason, County. The site is located approximately five miles northwest of Maysville, Kentucky, and on the United States Geological Survey's Maysville West, Kentucky topographic map. The site on which the Impoundment is located is immediately adjacent to the Ohio River, and is situated on a broad, alluvial plain. **Appendix A**, prepared by Tetra Tech, Inc., shows the Spurlock CCR Impoundment property, depicting the groundwater monitoring system present. Monitoring wells MW-2, MW-3, MW-4, and MW-5 are background (or upgradient) monitoring locations, and wells MW-1, MW-6, MW-7 and MW-8 are downgradient monitoring locations.

4.0 Status of Groundwater Monitoring and Corrective Action Program

The CCR Unit did not undergo any program transition in 2022 and is implementing an assessment monitoring program at Spurlock Impoundment pursuant to 40 CFR §257.95. In order to comply with the requirements of assessment monitoring, EKPC conducts semiannual groundwater sampling, utilizes an inter-well statistical approach for Appendix III and IV constituents, as applicable, and on an annual basis re-samples for all Appendix IV constituents per the Rule. During the reporting period, no statistically significant levels (SSLs) were identified for Appendix IV constituents; therefore corrective action has not been triggered.

At the outset of implementation of the 2015 CCR Rule, EKPC interpreted the Rule's requirement for "semiannual" detection and assessment monitoring to mean two sampling events per year, with one in the first half of the year and one in the second half of the year (without necessarily being six months apart), along with one annual Appendix IV constituent scan per 40 CFR 257.95(b). However, since June 2019 each of the assessment monitoring events at Spurlock Impoundment has been roughly six months apart, and the annual Appendix IV scans have been roughly 12 months apart. To that end, assessment monitoring occurred in May and November 2022, and the annual Appendix IV scan occurred in August 2022. Going forward, EKPC will continue to conduct assessment monitoring, as needed, approximately every six months and will conduct the annual Appendix IV constituents scan approximately every 12 months.

5.0 Summary of Key Actions Completed

This Section provides a narrative of the key actions completed at the CCR Unit during the reporting period.

5.1 Groundwater Monitoring Activities

The CCR Rule requires reporting of monitoring data obtained under 40 CFR §257.90 through §257.98 during the reporting year, including a summary of the number of samples collected, the dates sampling occurred, and which program those samples were required by (background, detection, or assessment). **Table 5-1** summarizes those sampling events that occurred during the reporting period. The sampling results received in 2022, including the results from sampling in November 2021 (i.e., the second 2021 semi-annual assessment monitoring event), which were

not available during the 2021 reporting period, are summarized in **Table B-1** in **Appendix B**, while the laboratory analytical reports are included in **Appendix C.**

During the 2022 reporting year at Spurlock Impoundment, EKPC collected two sets of semi-annual assessment monitoring samples and resampled for Appendix IV constituents, pursuant to 40 CFR §257.95. The first semi-annual samples were collected on May 25, 2022, and the second samples were collected on November 22, 2022. Due to an issue with the loss of sample volume in transit to the third-party laboratory for the MW-7 and MW-8 samples collected in May 2022, a resample for radium 226+228 was performed on June 27, 2022 for these locations. The annual resampling for all Appendix IV constituents occurred on August 26, 2022. A verification sample for thallium at MW-6, was collected on September 29, 2022 due to an elevated reporting limit for the August 26, 2022 sampling event from a dilution needed during analysis to eliminate interference. The summary of the analytical results for the May 2022 assessment monitoring event, the June 2022 resample, the August Appendix IV sampling event, and the September resample event are found in **Appendix B,** with the full laboratory reports located in **Appendix C.** The November 2022 assessment monitoring event analytical results were not available on or before December 31, 2022; therefore they will be included in the 2023 annual report. Groundwater flow maps and velocity calculations from the sampling events obtained in 2022 are in **Appendix D**.

Table 5-1: Annual Sampling & Analysis Summary

Collection Date	Number of Samples Collected	Location of Collected Samples	Monitoring Program
05/25/22	8	MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7 & MW-8	Assessment [Appendix III & Appendix IV (Detected, August. 2021)]
06/27/22	2	MW-7 & MW-8	Assessment [Appendix III & Appendix IV (Detected, August. 2021)]
08/26/22	8	MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7 & MW-8	Assessment [Appendix IV Only]
09/29/22	1	MW-6	Assessment [Appendix IV Only]
11/22/22*	8	MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7 & MW-8	Assessment [Appendix III & Appendix IV (Detected, August. 2022)]

** The laboratory analytical results for the November 2022 event were not available on or before December 31, 2022, and therefore those concentrations are not included in this report.*

5.2 Assessment Monitoring Program

Pursuant to 40 CFR §257.95, within 90 days of triggering an assessment monitoring program, and annually thereafter, the owner or operator of the CCR Unit must sample and analyze the groundwater for all constituents listed in Appendix IV of the CCR Rule. After obtaining the results from the initial sampling, EKPC has 90 days to resample all wells and conduct statistical analyses for all parameters in Appendix III and for those constituents in Appendix IV that were detected in

the initial assessment monitoring program event. Assessment monitoring results, background limits, groundwater protection standards, SSI(s) and/or SSL(s), if any, are summarized in multiple tables labeled **Tables 1 through 6** in **Appendix E1** and **E2**.

The following Appendix IV constituents were detected in one or more wells in the August 2021 Appendix IV scan: arsenic, barium, cobalt, molybdenum, radium 226+228, and thallium. The samples obtained in November 2021 (i.e. the second 2021 semi-annual assessment monitoring event) and May 2022 (i.e. the first 2022 semi-annual assessment monitoring event) were analyzed for these detected Appendix IV parameters, along with all parameters in Appendix III.

Geosyntec Consultants identified background values and groundwater protection standards (GWPS) for all Appendix IV constituents detected in the August 2021 Appendix IV scan (pursuant to 40 CFR 257.95(b)). Summarized in **Table 5-2** are the Appendix IV constituents detected, the associated background UTLs calculated, and the respective GWPS established. Based on the assessment monitoring results obtained for the November 2021 and May 2022 assessment monitoring events, Geosyntec compared the detected concentrations of Appendix III constituents with their background concentrations previously calculated by Haley & Aldrich to identify any SSIs and compared the detected concentrations of Appendix IV constituents with their GWPS to identify any SSLs. **Table 6** in **Appendix E1** and **E2** compares the Appendix IV results for the November 2021 and May 2022 semi-annual assessment monitoring events to the GWPS. The full statistical analysis report for the November 2021 (dated March 2022) is located in **Appendix E1** and the May 2022 report (dated November 2022) is located in **Appendix E2**.

Table 5-2: Detected Appendix IV Constituents

Constituent[1]	Unit	MCL	RSL	Background Value	Selected GWPS
Arsenic	µg/L	10		15.1	15.1
Barium	µg/L	2,000		719	2,000
Cobalt	µg/L		6	3.3	6
Molybdenum	µg/L		100	24.6	100
Radium 226 + 228[2]	pCi/L	5		2.9	5
Thallium	µg/L	2		0.5	2

Notes:

[1] Only constituents detected in the August 2021 Assessment Monitoring Program event are shown.

[2] The standard for Radium 226 and 228 is a combined standard.

GWPS Groundwater Protection Standard

MCL Maximum Contaminant Level

RSL Regional Screening Level, only applies if MCL not promulgated.

µg/L Micrograms per Liter

pCi/L Picocuries per Liter

In August 2022, EKPC resampled all Appendix IV constituents pursuant to 40 CFR §257.95(b), and the following constituents were detected in one or more wells: arsenic, barium, cobalt, fluoride, lithium, molybdenum, and Radium 226/228 combined. The samples obtained in the subsequent November 2022 assessment monitoring event (i.e., second 2022 semi-annual event) were analyzed for these detected Appendix IV parameters, along with all parameters in Appendix

III. At the time of this report a review, performed in accordance with good statistical and engineering practices, of the previous selected background values and the groundwater protection standards for the August 2022 detected Appendix IV parameters has not been conducted. This review will be conducted concurrently with the semi-annual statistical analysis of the November 2022 assessment monitoring event, and **Table 5-2** will be updated appropriately. The analytical results for the November 2022 sampling event (i.e., the second 2022 semi-annual assessment monitoring event) had not been received as of December 31, 2022. Therefore the laboratory results, statistical report, and review of Appendix III and IV parameters will be included in the 2023 annual report.

5.3 Statistical Analysis and Statistically Significant Level(s)

Pursuant to 40 CFR §257.95(d) and (e), within 90 days of obtaining the analytical results from each assessment monitoring event, the owner or operator must determine whether there has been a statistically significant increase (SSI) over background for any Appendix III constituent or if one or more of the Appendix IV constituents detected in the Appendix IV annual scan are detected at an SSL above the GWPS.

Because EKPC did not receive the laboratory analytical results from the November 2021 second semi-annual assessment monitoring event at Spurlock Impoundment until January 2022, the statistical analysis of those results was not completed until April 2022 (within 90 days after receipt of the laboratory analytical results). Geosyntec used **Table 5-2** to evaluate whether detected Appendix IV constituents were present at SSLs above the selected GWPS, and Appendix III data were compared to background values calculated previously by Haley & Aldrich. SSIs were detected for certain Appendix III constituents, including boron, calcium, chloride, pH, sulfate, and TDS at MW-6, boron, calcium, chloride, and sulfate at MW-7, and boron at MW-8. No Appendix IV constituents in any of the wells were found to exceed the established GWPS and thus, were not determined to be present at SSLs. Therefore, the Unit remained in the assessment monitoring program. The full statistical analysis package for the November 2021 event is provided in **Appendix E1**.

In September 2022, Geosyntec completed the statistical analysis for the May 2022 first semi-annual assessment monitoring event within 90 days after receiving the laboratory analysis. A re-sample, at MW-6, was collected on September 29, 2022 due to an elevated reporting limit for thallium for the May 25, 2022 sampling event caused by a dilution needed during analysis. The May 25, 2022 result showed a non-detect result. However, the reporting limit for thallium was above the background, making it unclear whether an SSI was detected. The September 29, 2022 resample of MW-6 resulted in a normal reporting limit and showed no SSLs or any GWPS exceedances. Geosyntec used **Table 5-2** to evaluate whether detected Appendix IV constituents were present at SSLs above the selected GWPS, and Appendix III data were compared to background values calculated previously by Haley & Aldrich. SSIs were detected for certain Appendix III constituents, including boron, calcium, chloride, pH, sulfate, and TDS at MW-6, and boron, calcium, and TDS at MW-7 and MW-8. No detected Appendix IV constituents in any of the wells were found to exceed the established GWPS and thus, were not determined to be present at SSLs. Therefore, the Unit remained in the assessment monitoring program. The full statistical analysis package for the May 2022 sampling event is provided in **Appendix E2**.

The statistical analysis for the November 2022 second semi-annual assessment monitoring event is not included in this report since the analytical results for that event were not available on or

before December 31, 2022. Therefore, the analysis for the 2022 second semi-annual monitoring event will be included in the next reporting period.

6.0 Problems Encountered and Actions Taken

This section describes any problems encountered with the groundwater monitoring program during the reporting period and the actions taken in response.

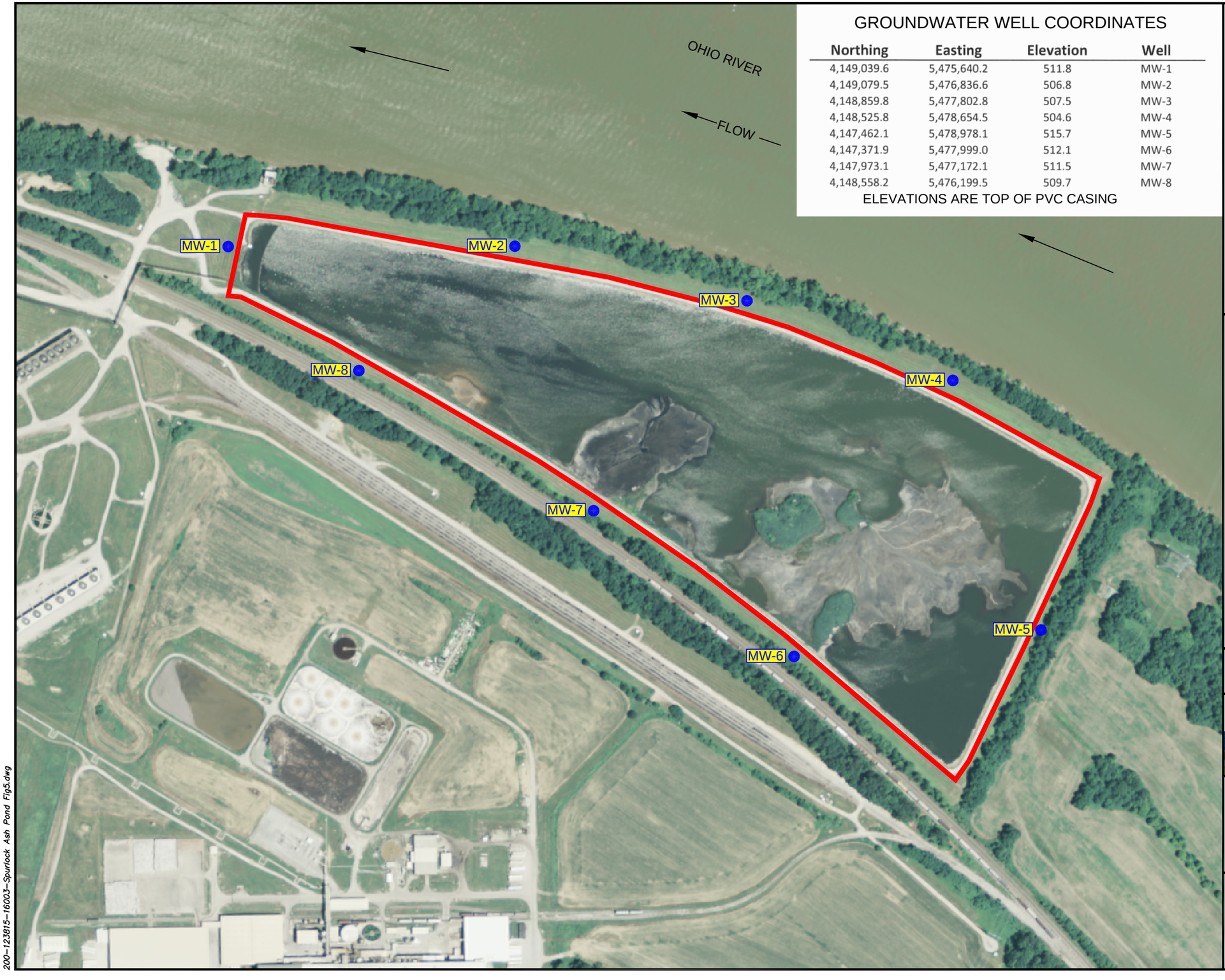
No significant problems were encountered at the Spurlock Impoundment in 2022. A re-sample, at MW-6, was collected on September 29, 2022 due to an elevated reporting limit for thallium for the May 25, 2022 sampling event caused by a dilution needed during analysis. The May 25, 2022 result showed a non-detect result. However, the reporting limit for thallium was above the background, making it unclear whether an SSI was detected. The September 29, 2022 resample of MW-6 resulted in a normal reporting limit and showed no SSLs or any GWPS exceedances.

7.0 Key Activities Projected for 2023

In 2023, EKPC will continue to meet the requirements of assessment monitoring pursuant to 40 CFR §257.95. EKPC will resample and analyze, at least once annually, the groundwater for all constituents listed in Appendix IV. Within 90 days after obtaining the results for this sampling, and on a semiannual basis, EKPC will resample all wells and conduct analyses for all parameters in Appendix III and for those constituents in Appendix IV that are detected.

Additionally, EKPC continues to evaluate the existing groundwater monitoring systems at its CCR units to identify opportunities for continuous improvement. This evaluation includes consideration of recent comments made by U.S. EPA concerning groundwater monitoring under the CCR Rule in the context of EPA's evaluation of demonstrations filed by various owners/operators pursuant to EPA's Part A (40 CFR 257.103(f)(1)) process, including the demonstration filed by EKPC for its Spurlock Impoundment. EKPC will provide updates on these efforts in the 2023 Groundwater Monitoring and Corrective Action annual reports for its CCR units.

APPENDIX A – Groundwater Monitoring Locations



GROUNDWATER WELL COORDINATES

Northing	Easting	Elevation	Well
4,149,039.6	5,475,640.2	511.8	MW-1
4,149,079.5	5,476,836.6	506.8	MW-2
4,148,859.8	5,477,802.8	507.5	MW-3
4,148,525.8	5,478,654.5	504.6	MW-4
4,147,462.1	5,478,978.1	515.7	MW-5
4,147,371.9	5,477,999.0	512.1	MW-6
4,147,973.1	5,477,172.1	511.5	MW-7
4,148,558.2	5,476,199.5	509.7	MW-8

ELEVATIONS ARE TOP OF PVC CASING

N

LEGEND

- GROUNDWATER MONITORING WELL
- ASH POND WASTE BOUNDARY

GROUNDWATER MONITORING WELLS INSTALLED AUGUST/SEPTEMBER 2016.

0 200 400

GRAPHIC SCALE, FEET

AERIAL PHOTOGRAPH, CIRCA 2014, OBTAINED FROM:

GIS Kentucky Division of Geographic Information gis.ky.gov "Explore!"

FIGURE 5

Groundwater Monitoring Well Locations
East Kentucky Power Cooperative
Spurlock Ash Pond
Mason County, Kentucky

TETRA TECH, INC.
424 Lewis Hargett Circle Lexington, Kentucky 40503 (859) 223-8000

200-123815-16003-Spurlock Ash Pond Fig5.dwg

APPENDIX B – Summary of Analytical Results

H.L. Spurlock Station Surface Impoundment

Annual Reporting Year 2022
Table B-1: Summary of Analytical Results

				Appendix 3 Constituents															
Well ID	**Sample Date**	**Event Type**	**GW Elevation (ft. MSL)**	**Boron** (µg/L)		**Calcium** (µg/L)		**Chloride** (mg/L)		**Fluoride** (mg/L)		**pH** (S.U.)	**Sulfate** (mg/L)		**TDS** (mg/L)	
SSI-MW-1	**11/18/2021**	**Assessment**	**474.43**	**< 50.0**		**35600**	**D**	**22.2**		**< 0.50**		**7.09**	**37.6**		**106**	
SSI-MW-1	**5/25/2022**	**Assessment**	**469.37**	**48.3**		**52900**		**25.0**		**0.16**		**6.78**	**44.3**		**188**	
SSI-MW-2	**11/18/2021**	**Assessment**	**476.40**	**< 50.0**		**39000**	**D**	**23.5**		**< 0.50**		**7.34**	**46.4**		**156**	
SSI-MW-2	**5/25/2022**	**Assessment**	**472.41**	**44.6**		**44500**		**23.6**		**0.17**		**7.5**	**44.1**		**220**	
SSI-MW-3	**11/18/2021**	**Assessment**	**476.42**	**< 50.0**		**49100**	**D**	**22.2**		**< 0.50**		**7.35**	**23.1**		**214**	
SSI-MW-3	**5/25/2022**	**Assessment**	**473.73**	**44.1**		**46900**		**24.8**		**0.24**		**7.49**	**12.9**		**218**	
SSI-MW-4	**11/18/2021**	**Assessment**	**476.90**	**< 50.0**		**43700**	**D**	**23.1**		**< 0.50**		**7.57**	**45.3**		**208**	
SSI-MW-4	**5/25/2022**	**Assessment**	**475.04**	**77.1**		**65000**		**24.8**		**0.14**		**7.79**	**97.9**		**266**	
SSI-MW-5	**11/18/2021**	**Assessment**	**475.39**	**< 50.0**		**40700**	**D**	**18.2**		**< 0.50**		**6.97**	**40.2**		**206**	
SSI-MW-5	**5/25/2022**	**Assessment**	**474.02**	**35.3**		**44800**		**18.2**		**0.28**		**7.09**	**40.8**		**196**	
SSI-MW-6	**11/18/2021**	**Assessment**	**472.97**	**4250**	**D**	**149000**	**D**	**127**	**D**	**< 0.50**		**6.33**	**405**	**D**	**778**	
SSI-MW-6	**5/25/2022**	**Assessment**	**470.86**	**3280**		**146000**		**166**	**D**	**0.14**		**6.5**	**348**	**D**	**1020**	
SSI-MW-7	**11/18/2021**	**Assessment**	**473.70**	**790**		**90300**	**D**	**51.0**		**< 0.50**		**7.24**	**146**		**364**	
SSI-MW-7	**5/25/2022**	**Assessment**	**470.22**	**384**		**71800**		**36.0**		**0.44**		**7.25**	**83.5**		**456**	
SSI-MW-8	**11/18/2021**	**Assessment**	**473.85**	**89.4**		**47700**	**D**	**24.5**		**< 0.50**		**7.44**	**51.9**		**268**	
SSI-MW-8	**5/25/2022**	**Assessment**	**467.10**	**830**		**67600**		**36.2**		**0.23**		**7.59**	**73.0**		**368**	

Result Notes :	J - Estimated Value	R - Unusable (Quality Control Failure)	
	NA - Not available	D - Result reported from dilution	
Result Units :	mg/L - milligram per liter	µg/L - microgram per liter	S.U. - Standard Units
	ft. MSL - feet above mean sea level	pCi/L - picocurie per liter	
Event Type Abbreviations :	A3 - Appendix III Constituents for Detection Monitoring	A4 - Appendix IV Constituents for Assessment Monitoring	
	ASD - Alternative Source Demonstration		
Event Type Constituents :	Background - A3 and A4	Detection - A3	Annual Screen - A4
	Assessment - A3 (All) and A4 (Detected in annual screen).		ASD - Tested A3 and A4 parameters

H.L. Spurlock Station Surface Impoundment

Annual Reporting Year 2022
Table B-1: Summary of Analytical Results

Appendix 4 Constituents

Well ID	Sample Date	Event Type	GW Elevation (ft. MSL)	Arsenic (µg/L)	Barium (µg/L)	Cobalt (µg/L)	Molybdenum (µg/L)	Radium (pCi/L)
SSI-MW-1	11/18/2021	Assessment	474.43	< 1.0	16.3	< 1.0	16.6	0.000
SSI-MW-1	5/25/2022	Assessment	469.37	< 1.0	17.6	< 1.0	18.9	0.949
SSI-MW-2	11/18/2021	Assessment	476.40	1.3	74.3	< 1.0	17.7	0.234
SSI-MW-2	5/25/2022	Assessment	472.41	< 1.0	50.6	< 1.0	18.8	0.182
SSI-MW-3	11/18/2021	Assessment	476.42	8.9	331	1.8	16.2	1.04
SSI-MW-3	5/25/2022	Assessment	473.73	10.1	309	1.34	19.5	0.787
SSI-MW-4	11/18/2021	Assessment	476.90	< 1.0	12.0	< 1.0	14.0	0.724
SSI-MW-4	5/25/2022	Assessment	475.04	< 1.0	37.2	< 1.0	12.6	0.328
SSI-MW-5	11/18/2021	Assessment	475.39	< 1.0	18.4	< 1.0	< 1.0	0.639
SSI-MW-5	5/25/2022	Assessment	474.02	< 1.0	19.2	< 1.0	1.46	0.979
SSI-MW-6	11/18/2021	Assessment	472.97	< 1.0	38.4	< 1.0	< 1.0	0.875
SSI-MW-6	5/25/2022	Assessment	470.86	< 10	34.6	< 10	< 10.0	0.950
SSI-MW-7	11/18/2021	Assessment	473.70	< 1.0	33.2	< 1.0	< 1.0	0.926
SSI-MW-7	5/25/2022	Assessment	470.22	< 1.0	31.6	< 1.0	< 1.00	NA
SSI-MW-7	6/27/2022	Assessment	471.54	NA	NA	NA	NA	0.630
SSI-MW-8	11/18/2021	Assessment	473.85	< 1.0	15.1	< 1.0	22.6	1.23
SSI-MW-8	5/25/2022	Assessment	467.10	< 1.0	29.3	< 1.0	18.3	NA
SSI-MW-8	6/27/2022	Assessment	470.27	NA	NA	NA	NA	0.403

Result Notes :	J - Estimated Value	R - Unusable (Quality Control Failure)	
	NA - Not available	D - Result reported from dilution	
Result Units :	mg/L - milligram per liter	µg/L - microgram per liter	S.U. - Standard Units
	ft. MSL - feet above mean sea level	pCi/L - picocurie per liter	
Event Type Abbreviations :	A3 - Appendix III Constituents for Detection Monitoring	A4 - Appendix IV Constituents for Assessment Monitoring	
	ASD - Alternative Source Demonstration		
Event Type Constituents :	Background - A3 and A4	Detection - A3	Annual Screen - A4
	Assessment - A3 (All) and A4 (Detected in annual screen).		ASD - Tested A3 and A4 parameters

H.L. Spurlock Station Surface Impoundment

Annual Reporting Year 2022
Table B-1: Summary of Analytical Results

				Appendix 4 Constituents														
Well ID	**Sample Date**	**Event Type**	**GW Elevation (ft. MSL)**	**Antimony** (µg/L)	**Arsenic** (µg/L)	**Barium** (µg/L)	**Beryllium** (µg/L)	**Cadmium** (µg/L)	**Chromium** (µg/L)	**Cobalt** (µg/L)	**Fluoride** (µg/L)	**Lead** (µg/L)	**Lithium** (µg/L)	**Mercury** (µg/L)		**Molybdenum** (µg/L)	**Radium** (pCi/L)	**Selenium** (µg/L)	**Thallium** (µg/L)
SSI-MW-1	**8/26/2022**	**Annual Screen**	**465.20**	**< 1.0**	**< 1.0**	**20.9**	**< 1.0**	**< 0.25**	**< 1.0**	**< 1.0**	**0.22**	**< 1.0**	**< 10.0**	**< 0.0050**	**D**	**16.6**	**0.000**	**< 1.0**	**< 0.10**
SSI-MW-2	**8/26/2022**	**Annual Screen**	**469.74**	**< 1.0**	**1.1**	**50.9**	**< 1.0**	**< 0.25**	**< 1.0**	**< 1.0**	**0.14**	**< 1.0**	**< 10.0**	**< 0.0050**	**D**	**15.4**	**0.345**	**< 1.0**	**< 0.10**
SSI-MW-3	**8/26/2022**	**Annual Screen**	**472.46**	**< 1.0**	**11.7**	**416**	**< 1.0**	**< 0.25**	**< 1.0**	**1.7**	**0.19**	**< 1.0**	**< 10.0**	**< 0.0050**	**D**	**17.5**	**0.967**	**< 1.0**	**< 0.10**
SSI-MW-4	**8/26/2022**	**Annual Screen**	**474.55**	**< 1.0**	**< 1.0**	**17.3**	**< 1.0**	**< 0.25**	**< 1.0**	**< 1.0**	**0.16**	**< 1.0**	**< 10.0**	**< 0.0050**	**D**	**14.2**	**0.819**	**< 1.0**	**< 0.10**
SSI-MW-5	**8/26/2022**	**Annual Screen**	**473.87**	**< 1.0**	**< 1.0**	**20.2**	**< 1.0**	**< 0.25**	**< 1.0**	**< 1.0**	**0.27**	**< 1.0**	**< 10.0**	**< 0.0050**	**D**	**< 2.0**	**0.690**	**< 1.0**	**< 0.10**
SSI-MW-6	**8/26/2022**	**Annual Screen**	**470.12**	**< 1.0**	**< 1.0**	**44.1**	**< 1.0**	**< 0.25**	**< 1.0**	**< 1.0**	**0.16**	**< 1.0**	**17.2**	**< 0.0050**	**D**	**< 2.0**	**0.476**	**< 1.0**	**< 0.10**
SSI-MW-7	**8/26/2022**	**Annual Screen**	**468.03**	**< 1.0**	**< 1.0**	**51.2**	**< 1.0**	**< 0.25**	**< 1.0**	**< 1.0**	**0.31**	**< 1.0**	**< 10.0**	**< 0.0050**	**D**	**< 2.0**	**0.279**	**< 1.0**	**< 0.10**
SSI-MW-8	**8/26/2022**	**Annual Screen**	**463.36**	**< 1.0**	**< 1.0**	**25.5**	**< 1.0**	**< 0.25**	**< 1.0**	**< 1.0**	**0.22**	**< 1.0**	**< 10.0**	**< 0.0050**	**D**	**24.7**	**0.487**	**< 1.0**	**< 0.10**

Result Notes :	J - Estimated Value	R - Unusable (Quality Control Failure)	
	NA - Not available	D - Result reported from dilution	
Result Units :	mg/L - milligram per liter	µg/L - microgram per liter	S.U. - Standard Units
	ft. MSL - feet above mean sea level	pCi/L - picocurie per liter	
Event Type Abbreviations :	A3 - Appendix III Constituents for Detection Monitoring	A4 - Appendix IV Constituents for Assessment Monitoring	
	ASD - Alternative Source Demonstration		
Event Type Constituents :	Background - A3 and A4	Detection - A3	Annual Screen - A4
	Assessment - A3 (All) and A4 (Detected in annual screen).		ASD - Tested A3 and A4 parameters

APPENDIX C – Laboratory Analytical Reports

EAST KENTUCKY POWER COOPERATIVE

Report Date: Thursday, January 27, 2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	11/18/2021
Well ID No:	SSI-MW-1	Sample Collection Time:	3:05 PM
AKGW No.:	8003-8407	Sample Collected By:	BTB
Well Depth (Ft.):	52	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	511.79	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

Field Analyses

	Result	Units	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Groundwater Elevation	474.43	MSL		11/18/2021	3:05 PM	BTB
Turbidity	< 1.0	NTU	SM 2130, B-2001	11/18/2021	3:05 PM	BTB
Conductivity	363.0	µS/cm	SM 2510, B-2011	11/18/2021	3:05 PM	BTB
Temperature	54.14	°F	SM 2550, B-2010	11/18/2021	3:05 PM	BTB
Oxidation Reduction Potential	66.7	mV	SM 2580, B-2011	11/18/2021	3:05 PM	BTB
pH	7.09	S.U.	SM 4500-H+, B-2011	11/18/2021	3:05 PM	BTB
Dissolved Oxygen	< 1.0	mg/L	SM 4500-O	11/18/2021	3:05 PM	BTB

EKPC - Central Laboratory Analyses

Lab Identification #: 2100814

Sample Received Date:	11/22/2021	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	11:40 AM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Boron	< 50.0	µg/L	29.5	50.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:32 PM	JD
Calcium	35600	µg/L	2040	5000	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	5:57 PM	JD
Chloride	22.2	mg/L	0.2	0.5	EPA 300.0 Rev 2.1 (1993)	11/29/2021	5:55 PM	JD
Fluoride	< 0.50	mg/L	0.02	0.50	EPA 300.0 Rev 2.1 (1993)	11/29/2021	5:55 PM	JD
Sulfate	37.6	mg/L	0.24	4.0	EPA 300.0 Rev 2.1 (1993)	11/29/2021	5:55 PM	JD
Solids, Total Dissolved	106	mg/L		50.0	SM 2540, C-2011	11/19/2021	2:43 PM	JD

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Electronically Approved By :

Jared Daugherty - Chemist

12:18 PM 12/09/2021

Eric Hamilton - QA/QC Chemist

12:21 PM 12/09/2021

4775 Lexington Road 40391
P.O. Box 707, Winchester
Kentucky 40392-0707

Tel. (859) 744-4812
Fax: (859) 744-6008
http://www.ekpc.coop

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Thursday, January 27, 2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	11/18/2021
Well ID No:	SSI-MW-2	Sample Collection Time:	10:27 AM
AKGW No.:	8004-3801	Sample Collected By:	BTB
Well Depth (Ft.):	52.5	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	506.8	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

Field Analyses

	Result	Units	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Groundwater Elevation	476.4	MSL		11/18/2021	10:27 AM	BTB
Turbidity	1.52	NTU	SM 2130, B-2001	11/18/2021	10:27 AM	BTB
Conductivity	395.0	µS/cm	SM 2510, B-2011	11/18/2021	10:27 AM	BTB
Temperature	57.38	°F	SM 2550, B-2010	11/18/2021	10:27 AM	BTB
Oxidation Reduction Potential	-72.0	mV	SM 2580, B-2011	11/18/2021	10:27 AM	BTB
pH	7.34	S.U.	SM 4500-H+, B-2011	11/18/2021	10:27 AM	BTB
Dissolved Oxygen	2.15	mg/L	SM 4500-O	11/18/2021	10:27 AM	BTB

EKPC - Central Laboratory Analyses

Lab Identification #: 2100815

Sample Received Date:	11/22/2021	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	11:40 AM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Boron	< 50.0	µg/L	29.5	50.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:36 PM	JD
Calcium	39000	µg/L	2040	5000	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	6:01 PM	JD
Chloride	23.5	mg/L	0.2	0.5	EPA 300.0 Rev 2.1 (1993)	11/29/2021	6:14 PM	JD
Fluoride	< 0.50	mg/L	0.02	0.50	EPA 300.0 Rev 2.1 (1993)	11/29/2021	6:14 PM	JD
Sulfate	46.4	mg/L	0.24	4.0	EPA 300.0 Rev 2.1 (1993)	11/29/2021	6:14 PM	JD
Solids, Total Dissolved	156	mg/L		50.0	SM 2540, C-2011	11/19/2021	2:43 PM	JD

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Electronically Approved By :

Jared Daugherty - Chemist

12:18 PM 12/09/2021

Eric Hamilton - QA/QC Chemist

12:21 PM 12/09/2021

4775 Lexington Road 40391
P.O. Box 707, Winchester
Kentucky 40392-0707

Tel. (859) 744-4812
Fax: (859) 744-6008
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Report Date: Thursday, January 27, 2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	11/18/2021
Well ID No:	SSI-MW-3	Sample Collection Time:	11:16 AM
AKGW No.:	8003-8406	Sample Collected By:	BTB
Well Depth (Ft.):	52.5	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	507.53	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

Field Analyses

	Result	Units	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Groundwater Elevation	476.42	MSL		11/18/2021	11:16 AM	BTB
Turbidity	1.01	NTU	SM 2130, B-2001	11/18/2021	11:16 AM	BTB
Conductivity	479.0	µS/cm	SM 2510, B-2011	11/18/2021	11:16 AM	BTB
Temperature	56.84	°F	SM 2550, B-2010	11/18/2021	11:16 AM	BTB
Oxidation Reduction Potential	-144	mV	SM 2580, B-2011	11/18/2021	11:16 AM	BTB
pH	7.35	S.U.	SM 4500-H+, B-2011	11/18/2021	11:16 AM	BTB
Dissolved Oxygen	< 1.0	mg/L	SM 4500-O	11/18/2021	11:16 AM	BTB

EKPC - Central Laboratory Analyses

Lab Identification #: 2100816

Sample Received Date:	11/22/2021	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	11:40 AM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Boron	< 50.0	µg/L	29.5	50.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:40 PM	JD
Calcium	49100	µg/L	2040	5000	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	6:05 PM	JD
Chloride	22.2	mg/L	0.2	0.5	EPA 300.0 Rev 2.1 (1993)	11/29/2021	6:33 PM	JD
Fluoride	< 0.50	mg/L	0.02	0.50	EPA 300.0 Rev 2.1 (1993)	11/29/2021	6:33 PM	JD
Sulfate	23.1	mg/L	0.24	4.0	EPA 300.0 Rev 2.1 (1993)	11/29/2021	6:33 PM	JD
Solids, Total Dissolved	214	mg/L		50.0	SM 2540, C-2011	11/19/2021	2:43 PM	JD

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Electronically Approved By :

Jared Daugherty - Chemist

12:18 PM 12/09/2021

Eric Hamilton - QA/QC Chemist

12:21 PM 12/09/2021

4775 Lexington Road 40391
P.O. Box 707, Winchester
Kentucky 40392-0707

Tel. (859) 744-4812
Fax: (859) 744-6008
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Report Date: Thursday, January 27, 2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	11/18/2021
Well ID No:	SSI-MW-4	Sample Collection Time:	12:16 PM
AKGW No.:	8003-8405	Sample Collected By:	BTB
Well Depth (Ft.):	52.87	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	504.61	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

Field Analyses

	Result	Units	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Groundwater Elevation	476.9	MSL		11/18/2021	12:16 PM	BTB
Turbidity	< 1.0	NTU	SM 2130, B-2001	11/18/2021	12:16 PM	BTB
Conductivity	402.0	µS/cm	SM 2510, B-2011	11/18/2021	12:16 PM	BTB
Temperature	57.20	°F	SM 2550, B-2010	11/18/2021	12:16 PM	BTB
Oxidation Reduction Potential	-42.5	mV	SM 2580, B-2011	11/18/2021	12:16 PM	BTB
pH	7.57	S.U.	SM 4500-H+, B-2011	11/18/2021	12:16 PM	BTB
Dissolved Oxygen	1.1	mg/L	SM 4500-O	11/18/2021	12:16 PM	BTB

EKPC - Central Laboratory Analyses

Lab Identification #: 2100817

Sample Received Date:	11/22/2021	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	11:40 AM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Boron	< 50.0	µg/L	29.5	50.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:44 PM	JD
Calcium	43700	µg/L	2040	5000	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	6:09 PM	JD
Chloride	23.1	mg/L	0.2	0.5	EPA 300.0 Rev 2.1 (1993)	11/29/2021	6:52 PM	JD
Fluoride	< 0.50	mg/L	0.02	0.50	EPA 300.0 Rev 2.1 (1993)	11/29/2021	6:52 PM	JD
Sulfate	45.3	mg/L	0.24	4.0	EPA 300.0 Rev 2.1 (1993)	11/29/2021	6:52 PM	JD
Solids, Total Dissolved	208	mg/L		50.0	SM 2540, C-2011	11/19/2021	2:43 PM	JD

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Electronically Approved By :

Jared Daugherty - Chemist

12:18 PM 12/09/2021

Eric Hamilton - QA/QC Chemist

12:21 PM 12/09/2021

4775 Lexington Road 40391
P.O. Box 707, Winchester
Kentucky 40392-0707

Tel. (859) 744-4812
Fax: (859) 744-6008
http://www.ekpc.coop

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Report Date: Thursday, January 27, 2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	11/18/2021
Well ID No:	SSI-MW-5	Sample Collection Time:	1:12 PM
AKGW No.:	8007-1129	Sample Collected By:	BTB
Well Depth (Ft.):	52.41	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	515.7	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

Field Analyses

	Result	Units	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Groundwater Elevation	475.39	MSL		11/18/2021	1:12 PM	BTB
Turbidity	2.18	NTU	SM 2130, B-2001	11/18/2021	1:12 PM	BTB
Conductivity	374.0	µS/cm	SM 2510, B-2011	11/18/2021	1:12 PM	BTB
Temperature	57.74	°F	SM 2550, B-2010	11/18/2021	1:12 PM	BTB
Oxidation Reduction Potential	42.8	mV	SM 2580, B-2011	11/18/2021	1:12 PM	BTB
pH	6.97	S.U.	SM 4500-H+, B-2011	11/18/2021	1:12 PM	BTB
Dissolved Oxygen	1.22	mg/L	SM 4500-O	11/18/2021	1:12 PM	BTB

EKPC - Central Laboratory Analyses

Lab Identification #: 2100818

Sample Received Date:	11/22/2021	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	11:40 AM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Boron	< 50.0	µg/L	29.5	50.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:48 PM	JD
Calcium	40700	µg/L	2040	5000	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	6:13 PM	JD
Chloride	18.2	mg/L	0.2	0.5	EPA 300.0 Rev 2.1 (1993)	11/29/2021	7:10 PM	JD
Fluoride	< 0.50	mg/L	0.02	0.50	EPA 300.0 Rev 2.1 (1993)	11/29/2021	7:10 PM	JD
Sulfate	40.2	mg/L	0.24	4.0	EPA 300.0 Rev 2.1 (1993)	11/29/2021	7:10 PM	JD
Solids, Total Dissolved	206	mg/L		50.0	SM 2540, C-2011	11/19/2021	2:43 PM	JD

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Electronically Approved By :

Jared Daugherty - Chemist

12:18 PM 12/09/2021

Eric Hamilton - QA/QC Chemist

12:21 PM 12/09/2021

4775 Lexington Road 40391
P.O. Box 707, Winchester
Kentucky 40392-0707

Tel. (859) 744-4812
Fax: (859) 744-6008
http://www.ekpc.coop

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Report Date: Thursday, January 27, 2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	11/18/2021
Well ID No:	SSI-MW-6	Sample Collection Time:	1:57 PM
AKGW No.:	8007-1132	Sample Collected By:	BTB
Well Depth (Ft.):	52.35	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	512.12	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

Field Analyses

	Result	Units	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Groundwater Elevation	472.97	MSL		11/18/2021	1:57 PM	BTB
Turbidity	< 1.0	NTU	SM 2130, B-2001	11/18/2021	1:57 PM	BTB
Conductivity	1327	µS/cm	SM 2510, B-2011	11/18/2021	1:57 PM	BTB
Temperature	59	°F	SM 2550, B-2010	11/18/2021	1:57 PM	BTB
Oxidation Reduction Potential	111.2	mV	SM 2580, B-2011	11/18/2021	1:57 PM	BTB
pH	6.33	S.U.	SM 4500-H+, B-2011	11/18/2021	1:57 PM	BTB
Dissolved Oxygen	1.11	mg/L	SM 4500-O	11/18/2021	1:57 PM	BTB

EKPC - Central Laboratory Analyses

Lab Identification #: 2100819

Sample Received Date:	11/22/2021	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	11:40 AM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Boron	4250	µg/L	295	500	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	6:17 PM	JD
Calcium	149000	µg/L	2040	5000	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	6:17 PM	JD
Chloride	127	mg/L	1.9	5.0	EPA 300.0 Rev 2.1 (1993)	11/29/2021	7:48 PM	JD
Fluoride	< 0.50	mg/L	0.02	0.50	EPA 300.0 Rev 2.1 (1993)	11/29/2021	7:29 PM	JD
Sulfate	405	mg/L	2.38	40.0	EPA 300.0 Rev 2.1 (1993)	11/29/2021	7:48 PM	JD
Solids, Total Dissolved	778	mg/L		50.0	SM 2540, C-2011	11/19/2021	2:43 PM	JD

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Electronically Approved By :

Jared Daugherty - Chemist

12:18 PM 12/09/2021

Eric Hamilton - QA/QC Chemist

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4775 Lexington Road 40391
P.O. Box 707, Winchester
Kentucky 40392-0707

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Report Date: Thursday, January 27, 2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	11/18/2021
Well ID No:	SSI-MW-7	Sample Collection Time:	4:26 PM
AKGW No.:	8007-1131	Sample Collected By:	BTB
Well Depth (Ft.):	52.57	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	511.45	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

Field Analyses

	Result	Units	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Groundwater Elevation	473.7	MSL		11/18/2021	4:26 PM	BTB
Turbidity	< 1.0	NTU	SM 2130, B-2001	11/18/2021	4:26 PM	BTB
Conductivity	807.0	µS/cm	SM 2510, B-2011	11/18/2021	4:26 PM	BTB
Temperature	59.00	°F	SM 2550, B-2010	11/18/2021	4:26 PM	BTB
Oxidation Reduction Potential	18.1	mV	SM 2580, B-2011	11/18/2021	4:26 PM	BTB
pH	7.24	S.U.	SM 4500-H+, B-2011	11/18/2021	4:26 PM	BTB
Dissolved Oxygen	< 1.0	mg/L	SM 4500-O	11/18/2021	4:26 PM	BTB

EKPC - Central Laboratory Analyses

Lab Identification #: 2100820

Sample Received Date:	11/22/2021	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	11:40 AM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Boron	790	µg/L	29.5	50.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:57 PM	JD
Calcium	90300	µg/L	2040	5000	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	6:21 PM	JD
Chloride	51.0	mg/L	0.2	0.5	EPA 300.0 Rev 2.1 (1993)	11/29/2021	8:07 PM	JD
Fluoride	< 0.50	mg/L	0.02	0.50	EPA 300.0 Rev 2.1 (1993)	11/29/2021	8:07 PM	JD
Sulfate	146	mg/L	0.24	4.0	EPA 300.0 Rev 2.1 (1993)	11/29/2021	8:07 PM	JD
Solids, Total Dissolved	364	mg/L		50.0	SM 2540, C-2011	11/19/2021	2:43 PM	JD

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Electronically Approved By :

Jared Daugherty - Chemist

12:18 PM 12/09/2021

Eric Hamilton - QA/QC Chemist

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4775 Lexington Road 40391
P.O. Box 707, Winchester
Kentucky 40392-0707

Tel. (859) 744-4812
Fax: (859) 744-6008
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A Touchstone Energy® Cooperative

EAST KENTUCKY POWER COOPERATIVE

Report Date: Thursday, January 27, 2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	11/18/2021
Well ID No:	SSI-MW-8	Sample Collection Time:	3:47 PM
AKGW No.:	8007-1130	Sample Collected By:	BTB
Well Depth (Ft.):	53.53	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	509.67	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

Field Analyses

	Result	Units	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Groundwater Elevation	473.85	MSL		11/18/2021	3:47 PM	BTB
Turbidity	< 1.0	NTU	SM 2130, B-2001	11/18/2021	3:47 PM	BTB
Conductivity	444.0	µS/cm	SM 2510, B-2011	11/18/2021	3:47 PM	BTB
Temperature	62.60	°F	SM 2550, B-2010	11/18/2021	3:47 PM	BTB
Oxidation Reduction Potential	-35.6	mV	SM 2580, B-2011	11/18/2021	3:47 PM	BTB
pH	7.44	S.U.	SM 4500-H+, B-2011	11/18/2021	3:47 PM	BTB
Dissolved Oxygen	< 1.0	mg/L	SM 4500-O	11/18/2021	3:47 PM	BTB

EKPC - Central Laboratory Analyses

Lab Identification #: 2100821

Sample Received Date:	11/22/2021	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	11:40 AM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Boron	89.4	µg/L	29.5	50.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	8:01 PM	JD
Calcium	47700	µg/L	2040	5000	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	6:25 PM	JD
Chloride	24.5	mg/L	0.2	0.5	EPA 300.0 Rev 2.1 (1993)	11/29/2021	8:26 PM	JD
Fluoride	< 0.50	mg/L	0.02	0.50	EPA 300.0 Rev 2.1 (1993)	11/29/2021	8:26 PM	JD
Sulfate	51.9	mg/L	0.24	4.0	EPA 300.0 Rev 2.1 (1993)	11/29/2021	8:26 PM	JD
Solids, Total Dissolved	268	mg/L		50.0	SM 2540, C-2011	11/19/2021	2:43 PM	JD

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Electronically Approved By :

Jared Daugherty - Chemist

12:18 PM 12/09/2021

Eric Hamilton - QA/QC Chemist

12:21 PM 12/09/2021

4775 Lexington Road 40391
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Kentucky 40392-0707

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Thursday, January 27, 2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	11/18/2021
Well ID No:	SSI-MW-1	Sample Collection Time:	3:05 PM
AKGW No.:	8003-8407	Sample Collected By:	BTB
Well Depth (Ft.):	52	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	511.79	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

EKPC - Central Laboratory Analyses

Lab Identification #: 2200083

Sample Received Date:	11/22/2021	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	11:40 AM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Antimony	< 1.0	µg/L	0.2	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:32 PM	JD
Beryllium	< 1.0	µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:32 PM	JD
Cadmium	< 0.10	µg/L	0.05	0.10	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:32 PM	JD
Chromium	< 1.0	µg/L	0.4	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:32 PM	JD
Lead	< 1.0	µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:32 PM	JD
Lithium	< 25.0	µg/L	4.6	25.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:32 PM	JD
Selenium	< 1.0	µg/L	0.8	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:32 PM	JD
Mercury	< 0.0050	µg/L	0.0014	0.0050	EPA 245.7 Rev 2.0 (2005)	12/7/2021	1:36 PM	JD
Fluoride	< 0.50	mg/L	0.02	0.50	EPA 300.0 Rev 2.1 (1993)	11/29/2021	5:55 PM	JD

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Electronically Approved By :

Jared Daugherty - Chemist

01:33 PM 01/27/2022

Eric Hamilton - QA/QC Chemist

01:45 PM 01/27/2022

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Kentucky 40392-0707

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Thursday, January 27, 2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	11/18/2021
Well ID No:	SSI-MW-2	Sample Collection Time:	10:27 AM
AKGW No.:	8004-3801	Sample Collected By:	BTB
Well Depth (Ft.):	52.5	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	506.8	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

EKPC - Central Laboratory Analyses

Lab Identification #: 2200084

Sample Received Date:	11/22/2021	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	11:40 AM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Antimony	< 1.0	µg/L	0.2	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:36 PM	JD
Beryllium	< 1.0	µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:36 PM	JD
Cadmium	< 0.10	µg/L	0.05	0.10	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:36 PM	JD
Chromium	< 1.0	µg/L	0.4	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:36 PM	JD
Lead	< 1.0	µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:36 PM	JD
Lithium	< 25.0	µg/L	4.6	25.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:36 PM	JD
Selenium	< 1.0	µg/L	0.8	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:36 PM	JD
Mercury	< 0.0050	µg/L	0.0014	0.0050	EPA 245.7 Rev 2.0 (2005)	12/7/2021	1:39 PM	JD
Fluoride	< 0.50	mg/L	0.02	0.50	EPA 300.0 Rev 2.1 (1993)	11/29/2021	6:14 PM	JD

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Electronically Approved By :

Jared Daugherty - Chemist

01:33 PM 01/27/2022

Eric Hamilton - QA/QC Chemist

01:45 PM 01/27/2022

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Thursday, January 27, 2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	11/18/2021
Well ID No:	SSI-MW-3	Sample Collection Time:	11:16 AM
AKGW No.:	8003-8406	Sample Collected By:	BTB
Well Depth (Ft.):	52.5	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	507.53	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

EKPC - Central Laboratory Analyses

Lab Identification #: 2200085

Sample Received Date:	11/22/2021	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	11:40 AM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Antimony	< 1.0	µg/L	0.2	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:40 PM	JD
Beryllium	< 1.0	µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:40 PM	JD
Cadmium	< 0.10	µg/L	0.05	0.10	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:40 PM	JD
Chromium	< 1.0	µg/L	0.4	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:40 PM	JD
Lead	< 1.0	µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:40 PM	JD
Lithium	< 25.0	µg/L	4.6	25.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:40 PM	JD
Selenium	< 1.0	µg/L	0.8	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:40 PM	JD
Mercury	< 0.0050	µg/L	0.0014	0.0050	EPA 245.7 Rev 2.0 (2005)	12/7/2021	1:42 PM	JD
Fluoride	< 0.50	mg/L	0.02	0.50	EPA 300.0 Rev 2.1 (1993)	11/29/2021	6:33 PM	JD

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Electronically Approved By :

Jared Daugherty - Chemist

01:33 PM 01/27/2022

Eric Hamilton - QA/QC Chemist

01:45 PM 01/27/2022

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Kentucky 40392-0707

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Report Date: Thursday, January 27, 2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	11/18/2021
Well ID No:	SSI-MW-4	Sample Collection Time:	12:16 PM
AKGW No.:	8003-8405	Sample Collected By:	BTB
Well Depth (Ft.):	52.87	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	504.61	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

EKPC - Central Laboratory Analyses

Lab Identification #: 2200086

Sample Received Date:	11/22/2021	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	11:40 AM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Antimony	< 1.0	µg/L	0.2	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:44 PM	JD
Beryllium	< 1.0	µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:44 PM	JD
Cadmium	< 0.10	µg/L	0.05	0.10	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:44 PM	JD
Chromium	< 1.0	µg/L	0.4	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:44 PM	JD
Lead	< 1.0	µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:44 PM	JD
Lithium	< 25.0	µg/L	4.6	25.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:44 PM	JD
Selenium	< 1.0	µg/L	0.8	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:44 PM	JD
Mercury	< 0.0050	µg/L	0.0014	0.0050	EPA 245.7 Rev 2.0 (2005)	12/7/2021	1:45 PM	JD
Fluoride	< 0.50	mg/L	0.02	0.50	EPA 300.0 Rev 2.1 (1993)	11/29/2021	6:52 PM	JD

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Electronically Approved By :

Jared Daugherty - Chemist

01:33 PM 01/27/2022

Eric Hamilton - QA/QC Chemist

01:45 PM 01/27/2022

4775 Lexington Road 40391
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Report Date: Thursday, January 27, 2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	11/18/2021
Well ID No:	SSI-MW-5	Sample Collection Time:	1:12 PM
AKGW No.:	8007-1129	Sample Collected By:	BTB
Well Depth (Ft.):	52.41	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	515.7	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

EKPC - Central Laboratory Analyses

Lab Identification #: 2200087

Sample Received Date:	11/22/2021	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	11:40 AM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Antimony	< 1.0	µg/L	0.2	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:48 PM	JD
Beryllium	< 1.0	µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:48 PM	JD
Cadmium	< 0.10	µg/L	0.05	0.10	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:48 PM	JD
Chromium	< 1.0	µg/L	0.4	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:48 PM	JD
Lead	< 1.0	µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:48 PM	JD
Lithium	< 25.0	µg/L	4.6	25.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:48 PM	JD
Selenium	< 1.0	µg/L	0.8	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:48 PM	JD
Mercury	< 0.0050	µg/L	0.0014	0.0050	EPA 245.7 Rev 2.0 (2005)	12/7/2021	1:48 PM	JD
Fluoride	< 0.50	mg/L	0.02	0.50	EPA 300.0 Rev 2.1 (1993)	11/29/2021	7:10 PM	JD

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Electronically Approved By :

Jared Daugherty - Chemist

01:33 PM 01/27/2022

Eric Hamilton - QA/QC Chemist

01:45 PM 01/27/2022

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Report Date: Thursday, January 27, 2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	11/18/2021
Well ID No:	SSI-MW-6	Sample Collection Time:	1:57 PM
AKGW No.:	8007-1132	Sample Collected By:	BTB
Well Depth (Ft.):	52.35	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	512.12	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

EKPC - Central Laboratory Analyses

Lab Identification #: 2200088

Sample Received Date:	11/22/2021	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	11:40 AM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Antimony	< 1.0	µg/L	0.2	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:52 PM	JD
Beryllium	< 1.0	µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:52 PM	JD
Cadmium	< 0.10	µg/L	0.05	0.10	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:52 PM	JD
Chromium	< 1.0	µg/L	0.4	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:52 PM	JD
Lead	< 1.0	µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:52 PM	JD
Lithium	< 25.0	µg/L	4.6	25.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:52 PM	JD
Selenium	< 1.0	µg/L	0.8	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:52 PM	JD
Mercury	< 0.0050	µg/L	0.0014	0.0050	EPA 245.7 Rev 2.0 (2005)	12/7/2021	1:51 PM	JD
Fluoride	< 0.50	mg/L	0.02	0.50	EPA 300.0 Rev 2.1 (1993)	11/29/2021	7:29 PM	JD

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Electronically Approved By :

Jared Daugherty - Chemist

01:33 PM 01/27/2022

Eric Hamilton - QA/QC Chemist

01:45 PM 01/27/2022

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Report Date: Thursday, January 27, 2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	11/18/2021
Well ID No:	SSI-MW-7	Sample Collection Time:	4:26 PM
AKGW No.:	8007-1131	Sample Collected By:	BTB
Well Depth (Ft.):	52.57	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	511.45	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

EKPC - Central Laboratory Analyses

Lab Identification #: 2200089

Sample Received Date:	11/22/2021	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	11:40 AM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Antimony	< 1.0	µg/L	0.2	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:57 PM	JD
Beryllium	< 1.0	µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:57 PM	JD
Cadmium	< 0.10	µg/L	0.05	0.10	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:57 PM	JD
Chromium	< 1.0	µg/L	0.4	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:57 PM	JD
Lead	< 1.0	µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:57 PM	JD
Lithium	< 25.0	µg/L	4.6	25.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:57 PM	JD
Selenium	< 1.0	µg/L	0.8	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:57 PM	JD
Mercury	< 0.0050	µg/L	0.0014	0.0050	EPA 245.7 Rev 2.0 (2005)	12/7/2021	1:54 PM	JD
Fluoride	< 0.50	mg/L	0.02	0.50	EPA 300.0 Rev 2.1 (1993)	11/29/2021	8:07 PM	JD

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Electronically Approved By :

Jared Daugherty - Chemist

01:33 PM 01/27/2022

Eric Hamilton - QA/QC Chemist

01:45 PM 01/27/2022

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Report Date: Thursday, January 27, 2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	11/18/2021
Well ID No:	SSI-MW-8	Sample Collection Time:	3:47 PM
AKGW No.:	8007-1130	Sample Collected By:	BTB
Well Depth (Ft.):	53.53	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	509.67	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

EKPC - Central Laboratory Analyses

Lab Identification #: 2200090

Sample Received Date:	11/22/2021	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	11:40 AM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Antimony	< 1.0	µg/L	0.2	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	8:01 PM	JD
Beryllium	< 1.0	µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	8:01 PM	JD
Cadmium	< 0.10	µg/L	0.05	0.10	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	8:01 PM	JD
Chromium	< 1.0	µg/L	0.4	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	8:01 PM	JD
Lead	< 1.0	µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	8:01 PM	JD
Lithium	< 25.0	µg/L	4.6	25.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	8:01 PM	JD
Selenium	< 1.0	µg/L	0.8	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	8:01 PM	JD
Mercury	< 0.0050	µg/L	0.0014	0.0050	EPA 245.7 Rev 2.0 (2005)	12/7/2021	1:57 PM	JD
Fluoride	< 0.50	mg/L	0.02	0.50	EPA 300.0 Rev 2.1 (1993)	11/29/2021	8:26 PM	JD

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Electronically Approved By :

Jared Daugherty - Chemist

01:33 PM 01/27/2022

Eric Hamilton - QA/QC Chemist

01:45 PM 01/27/2022

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Thursday, January 27, 2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	11/18/2021
Well ID No:	SSI-MW-1	Sample Collection Time:	3:05 PM
AKGW No.:	8003-8407	Sample Collected By:	BTB
Well Depth (Ft.):	52	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	511.79	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

EKPC - Central Laboratory Analyses

Lab Identification #: 2100825

Sample Received Date:	11/22/2021	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	11:40 AM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Arsenic	< 1.0	µg/L	0.4	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:32 PM	JD
Barium	16.3	µg/L	0.5	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:32 PM	JD
Cobalt	< 1.0	µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:32 PM	JD
Molybdenum	16.6	µg/L	0.3	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:32 PM	JD
Thallium	< 0.10	µg/L	0.03	0.10	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:32 PM	JD

Pace

Lab Identification #: 30456701001

Sample Received Date:	12/10/2022	Sample Receipt Temperatures (°C):	NA
Sample Received Time:	10:00 AM	Sample Received By:	AF

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Total Radium Calculation	0.0000 ± 0.688 (1.67)	pCi/L			Total Radium Calculation	1/26/2022	6:13 PM	JAL

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Electronically Approved By :

Jared Daugherty - Chemist
01:27 PM 01/27/2022

Eric Hamilton - QA/QC Chemist
01:34 PM 01/27/2022

4775 Lexington Road 40391
P.O. Box 707, Winchester
Kentucky 40392-0707
Tel. (859) 744-4812
Fax: (859) 744-6008
http://www.ekpc.coop

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Thursday, January 27, 2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	11/18/2021
Well ID No:	SSI-MW-2	Sample Collection Time:	10:27 AM
AKGW No.:	8004-3801	Sample Collected By:	BTB
Well Depth (Ft.):	52.5	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	506.8	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

EKPC - Central Laboratory Analyses

Lab Identification #: 2100826

Sample Received Date:	11/22/2021	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	11:40 AM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Arsenic	1.3	µg/L	0.4	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:36 PM	JD
Barium	74.3	µg/L	0.5	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:36 PM	JD
Cobalt	< 1.0	µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:36 PM	JD
Molybdenum	17.7	µg/L	0.3	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:36 PM	JD
Thallium	< 0.10	µg/L	0.03	0.10	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:36 PM	JD

Pace

Lab Identification #: 30456701002

Sample Received Date:	12/10/2022	Sample Receipt Temperatures (°C):	NA
Sample Received Time:	10:00 AM	Sample Received By:	AF

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Total Radium Calculation	0.234 ± 0.838 (1.86)	pCi/L			Total Radium Calculation	1/26/2022	6:13 PM	JAL

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Electronically Approved By :

Jared Daugherty - Chemist
01:27 PM 01/27/2022

Eric Hamilton - QA/QC Chemist
01:34 PM 01/27/2022

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P.O. Box 707, Winchester
Kentucky 40392-0707
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Report Date: Thursday, January 27, 2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	11/18/2021
Well ID No:	SSI-MW-3	Sample Collection Time:	11:16 AM
AKGW No.:	8003-8406	Sample Collected By:	BTB
Well Depth (Ft.):	52.5	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	507.53	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

EKPC - Central Laboratory Analyses

Lab Identification #: 2100827

Sample Received Date:	11/22/2021	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	11:40 AM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Arsenic	8.9	µg/L	0.4	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:40 PM	JD
Barium	331	µg/L	0.5	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:40 PM	JD
Cobalt	1.8	µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:40 PM	JD
Molybdenum	16.2	µg/L	0.3	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:40 PM	JD
Thallium	< 0.10	µg/L	0.03	0.10	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:40 PM	JD

Pace

Lab Identification #: 30456701003

Sample Received Date:	12/10/2022	Sample Receipt Temperatures (°C):	NA
Sample Received Time:	10:00 AM	Sample Received By:	AF

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Total Radium Calculation	1.04 ± 1.05 (1.95)	pCi/L			Total Radium Calculation	1/26/2022	6:13 PM	JAL

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Electronically Approved By :

Jared Daugherty - Chemist
01:27 PM 01/27/2022

Eric Hamilton - QA/QC Chemist
01:34 PM 01/27/2022

4775 Lexington Road 40391
P.O. Box 707, Winchester
Kentucky 40392-0707
Tel. (859) 744-4812
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Report Date: Thursday, January 27, 2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	11/18/2021
Well ID No:	SSI-MW-4	Sample Collection Time:	12:16 PM
AKGW No.:	8003-8405	Sample Collected By:	BTB
Well Depth (Ft.):	52.87	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	504.61	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

EKPC - Central Laboratory Analyses

Lab Identification #: 2100828

Sample Received Date:	11/22/2021	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	11:40 AM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Arsenic	< 1.0	µg/L	0.4	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:44 PM	JD
Barium	12.0	µg/L	0.5	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:44 PM	JD
Cobalt	< 1.0	µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:44 PM	JD
Molybdenum	14.0	µg/L	0.3	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:44 PM	JD
Thallium	< 0.10	µg/L	0.03	0.10	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:44 PM	JD

Pace

Lab Identification #: 30456701004

Sample Received Date:	12/10/2022	Sample Receipt Temperatures (°C):	NA
Sample Received Time:	10:00 AM	Sample Received By:	AF

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Total Radium Calculation	0.724 ± 0.916 (1.74)	pCi/L			Total Radium Calculation	1/26/2022	6:13 PM	JAL

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Electronically Approved By :

Jared Daugherty - Chemist

01:27 PM 01/27/2022

Eric Hamilton - QA/QC Chemist

01:34 PM 01/27/2022

4775 Lexington Road 40391
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Kentucky 40392-0707

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Report Date: Thursday, January 27, 2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	11/18/2021
Well ID No:	SSI-MW-5	Sample Collection Time:	1:12 PM
AKGW No.:	8007-1129	Sample Collected By:	BTB
Well Depth (Ft.):	52.41	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	515.7	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

EKPC - Central Laboratory Analyses

Lab Identification #: 2100829

Sample Received Date:	11/22/2021	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	11:40 AM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Arsenic	< 1.0	µg/L	0.4	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:48 PM	JD
Barium	18.4	µg/L	0.5	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:48 PM	JD
Cobalt	< 1.0	µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:48 PM	JD
Molybdenum	< 1.0	µg/L	0.3	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:48 PM	JD
Thallium	< 0.10	µg/L	0.03	0.10	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:48 PM	JD

Pace

Lab Identification #: 30456701005

Sample Received Date:	12/10/2022	Sample Receipt Temperatures (°C):	NA
Sample Received Time:	10:00 AM	Sample Received By:	AF

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Total Radium Calculation	0.639 ± 0.816 (1.55)	pCi/L			Total Radium Calculation	1/26/2022	6:13 PM	JAL

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Electronically Approved By :

Jared Daugherty - Chemist
01:27 PM 01/27/2022

Eric Hamilton - QA/QC Chemist
01:34 PM 01/27/2022

4775 Lexington Road 40391
P.O. Box 707, Winchester
Kentucky 40392-0707
Tel. (859) 744-4812
Fax: (859) 744-6008
http://www.ekpc.coop

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Report Date: Thursday, January 27, 2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	11/18/2021
Well ID No:	SSI-MW-6	Sample Collection Time:	1:57 PM
AKGW No.:	8007-1132	Sample Collected By:	BTB
Well Depth (Ft.):	52.35	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	512.12	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

EKPC - Central Laboratory Analyses

Lab Identification #: 2100830

Sample Received Date:	11/22/2021	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	11:40 AM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Arsenic	< 1.0	µg/L	0.4	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:52 PM	JD
Barium	38.4	µg/L	0.5	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:52 PM	JD
Cobalt	< 1.0	µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:52 PM	JD
Molybdenum	< 1.0	µg/L	0.3	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:52 PM	JD
Thallium	< 0.10	µg/L	0.03	0.10	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:52 PM	JD

Pace

Lab Identification #: 30456701006

Sample Received Date:	12/10/2022	Sample Receipt Temperatures (°C):	NA
Sample Received Time:	10:00 AM	Sample Received By:	AF

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Total Radium Calculation	0.875 ± 1.02 (1.94)	pCi/L			Total Radium Calculation	1/26/2022	6:13 PM	JAL

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Electronically Approved By :

Jared Daugherty - Chemist
01:27 PM 01/27/2022

Eric Hamilton - QA/QC Chemist
01:34 PM 01/27/2022

4775 Lexington Road 40391
P.O. Box 707, Winchester
Kentucky 40392-0707
Tel. (859) 744-4812
Fax: (859) 744-6008
http://www.ekpc.coop

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Report Date: Thursday, January 27, 2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	11/18/2021
Well ID No:	SSI-MW-7	Sample Collection Time:	4:26 PM
AKGW No.:	8007-1131	Sample Collected By:	BTB
Well Depth (Ft.):	52.57	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	511.45	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

EKPC - Central Laboratory Analyses

Lab Identification #: 2100831

Sample Received Date:	11/22/2021	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	11:40 AM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Arsenic	< 1.0	µg/L	0.4	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:57 PM	JD
Barium	33.2	µg/L	0.5	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:57 PM	JD
Cobalt	< 1.0	µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:57 PM	JD
Molybdenum	< 1.0	µg/L	0.3	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:57 PM	JD
Thallium	< 0.10	µg/L	0.03	0.10	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	7:57 PM	JD

Pace

Lab Identification #: 30456701007

Sample Received Date:	12/10/2022	Sample Receipt Temperatures (°C):	NA
Sample Received Time:	10:00 AM	Sample Received By:	AF

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Total Radium Calculation	0.926 ± 1.24 (2.42)	pCi/L			Total Radium Calculation	1/26/2022	6:13 PM	JAL

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Electronically Approved By :

Jared Daugherty - Chemist
01:27 PM 01/27/2022

Eric Hamilton - QA/QC Chemist
01:34 PM 01/27/2022

4775 Lexington Road 40391
P.O. Box 707, Winchester
Kentucky 40392-0707
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Report Date: Thursday, January 27, 2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	11/18/2021
Well ID No:	SSI-MW-8	Sample Collection Time:	3:47 PM
AKGW No.:	8007-1130	Sample Collected By:	BTB
Well Depth (Ft.):	53.53	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	509.67	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

EKPC - Central Laboratory Analyses

Lab Identification #: 2100832

Sample Received Date:	11/22/2021	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	11:40 AM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Arsenic	< 1.0	µg/L	0.4	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	8:01 PM	JD
Barium	15.1	µg/L	0.5	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	8:01 PM	JD
Cobalt	< 1.0	µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	8:01 PM	JD
Molybdenum	22.6	µg/L	0.3	1.0	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	8:01 PM	JD
Thallium	< 0.10	µg/L	0.03	0.10	EPA 200.8, Rev. 5.4 (1994)	11/23/2021	8:01 PM	JD

Pace

Lab Identification #: 30456701008

Sample Received Date:	12/10/2022	Sample Receipt Temperatures (°C):	NA
Sample Received Time:	10:00 AM	Sample Received By:	AF

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Total Radium Calculation	1.23 ± 1.04 (1.92)	pCi/L			Total Radium Calculation	1/26/2022	6:13 PM	JAL

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Electronically Approved By :

Jared Daugherty - Chemist
01:27 PM 01/27/2022

Eric Hamilton - QA/QC Chemist
01:34 PM 01/27/2022

4775 Lexington Road 40391
P.O. Box 707, Winchester
Kentucky 40392-0707
Tel. (859) 744-4812
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http://www.ekpc.coop

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EAST KENTUCKY POWER COOPERATIVE

Report Date: 8/15/2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	05/25/2022
Well ID No:	SSI-MW-1	Sample Collection Time:	4:02 PM
AKGW No.:	8003-8407	Sample Collected By:	BTB
Well Depth (Ft.):	52	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	511.79	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

Field Analyses

	Result	Units	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Groundwater Elevation	469.37	MSL		05/25/2022	4:02 PM	BTB
Turbidity	< 1.0	NTU	SM 2130, B-2001	05/25/2022	4:02 PM	BTB
Conductivity	549	µS/cm	SM 2510, B-2011	05/25/2022	4:02 PM	BTB
Temperature	68.36	°F	SM 2550, B-2010	05/25/2022	4:02 PM	BTB
Oxidation Reduction Potential	153.3	mV	SM 2580, B-2011	05/25/2022	4:02 PM	BTB
pH	6.78	S.U.	SM 4500-H+, B-2011	05/25/2022	4:02 PM	BTB
Dissolved Oxygen	1.26	mg/L	SM 4500-O	05/25/2022	4:02 PM	BTB

EKPC - Central Laboratory Analyses

Lab Identification #: 2200416

Sample Received Date:	05/27/2022	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	8:30 AM	Sample Received By:	JD

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Chloride	25.0		mg/L	0.2	0.5	EPA 300.0 Rev 2.1 (1993)	6/13/2022	1:12 PM	JD
Fluoride	0.16		mg/L	0.02	0.10	EPA 300.0 Rev 2.1 (1993)	6/13/2022	1:12 PM	JD
Sulfate	44.3		mg/L	0.24	1.0	EPA 300.0 Rev 2.1 (1993)	6/13/2022	1:12 PM	JD
Solids, Total Dissolved	188		mg/L		50.0	SM 2540, C-2011	5/31/2022	1:50 PM	JD

ALS Environmental

Lab Identification #: 22052643-01

Sample Received Date:	5/31/2022	Sample Receipt Temperatures (°C):	<6.0
Sample Received Time:	15:45	Sample Received By:	LYS

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Boron	48.3		µg/L	15	20	E200.8	6/17/2022	19:32	STP
Calcium	52900		µg/L	6.1	10	E200.8	6/17/2022	19:32	STP

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Result notes: D - Result from dilution, J - Estimated Value, R - Unusable Result (Quality Control Failure), NA - Not Available

Electronically Approved By :

Jared Daugherty - Chemist

12:32 PM 08/15/2022

Eric Hamilton - QA/QC Chemist

02:13 PM 08/15/2022

4775 Lexington Road 40391
P.O. Box 707, Winchester
Kentucky 40392-0707

Tel. (859) 744-4812
Fax: (859) 744-6008
http://www.ekpc.coop

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EAST KENTUCKY POWER COOPERATIVE

Report Date: 8/15/2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	05/25/2022
Well ID No:	SSI-MW-2	Sample Collection Time:	1:40 PM
AKGW No.:	8004-3801	Sample Collected By:	BTB
Well Depth (Ft.):	52.5	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	506.8	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

Field Analyses

	Result	Units	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Groundwater Elevation	472.41	MSL		05/25/2022	1:40 PM	BTB
Turbidity	< 1.0	NTU	SM 2130, B-2001	05/25/2022	1:40 PM	BTB
Conductivity	407	µS/cm	SM 2510, B-2011	05/25/2022	1:40 PM	BTB
Temperature	67.28	°F	SM 2550, B-2010	05/25/2022	1:40 PM	BTB
Oxidation Reduction Potential	-51.3	mV	SM 2580, B-2011	05/25/2022	1:40 PM	BTB
pH	7.5	S.U.	SM 4500-H+, B-2011	05/25/2022	1:40 PM	BTB
Dissolved Oxygen	< 1.0	mg/L	SM 4500-O	05/25/2022	1:40 PM	BTB

EKPC - Central Laboratory Analyses

Lab Identification #: 2200417

Sample Received Date:	05/27/2022	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	8:30 AM	Sample Received By:	JD

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Chloride	23.6		mg/L	0.2	0.5	EPA 300.0 Rev 2.1 (1993)	6/13/2022	1:31 PM	JD
Fluoride	0.17		mg/L	0.02	0.10	EPA 300.0 Rev 2.1 (1993)	6/13/2022	1:31 PM	JD
Sulfate	44.1		mg/L	0.24	1.0	EPA 300.0 Rev 2.1 (1993)	6/13/2022	1:31 PM	JD
Solids, Total Dissolved	220		mg/L		50.0	SM 2540, C-2011	5/31/2022	1:50 PM	JD

ALS Environmental

Lab Identification #: 22052643-02

Sample Received Date:	5/31/2022	Sample Receipt Temperatures (°C):	<6.0
Sample Received Time:	15:45	Sample Received By:	LYS

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Boron	44.6		µg/L	15	20	E200.8	6/17/2022	19:34	STP
Calcium	44500		µg/L	220	500	E200.8	6/17/2022	19:34	STP

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Result notes: D - Result from dilution, J - Estimated Value, R - Unusable Result (Quality Control Failure), NA - Not Available

Electronically Approved By :

Jared Daugherty - Chemist

12:32 PM 08/15/2022

Eric Hamilton - QA/QC Chemist

02:13 PM 08/15/2022

4775 Lexington Road 40391
P.O. Box 707, Winchester
Kentucky 40392-0707

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EAST KENTUCKY POWER COOPERATIVE

Report Date: 8/15/2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	05/25/2022
Well ID No:	SSI-MW-3	Sample Collection Time:	2:32 PM
AKGW No.:	8003-8406	Sample Collected By:	BTB
Well Depth (Ft.):	52.5	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	507.53	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

Field Analyses

	Result	Units	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Groundwater Elevation	473.73	MSL		05/25/2022	2:32 PM	BTB
Turbidity	4.21	NTU	SM 2130, B-2001	05/25/2022	2:32 PM	BTB
Conductivity	443	µS/cm	SM 2510, B-2011	05/25/2022	2:32 PM	BTB
Temperature	66.74	°F	SM 2550, B-2010	05/25/2022	2:32 PM	BTB
Oxidation Reduction Potential	-158.4	mV	SM 2580, B-2011	05/25/2022	2:32 PM	BTB
pH	7.49	S.U.	SM 4500-H+, B-2011	05/25/2022	2:32 PM	BTB
Dissolved Oxygen	< 1.0	mg/L	SM 4500-O	05/25/2022	2:32 PM	BTB

EKPC - Central Laboratory Analyses

Lab Identification #: 2200418

Sample Received Date:	05/27/2022	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	8:30 AM	Sample Received By:	JD

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Chloride	24.8		mg/L	0.2	0.5	EPA 300.0 Rev 2.1 (1993)	6/13/2022	1:50 PM	JD
Fluoride	0.24		mg/L	0.02	0.10	EPA 300.0 Rev 2.1 (1993)	6/13/2022	1:50 PM	JD
Sulfate	12.9		mg/L	0.24	1.0	EPA 300.0 Rev 2.1 (1993)	6/13/2022	1:50 PM	JD
Solids, Total Dissolved	218		mg/L		50.0	SM 2540, C-2011	5/31/2022	1:50 PM	JD

ALS Environmental

Lab Identification #: 22052643-03

Sample Received Date:	5/31/2022	Sample Receipt Temperatures (°C):	<6.0
Sample Received Time:	15:45	Sample Received By:	LYS

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Boron	44.1		µg/L	15	20	E200.8	6/17/2022	19:36	STP
Calcium	46900		µg/L	220	500	E200.8	6/17/2022	19:36	STP

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Result notes: D - Result from dilution, J - Estimated Value, R - Unusable Result (Quality Control Failure), NA - Not Available

Electronically Approved By :

Jared Daugherty - Chemist

12:32 PM 08/15/2022

Eric Hamilton - QA/QC Chemist

02:13 PM 08/15/2022

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Report Date: 8/15/2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	05/25/2022
Well ID No:	SSI-MW-4	Sample Collection Time:	3:12 PM
AKGW No.:	8003-8405	Sample Collected By:	BTB
Well Depth (Ft.):	52.87	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	504.61	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

Field Analyses

	Result	Units	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Groundwater Elevation	475.04	MSL		05/25/2022	3:12 PM	BTB
Turbidity	< 1.0	NTU	SM 2130, B-2001	05/25/2022	3:12 PM	BTB
Conductivity	390	µS/cm	SM 2510, B-2011	05/25/2022	3:12 PM	BTB
Temperature	65.12	°F	SM 2550, B-2010	05/25/2022	3:12 PM	BTB
Oxidation Reduction Potential	-50	mV	SM 2580, B-2011	05/25/2022	3:12 PM	BTB
pH	7.79	S.U.	SM 4500-H+, B-2011	05/25/2022	3:12 PM	BTB
Dissolved Oxygen	< 1.0	mg/L	SM 4500-O	05/25/2022	3:12 PM	BTB

EKPC - Central Laboratory Analyses

Lab Identification #: 2200419

Sample Received Date:	05/27/2022	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	8:30 AM	Sample Received By:	JD

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Chloride	24.8		mg/L	0.2	0.5	EPA 300.0 Rev 2.1 (1993)	6/13/2022	2:09 PM	JD
Fluoride	0.14		mg/L	0.02	0.10	EPA 300.0 Rev 2.1 (1993)	6/13/2022	2:09 PM	JD
Sulfate	97.9		mg/L	0.24	1.0	EPA 300.0 Rev 2.1 (1993)	6/13/2022	2:09 PM	JD
Solids, Total Dissolved	266		mg/L		50.0	SM 2540, C-2011	5/31/2022	1:50 PM	JD

ALS Environmental

Lab Identification #: 22052643-04

Sample Received Date:	5/31/2022	Sample Receipt Temperatures (°C):	<6.0
Sample Received Time:	15:45	Sample Received By:	LYS

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Boron	77.1		µg/L	15	20	E200.8	6/17/2022	19:41	STP
Calcium	65000		µg/L	220	500	E200.8	6/17/2022	19:41	STP

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Result notes: D - Result from dilution, J - Estimated Value, R - Unusable Result (Quality Control Failure), NA - Not Available

Electronically Approved By :

Jared Daugherty - Chemist

12:32 PM 08/15/2022

Eric Hamilton - QA/QC Chemist

02:13 PM 08/15/2022

4775 Lexington Road 40391
P.O. Box 707, Winchester
Kentucky 40392-0707

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Fax: (859) 744-6008
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Report Date: 8/15/2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	05/25/2022
Well ID No:	SSI-MW-5	Sample Collection Time:	11:30 AM
AKGW No.:	8007-1129	Sample Collected By:	BTB
Well Depth (Ft.):	52.41	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	515.7	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

Field Analyses

	Result	Units	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Groundwater Elevation	474.02	MSL		05/25/2022	11:30 AM	BTB
Turbidity	< 1.0	NTU	SM 2130, B-2001	05/25/2022	11:30 AM	BTB
Conductivity	370	µS/cm	SM 2510, B-2011	05/25/2022	11:30 AM	BTB
Temperature	59.90	°F	SM 2550, B-2010	05/25/2022	11:30 AM	BTB
Oxidation Reduction Potential	137.9	mV	SM 2580, B-2011	05/25/2022	11:30 AM	BTB
pH	7.09	S.U.	SM 4500-H+, B-2011	05/25/2022	11:30 AM	BTB
Dissolved Oxygen	< 1.0	mg/L	SM 4500-O	05/25/2022	11:30 AM	BTB

EKPC - Central Laboratory Analyses

Lab Identification #: 2200420

Sample Received Date:	05/27/2022	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	8:30 AM	Sample Received By:	JD

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Chloride	18.2		mg/L	0.2	0.5	EPA 300.0 Rev 2.1 (1993)	6/13/2022	2:27 PM	JD
Fluoride	0.28		mg/L	0.02	0.10	EPA 300.0 Rev 2.1 (1993)	6/13/2022	2:27 PM	JD
Sulfate	40.8		mg/L	0.24	1.0	EPA 300.0 Rev 2.1 (1993)	6/13/2022	2:27 PM	JD
Solids, Total Dissolved	196		mg/L		50.0	SM 2540, C-2011	5/31/2022	1:50 PM	JD

ALS Environmental

Lab Identification #: 22052643-05

Sample Received Date:	5/31/2022	Sample Receipt Temperatures (°C):	<6.0
Sample Received Time:	15:45	Sample Received By:	LYS

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Boron	35.3		µg/L	15	20	E200.8	6/17/2022	19:42	STP
Calcium	44800		µg/L	220	500	E200.8	6/17/2022	19:42	STP

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Result notes: D - Result from dilution, J - Estimated Value, R - Unusable Result (Quality Control Failure), NA - Not Available

Electronically Approved By :

Jared Daugherty - Chemist

12:32 PM 08/15/2022

Eric Hamilton - QA/QC Chemist

02:13 PM 08/15/2022

4775 Lexington Road 40391
P.O. Box 707, Winchester
Kentucky 40392-0707

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Fax: (859) 744-6008
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Report Date: 8/15/2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	05/25/2022
Well ID No:	SSI-MW-6	Sample Collection Time:	12:26 PM
AKGW No.:	8007-1132	Sample Collected By:	BTB
Well Depth (Ft.):	52.35	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	512.12	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

Field Analyses

	Result	Units	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Groundwater Elevation	470.86	MSL		05/25/2022	12:26 PM	BTB
Turbidity	< 1.0	NTU	SM 2130, B-2001	05/25/2022	12:26 PM	BTB
Conductivity	1298	µS/cm	SM 2510, B-2011	05/25/2022	12:26 PM	BTB
Temperature	62.06	°F	SM 2550, B-2010	05/25/2022	12:26 PM	BTB
Oxidation Reduction Potential	195.3	mV	SM 2580, B-2011	05/25/2022	12:26 PM	BTB
pH	6.5	S.U.	SM 4500-H+, B-2011	05/25/2022	12:26 PM	BTB
Dissolved Oxygen	< 1.0	mg/L	SM 4500-O	05/25/2022	12:26 PM	BTB

EKPC - Central Laboratory Analyses

Lab Identification #: 2200421

Sample Received Date:	05/27/2022	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	8:30 AM	Sample Received By:	JD

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Chloride	166	D	mg/L	1.0	2.5	EPA 300.0 Rev 2.1 (1993)	6/14/2022	5:56 PM	JD
Fluoride	0.14		mg/L	0.02	0.10	EPA 300.0 Rev 2.1 (1993)	6/13/2022	2:46 PM	JD
Sulfate	348	D	mg/L	1.1	5.0	EPA 300.0 Rev 2.1 (1993)	6/14/2022	5:56 PM	JD
Solids, Total Dissolved	1020		mg/L		50.0	SM 2540, C-2011	5/31/2022	1:50 PM	JD

ALS Environmental

Lab Identification #: 22052643-06

Sample Received Date:	5/31/2022	Sample Receipt Temperatures (°C):	<6.0
Sample Received Time:	15:45	Sample Received By:	LYS

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Boron	3280		µg/L	150	200	E200.8	6/7/2022	22:12	STP
Calcium	146000		µg/L	2200	5000	E200.8	6/7/2022	22:12	STP

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Result notes: D - Result from dilution, J - Estimated Value, R - Unusable Result (Quality Control Failure), NA - Not Available

Electronically Approved By :

Jared Daugherty - Chemist

02:18 PM 08/15/2022

Eric Hamilton - QA/QC Chemist

03:18 PM 08/15/2022

4775 Lexington Road 40391
P.O. Box 707, Winchester
Kentucky 40392-0707
Tel. (859) 744-4812
Fax: (859) 744-6008
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Report Date: 8/15/2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	05/25/2022
Well ID No:	SSI-MW-7	Sample Collection Time:	9:47 AM
AKGW No.:	8007-1131	Sample Collected By:	BTB
Well Depth (Ft.):	52.57	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	511.45	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

Field Analyses

	Result	Units	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Groundwater Elevation	470.22	MSL		05/25/2022	9:47 AM	BTB
Turbidity	< 1.0	NTU	SM 2130, B-2001	05/25/2022	9:47 AM	BTB
Conductivity	631	µS/cm	SM 2510, B-2011	05/25/2022	9:47 AM	BTB
Temperature	61.70	°F	SM 2550, B-2010	05/25/2022	9:47 AM	BTB
Oxidation Reduction Potential	44.3	mV	SM 2580, B-2011	05/25/2022	9:47 AM	BTB
pH	7.25	S.U.	SM 4500-H+, B-2011	05/25/2022	9:47 AM	BTB
Dissolved Oxygen	< 1.0	mg/L	SM 4500-O	05/25/2022	9:47 AM	BTB

EKPC - Central Laboratory Analyses

Lab Identification #: 2200422

Sample Received Date:	05/27/2022	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	8:30 AM	Sample Received By:	JD

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Chloride	36.0		mg/L	0.2	0.5	EPA 300.0 Rev 2.1 (1993)	6/13/2022	3:05 PM	JD
Fluoride	0.44		mg/L	0.02	0.10	EPA 300.0 Rev 2.1 (1993)	6/13/2022	3:05 PM	JD
Sulfate	83.5		mg/L	0.24	1.0	EPA 300.0 Rev 2.1 (1993)	6/13/2022	3:05 PM	JD
Solids, Total Dissolved	456		mg/L		50.0	SM 2540, C-2011	5/31/2022	1:50 PM	JD

ALS Environmental

Lab Identification #: 22052643-07

Sample Received Date:	5/31/2022	Sample Receipt Temperatures (°C):	<6.0
Sample Received Time:	15:45	Sample Received By:	LYS

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Boron	384		µg/L	150	200	E200.8	6/7/2022	22:14	STP
Calcium	71800		µg/L	2200	5000	E200.8	6/7/2022	22:14	STP

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Result notes: D - Result from dilution, J - Estimated Value, R - Unusable Result (Quality Control Failure), NA - Not Available

Electronically Approved By :

Jared Daugherty - Chemist

12:32 PM 08/15/2022

Eric Hamilton - QA/QC Chemist

02:13 PM 08/15/2022

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Report Date: 8/15/2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	05/25/2022
Well ID No:	SSI-MW-8	Sample Collection Time:	10:34 AM
AKGW No.:	8007-1130	Sample Collected By:	BTB
Well Depth (Ft.):	53.53	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	509.67	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

Field Analyses

	Result	Units	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Groundwater Elevation	467.10	MSL		05/25/2022	10:34 AM	BTB
Turbidity	< 1.0	NTU	SM 2130, B-2001	05/25/2022	10:34 AM	BTB
Conductivity	613	µS/cm	SM 2510, B-2011	05/25/2022	10:34 AM	BTB
Temperature	59.36	°F	SM 2550, B-2010	05/25/2022	10:34 AM	BTB
Oxidation Reduction Potential	80.1	mV	SM 2580, B-2011	05/25/2022	10:34 AM	BTB
pH	7.59	S.U.	SM 4500-H+, B-2011	05/25/2022	10:34 AM	BTB
Dissolved Oxygen	< 1.0	mg/L	SM 4500-O	05/25/2022	10:34 AM	BTB

EKPC - Central Laboratory Analyses

Lab Identification #: 2200423

Sample Received Date:	05/27/2022	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	8:30 AM	Sample Received By:	JD

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Chloride	36.2		mg/L	0.2	0.5	EPA 300.0 Rev 2.1 (1993)	6/13/2022	3:24 PM	JD
Fluoride	0.23		mg/L	0.02	0.10	EPA 300.0 Rev 2.1 (1993)	6/13/2022	3:24 PM	JD
Sulfate	73.0		mg/L	0.24	1.0	EPA 300.0 Rev 2.1 (1993)	6/13/2022	3:24 PM	JD
Solids, Total Dissolved	368		mg/L		50.0	SM 2540, C-2011	5/31/2022	1:50 PM	JD

ALS Environmental

Lab Identification #: 22052643-08

Sample Received Date:	5/31/2022	Sample Receipt Temperatures (°C):	<6.0
Sample Received Time:	15:45	Sample Received By:	LYS

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Boron	830		µg/L	150	200	E200.8	6/7/2022	22:15	STP
Calcium	67600		µg/L	2200	5000	E200.8	6/7/2022	22:15	STP

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Result notes: D - Result from dilution, J - Estimated Value, R - Unusable Result (Quality Control Failure), NA - Not Available

Electronically Approved By :

Jared Daugherty - Chemist

12:32 PM 08/15/2022

Eric Hamilton - QA/QC Chemist

02:13 PM 08/15/2022

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Report Date: 8/15/2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	05/25/2022
Well ID No:	SSI-MW-1	Sample Collection Time:	4:02 PM
AKGW No.:	8003-8407	Sample Collected By:	BTB
Well Depth (Ft.):	52	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	511.79	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

EKPC - Central Laboratory Analyses

Lab Identification #: 2200427

Sample Received Date: 05/27/2022 | Sample Receipt Temperatures (°C): < 6

Sample Received Time: 8:30 AM | Sample Received By: JD

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Fluoride	0.16		mg/L	0.02	0.10	EPA 300.0 Rev 2.1 (1993)	6/13/2022	1:12 PM	JD

ALS Environmental

Lab Identification #: 22052643-01

Sample Received Date: 5/31/2022 | Sample Receipt Temperatures (°C): <6.0

Sample Received Time: 15:45 | Sample Received By: LYS

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Mercury	0.0005		µg/L	0.0002	0.0005	E1631E	6/6/2022	18:01	ABL
Antimony	< 1.0		µg/L	0.42	1.0	E200.8	6/17/2022	19:32	STP
Arsenic	< 1.0		µg/L	0.19	1.0	E200.8	6/17/2022	19:32	STP
Barium	17.6		µg/L	0.57	1.0	E200.8	6/17/2022	19:32	STP
Beryllium	< 1.0		µg/L	0.13	1.0	E200.8	6/17/2022	19:32	STP
Cadmium	< 0.20		µg/L	0.14	0.20	E200.8	6/17/2022	19:32	STP
Chromium	< 10.0		µg/L	6.1	10	E200.8	6/6/2022	23:50	STP
Cobalt	< 1.0		µg/L	0.27	1.0	E200.8	6/17/2022	19:32	STP
Lead	< 1.0		µg/L	0.22	1.0	E200.8	6/17/2022	19:32	STP
Lithium	< 10		µg/L	1.7	10	E200.8	6/17/2022	19:32	STP
Molybdenum	18.9		µg/L	0.33	1	E200.8	6/17/2022	19:32	STP
Selenium	< 1.0		µg/L	0.48	1.0	E200.8	6/17/2022	19:32	STP
Thallium	< 1.0		µg/L	0.32	1.0	E200.8	6/17/2022	19:32	STP

Pace

Lab Identification #: 30499380001

Sample Received Date: 6/7/2022 | Sample Receipt Temperatures (°C): NA

Sample Received Time: 9:50 AM | Sample Received By: JA

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Radium-226	0.106 ± 0.295 (0.573)		pCi/L			EPA 903.1	7/15/2022	12:41 PM	SLC
Radium-228	0.843 ± 0.393 (0.624)		pCi/L			EPA 904.0	7/11/2022	4:39 PM	VAL
Total Radium Calculation	0.949 ± 0.688 (1.20)		pCi/L			Total Radium Calculation	7/15/2022	6:31 PM	JAL

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Result notes: D - Result from dilution, J - Estimated Value, R - Unusable Result (Quality Control Failure), NA - Not Available

Electronically Approved By :

Jared Daugherty - Chemist

12:34 PM 08/15/2022

Eric Hamilton - QA/QC Chemist

02:13 PM 08/15/2022

4775 Lexington Road 40391
P.O. Box 707, Winchester
Kentucky 40392-0707

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EAST KENTUCKY POWER COOPERATIVE

Report Date: 8/15/2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	05/25/2022
Well ID No:	SSI-MW-2	Sample Collection Time:	1:40 PM
AKGW No.:	8003-8407	Sample Collected By:	BTB
Well Depth (Ft.):	52	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	511.79	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

EKPC - Central Laboratory Analyses

Lab Identification #: 2200428

Sample Received Date: 05/27/2022 | Sample Receipt Temperatures (°C): < 6

Sample Received Time: 8:30 AM | Sample Received By: JD

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Fluoride	0.17		mg/L	0.02	0.10	EPA 300.0 Rev 2.1 (1993)	6/13/2022	1:31 PM	JD

ALS Environmental

Lab Identification #: 22052643-02

Sample Received Date: 5/31/2022 | Sample Receipt Temperatures (°C): <6.0

Sample Received Time: 15:45 | Sample Received By: LYS

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Mercury	0.00058		µg/L	0.0002	0.0005	E163E	6/6/2022	18:17	ABL
Antimony	< 1.0		µg/L	0.42	1.0	E200.8	6/17/2022	19:34	STP
Arsenic	< 1.0		µg/L	0.19	1.0	E200.8	6/17/2022	19:34	STP
Barium	50.6		µg/L	0.57	1.0	E200.8	6/17/2022	19:34	STP
Beryllium	< 1.0		µg/L	0.13	1.0	E200.8	6/17/2022	19:34	STP
Cadmium	< 0.20		µg/L	0.14	0.20	E200.8	6/17/2022	19:34	STP
Chromium	< 10.0		µg/L	6.1	10	E200.8	6/6/2022	23:52	STP
Cobalt	< 1.0		µg/L	0.27	1.0	E200.8	6/17/2022	19:34	STP
Lead	< 1.0		µg/L	0.22	1.0	E200.8	6/17/2022	19:34	STP
Lithium	< 10		µg/L	1.7	10	E200.8	6/17/2022	19:34	STP
Molybdenum	18.8		µg/L	0.33	1	E200.8	6/17/2022	19:34	STP
Selenium	< 1.0		µg/L	0.48	1.0	E200.8	6/17/2022	19:34	STP
Thallium	< 1.0		µg/L	0.32	1.0	E200.8	6/17/2022	19:34	STP

Pace

Lab Identification #: 30499380002

Sample Received Date: 6/7/2022 | Sample Receipt Temperatures (°C): NA

Sample Received Time: 9:50 AM | Sample Received By: JA

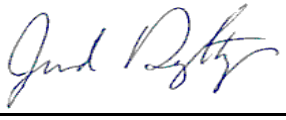
Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Radium-226	0.000 ± 0.381 (0.806)		pCi/L			EPA 903.1	7/15/2022	12:41 PM	SLC
Radium-228	0.182 ± 0.345 (0.757)		pCi/L			EPA 904.0	7/11/2022	4:39 PM	VAL
Total Radium Calculation	0.182 ± 0.726 (1.56)		pCi/L			Total Radium Calculation	7/15/2022	6:31 PM	JAL

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Result notes: D - Result from dilution, J - Estimated Value, R - Unusable Result (Quality Control Failure), NA - Not Available

Electronically Approved By :



Jared Daugherty - Chemist

12:34 PM 08/15/2022

Eric Hamilton - QA/QC Chemist

02:13 PM 08/15/2022

4775 Lexington Road 40391
P.O. Box 707, Winchester
Kentucky 40392-0707

Tel. (859) 744-4812
Fax: (859) 744-6008
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EAST KENTUCKY POWER COOPERATIVE

Report Date: 8/15/2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	05/25/2022
Well ID No:	SSI-MW-3	Sample Collection Time:	2:32 PM
AKGW No.:	8003-8406	Sample Collected By:	BTB
Well Depth (Ft.):	52.5	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	507.53	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

EKPC - Central Laboratory Analyses

Lab Identification #: 2200429

Sample Received Date: 05/27/2022 | Sample Receipt Temperatures (°C): < 6

Sample Received Time: 8:30 AM | Sample Received By: JD

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Fluoride	0.24		mg/L	0.02	0.10	EPA 300.0 Rev 2.1 (1993)	6/13/2022	1:50 PM	JD

ALS Environmental

Lab Identification #: 22052643-03

Sample Received Date: 5/31/2022 | Sample Receipt Temperatures (°C): <6.0

Sample Received Time: 15:45 | Sample Received By: LYS

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Mercury	0.00095		µg/L	0.0002	0.0005	E163E	6/6/2022	18:24	ABL
Antimony	< 1.0		µg/L	0.42	1.0	E200.8	6/17/2022	19:36	STP
Arsenic	10.1		µg/L	0.19	1.0	E200.8	6/17/2022	19:36	STP
Barium	309		µg/L	0.57	1.0	E200.8	6/17/2022	19:36	STP
Beryllium	< 1.0		µg/L	0.13	1.0	E200.8	6/17/2022	19:36	STP
Cadmium	< 0.20		µg/L	0.14	0.20	E200.8	6/17/2022	19:36	STP
Chromium	< 10.0		µg/L	6.1	10	E200.8	6/6/2022	23:54	STP
Cobalt	1.34		µg/L	0.27	1.0	E200.8	6/17/2022	19:36	STP
Lead	< 1.0		µg/L	0.22	1.0	E200.8	6/17/2022	19:36	STP
Lithium	< 10		µg/L	1.7	10	E200.8	6/17/2022	19:36	STP
Molybdenum	19.5		µg/L	0.33	1	E200.8	6/17/2022	19:36	STP
Selenium	< 1.0		µg/L	0.48	1.0	E200.8	6/17/2022	19:36	STP
Thallium	< 1.0		µg/L	0.32	1.0	E200.8	6/17/2022	19:36	STP

Pace

Lab Identification #: 30499380003

Sample Received Date: 6/7/2022 | Sample Receipt Temperatures (°C): NA

Sample Received Time: 9:50 AM | Sample Received By: JA

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Radium-226	0.681 ± 0.587 (0.873)		pCi/L			EPA 903.1	7/15/2022	12:41 PM	SLC
Radium-228	0.106 ± 0.336 (0.757)		pCi/L			EPA 904.0	7/11/2022	4:40 PM	VAL
Total Radium Calculation	0.787 ± 0.923 (1.63)		pCi/L			Total Radium Calculation	7/15/2022	6:31 PM	JAL

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Result notes: D - Result from dilution, J - Estimated Value, R - Unusable Result (Quality Control Failure), NA - Not Available

Electronically Approved By :

Jared Daugherty - Chemist

12:34 PM 08/15/2022

Eric Hamilton - QA/QC Chemist

02:13 PM 08/15/2022

4775 Lexington Road 40391
P.O. Box 707, Winchester
Kentucky 40392-0707

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http://www.ekpc.coop

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EAST KENTUCKY POWER COOPERATIVE

Report Date: 8/15/2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	05/25/2022
Well ID No:	SSI-MW-4	Sample Collection Time:	3:12 PM
AKGW No.:	8003-8405	Sample Collected By:	BTB
Well Depth (Ft.):	52.87	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	504.61	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

EKPC - Central Laboratory Analyses

Lab Identification #: 2200430

Sample Received Date: 05/27/2022 | Sample Receipt Temperatures (°C): < 6

Sample Received Time: 8:30 AM | Sample Received By: JD

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Fluoride	0.14		mg/L	0.02	0.10	EPA 300.0 Rev 2.1 (1993)	6/13/2022	2:09 PM	JD

ALS Environmental

Lab Identification #: 22052643-04

Sample Received Date: 5/31/2022 | Sample Receipt Temperatures (°C): <6.0

Sample Received Time: 15:45 | Sample Received By: LYS

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Mercury	0.00055		µg/L	0.0002	0.0005	E163E	6/6/2022	18:32	ABL
Antimony	< 1.0		µg/L	0.42	1.0	E200.8	6/17/2022	19:41	STP
Arsenic	< 1.0		µg/L	0.19	1.0	E200.8	6/17/2022	19:41	STP
Barium	37.2		µg/L	0.57	1.0	E200.8	6/17/2022	19:41	STP
Beryllium	< 1.0		µg/L	0.13	1.0	E200.8	6/17/2022	19:41	STP
Cadmium	< 0.20		µg/L	0.14	0.20	E200.8	6/17/2022	19:41	STP
Chromium	< 10.0		µg/L	6.1	10	E200.8	6/6/2022	23:56	STP
Cobalt	< 1.0		µg/L	0.27	1.0	E200.8	6/17/2022	19:41	STP
Lead	< 1.0		µg/L	0.22	1.0	E200.8	6/17/2022	19:41	STP
Lithium	< 10		µg/L	1.7	10	E200.8	6/17/2022	19:41	STP
Molybdenum	12.6		µg/L	0.33	1	E200.8	6/17/2022	19:41	STP
Selenium	< 1.0		µg/L	0.48	1.0	E200.8	6/17/2022	19:41	STP
Thallium	< 1.0		µg/L	0.32	1.0	E200.8	6/17/2022	19:41	STP

Pace

Lab Identification #: 30499380004

Sample Received Date: 6/7/2022 | Sample Receipt Temperatures (°C): NA

Sample Received Time: 9:50 AM | Sample Received By: JA

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Radium-226	0.0618 ± 0.321 (0.666)		pCi/L			EPA 903.1	7/15/2022	12:41 PM	SLC
Radium-228	0.266 ± 0.349 (0.742)		pCi/L			EPA 904.0	7/11/2022	4:40 PM	VAL
Total Radium Calculation	0.328 ± 0.670 (1.41)		pCi/L			Total Radium Calculation	7/15/2022	6:31 PM	JAL

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Result notes: D - Result from dilution, J - Estimated Value, R - Unusable Result (Quality Control Failure), NA - Not Available

Electronically Approved By :

Jared Daugherty - Chemist

12:34 PM 08/15/2022

Eric Hamilton - QA/QC Chemist

02:13 PM 08/15/2022

4775 Lexington Road 40391
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EAST KENTUCKY POWER COOPERATIVE

Report Date: 8/15/2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	05/25/2022
Well ID No:	SSI-MW-5	Sample Collection Time:	11:30 AM
AKGW No.:	8007-1129	Sample Collected By:	BTB
Well Depth (Ft.):	52.41	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	515.7	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

EKPC - Central Laboratory Analyses

Lab Identification #: 2200431

Sample Received Date: 05/27/2022 | Sample Receipt Temperatures (°C): < 6

Sample Received Time: 8:30 AM | Sample Received By: JD

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Fluoride	0.28		mg/L	0.02	0.10	EPA 300.0 Rev 2.1 (1993)	6/13/2022	2:27 PM	JD

ALS Environmental

Lab Identification #: 22052643-05

Sample Received Date: 5/31/2022 | Sample Receipt Temperatures (°C): <6.0

Sample Received Time: 15:45 | Sample Received By: LYS

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Mercury	0.00053		µg/L	0.0002	0.0005	E163E	6/6/2022	18:40	ABL
Antimony	< 1.0		µg/L	0.42	1.0	E200.8	6/17/2022	19:42	STP
Arsenic	< 1.0		µg/L	0.19	1.0	E200.8	6/17/2022	19:42	STP
Barium	19.2		µg/L	0.57	1.0	E200.8	6/17/2022	19:42	STP
Beryllium	< 1.0		µg/L	0.13	1.0	E200.8	6/17/2022	19:42	STP
Cadmium	< 0.20		µg/L	0.14	0.20	E200.8	6/17/2022	19:42	STP
Chromium	< 10.0		µg/L	6.1	10	E200.8	6/6/2022	22:04	STP
Cobalt	< 1.0		µg/L	0.27	1.0	E200.8	6/17/2022	19:42	STP
Lead	< 1.0		µg/L	0.22	1.0	E200.8	6/17/2022	19:42	STP
Lithium	< 10		µg/L	1.7	10	E200.8	6/17/2022	19:42	STP
Molybdenum	1.46		µg/L	0.33	1	E200.8	6/17/2022	19:42	STP
Selenium	< 1.0		µg/L	0.48	1.0	E200.8	6/17/2022	19:42	STP
Thallium	< 1.0		µg/L	0.32	1.0	E200.8	6/17/2022	19:42	STP

Pace

Lab Identification #: 30499380005

Sample Received Date: 6/7/2022 | Sample Receipt Temperatures (°C): NA

Sample Received Time: 9:50 AM | Sample Received By: JA

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Radium-226	0.122 ± 0.339 (0.657)		pCi/L			EPA 903.1	7/15/2022	12:41 PM	SLC
Radium-228	0.857 ± 0.448 (0.779)		pCi/L			EPA 904.0	7/11/2022	4:40 PM	VAL
Total Radium Calculation	0.979 ± 0.787 (1.44)		pCi/L			Total Radium Calculation	7/15/2022	6:31 PM	JAL

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Result notes: D - Result from dilution, J - Estimated Value, R - Unusable Result (Quality Control Failure), NA - Not Available

Electronically Approved By :

Jared Daugherty - Chemist

12:34 PM 08/15/2022

Eric Hamilton - QA/QC Chemist

02:13 PM 08/15/2022

4775 Lexington Road 40391
P.O. Box 707, Winchester
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EAST KENTUCKY POWER COOPERATIVE

Report Date: 8/15/2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	05/25/2022
Well ID No:	SSI-MW-6	Sample Collection Time:	12:26 PM
AKGW No.:	8007-1132	Sample Collected By:	BTB
Well Depth (Ft.):	52.35	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	512.12	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

EKPC - Central Laboratory Analyses

Lab Identification #: 2200432

Sample Received Date: 05/27/2022 | Sample Receipt Temperatures (°C): < 6

Sample Received Time: 8:30 AM | Sample Received By: JD

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Fluoride	0.14		mg/L	0.02	0.10	EPA 300.0 Rev 2.1 (1993)	6/13/2022	2:46 PM	JD

ALS Environmental

Lab Identification #: 22052643-06

Sample Received Date: 5/31/2022 | Sample Receipt Temperatures (°C): <6.0

Sample Received Time: 15:45 | Sample Received By: LYS

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Mercury	0.00062		µg/L	0.0002	0.0005	E163E	6/6/2022	19:11	ABL
Antimony	< 10		µg/L	4.2	10	E200.8	6/7/2022	22:12	STP
Arsenic	< 10		µg/L	1.9	10	E200.8	6/7/2022	22:12	STP
Barium	34.6		µg/L	5.7	10	E200.8	6/7/2022	22:12	STP
Beryllium	< 10		µg/L	1.3	10	E200.8	6/7/2022	22:12	STP
Cadmium	< 2.0		µg/L	1.4	2	E200.8	6/7/2022	22:12	STP
Chromium	< 10.0		µg/L	6.1	10	E200.8	6/7/2022	22:12	STP
Cobalt	< 10		µg/L	2.7	10	E200.8	6/7/2022	22:12	STP
Lead	< 10		µg/L	2.2	10	E200.8	6/7/2022	22:12	STP
Lithium	< 100		µg/L	17	100	E200.8	6/7/2022	22:12	STP
Molybdenum	< 10.0		µg/L	3.3	10	E200.8	6/7/2022	22:12	STP
Selenium	< 10		µg/L	4.8	10	E200.8	6/7/2022	22:12	STP
Thallium	< 10		µg/L	3.2	10	E200.8	6/7/2022	22:12	STP

Pace

Lab Identification #: 30499380009

Sample Received Date: 7/5/2022 | Sample Receipt Temperatures (°C): NA

Sample Received Time: 9:15 PM | Sample Received By: JA

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Radium-226	0.000 ± 0.419 (0.848)		pCi/L			EPA 903.1	7/28/2022	1:21 PM	SLC
Radium-228	0.950 ± 0.439 (0.728)		pCi/L			EPA 904.0	7/27/2022	2:46 PM	VAL
Total Radium Calculation	0.950 ± 0.858 (1.58)		pCi/L			Total Radium Calculation	8/1/2022	4:08 PM	JAL

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Result notes: D - Result from dilution, J - Estimated Value, R - Unusable Result (Quality Control Failure), NA - Not Available

Electronically Approved By :

Jared Daugherty - Chemist

12:34 PM 08/15/2022

Eric Hamilton - QA/QC Chemist

02:13 PM 08/15/2022

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EAST KENTUCKY POWER COOPERATIVE

Report Date: 8/16/2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	05/25/2022
Well ID No:	SSI-MW-7	Sample Collection Time:	9:47 AM
AKGW No.:	8007-1131	Sample Collected By:	BTB
Well Depth (Ft.):	52.57	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	511.45	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

EKPC - Central Laboratory Analyses

Lab Identification #: 2200433

Sample Received Date:	05/27/2022	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	8:30 AM	Sample Received By:	JD

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Fluoride	0.44		mg/L	0.02	0.10	EPA 300.0 Rev 2.1 (1993)	6/13/2022	3:05 PM	JD

ALS Environmental

Lab Identification #: 22052643-07

Sample Received Date:	5/31/2022	Sample Receipt Temperatures (°C):	<6.0
Sample Received Time:	15:45	Sample Received By:	LYS

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Mercury	0.00052		µg/L	0.0002	0.0005	E163E	6/6/2022	19:19	ABL
Antimony	< 1.0		µg/L	0.42	1.0	E200.8	6/17/2022	19:47	STP
Arsenic	< 1.0		µg/L	0.19	1.0	E200.8	6/17/2022	19:47	STP
Barium	31.6		µg/L	0.57	1.0	E200.8	6/17/2022	19:47	STP
Beryllium	< 1.0		µg/L	0.13	1.0	E200.8	6/17/2022	19:47	STP
Cadmium	< 0.20		µg/L	0.14	0.2	E200.8	6/17/2022	19:47	STP
Chromium	< 10.0		µg/L	6.1	10	E200.8	6/7/2022	22:14	STP
Cobalt	< 1.0		µg/L	0.27	1.0	E200.8	6/17/2022	19:47	STP
Lead	< 1.0		µg/L	0.22	1.0	E200.8	6/17/2022	19:47	STP
Lithium	< 10		µg/L	1.7	10	E200.8	6/17/2022	19:47	STP
Molybdenum	< 1.00		µg/L	0.33	1	E200.8	6/17/2022	19:47	STP
Selenium	< 1.0		µg/L	0.48	1.0	E200.8	6/17/2022	19:47	STP
Thallium	< 1.0		µg/L	0.32	1.0	E200.8	6/17/2022	19:47	STP

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Result notes: D - Result from dilution, J - Estimated Value, R - Unusable Result (Quality Control Failure), NA - Not Available

Electronically Approved By :

Jared Daugherty - Chemist

09:58 AM 08/16/2022

Eric Hamilton - QA/QC Chemist

10:01 AM 08/16/2022

4775 Lexington Road 40391
P.O. Box 707, Winchester
Kentucky 40392-0707

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EAST KENTUCKY POWER COOPERATIVE

Report Date: 8/15/2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	05/25/2022
Well ID No:	SSI-MW-8	Sample Collection Time:	10:34 AM
AKGW No.:	8007-1130	Sample Collected By:	BTB
Well Depth (Ft.):	53.53	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	509.67	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

EKPC - Central Laboratory Analyses

Lab Identification #: 2200434

Sample Received Date:	05/27/2022	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	8:30 AM	Sample Received By:	JD

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Fluoride	0.23		mg/L	0.02	0.10	EPA 300.0 Rev 2.1 (1993)	6/13/2022	3:24 PM	JD

ALS Environmental

Lab Identification #: 22052643-08

Sample Received Date:	5/31/2022	Sample Receipt Temperatures (°C):	<6.0
Sample Received Time:	15:45	Sample Received By:	LYS

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Mercury	0.00061		µg/L	0.0002	0.0005	E163E	6/6/2022	19:27	ABL
Antimony	< 1.0		µg/L	0.42	1.0	E200.8	6/17/2022	19:49	STP
Arsenic	< 1.0		µg/L	0.19	1.0	E200.8	6/17/2022	19:49	STP
Barium	29.3		µg/L	0.57	1.0	E200.8	6/17/2022	19:49	STP
Beryllium	< 1.0		µg/L	0.13	1.0	E200.8	6/17/2022	19:49	STP
Cadmium	< 0.20		µg/L	0.14	0.20	E200.8	6/17/2022	19:49	STP
Chromium	< 10.0		µg/L	6.1	10	E200.8	6/7/2022	22:15	STP
Cobalt	< 1.0		µg/L	0.27	1.0	E200.8	6/17/2022	19:49	STP
Lead	< 1.0		µg/L	0.22	1.0	E200.8	6/17/2022	19:49	STP
Lithium	< 10		µg/L	1.7	10	E200.8	6/17/2022	19:49	STP
Molybdenum	18.3		µg/L	0.33	1	E200.8	6/17/2022	19:49	STP
Selenium	< 1.0		µg/L	0.48	1.0	E200.8	6/17/2022	19:49	STP
Thallium	< 1.0		µg/L	0.32	1.0	E200.8	6/17/2022	19:49	STP

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Result notes: D - Result from dilution, J - Estimated Value, R - Unusable Result (Quality Control Failure), NA - Not Available

Electronically Approved By :

Jared Daugherty - Chemist

12:34 PM 08/15/2022

Eric Hamilton - QA/QC Chemist

02:13 PM 08/15/2022

4775 Lexington Road 40391
P.O. Box 707, Winchester
Kentucky 40392-0707

Tel. (859) 744-4812
Fax: (859) 744-6008
http://www.ekpc.coop

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EAST KENTUCKY POWER COOPERATIVE

Report Date: 8/15/2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	06/27/2022
Well ID No:	SSI-MW-7	Sample Collection Time:	1:05 PM
AKGW No.:	8007-1131	Sample Collected By:	BTB
Well Depth (Ft.):	52.57	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	511.45	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

Pace Lab Identification #: 30504176001

Sample Received Date:	7/7/2022	Sample Receipt Temperatures (°C):	NA
Sample Received Time:	5:15 PM	Sample Received By:	PS

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Radium-226	0.550 ± 0.366 (0.471)		pCi/L			EPA 903.1	8/8/2022	12:24 PM	SLC
Radium-228	0.0797 ± 0.485 (1.11)		pCi/L			EPA 904.0	8/1/2022	4:08 PM	VAL
Total Radium Calculation	0.630 ± 0.851 (1.58)		pCi/L			Total Radium Calculation	8/9/2022	9:28 AM	JAL

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.
Result notes: D - Result from dilution, J - Estimated Value, R - Unusable Result (Quality Control Failure), NA - Not Available

Electronically Approved By :

Jared Daugherty - Chemist
12:17 PM 08/15/2022

Eric Hamilton - QA/QC Chemist
12:22 PM 08/15/2022

4775 Lexington Road 40391
P.O. Box 707, Winchester
Kentucky 40392-0707
Tel. (859) 744-4812
Fax: (859) 744-6008
http://www.ekpc.coop

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Report Date: 8/15/2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	06/27/2022
Well ID No:	SSI-MW-8	Sample Collection Time:	1:56 PM
AKGW No.:	8007-1130	Sample Collected By:	BTB
Well Depth (Ft.):	53.53	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	509.67	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

Pace Lab Identification #: 30504176003

Sample Received Date:	7/7/2022	Sample Receipt Temperatures (°C):	NA
Sample Received Time:	5:15 PM	Sample Received By:	PS

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Radium-226	-0.0 ± 0.207 (0.487)		pCi/L			EPA 903.1	8/8/2022	12:24 PM	SLC
Radium-228	0.403 ± 0.417 (0.867)		pCi/L			EPA 904.0	8/1/2022	4:39 PM	VAL
Total Radium Calculation	0.403 ± 0.624 (1.35)		pCi/L			Total Radium Calculation	8/9/2022	9:28 AM	JAL

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.
Result notes: D - Result from dilution, J - Estimated Value, R - Unusable Result (Quality Control Failure), NA - Not Available

Electronically Approved By :

Jared Daugherty - Chemist
12:17 PM 08/15/2022

Eric Hamilton - QA/QC Chemist
12:22 PM 08/15/2022

4775 Lexington Road 40391
P.O. Box 707, Winchester
Kentucky 40392-0707
Tel. (859) 744-4812
Fax: (859) 744-6008
http://www.ekpc.coop

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EAST KENTUCKY POWER COOPERATIVE

Report Date: 10/18/2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	08/26/2022
Well ID No:	SSI-MW-1	Sample Collection Time:	4:44 PM
AKGW No.:	8003-8407	Sample Collected By:	BTB
Well Depth (Ft.):	52	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	511.79	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

Field Analyses

	Result	Units	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Groundwater Elevation	465.20	MSL		08/26/2022	4:44 PM	BTB
Turbidity	2.75	NTU	SM 2130, B-2001	08/26/2022	4:44 PM	BTB
Conductivity	403	µS/cm	SM 2510, B-2011	08/26/2022	4:44 PM	BTB
Temperature	61.88	°F	SM 2550, B-2010	08/26/2022	4:44 PM	BTB
Oxidation Reduction Potential	157	mV	SM 2580, B-2011	08/26/2022	4:44 PM	BTB
pH	7.11	S.U.	SM 4500-H+, B-2011	08/26/2022	4:44 PM	BTB
Dissolved Oxygen	< 1.0	mg/L	SM 4500-O	08/26/2022	4:44 PM	BTB

EKPC - Central Laboratory Analyses

Lab Identification #: 2200845

Sample Received Date:	08/30/2022	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	2:45 PM	Sample Received By:	JD

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Boron	< 25.0		µg/L	3.6	25.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:25 PM	JD
Calcium	41100	D	µg/L	5600	10000	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	11:38 AM	JD
Chloride	22.1		mg/L	0.2	0.5	EPA 300.0 Rev 2.1 (1993)	9/7/2022	5:57 PM	JD
Fluoride	0.22		mg/L	0.05	0.05	EPA 300.0 Rev 2.1 (1993)	9/7/2022	5:57 PM	JD
Sulfate	27.5		mg/L	0.24	1.0	EPA 300.0 Rev 2.1 (1993)	9/7/2022	5:57 PM	JD
Solids, Total Dissolved	224		mg/L		50.0	SM 2540, C-2011	8/31/2022	1:01 PM	JD

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Result notes: D - Result from dilution, J - Estimated Value, R - Unusable Result (Quality Control Failure), NA - Not Available

Electronically Approved By :

Jared Daugherty - Chemist
06:27 AM 10/17/2022

Eric Hamilton - QA/QC Chemist
09:15 AM 10/18/2022

4775 Lexington Road 40391
P.O. Box 707, Winchester
Kentucky 40392-0707
Tel. (859) 744-4812
Fax: (859) 744-6008
http://www.ekpc.coop

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Report Date: 10/18/2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	08/26/2022
Well ID No:	SSI-MW-2	Sample Collection Time:	12:55 PM
AKGW No.:	8004-3801	Sample Collected By:	BTB
Well Depth (Ft.):	52.5	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	506.8	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

Field Analyses

	Result	Units	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Groundwater Elevation	469.74	MSL		08/26/2022	12:55 PM	BTB
Turbidity	3.42	NTU	SM 2130, B-2001	08/26/2022	12:55 PM	BTB
Conductivity	327	µS/cm	SM 2510, B-2011	08/26/2022	12:55 PM	BTB
Temperature	56.66	°F	SM 2550, B-2010	08/26/2022	12:55 PM	BTB
Oxidation Reduction Potential	-76.9	mV	SM 2580, B-2011	08/26/2022	12:55 PM	BTB
pH	7.52	S.U.	SM 4500-H+, B-2011	08/26/2022	12:55 PM	BTB
Dissolved Oxygen	1	mg/L	SM 4500-O	08/26/2022	12:55 PM	BTB

EKPC - Central Laboratory Analyses

Lab Identification #: 2200846

Sample Received Date:	08/30/2022	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	2:45 PM	Sample Received By:	JD

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Boron	< 25.0		µg/L	3.6	25.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:29 PM	JD
Calcium	32700	D	µg/L	5600	10000	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	11:42 AM	JD
Chloride	21.8		mg/L	0.2	0.5	EPA 300.0 Rev 2.1 (1993)	9/7/2022	6:53 PM	JD
Fluoride	0.14		mg/L	0.05	0.05	EPA 300.0 Rev 2.1 (1993)	9/7/2022	6:53 PM	JD
Sulfate	40.2		mg/L	0.24	1.0	EPA 300.0 Rev 2.1 (1993)	9/7/2022	6:53 PM	JD
Solids, Total Dissolved	208		mg/L		50.0	SM 2540, C-2011	8/31/2022	1:01 PM	JD

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Result notes: D - Result from dilution, J - Estimated Value, R - Unusable Result (Quality Control Failure), NA - Not Available

Electronically Approved By :

Jared Daugherty - Chemist
06:27 AM 10/17/2022

Eric Hamilton - QA/QC Chemist
09:15 AM 10/18/2022

4775 Lexington Road 40391
P.O. Box 707, Winchester
Kentucky 40392-0707
Tel. (859) 744-4812
Fax: (859) 744-6008
http://www.ekpc.coop

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Report Date: 10/18/2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	08/26/2022
Well ID No:	SSI-MW-3	Sample Collection Time:	1:43 PM
AKGW No.:	8003-8406	Sample Collected By:	BTB
Well Depth (Ft.):	52.5	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	507.53	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

Field Analyses

	Result	Units	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Groundwater Elevation	472.46	MSL		08/26/2022	1:43 PM	BTB
Turbidity	4.35	NTU	SM 2130, B-2001	08/26/2022	1:43 PM	BTB
Conductivity	504	µS/cm	SM 2510, B-2011	08/26/2022	1:43 PM	BTB
Temperature	63.68	°F	SM 2550, B-2010	08/26/2022	1:43 PM	BTB
Oxidation Reduction Potential	-161.4	mV	SM 2580, B-2011	08/26/2022	1:43 PM	BTB
pH	7.45	S.U.	SM 4500-H+, B-2011	08/26/2022	1:43 PM	BTB
Dissolved Oxygen	< 1.0	mg/L	SM 4500-O	08/26/2022	1:43 PM	BTB

EKPC - Central Laboratory Analyses

Lab Identification #: 2200847

Sample Received Date:	08/30/2022	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	2:45 PM	Sample Received By:	JD

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Boron	29.9		µg/L	3.6	25.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:32 PM	JD
Calcium	52100	D	µg/L	5600	10000	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	11:46 AM	JD
Chloride	24.1		mg/L	0.2	0.5	EPA 300.0 Rev 2.1 (1993)	9/7/2022	7:12 PM	JD
Fluoride	0.19		mg/L	0.05	0.05	EPA 300.0 Rev 2.1 (1993)	9/7/2022	7:12 PM	JD
Sulfate	15.2		mg/L	0.24	1.0	EPA 300.0 Rev 2.1 (1993)	9/7/2022	7:12 PM	JD
Solids, Total Dissolved	304		mg/L		50.0	SM 2540, C-2011	8/31/2022	1:01 PM	JD

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Result notes: D - Result from dilution, J - Estimated Value, R - Unusable Result (Quality Control Failure), NA - Not Available

Electronically Approved By :

Jared Daugherty - Chemist

10:34 AM 10/18/2022

Eric Hamilton - QA/QC Chemist

11:04 AM 10/18/2022

4775 Lexington Road 40391
P.O. Box 707, Winchester
Kentucky 40392-0707

Tel. (859) 744-4812
Fax: (859) 744-6008
http://www.ekpc.coop

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EAST KENTUCKY POWER COOPERATIVE

Report Date: 10/18/2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	08/26/2022
Well ID No:	SSI-MW-4	Sample Collection Time:	2:20 PM
AKGW No.:	8003-8405	Sample Collected By:	BTB
Well Depth (Ft.):	52.87	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	504.61	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

Field Analyses

	Result	Units	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Groundwater Elevation	474.55	MSL		08/26/2022	2:20 PM	BTB
Turbidity	3.5	NTU	SM 2130, B-2001	08/26/2022	2:20 PM	BTB
Conductivity	410	µS/cm	SM 2510, B-2011	08/26/2022	2:20 PM	BTB
Temperature	64.22	°F	SM 2550, B-2010	08/26/2022	2:20 PM	BTB
Oxidation Reduction Potential	4.2	mV	SM 2580, B-2011	08/26/2022	2:20 PM	BTB
pH	7.71	S.U.	SM 4500-H+, B-2011	08/26/2022	2:20 PM	BTB
Dissolved Oxygen	1.19	mg/L	SM 4500-O	08/26/2022	2:20 PM	BTB

EKPC - Central Laboratory Analyses

Lab Identification #: 2200848

Sample Received Date:	08/30/2022	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	2:45 PM	Sample Received By:	JD

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Boron	32.0		µg/L	3.6	25.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:36 PM	JD
Calcium	43900	D	µg/L	5600	10000	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	11:49 AM	JD
Chloride	24.2		mg/L	0.2	0.5	EPA 300.0 Rev 2.1 (1993)	9/7/2022	7:31 PM	JD
Fluoride	0.16		mg/L	0.05	0.05	EPA 300.0 Rev 2.1 (1993)	9/7/2022	7:31 PM	JD
Sulfate	49.3		mg/L	0.24	1.0	EPA 300.0 Rev 2.1 (1993)	9/7/2022	7:31 PM	JD
Solids, Total Dissolved	214		mg/L		50.0	SM 2540, C-2011	8/31/2022	1:01 PM	JD

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Result notes: D - Result from dilution, J - Estimated Value, R - Unusable Result (Quality Control Failure), NA - Not Available

Electronically Approved By :

Jared Daugherty - Chemist
06:27 AM 10/17/2022

Eric Hamilton - QA/QC Chemist
09:16 AM 10/18/2022

4775 Lexington Road 40391
P.O. Box 707, Winchester
Kentucky 40392-0707
Tel. (859) 744-4812
Fax: (859) 744-6008
http://www.ekpc.coop

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EAST KENTUCKY POWER COOPERATIVE

Report Date: 10/18/2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	08/26/2022
Well ID No:	SSI-MW-5	Sample Collection Time:	3:27 PM
AKGW No.:	8007-1129	Sample Collected By:	BTB
Well Depth (Ft.):	52.41	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	515.7	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

Field Analyses

	Result	Units	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Groundwater Elevation	473.87	MSL		08/26/2022	3:27 PM	BTB
Turbidity	3.27	NTU	SM 2130, B-2001	08/26/2022	3:27 PM	BTB
Conductivity	387	µS/cm	SM 2510, B-2011	08/26/2022	3:27 PM	BTB
Temperature	60.98	°F	SM 2550, B-2010	08/26/2022	3:27 PM	BTB
Oxidation Reduction Potential	858	mV	SM 2580, B-2011	08/26/2022	3:27 PM	BTB
pH	7.06	S.U.	SM 4500-H+, B-2011	08/26/2022	3:27 PM	BTB
Dissolved Oxygen	< 1.0	mg/L	SM 4500-O	08/26/2022	3:27 PM	BTB

EKPC - Central Laboratory Analyses

Lab Identification #: 2200849

Sample Received Date:	08/30/2022	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	2:45 PM	Sample Received By:	JD

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Boron	35.5		µg/L	3.6	25.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:40 PM	JD
Calcium	44600	D	µg/L	5600	10000	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	11:53 AM	JD
Chloride	20.0		mg/L	0.2	0.5	EPA 300.0 Rev 2.1 (1993)	9/7/2022	7:50 PM	JD
Fluoride	0.27		mg/L	0.05	0.05	EPA 300.0 Rev 2.1 (1993)	9/7/2022	7:50 PM	JD
Sulfate	38.9		mg/L	0.24	1.0	EPA 300.0 Rev 2.1 (1993)	9/7/2022	7:50 PM	JD
Solids, Total Dissolved	240		mg/L		50.0	SM 2540, C-2011	8/31/2022	1:01 PM	JD

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Result notes: D - Result from dilution, J - Estimated Value, R - Unusable Result (Quality Control Failure), NA - Not Available

Electronically Approved By :

Jared Daugherty - Chemist
06:27 AM 10/17/2022

Eric Hamilton - QA/QC Chemist
09:16 AM 10/18/2022

4775 Lexington Road 40391
P.O. Box 707, Winchester
Kentucky 40392-0707
Tel. (859) 744-4812
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http://www.ekpc.coop

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EAST KENTUCKY POWER COOPERATIVE

Report Date: 10/18/2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	08/26/2022
Well ID No:	SSI-MW-6	Sample Collection Time:	4:02 PM
AKGW No.:	8007-1132	Sample Collected By:	BTB
Well Depth (Ft.):	52.35	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	512.12	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

Field Analyses

	Result	Units	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Groundwater Elevation	470.12	MSL		08/26/2022	4:02 PM	BTB
Turbidity	1.61	NTU	SM 2130, B-2001	08/26/2022	4:02 PM	BTB
Conductivity	1339	µS/cm	SM 2510, B-2011	08/26/2022	4:02 PM	BTB
Temperature	62.24	°F	SM 2550, B-2010	08/26/2022	4:02 PM	BTB
Oxidation Reduction Potential	177.5	mV	SM 2580, B-2011	08/26/2022	4:02 PM	BTB
pH	6.45	S.U.	SM 4500-H+, B-2011	08/26/2022	4:02 PM	BTB
Dissolved Oxygen	< 1.0	mg/L	SM 4500-O	08/26/2022	4:02 PM	BTB

EKPC - Central Laboratory Analyses

Lab Identification #: 2200850

Sample Received Date:	08/30/2022	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	2:45 PM	Sample Received By:	JD

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Boron	3540	D	µg/L	18.1	125	EPA 200.8, Rev. 5.4 (1994)	9/29/2022	9:48 AM	JD
Calcium	171000	D	µg/L	11200	20000	EPA 200.8, Rev. 5.4 (1994)	9/15/2022	11:54 AM	JD
Chloride	160	D	mg/L	2.4	5.0	EPA 300.0 Rev 2.1 (1993)	9/8/2022	3:58 PM	JD
Fluoride	0.16		mg/L	0.05	0.05	EPA 300.0 Rev 2.1 (1993)	9/8/2022	4:17 PM	JD
Sulfate	373	D	mg/L	2.4	10.0	EPA 300.0 Rev 2.1 (1993)	9/8/2022	3:58 PM	JD
Solids, Total Dissolved	1030		mg/L		50.0	SM 2540, C-2011	8/31/2022	1:01 PM	JD

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Result notes: D - Result from dilution, J - Estimated Value, R - Unusable Result (Quality Control Failure), NA - Not Available

Electronically Approved By :

Jared Daugherty - Chemist
06:27 AM 10/17/2022

Eric Hamilton - QA/QC Chemist
09:16 AM 10/18/2022

4775 Lexington Road 40391
P.O. Box 707, Winchester
Kentucky 40392-0707
Tel. (859) 744-4812
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http://www.ekpc.coop

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Report Date: 10/18/2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	08/26/2022
Well ID No:	SSI-MW-7	Sample Collection Time:	11:20 AM
AKGW No.:	8007-1131	Sample Collected By:	BTB
Well Depth (Ft.):	52.57	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	511.45	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

Field Analyses

	Result	Units	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Groundwater Elevation	468.03	MSL		08/26/2022	11:20 AM	BTB
Turbidity	3.7	NTU	SM 2130, B-2001	08/26/2022	11:20 AM	BTB
Conductivity	932	µS/cm	SM 2510, B-2011	08/26/2022	11:20 AM	BTB
Temperature	64.40	°F	SM 2550, B-2010	08/26/2022	11:20 AM	BTB
Oxidation Reduction Potential	138.8	mV	SM 2580, B-2011	08/26/2022	11:20 AM	BTB
pH	7.08	S.U.	SM 4500-H+, B-2011	08/26/2022	11:20 AM	BTB
Dissolved Oxygen	< 1.0	mg/L	SM 4500-O	08/26/2022	11:20 AM	BTB

EKPC - Central Laboratory Analyses

Lab Identification #: 2200851

Sample Received Date:	08/30/2022	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	2:45 PM	Sample Received By:	JD

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Boron	721		µg/L	3.6	25.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:48 PM	JD
Calcium	124000	D	µg/L	11200	20000	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	11:57 AM	JD
Chloride	68.3		mg/L	0.2	0.5	EPA 300.0 Rev 2.1 (1993)	9/7/2022	8:09 PM	JD
Fluoride	0.31		mg/L	0.05	0.05	EPA 300.0 Rev 2.1 (1993)	9/7/2022	8:09 PM	JD
Sulfate	175		mg/L	0.24	1.0	EPA 300.0 Rev 2.1 (1993)	9/7/2022	8:09 PM	JD
Solids, Total Dissolved	610		mg/L		50.0	SM 2540, C-2011	8/31/2022	1:01 PM	JD

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Result notes: D - Result from dilution, J - Estimated Value, R - Unusable Result (Quality Control Failure), NA - Not Available

Electronically Approved By :

Jared Daugherty - Chemist
06:27 AM 10/17/2022

Eric Hamilton - QA/QC Chemist
09:16 AM 10/18/2022

4775 Lexington Road 40391
P.O. Box 707, Winchester
Kentucky 40392-0707
Tel. (859) 744-4812
Fax: (859) 744-6008
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EAST KENTUCKY POWER COOPERATIVE

Report Date: 10/18/2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	08/26/2022
Well ID No:	SSI-MW-8	Sample Collection Time:	12:02 PM
AKGW No.:	8007-1130	Sample Collected By:	BTB
Well Depth (Ft.):	53.53	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	509.67	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

Field Analyses

	Result	Units	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Groundwater Elevation	463.36	MSL		08/26/2022	12:02 PM	BTB
Turbidity	1.87	NTU	SM 2130, B-2001	08/26/2022	12:02 PM	BTB
Conductivity	555	µS/cm	SM 2510, B-2011	08/26/2022	12:02 PM	BTB
Temperature	68.72	°F	SM 2550, B-2010	08/26/2022	12:02 PM	BTB
Oxidation Reduction Potential	-77.2	mV	SM 2580, B-2011	08/26/2022	12:02 PM	BTB
pH	7.47	S.U.	SM 4500-H+, B-2011	08/26/2022	12:02 PM	BTB
Dissolved Oxygen	< 1.0	mg/L	SM 4500-O	08/26/2022	12:02 PM	BTB

EKPC - Central Laboratory Analyses

Lab Identification #: 2200852

Sample Received Date:	08/30/2022	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	2:45 PM	Sample Received By:	JD

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Boron	282		µg/L	3.6	25.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:52 PM	JD
Calcium	61300	D	µg/L	5600	10000	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:01 PM	JD
Chloride	27.7		mg/L	0.2	0.5	EPA 300.0 Rev 2.1 (1993)	9/7/2022	8:27 PM	JD
Fluoride	0.22		mg/L	0.05	0.05	EPA 300.0 Rev 2.1 (1993)	9/7/2022	8:27 PM	JD
Sulfate	42.3		mg/L	0.24	1.0	EPA 300.0 Rev 2.1 (1993)	9/7/2022	8:27 PM	JD
Solids, Total Dissolved	346		mg/L		50.0	SM 2540, C-2011	8/31/2022	1:01 PM	JD

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Result notes: D - Result from dilution, J - Estimated Value, R - Unusable Result (Quality Control Failure), NA - Not Available

Electronically Approved By :

Jared Daugherty - Chemist
06:27 AM 10/17/2022

Eric Hamilton - QA/QC Chemist
09:16 AM 10/18/2022

4775 Lexington Road 40391
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EAST KENTUCKY POWER COOPERATIVE

Report Date: 10/20/2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	08/26/2022
Well ID No:	SSI-MW-1	Sample Collection Time:	4:44 PM
AKGW No.:	8003-8407	Sample Collected By:	BTB
Well Depth (Ft.):	52	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	511.79	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

EKPC - Central Laboratory Analyses

Lab Identification #: 2200856

Sample Received Date:	08/30/2022	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	2:45 PM	Sample Received By:	JD

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Antimony	< 1.0		µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	9/15/2022	11:34 AM	JD
Arsenic	< 1.0		µg/L	0.2	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:25 PM	JD
Barium	20.9		µg/L	1.0	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:25 PM	JD
Beryllium	< 1.0		µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:25 PM	JD
Cadmium	< 0.25		µg/L	0.10	0.25	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:25 PM	JD
Chromium	< 1.0		µg/L	0.2	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:25 PM	JD
Cobalt	< 1.0		µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:25 PM	JD
Lead	< 1.0		µg/L	0.5	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:25 PM	JD
Lithium	< 10.0		µg/L	6.2	10.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:25 PM	JD
Molybdenum	16.6		µg/L	0.1	2.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:25 PM	JD
Selenium	< 1.0		µg/L	0.5	1.0	EPA 200.8, Rev. 5.4 (1994)	9/15/2022	11:34 AM	JD
Thallium	< 0.10		µg/L	0.03	0.10	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:25 PM	JD
Mercury	< 0.0050	D	µg/L	0.0014	0.0050	EPA 245.7 Rev 2.0 (2005)	9/19/2022	10:50 AM	JD
Fluoride	0.22		mg/L	0.05	0.05	EPA 300.0 Rev 2.1 (1993)	9/7/2022	5:57 PM	JD

Pace

Lab Identification #: 30520304001

Sample Received Date:	9/8/2022	Sample Receipt Temperatures (°C):	NA
Sample Received Time:	9:50 AM	Sample Received By:	PR

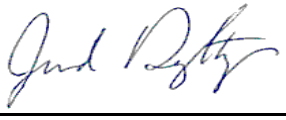
Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Radium-226	0.000 ± 0.337 (0.755)		pCi/L			EPA 903.1	9/17/2022	5:09 PM	SLC
Radium-228	-0.0 ± 0.475 (1.11)		pCi/L			EPA 904.0	9/22/2022	6:35 PM	VAL
Total Radium Calculation	0.000 ± 0.812 (1.87)		pCi/L			Total Radium Calculation	9/23/2022	1:07 PM	JAL

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Result notes: D - Result from dilution, J - Estimated Value, R - Unusable Result (Quality Control Failure), NA - Not Available

Electronically Approved By :



Jared Daugherty - Chemist

03:55 PM 10/20/2022

Eric Hamilton - QA/QC Chemist

04:01 PM 10/20/2022

4775 Lexington Road 40391
P.O. Box 707, Winchester
Kentucky 40392-0707

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EAST KENTUCKY POWER COOPERATIVE

Report Date: 10/20/2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	08/26/2022
Well ID No:	SSI-MW-2	Sample Collection Time:	12:55 PM
AKGW No.:	8004-3801	Sample Collected By:	BTB
Well Depth (Ft.):	52.5	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	506.8	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

EKPC - Central Laboratory Analyses

Lab Identification #: 2200857

Sample Received Date:	08/30/2022	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	2:45 PM	Sample Received By:	JD

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Antimony	< 1.0		µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	9/15/2022	11:38 AM	JD
Arsenic	1.1		µg/L	0.2	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:29 PM	JD
Barium	50.9		µg/L	1.0	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:29 PM	JD
Beryllium	< 1.0		µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:29 PM	JD
Cadmium	< 0.25		µg/L	0.10	0.25	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:29 PM	JD
Chromium	< 1.0		µg/L	0.2	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:29 PM	JD
Cobalt	< 1.0		µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:29 PM	JD
Lead	< 1.0		µg/L	0.5	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:29 PM	JD
Lithium	< 10.0		µg/L	6.2	10.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:29 PM	JD
Molybdenum	15.4		µg/L	0.1	2.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:29 PM	JD
Selenium	< 1.0		µg/L	0.5	1.0	EPA 200.8, Rev. 5.4 (1994)	9/15/2022	11:38 AM	JD
Thallium	< 0.10		µg/L	0.03	0.10	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:29 PM	JD
Mercury	< 0.0050	D	µg/L	0.0014	0.0050	EPA 245.7 Rev 2.0 (2005)	9/19/2022	10:53 AM	JD
Fluoride	0.14		mg/L	0.05	0.05	EPA 300.0 Rev 2.1 (1993)	9/7/2022	6:53 PM	JD

Pace

Lab Identification #: 30520304002

Sample Received Date:	9/8/2022	Sample Receipt Temperatures (°C):	NA
Sample Received Time:	9:50 AM	Sample Received By:	PR

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Radium-226	-0.0 ± 0.411 (0.890)		pCi/L			EPA 903.1	9/17/2022	5:09 PM	SLC
Radium-228	0.345 ± 0.518 (1.12)		pCi/L			EPA 904.0	9/22/2022	6:36 PM	VAL
Total Radium Calculation	0.345 ± 0.929 (2.01)		pCi/L			Total Radium Calculation	9/23/2022	1:07 PM	JAL

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Result notes: D - Result from dilution, J - Estimated Value, R - Unusable Result (Quality Control Failure), NA - Not Available

Electronically Approved By :

Jared Daugherty - Chemist

03:55 PM 10/20/2022

Eric Hamilton - QA/QC Chemist

04:01 PM 10/20/2022

4775 Lexington Road 40391
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EAST KENTUCKY POWER COOPERATIVE

Report Date: 10/20/2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	08/26/2022
Well ID No:	SSI-MW-3	Sample Collection Time:	1:43 PM
AKGW No.:	8003-8406	Sample Collected By:	BTB
Well Depth (Ft.):	52.5	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	507.53	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

EKPC - Central Laboratory Analyses

Lab Identification #: 2200858

Sample Received Date:	08/30/2022	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	2:45 PM	Sample Received By:	JD

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Antimony	< 1.0		µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	9/15/2022	11:42 AM	JD
Arsenic	11.7		µg/L	0.2	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:32 PM	JD
Barium	416		µg/L	1.0	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:32 PM	JD
Beryllium	< 1.0		µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:32 PM	JD
Cadmium	< 0.25		µg/L	0.10	0.25	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:32 PM	JD
Chromium	< 1.0		µg/L	0.2	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:32 PM	JD
Cobalt	1.7		µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:32 PM	JD
Lead	< 1.0		µg/L	0.5	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:32 PM	JD
Lithium	< 10.0		µg/L	6.2	10.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:32 PM	JD
Molybdenum	17.5		µg/L	0.1	2.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:32 PM	JD
Selenium	< 1.0		µg/L	0.5	1.0	EPA 200.8, Rev. 5.4 (1994)	9/15/2022	11:42 AM	JD
Thallium	< 0.10		µg/L	0.03	0.10	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:32 PM	JD
Mercury	< 0.0050	D	µg/L	0.0014	0.0050	EPA 245.7 Rev 2.0 (2005)	9/19/2022	10:56 AM	JD
Fluoride	0.19		mg/L	0.05	0.05	EPA 300.0 Rev 2.1 (1993)	9/7/2022	7:12 PM	JD

Pace

Lab Identification #: 30520304003

Sample Received Date:	9/8/2022	Sample Receipt Temperatures (°C):	NA
Sample Received Time:	9:50 AM	Sample Received By:	PR

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Radium-226	0.476 ± 0.575 (0.945)		pCi/L			EPA 903.1	9/17/2022	5:09 PM	SLC
Radium-228	0.491 ± 0.463 (0.939)		pCi/L			EPA 904.0	9/22/2022	7:04 PM	VAL
Total Radium Calculation	0.967 ± 1.04 (1.88)		pCi/L			Total Radium Calculation	9/23/2022	1:07 PM	JAL

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Result notes: D - Result from dilution, J - Estimated Value, R - Unusable Result (Quality Control Failure), NA - Not Available

Electronically Approved By :

Jared Daugherty - Chemist

03:55 PM 10/20/2022

Eric Hamilton - QA/QC Chemist

04:01 PM 10/20/2022

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Report Date: 10/20/2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	08/26/2022
Well ID No:	SSI-MW-4	Sample Collection Time:	2:20 PM
AKGW No.:	8003-8405	Sample Collected By:	BTB
Well Depth (Ft.):	52.87	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	504.61	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

EKPC - Central Laboratory Analyses

Lab Identification #: 2200859

Sample Received Date:	08/30/2022	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	2:45 PM	Sample Received By:	JD

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Antimony	< 1.0		µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	9/15/2022	11:46 AM	JD
Arsenic	< 1.0		µg/L	0.2	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:36 PM	JD
Barium	17.3		µg/L	1.0	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:36 PM	JD
Beryllium	< 1.0		µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:36 PM	JD
Cadmium	< 0.25		µg/L	0.10	0.25	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:36 PM	JD
Chromium	< 1.0		µg/L	0.2	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:36 PM	JD
Cobalt	< 1.0		µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:36 PM	JD
Lead	< 1.0		µg/L	0.5	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:36 PM	JD
Lithium	< 10.0		µg/L	6.2	10.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:36 PM	JD
Molybdenum	14.2		µg/L	0.1	2.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:36 PM	JD
Selenium	< 1.0		µg/L	0.5	1.0	EPA 200.8, Rev. 5.4 (1994)	9/15/2022	11:46 AM	JD
Thallium	< 0.10		µg/L	0.03	0.10	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:36 PM	JD
Mercury	< 0.0050	D	µg/L	0.0014	0.0050	EPA 245.7 Rev 2.0 (2005)	9/19/2022	10:59 AM	JD
Fluoride	0.16		mg/L	0.05	0.05	EPA 300.0 Rev 2.1 (1993)	9/7/2022	7:31 PM	JD

Pace

Lab Identification #: 30520304004

Sample Received Date:	9/8/2022	Sample Receipt Temperatures (°C):	NA
Sample Received Time:	9:50 AM	Sample Received By:	PR

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Radium-226	-0.2 ± 0.383 (0.972)		pCi/L			EPA 903.1	9/17/2022	5:09 PM	SLC
Radium-228	0.819 ± 0.457 (0.784)		pCi/L			EPA 904.0	9/22/2022	7:04 PM	VAL
Total Radium Calculation	0.819 ± 0.840 (1.76)		pCi/L			Total Radium Calculation	9/23/2022	1:07 PM	JAL

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Result notes: D - Result from dilution, J - Estimated Value, R - Unusable Result (Quality Control Failure), NA - Not Available

Electronically Approved By :

Jared Daugherty - Chemist

03:55 PM 10/20/2022

Eric Hamilton - QA/QC Chemist

04:01 PM 10/20/2022

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Report Date: 10/20/2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	08/26/2022
Well ID No:	SSI-MW-5	Sample Collection Time:	3:27 PM
AKGW No.:	8007-1129	Sample Collected By:	BTB
Well Depth (Ft.):	52.41	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	515.7	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

EKPC - Central Laboratory Analyses

Lab Identification #: 2200860

Sample Received Date:	08/30/2022	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	2:45 PM	Sample Received By:	JD

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Antimony	< 1.0		µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	9/15/2022	11:50 AM	JD
Arsenic	< 1.0		µg/L	0.2	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:40 PM	JD
Barium	20.2		µg/L	1.0	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:40 PM	JD
Beryllium	< 1.0		µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:40 PM	JD
Cadmium	< 0.25		µg/L	0.10	0.25	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:40 PM	JD
Chromium	< 1.0		µg/L	0.2	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:40 PM	JD
Cobalt	< 1.0		µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:40 PM	JD
Lead	< 1.0		µg/L	0.5	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:40 PM	JD
Lithium	< 10.0		µg/L	6.2	10.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:40 PM	JD
Molybdenum	< 2.0		µg/L	0.1	2.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:40 PM	JD
Selenium	< 1.0		µg/L	0.5	1.0	EPA 200.8, Rev. 5.4 (1994)	9/15/2022	11:50 AM	JD
Thallium	< 0.10		µg/L	0.03	0.10	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:40 PM	JD
Mercury	< 0.0050	D	µg/L	0.0014	0.0050	EPA 245.7 Rev 2.0 (2005)	9/19/2022	11:02 AM	JD
Fluoride	0.27		mg/L	0.05	0.05	EPA 300.0 Rev 2.1 (1993)	9/7/2022	7:50 PM	JD

Pace

Lab Identification #: 30520304005

Sample Received Date:	9/8/2022	Sample Receipt Temperatures (°C):	NA
Sample Received Time:	9:50 AM	Sample Received By:	PR

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Radium-226	0.581 ± 0.544 (0.771)		pCi/L			EPA 903.1	9/17/2022	5:09 PM	SLC
Radium-228	0.109 ± 0.468 (1.07)		pCi/L			EPA 904.0	9/22/2022	7:04 PM	VAL
Total Radium Calculation	0.690 ± 1.01 (1.84)		pCi/L			Total Radium Calculation	9/23/2022	1:07 PM	JAL

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Result notes: D - Result from dilution, J - Estimated Value, R - Unusable Result (Quality Control Failure), NA - Not Available

Electronically Approved By :

Jared Daugherty - Chemist

03:55 PM 10/20/2022

Eric Hamilton - QA/QC Chemist

04:01 PM 10/20/2022

4775 Lexington Road 40391
P.O. Box 707, Winchester
Kentucky 40392-0707

Tel. (859) 744-4812
Fax: (859) 744-6008
http://www.ekpc.coop

A Touchstone Energy® Cooperative

EAST KENTUCKY POWER COOPERATIVE

Report Date: 10/20/2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	08/26/2022
Well ID No:	SSI-MW-6	Sample Collection Time:	4:02 PM
AKGW No.:	8007-1132	Sample Collected By:	BTB
Well Depth (Ft.):	52.35	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	512.12	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

EKPC - Central Laboratory Analyses

Lab Identification #: 2200861

Sample Received Date:	08/30/2022	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	2:45 PM	Sample Received By:	JD

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Antimony	< 1.0		µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	9/15/2022	12:05 PM	JD
Arsenic	< 1.0		µg/L	0.2	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:44 PM	JD
Barium	44.1		µg/L	1.0	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:44 PM	JD
Beryllium	< 1.0		µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:44 PM	JD
Cadmium	< 0.25		µg/L	0.10	0.25	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:44 PM	JD
Chromium	< 1.0		µg/L	0.2	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:44 PM	JD
Cobalt	< 1.0		µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:44 PM	JD
Lead	< 1.0		µg/L	0.5	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:44 PM	JD
Lithium	17.2		µg/L	6.2	10.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:44 PM	JD
Molybdenum	< 2.0		µg/L	0.1	2.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:44 PM	JD
Selenium	< 1.0		µg/L	0.5	1.0	EPA 200.8, Rev. 5.4 (1994)	9/15/2022	12:05 PM	JD
Thallium	< 0.10		µg/L	0.03	0.10	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:44 PM	JD
Mercury	< 0.0050	D	µg/L	0.0014	0.0050	EPA 245.7 Rev 2.0 (2005)	9/19/2022	11:05 AM	JD
Fluoride	0.16		mg/L	0.05	0.05	EPA 300.0 Rev 2.1 (1993)	9/8/2022	4:17 PM	JD

Pace

Lab Identification #: 30520304006

Sample Received Date:	9/8/2022	Sample Receipt Temperatures (°C):	NA
Sample Received Time:	9:50 AM	Sample Received By:	PR

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Radium-226	0.136 ± 0.565 (1.08)		pCi/L			EPA 903.1	9/17/2022	5:09 PM	SLC
Radium-228	0.340 ± 0.534 (1.16)		pCi/L			EPA 904.0	9/22/2022	7:04 PM	VAL
Total Radium Calculation	0.476 ± 1.10 (2.24)		pCi/L			Total Radium Calculation	9/23/2022	1:07 PM	JAL

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Result notes: D - Result from dilution, J - Estimated Value, R - Unusable Result (Quality Control Failure), NA - Not Available

Electronically Approved By :

Jared Daugherty - Chemist

03:55 PM 10/20/2022

Eric Hamilton - QA/QC Chemist

04:01 PM 10/20/2022

4775 Lexington Road 40391
P.O. Box 707, Winchester
Kentucky 40392-0707

Tel. (859) 744-4812
Fax: (859) 744-6008
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EAST KENTUCKY POWER COOPERATIVE

Report Date: 10/20/2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	08/26/2022
Well ID No:	SSI-MW-7	Sample Collection Time:	11:20 AM
AKGW No.:	8007-1131	Sample Collected By:	BTB
Well Depth (Ft.):	52.57	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	511.45	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

EKPC - Central Laboratory Analyses

Lab Identification #: 2200862

Sample Received Date:	08/30/2022	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	2:45 PM	Sample Received By:	JD

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Antimony	< 1.0		µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	9/15/2022	12:10 PM	JD
Arsenic	< 1.0		µg/L	0.2	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:48 PM	JD
Barium	51.2		µg/L	1.0	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:48 PM	JD
Beryllium	< 1.0		µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:48 PM	JD
Cadmium	< 0.25		µg/L	0.10	0.25	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:48 PM	JD
Chromium	< 1.0		µg/L	0.2	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:48 PM	JD
Cobalt	< 1.0		µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:48 PM	JD
Lead	< 1.0		µg/L	0.5	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:48 PM	JD
Lithium	< 10.0		µg/L	6.2	10.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:48 PM	JD
Molybdenum	< 2.0		µg/L	0.1	2.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:48 PM	JD
Selenium	< 1.0		µg/L	0.5	1.0	EPA 200.8, Rev. 5.4 (1994)	9/15/2022	12:10 PM	JD
Thallium	< 0.10		µg/L	0.03	0.10	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:48 PM	JD
Mercury	< 0.0050	D	µg/L	0.0014	0.0050	EPA 245.7 Rev 2.0 (2005)	9/19/2022	11:08 AM	JD
Fluoride	0.31		mg/L	0.05	0.05	EPA 300.0 Rev 2.1 (1993)	9/7/2022	8:09 PM	JD

Pace

Lab Identification #: 30520304007

Sample Received Date:	9/8/2022	Sample Receipt Temperatures (°C):	NA
Sample Received Time:	9:50 AM	Sample Received By:	PR

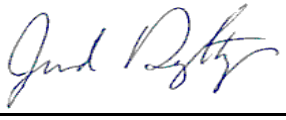
Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Radium-226	0.000 ± 0.517 (1.06)		pCi/L			EPA 903.1	9/17/2022	5:09 PM	SLC
Radium-228	0.279 ± 0.498 (1.09)		pCi/L			EPA 904.0	9/22/2022	7:04 PM	VAL
Total Radium Calculation	0.279 ± 1.02 (2.15)		pCi/L			Total Radium Calculation	9/23/2022	1:07 PM	JAL

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Result notes: D - Result from dilution, J - Estimated Value, R - Unusable Result (Quality Control Failure), NA - Not Available

Electronically Approved By :



Jared Daugherty - Chemist

03:55 PM 10/20/2022

Eric Hamilton - QA/QC Chemist

04:01 PM 10/20/2022

4775 Lexington Road 40391
P.O. Box 707, Winchester
Kentucky 40392-0707

Tel. (859) 744-4812
Fax: (859) 744-6008
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EAST KENTUCKY POWER COOPERATIVE

Report Date: 10/20/2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	08/26/2022
Well ID No:	SSI-MW-8	Sample Collection Time:	12:02 PM
AKGW No.:	8007-1130	Sample Collected By:	BTB
Well Depth (Ft.):	53.53	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	509.67	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

EKPC - Central Laboratory Analyses

Lab Identification #: 2200863

Sample Received Date:	08/30/2022	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	2:45 PM	Sample Received By:	JD

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Antimony	< 1.0		µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	9/15/2022	12:14 PM	JD
Arsenic	< 1.0		µg/L	0.2	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:52 PM	JD
Barium	25.5		µg/L	1.0	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:52 PM	JD
Beryllium	< 1.0		µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:52 PM	JD
Cadmium	< 0.25		µg/L	0.10	0.25	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:52 PM	JD
Chromium	< 1.0		µg/L	0.2	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:52 PM	JD
Cobalt	< 1.0		µg/L	0.1	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:52 PM	JD
Lead	< 1.0		µg/L	0.5	1.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:52 PM	JD
Lithium	< 10.0		µg/L	6.2	10.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:52 PM	JD
Molybdenum	24.7		µg/L	0.1	2.0	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:52 PM	JD
Selenium	< 1.0		µg/L	0.5	1.0	EPA 200.8, Rev. 5.4 (1994)	9/15/2022	12:14 PM	JD
Thallium	< 0.10		µg/L	0.03	0.10	EPA 200.8, Rev. 5.4 (1994)	9/20/2022	12:52 PM	JD
Mercury	< 0.0050	D	µg/L	0.0014	0.0050	EPA 245.7 Rev 2.0 (2005)	9/19/2022	11:11 AM	JD
Fluoride	0.22		mg/L	0.05	0.05	EPA 300.0 Rev 2.1 (1993)	9/7/2022	8:27 PM	JD

Pace

Lab Identification #: 30520304008

Sample Received Date:	9/8/2022	Sample Receipt Temperatures (°C):	NA
Sample Received Time:	9:50 AM	Sample Received By:	PR

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Radium-226	-0.0 ± 0.344 (0.811)		pCi/L			EPA 903.1	9/17/2022	6:02 PM	SLC
Radium-228	0.487 ± 0.529 (1.10)		pCi/L			EPA 904.0	9/22/2022	7:04 PM	VAL
Total Radium Calculation	0.487 ± 0.873 (1.91)		pCi/L			Total Radium Calculation	9/23/2022	1:07 PM	JAL

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Result notes: D - Result from dilution, J - Estimated Value, R - Unusable Result (Quality Control Failure), NA - Not Available

Electronically Approved By :

Jared Daugherty - Chemist

03:55 PM 10/20/2022

Eric Hamilton - QA/QC Chemist

04:01 PM 10/20/2022

4775 Lexington Road 40391
P.O. Box 707, Winchester
Kentucky 40392-0707

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EAST KENTUCKY POWER COOPERATIVE

Report Date: 10/21/2022

Certificate of Analysis

Station:	H.L. Spurlock Power Station	Sample Collection Date:	09/29/2022
Well ID No:	SSI-MW-6	Sample Collection Time:	11:10 AM
AKGW No.:	8007-1132	Sample Collected By:	BTB
Well Depth (Ft.):	52.35	Sample Matrix:	Ground Water
Well Elevation (Ft. MSL):	512.12	Laboratory Certification ID:	KY# 08012
Gradient:	Variable		

Field Analyses

	Result	Units	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Groundwater Elevation	469.79	MSL		09/29/2022	11:10 AM	BTB
Turbidity	< 1.0	NTU	SM 2130, B-2001	09/29/2022	11:10 AM	BTB
Conductivity	1264	µS/cm	SM 2510, B-2011	09/29/2022	11:10 AM	BTB
Temperature	60.62	°F	SM 2550, B-2010	09/29/2022	11:10 AM	BTB
Oxidation-Reduction Potential	268.7	mV	SM 2580, B-2011	09/29/2022	11:10 AM	BTB
pH	6.48	S.U.	SM 4500-H+, B-2011	09/29/2022	11:10 AM	BTB
Oxygen, dissolved	< 1.0	mg/L	SM 4500-O	09/29/2022	11:10 AM	BTB

EKPC - Central Laboratory Analyses

Lab Identification #: 2200962

Sample Received Date:	09/30/2022	Sample Receipt Temperatures (°C):	< 6
Sample Received Time:	9:04 AM	Sample Received By:	TY

Parameter	Result	Note	Units	MDL	Report Limit	Analysis Method	Date Analyzed:	Time Analyzed:	Analyst:
Thallium	< 0.10		µg/L	0.03	0.10	EPA 200.8, Rev. 5.4 (1994)	9/30/2022	1:11 PM	JD

Comments / Notes:

Sample Results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Result notes: D - Result from dilution, J - Estimated Value, R - Unusable Result (Quality Control Failure), NA - Not Available

Electronically Approved By :

Jared Daugherty - Chemist

10:02 AM 10/21/2022

Eric Hamilton - QA/QC Chemist

10:52 AM 10/21/2022

4775 Lexington Road 40391
P.O. Box 707, Winchester
Kentucky 40392-0707

Tel. (859) 744-4812
Fax: (859) 744-6008
http://www.ekpc.coop

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APPENDIX D – Flow Calculations & Direction Maps

GROUNDWATER FLOW VELOCITY CALCULATION

Facility Name: **Spurlock Ash Pond**
Sampling Event Date: **May 25th, 2022**

$$V = \frac{K_h * i}{n_e}$$

INPUT VARIABLES:

Hydraulic Conductivity (K_h) =	3.28E-04	ft/s
Upgradient Well Water Elev (h_1) =	475.04	ft
Downgradient Well Water Elev (h_2) =	470.68	ft
Flow Length (L) =	1,342	ft
Effective Porosity (n_e) =	0.200	unitless

CALCULATIONS:

dh =	4.36	ft
Hyd. Grad.(i) =	0.0032	ft/ft
GW Flow Velocity (K_h*i)/n_e =	0.46	ft/day

V = Groundwater flow velocity $\left(\frac{feet}{day}\right)$

K_h = Horizontal Hydraulic Conductivity $\left(\frac{feet}{day}\right)$

i = Horizontal hydraulic gradient $\left(\frac{feet}{foot}\right) = \frac{h_1 - h_2}{L}$

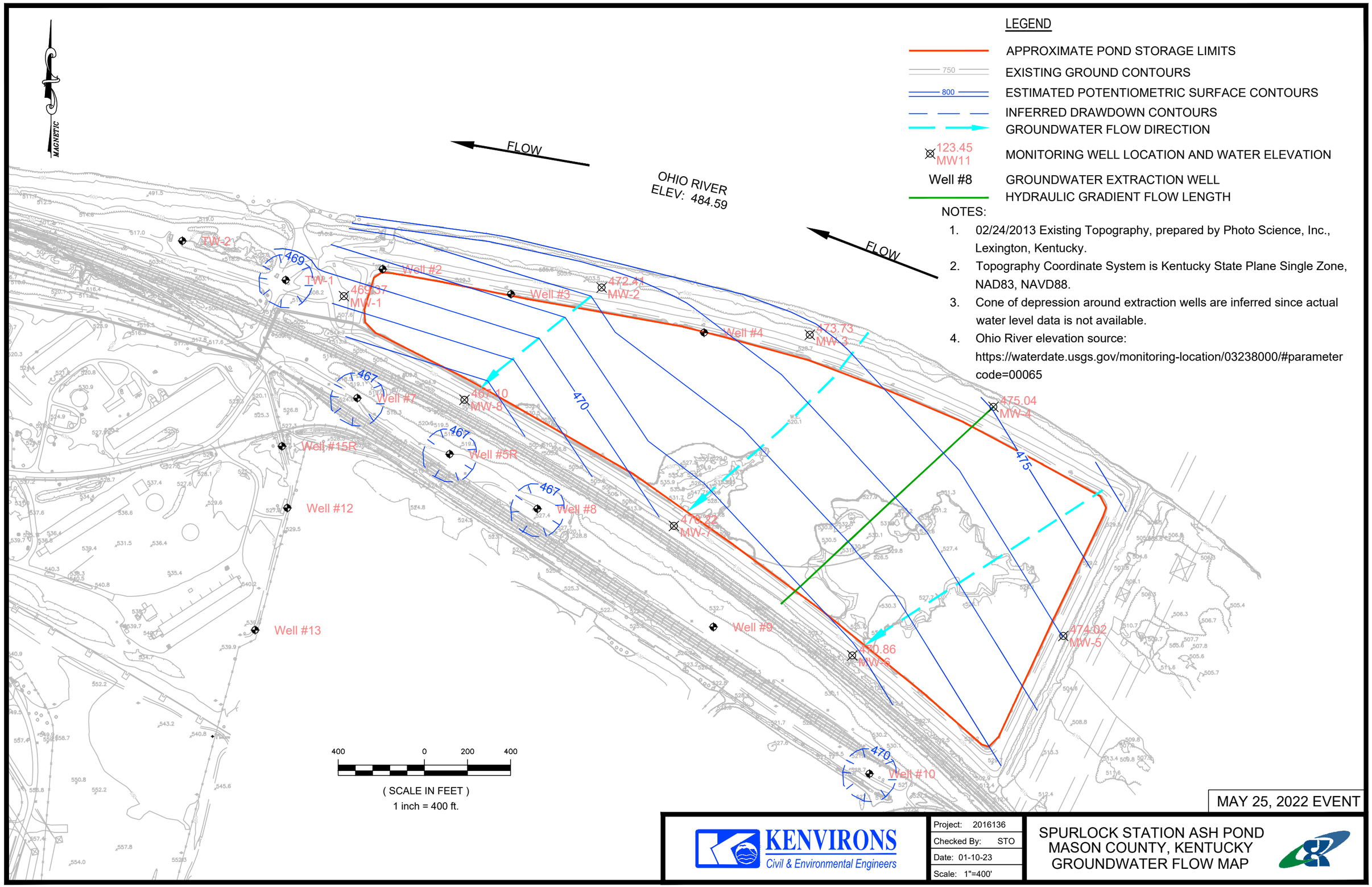
h_1 and h_2 = Groundwater elevation at location 1 and 2

L = Distance between location 1 and 2

n_e = Effective porosity

Notes:

1. Groundwater elevation readings from upgradient well MW-4 to determine h1.
2. Groundwater elevation used to determine h2 based on flow length from MW-4 to perpendicular potentiometric surface contour between MW-6 and MW-7.
3. Calculations are based on available information and limited data points, therefore, the results reflect estimated values.
4. Flow Length estimated from upgradient well MW-4 to a perpendicular potentiometric surface contour between MW-6 and MW-7.
5. Hydraulic conductivity values based on Figure 14-7 in EPA's 2009 Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities Unified Guidance.
6. Effective porosity values based on Figure 14-9 of the EPA's Unified Guidance document.



LEGEND

- APPROXIMATE POND STORAGE LIMITS
- 750 EXISTING GROUND CONTOURS
- 800 ESTIMATED POTENTIOMETRIC SURFACE CONTOURS
- INFERRED DRAWDOWN CONTOURS
- GROUNDWATER FLOW DIRECTION
- 123.45 MW11 MONITORING WELL LOCATION AND WATER ELEVATION
- Well #8 GROUNDWATER EXTRACTION WELL
- HYDRAULIC GRADIENT FLOW LENGTH

NOTES:

1. 02/24/2013 Existing Topography, prepared by Photo Science, Inc., Lexington, Kentucky.
2. Topography Coordinate System is Kentucky State Plane Single Zone, NAD83, NAVD88.
3. Cone of depression around extraction wells are inferred since actual water level data is not available.
4. Ohio River elevation source: https://waterdate.usgs.gov/monitoring-location/03238000/#parameter code=00065

MAY 25, 2022 EVENT

KENVIRONS
Civil & Environmental Engineers

Project:	2016136
Checked By:	STO
Date:	01-10-23
Scale:	1"=400'

SPURLOCK STATION ASH POND
MASON COUNTY, KENTUCKY
GROUNDWATER FLOW MAP

GROUNDWATER FLOW VELOCITY CALCULATION

Facility Name: **Spurlock Ash Pond**
Sampling Event Date: **June 27th, 2022**

$$V = \frac{K_h * i}{n_e}$$

INPUT VARIABLES:

Hydraulic Conductivity (K_h) =	3.28E-04	ft/s
Upgradient Well Water Elev (h_1) =	475.31	ft
Downgradient Well Water Elev (h_2) =	471.26	ft
Flow Length (L) =	1,320	ft
Effective Porosity (n_e) =	0.200	unitless

CALCULATIONS:

dh =	4.05	ft
Hyd. Grad.(i) =	0.0031	ft/ft
GW Flow Velocity (K_h*i)/n_e =	0.43	ft/day

V = Groundwater flow velocity $\left(\frac{feet}{day}\right)$

K_h = Horizontal Hydraulic Conductivity $\left(\frac{feet}{day}\right)$

i = Horizontal hydraulic gradient $\left(\frac{feet}{foot}\right) = \frac{h_1 - h_2}{L}$

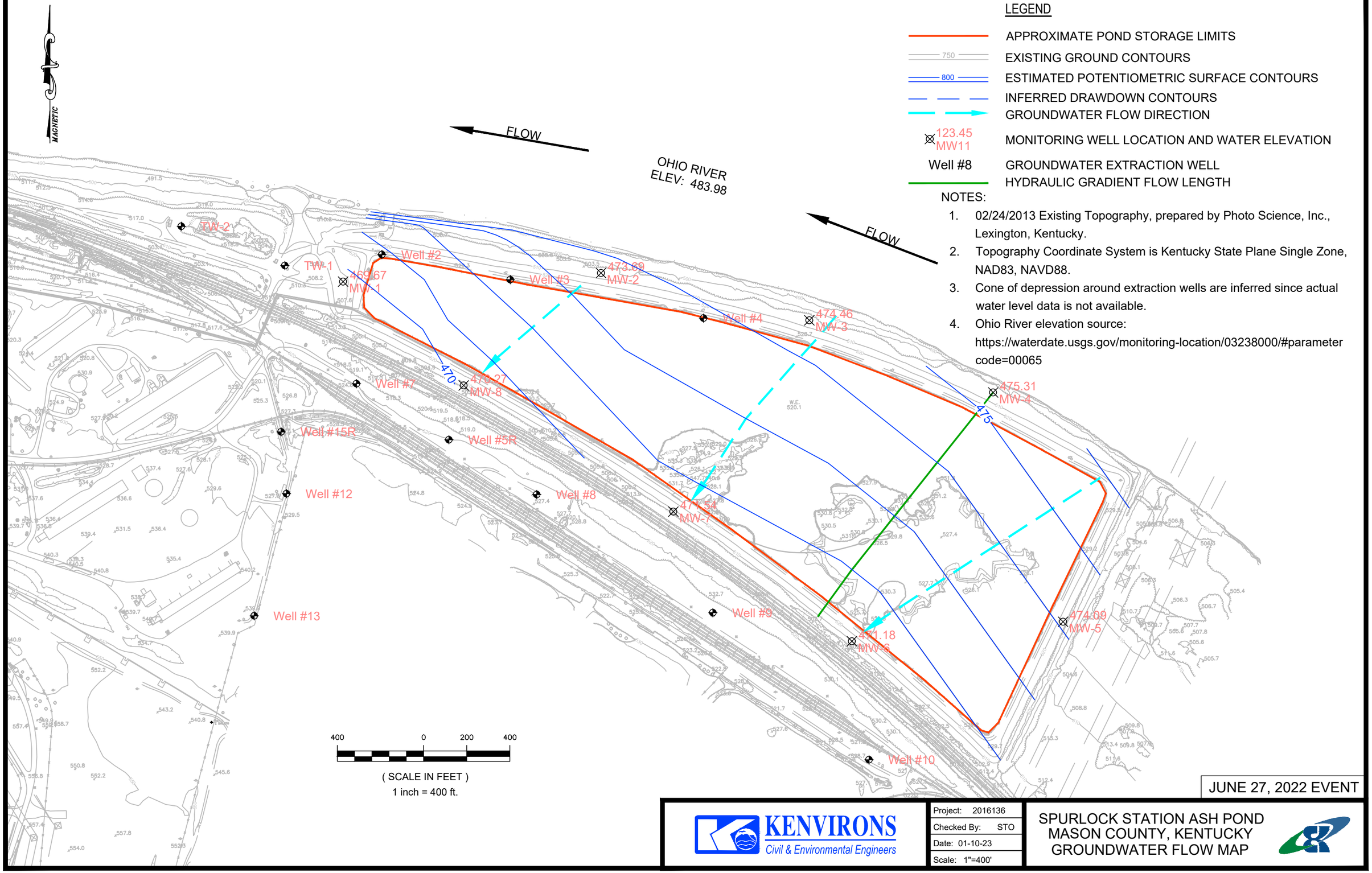
h_1 and h_2 = Groundwater elevation at location 1 and 2

L = Distance between location 1 and 2

n_e = Effective porosity

Notes:

1. Groundwater elevation readings from upgradient well MW-4 to determine h1.
2. Groundwater elevation used to determine h2 based on flow length from MW-4 to perpendicular potentiometric surface contour between MW-6 and MW-7.
3. Calculations are based on available information and limited data points, therefore, the results reflect estimated values.
4. Flow Length estimated from upgradient well MW-4 to a perpendicular potentiometric surface contour between MW-6 and MW-7.
5. Hydraulic conductivity values based on Figure 14-7 in EPA's 2009 Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities Unified Guidance.
6. Effective porosity values based on Figure 14-9 of the EPA's Unified Guidance document.



LEGEND

- APPROXIMATE POND STORAGE LIMITS
- 750 EXISTING GROUND CONTOURS
- 800 ESTIMATED POTENTIOMETRIC SURFACE CONTOURS
- INFERRED DRAWDOWN CONTOURS
- GROUNDWATER FLOW DIRECTION
- 123.45 MW11 MONITORING WELL LOCATION AND WATER ELEVATION
- Well #8 GROUNDWATER EXTRACTION WELL
- HYDRAULIC GRADIENT FLOW LENGTH

NOTES:

1. 02/24/2013 Existing Topography, prepared by Photo Science, Inc., Lexington, Kentucky.
2. Topography Coordinate System is Kentucky State Plane Single Zone, NAD83, NAVD88.
3. Cone of depression around extraction wells are inferred since actual water level data is not available.
4. Ohio River elevation source: https://waterdate.usgs.gov/monitoring-location/03238000/#parameter code=00065

JUNE 27, 2022 EVENT

KENVIRONS
Civil & Environmental Engineers

Project:	2016136
Checked By:	STO
Date:	01-10-23
Scale:	1"=400'

SPURLOCK STATION ASH POND
MASON COUNTY, KENTUCKY
GROUNDWATER FLOW MAP

GROUNDWATER FLOW VELOCITY CALCULATION

Facility Name: **Spurlock Ash Pond**
Sampling Event Date: **August 26th, 2022**

$$V = \frac{K_h * i}{n_e}$$

INPUT VARIABLES:

Hydraulic Conductivity (K_h) =	3.28E-04	ft/s
Upgradient Well Water Elev (h_1) =	474.55	ft
Downgradient Well Water Elev (h_2) =	468.49	ft
Flow Length (L) =	1,485	ft
Effective Porosity (n_e) =	0.200	unitless

CALCULATIONS:

dh =	6.06	ft
Hyd. Grad.(i) =	0.0041	ft/ft
GW Flow Velocity (K_h*i)/n_e =	0.58	ft/day

V = Groundwater flow velocity $\left(\frac{feet}{day}\right)$

K_h = Horizontal Hydraulic Conductivity $\left(\frac{feet}{day}\right)$

i = Horizontal hydraulic gradient $\left(\frac{feet}{foot}\right) = \frac{h_1 - h_2}{L}$

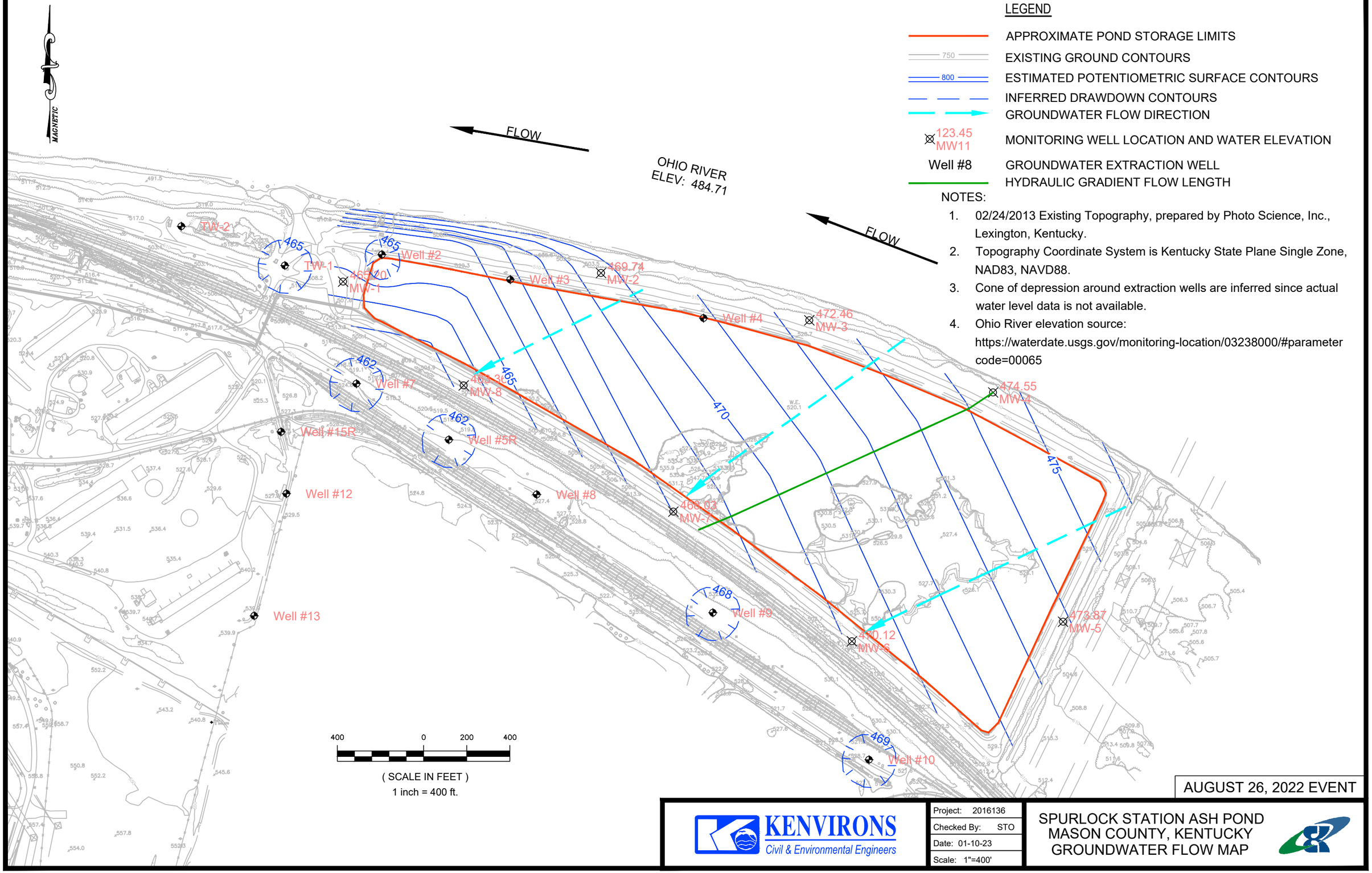
h_1 and h_2 = Groundwater elevation at location 1 and 2

L = Distance between location 1 and 2

n_e = Effective porosity

Notes:

1. Groundwater elevation readings from upgradient well MW-4 to determine h1.
2. Groundwater elevation used to determine h2 based on flow length from MW-4 to perpendicular potentiometric surface contour between MW-6 and MW-7.
3. Calculations are based on available information and limited data points, therefore, the results reflect estimated values.
4. Flow Length estimated from upgradient well MW-4 to a perpendicular potentiometric surface contour between MW-6 and MW-7.
5. Hydraulic conductivity values based on Figure 14-7 in EPA's 2009 Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities Unified Guidance.
6. Effective porosity values based on Figure 14-9 of the EPA's Unified Guidance document.



LEGEND

- APPROXIMATE POND STORAGE LIMITS
- 750 EXISTING GROUND CONTOURS
- 800 ESTIMATED POTENTIOMETRIC SURFACE CONTOURS
- INFERRED DRAWDOWN CONTOURS
- GROUNDWATER FLOW DIRECTION
- 123.45 MW11 MONITORING WELL LOCATION AND WATER ELEVATION
- Well #8 GROUNDWATER EXTRACTION WELL
- HYDRAULIC GRADIENT FLOW LENGTH

NOTES:

1. 02/24/2013 Existing Topography, prepared by Photo Science, Inc., Lexington, Kentucky.
2. Topography Coordinate System is Kentucky State Plane Single Zone, NAD83, NAVD88.
3. Cone of depression around extraction wells are inferred since actual water level data is not available.
4. Ohio River elevation source: https://waterdate.usgs.gov/monitoring-location/03238000/#parameter code=00065

AUGUST 26, 2022 EVENT

KENVIRONS
Civil & Environmental Engineers

Project:	2016136
Checked By:	STO
Date:	01-10-23
Scale:	1"=400'

SPURLOCK STATION ASH POND
MASON COUNTY, KENTUCKY
GROUNDWATER FLOW MAP

GROUNDWATER FLOW VELOCITY CALCULATION

Facility Name: **Spurlock Ash Pond**
Sampling Event Date: **September 29th, 2022 Resample**

$$V = \frac{K_h * i}{n_e}$$

INPUT VARIABLES:

Hydraulic Conductivity (K_h) =	3.28E-04	ft/s
Upgradient Well Water Elev (h_1) =	474.55	ft
Downgradient Well Water Elev (h_2) =	468.62	ft
Flow Length (L) =	1,485	ft
Effective Porosity (n_e) =	0.200	unitless

CALCULATIONS:

dh =	5.93	ft
Hyd. Grad.(i) =	0.0040	ft/ft
GW Flow Velocity (K_h*i)/n_e =	0.57	ft/day

V = Groundwater flow velocity $\left(\frac{feet}{day}\right)$

K_h = Horizontal Hydraulic Conductivity $\left(\frac{feet}{day}\right)$

i = Horizontal hydraulic gradient $\left(\frac{feet}{foot}\right) = \frac{h_1 - h_2}{L}$

h_1 and h_2 = Groundwater elevation at location 1 and 2

L = Distance between location 1 and 2

n_e = Effective porosity

Notes:

1. Groundwater elevation readings from upgradient well MW-4 to determine h1.
2. Groundwater elevation used to determine h2 based on flow length from MW-4 to perpendicular potentiometric surface contour between MW-6 and MW-7.
3. Calculations are based on available information and limited data points, therefore, the results reflect estimated values.
4. Flow Length estimated from upgradient well MW-4 to a perpendicular potentiometric surface contour between MW-6 and MW-7.
5. Hydraulic conductivity values based on Figure 14-7 in EPA's 2009 Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities Unified Guidance.
6. Effective porosity values based on Figure 14-9 of the EPA's Unified Guidance document.

NOTE:

This map represents a resample event for MW-6. MW-1, MW-2, MW-3, MW-4, MW-5, MW-7, and MW-8 from 08/26/22 sampling event were used to represent groundwater elevations at these locations.

MAGNETIC

FLOW

OHIO RIVER
ELEV: 484.24

FLOW

TW-2

TW-1

465.20
MW-1

Well #2

Well #3

469.74
MW-2

Well #4

472.46
MW-3

474.55
MW-4

Well #7

463.36
MW-8

Well #15R

Well #5R

Well #12

Well #8

468.03
MW-7

Well #13

Well #9

469.79
MW-6

473.87
MW-5

Well #10

LEGEND

- APPROXIMATE POND STORAGE LIMITS
- 750 EXISTING GROUND CONTOURS
- 800 ESTIMATED POTENTIOMETRIC SURFACE CONTOURS
- INFERRED DRAWDOWN CONTOURS
- GROUNDWATER FLOW DIRECTION
- 123.45 MW11 MONITORING WELL LOCATION AND WATER ELEVATION
- Well #8 GROUNDWATER EXTRACTION WELL
- HYDRAULIC GRADIENT FLOW LENGTH

NOTES:

1. 02/24/2013 Existing Topography, prepared by Photo Science, Inc., Lexington, Kentucky.
2. Topography Coordinate System is Kentucky State Plane Single Zone, NAD83, NAVD88.
3. Cone of depression around extraction wells are inferred since actual water level data is not available.
4. Ohio River elevation source: https://waterdate.usgs.gov/monitoring-location/03238000/#parameter code=00065

STATE OF KENTUCKY
1/26/23
SAMUEL T. OAKES
21483
LICENSED PROFESSIONAL ENGINEER

400 0 200 400

(SCALE IN FEET)
1 inch = 400 ft.

SEPTEMBER 29, 2022 RESAMPLE EVENT

KENVIRONS
Civil & Environmental Engineers

Project:	2016136
Checked By:	STO
Date:	01-10-23
Scale:	1"=400'

SPURLOCK STATION ASH POND
MASON COUNTY, KENTUCKY
GROUNDWATER FLOW MAP

N:\P\2016136\Design\Spurlock Ash Pond Potentiometric Flow Map_11x17_INFERRED.dwg, 9-29-22 R, 1/26/2023 10:49:00 AM, MAS

APPENDIX E1 – Statistical Analysis Package (November 2021)

Geosyntec consultants

COMPUTATION COVER SHEET

Client:	**East Kentucky Power Cooperative**	Project:	**East Kentucky Power Cooperative Spurlock Impoundment**	Project/ Proposal No.:	**MR1777**

Title of Computations: **Statistical Analysis Calculations Package for Assessment Monitoring – East Kentucky Power Cooperative Spurlock Impoundment – Second Half 2021 Monitoring Event**

Computations by:	Signature	S Chase	2/11/2022
	Printed Name	Sarah Chase	Date
	Title	Senior Staff Engineer	
Assumptions and Procedures Checked by: (peer reviewer)	Signature	Robert M Glazier	2/17/2022
	Printed Name	Robert M. Glazier	Date
	Title	Principal	
Computations Checked by:	Signature	Theresa Gabris	2/11/2022
	Printed Name	Theresa Gabris	Date
	Title	Project Geologist	
Computations backchecked by: (originator)	Signature	S Chase	2/11/2022
	Printed Name	Sarah Chase	Date
	Title	Senior Staff Engineer	
Approved by: (pm or designate)	Signature		3/30/2022
	Printed Name	Scott Graves, P.E. (KY P.E. No. 21274)	Date
	Title	Senior Principal Engineer	

Approval notes:

Revisions (number and initial all revisions)

No.	Sheet	Date	By	Checked by	Approval

Written by:	Sarah Chase	Date:	2/11/2022	Approved by:	S. Graves	Date:	3/30/2022
Client:	East Kentucky Power Cooperative	Project:	CCR Report	Project/ Proposal No.:	MR1777	Phase No./ Task No.:	

PURPOSE

The purpose of this calculation package is to document the procedures and assumptions used to complete statistical evaluations of Assessment Monitoring Program groundwater monitoring data for Federal CCR Rule Appendix III and Appendix IV constituents at the East Kentucky Power Cooperative (EKPC) Spurlock Station Surface Impoundment (Site) in order to comply with 40 CFR Parts 257.94 and 257.95. The statistical evaluations include whether there are statistically significant increases (SSI) over background concentrations for Appendix III constituents, and whether detected Appendix IV constituents are present at statistically significant levels (SSL) over the constituents' groundwater protection standards (GWPS).

The Site must remain in the Assessment Monitoring Program until all the Appendix III and IV constituents are below background values for two consecutive monitoring events, at which point the routine monitoring program may return to the Detection Monitoring Program.

APPENDIX III CONSTITUENTS

Upper Tolerance Limit (UTL) background values (and Lower Tolerance Limit (LTL) for pH[1]) for Appendix III constituents were previously calculated by Haley & Aldrich (2018, 2021) using monitoring data from background wells MW-2, MW-3, MW-4, and MW-5. The concentrations of Appendix III constituents detected in compliance wells MW-1, MW-6, MW-7, and MW-8 during the November 2021 Assessment Monitoring Program event are shown, along with background concentrations, in **Table 1**. The following well/constituent pairs exhibited SSIs and/or SSDs:

- MW-1: None;
- MW-6: Boron, calcium, chloride, pH, sulfate, and total dissolved solids (TDS);
- MW-7: Boron, calcium, chloride, and sulfate; and
- MW-8: Boron.

[1] For pH, a Statistically Significant Difference (SSD) can be either an increase or a decrease.

Written by:	Sarah Chase	Date:	2/11/2022	Approved by:	S. Graves	Date:	3/30/2022
Client:	East Kentucky Power Cooperative	Project:	CCR Report	Project/ Proposal No.:	MR1777	Phase No./ Task No.:	

APPENDIX IV CONSTITUENTS

The statistical calculations for Appendix IV constituents were completed for those Appendix IV constituents that were detected in the August 2021 Assessment Monitoring event (i.e., arsenic, barium, cobalt, molybdenum, radium 226+228, and thallium). The August 2021 Assessment Monitoring event was conducted pursuant to 40 CFR 257.95(b) solely to update the list of detected Appendix IV constituents to be monitored for the November 2021 (second half 2021) and the first half 2022 semi-annual Assessment Monitoring events. Statistical analyses were conducted using groundwater monitoring data collected from four background wells (MW-2, MW-3, MW-4, MW-5) and four compliance wells (MW-1, MW-6, MW-7, MW-8). EKPC has indicated that the position of the wells and the site conditions have remained consistent since initiating monitoring under the CCR Rule.

Calculations and comparisons were made using groundwater monitoring data given in **Table 2**. Included is baseline data collected from October 2016 through September 2017, the initial detection monitoring event in November 2017, and subsequent semi-annual Assessment Monitoring events. Of the six constituents detected in the August 2021 annual screening for Appendix IV constituents, only barium, molybdenum, and radium 226+228 were detected in the second half (November) 2021 Assessment Monitoring event compliance well samples. No SSLs were previously identified for any Appendix IV constituents. Therefore, the Assessment Monitoring Program statistical analyses described in the following steps for the November 2021 monitoring event are required only for barium, molybdenum, and radium 226+228.

Background values for the six Appendix IV constituents detected in the August 2021 annual full scan event (arsenic, barium, cobalt, molybdenum, radium 226+228, and thallium) have previously been calculated and established (Geosyntec (2018)). The previously calculated background values (UTLs) are used herein. These values are presented in **Table 3**.

STEP 1 – IDENTIFY STATISTICALLY SIGNIFICANT INCREASES ABOVE BACKGROUND

Tetra Tech has determined that wells MW-2, MW-3, MW-4, and MW-5 are upgradient and therefore are background wells, and wells MW-1, MW-6, MW-7, and MW-8 are

downgradient and therefore are compliance wells (Tetra Tech (2017)). To identify SSIs over background values, the monitoring data from each compliance well are directly compared to the established background values for the detected Appendix IV constituents at the Site. Well/constituent pairs with SSIs during any assessment monitoring event to date could potentially have an SSL above the GWPS and are therefore retained for further analysis. However, if a well/constituent pair does not exhibit an SSI in any assessment monitoring event to date then there cannot be an SSL for that constituent at that specific compliance monitoring location; hence this step is used as an initial screening step to reduce the number of necessary SSL calculations. A summary of the SSI analysis is presented in **Table 4** that shows the maximum detected concentration for all assessment monitoring events to date for each Appendix IV constituent/well pair**.** No SSIs were found for the maximum detected concentrations of Appendix IV constituents in any of the compliance wells. Therefore, it is not possible for there to be an SSL and the remaining steps of the procedure given below, which would otherwise be followed, are not necessary for this monitoring event.

STEP 2 – ESTABLISH GROUNDWATER PROTECTION STANDARDS

The GWPS previously established for any previously detected Appendix IV constituent and any newly detected Appendix IV constituent are presented in **Table 5**. The GWPS is the greater of the recommended background values (UTL) or the Federal Maximum Contaminant Level (MCL) (or U.S. Environmental Protection Agency Regional Screening Level [RSL] if no MCL has been promulgated).

As stated in the previous step, it is not possible for there to be an SSL and, therefore, comparing the detected constituents with their respective GWPSs is unnecessary. However, this step was still performed for continuity purposes. Compliance monitoring data for the Appendix IV constituents detected in the November 2021 event were compared to their respective GWPSs established in May 2018. Constituents with at least one exceedance of the GWPS at any given well are retained for further analysis. If all available compliance monitoring data for a constituent are less than the GWPS, that constituent cannot have an SSL above the GWPS and is therefore excluded from further analysis. This was the case for all Appendix IV constituents detected in November 2021, as is shown in **Table 6**.

STEP 3 - CALCULATE LOWER CONFIDENCE LIMITS

Calculation of lower confidence limits (LCLs) was not performed because this step is not necessary, as discussed above.

STEP 4 – IDENTIFY CONSTITUENTS WITH STATISTICALLY SIGNIFICANT LEVELS AT COMPLIANCE MONITORING WELLS

Constituents that have an LCL (calculated in Step 3) that exceed their GWPS (tabulated in Step 2) are considered SSLs. However, the previous steps revealed that none of the detected Appendix IV constituents have an SSL (or even an SSI) at any of the compliance monitoring wells, making this step inapplicable.

CONCLUSION

The following SSIs/SSDs were identified for Appendix III constituents in compliance well samples in the November 2021 Assessment Monitoring Program event:

- MW-1: None;
- MW-6: Boron, calcium, chloride, pH, sulfate, and TDS;
- MW-7: Boron, calcium, chloride, and sulfate; and
- MW-8: Boron.

The following Appendix IV constituents were detected in the August 2021 annual full scan event, the associated background UTLs were previously calculated, and the respective GWPS were previously established by Geosyntec (2018):

Constituent	Background UTL	GWPS
Arsenic	15.1	15.1
Barium	719	2,000
Cobalt	3.3	6
Molybdenum	24.6	100
Radium 226+228	2.9	5
Thallium	0.5	2

*Values are in micrograms per liter except radium which is in picocuries per liter.

None of the three Appendix IV constituents detected in the compliance wells during the November 2021 Assessment Monitoring Program event exceeded the previously established background values in any of the compliance wells. Furthermore, the concentrations of the detected Appendix IV constituents compared to the GWPS (**Table 6**) revealed that there are no SSLs present in any of the compliance wells.

Six of the seven Appendix III constituents (boron, calcium, chloride, pH, sulfate, and TDS) exceeded the established background values in one or more compliance wells. As a result, the Site shall remain in the Assessment Monitoring Program.

REFERENCES

East Kentucky Power Cooperative (2021). Microsoft Excel spreadsheet of groundwater monitoring data, provided as electronic mail attachment from Brandy Case of EKPC on January 28, 2022.

Geosyntec (2018), Statistical Analysis Calculations Package for Assessment Monitoring – East Kentucky Power Cooperative Spurlock Impoundment, December 2018.

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Geosyntec (2020), Statistical Analysis Calculations Package for Assessment Monitoring – East Kentucky Power Cooperative Spurlock Impoundment, December 2020.

Geosyntec (2021), Statistical Analysis Calculations Package for Assessment Monitoring – East Kentucky Power Cooperative Spurlock Impoundment, May 2021.

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Tetra Tech (2017), *Groundwater Monitoring System and Hydrogeologic Investigation Report, Spurlock Ask Pond, H.L. Spurlock Generating Station, Maysville, Kentucky*. October 2017.

U.S. Environmental Protection Agency (EPA), 2009. *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities - Unified Guidance*. March.

U.S. Environmental Protection Agency, 2015. 40 CFR Parts 257 and 261, Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities, Final Rule, Federal Register, Vol. 80, No. 74, April 17, 2015, see 257.93, Groundwater sampling and analysis requirements.

Written by:	Sarah Chase	Date:	2/11/2022	Approved by:	S. Graves	Date:	3/30/2022
Client:	East Kentucky Power Cooperative	Project:	CCR Report	Project/ Proposal No.:	MR1777	Phase No./ Task No.:	

LIST OF TABLES

ATTACHMENT A

TABLES

TABLE 1
APPENDIX III DETECTION MONITORING PROGRAM DATA - COMPLIANCE WELLS
Federal CCR Rule
Spurlock Station Surface Impoundment
Mason County, Kentucky

Analyte:		Boron	Calcium	Chloride	Fluoride	pH	Sulfate	TDS
Background Value:		**0.07952**	**66.217**	**40.17**	**0.50[1]**	**6.506 - 8.602**	**83.57**	**367**
Well ID	**Sample Date**	mg/L	mg/L	mg/L	mg/L	S.U.	mg/L	mg/L
MW-1	11/18/2021	0.050 U	35.6	22.2	0.50 U	7.09	37.6	106
MW-6	11/18/2021	4.25	149	127	0.50 U	6.33	405	778
MW-7	11/18/2021	0.790	90.3	51.0	0.50 U	7.24	146	364
MW-8	11/18/2021	0.089	47.7	24.5	0.50 U	7.44	51.9	268

Notes:

Concentration is a statistically significant increase (SSI) (or statistically significant difference (SSD) for pH) over background concentration.

[1] Double Quantification Rule applies. Two consecutive detections constitute an SSI.

mg/L Milligrams per Liter

S.U. Standard Units

TDS Total Dissolved Solids

U Constituent not detected above method detection limit.

Source: Background values from Haley & Aldrich, 2018, and August, 20 2021 email for pH lower limit, compliance well data from EKPC.

TABLE 2
APPENDIX IV GROUNDWATER MONITORING RESULTS
Federal CCR Rule
Spurlock Station Surface Impoundment
Mason County, Kentucky

Appendix IV Analyte:[1]		Arsenic	Barium	Cobalt	Molybdenum	Radium 226 + 228 Combined	Thallium
Well ID	**Sample Date**	µg/L	µg/L	µg/L	µg/L	pCi/L	µg/L
MW-1	10/11/2016	1.0 U	20.0	1.0 U	25.1	1.77	1.40
	11/30/2016	1.0 U	32.0	1.0 U	15.3	0.456	0.10 U
	12/28/2016	1.0 U	25.0	1.0 U	20.8	0.656	0.20
	1/17/2017	1.0 U	30.0	1.0 U	14.5	0.763	0.20
	2/13/2017	1.0 U	28.0	1.0 U	16.7	2.07	0.40
	3/21/2017	1.0 U	31.0	1.0 U	13.3	0.155	0.20
	4/24/2017	1.4	26.0	1.1	23.6	0.0951	0.50 U
	5/23/2017	1.0 U	28.0	1.0 U	20.1	0.746	0.20
	6/19/2017	1.0 U	33.0	1.0 U	12.2	0.636	0.10
	7/17/2017	1.0 U	38.0	1.0 U	7.4	1.03	0.30
	8/7/2017	1.0 U	19.0	1.0 U	18.1	1.62	0.20
	8/21/2017	1.0 U	27.0	1.0 U	11.0	0.123	0.10 U
	11/28/2017	1.0 U	26.3	1.0 U	9.2	0.205	0.10 U
	5/29/2018	1.0 U	32.1	1.0 U	15.2	1.24	0.13
	7/18/2018	1.0 U	29.8	1.0 U	16.7	0.771	0.11
	6/27/2019	1.0 U	19.2	1.0 U	16.1	0.493	0.10 U
	9/4/2019	1.0 U	20.5	1.0 U	16.5	1.04	0.10 U
	12/3/2019	1.0 U	15.3	1.0 U	19.0	0.391	0.10 U
	5/27/2020	1.0 U	26.9	1.0 U	16.7	0.588	0.10 U
	9/9/2020	1.0 U	26.4	1.0 U	16.1	0.696	0.10
	12/1/2020	1.0 U	15.5	1.0 U	21.2	0.429	0.10 U
	5/27/2021	1.0 U	23.3	1.0 U	18.2	0.770	0.20
	8/19/2021	1.0 U	23.9	1.0 U	17.7	0.131	0.13
	11/18/2021	1.0 U	16.3	1.0 U	16.6	0.000	0.10 U

TABLE 2
APPENDIX IV GROUNDWATER MONITORING RESULTS
Federal CCR Rule
Spurlock Station Surface Impoundment
Mason County, Kentucky

Appendix IV Analyte:[1]		Arsenic	Barium	Cobalt	Molybdenum	Radium 226 + 228 Combined	Thallium
Well ID	**Sample Date**	µg/L	µg/L	µg/L	µg/L	pCi/L	µg/L
MW-2[2]	10/12/2016	1.3	142	1.0 U	19.3	0.610	1.30
	11/29/2016	1.8	166	1.4	21.2	0.847	0.10 U
	12/29/2016	2.7	245	1.8	23.7	0.685	0.20
	1/16/2017	1.8	162	1.2	19.4	1.15	0.40
	2/13/2017	2.8	206	1.5	22.3	0.613	0.30
	3/21/2017	2.2	202	1.3	20.2	0.495	0.10 U
	4/24/2017	1.5	146	1.1	20.6	0.573	0.50 U
	5/22/2017	3.6	291	1.4	20.8	0.681	0.10 U
	6/19/2017	2.6	259	1.3	20.7	0.659	0.10 U
	7/17/2017	2.7	206	1.2	21.6	0.779	0.10 U
	8/7/2017	2.6	188	1.1	22.1	0.795	0.10 U
	8/21/2017	5.3	383	1.7	22.0	1.24	0.10 U
	11/28/2017	2.5	233	1.1	20.1	0.525	0.10 U
	5/29/2018	1.5	115	1.1	18.5	2.18	0.10 U
	7/18/2018	2.3	190	1.5	18.2	0.404	0.10 U
	6/27/2019	1.0 U	32.7	1.0 U	20.3	0.931	0.10 U
	9/4/2019	1.6	215	1.3	17.8	0.988	0.10 U
	12/3/2019	2.0	127	1.1	18.5	0.414	0.10 U
	5/28/2020	3.0	191	1.9	21.8	0.553	0.10 U
	9/9/2020	3.3	277	1.5	16.6	0.434	0.10 U
	12/1/2020	1.4	99.5	1.2	18.4	0.922	0.10 U
	5/27/2021	1.2	86.2	1.0 U	17.8	0.120	0.13
	8/19/2021	1.5	81.1	1.0 U	16.1	0.080	0.10 U
	11/18/2021	1.3	74.3	1.0 U	17.7	0.234	0.10 U

TABLE 2
APPENDIX IV GROUNDWATER MONITORING RESULTS
Federal CCR Rule
Spurlock Station Surface Impoundment
Mason County, Kentucky

Appendix IV Analyte:[1]		Arsenic	Barium	Cobalt	Molybdenum	Radium 226 + 228 Combined	Thallium
Well ID	**Sample Date**	µg/L	µg/L	µg/L	µg/L	pCi/L	µg/L
MW-3[2]	10/12/2016	6.4	308	2.0	15.1	2.93	1.60
	11/29/2016	8.4	373	2.3	14.9	1.55	0.10 U
	12/29/2016	10.3	245	2.4	16.1	1.81	0.10 U
	1/16/2017	7.0	286	2.2	14.5	1.32	0.20
	2/13/2017	10.0	373	2.0	18.0	0.924	0.20
	3/21/2017	9.8	357	1.7	17.8	0.884	0.10 U
	4/24/2017	9.9	330	1.9	19.2	0.623	0.50 U
	5/22/2017	8.6	358	1.7	18.6	1.69	0.10 U
	6/19/2017	8.5	402	1.9	17.7	1.15	0.10 U
	7/17/2017	9.8	563	2.6	17.3	1.51	0.10 U
	8/7/2017	10.8	581	2.9	16.8	2.81	0.10 U
	8/21/2017	9.7	537	3.1	15.5	1.24	0.10 U
	11/28/2017	6.7	336	2.3	14.6	1.03	0.10 U
	5/29/2018	9.4	372	2.0	18.1	2.11	0.10 U
	7/18/2018	15.7	640	2.4	18.2	1.90	0.10 U
	6/27/2019	8.3	313	1.4	20.5	1.01	0.10 U
	9/4/2019	8.9	433	1.8	18.5	1.43	0.10 U
	12/3/2019	7.5	283	1.5	16.8	0.839	0.10 U
	5/28/2020	8.7	346	1.5	18.2	1.15	0.10 U
	9/9/2020	8.7	463	1.7	17.9	1.96	0.10 U
	12/1/2020	9.9	516	2.1	16.5	1.57	0.10 U
	5/27/2021	7.0	266	1.3	19.4	0.235	0.13
	8/19/2021	9.5	409	1.8	17.9	0.84	0.10 U
	11/18/2021	8.9	331	1.8	16.2	1.04	0.10 U

TABLE 2
APPENDIX IV GROUNDWATER MONITORING RESULTS
Federal CCR Rule
Spurlock Station Surface Impoundment
Mason County, Kentucky

Appendix IV Analyte:[1]		Arsenic	Barium	Cobalt	Molybdenum	Radium 226 + 228 Combined	Thallium
Well ID	**Sample Date**	µg/L	µg/L	µg/L	µg/L	pCi/L	µg/L
MW-4[2]	10/12/2016	1.0 U	22.0	1.0 U	15.6	0.984	1.90
	11/29/2016	1.0 U	18.0	1.0 U	18.4	0.840	0.10 U
	12/29/2016	1.0 U	17.0	1.0 U	19.2	0.00	0.10 U
	1/16/2017	1.0 U	14.0	1.0 U	16.6	0.411	0.10
	2/13/2017	1.0 U	16.0	1.0 U	18.0	1.84	0.20
	3/21/2017	1.0 U	16.0	1.0 U	16.9	0.730	0.10 U
	4/24/2017	1.0 U	16.0	1.0 U	16.6	0.0822	0.50 U
	5/23/2017	1.0 U	17.0	1.0 U	16.4	1.50	0.10 U
	6/19/2017	1.0 U	17.0	1.0 U	15.5	0.687	0.10 U
	7/17/2017	1.0 U	15.0	1.0 U	16.1	0.515	0.10 U
	8/7/2017	1.0 U	16.0	1.0 U	16.5	0.868	0.10 U
	8/21/2017	1.0 U	17.0	1.0 U	15.5	0.134	0.10 U
	11/28/2017	1.4	15.5	1.0 U	15.8	0.495	0.10 U
	5/29/2018	1.0 U	14.4	1.0 U	15.6	1.20	0.10 U
	7/18/2018	1.0 U	12.9	1.0 U	16.4	0.421	0.10 U
	6/27/2019	1.0 U	12.7	1.0 U	15.3	0.723	0.10 U
	9/4/2019	1.0 U	13.3	1.0 U	15.7	0.636	0.10 U
	12/3/2019	1.0 U	12.4	1.0 U	15.4	0.300	0.10 U
	5/28/2020	1.0 U	12.4	1.0 U	15.1	2.55	0.10 U
	9/9/2020	1.0 U	13.9	1.0 U	14.6	1.03	0.10 U
	12/1/2020	1.0 U	14.6	1.0 U	13.9	0.700	0.10 U
	5/27/2021	1.0 U	12.4	1.0 U	16.2	0.860	0.11
	8/19/2021	1.0 U	13.3	1.0 U	15.2	0.570	0.10 U
	11/18/2021	1.0 U	12.0	1.0 U	14.0	0.724	0.10 U

TABLE 2
APPENDIX IV GROUNDWATER MONITORING RESULTS
Federal CCR Rule
Spurlock Station Surface Impoundment
Mason County, Kentucky

Appendix IV Analyte:[1]		Arsenic	Barium	Cobalt	Molybdenum	Radium 226 + 228 Combined	Thallium
Well ID	**Sample Date**	µg/L	µg/L	µg/L	µg/L	pCi/L	µg/L
MW-5[2]	10/12/2016	1.2	20.0	1.2	1.7	1.07	1.80
	11/29/2016	1.0 U	18.0	1.0 U	5.0 U	0.756	0.10 U
	12/29/2016	1.0 U	20.0	1.0 U	5.0 U	0.213	0.10 U
	1/17/2017	1.0 U	15.0	1.0 U	1.3	0.428	0.10 U
	2/14/2017	1.0	18.0	1.0 U	2.6	0.808	0.30
	3/21/2017	1.0 U	17.0	1.0 U	1.7	0.105	0.50
	4/24/2017	1.0 U	16.0	1.0 U	1.7	0.745	0.50 U
	5/23/2017	1.0 U	17.0	1.0 U	1.5	0.837	0.10 U
	6/19/2017	1.0 U	17.0	1.0 U	1.5	1.61	0.10 U
	7/17/2017	1.0 U	16.0	1.0 U	1.5	1.75	0.10 U
	8/7/2017	1.0 U	15.0	1.0 U	1.5	1.25	0.10 U
	8/21/2017	1.0 U	17.0	1.0 U	1.3	0.378	0.10 U
	11/28/2017	1.0 U	17.9	1.0 U	1.4	0.0378	0.10 U
	5/29/2018	1.0 U	17.9	1.0 U	1.2	0.519	0.10 U
	7/18/2018	1.0 U	17.2	1.0 U	1.1	0.509	0.10 U
	6/27/2019	1.0 U	17.2	1.0 U	1.6	0.484	0.10 U
	9/4/2019	1.0 U	16.8	1.0 U	1.5	0.433	0.10 U
	12/3/2019	1.0 U	17.2	1.0 U	1.3	0.350	0.10 U
	5/28/2020	1.0 U	17.2	1.0 U	1.2	0.306	0.10 U
	9/9/2020	1.0 U	17.1	1.0 U	1.4	1.34	0.10 U
	12/1/2020	1.0 U	18.1	1.0 U	1.1	0.590	0.10 U
	5/27/2021	1.0 U	16.4	1.0 U	1.6	0.700	0.12
	8/19/2021	1.0 U	18.1	1.0 U	1.4	0.280	0.10 U
	11/18/2021	1.0 U	18.4	1.0 U	1.0 U	0.639	0.10 U

TABLE 2
APPENDIX IV GROUNDWATER MONITORING RESULTS
Federal CCR Rule
Spurlock Station Surface Impoundment
Mason County, Kentucky

Appendix IV Analyte:[1]		Arsenic	Barium	Cobalt	Molybdenum	Radium 226 + 228 Combined	Thallium
Well ID	**Sample Date**	µg/L	µg/L	µg/L	µg/L	pCi/L	µg/L
MW-6	10/11/2016	1.2	78.0	4.7	1.7	0.631	3.40
	11/29/2016	1.0 U	74.0	5.8	5.0 U	0.311	0.10 U
	12/29/2016	1.0 U	54.0	4.8	5.0 U	0.444	0.10 U
	1/16/2017	1.0 U	27.0	2.7	1.0 U	1.08	0.10 U
	2/13/2017	1.0 U	40.0	2.5	1.0 U	1.02	0.30
	3/21/2017	1.0 U	42.0	2.2	1.0 U	0.207	0.10 U
	4/24/2017	1.0 U	48.0	2.1	1.0 U	0.169	0.50 U
	5/23/2017	1.0 U	47.0	2.1	1.0 U	0.886	0.10 U
	6/19/2017	1.0 U	37.0	1.7	1.0 U	0.360	0.10
	7/17/2017	1.0 U	34.0	1.6	1.0 U	0.0901	0.10 U
	8/7/2017	1.0 U	42.0	1.5	1.0 U	0.355	0.10
	8/21/2017	1.0 U	40.0	1.0 U	1.0 U	0.647	0.10 U
	11/28/2017	1.0 U	38.4	1.1	1.0 U	0.227	0.10 U
	5/29/2018	1.0 U	35.5	1.0 U	1.0 U	0.166	0.10 U
	7/18/2018	1.0 U	32.6	1.0 U	1.0 U	1.18	0.10 U
	6/27/2019	1.0 U	53.0	1.0 U	1.0 U	0.729	0.10 U
	9/4/2019	1.0 U	51.2	1.0 U	1.0 U	1.40	0.10 U
	12/3/2019	1.0 U	35.6	1.0 U	1.0 U	0.682	0.10 U
	5/27/2020	1.0 U	35.2	1.0 U	1.0 U	0.213	0.10 U
	9/9/2020	1.0 U	58.1	1.0 U	1.0 U	0.614	0.10 U
	12/1/2020	1.0 U	35.3	1.0 U	1.0 U	0.418	0.10 U
	5/27/2021	1.0 U	48.2	1.0 U	1.0 U	0.263	0.10 U
	8/19/2021	1.0 U	30.5	1.0 U	1.0 U	0.325	0.10 U
	11/18/2021	1.0 U	38.4	1.0 U	1.0 U	0.875	0.10 U

TABLE 2
APPENDIX IV GROUNDWATER MONITORING RESULTS
Federal CCR Rule
Spurlock Station Surface Impoundment
Mason County, Kentucky

Appendix IV Analyte:[1]		Arsenic	Barium	Cobalt	Molybdenum	Radium 226 + 228 Combined	Thallium
Well ID	**Sample Date**	µg/L	µg/L	µg/L	µg/L	pCi/L	µg/L
MW-7	10/11/2016	1.0	36.0	1.9	1.0 U	1.19	2.40
	11/29/2016	1.0 U	44.0	1.6	5.0 U	0.00	0.10 U
	12/29/2016	1.3	28.0	1.5	5.0 U	0.352	0.10 U
	1/16/2017	1.0 U	25.0	1.2	1.0 U	0.402	0.10 U
	2/13/2017	1.1	29.0	1.6	1.0 U	1.21	0.30
	3/21/2017	1.0 U	32.0	1.0	1.0 U	0.118	0.10 U
	4/24/2017	1.0 U	19.0	1.0 U	1.0 U	0.457	0.50 U
	5/23/2017	1.0 U	20.0	1.0 U	1.0 U	0.459	0.10 U
	6/19/2017	1.0 U	25.0	1.0 U	1.0 U	0.276	0.10 U
	7/17/2017	1.0 U	32.0	1.0 U	1.0 U	0.886	0.10 U
	8/7/2017	1.0 U	27.0	1.0 U	1.0 U	0.848	0.10 U
	8/21/2017	1.0 U	36.0	1.0 U	1.0 U	0.277	0.10 U
	11/28/2017	1.0 U	30.5	1.0 U	1.0 U	1.06	0.10 U
	5/29/2018	1.0 U	30.5	1.0 U	1.0 U	1.08	0.10 U
	7/18/2018	1.0 U	48.0	1.0 U	1.0 U	0.838	0.10 U
	6/27/2019	1.0 U	33.8	1.0 U	1.0 U	1.17	0.10 U
	9/4/2019	1.0 U	36.9	1.0 U	1.0 U	0.676	0.10 U
	12/3/2019	1.0 U	35.3	1.0 U	1.0 U	0.552	0.10 U
	5/27/2020	1.0 U	27.6	1.0 U	1.0 U	0.405	0.10 U
	9/9/2020	1.0 U	30.6	1.0 U	1.0 U	0.681	0.10 U
	12/1/2020	1.0 U	33.6	1.0 U	1.0 U	0.468	0.10 U
	5/27/2021	1.0 U	31.4	1.0 U	1.0 U	0.871	0.14
	8/19/2021	1.0 U	31.4	1.0 U	1.0 U	1.28	0.10 U
	11/18/2021	1.0 U	33.2	1.0 U	1.0 U	0.926	0.10 U

TABLE 2
APPENDIX IV GROUNDWATER MONITORING RESULTS
Federal CCR Rule
Spurlock Station Surface Impoundment
Mason County, Kentucky

Appendix IV Analyte:[1]		Arsenic	Barium	Cobalt	Molybdenum	Radium 226 + 228 Combined	Thallium
Well ID	**Sample Date**	µg/L	µg/L	µg/L	µg/L	pCi/L	µg/L
MW-8	10/11/2016	1.0 U	21.0	1.0 U	18.3	2.13	1.70
	11/29/2016	1.0 U	19.0	1.0 U	16.7	0.769	0.10 U
	12/29/2016	1.0 U	20.0	1.0 U	18.4	1.13	0.10 U
	1/16/2017	1.0 U	14.0	1.0 U	16.4	0.591	0.10 U
	2/13/2017	1.0 U	35.0	1.0 U	12.0	0.524	0.30
	3/21/2017	1.0 U	34.0	1.0 U	12.3	0.452	0.10 U
	4/24/2017	1.0 U	21.0	1.0 U	13.8	0.093	0.50 U
	5/23/2017	1.0 U	20.0	1.0 U	16.2	0.510	0.10 U
	6/19/2017	1.0 U	28.0	1.0 U	14.4	0.457	0.10 U
	7/17/2017	1.0 U	28.0	1.0 U	14.7	0.716	0.10 U
	8/7/2017	1.0 U	26.0	1.0 U	16.6	0.325	0.10 U
	8/21/2017	1.0 U	46.0	1.0 U	13.3	0.938	0.10 U
	11/28/2017	1.0 U	15.6	1.0 U	17.9	0.987	0.10 U
	5/29/2018	1.0 U	32.1	1.0 U	15.2	1.10	0.13
	7/18/2018	1.0 U	39.4	1.0 U	12.9	0.710	0.10 U
	6/27/2019	1.0 U	29.8	1.0 U	12.1	0.400	0.10 U
	9/4/2019	1.0 U	23.0	1.0 U	20.7	0.868	0.10 U
	12/3/2019	1.0 U	28.6	1.0 U	11.7	1.12	0.10 U
	5/27/2020	1.0 U	14.2	1.0 U	15.1	1.27	0.10 U
	9/9/2020	1.0 U	22.0	1.0 U	18.9	0.585	0.10 U
	12/1/2020	1.0 U	19.1	1.0 U	22.1	0.134	0.10 U
	5/27/2021	1.0 U	27.2	1.0 U	14.0	0.279	0.13
	8/19/2021	1.0 U	18.1	1.0 U	19.5	0.422	0.10 U
	11/18/2021	1.0 U	15.1	1.0 U	22.6	1.23	0.10 U

Notes:

[1] Results are shown only for Appendix IV constituents detected in the August 2021 Assessment Monitoring event.

[2] MW-2, -3, -4, and -5 are background monitoring wells.

µg/L Micrograms per Liter

mg/L Milligrams per Liter

pCi/L Picocuries per Liter

U Constituent not detected above method detection limit and are shown as less than the reporting limit.

TABLE 3
APPENDIX IV SUMMARY STATISTICS FOR BACKGROUND GROUNDWATER
FEDERAL CCR RULE
Spurlock Station Surface Impoundment
Mason County, Kentucky

Constituent	Units	Outliers Excluded	Equal Variance	Distribution Type[2]	Number of Data Points Used	Number of Non-Detects[3]	Non-Detect Frequency (Percent)	Minimum	Maximum	Mean	Median	Standard Deviation	Upward Trend	Season-ality	Upper Tolerance Limit (UTL)[4,5]
Arsenic	µg/L	0	no[1]												
MW-2	µg/L	0	-	Lognormal	15	0	0%	1.30	5.30	2.48	2.50	0.99	No	No	5.03
MW-3	µg/L	0	-	Lognormal	15	0	0%	6.40	15.7	9.40	9.70	2.20	No	No	15.1
MW-4	µg/L	0	-	Nonparametric	15	14	93%	0.50 U	1.40	0.56	0.50 U	0.23	No	No	1.40
MW-5	µg/L	0	-	Nonparametric	15	13	87%	0.50 U	1.20	0.58	0.50 U	0.21	No	No	1.20
Barium	µg/L	0	no[1]												
MW-2	µg/L	0	-	Normal	15	0	0%	26.0	383	195	190	81.8	No	No	405
MW-3	µg/L	0	-	Normal	15	0	0%	233	640	397	372	125	Yes[6]	No	719
MW-4	µg/L	1	-	Normal	14	0	0%	12.9	22.0	16.3	16.0	2.10	No	No	21.9
MW-5	µg/L	0	-	Normal	15	0	0%	15.0	20.0	17.1	17.0	1.50	No	No	21.0
Cobalt	µg/L	0	no[1]												
MW-2	µg/L	0	-	Normal	15	1	7%	0.05 U	1.80	1.28	1.30	0.31	No	No	1.90
MW-3	µg/L	0	-	Normal	15	0	0%	1.70	3.10	2.22	2.18	0.41	No	No	3.27
MW-4	µg/L	0	-	Nonparametric	15	15	100%	0.05 U	0.05 U	0.50	0.05 U	0.00	No	No	0.05
MW-5	µg/L	0	-	Nonparametric	15	14	93%	0.50 U	1.20	0.55	0.50 U	0.18	No	No	1.20
Molybdenum	µg/L	0	no[1]												
MW-2	µg/L	0	-	Normal	15	0	0%	18.2	23.7	20.7	20.7	1.50	No	No	24.6
MW-3	µg/L	0	-	Normal	15	0	0%	14.5	19.2	16.8	17.3	1.60	No	No	20.9
MW-4	µg/L	0	-	Nonparametric	15	0	0%	15.5	19.2	16.6	16.4	1.10	No	No	19.2
MW-5	µg/L	0	-	Lognormal	15	2	13%	1.10	2.60	1.70	1.50	0.48	No	No	2.90
Radium 226 + 228	pCi/L	0	yes	Nonparametric	60	1	2%	0.00	2.93	0.96	0.80	0.64	No	No	2.93
Thallium	µg/L	4	no[1]												
MW-2	µg/L	1	-	Nonparametric	14	11	79%	0.05 U	0.40	0.12	0.05 U	0.12	No	No	0.40
MW-3	µg/L	1	-	Nonparametric	14	12	86%	0.05 U	0.25	0.09	0.05 U	0.07	No	No	0.25
MW-4	µg/L	1	-	Nonparametric	14	12	86%	0.05 U	0.25	0.08	0.05 U	0.06	No	No	0.25
MW-5	µg/L	1	-	Nonparametric	14	12	86%	0.05 U	0.50	0.11	0.05 U	0.14	No	No	0.50

Notes:

µg/L Micrograms per Liter
mg/L Milligrams per Liter
pCi/L Picocuries per Liter
U Constituent not detected above method detection limit; results shown as less than half the reporting limit.
UTL Upper Tolerance Limit
[1] The background dataset did not exhibit equal variance; statistics were calculated for each of the individual background wells.
[2] Distribution type not tested if dataset contained greater than 50% non-detect values.
[3] Non-detect values were replaced with 1/2 of the reporting limit, as recommended in the Unified Guidance.
[4] For normal distributions, the 95% UTL was calculated.
[5] For nonparametric distributions, a nonparametric UTL is the maximum background concentration (Unified Guidance, 2009, p. 17.18).
[6] The increasing trend of Barium at MW-3 was not acted upon because all the compliance well data are well below the Groundwater Protection Standard.
Source: Background limits were calculated by Geosyntec in 2018 using data from October 2016 through August 2017.

TABLE 4
APPENDIX IV STATISTICALLY SIGNIFICANT INCREASES (SSI)
Federal CCR Rule
Spurlock Station Surface Impoundment
Mason County, Kentucky

Constituent[1]:	Arsenic	Barium	Cobalt	Molybdenum	Radium 226 + 228 Combined	Thallium	Total SSIs per Compliance Well
Background Value:	**15.1** µg/L	**719** µg/L	**3.3** µg/L	**24.6** µg/L	**2.9** pCi/L	**0.5** µg/L	
Well ID	**Maximum Detected Concentration for All Assessment Monitoring Events**						
MW-1	0.50 U[2]	32.1	0.50 U	21.2	1.24	0.20	0
MW-6	0.50 U	58.1	0.50 U	0.50 U	1.40	0.05 U	0
MW-7	0.50 U	48.0	0.50 U	0.50 U	1.28	0.14	0
MW-8	0.50 U	39.4	0.50 U	22.6	1.27	0.13	0
TOTAL CONSTITUENT SSIs:	0	0	0	0	0	0	0

Notes:

Table is populated with the maximum detected concentration of each constituent at each compliance well for all assessment monitoring events.

Concentration is a statistically significant increase (SSI) over background concentration. There are no SSIs in the detected constituents.

[1] Only constituents detected in the August 2021 Assessment Monitoring Program event are shown.

[2] Non-detect values were replaced with 1/2 of the reporting limit, as recommended in the Unified Guidance.

SSI Statistically Significant Increase

µg/L Micrograms per Liter

mg/L Milligrams per Liter

pCi/L Picocuries per Liter

U Constituent not detected above method detection limit.

TABLE 5
APPENDIX IV GROUNDWATER PROTECTION STANDARDS
Federal CCR Rule
Spurlock Station Surface Impoundment
Mason County, Kentucky

Constituent[1]	Unit	MCL	RSL	Background Value	Selected GWPS
Arsenic	µg/L	10		15.1	15.1
Barium	µg/L	2,000		719	2,000
Cobalt	µg/L		6	3.3	6
Molybdenum	µg/L		100	24.6	100
Radium 226 + 228[2]	pCi/L	5		2.9	5
Thallium	µg/L	2		0.5	2

Notes:

[1] Only constituents detected in the August 2021 Assessment Monitoring Program event are shown.

[2] The standard for Radium 226 and 228 is a combined standard.

GWPS Groundwater Protection Standard

MCL Maximum Contaminant Level

RSL Regional Screening Level, only applies if MCL not promulgated.

µg/L Micrograms per Liter

mg/L Milligrams per Liter

pCi/L Picocuries per Liter

TABLE 6
COMPARISON OF APPENDIX IV RESULTS TO GROUNDWATER PROTECTION STANDARDS
Federal CCR Rule
Spurlock Station Surface Impoundment
Mason County, Kentucky

	Constituent[1]:	Arsenic	Barium	Cobalt	Molybdenum	Radium 226 + 228[2]	Thallium
	GWPS:	15.1	2,000	6	100	5	2
Well ID	Sample Date	µg/L	µg/L	µg/L	µg/L	pCi/L	µg/L
MW-1	11/18/2021	0.50 U[3]	16.3	0.50 U	16.6	0.000	0.05 U
MW-6	11/18/2021	0.50 U	38.4	0.50 U	0.50 U	0.875	0.05 U
MW-7	11/18/2021	0.50 U	33.2	0.50 U	0.50 U	0.926	0.05 U
MW-8	11/18/2021	0.50 U	15.1	0.50 U	22.6	1.23	0.05 U

Notes:

[1] Only constituents detected in the August 2021 Assessment Monitoring Program event are shown.

[2] The standard for Radium 226 and 228 is a combined standard.

[3] Non-detect values were replaced with 1/2 of the reporting limit, as recommended in the Unified Guidance.

GWPS Groundwater Protection Standard

bold Bolded values were detected above the GWPS.

µg/L Micrograms per Liter

mg/L Milligrams per Liter

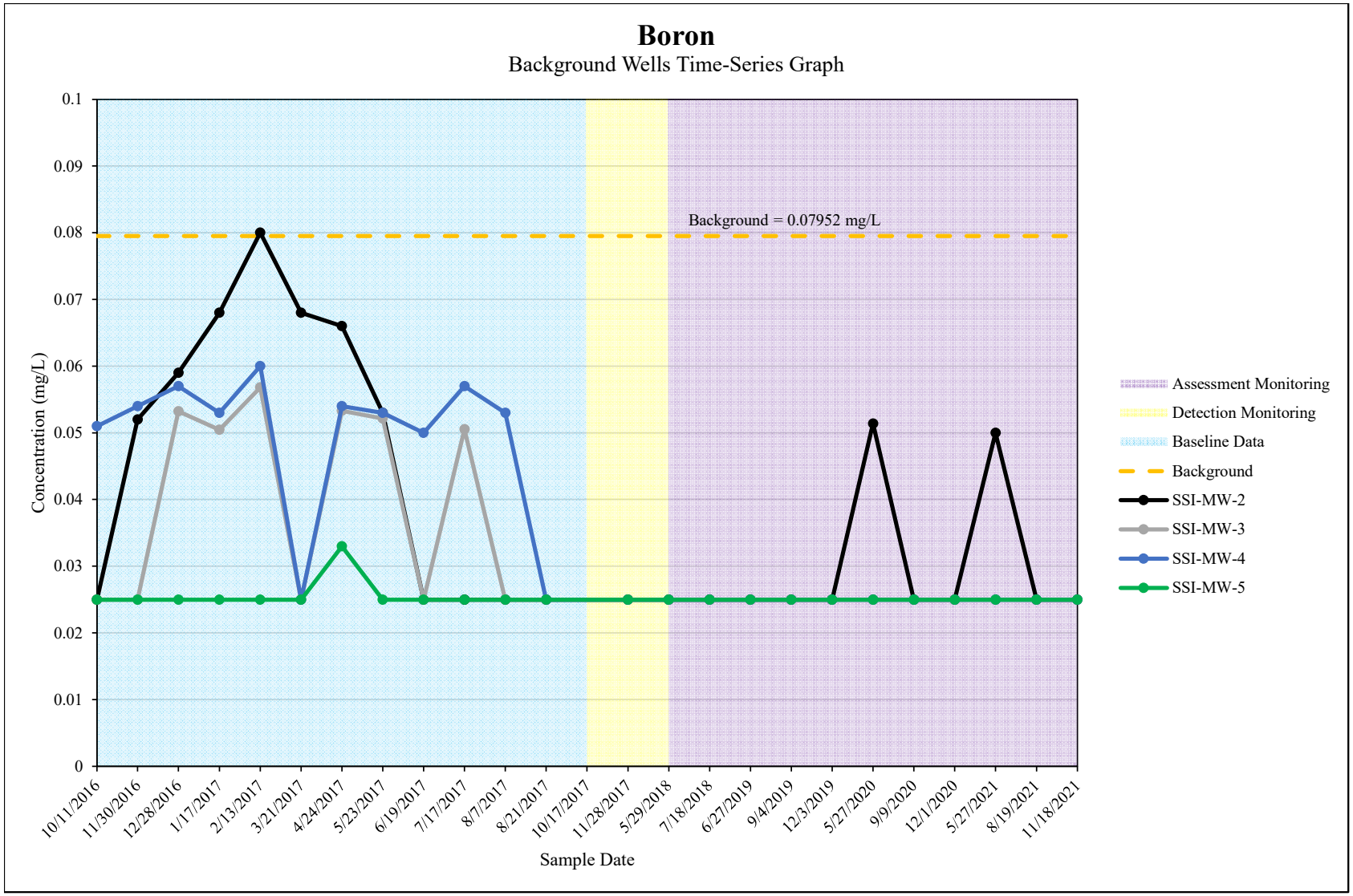
pCi/L Picocuries per Liter

U Constituent not detected above method detection limit.

ATTACHMENT A

ATTACHMENT A.1

Appendix III Time-Series Graphs (14 Pages)

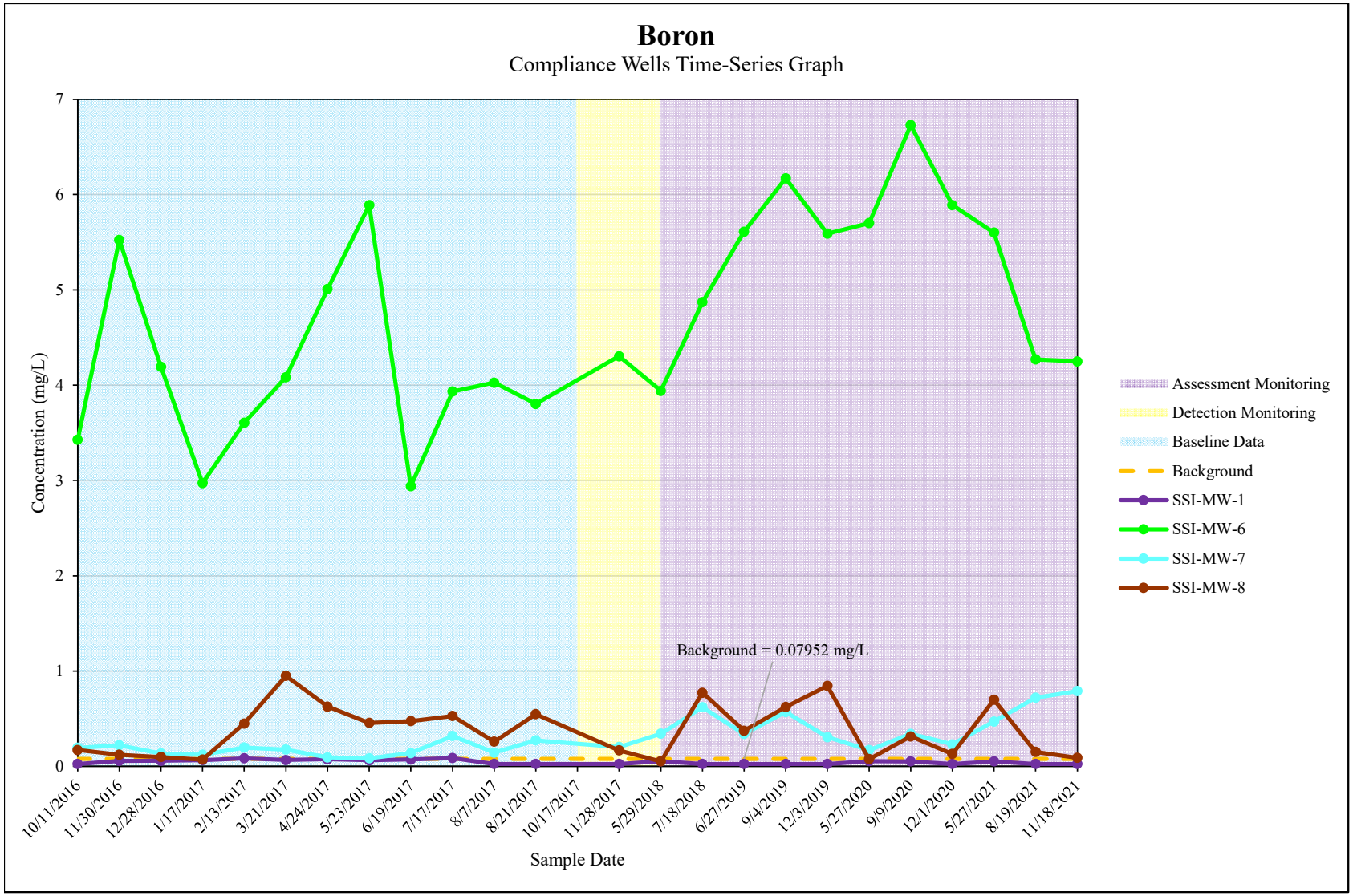


Notes:

mg/L Milligrams per Liter

[1] Non-Detects were replaced with 1/2 Reporting Limit, as recommended in the Unified Guidance.

Source Background values calculated by Haley & Aldrich (2018).

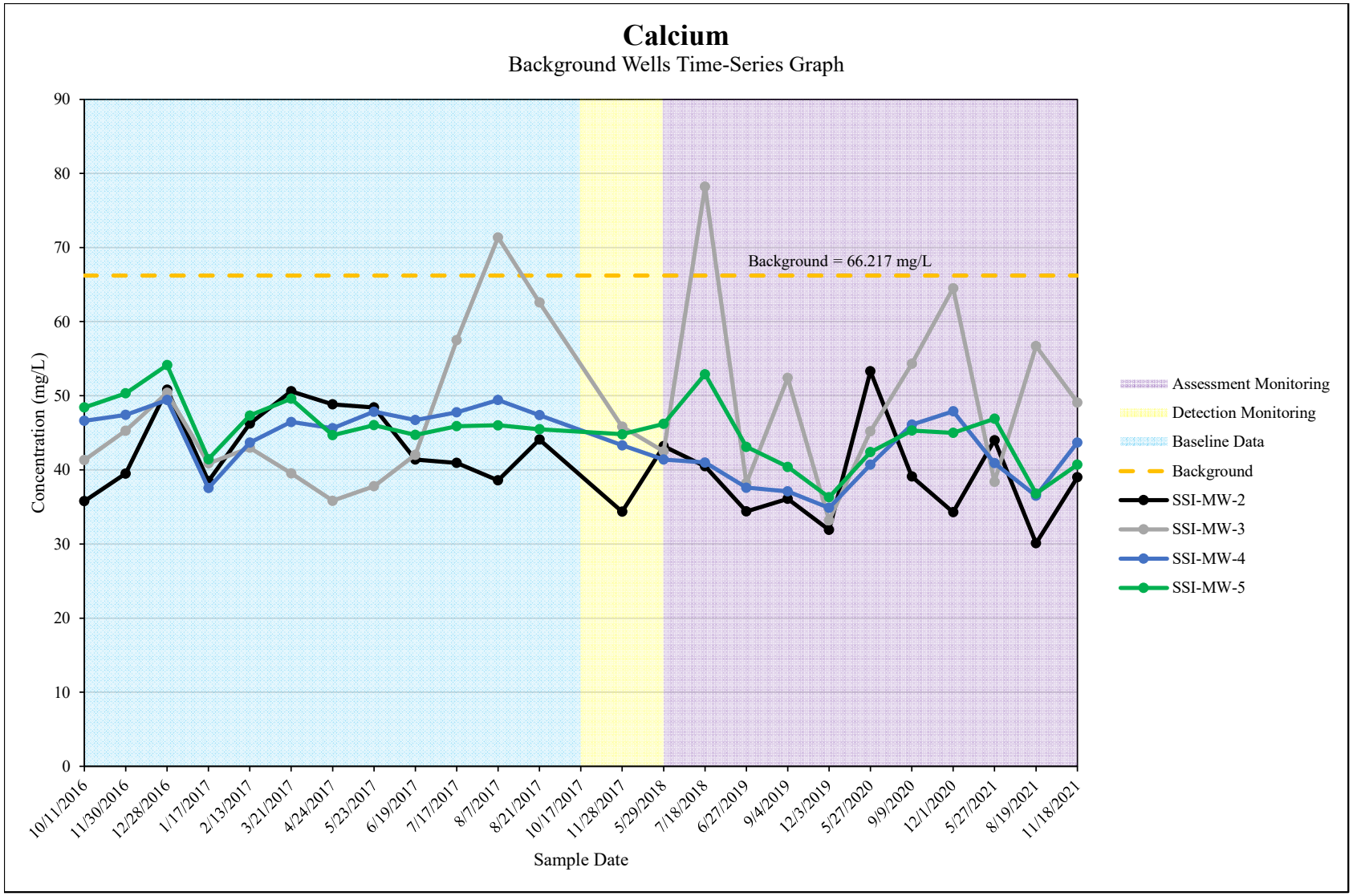


Notes:

mg/L Milligrams per Liter

[1] Non-Detects were replaced with 1/2 Reporting Limit, as recommended in the Unified Guidance.

Source Background values calculated by Haley & Aldrich (2018).



Notes:

mg/L Milligrams per Liter

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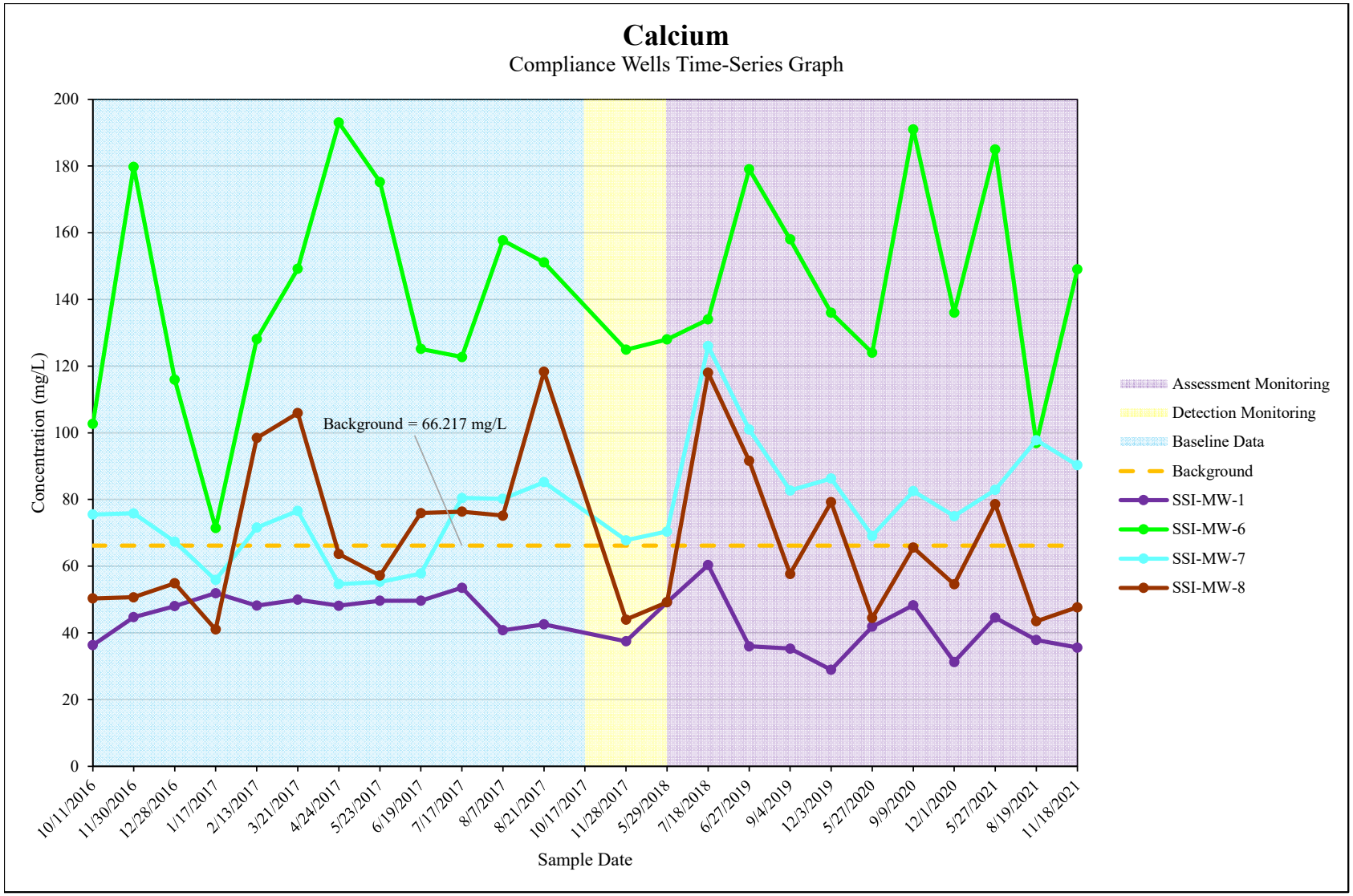

Notes:

mg/L Milligrams per Liter

[1] Non-Detects were replaced with 1/2 Reporting Limit, as recommended in the Unified Guidance.

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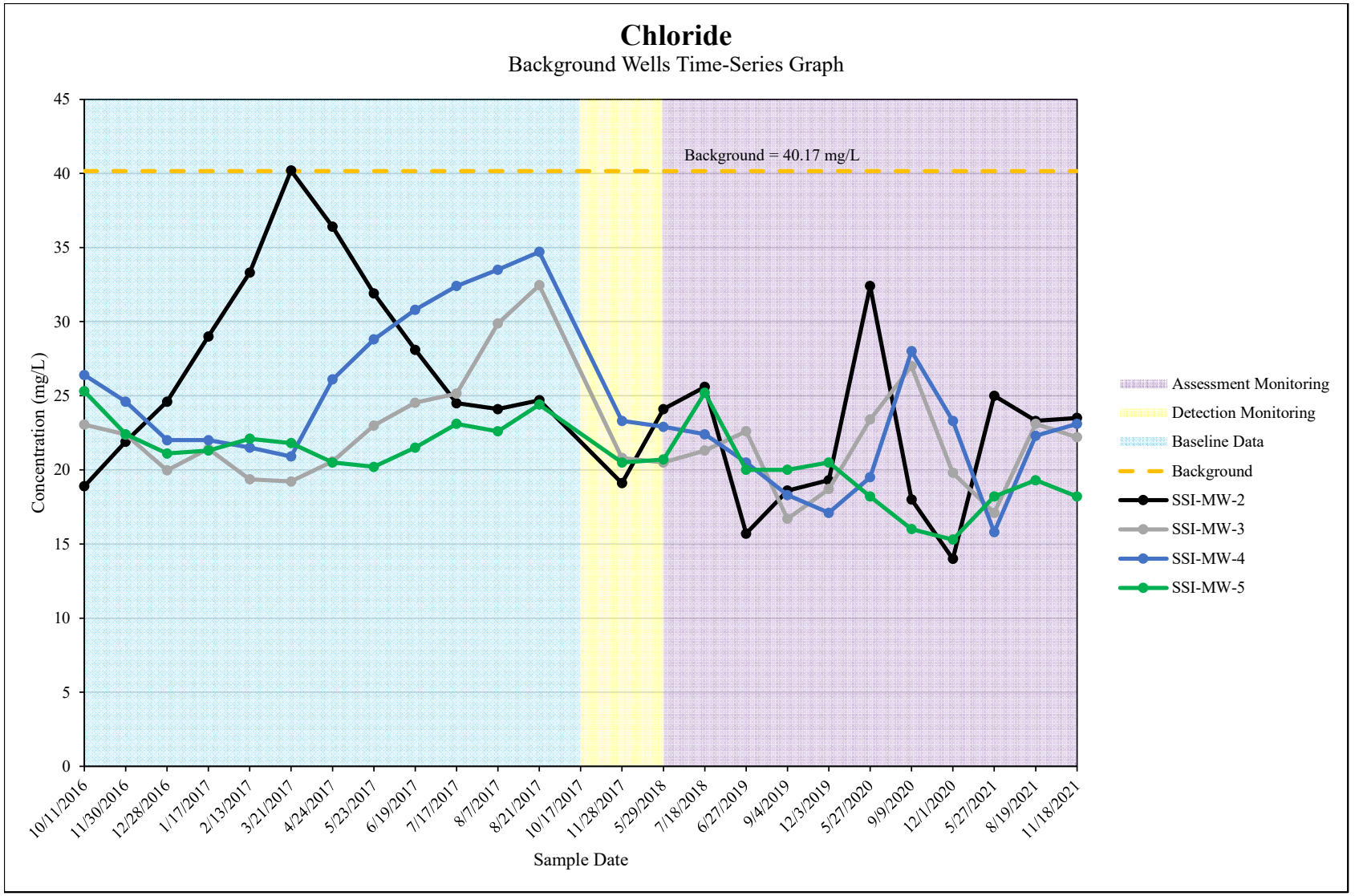

Notes:

mg/L Milligrams per Liter

[1] Non-Detects were replaced with 1/2 Reporting Limit, as recommended in the Unified Guidance.

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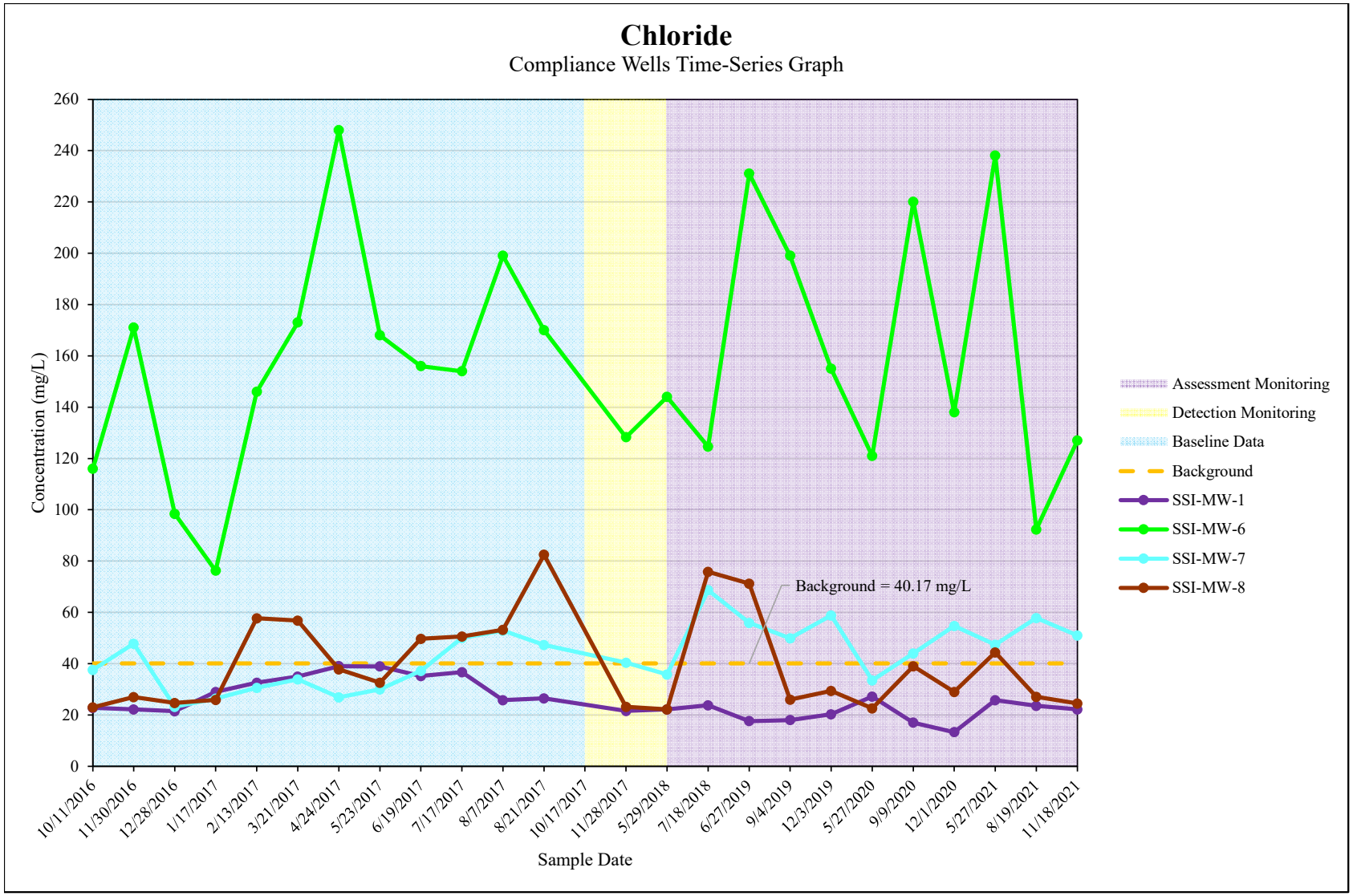

Notes:

mg/L Milligrams per Liter

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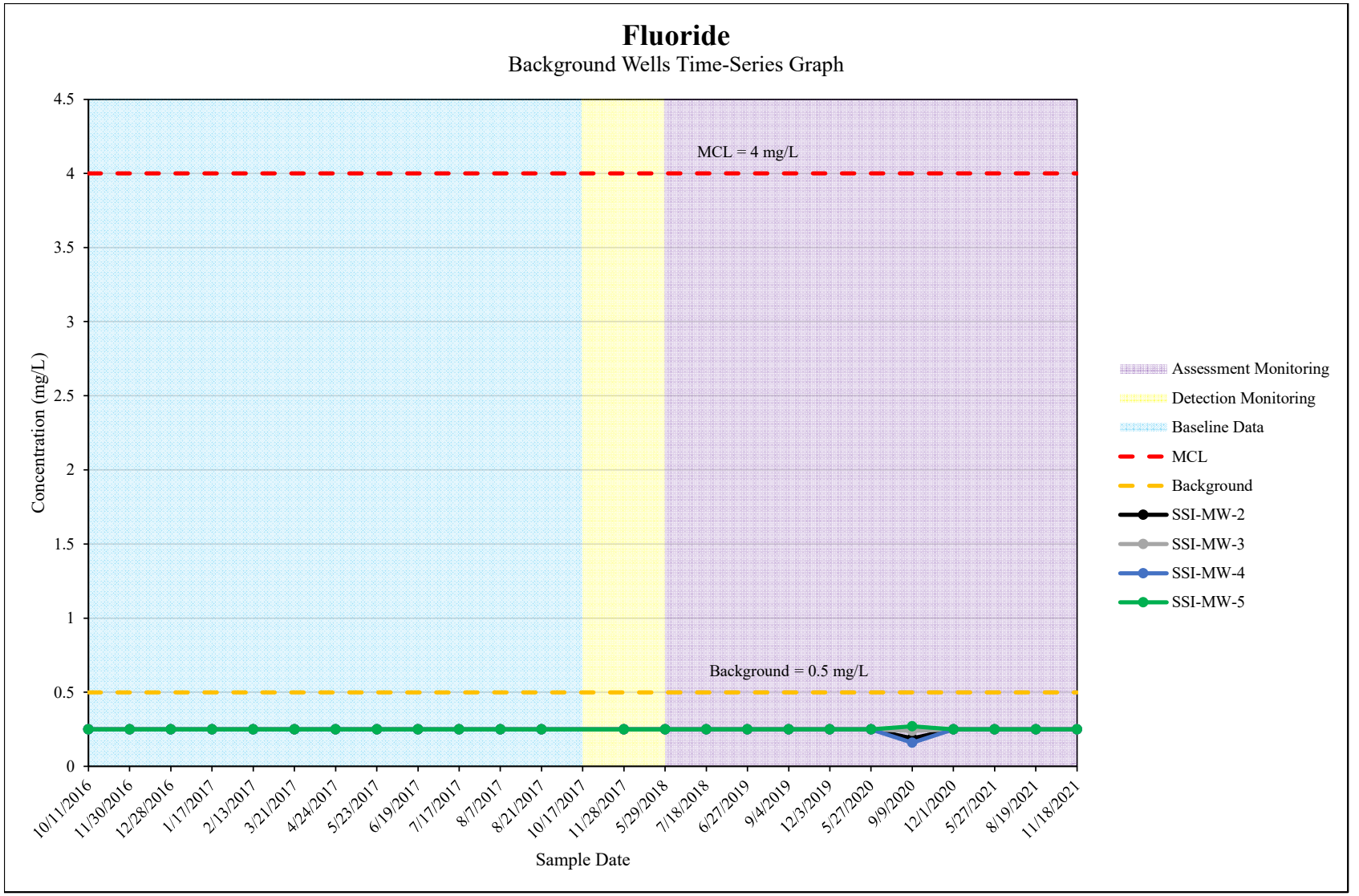


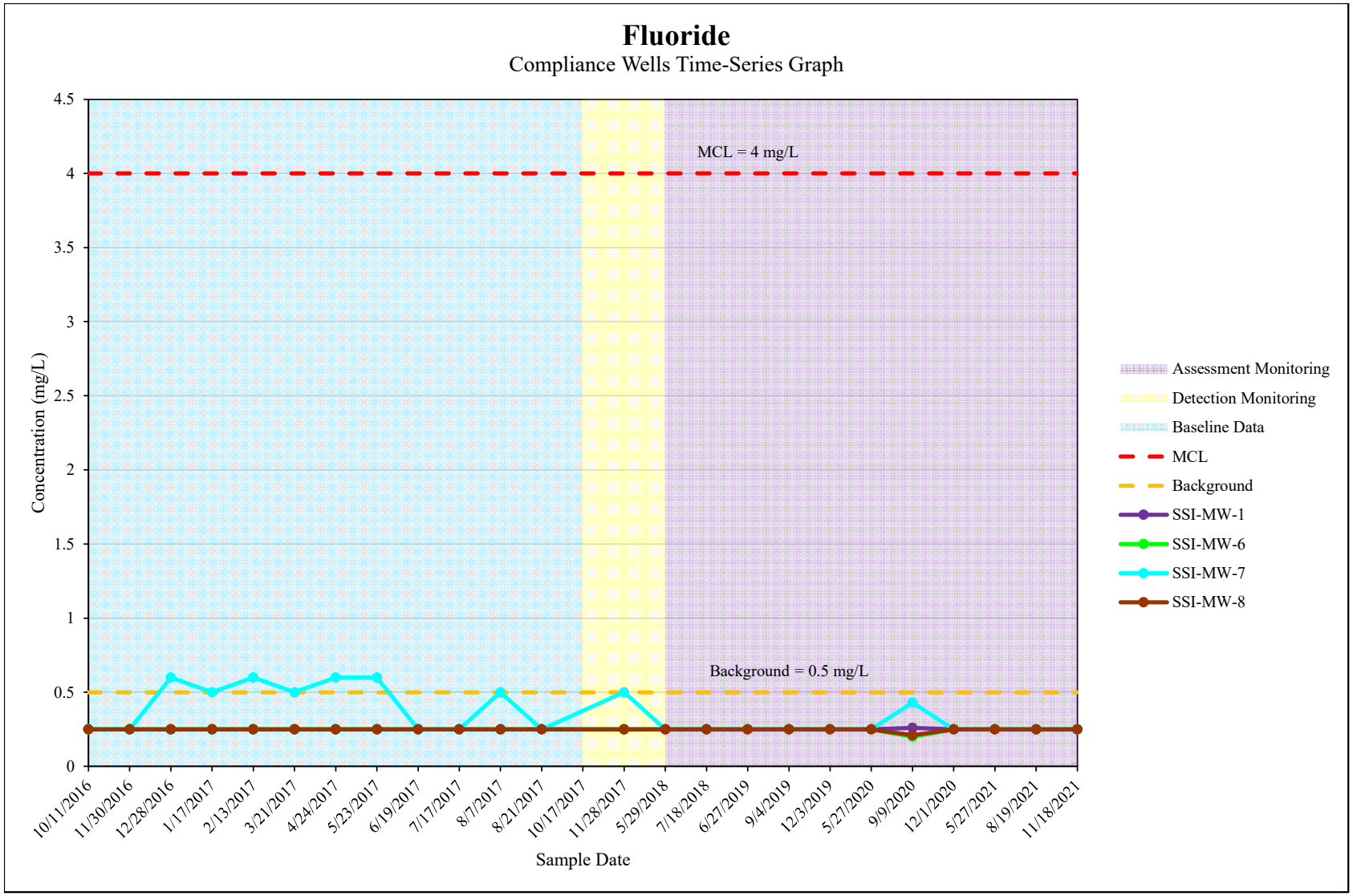
Notes:

MCL Maximum Contaminant Level

mg/L Milligrams per Liter

[1] Non-Detects were replaced with 1/2 Reporting Limit, as recommended in the Unified Guidance.

Source Background values calculated by Haley & Aldrich (2018).



Notes:

MCL Maximum Contaminant Level

mg/L Milligrams per Liter

[1] Non-Detects were replaced with 1/2 Reporting Limit, as recommended in the Unified Guidance.

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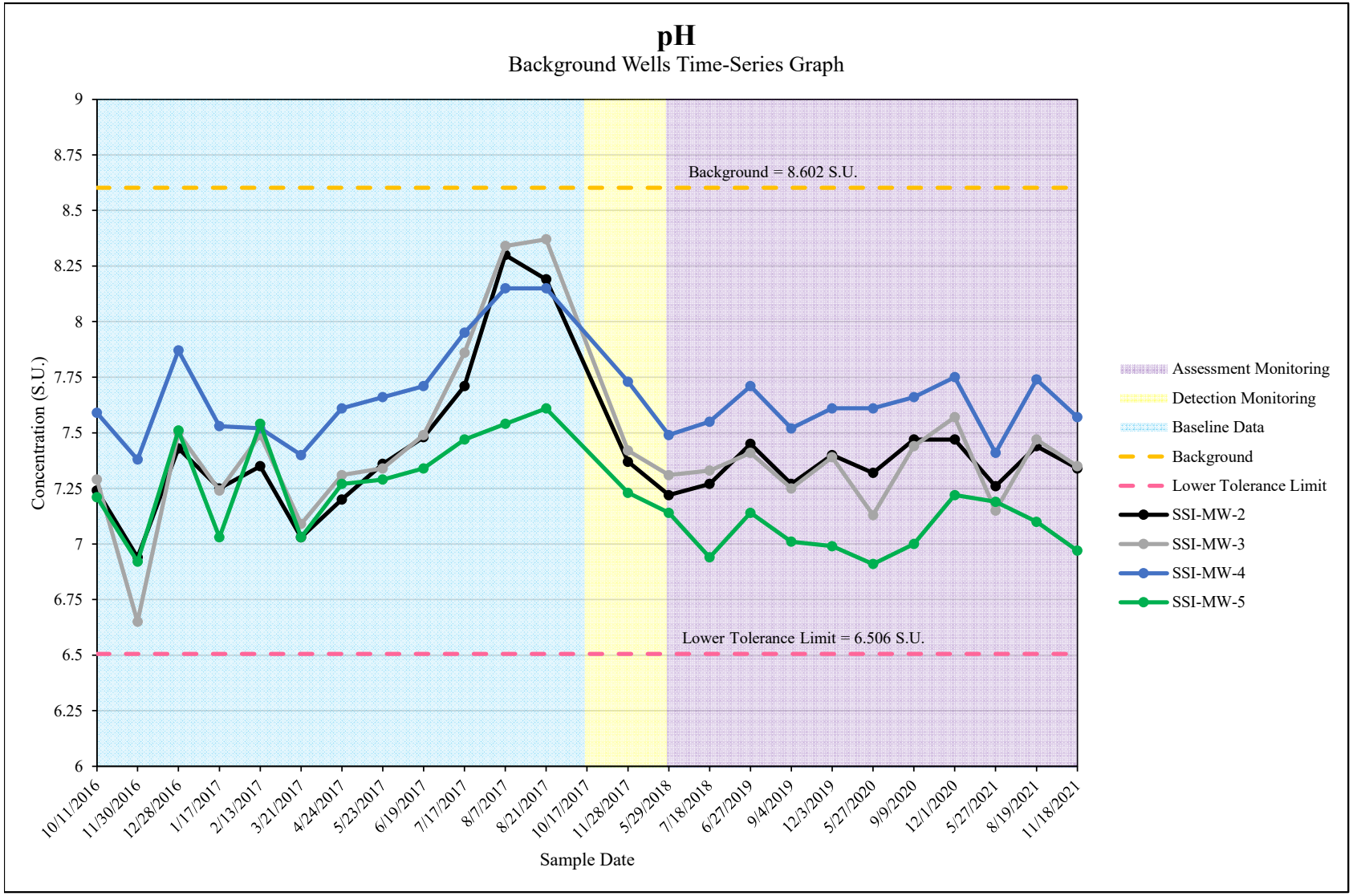
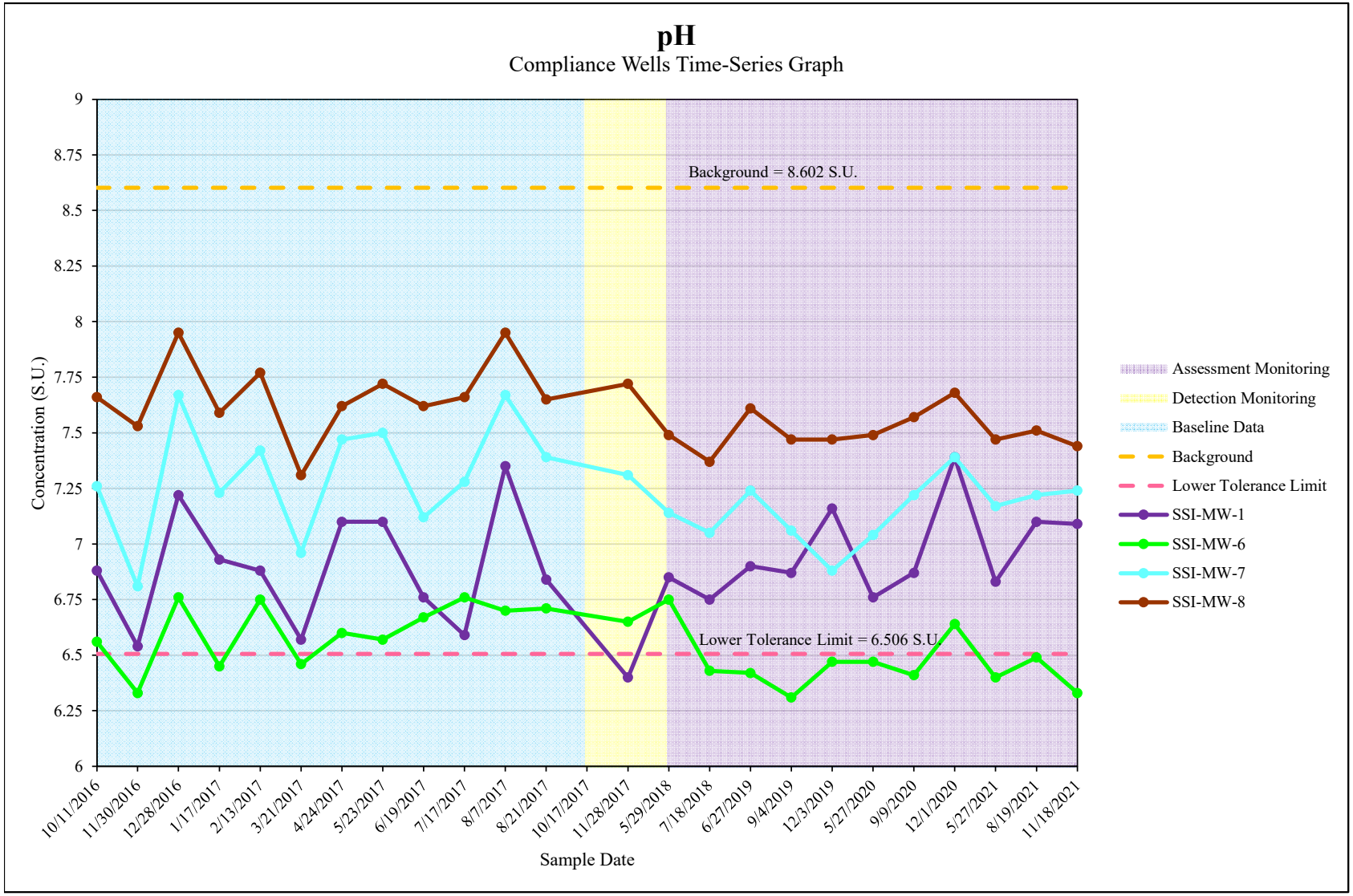


Notes:

S.U. Standard Units

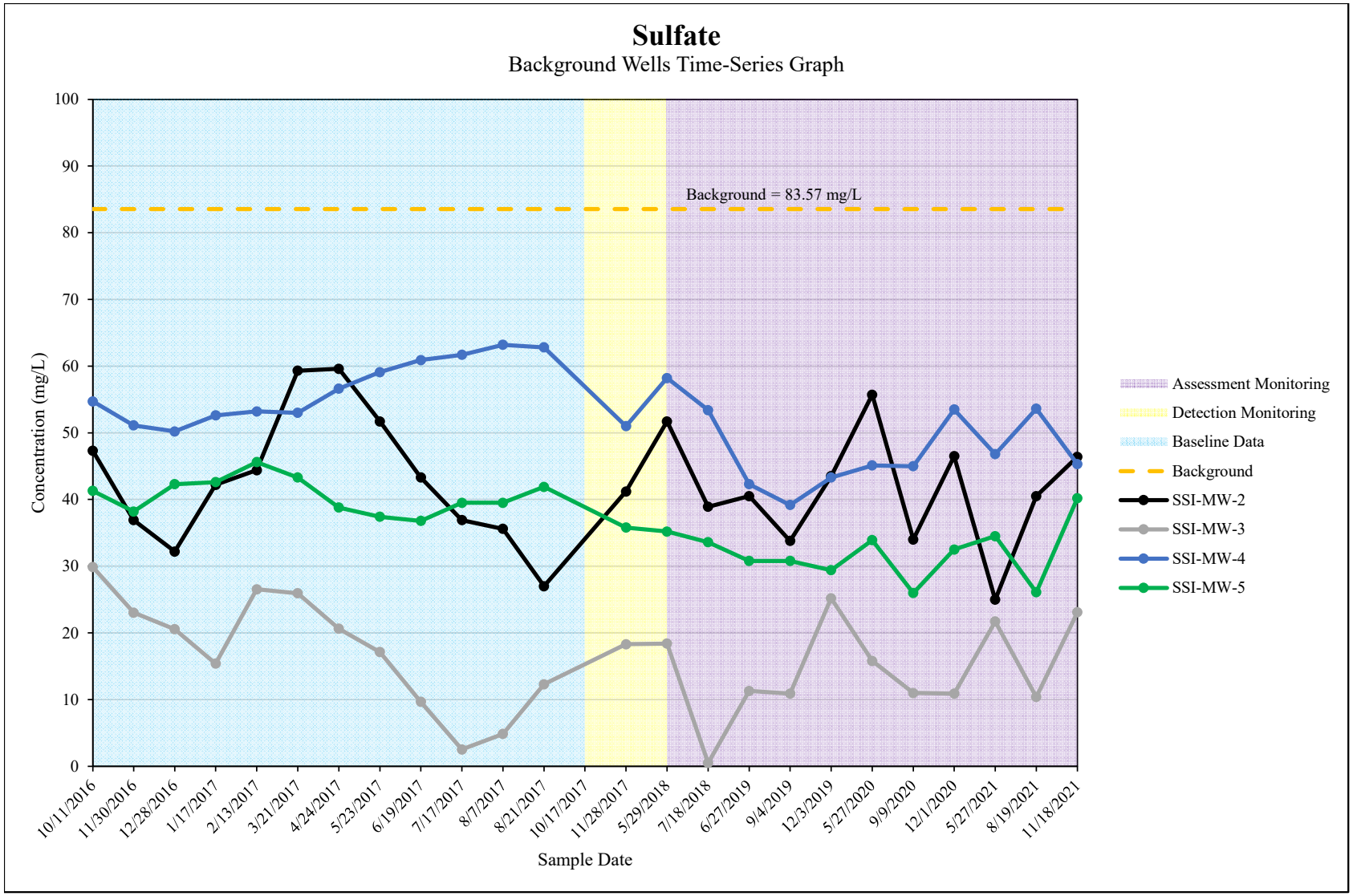
Source Background values, and Lower Tolerance Limit (LTL) for pH, calculated by Haley & Aldrich (2018, 2021).



Notes:

S.U. Standard Units

Source Background values, and Lower Tolerance Limit (LTL) for pH, calculated by Haley & Aldrich (2018, 2021).



Notes:

mg/L Milligrams per Liter

[1] Non-Detects were replaced with 1/2 Reporting Limit, as recommended in the Unified Guidance.

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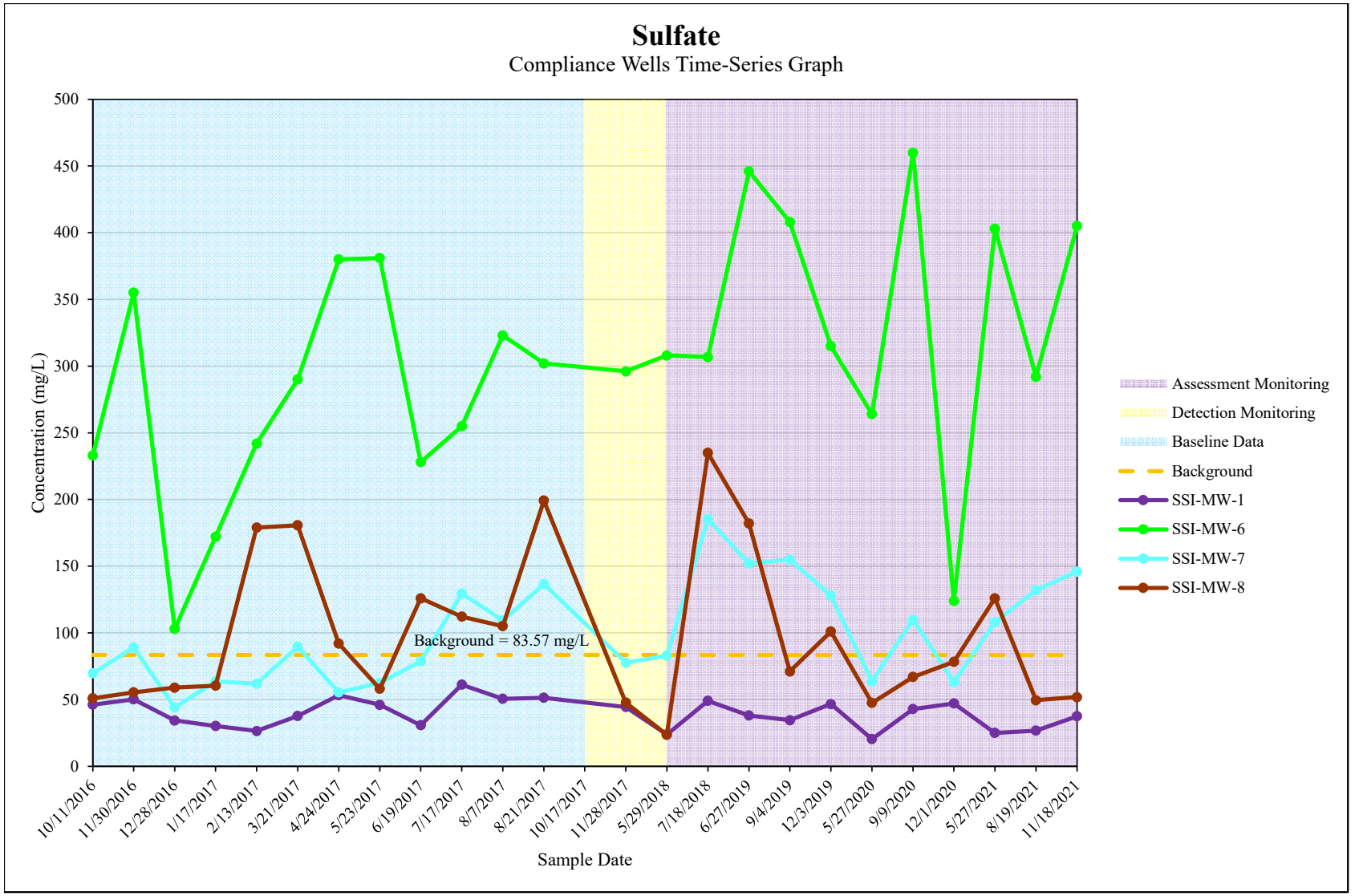

Notes:

mg/L Milligrams per Liter

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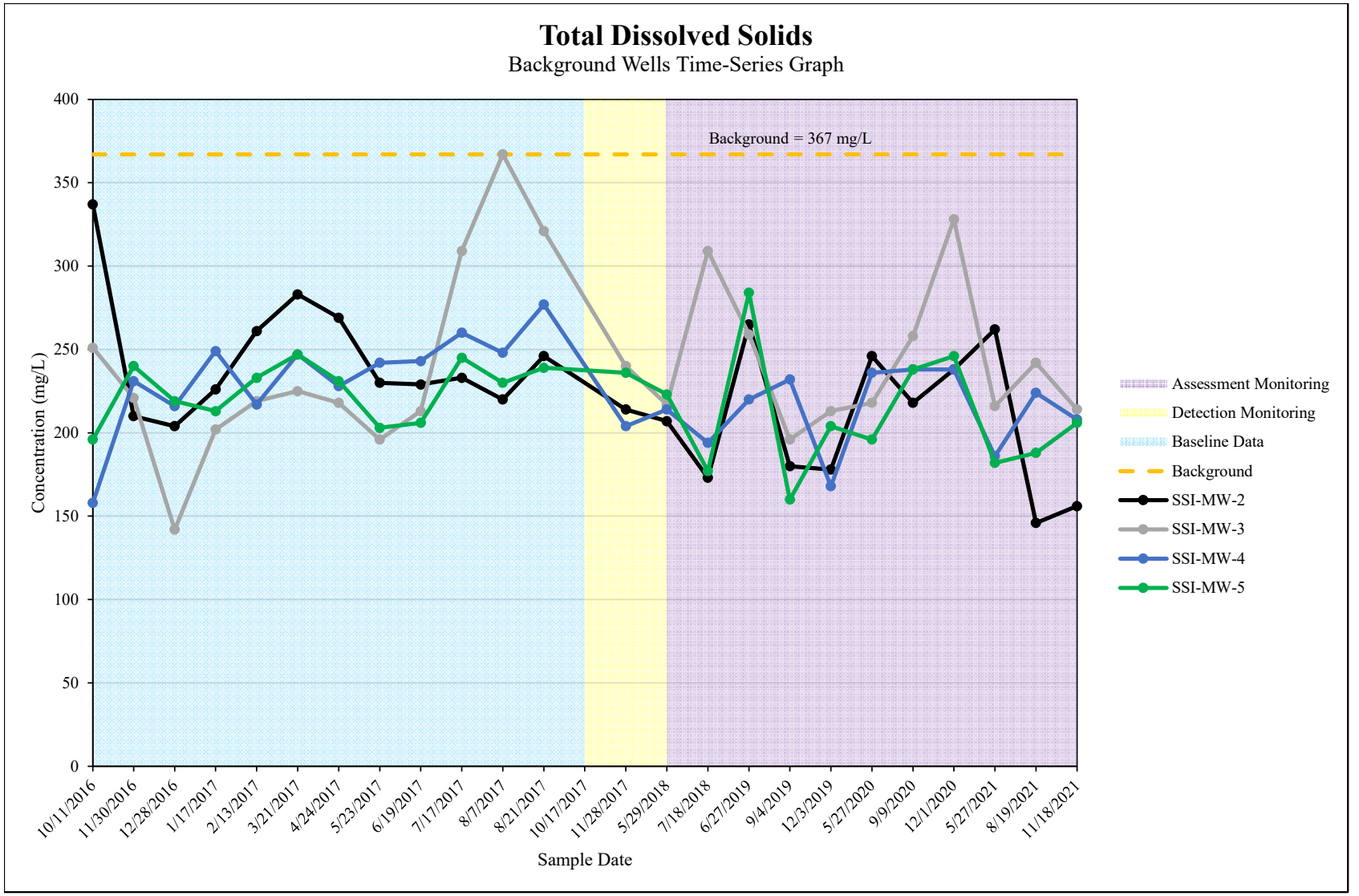

Notes:

mg/L Milligrams per Liter

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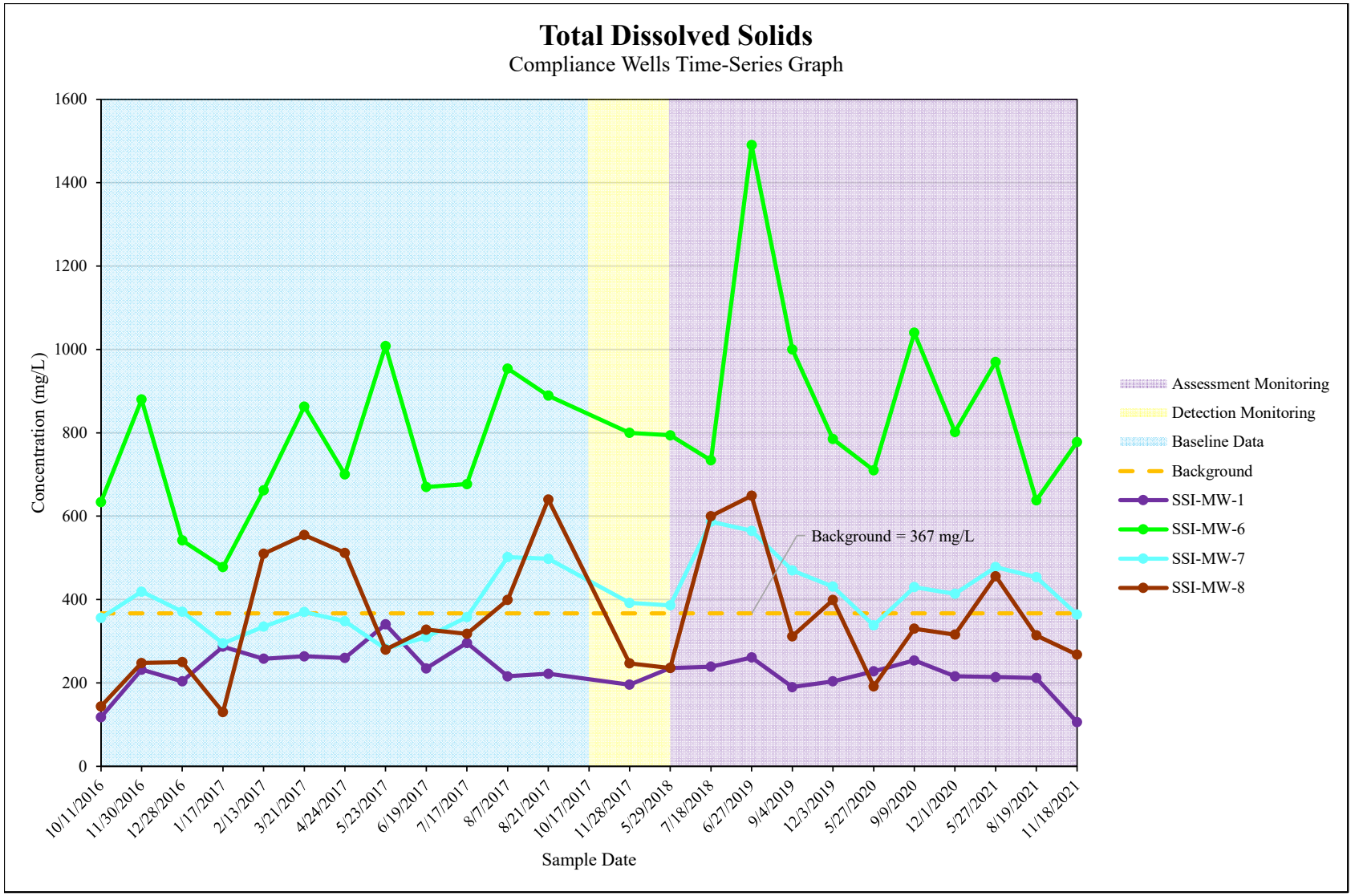

Notes:

mg/L Milligrams per Liter

[1] Non-Detects were replaced with 1/2 Reporting Limit, as recommended in the Unified Guidance.

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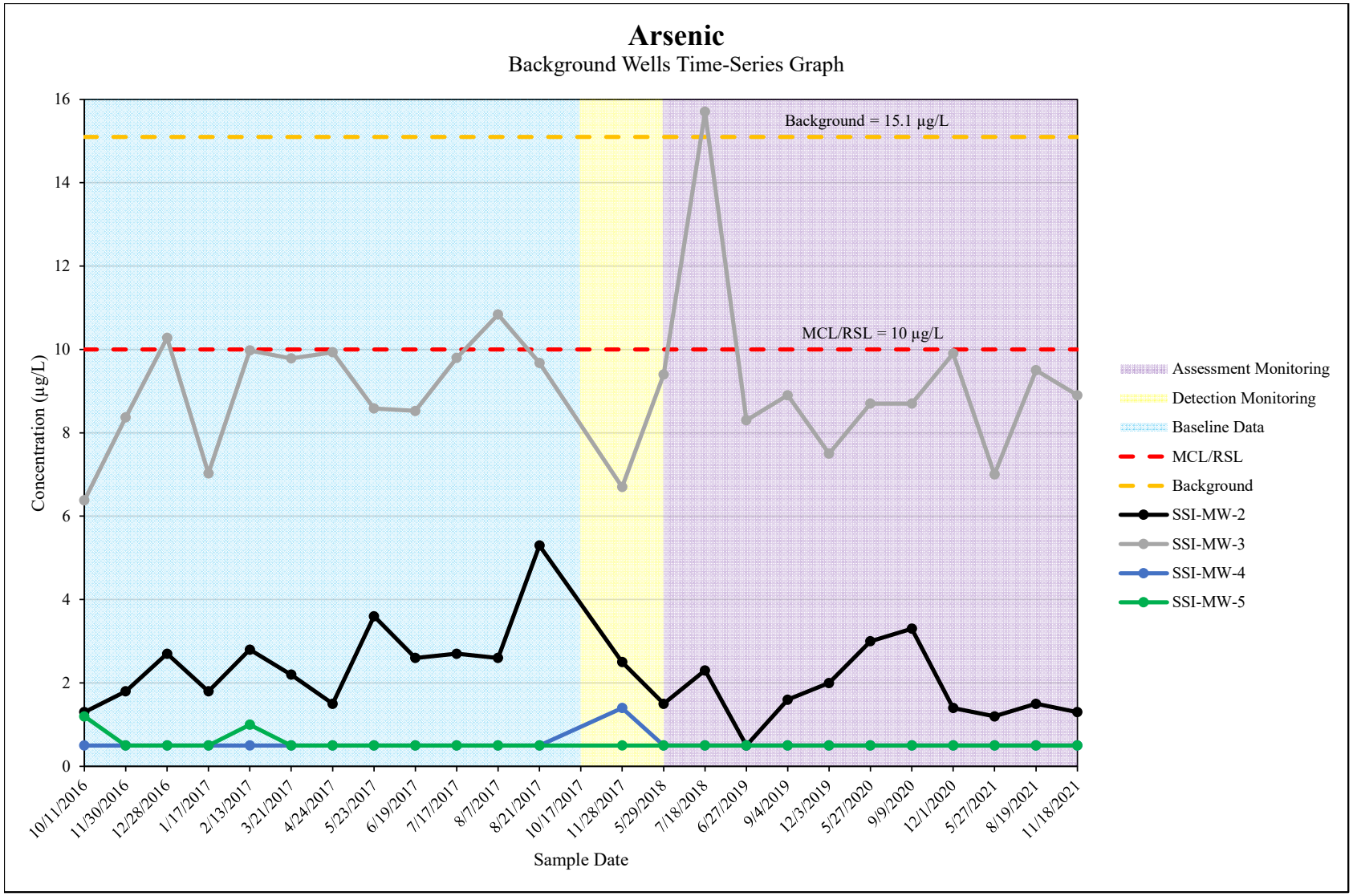
ATTACHMENT A.2

Appendix IV Time-Series Graphs (12 Pages)



Notes:

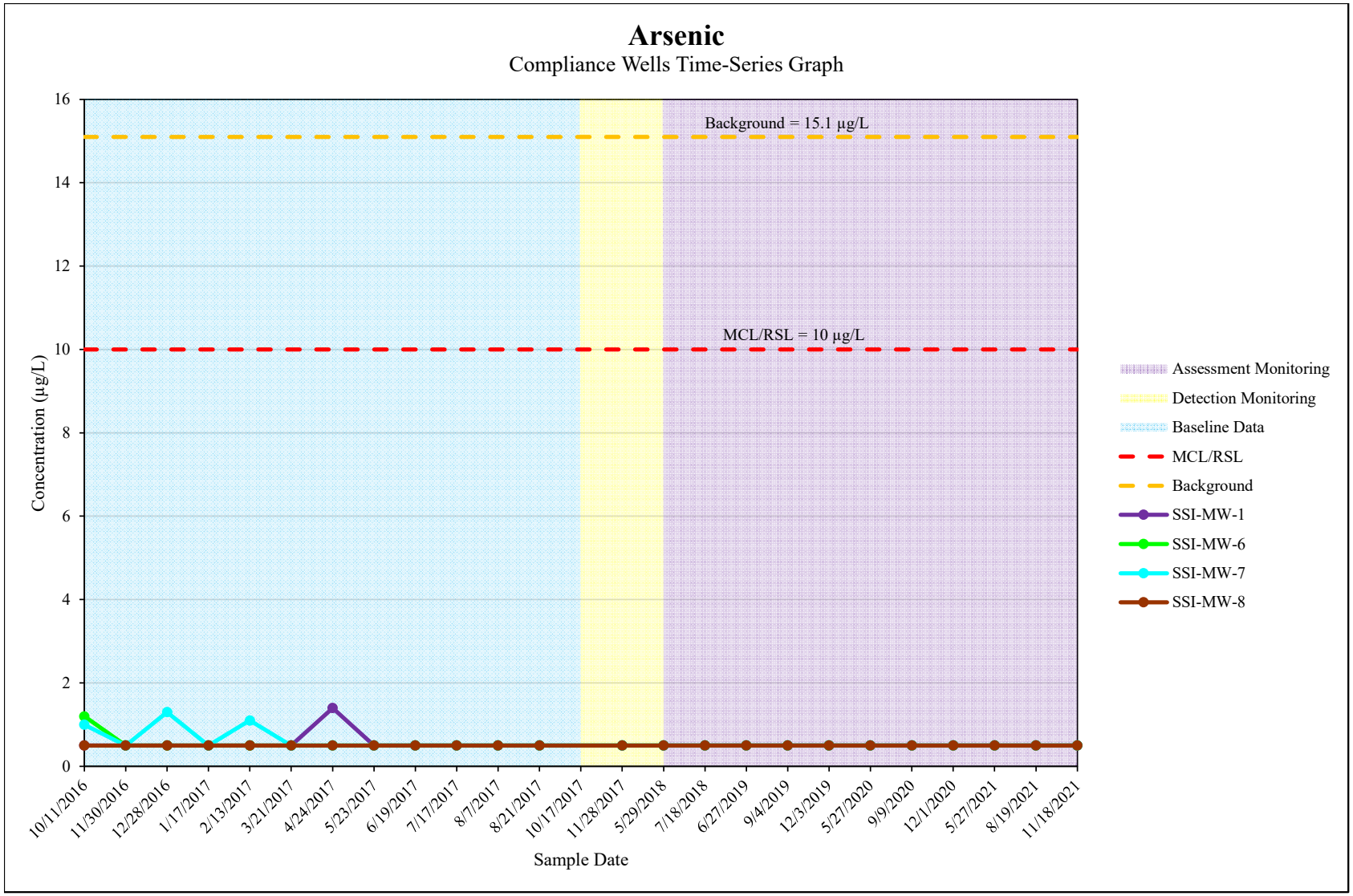
MCL Maximum Contaminant Level

RSL Regional Screening Level

µg/L Micrograms per Liter

[1] Non-Detects were replaced with 1/2 Reporting Limit, as recommended in the Unified Guidance.

Source Background values calculated by Geosyntec (2018).



Notes:

MCL Maximum Contaminant Level

RSL Regional Screening Level

µg/L Micrograms per Liter

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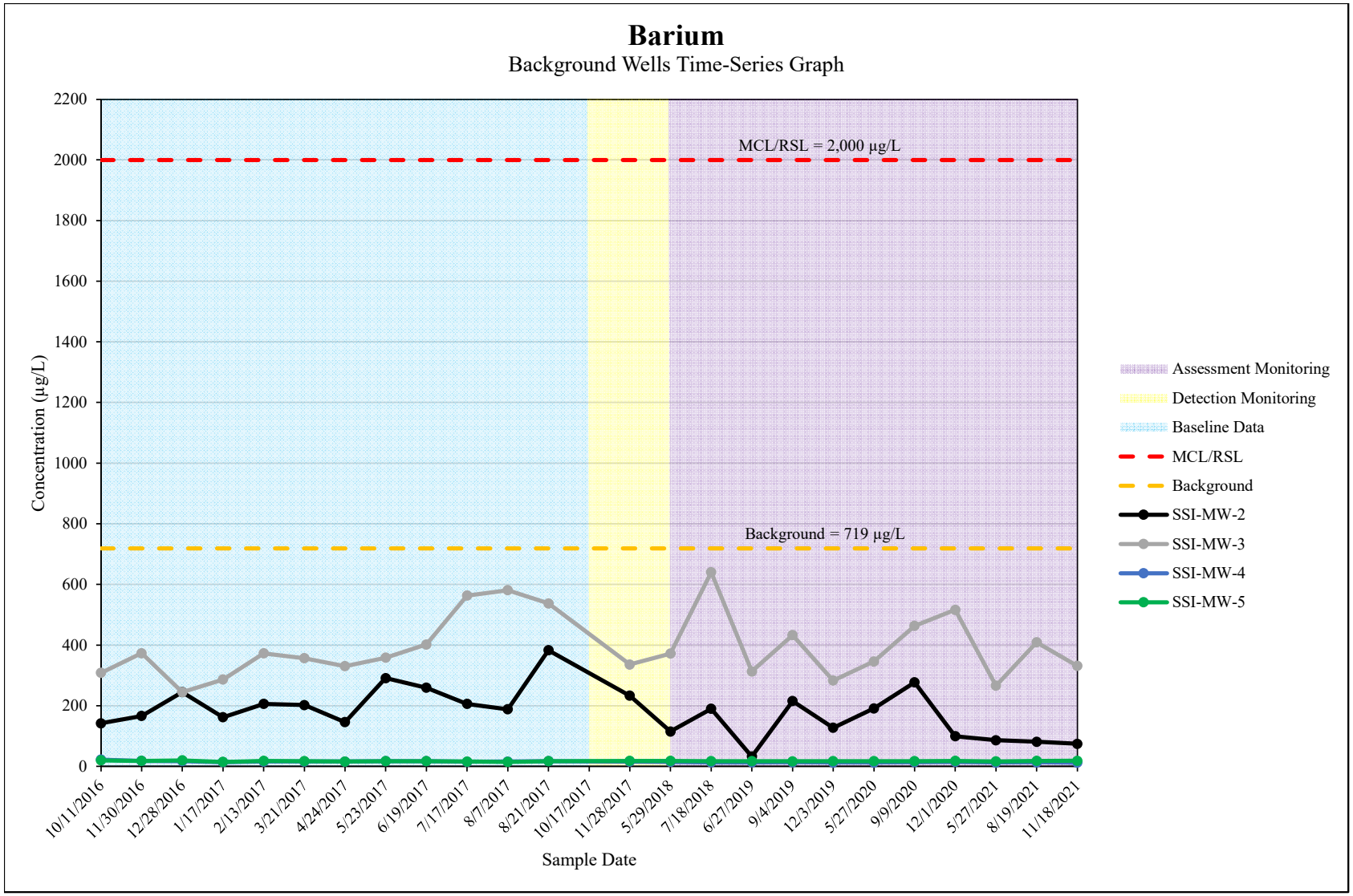
Source Background values calculated by Geosyntec (2018).



Notes:

MCL Maximum Contaminant Level

RSL Regional Screening Level

µg/L Micrograms per Liter

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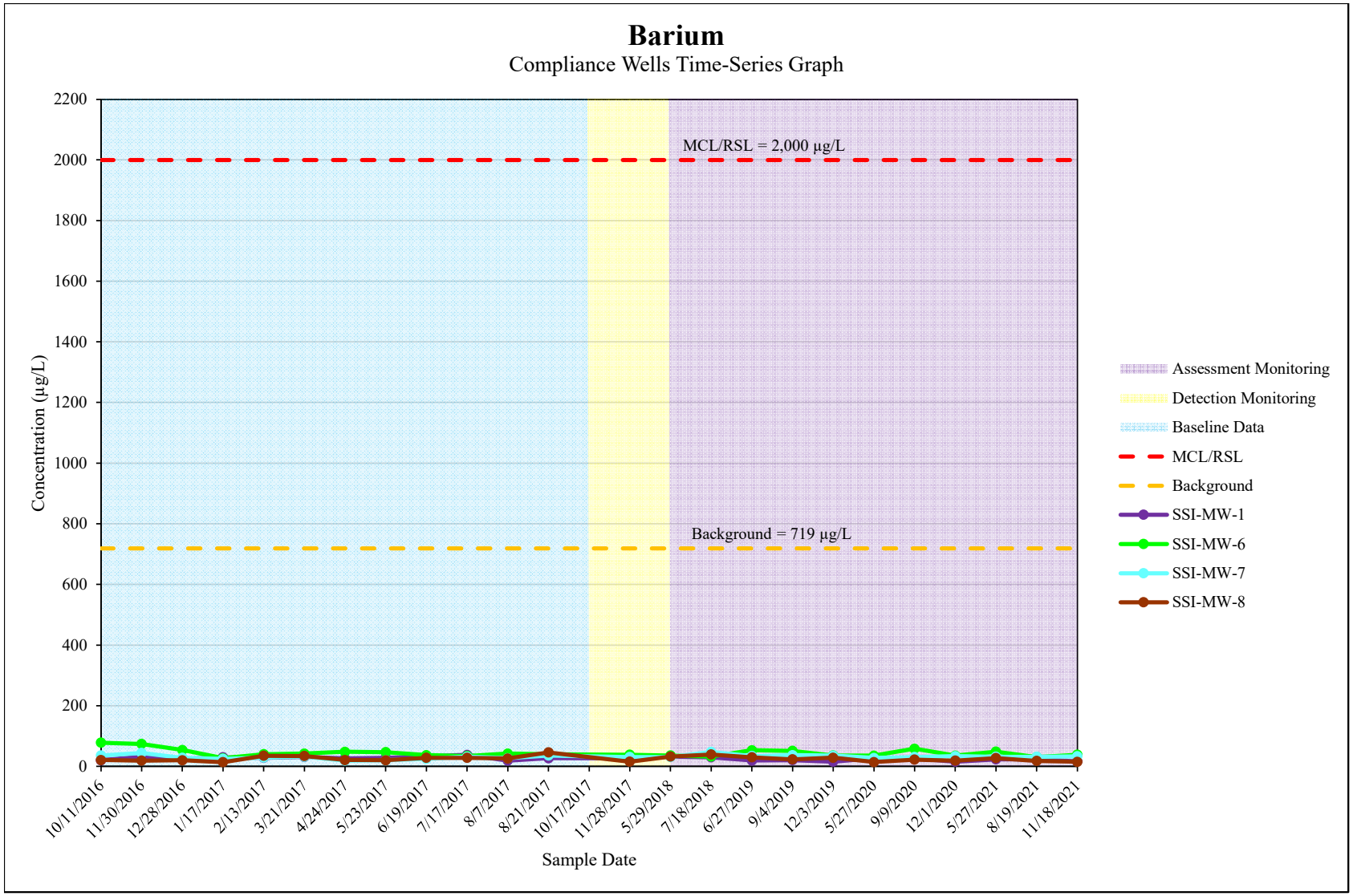
Source Background values calculated by Geosyntec (2018).



Notes:

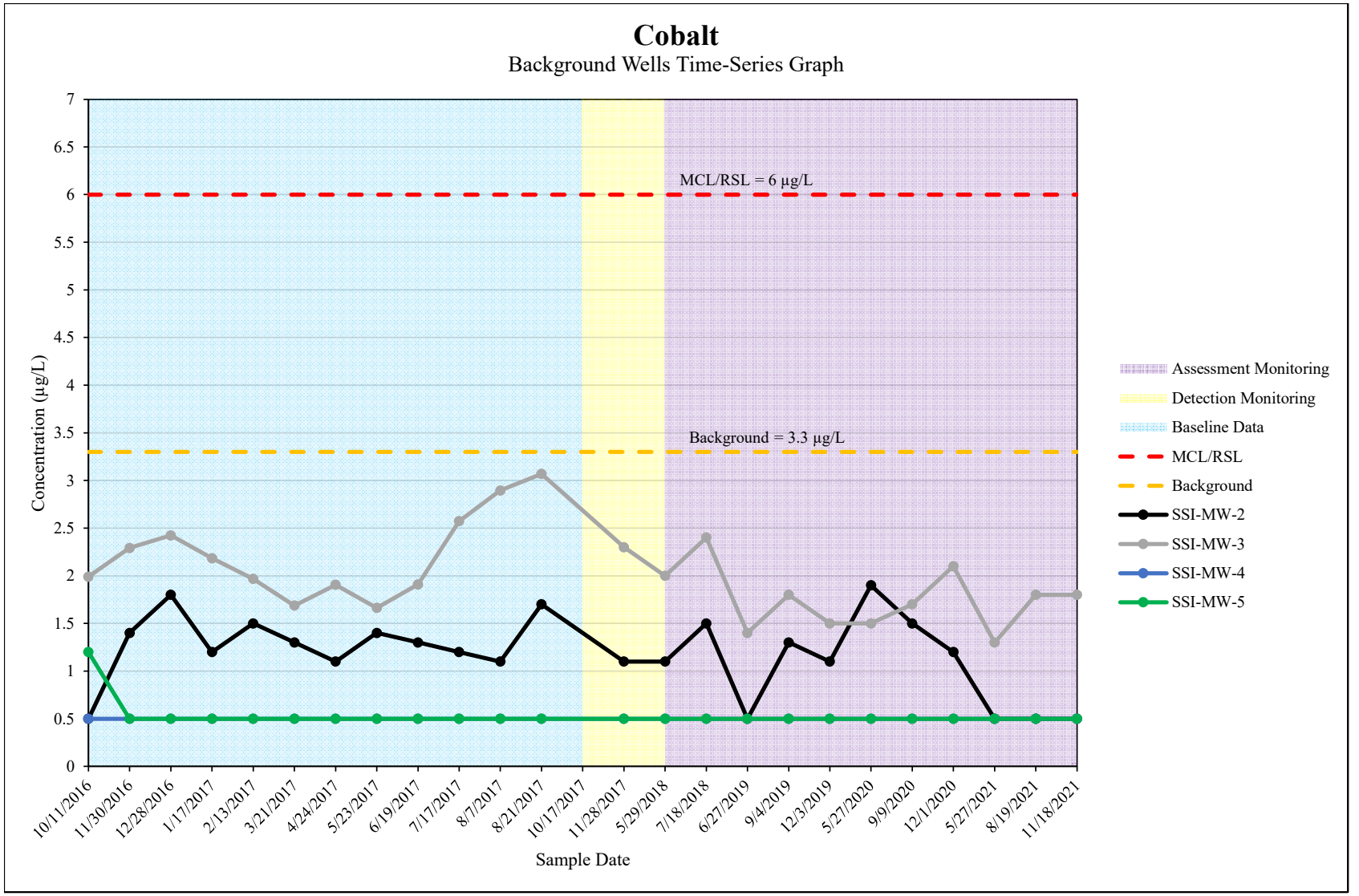
MCL Maximum Contaminant Level

RSL Regional Screening Level

µg/L Micrograms per Liter

[1] Non-Detects were replaced with 1/2 Reporting Limit, as recommended in the Unified Guidance.

Source Background values calculated by Geosyntec (2018).



Notes:

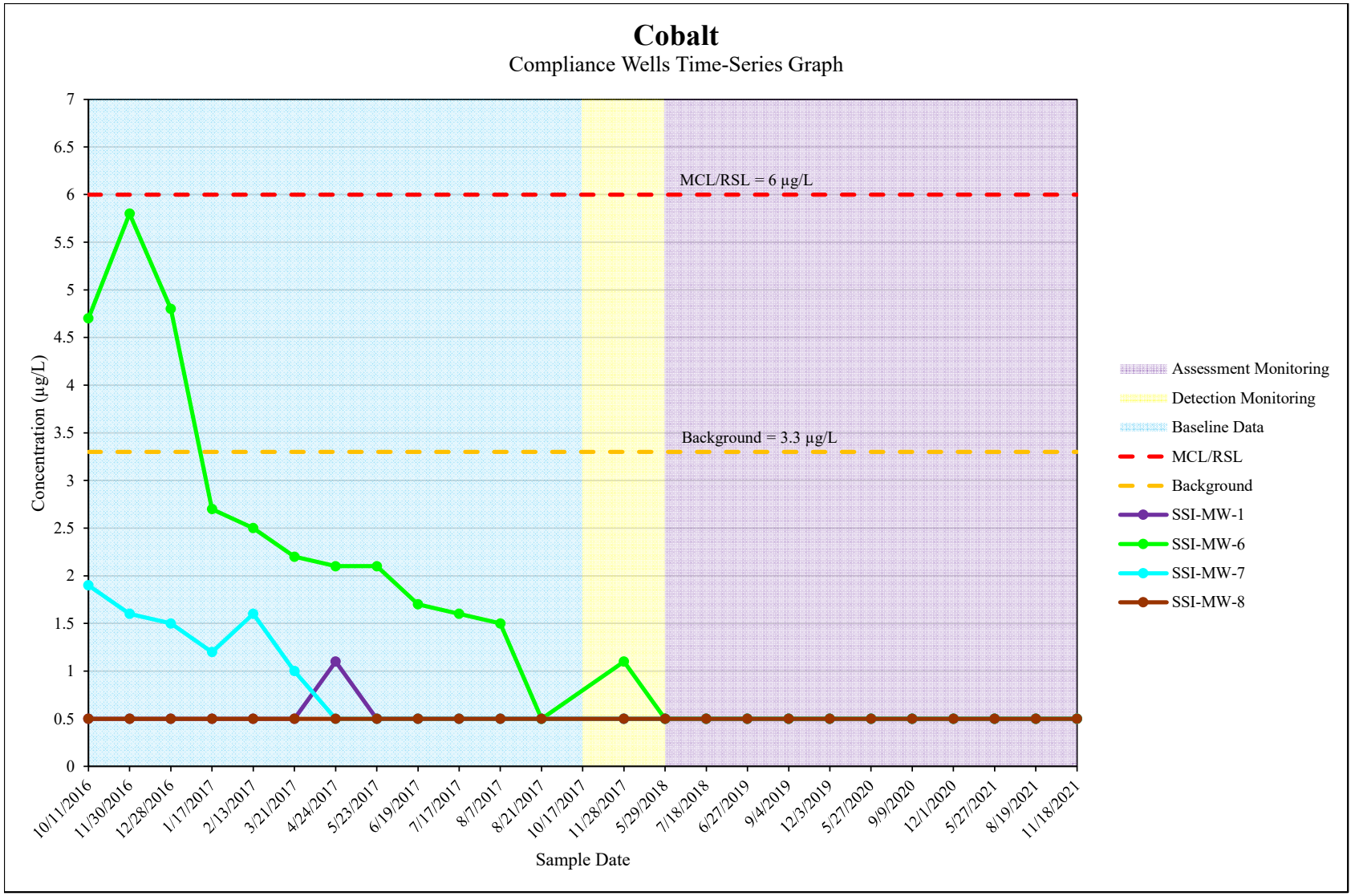
MCL Maximum Contaminant Level

RSL Regional Screening Level

µg/L Micrograms per Liter

[1] Non-Detects were replaced with 1/2 Reporting Limit, as recommended in the Unified Guidance.

Source Background values calculated by Geosyntec (2018).



Notes:

MCL Maximum Contaminant Level

RSL Regional Screening Level

µg/L Micrograms per Liter

[1] Non-Detects were replaced with 1/2 Reporting Limit, as recommended in the Unified Guidance.

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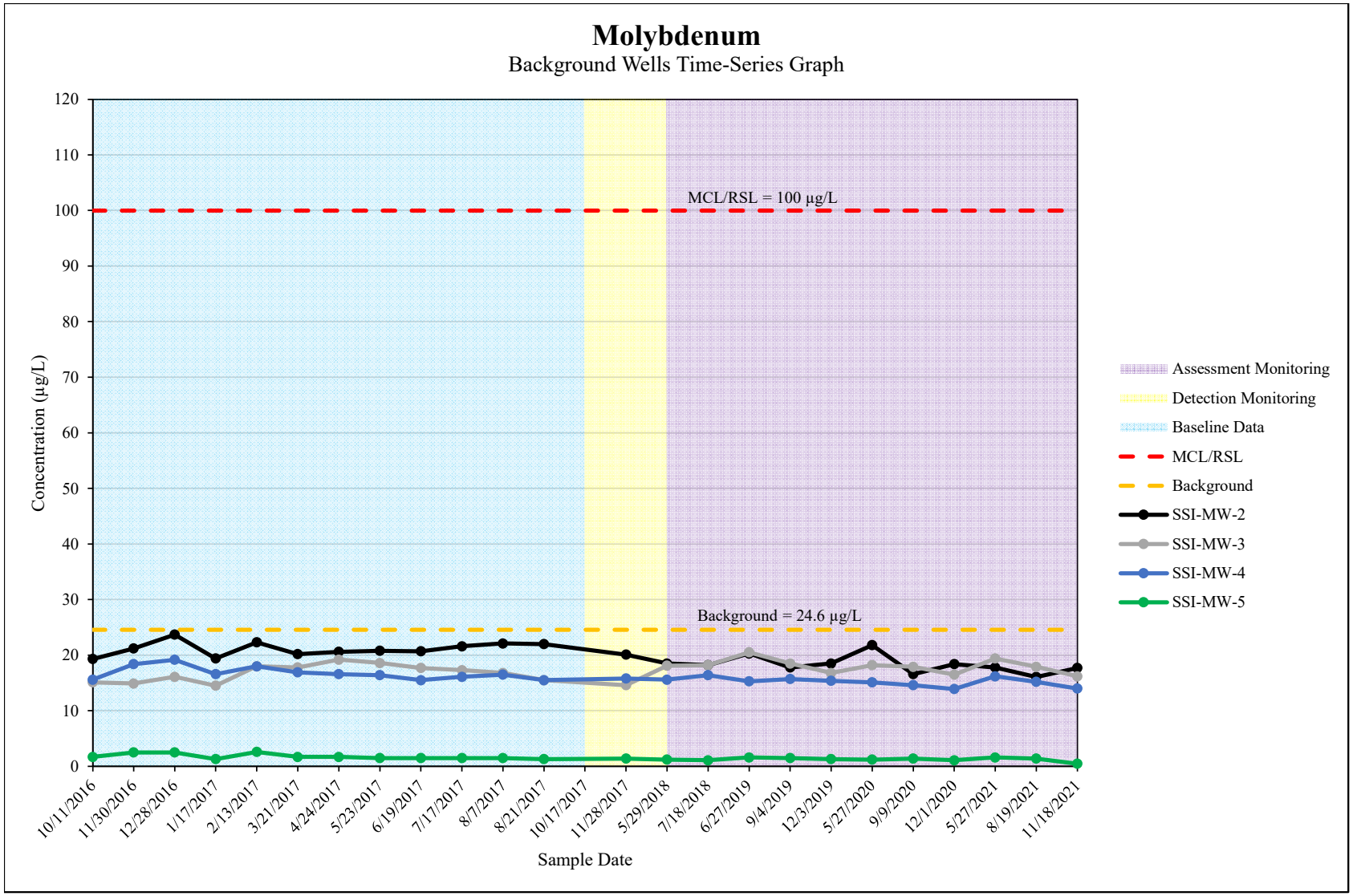

Notes:

MCL Maximum Contaminant Level

RSL Regional Screening Level

µg/L Micrograms per Liter

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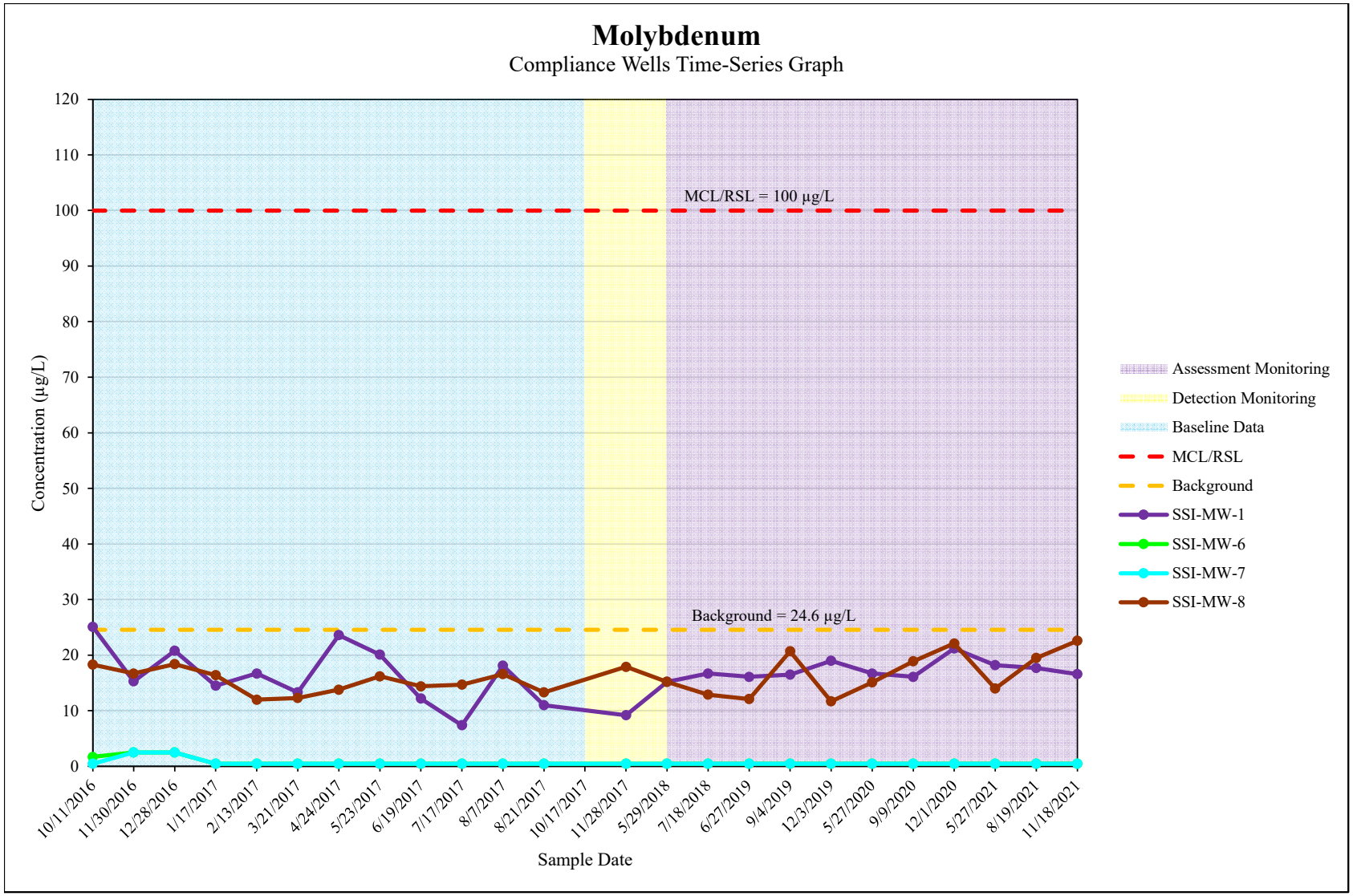
Source Background values calculated by Geosyntec (2018).



Notes:

MCL Maximum Contaminant Level

RSL Regional Screening Level

µg/L Micrograms per Liter

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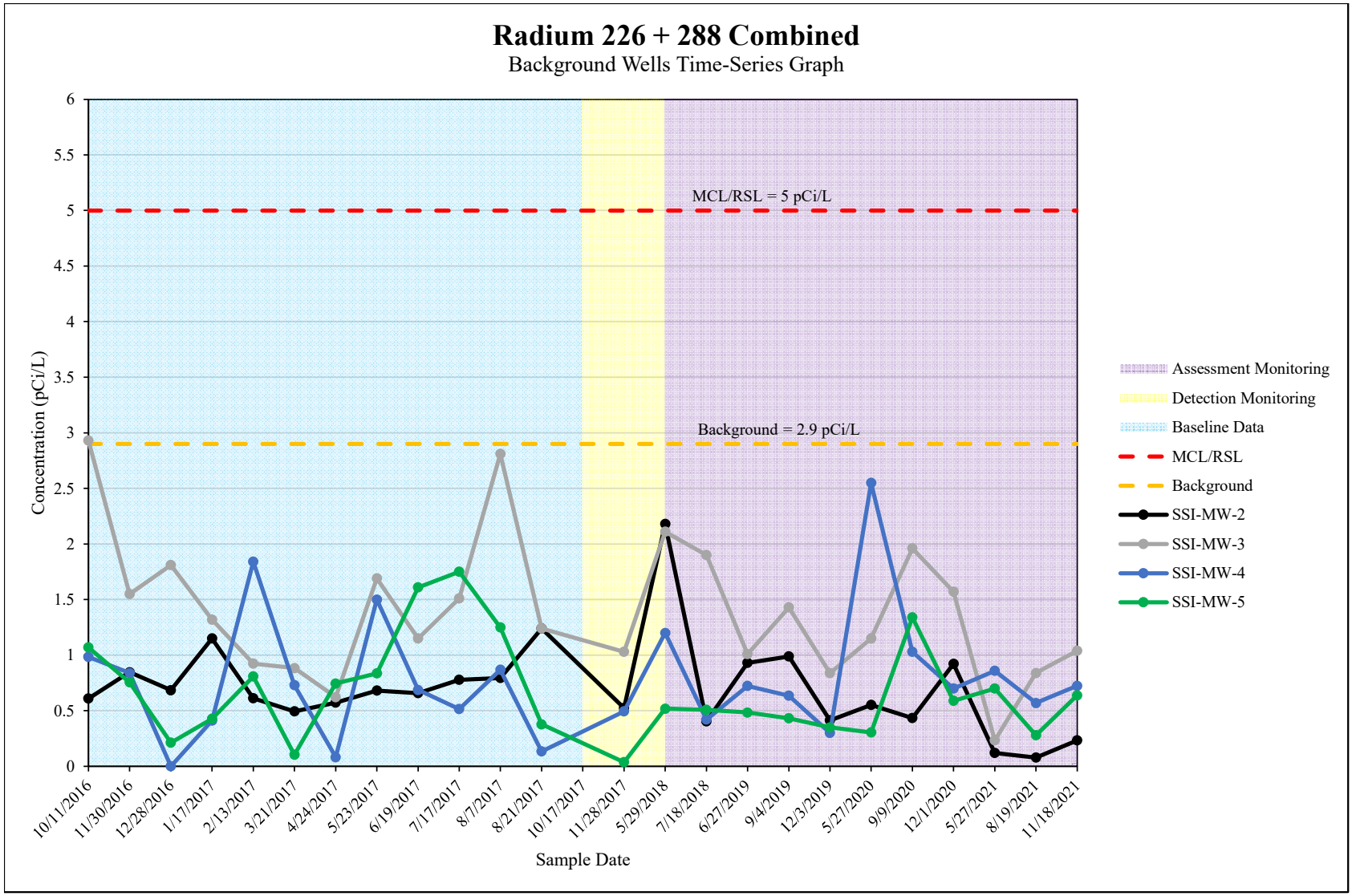
Source Background values calculated by Geosyntec (2018).



Notes:

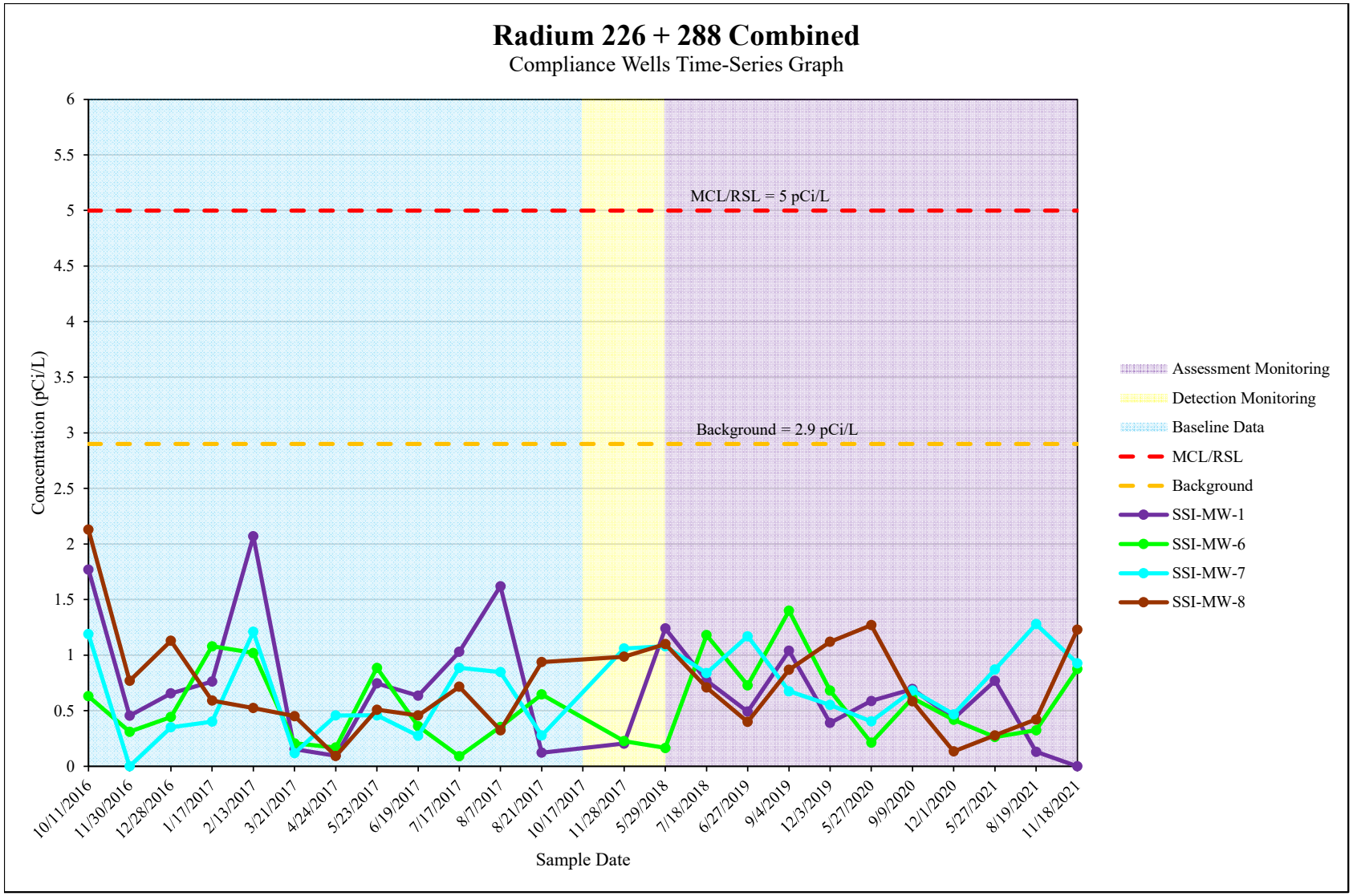
MCL Maximum Contaminant Level

RSL Regional Screening Level

pCi/L Picocuries per Liter

[1] Non-Detects were replaced with 1/2 Reporting Limit, as recommended in the Unified Guidance.

Source Background values calculated by Geosyntec (2018).



Notes:

MCL Maximum Contaminant Level

RSL Regional Screening Level

pCi/L Picocuries per Liter

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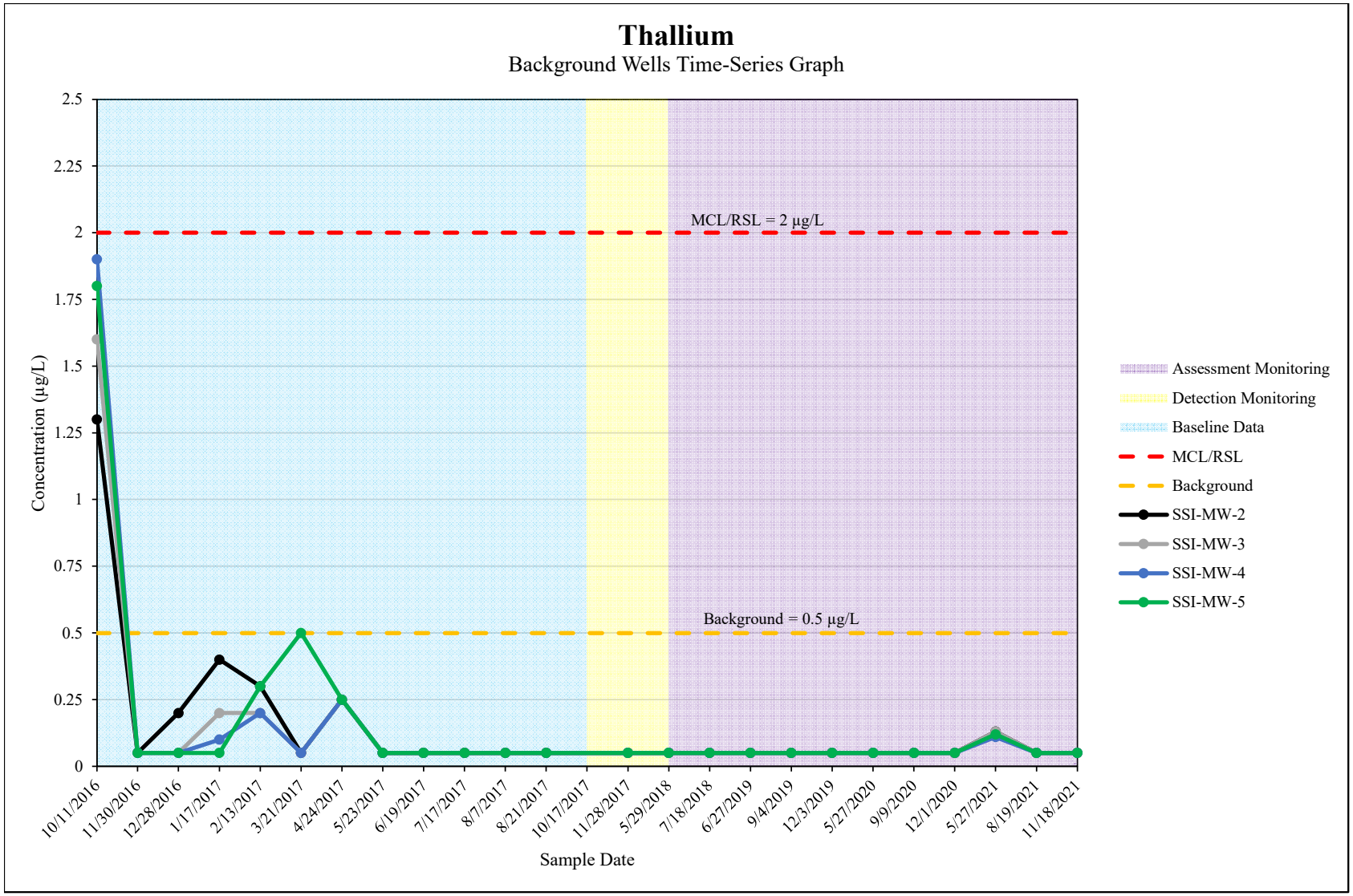
Source Background values calculated by Geosyntec (2018).



Notes:

MCL Maximum Contaminant Level

RSL Regional Screening Level

µg/L Micrograms per Liter

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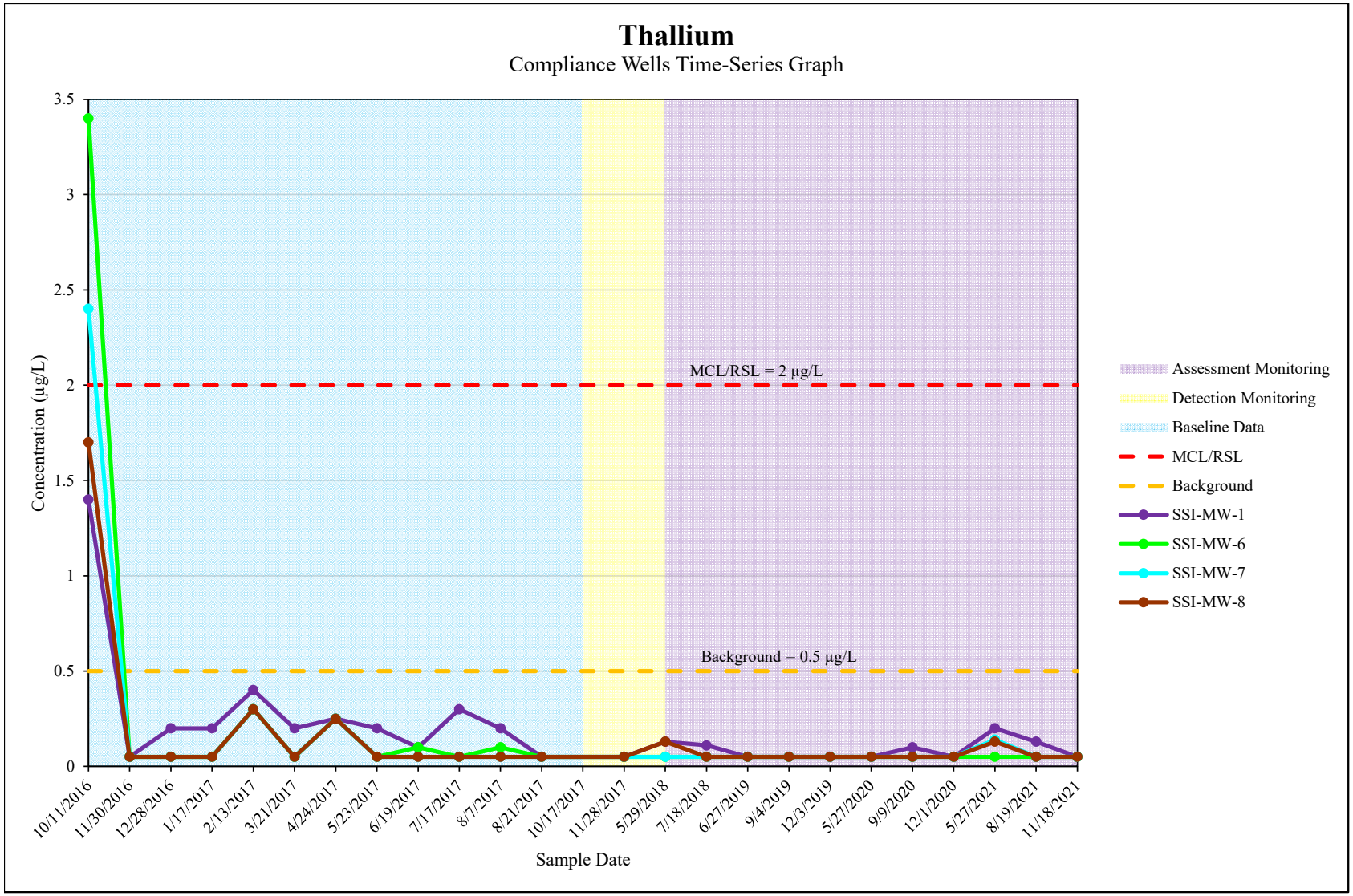

Notes:

MCL Maximum Contaminant Level

RSL Regional Screening Level

µg/L Micrograms per Liter

[1] Non-Detects were replaced with 1/2 Reporting Limit, as recommended in the Unified Guidance.

Source Background values calculated by Geosyntec (2018).

APPENDIX E2 – Statistical Analysis Package (May 2022)

Geosyntec
consultants

COMPUTATION COVER SHEET

Client:	East Kentucky Power Cooperative	Project:	East Kentucky Power Cooperative Spurlock Impoundment	Project/ Proposal No.:	MR1777

Title of Computations: **Statistical Analysis Calculations Package for Assessment Monitoring – East Kentucky Power Cooperative Spurlock Impoundment – First Half 2022 Monitoring Event**

Computations by:	Signature	S Chase	9/13/2022
	Printed Name	Sarah Chase	Date
	Title	Senior Staff Engineer	
Assumptions and Procedures Checked by: (peer reviewer)	Signature	Robert M Glazier	9/14/2022
	Printed Name	Robert M. Glazier	Date
	Title	Principal	
Computations Checked by:	Signature	Theresa Gabris	9/14/2022
	Printed Name	Theresa Gabris	Date
	Title	Project Geologist	
Computations backchecked by: (originator)	Signature	S Chase	9/14/2022
	Printed Name	Sarah Chase	Date
	Title	Senior Staff Engineer	
Approved by: (pm or designate)	Signature		11/10/2022
	Printed Name	Scott Graves, P.E. (KY P.E. No. 21274)	Date
	Title	Senior Principal Engineer	

Approval notes:

Revisions (number and initial all revisions)

No.	Sheet	Date	By	Checked by	Approval

Written by:	Sarah Chase	Date:	9/14/2022	Approved by:	S. Graves	Date:	11/10/2022
Client:	East Kentucky Power Cooperative	Project:	CCR Report	Project/ Proposal No.:	MR1777	Phase No./ Task No.:	

PURPOSE

The purpose of this calculation package is to document the procedures and assumptions used to complete statistical evaluations of Assessment Monitoring Program groundwater monitoring data for Federal CCR Rule Appendix III and Appendix IV constituents at the East Kentucky Power Cooperative (EKPC) Spurlock Station Surface Impoundment (Site) in order to comply with 40 CFR Parts 257.94 and 257.95. The statistical evaluations include whether there are statistically significant increases (SSI) over background concentrations for Appendix III constituents, and whether detected Appendix IV constituents are present at statistically significant levels (SSL) over the constituents' groundwater protection standards (GWPS).

The Site must remain in the Assessment Monitoring Program until all the Appendix III and IV constituents are below background values for two consecutive monitoring events, at which point the routine monitoring program may return to the Detection Monitoring Program.

APPENDIX III CONSTITUENTS

Upper Tolerance Limit (UTL) background values (and Lower Tolerance Limit (LTL) for pH[1]) for Appendix III constituents were previously calculated by Haley & Aldrich (2018, 2021) using monitoring data from background wells MW-2, MW-3, MW-4, and MW-5. The concentrations of Appendix III constituents detected in compliance wells MW-1, MW-6, MW-7, and MW-8 during the May 2022 Assessment Monitoring Program event are shown, along with background concentrations, in **Table 1**. The following well/constituent pairs exhibited SSIs and/or SSDs:

- MW-1: None;
- MW-6: Boron, calcium, chloride, pH, sulfate, and total dissolved solids (TDS);
- MW-7: Boron, calcium, and TDS; and
- MW-8: Boron, calcium, and TDS.

[1] For pH, a Statistically Significant Difference (SSD) can be either an increase or a decrease.

APPENDIX IV CONSTITUENTS

The statistical calculations for Appendix IV constituents were completed for those Appendix IV constituents that were detected in the August 2021 Assessment Monitoring event (i.e., arsenic, barium, cobalt, molybdenum, radium 226+228, and thallium). The August 2021 Assessment Monitoring event was conducted pursuant to 40 CFR 257.95(b) solely to update the list of detected Appendix IV constituents to be monitored for the November 2021 (second half 2021) and the May 2022 (first half 2022) semi-annual Assessment Monitoring events. Statistical analyses were conducted using groundwater monitoring data collected from four background wells (MW-2, MW-3, MW-4, MW-5) and four compliance wells (MW-1, MW-6, MW-7, MW-8). EKPC has indicated that the position of the wells and the site conditions have remained consistent since initiating monitoring under the CCR Rule.

Calculations and comparisons were made using groundwater monitoring data given in **Table 2**. Included is baseline data collected from October 2016 through September 2017, the initial detection monitoring event in November 2017, and subsequent semi-annual Assessment Monitoring events. Of the six constituents detected in the August 2021 annual screening for Appendix IV constituents, only barium, molybdenum, and radium 226+228 were detected in the first half (May) 2022 Assessment Monitoring event compliance well samples. No SSLs were previously identified for any Appendix IV constituents. Therefore, the Assessment Monitoring Program statistical analyses described in the following steps for the May 2022 monitoring event are required only for barium, molybdenum, and radium 226+228.

Background values for the six Appendix IV constituents detected in the August 2021 annual full scan event (arsenic, barium, cobalt, molybdenum, radium 226+228, and thallium) have previously been calculated and established (Geosyntec, 2018). The previously calculated background Upper Tolerance Limit (UTLs) values are used herein. These values are presented in **Table 3**.

STEP 1 – IDENTIFY STATISTICALLY SIGNIFICANT INCREASES ABOVE BACKGROUND

Tetra Tech (2017) has determined that wells MW-2, MW-3, MW-4, and MW-5 are upgradient and therefore are background wells, and wells MW-1, MW-6, MW-7, and

MW-8 are downgradient and therefore are compliance wells. To identify SSIs over background values, the monitoring data from each compliance well are directly compared to the established background values for the detected Appendix IV constituents at the Site. Well/constituent pairs with SSIs during any assessment monitoring event to date could potentially have an SSL above the GWPS and are therefore retained for further analysis. However, if an SSI for a well/constituent pair has not been identified in any assessment monitoring event to date then there cannot be an SSL for that constituent at that specific compliance monitoring location; hence this step is used as an initial screening step to reduce the number of necessary SSL calculations. A summary of the SSI analysis is presented in **Table 4** that shows the maximum detected concentration for all assessment monitoring events to date for each Appendix IV constituent/well pair. No SSIs were found for the maximum detected concentrations of Appendix IV constituents in any of the compliance wells. Therefore, it is not possible for there to be an SSL and the remaining steps of the procedure given below, which would otherwise be followed, are not necessary for this monitoring event.

It is important to note that the initial results from the May 2022 sampling event reported thallium at MW-6 as non-detect with a reporting limit value of 10 micrograms per liter (µg/L), which is greater than thallium's background value (0.5 µg/L) and GWPS (2 µg/L). The laboratory that normally analyzes these samples could not perform the analysis because the laboratory was under remodel so, the May sample was analyzed by an outside laboratory and that laboratory was not able to achieve the necessary reporting limit that is normally achieved by the main laboratory. Due to this higher reporting limit, a confirmation sample was collected at MW-6 on September 29, 2022 and analyzed by the normal laboratory that was back on line at that time. The results of the confirmation sample reported the value of thallium to be non-detect with a reporting limit value of 0.1 µg/L. The results of the confirmation sample indicate there is no SSI of thallium at MW-6[2].

[2] USEPA's 11 January 2022 Proposed Decision for Conditional Approval of an Alternative Closure Deadline for H.L. Spurlock Power Station, Maysville, Kentucky states that, in accordance with 40 C.F.R. § 257.93(g)(5), and designation of maximum acceptable quantitation limits which, if exceeded, would require resampling.

STEP 2 – ESTABLISH GROUNDWATER PROTECTION STANDARDS

The GWPS previously established for any previously detected Appendix IV constituent and any newly detected Appendix IV constituent are presented in **Table 5**. The GWPS is the greater of the recommended background values (UTL) or the Federal Maximum Contaminant Level (MCL) (or U.S. Environmental Protection Agency Regional Screening Level [RSL] if no MCL has been promulgated).

As stated in the previous step, it is not possible for there to be an SSL and, therefore, comparing the detected constituents with their respective GWPSs is unnecessary. However, this step was still performed for continuity purposes. Compliance monitoring data for the Appendix IV constituents detected in the May 2022 event were compared to their respective GWPSs established in May 2018. Constituents with at least one exceedance of the GWPS at any given well are retained for further analysis. If all available compliance monitoring data for a constituent are less than the GWPS, that constituent cannot have an SSL above the GWPS and is therefore excluded from further analysis. This was the case for all Appendix IV constituents detected in May 2022, as is shown in **Table 6**.

STEP 3 - CALCULATE LOWER CONFIDENCE LIMITS

Calculation of lower confidence limits (LCLs) was not performed because this step is not necessary, as discussed above.

STEP 4 – IDENTIFY CONSTITUENTS WITH STATISTICALLY SIGNIFICANT LEVELS AT COMPLIANCE MONITORING WELLS

Constituents that have an LCL (calculated in Step 3) that exceed their GWPS (tabulated in Step 2) are considered SSLs. However, the previous steps revealed that none of the detected Appendix IV constituents have an SSL (or even an SSI) at any of the compliance monitoring wells, making this step inapplicable.

CONCLUSION

The following SSIs/SSDs were identified for Appendix III constituents in compliance well samples in the May 2022 Assessment Monitoring Program event:

- MW-1: None;
- MW-6: Boron, calcium, chloride, pH, sulfate, and TDS;
- MW-7: Boron, calcium, and TDS; and
- MW-8: Boron, calcium, and TDS.

The following Appendix IV constituents were detected in the August 2021 annual full scan event, the associated background UTLs were previously calculated, and the respective GWPS were previously established by Geosyntec (2018):

Constituent	Background UTL	GWPS
Arsenic	15.1	15.1
Barium	719	2,000
Cobalt	3.3	6
Molybdenum	24.6	100
Radium 226+228	2.9	5
Thallium	0.5	2

*Values are in micrograms per liter except radium which is in picocuries per liter.

None of the three Appendix IV constituents detected in the compliance wells during the May 2022 Assessment Monitoring Program event exceeded the previously established background values in any of the compliance wells. Furthermore, the concentrations of the detected Appendix IV constituents compared to the GWPS (**Table 6**) revealed that there are no SSLs present in any of the compliance wells.

Six of the seven Appendix III constituents (boron, calcium, chloride, pH, sulfate, and TDS) exceeded the established background values in one or more compliance wells. As a result, the Site shall remain in the Assessment Monitoring Program.

REFERENCES

East Kentucky Power Cooperative (2021). Microsoft Excel spreadsheet of groundwater monitoring data, provided as electronic mail attachment from Brandy Case of EKPC on January 28, 2022.

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LIST OF TABLES

ATTACHMENT A

TABLES

TABLE 1
APPENDIX III DETECTION MONITORING PROGRAM DATA - COMPLIANCE WELLS
Federal CCR Rule
Spurlock Station Surface Impoundment
Mason County, Kentucky

Analyte:		Boron	Calcium	Chloride	Fluoride	pH	Sulfate	TDS
Background Value:		**0.07952**	**66.217**	**40.17**	**0.50[1]**	**6.506 - 8.602**	**83.57**	**367**
Well ID	**Sample Date**	mg/L	mg/L	mg/L	mg/L	S.U.	mg/L	mg/L
MW-1	5/25/2022	0.048	52.9	25.0	0.16	6.78	44.3	188
MW-6	5/25/2022	3.28	146	166	0.14	6.50	348	1,020
MW-7	5/25/2022	0.384	71.8	36.0	0.44	7.25/7.32[2]	83.5	456
MW-8	5/25/2022	0.830	67.6	36.2	0.23	7.59/7.64[2]	73.0	368

Notes:

Concentration is a statistically significant increase (SSI) (or statistically significant difference (SSD) for pH) over background concentration.

[1] Double Quantification Rule applies. Two consecutive detections constitute an SSI.

[2] Due to re-sampling of wells MW-7 and MW-8, pH was measured on May 25, 2022, during the original sampling event, and on June 27, 2022, during the re-sampling event.

mg/L Milligrams per Liter

S.U. Standard Units

TDS Total Dissolved Solids

U Constituent not detected above method detection limit.

Source: Background values from Haley & Aldrich, 2018, and August, 20 2021 email for pH lower limit, compliance well data from EKPC.

TABLE 2
APPENDIX IV GROUNDWATER MONITORING RESULTS
Federal CCR Rule
Spurlock Station Surface Impoundment
Mason County, Kentucky

Appendix IV Analyte:[1]		Arsenic	Barium	Cobalt	Molybdenum	Radium 226 + 228 Combined	Thallium
Well ID	**Sample Date**	µg/L	µg/L	µg/L	µg/L	pCi/L	µg/L
MW-1	10/11/2016	1.0 U	20.0	1.00 U	25.1	1.77	1.40
	11/30/2016	1.0 U	32.0	1.00 U	15.3	0.456	0.10 U
	12/28/2016	1.0 U	25.0	1.00 U	20.8	0.656	0.20
	1/17/2017	1.0 U	30.0	1.00 U	14.5	0.763	0.20
	2/13/2017	1.0 U	28.0	1.00 U	16.7	2.07	0.40
	3/21/2017	1.0 U	31.0	1.00 U	13.3	0.155	0.20
	4/24/2017	1.4	26.0	1.10	23.6	0.0951	0.50 U
	5/23/2017	1.0 U	28.0	1.00 U	20.1	0.746	0.20
	6/19/2017	1.0 U	33.0	1.00 U	12.2	0.636	0.10
	7/17/2017	1.0 U	38.0	1.00 U	7.4	1.03	0.30
	8/7/2017	1.0 U	19.0	1.00 U	18.1	1.62	0.20
	8/21/2017	1.0 U	27.0	1.00 U	11.0	0.123	0.10 U
	11/28/2017	1.0 U	26.3	1.00 U	9.2	0.205	0.10 U
	5/29/2018	1.0 U	32.1	1.00 U	15.2	1.24	0.13
	7/18/2018	1.0 U	29.8	1.00 U	16.7	0.771	0.11
	6/27/2019	1.0 U	19.2	1.00 U	16.1	0.493	0.10 U
	9/4/2019	1.0 U	20.5	1.00 U	16.5	1.04	0.10 U
	12/3/2019	1.0 U	15.3	1.00 U	19.0	0.391	0.10 U
	5/27/2020	1.0 U	26.9	1.00 U	16.7	0.588	0.10 U
	9/9/2020	1.0 U	26.4	1.00 U	16.1	0.696	0.10
	12/1/2020	1.0 U	15.5	1.00 U	21.2	0.429	0.10 U
	5/27/2021	1.0 U	23.3	1.00 U	18.2	0.770	0.20
	8/19/2021	1.0 U	23.9	1.00 U	17.7	0.131	0.13
	11/18/2021	1.0 U	16.3	1.00 U	16.6	0.000	0.10 U
	5/25/2022	1.0 U	17.6	1.00 U	18.9	0.949	1.00 U

TABLE 2
APPENDIX IV GROUNDWATER MONITORING RESULTS
Federal CCR Rule
Spurlock Station Surface Impoundment
Mason County, Kentucky

Appendix IV Analyte:[1]		Arsenic	Barium	Cobalt	Molybdenum	Radium 226 + 228 Combined	Thallium
Well ID	**Sample Date**	µg/L	µg/L	µg/L	µg/L	pCi/L	µg/L
MW-2[2]	10/12/2016	1.3	142	1.00 U	19.3	0.610	1.30
	11/29/2016	1.8	166	1.40	21.2	0.847	0.10 U
	12/29/2016	2.7	245	1.80	23.7	0.685	0.20
	1/16/2017	1.8	162	1.20	19.4	1.15	0.40
	2/13/2017	2.8	206	1.50	22.3	0.613	0.30
	3/21/2017	2.2	202	1.30	20.2	0.495	0.10 U
	4/24/2017	1.5	146	1.10	20.6	0.573	0.50 U
	5/22/2017	3.6	291	1.40	20.8	0.681	0.10 U
	6/19/2017	2.6	259	1.30	20.7	0.659	0.10 U
	7/17/2017	2.7	206	1.20	21.6	0.779	0.10 U
	8/7/2017	2.6	188	1.10	22.1	0.795	0.10 U
	8/21/2017	5.3	383	1.70	22.0	1.24	0.10 U
	11/28/2017	2.5	233	1.10	20.1	0.525	0.10 U
	5/29/2018	1.5	115	1.10	18.5	2.18	0.10 U
	7/18/2018	2.3	190	1.50	18.2	0.404	0.10 U
	6/27/2019	1.0 U	32.7	1.00 U	20.3	0.931	0.10 U
	9/4/2019	1.6	215	1.30	17.8	0.988	0.10 U
	12/3/2019	2.0	127	1.10	18.5	0.414	0.10 U
	5/28/2020	3.0	191	1.90	21.8	0.553	0.10 U
	9/9/2020	3.3	277	1.50	16.6	0.434	0.10 U
	12/1/2020	1.4	99.5	1.20	18.4	0.922	0.10 U
	5/27/2021	1.2	86.2	1.00 U	17.8	0.120	0.13
	8/19/2021	1.5	81.1	1.00 U	16.1	0.080	0.10 U
	11/18/2021	1.3	74.3	1.00 U	17.7	0.234	0.10 U
	5/25/2022	1.0 U	50.6	1.00 U	18.8	0.182	1.00 U

TABLE 2
APPENDIX IV GROUNDWATER MONITORING RESULTS
Federal CCR Rule
Spurlock Station Surface Impoundment
Mason County, Kentucky

Appendix IV Analyte:[1]		Arsenic	Barium	Cobalt	Molybdenum	Radium 226 + 228 Combined	Thallium
Well ID	Sample Date	µg/L	µg/L	µg/L	µg/L	pCi/L	µg/L
MW-3[2]	10/12/2016	6.4	308	1.99	15.1	2.93	1.60
	11/29/2016	8.4	373	2.29	14.9	1.55	0.10 U
	12/29/2016	10.3	245	2.42	16.1	1.81	0.10 U
	1/16/2017	7.0	286	2.18	14.5	1.32	0.20
	2/13/2017	10.0	373	1.97	18.0	0.924	0.20
	3/21/2017	9.8	357	1.69	17.8	0.884	0.10 U
	4/24/2017	9.9	330	1.90	19.2	0.623	0.50 U
	5/22/2017	8.6	358	1.66	18.6	1.69	0.10 U
	6/19/2017	8.5	402	1.91	17.7	1.15	0.10 U
	7/17/2017	9.8	563	2.57	17.3	1.51	0.10 U
	8/7/2017	10.8	581	2.89	16.8	2.81	0.10 U
	8/21/2017	9.7	537	3.07	15.5	1.24	0.10 U
	11/28/2017	6.7	336	2.30	14.6	1.03	0.10 U
	5/29/2018	9.4	372	2.00	18.1	2.11	0.10 U
	7/18/2018	15.7	640	2.40	18.2	1.90	0.10 U
	6/27/2019	8.3	313	1.40	20.5	1.01	0.10 U
	9/4/2019	8.9	433	1.80	18.5	1.43	0.10 U
	12/3/2019	7.5	283	1.50	16.8	0.839	0.10 U
	5/28/2020	8.7	346	1.50	18.2	1.15	0.10 U
	9/9/2020	8.7	463	1.70	17.9	1.96	0.10 U
	12/1/2020	9.9	516	2.10	16.5	1.57	0.10 U
	5/27/2021	7.0	266	1.30	19.4	0.235	0.13
	8/19/2021	9.5	409	1.80	17.9	0.84	0.10 U
	11/18/2021	8.9	331	1.80	16.2	1.04	0.10 U
	5/25/2022	10.1	309	1.34	19.5	0.787	1.00 U

TABLE 2
APPENDIX IV GROUNDWATER MONITORING RESULTS
Federal CCR Rule
Spurlock Station Surface Impoundment
Mason County, Kentucky

Appendix IV Analyte:[1]		Arsenic	Barium	Cobalt	Molybdenum	Radium 226 + 228 Combined	Thallium
Well ID	**Sample Date**	µg/L	µg/L	µg/L	µg/L	pCi/L	µg/L
MW-4[2]	10/12/2016	1.0 U	22.0	1.00 U	15.6	0.984	1.90
	11/29/2016	1.0 U	18.0	1.00 U	18.4	0.840	0.10 U
	12/29/2016	1.0 U	17.0	1.00 U	19.2	0.00	0.10 U
	1/16/2017	1.0 U	14.0	1.00 U	16.6	0.411	0.10
	2/13/2017	1.0 U	16.0	1.00 U	18.0	1.84	0.20
	3/21/2017	1.0 U	16.0	1.00 U	16.9	0.730	0.10 U
	4/24/2017	1.0 U	16.0	1.00 U	16.6	0.0822	0.50 U
	5/23/2017	1.0 U	17.0	1.00 U	16.4	1.50	0.10 U
	6/19/2017	1.0 U	17.0	1.00 U	15.5	0.687	0.10 U
	7/17/2017	1.0 U	15.0	1.00 U	16.1	0.515	0.10 U
	8/7/2017	1.0 U	16.0	1.00 U	16.5	0.868	0.10 U
	8/21/2017	1.0 U	17.0	1.00 U	15.5	0.134	0.10 U
	11/28/2017	1.4	15.5	1.00 U	15.8	0.495	0.10 U
	5/29/2018	1.0 U	14.4	1.00 U	15.6	1.20	0.10 U
	7/18/2018	1.0 U	12.9	1.00 U	16.4	0.421	0.10 U
	6/27/2019	1.0 U	12.7	1.00 U	15.3	0.723	0.10 U
	9/4/2019	1.0 U	13.3	1.00 U	15.7	0.636	0.10 U
	12/3/2019	1.0 U	12.4	1.00 U	15.4	0.300	0.10 U
	5/28/2020	1.0 U	12.4	1.00 U	15.1	2.55	0.10 U
	9/9/2020	1.0 U	13.9	1.00 U	14.6	1.03	0.10 U
	12/1/2020	1.0 U	14.6	1.00 U	13.9	0.700	0.10 U
	5/27/2021	1.0 U	12.4	1.00 U	16.2	0.860	0.11
	8/19/2021	1.0 U	13.3	1.00 U	15.2	0.570	0.10 U
	11/18/2021	1.0 U	12.0	1.00 U	14.0	0.724	0.10 U
	5/25/2022	1.0 U	37.2	1.00 U	12.6	0.328	1.00 U

TABLE 2
APPENDIX IV GROUNDWATER MONITORING RESULTS
Federal CCR Rule
Spurlock Station Surface Impoundment
Mason County, Kentucky

Appendix IV Analyte:[1]		Arsenic	Barium	Cobalt	Molybdenum	Radium 226 + 228 Combined	Thallium
Well ID	Sample Date	µg/L	µg/L	µg/L	µg/L	pCi/L	µg/L
MW-5[2]	10/12/2016	1.2	20.0	1.20	1.7	1.07	1.80
	11/29/2016	1.0 U	18.0	1.00 U	5.0 U	0.756	0.10 U
	12/29/2016	1.0 U	20.0	1.00 U	5.00 U	0.213	0.10 U
	1/17/2017	1.0 U	15.0	1.00 U	1.30	0.428	0.10 U
	2/14/2017	1.0	18.0	1.00 U	2.60	0.808	0.30
	3/21/2017	1.0 U	17.0	1.00 U	1.70	0.105	0.50
	4/24/2017	1.0 U	16.0	1.00 U	1.70	0.745	0.50 U
	5/23/2017	1.0 U	17.0	1.00 U	1.50	0.837	0.10 U
	6/19/2017	1.0 U	17.0	1.00 U	1.50	1.61	0.10 U
	7/17/2017	1.0 U	16.0	1.00 U	1.50	1.75	0.10 U
	8/7/2017	1.0 U	15.0	1.00 U	1.50	1.25	0.10 U
	8/21/2017	1.0 U	17.0	1.00 U	1.30	0.378	0.10 U
	11/28/2017	1.0 U	17.9	1.00 U	1.40	0.0378	0.10 U
	5/29/2018	1.0 U	17.9	1.00 U	1.20	0.519	0.10 U
	7/18/2018	1.0 U	17.2	1.00 U	1.10	0.509	0.10 U
	6/27/2019	1.0 U	17.2	1.00 U	1.60	0.484	0.10 U
	9/4/2019	1.0 U	16.8	1.00 U	1.50	0.433	0.10 U
	12/3/2019	1.0 U	17.2	1.00 U	1.30	0.350	0.10 U
	5/28/2020	1.0 U	17.2	1.00 U	1.20	0.306	0.10 U
	9/9/2020	1.0 U	17.1	1.00 U	1.40	1.34	0.10 U
	12/1/2020	1.0 U	18.1	1.00 U	1.10	0.590	0.10 U
	5/27/2021	1.0 U	16.4	1.00 U	1.60	0.700	0.12
	8/19/2021	1.0 U	18.1	1.00 U	1.40	0.280	0.10 U
	11/18/2021	1.0 U	18.4	1.00 U	1.00 U	0.639	0.10 U
	5/25/2022	1.0 U	19.2	1.00 U	1.46	0.979	1.00 U

TABLE 2
APPENDIX IV GROUNDWATER MONITORING RESULTS
Federal CCR Rule
Spurlock Station Surface Impoundment
Mason County, Kentucky

Appendix IV Analyte:[1]		Arsenic	Barium	Cobalt	Molybdenum	Radium 226 + 228 Combined	Thallium
Well ID	Sample Date	µg/L	µg/L	µg/L	µg/L	pCi/L	µg/L
MW-6	10/11/2016	1.2	78.0	4.70	1.7	0.631	3.40
	11/29/2016	1.0 U	74.0	5.80	5.0 U	0.311	0.10 U
	12/29/2016	1.0 U	54.0	4.80	5.0 U	0.444	0.10 U
	1/16/2017	1.0 U	27.0	2.70	1.0 U	1.08	0.10 U
	2/13/2017	1.0 U	40.0	2.50	1.0 U	1.02	0.30
	3/21/2017	1.0 U	42.0	2.20	1.0 U	0.207	0.10 U
	4/24/2017	1.0 U	48.0	2.10	1.0 U	0.169	0.50 U
	5/23/2017	1.0 U	47.0	2.10	1.0 U	0.886	0.10 U
	6/19/2017	1.0 U	37.0	1.70	1.0 U	0.360	0.10
	7/17/2017	1.0 U	34.0	1.60	1.0 U	0.0901	0.10 U
	8/7/2017	1.0 U	42.0	1.50	1.0 U	0.355	0.10
	8/21/2017	1.0 U	40.0	1.00 U	1.0 U	0.647	0.10 U
	11/28/2017	1.0 U	38.4	1.10	1.0 U	0.227	0.10 U
	5/29/2018	1.0 U	35.5	1.00 U	1.0 U	0.166	0.10 U
	7/18/2018	1.0 U	32.6	1.00 U	1.0 U	1.18	0.10 U
	6/27/2019	1.0 U	53.0	1.00 U	1.0 U	0.729	0.10 U
	9/4/2019	1.0 U	51.2	1.00 U	1.0 U	1.40	0.10 U
	12/3/2019	1.0 U	35.6	1.00 U	1.0 U	0.682	0.10 U
	5/27/2020	1.0 U	35.2	1.00 U	1.0 U	0.213	0.10 U
	9/9/2020	1.0 U	58.1	1.00 U	1.0 U	0.614	0.10 U
	12/1/2020	1.0 U	35.3	1.00 U	1.0 U	0.418	0.10 U
	5/27/2021	1.0 U	48.2	1.00 U	1.0 U	0.263	0.10 U
	8/19/2021	1.0 U	30.5	1.00 U	1.0 U	0.325	0.10 U
	11/18/2021	1.0 U	38.4	1.00 U	1.0 U	0.875	0.10 U
	5/25/2022	10 U	34.6	10.0 U	10 U	0.950	0.10 U

TABLE 2
APPENDIX IV GROUNDWATER MONITORING RESULTS
Federal CCR Rule
Spurlock Station Surface Impoundment
Mason County, Kentucky

Appendix IV Analyte:[1]		Arsenic	Barium	Cobalt	Molybdenum	Radium 226 + 228 Combined	Thallium
Well ID	Sample Date	µg/L	µg/L	µg/L	µg/L	pCi/L	µg/L
MW-7	10/11/2016	1.0	36.0	1.90	1.0 U	1.19	2.40
	11/29/2016	1.0 U	44.0	1.60	5.0 U	0.00	0.10 U
	12/29/2016	1.3	28.0	1.50	5.0 U	0.352	0.10 U
	1/16/2017	1.0 U	25.0	1.20	1.0 U	0.402	0.10 U
	2/13/2017	1.1	29.0	1.60	1.0 U	1.21	0.30
	3/21/2017	1.0 U	32.0	1.00	1.0 U	0.118	0.10 U
	4/24/2017	1.0 U	19.0	1.00 U	1.0 U	0.457	0.50 U
	5/23/2017	1.0 U	20.0	1.00 U	1.0 U	0.459	0.10 U
	6/19/2017	1.0 U	25.0	1.00 U	1.0 U	0.276	0.10 U
	7/17/2017	1.0 U	32.0	1.00 U	1.0 U	0.886	0.10 U
	8/7/2017	1.0 U	27.0	1.00 U	1.0 U	0.848	0.10 U
	8/21/2017	1.0 U	36.0	1.00 U	1.0 U	0.277	0.10 U
	11/28/2017	1.0 U	30.5	1.00 U	1.0 U	1.06	0.10 U
	5/29/2018	1.0 U	30.5	1.00 U	1.0 U	1.08	0.10 U
	7/18/2018	1.0 U	48.0	1.00 U	1.0 U	0.838	0.10 U
	6/27/2019	1.0 U	33.8	1.00 U	1.0 U	1.17	0.10 U
	9/4/2019	1.0 U	36.9	1.00 U	1.0 U	0.676	0.10 U
	12/3/2019	1.0 U	35.3	1.00 U	1.0 U	0.552	0.10 U
	5/27/2020	1.0 U	27.6	1.00 U	1.0 U	0.405	0.10 U
	9/9/2020	1.0 U	30.6	1.00 U	1.0 U	0.681	0.10 U
	12/1/2020	1.0 U	33.6	1.00 U	1.0 U	0.468	0.10 U
	5/27/2021	1.0 U	31.4	1.00 U	1.0 U	0.871	0.14
	8/19/2021	1.0 U	31.4	1.00 U	1.0 U	1.28	0.10 U
	11/18/2021	1.0 U	33.2	1.00 U	1.0 U	0.926	0.10 U
	5/25/2022[3]	1.0 U	31.6	1.00 U	1.0 U	0.630	1.00 U

TABLE 2
APPENDIX IV GROUNDWATER MONITORING RESULTS
Federal CCR Rule
Spurlock Station Surface Impoundment
Mason County, Kentucky

Appendix IV Analyte:[1]		Arsenic	Barium	Cobalt	Molybdenum	Radium 226 + 228 Combined	Thallium
Well ID	Sample Date	µg/L	µg/L	µg/L	µg/L	pCi/L	µg/L
MW-8	10/11/2016	1.0 U	21.0	1.00 U	18.3	2.13	1.70
	11/29/2016	1.0 U	19.0	1.00 U	16.7	0.769	0.10 U
	12/29/2016	1.0 U	20.0	1.00 U	18.4	1.13	0.10 U
	1/16/2017	1.0 U	14.0	1.00 U	16.4	0.591	0.10 U
	2/13/2017	1.0 U	35.0	1.00 U	12.0	0.524	0.30
	3/21/2017	1.0 U	34.0	1.00 U	12.3	0.452	0.10 U
	4/24/2017	1.0 U	21.0	1.00 U	13.8	0.093	0.50 U
	5/23/2017	1.0 U	20.0	1.00 U	16.2	0.510	0.10 U
	6/19/2017	1.0 U	28.0	1.00 U	14.4	0.457	0.10 U
	7/17/2017	1.0 U	28.0	1.00 U	14.7	0.716	0.10 U
	8/7/2017	1.0 U	26.0	1.00 U	16.6	0.325	0.10 U
	8/21/2017	1.0 U	46.0	1.00 U	13.3	0.938	0.10 U
	11/28/2017	1.0 U	15.6	1.00 U	17.9	0.987	0.10 U
	5/29/2018	1.0 U	32.1	1.00 U	15.2	1.10	0.13
	7/18/2018	1.0 U	39.4	1.00 U	12.9	0.710	0.10 U
	6/27/2019	1.0 U	29.8	1.00 U	12.1	0.400	0.10 U
	9/4/2019	1.0 U	23.0	1.00 U	20.7	0.868	0.10 U
	12/3/2019	1.0 U	28.6	1.00 U	11.7	1.12	0.10 U
	5/27/2020	1.0 U	14.2	1.00 U	15.1	1.27	0.10 U
	9/9/2020	1.0 U	22.0	1.00 U	18.9	0.585	0.10 U
	12/1/2020	1.0 U	19.1	1.00 U	22.1	0.134	0.10 U
	5/27/2021	1.0 U	27.2	1.00 U	14.0	0.279	0.13
	8/19/2021	1.0 U	18.1	1.00 U	19.5	0.422	0.10 U
	11/18/2021	1.0 U	15.1	1.00 U	22.6	1.23	0.10 U
	5/25/2022[3]	1.0 U	29.3	1.00 U	18.3	0.403	1.00 U

Notes:

[1] Results are shown only for Appendix IV constituents detected in the August 2021 Assessment Monitoring event.

[2] MW-2, -3, -4, and -5 are background monitoring wells.

[3] Due to the loss of sample volume during transit to the laboratory, Radium 226/228 was re-collected at wells MW-7 and MW-8 on June 27, 2022.

µg/L Micrograms per Liter

mg/L Milligrams per Liter

pCi/L Picocuries per Liter

U Constituent not detected above method detection limit and are shown as less than the reporting limit.

TABLE 3
APPENDIX IV SUMMARY STATISTICS FOR BACKGROUND GROUNDWATER
FEDERAL CCR RULE
Spurlock Station Surface Impoundment
Mason County, Kentucky

Constituent	Units	Outliers Excluded	Equal Variance	Distribution Type[2]	Number of Data Points Used	Number of Non-Detects[3]	Non-Detect Frequency (Percent)	Minimum	Maximum	Mean	Median	Standard Deviation	Upward Trend	Season-ality	Upper Tolerance Limit (UTL)[4,5]
Arsenic	µg/L	0	no[1]												
MW-2	µg/L	0	-	Lognormal	15	0	0%	1.30	5.30	2.48	2.50	0.99	No	No	5.03
MW-3	µg/L	0	-	Lognormal	15	0	0%	6.40	15.7	9.40	9.70	2.20	No	No	15.1
MW-4	µg/L	0	-	Nonparametric	15	14	93%	0.50 U	1.40	0.56	0.50 U	0.23	No	No	1.40
MW-5	µg/L	0	-	Nonparametric	15	13	87%	0.50 U	1.20	0.58	0.50 U	0.21	No	No	1.20
Barium	µg/L	0	no[1]												
MW-2	µg/L	0	-	Normal	15	0	0%	26.0	383	195	190	81.8	No	No	405
MW-3	µg/L	0	-	Normal	15	0	0%	233	640	397	372	125	Yes[6]	No	719
MW-4	µg/L	1	-	Normal	14	0	0%	12.9	22.0	16.3	16.0	2.10	No	No	21.9
MW-5	µg/L	0	-	Normal	15	0	0%	15.0	20.0	17.1	17.0	1.50	No	No	21.0
Cobalt	µg/L	0	no[1]												
MW-2	µg/L	0	-	Normal	15	1	7%	0.05 U	1.80	1.28	1.30	0.31	No	No	1.90
MW-3	µg/L	0	-	Normal	15	0	0%	1.70	3.10	2.22	2.18	0.41	No	No	3.27
MW-4	µg/L	0	-	Nonparametric	15	15	100%	0.05 U	0.05 U	0.50	0.05 U	0.00	No	No	0.05
MW-5	µg/L	0	-	Nonparametric	15	14	93%	0.50 U	1.20	0.55	0.50 U	0.18	No	No	1.20
Molybdenum	µg/L	0	no[1]												
MW-2	µg/L	0	-	Normal	15	0	0%	18.2	23.7	20.7	20.7	1.50	No	No	24.6
MW-3	µg/L	0	-	Normal	15	0	0%	14.5	19.2	16.8	17.3	1.60	No	No	20.9
MW-4	µg/L	0	-	Nonparametric	15	0	0%	15.5	19.2	16.6	16.4	1.10	No	No	19.2
MW-5	µg/L	0	-	Lognormal	15	2	13%	1.10	2.60	1.70	1.50	0.48	No	No	2.90
Radium 226 + 228	pCi/L	0	yes	Nonparametric	60	1	2%	0.00	2.93	0.96	0.80	0.64	No	No	2.93
Thallium	µg/L	4	no[1]												
MW-2	µg/L	1	-	Nonparametric	14	11	79%	0.05 U	0.40	0.12	0.05 U	0.12	No	No	0.40
MW-3	µg/L	1	-	Nonparametric	14	12	86%	0.05 U	0.25	0.09	0.05 U	0.07	No	No	0.25
MW-4	µg/L	1	-	Nonparametric	14	12	86%	0.05 U	0.25	0.08	0.05 U	0.06	No	No	0.25
MW-5	µg/L	1	-	Nonparametric	14	12	86%	0.05 U	0.50	0.11	0.05 U	0.14	No	No	0.50

Notes:

µg/L Micrograms per Liter

mg/L Milligrams per Liter

pCi/L Picocuries per Liter

U Constituent not detected above method detection limit; results shown as less than half the reporting limit.

UTL Upper Tolerance Limit

[1] The background dataset did not exhibit equal variance; statistics were calculated for each of the individual background wells.

[2] Distribution type not tested if dataset contained greater than 50% non-detect values.

[3] Non-detect values were replaced with 1/2 of the reporting limit, as recommended in the Unified Guidance.

[4] For normal distributions, the 95% UTL was calculated.

[5] For nonparametric distributions, a nonparametric UTL is the maximum background concentration (Unified Guidance, 2009, p. 17.18).

[6] The increasing trend of Barium at MW-3 was not acted upon because all the compliance well data are well below the Groundwater Protection Standard.

Source: Background limits were calculated by Geosyntec in 2018 using data from October 2016 through August 2017.

TABLE 4
APPENDIX IV STATISTICALLY SIGNIFICANT INCREASES (SSI)
Federal CCR Rule
Spurlock Station Surface Impoundment
Mason County, Kentucky

Constituent[1]:	Arsenic	Barium	Cobalt	Molybdenum	Radium 226 + 228 Combined	Thallium	Total SSIs per Compliance Well
Background Value:	**15.1** µg/L	**719** µg/L	**3.3** µg/L	**24.6** µg/L	**2.9** pCi/L	**0.5** µg/L	
Well ID	**Maximum Detected Concentration for All Assessment Monitoring Events**						
MW-1	0.50 U[2]	32.1	0.50 U	21.2	1.24	0.20	0
MW-6	5.00 U	58.1	5.00 U	5.00 U	1.40	0.05 U	0
MW-7	0.50 U	48.0	0.50 U	0.50 U	1.28	0.14	0
MW-8	0.50 U	39.4	0.50 U	22.6	1.27	0.13	0
TOTAL CONSTITUENT SSIs:	0	0	0	0	0	0	0

Notes:

Table is populated with the maximum detected concentration of each constituent at each compliance well for all assessment monitoring events.

Concentration is a statistically significant increase (SSI) over background concentration. There are no SSIs in the detected constituents.

[1] Only constituents detected in the August 2021 Assessment Monitoring Program event are shown.

[2] Non-detect values were replaced with 1/2 of the reporting limit, as recommended in the Unified Guidance.

SSI Statistically Significant Increase

µg/L Micrograms per Liter

pCi/L Picocuries per Liter

U Constituent not detected above method detection limit.

TABLE 5
APPENDIX IV GROUNDWATER PROTECTION STANDARDS
Federal CCR Rule
Spurlock Station Surface Impoundment
Mason County, Kentucky

Constituent[1]	Unit	MCL	RSL	Background Value	Selected GWPS
Arsenic	µg/L	10		15.1	15.1
Barium	µg/L	2,000		719	2,000
Cobalt	µg/L		6	3.3	6
Molybdenum	µg/L		100	24.6	100
Radium 226 + 228[2]	pCi/L	5		2.9	5
Thallium	µg/L	2		0.5	2

Notes:

[1] Only constituents detected in the August 2021 Assessment Monitoring Program event are shown.

[2] The standard for Radium 226 and 228 is a combined standard.

GWPS Groundwater Protection Standard

MCL Maximum Contaminant Level

RSL Regional Screening Level, only applies if MCL not promulgated.

µg/L Micrograms per Liter

pCi/L Picocuries per Liter

TABLE 6
COMPARISON OF APPENDIX IV RESULTS TO GROUNDWATER PROTECTION STANDARDS
Federal CCR Rule
Spurlock Station Surface Impoundment
Mason County, Kentucky

	Constituent[1]:	Arsenic	Barium	Cobalt	Molybdenum	Radium 226 + 228[2]	Thallium
	GWPS:	**15.1**	**2,000**	**6**	**100**	**5**	**2**
Well ID	**Sample Date**	µg/L	µg/L	µg/L	µg/L	pCi/L	µg/L
MW-1	5/25/2022	0.50 U[3]	17.6	0.50 U	18.9	0.949	0.50 U
MW-6	5/25/2022	5.00 U	34.6	5.00 U	5.00 U	0.950	0.05 U
MW-7	5/25/2022[4]	0.50 U	31.6	0.50 U	0.50 U	0.630	0.50 U
MW-8	5/25/2022[4]	0.50 U	29.3	0.50 U	18.3	0.403	0.50 U

Notes:

[1] Only constituents detected in the August 2021 Assessment Monitoring Program event are shown.

[2] The standard for Radium 226 and 228 is a combined standard.

[3] Non-detect values were replaced with 1/2 of the reporting limit, as recommended in the Unified Guidance.

[4] Due to the loss of sample volume during transit to the laboratory, Radium 226/228 was re-collected at wells MW-7 and MW-8 on June 27, 2022.

GWPS Groundwater Protection Standard

bold Bolded values were detected above the GWPS.

µg/L Micrograms per Liter

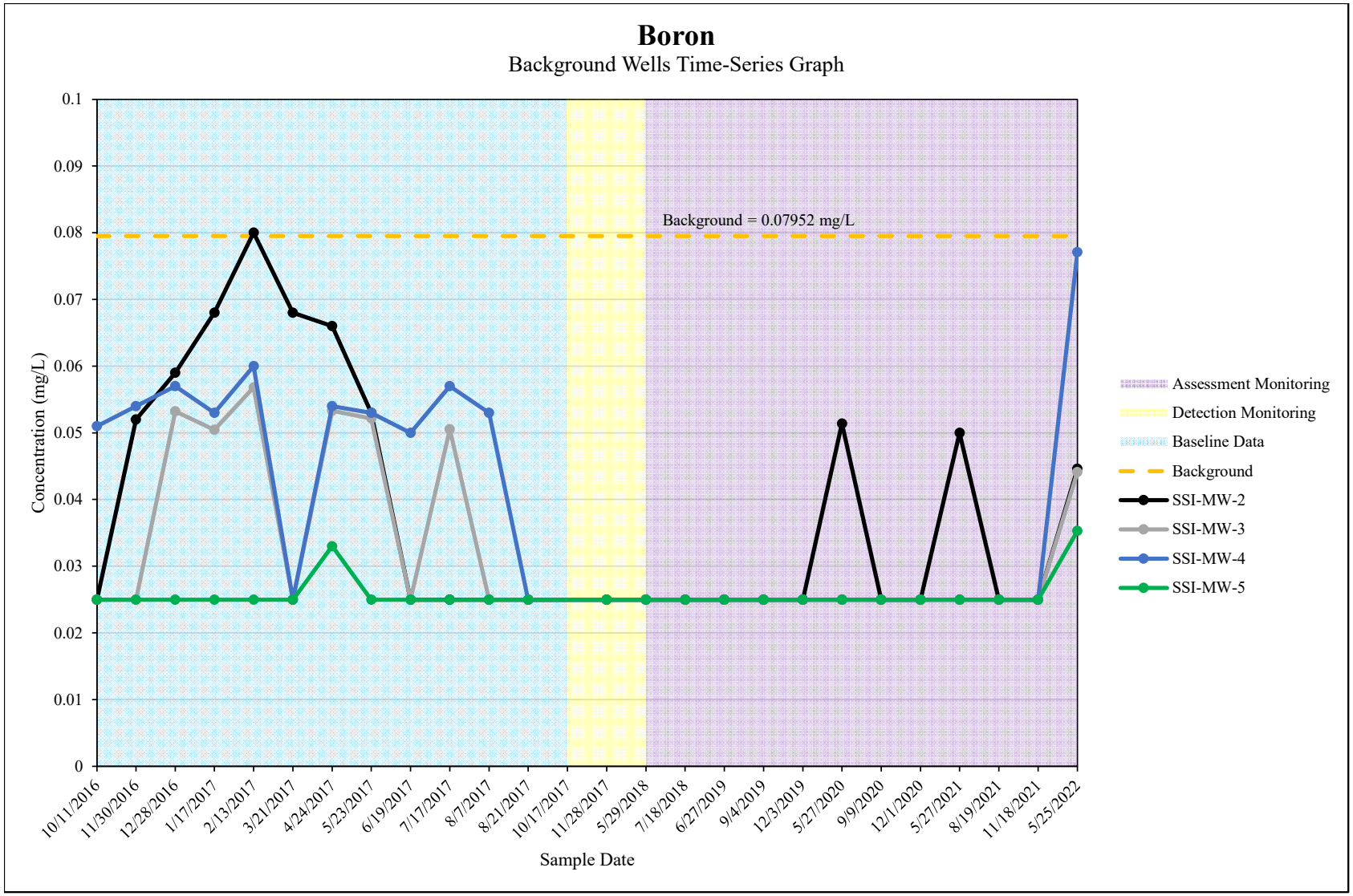
pCi/L Picocuries per Liter

U Constituent not detected above method detection limit.

ATTACHMENT A

ATTACHMENT A.1

Appendix III Time-Series Graphs (14 Pages)

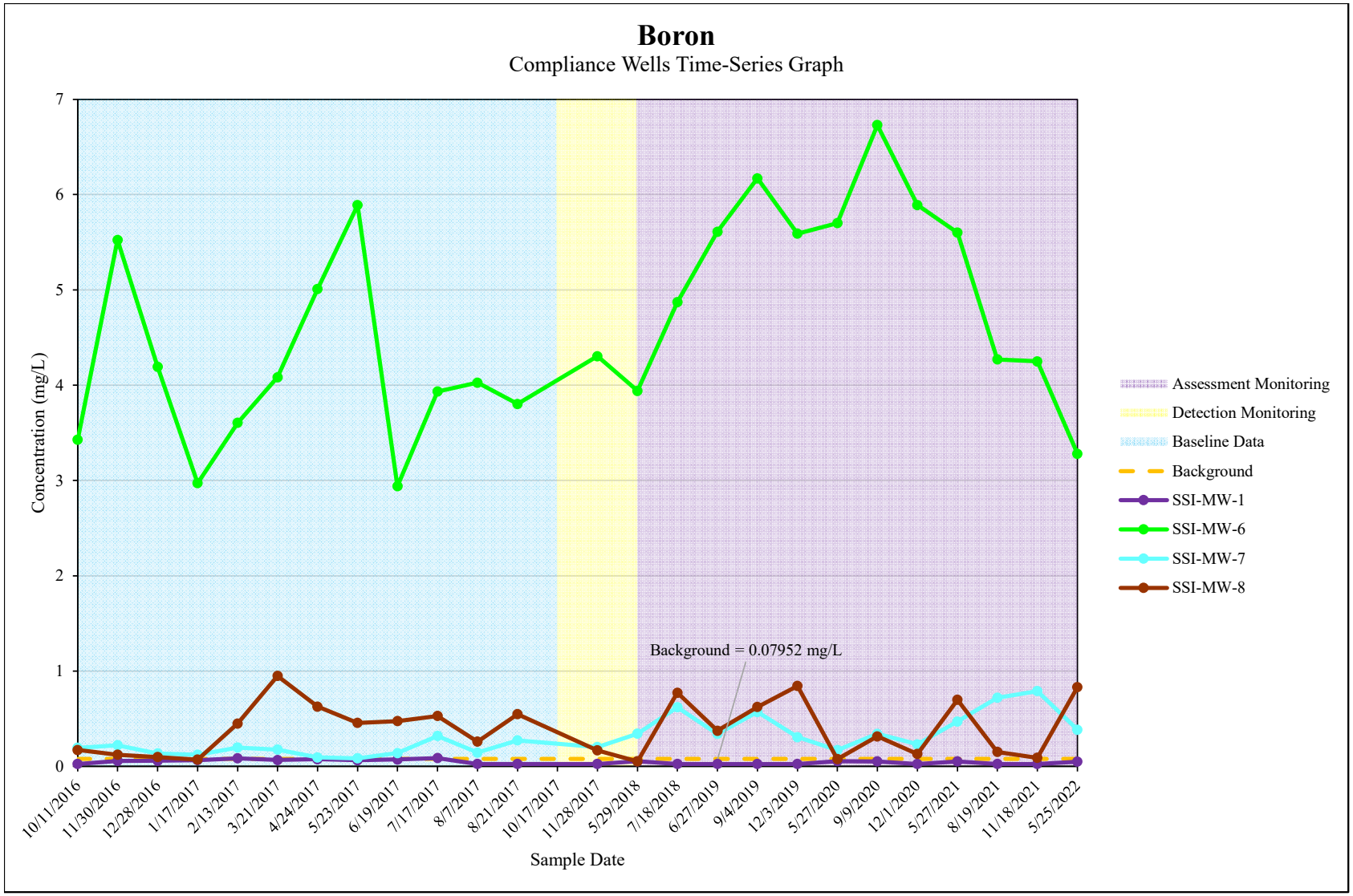


Notes:

mg/L Milligrams per Liter

[1] Non-Detects were replaced with 1/2 Reporting Limit, as recommended in the Unified Guidance.

Source Background values calculated by Haley & Aldrich (2018).

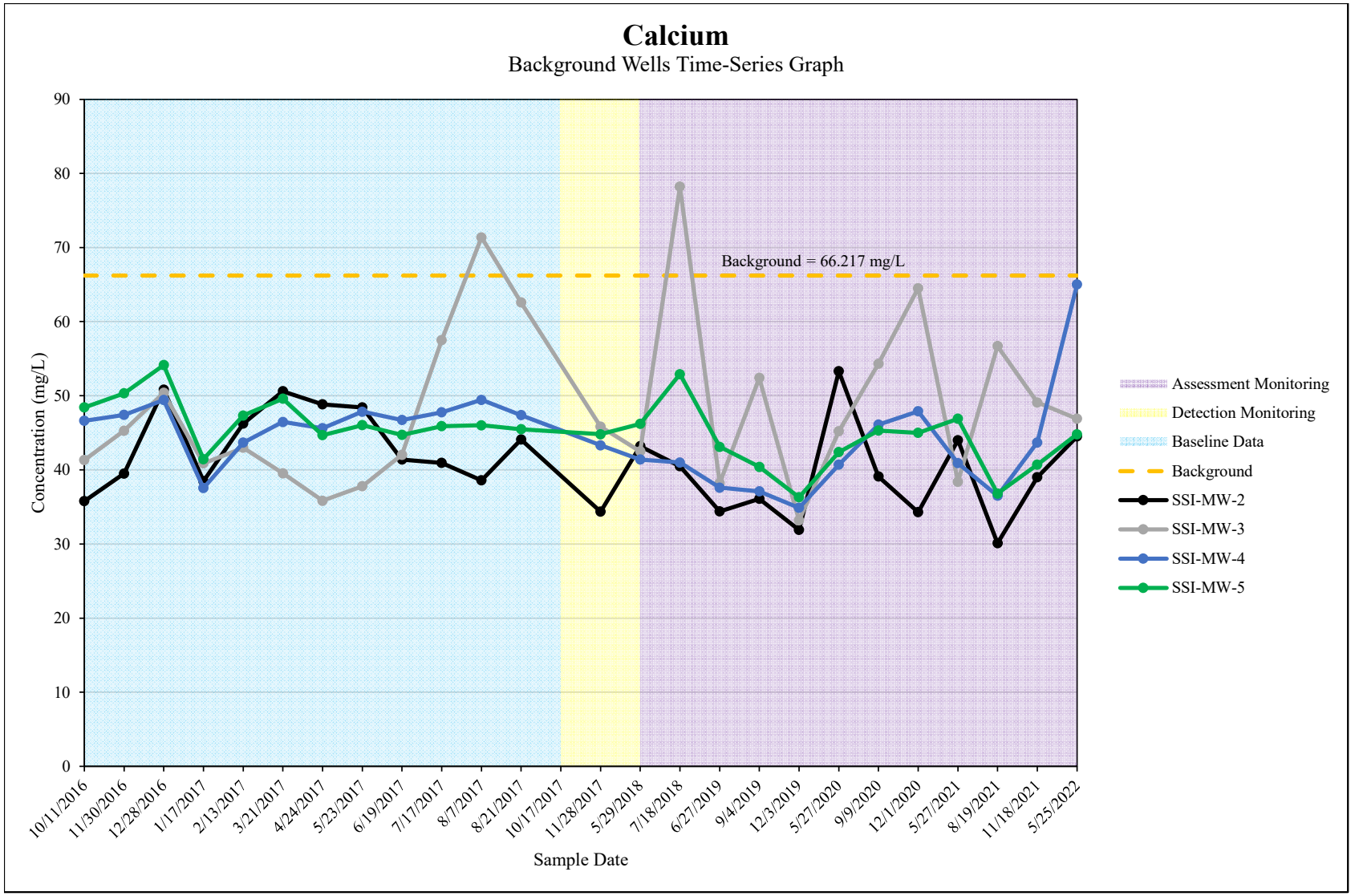


Notes:

mg/L Milligrams per Liter

[1] Non-Detects were replaced with 1/2 Reporting Limit, as recommended in the Unified Guidance.

Source Background values calculated by Haley & Aldrich (2018).

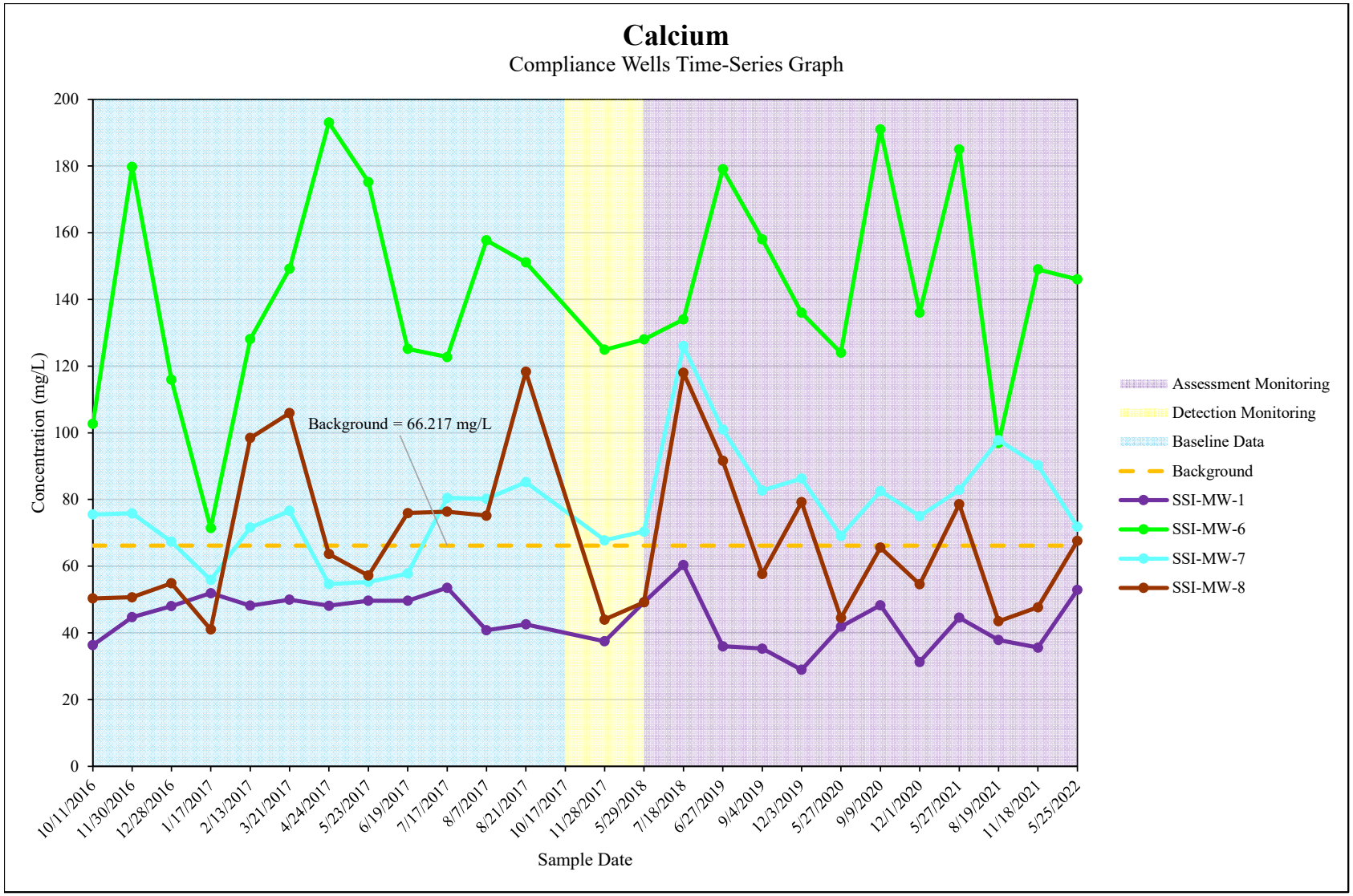


Notes:

mg/L Milligrams per Liter

[1] Non-Detects were replaced with 1/2 Reporting Limit, as recommended in the Unified Guidance.

Source Background values calculated by Haley & Aldrich (2018).

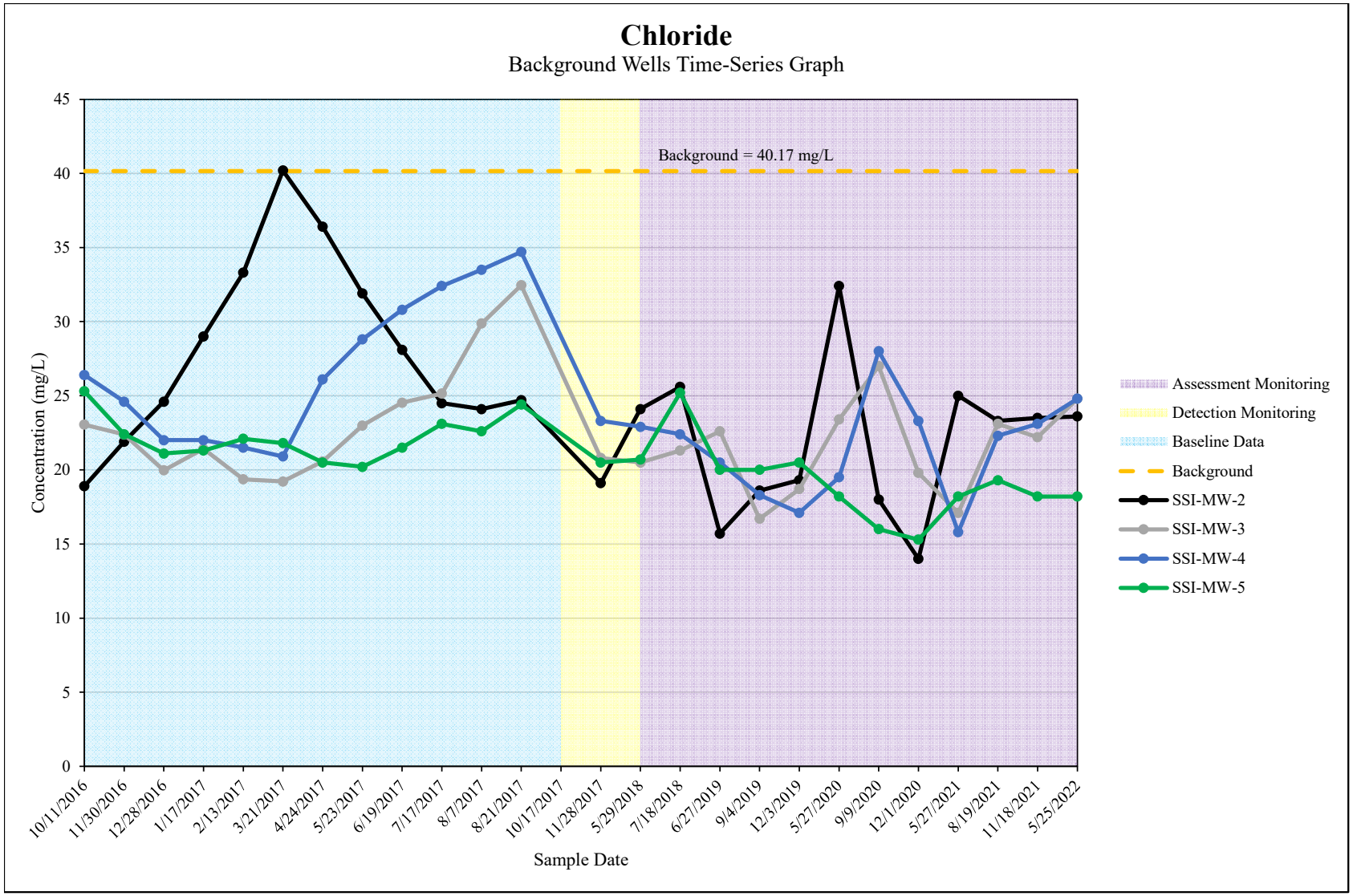


Notes:

mg/L Milligrams per Liter

[1] Non-Detects were replaced with 1/2 Reporting Limit, as recommended in the Unified Guidance.

Source Background values calculated by Haley & Aldrich (2018).

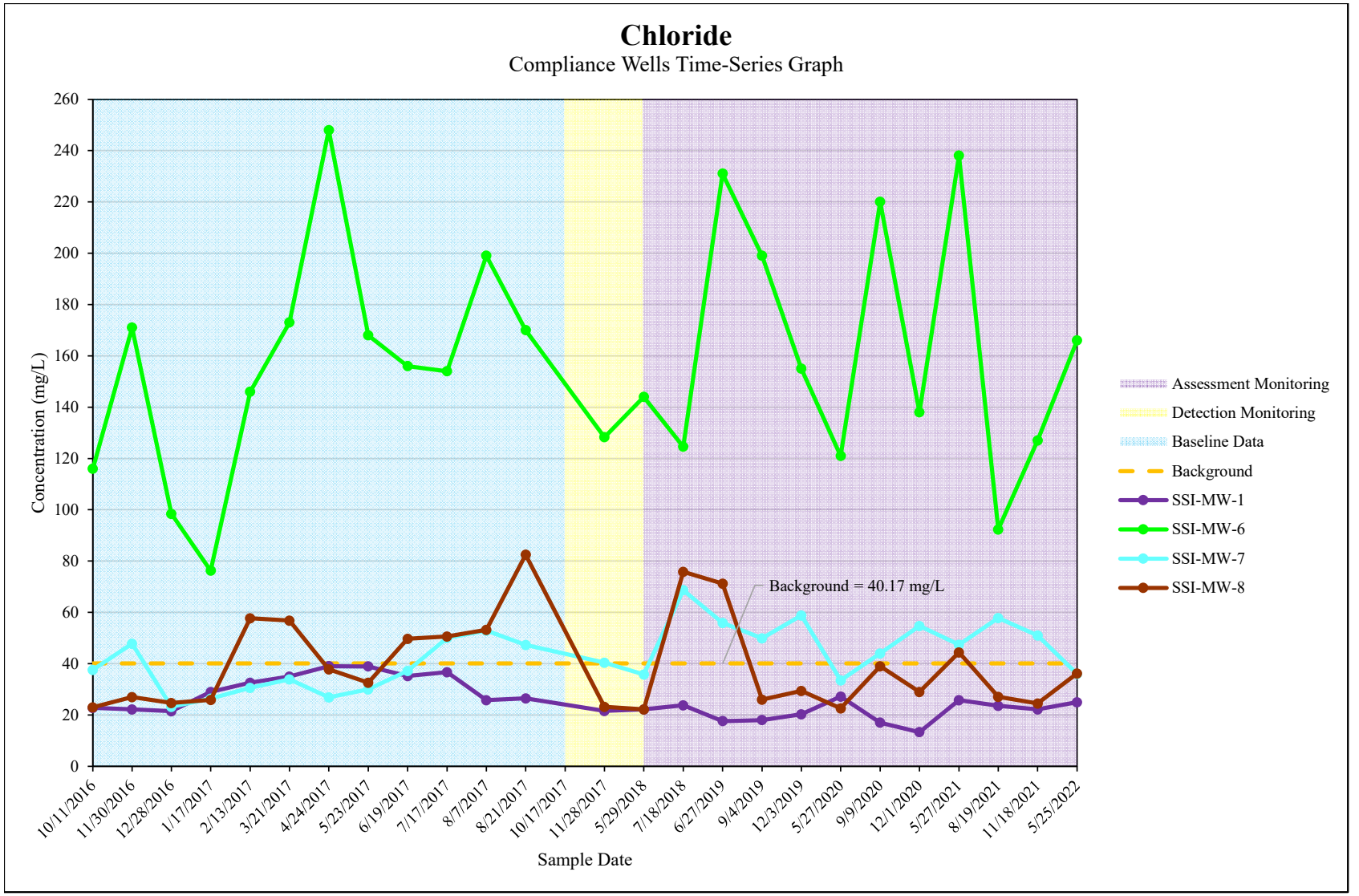


Notes:

mg/L Milligrams per Liter

[1] Non-Detects were replaced with 1/2 Reporting Limit, as recommended in the Unified Guidance.

Source Background values calculated by Haley & Aldrich (2018).

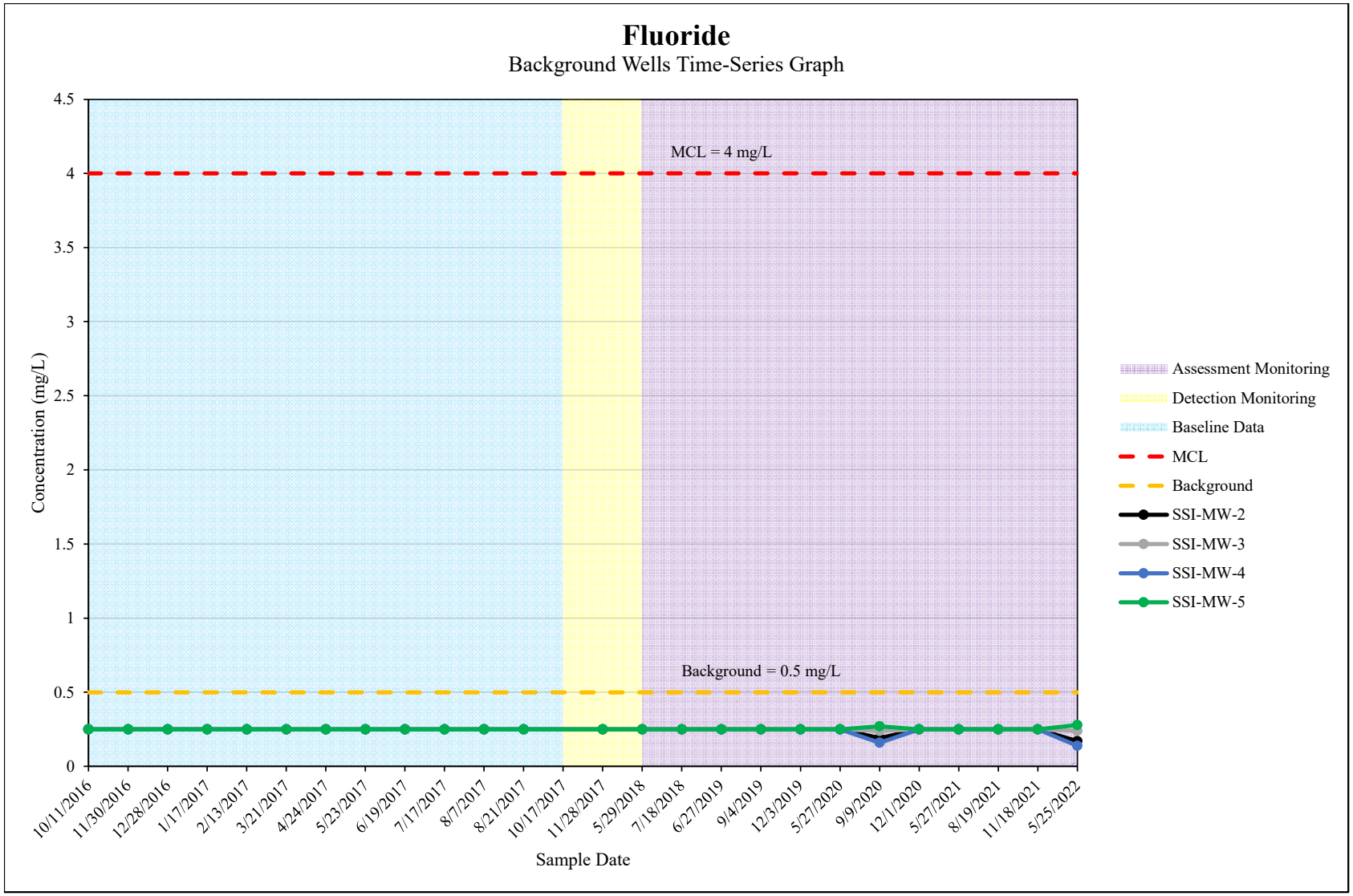


Notes:

mg/L Milligrams per Liter

[1] Non-Detects were replaced with 1/2 Reporting Limit, as recommended in the Unified Guidance.

Source Background values calculated by Haley & Aldrich (2018).



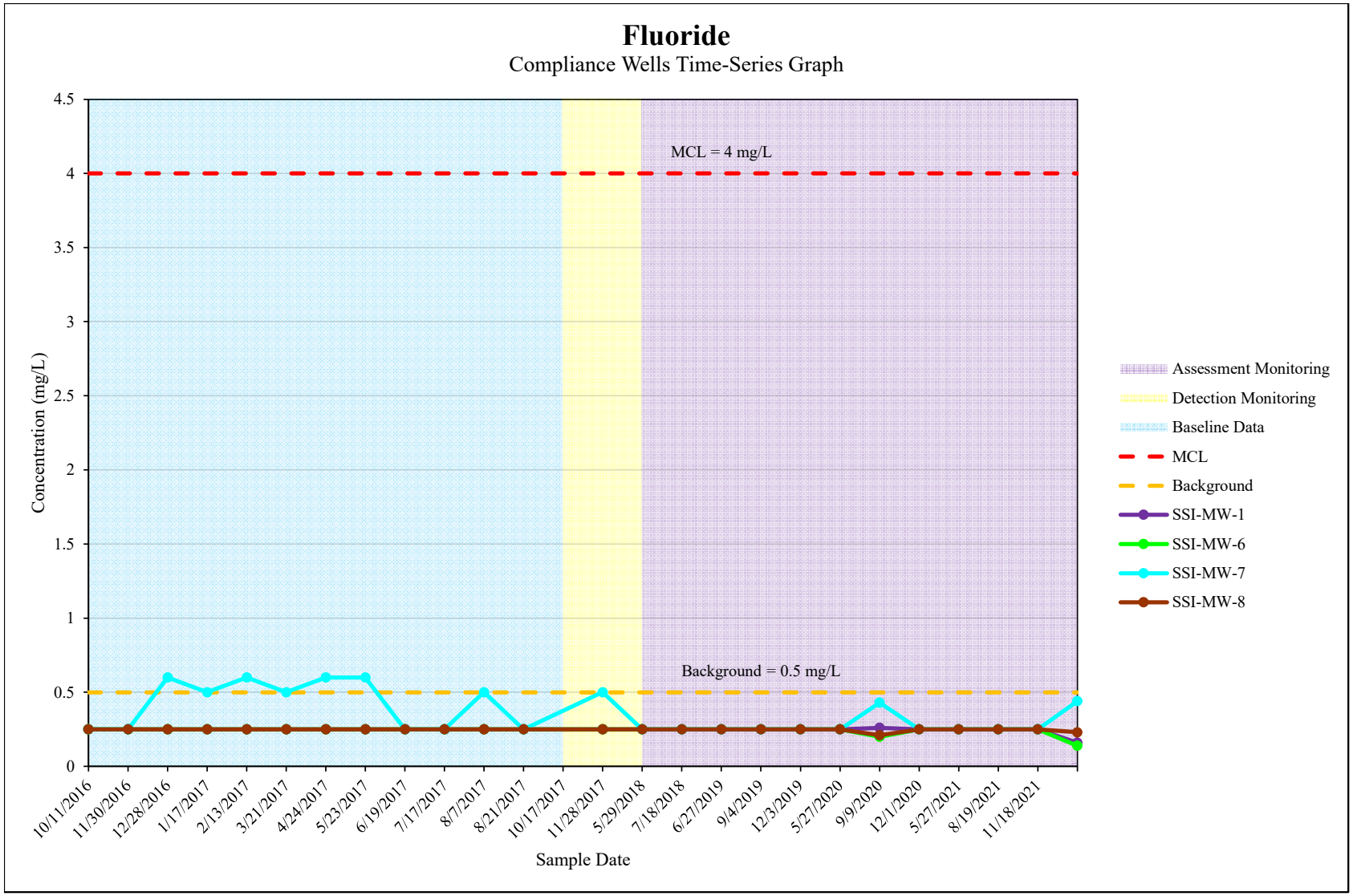
Notes:

MCL Maximum Contaminant Level

mg/L Milligrams per Liter

[1] Non-Detects were replaced with 1/2 Reporting Limit, as recommended in the Unified Guidance.

Source Background values calculated by Haley & Aldrich (2018).



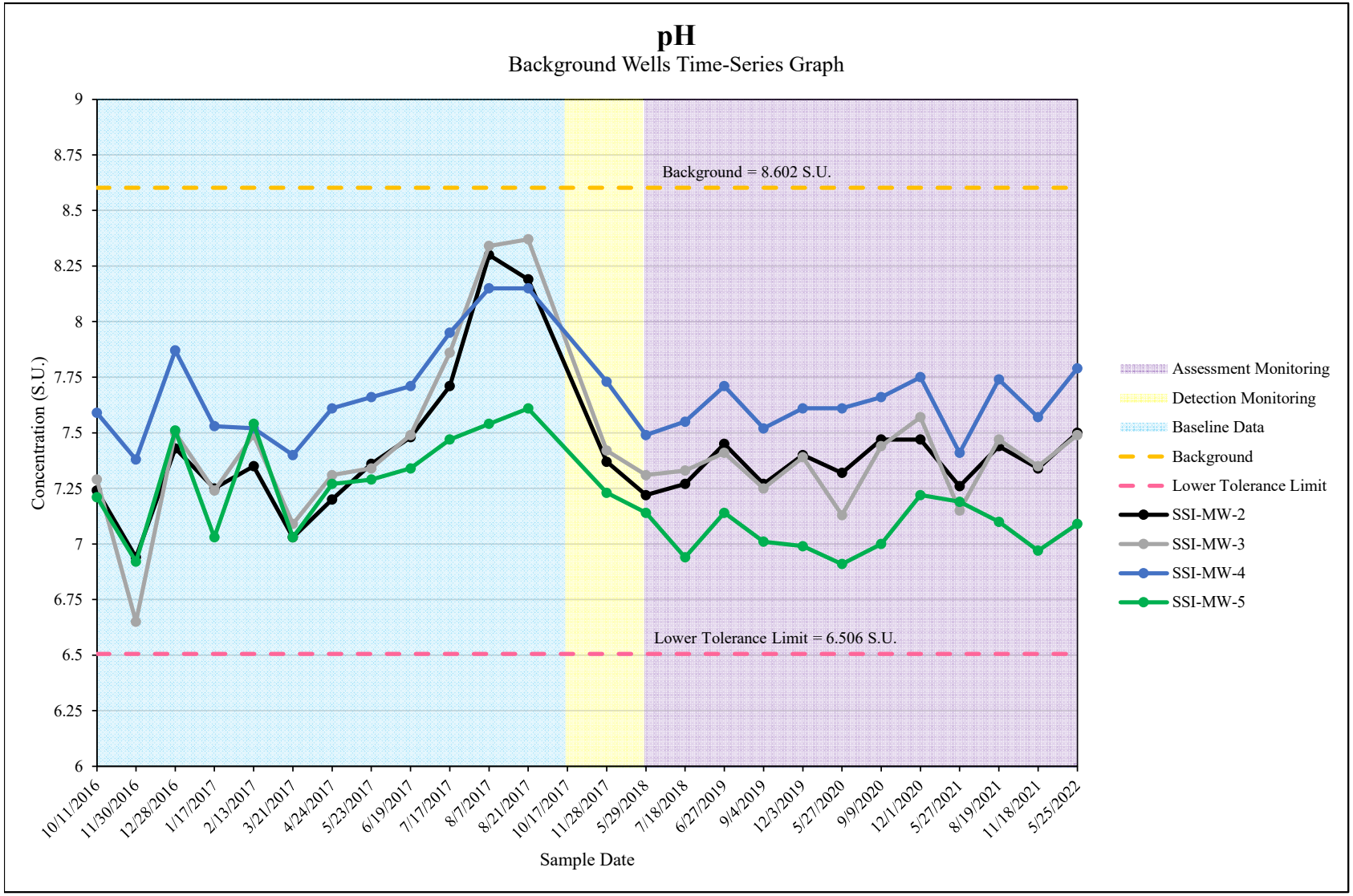
Notes:

MCL Maximum Contaminant Level

mg/L Milligrams per Liter

[1] Non-Detects were replaced with 1/2 Reporting Limit, as recommended in the Unified Guidance.

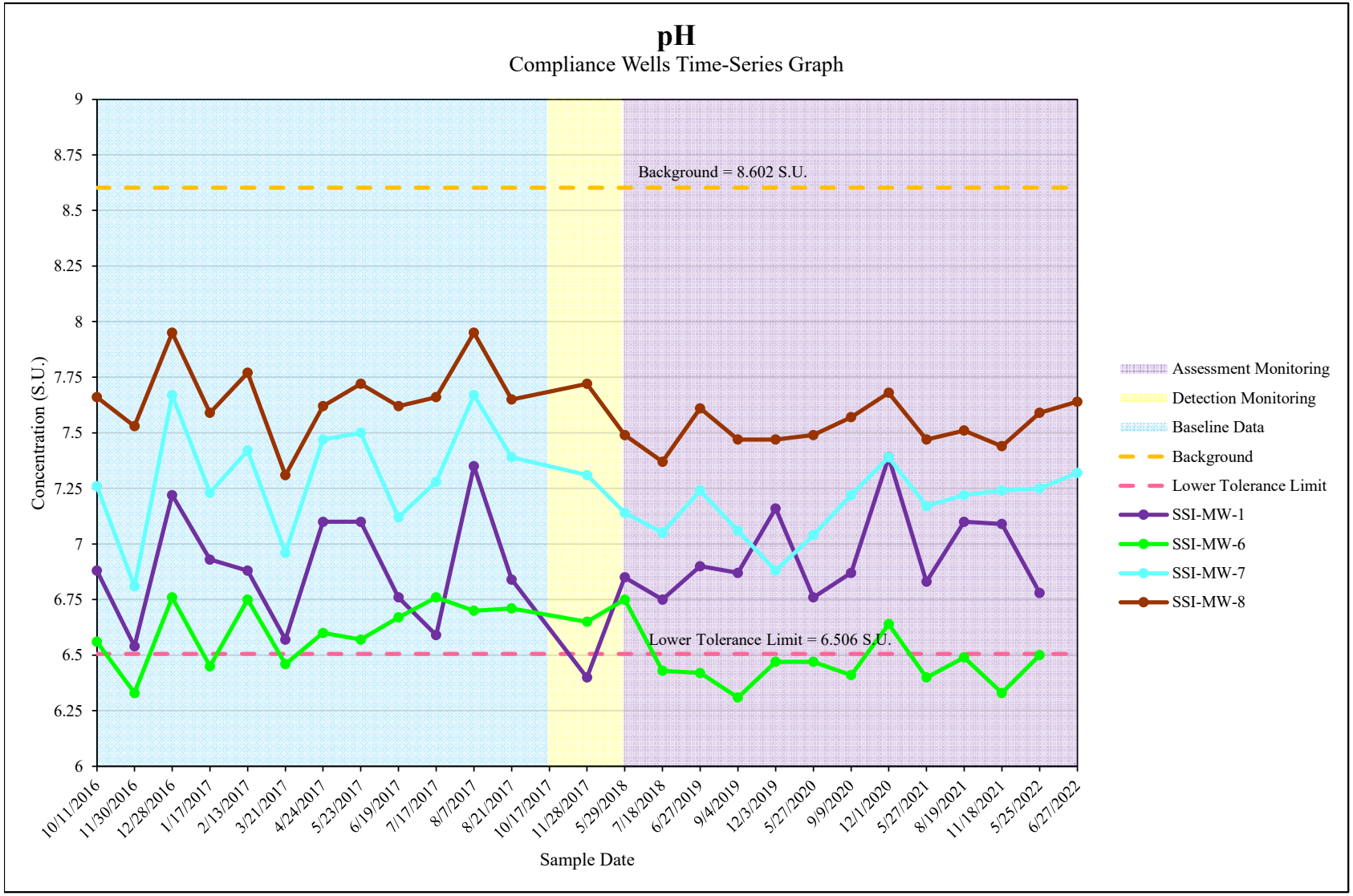
Source Background values calculated by Haley & Aldrich (2018).



Notes:

S.U. Standard Units

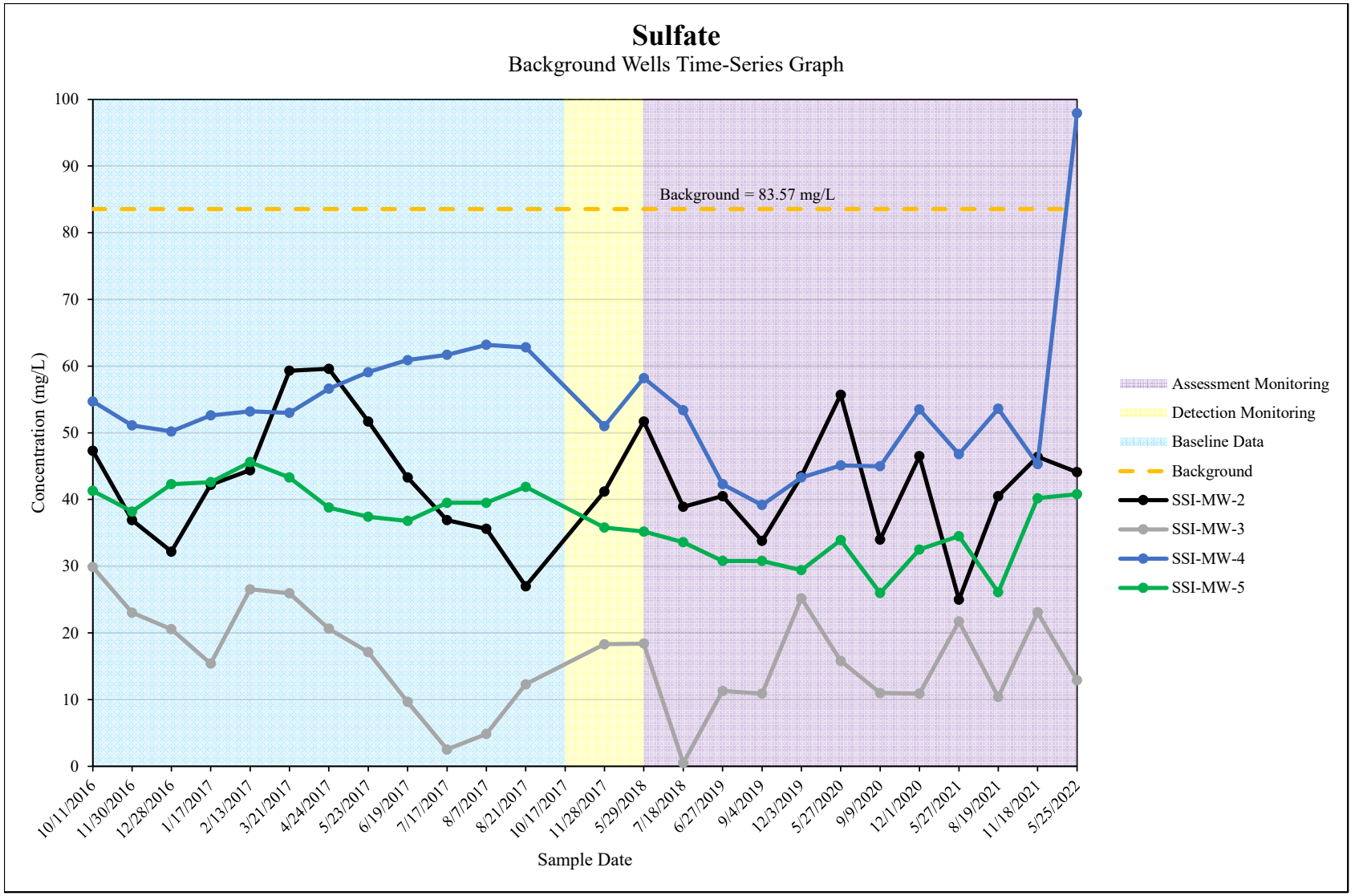
Source Background values, and Lower Tolerance Limit (LTL) for pH, calculated by Haley & Aldrich (2018, 2021).



Notes:

S.U. Standard Units

Source Background values, and Lower Tolerance Limit (LTL) for pH, calculated by Haley & Aldrich (2018, 2021).

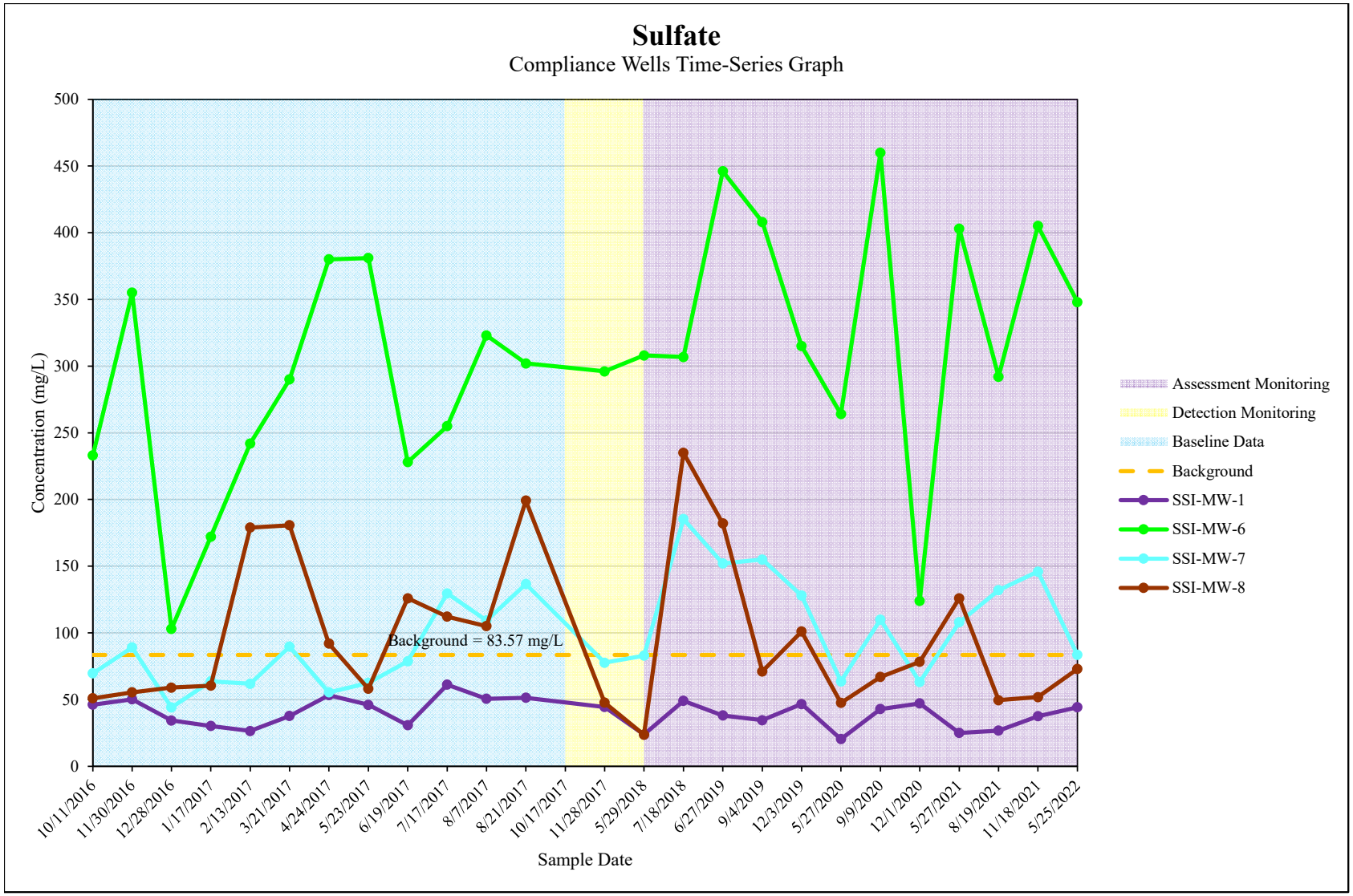


Notes:

mg/L Milligrams per Liter

[1] Non-Detects were replaced with 1/2 Reporting Limit, as recommended in the Unified Guidance.

Source Background values calculated by Haley & Aldrich (2018).

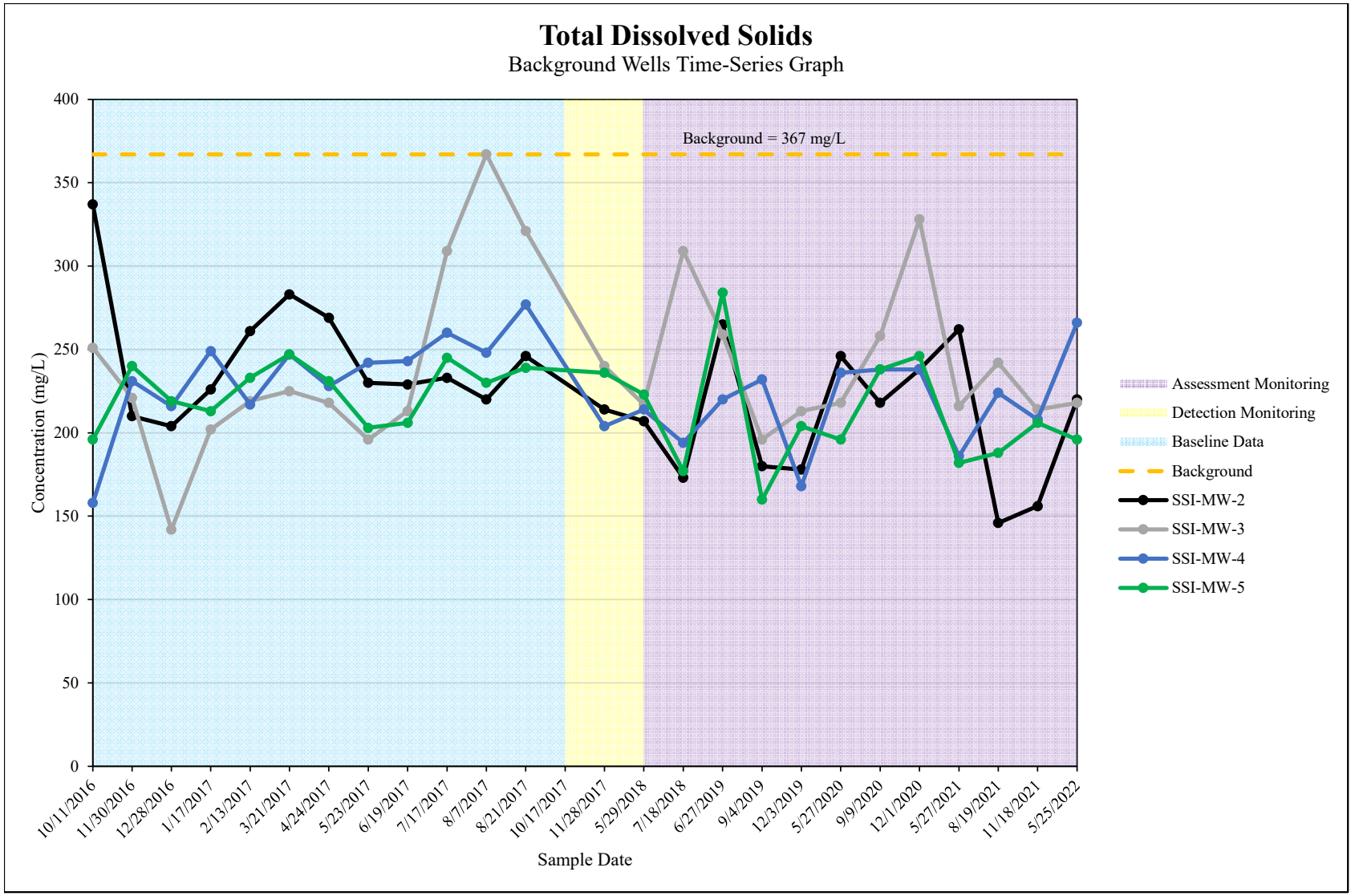


Notes:

mg/L Milligrams per Liter

[1] Non-Detects were replaced with 1/2 Reporting Limit, as recommended in the Unified Guidance.

Source Background values calculated by Haley & Aldrich (2018).

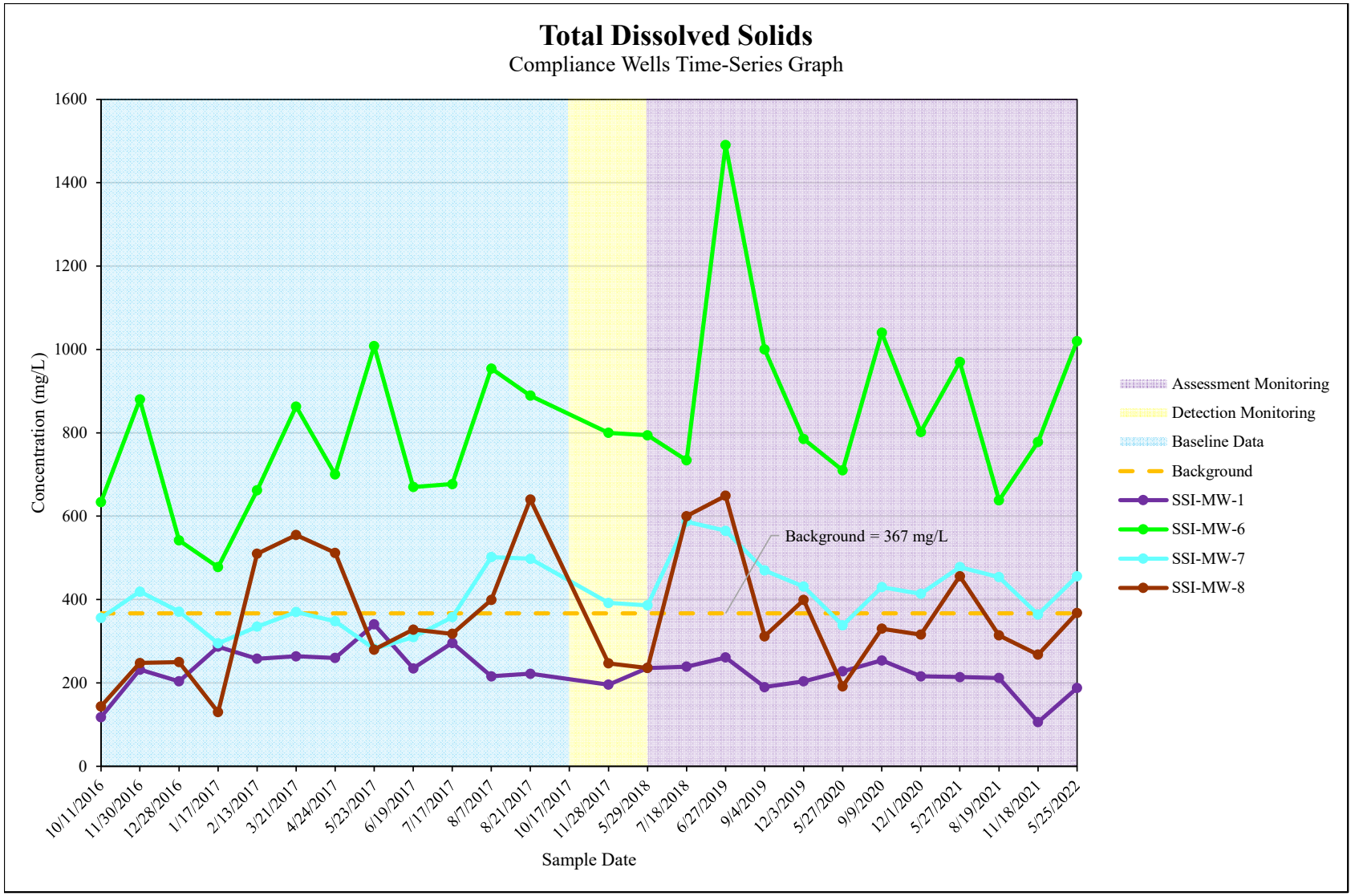


Notes:

mg/L Milligrams per Liter

[1] Non-Detects were replaced with 1/2 Reporting Limit, as recommended in the Unified Guidance.

Source Background values calculated by Haley & Aldrich (2018).



Notes:

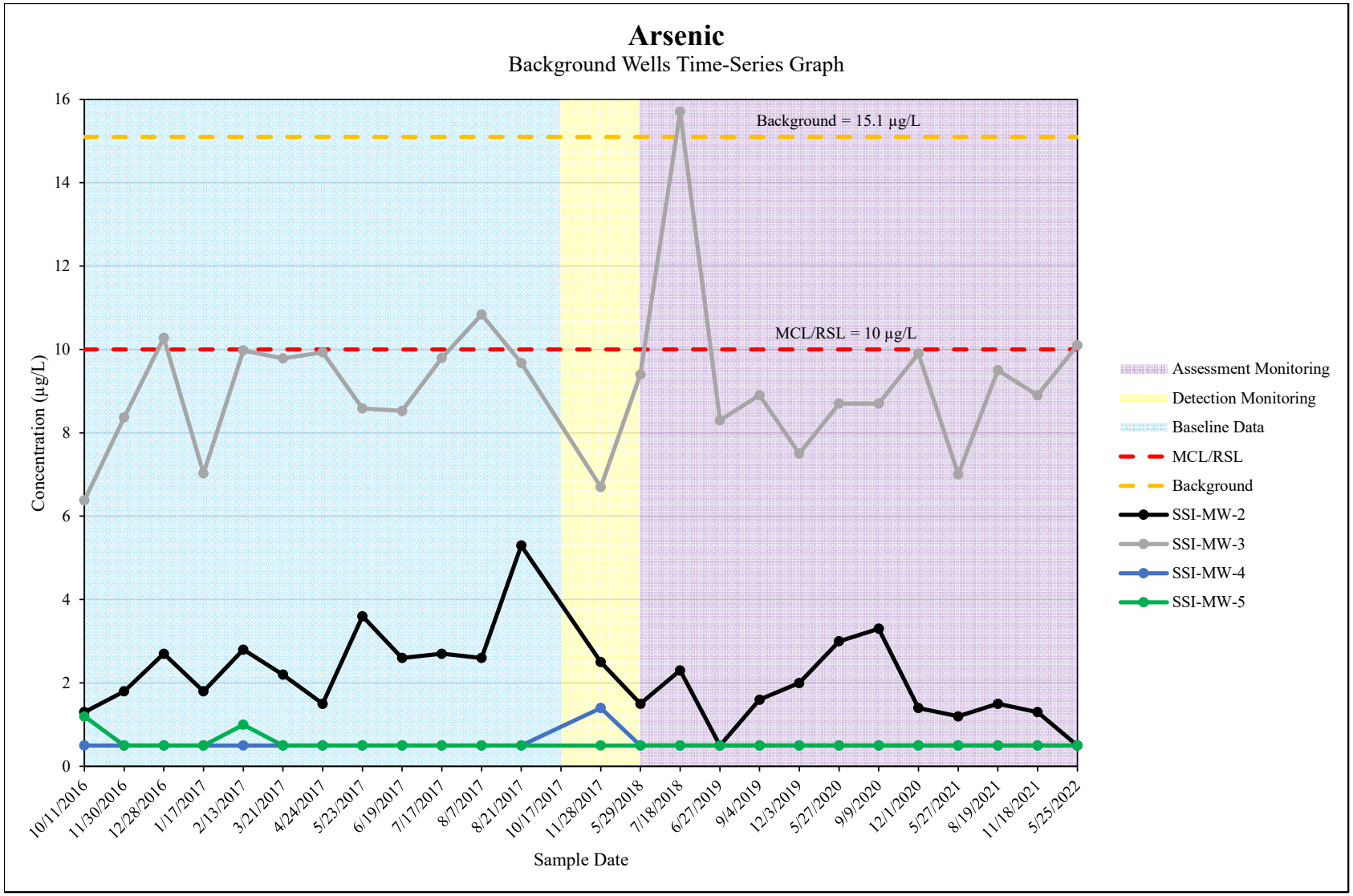
mg/L Milligrams per Liter

[1] Non-Detects were replaced with 1/2 Reporting Limit, as recommended in the Unified Guidance.

Source Background values calculated by Haley & Aldrich (2018).

ATTACHMENT A.2

Appendix IV Time-Series Graphs (12 Pages)



Notes:

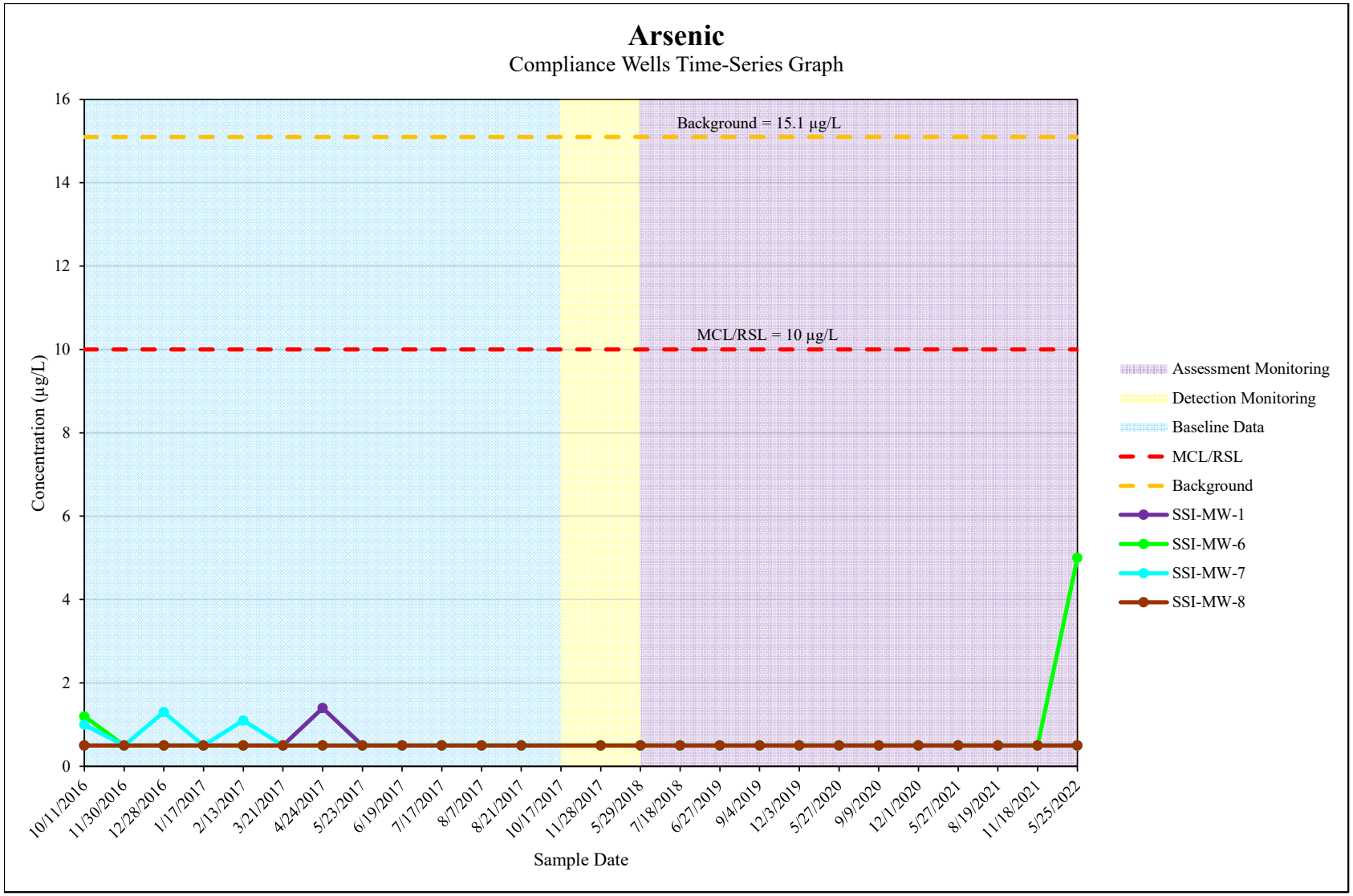
MCL Maximum Contaminant Level

RSL Regional Screening Level

µg/L Micrograms per Liter

[1] Non-Detects were replaced with 1/2 Reporting Limit, as recommended in the Unified Guidance.

Source Background values calculated by Geosyntec (2018).



Notes:

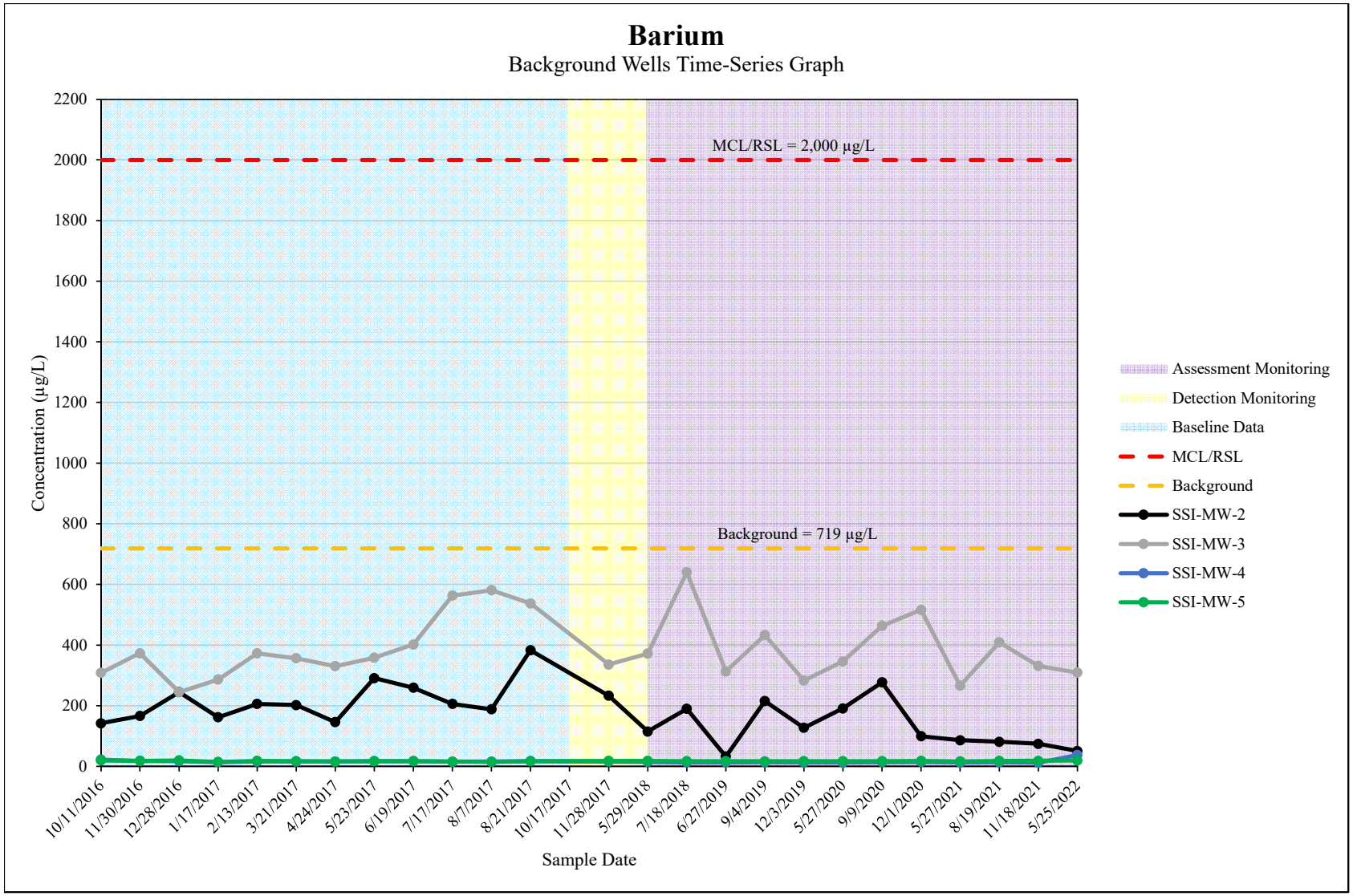
MCL Maximum Contaminant Level

RSL Regional Screening Level

µg/L Micrograms per Liter

[1] Non-Detects were replaced with 1/2 Reporting Limit, as recommended in the Unified Guidance.

Source Background values calculated by Geosyntec (2018).



Notes:

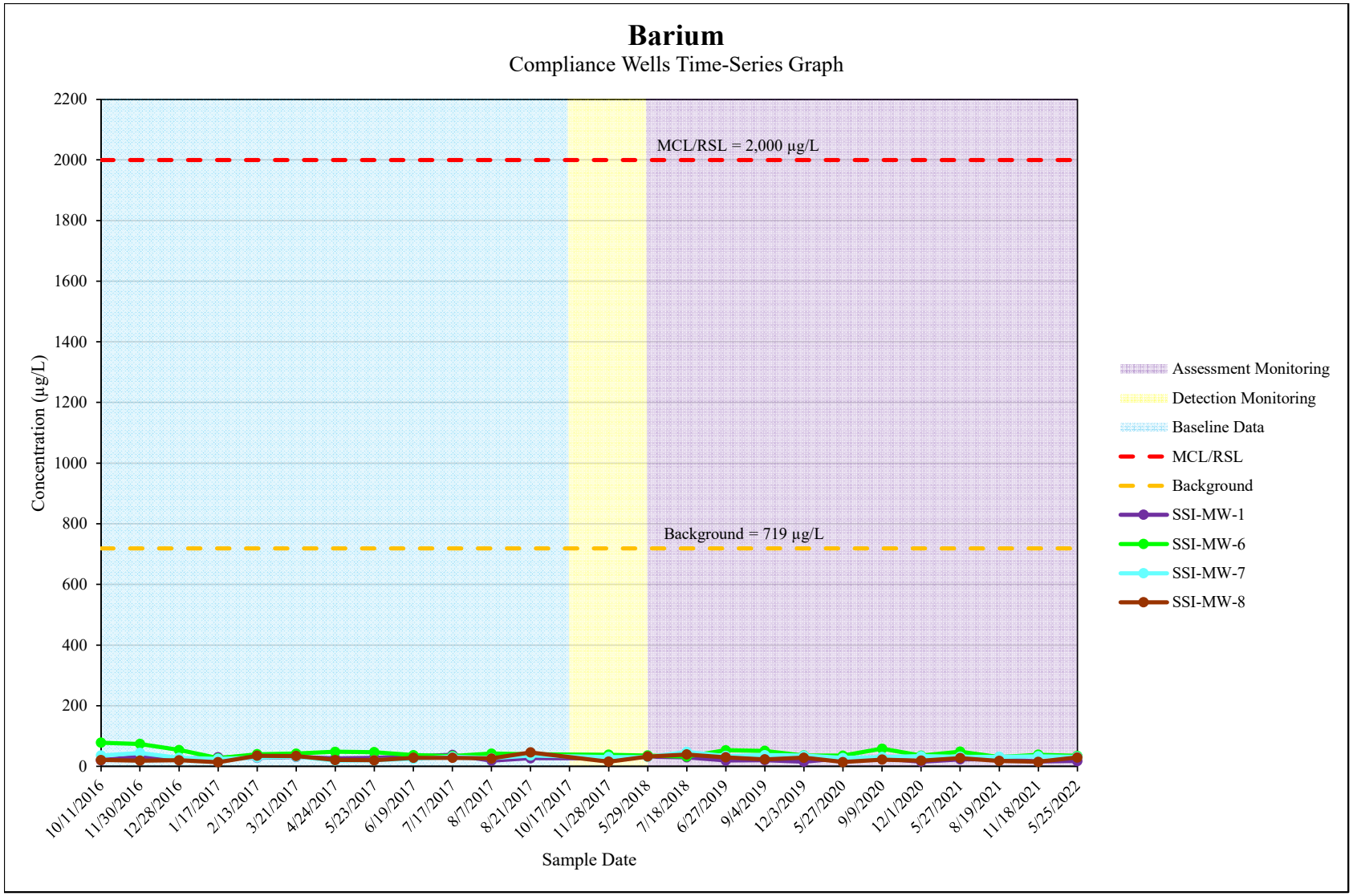
MCL Maximum Contaminant Level

RSL Regional Screening Level

µg/L Micrograms per Liter

[1] Non-Detects were replaced with 1/2 Reporting Limit, as recommended in the Unified Guidance.

Source Background values calculated by Geosyntec (2018).



Notes:

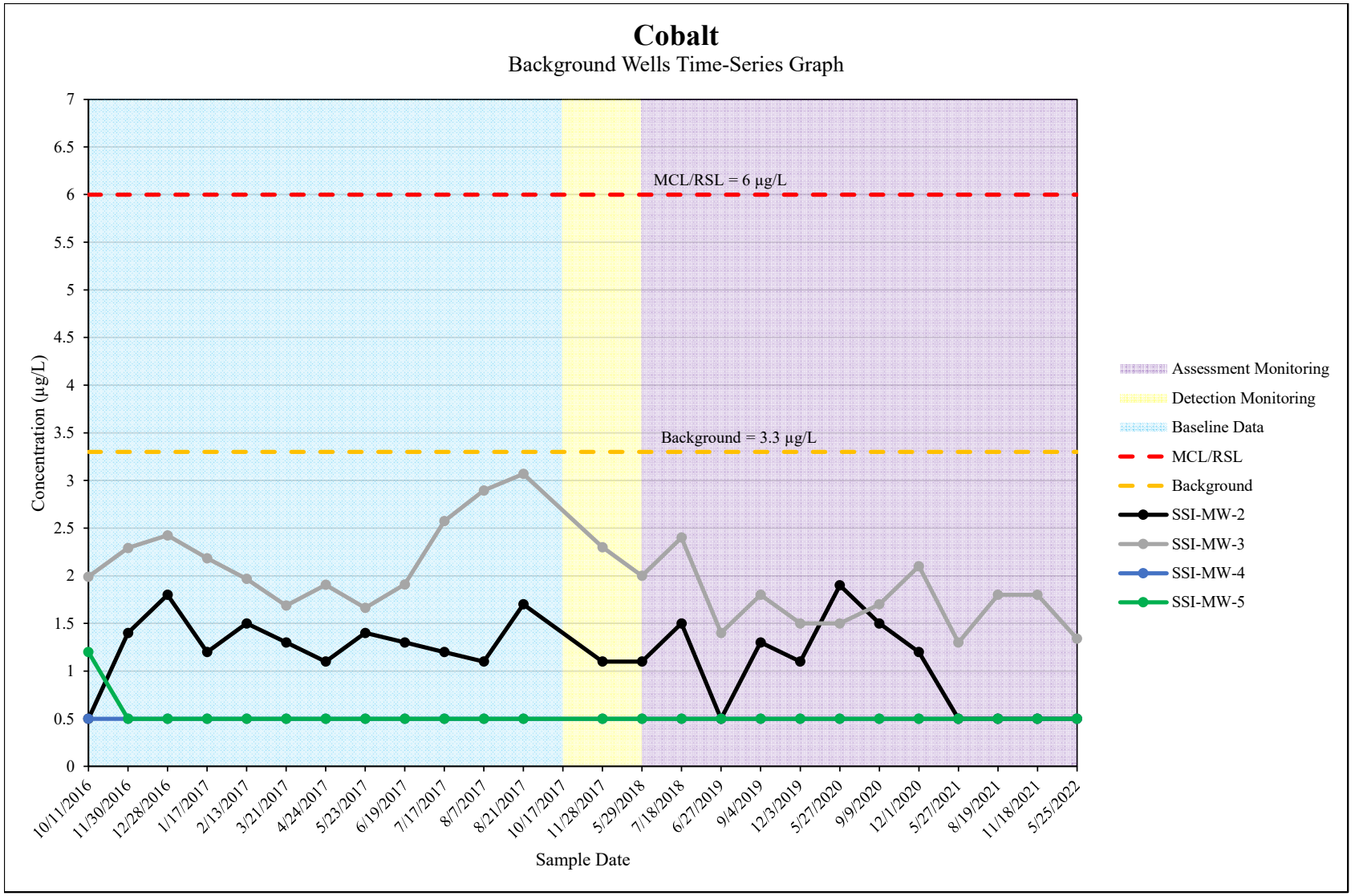
MCL Maximum Contaminant Level

RSL Regional Screening Level

µg/L Micrograms per Liter

[1] Non-Detects were replaced with 1/2 Reporting Limit, as recommended in the Unified Guidance.

Source Background values calculated by Geosyntec (2018).



Notes:

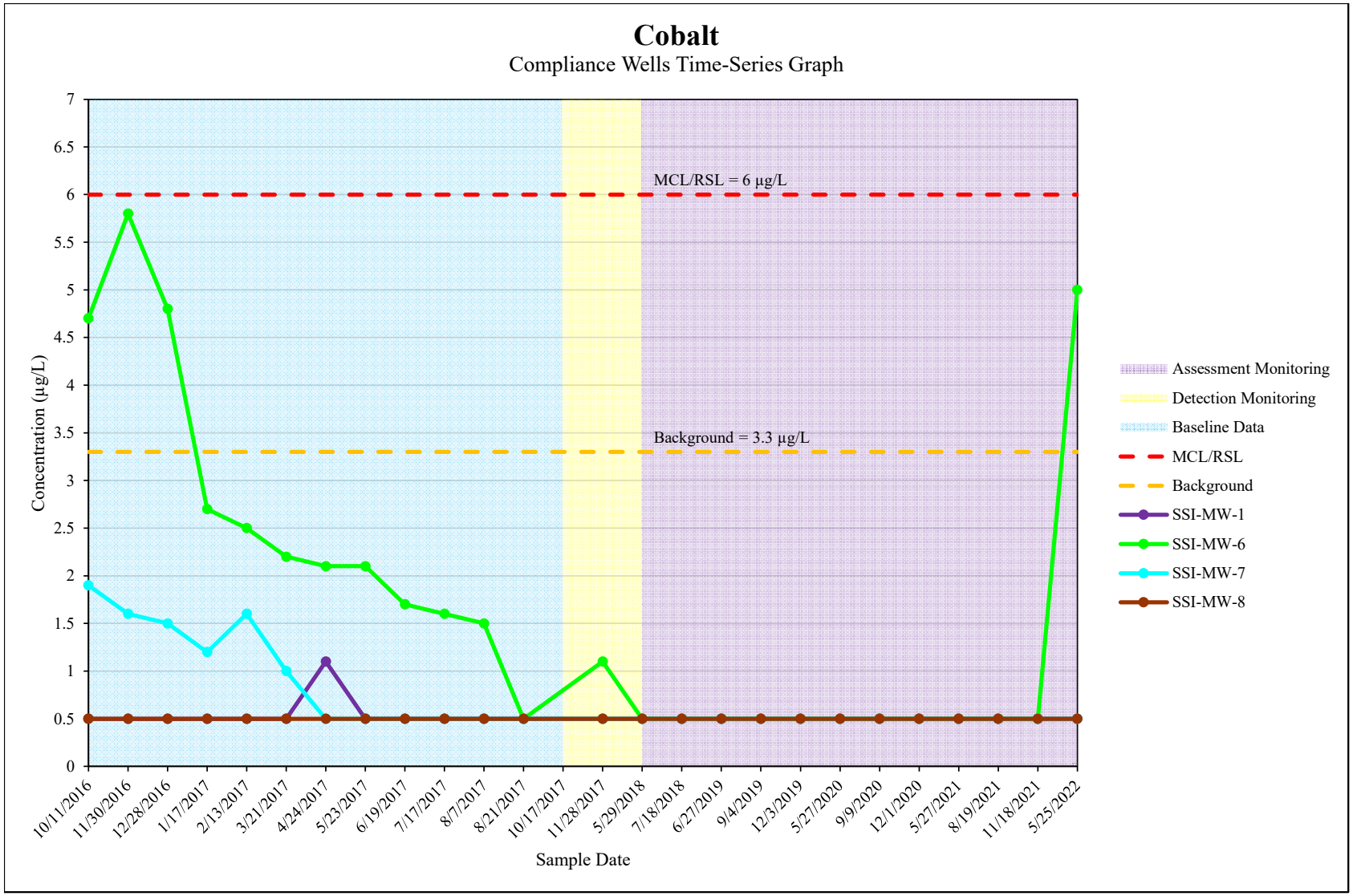
MCL Maximum Contaminant Level

RSL Regional Screening Level

µg/L Micrograms per Liter

[1] Non-Detects were replaced with 1/2 Reporting Limit, as recommended in the Unified Guidance.

Source Background values calculated by Geosyntec (2018).



Notes:

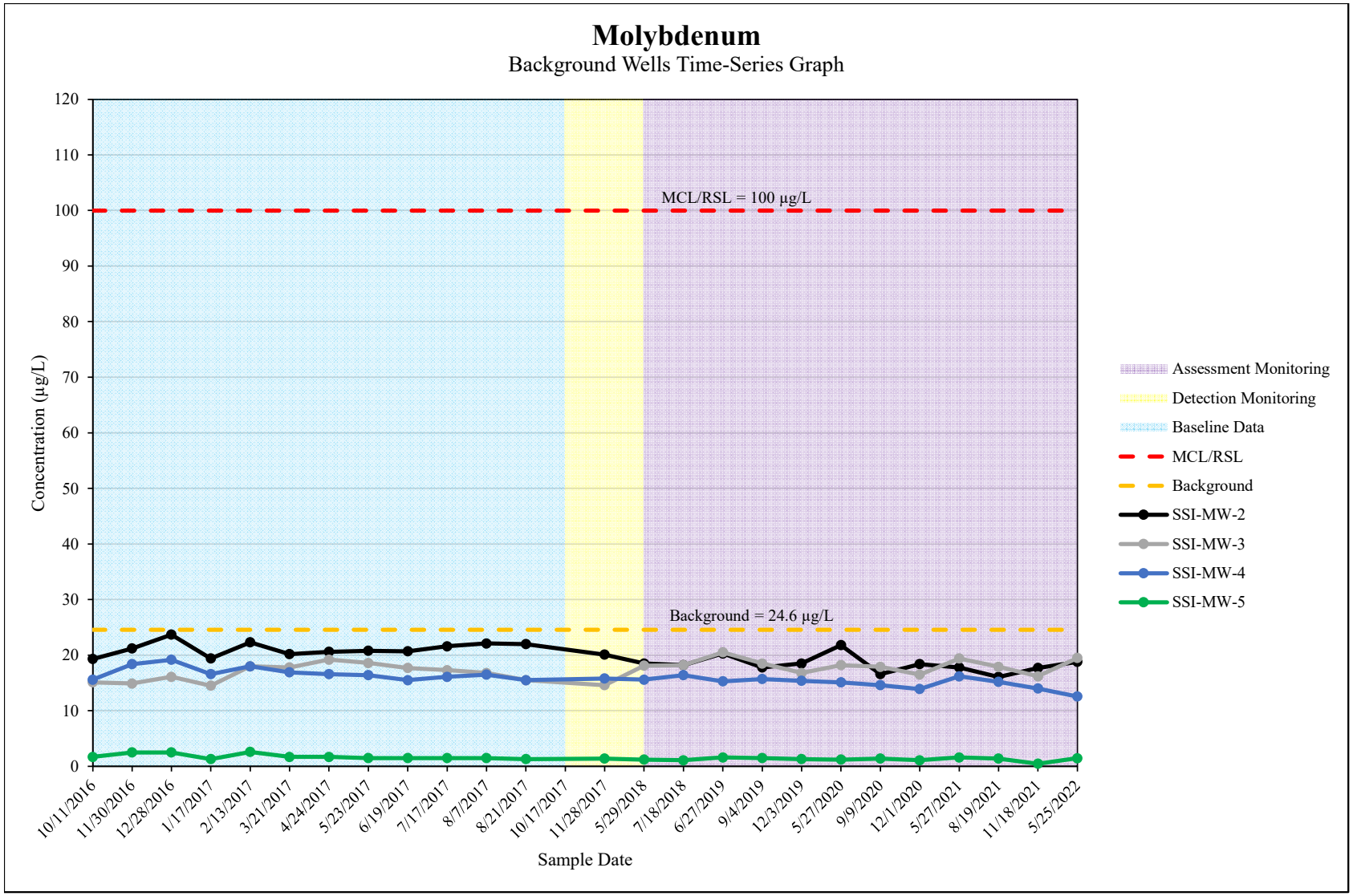
MCL Maximum Contaminant Level

RSL Regional Screening Level

µg/L Micrograms per Liter

[1] Non-Detects were replaced with 1/2 Reporting Limit, as recommended in the Unified Guidance.

Source Background values calculated by Geosyntec (2018).



Notes:

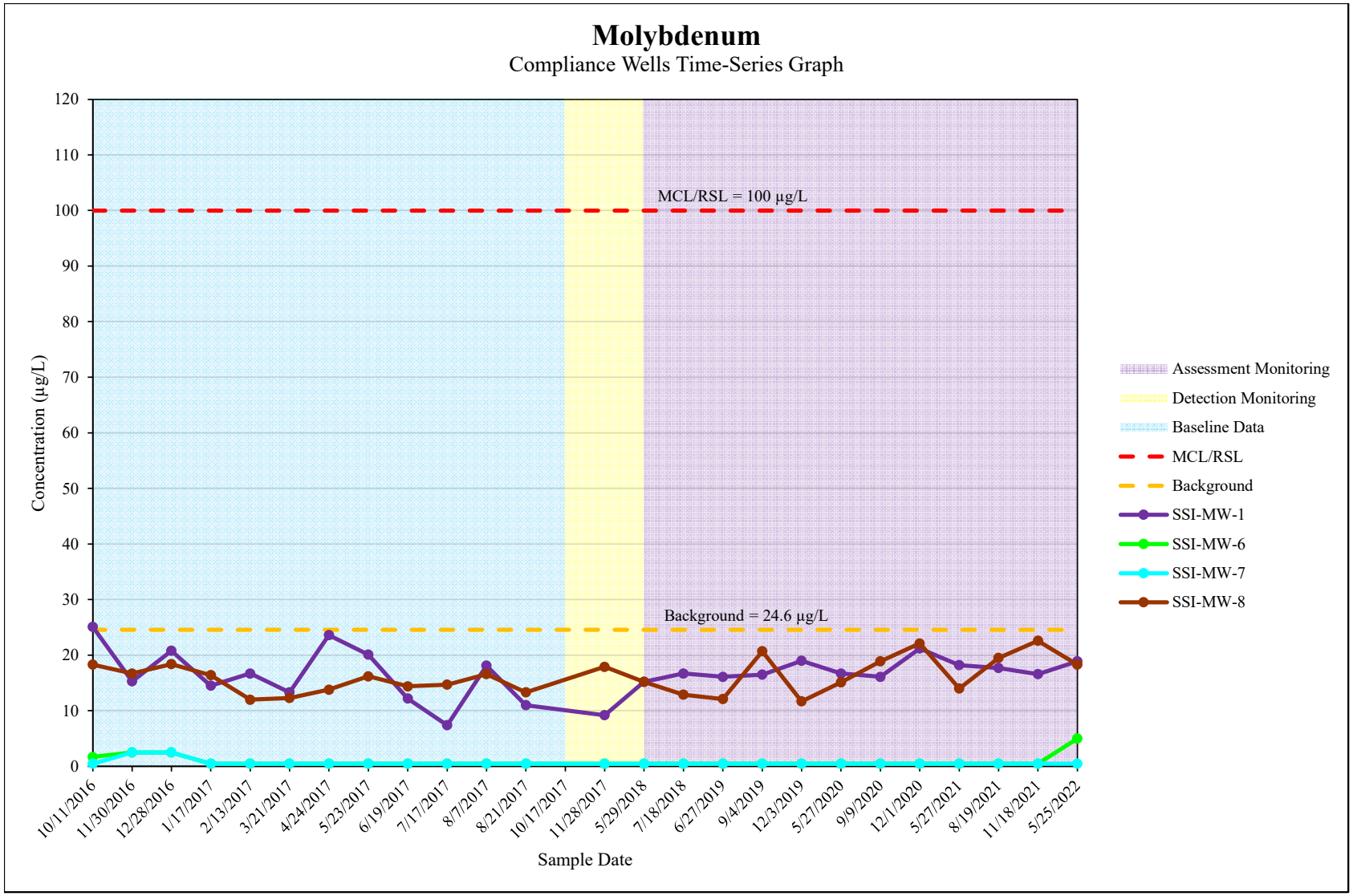
MCL Maximum Contaminant Level

RSL Regional Screening Level

µg/L Micrograms per Liter

[1] Non-Detects were replaced with 1/2 Reporting Limit, as recommended in the Unified Guidance.

Source Background values calculated by Geosyntec (2018).



Notes:

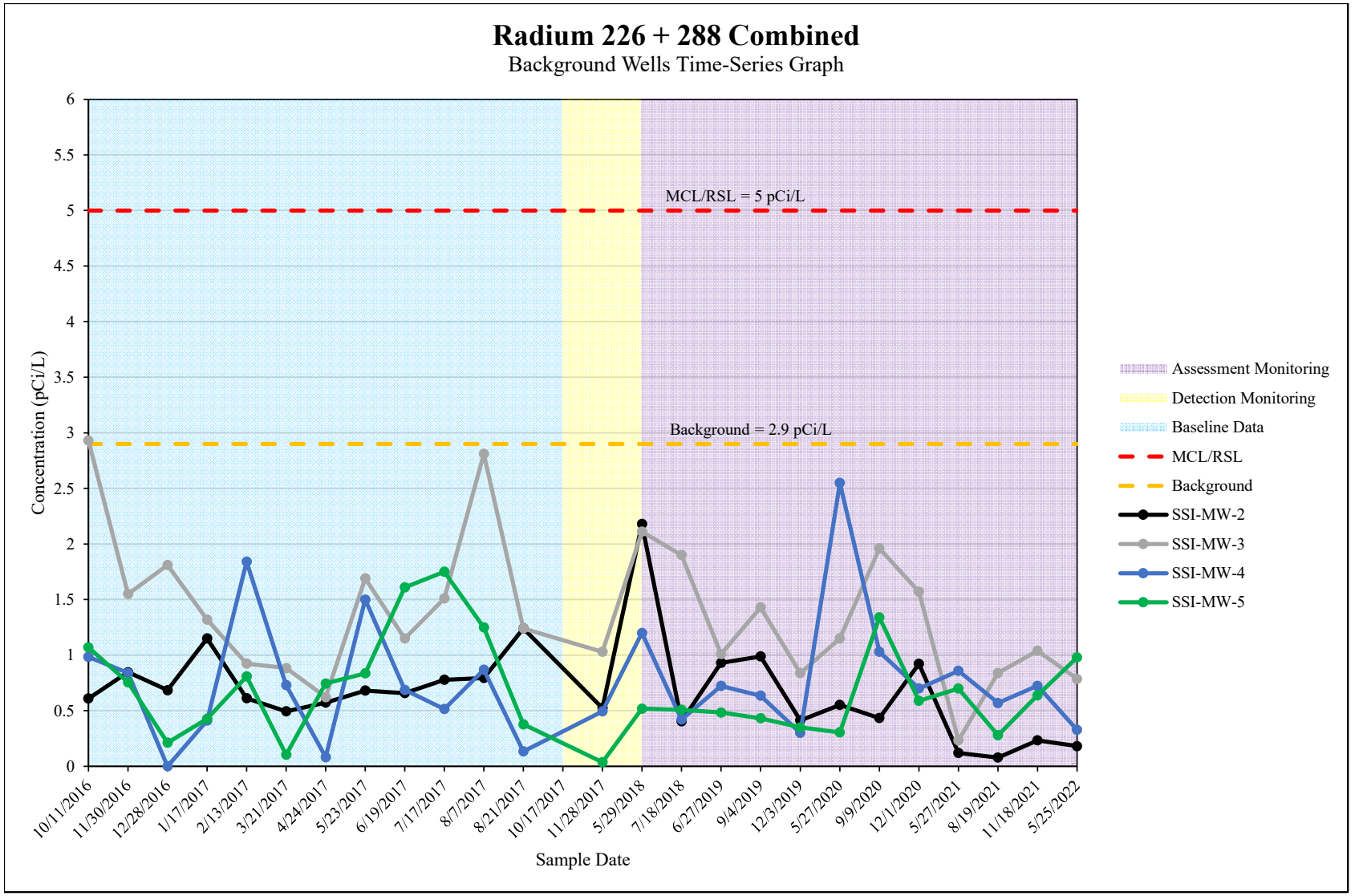
MCL Maximum Contaminant Level

RSL Regional Screening Level

µg/L Micrograms per Liter

[1] Non-Detects were replaced with 1/2 Reporting Limit, as recommended in the Unified Guidance.

Source Background values calculated by Geosyntec (2018).



Notes:

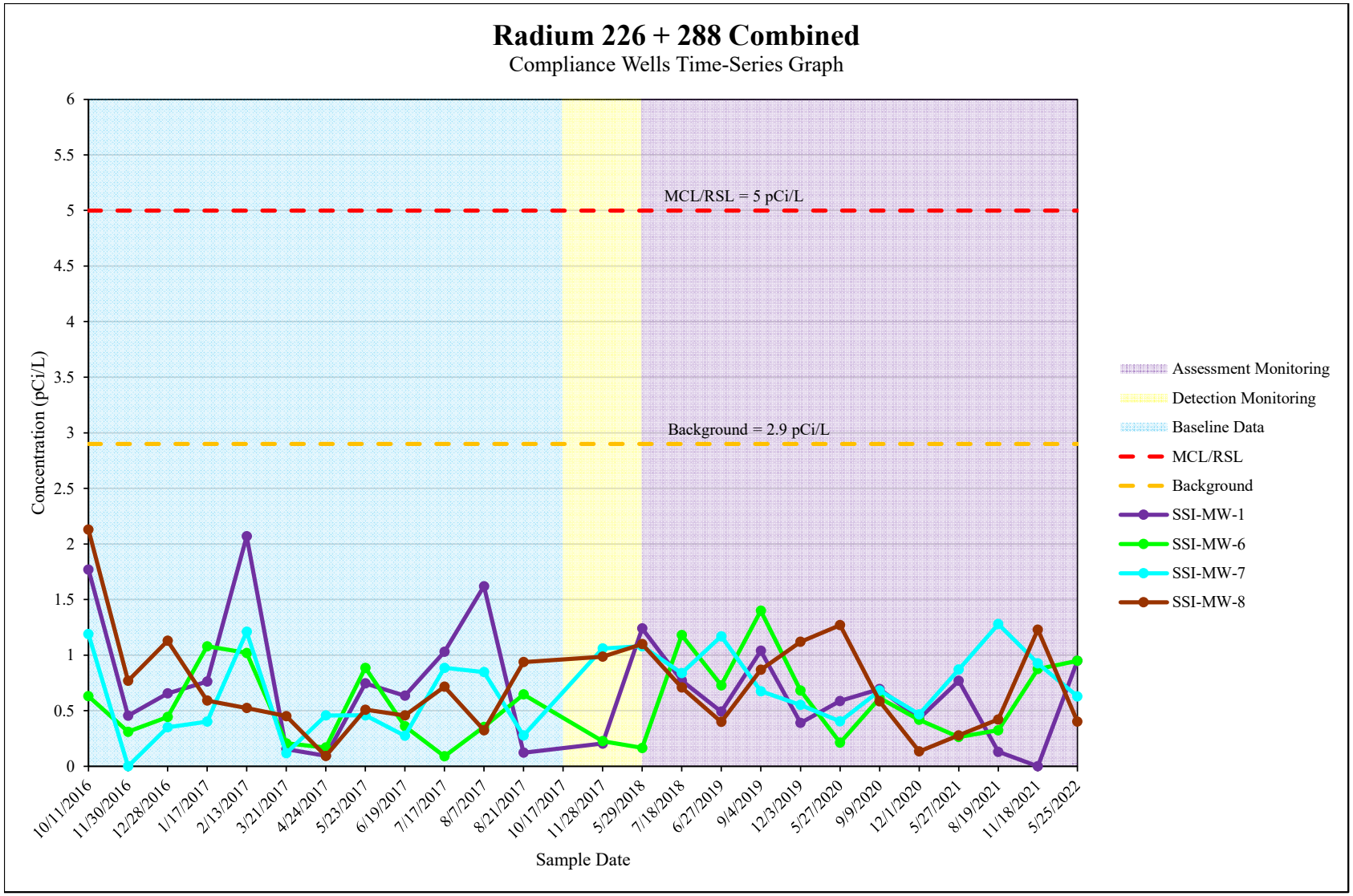
MCL Maximum Contaminant Level

RSL Regional Screening Level

pCi/L Picocuries per Liter

[1] Non-Detects were replaced with 1/2 Reporting Limit, as recommended in the Unified Guidance.

Source Background values calculated by Geosyntec (2018).



Notes:

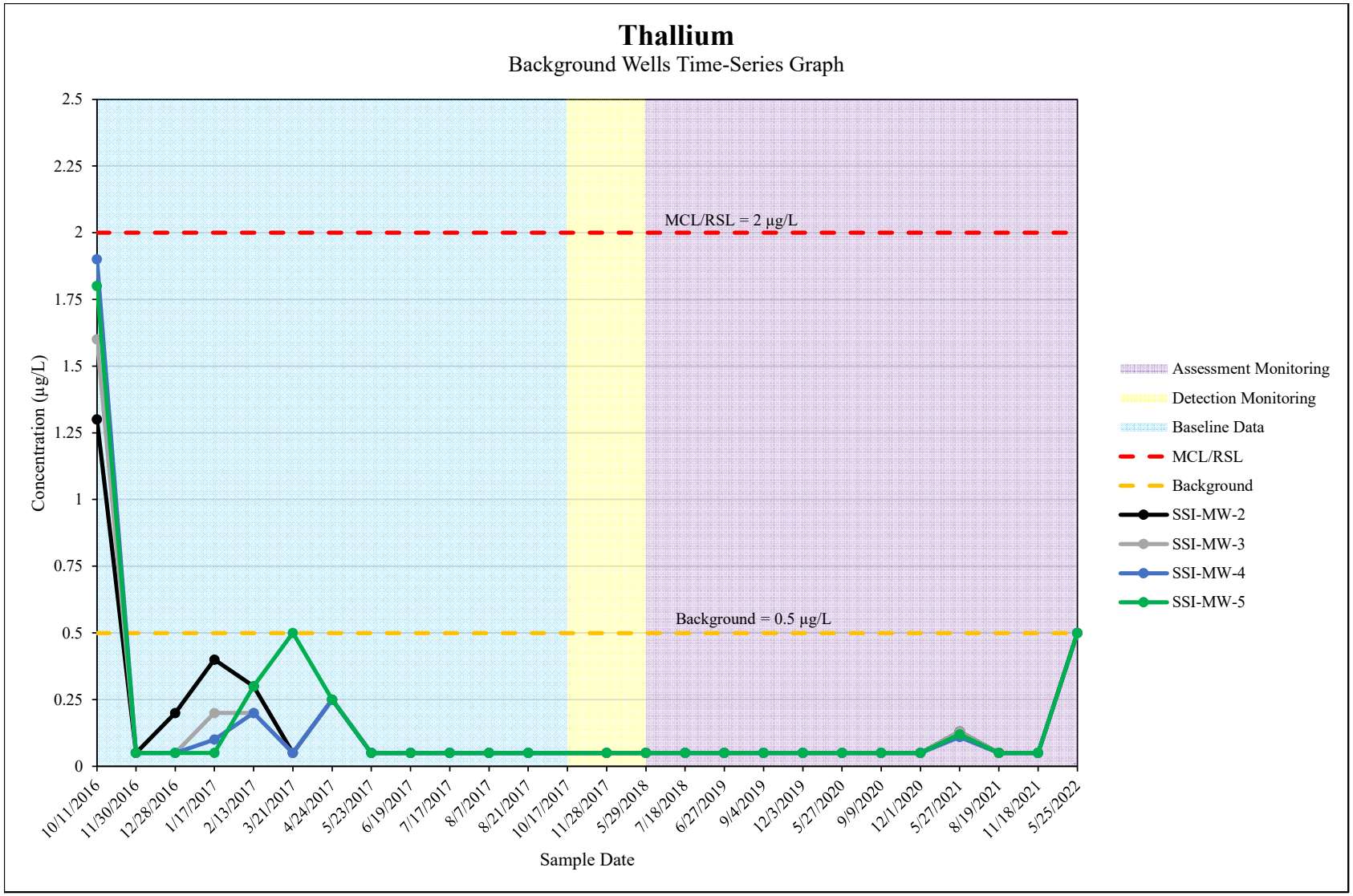
MCL Maximum Contaminant Level

RSL Regional Screening Level

pCi/L Picocuries per Liter

[1] Non-Detects were replaced with 1/2 Reporting Limit, as recommended in the Unified Guidance.

Source Background values calculated by Geosyntec (2018).



Notes:

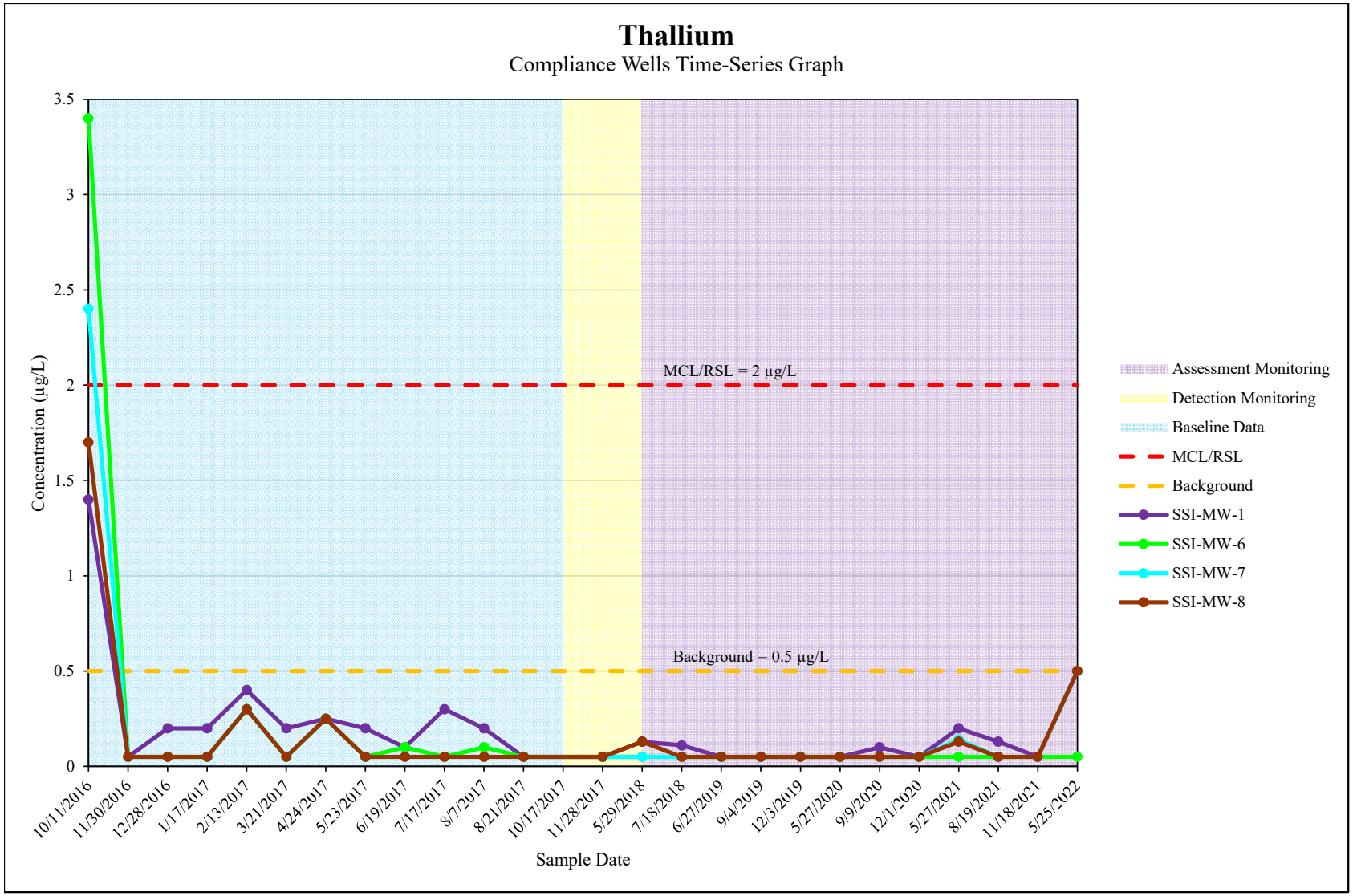
MCL Maximum Contaminant Level

RSL Regional Screening Level

µg/L Micrograms per Liter

[1] Non-Detects were replaced with 1/2 Reporting Limit, as recommended in the Unified Guidance.

Source Background values calculated by Geosyntec (2018).



Notes:

MCL Maximum Contaminant Level

RSL Regional Screening Level

µg/L Micrograms per Liter

[1] Non-Detects were replaced with 1/2 Reporting Limit, as recommended in the Unified Guidance.

Source Background values calculated by Geosyntec (2018).