



**Sebree Generating Station  
Reid/HMP&L CCR Surface Impoundment**

# 2022 Annual Groundwater Monitoring and Corrective Action Report

**Revision 0**

**January 31, 2023**

**Issue Purpose: Client Use**

**Project No.: 14055-010**

**K P R G**

ENVIRONMENTAL CONSULTATION & REMEDIATION

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## EXECUTIVE SUMMARY / OVERVIEW

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Groundwater monitoring requirements in accordance with Sections 257.94 and 257.95 of the U.S. Environmental Protection Agency's (EPA) Coal Combustion Residuals (CCR) Rule, 40 CFR Part 257 Subpart D, have been completed for the Reid/Henderson Municipal Power & Light (Reid/HMP&L) CCR Surface Impoundment (the Unit) at the Big Rivers Electric Corporation's (BREC) Sebree Generating Station (the Station) located in Webster County, Kentucky. The CCR monitoring well network for this Unit consists of four monitoring wells (MW-7 through MW-10) as shown on Figure 1. Well MW-7 is the background monitoring well, and wells MW-8, MW-9, and MW-10 are the downgradient monitoring wells. The Unit also has an assessment groundwater monitoring network to assist in defining the nature and extent of impacts as required under 40 CFR 257.95(g)(1). The current assessment network consists of wells MW-110, MW-111, and MW-112, which are also shown on Figure 1. Well MW-110 was installed in 1<sup>st</sup> Quarter 2019, while wells MW-111 and MW-112 were installed in 1<sup>st</sup> Quarter 2022.

This overview of the 2022 groundwater monitoring period is provided in accordance with revised requirements under Section 257.90(e)(6) of the CCR Rule. Each required item is discussed separately below.

- Section 257.90(e)(6)(i) – At the start of the current monitoring period, the subject CCR unit was operating under the assessment monitoring program in accordance with Section 257.95 of the CCR Rule.
- Section 257.90(e)(6)(ii) – At the end of the current monitoring period, the subject CCR unit continues to operate under the assessment monitoring program in accordance with Section 257.95 of the CCR Rule.
- Section 257.90(e)(6)(iii) – The following statistically significant increases (SSIs) above established background for the Appendix III detection monitoring constituents were noted during this monitoring period:

### CCR Wells

- MW-7 (upgradient) – none
- MW-8 – boron, calcium, chloride, sulfate, and total dissolved solids (all events); and fluoride (March and June only)
- MW-9 – calcium (all events)
- MW-10 – boron, chloride, fluoride, sulfate, pH, and total dissolved solids (all events)

Expanded Nature and Extent Assessment Wells

- MW-110 – boron, calcium chloride, sulfate, and total dissolved solids (all events)
- MW-111 – boron, chloride, and fluoride (all events); and pH and total dissolved solids (December only)
- MW-112 – chloride (all events); boron (March only); and total dissolved solids (December only)

The initial statistical evaluation of Appendix III constituents determined that there were SSIs in downgradient monitoring wells relative to established background prediction limits for various Appendix III parameters at various downgradient monitoring locations. The monitoring program was transitioned to assessment monitoring under Section 257.95 of the CCR Rule in February 2018.

- Section 257.90(e)(6)(iv) – There was one only constituent confirmed at a statistically significant level (SSL) above groundwater protection standards for the Appendix IV assessment monitoring constituents for this Unit during this monitoring period. Specifically, this was for lithium at downgradient CCR monitoring well MW-10. This is consistent with previous monitoring periods.

The assessment of corrective measures (ACM) in accordance with Section 257.96(a) of the CCR Rule was initiated in January 2019 and is currently ongoing with additional engineering options being evaluated. A public meeting to present the results of the corrective measures study and the proposed groundwater remedy is anticipated for 1<sup>st</sup> Quarter 2023.

- Section 257.90(e)(6)(v) – Remedy selection pursuant to Section 257.97 of the CCR Rule is in process and will not be completed until the required public meeting is held to present the results of the ACM and the proposed groundwater remedy.
- Section 257.90(e)(6)(vi) – Remedial activities pursuant to Section 257.98 of the CCR Rule were not initiated during this reporting period.

## 1.0 INTRODUCTION

On behalf of Big Rivers Electric Corporation (BREC), KPRG Associates, Inc. (KPRG) and Sargent & Lundy (S&L) have prepared this Annual Groundwater Monitoring and Corrective Action Report for the Reid/Henderson Municipal Power & Light (Reid/HMP&L) CCR Surface Impoundment (the Unit) at the Sebree Generating Station (the Station) located in Webster County, Kentucky.

Groundwater sampling in accordance with the 2022 semi-annual assessment monitoring requirements promulgated by Sections 257.94 and 257.95 of the U.S. Environmental Protection Agency's (EPA) Coal Combustion Residuals (CCR) Rule, 40 CFR Part 257 Subpart D, have been completed for the Unit. The CCR monitoring well network consists of four monitoring wells (MW-7 through MW-10) as shown on Figure 1. Well MW-7 is the upgradient, background monitoring location. Monitoring wells MW-8, MW-9 and MW-10 are the downgradient monitoring locations. The Unit also has an assessment groundwater monitoring network to assist in defining the nature and extent of groundwater impacts as required under 40 CFR 257.95(g)(1). The current assessment network consists of wells MW-110, MW-111, and MW-112, which are also shown on Figure 1. Well MW-110 was installed in 1<sup>st</sup> Quarter 2019, while wells MW-111 and MW-112 were installed in 1<sup>st</sup> Quarter 2022.

This annual report covers the work performed relative to CCR groundwater monitoring during the calendar year 2022. It does not duplicate information or activities reported in previous annual submittals. It is prepared in accordance with 40 CFR 257.90(e)(1) through (6) and summarizes the sampling procedures used, provides an evaluation of groundwater flow conditions, summarizes the analytical data generated, presents the statistical evaluations and assessment monitoring completed, identifies the other key compliance actions completed during the year, and provides the current status of the site compliance activities along with recommendations.

## 2.0 FIELD PROCEDURES AND GROUNDWATER FLOW EVALUATION

### 2.1 FIELD PROCEDURES

As previously noted, the Unit's groundwater monitoring program consists of the CCR groundwater monitoring network around the Reid/HMP&L CCR Surface Impoundment (wells MW-7 through MW-10) and the assessment monitoring network (wells MW-110, MW-111 and MW-112), all as shown on Figure 1. Characterization well MW-110 was installed by AECOM in February 2019. It is noted that well MW-110 was installed without proper Kentucky Division of Waste Management (KDWM) approval. However, as discussed in the Supplemental Site Investigation Report dated September 1, 2022, the well was installed using recognized industry practices by a Kentucky licensed well driller. The groundwater sampling data from this well is believed to be representative of existing water quality and is only being used for screening purposes.

In February 2022, KPRG installed two additional characterization monitoring wells, MW-111 and MW-112, for the purposes of assisting with defining the extent of potential lithium impacts to the southwest and south-southeast of well MW-10 (KPRG and S&L, 2022). The wells were installed using rotary sonic drilling and constructed in accordance with the “Monitoring Well Drilling/Construction Specification” submitted to the Kentucky Energy and Environment Cabinet, Department of Environmental Protection, Division of Waste Management (DWM) on February 11, 2022, and verbally approved by the DWM on February 15, 2022, with formal written approval received on February 17, 2022. Boring logs and construction summaries for these two new characterization wells are provided in Appendix A.

As part of sampling procedures, the integrity of all monitoring wells was inspected and water levels were obtained using an electronic water level meter (see summary of water level discussion below). All wells were found in good condition with locked protector casings and intact concrete surface seals.

All groundwater samples were collected using the low-flow sampling technique from dedicated pumps. The samples were not filtered prior to analysis to provide for total metals concentrations as opposed to dissolved metals concentrations.

## 2.2 GROUNDWATER FLOW EVALUATION

Water level data measurements were obtained from each well during each round of groundwater monitoring. A complete round of water levels was collected prior to initiating sampling, and the water level data for 2022 are summarized in Table 1.

**Table 1. Reid/HMP&L CCR Surface Impoundment – 2022 Groundwater Elevation Data**

Monitoring Well	Top of Casing Elevation (ft, amsl)	Groundwater Elevation (ft, amsl) March 2022	Groundwater Elevation (ft, amsl) June 2022	Groundwater Elevation (ft, amsl) December 2022
MW-7	440.93	424.68	424.13	424.44
MW-8	394.29	390.59	390.44	387.96
MW-9	395.40	389.81	389.39	387.47
MW-10	422.27	390.63	390.29	388.37
MW-110	388.70	385.52	384.71	382.84*
MW-111	403.57	389.98	389.53	387.75*
MW-112	427.77	394.17	395.01	393.17*

Note: \* - Water levels for assessment wells collected 12/2/22. All others collected 12/7/22.

The water levels were used to generate groundwater flow maps for the three sampling events, which are provided as Figures 2, 3, and 4. A review of the maps indicates groundwater flow is consistently to the southwest towards an unnamed tributary to Groves Creek located west-southwest of the impoundment. In accordance with general groundwater sampling requirements under 40 CFR 257.93(c), Table 2 provides a summary of the natural flow and an estimated rate of groundwater flow for each sampling event. The flow rate was calculated using the following equation:

$$V_s = \frac{Kdh}{n_e dl}, \text{ where:}$$

$V_s$  is seepage velocity (distance/time)

$K$  is hydraulic conductivity (distance/time)

$dh/dl$  is hydraulic gradient (unitless)

$n_e$  is effective porosity (unitless)

The hydraulic conductivity geometric mean of  $3.1 \times 10^{-5}$  cm/sec ( $1.02 \times 10^{-6}$  ft/sec) used in Table 2 was obtained from the slug test results completed on wells MW-10, MW-110, MW-111, and MW-112. The horizontal hydraulic gradient was obtained from the respective groundwater flow maps provided on Figures 2 through 4. An estimated effective porosity of the aquifer materials of 0.10 was used (Freeze and Cherry, 1979).

**Table 2. Reid/HMP&L CCR Surface Impoundment – Groundwater Seepage Velocity Estimates**

Date	Groundwater Flow Direction	$K_{avg}$ (ft/sec)	Average Hydraulic Gradient	Porosity (unitless)	Estimated Seepage Velocity (ft/day)
March 2022	Southwesterly	1.02E-6	0.026	0.1	0.023
June 2022	Southwesterly	1.02E-6	0.028	0.1	0.025
December 2022	Southwesterly	1.02E-6	0.027	0.1	0.024

### 3.0 ANALYTICAL DATA AND STATUS OF EVALUATIONS

#### 3.1 SAMPLING SUMMARY

The groundwater sampling summary from 2022 is provided in Table 3, in accordance with 40 CFR 257.90(e)(3). The table includes the event type dates of sampling and wells included in the sampling.

**Table 3. Reid/HMP&L CCR Surface Impoundment – Summary of Groundwater Sampling Events**

Event Type	Sampling Event	Dates	Wells Sampled
Assessment	Semi-Annual	March 16, 2022	MW-7 (upgradient), MW-8, MW-9, and MW-10
Characterization	1	March 16, 2022	MW-110, MW-111, and MW-112
Characterization	2	June 7, 2022	MW-7 (upgradient), MW-8, MW-9, MW-10, MW-110, MW-111 and MW-112.
Assessment	Semi-Annual	November 30, 2022	MW-7 (upgradient), MW-8, MW-9, and MW-10
Characterization	3	December 2, 2022	MW-110, MW-111, MW-112

### 3.2 DATA SUMMARY

As discussed in Section 1.0, this site is in assessment monitoring. The analytical data for each well from the assessment monitoring groundwater sampling for Appendix III and IV parameters are provided in Appendix B (Tables B-1 through B-7) along with calculated prediction limits and applicable Groundwater Protection Standards (GWPSs) under the CCR Rule for Appendix IV constituents. All tables include the sample dates and whether the specific well is considered upgradient or downgradient relative to groundwater flow and the Unit. The analytical data packages from these sampling events are provided in Appendix C. It is noted that updated background calculations for statistical purposes were completed as part of the 2021 Annual Groundwater and Corrective Action Report and are considered still representative for statistical comparison purposes. Recalculation of background values is not appropriate at this time because the Unit is under a semi-annual assessment sampling program. Recalculation of background statistics at this time would therefore not be accordance with the Unified Guidance as sufficient new data has not been generated to verify that it is statistically viable to pool it with the existing background dataset. For semi-annual sampling programs, the *minimum* timeframe prior to recalculating background is 2 to 3 years based on the Unified Guidance.

Relative to the results of the expanded assessment monitoring program for the purposes of defining the extent of groundwater impacts, groundwater sampling was performed at the Unit in March, June, and November/December 2022. The sampling included all existing and new monitoring wells. The groundwater samples were analyzed for the full list of CCR Rule Appendix III and Appendix IV parameters. The data are included in the tables provided in Appendix B along with all previous data for the wells. Detections above

established prediction limits suggesting a statistically significant increase (SSI) in downgradient wells for both Appendix III and Appendix IV parameters are as follows:

### Appendix III Parameters

#### CCR Wells

- MW-7 (upgradient) – none
- MW-8 – boron, calcium, chloride, sulfate, and total dissolved solids (all events); and fluoride (March and June only)
- MW-9 – calcium (all events)
- MW-10 – boron, chloride, fluoride, sulfate, pH, and total dissolved solids (all events)

#### Expanded Nature and Extent Assessment Wells

- MW-110 – boron, calcium, chloride, sulfate, and total dissolved solids (all events)
- MW-111 – boron, chloride, and fluoride (all events); and pH and total dissolved solids (December only)
- MW-112 – chloride (all events); boron (March only); and total dissolved solids (December only)

### Appendix IV Parameters

#### CCR Wells

- MW-7 – chromium, lithium and mercury (March only); and thallium (June only)
- MW-8 – lithium (all events); fluoride (March and June only); and mercury (June and November only)
- MW-9 – barium (all events); chromium (November only); mercury (March and November only); and thallium (June only)
- MW-10 – barium, fluoride, and lithium (all events); mercury (March and November only); and thallium (June only)

Expanded Nature and Extent Assessment Wells

- MW-110 – lithium (all events); chromium and lead (March and June only); and cobalt and thallium (June only)
- MW-111 – barium and fluoride (all events); mercury (March and December only); and antimony and lithium (March only)
- MW-112 – barium (all events); chromium, lead, and lithium (March and June only); beryllium, cobalt, radium, and thallium (June only); and mercury (December only)

Relative to statistically significant level (SSL) detections above established GWPSs, the data indicate results consistent with historical sampling with the exception of cobalt being detected in the June 2022 sampling of well MW-112 at a concentration of 0.0141 mg/l. This was an order-of-magnitude above the previous March 2022 sampling results at this well (0.002 mg/l) and also above what has been historically detected at all other monitoring wells. Since the established GWPS for cobalt is 0.006 mg/l, a verification resampling of well MW-112 for cobalt, as allowed by the CCR Rule, was completed on July 26, 2022. The results of the verification sampling for cobalt indicated a concentration of 0.00297 mg/l which is consistent with all previous data and below the established GWPS for cobalt. This verification resampling indicates that the initial June 2022 cobalt data for well MW-112 was an anomalous measurement and not representative of actual groundwater quality for cobalt at this location.

Thallium was detected at trace concentrations above the calculated upper prediction limit at upgradient well location MW-7 as well as at downgradient well locations MW-9, MW-10, MW-110, and MW-112 during the June 2022 sampling event. All prior and subsequent sampling data indicated no detection of thallium. It is interpreted that the June thallium detections reflect some systematic error (field or lab) rather than being representative of actual groundwater quality based on the following observations:

- The narrow range of detections between the wells (0.00023 mg/l to 0.0007 mg/l);
- All concentrations being flagged as estimated values between the method detection limit and the instrument detection limit;
- All detections occurring only in the June 2022 sampling event including at the “upgradient” well location; and
- All other data before and after the June sampling at these locations being non-detects.

It is further noted that none of the thallium detections were above the GWPS of 0.002 mg/l.

Concentrations of all other detected parameters during the 2022 reporting period were within previously measured ranges indicating no statistical outliers or increasing data trends.

Consistent with previous sampling data, lithium is the only parameter that was detected above an established GWPS. The new lithium data collected during the 2022 sampling events are summarized below in Table 4. Only lithium at well location MW-10 exceeds the established GWPS of 0.04 mg/l.

**Table 4. Reid/HMP&L CCR Surface Impoundment – 2022 Lithium Analytical Results**

Monitoring Well	Parameter		
	Lithium GWPS 0.04 mg/L		
	March 2022	June 2022	November / December 2022
MW-7	0.01	0.00823	0.008
MW-8	0.035	0.0309	0.03
MW-9	0.0078	0.00673	0.006
MW-10	<b>0.55</b>	<b>0.486</b>	<b>0.50</b>
MW-110	0.02	0.0217	0.01
MW-111	0.014	0.00994	0.008
MW-112	0.011	0.0319	0.007

The areal distribution of lithium impacts is provided on Figure 5, which includes all assessment lithium data generated to date. This illustrates that the extent of impacts above the GWPS for lithium has been defined, and the impacts appear to be limited to the general vicinity of well MW-10. This areal distribution suggests that impacts to groundwater likely originated as seepage from beneath the southern portion of the surface impoundment, possibly due to the added driving head associated with the pond water within this portion of the Unit. However, at this time there is currently no feasible means of directly tracing that potential under the footprint of the Unit. It is noted that subsequent numerical groundwater modeling performed in support of groundwater remedy engineering evaluations corroborates this hypothesis.

### 3.3 CURRENT STATUS

The site continues to be in semi-annual assessment monitoring. No further delineation of lithium impacts is proposed at this time. Evaluations of potential corrective measures and final selection of a groundwater remedy are ongoing, and it is currently anticipated that a public meeting will be held in 1<sup>st</sup> Quarter 2023 to present the results of the corrective measures assessment to obtain public input on final remedy selection per 40 CFR 257.96(e).

## **4.0 SUMMARY / CONCLUSIONS AND RECOMMENDATIONS**

The site continues to be in semi-annual assessment monitoring. The assessment monitoring requirements in accordance with the CCR Rule are being successfully met. Only monitoring well MW-10 has shown a concentration of one Appendix IV parameter above the established GWPSs. Specifically, lithium was detected at this location in all 2022 sampling events above its GWPS of 0.4 mg/l.

At this time, it is recommended to continue with semi-annual assessment monitoring in accordance with 40 CFR 257.95. In addition, it is currently anticipated that a public meeting will be held in 1<sup>st</sup> Quarter 2023 to present the results of the corrective measures assessment to obtain public input on final remedy selection per 40 CFR 257.96(e). Based on the results of that meeting, final remedy selection will be completed and placed into the Station's operating record per 40 CFR 257.97(a). It is noted that once the final remedy is selected, initiation of remedial activities must occur within 90 days in accordance with 40 CFR 257.98.

## 5.0 REFERENCES

AECOM, 2018. 2016-2017 Annual Groundwater Monitoring and Corrective Action Report, Sebree Generating Station, Webster County, Kentucky, January 2018.

AECOM, 2019a. 2018 Annual Groundwater Monitoring and Corrective Action Report, Sebree Generating Station, Webster County, Kentucky, January 2019.

AECOM, 2019b. Remedy Selection Progress Report, Reid/HMP&L Surface Impoundment, Sebree Generating Station, Webster County, Kentucky, December 2019.

AECOM, 2020. 2019 Annual Groundwater Monitoring and Corrective Action Report, Sebree Generating Station, Henderson and Webster Counties, Kentucky, January 2020.

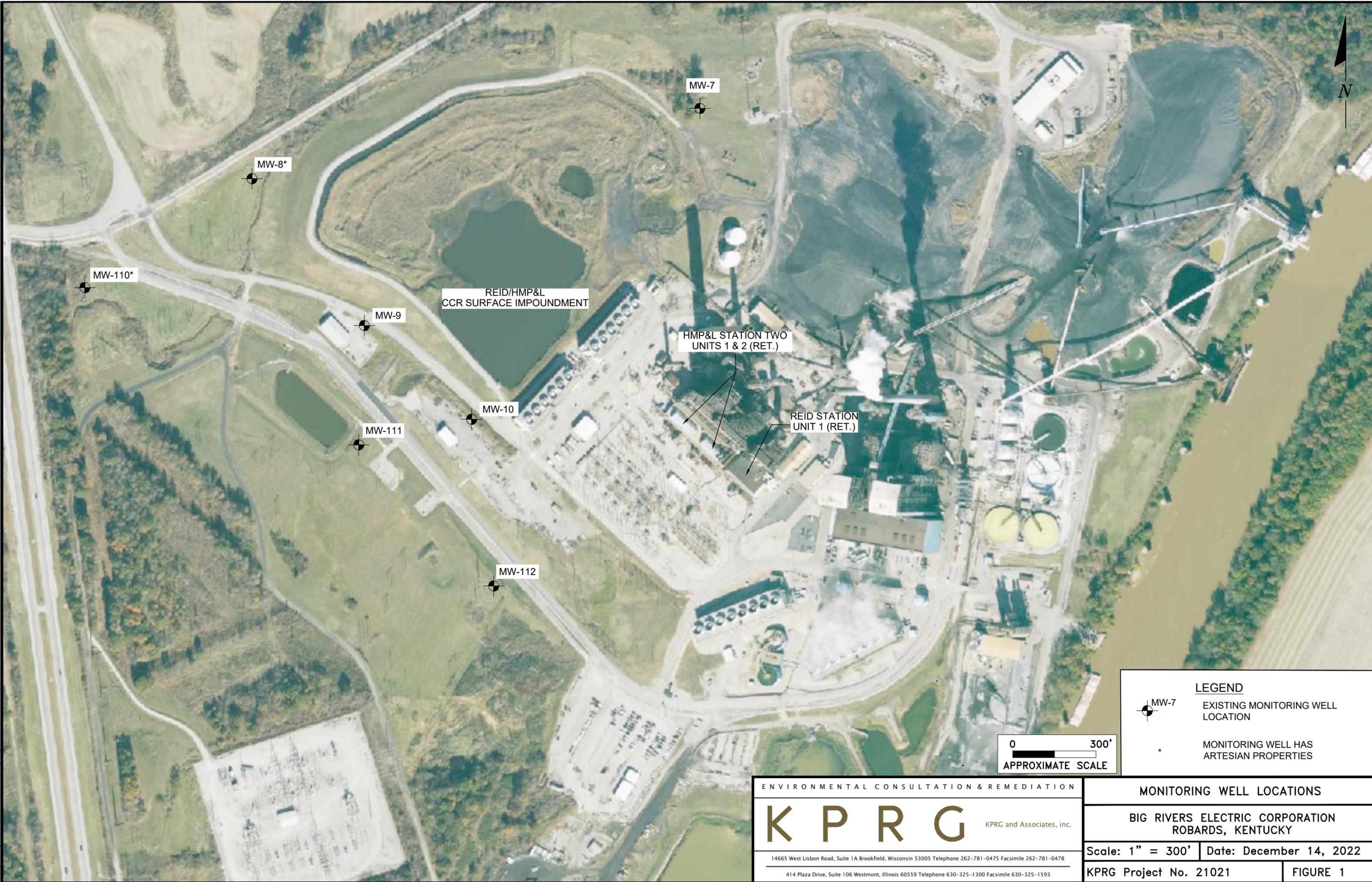
AECOM, 2021a. 2020 Annual Groundwater Monitoring and Corrective Action Report, Sebree Generating Station, Henderson and Webster Counties Kentucky, January 2021.

AECOM, 2022. 2021 Annual Groundwater Monitoring and Corrective Action Report, Sebree Generating Station, Henderson and Webster Counties Kentucky January 2022.

Freeze, R.A. and Cherry, J.A., 1979. *Groundwater*. Prentice-Hall, Inc. Publishing.

S&L and KPRG, 2022. Supplemental Site Characterization Report. Sebree Generating Station, Reid/HMP&L CCR Surface Impoundment. Rev. 0. September 2022.

## **FIGURES**



**LEGEND**

MW-7 EXISTING MONITORING WELL LOCATION

\* MONITORING WELL HAS ARTESIAN PROPERTIES



ENVIRONMENTAL CONSULTATION & REMEDIATION

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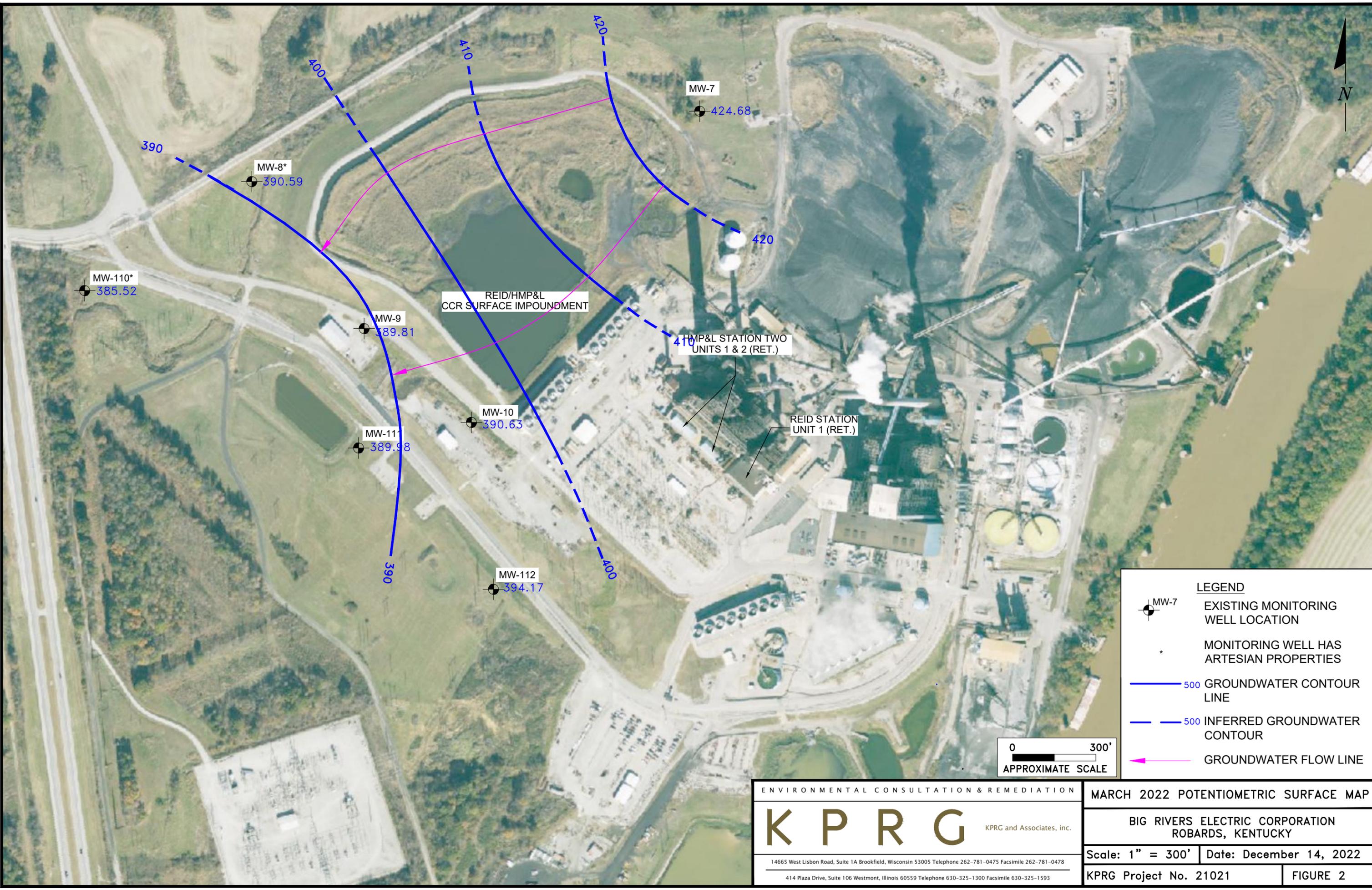
**MONITORING WELL LOCATIONS**

**BIG RIVERS ELECTRIC CORPORATION  
ROBARDS, KENTUCKY**

Scale: 1" = 300' Date: December 14, 2022

KPRG Project No. 21021 **FIGURE 1**

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MW-8\*  
390.59

MW-110\*  
385.52

MW-9  
389.81

MW-11  
389.98

MW-10  
390.63

MW-112  
394.17

MW-7  
424.68

REID/HMP&L  
CCR SURFACE IMPOUNDMENT

HMP&L STATION TWO  
UNITS 1 & 2 (RET.)

REID STATION  
UNIT 1 (RET.)

**LEGEND**

- MW-7 EXISTING MONITORING WELL LOCATION
- \* MONITORING WELL HAS ARTESIAN PROPERTIES
- 500 GROUNDWATER CONTOUR LINE
- 500 INFERRED GROUNDWATER CONTOUR
- GROUNDWATER FLOW LINE

0 300'  
APPROXIMATE SCALE

ENVIRONMENTAL CONSULTATION & REMEDIATION

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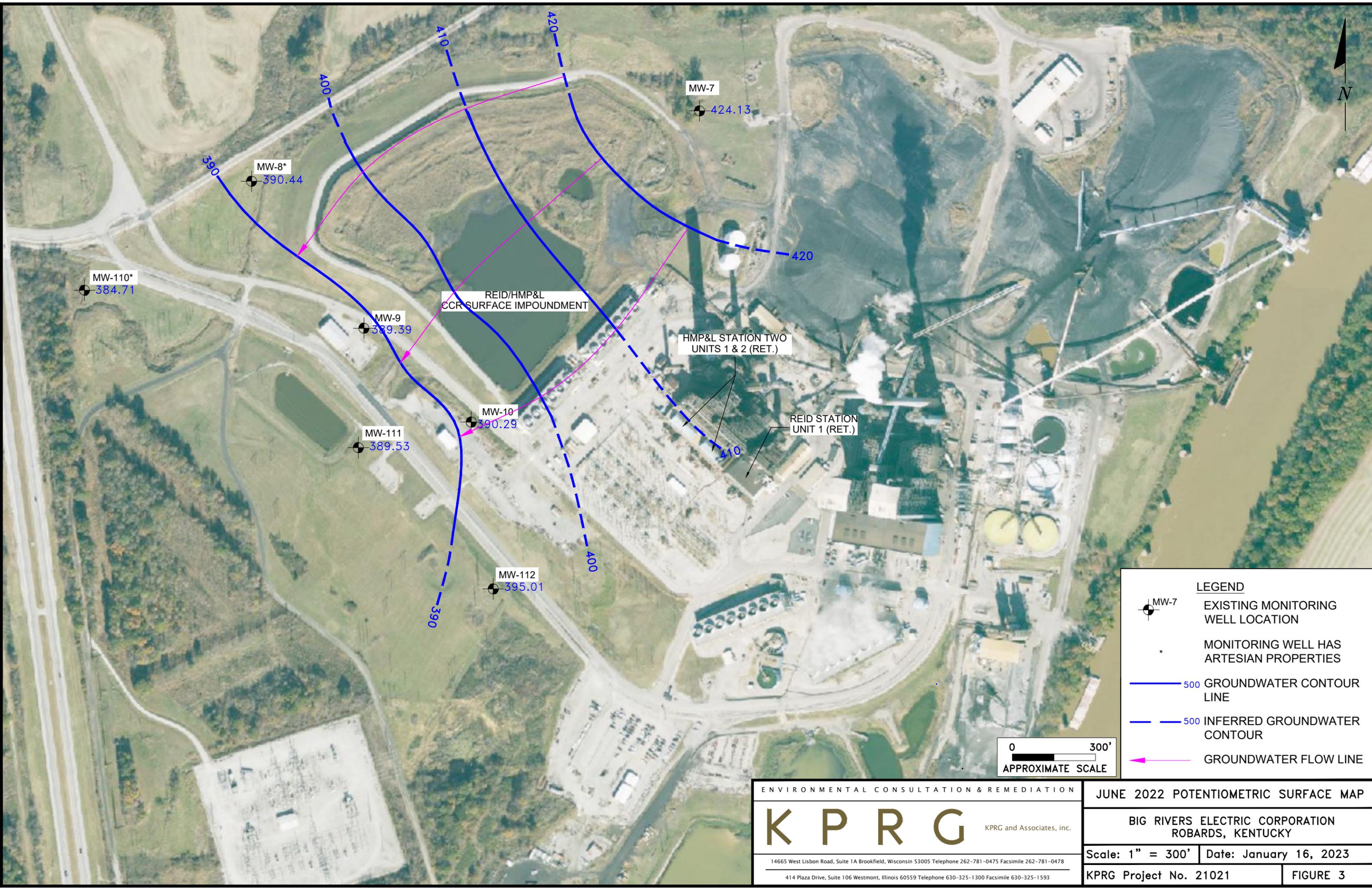
MARCH 2022 POTENTIOMETRIC SURFACE MAP

BIG RIVERS ELECTRIC CORPORATION  
ROBARDS, KENTUCKY

Scale: 1" = 300' Date: December 14, 2022

KPRG Project No. 21021 FIGURE 2

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**LEGEND**

- MW-7 EXISTING MONITORING WELL LOCATION
- MONITORING WELL HAS ARTESIAN PROPERTIES
- 500 GROUNDWATER CONTOUR LINE
- 500 INFERRED GROUNDWATER CONTOUR
- GROUNDWATER FLOW LINE

0 300'  
APPROXIMATE SCALE

ENVIRONMENTAL CONSULTATION & REMEDIATION

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414 Plaza Drive, Suite 106 Westmont, Illinois 60559 Telephone 630-325-1300 Facsimile 630-325-1593

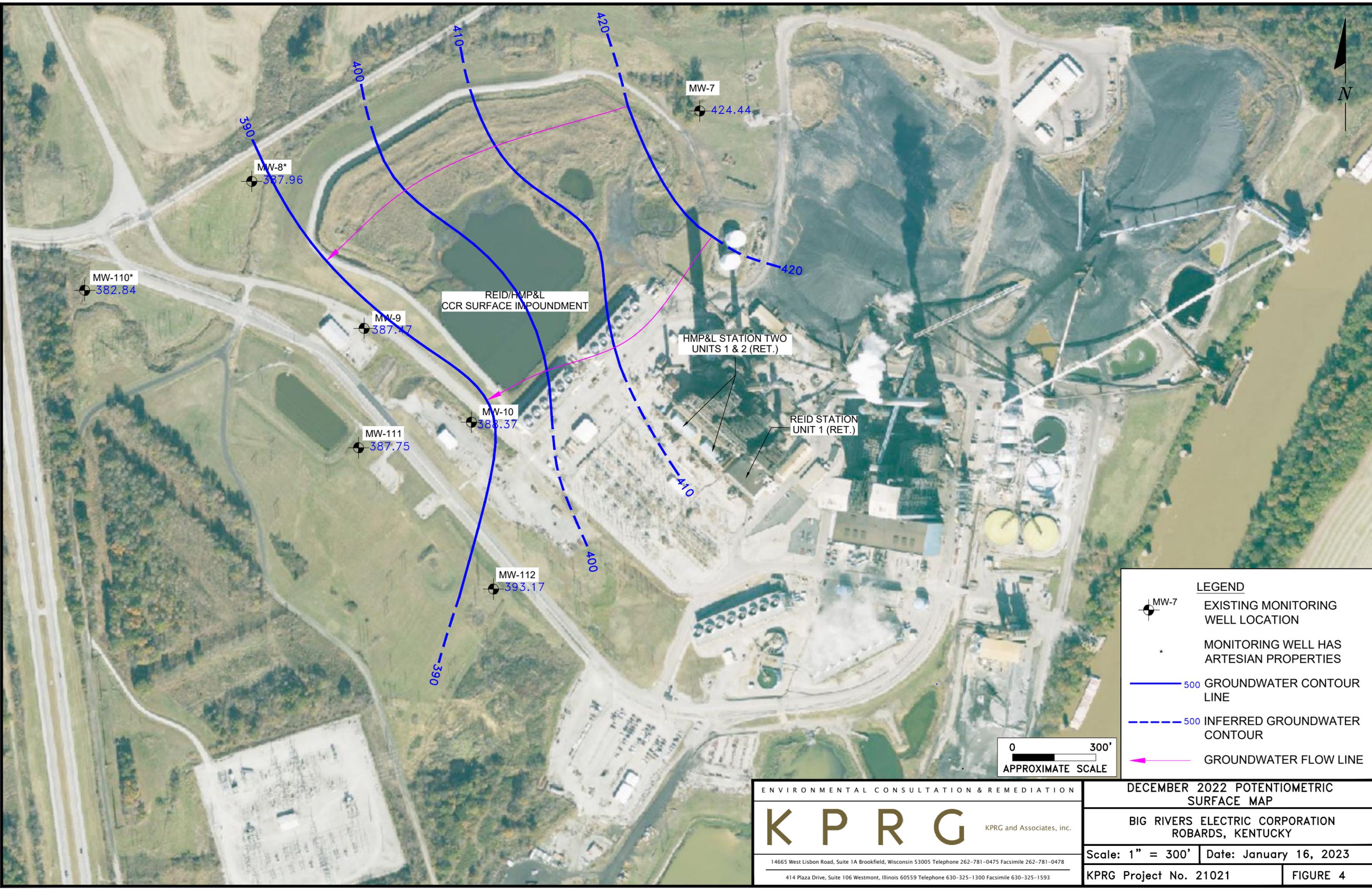
JUNE 2022 POTENTIOMETRIC SURFACE MAP

BIG RIVERS ELECTRIC CORPORATION  
ROBARDS, KENTUCKY

Scale: 1" = 300' Date: January 16, 2023

KPRG Project No. 21021 FIGURE 3

\\projects\argent & lindy-kentucky\kprg\drawings.dwg



MW-8\*  
387.96

MW-7  
424.44

MW-110\*  
382.84

MW-9  
387.47

REID/HMP&L  
CCR SURFACE IMPOUNDMENT

HMP&L STATION TWO  
UNITS 1 & 2 (RET.)

MW-111  
387.75

MW-10  
388.37

REID STATION  
UNIT 1 (RET.)

MW-112  
393.17

**LEGEND**

- MW-7 EXISTING MONITORING WELL LOCATION
- \* MONITORING WELL HAS ARTESIAN PROPERTIES
- 500 GROUNDWATER CONTOUR LINE
- 500 INFERRED GROUNDWATER CONTOUR
- GROUNDWATER FLOW LINE

0 300'  
APPROXIMATE SCALE

ENVIRONMENTAL CONSULTATION & REMEDIATION

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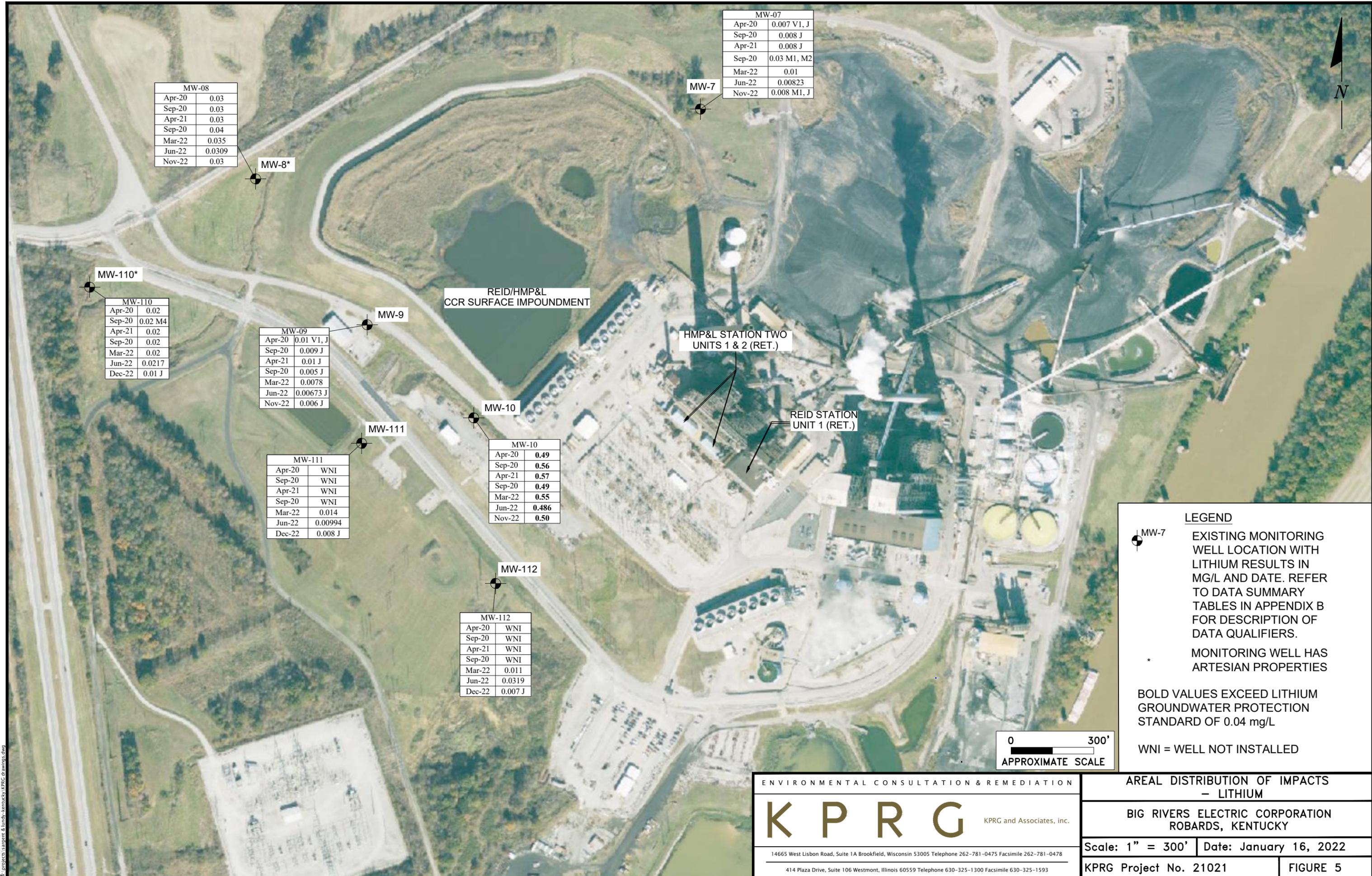
DECEMBER 2022 POTENTIOMETRIC SURFACE MAP

BIG RIVERS ELECTRIC CORPORATION  
ROBARDS, KENTUCKY

Scale: 1" = 300' | Date: January 16, 2023

KPRG Project No. 21021 | FIGURE 4

\\projects\argent & lundy-kentucky\KPRG drawings.dwg



MW-08	
Apr-20	0.03
Sep-20	0.03
Apr-21	0.03
Sep-20	0.04
Mar-22	0.035
Jun-22	0.0309
Nov-22	0.03

MW-07	
Apr-20	0.007 V1, J
Sep-20	0.008 J
Apr-21	0.008 J
Sep-20	0.03 M1, M2
Mar-22	0.01
Jun-22	0.00823
Nov-22	0.008 M1, J

MW-110\*

MW-110	
Apr-20	0.02
Sep-20	0.02 M4
Apr-21	0.02
Sep-20	0.02
Mar-22	0.02
Jun-22	0.0217
Dec-22	0.01 J

MW-09	
Apr-20	0.01 V1, J
Sep-20	0.009 J
Apr-21	0.01 J
Sep-20	0.005 J
Mar-22	0.0078
Jun-22	0.00673 J
Nov-22	0.006 J

MW-111	
Apr-20	WNI
Sep-20	WNI
Apr-21	WNI
Sep-20	WNI
Mar-22	0.014
Jun-22	0.00994
Dec-22	0.008 J

MW-10	
Apr-20	<b>0.49</b>
Sep-20	<b>0.56</b>
Apr-21	<b>0.57</b>
Sep-20	<b>0.49</b>
Mar-22	<b>0.55</b>
Jun-22	<b>0.486</b>
Nov-22	<b>0.50</b>

MW-112	
Apr-20	WNI
Sep-20	WNI
Apr-21	WNI
Sep-20	WNI
Mar-22	0.011
Jun-22	0.0319
Dec-22	0.007 J

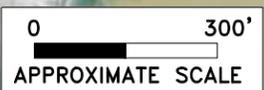
**LEGEND**

MW-7  
EXISTING MONITORING WELL LOCATION WITH LITHIUM RESULTS IN MG/L AND DATE. REFER TO DATA SUMMARY TABLES IN APPENDIX B FOR DESCRIPTION OF DATA QUALIFIERS.

\*  
MONITORING WELL HAS ARTESIAN PROPERTIES

BOLD VALUES EXCEED LITHIUM GROUNDWATER PROTECTION STANDARD OF 0.04 mg/L

WNI = WELL NOT INSTALLED



ENVIRONMENTAL CONSULTATION & REMEDIATION

**K P R G** KPRG and Associates, inc.

14665 West Lisbon Road, Suite 1A Brookfield, Wisconsin 53005 Telephone 262-781-0475 Facsimile 262-781-0478  
414 Plaza Drive, Suite 106 Westmont, Illinois 60559 Telephone 630-325-1300 Facsimile 630-325-1593

AREAL DISTRIBUTION OF IMPACTS  
- LITHIUM

BIG RIVERS ELECTRIC CORPORATION  
ROBARDS, KENTUCKY

Scale: 1" = 300' | Date: January 16, 2022

KPRG Project No. 21021 | FIGURE 5

\\projects\argent & lindy-kentucky\KPRG drawings.dwg

## **APPENDIX A**

### **Characterization Well Boring Logs and Construction Summaries – MW-111 and MW-112**

## Geologic Log of MW-111

(Page 1 of 4)

Boring Depth : 66 feet

Coordinate N : 482645.64

Coordinate E : 1491263.82

Big Rivers Electric Corporation  
Sebree Generating Station  
Robards, Kentucky

Project # 21021

Logged By : P. Allenstein

Driller Name/Co. : Jason Greer / Cascade

Drilling Method : Sonic / PQ Core

Drill Rig : Boart Longyear

Top of Casing Elev : 403.57

Ground Elevation : 400.93

Date Started : 02/15/2022

Date Completed : 02/16/2022

Depth in Feet	Recovery (in.)	RQD	Sampler Type	Sampler Type:	REMARKS
				DESCRIPTION	
0				SS - Split Spoon ST - Shelby Tube RS - Rotary-Sonic PQ - PQ Core	
	54	NA	RS	Dark brown SILTY CLAY, organics, very moist	
				Black SILTY CLAY, gray mottling, trace gravel, moist	
				- some rust mottling	
				Brown SILTY CLAY, trace medium gravel, moist	
5					
	54	NA	RS	Brown SILTY CLAY, black mottling, trace medium gravel, moist	
				Brown SILTY CLAY, some gray mottling, moist	
10					
	54	NA	RS	Brown SILTY CLAY, gray mottling, very stiff, slightly moist	
15					
	48	NA	RS	- less stiff	
20					

## Geologic Log of MW-111

(Page 2 of 4)

Boring Depth : 66 feet

Coordinate N : 482645.64

Coordinate E : 1491263.82

Big Rivers Electric Corporation  
Sebree Generating Station  
Robards, Kentucky

Project # 21021

Logged By : P. Allenstein

Driller Name/Co. : Jason Greer / Cascade

Drilling Method : Sonic / PQ Core

Drill Rig : Boart Longyear

Top of Casing Elev : 403.57

Ground Elevation : 400.93

Date Started : 02/15/2022

Date Completed : 02/16/2022

Depth in Feet	Recovery (in.)	RQD	Sampler Type	Sampler Type: SS - Split Spoon ST - Shelby Tube RS - Rotary-Sonic PQ - PQ Core	REMARKS
				DESCRIPTION	
20	48	NA	RS		
				Light gray SANDSTONE AND SHALE, interbedded, highly weathered, abundant arg, very moist	
25	48	NA	RS		
30				Dark gray SHALE, highly weathered, with no infilling	
35	48	NA	RS		
				Dark Gray SANDSTONE	
40					

## Geologic Log of MW-111

(Page 3 of 4)

Boring Depth : 66 feet

Coordinate N : 482645.64

Coordinate E : 1491263.82

Big Rivers Electric Corporation  
Sebree Generating Station  
Robards, Kentucky

Project # 21021

Logged By : P. Allenstein

Driller Name/Co. : Jason Greer / Cascade

Drilling Method : Sonic / PQ Core

Drill Rig : Boart Longyear

Top of Casing Elev : 403.57

Ground Elevation : 400.93

Date Started : 02/15/2022

Date Completed : 02/16/2022

Depth in Feet	Recovery (in.)	RQD	Sampler Type	Sampler Type:	REMARKS
				DESCRIPTION	
40				SS - Split Spoon ST - Shelby Tube RS - Rotary-Sonic PQ - PQ Core	
	57	V Poor	PQ	Black and gray SHALE and SANDSTONE, banded	
				SHALE, banded light and dark gray	
45				Gray SANDSTONE, some thin dark gray banding	
				Light Gray SANDSTONE interbedded with Dark Gray SHALE	
	60	V Poor	PQ	Gray SANDSTONE, some black layering	
50					
	60	V Poor	PQ		
55				- argillaceous layer.	
	58	V Poor	PQ	Gray and dark gray banded SANDSTONE	
60					

## Geologic Log of MW-111

(Page 4 of 4)

Boring Depth : 66 feet

Coordinate N : 482645.64

Coordinate E : 1491263.82

Big Rivers Electric Corporation  
Sebree Generating Station  
Robards, Kentucky

Project # 21021

Logged By : P. Allenstein

Driller Name/Co. : Jason Greer / Cascade

Drilling Method : Sonic / PQ Core

Drill Rig : Boart Longyear

Top of Casing Elev : 403.57

Ground Elevation : 400.93

Date Started : 02/15/2022

Date Completed : 02/16/2022

Depth in Feet	Recovery (in.)	RQD	Sampler Type	Sampler Type:	REMARKS
				DESCRIPTION	
60	58	V Poor	PQ	SS - Split Spoon ST - Shelby Tube RS - Rotary-Sonic PQ - PQ Core	
60		V Poor	PQ	- mostly dark gray	
65					
				End of boring at 66 ft	
70					
75					
80					

## Geologic Log of MW-112

(Page 1 of 4)

Boring Depth : 81 ft  
 Coordinate N : 482265.20  
 Coordinate E : 1491665.25  
 Top of Casing Elev : 427.77  
 Ground Elevation : 424.93  
 Date Started : 02/18/2022  
 Date Completed : 02/19/2022

Big Rivers Electric Corporation  
 Sebree Generating Station  
 Robards, Kentucky

Project # 21021

Logged By : P. Allenstein  
 Driller Name/Co. : Jason Greer / Cascade  
 Drilling Method : Sonic / PQ Core  
 Drill Rig : Boart Longyear

Depth in Feet	Recovery (in.)	RQD	Sampler Type	Sampler Type:	REMARKS
				DESCRIPTION	
0				Brown CLAY, organics, plastic, mod stiff, moist  -some gray mottling.	
5	108	NA	RS	Brown SILTY CLAY, moderate soft, moderate plasticity, moist  Brown SANDY CLAY, fine sand, moderate stiff, moist	
10				Reddish brown SILTY SAND, little clay, stiff, slightly moist	
15	108	NA	RS	Tan reddish brown SILTY SAND, little clay, stiff, slightly moist - some black lenses. Light and Dark Brown CLAY, stiff	
20				Light gray, fine SAND and SILT, stiff, dry	
25	72	NA	RS		

## Geologic Log of MW-112

(Page 2 of 4)

Boring Depth : 81 ft

Coordinate N : 482265.20

Coordinate E : 1491665.25

Big Rivers Electric Corporation  
Sebree Generating Station  
Robards, Kentucky

Project # 21021

Logged By : P. Allenstein

Driller Name/Co. : Jason Greer / Cascade

Drilling Method : Sonic / PQ Core

Drill Rig : Boart Longyear

Top of Casing Elev : 427.77

Ground Elevation : 424.93

Date Started : 02/18/2022

Date Completed : 02/19/2022

Depth in Feet	Recovery (in.)	RQD	Sampler Type	Sampler Type:	REMARKS
				SS - Split Spoon ST - Shelby Tube RS - Rotary-Sonic PQ - PQ Core	
DESCRIPTION					
25					
	72	NA	RS		
30				Brown SILTY SAND, with gray layers, very stiff, moist	
	44	NA	RS	- brown and black, clayey	
				Gray SILTY SAND with CLAY, moist	
35				- black, 3 in coal layer, dry, crumbly	
	72	NA	RS		
				Greenish gray, SHALE, highly weathered	
40					
				- increasing competent rock	
45	84	NA	RS		
				Greenish Gray SHALE	
50					

## Geologic Log of MW-112

(Page 3 of 4)

Boring Depth : 81 ft

Coordinate N : 482265.20

Coordinate E : 1491665.25

Big Rivers Electric Corporation  
Sebree Generating Station  
Robards, Kentucky

Project # 21021

Logged By : P. Allenstein

Driller Name/Co. : Jason Greer / Cascade

Drilling Method : Sonic / PQ Core

Drill Rig : Boart Longyear

Top of Casing Elev : 427.77

Ground Elevation : 424.93

Date Started : 02/18/2022

Date Completed : 02/19/2022

Depth in Feet	Recovery (in.)	RQD	Sampler Type	Sampler Type:	REMARKS
				DESCRIPTION	
50	16	NA	RS	SS - Split Spoon ST - Shelby Tube RS - Rotary-Sonic PQ - PQ Core	
				Light Greenish Gray SANDSTONE and SHALE, banded, arg filling	
55	36	V Poor	PQ		
				Light gray/gray SANDSTONE, some occasional shale, thin arg seams	
60	50	Fair	PQ		
				Gray SHALEY SANDSTONE, some dark gray layers	
65	50	V Poor	PQ		
70	55	V Poor	PQ		
				Gray SANDSTONE, moderately platy	
75	60	V Poor	PQ		
				- some thin black seams	

## Geologic Log of MW-112

(Page 4 of 4)

Boring Depth : 81 ft

Coordinate N : 482265.20

Coordinate E : 1491665.25

Big Rivers Electric Corporation  
Sebree Generating Station  
Robards, Kentucky

Project # 21021

Logged By : P. Allenstein

Driller Name/Co. : Jason Greer / Cascade

Drilling Method : Sonic / PQ Core

Drill Rig : Boart Longyear

Top of Casing Elev : 427.77

Ground Elevation : 424.93

Date Started : 02/18/2022

Date Completed : 02/19/2022

Depth in Feet	Recovery (in.)	RQD	Sampler Type	Sampler Type: SS - Split Spoon ST - Shelby Tube RS - Rotary-Sonic PQ - PQ Core	REMARKS
				DESCRIPTION	
75	60	V Poor	PQ		
				Gray SHALEY SANDSTONE with thin, black seams	
80	60	V Poor	PQ		
				End of Boring at 81 feet.	
85					
90					
95					
100					

Thank you for submitting your information via the Kentucky Energy and Environment Cabinet eForms website. Please save a copy of this submittal for your records. We recommend saving a copy as a .mht, .html, or .htm file. Your Submittal ID and Transaction ID will be included in an email after EEC Staff have reviewed your submittal. The Submittal ID for this transaction is 274971 and was submitted on March 14, 2022 04:56 PM Eastern Time. If you need to contact EEC regarding your submission, please reference your Submittal ID.

The eForm Submittal ID allows you to use the data from this submittal as a template and/or download a copy of your submittal.

## UNIFORM KENTUCKY WATER/MONITORING WELL REPORTING RECORD

Use this form to report installation, modification or decommissioning of any temporary or permanent monitoring or water wells

Form must be completed and submitted to the Division of Water within 60 days of completion of work

(\*) indicates a required field; (✓) indicates a field may be required based on user input or is an optionally required field

<b>Purpose of the application(*)</b> <p><b>Note: If you are reporting anything other than a new installation and have no AKGWA number, search for it here: (<a href="https://kgs.uky.edu/kgsweb/DataSearching/Water/WaterWellSearch.asp">https://kgs.uky.edu/kgsweb/DataSearching/Water/WaterWellSearch.asp</a>) If you still need one, contact <a href="mailto:DOWDrillersProgram@ky.gov">DOWDrillersProgram@ky.gov</a> (mailto:DOWDrillersProgram@ky.gov?subject=Need%20AKGWA%20for%20eForm%20submittal) for an AKGWA number before proceeding.</b></p> <div style="border: 1px solid #ccc; padding: 2px; display: inline-block; width: 100%;"> <b>Install only</b> <span style="float: right;">▼</span> </div>		
<b>Kentucky Well ID (AKGWA) Number(*)</b> Be sure to check the AKGWA Number against the Owner Well ID# before submitting this record. <div style="border: 1px solid #ccc; padding: 2px; display: inline-block; width: 100%;"> <b>8007-8617</b> </div>	<b>Owner Well ID#</b> <div style="border: 1px solid #ccc; padding: 2px; display: inline-block; width: 100%;"> <b>MW-111</b> </div> <b>Reference Point</b> <div style="border: 1px solid #ccc; padding: 2px; display: inline-block; width: 100%;"> <b>Downgradient</b> <span style="float: right;">▼</span> </div>	<b>Well use(*)</b> <div style="border: 1px solid #ccc; padding: 2px; display: inline-block; width: 100%;"> <b>Monitoring well - co</b> <span style="float: right;">▼</span> </div>
<b>Monitoring Well Info</b>		
<b>Wellhead</b>		
<b>Manhole cover and gasket ?(*)</b> <div style="border: 1px solid #ccc; padding: 2px; display: inline-block; width: 100%;"> <b>No</b> <span style="float: right;">▼</span> </div>	<b>if so, diameter (in):(✓)</b> <div style="border: 1px solid #ccc; padding: 2px; display: inline-block; width: 100%;"> <b>diameter (in)</b> </div>	<b>Dedicated pump(*)</b> <div style="border: 1px solid #ccc; padding: 2px; display: inline-block; width: 100%;"> <b>No pump</b> <span style="float: right;">▼</span> </div>
<b>Flush mount(*)</b> <div style="border: 1px solid #ccc; padding: 2px; display: inline-block; width: 100%;"> <b>No</b> <span style="float: right;">▼</span> </div>	<b>Cap(*)</b> <div style="border: 1px solid #ccc; padding: 2px; display: inline-block; width: 100%;"> <b>Water-tight and lockable</b> <span style="float: right;">▼</span> </div>	
<b>Owner Name and Address Information</b>		

**Owner Name and Address Information**

Enter business name if owner is an organization. Enter first name/middle initial/last name if owner is an individual

<b>Owner Business name(✓)</b> Big Rivers Electric Corp	<b>Owner first name(✓)</b> Owner first nan	<b>Owner middle initial</b> Middle i	<b>Owner last name(✓)</b> Owner last nar	
<b>Owner address(*)</b> 201 Third Street	<b>Owner city(*)</b> Henderson	<b>Owner state(*)</b> Kentucky	<b>Owner zipcode(*)</b> 42420	
<b>Owner telephone:(*)</b> 270-827-2561				

**Site Name, Address and Agency Information**

Please check the checkbox if site address is same as the owner address

<b>Agency Interest (AI) Number:</b> 4196	<b>Program type</b> Solid Waste	<b>Permit or ID Number</b>		
<b>Site Name(*)</b> Big Rivers Electric Corp - Reid HMP&L		<b>Site telephone:</b> ###-###-####		
<b>Site Address(*)</b> 9000 KY 2096	<b>Site city(*)</b> Robards	<b>Site state(*)</b> Kentucky	<b>Site zipcode(*)</b> 42452	

**Supporting Documentation**

<b>Site Map/Sketch Map(✓)</b>	<b>Upload file</b>
<b>Well location</b>	<b>Upload file</b>
<b>Well Diagram (monitoring well)</b>	<b>Upload file</b>
<b>Bacteria analysis (if applicable)</b>	<b>Upload file</b>
<b>Approved variance (if applicable)</b>	<b>Upload file</b>
<b>Drilling log (optional)</b>	<b>Upload file</b>
<b>Other laboratory analysis report (optional)</b>	<b>Upload file</b>
<b>Aquifer test results (optional)</b>	<b>Upload file</b>
<b>Casing/Screen Supplemental Info (if applicable)</b>	<b>Upload file</b>
<b>Other documentation (optional)</b>	<b>Upload file</b>

**Well Specifications**

<b>Active(*)</b> <input type="text" value="Yes"/>		<b>Unsuitable for Intended use(*)</b> <input type="text" value="No"/>	
<b>Discharge permit required?(*)</b> <input type="text" value="No"/>		<b>Withdrawal permit required?(*)</b> <input type="text" value="No"/>	
<b>Artesian/flowing(*)</b> <input type="text" value="No"/>	<b>If so, height (in):(✓)</b> <input type="text"/>	<b>Nested wells(*)</b> <input type="text" value="No"/>	<b>If so, number:(✓)</b> <input type="text"/>
<b>Well Location</b>			
<b>Well latitude(decimal degrees) (*)<u>Driller Viewer</u></b> <small>(<a href="http://watermaps.ky.gov/well">http://watermaps.ky.gov/well</a>)</small> <input type="text" value="37.646059"/>	<b>Well longitude(decimal degrees) (*)</b> <input type="text" value="-87.507219"/>	<b>Method(*)</b> <input type="text" value="Driller Viewer"/>	
<b>USGS 7.5' quadrangle(*)</b> <input type="text" value="ROBARDS"/>	<b>County(*)</b> <input type="text" value="Webster"/>	<b>Physiographic region(*)</b> <input type="text" value="W. Coal Field"/>	
<b>Surface elevation(ft)(*)</b> <input type="text" value="401"/>	<b>Surface elevation method(*)</b> <input type="text" value="GPS"/>	<b>Well in flood zone?(*)</b> <input type="text" value="No"/>	
<b>Construction</b>			
<b>Install start date(*)</b> <input type="text" value="2/15/2022"/>		<b>Install end date(*)</b> <input type="text" value="2/16/2022"/>	
<b>Drilling method(*)</b> <input type="text" value="Sonic"/>		<b>Specify drilling method combinations(✓)</b> <input type="text" value="4x6 sonic drilling to 40', PQ diamond core to 66'."/>	
<b>Drilling method has no annular space(*)</b> <input type="text" value="No"/>	<b>Multiple screens ?(*)</b> <input type="text" value="No"/>	<b>Well development method(*)</b> <input type="text" value="Combination"/>	<b>Specify development method combinations(✓)</b> <input type="text" value="Surge and pump"/>
<b>Surface Completion :</b>			
<b>Protective surface casing(*)</b> <input type="text" value="Yes"/>	<b>Protective surface casing type(✓)</b> <input type="text" value="Steel"/>	<b>Protective surface casing height above surface(in)(✓)</b> <input type="text" value="34"/>	<b>Water-tight locking cap(*)</b> <input type="text" value="Yes"/>
<b>Concrete pad?(*). If Yes, enter length(in) X Width(in) X height(in) in textbox below</b> <input type="text"/>		<b>Bumper guards?(*). If so, enter number below:</b> <input type="text" value="Yes"/>	<b>Weep holes?(*). If yes, enter number below</b> <input type="text" value="Yes"/>

Yes <input type="checkbox"/>	4	2
36x36x6		

Outer casing(*) No <input type="checkbox"/>	Outer casing type(✓) <input type="checkbox"/>	Outer casing height above surface(in)(✓) <input type="checkbox"/>	Outer casing 2 foot above flood level?(✓) <input type="checkbox"/>
Inner casing(*) Yes <input type="checkbox"/>	Inner casing type(✓) PVC <input type="checkbox"/>	Inner casing height above surface(in)(✓) 30	Inner casing 2 foot above flood level?(✓) Yes <input type="checkbox"/>

**Please report depths in feet below ground surface,**

Total depth (ft bgs):(*) 65	Depth to bedrock (ft bgs):(✓) 23
Static water level (ft bgs): <input type="checkbox"/>	SWL method(✓) <input type="checkbox"/>

**Casing/open borehole:**

(\*)Note: When entering a row of data, From Depth, To Depth, Borehole diameter and Casing Type are required fields

From Depth (ft)	To Depth (ft)	Borehole diameter (in)	Casing OD (in)	Casing ID (in)	Casing Type
40.	55.	5.	2.37	2.06	PVC
0.	40.	6.	2.37	2.06	PVC

**Screen:**

From Depth (ft)	To Depth (ft)	Borehole diameter (in)	Screen OD (in)	Screen ID (in)	Screen Type
55.	65.	5.	2.37	2.06	PVC
.01					

**Annulus fill and seal**

Section	From Depth (ft)	To Depth (ft)	Material
Grout	3.	51.	Bentonite
Seal	51.	53.	Bentonite pellets
Filterpack	53.	66.	Sand

**Lithologic log**

From Depth (ft)	To Depth (ft)	Description
0	23	Brown Silty Clay
55	66	Sandstone
23	55	Shale

**Comments**

**Affirmation**

I certify under penalty of law that this document/electronic submittal and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. By submitting data, this transmission constitutes my signature and I am responsible for any and all content submitted either by me or by the people I represent.

<b>Date affirmed(*)</b>	<b>3/14/2022</b>
<b>Driller first name(*)</b>	<b>Jason</b>
<b>Driller middle initial</b>	<b>A</b>
<b>Driller last name(*)</b>	<b>Greer</b>
<b>Driller suffix</b>	<b>Driller suffix</b>
<b>Certification number(*)</b>	<b>0492-0608-00</b>
<b>Certification company(*)</b>	<b>Cascade Drilling, L.P.</b>

Click to Save Values for Future Retrieval

Click to Submit to EEC

Thank you for submitting your information via the Kentucky Energy and Environment Cabinet eForms website. Please save a copy of this submittal for your records. We recommend saving a copy as a .mht, .html, or .htm file. Your Submittal ID and Transaction ID will be included in an email after EEC Staff have reviewed your submittal. The Submittal ID for this transaction is 281220 and was submitted on March 14, 2022 05:08 PM Eastern Time. If you need to contact EEC regarding your submission, please reference your Submittal ID.

The eForm Submittal ID allows you to use the data from this submittal as a template and/or download a copy of your submittal.

## UNIFORM KENTUCKY WATER/MONITORING WELL REPORTING RECORD

Use this form to report installation, modification or decommissioning of any temporary or permanent monitoring or water wells

Form must be completed and submitted to the Division of Water within 60 days of completion of work

(\*) indicates a required field; (✓) indicates a field may be required based on user input or is an optionally required field

<b>Purpose of the application(*)</b> <p><b>Note: If you are reporting anything other than a new installation and have no AKGWA number, search for it here: (<a href="https://kgs.uky.edu/kgsweb/DataSearching/Water/WaterWellSearch.asp">https://kgs.uky.edu/kgsweb/DataSearching/Water/WaterWellSearch.asp</a>) If you still need one, contact <a href="mailto:DOWDrillersProgram@ky.gov">DOWDrillersProgram@ky.gov</a> (mailto:DOWDrillersProgram@ky.gov?subject=Need%20AKGWA%20for%20eForm%20submittal) for an AKGWA number before proceeding.</b></p> <div style="border: 1px solid #ccc; padding: 2px; display: inline-block; width: 100%;"> <b>Install only</b> <span style="float: right;">▼</span> </div>		
<b>Kentucky Well ID (AKGWA) Number(*)</b> Be sure to check the AKGWA Number against the Owner Well ID# before submitting this record. <div style="border: 1px solid #ccc; padding: 2px; display: inline-block; width: 100%;"> <b>8007-8618</b> </div>	<b>Owner Well ID#</b> <div style="border: 1px solid #ccc; padding: 2px; display: inline-block; width: 100%;"> <b>MW-112</b> </div> <b>Reference Point</b> <div style="border: 1px solid #ccc; padding: 2px; display: inline-block; width: 100%;"> <b>Downgradient</b> <span style="float: right;">▼</span> </div>	<b>Well use(*)</b> <div style="border: 1px solid #ccc; padding: 2px; display: inline-block; width: 100%;"> <b>Monitoring well - co</b> <span style="float: right;">▼</span> </div>
<b>Monitoring Well Info</b>		
<b>Wellhead</b>		
<b>Manhole cover and gasket ?(*)</b> <div style="border: 1px solid #ccc; padding: 2px; display: inline-block; width: 100%;"> <b>No</b> <span style="float: right;">▼</span> </div>	<b>if so, diameter (in):(✓)</b> <div style="border: 1px solid #ccc; padding: 2px; display: inline-block; width: 100%;"> <b>diameter (in)</b> </div>	<b>Dedicated pump(*)</b> <div style="border: 1px solid #ccc; padding: 2px; display: inline-block; width: 100%;"> <b>No pump</b> <span style="float: right;">▼</span> </div>
<b>Flush mount(*)</b> <div style="border: 1px solid #ccc; padding: 2px; display: inline-block; width: 100%;"> <b>No</b> <span style="float: right;">▼</span> </div>	<b>Cap(*)</b> <div style="border: 1px solid #ccc; padding: 2px; display: inline-block; width: 100%;"> <b>Water-tight and lockable</b> <span style="float: right;">▼</span> </div>	
<b>Owner Name and Address Information</b>		

**Owner Name and Address Information**

Enter business name if owner is an organization. Enter first name/middle initial/last name if owner is an individual

<b>Owner Business name(✓)</b> Big Rivers Electric Corp	<b>Owner first name(✓)</b> Owner first nan	<b>Owner middle initial</b> Middle i	<b>Owner last name(✓)</b> Owner last nar	
<b>Owner address(*)</b> 201 Third Street	<b>Owner city(*)</b> Henderson	<b>Owner state(*)</b> Kentucky	<b>Owner zipcode(*)</b> 42420	
<b>Owner telephone:(*)</b> 270-827-2561				

**Site Name, Address and Agency Information**

Please check the checkbox if site address is same as the owner address

<b>Agency Interest (AI) Number:</b> 4196	<b>Program type</b> Solid Waste	<b>Permit or ID Number</b>		
<b>Site Name(*)</b> Big Rivers Electric Corp - Reid HMP&L		<b>Site telephone:</b> ###-###-####		
<b>Site Address(*)</b> 9000 KY 2096	<b>Site city(*)</b> Robards	<b>Site state(*)</b> Kentucky	<b>Site zipcode(*)</b> 42452	

**Supporting Documentation**

<b>Site Map/Sketch Map(✓)</b>	<b>Upload file</b>
<b>Well location</b>	<b>Upload file</b>
<b>Well Diagram (monitoring well)</b>	<b>Upload file</b>
<b>Bacteria analysis (if applicable)</b>	<b>Upload file</b>
<b>Approved variance (if applicable)</b>	<b>Upload file</b>
<b>Drilling log (optional)</b>	<b>Upload file</b>
<b>Other laboratory analysis report (optional)</b>	<b>Upload file</b>
<b>Aquifer test results (optional)</b>	<b>Upload file</b>
<b>Casing/Screen Supplemental Info (if applicable)</b>	<b>Upload file</b>
<b>Other documentation (optional)</b>	<b>Upload file</b>

**Well Specifications**

<b>Active(*)</b> <input type="text" value="Yes"/>		<b>Unsuitable for Intended use(*)</b> <input type="text" value="No"/>	
<b>Discharge permit required?(*)</b> <input type="text" value="No"/>		<b>Withdrawal permit required?(*)</b> <input type="text" value="No"/>	
<b>Artesian/flowing(*)</b> <input type="text" value="No"/>	<b>If so, height (in):(✓)</b> <input type="text"/>	<b>Nested wells(*)</b> <input type="text" value="No"/>	<b>If so, number:(✓)</b> <input type="text"/>
<b>Well Location</b>			
<b>Well latitude(decimal degrees) (*)<u>Driller Viewer</u></b> <small>(<a href="http://watermaps.ky.gov/well">http://watermaps.ky.gov/well</a>)</small> <input type="text" value="37.644862"/>	<b>Well longitude(decimal degrees) (*)</b> <input type="text" value="-87.505636"/>	<b>Method(*)</b> <input type="text" value="Driller Viewer"/>	
<b>USGS 7.5' quadrangle(*)</b> <input type="text" value="ROBARDS"/>	<b>County(*)</b> <input type="text" value="Webster"/>	<b>Physiographic region(*)</b> <input type="text" value="W. Coal Field"/>	
<b>Surface elevation(ft)(*)</b> <input type="text" value="426"/>	<b>Surface elevation method(*)</b> <input type="text" value="GPS"/>	<b>Well in flood zone?(*)</b> <input type="text" value="No"/>	
<b>Construction</b>			
<b>Install start date(*)</b> <input type="text" value="2/18/2022"/>		<b>Install end date(*)</b> <input type="text" value="2/19/2022"/>	
<b>Drilling method(*)</b> <input type="text" value="Sonic"/>		<b>Specify drilling method combinations(✓)</b> <input type="text" value="4x6 sonic drilling to 50', PQ diamond core to 81'."/>	
<b>Drilling method has no annular space(*)</b> <input type="text" value="No"/>	<b>Multiple screens ?(*)</b> <input type="text" value="No"/>	<b>Well development method(*)</b> <input type="text" value="Combination"/>	<b>Specify development method combinations(✓)</b> <input type="text" value="Surge and pump"/>
<b>Surface Completion :</b>			
<b>Protective surface casing(*)</b> <input type="text" value="Yes"/>	<b>Protective surface casing type(✓)</b> <input type="text" value="Steel"/>	<b>Protective surface casing height above surface(in)(✓)</b> <input type="text" value="34"/>	<b>Water-tight locking cap(*)</b> <input type="text" value="Yes"/>
<b>Concrete pad?(*). If Yes, enter length(in) X Width(in) X height(in) in textbox below</b> <input type="text"/>		<b>Bumper guards?(*). If so, enter number below:</b> <input type="text" value="Yes"/>	<b>Weep holes?(*). If yes, enter number below</b> <input type="text" value="Yes"/>

<input type="text" value="Yes"/>	<input type="text" value="4"/>	<input type="text" value="2"/>
<input type="text" value="36x36x6"/>		

<b>Outer casing(*)</b> <input type="text" value="No"/>	<b>Outer casing type(✓)</b> <input type="text"/>	<b>Outer casing height above surface(in)(✓)</b> <input type="text"/>	<b>Outer casing 2 foot above flood level?(✓)</b> <input type="text"/>
<b>Inner casing(*)</b> <input type="text" value="Yes"/>	<b>Inner casing type(✓)</b> <input type="text" value="PVC"/>	<b>Inner casing height above surface(in)(✓)</b> <input type="text" value="30"/>	<b>Inner casing 2 foot above flood level?(✓)</b> <input type="text" value="Yes"/>

**Please report depths in feet below ground surface,**

<b>Total depth (ft bgs):(*)</b> <input type="text" value="80"/>	<b>Depth to bedrock (ft bgs):(✓)</b> <input type="text" value="40"/>
<b>Static water level (ft bgs):</b> <input type="text"/>	<b>SWL method(✓)</b> <input type="text"/>

**Casing/open borehole:**

(\*)Note: When entering a row of data, From Depth, To Depth, Borehole diameter and Casing Type are required fields

From Depth (ft)	To Depth (ft)	Borehole diameter (in)	Casing OD (in)	Casing ID (in)	Casing Type
0.	70.	6.	2.37	2.06	PVC

**Screen:**

From Depth (ft)	To Depth (ft)	Borehole diameter (in)	Screen OD (in)	Screen ID (in)	Screen Type
70.	80.	6.	2.37	2.06	PVC
<b>Screen Slot Size (in)</b> <input type="text" value=".01"/>					

**Annulus fill and seal**

Section	From Depth (ft)	To Depth (ft)	Material
Grout	3.	66.	Bentonite
Seal	66.	68.	Bentonite pellets
Filterpack	68.	81.	Sand

**Lithologic log**

From Depth (ft)	To Depth (ft)	Description
<input type="text"/>	<input type="text"/>	<input type="text"/>

0	40.	Brown Silty Clay
70	81	Sandstone
40.	70.	Shale

**Comments**

**Affirmation**

I certify under penalty of law that this document/electronic submittal and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. By submitting data, this transmission constitutes my signature and I am responsible for any and all content submitted either by me or by the people I represent.

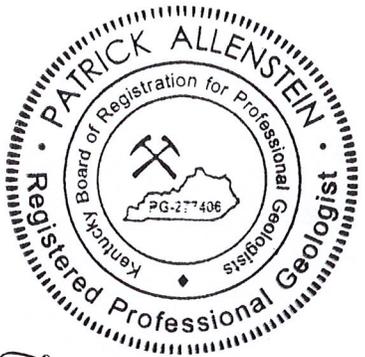
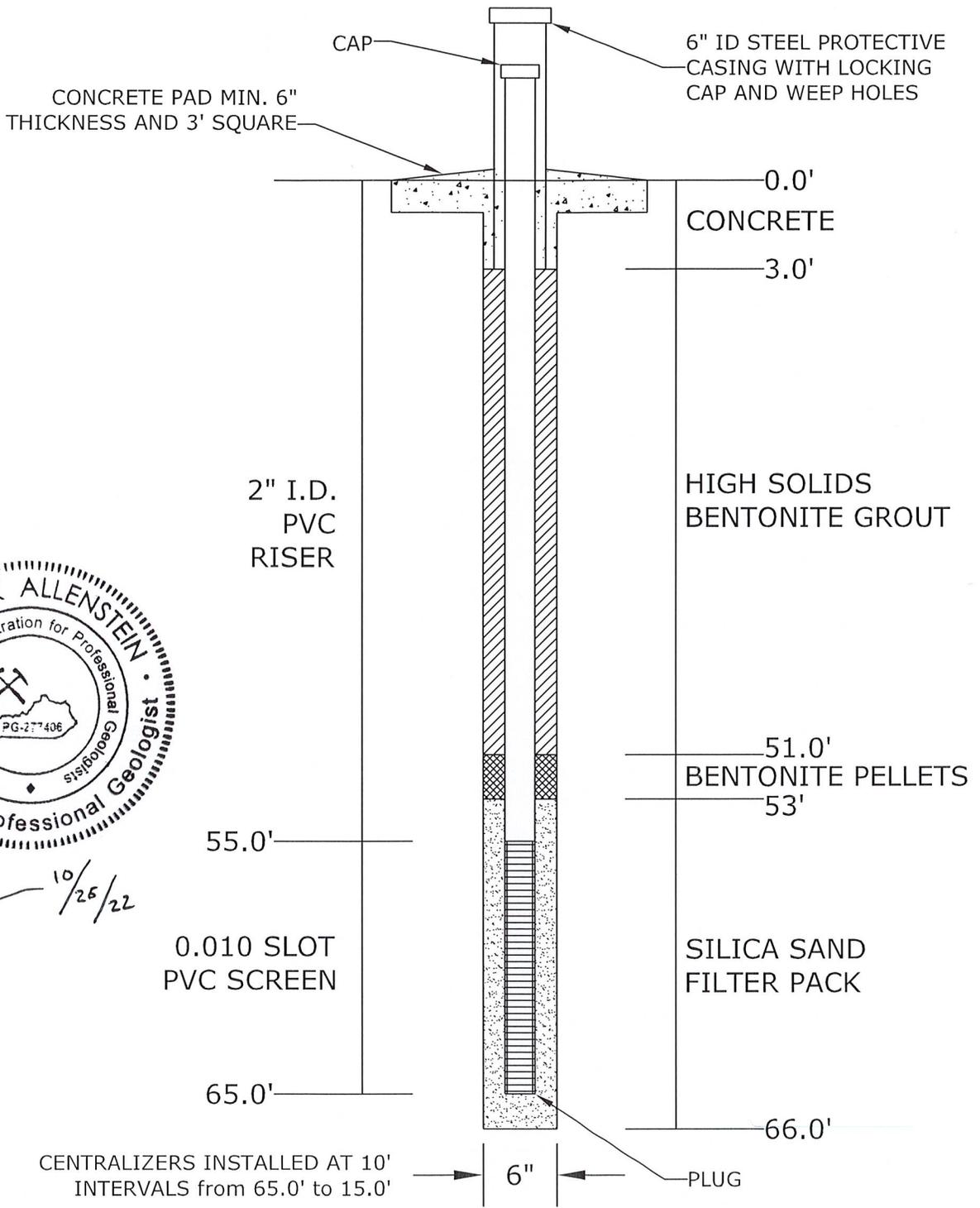
<b>Date affirmed(*)</b>	3/14/2022
<b>Driller first name(*)</b>	Jason
<b>Driller middle initial</b>	A
<b>Driller last name(*)</b>	Greer
<b>Driller suffix</b>	Driller suffix
<b>Certification number(*)</b>	0492-0608-00
<b>Certification company(*)</b>	Cascade Drilling, L.P.

Click to Save Values for Future Retrieval

Click to Submit to EEC

CONSTRUCTION INCLUDES 4 BUMPER GUARDS INSTALLED IN ACCORDANCE WITH 401 KAR 6:350 SECTION 8

MONITORING WELL 8007-8617 (MW-111)



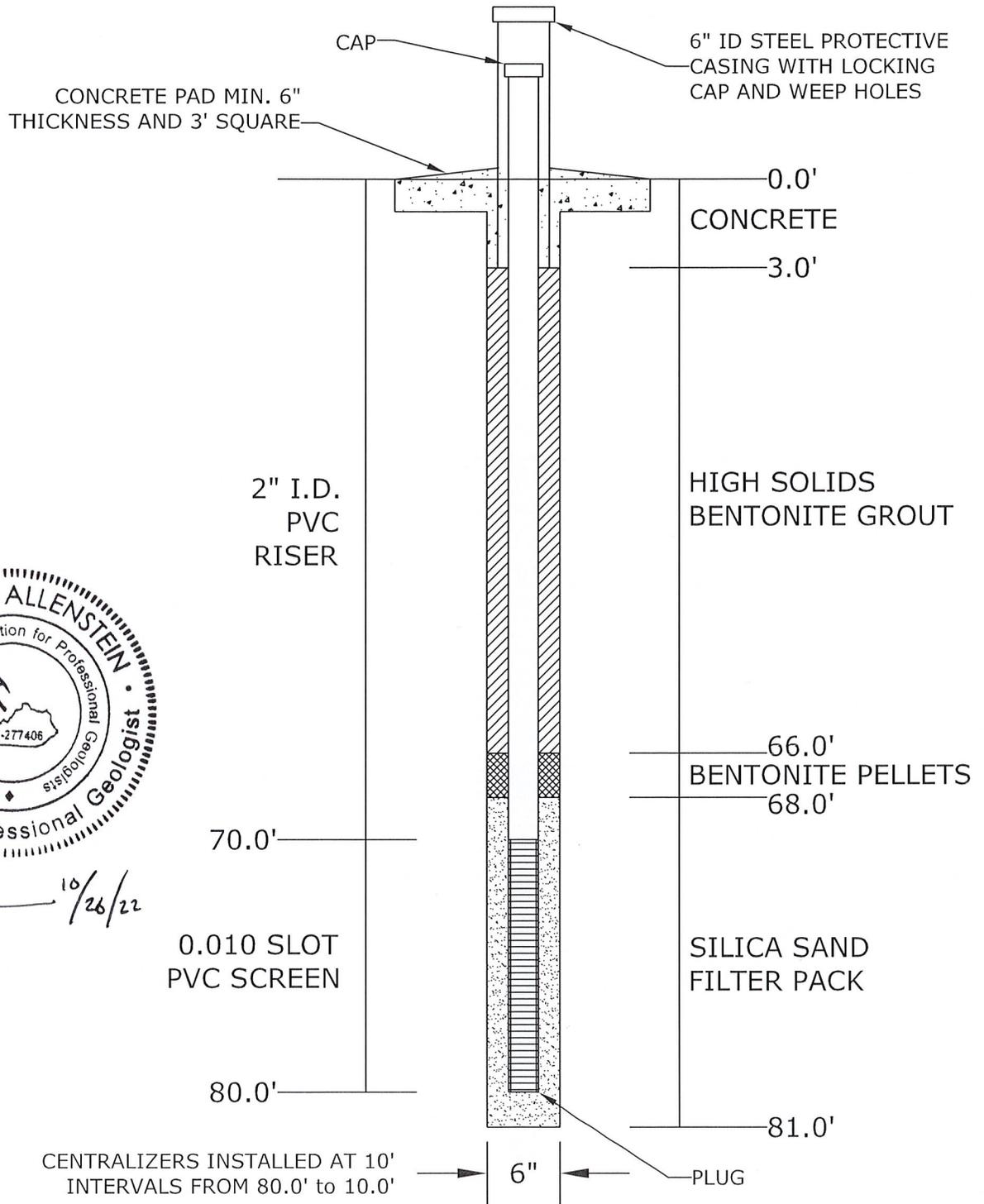
*[Signature]* 10/26/22

I:\projects\argentina\bandy-kentucky\monitoring well const\_data.dwg

ENVIRONMENTAL CONSULTATION & REMEDIATION		MONITORING WELL MW-111 CONSTRUCTION DIAGRAM	
 KPRG and Associates, inc.		BIG RIVERS ELECTRIC CORPORATION ROBARDS, KENTUCKY	
		Scale: NTS	Date: October 26, 2022
14665 West Lisbon Road, Suite 1A Brookfield, Wisconsin 53005 Telephone 262-781-0475 Facsimile 262-781-0478 414 Plaza Drive, Suite 106 Westmont, Illinois 60559 Telephone 630-325-1300 Facsimile 630-325-1593		KPRG Project No. 21021	FIGURE A-1

CONSTRUCTION INCLUDES 4 BUMPER  
GUARDS INSTALLED IN ACCORDANCE  
WITH 401 KAR 6:350 SECTION 8

MONITORING WELL 8007-8618  
(MW-112)



*[Signature]* 10/26/22

ENVIRONMENTAL CONSULTATION & REMEDIATION

**K P R G**

KPRG and Associates, inc.

14665 West Lisbon Road, Suite 1A Brookfield, Wisconsin 53005 Telephone 262-781-0475 Facsimile 262-781-0478

414 Plaza Drive, Suite 106 Westmont, Illinois 60559 Telephone 630-325-1300 Facsimile 630-325-1593

MONITORING WELL MW-112  
CONSTRUCTION DIAGRAM

BIG RIVERS ELECTRIC CORPORATION  
ROBARDS, KENTUCKY

Scale: NTS

Date: October 26, 2022

KPRG Project No. 21021

FIGURE A-2

## **APPENDIX B**

### **Groundwater Quality Data Summary Tables**

REID/HMPL CCR SURFACE IMPOUNDMENT - ANALYTICAL SUMMARY  
 Table B-1. MW-7 (up-gradient)

APPENDIX III CONSTITUENTS	Pred. Limit	GWPS	DATE																				
			3/30/2016	5/31/2016	8/23/2016	10/18/2016	1/31/2017	5/11/2017	8/23/2017	9/22/2017	10/11/2017	4/6/2018	6/29/2018	9/26/2018	5/2/2019	10/16/2019	4/16/2020	9/24/2020	4/21/2021	9/29/2021	3/16/2022	6/07/2022	11/30/2022
			Baseline Events										Assessment	Re-Sample	Assessment								
Boron	0.3676	NA	0.246	0.245 J	0.271 J	0.250 J	0.33 J	0.295 J	0.286 JB	0.268 J	0.320 J		0.249 J	0.299 J	0.309 JB	ND D2	0.34 M4	0.33 M2	0.34	1.77 D1, M2	0.36	0.329	0.35 M1
Calcium	48.11	NA	41.1	42.1 B	42.3	47.6	41.5 B	41.1	45.1	40.6	41.8 B		46.6	41.6 B	46.1	44.4 D2	45.7 D2, M2	41.8 D2	43.4 D1	27 D1, M2	46.2	40.5	43.1 D1, M1, M2
Chloride	6.95	NA	2.48 JB	2.52 J	2.93 JB F1	3.26 B F1	4.02 B	5.73 B	4.99 F1 B	5.28 F1 B	3.65 B		6.88 B F1	5.38 B	4.94	4.7	4.1	3.3	4.9	6.5	4.7	3.16	2.8
Fluoride	0.3622	4	ND J	ND J	ND J F1	ND J F1	ND JB	ND J	ND J F1	ND J F1	ND J		ND J	ND J	0.255 J	0.3	0.3	0.3	0.3	0.5	0.29	0.26	0.3
Sulfate	26.59	NA	12.8	13.2	15.9	18.8	23.6 B	25.7	22.3 B	16.6 B	14.2 F1		23.4	18.7 B	16.8 B	19	15	12	15	34 D	19	12.6	11
pH (Field Measurement)	8.034-6.483	NA	7.39	7.47	7.6	7.16	7.74	7.26	7.23	7.36	7.36	7.01	7.17	6.94	7.46	7.07	6.86	6.56	7.75	7.80	7.67	7.18	7.51
Total Dissolved Solids	310.7	NA	233	243	243	250	253	291	290	267	278		295	263	271	228	148	114	280	610	263	234	262
APPENDIX IV CONSTITUENTS																							
Antimony	0.0008951	0.006	ND	ND JB	ND JB	ND J	ND	ND	ND JB	ND JB	NA	ND JB	ND JB	NA	0.0000760 JB	ND U	<0.005	<0.005 M2	<0.005 U	<0.005 M2, U	<0.00051	ND	ND M3, U
Arsenic	0.003938	0.01	ND	ND J	ND J	ND J	ND J	ND J	ND J	ND J	NA	ND JB	ND JB	NA	0.00116 J	0.0014	0.0025	0.0015 M2	0.0026	<0.001 M2, U	0.0022	0.00197 J	0.0037 M1
Barium	0.0908	2	ND J	ND J	ND J	ND J	ND J	ND J	ND J	ND J	NA	ND J	ND J	ND J	0.0824 J	0.062	0.087	0.075 M3	0.082	0.074 M2	0.074	0.0736	0.079 M1
Beryllium	0.0005	0.004	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	NA	ND	ND U	<0.0020 V1	<0.002	<0.0020 U	<0.002 M2, U	<0.00027	ND	ND M1, U
Cadmium	0.000076	0.005	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	NA	ND	ND U	<0.0010	<0.001 M2	<0.0010 U	<0.001 M2, U	<0.00022	ND	ND M1, U
Chromium	0.00171	0.1	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND JB	ND JB	NA	0.00136 J	ND U	<0.0020	<0.002 M2	0.0007 J	<0.002 M2, U	0.0019 J	ND	ND M1, U
Cobalt	0.00239	0.006	ND J	ND J	ND J	ND J	ND J	ND JB	ND J	ND J	NA	ND J	ND J	NA	0.000158 J	ND U	<0.004	<0.004 M2	<0.004 U	<0.004 M2, U	0.0005	0.00031 J	ND M1, U
Fluoride	0.3622	4	ND J	ND J	ND J F1	ND J F1	ND JB	ND J	ND J F1	ND J F1	NA	ND J	ND J	ND J	0.255 J	0.3	0.3	0.3	0.3	0.5	0.292	0.26	0.3
Lead	0.00064	0.015	ND J	ND JB	ND	ND J	ND	ND	ND	ND	NA	ND	ND	NA	0.0000730 J	ND U	<0.002	<0.002 M2	<0.002 U	<0.002 U	0.00047 J	ND	ND M1, U
Lithium	0.00994	0.04	ND J	ND	ND	ND	ND J	ND	ND	ND	NA	ND	ND	ND	ND	0.008 J	0.007 V1, J	0.008 J	0.008 J	0.03 M1	0.0101	0.00823	0.008 M1, J
Mercury	0.000135	0.002	ND	ND	ND	ND	ND	ND	0.000135	ND	NA	ND	NA	NA	ND	ND U	<0.0005	<0.000 M2	<0.0005 U	<0.000 M2, U	0.00025	ND	ND M1, M2, U
Molybdenum	0.01745	0.1	0.0109	0.0185	0.0136	0.0118	0.0127	ND J	0.0185	ND J	NA	ND J	ND J	ND J	0.00442 J	0.01	0.006 J	0.006 M2, J	0.005 J	<0.01 M2, U	0.0096	0.0122	0.01 M1
Radium 226	1.844 pCi/L	5 pCi/L	0.865	0.685	0.473	ND	0.921	0.662	0.795	0.642	NA	0.650	1.15	0.730	0.698	0.652	1.83	0.968	0.703	0.912	0.531	0.610 U	1.130
Radium 228																	-0.208						
Selenium	0.00066	0.05	ND	ND	ND	ND J	ND	ND	ND	ND	NA	ND	NA	NA	ND	ND U	<0.003	<0.003 M2	<0.003 U	<0.003 U	<0.00074	ND	ND M1, U
Thallium	0.000058	0.002	ND	ND J	ND J	ND	ND	ND	ND	ND	NA	ND	NA	NA	ND	ND U	<0.0020	<0.002 M2	<0.0020	<0.002 M2, U	<0.00047	0.0003 J	ND M1, U

\*All results listed in milligrams per liter (mg/L) unless otherwise noted by the Maximum Contaminant Level (MCL)

GWPS = Groundwater Protection Standard

ND = Not Detected at or above Method Detection Limit

J = Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value.

D1 = Sample required dilution due to high concentration of target analyte

M1 = Matrix spike recovery was high; the method control sample recovery was acceptable

M2 = Matrix spike recovery was low; the method control sample recovery was acceptable

U = Target analyte was analyzed for, but was below detection limit

V1 = CCV recovery was above method acceptance limits. This target analyte not detected in the sample

**BOLD** - Exceeds GWPS

NA = Not Analyzed

pCi/L = picoCuries per Liter

B = Compound was found in the blank and sample.

F1 = MS and/or MSD Recovery is outside acceptance limits.

D2 = Sample required dilution due to matrix interference

M3 = The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable

M4 = The analysis of the spike sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable

REID/HMPL CCR SURFACE IMPOUNDMENT - ANALYTICAL SUMMARY

Table B-2. MW-8 (down-gradient)

APPENDIX III CONSTITUENTS	Pred. Limit	GWPS	DATE																																											
			3/30/2016	5/31/2016	8/23/2016	10/18/2016	1/31/2017	5/11/2017	8/23/2017	9/22/2017	10/11/2017	5/2/2018	4/6/2018	6/29/2018	9/26/2018	5/2/2019	10/17/2019	4/16/2020	9/24/2020	4/21/2021	9/29/2021	3/15/2022	6/7/2022	11/30/2022																						
			Baseline Events										Assessment	Re-Sample	Assessment																															
Boron	0.3676	NA	1.46	1.07	1.3	1.00	1.74		1.60	B	1.37	B	1.32	1.54	0.309	JB		1.32	1.46	1.41	B	1.49	D2	1.56	D1	1.41	D2	1.42	D1, M4	1.5	D1	1.6		1.52		1.53										
Calcium	48.11	NA	283	242	B	228	194	235	B	251	253	228	235	B	46.1			253	254	B	272	267	D1	292	D1	257	D1	281	D1, M2	267	D1	260		257		281										
Chloride	6.95	NA	48.7	38.2	J	41.4	B	66.4	JB	42.1	B	43.6	B	47.1	B	58.5	JB	38.6	B	4.94			42.0	B	46.3	B	57.2		49.5		47.3		49.2		45.8	D	61.4	D	49		49.3		42.3			
Fluoride	0.3622	4	ND	J	ND	J	F1	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	0.255	J		ND	J	ND	J	0.370	J	0.4		0.4		0.4		0.3		0.4		0.42		0.386		ND	U		
Sulfate	26.59	NA	1100	HB	1140		1120	1080		1220	B	1180	B	1110		1440	B	1040		16.8	B		1050		1180	B	1220	B	1240	D	1130	D	1400	D	1090	D	2320	D	1230		1240		1.330	D		
pH (Field Measurement)	8.034-6.483	NA	7.13		7.14		7.37	7.06		7.50		7.10		7.11		7.10		7.10		7.46		6.97		7.09		6.93		7.25		7.04		6.78		6.58		6.64		6.12		7.21		6.72		7.88		
Total Dissolved Solids	310.7	NA	1930		1980		1960	2030		2010		1990		2090		2030		2100		271			2060		1990		2090		2200		1930		1940		2000		2090		2030		2010	B	2.140			
APPENDIX IV CONSTITUENTS																																														
Antimony	0.0008951	0.006	ND		ND	JB	ND	JB	ND	J	ND		ND	JB	ND	JB	ND	JB	NA		0.0000760	B	ND	JB	ND	JB	NA		0.000205	JB	ND	U	<0.005		<0.005		<0.005	U	<0.005	U	<0.00051		ND		ND	U
Arsenic	0.003938	0.01	ND		ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	NA		0.00116	J	ND	JB	ND	JB	NA		0.000438	J	ND	U	<0.0010		<0.0010		<0.0010	U	<0.0010	U	<0.00028		ND		ND	U
Barium	0.0908	2	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	NA		0.0824	J	ND	J	ND	J	ND	J	0.0188	J	0.016		0.017		0.016		0.018		0.02		0.016		0.0165		0.0417	
Beryllium	0.0005	0.004	ND		ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	NA		ND		ND	JB	ND	JB	NA		ND		ND	U	<0.0020	V1	<0.0020		<0.0020	U	<0.0020	U	<0.00027		ND		ND	U
Cadmium	0.000076	0.005	ND		ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	NA		ND		ND	JB	ND	JB	NA		ND		ND	U	<0.0010		<0.0010		<0.0010	U	<0.0010	U	<0.00022		ND		ND	U
Chromium	0.00171	0.1	ND		ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	NA		0.00136	J	ND	JB	ND	JB	NA		0.00320		ND	U	<0.0020		<0.0020		<0.0020	U	<0.0020	U	<0.0015		ND		ND	U
Cobalt	0.00239	0.006	ND		ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	NA		0.000158	J	ND	J	ND	J	NA		0.000141	J	ND	U	<0.004		<0.004		<0.004	U	<0.004	U	<0.00026		ND		ND	U
Fluoride	0.3622	4	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	NA		0.255	J	ND	J	ND	J	ND	J	0.370	J	0.4		0.4		0.4		0.3		0.4		0.42		0.386		ND	U
Lead	0.00064	0.015	ND		ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	NA		0.0000730	J	ND	JB	ND	JB	NA		0.000104	J	ND	U	<0.002		<0.002		<0.002	U	<0.00017		ND		ND	U		
Lithium	0.00994	0.04	0.0314	J	0.035	J	0.0314	J	0.0324	J	0.0408	J	0.0377	J	0.0367	J	0.0375	J	NA		ND		0.0347	J	0.0368	J	0.0375	J	0.0370	J	0.03		0.03		0.03		0.03		0.04		0.035		0.0309		0.03	
Mercury	0.000135	0.002	ND		ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	NA		ND		ND	JB	ND	JB	NA		ND		ND	U	<0.0005		<0.0005		<0.0005	U	<0.0005	U	<0.00019	J	ND		0.0002	J
Molybdenum	0.01745	0.1	0.0138	J	0.0186		0.0157		0.0147		0.0173		0.0158		0.0175		0.0139		NA		0.00442	J	0.0147		0.0140		0.0149		0.0146		0.01		0.01		0.01		0.01		0.013		0.0131		0.01			
Radium 226	1.844 pCi/L	5 pCi/L	1.98		1.32		1.36		1.36		1.92		1.12		1.48		1.4		NA		0.698		1.29		1.6		1.46		1.43		0.914		1.93		0.366		1.94		1.72		1.17		0.52		1.06	
Radium 228																																1.59														
Selenium	0.00066	0.05	ND		ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	NA		ND		ND		NA		NA		0.000634	J	ND	U	<0.003		<0.003		<0.003	U	<0.003	U	<0.00074		ND		ND	U
Thallium	0.000058	0.002	ND		ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	NA		ND		ND		NA		NA		0.0000470	J	ND	U	<0.0020		<0.0020		<0.0029	U	<0.0020	U	<0.00047		ND		ND	U

\*All results listed in milligrams per liter (mg/L) unless otherwise noted by the Maximum Contaminant Level (MCL)

GWPS = Groundwater Protection Standard

ND = Not Detected at or above Method Detection Limit

J = Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value.

D1 = Sample required dilution due to high concentration of target analyte

M1 = Matrix spike recovery was high; the method control sample recovery was acceptable

M2 = Matrix spike recovery was low; the method control sample recovery was acceptable

U = Target analyte was analyzed for, but was below detection limit

V1 = CCV recovery was above method acceptance limits. This target analyte not detected in the sample

**BOLD** - Exceeds GWPS

NA = Not Analyzed

pCi/L = picoCuries per Liter

B = Compound was found in the blank and sample.

F1 = MS and/or MSD Recovery is outside acceptance limits.

D2 = Sample required dilution due to matrix interference

M3 = The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable

M4 = The analysis of the spike sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable

REID/HMPL CCR SURFACE IMPOUNDMENT - ANALYTICAL SUMMARY  
 Table B-3. MW-9 (down-gradient)

APPENDIX III CONSTITUENTS	Pred. Limit	GWPS	DATE																						
			3/30/2016	5/31/2016	8/23/2016	10/18/2016	1/31/2017	5/11/2017	8/23/2017	9/22/2017	10/11/2017	5/2/2018	4/6/2018	6/29/2018	9/26/2018	5/2/2019	10/17/2019	4/16/2020	9/24/2020	4/21/2021	9/29/2021	3/15/2022	6/07/2022	11/30/2022	
			Baseline Events										Assessment	Re-Sample	Assessment										
Boron	0.3676	NA	0.316	0.264 J	0.333 J	0.257 J	0.431 J	0.362 JB	0.101 JB	0.0844 J	0.0816 J	0.309 JB	0.239 J	0.0857 J	0.307 JB	ND D2, U	0.32	0.22	0.23	<-0.10 U	0.084 J	0.078 J	ND U		
Calcium	48.11	NA	64.1	71.2 B	71.5	72.3	75.0 B	72.9	60.8	57.6	57.0 B	46.1	68.6	60.3 B	68.6	66.8 D2	71.2 D2	65.3 D2	66.9 D1	59.4 D1	61	62.4	60.5		
Chloride	6.95	NA	26.5 B	30.9	36.6 B	32.6 B	42.4 B	38.0 B	6.40 B	7.14 B	5.83 B	4.94	31.2 B	6.93 B	21.8	17.6	22.8	19.9	22.5	7.2	6.7	6.6	6.7		
Fluoride	0.3622	4	ND J	ND J	ND J	ND J	ND JB	ND J	ND J	ND J	ND J	0.255 J	ND J	ND J	0.223 J	0.2	0.3	0.3	0.2	0.2	0.20	0.192	0.2		
Sulfate	26.59	NA	9.51	17.6	27.7	39.6	57.2 B	30.4	ND J	ND JB	ND J	16.8 B	ND J	0.481 JB	0.223 JB	ND U	<1	<1	<1 U	<1 U	<0.35	ND	0.6 J		
pH (Field Measurement)	8.034-6.483	NA	7.32	7.27	7.55	7.13	7.64	7.31	7.04	7.04	7.04	7.46	7.13	7.00	6.69	7.22	7.04	6.67	7.12	6.23	7.05	6.53	7.74		
Total Dissolved Solids	310.7	NA	363	389	403	409	465	435	303	308	316	271	399	293	392	320	308	422	264	298	291 H	306			
APPENDIX IV CONSTITUENTS																									
Antimony	0.0008951	0.006	ND	ND JB	ND JB	ND J	ND	ND JB	ND JB	ND JB	NA	0.000760 B	ND JB	ND JB	NA	0.000192 JB	ND U	<-0.005	<-0.005	<-0.005 U	<-0.005 U	<-0.00051	ND	ND U	
Arsenic	0.003938	0.01	ND	ND J	ND J	ND J	ND J	ND J	ND J	ND	NA	0.00116 J	ND JB	ND JB	NA	0.000563 J	ND U	<-0.0010	<-0.0010	<-0.0010 U	<-0.0010 U	<-0.00028	ND	ND U	
Barium	0.0908	2	1.1	1.03	0.889	0.635	0.827	0.833	0.253	0.227	NA	0.0824 J	0.967	0.777	0.288	1.03	0.763	1.06 D1	0.730	0.782	0.248	0.26	0.258	0.253	
Beryllium	0.0005	0.004	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	ND	ND	ND U	<-0.0020 V1	<-0.0020	<-0.0020 U	<-0.0020 U	<-0.00027	ND	ND U	
Cadmium	0.000076	0.005	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	ND	ND	ND U	<-0.0010	<-0.0010	<-0.0010 U	<-0.0010 U	<-0.00022	ND	ND U	
Chromium	0.00171	0.1	ND	ND	ND	ND	ND	ND	ND	ND	NA	0.00136 J	ND JB	ND JB	NA	0.00316	ND U	<-0.0020	<-0.0020	<-0.0020 U	<-0.0020 U	<-0.00015	ND	0.0048	
Cobalt	0.00239	0.006	ND	ND J	ND J	ND J	ND	ND	ND	ND	NA	0.000158 J	ND JB	ND J	NA	0.0000550 J	ND U	<-0.004	<-0.004	<-0.004 U	<-0.004 U	<-0.00026	ND	ND U	
Fluoride	0.3622	4	ND J	ND J	ND J	ND J	ND JB	ND J	ND J	ND J	NA	0.255 J	ND JB	ND J	ND J	0.223 J	0.2	0.3	0.3	0.2	0.20	0.192	0.2		
Lead	0.00064	0.015	ND	ND JB	ND	ND J	ND	ND	ND	ND	NA	0.0000730 J	ND	ND	NA	0.0000760 J	ND U	<-0.002	<-0.002	<-0.002 U	<-0.002 U	<-0.00017	ND	ND U	
Lithium	0.00994	0.04	0.0120 J	0.0105 J	0.0102 J	0.0119 J	0.0179 J	0.0136 J	ND	ND	NA	0.0141 J	0.0108 JB	0.0112 J	ND	0.0141 J	0.009 J	0.01 V1, J	0.009 J	0.01 J	0.005 J	0.0078	0.00673 J	0.006 J	
Mercury	0.000135	0.002	ND	ND	ND	ND	ND	ND	ND JB	ND J	NA	ND	ND	NA	ND	ND	ND U	<-0.0005	<-0.0005	<-0.0005 U	<-0.0005 U	0.00022 H	ND	0.0002 J	
Molybdenum	0.01745	0.1	ND	ND	ND	ND	ND	ND	ND	ND	NA	0.00442 J	ND	ND	ND	ND	ND U	<-0.01	<-0.01	<-0.01 U	<-0.01 U	<-0.00061	ND	ND U	
Radium 226																		1.09							
Radium 228	1.844 pCi/L	5 pCi/L	2.87	2.84	2.91	1.38	2.11	2.53	1.28	1.26	NA	0.698	2.04	1.93	1.23	2.32		1.23	2.90	3.44	3.99	1.13	1.35	1.75	1.78
Selenium	0.00066	0.05	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	ND	ND U	<-0.003	<-0.003	<-0.003 U	<-0.003 U	<-0.00074	ND	ND U	
Thallium	0.000058	0.002	ND	ND J	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	ND	ND U	<-0.0020	<-0.0020	<-0.0020 U	<-0.0020 U	<-0.00047	0.000372 J	ND U	

\*All results listed in milligrams per liter (mg/L) unless otherwise noted by the Maximum Contaminant Level (MCL)  
 GWPS = Groundwater Protection Standard  
 ND = Not Detected at or above Method Detection Limit  
 J = Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value.  
 D1 = Sample required dilution due to high concentration of target analyte  
 M1 = Matrix spike recovery was high; the method control sample recovery was acceptable  
 M2 = Matrix spike recovery was low; the method control sample recovery was acceptable  
 U = Target analyte was analyzed for, but was below detection limit  
 V1 = CCV recovery was above method acceptance limits. This target analyte not detected in the sample  
**BOLD** - Exceeds GWPS

NA = Not Analyzed  
 pCi/L = picoCuries per Liter  
 B = Compound was found in the blank and sample.  
 F1 = MS and/or MSD Recovery is outside acceptance limits.  
 D2 = Sample required dilution due to matrix interference  
 M3 = The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable  
 M4 = The analysis of the spike sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable

REID/HMPL CCR SURFACE IMPOUNDMENT - ANALYTICAL SUMMARY  
 Table B-4. MW-10 (down-gradient)

APPENDIX III CONSTITUENTS	Pred. Limit	GWPS	DATE																										
			3/30/2016	5/31/2016	8/23/2016	10/18/2016	2/9/2017	5/11/2017	8/23/2017	9/22/2017	10/11/2017	5/2/2018	4/6/2018	6/29/2018	9/26/2018	5/2/2019	10/17/2019	4/16/2020	9/24/2020	4/21/2021	9/29/2021	3/15/2022	6/7/2022	11/30/2022					
			Baseline Events													Assessment		Re-Sample		Assessment									
Boron	0.3676	NA	0.416	0.336 J	0.460 J	0.489 J	0.540 JB	0.679 JB	0.560 JB	0.543 J	0.637 J	0.309 JB		0.419 J	0.464 J	0.498 JB	ND D2,U	0.54	0.51	0.54	0.55	0.534		0.53					
Calcium	48.11	NA	16.5	21.3 B	23	36	14.3 B	13.1	33.7	21.4	11.9 B	46.1		9.94	10.5 B	19.5	9.76 D2	12.5 D2	8.80 D2	7.95 D1	8.25	15	11.5	8.56					
Chloride	6.95	NA	31.5 B	26.9	28.9 B	31.6 B	29.4 JB	29.1 B	32.3 B	29.7 B	25.8 B	4.94		26.7 B	27.9 B	26.6	25.7	21.5	21.4	21.4	20.7	18	16.7	17.8					
Fluoride	0.3622	4 mg/L	ND J	ND J	ND J	ND J	ND J	ND J	ND J	ND J	ND J	0.255 J		ND J	ND J	0.570 J	0.6	0.5	0.5	0.5	0.5	0.62	0.54	0.6					
Sulfate	26.59	NA	208 HB	135	144	152	145	168	177 B	226 B	147	16.8 B		129	138 B	114 B	80 D	58 D	62 D	52 D	61 D	41	32.3	30					
pH (Field Measurement)	8.034-6.483	NA	9.72	8.95	8.1	7.53	7.08	9.84	8.14	8.14	9.19	7.46	9.37	9.15	8.98	9.15	9.24	8.87	8.74	9.88	8.26	9.34	8.68	9.82					
Total Dissolved Solids	310.7	NA	644	532	558	602	679	763	758	763	728	271		721	673	642	568	466	436	530	514	480	439 H	530					
APPENDIX IV CONSTITUENTS																													
Antimony	0.0008951	0.006	ND	ND JB	ND JB	ND J	ND	ND JB	ND JB	ND JB	NA	0.000760 B	ND JB	ND JB	NA	0.000580 JB	ND U	<0.005	<0.005	<0.005 U	<0.005 U	<0.0051	ND	ND U					
Arsenic	0.003938	0.01	ND J	ND J	ND J	ND J	ND JB	ND J	ND JB	ND J	NA	0.00116 J	ND JB	ND JB	NA	0.00254 J	0.0022	0.0019	0.0019	0.0018	0.0017	0.0019	0.0015 J	0.0016					
Barium	0.0908	2	ND J	ND J	ND J	ND J	ND JB	ND J	ND JB	ND J	NA	0.0824 J	ND J	ND J	ND J	0.100 J	0.077	0.093	0.084	0.089	0.096	0.13	0.126	0.129					
Beryllium	0.0005	0.004	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	ND	ND U	<0.0020 V1	<0.0020	<0.0020 U	<0.0020 U	<0.0022	ND	ND U					
Cadmium	0.000076	0.005	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	ND	ND U	<0.0010	<0.0010	<0.0010 U	<0.0010 U	<0.0022	ND	ND U					
Chromium	0.00171	0.1	ND J	ND J	ND J	ND	ND J	ND J	ND JB	ND	NA	0.00136 J	ND JB	ND JB	NA	0.00299 J	0.0006 J	<0.0020	0.0006 J	0.0007 J	0.0006 J	0.0016 J	ND	ND U					
Cobalt	0.00239	0.006	ND	ND J	ND J	ND J	ND J	ND J	ND JB	ND J	NA	0.000158 J	ND J	ND J	NA	0.000685 J	ND U	<0.004	<0.004	<0.004 U	<0.004 U	0.00068	0.0004 J	ND U					
Fluoride	0.3622	4	ND J	ND J	ND J	ND J	ND J	ND J	ND J	ND J	NA	0.255 J	ND J	ND J	ND J	0.570 J	0.6	0.5	0.5	0.5	0.5	0.62	0.54	0.6					
Lead	0.00064	0.015	ND	ND JB	ND	ND J	ND J	ND J	ND	ND	NA	0.0000730 J	ND J	ND	NA	0.000671 J	ND U	<0.002	<0.002	<0.002 U	<0.002 U	0.00027 J	ND	ND U					
Lithium	0.00994	0.04	<b>0.339</b>	<b>0.199</b>	<b>0.219</b>	<b>0.0736</b>	<b>0.481</b>	<b>0.607</b>	<b>0.204</b>	<b>0.345</b>	NA	ND	<b>0.694</b>	<b>0.630</b>	<b>0.570</b>	<b>0.574</b>	<b>0.51</b>	<b>0.49</b>	<b>0.56</b>	<b>0.57</b>	<b>0.49</b>	<b>0.55</b>	<b>0.486</b>	<b>0.5</b>					
Mercury	0.000135	0.002	ND	ND	ND	ND	ND	ND	ND JB	ND	NA	ND	ND	NA	NA	ND	0.0002 J	0.0002 J	0.0002 J	0.0003 J	0.0002 J	0.00019 J H	ND	0.0003 J					
Molybdenum	0.01745	0.1	0.0170 J	0.0171	0.0141	ND J	0.0119	ND J	ND J	ND J	NA	0.00442 J	ND J	ND J	ND J	0.00797 J	0.007 J	0.006 J	0.007 J	0.007 J	0.007 J	0.0065	0.0055	0.006 J					
Radium 226																													
Radium 228	1.844 pCi/L	5 pCi/L	0.612	ND	0.715	ND	0.422	0.287	0.619	0.391	NA	0.698	0.512	0.683	0.704	0.205 U	0.458	1.24	0.594	0.769	0.692	0.826	0.895	0.856					
Selenium	0.00066	0.05	ND	ND	ND	ND J	ND	ND	ND	ND	NA	ND	ND	NA	NA	ND U	<0.003	<0.003	<0.003 U	<0.003 U	<0.00074	ND	ND	ND U					
Thallium	0.000058	0.002	ND	ND J	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	ND	ND U	<0.0020	<0.0020	<0.0020 U	<0.0020 U	<0.00047	0.0007 J	ND U					

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GWPS = Groundwater Protection Standard

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D1 = Sample required dilution due to high concentration of target analyte

M1 = Matrix spike recovery was high; the method control sample recovery was acceptable

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U = Target analyte was analyzed for, but was below detection limit

V1 = CCV recovery was above method acceptance limits. This target analyte not detected in the sample

**BOLD** - Exceeds GWPS

NA = Not Analyzed

pCi/L = picoCuries per Liter

B = Compound was found in the blank and sample.

F1 = MS and/or MSD Recovery is outside acceptance limits.

D2 = Sample required dilution due to matrix interference

M3 = The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable

M4 = The analysis of the spike sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable

REID/HMPL CCR SURFACE IMPOUNDMENT - ANALYTICAL SUMMARY

Table B-5. MW-110 (down-gradient)

APPENDIX III CONSTITUENTS	Pred. Limit	GWPS	DATE									
			3/29/2019	4/10/2019	10/24/2019	4/17/2020	10/1/2020	5/26/2021	10/1/2021	3/15/2022	6/7/2022	12/2/2022
Characterization												
Boron	0.3676	NA	0.484 JB	0.496 JB	ND D2, U	0.54 M4	0.53 D2, M1, M4	0.54	0.52	0.60	0.537	0.53
Calcium	48.11	NA	176 B	178	204 D1	181 D1, M2	162 D1, M2	163 D1	155 D1	150	143	151 D1
Chloride	6.95	NA	26.0	30.4 B	30.0	22.1	19.9	21.8	21.1	20	19.6	2.1
Fluoride	0.3622	4 mg/L	0.279 J	0.255 JB	0.3	0.3	0.3	0.3	0.3	0.36	0.326	0.3
Sulfate	26.59	NA	563	596 B	D M1	460 D	411 D	428 D	853 D	440	450	539 D
pH (Field Measurement)	8.034-6.483	NA	7.25	7.50	6.84	7.17	7.56	7.75	6.69	7.19	6.87	7.28
Total Dissolved Solids	310.7	NA	1170	1200	1270	1150	1060	1140	1090	930	934 B	1,020
APPENDIX IV CONSTITUENTS												
Antimony	0.008951	0.006	0.000240 JB	0.000204 JB	ND U	<0.005	<0.005 M4	<0.005 U	<0.005 U	<0.00051	ND	ND U
Arsenic	0.003938	0.01	0.00534	0.00238 J	ND U	0.0012	0.0004 J	<0.0010 U	<0.0010 U	0.0011	0.00198 J	ND U
Barium	0.0908	2	0.118 J	0.107 JB	0.065	0.065	0.056 M1	0.055	0.049	0.059	0.0696	0.049
Beryllium	0.0005	0.004	0.000716 J	0.000314 J	ND U	<0.0020 M2	<0.0020 M4	<0.0020 U	<0.0020 U	<0.00027	ND	ND U
Cadmium	0.000076	0.005	ND	ND	ND U	<0.0010	<0.0010	<0.0010 U	<0.0010 U	<0.00022	ND	ND U
Chromium	0.00171	0.1	0.0180 B	0.0115	0.0010 J	0.0047	0.0016 J	0.0009 J	<0.0020 U	0.0035	0.00729	ND U
Cobalt	0.00239	0.006	0.00911 B	0.00384 J	ND U	<0.004	<0.004 M4	<0.004 U	<0.004 U	0.0017	0.00359	ND U
Fluoride	0.3622	4	0.279 J	0.255 JB	0.3	0.3	0.3	0.3	0.3	0.36	0.326	0.3
Lead	0.00064	0.015	0.00661	0.00399 J	ND U	0.002	0.0008 J	<0.002 U	<0.002 U	0.0017	0.00328	ND U
Lithium	0.00994	0.04	0.0299 J	0.0303 J	0.02	0.02	0.02 M4	0.02	0.02	0.0203	0.0217	0.01 J
Mercury	0.000135	0.002	ND	ND ^	ND U	0.0002 J	<0.0005 M1, M4	<0.0005 U	<0.0005 U	<0.00013 H	ND	ND U
Molybdenum	0.01745	0.1	0.00153 J	0.00120 J	ND U	<0.01	<0.01 M4	<0.01 U	<0.01 U	<0.00061	0.00123	ND U
Radium 226	1.844 pCi/L	5 pCi/L	1.84	1.93	0.195	1.37	0.941	0.636	0.652	1.580	-0.901 U	1.09
Radium 228					0.727							
Selenium	0.00066	0.05	ND	ND	ND U	<0.003	<0.003 M4	<0.003 U	<0.003 U	<0.00074	ND	ND U
Thallium	0.000058	0.002	0.000112 J	0.0000640 J	ND U	<0.0020	<0.0020	<0.0020 U	<0.0020 U	<0.00047	0.000569 J	ND U

\*All results listed in milligrams per liter (mg/L) unless otherwise noted by the Maximum Contaminant Level (MCL)

GWPS = Groundwater Protection Standard

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NA = Not Analyzed

pCi/L = picoCuries per Liter

B = Compound was found in the blank and sample.

F1 = MS and/or MSD Recovery is outside acceptance limits.

D2 = Sample required dilution due to matrix interference

M3 = The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable

M4 = The analysis of the spike sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable

REID/HMPL CCR SURFACE IMPOUNDMENT - ANALYTICAL SUMMARY

Table B-6. MW-111 (down-gradient)

APPENDIX III CONSTITUENTS	Pred. Limit	GWPS	DATE		
			3/16/2022	6/07/2022	12/02/2022
Characterization					
Boron	0.3676	NA	0.54	0.521	0.5
Calcium	48.11	NA	19	16.5	16 D1
Chloride	6.95	NA	18	19.8	16.7
Fluoride	0.3622	4	0.55	0.561	0.5
Sulfate	26.59	NA	6.7	2.86	0.9 J
pH (Field Measurement)	8.034-6.483	NA	8.00	7.56	8.17
Total Dissolved Solids	310.7	NA	310	305 <sup>H</sup>	326
APPENDIX IV CONSTITUENTS					
Antimony	0.0008951	0.006	0.0018 J	ND	ND U
Arsenic	0.003938	0.01	0.0014	0.00106 J	0.0008 J
Barium	0.0908	2	0.89	0.798	0.848
Beryllium	0.0005	0.004	<0.00027	ND	ND U
Cadmium	0.000076	0.005	<0.00022	ND	ND U
Chromium	0.00171	0.1	<0.0015	ND	ND U
Cobalt	0.00239	0.006	0.00085	0.000236 J	ND U
Fluoride	0.3622	4	0.55	0.561	0.5
Lead	0.00064	0.015	0.00054 J	ND	ND U
Lithium	0.00994	0.04	0.014	0.00994	0.008 J
Mercury	0.000135	0.002	0.00031	ND	0.0002 J
Molybdenum	0.01745	0.1	0.0044 J	0.00527	0.003 J
Radium 226	1.844 pCi/L	5 pCi/L	0.67 U	0.48	1.64
Radium 228					
Selenium	0.00066	0.05	<0.00074	ND	ND U
Thallium	0.000058	0.002	<0.00047	ND	ND U

\*All results listed in milligrams per liter (mg/L) unless otherwise noted by the Maximum Contaminant Level (MCL)

GWPS = Groundwater Protection Standard

ND = Not Detected at or above Method Detection Limit

J = Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value.

D1 = Sample required dilution due to high concentration of target analyte

M1 = Matrix spike recovery was high; the method control sample recovery was acceptable

M2 = Matrix spike recovery was low; the method control sample recovery was acceptable

U = Target analyte was analyzed for, but was below detection limit

V1 = CCV recovery was above method acceptance limits. This target analyte not detected in the sample

**BOLD** -Exceeds GWPS

NA = Not Analyzed

pCi/L = picoCuries per Liter

B = Compound was found in the blank and sample.

F1 = MS and/or MSD Recovery is outside acceptance limits.

D2 = Sample required dilution due to matrix interference

M3 = The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable

M4 = The analysis of the spike sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable

REID/HMPL CCR SURFACE IMPOUNDMENT - ANALYTICAL SUMMARY

Table B-7. MW-112 (down-gradient)

APPENDIX III CONSTITUENTS	Pred. Limit	GWPS	DATE			
			3/17/2022	6/07/2022	7/26/2022	12/02/2022
			Characterization		Resample	Characterization
Boron	0.3676	NA	0.39	0.331	NA	0.36
Calcium	48.11	NA	29	30.7	NA	28.2 D1
Chloride	6.95	NA	8.4	9.5	NA	9.1
Fluoride	0.3622	4	0.31	0.287	NA	0.3 M1
Sulfate	26.59	NA	12.4	14.7	NA	12 M1
pH (Field Measurement)	8.034-6.483	NA	7.76	7.40	NA	7.80
Total Dissolved Solids	310.7	NA	288	275	NA	330
<b>APPENDIX IV CONSTITUENTS</b>						
Antimony	0.0008951	0.006	0.00058 J	ND	NA	ND U
Arsenic	0.003938	0.01	0.00089 J	0.00336 J	NA	0.0009 J
Barium	0.0908	2	0.34	0.43	NA	0.316
Beryllium	0.0005	0.004	<0.00027	0.00203	NA	ND U
Cadmium	0.000076	0.005	<0.00022	ND	NA	ND U
Chromium	0.00171	0.1	0.0024	0.0311	NA	ND U
Cobalt	0.00239	0.006	0.002	0.0141	0.00297	ND U
Fluoride	0.3622	4	0.31	0.287	NA	0.3
Lead	0.00064	0.015	0.001	0.013	NA	ND U
Lithium	0.00994	0.04	0.011	0.0319	NA	0.007 J
Mercury	0.000135	0.002	<0.00013	ND	NA	0.0003 J
Molybdenum	0.01745	0.1	0.0062	0.00605	NA	0.005 J
Radium 226	1.844 pCi/L	5 pCi/L	0.71 U	2.56	NA	1.20
Radium 228						
Selenium	0.00066	0.05	<0.00074	ND	NA	ND U
Thallium	0.000058	0.002	<0.00047	0.000277 J	NA	ND U

\*All results listed in milligrams per liter (mg/L) unless otherwise noted by the Maximum Contaminant Level (MCL)

GWPS = Groundwater Protection Standard

ND = Not Detected at or above Method Detection Limit

J = Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value.

D1 = Sample required dilution due to high concentration of target analyte

M1 = Matrix spike recovery was high; the method control sample recovery was acceptable

M2 = Matrix spike recovery was low; the method control sample recovery was acceptable

U = Target analyte was analyzed for, but was below detection limit

V1 = CCV recovery was above method acceptance limits. This target analyte not detected in the sample

**BOLD** -Exceeds GWPS

NA = Not Analyzed

pCi/L = picoCuries per Liter

B = Compound was found in the blank and sample.

F1 = MS and/or MSD Recovery is outside acceptance limits.

D2 = Sample required dilution due to matrix interference

M3 = The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable

M4 = The analysis of the spike sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable

## **APPENDIX C**

### **Analytical Data Packages**

## ANALYTICAL REPORT

Eurofins Canton  
180 S. Van Buren Avenue  
Barberton, OH 44203  
Tel: (330)497-9396

Laboratory Job ID: 240-163843-1  
Laboratory Sample Delivery Group: Sebree Station  
Client Project/Site: Big Rivers  
Revision: 2

For:  
Big Rivers Electric Corporation  
PO BOX 24  
Henderson, Kentucky 42419

Attn: Mark Bertram

*Roxanne Cisneros*

Authorized for release by:  
4/21/2022 11:54:29 AM

Roxanne Cisneros, Senior Project Manager  
(615)301-5761  
[roxanne.cisneros@et.eurofinsus.com](mailto:roxanne.cisneros@et.eurofinsus.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:

[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*



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# Definitions/Glossary

Client: Big Rivers Electric Corporation  
Project/Site: Big Rivers

Job ID: 240-163843-1  
SDG: Sebree Station

## Qualifiers

### Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
H	Sample was prepped or analyzed beyond the specified holding time
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### Rad

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
G	The Sample MDC is greater than the requested RL.
U	Result is less than the sample detection limit.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Case Narrative

Client: Big Rivers Electric Corporation  
Project/Site: Big Rivers

Job ID: 240-163843-1  
SDG: Sebree Station

## Job ID: 240-163843-1

### Laboratory: Eurofins Canton

#### Narrative

#### Job Narrative 240-163843-1

#### Comments

Revised Report 4/20/2022 to change formatter to report results as less than RL with J-flags per client request.

#### Receipt

The samples were received on 3/18/2022 9:30 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 2.6° C and 2.7° C.

#### RAD

Method PrecSep-21: Radium-226 Prep Batch 160-556462: The following samples were prepared at a reduced aliquot due to Matrix: MW-11 (240-163843-1), MW-10 (240-163843-2), MW-110 (240-163843-4), MW-112 (240-163843-6), MW-7 (240-163843-7) and MW-111 (240-163843-8). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Method PrecSep\_0: Radium-228 Prep Batch 160-556470: The following samples were prepared at a reduced aliquot due to Matrix: MW-11 (240-163843-1), MW-10 (240-163843-2), MW-110 (240-163843-4), MW-112 (240-163843-6), MW-7 (240-163843-7) and MW-111 (240-163843-8). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Methods 904.0: Radium-228 prep batch 160-556470: The LCS/LCSD recovered at 64%/59%. The limits in our LIMS system at 75-125 reflect the requirements of a regulatory agency that represents a large amount of our work. However the samples associated with this LCS/LCSD are not from this agency and are therefore held to our in-house statistical limits of 61-138% per method requirements. The LCS passes, and the precision is within acceptance limits for the LCSD, no further action is required. (LCS 160-556470/1-A) and (LCSD 160-556470/2-A)

Methods 904.0: Radium-228 prep batch 160-556470: Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

MW-11 (240-163843-1), MW-10 (240-163843-2), MW-9 (240-163843-3), MW-110 (240-163843-4), MW-8 (240-163843-5), MW-112 (240-163843-6), MW-7 (240-163843-7), MW-111 (240-163843-8), DUPLICATE (240-163843-9), (LCS 160-556470/1-A), (LCSD 160-556470/2-A) and (MB 160-556470/16-A)

Methods 903.0: Radium-226 batch 556462: Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. MW-11 (240-163843-1), MW-10 (240-163843-2), MW-9 (240-163843-3), MW-110 (240-163843-4), MW-8 (240-163843-5), MW-112 (240-163843-6), MW-7 (240-163843-7), MW-111 (240-163843-8), DUPLICATE (240-163843-9), (LCS 160-556462/1-A), (LCSD 160-556462/2-A) and (MB 160-556462/16-A)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Metals

Method 7470A: The following samples were analyzed outside of the holding time (HT) mercury due to excessive workload and limited personnel: MW-11 (240-163843-1), MW-10 (240-163843-2), MW-9 (240-163843-3), MW-110 (240-163843-4) and MW-8 (240-163843-5). The samples were prepped/digested within the HT but were not analyzed until later.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### General Chemistry

Method 9056A: The following sample was diluted due to the nature of the sample matrix: MW-11 (240-163843-1). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

# Method Summary

Client: Big Rivers Electric Corporation  
Project/Site: Big Rivers

Job ID: 240-163843-1  
SDG: Sebree Station

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL PIT
6020A	Metals (ICP/MS)	SW846	TAL PIT
7470A	Mercury (CVAA)	SW846	TAL PIT
2540 C-2011	Total Dissolved Solids (Dried at 180 °C)	SM	TAL CAN
9056A	Anions, Ion Chromatography	SW846	TAL CAN
903.0	Radium-226 (GFPC)	EPA	TAL SL
904.0	Radium-228 (GFPC)	EPA	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT
7470A	Preparation, Mercury	SW846	TAL PIT
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

#### Protocol References:

EPA = US Environmental Protection Agency

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

#### Laboratory References:

TAL CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

TAL PIT = Eurofins Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

TAL SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

# Sample Summary

Client: Big Rivers Electric Corporation  
Project/Site: Big Rivers

Job ID: 240-163843-1  
SDG: Sebree Station

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-163843-1	MW-11	Water	03/15/22 10:36	03/18/22 09:30
240-163843-2	MW-10	Water	03/15/22 12:26	03/18/22 09:30
240-163843-3	MW-9	Water	03/15/22 13:13	03/18/22 09:30
240-163843-4	MW-110	Water	03/15/22 14:05	03/18/22 09:30
240-163843-5	MW-8	Water	03/15/22 14:54	03/18/22 09:30
240-163843-6	MW-112	Water	03/17/22 08:43	03/18/22 09:30
240-163843-7	MW-7	Water	03/16/22 13:01	03/18/22 09:30
240-163843-8	MW-111	Water	03/16/22 11:35	03/18/22 09:30
240-163843-9	DUPLICATE	Water	03/16/22 00:00	03/18/22 09:30

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# Detection Summary

Client: Big Rivers Electric Corporation  
Project/Site: Big Rivers

Job ID: 240-163843-1  
SDG: Sebree Station

## Client Sample ID: MW-11

## Lab Sample ID: 240-163843-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.79		0.20	0.013	mg/L	1		6010C	Total Recoverable
Calcium	310		5.0	0.32	mg/L	1		6010C	Total Recoverable
Arsenic	0.00082	J	0.0010	0.00028	mg/L	1		6020A	Total Recoverable
Barium	0.028		0.010	0.0031	mg/L	1		6020A	Total Recoverable
Cobalt	0.00072		0.00050	0.00026	mg/L	1		6020A	Total Recoverable
Lead	0.00018	J	0.0010	0.00017	mg/L	1		6020A	Total Recoverable
Lithium	0.048		0.0050	0.00083	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0014	J	0.0050	0.00061	mg/L	1		6020A	Total Recoverable
Mercury	0.00017	J H	0.00020	0.00013	mg/L	1		7470A	Total/NA
Total Dissolved Solids	4400		50	39	mg/L	1		2540 C-2011	Total/NA
Chloride	1900		20	5.7	mg/L	20		9056A	Total/NA
Fluoride	0.22	J	0.25	0.12	mg/L	5		9056A	Total/NA
Sulfate	950		5.0	1.7	mg/L	5		9056A	Total/NA

## Client Sample ID: MW-10

## Lab Sample ID: 240-163843-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.55		0.20	0.013	mg/L	1		6010C	Total Recoverable
Calcium	15		5.0	0.32	mg/L	1		6010C	Total Recoverable
Arsenic	0.0019		0.0010	0.00028	mg/L	1		6020A	Total Recoverable
Barium	0.13		0.010	0.0031	mg/L	1		6020A	Total Recoverable
Chromium	0.0016	J	0.0020	0.0015	mg/L	1		6020A	Total Recoverable
Cobalt	0.00068		0.00050	0.00026	mg/L	1		6020A	Total Recoverable
Lead	0.00027	J	0.0010	0.00017	mg/L	1		6020A	Total Recoverable
Lithium	0.55		0.0050	0.00083	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0065		0.0050	0.00061	mg/L	1		6020A	Total Recoverable
Mercury	0.00019	J H	0.00020	0.00013	mg/L	1		7470A	Total/NA
Total Dissolved Solids	480		10	7.8	mg/L	1		2540 C-2011	Total/NA
Chloride	18		1.0	0.28	mg/L	1		9056A	Total/NA
Fluoride	0.62		0.050	0.024	mg/L	1		9056A	Total/NA
Sulfate	41		1.0	0.35	mg/L	1		9056A	Total/NA

## Client Sample ID: MW-9

## Lab Sample ID: 240-163843-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.084	J	0.20	0.013	mg/L	1		6010C	Total Recoverable
Calcium	61		5.0	0.32	mg/L	1		6010C	Total Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Canton

# Detection Summary

Client: Big Rivers Electric Corporation  
Project/Site: Big Rivers

Job ID: 240-163843-1  
SDG: Sebree Station

## Client Sample ID: MW-9 (Continued)

## Lab Sample ID: 240-163843-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.26		0.010	0.0031	mg/L	1		6020A	Total Recoverable
Lithium	0.0078		0.0050	0.00083	mg/L	1		6020A	Total Recoverable
Mercury	0.00022	H	0.00020	0.00013	mg/L	1		7470A	Total/NA
Total Dissolved Solids	300		10	7.8	mg/L	1		2540 C-2011	Total/NA
Chloride	6.7		1.0	0.28	mg/L	1		9056A	Total/NA
Fluoride	0.20		0.050	0.024	mg/L	1		9056A	Total/NA

## Client Sample ID: MW-110

## Lab Sample ID: 240-163843-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.60		0.20	0.013	mg/L	1		6010C	Total Recoverable
Calcium	150		5.0	0.32	mg/L	1		6010C	Total Recoverable
Arsenic	0.0011		0.0010	0.00028	mg/L	1		6020A	Total Recoverable
Barium	0.059		0.010	0.0031	mg/L	1		6020A	Total Recoverable
Chromium	0.0035		0.0020	0.0015	mg/L	1		6020A	Total Recoverable
Cobalt	0.0017		0.00050	0.00026	mg/L	1		6020A	Total Recoverable
Lead	0.0017		0.0010	0.00017	mg/L	1		6020A	Total Recoverable
Lithium	0.020		0.0050	0.00083	mg/L	1		6020A	Total Recoverable
Total Dissolved Solids	930		10	7.8	mg/L	1		2540 C-2011	Total/NA
Chloride	20		1.0	0.28	mg/L	1		9056A	Total/NA
Fluoride	0.36		0.050	0.024	mg/L	1		9056A	Total/NA
Sulfate	440		5.0	1.7	mg/L	5		9056A	Total/NA

## Client Sample ID: MW-8

## Lab Sample ID: 240-163843-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.6		0.20	0.013	mg/L	1		6010C	Total Recoverable
Calcium	260		5.0	0.32	mg/L	1		6010C	Total Recoverable
Barium	0.016		0.010	0.0031	mg/L	1		6020A	Total Recoverable
Lithium	0.035		0.0050	0.00083	mg/L	1		6020A	Total Recoverable
Molybdenum	0.013		0.0050	0.00061	mg/L	1		6020A	Total Recoverable
Mercury	0.00019	J H	0.00020	0.00013	mg/L	1		7470A	Total/NA
Total Dissolved Solids	2000		20	16	mg/L	1		2540 C-2011	Total/NA
Chloride	49		1.0	0.28	mg/L	1		9056A	Total/NA
Fluoride	0.42		0.050	0.024	mg/L	1		9056A	Total/NA
Sulfate	1200		10	3.5	mg/L	10		9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

# Detection Summary

Client: Big Rivers Electric Corporation  
Project/Site: Big Rivers

Job ID: 240-163843-1  
SDG: Sebree Station

**Client Sample ID: MW-112**

**Lab Sample ID: 240-163843-6**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.39		0.20	0.013	mg/L	1		6010C	Total Recoverable
Calcium	29		5.0	0.32	mg/L	1		6010C	Total Recoverable
Antimony	0.00058	J	0.0020	0.00051	mg/L	1		6020A	Total Recoverable
Arsenic	0.00089	J	0.0010	0.00028	mg/L	1		6020A	Total Recoverable
Barium	0.34		0.010	0.0031	mg/L	1		6020A	Total Recoverable
Chromium	0.0024		0.0020	0.0015	mg/L	1		6020A	Total Recoverable
Cobalt	0.0020		0.00050	0.00026	mg/L	1		6020A	Total Recoverable
Lead	0.0010		0.0010	0.00017	mg/L	1		6020A	Total Recoverable
Lithium	0.011		0.0050	0.00083	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0062		0.0050	0.00061	mg/L	1		6020A	Total Recoverable
Total Dissolved Solids	290		10	7.8	mg/L	1		2540 C-2011	Total/NA
Chloride	8.4		1.0	0.28	mg/L	1		9056A	Total/NA
Fluoride	0.31		0.050	0.024	mg/L	1		9056A	Total/NA
Sulfate	12		1.0	0.35	mg/L	1		9056A	Total/NA

**Client Sample ID: MW-7**

**Lab Sample ID: 240-163843-7**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.36		0.20	0.013	mg/L	1		6010C	Total Recoverable
Calcium	46		5.0	0.32	mg/L	1		6010C	Total Recoverable
Arsenic	0.0022		0.0010	0.00028	mg/L	1		6020A	Total Recoverable
Barium	0.074		0.010	0.0031	mg/L	1		6020A	Total Recoverable
Chromium	0.0019	J	0.0020	0.0015	mg/L	1		6020A	Total Recoverable
Cobalt	0.00050		0.00050	0.00026	mg/L	1		6020A	Total Recoverable
Lead	0.00047	J	0.0010	0.00017	mg/L	1		6020A	Total Recoverable
Lithium	0.010		0.0050	0.00083	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0096		0.0050	0.00061	mg/L	1		6020A	Total Recoverable
Mercury	0.00025		0.00020	0.00013	mg/L	1		7470A	Total/NA
Total Dissolved Solids	260		10	7.8	mg/L	1		2540 C-2011	Total/NA
Chloride	4.7		1.0	0.28	mg/L	1		9056A	Total/NA
Fluoride	0.29		0.050	0.024	mg/L	1		9056A	Total/NA
Sulfate	19		1.0	0.35	mg/L	1		9056A	Total/NA

**Client Sample ID: MW-111**

**Lab Sample ID: 240-163843-8**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.54		0.20	0.013	mg/L	1		6010C	Total Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Canton

## Detection Summary

Client: Big Rivers Electric Corporation  
Project/Site: Big Rivers

Job ID: 240-163843-1  
SDG: Sebree Station

### Client Sample ID: MW-111 (Continued)

### Lab Sample ID: 240-163843-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	19		5.0	0.32	mg/L	1		6010C	Total
Antimony	0.0018	J	0.0020	0.00051	mg/L	1		6020A	Recoverable Total
Arsenic	0.0014		0.0010	0.00028	mg/L	1		6020A	Recoverable Total
Barium	0.89		0.010	0.0031	mg/L	1		6020A	Recoverable Total
Cobalt	0.00085		0.00050	0.00026	mg/L	1		6020A	Recoverable Total
Lead	0.00054	J	0.0010	0.00017	mg/L	1		6020A	Recoverable Total
Lithium	0.014		0.0050	0.00083	mg/L	1		6020A	Recoverable Total
Molybdenum	0.0044	J	0.0050	0.00061	mg/L	1		6020A	Recoverable Total
Mercury	0.00031		0.00020	0.00013	mg/L	1		7470A	Total/NA
Total Dissolved Solids	310		10	7.8	mg/L	1		2540 C-2011	Total/NA
Chloride	18		1.0	0.28	mg/L	1		9056A	Total/NA
Fluoride	0.55		0.050	0.024	mg/L	1		9056A	Total/NA
Sulfate	6.7		1.0	0.35	mg/L	1		9056A	Total/NA

### Client Sample ID: DUPLICATE

### Lab Sample ID: 240-163843-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.53		0.20	0.013	mg/L	1		6010C	Total
Calcium	19		5.0	0.32	mg/L	1		6010C	Recoverable Total
Antimony	0.0011	J	0.0020	0.00051	mg/L	1		6020A	Recoverable Total
Arsenic	0.0013		0.0010	0.00028	mg/L	1		6020A	Recoverable Total
Barium	0.89		0.010	0.0031	mg/L	1		6020A	Recoverable Total
Cobalt	0.00044	J	0.00050	0.00026	mg/L	1		6020A	Recoverable Total
Lead	0.00029	J	0.0010	0.00017	mg/L	1		6020A	Recoverable Total
Lithium	0.013		0.0050	0.00083	mg/L	1		6020A	Recoverable Total
Molybdenum	0.0033	J	0.0050	0.00061	mg/L	1		6020A	Recoverable Total
Total Dissolved Solids	310		10	7.8	mg/L	1		2540 C-2011	Total/NA
Chloride	18		1.0	0.28	mg/L	1		9056A	Total/NA
Fluoride	0.55		0.050	0.024	mg/L	1		9056A	Total/NA
Sulfate	6.3		1.0	0.35	mg/L	1		9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

# Client Sample Results

Client: Big Rivers Electric Corporation  
Project/Site: Big Rivers

Job ID: 240-163843-1  
SDG: Sebree Station

**Client Sample ID: MW-11**  
Date Collected: 03/15/22 10:36  
Date Received: 03/18/22 09:30

**Lab Sample ID: 240-163843-1**  
Matrix: Water

### Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.79		0.20	0.013	mg/L		03/25/22 09:56	03/29/22 14:41	1
Calcium	310		5.0	0.32	mg/L		03/25/22 09:56	03/29/22 14:41	1

### Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00051		0.0020	0.00051	mg/L		03/25/22 09:56	03/26/22 12:58	1
Arsenic	0.00082	J	0.0010	0.00028	mg/L		03/25/22 09:56	03/26/22 12:58	1
Barium	0.028		0.010	0.0031	mg/L		03/25/22 09:56	03/26/22 12:58	1
Beryllium	<0.00027		0.0010	0.00027	mg/L		03/25/22 09:56	03/26/22 12:58	1
Cadmium	<0.00022		0.0010	0.00022	mg/L		03/25/22 09:56	03/26/22 12:58	1
Chromium	<0.0015		0.0020	0.0015	mg/L		03/25/22 09:56	03/26/22 12:58	1
Cobalt	0.00072		0.00050	0.00026	mg/L		03/25/22 09:56	03/26/22 12:58	1
Lead	0.00018	J	0.0010	0.00017	mg/L		03/25/22 09:56	03/26/22 12:58	1
Lithium	0.048		0.0050	0.00083	mg/L		03/25/22 09:56	03/26/22 12:58	1
Molybdenum	0.0014	J	0.0050	0.00061	mg/L		03/25/22 09:56	03/26/22 12:58	1
Selenium	<0.00074		0.0050	0.00074	mg/L		03/25/22 09:56	03/26/22 12:58	1
Thallium	<0.00047		0.0010	0.00047	mg/L		03/25/22 09:56	03/26/22 12:58	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00017	J H	0.00020	0.00013	mg/L		04/11/22 08:32	04/13/22 11:55	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	4400		50	39	mg/L			03/22/22 11:36	1
Chloride	1900		20	5.7	mg/L			03/21/22 16:54	20
Fluoride	0.22	J	0.25	0.12	mg/L			03/21/22 16:34	5
Sulfate	950		5.0	1.7	mg/L			03/21/22 16:34	5

### Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.367		0.150	0.153	1.00	0.147	pCi/L	03/22/22 10:33	04/13/22 10:40	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.1		40 - 110					03/22/22 10:33	04/13/22 10:40	1

### Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.55		0.389	0.415	1.00	0.459	pCi/L	03/22/22 11:06	04/08/22 11:37	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.1		40 - 110					03/22/22 11:06	04/08/22 11:37	1
Y Carrier	85.2		40 - 110					03/22/22 11:06	04/08/22 11:37	1

# Client Sample Results

Client: Big Rivers Electric Corporation  
 Project/Site: Big Rivers

Job ID: 240-163843-1  
 SDG: Sebree Station

**Client Sample ID: MW-11**  
**Date Collected: 03/15/22 10:36**  
**Date Received: 03/18/22 09:30**

**Lab Sample ID: 240-163843-1**  
**Matrix: Water**

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.92		0.417	0.442	5.00	0.459	pCi/L		04/14/22 14:48	1

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# Client Sample Results

Client: Big Rivers Electric Corporation  
Project/Site: Big Rivers

Job ID: 240-163843-1  
SDG: Sebree Station

**Client Sample ID: MW-10**

**Lab Sample ID: 240-163843-2**

Date Collected: 03/15/22 12:26

Matrix: Water

Date Received: 03/18/22 09:30

### Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.55		0.20	0.013	mg/L		03/25/22 09:56	03/29/22 15:03	1
Calcium	15		5.0	0.32	mg/L		03/25/22 09:56	03/29/22 15:03	1

### Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00051		0.0020	0.00051	mg/L		03/25/22 09:56	03/26/22 13:52	1
Arsenic	0.0019		0.0010	0.00028	mg/L		03/25/22 09:56	03/26/22 13:52	1
Barium	0.13		0.010	0.0031	mg/L		03/25/22 09:56	03/26/22 13:52	1
Beryllium	<0.00027		0.0010	0.00027	mg/L		03/25/22 09:56	03/26/22 13:52	1
Cadmium	<0.00022		0.0010	0.00022	mg/L		03/25/22 09:56	03/26/22 13:52	1
Chromium	0.0016	J	0.0020	0.0015	mg/L		03/25/22 09:56	03/26/22 13:52	1
Cobalt	0.00068		0.00050	0.00026	mg/L		03/25/22 09:56	03/26/22 13:52	1
Lead	0.00027	J	0.0010	0.00017	mg/L		03/25/22 09:56	03/26/22 13:52	1
Lithium	0.55		0.0050	0.00083	mg/L		03/25/22 09:56	03/26/22 13:52	1
Molybdenum	0.0065		0.0050	0.00061	mg/L		03/25/22 09:56	03/26/22 13:52	1
Selenium	<0.00074		0.0050	0.00074	mg/L		03/25/22 09:56	03/26/22 13:52	1
Thallium	<0.00047		0.0010	0.00047	mg/L		03/25/22 09:56	03/26/22 13:52	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00019	J H	0.00020	0.00013	mg/L		04/11/22 08:32	04/13/22 11:56	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	480		10	7.8	mg/L			03/22/22 11:36	1
Chloride	18		1.0	0.28	mg/L			03/21/22 17:14	1
Fluoride	0.62		0.050	0.024	mg/L			03/21/22 17:14	1
Sulfate	41		1.0	0.35	mg/L			03/21/22 17:14	1

### Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.227		0.135	0.136	1.00	0.175	pCi/L	03/22/22 10:33	04/13/22 10:40	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.1		40 - 110					03/22/22 10:33	04/13/22 10:40	1

### Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.600		0.313	0.318	1.00	0.459	pCi/L	03/22/22 11:06	04/08/22 11:37	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.1		40 - 110					03/22/22 11:06	04/08/22 11:37	1
Y Carrier	85.6		40 - 110					03/22/22 11:06	04/08/22 11:37	1

# Client Sample Results

Client: Big Rivers Electric Corporation  
 Project/Site: Big Rivers

Job ID: 240-163843-1  
 SDG: Sebree Station

**Client Sample ID: MW-10**  
**Date Collected: 03/15/22 12:26**  
**Date Received: 03/18/22 09:30**

**Lab Sample ID: 240-163843-2**  
**Matrix: Water**

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.826		0.341	0.346	5.00	0.459	pCi/L		04/14/22 14:48	1

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# Client Sample Results

Client: Big Rivers Electric Corporation  
Project/Site: Big Rivers

Job ID: 240-163843-1  
SDG: Sebree Station

**Client Sample ID: MW-9**

**Lab Sample ID: 240-163843-3**

Date Collected: 03/15/22 13:13

Matrix: Water

Date Received: 03/18/22 09:30

### Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.084	J	0.20	0.013	mg/L		03/25/22 09:56	03/29/22 15:08	1
Calcium	61		5.0	0.32	mg/L		03/25/22 09:56	03/29/22 15:08	1

### Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00051		0.0020	0.00051	mg/L		03/25/22 09:56	03/26/22 13:56	1
Arsenic	<0.00028		0.0010	0.00028	mg/L		03/25/22 09:56	03/26/22 13:56	1
Barium	0.26		0.010	0.0031	mg/L		03/25/22 09:56	03/26/22 13:56	1
Beryllium	<0.00027		0.0010	0.00027	mg/L		03/25/22 09:56	03/26/22 13:56	1
Cadmium	<0.00022		0.0010	0.00022	mg/L		03/25/22 09:56	03/26/22 13:56	1
Chromium	<0.0015		0.0020	0.0015	mg/L		03/25/22 09:56	03/26/22 13:56	1
Cobalt	<0.00026		0.00050	0.00026	mg/L		03/25/22 09:56	03/26/22 13:56	1
Lead	<0.00017		0.0010	0.00017	mg/L		03/25/22 09:56	03/26/22 13:56	1
Lithium	0.0078		0.0050	0.00083	mg/L		03/25/22 09:56	03/26/22 13:56	1
Molybdenum	<0.00061		0.0050	0.00061	mg/L		03/25/22 09:56	03/26/22 13:56	1
Selenium	<0.00074		0.0050	0.00074	mg/L		03/25/22 09:56	03/26/22 13:56	1
Thallium	<0.00047		0.0010	0.00047	mg/L		03/25/22 09:56	03/26/22 13:56	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00022	H	0.00020	0.00013	mg/L		04/11/22 08:32	04/13/22 11:57	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	300		10	7.8	mg/L			03/22/22 11:36	1
Chloride	6.7		1.0	0.28	mg/L			03/21/22 18:35	1
Fluoride	0.20		0.050	0.024	mg/L			03/21/22 18:35	1
Sulfate	<0.35		1.0	0.35	mg/L			03/21/22 18:35	1

### Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.550		0.156	0.164	1.00	0.112	pCi/L	03/22/22 10:33	04/13/22 10:41	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	81.2		40 - 110	03/22/22 10:33	04/13/22 10:41	1

### Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.800		0.306	0.314	1.00	0.422	pCi/L	03/22/22 11:06	04/08/22 11:37	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	81.2		40 - 110	03/22/22 11:06	04/08/22 11:37	1
Y Carrier	84.5		40 - 110	03/22/22 11:06	04/08/22 11:37	1

# Client Sample Results

Client: Big Rivers Electric Corporation  
 Project/Site: Big Rivers

Job ID: 240-163843-1  
 SDG: Sebree Station

**Client Sample ID: MW-9**

**Lab Sample ID: 240-163843-3**

Date Collected: 03/15/22 13:13

Matrix: Water

Date Received: 03/18/22 09:30

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.35		0.343	0.354	5.00	0.422	pCi/L		04/14/22 14:48	1

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# Client Sample Results

Client: Big Rivers Electric Corporation  
Project/Site: Big Rivers

Job ID: 240-163843-1  
SDG: Sebree Station

**Client Sample ID: MW-110**

**Lab Sample ID: 240-163843-4**

Date Collected: 03/15/22 14:05

Matrix: Water

Date Received: 03/18/22 09:30

## Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.60		0.20	0.013	mg/L		03/25/22 09:56	03/29/22 15:22	1
Calcium	150		5.0	0.32	mg/L		03/25/22 09:56	03/29/22 15:22	1

## Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00051		0.0020	0.00051	mg/L		03/25/22 09:56	03/26/22 14:00	1
Arsenic	0.0011		0.0010	0.00028	mg/L		03/25/22 09:56	03/26/22 14:00	1
Barium	0.059		0.010	0.0031	mg/L		03/25/22 09:56	03/26/22 14:00	1
Beryllium	<0.00027		0.0010	0.00027	mg/L		03/25/22 09:56	03/26/22 14:00	1
Cadmium	<0.00022		0.0010	0.00022	mg/L		03/25/22 09:56	03/26/22 14:00	1
Chromium	0.0035		0.0020	0.0015	mg/L		03/25/22 09:56	03/26/22 14:00	1
Cobalt	0.0017		0.00050	0.00026	mg/L		03/25/22 09:56	03/26/22 14:00	1
Lead	0.0017		0.0010	0.00017	mg/L		03/25/22 09:56	03/26/22 14:00	1
Lithium	0.020		0.0050	0.00083	mg/L		03/25/22 09:56	03/26/22 14:00	1
Molybdenum	<0.00061		0.0050	0.00061	mg/L		03/25/22 09:56	03/26/22 14:00	1
Selenium	<0.00074		0.0050	0.00074	mg/L		03/25/22 09:56	03/26/22 14:00	1
Thallium	<0.00047		0.0010	0.00047	mg/L		03/25/22 09:56	03/26/22 14:00	1

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013	H	0.00020	0.00013	mg/L		04/11/22 08:32	04/13/22 11:59	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	930		10	7.8	mg/L			03/22/22 11:36	1
Chloride	20		1.0	0.28	mg/L			03/21/22 19:35	1
Fluoride	0.36		0.050	0.024	mg/L			03/21/22 19:35	1
Sulfate	440		5.0	1.7	mg/L			03/21/22 19:55	5

## Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.552		0.265	0.269	1.00	0.300	pCi/L	03/22/22 10:33	04/13/22 10:41	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	69.4		40 - 110					03/22/22 10:33	04/13/22 10:41	1

## Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.03	G	0.668	0.675	1.00	1.03	pCi/L	03/22/22 11:06	04/08/22 11:37	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	69.4		40 - 110					03/22/22 11:06	04/08/22 11:37	1
Y Carrier	84.9		40 - 110					03/22/22 11:06	04/08/22 11:37	1

Eurofins Canton

# Client Sample Results

Client: Big Rivers Electric Corporation  
 Project/Site: Big Rivers

Job ID: 240-163843-1  
 SDG: Sebree Station

**Client Sample ID: MW-110**  
**Date Collected: 03/15/22 14:05**  
**Date Received: 03/18/22 09:30**

**Lab Sample ID: 240-163843-4**  
**Matrix: Water**

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.58		0.719	0.727	5.00	1.03	pCi/L		04/14/22 14:48	1

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# Client Sample Results

Client: Big Rivers Electric Corporation  
Project/Site: Big Rivers

Job ID: 240-163843-1  
SDG: Sebree Station

**Client Sample ID: MW-8**

**Lab Sample ID: 240-163843-5**

Date Collected: 03/15/22 14:54

Matrix: Water

Date Received: 03/18/22 09:30

### Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.6		0.20	0.013	mg/L		03/25/22 09:56	03/29/22 15:26	1
Calcium	260		5.0	0.32	mg/L		03/25/22 09:56	03/29/22 15:26	1

### Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00051		0.0020	0.00051	mg/L		03/25/22 09:56	03/26/22 14:03	1
Arsenic	<0.00028		0.0010	0.00028	mg/L		03/25/22 09:56	03/26/22 14:03	1
Barium	0.016		0.010	0.0031	mg/L		03/25/22 09:56	03/26/22 14:03	1
Beryllium	<0.00027		0.0010	0.00027	mg/L		03/25/22 09:56	03/26/22 14:03	1
Cadmium	<0.00022		0.0010	0.00022	mg/L		03/25/22 09:56	03/26/22 14:03	1
Chromium	<0.0015		0.0020	0.0015	mg/L		03/25/22 09:56	03/26/22 14:03	1
Cobalt	<0.00026		0.00050	0.00026	mg/L		03/25/22 09:56	03/26/22 14:03	1
Lead	<0.00017		0.0010	0.00017	mg/L		03/25/22 09:56	03/26/22 14:03	1
Lithium	0.035		0.0050	0.00083	mg/L		03/25/22 09:56	03/26/22 14:03	1
Molybdenum	0.013		0.0050	0.00061	mg/L		03/25/22 09:56	03/26/22 14:03	1
Selenium	<0.00074		0.0050	0.00074	mg/L		03/25/22 09:56	03/26/22 14:03	1
Thallium	<0.00047		0.0010	0.00047	mg/L		03/25/22 09:56	03/26/22 14:03	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00019	J H	0.00020	0.00013	mg/L		04/11/22 08:32	04/13/22 12:00	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	2000		20	16	mg/L			03/22/22 11:36	1
Chloride	49		1.0	0.28	mg/L			03/21/22 20:15	1
Fluoride	0.42		0.050	0.024	mg/L			03/21/22 20:15	1
Sulfate	1200		10	3.5	mg/L			03/21/22 20:36	10

### Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.278		0.131	0.133	1.00	0.143	pCi/L	03/22/22 10:33	04/13/22 10:41	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	71.6		40 - 110					03/22/22 10:33	04/13/22 10:41	1

### Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.894		0.352	0.361	1.00	0.490	pCi/L	03/22/22 11:06	04/08/22 11:38	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	71.6		40 - 110					03/22/22 11:06	04/08/22 11:38	1
Y Carrier	83.7		40 - 110					03/22/22 11:06	04/08/22 11:38	1

Eurofins Canton

# Client Sample Results

Client: Big Rivers Electric Corporation  
 Project/Site: Big Rivers

Job ID: 240-163843-1  
 SDG: Sebree Station

**Client Sample ID: MW-8**

**Lab Sample ID: 240-163843-5**

Date Collected: 03/15/22 14:54

Matrix: Water

Date Received: 03/18/22 09:30

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.17		0.376	0.385	5.00	0.490	pCi/L		04/14/22 14:48	1

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# Client Sample Results

Client: Big Rivers Electric Corporation  
Project/Site: Big Rivers

Job ID: 240-163843-1  
SDG: Sebree Station

**Client Sample ID: MW-112**

**Lab Sample ID: 240-163843-6**

Date Collected: 03/17/22 08:43

Matrix: Water

Date Received: 03/18/22 09:30

### Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.39		0.20	0.013	mg/L		03/25/22 09:56	03/29/22 15:31	1
Calcium	29		5.0	0.32	mg/L		03/25/22 09:56	03/29/22 15:31	1

### Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00058	J	0.0020	0.00051	mg/L		03/25/22 09:56	03/26/22 14:07	1
Arsenic	0.00089	J	0.0010	0.00028	mg/L		03/25/22 09:56	03/26/22 14:07	1
Barium	0.34		0.010	0.0031	mg/L		03/25/22 09:56	03/26/22 14:07	1
Beryllium	<0.00027		0.0010	0.00027	mg/L		03/25/22 09:56	03/26/22 14:07	1
Cadmium	<0.00022		0.0010	0.00022	mg/L		03/25/22 09:56	03/26/22 14:07	1
Chromium	0.0024		0.0020	0.0015	mg/L		03/25/22 09:56	03/26/22 14:07	1
Cobalt	0.0020		0.00050	0.00026	mg/L		03/25/22 09:56	03/26/22 14:07	1
Lead	0.0010		0.0010	0.00017	mg/L		03/25/22 09:56	03/26/22 14:07	1
Lithium	0.011		0.0050	0.00083	mg/L		03/25/22 09:56	03/26/22 14:07	1
Molybdenum	0.0062		0.0050	0.00061	mg/L		03/25/22 09:56	03/26/22 14:07	1
Selenium	<0.00074		0.0050	0.00074	mg/L		03/25/22 09:56	03/26/22 14:07	1
Thallium	<0.00047		0.0010	0.00047	mg/L		03/25/22 09:56	03/26/22 14:07	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013		0.00020	0.00013	mg/L		04/11/22 08:32	04/13/22 12:01	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	290		10	7.8	mg/L			03/22/22 11:36	1
Chloride	8.4		1.0	0.28	mg/L			03/21/22 20:56	1
Fluoride	0.31		0.050	0.024	mg/L			03/21/22 20:56	1
Sulfate	12		1.0	0.35	mg/L			03/21/22 20:56	1

### Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.626		0.244	0.250	1.00	0.242	pCi/L	03/22/22 10:33	04/13/22 10:42	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.6		40 - 110					03/22/22 10:33	04/13/22 10:42	1

### Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0839	U	0.423	0.423	1.00	0.747	pCi/L	03/22/22 11:06	04/08/22 11:38	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.6		40 - 110					03/22/22 11:06	04/08/22 11:38	1
Y Carrier	83.4		40 - 110					03/22/22 11:06	04/08/22 11:38	1

# Client Sample Results

Client: Big Rivers Electric Corporation  
 Project/Site: Big Rivers

Job ID: 240-163843-1  
 SDG: Sebree Station

**Client Sample ID: MW-112**  
**Date Collected: 03/17/22 08:43**  
**Date Received: 03/18/22 09:30**

**Lab Sample ID: 240-163843-6**  
**Matrix: Water**

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.710	U	0.488	0.491	5.00	0.747	pCi/L		04/14/22 14:48	1

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# Client Sample Results

Client: Big Rivers Electric Corporation  
Project/Site: Big Rivers

Job ID: 240-163843-1  
SDG: Sebree Station

**Client Sample ID: MW-7**

**Lab Sample ID: 240-163843-7**

Date Collected: 03/16/22 13:01

Matrix: Water

Date Received: 03/18/22 09:30

### Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.36		0.20	0.013	mg/L		03/25/22 09:56	03/29/22 15:36	1
Calcium	46		5.0	0.32	mg/L		03/25/22 09:56	03/29/22 15:36	1

### Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00051		0.0020	0.00051	mg/L		03/25/22 09:56	03/26/22 14:10	1
Arsenic	0.0022		0.0010	0.00028	mg/L		03/25/22 09:56	03/26/22 14:10	1
Barium	0.074		0.010	0.0031	mg/L		03/25/22 09:56	03/26/22 14:10	1
Beryllium	<0.00027		0.0010	0.00027	mg/L		03/25/22 09:56	03/26/22 14:10	1
Cadmium	<0.00022		0.0010	0.00022	mg/L		03/25/22 09:56	03/26/22 14:10	1
Chromium	0.0019	J	0.0020	0.0015	mg/L		03/25/22 09:56	03/26/22 14:10	1
Cobalt	0.00050		0.00050	0.00026	mg/L		03/25/22 09:56	03/26/22 14:10	1
Lead	0.00047	J	0.0010	0.00017	mg/L		03/25/22 09:56	03/26/22 14:10	1
Lithium	0.010		0.0050	0.00083	mg/L		03/25/22 09:56	03/26/22 14:10	1
Molybdenum	0.0096		0.0050	0.00061	mg/L		03/25/22 09:56	03/26/22 14:10	1
Selenium	<0.00074		0.0050	0.00074	mg/L		03/25/22 09:56	03/26/22 14:10	1
Thallium	<0.00047		0.0010	0.00047	mg/L		03/25/22 09:56	03/26/22 14:10	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00025		0.00020	0.00013	mg/L		04/11/22 08:32	04/13/22 12:02	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	260		10	7.8	mg/L			03/22/22 11:36	1
Chloride	4.7		1.0	0.28	mg/L			03/21/22 21:16	1
Fluoride	0.29		0.050	0.024	mg/L			03/21/22 21:16	1
Sulfate	19		1.0	0.35	mg/L			03/21/22 21:16	1

### Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.333		0.142	0.145	1.00	0.141	pCi/L	03/22/22 10:33	04/13/22 10:42	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.8		40 - 110					03/22/22 10:33	04/13/22 10:42	1

### Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.198	U	0.268	0.269	1.00	0.448	pCi/L	03/22/22 11:06	04/08/22 11:38	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.8		40 - 110					03/22/22 11:06	04/08/22 11:38	1
Y Carrier	86.4		40 - 110					03/22/22 11:06	04/08/22 11:38	1

# Client Sample Results

Client: Big Rivers Electric Corporation  
 Project/Site: Big Rivers

Job ID: 240-163843-1  
 SDG: Sebree Station

**Client Sample ID: MW-7**

**Lab Sample ID: 240-163843-7**

Date Collected: 03/16/22 13:01

Matrix: Water

Date Received: 03/18/22 09:30

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.531		0.303	0.306	5.00	0.448	pCi/L		04/14/22 14:48	1

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# Client Sample Results

Client: Big Rivers Electric Corporation  
Project/Site: Big Rivers

Job ID: 240-163843-1  
SDG: Sebree Station

**Client Sample ID: MW-111**

**Lab Sample ID: 240-163843-8**

Date Collected: 03/16/22 11:35

Matrix: Water

Date Received: 03/18/22 09:30

### Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.54		0.20	0.013	mg/L		03/25/22 09:56	03/29/22 15:40	1
Calcium	19		5.0	0.32	mg/L		03/25/22 09:56	03/29/22 15:40	1

### Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0018	J	0.0020	0.00051	mg/L		03/25/22 09:56	03/26/22 14:21	1
Arsenic	0.0014		0.0010	0.00028	mg/L		03/25/22 09:56	03/26/22 14:21	1
Barium	0.89		0.010	0.0031	mg/L		03/25/22 09:56	03/26/22 14:21	1
Beryllium	<0.00027		0.0010	0.00027	mg/L		03/25/22 09:56	03/26/22 14:21	1
Cadmium	<0.00022		0.0010	0.00022	mg/L		03/25/22 09:56	03/26/22 14:21	1
Chromium	<0.0015		0.0020	0.0015	mg/L		03/25/22 09:56	03/26/22 14:21	1
Cobalt	0.00085		0.00050	0.00026	mg/L		03/25/22 09:56	03/26/22 14:21	1
Lead	0.00054	J	0.0010	0.00017	mg/L		03/25/22 09:56	03/26/22 14:21	1
Lithium	0.014		0.0050	0.00083	mg/L		03/25/22 09:56	03/26/22 14:21	1
Molybdenum	0.0044	J	0.0050	0.00061	mg/L		03/25/22 09:56	03/26/22 14:21	1
Selenium	<0.00074		0.0050	0.00074	mg/L		03/25/22 09:56	03/26/22 14:21	1
Thallium	<0.00047		0.0010	0.00047	mg/L		03/25/22 09:56	03/26/22 14:21	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00031		0.00020	0.00013	mg/L		04/11/22 08:32	04/13/22 12:03	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	310		10	7.8	mg/L			03/22/22 11:36	1
Chloride	18		1.0	0.28	mg/L			03/21/22 21:36	1
Fluoride	0.55		0.050	0.024	mg/L			03/21/22 21:36	1
Sulfate	6.7		1.0	0.35	mg/L			03/21/22 21:36	1

### Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.406		0.227	0.230	1.00	0.300	pCi/L	03/22/22 10:33	04/13/22 10:35	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.3		40 - 110					03/22/22 10:33	04/13/22 10:35	1

### Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.267	U	0.445	0.445	1.00	0.750	pCi/L	03/22/22 11:06	04/08/22 11:38	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.3		40 - 110					03/22/22 11:06	04/08/22 11:38	1
Y Carrier	88.6		40 - 110					03/22/22 11:06	04/08/22 11:38	1

# Client Sample Results

Client: Big Rivers Electric Corporation  
 Project/Site: Big Rivers

Job ID: 240-163843-1  
 SDG: Sebree Station

**Client Sample ID: MW-111**  
**Date Collected: 03/16/22 11:35**  
**Date Received: 03/18/22 09:30**

**Lab Sample ID: 240-163843-8**  
**Matrix: Water**

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.673	U	0.500	0.501	5.00	0.750	pCi/L		04/14/22 14:48	1

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# Client Sample Results

Client: Big Rivers Electric Corporation  
Project/Site: Big Rivers

Job ID: 240-163843-1  
SDG: Sebree Station

**Client Sample ID: DUPLICATE**

**Lab Sample ID: 240-163843-9**

Date Collected: 03/16/22 00:00

Matrix: Water

Date Received: 03/18/22 09:30

### Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.53		0.20	0.013	mg/L		03/25/22 09:56	03/29/22 15:45	1
Calcium	19		5.0	0.32	mg/L		03/25/22 09:56	03/29/22 15:45	1

### Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0011	J	0.0020	0.00051	mg/L		03/25/22 09:56	03/26/22 14:25	1
Arsenic	0.0013		0.0010	0.00028	mg/L		03/25/22 09:56	03/26/22 14:25	1
Barium	0.89		0.010	0.0031	mg/L		03/25/22 09:56	03/26/22 14:25	1
Beryllium	<0.00027		0.0010	0.00027	mg/L		03/25/22 09:56	03/26/22 14:25	1
Cadmium	<0.00022		0.0010	0.00022	mg/L		03/25/22 09:56	03/26/22 14:25	1
Chromium	<0.0015		0.0020	0.0015	mg/L		03/25/22 09:56	03/26/22 14:25	1
Cobalt	0.00044	J	0.00050	0.00026	mg/L		03/25/22 09:56	03/26/22 14:25	1
Lead	0.00029	J	0.0010	0.00017	mg/L		03/25/22 09:56	03/26/22 14:25	1
Lithium	0.013		0.0050	0.00083	mg/L		03/25/22 09:56	03/26/22 14:25	1
Molybdenum	0.0033	J	0.0050	0.00061	mg/L		03/25/22 09:56	03/26/22 14:25	1
Selenium	<0.00074		0.0050	0.00074	mg/L		03/25/22 09:56	03/26/22 14:25	1
Thallium	<0.00047		0.0010	0.00047	mg/L		03/25/22 09:56	03/26/22 14:25	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013		0.00020	0.00013	mg/L		04/11/22 08:32	04/13/22 12:04	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	310		10	7.8	mg/L			03/22/22 11:36	1
Chloride	18		1.0	0.28	mg/L			03/21/22 22:36	1
Fluoride	0.55		0.050	0.024	mg/L			03/21/22 22:36	1
Sulfate	6.3		1.0	0.35	mg/L			03/21/22 22:36	1

### Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.322		0.158	0.160	1.00	0.197	pCi/L	03/22/22 10:33	04/13/22 10:35	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.8		40 - 110					03/22/22 10:33	04/13/22 10:35	1

### Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.761		0.323	0.330	1.00	0.458	pCi/L	03/22/22 11:06	04/08/22 11:42	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.8		40 - 110					03/22/22 11:06	04/08/22 11:42	1
Y Carrier	86.4		40 - 110					03/22/22 11:06	04/08/22 11:42	1

# Client Sample Results

Client: Big Rivers Electric Corporation  
Project/Site: Big Rivers

Job ID: 240-163843-1  
SDG: Sebree Station

**Client Sample ID: DUPLICATE**

**Lab Sample ID: 240-163843-9**

Date Collected: 03/16/22 00:00

Matrix: Water

Date Received: 03/18/22 09:30

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.08		0.360	0.367	5.00	0.458	pCi/L		04/14/22 14:48	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

# Tracer/Carrier Summary

Client: Big Rivers Electric Corporation  
 Project/Site: Big Rivers

Job ID: 240-163843-1  
 SDG: Sebree Station

## Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	
240-163843-1	MW-11	92.1	
240-163843-2	MW-10	92.1	
240-163843-3	MW-9	81.2	
240-163843-4	MW-110	69.4	
240-163843-5	MW-8	71.6	
240-163843-6	MW-112	89.6	
240-163843-7	MW-7	93.8	
240-163843-8	MW-111	95.3	
240-163843-9	DUPLICATE	99.8	

**Tracer/Carrier Legend**  
 Ba = Ba Carrier

## Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba	
LCSD 160-556462/2-A	Lab Control Sample Dup		
MB 160-556462/16-A	Method Blank		

**Tracer/Carrier Legend**  
 Ba = Ba Carrier

## Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)
240-163843-1	MW-11	92.1	85.2
240-163843-2	MW-10	92.1	85.6
240-163843-3	MW-9	81.2	84.5
240-163843-4	MW-110	69.4	84.9
240-163843-5	MW-8	71.6	83.7
240-163843-6	MW-112	89.6	83.4
240-163843-7	MW-7	93.8	86.4
240-163843-8	MW-111	95.3	88.6
240-163843-9	DUPLICATE	99.8	86.4

**Tracer/Carrier Legend**  
 Ba = Ba Carrier  
 Y = Y Carrier

## Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba	Y
LCSD 160-556470/2-A	Lab Control Sample Dup		

# Tracer/Carrier Summary

Client: Big Rivers Electric Corporation  
Project/Site: Big Rivers

Job ID: 240-163843-1  
SDG: Sebree Station

**Method: 904.0 - Radium-228 (GFPC) (Continued)**

**Matrix: Water**

**Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba	Y
MB 160-556470/16-A	Method Blank		
<b>Tracer/Carrier Legend</b>			
Ba = Ba Carrier			
Y = Y Carrier			

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

# QC Sample Results

Client: Big Rivers Electric Corporation  
Project/Site: Big Rivers

Job ID: 240-163843-1  
SDG: Sebree Station

## Method: 6010C - Metals (ICP)

**Lab Sample ID: MB 180-393049/1-A**  
**Matrix: Water**  
**Analysis Batch: 393525**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 393049**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.013		0.20	0.013	mg/L		03/25/22 09:56	03/29/22 14:32	1
Calcium	<0.32		5.0	0.32	mg/L		03/25/22 09:56	03/29/22 14:32	1

**Lab Sample ID: LCS 180-393049/2-A**  
**Matrix: Water**  
**Analysis Batch: 393525**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 393049**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	1.25	1.34		mg/L		107	80 - 120
Calcium	25.0	25.4		mg/L		102	80 - 120

**Lab Sample ID: 240-163843-1 MS**  
**Matrix: Water**  
**Analysis Batch: 393525**

**Client Sample ID: MW-11**  
**Prep Type: Total Recoverable**  
**Prep Batch: 393049**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	0.79		1.25	2.20		mg/L		112	75 - 125
Calcium	310		25.0	340	4	mg/L		107	75 - 125

**Lab Sample ID: 240-163843-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 393525**

**Client Sample ID: MW-11**  
**Prep Type: Total Recoverable**  
**Prep Batch: 393049**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Boron	0.79		1.25	2.17		mg/L		110	75 - 125	1	20
Calcium	310		25.0	338	4	mg/L		99	75 - 125	1	20

## Method: 6020A - Metals (ICP/MS)

**Lab Sample ID: MB 180-393049/1-A**  
**Matrix: Water**  
**Analysis Batch: 393387**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 393049**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00051		0.0020	0.00051	mg/L		03/25/22 09:56	03/26/22 12:51	1
Arsenic	<0.00028		0.0010	0.00028	mg/L		03/25/22 09:56	03/26/22 12:51	1
Barium	<0.0031		0.010	0.0031	mg/L		03/25/22 09:56	03/26/22 12:51	1
Beryllium	<0.00027		0.0010	0.00027	mg/L		03/25/22 09:56	03/26/22 12:51	1
Cadmium	<0.00022		0.0010	0.00022	mg/L		03/25/22 09:56	03/26/22 12:51	1
Chromium	<0.0015		0.0020	0.0015	mg/L		03/25/22 09:56	03/26/22 12:51	1
Cobalt	<0.00026		0.00050	0.00026	mg/L		03/25/22 09:56	03/26/22 12:51	1
Lead	<0.00017		0.0010	0.00017	mg/L		03/25/22 09:56	03/26/22 12:51	1
Lithium	<0.00083		0.0050	0.00083	mg/L		03/25/22 09:56	03/26/22 12:51	1
Molybdenum	<0.00061		0.0050	0.00061	mg/L		03/25/22 09:56	03/26/22 12:51	1
Selenium	<0.00074		0.0050	0.00074	mg/L		03/25/22 09:56	03/26/22 12:51	1
Thallium	<0.00047		0.0010	0.00047	mg/L		03/25/22 09:56	03/26/22 12:51	1

# QC Sample Results

Client: Big Rivers Electric Corporation  
Project/Site: Big Rivers

Job ID: 240-163843-1  
SDG: Sebree Station

## Method: 6020A - Metals (ICP/MS) (Continued)

**Lab Sample ID: LCS 180-393049/2-A**  
**Matrix: Water**  
**Analysis Batch: 393387**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 393049**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.250	0.249		mg/L		100	80 - 120
Arsenic	1.00	1.03		mg/L		103	80 - 120
Barium	1.00	0.984		mg/L		98	80 - 120
Beryllium	0.500	0.538		mg/L		108	80 - 120
Cadmium	0.500	0.513		mg/L		103	80 - 120
Chromium	0.500	0.481		mg/L		96	80 - 120
Cobalt	0.500	0.518		mg/L		104	80 - 120
Lead	0.500	0.512		mg/L		102	80 - 120
Lithium	0.500	0.497		mg/L		99	80 - 120
Molybdenum	0.500	0.513		mg/L		103	80 - 120
Selenium	1.00	1.08		mg/L		108	80 - 120
Thallium	1.00	1.07		mg/L		107	80 - 120

**Lab Sample ID: 240-163843-1 MS**  
**Matrix: Water**  
**Analysis Batch: 393387**

**Client Sample ID: MW-11**  
**Prep Type: Total Recoverable**  
**Prep Batch: 393049**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	<0.00051		0.250	0.255		mg/L		102	75 - 125
Arsenic	0.00082	J	1.00	1.11		mg/L		111	75 - 125
Barium	0.028		1.00	1.03		mg/L		100	75 - 125
Beryllium	<0.00027		0.500	0.515		mg/L		103	75 - 125
Cadmium	<0.00022		0.500	0.488		mg/L		98	75 - 125
Chromium	<0.0015		0.500	0.464		mg/L		93	75 - 125
Cobalt	0.00072		0.500	0.534		mg/L		107	75 - 125
Lead	0.00018	J	0.500	0.514		mg/L		103	75 - 125
Lithium	0.048		0.500	0.469		mg/L		84	75 - 125
Molybdenum	0.0014	J	0.500	0.541		mg/L		108	75 - 125
Selenium	<0.00074		1.00	1.04		mg/L		104	75 - 125
Thallium	<0.00047		1.00	1.06		mg/L		106	75 - 125

**Lab Sample ID: 240-163843-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 393387**

**Client Sample ID: MW-11**  
**Prep Type: Total Recoverable**  
**Prep Batch: 393049**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	<0.00051		0.250	0.252		mg/L		101	75 - 125	1	20
Arsenic	0.00082	J	1.00	1.11		mg/L		111	75 - 125	0	20
Barium	0.028		1.00	1.02		mg/L		99	75 - 125	1	20
Beryllium	<0.00027		0.500	0.518		mg/L		104	75 - 125	1	20
Cadmium	<0.00022		0.500	0.483		mg/L		97	75 - 125	1	20
Chromium	<0.0015		0.500	0.465		mg/L		93	75 - 125	0	20
Cobalt	0.00072		0.500	0.533		mg/L		106	75 - 125	0	20
Lead	0.00018	J	0.500	0.512		mg/L		102	75 - 125	0	20
Lithium	0.048		0.500	0.478		mg/L		86	75 - 125	2	20
Molybdenum	0.0014	J	0.500	0.544		mg/L		109	75 - 125	1	20
Selenium	<0.00074		1.00	1.06		mg/L		106	75 - 125	1	20
Thallium	<0.00047		1.00	1.05		mg/L		105	75 - 125	1	20

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# QC Sample Results

Client: Big Rivers Electric Corporation  
Project/Site: Big Rivers

Job ID: 240-163843-1  
SDG: Sebree Station

## Method: 7470A - Mercury (CVAA)

**Lab Sample ID: MB 180-394906/1-A**  
**Matrix: Water**  
**Analysis Batch: 395301**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 394906**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013		0.00020	0.00013	mg/L		04/11/22 08:32	04/13/22 11:43	1

**Lab Sample ID: LCS 180-394906/2-A**  
**Matrix: Water**  
**Analysis Batch: 395301**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 394906**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00250	0.00270		mg/L		108	80 - 120

**Lab Sample ID: 180-136211-C-1-C MS**  
**Matrix: Water**  
**Analysis Batch: 395301**

**Client Sample ID: Matrix Spike**  
**Prep Type: Dissolved**  
**Prep Batch: 394906**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00020		0.00100	0.00126		mg/L		107	75 - 125

**Lab Sample ID: 180-136211-C-1-D MSD**  
**Matrix: Water**  
**Analysis Batch: 395301**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Dissolved**  
**Prep Batch: 394906**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	0.00020		0.00100	0.00143		mg/L		123	75 - 125	12	20

## Method: 2540 C-2011 - Total Dissolved Solids (Dried at 180 °C)

**Lab Sample ID: MB 240-520540/1**  
**Matrix: Water**  
**Analysis Batch: 520540**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<7.8		10	7.8	mg/L			03/22/22 11:36	1

**Lab Sample ID: LCS 240-520540/2**  
**Matrix: Water**  
**Analysis Batch: 520540**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	150	138		mg/L		92	80 - 120

**Lab Sample ID: 240-163843-2 DU**  
**Matrix: Water**  
**Analysis Batch: 520540**

**Client Sample ID: MW-10**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	480		476		mg/L		1	20

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# QC Sample Results

Client: Big Rivers Electric Corporation  
Project/Site: Big Rivers

Job ID: 240-163843-1  
SDG: Sebree Station

## Method: 9056A - Anions, Ion Chromatography

**Lab Sample ID: MB 240-520420/3**  
**Matrix: Water**  
**Analysis Batch: 520420**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chloride	<0.28		1.0	0.28	mg/L			03/21/22 14:33	1
Fluoride	<0.024		0.050	0.024	mg/L			03/21/22 14:33	1
Sulfate	<0.35		1.0	0.35	mg/L			03/21/22 14:33	1

**Lab Sample ID: LCS 240-520420/4**  
**Matrix: Water**  
**Analysis Batch: 520420**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	2.50	2.49		mg/L		100	90 - 110
Sulfate	50.0	50.7		mg/L		101	90 - 110

**Lab Sample ID: 240-163843-3 MS**  
**Matrix: Water**  
**Analysis Batch: 520420**

**Client Sample ID: MW-9**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	0.20		2.50	2.90		mg/L		108	80 - 120
Sulfate	<0.35		50.0	54.1		mg/L		108	80 - 120

**Lab Sample ID: 240-163843-3 MSD**  
**Matrix: Water**  
**Analysis Batch: 520420**

**Client Sample ID: MW-9**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Fluoride	0.20		2.50	2.80		mg/L		104	80 - 120	4	15
Sulfate	<0.35		50.0	52.2		mg/L		104	80 - 120	4	15

## Method: 903.0 - Radium-226 (GFPC)

**Lab Sample ID: MB 160-556462/16-A**  
**Matrix: Water**  
**Analysis Batch: 560040**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 556462**

Analyte	MB MB		Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier								
Radium-226	-0.008053	U			1.00	0.500	pCi/L	03/22/22 10:33	04/13/22 10:36	1
<b>Carrier</b>	<b>%Yield</b>	<b>MB Qualifier</b>	<b>MB</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Ba Carrier								03/22/22 10:33	04/13/22 10:36	1

# QC Sample Results

Client: Big Rivers Electric Corporation  
Project/Site: Big Rivers

Job ID: 240-163843-1  
SDG: Sebree Station

## Method: 903.0 - Radium-226 (GFPC) (Continued)

**Lab Sample ID: LCS 160-556462/1-A**  
**Matrix: Water**  
**Analysis Batch: 560046**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 556462**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
Radium-226	114000	9.821	*		1.00	0.500	pCi/L	0.009	75 - 125	

**Lab Sample ID: LCSD 160-556462/2-A**  
**Matrix: Water**  
**Analysis Batch: 560046**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 556462**

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		RER	RER Limit
Radium-226	114000	9.393	*		1.00	0.500	pCi/L	0.008	75 - 125	0.21	1	

## Method: 904.0 - Radium-228 (GFPC)

**Lab Sample ID: MB 160-556470/16-A**  
**Matrix: Water**  
**Analysis Batch: 559296**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 556470**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared		Analyzed		Dil Fac
Radium-228	-0.1246	U			1.00	0.500	pCi/L	03/22/22 11:06	04/08/22 11:42	11:42	1	
<b>Carrier</b>	<b>MB %Yield</b>	<b>MB Qualifier</b>	<b>Limits</b>					<b>Prepared</b>	<b>Analyzed</b>		<b>Dil Fac</b>	
Ba Carrier								03/22/22 11:06	04/08/22 11:42	11:42	1	
Y Carrier								03/22/22 11:06	04/08/22 11:42	11:42	1	

**Lab Sample ID: LCS 160-556470/1-A**  
**Matrix: Water**  
**Analysis Batch: 559310**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 556470**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
Radium-228	10200	0.5565	*		1.00	0.500	pCi/L	0.005	75 - 125	

**Lab Sample ID: LCSD 160-556470/2-A**  
**Matrix: Water**  
**Analysis Batch: 559310**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 556470**

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		RER	RER Limit
Radium-228	10200	0.4870	U *		1.00	0.500	pCi/L	0.005	75 - 125	0.15	1	

# QC Association Summary

Client: Big Rivers Electric Corporation  
Project/Site: Big Rivers

Job ID: 240-163843-1  
SDG: Sebree Station

## Metals

### Prep Batch: 393049

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-163843-1	MW-11	Total Recoverable	Water	3005A	
240-163843-2	MW-10	Total Recoverable	Water	3005A	
240-163843-3	MW-9	Total Recoverable	Water	3005A	
240-163843-4	MW-110	Total Recoverable	Water	3005A	
240-163843-5	MW-8	Total Recoverable	Water	3005A	
240-163843-6	MW-112	Total Recoverable	Water	3005A	
240-163843-7	MW-7	Total Recoverable	Water	3005A	
240-163843-8	MW-111	Total Recoverable	Water	3005A	
240-163843-9	DUPLICATE	Total Recoverable	Water	3005A	
MB 180-393049/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-393049/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
240-163843-1 MS	MW-11	Total Recoverable	Water	3005A	
240-163843-1 MSD	MW-11	Total Recoverable	Water	3005A	

### Analysis Batch: 393387

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-163843-1	MW-11	Total Recoverable	Water	6020A	393049
240-163843-2	MW-10	Total Recoverable	Water	6020A	393049
240-163843-3	MW-9	Total Recoverable	Water	6020A	393049
240-163843-4	MW-110	Total Recoverable	Water	6020A	393049
240-163843-5	MW-8	Total Recoverable	Water	6020A	393049
240-163843-6	MW-112	Total Recoverable	Water	6020A	393049
240-163843-7	MW-7	Total Recoverable	Water	6020A	393049
240-163843-8	MW-111	Total Recoverable	Water	6020A	393049
240-163843-9	DUPLICATE	Total Recoverable	Water	6020A	393049
MB 180-393049/1-A	Method Blank	Total Recoverable	Water	6020A	393049
LCS 180-393049/2-A	Lab Control Sample	Total Recoverable	Water	6020A	393049
240-163843-1 MS	MW-11	Total Recoverable	Water	6020A	393049
240-163843-1 MSD	MW-11	Total Recoverable	Water	6020A	393049

### Analysis Batch: 393525

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-163843-1	MW-11	Total Recoverable	Water	6010C	393049
240-163843-2	MW-10	Total Recoverable	Water	6010C	393049
240-163843-3	MW-9	Total Recoverable	Water	6010C	393049
240-163843-4	MW-110	Total Recoverable	Water	6010C	393049
240-163843-5	MW-8	Total Recoverable	Water	6010C	393049
240-163843-6	MW-112	Total Recoverable	Water	6010C	393049
240-163843-7	MW-7	Total Recoverable	Water	6010C	393049
240-163843-8	MW-111	Total Recoverable	Water	6010C	393049
240-163843-9	DUPLICATE	Total Recoverable	Water	6010C	393049
MB 180-393049/1-A	Method Blank	Total Recoverable	Water	6010C	393049
LCS 180-393049/2-A	Lab Control Sample	Total Recoverable	Water	6010C	393049
240-163843-1 MS	MW-11	Total Recoverable	Water	6010C	393049
240-163843-1 MSD	MW-11	Total Recoverable	Water	6010C	393049

### Prep Batch: 394906

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-163843-1	MW-11	Total/NA	Water	7470A	
240-163843-2	MW-10	Total/NA	Water	7470A	
240-163843-3	MW-9	Total/NA	Water	7470A	

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# QC Association Summary

Client: Big Rivers Electric Corporation  
Project/Site: Big Rivers

Job ID: 240-163843-1  
SDG: Sebree Station

## Metals (Continued)

### Prep Batch: 394906 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-163843-4	MW-110	Total/NA	Water	7470A	
240-163843-5	MW-8	Total/NA	Water	7470A	
240-163843-6	MW-112	Total/NA	Water	7470A	
240-163843-7	MW-7	Total/NA	Water	7470A	
240-163843-8	MW-111	Total/NA	Water	7470A	
240-163843-9	DUPLICATE	Total/NA	Water	7470A	
MB 180-394906/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-394906/2-A	Lab Control Sample	Total/NA	Water	7470A	
180-136211-C-1-C MS	Matrix Spike	Dissolved	Water	7470A	
180-136211-C-1-D MSD	Matrix Spike Duplicate	Dissolved	Water	7470A	

### Analysis Batch: 395301

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-163843-1	MW-11	Total/NA	Water	7470A	394906
240-163843-2	MW-10	Total/NA	Water	7470A	394906
240-163843-3	MW-9	Total/NA	Water	7470A	394906
240-163843-4	MW-110	Total/NA	Water	7470A	394906
240-163843-5	MW-8	Total/NA	Water	7470A	394906
240-163843-6	MW-112	Total/NA	Water	7470A	394906
240-163843-7	MW-7	Total/NA	Water	7470A	394906
240-163843-8	MW-111	Total/NA	Water	7470A	394906
240-163843-9	DUPLICATE	Total/NA	Water	7470A	394906
MB 180-394906/1-A	Method Blank	Total/NA	Water	7470A	394906
LCS 180-394906/2-A	Lab Control Sample	Total/NA	Water	7470A	394906
180-136211-C-1-C MS	Matrix Spike	Dissolved	Water	7470A	394906
180-136211-C-1-D MSD	Matrix Spike Duplicate	Dissolved	Water	7470A	394906

## General Chemistry

### Analysis Batch: 520420

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-163843-1	MW-11	Total/NA	Water	9056A	
240-163843-1	MW-11	Total/NA	Water	9056A	
240-163843-2	MW-10	Total/NA	Water	9056A	
240-163843-3	MW-9	Total/NA	Water	9056A	
240-163843-4	MW-110	Total/NA	Water	9056A	
240-163843-4	MW-110	Total/NA	Water	9056A	
240-163843-5	MW-8	Total/NA	Water	9056A	
240-163843-5	MW-8	Total/NA	Water	9056A	
240-163843-6	MW-112	Total/NA	Water	9056A	
240-163843-7	MW-7	Total/NA	Water	9056A	
240-163843-8	MW-111	Total/NA	Water	9056A	
240-163843-9	DUPLICATE	Total/NA	Water	9056A	
MB 240-520420/3	Method Blank	Total/NA	Water	9056A	
LCS 240-520420/4	Lab Control Sample	Total/NA	Water	9056A	
240-163843-3 MS	MW-9	Total/NA	Water	9056A	
240-163843-3 MSD	MW-9	Total/NA	Water	9056A	

### Analysis Batch: 520540

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-163843-1	MW-11	Total/NA	Water	2540 C-2011	

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# QC Association Summary

Client: Big Rivers Electric Corporation  
Project/Site: Big Rivers

Job ID: 240-163843-1  
SDG: Sebree Station

## General Chemistry (Continued)

### Analysis Batch: 520540 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-163843-2	MW-10	Total/NA	Water	2540 C-2011	
240-163843-3	MW-9	Total/NA	Water	2540 C-2011	
240-163843-4	MW-110	Total/NA	Water	2540 C-2011	
240-163843-5	MW-8	Total/NA	Water	2540 C-2011	
240-163843-6	MW-112	Total/NA	Water	2540 C-2011	
240-163843-7	MW-7	Total/NA	Water	2540 C-2011	
240-163843-8	MW-111	Total/NA	Water	2540 C-2011	
240-163843-9	DUPLICATE	Total/NA	Water	2540 C-2011	
MB 240-520540/1	Method Blank	Total/NA	Water	2540 C-2011	
LCS 240-520540/2	Lab Control Sample	Total/NA	Water	2540 C-2011	
240-163843-2 DU	MW-10	Total/NA	Water	2540 C-2011	

## Rad

### Prep Batch: 556462

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-163843-1	MW-11	Total/NA	Water	PrecSep-21	
240-163843-2	MW-10	Total/NA	Water	PrecSep-21	
240-163843-3	MW-9	Total/NA	Water	PrecSep-21	
240-163843-4	MW-110	Total/NA	Water	PrecSep-21	
240-163843-5	MW-8	Total/NA	Water	PrecSep-21	
240-163843-6	MW-112	Total/NA	Water	PrecSep-21	
240-163843-7	MW-7	Total/NA	Water	PrecSep-21	
240-163843-8	MW-111	Total/NA	Water	PrecSep-21	
240-163843-9	DUPLICATE	Total/NA	Water	PrecSep-21	
MB 160-556462/16-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-556462/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-556462/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

### Prep Batch: 556470

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-163843-1	MW-11	Total/NA	Water	PrecSep_0	
240-163843-2	MW-10	Total/NA	Water	PrecSep_0	
240-163843-3	MW-9	Total/NA	Water	PrecSep_0	
240-163843-4	MW-110	Total/NA	Water	PrecSep_0	
240-163843-5	MW-8	Total/NA	Water	PrecSep_0	
240-163843-6	MW-112	Total/NA	Water	PrecSep_0	
240-163843-7	MW-7	Total/NA	Water	PrecSep_0	
240-163843-8	MW-111	Total/NA	Water	PrecSep_0	
240-163843-9	DUPLICATE	Total/NA	Water	PrecSep_0	
MB 160-556470/16-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-556470/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-556470/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

# Lab Chronicle

Client: Big Rivers Electric Corporation  
Project/Site: Big Rivers

Job ID: 240-163843-1  
SDG: Sebree Station

**Client Sample ID: MW-11**  
**Date Collected: 03/15/22 10:36**  
**Date Received: 03/18/22 09:30**

**Lab Sample ID: 240-163843-1**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			393049	03/25/22 09:56	KFS	TAL PIT
Total Recoverable	Analysis	6010C		1	393525	03/29/22 14:41	RJG	TAL PIT
Total Recoverable	Prep	3005A			393049	03/25/22 09:56	KFS	TAL PIT
Total Recoverable	Analysis	6020A		1	393387	03/26/22 12:58	RSK	TAL PIT
Total/NA	Prep	7470A			394906	04/11/22 08:32	RJR	TAL PIT
Total/NA	Analysis	7470A		1	395301	04/13/22 11:55	RJR	TAL PIT
Total/NA	Analysis	2540 C-2011		1	520540	03/22/22 11:36	KMS	TAL CAN
Total/NA	Analysis	9056A		5	520420	03/21/22 16:34	MED	TAL CAN
Total/NA	Analysis	9056A		20	520420	03/21/22 16:54	MED	TAL CAN
Total/NA	Prep	PrecSep-21			556462	03/22/22 10:33	LPS	TAL SL
Total/NA	Analysis	903.0		1	560046	04/13/22 10:40	FLC	TAL SL
Total/NA	Prep	PrecSep_0			556470	03/22/22 11:06	LPS	TAL SL
Total/NA	Analysis	904.0		1	559310	04/08/22 11:37	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	560437	04/14/22 14:48	EMH	TAL SL

**Client Sample ID: MW-10**  
**Date Collected: 03/15/22 12:26**  
**Date Received: 03/18/22 09:30**

**Lab Sample ID: 240-163843-2**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			393049	03/25/22 09:56	KFS	TAL PIT
Total Recoverable	Analysis	6010C		1	393525	03/29/22 15:03	RJG	TAL PIT
Total Recoverable	Prep	3005A			393049	03/25/22 09:56	KFS	TAL PIT
Total Recoverable	Analysis	6020A		1	393387	03/26/22 13:52	RSK	TAL PIT
Total/NA	Prep	7470A			394906	04/11/22 08:32	RJR	TAL PIT
Total/NA	Analysis	7470A		1	395301	04/13/22 11:56	RJR	TAL PIT
Total/NA	Analysis	2540 C-2011		1	520540	03/22/22 11:36	KMS	TAL CAN
Total/NA	Analysis	9056A		1	520420	03/21/22 17:14	MED	TAL CAN
Total/NA	Prep	PrecSep-21			556462	03/22/22 10:33	LPS	TAL SL
Total/NA	Analysis	903.0		1	560046	04/13/22 10:40	FLC	TAL SL
Total/NA	Prep	PrecSep_0			556470	03/22/22 11:06	LPS	TAL SL
Total/NA	Analysis	904.0		1	559310	04/08/22 11:37	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	560437	04/14/22 14:48	EMH	TAL SL

**Client Sample ID: MW-9**  
**Date Collected: 03/15/22 13:13**  
**Date Received: 03/18/22 09:30**

**Lab Sample ID: 240-163843-3**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			393049	03/25/22 09:56	KFS	TAL PIT
Total Recoverable	Analysis	6010C		1	393525	03/29/22 15:08	RJG	TAL PIT
Total Recoverable	Prep	3005A			393049	03/25/22 09:56	KFS	TAL PIT
Total Recoverable	Analysis	6020A		1	393387	03/26/22 13:56	RSK	TAL PIT

# Lab Chronicle

Client: Big Rivers Electric Corporation  
Project/Site: Big Rivers

Job ID: 240-163843-1  
SDG: Sebree Station

**Client Sample ID: MW-9**

**Lab Sample ID: 240-163843-3**

**Date Collected: 03/15/22 13:13**

**Matrix: Water**

**Date Received: 03/18/22 09:30**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7470A			394906	04/11/22 08:32	RJR	TAL PIT
Total/NA	Analysis	7470A		1	395301	04/13/22 11:57	RJR	TAL PIT
Total/NA	Analysis	2540 C-2011		1	520540	03/22/22 11:36	KMS	TAL CAN
Total/NA	Analysis	9056A		1	520420	03/21/22 18:35	MED	TAL CAN
Total/NA	Prep	PrecSep-21			556462	03/22/22 10:33	LPS	TAL SL
Total/NA	Analysis	903.0		1	560046	04/13/22 10:41	FLC	TAL SL
Total/NA	Prep	PrecSep_0			556470	03/22/22 11:06	LPS	TAL SL
Total/NA	Analysis	904.0		1	559310	04/08/22 11:37	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	560437	04/14/22 14:48	EMH	TAL SL

**Client Sample ID: MW-110**

**Lab Sample ID: 240-163843-4**

**Date Collected: 03/15/22 14:05**

**Matrix: Water**

**Date Received: 03/18/22 09:30**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			393049	03/25/22 09:56	KFS	TAL PIT
Total Recoverable	Analysis	6010C		1	393525	03/29/22 15:22	RJG	TAL PIT
Total Recoverable	Prep	3005A			393049	03/25/22 09:56	KFS	TAL PIT
Total Recoverable	Analysis	6020A		1	393387	03/26/22 14:00	RSK	TAL PIT
Total/NA	Prep	7470A			394906	04/11/22 08:32	RJR	TAL PIT
Total/NA	Analysis	7470A		1	395301	04/13/22 11:59	RJR	TAL PIT
Total/NA	Analysis	2540 C-2011		1	520540	03/22/22 11:36	KMS	TAL CAN
Total/NA	Analysis	9056A		1	520420	03/21/22 19:35	MED	TAL CAN
Total/NA	Analysis	9056A		5	520420	03/21/22 19:55	MED	TAL CAN
Total/NA	Prep	PrecSep-21			556462	03/22/22 10:33	LPS	TAL SL
Total/NA	Analysis	903.0		1	560046	04/13/22 10:41	FLC	TAL SL
Total/NA	Prep	PrecSep_0			556470	03/22/22 11:06	LPS	TAL SL
Total/NA	Analysis	904.0		1	559310	04/08/22 11:37	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	560437	04/14/22 14:48	EMH	TAL SL

**Client Sample ID: MW-8**

**Lab Sample ID: 240-163843-5**

**Date Collected: 03/15/22 14:54**

**Matrix: Water**

**Date Received: 03/18/22 09:30**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			393049	03/25/22 09:56	KFS	TAL PIT
Total Recoverable	Analysis	6010C		1	393525	03/29/22 15:26	RJG	TAL PIT
Total Recoverable	Prep	3005A			393049	03/25/22 09:56	KFS	TAL PIT
Total Recoverable	Analysis	6020A		1	393387	03/26/22 14:03	RSK	TAL PIT
Total/NA	Prep	7470A			394906	04/11/22 08:32	RJR	TAL PIT
Total/NA	Analysis	7470A		1	395301	04/13/22 12:00	RJR	TAL PIT
Total/NA	Analysis	2540 C-2011		1	520540	03/22/22 11:36	KMS	TAL CAN
Total/NA	Analysis	9056A		1	520420	03/21/22 20:15	MED	TAL CAN
Total/NA	Analysis	9056A		10	520420	03/21/22 20:36	MED	TAL CAN

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# Lab Chronicle

Client: Big Rivers Electric Corporation  
Project/Site: Big Rivers

Job ID: 240-163843-1  
SDG: Sebree Station

## Client Sample ID: MW-8

Lab Sample ID: 240-163843-5

Date Collected: 03/15/22 14:54

Matrix: Water

Date Received: 03/18/22 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			556462	03/22/22 10:33	LPS	TAL SL
Total/NA	Analysis	903.0		1	560046	04/13/22 10:41	FLC	TAL SL
Total/NA	Prep	PrecSep_0			556470	03/22/22 11:06	LPS	TAL SL
Total/NA	Analysis	904.0		1	559310	04/08/22 11:38	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	560437	04/14/22 14:48	EMH	TAL SL

## Client Sample ID: MW-112

Lab Sample ID: 240-163843-6

Date Collected: 03/17/22 08:43

Matrix: Water

Date Received: 03/18/22 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			393049	03/25/22 09:56	KFS	TAL PIT
Total Recoverable	Analysis	6010C		1	393525	03/29/22 15:31	RJG	TAL PIT
Total Recoverable	Prep	3005A			393049	03/25/22 09:56	KFS	TAL PIT
Total Recoverable	Analysis	6020A		1	393387	03/26/22 14:07	RSK	TAL PIT
Total/NA	Prep	7470A			394906	04/11/22 08:32	RJR	TAL PIT
Total/NA	Analysis	7470A		1	395301	04/13/22 12:01	RJR	TAL PIT
Total/NA	Analysis	2540 C-2011		1	520540	03/22/22 11:36	KMS	TAL CAN
Total/NA	Analysis	9056A		1	520420	03/21/22 20:56	MED	TAL CAN
Total/NA	Prep	PrecSep-21			556462	03/22/22 10:33	LPS	TAL SL
Total/NA	Analysis	903.0		1	560046	04/13/22 10:42	FLC	TAL SL
Total/NA	Prep	PrecSep_0			556470	03/22/22 11:06	LPS	TAL SL
Total/NA	Analysis	904.0		1	559310	04/08/22 11:38	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	560437	04/14/22 14:48	EMH	TAL SL

## Client Sample ID: MW-7

Lab Sample ID: 240-163843-7

Date Collected: 03/16/22 13:01

Matrix: Water

Date Received: 03/18/22 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			393049	03/25/22 09:56	KFS	TAL PIT
Total Recoverable	Analysis	6010C		1	393525	03/29/22 15:36	RJG	TAL PIT
Total Recoverable	Prep	3005A			393049	03/25/22 09:56	KFS	TAL PIT
Total Recoverable	Analysis	6020A		1	393387	03/26/22 14:10	RSK	TAL PIT
Total/NA	Prep	7470A			394906	04/11/22 08:32	RJR	TAL PIT
Total/NA	Analysis	7470A		1	395301	04/13/22 12:02	RJR	TAL PIT
Total/NA	Analysis	2540 C-2011		1	520540	03/22/22 11:36	KMS	TAL CAN
Total/NA	Analysis	9056A		1	520420	03/21/22 21:16	MED	TAL CAN
Total/NA	Prep	PrecSep-21			556462	03/22/22 10:33	LPS	TAL SL
Total/NA	Analysis	903.0		1	560046	04/13/22 10:42	FLC	TAL SL
Total/NA	Prep	PrecSep_0			556470	03/22/22 11:06	LPS	TAL SL
Total/NA	Analysis	904.0		1	559310	04/08/22 11:38	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	560437	04/14/22 14:48	EMH	TAL SL

# Lab Chronicle

Client: Big Rivers Electric Corporation  
Project/Site: Big Rivers

Job ID: 240-163843-1  
SDG: Sebree Station

**Client Sample ID: MW-111**

**Lab Sample ID: 240-163843-8**

**Date Collected: 03/16/22 11:35**

**Matrix: Water**

**Date Received: 03/18/22 09:30**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			393049	03/25/22 09:56	KFS	TAL PIT
Total Recoverable	Analysis	6010C		1	393525	03/29/22 15:40	RJG	TAL PIT
Total Recoverable	Prep	3005A			393049	03/25/22 09:56	KFS	TAL PIT
Total Recoverable	Analysis	6020A		1	393387	03/26/22 14:21	RSK	TAL PIT
Total/NA	Prep	7470A			394906	04/11/22 08:32	RJR	TAL PIT
Total/NA	Analysis	7470A		1	395301	04/13/22 12:03	RJR	TAL PIT
Total/NA	Analysis	2540 C-2011		1	520540	03/22/22 11:36	KMS	TAL CAN
Total/NA	Analysis	9056A		1	520420	03/21/22 21:36	MED	TAL CAN
Total/NA	Prep	PrecSep-21			556462	03/22/22 10:33	LPS	TAL SL
Total/NA	Analysis	903.0		1	560040	04/13/22 10:35	FLC	TAL SL
Total/NA	Prep	PrecSep_0			556470	03/22/22 11:06	LPS	TAL SL
Total/NA	Analysis	904.0		1	559310	04/08/22 11:38	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	560437	04/14/22 14:48	EMH	TAL SL

**Client Sample ID: DUPLICATE**

**Lab Sample ID: 240-163843-9**

**Date Collected: 03/16/22 00:00**

**Matrix: Water**

**Date Received: 03/18/22 09:30**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			393049	03/25/22 09:56	KFS	TAL PIT
Total Recoverable	Analysis	6010C		1	393525	03/29/22 15:45	RJG	TAL PIT
Total Recoverable	Prep	3005A			393049	03/25/22 09:56	KFS	TAL PIT
Total Recoverable	Analysis	6020A		1	393387	03/26/22 14:25	RSK	TAL PIT
Total/NA	Prep	7470A			394906	04/11/22 08:32	RJR	TAL PIT
Total/NA	Analysis	7470A		1	395301	04/13/22 12:04	RJR	TAL PIT
Total/NA	Analysis	2540 C-2011		1	520540	03/22/22 11:36	KMS	TAL CAN
Total/NA	Analysis	9056A		1	520420	03/21/22 22:36	MED	TAL CAN
Total/NA	Prep	PrecSep-21			556462	03/22/22 10:33	LPS	TAL SL
Total/NA	Analysis	903.0		1	560040	04/13/22 10:35	FLC	TAL SL
Total/NA	Prep	PrecSep_0			556470	03/22/22 11:06	LPS	TAL SL
Total/NA	Analysis	904.0		1	559296	04/08/22 11:42	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	560437	04/14/22 14:48	EMH	TAL SL

**Laboratory References:**

TAL CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

TAL PIT = Eurofins Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

TAL SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

# Accreditation/Certification Summary

Client: Big Rivers Electric Corporation  
Project/Site: Big Rivers

Job ID: 240-163843-1  
SDG: Sebree Station

## Laboratory: Eurofins Canton

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Kentucky (UST)	State	112225	02-23-22 *
Kentucky (WW)	State	KY98016	12-31-22

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
9056A		Water	Chloride
9056A		Water	Fluoride
9056A		Water	Sulfate
Oregon	NELAP	4062	02-27-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
2540 C-2011		Water	Total Dissolved Solids

## Laboratory: Eurofins Pittsburgh

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Kentucky (UST)	State	162013	04-30-22

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
6010C	3005A	Water	Boron
6010C	3005A	Water	Calcium
6020A	3005A	Water	Antimony
6020A	3005A	Water	Arsenic
6020A	3005A	Water	Barium
6020A	3005A	Water	Beryllium
6020A	3005A	Water	Cadmium
6020A	3005A	Water	Chromium
6020A	3005A	Water	Cobalt
6020A	3005A	Water	Lead
6020A	3005A	Water	Lithium
6020A	3005A	Water	Molybdenum
6020A	3005A	Water	Selenium
6020A	3005A	Water	Thallium
7470A	7470A	Water	Mercury
Kentucky (WW)	State	KY98043	12-31-22

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
6010C	3005A	Water	Boron
6010C	3005A	Water	Calcium
6020A	3005A	Water	Antimony
6020A	3005A	Water	Arsenic
6020A	3005A	Water	Barium
6020A	3005A	Water	Beryllium
6020A	3005A	Water	Cadmium

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Accreditation/Certification Summary

Client: Big Rivers Electric Corporation  
 Project/Site: Big Rivers

Job ID: 240-163843-1  
 SDG: Sebree Station

## Laboratory: Eurofins Pittsburgh (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
6020A	3005A	Water	Chromium
6020A	3005A	Water	Cobalt
6020A	3005A	Water	Lead
6020A	3005A	Water	Lithium
6020A	3005A	Water	Molybdenum
6020A	3005A	Water	Selenium
6020A	3005A	Water	Thallium
7470A	7470A	Water	Mercury
Pennsylvania	NELAP	02-00416	04-30-22

## Laboratory: Eurofins St. Louis

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Kentucky (DW)	State	KY90125	12-31-22
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
Ra226_Ra228		Water	Combined Radium 226 + 228
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-22
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
903.0	PrecSep-21	Water	Radium-226
904.0	PrecSep_0	Water	Radium-228
Ra226_Ra228		Water	Combined Radium 226 + 228
Pennsylvania	NELAP	68-00540	02-28-23
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
Ra226_Ra228		Water	Combined Radium 226 + 228

**Chain of Custody Record**



Environment Testing  
 America

2-812-6

<b>Client Information</b> Client Contact: <b>Mark Bertram</b> Company: <b>Big Rivers Electric Corporation</b> Address: <b>PO BOX 24</b> City: <b>Henderson</b> State, Zip: <b>KY, 42419</b> Phone: <b>270-844-5708</b> Email: <b>mark.bertram@bigrivers.com</b> Project Name: <b>Big Rivers</b> Site: <b>Sebree Station</b>		Lab PM: <b>Cisneros, Roxanne</b> E-Mail: <b>roxanne.cisneros@Eurofinset.com</b> PWSID:	
Sampler: <b>Michelle Polan / Kaelyn Spickard</b> Phone: <b>262-781-0475</b>		Carrier Tracking No(s): <b>53552851715</b> State of Origin: <b>KY</b>	
Due Date Requested: <b>Standard</b> TAT Requested (days): <b>Standard</b> Compliance Project: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Purchase Order Requested PO #: WO #: Project #: <b>24026719</b> SSONW#:		COC No: <b>240-92956-34491.1</b> Page: <b>1 of 1</b> Job #:	
Field Filtered Sample (Yes or No)		Analysis Requested	
Form MS/MSD (Y/N or No)		Total Number of Containers	
9010, 9040, Ra226Ra228, GPC		2540C, Calcd - TDS	
6010C, 6020A, 7470A		9056A_28D - Chloride, Fluoride & Sulfate	
Matrix (Water, Solid, Other)		Preservation Codes:	
Sample Date		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - NCAAA W - pH 4-5 X - EDTA Y - Other (specify)	
Sample Time		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
Sample Type (C=Comp, G=grab)		Special Instructions/Note:	
MW-11 MW-10 MW-9 MW-110 MW-8 MW-112 MW-7 MW-111 Duplicate		240-163843 Chain of Custody	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Empty Kit Relinquished by:		Special Instructions/QC Requirements:	
Relinquished by: <b>MW-11 / KPRG</b> Date: <b>3/17/22</b>		Method of Shipment:	
Relinquished by: <b>MW-11 / KPRG</b> Date: <b>3/17/22</b>		Received by: <b>F-EDEx</b> Date/Time: <b>3/17/22 1000</b>	
Relinquished by: <b>MW-11 / KPRG</b> Date: <b>3/16/22</b>		Received by: <b>Genevieve</b> Date/Time: <b>3-18-22 0930</b>	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Cooler Temperature(s) °C and Other Remarks:	

**Eurofins TestAmerica Canton Sample Receipt Form/Narrative** Login # : \_\_\_\_\_  
**Canton Facility**  
 Client Big Rivers Site Name Sebree Cooler unpacked by: Jue  
 Cooler Received on 3-18-22 Opened on 3-18-22  
 FedEx: 1<sup>st</sup> Grd Exp  UPS  FAS  Clipper Client Drop Off TestAmerica Courier Other

**Receipt After-hours: Drop-off Date/Time** **Storage Location**

TestAmerica Cooler # TA Foam Box  Client Cooler  Box  Other \_\_\_\_\_  
 Packing material used:  Bubble Wrap  Foam  Plastic Bag  None  Other \_\_\_\_\_  
 COOLANT:  Wet Ice  Blue Ice  Dry Ice  Water  None

1. Cooler temperature upon receipt  See Multiple Cooler Form  
 IR GUN# IR-14 (CF -0.2 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C  
 IR GUN #IR-15 (CF -0.7°C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 2 ea Yes No  
 -Were the seals on the outside of the cooler(s) signed & dated?  Yes  No NA  
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?  Yes  No NA  
 -Were tamper/custody seals intact and uncompromised?  Yes  No NA
3. Shippers' packing slip attached to the cooler(s)?  Yes  No
4. Did custody papers accompany the sample(s)?  Yes  No
5. Were the custody papers relinquished & signed in the appropriate place?  Yes  No
6. Was/were the person(s) who collected the samples clearly identified on the COC?  Yes  No
7. Did all bottles arrive in good condition (Unbroken)?  Yes  No
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC?  Yes  No
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)?  Yes  No
10. Were correct bottle(s) used for the test(s) indicated?  Yes  No
11. Sufficient quantity received to perform indicated analyses?  Yes  No
12. Are these work share samples and all listed on the COC?  
 If yes, Questions 13-17 have been checked at the originating laboratory.  Yes  No
13. Were all preserved sample(s) at the correct pH upon receipt?  Yes  No NA pH Strip Lot# HC157842
14. Were VOAs on the COC?  Yes  No
15. Were air bubbles >6 mm in any VOA vials?  Yes  No  NA Larger than this. 
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # \_\_\_\_\_  Yes  No
17. Was a LL Hg or Me Hg trip blank present?  Yes  No

Tests that are not checked for pH by Receiving:  
VOAs  
Oil and Grease  
TOC

Contacted PM \_\_\_\_\_ Date \_\_\_\_\_ by \_\_\_\_\_ via Verbal Voice Mail Other \_\_\_\_\_  
 Concerning \_\_\_\_\_

**18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES**  additional next page Samples processed by: \_\_\_\_\_  
MW-111 was labeled as MW-11. The Times for MW 11 and MW 111 are different. Bottles were matched and logged per Times on the bottles - Jue 3-18-22

**19. SAMPLE CONDITION**  
 Sample(s) \_\_\_\_\_ were received after the recommended holding time had expired.  
 Sample(s) \_\_\_\_\_ were received in a broken container.  
 Sample(s) \_\_\_\_\_ were received with bubble >6 mm in diameter. (Notify PM)

**20. SAMPLE PRESERVATION**  
 Sample(s) \_\_\_\_\_ were further preserved in the laboratory.  
 Time preserved: \_\_\_\_\_ Preservative(s) added/Lot number(s): \_\_\_\_\_  
 VOA Sample Preservation - Date/Time VOAs Frozen: \_\_\_\_\_

Temperature readings: \_\_\_\_\_

Client Sample ID	Lab ID	Container Type	Container		Preservative	
			pH	Temp	Added (mls)	Lot #
MW-11	240-163843-A-1	Plastic 250ml - unpreserved	_____	_____	_____	_____
MW-11	240-163843-B-1	Plastic 500ml - unpreserved	_____	_____	_____	_____
MW-11	240-163843-C-1	Plastic 500ml - with Nitric Acid	<2	_____	_____	_____
MW-11	240-163843-D-1	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-11	240-163843-E-1	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-10	240-163843-A-2	Plastic 250ml - unpreserved	_____	_____	_____	_____
MW-10	240-163843-B-2	Plastic 500ml - unpreserved	_____	_____	_____	_____
MW-10	240-163843-C-2	Plastic 500ml - with Nitric Acid	<2	_____	_____	_____
MW-10	240-163843-D-2	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-10	240-163843-E-2	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-9	240-163843-A-3	Plastic 250ml - unpreserved	_____	_____	_____	_____
MW-9	240-163843-B-3	Plastic 500ml - unpreserved	_____	_____	_____	_____
MW-9	240-163843-C-3	Plastic 500ml - with Nitric Acid	<2	_____	_____	_____
MW-9	240-163843-D-3	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-9	240-163843-E-3	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-110	240-163843-A-4	Plastic 250ml - unpreserved	_____	_____	_____	_____
MW-110	240-163843-B-4	Plastic 500ml - unpreserved	_____	_____	_____	_____
MW-110	240-163843-C-4	Plastic 500ml - with Nitric Acid	<2	_____	_____	_____
MW-110	240-163843-D-4	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-110	240-163843-E-4	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-8	240-163843-A-5	Plastic 250ml - unpreserved	_____	_____	_____	_____
MW-8	240-163843-B-5	Plastic 500ml - unpreserved	_____	_____	_____	_____
MW-8	240-163843-C-5	Plastic 500ml - with Nitric Acid	<2	_____	_____	_____
MW-8	240-163843-D-5	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-8	240-163843-E-5	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-112	240-163843-A-6	Plastic 250ml - unpreserved	_____	_____	_____	_____
MW-112	240-163843-B-6	Plastic 500ml - unpreserved	_____	_____	_____	_____
MW-112	240-163843-C-6	Plastic 500ml - with Nitric Acid	<2	_____	_____	_____
MW-112	240-163843-D-6	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-112	240-163843-E-6	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-7	240-163843-A-7	Plastic 250ml - unpreserved	_____	_____	_____	_____
MW-7	240-163843-B-7	Plastic 500ml - unpreserved	_____	_____	_____	_____
MW-7	240-163843-C-7	Plastic 500ml - with Nitric Acid	<2	_____	_____	_____
MW-7	240-163843-D-7	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-7	240-163843-E-7	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container</u>		<u>Preservative</u>	
			<u>pH</u>	<u>Temp</u>	<u>Added (mls)</u>	<u>Lot #</u>
MW-111	240-163843-A-8	Plastic 250ml - unpreserved				
MW-111	240-163843-B-8	Plastic 500ml - unpreserved				
MW-111	240-163843-C-8	Plastic 500ml - with Nitric Acid	<2			
MW-111	240-163843-D-8	Plastic 1 liter - Nitric Acid	<2			
MW-111	240-163843-E-8	Plastic 1 liter - Nitric Acid	<2			
DUPLICATE	240-163843-A-9	Plastic 250ml - unpreserved				
DUPLICATE	240-163843-B-9	Plastic 500ml - unpreserved				
DUPLICATE	240-163843-C-9	Plastic 500ml - with Nitric Acid	<2			
DUPLICATE	240-163843-D-9	Plastic 1 liter - Nitric Acid	<2			
DUPLICATE	240-163843-E-9	Plastic 1 liter - Nitric Acid	<2			

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Login # : \_\_\_\_\_

Eurofins TestAmerica Canton Sample Receipt Multiple Cooler Form										
Cooler Description (Circle)				IR Gun # (Circle)		Observed Temp °C	Corrected Temp °C	Coolant (Circle)		
TA	Client	Box	Other	IR-14	IR-15	2.9	2.7	Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-14	IR-15	2.8	2.6	Water	None	
TA	Client	Box	Other	IR-14	IR-15			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-14	IR-15			Water	None	
TA	Client	Box	Other	IR-14	IR-15			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-14	IR-15			Water	None	
TA	Client	Box	Other	IR-14	IR-15			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-14	IR-15			Water	None	
TA	Client	Box	Other	IR-14	IR-15			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-14	IR-15			Water	None	
TA	Client	Box	Other	IR-14	IR-15			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-14	IR-15			Water	None	
TA	Client	Box	Other	IR-14	IR-15			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-14	IR-15			Water	None	
TA	Client	Box	Other	IR-14	IR-15			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-14	IR-15			Water	None	
TA	Client	Box	Other	IR-14	IR-15			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-14	IR-15			Water	None	
TA	Client	Box	Other	IR-14	IR-15			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-14	IR-15			Water	None	
TA	Client	Box	Other	IR-14	IR-15			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-14	IR-15			Water	None	
TA	Client	Box	Other	IR-14	IR-15			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-14	IR-15			Water	None	
TA	Client	Box	Other	IR-14	IR-15			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-14	IR-15			Water	None	
TA	Client	Box	Other	IR-14	IR-15			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-14	IR-15			Water	None	
TA	Client	Box	Other	IR-14	IR-15			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-14	IR-15			Water	None	
TA	Client	Box	Other	IR-14	IR-15			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-14	IR-15			Water	None	

See Temperature Excursion Form

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**FedEx Saturday Delivery**

151967 REV 7/08 HRD



Environment Testing  
TestAmerica

ORIGIN ID: CKA (330) 312-0176  
EUROFINS TESTAMERICA  
100 S VAN BUREN  
BARBERTON

SHIP DATE: 10/18/22  
SHIP TO: 80 CRF E3511  
CNO: 0562665/CRF E3511  
BILL THIRD PARTY

ENVIRONMENTAL SAMPLE RECEIPT  
TESTAMERICA PITTSBURGH  
301 ALPHA DRIVE  
RIDC PARK  
PITTSBURGH PA 15238

DEPT: 15238  
REF: 15238



**SATURDAY 12:00P  
PRIORITY OVERNIGHT**

TRACKING 5293 4344 6831

**XO AGCA**

Uncorrected temp  
Thermometer ID  
Initials  
CF  
PT-M-SR-001 effective 1/8/16



240-163843 Waybill

# Chain of Custody Record



<b>Client Information (Sub Contract Lab)</b>		Lab PM: Cisneros, Roxanne	Carrier Tracking No(s): 240-149951.1		
Shipping/Receiving		E-Mail: roxanne.cisneros@Eurofinset.com	Page: Page 1 of 1		
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Oregon; NELAP - Pennsylvania; State - Kentucky ...	Job #: 240-163843-1		
Address: 13715 Rider Trail North, City Earth City State, Zip: MO, 63045		<b>Analysis Requested</b>  Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> 903.0/PreSep_21 Radium-226 (GFC) - 21 day decay <input checked="" type="checkbox"/> 904.0/PreSep_0 Radium-228 (GFC) <input checked="" type="checkbox"/> Radium-228 GFC/Combined Radium-226 and <input checked="" type="checkbox"/> Radium-228	Preservation Codes: A - HCL B - NaOH N - None O - AsNaO2 C - Zn Acetate D - Nitric Acid P - Na2O4S E - NaHSO4 F - MeOH R - Na2S2O3 S - H2SO4 G - Amchlor H - Ascorbic Acid I - Ice J - DI Water U - Acetone V - MCAA K - EDTA W - pH 4.5 L - EDA Z - other (specify) Other:		
Due Date Requested: 3/31/2022			<b>Special Instructions/Note:</b>  run once - upload data twice run once - upload data twice	Total Number of Containers  2 2 2 2 2 2 2 2 2 2	
TAT Requested (days):					Matrix (Newer, Sealed, On-wash, BT-Tissue, Analy)  Water Water Water Water Water Water Water Water Water
PO #:					
WO #:					
Project #: 24026719		Sample Date			
Site: Big Rivers		Sample Time			
SSOW#:		Sample Type (C=comp, G=grab)			
Sample Identification - Client ID (Lab ID)		Preservation Code:			
MW-11 (240-163843-1)	3/15/22	10:36 Eastern	Water		
MW-10 (240-163843-2)	3/15/22	12:26 Eastern	Water		
MW-9 (240-163843-3)	3/15/22	13:13 Eastern	Water		
MW-110 (240-163843-4)	3/15/22	14:05 Eastern	Water		
MW-8 (240-163843-5)	3/15/22	14:54 Eastern	Water		
MW-112 (240-163843-6)	3/17/22	08:43 Eastern	Water		
MW-7 (240-163843-7)	3/16/22	13:01 Eastern	Water		
MW-111 (240-163843-8)	3/16/22	11:35 Eastern	Water		
DUPLICATE (240-163843-9)	3/16/22	Eastern	Water		

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC.

**Possible Hazard Identification**  
 Unconfirmed  
 Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2

Empty Kit Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Relinquished by: *[Signature]* Date: 3-18-22 13:19 Company: ETA  
 Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company: \_\_\_\_\_  
 Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company: \_\_\_\_\_

Custody Seals Intact:  Yes  No  
 Cooler Temperature(s) °C and Other Remarks:

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)  
 Return To Client  Disposal By Lab  Archive For \_\_\_\_\_ Months  
 Special Instructions/QC Requirements:

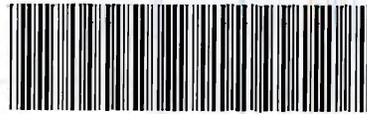
Received by: **FED EX** Date/Time: \_\_\_\_\_  
 Received by: *[Signature]* Date/Time: MAR 21 2022 09:20 Company: ETA STC  
 Received by: Autumn R. Johnson Date/Time: \_\_\_\_\_ Company: \_\_\_\_\_

**Eurofins Canton**

180 S. Van Buren Avenue  
Barberton, OH 44203  
Phone: 330-497-9396 Fax: 330-497-0772

*Net SOB*

**Chain of Custody Record**



eurofins Environment Testing America

<b>Client Information (Sub Contract Lab)</b>	Sampler: Cisneros, Roxanne	Lab PM: Cisneros, Roxanne	C No: D-149952.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: roxanne.cisneros@Eurofins.com	je: page 1 of 1
Company: Eurofins Environment Testing Northeast,	Accreditations Required (See note): NELAP - Oregon; NELAP - Pennsylvania; State - Kentucky ...		Job #: 240-163843-1

Address: 301 Alpha Drive, RIDC Park, City: Pittsburgh State, Zip: PA, 15238	Due Date Requested: 3/31/2022 TAT Requested (days):	<b>Analysis Requested</b>		Preservation Codes:
--	---	---------------------------	--	---------------------

Phone: 412-963-7058(Tel) 412-963-2468(Fax)	PO #:	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C/3005A (MOD) Boron & Calcium	6020A/3005A (MOD) ICP/MS Metals	7470A/7470A_Prep Mercury	Total Number of Containers	A - HCL	M - Hexane														
Email:	WO #:							B - NaOH	N - None	C - Zn Acetate	O - AsNaO2	D - Nitric Acid	P - Na2O4S	E - NaHSO4	Q - Na2SO3	F - MeOH	R - Na2S2O3	G - Amchlor	S - H2SO4	H - Ascorbic Acid	T - TSP Dodecahydrate	I - Ice	U - Acetone

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oli, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C/3005A (MOD) Boron & Calcium	6020A/3005A (MOD) ICP/MS Metals	7470A/7470A_Prep Mercury	Total Number of Containers	Special Instructions/Note:
--	-------------	-------------	------------------------------	--	-----------------------------------	----------------------------	-----------------------------------	---------------------------------	--------------------------	----------------------------	----------------------------

MW-11 (240-163843-1)	3/15/22	10:36 Eastern	Water	Water			X	X	X	1	run once - upload data twice
MW-10 (240-163843-2)	3/15/22	12:26 Eastern	Water	Water			X	X	X	1	run once - upload data twice
MW-9 (240-163843-3)	3/15/22	13:13 Eastern	Water	Water			X	X	X	1	run once - upload data twice
MW-110 (240-163843-4)	3/15/22	14:05 Eastern	Water	Water			X	X	X	1	run once - upload data twice
MW-8 (240-163843-5)	3/15/22	14:54 Eastern	Water	Water			X	X	X	1	run once - upload data twice
MW-112 (240-163843-6)	3/17/22	08:43 Eastern	Water	Water			X	X	X	1	run once - upload data twice
MW-7 (240-163843-7)	3/16/22	13:01 Eastern	Water	Water			X	X	X	1	run once - upload data twice
MW-111 (240-163843-8)	3/16/22	11:35 Eastern	Water	Water			X	X	X	1	run once - upload data twice
DUPLICATE (240-163843-9)	3/16/22	Eastern	Water	Water			X	X	X	1	run once - upload data twice

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC.

<b>Possible Hazard Identification</b>	<b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b>
Unconfirmed	<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify)	Primary Deliverable Rank: 2
Special Instructions/QC Requirements:	

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: <i>DA</i>	Date/Time: 3-18-22	Company: 1323 ETA	Received by: <i>DW</i>
Relinquished by:	Date/Time:	Company:	Date/Time: 3-19-22
Relinquished by:	Date/Time:	Company:	Date/Time: 9/15
Relinquished by:	Date/Time:	Company:	Date/Time:
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:	

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# Login Sample Receipt Checklist

Client: Big Rivers Electric Corporation

Job Number: 240-163843-1  
SDG Number: Sebree Station

**Login Number: 163843**  
**List Number: 2**  
**Creator: Watson, Debbie**

**List Source: Eurofins Pittsburgh**  
**List Creation: 03/19/22 04:48 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## Login Sample Receipt Checklist

Client: Big Rivers Electric Corporation

Job Number: 240-163843-1  
SDG Number: Sebree Station

**Login Number: 163843**

**List Number: 3**

**Creator: Johnson, Autumn R**

**List Source: Eurofins St. Louis**

**List Creation: 03/21/22 12:47 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

## ANALYTICAL REPORT

Eurofins Canton  
180 S. Van Buren Avenue  
Barberton, OH 44203  
Tel: (330)497-9396

Laboratory Job ID: 240-167872-1  
Client Project/Site: Reid CCR Pond / Sebree

For:  
Big Rivers Electric Corporation  
PO BOX 24  
Henderson, Kentucky 42419

Attn: Mark Bertram

*Roxanne Cisneros*

Authorized for release by:  
7/7/2022 8:07:01 AM

Roxanne Cisneros, Senior Project Manager  
(615)301-5761  
[roxanne.cisneros@et.eurofinsus.com](mailto:roxanne.cisneros@et.eurofinsus.com)

### LINKS

Review your project  
results through



Have a Question?



Visit us at:

[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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# Definitions/Glossary

Client: Big Rivers Electric Corporation  
Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167872-1

## Qualifiers

### Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### General Chemistry

Qualifier	Qualifier Description
*.	LCS and/or LCSD is outside acceptance limits, low biased.
H	Sample was prepped or analyzed beyond the specified holding time

### Rad

Qualifier	Qualifier Description
G	The Sample MDC is greater than the requested RL.
U	Result is less than the sample detection limit.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Case Narrative

Client: Big Rivers Electric Corporation  
Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167872-1

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## Job ID: 240-167872-1

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### Laboratory: Eurofins Canton

#### Narrative

#### Job Narrative 240-167872-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 6/8/2022 9:20 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 2.1° C and 3.3° C.

#### RAD

Method 903.0: Radium 226 Batch 160-569453: Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. MW-9 (240-167872-1), MW-10 (240-167872-2), MW-7 (240-167872-3), DUPLICATE (240-167872-4), MW-112 (240-167872-5), (LCS 160-569453/2-A), (MB 160-569453/1-A)

Method 904.0: Radium-228 batch 569459: The detection goal was not met for the following sample(s). Sample was prepped at a reduced volume due to the presence of matrix interferences: MW-112 (240-167872-5). Analytical results are reported with the detection limit achieved.

Method 904.0: Radium-228 batch 569459: Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. MW-9 (240-167872-1), MW-10 (240-167872-2), MW-7 (240-167872-3), DUPLICATE (240-167872-4), MW-112 (240-167872-5), (LCS 160-569459/2-A), (MB 160-569459/1-A)

Method PrecSep\_0:

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### General Chemistry

Method SM 2540C: LCS failed low. Samples are being reported as secondary for in hold results. Samples and QC will be re-analyzed in another batch and reported as primary.

MW-9 (240-167872-1), MW-10 (240-167872-2)

Method SM 2540C: Reanalysis of the following samples were performed outside of the analytical holding time to confirm the original analysis on 6/10/22 : MW-9 (240-167872-1) and MW-10 (240-167872-2).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

# Method Summary

Client: Big Rivers Electric Corporation  
Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167872-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL CAN
6020A	Metals (ICP/MS)	SW846	TAL CAN
7470A	Mercury (CVAA)	SW846	TAL CAN
2540 C-2011	Total Dissolved Solids (Dried at 180 °C)	SM	TAL CAN
9056A	Anions, Ion Chromatography	SW846	TAL CAN
903.0	Radium-226 (GFPC)	EPA	TAL SL
904.0	Radium-228 (GFPC)	EPA	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL CAN
7470A	Preparation, Mercury	SW846	TAL CAN
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

#### Protocol References:

EPA = US Environmental Protection Agency

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

#### Laboratory References:

TAL CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

TAL SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

# Sample Summary

Client: Big Rivers Electric Corporation  
Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167872-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-167872-1	MW-9	Water	06/07/22 10:25	06/08/22 09:20
240-167872-2	MW-10	Water	06/07/22 11:23	06/08/22 09:20
240-167872-3	MW-7	Water	06/07/22 12:24	06/08/22 09:20
240-167872-4	DUPLICATE	Water	06/07/22 00:00	06/08/22 09:20
240-167872-5	MW-112	Water	06/07/22 14:03	06/08/22 09:20

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# Detection Summary

Client: Big Rivers Electric Corporation  
 Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167872-1

## Client Sample ID: MW-9

## Lab Sample ID: 240-167872-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.0780	J	0.100	0.0573	mg/L	1		6010C	Total Recoverable
Calcium	62.4		5.00	0.307	mg/L	1		6010C	Total Recoverable
Barium	0.258		0.00500	0.00223	mg/L	1		6020A	Total Recoverable
Lithium	0.00673	J	0.00800	0.00165	mg/L	1		6020A	Total Recoverable
Thallium	0.000372	J	0.00100	0.000200	mg/L	1		6020A	Total Recoverable
Total Dissolved Solids	178	*-	10.0	7.80	mg/L	1		2540 C-2011	Total/NA
Chloride	6.60		1.00	0.284	mg/L	1		9056A	Total/NA
Fluoride	0.192		0.0500	0.0240	mg/L	1		9056A	Total/NA
Total Dissolved Solids - RA	291	H	10.0	7.80	mg/L	1		2540 C-2011	Total/NA

## Client Sample ID: MW-10

## Lab Sample ID: 240-167872-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.534		0.100	0.0573	mg/L	1		6010C	Total Recoverable
Calcium	11.5		5.00	0.307	mg/L	1		6010C	Total Recoverable
Arsenic	0.00150	J	0.00500	0.000750	mg/L	1		6020A	Total Recoverable
Barium	0.126		0.00500	0.00223	mg/L	1		6020A	Total Recoverable
Cobalt	0.000419	J	0.00100	0.000190	mg/L	1		6020A	Total Recoverable
Lithium	0.486		0.00800	0.00165	mg/L	1		6020A	Total Recoverable
Molybdenum	0.00545		0.00500	0.00108	mg/L	1		6020A	Total Recoverable
Thallium	0.000667	J	0.00100	0.000200	mg/L	1		6020A	Total Recoverable
Total Dissolved Solids	395	*-	10.0	7.80	mg/L	1		2540 C-2011	Total/NA
Chloride	16.7		1.00	0.284	mg/L	1		9056A	Total/NA
Fluoride	0.540		0.0500	0.0240	mg/L	1		9056A	Total/NA
Sulfate	32.3		1.00	0.348	mg/L	1		9056A	Total/NA
Total Dissolved Solids - RA	439	H	10.0	7.80	mg/L	1		2540 C-2011	Total/NA

## Client Sample ID: MW-7

## Lab Sample ID: 240-167872-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.329		0.100	0.0573	mg/L	1		6010C	Total Recoverable
Calcium	40.5		5.00	0.307	mg/L	1		6010C	Total Recoverable
Arsenic	0.00197	J	0.00500	0.000750	mg/L	1		6020A	Total Recoverable
Barium	0.0736		0.00500	0.00223	mg/L	1		6020A	Total Recoverable
Cobalt	0.000311	J	0.00100	0.000190	mg/L	1		6020A	Total Recoverable
Lithium	0.00823		0.00800	0.00165	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0122		0.00500	0.00108	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Canton

# Detection Summary

Client: Big Rivers Electric Corporation  
 Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167872-1

## Client Sample ID: MW-7 (Continued)

## Lab Sample ID: 240-167872-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Thallium	0.000299	J	0.00100	0.000200	mg/L	1		6020A	Total Recoverable
Total Dissolved Solids	234		10.0	7.80	mg/L	1		2540 C-2011	Total/NA
Chloride	3.16		1.00	0.284	mg/L	1		9056A	Total/NA
Fluoride	0.260		0.0500	0.0240	mg/L	1		9056A	Total/NA
Sulfate	12.6		1.00	0.348	mg/L	1		9056A	Total/NA

## Client Sample ID: DUPLICATE

## Lab Sample ID: 240-167872-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.324		0.100	0.0573	mg/L	1		6010C	Total Recoverable
Calcium	39.9		5.00	0.307	mg/L	1		6010C	Total Recoverable
Arsenic	0.00213	J	0.00500	0.000750	mg/L	1		6020A	Total Recoverable
Barium	0.0741		0.00500	0.00223	mg/L	1		6020A	Total Recoverable
Cobalt	0.000291	J	0.00100	0.000190	mg/L	1		6020A	Total Recoverable
Lithium	0.00730	J	0.00800	0.00165	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0103		0.00500	0.00108	mg/L	1		6020A	Total Recoverable
Total Dissolved Solids	221		10.0	7.80	mg/L	1		2540 C-2011	Total/NA
Chloride	2.85		1.00	0.284	mg/L	1		9056A	Total/NA
Fluoride	0.249		0.0500	0.0240	mg/L	1		9056A	Total/NA
Sulfate	12.1		1.00	0.348	mg/L	1		9056A	Total/NA

## Client Sample ID: MW-112

## Lab Sample ID: 240-167872-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.331		0.100	0.0573	mg/L	1		6010C	Total Recoverable
Calcium	30.7		5.00	0.307	mg/L	1		6010C	Total Recoverable
Arsenic	0.00336	J	0.00500	0.000750	mg/L	1		6020A	Total Recoverable
Barium	0.430		0.00500	0.00223	mg/L	1		6020A	Total Recoverable
Beryllium	0.00203		0.00100	0.000620	mg/L	1		6020A	Total Recoverable
Chromium	0.0311		0.00500	0.00247	mg/L	1		6020A	Total Recoverable
Cobalt	0.0141		0.00100	0.000190	mg/L	1		6020A	Total Recoverable
Lead	0.0130		0.00100	0.000450	mg/L	1		6020A	Total Recoverable
Lithium	0.0319		0.00800	0.00165	mg/L	1		6020A	Total Recoverable
Molybdenum	0.00605		0.00500	0.00108	mg/L	1		6020A	Total Recoverable
Thallium	0.000277	J	0.00100	0.000200	mg/L	1		6020A	Total Recoverable
Total Dissolved Solids	275		10.0	7.80	mg/L	1		2540 C-2011	Total/NA
Chloride	9.50		1.00	0.284	mg/L	1		9056A	Total/NA
Fluoride	0.287		0.0500	0.0240	mg/L	1		9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

# Detection Summary

Client: Big Rivers Electric Corporation  
Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167872-1

**Client Sample ID: MW-112 (Continued)**

**Lab Sample ID: 240-167872-5**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	14.7		1.00	0.348	mg/L	1		9056A	Total/NA

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This Detection Summary does not include radiochemical test results.

Eurofins Canton

# Client Sample Results

Client: Big Rivers Electric Corporation  
 Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167872-1

**Client Sample ID: MW-9**

**Lab Sample ID: 240-167872-1**

Date Collected: 06/07/22 10:25

Matrix: Water

Date Received: 06/08/22 09:20

**Method: 6010C - Metals (ICP) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.0780	J	0.100	0.0573	mg/L		06/09/22 12:00	06/10/22 22:47	1
Calcium	62.4		5.00	0.307	mg/L		06/09/22 12:00	06/10/22 22:47	1

**Method: 6020A - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.00200	0.000570	mg/L		06/09/22 12:00	06/10/22 17:22	1
Arsenic	ND		0.00500	0.000750	mg/L		06/09/22 12:00	06/10/22 17:22	1
Barium	0.258		0.00500	0.00223	mg/L		06/09/22 12:00	06/10/22 17:22	1
Beryllium	ND		0.00100	0.000620	mg/L		06/09/22 12:00	06/10/22 17:22	1
Cadmium	ND		0.00100	0.000197	mg/L		06/09/22 12:00	06/10/22 17:22	1
Chromium	ND		0.00500	0.00247	mg/L		06/09/22 12:00	06/10/22 17:22	1
Cobalt	ND		0.00100	0.000190	mg/L		06/09/22 12:00	06/10/22 17:22	1
Lead	ND		0.00100	0.000450	mg/L		06/09/22 12:00	06/10/22 17:22	1
Lithium	0.00673	J	0.00800	0.00165	mg/L		06/09/22 12:00	06/10/22 17:22	1
Molybdenum	ND		0.00500	0.00108	mg/L		06/09/22 12:00	06/10/22 17:22	1
Selenium	ND		0.00500	0.000890	mg/L		06/09/22 12:00	06/10/22 17:22	1
Thallium	0.000372	J	0.00100	0.000200	mg/L		06/09/22 12:00	06/10/22 17:22	1

**Method: 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		06/09/22 12:00	06/10/22 15:45	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	178	*-	10.0	7.80	mg/L			06/10/22 10:40	1
Chloride	6.60		1.00	0.284	mg/L			06/27/22 09:25	1
Fluoride	0.192		0.0500	0.0240	mg/L			06/27/22 09:25	1
Sulfate	ND		1.00	0.348	mg/L			06/27/22 09:25	1

**General Chemistry - RA**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	291	H	10.0	7.80	mg/L			06/16/22 10:41	1

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.580		0.129	0.139	1.00	0.0891	pCi/L	06/10/22 12:45	07/05/22 14:38	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					06/10/22 12:45	07/05/22 14:38	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.17		0.360	0.375	1.00	0.409	pCi/L	06/10/22 13:33	06/22/22 12:02	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					06/10/22 13:33	06/22/22 12:02	1
Y Carrier	89.0		40 - 110					06/10/22 13:33	06/22/22 12:02	1

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# Client Sample Results

Client: Big Rivers Electric Corporation  
 Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167872-1

**Client Sample ID: MW-9**

**Lab Sample ID: 240-167872-1**

Date Collected: 06/07/22 10:25

Matrix: Water

Date Received: 06/08/22 09:20

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.75		0.382	0.400	5.00	0.409	pCi/L		07/06/22 16:28	1

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# Client Sample Results

Client: Big Rivers Electric Corporation  
 Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167872-1

**Client Sample ID: MW-10**

**Lab Sample ID: 240-167872-2**

Date Collected: 06/07/22 11:23

Matrix: Water

Date Received: 06/08/22 09:20

**Method: 6010C - Metals (ICP) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.534		0.100	0.0573	mg/L		06/09/22 12:00	06/10/22 23:08	1
Calcium	11.5		5.00	0.307	mg/L		06/09/22 12:00	06/10/22 23:08	1

**Method: 6020A - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.00200	0.000570	mg/L		06/09/22 12:00	06/10/22 17:34	1
Arsenic	0.00150	J	0.00500	0.000750	mg/L		06/09/22 12:00	06/10/22 17:34	1
Barium	0.126		0.00500	0.00223	mg/L		06/09/22 12:00	06/10/22 17:34	1
Beryllium	ND		0.00100	0.000620	mg/L		06/09/22 12:00	06/10/22 17:34	1
Cadmium	ND		0.00100	0.000197	mg/L		06/09/22 12:00	06/10/22 17:34	1
Chromium	ND		0.00500	0.00247	mg/L		06/09/22 12:00	06/10/22 17:34	1
Cobalt	0.000419	J	0.00100	0.000190	mg/L		06/09/22 12:00	06/10/22 17:34	1
Lead	ND		0.00100	0.000450	mg/L		06/09/22 12:00	06/10/22 17:34	1
Lithium	0.486		0.00800	0.00165	mg/L		06/09/22 12:00	06/10/22 17:34	1
Molybdenum	0.00545		0.00500	0.00108	mg/L		06/09/22 12:00	06/10/22 17:34	1
Selenium	ND		0.00500	0.000890	mg/L		06/09/22 12:00	06/10/22 17:34	1
Thallium	0.000667	J	0.00100	0.000200	mg/L		06/09/22 12:00	06/10/22 17:34	1

**Method: 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		06/09/22 12:00	06/10/22 15:52	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	395	*-	10.0	7.80	mg/L			06/10/22 10:40	1
Chloride	16.7		1.00	0.284	mg/L			06/27/22 10:26	1
Fluoride	0.540		0.0500	0.0240	mg/L			06/27/22 10:26	1
Sulfate	32.3		1.00	0.348	mg/L			06/27/22 10:26	1

**General Chemistry - RA**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	439	H	10.0	7.80	mg/L			06/16/22 10:41	1

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.252		0.0898	0.0927	1.00	0.0886	pCi/L	06/10/22 12:45	07/05/22 14:38	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					06/10/22 12:45	07/05/22 14:38	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.643		0.291	0.297	1.00	0.376	pCi/L	06/10/22 13:33	06/22/22 12:02	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					06/10/22 13:33	06/22/22 12:02	1
Y Carrier	87.9		40 - 110					06/10/22 13:33	06/22/22 12:02	1

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# Client Sample Results

Client: Big Rivers Electric Corporation  
Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167872-1

**Client Sample ID: MW-10**

**Lab Sample ID: 240-167872-2**

Date Collected: 06/07/22 11:23

Matrix: Water

Date Received: 06/08/22 09:20

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.895		0.305	0.311	5.00	0.376	pCi/L		07/06/22 16:28	1

# Client Sample Results

Client: Big Rivers Electric Corporation  
Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167872-1

**Client Sample ID: MW-7**

**Lab Sample ID: 240-167872-3**

Date Collected: 06/07/22 12:24

Matrix: Water

Date Received: 06/08/22 09:20

### Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.329		0.100	0.0573	mg/L		06/09/22 12:00	06/10/22 23:12	1
Calcium	40.5		5.00	0.307	mg/L		06/09/22 12:00	06/10/22 23:12	1

### Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.00200	0.000570	mg/L		06/09/22 12:00	06/10/22 17:37	1
Arsenic	0.00197	J	0.00500	0.000750	mg/L		06/09/22 12:00	06/10/22 17:37	1
Barium	0.0736		0.00500	0.00223	mg/L		06/09/22 12:00	06/10/22 17:37	1
Beryllium	ND		0.00100	0.000620	mg/L		06/09/22 12:00	06/10/22 17:37	1
Cadmium	ND		0.00100	0.000197	mg/L		06/09/22 12:00	06/10/22 17:37	1
Chromium	ND		0.00500	0.00247	mg/L		06/09/22 12:00	06/10/22 17:37	1
Cobalt	0.000311	J	0.00100	0.000190	mg/L		06/09/22 12:00	06/10/22 17:37	1
Lead	ND		0.00100	0.000450	mg/L		06/09/22 12:00	06/10/22 17:37	1
Lithium	0.00823		0.00800	0.00165	mg/L		06/09/22 12:00	06/10/22 17:37	1
Molybdenum	0.0122		0.00500	0.00108	mg/L		06/09/22 12:00	06/10/22 17:37	1
Selenium	ND		0.00500	0.000890	mg/L		06/09/22 12:00	06/10/22 17:37	1
Thallium	0.000299	J	0.00100	0.000200	mg/L		06/09/22 12:00	06/10/22 17:37	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		06/09/22 12:00	06/10/22 15:54	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	234		10.0	7.80	mg/L			06/13/22 12:07	1
Chloride	3.16		1.00	0.284	mg/L			06/27/22 10:46	1
Fluoride	0.260		0.0500	0.0240	mg/L			06/27/22 10:46	1
Sulfate	12.6		1.00	0.348	mg/L			06/27/22 10:46	1

### Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.132	U	0.100	0.101	1.00	0.148	pCi/L	06/10/22 12:45	07/05/22 14:38	1
<i>Carrier</i>	<i>%Yield</i>	<i>Qualifier</i>	<i>Limits</i>					<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>Ba Carrier</i>	74.5		40 - 110					06/10/22 12:45	07/05/22 14:38	1

### Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.478	U	0.391	0.394	1.00	0.611	pCi/L	06/10/22 13:33	06/22/22 12:03	1
<i>Carrier</i>	<i>%Yield</i>	<i>Qualifier</i>	<i>Limits</i>					<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>Ba Carrier</i>	74.5		40 - 110					06/10/22 13:33	06/22/22 12:03	1
<i>Y Carrier</i>	87.9		40 - 110					06/10/22 13:33	06/22/22 12:03	1

# Client Sample Results

Client: Big Rivers Electric Corporation  
 Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167872-1

**Client Sample ID: MW-7**

**Lab Sample ID: 240-167872-3**

**Date Collected: 06/07/22 12:24**

**Matrix: Water**

**Date Received: 06/08/22 09:20**

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.610	U	0.404	0.407	5.00	0.611	pCi/L		07/06/22 16:28	1

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# Client Sample Results

Client: Big Rivers Electric Corporation  
 Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167872-1

**Client Sample ID: DUPLICATE**

**Lab Sample ID: 240-167872-4**

Date Collected: 06/07/22 00:00

Matrix: Water

Date Received: 06/08/22 09:20

**Method: 6010C - Metals (ICP) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.324		0.100	0.0573	mg/L		06/09/22 12:00	06/10/22 23:25	1
Calcium	39.9		5.00	0.307	mg/L		06/09/22 12:00	06/10/22 23:25	1

**Method: 6020A - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.00200	0.000570	mg/L		06/09/22 12:00	06/10/22 17:44	1
Arsenic	0.00213	J	0.00500	0.000750	mg/L		06/09/22 12:00	06/10/22 17:44	1
Barium	0.0741		0.00500	0.00223	mg/L		06/09/22 12:00	06/10/22 17:44	1
Beryllium	ND		0.00100	0.000620	mg/L		06/09/22 12:00	06/10/22 17:44	1
Cadmium	ND		0.00100	0.000197	mg/L		06/09/22 12:00	06/10/22 17:44	1
Chromium	ND		0.00500	0.00247	mg/L		06/09/22 12:00	06/10/22 17:44	1
Cobalt	0.000291	J	0.00100	0.000190	mg/L		06/09/22 12:00	06/10/22 17:44	1
Lead	ND		0.00100	0.000450	mg/L		06/09/22 12:00	06/10/22 17:44	1
Lithium	0.00730	J	0.00800	0.00165	mg/L		06/09/22 12:00	06/10/22 17:44	1
Molybdenum	0.0103		0.00500	0.00108	mg/L		06/09/22 12:00	06/10/22 17:44	1
Selenium	ND		0.00500	0.000890	mg/L		06/09/22 12:00	06/10/22 17:44	1
Thallium	ND		0.00100	0.000200	mg/L		06/09/22 12:00	06/10/22 17:44	1

**Method: 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		06/09/22 12:00	06/10/22 15:56	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	221		10.0	7.80	mg/L			06/13/22 12:07	1
Chloride	2.85		1.00	0.284	mg/L			06/27/22 11:06	1
Fluoride	0.249		0.0500	0.0240	mg/L			06/27/22 11:06	1
Sulfate	12.1		1.00	0.348	mg/L			06/27/22 11:06	1

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.196		0.0841	0.0859	1.00	0.0907	pCi/L	06/10/22 12:45	07/05/22 14:39	1
<i>Carrier</i>	<i>%Yield</i>	<i>Qualifier</i>	<i>Limits</i>					<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>Ba Carrier</i>	95.0		40 - 110					06/10/22 12:45	07/05/22 14:39	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.108	U	0.282	0.282	1.00	0.497	pCi/L	06/10/22 13:33	06/22/22 12:03	1
<i>Carrier</i>	<i>%Yield</i>	<i>Qualifier</i>	<i>Limits</i>					<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>Ba Carrier</i>	95.0		40 - 110					06/10/22 13:33	06/22/22 12:03	1
<i>Y Carrier</i>	87.5		40 - 110					06/10/22 13:33	06/22/22 12:03	1

# Client Sample Results

Client: Big Rivers Electric Corporation  
Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167872-1

**Client Sample ID: DUPLICATE**

**Lab Sample ID: 240-167872-4**

**Date Collected: 06/07/22 00:00**

**Matrix: Water**

**Date Received: 06/08/22 09:20**

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.304	U	0.294	0.295	5.00	0.497	pCi/L		07/06/22 16:28	1

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# Client Sample Results

Client: Big Rivers Electric Corporation  
Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167872-1

**Client Sample ID: MW-112**

**Lab Sample ID: 240-167872-5**

Date Collected: 06/07/22 14:03

Matrix: Water

Date Received: 06/08/22 09:20

### Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.331		0.100	0.0573	mg/L		06/09/22 12:00	06/10/22 23:30	1
Calcium	30.7		5.00	0.307	mg/L		06/09/22 12:00	06/10/22 23:30	1

### Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.00200	0.000570	mg/L		06/09/22 12:00	06/10/22 17:47	1
Arsenic	0.00336	J	0.00500	0.000750	mg/L		06/09/22 12:00	06/10/22 17:47	1
Barium	0.430		0.00500	0.00223	mg/L		06/09/22 12:00	06/10/22 17:47	1
Beryllium	0.00203		0.00100	0.000620	mg/L		06/09/22 12:00	06/10/22 17:47	1
Cadmium	ND		0.00100	0.000197	mg/L		06/09/22 12:00	06/10/22 17:47	1
Chromium	0.0311		0.00500	0.00247	mg/L		06/09/22 12:00	06/10/22 17:47	1
Cobalt	0.0141		0.00100	0.000190	mg/L		06/09/22 12:00	06/10/22 17:47	1
Lead	0.0130		0.00100	0.000450	mg/L		06/09/22 12:00	06/10/22 17:47	1
Lithium	0.0319		0.00800	0.00165	mg/L		06/09/22 12:00	06/10/22 17:47	1
Molybdenum	0.00605		0.00500	0.00108	mg/L		06/09/22 12:00	06/10/22 17:47	1
Selenium	ND		0.00500	0.000890	mg/L		06/09/22 12:00	06/10/22 17:47	1
Thallium	0.000277	J	0.00100	0.000200	mg/L		06/09/22 12:00	06/10/22 17:47	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		06/09/22 12:00	06/10/22 16:03	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	275		10.0	7.80	mg/L			06/13/22 12:07	1
Chloride	9.50		1.00	0.284	mg/L			06/27/22 11:26	1
Fluoride	0.287		0.0500	0.0240	mg/L			06/27/22 11:26	1
Sulfate	14.7		1.00	0.348	mg/L			06/27/22 11:26	1

### Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.559		0.228	0.234	1.00	0.265	pCi/L	06/10/22 12:45	07/05/22 14:39	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	77.8		40 - 110					06/10/22 12:45	07/05/22 14:39	1

### Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.00	G	0.831	0.851	1.00	1.07	pCi/L	06/10/22 13:33	06/22/22 12:03	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	77.8		40 - 110					06/10/22 13:33	06/22/22 12:03	1
Y Carrier	87.9		40 - 110					06/10/22 13:33	06/22/22 12:03	1

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# Client Sample Results

Client: Big Rivers Electric Corporation  
Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167872-1

**Client Sample ID: MW-112**

**Lab Sample ID: 240-167872-5**

Date Collected: 06/07/22 14:03

Matrix: Water

Date Received: 06/08/22 09:20

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.56		0.862	0.883	5.00	1.07	pCi/L		07/06/22 16:28	1

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# Tracer/Carrier Summary

Client: Big Rivers Electric Corporation  
Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167872-1

## Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

### Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (40-110)							
240-167872-1	MW-9	103							
240-167872-2	MW-10	101							
240-167872-3	MW-7	74.5							
240-167872-4	DUPLICATE	95.0							
240-167872-5	MW-112	77.8							
500-217628-E-6-A DU	Duplicate	83.0							
LCS 160-569453/2-A	Lab Control Sample	81.8							
MB 160-569453/1-A	Method Blank	58.5							

### Tracer/Carrier Legend

Ba = Ba Carrier

## Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

### Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)						
240-167872-1	MW-9	103	89.0						
240-167872-2	MW-10	101	87.9						
240-167872-3	MW-7	74.5	87.9						
240-167872-4	DUPLICATE	95.0	87.5						
240-167872-5	MW-112	77.8	87.9						
500-217628-E-6-B DU	Duplicate	83.0	87.1						
LCS 160-569459/2-A	Lab Control Sample	81.8	88.6						
MB 160-569459/1-A	Method Blank	58.5	84.1						

### Tracer/Carrier Legend

Ba = Ba Carrier

Y = Y Carrier

# QC Sample Results

Client: Big Rivers Electric Corporation  
 Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167872-1

## Method: 6010C - Metals (ICP)

**Lab Sample ID: MB 240-529946/1-A**  
**Matrix: Water**  
**Analysis Batch: 530293**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 529946**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.100	0.0573	mg/L		06/09/22 12:00	06/10/22 22:38	1
Calcium	ND		5.00	0.307	mg/L		06/09/22 12:00	06/10/22 22:38	1

**Lab Sample ID: LCS 240-529946/2-A**  
**Matrix: Water**  
**Analysis Batch: 530293**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 529946**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	1.00	0.9852		mg/L		99	80 - 120
Calcium	50.0	47.34		mg/L		95	80 - 120

**Lab Sample ID: 240-167872-1 MS**  
**Matrix: Water**  
**Analysis Batch: 530293**

**Client Sample ID: MW-9**  
**Prep Type: Total Recoverable**  
**Prep Batch: 529946**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	0.0780	J	1.00	1.109		mg/L		103	75 - 125
Calcium	62.4		50.0	109.0		mg/L		93	75 - 125

**Lab Sample ID: 240-167872-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 530293**

**Client Sample ID: MW-9**  
**Prep Type: Total Recoverable**  
**Prep Batch: 529946**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Boron	0.0780	J	1.00	1.093		mg/L		101	75 - 125	1	20
Calcium	62.4		50.0	106.5		mg/L		88	75 - 125	2	20

## Method: 6020A - Metals (ICP/MS)

**Lab Sample ID: MB 240-529946/1-A**  
**Matrix: Water**  
**Analysis Batch: 530294**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 529946**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.00200	0.000570	mg/L		06/09/22 12:00	06/10/22 17:18	1
Arsenic	ND		0.00500	0.000750	mg/L		06/09/22 12:00	06/10/22 17:18	1
Barium	ND		0.00500	0.00223	mg/L		06/09/22 12:00	06/10/22 17:18	1
Beryllium	ND		0.00100	0.000620	mg/L		06/09/22 12:00	06/10/22 17:18	1
Cadmium	ND		0.00100	0.000197	mg/L		06/09/22 12:00	06/10/22 17:18	1
Chromium	ND		0.00500	0.00247	mg/L		06/09/22 12:00	06/10/22 17:18	1
Cobalt	ND		0.00100	0.000190	mg/L		06/09/22 12:00	06/10/22 17:18	1
Lead	ND		0.00100	0.000450	mg/L		06/09/22 12:00	06/10/22 17:18	1
Lithium	ND		0.00800	0.00165	mg/L		06/09/22 12:00	06/10/22 17:18	1
Molybdenum	ND		0.00500	0.00108	mg/L		06/09/22 12:00	06/10/22 17:18	1
Selenium	ND		0.00500	0.000890	mg/L		06/09/22 12:00	06/10/22 17:18	1
Thallium	ND		0.00100	0.000200	mg/L		06/09/22 12:00	06/10/22 17:18	1

# QC Sample Results

Client: Big Rivers Electric Corporation  
 Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167872-1

## Method: 6020A - Metals (ICP/MS) (Continued)

**Lab Sample ID: LCS 240-529946/3-A**  
**Matrix: Water**  
**Analysis Batch: 530294**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 529946**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.100	0.09989		mg/L		100	80 - 120
Arsenic	1.00	0.9021		mg/L		90	80 - 120
Barium	1.00	0.9265		mg/L		93	80 - 120
Beryllium	0.500	0.4608		mg/L		92	80 - 120
Cadmium	0.500	0.4867		mg/L		97	80 - 120
Chromium	0.500	0.4781		mg/L		96	80 - 120
Cobalt	0.500	0.4745		mg/L		95	80 - 120
Lead	0.500	0.4910		mg/L		98	80 - 120
Molybdenum	0.500	0.4580		mg/L		92	80 - 120
Selenium	1.00	0.9227		mg/L		92	80 - 120
Thallium	1.00	0.9588		mg/L		96	80 - 120

**Lab Sample ID: 240-167872-1 MS**  
**Matrix: Water**  
**Analysis Batch: 530294**

**Client Sample ID: MW-9**  
**Prep Type: Total Recoverable**  
**Prep Batch: 529946**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	ND		0.100	0.1065		mg/L		107	75 - 125
Arsenic	ND		1.00	0.9576		mg/L		96	75 - 125
Barium	0.258		1.00	1.311		mg/L		105	75 - 125
Beryllium	ND		0.500	0.5049		mg/L		101	75 - 125
Cadmium	ND		0.500	0.5182		mg/L		104	75 - 125
Chromium	ND		0.500	0.5164		mg/L		103	75 - 125
Cobalt	ND		0.500	0.4926		mg/L		99	75 - 125
Lead	ND		0.500	0.5260		mg/L		105	75 - 125
Molybdenum	ND		0.500	0.5021		mg/L		100	75 - 125
Selenium	ND		1.00	0.9799		mg/L		98	75 - 125
Thallium	0.000372	J	1.00	1.035		mg/L		103	75 - 125

**Lab Sample ID: 240-167872-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 530294**

**Client Sample ID: MW-9**  
**Prep Type: Total Recoverable**  
**Prep Batch: 529946**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	ND		0.100	0.1037		mg/L		104	75 - 125	3	20
Arsenic	ND		1.00	0.9205		mg/L		92	75 - 125	4	20
Barium	0.258		1.00	1.269		mg/L		101	75 - 125	3	20
Beryllium	ND		0.500	0.4763		mg/L		95	75 - 125	6	20
Cadmium	ND		0.500	0.4967		mg/L		99	75 - 125	4	20
Chromium	ND		0.500	0.4980		mg/L		100	75 - 125	4	20
Cobalt	ND		0.500	0.4789		mg/L		96	75 - 125	3	20
Lead	ND		0.500	0.5067		mg/L		101	75 - 125	4	20
Molybdenum	ND		0.500	0.4859		mg/L		97	75 - 125	3	20
Selenium	ND		1.00	0.9599		mg/L		96	75 - 125	2	20
Thallium	0.000372	J	1.00	0.9921		mg/L		99	75 - 125	4	20

# QC Sample Results

Client: Big Rivers Electric Corporation  
 Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167872-1

## Method: 7470A - Mercury (CVAA)

**Lab Sample ID: MB 240-529947/1-A**  
**Matrix: Water**  
**Analysis Batch: 530379**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 529947**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		06/09/22 12:00	06/10/22 15:41	1

**Lab Sample ID: LCS 240-529947/2-A**  
**Matrix: Water**  
**Analysis Batch: 530379**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 529947**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.005267		mg/L		105	80 - 120

**Lab Sample ID: 240-167872-1 MS**  
**Matrix: Water**  
**Analysis Batch: 530379**

**Client Sample ID: MW-9**  
**Prep Type: Total/NA**  
**Prep Batch: 529947**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		0.00100	0.0008915		mg/L		89	80 - 120

**Lab Sample ID: 240-167872-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 530379**

**Client Sample ID: MW-9**  
**Prep Type: Total/NA**  
**Prep Batch: 529947**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		0.00100	0.0009089		mg/L		91	80 - 120	2	20

## Method: 2540 C-2011 - Total Dissolved Solids (Dried at 180 °C)

**Lab Sample ID: MB 240-530139/1**  
**Matrix: Water**  
**Analysis Batch: 530139**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10.0	7.80	mg/L			06/10/22 10:40	1

**Lab Sample ID: LCS 240-530139/2**  
**Matrix: Water**  
**Analysis Batch: 530139**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	665	417.0	*-	mg/L		63	80 - 120

**Lab Sample ID: 240-167856-Z-3 DU**  
**Matrix: Water**  
**Analysis Batch: 530139**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	346	*-	363.0	*-	mg/L		5	20

# QC Sample Results

Client: Big Rivers Electric Corporation  
 Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167872-1

## Method: 2540 C-2011 - Total Dissolved Solids (Dried at 180 °C) (Continued)

**Lab Sample ID: 240-167887-E-5 DU**  
**Matrix: Water**  
**Analysis Batch: 530139**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	498	*-	503.0	*-	mg/L		1	20

**Lab Sample ID: MB 240-530393/1**  
**Matrix: Water**  
**Analysis Batch: 530393**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10.0	7.80	mg/L			06/13/22 12:07	1

**Lab Sample ID: LCS 240-530393/2**  
**Matrix: Water**  
**Analysis Batch: 530393**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	665	595.0		mg/L		89	80 - 120

**Lab Sample ID: 240-167867-A-1 DU**  
**Matrix: Water**  
**Analysis Batch: 530393**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	750		740.0		mg/L		1	20

**Lab Sample ID: MB 240-530987/1**  
**Matrix: Water**  
**Analysis Batch: 530987**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10.0	7.80	mg/L			06/16/22 10:41	1

**Lab Sample ID: LCS 240-530987/2**  
**Matrix: Water**  
**Analysis Batch: 530987**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	665	646.0		mg/L		97	80 - 120

**Lab Sample ID: 240-167869-A-1 DU**  
**Matrix: Water**  
**Analysis Batch: 530987**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	851		796.0		mg/L		7	20

# QC Sample Results

Client: Big Rivers Electric Corporation  
 Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167872-1

## Method: 9056A - Anions, Ion Chromatography

**Lab Sample ID: MB 240-532226/3**  
**Matrix: Water**  
**Analysis Batch: 532226**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.00	0.284	mg/L			06/27/22 08:45	1
Fluoride	ND		0.0500	0.0240	mg/L			06/27/22 08:45	1
Sulfate	ND		1.00	0.348	mg/L			06/27/22 08:45	1

**Lab Sample ID: LCS 240-532226/4**  
**Matrix: Water**  
**Analysis Batch: 532226**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	49.06		mg/L		98	90 - 110
Fluoride	2.50	2.469		mg/L		99	90 - 110
Sulfate	50.0	50.92		mg/L		102	90 - 110

**Lab Sample ID: 240-167872-1 MS**  
**Matrix: Water**  
**Analysis Batch: 532226**

**Client Sample ID: MW-9**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	6.60		50.0	56.76		mg/L		100	80 - 120
Fluoride	0.192		2.50	2.724		mg/L		101	80 - 120
Sulfate	ND		50.0	52.21		mg/L		104	80 - 120

**Lab Sample ID: 240-167872-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 532226**

**Client Sample ID: MW-9**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	6.60		50.0	56.92		mg/L		101	80 - 120	0	15
Fluoride	0.192		2.50	2.736		mg/L		102	80 - 120	0	15
Sulfate	ND		50.0	52.45		mg/L		105	80 - 120	0	15

## Method: 903.0 - Radium-226 (GFPC)

**Lab Sample ID: MB 160-569453/1-A**  
**Matrix: Water**  
**Analysis Batch: 572655**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 569453**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.07639	U	0.0927	0.0929	1.00	0.152	pCi/L	06/10/22 12:45	07/05/22 14:36	1
<b>Carrier</b>	<b>%Yield</b>	<b>MB Qualifier</b>	<b>Limits</b>					<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Ba Carrier	58.5		40 - 110					06/10/22 12:45	07/05/22 14:36	1

# QC Sample Results

Client: Big Rivers Electric Corporation  
 Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167872-1

## Method: 903.0 - Radium-226 (GFPC) (Continued)

**Lab Sample ID: LCS 160-569453/2-A**  
**Matrix: Water**  
**Analysis Batch: 572655**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 569453**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
Radium-226	11.3	10.94		1.14	1.00	0.122	pCi/L	97	75 - 125	
<b>Carrier</b>	<b>%Yield</b>	<b>LCS Qualifier</b>	<b>LCS Limits</b>							
Ba Carrier	81.8		40 - 110							

**Lab Sample ID: 500-217628-E-6-A DU**  
**Matrix: Water**  
**Analysis Batch: 572655**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 569453**

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-226	1.52		1.486		0.254	1.00	0.100	pCi/L	0.06	1
<b>Carrier</b>	<b>%Yield</b>	<b>DU Qualifier</b>	<b>DU Limits</b>							
Ba Carrier	83.0		40 - 110							

## Method: 904.0 - Radium-228 (GFPC)

**Lab Sample ID: MB 160-569459/1-A**  
**Matrix: Water**  
**Analysis Batch: 571084**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 569459**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.7884	U	0.562	0.567	1.00	0.855	pCi/L	06/10/22 13:33	06/22/22 12:00	1
<b>Carrier</b>	<b>%Yield</b>	<b>MB Qualifier</b>	<b>Count Limits</b>							
Ba Carrier	58.5		40 - 110							
Y Carrier	84.1		40 - 110							
								<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
								06/10/22 13:33	06/22/22 12:00	1
								06/10/22 13:33	06/22/22 12:00	1

**Lab Sample ID: LCS 160-569459/2-A**  
**Matrix: Water**  
**Analysis Batch: 571084**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 569459**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-228	8.51	9.702		1.31	1.00	0.506	pCi/L	114	75 - 125
<b>Carrier</b>	<b>%Yield</b>	<b>LCS Qualifier</b>	<b>LCS Limits</b>						
Ba Carrier	81.8		40 - 110						
Y Carrier	88.6		40 - 110						

# QC Sample Results

Client: Big Rivers Electric Corporation  
 Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167872-1

## Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: 500-217628-E-6-B DU  
 Matrix: Water  
 Analysis Batch: 571084

Client Sample ID: Duplicate  
 Prep Type: Total/NA  
 Prep Batch: 569459

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-228	1.11		0.8010		0.404	1.00	0.550	pCi/L	0.39	1

Carrier	DU %Yield	DU Qualifier	Limits
Ba Carrier	83.0		40 - 110
Y Carrier	87.1		40 - 110

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

# QC Association Summary

Client: Big Rivers Electric Corporation  
Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167872-1

## Metals

### Prep Batch: 529946

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-167872-1	MW-9	Total Recoverable	Water	3005A	
240-167872-2	MW-10	Total Recoverable	Water	3005A	
240-167872-3	MW-7	Total Recoverable	Water	3005A	
240-167872-4	DUPLICATE	Total Recoverable	Water	3005A	
240-167872-5	MW-112	Total Recoverable	Water	3005A	
MB 240-529946/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-529946/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-529946/3-A	Lab Control Sample	Total Recoverable	Water	3005A	
240-167872-1 MS	MW-9	Total Recoverable	Water	3005A	
240-167872-1 MS	MW-9	Total Recoverable	Water	3005A	
240-167872-1 MSD	MW-9	Total Recoverable	Water	3005A	
240-167872-1 MSD	MW-9	Total Recoverable	Water	3005A	

### Prep Batch: 529947

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-167872-1	MW-9	Total/NA	Water	7470A	
240-167872-2	MW-10	Total/NA	Water	7470A	
240-167872-3	MW-7	Total/NA	Water	7470A	
240-167872-4	DUPLICATE	Total/NA	Water	7470A	
240-167872-5	MW-112	Total/NA	Water	7470A	
MB 240-529947/1-A	Method Blank	Total/NA	Water	7470A	
LCS 240-529947/2-A	Lab Control Sample	Total/NA	Water	7470A	
240-167872-1 MS	MW-9	Total/NA	Water	7470A	
240-167872-1 MSD	MW-9	Total/NA	Water	7470A	

### Analysis Batch: 530293

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-167872-1	MW-9	Total Recoverable	Water	6010C	529946
240-167872-2	MW-10	Total Recoverable	Water	6010C	529946
240-167872-3	MW-7	Total Recoverable	Water	6010C	529946
240-167872-4	DUPLICATE	Total Recoverable	Water	6010C	529946
240-167872-5	MW-112	Total Recoverable	Water	6010C	529946
MB 240-529946/1-A	Method Blank	Total Recoverable	Water	6010C	529946
LCS 240-529946/2-A	Lab Control Sample	Total Recoverable	Water	6010C	529946
240-167872-1 MS	MW-9	Total Recoverable	Water	6010C	529946
240-167872-1 MSD	MW-9	Total Recoverable	Water	6010C	529946

### Analysis Batch: 530294

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-167872-1	MW-9	Total Recoverable	Water	6020A	529946
240-167872-2	MW-10	Total Recoverable	Water	6020A	529946
240-167872-3	MW-7	Total Recoverable	Water	6020A	529946
240-167872-4	DUPLICATE	Total Recoverable	Water	6020A	529946
240-167872-5	MW-112	Total Recoverable	Water	6020A	529946
MB 240-529946/1-A	Method Blank	Total Recoverable	Water	6020A	529946
LCS 240-529946/3-A	Lab Control Sample	Total Recoverable	Water	6020A	529946
240-167872-1 MS	MW-9	Total Recoverable	Water	6020A	529946
240-167872-1 MSD	MW-9	Total Recoverable	Water	6020A	529946

# QC Association Summary

Client: Big Rivers Electric Corporation  
 Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167872-1

## Metals

### Analysis Batch: 530379

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-167872-1	MW-9	Total/NA	Water	7470A	529947
240-167872-2	MW-10	Total/NA	Water	7470A	529947
240-167872-3	MW-7	Total/NA	Water	7470A	529947
240-167872-4	DUPLICATE	Total/NA	Water	7470A	529947
240-167872-5	MW-112	Total/NA	Water	7470A	529947
MB 240-529947/1-A	Method Blank	Total/NA	Water	7470A	529947
LCS 240-529947/2-A	Lab Control Sample	Total/NA	Water	7470A	529947
240-167872-1 MS	MW-9	Total/NA	Water	7470A	529947
240-167872-1 MSD	MW-9	Total/NA	Water	7470A	529947

## General Chemistry

### Analysis Batch: 530139

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-167872-1	MW-9	Total/NA	Water	2540 C-2011	
240-167872-2	MW-10	Total/NA	Water	2540 C-2011	
MB 240-530139/1	Method Blank	Total/NA	Water	2540 C-2011	
LCS 240-530139/2	Lab Control Sample	Total/NA	Water	2540 C-2011	
240-167856-Z-3 DU	Duplicate	Total/NA	Water	2540 C-2011	
240-167887-E-5 DU	Duplicate	Total/NA	Water	2540 C-2011	

### Analysis Batch: 530393

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-167872-3	MW-7	Total/NA	Water	2540 C-2011	
240-167872-4	DUPLICATE	Total/NA	Water	2540 C-2011	
240-167872-5	MW-112	Total/NA	Water	2540 C-2011	
MB 240-530393/1	Method Blank	Total/NA	Water	2540 C-2011	
LCS 240-530393/2	Lab Control Sample	Total/NA	Water	2540 C-2011	
240-167867-A-1 DU	Duplicate	Total/NA	Water	2540 C-2011	

### Analysis Batch: 530987

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-167872-1 - RA	MW-9	Total/NA	Water	2540 C-2011	
240-167872-2 - RA	MW-10	Total/NA	Water	2540 C-2011	
MB 240-530987/1	Method Blank	Total/NA	Water	2540 C-2011	
LCS 240-530987/2	Lab Control Sample	Total/NA	Water	2540 C-2011	
240-167869-A-1 DU	Duplicate	Total/NA	Water	2540 C-2011	

### Analysis Batch: 532226

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-167872-1	MW-9	Total/NA	Water	9056A	
240-167872-2	MW-10	Total/NA	Water	9056A	
240-167872-3	MW-7	Total/NA	Water	9056A	
240-167872-4	DUPLICATE	Total/NA	Water	9056A	
240-167872-5	MW-112	Total/NA	Water	9056A	
MB 240-532226/3	Method Blank	Total/NA	Water	9056A	
LCS 240-532226/4	Lab Control Sample	Total/NA	Water	9056A	
240-167872-1 MS	MW-9	Total/NA	Water	9056A	
240-167872-1 MSD	MW-9	Total/NA	Water	9056A	

# QC Association Summary

Client: Big Rivers Electric Corporation  
Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167872-1

## Rad

### Prep Batch: 569453

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-167872-1	MW-9	Total/NA	Water	PrecSep-21	
240-167872-2	MW-10	Total/NA	Water	PrecSep-21	
240-167872-3	MW-7	Total/NA	Water	PrecSep-21	
240-167872-4	DUPLICATE	Total/NA	Water	PrecSep-21	
240-167872-5	MW-112	Total/NA	Water	PrecSep-21	
MB 160-569453/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-569453/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
500-217628-E-6-A DU	Duplicate	Total/NA	Water	PrecSep-21	

### Prep Batch: 569459

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-167872-1	MW-9	Total/NA	Water	PrecSep_0	
240-167872-2	MW-10	Total/NA	Water	PrecSep_0	
240-167872-3	MW-7	Total/NA	Water	PrecSep_0	
240-167872-4	DUPLICATE	Total/NA	Water	PrecSep_0	
240-167872-5	MW-112	Total/NA	Water	PrecSep_0	
MB 160-569459/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-569459/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
500-217628-E-6-B DU	Duplicate	Total/NA	Water	PrecSep_0	

# Lab Chronicle

Client: Big Rivers Electric Corporation  
 Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167872-1

**Client Sample ID: MW-9**

**Lab Sample ID: 240-167872-1**

**Date Collected: 06/07/22 10:25**

**Matrix: Water**

**Date Received: 06/08/22 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			529946	06/09/22 12:00	SHB	TAL CAN
Total Recoverable	Analysis	6010C		1	530293	06/10/22 22:47	RKT	TAL CAN
Total Recoverable	Prep	3005A			529946	06/09/22 12:00	SHB	TAL CAN
Total Recoverable	Analysis	6020A		1	530294	06/10/22 17:22	AJC	TAL CAN
Total/NA	Prep	7470A			529947	06/09/22 12:00	SHB	TAL CAN
Total/NA	Analysis	7470A		1	530379	06/10/22 15:45	DSH	TAL CAN
Total/NA	Analysis	2540 C-2011		1	530139	06/10/22 10:40	MED	TAL CAN
Total/NA	Analysis	2540 C-2011	RA	1	530987	06/16/22 10:41	MED	TAL CAN
Total/NA	Analysis	9056A		1	532226	06/27/22 09:25	JMB	TAL CAN
Total/NA	Prep	PrecSep-21			569453	06/10/22 12:45	MS	TAL SL
Total/NA	Analysis	903.0		1	572655	07/05/22 14:38	CLP	TAL SL
Total/NA	Prep	PrecSep_0			569459	06/10/22 13:33	MS	TAL SL
Total/NA	Analysis	904.0		1	571084	06/22/22 12:02	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	572912	07/06/22 16:28	FLC	TAL SL

**Client Sample ID: MW-10**

**Lab Sample ID: 240-167872-2**

**Date Collected: 06/07/22 11:23**

**Matrix: Water**

**Date Received: 06/08/22 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			529946	06/09/22 12:00	SHB	TAL CAN
Total Recoverable	Analysis	6010C		1	530293	06/10/22 23:08	RKT	TAL CAN
Total Recoverable	Prep	3005A			529946	06/09/22 12:00	SHB	TAL CAN
Total Recoverable	Analysis	6020A		1	530294	06/10/22 17:34	AJC	TAL CAN
Total/NA	Prep	7470A			529947	06/09/22 12:00	SHB	TAL CAN
Total/NA	Analysis	7470A		1	530379	06/10/22 15:52	DSH	TAL CAN
Total/NA	Analysis	2540 C-2011		1	530139	06/10/22 10:40	MED	TAL CAN
Total/NA	Analysis	2540 C-2011	RA	1	530987	06/16/22 10:41	MED	TAL CAN
Total/NA	Analysis	9056A		1	532226	06/27/22 10:26	JMB	TAL CAN
Total/NA	Prep	PrecSep-21			569453	06/10/22 12:45	MS	TAL SL
Total/NA	Analysis	903.0		1	572655	07/05/22 14:38	CLP	TAL SL
Total/NA	Prep	PrecSep_0			569459	06/10/22 13:33	MS	TAL SL
Total/NA	Analysis	904.0		1	571084	06/22/22 12:02	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	572912	07/06/22 16:28	FLC	TAL SL

**Client Sample ID: MW-7**

**Lab Sample ID: 240-167872-3**

**Date Collected: 06/07/22 12:24**

**Matrix: Water**

**Date Received: 06/08/22 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			529946	06/09/22 12:00	SHB	TAL CAN
Total Recoverable	Analysis	6010C		1	530293	06/10/22 23:12	RKT	TAL CAN
Total Recoverable	Prep	3005A			529946	06/09/22 12:00	SHB	TAL CAN
Total Recoverable	Analysis	6020A		1	530294	06/10/22 17:37	AJC	TAL CAN

Eurofins Canton

# Lab Chronicle

Client: Big Rivers Electric Corporation  
 Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167872-1

**Client Sample ID: MW-7**

**Lab Sample ID: 240-167872-3**

**Date Collected: 06/07/22 12:24**

**Matrix: Water**

**Date Received: 06/08/22 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7470A			529947	06/09/22 12:00	SHB	TAL CAN
Total/NA	Analysis	7470A		1	530379	06/10/22 15:54	DSH	TAL CAN
Total/NA	Analysis	2540 C-2011		1	530393	06/13/22 12:07	MED	TAL CAN
Total/NA	Analysis	9056A		1	532226	06/27/22 10:46	JMB	TAL CAN
Total/NA	Prep	PrecSep-21			569453	06/10/22 12:45	MS	TAL SL
Total/NA	Analysis	903.0		1	572655	07/05/22 14:38	CLP	TAL SL
Total/NA	Prep	PrecSep_0			569459	06/10/22 13:33	MS	TAL SL
Total/NA	Analysis	904.0		1	571084	06/22/22 12:03	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	572912	07/06/22 16:28	FLC	TAL SL

**Client Sample ID: DUPLICATE**

**Lab Sample ID: 240-167872-4**

**Date Collected: 06/07/22 00:00**

**Matrix: Water**

**Date Received: 06/08/22 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			529946	06/09/22 12:00	SHB	TAL CAN
Total Recoverable	Analysis	6010C		1	530293	06/10/22 23:25	RKT	TAL CAN
Total Recoverable	Prep	3005A			529946	06/09/22 12:00	SHB	TAL CAN
Total Recoverable	Analysis	6020A		1	530294	06/10/22 17:44	AJC	TAL CAN
Total/NA	Prep	7470A			529947	06/09/22 12:00	SHB	TAL CAN
Total/NA	Analysis	7470A		1	530379	06/10/22 15:56	DSH	TAL CAN
Total/NA	Analysis	2540 C-2011		1	530393	06/13/22 12:07	MED	TAL CAN
Total/NA	Analysis	9056A		1	532226	06/27/22 11:06	JMB	TAL CAN
Total/NA	Prep	PrecSep-21			569453	06/10/22 12:45	MS	TAL SL
Total/NA	Analysis	903.0		1	572655	07/05/22 14:39	CLP	TAL SL
Total/NA	Prep	PrecSep_0			569459	06/10/22 13:33	MS	TAL SL
Total/NA	Analysis	904.0		1	571084	06/22/22 12:03	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	572912	07/06/22 16:28	FLC	TAL SL

**Client Sample ID: MW-112**

**Lab Sample ID: 240-167872-5**

**Date Collected: 06/07/22 14:03**

**Matrix: Water**

**Date Received: 06/08/22 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			529946	06/09/22 12:00	SHB	TAL CAN
Total Recoverable	Analysis	6010C		1	530293	06/10/22 23:30	RKT	TAL CAN
Total Recoverable	Prep	3005A			529946	06/09/22 12:00	SHB	TAL CAN
Total Recoverable	Analysis	6020A		1	530294	06/10/22 17:47	AJC	TAL CAN
Total/NA	Prep	7470A			529947	06/09/22 12:00	SHB	TAL CAN
Total/NA	Analysis	7470A		1	530379	06/10/22 16:03	DSH	TAL CAN
Total/NA	Analysis	2540 C-2011		1	530393	06/13/22 12:07	MED	TAL CAN
Total/NA	Analysis	9056A		1	532226	06/27/22 11:26	JMB	TAL CAN
Total/NA	Prep	PrecSep-21			569453	06/10/22 12:45	MS	TAL SL
Total/NA	Analysis	903.0		1	572655	07/05/22 14:39	CLP	TAL SL

Eurofins Canton

# Lab Chronicle

Client: Big Rivers Electric Corporation  
Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167872-1

**Client Sample ID: MW-112**

**Lab Sample ID: 240-167872-5**

**Date Collected: 06/07/22 14:03**

**Matrix: Water**

**Date Received: 06/08/22 09:20**

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Prepared or Analyzed</u>	<u>Analyst</u>	<u>Lab</u>
Total/NA	Prep	PrecSep_0			569459	06/10/22 13:33	MS	TAL SL
Total/NA	Analysis	904.0		1	571084	06/22/22 12:03	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	572912	07/06/22 16:28	FLC	TAL SL

**Laboratory References:**

TAL CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

TAL SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566



# Accreditation/Certification Summary

Client: Big Rivers Electric Corporation  
Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167872-1

## Laboratory: Eurofins Canton

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Kentucky (UST)	State	112225	02-27-23

## Laboratory: Eurofins St. Louis

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-22

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

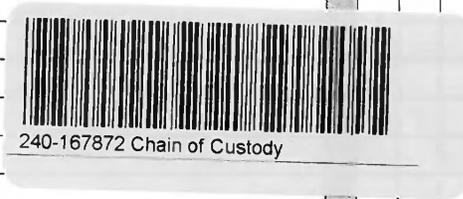
Analysis Method	Prep Method	Matrix	Analyte
903.0	PrecSep-21	Water	Radium-226
904.0	PrecSep_0	Water	Radium-228
Ra226_Ra228		Water	Combined Radium 226 + 228

# Chain of Custody Record

**Client Information**  
 Sample: **haelyn Sperle**  
 Lab P/M: **Cisneros, Roxanne**  
 Client Contact: **Mark Bertram**  
 Phone: **262-278-1621**  
 E-Mail: **roxanne.cisneros@et.eurofins.com**  
 Company: **Big Rivers Electric Corporation**  
 Address: **PO BOX 24**  
 City: **Henderson**  
 State, Zip: **KY, 42419**  
 Phone: **270-844-5708(Tel)**  
 Email: **mark.bertram@bigrivers.com**  
 Project Name: **Big Rivers**  
 Site: **Sebree Station**

Due Date Requested: **Standard**  
 TAT Requested (days): **Standard**  
 Compliance Project:  Yes  No  
 PO #: **270-844-5708(Tel)**  
 Purchase Order Requested  
 WO #: **24026719**  
 Project #: **24026719**  
 SSO#: **24026719**

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Solid, Other)	Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		903.0, 904.0, Ra226Ra228, GPPC		6010C, 6020A, 7470A		9056A, 280 - Chloride, Fluoride & Sulfate		2540C, Calcd - TDS		Total Number of Containers	Special Instructions/Note:
					Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	D	N	D	N	D	N	D	N				
MW-9	6/17/22	1025	G	Water	X	N	X	N	X	X	X	X	X	X	X	X	5	
MW-10	6/17/22	1123	G	Water	X	N	X	N	X	X	X	X	X	X	X	X	5	
MW-7	6/17/22	1224	G	Water	X	N	X	N	X	X	X	X	X	X	X	X	5	
Duplicate	6/17/22	-	G	Water	X	N	X	N	X	X	X	X	X	X	X	X	5	
MW-112	6/17/22	1403	G	Water	X	N	X	N	X	X	X	X	X	X	X	X	5	



**Possible Hazard Identification**  
 Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown  Radiological  
 Deliverable Requested: I, II, III, IV, Other (specify)

**Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)**  
 Return To Client  Disposal By Lab  Archive For \_\_\_\_\_ Months

**Empty Kit Relinquished by:** \_\_\_\_\_ Date: \_\_\_\_\_  
**Relinquished by:** *Haelyn Sperle* Date: **6/17/22/1600**  
**Relinquished by:** \_\_\_\_\_ Date: \_\_\_\_\_  
**Relinquished by:** \_\_\_\_\_ Date: \_\_\_\_\_

**Company:** **FedEx** Date/Time: **6/17/22/1600**  
**Company:** **FedEx** Date/Time: **6-8-22 920**  
**Company:** **ETPC** Date/Time: \_\_\_\_\_

**Custody Seal No.:** \_\_\_\_\_  
 Yes  No  
 Cooler Temperature(s) °C and Other Remarks: \_\_\_\_\_

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**Eurofins - Canton Sample Receipt Form/Narrative** Login # : 167872  
**Barberton Facility**

Client Big Rivers Electric Site Name \_\_\_\_\_ Cooler unpacked by: Nancy Boyer  
Cooler Received on 6-8-22 Opened on 6-8-22  
FedEx: 1<sup>st</sup> Grd Exp UPS FAS Clipper Client Drop Off Eurofins Courier Other \_\_\_\_\_

Receipt After-hours: Drop-off Date/Time \_\_\_\_\_ Storage Location \_\_\_\_\_

Eurofins Cooler # 1A  Foam Box Client Cooler  Box Other \_\_\_\_\_  
Packing material used  Bubble Wrap  Foam  Plastic Bag  None Other \_\_\_\_\_  
COOLANT:  Wet Ice  Blue Ice  Dry Ice  Water  None

- Cooler temperature upon receipt  See Multiple Cooler Form  
IR GUN# IR-13 (CF 0.0 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C  
IR GUN #IR-15 (CF -0.7°C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C
- Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity lead Yes No  
-Were the seals on the outside of the cooler(s) signed & dated? Yes No NA  
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No  
-Were tamper/custody seals intact and uncompromised? Yes No NA
- Shippers' packing slip attached to the cooler(s)? Yes No
- Did custody papers accompany the sample(s)? Yes No
- Were the custody papers relinquished & signed in the appropriate place? Yes No
- Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
- Did all bottles arrive in good condition (Unbroken)? Yes No
- Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No
- For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)? Yes No
- Were correct bottle(s) used for the test(s) indicated? Yes No
- Sufficient quantity received to perform indicated analyses? Yes No
- Are these work share samples and all listed on the COC? Yes No  
If yes, Questions 13-17 have been checked at the originating laboratory.
- Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC178690
- Were VOAs on the COC? Yes No
- Were air bubbles >6 mm in any VOA vials?  Larger than this. Yes No NA
- Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # \_\_\_\_\_ Yes No
- Was a LL Hg or Me Hg trip blank present? Yes No

Tested for: **VOAs, Oil and Grease, TOC**

Contacted PM \_\_\_\_\_ Date \_\_\_\_\_ by \_\_\_\_\_ via Verbal Voice Mail Other \_\_\_\_\_  
Concerning \_\_\_\_\_

**18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES**  additional next page Samples processed by: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**19. SAMPLE CONDITION**

Sample(s) \_\_\_\_\_ were received after the recommended holding time had expired.  
Sample(s) \_\_\_\_\_ were received in a broken container.  
Sample(s) \_\_\_\_\_ were received with bubble >6 mm in diameter. (Notify PM)

**20. SAMPLE PRESERVATION**

Sample(s) \_\_\_\_\_ were further preserved in the laboratory.  
Time preserved: \_\_\_\_\_ Preservative(s) added/Lot number(s): \_\_\_\_\_  
VOA Sample Preservation - Date/Time VOAs Frozen: \_\_\_\_\_



Temperature readings: \_\_\_\_\_

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container</u>		<u>Preservative</u>	
			<u>pH</u>	<u>Temp</u>	<u>Added (mls)</u>	<u>Lot #</u>
MW-9	240-167872-C-1	Plastic 500ml - with Nitric Acid	<2	_____	_____	_____
MW-9	240-167872-D-1	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-9	240-167872-E-1	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-10	240-167872-C-2	Plastic 500ml - with Nitric Acid	<2	_____	_____	_____
MW-10	240-167872-D-2	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-10	240-167872-E-2	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-7	240-167872-C-3	Plastic 500ml - with Nitric Acid	<2	_____	_____	_____
MW-7	240-167872-D-3	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-7	240-167872-E-3	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
DUPLICATE	240-167872-C-4	Plastic 500ml - with Nitric Acid	<2	_____	_____	_____
DUPLICATE	240-167872-D-4	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
DUPLICATE	240-167872-E-4	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-112	240-167872-C-5	Plastic 500ml - with Nitric Acid	<2	_____	_____	_____
MW-112	240-167872-D-5	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____
MW-112	240-167872-E-5	Plastic 1 liter - Nitric Acid	<2	_____	_____	_____

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**Eurofins Canton**

180 S. Van Buren Avenue  
Barberton, OH 44203  
Phone: 330-497-9396 Fax: 330-497-0772

**Chain of Custody Record**



Environment Testing  
America



<b>Client Information (Sub Contract Lab)</b> Client Contact: Shipping/Receiving Company: TestAmerica Laboratories, Inc. Address: 13715 Rider Trail North, Earth City, MO 63045 Phone: 314-298-8566(Tel) 314-298-8757(Fax) Email: Project Name: Big Rivers Site:			Lab PM: Cisneros, Roxanne E-Mail: roxanne.cisneros@et.eurofins.com State of Origin: Kentucky		Carrier/Tracking No(s): COC No: 240-153138.1 Page: Page 1 of 1 Job #: 240-167872-1
Due Date Requested: 6/21/2022 TAT Requested (days): PO #: WO #: Project #: 24026719 SSOW#:			Accreditations Required (See note): NELAP - Oregon; NELAP - Pennsylvania; State - Kentucky ...		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:
<b>Analysis Requested</b>			Total Number of Containers		
Perform MS/MSD (Yes or No)			Radium-228 (GFP)		
903.0/PreSep_21 Radium-226 (GFP) - 21 day decay			Radium-228 GFPC/ Combined Radium-226 and		
904.0/PreSep_0 Radium-228 (GFP)			Total Number of Containers		
<b>Sample Identification - Client ID (Lab ID)</b> MW-9 (240-167872-1) MW-10 (240-167872-2) MW-7 (240-167872-3) DUPLICATE (240-167872-4) MW-112 (240-167872-5)	Sample Date 6/7/22 6/7/22 6/7/22 6/7/22 6/7/22	Sample Time 10:25 Eastern 11:23 Eastern 12:24 Eastern Eastern 14:03 Eastern	Sample Type (C=Comp, G=grab) Matrix (W=water, S=solid, O=on-site/On-site/Analy)	Preservation Code: Water Water Water Water Water	Special Instructions/Note: run once - upload data twice run once - upload data twice

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/mainx being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC.

**Possible Hazard Identification**

Unconfirmed  
 Deliverable Requested: I, II, III, IV, Other (specify)  
 Primary Deliverable Rank: 2  
 Date:  
 Time:

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)  
 Return To Client  Disposal By Lab  Archive For Months  
 Special Instructions/QC Requirements:

Empty Kit Relinquished by: *Sophia Woodington* Date/Time: 6-8-22 12:47  
 Relinquished by: *Sophia Woodington* Date/Time: JUN 09 2022 0900  
 Relinquished by: Date/Time:  
 Custody Seals Intact:  Yes  No  
 Cooler Temperature(s) °C and Other Remarks:



# Login Sample Receipt Checklist

Client: Big Rivers Electric Corporation

Job Number: 240-167872-1

**Login Number: 167872**

**List Number: 2**

**Creator: Worthington, Sierra M**

**List Source: Eurofins St. Louis**

**List Creation: 06/09/22 12:28 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## ANALYTICAL REPORT

Eurofins Canton  
180 S. Van Buren Avenue  
Barberton, OH 44203  
Tel: (330)497-9396

Laboratory Job ID: 240-167939-1  
Client Project/Site: Reid CCR Pond / Sebree

For:  
Big Rivers Electric Corporation  
PO BOX 24  
Henderson, Kentucky 42419

Attn: Mark Bertram

*Roxanne Cisneros*

Authorized for release by:  
7/8/2022 12:52:48 PM

Roxanne Cisneros, Senior Project Manager  
(615)301-5761  
[roxanne.cisneros@et.eurofinsus.com](mailto:roxanne.cisneros@et.eurofinsus.com)

### LINKS

Review your project  
results through



Have a Question?



Visit us at:

[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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# Definitions/Glossary

Client: Big Rivers Electric Corporation  
Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167939-1

## Qualifiers

### Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
E	Result exceeded calibration range.
H	Sample was prepped or analyzed beyond the specified holding time

### Rad

Qualifier	Qualifier Description
G	The Sample MDC is greater than the requested RL.
U	Result is less than the sample detection limit.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Case Narrative

Client: Big Rivers Electric Corporation  
Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167939-1

## Job ID: 240-167939-1

### Laboratory: Eurofins Canton

#### Narrative

#### Job Narrative 240-167939-1

#### Comments

The EPA Method 903.0 Radium-226, EPA Method 904.0 Radium-228, and Ra226\_Ra228 Combined Radium 226 and Radium 228 analyses were performed at the Eurofins St. Louis laboratory.

#### Receipt

The samples were received on 6/9/2022 9:45 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.0° C.

#### RAD

Methods 903.0: Radium-226 batch 570157: Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. MW-8 (240-167939-1), MW-110 (240-167939-2), MW-111 (240-167939-3), (LCS 160-570157/2-A), (LCSD 160-570157/3-A) and (MB 160-570157/1-A)

Method 904.0: Radium-228 batch 570158: The following sample(s) exhibited a negative result greater in magnitude than the 3 sigma TPU. This occurrence was evaluated and determined to be random in nature. Sporadic occurrences such as this are statistically expected. No further action is required. MW-110 (240-167939-2)

Method 904.0: Radium-228 batch 570158: The detection goal was not met for the following sample(s). Sample was prepped at a reduced volume due to the presence of matrix interferences: MW-110 (240-167939-2). Analytical results are reported with the detection limit achieved.

Methods 904.0: Radium-228 batch 570158: Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. MW-8 (240-167939-1), MW-110 (240-167939-2), MW-111 (240-167939-3), (LCS 160-570158/2-A), (LCSD 160-570158/3-A) and (MB 160-570158/1-A)

Method PrecSep\_0: Radium-228 Prep Batch 160-567157: Insufficient sample volume was available to perform a sample duplicate for the following samples: MW-8 (240-167939-1), MW-110 (240-167939-2) and MW-111 (240-167939-3). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method PrecSep-21: Radium-226 Prep Batch 160-570157: Insufficient sample volume was available to perform a sample duplicate for the following samples: MW-8 (240-167939-1), MW-110 (240-167939-2) and MW-111 (240-167939-3). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Metals

No additional analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### General Chemistry

Method SM 2540C: Reanalysis of the following sample(s) was performed outside of the analytical holding time due to a failed MB, this is primary out of hold results. resulting in a reanalysis of all samples : MW-8 (240-167939-1), MW-110 (240-167939-2) and MW-111 (240-167939-3).

Method SM 2540C: Method Blank associated with these samples was high therefore these samples will be reported as secondary for in hold data. MW-8 (240-167939-1), MW-110 (240-167939-2), MW-111 (240-167939-3)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

# Method Summary

Client: Big Rivers Electric Corporation  
Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167939-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL CAN
6020A	Metals (ICP/MS)	SW846	TAL CAN
7470A	Mercury (CVAA)	SW846	TAL CAN
2540 C-2011	Total Dissolved Solids (Dried at 180 °C)	SM	TAL CAN
9056A	Anions, Ion Chromatography	SW846	TAL CAN
903.0	Radium-226 (GFPC)	EPA	TAL SL
904.0	Radium-228 (GFPC)	EPA	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL CAN
7470A	Preparation, Mercury	SW846	TAL CAN
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

#### Protocol References:

EPA = US Environmental Protection Agency

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

#### Laboratory References:

TAL CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

TAL SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

# Sample Summary

Client: Big Rivers Electric Corporation  
Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167939-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-167939-1	MW-8	Water	06/08/22 08:48	06/09/22 09:45
240-167939-2	MW-110	Water	06/08/22 10:04	06/09/22 09:45
240-167939-3	MW-111	Water	06/08/22 11:04	06/09/22 09:45

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# Detection Summary

Client: Big Rivers Electric Corporation  
 Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167939-1

## Client Sample ID: MW-8

## Lab Sample ID: 240-167939-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.52		0.100	0.0573	mg/L	1		6010C	Total Recoverable
Calcium	257		5.00	0.307	mg/L	1		6010C	Total Recoverable
Barium	0.0165		0.00500	0.00223	mg/L	1		6020A	Total Recoverable
Lithium	0.0309		0.00800	0.00165	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0131		0.00500	0.00108	mg/L	1		6020A	Total Recoverable
Total Dissolved Solids	2010	B	20.0	15.6	mg/L	1		2540 C-2011	Total/NA
Chloride	49.3		1.00	0.284	mg/L	1		9056A	Total/NA
Fluoride	0.386		0.0500	0.0240	mg/L	1		9056A	Total/NA
Sulfate	1240		10.0	3.48	mg/L	10		9056A	Total/NA
Total Dissolved Solids - RA	1920	H	20.0	15.6	mg/L	1		2540 C-2011	Total/NA

## Client Sample ID: MW-110

## Lab Sample ID: 240-167939-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.537		0.100	0.0573	mg/L	1		6010C	Total Recoverable
Calcium	143		5.00	0.307	mg/L	1		6010C	Total Recoverable
Arsenic	0.00198	J	0.00500	0.000750	mg/L	1		6020A	Total Recoverable
Barium	0.0696		0.00500	0.00223	mg/L	1		6020A	Total Recoverable
Chromium	0.00729		0.00500	0.00247	mg/L	1		6020A	Total Recoverable
Cobalt	0.00359		0.00100	0.000190	mg/L	1		6020A	Total Recoverable
Lead	0.00328		0.00100	0.000450	mg/L	1		6020A	Total Recoverable
Lithium	0.0217		0.00800	0.00165	mg/L	1		6020A	Total Recoverable
Molybdenum	0.00123	J	0.00500	0.00108	mg/L	1		6020A	Total Recoverable
Thallium	0.000569	J	0.00100	0.000200	mg/L	1		6020A	Total Recoverable
Total Dissolved Solids	934	B	10.0	7.80	mg/L	1		2540 C-2011	Total/NA
Chloride	19.6		1.00	0.284	mg/L	1		9056A	Total/NA
Fluoride	0.326		0.0500	0.0240	mg/L	1		9056A	Total/NA
Sulfate	450		5.00	1.74	mg/L	5		9056A	Total/NA
Total Dissolved Solids - RA	919	H	10.0	7.80	mg/L	1		2540 C-2011	Total/NA

## Client Sample ID: MW-111

## Lab Sample ID: 240-167939-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.521		0.100	0.0573	mg/L	1		6010C	Total Recoverable
Calcium	16.5		5.00	0.307	mg/L	1		6010C	Total Recoverable
Arsenic	0.00106	J	0.00500	0.000750	mg/L	1		6020A	Total Recoverable
Barium	0.798		0.00500	0.00223	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Canton

# Detection Summary

Client: Big Rivers Electric Corporation  
 Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167939-1

**Client Sample ID: MW-111 (Continued)**

**Lab Sample ID: 240-167939-3**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cobalt	0.000236	J	0.00100	0.000190	mg/L	1		6020A	Total
Lithium	0.00994		0.00800	0.00165	mg/L	1		6020A	Recoverable Total
Molybdenum	0.00527		0.00500	0.00108	mg/L	1		6020A	Recoverable Total
Total Dissolved Solids	281	B	10.0	7.80	mg/L	1		2540 C-2011	Total/NA
Chloride	19.8		1.00	0.284	mg/L	1		9056A	Total/NA
Fluoride	0.561		0.0500	0.0240	mg/L	1		9056A	Total/NA
Sulfate	2.86		1.00	0.348	mg/L	1		9056A	Total/NA
Total Dissolved Solids - RA	305	H	10.0	7.80	mg/L	1		2540 C-2011	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton



# Client Sample Results

Client: Big Rivers Electric Corporation  
 Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167939-1

**Client Sample ID: MW-8**

**Lab Sample ID: 240-167939-1**

Date Collected: 06/08/22 08:48

Matrix: Water

Date Received: 06/09/22 09:45

**Method: 6010C - Metals (ICP) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.52		0.100	0.0573	mg/L		06/10/22 12:00	06/13/22 18:02	1
Calcium	257		5.00	0.307	mg/L		06/10/22 12:00	06/13/22 18:02	1

**Method: 6020A - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.00200	0.000570	mg/L		06/10/22 12:00	06/14/22 21:59	1
Arsenic	ND		0.00500	0.000750	mg/L		06/10/22 12:00	06/14/22 21:59	1
Barium	0.0165		0.00500	0.00223	mg/L		06/10/22 12:00	06/14/22 21:59	1
Beryllium	ND		0.00100	0.000620	mg/L		06/10/22 12:00	06/14/22 21:59	1
Cadmium	ND		0.00100	0.000197	mg/L		06/10/22 12:00	06/14/22 21:59	1
Chromium	ND		0.00500	0.00247	mg/L		06/10/22 12:00	06/14/22 21:59	1
Cobalt	ND		0.00100	0.000190	mg/L		06/10/22 12:00	06/14/22 21:59	1
Lead	ND		0.00100	0.000450	mg/L		06/10/22 12:00	06/14/22 21:59	1
Lithium	0.0309		0.00800	0.00165	mg/L		06/10/22 12:00	06/14/22 21:59	1
Molybdenum	0.0131		0.00500	0.00108	mg/L		06/10/22 12:00	06/14/22 21:59	1
Selenium	ND		0.00500	0.000890	mg/L		06/10/22 12:00	06/14/22 21:59	1
Thallium	ND		0.00100	0.000200	mg/L		06/10/22 12:00	06/14/22 21:59	1

**Method: 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		06/10/22 15:00	06/13/22 17:33	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	2010	B	20.0	15.6	mg/L			06/15/22 09:44	1
Chloride	49.3		1.00	0.284	mg/L			06/28/22 12:16	1
Fluoride	0.386		0.0500	0.0240	mg/L			06/28/22 12:16	1
Sulfate	1240		10.0	3.48	mg/L			06/28/22 12:36	10

**General Chemistry - RA**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1920	H	20.0	15.6	mg/L			06/17/22 12:03	1

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.310		0.0958	0.0998	1.00	0.0797	pCi/L	06/15/22 15:14	07/07/22 07:56	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.3		40 - 110					06/15/22 15:14	07/07/22 07:56	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.205	U	0.265	0.266	1.00	0.442	pCi/L	06/15/22 15:27	06/22/22 14:21	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.3		40 - 110					06/15/22 15:27	06/22/22 14:21	1
Y Carrier	85.6		40 - 110					06/15/22 15:27	06/22/22 14:21	1

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# Client Sample Results

Client: Big Rivers Electric Corporation  
 Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167939-1

**Client Sample ID: MW-8**

**Lab Sample ID: 240-167939-1**

Date Collected: 06/08/22 08:48

Matrix: Water

Date Received: 06/09/22 09:45

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.515		0.282	0.284	5.00	0.442	pCi/L		07/07/22 18:27	1

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# Client Sample Results

Client: Big Rivers Electric Corporation  
Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167939-1

**Client Sample ID: MW-110**

**Lab Sample ID: 240-167939-2**

Date Collected: 06/08/22 10:04

Matrix: Water

Date Received: 06/09/22 09:45

**Method: 6010C - Metals (ICP) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.537		0.100	0.0573	mg/L		06/10/22 12:00	06/13/22 18:33	1
Calcium	143		5.00	0.307	mg/L		06/10/22 12:00	06/13/22 18:33	1

**Method: 6020A - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.00200	0.000570	mg/L		06/10/22 12:00	06/14/22 22:10	1
Arsenic	0.00198	J	0.00500	0.000750	mg/L		06/10/22 12:00	06/14/22 22:10	1
Barium	0.0696		0.00500	0.00223	mg/L		06/10/22 12:00	06/14/22 22:10	1
Beryllium	ND		0.00100	0.000620	mg/L		06/10/22 12:00	06/14/22 22:10	1
Cadmium	ND		0.00100	0.000197	mg/L		06/10/22 12:00	06/14/22 22:10	1
Chromium	0.00729		0.00500	0.00247	mg/L		06/10/22 12:00	06/14/22 22:10	1
Cobalt	0.00359		0.00100	0.000190	mg/L		06/10/22 12:00	06/14/22 22:10	1
Lead	0.00328		0.00100	0.000450	mg/L		06/10/22 12:00	06/14/22 22:10	1
Lithium	0.0217		0.00800	0.00165	mg/L		06/10/22 12:00	06/14/22 22:10	1
Molybdenum	0.00123	J	0.00500	0.00108	mg/L		06/10/22 12:00	06/14/22 22:10	1
Selenium	ND		0.00500	0.000890	mg/L		06/10/22 12:00	06/14/22 22:10	1
Thallium	0.000569	J	0.00100	0.000200	mg/L		06/10/22 12:00	06/14/22 22:10	1

**Method: 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		06/10/22 15:00	06/13/22 17:40	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	934	B	10.0	7.80	mg/L			06/15/22 09:44	1
Chloride	19.6		1.00	0.284	mg/L			06/28/22 12:56	1
Fluoride	0.326		0.0500	0.0240	mg/L			06/28/22 12:56	1
Sulfate	450		5.00	1.74	mg/L			06/28/22 13:16	5

**General Chemistry - RA**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	919	H	10.0	7.80	mg/L			06/17/22 12:03	1

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.355		0.202	0.205	1.00	0.251	pCi/L	06/15/22 15:14	07/07/22 07:56	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	60.0		40 - 110					06/15/22 15:14	07/07/22 07:56	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-1.26	U G	0.458	0.473	1.00	1.42	pCi/L	06/15/22 15:27	06/22/22 14:21	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	60.0		40 - 110					06/15/22 15:27	06/22/22 14:21	1
Y Carrier	84.9		40 - 110					06/15/22 15:27	06/22/22 14:21	1

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# Client Sample Results

Client: Big Rivers Electric Corporation  
 Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167939-1

**Client Sample ID: MW-110**

**Lab Sample ID: 240-167939-2**

**Date Collected: 06/08/22 10:04**

**Matrix: Water**

**Date Received: 06/09/22 09:45**

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.901	U	0.501	0.516	5.00	1.42	pCi/L		07/07/22 18:27	1

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# Client Sample Results

Client: Big Rivers Electric Corporation  
 Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167939-1

**Client Sample ID: MW-111**

**Lab Sample ID: 240-167939-3**

Date Collected: 06/08/22 11:04

Matrix: Water

Date Received: 06/09/22 09:45

**Method: 6010C - Metals (ICP) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.521		0.100	0.0573	mg/L		06/10/22 12:00	06/13/22 18:37	1
Calcium	16.5		5.00	0.307	mg/L		06/10/22 12:00	06/13/22 18:37	1

**Method: 6020A - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.00200	0.000570	mg/L		06/10/22 12:00	06/14/22 22:13	1
Arsenic	0.00106	J	0.00500	0.000750	mg/L		06/10/22 12:00	06/14/22 22:13	1
Barium	0.798		0.00500	0.00223	mg/L		06/10/22 12:00	06/14/22 22:13	1
Beryllium	ND		0.00100	0.000620	mg/L		06/10/22 12:00	06/14/22 22:13	1
Cadmium	ND		0.00100	0.000197	mg/L		06/10/22 12:00	06/14/22 22:13	1
Chromium	ND		0.00500	0.00247	mg/L		06/10/22 12:00	06/14/22 22:13	1
Cobalt	0.000236	J	0.00100	0.000190	mg/L		06/10/22 12:00	06/14/22 22:13	1
Lead	ND		0.00100	0.000450	mg/L		06/10/22 12:00	06/14/22 22:13	1
Lithium	0.00994		0.00800	0.00165	mg/L		06/10/22 12:00	06/14/22 22:13	1
Molybdenum	0.00527		0.00500	0.00108	mg/L		06/10/22 12:00	06/14/22 22:13	1
Selenium	ND		0.00500	0.000890	mg/L		06/10/22 12:00	06/14/22 22:13	1
Thallium	ND		0.00100	0.000200	mg/L		06/10/22 12:00	06/14/22 22:13	1

**Method: 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		06/10/22 15:00	06/13/22 17:42	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	281	B	10.0	7.80	mg/L			06/15/22 09:44	1
Chloride	19.8		1.00	0.284	mg/L			06/28/22 13:37	1
Fluoride	0.561		0.0500	0.0240	mg/L			06/28/22 13:37	1
Sulfate	2.86		1.00	0.348	mg/L			06/28/22 13:37	1

**General Chemistry - RA**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	305	H	10.0	7.80	mg/L			06/17/22 12:03	1

**Method: 903.0 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.307		0.104	0.108	1.00	0.107	pCi/L	06/15/22 15:14	07/07/22 07:56	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.0		40 - 110					06/15/22 15:14	07/07/22 07:56	1

**Method: 904.0 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.177	U	0.300	0.300	1.00	0.513	pCi/L	06/15/22 15:27	06/22/22 14:21	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.0		40 - 110					06/15/22 15:27	06/22/22 14:21	1
Y Carrier	86.7		40 - 110					06/15/22 15:27	06/22/22 14:21	1

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# Client Sample Results

Client: Big Rivers Electric Corporation  
 Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167939-1

**Client Sample ID: MW-111**

**Lab Sample ID: 240-167939-3**

**Date Collected: 06/08/22 11:04**

**Matrix: Water**

**Date Received: 06/09/22 09:45**

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.484	U	0.318	0.319	5.00	0.513	pCi/L		07/07/22 18:27	1

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# Tracer/Carrier Summary

Client: Big Rivers Electric Corporation  
Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167939-1

## Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

### Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (40-110)
240-167939-1	MW-8	97.3
240-167939-2	MW-110	60.0
240-167939-3	MW-111	97.0
LCS 160-570157/2-A	Lab Control Sample	84.0
LCSD 160-570157/3-A	Lab Control Sample Dup	97.8
MB 160-570157/1-A	Method Blank	88.5

#### Tracer/Carrier Legend

Ba = Ba Carrier

## Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

### Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)
240-167939-1	MW-8	97.3	85.6
240-167939-2	MW-110	60.0	84.9
240-167939-3	MW-111	97.0	86.7
LCS 160-570158/2-A	Lab Control Sample	84.0	84.1
LCSD 160-570158/3-A	Lab Control Sample Dup	97.8	86.7
MB 160-570158/1-A	Method Blank	88.5	81.5

#### Tracer/Carrier Legend

Ba = Ba Carrier

Y = Y Carrier

# QC Sample Results

Client: Big Rivers Electric Corporation  
 Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167939-1

## Method: 6010C - Metals (ICP)

**Lab Sample ID: MB 240-530153/1-A**  
**Matrix: Water**  
**Analysis Batch: 530384**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 530153**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.100	0.0573	mg/L		06/10/22 12:00	06/13/22 17:53	1
Calcium	ND		5.00	0.307	mg/L		06/10/22 12:00	06/13/22 17:53	1

**Lab Sample ID: LCS 240-530153/2-A**  
**Matrix: Water**  
**Analysis Batch: 530384**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 530153**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	1.00	1.016		mg/L		102	80 - 120
Calcium	50.0	47.58		mg/L		95	80 - 120

**Lab Sample ID: 240-167939-1 MS**  
**Matrix: Water**  
**Analysis Batch: 530384**

**Client Sample ID: MW-8**  
**Prep Type: Total Recoverable**  
**Prep Batch: 530153**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	1.52		1.00	2.474		mg/L		96	75 - 125
Calcium	257		50.0	292.8	4	mg/L		71	75 - 125

**Lab Sample ID: 240-167939-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 530384**

**Client Sample ID: MW-8**  
**Prep Type: Total Recoverable**  
**Prep Batch: 530153**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Boron	1.52		1.00	2.447		mg/L		93	75 - 125	1	20
Calcium	257		50.0	286.7	4	mg/L		59	75 - 125	2	20

## Method: 6020A - Metals (ICP/MS)

**Lab Sample ID: MB 240-530153/1-A**  
**Matrix: Water**  
**Analysis Batch: 530720**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 530153**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.00200	0.000570	mg/L		06/10/22 12:00	06/14/22 21:49	1
Arsenic	ND		0.00500	0.000750	mg/L		06/10/22 12:00	06/14/22 21:49	1
Barium	ND		0.00500	0.00223	mg/L		06/10/22 12:00	06/14/22 21:49	1
Beryllium	ND		0.00100	0.000620	mg/L		06/10/22 12:00	06/14/22 21:49	1
Cadmium	ND		0.00100	0.000197	mg/L		06/10/22 12:00	06/14/22 21:49	1
Chromium	ND		0.00500	0.00247	mg/L		06/10/22 12:00	06/14/22 21:49	1
Cobalt	ND		0.00100	0.000190	mg/L		06/10/22 12:00	06/14/22 21:49	1
Lead	ND		0.00100	0.000450	mg/L		06/10/22 12:00	06/14/22 21:49	1
Lithium	ND		0.00800	0.00165	mg/L		06/10/22 12:00	06/14/22 21:49	1
Molybdenum	ND		0.00500	0.00108	mg/L		06/10/22 12:00	06/14/22 21:49	1
Selenium	ND		0.00500	0.000890	mg/L		06/10/22 12:00	06/14/22 21:49	1
Thallium	ND		0.00100	0.000200	mg/L		06/10/22 12:00	06/14/22 21:49	1

# QC Sample Results

Client: Big Rivers Electric Corporation  
 Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167939-1

## Method: 6020A - Metals (ICP/MS) (Continued)

**Lab Sample ID: LCS 240-530153/3-A**  
**Matrix: Water**  
**Analysis Batch: 530720**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 530153**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.100	0.1022		mg/L		102	80 - 120
Arsenic	1.00	0.9610		mg/L		96	80 - 120
Barium	1.00	1.002		mg/L		100	80 - 120
Beryllium	0.500	0.5038		mg/L		101	80 - 120
Cadmium	0.500	0.4804		mg/L		96	80 - 120
Chromium	0.500	0.4875		mg/L		98	80 - 120
Cobalt	0.500	0.4869		mg/L		97	80 - 120
Lead	0.500	0.5134		mg/L		103	80 - 120
Molybdenum	0.500	0.4972		mg/L		99	80 - 120
Selenium	1.00	0.9763		mg/L		98	80 - 120
Thallium	1.00	0.9752		mg/L		98	80 - 120

**Lab Sample ID: 240-167939-1 MS**  
**Matrix: Water**  
**Analysis Batch: 530720**

**Client Sample ID: MW-8**  
**Prep Type: Total Recoverable**  
**Prep Batch: 530153**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	ND		0.100	0.1079		mg/L		108	75 - 125
Arsenic	ND		1.00	1.062		mg/L		106	75 - 125
Barium	0.0165		1.00	1.076		mg/L		106	75 - 125
Beryllium	ND		0.500	0.5135		mg/L		103	75 - 125
Cadmium	ND		0.500	0.5008		mg/L		100	75 - 125
Chromium	ND		0.500	0.4988		mg/L		100	75 - 125
Cobalt	ND		0.500	0.5206		mg/L		104	75 - 125
Lead	ND		0.500	0.5368		mg/L		107	75 - 125
Molybdenum	0.0131		0.500	0.5767		mg/L		113	75 - 125
Selenium	ND		1.00	1.021		mg/L		102	75 - 125
Thallium	ND		1.00	1.015		mg/L		101	75 - 125

**Lab Sample ID: 240-167939-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 530720**

**Client Sample ID: MW-8**  
**Prep Type: Total Recoverable**  
**Prep Batch: 530153**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	ND		0.100	0.1056		mg/L		106	75 - 125	2	20
Arsenic	ND		1.00	1.041		mg/L		104	75 - 125	2	20
Barium	0.0165		1.00	1.069		mg/L		105	75 - 125	1	20
Beryllium	ND		0.500	0.5082		mg/L		102	75 - 125	1	20
Cadmium	ND		0.500	0.4917		mg/L		98	75 - 125	2	20
Chromium	ND		0.500	0.4939		mg/L		99	75 - 125	1	20
Cobalt	ND		0.500	0.5148		mg/L		103	75 - 125	1	20
Lead	ND		0.500	0.5206		mg/L		104	75 - 125	3	20
Molybdenum	0.0131		0.500	0.5653		mg/L		110	75 - 125	2	20
Selenium	ND		1.00	1.003		mg/L		100	75 - 125	2	20
Thallium	ND		1.00	0.9832		mg/L		98	75 - 125	3	20

# QC Sample Results

Client: Big Rivers Electric Corporation  
 Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167939-1

## Method: 7470A - Mercury (CVAA)

**Lab Sample ID: MB 240-530155/1-A**  
**Matrix: Water**  
**Analysis Batch: 530442**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 530155**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		06/10/22 15:00	06/13/22 17:29	1

**Lab Sample ID: LCS 240-530155/2-A**  
**Matrix: Water**  
**Analysis Batch: 530442**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 530155**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.005351		mg/L		107	80 - 120

**Lab Sample ID: 240-167939-1 MS**  
**Matrix: Water**  
**Analysis Batch: 530442**

**Client Sample ID: MW-8**  
**Prep Type: Total/NA**  
**Prep Batch: 530155**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		0.00100	0.001169		mg/L		117	80 - 120

**Lab Sample ID: 240-167939-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 530442**

**Client Sample ID: MW-8**  
**Prep Type: Total/NA**  
**Prep Batch: 530155**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		0.00100	0.001111		mg/L		111	80 - 120	5	20

## Method: 2540 C-2011 - Total Dissolved Solids (Dried at 180 °C)

**Lab Sample ID: MB 240-530768/1**  
**Matrix: Water**  
**Analysis Batch: 530768**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	26.00		10.0	7.80	mg/L			06/15/22 09:44	1

**Lab Sample ID: LCS 240-530768/2**  
**Matrix: Water**  
**Analysis Batch: 530768**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	665	654.0		mg/L		98	80 - 120

**Lab Sample ID: 240-167901-A-1 DU**  
**Matrix: Water**  
**Analysis Batch: 530768**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	3990	E B	3389	E	mg/L		16	20

# QC Sample Results

Client: Big Rivers Electric Corporation  
 Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167939-1

## Method: 2540 C-2011 - Total Dissolved Solids (Dried at 180 °C) (Continued)

Lab Sample ID: MB 240-531210/1  
 Matrix: Water  
 Analysis Batch: 531210

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10.0	7.80	mg/L			06/17/22 12:03	1

Lab Sample ID: LCS 240-531210/2  
 Matrix: Water  
 Analysis Batch: 531210

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	665	616.0		mg/L		93	80 - 120

## Method: 2540 C-2011 - Total Dissolved Solids (Dried at 180 °C) - RA

Lab Sample ID: 240-167917-A-1 DU  
 Matrix: Water  
 Analysis Batch: 531210

Client Sample ID: Duplicate  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Total Dissolved Solids - RA	432		450.0		mg/L		4	20

## Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 240-532418/3  
 Matrix: Water  
 Analysis Batch: 532418

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.00	0.284	mg/L			06/28/22 10:35	1
Fluoride	ND		0.0500	0.0240	mg/L			06/28/22 10:35	1
Sulfate	ND		1.00	0.348	mg/L			06/28/22 10:35	1

Lab Sample ID: LCS 240-532418/4  
 Matrix: Water  
 Analysis Batch: 532418

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	48.43		mg/L		97	90 - 110
Fluoride	2.50	2.411		mg/L		96	90 - 110
Sulfate	50.0	50.11		mg/L		100	90 - 110

Lab Sample ID: 240-167939-3 MS  
 Matrix: Water  
 Analysis Batch: 532418

Client Sample ID: MW-111  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	19.8		50.0	70.33		mg/L		101	80 - 120
Fluoride	0.561		2.50	3.166		mg/L		104	80 - 120
Sulfate	2.86		50.0	55.82		mg/L		106	80 - 120

# QC Sample Results

Client: Big Rivers Electric Corporation  
 Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167939-1

## Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: 240-167939-3 MSD  
 Matrix: Water  
 Analysis Batch: 532418

Client Sample ID: MW-111  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	19.8		50.0	70.25		mg/L		101	80 - 120	0	15
Fluoride	0.561		2.50	3.191		mg/L		105	80 - 120	1	15
Sulfate	2.86		50.0	55.90		mg/L		106	80 - 120	0	15

## Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-570157/1-A  
 Matrix: Water  
 Analysis Batch: 573088

Client Sample ID: Method Blank  
 Prep Type: Total/NA  
 Prep Batch: 570157

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.01503	U	0.0532	0.0532	1.00	0.101	pCi/L	06/15/22 15:14	07/07/22 07:52	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	88.5		40 - 110					06/15/22 15:14	07/07/22 07:52	1

Lab Sample ID: LCS 160-570157/2-A  
 Matrix: Water  
 Analysis Batch: 573088

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA  
 Prep Batch: 570157

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226	11.3	10.01		1.05	1.00	0.0869	pCi/L	88	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	84.0		40 - 110						

Lab Sample ID: LCSD 160-570157/3-A  
 Matrix: Water  
 Analysis Batch: 573088

Client Sample ID: Lab Control Sample Dup  
 Prep Type: Total/NA  
 Prep Batch: 570157

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-226	11.3	9.870		1.02	1.00	0.122	pCi/L	87	75 - 125	0.07	1
Carrier	LCSD %Yield	LCSD Qualifier	Limits								
Ba Carrier	97.8		40 - 110								

## Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-570158/1-A  
 Matrix: Water  
 Analysis Batch: 571083

Client Sample ID: Method Blank  
 Prep Type: Total/NA  
 Prep Batch: 570158

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.5721		0.364	0.368	1.00	0.534	pCi/L	06/15/22 15:27	06/22/22 14:03	1

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# QC Sample Results

Client: Big Rivers Electric Corporation  
 Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167939-1

## Method: 904.0 - Radium-228 (GFPC) (Continued)

**Lab Sample ID: MB 160-570158/1-A**  
**Matrix: Water**  
**Analysis Batch: 571083**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 570158**

Carrier	MB MB		Limits
	%Yield	Qualifier	
Ba Carrier	88.5		40 - 110
Y Carrier	81.5		40 - 110

Prepared	Analyzed	Dil Fac
06/15/22 15:27	06/22/22 14:03	1
06/15/22 15:27	06/22/22 14:03	1

**Lab Sample ID: LCS 160-570158/2-A**  
**Matrix: Water**  
**Analysis Batch: 571083**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 570158**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
Radium-228	8.51	8.200		1.22	1.00	0.654	pCi/L	96	75 - 125	

Carrier	LCS LCS		Limits
	%Yield	Qualifier	
Ba Carrier	84.0		40 - 110
Y Carrier	84.1		40 - 110

**Lab Sample ID: LCSD 160-570158/3-A**  
**Matrix: Water**  
**Analysis Batch: 571087**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 570158**

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		RER	Limit
Radium-228	8.51	7.617		1.09	1.00	0.534	pCi/L	89	75 - 125	0.25	1	

Carrier	LCSD LCSD		Limits
	%Yield	Qualifier	
Ba Carrier	97.8		40 - 110
Y Carrier	86.7		40 - 110

# QC Association Summary

Client: Big Rivers Electric Corporation  
 Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167939-1

## Metals

### Prep Batch: 530153

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-167939-1	MW-8	Total Recoverable	Water	3005A	
240-167939-2	MW-110	Total Recoverable	Water	3005A	
240-167939-3	MW-111	Total Recoverable	Water	3005A	
MB 240-530153/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-530153/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-530153/3-A	Lab Control Sample	Total Recoverable	Water	3005A	
240-167939-1 MS	MW-8	Total Recoverable	Water	3005A	
240-167939-1 MS	MW-8	Total Recoverable	Water	3005A	
240-167939-1 MSD	MW-8	Total Recoverable	Water	3005A	
240-167939-1 MSD	MW-8	Total Recoverable	Water	3005A	

### Prep Batch: 530155

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-167939-1	MW-8	Total/NA	Water	7470A	
240-167939-2	MW-110	Total/NA	Water	7470A	
240-167939-3	MW-111	Total/NA	Water	7470A	
MB 240-530155/1-A	Method Blank	Total/NA	Water	7470A	
LCS 240-530155/2-A	Lab Control Sample	Total/NA	Water	7470A	
240-167939-1 MS	MW-8	Total/NA	Water	7470A	
240-167939-1 MSD	MW-8	Total/NA	Water	7470A	

### Analysis Batch: 530384

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-167939-1	MW-8	Total Recoverable	Water	6010C	530153
240-167939-2	MW-110	Total Recoverable	Water	6010C	530153
240-167939-3	MW-111	Total Recoverable	Water	6010C	530153
MB 240-530153/1-A	Method Blank	Total Recoverable	Water	6010C	530153
LCS 240-530153/2-A	Lab Control Sample	Total Recoverable	Water	6010C	530153
240-167939-1 MS	MW-8	Total Recoverable	Water	6010C	530153
240-167939-1 MSD	MW-8	Total Recoverable	Water	6010C	530153

### Analysis Batch: 530442

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-167939-1	MW-8	Total/NA	Water	7470A	530155
240-167939-2	MW-110	Total/NA	Water	7470A	530155
240-167939-3	MW-111	Total/NA	Water	7470A	530155
MB 240-530155/1-A	Method Blank	Total/NA	Water	7470A	530155
LCS 240-530155/2-A	Lab Control Sample	Total/NA	Water	7470A	530155
240-167939-1 MS	MW-8	Total/NA	Water	7470A	530155
240-167939-1 MSD	MW-8	Total/NA	Water	7470A	530155

### Analysis Batch: 530720

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-167939-1	MW-8	Total Recoverable	Water	6020A	530153
240-167939-2	MW-110	Total Recoverable	Water	6020A	530153
240-167939-3	MW-111	Total Recoverable	Water	6020A	530153
MB 240-530153/1-A	Method Blank	Total Recoverable	Water	6020A	530153
LCS 240-530153/3-A	Lab Control Sample	Total Recoverable	Water	6020A	530153
240-167939-1 MS	MW-8	Total Recoverable	Water	6020A	530153
240-167939-1 MSD	MW-8	Total Recoverable	Water	6020A	530153

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# QC Association Summary

Client: Big Rivers Electric Corporation  
Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167939-1

## General Chemistry

### Analysis Batch: 530768

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-167939-1	MW-8	Total/NA	Water	2540 C-2011	
240-167939-2	MW-110	Total/NA	Water	2540 C-2011	
240-167939-3	MW-111	Total/NA	Water	2540 C-2011	
MB 240-530768/1	Method Blank	Total/NA	Water	2540 C-2011	
LCS 240-530768/2	Lab Control Sample	Total/NA	Water	2540 C-2011	
240-167901-A-1 DU	Duplicate	Total/NA	Water	2540 C-2011	

### Analysis Batch: 531210

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-167939-1 - RA	MW-8	Total/NA	Water	2540 C-2011	
240-167939-2 - RA	MW-110	Total/NA	Water	2540 C-2011	
240-167939-3 - RA	MW-111	Total/NA	Water	2540 C-2011	
MB 240-531210/1	Method Blank	Total/NA	Water	2540 C-2011	
LCS 240-531210/2	Lab Control Sample	Total/NA	Water	2540 C-2011	
240-167917-A-1 DU - RA	Duplicate	Total/NA	Water	2540 C-2011	

### Analysis Batch: 532418

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-167939-1	MW-8	Total/NA	Water	9056A	
240-167939-1	MW-8	Total/NA	Water	9056A	
240-167939-2	MW-110	Total/NA	Water	9056A	
240-167939-2	MW-110	Total/NA	Water	9056A	
240-167939-3	MW-111	Total/NA	Water	9056A	
MB 240-532418/3	Method Blank	Total/NA	Water	9056A	
LCS 240-532418/4	Lab Control Sample	Total/NA	Water	9056A	
240-167939-3 MS	MW-111	Total/NA	Water	9056A	
240-167939-3 MSD	MW-111	Total/NA	Water	9056A	

## Rad

### Prep Batch: 570157

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-167939-1	MW-8	Total/NA	Water	PrecSep-21	
240-167939-2	MW-110	Total/NA	Water	PrecSep-21	
240-167939-3	MW-111	Total/NA	Water	PrecSep-21	
MB 160-570157/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-570157/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-570157/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

### Prep Batch: 570158

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-167939-1	MW-8	Total/NA	Water	PrecSep_0	
240-167939-2	MW-110	Total/NA	Water	PrecSep_0	
240-167939-3	MW-111	Total/NA	Water	PrecSep_0	
MB 160-570158/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-570158/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-570158/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

# Lab Chronicle

Client: Big Rivers Electric Corporation  
 Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167939-1

**Client Sample ID: MW-8**

**Lab Sample ID: 240-167939-1**

**Date Collected: 06/08/22 08:48**

**Matrix: Water**

**Date Received: 06/09/22 09:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			530153	06/10/22 12:00	SHB	TAL CAN
Total Recoverable	Analysis	6010C		1	530384	06/13/22 18:02	KLC	TAL CAN
Total Recoverable	Prep	3005A			530153	06/10/22 12:00	SHB	TAL CAN
Total Recoverable	Analysis	6020A		1	530720	06/14/22 21:59	RKT	TAL CAN
Total/NA	Prep	7470A			530155	06/10/22 15:00	SHB	TAL CAN
Total/NA	Analysis	7470A		1	530442	06/13/22 17:33	AJC	TAL CAN
Total/NA	Analysis	2540 C-2011		1	530768	06/15/22 09:44	MED	TAL CAN
Total/NA	Analysis	2540 C-2011	RA	1	531210	06/17/22 12:03	MED	TAL CAN
Total/NA	Analysis	9056A		1	532418	06/28/22 12:16	JMB	TAL CAN
Total/NA	Analysis	9056A		10	532418	06/28/22 12:36	JMB	TAL CAN
Total/NA	Prep	PrecSep-21			570157	06/15/22 15:14	MS	TAL SL
Total/NA	Analysis	903.0		1	573088	07/07/22 07:56	FLC	TAL SL
Total/NA	Prep	PrecSep_0			570158	06/15/22 15:27	MS	TAL SL
Total/NA	Analysis	904.0		1	571085	06/22/22 14:21	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	573212	07/07/22 18:27	EMH	TAL SL

**Client Sample ID: MW-110**

**Lab Sample ID: 240-167939-2**

**Date Collected: 06/08/22 10:04**

**Matrix: Water**

**Date Received: 06/09/22 09:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			530153	06/10/22 12:00	SHB	TAL CAN
Total Recoverable	Analysis	6010C		1	530384	06/13/22 18:33	KLC	TAL CAN
Total Recoverable	Prep	3005A			530153	06/10/22 12:00	SHB	TAL CAN
Total Recoverable	Analysis	6020A		1	530720	06/14/22 22:10	RKT	TAL CAN
Total/NA	Prep	7470A			530155	06/10/22 15:00	SHB	TAL CAN
Total/NA	Analysis	7470A		1	530442	06/13/22 17:40	AJC	TAL CAN
Total/NA	Analysis	2540 C-2011		1	530768	06/15/22 09:44	MED	TAL CAN
Total/NA	Analysis	2540 C-2011	RA	1	531210	06/17/22 12:03	MED	TAL CAN
Total/NA	Analysis	9056A		1	532418	06/28/22 12:56	JMB	TAL CAN
Total/NA	Analysis	9056A		5	532418	06/28/22 13:16	JMB	TAL CAN
Total/NA	Prep	PrecSep-21			570157	06/15/22 15:14	MS	TAL SL
Total/NA	Analysis	903.0		1	573088	07/07/22 07:56	FLC	TAL SL
Total/NA	Prep	PrecSep_0			570158	06/15/22 15:27	MS	TAL SL
Total/NA	Analysis	904.0		1	571085	06/22/22 14:21	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	573212	07/07/22 18:27	EMH	TAL SL

**Client Sample ID: MW-111**

**Lab Sample ID: 240-167939-3**

**Date Collected: 06/08/22 11:04**

**Matrix: Water**

**Date Received: 06/09/22 09:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			530153	06/10/22 12:00	SHB	TAL CAN
Total Recoverable	Analysis	6010C		1	530384	06/13/22 18:37	KLC	TAL CAN

Eurofins Canton

# Lab Chronicle

Client: Big Rivers Electric Corporation  
 Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167939-1

**Client Sample ID: MW-111**

**Lab Sample ID: 240-167939-3**

**Date Collected: 06/08/22 11:04**

**Matrix: Water**

**Date Received: 06/09/22 09:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			530153	06/10/22 12:00	SHB	TAL CAN
Total Recoverable	Analysis	6020A		1	530720	06/14/22 22:13	RKT	TAL CAN
Total/NA	Prep	7470A			530155	06/10/22 15:00	SHB	TAL CAN
Total/NA	Analysis	7470A		1	530442	06/13/22 17:42	AJC	TAL CAN
Total/NA	Analysis	2540 C-2011		1	530768	06/15/22 09:44	MED	TAL CAN
Total/NA	Analysis	2540 C-2011	RA	1	531210	06/17/22 12:03	MED	TAL CAN
Total/NA	Analysis	9056A		1	532418	06/28/22 13:37	JMB	TAL CAN
Total/NA	Prep	PrecSep-21			570157	06/15/22 15:14	MS	TAL SL
Total/NA	Analysis	903.0		1	573088	07/07/22 07:56	FLC	TAL SL
Total/NA	Prep	PrecSep_0			570158	06/15/22 15:27	MS	TAL SL
Total/NA	Analysis	904.0		1	571085	06/22/22 14:21	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	573212	07/07/22 18:27	EMH	TAL SL

**Laboratory References:**

TAL CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

TAL SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

# Accreditation/Certification Summary

Client: Big Rivers Electric Corporation  
 Project/Site: Reid CCR Pond / Sebree

Job ID: 240-167939-1

## Laboratory: Eurofins Canton

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Kentucky (WW)	State	KY98016	12-31-22

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
6010C	3005A	Water	Boron
6010C	3005A	Water	Calcium
6020A	3005A	Water	Antimony
6020A	3005A	Water	Arsenic
6020A	3005A	Water	Barium
6020A	3005A	Water	Beryllium
6020A	3005A	Water	Cadmium
6020A	3005A	Water	Chromium
6020A	3005A	Water	Cobalt
6020A	3005A	Water	Lead
6020A	3005A	Water	Lithium
6020A	3005A	Water	Molybdenum
6020A	3005A	Water	Selenium
6020A	3005A	Water	Thallium
7470A	7470A	Water	Mercury
9056A		Water	Chloride
9056A		Water	Fluoride
9056A		Water	Sulfate

## Laboratory: Eurofins St. Louis

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-22

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
903.0	PrecSep-21	Water	Radium-226
904.0	PrecSep_0	Water	Radium-228
Ra226_Ra228		Water	Combined Radium 226 + 228

**Chain of Custody Record**



2013.0

<b>Client Information</b>		Sampler: <b>Maelyn Sperle</b>	Lab PM: <b>Cisneros, Roxanne</b>	Carrier Tracking No(s): <b>516762141 6292</b>	COC No: <b>240-95412-35027.1</b>
Address: <b>PO BOX 24</b>		Phone: <b>216-278-1621</b>	E-Mail: <b>roxanne.cisneros@et.eurofinsus.com</b>	State of Origin: <b>KY</b>	Page: <b>1 of 1</b>
City: <b>Henderson</b>		PWSID:		Job #:	
State, Zip: <b>KY, 42419</b>		Due Date Requested: <b>Standard</b>		Analysis Requested	
Phone: <b>270-844-5708(Tel)</b>		TAT Requested (days): <b>Standard</b>			
Email: <b>mark.bertram@bigrivers.com</b>		Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No			
Project Name: <b>Big Rivers</b>		Purchase Order Requested			
Site: <b>Sebrec Station</b>		PO #: _____			
		WO #: _____			
		Project #: <b>24026719</b>			
		SSOW#: _____			

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Water, Solid, Sewer/Soil, JT-Tissue, Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	903.0, 904.0, Ra226Ra228_GFP	6010C, 6020A, 7470A	9056A_28D - Chloride, Fluoride & Sulfate	2540C_Calcd - TDS	Total Number of Containers	Special Instructions/Note:
MW-8	6/8/22	0848	G	Water	N	N	X	X	X	X	5	
MW-110	6/8/22	1004	G	Water	N	N	X	X	X	X	5	
MW-111	6/8/22	1104	G	Water	N	N	X	X	X	X	5	
				Water								
				Water								
				Water								
				Water								
				Water								
				Water								
				Water								



240-167939 Chain of Custody

**Possible Hazard Identification**  
 Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown  Radiological

**Deliverable Requested:** I, II, III, IV, Other (specify)

**Empty Kit Relinquished by:** \_\_\_\_\_ Date: \_\_\_\_\_

**Relinquished by:** *Maelyn Sperle* Date: **6/18/22 / 1330** Company: **KPEG**

**Relinquished by:** \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company: **FedEx**

**Relinquished by:** \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company: **FEIN**

**Custody Seals Intact:**  Yes  No **Custody Seal No.:** \_\_\_\_\_

**Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)**  
 Return To Client  Disposal By Lab  Archive For \_\_\_\_\_ Months

**Special Instructions/QC Requirements:**

**Method of Shipment:** \_\_\_\_\_

**Received by:** \_\_\_\_\_ Date/Time: **6/18/22 / 1330** Company: **FedEx**

**Received by:** \_\_\_\_\_ Date/Time: **6-9-22 945** Company: **FEIN**

**Received by:** \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company: \_\_\_\_\_

**Cooler Temperature(s) °C and Other Remarks:**

**Eurofins - Canton Sample Receipt Form/Narrative**  
**Barberton Facility**

Login # : 167939

Client Big Rivers Site Name \_\_\_\_\_ Cooler unpacked by: MH  
 Cooler Received on 6-9-22 Opened on 6-9-22  
 FedEx: 1<sup>st</sup> Grd  Exp  UPS  FAS  Clipper Client Drop Off  Eurofins Courier  Other \_\_\_\_\_

**Receipt After-hours: Drop-off Date/Time** \_\_\_\_\_ **Storage Location** \_\_\_\_\_

Eurofins Cooler # NA Foam Box  Client Cooler  Box  Other \_\_\_\_\_  
 Packing material used:  Bubble Wrap  Foam  Plastic Bag  None  Other \_\_\_\_\_  
 COOLANT:  Wet Ice  Blue Ice  Dry Ice  Water  None

1. Cooler temperature upon receipt  See Multiple Cooler Form  
 IR GUN# IR-13 (CF 0.0 °C) Observed Cooler Temp. 3.0 °C Corrected Cooler Temp. 3.0 °C  
 IR GUN #IR-15 (CF -0.7°C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity \_\_\_\_\_ Yes No  
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA  
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No  
 -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)?
10. Were correct bottle(s) used for the test(s) indicated? Yes No
11. Sufficient quantity received to perform indicated analyses? Yes No
12. Are these work share samples and all listed on the COC? Yes No  
 If yes, Questions 13-17 have been checked at the originating laboratory.
13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC178690
14. Were VOAs on the COC? Yes No
15. Were air bubbles >6 mm in any VOA vials?  ← Larger than this. Yes No NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # \_\_\_\_\_ Yes No
17. Was a LL Hg or Me Hg trip blank present? \_\_\_\_\_ Yes No

**Tests that are not checked for pH by Receiving:**  
  
 VOAs  
 Oil and Grease  
 TOC

Contacted PM \_\_\_\_\_ Date \_\_\_\_\_ by \_\_\_\_\_ via Verbal Voice Mail Other \_\_\_\_\_  
 Concerning \_\_\_\_\_

**18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES**  additional next page Samples processed by: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**19. SAMPLE CONDITION**  
 Sample(s) \_\_\_\_\_ were received after the recommended holding time had expired.  
 Sample(s) \_\_\_\_\_ were received in a broken container.  
 Sample(s) \_\_\_\_\_ were received with bubble >6 mm in diameter. (Notify PM)

**20. SAMPLE PRESERVATION**  
 Sample(s) \_\_\_\_\_ were further preserved in the laboratory.  
 Time preserved: \_\_\_\_\_ Preservative(s) added/Lot number(s): \_\_\_\_\_  
 VOA Sample Preservation - Date/Time VOAs Frozen: \_\_\_\_\_

Temperature readings: \_\_\_\_\_

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container</u>		<u>Preservative</u>	
			<u>pH</u>	<u>Temp</u>	<u>Added (mls)</u>	<u>Lot #</u>
MW-8	240-167939-C-1	Plastic 500ml - with Nitric Acid	<2	_____	_____	_____
MW-8	240-167939-D-1	Amber Glass 1 liter - Nitric Acid	<2	_____	_____	_____
MW-8	240-167939-E-1	Amber Glass 1 liter - Nitric Acid	<2	_____	_____	_____
MW-110	240-167939-C-2	Plastic 500ml - with Nitric Acid	<2	_____	_____	_____
MW-110	240-167939-D-2	Amber Glass 1 liter - Nitric Acid	<2	_____	_____	_____
MW-110	240-167939-E-2	Amber Glass 1 liter - Nitric Acid	<2	_____	_____	_____
MW-111	240-167939-C-3	Plastic 500ml - with Nitric Acid	<2	_____	_____	_____
MW-111	240-167939-D-3	Amber Glass 1 liter - Nitric Acid	<2	_____	_____	_____
MW-111	240-167939-E-3	Amber Glass 1 liter - Nitric Acid	<2	_____	_____	_____

### Chain of Custody Record



<b>Client Information (Sub Contract Lab)</b> Client Contact: Shipping/Receiving Company: TresAmerica Laboratories, Inc. Address: 13715 Rider Trail North, City: Earth City State, Zip: MO, 63045 Phone: 314-298-8566(Tel) 314-298-8757(Fax) Email: Project Name: Big Rivers Site:		Lab PM: Cismeros, Roxanne E-Mail: roxanne.cismeros@et.eurofins.com State of Origin: Kentucky Accreditations Required (See note): NELAP - Oregon; NELAP - Pennsylvania; State - Kentucky ...	Carrier Tracking No(s): 240-153251.1 Page: Page 1 of 1 Job #: 240-167939-1						
<b>Due Date Requested:</b> 6/22/2022 <b>TAT Requested (days):</b> <b>PO #:</b> <b>WO #:</b> <b>Project #:</b> 24026719 <b>SSOW#:</b>		<b>Analysis Requested</b> 903.0/PrecSep. 21 Radium-226 (GFC) - 21 day decay 904.0/PrecSep. 0 Radium-228 (GFC) Ra226Ra228 GFC/ Combined Radium-226 and Radium-228							
<b>Sample Identification - Client ID (Lab ID)</b>		<b>Field Filtered Sample (Yes or No)</b> <input checked="" type="checkbox"/> <b>Perform MS/MSD (Yes or No)</b> <input checked="" type="checkbox"/> <b>Total Number of Containers</b>							
Sample ID	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=Water, S=Solid, O=Soil, B=Biological)	Preservation Code:	903.0/PrecSep. 21 Radium-226 (GFC) - 21 day decay	904.0/PrecSep. 0 Radium-228 (GFC)	Ra226Ra228 GFC/ Combined Radium-226 and Radium-228	Special Instructions/Note:
MW-8 (240-167939-1)	6/8/22	08:48 Eastern	Water	Water	X	X	X	run once - upload data twice	
MW-110 (240-167939-2)	6/8/22	10:04 Eastern	Water	Water	X	X	X	run once - upload data twice	
MW-111 (240-167939-3)	6/8/22	11:04 Eastern	Water	Water	X	X	X	run once - upload data twice	
Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/leis/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC.									
<b>Possible Hazard Identification</b> Unconfirmed Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2 Empty Kit Relinquished by: _____ Date: _____ Method of Shipment: _____ Relinquished by: _____ Date: 6-9-22 Company: FE A Relinquished by: _____ Date: _____ Company: _____ Relinquished by: _____ Date: _____ Company: _____ Custody Seals Intact: _____ Custody Seal No.: _____ Δ Yes Δ No									
Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months Special Instructions/QC Requirements:									
Received by: _____ Date/Time: _____ Company: _____ Received by: <i>Suzanne Weatherington</i> Date/Time: JUN 10 2022 0900 Company: <i>ETN</i> Received by: _____ Date/Time: _____ Company: _____ Cooler Temperature(s) °C and Other Remarks:									



## Login Sample Receipt Checklist

Client: Big Rivers Electric Corporation

Job Number: 240-167939-1

**Login Number: 167939**

**List Number: 2**

**Creator: Worthington, Sierra M**

**List Source: Eurofins St. Louis**

**List Creation: 06/10/22 12:05 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## ANALYTICAL REPORT

Eurofins Canton  
180 S. Van Buren Avenue  
Barberton, OH 44203  
Tel: (330)497-9396

Laboratory Job ID: 240-170501-1

Client Project/Site: Sargent and Lundy - Sebree, KY

For:

Big Rivers Electric Corporation  
PO BOX 24  
Henderson, Kentucky 42419

Attn: Mark Bertram

*Roxanne Cisneros*

Authorized for release by:

8/3/2022 8:46:51 AM

Roxanne Cisneros, Senior Project Manager  
(615)301-5761

[roxanne.cisneros@et.eurofinsus.com](mailto:roxanne.cisneros@et.eurofinsus.com)

### LINKS

Review your project  
results through



Have a Question?



Visit us at:

[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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# Definitions/Glossary

Client: Big Rivers Electric Corporation  
Project/Site: Sargent and Lundy - Sebree, KY

Job ID: 240-170501-1

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Case Narrative

Client: Big Rivers Electric Corporation  
Project/Site: Sargent and Lundy - Sebree, KY

Job ID: 240-170501-1

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**Job ID: 240-170501-1**

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**Laboratory: Eurofins Canton**

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**Narrative**

**Job Narrative**  
**240-170501-1**

**Comments**

No additional comments.

**Receipt**

The sample was received on 7/27/2022 9:30 AM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.4° C.

**Metals**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

- 1
- 2
- 3
- 4
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- 6
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- 10
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- 12
- 13

# Method Summary

Client: Big Rivers Electric Corporation  
Project/Site: Sargent and Lundy - Sebree, KY

Job ID: 240-170501-1

Method	Method Description	Protocol	Laboratory
6020A	Metals (ICP/MS)	SW846	TAL CAN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL CAN

**Protocol References:**

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

TAL CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

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- 10
- 11
- 12
- 13

# Sample Summary

Client: Big Rivers Electric Corporation  
Project/Site: Sargent and Lundy - Sebree, KY

Job ID: 240-170501-1

---

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-170501-1	MW-112	Water	07/26/22 08:10	07/27/22 09:30

1

2

3

4

5

6

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8

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10

11

12

13

# Detection Summary

Client: Big Rivers Electric Corporation  
Project/Site: Sargent and Lundy - Sebree, KY

Job ID: 240-170501-1

**Client Sample ID: MW-112**

**Lab Sample ID: 240-170501-1**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cobalt	0.00297		0.00100	0.000190	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Canton



# Client Sample Results

Client: Big Rivers Electric Corporation  
Project/Site: Sargent and Lundy - Sebree, KY

Job ID: 240-170501-1

**Client Sample ID: MW-112**

**Lab Sample ID: 240-170501-1**

**Date Collected: 07/26/22 08:10**

**Matrix: Water**

**Date Received: 07/27/22 09:30**

**Method: 6020A - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	0.00297		0.00100	0.000190	mg/L		07/28/22 12:00	08/01/22 18:13	1

- 1
- 2
- 3
- 4
- 5
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- 7
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- 10
- 11
- 12
- 13

# QC Sample Results

Client: Big Rivers Electric Corporation  
 Project/Site: Sargent and Lundy - Sebree, KY

Job ID: 240-170501-1

## Method: 6020A - Metals (ICP/MS)

**Lab Sample ID: MB 240-536628/1-A**  
**Matrix: Water**  
**Analysis Batch: 537081**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 536628**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	ND		0.00100	0.000190	mg/L		07/28/22 12:00	08/01/22 17:17	1

**Lab Sample ID: LCS 240-536628/2-A**  
**Matrix: Water**  
**Analysis Batch: 537081**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 536628**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cobalt	0.500	0.4728		mg/L		95	80 - 120

**Lab Sample ID: 180-141985-P-6-B MS**  
**Matrix: Water**  
**Analysis Batch: 537081**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total Recoverable**  
**Prep Batch: 536628**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cobalt	ND		0.500	0.4511		mg/L		90	75 - 125

**Lab Sample ID: 180-141985-P-6-C MSD**  
**Matrix: Water**  
**Analysis Batch: 537081**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total Recoverable**  
**Prep Batch: 536628**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cobalt	ND		0.500	0.4560		mg/L		91	75 - 125	1	20

# QC Association Summary

Client: Big Rivers Electric Corporation  
 Project/Site: Sargent and Lundy - Sebree, KY

Job ID: 240-170501-1

## Metals

### Prep Batch: 536628

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-170501-1	MW-112	Total Recoverable	Water	3005A	
MB 240-536628/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-536628/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-141985-P-6-B MS	Matrix Spike	Total Recoverable	Water	3005A	
180-141985-P-6-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	3005A	

### Analysis Batch: 537081

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-170501-1	MW-112	Total Recoverable	Water	6020A	536628
MB 240-536628/1-A	Method Blank	Total Recoverable	Water	6020A	536628
LCS 240-536628/2-A	Lab Control Sample	Total Recoverable	Water	6020A	536628
180-141985-P-6-B MS	Matrix Spike	Total Recoverable	Water	6020A	536628
180-141985-P-6-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	6020A	536628



# Lab Chronicle

Client: Big Rivers Electric Corporation  
Project/Site: Sargent and Lundy - Sebree, KY

Job ID: 240-170501-1

**Client Sample ID: MW-112**

**Lab Sample ID: 240-170501-1**

**Date Collected: 07/26/22 08:10**

**Matrix: Water**

**Date Received: 07/27/22 09:30**

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Prepared or Analyzed</u>	<u>Analyst</u>	<u>Lab</u>
Total Recoverable	Prep	3005A			536628	07/28/22 12:00	SHB	TAL CAN
Total Recoverable	Analysis	6020A		1	537081	08/01/22 18:13	DSH	TAL CAN

**Laboratory References:**

TAL CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

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# Accreditation/Certification Summary

Client: Big Rivers Electric Corporation  
Project/Site: Sargent and Lundy - Sebree, KY

Job ID: 240-170501-1

## Laboratory: Eurofins Canton

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Kentucky (UST)	State	112225	02-27-23
Kentucky (WW)	State	KY98016	12-31-22

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
6020A	3005A	Water	Cobalt
Oregon		NELAP	4062
			02-27-23

TAL-9210

Address:

Regulatory Program:  DW  NPDES  RCRA  Other:

Project Manager: Richard Gnat  
 Tel/Email: Richard G. Gnat  
 Analysis Turnaround Time:  WORKING DAYS Standard

TAT if different from Below:  2 weeks  1 week  2 days  1 day

Company Name: KPRG and Associates  
 Address: 11615 W Lisbon Rd  
 City/State/Zip: Brookfield, WI, 53005  
 Phone: 262-781-0475  
 Project Name: Sargent and Lundy #21021  
 Site: Sebree, KY  
 P O #:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Site Contact	Lab Contact	Date	COC No.
MW-112	7/26/22	0810	G	HT	1	NN	X	Metals - cobalt only		7/26/22	



Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other

Possible Hazard Identification:  Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown

Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Return to Client  Disposal by Lab  Archive for \_\_\_\_\_ Months

Special Instructions/QC Requirements & Comments: Cobalt only

Custody Seals Intact:  Yes  No

Relinquished by: *Haelyn Jmle* Date/Time: 7/26/22 10:45  
 Relinquished by: *Richard Gnat* Date/Time: 7/27/22 9:30

Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Received by: *Richard Gnat* Date/Time: 7/26/22 10:45  
 Received by: *Haelyn Jmle* Date/Time: 7/27/22 9:30

Company: KPRG Company: FedEx  
 Company: \_\_\_\_\_ Company: ESTN

Custody Seal No.: \_\_\_\_\_ Cooler Temp. (°C): \_\_\_\_\_ Obs'd: \_\_\_\_\_ Corrid: \_\_\_\_\_ Therm ID No.: \_\_\_\_\_



**Eurofins - Canton Sample Receipt Form/Narrative** Login # : 170501  
**Barberton Facility**

Client KPRG Site Name \_\_\_\_\_ Cooler unpacked by: \_\_\_\_\_  
 Cooler Received on 7-27-22 Opened on 7-27-22 Rachelle Haidet  
 FedEx: 1<sup>st</sup> Grd Exp UPS FAS Clipper Client Drop Off Eurofins Courier Other \_\_\_\_\_

Receipt After-hours: Drop-off Date/Time \_\_\_\_\_ Storage Location \_\_\_\_\_

Eurofins Cooler # 7A Foam Box \_\_\_\_\_ Client Cooler Box Other \_\_\_\_\_  
 Packing material used: Bubble Wrap \_\_\_\_\_ Foam Plastic Bag None \_\_\_\_\_ Other \_\_\_\_\_  
 COOLANT: Wet Ice Blue Ice \_\_\_\_\_ Dry Ice \_\_\_\_\_ Water \_\_\_\_\_ None \_\_\_\_\_

1. Cooler temperature upon receipt  See Multiple Cooler Form  
 IR GUN# IR-13 (CF 0.0 °C) Observed Cooler Temp. 0.4 °C Corrected Cooler Temp. 0.4 °C  
 IR GUN #IR-15 (CF -0.7°C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity \_\_\_\_\_ Yes No  
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA  
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No  
 -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No \_\_\_\_\_
4. Did custody papers accompany the sample(s)? Yes No \_\_\_\_\_
5. Were the custody papers relinquished & signed in the appropriate place? Yes No \_\_\_\_\_
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No \_\_\_\_\_
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No \_\_\_\_\_
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)? Yes No \_\_\_\_\_
10. Were correct bottle(s) used for the test(s) indicated? Yes No \_\_\_\_\_
11. Sufficient quantity received to perform indicated analyses? Yes No \_\_\_\_\_
12. Are these work share samples and all listed on the COC? Yes No  
 If yes, Questions 13-17 have been checked at the originating laboratory.
13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC178690
14. Were VOAs on the COC? Yes No \_\_\_\_\_
15. Were air bubbles >6 mm in any VOA vials? Yes No NA ← Larger than this.
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # \_\_\_\_\_ Yes No
17. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving:  
 VOAs  
 Oil and Grease  
 TOC

Contacted PM \_\_\_\_\_ Date \_\_\_\_\_ by \_\_\_\_\_ via Verbal Voice Mail Other \_\_\_\_\_  
 Concerning \_\_\_\_\_

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES  additional next page Samples processed by: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

19. SAMPLE CONDITION  
 Sample(s) \_\_\_\_\_ were received after the recommended holding time had expired.  
 Sample(s) \_\_\_\_\_ were received in a broken container.  
 Sample(s) \_\_\_\_\_ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION  
 Sample(s) \_\_\_\_\_ were further preserved in the laboratory.  
 Time preserved: \_\_\_\_\_ Preservative(s) added/Lot number(s): \_\_\_\_\_  
 VOA Sample Preservation - Date/Time VOAs Frozen: \_\_\_\_\_



## Certificate of Analysis 2094289

Greg Dick  
Big Rivers Electric Corporation Reid/Green Station  
PO Box 24  
Henderson, KY 42419

Customer ID: 44-102032  
Report Printed: 01/04/2023 15:01

Project Name: HMPL Surface Impoundment

Workorder: 2094289

Dear Greg Dick

Enclosed are the analytical results for samples received by the laboratory 12/05/2022 12:59.

The results relate to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services LLC Kentucky - Madisonville

If you have any questions concerning this report, please feel free to contact me.



#460210 Madisonville, KY  
#460291 Pikeville, KY

Rob Whittington, Project Manager

*This page is included as part of the Analytical Report and must be retained as a permanent record thereof.*



**SAMPLE SUMMARY**

Lab ID	Client Sample ID/Alias	Matrix	Date Collected	Date Received	Sampled By
2094289-01	MW7/	Groundwater	11/30/2022 10:20	12/05/2022 12:59	Greg Dick
2094289-02	MW8/	Groundwater	11/30/2022 12:00	12/05/2022 12:59	Greg Dick
2094289-03	MW9/	Groundwater	11/30/2022 13:15	12/05/2022 12:59	Greg Dick
2094289-04	MW10/	Groundwater	11/30/2022 14:05	12/05/2022 12:59	Greg Dick
2094289-05	DUPLICATE/	Groundwater	11/30/2022 12:20	12/05/2022 12:59	Greg Dick
2094289-06	FIELD BLANK/	Water	11/30/2022 15:00	12/05/2022 12:59	Greg Dick

<u>LabNumber</u>	<u>Measurement</u>	<u>Value</u>
2094289-01	Field Conductance	414
	Field pH	7.51
	Field Temp (C)	15.21
2094289-02	Field Conductance	2560
	Field pH	7.88
	Field Temp (C)	14.08
2094289-03	Field Conductance	517
	Field pH	7.74
	Field Temp (C)	16.15
2094289-04	Field Conductance	722
	Field pH	9.82
	Field Temp (C)	14.99



**ANALYTICAL RESULTS**

Lab Sample ID: **2094289-01**  
 Description: **MW7**

Sample Collection Date Time: 11/30/2022 10:20  
 Sample Received Date Time: 12/05/2022 12:59

**Metals by SW846 6000 Series Methods Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	M3, U	mg/L	0.005	0.002	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:30	AKB
<b>Arsenic</b>	<b>0.0037</b>	M1	mg/L	0.0010	0.0004	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:30	AKB
<b>Barium</b>	<b>0.079</b>	M1	mg/L	0.004	0.001	SW846-6020 A	12/06/2022 12:06	12/08/2022 16:02	AKB
Beryllium	ND	M1, U	mg/L	0.0020	0.0010	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:30	AKB
<b>Boron</b>	<b>0.35</b>	M1, M2	mg/L	0.10	0.10	SW846 6010 B	12/06/2022 12:06	12/07/2022 16:57	MRWD
Cadmium	ND	M1, U	mg/L	0.0010	0.0001	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:30	AKB
<b>Calcium</b>	<b>43.1</b>	D1, M1, M2	mg/L	4.00	1.30	SW846 6010 B	12/06/2022 12:06	12/07/2022 17:00	MRWD
Chromium	ND	M1, U	mg/L	0.0020	0.0006	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:30	AKB
Cobalt	ND	M1, U	mg/L	0.004	0.004	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:30	AKB
Lead	ND	M1, U	mg/L	0.002	0.0005	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:30	AKB
<b>Lithium</b>	<b>0.008</b>	M1, J	mg/L	0.02	0.005	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:30	AKB
Mercury	ND	M1, M2, U	mg/L	0.0005	0.0002	SW846-6020 A	12/06/2022 12:06	12/13/2022 17:53	AKB
<b>Molybdenum</b>	<b>0.01</b>	M1	mg/L	0.01	0.002	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:30	AKB
Selenium	ND	M1, U	mg/L	0.003	0.001	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:30	AKB
Thallium	ND	M1, U	mg/L	0.0020	0.0001	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:30	AKB

**Conventional Chemistry Analyses Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>pH (Lab)</b>	<b>7.57</b>	H3	Std. Units	0.10	0.10	4500-H+ B-2000	12/09/2022 15:10	12/09/2022 15:10	CML
<b>Total Dissolved Solids</b>	<b>262</b>		mg/L	50	50	2540 C-2011	12/07/2022 17:36	12/07/2022 17:36	HAG

**Subcontracted Analyses**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>See Attached Subcontract Report</b>	<b>0.417</b>	_Sub	pCi/L			EPA 903.1	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>See Attached Subcontract Report</b>	<b>0.717</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>Radium</b>	<b>1.13</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>See Attached Subcontract Report</b>	<b>1.13</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW

**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chloride</b>	<b>2.8</b>		mg/L	0.5	0.4	SW846 9056	12/13/2022 16:47	12/13/2022 16:47	CSC
<b>Fluoride</b>	<b>0.3</b>		mg/L	0.2	0.2	SW846 9056	12/11/2022 16:54	12/11/2022 16:54	CSC
<b>Sulfate</b>	<b>11</b>		mg/L	1	0.5	SW846 9056	12/11/2022 16:54	12/11/2022 16:54	CSC



**ANALYTICAL RESULTS**

Lab Sample ID: **2094289-02**  
 Description: **MW8**

Sample Collection Date Time: 11/30/2022 12:00  
 Sample Received Date Time: 12/05/2022 12:59

**Metals by SW846 6000 Series Methods Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	u	mg/L	0.005	0.002	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:42	AKB
Arsenic	ND	u	mg/L	0.0010	0.0004	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:42	AKB
<b>Barium</b>	<b>0.017</b>		mg/L	0.004	0.001	SW846-6020 A	12/06/2022 12:06	12/08/2022 16:04	AKB
Beryllium	ND	u	mg/L	0.0020	0.0010	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:42	AKB
<b>Boron</b>	<b>1.53</b>	D1	mg/L	1.00	1.00	SW846 6010 B	12/06/2022 12:06	12/07/2022 17:06	MRWD
Cadmium	ND	u	mg/L	0.0010	0.0001	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:42	AKB
<b>Calcium</b>	<b>281</b>	D1	mg/L	40.0	13.0	SW846 6010 B	12/06/2022 12:06	12/08/2022 15:31	MRWD
Chromium	ND	u	mg/L	0.0020	0.0006	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:42	AKB
Cobalt	ND	u	mg/L	0.004	0.004	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:42	AKB
Lead	ND	u	mg/L	0.002	0.0005	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:42	AKB
<b>Lithium</b>	<b>0.03</b>		mg/L	0.02	0.005	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:42	AKB
<b>Mercury</b>	<b>0.0002</b>	J	mg/L	0.0005	0.0002	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:42	AKB
<b>Molybdenum</b>	<b>0.01</b>		mg/L	0.01	0.002	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:42	AKB
Selenium	ND	u	mg/L	0.003	0.001	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:42	AKB
Thallium	ND	u	mg/L	0.0020	0.0001	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:42	AKB

**Conventional Chemistry Analyses Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>pH (Lab)</b>	<b>7.36</b>	H3	Std. Units	0.10	0.10	4500-H+ B-2000	12/09/2022 15:10	12/09/2022 15:10	CML
<b>Total Dissolved Solids</b>	<b>2140</b>		mg/L	50	50	2540 C-2011	12/07/2022 17:36	12/07/2022 17:36	HAG

**Subcontracted Analyses**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>See Attached Subcontract Report</b>	<b>0.083</b>	_Sub	pCi/L			EPA 903.1	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>See Attached Subcontract Report</b>	<b>0.976</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>Radium</b>	<b>1.06</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>See Attached Subcontract Report</b>	<b>1.06</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW

**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chloride</b>	<b>42.3</b>		mg/L	0.5	0.4	SW846 9056	12/13/2022 17:09	12/13/2022 17:09	CSC
Fluoride	ND	u	mg/L	0.2	0.2	SW846 9056	12/11/2022 17:22	12/11/2022 17:22	CSC
<b>Sulfate</b>	<b>1330</b>	D	mg/L	10	5	SW846 9056	12/11/2022 17:49	12/11/2022 17:49	CSC



**ANALYTICAL RESULTS**

Lab Sample ID: **2094289-03**  
 Description: **MW9**

Sample Collection Date Time: 11/30/2022 13:15  
 Sample Received Date Time: 12/05/2022 12:59

**Metals by SW846 6000 Series Methods Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	u	mg/L	0.005	0.002	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:44	AKB
Arsenic	ND	u	mg/L	0.0010	0.0004	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:44	AKB
<b>Barium</b>	<b>0.253</b>		mg/L	0.004	0.001	SW846-6020 A	12/06/2022 12:06	12/08/2022 16:06	AKB
Beryllium	ND	u	mg/L	0.0020	0.0010	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:44	AKB
Boron	ND	u	mg/L	0.10	0.10	SW846 6010 B	12/06/2022 12:06	12/07/2022 17:09	MRWD
Cadmium	ND	u	mg/L	0.0010	0.0001	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:44	AKB
<b>Calcium</b>	<b>60.5</b>	D1	mg/L	4.00	1.30	SW846 6010 B	12/06/2022 12:06	12/07/2022 17:12	MRWD
<b>Chromium</b>	<b>0.0048</b>		mg/L	0.0020	0.0006	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:44	AKB
Cobalt	ND	u	mg/L	0.004	0.004	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:44	AKB
Lead	ND	u	mg/L	0.002	0.0005	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:44	AKB
<b>Lithium</b>	<b>0.006</b>	J	mg/L	0.02	0.005	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:44	AKB
<b>Mercury</b>	<b>0.0002</b>	J	mg/L	0.0005	0.0002	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:44	AKB
Molybdenum	ND	u	mg/L	0.01	0.002	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:44	AKB
Selenium	ND	u	mg/L	0.003	0.001	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:44	AKB
Thallium	ND	u	mg/L	0.0020	0.0001	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:44	AKB

**Conventional Chemistry Analyses Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>pH (Lab)</b>	<b>7.18</b>	H3	Std. Units	0.10	0.10	4500-H+ B-2000	12/09/2022 15:10	12/09/2022 15:10	CML
<b>Total Dissolved Solids</b>	<b>306</b>		mg/L	50	50	2540 C-2011	12/07/2022 17:36	12/07/2022 17:36	HAG

**Subcontracted Analyses**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>See Attached Subcontract Report</b>	<b>1.06</b>	_Sub	pCi/L			EPA 903.1	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>See Attached Subcontract Report</b>	<b>0.717</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>Radium</b>	<b>1.78</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>See Attached Subcontract Report</b>	<b>1.78</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW

**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chloride</b>	<b>6.7</b>		mg/L	0.5	0.4	SW846 9056	12/13/2022 17:32	12/13/2022 17:32	CSC
<b>Fluoride</b>	<b>0.2</b>		mg/L	0.2	0.2	SW846 9056	12/11/2022 18:17	12/11/2022 18:17	CSC
<b>Sulfate</b>	<b>0.6</b>	J	mg/L	1	0.5	SW846 9056	12/11/2022 18:17	12/11/2022 18:17	CSC



**ANALYTICAL RESULTS**

Lab Sample ID: **2094289-04**  
 Description: **MW10**

Sample Collection Date Time: 11/30/2022 14:05  
 Sample Received Date Time: 12/05/2022 12:59

**Metals by SW846 6000 Series Methods Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	u	mg/L	0.005	0.002	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:46	AKB
<b>Arsenic</b>	<b>0.0016</b>		mg/L	0.0010	0.0004	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:46	AKB
<b>Barium</b>	<b>0.129</b>		mg/L	0.004	0.001	SW846-6020 A	12/06/2022 12:06	12/08/2022 16:18	AKB
Beryllium	ND	u	mg/L	0.0020	0.0010	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:46	AKB
<b>Boron</b>	<b>0.53</b>		mg/L	0.10	0.10	SW846 6010 B	12/06/2022 12:06	12/07/2022 17:25	MRWD
Cadmium	ND	u	mg/L	0.0010	0.0001	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:46	AKB
<b>Calcium</b>	<b>8.56</b>		mg/L	0.40	0.13	SW846 6010 B	12/06/2022 12:06	12/07/2022 17:25	MRWD
Chromium	ND	u	mg/L	0.0020	0.0006	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:46	AKB
Cobalt	ND	u	mg/L	0.004	0.004	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:46	AKB
Lead	ND	u	mg/L	0.002	0.0005	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:46	AKB
<b>Lithium</b>	<b>0.50</b>		mg/L	0.02	0.005	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:46	AKB
<b>Mercury</b>	<b>0.0003</b>	J	mg/L	0.0005	0.0002	SW846-6020 A	12/06/2022 12:06	12/13/2022 17:57	AKB
<b>Molybdenum</b>	<b>0.006</b>	J	mg/L	0.01	0.002	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:46	AKB
Selenium	ND	u	mg/L	0.003	0.001	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:46	AKB
Thallium	ND	u	mg/L	0.0020	0.0001	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:46	AKB

**Conventional Chemistry Analyses Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>pH (Lab)</b>	<b>9.17</b>	H3	Std. Units	0.10	0.10	4500-H+ B-2000	12/09/2022 15:10	12/09/2022 15:10	CML
<b>Total Dissolved Solids</b>	<b>530</b>		mg/L	50	50	2540 C-2011	12/07/2022 17:36	12/07/2022 17:36	HAG

**Subcontracted Analyses**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>See Attached Subcontract Report</b>	<b>0.156</b>	_Sub	pCi/L			EPA 903.1	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>See Attached Subcontract Report</b>	<b>0.709</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>Radium</b>	<b>0.865</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>See Attached Subcontract Report</b>	<b>0.865</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW

**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chloride</b>	<b>17.8</b>		mg/L	0.5	0.4	SW846 9056	12/13/2022 17:54	12/13/2022 17:54	CSC
<b>Fluoride</b>	<b>0.6</b>		mg/L	0.2	0.2	SW846 9056	12/11/2022 18:44	12/11/2022 18:44	CSC
<b>Sulfate</b>	<b>30</b>		mg/L	1	0.5	SW846 9056	12/11/2022 18:44	12/11/2022 18:44	CSC



**ANALYTICAL RESULTS**

Lab Sample ID: **2094289-05**  
 Description: **DUPLICATE**

Sample Collection Date Time: 11/30/2022 12:20  
 Sample Received Date Time: 12/05/2022 12:59

**Metals by SW846 6000 Series Methods Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	u	mg/L	0.005	0.002	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:48	AKB
Arsenic	ND	u	mg/L	0.0010	0.0004	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:48	AKB
<b>Barium</b>	<b>0.016</b>		mg/L	0.004	0.001	SW846-6020 A	12/06/2022 12:06	12/08/2022 16:20	AKB
Beryllium	ND	u	mg/L	0.0020	0.0010	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:48	AKB
<b>Boron</b>	<b>1.49</b>	D1	mg/L	1.00	1.00	SW846 6010 B	12/06/2022 12:06	12/07/2022 17:35	MRWD
Cadmium	ND	u	mg/L	0.0010	0.0001	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:48	AKB
<b>Calcium</b>	<b>272</b>	D1	mg/L	40.0	13.0	SW846 6010 B	12/06/2022 12:06	12/08/2022 15:35	MRWD
Chromium	ND	u	mg/L	0.0020	0.0006	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:48	AKB
Cobalt	ND	u	mg/L	0.004	0.004	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:48	AKB
Lead	ND	u	mg/L	0.002	0.0005	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:48	AKB
<b>Lithium</b>	<b>0.03</b>		mg/L	0.02	0.005	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:48	AKB
Mercury	ND	u	mg/L	0.0005	0.0002	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:48	AKB
<b>Molybdenum</b>	<b>0.01</b>		mg/L	0.01	0.002	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:48	AKB
Selenium	ND	u	mg/L	0.003	0.001	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:48	AKB
Thallium	ND	u	mg/L	0.0020	0.0001	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:48	AKB

**Conventional Chemistry Analyses Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>pH (Lab)</b>	<b>7.37</b>	H3	Std. Units	0.10	0.10	4500-H+ B-2000	12/09/2022 15:10	12/09/2022 15:10	CML
<b>Total Dissolved Solids</b>	<b>2270</b>		mg/L	50	50	2540 C-2011	12/07/2022 17:36	12/07/2022 17:36	HAG

**Subcontracted Analyses**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
See Attached Subcontract Report	0.00	_Sub	pCi/L			EPA 903.1	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>See Attached Subcontract Report</b>	<b>1.58</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>Radium</b>	<b>1.58</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>See Attached Subcontract Report</b>	<b>1.58</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW

**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chloride</b>	<b>46.2</b>		mg/L	0.5	0.4	SW846 9056	12/13/2022 18:16	12/13/2022 18:16	CSC
Fluoride	ND	u	mg/L	0.2	0.2	SW846 9056	12/11/2022 19:11	12/11/2022 19:11	CSC
<b>Sulfate</b>	<b>1820</b>	D	mg/L	10	5	SW846 9056	12/11/2022 19:39	12/11/2022 19:39	CSC



**ANALYTICAL RESULTS**

Lab Sample ID: **2094289-06**  
 Description: **FIELD BLANK**

Sample Collection Date Time: 11/30/2022 15:00  
 Sample Received Date Time: 12/05/2022 12:59

**Metals by SW846 6000 Series Methods Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	u	mg/L	0.005	0.002	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:51	AKB
Arsenic	ND	u	mg/L	0.0010	0.0004	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:51	AKB
Barium	ND	v1, u	mg/L	0.004	0.001	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:51	AKB
Beryllium	ND	u	mg/L	0.0020	0.0010	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:51	AKB
Boron	ND	u	mg/L	0.10	0.10	SW846 6010 B	12/06/2022 12:06	12/07/2022 17:38	MRWD
Cadmium	ND	u	mg/L	0.0010	0.0001	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:51	AKB
Calcium	ND	u	mg/L	0.40	0.13	SW846 6010 B	12/06/2022 12:06	12/07/2022 17:38	MRWD
Chromium	ND	u	mg/L	0.0020	0.0006	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:51	AKB
Cobalt	ND	u	mg/L	0.004	0.004	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:51	AKB
Lead	ND	u	mg/L	0.002	0.0005	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:51	AKB
Lithium	ND	u	mg/L	0.02	0.005	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:51	AKB
Mercury	ND	u	mg/L	0.0005	0.0002	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:51	AKB
Molybdenum	ND	u	mg/L	0.01	0.002	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:51	AKB
Selenium	ND	u	mg/L	0.003	0.001	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:51	AKB
Thallium	ND	u	mg/L	0.0020	0.0001	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:51	AKB

**Conventional Chemistry Analyses Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
pH (Lab)	7.42	H3	Std. Units	0.10	0.10	4500-H+ B-2000	12/09/2022 15:10	12/09/2022 15:10	CML
Total Dissolved Solids	66		mg/L	50	50	2540 C-2011	12/07/2022 17:36	12/07/2022 17:36	HAG

**Subcontracted Analyses**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
See Attached Subcontract Report	-0.081	_Sub	pCi/L			EPA 903.1	01/04/2023 14:19	01/04/2023 14:20	RCW
See Attached Subcontract Report	0.931	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW
Radium	0.931	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW
See Attached Subcontract Report	0.931	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW

**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	ND	u	mg/L	0.5	0.4	SW846 9056	12/13/2022 18:39	12/13/2022 18:39	CSC
Fluoride	ND	u	mg/L	0.2	0.2	SW846 9056	12/11/2022 20:06	12/11/2022 20:06	CSC
Sulfate	0.6	J	mg/L	1	0.5	SW846 9056	12/11/2022 20:06	12/11/2022 20:06	CSC



**Notes for work order 2094289**

- Samples collected by PACE personnel are done so in accordance with procedures set forth in PACE field services SOPs .
- Results contained in this report are only representative of the samples received.
- PACE does not provide interpretation of these results unless otherwise stated .
- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identification based on the presumptive evidence of the mass spectra.  
Concentrations reported are estimated values.

**Qualifiers**

- \_Sub See subcontractors report.
- D Results reported from dilution.
- D1 Sample required dilution due to high concentration of target analyte.
- D2 Sample required dilution due to matrix interference.
- E Concentration exceeds calibration range
- H3 Sample received and analyzed past holding time.
- J Estimated value.
- M1 Matrix spike recovery was high; the method control sample recovery was acceptable.
- M2 Matrix spike recovery was low; the method control sample recovery was acceptable.
- M3 The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.
- U Target analyte was analyzed for, but was below detection limit (the value associated with the qualifier is the laboratory method detection limit in our LIMS system).
- V1 CCV recovery was above method acceptance limits. This target analyte not detected in the sample.

**Standard Qualifiers/Acronyms**

- MDL Method Detection Limit
- MRL Minimum Reporting Limit
- ND Not Detected
- LCS Laboratory Control Sample
- MS Matrix Spike
- MSD Matrix Spike Duplicate
- DUP Sample Duplicate
- % Rec Percent Recovery
- RPD Relative Percent Difference
- > Greater than
- < Less than



**Metals by SW846 6000 Series Methods Madisonville - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch BBL0610 - EPA 200.2**

**Blank (BBL0610-BLK1)**

Prepared: 12/6/2022 12:06, Analyzed: 12/7/2022 16:47

Boron	ND	0.10	mg/L							U
Calcium	ND	0.40	mg/L							U

**Blank (BBL0610-BLK2)**

Prepared: 12/6/2022 12:06, Analyzed: 12/7/2022 17:24

Mercury	ND	0.0005	mg/L							U
Antimony	ND	0.005	mg/L							U
Molybdenum	ND	0.01	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Cobalt	ND	0.004	mg/L							U
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U

**LCS (BBL0610-BS1)**

Prepared: 12/6/2022 12:06, Analyzed: 12/7/2022 16:50

Boron	0.13	0.10	mg/L	0.125		105	85-115			
Calcium	6.68	0.40	mg/L	6.25		107	85-115			

**LCS (BBL0610-BS2)**

Prepared: 12/6/2022 12:06, Analyzed: 12/7/2022 17:26

Mercury	0.0026	0.0005	mg/L	0.00250		105	85-115			
Antimony	0.069	0.005	mg/L	0.0625		110	85-115			
Molybdenum	0.07	0.01	mg/L	0.0625		105	85-115			
Arsenic	0.0660	0.0010	mg/L	0.0625		106	85-115			
Barium	0.070	0.004	mg/L	0.0625		112	85-115			
Beryllium	0.0659	0.0020	mg/L	0.0625		105	85-115			
Cadmium	0.0691	0.0010	mg/L	0.0625		111	85-115			
Chromium	0.0656	0.0020	mg/L	0.0625		105	85-115			
Cobalt	0.064	0.004	mg/L	0.0625		103	85-115			
Lead	0.064	0.002	mg/L	0.0625		103	85-115			
Lithium	0.07	0.02	mg/L	0.0625		104	85-115			
Selenium	0.069	0.003	mg/L	0.0625		111	85-115			
Thallium	0.0642	0.0020	mg/L	0.0625		103	85-115			



**Metals by SW846 6000 Series Methods Madisonville - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch BBL0610 - EPA 200.2**

**Matrix Spike (BBL0610-MS1) Source: 2094289-01**

Prepared: 12/6/2022 12:06, Analyzed: 12/7/2022 18:16

Boron	ND	1.00	mg/L	0.125	ND		80-120			D2, M2, U
Calcium	48.9	4.00	mg/L	6.25	43.1	92.2	80-120			D2

**Matrix Spike (BBL0610-MS2) Source: 2094289-01**

Prepared: 12/6/2022 12:06, Analyzed: 12/7/2022 18:02

Antimony	0.070	0.005	mg/L	0.0625	ND	113	80-120			
Molybdenum	0.08	0.01	mg/L	0.0625	0.01	104	80-120			
Mercury	0.0026	0.0005	mg/L	0.00250	ND	105	80-120			M2
Arsenic	0.0717	0.0010	mg/L	0.0625	0.0037	109	80-120			
Barium	0.153	0.004	mg/L	0.0625	0.079	119	80-120			
Beryllium	0.0615	0.0020	mg/L	0.0625	ND	98.5	80-120			
Cadmium	0.0681	0.0010	mg/L	0.0625	ND	109	80-120			
Chromium	0.0658	0.0020	mg/L	0.0625	ND	105	80-120			
Cobalt	0.064	0.004	mg/L	0.0625	ND	103	80-120			
Lead	0.063	0.002	mg/L	0.0625	ND	100	80-120			
Lithium	0.07	0.02	mg/L	0.0625	0.008	96.3	80-120			
Selenium	0.068	0.003	mg/L	0.0625	ND	109	80-120			
Thallium	0.0624	0.0020	mg/L	0.0625	ND	99.8	80-120			

**Matrix Spike Dup (BBL0610-MSD1) Source: 2094289-01**

Prepared: 12/6/2022 12:06, Analyzed: 12/7/2022 18:19

Boron	ND	1.00	mg/L	0.125	ND		80-120		20	D2, M2, U
Calcium	47.7	4.00	mg/L	6.25	43.1	73.3	80-120	2.45	20	D2, M2

**Matrix Spike Dup (BBL0610-MSD2) Source: 2094289-01**

Prepared: 12/6/2022 12:06, Analyzed: 12/7/2022 18:13

Antimony	0.073	0.005	mg/L	0.0625	ND	116	80-120	3.11	20	
Molybdenum	0.08	0.01	mg/L	0.0625	0.01	105	80-120	0.337	20	
Mercury	0.0026	0.0005	mg/L	0.00250	ND	104	80-120	1.18	20	M2
Arsenic	0.0712	0.0010	mg/L	0.0625	0.0037	108	80-120	0.671	20	
Barium	0.152	0.004	mg/L	0.0625	0.079	117	80-120	0.631	20	
Beryllium	0.0615	0.0020	mg/L	0.0625	ND	98.3	80-120	0.112	20	
Cadmium	0.0688	0.0010	mg/L	0.0625	ND	110	80-120	0.960	20	
Chromium	0.0661	0.0020	mg/L	0.0625	ND	106	80-120	0.500	20	
Cobalt	0.065	0.004	mg/L	0.0625	ND	103	80-120	0.721	20	
Lead	0.063	0.002	mg/L	0.0625	ND	101	80-120	0.784	20	
Lithium	0.07	0.02	mg/L	0.0625	0.008	96.3	80-120	0.0177	20	
Selenium	0.067	0.003	mg/L	0.0625	ND	108	80-120	1.00	20	
Thallium	0.0633	0.0020	mg/L	0.0625	ND	101	80-120	1.50	20	



**Metals by SW846 6000 Series Methods Madisonville - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch BBL0610 - EPA 200.2**

**Post Spike (BBL0610-PS1) Source: 2094289-01**

Prepared: 12/6/2022 12:06, Analyzed: 12/7/2022 18:22

Boron	614		ug/L	125	347	214	75-125			D2, M1
Calcium	56800		ug/L	6250	43100	220	75-125			D2, M1

**Post Spike (BBL0610-PS2) Source: 2094289-01**

Prepared: 12/6/2022 12:06, Analyzed: 12/7/2022 18:15

Mercury	5.24		ug/L	2.50	0.0249	209	75-125			M1
Molybdenum	144		ug/L	62.5	10.7	213	75-125			M1
Antimony	135		ug/L	62.5	0.159	216	75-125			M3
Arsenic	139		ug/L	62.5	3.69	216	75-125			M1
Barium	216		ug/L	62.5	78.8	219	75-125			M1
Beryllium	122		ug/L	62.5	0.0550	196	75-125			M1
Cadmium	137		ug/L	62.5	0.0560	219	75-125			M1
Chromium	132		ug/L	62.5	0.354	211	75-125			M1
Cobalt	128		ug/L	62.5	0.490	204	75-125			M1
Lead	123		ug/L	62.5	-0.013	196	75-115			M1
Lithium	127		ug/L	62.5	7.80	191	75-125			M1
Selenium	134		ug/L	62.5	0.105	215	75-125			M1
Thallium	124		ug/L	62.5	0.0630	198	75-125			M1



Conventional Chemistry Analyses Madisonville - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBL0861 - Default Prep Wet Chem

Blank (BBL0861-BLK1)

Prepared: 12/7/2022 17:36, Analyzed: 12/7/2022 17:36

Total Dissolved Solids	ND	25	mg/L							U
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LCS (BBL0861-BS1)

Prepared: 12/7/2022 17:36, Analyzed: 12/7/2022 17:36

Total Dissolved Solids	1470	25	mg/L	1500		98.1	80-120			
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Duplicate (BBL0861-DUP1) Source: 2094289-01

Prepared: 12/7/2022 17:36, Analyzed: 12/7/2022 17:36

Total Dissolved Solids	264	50	mg/L		262			0.760	10	
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Duplicate (BBL0861-DUP2) Source: 2122194-01

Prepared: 12/7/2022 17:36, Analyzed: 12/7/2022 17:36

Total Dissolved Solids	316	50	mg/L		308			2.56	10	
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Batch BBL1267 - Default Prep WET Testing

LCS (BBL1267-BS1)

Prepared: 12/9/2022 15:10, Analyzed: 12/9/2022 15:10

pH (Lab)	7.98		Std. Units	8.00		99.8	98.8-101.2			
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LCS (BBL1267-BS2)

Prepared: 12/9/2022 15:10, Analyzed: 12/9/2022 15:10

pH (Lab)	8.04		Std. Units	8.00		100	98.8-101.2			
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Duplicate (BBL1267-DUP1) Source: 2094289-04

Prepared: 12/9/2022 15:10, Analyzed: 12/9/2022 15:10

pH (Lab)	9.17	0.10	Std. Units		9.17			0.00	10	H3
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Duplicate (BBL1267-DUP2) Source: 2122478-01

Prepared: 12/9/2022 15:10, Analyzed: 12/9/2022 15:10

pH (Lab)	7.42	0.10	Std. Units		7.43			0.135	10	H3
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**Ion Chromatography Madisonville - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch BBL1343 - Default Prep IC**

**Matrix Spike (BBL1343-MS1) Source: 2094290-03**

Prepared: 12/12/2022 0:13, Analyzed: 12/12/2022 0:13

Fluoride	5.8		mg/L	4.00	0.3	139	75-125			M1
Chloride	17.3		mg/L	8.00	8.2	114	75-125			
Sulfate	51		mg/L	32.0	11	126	75-125			M1

**Matrix Spike Dup (BBL1343-MSD1) Source: 2094290-03**

Prepared: 12/12/2022 0:40, Analyzed: 12/12/2022 0:40

Fluoride	5.7		mg/L	4.00	0.3	136	75-125	2.67	15	M1
Chloride	16.4		mg/L	8.00	8.2	103	75-125	5.13	15	
Sulfate	49		mg/L	32.0	11	120	75-125	3.60	15	

**Certified Analyses included in this Report**

Analyte	Certifications
<b>2540 C-2011 in Water</b>	
Total Dissolved Solids	KY Drinking Water Mdv (00030) VA NELAC MDV (460210) KY Wastewater Mdv (00030) TN Drinking Water (02819) WV Wastewater Madisonville (241), 825 Industrial Rd Madisonville, KY 42431
<b>4500-H+ B-2000 in Water</b>	
pH (Lab)	KY Drinking Water Mdv (00030) TN Drinking Water (02819)
<b>SW846 6010 B in Water</b>	
Calcium	VA NELAC MDV (460210)

**Sample Acceptance Checklist for Work Order 2094289**

Shipped By: Client

Temperature: 4.40° Celcius

**Condition**

Check if Custody Seals are Present/Intact	<input type="checkbox"/>
Check if Custody Signatures are Present	<input checked="" type="checkbox"/>
Check if Collector Signature Present	<input checked="" type="checkbox"/>
Check if bottles are intact	<input checked="" type="checkbox"/>
Check if bottles are correct	<input checked="" type="checkbox"/>
Check if bottles have sufficient volume	<input checked="" type="checkbox"/>
Check if samples received on ice	<input checked="" type="checkbox"/>
Check if VOA headspace is acceptable	<input type="checkbox"/>
Check if samples received in holding time.	<input checked="" type="checkbox"/>
Check if samples are preserved properly	<input checked="" type="checkbox"/>

# Chain of Custody

Scheduled for: **09/29/2022**



Client: **Big Rivers Electric Corporation  
Reid/Green Station**

Report To:  
Big Rivers Electric Corporation Reid/Green  
Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Invoice To:  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Project: **HMPL Surface Impoundment**

Phone: (270) 844-6000  
PWS ID#:  
State: **KY**

PO#:  
Quote#:

Please Print Legibly

Collected by (Signature): *Greg Dick*

Compliance Monitoring? Yes \_\_\_ No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Samples Chlorinated? Yes \_\_\_ No

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_  
Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date N/A End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY Workorder # 2094289 Sample ID#	*required information* Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers
2094289-01 A	<u>11/30/22</u>	<u>1020</u>	Plastic 500mL pH<2 w/HNO3	1
Preservation Check: pH : <input checked="" type="checkbox"/>				
2094289-01 B	<u>11/30/22</u>	<u>1020</u>	Plastic 1L	1
2094289-01 C	<u>11/30/22</u>	<u>1020</u>	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1
Preservation Check: pH : <input checked="" type="checkbox"/>				
2094289-01 D	<u>11/30/22</u>	<u>1020</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1
Preservation Check: pH : <input checked="" type="checkbox"/>				
2094289-01 E	<u>11/30/22</u>	<u>1020</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1
Preservation Check: pH : <input checked="" type="checkbox"/>				

Sample Description	Composite	Sample Analysis Requested
MW7	g / c	Arsenic Tot 6020 Barium Tot 6020 Beryllium Tot 6020 Boron Tot 6010B Cadmium Tot 6020 Calcium Tot 6010B Chromium Tot 6020 Cobalt Tot 6020 Antimony Tot 6020 Lithium Tot 6020 Thallium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Selenium Tot 6020
MW7	g / c	Fluoride 9056 TDS Sulfate 9056 pH (Lab) Chloride 9056
MW7	g / c	Radium 226 (sub)
MW7	g / c	Radium 228 (sub)
MW7	g / c	Radium 228 (sub)

Preservation Check Performed by: *ADL*

Field data collected by: *Greg Dick* Date (mm/dd/yy) 11/30/22 Time (24 hr) 1020  
pH (Mw7) 7.51 Cond (umho) 414 Res Cl (mg/L) \_\_\_\_\_ Tot Cl (mg/L) \_\_\_\_\_ Free Cl (mg/L) \_\_\_\_\_  
Temp (oC) 15.21 or (oF) \_\_\_\_\_ Static Water Level \_\_\_\_\_ DO (mg/L) \_\_\_\_\_ Turb. (NTU) \_\_\_\_\_  
Flow (MGD) \_\_\_\_\_ or (CFS) \_\_\_\_\_ or (g/min) \_\_\_\_\_

Relinquished by: (Signature) <u><i>Greg Dick</i></u>	Received by: (Signature) <u><i>Ammy</i></u>	Date (mm/dd/yy) <u>12/05/22</u>	Time (24 hr) <u>1259</u>
_____	_____	_____	_____
_____	_____	_____	_____

# Chain of Custody

Scheduled for: **09/29/2022**



Client: **Big Rivers Electric Corporation**  
**Reid/Green Station**

Report To:  
**Big Rivers Electric Corporation Reid/Green**  
**Station**  
**Chad Phillips**  
**PO Box 24**  
**Henderson, KY 42419**

Invoice To:  
**Big Rivers Electric Corporation Reid/Green Station**  
**Chad Phillips**  
**PO Box 24**  
**Henderson, KY 42419**

Project: **HMPL Surface Impoundment**

Phone: (270) 844-6000

PWS ID#:

State: KY

PO#: \_\_\_\_\_

Quote# \_\_\_\_\_

Please Print Legibly

Collected by (Signature): *Greg Dick*  
\*required information\*

Compliance Monitoring? Yes \_\_\_ No

Samples Chlorinated? Yes \_\_\_ No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date N/A End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY	*required information*		Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
Workorder #	Date	Collection					
<b>2094289</b>	(mm/dd/yy):	Time (24 hr):					
Sample ID#							
2094289-01 F	<u>11/30/22</u>	<u>1200</u>	Plastic 1L pH<2 w/HNO3 (Sub)	1	MW7	g / c	Radium Total (sub)
			Preservation Check: pH : <input checked="" type="checkbox"/>				
2094289-02 A	<u>11/30/22</u>	<u>1200</u>	Plastic 500mL pH<2 w/HNO3	1	MW8	g / c	Arsenic Tot 6020 Barium Tot 6020 Beryllium Tot 6020 Boron Tot 6010B Cadmium Tot 6020 Calcium Tot 6010B Chromium Tot 6020 Cobalt Tot 6020 Antimony Tot 6020 Lithium Tot 6020 Thallium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Selenium Tot 6020
			Preservation Check: pH : <input checked="" type="checkbox"/>				
2094289-02 B	<u>11/30/22</u>	<u>1200</u>	Plastic 1L	1	MW8	g / c	Fluoride 9056 TDS Sulfate 9056 pH (Lab) Chloride 9056 Radium 226 (sub)
2094289-02 C	<u>11/30/22</u>	<u>1200</u>	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1	MW8	g / c	Radium 226 (sub)
			Preservation Check: pH : <input checked="" type="checkbox"/>				
2094289-02 D	<u>11/30/22</u>	<u>1200</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW8	g / c	Radium 228 (sub)
			Preservation Check: pH : <input checked="" type="checkbox"/>				

Preservation Check Performed by: *ACL*

Field data collected by: *Greg Dick* Date (mm/dd/yy) 11/30/22 Time (24 hr) 1200

pH (MW8) 7.88 Cond (umho) 2560 Res Cl (mg/L) \_\_\_\_\_ Tot Cl (mg/L) \_\_\_\_\_ Free Cl (mg/L) \_\_\_\_\_

Temp (oC) 14.08 or (oF) \_\_\_\_\_ Static Water Level \_\_\_\_\_ DO (mg/L) \_\_\_\_\_ Turb. (NTU) \_\_\_\_\_

Flow (MGD) \_\_\_\_\_ or (CFS) \_\_\_\_\_ or (g/min) \_\_\_\_\_

Relinquished by: (Signature) *Greg Dick* Received by: (Signature) *[Signature]* Date (mm/dd/yy) 12/05/22 Time (24 hr) 1259

# Chain of Custody

Scheduled for: **09/29/2022**



Client: **Big Rivers Electric Corporation  
Reid/Green Station**

Report To:  
Big Rivers Electric Corporation Reid/Green  
Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Invoice To:  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Project: **HMPL Surface Impoundment**

Phone: (270) 844-6000  
PWS ID#:  
State: KY

PO#:  
Quote#

Please Print Legibly

Collected by (Signature): Greg Dick  
\*required information\*

Compliance Monitoring? Yes  No

Samples Chlorinated? Yes  No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date N/A Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

**LAB USE ONLY**

**\*required information\***

Workorder # Sample ID#	Date (mm/dd/yy)	Collection Time (24 hr)	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
2094289-02 E	11/30/22	1200	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW8	g / c	Radium 228 (sub)
				Preservation Check: pH :	<input checked="" type="checkbox"/>		
2094289-02 F	11/30/22	1200	Plastic 1L pH<2 w/HNO3 (Sub)	1	MW8	g / c	Radium Total (sub)
				Preservation Check: pH :	<input checked="" type="checkbox"/>		
2094289-03 A	11/30/22	1315	Plastic 500mL pH<2 w/HNO3	1	MW9	g / c	Arsenic Tot 6020 Barium Tot 6020 Beryllium Tot 6020 Boron Tot 6010B Cadmium Tot 6020 Calcium Tot 6010B Chromium Tot 6020 Cobalt Tot 6020 Antimony Tot 6020 Lithium Tot 6020 Thallium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Selenium Tot 6020
				Preservation Check: pH :	<input checked="" type="checkbox"/>		
2094289-03 B	11/30/22	1315	Plastic 1L	1	MW9	g / c	Fluoride 9056 TDS Sulfate 9056 pH (Lab) Chloride 9056
2094289-03 C	11/30/22	1315	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1	MW9	g / c	Radium 226 (sub)
				Preservation Check: pH :	<input checked="" type="checkbox"/>		

Preservation Check Performed by: ael

Field data collected by: Greg Dick Date (mm/dd/yy) 11/30/22 Time (24 hr) 1315

pH (mwa) 7.74 Cond (umho) 517 Res Cl (mg/L) \_\_\_\_\_ Tot Cl (mg/L) \_\_\_\_\_ Free Cl (mg/L) \_\_\_\_\_

Temp (oC) 16.15 or (oF) \_\_\_\_\_ Static Water Level \_\_\_\_\_ DO (mg/L) \_\_\_\_\_ Turb. (NTU) \_\_\_\_\_

Flow (MGD) \_\_\_\_\_ or (CFS) \_\_\_\_\_ or (g/min) \_\_\_\_\_

Relinquished by: (Signature) <u>Greg Dick</u>	Received by: (Signature) <u>Chad Phillips</u>	Date (mm/dd/yy) <u>12/05/22</u>	Time (24 hr) <u>1259</u>
_____	_____	_____	_____
_____	_____	_____	_____

# Chain of Custody

Scheduled for: **09/29/2022**



Client: **Big Rivers Electric Corporation**  
**Reid/Green Station**

Report To:  
**Big Rivers Electric Corporation Reid/Green**  
**Station**  
**Chad Phillips**  
**PO Box 24**  
**Henderson, KY 42419**

Invoice To:  
**Big Rivers Electric Corporation Reid/Green Station**  
**Chad Phillips**  
**PO Box 24**  
**Henderson, KY 42419**

Project: **HMPL Surface Impoundment**

Phone: (270) 844-6000  
PWS ID#:  
State: **KY**

PO#:  
Quote#

Please Print Legibly

Collected by (Signature): *Greg Dick*

Compliance Monitoring? Yes \_\_\_ No   
Samples Chlorinated? Yes \_\_\_ No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date *N/A* End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_  
Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

**LAB USE ONLY**

\*required information\*

Workorder # Sample ID#	Date (mm/dd/yy)	Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
2094289-03 D	<u>11/30/22</u>	<u>1315</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW9	g / c	Radium 228 (sub)
				Preservation Check: pH :	<input checked="" type="checkbox"/>		
2094289-03 E	<u>11/30/22</u>	<u>1315</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW9	g / c	Radium 228 (sub)
				Preservation Check: pH :	<input checked="" type="checkbox"/>		
2094289-03 F	<u>11/30/22</u>	<u>1315</u>	Plastic 1L pH<2 w/HNO3 (Sub)	1	MW9	g / c	Radium Total (sub)
				Preservation Check: pH :	<input checked="" type="checkbox"/>		
2094289-04 A	<u>11/30/22</u>	<u>1405</u>	Plastic 500mL pH<2 w/HNO3	1	MW10	g / c	Arsenic Tot 6020 Barium Tot 6020 Beryllium Tot 6020 Boron Tot 6010B Cadmium Tot 6020 Calcium Tot 6010B Chromium Tot 6020 Cobalt Tot 6020 Antimony Tot 6020 Lithium Tot 6020 Thallium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Selenium Tot 6020
				Preservation Check: pH :	<input checked="" type="checkbox"/>		
2094289-04 B	<u>11/30/22</u>	<u>1405</u>	Plastic 1L	1	MW10	g / c	Fluoride 9056 TDS Sulfate 9056 pH (Lab) Chloride 9056

Preservation Check Performed by: *ADL*

Field data collected by: *Greg Dick* Date (mm/dd/yy) 11/30/22 Time (24 hr) 1405  
pH (MW10) 9.82 Cond (umho) 722 Res Cl (mg/L) \_\_\_\_\_ Tot Cl (mg/L) \_\_\_\_\_ Free Cl (mg/L) \_\_\_\_\_  
Temp (oC) 14.99 or (oF) \_\_\_\_\_ Static Water Level \_\_\_\_\_ DO (mg/L) \_\_\_\_\_ Turb. (NTU) \_\_\_\_\_  
Flow (MGD) \_\_\_\_\_ or (CFS) \_\_\_\_\_ or (g/min) \_\_\_\_\_

Relinquished by: (Signature)	Received by: (Signature)	Date (mm/dd/yy)	Time (24 hr)
<u><i>Greg Dick</i></u> <u><i>Greg Dick</i></u>	<u><i>[Signature]</i></u>	<u>12/05/22</u>	<u>1259</u>

# Chain of Custody

**Scheduled for: 09/29/2022**



**Client: Big Rivers Electric Corporation  
Reid/Green Station**

**Report To:**  
Big Rivers Electric Corporation Reid/Green  
Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

**Invoice To:**  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

**Project: HMPL Surface Impoundment**

Phone: (270) 844-6000  
PWS ID#:  
State: KY

PO#: \_\_\_\_\_  
Quote# \_\_\_\_\_

Please Print Legibly

Collected by (Signature): Greg Dick

Compliance Monitoring? Yes \_\_\_ No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Samples Chlorinated? Yes \_\_\_ No

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date N/A End Time --- Temp (oC) \_\_\_\_\_  
Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY Workorder # 2094289 Sample ID#	*required information*		Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
	Date (mm/dd/yy):	Collection Time (24 hr):					
2094289-04 C	<u>11/30/22</u>	<u>1405</u>	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1	MW10	g / c	Radium 226 (sub)
			Preservation Check: pH : <input checked="" type="checkbox"/>				
2094289-04 D	<u>11/30/22</u>	<u>1405</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW10	g / c	Radium 228 (sub)
			Preservation Check: pH : <input checked="" type="checkbox"/>				
2094289-04 E	<u>11/30/22</u>	<u>1405</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW10	g / c	Radium 228 (sub)
			Preservation Check: pH : <input checked="" type="checkbox"/>				
2094289-04 F	<u>11/30/22</u>	<u>1405</u>	Plastic 1L pH<2 w/HNO3 (Sub)	1	MW10	g / c	Radium Total (sub)
			Preservation Check: pH : <input checked="" type="checkbox"/>				

Preservation Check Performed by: Adel

Field data collected by: _____	Date (mm/dd/yy) _____	Time (24 hr) _____
pH _____	Cond (umho) _____	Res Cl (mg/L) _____
Temp (oC) _____	or (oF) _____	Static Water Level _____
Flow (MGD) _____	or (CFS) _____	or (g/min) _____
	Tot Cl (mg/L) _____	Free Cl (mg/L) _____
	DO (mg/L) _____	Turb. (NTU) _____

Relinquished by: (Signature) <u>Greg Dick</u>	Received by: (Signature) <u>amrfa</u>	Date (mm/dd/yy) <u>12/05/22</u>	Time (24 hr) <u>1259</u>
_____	_____	_____	_____
_____	_____	_____	_____

# Chain of Custody



Scheduled for: **09/29/2022**

Client: **Big Rivers Electric Corporation  
Reid/Green Station**

Report To:  
Big Rivers Electric Corporation Reid/Green  
Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Invoice To:  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Project: **HMPL Surface Impoundment**

Phone: (270) 844-6000  
PWS ID#:  
State: KY

PO#:  
Quote#

Please Print Legibly

Collected by (Signature): Greg Dick

Compliance Monitoring? Yes \_\_\_ No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Samples Chlorinated? Yes \_\_\_ No

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date N/A End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY Workorder # Sample ID#	*required information* Date (mm/dd/yy): Collection Time (24 hr):	Bottle and Preservative	Containers
2094289-05 A	<u>11/30/22</u> <u>1220</u>	Plastic 500mL pH<2 w/HNO3	1
		Preservation Check: pH: <input checked="" type="checkbox"/>	
2094289-05 B	<u>11/30/22</u> <u>1220</u>	Plastic 1L	1
2094289-05 C	<u>11/30/22</u> <u>1220</u>	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1
		Preservation Check: pH: <input checked="" type="checkbox"/>	
2094289-05 D	<u>11/30/22</u> <u>1220</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1
		Preservation Check: pH: <input checked="" type="checkbox"/>	
2094289-05 E	<u>11/30/22</u> <u>1220</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1
		Preservation Check: pH: <input checked="" type="checkbox"/>	

Sample Description	Composite	Sample Analysis Requested
DUPLICATE	g / c	Arsenic Tot 6020 Barium Tot 6020 Beryllium Tot 6020 Boron Tot 6010B Cadmium Tot 6020 Calcium Tot 6010B Chromium Tot 6020 Cobalt Tot 6020 Antimony Tot 6020 Lithium Tot 6020 Thallium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Selenium Tot 6020
DUPLICATE	g / c	Fluoride 9056 TDS Sulfate 9056 pH (Lab) Chloride 9056 Radium 226 (sub)
DUPLICATE	g / c	Radium 228 (sub)
DUPLICATE	g / c	Radium 228 (sub)

Preservation Check Performed by: rel

Field data collected by: \_\_\_\_\_ Date (mm/dd/yy) \_\_\_\_\_ Time (24 hr) \_\_\_\_\_

pH \_\_\_\_\_ Cond (umho) \_\_\_\_\_ Res Cl (mg/L) \_\_\_\_\_ Tot Cl (mg/L) \_\_\_\_\_ Free Cl (mg/L) \_\_\_\_\_

Temp (oC) \_\_\_\_\_ or (oF) \_\_\_\_\_ Static Water Level \_\_\_\_\_ DO (mg/L) \_\_\_\_\_ Turb. (NTU) \_\_\_\_\_

Flow (MGD) \_\_\_\_\_ or (CFS) \_\_\_\_\_ or (g/min) \_\_\_\_\_

Relinquished by: (Signature)	Received by: (Signature)	Date (mm/dd/yy)	Time (24 hr)
<u>Greg Dick</u>	<u>Ammy La</u>	<u>12/05/22</u>	<u>1259</u>
_____	_____	_____	_____
_____	_____	_____	_____

# Chain of Custody

Scheduled for: **09/29/2022**



Client: **Big Rivers Electric Corporation  
Reid/Green Station**

Report To:  
Big Rivers Electric Corporation Reid/Green  
Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Invoice To:  
Big Rivers Electric Corporation Reid/Green Station

Project: **HMPL Surface Impoundment**

Chad Phillips  
PO Box 24  
Henderson, KY 42419

Phone: (270) 844-6000  
PWS ID#:  
State:   KY  

PO#:  
Quote#

Please Print Legibly

Collected by (Signature):   *Greg Dick*   \*required information\*

Compliance Monitoring? Yes \_\_\_ No

Samples Chlorinated? Yes \_\_\_ No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date   N/A   End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

**LAB USE ONLY**

\*required information\*

Workorder #	Date (mm/dd/yy)	Collection Time (24 hr)	Bottle and Preservative	Containers
<b>2094289</b> Sample ID#				
2094289-05 F	<u>  11/30/22  </u>	<u>  1220  </u>	Plastic 1L pH<2 w/HNO3 (Sub)	1
			Preservation Check: pH : <input checked="" type="checkbox"/>	
-2094289-06 A	<u>  11/30/22  </u>	<u>  1500  </u>	Plastic 500mL pH<2 w/HNO3	1
			Preservation Check: pH : <input checked="" type="checkbox"/>	
✓ 2094289-06 B	<u>  11/30/22  </u>	<u>  1500  </u>	Plastic 1L	1
-2094289-06 C	<u>  11/30/22  </u>	<u>  1500  </u>	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1
			Preservation Check: pH : <input checked="" type="checkbox"/>	
✓ 2094289-06 D	<u>  11/30/22  </u>	<u>  1500  </u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1
			Preservation Check: pH : <input checked="" type="checkbox"/>	

Sample Description	Composite	Sample Analysis Requested
DUPLICATE	g / c	Radium Total (sub)
FIELD BLANK	g / c	Arsenic Tot 6020 Barium Tot 6020 Beryllium Tot 6020 Boron Tot 6010B Cadmium Tot 6020 Calcium Tot 6010B Chromium Tot 6020 Cobalt Tot 6020 Antimony Tot 6020 Lithium Tot 6020 Thallium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Selenium Tot 6020
FIELD BLANK	g / c	Fluoride 9056 TDS Sulfate 9056 pH (Lab) Chloride 9056
FIELD BLANK	g / c	Radium 226 (sub)
FIELD BLANK	g / c	Radium 228 (sub)

Preservation Check Performed by:   *ACL*  

Field data collected by: _____	Date (mm/dd/yy) _____	Time (24 hr) _____
pH _____	Cond (umho) _____	Res Cl (mg/L) _____
Temp (oC) _____ or (oF) _____	Static Water Level _____	Tot Cl (mg/L) _____
Flow (MGD) _____ or (CFS) _____ or (g/min) _____	DO (mg/L) _____	Free Cl (mg/L) _____
		Turb. (NTU) _____

Relinquished by: (Signature)	Received by: (Signature)	Date (mm/dd/yy)	Time (24 hr)
<u>  <i>Greg Dick</i>  </u> <u>  <i>Greg Dick</i>  </u>	<u>  <i>AMM...</i>  </u>	<u>  12/05/22  </u>	<u>  1259  </u>

# Chain of Custody

Scheduled for: **09/29/2022**



Client: **Big Rivers Electric Corporation  
Reid/Green Station**

Report To:  
Big Rivers Electric Corporation Reid/Green  
Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419  
Phone: (270) 844-6000  
PWS ID#:  
State:   KY  

Invoice To:  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419  
PO#: \_\_\_\_\_  
Quote# \_\_\_\_\_

Project: **HMPL Surface Impoundment**

Please Print Legibly

Collected by (Signature):   Greg Dick    
\*required information\*

Compliance Monitoring? Yes \_\_\_ No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Samples Chlorinated? Yes \_\_\_ No

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date   N/A   End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

**LAB USE ONLY**

**\*required information\***

Workorder # Sample ID#	Date (mm/dd/yy)	Collection Time (24 hr)	Bottle and Preservative	Containers
2094289-06 E	<u>  11/30/22  </u>	<u>  1500  </u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1
Preservation Check: pH : <u>  ✓  </u>				
2094289-06 F	<u>  11/30/22  </u>	<u>  1500  </u>	Plastic 1L pH<2 w/HNO3 (Sub)	1
Preservation Check: pH : <u>  ✓  </u>				

Sample Description	Composite	Sample Analysis Requested
FIELD BLANK	g / c	Radium 228 (sub)
FIELD BLANK	g / c	Radium Total (sub)

**Thermometer Serial Number**

  181390287    
  181460057    
Temp   4.4   °C

Temp \_\_\_\_\_ °C  
  181460057    
  181390287    
**Thermometer Serial Number**

Preservation Check Performed by:   ACI  

Field data collected by: _____	Date (mm/dd/yy) _____	Time (24 hr) _____
pH _____	Cond (umho) _____	Res Cl (mg/L) _____
Temp (oC) _____	or (oF) _____	Static Water Level _____
Flow (MGD) _____	or (CFS) _____	or (g/min) _____
Tot Cl (mg/L) _____	Free Cl (mg/L) _____	DO (mg/L) _____
	Turb. (NTU) _____	

Relinquished by: (Signature)	Received by: (Signature)	Date (mm/dd/yy)	Time (24 hr)
<u>  Greg Dick  </u> <u>  Greg Dick  </u>	<u>  [Signature]  </u>	<u>  12/05/22  </u>	<u>  1259  </u>
_____	_____	_____	_____
_____	_____	_____	_____

# Chain of Custody

**Scheduled for: 09/29/2022**



**Client: Big Rivers Electric Corporation  
Reid/Green Station**

**Report To:**  
Big Rivers Electric Corporation Reid/Green  
Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

**Invoice To:**  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

**Project: HMPL Surface Impoundment**

Phone: (270) 844-6000  
PWS ID#:  
State:   KY  

PO#: \_\_\_\_\_  
Quote# \_\_\_\_\_

Please Print Legibly

Collected by (Signature):   *Greg Dick*    
\*required information\*

Compliance Monitoring? Yes \_\_\_ No

Samples Chlorinated? Yes \_\_\_ No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time ~~\_\_\_\_\_~~ Temp (oC) \_\_\_\_\_

Effluent: Start Date   11/30/22   Start time \_\_\_\_\_ End Date   N/A   End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY Workorder # 2094289 Sample ID#	*required information*		Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
	Date (mm/dd/yy):	Collection Time (24 hr):					
2094289-04 C	<u>  11/30/22  </u>	<u>  1405  </u>	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1	MW10	g / c	Radium 226 (sub)
			Preservation Check: pH : <input checked="" type="checkbox"/>				
2094289-04 D	<u>  11/30/22  </u>	<u>  1405  </u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW10	g / c	Radium 228 (sub)
			Preservation Check: pH : <input checked="" type="checkbox"/>				
2094289-04 E	<u>  11/30/22  </u>	<u>  1405  </u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW10	g / c	Radium 228 (sub)
			Preservation Check: pH : <input checked="" type="checkbox"/>				
2094289-04 F	<u>  11/30/22  </u>	<u>  1405  </u>	Plastic 1L pH<2 w/HNO3 (Sub)	1	MW10	g / c	Radium Total (sub)
			Preservation Check: pH : <input checked="" type="checkbox"/>				

Preservation Check Performed by:   *AKL*  

Field data collected by: _____	Date (mm/dd/yy) _____	Time (24 hr) _____
pH _____	Cond (umho) _____	Res Cl (mg/L) _____
Temp (oC) _____	or (oF) _____	Static Water Level _____
Flow (MGD) _____	or (CFS) _____	or (g/min) _____
		Tot Cl (mg/L) _____
		Free Cl (mg/L) _____
		DO (mg/L) _____
		Turb. (NTU) _____

Relinquished by: (Signature) <u>  <i>Greg Dick</i>  </u>	Received by: (Signature) <u>  <i>AKL</i>  </u>	Date (mm/dd/yy) <u>  12/05/22  </u>	Time (24 hr) <u>  1259  </u>
_____	_____	_____	_____
_____	_____	_____	_____

# Chain of Custody

Scheduled for: **09/29/2022**



Client: **Big Rivers Electric Corporation  
Reid/Green Station**

Report To:  
Big Rivers Electric Corporation Reid/Green  
Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Invoice To:  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Project: **HMPL Surface Impoundment**

Phone: (270) 844-6000  
PWS ID#:  
State:   KY  

PO#:  
Quote#

Please Print Legibly

Collected by (Signature):   *Greg Dick*    
\*required information\*

Compliance Monitoring? Yes \_\_\_ No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Samples Chlorinated? Yes \_\_\_ No

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date   N/A   End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY Workorder # 2094289 Sample ID#	*required information*		Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
	Date (mm/dd/yy):	Collection Time (24 hr):					
2094289-05 A	<u>  11/30/22  </u>	<u>  1220  </u>	Plastic 500mL pH<2 w/HNO3	<u>  1  </u>	DUPLICATE	g / c	Arsenic Tot 6020 Barium Tot 6020 Beryllium Tot 6020 Boron Tot 6010B, Cadmium Tot 6020 Calcium Tot 6010B Chromium Tot 6020 Cobalt Tot 6020 Antimony Tot 6020 Lithium Tot 6020 Thallium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Selenium Tot 6020
			Preservation Check: pH : <u>  ✓  </u>				
2094289-05 B	<u>  11/30/22  </u>	<u>  1220  </u>	Plastic 1L	<u>  1  </u>	DUPLICATE	g / c	Fluoride 9056 TDS Sulfate 9056 pH (Lab) Chloride 9056 Radium 226 (sub)
2094289-05 C	<u>  11/30/22  </u>	<u>  1220  </u>	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	<u>  1  </u>	DUPLICATE	g / c	
			Preservation Check: pH : <u>  ✓  </u>				
2094289-05 D	<u>  11/30/22  </u>	<u>  1220  </u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	<u>  1  </u>	DUPLICATE	g / c	Radium 228 (sub)
			Preservation Check: pH : <u>  ✓  </u>				
2094289-05 E	<u>  11/30/22  </u>	<u>  1220  </u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	<u>  1  </u>	DUPLICATE	g / c	Radium 228 (sub)
			Preservation Check: pH : <u>  ✓  </u>				

Preservation Check Performed by:   *rel*  

Field data collected by: _____	Date (mm/dd/yy) _____	Time (24 hr) _____
pH _____	Cond (umho) _____	Res Cl (mg/L) _____
Temp (oC) _____	or (oF) _____	Static Water Level _____
Flow (MGD) _____	or (CFS) _____	or (g/min) _____
	Tot Cl (mg/L) _____	Free Cl (mg/L) _____
	DO (mg/L) _____	Turb. (NTU) _____

Relinquished by: (Signature) <u>  <i>Greg Dick</i>  </u>	Received by: (Signature) <u>  <i>Ammyza</i>  </u>	Date (mm/dd/yy) <u>  12/05/22  </u>	Time (24 hr) <u>  1259  </u>
_____	_____	_____	_____
_____	_____	_____	_____

# Chain of Custody

Scheduled for: **09/29/2022**



Client: **Big Rivers Electric Corporation  
Reid/Green Station**

Report To:  
Big Rivers Electric Corporation Reid/Green  
Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Invoice To:  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Project: **HMPL Surface Impoundment**

Phone: (270) 844-6000  
PWS ID#:  
State:   KY  

PO#:  
Quote#

Please Print Legibly

Collected by (Signature):   *Greg Dick*   \*required information\*

Compliance Monitoring? Yes  No

Samples Chlorinated? Yes  No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date   N/A   End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY Workorder # Sample ID#	*required information* Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
2094289-05 F	<u>  11/30/22  </u>	<u>  1220  </u>	Plastic 1L pH<2 w/HNO3 (Sub)	1	DUPLICATE	g / c	Radium Total (sub)
			Preservation Check: pH : <input checked="" type="checkbox"/>				
2094289-06 A	<u>  11/30/22  </u>	<u>  1500  </u>	Plastic 500mL pH<2 w/HNO3	1	FIELD BLANK	g / c	Arsenic Tot 6020 Barium Tot 6020 Beryllium Tot 6020 Boron Tot 6010B Cadmium Tot 6020 Calcium Tot 6010B Chromium Tot 6020 Cobalt Tot 6020 Antimony Tot 6020 Lithium Tot 6020 Thallium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Selenium Tot 6020
			Preservation Check: pH : <input checked="" type="checkbox"/>				
2094289-06 B	<u>  11/30/22  </u>	<u>  1500  </u>	Plastic 1L	1	FIELD BLANK	g / c	Fluoride 9056 TDS Sulfate 9056 pH (Lab) Chloride 9056
2094289-06 C	<u>  11/30/22  </u>	<u>  1500  </u>	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1	FIELD BLANK	g / c	Radium 226 (sub)
			Preservation Check: pH : <input checked="" type="checkbox"/>				
2094289-06 D	<u>  11/30/22  </u>	<u>  1500  </u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	FIELD BLANK	g / c	Radium 228 (sub)
			Preservation Check: pH : <input checked="" type="checkbox"/>				

Preservation Check Performed by:   *acd*  

Field data collected by: _____	Date (mm/dd/yy) _____	Time (24 hr) _____
pH _____	Cond (umho) _____	Res Cl (mg/L) _____
Temp (oC) _____	or (oF) _____	Static Water Level _____
Flow (MGD) _____	or (CFS) _____	or (g/min) _____
		DO (mg/L) _____
		Turb. (NTU) _____

Relinquished by: (Signature) <u>  <i>Greg Dick</i>  </u>	Received by: (Signature) <u>  <i>ammy</i>  </u>	Date (mm/dd/yy) <u>  12/05/22  </u>	Time (24 hr) <u>  1259  </u>
_____	_____	_____	_____
_____	_____	_____	_____



# Chain of Custody

Scheduled for: **09/29/2022**



Client: **Big Rivers Electric Corporation**  
**Reid/Green Station**

Report To:  
**Big Rivers Electric Corporation Reid/Green**  
**Station**  
**Chad Phillips**  
**PO Box 24**  
**Henderson, KY 42419**

Invoice To:  
**Big Rivers Electric Corporation Reid/Green Station**  
**Chad Phillips**  
**PO Box 24**  
**Henderson, KY 42419**

Project: **HMPL Surface Impoundment**

Phone: **(270) 844-6000**  
PWS ID#:  
State: **KY**

PO#: \_\_\_\_\_  
Quote# \_\_\_\_\_

Please Print Legibly

Collected by (Signature): *Greg Dick*  
\*required information\*

Compliance Monitoring? Yes \_\_\_ No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Samples Chlorinated? Yes \_\_\_ No

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_  
Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date N/A End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY	*required information*		Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
Workorder # 2094289 Sample ID#	Date (mm/dd/yy):	Collection Time (24 hr):					
2094289-01 A	<u>11/30/22</u>	<u>1020</u>	Plastic 500mL pH<2 w/HNO3	1	MW7	g / c	Arsenic Tot 6020 Barium Tot 6020 Beryllium Tot 6020 Boron Tot 6010B Cadmium Tot 6020 Calcium Tot 6010B Chromium Tot 6020 Cobalt Tot 6020 Antimony Tot 6020 Lithium Tot 6020 Thallium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Selenium Tot 6020
			Preservation Check: pH : <input checked="" type="checkbox"/>				
2094289-01 B	<u>11/30/22</u>	<u>1020</u>	Plastic 1L	1	MW7	g / c	Fluoride 9056 TDS Sulfate 9056 pH (Lab) Chloride 9056 Radium 226 (sub)
2094289-01 C	<u>11/30/22</u>	<u>1020</u>	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1	MW7	g / c	Radium 226 (sub)
			Preservation Check: pH : <input checked="" type="checkbox"/>				
2094289-01 D	<u>11/30/22</u>	<u>1020</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW7	g / c	Radium 228 (sub)
			Preservation Check: pH : <input checked="" type="checkbox"/>				
2094289-01 E	<u>11/30/22</u>	<u>1020</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW7	g / c	Radium 228 (sub)
			Preservation Check: pH : <input checked="" type="checkbox"/>				

Preservation Check Performed by: *ADL*

Field data collected by: <u><i>Greg Dick</i></u>	Date (mm/dd/yy) <u>11/30/22</u>	Time (24 hr) <u>1020</u>
pH (mw7) <u>7.51</u>	Cond (umho) <u>414</u>	Res Cl (mg/L) _____
Temp (oC) <u>15.21</u>	or (oF) _____	Static Water Level _____
Flow (MGD) _____	or (CFS) _____	or (g/min) _____
Total Cl (mg/L) _____		Free Cl (mg/L) _____
DO (mg/L) _____		Turb. (NTU) _____

Relinquished by: (Signature)	Received by: (Signature)	Date (mm/dd/yy)	Time (24 hr)
<u><i>Greg Dick</i></u>	<u><i>Ammy La</i></u>	<u>12/05/22</u>	<u>1259</u>
_____	_____	_____	_____
_____	_____	_____	_____

# Chain of Custody

Scheduled for: **09/29/2022**



Client: **Big Rivers Electric Corporation**  
**Reid/Green Station**

Report To:  
**Big Rivers Electric Corporation Reid/Green**  
**Station**  
**Chad Phillips**  
**PO Box 24**  
**Henderson, KY 42419**

Invoice To:  
**Big Rivers Electric Corporation Reid/Green Station**  
**Chad Phillips**  
**PO Box 24**  
**Henderson, KY 42419**

Project: **HMPL Surface Impoundment**

Phone: (270) 844-6000  
PWS ID#:  
State: KY

PO#: \_\_\_\_\_  
Quote# \_\_\_\_\_

Please Print Legibly

Collected by (Signature): *Greg Dick*  
\*required information\*

Compliance Monitoring? Yes \_\_\_ No

Samples Chlorinated? Yes \_\_\_ No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_  
Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date N/A End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY Workorder # Sample ID#	*required information* Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
2094289-01 F	<u>11/30/22</u>	<u>1020</u>	Plastic 1L pH<2 w/HNO3 (Sub)	1	MW7	g / c	Radium Total (sub)
Preservation Check: pH : <input checked="" type="checkbox"/>							
2094289-02 A	<u>11/30/22</u>	<u>1200</u>	Plastic 500mL pH<2 w/HNO3	1	MW8	g / c	Arsenic Tot 6020 Barium Tot 6020 Beryllium Tot 6020 Boron Tot 6010B Cadmium Tot 6020 Calcium Tot 6010B Chromium Tot 6020 Cobalt Tot 6020 Antimony Tot 6020 Lithium Tot 6020 Thallium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Selenium Tot 6020
Preservation Check: pH : <input checked="" type="checkbox"/>							
2094289-02 B	<u>11/30/22</u>	<u>1200</u>	Plastic 1L	1	MW8	g / c	Fluoride 9056 TDS Sulfate 9056 pH (Lab) Chloride 9056 Radium 226 (sub)
2094289-02 C	<u>11/30/22</u>	<u>1200</u>	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1	MW8	g / c	Radium 226 (sub)
Preservation Check: pH : <input checked="" type="checkbox"/>							
2094289-02 D	<u>11/30/22</u>	<u>1200</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW8	g / c	Radium 228 (sub)
Preservation Check: pH : <input checked="" type="checkbox"/>							

Preservation Check Performed by: *ACL*

Field data collected by: *Greg Dick* Date (mm/dd/yy) 11/30/22 Time (24 hr) 1200  
pH (MW8) 7.88 Cond (umho) 2560 Res Cl (mg/L) \_\_\_\_\_ Tot Cl (mg/L) \_\_\_\_\_ Free Cl (mg/L) \_\_\_\_\_  
Temp (oC) 14.08 or (oF) \_\_\_\_\_ Static Water Level \_\_\_\_\_ DO (mg/L) \_\_\_\_\_ Turb. (NTU) \_\_\_\_\_  
Flow (MGD) \_\_\_\_\_ or (CFS) \_\_\_\_\_ or (g/min) \_\_\_\_\_

Relinquished by: (Signature) *Greg Dick* Received by: (Signature) *[Signature]* Date (mm/dd/yy) 12/05/22 Time (24 hr) 1259

# Chain of Custody

Scheduled for: 09/29/2022



Client: **Big Rivers Electric Corporation**  
**Reid/Green Station**

Report To:  
**Big Rivers Electric Corporation Reid/Green Station**  
**Chad Phillips**  
**PO Box 24**  
**Henderson, KY 42419**

Invoice To:  
**Big Rivers Electric Corporation Reid/Green Station**  
**Chad Phillips**  
**PO Box 24**  
**Henderson, KY 42419**

Project: **HMPL Surface Impoundment**

Phone: (270) 844-6000  
PWS ID#:  
State: KY

PO#:  
Quote#

Please Print Legibly

Collected by (Signature): Greg Dicus  
\*required information\*

Compliance Monitoring? Yes  No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Samples Chlorinated? Yes  No

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date N/A Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY Workorder # Sample ID#	*required information* Date (mm/dd/yy): Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
2094289-02 E	<u>11/30/22</u> <u>1200</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW8	g / c	Radium 228 (sub)
Preservation Check: pH: <input checked="" type="checkbox"/>						
2094289-02 F	<u>11/30/22</u> <u>1200</u>	Plastic 1L pH<2 w/HNO3 (Sub)	1	MW8	g / c	Radium Total (sub)
Preservation Check: pH: <input checked="" type="checkbox"/>						
2094289-03 A	<u>11/30/22</u> <u>1315</u>	Plastic 500mL pH<2 w/HNO3	1	MW9	g / c	Arsenic Tot 6020 Barium Tot 6020 Beryllium Tot 6020 Boron Tot 6010B Cadmium Tot 6020 Calcium Tot 6010B Chromium Tot 6020 Cobalt Tot 6020 Antimony Tot 6020 Lithium Tot 6020 Thallium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Selenium Tot 6020
Preservation Check: pH: <input checked="" type="checkbox"/>						
2094289-03 B	<u>11/30/22</u> <u>1315</u>	Plastic 1L	1	MW9	g / c	Fluoride 9056 TDS Sulfate 9056 pH (Lab) Chloride 9056
2094289-03 C	<u>11/30/22</u> <u>1315</u>	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1	MW9	g / c	Radium 226 (sub)
Preservation Check: pH: <input checked="" type="checkbox"/>						

Preservation Check Performed by: ael

Field data collected by: <u>Greg Dicus</u>	Date (mm/dd/yy) <u>11/30/22</u>	Time (24 hr) <u>1315</u>
pH (mwa) <u>7.74</u>	Cond (umho) <u>517</u>	Res Cl (mg/L) _____
Temp (oC) <u>16.15</u>	or (oF) _____	Tot Cl (mg/L) _____
Flow (MGD) _____	or (CFS) _____	Free Cl (mg/L) _____
Static Water Level _____	DO (mg/L) _____	Turb. (NTU) _____
or (g/min) _____		

Relinquished by: (Signature) <u>Greg Dicus</u>	Received by: (Signature) <u>ammster</u>	Date (mm/dd/yy) <u>12/05/22</u>	Time (24 hr) <u>1259</u>
_____	_____	_____	_____
_____	_____	_____	_____

# Chain of Custody

Scheduled for: 09/29/2022



Client: **Big Rivers Electric Corporation**  
Reid/Green Station

Report To:  
Big Rivers Electric Corporation Reid/Green  
Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Invoice To:  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Project: **HMPL Surface Impoundment**

Phone: (270) 844-6000  
PWS ID#:  
State: KY

PO#:  
Quote#

Please Print Legibly

Collected by (Signature): *Greg Dick*  
\*required information\*

Compliance Monitoring? Yes  No

Samples Chlorinated? Yes  No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date N/A End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date ← Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY	*required information*		Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
Workorder #	Date	Collection					
2094289	(mm/dd/yy)	Time (24 hr):					
Sample ID#							
2094289-03 D	<u>11/30/22</u>	<u>1315</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW9	g / c	Radium 228 (sub)
			Preservation Check: pH :	<input checked="" type="checkbox"/>			
2094289-03 E	<u>11/30/22</u>	<u>1315</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW9	g / c	Radium 228 (sub)
			Preservation Check: pH :	<input checked="" type="checkbox"/>			
2094289-03 F	<u>11/30/22</u>	<u>1315</u>	Plastic 1L pH<2 w/HNO3 (Sub)	1	MW9	g / c	Radium Total (sub)
			Preservation Check: pH :	<input checked="" type="checkbox"/>			
2094289-04 A	<u>11/30/22</u>	<u>1405</u>	Plastic 500mL pH<2 w/HNO3	1	MW10	g / c	Arsenic Tot 6020 Barium Tot 6020 Beryllium Tot 6020 Boron Tot 6010B Cadmium Tot 6020 Calcium Tot 6010B Chromium Tot 6020 Cobalt Tot 6020 Antimony Tot 6020 Lithium Tot 6020 Thallium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Selenium Tot 6020
			Preservation Check: pH :	<input checked="" type="checkbox"/>			
2094289-04 B	<u>11/30/22</u>	<u>1405</u>	Plastic 1L	1	MW10	g / c	Fluoride 9056 TDS Sulfate 9056 pH (Lab) Chloride 9056

Preservation Check Performed by: *ACL*

Field data collected by: <u><i>Greg Dick</i></u>	Date (mm/dd/yy) <u>11/30/22</u>	Time (24 hr) <u>1405</u>
pH (Mw10) <u>9.82</u>	Cond (umho) <u>722</u>	Res Cl (mg/L) _____
Temp (oC) <u>14.99</u>	or (oF) _____	Tot Cl (mg/L) _____
Flow (MGD) _____	or (CFS) _____	Free Cl (mg/L) _____
	or (g/min) _____	Static Water Level _____
		DO (mg/L) _____
		Turb. (NTU) _____

Relinquished by: (Signature)	Received by: (Signature)	Date (mm/dd/yy)	Time (24 hr)
<u><i>Greg Dick</i></u> <u><i>Greg Dick</i></u>	<u><i>[Signature]</i></u>	<u>12/05/22</u>	<u>1259</u>

December 29, 2022

Rob Whittington  
Pace Analytical Madisonville  
825 Industrial Rd  
Madisonville, KY 42431

RE: Project: 2094289/HMPL Surface Impoundme  
Pace Project No.: 30544238

Dear Rob Whittington:

Enclosed are the analytical results for sample(s) received by the laboratory on December 07, 2022. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Amber D. Carr  
amber.carr@pacelabs.com  
(724)850-5600  
Project Manager

Enclosures

cc: Doug Wolfe, Pace Analytical Madisonville



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: 2094289/HMPL Surface Impoundme  
Pace Project No.: 30544238

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 460198  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE SUMMARY

Project: 2094289/HMPL Surface Impoundme

Pace Project No.: 30544238

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30544238001	2094289-01	Water	11/30/22 10:20	12/07/22 10:05
30544238002	2094289-02	Water	11/30/22 12:00	12/07/22 10:05
30544238003	2094289-03	Water	11/30/22 15:00	12/07/22 10:05
30544238004	2094289-04	Water	11/30/22 14:00	12/07/22 10:05
30544238005	2094289-05	Water	11/30/22 12:20	12/07/22 10:05
30544238006	2094289-06	Water	11/30/22 15:00	12/07/22 10:05

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 2094289/HMPL Surface Impoundme  
Pace Project No.: 30544238

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30544238001	2094289-01	EPA 903.1	CLM	1	PASI-PA
		EPA 904.0	JJS1	1	PASI-PA
		Total Radium Calculation	LAL	1	PASI-PA
30544238002	2094289-02	EPA 903.1	CLM	1	PASI-PA
		EPA 904.0	JJS1	1	PASI-PA
		Total Radium Calculation	LAL	1	PASI-PA
30544238003	2094289-03	EPA 903.1	CLM	1	PASI-PA
		EPA 904.0	JJS1	1	PASI-PA
		Total Radium Calculation	LAL	1	PASI-PA
30544238004	2094289-04	EPA 903.1	CLM	1	PASI-PA
		EPA 904.0	JJS1	1	PASI-PA
		Total Radium Calculation	LAL	1	PASI-PA
30544238005	2094289-05	EPA 903.1	CLM	1	PASI-PA
		EPA 904.0	JJS1	1	PASI-PA
		Total Radium Calculation	LAL	1	PASI-PA
30544238006	2094289-06	EPA 903.1	CLM	1	PASI-PA
		EPA 904.0	JJS1	1	PASI-PA
		Total Radium Calculation	LAL	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 2094289/HMPL Surface Impoundme

Pace Project No.: 30544238

**Sample: 2094289-01**      **Lab ID: 30544238001**      Collected: 11/30/22 10:20      Received: 12/07/22 10:05      Matrix: Water  
PWS:      Site ID:      Sample Type:

Comments: • The preservative type is not listed on the COC.  
• Collection date/time illegible on sample labels.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>0.417 ± 0.635 (1.09)</b> C:NA T:93%	pCi/L	12/23/22 15:47	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>0.717 ± 0.425 (0.796)</b> C:84% T:84%	pCi/L	12/23/22 14:53	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	<b>1.13 ± 1.06 (1.89)</b>	pCi/L	12/29/22 13:32	7440-14-4	

**Sample: 2094289-02**      **Lab ID: 30544238002**      Collected: 11/30/22 12:00      Received: 12/07/22 10:05      Matrix: Water  
PWS:      Site ID:      Sample Type:

Comments: • The preservative type is not listed on the COC.  
• Collection date/time illegible on sample labels.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>0.0830 ± 0.540 (1.09)</b> C:NA T:92%	pCi/L	12/23/22 15:47	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>0.976 ± 0.444 (0.754)</b> C:82% T:87%	pCi/L	12/23/22 14:53	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	<b>1.06 ± 0.984 (1.84)</b>	pCi/L	12/29/22 13:32	7440-14-4	

**Sample: 2094289-03**      **Lab ID: 30544238003**      Collected: 11/30/22 15:00      Received: 12/07/22 10:05      Matrix: Water  
PWS:      Site ID:      Sample Type:

Comments: • The preservative type is not listed on the COC.  
• Collection date/time illegible on sample labels.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>1.06 ± 0.890 (1.32)</b> C:NA T:94%	pCi/L	12/23/22 16:01	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>0.717 ± 0.388 (0.699)</b> C:82% T:89%	pCi/L	12/23/22 14:53	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	<b>1.78 ± 1.28 (2.02)</b>	pCi/L	12/29/22 13:32	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 2094289/HMPL Surface Impoundme  
Pace Project No.: 30544238

**Sample: 2094289-04**      **Lab ID: 30544238004**      Collected: 11/30/22 14:00      Received: 12/07/22 10:05      Matrix: Water  
PWS:      Site ID:      Sample Type:  
Comments: • The preservative type is not listed on the COC.  
• Collection date/time illegible on sample labels.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>0.156 ± 0.483 (0.935)</b> C:NA T:92%	pCi/L	12/23/22 16:01	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>0.709 ± 0.453 (0.868)</b> C:79% T:84%	pCi/L	12/23/22 14:54	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	<b>0.865 ± 0.936 (1.80)</b>	pCi/L	12/29/22 13:32	7440-14-4	

**Sample: 2094289-05**      **Lab ID: 30544238005**      Collected: 11/30/22 12:20      Received: 12/07/22 10:05      Matrix: Water  
PWS:      Site ID:      Sample Type:  
Comments: • The preservative type is not listed on the COC.  
• Collection date/time illegible on sample labels.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>0.000 ± 0.470 (1.02)</b> C:NA T:89%	pCi/L	12/23/22 16:01	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>1.58 ± 0.539 (0.769)</b> C:81% T:88%	pCi/L	12/23/22 14:54	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	<b>1.58 ± 1.01 (1.79)</b>	pCi/L	12/29/22 13:32	7440-14-4	

**Sample: 2094289-06**      **Lab ID: 30544238006**      Collected: 11/30/22 15:00      Received: 12/07/22 10:05      Matrix: Water  
PWS:      Site ID:      Sample Type:  
Comments: • The preservative type is not listed on the COC.  
• Collection date/time illegible on sample labels.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>-0.0809 ± 0.369 (0.751)</b> C:NA T:89%	pCi/L	12/23/22 16:01	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>0.931 ± 0.461 (0.812)</b> C:86% T:78%	pCi/L	12/23/22 14:54	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	<b>0.931 ± 0.830 (1.56)</b>	pCi/L	12/29/22 13:32	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: 2094289/HMPL Surface Impoundme

Pace Project No.: 30544238

QC Batch: 552686

Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1

Analysis Description: 903.1 Radium-226

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30544238001, 30544238002, 30544238003, 30544238004, 30544238005, 30544238006

METHOD BLANK: 2684919

Matrix: Water

Associated Lab Samples: 30544238001, 30544238002, 30544238003, 30544238004, 30544238005, 30544238006

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.0681 ± 0.353 (0.734) C:NA T:87%	pCi/L	12/23/22 15:47	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: 2094289/HMPL Surface Impoundme

Pace Project No.: 30544238

QC Batch: 552687

Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0

Analysis Description: 904.0 Radium 228

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30544238001, 30544238002, 30544238003, 30544238004, 30544238005, 30544238006

METHOD BLANK: 2684920

Matrix: Water

Associated Lab Samples: 30544238001, 30544238002, 30544238003, 30544238004, 30544238005, 30544238006

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.453 ± 0.389 (0.779) C:81% T:75%	pCi/L	12/23/22 14:53	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: 2094289/HMPL Surface Impoundme  
Pace Project No.: 30544238

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Act - Activity

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

## REPORT OF LABORATORY ANALYSIS

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WO#: 30544238



Chain of Custody



Workorder: 2094289      Workorder Name: HMPL Surface Impoundme      Owner Received Date: 12/5/2022      Results Requested By: standard

Report To:		Subcontract To:		Requested Analysis				
Pace Analytical Services, LLC 825 Industrial Road Madisonville, KY 42409 270-821-7375 rob.whittington@pacelabs.com		Pace Analytical Services LLC Greensburg P/ 1638 Rosey Town Rd Suite 2,3,4 Greensburg, PA 15601 (724) 850-5615		EPA 904.0 Radium Sum Calc				
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers	EPA 903.1	LAB USE ONLY
1	2094289-01		11/30/22 10:20	IR44-McCoy	Water		X	001
2	2094289-02		11/30/22 12:00	IR44-McCoy	Water		X	002
3	2094289-03		11/30/22 15:00	IR44-McCoy	Water		X	003
4	2094289-04		11/30/22 14:00	IR44-McCoy	Water		X	004
5	2094289-05		11/30/22 12:20	IR44-McCoy	Water		X	005
6	2094289-06		11/30/22 15:00	IR44-McCoy	Water		X	006
7								
8								
9								
10								
Transfers Released By	Date/Time	Received By	Date/Time	Comments				
		<i>J. Koves</i>	12-7-22	10:05				
1								
2								
3								

Cooler Temperature on Receipt 34 °C      Custody Seal Y or N      Received on Ice Y or N      Sample Intact Y or N

\*\*\*In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC

This chain of custody is considered complete as is since this information is available in the owner laboratory.

Friday, June 17, 2016 11:01:34 AM

FMT-ALL-C-002rev.00 24March2009

Page 1 of 1

SUBCONTRACT ORDER

Pace Analytical Services, LLC Kent  
2094289

**WO# : 30544238**

PM: ADC

Due Date: 12/29/22

CLIENT: PACE\_44\_MVKY

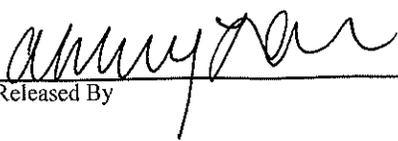
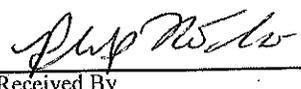
SENDING LABORATORY:

Pace Analytical Services, LLC Kentucky  
PO BOX 907  
Madisonville, KY 42431  
Phone: (270) 821-7375  
Fax: 844-270-7904  
Project Manager: Rob Whittington

RECEIVING LABORATORY:

Pace Analytical Services LLC Greensburg PA  
1638 Rosey Town Rd Suite 2,3,4  
Greensburg, PA 15601  
Phone :(724) 850-5615  
Fax:

Analysis	Expires	Laboratory ID	Comments
<b>Sample ID: 2094289-01</b>	<b>Water</b>	<b>Sampled:11/30/2022 10:20</b>	<b>Specific Method</b>
Radium 228 (sub)	05/29/2023 10:20	EPA 904.0 Radium Sum C	
Radium 226 (sub)	05/29/2023 10:20	EPA 903.1	
Radium Total (sub)	05/29/2023 10:20	EPA 904.0 Radium Sum C	
<b>Sample ID: 2094289-02</b>	<b>Water</b>	<b>Sampled:11/30/2022 12:00</b>	<b>Specific Method</b>
Radium Total (sub)	05/29/2023 12:00	EPA 904.0 Radium Sum C	
Radium 228 (sub)	05/29/2023 12:00	EPA 904.0 Radium Sum C	
Radium 226 (sub)	05/29/2023 12:00	EPA 903.1	
<b>Sample ID: 2094289-03</b>	<b>Water</b>	<b>Sampled:11/30/2013 15:00</b>	<b>Specific Method</b>
Radium 226 (sub)	05/29/2014 15:00	EPA 903.1	
Radium Total (sub)	05/29/2014 15:00	EPA 904.0 Radium Sum C	
Radium 228 (sub)	05/29/2014 15:00	EPA 904.0 Radium Sum C	
<b>Sample ID: 2094289-04</b>	<b>Water</b>	<b>Sampled:11/30/2022 14:00</b>	<b>Specific Method</b>
Radium 226 (sub)	05/29/2023 14:00	EPA 903.1	
Radium Total (sub)	05/29/2023 14:00	EPA 904.0 Radium Sum C	
Radium 228 (sub)	05/29/2023 14:00	EPA 904.0 Radium Sum C	
<b>Sample ID: 2094289-05</b>	<b>Water</b>	<b>Sampled:11/30/2022 12:20</b>	<b>Specific Method</b>
Radium 226 (sub)	05/29/2023 12:20	EPA 903.1	
Radium Total (sub)	05/29/2023 12:20	EPA 904.0 Radium Sum C	
Radium 228 (sub)	05/29/2023 12:20	EPA 904.0 Radium Sum C	

 12-6-22  
 Released By \_\_\_\_\_ Date \_\_\_\_\_  
 12/7/22 10:05  
 Received By \_\_\_\_\_ Date \_\_\_\_\_  
 Released By \_\_\_\_\_ Date \_\_\_\_\_  
 Received By \_\_\_\_\_ Date \_\_\_\_\_

SUBCONTRACT ORDER  
Pace Analytical Services, LLC K  
2094289

WO#: 30544238

PM: ADC Due Date: 12/29/22  
CLIENT: PACE\_44\_MVKY

Analysis Expires Laboratory ID Comments

Sample ID: 2094289-06	Water	Sampled: 11/30/2022 15:00	Specific Method
Radium Total (sub)		05/29/2023 15:00	EPA 904.0 Radium Sum C
Radium 228 (sub)		05/29/2023 15:00	EPA 904.0 Radium Sum C
Radium 226 (sub)		05/29/2023 15:00	EPA 903.1

*annunziata* 12-6-22 *Rupolo* 12/7/22 10:05  
Released By Date Received By Date

Released By Date Received By Date



DC#\_Title: ENV-FRM-GBUR-0088 v02\_Sample Condition Upon Receipt-  
Pittsburgh

WO#: 30544238

Effective Date: 10/03/2022

PM: ADC Due Date: 12/29/22  
CLIENT: PACE\_44\_MVKY

Client Name: Pace Kentucky

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace  Other

Tracking Number: 1Z 067 451 01 4010 8489  
1Z 067 451 01 4022 2499

Examined By Ja  
Labeled By Ja  
Temped By Ja

Custody Seal on Cooler/Box Present:  Yes  No Seals Intact:  Yes  No

Thermometer Used: 18 Type of Ice: Wet Blue None

Cooler Temperature: Observed Temp 2.1 °C Correction Factor: 0.0 °C Final Temp: 2.1 °C  
Temp should be above freezing to 6°C 1.4 0.0 1.4

Comments:	pH paper Lot#			D.P.D. Residual Chlorine Lot #
	Yes	No	NA	
Chain of Custody Present	<input checked="" type="checkbox"/>			1.
Chain of Custody Filled Out: -Were client corrections present on COC		<input checked="" type="checkbox"/>		2. <u>no container preservative type on COC</u>
Chain of Custody Relinquished		<input checked="" type="checkbox"/>		3.
Sampler Name & Signature on COC:		<input checked="" type="checkbox"/>		4.
Sample Labels match COC: -Includes date/time/ID Matrix: <u>WT</u>		<input checked="" type="checkbox"/>		5. <u>Date and time unreadable on samples</u>
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>			6.
Short Hold Time Analysis (<72hr remaining):		<input checked="" type="checkbox"/>		7.
Rush Turn Around Time Requested:		<input checked="" type="checkbox"/>		8.
Sufficient Volume:	<input checked="" type="checkbox"/>			9.
Correct Containers Used: -Pace Containers Used	<input checked="" type="checkbox"/>			10.
Containers Intact:	<input checked="" type="checkbox"/>			11.
Orthophosphate field filtered:			<input checked="" type="checkbox"/>	12.
Hex Cr Aqueous samples field filtered:			<input checked="" type="checkbox"/>	13.
Organic Samples checked for dechlorination			<input checked="" type="checkbox"/>	14.
Filtered volume received for dissolved tests:			<input checked="" type="checkbox"/>	15.
All containers checked for preservation: exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, non-aqueous matrix	<input checked="" type="checkbox"/>			16. <u>pH &lt; 2</u>
All containers meet method preservation requirements:	<input checked="" type="checkbox"/>			Initial when completed <u>Ja</u> Date/Time of Preservation
Headspace in VOA Vials (>6mm):			<input checked="" type="checkbox"/>	Lot# of added Preservative
Trip Blank Present:			<input checked="" type="checkbox"/>	17.
Trip Blank Custody Seals Present			<input checked="" type="checkbox"/>	18.
Rad Samples Screened <0.5 mrem/hr.	<input checked="" type="checkbox"/>			Initial when completed <u>Ja</u> Date: <u>12-7-22</u> Survey Meter SN: <u>1563</u>

Comments:

Note: For NC compliance samples with discrepancies, a copy of this form must be sent to the DEHNR Certification office.  
PM Review is documented electronically in LIMS through the SRF Review schedule in the Workorder Edit Screen.



Pace Greensburg Lab -Sample Container Count

Client Pace Kentucky

Profile Number 1851

Site 2094289 Big Rivers Electric Corporation

Notes

Sample Line Item	Matrix	AG1H	AG1S	AG1T	AG2U	AG3S	AG3U	AG5U	AG5T	BG1U	BG2U	BP1N	BP1U	BP2S	BP2U	BP3C	BP3N	BP3S	BP3U	DG9S	GCUB	VG9H	VG9T	VG9U	VOAK	WGFU	WGKU	ZPLC
1	WT											m																
2												m																
3												m																
4												m																
5												m																
6	WT											m																
7																												
8																												
9																												
10																												
11																												
12																												

**WO#: 30544238**

PM: ADC Due Date: 12/29/22  
 CLIENT: PACE\_44\_MVKY

Container Codes

Glass	
GJN	1 Gallon Jug with HNO3
AG5U	100mL amber glass unpreserved
AG5T	100mL amber glass Na Thiosulfate
GJN	1 Gallon Jug
AG1S	1L amber glass H2SO4
AG1H	1L amber glass HCl
AG1T	1L amber glass Na Thiosulfate
BG1U	1L clear glass unpreserved
AG3S	250mL amber glass H2SO4
AG3U	250mL amber glass unpreserved
DG9S	40mL amber VOA vial H2SO4
VG9U	40mL clear VOA vial
VG9T	40mL clear VOA vial Na Thiosulfate
VG9H	40mL clear VOA vial HCl
JGFU	4oz amber wide jar
WGFU	4oz wide jar unpreserved
BG2U	500mL clear glass unpreserved
AG2U	500mL amber glass unpreserved
WGKU	8oz wide jar unpreserved

Plastic / Misc.	
GCUB	1 Gallon Cubitainer
12GN	1/2 Gallon Cubitainer
SP5T	120mL Coliform Na Thiosulfate
BP1N	1L plastic HNO3
BP1U	1L plastic unpreserved
BP3S	250mL plastic H2SO4
BP3N	250mL plastic HNO3
BP3U	250mL plastic unpreserved
BP3C	250ml plastic NAOH
BP2S	500mL plastic H2SO4
BP2U	500mL plastic unpreserved
EZ1	5g Encore
VOAK	Kit for Volatile Solid
I	Wipe/Swab
ZPLC	Ziploc Bag
WT	Water
SL	Solid
OL	Non-aqueous liquid
WP	Wipe



## Certificate of Analysis 2094290

Greg Dick  
Big Rivers Electric Corporation Reid/Green Station  
PO Box 24  
Henderson, KY 42419

Customer ID: 44-102032  
Report Printed: 01/04/2023 14:56

Project Name: HMPL Surface Impoundment Characterization Wells Workorder: 2094290

Dear Greg Dick

Enclosed are the analytical results for samples received by the laboratory 12/05/2022 13:02.

The results relate to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services LLC Kentucky - Madisonville

If you have any questions concerning this report, please feel free to contact me.



#460210 Madisonville, KY  
#460291 Pikeville, KY

Rob Whittington, Project Manager

*This page is included as part of the Analytical Report and must be retained as a permanent record thereof.*



**SAMPLE SUMMARY**

Lab ID	Client Sample ID/Alias	Matrix	Date Collected	Date Received	Sampled By
2094290-01	MW-110/	Groundwater	12/02/2022 11:10	12/05/2022 13:02	Greg Dick
2094290-02	MW-111/	Groundwater	12/02/2022 12:05	12/05/2022 13:02	Greg Dick
2094290-03	MW-112/	Groundwater	12/02/2022 12:56	12/05/2022 13:02	Greg Dick
<u>LabNumber</u>	<u>Measurement</u>	<u>Value</u>			
2094290-01	Field Conductance	1290			
	Field pH	7.28			
	Field Temp (C)	16.5			
2094290-02	Field Conductance	494			
	Field pH	8.17			
	Field Temp (C)	16.5			
2094290-03	Field Conductance	490			
	Field pH	7.80			
	Field Temp (C)	16.36			



**ANALYTICAL RESULTS**

Lab Sample ID: **2094290-01**  
 Description: **MW-110**

Sample Collection Date Time: 12/02/2022 11:10  
 Sample Received Date Time: 12/05/2022 13:02

**Metals by SW846 6000 Series Methods Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	u	mg/L	0.005	0.002	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:53	AKB
Arsenic	ND	u	mg/L	0.0010	0.0004	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:53	AKB
<b>Barium</b>	<b>0.049</b>		mg/L	0.004	0.001	SW846-6020 A	12/06/2022 12:06	12/08/2022 16:22	AKB
Beryllium	ND	u	mg/L	0.0020	0.0010	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:53	AKB
<b>Boron</b>	<b>0.53</b>		mg/L	0.10	0.10	SW846 6010 B	12/06/2022 12:06	12/07/2022 17:41	MRWD
Cadmium	ND	u	mg/L	0.0010	0.0001	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:53	AKB
<b>Calcium</b>	<b>151</b>	D1	mg/L	40.0	13.0	SW846 6010 B	12/06/2022 12:06	12/08/2022 15:38	MRWD
Chromium	ND	u	mg/L	0.0020	0.0006	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:53	AKB
Cobalt	ND	u	mg/L	0.004	0.004	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:53	AKB
Lead	ND	u	mg/L	0.002	0.0005	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:53	AKB
<b>Lithium</b>	<b>0.01</b>	J	mg/L	0.02	0.005	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:53	AKB
Mercury	ND	u	mg/L	0.0005	0.0002	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:53	AKB
Molybdenum	ND	u	mg/L	0.01	0.002	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:53	AKB
Selenium	ND	u	mg/L	0.003	0.001	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:53	AKB
Thallium	ND	u	mg/L	0.0020	0.0001	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:53	AKB

**Conventional Chemistry Analyses Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>pH (Lab)</b>	<b>7.35</b>	H3	Std. Units	0.10	0.10	4500-H+ B-2000	12/09/2022 15:10	12/09/2022 15:10	CML
<b>Total Dissolved Solids</b>	<b>1020</b>		mg/L	50	50	2540 C-2011	12/07/2022 17:36	12/07/2022 17:36	HAG

**Subcontracted Analyses**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>See Attached Subcontract Report</b>	<b>0.083</b>	_Sub	pCi/L			EPA 903.1	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>See Attached Subcontract Report</b>	<b>1.01</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>Radium</b>	<b>1.09</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>See Attached Subcontract Report</b>	<b>1.09</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW

**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chloride</b>	<b>2.1</b>		mg/L	0.5	0.4	SW846 9056	12/13/2022 19:01	12/13/2022 19:01	CSC
<b>Fluoride</b>	<b>0.3</b>		mg/L	0.2	0.2	SW846 9056	12/11/2022 20:33	12/11/2022 20:33	CSC
<b>Sulfate</b>	<b>539</b>	D	mg/L	5	2	SW846 9056	12/11/2022 21:01	12/11/2022 21:01	CSC



**ANALYTICAL RESULTS**

Lab Sample ID: **2094290-02**  
 Description: **MW-111**

Sample Collection Date Time: 12/02/2022 12:05  
 Sample Received Date Time: 12/05/2022 13:02

**Metals by SW846 6000 Series Methods Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	u	mg/L	0.005	0.002	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:55	AKB
<b>Arsenic</b>	<b>0.0008</b>	J	mg/L	0.0010	0.0004	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:55	AKB
<b>Barium</b>	<b>0.848</b>		mg/L	0.004	0.001	SW846-6020 A	12/06/2022 12:06	12/08/2022 16:25	AKB
Beryllium	ND	u	mg/L	0.0020	0.0010	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:55	AKB
<b>Boron</b>	<b>0.50</b>		mg/L	0.10	0.10	SW846 6010 B	12/06/2022 12:06	12/07/2022 17:47	MRWD
Cadmium	ND	u	mg/L	0.0010	0.0001	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:55	AKB
<b>Calcium</b>	<b>16.0</b>	D1	mg/L	4.00	1.30	SW846 6010 B	12/06/2022 12:06	12/07/2022 17:50	MRWD
Chromium	ND	u	mg/L	0.0020	0.0006	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:55	AKB
Cobalt	ND	u	mg/L	0.004	0.004	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:55	AKB
Lead	ND	u	mg/L	0.002	0.0005	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:55	AKB
<b>Lithium</b>	<b>0.008</b>	J	mg/L	0.02	0.005	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:55	AKB
<b>Mercury</b>	<b>0.0002</b>	J	mg/L	0.0005	0.0002	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:55	AKB
<b>Molybdenum</b>	<b>0.003</b>	J	mg/L	0.01	0.002	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:55	AKB
Selenium	ND	u	mg/L	0.003	0.001	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:55	AKB
Thallium	ND	u	mg/L	0.0020	0.0001	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:55	AKB

**Conventional Chemistry Analyses Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>pH (Lab)</b>	<b>8.19</b>	H3	Std. Units	0.10	0.10	4500-H+ B-2000	12/09/2022 15:10	12/09/2022 15:10	CML
<b>Total Dissolved Solids</b>	<b>326</b>		mg/L	50	50	2540 C-2011	12/07/2022 17:36	12/07/2022 17:36	HAG

**Subcontracted Analyses**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>See Attached Subcontract Report</b>	<b>0.495</b>	_Sub	pCi/L			EPA 903.1	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>See Attached Subcontract Report</b>	<b>1.14</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>Radium</b>	<b>1.64</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>See Attached Subcontract Report</b>	<b>1.64</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW

**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chloride</b>	<b>16.7</b>		mg/L	0.5	0.4	SW846 9056	12/13/2022 19:24	12/13/2022 19:24	CSC
<b>Fluoride</b>	<b>0.5</b>		mg/L	0.2	0.2	SW846 9056	12/11/2022 22:23	12/11/2022 22:23	CSC
<b>Sulfate</b>	<b>0.9</b>	J	mg/L	1	0.5	SW846 9056	12/11/2022 22:23	12/11/2022 22:23	CSC



**ANALYTICAL RESULTS**

Lab Sample ID: **2094290-03**  
 Description: **MW-112**

Sample Collection Date Time: 12/02/2022 12:56  
 Sample Received Date Time: 12/05/2022 13:02

**Metals by SW846 6000 Series Methods Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	u	mg/L	0.005	0.002	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:57	AKB
<b>Arsenic</b>	<b>0.0009</b>	J	mg/L	0.0010	0.0004	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:57	AKB
<b>Barium</b>	<b>0.316</b>		mg/L	0.004	0.001	SW846-6020 A	12/06/2022 12:06	12/08/2022 16:27	AKB
Beryllium	ND	u	mg/L	0.0020	0.0010	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:57	AKB
<b>Boron</b>	<b>0.36</b>		mg/L	0.10	0.10	SW846 6010 B	12/06/2022 12:06	12/07/2022 18:03	MRWD
Cadmium	ND	u	mg/L	0.0010	0.0001	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:57	AKB
<b>Calcium</b>	<b>28.2</b>	D1	mg/L	4.00	1.30	SW846 6010 B	12/06/2022 12:06	12/07/2022 18:06	MRWD
Chromium	ND	u	mg/L	0.0020	0.0006	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:57	AKB
Cobalt	ND	u	mg/L	0.004	0.004	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:57	AKB
Lead	ND	u	mg/L	0.002	0.0005	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:57	AKB
<b>Lithium</b>	<b>0.007</b>	J	mg/L	0.02	0.005	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:57	AKB
<b>Mercury</b>	<b>0.0003</b>	J	mg/L	0.0005	0.0002	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:57	AKB
<b>Molybdenum</b>	<b>0.005</b>	J	mg/L	0.01	0.002	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:57	AKB
Selenium	ND	u	mg/L	0.003	0.001	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:57	AKB
Thallium	ND	u	mg/L	0.0020	0.0001	SW846-6020 A	12/06/2022 12:06	12/07/2022 17:57	AKB

**Conventional Chemistry Analyses Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>pH (Lab)</b>	<b>7.83</b>	H3	Std. Units	0.10	0.10	4500-H+ B-2000	12/09/2022 15:10	12/09/2022 15:10	CML
<b>Total Dissolved Solids</b>	<b>330</b>		mg/L	50	50	2540 C-2011	12/07/2022 17:36	12/07/2022 17:36	HAG

**Subcontracted Analyses**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>See Attached Subcontract Report</b>	<b>0.161</b>	_Sub	pCi/L			EPA 903.1	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>See Attached Subcontract Report</b>	<b>1.04</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>Radium</b>	<b>1.20</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>See Attached Subcontract Report</b>	<b>1.20</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW

**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chloride</b>	<b>9.1</b>		mg/L	0.5	0.4	SW846 9056	12/11/2022 23:18	12/11/2022 23:18	CSC
<b>Fluoride</b>	<b>0.3</b>	M1	mg/L	0.2	0.2	SW846 9056	12/11/2022 23:18	12/11/2022 23:18	CSC
<b>Sulfate</b>	<b>12</b>	M1	mg/L	1	0.5	SW846 9056	12/11/2022 23:18	12/11/2022 23:18	CSC



**Notes for work order 2094290**

- Samples collected by PACE personnel are done so in accordance with procedures set forth in PACE field services SOPs .
- Results contained in this report are only representative of the samples received.
- PACE does not provide interpretation of these results unless otherwise stated .
- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identification based on the presumptive evidence of the mass spectra.  
Concentrations reported are estimated values.

**Qualifiers**

- \_Sub See subcontractors report.
- D Results reported from dilution.
- D1 Sample required dilution due to high concentration of target analyte.
- D2 Sample required dilution due to matrix interference.
- E Concentration exceeds calibration range
- H3 Sample received and analyzed past holding time.
- J Estimated value.
- M1 Matrix spike recovery was high; the method control sample recovery was acceptable.
- M2 Matrix spike recovery was low; the method control sample recovery was acceptable.
- M3 The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.
- U Target analyte was analyzed for, but was below detection limit (the value associated with the qualifier is the laboratory method detection limit in our LIMS system).

**Standard Qualifiers/Acronyms**

- MDL Method Detection Limit
- MRL Minimum Reporting Limit
- ND Not Detected
- LCS Laboratory Control Sample
- MS Matrix Spike
- MSD Matrix Spike Duplicate
- DUP Sample Duplicate
- % Rec Percent Recovery
- RPD Relative Percent Difference
- > Greater than
- < Less than



**Metals by SW846 6000 Series Methods Madisonville - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch BBL0610 - EPA 200.2**

**Blank (BBL0610-BLK1)**

Prepared: 12/6/2022 12:06, Analyzed: 12/7/2022 16:47

Boron	ND	0.10	mg/L							U
Calcium	ND	0.40	mg/L							U

**Blank (BBL0610-BLK2)**

Prepared: 12/6/2022 12:06, Analyzed: 12/7/2022 17:24

Molybdenum	ND	0.01	mg/L							U
Mercury	ND	0.0005	mg/L							U
Antimony	ND	0.005	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Cobalt	ND	0.004	mg/L							U
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U

**LCS (BBL0610-BS1)**

Prepared: 12/6/2022 12:06, Analyzed: 12/7/2022 16:50

Boron	0.13	0.10	mg/L	0.125		105	85-115			
Calcium	6.68	0.40	mg/L	6.25		107	85-115			

**LCS (BBL0610-BS2)**

Prepared: 12/6/2022 12:06, Analyzed: 12/7/2022 17:26

Molybdenum	0.07	0.01	mg/L	0.0625		105	85-115			
Mercury	0.0026	0.0005	mg/L	0.00250		105	85-115			
Antimony	0.069	0.005	mg/L	0.0625		110	85-115			
Arsenic	0.0660	0.0010	mg/L	0.0625		106	85-115			
Barium	0.070	0.004	mg/L	0.0625		112	85-115			
Beryllium	0.0659	0.0020	mg/L	0.0625		105	85-115			
Cadmium	0.0691	0.0010	mg/L	0.0625		111	85-115			
Chromium	0.0656	0.0020	mg/L	0.0625		105	85-115			
Cobalt	0.064	0.004	mg/L	0.0625		103	85-115			
Lead	0.064	0.002	mg/L	0.0625		103	85-115			
Lithium	0.07	0.02	mg/L	0.0625		104	85-115			
Selenium	0.069	0.003	mg/L	0.0625		111	85-115			
Thallium	0.0642	0.0020	mg/L	0.0625		103	85-115			



**Metals by SW846 6000 Series Methods Madisonville - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch BBL0610 - EPA 200.2**

**Matrix Spike (BBL0610-MS1) Source: 2094289-01**

Prepared: 12/6/2022 12:06, Analyzed: 12/7/2022 18:16

Boron	ND	1.00	mg/L	0.125	ND		80-120			D2, M2, U
Calcium	48.9	4.00	mg/L	6.25	43.1	92.2	80-120			D2

**Matrix Spike (BBL0610-MS2) Source: 2094289-01**

Prepared: 12/6/2022 12:06, Analyzed: 12/7/2022 18:02

Antimony	0.070	0.005	mg/L	0.0625	ND	113	80-120			
Molybdenum	0.08	0.01	mg/L	0.0625	0.01	104	80-120			
Mercury	0.0026	0.0005	mg/L	0.00250	ND	105	80-120			M2
Arsenic	0.0717	0.0010	mg/L	0.0625	0.0037	109	80-120			
Barium	0.153	0.004	mg/L	0.0625	0.079	119	80-120			
Beryllium	0.0615	0.0020	mg/L	0.0625	ND	98.5	80-120			
Cadmium	0.0681	0.0010	mg/L	0.0625	ND	109	80-120			
Chromium	0.0658	0.0020	mg/L	0.0625	ND	105	80-120			
Cobalt	0.064	0.004	mg/L	0.0625	ND	103	80-120			
Lead	0.063	0.002	mg/L	0.0625	ND	100	80-120			
Lithium	0.07	0.02	mg/L	0.0625	0.008	96.3	80-120			
Selenium	0.068	0.003	mg/L	0.0625	ND	109	80-120			
Thallium	0.0624	0.0020	mg/L	0.0625	ND	99.8	80-120			

**Matrix Spike Dup (BBL0610-MSD1) Source: 2094289-01**

Prepared: 12/6/2022 12:06, Analyzed: 12/7/2022 18:19

Boron	ND	1.00	mg/L	0.125	ND		80-120		20	D2, M2, U
Calcium	47.7	4.00	mg/L	6.25	43.1	73.3	80-120	2.45	20	D2, M2

**Matrix Spike Dup (BBL0610-MSD2) Source: 2094289-01**

Prepared: 12/6/2022 12:06, Analyzed: 12/7/2022 18:13

Antimony	0.073	0.005	mg/L	0.0625	ND	116	80-120	3.11	20	
Molybdenum	0.08	0.01	mg/L	0.0625	0.01	105	80-120	0.337	20	
Mercury	0.0026	0.0005	mg/L	0.00250	ND	104	80-120	1.18	20	M2
Arsenic	0.0712	0.0010	mg/L	0.0625	0.0037	108	80-120	0.671	20	
Barium	0.152	0.004	mg/L	0.0625	0.079	117	80-120	0.631	20	
Beryllium	0.0615	0.0020	mg/L	0.0625	ND	98.3	80-120	0.112	20	
Cadmium	0.0688	0.0010	mg/L	0.0625	ND	110	80-120	0.960	20	
Chromium	0.0661	0.0020	mg/L	0.0625	ND	106	80-120	0.500	20	
Cobalt	0.065	0.004	mg/L	0.0625	ND	103	80-120	0.721	20	
Lead	0.063	0.002	mg/L	0.0625	ND	101	80-120	0.784	20	
Lithium	0.07	0.02	mg/L	0.0625	0.008	96.3	80-120	0.0177	20	
Selenium	0.067	0.003	mg/L	0.0625	ND	108	80-120	1.00	20	
Thallium	0.0633	0.0020	mg/L	0.0625	ND	101	80-120	1.50	20	



**Metals by SW846 6000 Series Methods Madisonville - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch BBL0610 - EPA 200.2**

**Post Spike (BBL0610-PS1) Source: 2094289-01**

Prepared: 12/6/2022 12:06, Analyzed: 12/7/2022 18:22

Boron	614		ug/L	125	347	214	75-125			D2, M1
Calcium	56800		ug/L	6250	43100	220	75-125			D2, M1

**Post Spike (BBL0610-PS2) Source: 2094289-01**

Prepared: 12/6/2022 12:06, Analyzed: 12/7/2022 18:15

Antimony	135		ug/L	62.5	0.159	216	75-125			M3
Mercury	5.24		ug/L	2.50	0.0249	209	75-125			M1
Molybdenum	144		ug/L	62.5	10.7	213	75-125			M1
Arsenic	139		ug/L	62.5	3.69	216	75-125			M1
Barium	216		ug/L	62.5	78.8	219	75-125			M1
Beryllium	122		ug/L	62.5	0.0550	196	75-125			M1
Cadmium	137		ug/L	62.5	0.0560	219	75-125			M1
Chromium	132		ug/L	62.5	0.354	211	75-125			M1
Cobalt	128		ug/L	62.5	0.490	204	75-125			M1
Lead	123		ug/L	62.5	-0.013	196	75-115			M1
Lithium	127		ug/L	62.5	7.80	191	75-125			M1
Selenium	134		ug/L	62.5	0.105	215	75-125			M1
Thallium	124		ug/L	62.5	0.0630	198	75-125			M1



Conventional Chemistry Analyses Madisonville - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBL0861 - Default Prep Wet Chem

Blank (BBL0861-BLK1)

Prepared: 12/7/2022 17:36, Analyzed: 12/7/2022 17:36

Total Dissolved Solids	ND	25	mg/L							U
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LCS (BBL0861-BS1)

Prepared: 12/7/2022 17:36, Analyzed: 12/7/2022 17:36

Total Dissolved Solids	1470	25	mg/L	1500		98.1	80-120			
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Duplicate (BBL0861-DUP1) Source: 2094289-01

Prepared: 12/7/2022 17:36, Analyzed: 12/7/2022 17:36

Total Dissolved Solids	264	50	mg/L		262			0.760	10	
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Duplicate (BBL0861-DUP2) Source: 2122194-01

Prepared: 12/7/2022 17:36, Analyzed: 12/7/2022 17:36

Total Dissolved Solids	316	50	mg/L		308			2.56	10	
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Batch BBL1267 - Default Prep WET Testing

LCS (BBL1267-BS1)

Prepared: 12/9/2022 15:10, Analyzed: 12/9/2022 15:10

pH (Lab)	7.98		Std. Units	8.00		99.8	98.8-101.2			
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LCS (BBL1267-BS2)

Prepared: 12/9/2022 15:10, Analyzed: 12/9/2022 15:10

pH (Lab)	8.04		Std. Units	8.00		100	98.8-101.2			
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Duplicate (BBL1267-DUP1) Source: 2094289-04

Prepared: 12/9/2022 15:10, Analyzed: 12/9/2022 15:10

pH (Lab)	9.17	0.10	Std. Units		9.17			0.00	10	H3
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Duplicate (BBL1267-DUP2) Source: 2122478-01

Prepared: 12/9/2022 15:10, Analyzed: 12/9/2022 15:10

pH (Lab)	7.42	0.10	Std. Units		7.43			0.135	10	H3
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**Ion Chromatography Madisonville - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch BBL1343 - Default Prep IC**

**Matrix Spike (BBL1343-MS1) Source: 2094290-03**

Prepared: 12/12/2022 0:13, Analyzed: 12/12/2022 0:13

Fluoride	5.8		mg/L	4.00	0.3	139	75-125			M1
Chloride	17.3		mg/L	8.00	8.2	114	75-125			
Sulfate	51		mg/L	32.0	11	126	75-125			M1

**Matrix Spike Dup (BBL1343-MSD1) Source: 2094290-03**

Prepared: 12/12/2022 0:40, Analyzed: 12/12/2022 0:40

Fluoride	5.7		mg/L	4.00	0.3	136	75-125	2.67	15	M1
Chloride	16.4		mg/L	8.00	8.2	103	75-125	5.13	15	
Sulfate	49		mg/L	32.0	11	120	75-125	3.60	15	

**Certified Analyses included in this Report**

Analyte	Certifications
<b>2540 C-2011 in Water</b>	
Total Dissolved Solids	KY Drinking Water Mdv (00030) VA NELAC MDV (460210) KY Wastewater Mdv (00030) TN Drinking Water (02819) WV Wastewater Madisonville (241), 825 Industrial Rd Madisonville, KY 42431
<b>4500-H+ B-2000 in Water</b>	
pH (Lab)	KY Drinking Water Mdv (00030) TN Drinking Water (02819)
<b>SW846 6010 B in Water</b>	
Calcium	VA NELAC MDV (460210)

<b>Sample Acceptance Checklist for Work Order 2094290</b>	
Shipped By: Client	Temperature: 4.40° Celcius
<b>Condition</b>	
Check if Custody Seals are Present/Intact	<input type="checkbox"/>
Check if Custody Signatures are Present	<input checked="" type="checkbox"/>
Check if Collector Signature Present	<input checked="" type="checkbox"/>
Check if bottles are intact	<input checked="" type="checkbox"/>
Check if bottles are correct	<input checked="" type="checkbox"/>
Check if bottles have sufficient volume	<input checked="" type="checkbox"/>
Check if samples received on ice	<input checked="" type="checkbox"/>
Check if VOA headspace is acceptable	<input type="checkbox"/>
Check if samples received in holding time.	<input checked="" type="checkbox"/>
Check if samples are preserved properly	<input checked="" type="checkbox"/>

# Chain of Custody

Scheduled for: **09/29/2022**



Client: **Big Rivers Electric Corporation**  
Reid/Green Station

Report To:  
Big Rivers Electric Corporation Reid/Green  
Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Invoice To:  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Project: **HMPL Surface Impoundment**  
Characterization Wells

Phone: (270) 844-6000  
PWS ID#:  
State: KY

PO#:  
Quote#

Please Print Legibly

Collected by (Signature): *Greg Dick*  
\*required information\*

Compliance Monitoring? Yes  No

Samples Chlorinated? Yes  No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date N/A End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY	*required information*		Bottle and Preservative	Containers
Workorder #	Date	Collection		
2094290	(mm/dd/yy):	Time (24 hr):		
Sample ID#				
2094290-01 A	<u>12/02/22</u>	<u>1110</u>	Plastic 500mL pH<2 w/HNO3	1

Sample Description	Composite	Sample Analysis Requested
MW-110	g / c	Arsenic Tot 6020 Barium Tot 6020 Beryllium Tot 6020 Boron Tot 6010B Cadmium Tot 6020 Calcium Tot 6010B Chromium Tot 6020 Cobalt Tot 6020 Antimony Tot 6020 Lithium Tot 6020 Thallium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Selenium Tot 6020

Preservation Check: pH :

2094290-01 B 12/02/22 1110 Plastic 1L 1

MW-110 g / c Fluoride 9056 TDS Sulfate 9056 pH (Lab) Chloride 9056

2094290-01 C 12/02/22 1110 Plastic 1L pH<2 w/HNO3 Rad 226 (Sub) 1

MW-110 g / c Radium 226 (sub)

Preservation Check: pH :

2094290-01 D 12/02/22 1110 Plastic 1L pH<2 w/HNO3 Rad 228 (Sub) 1

MW-110 g / c Radium 228 (sub)

Preservation Check: pH :

2094290-01 E 12/02/22 1110 Plastic 1L pH<2 w/HNO3 Rad 228 (Sub) 1

MW-110 g / c Radium 228 (sub)

Preservation Check: pH :

Preservation Check Performed by: AEI

Field data collected by: <u><i>Greg Dick</i></u>	Date (mm/dd/yy) <u>12/02/22</u>	Time (24 hr) <u>1110</u>
pH (MW110) <u>7.28</u>	Cond (umho) <u>1290</u>	Res Cl (mg/L) _____
Temp (oC) <u>16.50</u>	or (oF) _____	Static Water Level _____
Flow (MGD) _____	or (CFS) _____	or (g/min) _____
Total Cl (mg/L) _____		Free Cl (mg/L) _____
DO (mg/L) _____		Turb. (NTU) _____

Relinquished by: (Signature)	Received by: (Signature)	Date (mm/dd/yy)	Time (24 hr)
<u><i>Greg Dick</i></u> <u><i>Greg Dick</i></u>	<u><i>AMMY</i></u>	<u>12/05/22</u>	<u>1302</u>
_____	_____	_____	_____
_____	_____	_____	_____

# Chain of Custody

Scheduled for: **09/29/2022**



Client: **Big Rivers Electric Corporation**  
**Reid/Green Station**

Report To:  
**Big Rivers Electric Corporation Reid/Green Station**  
**Chad Phillips**  
**PO Box 24**  
**Henderson, KY 42419**  
Phone: (270) 844-6000  
PWS ID#:  
State:   KY  

Invoice To:  
**Big Rivers Electric Corporation Reid/Green Station**  
**Chad Phillips**  
**PO Box 24**  
**Henderson, KY 42419**  
PO#: \_\_\_\_\_  
Quote# \_\_\_\_\_

Project: **HMPL Surface Impoundment**  
**Characterization Wells**

Please Print Legibly

Collected by (Signature): Greg Dick

Compliance Monitoring? Yes \_\_\_ No \_\_\_

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Samples Chlorinated? Yes \_\_\_ No \_\_\_

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_  
Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

**LAB USE ONLY**

\*required information\*

Workorder #	Date	Collection Time (24 hr)	Bottle and Preservative	Containers
2094290-01 F	12/02/22	1110	Plastic 1L pH<2 w/HNO3 (Sub)	1
Preservation Check: pH : <input checked="" type="checkbox"/>				
2094290-02 A	12/02/22	1205	Plastic 500mL pH<2 w/HNO3	1
Preservation Check: pH : <input checked="" type="checkbox"/>				
2094290-02 B	12/02/22	1205	Plastic 1L	1
2094290-02 C	12/02/22	1205	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1
Preservation Check: pH : <input checked="" type="checkbox"/>				
2094290-02 D	12/02/22	1205	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1
Preservation Check: pH : <input checked="" type="checkbox"/>				

Sample Description	Composite	Sample Analysis Requested
MW-110	g / c	Radium Total (sub)
MW-111	g / c	Arsenic Tot 6020 Barium Tot 6020 Beryllium Tot 6020 Boron Tot 6010B Cadmium Tot 6020 Calcium Tot 6010B Chromium Tot 6020 Cobalt Tot 6020 Antimony Tot 6020 Lithium Tot 6020 Thallium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Selenium Tot 6020
MW-111	g / c	Fluoride 9056 TDS Sulfate 9056 pH (Lab) Chloride 9056 Radium 226 (sub)
MW-111	g / c	Radium 228 (sub)

Preservation Check Performed by: ARL

Field data collected by: Greg Dick Date (mm/dd/yy) 12/02/22 Time (24 hr) 1205

pH (MW111) 8.17 Cond (umho) 494 Res Cl (mg/L) \_\_\_\_\_ Tot Cl (mg/L) \_\_\_\_\_ Free Cl (mg/L) \_\_\_\_\_

Temp (oC) 16.50 or (oF) \_\_\_\_\_ Static Water Level \_\_\_\_\_ DO (mg/L) \_\_\_\_\_ Turb. (NTU) \_\_\_\_\_

Flow (MGD) \_\_\_\_\_ or (CFS) \_\_\_\_\_ or (g/min) \_\_\_\_\_

Relinquished by: (Signature)	Received by: (Signature)	Date (mm/dd/yy)	Time (24 hr)
<u>Greg Dick</u>	<u>AMM</u>	<u>12/05/22</u>	<u>1302</u>

# Chain of Custody

Scheduled for: **09/29/2022**



**Client:** Big Rivers Electric Corporation  
Reid/Green Station

**Report To:**  
Big Rivers Electric Corporation Reid/Green  
Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

**Invoice To:**  
Big Rivers Electric Corporation Reid/Green Station

**Project:** HMPL Surface Impoundment  
Characterization Wells

Phone: (270) 844-6000  
PWS ID#:  
State: KY

Chad Phillips  
PO Box 24  
Henderson, KY 42419

PO#:  
Quote#

Please Print Legibly

Collected by (Signature): Greg Dick \*required information\*

Compliance Monitoring? Yes \_\_\_ No \_\_\_

Samples Chlorinated? Yes \_\_\_ No \_\_\_

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time → Temp (oC) \_\_\_\_\_

Effluent: Start Date ← Start time \_\_\_\_\_ End Date N/A End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY Workorder # 2094290 Sample ID#	*required information* Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers
2094290-02 E	<u>12/02/22</u>	<u>1205</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1
Preservation Check: pH: <u>✓</u>				
2094290-02 F	<u>12/02/22</u>	<u>1205</u>	Plastic 1L pH<2 w/HNO3 (Sub)	1
Preservation Check: pH: <u>✓</u>				
2094290-03 A	<u>12/02/22</u>	<u>1256</u>	Plastic 500mL pH<2 w/HNO3	1
Preservation Check: pH: <u>✓</u>				
2094290-03 B	<u>12/02/22</u>	<u>1256</u>	Plastic 1L	1
2094290-03 C	<u>12/02/22</u>	<u>1256</u>	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1
Preservation Check: pH: <u>✓</u>				

Sample Description	Composite	Sample Analysis Requested
MW-111	g / c	Radium 228 (sub)
MW-111	g / c	Radium Total (sub)
MW-112	g / c	Arsenic Tot 6020 Barium Tot 6020 Beryllium Tot 6020 Boron Tot 6010B Cadmium Tot 6020 Calcium Tot 6010B Chromium Tot 6020 Cobalt Tot 6020 Antimony Tot 6020 Lithium Tot 6020 Thallium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Selenium Tot 6020
MW-112	g / c	Fluoride 9056 TDS Sulfate 9056 pH (Lab) Chloride 9056
MW-112	g / c	Radium 226 (sub)

Preservation Check Performed by: ALL

Field data collected by: Greg Dick Date (mm/dd/yy) 12/02/22 Time (24 hr) 1256

pH (MW112) 7.80 Cond (umho) 490 Res Cl (mg/L) \_\_\_\_\_ Tot Cl (mg/L) \_\_\_\_\_ Free Cl (mg/L) \_\_\_\_\_

Temp (oC) 16.36 or (oF) \_\_\_\_\_ Static Water Level \_\_\_\_\_ DO (mg/L) \_\_\_\_\_ Turb. (NTU) \_\_\_\_\_

Flow (MGD) \_\_\_\_\_ or (CFS) \_\_\_\_\_ or (g/min) \_\_\_\_\_

Relinquished by: (Signature)	Received by: (Signature)	Date (mm/dd/yy)	Time (24 hr)
<u>Greg Dick</u> <u>Greg Dick</u>	<u>[Signature]</u>	<u>12/05/22</u>	<u>1302</u>

# Chain of Custody

**Scheduled for: 09/29/2022**



**Client: Big Rivers Electric Corporation  
Reid/Green Station**

**Report To:**  
Big Rivers Electric Corporation Reid/Green  
Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

**Invoice To:**  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

**Project: HMPL Surface Impoundment  
Characterization Wells**

Phone: (270) 844-6000  
PWS ID#:  
State: KY

PO#: \_\_\_\_\_  
Quote# \_\_\_\_\_

Please Print Legibly

Collected by (Signature): Greg Dick

Compliance Monitoring? Yes \_\_\_ No \_\_\_  
Samples Chlorinated? Yes \_\_\_ No \_\_\_

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_  
Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date N/A End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY Workorder # Sample ID#	*required information* Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers
2094290-03 D	<u>12/02/22</u>	<u>1256</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1
Preservation Check: pH: <input checked="" type="checkbox"/>				
2094290-03 E	<u>12/02/22</u>	<u>1256</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1
Preservation Check: pH: <input checked="" type="checkbox"/>				
2094290-03 F	<u>12/02/22</u>	<u>1256</u>	Plastic 1L pH<2 w/HNO3 (Sub)	1
Preservation Check: pH: <input checked="" type="checkbox"/>				

Sample Description	Composite	Sample Analysis Requested
MW-112	g / c	Radium 228 (sub)
MW-112	g / c	Radium 228 (sub)
MW-112	g / c	Radium Total (sub)

Thermometer Serial Number

181390287  
181460057  
Temp 4.4 °C

Thermometer Serial Number  
181390287  
181460057  
Temp \_\_\_\_\_ °C

Preservation Check Performed by: ADD

Field data collected by: <u>Greg Dick</u>	Date (mm/dd/yy) <u>12/02/22</u>	Time (24 hr) <u>1256</u>
pH (MW112) <u>7.80</u>	Cond (umho) <u>490</u>	Res Cl (mg/L) _____
Temp (oC) <u>10.36</u>	or (oF) _____	Static Water Level _____
Flow (MGD) _____	or (CFS) _____	or (g/min) _____
DO (mg/L) _____		Turb. (NTU) _____

Relinquished by: (Signature) <u>Greg Dick</u>	Received by: (Signature) <u>[Signature]</u>	Date (mm/dd/yy) <u>12/05/22</u>	Time (24 hr) <u>1302</u>
--	--	------------------------------------	-----------------------------

PACE- Check here if trip charge applied to associated COC

# Chain of Custody

Scheduled for: **09/29/2022**



Client: **Big Rivers Electric Corporation**  
Reid/Green Station

Report To:  
Big Rivers Electric Corporation Reid/Green  
Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Invoice To:  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Project: **HMPL Surface Impoundment**  
Characterization Wells

Phone: (270) 844-6000  
PWS ID#:  
State: KY

PO#:  
Quote#

Please Print Legibly

Collected by (Signature): Greg Dick  
\*required information\*

Compliance Monitoring? Yes \_\_\_ No

Samples Chlorinated? Yes \_\_\_ No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date N/A End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY	*required information*		Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
Workorder #	Date	Collection					
2094290	(mm/dd/yy):	Time (24 hr):					
Sample ID#							
2094290-01 A	<u>12/02/22</u>	<u>1110</u>	Plastic 500mL pH<2 w/HNO3	1	MW-110	g / c	Arsenic Tot 6020 Barium Tot 6020 Beryllium Tot 6020 Boron Tot 6010B Cadmium Tot 6020 Calcium Tot 6010B Chromium Tot 6020 Cobalt Tot 6020 Antimony Tot 6020 Lithium Tot 6020 Thallium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Selenium Tot 6020
			Preservation Check: pH :	<input checked="" type="checkbox"/>			
2094290-01 B	<u>12/02/22</u>	<u>1110</u>	Plastic 1L	1	MW-110	g / c	Fluoride 9056 TDS Sulfate 9056 pH (Lab) Chloride 9056 Radium 226 (sub)
2094290-01 C	<u>12/02/22</u>	<u>1110</u>	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1	MW-110	g / c	
			Preservation Check: pH :	<input checked="" type="checkbox"/>			
2094290-01 D	<u>12/02/22</u>	<u>1110</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW-110	g / c	Radium 228 (sub)
			Preservation Check: pH :	<input checked="" type="checkbox"/>			
2094290-01 E	<u>12/02/22</u>	<u>1110</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW-110	g / c	Radium 228 (sub)
			Preservation Check: pH :	<input checked="" type="checkbox"/>			

Preservation Check Performed by: AEI

Field data collected by: Greg Dick Date (mm/dd/yy) 12/02/22 Time (24 hr) 1110  
pH (mw110) 7.28 Cond (umho) 1290 Res Cl (mg/L) \_\_\_\_\_ Tot Cl (mg/L) \_\_\_\_\_ Free Cl (mg/L) \_\_\_\_\_  
Temp (oC) 16.50 or (oF) \_\_\_\_\_ Static Water Level \_\_\_\_\_ DO (mg/L) \_\_\_\_\_ Turb. (NTU) \_\_\_\_\_  
Flow (MGD) \_\_\_\_\_ or (CFS) \_\_\_\_\_ or (g/min) \_\_\_\_\_

Relinquished by: (Signature)	Received by: (Signature)	Date (mm/dd/yy)	Time (24 hr)
<u>Greg Dick Greg Dick</u>	<u>AMMY J...</u>	<u>12/05/22</u>	<u>1302</u>
_____	_____	_____	_____
_____	_____	_____	_____

# Chain of Custody

Scheduled for: **09/29/2022**



**Client:** Big Rivers Electric Corporation  
Reid/Green Station

**Report To:**  
Big Rivers Electric Corporation Reid/Green  
Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

**Invoice To:**  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

**Project:** HMPL Surface Impoundment  
Characterization Wells

Phone: (270) 844-6000  
PWS ID#:  
State: KY

PO#:  
Quote#

Please Print Legibly

Collected by (Signature): Greg Dick  
\*required information\*

Compliance Monitoring? Yes \_\_\_ No \_\_\_

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Samples Chlorinated? Yes \_\_\_ No \_\_\_

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY Workorder # Sample ID#	*required information* Date (mm/dd/yy): Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
2094290-01 F	<u>12/02/22</u> <u>1110</u>	Plastic 1L pH<2 w/HNO3 (Sub)	1	MW-110	g / c	Radium Total (sub)
Preservation Check: pH : <u>✓</u>						
2094290-02 A	<u>12/02/22</u> <u>1205</u>	Plastic 500mL pH<2 w/HNO3	1	MW-111	g / c	Arsenic Tot 6020 Barium Tot 6020 Beryllium Tot 6020 Boron Tot 6010B Cadmium Tot 6020 Calcium Tot 6010B Chromium Tot 6020 Cobalt Tot 6020 Antimony Tot 6020 Lithium Tot 6020 Thallium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Selenium Tot 6020
Preservation Check: pH : <u>✓</u>						
2094290-02 B	<u>12/02/22</u> <u>1205</u>	Plastic 1L	1	MW-111	g / c	Fluoride 9056 TDS Sulfate 9056 pH (Lab) Chloride 9056 Radium 226 (sub)
2094290-02 C	<u>12/02/22</u> <u>1205</u>	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1	MW-111	g / c	Radium 226 (sub)
Preservation Check: pH : <u>✓</u>						
2094290-02 D	<u>12/02/22</u> <u>1205</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW-111	g / c	Radium 228 (sub)
Preservation Check: pH : <u>✓</u>						

Preservation Check Performed by: ARD

Field data collected by: Greg Dick Date (mm/dd/yy) 12/02/22 Time (24 hr) 1205  
pH (MW111) 8.17 Cond (umho) 494 Res Cl (mg/L) \_\_\_\_\_ Tot Cl (mg/L) \_\_\_\_\_ Free Cl (mg/L) \_\_\_\_\_  
Temp (oC) 16.50 or (oF) \_\_\_\_\_ Static Water Level \_\_\_\_\_ DO (mg/L) \_\_\_\_\_ Turb. (NTU) \_\_\_\_\_  
Flow (MGD) \_\_\_\_\_ or (CFS) \_\_\_\_\_ or (g/min) \_\_\_\_\_

Relinquished by: (Signature)	Received by: (Signature)	Date (mm/dd/yy)	Time (24 hr)
<u>Greg Dick</u>	<u>ARD</u>	<u>12/05/22</u>	<u>1302</u>
_____	_____	_____	_____
_____	_____	_____	_____

# Chain of Custody

Scheduled for: **09/29/2022**



**Client:** Big Rivers Electric Corporation  
Reid/Green Station

**Report To:**  
Big Rivers Electric Corporation Reid/Green  
Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

**Invoice To:**  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

**Project:** HMPL Surface Impoundment  
Characterization Wells

Phone: (270) 844-6000  
PWS ID#:  
State: KY

PO#: \_\_\_\_\_  
Quote# \_\_\_\_\_

Please Print Legibly

Collected by (Signature): Greg Dick  
\*required information\*

Compliance Monitoring? Yes \_\_\_ No \_\_\_

Samples Chlorinated? Yes \_\_\_ No \_\_\_

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date N/A Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY Workorder # Sample ID#	*required information* Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
2094290-02 E	<u>12/02/22</u>	<u>1205</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW-111	g / c	Radium 228 (sub)
			Preservation Check: pH : <u>✓</u>				
2094290-02 F	<u>12/02/22</u>	<u>1205</u>	Plastic 1L pH<2 w/HNO3 (Sub)	1	MW-111	g / c	Radium Total (sub)
			Preservation Check: pH : <u>✓</u>				
2094290-03 A	<u>12/02/22</u>	<u>1256</u>	Plastic 500mL pH<2 w/HNO3	1	MW-112	g / c	Arsenic Tot 6020 Barium Tot 6020 Beryllium Tot 6020 Boron Tot 6010B Cadmium Tot 6020 Calcium Tot 6010B Chromium Tot 6020 Cobalt Tot 6020 Antimony Tot 6020 Lithium Tot 6020 Thallium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Selenium Tot 6020
			Preservation Check: pH : <u>✓</u>				
2094290-03 B	<u>12/02/22</u>	<u>1256</u>	Plastic 1L	1	MW-112	g / c	Fluoride 9056 TDS Sulfate 9056 pH (Lab) Chloride 9056
2094290-03 C	<u>12/02/22</u>	<u>1256</u>	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1	MW-112	g / c	Radium 226 (sub)
			Preservation Check: pH : <u>✓</u>				

Preservation Check Performed by: ACE

Field data collected by: Greg Dick Date (mm/dd/yy) 12/02/22 Time (24 hr) 1256  
pH (MW112) 7.80 Cond (umho) 490 Res Cl (mg/L) \_\_\_\_\_ Tot Cl (mg/L) \_\_\_\_\_ Free Cl (mg/L) \_\_\_\_\_  
Temp (oC) 16.36 or (oF) \_\_\_\_\_ Static Water Level \_\_\_\_\_ DO (mg/L) \_\_\_\_\_ Turb. (NTU) \_\_\_\_\_  
Flow (MGD) \_\_\_\_\_ or (CFS) \_\_\_\_\_ or (g/min) \_\_\_\_\_

Relinquished by: (Signature)	Received by: (Signature)	Date (mm/dd/yy)	Time (24 hr)
<u>Greg Dick</u> <u>Greg Dick</u>	<u>AMM</u>	<u>12/05/22</u>	<u>1302</u>
_____	_____	_____	_____
_____	_____	_____	_____

# Chain of Custody

**Scheduled for: 09/29/2022**



**Client: Big Rivers Electric Corporation  
Reid/Green Station**

**Report To:**  
Big Rivers Electric Corporation Reid/Green  
Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

**Invoice To:**  
Big Rivers Electric Corporation Reid/Green Station

**Project: HMPL Surface Impoundment  
Characterization Wells**

Phone: (270) 844-6000  
PWS ID#:  
State: KY

Chad Phillips  
PO Box 24  
Henderson, KY 42419

PO#: \_\_\_\_\_  
Quote# \_\_\_\_\_

Please Print Legibly

Collected by (Signature): Greg Dick \*required information\*

Compliance Monitoring? Yes \_\_\_ No \_\_\_

Samples Chlorinated? Yes \_\_\_ No \_\_\_

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date N/A End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY Workorder # Sample ID#	*required information* Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
2094290-03 D	<u>12/02/22</u>	<u>125b</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW-112	g / c	Radium 228 (sub)
			Preservation Check: pH: <u>✓</u>				
2094290-03 E	<u>12/02/22</u>	<u>125b</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW-112	g / c	Radium 228 (sub)
			Preservation Check: pH: <u>✓</u>				
2094290-03 F	<u>12/02/22</u>	<u>125b</u>	Plastic 1L pH<2 w/HNO3 (Sub)	1	MW-112	g / c	Radium Total (sub)
			Preservation Check: pH: <u>✓</u>				

**Thermometer Serial Number**  
181390287  
181460057  
Temp 4.4 °C

**Thermometer Serial Number**  
181390287  
181460057  
Temp \_\_\_\_\_ °C

Preservation Check Performed by: ACL

Field data collected by: Greg Dick Date (mm/dd/yy) 12/02/22 Time (24 hr) 1256

pH (MW112) 7.80 Cond (umho) 490 Res Cl (mg/L) \_\_\_\_\_ Tot Cl (mg/L) \_\_\_\_\_ Free Cl (mg/L) \_\_\_\_\_

Temp (oC) 10.36 or (oF) \_\_\_\_\_ Static Water Level \_\_\_\_\_ DO (mg/L) \_\_\_\_\_ Turb. (NTU) \_\_\_\_\_

Flow (MGD) \_\_\_\_\_ or (CFS) \_\_\_\_\_ or (g/min) \_\_\_\_\_

Relinquished by: (Signature)	Received by: (Signature)	Date (mm/dd/yy)	Time (24 hr)
<u>Greg Dick</u> <u>Greg Dick</u>	<u>[Signature]</u>	<u>12/05/22</u>	<u>1302</u>
_____	_____	_____	_____
_____	_____	_____	_____

December 29, 2022

Rob Whittington  
Pace Analytical Madisonville  
825 Industrial Rd  
Madisonville, KY 42431

RE: Project: 2094290/HMPL Surface Impoundme  
Pace Project No.: 30544225

Dear Rob Whittington:

Enclosed are the analytical results for sample(s) received by the laboratory on December 07, 2022. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Amber D. Carr  
amber.carr@pacelabs.com  
(724)850-5600  
Project Manager

Enclosures

cc: Doug Wolfe, Pace Analytical Madisonville



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: 2094290/HMPL Surface Impoundme  
Pace Project No.: 30544225

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 460198  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE SUMMARY

Project: 2094290/HMPL Surface Impoundme  
Pace Project No.: 30544225

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30544225001	2094290-01	Water	12/02/22 11:10	12/07/22 10:05
30544225002	2094290-02	Water	12/02/22 12:05	12/07/22 10:05
30544225003	2094290-03	Water	12/02/22 12:56	12/07/22 10:05

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 2094290/HMPL Surface Impoundme  
Pace Project No.: 30544225

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30544225001	2094290-01	EPA 903.1	CLM	1	PASI-PA
		EPA 904.0	JJS1	1	PASI-PA
		Total Radium Calculation	LAL	1	PASI-PA
30544225002	2094290-02	EPA 903.1	CLM	1	PASI-PA
		EPA 904.0	JJS1	1	PASI-PA
		Total Radium Calculation	LAL	1	PASI-PA
30544225003	2094290-03	EPA 903.1	CLM	1	PASI-PA
		EPA 904.0	JJS1	1	PASI-PA
		Total Radium Calculation	LAL	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 2094290/HMPL Surface Impoundme

Pace Project No.: 30544225

**Sample: 2094290-01**      **Lab ID: 30544225001**      Collected: 12/02/22 11:10      Received: 12/07/22 10:05      Matrix: Water  
PWS:      Site ID:      Sample Type:

Comments: • The preservative type is not listed on the COC.  
• Collection date/time illegible on sample labels.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>0.0829 ± 0.430 (0.892)</b> C:NA T:89%	pCi/L	12/23/22 15:47	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>1.01 ± 0.533 (0.972)</b> C:71% T:86%	pCi/L	12/23/22 14:53	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	<b>1.09 ± 0.963 (1.86)</b>	pCi/L	12/29/22 13:32	7440-14-4	

**Sample: 2094290-02**      **Lab ID: 30544225002**      Collected: 12/02/22 12:05      Received: 12/07/22 10:05      Matrix: Water  
PWS:      Site ID:      Sample Type:

Comments: • The preservative type is not listed on the COC.  
• Collection date/time illegible on sample labels.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>0.495 ± 0.726 (1.24)</b> C:NA T:93%	pCi/L	12/23/22 15:47	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>1.14 ± 0.485 (0.808)</b> C:91% T:80%	pCi/L	12/23/22 14:53	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	<b>1.64 ± 1.21 (2.05)</b>	pCi/L	12/29/22 13:32	7440-14-4	

**Sample: 2094290-03**      **Lab ID: 30544225003**      Collected: 12/02/22 12:56      Received: 12/07/22 10:05      Matrix: Water  
PWS:      Site ID:      Sample Type:

Comments: • The preservative type is not listed on the COC.  
• Collection date/time illegible on sample labels.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>0.161 ± 0.548 (1.06)</b> C:NA T:87%	pCi/L	12/23/22 15:47	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>1.04 ± 0.547 (0.998)</b> C:78% T:79%	pCi/L	12/23/22 14:53	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	<b>1.20 ± 1.10 (2.06)</b>	pCi/L	12/29/22 13:32	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: 2094290/HMPL Surface Impoundme

Pace Project No.: 30544225

QC Batch: 552686

Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1

Analysis Description: 903.1 Radium-226

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30544225001, 30544225002, 30544225003

METHOD BLANK: 2684919

Matrix: Water

Associated Lab Samples: 30544225001, 30544225002, 30544225003

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.0681 ± 0.353 (0.734) C:NA T:87%	pCi/L	12/23/22 15:47	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: 2094290/HMPL Surface Impoundme

Pace Project No.: 30544225

QC Batch: 552687

Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0

Analysis Description: 904.0 Radium 228

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30544225001, 30544225002, 30544225003

METHOD BLANK: 2684920

Matrix: Water

Associated Lab Samples: 30544225001, 30544225002, 30544225003

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.453 ± 0.389 (0.779) C:81% T:75%	pCi/L	12/23/22 14:53	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: 2094290/HMPL Surface Impoundme

Pace Project No.: 30544225

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Act - Activity

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

## REPORT OF LABORATORY ANALYSIS

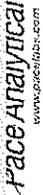
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WO#: 30544225



30544225

Chain of Custody



www.pacelabs.com

Workorder: 2094290      Workorder Name: HMPL Surface Impoundme      Owner Received Date: 12/5/2022      Results Requested By: standard

Report To:      Subcontract To:      Requested Analysis

Pace Analytical Services, LLC  
825 Industrial Road  
Madisonville, KY 42409  
270-821-7375  
rob.whittington@pacelabs.com

Pace Analytical Services LLC Greensburg PA  
1638 Rosey Town Rd Suite 2,3,4  
Greensburg, PA 15601  
(724) 850-5615

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers			LAB USE ONLY
1									
2	2094290-01		12/02/22 11:10	IR44-McCoy	Water			X	801
3	2094290-02		12/02/22 12:05	IR44-McCoy	Water			X	002
4	2094290-03		12/02/22 12:56	IR44-McCoy	Water			X	803
5									
6									
7									
8									
9									
10									

Transfers	Released By	Date/Time	Received By	Date/Time	Comments
1			<i>R. Whittington</i>	12-7-22	18:05
2					
3					

Cooler Temperature on Receipt 2.1 °C      Custody Seal Y or N      Received on Ice Y or N      Sample Intact Y or N

\*\*\*In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC  
This chain of custody is considered complete as is since this information is available in the owner laboratory.

Friday, June 17, 2016 11:01:34 AM

FMT-ALL-C-002rev.00 24March2009

Page 1 of 1

SUBCONTRACT ORDER

Pace Analytical Services, LLC Kentu  
2094290

WO#: 30544225

PM: ADC

Due Date: 12/29/22

CLIENT: PACE\_44\_MVKY

SENDING LABORATORY:

Pace Analytical Services, LLC Kentucky  
PO BOX 907  
Madisonville, KY 42431  
Phone: (270) 821-7375  
Fax: 844-270-7904  
Project Manager: Rob Whittington

RECEIVING LABORATORY:

Pace Analytical Services LLC Greensburg PA  
1638 Rosey Town Rd Suite 2,3,4  
Greensburg, PA 15601  
Phone :(724) 850-5615  
Fax:

Analysis	Expires	Laboratory ID	Comments
<b>Sample ID: 2094290-01</b>	<b>Water</b>	<b>Sampled:12/02/2022 11:10</b>	<b>Specific Method</b>
Radium Total (sub)	05/31/2023 11:10	EPA 904.0 Radium Sum C	
Radium 228 (sub)	05/31/2023 11:10	EPA 904.0 Radium Sum C	
Radium 226 (sub)	05/31/2023 11:10	EPA 903.1	
<b>Sample ID: 2094290-02</b>	<b>Water</b>	<b>Sampled:12/02/2022 12:05</b>	<b>Specific Method</b>
Radium Total (sub)	05/31/2023 12:05	EPA 904.0 Radium Sum C	
Radium 228 (sub)	05/31/2023 12:05	EPA 904.0 Radium Sum C	
Radium 226 (sub)	05/31/2023 12:05	EPA 903.1	
<b>Sample ID: 2094290-03</b>	<b>Water</b>	<b>Sampled:12/02/2022 12:56</b>	<b>Specific Method</b>
Radium Total (sub)	05/31/2023 12:56	EPA 904.0 Radium Sum C	
Radium 228 (sub)	05/31/2023 12:56	EPA 904.0 Radium Sum C	
Radium 226 (sub)	05/31/2023 12:56	EPA 903.1	

 12-6-22     
  12/17/22 10:05  
 Released By                      Date                      Received By                      Date

Released By                      Date                      Received By                      Date

DC#\_Title: ENV-FRM-GBUR-0088 v02\_Sample Condition Upon Receipt-  
Pittsburgh

Effective Date: 10/03/2022

WO#: 30544225

PM: ADC Due Date: 12/29/22

CLIENT: PACE\_44\_MVKY



Client Name: Pace Kentucky

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace  Other

Tracking Number: 1Z 0G7 457 01 4010 8489

Examined By Ja

Labeled By Ja

Temped By Ja

Custody Seal on Cooler/Box Present:  Yes  No Seals Intact:  Yes  No

Thermometer Used: 18 Type of Ice: Wet Blue None

Cooler Temperature: Observed Temp 2.1 °C Correction Factor: 0.0 °C Final Temp: 2.1 °C  
Temp should be above freezing to 6°C

Comments:	Yes	No	NA	pH paper Lot#	D.P.D. Residual Chlorine Lot #
				<u>10D2221</u>	
Chain of Custody Present	<input checked="" type="checkbox"/>			1.	
Chain of Custody Filled Out: -Were client corrections present on COC		<input checked="" type="checkbox"/>		2.	<u>no container preservative type on coc</u>
Chain of Custody Relinquished		<input checked="" type="checkbox"/>		3.	
Sampler Name & Signature on COC:		<input checked="" type="checkbox"/>		4.	
Sample Labels match COC: -Includes date/time/ID Matrix: <u>WT</u>		<input checked="" type="checkbox"/>		5.	<u>Date + time unreadable on samples</u>
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>			6.	
Short Hold Time Analysis (<72hr remaining):		<input checked="" type="checkbox"/>		7.	
Rush Turn Around Time Requested:		<input checked="" type="checkbox"/>		8.	
Sufficient Volume:	<input checked="" type="checkbox"/>			9.	
Correct Containers Used: -Pace Containers Used	<input checked="" type="checkbox"/>			10.	
Containers Intact:	<input checked="" type="checkbox"/>			11.	
Orthophosphate field filtered:			<input checked="" type="checkbox"/>	12.	
Hex Cr Aqueous samples field filtered:			<input checked="" type="checkbox"/>	13.	
Organic Samples checked for dechlorination			<input checked="" type="checkbox"/>	14.	
Filtered volume received for dissolved tests:			<input checked="" type="checkbox"/>	15.	
All containers checked for preservation: exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, non-aqueous matrix	<input checked="" type="checkbox"/>			16.	<u>pH &lt; 2</u>
All containers meet method preservation requirements:	<input checked="" type="checkbox"/>			Initial when completed	Date/Time of Preservation
				<u>Ja</u>	
				Lot# of added Preservative	
Headspace in VOA Vials (>6mm):			<input checked="" type="checkbox"/>	17.	
Trip Blank Present:			<input checked="" type="checkbox"/>	18.	
Trip Blank Custody Seals Present			<input checked="" type="checkbox"/>		
Rad Samples Screened <0.5 mrem/hr.	<input checked="" type="checkbox"/>			Initial when completed	Date: Survey Meter SN:
				<u>Ja</u>	<u>12-7-22</u> <u>1403</u>

Comments:

Note: For NC compliance samples with discrepancies, a copy of this form must be sent to the DEHNR Certification office. PM Review is documented electronically in LIMS through the SRF Review schedule in the Workorder Edit Screen.



# Pace Greensburg Lab - Sample Container Count

Client: Pace, Kentucky Profile Number: 1185

Site: 209490 Big Rivers Electric Corporation Notes:

Sample Line Item	Matrix	AG1H	AG1S	AG1T	AG2U	AG3S	AG3U	AG5U	AG5T	BG1U	BG2U	BP1N	BP1U	BP2S	BP2U	BP3C	BP3N	BP3S	BP3U	DG9S	GCUB	VG9H	VG9T	VG9U	VOAK	WGFU	WGKU	ZPLC
1	WT																											
2	WT											3																
3	WT											3																
4																												
5																												
6																												
7																												
8																												
9																												
10																												
11																												
12																												

**WO#: 30544225**  
 PM: ADC Due Date: 12/29/22  
 CLIENT: PACE\_44\_MVKY

### Container Codes

Glass	
GJN	1 Gallon Jug with HNO3
AG5U	100mL amber glass unpreserved
AG5T	100mL amber glass Na Thiosulfate
GJN	1 Gallon Jug
AG1S	1L amber glass H2SO4
AG1H	1L amber glass HCl
AG1T	1L amber glass Na Thiosulfate
BG1U	1L clear glass unpreserved
AG3S	250mL amber glass H2SO4
AG3U	250mL amber glass unpreserved
DG9S	40mL amber VOA vial H2SO4
VG9U	40mL clear VOA vial
VG9T	40mL clear VOA vial Na Thiosulfate
VG9H	40mL clear VOA vial HCl
JGFU	4oz amber wide jar
WGFU	4oz wide jar unpreserved
BG2U	500mL clear glass unpreserved
AG2U	500mL amber glass unpreserved
WGKU	8oz wide jar unpreserved

Plastic / Misc.	
GCUB	1 Gallon Cubitainer
12GN	1/2 Gallon Cubitainer
SP5T	120mL Coliform Na Thiosulfate
BP1N	1L plastic HNO3
BP1U	1L plastic unpreserved
BP3S	250mL plastic H2SO4
BP3N	250mL plastic HNO3
BP3U	250mL plastic unpreserved
BP3C	250mL plastic NaOH
BP2S	500mL plastic H2SO4
BP2U	500mL plastic unpreserved
EZI	5g Etcote
VOAK	Kit for Volatile Solid
I	Wipe/Swab
ZPLC	Ziploc Bag
WT	Water
SL	Solid
OL	Non-aqueous liquid
WP	Wipe



# 2022 Annual Groundwater Monitoring and Corrective Action Report for the Federal Coal Combustion Residuals Rule - Sebree Station



Big Rivers Electric Corporation  
Sebree Generating Station

Project No. 153431  
1/31/2023



# **2022 Annual Groundwater Monitoring and Corrective Action Report for the Federal Coal Combustion Residuals Rule – Sebree Station**

prepared for

**Big Rivers Electrical Corporation  
Sebree Generating Station  
9000 Highway 2096**

**Robards, KY**

**Project No. 153431**

**1/31/2023**

prepared by

**Burns & McDonnell  
Kansas City, Missouri**

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## LIST OF ABBREVIATIONS

<b><u>Abbreviation</u></b>	<b><u>Term/Phrase/Name</u></b>
ACM	Assessment of Corrective Measures
ASD	alternative source demonstration
BREC	Big Rivers Electric Corporation
CCR	Coal Combustion Residuals
CCR Rule	<i>Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals (CCR) from Electric Utilities; Final Rule</i> , dated April 17, 2015, amended July 30, 2018, and on September 28, 2020
CFR	Code of Federal Regulations
GWPS	groundwater protection standard
HMP&L	Reid/Henderson Municipal Power and Light
KDWM	Kentucky Department for Environmental Protection, Division of Waste Management
LCL	lower confidence limit
Report Station/Site	<i>2022 Annual Groundwater Monitoring and Corrective Action Report</i> Sebree Generating Station located in Robards, Kentucky
SSI	statistically significant increase
SSL	statistically significant level
TDS	total dissolved solids
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey

## EXECUTIVE SUMMARY

This report summarizes groundwater monitoring and corrective action activities completed between January 1 and December 31, 2022 at the Big Rivers Electric Corporation (BREC) Sebree Generating Station (Station or Site) as required by 40 Code of Federal Regulations (CFR) §257.90(e) of the United States Environmental Protection Agency (USEPA) Coal Combustion Residuals (CCR) Rule (CCR Rule). The following two CCR units at the Station are subject to the CCR Rule:

- Green Station Landfill (Webster County); and
- Green Station Surface Impoundment (Webster County)

The 2022 Annual Groundwater Monitoring and Corrective Action Report for the Reid/Henderson Municipal Power and Light (HMP&L) Surface Impoundment (Henderson County) at Sebree is provided as a separate submittal.

A Site figure presenting the location of the CCR units is presented as **Figure 1**. The program monitoring networks for each CCR unit, including supporting monitoring wells, are presented as **Figures 2** and **3**. No monitoring wells were installed, modified or abandoned at the Green Landfill or the Green Surface Impoundment during the 2022 reporting period.

Results of baseline groundwater monitoring performed in 2016 and 2017 indicated that the Green Landfill would require initiation of assessment monitoring under the CCR Rule, as the laboratory analytical results from these events indicated that most of the Appendix III constituents had statistically significant increases (SSIs) over background as noted below.

- Appendix III parameters calcium, chloride, sulfate, and total dissolved solids (TDS) at the Green Landfill

On February 5, 2018, BREC posted a formal notification that the Green Landfill would transition from baseline detection to assessment monitoring program. At both the start and end of the 2022 annual reporting period, the Green Landfill was operating under the assessment monitoring program in 40 CFR §257.95.

Statistical evaluation of groundwater analytical data collected during assessment monitoring at the Green Landfill indicated that Appendix IV constituents were detected in downgradient monitoring wells at SSIs over background in 2018 through 2022 as detailed below.

<b>Appendix IV Constituents at an SSI</b>	<b>Green Landfill</b>
Arsenic	June 2018, July 2018, April 2019, October 2019, April 2020, September 2020, April 2021, September 2021, April 2022, December 2022
Barium	June 2018, July 2018, April 2019, October 2019, April 2020, September 2020, April 2021, September 2021, April 2022, December 2022
Cadmium	April 2021
Cobalt	September 2020
Chromium	none
Fluoride	none
Lithium	June 2018, July 2018, April 2019, October 2019, April 2020, September 2020, April 2021, September 2021, April 2022, December 2022
Mercury	June 2018, July 2018, April 2019, October 2019, April 2020, September 2020, April 2021, December 2022
Molybdenum	April 2021, September 2021, April 2022
Radium 226+228 (combined)	April 2022
Selenium	April 2020, April 2021, April 2022

Per CCR rule requirements, groundwater protection standards (GWPSs) for each Appendix IV constituent were developed and the data were tested for whether the concentrations represented statistically significant levels (SSLs) above their respective GWPSs. SSLs identified in annual reporting periods from 2018 through 2022 are as follows:

<b>Appendix IV Constituent at an SSL above GWPS</b>	<b>Green Landfill</b>	<b>Reporting Period</b>
Arsenic	MW-2	2022
Lithium	MW-3A, MW-4, MW-5, and MW-6	2018, 2019, 2020, 2021, 2022

On December 6, 2018, BREC posted formal notification that lithium had been detected at SSLs above the established GWPS for the Green Landfill. In June 2019 BREC finalized an Assessment of Corrective Measures (ACM) for the Green Landfill to identify applicable remedial technologies to address impacts in groundwater pursuant to Title 40 CFR §257.96 (AECOM, 2019b). Reports summarizing the results of the Green Landfill ACM were completed and placed in the BREC operating record on June 13, 2019. The ACM report was posted to BREC’s publicly-accessible CCR reporting website on July 11, 2019. Semi-annual progress on the selection of remedy process for the Green Landfill was reported in December 2019 (AECOM, 2019c) and June 2020 (AECOM, 2020b).

A public meeting open to interested and affected parties was held on July 16, 2020 to discuss the results of the ACM for Green Landfill. No public input influencing the remedy for the unit was received during the meeting. On November 18, 2020 BREC finalized a *Final Groundwater and Non-Groundwater Corrective Action Remedy Selection Report for Green Landfill* (AECOM, 2020c), thereby selecting the remedy for groundwater and non-groundwater impacts at the CCR unit in accordance with 40 CFR §257.97.

Construction of source control measures to address groundwater impacts at Green Landfill were initiated in November 2020. These source control measures consisted of:

1. Design and construction of a perimeter Toe Drain System and additional seepage controls to address leachate outbreaks;
2. Design, permitting, and construction of supplemental seepage controls at River Seep (RS)-07; and
3. Sediment removal from the South Sediment Basin.

Constructing of these additional source control measures around the perimeter of the Green Landfill was completed in the fourth quarter of 2021. Each of these remedies is expected to benefit groundwater

corrective action as a whole and will be further evaluated in 2023 and beyond for alignment with the corrective action objectives through performance monitoring.

Results of baseline groundwater monitoring performed in 2016 and 2017 indicated that the Green Landfill would require initiation of assessment monitoring under the CCR Rule, as the laboratory analytical results from these events indicated that most of the Appendix III constituents had SSIs over background as noted below.

For the Green Surface Impoundment, the results of the statistical evaluation for Appendix III parameters collected during the baseline groundwater monitoring period in 2016 and 2017 initiated semi-annual detection monitoring by BREC in 2018. At both the start and end of the 2022 annual reporting period, the Green Surface Impoundment was operating under the detection monitoring program in accordance with 40 CFR §257.94. Assessment monitoring has not been triggered for the Green Surface Impoundment.

Other activities and conditions for the 2022 annual reporting period include:

- Semi-annual assessment groundwater monitoring events were performed at Green Landfill in April and December 2022;
- Semi-annual detection groundwater monitoring events were performed at Green Surface Impoundment in April and October 2022;
- No monitoring well installation, repair, or decommissioning was performed at the Green Landfill or the Green Surface Impoundment;
- No program transitions (detection to assessment or vice versa) were triggered; and
- The Green Surface Impoundment began closure activities which are scheduled to continue through October 2023.

Anticipated activities for the next 2023 annual reporting period include:

- Completion of two semi-annual assessment groundwater monitoring events at the Green Landfill;
- Completion of two semi-annual detection groundwater monitoring events at the Green Surface Impoundment;
- Continued closure activities at the Green Surface Impoundment;
- Characterization of groundwater for arsenic at the Green Landfill due to SSL over the GWPS; and
- Remedy evaluation at Green Landfill.

This *2022 Annual Groundwater Monitoring and Corrective Action Report* for BREC was prepared to address the requirements of CFR 40 CFR 257.90(e) of the USEPA CCR rule, which requires the contents listed below with the appropriate report section reference identified in bold type for the corresponding content: (1)

1. A map, aerial image, or diagram showing the CCR unit and all background (or upgradient) and downgradient monitoring wells, to include the well identification numbers, that are part of the groundwater monitoring program for the CCR unit (see **Figure 2** and **Figure 3**);
2. Identification of any monitoring wells that were installed or decommissioned during the preceding year, along with a narrative description of why those actions were taken. **No monitoring wells were installed or decommissioned at the Green Landfill or the Green Surface Impoundment in 2022;**
3. In addition to all the monitoring data obtained under Section 257.90 through 257.98, a summary including the number of groundwater samples that were collected for analysis for each background and downgradient well, the dates the samples were collected, and whether the sample was required by the detection monitoring or assessment monitoring programs (referenced in **Section 2.1**);
4. A narrative discussion of any transition between monitoring programs (e.g., the date and circumstances for transitioning from detection monitoring to assessment monitoring in addition to identifying the constituent(s) detected at an SSI over background levels) (presented in **Section 3.3**); and
5. Other information required to be included in the annual report as specified in Section 257.90 through 257.98 (i.e. groundwater monitoring results and various demonstrations regarding alternative monitoring frequency, alternative sources, and extension of schedule for ACMs) (no other information was developed or reported in 2022 as noted in **Section 2**).

## 1.0 INTRODUCTION

At the request of Big Rivers Electric Corporation (BREC), Burns & McDonnell prepared this *2022 Annual Groundwater Monitoring and Corrective Action Report* (Report) for the BREC Sebree Generating Station (Sebree Station), located in Robards, Kentucky within both Henderson and Webster Counties, Kentucky. This Report was prepared in accordance with §257.90(e) of 40 Code of Federal Regulations (CFR) Part 257 and 261 of the USEPA Coal-Combustion Residuals (CCR) Rule to document the status of the groundwater monitoring and corrective action program at the CCR units, summarize key actions completed, describe any problems encountered, discuss any actions to resolve the problems, and provide key activities for the upcoming year. The CCR Rule was established to regulate the disposal of CCR produced by electricity generating facilities (USEPA, 2015; USEPA, 2018; USEPA, 2020a; and 2020b).

This Report is the sixth annual report for the CCR units and summarizes activities performed in 2022 related to the CCR Rule groundwater monitoring program at the following CCR units:

- Green Station Landfill (Webster County); and
- Green Station Surface Impoundment (Webster County)

The 2022 Annual Groundwater Monitoring and Corrective Action Report for the Reid/Henderson Municipal Power and Light (HMP&L) Surface Impoundment (Henderson County) at Sebree is provided as a separate submittal.

As stated in the previous 2016-2021 Annual Groundwater Monitoring and Corrective Action Reports (AECOM, 2018; AECOM, 2019a; AECOM, 2020a; AECOM, 2021; and AECOM, 2022), statistical results of the baseline groundwater data indicate that the Green Landfill would require initiation of assessment monitoring under the CCR Rule, as the laboratory analytical results from these events indicated that most of the Appendix III constituents had statistically significant increases (SSIs) over background as noted below.

- Appendix III parameters calcium, chloride, sulfate, and total dissolved solids (TDS) at the Green Landfill

On February 5, 2018, BREC posted a formal notification that the Green Landfill would enter assessment Monitoring Program, fulfilling the requirement of 40 CFR §257.107(h)(4).

Based upon the statistical evaluation of Appendix III parameters collected during the baseline period at the Green Surface Impoundment, BREC initiated semi-annual detection Monitoring in 2018.

The following sections present a site background summary, a discussion of field activities performed, a summary of laboratory results, statistical evaluation findings, and conclusions regarding groundwater conditions in the aquifer system subject to monitoring under the CCR Rule.

## **1.1 Site Description**

BREC owns and operates Sebree Station, which is a former coal-fired power generating facility located on the Green River northeast of Sebree, Kentucky. Sebree Station is composed of Green Station and HMP&L Station. The Sebree Station is bounded by Interstate 69 to the west and the Green River to the east (see **Figure 1**). Reid Unit 1 began commercial operation in 1966 and was retired on September 30, 2020. HMP&L Station 2, Units 1 and 2 began commercial operation in 1973 and 1974 respectively. Both HMP&L units were retired as of February 1, 2019. Green Station Units 1 and 2 began commercial operation in 1979 and 1981, respectively. Both Green units were converted to natural gas-fired boilers in the second quarter of 2022.

Three disposal CCR units at Sebree Station are regulated under the CCR Rule: Green Landfill, Green Surface Impoundment, and the Reid/HMP&L Surface Impoundment. This Report is for the Green Landfill and Green Surface Impoundment with each CCR unit discussed in more detail below.

### **1.1.1 Green Landfill**

The Green Landfill is located directly south of Sebree Station, situated south of the Green Station CCR Surface Impoundment. The Green Landfill is a Kentucky permitted landfill (Permit No. SW11700007) that previously received special wastes generated by burning coal (CCRs) from Green Station, and formerly Reid Station Unit 1, and HMP&L Station 2 Units 1 and 2. The landfill began receiving CCR wastes in 1980 and currently receives CCR material generated from Green Surface Impoundment closure activities, which began in 2022 and are scheduled to continue through October 2023. The current Green Landfill footprint is approximately 170 acres.

As stated in the published CCR monitoring well network certification for this CCR unit (Associated Engineering Inc., June 2016a), the original ground surface within the landfill footprint was irregular and the dominant features were small stream valleys draining towards the Green River, which is located just east of the landfill; and towards Groves Creek, which is located just south of the landfill. There was also historic oil and gas production at and in the immediate vicinity of the Green Landfill. A review of the records from the Kentucky Geological Survey showed that at or immediately adjacent to the Site, there were several dry oil/gas exploration holes, oil production wells, one gas production well, and one secondary recovery injection well. There were also former brine ponds at the Site. Most of these wells

were abandoned in accordance with applicable regulations by BREC in 1997 and 1998. The last existing oil well was decommissioned in 2019.

### 1.1.2 Green Surface Impoundment

The Green Surface Impoundment is located directly south of the Sebree Station and situated north of the Green Landfill. The Green Surface Impoundment has been in place for more than 40 years for the placement of CCR material. In 2022 this CCR unit began closure activities which are scheduled to continue through October 2023. The immediate watershed that drains to the CCR unit, and in which the CCR unit is located, is unnamed and 54.13 acres in size. The unnamed watershed discharges from the CCR surface impoundment outflow structure and is routed and monitored under a Kentucky Pollution Discharge Elimination System permit, to the Green River.

As stated in the CCR monitoring well network certification for this CCR unit (Associated Engineering Inc., June 2016b), the Green Surface Impoundment is a combined incised/dike earthen embankment structure. It is diked on the west, south and east sides, while the north side is incised. The south dike has the greatest height, reaching approximately 20 feet. The original ground surface within the pond footprint was irregular and the predominant features were small stream valleys draining eastward toward the Green River.

## 1.2 Green Landfill Groundwater Program Monitoring Well System

### 1.2.1 Operating Permit Monitoring Wells

Prior to implementation of the CCR Rule, a groundwater monitoring well network was already present at the Green Landfill in compliance with the requirements of the facility's operating permit. The existing wells are located along the perimeter of the permitted footprint for the Green Landfill and meet the CCR Rule requirements that a minimum of one (1) upgradient and three (3) downgradient monitoring wells must be located at the waste boundary of the (active) CCR unit, or as close as practical.

Under the requirements stated in the operating permit, six (6) monitoring wells (MW-1, MW-2, MW-3A, MW-4, MW-5 and MW-6) were installed adjacent to the Green Landfill to determine the general direction of groundwater movement and to monitor groundwater at the CCR unit. MW-1 is located northwest of the landfill and is considered upgradient and represents the background well. MW-2, MW-3A, MW-4, MW-5 and MW-6; located respectively, northeast, east, southeast, south and southwest are considered downgradient. As-built specifics of each well installation are summarized on **Table 1**. The locations of the groundwater monitoring wells are shown on **Figure 2**. Each well has a dedicated bladder pump and tubing system installed for groundwater sampling purposes.

As stated in the CCR monitoring well network certification, the stratigraphic interval considered as the most prominent water transmitting zone within and adjacent to the Green Landfill is material identified as the Upper Sandstone Member (Sebree sandstone) of the Carbondale Formation. The United States Geological Survey (USGS) Geologic Map of the Robards Quadrangle (Fairer, 1973) describes the Sebree sandstone sequence as “Siltstone, sandstone, shale and coal: Siltstone, light- to medium-gray, micaceous, thin-bedded, locally calcareous. Sandstone, light- to medium-gray, grayish- and yellowish-brown, fine- to medium-grained slightly micaceous, thin-bedded to massive; locally fills channels.” For purposes of compliance with the CCR Rule groundwater monitoring requirements; this sequence, and in particular the sandstone intervals, is considered to be the uppermost aquifer underlying the Green Landfill.

Details about the monitoring network are presented in the Monitoring Well Completion Report, Special Waste Landfill Facility, R.D. Green Station, Webster County, Kentucky (FMSM Engineers, July 1997). **No changes were made to the Program Monitoring Well System in 2022.**

### 1.2.2 Characterization Monitoring Wells

To address the requirements of 40 CFR §257.95(g)(1), one (1) characterization monitoring well (MW-104) was installed in February 2019 to characterize groundwater at the location indicated on

**Figure 2.** As-built specifics of each well installation are summarized on **Table 1.**

The characterization monitoring well, located at a downgradient position east of the CCR unit, was used to assist in the characterization of the existence, quality, quantity, areal extent, and depth of groundwater degradation, and the rate and direction of migration of CCR contaminants in the groundwater.

### 1.3 Green Surface Impoundment Groundwater Program Monitoring Well System

Prior to implementation of the CCR Rule, three temporary piezometers (P-10, P-11 and P-12) were installed adjacent to, and respectively; northwest, southwest and northeast of the Green Surface Impoundment to determine the general direction of groundwater movement. Measured static water levels, from the highest to lowest elevation were observed in P-10 (highest), P-11 and P-12 (lowest). A hydraulic gradient was calculated using this data indicating the apparent direction of groundwater movement is generally from northwest to southeast. This groundwater gradient characterization and the ability to locate monitoring wells specific to the CCR unit justified the placement of the minimum of one (1) upgradient and three (3) downgradient monitoring wells in accordance with the CCR Rule. An upgradient monitoring well (MW-11) was installed adjacent to, and northwest of the CCR unit. Three downgradient monitoring wells (MW-12, MW-13 and MW-14) were installed adjacent to, and respectively; south-southeast,

southeast and east-northeast of the CCR unit. As-built specifics of each well installation are summarized on **Table 2**. The locations of the groundwater monitoring wells are shown on **Figure 3**. Each well has a dedicated bladder pump system and tubing installed for groundwater sampling purposes.

The stratigraphic interval considered as the most prominent water transmitting zone within and adjacent to the Green Surface Impoundment is material identified as the Upper Sandstone Member (Sebree sandstone) of the Carbondale Formation. The USGS Geologic Map of the Robards Quadrangle (Fairer, 1973) describes the Sebree sandstone sequence as “Siltstone, sandstone, shale and coal: Siltstone, light- to medium-gray, micaceous, thin-bedded, locally calcareous. Sandstone, light- to medium-gray, grayish- and yellowish-brown, fine- to medium-grained slightly micaceous, thin-bedded to massive; locally fills channels.” For purposes of compliance with the CCR Rule groundwater monitoring requirements; this sequence, and in particular the sandstone intervals, is considered to be the uppermost aquifer underlying the Green Surface Impoundment.

Details about the monitoring network are presented in the *Assessment of Groundwater Gradients in Vicinities of Green and Reid/HMPL CCR Impoundments* dated September 25, 2015 maintained within the operating record at Sebree Station. **No changes were made to the Program Monitoring Well System in 2022.**

Due to the lack of Appendix IV constituents with statistically significant levels (SSLs) above their respective groundwater protection standards (GWPSs) for the CCR unit, no characterization monitoring wells are required for the Green Surface Impoundment.

## 1.4 Summary of Groundwater Monitoring Programs

### 1.4.1 Green Landfill Groundwater Monitoring Program

Results of baseline groundwater monitoring performed in 2016 and 2017 indicated that the Green Landfill would require initiation of assessment monitoring under the CCR Rule, as the laboratory analytical results from these events indicated that most of the Appendix III constituents had SSIs over background as noted below.

- Appendix III parameters calcium, chloride, sulfate, and TDS at the Green Landfill

On February 5, 2018, BREC posted a formal notification that the Green Landfill would transition from baseline detection to assessment monitoring program. Since 2018 the Green Landfill has been operating under the assessment monitoring program in 40 CFR §257.95. Statistical evaluation of previous

groundwater analytical data collected during assessment monitoring at the Green Landfill from 2018 through 2021 indicated that Appendix IV constituents were detected in downgradient monitoring wells at SSIs over background as detailed below.

<b>Appendix IV Constituents at an SSI</b>	<b>Green Landfill</b>
Arsenic	June 2018, July 2018, April 2019, October 2019, April 2020, September 2020, April 2021, September 2021
Barium	June 2018, July 2018, April 2019, October 2019, April 2020, September 2020, April 2021, September 2021
Cadmium	April 2021
Cobalt	September 2020
Chromium	none
Fluoride	none
Lithium	June 2018, July 2018, April 2019, October 2019, April 2020, September 2020, April 2021, September 2021
Mercury	June 2018, July 2018, April 2019, October 2019, April 2020, September 2020, April 2021
Molybdenum	April 2021, September 2021
Radium 226+228 (combined)	none
Selenium	April 2020, April 2021

Per CCR rule requirements, GWPSs for each Appendix IV constituent were developed and the data were tested for whether the concentrations represented SSLs above their respective GWPSs. SSLs identified in previous annual reporting periods from 2018 through 2021 are as follows:

<b>Appendix IV Constituent at an SSL above GWPS</b>	<b>Green Landfill</b>	<b>Reporting Period</b>
Lithium	MW-3A, MW-4, MW-5, and MW-6	2018, 2019, 2020, and 2021

On December 6, 2018, BREC posted formal notification that lithium had been detected at SSLs above the established GWPS for the Green Landfill. In June 2019 BREC finalized an Assessment of Corrective Measures (ACM) for the Green Landfill to identify applicable remedial technologies to address impacts in groundwater pursuant to Title 40 CFR §257.96 (AECOM, 2019b). Reports summarizing the results of the Green Landfill ACM were completed and placed in the BREC operating record on June 13, 2019. The ACM report was posted to BREC’s publicly-accessible CCR reporting website on July 11, 2019. Semi-annual progress on the selection of remedy process for the Green Landfill was reported in December 2019 (AECOM, 2019c) and June 2020 (AECOM, 2020b).

A public meeting open to interested and affected parties was held on July 16, 2020 to discuss the results of the ACM for Green Landfill. No public input influencing the remedy for the unit was received during the meeting. On November 18, 2020 BREC finalized a *Final Groundwater and Non-Groundwater Corrective Action Remedy Selection Report for Green Landfill* (AECOM, 2020c), thereby selecting the remedy for groundwater and non-groundwater impacts at the CCR unit in accordance with 40 CFR §257.97.

Construction of source control measures to address groundwater impacts at Green Landfill were initiated in November 2020. These source control measures consisted of:

1. Design and construction of a perimeter Toe Drain System and additional seepage controls to address leachate outbreaks;
2. Design, permitting, and construction of supplemental seepage controls at River Seep (RS)-07; and
3. Sediment removal from the South Sediment Basin.

Constructing of these additional source control measures around the perimeter of the Green Landfill was completed in the fourth quarter of 2021. Each of these remedies is expected to benefit groundwater corrective action as a whole and will be further evaluated in 2023 and beyond for alignment with the corrective action objectives through performance monitoring.

#### **1.4.2 Green Surface Impoundment Groundwater Monitoring Program**

Based upon the statistical evaluation of Appendix III parameters collected during the baseline period at the Green Surface Impoundment in 2016 through 2017, BREC initiated semi-annual detection monitoring in 2018. At both the start and end of the previous 2021 annual reporting period, the Green Surface Impoundment was operating under the detection monitoring program in 40 CFR §257.94. Assessment monitoring has not been triggered for this unit.

## 2.0 GROUNDWATER MONITORING ACTIVITIES AND RESULTS

The following subsections describe the activities that were performed in 2022 for the two (2) CCR units noted above related to each of their corresponding CCR Groundwater Program Monitoring Well Systems.

### 2.1 Groundwater Sampling Activities

In 2022, the following monitoring events were performed at Sebree Station:

- Green Landfill: Two (2) assessment groundwater monitoring events and two (2) characterization groundwater monitoring events; and
- Green Surface Impoundment: Two (2) detection groundwater monitoring events

The following tables summarize the dates of each semi-annual groundwater sampling event performed by BREC personnel and the monitoring wells included in the sampling events for each CCR unit.

Green Landfill			
Event Type	Sampling Event	Dates	Wells Sampled
Assessment	First-Half 2022 (Event #19)	April 20, 2022	Background (Upgradient) MW-1  Downgradient MW-2, MW-3A, MW-4. MW-5, MW-6
Characterization	First-Half 2022 (Event #8)	April 20, 2022	Characterization (Downgradient) MW-104
Assessment	Second-Half 2022 (Event #20)	December 9-10, 2022	Background (Upgradient) MW-1  Downgradient MW-2, MW-3A, MW-4. MW-5, MW-6
Characterization	Second-Half 2022 (Event #9)	December 10, 2022	Characterization (Downgradient) MW-104

Green Surface Impoundment			
Event Type	Sampling Event	Dates	Wells Sampled
Detection	First-Half 2022 (Event #18)	April 21, 2022	Background (Upgradient) MW-11  Downgradient MW-12, MW-13, MW-14
Detection	Second-Half 2022 (Event #19)	October 1, 2022	Background (Upgradient) MW-11  Downgradient MW-12, MW-13, MW-14

Following the December 2022 sampling event at the Green Landfill, a total of 20 monitoring events and 9 characterization monitoring events have been performed since 2016. Following the October 2022 sampling event at the Green Surface Impoundment, a total of 19 monitoring events have been performed since 2016. These previous monitoring events at both CCR units were reported on in the *2016-2017 Annual Groundwater Monitoring and Corrective Action Report* (AECOM, 2018), the *2018 Annual Groundwater Monitoring and Corrective Action Report* (AECOM, 2019a), the *2019 Annual Groundwater Monitoring and Corrective Action Report* (AECOM, 2020a), the *2020 Annual Groundwater Monitoring and Corrective Action Report* (AECOM, 2021), and the *2021 Annual Groundwater Monitoring and Corrective Action Report* (AECOM, 2022).

Prior to groundwater sampling, the depth to groundwater was gauged at each of the monitoring wells by BREC personnel during the 2022 monitoring events. The measured depth to groundwater level data and the calculated groundwater elevations are summarized on **Table 3** (Green Landfill) and **Table 4** (Green Surface Impoundment).

Monitoring wells were sampled by BREC personnel following low flow purging and sampling techniques developed and incorporated into current operating permits which are maintained within the operating record at Sebree Station. No filtration of samples was conducted in either the field or laboratory procedures. Monitoring well sampling forms for each of the groundwater monitoring events for both CCR units are included in **Appendix A** and **Appendix B**.

Groundwater samples collected during the 2022 sampling events were submitted to Pace Analytical Services, LLC in Madisonville, Kentucky for laboratory analysis. Laboratory analyses were performed in accordance with approved USEPA methods. Groundwater samples collected at the Green Landfill during assessment and characterization monitoring events were analyzed for Appendix III and Appendix IV parameters, in accordance with 40 CFR §257.95(d)(1). Groundwater samples collected at the Green

Surface Impoundment for the detection monitoring events were analyzed for Appendix III parameters only, in accordance with 40 CFR §257.94(a).

### 3.0 DATA EVALUATION

#### 3.1 Groundwater Flow

Measured depth to groundwater level data collected by BREC personnel and the calculated groundwater elevations during the 2022 monitoring events are summarized on **Table 3** (Green Landfill) and **Table 4** (Green Surface Impoundment). These data were used to construct piezometric surface maps to illustrate groundwater flow conditions for the uppermost aquifer. These data and figures are representative of general conditions at the CCR units and support the following analysis.

##### 3.1.1 Green Landfill

Overall, the predominate groundwater flow direction beneath the footprint of the Green Landfill is to the east and southeast towards the Green River and Groves Creek with a localized northeast flow component along the northern portion of the CCR unit and a localized south-southwest flow components along the west-southwest portions of the CCR unit (see **Figure 4** and **Figure 5**).

##### 3.1.2 Green Surface Impoundment

Overall, the predominate groundwater flow direction beneath the footprint of the Green Surface Impoundment is to the east-southeast towards the Green River with a localized northeast flow component along the northern portion of the CCR unit (see **Figure 6** and **Figure 7**).

#### 3.2 Sampling Results

During 2022, the following monitoring events were performed at the Sebree Station:

- Green Landfill: Two (2) assessment groundwater monitoring events and two (2) characterization groundwater monitoring events; and
- Green Surface Impoundment: Two (2) detection groundwater monitoring events

Results from the assessment and characterization monitoring events are summarized on the tables included in **Appendix C** and **Appendix D** for each CCR unit. Complete copies of the analytical laboratory reports are included in **Appendix E** and **Appendix F** for each CCR unit. Laboratory data was validated and all data are considered viable for reporting as qualified with copies of the data validation reports provided in **Appendix G** and **Appendix H** for each CCR unit.

#### 3.3 Statistical Evaluation

As part of previous assessment monitoring performed at the Green Landfill, background and downgradient wells for this CCR unit were sampled for Appendix IV constituents in 2018 through 2021.

In accordance with 40 CFR §257.95, GWPS were established for detected Appendix IV constituents. Previous assessment monitoring results indicated the presence of an SSL above the GWPS in the following monitoring wells:

- Green Landfill: lithium in monitoring wells MW-3A, MW-4, MW-5, and MW-6

Previous detection monitoring results indicated no Appendix III SSIs at the Green Surface Impoundment and therefore this CCR unit was not subject to assessment monitoring and no SSL determination was required.

In accordance with 40 CFR §257.93(f), 40 CFR §257.93(h), and 40 CFR §257.95(d)(2), Burns & McDonnell conducted a statistical evaluation of the 2022 assessment groundwater data for the Green Landfill as part of developing this Report to identify any 2022 SSIs over background concentrations for the Appendix III and Appendix IV parameters and identify any 2022 SSLs over established GWPS for detected Appendix IV parameters. Statistical methods were chosen in accordance with 40 CFR §257.93(f), while the rationale behind why each method was selected is outlined in the Statistical Methods Certification Document prepared for each CCR unit dated June 28, 2016 (Associated Engineers, Inc., 2016a and 2016b). Summaries of the 2022 statistical evaluation conducted on the Appendix III detection and Appendix IV assessment parameters for the Green Landfill and Green Surface Impoundment are provided as **Appendix I** and **Appendix J**, respectively. The results of each CCR unit-specific evaluation are discussed below.

### 3.3.1 Green Landfill Statistical Evaluation

The Green Landfill assessment monitoring data were evaluated using an inter-well approach that statistically compared constituent concentrations at downgradient compliance monitoring wells to those present at a upgradient/background monitoring well. For the Green landfill, Monitoring Well MW-1 is designated as the background well because it is located upgradient of the CCR unit, whereas Monitoring Wells MW-2, MW-3A, MW-4, MW-5, and MW-6 are designated as compliance wells because they are located along the downgradient side of the CCR unit waste boundary.

As presented in **Appendix I**, the statistical analysis results indicate the following Appendix III constituents were observed as SSIs with concentrations above calculated background values in downgradient compliance monitoring wells.

2022 Appendix III SSIs – Green Landfill	
April 2022 Sampling Event	December 2022 Sampling Event
Calcium (MW-2, MW-3A, MW-4, MW-5, and MW-6)	Calcium (MW-2, MW-3A, MW-4, MW-5, and MW-6)
Chloride (MW-2, MW-3A, MW-4, MW-5, and MW-6)	Chloride (MW-2, MW-3A, MW-4, MW-5, and MW-6)
Sulfate (MW-2, MW-3A, MW-4, MW-5, and MW-6)	Sulfate (MW-2, MW-3A, MW-4, MW-5, and MW-6)
TDS (MW-2, MW-3A, MW-4, MW-5, and MW-6))	TDS (MW-2, MW-3A, MW-4, MW-5, and MW-6))

The previously identified 2021 Appendix III constituent SSIs for pH (field) at MW-2, MW-4, and MW-5 were not verified in 2022. Boron and fluoride did not have any verified SSIs over background. Based on these results, assessment monitoring is required to continue at the Green Landfill on a semi-annual basis.

As presented in **Appendix I**, the statistical analysis results indicate the following Appendix IV constituents were observed as SSIs with concentrations above calculated background values in downgradient compliance monitoring wells.

2022 Appendix IV SSIs – Green Landfill	
April 2022 Sampling Event	December 2022 Sampling Event
Arsenic (MW-2)	Arsenic (MW-2)
Barium (MW-2)	Barium (MW-2)
Lithium (MW-3A, MW-4, MW-5, MW-6)	Lithium (MW-3A, MW-4, MW-5, MW-6)
Molybdenum (MW-2)	Mercury (MW-4)
Radium 226 + 228 (MW-5)	--
Selenium (MW-4)	--

The previously identified 2021 Appendix IV constituent SSI for cadmium at MW-5 did not reoccur in 2022.

These Appendix IV constituents with SSIs were further evaluated to determine whether they are present at SSLs over the GWPS by calculating the lower confidence limit (LCL) at 95% confidence for each well and constituent pair using all of the baseline, detection, and assessment monitoring results collected to date. For a constituent to be present at an SSL over the GWPS, its LCL must be greater than the GWPS. **Attachment I**, provide a summary of the LCLs and GWPS for arsenic, barium, lithium, mercury, molybdenum, radium 226 + 228 (combined), and selenium for the monitoring wells identified above for the semi-annual events, respectively. As presented in **Appendix I**, the statistical analysis results indicate the following Appendix IV constituents were observed at SSLs over the GWPS.

2022 Appendix IV SSLs > GWPS – Green Landfill	
April 2022 Sampling Event	December 2022 Sampling Event
Arsenic (MW-2)	Arsenic (MW-2)
Lithium (MW-3A, MW-4, MW-5, MW-6)	Lithium (MW-3A, MW-4, MW-5, MW-6)

The LCLs for the remaining wells and Appendix IV constituents are less than the GWPS and thus are not considered SSLs.

The identified SSLs over the GWPS for lithium is consistent with previous statistical evaluations since 2018. On December 6, 2018, BREC posted a formal notification that lithium in Appendix IV had been detected at SSLs above the established GWPS as required by 40 CFR §257.95(g) and 40 CFR §257.107(h)(8). The identified arsenic SSL over the GWPS in 2022 is the first occurrence. On October 3, 2022, BREC posted a formal notification that arsenic in Appendix IV has been detected at SSLs above the established GWPS as required by 40 CFR §257.95(g) and 40 CFR §257.107(h)(8).

### 3.3.2 Green Surface Impoundment Statistical Evaluation

The Appendix III detection monitoring data collected at the Green Surface Impoundment were statistically evaluated using an inter-well approach that compared constituent concentrations at downgradient monitoring wells to those present at a background monitoring well. For the Green Surface Impoundment, Monitoring Well MW-11 is designated as the background well because it is located upgradient of the CCR unit, whereas Monitoring Wells MW-12, MW-13, and MW-14 are designated as compliance wells because they are located along the downgradient side the CCR unit waste boundary.

The statistical analysis results indicate that none of the Appendix III constituents (boron, calcium, chloride, fluoride, pH, sulfate or TDS) have verified SSIs over their background upper prediction limit (see **Appendix J**). In addition, pH does not have a verified SSI below its LPL. A summary of the

statistical evaluations conducted on the detection Appendix III parameters for the Green Surface Impoundment is provided as **Appendix J**. Based on these results, assessment monitoring is not currently required at the Green Surface Impoundment and detection monitoring will continue.

### **3.4 Conclusion**

Based upon the statistical evaluation of Appendix III and Appendix IV parameters collected during assessment monitoring at the Green Landfill in 2022, BREC is required to continue semi-annual assessment monitoring in 2023. The identified Appendix IV arsenic concentration at downgradient Monitoring Well MW-2 at an SSL above the GWPS (see **Section 3.3.1**) was its first SSL occurrence at the Green Landfill in 2022 with formal notification posted by BREC on October 3, 2022 and further groundwater characterization is planned in 2023 (see **Section 5.2**).

Based upon the statistical evaluation of Appendix III parameters collected during detection monitoring at the Green Surface Impoundment in 2022, BREC is required to continue semi-annual detection Monitoring in 2023.

#### 4.0 CERTIFICATIONS AND NOTIFICATIONS TO THE OPERATING RECORD

The following certifications and notifications were made to the operating record and/or were posted to the BREC's publicly accessible CCR website during the reporting period:

- *2021 Annual Groundwater Monitoring and Corrective Action Report for the Federal Coal Combustion Residual Rule, Sebree Station, Webster County, Kentucky (AECOM, 2022)*
- Document the 2022 groundwater concentrations of Appendices III and IV parameters as required by 40 CFR §257.95(d)(1)
- Calculated 2022 GWPSs
- *Statistical Evaluation of April 2022 Assessment Monitoring Groundwater Data, Sebree Station, Green Landfill (see **Appendix I**)*
- *Statistical Evaluation of December 2022 Assessment Monitoring Groundwater Data, Sebree Station, Green Landfill (see **Appendix I**)*
- *Statistical Evaluation of April 2022 Assessment Monitoring Groundwater Data, Sebree Station, Green Surface Impoundment (see **Appendix J**)*
- *Statistical Evaluation of October 2022 Assessment Monitoring Groundwater Sebree Station, Green Surface Impoundment (see **Appendix J**)*
- Notification of 2022 SSL above the GWPS for Appendix IV arsenic at MW-2 (BRECE, 2022)

## **5.0 KEY ACTIVITIES PLANNED FOR 2023**

Anticipated activities for the next 2023 annual reporting period include continued groundwater monitoring, continued closure activities at the Green Surface Impoundment, and groundwater characterization for the Green Landfill (Appendix IV arsenic SSL above GWPS at MW-2).

### **5.1 Groundwater Monitoring**

Continued semi-annual assessment monitoring of all operating permit monitoring wells and subsequent statistical evaluations for the Green Landfill are planned for 2023. The semi-annual assessment monitoring will include two (2) assessment groundwater monitoring events and two (2) characterization groundwater monitoring events.

For the Green Surface Impoundment, continued semi-annual detection monitoring of all operating permit monitoring wells with subsequent statistical evaluations are planned for 2023. The semi-annual detection monitoring will include two (2) detection groundwater monitoring events (unless an SSI triggers assessment monitoring).

### **5.2 Green Surface Impoundment Closure Activities**

The Green Surface Impoundment began closure activities in 2022 and are scheduled to continue through October 2023.

### **5.3 Green Landfill Groundwater Characterization**

The statistical evaluations of the 2022 groundwater data at the Green Landfill identified Appendix IV arsenic concentration at downgradient Monitoring Well MW-2 at an SSL above the GWPS (see **Section 3.3.1**). In accordance with 40 CFR §257.96(g)(1), characterization of the “nature and extent of the release and any relevant site conditions that may affect the remedy ultimately selected” with the caveat that the “characterization must be sufficient to support a complete and accurate assessment of the corrective measures necessary to effectively clean up all releases from the CCR unit pursuant to 40 CFR §257.96”.

The Green Landfill is currently subject to corrective action to address the following impacts:

1. Lithium in groundwater at an SSL above the GWPS in four monitoring wells (MW-3A, MW-4, MW-5, and MW-6) at the CCR unit; and
2. Address Notices of Violation received from Kentucky Department for Environmental Protection, Division of Waste Management (KDWM) in regard to unpermitted discharges and seepage emanating from the CCR unit.

To address these impacts, a *Final Groundwater and Non-Groundwater Corrective Action Remedy Selection Report* (AECOM, 2020c) was completed documenting the 2019 and 2020 implementation of the corrective action remedy. Alternative #5 from the ACM was selected as the remedy to address both groundwater and non-groundwater impacts at the Green Landfill consisting of closure-in-place, other source controls, institutional controls, and groundwater monitoring. In 2019 and 2020, source controls were implemented consisting of the construction of a deep collection trench along the east side of the Green Landfill (referred to as the Deep Seep Collection Trench or Eastern Collection Trench) and the construction of a series of shallower collection trenches along the north side of the Green Landfill (referred to as the Northwest Seep Collection Trench). In 2020 and 2021, shallow collection trenches were constructed around the perimeter of the Green Landfill and residual CCR material was removed from the South Sediment Basin to comply with an Agreed Order signed by BREC and KDWM. These source control measures implemented to date will ensure that non-groundwater releases are captured and will not migrate beyond the functional perimeter of the Unit and the property controlled by BREC.

The most recently observed groundwater impact of arsenic at an SSL above the GWPS was in MW-2 following statistical analysis performed in association with the April and December 2022 groundwater monitoring events. MW-2 is located on the northeastern, downgradient side of the waste boundary of the CCR unit, and directly north of the Deep Seep Collection Trench (see **Figure 2**). The closest monitoring well to MW-2 is MW-3A to the south, which is over 1,000 feet offset from MW-2 and does not exhibit arsenic detections. Thus, the existing monitoring well network provides an insufficient delineation of the observed arsenic impact in groundwater downgradient of the CCR unit.

Due to the arsenic SSL above the GWPS in MW-2, within 90 days either initiation of ACM or completion of an alternative source demonstration (ASD) is required in accordance with 40 CFR §257.95(g)(3). Both the ACM path and the ASD path first require completion of groundwater characterization activities specified in 40 CFR §257.95(g)(1). In order to evaluate the nature and extent of arsenic impacts in groundwater at MW-2, additional characterization monitoring wells are planned for installation at the CCR unit in accordance with the KDWM-approved *2023 Monitoring Well Installation Work Plan* (Burns & McDonnell, 2023). To evaluate the occurrence and extent of arsenic impacts, the three new characterization wells, existing MW-2, and existing upgradient Monitoring Well MW-1 will be sampled twice in accordance with the characterization requirements set forth in 40 CFR 257.95(d)(1). The first sampling will be performed following well installation, development, and hydraulic testing, and once a sufficient time period has passed to allow the monitoring wells to restabilize. The second sampling event will occur approximately three (3) months later.

The additional data collected from the installation of the planned characterization monitoring wells will be incorporated into the conceptual site model and used to evaluate the source and extent of arsenic impacts.

## 6.0 REFERENCES

- AECOM, 2018. *Annual Groundwater Monitoring and Corrective Action Report, 2016-2017; Green Station CCR Landfill, Webster County, Kentucky*. January.
- AECOM, 2019a. *2018 Annual Groundwater Monitoring and Corrective Action Report, Green Station CCR Landfill, Webster County, Kentucky*. January.
- AECOM, 2019b. *Assessment of Corrective Measures Under the CCR Rule, Green Station CCR Landfill, Webster County, Kentucky*. June 13<sup>th</sup>.
- AECOM, 2019c. *Semi-Annual Remedy Selection Progress Report, Green Landfill, Sebree Station, Webster Counties Kentucky*. December 9<sup>th</sup>.
- AECOM, 2020a. *2019 Annual Groundwater Monitoring and Corrective Action Report, Sebree Generating Station, Henderson and Webster Counties Kentucky*. January.
- AECOM, 2020b. *Semi-Annual Remedy Selection Progress Report, Green Landfill, Sebree Station, Webster Counties Kentucky*. June 8<sup>th</sup>.
- AECOM, 2020c. *Final Groundwater and Non-Groundwater Corrective Action Remedy Selection Report, Green Landfill, Sebree Station, Webster Counties Kentucky*. November 18<sup>th</sup>.
- AECOM, 2021. *2020 Annual Groundwater Monitoring and Corrective Action Report, Sebree Station, Webster Counties Kentucky*. January.
- AECOM, 2022. *2021 Annual Groundwater Monitoring and Corrective Action Report, Sebree Generating Station, Webster Counties Kentucky*. January.
- Associated Engineers, Inc., 2016a. *CCR Landfill Groundwater Monitoring System and Statistical Methods Assessment and Certification, Green Station CCR Landfill*. June 28<sup>th</sup>.
- Associated Engineers, Inc., 2016b. *CCR Impoundment Groundwater Monitoring System and Statistical Methods Assessment and Certification, Green Station CCR Surface Impoundment*. June 28<sup>th</sup>.
- BREC, 2018a. Re: Big Rivers Electric Corporation Green Station Landfill and Reid / HMP&L Station II Surface Impoundment Declaration of Entering into Assessment Monitoring Programs. February 5<sup>th</sup>.

BREC, 2018b. Re: Big Rivers Electric Corporation Reid / Green / HMP&L Station II (Sebree Station AI 4196) Notification of Statistical Exceedance above the Groundwater Protection Standard and Notification of Intent to Initiate an Assessment of Corrective Measures. December 6<sup>th</sup>.

BREC, 2022. Re: Big Rivers Electric Corporation Green Station Landfill (Sebree Station AI 4196) Notification of Statistical Exceedance above the Groundwater Protection Standard. October 3<sup>rd</sup>.

Burns & McDonnell, January 5, 2023. *2023 Monitoring Well Installation Work Plan, Sebree Generating Station, Green Landfill, Webster County, Kentucky*, AI# 4196, Permit No. SW11700007, AID# APE20220004.

Fairer, G.M., *Geologic Map of the Robards Quadrangle, Henderson and Webster Counties, Kentucky*, U.S. Geological Survey, 1973.

FMSM Engineers, July 1997. *Monitoring Well Completion Report, Special Waste Landfill Facility, R.D. Green Station, Webster County, Kentucky*.

USEPA, 2015, *Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule*, 40 CFR Parts 257 and 261, Federal Register, Vol. 80, No. 74, April 17, <http://www.gpo.gov/fdsys/pkg/FR-2015-04-17/pdf/2015-00257.pdf>.

USEPA, 2018. *Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals From Electric Utilities; Amendments to the National Minimum Criteria (Phase One, Part One)*. 40 CFR Part 257, Federal Register, Vol. 83, No. 146, July 30. <https://www.federalregister.gov/documents/2018/07/30/2018-16262/hazardous-and-solid-waste-management-system-disposal-of-coal-combustion-residuals-from-electric-utilities>.

USEPA, 2020a. *Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals From Electric Utilities; A Holistic Approach to Closure Part A: Deadline to Initiate Closure*. 40 CFR Part 257, Federal Register, Vol. 85, No. 53516 September 28. <https://www.federalregister.gov/documents/2020/08/28/2020-16872/hazardous-and-solid-waste-management-system-disposal-of-coal-combustion-residuals-from-electric>.

USEPA, 2020b. *Final Rule - A Holistic Approach to Closure Part B: Alternate Liner Demonstration*. 40 CFR Part 257, Federal Register, Vol. 85, No. 219 December 14. Federal Register: Hazardous and Solid Waste Management System: Disposal of CCR; A Holistic Approach to Closure Part B: Alternate Demonstration for Unlined Surface Impoundments.

## **TABLES**

TABLE 1

SUMMARY OF MONITORING WELL CONSTRUCTION, GREEN LANDFILL  
CCR GROUNDWATER MONITORING PROGRAM

BIG RIVERS ELECTRIC CORPORATION - SEBREE STATION  
GREEN STATION LANDFILL  
WEBSTER COUNTY, KENTUCKY

Well No.	Location*	Reference Elevation*		Casing Length (feet, TOIC)	Size / Type (ID / Material)	Filter Pack Interval (feet, GS, NAD27)		Screened Interval (feet, GS, NAD27)		Bottom of Boring (feet, GS)		
		TOIC (feet, NAD27)	GS (feet, NAD27)			Top	Bottom	Top	Bottom			
Program	Lat	Long										
<b>Monitoring Wells</b>												
MW-1 (8002-9625)	U / B	37.6378	-87.5081	423.23	420.2	45.5	4 inch / PVC	389.9	377.7	387.7	377.7	45
MW-2 (8002-9630)	D	37.6363	-87.5009	392.37	389.9	50.3	4 inch / PVC	354.1	342.1	352.1	342.1	49
MW-3A (8003-6430)	D	37.6319	-87.5009	386.48	380.7	41.3	4 inch / PVC	357.2	344.5	355.2	345.2	36.2
MW-4 (8002-9628)	D	37.6281	-87.5011	391.33	388.8	33.1	4 inch / PVC	370.2	358.2	368.2	358.2	33
MW-5 (8002-9627)	D	37.6283	-87.5035	390.18	387.7	27.5	4 inch / PVC	374.7	362.7	372.7	362.7	26
MW-6 (8002-9626)	D	37.6286	-87.5074	388.17	385.7	45.5	4 inch / PVC	354.9	342.7	352.7	342.7	45
<b>Characterization Well</b>												
MW-104 (8007-1139)	D / C	37.6305	-87.5010	395.13	392.47	60.84	2 inch / PVC	347.47	332.47	342.47	332.47	60

\* Reference elevation of monitoring wells MW-1 through MW-6 surveyed by Fuller, Mossbarger, Scott and May, Civil Engineers, Inc., Lexington, Kentucky, December 1996 and December 1999. Reference elevation of monitoring well MW-104 surveyed by Associated Engineers Inc., March 19, 2019. Survey coordinates were based on the Kentucky State Plane, Kentucky Southern Zone, NAD27 datum.

PVC = Polyvinyl chloride

ID = Internal Diameter

TOIC = Top of internal casing

GS = Ground Surface

U / B = Upgradient / Background

D = Downgradient

C = Characterization

TABLE 2

SUMMARY OF MONITORING WELL CONSTRUCTION, GREEN SURFACE IMPOUNDMENT  
CCR GROUNDWATER MONITORING PROGRAM

BIG RIVERS ELECTRIC CORPORATION - SEBREE STATION  
GREEN STATION SURFACE IMPOUNDMENT  
WEBSTER COUNTY, KENTUCKY

Well No.	Location*		Reference Elevation*		Casing Length (feet, TOIC)	Size / Type (ID / Material)	Filter Pack Interval (feet, GS, NAD27)		Screened Interval (feet, GS, NAD27)		Bottom of Boring (feet, GS)	
	Lat	Long	TOIC (feet, NAD27)	GS (feet, NAD27)			Top	Bottom	Top	Bottom		
<b>Program Monitoring Wells</b>												
MW-11 (8006-3938)	U / B	37.64262	-87.50325	401.32	398.36	51.5	2 inch / PVC	356.86	348.46	354.86	349.86	49.5
MW-12 (8006-3939)	D	37.63915	-87.50182	395.54	392.35	73.7	2 inch / PVC	333.85	320.35	331.85	321.85	72.0
MW-13 (8006-3940)	D	37.64086	-87.50072	394.60	391.46	52.6	2 inch / PVC	348.96	339.96	346.96	341.96	51.5
MW-14 (8006-3941)	D	37.64220	-87.50001	390.71	387.55	50.0	2 inch / PVC	347.75	337.95	345.75	340.75	49.6

\*Reference elevation of monitoring wells surveyed by Associated Engineers, Inc., Madisonville, Kentucky, January 2015

Survey coordinates were based on the Kentucky State Plane, Kentucky Southern Zone, NAD27 datum

PVC = Polyvinyl chloride

ID = Internal Diameter

TOIC = Top of internal casing

GS = Ground Surface

U / B = Upgradient / Background

TABLE 3

GROUNDWATER ELEVATIONS, GREEN LANDFILL - 2022  
 BIG RIVERS ELECTRIC CORPORATION - SEBREE STATION  
 GREEN STATION LANDFILL  
 WEBSTER COUNTY, KENTUCKY

GROUNDWATER MONITORING WELL PROGRAM														
Reference Elevation TOIC*(ft, NAD27)	MW-1		MW-2		MW-3A		MW-4		MW-5		MW-6		MW-104	
	Upgradient/Background 423.23		Downgradient 392.37		Downgradient 386.48		Downgradient 391.33		Downgradient 390.18		Downgradient 388.17		Downgradient 395.13	
Date Measured	Depth to Water (ft) (feet)	GW Elevation (feet)												
4/20/2022	18.98	404.25	15.22	377.15	11.7	374.78	19.13	372.20	15.31	374.87	17.88	370.29	NM	NA
12/9/2022	21.08	402.15	23.15	369.22	18.94	367.54	28.50	362.83	15.32	374.86	21.62	366.55	25.60	369.53

\*Reference elevation of monitoring wells surveyed by Fuller, Mossbarger, Scott and May, Civil Engineers, Inc., Lexington, Kentucky, December 1996, December 1999  
 Survey coordinates were based on the Kentucky State Plane, Kentucky Southern Zone, NAD27 datum  
 TOIC = Top of internal casing  
 GW = Groundwater  
 GS = Ground Surface  
 NA = Not Available  
 NM = Not Measured

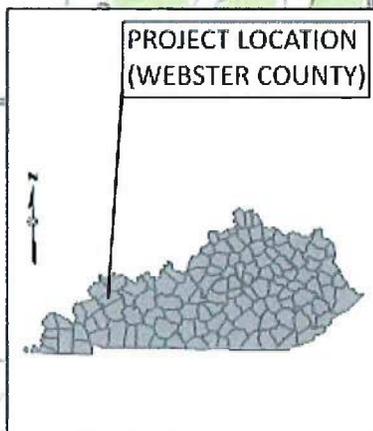
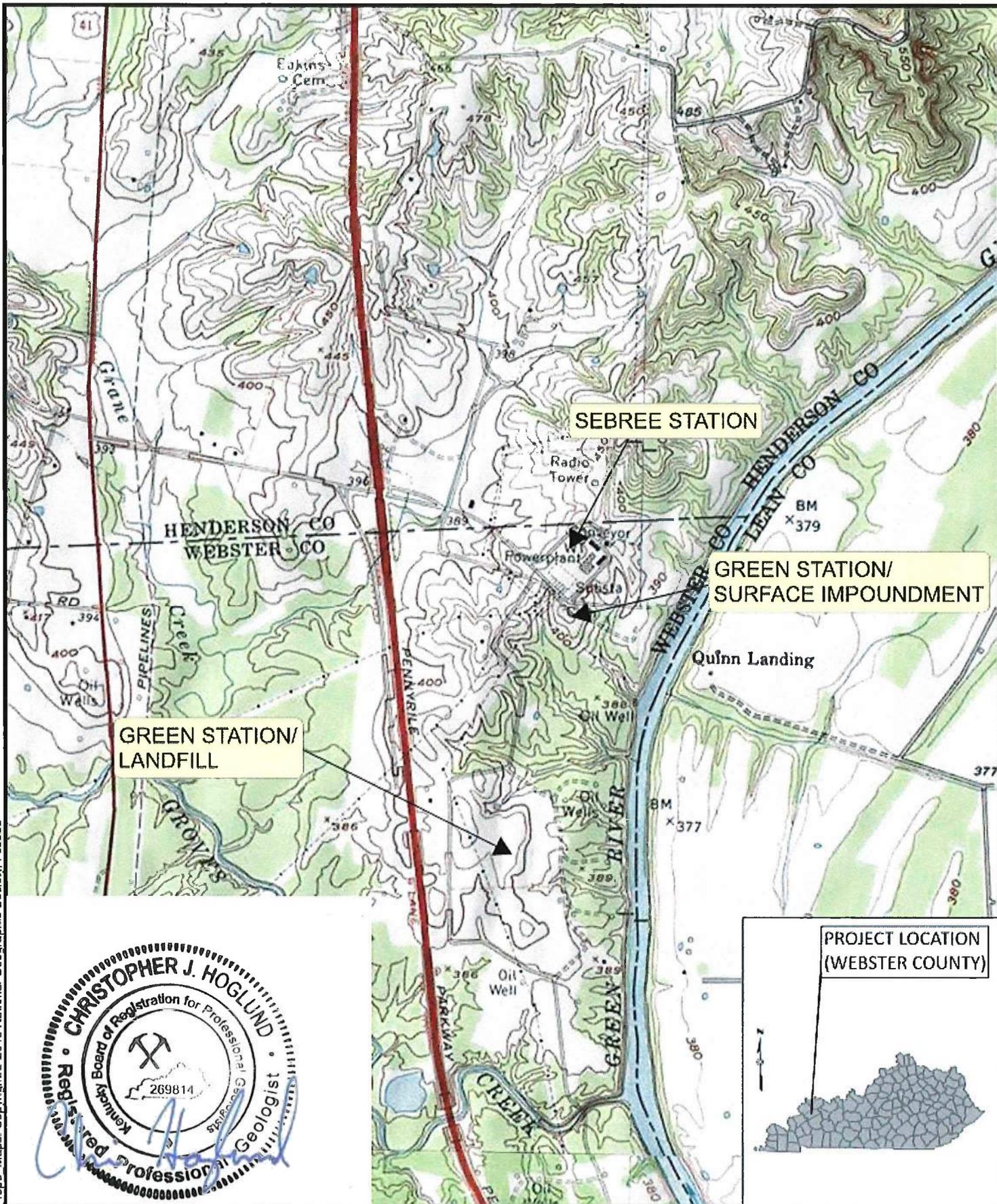
**TABLE 4**  
**GROUNDWATER ELEVATIONS, GREEN SURFACE IMPOUNDMENT - 2022**  
**GREEN STATION SURFACE IMPOUNDMENT**

**BIG RIVERS ELECTRIC CORPORATION**  
**SEBREE STATION**  
**WEBSTER COUNTY, KENTUCKY**

Reference Elevation TOIC*(ft, NAD27)	GROUNDWATER MONITORING WELL PROGRAM							
	MW-11		MW-12		MW-13		MW-14	
	Upgradient/Background 401.32		Downgradient 395.54		Downgradient 394.60		Downgradient 390.71	
Date Measured	Depth to Water (ft) (feet)	GW Elevation (feet)	Depth to Water (ft) (feet)	GW Elevation (feet)	Depth to Water (ft) (feet)	GW Elevation (feet)	Depth to Water (ft) (feet)	GW Elevation (feet)
4/21/2022	9.60	391.72	23.48	372.06	18.74	375.86	19.13	371.58
10/1/2022	10.02	391.30	27.54	368.00	21.25	373.35	26.08	364.63

\*Reference elevation of monitoring wells surveyed by Associated Engineers, Inc., Madisonville, Kentucky, January 2015  
Survey coordinates were based on the Kentucky State Plane, Kentucky Southern Zone, NAD27 datum  
TOIC = Top of internal casing  
GW = Groundwater  
GS = Ground Surface  
NM = Not Measured

## FIGURES



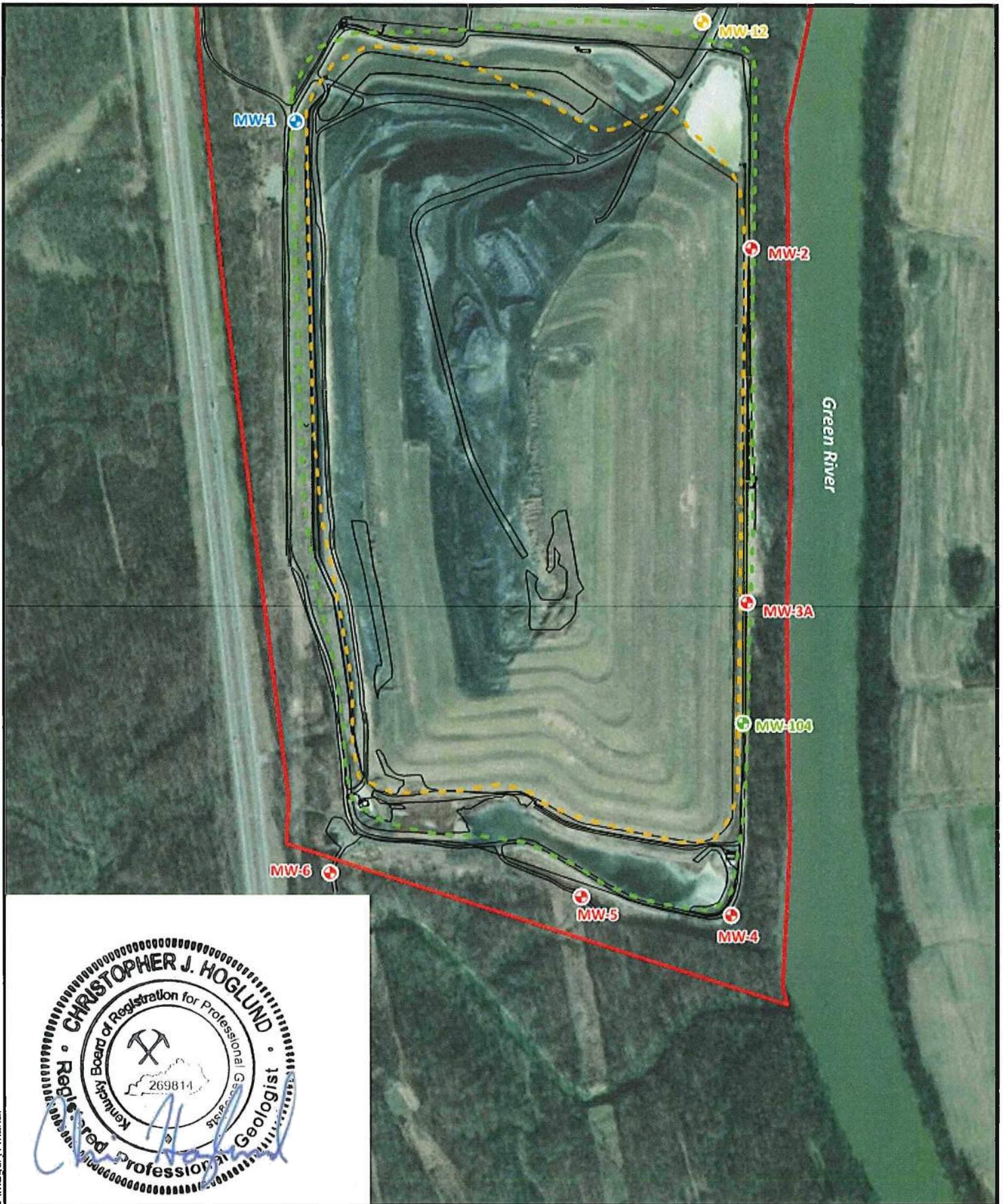
UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

ROBARDS QUADRANGLE  
DELAWARE QUADRANGLE  
(FROM ARC GIS ONLINE Copyright © 2011 National Geographic Society, i-cubed)

0 1,000 2,000  
Scale in Feet



Figure 1  
General Location Map  
Sebree Station  
Webster County, Kentucky



- Property Line
- - - KAR Permit Area
- - - CCR File Area
- ⊕ Downgradient CCR Monitoring Well
- ⊕ Upgradient CCR Monitoring Well
- ⊕ Characterization Monitoring Well
- ⊕ CCR Surface Impoundment Monitoring Well (water level only)

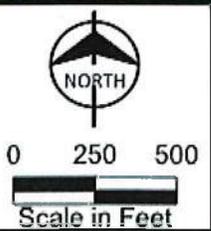


Figure 2  
CCR Groundwater  
Monitoring System  
Green Landfill  
Webster County, Kentucky



- (Impoundment) Unit Boundary
- Property Line
- Downgradient CCR Monitoring Well
- Upgradient CCR Monitoring Well

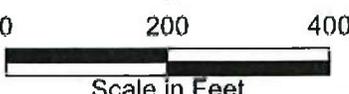
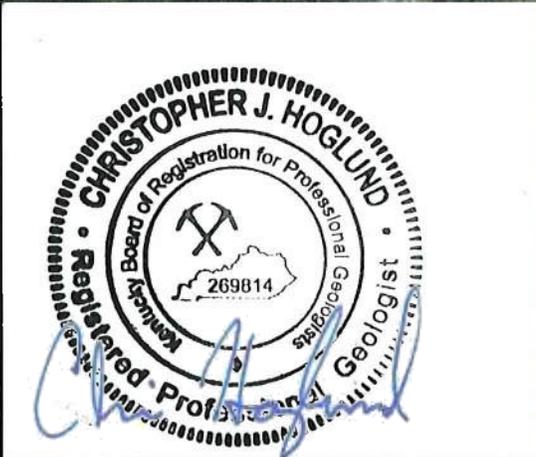
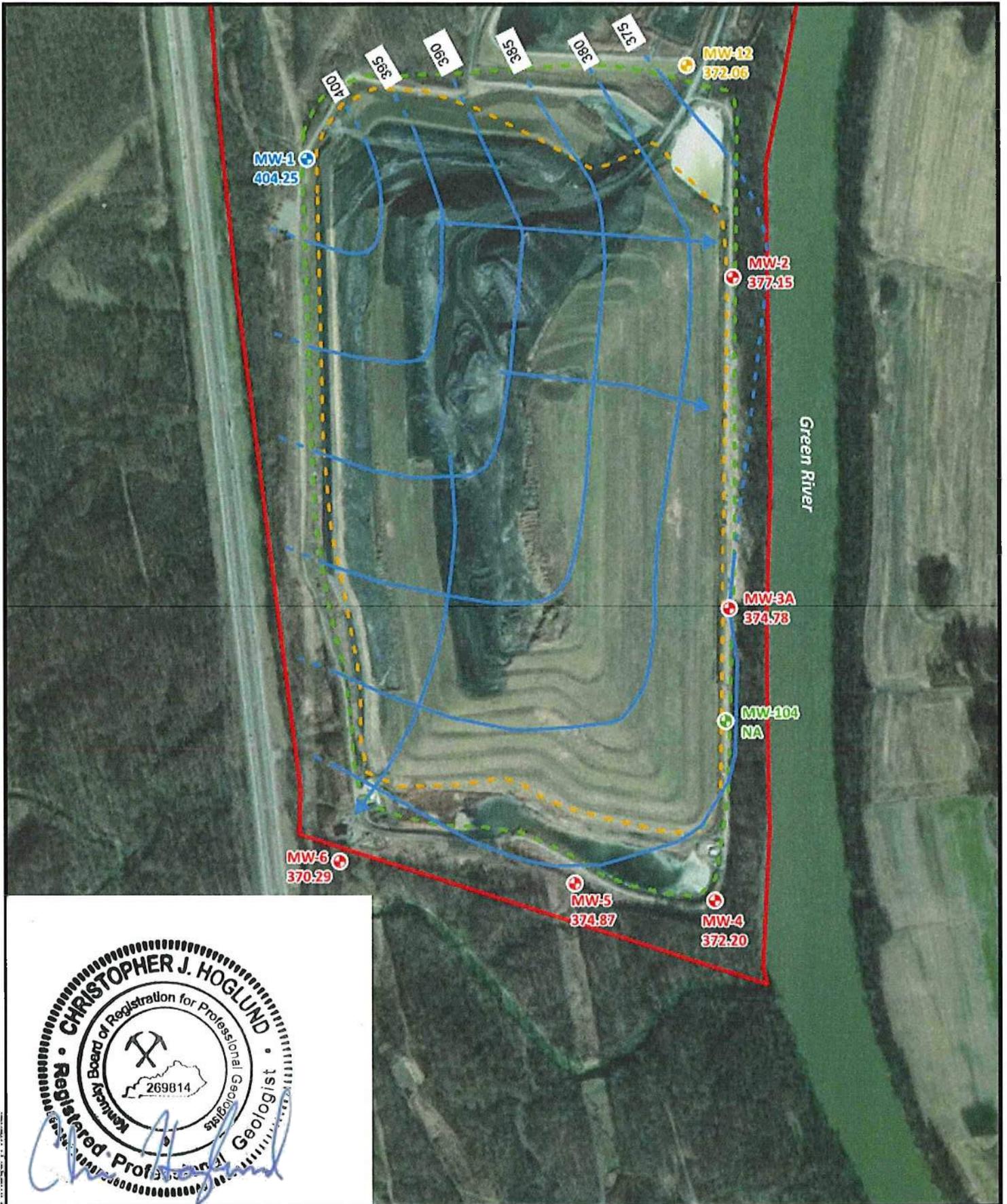


Figure 3  
CCR Groundwater  
Monitoring System  
Green Surface Impoundment  
Webster County, Kentucky

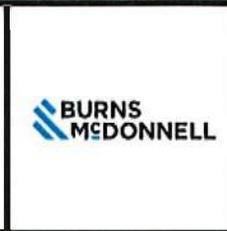


	Property Line
	KARI Permit Area
	Downgradient CCR Monitoring Well
	Upgradient CCR Monitoring Well
	Characterization Monitoring Well
	CCR Surface Impoundment Monitoring Well (water level only)
	Groundwater Flow Direction
	Water Table Contour (Dashed Where Inferred)
	Not Available
	Background Elevation (Foot, 1985 US datum) (2/20/2022)

NORTH

0 500 1,000

Scale in Feet



**Figure 4**  
**Potentiometric Surface Map**  
**April 20, 2022**  
**Green Landfill**  
**Webster County, Kentucky**

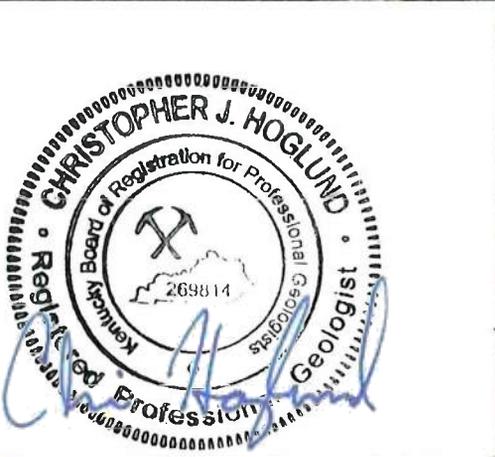
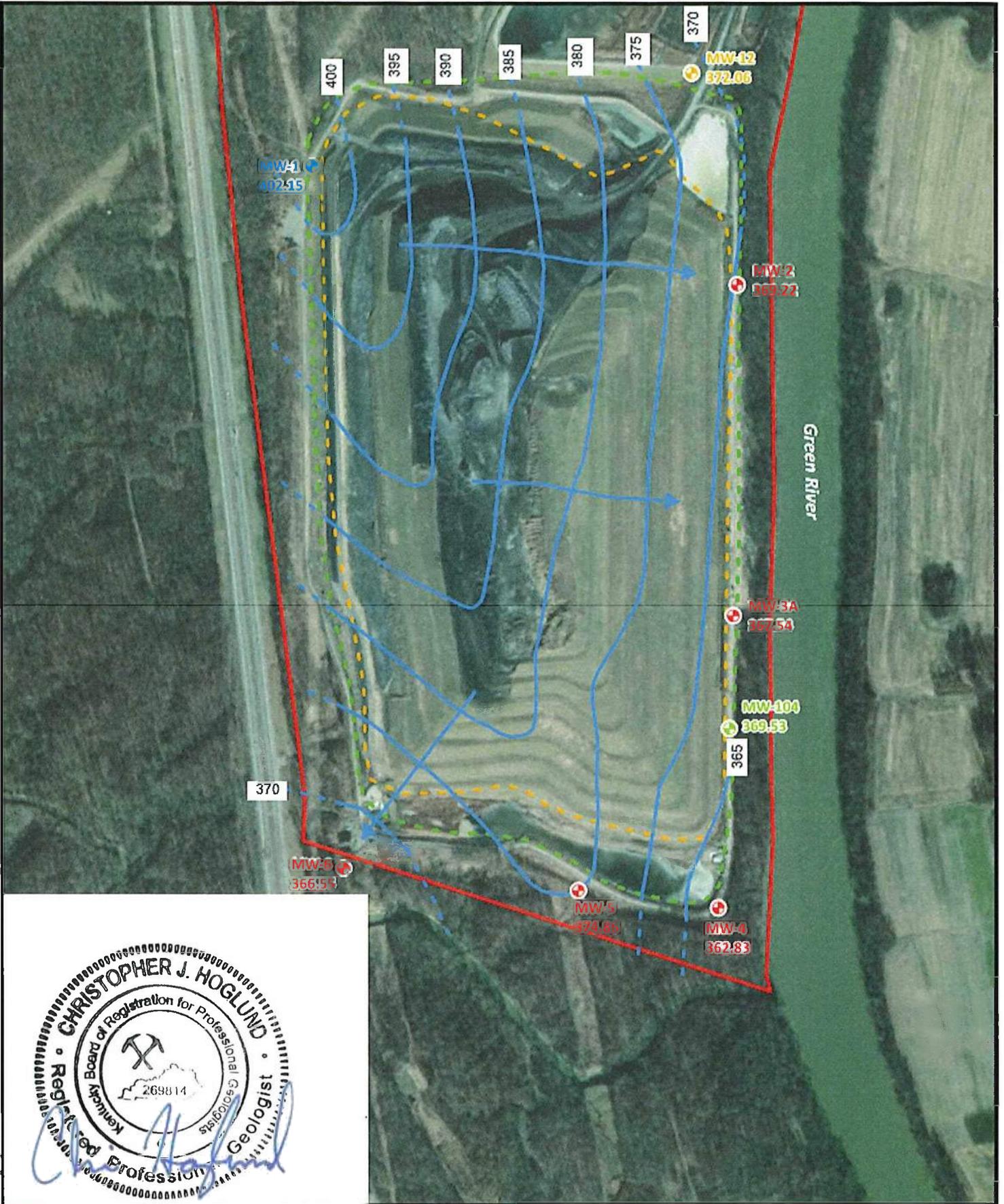
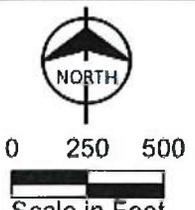
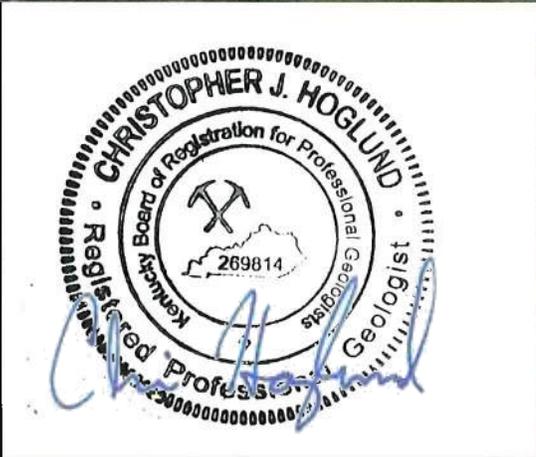


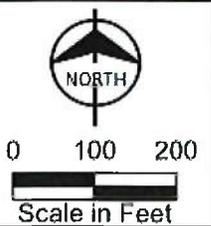
Figure 5  
 Potentiometric Surface Map  
 December 9, 2022  
 Green Landfill  
 Webster County, Kentucky



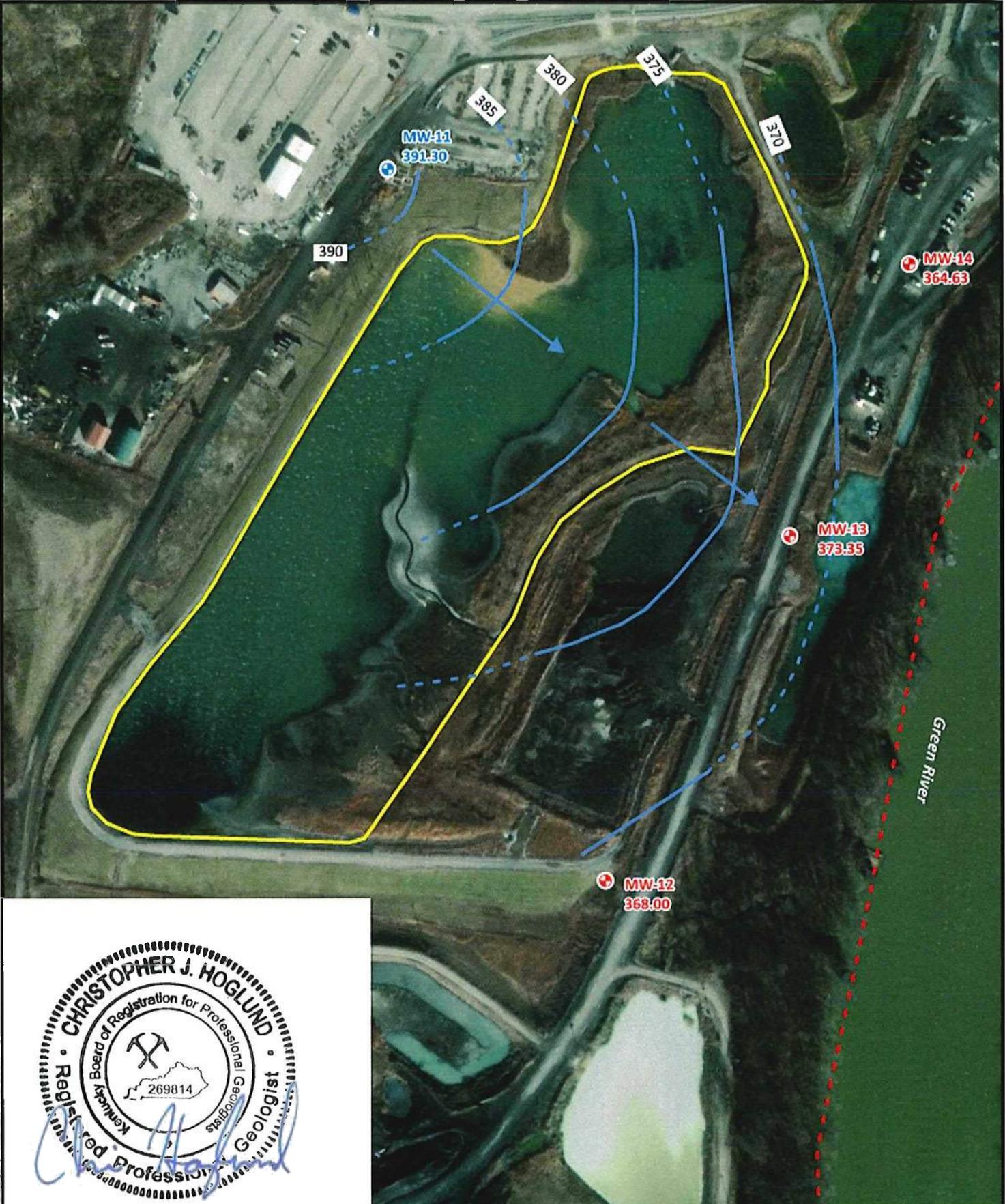
404.15 Groundwater Elevation (Feet, MSL) Measured December 9, 2022  
 Source: Esri, USGS, Burns & McDonnell Engineering, Inc., BREC



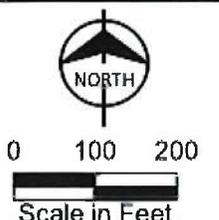
- (Impoundment) Unit Boundary
  - - - Property Line
  - + Downgradient CCR Monitoring Well
  - + Upgradient CCR Monitoring Well
  - Groundwater Flow Direction
  - - - Water Table Contour (Dashed Where Inferred)
- 391.72 Groundwater Elevation (Feet, MSL)  
 Measured April 21, 2022



**Figure 6**  
**Potentiometric Surface Map**  
**April 21, 2022**  
**Green Surface Impoundment**  
**Webster County, Kentucky**



- Impoundment/ Unit Boundary
- - - Property Line
- + Downgradient CCR Monitoring Well
- + Upgradient CCR Monitoring Well
- Groundwater Flow Direction
- - - Water Table Contour (Dashed Where Inferred)
- 391.3 Groundwater Elevation (Feet, MSL)  
Measured October 1, 2022



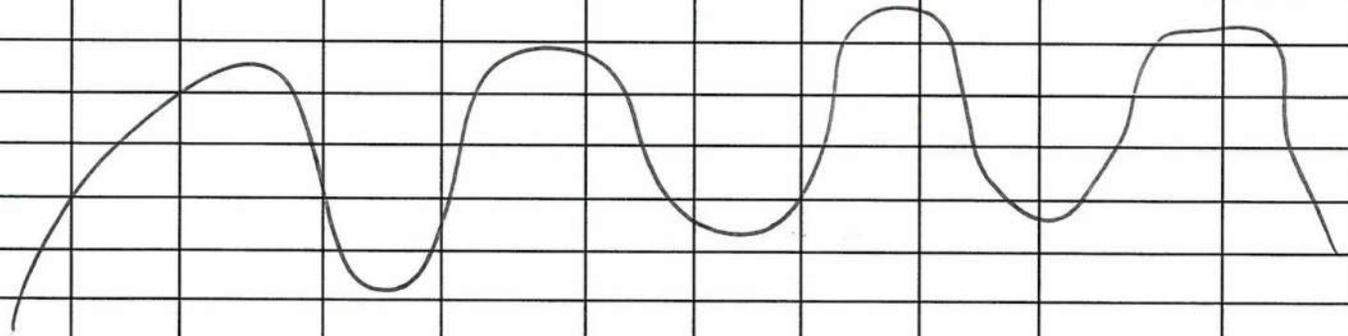
**Figure 7**  
 Potentiometric Surface Map  
 October 1, 2022  
 Green Surface Impoundment  
 Webster County, Kentucky

**APPENDIX A – GREEN LANDFILL FIELD SAMPLING FORMS**

Auto Cal  
pH - 3.97  
ms/cm - 4.66  
NTU - 0.0  
mg/L DO - 12.47

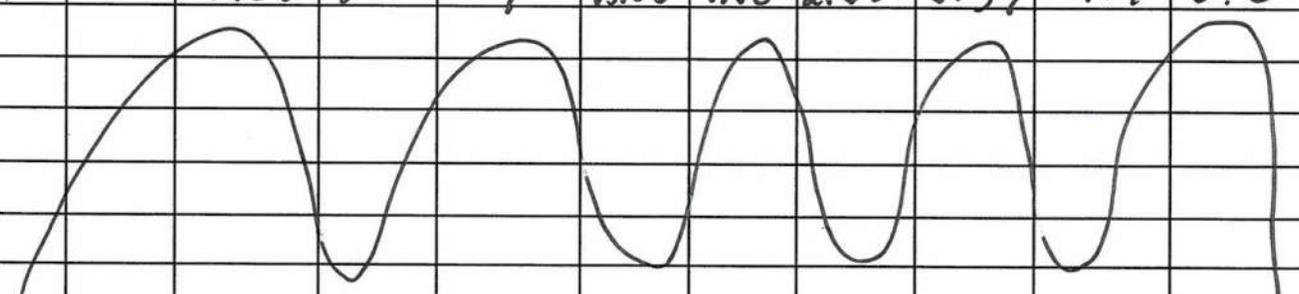
# Groundwater Field Log

# Green Landfill

Site Name: <b>Green LF</b>	Well No. <b>MW-1</b>	Total Depth (ft.) <b>45.53</b>	Initial Depth to Water (ft.) <b>18.98</b>	Height of Water Column (ft.) <b>26.55</b>	Date: <b>4-20-22</b>	Time: <b>9:10</b>				
Site Location: <b>Webster Co, KY</b>	AKGWA# <b>8002-9625</b>	Casing Diameter 4" <input checked="" type="checkbox"/> 2" <input type="checkbox"/> Conversion fact. 4"-0.67 2"-0.16	Measuring Point (ft.) <b>423.23</b>	Groundwater Elevation (ft.) <b>404.34</b>	Well Vol. (Gal.) <b>17.78</b>	PO #				
<input type="checkbox"/> Rain <input type="checkbox"/> Sleet/Freezing Rain <input type="checkbox"/> Snow <input type="checkbox"/> Fog <input type="checkbox"/> Clear <input checked="" type="checkbox"/> Partly Cloudy <input type="checkbox"/> Windy Temp. <b>51</b> (F°)										
Time	ET (min)	Depth to Water (ft.)	Purge Rate ml/min	Volume Purged (L)	Temp (°C)	pH (SU)	eH/ORP (mV)	Sp. Cond. (mS)	Turbidity (NTU)	DO Mg/L
9:00	0	26.16	130	0	14.66	6.69	-52	.926	2.7	2.13
9:05	5	26.56	130	.65	14.68	6.68	-52	.925	2.2	2.09
9:10	10	26.98	130	1.3	14.69	6.67	-56	.926	2.4	2.06
										
For three (3) consecutive Readings		Required Purge	Actual Purge	+/- 3% (°C)	+/- .10 (SU)	+/- 10 mV	+/- 3%	+/- 10% unless <5 NTU consider stable	+/- 10% <0.5mg/l stable	
Well Condition	Pad Condition	Lock Functioning	Bladder Pump	Casing SS <input type="checkbox"/>	Casing PVC <input checked="" type="checkbox"/>	Field Blank Collected <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Duplicated Collected <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
Good	Good	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Filtered: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Split Sample With: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Semi-Annual <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				
Sample Time	Depth to Water	Color	Odor	Temp. (C°)	Sp. Cond. (mS)	DO (mg/L)	pH (SU)	eH/ORP (mV)	Turbidity NTU	
9:10	26.98	clear	none	14.69	.926	2.06	6.67	-56	2.4	

# Groundwater Field Log

# Green Landfill

Site Name: <b>Green LF</b>	Well No. <b>MW-2</b>	Total Depth (ft.) <b>50.27</b>	Initial Depth to Water (ft.) <b>15.22</b>	Height of Water Column (ft.) <b>35.05</b>	Date: <b>4-20-22</b>	Time: <b>10:45</b>				
Site Location: <b>Webster Co, KY</b>	AKGWA# <b>8002-9630</b>	Casing Diameter <input checked="" type="checkbox"/> 4" <input type="checkbox"/> 2" Conversion fact. 4"-0.67 2"-0.16	Measuring Point (ft.) <b>392.37</b>	Groundwater Elevation (ft.) <b>377.15</b>	Well Vol. (Gal.) <b>23.48</b>	PO #				
<input type="checkbox"/> Rain <input type="checkbox"/> Sleet/Freezing Rain <input type="checkbox"/> Snow <input type="checkbox"/> Fog <input type="checkbox"/> Clear <input checked="" type="checkbox"/> Partly Cloudy <input type="checkbox"/> Windy Temp. <b>56</b> (F°)										
Time	ET (min)	Depth to Water (ft.)	Purge Rate ml/min	Volume Purged (L)	Temp (°C)	Sp. Cond. (mS)	DO Mg/L	pH (SU)	eH/ORP (mV)	Turbidity (NTU)
10:30	0	15.22	200	0	15.40	1.81	3.51	6.44	-114	1.2
10:35	5	15.61	200	1	15.45	1.82	2.83	6.37	-116	1.3
10:40	10	16.01	200	2	15.39	1.81	2.71	6.37	-118	0.8
10:45	15	16.58	200	4	15.55	1.80	2.68	6.37	-117	0.0
										
For three (3) consecutive Readings			Required Purge	Actual Purge	+/- 3% (°C)	+/- 3%	+/- 10% <0.5mg/l stable	+/- .10 (SU)	+/- 10 mV	+/- 10% unless <5 NTU consider stable
Well Condition	Pad Condition	Lock Functioning	Bladder Pump	Casing SS <input type="checkbox"/>	<input type="checkbox"/> Field Blank Collected		<input checked="" type="checkbox"/> Duplicated Collected Time: <b>11:05</b> <input type="checkbox"/> Semi-Annual			
<b>Good</b>	<b>Good</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Filtered: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Split Sample <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		With:			
Sample Time	Depth to Water	Color	Odor	Temp. (°C)	Sp. Cond. (mS)	DO (mg/L)	pH (SU)	eH/ORP (mV)	Turbidity NTU)	
10:45	16.58	clear	none	15.55	1.80	2.68	6.37	-117	0.0	

# Groundwater Field Log

# Green Landfill

Site Name: <b>Green LF</b>	Well No. <b>MW-3</b>	Total Depth (ft.) <b>41.30</b>	Initial Depth to Water (ft.) <b>11.71</b>	Height of Water Column (ft.) <b>29.59</b>	Date: <b>4/20/22</b>	Time: <b>1125</b>				
Site Location: <b>Webster Co, KY</b>	AKGWA# <b>8003-6430</b>	Casing Diameter <input checked="" type="checkbox"/> 4" <input type="checkbox"/> 2" Conversion fact. 4"-0.67    2"-0.16	Measuring Point (ft.) <b>386.48</b>	Groundwater Elevation (ft.) <b>374.77</b>	Well Vol. (Gal.) <b>19.83</b>	PO #				
<input type="checkbox"/> Rain <input type="checkbox"/> Sleet/Freezing Rain <input type="checkbox"/> Snow <input type="checkbox"/> Fog <input type="checkbox"/> Clear <input checked="" type="checkbox"/> Partly Cloudy <input type="checkbox"/> Windy    Temp. <b>57</b> (F°)										
Time	ET (min)	Depth to Water (ft.)	Purge Rate ml/min	Volume Purged (L)	Temp (°C)	Sp. Cond. (mS)	DO Mg/L	pH (SU)	eH/ORP (mV)	Turbidity (NTU)
1105	0	12.38	250	0	14.81	7.84	2.76	7.25	323	0.0
1110	5	12.76		1.25	14.93	7.79	2.95	6.70	357	0.0
1115	10	12.98	200	2.50	14.91	7.78	3.08	6.68	360	0.0
1120	15	13.14		3.50	14.84	7.79	3.14	6.68	361	0.0
1125	20	13.29		4.50	14.87	7.78	3.15	6.68	362	0.0
For three (3) consecutive Readings			Required Purge	Actual Purge	+/- 3% (°C)	+/- 3%	+/- 10% <0.5mg/l stable	+/- .10 (SU)	+/- 10 mV	+/- 10% unless <5 NTU consider stable
Well Condition	Pad Condition	Lock Functioning	Bladder Pump	Casing SS <input type="checkbox"/>	<input checked="" type="checkbox"/> Field Blank Collected		<input type="checkbox"/> Duplicated			
				Casing PVC <input checked="" type="checkbox"/>	Time: <b>1210</b>	Collected Time:				
<b>Good</b>	<b>Good</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Filtered: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Split Sample <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Semi-Annual <input checked="" type="checkbox"/>			
Sample Time	Depth to Water	Color	Odor	Temp. (C°)	Sp. Cond. (mS)	DO (mg/L)	pH (SU)	eH/ORP (mV)	Turbidity NTU	
1125	13.29	clear	none	14.87	7.78	3.15	6.68	362	0.0	

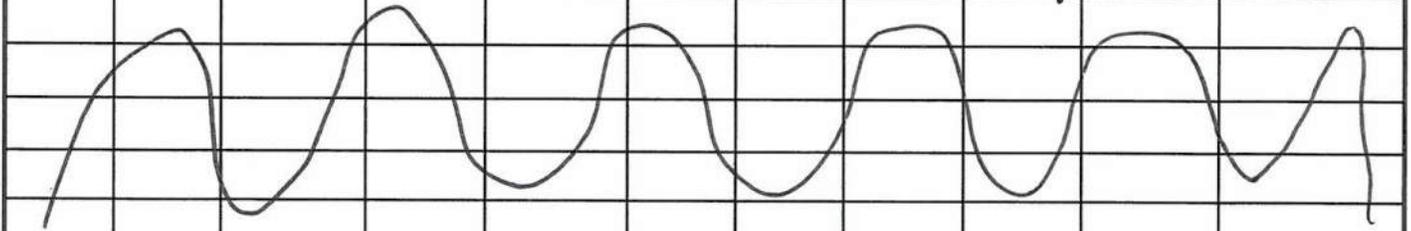
# Groundwater Field Log

# Green Landfill

Site Name: <b>Green LF</b>	Well No. <b>MW-4</b>	Total Depth (ft.) <b>33.13</b>	Initial Depth to Water (ft.) <b>19.13</b>	Height of Water Column (ft.) <b>14.0</b>	Date: <b>4/20/22</b>	Time: <b>1010</b>				
Site Location: <b>Webster Co, KY</b>	AKGWA# <b>8002-9628</b>	Casing Diameter <input checked="" type="checkbox"/> 4" <input type="checkbox"/> 2" Conversion fact. 4"-0.67 2"-0.16	Measuring Point (ft.) <b>391.33</b>	Groundwater Elevation (ft.) <b>372.2</b>	Well Vol. (Gal.) <b>9.38</b>	PO #				
<input type="checkbox"/> Rain <input type="checkbox"/> Sleet/Freezing Rain <input type="checkbox"/> Snow <input type="checkbox"/> Fog <input type="checkbox"/> Clear <input checked="" type="checkbox"/> Partly Cloudy <input checked="" type="checkbox"/> Windy Temp. <b>54</b> (F°)										
Time	ET (min)	Depth to Water (ft.)	Purge Rate ml/min	Volume Purged (L)	Temp (°C)	Sp. Cond. (mS)	DO Mg/L	pH (SU)	eH/ORP (mV)	Turbidity (NTU)
950	0	19.81	200	0	15.18	6.81	5.16	8.48	238	0.0
955	5	19.89	1	1.0	15.20	6.82	2.70	6.94	326	0.0
1000	10	19.98	100	2.0	15.23	6.82	2.70	6.67	341	0.0
1005	15	19.96	1	2.5	15.15	6.83	2.72	6.67	341	0.0
1010	20	19.96	1	3.0	15.13	6.83	2.73	6.68	341	0.0
<i>[Handwritten Signature]</i>										
For three (3) consecutive Readings		Required Purge	Actual Purge	+/- 3% (°C)	+/- 3%	+/- 10% <0.5mg/l stable	+/- .10 (SU)	+/- 10 mV	+/- 10% unless <5 NTU consider stable	
Well Condition	Pad Condition	Lock Functioning	Bladder Pump	Casing SS <input type="checkbox"/>	<input type="checkbox"/> Field Blank Collected Time:		<input type="checkbox"/> Duplicated Collected Time:			
Good	Good	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Casing PVC <input checked="" type="checkbox"/>	Filtered: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Split Sample <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Semi-Annual <input checked="" type="checkbox"/>			
Sample Time	Depth to Water	Color	Odor	Temp. (°C)	Sp. Cond. (mS)	DO (mg/L)	pH (SU)	eH/ORP (mV)	Turbidity NTU)	
1010	19.96	clear	none	15.13	6.83	2.73	6.68	341	0.0	

# Groundwater Field Log

# Green Landfill

Site Name: <b>Green LF</b>	Well No. <b>MW-5</b>	Total Depth (ft.) <b>27.48</b>	Initial Depth to Water (ft.) <b>15.31</b>	Height of Water Column (ft.) <b>12.17</b>	Date: <b>4-20-22</b>	Time: <b>10:05</b>				
Site Location: <b>Webster Co, KY</b>	AKGWA# <b>8002-9627</b>	Casing Diameter ■ 4" □ 2" Conversion fact. 4"-0.67 2"-0.16	Measuring Point (ft.) <b>390.18</b>	Groundwater Elevation (ft.) <b>374.87</b>	Well Vol. (Gal.) <b>8.15</b>	PO #				
<input type="checkbox"/> Rain <input type="checkbox"/> Sleet/Freezing Rain <input type="checkbox"/> Snow <input type="checkbox"/> Fog <input type="checkbox"/> Clear <input checked="" type="checkbox"/> Partly Cloudy <input type="checkbox"/> Windy Temp. <b>54</b> (F°)										
Time	ET (min)	Depth to Water (ft.)	Purge Rate ml/min	Volume Purged (L)	Temp (°C)	Sp. Cond. (mS)	DO Mg/L	pH (SU)	eH/ORP (mV)	Turbidity (NTU)
9:45	0	16.78	400	0	13.74	6.02	3.45	6.26	107	0.0
9:50	5	17.22	400	2	13.70	6.02	3.33	6.44	86	0.0
9:55	10	17.80	400	4	13.62	6.03	3.29	6.55	70	0.0
10:00	15	18.29	400	6	13.56	6.02	3.26	6.58	61	0.0
10:05	20	18.61	400	8	13.54	6.03	3.36	6.59	60	0.0
										
For three (3) consecutive Readings		Required Purge	Actual Purge	+/- 3% (°C)	+/- 3%	+/- 10% <0.5mg/l stable	+/- .10 (SU)	+/- 10 mV	+/- 10% unless <5 NTU consider stable	
Well Condition	Pad Condition	Lock Functioning	Bladder Pump	Casing SS <input type="checkbox"/>	<input type="checkbox"/> Field Blank Collected Time:		<input type="checkbox"/> Duplicated Collected Time:			
<b>Good</b>	<b>Good</b>	■ Yes □ No	■ Yes □ No	Casing PVC <input checked="" type="checkbox"/>	Filtered: □ Yes ■ No	Split Sample <input type="checkbox"/> Yes ■ No	With:	■		
Sample Time	Depth to Water	Color	Odor	Temp. (C°)	Sp. Cond. (mS)	DO (mg/L)	pH (SU)	eH/ORP (mV)	Turbidity NTU)	
10:05	18.61	Clear	None	13.54	6.03	3.36	6.59	60	0.0	

*Actu Cal*  
3.99 pH  
4.49 mS/cm - Cond  
0.1 NTU - Turb  
10.22 mg/L - DO  
*ML*

*7:50 - 4/20/22*

# Groundwater Field Log

# Green Landfill

Site Name: <b>Green LF</b>	Well No. <b>MW-6</b>	Total Depth (ft.) <b>45.47</b>	Initial Depth to Water (ft.) <b>17.88</b>	Height of Water Column (ft.) <b>27.59</b>	Date: <b>4/20/22</b>	Time: <b>925</b>				
Site Location: <b>Webster Co, KY</b>	AKGWA# <b>8002-9626</b>	Casing Diameter <input checked="" type="checkbox"/> 4" <input type="checkbox"/> 2" Conversion fact. 4"-0.67 2"-0.16	Measuring Point (ft.) <b>388.17</b>	Groundwater Elevation (ft.) <b>370.29</b>	Well Vol. (Gal.) <b>18.49</b>	PO #				
<input type="checkbox"/> Rain <input type="checkbox"/> Sleet/Freezing Rain <input type="checkbox"/> Snow <input type="checkbox"/> Fog <input type="checkbox"/> Clear <input checked="" type="checkbox"/> Partly Cloudy <input checked="" type="checkbox"/> Windy Temp. <b>52</b> (F°)										
Time	ET (min)	Depth to Water (ft.)	Purge Rate ml/min	Volume Purged (L)	Temp (°C)	Sp. Cond. (mS)	DO Mg/L	pH (SU)	eH/ORP (mV)	Turbidity (NTU)
905	0	18.14	225	0	15.98	5.16	0.96	6.48	263	0.0
910	5	18.15		1.125	15.95	5.20	0.67	6.64	241	0.0
915	10	18.15		2.25	15.98	5.17	0.61	6.70	230	0.0
920	15	18.16		3.375	15.97	5.16	0.59	6.74	226	0.0
925	20	18.15		4.50	15.96	5.14	0.60	6.75	226	0.0
For three (3) consecutive Readings		Required Purge	Actual Purge	+/- 3% (°C)	+/- 3%	+/- 10% <0.5mg/l stable	+/- .10 (SU)	+/- 10 mV	+/- 10% unless <5 NTU consider stable	
Well Condition	Pad Condition	Lock Functioning	Bladder Pump	Casing SS <input type="checkbox"/>	<input type="checkbox"/> Field Blank Collected Time:		<input type="checkbox"/> Duplicated Collected Time:			
Good	Good	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Casing PVC <input checked="" type="checkbox"/>	Filtered: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Split Sample <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		With: <input checked="" type="checkbox"/>		Semi-Annual <input checked="" type="checkbox"/>
Sample Time	Depth to Water	Color	Odor	Temp. (°C)	Sp. Cond. (mS)	DO (mg/L)	pH (SU)	eH/ORP (mV)	Turbidity NTU)	
925	18.15	clear	none	15.96	5.14	0.60	6.75	226	0.0	

12/9/2022  
Autocal  
pH: 4.0 SU  
ORP: 369 mV  
Cond: 4.30 mS/cm  
DO: 2.87 mg/L  
Turb: 0 NTU

Sebree Station  
9000 Highway 2096  
Robards, KY 42452  
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# CCR GROUNDWATER FIELD LOG

①

# GREEN LANDFILL

Site Name: <b>Green LF</b>	Well No. <b>MW-1</b>	Total Depth (ft.) <b>45.53</b>	Initial Depth to Water (ft.) <b>21.08</b>	Height of Water Column (ft.) <b>24.45</b>	Date: <b>12/9/22</b>	Time: <b>1100</b>
Site Location: <b>Webster Co, KY</b>	AKGWA# <b>8002-9625</b>	Casing Diameter <input checked="" type="checkbox"/> 4" <input type="checkbox"/> 2" Conversion fact. 4"-0.67 2"-0.16	Measuring Point (ft.) <b>423.23</b>	Groundwater Elevation (ft.) <b>402.15</b>	Well Vol. (Gal.) <b>~16.4</b>	PO # <b>-</b>

Rain  Sleet/Freezing Rain  Snow  Fog  Clear  Partly Cloudy  Windy Temp. **52** (F°)

Time	ET (min)	Depth to Water (ft.)	Purge Rate ml/min	Volume Purged (L)	Temp (°C)	pH (SU)	eH/ORP (mV)	Sp. Cond. (mS)	Turbidity (NTU)	DO Mg/L
1035	0	21.08	~295 ml	0	17.92	6.83	282	0.863	29.5	6.95
1040	5	21.82		1.475	17.43	7.54	153	0.935	58.3	6.13
1045	10	22.19		2.95	17.02	7.61	49	0.936	53.5	5.80
1050	15	22.52		4.425	16.93	7.61	12	0.936	42.0	5.70
1055	20	22.76		5.90	16.97	7.61	10	0.936	42.7	5.55
1100	25	23.04		7.375	16.97	7.62	4	0.939	43.2	5.50
For three (3) consecutive Readings			Required Purge	Actual Purge	+/- 3% (°C)	+/- .10 (SU)	+/- 10 mV	+/- 3%	+/- 10% unless <5 NTU consider stable	+/- 10% <0.5mg/l stable

glycine

Well Condition <b>OK</b>	Pad Condition <b>OK</b>	Lock Functioning <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Bladder Pump <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Casing SS <input type="checkbox"/> Casing PVC <input checked="" type="checkbox"/>	Field Blank Collected <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Time:	Duplicated Collected <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Time:
				Filtered: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Split Sample <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No With:	Semi-Annual <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Sample Time	Depth to Water	Color	Odor	Temp. (°C)	Sp. Cond. (mS)	DO (mg/L)	pH (SU)	eH/ORP (mV)	Turbidity NTU
1100	23.04	CLEAR	NONE	16.97	0.93	5.50	7.62	4	43.2

# CCR GROUNDWATER FIELD LOG

7

# GREEN LANDFILL

Site Name: <b>Green LF</b>	Well No. <b>MW-2</b>	Total Depth (ft.) <b>50.27</b>	Initial Depth to Water (ft.) <b>23.16</b>	Height of Water Column (ft.) <b>27.11</b>	Date: <b>12/10/22</b>	Time: <b>1400</b>				
Site Location: <b>Webster Co, KY</b>	AKGWA# <b>8002-9630</b>	Casing Diameter <input checked="" type="checkbox"/> 4" <input type="checkbox"/> 2" Conversion fact. 4"-0.67    2"-0.16	Measuring Point (ft.) <b>392.37</b>	Groundwater Elevation (ft.) <b>369.21</b>	Well Vol. (Gal.) <b>~18.2</b>	PO # <b>-</b>				
<input type="checkbox"/> Rain <input type="checkbox"/> Sleet/Freezing Rain <input type="checkbox"/> Snow <input type="checkbox"/> Fog <input type="checkbox"/> Clear <input checked="" type="checkbox"/> Partly Cloudy <input type="checkbox"/> Windy    Temp. <b>45</b> (F°)										
Time	ET (min)	Depth to Water (ft.)	Purge Rate ml/min	Volume Purged (L)	Temp (°C)	Sp. Cond. (mS)	DO Mg/L	pH (SU)	eH/ORP (mV)	Turbidity (NTU)
1340	0	23.16	~350 ml	0	16.47	1.67	7.19	7.01	28	20.2
1345	5	23.72	↓	1.75	16.55	1.74	6.72	6.86	2	20.6
1350	10	24.15		3.5	16.44	1.84	6.59	6.90	-3	20.6
1355	15	24.37		5.25	16.46	1.85	6.47	6.90	-2	20.8
1400	20	24.71		7.0	16.40	1.85	6.24	6.92	-10	20.4
<i>By Drill</i>										
For three (3) consecutive Readings			Required Purge	Actual Purge	+/- 3% (°C)	+/- 3%	+/- 10% <0.5mg/l stable	+/- .10 (SU)	+/- 10 mV	+/- 10% unless <5 NTU consider stable
Well Condition	Pad Condition	Lock Functioning	Bladder Pump	Casing SS <input type="checkbox"/>	Casing PVC <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Field Blank Collected Time: <b>1430</b>		<input type="checkbox"/> Duplicated Collected Time: <b>N/A</b>		
<b>OK</b>	<b>OK</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Filtered: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Split Sample <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No With:			Semi-Annual <input checked="" type="checkbox"/>		
Sample Time	Depth to Water	Color	Odor	Temp. (C°)	Sp. Cond. (mS)	DO (mg/L)	pH (SU)	eH/ORP (mV)	Turbidity NTU)	
1400	24.71	CLEAR	NONE	16.40	1.85	6.24	6.92	-10	20.4	

# CCR GROUNDWATER FIELD LOG

6

# GREEN LANDFILL

Site Name: <b>Green LF</b>	Well No. <b>MW-3A</b>	Total Depth (ft.) <b>41.30</b>	Initial Depth to Water (ft.) <b>18.93</b>	Height of Water Column (ft.) <b>22.37</b>	Date: <b>12/10/22</b>	Time: <b>1315</b>				
Site Location: <b>Webster Co, KY</b>	AKGWA# <b>8003-6430</b>	Casing Diameter <input checked="" type="checkbox"/> 4" <input type="checkbox"/> 2" Conversion fact. 4"-0.67    2"-0.16	Measuring Point (ft.) <b>386.48</b>	Groundwater Elevation (ft.) <b>367.55</b>	Well Vol. (Gal.) <b>~14.9</b>	PO # <b>-</b>				
<input type="checkbox"/> Rain <input type="checkbox"/> Sleet/Freezing Rain <input type="checkbox"/> Snow <input type="checkbox"/> Fog <input type="checkbox"/> Clear <input checked="" type="checkbox"/> Partly Cloudy <input type="checkbox"/> Windy   Temp. <b>44</b> (F°)										
Time	ET (min)	Depth to Water (ft.)	Purge Rate ml/min	Volume Purged (L)	Temp (°C)	Sp. Cond. (mS)	DO Mg/L	pH (SU)	eH/ORP (mV)	Turbidity (NTU)
1245	0	18.93	~310 gal	0	16.07	7.10	4.44	7.25	224	17.1
1250	5	19.71		1.55	16.23	7.53	3.32	7.22	+28	17.6
1255	10	19.91		3.10	16.14	7.31	2.25	7.08	-18	18.0
1300	15	19.97		4.65	16.45	7.23	2.05	7.02	-1	19.2
1305	20	19.96		6.20	16.17	7.28	2.00	6.99	14	19.4
1310	25	19.97		7.75	16.19	7.19	2.01	7.00	18	19.3
1315	30	20.01		9.30	16.10	7.22	2.00	6.99	21	19.4
<i>Hydicut</i>										
For three (3) consecutive Readings		Required Purge	Actual Purge	+/- 3% (°C)	+/- 3%	+/- 10% <0.5mg/l stable	+/- .10 (SU)	+/- 10 mV	+/- 10% unless <5 NTU consider stable	
Well Condition	Pad Condition	Lock Functioning	Bladder Pump	Casing SS <input type="checkbox"/>	Casing PVC <input checked="" type="checkbox"/>		<input type="checkbox"/> Field Blank Collected Time: <b>N/A</b>		<input type="checkbox"/> Duplicated Collected Time: <b>N/A</b>	
<b>OK</b>	<b>OK</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Filtered: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Split Sample <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		With:		<input checked="" type="checkbox"/> Semi-Annual	
Sample Time	Depth to Water	Color	Odor	Temp. (°C)	Sp. Cond. (mS)	DO (mg/L)	pH (SU)	eH/ORP (mV)	Turbidity (NTU)	
1315	20.01	CLEAR	NONE	16.10	7.22	2.00	6.99	21	19.4	

12/10/2022

Aut. Cat

pH: 4.00 SU  
DO: 13.37 mg/L  
Turb: 0  
Cond: 4.21 ns/cm  
ORP: 362 mV

Sebree Station  
9000 Highway 2096  
Robards, KY 42452  
www.bigrivers.com

**CCR GROUNDWATER FIELD LOG**

(4)

**GREEN LANDFILL**

Site Name: <b>Green LF</b>	Well No. <b>MW-4</b>	Total Depth (ft.) <b>33.13</b>	Initial Depth to Water (ft.) <b>28.51</b>	Height of Water Column (ft.) <b>4.62</b>	Date: <b>12/10/22</b>	Time: <b>0850</b>
Site Location: <b>Webster Co, KY</b>	AKGWA# <b>8002-9628</b>	Casing Diameter <input checked="" type="checkbox"/> 4" <input type="checkbox"/> 2" Conversion fact. 4"-0.67 2"-0.16	Measuring Point (ft.) <b>391.33</b>	Groundwater Elevation (ft.) <b>362.82</b>	Well Vol. (Gal.) <b>~3.1</b>	PO # <b>-</b>

Rain  Sleet/Freezing Rain  Snow  Fog  Clear  Partly Cloudy  Windy Temp. **41°** (F°)

changed to 28  
fill time  
to 35

Time	ET (min)	Depth to Water (ft.)	Purge Rate ml/min	Volume Purged (L)	Temp (°C)	Sp. Cond. (mS)	DO Mg/L	pH (SU)	eH/ORP (mV)	Turbidity (NTU)
0830	0	28.51	~170ml	0	13.53	6.94	4.24	6.92	298	34.4
0835	5	28.70	~140ml	0.775	14.21	6.48	2.27	7.12	290	27.4
0840	10	28.81		1.475	14.29	6.42	2.02	7.11	290	26.7
0845	15	28.88		2.175	14.37	6.39	2.00	7.09	292	27.1
0850	20	28.95		2.875	14.40	6.36	2.01	7.05	293	25.3
For three (3) consecutive Readings			Required Purge	Actual Purge	+/- 3% (°C)	+/- 3%	+/- 10% <0.5mg/l stable	+/- .10 (SU)	+/- 10 mV	+/- 10% unless <5 NTU consider stable

gpg out

Well Condition <b>OK</b>	Pad Condition <b>OK</b>	Lock Functioning <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Bladder Pump <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Casing SS <input type="checkbox"/> Casing PVC <input checked="" type="checkbox"/>	<input type="checkbox"/> Field Blank Collected Time: <b>N/A</b>	<input type="checkbox"/> Duplicated Collected <b>N/A</b> Time:
Filtered: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Split Sample <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No With:		Semi-Annual <input checked="" type="checkbox"/>		

Sample Time	Depth to Water	Color	Odor	Temp. (C°)	Sp. Cond. (mS)	DO (mg/L)	pH (SU)	eH/ORP (mV)	Turbidity NTU)
0850	28.95	CLEAR	NONE	14.40	6.36	2.01	7.05	293	25.3

12/9/2022  
Initial Depth to Water (ft.)  
MW4: 28.50  
MW3A: 18.94  
MW104: 25.60  
MW2: 23.15

Sebree Station  
9000 Highway 2096  
Robards, KY 42452  
www.bigrivers.com

# CCR GROUNDWATER FIELD LOG

③

# GREEN LANDFILL

Site Name: <b>Green LF</b>	Well No. <b>MW-5</b>	Total Depth (ft.) <b>27.48</b>	Initial Depth to Water (ft.) <b>15.32</b>	Height of Water Column (ft.) <b>12.16</b>	Date: <b>12/9/22</b>	Time: <b>1450</b>
Site Location: <b>Webster Co, KY</b>	AKGWA# <b>8002-9627</b>	Casing Diameter <input checked="" type="checkbox"/> 4" <input type="checkbox"/> 2" Conversion fact. 4"-0.67    2"-0.16	Measuring Point (ft.) <b>390.18</b>	Groundwater Elevation (ft.) <b>374.86</b>	Well Vol. (Gal.) <b>~8.1</b>	PO # <b>-</b>

Rain    Sleet/Freezing Rain    Snow    Fog    Clear    Partly Cloudy    Windy   Temp. **54** (F°)

let e  
1.5 dis  
36 fill

Time	ET (min)	Depth to Water (ft.)	Purge Rate ml/min	Volume Purged (L)	Temp (°C)	Sp. Cond. (mS)	DO Mg/L	pH (SU)	eH/ORP (mV)	Turbidity (NTU)
1430	0	15.32	~315.2	0	16.52	5.82	7.79	7.16	206	30.4
1435	5	16.20		1.575	16.61	5.87	6.92	6.96	211	28.4
1440	10	16.77		3.15	16.31	5.87	6.65	6.97	211	27.3
1445	15	16.95		4.725	16.21	5.87	6.59	6.97	211	27.5
1450	20	17.21		6.30	16.17	5.88	6.41	6.94	215	27.7
gley (Dust)										

For three (3) consecutive Readings	Required Purge	Actual Purge	+/- 3% (°C)	+/- 3%	+/- 10% <0.5mg/l stable	+/- .10 (SU)	+/- 10 mV	+/- 10% unless <5 NTU consider stable
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Well Condition <b>OK</b>	Pad Condition <b>OK</b>	Lock Functioning <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Bladder Pump <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Casing SS <input type="checkbox"/> Casing PVC <input checked="" type="checkbox"/>	Field Blank Collected Time: <b>N/A</b>	Duplicated Collected Time: <b>N/A</b>
				Filtered: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Split Sample <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Semi-Annual <input checked="" type="checkbox"/>

Sample Time	Depth to Water	Color	Odor	Temp. (C°)	Sp. Cond. (mS)	DO (mg/L)	pH (SU)	eH/ORP (mV)	Turbidity NTU)
1450	17.21	CLEAR	NONE	16.17	5.88	6.41	6.94	215	27.7

DUPE @ 1411 on 12/9/2022

# CCR GROUNDWATER FIELD LOG (2) GREEN LANDFILL

Site Name: <b>Green LF</b>	Well No. <b>MW-6</b>	Total Depth (ft.) <b>45.47</b>	Initial Depth to Water (ft.) <b>21.62</b>	Height of Water Column (ft.) <b>23.85</b>	Date: <b>12/9/22</b>	Time: <b>1345</b>
Site Location: <b>Webster Co, KY</b>	AKGWA# <b>8002-9626</b>	Casing Diameter <input checked="" type="checkbox"/> 4" <input type="checkbox"/> 2" Conversion fact. 4"-0.67    2"-0.16	Measuring Point (ft.) <b>388.17</b>	Groundwater Elevation (ft.) <b>366.55</b>	Well Vol. (Gal.) <b>~15.9</b>	PO # <b>-</b>

Rain    Sleet/Freezing Rain    Snow    Fog    Clear    Partly Cloudy    Windy    Temp. **53** (F°)

Time	ET (min)	Depth to Water (ft.)	Purge Rate ml/min	Volume Purged (L)	Temp (°C)	Sp. Cond. (mS)	DO Mg/L	pH (SU)	eH/ORP (mV)	Turbidity (NTU)
1320	0	21.62	~350 ml	0	17.57	4.29	14.40	7.00	120	19.0
1325	5	21.90	↓	1.75	17.26	4.86	6.80	6.95	107	27.4
1330	10	21.92		3.50	17.44	5.00	6.15	6.70	119	26.3
1335	15	21.95		5.25	17.51	5.00	6.00	6.84	141	26.7
1340	20	21.97		7.00	17.47	5.01	5.94	6.84	137	27.0
1345	25	22.00		8.75	17.45	5.00	5.94	6.88	135	27.1
<i>Handwritten signature and arrows</i>										

For three (3) consecutive Readings	Required Purge	Actual Purge	+/- 3% (°C)	+/- 3%	+/- 10% <0.5mg/l stable	+/- .10 (SU)	+/- 10 mV	+/- 10% unless <5 NTU consider stable
------------------------------------	----------------	--------------	-------------	--------	-------------------------	--------------	-----------	---------------------------------------

Well Condition <b>OK</b>	Pad Condition <b>OK</b>	Lock Functioning <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Bladder Pump <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Casing SS <input type="checkbox"/> Casing PVC <input checked="" type="checkbox"/>	Field Blank Collected Time: <b>N/A</b>	<input checked="" type="checkbox"/> Duplicated Collected Time: <b>1411</b>
		Filtered: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Split Sample With: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Semi-Annual		

Sample Time	Depth to Water	Color	Odor	Temp. (C°)	Sp. Cond. (mS)	DO (mg/L)	pH (SU)	eH/ORP (mV)	Turbidity NTU)
1345	22.00	CLEAR	NONE	17.45	5.00	5.94	6.88	135	27.1

# CCR GROUNDWATER FIELD LOG

5

# GREEN LANDFILL

Site Name: <b>Green LF</b>	Well No. <b>MW-104</b>	Total Depth (ft.) <b>60.0</b>	Initial Depth to Water (ft.) <b>25.53</b>	Height of Water Column (ft.) <b>34.47</b>	Date: <b>12/10/22</b>	Time: <b>1010</b>				
Site Location: <b>Webster Co, KY</b>	AKGWA# <b>8007-1139</b>	Casing Diameter <b>6.2"</b> Conversion fact. 4"-0.67 2"-0.16	Measuring Point (ft.) <b>395.13</b>	Groundwater Elevation (ft.) <b>369.60</b>	Well Vol. (Gal.) <b>~ 5.5</b>	PO # <b>-</b>				
<input checked="" type="checkbox"/> Rain <input type="checkbox"/> Sleet/Freezing Rain <input type="checkbox"/> Snow <input type="checkbox"/> Fog <input type="checkbox"/> Clear <input type="checkbox"/> Partly Cloudy <input type="checkbox"/> Windy   Temp. <b>42</b> (F°)										
Time	ET (min)	Depth to Water (ft.)	Purge Rate ml/min	Volume Purged (L)	Temp (°C)	pH (SU)	eH/ORP (mV)	Sp. Cond. (mS)	Turbidity (NTU)	DO Mg/L
0950	0	25.53	~305 ml	0	15.33	7.00	173	8.44	43.3	1.47
0955	5	27.20	↓	1.525	15.39	6.91	132	8.45	41.9	1.19
1000	10	28.50	↓	3.05	15.54	6.91	110	8.35	29.6	1.07
1005	15	29.25	↓	4.575	15.55	6.89	110	8.34	29.7	1.05
1010	20	30.40	↓	6.10	15.49	6.91	108	8.35	29.8	1.04
<p>← Air Out →</p>										
For three (3) consecutive Readings		Required Purge	Actual Purge	+/- 3% (°C)	+/- .10 (SU)	+/- 10 mV	+/- 3%	+/- 10% unless <5 NTU consider stable	+/- 10% stable	
Well Condition	Pad Condition	Lock Functioning	Bladder Pump	Casing SS <input type="checkbox"/>	Casing PVC <input checked="" type="checkbox"/>	Field Blank Collected <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Duplicated Collected <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
OK	OK	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Filtered: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Split Sample <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Semi-Annual <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				
Sample Time	Depth to Water	Color	Odor	Temp. (C°)	Sp. Cond. (mS)	DO (mg/L)	pH (SU)	eH/ORP (mV)	Turbidity NTU)	
1010	30.40	CLEAR	NONE	15.49	8.35	1.04	6.91	108	29.8	

**APPENDIX B – GREEN SURFACE IMPOUNDMENT FIELD SAMPLING FORMS**

*Auto Cal*  
3.98 pH  
4.50 ms/cm - Cond  
0.0 NTU - Turb  
10.31 mg/L - DO  
*[Signature]*

# CCR GROUNDWATER FIELD LOG

# GREEN ASH POND

Site Name: <b>GREEN POND</b>	Well No. <b>MW-11</b>	Total Depth (ft.) <b>49.9</b>	Initial Depth to Water (ft.) <b>9.60</b>	Height of Water Column (ft.) <b>40.3</b>	Date: <b>4/21/22</b>	Time: <b>9:05</b>				
Site Location: <b>Webster Co, KY</b>	AKGWA# <b>8006-3938</b>	Casing Diameter <input type="checkbox"/> 4" <input checked="" type="checkbox"/> 2" Conversion fact. 4"-0.67 2"-0.16	Measuring Point (ft.) <b>401.32</b>	Groundwater Elevation (ft.) <b>391.72</b>	Well Vol. (Gal.) <b>6.45</b>	PO #				
<input checked="" type="checkbox"/> Rain <input type="checkbox"/> Sleet/Freezing Rain <input type="checkbox"/> Snow <input type="checkbox"/> Fog <input type="checkbox"/> Clear <input checked="" type="checkbox"/> Partly Cloudy <input type="checkbox"/> Windy Temp. <b>61</b> (F°)										
Time	ET (min)	Depth to Water (ft.)	Purge Rate ml/min	Volume Purged (L)	Temp (°C)	pH (SU)	eH/ORP (mV)	Sp. Cond. (mS)	Turbidity (NTU)	DO Mg/L
825	0	10.71	175	0	15.88	<del>6.27</del>	295	7.79	0.0	2.25
830	5	10.98		0.875	15.93	6.34	118	7.84	0.0	1.30
835	10	10.97		1.75	15.98	6.49	36	7.87	0.2	0.89
840	15	10.97		2.625	16.00	6.67	-13	7.87	0.2	0.70
845	20	10.96		3.50	16.01	6.74	-32	7.81	0.1	0.67
850	25	10.96		4.375	16.02	6.80	-44	7.75	0.1	0.91
855	30	10.97		5.25	16.04	6.83	-48	7.69	0.0	1.02
900	35	10.96		6.125	16.06	6.85	-49	7.67	0.0	1.04
905	40	10.96		7.0	16.05	6.85	-50	7.67	0.0	1.04
For three (3) consecutive Readings			Required Purge	Actual Purge	+/- 3% (°C)	+/- .10 (SU)	+/- 10 mV	+/- 3%	+/- 10% unless <5 NTU consider stable	+/- 10% <0.5mg/l stable
Well Condition	Pad Condition	Lock Functioning	Bladder Pump	Casing SS <input type="checkbox"/>	Casing PVC <input checked="" type="checkbox"/>	Field Blank Collected <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Duplicated Collected <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
Good	Good	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Filtered: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Split Sample With: <input type="checkbox"/> Yes <input type="checkbox"/> No	Semi-Annual <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				
Sample Time	Depth to Water	Color	Odor	Temp. (°C)	Sp. Cond. (mS)	DO (mg/L)	pH (SU)	eH/ORP (mV)	Turbidity NTU	
905	10.96	Clear	none	16.05	7.67	1.04	6.85	-50	0.0	

## CCR GROUNDWATER FIELD LOG

## GREEN ASH POND

Site Name: <b>GREEN POND</b>	Well No. <b>MW-12</b>	Total Depth (ft.) <b>72.0</b>	Initial Depth to Water (ft.) <b>23.48</b>	Height of Water Column (ft.) <b>48.52</b>	Date: <b>4/21/22</b>	Time: <b>1010</b>				
Site Location: <b>Webster Co, KY</b>	AKGWA# <b>8006-3939</b>	Casing Diameter <input type="checkbox"/> 4" <input checked="" type="checkbox"/> 2" Conversion fact. 4"-0.67 2"-0.16	Measuring Point (ft.) <b>395.54</b>	Groundwater Elevation (ft.) <b>372.06</b>	Well Vol. (Gal.) <b>7.76</b>	PO #				
<input checked="" type="checkbox"/> Rain <input type="checkbox"/> Sleet/Freezing Rain <input type="checkbox"/> Snow <input type="checkbox"/> Fog <input type="checkbox"/> Clear <input checked="" type="checkbox"/> Partly Cloudy <input type="checkbox"/> Windy Temp. <b>61</b> (F°)										
Time	ET (min)	Depth to Water (ft.)	Purge Rate ml/min	Volume Purged (L)	Temp (°C)	Sp. Cond. (mS)	DO Mg/L	pH (SU)	eH/ORP (mV)	Turbidity (NTU)
940	0	25.0	175	0	16.01	0.954	3.54	7.68	98	32.1
945	5	27.18	1	0.875	16.19	0.911	0.88	6.36	12	0.0
950	10	28.79	100	1.75	16.24	0.906	0.84	6.43	-48	0.0
955	15	29.84	1	2.25	16.29	0.903	0.84	6.49	-69	0.2
1000	20	30.64	1	2.75	16.30	0.899	0.82	6.69	-78	0.1
1005	25	31.33	1	3.25	16.30	0.898	0.81	6.74	-80	0.0
1010	30	31.88	1	3.75	16.29	0.898	0.80	6.77	-81	0.0
For three (3) consecutive Readings			Required Purge	Actual Purge	+/- 3% (°C)	+/- 3%	+/- 10% <0.5mg/l stable	+/- .10 (SU)	+/- 10 mV	+/- 10% unless <5 NTU consider stable
Well Condition	Pad Condition	Lock Functioning	Bladder Pump	Casing SS <input type="checkbox"/>	<input type="checkbox"/> Field Blank Collected		Time:		<input checked="" type="checkbox"/> Duplicated	
Good	Good	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Casing PVC <input checked="" type="checkbox"/>	Time:		Split Sample <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Collected Time: <b>1020</b>	
Filtered:	With:		Semi-Annual							
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input checked="" type="checkbox"/>							
Sample Time	Depth to Water	Color	Odor	Temp. (C°)	Sp. Cond. (mS)	DO (mg/L)	pH (SU)	eH/ORP (mV)	Turbidity NTU	
1010	31.88	clear	none	16.29	0.898	0.80	6.77	-81	0.0	

# CCR GROUNDWATER FIELD LOG

# GREEN ASH POND

Site Name: <b>GREEN POND</b>	Well No. <b>MW-13</b>	Total Depth (ft.) <b>51.5</b>	Initial Depth to Water (ft.) <i>18.74</i>	Height of Water Column (ft.) <i>32.76</i>	Date: <i>4/21/22</i>	Time: <i>1120</i>				
Site Location: <b>Webster Co, KY</b>	AKGWA# <b>8006-3940</b>	Casing Diameter <input type="checkbox"/> 4" <input checked="" type="checkbox"/> 2" Conversion fact. 4"-0.67 2"-0.16	Measuring Point (ft.) <b>394.60</b>	Groundwater Elevation (ft.) <i>375.86</i>	Well Vol. (Gal.) <i>5.24</i>	PO #				
<input checked="" type="checkbox"/> Rain <input type="checkbox"/> Sleet/Freezing Rain <input type="checkbox"/> Snow <input type="checkbox"/> Fog <input type="checkbox"/> Clear <input checked="" type="checkbox"/> Partly Cloudy <input checked="" type="checkbox"/> Windy Temp. <i>62</i> (F°)										
Time	ET (min)	Depth to Water (ft.)	Purge Rate ml/min	Volume Purged (L)	Temp (°C)	Sp. Cond. (mS)	DO Mg/L	pH (SU)	eH/ORP (mV)	Turbidity (NTU)
<i>1050</i>	<i>0</i>	<i>20.62</i>	<i>150</i>	<i>0</i>	<i>16.96</i>	<i>1.0</i>	<i>3.84</i>	<i>5.62</i>	<i>360</i>	<i>0.0</i>
<i>1055</i>	<i>5</i>	<i>22.02</i>	<i>1</i>	<i>0.75</i>	<i>16.98</i>	<i>0.987</i>	<i>2.42</i>	<i>6.41</i>	<i>232</i>	<i>0.0</i>
<i>1100</i>	<i>10</i>	<i>22.64</i>	<i>100</i>	<i>1.50</i>	<i>16.97</i>	<i>0.987</i>	<i>2.32</i>	<i>6.89</i>	<i>213</i>	<i>0.0</i>
<i>1105</i>	<i>15</i>	<i>23.48</i>	<i>1</i>	<i>2.0</i>	<i>16.95</i>	<i>1.03</i>	<i>2.40</i>	<i>6.74</i>	<i>229</i>	<i>0.0</i>
<i>1110</i>	<i>20</i>	<i>23.91</i>	<i>1</i>	<i>2.50</i>	<i>16.96</i>	<i>1.04</i>	<i>1.96</i>	<i>6.66</i>	<i>253</i>	<i>0.0</i>
<i>1115</i>	<i>25</i>	<i>24.46</i>	<i>1</i>	<i>3.00</i>	<i>16.96</i>	<i>1.04</i>	<i>1.86</i>	<i>6.64</i>	<i>258</i>	<i>0.0</i>
<i>1120</i>	<i>30</i>	<i>24.81</i>	<i>1</i>	<i>3.50</i>	<i>17.00</i>	<i>1.02</i>	<i>1.79</i>	<i>6.61</i>	<i>260</i>	<i>0.0</i>
For three (3) consecutive Readings			Required Purge	Actual Purge	+/- 3% (°C)	+/- 3%	+/- 10% <0.5mg/l stable	+/- .10 (SU)	+/- 10 mV	+/- 10% unless <5 NTU consider stable
Well Condition	Pad Condition	Lock Functioning	Bladder Pump	Casing SS <input type="checkbox"/>	<input type="checkbox"/> Field Blank Collected Time:		<input type="checkbox"/> Duplicated Collected Time:			
<i>Good</i>	<i>Good</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Casing PVC <input checked="" type="checkbox"/>	Filtered: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Split Sample <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	With: <input checked="" type="checkbox"/>			
Sample Time	Depth to Water	Color	Odor	Temp. (C°)	Sp. Cond. (mS)	DO (mg/L)	pH (SU)	eH/ORP (mV)	Turbidity NTU	
<i>1120</i>	<i>24.81</i>	<i>clear</i>	<i>none</i>	<i>17.00</i>	<i>1.02</i>	<i>1.79</i>	<i>6.61</i>	<i>260</i>	<i>0.0</i>	

# CCR GROUNDWATER FIELD LOG

# GREEN ASH POND

Site Name: <b>GREEN POND</b>	Well No. <b>MW-14</b>	Total Depth (ft.) <b>49.6</b>	Initial Depth to Water (ft.) <b>19.13</b>	Height of Water Column (ft.) <b>30.47</b>	Date: <b>4/21/22</b>	Time: <b>12:15</b>				
Site Location: <b>Webster Co, KY</b>	AKGWA# <b>8006-3941</b>	Casing Diameter <input type="checkbox"/> 4" <input checked="" type="checkbox"/> 2" Conversion fact. 4"-0.67 2"-0.16	Measuring Point (ft.) <b>390.71</b>	Groundwater Elevation (ft.) <b>371.58</b>	Well Vol. (Gal.) <b>4.88</b>	PO #				
<input type="checkbox"/> Rain <input type="checkbox"/> Sleet/Freezing Rain <input type="checkbox"/> Snow <input type="checkbox"/> Fog <input type="checkbox"/> Clear <input checked="" type="checkbox"/> Partly Cloudy <input type="checkbox"/> Windy Temp. <b>63</b> (F°)										
Time	ET (min)	Depth to Water (ft.)	Purge Rate ml/min	Volume Purged (L)	Temp (°C)	Sp. Cond. (mS)	DO Mg/L	pH (SU)	eH/ORP (mV)	Turbidity (NTU)
1145	0	19.97	200	0	17.25	1.59	5.48	6.07	300	4.3
1150	5	20.22		1.0	17.26	1.59	2.19	6.39	250	0.8
1155	10	20.46		2.0	17.26	1.58	1.74	6.42	238	0.4
1200	15	20.79		3.0	17.25	1.59	1.55	6.48	230	0.0
1205	20	20.96		4.0	17.26	1.58	1.46	6.51	219	0.0
1210	25	21.08		5.0	17.28	1.58	1.38	6.53	214	0.0
1215	30	21.21		6.0	17.25	1.58	1.36	6.52	209	0.0
For three (3) consecutive Readings			Required Purge	Actual Purge	+/- 3% (°C)	+/- 3%	+/- 10% <0.5mg/l stable	+/- .10 (SU)	+/- 10 mV	+/- 10% unless <5 NTU consider stable
Well Condition	Pad Condition	Lock Functioning	Bladder Pump	Casing SS <input type="checkbox"/>	<input checked="" type="checkbox"/> Field Blank Collected		<input type="checkbox"/> Duplicated			
Good	Good	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Casing PVC <input checked="" type="checkbox"/>	Time: <b>1230</b>	Collected Time:				
				Filtered: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Split Sample <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Semi-Annual <input checked="" type="checkbox"/>			
Sample Time	Depth to Water	Color	Odor	Temp. (C°)	Sp. Cond. (mS)	DO (mg/L)	pH (SU)	eH/ORP (mV)	Turbidity NTU	
1215	21.21	clear	none	17.25	1.58	1.36	6.52	209	0.0	



Arts Col. 10/1/2022

pH: 4.00  
 Cond: 4.47 mS/cm  
 Turb: ~~NTU~~  
 DO: 9.11 mg/L  
 Jhy Ouel

201 Third Street  
 P.O. Box 24  
 Henderson, KY 42419-0024  
 270-827-2561  
 www.bigrivers.com

# CCR GROUNDWATER FIELD LOG

①

# GREEN ASH POND

Site Name: <b>GREEN POND</b>	Well No. <b>MW-11</b>	Total Depth (ft.) <b>49.9</b>	Initial Depth to Water (ft.) <b>10.02</b>	Height of Water Column (ft.) <b>39.88</b>	Date: <b>10/1/2022</b>	Time: <b>0912</b>
Site Location: <b>Webster Co, KY</b>	AKGWA# <b>8006-3938</b>	Casing Diameter <input type="checkbox"/> 4" <input checked="" type="checkbox"/> 2" Conversion fact. 4"-0.67 2"-0.16	Measuring Point (ft.) <b>401.32</b>	Groundwater Elevation (ft.) <b>391.30</b>	Well Vol. (Gal.) <b>6.38</b>	PO #

Rain  Sleet/Freezing Rain  Snow  Fog  Clear <sup>SUNNY</sup>  Partly Cloudy  Windy Temp. **52** (°F)

Time	ET (min)	Depth to Water (ft.)	Purge Rate ml/min	Volume Purged (L)	Temp (°C)	pH (SU)	eH/ORP (mV)	Sp. Cond. (mS)	Turbidity (NTU)	DO Mg/L
0812	∅	10.02	~310ml	∅	17.33	6.58	220	7.80	7.0	4.69
0817	5	11.05		1.55	17.24	6.99	79	7.79	∅	5.48
0822	10	11.09		3.10	17.21	7.03	51	7.87	∅	8.39
0827	15	11.05		4.65	17.15	7.06	35	7.80	∅	7.74
0832	20	11.02		6.20	17.17	7.07	24	7.84	∅	6.95
0837	25	11.03		7.75	17.09	7.09	19	7.82	∅	4.45
0842	30	11.0		9.30	17.06	7.10	14	7.74	∅	4.72
0847	35	11.0		10.85	17.03	7.12	13	7.73	∅	4.11
0852	40	11.0		12.40	17.04	7.12	11	7.73	∅	3.83
0857	45	11.0		13.95	17.07	7.12	8	7.75	∅	3.47

For three (3) consecutive Readings Required Purge Actual Purge +/- 3% (°C) +/- .10 (SU) +/- 10 mV +/- 3% +/- 10% unless <5 NTU consider stable +/- 10% <0.5mg/l stable

Well Condition <b>OK</b>	Pad Condition <b>OK</b>	Lock Functioning <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Bladder Pump <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Casing SS <input type="checkbox"/> Casing PVC <input checked="" type="checkbox"/>	Field Blank Collected <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Time:	Duplicated Collected <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Time:
				Filtered: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Split Sample <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No With:	Semi-Annual <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Sample Time	Depth to Water	Color	Odor	Temp. (°C)	Sp. Cond. (mS)	DO (mg/L)	pH (SU)	eH/ORP (mV)	Turbidity NTU
0912	11.00	CLEAR	NONE	17.23	7.83	3.01	7.13	3	∅

*Continued*

## CCR GROUNDWATER FIELD LOG

## GREEN ASH POND

Site Name: <b>GREEN POND</b>	Well No. <b>MW-11</b>	Total Depth (ft.) <b>49.9</b>	Initial Depth to Water (ft.)	Height of Water Column (ft.)	Date: <b>10/1/22</b>	Time:				
Site Location: <b>Webster Co, KY</b>	AKGWA# <b>8006-3938</b>	Casing Diameter <input type="checkbox"/> 4" <input type="checkbox"/> 2" Conversion fact. 4"-0.67 2"-0.16	Measuring Point (ft.) <b>401.32</b>	Groundwater Elevation (ft.)	Well Vol. (Gal.)	PO #				
<input type="checkbox"/> Rain <input type="checkbox"/> Sleet/Freezing Rain <input type="checkbox"/> Snow <input type="checkbox"/> Fog <input type="checkbox"/> Clear <input type="checkbox"/> Partly Cloudy <input type="checkbox"/> Windy Temp. _____ (F°)										
Time	ET (min)	Depth to Water (ft.)	Purge Rate ml/min	Volume Purged (L)	Temp (°C)	pH (SU)	eH/ORP (mV)	Sp. Cond. (mS)	Turbidity (NTU)	DO Mg/L
0902	50	11.0	~310 ml	15.5	17.11	7.12	6	7.77	⊖	3.25
0907	55	11.0	↓	17.05	17.13	7.12	5	7.80	⊖	3.14
0912	60	11.0	↓	18.6	17.23	7.13	3	7.83	⊖	3.01
For three (3) consecutive Readings			Required Purge	Actual Purge	+/- 3% (°C)	+/- .10 (SU)	+/- 10 mV	+/- 3%	+/- 10% unless <5 NTU consider stable	+/- 10% <0.5mg/l stable
Well Condition	Pad Condition	Lock Functioning	Bladder Pump	Casing SS <input type="checkbox"/>	Field Blank Collected <input type="checkbox"/> Yes <input type="checkbox"/> No			Duplicated Collected <input type="checkbox"/> Yes <input type="checkbox"/> No		
		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	Casing PVC <input type="checkbox"/>	Time:			Time:		
				Filtered: <input type="checkbox"/> Yes <input type="checkbox"/> No	Split Sample <input type="checkbox"/> Yes <input type="checkbox"/> No			Semi-Annual <input type="checkbox"/> Yes <input type="checkbox"/> No		
					With:					
Sample Time	Depth to Water	Color	Odor	Temp. (C°)	Sp. Cond. (mS)	DO (mg/L)	pH (SU)	eH/ORP (mV)	Turbidity NTU)	

# CCR GROUNDWATER FIELD LOG

4

# GREEN ASH POND

Site Name: <b>GREEN POND</b>	Well No. <b>MW-12</b>	Total Depth (ft.) <b>72.0</b>	Initial Depth to Water (ft.) <b>27.54</b>	Height of Water Column (ft.) <b>44.46</b>	Date: <b>10/1/2022</b>	Time: <b>1334</b>				
Site Location: <b>Webster Co, KY</b>	AKGWA# <b>8006-3939</b>	Casing Diameter <input type="checkbox"/> 4" <input checked="" type="checkbox"/> 2" Conversion fact. 4"-0.67 2"-0.16	Measuring Point (ft.) <b>395.54</b>	Groundwater Elevation (ft.) <b>368.0</b>	Well Vol. (Gal.) <b>7.11</b>	PO #				
<input type="checkbox"/> Rain <input type="checkbox"/> Sleet/Freezing Rain <input type="checkbox"/> Snow <input type="checkbox"/> Fog <input type="checkbox"/> Clear <input type="checkbox"/> Partly Cloudy <input checked="" type="checkbox"/> Windy <i>SUNNY</i> Temp. <b>70</b> (°F)										
Time	ET (min)	Depth to Water (ft.)	Purge Rate ml/min	Volume Purged (L)	Temp (°C)	Sp. Cond. (mS)	DO Mg/L	pH (SU)	eH/ORP (mV)	Turbidity (NTU)
1234	0	27.54	300	0	21.04	.975	5.18	7.49	161	1.4
1239	5	29.98		1.5	19.53	1.00	2.01	7.28	-5	5.7
1244	10	30.15		3.0	21.25	.984	1.31	7.30	-25	2.9
1249	15	30.14	223	4.115	21.94	.980	1.21	7.31	-29	1.9
1254	20	31.22		5.23	21.41	1.0	1.10	7.25	-29	0
1259	25			6.345	19.51	.997	.77	7.34	-32	0
1304	30	33.82		7.46	19.17	.991	.83	7.25	-27	22.0
1309	35	35.28		8.575	19.12	.988	.59	7.30	-19	24.6
1314	40	36.91		9.69	19.08	.988	.52	7.28	-7	16.7
1319	45	38.20		10.805	19.12	.988	.50	7.30	1	10.7
For three (3) consecutive Readings			Required Purge	Actual Purge	+/- 3% (°C)	+/- 3%	+/- 10% <0.5mg/l stable	+/- .10 (SU)	+/- 10 mV	+/- 10% unless <5 NTU consider stable
Well Condition	Pad Condition	Lock Functioning	Bladder Pump	Casing SS <input type="checkbox"/>	Casing PVC <input checked="" type="checkbox"/>	Field Blank Collected Time: 1358	Duplicated Collected Time: N/A			
OK	OK	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Filtered: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Split Sample <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Semi-Annual <input checked="" type="checkbox"/>				
Sample Time	Depth to Water	Color	Odor	Temp. (°C)	Sp. Cond. (mS)	DO (mg/L)	pH (SU)	eH/ORP (mV)	Turbidity NTU)	
1334	40.80	CLEAR	NONE	19.83	0.982	1.01	7.30	21	10.1	

## CCR GROUNDWATER FIELD LOG

## GREEN ASH POND

Site Name: <b>GREEN POND</b>	Well No. <b>MW-12</b>	Total Depth (ft.) <b>72.0</b>	Initial Depth to Water (ft.)	Height of Water Column (ft.)	Date:	Time:				
Site Location: <b>Webster Co, KY</b>	AKGWA# <b>8006-3939</b>	Casing Diameter <input type="checkbox"/> 4" <input type="checkbox"/> 2" Conversion fact. 4"-0.67    2"-0.16	Measuring Point (ft.) <b>395.54</b>	Groundwater Elevation (ft.)	Well Vol. (Gal.)	PO #				
<input type="checkbox"/> Rain <input type="checkbox"/> Sleet/Freezing Rain <input type="checkbox"/> Snow <input type="checkbox"/> Fog <input type="checkbox"/> Clear <input type="checkbox"/> Partly Cloudy <input type="checkbox"/> Windy   Temp. _____ (F°)										
Time	ET (min)	Depth to Water (ft.)	Purge Rate ml/min	Volume Purged (L)	Temp (°C)	Sp. Cond. (mS)	DO Mg/L	pH (SU)	eH/ORP (mV)	Turbidity (NTU)
13:24	50	39.1	~223	11.92	19.62	.986	.49	7.30	4	8.1
13:29	55	40.1	↓	13.035	19.69	.989	.61	7.31	9	12.4
13:34	60	40.80	↓	14.15	19.83	.982	1.01	7.30	21	10.1
For three (3) consecutive Readings		Required Purge	Actual Purge	+/- 3% (°C)	+/- 3%	+/- 10% <0.5mg/l stable	+/- .10 (SU)	+/- 10 mV	+/- 10% unless <5 NTU consider stable	
Well Condition	Pad Condition	Lock Functioning	Bladder Pump	Casing SS <input type="checkbox"/>	Casing PVC <input type="checkbox"/>	<input type="checkbox"/> Field Blank Collected Time:	<input type="checkbox"/> Duplicated Collected Time: <i>N/A</i>			
		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	Filtered: <input type="checkbox"/> Yes <input type="checkbox"/> No	Split Sample <input type="checkbox"/> Yes <input type="checkbox"/> No	With:	<input checked="" type="checkbox"/> Semi-Annual			
Sample Time	Depth to Water	Color	Odor	Temp. (C°)	Sp. Cond. (mS)	DO (mg/L)	pH (SU)	eH/ORP (mV)	Turbidity NTU)	

# CCR GROUNDWATER FIELD LOG

3

# GREEN ASH POND

Site Name: <b>GREEN POND</b>	Well No. <b>MW-13</b>	Total Depth (ft.) <b>51.5</b>	Initial Depth to Water (ft.) <b>21.25</b>	Height of Water Column (ft.) <b>30.25</b>	Date: <b>10/1/22</b>	Time: <b>1135</b>					
Site Location: <b>Webster Co, KY</b>	AKGWA# <b>8006-3940</b>	Casing Diameter <input type="checkbox"/> 4" <input checked="" type="checkbox"/> 2" Conversion fact. 4"-0.67 2"-0.16	Measuring Point (ft.) <b>394.60</b>	Groundwater Elevation (ft.) <b>373.35</b>	Well Vol. (Gal.) <b>4.84</b>	PO #					
<input type="checkbox"/> Rain <input type="checkbox"/> Sleet/Freezing Rain <input type="checkbox"/> Snow <input type="checkbox"/> Fog <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Partly Cloudy <input type="checkbox"/> Windy <span style="margin-left: 20px;">Temp. <b>62</b> (°F)</span>											
<i>Pump Control setting Fill time 25 sec 15 sec Discharge 10 sec</i>	<b>Time</b>	<b>ET (min)</b>	<b>Depth to Water (ft.)</b>	<b>Purge Rate ml/min</b>	<b>Volume Purged (L)</b>	<b>Temp (°C)</b>	<b>Sp. Cond. (mS)</b>	<b>DO Mg/L</b>	<b>pH (SU)</b>	<b>eH/ORP (mV)</b>	<b>Turbidity (NTU)</b>
	1035	✓	21.25	~240 ml	∅	20.16	1.25	3.35	7.16	164	∅
	1040	5	24.95	↓	1.2	18.90	1.26	1.51	6.86	158	2.2
	1045	10	25.30	~133 ml	1.865	19.31	1.28	1.21	6.84	166	∅
	1050	15	25.40	~133 ml	2.53	19.36	1.29	1.06	6.85	153	∅
	1055	20	25.60		3.195	19.37	1.31	0.83	6.87	126	∅
	1100	25	25.70		3.86	19.45	1.29	0.73	6.88	104	∅
	1105	30	25.80		4.525	19.61	1.28	1.09	6.92	93	∅
	1110	35	26.00		5.19	19.66	1.28	0.67	6.93	88	0.7
	1115	40	26.05		5.855	19.79	1.27	0.61	6.94	85	∅
	1120	45	26.10		6.52	19.84	1.26	0.58	6.94	82	0.5
For three (3) consecutive Readings			Required Purge	Actual Purge	+/- 3% (°C)	+/- 3%	+/- 10% <0.5mg/l stable	+/- .10 (SU)	+/- 10 mV	+/- 10% unless <5 NTU consider stable	
<b>Well Condition</b>	<b>Pad Condition</b>	<b>Lock Functioning</b>	<b>Bladder Pump</b>	<b>Casing SS</b> <input type="checkbox"/>	<b>Casing PVC</b> <input checked="" type="checkbox"/>	<b>Field Blank Collected</b> Time: <b>N/A</b>	<b>Duplicated Collected</b> Time: <b>1200</b>				
OK	OK	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Filtered:</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Split Sample</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>With:</b>	<input checked="" type="checkbox"/> Semi-Annual				
<b>Sample Time</b>	<b>Depth to Water</b>	<b>Color</b>	<b>Odor</b>	<b>Temp. (°C)</b>	<b>Sp. Cond. (mS)</b>	<b>DO (mg/L)</b>	<b>pH (SU)</b>	<b>eH/ORP (mV)</b>	<b>Turbidity NTU</b>		
1135	26.30	CLEAR	NONE	20.00	1.28	0.55	6.88	88	∅		

CONTINUED

**CCR GROUNDWATER FIELD LOG**

**GREEN ASH POND**

Site Name: <b>GREEN POND</b>	Well No. <b>MW-13</b>	Total Depth (ft.) <b>51.5</b>	Initial Depth to Water (ft.)	Height of Water Column (ft.)	Date: <b>10/1/22</b>	Time:				
Site Location: <b>Webster Co, KY</b>	AKGWA# <b>8006-3940</b>	Casing Diameter <input type="checkbox"/> 4" <input checked="" type="checkbox"/> 2" Conversion fact. 4"-0.67    2"-0.16	Measuring Point (ft.) <b>394.60</b>	Groundwater Elevation (ft.)	Well Vol. (Gal.)	PO #				
<input type="checkbox"/> Rain <input type="checkbox"/> Sleet/Freezing Rain <input type="checkbox"/> Snow <input type="checkbox"/> Fog <input type="checkbox"/> Clear <input type="checkbox"/> Partly Cloudy <input type="checkbox"/> Windy   Temp. _____ (F°)										
Time	ET (min)	Depth to Water (ft.)	Purge Rate ml/min	Volume Purged (L)	Temp (°C)	Sp. Cond. (mS)	DO Mg/L	pH (SU)	eH/ORP (mV)	Turbidity (NTU)
1125	50	26.20	~133 ml	7.185	20.20	1.28	0.55	6.89	85	4.9
1130	55	26.25	↓	7.85	20.17	1.28	0.68	6.87	94	∅
1135	60	26.30	↓	8.515	20.00	1.28	0.55	6.88	88	∅
For three (3) consecutive Readings			Required Purge	Actual Purge	+/- 3% (°C)	+/- 3%	+/- 10% <0.5mg/l stable	+/- .10 (SU)	+/- 10 mV	+/- 10% unless <5 NTU consider stable
Well Condition	Pad Condition	Lock Functioning	Bladder Pump	Casing SS <input type="checkbox"/>	Casing PVC <input type="checkbox"/>		<input type="checkbox"/> Field Blank Collected Time: <b>N/A</b>		<input checked="" type="checkbox"/> Duplicated Collected Time: <b>1200</b>	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	Filtered: <input type="checkbox"/> Yes <input type="checkbox"/> No	Split Sample <input type="checkbox"/> Yes <input type="checkbox"/> No		With: <input type="checkbox"/>		Semi-Annual <input type="checkbox"/>	
Sample Time	Depth to Water	Color	Odor	Temp. (C°)	Sp. Cond. (mS)	DO (mg/L)	pH (SU)	eH/ORP (mV)	Turbidity NTU)	

# CCR GROUNDWATER FIELD LOG

②

# GREEN ASH POND

Site Name: <b>GREEN POND</b>	Well No. <b>MW-14</b>	Total Depth (ft.) <b>49.6</b>	Initial Depth to Water (ft.) <b>26.08</b>	Height of Water Column (ft.) <b>23.52</b>	Date: <b>10/1/22</b>	Time: <b>1004</b>
Site Location: <b>Webster Co, KY</b>	AKGWA# <b>8006-3941</b>	Casing Diameter <input type="checkbox"/> 4" <input checked="" type="checkbox"/> 2" Conversion fact. 4"-0.67 2"-0.16	Measuring Point (ft.) <b>390.71</b>	Groundwater Elevation (ft.) <b>364.63</b>	Well Vol. (Gal.) <b>3.76</b>	PO #

Rain  Sleet/Freezing Rain  Snow  Fog  Clear <sup>Sunny</sup>  Partly Cloudy  Windy Temp. **58°** (F°)

Time	ET (min)	Depth to Water (ft.)	Purge Rate ml/min	Volume Purged (L)	Temp (°C)	Sp. Cond. (mS)	DO Mg/L	pH (SU)	eH/ORP (mV)	Turbidity (NTU)
0944	0	26.08	~250ml	0	18.07	1.72	2.08	6.86	65	0
0949	5	26.91		1.25	18.34	1.69	1.17	6.93	55	0
0954	10	27.10		2.50	18.52	1.68	1.02	6.96	52	0
0959	15	27.3		3.75	18.76	1.67	.94	6.97	51	0
1004	20	27.5		5.0	18.97	1.66	.94	6.99	50	0

For three (3) consecutive Readings	Required Purge	Actual Purge	+/- 3% (°C)	+/- 3%	+/- 10% <0.5mg/l stable	+/- .10 (SU)	+/- 10 mV	+/- 10% unless <5 NTU consider stable
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Well Condition	Pad Condition	Lock Functioning	Bladder Pump	Casing SS <input type="checkbox"/>	<input type="checkbox"/> Field Blank Collected Time: <b>N/A</b>	<input type="checkbox"/> Duplicated Collected Time: <b>N/A</b>
<b>OK</b>	<b>OK</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Casing PVC <input checked="" type="checkbox"/>	Filtered: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Split Sample <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No With: <input checked="" type="checkbox"/>

Sample Time	Depth to Water	Color	Odor	Temp. (°C)	Sp. Cond. (mS)	DO (mg/L)	pH (SU)	eH/ORP (mV)	Turbidity NTU
1004	27.50	CLEAR	NONE	18.97	1.66	0.94	6.99	50	0

**APPENDIX C – GREEN LANDFILL ANALYTICAL SUMMARY TABLES**

**GREEN LANDFILL - CCR ANALYTICAL SUMMARY  
MW-1**

APPENDIX III CONSTITUENTS	2022 GWPS	Units	DATE											
			3/26/2016	5/23/2016	8/18/2016	10/26/2016	2/1/2017	5/2/2017	8/7/2017	9/5/2017	10/5/2017	6/4/2018	7/10/2018	
			Baseline Events										Assessment	Re-Sampling
Boron	--	mg/L	1.67	1.49	2.25	1.70	1.71 J	1.68	1.85 B	1.79	1.92		1.41	
Calcium	--	mg/L	29.1	31.8 B	33.0	30.9	20.8	28.1	27.1	29.9 B	26.4		26.5	
Chloride	--	mg/L	9.03 JB	0.501 JB	6.60 B	6.02 B	5.56 B F1	5.30 B	5.12 B F1	5.71 B	4.07 F1 B		6.34 B	
Fluoride	4	mg/L	ND J	ND JB	ND J	ND JB	ND J F1	ND JB	ND J F1	ND J	ND J F1		ND J	
pH (Field Measurement)	--	s.u.	7.39	7.24	7.57	7.19	7.63	7.54	7.45	7.48	7.63		7.08	
Sulfate	--	mg/L	25.2	22.8 JB	22.9	20.7 B	28.4	24.0 B	25.3 B	23.4	24.9 JB		23.5	
Total Dissolved Solids	--	mg/L	598	588	585	585	605	630	614	627	636		585	
<b>APPENDIX IV CONSTITUENTS</b>														
Antimony	0.006	mg/L	ND	ND J	ND B	ND	ND	ND JB	0.00297 B	ND JB		ND JB	ND J	
Arsenic	0.01	mg/L	ND J	ND J	ND J	ND J	ND J	ND J	ND J F1	ND JB		ND JB	ND J	
Barium	2	mg/L	ND J	ND J	ND J	ND J	ND J	ND J	ND J F1	ND J		ND JB	ND J	
Beryllium	0.004	mg/L	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	
Cadmium	0.005	mg/L	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	
Chromium	0.1	mg/L	ND	ND J	ND	ND	ND	ND	ND	ND J		ND JB	ND	
Cobalt	0.006	mg/L	ND J	ND J	ND J	ND J	ND J	ND J	ND J	ND J		ND JB	ND J	
Fluoride	4	mg/L	ND J	ND J	ND J	ND JB	ND J F1	ND JB	ND J F1	ND J		ND J	ND J	
Lead	0.015	mg/L	ND J	ND J	ND J	ND	ND	ND	ND	ND J		ND	ND J	
Lithium	0.04	mg/L	0.0293 J	0.0317 J	0.0326 J	0.0286 J	0.0342 J	0.0396 J	0.0314 J	0.0315 J		0.0319 J	0.0298 J	
Mercury	0.002	mg/L	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	
Molybdenum	0.1	mg/L	ND	ND J	ND J	ND J	ND J	ND J	ND J	ND		ND J	ND J	
Radium 226	5	pCi/L	1.05	1.02	0.676	1.02	0.694	0.666	0.491	0.601		1.92	0.882	
Radium 228														
Selenium	0.05	mg/L	ND	ND	ND	ND	ND	ND	ND J	ND		ND	ND	
Thallium	0.002	mg/L	ND	ND J	ND	ND J	ND	ND	ND J	ND		ND	ND	

GWPS = Groundwater Protection Standard

mg/L = milligrams per liter

NA = Not Analyzed

ND = Not Detected at or above Method Detection Limit

pCi/L = picoCuries per Liter

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F1 = MS and/or MSD Recovery is outside acceptance limits.

D1 = Sample required dilution due to high concentration of target analyte

D2 = Sample required dilution due to matrix interference

H1 = Sample analysis performed pasts holding time

H3 = Sample received and analyzed past holding time

M1 = Matrix spike recovery was high; the method control sample recovery was acceptable.

M2 = Matrix spike recovery was low; the method control sample recovery was acceptable.

M3 = The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable

M4 = The analysis of the spike sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable

U = Target analyte was analyzed for, but was below detection limit

V1 = CCV recovery was above method acceptance limits. This target analyte not detected in the sample

**GREEN LANDFILL - CCR ANALYTICAL SUMMARY  
MW-1**

APPENDIX III CONSTITUENTS	2022 GWPS	Units	DATE																		
			9/28/2018		4/22/2019		9/30/2019		4/6/2020		9/22/2020		4/22/2021		9/23/2021		4/20/2022		12/9/2022		
			Assessment																		
Boron	--	mg/L	1.94	B	1.73	B	1.68	D2,M4	1.69	D1,M3	1.66	D2,M4	1.45	D1,M4	1.68	D1,M1,M4	1.71	D1,M2	1.82	D2,M1	
Calcium	--	mg/L	28.5	B	32.1		29.1	D2	27.7	D1,M3	26.4	D2	31.6	D1,M1	26.4	D1,M1	31	D1,M2	31.2	D2,M2	
Chloride	--	mg/L	6.17	B	6.41	B,F1	7.5		6.5		6.6		6.4		6.2		13.9		5.7		
Fluoride	4	mg/L	ND	JB	0.521	J	0.6		0.5		0.6		0.5		0.6		0.5		0.6		
pH (Field Measurement)	--	s.u.	8.43		7.87		7.79	H3	7.22		6.88		6.90		7.28		6.67		7.62		
Sulfate	--	mg/L	22.5	B	35.1	B F1	19		21		24		42	D	33	D	48		30		
Total Dissolved Solids	--	mg/L	616		568	B	444	H1	488		388		582		584		672		602		
<b>APPENDIX IV CONSTITUENTS</b>																					
Antimony	0.006	mg/L	NA		0.000254	JB	ND	M1 V1 U	<0.005		<0.005		<0.005	U	<0.005	M2, U	<0.005	U	<0.005	U	
Arsenic	0.01	mg/L	ND	JB	0.00167	JB	0.0005	V1 J	0.0019		<0.0010		0.0005	J	<0.0010	M1, M2, U	0.0004	J	0.0008	J	
Barium	2	mg/L	ND	J	0.0862	J	0.091	D2	0.087		0.077		0.081		0.078	M2	0.077		0.085		
Beryllium	0.004	mg/L	NA		0.000533	J	ND	D2 U	<0.0020		<0.0020		<0.0020	U	<0.0020	M2, U	<0.002	U	<0.002	U	
Cadmium	0.005	mg/L	NA		0.000299	J	ND	VI U	<0.0010		<0.0010		0.0001	J	<0.0010	M2, U	<0.001	U	<0.001	U	
Chromium	0.1	mg/L	NA		0.00354	B	ND	U	0.0011	J	<0.0020		<0.0020	U	<0.0020	M2, U	<0.002	U	<0.002	U	
Cobalt	0.006	mg/L	NA		0.000571	J	ND	U	<0.004		<0.004		<0.004	U	<0.004	M2, U	<0.004	U	<0.004	U	
Fluoride	4	mg/L	ND	JB	0.521	J	0.6		0.5		0.6		0.5		0.6		0.5		0.6		
Lead	0.015	mg/L	NA		0.000279	J	ND	V1 U	<0.002		<0.002		<0.002	U	<0.002	M2, U	<0.002	U	<0.002	U	
Lithium	0.04	mg/L	0.0279	J	0.0295	J	ND	D2 M3 U	0.03		<0.20	M1	0.03		0.03	M1, M2	0.03		0.03		
Mercury	0.002	mg/L	ND		ND		ND	V1 U	<0.0005		<0.0005		<0.0005	U	<0.0005	M1, M2, U	0.0002	J	<0.0005	U	
Molybdenum	0.1	mg/L	NA		0.00105	J	ND	U	<0.01		<0.01		<0.01	U	<0.01	M1, M2, U	0.002	J	<0.01	U	
Radium 226	5	pCi/L	0.905		0.689		0.782		0.808		0.564		0.412		1.53		2.36	J	1.46	J	
Radium 228							0.733														
Selenium	0.05	mg/L	NA		0.00105	J	ND	U	<0.003		<0.003		<0.003	U	<0.003	M2, U	<0.003	M1, U	<0.003	U	
Thallium	0.002	mg/L	NA		0.000498	J	0.0001	V1 J	0.0001	J	0.0001	J	<0.0020	U	<0.0020	M1, M2, U	<0.002	U	<0.002	U	

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**GREEN LANDFILL - CCR ANALYTICAL SUMMARY  
MW-2**

APPENDIX III CONSTITUENTS	2022 GWPS	Units	DATE											
			3/26/2016	5/23/2016	8/18/2016	11/14/2016	2/1/2017	5/2/2017	8/8/2017	9/7/2017	10/6/2017	6/5/2018	7/11/2018	
			Baseline Events										Assessment	Re-Sampling
Boron	--	mg/L	ND J	ND J	ND J	ND J	ND JB	ND J	0.113 JB	ND JB	ND J			ND J
Calcium	--	mg/L	119	116 B	140	140 B	126	152	154	121	150			155
Chloride	--	mg/L	126 B	125 B	129 B	133	142 B	129 B	145 B	136 B	129 B			154 B
Fluoride	4	mg/L	ND J	ND	ND J	ND JB F1	ND J	ND JB	ND JB	ND JB F1	ND J			ND J
pH (Field Measurement)	--	s.u.	6.81	6.59	6.7	6.78	7.12	7.04	6.77	6.69	6.86	6.64		6.40
Sulfate	--	mg/L	80.0	84.5 J	85.5 J	90.1	89.8	83.2	92.0 JB	90.8	88.6 JB			107
Total Dissolved Solids	--	mg/L	764	780	830	880	862	918	913	818	970			884
<b>APPENDIX IV CONSTITUENTS</b>														
Antimony	0.006	mg/L	ND	ND J	ND JB	ND JB	ND	ND JB	ND B	ND JB			ND JB	ND J
Arsenic	0.01	mg/L	0.00703 J	0.00633	0.0110	0.0159	0.0462	0.00755	0.0381	0.00527			0.0327 B	0.0119
Barium	2	mg/L	ND J	ND J	0.280	0.319	0.347	0.332	0.308	ND J			0.369	0.323
Beryllium	0.004	mg/L	ND	ND	ND	ND	ND	ND	ND	ND			ND	ND
Cadmium	0.005	mg/L	ND J	ND	ND	ND	ND	ND	ND	ND			ND	ND
Chromium	0.1	mg/L	ND	ND J	ND	ND	ND	ND	ND	ND			ND JB	ND
Cobalt	0.006	mg/L	ND J	ND J	ND J	ND J	ND J	ND J	ND JB	ND J			ND JB	ND J
Fluoride	4	mg/L	ND J	ND	ND J	ND JB F1	ND J	ND JB	ND JB	ND JB F1			ND J	ND J
Lead	0.015	mg/L	ND	ND	ND	ND	ND	ND	ND	ND			ND	ND J
Lithium	0.04	mg/L	ND J	ND	ND	ND	ND J	ND J	ND JB	ND			ND	ND
Mercury	0.002	mg/L	ND	ND	ND	ND	ND	ND	ND	ND			ND	ND
Molybdenum	0.1	mg/L	ND J	ND J	ND J	ND J	ND J	ND J	ND JB	ND JB			ND J	ND J
Radium 226	5	pCi/L	0.533	ND	0.46	ND	0.856	0.73	0.968	0.537			1.18	0.733
Radium 228														
Selenium	0.05	mg/L	ND	ND	ND	ND JB	ND	ND	ND JB	ND			ND	ND
Thallium	0.002	mg/L	ND	ND J	ND	ND	ND	ND	ND	ND			ND	ND

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**GREEN LANDFILL - CCR ANALYTICAL SUMMARY  
MW-2**

APPENDIX III CONSTITUENTS	2022 GWPS	Units	DATE																		
			9/28/2018		4/23/2019		10/1/2019		4/7/2020		9/22/2020		4/22/2021		9/23/2021		4/20/2022		12/10/2022		
			Assessment																		
Boron	--	mg/L	0.0630	JB	0.101	JB	ND	D2 U	<0.10		<0.10		<0.10	U	<0.10	U	<0.10	U	<1.0	D2, U	
Calcium	--	mg/L	165	B	156		166	D1	145	D1	157	D1	179	D1	193	D1	190	D1	216	D1	
Chloride	--	mg/L	159	B	144		108	D	120	D	231	D	264	D	301	D	159	D	233	D	
Fluoride	4	mg/L	ND	JB	0.193	J	0.3		0.2		0.3		0.2		0.3		0.2		0.2		
pH (Field Measurement)	--	s.u.	7.02		7.15		7.39	H3	6.92		6.22		6.69		6.27		6.37		6.92		
Sulfate	--	mg/L	108	B	105		79.0	D	85	D	117	D	199	D	205	D	128	D	150		
Total Dissolved Solids	--	mg/L	937		918	B	930	H1	806		914		1040		1070		1130		1230		
<b>APPENDIX IV CONSTITUENTS</b>																					
Antimony	0.006	mg/L	NA		0.0000670	JB	ND	V1 U	<0.005		<0.005		<0.005	U	<0.005	U	<0.005	U	<0.005	U	
Arsenic	0.01	mg/L	0.0211	B	0.00738	B	0.0129	D2	0.0033		0.0095		0.0259		0.025		0.0331	J	0.0501		
Barium	2	mg/L	0.367		0.362		0.380	D2	0.238		0.336		0.363		0.329		0.348	J	0.351		
Beryllium	0.004	mg/L	NA		0.000281	J	ND	D2 U	<0.0020		<0.0020		<0.0020	U	<0.0020	U	<0.0020	U	<0.0020	U	
Cadmium	0.005	mg/L	NA		ND		ND	V1 U	<0.0010		<0.0010		<0.0010	U	<0.0010	U	<0.0010	U	<0.0010	U	
Chromium	0.1	mg/L	NA		0.00122	JB	ND	D2 U	<0.0020		<0.0020		<0.0020	U	<0.0020	U	<0.0020	U	<0.0020	U	
Cobalt	0.006	mg/L	NA		0.00382	J	ND	D2 U	<0.004		<0.004		<0.004	U	<0.004	U	<0.004	U	<0.004	U	
Fluoride	4	mg/L	ND	JB	0.193	J	0.3		0.2		0.3		0.2		0.3		0.2		0.2		
Lead	0.015	mg/L	NA		ND		ND	V1 U	<0.002		<0.002		<0.002	U	<0.002	U	<0.002	U	<0.002	U	
Lithium	0.04	mg/L	ND		ND		ND	D2 VI U	0.007	J	0.006	V1, J	0.006	J	0.006	J	0.006	J	0.006	J	
Mercury	0.002	mg/L	ND		ND		ND	V1 U	<0.0005		<0.0005		<0.0005	U	<0.0005	U	<0.0005	U	<0.0005	U	
Molybdenum	0.1	mg/L	NA		0.00210	J	0.003	J	0.002	J	0.002	J	0.003	J	0.002	J	0.003	J	0.003	J	
Radium 226	5	pCi/L	0.803		0.391		0.136		0.529		0.493		1.26		0.591		1.27	J	1.59	J	
Radium 228							0.834														
Selenium	0.05	mg/L	NA		ND		ND	U	<0.003		<0.003		<0.003	U	<0.003	U	<0.003	U	<0.003	U	
Thallium	0.002	mg/L	NA		0.0000800	J	ND	V1 U	<0.0020		<0.0020		<0.0020	U	<0.0020	U	<0.0020	U	<0.0020	U	

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**GREEN LANDFILL - CCR ANALYTICAL SUMMARY  
MW-3A**

APPENDIX III CONSTITUENTS	2022 GWPS	Units	DATE											
			3/26/2016	5/23/2016	8/18/2016	11/14/2016	2/1/2017	5/2/2017	8/8/2017	9/6/2017	10/6/2017	6/5/2018	7/11/2018	
			Baseline Events										Assessment	Re-Sampling
Boron	--	mg/L	0.145	0.135 J	0.279 J	0.213 J	0.235 JB	0.232 J	0.304 JB	0.376 J	0.313		0.177 J	
Calcium	--	mg/L	431	322 B	362	365 B	327	420	421	438 B	408		469	
Chloride	--	mg/L	2630 HB	3070	2150 B	2150 B	2220 B	2120 B	1790 B	2270 B	1870 B		2180 B	
Fluoride	4	mg/L	ND J	ND J	ND J	ND JB	ND J	ND JB	ND	3.16	ND J		ND J	
pH (Field Measurement)	--	s.u.	6.92	6.86	6.95	6.75	7.17	7.11	6.81	6.9	6.95	6.84	6.55	
Sulfate	--	mg/L	1330	1330	1190	1660	1080	1030 B	942	1130	1030 B		1010	
Total Dissolved Solids	--	mg/L	4440	5010	4170	4450	4270	5170	5010	5020	5300		4540	
<b>APPENDIX IV CONSTITUENTS</b>														
Antimony	0.006	mg/L	ND	ND J	ND JB	ND JB	ND	ND JB	ND JB	ND JB		ND JB	ND	
Arsenic	0.01	mg/L	ND	ND J	ND J	ND J	ND J	ND J	ND J	ND JB		ND JB	ND J	
Barium	2	mg/L	ND J	ND J	ND J	ND J	ND J	ND J	ND J	ND J		ND J	ND J	
Beryllium	0.004	mg/L	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	
Cadmium	0.005	mg/L	ND J	ND J	ND	ND	ND J	ND J	ND	ND		ND J	ND J	
Chromium	0.1	mg/L	ND	ND J	ND	ND	ND	ND	ND	ND J		ND JB	ND	
Cobalt	0.006	mg/L	ND	ND J	ND J	ND J	ND J	ND J	ND J	ND J		ND JB	ND J	
Fluoride	4	mg/L	ND J	ND J	ND J	ND JB	ND J	ND JB	ND	3.16		ND J	ND J	
Lead	0.015	mg/L	ND J	ND	ND	ND	ND	ND	ND J	ND J		ND	ND J	
Lithium	0.04	mg/L	0.669	0.516	0.648	0.677	0.689	0.746	0.767	0.762		0.699	0.790	
Mercury	0.002	mg/L	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	
Molybdenum	0.1	mg/L	ND	ND J	ND	ND	ND	ND	ND	ND		ND	ND	
Radium 226	5	pCi/L	1.38	0.386	0.472	1.15	1.15	0.923	1.53	1.03		1.18	1.43	
Radium 228														
Selenium	0.05	mg/L	ND	ND	ND J	ND JB	ND	ND	ND	ND		ND J	ND	
Thallium	0.002	mg/L	ND	ND J	ND	ND	ND	ND	ND	ND J		ND	ND	

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MW-3A**

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			9/28/2018		4/23/2019		10/1/2019		4/7/2020		9/22/2020		4/22/2021		9/23/2021		4/20/2022		12/10/2022		
			Assessment																		
Boron	--	mg/L	0.257	JB	0.259	JB	ND	D2 U	0.26		0.28		0.25		0.37		0.28		<1.0	D2, U	
Calcium	--	mg/L	447	B	411		490	D1	425	D1	423	D1	438	D1	483	D1	428	D1	553	D1	
Chloride	--	mg/L	2040	B	1850		4570	D	3220	D	1200	D	3460	D	1780	D	1820	D	2530	D	
Fluoride	4	mg/L	ND	JB	0.387	J	0.4		0.5		0.4		0.4		<0.20	U	0.4		0.4		
pH (Field Measurement)	--	s.u.	7.98		7.23		7.33	H3	6.86		6.61		7.26		6.77		6.68		6.99		
Sulfate	--	mg/L	1130	B	1080		1680	D	1840	D	1830	D	2110	D	2380	D	752	D	1720	D	
Total Dissolved Solids	--	mg/L	4940		4250	B	6900	H1	5860		5680		5940		6490		5220		5350		
<b>APPENDIX IV CONSTITUENTS</b>																					
Antimony	0.006	mg/L	NA		0.000102	JB	ND	V1 U	<0.005		<0.005		<0.005	U	<0.005	U	<0.005	U	<0.005	U	
Arsenic	0.01	mg/L	ND	JB	0.000575	JB	ND	D2 U	<0.0010		<0.0010		<0.0010	U	<0.0010	U	<0.001	U	<0.001	U	
Barium	2	mg/L	ND	J	0.0474	J	0.051	D2 U	0.042		0.043		0.042		0.045		0.038		0.04		
Beryllium	0.004	mg/L	NA		0.000199	J	ND	D2 U	<0.0020		<0.0020		<0.0020	U	<0.0020	U	<0.0020	U	<0.0020	U	
Cadmium	0.005	mg/L	NA		0.000164	J	ND	V1 U	0.0001	J	<0.0010		0.0002	J	<0.0010	U	0.0001	J	<0.0010	U	
Chromium	0.1	mg/L	NA		0.00168	JB	ND	D2 U	<0.0020		0.0006	J	<0.0020	U	<0.0020	U	<0.0020	U	<0.0020	U	
Cobalt	0.006	mg/L	NA		0.000243	J	0.008		<0.004		0.004		<0.004	U	<0.004	U	<0.004	U	<0.004	U	
Fluoride	4	mg/L	ND	JB	0.387	J	0.4		0.5		0.4		0.4		<0.20	U	0.4		0.4		
Lead	0.015	mg/L	NA		0.000137	J	ND	V1 U	<0.002		<0.002		<0.002	U	<0.002	U	<0.002	U	<0.002	U	
Lithium	0.04	mg/L	0.766		0.678		0.79	D1	0.68		0.80	D2	0.75		0.76		0.65		0.61		
Mercury	0.002	mg/L	ND		ND		ND	V1 U	<0.0005		<0.0005		<0.0005	U	<0.0005	U	<0.0005	U	<0.0005	U	
Molybdenum	0.1	mg/L	NA		ND		ND	D2 U	<0.01		<0.01		<0.01	U	<0.01	U	<0.01	U	<0.01	U	
Radium 226	5	pCi/L	1.21		0.641		0.139		1.06		1.51		1.25		1.46		1.46	J	2.3	J	
Radium 228							0.734														
Selenium	0.05	mg/L	NA		0.00103	J	ND	D2 U	<0.003		<0.003		<0.003	U	<0.003	U	<0.003	U	<0.003	U	
Thallium	0.002	mg/L	NA		0.000860	J	ND	V1 U	<0.0020		<0.0020		<0.0020	U	<0.0020	U	<0.0020	U	<0.0020	U	

GWPS = Groundwater Protection Standard

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NA = Not Analyzed

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pCi/L = picoCuries per Liter

s.u. = standard units

J = Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value.

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F1 = MS and/or MSD Recovery is outside acceptance limits.

D1 = Sample required dilution due to high concentration of target analyte

D2 = Sample required dilution due to matrix interference

H1 = Sample analysis performed pasts holding time

H3 = Sample received and analyzed past holding time

M3 = The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable

M4 = The analysis of the spike sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable

U = Target analyte was analyzed for, but was below detection limit

V1 = CCV recovery was above method acceptance limits. This target analyte not detected in the sample

**GREEN LANDFILL - CCR ANALYTICAL SUMMARY  
MW-4**

APPENDIX III CONSTITUENTS	2022 GWPS	Units	DATE												Assessment	Re-Sampling
			3/29/2016	5/23/2016	8/18/2016	10/26/2016	2/1/2017	5/2/2017	8/8/2017	9/7/2017	10/6/2017	6/5/2018	7/11/2018			
			Baseline Events													
Boron	--	mg/L	0.602	0.498 J	1.58	1.7	1.54 B	2.09	2.51 B	2.87 B	1.36		0.751 J			
Calcium	--	mg/L	660	386 B	464	558	591	774	743	739	828		822			
Chloride	--	mg/L	1450 B	939 B	952 B	1000 B	1420 B	1320 B	1360 B	1880 B	1730 B		1430 B			
Fluoride	4	mg/L	ND J	ND	ND J	ND JB	ND J	1.06 B	ND	ND JB	ND J		ND J			
pH (Field Measurement)	--	s.u.	6.36	6.83	7.08	6.61	7.28	7.1	6.84	6.64	6.93	6.86	6.58			
Sulfate	--	mg/L	1830	1640	1420	1420 B	1620	1430 B	1600 B	2020	1590 B		1460			
Total Dissolved Solids	--	mg/L	3700	4250	3440	3250	4420	4550	4890	4700 H	6220		4880			
<b>APPENDIX IV CONSTITUENTS</b>																
Antimony	0.006	mg/L	ND	ND J	ND JB	ND	ND	ND JB	ND JB	ND JB		ND JB	ND			
Arsenic	0.01	mg/L	ND	ND J	ND J	ND	ND J	ND J	ND J	ND JB		ND JB	ND J			
Barium	2	mg/L	ND J	ND J	ND J	ND JB	ND J	ND J	ND J	ND JB		ND J	ND J			
Beryllium	0.004	mg/L	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND			
Cadmium	0.005	mg/L	ND J	ND	ND	ND	ND	ND	ND	ND		ND	ND			
Chromium	0.1	mg/L	ND	ND J	ND	ND	ND	ND	ND	ND		ND JB	ND			
Cobalt	0.006	mg/L	ND	ND J	ND	ND	ND	ND	ND	ND		ND JB	ND J			
Fluoride	4	mg/L	ND	ND	ND J	ND JB	ND J	ND B	ND	ND JB		ND J	ND J			
Lead	0.015	mg/L	ND J	ND J	ND	ND	ND	ND	ND	ND		ND	ND J			
Lithium	0.04	mg/L	1.39	0.838	1.13	1.25	1.35	1.59	1.77	1.66		1.81	1.91			
Mercury	0.002	mg/L	0.00027	0.000224	ND J	0.000248	0.000302	0.000717	0.000825	0.000485		0.000824	0.000832			
Molybdenum	0.1	mg/L	ND J	ND J	ND	ND	ND J	ND	ND	ND		ND	ND			
Radium 226	5	pCi/L	1.26	0.592	ND	0.536	1.22	1.43	1.94	1.19		1.62	2.00			
Radium 228																
Selenium	0.05	mg/L	ND J	ND J	ND J	ND	ND J	ND	ND	ND J		ND J	ND			
Thallium	0.002	mg/L	ND	ND	ND	ND J	ND	ND	ND	ND		ND	ND			

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mg/L = milligrams per liter

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ND = Not Detected at or above Method Detection Limit

pCi/L = picoCuries per Liter

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B = Compound was found in the blank and sample.

F1 = MS and/or MSD Recovery is outside acceptance limits.

D1 = Sample required dilution due to high concentration of target analyte

D2 = Sample required dilution due to matrix interference

H1 = Sample analysis performed pasts holding time

H3 = Sample received and analyzed past holding time

M3 = The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable

M4 = The analysis of the spike sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable

U = Target analyte was analyzed for, but was below detection limit

V1 = CCV recovery was above method acceptance limits. This target analyte not detected in the sample

**GREEN LANDFILL - CCR ANALYTICAL SUMMARY  
MW-4**

APPENDIX III CONSTITUENTS	2022 GWPS	Units	DATE																		
			9/28/2018		4/22/2019		10/1/2019		4/7/2020		9/22/2020		4/22/2021		9/23/2021		4/20/2022		12/10/2022		
			Assessment																		
Boron	--	mg/L	1.33	B	1.25	B	1.75	D2	0.83		1.70	D2	1.38	D1	1.43	D1	0.87		1.26	D2	
Calcium	--	mg/L	722	B	730		690	D1	464	D1	823	D1	764	D1	841	D1	534	D1	871	D1	
Chloride	--	mg/L	1310	B	1510		1910	D	1560	D	2030	D	2470	D	1910	D	704	D	2270	D	
Fluoride	4	mg/L	ND	JB	0.102	J	0.2		0.2		0.2		0.2		<0.20	U	0.2		0.2		
pH (Field Measurement)	--	s.u.	8.06		7.26		7.36	H3	6.70		6.64		7.12		6.52		6.68		7.05		
Sulfate	--	mg/L	1400	B	1440		2490	D	4000	D	2080	D	2330	D	1780	D	1230	D	2500	D	
Total Dissolved Solids	--	mg/L	5170		4840	B	4820	H1	5120		4470		5040		5610		5740		3850		
<b>APPENDIX IV CONSTITUENTS</b>																					
Antimony	0.006	mg/L	NA		0.0000360	JB	ND	V1 U	<0.005		<0.005		<0.005	U	<0.005	U	<0.005	U	<0.005	U	
Arsenic	0.01	mg/L	ND	JB	0.000445	JB	ND	D2 U	<0.0010		<0.0010		<0.0010	U	<0.0010	U	<0.0010	U	<0.0010	U	
Barium	2	mg/L	ND	J	0.0308	JB	0.029	D2 J	0.022		0.031		0.029		0.030		0.022		0.025		
Beryllium	0.004	mg/L	NA		ND		ND	D2 U	<0.0020		<0.0040	D2	<0.0020	U	<0.0020	U	<0.0020	U	<0.0020	U	
Cadmium	0.005	mg/L	NA		ND		ND	V1 U	<0.0010		<0.0010		<0.0010	U	<0.0010	U	<0.0010	U	<0.0010	U	
Chromium	0.1	mg/L	NA		0.00110	JB	ND	D2 U	0.0008	J	<0.0020		<0.0020	U	<0.0020	U	0.0008	J	0.0006	J	
Cobalt	0.006	mg/L	NA		0.000415	J	ND	U	<0.004		<0.004		<0.004	U	<0.004		<0.004	U	<0.004	U	
Fluoride	4	mg/L	ND	JB	0.102	J	0.2		0.2		0.2		0.2		<0.20	U	0.2		0.2		
Lead	0.015	mg/L	NA		ND		ND	V1 U	<0.002		<0.002		<0.0020	U	<0.002	U	<0.002	U	<0.002	U	
Lithium	0.04	mg/L	1.81		1.73		ND	D2 V1 U	0.82		1.73	D2	1.44		1.44	D2	0.79		1.1	D1	
Mercury	0.002	mg/L	0.000680		0.000825		0.0004	V1 J	0.0003	J	0.0003	J	0.0004	J	0.0002	J	0.0002	J	0.0007		
Molybdenum	0.1	mg/L	NA		ND		ND	D2 U	0.002	J	<0.01		<0.01	U	<0.01	U	0.002	J	<0.01	U	
Radium 226	5	pCi/L	1.51		1.66		0.451		1.26		0.877		0.982		0.551		2.55	J	1.6	J	
Radium 228							0.804														
Selenium	0.05	mg/L	NA		0.00211	J	ND	U	0.023		<0.003		0.003		<0.003	U	0.028		0.002	J	
Thallium	0.002	mg/L	NA		0.0000410	J	ND	V1 U	<0.0020		<0.0020		<0.0020	U	<0.0020	U	<0.0020	U	<0.0020	U	

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V1 = CCV recovery was above method acceptance limits. This target analyte not detected in the sample

**GREEN LANDFILL - CCR ANALYTICAL SUMMARY  
MW-5**

APPENDIX III CONSTITUENTS	2022 GWPS	Units	DATE											
			3/29/2016	5/23/2016	8/18/2016	10/26/2016	2/1/2017	5/2/2017	8/7/2017	9/7/2017	10/6/2017	6/5/2018	7/11/2018	
			Baseline Events										Assessment	Re-Sampling
Boron	--	mg/L	0.217	0.0896 J	0.216 J	0.214 J	0.222 JB	0.241 J	0.257 JB	0.276 B	0.262		0.207 J	
Calcium	--	mg/L	452	189 B	374	399	335	464	423	407 B	383		469	
Chloride	--	mg/L	1630 B	521	688 B	755 B	734 B	722 B	945 B	779 B	608 B		941 B	
Fluoride	4	mg/L	ND J	ND	ND J	ND	ND J	ND JB	ND	3.69	ND J		ND J	
pH (Field Measurement)	--	s.u.	6.76	6.74	6.99	6.61	7.14	7.44	6.87	7.13	7.06	6.88	6.40	
Sulfate	--	mg/L	1760 HB	876	1780	1740 B	1880	1760 B	2060 B	1920	1600 B		1800	
Total Dissolved Solids	--	mg/L	4210	1660	3470	3610	3680	4250	4130	4120	4390		4100	
<b>APPENDIX IV CONSTITUENTS</b>														
Antimony	0.006	mg/L	ND	ND J	ND JB	ND	ND	ND JB	ND JB	ND JB		ND JB	ND	
Arsenic	0.01	mg/L	ND	ND J	ND JB	ND J	ND J	ND J	ND J	ND JB		ND JB	ND J	
Barium	2	mg/L	ND J	ND J	ND J	ND J	ND J	ND J	ND J	ND J		ND J	ND J	
Beryllium	0.004	mg/L	ND	ND	ND J	ND	ND	ND	ND	ND		ND	ND	
Cadmium	0.005	mg/L	ND J	ND	ND	ND	ND	ND	ND	ND		ND	ND	
Chromium	0.1	mg/L	ND	ND J	ND	ND	ND J	ND J	ND	ND J		0.00363 B	ND	
Cobalt	0.006	mg/L	ND	ND J	ND J	ND J	ND	ND J	ND	ND J		ND JB	ND J	
Fluoride	4	mg/L	ND J	ND	ND J	ND	ND J	ND	ND	3.69		ND J	ND J	
Lead	0.015	mg/L	ND J	ND J	ND	ND	ND	ND	ND	ND		ND J	ND J	
Lithium	0.04	mg/L	0.521	0.136	0.305	0.325	0.368	0.415	0.405	0.353		0.459	0.481	
Mercury	0.002	mg/L	ND	ND	ND	ND	ND	ND	0.00351	ND		ND	ND	
Molybdenum	0.1	mg/L	ND	ND J	ND	ND	ND	ND	ND	ND		ND	ND	
Radium 226	5	pCi/L	1.16	0.736	0.959	0.957	0.765	0.888	1.54	0.773		0.862	1.42	
Radium 228														
Selenium	0.05	mg/L	ND	ND	ND	ND	ND J	ND J	ND	ND		ND J	ND	
Thallium	0.002	mg/L	ND	ND	ND J	ND J	ND	ND J	ND	ND J		ND J	ND	

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V1 = CCV recovery was above method acceptance limits. This target analyte not detected in the sample

**GREEN LANDFILL - CCR ANALYTICAL SUMMARY  
MW-5**

APPENDIX III CONSTITUENTS	2022 GWPS	Units	DATE																		
			9/28/2018		4/22/2019		9/30/2019		4/7/2020		9/22/2020		4/22/2021		9/23/2021		4/20/2022		12/9/2022		
			Assessment																		
Boron	--	mg/L	0.263	JB	0.271	JB	ND	D2 U	0.25		0.24		0.24		0.23		0.26		<1.0	D2, V1, U	
Calcium	--	mg/L	441	B	446		476	D1	464	D1	495	D1	498	D1	453	D1	500	D1	561	D1	
Chloride	--	mg/L	1140	B	931		1500	D	1860	D	1800	D	2080	D	2250	D	850	D	1930	D	
Fluoride	4	mg/L	ND	JB	0.128	J	0.2		0.2		0.2		0.2		<0.2	U	<0.2	U	0.2		
pH (Field Measurement)	--	s.u.	7.99		7.15		7.41	H3	6.77		6.52		6.92		6.67		6.59		6.94		
Sulfate	--	mg/L	1890	B	1800		2990	D	3720	D	973	D	3440	D	1000	D	877	D	3080	D	
Total Dissolved Solids	--	mg/L	4540		4360	B	5320	H1	4960		5170		5000		5630		4900		4630	H2,J-	
<b>APPENDIX IV CONSTITUENTS</b>																					
Antimony	0.006	mg/L	NA		0.0000700	JB	ND	V1 U	<0.005		<0.005		<0.005	U	<0.005	U	<0.005	U	<0.005	U	
Arsenic	0.01	mg/L	ND	JB	0.000424	JB	ND	D2 U	<0.0010		<0.0010		<0.0010	U	<0.0010	U	<0.001	U	<0.0010	U	
Barium	2	mg/L	ND	J	0.0167	J	0.016	D2 J	0.014		0.014		0.014		0.013		0.013		0.012		
Beryllium	0.004	mg/L	NA		ND		ND	D2 U	<0.0020		<0.0040	D2	<0.0020	U	<0.0020	U	<0.002	U	<0.002	U	
Cadmium	0.005	mg/L	NA		ND		ND	V1 U	<0.0010		<0.0010		0.0006	J	<0.0010	U	<0.001	U	<0.001	U	
Chromium	0.1	mg/L	NA		0.00159	JB	0.0033		<0.0020		0.0008	J	<0.0020	U	<0.0020	U	<0.002	U	<0.002	U	
Cobalt	0.006	mg/L	NA		0.000288	J	ND	U	<0.004		<0.004		<0.004	U	<0.004	U	<0.004	U	<0.004	U	
Fluoride	4	mg/L	ND	JB	0.128	J	0.2		0.2		0.2		0.2		<0.2	U	<0.2	U	0.2		
Lead	0.015	mg/L	NA		0.0000860	J	ND	V1 U	<0.002		<0.002		<0.002	U	<0.002	U	<0.002	U	<0.002	U	
Lithium	0.04	mg/L	0.425		0.434		0.40	D1	0.38		0.42	D2	0.39		0.35		0.39		0.33		
Mercury	0.002	mg/L	ND		ND		ND	V1 U	<0.0005		<0.0005		<0.0005	U	<0.0005	U	<0.0005	U	<0.0005	U	
Molybdenum	0.1	mg/L	NA		ND		ND	D2 U	<0.01		<0.01		<0.01	U	<0.01	U	<0.01	U	<0.01	U	
Radium 226	5	pCi/L	1.37		0.945		0.368		1.48		1.68		1.24		1.02		2.67	J	1.37	J	
Radium 228							0.730														
Selenium	0.05	mg/L	NA		0.000624	J	ND	U	<0.003		<0.003		<0.003	U	<0.003	U	<0.003	U	<0.003	U	
Thallium	0.002	mg/L	NA		0.0000890	J	ND	V1 U	<0.0020		<0.0020		<0.0020	U	<0.0020	U	<0.002	U	<0.002	U	

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J = Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value.

J- = Qualifid as estimated biased low during data review.

B = Compound was found in the blank and sample.

F1 = MS and/or MSD Recovery is outside acceptance limits.

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H1 = Sample analysis performed pasts holding time

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V1 = CCV recovery was above method acceptance limits. This target analyte not detected in the sample

**GREEN LANDFILL - CCR ANALYTICAL SUMMARY**  
**MW-6**

APPENDIX III CONSTITUENTS	2022 GWPS	Units	DATE											
			3/29/2016	5/23/2016	8/18/2016	10/26/2016	2/1/2017	5/2/2017	8/7/2017	9/5/2017	10/5/2017	6/4/2018	7/10/2018	
			Baseline Events										Assessment	Re-Sampling
Boron	--	mg/L	0.156	0.137 J	0.193 J	0.168 J	0.173 B	0.179 J	0.167 JB	0.199 J	0.178		0.155 J	
Calcium	--	mg/L	467	374 B	373	400	320	415	365	382 B	376		386	
Chloride	--	mg/L	167 B	149 B	136 JB	150 B	125 B	129 B	128 B	123 B	138 B		147 B	
Fluoride	4	mg/L	ND J	ND J	ND J	ND JB	ND J	ND JB	ND	ND J	ND J		ND J	
pH (Field Measurement)	--	s.u.	6.66	6.65	6.96	6.6	6.92	6.97	6.76	6.95	6.86		6.50	
Sulfate	--	mg/L	2250 HB	3340	2550	2610 B	2700	2600 B	2820 B	2490	2700 B		2120	
Total Dissolved Solids	--	mg/L	4060	4280	4350	4470	4720	4700	4830	4890	4910		4500	
<b>APPENDIX IV CONSTITUENTS</b>														
Antimony	0.006	mg/L	ND	ND J	ND JB	ND	ND	ND JB	ND JB	ND JB		ND JB	ND	
Arsenic	0.01	mg/L	ND	ND J	ND J	ND J	ND J	ND J	ND J	ND JB		ND JB	ND J	
Barium	2	mg/L	ND J	ND J	ND J	ND J	ND J	ND J	ND J	ND J		ND J	ND J	
Beryllium	0.004	mg/L	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	
Cadmium	0.005	mg/L	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	
Chromium	0.1	mg/L	ND	ND J	ND	ND	ND	ND	ND	ND J		ND JB	ND	
Cobalt	0.006	mg/L	ND	ND J	ND J	ND J	ND J	ND J	ND J	ND J		ND JB	ND J	
Fluoride	4	mg/L	ND J	ND J	ND J	ND JB	ND J	ND JB	ND	ND J		ND J	ND J	
Lead	0.015	mg/L	ND J	ND J	ND	ND	ND	ND	ND	ND		ND	ND J	
Lithium	0.04	mg/L	0.0475 J	0.0527	0.0555	0.0524	0.0607	0.0724	0.0589	0.0554		0.0650	0.0592	
Mercury	0.002	mg/L	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	
Molybdenum	0.1	mg/L	ND J	ND J	ND J	ND B	ND J	ND J	ND J	ND J		ND J	ND J	
Radium 226	5	pCi/L	0.741	0.386	ND	0.751	ND	ND	0.462	ND		0.392	0.532	
Radium 228														
Selenium	0.05	mg/L	ND	ND	ND	ND	ND	ND	ND	ND		ND J	ND	
Thallium	0.002	mg/L	ND	ND J	ND	ND	ND	ND	ND	ND		ND	ND	

GWPS = Groundwater Protection Standard

mg/L = milligrams per liter

NA = Not Analyzed

ND = Not Detected at or above Method Detection Limit

pCi/L = picoCuries per Liter

s.u. = standard units

J = Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value.

B = Compound was found in the blank and sample.

F1 = MS and/or MSD Recovery is outside acceptance limits.

D1 = Sample required dilution due to high concentration of target analyte

D2 = Sample required dilution due to matrix interference

H1 = Sample analysis performed pasts holding time

H2 = Initial analysis within holding time. Reanalysis was past holding time

H3 = Sample received and analyzed past holding time

M1 = Matrix spike recovery was high; the method control sample recovery was acceptable.

M2 = Matrix spike recovery was low; the method control sample recovery was acceptable.

M3 = The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable

M4 = The analysis of the spike sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable

U = Target analyte was analyzed for, but was below detection limit

V1 = CCV recovery was above method acceptance limits. This target analyte not detected in the sample

**GREEN LANDFILL - CCR ANALYTICAL SUMMARY  
MW-6**

APPENDIX III CONSTITUENTS	2022 GWPS	Units	DATE																	
			9/28/2018		4/22/2019		9/30/2019		4/6/2020		9/22/2020		4/22/2021		9/23/2021		4/20/2022		12/9/2022	
			Assessment		Assessment		Assessment		Assessment		Assessment		Assessment		Assessment		Assessment		Assessment	
Boron	--	mg/L	0.196	JB	0.194	JB	ND	D2 U	0.19		0.19		0.18		0.18		0.2		<1.0	D2, V1, U
Calcium	--	mg/L	356	B	421		431	D1	458	D1	417	D1	376	D1	417	D1	451	D1	474	D1
Chloride	--	mg/L	142	B	142		230	D	181	D	286	D	276	D	130	D, M2	148	D	204	D
Fluoride	4	mg/L	ND	JB	0.409	J	0.5		0.4		0.5		0.4		<0.20	M2, U	0.3		0.5	
pH (Field Measurement)	--	s.u.	7.94		6.86		7.15	H3	6.36		6.32		6.72		6.87		6.75		6.88	
Sulfate	--	mg/L	2420		2200		3830	D	4650	D	2380	D, H2	3460	D	1620	D, M2	1570	D	3030	D, J
Total Dissolved Solids	--	mg/L	4820		4780	B	4830	H1	4610		4740		5050		5080		4860		4560	H2, J-
<b>APPENDIX IV CONSTITUENTS</b>																				
Antimony	0.006	mg/L	NA		0.0000920	JB	ND	V1 U	<0.005		<0.005		<0.005	U	<0.005	U	<0.005	U	<0.005	U
Arsenic	0.01	mg/L	ND	JB	0.000722	JB	ND	V1 U	<0.0010		<0.0010		<0.0010	U	<0.0010	U	<0.0010	U	<0.0010	U
Barium	2	mg/L	ND	J	0.0128	J	0.010	D2 J	0.011		0.011		0.014		0.009		0.011		0.010	
Beryllium	0.004	mg/L	NA		ND		ND	D2 U	<0.0020		<0.0020	V1	<0.0020	U	<0.0020	U	<0.0020	V1, U	<0.0020	U
Cadmium	0.005	mg/L	NA		ND		ND	V1 U	0.0001	J	<0.0010		<0.0010	U	<0.0010	U	<0.0010	U	<0.0010	U
Chromium	0.1	mg/L	NA		0.00196	JB	ND	U	<0.0020		0.0006	J	0.0006	J	0.0006	J	<0.0020	U	<0.0020	U
Cobalt	0.006	mg/L	NA		0.000276	J	ND	U	<0.004		<0.004		<0.004	U	<0.004	U	<0.004	U	<0.004	U
Fluoride	4	mg/L	ND	JB	0.409	J	0.5		0.4		0.5		0.4		<0.20	M2, U	0.3		0.5	
Lead	0.015	mg/L	NA		ND		ND	V1 U	<0.002		<0.002		<0.002	U	<0.002	U	<0.002	U	<0.002	U
Lithium	0.04	mg/L	0.0558		0.0633		0.05	D2 V1 J	0.05		0.05	D2, J	0.05		0.04		0.05		0.04	
Mercury	0.002	mg/L	ND		ND		ND	V1 U	<0.0005		<0.0005		<0.0005	U	<0.0005	U	<0.0005	U	<0.0005	U
Molybdenum	0.1	mg/L	NA		0.000972	J	ND	D2 U	<0.01		<0.01		<0.01	U	<0.01	U	<0.01	U	<0.01	U
Radium 226	5	pCi/L	ND	U	0.450		0.548		0.744		0.380		0.674		0.109		0.404	J	1.29	J
Radium 228							0.698													
Selenium	0.05	mg/L	NA		0.00110	J	ND	U	<0.003		<0.003		<0.003	U	<0.003	U	<0.003	U	<0.003	U
Thallium	0.002	mg/L	NA		0.0000610	J	ND	V1 U	<0.0020		<0.0020		<0.0020	U	<0.0020	U	<0.0020	U	<0.0020	U

GWPS = Groundwater Protection Standard

mg/L = milligrams per liter

NA = Not Analyzed

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pCi/L = picoCuries per Liter

s.u. = standard units

J = Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value.

J- = Qualifid as estimated biased low during data review.

B = Compound was found in the blank and sample.

F1 = MS and/or MSD Recovery is outside acceptance limits.

D1 = Sample required dilution due to high concentration of target analyte

D2 = Sample required dilution due to matrix interference

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M4 = The analysis of the spike sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable

U = Target analyte was analyzed for, but was below detection limit

V1 = CCV recovery was above method acceptance limits. This target analyte not detected in the sample

**GREEN LANDFILL - CCR ANALYTICAL SUMMARY**  
**MW-104**

APPENDIX III CONSTITUENTS	2022 GWPS	Units	DATE																		
			3/29/2019		4/10/2019		10/25/2019		4/17/2020		10/1/2020		5/26/2021		9/23/2021		4/22/2022		12/10/2022		
			Characterization																		
Boron	--	mg/L	0.1880	JB	0.2710	JB	ND	D2, U	0.21		0.23	D2	0.26	M4	0.25		0.25		0.26	D1	
Calcium	--	mg/L	465	B	502		505	D1	527	D1	491	D1	459	D1,M1,M2	466	D1	486	D	536	D1	
Chloride	--	mg/L	1430		1430	B	1610	D	2630	D	2220	D	1650	D	1430	M2	3080	D	3450	D, M2	
Fluoride	4	mg/L	ND		0.3230	JB	0.4		0.3		0.3		0.4		0.4	M2, Y2	0.4		0.4	M2,J	
pH (Field Measurement)	--	s.u.	6.88		6.99		6.86		6.58		6.91		7.55		6.22		5.98		6.91		
Sulfate	--	mg/L	2870		2880	B	2440	D	4710	D	2730	D	1970	D	1900	D, M1	1100	D	4480	D, M2	
Total Dissolved Solids	--	mg/L	6990		6690		7330		6320		6270		7330		7230		6500		5810		
<b>APPENDIX IV CONSTITUENTS</b>																					
Antimony	0.006	mg/L	0.0001	JB	0.0001	JB	ND	U	<0.005		<0.005		<0.005	U	<0.005	U	<0.005	U	<0.005	U	
Arsenic	0.01	mg/L	0.0022	J	0.0021	J	0.0039		0.0013		0.0013		0.0008	J	0.0010		0.0015		0.001		
Barium	2	mg/L	0.0243	J	0.0216	JB	0.030		0.018		0.018		0.016		0.017		0.017		0.016		
Beryllium	0.004	mg/L	ND		ND		ND	U	<0.0020		<0.0020	D2	<0.0020	U	<0.0020	U	<0.002	U	<0.002	U	
Cadmium	0.005	mg/L	ND		ND		0.0004	J	<0.0010		<0.0010		0.0001	J	0.0006	J	0.0004	J	0.0015		
Chromium	0.1	mg/L	0.0047	B	0.0036		0.0066		0.0020		0.0013	J	0.0012	J	<0.0020	U	0.001	J	0.0007	J	
Cobalt	0.006	mg/L	0.0059	B	0.0052		0.011		0.005		0.005		<0.004	U	<0.004	U	0.005		0.004		
Fluoride	4	mg/L	ND		0.3230	JB	0.4		0.3		0.3		0.4		0.4	M2, Y2	0.4		0.4	M2,J	
Lead	0.015	mg/L	0.0011	J	0.0002	J	0.003		<0.002		<0.002		<0.002	U	<0.002	U	<0.002	U	<0.002	U	
Lithium	0.04	mg/L	0.0281	J	0.0286	J	0.02		0.02		0.02	D2	0.02	M1	0.03		0.03		0.03		
Mercury	0.002	mg/L	ND		ND	^	ND	U	<0.0005		<0.0005		<0.0005	U	<0.0005	U	<0.0005	U	<0.0005	U	
Molybdenum	0.1	mg/L	0.0015	J	0.0010	J	0.005	J	0.003	J	<0.01	D2	0.002	J	<0.01	U	<0.01	U	<0.01	U	
Radium 226	5	pCi/L	0.7760		0.3190	U	0.126		0.655		0.422		0.385		1.36		0.71	J	1.29		
Radium 228							1.52														
Selenium	0.05	mg/L	ND		ND		ND	U	<0.003		<0.003	D2	<0.003	U	<0.003	U	<0.003	U	<0.003	U	
Thallium	0.002	mg/L	ND		ND		ND	U	<0.0020		<0.0020		0.0001	J	<0.0020	U	<0.002	U	<0.002	U	

GWPS = Groundwater Protection Standard

mg/L = milligrams per liter

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pCi/L = picoCuries per Liter

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J = Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value.

B = Compound was found in the blank and sample.

F1 = MS and/or MSD Recovery is outside acceptance limits.

D1 = Sample required dilution due to high concentration of target analyte

D2 = Sample required dilution due to matrix interference

H1 = Sample analysis performed pasts holding time

H3 = Sample received and analyzed past holding time

M1 = Matrix spike recovery was high; the method control sample recovery was acceptable.

M2 = Matrix spike recovery was low; the method control sample recovery was acceptable.

M3 = The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable

M4 = The analysis of the spike sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable

U = Target analyte was analyzed for, but was below detection limit

V1 = CCV recovery was above method acceptance limits. This target analyte not detected in the sample

**APPENDIX D – GREEN SURFACE IMPOUNDMENT  
ANALYTICAL SUMMARY TABLES**

**GREEN SURFACE IMPOUNDMENT - ANALYTICAL SUMMARY  
MW-11**

APPENDIX III CONSTITUENTS	2022 Calculated Background	Units	DATE																			
			4/1/2016		6/2/2016		8/16/2016		10/25/2016		1/26/2017		5/1/2017		8/11/2017		9/20/2017		10/9/2017		5/7/2018	
			Baseline Events														Detection Events					
Boron	1.146	mg/L	0.818	JB	0.645	J	0.736	JB^	0.736	J	0.920	JB	0.754	JB	0.695	JB	0.802	J	0.769	J	0.879	
Calcium	403.6	mg/L	371		378	B	243		291		276		326	B	321		299		315	B	317	
Chloride	3,914	mg/L	1070	B	1740	B	1880	B	2000	B	1880	B	1910	B	2360	B	1520	B	1940	B	1860	B
Fluoride	0.891	mg/L	ND	J	ND	J	ND	JB^	ND		ND	JB	ND	JB	ND		ND	JB	ND	J F1	ND	J
pH (Field Measurement)	6.35 - 7.59	s.u.	7.23		7.24		7.29		7.22		7.20		7.04		6.89		6.88		6.86		7.18	
Sulfate	2,007	mg/L	1170		1400		1150		1150	B	1060		1010	B	1410		797	J	1050	B	1020	B
Total Dissolved Solids	5,405	mg/L	3920	H	4610		4840		4490		4930		4830		5100		4880		5080		5070	
<b>APPENDIX IV CONSTITUENTS</b>																						
Antimony	--	mg/L	ND		ND	JB	ND	JB	ND		ND	JB	ND	JB	ND	JB	ND	JB				
Arsenic	--	mg/L	ND	J	ND		ND		ND	J	ND	J	ND	JB	ND	J	ND	JB				
Barium	--	mg/L	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J				
Beryllium	--	mg/L	ND		ND		ND		ND		ND		ND		ND		ND					
Cadmium	--	mg/L	ND		ND		ND		ND		ND		ND		ND		ND					
Chromium	--	mg/L	ND		ND	J	ND		ND		ND		ND		ND		ND	J				
Cobalt	--	mg/L	0.00494	J	0.00267	J	0.00277	J	0.00138	J	0.00131	J	0.00129	J	0.000654	J	0.000619	J				
Fluoride	--	mg/L	ND	J	ND	J	ND	J	ND		ND	J	ND	J	ND		ND	JB				
Lead	--	mg/L	ND		ND	JB	ND		ND		ND		ND		ND	J	ND					
Lithium	--	mg/L	0.0365	J	0.0685		0.0651		0.0544		0.0591		0.0545		0.0615		0.0596					
Mercury	--	mg/L	ND		ND		ND		ND		ND		ND		ND		ND					
Molybdenum	--	mg/L	0.0163		ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND					
Radium 226	--	pCi/L	1.35		0.975		1.61		1.86		1.66		2.18		2.69		2.08					
Radium 228																						
Selenium	--	mg/L	ND		ND	J	ND	J	ND		ND	J	ND	JB	ND		ND	J				
Thallium	--	mg/L	ND	J	ND		ND		ND		ND		ND	J	ND	J	ND					

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H = Sample was prepped or analyzed beyond the specified holding time

^ = ICV,CCV,ICB,CCB,ISA,ISB,CRI,CRA,DLCK or MRL standard; Instrument related QC is outside acceptance limits

F1 = MS and/or MSD Recovery is outside acceptance limits

D1 = Sample required dilution due to high concentration of target analysis

D2 = Sample required dilution due to matrix interference

D = Results reported from dilution

M1 = Matrix spike recovery was high; the method control sample recovery was accepta

M2 = Matrix spike recovery was low; the method control sample recovery was acceptat

M3 = The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.

M4 = The analysis of the spiked sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable.

U = Target analyte was analyzed for, but was below detection limit

**GREEN SURFACE IMPOUNDMENT - ANALYTICAL SUMMARY  
MW-11**

APPENDIX III CONSTITUENTS	2022 Calculated Background	Units	DATE																	
			9/27/2018		4/29/2019		10/3/2019		4/8/2020		9/25/2020		4/23/2021		9/24/2021		4/21/2022		10/1/2022	
			Detection Events																	
Boron	1.146	mg/L	0.671	B	0.717		ND	D2, M2, M4, U	0.78	M2, M4	<1.00	D2, M2	0.78	M4	<1.0	D2, U	0.84	M1	0.71	M2
Calcium	403.6	mg/L	312		345		318	D1, M1	316	D1, M2	335	D2, M3	343	D1, M2	347	D1, M1, M2	315	D1, M3	339	D1, M3
Chloride	3,914	mg/L	2000	B	1900		3900	D	2270	D	2620	D	3190	D	2040	D	2900	D	2900	D
Fluoride	0.891	mg/L	ND	J	0.227	J	0.2		0.2		0.2		0.2		0.2		0.2		0.2	
pH (Field Measurement)	6.35 - 7.59	s.u.	6.70		7.11		6.86		6.78		6.98		7.11		6.57		6.85		7.13	
Sulfate	2,007	mg/L	1080	B	949	B	971		1210	D	1280	D	1600	D	1980	D	1710	D	1450	D
Total Dissolved Solids	5,405	mg/L	5020		4890	B	682		4650		4510		5130		5030		4760		4850	
<b>APPENDIX IV CONSTITUENTS</b>																				
Antimony	--	mg/L																		
Arsenic	--	mg/L																		
Barium	--	mg/L																		
Beryllium	--	mg/L																		
Cadmium	--	mg/L																		
Chromium	--	mg/L																		
Cobalt	--	mg/L																		
Fluoride	--	mg/L			0.227	J	0.2		0.2		0.2		0.2		0.2		0.2		0.2	
Lead	--	mg/L																		
Lithium	--	mg/L																		
Mercury	--	mg/L																		
Molybdenum	--	mg/L																		
Radium 226	--	pCi/L																		
Radium 228																				
Selenium	--	mg/L																		
Thallium	--	mg/L																		

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F1 = MS and/or MSD Recovery is outside acceptance limits

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M4 = The analysis of the spiked sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable.

U = Target analyte was analyzed for, but was below detection limit

**GREEN SURFACE IMPOUNDMENT - ANALYTICAL SUMMARY  
MW-12**

APPENDIX III CONSTITUENTS	2022 Calculated Background	Units	DATE																					
			4/1/2016		6/2/2016		8/16/2016		10/25/2016		1/27/2017		5/1/2017		8/11/2017		9/20/2017		10/9/2017		4/29/2018		5/7/2018	
			Baseline Events														Detection Events							
Boron	1.146	mg/L	0.174	JB	0.186	J	0.280	JB	0.286	J	0.335	JB	0.306	JB	0.296	JB	0.334	J	0.274	J	0.717		0.352	
Calcium	403.6	mg/L	68.6		95.1	B	81.0		99.4		87.7		90.9	B	88.5		94.5		92	B	345		93.5	
Chloride	3,914	mg/L	29.0	B	32.4	B	26.9	B	26.2	B	24.6	JB	21.7	B	21.0	JB	19.8	B	17.4	B	1900		15.4	
Fluoride	0.891	mg/L	ND	J	ND	J	ND	J	ND	JB	ND	J	ND	JB	ND	J	ND	JB	ND	J	0.227	J	ND	J
pH (Field Measurement)	6.35 - 7.59	s.u.	7.85		7.4		7.52		7.33		7.65		5.02		6.56		7.07		7.07		7.11		7.34	
Sulfate	2,007	mg/L	168		146		95.7		64.0	B	54		41.3	B	33.8	J	25.3	J	19.7	B	949	B	13.5	B
Total Dissolved Solids	5,405	mg/L	472		745		726		677		679		676		674		758		641		4890	B	649	
<b>APPENDIX IV CONSTITUENTS</b>																								
Antimony	--	mg/L	0.00204		ND	JB	ND	JB	ND		ND	JB	ND	JB	ND	JB	ND	JB						
Arsenic	--	mg/L	0.00596		0.00566		ND	J	ND	J	ND	J	ND	JB	ND	J	ND	JB						
Barium	--	mg/L	ND	J	ND	J	ND	J	ND	J	ND	J	ND	JB	ND	J	ND	J						
Beryllium	--	mg/L	ND		ND		ND		ND		ND		ND		ND		ND							
Cadmium	--	mg/L	ND		ND		ND		ND		ND		ND		ND		ND							
Chromium	--	mg/L	ND	J	ND	J	ND		ND		ND		ND		ND		ND	J						
Cobalt	--	mg/L	ND		ND	J	ND	J	ND	J	ND	J	ND	JB	ND	J	ND	J						
Fluoride	--	mg/L	ND	J	ND	J	ND	J	ND	JB	ND	J	ND	JB	ND	J	ND	JB			0.227	J		
Lead	--	mg/L	ND	J	ND	JB	ND		ND		ND		ND		ND	J	ND	J						
Lithium	--	mg/L	0.0100	J	0.0194	J	0.0173	J	0.0208	J	0.0215	J	0.0169	JB	0.0244	J	0.0229	J						
Mercury	--	mg/L	ND		ND		ND		ND		ND		ND		ND		ND							
Molybdenum	--	mg/L	0.0769		0.0234		0.0141		0.0123		0.0100		ND	JB	ND	J	ND	J						
Radium 226	--	pCi/L	0.842		ND		ND		0.954		0.361		0.556		0.566		ND							
Radium 228																								
Selenium	--	mg/L	ND	J	ND		ND		ND		ND		ND	JB	ND		ND							
Thallium	--	mg/L	ND		ND		ND		ND		ND		ND	JB	ND		ND							

GWPS = Groundwater Protection Standard

mg/L = milligrams per liter

NA = Not Analyzed

ND = Not Detected at or above Method Detection Limit

pCi/L = picoCuries per Liter

s.u. = standard units

J = Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value

B = Compound was found in the blank and sample

U = Target analyte was analyzed for, but was below detection limit

D1 = Sample required dilution due to high concentration of target analysis

D2 = Sample required dilution due to matrix interference

D = Results reported from dilution

M1 = Matrix spike recovery was high; the method control sample recovery was acceptable

M2 = Matrix spike recovery was low; the method control sample recovery was acceptable

M4 = The analysis of the spiked sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable.

**GREEN SURFACE IMPOUNDMENT - ANALYTICAL SUMMARY  
MW-12**

APPENDIX III CONSTITUENTS	2022 Calculated Background	Units	DATE												
			9/27/2018	4/29/2019	10/4/2019	4/8/2020	9/25/2020	4/23/2021	9/24/2021	4/21/2022	10/1/2022				
			Detection Events												
Boron	1.146	mg/L	0.335 B	0.290	ND D2, U	0.31		<1.00 D2	0.31		<1.0 D2, U	0.31		0.27	
Calcium	403.6	mg/L	96.4	93.1	92.0 D2	98.3 D2		89.6 D2	91.5 D1		91.8 D2	93.6 D1		87.2 D1	
Chloride	3,914	mg/L	15.5 B	15.1	14.0		13.9		13.5		14.7		11.1	15.7	
Fluoride	0.891	mg/L	ND J	0.428 J	0.4		0.4		0.4		0.4		0.4	0.4	
pH (Field Measurement)	6.35 - 7.59	s.u.	6.84	7.36	7.07		6.90		6.83		7.33		6.52	6.77	7.30
Sulfate	2,007	mg/L	14.3	11.9 B	11		9		8		14		31 D	4 J	41
Total Dissolved Solids	5,405	mg/L	595	618 B	546		532		658		576		622	582 J+	684
<b>APPENDIX IV CONSTITUENTS</b>															
Antimony	--	mg/L													
Arsenic	--	mg/L													
Barium	--	mg/L													
Beryllium	--	mg/L													
Cadmium	--	mg/L													
Chromium	--	mg/L													
Cobalt	--	mg/L													
Fluoride	--	mg/L		0.428 J	0.4		0.4		0.4		0.4		0.4	0.4	0.4
Lead	--	mg/L													
Lithium	--	mg/L													
Mercury	--	mg/L													
Molybdenum	--	mg/L													
Radium 226	--	pCi/L													
Radium 228															
Selenium	--	mg/L													
Thallium	--	mg/L													

GWPS = Groundwater Protection Standard  
mg/L = milligrams per liter  
NA = Not Analyzed  
ND = Not Detected at or above Method Detection Limit  
pCi/L = picoCuries per Liter  
s.u. = standard units  
J = Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value  
J+ = Qualified as estimated potential high bias during data review.  
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D1 = Sample required dilution due to high concentration of target analysis  
D2 = Sample required dilution due to matrix interference  
D = Results reported from dilution  
M1 = Matrix spike recovery was high; the method control sample recovery was acceptable  
M2 = Matrix spike recovery was low; the method control sample recovery was acceptable

**GREEN SURFACE IMPOUNDMENT - ANALYTICAL SUMMARY  
MW-13**

APPENDIX III CONSTITUENTS	2022 Calculated Background	Units	DATE																			
			4/1/2016		6/2/2016		8/16/2016		10/25/2016		1/27/2017		5/1/2017		8/11/2017		9/20/2017		10/9/2017		4/29/2018	
			Baseline Events														Detection Events					
Boron	1.146	mg/L	ND	B	ND	J	ND	JB	ND	J	ND	JB	ND	JB	ND	J	ND	J	0.717			
Calcium	403.6	mg/L	93.0		95.1	B	85.1		94.5		82.8		90.2	B	92.3		94.3		92.2	B	345	
Chloride	3,914	mg/L	20.5	B	25.2	B	22.3	B	24.8	B	22.2	JB	21.4	B	21.6	JB	21.3	JB	19.9	B	1900	
Fluoride	0.891	mg/L	ND	J	ND	J	ND	J	ND	JB	ND	J	ND	JB	ND	J	ND	JB	ND	J	0.227	J
pH (Field Measurement)	6.35 - 7.59	s.u.	6.78		6.9		6.97		6.86		7.22		8.25		6.48		6.64		6.62		7.11	
Sulfate	2,007	mg/L	118		118		106		104	B	96.2		98.1	J	96.6		88.0		96.4	B	949	B
Total Dissolved Solids	5,405	mg/L	699		721		684		704		678		714		702		727		695		4890	B
<b>APPENDIX IV CONSTITUENTS</b>																						
Antimony	--	mg/L	ND		ND	JB	ND	JB	ND		ND	JB	ND	JB	ND	JB	ND	JB				
Arsenic	--	mg/L	ND	J	ND	J	ND	J	ND	J	ND	J	ND	JB	ND	J	ND	JB				
Barium	--	mg/L	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J				
Beryllium	--	mg/L	ND		ND		ND		ND		ND		ND		ND		ND					
Cadmium	--	mg/L	ND		ND		ND		ND		ND		ND		ND		ND					
Chromium	--	mg/L	ND		ND	J	ND		ND		ND		ND		ND		ND	J				
Cobalt	--	mg/L	0.00378	J	0.00221	J	0.0018	J	0.00149	J	0.000720	J	0.00115	J	0.0009	J	0.000981	J				
Fluoride	--	mg/L	ND	J	ND	J	ND	J	ND	JB	ND	J	ND	JB	ND	J	ND	JB			0.227	J
Lead	--	mg/L	ND	J	ND	JB	ND		ND		ND		ND		ND		ND					
Lithium	--	mg/L	0.00929	J	0.0104	J	0.0123	J	0.0104	J	0.0113	J	ND		0.0111	J	ND					
Mercury	--	mg/L	ND		ND		ND		ND		ND		ND		ND		ND					
Molybdenum	--	mg/L	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J				
Radium 226	--	pCi/L	ND		ND		ND		ND		ND		0.164	0.47	0.749							
Radium 228																						
Selenium	--	mg/L	ND		ND		ND	J	ND		ND		ND		ND		ND					
Thallium	--	mg/L	ND		ND		ND		ND		ND		ND		ND		ND					

GWPS = Groundwater Protection Standard  
mg/L = milligrams per liter  
NA = Not Analyzed  
ND = Not Detected at or above Method Detection Limit  
pCi/L = picoCuries per Liter  
s.u. = standard units  
J = Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value.  
B = Compound was found in the blank and sample.  
U = Target analyte was analyzed for, but was below detection limit  
D1 = Sample required dilution due to high concentration of target analysis  
D2 = Sample required dilution due to matrix interference  
D = Results reported from dilution  
M1 = Matrix spike recovery was high; the method control sample recovery was acceptable  
M2 = Matrix spike recovery was low; the method control sample recovery was acceptable  
M4 = The analysis of the spiked sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable.

**GREEN SURFACE IMPOUNDMENT - ANALYTICAL SUMMARY  
MW-13**

APPENDIX III CONSTITUENTS	2022 Calculated Background	Units	DATE																			
			5/7/2018		9/27/2018		4/29/2019		10/4/2019		4/8/2020		9/25/2020		4/23/2021		9/24/2021		4/21/2022		10/1/2022	
			Detection Events																			
Boron	1.146	mg/L	ND	J	0.0565	JB	0.0392	J	ND	D2, U	<0.10		<1.00	D2	<0.10	U	<1.0	D2, U	<0.10	U	<0.10	U
Calcium	403.6	mg/L	94.3		95.6		95.1		87.4	D2	86.6	D2	84.9	D2	90.1	D1	87.9	D2	91.4	D1	94.9	D1
Chloride	3,914	mg/L	21.0		26.6	B	24.4		24.6		22.8		33.3	D	26.4	D	32.3	D	25.3		23.2	
Fluoride	0.891	mg/L	ND	J	ND	J	0.271	J	0.2		0.3		0.4	D	0.2		0.2		0.2		0.2	
pH (Field Measurement)	6.35 - 7.59	s.u.	7.03		6.54		6.94		6.75		6.53		6.80		6.77		6.51		6.61		6.88	
Sulfate	2,007	mg/L	87.6	B	109	B	98.6	B	41		117	D	87	D	82	D	121	D	93		87	
Total Dissolved Solids	5,405	mg/L	673		697		711	B	586		608		552		706		754		676	J+	840	
<b>APPENDIX IV CONSTITUENTS</b>																						
Antimony	--	mg/L																				
Arsenic	--	mg/L																				
Barium	--	mg/L																				
Beryllium	--	mg/L																				
Cadmium	--	mg/L																				
Chromium	--	mg/L																				
Cobalt	--	mg/L																				
Fluoride	--	mg/L					0.271	J	0.2		0.3		0.4	D	0.2		0.2		0.2		0.2	
Lead	--	mg/L																				
Lithium	--	mg/L																				
Mercury	--	mg/L																				
Molybdenum	--	mg/L																				
Radium 226	--	pCi/L																				
Radium 228																						
Selenium	--	mg/L																				
Thallium	--	mg/L																				

GWPS = Groundwater Protection Standard

mg/L = milligrams per liter

NA = Not Analyzed

ND = Not Detected at or above Method Detection Limit

pCi/L = picoCuries per Liter

s.u. = standard units

J = Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value.

J+ = Qualified as estimated potential high bias during review.

B = Compound was found in the blank and sample.

U = Target analyte was analyzed for, but was below detection limit

D1 = Sample required dilution due to high concentration of target analysis

D2 = Sample required dilution due to matrix interference

D = Results reported from dilution

M1 = Matrix spike recovery was high; the method control sample recovery was acceptable

M2 = Matrix spike recovery was low; the method control sample recovery was acceptable

M4 = The analysis of the spiked sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable.

**GREEN SURFACE IMPOUNDMENT - ANALYTICAL SUMMARY**  
MW-14

APPENDIX III CONSTITUENTS	2022 Calculated Background	Units	DATE																			
			4/1/2016		6/2/2016		8/16/2016		10/25/2016		1/27/2017		5/1/2017		8/11/2017		9/20/2017		10/9/2017		5/7/2018	
			Baseline Events														Detection Events					
Boron	1.146	mg/L	0.196	JB	0.186	J	0.234	JB	0.209	J	0.250	JB	0.234	JB	0.277	JB	0.273	J	0.241	J	0.254	
Calcium	403.6	mg/L	194		194	B	171		193		183		193	B	193		187		194	B	189	
Chloride	3,914	mg/L	161	B	184	B	185	B	193	B	191	B	185	B	212	B	230	B	199	B	198	B
Fluoride	0.891	mg/L	ND	J	ND	J	ND	J	ND	JB	ND	J	ND	JB	ND	JB	ND	JB	ND	J	ND	
pH (Field Measurement)	6.35 - 7.59	s.u.	6.63		6.35		7.43		7.34		7.78		5.23		7.33		7.13		7.32		7.26	
Sulfate	2,007	mg/L	188		219		216		215	B	221		197	B	179		198	J	185		222	B
Total Dissolved Solids	5,405	mg/L	1080		1130		1140		1130		1150		1170		1150		1240		1170		1180	
<b>APPENDIX IV CONSTITUENTS</b>																						
Antimony	--	mg/L	ND		ND	JB	ND	JB	ND		ND	JB	ND	JB	ND	JB	ND	JB				
Arsenic	--	mg/L	ND	J	ND	J	ND	J	ND	J	ND	J	ND	JB	ND	J	ND	JB				
Barium	--	mg/L	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J				
Beryllium	--	mg/L	ND		ND		ND		ND		ND		ND		ND		ND					
Cadmium	--	mg/L	ND		ND		ND		ND		ND		ND		ND		ND					
Chromium	--	mg/L	ND		ND		ND		ND		ND		ND		ND		ND	J				
Cobalt	--	mg/L	ND		ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J				
Fluoride	--	mg/L	ND	J	ND	J	ND	J	ND	JB	ND		ND	JB	ND	J	ND	JB				
Lead	--	mg/L	ND		ND	JB	ND		ND		ND		ND		ND		ND	J				
Lithium	--	mg/L	0.0400	J	0.0488	J	0.0477	J	0.0456	J	0.0486	J	0.0437	J	0.0494	J	0.0496	J				
Mercury	--	mg/L	ND		ND		ND		ND		ND		ND		ND		ND					
Molybdenum	--	mg/L	ND	J	ND	J	ND		ND		ND		ND		ND		ND					
Radium 226	--	pCi/L	1.54		1.42		1.86		1.55		1.31		2.17		2.85		1.8					
Radium 228																						
Selenium	--	mg/L	ND		ND		ND		ND		ND		ND		ND		ND					
Thallium	--	mg/L	ND		ND		ND		ND		ND		ND		ND		ND					

GWPS = Groundwater Protection Standard

mg/L = milligrams per liter

NA = Not Analyzed

ND = Not Detected at or above Method Detection Limit

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J = Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value.

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D = Results reported from dilution

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M4 = The analysis of the spiked sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable.

**GREEN SURFACE IMPOUNDMENT - ANALYTICAL SUMMARY  
MW-14**

APPENDIX III CONSTITUENTS	2022 Calculated Background	Units	DATE																			
			9/27/2018		4/28/2019		4/29/2019		10/3/2019		4/8/2020		9/25/2020		4/23/2021		9/24/2021		4/21/2022		10/1/2022	
			Detection Events																			
Boron	1.146	mg/L	0.232	B	0.717		0.206		ND	D2, U	0.20		<1.00	D2	0.17		<1.0	D2, U	0.16		0.14	
Calcium	403.6	mg/L	200		345		206		194	D1	195	D1	194	D2	199	D1	212	D1	181	D,D1	200	D1
Chloride	3,914	mg/L	189	B	1900		165		262	D	121	D	131	D	117	D	186	D	159	D	137	D
Fluoride	0.891	mg/L	ND	J	0.227	J	0.342	J	0.3		0.3		0.3		0.2		0.3		0.3		0.3	
pH (Field Measurement)	6.35 - 7.59	s.u.	6.57		7.11		7.05		6.77		6.57		6.75		6.88		6.52		6.52		6.99	
Sulfate	2,007	mg/L	231	B	949	B	222	B	871	D	183	D	221	D	180	D	324	D	286	D	178	
Total Dissolved Solids	5,405	mg/L	1100		4890	B	1180	B	1120	H2	1030		946		1040		1050		1230		1060	
<b>APPENDIX IV CONSTITUENTS</b>																						
Antimony	--	mg/L																				
Arsenic	--	mg/L																				
Barium	--	mg/L																				
Beryllium	--	mg/L																				
Cadmium	--	mg/L																				
Chromium	--	mg/L																				
Cobalt	--	mg/L																				
Fluoride	--	mg/L			0.227	J	0.342	J	0.3		0.3		0.3		0.2		0.3		0.3		0.3	
Lead	--	mg/L																				
Lithium	--	mg/L																				
Mercury	--	mg/L																				
Molybdenum	--	mg/L																				
Radium 226	--	pCi/L																				
Radium 228																						
Selenium	--	mg/L																				
Thallium	--	mg/L																				

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**APPENDIX E – GREEN LANDFILL LABORATORY  
ANALYTICAL REPORTS**

## Certificate of Analysis 2033749

Chad Phillips  
Big Rivers Electric Corporation Reid/Green Station  
PO Box 24  
Henderson, KY 42419

Customer ID: 44-102032  
Report Printed: 05/11/2022 15:20

Project Name: Green Landfill Semiannual Groundwater

Workorder: 2033749

Dear Chad Phillips

Enclosed are the analytical results for samples received by the laboratory 04/20/2022 13:30.

The results relate to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services LLC Kentucky - Madisonville

If you have any questions concerning this report, please feel free to contact me.



#460210 Madisonville, KY  
#460291 Pikeville, KY



Rob Whittington, Project Manager

*This page is included as part of the Analytical Report and must be retained as a permanent record thereof.*



### SAMPLE SUMMARY

Lab ID	Client Sample ID/Alias	Matrix	Date Collected	Date Received	Sampled By
2033749-01	MW1/	Groundwater	04/20/2022 09:10	04/20/2022 13:30	Travis Sneed
2033749-02	MW2/	Groundwater	04/20/2022 10:45	04/20/2022 13:30	Travis Sneed
2033749-03	MW3A/	Groundwater	04/20/2022 11:25	04/20/2022 13:30	Phillip Hill
2033749-04	MW4/	Groundwater	04/20/2022 10:10	04/20/2022 13:30	Phillip Hill
2033749-05	MW5/	Groundwater	04/20/2022 10:05	04/20/2022 13:30	Phillip Hill
2033749-06	MW6/	Groundwater	04/20/2022 09:20	04/20/2022 13:30	Phillip Hill
2033749-07	DUPLICATE/	Groundwater	04/20/2022 11:05	04/20/2022 13:30	Phillip Hill
2033749-08	FIELD BLANK/	Water	04/20/2022 12:10	04/20/2022 13:30	Phillip Hill

LabNumber	Measurement	Value
2033749-01	Field Conductance	926
	Field pH	6.67
	Field Temp (C)	14.69
2033749-02	Field Conductance	1800
	Field pH	6.37
	Field Temp (C)	15.55
2033749-03	Field Conductance	7780
	Field pH	6.68
	Field Temp (C)	14.87
2033749-04	Field Conductance	6830
	Field pH	6.68
	Field Temp (C)	15.13
2033749-05	Field Conductance	6030
	Field pH	6.59
	Field Temp (C)	13.54
2033749-06	Field Conductance	5140
	Field pH	6.75
	Field Temp (C)	15.96
2033749-07	Field Conductance	1800
	Field pH	6.37
	Field Temp (C)	15.55



### ANALYTICAL RESULTS

Lab Sample ID: **2033749-01**

Description: **MW1**

Sample Collection Date Time: 04/20/2022 09:10

Sample Received Date Time: 04/20/2022 13:30

**Metals by SW846 6000 Series Methods Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	U	mg/L	0.005	0.002	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:02	DMH
<b>Arsenic</b>	<b>0.0004</b>	J	mg/L	0.0010	0.0004	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:02	DMH
<b>Barium</b>	<b>0.077</b>		mg/L	0.004	0.001	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:02	DMH
Beryllium	ND	U	mg/L	0.0020	0.0010	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:02	DMH
<b>Boron</b>	<b>1.71</b>	D1, M2	mg/L	1.00	1.00	SW846 6010 B	04/21/2022 12:26	05/03/2022 16:45	AKB
Cadmium	ND	U	mg/L	0.0010	0.0001	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:02	DMH
<b>Calcium</b>	<b>31.0</b>	D1, M2	mg/L	4.00	1.30	SW846 6010 B	04/21/2022 12:26	05/03/2022 16:45	AKB
Chromium	ND	U	mg/L	0.0020	0.0006	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:02	DMH
Cobalt	ND	U	mg/L	0.004	0.004	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:02	DMH
Copper	ND	L1, U	mg/L	0.003	0.001	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:02	DMH
<b>Iron</b>	<b>0.176</b>		mg/L	0.100	0.050	SW846 6010 B	04/21/2022 12:26	05/03/2022 16:42	AKB
Lead	ND	U	mg/L	0.002	0.0005	SW846-6020 A	04/21/2022 12:26	04/27/2022 17:14	DMH
<b>Lithium</b>	<b>0.03</b>		mg/L	0.02	0.005	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:02	DMH
<b>Mercury</b>	<b>0.0002</b>	J	mg/L	0.0005	0.0002	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:02	DMH
<b>Molybdenum</b>	<b>0.002</b>	J	mg/L	0.01	0.002	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:02	DMH
Selenium	ND	M1, U	mg/L	0.003	0.001	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:02	DMH
<b>Sodium</b>	<b>189</b>	D1, M3	mg/L	26.0	10.0	SW846 6010 B	04/21/2022 12:26	05/03/2022 16:48	AKB
Thallium	ND	U	mg/L	0.0020	0.0001	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:02	DMH

**Conventional Chemistry Analyses Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chemical Oxygen Demand</b>	<b>28</b>		mg/L	8	8	HACH 8000	04/28/2022 06:18	04/28/2022 09:05	KBZ
<b>Specific Conductance (Lab)</b>	<b>976</b>		umhos/cm	1	1	2510 B-2011	04/21/2022 13:07	04/21/2022 13:07	CML
<b>pH (Lab)</b>	<b>7.67</b>	H3	Std. Units	0.10	0.10	4500-H+ B-2000	04/21/2022 15:04	04/21/2022 15:04	JLW
<b>Total Dissolved Solids</b>	<b>672</b>		mg/L	50	50	2540 C-2011	04/22/2022 16:14	04/22/2022 16:14	HAG
<b>Total Organic Carbon</b>	<b>1.0</b>		mg/L	0.5	0.4	5310 C-2011	04/27/2022 20:27	04/27/2022 20:27	HMF

**Subcontracted Analyses**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>See Attached Subcontract Report</b>	<b>0.645</b>	_Sub	pCi/L			EPA 903.1	05/11/2022 14:48	05/11/2022 14:49	RCW
<b>See Attached Subcontract Report</b>	<b>1.71</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/11/2022 14:48	05/11/2022 14:49	RCW
<b>Radium</b>	<b>2.36</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/11/2022 14:48	05/11/2022 14:49	RCW
<b>See Attached Subcontract Report</b>	<b>2.36</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/11/2022 14:48	05/11/2022 14:49	RCW

**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chloride</b>	<b>13.9</b>		mg/L	0.5	0.4	SW846 9056	04/28/2022 22:23	04/28/2022 22:23	CSC



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**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Fluoride	0.5		mg/L	0.2	0.2	SW846 9056	04/28/2022 22:23	04/28/2022 22:23	CSC
Sulfate	48		mg/L	1	0.5	SW846 9056	04/28/2022 22:23	04/28/2022 22:23	CSC



**ANALYTICAL RESULTS**

Lab Sample ID: **2033749-02**  
 Description: **MW2**

Sample Collection Date Time: 04/20/2022 10:45  
 Sample Received Date Time: 04/20/2022 13:30

**Metals by SW846 6000 Series Methods Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	u	mg/L	0.005	0.002	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:06	DMH
<b>Arsenic</b>	<b>0.0331</b>		mg/L	0.0010	0.0004	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:06	DMH
<b>Barium</b>	<b>0.348</b>		mg/L	0.004	0.001	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:06	DMH
Beryllium	ND	u	mg/L	0.0020	0.0010	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:06	DMH
Boron	ND	u	mg/L	0.10	0.10	SW846 6010 B	04/21/2022 12:26	05/03/2022 16:51	AKB
Cadmium	ND	u	mg/L	0.0010	0.0001	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:06	DMH
<b>Calcium</b>	<b>190</b>	D1	mg/L	40.0	13.0	SW846 6010 B	04/21/2022 12:26	05/03/2022 16:58	AKB
Chromium	ND	u	mg/L	0.0020	0.0006	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:06	DMH
Cobalt	ND	u	mg/L	0.004	0.004	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:06	DMH
Copper	ND	L1, u	mg/L	0.003	0.001	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:06	DMH
<b>Iron</b>	<b>11.4</b>	D1	mg/L	1.00	0.500	SW846 6010 B	04/21/2022 12:26	05/03/2022 16:54	AKB
Lead	ND	u	mg/L	0.002	0.0005	SW846-6020 A	04/21/2022 12:26	04/27/2022 17:25	DMH
<b>Lithium</b>	<b>0.006</b>	J	mg/L	0.02	0.005	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:06	DMH
Mercury	ND	u	mg/L	0.0005	0.0002	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:06	DMH
<b>Molybdenum</b>	<b>0.003</b>	J	mg/L	0.01	0.002	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:06	DMH
Selenium	ND	u	mg/L	0.003	0.001	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:06	DMH
<b>Sodium</b>	<b>59.6</b>	D1	mg/L	2.60	1.00	SW846 6010 B	04/21/2022 12:26	05/03/2022 16:54	AKB
Thallium	ND	u	mg/L	0.0020	0.0001	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:06	DMH

**Conventional Chemistry Analyses Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chemical Oxygen Demand</b>	<b>31</b>		mg/L	8	8	HACH 8000	04/28/2022 06:18	04/28/2022 08:36	KBZ
<b>Specific Conductance (Lab)</b>	<b>1740</b>		umhos/cm	1	1	2510 B-2011	04/21/2022 13:07	04/21/2022 13:07	CML
<b>pH (Lab)</b>	<b>6.80</b>	H3	Std. Units	0.10	0.10	4500-H+ B-2000	04/21/2022 15:05	04/21/2022 15:05	JLW
<b>Total Dissolved Solids</b>	<b>1130</b>		mg/L	50	50	2540 C-2011	04/22/2022 16:14	04/22/2022 16:14	HAG
<b>Total Organic Carbon</b>	<b>1.4</b>		mg/L	0.5	0.4	5310 C-2011	04/27/2022 20:49	04/27/2022 20:49	HMF

**Subcontracted Analyses**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>See Attached Subcontract Report</b>	<b>0.379</b>	_Sub	pCi/L			EPA 903.1	05/11/2022 14:48	05/11/2022 14:49	RCW
<b>See Attached Subcontract Report</b>	<b>0.895</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/11/2022 14:48	05/11/2022 14:49	RCW
<b>Radium</b>	<b>1.27</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/11/2022 14:48	05/11/2022 14:49	RCW
<b>See Attached Subcontract Report</b>	<b>1.27</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/11/2022 14:48	05/11/2022 14:49	RCW

**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chloride</b>	<b>159</b>	D	mg/L	2.5	1.8	SW846 9056	04/28/2022 23:04	04/28/2022 23:04	CSC
<b>Fluoride</b>	<b>0.2</b>		mg/L	0.2	0.2	SW846 9056	04/28/2022 22:43	04/28/2022 22:43	CSC
<b>Sulfate</b>	<b>128</b>	D	mg/L	5	2	SW846 9056	04/28/2022 23:04	04/28/2022 23:04	CSC



**ANALYTICAL RESULTS**

Lab Sample ID: **2033749-03**  
 Description: **MW3A**

Sample Collection Date Time: 04/20/2022 11:25  
 Sample Received Date Time: 04/20/2022 13:30

**Metals by SW846 6000 Series Methods Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	u	mg/L	0.005	0.002	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:09	DMH
Arsenic	ND	u	mg/L	0.0010	0.0004	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:09	DMH
<b>Barium</b>	<b>0.038</b>		mg/L	0.004	0.001	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:09	DMH
Beryllium	ND	u	mg/L	0.0020	0.0010	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:09	DMH
<b>Boron</b>	<b>0.28</b>		mg/L	0.10	0.10	SW846 6010 B	04/21/2022 12:26	05/03/2022 17:01	AKB
<b>Cadmium</b>	<b>0.0001</b>	J	mg/L	0.0010	0.0001	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:09	DMH
<b>Calcium</b>	<b>428</b>	D1	mg/L	40.0	13.0	SW846 6010 B	04/21/2022 12:26	05/03/2022 17:07	AKB
Chromium	ND	u	mg/L	0.0020	0.0006	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:09	DMH
Cobalt	ND	u	mg/L	0.004	0.004	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:09	DMH
Copper	ND	L1, u	mg/L	0.003	0.001	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:09	DMH
Iron	ND	u	mg/L	0.100	0.050	SW846 6010 B	04/21/2022 12:26	05/03/2022 17:01	AKB
Lead	ND	u	mg/L	0.002	0.0005	SW846-6020 A	04/21/2022 12:26	04/27/2022 17:27	DMH
<b>Lithium</b>	<b>0.65</b>		mg/L	0.02	0.005	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:09	DMH
Mercury	ND	u	mg/L	0.0005	0.0002	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:09	DMH
Molybdenum	ND	u	mg/L	0.01	0.002	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:09	DMH
Selenium	ND	u	mg/L	0.003	0.001	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:09	DMH
<b>Sodium</b>	<b>327</b>	D1	mg/L	26.0	10.0	SW846 6010 B	04/21/2022 12:26	05/03/2022 17:07	AKB
Thallium	ND	u	mg/L	0.0020	0.0001	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:09	DMH

**Conventional Chemistry Analyses Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chemical Oxygen Demand</b>	<b>267</b>		mg/L	8	8	HACH 8000	04/28/2022 06:18	04/28/2022 08:36	KBZ
<b>Specific Conductance (Lab)</b>	<b>7820</b>		umhos/cm	1	1	2510 B-2011	04/21/2022 13:07	04/21/2022 13:07	CML
<b>pH (Lab)</b>	<b>7.04</b>	H3	Std. Units	0.10	0.10	4500-H+ B-2000	04/21/2022 15:06	04/21/2022 15:06	JLW
<b>Total Dissolved Solids</b>	<b>5220</b>		mg/L	50	50	2540 C-2011	04/22/2022 16:14	04/22/2022 16:14	HAG
<b>Total Organic Carbon</b>	<b>0.4</b>	J	mg/L	0.5	0.4	5310 C-2011	04/27/2022 21:10	04/27/2022 21:10	HMF

**Subcontracted Analyses**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>See Attached Subcontract Report</b>	<b>0.627</b>	_Sub	pCi/L			EPA 903.1	05/11/2022 14:48	05/11/2022 14:49	RCW
<b>See Attached Subcontract Report</b>	<b>0.828</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/11/2022 14:48	05/11/2022 14:49	RCW
<b>Radium</b>	<b>1.46</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/11/2022 14:48	05/11/2022 14:49	RCW
<b>See Attached Subcontract Report</b>	<b>1.46</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/11/2022 14:48	05/11/2022 14:49	RCW

**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chloride</b>	<b>1820</b>	D	mg/L	10.0	7.2	SW846 9056	04/29/2022 00:05	04/29/2022 00:05	CSC
<b>Fluoride</b>	<b>0.4</b>		mg/L	0.2	0.2	SW846 9056	04/28/2022 23:24	04/28/2022 23:24	CSC
<b>Sulfate</b>	<b>752</b>	D	mg/L	50	25	SW846 9056	04/30/2022 00:21	04/30/2022 00:21	CSC



**ANALYTICAL RESULTS**

Lab Sample ID: **2033749-04**  
 Description: **MW4**

Sample Collection Date Time: 04/20/2022 10:10  
 Sample Received Date Time: 04/20/2022 13:30

**Metals by SW846 6000 Series Methods Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	u	mg/L	0.005	0.002	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:13	DMH
Arsenic	ND	u	mg/L	0.0010	0.0004	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:13	DMH
<b>Barium</b>	<b>0.022</b>		mg/L	0.004	0.001	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:13	DMH
Beryllium	ND	u	mg/L	0.0020	0.0010	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:13	DMH
<b>Boron</b>	<b>0.87</b>		mg/L	0.10	0.10	SW846 6010 B	04/21/2022 12:26	05/03/2022 17:20	AKB
Cadmium	ND	u	mg/L	0.0010	0.0001	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:13	DMH
<b>Calcium</b>	<b>534</b>	D1	mg/L	40.0	13.0	SW846 6010 B	04/21/2022 12:26	05/03/2022 17:26	AKB
<b>Chromium</b>	<b>0.0008</b>	J	mg/L	0.0020	0.0006	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:13	DMH
Cobalt	ND	u	mg/L	0.004	0.004	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:13	DMH
Copper	ND	L1, u	mg/L	0.003	0.001	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:13	DMH
Iron	ND	u	mg/L	0.100	0.050	SW846 6010 B	04/21/2022 12:26	05/03/2022 17:20	AKB
Lead	ND	u	mg/L	0.002	0.0005	SW846-6020 A	04/21/2022 12:26	04/27/2022 17:30	DMH
<b>Lithium</b>	<b>0.79</b>		mg/L	0.02	0.005	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:13	DMH
<b>Mercury</b>	<b>0.0002</b>	J	mg/L	0.0005	0.0002	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:13	DMH
<b>Molybdenum</b>	<b>0.002</b>	J	mg/L	0.01	0.002	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:13	DMH
<b>Selenium</b>	<b>0.028</b>		mg/L	0.003	0.001	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:13	DMH
<b>Sodium</b>	<b>486</b>	D1	mg/L	26.0	10.0	SW846 6010 B	04/21/2022 12:26	05/03/2022 17:26	AKB
Thallium	ND	u	mg/L	0.0020	0.0001	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:13	DMH

**Conventional Chemistry Analyses Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chemical Oxygen Demand</b>	<b>68</b>		mg/L	8	8	HACH 8000	04/28/2022 06:18	04/28/2022 08:36	KBZ
<b>Specific Conductance (Lab)</b>	<b>6710</b>		umhos/cm	1	1	2510 B-2011	04/21/2022 13:07	04/21/2022 13:07	CML
<b>pH (Lab)</b>	<b>7.06</b>	H3	Std. Units	0.10	0.10	4500-H+ B-2000	04/21/2022 15:06	04/21/2022 15:06	JLW
<b>Total Dissolved Solids</b>	<b>5740</b>		mg/L	50	50	2540 C-2011	04/22/2022 16:14	04/22/2022 16:14	HAG
<b>Total Organic Carbon</b>	<b>1.0</b>		mg/L	0.5	0.4	5310 C-2011	04/27/2022 21:31	04/27/2022 21:31	HMF

**Subcontracted Analyses**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>See Attached Subcontract Report</b>	<b>0.681</b>	_Sub	pCi/L			EPA 903.1	05/11/2022 14:48	05/11/2022 14:49	RCW
<b>See Attached Subcontract Report</b>	<b>1.87</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/11/2022 14:48	05/11/2022 14:49	RCW
<b>Radium</b>	<b>2.55</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/11/2022 14:48	05/11/2022 14:49	RCW
<b>See Attached Subcontract Report</b>	<b>2.55</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/11/2022 14:48	05/11/2022 14:49	RCW

**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chloride</b>	<b>704</b>	D	mg/L	10.0	7.2	SW846 9056	04/29/2022 00:46	04/29/2022 00:46	CSC
<b>Fluoride</b>	<b>0.2</b>		mg/L	0.2	0.2	SW846 9056	04/29/2022 00:26	04/29/2022 00:26	CSC
<b>Sulfate</b>	<b>1230</b>	D	mg/L	100	50	SW846 9056	04/30/2022 00:42	04/30/2022 00:42	CSC



### ANALYTICAL RESULTS

Lab Sample ID: **2033749-05**  
Description: **MW5**

Sample Collection Date Time: 04/20/2022 10:05  
Sample Received Date Time: 04/20/2022 13:30

#### Metals by SW846 6000 Series Methods Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	u	mg/L	0.005	0.002	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:17	DMH
Arsenic	ND	u	mg/L	0.0010	0.0004	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:17	DMH
<b>Barium</b>	<b>0.013</b>		mg/L	0.004	0.001	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:17	DMH
Beryllium	ND	u	mg/L	0.0020	0.0010	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:17	DMH
<b>Boron</b>	<b>0.26</b>		mg/L	0.10	0.10	SW846 6010 B	04/21/2022 12:26	05/03/2022 17:29	AKB
Cadmium	ND	u	mg/L	0.0010	0.0001	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:17	DMH
<b>Calcium</b>	<b>500</b>	D1	mg/L	40.0	13.0	SW846 6010 B	04/21/2022 12:26	05/03/2022 17:35	AKB
Chromium	ND	u	mg/L	0.0020	0.0006	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:17	DMH
Cobalt	ND	u	mg/L	0.004	0.004	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:17	DMH
Copper	ND	L1, u	mg/L	0.003	0.001	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:17	DMH
<b>Iron</b>	<b>0.051</b>	J	mg/L	0.100	0.050	SW846 6010 B	04/21/2022 12:26	05/03/2022 17:29	AKB
Lead	ND	u	mg/L	0.002	0.0005	SW846-6020 A	04/21/2022 12:26	04/27/2022 17:32	DMH
<b>Lithium</b>	<b>0.39</b>		mg/L	0.02	0.005	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:17	DMH
Mercury	ND	u	mg/L	0.0005	0.0002	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:17	DMH
Molybdenum	ND	u	mg/L	0.01	0.002	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:17	DMH
Selenium	ND	u	mg/L	0.003	0.001	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:17	DMH
<b>Sodium</b>	<b>220</b>	D1	mg/L	26.0	10.0	SW846 6010 B	04/21/2022 12:26	05/03/2022 17:35	AKB
Thallium	ND	u	mg/L	0.0020	0.0001	SW846-6020 A	04/21/2022 12:26	04/27/2022 13:17	DMH

#### Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chemical Oxygen Demand</b>	<b>85</b>		mg/L	8	8	HACH 8000	04/28/2022 06:18	04/28/2022 08:36	KBZ
<b>Specific Conductance (Lab)</b>	<b>5950</b>		umhos/cm	1	1	2510 B-2011	04/21/2022 13:07	04/21/2022 13:07	CML
<b>pH (Lab)</b>	<b>6.85</b>	H3	Std. Units	0.10	0.10	4500-H+ B-2000	04/21/2022 15:06	04/21/2022 15:06	JLW
<b>Total Dissolved Solids</b>	<b>4900</b>		mg/L	50	50	2540 C-2011	04/22/2022 16:14	04/22/2022 16:14	HAG
<b>Total Organic Carbon</b>	<b>0.6</b>		mg/L	0.5	0.4	5310 C-2011	04/27/2022 21:52	04/27/2022 21:52	HMF

#### Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>See Attached Subcontract Report</b>	<b>0.936</b>	_Sub	pCi/L			EPA 903.1	05/11/2022 14:48	05/11/2022 14:49	RCW
<b>See Attached Subcontract Report</b>	<b>1.73</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/11/2022 14:48	05/11/2022 14:49	RCW
<b>Radium</b>	<b>2.67</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/11/2022 14:48	05/11/2022 14:49	RCW
<b>See Attached Subcontract Report</b>	<b>2.67</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/11/2022 14:48	05/11/2022 14:49	RCW

#### Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chloride</b>	<b>850</b>	D	mg/L	10.0	7.2	SW846 9056	04/29/2022 01:27	04/29/2022 01:27	CSC
Fluoride	ND	u	mg/L	0.2	0.2	SW846 9056	04/29/2022 01:06	04/29/2022 01:06	CSC
<b>Sulfate</b>	<b>877</b>	D	mg/L	100	50	SW846 9056	04/30/2022 01:02	04/30/2022 01:02	CSC



**ANALYTICAL RESULTS**

Lab Sample ID: **2033749-06**  
 Description: **MW6**

Sample Collection Date Time: 04/20/2022 09:20  
 Sample Received Date Time: 04/20/2022 13:30

**Metals by SW846 6000 Series Methods Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	u	mg/L	0.005	0.002	SW846-6020 A	04/21/2022 12:26	04/27/2022 14:19	DMH
Arsenic	ND	u	mg/L	0.0010	0.0004	SW846-6020 A	04/21/2022 12:26	04/27/2022 14:19	DMH
<b>Barium</b>	<b>0.011</b>		mg/L	0.004	0.001	SW846-6020 A	04/21/2022 12:26	04/27/2022 14:19	DMH
Beryllium	ND	v1, u	mg/L	0.0020	0.0010	SW846-6020 A	04/21/2022 12:26	04/27/2022 14:19	DMH
<b>Boron</b>	<b>0.20</b>		mg/L	0.10	0.10	SW846 6010 B	04/21/2022 12:26	05/03/2022 17:39	AKB
Cadmium	ND	u	mg/L	0.0010	0.0001	SW846-6020 A	04/21/2022 12:26	04/27/2022 14:19	DMH
<b>Calcium</b>	<b>451</b>	D1	mg/L	40.0	13.0	SW846 6010 B	04/21/2022 12:26	05/03/2022 17:45	AKB
Chromium	ND	u	mg/L	0.0020	0.0006	SW846-6020 A	04/21/2022 12:26	04/27/2022 14:19	DMH
Cobalt	ND	u	mg/L	0.004	0.004	SW846-6020 A	04/21/2022 12:26	04/27/2022 14:19	DMH
Copper	ND	l1, u	mg/L	0.003	0.001	SW846-6020 A	04/21/2022 12:26	04/27/2022 14:19	DMH
Iron	ND	u	mg/L	0.100	0.050	SW846 6010 B	04/21/2022 12:26	05/03/2022 17:39	AKB
Lead	ND	u	mg/L	0.002	0.0005	SW846-6020 A	04/21/2022 12:26	04/27/2022 17:34	DMH
<b>Lithium</b>	<b>0.05</b>		mg/L	0.02	0.005	SW846-6020 A	04/21/2022 12:26	04/27/2022 14:19	DMH
Mercury	ND	u	mg/L	0.0005	0.0002	SW846-6020 A	04/21/2022 12:26	04/27/2022 14:19	DMH
Molybdenum	ND	u	mg/L	0.01	0.002	SW846-6020 A	04/21/2022 12:26	04/27/2022 14:19	DMH
Selenium	ND	u	mg/L	0.003	0.001	SW846-6020 A	04/21/2022 12:26	04/27/2022 17:34	DMH
<b>Sodium</b>	<b>436</b>	D1	mg/L	26.0	10.0	SW846 6010 B	04/21/2022 12:26	05/03/2022 17:45	AKB
Thallium	ND	u	mg/L	0.0020	0.0001	SW846-6020 A	04/21/2022 12:26	04/27/2022 14:19	DMH

**Conventional Chemistry Analyses Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chemical Oxygen Demand</b>	<b>27</b>		mg/L	8	8	HACH 8000	04/28/2022 06:18	04/28/2022 08:36	KBZ
<b>Specific Conductance (Lab)</b>	<b>5010</b>		umhos/cm	1	1	2510 B-2011	04/21/2022 13:07	04/21/2022 13:07	CML
<b>pH (Lab)</b>	<b>6.72</b>	H3	Std. Units	0.10	0.10	4500-H+ B-2000	04/21/2022 15:06	04/21/2022 15:06	JLW
<b>Total Dissolved Solids</b>	<b>4860</b>		mg/L	50	50	2540 C-2011	04/22/2022 16:14	04/22/2022 16:14	HAG
<b>Total Organic Carbon</b>	<b>2.4</b>		mg/L	0.5	0.4	5310 C-2011	04/27/2022 22:13	04/27/2022 22:13	HMF

**Subcontracted Analyses**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
See Attached Subcontract Report	0.00	_Sub	pCi/L			EPA 903.1	05/11/2022 14:48	05/11/2022 14:49	RCW
<b>See Attached Subcontract Report</b>	<b>0.404</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/11/2022 14:48	05/11/2022 14:49	RCW
<b>Radium</b>	<b>0.404</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/11/2022 14:48	05/11/2022 14:49	RCW
<b>See Attached Subcontract Report</b>	<b>0.404</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/11/2022 14:48	05/11/2022 14:49	RCW

**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chloride</b>	<b>148</b>	D	mg/L	2.5	1.8	SW846 9056	04/29/2022 02:49	04/29/2022 02:49	CSC
<b>Fluoride</b>	<b>0.3</b>		mg/L	0.2	0.2	SW846 9056	04/29/2022 02:28	04/29/2022 02:28	CSC
<b>Sulfate</b>	<b>1570</b>	D	mg/L	100	50	SW846 9056	04/30/2022 01:23	04/30/2022 01:23	CSC



**ANALYTICAL RESULTS**

Lab Sample ID: **2033749-07**  
 Description: **DUPLICATE**

Sample Collection Date Time: 04/20/2022 11:05  
 Sample Received Date Time: 04/20/2022 13:30

**Metals by SW846 6000 Series Methods Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	u	mg/L	0.005	0.002	SW846-6020 A	04/21/2022 12:26	04/27/2022 14:37	DMH
<b>Arsenic</b>	<b>0.0053</b>		mg/L	0.0010	0.0004	SW846-6020 A	04/21/2022 12:26	04/27/2022 14:37	DMH
<b>Barium</b>	<b>0.262</b>		mg/L	0.004	0.001	SW846-6020 A	04/21/2022 12:26	04/27/2022 14:37	DMH
Beryllium	ND	v1, u	mg/L	0.0020	0.0010	SW846-6020 A	04/21/2022 12:26	04/27/2022 14:37	DMH
Boron	ND	u	mg/L	0.10	0.10	SW846 6010 B	04/21/2022 12:26	05/03/2022 17:58	AKB
Cadmium	ND	u	mg/L	0.0010	0.0001	SW846-6020 A	04/21/2022 12:26	04/27/2022 14:37	DMH
<b>Calcium</b>	<b>177</b>	D1	mg/L	40.0	13.0	SW846 6010 B	04/21/2022 12:26	05/03/2022 18:04	AKB
Chromium	ND	u	mg/L	0.0020	0.0006	SW846-6020 A	04/21/2022 12:26	04/27/2022 14:37	DMH
Cobalt	ND	u	mg/L	0.004	0.004	SW846-6020 A	04/21/2022 12:26	04/27/2022 14:37	DMH
Copper	ND	l1, u	mg/L	0.003	0.001	SW846-6020 A	04/21/2022 12:26	04/27/2022 14:37	DMH
<b>Iron</b>	<b>4.29</b>		mg/L	0.100	0.050	SW846 6010 B	04/21/2022 12:26	05/03/2022 17:58	AKB
Lead	ND	u	mg/L	0.002	0.0005	SW846-6020 A	04/21/2022 12:26	04/27/2022 17:36	DMH
<b>Lithium</b>	<b>0.005</b>	J	mg/L	0.02	0.005	SW846-6020 A	04/21/2022 12:26	04/27/2022 14:37	DMH
Mercury	ND	u	mg/L	0.0005	0.0002	SW846-6020 A	04/21/2022 12:26	04/27/2022 14:37	DMH
<b>Molybdenum</b>	<b>0.002</b>	J	mg/L	0.01	0.002	SW846-6020 A	04/21/2022 12:26	04/27/2022 14:37	DMH
Selenium	ND	u	mg/L	0.003	0.001	SW846-6020 A	04/21/2022 12:26	04/27/2022 17:36	DMH
<b>Sodium</b>	<b>62.5</b>	D1	mg/L	2.60	1.00	SW846 6010 B	04/21/2022 12:26	05/03/2022 18:01	AKB
Thallium	ND	u	mg/L	0.0020	0.0001	SW846-6020 A	04/21/2022 12:26	04/27/2022 14:37	DMH

**Conventional Chemistry Analyses Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chemical Oxygen Demand</b>	<b>24</b>		mg/L	8	8	HACH 8000	04/28/2022 06:18	04/28/2022 08:37	KBZ
<b>Specific Conductance (Lab)</b>	<b>1670</b>		umhos/cm	1	1	2510 B-2011	04/21/2022 13:07	04/21/2022 13:07	CML
<b>pH (Lab)</b>	<b>6.93</b>	H3	Std. Units	0.10	0.10	4500-H+ B-2000	04/21/2022 15:06	04/21/2022 15:06	JLW
<b>Total Dissolved Solids</b>	<b>1080</b>		mg/L	50	50	2540 C-2011	04/22/2022 16:14	04/22/2022 16:14	HAG
<b>Total Organic Carbon</b>	<b>1.4</b>		mg/L	0.5	0.4	5310 C-2011	04/27/2022 22:35	04/27/2022 22:35	HMF

**Subcontracted Analyses**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>See Attached Subcontract Report</b>	<b>0.303</b>	_Sub	pCi/L			EPA 903.1	05/11/2022 14:48	05/11/2022 14:49	RCW
<b>See Attached Subcontract Report</b>	<b>0.662</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/11/2022 14:48	05/11/2022 14:49	RCW
<b>Radium</b>	<b>0.965</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/11/2022 14:48	05/11/2022 14:49	RCW
<b>See Attached Subcontract Report</b>	<b>0.965</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/11/2022 14:48	05/11/2022 14:49	RCW

**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chloride</b>	<b>161</b>	D	mg/L	2.5	1.8	SW846 9056	04/29/2022 03:50	04/29/2022 03:50	CSC
<b>Fluoride</b>	<b>0.2</b>		mg/L	0.2	0.2	SW846 9056	04/29/2022 03:30	04/29/2022 03:30	CSC
<b>Sulfate</b>	<b>130</b>	D	mg/L	5	2	SW846 9056	04/29/2022 03:50	04/29/2022 03:50	CSC



**ANALYTICAL RESULTS**

Lab Sample ID: **2033749-08**  
 Description: **FIELD BLANK**

Sample Collection Date Time: 04/20/2022 12:10  
 Sample Received Date Time: 04/20/2022 13:30

**Metals by SW846 6000 Series Methods Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	u	mg/L	0.005	0.002	SW846-6020 A	04/21/2022 12:26	04/27/2022 14:41	DMH
Arsenic	ND	u	mg/L	0.0010	0.0004	SW846-6020 A	04/21/2022 12:26	04/27/2022 14:41	DMH
Barium	ND	u	mg/L	0.004	0.001	SW846-6020 A	04/21/2022 12:26	04/27/2022 14:41	DMH
Beryllium	ND	v1, u	mg/L	0.0020	0.0010	SW846-6020 A	04/21/2022 12:26	04/27/2022 14:41	DMH
Boron	ND	u	mg/L	0.10	0.10	SW846 6010 B	04/21/2022 12:26	05/03/2022 18:07	AKB
Cadmium	ND	u	mg/L	0.0010	0.0001	SW846-6020 A	04/21/2022 12:26	04/27/2022 14:41	DMH
Calcium	ND	u	mg/L	0.40	0.13	SW846 6010 B	04/21/2022 12:26	05/03/2022 18:07	AKB
Chromium	ND	u	mg/L	0.0020	0.0006	SW846-6020 A	04/21/2022 12:26	04/27/2022 14:41	DMH
Cobalt	ND	u	mg/L	0.004	0.004	SW846-6020 A	04/21/2022 12:26	04/27/2022 14:41	DMH
<b>Copper</b>	<b>0.002</b>	L1, J	mg/L	0.003	0.001	SW846-6020 A	04/21/2022 12:26	04/27/2022 14:41	DMH
Iron	ND	u	mg/L	0.100	0.050	SW846 6010 B	04/21/2022 12:26	05/03/2022 18:07	AKB
Lead	ND	u	mg/L	0.002	0.0005	SW846-6020 A	04/21/2022 12:26	04/27/2022 17:38	DMH
Lithium	ND	u	mg/L	0.02	0.005	SW846-6020 A	04/21/2022 12:26	04/27/2022 14:41	DMH
Mercury	ND	u	mg/L	0.0005	0.0002	SW846-6020 A	04/21/2022 12:26	04/27/2022 14:41	DMH
Molybdenum	ND	u	mg/L	0.01	0.002	SW846-6020 A	04/21/2022 12:26	04/27/2022 14:41	DMH
Selenium	ND	u	mg/L	0.003	0.001	SW846-6020 A	04/21/2022 12:26	04/27/2022 17:38	DMH
Sodium	ND	u	mg/L	0.26	0.10	SW846 6010 B	04/21/2022 12:26	05/03/2022 18:07	AKB
Thallium	ND	u	mg/L	0.0020	0.0001	SW846-6020 A	04/21/2022 12:26	04/27/2022 14:41	DMH

**Conventional Chemistry Analyses Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chemical Oxygen Demand</b>	<b>13</b>		mg/L	8	8	HACH 8000	04/28/2022 06:18	04/28/2022 08:37	KBZ
Specific Conductance (Lab)	ND	u	umhos/cm	1	1	2510 B-2011	04/21/2022 13:07	04/21/2022 13:07	CML
<b>pH (Lab)</b>	<b>7.43</b>	H3	Std. Units	0.10	0.10	4500-H+ B-2000	04/21/2022 15:06	04/21/2022 15:06	JLW
Total Dissolved Solids	ND	u	mg/L	50	50	2540 C-2011	04/22/2022 16:14	04/22/2022 16:14	HAG
Total Organic Carbon	ND	u	mg/L	0.5	0.4	5310 C-2011	04/27/2022 22:56	04/27/2022 22:56	HMF

**Subcontracted Analyses**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
See Attached Subcontract Report	0.00	_Sub	pCi/L			EPA 903.1	05/11/2022 14:48	05/11/2022 14:49	RCW
<b>See Attached Subcontract Report</b>	<b>0.812</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/11/2022 14:48	05/11/2022 14:49	RCW
<b>Radium</b>	<b>0.812</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/11/2022 14:48	05/11/2022 14:49	RCW
<b>See Attached Subcontract Report</b>	<b>0.812</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/11/2022 14:48	05/11/2022 14:49	RCW

**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	ND	u	mg/L	0.5	0.4	SW846 9056	04/29/2022 04:31	04/29/2022 04:31	CSC
Fluoride	ND	u	mg/L	0.2	0.2	SW846 9056	04/29/2022 04:31	04/29/2022 04:31	CSC
Sulfate	ND	M2, u	mg/L	1	0.5	SW846 9056	04/29/2022 04:31	04/29/2022 04:31	CSC

**Notes for work order 2033749**

- Samples collected by PACE personnel are done so in accordance with procedures set forth in PACE field services SOPs .
- Results contained in this report are only representative of the samples received.
- PACE does not provide interpretation of these results unless otherwise stated .
- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identification based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.

**Qualifiers**

_Sub	See subcontractors report.
D	Results reported from dilution.
D1	Sample required dilution due to high concentration of target analyte.
D2	Sample required dilution due to matrix interference.
E	Concentration exceeds calibration range
H3	Sample received and analyzed past holding time.
J	Estimated value.
L1	The associated blank spike recovery was above method acceptance limits.
M1	Matrix spike recovery was high; the method control sample recovery was acceptable.
M2	Matrix spike recovery was low; the method control sample recovery was acceptable.
M3	The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.
M4	The analysis of the spiked sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable.
U	Target analyte was analyzed for, but was below detection limit (the value associated with the qualifier is the laboratory method detection limit in our LIMS system).
V1	CCV recovery was above method acceptance limits. This target analyte not detected in the sample.
Y1	Sample RPD exceeded the method control limit.
Y2	MS/MSD RPD exceeded the method control limit. Recovery met acceptance criteria.

**Standard Qualifiers/Acronyms**

MDL	Method Detection Limit
MRL	Minimum Reporting Limit
ND	Not Detected
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
% Rec	Percent Recovery
RPD	Relative Percent Difference
>	Greater than
<	Less than



**Metals by SW846 6000 Series Methods Madisonville - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch BBD2644 - EPA 200.2**

**Blank (BBD2644-BLK1)**

Prepared: 4/21/2022 12:26, Analyzed: 4/27/2022 12:47

Mercury	ND	0.0005	mg/L							U
Molybdenum	ND	0.01	mg/L							U
Antimony	ND	0.005	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Cobalt	ND	0.004	mg/L							U
Copper	ND	0.003	mg/L							U
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U

**Blank (BBD2644-BLK2)**

Prepared: 4/21/2022 12:26, Analyzed: 4/27/2022 17:06

Mercury	ND	0.0005	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Copper	ND	0.003	mg/L							U
Lead	ND	0.002	mg/L							U
Selenium	ND	0.003	mg/L							U

**Blank (BBD2644-BLK3)**

Prepared: 4/21/2022 12:26, Analyzed: 4/28/2022 14:44

Copper	ND	0.003	mg/L							U
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**Blank (BBD2644-BLK4)**

Prepared: 4/21/2022 12:26, Analyzed: 5/3/2022 16:20

Boron	ND	0.10	mg/L							U
Calcium	ND	0.40	mg/L							U
Iron	ND	0.100	mg/L							U
Sodium	ND	0.26	mg/L							U



**Metals by SW846 6000 Series Methods Madisonville - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch BBD2644 - EPA 200.2**

**LCS (BBD2644-BS1)**

Prepared: 4/21/2022 12:26, Analyzed: 4/27/2022 12:51

Antimony	0.064	0.005	mg/L	0.0625		102	85-115			
Molybdenum	0.06	0.01	mg/L	0.0625		104	85-115			
Mercury	0.0024	0.0005	mg/L	0.00250		97.2	85-115			
Arsenic	0.0643	0.0010	mg/L	0.0625		103	85-115			
Barium	0.061	0.004	mg/L	0.0625		97.3	85-115			
Beryllium	0.0610	0.0020	mg/L	0.0625		97.6	85-115			
Cadmium	0.0624	0.0010	mg/L	0.0625		99.9	85-115			
Chromium	0.0645	0.0020	mg/L	0.0625		103	85-115			
Cobalt	0.064	0.004	mg/L	0.0625		102	85-115			
Copper	0.078	0.003	mg/L	0.0625		125	85-115			L1
Lead	0.061	0.002	mg/L	0.0625		97.0	85-115			
Lithium	0.06	0.02	mg/L	0.0625		97.6	85-115			
Selenium	0.065	0.003	mg/L	0.0625		105	85-115			
Thallium	0.0608	0.0020	mg/L	0.0625		97.3	85-115			

**LCS (BBD2644-BS2)**

Prepared: 4/21/2022 12:26, Analyzed: 4/27/2022 17:08

Mercury	0.0025	0.0005	mg/L	0.00250		98.6	85-115			
Cadmium	0.0636	0.0010	mg/L	0.0625		102	85-115			
Copper	0.075	0.003	mg/L	0.0625		120	85-115			L1
Lead	0.062	0.002	mg/L	0.0625		99.7	85-115			
Selenium	0.066	0.003	mg/L	0.0625		105	85-115			

**LCS (BBD2644-BS3)**

Prepared: 4/21/2022 12:26, Analyzed: 4/28/2022 14:55

Copper	0.069	0.003	mg/L	0.0625		110	85-115			
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**LCS (BBD2644-BS4)**

Prepared: 4/21/2022 12:26, Analyzed: 5/3/2022 16:23

Boron	0.13	0.10	mg/L	0.125		105	85-115			
Calcium	6.36	0.40	mg/L	6.25		102	85-115			
Iron	6.40	0.100	mg/L	6.25		102	85-115			
Sodium	6.31	0.26	mg/L	6.25		101	85-115			



**Metals by SW846 6000 Series Methods Madisonville - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch BBD2644 - EPA 200.2**

**Matrix Spike (BBD2644-MS1)**

**Source: 2033749-01**

Prepared: 4/21/2022 12:26, Analyzed: 4/27/2022 15:03

Molybdenum	0.07	0.01	mg/L	0.0625	0.002	105	80-120			
Mercury	0.0025	0.0005	mg/L	0.00250	0.0002	102	80-120			
Antimony	0.065	0.005	mg/L	0.0625	ND	105	80-120			
Arsenic	0.0665	0.0010	mg/L	0.0625	0.0004	106	80-120			
Barium	0.142	0.004	mg/L	0.0625	0.077	103	80-120			
Beryllium	0.0643	0.0020	mg/L	0.0625	ND	103	80-120			
Cadmium	0.0622	0.0010	mg/L	0.0625	ND	99.5	80-120			
Chromium	0.0639	0.0020	mg/L	0.0625	ND	102	80-120			
Cobalt	0.063	0.004	mg/L	0.0625	ND	100	80-120			
Copper	0.060	0.003	mg/L	0.0625	ND	95.3	80-120			
Lead	0.059	0.002	mg/L	0.0625	ND	95.0	80-120			
Lithium	0.09	0.02	mg/L	0.0625	0.03	101	80-120			
Selenium	0.065	0.003	mg/L	0.0625	ND	105	80-120			
Thallium	0.0595	0.0020	mg/L	0.0625	ND	95.3	80-120			

**Matrix Spike (BBD2644-MS2)**

**Source: 2044387-01**

Prepared: 4/21/2022 12:26, Analyzed: 4/27/2022 15:48

Molybdenum	0.06	0.01	mg/L	0.0625	ND	104	80-120			
Mercury	0.0030	0.0005	mg/L	0.00250	0.0006	99.3	80-120			
Antimony	0.064	0.005	mg/L	0.0625	ND	103	80-120			
Arsenic	0.0658	0.0010	mg/L	0.0625	ND	105	80-120			
Barium	0.149	0.004	mg/L	0.0625	0.080	111	80-120			
Beryllium	0.0620	0.0020	mg/L	0.0625	ND	99.2	80-120			
Cadmium	0.0627	0.0010	mg/L	0.0625	ND	100	80-120			
Chromium	0.0650	0.0020	mg/L	0.0625	ND	104	80-120			
Cobalt	0.063	0.004	mg/L	0.0625	ND	101	80-120			
Copper	0.060	0.003	mg/L	0.0625	ND	95.3	80-120			
Lead	0.058	0.002	mg/L	0.0625	ND	93.6	80-120			
Lithium	0.06	0.02	mg/L	0.0625	ND	102	80-120			
Selenium	0.065	0.003	mg/L	0.0625	ND	104	80-120			
Thallium	0.0585	0.0020	mg/L	0.0625	ND	93.6	80-120			



**Metals by SW846 6000 Series Methods Madisonville - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Notes
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**Batch BBD2644 - EPA 200.2**

**Matrix Spike (BBD2644-MS3) Source: 2033749-01**

Prepared: 4/21/2022 12:26, Analyzed: 5/3/2022 19:23

Boron	1.79	1.00	mg/L	0.125	1.71	60.0	80-120			D2, M2
Calcium	34.3	4.00	mg/L	6.25	31.0	52.8	80-120			D2, M2
Iron	6.79	1.00	mg/L	6.25	ND	109	80-120			D2
Sodium	181	2.60	mg/L	6.25	189	NR	80-120			D2, M3

**Matrix Spike (BBD2644-MS4) Source: 2044387-01**

Prepared: 4/21/2022 12:26, Analyzed: 5/3/2022 19:29

Boron	ND	1.00	mg/L	0.125	ND		80-120			D2, M4, U
Calcium	43.7	4.00	mg/L	6.25	39.8	62.0	80-120			D2, M2
Iron	6.57	1.00	mg/L	6.25	ND	105	80-120			D2
Sodium	56.8	2.60	mg/L	6.25	52.0	77.9	80-120			D2, M2

**Matrix Spike Dup (BBD2644-MSD1) Source: 2033749-01**

Prepared: 4/21/2022 12:26, Analyzed: 4/27/2022 15:44

Antimony	0.064	0.005	mg/L	0.0625	ND	102	80-120	2.61	20	
Molybdenum	0.06	0.01	mg/L	0.0625	0.002	104	80-120	1.36	20	
Mercury	0.0024	0.0005	mg/L	0.00250	0.0002	97.7	80-120	4.06	20	
Arsenic	0.0656	0.0010	mg/L	0.0625	0.0004	104	80-120	1.36	20	
Barium	0.142	0.004	mg/L	0.0625	0.077	104	80-120	0.0941	20	
Beryllium	0.0638	0.0020	mg/L	0.0625	ND	102	80-120	0.709	20	
Cadmium	0.0621	0.0010	mg/L	0.0625	ND	99.4	80-120	0.138	20	
Chromium	0.0642	0.0020	mg/L	0.0625	ND	103	80-120	0.494	20	
Cobalt	0.062	0.004	mg/L	0.0625	ND	99.2	80-120	0.935	20	
Copper	0.059	0.003	mg/L	0.0625	ND	94.7	80-120	0.666	20	
Lead	0.057	0.002	mg/L	0.0625	ND	91.1	80-120	4.19	20	
Lithium	0.09	0.02	mg/L	0.0625	0.03	103	80-120	0.947	20	
Selenium	0.079	0.003	mg/L	0.0625	ND	126	80-120	18.1	20	M1
Thallium	0.0573	0.0020	mg/L	0.0625	ND	91.8	80-120	3.74	20	

**Matrix Spike Dup (BBD2644-MSD2) Source: 2044387-01**

Prepared: 4/21/2022 12:26, Analyzed: 4/27/2022 15:52

Mercury	0.0031	0.0005	mg/L	0.00250	0.0006	102	80-120	2.03	20	
Molybdenum	0.07	0.01	mg/L	0.0625	ND	106	80-120	2.38	20	
Antimony	0.067	0.005	mg/L	0.0625	ND	107	80-120	3.86	20	
Arsenic	0.0674	0.0010	mg/L	0.0625	ND	108	80-120	2.41	20	
Barium	0.148	0.004	mg/L	0.0625	0.080	110	80-120	0.426	20	
Beryllium	0.0639	0.0020	mg/L	0.0625	ND	102	80-120	2.94	20	
Cadmium	0.0643	0.0010	mg/L	0.0625	ND	103	80-120	2.65	20	
Chromium	0.0666	0.0020	mg/L	0.0625	ND	107	80-120	2.50	20	
Cobalt	0.064	0.004	mg/L	0.0625	ND	103	80-120	2.13	20	
Copper	0.062	0.003	mg/L	0.0625	ND	98.6	80-120	3.35	20	
Lead	0.059	0.002	mg/L	0.0625	ND	95.1	80-120	1.64	20	
Lithium	0.07	0.02	mg/L	0.0625	ND	105	80-120	2.71	20	
Selenium	0.068	0.003	mg/L	0.0625	ND	109	80-120	5.14	20	
Thallium	0.0592	0.0020	mg/L	0.0625	ND	94.6	80-120	1.09	20	



**Metals by SW846 6000 Series Methods Madisonville - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch BBD2644 - EPA 200.2**

**Matrix Spike Dup (BBD2644-MSD3) Source: 2033749-01**

Prepared: 4/21/2022 12:26, Analyzed: 5/3/2022 19:26

Boron	1.81	1.00	mg/L	0.125	1.71	76.2	80-120	1.13	20	D2, M2
Calcium	34.9	4.00	mg/L	6.25	31.0	61.9	80-120	1.66	20	D2, M2
Iron	6.93	1.00	mg/L	6.25	ND	111	80-120	1.92	20	D2
Sodium	184	2.60	mg/L	6.25	189	NR	80-120	1.36	20	D2, M3

**Matrix Spike Dup (BBD2644-MSD4) Source: 2044387-01**

Prepared: 4/21/2022 12:26, Analyzed: 5/3/2022 19:32

Boron	ND	1.00	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	43.7	4.00	mg/L	6.25	39.8	62.8	80-120	0.116	20	D2, M2
Iron	6.76	1.00	mg/L	6.25	ND	108	80-120	2.92	20	D2
Sodium	56.9	2.60	mg/L	6.25	52.0	79.1	80-120	0.122	20	D2, M2

**Post Spike (BBD2644-PS1) Source: 2033749-01**

Prepared: 4/21/2022 12:26, Analyzed: 4/27/2022 15:55

Antimony	62.7		ug/L	62.5	0.108	100	75-125			
Mercury	2.53		ug/L	2.50	0.156	94.9	75-125			
Molybdenum	67.8		ug/L	62.5	1.83	106	75-125			
Arsenic	66.8		ug/L	62.5	0.446	106	75-125			
Barium	145		ug/L	62.5	77.5	108	75-125			
Beryllium	62.9		ug/L	62.5	0.0351	101	75-125			
Cadmium	64.2		ug/L	62.5	0.0373	103	75-125			
Chromium	65.8		ug/L	62.5	0.120	105	75-125			
Cobalt	64.1		ug/L	62.5	0.112	102	75-125			
Copper	61.1		ug/L	62.5	-0.599	97.7	75-125			
Lead	59.3		ug/L	62.5	0.015	94.9	75-115			
Lithium	90.3		ug/L	62.5	27.2	101	75-125			
Selenium	65.9		ug/L	62.5	0.249	105	75-125			
Thallium	58.4		ug/L	62.5	0.0393	93.5	75-125			

**Post Spike (BBD2644-PS2) Source: 2033749-01**

Prepared: 4/21/2022 12:26, Analyzed: 5/3/2022 19:36

Boron	1770		ug/L	125	1710	44.1	75-125			D2, M2
Calcium	33400		ug/L	6250	31000	38.3	75-125			D2, M2
Iron	6770		ug/L	6250	176	105	75-125			D2
Sodium	176000		ug/L	6250	189000	NR	75-125			D2, M3



**Conventional Chemistry Analyses Madisonville - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch BBD2601 - Default Prep Wet Chem</b>										
<b>LCS (BBD2601-BS1)</b>										
Prepared: 4/21/2022 15:03, Analyzed: 4/21/2022 15:03										
pH (Lab)	8.04		Std. Units	8.00		100	98.8-101.2			
<b>LCS (BBD2601-BS2)</b>										
Prepared: 4/21/2022 15:06, Analyzed: 4/21/2022 15:06										
pH (Lab)	8.03		Std. Units	8.00		100	98.8-101.2			
<b>Duplicate (BBD2601-DUP1) Source: 2041041-01</b>										
Prepared: 4/21/2022 15:06, Analyzed: 4/21/2022 15:06										
pH (Lab)	7.17	0.10	Std. Units		7.17			0.00	10	H3
<b>Duplicate (BBD2601-DUP2) Source: 2044280-01</b>										
Prepared: 4/21/2022 15:06, Analyzed: 4/21/2022 15:06										
pH (Lab)	8.55	0.10	Std. Units		8.55			0.00	10	H3
<b>Batch BBD2607 - Default Prep Wet Chem</b>										
<b>Blank (BBD2607-BLK1)</b>										
Prepared: 4/21/2022 13:05, Analyzed: 4/21/2022 13:06										
Specific Conductance (Lab)	ND		1 umhos/cm							U
<b>LCS (BBD2607-BS1)</b>										
Prepared: 4/21/2022 13:06, Analyzed: 4/21/2022 13:07										
Specific Conductance (Lab)	1420		umhos/cm	1410		100	80-120			
<b>Duplicate (BBD2607-DUP1) Source: 2042683-01</b>										
Prepared: 4/21/2022 13:07, Analyzed: 4/21/2022 13:07										
Specific Conductance (Lab)	486	1	umhos/cm		483			0.619	0.938	
<b>Duplicate (BBD2607-DUP2) Source: 2044304-04</b>										
Prepared: 4/21/2022 13:07, Analyzed: 4/21/2022 13:07										
Specific Conductance (Lab)	188	1	umhos/cm		190			1.06	0.938	Y1
<b>Batch BBD2870 - Default Prep Wet Chem</b>										
<b>Blank (BBD2870-BLK1)</b>										
Prepared: 4/22/2022 16:14, Analyzed: 4/22/2022 16:14										
Total Dissolved Solids	ND	25	mg/L							U



Conventional Chemistry Analyses Madisonville - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBD2870 - Default Prep Wet Chem

LCS (BBD2870-BS1)

Prepared: 4/22/2022 16:14, Analyzed: 4/22/2022 16:14

Total Dissolved Solids	1500	25	mg/L	1500		99.7	80-120			
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Duplicate (BBD2870-DUP1) Source: 2033747-01

Prepared: 4/22/2022 16:14, Analyzed: 4/22/2022 16:14

Total Dissolved Solids	336	50	mg/L		340			1.18	10	
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Duplicate (BBD2870-DUP2) Source: 2033749-08

Prepared: 4/22/2022 16:14, Analyzed: 4/22/2022 16:14

Total Dissolved Solids	ND	50	mg/L		ND				10	U
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Batch BBD3087 - Default Prep Wet Chem

Blank (BBD3087-BLK1)

Prepared: 4/28/2022 6:18, Analyzed: 4/28/2022 8:32

Chemical Oxygen Demand	ND	8	mg/L							U
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LCS (BBD3087-BS1)

Prepared: 4/28/2022 6:18, Analyzed: 4/28/2022 8:32

Chemical Oxygen Demand	133	8	mg/L	125		107	90-110			
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Duplicate (BBD3087-DUP1) Source: 2044394-02

Prepared: 4/28/2022 6:18, Analyzed: 4/28/2022 8:42

Chemical Oxygen Demand	28	8	mg/L		20			33.4	25	Y1
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Matrix Spike (BBD3087-MS1) Source: 2044394-02

Prepared: 4/28/2022 6:18, Analyzed: 4/28/2022 8:42

Chemical Oxygen Demand	283	8	mg/L	250	20	105	90-110			
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Matrix Spike Dup (BBD3087-MSD1) Source: 2044394-02

Prepared: 4/28/2022 6:18, Analyzed: 4/28/2022 8:42

Chemical Oxygen Demand	283	8	mg/L	250	20	105	90-110	0.0158	10	
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Batch BBD3135 - Default Prep Wet Chem

Blank (BBD3135-BLK1)

Prepared: 4/28/2022 6:18, Analyzed: 4/28/2022 8:51

Chemical Oxygen Demand	ND	8	mg/L							U
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**Conventional Chemistry Analyses Madisonville - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch BBD3135 - Default Prep Wet Chem</b>										
<b>LCS (BBD3135-BS1)</b>										
Prepared: 4/28/2022 6:18, Analyzed: 4/28/2022 8:51										
Chemical Oxygen Demand	137	8	mg/L	125		109	90-110			
<b>Duplicate (BBD3135-DUP1) Source: 2044513-01</b>										
Prepared: 4/28/2022 6:18, Analyzed: 4/28/2022 9:10										
Chemical Oxygen Demand	29	8	mg/L		27			5.96	25	
<b>Matrix Spike (BBD3135-MS1) Source: 2044513-01</b>										
Prepared: 4/28/2022 6:18, Analyzed: 4/28/2022 9:10										
Chemical Oxygen Demand	376	8	mg/L	250	27	140	90-110			M1
<b>Matrix Spike Dup (BBD3135-MSD1) Source: 2044513-01</b>										
Prepared: 4/28/2022 6:18, Analyzed: 4/28/2022 9:11										
Chemical Oxygen Demand	290	8	mg/L	250	27	105	90-110	25.9	10	Y2
<b>Batch BBD3458 - Default Prep Wet Chem</b>										
<b>Blank (BBD3458-BLK1)</b>										
Prepared: 4/27/2022 19:45, Analyzed: 4/27/2022 19:45										
Total Organic Carbon	ND	0.5	mg/L							U
<b>LCS (BBD3458-BS1)</b>										
Prepared: 4/27/2022 19:24, Analyzed: 4/27/2022 19:24										
Total Organic Carbon	4.9	0.5	mg/L	5.00		98.1	80-120			
<b>Duplicate (BBD3458-DUP1) Source: 2040252-01</b>										
Prepared: 4/28/2022 1:03, Analyzed: 4/28/2022 1:03										
Total Organic Carbon	1.5	0.5	mg/L		1.6			2.00	25	
<b>Duplicate (BBD3458-DUP2) Source: 2041795-01</b>										
Prepared: 4/28/2022 6:21, Analyzed: 4/28/2022 6:21										
Total Organic Carbon	4.9	0.5	mg/L		4.9			1.42	25	
<b>Matrix Spike (BBD3458-MS1) Source: 2040252-02</b>										
Prepared: 4/28/2022 1:24, Analyzed: 4/28/2022 1:24										
Total Organic Carbon	3.0	0.5	mg/L	2.50	0.7	91.7	80-120			



**Conventional Chemistry Analyses Madisonville - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch BBD3458 - Default Prep Wet Chem**

**Matrix Spike (BBD3458-MS2)**

**Source: 2041795-02**

Prepared: 4/28/2022 6:42, Analyzed: 4/28/2022 6:42

Total Organic Carbon	6.8	0.5	mg/L	5.00	2.1	93.5	80-120			
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**Ion Chromatography Madisonville - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD RPD	RPD Limit	Notes
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**Batch BBD3430 - Default Prep IC**

**Blank (BBD3430-BLK1)**

Prepared: 4/28/2022 22:03, Analyzed: 4/28/2022 22:03

Chloride	ND	0.5	mg/L							U
Fluoride	ND	0.2	mg/L							U
Sulfate	ND	1	mg/L							U

**LCS (BBD3430-BS1)**

Prepared: 4/28/2022 21:42, Analyzed: 4/28/2022 21:42

Fluoride	9.7		mg/L	10.0		97.4	90-110			
Chloride	9.5		mg/L	10.0		94.8	90-110			
Sulfate	9		mg/L	10.0		93.5	90-110			

**Matrix Spike (BBD3430-MS1)**

Source: 2033749-08

Prepared: 4/29/2022 4:52, Analyzed: 4/29/2022 4:52

Chloride	8.2		mg/L	10.0	0.06	81.7	75-125			
Fluoride	8.5		mg/L	10.0	0.0	84.8	75-125			
Sulfate	8		mg/L	10.0	-0.008	78.1	75-125			

**Matrix Spike Dup (BBD3430-MSD1)**

Source: 2033749-08

Prepared: 4/29/2022 5:12, Analyzed: 4/29/2022 5:12

Fluoride	8.2		mg/L	10.0	0.0	81.6	75-125	3.84	15	
Chloride	7.8		mg/L	10.0	0.06	77.2	75-125	5.66	15	
Sulfate	7		mg/L	10.0	-0.008	74.2	75-125	5.17	15	M2

**Certified Analyses included in this Report**

Analyte	Certifications
<b>2510 B-2011 in Water</b>	
Specific Conductance (Lab)	KY Drinking Water Mdv (00030) VA NELAC MDV (460210) TN Drinking Water (02819) WV Wastewater Madisonville (241), 825 Industrial Rd Madisonville, KY 42431
<b>2540 C-2011 in Water</b>	
Total Dissolved Solids	KY Drinking Water Mdv (00030) VA NELAC MDV (460210) KY Wastewater Mdv (00030) TN Drinking Water (02819) WV Wastewater Madisonville (241), 825 Industrial Rd Madisonville, KY 42431
<b>4500-H+ B-2000 in Water</b>	
pH (Lab)	KY Drinking Water Mdv (00030) TN Drinking Water (02819)
<b>5310 C-2011 in Water</b>	
Total Organic Carbon	KY Drinking Water Mdv (00030) VA NELAC MDV (460210) KY Wastewater Mdv (00030) TN Drinking Water (02819) ADEM Drinking Water Mdv (41880) WV Wastewater Madisonville (241), 825 Industrial Rd Madisonville, KY 42431 AK Drinking Water MADV (KY00020)
<b>HACH 8000 in Water</b>	
Chemical Oxygen Demand	KY Wastewater Mdv (00030) VA NELAC MDV (460210) WV Wastewater Madisonville (241), 825 Industrial Rd Madisonville, KY 42431
<b>SW846 6010 B in Water</b>	
Calcium	VA NELAC MDV (460210)



**Sample Acceptance Checklist for Work Order 2033749**

Shipped By: Client

Temperature: 3.00° Celcius

**Condition**

Check if Custody Seals are Present/Intact	<input type="checkbox"/>
Check if Custody Signatures are Present	<input checked="" type="checkbox"/>
Check if Collector Signature Present	<input checked="" type="checkbox"/>
Check if bottles are intact	<input checked="" type="checkbox"/>
Check if bottles are correct	<input checked="" type="checkbox"/>
Check if bottles have sufficient volume	<input checked="" type="checkbox"/>
Check if samples received on ice	<input checked="" type="checkbox"/>
Check if VOA headspace is acceptable	<input type="checkbox"/>
Check if samples received in holding time.	<input checked="" type="checkbox"/>
Check if samples are preserved properly	<input checked="" type="checkbox"/>

# Chain of Custody

Scheduled for: 03/15/2022



Client: **Big Rivers Electric Corporation**  
Reid/Green Station

Report To:  
Big Rivers Electric Corporation Reid/Green  
Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Invoice To:  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Project: **Green Landfill Semiannual Groundwater**

Phone: (270) 844-6000

PWS ID#:

State: KY

PO#: \_\_\_\_\_

Quote# \_\_\_\_\_

Please Print Legibly

Collected by (Signature): *Troy Sneed*  
\*required information\*

Compliance Monitoring? Yes  No

Samples Chlorinated? Yes  No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY Workorder # 2033749 Sample ID#	*required information* Date (mm/dd/yy): <u>04/09/22</u>	Collection Time (24 hr): <u>9:10</u>	Bottle and Preservative Plastic 500mL pH<2 w/HNO3	Containers 1	Sample Description MW1	Composite g / c	Sample Analysis Requested Beryllium Tot 6020 Cadmium Tot 6020 Calcium Tot 6010B Barium Tot 6020 Chromium Tot 6020 Cobalt Tot 6020 Arsenic Tot 6020 Boron Tot 6010B Copper Tot 6020 Antimony Tot 6020 Lead Tot 6020 Lithium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Sodium Tot 6010B
2033749-01 A	<u>04/09/22</u>	<u>9:10</u>	Plastic 500mL pH<2 w/HNO3	1	MW1	g / c	Beryllium Tot 6020 Cadmium Tot 6020 Calcium Tot 6010B Barium Tot 6020 Chromium Tot 6020 Cobalt Tot 6020 Arsenic Tot 6020 Boron Tot 6010B Copper Tot 6020 Antimony Tot 6020 Lead Tot 6020 Lithium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Sodium Tot 6010B
2033749-01 B	<u>04/09/22</u>	<u>9:10</u>	Plastic 1L	1	MW1	g / c	pH (Lab) Conductivity (Lab) TDS Sulfate 9056 Chloride 9056 Fluoride 9056 COD TOC
2033749-01 C	<u>04/09/22</u>	<u>9:10</u>	Plastic 500mL pH<2 w/H2SO4	1	MW1	g / c	COD TOC
2033749-01 D	<u>04/09/22</u>	<u>9:10</u>	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1	MW1	g / c	Radium 226 (sub)

Preservation Check: pH:

Preservation Check: pH:

Preservation Check: pH:

Thermometer Serial Number

181390287

181460057

Temp 3.0 °C

Preservation Check Performed by: AEL

Field data collected by: <u>Troy Sneed</u>	Date (mm/dd/yy) <u>04/09/22</u>	Time (24 hr) <u>9:10</u>
pH <u>6.67</u>	Cond (umho) <u>1.926</u>	Res Cl (mg/L) _____
Temp (oC) <u>14.69</u>	or (oF) _____	Static Water Level _____
Flow (MGD) _____	or (CFS) _____	or (g/min) _____
Tot Cl (mg/L) _____	Free Cl (mg/L) _____	DO (mg/L) _____
Turb. (NTU) _____		

Relinquished by: (Signature) <u>Troy Sneed</u>	Received by: (Signature) <u>Army Lee</u>	Date (mm/dd/yy) <u>04-20-22</u>	Time (24 hr) <u>1330</u>
_____	_____	_____	_____
_____	_____	_____	_____

# Chain of Custody

Scheduled for: **03/15/2022**



Client: **Big Rivers Electric Corporation**  
**Reid/Green Station**

Report To:  
**Big Rivers Electric Corporation Reid/Green Station**  
**Chad Phillips**  
**PO Box 24**  
**Henderson, KY 42419**

Invoice To:  
**Big Rivers Electric Corporation Reid/Green Station**  
**Chad Phillips**  
**PO Box 24**  
**Henderson, KY 42419**

Project: **Green Landfill Semiannual Groundwater**

Phone: (270) 844-6000  
PWS ID#:  
State: KY

PO#:  
Quote#

Please Print Legibly

Collected by (Signature): [Signature]  
\*required information\*

Compliance Monitoring? Yes  No

Samples Chlorinated? Yes  No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY	*required information*		Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
Workorder #	Date	Collection					
2033749-06 F	4/20/22	920	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW6	g / c	Radium 228 (sub)
			Preservation Check: pH: <input checked="" type="checkbox"/>				
2033749-06 G	4/20/22	920	Plastic 1L pH<2 w/HNO3 (Sub)	1	MW6	g / c	Radium Total (sub)
			Preservation Check: pH: <input checked="" type="checkbox"/>				
2033749-06 H	4/20/22	920	AG 250mL pH<2 w/H2SO4	1	MW6	g / c	TOC
			Preservation Check: pH: <input checked="" type="checkbox"/>				
2033749-07 A	4/20/22	11:05	Plastic 500mL pH<2 w/HNO3	1	DUPLICATE	g / c	Beryllium Tot 6020 Cadmium Tot 6020 Calcium Tot 6010B Barium Tot 6020 Chromium Tot 6020 Cobalt Tot 6020 Arsenic Tot 6020 Boron Tot 6010B Copper Tot 6020 Antimony Tot 6020 Lead Tot 6020 Lithium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Sodium Tot 6010B
			Preservation Check: pH: <input checked="" type="checkbox"/>				
2033749-07 B	4/20/22	11:05	Plastic 1L	1	DUPLICATE	g / c	pH (Lab) Conductivity (Lab) TDS Sulfate 9056 Chloride 9056 Fluoride 9056
			Preservation Check: pH: <input checked="" type="checkbox"/>				

Preservation Check Performed by: All

Field data collected by: <u>Phillip Hill</u>	Date (mm/dd/yy) <u>4/20/22</u>	Time (24 hr) <u>920</u>
pH <u>6.75</u>	Cond <u>5.14</u>	Res Cl (mg/L) _____
Temp (oC) <u>15.96</u>	or (oF) _____	Tot Cl (mg/L) _____
Flow (MGD) _____	or (CFS) _____	Free Cl (mg/L) _____
	or (g/min) _____	Static Water Level _____
		DO (mg/L) _____
		Turb. (NTU) _____

Relinquished by (Signature): <u>[Signature]</u>	Received by (Signature): <u>[Signature]</u>	Date (mm/dd/yy): <u>4/20/22</u>	Time (24 hr): <u>12:25</u>
		<u>4-20-22</u>	<u>1330</u>

# Chain of Custody

Scheduled for: **03/15/2022**



Client: **Big Rivers Electric Corporation**  
**Reid/Green Station**

Report To:  
**Big Rivers Electric Corporation Reid/Green Station**  
**Chad Phillips**  
**PO Box 24**  
**Henderson, KY 42419**

Invoice To:  
**Big Rivers Electric Corporation Reid/Green Station**  
**Chad Phillips**  
**PO Box 24**  
**Henderson, KY 42419**

Project: **Green Landfill Semiannual Groundwater**

Phone: (270) 844-6000  
PWS ID#: \_\_\_\_\_  
State: \_\_\_\_\_

PO#: \_\_\_\_\_  
Quote# \_\_\_\_\_

Please Print Legibly

Collected by (Signature): \_\_\_\_\_  
\*required information\*

Compliance Monitoring? Yes \_\_\_ No \_\_\_

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Samples Chlorinated? Yes \_\_\_ No \_\_\_

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY	*required information*		Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
Workorder #	Date	Collection					
2033749							
Sample ID#	(mm/dd/yy)	Time (24 hr)					
2033749-07 C	<u>4/20/22</u>	<u>11:05</u>	Plastic 500mL pH<2 w/H2SO4	1	DUPLICATE	g / c	COD TOC
			Preservation Check: pH: <u>✓</u>				
2033749-07 D	<u>4/20/22</u>	<u>11:05</u>	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1	DUPLICATE	g / c	Radium 226 (sub)
			Preservation Check: pH: <u>✓</u>				
2033749-07 E	<u>4/20/22</u>	<u>11:05</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	DUPLICATE	g / c	Radium 228 (sub)
			Preservation Check: pH: <u>✓</u>				
2033749-07 F	<u>4/20/22</u>	<u>11:05</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	DUPLICATE	g / c	Radium 228 (sub)
			Preservation Check: pH: <u>✓</u>				
2033749-07 G	<u>4/20/22</u>	<u>11:05</u>	Plastic 1L pH<2 w/HNO3 (Sub)	1	DUPLICATE	g / c	Radium Total (sub)
			Preservation Check: pH: <u>✓</u>				
2033749-07 H	<u>4/20/22</u>	<u>11:05</u>	AG 250mL pH<2 w/H2SO4	1	DUPLICATE	g / c	TOC
			Preservation Check: pH: _____				

Preservation Check Performed by: PA

Field data collected by: Travis Speed Date (mm/dd/yy) 4/20/22 Time (24 hr) 11:05  
pH 6.37 Cond <sup>MS</sup> 1.80 Res Cl (mg/L) \_\_\_\_\_ Tot Cl (mg/L) \_\_\_\_\_ Free Cl (mg/L) \_\_\_\_\_  
Temp (oC) 15.55 or (oF) \_\_\_\_\_ Static Water Level \_\_\_\_\_ DO (mg/L) \_\_\_\_\_ Turb. (NTU) \_\_\_\_\_  
Flow (MGD) \_\_\_\_\_ or (CFS) \_\_\_\_\_ or (g/min) \_\_\_\_\_

Relinquished by: (Signature) Travis Speed Received by: (Signature) Amey Date (mm/dd/yy) 4/20/22 Time (24 hr) 1330

# Chain of Custody

Scheduled for: 03/15/2022



Client: **Big Rivers Electric Corporation**  
Reid/Green Station

Report To:  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Invoice To:  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Project: **Green Landfill Semiannual Groundwater**

Phone: (270) 844-6000  
PWS ID#: KY  
State: KY

PO#: \_\_\_\_\_  
Quote# \_\_\_\_\_

Please Print Legibly

Collected by (Signature): [Signature]  
\*required information\*

Compliance Monitoring? Yes  No

Samples Chlorinated? Yes  No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY	*required information*		Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
Workorder #	Date	Collection					
2033749	(mm/dd/yy):	Time (24 hr):					
Sample ID#							
2033749-08 A	<u>4/20/22</u>	<u>1210</u>	Plastic 500mL pH<2 w/HNO3	1	FIELD BLANK	g / c	Beryllium Tot 6020 Cadmium Tot 6020 Calcium Tot 6010B Barium Tot 6020 Chromium Tot 6020 Cobalt Tot 6020 Arsenic Tot 6020 Boron Tot 6010B Copper Tot 6020 Antimony Tot 6020 Lead Tot 6020 Lithium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Sodium Tot 6010B
			Preservation Check: pH : <u>✓</u>				
2033749-08 B	<u>4/20/22</u>	<u>1210</u>	Plastic 1L	1	FIELD BLANK	g / c	pH (Lab) Conductivity (Lab) TDS Sulfate 9056 Chloride 9056 Fluoride 9056
2033749-08 C	<u>4/20/22</u>	<u>1210</u>	Plastic 500mL pH<2 w/H2SO4	1	FIELD BLANK	g / c	COD TOC
			Preservation Check: pH : <u>✓</u>				
2033749-08 D	<u>4/20/22</u>	<u>1210</u>	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1	FIELD BLANK	g / c	Radium 226 (sub)
			Preservation Check: pH : <u>✓</u>				
2033749-08 E	<u>4/20/22</u>	<u>1210</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	FIELD BLANK	g / c	Radium 228 (sub)
			Preservation Check: pH : <u>✓</u>				

Preservation Check Performed by: All

Field data collected by: Phillip Hill Date (mm/dd/yy) 4/20/22 Time (24 hr) 1210

pH \_\_\_\_\_ Cond (umho) \_\_\_\_\_ Res Cl (mg/L) \_\_\_\_\_ Tot Cl (mg/L) \_\_\_\_\_ Free Cl (mg/L) \_\_\_\_\_

Temp (oC) \_\_\_\_\_ or (oF) \_\_\_\_\_ Static Water Level \_\_\_\_\_ DO (mg/L) \_\_\_\_\_ Turb. (NTU) \_\_\_\_\_

Flow (MGD) \_\_\_\_\_ or (CFS) \_\_\_\_\_ or (g/min) \_\_\_\_\_

Relinquished by: (Signature)	Received by: (Signature)	Date (mm/dd/yy)	Time (24 hr)
<u>[Signature]</u>	<u>[Signature]</u>	<u>4/20/22</u>	<u>12:25</u>
<u>[Signature]</u>	<u>[Signature]</u>	<u>4-20-22</u>	<u>1330</u>

# Chain of Custody



**Scheduled for: 03/15/2022**

**Client: Big Rivers Electric Corporation  
Reid/Green Station**

**Report To:**  
Big Rivers Electric Corporation Reid/Green  
Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

**Invoice To:**  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

**Project: Green Landfill Semiannual Groundwater**

Phone: (270) 844-6000  
PWS ID#: \_\_\_\_\_  
State: KY

PO#: \_\_\_\_\_  
Quote# \_\_\_\_\_

Please Print Legibly

Collected by (Signature): [Signature]  
\*required information\*

Compliance Monitoring? Yes  No

Samples Chlorinated? Yes  No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY Workorder # Sample ID#	*required information* Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
2033749-08 F	<u>4/20/22</u>	<u>1210</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	FIELD BLANK	g / c	Radium 228 (sub)
Preservation Check: pH: <u>✓</u>							
2033749-08 G	<u>4/20/22</u>	<u>1210</u>	Plastic 1L pH<2 w/HNO3 (Sub)	1	FIELD BLANK	g / c	Radium Total (sub)
Preservation Check: pH: <u>✓</u>							
2033749-08 H	<u>4/20/22</u>	<u>1210</u>	AG 250mL pH<2 w/H2SO4	1	FIELD BLANK	g / c	TOC
Preservation Check: pH: _____							

Preservation Check Performed by: AM

Field data collected by: _____	Date (mm/dd/yy) <u>4/20/22</u>	Time (24 hr) _____
pH _____	Cond (umho) _____	Res Cl (mg/L) _____
Temp (oC) _____	or (oF) _____	Static Water Level _____
Flow (MGD) _____	or (CFS) _____	or (g/min) _____
Tot Cl (mg/L) _____		Free Cl (mg/L) _____
DO (mg/L) _____		Turb. (NTU) _____

Relinquished by: (Signature) <u>[Signature]</u>	Received by: (Signature) <u>[Signature]</u>	Date (mm/dd/yy) <u>4/20/22</u>	Time (24 hr) <u>12:25</u>
<u>[Signature]</u>	<u>[Signature]</u>	<u>4-20-22</u>	<u>1330</u>

# Chain of Custody

Scheduled for: **03/15/2022**



Client: **Big Rivers Electric Corporation  
Reid/Green Station**

Report To:  
**Big Rivers Electric Corporation Reid/Green  
Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419**

Invoice To:  
**Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419**

Project: **Green Landfill Semiannual Groundwater**

Phone: (270) 844-6000

PWS ID#:

State: ky

PO#: \_\_\_\_\_

Quote# \_\_\_\_\_

Please Print Legibly

Collected by (Signature): *Travis Sneed*  
\*required information\*

Compliance Monitoring? Yes  No

Samples Chlorinated? Yes  No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY Workorder # 2033749 Sample ID#	*required information*		Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
	Date (mm/dd/yy):	Collection Time (24 hr):					
2033749-01 E	<u>04/09/22</u>	<u>9:10</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW1	g / c	Radium 228 (sub)
			Preservation Check: pH: <input checked="" type="checkbox"/>				
2033749-01 F	<u>04/09/22</u>	<u>9:10</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW1	g / c	Radium 228 (sub)
			Preservation Check: pH: <input checked="" type="checkbox"/>				
2033749-01 G	<u>04/09/22</u>	<u>9:10</u>	Plastic 1L pH<2 w/HNO3 (Sub)	1	MW1	g / c	Radium Total (sub)
			Preservation Check: pH: <input checked="" type="checkbox"/>				
2033749-01 H	<u>04/09/22</u>	<u>9:10</u>	AG 250mL pH<2 w/H2SO4	1	MW1	g / c	TOC
			Preservation Check: pH: <input checked="" type="checkbox"/>				

Preservation Check Performed by: *ael*

Field data collected by: *Travis Sneed* Date (mm/dd/yy) 04/09/22 Time (24 hr) 9:10  
pH 6.67 Cond <sup>MS</sup> 192.6 Res Cl (mg/L) \_\_\_\_\_ Tot Cl (mg/L) \_\_\_\_\_ Free Cl (mg/L) \_\_\_\_\_  
Temp (oC) 14.69 or (oF) \_\_\_\_\_ Static Water Level \_\_\_\_\_ DO (mg/L) \_\_\_\_\_ Turb. (NTU) \_\_\_\_\_  
Flow (MGD) \_\_\_\_\_ or (CFS) \_\_\_\_\_ or (g/min) \_\_\_\_\_

Relinquished by: (Signature) <u><i>Travis Sneed</i></u>	Received by: (Signature) <u><i>amy...</i></u>	Date (mm/dd/yy) <u>04/12/22</u>	Time (24 hr) <u>1330</u>
--	--	------------------------------------	-----------------------------

# Chain of Custody

Scheduled for: **03/15/2022**



Client: **Big Rivers Electric Corporation**  
**Reid/Green Station**

Report To:  
**Big Rivers Electric Corporation Reid/Green Station**  
**Chad Phillips**  
**PO Box 24**  
**Henderson, KY 42419**

Invoice To:  
**Big Rivers Electric Corporation Reid/Green Station**  
**Chad Phillips**  
**PO Box 24**  
**Henderson, KY 42419**

Project: **Green Landfill Semiannual Groundwater**

Phone: (270) 844-6000

PWS ID#:

State: Ky

PO#: \_\_\_\_\_

Quote# \_\_\_\_\_

Please Print Legibly

Collected by (Signature): Travis Sneed  
\*required information\*

Compliance Monitoring? Yes  No

Samples Chlorinated? Yes  No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY Workorder # 2033749 Sample ID#	*required information* Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
2033749-02 A	04-20-22	10:45	Plastic 500mL pH<2 w/HNO3	1	MW2	g / c	Beryllium Tot 6020 Cadmium Tot 6020 Calcium Tot 6010B Barium Tot 6020 Chromium Tot 6020 Cobalt Tot 6020 Arsenic Tot 6020 Boron Tot 6010B Copper Tot 6020 Antimony Tot 6020 Lead Tot 6020 Lithium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Sodium Tot 6010B
				Preservation Check: pH: <input checked="" type="checkbox"/>			
2033749-02 B	04-20-22	10:45	Plastic 1L	1	MW2	g / c	pH (Lab) Conductivity (Lab) TDS Sulfate 9056 Chloride 9056 Fluoride 9056
2033749-02 C	04-20-22	10:45	Plastic 500mL pH<2 w/H2SO4	1	MW2	g / c	COD TOC
				Preservation Check: pH: _____			
2033749-02 D	04-20-22	10:45	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1	MW2	g / c	Radium 226 (sub)
				Preservation Check: pH: <input checked="" type="checkbox"/>			
2033749-02 E	04-20-22	10:45	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW2	g / c	Radium 228 (sub)
				Preservation Check: pH: <input checked="" type="checkbox"/>			

Preservation Check Performed by: ALU

Field data collected by: Travis Sneed Date (mm/dd/yy) 04-20-22 Time (24 hr) 10:45

pH 6.37 Cond (umho) 25 Res Cl (mg/L) \_\_\_\_\_ Tot Cl (mg/L) \_\_\_\_\_ Free Cl (mg/L) \_\_\_\_\_

Temp (oC) 15.55 or (oF) \_\_\_\_\_ Static Water Level \_\_\_\_\_ DO (mg/L) \_\_\_\_\_ Turb. (NTU) \_\_\_\_\_

Flow (MGD) \_\_\_\_\_ or (CFS) \_\_\_\_\_ or (g/min) \_\_\_\_\_

Relinquished by: (Signature) Travis Sneed Received by: (Signature) Abby Lee Date (mm/dd/yy) 04/16/22 Time (24 hr) 1330

# Chain of Custody

Scheduled for: **03/15/2022**



Client: **Big Rivers Electric Corporation  
Reid/Green Station**

Report To:  
**Big Rivers Electric Corporation Reid/Green  
Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419**

Invoice To:  
**Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419**

Project: **Green Landfill Semiannual Groundwater**

Phone: (270) 844-6000

PWS ID#:

State: KY

PO#:

Quote#:

Please Print Legibly

Collected by (Signature): *Travis Speed*  
\*required information\*

Compliance Monitoring? Yes  No

Samples Chlorinated? Yes  No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY Workorder # 2033749 Sample ID#	*required information*		Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
	Date (mm/dd/yy):	Collection Time (24 hr):					
2033749-02 F	<u>04-20-22</u>	<u>10:45</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW2	g / c	Radium 228 (sub)
			Preservation Check: pH :	<input checked="" type="checkbox"/>			
2033749-02 G	<u>04-20-22</u>	<u>10:45</u>	Plastic 1L pH<2 w/HNO3 (Sub)	1	MW2	g / c	Radium Total (sub)
			Preservation Check: pH :	<input checked="" type="checkbox"/>			
2033749-02 H	<u>04-20-22</u>	<u>10:45</u>	AG 250mL pH<2 w/H2SO4	1	MW2	g / c	TOC
			Preservation Check: pH :	<input checked="" type="checkbox"/>			
2033749-03 A	<u>04-20-22</u>	<u>11:25</u>	Plastic 500mL pH<2 w/HNO3	1	MW3A	g / c	Beryllium Tot 6020 Cadmium Tot 6020 Calcium Tot 6010B Barium Tot 6020 Chromium Tot 6020 Cobalt Tot 6020 Arsenic Tot 6020 Boron Tot 6010B Copper Tot 6020 Antimony Tot 6020 Lead Tot 6020 Lithium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Sodium Tot 6010B
			Preservation Check: pH :	<input checked="" type="checkbox"/>			
2033749-03 B	<u>04-20-22</u>	<u>11:25</u>	Plastic 1L	1	MW3A	g / c	pH (Lab) Conductivity (Lab) TDS Sulfate 9056 Chloride 9056 Fluoride 9056

Preservation Check Performed by: *AS*

Field data collected by: *Travis Speed* Date (mm/dd/yy) 04-20-22 Time (24 hr) 10:45  
pH 6.37 Cond <sup>MS</sup> 1.80 Res Cl (mg/L) \_\_\_\_\_ Tot Cl (mg/L) \_\_\_\_\_ Free Cl (mg/L) \_\_\_\_\_  
Temp (oC) 15.55 or (oF) \_\_\_\_\_ Static Water Level \_\_\_\_\_ DO (mg/L) \_\_\_\_\_ Turb. (NTU) \_\_\_\_\_  
Flow (MGD) \_\_\_\_\_ or (CFS) \_\_\_\_\_ or (g/min) \_\_\_\_\_

Relinquished by: (Signature) <u><i>Travis Speed</i></u>	Received by: (Signature) <u><i>Ammyler</i></u>	Date (mm/dd/yy) <u>04/20/22</u>	Time (24 hr) <u>1330</u>
--	---	------------------------------------	-----------------------------

# Chain of Custody

Scheduled for: 03/15/2022



Client: Big Rivers Electric Corporation  
Reid/Green Station

Report To:  
Big Rivers Electric Corporation Reid/Green  
Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Invoice To:  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Project: Green Landfill Semiannual Groundwater

Phone: (270) 844-6000  
PWS ID#: \_\_\_\_\_  
State: KY

PO#: \_\_\_\_\_  
Quote# \_\_\_\_\_

Please Print Legibly

Collected by (Signature): [Signature]  
\*required information\*

Compliance Monitoring? Yes  No

Samples Chlorinated? Yes  No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY Workorder # 2033749 Sample ID#	*required information* Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
2033749-03 C	<u>4/20/22</u>	<u>1125</u>	Plastic 500mL pH<2 w/H2SO4	1	MW3A	g / c	COD TOC
			Preservation Check: pH :	<input checked="" type="checkbox"/>			
2033749-03 D	<u>4/20/22</u>	<u>1125</u>	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1	MW3A	g / c	Radium 226 (sub)
			Preservation Check: pH :	<input checked="" type="checkbox"/>			
2033749-03 E	<u>4/20/22</u>	<u>1125</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW3A	g / c	Radium 228 (sub)
			Preservation Check: pH :	<input checked="" type="checkbox"/>			
2033749-03 F	<u>4/20/22</u>	<u>1125</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW3A	g / c	Radium 228 (sub)
			Preservation Check: pH :	<input checked="" type="checkbox"/>			
2033749-03 G	<u>4/20/22</u>	<u>1125</u>	Plastic 1L pH<2 w/HNO3 (Sub)	1	MW3A	g / c	Radium Total (sub)
			Preservation Check: pH :	<input checked="" type="checkbox"/>			
2033749-03 H	<u>4/20/22</u>	<u>1125</u>	AG 250mL pH<2 w/H2SO4	1	MW3A	g / c	TOC
			Preservation Check: pH :	<input checked="" type="checkbox"/>			

Preservation Check Performed by: ALL

Field data collected by: Phillip Hill Date (mm/dd/yy) 4/20/22 Time (24 hr) 1125  
pH 6.68 Cond <sup>ns/L</sup> 7.78 Res Cl (mg/L) \_\_\_\_\_ Tot Cl (mg/L) \_\_\_\_\_ Free Cl (mg/L) \_\_\_\_\_  
Temp (oC) 14.87 or (oF) \_\_\_\_\_ Static Water Level \_\_\_\_\_ DO (mg/L) \_\_\_\_\_ Turb. (NTU) \_\_\_\_\_  
Flow (MGD) \_\_\_\_\_ or (CFS) \_\_\_\_\_ or (g/min) \_\_\_\_\_

Relinquished by: (Signature) <u>[Signature]</u>	Received by: (Signature) <u>[Signature]</u>	Date (mm/dd/yy) <u>4/20/22</u>	Time (24 hr) <u>12:25</u>
<u>[Signature]</u>	<u>[Signature]</u>	<u>4-20-22</u>	<u>1330</u>

# Chain of Custody

Scheduled for: 03/15/2022



Client: **Big Rivers Electric Corporation**  
Reid/Green Station

Report To:  
Big Rivers Electric Corporation Reid/Green  
Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Invoice To:  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Project: **Green Landfill Semiannual Groundwater**

Phone: (270) 844-6000  
PWS ID#: \_\_\_\_\_  
State: KY

PO#: \_\_\_\_\_  
Quote# \_\_\_\_\_

Please Print Legibly

Collected by (Signature): [Signature]  
\*required information\*

Compliance Monitoring? Yes  No

Samples Chlorinated? Yes  No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY Workorder # 2033749 Sample ID#	*required information* Date (mm/dd/yy): <u>4/20/22</u>	Collection Time (24 hr): <u>1010</u>	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
2033749-04 A	<u>4/20/22</u>	<u>1010</u>	Plastic 500mL pH<2 w/HNO3	1	MW4	g / c	Beryllium Tot 6020 Cadmium Tot 6020 Calcium Tot 6010B Barium Tct 6020 Chromium Tot 6020 Cobalt Tot 6020 Arsenic Tot 6020 Boron Tot 6010B Copper Tot 6020 Antimony Tot 6020 Lead Tot 6020 Lithium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Sodium Tot 6010B
			Preservation Check: pH: <input checked="" type="checkbox"/>				
2033749-04 B	<u>4/20/22</u>	<u>1010</u>	Plastic 1L	1	MW4	g / c	pH (Lab) Conductivity (Lab) TDS Sulfate 9056 Chloride 9056 Fluoride 9056
2033749-04 C	<u>4/20/22</u>	<u>1010</u>	Plastic 500mL pH<2 w/H2SO4	1	MW4	g / c	COD TOC
			Preservation Check: pH: _____				
2033749-04 D	<u>4/20/22</u>	<u>1010</u>	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1	MW4	g / c	Radium 226 (sub)
			Preservation Check: pH: <input checked="" type="checkbox"/>				
2033749-04 E	<u>4/20/22</u>	<u>1010</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW4	g / c	Radium 228 (sub)
			Preservation Check: pH: <input checked="" type="checkbox"/>				

Preservation Check Performed by: [Signature]

Field data collected by: Phillip Hill Date (mm/dd/yy) 4/20/22 Time (24 hr) 1010  
pH 6.68 Cond. 6.83 Res Cl (mg/L) \_\_\_\_\_ Tot Cl (mg/L) \_\_\_\_\_ Free Cl (mg/L) \_\_\_\_\_  
Temp (oC) 15.13 or (oF) \_\_\_\_\_ Static Water Level \_\_\_\_\_ DO (mg/L) \_\_\_\_\_ Turb. (NTU) \_\_\_\_\_  
Flow (MGD) \_\_\_\_\_ or (CFS) \_\_\_\_\_ or (g/min) \_\_\_\_\_

Relinquished by: (Signature) <u>[Signature]</u>	Received by: (Signature) <u>[Signature]</u>	Date (mm/dd/yy) <u>4/20/22</u>	Time (24 hr) <u>12:25</u>
<u>[Signature]</u>	<u>[Signature]</u>	<u>4-20-22</u>	<u>1330</u>

# Chain of Custody

Scheduled for: **03/15/2022**



Client: **Big Rivers Electric Corporation  
Reid/Green Station**

Report To:  
**Big Rivers Electric Corporation Reid/Green  
Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419**

Invoice To:  
**Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419**

Project: **Green Landfill Semiannual Groundwater**

Phone: **(270) 844-6000**  
PWS ID#: \_\_\_\_\_  
State: **KY**

PO#: \_\_\_\_\_  
Quote# \_\_\_\_\_

Please Print Legibly

Collected by (Signature): *[Signature]*  
\*required information\*

Compliance Monitoring? Yes  No

Samples Chlorinated? Yes  No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY Workorder # 2033749 Sample ID#	*required information* Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
2033749-04 F	<u>4/20/22</u>	<u>1010</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW4	g / c	Radium 228 (sub)
			Preservation Check: pH: <u>✓</u>				
2033749-04 G	<u>4/20/22</u>	<u>1010</u>	Plastic 1L pH<2 w/HNO3 (Sub)	1	MW4	g / c	Radium Total (sub)
			Preservation Check: pH: <u>✓</u>				
2033749-04 H	<u>4/20/22</u>	<u>1010</u>	AG 250mL pH<2 w/H2SO4	1	MW4	g / c	TOC
			Preservation Check: pH: <u>✓</u>				
2033749-05 A	<u>4/20/22</u>	<u>10:05</u>	Plastic 500mL pH<2 w/HNO3	1	MW5	g / c	Beryllium Tot 6020 Cadmium Tot 6020 Calcium Tot 6010B Barium Tot 6020 Chromium Tot 6020 Cobalt Tot 6020 Arsenic Tot 6020 Boron Tot 6010B Copper Tot 6020 Antimony Tot 6020 Lead Tot 6020 Lithium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Sodium Tot 6010B
			Preservation Check: pH: <u>✓</u>				
2033749-05 B	<u>4/20/22</u>	<u>10:05</u>	Plastic 1L	1	MW5	g / c	pH (Lab) Conductivity (Lab) TDS Sulfate 9056 Chloride 9056 Fluoride 9056

Preservation Check Performed by: *ACU*

Field data collected by: <u>Phillip Hill</u>	Date (mm/dd/yy) <u>4/20/22</u>	Time (24 hr) <u>1010</u>
pH <u>6.68</u>	Cond <sup>mka</sup> <u>6.83</u>	Res Cl (mg/L) _____
Temp (oC) <u>15.13</u>	or (oF) _____	Tot Cl (mg/L) _____
Flow (MGD) _____	or (CFS) _____	Free Cl (mg/L) _____
	or (g/min) _____	Static Water Level _____
		DO (mg/L) _____
		Turb. (NTU) _____

Relinquished by: (Signature) <u><i>[Signature]</i></u>	Received by: (Signature) <u><i>[Signature]</i></u>	Date (mm/dd/yy) <u>4/20/22</u>	Time (24 hr) <u>12:25</u>
		<u>4-20-22</u>	<u>1330</u>

# Chain of Custody

Scheduled for: 03/15/2022



Client: **Big Rivers Electric Corporation**  
Reid/Green Station

Report To:  
Big Rivers Electric Corporation Reid/Green  
Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Invoice To:  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Project: **Green Landfill Semiannual Groundwater**

Phone: (270) 844-6000

PWS ID#:

State: KY

PO#: \_\_\_\_\_

Quote# \_\_\_\_\_

Please Print Legibly

Collected by (Signature): Travis Speed  
\*required information\*

Compliance Monitoring? Yes  No

Samples Chlorinated? Yes  No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY Workorder # Sample ID#	*required information* Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
2033749-05 C	<u>04/20/22</u>	<u>10:05</u>	Plastic 500mL pH<2 w/H2SO4	1	MW5	g / c	COD TOC
Preservation Check: pH : <input checked="" type="checkbox"/>							
2033749-05 D	<u>04/20/22</u>	<u>10:05</u>	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1	MW5	g / c	Radium 226 (sub)
Preservation Check: pH : <input checked="" type="checkbox"/>							
2033749-05 E	<u>04/20/22</u>	<u>10:05</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW5	g / c	Radium 228 (sub)
Preservation Check: pH : <input checked="" type="checkbox"/>							
2033749-05 F	<u>04/20/22</u>	<u>10:05</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW5	g / c	Radium 228 (sub)
Preservation Check: pH : <input checked="" type="checkbox"/>							
2033749-05 G	<u>04/20/22</u>	<u>10:05</u>	Plastic 1L pH<2 w/HNO3 (Sub)	1	MW5	g / c	Radium Total (sub)
Preservation Check: pH : <input checked="" type="checkbox"/>							
2033749-05 H	<u>04/20/22</u>	<u>10:05</u>	AG 250mL pH<2 w/H2SO4	1	MW5	g / c	TOC
Preservation Check: pH : <input checked="" type="checkbox"/>							

Preservation Check Performed by: Ael

Field data collected by: Travis Speed Date (mm/dd/yy) 04/20/22 Time (24 hr) 10:05  
pH 6.59 Cond 7.5 6.03 Res Cl (mg/L) \_\_\_\_\_ Tot Cl (mg/L) \_\_\_\_\_ Free Cl (mg/L) \_\_\_\_\_  
Temp (oC) 13.54 or (oF) \_\_\_\_\_ Static Water Level \_\_\_\_\_ DO (mg/L) \_\_\_\_\_ Turb. (NTU) \_\_\_\_\_  
Flow (MGD) \_\_\_\_\_ or (CFS) \_\_\_\_\_ or (g/min) \_\_\_\_\_

Relinquished by: (Signature) <u>Travis Speed</u>	Received by: (Signature) <u>Ammy Z...</u>	Date (mm/dd/yy) <u>04/20/22</u>	Time (24 hr) <u>1330</u>
_____	_____	_____	_____
_____	_____	_____	_____

# Chain of Custody

Scheduled for: **03/15/2022**



Client: **Big Rivers Electric Corporation**  
**Reid/Green Station**

Report To:  
**Big Rivers Electric Corporation Reid/Green Station**  
**Chad Phillips**  
**PO Box 24**  
**Henderson, KY 42419**

Invoice To:  
**Big Rivers Electric Corporation Reid/Green Station**  
**Chad Phillips**  
**PO Box 24**  
**Henderson, KY 42419**

Project: **Green Landfill Semiannual Groundwater**

Phone: (270) 844-6000  
PWS ID#: \_\_\_\_\_  
State: KY

PO#: \_\_\_\_\_  
Quote# \_\_\_\_\_

Please Print Legibly

Collected by (Signature): [Signature] \*required information\*

Compliance Monitoring? Yes  No

Samples Chlorinated? Yes  No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY	*required information*		Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
Workorder #	Date	Collection					
<b>2033749</b>	(mm/dd/yy):	Time (24 hr):					
Sample ID#							
2033749-06 A	<u>4/20/22</u>	<u>920</u>	Plastic 500mL pH<2 w/HNO3	1	MW6	g / c	Beryllium Tot 6020 Cadmium Tot 6020 Calcium Tot 6010B Barium Tot 6020 Chromium Tot 6020 Cobalt Tot 6020 Arsenic Tot 6020 Boron Tot 6010B Copper Tot 6020 Antimony Tot 6020 Lead Tot 6020 Lithium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Sodium Tot 6010B
2033749-06 B	<u>4/20/22</u>	<u>920</u>	Plastic 1L	1	MW6	g / c	pH (Lab) Conductivity (Lab) TDS Sulfate 9056 Chloride 9056 Fluoride 9056
2033749-06 C	<u>4/20/22</u>	<u>920</u>	Plastic 500mL pH<2 w/H2SO4	1	MW6	g / c	COD TOC
2033749-06 D	<u>4/20/22</u>	<u>920</u>	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1	MW6	g / c	Radium 226 (sub)
2033749-06 E	<u>4/20/22</u>	<u>920</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW6	g / c	Radium 228 (sub)

Preservation Check Performed by: ALL

Field data collected by: <u>Phillip Hill</u>	Date (mm/dd/yy) <u>4/20/22</u>	Time (24 hr) <u>920</u>
pH <u>6.75</u>	Cond <u>5.14</u>	Res Cl (mg/L) _____
Temp (oC) <u>15.96</u>	or (oF) _____	Tot Cl (mg/L) _____
Flow (MGD) _____	or (CFS) _____	Free Cl (mg/L) _____
	or (g/min) _____	Static Water Level _____
		DO (mg/L) _____
		Turb. (NTU) _____

Relinquished by: (Signature)	Received by: (Signature)	Date (mm/dd/yy)	Time (24 hr)
<u>[Signature]</u>	<u>[Signature]</u>	<u>4/20/22</u>	<u>12:25</u>
<u>[Signature]</u>	<u>[Signature]</u>	<u>4-20-22</u>	<u>1330</u>

May 09, 2022

Rob Whittington  
Pace Analytical Madisonville  
825 Industrial Rd  
Madisonville, KY 42431

RE: Project: 2033749/Green Landfill Semiann  
Pace Project No.: 30482965

Dear Rob Whittington:

Enclosed are the analytical results for sample(s) received by the laboratory on April 22, 2022. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Amber D. Carr  
amber.carr@pacelabs.com  
(724)850-5600  
Project Manager

Enclosures

cc: Doug Wolfe, Pace Analytical Madisonville



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: 2033749/Green Landfill Semiann  
Pace Project No.: 30482965

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 460198  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE SUMMARY

Project: 2033749/Green Landfill Semiann

Pace Project No.: 30482965

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30482965001	2033749-01	Water	04/20/22 09:10	04/22/22 09:20
30482965002	2033749-02	Water	04/20/22 10:45	04/22/22 09:20
30482965003	2033749-03	Water	04/20/22 11:25	04/22/22 09:20
30482965004	2033749-04	Water	04/20/22 10:10	04/22/22 09:20
30482965005	2033749-05	Water	04/20/22 10:05	04/22/22 09:20
30482965006	2033749-06	Water	04/20/22 09:20	04/22/22 09:20
30482965007	2033749-07	Water	04/20/22 11:05	04/22/22 09:20
30482965008	2033749-08	Water	04/20/22 12:10	04/22/22 09:20

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 2033749/Green Landfill Semiann  
Pace Project No.: 30482965

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30482965001	2033749-01	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30482965002	2033749-02	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30482965003	2033749-03	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30482965004	2033749-04	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30482965005	2033749-05	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30482965006	2033749-06	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30482965007	2033749-07	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30482965008	2033749-08	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 2033749/Green Landfill Semiann  
Pace Project No.: 30482965

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: 2033749-01</b> <b>Lab ID: 30482965001</b> Collected: 04/20/22 09:10      Received: 04/22/22 09:20      Matrix: Water PWS:      Site ID:      Sample Type:						
Radium-226	EPA 903.1	<b>0.645 ± 0.483 (0.250)</b> C:NA T:92%	pCi/L	05/06/22 15:34	13982-63-3	
Radium-228	EPA 904.0	<b>1.71 ± 0.524 (0.682)</b> C:81% T:90%	pCi/L	05/06/22 12:32	15262-20-1	
Total Radium	Total Radium Calculation	<b>2.36 ± 1.01 (0.932)</b>	pCi/L	05/09/22 17:11	7440-14-4	

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: 2033749-02</b> <b>Lab ID: 30482965002</b> Collected: 04/20/22 10:45      Received: 04/22/22 09:20      Matrix: Water PWS:      Site ID:      Sample Type:						
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid was added to one of two bottles for the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were preserved <2 within the required 5 days of collection.						
Radium-226	EPA 903.1	<b>0.379 ± 0.495 (0.816)</b> C:NA T:95%	pCi/L	05/06/22 15:34	13982-63-3	
Radium-228	EPA 904.0	<b>0.895 ± 0.419 (0.717)</b> C:77% T:86%	pCi/L	05/06/22 12:32	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.27 ± 0.914 (1.53)</b>	pCi/L	05/09/22 17:11	7440-14-4	

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: 2033749-03</b> <b>Lab ID: 30482965003</b> Collected: 04/20/22 11:25      Received: 04/22/22 09:20      Matrix: Water PWS:      Site ID:      Sample Type:						
Radium-226	EPA 903.1	<b>0.627 ± 0.440 (0.212)</b> C:NA T:102%	pCi/L	05/06/22 15:34	13982-63-3	
Radium-228	EPA 904.0	<b>0.828 ± 0.390 (0.677)</b> C:81% T:93%	pCi/L	05/06/22 12:33	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.46 ± 0.830 (0.889)</b>	pCi/L	05/09/22 17:11	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 2033749/Green Landfill Semiann

Pace Project No.: 30482965

**Sample: 2033749-04**      **Lab ID: 30482965004**      Collected: 04/20/22 10:10      Received: 04/22/22 09:20      Matrix: Water  
PWS:      Site ID:      Sample Type:

Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were preserved <2 within the required 5 days of collection.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>0.681 ± 0.478 (0.231)</b> C:NA T:87%	pCi/L	05/06/22 15:34	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>1.87 ± 0.562 (0.709)</b> C:78% T:88%	pCi/L	05/06/22 12:33	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	<b>2.55 ± 1.04 (0.940)</b>	pCi/L	05/09/22 17:11	7440-14-4	

**Sample: 2033749-05**      **Lab ID: 30482965005**      Collected: 04/20/22 10:05      Received: 04/22/22 09:20      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>0.936 ± 0.541 (0.211)</b> C:NA T:93%	pCi/L	05/06/22 15:34	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>1.73 ± 0.560 (0.765)</b> C:79% T:90%	pCi/L	05/06/22 15:41	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	<b>2.67 ± 1.10 (0.976)</b>	pCi/L	05/09/22 17:11	7440-14-4	

**Sample: 2033749-06**      **Lab ID: 30482965006**      Collected: 04/20/22 09:20      Received: 04/22/22 09:20      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>0.000 ± 0.408 (0.830)</b> C:NA T:97%	pCi/L	05/06/22 15:34	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>0.404 ± 0.355 (0.721)</b> C:79% T:91%	pCi/L	05/06/22 15:41	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	<b>0.404 ± 0.763 (1.55)</b>	pCi/L	05/09/22 17:11	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 2033749/Green Landfill Semiann  
Pace Project No.: 30482965

Sample: 2033749-07		Lab ID: 30482965007	Collected: 04/20/22 11:05	Received: 04/22/22 09:20	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>0.303 ± 0.595 (1.07)</b> C:NA T:96%	pCi/L	05/06/22 15:34	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>0.662 ± 0.378 (0.690)</b> C:77% T:92%	pCi/L	05/06/22 15:41	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	<b>0.965 ± 0.973 (1.76)</b>	pCi/L	05/09/22 17:11	7440-14-4	

Sample: 2033749-08		Lab ID: 30482965008	Collected: 04/20/22 12:10	Received: 04/22/22 09:20	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>0.000 ± 0.505 (1.09)</b> C:NA T:87%	pCi/L	05/06/22 15:34	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>0.812 ± 0.439 (0.800)</b> C:76% T:91%	pCi/L	05/06/22 15:42	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	<b>0.812 ± 0.944 (1.89)</b>	pCi/L	05/09/22 17:11	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: 2033749/Green Landfill Semiann

Pace Project No.: 30482965

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QC Batch:	499614	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
		Laboratory:	Pace Analytical Services - Greensburg

Associated Lab Samples: 30482965001, 30482965002, 30482965003, 30482965004, 30482965005, 30482965006, 30482965007, 30482965008

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METHOD BLANK: 2418394 Matrix: Water

Associated Lab Samples: 30482965001, 30482965002, 30482965003, 30482965004, 30482965005, 30482965006, 30482965007, 30482965008

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.000 ± 0.298 (0.480) C:NA T:99%	pCi/L	05/06/22 15:20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: 2033749/Green Landfill Semiann  
Pace Project No.: 30482965

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Act - Activity

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

## REPORT OF LABORATORY ANALYSIS

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WO#: 30482965



30482965

Chain of Custody



Workorder: 2033749

Workorder Name: Green Landfill Semiannual

Owner Received Date: 4/20/2022

Results Requested By: 5/2/2022

Report To: Subcontract To: Requested Analysis

Pace Analytical Services, LLC  
825 Industrial Road  
Madisonville, KY 42409  
270-821-7375  
rob.whittington@pacelabs.com

Pace Analytical Services LLC Greensburg P/ 1638 Rosey Town Rd Suite 2,3,4 Greensburg, PA 15601 (724) 850-5615

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers			Radium Total	LAB USE ONLY
1										
2	2033749-01		04/20/22 09:10	IR44-McCoy	Water			X		001
3	2033749-02		04/20/22 10:45	IR44-McCoy	Water			X		002
4	2033749-03		04/20/22 11:25	IR44-McCoy	Water			X		003
5	2033749-04		04/20/22 10:10	IR44-McCoy	Water			X		004
6	2033749-05		04/20/22 10:05	IR44-McCoy	Water			X		005
7	2033749-06		04/20/22 09:20	IR44-McCoy	Water			X		006
8	2033749-07		04/20/22 11:05	IR44-McCoy	Water			X		007
9	2033749-08		04/20/22 12:10	IR44-McCoy	Water			X		008
10										

Transfers	Released By	Date/Time	Received By	Date/Time	Comments
1			<i>[Signature]</i>	4-22-22 9:20	
2					
3					

Cooler Temperature on Receipt 4.5 °C      Custody Seal Y or N      Received on Ice Y or N      Sample Intact Y or N

\*\*\*In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC

This chain of custody is considered complete as is since this information is available in the owner laboratory.

Friday, June 17, 2016 11:01:34 AM

FMT-ALL-C-002rev.00 24March2009

Page 1 of 1

**SUBCONTRACT ORDER**

Pace Analytical Services, LLC Kentucky  
2033749

**WO# : 30482965**

PM: ADC Due Date: 05/02/22  
CLIENT: PACE\_44\_MVKY

**SENDING LABORATORY:**

Pace Analytical Services, LLC Kentucky  
PO BOX 907  
Madisonville, KY 42431  
Phone: (270) 821-7375  
Fax: 844-270-7904  
Project Manager: Rob Whittington

**RECEIVING LABORATORY:**

Pace Analytical Services LLC Greensburg PA  
1638 Rosey Town Rd Suite 2,3,4  
Greensburg, PA 15601  
Phone :(724) 850-5615  
Fax:

Analysis	Expires	Laboratory ID	Comments
<b>Sample ID: 2033749-01</b>	<b>Water</b>	<b>Sampled:04/20/2022 09:10</b>	<b>Specific Method</b>
Radium 228 (sub)	10/17/2022 09:10	EPA 904.0 Radium Sum C	
Radium Total (sub)	10/17/2022 09:10	EPA 904.0 Radium Sum C	
Radium 226 (sub)	10/17/2022 09:10	EPA 903.1	
<b>Sample ID: 2033749-02</b>	<b>Water</b>	<b>Sampled:04/20/2022 10:45</b>	<b>Specific Method</b>
Radium 226 (sub)	10/17/2022 10:45	EPA 903.1	
Radium 228 (sub)	10/17/2022 10:45	EPA 904.0 Radium Sum C	
Radium Total (sub)	10/17/2022 10:45	EPA 904.0 Radium Sum C	
<b>Sample ID: 2033749-03</b>	<b>Water</b>	<b>Sampled:04/20/2022 11:25</b>	<b>Specific Method</b>
Radium 226 (sub)	10/17/2022 11:25	EPA 903.1	
Radium 228 (sub)	10/17/2022 11:25	EPA 904.0 Radium Sum C	
Radium Total (sub)	10/17/2022 11:25	EPA 904.0 Radium Sum C	
<b>Sample ID: 2033749-04</b>	<b>Water</b>	<b>Sampled:04/20/2022 10:10</b>	<b>Specific Method</b>
Radium Total (sub)	10/17/2022 10:10	EPA 904.0 Radium Sum C	
Radium 226 (sub)	10/17/2022 10:10	EPA 903.1	
Radium 228 (sub)	10/17/2022 10:10	EPA 904.0 Radium Sum C	
<b>Sample ID: 2033749-05</b>	<b>Water</b>	<b>Sampled:04/20/2022 10:05</b>	<b>Specific Method</b>
Radium 228 (sub)	10/17/2022 10:05	EPA 904.0 Radium Sum C	
Radium Total (sub)	10/17/2022 10:05	EPA 904.0 Radium Sum C	
Radium 226 (sub)	10/17/2022 10:05	EPA 903.1	

Released By: *Ammy Davis*
Date: *4-21-22*
Received By: *Z. Allen*
Date: *4-22-22 9:20*

Released By \_\_\_\_\_ Date \_\_\_\_\_ Received By \_\_\_\_\_ Date \_\_\_\_\_



Pittsburgh Lab Sample Condition Upon Receipt



Client Name: Pace Kentucky

Project # \_\_\_\_\_

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Label <u>2A</u>
LIMS Login <u>VP Inc</u>

Tracking #: 1Z0674570142090824+1Z0674570141489638

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Thermometer Used 16 Type of Ice:  Wet  Blue  None melted

Cooler Temperature Observed Temp 6.5 °C Correction Factor: 0.0 °C Final Temp: 6.5 °C  
Temp should be above freezing to 6°C 1.2 0.0 1.2

pH paper Lot# <u>10D4611</u>	Date and Initials of person examining contents: <u>4-23-22 JA</u>
---------------------------------	--

Comments:

	Yes	No	N/A	
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.
Chain of Custody Filled Out:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. <u>no container preservative type on COC</u>
Chain of Custody Relinquished:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3.
Sampler Name & Signature on COC:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4.
Sample Labels match COC:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. <u>no date or time on samples</u>
-Includes date/time/ID Matrix: <u>WT</u>				
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.
Short Hold Time Analysis (<72hr remaining):	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.
Rush Turn Around Time Requested:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8.
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.
Correct Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10.
-Pace Containers Used:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Containers Intact: <u>JA 4-23-22</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	11.
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	12.
Hex Cr Aqueous sample field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	13.
Organic Samples checked for dechlorination:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	14.
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	15.
All containers have been checked for preservation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16. <u>added 2.5 mL HNO3 to CO2 (one bottle), CO4 (two bottles)</u>
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix				
All containers meet method preservation requirements.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>JA</u> Date/time of preservation: <u>4-23-22 15:02</u>
				Lot # of added preservative: <u>DL22-0325</u>
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	17.
Trip Blank Present:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	18.
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Rad Samples Screened < 0.5 mrem/hr	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>JA</u> Date: <u>4-23-22</u> Survey Meter SN: <u>1563</u>

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

NO#: 30482965  
 PM: PDC  
 CLIENT: PACE\_44\_MVKY  
 Due Date: 05/02/22



Pace Greensburg Lab -Sample Container Count

**WO# : 30482965**

Client Pace Kentucky  
 Site 2033749

PM: ADC Due Date: 05/02/22  
 CLIENT: PACE\_44\_MVKY

Profile Number 1851  
 Notes

Sample Line Item	Matrix	AG1H	AG1S	AG1T	AG2U	AG3S	AG3U	AG5U	AG5T	BG1U	BG2U	BP1N	BP1U	BP2S	BP2U	BP3C	BP3I	BP3S	BP3U	DG9S	GCUB	VG9H	VG9T	VG9U	VOAK	WGFU	WGKU	ZPLC
1	WT											3																
2																												
3																												
4																												
5																												
6																												
7																												
8	WT											3																
9																												
10																												
11																												
12																												

Container Codes

Glass	
GJN	1 Gallon Jug with HNO3
AG5U	100mL amber glass unpreserved
AG5T	100mL amber glass Na Thiosulfate
GJN	1 Gallon Jug
AG1S	1L amber glass H2SO4
AG1H	1L amber glass HCl
AG1T	1L amber glass Na Thiosulfate
BG1U	1L clear glass unpreserved
AG3S	250mL amber glass H2SO4
AG3U	250mL amber glass unpreserved
DG9S	40mL amber VOA vial H2SO4
VG9U	40mL clear VOA vial
VG9T	40mL clear VOA vial Na Thiosulfate
VG9H	40mL clear VOA vial HCl
JGFU	4oz amber wide jar
WGFU	4oz wide jar unpreserved
BG2U	500mL clear glass unpreserved
AG2U	500mL amber glass unpreserved
WGKU	8oz wide jar unpreserved

Plastic / Misc.	
GCUB	1 Gallon Cubitainer
12GN	1/2 Gallon Cubitainer
SP5T	120mL Coliform Na Thiosulfate
BP1N	1L plastic HNO3
BP1U	1L plastic unpreserved
BP3S	250mL plastic H2SO4
BP3N	250mL plastic HNO3
BP3U	250mL plastic unpreserved
BP3C	250ml plastic NaOH
BP2S	500mL plastic H2SO4
BP2U	500mL plastic unpreserved
EZI	5g Encore
VOAK	Kit for Volatile Solid
I	Wiper/Swab
ZPLC	Ziploc Bag
WT	Water
SL	Solid
OL	Non-aqueous liquid
WP	Wipe

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**Certificate of Analysis**  
**2033750**

Chad Phillips  
Big Rivers Electric Corporation Reid/Green Station  
PO Box 24  
Henderson, KY 42419

Customer ID: 44-102032  
Report Printed: 06/02/2022 16:11

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Project Name: Green Landfill Semiannual Well MW104

Workorder: 2033750

Dear Chad Phillips

Enclosed are the analytical results for samples received by the laboratory 04/22/2022 13:16.

The results relate to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services LLC Kentucky - Madisonville

If you have any questions concerning this report, please feel free to contact me.



#460210 Madisonville, KY  
#460291 Pikeville, KY



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Rob Whittington, Project Manager

*This page is included as part of the Analytical Report and must be retained as a permanent record thereof.*



Pace Analytical Services, LLC

P.O. Box 907

Madisonville, KY 42431

270.821.7375

[www.pacelabs.com](http://www.pacelabs.com)

### SAMPLE SUMMARY

Lab ID	Client Sample ID/Alias	Matrix	Date Collected	Date Received	Sampled By
2033750-01	MW-104/	Groundwater	04/22/2022 10:45	04/22/2022 13:16	Phillip Hill
<u>LabNumber</u>	<u>Measurement</u>				<u>Value</u>
2033750-01	Field Conductance				8300
	Field pH				5.98
	Field Temp (C)				17.18



**ANALYTICAL RESULTS**

Lab Sample ID: **2033750-01**  
 Description: **MW-104**

Sample Collection Date Time: 04/22/2022 10:45  
 Sample Received Date Time: 04/22/2022 13:16

**Metals by SW846 6000 Series Methods Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	u	mg/L	0.005	0.002	SW846-6020 A	04/26/2022 08:18	04/29/2022 14:12	AKB
<b>Arsenic</b>	<b>0.0015</b>		mg/L	0.0010	0.0004	SW846-6020 A	04/26/2022 08:18	04/29/2022 14:12	AKB
<b>Barium</b>	<b>0.017</b>		mg/L	0.004	0.001	SW846-6020 A	04/26/2022 08:18	04/29/2022 14:12	AKB
Beryllium	ND	u	mg/L	0.0020	0.0010	SW846-6020 A	04/26/2022 08:18	04/29/2022 14:12	AKB
<b>Boron</b>	<b>0.25</b>		mg/L	0.10	0.10	SW846 6010 B	04/26/2022 08:18	05/02/2022 14:03	AKB
<b>Cadmium</b>	<b>0.0004</b>	J	mg/L	0.0010	0.0001	SW846-6020 A	04/26/2022 08:18	04/29/2022 14:12	AKB
<b>Calcium</b>	<b>486</b>	D	mg/L	40.0	13.0	SW846 6010 B	04/26/2022 08:18	05/03/2022 13:01	AKB
<b>Chromium</b>	<b>0.0010</b>	J	mg/L	0.0020	0.0006	SW846-6020 A	04/26/2022 08:18	04/29/2022 14:12	AKB
<b>Cobalt</b>	<b>0.005</b>		mg/L	0.004	0.004	SW846-6020 A	04/26/2022 08:18	04/29/2022 14:12	AKB
Copper	ND	u	mg/L	0.003	0.001	SW846-6020 A	04/26/2022 08:18	04/29/2022 14:12	AKB
<b>Iron</b>	<b>0.509</b>		mg/L	0.100	0.050	SW846 6010 B	04/26/2022 08:18	05/02/2022 14:03	AKB
Lead	ND	u	mg/L	0.002	0.0005	SW846-6020 A	04/26/2022 08:18	04/29/2022 14:12	AKB
<b>Lithium</b>	<b>0.03</b>		mg/L	0.02	0.005	SW846-6020 A	04/26/2022 08:18	04/29/2022 14:12	AKB
Mercury	ND	u	mg/L	0.0005	0.0002	SW846-6020 A	04/26/2022 08:18	04/29/2022 14:12	AKB
Molybdenum	ND	u	mg/L	0.01	0.002	SW846-6020 A	04/26/2022 08:18	04/29/2022 14:12	AKB
Selenium	ND	u	mg/L	0.003	0.001	SW846-6020 A	04/26/2022 08:18	04/29/2022 14:12	AKB
<b>Sodium</b>	<b>787</b>	D1	mg/L	26.0	10.0	SW846 6010 B	04/26/2022 08:18	05/03/2022 13:01	AKB
Thallium	ND	u	mg/L	0.0020	0.0001	SW846-6020 A	04/26/2022 08:18	04/29/2022 14:12	AKB

**Conventional Chemistry Analyses Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chemical Oxygen Demand</b>	<b>157</b>		mg/L	8	8	HACH 8000	05/03/2022 08:45	05/03/2022 12:16	KBZ
<b>pH (Lab)</b>	<b>6.69</b>	H3	Std. Units	0.10	0.10	4500-H+ B-2000	04/25/2022 14:50	04/25/2022 14:50	JLW
<b>Total Dissolved Solids</b>	<b>6500</b>		mg/L	50	50	2540 C-2011	04/26/2022 16:44	04/26/2022 16:44	HAG
<b>Total Organic Carbon</b>	<b>1.2</b>		mg/L	0.5	0.4	5310 C-2011	04/29/2022 09:47	05/02/2022 20:05	HMF

**Subcontracted Analyses**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>See Attached Subcontract Report</b>	<b>0.150</b>	_Sub	pCi/L			EPA 903.1	06/02/2022 16:04	06/02/2022 16:04	RCW
<b>See Attached Subcontract Report</b>	<b>0.560</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	06/02/2022 16:04	06/02/2022 16:04	RCW
<b>Radium</b>	<b>0.710</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	06/02/2022 16:04	06/02/2022 16:04	RCW
<b>See Attached Subcontract Report</b>	<b>0.710</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	06/02/2022 16:04	06/02/2022 16:04	RCW

**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chloride</b>	<b>3080</b>	D	mg/L	25.0	18.0	SW846 9056	05/02/2022 19:52	05/02/2022 19:52	CSC
<b>Fluoride</b>	<b>0.4</b>		mg/L	0.2	0.2	SW846 9056	05/02/2022 19:32	05/02/2022 19:32	CSC
<b>Sulfate</b>	<b>1100</b>	D	mg/L	100	50	SW846 9056	05/03/2022 16:05	05/03/2022 16:05	CSC

**Notes for work order 2033750**

- Samples collected by PACE personnel are done so in accordance with procedures set forth in PACE field services SOPs .
  - Results contained in this report are only representative of the samples received.
  - PACE does not provide interpretation of these results unless otherwise stated .
  - All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
  - All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
  - Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
  - The Chain of Custody document is included as part of this report.
  - All Library Search analytes should be regarded as tentative identification based on the presumptive evidence of the mass spectra.
- Concentrations reported are estimated values.

**Qualifiers**

_Sub	See subcontractors report.
D	Results reported from dilution.
D1	Sample required dilution due to high concentration of target analyte.
D2	Sample required dilution due to matrix interference.
H3	Sample received and analyzed past holding time.
J	Estimated value.
M1	Matrix spike recovery was high; the method control sample recovery was acceptable.
M2	Matrix spike recovery was low; the method control sample recovery was acceptable.
M3	The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.
U	Target analyte was analyzed for, but was below detection limit (the value associated with the qualifier is the laboratory method detection limit in our LIMS system).
Y2	MS/MSD RPD exceeded the method control limit. Recovery met acceptance criteria.

**Standard Qualifiers/Acronymns**

MDL	Method Detection Limit
MRL	Minimum Reporting Limit
ND	Not Detected
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
% Rec	Percent Recovery
RPD	Relative Percent Difference
>	Greater than
<	Less than



**Metals by SW846 6000 Series Methods Madisonville - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch BBD3029 - EPA 200.2**

**Blank (BBD3029-BLK1)**

Prepared: 4/25/2022 8:18, Analyzed: 4/29/2022 13:54

Molybdenum	ND	0.01	mg/L							U
Mercury	ND	0.0005	mg/L							U
Boron	ND	0.10	mg/L							U
Antimony	ND	0.005	mg/L							U
Calcium	ND	0.40	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Iron	ND	0.100	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Cobalt	ND	0.004	mg/L							U
Sodium	ND	0.26	mg/L							U
Copper	ND	0.003	mg/L							U
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U

**Blank (BBD3029-BLK2)**

Prepared: 4/25/2022 8:18, Analyzed: 5/2/2022 12:54

Boron	ND	0.10	mg/L							U
Calcium	ND	0.40	mg/L							U
Iron	ND	0.100	mg/L							U
Sodium	ND	0.26	mg/L							U

**LCS (BBD3029-BS1)**

Prepared: 4/25/2022 8:18, Analyzed: 4/29/2022 13:58

Molybdenum	0.06	0.01	mg/L	0.0625		102	85-115			
Mercury	0.0023	0.0005	mg/L	0.00250		93.2	85-115			
Antimony	0.062	0.005	mg/L	0.0625		98.5	85-115			
Boron	0.13	0.10	mg/L	0.125		103	85-115			
Calcium	6.39	0.40	mg/L	6.25		102	85-115			
Arsenic	0.0630	0.0010	mg/L	0.0625		101	85-115			
Iron	6.16	0.100	mg/L	6.25		98.6	85-115			
Barium	0.060	0.004	mg/L	0.0625		96.5	85-115			
Beryllium	0.0634	0.0020	mg/L	0.0625		101	85-115			
Cadmium	0.0616	0.0010	mg/L	0.0625		98.6	85-115			
Chromium	0.0622	0.0020	mg/L	0.0625		99.6	85-115			
Cobalt	0.062	0.004	mg/L	0.0625		98.7	85-115			
Sodium	6.29	0.26	mg/L	6.25		101	85-115			
Copper	0.062	0.003	mg/L	0.0625		99.6	85-115			
Lead	0.060	0.002	mg/L	0.0625		96.0	85-115			
Lithium	0.06	0.02	mg/L	0.0625		98.7	85-115			
Selenium	0.063	0.003	mg/L	0.0625		101	85-115			
Thallium	0.0610	0.0020	mg/L	0.0625		97.6	85-115			



**Metals by SW846 6000 Series Methods Madisonville - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch BBD3029 - EPA 200.2**

**LCS (BBD3029-BS2)**

Prepared: 4/25/2022 8:18, Analyzed: 5/2/2022 12:57

Boron	0.13	0.10	mg/L	0.125		103	85-115			
Calcium	6.39	0.40	mg/L	6.25		102	85-115			
Iron	6.16	0.100	mg/L	6.25		98.6	85-115			
Sodium	6.29	0.26	mg/L	6.25		101	85-115			

**Matrix Spike (BBD3029-MS1)**

**Source: 2033748-01**

Prepared: 4/25/2022 8:18, Analyzed: 4/29/2022 14:20

Molybdenum	0.07	0.10	mg/L	0.0625	ND	109	80-120			D2, J
Mercury	0.0027	0.0050	mg/L	0.00250	ND	106	80-120			D2, J
Antimony	0.066	0.050	mg/L	0.0625	ND	105	80-120			D2
Boron	0.99	0.10	mg/L	0.125	0.84	116	80-120			
Calcium	344	0.40	mg/L	6.25	315	468	80-120			M3
Arsenic	0.0673	0.0100	mg/L	0.0625	ND	108	80-120			D2
Iron	9.14	0.100	mg/L	6.25	2.89	100	80-120			
Barium	0.086	0.040	mg/L	0.0625	0.026	96.9	80-120			D2
Beryllium	0.0691	0.0200	mg/L	0.0625	ND	111	80-120			D2
Cadmium	0.0636	0.0100	mg/L	0.0625	ND	102	80-120			D2
Chromium	0.0655	0.0200	mg/L	0.0625	ND	105	80-120			D2
Cobalt	0.065	0.040	mg/L	0.0625	ND	104	80-120			D2
Sodium	ND	0.26	mg/L	6.25	1250	NR	80-120			M3, U
Copper	0.061	0.030	mg/L	0.0625	ND	98.0	80-120			D2
Lead	0.060	0.020	mg/L	0.0625	ND	95.5	80-120			D2
Lithium	0.12	0.20	mg/L	0.0625	0.05	191	80-120			D2, M1, J
Selenium	0.066	0.030	mg/L	0.0625	ND	106	80-120			D2
Thallium	0.0578	0.0200	mg/L	0.0625	ND	92.4	80-120			D2

**Matrix Spike (BBD3029-MS2)**

**Source: 2033748-01**

Prepared: 4/25/2022 8:18, Analyzed: 5/2/2022 14:10

Boron	0.99	0.10	mg/L	0.125	0.84	116	80-120			
Calcium	344	0.40	mg/L	6.25	315	468	80-120			M3
Iron	9.14	0.100	mg/L	6.25	2.89	100	80-120			
Sodium	ND	0.26	mg/L	6.25	1250	NR	80-120			M3, U



**Metals by SW846 6000 Series Methods Madisonville - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch BBD3029 - EPA 200.2**

**Matrix Spike Dup (BBD3029-MSD1) Source: 2033748-01**

Prepared: 4/25/2022 8:18, Analyzed: 4/29/2022 14:24

Antimony	0.076	0.050	mg/L	0.0625	ND	121	80-120	13.9	20	D2, M1
Boron	0.98	0.10	mg/L	0.125	0.84	106	80-120	1.21	20	
Mercury	0.0031	0.0050	mg/L	0.00250	ND	125	80-120	15.9	20	D2, M1, J
Molybdenum	0.08	0.10	mg/L	0.0625	ND	121	80-120	10.7	20	D2, M1, J
Calcium	340	0.40	mg/L	6.25	315	395	80-120	1.34	20	M3
Arsenic	0.0753	0.0100	mg/L	0.0625	ND	121	80-120	11.3	20	D2, M1
Barium	0.102	0.040	mg/L	0.0625	0.026	123	80-120	17.2	20	D2, M1
Iron	9.14	0.100	mg/L	6.25	2.89	100	80-120	0.0569	20	
Beryllium	0.0768	0.0200	mg/L	0.0625	ND	123	80-120	10.5	20	D2, M1
Cadmium	0.0735	0.0100	mg/L	0.0625	ND	118	80-120	14.5	20	D2
Chromium	0.0989	0.0200	mg/L	0.0625	ND	158	80-120	40.6	20	D2, M1, Y2
Sodium	ND	0.26	mg/L	6.25	1250	NR	80-120		20	M3, U
Cobalt	0.071	0.040	mg/L	0.0625	ND	114	80-120	9.48	20	D2
Copper	0.067	0.030	mg/L	0.0625	ND	107	80-120	8.90	20	D2
Lead	0.069	0.020	mg/L	0.0625	ND	110	80-120	13.8	20	D2
Lithium	0.13	0.20	mg/L	0.0625	0.05	213	80-120	10.6	20	D2, M1, J
Selenium	0.076	0.030	mg/L	0.0625	ND	121	80-120	13.6	20	D2, M1
Thallium	0.0686	0.0200	mg/L	0.0625	ND	110	80-120	17.2	20	D2

**Matrix Spike Dup (BBD3029-MSD2) Source: 2033748-01**

Prepared: 4/25/2022 8:18, Analyzed: 5/2/2022 14:13

Boron	0.98	0.10	mg/L	0.125	0.84	106	80-120	1.21	20	
Calcium	340	0.40	mg/L	6.25	315	395	80-120	1.34	20	M3
Iron	9.14	0.100	mg/L	6.25	2.89	100	80-120	0.0569	20	
Sodium	ND	0.26	mg/L	6.25	1250	NR	80-120		20	M3, U

**Post Spike (BBD3029-PS1) Source: 2033748-01**

Prepared: 4/25/2022 8:18, Analyzed: 4/29/2022 14:27

Molybdenum	67.2		ug/L	62.5	3.88	101	75-125			D2
Mercury	3.12		ug/L	2.50	1.91	48.5	75-125			D2, M2
Antimony	72.5		ug/L	62.5	0.414	115	75-125			D2
Boron	1010		ug/L	125	843	131	75-125			M1
Calcium	348000		ug/L	6250	315000	535	75-125			M3
Arsenic	66.3		ug/L	62.5	0.550	105	75-125			D2
Barium	100		ug/L	62.5	25.7	119	75-125			D2
Iron	9240		ug/L	6250	2890	102	75-125			
Beryllium	77.0		ug/L	62.5	-0.327	123	75-125			D2
Cadmium	69.8		ug/L	62.5	0.141	112	75-125			D2
Chromium	65.3		ug/L	62.5	0.413	104	75-125			D2
Cobalt	63.0		ug/L	62.5	0.139	101	75-125			D2
Sodium	0.00		ug/L	6250	1250000	NR	75-125			M3, U
Copper	77.6		ug/L	62.5	-1.74	124	75-125			D2
Lead	65.5		ug/L	62.5	-0.189	105	75-115			D2
Lithium	130		ug/L	62.5	47.2	132	75-125			D2, M1
Selenium	66.4		ug/L	62.5	0.640	105	75-125			D2
Thallium	66.6		ug/L	62.5	0.285	106	75-125			D2



**Metals by SW846 6000 Series Methods Madisonville - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch BBD3029 - EPA 200.2</b>										
<b>Post Spike (BBD3029-PS2)</b>		<b>Source: 2033748-01</b>								
Prepared: 4/25/2022 8:18, Analyzed: 5/2/2022 14:16										
Boron	1010		ug/L	125	843	131	75-125			M1
Calcium	348000		ug/L	6250	315000	535	75-125			M3
Iron	9240		ug/L	6250	2890	102	75-125			
Sodium	0.00		ug/L	6250	1250000	NR	75-125			M3, U



**Conventional Chemistry Analyses Madisonville - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch BBD3006 - Default Prep Wet Chem</b>										
<b>LCS (BBD3006-BS1)</b>										
Prepared: 4/25/2022 14:50, Analyzed: 4/25/2022 14:50										
pH (Lab)	7.94		Std. Units	8.00		99.2	98.8-101.2			
<b>LCS (BBD3006-BS2)</b>										
Prepared: 4/25/2022 14:50, Analyzed: 4/25/2022 14:50										
pH (Lab)	7.98		Std. Units	8.00		99.8	98.8-101.2			
<b>Duplicate (BBD3006-DUP1) Source: 2033748-04</b>										
Prepared: 4/25/2022 14:50, Analyzed: 4/25/2022 14:50										
pH (Lab)	6.90	0.10	Std. Units		6.89			0.145	10	H3
<b>Duplicate (BBD3006-DUP2) Source: 2043899-08</b>										
Prepared: 4/25/2022 14:50, Analyzed: 4/25/2022 14:50										
pH (Lab)	6.62	0.10	Std. Units		6.64			0.302	10	H3
<b>Batch BBD3081 - Default Prep Wet Chem</b>										
<b>Blank (BBD3081-BLK1)</b>										
Prepared: 4/26/2022 16:44, Analyzed: 4/26/2022 16:44										
Total Dissolved Solids	ND	25	mg/L							U
<b>LCS (BBD3081-BS1)</b>										
Prepared: 4/26/2022 16:44, Analyzed: 4/26/2022 16:44										
Total Dissolved Solids	1480	25	mg/L	1500		98.5	80-120			
<b>Duplicate (BBD3081-DUP1) Source: 2033746-01</b>										
Prepared: 4/26/2022 16:44, Analyzed: 4/26/2022 16:44										
Total Dissolved Solids	918	50	mg/L		936			1.94	10	
<b>Duplicate (BBD3081-DUP2) Source: 2044391-01</b>										
Prepared: 4/26/2022 16:44, Analyzed: 4/26/2022 16:44										
Total Dissolved Solids	632	50	mg/L		624			1.27	10	
<b>Batch BBD3696 - Default Prep Wet Chem</b>										
<b>Blank (BBD3696-BLK1)</b>										
Prepared: 5/2/2022 16:14, Analyzed: 5/2/2022 19:23										
Total Organic Carbon	ND	0.5	mg/L							U



Conventional Chemistry Analyses Madisonville - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch BBD3696 - Default Prep Wet Chem</b>										
<b>LCS (BBD3696-BS1)</b>										
Prepared: 5/2/2022 16:14, Analyzed: 5/2/2022 19:02										
Total Organic Carbon	5.0	0.5	mg/L	5.00		99.9	80-120			
<b>Duplicate (BBD3696-DUP1) Source: 2042653-01</b>										
Prepared: 5/2/2022 16:14, Analyzed: 5/3/2022 0:39										
Total Organic Carbon	0.7	0.5	mg/L		0.7			1.36	25	
<b>Duplicate (BBD3696-DUP2) Source: 2044517-01</b>										
Prepared: 5/2/2022 16:14, Analyzed: 5/3/2022 3:27										
Total Organic Carbon	ND	0.5	mg/L		ND				25	U
<b>Matrix Spike (BBD3696-MS1) Source: 2042653-02</b>										
Prepared: 5/2/2022 16:14, Analyzed: 5/3/2022 1:00										
Total Organic Carbon	3.3	0.5	mg/L	2.50	0.9	92.6	80-120			
<b>Matrix Spike (BBD3696-MS2) Source: 2044517-02</b>										
Prepared: 5/2/2022 16:14, Analyzed: 5/3/2022 3:48										
Total Organic Carbon	4.8	0.5	mg/L	5.00	ND	95.6	80-120			
<b>Batch BBE0042 - Default Prep Wet Chem</b>										
<b>Blank (BBE0042-BLK1)</b>										
Prepared: 5/3/2022 8:45, Analyzed: 5/3/2022 12:10										
Chemical Oxygen Demand	ND	8	mg/L							U
<b>LCS (BBE0042-BS1)</b>										
Prepared: 5/3/2022 8:45, Analyzed: 5/3/2022 12:10										
Chemical Oxygen Demand	132	8	mg/L	125		106	90-110			
<b>Duplicate (BBE0042-DUP1) Source: 2044794-05</b>										
Prepared: 5/3/2022 8:45, Analyzed: 5/3/2022 12:20										
Chemical Oxygen Demand	33	8	mg/L		31			5.33	25	
<b>Matrix Spike (BBE0042-MS1) Source: 2044794-05</b>										
Prepared: 5/3/2022 8:45, Analyzed: 5/3/2022 12:20										
Chemical Oxygen Demand	294	8	mg/L	250	31	105	90-110			



**Conventional Chemistry Analyses Madisonville - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch BBE0042 - Default Prep Wet Chem**

**Matrix Spike Dup (BBE0042-MSD1)**

**Source: 2044794-05**

Prepared: 5/3/2022 8:45, Analyzed: 5/3/2022 12:20

Chemical Oxygen Demand	288	8	mg/L	250	31	103	90-110	1.90	10	
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**Ion Chromatography Madisonville - Quality Control**

Analyte	Result	Reporting		Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
		Limit	Units							

**Batch BBE0160 - Default Prep IC**

**Blank (BBE0160-BLK1)**

Prepared: 5/2/2022 19:12, Analyzed: 5/2/2022 19:12

Chloride	ND	0.5	mg/L							U
Fluoride	ND	0.2	mg/L							U
Sulfate	ND	1	mg/L							U

**LCS (BBE0160-BS1)**

Prepared: 5/2/2022 18:51, Analyzed: 5/2/2022 18:51

Chloride	10.1		mg/L	10.0		101	90-110			
Fluoride	10.9		mg/L	10.0		109	90-110			
Sulfate	10		mg/L	10.0		101	90-110			

**Matrix Spike (BBE0160-MS1)**

Source: 2044663-01

Prepared: 5/2/2022 21:55, Analyzed: 5/2/2022 21:55

Fluoride	12.7		mg/L	10.0	0.9	117	75-125			
Chloride	16.4		mg/L	10.0	4.3	121	75-125			
Sulfate	17		mg/L	10.0	5	123	75-125			

**Matrix Spike Dup (BBE0160-MSD1)**

Source: 2044663-01

Prepared: 5/2/2022 22:15, Analyzed: 5/2/2022 22:15

Fluoride	12.7		mg/L	10.0	0.9	117	75-125	0.237	15	
Chloride	16.5		mg/L	10.0	4.3	122	75-125	0.461	15	
Sulfate	17		mg/L	10.0	5	123	75-125	0.312	15	

**Certified Analyses included in this Report**

Analyte	Certifications
<b>2540 C-2011 in Water</b>	
Total Dissolved Solids	KY Drinking Water Mdv (00030) VA NELAC MDV (460210) KY Wastewater Mdv (00030) TN Drinking Water (02819) WV Wastewater Madisonville (241), 825 Industrial Rd Madisonville, KY 42431
<b>4500-H+ B-2000 in Water</b>	
pH (Lab)	KY Drinking Water Mdv (00030) TN Drinking Water (02819)
<b>5310 C-2011 in Water</b>	
Total Organic Carbon	KY Drinking Water Mdv (00030) VA NELAC MDV (460210) KY Wastewater Mdv (00030) TN Drinking Water (02819) ADEM Drinking Water Mdv (41880) WV Wastewater Madisonville (241), 825 Industrial Rd Madisonville, KY 42431 AK Drinking Water MADV (KY00020)
<b>HACH 8000 in Water</b>	
Chemical Oxygen Demand	KY Wastewater Mdv (00030) VA NELAC MDV (460210) WV Wastewater Madisonville (241), 825 Industrial Rd Madisonville, KY 42431
<b>SW846 6010 B in Water</b>	
Calcium	VA NELAC MDV (460210)



**Sample Acceptance Checklist for Work Order 2033750**

Shipped By: Client

Temperature: 1.40° Celcius

**Condition**

Check if Custody Seals are Present/Intact	<input type="checkbox"/>
Check if Custody Signatures are Present	<input checked="" type="checkbox"/>
Check if Collector Signature Present	<input checked="" type="checkbox"/>
Check if bottles are intact	<input checked="" type="checkbox"/>
Check if bottles are correct	<input checked="" type="checkbox"/>
Check if bottles have sufficient volume	<input checked="" type="checkbox"/>
Check if samples received on ice	<input checked="" type="checkbox"/>
Check if VOA headspace is acceptable	<input type="checkbox"/>
Check if samples received in holding time.	<input checked="" type="checkbox"/>
Check if samples are preserved properly	<input checked="" type="checkbox"/>

# Chain of Custody

Scheduled for: 03/15/2022



Client: **Big Rivers Electric Corporation**  
Reid/Green Station

Report To:  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Invoice To:  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Project: **Green Landfill Semiannual Well MW104**

Phone: (270) 844-6000  
PWS ID#: \_\_\_\_\_  
State: KY

PO#: \_\_\_\_\_  
Quote# \_\_\_\_\_

Please Print Legibly

Collected by (Signature): [Signature]  
\*required information\*

Compliance Monitoring? Yes  No

Samples Chlorinated? Yes  No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY Workorder # 2033750 Sample ID#	*required information* Date (mm/dd/yy): Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
2033750-01 A	<u>4/22/22</u> <u>1045</u>	Plastic 500mL pH<2 w/HNO3	1	MW-104	g / c	Thallium Tot 6020 Antimony Tot 6020 Beryllium Tot 6020 Barium Tot 6020 Arsenic Tot 6020 Boron Tot 6010B Cadmium Tot 6020 Calcium Tot 6010B Chromium Tot 6020 Cobalt Tot 6020 Copper Tot 6020 Iron Tot 6010B Lead Tot 6020 Lithium Tot 6020 Mercury Tot 6020
		Preservation Check: pH: <u>✓</u>				
2033750-01 B	<u>4/22/22</u> <u>1045</u>	Plastic 1L	1	MW-104	g / c	Chloride 9056 Fluoride 9056 pH (Lab) Sulfate 9056 TDS
2033750-01 C	<u>4/22/22</u> <u>1045</u>	Plastic 500mL pH<2 w/H2SO4	1	MW-104	g / c	COD TOC
		Preservation Check: pH: <u>✓</u>				
2033750-01 D	<u>4/22/22</u> <u>1045</u>	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1	MW-104	g / c	Radium 226 (sub)
		Preservation Check: pH: <u>+</u>				
2033750-01 E	<u>4/22/22</u> <u>1045</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW-104	g / c	Radium 228 (sub)
		Preservation Check: pH: _____				

Preservation Check Performed by: [Signature]

Field data collected by: <u>Phillip Hill</u>	Date (mm/dd/yy) <u>4/22/22</u>	Time (24 hr) <u>1045</u>
pH <u>5.98</u>	Cond. (umho/cm) <u>8.30</u>	Res Cl (mg/L) _____
Temp (oC) <u>17.18</u>	or (oF) _____	Tot Cl (mg/L) _____
Flow (MGD) _____	or (CFS) _____	Free Cl (mg/L) _____
	or (g/min) _____	Static Water Level _____
		DO (mg/L) _____
		Turb. (NTU) _____

Relinquished by: (Signature) <u>[Signature]</u>	Received by: (Signature) <u>[Signature]</u>	Date (mm/dd/yy) <u>4/22/22</u>	Time (24 hr) <u>1316</u>
_____	_____	_____	_____
_____	_____	_____	_____

# Chain of Custody

Scheduled for: **03/15/2022**



Client: **Big Rivers Electric Corporation  
Reid/Green Station**

Report To:  
Big Rivers Electric Corporation Reid/Green  
Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Invoice To:  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Project: **Green Landfill Semiannual Well MW104**

Phone: (270) 844-6000

PWS ID#: \_\_\_\_\_  
State: KY

PO#: \_\_\_\_\_

Quote# \_\_\_\_\_

Please Print Legibly

Collected by (Signature): [Signature]  
\*required information\*

Compliance Monitoring? Yes  No

Samples Chlorinated? Yes  No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY Workorder # 2033750 Sample ID#	*required information* Date (mm/dd/yy): Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
2033750-01 F	<u>4/22/22</u> <u>1045</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW-104	g / c	Radium 228 (sub)
		Preservation Check: pH: <u>/</u>				
2033750-01 G	<u>4/22/22</u> <u>1045</u>	Plastic 1L pH<2 w/HNO3 (Sub)	1	MW-104	g / c	Radium Total (sub)
		Preservation Check: pH: <u>/</u>				
2033750-01 H	<u>4/22/22</u> <u>1045</u>	AG 250mL pH<2 w/H2SO4	1	MW-104	g / c	TOC
		Preservation Check: pH: <u>/</u>				

Thermometer Serial Number

181390287

181460057

Temp. 4 °C

Preservation Check Performed by: [Signature]

Field data collected by: <u>Phillip Hill</u>	Date (mm/dd/yy) _____	Time (24 hr) _____
pH _____	Cond (umho) <u>ms/c</u> _____	Res Cl (mg/L) _____
Temp (oC) _____	or (oF) _____	Static Water Level _____
Flow (MGD) _____	or (CFS) _____	or (g/min) _____
	Tot Cl (mg/L) _____	Free Cl (mg/L) _____
	DO (mg/L) _____	Turb. (NTU) _____

Relinquished by: (Signature) <u>[Signature]</u>	Received by: (Signature) <u>[Signature]</u>	Date (mm/dd/yy) <u>4/22/22</u>	Time (24 hr) <u>1316</u>
_____	_____	_____	_____
_____	_____	_____	_____

May 11, 2022

Rob Whittington  
Pace Analytical Madisonville  
825 Industrial Rd  
Madisonville, KY 42431

RE: Project: 2033750/Green Landfill Semiann  
Pace Project No.: 30483660

Dear Rob Whittington:

Enclosed are the analytical results for sample(s) received by the laboratory on April 26, 2022. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Amber D. Carr  
amber.carr@pacelabs.com  
(724)850-5600  
Project Manager

Enclosures

cc: Doug Wolfe, Pace Analytical Madisonville



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: 2033750/Green Landfill Semiann  
Pace Project No.: 30483660

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 460198  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE SUMMARY

Project: 2033750/Green Landfill Semiann

Pace Project No.: 30483660

<b>Lab ID</b>	<b>Sample ID</b>	<b>Matrix</b>	<b>Date Collected</b>	<b>Date Received</b>
30483660001	2033750-01	Water	04/22/22 10:45	04/26/22 10:20

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 2033750/Green Landfill Semiann  
Pace Project No.: 30483660

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30483660001	2033750-01	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 2033750/Green Landfill Semiann

Pace Project No.: 30483660

**Sample: 2033750-01**      **Lab ID: 30483660001**      Collected: 04/22/22 10:45      Received: 04/26/22 10:20      Matrix: Water  
PWS:      Site ID:      Sample Type:

Comments: • The preservative type is not listed on the COC.  
• Sample collection dates and times were not present on the sample containers.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	<b>0.150 ± 0.552 (1.06)</b> <b>C:NA T:96%</b>	pCi/L	05/09/22 13:33	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	<b>0.560 ± 0.375 (0.700)</b> <b>C:69% T:88%</b>	pCi/L	05/09/22 16:21	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	<b>0.710 ± 0.927 (1.76)</b>	pCi/L	05/10/22 18:05	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: 2033750/Green Landfill Semiann

Pace Project No.: 30483660

QC Batch: 501323

Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1

Analysis Description: 903.1 Radium-226

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30483660001

METHOD BLANK: 2426526

Matrix: Water

Associated Lab Samples: 30483660001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.110 ± 0.252 (0.595) C:NA T:91%	pCi/L	05/09/22 12:39	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: 2033750/Green Landfill Semiann

Pace Project No.: 30483660

QC Batch: 501324

Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0

Analysis Description: 904.0 Radium 228

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30483660001

METHOD BLANK: 2426528

Matrix: Water

Associated Lab Samples: 30483660001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.545 ± 0.406 (0.802) C:78% T:79%	pCi/L	05/09/22 12:45	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: 2033750/Green Landfill Semiann  
Pace Project No.: 30483660

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Act - Activity

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

Chain of Custody



Workorder: 2033750

Workorder Name: Green Landfill Semiannual

Owner Received Date: 4/22/2022

Results Requested By: 5/5/2022

Report To: Subcontract To: Requested Analysis

Pace Analytical Services, LLC  
 825 Industrial Road  
 Madisonville, KY 42409  
 270-821-7375  
 rob.whittington@pacelabs.com

Pace Analytical Services LLC Greensburg PA  
 1638 Rosey Town Rd Suite 2,3,4  
 Greensburg, PA 15601  
 (724) 850-5615

Preserved Containers

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Radium Total	Radium 228/Radium 226	LAB USE ONLY
1	2033750-01		04/22/22 10:45	IR44-McCoy	Water	X	X	001
2								
3								
4								
5								
6								
7								
8								
9								
10								

WO#: 30483660



Transfers	Released By	Date/Time	Received By	Date/Time	Comments
1			<i>E. Johnson</i>	4-26-22	10:20
2					
3					

Cooler Temperature on Receipt 14.4 °C    Custody Seal Y or (N)    Received on Ice (Y) or N    Sample Intact (Y) or N

\*\*\*In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC  
 This chain of custody is considered complete as is since this information is available in the owner laboratory.

**SUBCONTRACT ORDER**  
**Pace Analytical Services, LLC Kentucky**  
**2033750**

**SENDING LABORATORY:**

Pace Analytical Services, LLC Kentucky  
 PO BOX 907  
 Madisonville, KY 42431  
 Phone: (270) 821-7375  
 Fax: 844-270-7904  
 Project Manager: Rob Whittington

**RECEIVING LABORATORY:**

Pace Analytical Services LLC Greensburg PA  
 1638 Rosey Town Rd Suite 2,3,4  
 Greensburg, PA 15601  
 Phone :(724) 850-5615  
 Fax:

Analysis	Expires	Laboratory ID	Comments
<b>Sample ID: 2033750-01</b>	<b>Water</b>	<b>Sampled:04/22/2022 10:45</b>	<b>Specific Method</b>
Radium Total (sub)	10/19/2022 10:45	EPA 904.0 Radium Sum C	
Radium 228 (sub)	10/19/2022 10:45	EPA 904.0 Radium Sum C	
Radium 226 (sub)	10/19/2022 10:45	EPA 903.1	

**WO#: 30483660**  
 PM: ADC      Due Date: 05/05/22  
 CLIENT: PACE\_44\_MVKY

*ahmykari* 4-25-22  
 Released By \_\_\_\_\_ Date \_\_\_\_\_ Received By \_\_\_\_\_ Date \_\_\_\_\_

Released By \_\_\_\_\_ Date \_\_\_\_\_ Received By \_\_\_\_\_ Date \_\_\_\_\_

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: Pace Ky Project # \_\_\_\_\_

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: 120674570140314207

Label <u>2a</u>
LIMS Login <u>VPInc</u>

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Thermometer Used 14 Type of Ice: Wet Blue None melted

Cooler Temperature Observed Temp 16.4 °C Correction Factor: -0.5 °C Final Temp: 15.9 °C

Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and initials of person examining contents:	
	Yes	No	N/A	<u>10D2811</u>	
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.	
Chain of Custody Filled Out:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. <u>no container preservative type on COC</u>	
Chain of Custody Relinquished:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3.	
Sampler Name & Signature on COC:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4.	
Sample Labels match COC:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. <u>no date or time on samples</u>	
-Includes date/time/ID Matrix: <u>WT</u>					
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.	
Short Hold Time Analysis (<72hr remaining):	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.	
Rush Turn Around Time Requested:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8.	
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.	
Correct Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10.	
-Pace Containers Used:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11.	
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	12.	
Hex Cr Aqueous sample field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	13.	
Organic Samples checked for dechlorination:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	14.	
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	15.	
All containers have been checked for preservation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16. <u>pH 4.2</u>	
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix					
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>2a</u>	Date/time of preservation
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	17.	
Trip Blank Present:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	18.	
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Rad Samples Screened < 0.5 mrem/hr	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>2a</u>	Date: <u>4-29-22</u> Survey Meter SN: <u>1563</u>

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

W0#: 30483660  
 PM: ADC Due Date: 05/05/22  
 CLIENT: PACE\_44\_MVKY

Pace Greensburg Lab -Sample Container Count



Client Pace Kentucky

Profile Number 11851

Site 2033T50 / Big Rivers Electric Corporation Rent

Notes

Sample Line Item	Matrix	AG1H	AG1S	AG1T	AG2U	AG3S	AG3U	AG5U	AG5T	BG1U	BG2U	BP1N	BP1U	BP2S	BP2U	BP3C	BP3N	BP3S	BP3U	DG9S	GUCB	VG9H	VG9T	VG9U	VOAK	WGFU	WGKU	ZPLC
1	WT											3																
2																												
3																												
4																												
5																												
6																												
7																												
8																												
9																												
10																												
11																												
12																												

**WO#: 30483660**  
 PM: ADC Due Date: 05/05/22  
 CLIENT: PACE\_44\_MV KY

Container Codes

Glass	
GJN	1 Gallon Jug with HNO3
AG5U	100mL amber glass unprnserved
AG5T	100mL amber glass Na Thiosulfate
GJN	1 Gallon Jug
AG1S	1L amber glass H2SO4
AG1H	1L amber glass HCl
AG1T	1L amber glass Na Thiosulfate
BG1U	1L clear glass unprnserved
AG3S	250mL amber glass H2SO4
AG3U	250mL amber glass unprnserved
DG9S	40mL amber VOA vial H2SO4
VG9U	40mL clear VOA vial
VG9T	40mL clear VOA vial Na Thiosulfate
VG9H	40mL clear VOA vial HCl
JGFU	4oz amber wide jar
WGFU	4oz wide jar unprnserved
BG2U	500mL clear glass unprnserved
AG2U	500mL amber glass unprnserved
WGKU	8oz wide jar unprnserved

Plastic / Misc.	
GCUB	1 Gallon Cubitainer
12GN	1/2 Gallon Cubitainer
SP5T	120mL Collform Na Thiosulfate
BP1N	1L plastic HNO3
BP1U	1L plastic unprnserved
BP3S	250mL plastic H2SO4
BP3N	250mL plastic HNO3
BP3U	250mL plastic unprnserved
BP3C	250ml plastic NAOH
BP2S	500mL plastic H2SO4
BP2U	500mL plastic unprnserved
EZI	5g Encore
VOAK	Kit for Volatile Solid
I	Wipe/Swab
ZPLC	Ziploc Bag
WT	Water
SL	Solid
OL	Non-aqueous liquid
WP	Wipe



**Certificate of Analysis**  
**2094226**

Greg Dick  
Big Rivers Electric Corporation Reid/Green Station  
PO Box 24  
Henderson, KY 42419

Customer ID: 44-102032  
Report Printed: 01/04/2023 15:19

Project Name: Green Landfill Semiannual Groundwater	Workorder: 2094226
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Dear Greg Dick

Enclosed are the analytical results for samples received by the laboratory 12/12/2022 14:37.

The results relate to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services LLC Kentucky - Madisonville

If you have any questions concerning this report, please feel free to contact me.



#460210 Madisonville, KY  
#460291 Pikeville, KY

Rob Whittington, Project Manager

*This page is included as part of the Analytical Report and must be retained as a permanent record thereof.*



**SAMPLE SUMMARY**

Lab ID	Client Sample ID/Alias	Matrix	Date Collected	Date Received	Sampled By
2094226-01	MW1/	Groundwater	12/09/2022 11:00	12/12/2022 14:37	Greg Dick
2094226-02	MW2/	Groundwater	12/10/2022 14:00	12/12/2022 14:37	Greg Dick
2094226-03	MW3A/	Groundwater	12/10/2022 13:15	12/12/2022 14:37	Greg Dick
2094226-04	MW4/	Groundwater	12/10/2022 08:50	12/12/2022 14:37	Greg Dick
2094226-05	MW5/	Groundwater	12/09/2022 14:50	12/12/2022 14:37	Greg Dick
2094226-06	MW6/	Groundwater	12/09/2022 13:45	12/12/2022 14:37	Greg Dick
2094226-07	DUPLICATE/	Groundwater	12/09/2022 14:11	12/12/2022 14:37	Greg Dick
2094226-08	FIELD BLANK/	Water	12/10/2022 14:30	12/12/2022 14:37	Greg Dick

<u>LabNumber</u>	<u>Measurement</u>	<u>Value</u>
2094226-01	Field Conductance	939
	Field pH	7.62
	Field Temp (C)	16.97
2094226-02	Field Conductance	1850
	Field pH	6.92
	Field Temp (C)	16.40
2094226-03	Field Conductance	7220
	Field pH	6.99
	Field Temp (C)	16.10
2094226-04	Field Conductance	6360
	Field pH	7.05
	Field Temp (C)	14.40
2094226-05	Field Conductance	5880
	Field pH	6.94
	Field Temp (C)	16.17
2094226-06	Field Conductance	5000
	Field pH	6.88
	Field Temp (C)	17.45
2094226-07	Field Conductance	5000
	Field pH	6.88
	Field Temp (C)	17.45



**ANALYTICAL RESULTS**

Lab Sample ID: **2094226-01**  
 Description: **MW1**

Sample Collection Date Time: 12/09/2022 11:00  
 Sample Received Date Time: 12/12/2022 14:37

**Metals by SW846 6000 Series Methods Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	u	mg/L	0.005	0.002	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:07	AKB
<b>Arsenic</b>	<b>0.0008</b>	J	mg/L	0.0010	0.0004	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:07	AKB
<b>Barium</b>	<b>0.085</b>		mg/L	0.004	0.001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:07	AKB
Beryllium	ND	u	mg/L	0.0020	0.0010	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:07	AKB
<b>Boron</b>	<b>1.82</b>	D2, M1	mg/L	1.00	1.00	SW846 6010 B	12/14/2022 08:21	12/19/2022 15:22	MRWD
Cadmium	ND	u	mg/L	0.0010	0.0001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:07	AKB
<b>Calcium</b>	<b>31.2</b>	D2, M2	mg/L	4.00	1.30	SW846 6010 B	12/14/2022 08:21	12/19/2022 15:22	MRWD
Chromium	ND	u	mg/L	0.0020	0.0006	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:07	AKB
Cobalt	ND	u	mg/L	0.004	0.004	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:07	AKB
Copper	ND	u	mg/L	0.003	0.001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:07	AKB
Iron	ND	D2, u	mg/L	1.00	0.500	SW846 6010 B	12/14/2022 08:21	12/19/2022 15:22	MRWD
Lead	ND	u	mg/L	0.002	0.0005	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:07	AKB
<b>Lithium</b>	<b>0.03</b>		mg/L	0.02	0.005	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:07	AKB
Mercury	ND	u	mg/L	0.0005	0.0002	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:07	AKB
Molybdenum	ND	u	mg/L	0.01	0.002	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:07	AKB
Selenium	ND	u	mg/L	0.003	0.001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:07	AKB
<b>Sodium</b>	<b>204</b>	D1, M3	mg/L	26.0	10.0	SW846 6010 B	12/14/2022 08:21	12/19/2022 15:25	MRWD
Thallium	ND	u	mg/L	0.0020	0.0001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:07	AKB

**Conventional Chemistry Analyses Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chemical Oxygen Demand	ND	u	mg/L	8	8	HACH 8000	12/19/2022 09:58	12/20/2022 11:23	HMF
<b>Specific Conductance (Lab)</b>	<b>960</b>		umhos/cm	1	1	2510 B-2011	12/15/2022 12:19	12/15/2022 12:19	CML
<b>pH (Lab)</b>	<b>7.44</b>	H3	Std. Units	0.10	0.10	4500-H+ B-2000	12/15/2022 15:05	12/15/2022 15:05	CML
<b>Total Dissolved Solids</b>	<b>602</b>		mg/L	50	50	2540 C-2011	12/13/2022 13:51	12/13/2022 13:51	HAG
<b>Total Organic Carbon</b>	<b>1.3</b>		mg/L	0.5	0.4	5310 C-2011	12/23/2022 11:18	12/24/2022 08:34	HMF

**Subcontracted Analyses**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>See Attached Subcontract Report</b>	<b>0.123</b>	_Sub	pCi/L			EPA 903.1	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>See Attached Subcontract Report</b>	<b>1.34</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>Radium</b>	<b>1.46</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>See Attached Subcontract Report</b>	<b>1.46</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW

**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chloride</b>	<b>5.7</b>		mg/L	0.5	0.4	SW846 9056	12/20/2022 01:00	12/20/2022 01:00	CSC



**Pace Analytical Services, LLC**

P.O. Box 907

Madisonville, KY 42431

270.821.7375

[www.pacelabs.com](http://www.pacelabs.com)

**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Fluoride	0.6		mg/L	0.2	0.2	SW846 9056	12/20/2022 01:00	12/20/2022 01:00	CSC
Sulfate	30		mg/L	1	0.5	SW846 9056	12/20/2022 01:00	12/20/2022 01:00	CSC



**ANALYTICAL RESULTS**

Lab Sample ID: **2094226-02**  
 Description: **MW2**

Sample Collection Date Time: 12/10/2022 14:00  
 Sample Received Date Time: 12/12/2022 14:37

**Metals by SW846 6000 Series Methods Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	u	mg/L	0.005	0.002	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:09	AKB
<b>Arsenic</b>	<b>0.0501</b>		mg/L	0.0010	0.0004	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:09	AKB
<b>Barium</b>	<b>0.351</b>		mg/L	0.004	0.001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:09	AKB
Beryllium	ND	u	mg/L	0.0020	0.0010	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:09	AKB
Boron	ND	D2, U	mg/L	1.00	1.00	SW846 6010 B	12/14/2022 08:21	12/19/2022 15:28	MRWD
Cadmium	ND	u	mg/L	0.0010	0.0001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:09	AKB
<b>Calcium</b>	<b>216</b>	D1	mg/L	40.0	13.0	SW846 6010 B	12/14/2022 08:21	12/19/2022 15:31	MRWD
Chromium	ND	u	mg/L	0.0020	0.0006	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:09	AKB
Cobalt	ND	u	mg/L	0.004	0.004	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:09	AKB
Copper	ND	u	mg/L	0.003	0.001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:09	AKB
<b>Iron</b>	<b>12.4</b>	D2	mg/L	1.00	0.500	SW846 6010 B	12/14/2022 08:21	12/19/2022 15:28	MRWD
Lead	ND	u	mg/L	0.002	0.0005	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:09	AKB
<b>Lithium</b>	<b>0.006</b>	J	mg/L	0.02	0.005	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:09	AKB
Mercury	ND	u	mg/L	0.0005	0.0002	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:09	AKB
<b>Molybdenum</b>	<b>0.003</b>	J	mg/L	0.01	0.002	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:09	AKB
Selenium	ND	u	mg/L	0.003	0.001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:09	AKB
<b>Sodium</b>	<b>54.4</b>	D2	mg/L	2.60	1.00	SW846 6010 B	12/14/2022 08:21	12/19/2022 15:28	MRWD
Thallium	ND	u	mg/L	0.0020	0.0001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:09	AKB

**Conventional Chemistry Analyses Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chemical Oxygen Demand</b>	<b>15</b>		mg/L	8	8	HACH 8000	12/19/2022 09:58	12/20/2022 11:23	HMF
<b>Specific Conductance (Lab)</b>	<b>1780</b>		umhos/cm	1	1	2510 B-2011	12/15/2022 12:19	12/15/2022 12:19	CML
<b>pH (Lab)</b>	<b>6.73</b>	H3	Std. Units	0.10	0.10	4500-H+ B-2000	12/15/2022 15:05	12/15/2022 15:05	CML
<b>Total Dissolved Solids</b>	<b>1230</b>		mg/L	50	50	2540 C-2011	12/13/2022 13:51	12/13/2022 13:51	HAG
<b>Total Organic Carbon</b>	<b>1.5</b>		mg/L	0.5	0.4	5310 C-2011	12/23/2022 11:18	12/24/2022 08:55	HMF

**Subcontracted Analyses**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>See Attached Subcontract Report</b>	<b>0.454</b>	_Sub	pCi/L			EPA 903.1	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>See Attached Subcontract Report</b>	<b>1.14</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>Radium</b>	<b>1.59</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>See Attached Subcontract Report</b>	<b>1.59</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW

**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chloride</b>	<b>233</b>	D	mg/L	2.5	1.8	SW846 9056	12/20/2022 01:45	12/20/2022 01:45	CSC
<b>Fluoride</b>	<b>0.2</b>		mg/L	0.2	0.2	SW846 9056	12/20/2022 01:23	12/20/2022 01:23	CSC
<b>Sulfate</b>	<b>150</b>		mg/L	1	0.5	SW846 9056	12/20/2022 01:23	12/20/2022 01:23	CSC



**ANALYTICAL RESULTS**

Lab Sample ID: **2094226-03**  
 Description: **MW3A**

Sample Collection Date Time: 12/10/2022 13:15  
 Sample Received Date Time: 12/12/2022 14:37

**Metals by SW846 6000 Series Methods Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	u	mg/L	0.005	0.002	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:11	AKB
Arsenic	ND	u	mg/L	0.0010	0.0004	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:11	AKB
<b>Barium</b>	<b>0.040</b>		mg/L	0.004	0.001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:11	AKB
Beryllium	ND	u	mg/L	0.0020	0.0010	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:11	AKB
Boron	ND	d2, u	mg/L	1.00	1.00	SW846 6010 B	12/14/2022 08:21	12/19/2022 15:34	MRWD
Cadmium	ND	u	mg/L	0.0010	0.0001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:11	AKB
<b>Calcium</b>	<b>553</b>	D1	mg/L	40.0	13.0	SW846 6010 B	12/14/2022 08:21	12/19/2022 15:38	MRWD
Chromium	ND	u	mg/L	0.0020	0.0006	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:11	AKB
Cobalt	ND	u	mg/L	0.004	0.004	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:11	AKB
<b>Copper</b>	<b>0.001</b>	J	mg/L	0.003	0.001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:11	AKB
Iron	ND	d2, u	mg/L	1.00	0.500	SW846 6010 B	12/14/2022 08:21	12/19/2022 15:34	MRWD
Lead	ND	u	mg/L	0.002	0.0005	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:11	AKB
<b>Lithium</b>	<b>0.61</b>		mg/L	0.02	0.005	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:11	AKB
Mercury	ND	u	mg/L	0.0005	0.0002	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:11	AKB
Molybdenum	ND	u	mg/L	0.01	0.002	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:11	AKB
Selenium	ND	u	mg/L	0.003	0.001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:11	AKB
<b>Sodium</b>	<b>326</b>	D1	mg/L	26.0	10.0	SW846 6010 B	12/14/2022 08:21	12/19/2022 15:38	MRWD
Thallium	ND	u	mg/L	0.0020	0.0001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:11	AKB

**Conventional Chemistry Analyses Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chemical Oxygen Demand</b>	<b>123</b>		mg/L	8	8	HACH 8000	12/19/2022 09:58	12/20/2022 11:23	HMF
<b>Specific Conductance (Lab)</b>	<b>7270</b>		umhos/cm	1	1	2510 B-2011	12/15/2022 12:19	12/15/2022 12:19	CML
<b>pH (Lab)</b>	<b>6.91</b>	H3	Std. Units	0.10	0.10	4500-H+ B-2000	12/15/2022 15:05	12/15/2022 15:05	CML
<b>Total Dissolved Solids</b>	<b>5350</b>		mg/L	25	25	2540 C-2011	12/17/2022 07:08	12/17/2022 07:08	HAG
<b>Total Organic Carbon</b>	<b>0.5</b>		mg/L	0.5	0.4	5310 C-2011	12/23/2022 11:18	12/24/2022 09:16	HMF

**Subcontracted Analyses**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>See Attached Subcontract Report</b>	<b>0.208</b>	_Sub	pCi/L			EPA 903.1	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>See Attached Subcontract Report</b>	<b>2.09</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>Radium</b>	<b>2.30</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>See Attached Subcontract Report</b>	<b>2.30</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW

**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chloride</b>	<b>2530</b>	D	mg/L	25.0	18.0	SW846 9056	12/20/2022 02:52	12/20/2022 02:52	CSC
<b>Fluoride</b>	<b>0.4</b>		mg/L	0.2	0.2	SW846 9056	12/20/2022 02:07	12/20/2022 02:07	CSC
<b>Sulfate</b>	<b>1720</b>	D	mg/L	50	25	SW846 9056	12/20/2022 02:52	12/20/2022 02:52	CSC



**ANALYTICAL RESULTS**

Lab Sample ID: **2094226-04**  
 Description: **MW4**

Sample Collection Date Time: 12/10/2022 08:50  
 Sample Received Date Time: 12/12/2022 14:37

**Metals by SW846 6000 Series Methods Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	u	mg/L	0.005	0.002	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:14	AKB
Arsenic	ND	u	mg/L	0.0010	0.0004	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:14	AKB
<b>Barium</b>	<b>0.025</b>		mg/L	0.004	0.001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:14	AKB
Beryllium	ND	u	mg/L	0.0020	0.0010	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:14	AKB
<b>Boron</b>	<b>1.26</b>	D2	mg/L	1.00	1.00	SW846 6010 B	12/14/2022 08:21	12/20/2022 13:16	MRWD
Cadmium	ND	u	mg/L	0.0010	0.0001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:14	AKB
<b>Calcium</b>	<b>871</b>	D1	mg/L	40.0	13.0	SW846 6010 B	12/14/2022 08:21	12/19/2022 15:53	MRWD
<b>Chromium</b>	<b>0.0006</b>	J	mg/L	0.0020	0.0006	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:14	AKB
Cobalt	ND	u	mg/L	0.004	0.004	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:14	AKB
Copper	ND	u	mg/L	0.003	0.001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:14	AKB
Iron	ND	D2, u	mg/L	1.00	0.500	SW846 6010 B	12/14/2022 08:21	12/19/2022 15:50	MRWD
Lead	ND	u	mg/L	0.002	0.0005	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:14	AKB
<b>Lithium</b>	<b>1.10</b>	D1	mg/L	0.04	0.01	SW846-6020 A	12/14/2022 08:21	12/19/2022 12:35	AKB
<b>Mercury</b>	<b>0.0007</b>		mg/L	0.0005	0.0002	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:14	AKB
Molybdenum	ND	u	mg/L	0.01	0.002	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:14	AKB
<b>Selenium</b>	<b>0.002</b>	J	mg/L	0.003	0.001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:14	AKB
<b>Sodium</b>	<b>320</b>	D1	mg/L	26.0	10.0	SW846 6010 B	12/14/2022 08:21	12/19/2022 15:53	MRWD
Thallium	ND	u	mg/L	0.0020	0.0001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:14	AKB

**Conventional Chemistry Analyses Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chemical Oxygen Demand</b>	<b>95</b>		mg/L	8	8	HACH 8000	12/19/2022 09:58	12/20/2022 11:23	HMF
<b>Specific Conductance (Lab)</b>	<b>6110</b>		umhos/cm	1	1	2510 B-2011	12/15/2022 12:19	12/15/2022 12:19	CML
<b>pH (Lab)</b>	<b>6.88</b>	H3	Std. Units	0.10	0.10	4500-H+ B-2000	12/15/2022 15:05	12/15/2022 15:05	CML
<b>Total Dissolved Solids</b>	<b>3850</b>		mg/L	25	25	2540 C-2011	12/17/2022 07:08	12/17/2022 07:08	HAG
<b>Total Organic Carbon</b>	<b>0.7</b>		mg/L	0.5	0.4	5310 C-2011	12/23/2022 11:18	12/24/2022 09:37	HMF

**Subcontracted Analyses**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>See Attached Subcontract Report</b>	<b>0.168</b>	_Sub	pCi/L			EPA 903.1	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>See Attached Subcontract Report</b>	<b>1.43</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>Radium</b>	<b>1.60</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>See Attached Subcontract Report</b>	<b>1.60</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW

**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chloride</b>	<b>2270</b>	D	mg/L	25.0	18.0	SW846 9056	12/20/2022 12:26	12/20/2022 12:26	CSC
<b>Fluoride</b>	<b>0.2</b>		mg/L	0.2	0.2	SW846 9056	12/20/2022 12:03	12/20/2022 12:03	CSC
<b>Sulfate</b>	<b>2500</b>	D	mg/L	20	10	SW846 9056	12/20/2022 00:12	12/20/2022 00:12	CSC



**ANALYTICAL RESULTS**

Lab Sample ID: **2094226-05**  
 Description: **MW5**

Sample Collection Date Time: 12/09/2022 14:50  
 Sample Received Date Time: 12/12/2022 14:37

**Metals by SW846 6000 Series Methods Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	u	mg/L	0.005	0.002	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:16	AKB
Arsenic	ND	u	mg/L	0.0010	0.0004	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:16	AKB
<b>Barium</b>	<b>0.012</b>		mg/L	0.004	0.001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:16	AKB
Beryllium	ND	u	mg/L	0.0020	0.0010	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:16	AKB
Boron	ND	d2, v1, u	mg/L	1.00	1.00	SW846 6010 B	12/14/2022 08:21	12/19/2022 15:57	MRWD
Cadmium	ND	u	mg/L	0.0010	0.0001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:16	AKB
<b>Calcium</b>	<b>561</b>	D1	mg/L	40.0	13.0	SW846 6010 B	12/14/2022 08:21	12/19/2022 16:00	MRWD
Chromium	ND	u	mg/L	0.0020	0.0006	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:16	AKB
Cobalt	ND	u	mg/L	0.004	0.004	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:16	AKB
Copper	ND	u	mg/L	0.003	0.001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:16	AKB
Iron	ND	d2, u	mg/L	1.00	0.500	SW846 6010 B	12/14/2022 08:21	12/19/2022 15:57	MRWD
Lead	ND	u	mg/L	0.002	0.0005	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:16	AKB
<b>Lithium</b>	<b>0.33</b>		mg/L	0.02	0.005	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:16	AKB
Mercury	ND	u	mg/L	0.0005	0.0002	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:16	AKB
Molybdenum	ND	u	mg/L	0.01	0.002	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:16	AKB
Selenium	ND	u	mg/L	0.003	0.001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:16	AKB
<b>Sodium</b>	<b>224</b>	D1	mg/L	26.0	10.0	SW846 6010 B	12/14/2022 08:21	12/19/2022 16:00	MRWD
Thallium	ND	u	mg/L	0.0020	0.0001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:16	AKB

**Conventional Chemistry Analyses Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chemical Oxygen Demand</b>	<b>46</b>		mg/L	8	8	HACH 8000	12/19/2022 09:58	12/20/2022 11:23	HMF
<b>Specific Conductance (Lab)</b>	<b>5830</b>		umhos/cm	1	1	2510 B-2011	12/15/2022 12:19	12/15/2022 12:19	CML
<b>pH (Lab)</b>	<b>6.90</b>	H3	Std. Units	0.10	0.10	4500-H+ B-2000	12/15/2022 15:05	12/15/2022 15:05	CML
<b>Total Dissolved Solids</b>	<b>4630</b>	H2	mg/L	25	25	2540 C-2011	12/17/2022 07:08	12/17/2022 07:08	HAG
<b>Total Organic Carbon</b>	<b>0.7</b>		mg/L	0.5	0.4	5310 C-2011	12/23/2022 11:18	12/24/2022 09:58	HMF

**Subcontracted Analyses**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
See Attached Subcontract Report	0.00	_Sub	pCi/L			EPA 903.1	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>See Attached Subcontract Report</b>	<b>1.37</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>Radium</b>	<b>1.37</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>See Attached Subcontract Report</b>	<b>1.37</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW

**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chloride</b>	<b>1930</b>	D	mg/L	25.0	18.0	SW846 9056	12/20/2022 13:10	12/20/2022 13:10	CSC
<b>Fluoride</b>	<b>0.2</b>		mg/L	0.2	0.2	SW846 9056	12/20/2022 12:48	12/20/2022 12:48	CSC
<b>Sulfate</b>	<b>3080</b>	D	mg/L	20	10	SW846 9056	12/20/2022 01:01	12/20/2022 01:01	CSC



**ANALYTICAL RESULTS**

Lab Sample ID: **2094226-06**  
 Description: **MW6**

Sample Collection Date Time: 12/09/2022 13:45  
 Sample Received Date Time: 12/12/2022 14:37

**Metals by SW846 6000 Series Methods Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	u	mg/L	0.005	0.002	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:18	AKB
Arsenic	ND	u	mg/L	0.0010	0.0004	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:18	AKB
<b>Barium</b>	<b>0.010</b>		mg/L	0.004	0.001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:18	AKB
Beryllium	ND	u	mg/L	0.0020	0.0010	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:18	AKB
Boron	ND	d2, v1, u	mg/L	1.00	1.00	SW846 6010 B	12/14/2022 08:21	12/19/2022 16:03	MRWD
Cadmium	ND	u	mg/L	0.0010	0.0001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:18	AKB
<b>Calcium</b>	<b>474</b>	D1	mg/L	40.0	13.0	SW846 6010 B	12/14/2022 08:21	12/19/2022 16:06	MRWD
Chromium	ND	u	mg/L	0.0020	0.0006	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:18	AKB
Cobalt	ND	u	mg/L	0.004	0.004	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:18	AKB
Copper	ND	u	mg/L	0.003	0.001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:18	AKB
Iron	ND	d2, u	mg/L	1.00	0.500	SW846 6010 B	12/14/2022 08:21	12/19/2022 16:03	MRWD
Lead	ND	u	mg/L	0.002	0.0005	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:18	AKB
<b>Lithium</b>	<b>0.04</b>		mg/L	0.02	0.005	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:18	AKB
Mercury	ND	u	mg/L	0.0005	0.0002	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:18	AKB
Molybdenum	ND	u	mg/L	0.01	0.002	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:18	AKB
Selenium	ND	u	mg/L	0.003	0.001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:18	AKB
<b>Sodium</b>	<b>476</b>	D1	mg/L	26.0	10.0	SW846 6010 B	12/14/2022 08:21	12/19/2022 16:06	MRWD
Thallium	ND	u	mg/L	0.0020	0.0001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:18	AKB

**Conventional Chemistry Analyses Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chemical Oxygen Demand</b>	<b>17</b>		mg/L	8	8	HACH 8000	12/19/2022 09:58	12/20/2022 11:23	HMF
<b>Specific Conductance (Lab)</b>	<b>4880</b>		umhos/cm	1	1	2510 B-2011	12/15/2022 12:19	12/15/2022 12:19	CML
<b>pH (Lab)</b>	<b>6.79</b>	H3	Std. Units	0.10	0.10	4500-H+ B-2000	12/15/2022 15:05	12/15/2022 15:05	CML
<b>Total Dissolved Solids</b>	<b>4560</b>	H2	mg/L	25	25	2540 C-2011	12/17/2022 07:08	12/17/2022 07:08	HAG
<b>Total Organic Carbon</b>	<b>2.4</b>		mg/L	0.5	0.4	5310 C-2011	12/23/2022 11:18	12/24/2022 10:19	HMF

**Subcontracted Analyses**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
See Attached Subcontract Report	0.00	_Sub	pCi/L			EPA 903.1	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>See Attached Subcontract Report</b>	<b>1.29</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>Radium</b>	<b>1.29</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>See Attached Subcontract Report</b>	<b>1.29</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW

**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chloride</b>	<b>204</b>	D	mg/L	5.0	3.6	SW846 9056	12/20/2022 01:50	12/20/2022 01:50	CSC
<b>Fluoride</b>	<b>0.5</b>		mg/L	0.2	0.2	SW846 9056	12/20/2022 13:33	12/20/2022 13:33	CSC
<b>Sulfate</b>	<b>3030</b>	D	mg/L	100	50	SW846 9056	12/20/2022 13:55	12/20/2022 13:55	CSC



**ANALYTICAL RESULTS**

Lab Sample ID: **2094226-07**  
 Description: **DUPLICATE**

Sample Collection Date Time: 12/09/2022 14:11  
 Sample Received Date Time: 12/12/2022 14:37

**Metals by SW846 6000 Series Methods Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	u	mg/L	0.005	0.002	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:21	AKB
Arsenic	ND	u	mg/L	0.0010	0.0004	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:21	AKB
<b>Barium</b>	<b>0.010</b>		mg/L	0.004	0.001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:21	AKB
Beryllium	ND	u	mg/L	0.0020	0.0010	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:21	AKB
Boron	ND	D2, V1, U	mg/L	1.00	1.00	SW846 6010 B	12/14/2022 08:21	12/19/2022 16:09	MRWD
Cadmium	ND	u	mg/L	0.0010	0.0001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:21	AKB
<b>Calcium</b>	<b>475</b>	D1	mg/L	40.0	13.0	SW846 6010 B	12/14/2022 08:21	12/19/2022 16:13	MRWD
Chromium	ND	u	mg/L	0.0020	0.0006	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:21	AKB
Cobalt	ND	u	mg/L	0.004	0.004	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:21	AKB
Copper	ND	u	mg/L	0.003	0.001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:21	AKB
Iron	ND	D2, U	mg/L	1.00	0.500	SW846 6010 B	12/14/2022 08:21	12/19/2022 16:09	MRWD
Lead	ND	u	mg/L	0.002	0.0005	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:21	AKB
<b>Lithium</b>	<b>0.04</b>		mg/L	0.02	0.005	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:21	AKB
Mercury	ND	u	mg/L	0.0005	0.0002	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:21	AKB
<b>Molybdenum</b>	<b>0.002</b>	J	mg/L	0.01	0.002	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:21	AKB
Selenium	ND	u	mg/L	0.003	0.001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:21	AKB
<b>Sodium</b>	<b>483</b>	D1	mg/L	26.0	10.0	SW846 6010 B	12/14/2022 08:21	12/19/2022 16:13	MRWD
Thallium	ND	u	mg/L	0.0020	0.0001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:21	AKB

**Conventional Chemistry Analyses Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chemical Oxygen Demand</b>	<b>21</b>		mg/L	8	8	HACH 8000	12/19/2022 09:58	12/20/2022 11:23	HMF
<b>Specific Conductance (Lab)</b>	<b>4950</b>		umhos/cm	1	1	2510 B-2011	12/15/2022 12:19	12/15/2022 12:19	CML
<b>pH (Lab)</b>	<b>6.87</b>	H3	Std. Units	0.10	0.10	4500-H+ B-2000	12/15/2022 15:05	12/15/2022 15:05	CML
<b>Total Dissolved Solids</b>	<b>5880</b>	H2	mg/L	25	25	2540 C-2011	12/17/2022 07:08	12/17/2022 07:08	HAG
<b>Total Organic Carbon</b>	<b>2.4</b>		mg/L	0.5	0.4	5310 C-2011	12/23/2022 11:18	12/24/2022 10:41	HMF

**Subcontracted Analyses**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>See Attached Subcontract Report</b>	<b>-0.056</b>	_Sub	pCi/L			EPA 903.1	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>See Attached Subcontract Report</b>	<b>0.711</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>Radium</b>	<b>0.711</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>See Attached Subcontract Report</b>	<b>0.711</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW

**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chloride</b>	<b>243</b>	D	mg/L	10.0	7.2	SW846 9056	12/20/2022 03:28	12/20/2022 03:28	CSC
<b>Fluoride</b>	<b>0.6</b>		mg/L	0.2	0.2	SW846 9056	12/20/2022 14:17	12/20/2022 14:17	CSC



**Pace Analytical Services, LLC**

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**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Sulfate</b>	<b>4210</b>	D	mg/L	20	10	SW846 9056	12/20/2022 03:28	12/20/2022 03:28	CSC



**ANALYTICAL RESULTS**

Lab Sample ID: **2094226-08**  
 Description: **FIELD BLANK**

Sample Collection Date Time: 12/10/2022 14:30  
 Sample Received Date Time: 12/12/2022 14:37

**Metals by SW846 6000 Series Methods Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	u	mg/L	0.005	0.002	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:32	AKB
Arsenic	ND	u	mg/L	0.0010	0.0004	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:32	AKB
Barium	ND	u	mg/L	0.004	0.001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:32	AKB
Beryllium	ND	u	mg/L	0.0020	0.0010	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:32	AKB
Boron	ND	v1, u	mg/L	0.10	0.10	SW846 6010 B	12/14/2022 08:21	12/20/2022 13:20	MRWD
Cadmium	ND	u	mg/L	0.0010	0.0001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:32	AKB
Calcium	ND	u	mg/L	0.40	0.13	SW846 6010 B	12/14/2022 08:21	12/20/2022 13:20	MRWD
Chromium	ND	u	mg/L	0.0020	0.0006	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:32	AKB
Cobalt	ND	u	mg/L	0.004	0.004	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:32	AKB
<b>Copper</b>	<b>0.004</b>		mg/L	0.003	0.001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:32	AKB
Iron	ND	u	mg/L	0.100	0.050	SW846 6010 B	12/14/2022 08:21	12/20/2022 13:20	MRWD
Lead	ND	u	mg/L	0.002	0.0005	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:32	AKB
Lithium	ND	u	mg/L	0.02	0.005	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:32	AKB
Mercury	ND	u	mg/L	0.0005	0.0002	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:32	AKB
Molybdenum	ND	u	mg/L	0.01	0.002	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:32	AKB
Selenium	ND	u	mg/L	0.003	0.001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:32	AKB
Sodium	ND	u	mg/L	0.26	0.10	SW846 6010 B	12/14/2022 08:21	12/20/2022 13:20	MRWD
Thallium	ND	u	mg/L	0.0020	0.0001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:32	AKB

**Conventional Chemistry Analyses Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chemical Oxygen Demand	ND	u	mg/L	8	8	HACH 8000	12/19/2022 09:58	12/20/2022 11:23	HMF
<b>Specific Conductance (Lab)</b>	<b>1</b>		umhos/cm	1	1	2510 B-2011	12/15/2022 12:19	12/15/2022 12:19	CML
<b>pH (Lab)</b>	<b>7.05</b>	H3	Std. Units	0.10	0.10	4500-H+ B-2000	12/15/2022 15:05	12/15/2022 15:05	CML
<b>Total Dissolved Solids</b>	<b>54</b>		mg/L	50	50	2540 C-2011	12/13/2022 13:51	12/13/2022 13:51	HAG
<b>Total Organic Carbon</b>	<b>0.5</b>		mg/L	0.5	0.4	5310 C-2011	12/23/2022 11:18	12/24/2022 12:47	HMF

**Subcontracted Analyses**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>See Attached Subcontract Report</b>	<b>0.057</b>	_Sub	pCi/L			EPA 903.1	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>See Attached Subcontract Report</b>	<b>0.532</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>Radium</b>	<b>0.589</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>See Attached Subcontract Report</b>	<b>0.589</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW

**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	ND	u	mg/L	0.5	0.4	SW846 9056	12/20/2022 03:52	12/20/2022 03:52	CSC
Fluoride	ND	u	mg/L	0.2	0.2	SW846 9056	12/20/2022 14:40	12/20/2022 14:40	CSC
<b>Sulfate</b>	<b>0.5</b>	J	mg/L	1	0.5	SW846 9056	12/20/2022 03:52	12/20/2022 03:52	CSC



**Notes for work order 2094226**

- Samples collected by PACE personnel are done so in accordance with procedures set forth in PACE field services SOPs .
- Results contained in this report are only representative of the samples received.
- PACE does not provide interpretation of these results unless otherwise stated .
- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identification based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.

**Qualifiers**

- \_Sub See subcontractors report.
- D Results reported from dilution.
- D1 Sample required dilution due to high concentration of target analyte.
- D2 Sample required dilution due to matrix interference.
- H2 Initial analysis within holding time. Reanalysis was past holding time.
- H3 Sample received and analyzed past holding time.
- J Estimated value.
- M1 Matrix spike recovery was high; the method control sample recovery was acceptable.
- M2 Matrix spike recovery was low; the method control sample recovery was acceptable.
- M3 The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.
- U Target analyte was analyzed for, but was below detection limit (the value associated with the qualifier is the laboratory method detection limit in our LIMS system).
- V1 CCV recovery was above method acceptance limits. This target analyte not detected in the sample.

**Standard Qualifiers/Acronyms**

- MDL Method Detection Limit
- MRL Minimum Reporting Limit
- ND Not Detected
- LCS Laboratory Control Sample
- MS Matrix Spike
- MSD Matrix Spike Duplicate
- DUP Sample Duplicate
- % Rec Percent Recovery
- RPD Relative Percent Difference
- > Greater than
- < Less than



**Metals by SW846 6000 Series Methods Madisonville - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch BBL1619 - EPA 200.2**

**Blank (BBL1619-BLK1)**

Prepared: 12/14/2022 8:21, Analyzed: 12/17/2022 13:00

Mercury	ND	0.0005	mg/L							U
Antimony	ND	0.005	mg/L							U
Molybdenum	ND	0.01	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Cobalt	ND	0.004	mg/L							U
Copper	ND	0.003	mg/L							U
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U

**Blank (BBL1619-BLK2)**

Prepared: 12/14/2022 8:21, Analyzed: 12/19/2022 15:12

Boron	ND	0.10	mg/L							U
Calcium	ND	0.40	mg/L							U
Iron	ND	0.100	mg/L							U
Sodium	ND	0.26	mg/L							U

**LCS (BBL1619-BS1)**

Prepared: 12/14/2022 8:21, Analyzed: 12/17/2022 13:02

Mercury	0.0026	0.0005	mg/L	0.00250		105	85-115			
Antimony	0.069	0.005	mg/L	0.0625		111	85-115			
Molybdenum	0.07	0.01	mg/L	0.0625		107	85-115			
Arsenic	0.0666	0.0010	mg/L	0.0625		107	85-115			
Barium	0.065	0.004	mg/L	0.0625		104	85-115			
Beryllium	0.0647	0.0020	mg/L	0.0625		104	85-115			
Cadmium	0.0670	0.0010	mg/L	0.0625		107	85-115			
Chromium	0.0671	0.0020	mg/L	0.0625		107	85-115			
Cobalt	0.066	0.004	mg/L	0.0625		106	85-115			
Copper	0.067	0.003	mg/L	0.0625		107	85-115			
Lead	0.066	0.002	mg/L	0.0625		106	85-115			
Lithium	0.07	0.02	mg/L	0.0625		108	85-115			
Selenium	0.065	0.003	mg/L	0.0625		105	85-115			
Thallium	0.0671	0.0020	mg/L	0.0625		107	85-115			



**Metals by SW846 6000 Series Methods Madisonville - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch BBL1619 - EPA 200.2**

**LCS (BBL1619-BS2)**

Prepared: 12/14/2022 8:21, Analyzed: 12/19/2022 15:15

Boron	0.14	0.10	mg/L	0.125		113	85-115			
Calcium	6.73	0.40	mg/L	6.25		108	85-115			
Iron	6.75	0.100	mg/L	6.25		108	85-115			
Sodium	6.06	0.26	mg/L	6.25		97.0	85-115			

**Matrix Spike (BBL1619-MS1)**

Source: 2094226-01

Prepared: 12/14/2022 8:21, Analyzed: 12/17/2022 13:37

Mercury	0.0025	0.0005	mg/L	0.00250	ND	100	80-120			
Molybdenum	0.07	0.01	mg/L	0.0625	ND	109	80-120			
Antimony	0.071	0.005	mg/L	0.0625	ND	114	80-120			
Arsenic	0.0687	0.0010	mg/L	0.0625	0.0008	109	80-120			
Barium	0.152	0.004	mg/L	0.0625	0.085	108	80-120			
Beryllium	0.0571	0.0020	mg/L	0.0625	ND	91.4	80-120			
Cadmium	0.0666	0.0010	mg/L	0.0625	ND	106	80-120			
Chromium	0.0689	0.0020	mg/L	0.0625	ND	110	80-120			
Cobalt	0.067	0.004	mg/L	0.0625	ND	108	80-120			
Copper	0.064	0.003	mg/L	0.0625	ND	102	80-120			
Lead	0.063	0.002	mg/L	0.0625	ND	100	80-120			
Lithium	0.08	0.02	mg/L	0.0625	0.03	87.0	80-120			
Selenium	0.065	0.003	mg/L	0.0625	ND	104	80-120			
Thallium	0.0624	0.0020	mg/L	0.0625	ND	99.9	80-120			

**Matrix Spike (BBL1619-MS2)**

Source: 2094226-01

Prepared: 12/14/2022 8:21, Analyzed: 12/19/2022 16:38

Boron	2.00	1.00	mg/L	0.125	1.82	141	80-120			D2, M1
Calcium	36.7	4.00	mg/L	6.25	31.2	89.1	80-120			D2
Iron	7.24	1.00	mg/L	6.25	ND	116	80-120			D2
Sodium	198	2.60	mg/L	6.25	204	NR	80-120			D2, M3

**Matrix Spike Dup (BBL1619-MSD1)**

Source: 2094226-01

Prepared: 12/14/2022 8:21, Analyzed: 12/17/2022 13:39

Antimony	0.068	0.005	mg/L	0.0625	ND	108	80-120	4.73	20	
Molybdenum	0.07	0.01	mg/L	0.0625	ND	104	80-120	4.09	20	
Mercury	0.0025	0.0005	mg/L	0.00250	ND	98.5	80-120	1.85	20	
Arsenic	0.0655	0.0010	mg/L	0.0625	0.0008	104	80-120	4.89	20	
Barium	0.147	0.004	mg/L	0.0625	0.085	98.9	80-120	3.70	20	
Beryllium	0.0567	0.0020	mg/L	0.0625	ND	90.7	80-120	0.761	20	
Cadmium	0.0635	0.0010	mg/L	0.0625	ND	102	80-120	4.73	20	
Chromium	0.0660	0.0020	mg/L	0.0625	ND	106	80-120	4.31	20	
Cobalt	0.065	0.004	mg/L	0.0625	ND	103	80-120	4.24	20	
Copper	0.061	0.003	mg/L	0.0625	ND	98.3	80-120	3.59	20	
Lead	0.060	0.002	mg/L	0.0625	ND	96.2	80-120	4.19	20	
Lithium	0.08	0.02	mg/L	0.0625	0.03	88.9	80-120	1.43	20	
Selenium	0.060	0.003	mg/L	0.0625	ND	96.5	80-120	7.55	20	
Thallium	0.0604	0.0020	mg/L	0.0625	ND	96.6	80-120	3.31	20	



**Metals by SW846 6000 Series Methods Madisonville - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch BBL1619 - EPA 200.2**

**Matrix Spike Dup (BBL1619-MSD2) Source: 2094226-01**

Prepared: 12/14/2022 8:21, Analyzed: 12/19/2022 16:41

Boron	1.94	1.00	mg/L	0.125	1.82	96.7	80-120	2.80	20	D2
Calcium	35.9	4.00	mg/L	6.25	31.2	74.9	80-120	2.44	20	D2, M2
Iron	6.96	1.00	mg/L	6.25	ND	111	80-120	3.85	20	D2
Sodium	193	2.60	mg/L	6.25	204	NR	80-120	2.31	20	D2, M3

**Post Spike (BBL1619-PS1) Source: 2094226-01**

Prepared: 12/14/2022 8:21, Analyzed: 12/17/2022 13:41

Mercury	2.55		ug/L	2.50	0.126	96.9	75-125			
Antimony	67.2		ug/L	62.5	0.082	107	75-125			
Molybdenum	67.7		ug/L	62.5	1.16	106	75-125			
Arsenic	68.3		ug/L	62.5	0.772	108	75-125			
Barium	154		ug/L	62.5	85.1	111	75-125			
Beryllium	58.0		ug/L	62.5	-0.0440	92.7	75-125			
Cadmium	66.0		ug/L	62.5	0.0560	105	75-125			
Chromium	68.5		ug/L	62.5	0.194	109	75-125			
Cobalt	66.9		ug/L	62.5	1.20	105	75-125			
Copper	63.7		ug/L	62.5	0.517	101	75-125			
Lead	62.9		ug/L	62.5	0.034	101	75-115			
Lithium	81.5		ug/L	62.5	26.8	87.5	75-125			
Selenium	65.2		ug/L	62.5	0.040	104	75-125			
Thallium	62.8		ug/L	62.5	0.0240	100	75-125			

**Post Spike (BBL1619-PS2) Source: 2094226-01**

Prepared: 12/14/2022 8:21, Analyzed: 12/19/2022 16:44

Boron	2010		ug/L	125	1820	152	75-125			D2, M1
Calcium	37200		ug/L	6250	31200	95.6	75-125			D2
Iron	7190		ug/L	6250	452	108	75-125			D2
Sodium	199000		ug/L	6250	204000	NR	75-125			D2, M3



Conventional Chemistry Analyses Madisonville - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBL1572 - Default Prep Wet Chem

Blank (BBL1572-BLK1)

Prepared: 12/13/2022 13:51, Analyzed: 12/13/2022 13:51

Total Dissolved Solids	ND	25	mg/L							U
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LCS (BBL1572-BS1)

Prepared: 12/13/2022 13:51, Analyzed: 12/13/2022 13:51

Total Dissolved Solids	1500	25	mg/L	1500		99.7	80-120			
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Duplicate (BBL1572-DUP1) Source: 2094226-01

Prepared: 12/13/2022 13:51, Analyzed: 12/13/2022 13:51

Total Dissolved Solids	610	50	mg/L		602			1.32	10	
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Duplicate (BBL1572-DUP2) Source: 2122984-01

Prepared: 12/13/2022 13:51, Analyzed: 12/13/2022 13:51

Total Dissolved Solids	906	50	mg/L		926			2.18	10	
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Batch BBL1956 - Default Prep WET Testing

Blank (BBL1956-BLK1)

Prepared: 12/15/2022 12:18, Analyzed: 12/15/2022 12:18

Specific Conductance (Lab)	ND	1	umhos/cm							U
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LCS (BBL1956-BS1)

Prepared: 12/15/2022 12:19, Analyzed: 12/15/2022 12:19

Specific Conductance (Lab)	1410		umhos/cm	1410		100	80-120			
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Duplicate (BBL1956-DUP1) Source: 2094226-03

Prepared: 12/15/2022 12:19, Analyzed: 12/15/2022 12:19

Specific Conductance (Lab)	7270	1	umhos/cm		7270			0.00	0.938	
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Duplicate (BBL1956-DUP2) Source: 2122497-01

Prepared: 12/15/2022 12:19, Analyzed: 12/15/2022 12:19

Specific Conductance (Lab)	519	1	umhos/cm		517			0.386	0.938	
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Batch BBL1992 - Default Prep WET Testing

LCS (BBL1992-BS1)

Prepared: 12/15/2022 15:05, Analyzed: 12/15/2022 15:05

pH (Lab)	7.99		Std. Units	8.00		99.9	98.8-101.2			
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Conventional Chemistry Analyses Madisonville - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBL1992 - Default Prep WET Testing

LCS (BBL1992-BS2)

Prepared: 12/15/2022 15:05, Analyzed: 12/15/2022 15:05

pH (Lab)	7.98		Std. Units	8.00		99.8	98.8-101.2			
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Duplicate (BBL1992-DUP1) Source: 2094389-01

Prepared: 12/15/2022 15:05, Analyzed: 12/15/2022 15:05

pH (Lab)	7.78	0.10	Std. Units		7.77			0.129	10	H3
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Duplicate (BBL1992-DUP2) Source: 2123403-01

Prepared: 12/15/2022 15:05, Analyzed: 12/15/2022 15:05

pH (Lab)	1.47	0.10	Std. Units		1.48			0.678	10	H3
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Batch BBL2247 - Default Prep Wet Chem

Blank (BBL2247-BLK1)

Prepared: 12/17/2022 7:08, Analyzed: 12/17/2022 7:08

Total Dissolved Solids	ND	25	mg/L							U
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LCS (BBL2247-BS1)

Prepared: 12/17/2022 7:08, Analyzed: 12/17/2022 7:08

Total Dissolved Solids	1460	25	mg/L	1500		97.3	80-120			
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Duplicate (BBL2247-DUP1) Source: 2094226-03RE1

Prepared: 12/17/2022 7:08, Analyzed: 12/17/2022 7:08

Total Dissolved Solids	5430	25	mg/L		5350			1.48	10	
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Batch BBL2336 - Default Prep Wet Chem

Blank (BBL2336-BLK1)

Prepared: 12/19/2022 17:31, Analyzed: 12/20/2022 11:23

Chemical Oxygen Demand	ND	8	mg/L							U
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LCS (BBL2336-BS1)

Prepared: 12/19/2022 17:31, Analyzed: 12/20/2022 11:23

Chemical Oxygen Demand	122	8	mg/L	125		97.6	90-110			
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Conventional Chemistry Analyses Madisonville - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch BBL2336 - Default Prep Wet Chem</b>										
<b>Duplicate (BBL2336-DUP1) Source: 2094226-01</b>										
Prepared: 12/19/2022 17:31, Analyzed: 12/20/2022 11:23										
Chemical Oxygen Demand	9	8	mg/L		ND				25	
<b>Matrix Spike (BBL2336-MS1) Source: 2094226-01</b>										
Prepared: 12/19/2022 17:31, Analyzed: 12/20/2022 11:23										
Chemical Oxygen Demand	249	8	mg/L	250	ND	99.6	90-110			
<b>Matrix Spike Dup (BBL2336-MSD1) Source: 2094226-01</b>										
Prepared: 12/19/2022 17:31, Analyzed: 12/20/2022 11:23										
Chemical Oxygen Demand	246	8	mg/L	250	ND	98.4	90-110	1.21	10	
<b>Batch BBL3077 - Default Prep Wet Chem</b>										
<b>Blank (BBL3077-BLK1)</b>										
Prepared: 12/23/2022 11:18, Analyzed: 12/24/2022 6:27										
Total Organic Carbon	ND	0.5	mg/L							U
<b>LCS (BBL3077-BS1)</b>										
Prepared: 12/23/2022 11:18, Analyzed: 12/24/2022 6:48										
Total Organic Carbon	5.0	0.5	mg/L	5.00		100	80-120			
<b>Duplicate (BBL3077-DUP1) Source: 2094226-05</b>										
Prepared: 12/23/2022 11:18, Analyzed: 12/24/2022 12:05										
Total Organic Carbon	0.6	0.5	mg/L		0.7			9.37	25	
<b>Duplicate (BBL3077-DUP2) Source: 2094226-08</b>										
Prepared: 12/23/2022 11:18, Analyzed: 12/24/2022 17:24										
Total Organic Carbon	0.5	0.5	mg/L		0.5			5.80	25	
<b>Matrix Spike (BBL3077-MS1) Source: 2094226-06</b>										
Prepared: 12/23/2022 11:18, Analyzed: 12/24/2022 12:26										
Total Organic Carbon	4.9	0.5	mg/L	2.50	2.4	97.3	80-120			
<b>Matrix Spike (BBL3077-MS2) Source: 2094227-01</b>										
Prepared: 12/23/2022 11:18, Analyzed: 12/24/2022 17:45										
Total Organic Carbon	53.9	5.0	mg/L	50.0	ND	108	80-120			D1



**Ion Chromatography Madisonville - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch BBL2479 - Default Prep IC**

**Matrix Spike (BBL2479-MS1) Source: 2094226-01**

Prepared: 12/20/2022 5:29, Analyzed: 12/20/2022 5:29

Fluoride	4.6		mg/L	4.00	0.5	103	75-125			
Chloride	13.1		mg/L	8.00	5.2	99.4	75-125			
Sulfate	59		mg/L	32.0	27	99.4	75-125			

**Matrix Spike Dup (BBL2479-MSD1) Source: 2094226-01**

Prepared: 12/20/2022 5:51, Analyzed: 12/20/2022 5:51

Fluoride	4.6		mg/L	4.00	0.5	101	75-125	1.31	15	
Chloride	12.8		mg/L	8.00	5.2	96.1	75-125	2.04	15	
Sulfate	58		mg/L	32.0	27	97.1	75-125	1.26	15	

**Batch BBL2480 - Default Prep IC**

**Matrix Spike (BBL2480-MS1) Source: 2094227-01**

Prepared: 12/20/2022 5:05, Analyzed: 12/20/2022 5:05

Chloride	1710		mg/L	8.00	3100	NR	75-125			M2
Fluoride	1.2		mg/L	4.00	0.4	19.0	75-125			M2
Sulfate	2170		mg/L	32.0	4040	NR	75-125			M2

**Matrix Spike Dup (BBL2480-MSD1) Source: 2094227-01**

Prepared: 12/20/2022 5:30, Analyzed: 12/20/2022 5:30

Chloride	1730		mg/L	8.00	3100	NR	75-125	1.15	15	M2
Fluoride	0.8		mg/L	4.00	0.4	11.1	75-125	31.4	15	M2
Sulfate	2190		mg/L	32.0	4040	NR	75-125	0.936	15	M2

**Certified Analyses included in this Report**

Analyte	Certifications
<b>2510 B-2011 in Water</b>	
Specific Conductance (Lab)	KY Drinking Water Mdv (00030) VA NELAC MDV (460210) TN Drinking Water (02819) WV Wastewater Madisonville (241), 825 Industrial Rd Madisonville, KY 42431
<b>2540 C-2011 in Water</b>	
Total Dissolved Solids	KY Drinking Water Mdv (00030) VA NELAC MDV (460210) KY Wastewater Mdv (00030) TN Drinking Water (02819) WV Wastewater Madisonville (241), 825 Industrial Rd Madisonville, KY 42431
<b>4500-H+ B-2000 in Water</b>	
pH (Lab)	KY Drinking Water Mdv (00030) TN Drinking Water (02819)
<b>5310 C-2011 in Water</b>	
Total Organic Carbon	KY Drinking Water Mdv (00030) VA NELAC MDV (460210) KY Wastewater Mdv (00030) TN Drinking Water (02819) ADEM Drinking Water Mdv (41880) WV Wastewater Madisonville (241), 825 Industrial Rd Madisonville, KY 42431 AK Drinking Water MADV (KY00020)
<b>HACH 8000 in Water</b>	
Chemical Oxygen Demand	KY Wastewater Mdv (00030) VA NELAC MDV (460210) WV Wastewater Madisonville (241), 825 Industrial Rd Madisonville, KY 42431
<b>SW846 6010 B in Water</b>	
Calcium	VA NELAC MDV (460210)



**Sample Acceptance Checklist for Work Order 2094226**

Shipped By: Client

Temperature: 2.10° Celcius

**Condition**

Check if Custody Seals are Present/Intact	<input type="checkbox"/>
Check if Custody Signatures are Present	<input checked="" type="checkbox"/>
Check if Collector Signature Present	<input checked="" type="checkbox"/>
Check if bottles are intact	<input checked="" type="checkbox"/>
Check if bottles are correct	<input checked="" type="checkbox"/>
Check if bottles have sufficient volume	<input checked="" type="checkbox"/>
Check if samples received on ice	<input checked="" type="checkbox"/>
Check if VOA headspace is acceptable	<input type="checkbox"/>
Check if samples received in holding time.	<input checked="" type="checkbox"/>
Check if samples are preserved properly	<input checked="" type="checkbox"/>

### Chain of Custody

Scheduled for: **09/29/2022**



Client: **Big Rivers Electric Corporation**  
**Reid/Green Station**

Report To:  
**Big Rivers Electric Corporation Reid/Green**  
**Station**  
**Chad Phillips**  
**PO Box 24**  
**Henderson, KY 42419**

Invoice To:  
**Big Rivers Electric Corporation Reid/Green Station**  
**Chad Phillips**  
**PO Box 24**  
**Henderson, KY 42419**

Project: **Green Landfill Semiannual Groundwater**

Phone: (270) 844-6000  
PWS ID#:  
State:   KY  

PO#:  
Quote#

Please Print Legibly

Collected by (Signature):   *Angie Dick*    
\*required information\*

Compliance Monitoring? Yes  No

Samples Chlorinated? Yes  No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date            Start time            End Date   N/A   End Time            Temp (oC)           

Effluent: Start Date            Start time            End Date            End Time            Temp (oC)           

LAB USE ONLY	*required information*			Containers	Sample Description	Composite	Sample Analysis Requested
Workorder #	Date	Collection	Bottle and Preservative				
Sample ID#	(mm/dd/yy)	Time (24 hr):					
2094226-01 A	<u>12/09/22</u>	<u>1100</u>	Plastic 500mL pH<2 w/HNO3	1	MW1	g / c	Beryllium Tot 6020 Cadmium Tot 6020 Calcium Tot 6010B Barium Tot 6020 Chromium Tot 6020 Cobalt Tot 6020 Arsenic Tot 6020 Boron Tot 6010B Copper Tot 6020 Antimony Tot 6020 Lead Tot 6020 Lithium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Sodium Tot 6010B
			Preservation Check: pH: <u>          </u>				
2094226-01 B	<u>12/09/22</u>	<u>1100</u>	Plastic 1L	1	MW1	g / c	pH (Lab) Conductivity (Lab) TDS Sulfate 9056 Chloride 9056 Fluoride 9056
2094226-01 C	<u>12/09/22</u>	<u>1100</u>	Plastic 500mL pH<2 w/H2SO4	1	MW1	g / c	COD TOC
			Preservation Check: pH: <u>          </u>				
2094226-01 D	<u>12/09/22</u>	<u>1100</u>	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1	MW1	g / c	Radium 226 (sub)
			Preservation Check: pH: <u>          </u>				

Thermometer Serial Number

181390287  
 181460057  
Temp   2.1   °C

Preservation Check Performed by:   *ZH7*  

Field data collected by: <u>  <i>Greg Dick, Angie Dick</i>  </u>	Date (mm/dd/yy) <u>  12/9/22  </u>	Time (24 hr) <u>  1100  </u>
pH <u>  7.62  </u>	Cond (umho) <u>  939  </u>	Res Cl (mg/L) <u>          </u>
Temp (oC) <u>  16.97  </u>	or (oF) <u>          </u>	Static Water Level <u>          </u>
Flow (MGD) <u>          </u>	or (CFS) <u>          </u>	or (g/min) <u>          </u>
Tot Cl (mg/L) <u>          </u>	Free Cl (mg/L) <u>          </u>	DO (mg/L) <u>          </u>
	Turb. (NTU) <u>          </u>	

Relinquished by: (Signature)	Received by: (Signature)	Date (mm/dd/yy)	Time (24 hr)
<u>  <i>Angie Dick</i>  </u>	<u>  <i>Zoe Tul</i>  </u>	<u>  12/12/22  </u>	<u>  1437  </u>



PACE- Check here if trip charge applied to associated COC

Printed: 9/20/2022 12:11:26PM



# Chain of Custody

Scheduled for: **09/29/2022**



Client: **Big Rivers Electric Corporation**  
**Reid/Green Station**

Report To:  
**Big Rivers Electric Corporation Reid/Green Station**  
**Chad Phillips**  
**PO Box 24**  
**Henderson, KY 42419**

Invoice To:  
**Big Rivers Electric Corporation Reid/Green Station**  
**Chad Phillips**  
**PO Box 24**  
**Henderson, KY 42419**

Project: **Green Landfill Semiannual Groundwater**

Phone: (270) 844-6000  
PWS ID#:  
State:   KY  

PO#: \_\_\_\_\_  
Quote# \_\_\_\_\_

Please Print Legibly

Collected by (Signature):   *Greg Dink*    
\*required information\*

Compliance Monitoring? Yes \_\_\_ No

Samples Chlorinated? Yes \_\_\_ No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date   N/A   End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_  
Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY	*required information*		Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
Workorder #	Date	Collection					
2094226	(mm/dd/yy)	Time (24 hr):					
Sample ID#							
2094226-02 A	<u>  12/10/22  </u>	<u>  1400  </u>	Plastic 500mL pH<2 w/HNO3	1	MW2	g / c	Beryllium Tot 6020 Cadmium Tot 6020 Calcium Tot 6010B Barium Tot 6020 Chromium Tot 6020 Cobalt Tot 6020 Arsenic Tot 6020 Boron Tot 6010B Copper Tot 6020 Antimony Tot 6020 Lead Tot 6020 Lithium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Sodium Tot 6010B
			Preservation Check: pH: <input checked="" type="checkbox"/>				
2094226-02 B	<u>  12/10/22  </u>	<u>  1400  </u>	Plastic 1L	1	MW2	g / c	pH (Lab) Conductivity (Lab) TDS Sulfate 9056 Chloride 9056 Fluoride 9056
2094226-02 C	<u>  12/10/22  </u>	<u>  1400  </u>	Plastic 500mL pH<2 w/H2SO4	1	MW2	g / c	COD TOC
			Preservation Check: pH: <input checked="" type="checkbox"/>				
2094226-02 D	<u>  12/10/22  </u>	<u>  1400  </u>	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1	MW2	g / c	Radium 226 (sub)
			Preservation Check: pH: <input checked="" type="checkbox"/>				
2094226-02 E	<u>  12/10/22  </u>	<u>  1400  </u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW2	g / c	Radium 228 (sub)
			Preservation Check: pH: <input checked="" type="checkbox"/>				

Preservation Check Performed by:   *ZAT*  

Field data collected by:   *Greg Dink*   Date (mm/dd/yy)   12/10/22   Time (24 hr)   1400    
pH   6.92   Cond (umho)   1850   Res Cl (mg/L) \_\_\_\_\_ Tot Cl (mg/L) \_\_\_\_\_ Free Cl (mg/L) \_\_\_\_\_  
Temp (oC)   16.40   or (oF) \_\_\_\_\_ Static Water Level \_\_\_\_\_ DO (mg/L) \_\_\_\_\_ Turb. (NTU) \_\_\_\_\_  
Flow (MGD) \_\_\_\_\_ or (CFS) \_\_\_\_\_ or (g/min) \_\_\_\_\_

Relinquished by: (Signature)	Received by: (Signature)	Date (mm/dd/yy)	Time (24 hr)
<u>  <i>Greg Dink</i>  </u>	<u>  <i>ZAT</i>  </u>	<u>  12/12/22  </u>	<u>  1437  </u>
_____	_____	_____	_____
_____	_____	_____	_____

# Chain of Custody

Scheduled for: **09/29/2022**



Client: Big Rivers Electric Corporation  
Reid/Green Station

Report To:  
Big Rivers Electric Corporation Reid/Green  
Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Invoice To:  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Project: Green Landfill Semiannual Groundwater

Phone: (270) 844-6000  
PWS ID#:  
State: KY

PO#: \_\_\_\_\_  
Quote# \_\_\_\_\_

Please Print Legibly

Collected by (Signature): *Mr. Quil* \*required information\*

Compliance Monitoring? Yes \_\_\_ No   
Samples Chlorinated? Yes \_\_\_ No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

**LAB USE ONLY**

**\*required information\***

Workorder # Sample ID#	Date (mm/dd/yy)	Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
2094226-02 F	<u>12/10/22</u>	<u>1400</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW2	g / c	Radium 228 (sub)
				Preservation Check: pH: <input checked="" type="checkbox"/>			
2094226-02 G	<u>12/10/22</u>	<u>1400</u>	Plastic 1L pH<2 w/HNO3 (Sub)	1	MW2	g / c	Radium Total (sub)
				Preservation Check: pH: <input checked="" type="checkbox"/>			
2094226-02 H	<u>12/10/22</u>	<u>1400</u>	AG 250mL pH<2 w/H2SO4	1	MW2	g / c	TOC
				Preservation Check: pH: <input checked="" type="checkbox"/>			
2094226-03 A	<u>12/10/22</u>	<u>1315</u>	Plastic 500mL pH<2 w/HNO3	1	MW3A	g / c	Beryllium Tot 6020 Cadmium Tot 6020 Calcium Tot 6010B Barium Tot 6020 Chromium Tot 6020 Cobalt Tot 6020 Arsenic Tot 6020 Boron Tot 6010B Copper Tot 6020 Antimony Tot 6020 Lead Tot 6020 Lithium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Sodium Tot 6010B
				Preservation Check: pH: <input checked="" type="checkbox"/>			
2094226-03 B	<u>12/10/22</u>	<u>1315</u>	Plastic 1L	1	MW3A	g / c	pH (Lab) Conductivity (Lab) TDS Sulfate 9056 Chloride 9056 Fluoride 9056

Preservation Check Performed by: *ZAT*

Field data collected by: _____	Date (mm/dd/yy) _____	Time (24 hr) _____
pH _____	Cond (umho) _____	Res Cl (mg/L) _____
Temp (oC) _____	or (oF) _____	Static Water Level _____
Flow (MGD) _____	or (CFS) _____	or (g/min) _____
Total Cl (mg/L) _____		Free Cl (mg/L) _____
DO (mg/L) _____		Turb. (NTU) _____

Relinquished by: (Signature) <u><i>Mr. Quil</i></u>	Received by: (Signature) <u><i>ZAT</i></u>	Date (mm/dd/yy) <u>12/12/22</u>	Time (24 hr) <u>1437</u>
_____	_____	_____	_____
_____	_____	_____	_____

# Chain of Custody

**Scheduled for: 09/29/2022**



**Client: Big Rivers Electric Corporation  
Reid/Green Station**

**Report To:**  
Big Rivers Electric Corporation Reid/Green  
Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

**Invoice To:**  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

**Project: Green Landfill Semiannual Groundwater**

Phone: (270) 844-6000  
PWS ID#:  
State: KY

PO#: \_\_\_\_\_  
Quote# \_\_\_\_\_

Please Print Legibly

Collected by (Signature): \_\_\_\_\_  
\*required information\*

Compliance Monitoring? Yes \_\_\_ No

Samples Chlorinated? Yes \_\_\_ No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date 12/10/22 End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

**LAB USE ONLY**

\*required information\*

Workorder # Sample ID#	Date (mm/dd/yy)	Collection Time (24 hr)	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
2094226-03 C	<u>12/10/22</u>	<u>1315</u>	Plastic 500mL pH<2 w/H2SO4	1	MW3A	g / c	COD TOC
				Preservation Check: pH: <input checked="" type="checkbox"/>			
2094226-03 D	<u>12/10/22</u>	<u>1315</u>	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1	MW3A	g / c	Radium 226 (sub)
				Preservation Check: pH: <input checked="" type="checkbox"/>			
2094226-03 E	<u>12/10/22</u>	<u>1315</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW3A	g / c	Radium 228 (sub)
				Preservation Check: pH: <input checked="" type="checkbox"/>			
2094226-03 F	<u>12/10/22</u>	<u>1315</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW3A	g / c	Radium 228 (sub)
				Preservation Check: pH: <input checked="" type="checkbox"/>			
2094226-03 G	<u>12/10/22</u>	<u>1315</u>	Plastic 1L pH<2 w/HNO3 (Sub)	1	MW3A	g / c	Radium Total (sub)
				Preservation Check: pH: <input checked="" type="checkbox"/>			
2094226-03 H	<u>12/10/22</u>	<u>1315</u>	AG 250mL pH<2 w/H2SO4	1	MW3A	g / c	TOC
				Preservation Check: pH: <input checked="" type="checkbox"/>			

Preservation Check Performed by: ZAH

Field data collected by: <u>Greg Dick</u>	Date (mm/dd/yy) <u>12/10/22</u>	Time (24 hr) <u>1315</u>
pH <u>6.99</u>	Cond (umho) <u>7220</u>	Res Cl (mg/L) _____
Temp (oC) <u>16.10</u>	or (oF) _____	Static Water Level _____
Flow (MGD) _____	or (CFS) _____	or (g/min) _____
Tot Cl (mg/L) _____		Free Cl (mg/L) _____
DO (mg/L) _____		Turb. (NTU) _____

Relinquished by: (Signature) <u>Greg Dick</u>	Received by: (Signature) <u>ZAH</u>	Date (mm/dd/yy) <u>12/12/22</u>	Time (24 hr) <u>1437</u>
_____	_____	_____	_____
_____	_____	_____	_____

# Chain of Custody



Scheduled for: **09/29/2022**

**Client:** Big Rivers Electric Corporation  
Reid/Green Station

**Report To:**  
Big Rivers Electric Corporation Reid/Green  
Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

**Invoice To:**  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

**Project:** Green Landfill Semiannual Groundwater

Phone: (270) 844-6000  
PWS ID#:  
State: KY

PO#:  
Quote#

Please Print Legibly

Collected by (Signature): [Signature]  
\*required information\*

Compliance Monitoring? Yes  No   
Samples Chlorinated? Yes  No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_  
Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date N/A End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

**LAB USE ONLY**

**\*required information\***

Workorder #	Date (mm/dd/yy)	Collection Time (24 hr)	Bottle and Preservative	Containers
2094226-04 A	<u>12/10/22</u>	<u>0850</u>	Plastic 500mL pH<2 w/HNO3	1
2094226-04 B	<u>12/10/22</u>	<u>0850</u>	Plastic 1L	1
2094226-04 C	<u>12/10/22</u>	<u>0850</u>	Plastic 500mL pH<2 w/H2SO4	1
2094226-04 D	<u>12/10/22</u>	<u>0850</u>	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1
2094226-04 E	<u>12/10/22</u>	<u>0850</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1

Preservation Check: pH:   
Preservation Check: pH:   
Preservation Check: pH:   
Preservation Check: pH:

Sample Description	Composite	Sample Analysis Requested
MW4	g / c	Beryllium Tot 6020 Cadmium Tot 6020 Calcium Tot 6010B Barium Tot 6020 Chromium Tot 6020 Cobalt Tot 6020 Arsenic Tot 6020 Boron Tot 6010B Copper Tot 6020 Antimony Tot 6020 Lead Tot 6020 Lithium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Sodium Tot 6010B
MW4	g / c	pH (Lab) Conductivity (Lab) TDS Sulfate 9056 Chloride 9056 Fluoride 9056
MW4	g / c	COD TOC
MW4	g / c	Radium 226 (sub)
MW4	g / c	Radium 228 (sub)

Preservation Check Performed by: [Signature]

Field data collected by: Greg Dick [Signature] Date (mm/dd/yy) 12/10/22 Time (24 hr) 0850  
pH 7.05 Cond (umho) 6360 Res Cl (mg/L) \_\_\_\_\_ Tot Cl (mg/L) \_\_\_\_\_ Free Cl (mg/L) \_\_\_\_\_  
Temp (oC) 14.40 or (oF) \_\_\_\_\_ Static Water Level \_\_\_\_\_ DO (mg/L) \_\_\_\_\_ Turb. (NTU) \_\_\_\_\_  
Flow (MGD) \_\_\_\_\_ or (CFS) \_\_\_\_\_ or (g/min) \_\_\_\_\_

Relinquished by: (Signature) [Signature] Received by: (Signature) [Signature] Date (mm/dd/yy) 12/12/22 Time (24 hr) 1437

# Chain of Custody

Scheduled for: **09/29/2022**



Client: **Big Rivers Electric Corporation**  
**Reid/Green Station**

Project: **Green Landfill Semiannual Groundwater**

Report To:  
**Big Rivers Electric Corporation Reid/Green Station**  
**Chad Phillips**  
**PO Box 24**  
**Henderson, KY 42419**  
Phone: (270) 844-6000  
PWS ID#:  
State: **KY**

Invoice To:  
**Big Rivers Electric Corporation Reid/Green Station**  
**Chad Phillips**  
**PO Box 24**  
**Henderson, KY 42419**  
PO#: \_\_\_\_\_  
Quote# \_\_\_\_\_

Please Print Legibly

Collected by (Signature): *g. Ouel* \*required information\*

Compliance Monitoring? Yes \_\_\_ No

Samples Chlorinated? Yes \_\_\_ No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date ← Start time \_\_\_\_\_ End Date N/A End Time → Temp (oC) \_\_\_\_\_

LAB USE ONLY Workorder # 2094226 Sample ID#	*required information* Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers
2094226-04 F	<u>12/10/22</u>	<u>0850</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1
Preservation Check: pH: <input checked="" type="checkbox"/>				
2094226-04 G	<u>12/10/22</u>	<u>0850</u>	Plastic 1L pH<2 w/HNO3 (Sub)	1
Preservation Check: pH: <input checked="" type="checkbox"/>				
2094226-04 H	<u>12/10/22</u>	<u>0850</u>	AG 250mL pH<2 w/H2SO4	1
Preservation Check: pH: <input checked="" type="checkbox"/>				
2094226-05 A	<u>12/09/22</u>	<u>1450</u>	Plastic 500mL pH<2 w/HNO3	1
Preservation Check: pH: <input checked="" type="checkbox"/>				
2094226-05 B	<u>12/09/22</u>	<u>1450</u>	Plastic 1L	1

Sample Description	Composite	Sample Analysis Requested
MW4	g / c	Radium 228 (sub)
MW4	g / c	Radium Total (sub)
MW4	g / c	TOC
MW5	g / c	Beryllium Tot 6020 Cadmium Tot 6020 Calcium Tot 6010B Barium Tot 6020 Chromium Tot 6020 Cobalt Tot 6020 Arsenic Tot 6020 Boron Tot 6010B Copper Tot 6020 Antimony Tot 6020 Lead Tot 6020 Lithium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Sodium Tot 6010B
MW5	g / c	pH (Lab) Conductivity (Lab) TDS Sulfate 9056 Chloride 9056 Fluoride 9056

Preservation Check Performed by: *ZAC*

Field data collected by: \_\_\_\_\_ Date (mm/dd/yy) \_\_\_\_\_ Time (24 hr) \_\_\_\_\_  
pH \_\_\_\_\_ Cond (umho) \_\_\_\_\_ Res Cl (mg/L) \_\_\_\_\_ Tot Cl (mg/L) \_\_\_\_\_ Free Cl (mg/L) \_\_\_\_\_  
Temp (oC) \_\_\_\_\_ or (oF) \_\_\_\_\_ Static Water Level \_\_\_\_\_ DO (mg/L) \_\_\_\_\_ Turb. (NTU) \_\_\_\_\_  
Flow (MGD) \_\_\_\_\_ or (CFS) \_\_\_\_\_ or (g/min) \_\_\_\_\_

Relinquished by: (Signature) <u><i>g. Ouel</i></u>	Received by: (Signature) <u><i>ZAC</i></u>	Date (mm/dd/yy) <u>12/12/22</u>	Time (24 hr) <u>1437</u>
_____	_____	_____	_____
_____	_____	_____	_____

# Chain of Custody

Scheduled for: **09/29/2022**



Client: Big Rivers Electric Corporation  
Reid/Green Station

Report To:  
Big Rivers Electric Corporation Reid/Green  
Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Invoice To:  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Project: Green Landfill Semiannual Groundwater

Phone: (270) 844-6000  
PWS ID#:  
State: KY

PO#: \_\_\_\_\_  
Quote# \_\_\_\_\_

Please Print Legibly

Collected by (Signature): Greg Dick  
\*required information\*

Compliance Monitoring? Yes \_\_\_ No

Samples Chlorinated? Yes \_\_\_ No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date 2 Start time \_\_\_\_\_ End Date N/A End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY	*required information*		Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
Workorder #	Date	Collection					
2094226	(mm/dd/yy):	Time (24 hr):					
Sample ID#							
2094226-05 C	<u>12/09/22</u>	<u>1450</u>	Plastic 500mL pH<2 w/H2SO4	1	MW5	g / c	COD TOC
			Preservation Check: pH :	<input checked="" type="checkbox"/>			
2094226-05 D	<u>12/09/22</u>	<u>1450</u>	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1	MW5	g / c	Radium 226 (sub)
			Preservation Check: pH :	<input checked="" type="checkbox"/>			
2094226-05 E	<u>12/09/22</u>	<u>1450</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW5	g / c	Radium 228 (sub)
			Preservation Check: pH :	<input checked="" type="checkbox"/>			
2094226-05 F	<u>12/09/22</u>	<u>1450</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW5	g / c	Radium 228 (sub)
			Preservation Check: pH :	<input checked="" type="checkbox"/>			
2094226-05 G	<u>12/09/22</u>	<u>1450</u>	Plastic 1L pH<2 w/HNO3 (Sub)	1	MW5	g / c	Radium Total (sub)
			Preservation Check: pH :	<input checked="" type="checkbox"/>			
2094226-05 H	<u>12/09/22</u>	<u>1450</u>	AG 250mL pH<2 w/H2SO4	1	MW5	g / c	TOC
			Preservation Check: pH :	<input checked="" type="checkbox"/>			

Preservation Check Performed by: ZAH

Field data collected by: <u>Greg Dick</u> <u>My Dick</u>	Date (mm/dd/yy) <u>12/09/22</u>	Time (24 hr) <u>1450</u>
pH <u>6.94</u>	Cond (umho) <u>5880</u>	Res Cl (mg/L) _____
Temp (oC) <u>16.17</u>	or (oF) _____	Static Water Level _____
Flow (MGD) _____	or (CFS) _____	or (g/min) _____
Tot Cl (mg/L) _____	Free Cl (mg/L) _____	DO (mg/L) _____
	Turb. (NTU) _____	

Relinquished by: (Signature) <u>Greg Dick</u>	Received by: (Signature) <u>Zer Tal</u>	Date (mm/dd/yy) <u>12/12/22</u>	Time (24 hr) <u>1437</u>
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PACE- Check here if trip charge applied to associated COC

Printed: 9/20/2022 12:11:26PM

# Chain of Custody

**Scheduled for:** 09/29/2022



**Client:** Big Rivers Electric Corporation  
Reid/Green Station

**Report To:**  
Big Rivers Electric Corporation Reid/Green  
Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

**Invoice To:**  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

**Project:** Green Landfill Semiannual Groundwater

Phone: (270) 844-6000  
PWS ID#:  
State: KY

PO#:  
Quote#

Please Print Legibly

Collected by (Signature): Greg Quirk

Compliance Monitoring? Yes  No   
Samples Chlorinated? Yes  No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date N/A End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_  
Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

**LAB USE ONLY**

\*required information\*

Workorder #	Date	Collection	Bottle and Preservative	Containers
2094226	(mm/dd/yy)	Time (24 hr):		
Sample ID#				
2094226-06 A	<u>12/09/22</u>	<u>1345</u>	Plastic 500mL pH<2 w/HNO3	1

Sample Description	Composite	Sample Analysis Requested
MW6	g / c	Beryllium Tot 6020 Cadmium Tot 6020 Calcium Tot 6010B Barium Tot 6020 Chromium Tot 6020 Cobalt Tot 6020 Arsenic Tot 6020 Boron Tot 6010B Copper Tot 6020 Antimony Tot 6020 Lead Tot 6020 Lithium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Sodium Tot 6010B

2094226-06 B	<u>12/09/22</u>	<u>1345</u>	Plastic 1L	1	Preservation Check: pH: <input checked="" type="checkbox"/>
2094226-06 C	<u>12/09/22</u>	<u>1345</u>	Plastic 500mL pH<2 w/H2SO4	1	Preservation Check: pH: <input checked="" type="checkbox"/>
2094226-06 D	<u>12/09/22</u>	<u>1345</u>	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1	Preservation Check: pH: <input checked="" type="checkbox"/>
2094226-06 E	<u>12/09/22</u>	<u>1345</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	Preservation Check: pH: <input checked="" type="checkbox"/>

MW6	g / c	pH (Lab) Conductivity (Lab) TDS Sulfate 9056 Chloride 9056 Fluoride 9056
MW6	g / c	COD TOC
MW6	g / c	Radium 226 (sub)
MW6	g / c	Radium 228 (sub)

Preservation Check Performed by: Zah T

Field data collected by: <u>Greg Quirk, Greg Quirk</u>	Date (mm/dd/yy) <u>12/09/22</u>	Time (24 hr) <u>1345</u>
pH <u>6.88</u>	Cond (umho) <u>5000</u>	Res Cl (mg/L) _____
Temp (oC) <u>17.45</u>	or (oF) _____	Static Water Level _____
Flow (MGD) _____	or (CFS) _____	or (g/min) _____
Tot Cl (mg/L) _____	Free Cl (mg/L) _____	DO (mg/L) _____
	Turb. (NTU) _____	

Relinquished by: (Signature)	Received by: (Signature)	Date (mm/dd/yy)	Time (24 hr)
<u>Greg Quirk</u>	<u>Zah T</u>	<u>12/12/22</u>	<u>1437</u>
_____	_____	_____	_____
_____	_____	_____	_____

# Chain of Custody

Scheduled for: **09/29/2022**



Client: **Big Rivers Electric Corporation**  
**Reid/Green Station**

Report To:  
**Big Rivers Electric Corporation Reid/Green**  
**Station**  
**Chad Phillips**  
**PO Box 24**  
**Henderson, KY 42419**

Invoice To:  
**Big Rivers Electric Corporation Reid/Green Station**  
**Chad Phillips**  
**PO Box 24**  
**Henderson, KY 42419**

Project: **Green Landfill Semiannual Groundwater**

Phone: (270) 844-6000  
PWS ID#:  
State:   KY  

PO#: \_\_\_\_\_  
Quote# \_\_\_\_\_

Please Print Legibly

Collected by (Signature):   *Greg O'Leary*  

Compliance Monitoring? Yes \_\_\_ No

Samples Chlorinated? Yes \_\_\_ No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date   N/A   End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

**LAB USE ONLY**

\*required information\*

Workorder # Sample ID#	Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers
2094226-06 F	<u>  12/09/22  </u>	<u>  1345  </u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1
Preservation Check: pH: <input checked="" type="checkbox"/>				
2094226-06 G	<u>  12/09/22  </u>	<u>  1345  </u>	Plastic 1L pH<2 w/HNO3 (Sub)	1
Preservation Check: pH: <input checked="" type="checkbox"/>				
2094226-06 H	<u>  12/09/22  </u>	<u>  1345  </u>	AG 250mL pH<2 w/H2SO4	1
Preservation Check: pH: <input checked="" type="checkbox"/>				
2094226-07 A	<u>  12/09/22  </u>	<u>  1411  </u>	Plastic 500mL pH<2 w/HNO3	1
Preservation Check: pH: <input checked="" type="checkbox"/>				
2094226-07 B	<u>  12/09/22  </u>	<u>  1411  </u>	Plastic 1L	1

Sample Description	Composite	Sample Analysis Requested
MW6	g / c	Radium 228 (sub)
MW6	g / c	Radium Total (sub)
MW6	g / c	TOC
DUPLICATE	g / c	Beryllium Tot 6020 Cadmium Tot 6020 Calcium Tot 6010B Barium Tot 6020 Chromium Tot 6020 Cobalt Tot 6020 Arsenic Tot 6020 Boron Tot 6010B Copper Tot 6020 Antimony Tot 6020 Lead Tot 6020 Lithium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Sodium Tot 6010B
DUPLICATE	g / c	pH (Lab) Conductivity (Lab) TDS Sulfate 9056 Chloride 9056 Fluoride 9056

Preservation Check Performed by:   *Zah T*  

Field data collected by: _____	Date (mm/dd/yy) _____	Time (24 hr) _____
pH _____	Cond (umho) _____	Res Cl (mg/L) _____
Tot Cl (mg/L) _____	Free Cl (mg/L) _____	
Temp (oC) _____	or (oF) _____	Static Water Level _____
DO (mg/L) _____	Turb. (NTU) _____	
Flow (MGD) _____	or (CFS) _____	or (g/min) _____

Relinquished by: (Signature) <u>  <i>Greg O'Leary</i>  </u>	Received by: (Signature) <u>  <i>Zah T</i>  </u>	Date (mm/dd/yy) <u>  12/12/22  </u>	Time (24 hr) <u>  1437  </u>
_____	_____	_____	_____
_____	_____	_____	_____

# Chain of Custody

Scheduled for: **09/29/2022**



**Client:** Big Rivers Electric Corporation  
Reid/Green Station

**Report To:**  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

**Invoice To:**  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

**Project:** Green Landfill Semiannual Groundwater

Phone: (270) 844-6000  
PWS ID#:  
State:   KY  

PO#: \_\_\_\_\_  
Quote# \_\_\_\_\_

Please Print Legibly

Collected by (Signature): Greg Dick  
\*required information\*

Compliance Monitoring? Yes \_\_\_ No

Samples Chlorinated? Yes \_\_\_ No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date   N/A   Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY	*required information*		Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
Workorder # 2094226 Sample ID#	Date (mm/dd/yy):	Collection Time (24 hr):					
2094226-07 C	<u>12/09/22</u>	<u>1411</u>	Plastic 500mL pH<2 w/H2SO4	1	DUPLICATE	g / c	COD TOC
			Preservation Check: pH: <input checked="" type="checkbox"/>				
2094226-07 D	<u>12/09/22</u>	<u>1411</u>	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1	DUPLICATE	g / c	Radium 226 (sub)
			Preservation Check: pH: <input checked="" type="checkbox"/>				
2094226-07 E	<u>12/09/22</u>	<u>1411</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	DUPLICATE	g / c	Radium 228 (sub)
			Preservation Check: pH: <input checked="" type="checkbox"/>				
2094226-07 F	<u>12/09/22</u>	<u>1411</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	DUPLICATE	g / c	Radium 228 (sub)
			Preservation Check: pH: <input checked="" type="checkbox"/>				
2094226-07 G	<u>12/09/22</u>	<u>1411</u>	Plastic 1L pH<2 w/HNO3 (Sub)	1	DUPLICATE	g / c	Radium Total (sub)
			Preservation Check: pH: <input checked="" type="checkbox"/>				
2094226-07 H	<u>12/09/22</u>	<u>1411</u>	AG 250mL pH<2 w/H2SO4	1	DUPLICATE	g / c	TOC
			Preservation Check: pH: <input checked="" type="checkbox"/>				

Preservation Check Performed by: Zah7

Field data collected by: Greg Dick Greg Dick Date (mm/dd/yy) 12/09/22 Time (24 hr) 1411

pH 6.88 Cond (umho) 5000 Res Cl (mg/L) \_\_\_\_\_ Tot Cl (mg/L) \_\_\_\_\_ Free Cl (mg/L) \_\_\_\_\_

Temp (oC) 17.45 or (oF) \_\_\_\_\_ Static Water Level \_\_\_\_\_ DO (mg/L) \_\_\_\_\_ Turb. (NTU) \_\_\_\_\_

Flow (MGD) \_\_\_\_\_ or (CFS) \_\_\_\_\_ or (g/min) \_\_\_\_\_

Relinquished by: (Signature)	Received by: (Signature)	Date (mm/dd/yy)	Time (24 hr)
<u>Greg Dick</u>	<u>Za Lu</u>	<u>12/12/22</u>	<u>1437</u>
_____	_____	_____	_____
_____	_____	_____	_____

# Chain of Custody

Scheduled for: **09/29/2022**



**Client:** Big Rivers Electric Corporation  
Reid/Green Station

**Report To:**  
Big Rivers Electric Corporation Reid/Green  
Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

**Invoice To:**  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

**Project:** Green Landfill Semiannual Groundwater

Phone: (270) 844-6000  
PWS ID#:  
State: KY

PO#: \_\_\_\_\_  
Quote# \_\_\_\_\_

Please Print Legibly

Collected by (Signature): [Signature]  
\*required information\*

Compliance Monitoring? Yes \_\_\_ No   
Samples Chlorinated? Yes \_\_\_ No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date N/A End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_  
Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY Workorder # Sample ID#	*required information* Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers
2094226-08 A	<u>12/10/22</u>	<u>1430</u>	Plastic 500mL pH<2 w/HNO3	1
	Preservation Check: pH: <input checked="" type="checkbox"/>			
2094226-08 B	<u>12/10/22</u>	<u>1430</u>	Plastic 1L	1
2094226-08 C	<u>12/10/22</u>	<u>1430</u>	Plastic 500mL pH<2 w/H2SO4	1
	Preservation Check: pH: <input checked="" type="checkbox"/>			
2094226-08 D	<u>12/10/22</u>	<u>1430</u>	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1
	Preservation Check: pH: <input checked="" type="checkbox"/>			
2094226-08 E	<u>12/10/22</u>	<u>1430</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1
	Preservation Check: pH: <input checked="" type="checkbox"/>			

Sample Description	Composite	Sample Analysis Requested
FIELD BLANK	g / c	Beryllium Tot 6020 Cadmium Tot 6020 Calcium Tot 6010B Barium Tot 6020 Chromium Tot 6020 Cobalt Tot 6020 Arsenic Tot 6020 Boron Tot 6010B Copper Tot 6020 Antimony Tot 6020 Lead Tot 6020 Lithium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Sodium Tot 6010B

Preservation Check Performed by: [Signature]

Field data collected by: _____	Date (mm/dd/yy) _____	Time (24 hr) _____
pH _____	Cond (umho) _____	Res Cl (mg/L) _____
Temp (oC) _____	or (oF) _____	Static Water Level _____
Flow (MGD) _____	or (CFS) _____	or (g/min) _____
	Tot Cl (mg/L) _____	Free Cl (mg/L) _____
	DO (mg/L) _____	Turb. (NTU) _____

Relinquished by: (Signature) <u>[Signature]</u>	Received by: (Signature) <u>[Signature]</u>	Date (mm/dd/yy) <u>12/12/22</u>	Time (24 hr) <u>1437</u>
--	--	------------------------------------	-----------------------------

# Chain of Custody



**Scheduled for:** 09/29/2022

**Client:** Big Rivers Electric Corporation  
Reid/Green Station

**Report To:**  
Big Rivers Electric Corporation Reid/Green  
Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

**Invoice To:**  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

**Project:** Green Landfill Semiannual Groundwater

Phone: (270) 844-6000  
PWS ID#:  
State: KY

PO#:  
Quote#

Please Print Legibly

Collected by (Signature): [Signature]  
\*required information\*

Compliance Monitoring? Yes \_\_\_ No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Samples Chlorinated? Yes \_\_\_ No

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date N/A End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

**LAB USE ONLY**

\*required information\*

Workorder # Sample ID#	Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
2094226-08 F	<u>12/10/22</u>	<u>1430</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	FIELD BLANK	g / c	Radium 228 (sub)
Preservation Check: pH: <input checked="" type="checkbox"/>							
2094226-08 G	<u>12/10/22</u>	<u>1430</u>	Plastic 1L pH<2 w/HNO3 (Sub)	1	FIELD BLANK	g / c	Radium Total (sub)
Preservation Check: pH: <input checked="" type="checkbox"/>							
2094226-08 H	<u>12/10/22</u>	<u>1430</u>	AG 250mL pH<2 w/H2SO4	1	FIELD BLANK	g / c	TOC
Preservation Check: pH: <input checked="" type="checkbox"/>							

Preservation Check Performed by: ZAH

Field data collected by: _____	Date (mm/dd/yy) _____	Time (24 hr) _____
pH _____	Cond (umho) _____	Res Cl (mg/L) _____
Temp (oC) _____	or (oF) _____	Static Water Level _____
Flow (MGD) _____	or (CFS) _____	or (g/min) _____
	Tot Cl (mg/L) _____	Free Cl (mg/L) _____
	DO (mg/L) _____	Turb. (NTU) _____

Relinquished by: (Signature) <u>[Signature]</u>	Received by: (Signature) <u>[Signature]</u>	Date (mm/dd/yy) <u>12/12/22</u>	Time (24 hr) <u>1437</u>
_____	_____	_____	_____
_____	_____	_____	_____

January 04, 2023

Rob Whittington  
Pace Analytical Madisonville  
825 Industrial Rd  
Madisonville, KY 42431

RE: Project: 2094226/Green Landfill Semiann  
Pace Project No.: 30547211

Dear Rob Whittington:

Enclosed are the analytical results for sample(s) received by the laboratory on December 14, 2022. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Amber D. Carr  
amber.carr@pacelabs.com  
(724)850-5600  
Project Manager

Enclosures

cc: Doug Wolfe, Pace Analytical Madisonville



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: 2094226/Green Landfill Semiann  
Pace Project No.: 30547211

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 460198  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE SUMMARY

Project: 2094226/Green Landfill Semiann  
Pace Project No.: 30547211

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30547211001	2094226-01	Water	12/09/22 11:00	12/14/22 10:20
30547211002	2094226-02	Water	12/10/22 14:00	12/14/22 10:20
30547211003	2094226-03	Water	12/10/22 13:15	12/14/22 10:20
30547211004	2094226-04	Water	12/10/22 08:50	12/14/22 10:20
30547211005	2094226-05	Water	12/09/22 14:50	12/14/22 10:20
30547211006	2094226-06	Water	12/09/22 13:45	12/14/22 10:20
30547211007	2094226-07	Water	12/09/22 14:11	12/14/22 10:20
30547211008	2094226-08	Water	12/10/22 14:30	12/14/22 10:20

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 2094226/Green Landfill Semiann  
Pace Project No.: 30547211

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30547211001	2094226-01	EPA 903.1	CLM	1	PASI-PA
		EPA 904.0	JJS1	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30547211002	2094226-02	EPA 903.1	CLM	1	PASI-PA
		EPA 904.0	JJS1	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30547211003	2094226-03	EPA 903.1	CLM	1	PASI-PA
		EPA 904.0	JJS1	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30547211004	2094226-04	EPA 903.1	CLM	1	PASI-PA
		EPA 904.0	JJS1	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30547211005	2094226-05	EPA 903.1	CLM	1	PASI-PA
		EPA 904.0	JJS1	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30547211006	2094226-06	EPA 903.1	CLM	1	PASI-PA
		EPA 904.0	JJS1	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30547211007	2094226-07	EPA 903.1	CLM	1	PASI-PA
		EPA 904.0	JJS1	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30547211008	2094226-08	EPA 903.1	CLM	1	PASI-PA
		EPA 904.0	JJS1	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 2094226/Green Landfill Semiann  
Pace Project No.: 30547211

Sample: 2094226-01		Lab ID: 30547211001	Collected: 12/09/22 11:00	Received: 12/14/22 10:20	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Radium-226	EPA 903.1	<b>0.123 ± 0.282 (0.167)</b> C:NA T:92%		pCi/L	01/03/23 15:40	13982-63-3	
Pace Analytical Services - Greensburg							
Radium-228	EPA 904.0	<b>1.34 ± 0.484 (0.709)</b> C:89% T:86%		pCi/L	01/03/23 16:00	15262-20-1	
Pace Analytical Services - Greensburg							
Total Radium	Total Radium Calculation	<b>1.46 ± 0.766 (0.876)</b>		pCi/L	01/04/23 14:05	7440-14-4	

Sample: 2094226-02		Lab ID: 30547211002	Collected: 12/10/22 14:00	Received: 12/14/22 10:20	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Radium-226	EPA 903.1	<b>0.454 ± 0.389 (0.527)</b> C:NA T:92%		pCi/L	01/03/23 15:40	13982-63-3	
Pace Analytical Services - Greensburg							
Radium-228	EPA 904.0	<b>1.14 ± 0.468 (0.746)</b> C:90% T:79%		pCi/L	01/03/23 15:58	15262-20-1	
Pace Analytical Services - Greensburg							
Total Radium	Total Radium Calculation	<b>1.59 ± 0.857 (1.27)</b>		pCi/L	01/04/23 14:05	7440-14-4	

Sample: 2094226-03		Lab ID: 30547211003	Collected: 12/10/22 13:15	Received: 12/14/22 10:20	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Radium-226	EPA 903.1	<b>0.208 ± 0.733 (1.35)</b> C:NA T:86%		pCi/L	01/03/23 15:40	13982-63-3	
Pace Analytical Services - Greensburg							
Radium-228	EPA 904.0	<b>2.09 ± 0.630 (0.771)</b> C:82% T:81%		pCi/L	01/03/23 15:58	15262-20-1	
Pace Analytical Services - Greensburg							
Total Radium	Total Radium Calculation	<b>2.30 ± 1.36 (2.12)</b>		pCi/L	01/04/23 14:05	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 2094226/Green Landfill Semiann  
Pace Project No.: 30547211

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: 2094226-04</b> <b>Lab ID: 30547211004</b> Collected: 12/10/22 08:50      Received: 12/14/22 10:20      Matrix: Water PWS:      Site ID:      Sample Type:						
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>0.168 ± 0.256 (0.412)</b> C:NA T:91%	pCi/L	01/03/23 15:40	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>1.43 ± 0.507 (0.758)</b> C:87% T:92%	pCi/L	01/03/23 15:58	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	<b>1.60 ± 0.763 (1.17)</b>	pCi/L	01/04/23 14:05	7440-14-4	

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: 2094226-05</b> <b>Lab ID: 30547211005</b> Collected: 12/09/22 14:50      Received: 12/14/22 10:20      Matrix: Water PWS:      Site ID:      Sample Type:						
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>0.000 ± 0.462 (0.925)</b> C:NA T:94%	pCi/L	01/03/23 15:40	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>1.37 ± 0.487 (0.715)</b> C:91% T:87%	pCi/L	01/03/23 15:58	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	<b>1.37 ± 0.949 (1.64)</b>	pCi/L	01/04/23 14:05	7440-14-4	

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: 2094226-06</b> <b>Lab ID: 30547211006</b> Collected: 12/09/22 13:45      Received: 12/14/22 10:20      Matrix: Water PWS:      Site ID:      Sample Type:						
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.						
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>0.000 ± 0.289 (0.588)</b> C:NA T:88%	pCi/L	01/03/23 15:53	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>1.29 ± 0.498 (0.771)</b> C:85% T:83%	pCi/L	01/03/23 15:59	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	<b>1.29 ± 0.787 (1.36)</b>	pCi/L	01/04/23 14:05	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 2094226/Green Landfill Semiann

Pace Project No.: 30547211

**Sample: 2094226-07**      **Lab ID: 30547211007**      Collected: 12/09/22 14:11      Received: 12/14/22 10:20      Matrix: Water  
PWS:      Site ID:      Sample Type:

Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>-0.0563 ± 0.292 (0.676)</b> C:NA T:96%	pCi/L	01/03/23 15:53	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>0.711 ± 0.415 (0.767)</b> C:83% T:86%	pCi/L	01/03/23 15:59	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	<b>0.711 ± 0.707 (1.44)</b>	pCi/L	01/04/23 14:05	7440-14-4	

**Sample: 2094226-08**      **Lab ID: 30547211008**      Collected: 12/10/22 14:30      Received: 12/14/22 10:20      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>0.0569 ± 0.370 (0.746)</b> C:NA T:98%	pCi/L	01/03/23 15:53	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>0.532 ± 0.390 (0.764)</b> C:79% T:94%	pCi/L	01/03/23 15:59	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	<b>0.589 ± 0.760 (1.51)</b>	pCi/L	01/04/23 14:05	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: 2094226/Green Landfill Semiann  
Pace Project No.: 30547211

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Act - Activity

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

## REPORT OF LABORATORY ANALYSIS

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Chain of Custody

Workorder: 2094226      Workorder Name: Green Landfill Semiannual      Owner Received Date: 12/12/2022      Results Requested By: standard  
 Report To:      Subcontract To:      Requested Analysis

**WO#: 30547211**  
 PM: ADC      Due Date: 01/06/23  
 CLIENT: PACE\_44\_MVKY

Pace Analytical Services, LLC  
 825 Industrial Road  
 Madisonville, KY 42409  
 270-821-7375  
 rob.whittington@pacelabs.com

Pace Analytical Services LLC Greensburg PF  
 1638 Rosey Town Rd Suite 2,3,4  
 Greensburg, PA 15601  
 (724) 850-5615

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers		LAB USE ONLY
						EPA 903.1	EPA 904.0 Radium Sum Calc	
1								
2	2094226-01		12/09/22 11:00	IR44-McCoy	Water	X	X	
3	2094226-02		12/10/22 14:00	IR44-McCoy	Water	X	X	
4	2094226-03		12/10/22 13:15	IR44-McCoy	Water	X	X	
5	2094226-04		12/10/22 08:50	IR44-McCoy	Water	X	X	
6	2094226-05		12/09/22 14:50	IR44-McCoy	Water	X	X	
7	2094226-06		12/09/22 13:45	IR44-McCoy	Water	X	X	
8	2094226-07		12/09/22 14:11	IR44-McCoy	Water	X	X	
9	2094226-08		12/10/22 14:30	IR44-McCoy	Water	X	X	
10								

Transfers	Released By	Date/Time	Received By	Date/Time	Comments
1					
2					
3					

Cooler Temperature on Receipt \_\_\_\_\_ °C      Custody Seal Y or N      Received on Ice Y or N      Sample Intact Y or N  
 \*\*\*In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC  
 This chain of custody is considered complete as is since this information is available in the owner laboratory.

**SUBCONTRACT ORDER**  
**Pace Analytical Services, LLC Kentucky**  
**2094226**

**SENDING LABORATORY:**

Pace Analytical Services, LLC Kentucky  
 PO BOX 907  
 Madisonville, KY 42431  
 Phone: (270) 821-7375  
 Fax: 844-270-7904  
 Project Manager: Rob Whittington

**RECEIVING LABORATORY:**

Pace Analytical Services LLC Greensburg PA  
 1638 Rosey Town Rd Suite 2,3,4  
 Greensburg, PA 15601  
 Phone :(724) 850-5615  
 Fax:

**WO# : 30547211**



Analysis		Expires	Laboratory ID	Comments
<b>Sample ID: 2094226-01</b>	<b>Water</b>	<b>Sampled:12/09/2022 11:00</b>	<b>Specific Method</b>	<b>001</b>
Radium Total (sub)		06/07/2023 11:00	EPA 904.0 Radium Sum C	
Radium 228 (sub)		06/07/2023 11:00	EPA 904.0 Radium Sum C	
Radium 226 (sub)		06/07/2023 11:00	EPA 903.1	
<b>Sample ID: 2094226-02</b>	<b>Water</b>	<b>Sampled:12/10/2022 14:00</b>	<b>Specific Method</b>	<b>002</b>
Radium Total (sub)		06/08/2023 14:00	EPA 904.0 Radium Sum C	
Radium 228 (sub)		06/08/2023 14:00	EPA 904.0 Radium Sum C	
Radium 226 (sub)		06/08/2023 14:00	EPA 903.1	
<b>Sample ID: 2094226-03</b>	<b>Water</b>	<b>Sampled:12/10/2022 13:15</b>	<b>Specific Method</b>	<b>003</b>
Radium 228 (sub)		06/08/2023 13:15	EPA 904.0 Radium Sum C	
Radium 226 (sub)		06/08/2023 13:15	EPA 903.1	
Radium Total (sub)		06/08/2023 13:15	EPA 904.0 Radium Sum C	
<b>Sample ID: 2094226-04</b>	<b>Water</b>	<b>Sampled:12/10/2022 08:50</b>	<b>Specific Method</b>	<b>004</b>
Radium 226 (sub)		06/08/2023 08:50	EPA 903.1	
Radium 228 (sub)		06/08/2023 08:50	EPA 904.0 Radium Sum C	
Radium Total (sub)		06/08/2023 08:50	EPA 904.0 Radium Sum C	
<b>Sample ID: 2094226-05</b>	<b>Water</b>	<b>Sampled:12/09/2022 14:50</b>	<b>Specific Method</b>	<b>005</b>
Radium 228 (sub)		06/07/2023 14:50	EPA 904.0 Radium Sum C	
Radium Total (sub)		06/07/2023 14:50	EPA 904.0 Radium Sum C	
Radium 226 (sub)		06/07/2023 14:50	EPA 903.1	

Released By *Ammy Kai* Date *12-13-22*
Received By *[Signature]* Date *12/14/22 1020*

Released By \_\_\_\_\_ Date \_\_\_\_\_ Received By \_\_\_\_\_ Date \_\_\_\_\_

**SUBCONTRACT ORDER**  
**Pace Analytical Services, LLC Kentucky**  
**2094226**

Analysis	Expires	Laboratory ID	Comments
<b>Sample ID: 2094226-06</b> <b>Water</b> <b>Sampled: 12/09/2022 13:45</b> <b>Specific Method</b>			<b>006</b>
Radium Total (sub)	06/07/2023 13:45	EPA 904.0 Radium Sum C	
Radium 228 (sub)	06/07/2023 13:45	EPA 904.0 Radium Sum C	
Radium 226 (sub)	06/07/2023 13:45	EPA 903.1	
<b>Sample ID: 2094226-07</b> <b>Water</b> <b>Sampled: 12/09/2022 14:11</b> <b>Specific Method</b>			<b>007</b>
Radium Total (sub)	06/07/2023 14:11	EPA 904.0 Radium Sum C	
Radium 228 (sub)	06/07/2023 14:11	EPA 904.0 Radium Sum C	
Radium 226 (sub)	06/07/2023 14:11	EPA 903.1	
<b>Sample ID: 2094226-08</b> <b>Water</b> <b>Sampled: 12/10/2022 14:30</b> <b>Specific Method</b>			<b>008</b>
Radium 226 (sub)	06/08/2023 14:30	EPA 903.1	
Radium Total (sub)	06/08/2023 14:30	EPA 904.0 Radium Sum C	
Radium 228 (sub)	06/08/2023 14:30	EPA 904.0 Radium Sum C	

**WO# : 30547211**

**PM: ADC      Due Date: 01/06/23**  
**CLIENT: PACE\_44\_MVKY**

*ammy dai*      *12-13-22*      *[Signature]*      *12/14/22*  
 Released By      Date      Received By      Date

Released By      Date      Received By      Date

DC#\_Title: ENV-FRM-GBUR-0088 v02\_Sample Condition Upon Receipt-  
Pittsburgh

**WO# : 30547211**

Effective Date: 10/03/2022

PM: ADC Due Date: 01/06/23  
CLIENT: PACE\_44\_MVKY



Client Name: Pace - KY

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace  Other

Tracking Number: 12 067 457 01 4171 6687

Examined By	<u>PS</u>
Labeled By	<u>PS</u>
Temped By	<u>PS</u>

Custody Seal on Cooler/Box Present:  Yes  No      Seals Intact:  Yes  No

Thermometer Used: 16      Type of Ice: Wet Blue None

Cooler Temperature: Observed Temp 10.7 °C      Correction Factor: +1.2 °C      Final Temp: 10.9 °C  
Temp should be above freezing to 6°C

Comments:				pH paper Lot#	D.P.D. Residual Chlorine Lot #
	Yes	No	NA	<u>1002221</u>	
Chain of Custody Present	/			1.	
Chain of Custody Filled Out: -Were client corrections present on COC	/			2.	
Chain of Custody Relinquished	/			3.	
Sampler Name & Signature on COC:		/		4.	
Sample Labels match COC: -Includes date/time/ID Matrix: <u>WT</u>		/		5.	<u>Not able to read dates/times on bottles</u>
Samples Arrived within Hold Time:	/			6.	
Short Hold Time Analysis (<72hr remaining):		/		7.	
Rush Turn Around Time Requested:		/		8.	
Sufficient Volume:	/			9.	
Correct Containers Used: -Pace Containers Used		/		10.	
Containers Intact:	/			11.	
Orthophosphate field filtered:			/	12.	
Hex Cr Aqueous samples field filtered:			/	13.	
Organic Samples checked for dechlorination			/	14.	
Filtered volume received for dissolved tests:			/	15.	
All containers checked for preservation: exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, non-aqueous matrix	/			16.	<u>added 2.5 ml HNO3 to samples = 006 = 1/3, 2/3, and 3/3 007 = 1/3, 2/3, and 3/3</u>
All containers meet method preservation requirements:		/		Initial when completed	<u>PS</u> Date/Time of Preservation <u>12/16/22 9:35</u>
				Lot# of added Preservative	<u>HNO3 208862</u>
Headspace in VOA Vials (>6mm):			/	17.	
Trip Blank Present:		/		18.	
Trip Blank Custody Seals Present		/			
Rad Samples Screened <0.5 mrem/hr.	/			Initial when completed	<u>PS</u> Date: <u>12/16/22</u> Survey Meter SN: <u>1863</u>
Comments:					

Note: For NC compliance samples with discrepancies, a copy of this form must be sent to the DEHNR Certification office. PM Review is documented electronically in LIMS through the SRF Review schedule in the Workorder Edit Screen.



# Pace Greensburg Lab -Sample Container Count

Client

Profile Number 1851

Site

7094226

Notes

Sample Line Item	Matrix	AG1H	AG1S	AG1T	AG2U	AG3S	AG3U	AG5U	AG5T	BG1U	BG2U	BP1N	BP1U	BP2S	BP2U	BP3C	BP3N	BP3S	BP3U	DG9S	GCUB	VG9H	VG9T	VG9U	VOAK	WGFU	WGKU	ZPLC
1	WT											W																
2												W																
3												W																
4												W																
5												W																
6												W																
7												W																
8												W																
9																												
10																												
11																												
12																												

**WO#: 30547211**

PM: ADC Due Date: 01/06/23  
 CLIENT: PACE\_44\_MVKY

Container Codes

Glass	
GJN	1 Gallon Jug with HNO3
AG5U	100mL amber glass unprservd
AG5T	100mL amber glass Na Thiosulfate
GJN	1 Gallon Jug
AG1S	1L amber glass H2SO4
AG1H	1L amber glass HCl
AG1T	1L amber glass Na Thiosulfate
BG1U	1L clear glass unprservd
AG3S	250mL amber glass H2SO4
AG3U	250mL amber glass unprservd
DG9S	40mL amber VOA vial H2SO4
VG9U	40mL clear VOA vial
VG9T	40mL clear VOA vial Na Thiosulfate
VG9H	40mL clear VOA vial HCl
JGFU	4oz amber wide jar
WGFU	4oz wide jar unprservd
BG2U	500mL clear glass unprservd
AG2U	500mL amber glass unprservd
WGKU	8oz wide jar unprservd

Plastic / Misc.	
GCUB	1 Gallon Cubitainer
12GN	1/2 Gallon Cubitainer
SP5T	120mL Coliform Na Thiosulfate
BP1N	1L plastic HNO3
BP1U	1L plastic unprservd
BP3S	250mL plastic H2SO4
BP3N	250mL plastic HNO3
BP3U	250mL plastic unprservd
BP3C	250mL plastic NaOH
BP2S	500mL plastic H2SO4
BP2U	500mL plastic unprservd
EZI	5g Encore
VOAK	Kit for Volatile Solid
I	Wipe/Swab
ZPLC	Ziploc Bag
WT	Water
SL	Solid
OL	Non-aqueous liquid
WIP	Wipe



## Certificate of Analysis 2094227

Greg Dick  
Big Rivers Electric Corporation Reid/Green Station  
PO Box 24  
Henderson, KY 42419

Customer ID: 44-102032  
Report Printed: 01/09/2023 14:17

Project Name: Green Landfill Semiannual Well MW104

Workorder: 2094227

Dear Greg Dick

Enclosed are the analytical results for samples received by the laboratory 12/12/2022 14:36.

The results relate to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services LLC Kentucky - Madisonville

If you have any questions concerning this report, please feel free to contact me.



#460210 Madisonville, KY  
#460291 Pikeville, KY

Rob Whittington, Project Manager

*This page is included as part of the Analytical Report and must be retained as a permanent record thereof.*



Pace Analytical Services, LLC

P.O. Box 907

Madisonville, KY 42431

270.821.7375

[www.pacelabs.com](http://www.pacelabs.com)

### SAMPLE SUMMARY

Lab ID	Client Sample ID/Alias	Matrix	Date Collected	Date Received	Sampled By
2094227-01	MW-104/	Groundwater	12/10/2022 10:10	12/12/2022 14:36	Greg Dick
<u>LabNumber</u>	<u>Measurement</u>				<u>Value</u>
2094227-01	Field Conductance				8350
	Field pH				6.91
	Field Temp (C)				15.49



**ANALYTICAL RESULTS**

Lab Sample ID: **2094227-01**  
 Description: **MW-104**

Sample Collection Date Time: 12/10/2022 10:10  
 Sample Received Date Time: 12/12/2022 14:36

**Metals by SW846 6000 Series Methods Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	u	mg/L	0.005	0.002	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:34	AKB
<b>Arsenic</b>	<b>0.0010</b>		mg/L	0.0010	0.0004	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:34	AKB
<b>Barium</b>	<b>0.016</b>		mg/L	0.004	0.001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:34	AKB
Beryllium	ND	u	mg/L	0.0020	0.0010	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:34	AKB
<b>Boron</b>	<b>0.26</b>	D1	mg/L	0.20	0.20	SW846 6010 B	12/14/2022 08:21	01/05/2023 14:05	MRWD
<b>Cadmium</b>	<b>0.0015</b>		mg/L	0.0010	0.0001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:34	AKB
<b>Calcium</b>	<b>536</b>	D1	mg/L	40.0	13.0	SW846 6010 B	12/14/2022 08:21	12/19/2022 16:35	MRWD
<b>Chromium</b>	<b>0.0007</b>	J	mg/L	0.0020	0.0006	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:34	AKB
<b>Cobalt</b>	<b>0.004</b>		mg/L	0.004	0.004	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:34	AKB
Copper	ND	u	mg/L	0.003	0.001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:34	AKB
<b>Iron</b>	<b>0.354</b>	D1	mg/L	0.200	0.100	SW846 6010 B	12/14/2022 08:21	01/05/2023 14:05	MRWD
Lead	ND	u	mg/L	0.002	0.0005	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:34	AKB
<b>Lithium</b>	<b>0.03</b>		mg/L	0.02	0.005	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:34	AKB
Mercury	ND	u	mg/L	0.0005	0.0002	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:34	AKB
Molybdenum	ND	u	mg/L	0.01	0.002	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:34	AKB
Selenium	ND	u	mg/L	0.003	0.001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:34	AKB
<b>Sodium</b>	<b>834</b>	D1	mg/L	26.0	10.0	SW846 6010 B	12/14/2022 08:21	12/19/2022 16:35	MRWD
Thallium	ND	u	mg/L	0.0020	0.0001	SW846-6020 A	12/14/2022 08:21	12/17/2022 13:34	AKB

**Conventional Chemistry Analyses Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chemical Oxygen Demand</b>	<b>123</b>		mg/L	8	8	HACH 8000	12/19/2022 09:58	12/20/2022 11:23	HMF
<b>pH (Lab)</b>	<b>6.90</b>	H3	Std. Units	0.10	0.10	4500-H+ B-2000	12/15/2022 15:05	12/15/2022 15:05	CML
<b>Total Dissolved Solids</b>	<b>5810</b>		mg/L	25	25	2540 C-2011	12/17/2022 07:08	12/17/2022 07:08	HAG
<b>Total Organic Carbon</b>	<b>0.9</b>		mg/L	0.5	0.4	5310 C-2011	01/05/2023 10:28	01/05/2023 14:51	HMF

**Subcontracted Analyses**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>See Attached Subcontract Report</b>	<b>-0.060</b>	_Sub	pCi/L			EPA 903.1	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>See Attached Subcontract Report</b>	<b>1.29</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>Radium</b>	<b>1.29</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW
<b>See Attached Subcontract Report</b>	<b>1.29</b>	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	01/04/2023 14:19	01/04/2023 14:20	RCW

**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
<b>Chloride</b>	<b>3450</b>	D, M2	mg/L	25.0	18.0	SW846 9056	12/20/2022 04:41	12/20/2022 04:41	CSC
<b>Fluoride</b>	<b>0.4</b>	M2	mg/L	0.2	0.2	SW846 9056	12/20/2022 04:17	12/20/2022 04:17	CSC
<b>Sulfate</b>	<b>4480</b>	D, M2	mg/L	50	25	SW846 9056	12/20/2022 04:41	12/20/2022 04:41	CSC



**Notes for work order 2094227**

- Samples collected by PACE personnel are done so in accordance with procedures set forth in PACE field services SOPs .
  - Results contained in this report are only representative of the samples received.
  - PACE does not provide interpretation of these results unless otherwise stated .
  - All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
  - All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
  - Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
  - The Chain of Custody document is included as part of this report.
  - All Library Search analytes should be regarded as tentative identification based on the presumptive evidence of the mass spectra.
- Concentrations reported are estimated values.

**Qualifiers**

- \_Sub See subcontractors report.
- D Results reported from dilution.
- D1 Sample required dilution due to high concentration of target analyte.
- D2 Sample required dilution due to matrix interference.
- H3 Sample received and analyzed past holding time.
- J Estimated value.
- M1 Matrix spike recovery was high; the method control sample recovery was acceptable.
- M2 Matrix spike recovery was low; the method control sample recovery was acceptable.
- M3 The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.
- U Target analyte was analyzed for, but was below detection limit (the value associated with the qualifier is the laboratory method detection limit in our LIMS system).

**Standard Qualifiers/Acronyms**

- MDL Method Detection Limit
- MRL Minimum Reporting Limit
- ND Not Detected
- LCS Laboratory Control Sample
- MS Matrix Spike
- MSD Matrix Spike Duplicate
- DUP Sample Duplicate
- % Rec Percent Recovery
- RPD Relative Percent Difference
- > Greater than
- < Less than



**Metals by SW846 6000 Series Methods Madisonville - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch BBL1619 - EPA 200.2**

**Blank (BBL1619-BLK1)**

Prepared: 12/14/2022 8:21, Analyzed: 12/17/2022 13:00

Molybdenum	ND	0.01	mg/L							U
Mercury	ND	0.0005	mg/L							U
Antimony	ND	0.005	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Cobalt	ND	0.004	mg/L							U
Copper	ND	0.003	mg/L							U
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U

**Blank (BBL1619-BLK2)**

Prepared: 12/14/2022 8:21, Analyzed: 12/19/2022 15:12

Boron	ND	0.10	mg/L							U
Calcium	ND	0.40	mg/L							U
Iron	ND	0.100	mg/L							U
Sodium	ND	0.26	mg/L							U

**LCS (BBL1619-BS1)**

Prepared: 12/14/2022 8:21, Analyzed: 12/17/2022 13:02

Antimony	0.069	0.005	mg/L	0.0625		111	85-115			
Mercury	0.0026	0.0005	mg/L	0.00250		105	85-115			
Molybdenum	0.07	0.01	mg/L	0.0625		107	85-115			
Arsenic	0.0666	0.0010	mg/L	0.0625		107	85-115			
Barium	0.065	0.004	mg/L	0.0625		104	85-115			
Beryllium	0.0647	0.0020	mg/L	0.0625		104	85-115			
Cadmium	0.0670	0.0010	mg/L	0.0625		107	85-115			
Chromium	0.0671	0.0020	mg/L	0.0625		107	85-115			
Cobalt	0.066	0.004	mg/L	0.0625		106	85-115			
Copper	0.067	0.003	mg/L	0.0625		107	85-115			
Lead	0.066	0.002	mg/L	0.0625		106	85-115			
Lithium	0.07	0.02	mg/L	0.0625		108	85-115			
Selenium	0.065	0.003	mg/L	0.0625		105	85-115			
Thallium	0.0671	0.0020	mg/L	0.0625		107	85-115			



**Metals by SW846 6000 Series Methods Madisonville - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch BBL1619 - EPA 200.2**

**LCS (BBL1619-BS2)**

Prepared: 12/14/2022 8:21, Analyzed: 12/19/2022 15:15

Boron	0.14	0.10	mg/L	0.125		113	85-115			
Calcium	6.73	0.40	mg/L	6.25		108	85-115			
Iron	6.75	0.100	mg/L	6.25		108	85-115			
Sodium	6.06	0.26	mg/L	6.25		97.0	85-115			

**Matrix Spike (BBL1619-MS1)**

Source: 2094226-01

Prepared: 12/14/2022 8:21, Analyzed: 12/17/2022 13:37

Mercury	0.0025	0.0005	mg/L	0.00250	ND	100	80-120			
Molybdenum	0.07	0.01	mg/L	0.0625	ND	109	80-120			
Antimony	0.071	0.005	mg/L	0.0625	ND	114	80-120			
Arsenic	0.0687	0.0010	mg/L	0.0625	0.0008	109	80-120			
Barium	0.152	0.004	mg/L	0.0625	0.085	108	80-120			
Beryllium	0.0571	0.0020	mg/L	0.0625	ND	91.4	80-120			
Cadmium	0.0666	0.0010	mg/L	0.0625	ND	106	80-120			
Chromium	0.0689	0.0020	mg/L	0.0625	ND	110	80-120			
Cobalt	0.067	0.004	mg/L	0.0625	ND	108	80-120			
Copper	0.064	0.003	mg/L	0.0625	ND	102	80-120			
Lead	0.063	0.002	mg/L	0.0625	ND	100	80-120			
Lithium	0.08	0.02	mg/L	0.0625	0.03	87.0	80-120			
Selenium	0.065	0.003	mg/L	0.0625	ND	104	80-120			
Thallium	0.0624	0.0020	mg/L	0.0625	ND	99.9	80-120			

**Matrix Spike (BBL1619-MS2)**

Source: 2094226-01

Prepared: 12/14/2022 8:21, Analyzed: 12/19/2022 16:38

Boron	2.00	1.00	mg/L	0.125	1.82	141	80-120			D2, M1
Calcium	36.7	4.00	mg/L	6.25	31.2	89.1	80-120			D2
Iron	7.24	1.00	mg/L	6.25	ND	116	80-120			D2
Sodium	198	2.60	mg/L	6.25	204	NR	80-120			D2, M3

**Matrix Spike Dup (BBL1619-MSD1)**

Source: 2094226-01

Prepared: 12/14/2022 8:21, Analyzed: 12/17/2022 13:39

Antimony	0.068	0.005	mg/L	0.0625	ND	108	80-120	4.73	20	
Mercury	0.0025	0.0005	mg/L	0.00250	ND	98.5	80-120	1.85	20	
Molybdenum	0.07	0.01	mg/L	0.0625	ND	104	80-120	4.09	20	
Arsenic	0.0655	0.0010	mg/L	0.0625	0.0008	104	80-120	4.89	20	
Barium	0.147	0.004	mg/L	0.0625	0.085	98.9	80-120	3.70	20	
Beryllium	0.0567	0.0020	mg/L	0.0625	ND	90.7	80-120	0.761	20	
Cadmium	0.0635	0.0010	mg/L	0.0625	ND	102	80-120	4.73	20	
Chromium	0.0660	0.0020	mg/L	0.0625	ND	106	80-120	4.31	20	
Cobalt	0.065	0.004	mg/L	0.0625	ND	103	80-120	4.24	20	
Copper	0.061	0.003	mg/L	0.0625	ND	98.3	80-120	3.59	20	
Lead	0.060	0.002	mg/L	0.0625	ND	96.2	80-120	4.19	20	
Lithium	0.08	0.02	mg/L	0.0625	0.03	88.9	80-120	1.43	20	
Selenium	0.060	0.003	mg/L	0.0625	ND	96.5	80-120	7.55	20	
Thallium	0.0604	0.0020	mg/L	0.0625	ND	96.6	80-120	3.31	20	



**Metals by SW846 6000 Series Methods Madisonville - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch BBL1619 - EPA 200.2**

**Matrix Spike Dup (BBL1619-MSD2) Source: 2094226-01**

Prepared: 12/14/2022 8:21, Analyzed: 12/19/2022 16:41

Boron	1.94	1.00	mg/L	0.125	1.82	96.7	80-120	2.80	20	D2
Calcium	35.9	4.00	mg/L	6.25	31.2	74.9	80-120	2.44	20	D2, M2
Iron	6.96	1.00	mg/L	6.25	ND	111	80-120	3.85	20	D2
Sodium	193	2.60	mg/L	6.25	204	NR	80-120	2.31	20	D2, M3

**Post Spike (BBL1619-PS1) Source: 2094226-01**

Prepared: 12/14/2022 8:21, Analyzed: 12/17/2022 13:41

Molybdenum	67.7		ug/L	62.5	1.16	106	75-125			
Mercury	2.55		ug/L	2.50	0.126	96.9	75-125			
Antimony	67.2		ug/L	62.5	0.082	107	75-125			
Arsenic	68.3		ug/L	62.5	0.772	108	75-125			
Barium	154		ug/L	62.5	85.1	111	75-125			
Beryllium	58.0		ug/L	62.5	-0.0440	92.7	75-125			
Cadmium	66.0		ug/L	62.5	0.0560	105	75-125			
Chromium	68.5		ug/L	62.5	0.194	109	75-125			
Cobalt	66.9		ug/L	62.5	1.20	105	75-125			
Copper	63.7		ug/L	62.5	0.517	101	75-125			
Lead	62.9		ug/L	62.5	0.034	101	75-115			
Lithium	81.5		ug/L	62.5	26.8	87.5	75-125			
Selenium	65.2		ug/L	62.5	0.040	104	75-125			
Thallium	62.8		ug/L	62.5	0.0240	100	75-125			

**Post Spike (BBL1619-PS2) Source: 2094226-01**

Prepared: 12/14/2022 8:21, Analyzed: 12/19/2022 16:44

Boron	2010		ug/L	125	1820	152	75-125			D2, M1
Calcium	37200		ug/L	6250	31200	95.6	75-125			D2
Iron	7190		ug/L	6250	452	108	75-125			D2
Sodium	199000		ug/L	6250	204000	NR	75-125			D2, M3



Conventional Chemistry Analyses Madisonville - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBL1572 - Default Prep Wet Chem

Blank (BBL1572-BLK1)

Prepared: 12/13/2022 13:51, Analyzed: 12/13/2022 13:51

Total Dissolved Solids	ND	25	mg/L							U
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LCS (BBL1572-BS1)

Prepared: 12/13/2022 13:51, Analyzed: 12/13/2022 13:51

Total Dissolved Solids	1500	25	mg/L	1500		99.7	80-120			
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Duplicate (BBL1572-DUP1) Source: 2094226-01

Prepared: 12/13/2022 13:51, Analyzed: 12/13/2022 13:51

Total Dissolved Solids	610	50	mg/L		602			1.32	10	
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Duplicate (BBL1572-DUP2) Source: 2122984-01

Prepared: 12/13/2022 13:51, Analyzed: 12/13/2022 13:51

Total Dissolved Solids	906	50	mg/L		926			2.18	10	
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Batch BBL1992 - Default Prep WET Testing

LCS (BBL1992-BS1)

Prepared: 12/15/2022 15:05, Analyzed: 12/15/2022 15:05

pH (Lab)	7.99		Std. Units	8.00		99.9	98.8-101.2			
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LCS (BBL1992-BS2)

Prepared: 12/15/2022 15:05, Analyzed: 12/15/2022 15:05

pH (Lab)	7.98		Std. Units	8.00		99.8	98.8-101.2			
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Duplicate (BBL1992-DUP1) Source: 2094389-01

Prepared: 12/15/2022 15:05, Analyzed: 12/15/2022 15:05

pH (Lab)	7.78	0.10	Std. Units		7.77			0.129	10	H3
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Duplicate (BBL1992-DUP2) Source: 2123403-01

Prepared: 12/15/2022 15:05, Analyzed: 12/15/2022 15:05

pH (Lab)	1.47	0.10	Std. Units		1.48			0.678	10	H3
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Batch BBL2247 - Default Prep Wet Chem

Blank (BBL2247-BLK1)

Prepared: 12/17/2022 7:08, Analyzed: 12/17/2022 7:08

Total Dissolved Solids	ND	25	mg/L							U
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Conventional Chemistry Analyses Madisonville - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBL2247 - Default Prep Wet Chem

LCS (BBL2247-BS1)

Prepared: 12/17/2022 7:08, Analyzed: 12/17/2022 7:08

Total Dissolved Solids	1460	25	mg/L	1500		97.3	80-120			
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Duplicate (BBL2247-DUP1)

Source: 2094226-03RE1

Prepared: 12/17/2022 7:08, Analyzed: 12/17/2022 7:08

Total Dissolved Solids	5430	25	mg/L		5350			1.48	10	
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Batch BBL2336 - Default Prep Wet Chem

Blank (BBL2336-BLK1)

Prepared: 12/19/2022 17:31, Analyzed: 12/20/2022 11:23

Chemical Oxygen Demand	ND	8	mg/L							U
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LCS (BBL2336-BS1)

Prepared: 12/19/2022 17:31, Analyzed: 12/20/2022 11:23

Chemical Oxygen Demand	122	8	mg/L	125		97.6	90-110			
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Duplicate (BBL2336-DUP1)

Source: 2094226-01

Prepared: 12/19/2022 17:31, Analyzed: 12/20/2022 11:23

Chemical Oxygen Demand	9	8	mg/L		ND				25	
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Matrix Spike (BBL2336-MS1)

Source: 2094226-01

Prepared: 12/19/2022 17:31, Analyzed: 12/20/2022 11:23

Chemical Oxygen Demand	249	8	mg/L	250	ND	99.6	90-110			
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Matrix Spike Dup (BBL2336-MSD1)

Source: 2094226-01

Prepared: 12/19/2022 17:31, Analyzed: 12/20/2022 11:23

Chemical Oxygen Demand	246	8	mg/L	250	ND	98.4	90-110	1.21	10	
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Batch BBL3077 - Default Prep Wet Chem

Blank (BBL3077-BLK1)

Prepared: 12/23/2022 11:18, Analyzed: 12/24/2022 6:27

Total Organic Carbon	ND	0.5	mg/L							U
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Conventional Chemistry Analyses Madisonville - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch BBL3077 - Default Prep Wet Chem</b>										
<b>LCS (BBL3077-BS1)</b>										
Prepared: 12/23/2022 11:18, Analyzed: 12/24/2022 6:48										
Total Organic Carbon	5.0	0.5	mg/L	5.00		100	80-120			
<b>Duplicate (BBL3077-DUP1) Source: 2094226-05</b>										
Prepared: 12/23/2022 11:18, Analyzed: 12/24/2022 12:05										
Total Organic Carbon	0.6	0.5	mg/L		0.7			9.37	25	
<b>Duplicate (BBL3077-DUP2) Source: 2094226-08</b>										
Prepared: 12/23/2022 11:18, Analyzed: 12/24/2022 17:24										
Total Organic Carbon	0.5	0.5	mg/L		0.5			5.80	25	
<b>Matrix Spike (BBL3077-MS1) Source: 2094226-06</b>										
Prepared: 12/23/2022 11:18, Analyzed: 12/24/2022 12:26										
Total Organic Carbon	4.9	0.5	mg/L	2.50	2.4	97.3	80-120			
<b>Matrix Spike (BBL3077-MS2) Source: 2094227-01</b>										
Prepared: 12/23/2022 11:18, Analyzed: 12/24/2022 17:45										
Total Organic Carbon	53.9	5.0	mg/L	50.0	ND	108	80-120			D1
<b>Batch BCA0339 - Default Prep Wet Chem</b>										
<b>Blank (BCA0339-BLK1)</b>										
Prepared: 1/5/2023 10:28, Analyzed: 1/5/2023 14:09										
Total Organic Carbon	ND	0.5	mg/L							U
<b>LCS (BCA0339-BS1)</b>										
Prepared: 1/5/2023 10:28, Analyzed: 1/5/2023 13:48										
Total Organic Carbon	5.1	0.5	mg/L	5.00		101	80-120			
<b>Duplicate (BCA0339-DUP1) Source: 2123368-01</b>										
Prepared: 1/5/2023 10:28, Analyzed: 1/5/2023 19:25										
Total Organic Carbon	1.4	0.5	mg/L		1.4			0.682	25	
<b>Duplicate (BCA0339-DUP2) Source: 2124671-04</b>										
Prepared: 1/5/2023 10:28, Analyzed: 1/6/2023 0:40										
Total Organic Carbon	1.7	0.5	mg/L		1.7			0.721	25	



**Conventional Chemistry Analyses Madisonville - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch BCA0339 - Default Prep Wet Chem</b>										
<b>Matrix Spike (BCA0339-MS1)</b>		<b>Source: 2123368-02</b>								
Prepared: 1/5/2023 10:28, Analyzed: 1/5/2023 19:46										
Total Organic Carbon	3.6	0.5	mg/L	2.50	1.2	96.8	80-120			
<b>Matrix Spike (BCA0339-MS2)</b>		<b>Source: 2124671-05</b>								
Prepared: 1/5/2023 10:28, Analyzed: 1/6/2023 1:02										
Total Organic Carbon	6.5	0.5	mg/L	5.00	1.7	96.1	80-120			



**Ion Chromatography Madisonville - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch BBL2480 - Default Prep IC**

**Matrix Spike (BBL2480-MS1) Source: 2094227-01**

Prepared: 12/20/2022 5:05, Analyzed: 12/20/2022 5:05

Fluoride	1.2		mg/L	4.00	0.4	19.0	75-125			M2
Chloride	1710		mg/L	8.00	3100	NR	75-125			M2
Sulfate	2170		mg/L	32.0	4040	NR	75-125			M2

**Matrix Spike Dup (BBL2480-MSD1) Source: 2094227-01**

Prepared: 12/20/2022 5:30, Analyzed: 12/20/2022 5:30

Fluoride	0.8		mg/L	4.00	0.4	11.1	75-125	31.4	15	M2
Chloride	1730		mg/L	8.00	3100	NR	75-125	1.15	15	M2
Sulfate	2190		mg/L	32.0	4040	NR	75-125	0.936	15	M2

**Certified Analyses included in this Report**

Analyte	Certifications
<b>2540 C-2011 in Water</b>	
Total Dissolved Solids	KY Drinking Water Mdv (00030) VA NELAC MDV (460210) KY Wastewater Mdv (00030) TN Drinking Water (02819) WV Wastewater Madisonville (241), 825 Industrial Rd Madisonville, KY 42431
<b>4500-H+ B-2000 in Water</b>	
pH (Lab)	KY Drinking Water Mdv (00030) TN Drinking Water (02819)
<b>5310 C-2011 in Water</b>	
Total Organic Carbon	KY Drinking Water Mdv (00030) VA NELAC MDV (460210) KY Wastewater Mdv (00030) TN Drinking Water (02819) ADEM Drinking Water Mdv (41880) WV Wastewater Madisonville (241), 825 Industrial Rd Madisonville, KY 42431 AK Drinking Water MADV (KY00020)
<b>HACH 8000 in Water</b>	
Chemical Oxygen Demand	KY Wastewater Mdv (00030) VA NELAC MDV (460210) WV Wastewater Madisonville (241), 825 Industrial Rd Madisonville, KY 42431
<b>SW846 6010 B in Water</b>	
Calcium	VA NELAC MDV (460210)

<b>Sample Acceptance Checklist for Work Order 2094227</b>	
Shipped By: Client	Temperature: 2.10° Celcius
<b>Condition</b>	
Check if Custody Seals are Present/Intact	<input type="checkbox"/>
Check if Custody Signatures are Present	<input checked="" type="checkbox"/>
Check if Collector Signature Present	<input checked="" type="checkbox"/>
Check if bottles are intact	<input checked="" type="checkbox"/>
Check if bottles are correct	<input checked="" type="checkbox"/>
Check if bottles have sufficient volume	<input checked="" type="checkbox"/>
Check if samples received on ice	<input checked="" type="checkbox"/>
Check if VOA headspace is acceptable	<input type="checkbox"/>
Check if samples received in holding time.	<input checked="" type="checkbox"/>
Check if samples are preserved properly	<input checked="" type="checkbox"/>

### Chain of Custody

**Scheduled for: 09/29/2022**



**Client:** Big Rivers Electric Corporation  
Reid/Green Station

**Report To:**  
Big Rivers Electric Corporation Reid/Green  
Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

**Invoice To:**  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

**Project:** Green Landfill Semiannual Well MW104

Phone: (270) 844-6000  
PWS ID#:  
State: KY

PO#:  
Quote#

Please Print Legibly

Collected by (Signature): Greg Dick  
\*required information\*

Compliance Monitoring? Yes  No

Samples Chlorinated? Yes  No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date N/A End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_  
Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY	*required information*		Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
Workorder # Sample ID#	Date (mm/dd/yy)	Collection Time (24 hr)					
2094227-01 A	<u>12/10/22</u>	<u>1010</u>	Plastic 500mL pH<2 w/HNO3	1	MW-104	g / c	Thallium Tot 6020 Antimony Tot 6020 Beryllium Tot 6020 Barium Tot 6020 Arsenic Tot 6020 Boron Tot 6010B Cadmium Tot 6020 Calcium Tot 6010B Chromium Tot 6020 Cobalt Tot 6020 Copper Tot 6020 Iron Tot 6010B Lead Tot 6020 Lithium Tot 6020 Mercury Tot 6020
			Preservation Check: pH: <input checked="" type="checkbox"/>				
2094227-01 B	<u>12/10/22</u>	<u>1010</u>	Plastic 1L	1	MW-104	g / c	Chloride 9056 Fluoride 9056 pH (Lab) Sulfate 9056 TDS
2094227-01 C	<u>12/10/22</u>	<u>1010</u>	Plastic 500mL pH<2 w/H2SO4	1	MW-104	g / c	COD TOC
			Preservation Check: pH: <input checked="" type="checkbox"/>				
2094227-01 D	<u>12/10/22</u>	<u>1010</u>	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1	MW-104	g / c	Radium 226 (sub)
			Preservation Check: pH: <input checked="" type="checkbox"/>				
2094227-01 E	<u>12/10/22</u>	<u>1010</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW-104	g / c	Radium 228 (sub)
			Preservation Check: pH: <input checked="" type="checkbox"/>				

Preservation Check Performed by: ZAH

Field data collected by: Greg Dick Date (mm/dd/yy) 12/10/22 Time (24 hr) 1010  
pH 6.91 Cond (umho) 8350 Res Cl (mg/L) \_\_\_\_\_ Tot Cl (mg/L) \_\_\_\_\_ Free Cl (mg/L) \_\_\_\_\_  
Temp (oC) 15.49 or (oF) \_\_\_\_\_ Static Water Level \_\_\_\_\_ DO (mg/L) \_\_\_\_\_ Turb. (NTU) \_\_\_\_\_  
Flow (MGD) \_\_\_\_\_ or (CFS) \_\_\_\_\_ or (g/min) \_\_\_\_\_

Relinquished by: (Signature) <u>Greg Dick</u>	Received by: (Signature) <u>ZAH</u>	Date (mm/dd/yy) <u>12/12/22</u>	Time (24 hr) <u>1436</u>
--	--	------------------------------------	-----------------------------

# Chain of Custody

Scheduled for: **09/29/2022**



Client: Big Rivers Electric Corporation  
Reid/Green Station

Report To:  
Big Rivers Electric Corporation Reid/Green  
Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419  
Phone: (270) 844-6000  
PWS ID#:  
State: KY

Invoice To:  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419  
PO#: \_\_\_\_\_  
Quote#: \_\_\_\_\_

Project: Green Landfill Semiannual Well MW104

Please Print Legibly

Collected by (Signature): Phy Quist  
\*required information\*

Compliance Monitoring? Yes \_\_\_ No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Samples Chlorinated? Yes \_\_\_ No

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date N/A End Time \_\_\_\_\_ Temp(oC) \_\_\_\_\_

Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY		*required information*		Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
Workorder #	Date	Date	Collection					
2094227	(mm/dd/yy):	Time (24 hr):						
Sample ID#								
2094227-01 F	<u>12/10/22</u>	<u>1010</u>	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW-104	g / c	Radium 228 (sub)	
			Preservation Check: pH : <input checked="" type="checkbox"/>					
2094227-01 G	<u>12/10/22</u>	<u>1010</u>	Plastic 1L pH<2 w/HNO3 (Sub)	1	MW-104	g / c	Radium Total (sub)	
			Preservation Check: pH : <input checked="" type="checkbox"/>					
2094227-01 H	<u>12/10/22</u>	<u>1010</u>	AG 250mL pH<2 w/H2SO4	1	MW-104	g / c	TOC	
			Preservation Check: pH : <input checked="" type="checkbox"/>					

Thermometer Serial Number

181390287  
 181460057  
Temp 2.1 °C

Preservation Check Performed by: ZAWT

Field data collected by: _____	Date (mm/dd/yy) _____	Time (24 hr) _____
pH _____	Cond (umho) _____	Res Cl (mg/L) _____
Temp (oC) _____	or (oF) _____	Static Water Level _____
Flow (MGD) _____	or (CFS) _____	or (g/min) _____
		Tot Cl (mg/L) _____
		Free Cl (mg/L) _____
		DO (mg/L) _____
		Turb. (NTU) _____

Relinquished by: (Signature) <u>Phy Quist</u>	Received by: (Signature) <u>Zou Lu</u>	Date (mm/dd/yy) <u>12/12/22</u>	Time (24 hr) <u>1436</u>
_____	_____	_____	_____
_____	_____	_____	_____

PACE- Check here if trip charge applied to associated COC

Printed: 9/20/2022 12:12:02PM



## CERTIFICATIONS

Project: 2094227/Green Landfill Semiann  
Pace Project No.: 30547209

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 460198  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE SUMMARY

Project: 2094227/Green Landfill Semiann

Pace Project No.: 30547209

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30547209001	2094227-01	Water	12/10/22 10:10	12/14/22 10:20

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 2094227/Green Landfill Semiann  
Pace Project No.: 30547209

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30547209001	2094227-01	EPA 903.1	CLM	1	PASI-PA
		EPA 904.0	JJS1	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 2094227/Green Landfill Semiann

Pace Project No.: 30547209

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: 2094227-01</b> <b>Lab ID: 30547209001</b> Collected: 12/10/22 10:10      Received: 12/14/22 10:20      Matrix: Water PWS:      Site ID:      Sample Type:						
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>-0.0598 ± 0.423 (0.898)</b> <b>C:NA T:93%</b>	pCi/L	01/03/23 15:40	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>1.29 ± 0.549 (0.912)</b> <b>C:85% T:78%</b>	pCi/L	01/03/23 15:57	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	<b>1.29 ± 0.972 (1.81)</b>	pCi/L	01/04/23 14:05	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: 2094227/Green Landfill Semiann

Pace Project No.: 30547209

QC Batch: 554728

Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0

Analysis Description: 904.0 Radium 228

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30547209001

METHOD BLANK: 2695227

Matrix: Water

Associated Lab Samples: 30547209001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	-0.0606 ± 0.364 (0.869) C:75% T:77%	pCi/L	01/03/23 15:55	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: 2094227/Green Landfill Semiann

Pace Project No.: 30547209

QC Batch: 554726

Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1

Analysis Description: 903.1 Radium-226

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30547209001

METHOD BLANK: 2695226

Matrix: Water

Associated Lab Samples: 30547209001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.421 ± 0.265 (0.114) C:NA T:96%	pCi/L	01/03/23 15:26	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: 2094227/Green Landfill Semiann  
Pace Project No.: 30547209

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Act - Activity

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

## REPORT OF LABORATORY ANALYSIS

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Chain of Custody



Workorder: 2094227

Workorder Name: Green Landfill Semiannual

Owner Received Date: 12/12/2022

Results Requested By: standard

Report To:

Subcontract To:

Requested Analysis

Pace Analytical Services, LLC  
 825 Industrial Road  
 Madisonville, KY 42409  
 270-821-7375  
 rob.whittington@pacelabs.com

Pace Analytical Services LLC Greensburg PA  
 1638 Rosey Town Rd Suite 2,3,4  
 Greensburg, PA 15601  
 (724) 850-5615

**WO#: 30547209**

PM: ADC Due Date: 01/06/23

CLIENT: PACE\_44\_MVKY

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers		LAB USE ONLY
						EPA 903.1	EPA 904.0 Radium Sum Calc	
1								
2	2094227-01		12/10/22 10:10	IR44-McCoy	Water	X	X	
3								
4								
5								
6								
7								
8								
9								
10								

Transfers	Released By	Date/Time	Received By	Date/Time	Comments
1					
2					
3					

Cooler Temperature on Receipt \_\_\_\_\_ °C Custody Seal Y or N Received on Ice Y or N Sample Intact Y or N

\*\*\*In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC  
 This chain of custody is considered complete as is since this information is available in the owner laboratory.

**SUBCONTRACT ORDER**  
**Pace Analytical Services, LLC Kentucky**  
**2094227**

**SENDING LABORATORY:**

Pace Analytical Services, LLC Kentucky  
 PO BOX 907  
 Madisonville, KY 42431  
 Phone: (270) 821-7375  
 Fax: 844-270-7904  
 Project Manager: Rob Whittington

**RECEIVING LABORATORY:**

Pace Analytical Services LLC Greensburg PA  
 1638 Rosey Town Rd Suite 2,3,4  
 Greensburg, PA 15601  
 Phone :(724) 850-5615  
 Fax:

Analysis	Expires	Laboratory ID	Comments
Sample ID: 2094227-01	Water	Sampled:12/10/2022 10:10	Specific Method <span style="float:right">001</span>
Radium Total (sub)	06/08/2023 10:10	EPA 904.0 Radium Sum C	
Radium 228 (sub)	06/08/2023 10:10	EPA 904.0 Radium Sum C	
Radium 226 (sub)	06/08/2023 10:10	EPA 903.1	

**WO# : 30547209**



<i>ammy gai</i>	12-13-22	<i>[Signature]</i>	<i>[Signature]</i>
Released By	Date	Received By	Date
Released By	Date	Received By	Date

DC#\_Title: ENV-FRM-GBUR-0088 v02\_Sample Condition Upon Receipt-  
Pittsburgh

**WO# : 30547209**

Effective Date: 10/03/2022

PM: ADC Due Date: 01/06/23  
CLIENT: PACE\_44\_MVKY



Client Name: Pace - KY

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace  Other

Tracking Number: 1Z0674570141716687

Examined By	<u>PS</u>
Labeled By	<u>PS</u>
Temped By	<u>PS</u>

Custody Seal on Cooler/Box Present:  Yes  No Seals Intact:  Yes  No

Thermometer Used: 16 Type of Ice: Wet Blue None

Cooler Temperature: Observed Temp 10.7 °C Correction Factor: +1.2 °C Final Temp: 10.9 °C  
Temp should be above freezing to 6°C

Comments:	pH paper Lot#			D.P.D. Residual Chlorine Lot #		
	Yes	No	NA	<u>1002221</u>		
Chain of Custody Present	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.		
Chain of Custody Filled Out: -Were client corrections present on COC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.		
Chain of Custody Relinquished	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.		
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4.		
Sample Labels match COC: -Includes date/time/ID Matrix: <u>WT</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.		
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.		
Short Hold Time Analysis (<72hr remaining):	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.		
Rush Turn Around Time Requested:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8.		
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.		
Correct Containers Used: -Pace Containers Used	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10.		
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11.		
Orthophosphate field filtered:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	12.		
Hex Cr Aqueous samples field filtered:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	13.		
Organic Samples checked for dechlorination	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	14:		
Filtered volume received for dissolved tests:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	15:		
All containers checked for preservation: exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, non-aqueous matrix	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16. <u>PH42</u>		
All containers meet method preservation requirements:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed <u>PS</u>	Date/Time of Preservation	
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Lot# of added Preservative		
Trip Blank Present:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	17.		
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	18.		
Rad Samples Screened <0.5 mrem/hr.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed <u>PS</u>	Date: <u>12/16/22</u>	Survey Meter SN: <u>1263</u>
Comments:						

Note: For NC compliance samples with discrepancies, a copy of this form must be sent to the DEHNR Certification office. PM Review is documented electronically in LIMS through the SRF Review schedule in the Workorder Edit Screen.



Pace Greensburg Lab -Sample Container Count

Client \_\_\_\_\_

Profile Number | 1851

Site 2094227

Notes \_\_\_\_\_

Sample Line Item	Matrix	AG1H	AG1S	AG1T	AG2U	AG3S	AG3U	AG5U	AG5T	BG1U	BG2U	BP1N	BP1U	BP2S	BP2U	BP3C	BP3N	BP3S	BP3U	DG9S	GCUB	VG9H	VG9T	VG9U	VOAK	WG9U	WGKU	ZPLC
1	WT																											
2																												
3																												
4																												
5																												
6																												
7																												
8																												
9																												
10																												
11																												
12																												

WO#: 30547209

PM: ADC Due Date: 01/06/23  
 CLIENT: PACE\_44\_MVKY

Container Codes

Glass	
GJN	1 Gallon Jug with HNO3
AG5U	100mL amber glass unprservd
AG5T	100mL amber glass Na Thiosulfate
GJN	1 Gallon Jug
AG1S	1L amber glass H2SO4
AG1H	1L amber glass HCl
AG1T	1L amber glass Na Thiosulfate
BG1U	1L clear glass unprservd
AG3S	250mL amber glass H2SO4
AG3U	250mL amber glass unprservd
DG9S	40mL amber VOA vial H2SO4
VG9U	40mL clear VOA vial
VG9T	40mL clear VOA vial Na Thiosulfate
VG9H	40mL clear VOA vial HCl
JGFU	4oz amber wide jar
WG9U	4oz wide jar unprservd
BG2U	500mL clear glass unprservd
AG2U	500mL amber glass unprservd
WGKU	8oz wide jar unprservd

Plastic / Misc.	
GCUB	1 Gallon Cubitainer
12GN	1/2 Gallon Cubitainer
SP5T	120mL Coliform Na Thiosulfate
BP1N	1L plastic HNO3
BP1U	1L plastic unprservd
BP3S	250mL plastic H2SO4
BP3N	250mL plastic HNO3
BP3U	250mL plastic unprservd
BP3C	250ml plastic NaOH
BP2S	500mL plastic H2SO4
BP2U	500mL plastic unprservd
EZI	5g Encore
VOAK	Kit for Volatile Solid
I	Wipe/Swab
ZPLC	Ziploc Bag
WT	Water
SL	Solid
OL	Non-aqueous liquid
WP	Wipe

**APPENDIX F – GREEN SURFACE IMPOUNDMENT LABORATORY  
ANALYTICAL REPORTS**

## Certificate of Analysis 2033748

Chad Phillips  
Big Rivers Electric Corporation Reid/Green Station  
PO Box 24  
Henderson, KY 42419

Customer ID: 44-102032  
Report Printed: 05/04/2022 16:40

Project Name: Green Surface Impoundment

Workorder: 2033748

Dear Chad Phillips

Enclosed are the analytical results for samples received by the laboratory 04/21/2022 14:20.

The results relate to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services LLC Kentucky - Madisonville

If you have any questions concerning this report, please feel free to contact me.



#460210 Madisonville, KY  
#460291 Pikeville, KY



Rob Whittington, Project Manager

*This page is included as part of the Analytical Report and must be retained as a permanent record thereof.*



**SAMPLE SUMMARY**

Lab ID	Client Sample ID/Alias	Matrix	Date Collected	Date Received	Sampled By
2033748-01	MW11/	Groundwater	04/21/2022 09:05	04/21/2022 14:20	Phillip Hill
2033748-02	MW12/	Groundwater	04/21/2022 10:10	04/21/2022 14:20	Phillip Hill
2033748-03	MW13/	Groundwater	04/21/2022 11:20	04/21/2022 14:20	Phillip Hill
2033748-04	MW14/	Groundwater	04/21/2022 12:15	04/21/2022 14:20	Phillip Hill
2033748-05	DUPLICATE/	Groundwater	04/21/2022 10:20	04/21/2022 14:20	Phillip Hill
2033748-06	FIELD BLANK/	Water	04/21/2022 12:30	04/21/2022 14:20	Phillip Hill

<u>LabNumber</u>	<u>Measurement</u>	<u>Value</u>
2033748-01	Field Conductance	7670
	Field pH	6.85
	Field Temp (C)	16.05
2033748-02	Field Conductance	898
	Field pH	6.77
	Field Temp (C)	16.29
2033748-03	Field Conductance	1020
	Field pH	6.61
	Field Temp (C)	17.00
2033748-04	Field Conductance	1580
	Field pH	6.52
	Field Temp (C)	17.25
2033748-05	Field Conductance	898
	Field pH	6.77
	Field Temp (C)	16.29



**ANALYTICAL RESULTS**

Lab Sample ID: **2033748-01**  
 Description: **MW11**

Sample Collection Date Time: 04/21/2022 09:05  
 Sample Received Date Time: 04/21/2022 14:20

**Metals by SW846 6000 Series Methods Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Boron	0.84	M1	mg/L	0.10	0.10	SW846 6010 B	04/26/2022 08:18	05/02/2022 13:16	AKB
Calcium	315	D1, M3	mg/L	40.0	13.0	SW846 6010 B	04/26/2022 08:18	05/03/2022 12:54	AKB

**Conventional Chemistry Analyses Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
pH (Lab)	6.96	H3	Std. Units	0.10	0.10	4500-H+ B-2000	04/25/2022 14:50	04/25/2022 14:50	JLW
Total Dissolved Solids	4760		mg/L	50	50	2540 C-2011	04/22/2022 16:14	04/22/2022 16:14	HAG

**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	2900	D	mg/L	25.0	18.0	SW846 9056	04/30/2022 14:02	04/30/2022 14:02	CSC
Fluoride	0.2		mg/L	0.2	0.2	SW846 9056	04/30/2022 13:41	04/30/2022 13:41	CSC
Sulfate	1710	D	mg/L	50	25	SW846 9056	04/30/2022 14:02	04/30/2022 14:02	CSC

**ANALYTICAL RESULTS**

Lab Sample ID: **2033748-02**  
 Description: **MW12**

Sample Collection Date Time: 04/21/2022 10:10  
 Sample Received Date Time: 04/21/2022 14:20

**Metals by SW846 6000 Series Methods Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Boron	0.31		mg/L	0.10	0.10	SW846 6010 B	04/26/2022 08:18	05/02/2022 13:22	AKB
Calcium	93.6	D1	mg/L	4.00	1.30	SW846 6010 B	04/26/2022 08:18	05/02/2022 13:25	AKB

**Conventional Chemistry Analyses Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
pH (Lab)	7.17	H3	Std. Units	0.10	0.10	4500-H+ B-2000	04/25/2022 14:50	04/25/2022 14:50	JLW
Total Dissolved Solids	582		mg/L	50	50	2540 C-2011	04/22/2022 16:14	04/22/2022 16:14	HAG

**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	11.1		mg/L	0.5	0.4	SW846 9056	04/30/2022 15:23	04/30/2022 15:23	CSC
Fluoride	0.4		mg/L	0.2	0.2	SW846 9056	04/30/2022 15:23	04/30/2022 15:23	CSC
Sulfate	4		mg/L	1	0.5	SW846 9056	04/30/2022 15:23	04/30/2022 15:23	CSC



**ANALYTICAL RESULTS**

Lab Sample ID: **2033748-03**  
 Description: **MW13**

Sample Collection Date Time: 04/21/2022 11:20  
 Sample Received Date Time: 04/21/2022 14:20

**Metals by SW846 6000 Series Methods Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Boron	ND	u	mg/L	0.10	0.10	SW846 6010 B	04/26/2022 08:18	05/02/2022 13:29	AKB
Calcium	91.4	D1	mg/L	4.00	1.30	SW846 6010 B	04/26/2022 08:18	05/02/2022 13:32	AKB

**Conventional Chemistry Analyses Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
pH (Lab)	6.85	H3	Std. Units	0.10	0.10	4500-H+ B-2000	04/25/2022 14:50	04/25/2022 14:50	JLW
Total Dissolved Solids	676		mg/L	50	50	2540 C-2011	04/22/2022 16:14	04/22/2022 16:14	HAG

**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	25.3		mg/L	0.5	0.4	SW846 9056	04/30/2022 15:44	04/30/2022 15:44	CSC
Fluoride	0.2		mg/L	0.2	0.2	SW846 9056	04/30/2022 15:44	04/30/2022 15:44	CSC
Sulfate	93		mg/L	1	0.5	SW846 9056	04/30/2022 15:44	04/30/2022 15:44	CSC

**ANALYTICAL RESULTS**

Lab Sample ID: **2033748-04**  
 Description: **MW14**

Sample Collection Date Time: 04/21/2022 12:15  
 Sample Received Date Time: 04/21/2022 14:20

**Metals by SW846 6000 Series Methods Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Boron	0.16		mg/L	0.10	0.10	SW846 6010 B	04/26/2022 08:18	05/02/2022 13:35	AKB
Calcium	181	D, D1	mg/L	40.0	13.0	SW846 6010 B	04/26/2022 08:18	05/03/2022 12:57	AKB

**Conventional Chemistry Analyses Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
pH (Lab)	6.89	H3	Std. Units	0.10	0.10	4500-H+ B-2000	04/25/2022 14:50	04/25/2022 14:50	JLW
Total Dissolved Solids	1230		mg/L	50	50	2540 C-2011	04/22/2022 16:14	04/22/2022 16:14	HAG

**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	159	D	mg/L	5.0	3.6	SW846 9056	04/30/2022 16:45	04/30/2022 16:45	CSC
Fluoride	0.3		mg/L	0.2	0.2	SW846 9056	04/30/2022 16:25	04/30/2022 16:25	CSC
Sulfate	286	D	mg/L	10	5	SW846 9056	04/30/2022 16:45	04/30/2022 16:45	CSC



**ANALYTICAL RESULTS**

Lab Sample ID: **2033748-05**  
 Description: **DUPLICATE**

Sample Collection Date Time: 04/21/2022 10:20  
 Sample Received Date Time: 04/21/2022 14:20

**Metals by SW846 6000 Series Methods Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Boron	0.32		mg/L	0.10	0.10	SW846 6010 B	04/26/2022 08:18	05/02/2022 13:51	AKB
Calcium	94.3	D1	mg/L	4.00	1.30	SW846 6010 B	04/26/2022 08:18	05/02/2022 13:54	AKB

**Conventional Chemistry Analyses Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
pH (Lab)	7.17	H3	Std. Units	0.10	0.10	4500-H+ B-2000	04/25/2022 14:50	04/25/2022 14:50	JLW
Total Dissolved Solids	608		mg/L	50	50	2540 C-2011	04/22/2022 16:14	04/22/2022 16:14	HAG

**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	12.5		mg/L	0.5	0.4	SW846 9056	04/30/2022 17:06	04/30/2022 17:06	CSC
Fluoride	0.4		mg/L	0.2	0.2	SW846 9056	04/30/2022 17:06	04/30/2022 17:06	CSC
Sulfate	13		mg/L	1	0.5	SW846 9056	04/30/2022 17:06	04/30/2022 17:06	CSC

**ANALYTICAL RESULTS**

Lab Sample ID: **2033748-06**  
 Description: **FIELD BLANK**

Sample Collection Date Time: 04/21/2022 12:30  
 Sample Received Date Time: 04/21/2022 14:20

**Metals by SW846 6000 Series Methods Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Boron	ND	u	mg/L	0.10	0.10	SW846 6010 B	04/26/2022 08:18	05/02/2022 13:57	AKB
Calcium	ND	u	mg/L	0.40	0.13	SW846 6010 B	04/26/2022 08:18	05/02/2022 13:57	AKB

**Conventional Chemistry Analyses Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
pH (Lab)	6.58	H3	Std. Units	0.10	0.10	4500-H+ B-2000	04/25/2022 14:50	04/25/2022 14:50	JLW
Total Dissolved Solids	240		mg/L	50	50	2540 C-2011	04/22/2022 16:14	04/22/2022 16:14	HAG

**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	ND	y2, u	mg/L	0.5	0.4	SW846 9056	04/30/2022 19:08	04/30/2022 19:08	CSC
Fluoride	ND	y2, u	mg/L	0.2	0.2	SW846 9056	04/30/2022 19:08	04/30/2022 19:08	CSC
Sulfate	ND	y2, u	mg/L	1	0.5	SW846 9056	04/30/2022 19:08	04/30/2022 19:08	CSC



**Notes for work order 2033748**

- Samples collected by PACE personnel are done so in accordance with procedures set forth in PACE field services SOPs .
  - Results contained in this report are only representative of the samples received.
  - PACE does not provide interpretation of these results unless otherwise stated .
  - All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
  - All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
  - Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
  - The Chain of Custody document is included as part of this report.
  - All Library Search analytes should be regarded as tentative identification based on the presumptive evidence of the mass spectra.
- Concentrations reported are estimated values.

**Qualifiers**

- D Results reported from dilution.
- D1 Sample required dilution due to high concentration of target analyte.
- H3 Sample received and analyzed past holding time.
- J Estimated value.
- M1 Matrix spike recovery was high; the method control sample recovery was acceptable.
- M3 The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.
- U Target analyte was analyzed for, but was below detection limit (the value associated with the qualifier is the laboratory method detection limit in our LIMS system).
- Y2 MS/MSD RPD exceeded the method control limit. Recovery met acceptance criteria.

**Standard Qualifiers/Acronyms**

- MDL Method Detection Limit
- MRL Minimum Reporting Limit
- ND Not Detected
- LCS Laboratory Control Sample
- MS Matrix Spike
- MSD Matrix Spike Duplicate
- DUP Sample Duplicate
- % Rec Percent Recovery
- RPD Relative Percent Difference
- > Greater than
- < Less than



**Metals by SW846 6000 Series Methods Madisonville - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch BBD3029 - EPA 200.2**

**Blank (BBD3029-BLK1)**

Prepared: 4/25/2022 8:18, Analyzed: 5/2/2022 12:54

Boron	ND	0.10	mg/L							U
Calcium	ND	0.40	mg/L							U

**Blank (BBD3029-BLK2)**

Prepared: 4/25/2022 8:18, Analyzed: 5/2/2022 12:54

Boron	ND	0.10	mg/L							U
Calcium	ND	0.40	mg/L							U

**LCS (BBD3029-BS1)**

Prepared: 4/25/2022 8:18, Analyzed: 5/2/2022 12:57

Boron	0.13	0.10	mg/L	0.125		103	85-115			
Calcium	6.39	0.40	mg/L	6.25		102	85-115			

**LCS (BBD3029-BS2)**

Prepared: 4/25/2022 8:18, Analyzed: 5/2/2022 12:57

Boron	0.13	0.10	mg/L	0.125		103	85-115			
Calcium	6.39	0.40	mg/L	6.25		102	85-115			

**Matrix Spike (BBD3029-MS1)**

Source: 2033748-01

Prepared: 4/25/2022 8:18, Analyzed: 5/2/2022 14:10

Boron	0.99	0.10	mg/L	0.125	0.84	116	80-120			
Calcium	344	0.40	mg/L	6.25	315	468	80-120			M3

**Matrix Spike (BBD3029-MS2)**

Source: 2033748-01

Prepared: 4/25/2022 8:18, Analyzed: 5/2/2022 14:10

Boron	0.99	0.10	mg/L	0.125	0.84	116	80-120			
Calcium	344	0.40	mg/L	6.25	315	468	80-120			M3

**Matrix Spike Dup (BBD3029-MSD1)**

Source: 2033748-01

Prepared: 4/25/2022 8:18, Analyzed: 5/2/2022 14:13

Boron	0.98	0.10	mg/L	0.125	0.84	106	80-120	1.21	20	
Calcium	340	0.40	mg/L	6.25	315	395	80-120	1.34	20	M3

**Matrix Spike Dup (BBD3029-MSD2)**

Source: 2033748-01

Prepared: 4/25/2022 8:18, Analyzed: 5/2/2022 14:13

Boron	0.98	0.10	mg/L	0.125	0.84	106	80-120	1.21	20	
Calcium	340	0.40	mg/L	6.25	315	395	80-120	1.34	20	M3



**Metals by SW846 6000 Series Methods Madisonville - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch BBD3029 - EPA 200.2**

**Post Spike (BBD3029-PS1)**

**Source: 2033748-01**

Prepared: 4/25/2022 8:18, Analyzed: 5/2/2022 14:16

Boron	1010		ug/L	125	843	131	75-125			M1
Calcium	348000		ug/L	6250	315000	535	75-125			M3

**Post Spike (BBD3029-PS2)**

**Source: 2033748-01**

Prepared: 4/25/2022 8:18, Analyzed: 5/2/2022 14:16

Boron	1010		ug/L	125	843	131	75-125			M1
Calcium	348000		ug/L	6250	315000	535	75-125			M3



**Conventional Chemistry Analyses Madisonville - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	RPD RPD	Notes
<b>Batch BBD2870 - Default Prep Wet Chem</b>								
<b>Blank (BBD2870-BLK1)</b>								
Prepared: 4/22/2022 16:14, Analyzed: 4/22/2022 16:14								
Total Dissolved Solids	ND	25	mg/L					U
<b>LCS (BBD2870-BS1)</b>								
Prepared: 4/22/2022 16:14, Analyzed: 4/22/2022 16:14								
Total Dissolved Solids	1500	25	mg/L	1500		99.7	80-120	
<b>Duplicate (BBD2870-DUP1) Source: 2033747-01</b>								
Prepared: 4/22/2022 16:14, Analyzed: 4/22/2022 16:14								
Total Dissolved Solids	336	50	mg/L		340		1.18	10
<b>Duplicate (BBD2870-DUP2) Source: 2033749-08</b>								
Prepared: 4/22/2022 16:14, Analyzed: 4/22/2022 16:14								
Total Dissolved Solids	ND	50	mg/L		ND			10 U
<b>Batch BBD3006 - Default Prep Wet Chem</b>								
<b>LCS (BBD3006-BS1)</b>								
Prepared: 4/25/2022 14:50, Analyzed: 4/25/2022 14:50								
pH (Lab)	7.94		Std. Units	8.00		99.2	98.8-101.2	
<b>LCS (BBD3006-BS2)</b>								
Prepared: 4/25/2022 14:50, Analyzed: 4/25/2022 14:50								
pH (Lab)	7.98		Std. Units	8.00		99.8	98.8-101.2	
<b>Duplicate (BBD3006-DUP1) Source: 2033748-04</b>								
Prepared: 4/25/2022 14:50, Analyzed: 4/25/2022 14:50								
pH (Lab)	6.90	0.10	Std. Units		6.89		0.145	10 H3
<b>Duplicate (BBD3006-DUP2) Source: 2043899-08</b>								
Prepared: 4/25/2022 14:50, Analyzed: 4/25/2022 14:50								
pH (Lab)	6.62	0.10	Std. Units		6.64		0.302	10 H3



**Ion Chromatography Madisonville - Quality Control**

Analyte	Result	Reporting		Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Notes
		Limit	Units							

**Batch BBD3803 - Default Prep IC**

**Blank (BBD3803-BLK1)**

Prepared: 4/30/2022 10:57, Analyzed: 4/30/2022 10:57

Fluoride	ND	0.2	mg/L							U
Chloride	ND	0.5	mg/L							U
Sulfate	ND	1	mg/L							U

**LCS (BBD3803-BS1)**

Prepared: 4/30/2022 10:37, Analyzed: 4/30/2022 10:37

Fluoride	10.1		mg/L	10.0		101	90-110			
Chloride	9.4		mg/L	10.0		93.6	90-110			
Sulfate	9		mg/L	10.0		92.2	90-110			

**Matrix Spike (BBD3803-MS1)**

Source: 2033748-06

Prepared: 4/30/2022 19:49, Analyzed: 4/30/2022 19:49

Fluoride	10.7		mg/L	10.0	0.0	107	75-125			
Chloride	10.2		mg/L	10.0	0.0	102	75-125			
Sulfate	10		mg/L	10.0	0.004	104	75-125			

**Matrix Spike Dup (BBD3803-MSD1)**

Source: 2033748-06

Prepared: 4/30/2022 20:10, Analyzed: 4/30/2022 20:10

Fluoride	12.5		mg/L	10.0	0.0	125	75-125	15.7	15	Y2
Chloride	11.9		mg/L	10.0	0.0	119	75-125	14.9	15	
Sulfate	12		mg/L	10.0	0.004	122	75-125	15.8	15	Y2

**Certified Analyses included in this Report**

Analyte	Certifications
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**2540 C-2011 in Water**

Total Dissolved Solids KY Drinking Water Mdv (00030) VA NELAC MDV (460210) KY Wastewater Mdv (00030) TN Drinking Water (02819) WV Wastewater Madisonville (241), 825 Industrial Rd Madisonville, KY 42431

**4500-H+ B-2000 in Water**

pH (Lab) KY Drinking Water Mdv (00030) TN Drinking Water (02819)

**SW846 6010 B in Water**

Calcium VA NELAC MDV (460210)



**Sample Acceptance Checklist for Work Order 2033748**

Shipped By: Client

Temperature: 1.30° Celcius

**Condition**

Check if Custody Seals are Present/Intact	<input type="checkbox"/>
Check if Custody Signatures are Present	<input checked="" type="checkbox"/>
Check if Collector Signature Present	<input checked="" type="checkbox"/>
Check if bottles are intact	<input checked="" type="checkbox"/>
Check if bottles are correct	<input checked="" type="checkbox"/>
Check if bottles have sufficient volume	<input checked="" type="checkbox"/>
Check if samples received on ice	<input checked="" type="checkbox"/>
Check if VOA headspace is acceptable	<input type="checkbox"/>
Check if samples received in holding time.	<input checked="" type="checkbox"/>
Check if samples are preserved properly	<input checked="" type="checkbox"/>

# Chain of Custody

Scheduled for: 03/15/2022



Client: **Big Rivers Electric Corporation**  
Reid/Green Station

Report To:  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Invoice To:  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Project: **Green Surface Impoundment**

Phone: (270) 844-6000  
PWS ID#:  
State: KY

PO#:  
Quote#

Please Print Legibly

Collected by (Signature): [Signature]  
\*required information\*

Compliance Monitoring? Yes  No

Samples Chlorinated? Yes  No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

**LAB USE ONLY**

**\*required information\***

Workorder #	Date (mm/dd/yy)	Collection Time (24 hr)	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
2033748-01 A	<u>4/21/22</u>	<u>905</u>	Plastic 500mL pH<2 w/HNO3	1	MW11	g / c	Calcium Tot 6010B Boron Tot 6010B
			Preservation Check: pH: <input checked="" type="checkbox"/>				
2033748-01 B	<u>4/21/22</u>	<u>905</u>	Plastic 500mL pH<2 w/HNO3	1	MW11	g / c	Calcium Tot 6010B Boron Tot 6010B
			Preservation Check: pH: <input checked="" type="checkbox"/>				
2033748-01 C	<u>4/21/22</u>	<u>905</u>	Plastic 1L	1	MW11	g / c	Chloride 9056 pH (Lab) Sulfate 9056 Fluoride 9056 TDS
2033748-02 A	<u>4/21/22</u>	<u>1010</u>	Plastic 500mL pH<2 w/HNO3	1	MW12	g / c	Calcium Tot 6010B Boron Tot 6010B
			Preservation Check: pH: <input checked="" type="checkbox"/>				
2033748-02 B	<u>4/21/22</u>	<u>1010</u>	Plastic 500mL pH<2 w/HNO3	1	MW12	g / c	Calcium Tot 6010B Boron Tot 6010B
			Preservation Check: pH: <input checked="" type="checkbox"/>				
2033748-02 C	<u>4/21/22</u>	<u>1010</u>	Plastic 1L	1	MW12	g / c	TDS Sulfate 9056 pH (Lab) Fluoride 9056 Chloride 9056

**Thermometer Serial Number**

181390287  
 181460057  
Temp 1.3 °C

Preservation Check Performed by: AEL

Field data collected by: MW11 Phillip Hill Date (mm/dd/yy) 4/21/22 Time (24 hr) 905

pH 6.85 Cond 7.67 Res Cl (mg/L) \_\_\_\_\_ Tot Cl (mg/L) \_\_\_\_\_ Free Cl (mg/L) \_\_\_\_\_

Temp (oC) 16.05 or (oF) \_\_\_\_\_ Static Water Level \_\_\_\_\_ DO (mg/L) \_\_\_\_\_ Turb. (NTU) \_\_\_\_\_

Flow (MGD) \_\_\_\_\_ or (CFS) \_\_\_\_\_ or (g/min) \_\_\_\_\_

Relinquished by: (Signature) <u>[Signature]</u>	Received by: (Signature) <u>[Signature]</u>	Date (mm/dd/yy) <u>4/21/22</u>	Time (24 hr) <u>1420</u>
_____	_____	_____	_____
_____	_____	_____	_____

# Chain of Custody

**Scheduled for: 03/15/2022**



**Client: Big Rivers Electric Corporation  
Reid/Green Station**

**Report To:**  
Big Rivers Electric Corporation Reid/Green  
Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

**Invoice To:**  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

**Project: Green Surface Impoundment**

Phone: (270) 844-6000  
PWS ID#: \_\_\_\_\_  
State: KY

PO#: \_\_\_\_\_  
Quote# \_\_\_\_\_

Please Print Legibly

*[Signature]*

Collected by (Signature): \_\_\_\_\_  
\*required information\*

Compliance Monitoring? Yes  No

Samples Chlorinated? Yes  No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY Workorder # Sample ID#	*required information* Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
2033748-03 A	<u>4/21/22</u>	<u>1120</u>	Plastic 500mL pH<2 w/HNO3	1	MW13	g / c	Calcium Tot 6010B Boron Tot 6010B
Preservation Check: pH: <input checked="" type="checkbox"/>							
2033748-03 B	<u>4/21/22</u>	<u>1120</u>	Plastic 500mL pH<2 w/HNO3	1	MW13	g / c	Boron Tot 6010B Calcium Tot 6010B
Preservation Check: pH: <input checked="" type="checkbox"/>							
2033748-03 C	<u>4/21/22</u>	<u>1120</u>	Plastic 1L	1	MW13	g / c	pH (Lab) TDS Fluoride 9056 Chloride 9056 Sulfate 9056
2033748-04 A	<u>4/21/22</u>	<u>1215</u>	Plastic 500mL pH<2 w/HNO3	1	MW14	g / c	Calcium Tot 6010B Boron Tot 6010B
Preservation Check: pH: <input checked="" type="checkbox"/>							
2033748-04 B	<u>4/21/22</u>	<u>1215</u>	Plastic 500mL pH<2 w/HNO3	1	MW14	g / c	Calcium Tot 6010B Boron Tot 6010B
Preservation Check: pH: <input checked="" type="checkbox"/>							
2033748-04 C	<u>4/21/22</u>	<u>1215</u>	Plastic 1L	1	MW14	g / c	TDS Sulfate 9056 pH (Lab) Fluoride 9056 Chloride 9056
2033748-05 A	<u>4/21/22</u>	<u>1020</u>	Plastic 500mL pH<2 w/HNO3	1	DUPLICATE	g / c	Boron Tot 6010B Calcium Tot 6010B
Preservation Check: pH: <input checked="" type="checkbox"/>							

Preservation Check Performed by: Ael

Field data collected by: MW13 Phillip Hill Date (mm/dd/yy) 4/21/22 Time (24 hr) 1120

pH 6.61 Cond <sup>u/ten</sup> 1.02 Res Cl (mg/L) \_\_\_\_\_ Tot Cl (mg/L) \_\_\_\_\_ Free Cl (mg/L) \_\_\_\_\_

Temp (oC) 17.00 or (oF) \_\_\_\_\_ Static Water Level \_\_\_\_\_ DO (mg/L) \_\_\_\_\_ Turb. (NTU) \_\_\_\_\_

Flow (MGD) \_\_\_\_\_ or (CFS) \_\_\_\_\_ or (g/min) \_\_\_\_\_

Relinquished by: (Signature) [Signature] Received by: (Signature) [Signature] Date (mm/dd/yy) 4/21/22 Time (24 hr) 1720

# Chain of Custody

Scheduled for: **03/15/2022**



Client: **Big Rivers Electric Corporation  
Reid/Green Station**

Report To:  
Big Rivers Electric Corporation Reid/Green  
Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Invoice To:  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Project: **Green Surface Impoundment**

Phone: (270) 844-6000  
PWS ID#:  
State: KY

PO#:  
Quote#

Please Print Legibly

Collected by (Signature): [Signature]  
\*required information\*

Compliance Monitoring? Yes  No

Samples Chlorinated? Yes  No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY Workorder # Sample ID#	*required information* Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
2033748-05 B	<u>4/21/22</u>	<u>1020</u>	Plastic 500mL pH<2 w/HNO3	1	DUPLICATE	g / c	Calcium Tot 6010B Boron Tot 6010B
			Preservation Check: pH :	<input checked="" type="checkbox"/>			
2033748-05 C	<u>4/21/22</u>	<u>1020</u>	Plastic 1L	1	DUPLICATE	g / c	Sulfate 9056 TDS pH (Lab) Fluoride 9056 Chloride 9056
2033748-06 A	<u>4/21/22</u>	<u>1230</u>	Plastic 500mL pH<2 w/HNO3	1	FIELD BLANK	g / c	Calcium Tot 6010B Boron Tot 6010B
			Preservation Check: pH :	<input checked="" type="checkbox"/>			
2033748-06 B	<u>4/21/22</u>	<u>1230</u>	Plastic 500mL pH<2 w/HNO3	1	FIELD BLANK	g / c	Calcium Tot 6010B Boron Tot 6010B
			Preservation Check: pH :	<input checked="" type="checkbox"/>			
2033748-06 C	<u>4/21/22</u>	<u>1230</u>	Plastic 1L	1	FIELD BLANK	g / c	TDS Sulfate 9056 pH (Lab) Chloride 9056 Fluoride 9056

Preservation Check Performed by: AEL

Field data collected by: Phillip Hill Date (mm/dd/yy) 4/21/22 Time (24 hr) 1230

pH Dupe Cond ns/cn (umho) \_\_\_\_\_ Res Cl (mg/L) \_\_\_\_\_ Tot Cl (mg/L) \_\_\_\_\_ Free Cl (mg/L) \_\_\_\_\_

Temp (oC) \_\_\_\_\_ or (oF) \_\_\_\_\_ Static Water Level \_\_\_\_\_ DO (mg/L) \_\_\_\_\_ Turb. (NTU) \_\_\_\_\_

Flow (MGD) \_\_\_\_\_ or (CFS) \_\_\_\_\_ or (g/min) \_\_\_\_\_

Relinquished by: (Signature) <u>[Signature]</u>	Received by: (Signature) <u>[Signature]</u>	Date (mm/dd/yy) <u>4/21/22</u>	Time (24 hr) <u>1420</u>
_____	_____	_____	_____
_____	_____	_____	_____



## Certificate of Analysis 2101585

Greg Dick  
Big Rivers Electric Corporation Reid/Green Station  
PO Box 24  
Henderson, KY 42419

Customer ID: 44-102032  
Report Printed: 10/24/2022 10:27

Project Name: Green Surface Impoundment

Workorder: 2101585

Dear Greg Dick

Enclosed are the analytical results for samples received by the laboratory 10/03/2022 15:19.

The results relate to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services LLC Kentucky - Madisonville

If you have any questions concerning this report, please feel free to contact me.



#460210 Madisonville, KY  
#460291 Pikeville, KY

Rob Whittington, Project Manager

*This page is included as part of the Analytical Report and must be retained as a permanent record thereof.*



**SAMPLE SUMMARY**

Lab ID	Client Sample ID/Alias	Matrix	Date Collected	Date Received	Sampled By
2101585-01	MW11/	Groundwater	10/01/2022 09:12	10/03/2022 15:19	Greg Dick
2101585-02	MW12/	Groundwater	10/01/2022 13:34	10/03/2022 15:19	Greg Dick
2101585-03	MW13/	Groundwater	10/01/2022 11:35	10/03/2022 15:19	Greg Dick
2101585-04	MW14/	Groundwater	10/01/2022 10:04	10/03/2022 15:19	Greg Dick
2101585-05	DUPLICATE/	Groundwater	10/01/2022 12:00	10/03/2022 15:19	Greg Dick
2101585-06	FIELD BLANK/	Water	10/01/2022 13:58	10/03/2022 15:19	Greg Dick

<u>LabNumber</u>	<u>Measurement</u>	<u>Value</u>
2101585-01	Field Conductance	7830
	Field pH	7.13
	Field Temp (C)	17.23
2101585-02	Field Conductance	982
	Field pH	7.30
	Field Temp (C)	19.83
2101585-03	Field Conductance	1280
	Field pH	6.88
	Field Temp (C)	20.00
2101585-04	Field Conductance	1660
	Field pH	6.99
	Field Temp (C)	18.97
2101585-05	Field Conductance	1280
	Field pH	6.88
	Field Temp (C)	20.0



**ANALYTICAL RESULTS**

Lab Sample ID: **2101585-01**  
Description: **MW11**

Sample Collection Date Time: 10/01/2022 09:12  
Sample Received Date Time: 10/03/2022 15:19

**Metals by SW846 6000 Series Methods Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Boron	0.71	M2	mg/L	0.10	0.10	SW846 6010 B	10/06/2022 09:32	10/06/2022 16:40	MRWD
Calcium	339	D1, M3	mg/L	40.0	13.0	SW846 6010 B	10/06/2022 09:32	10/06/2022 16:47	MRWD

**Conventional Chemistry Analyses Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
pH (Lab)	7.02	H3	Std. Units	0.10	0.10	4500-H+ B-2000	10/06/2022 13:21	10/06/2022 13:21	JES
Total Dissolved Solids	4850		mg/L	50	50	2540 C-2011	10/04/2022 10:54	10/04/2022 10:54	HAG

**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	2900	D	mg/L	25.0	18.0	SW846 9056	10/22/2022 21:07	10/22/2022 21:07	CSC
Fluoride	0.2		mg/L	0.2	0.2	SW846 9056	10/22/2022 20:40	10/22/2022 20:40	CSC
Sulfate	1450	D	mg/L	50	25	SW846 9056	10/22/2022 21:07	10/22/2022 21:07	CSC

**ANALYTICAL RESULTS**

Lab Sample ID: **2101585-02**  
Description: **MW12**

Sample Collection Date Time: 10/01/2022 13:34  
Sample Received Date Time: 10/03/2022 15:19

**Metals by SW846 6000 Series Methods Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Boron	0.27		mg/L	0.10	0.10	SW846 6010 B	10/06/2022 09:32	10/06/2022 16:50	MRWD
Calcium	87.2	D1	mg/L	4.00	1.30	SW846 6010 B	10/06/2022 09:32	10/06/2022 16:53	MRWD

**Conventional Chemistry Analyses Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
pH (Lab)	7.39	H3	Std. Units	0.10	0.10	4500-H+ B-2000	10/06/2022 13:21	10/06/2022 13:21	JES
Total Dissolved Solids	684		mg/L	50	50	2540 C-2011	10/04/2022 10:54	10/04/2022 10:54	HAG

**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	15.7		mg/L	0.5	0.4	SW846 9056	10/22/2022 21:35	10/22/2022 21:35	CSC
Fluoride	0.4		mg/L	0.2	0.2	SW846 9056	10/22/2022 21:35	10/22/2022 21:35	CSC
Sulfate	41		mg/L	1	0.5	SW846 9056	10/22/2022 21:35	10/22/2022 21:35	CSC



**ANALYTICAL RESULTS**

Lab Sample ID: **2101585-03**  
 Description: **MW13**

Sample Collection Date Time: 10/01/2022 11:35  
 Sample Received Date Time: 10/03/2022 15:19

**Metals by SW846 6000 Series Methods Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Boron	ND	u	mg/L	0.10	0.10	SW846 6010 B	10/06/2022 09:32	10/06/2022 16:59	MRWD
Calcium	94.9	D1	mg/L	4.00	1.30	SW846 6010 B	10/06/2022 09:32	10/06/2022 17:02	MRWD

**Conventional Chemistry Analyses Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
pH (Lab)	6.91	H3	Std. Units	0.10	0.10	4500-H+ B-2000	10/06/2022 13:21	10/06/2022 13:21	JES
Total Dissolved Solids	840		mg/L	50	50	2540 C-2011	10/04/2022 10:54	10/04/2022 10:54	HAG

**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	23.2		mg/L	0.5	0.4	SW846 9056	10/22/2022 22:30	10/22/2022 22:30	CSC
Fluoride	0.2		mg/L	0.2	0.2	SW846 9056	10/22/2022 22:30	10/22/2022 22:30	CSC
Sulfate	87		mg/L	1	0.5	SW846 9056	10/22/2022 22:30	10/22/2022 22:30	CSC

**ANALYTICAL RESULTS**

Lab Sample ID: **2101585-04**  
 Description: **MW14**

Sample Collection Date Time: 10/01/2022 10:04  
 Sample Received Date Time: 10/03/2022 15:19

**Metals by SW846 6000 Series Methods Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Boron	0.14		mg/L	0.10	0.10	SW846 6010 B	10/06/2022 09:32	10/06/2022 17:18	MRWD
Calcium	200	D1	mg/L	40.0	13.0	SW846 6010 B	10/06/2022 09:32	10/06/2022 17:25	MRWD

**Conventional Chemistry Analyses Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
pH (Lab)	7.04	H3	Std. Units	0.10	0.10	4500-H+ B-2000	10/06/2022 13:21	10/06/2022 13:21	JES
Total Dissolved Solids	1060		mg/L	50	50	2540 C-2011	10/04/2022 10:54	10/04/2022 10:54	HAG

**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	137	D	mg/L	5.0	3.6	SW846 9056	10/23/2022 00:47	10/23/2022 00:47	CSC
Fluoride	0.3		mg/L	0.2	0.2	SW846 9056	10/23/2022 00:19	10/23/2022 00:19	CSC
Sulfate	178		mg/L	1	0.5	SW846 9056	10/23/2022 00:19	10/23/2022 00:19	CSC



**ANALYTICAL RESULTS**

Lab Sample ID: **2101585-05**  
 Description: **DUPLICATE**

Sample Collection Date Time: 10/01/2022 12:00  
 Sample Received Date Time: 10/03/2022 15:19

**Metals by SW846 6000 Series Methods Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Boron	ND	u	mg/L	0.10	0.10	SW846 6010 B	10/06/2022 09:32	10/06/2022 17:28	MRWD
Calcium	97.4	D1	mg/L	4.00	1.30	SW846 6010 B	10/06/2022 09:32	10/06/2022 17:31	MRWD

**Conventional Chemistry Analyses Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
pH (Lab)	6.90	H3	Std. Units	0.10	0.10	4500-H+ B-2000	10/06/2022 13:21	10/06/2022 13:21	JES
Total Dissolved Solids	802		mg/L	50	50	2540 C-2011	10/04/2022 10:54	10/04/2022 10:54	HAG

**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	23.0		mg/L	0.5	0.4	SW846 9056	10/23/2022 01:14	10/23/2022 01:14	CSC
Fluoride	0.2		mg/L	0.2	0.2	SW846 9056	10/23/2022 01:14	10/23/2022 01:14	CSC
Sulfate	87		mg/L	1	0.5	SW846 9056	10/23/2022 01:14	10/23/2022 01:14	CSC

**ANALYTICAL RESULTS**

Lab Sample ID: **2101585-06**  
 Description: **FIELD BLANK**

Sample Collection Date Time: 10/01/2022 13:58  
 Sample Received Date Time: 10/03/2022 15:19

**Metals by SW846 6000 Series Methods Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Boron	ND	u	mg/L	0.10	0.10	SW846 6010 B	10/06/2022 09:32	10/06/2022 17:37	MRWD
Calcium	ND	u	mg/L	0.40	0.13	SW846 6010 B	10/06/2022 09:32	10/06/2022 17:37	MRWD

**Conventional Chemistry Analyses Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
pH (Lab)	5.75	H3	Std. Units	0.10	0.10	4500-H+ B-2000	10/06/2022 13:21	10/06/2022 13:21	JES
Total Dissolved Solids	98		mg/L	50	50	2540 C-2011	10/04/2022 10:54	10/04/2022 10:54	HAG

**Ion Chromatography Madisonville**

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	ND	u	mg/L	0.5	0.4	SW846 9056	10/23/2022 02:09	10/23/2022 02:09	CSC
Fluoride	ND	u	mg/L	0.2	0.2	SW846 9056	10/23/2022 02:09	10/23/2022 02:09	CSC
Sulfate	ND	u	mg/L	1	0.5	SW846 9056	10/23/2022 02:09	10/23/2022 02:09	CSC



**Notes for work order 2101585**

- Samples collected by PACE personnel are done so in accordance with procedures set forth in PACE field services SOPs .
  - Results contained in this report are only representative of the samples received.
  - PACE does not provide interpretation of these results unless otherwise stated .
  - All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
  - All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
  - Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
  - The Chain of Custody document is included as part of this report.
  - All Library Search analytes should be regarded as tentative identification based on the presumptive evidence of the mass spectra.
- Concentrations reported are estimated values.

**Qualifiers**

- D Results reported from dilution.
- D1 Sample required dilution due to high concentration of target analyte.
- D2 Sample required dilution due to matrix interference.
- H3 Sample received and analyzed past holding time.
- M2 Matrix spike recovery was low; the method control sample recovery was acceptable.
- M3 The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.
- U Target analyte was analyzed for, but was below detection limit (the value associated with the qualifier is the laboratory method detection limit in our LIMS system).

**Standard Qualifiers/Acronyms**

- MDL Method Detection Limit
- MRL Minimum Reporting Limit
- ND Not Detected
- LCS Laboratory Control Sample
- MS Matrix Spike
- MSD Matrix Spike Duplicate
- DUP Sample Duplicate
- % Rec Percent Recovery
- RPD Relative Percent Difference
- > Greater than
- < Less than



**Metals by SW846 6000 Series Methods Madisonville - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch BBJ0441 - EPA 200.2**

**Blank (BBJ0441-BLK1)**

Prepared: 10/6/2022 9:32, Analyzed: 10/6/2022 16:21

Boron	ND	0.10	mg/L							U
Calcium	ND	0.40	mg/L							U

**LCS (BBJ0441-BS1)**

Prepared: 10/6/2022 9:32, Analyzed: 10/6/2022 16:24

Boron	0.12	0.10	mg/L	0.125		94.1	85-115			
Calcium	6.47	0.40	mg/L	6.25		103	85-115			

**Matrix Spike (BBJ0441-MS1)**

Source: 2101585-01

Prepared: 10/6/2022 9:32, Analyzed: 10/6/2022 17:56

Boron	ND	1.00	mg/L	0.125	ND		80-120			D2, M2, U
Calcium	344	4.00	mg/L	6.25	339	70.2	80-120			D2, M3

**Matrix Spike Dup (BBJ0441-MSD1)**

Source: 2101585-01

Prepared: 10/6/2022 9:32, Analyzed: 10/6/2022 17:59

Boron	ND	1.00	mg/L	0.125	ND		80-120		20	D2, M2, U
Calcium	354	4.00	mg/L	6.25	339	231	80-120	2.88	20	D2, M3

**Post Spike (BBJ0441-PS1)**

Source: 2101585-01

Prepared: 10/6/2022 9:32, Analyzed: 10/6/2022 18:03

Boron	ND	1.00	mg/L	0.125	ND		75-125			D2, M2, U
Calcium	352	4.00	mg/L	6.25	339	203	75-125			D2, M3



**Conventional Chemistry Analyses Madisonville - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch BBJ0219 - Default Prep Wet Chem**

**Blank (BBJ0219-BLK1)**

Prepared: 10/4/2022 10:54, Analyzed: 10/4/2022 10:54

Total Dissolved Solids	ND	25	mg/L							U
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**LCS (BBJ0219-BS1)**

Prepared: 10/4/2022 10:54, Analyzed: 10/4/2022 10:54

Total Dissolved Solids	1460	25	mg/L	1500		97.0	80-120			
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**Duplicate (BBJ0219-DUP1) Source: 2071822-01**

Prepared: 10/4/2022 10:54, Analyzed: 10/4/2022 10:54

Total Dissolved Solids	406	50	mg/L		398			1.99	10	
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**Duplicate (BBJ0219-DUP2) Source: 2101585-06**

Prepared: 10/4/2022 10:54, Analyzed: 10/4/2022 10:54

Total Dissolved Solids	90	50	mg/L		98			8.51	10	
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**Batch BBJ0628 - Default Prep WET Testing**

**LCS (BBJ0628-BS1)**

Prepared: 10/6/2022 13:20, Analyzed: 10/6/2022 13:20

pH (Lab)	8.08		Std. Units	8.00		101	98.8-101.2			
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**LCS (BBJ0628-BS2)**

Prepared: 10/6/2022 13:21, Analyzed: 10/6/2022 13:21

pH (Lab)	8.06		Std. Units	8.00		101	98.8-101.2			
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**Duplicate (BBJ0628-DUP1) Source: 2101585-04**

Prepared: 10/6/2022 13:21, Analyzed: 10/6/2022 13:21

pH (Lab)	7.05	0.10	Std. Units		7.04			0.142	10	H3
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**Duplicate (BBJ0628-DUP2) Source: 2102275-01**

Prepared: 10/6/2022 13:21, Analyzed: 10/6/2022 13:21

pH (Lab)	7.78	0.10	Std. Units		7.77			0.129	10	H3
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**Ion Chromatography Madisonville - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch BBJ2685 - Default Prep IC**

**Matrix Spike (BBJ2685-MS1) Source: 2102146-15**

Prepared: 10/23/2022 7:10, Analyzed: 10/23/2022 7:10

Fluoride	3.9		mg/L	4.00	0.2	93.4	75-125			
Chloride	17.2		mg/L	8.00	9.8	92.0	75-125			
Sulfate	68		mg/L	32.0	39	91.2	75-125			

**Matrix Spike Dup (BBJ2685-MSD1) Source: 2102146-15**

Prepared: 10/23/2022 7:38, Analyzed: 10/23/2022 7:38

Chloride	17.6		mg/L	8.00	9.8	98.1	75-125	2.78	15	
Fluoride	4.4		mg/L	4.00	0.2	106	75-125	12.1	15	
Sulfate	71		mg/L	32.0	39	99.8	75-125	3.96	15	

**Certified Analyses included in this Report**

Analyte	Certifications
<b>2540 C-2011 in Water</b>	
Total Dissolved Solids	KY Drinking Water Mdv (00030) VA NELAC MDV (460210) KY Wastewater Mdv (00030) TN Drinking Water (02819) WV Wastewater Madisonville (241), 825 Industrial Rd Madisonville, KY 42431
<b>4500-H+ B-2000 in Water</b>	
pH (Lab)	KY Drinking Water Mdv (00030) TN Drinking Water (02819)
<b>SW846 6010 B in Water</b>	
Calcium	VA NELAC MDV (460210)

**Sample Acceptance Checklist for Work Order 2101585**

Shipped By: Client

Temperature: 5.60° Celcius

**Condition**

Check if Custody Seals are Present/Intact	<input type="checkbox"/>
Check if Custody Signatures are Present	<input checked="" type="checkbox"/>
Check if Collector Signature Present	<input checked="" type="checkbox"/>
Check if bottles are intact	<input checked="" type="checkbox"/>
Check if bottles are correct	<input checked="" type="checkbox"/>
Check if bottles have sufficient volume	<input checked="" type="checkbox"/>
Check if samples received on ice	<input checked="" type="checkbox"/>
Check if VOA headspace is acceptable	<input type="checkbox"/>
Check if samples received in holding time.	<input checked="" type="checkbox"/>
Check if samples are preserved properly	<input checked="" type="checkbox"/>

# Chain of Custody

Scheduled for: **10/01/2022**



Client: **Big Rivers Electric Corporation  
Reid/Green Station**

Report To:  
**Big Rivers Electric Corporation Reid/Green  
Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419**

Invoice To:  
**Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419**

Project: **Green Surface Impoundment**

Phone: (270) 844-6000  
PWS ID#:

PO#: \_\_\_\_\_

Please Print Legibly

State: KY

Quote# \_\_\_\_\_

Collected by (Signature): Greg Dick Rex Dye  
Angie Cook Paul Hix  
\*required information\*

Compliance Monitoring? Yes  No

Samples Chlorinated? Yes  No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY Workorder # 2101585 Sample ID#	*required information* Date (mm/dd/yy): <u>10/01/22</u>	Collection Time (24 hr): <u>0912</u>	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
2101585-01 A	<u>10/01/22</u>	<u>0912</u>	Plastic 500mL pH<2 w/HNO3	1	MW11	g / c	Calcium Tot 6010B Boron Tot 6010B
			Preservation Check: pH :	<input checked="" type="checkbox"/>			
2101585-01 B	<u>10/01/22</u>	<u>0912</u>	Plastic 500mL pH<2 w/HNO3	1	MW11	g / c	Calcium Tot 6010B Boron Tot 6010B
			Preservation Check: pH :	<input checked="" type="checkbox"/>			
2101585-01 C	<u>10/01/22</u>	<u>0912</u>	Plastic 1L	1	MW11	g / c	Chloride 9056 pH (Lab) Sulfate 9056 Fluoride 9056 TDS
2101585-02 A	<u>10/01/22</u>	<u>1334</u>	Plastic 500mL pH<2 w/HNO3	1	MW12	g / c	Calcium Tot 6010B Boron Tot 6010B
			Preservation Check: pH :	<input checked="" type="checkbox"/>			
2101585-02 B	<u>10/01/22</u>	<u>1334</u>	Plastic 500mL pH<2 w/HNO3	1	MW12	g / c	Calcium Tot 6010B Boron Tot 6010B
			Preservation Check: pH :	<input checked="" type="checkbox"/>			
2101585-02 C	<u>10/01/22</u>	<u>1334</u>	Plastic 1L	1	MW12	g / c	TDS Sulfate 9056 pH (Lab) Fluoride 9056 Chloride 9056

Preservation Check Performed by: BTW

Field data collected by: <u>Greg Dick</u>	Date (mm/dd/yy) <u>10/01/22</u>	Time (24 hr) <u>0912</u>	<u>MW-11</u>	<u>MW-12</u>
pH <u>7.13</u> <u>7.30</u>	Cond (umho) <u>7.83</u> <u>0.982</u>	Res Cl (mg/L) _____	Tot Cl (mg/L) _____	Free Cl (mg/L) _____
Temp (oC) <u>17.23</u> <u>19.83</u>	or (oF) _____	Static Water Level _____	DO (mg/L) _____	Turb. (NTU) _____
Flow (MGD) _____	or (CFS) _____	or (g/min) _____		

Relinquished by: (Signature) <u>Angie Cook</u>	Received by: (Signature) <u>Brooke Watson</u>	Date (mm/dd/yy) <u>10/3/22</u>	Time (24 hr) <u>1519</u>
_____	_____	_____	_____
_____	_____	_____	_____

# Chain of Custody

Scheduled for: **10/01/2022**



Client: **Big Rivers Electric Corporation**  
**Reid/Green Station**

Report To:  
**Big Rivers Electric Corporation Reid/Green Station**  
**Chad Phillips**  
**PO Box 24**  
**Henderson, KY 42419**

Invoice To:  
**Big Rivers Electric Corporation Reid/Green Station**  
**Chad Phillips**  
**PO Box 24**  
**Henderson, KY 42419**

Project: **Green Surface Impoundment**

Phone: (270) 844-6000  
PWS ID#:

PO#: \_\_\_\_\_

Please Print Legibly Greg Dick Rex Dyer State: KY

Quote# \_\_\_\_\_

Collected by (Signature): Mig Orib Rex Dyer  
\*required information\*

Compliance Monitoring? Yes  No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Samples Chlorinated? Yes  No

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY Workorder # 2101585 Sample ID#	*required information* Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
2101585-03 A	<u>10/01/22</u>	<u>1135</u>	Plastic 500mL pH<2 w/HNO3	1	MW13	g / c	Calcium Tot 6010B Boron Tot 6010B
			Preservation Check: pH :	<input checked="" type="checkbox"/>			
2101585-03 B	<u>10/01/22</u>	<u>1135</u>	Plastic 500mL pH<2 w/HNO3	1	MW13	g / c	Boron Tot 6010B Calcium Tot 6010B
			Preservation Check: pH :	<input checked="" type="checkbox"/>			
2101585-03 C	<u>10/01/22</u>	<u>1135</u>	Plastic 1L	1	MW13	g / c	pH (Lab) TDS Fluoride 9056 Chloride 9056 Sulfate 9056
2101585-04 A	<u>10/01/22</u>	<u>1004</u>	Plastic 500mL pH<2 w/HNO3	1	MW14	g / c	Calcium Tot 6010B Boron Tot 6010B
			Preservation Check: pH :	<input checked="" type="checkbox"/>			
2101585-04 B	<u>10/01/22</u>	<u>1004</u>	Plastic 500mL pH<2 w/HNO3	1	MW14	g / c	Calcium Tot 6010B Boron Tot 6010B
			Preservation Check: pH :	<input checked="" type="checkbox"/>			
2101585-04 C	<u>10/01/22</u>	<u>1004</u>	Plastic 1L	1	MW14	g / c	TDS Sulfate 9056 pH (Lab) Fluoride 9056 Chloride 9056
2101585-05 A	<u>10/01/22</u>	<u>1200</u>	Plastic 500mL pH<2 w/HNO3	1	DUPLICATE	g / c	Boron Tot 6010B Calcium Tot 6010B
			Preservation Check: pH :	<input checked="" type="checkbox"/>			

Preservation Check Performed by: BTD

Field data collected by: <u>Greg Dick</u>		Date (mm/dd/yy) <u>10/01/22</u>	Time (24 hr) <u>1135</u>   <u>1004</u>
pH	<u>6.88</u>   <u>6.99</u>	Cond (umho/cm) <u>1.28</u>   <u>1.66</u>	Res Cl (mg/L) _____
Temp (oC)	<u>20.00</u>   <u>18.97</u>	or (oF) _____	Tot Cl (mg/L) _____
Flow (MGD) _____	or (CFS) _____	or (g/min) _____	Free Cl (mg/L) _____
Static Water Level _____		DO (mg/L) _____	Turb. (NTU) _____

Relinquished by: (Signature) Greg Dick Received by: (Signature) Brook Watson Date (mm/dd/yy) 10/3/22 Time (24 hr) 1519

# Chain of Custody

Scheduled for: **10/01/2022**



Client: **Big Rivers Electric Corporation**  
Reid/Green Station

Report To:  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Invoice To:  
Big Rivers Electric Corporation Reid/Green Station  
Chad Phillips  
PO Box 24  
Henderson, KY 42419

Project: **Green Surface Impoundment**

Phone: (270) 844-6000  
PWS ID#:

PO#: \_\_\_\_\_

Please Print Legibly Greg Dick Ray Dyer State: KY

Quote# \_\_\_\_\_

Collected by (Signature): Greg Dick Ray Dyer  
\*required information\*

Compliance Monitoring? Yes  No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Samples Chlorinated? Yes  No

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

LAB USE ONLY Workorder # 2101585 Sample ID#	*required information* Date (mm/dd/yy): <u>10/01/22</u>	Collection Time (24 hr): <u>1200</u>	Bottle and Preservative Plastic 500mL pH<2 w/HNO3	Containers 1	Sample Description DUPLICATE	Composite g / c	Sample Analysis Requested Calcium Tot 6010B Boron Tot 6010B
2101585-05 B	<u>10/01/22</u>	<u>1200</u>	Plastic 500mL pH<2 w/HNO3	1	DUPLICATE	g / c	Calcium Tot 6010B Boron Tot 6010B
Preservation Check: pH: <input checked="" type="checkbox"/>							
2101585-05 C	<u>10/01/22</u>	<u>1200</u>	Plastic 1L	1	DUPLICATE	g / c	Sulfate 9056 TDS pH (Lab) Fluoride 9056 Chloride 9056
2101585-06 A	<u>10/01/22</u>	<u>1358</u>	Plastic 500mL pH<2 w/HNO3	1	FIELD BLANK	g / c	Calcium Tot 6010B Boron Tot 6010B
Preservation Check: pH: <input checked="" type="checkbox"/>							
2101585-06 B	<u>10/01/22</u>	<u>1358</u>	Plastic 500mL pH<2 w/HNO3	1	FIELD BLANK	g / c	Calcium Tot 6010B Boron Tot 6010B
Preservation Check: pH: <input checked="" type="checkbox"/>							
2101585-06 C	<u>10/01/22</u>	<u>1350</u>	Plastic 1L	1	FIELD BLANK	g / c	TDS Sulfate 9056 pH (Lab) Chloride 9056 Fluoride 9056

Thermometer Serial Number

181390287

181460057

Temp 5.6 °C

Preservation Check Performed by: BTW

Field data collected by: <u>Greg Dick</u>	Date (mm/dd/yy) <u>10/01/22</u>	Time (24 hr) <u>1200</u>
pH <u>6.88</u>	Cond (umho) <u>1.28</u>	Res Cl (mg/L) _____
Temp (oC) <u>20.00</u>	or (oF) _____	Tot Cl (mg/L) _____
Flow (MGD) _____	or (CFS) _____	or (g/min) _____
Static Water Level _____	DO (mg/L) _____	Turb. (NTU) _____

Relinquished by: (Signature) <u>Greg Dick</u>	Received by: (Signature) <u>Brooke Watson</u>	Date (mm/dd/yy) <u>10/3/22</u>	Time (24 hr) <u>1519</u>
_____	_____	_____	_____
_____	_____	_____	_____

## **APPENDIX G – GREEN LANDFILL DATA VALIDATION**

# Memorandum



Date: January 25, 2023

To: Christopher Hoglund

From: Omkar Parab/Shauga Lawrence

Re: Quality Assurance/Quality Control (QA/QC) Review of Analytical Data  
Big Rivers Electric Company (BREC) - Sebree Station, Green Landfill Site,  
Webster County, Kentucky  
Project No. 153431

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Groundwater samples were collected at the BREC Sebree Green Landfill Site in Webster County, Kentucky on April 20<sup>th</sup> and 22<sup>nd</sup>, 2022. The samples were analyzed by Pace Analytical Services of Madisonville, Kentucky (Pace Madisonville) or Pace Analytical of Greensburg, Pennsylvania (Pace Greensburg) for one or more of the following parameters:

Parameter	Analytical Method	Laboratory
Metals	SW846 6010 B SW846 6020 A	Pace - Madisonville
Specific Conductance	2510 B-2011	
Total Dissolved Solids (TDS)	2540 C-2011	
Anions chloride, fluoride, sulfate	SW846 9056	
Total Organic Carbon (TOC)	5310 C-2011	
Chemical Oxygen Demand (COD)	HACH Method 8000	
This	4500-H+ B-2000	
Radium-226 Radium-228 *total calculated from radium-226 + radium-228 analyses.	EPA 903.1 EPA 904 Total Radium by calculation	Pace - Greensburg

The following data sets were reviewed in support of this investigation:

Data Set	Dates Collected	Matrix
2033749	04/20/2022	Groundwater
2033750	04/22/2022	Groundwater

The QA/QC results in association with the samples collected were examined for any method-specific requirements. Data qualifiers, when appropriate, were added to the data as recommended in United States Environmental Protection Agency's (USEPA's) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (NFGI, 2020). The QA/QC review results are discussed below, and qualifiers added during this review are summarized on Table 1.

1. Chain-of-Custody (COC) –The relinquished and received signatures, times, and dates were present on the COC for all samples sent to Pace-Madisonville. For the COC associated with the radium samples sent from Pace-Madisonville to Pace-Greensburg, the COC relinquished

# Memorandum *(continued)*



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signatures were not present. All samples arrived with no issues, and were analyzed for radium as requested.

2. Requested Analyses Completed – All analyses were completed as requested.
3. Holding Times – The measurements for pH should be made within 15 minutes, however, for lab pHs, a 24-hour window is generally used. The lab pH for all samples was analyzed outside the 24-hour holding time, and therefore, these results were qualified as estimated (J).
4. Sample Preservation – All samples were received by Pace-Madisonville within the preservation temperature range of 4 degrees Celsius ( $^{\circ}\text{C}$ )  $\pm$  2 $^{\circ}\text{C}$ . Since the samples were not in frozen state, the requested analyses were completed. All radium samples were received by Pace-Greensburg between 6.5 and 3.0  $^{\circ}\text{C}$ . The radium samples did not require a thermal preservation.

Additionally, Pace Greenburg noted that the radium samples were not properly preserved for one or more samples. Upon arrival, nitric acid ( $\text{HNO}_3$ ) was added to the radium samples for MW2 and sample MW4. However, because this preservation was added more than 3 days after sample collection for samples, the affected sample/result pairs were all qualified as estimated (J).

5. Field Blank – Field blanks assess the potential for cross-contamination during the sample collection and/or transport. For this review, the field blank was associated with samples collected the same day (04/20/2022, Data set: 2033749 ). The following field blank detections were noted during this review:
  - Copper, COD, and radium were detected in the Field blank (Lab ID: 2033749-08). Any low-level (J-flagged) detections of these analytes less their reporting limit were qualified as non-detect (JU), while any detections greater than the reporting limit (RL) but less than five times the blank concentration were qualified as estimated potential high bias (J+). The exception is for radium, in which estimated (J) qualifiers were added due to the uncertainty associated with these analytes. The following summarizes the review of these analytes:
    - All associated samples were non-detect for copper; therefore, no qualifiers were required.
    - COD was detected in samples MW1, MW2, and MW6 these detections were greater than the reporting limit (RL) but less than five times the blank concentration and were qualified as estimated potential high bias (J+). No qualifiers were added for the detections greater than five times the blank concentration.
    - Radium-226 and radium-228 were both considered detections in the field blank since there is uncertainty in their reported concentrations. All associated samples yielded radium-226, radium-228 and total radium detections over their

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RL (when including the uncertainty) but less than five times the field blank concentrations and were qualified as estimated (J). This included the radium-226 and radium-228, as well as total radium results for samples MW1, MW2, MW3A, MW4, MW5, MW6, and DUPLICATE.

6. Method Blanks – Method blanks assess the potential for cross-contamination during the sample preparation and/or analyses. The following method blank detections were noted during this review:
  - Radium: Radium-226 and radium-228 were detected in their method blanks. Because of the uncertainty associated with radium results, the review criteria were slightly altered to account for this. For any associated radium-226 or radium-228 detection less than five times the corresponding method blank concentration (plus its uncertainty), the respective result was qualified as estimated (J). Additionally, because this result was used in the calculation to report total radium, the total radium result for said sample was also qualified as estimated (J). Based on this, all samples were qualified estimated (J) for the radium fractions. Note, samples were previously qualified estimated (J) for the preservation/holding time issues noted by the lab and/or field blank detections for these analytes.
  
7. Laboratory Control Samples (LCS) – The LCS contains a matrix similar to that of the sample that has been spiked with known concentrations of target analytes. The LCS is prepared and analyzed by the same method as the samples. As a measure of analytical accuracy, the results of the LCS are compared against the known analyte concentrations in the spike to determine percent recovery (REC). The purpose of the LCS is to determine the performance of the laboratory with respect to analyte recovery, independent of field sample matrix interference. In some instances, the lab also performed laboratory control sample duplicates. The following LCS results were outside their respective control limits and qualified as noted:
  - Data Set : 2033749
    - The lab reported three LCS results for copper in QC batch BBD2644. Two of the three yielded RECs above the QC limit. Copper was detected at a low-level (J-qualified) concentration in the field blank and is qualified as estimated (J). All the other associated samples results were nondetects for this analyte, and no qualification was required.
  - Data Set : 2033750
    - All the LCS RECs were within QC limits.
  
8. Matrix Spike/Matrix Spike Duplicates (MS/MSD) – MS/MSDs are typically run for organic and inorganic analyses. A sample is split into three portions (original, MS and MSD), and a known amount of a target analyte is added (spiked) to two portions (MS and MSD) of the sample. The results of these two portions are compared with each other for reproducibility using the relative percent difference (RPD). They are also compared against the unspiked portion of the sample for

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REC of the spike. For one or more MS/MSDs, the lab could not calculate a REC and no result was reported. The corresponding LCS information was used to evaluate these analytes, and no qualifiers were added based on these omissions. Note, only site-specific samples were evaluated during the MS/MSD review. The following site-specific MS/MSD results were outside their respective control limits, and qualified as noted (see also Table 1 for all qualifications added).

- The MS/MSD performed on sample MW-1 (Lab ID- 2033749-01) yielded RECs below the QC limit for boron, calcium, and it was above for sodium. In the noted spiked sample, the lab spike amounts were less than  $\frac{1}{4}$  the respective concentrations in the parent sample for boron, calcium, and sodium; hence, MS/MSD results were inconclusive. The corresponding post digestive spike performed on this same sample also yielded the same inconclusive results due to not meeting the  $\frac{1}{4}$  spiking criteria.

Also on this same sample, the MSD REC for selenium was above the QC limit. Selenium was non-detect in the parent sample, and no qualification was required.

All other site-specific MS/MSD results were within QC limits.

9. Laboratory Duplicates – Laboratory duplicates were performed to evaluate analytical precision between samples when an MS/MSD may not be appropriate. Only project-specific laboratory duplicates were compared and used for qualification. All site-specific laboratory duplicates were within QC limits.
10. Field Duplicate Results – Field duplicate results provide information on the ability to reproduce field results and account for error introduced from handling, shipping, storage, preparation, and analysis of field samples. There are no specific USEPA criteria for qualifying data from field duplicate results. Depending upon the sample concentration, one of the following criteria based upon NFGI is applicable:
  - Is the compound detected in both portions?
  - If the sample concentrations are greater than 5 times the detection limit, then the maximum allowable RPD is 20 percent for water samples.
  - If the sample concentrations are less than 5 times the detection limit, then a sensitivity test is applied. For the sensitivity test, the sample concentrations must agree within  $\pm$  the lower detection limit for water samples.

If the radium results are reported above their minimum detectable concentration (MDC), the normalized difference (also called the relative error ratio) between the duplicate pair was calculated. The maximum normalized difference is 0.246 for the radium samples.

# Memorandum *(continued)*



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The following field duplicate pair was included in this review, and detections are presented on Table 2:

- MW 2// DUPLICATE: Arsenic, barium, and iron did not meet the duplication criteria since it yielded an elevated RPD; as such, the parent/duplicate pair was qualified as estimated (J) for this analyte.
11. Detection and Quantitation Limits – Dilutions were required to account for high concentrations of target analytes and/or matrix interferences in one or more samples. RLs were adjusted accordingly, and no data qualifiers were added based on these dilutions. Dilution factors were not reported, however, the diluted analyses were flagged “D” by the lab. This qualifier should be dropped during final reporting of the data.
  12. Method Requirements – In addition to the above QC items, the laboratory also noted other QC variances in the data. Although these are not part of the typical review, they are summarized below.
    - Continuing Calibration Verification (CCV): Pace Madisonville flagged one or more thallium analytes as “V1” to indicate that the associated CCV was outside its control limits. This is an upper-level QC item, which is beyond the scope of this review, and the CCV QC data were not included in these data sets for review. No data qualification for CCV results were added during this review.
  13. Conclusion – The data were reviewed for achievement of any method-specified QA/QC criteria. Although several estimated qualifiers were added for various reasons, no data were rejected during this review. The data are valid for use, as qualified, in reporting the results of this groundwater monitoring event.

## Attachments

Table 1 – Data Qualifier Table

Table 2 – Field Duplicate Comparison – Detections Only

**Table 1  
Data Qualifier Table  
BREC Sebree Green Landfill - April 2022 Sampling Event  
Webster County, Kentucky**

Analytical Method	Analyte(s)	Sample Identification	Laboratory Number	Data Validation Qualifier	Reason for Qualification
4500-H+ B-2000	pH	MW1	2033749-01	J	Holding time exceedance
HACH 8000	Chemical oxygen demand			J+	Field blank detection
EPA 903.1 EPA 904.0 Total Radium	Radium 226 Radium 228 Total radium			J	Field blank detection Method blank detection
4500-H+ B-2000	pH	MW2	2033749-02	J	Holding time exceedance
HACH 8000	Chemical oxygen demand			J+	Field blank detection
EPA 903.1 EPA 904.0 Total Radium	Radium 226 Radium 228 Total radium			J	Holding time exceedance/ Inadequate preservation in the field Field blank detection Method blank detection
SW846-6020 A	Arsenic			J	Parent/duplicate failed RPD test
	Barium				
SW846 6010 B	Iron				
4500-H+ B-2000	pH	MW3A	2033749-03	J	Holding time exceedance
EPA 903.1 EPA 904.0 Total Radium	Radium 226 Radium 228 Total radium			J	Field blank detection Method blank detection
4500-H+ B-2000	pH			MW4	2033749-04
EPA 903.1 EPA 904.0 Total Radium	Radium 226 Radium 228 Total radium	J	Holding time exceedance/ Inadequate preservation in the field Field blank detection Method blank detection		
4500-H+ B-2000	pH	MW5	2033749-05		
EPA 903.1 EPA 904.0 Total Radium	Radium 226 Radium 228 Total radium			J	Field blank detection Method blank detection
4500-H+ B-2000	pH			MW6	2033749-06
HACH 8000	Chemical oxygen demand	J+	Field blank detection		
EPA 903.1 EPA 904.0 Total Radium	Radium 226 Radium 228 Total radium	J	Field blank detection Method blank detection		
4500-H+ B-2000	pH	DUPLICATE Duplicate of MW2	2033749-07	J	Holding time exceedance
HACH 8000	Chemical oxygen demand			J+	Field blank detection
EPA 903.1 EPA 904.0 Total Radium	Radium 226 Radium 228 Total radium			J	Field blank detection Method blank detection
SW846-6020 A	Arsenic			J	Parent/duplicate failed RPD test
	Barium				
SW846 6010 B	Iron				
SW846 6010 B	Copper	FIELD BLANK	2033749-08	J	LCS REC > QC limit
EPA 903.1 EPA 904.0 Total Radium	Radium 226 Radium 228 Total radium	MW-104	2033750-01	J	Method blank detection
4500-H+ B-2000	pH			J	Holding time exceedance

**Notes:**

- J = Qualified as estimated during data review
- J+ = Qualified as estimated biased high during data review
- LCS = Laboratory Control Sample
- MW = Monitoring Well
- QC = Quality Control
- REC = Percent Recovery
- RPD = Relative percent difference

**Table 2**  
**Field Duplicate Comparison - Detections Only**  
**BREC Sebree Green Landfill - April 2022 Sampling Event**  
**Webster County, Kentucky**

Sample ID:	MW2	DUPLICATE	Units	Meets QC
Lab ID:	2033749-02	2033749-07		
Date Sampled:	4/20/2022	4/20/2022		
Arsenic	0.0331 J	0.0053 J	mg/L	No - RPD>QC
Barium	0.348 J	0.262 J	mg/L	No - RPD>QC
Calcium	190	177	mg/L	Yes
Iron	11.40 J	4.29 J	mg/L	No - RPD>QC
Lithium	0.006 J	0.005 J	mg/L	Yes
Molybdenum	0.003 J	0.002 J	mg/L	Yes
Sodium	59.6	62.5	mg/L	Yes
Chemical Oxygen Demand	31 J+	24 J+	mg/L	Yes
pH (Lab)	6.80 J	6.93 J	std unit	
Specific Conductance (Lab)	1740	1670	umhos/cm	Yes
Total Dissolved Solids	1130	1080	mg/L	Yes
Total Organic Carbon	1.4	1.4	mg/L	Yes
Chloride	159	161	mg/L	Yes
Fluoride	0.2	0.2	mg/L	Yes
Sulfate	128	130	mg/L	Yes
Total Radium	1.27 ± 0.914 J	0.965 ± 0.973 J	pCi/L	Yes

**Notes:**

- ID = identification
- mg/L = milligram per liter
- J+ = Qualified as estimated biased high during data review
- J = Qualified as estimated by lab or during data review
- MW = Monitoring Well
- pCi/L = picoCurie per liter
- QC = Quality Control
- RPD = Relative Percent Difference
- std units = standard unit
- umhos/cm = microsiemen per centimeter

# Memorandum



Date: January 25, 2023

To: Christopher Hoglund

From: Omkar Parab/Shauga Lawrence

Re: Quality Assurance/Quality Control (QA/QC) Review of Analytical Data  
Big Rivers Electric Company (BREC) - Sebree Station, Green Landfill Site  
Webster County, Kentucky  
Project No. 153431

---

Groundwater samples were collected at the BREC Sebree Green Landfill Site in Webster County, Kentucky on December 9 and 10, 2022. The samples were analyzed by Pace Analytical Services of Madisonville, Kentucky (Pace Madisonville) or Pace Analytical of Greensburg, Pennsylvania (Pace Greensburg) for one or more of the following parameters:

Parameter	Analytical Method	Laboratory
Metals	SW846 6010 B SW846 6020 A	Pace - Madisonville
Specific Conductance	2510 B-2011	
Total Dissolved Solids (TDS)	2540 C-2011	
Anions chloride, fluoride, sulfate	SW846 9056	
Total Organic Carbon (TOC)	5310 C-2011	
Chemical Oxygen Demand (COD)	HACH Method 8000	
pH	4500-H+ B-2000	
Radium-226 Radium-228 *total calculated from radium-226 + radium-228 analyses.	EPA 903.1 EPA 904 Total Radium by calculation	Pace - Greensburg

The following data sets were reviewed in support of this investigation:

Data Set	Dates Collected	Matrix
2094226	12/9/2022 and 12/10/2022	Groundwater
2094227	12/10/2022	Groundwater

The QA/QC results in association with the samples collected were examined for any method-specific requirements. Data qualifiers, when appropriate, were added to the data as recommended in United States Environmental Protection Agency's (USEPA's) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (NFGI, 2020). The QA/QC review results are discussed below, and qualifiers added during this review are summarized in Table 1.

1. Chain-of-Custody (COC) –The relinquished and received signatures, times, and dates were present on the COC for all samples sent to Pace-Madisonville. For the COC associated with the radium samples sent from Pace-Madisonville to Pace-Greensburg, the COC relinquished and

# Memorandum *(continued)*



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received signatures, times, and dates were not present. All samples arrived with no issues, and were analyzed for radium as requested.

2. Requested Analyses Completed – All analyses were completed as requested.
3. Holding Times – The measurements for pH should be made within 15 minutes, however, for lab pHs, a 24-hour window is generally used. The lab pH for all samples was analyzed outside the 24-hour holding time, and therefore, these results were qualified as estimated (J).

TDS was analyzed outside the seven-day holding time for samples MW5, MW6, and DUPLICATE. Therefore, these results were qualified as estimated potential low bias (J-).

4. Sample Preservation – All samples were received by Pace-Madisonville within the preservation temperature range of 4 degrees Celsius (°C) +/- 2°C. Since the samples were not in frozen state, the requested analyses were completed. All radium samples were received by Pace-Greensburg between 10.7 °C and 10.9 °C. The radium samples did not require thermal preservation, and no further actions were necessary.

Upon arrival, Pace Greenburg added nitric acid (HNO<sub>3</sub>) to the radium samples for MW6 and DUPLICATE. However, because this preservation was added more than 3 days after sample collection for samples, the affected sample/result pairs were all qualified as estimated (J). All the other samples/analyses were completed within their recommended holding time.

5. Field Blank – Field blanks assess the potential for cross-contamination during the sample collection and/or transport. For this review, the field blank was associated with samples collected the same day (12/10/2022). The following field blank detections were noted during this review:
  - Copper, TDS, TOC, radium, and sulfate were detected in sample Field blank (Lab ID: 2094226-08). Any low-level (J-flagged) detections of these analytes were qualified as non-detect (JU), while any detections greater than the reporting limit (RL) but less than five times the blank concentration were qualified as estimated potential high bias (J+). The exception is for radium, in which estimated (J) qualifiers were added due to the uncertainty associated with these analytes. The following summarizes the review of these analytes:
    - Copper was detected in sample MW3A at a low-level concentration, and it was qualified as nondetect (JU). All the other associated samples for 12/10/2022 were nondetect for copper; therefore, no qualifiers were required.
    - TOC was detected at concentrations greater than the reporting limit, but less than five times the blank detection in samples MW2, MW3A, and MW4. The TOC result for these samples was qualified as estimated potential high bias (J+).

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- Sulfate and TDS were detected in all the samples for 12/10/2022, and were greater than five times the respective field blank detection; therefore, no qualifiers were required.
  - Radium-226 and radium-228 were both considered detections in the field blank since there is uncertainty in their reported concentrations all associated samples yielded radium-226, radium-228 and total radium detections over their RL but less than five times the field blank and were qualified as estimated (J). This included the radium-226 and radium-228, as well as total radium results for samples MW2, MW3A, and MW4.
6. Method Blanks – Method blanks assess the potential for cross-contamination during the sample preparation and/or analyses. The following method blank detections were noted during this review:
- Radium: Radium-226 and radium-228 were detected in method blank. Because of the uncertainty associated with radium results, the review criteria was slightly altered to account for this. For any associated radium-226 or radium-228 detection less than five times the corresponding method blank concentration plus its uncertainty, the respective result was qualified as estimated (J). Additionally, because this result was used in the calculation to report total radium, the total radium result for said sample was also qualified as estimated (J). Based on this, all samples were qualified estimated (J) for the radium fractions. Note, all samples were previously qualified estimated (J) for the field blank and/or sample preservation/holding time issues noted by the lab.
7. Laboratory Control Samples (LCS) – The LCS contains a matrix similar to that of the sample that has been spiked with known concentrations of target analytes. The LCS is prepared and analyzed by the same method as the samples. As a measure of analytical accuracy, the results of the LCS are compared against the known analyte concentrations in the spike to determine percent recovery (REC). The purpose of the LCS is to determine the performance of the laboratory with respect to analyte recovery, independent of field sample matrix interference. In some instances, the lab also performed laboratory control sample duplicates. The following LCS/ results were outside their respective control limits and qualified as noted
- All the LCS results were within QC limits.
8. Matrix Spike/Matrix Spike Duplicates (MS/MSD) – MS/MSDs are typically run for organic and inorganic analyses. A sample is split into three portions (original, MS and MSD), and a known amount of a target analyte is added (spiked) to two portions (MS and MSD) of the sample. The results of these two portions are compared with each other for reproducibility using the relative percent difference (RPD). They are also compared against the unspiked portion of the sample for REC of the spike. For one or more MS/MSDs, the lab could not calculate a REC and no result was reported. The corresponding LCS information was used to evaluate these analytes, and no qualifiers were added based on these omissions. Note, only site-specific samples were evaluated

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during the MS/MSD review. The following site-specific MS/MSD results were outside their respective control limits, and qualified as noted (see also Table 1 for all qualifications added).

- The MS/MSD performed on sample MW-1 (Lab ID- 2094226-01) yielded MS/MSD RECs below the QC limit for boron, calcium, and sodium. In the noted spiked sample, the lab spike amounts were less than  $\frac{1}{4}$  the respective concentrations in the parent sample for boron, calcium, and sodium; hence, MS/MSD results were inconclusive. The corresponding post digestive spike performed on this same sample also yielded the same inconclusive results due to not meeting the  $\frac{1}{4}$  spiking criteria.
- The MS/MSD performed on sample MW-104 (Lab ID- 2094227-01) yielded MS/MSD RECs below the QC limit and a RPD above QC limits for fluoride. Fluoride was detected in the noted spiked sample, and qualified as estimated (J). In this same noted sample, the lab spike amounts were less than  $\frac{1}{4}$  the respective concentrations in the parent sample for chloride and sulfate; hence, MS/MSD results were inconclusive.

All the other site-specific MS/MSD results were within QC limits.

9. Laboratory Duplicates – Laboratory duplicates were performed to evaluate analytical precision between samples when an MS/MSD may not be appropriate. Only project-specific laboratory duplicates were compared and used for qualification. All site-specific laboratory duplicates were within QC limits.
10. Field Duplicate Results – Field duplicate results provide information on the ability to reproduce field results and account for error introduced from handling, shipping, storage, preparation, and analysis of field samples. There are no specific USEPA criteria for qualifying data from field duplicate results. Depending upon the sample concentration, one of the following criteria based upon NFGI is applicable:
  - Is the compound detected in both portions?
  - If the sample concentrations are greater than 5 times the detection limit, then the maximum allowable RPD is 20 percent for water samples.
  - If the sample concentrations are less than 5 times the detection limit, then a sensitivity test is applied. For the sensitivity test, the sample concentrations must agree within  $\pm$  the lower detection limit for water samples.

If the radium results are reported above their minimum detectable concentration (MDC), the normalized difference (also called the relative error ratio) between the duplicate pair was calculated. The maximum normalized difference is 0.579 for the radium samples.

# Memorandum *(continued)*



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The following field duplicate pair was included in this review, and detections are presented on Table 2:

- MW 6// DUPLICATE (collected 12/9/2022): TDS and sulfate did not meet the duplication criteria since it yielded an elevated RPD; as such, the parent/duplicate pair was qualified as estimated (J) for this analyte.
11. Detection and Quantitation Limits – Dilutions were required to account for high concentrations of target analytes and/or matrix interferences in one or more samples. RLs were adjusted accordingly, and no data qualifiers were added based on these dilutions. Dilution factors were not reported, however, the diluted analyses were flagged “D” by the lab. This qualifier should be dropped during final reporting of the data.
  12. Method Requirements – In addition to the above QC items, the laboratory also noted other QC variances in the data. Although these are not part of the typical review, they are summarized below.
    - Continuing Calibration Verification (CCV): Pace Madisonville flagged one or more thallium analytes as “V1” to indicate that the associated CCV was outside its control limits. This is an upper-level QC item, which is beyond the scope of this review, and CCV QC data were not included in these data sets for review. No data qualification for CCV results was added during this review.
  13. Conclusion – The data were reviewed for achievement of any method-specified QA/QC criteria. Although several estimated qualifiers were added for various reasons, no data were rejected during this review. The data are valid for use, as qualified, in reporting the results of this monitoring event.

## Attachments

Table 1 – Data Qualifier Table

Table 2 – Field Duplicate Comparison – Detections Only

**Table 1  
Data Qualifier Table  
BREC Sebree Green Landfill - December 2022 Sampling Event  
Webster County, Kentucky**

Analytical Method	Analyte(s)	Sample Identification	Laboratory Number	Data Validation Qualifier	Reason for Qualification
4500-H+ B-2000	pH	MW1	2094226-01	J	Holding time exceedance
EPA 903.1 EPA 904.0 Total Radium	Radium 226 Radium 228 Total radium			J	Method blank detection
4500-H+ B-2000	pH			J	Holding time exceedance
5310 C-2011	Total organic carbon	MW2	2094226-02	J+	Field blank detection
EPA 903.1 EPA 904.0 Total Radium	Radium 226 Radium 228 Total radium			J	Field blank detection Inadequate preservation in the field Method blank detection
4500-H+ B-2000	pH			J	Holding time exceedance
5310 C-2011	Total organic carbon	MW3A	2094226-03	J+	Field blank detection
SW846-6020 A	Copper			JU	Field blank detection
EPA 903.1 EPA 904.0 Total Radium	Radium 226 Radium 228 Total radium			J	Field blank detection Method blank detection
4500-H+ B-2000	pH	MW4	2094226-04	J	Holding time exceedance
5310 C-2011	Total organic carbon			J+	Field blank detection
EPA 903.1 EPA 904.0 Total Radium	Radium 226 Radium 228 Total radium			J	Field blank detection Method blank detection
4500-H+ B-2000	pH	MW5	2094226-05	J	Holding time exceedance
2540 C-2011	Total dissolved solids			J-	Holding time exceedance
EPA 903.1 EPA 904.0 Total Radium	Radium 226 Radium 228 Total radium			J	Method blank detection
4500-H+ B-2000	pH	MW6	2094226-06	J	Holding time exceedance
2540 C-2011	Total dissolved solids			J-	Holding time exceedance Parent/Duplicate failed RPD test
EPA 903.1 EPA 904.0 Total Radium	Radium 226 Radium 228 Total radium			J	Holding time exceedance Inadequate preservation in the field Method blank detection
SW846 9056	Sulfate			J	Parent/Duplicate failed RPD test
4500-H+ B-2000	pH	DUPLICATE Duplicate of MW6	2094226-07	J	Holding time exceedance
EPA 903.1 EPA 904.0 Total Radium	Radium 226 Radium 228 Total radium			J	Holding time exceedance Inadequate preservation in the field Method blank detection
2540 C-2011	Total dissolved solids			J	Holding time exceedance Parent/Duplicate failed RPD test
SW846 9056	Sulfate			J	Parent/Duplicate failed RPD test
4500-H+ B-2000	pH	MW-104	2094227-01	J	Holding time exceedance
SW846 9056	Fluoride			J	MS/MSD RECs < QC limits MS/MSD RPD > QC limits

**Notes:**

J+ = Qualified as estimated biased high during data review  
 J- = Qualified as estimated biased low during data review  
 J = Qualified as estimated during data review  
 JU = Estimated trace concentration was qualified as non detect during data review  
 MS/MSD = Matrix spike/Matrix spike duplicate

MW = Monitoring Well  
 REC = Percent Recovery  
 RPD = Relative percent difference  
 QC = Quality Assurance/Quality Control

**Table 2**  
**Field Duplicate Comparison - Detections Only**  
**BREC Sebree Green Landfill - December 2022 Sampling Event**  
**Webster County, Kentucky**

Sample ID:	MW6	DUPLICATE	Units	Meets QC
Lab ID:	2094226-06	2094226-07		
Date Sampled:	12/9/2022	12/9/2022		
Barium	0.010	0.010	mg/L	Yes
Calcium	474	475	mg/L	Yes
Lithium	0.04	0.04	mg/L	Yes
Molybdenum	0.01 U	0.002 J	mg/L	Yes
Sodium	476	483	mg/L	Yes
Chemical Oxygen Demand	17	21	mg/L	Yes
Specific Conductance (Lab)	4880	4950	umhos/cm	Yes
pH	6.79 J	6.87 J	std unit	Yes
Total Dissolved Solids	4560 J	5880 J	mg/L	No - RPD>QC
Total Organic Carbon	2.4	2.4	mg/L	Yes
Chloride	204	243	mg/L	Yes
Fluoride	0.5	0.6	mg/L	Yes
Sulfate	3030 J	4210 J	mg/L	No - RPD>QC
Total Radium	1.36 J	1.51 J	pCi/L	Yes

**Notes:**

- ID - identification
- J = Qualified as estimated by lab or during data review
- mg/L = milligram per liter
- MW = Monitoring Well
- pCi/L = picoCurie per liter
- QC = Quality Control
- RPD = Relative Percent Difference
- std unit = standard unit
- umhos/cm = microsiemen per centimeter

**APPENDIX H – GREEN SURFACE IMPOUNDMENT DATA VALIDATION**

# Memorandum



Date: January 25, 2023

To: Christopher Hoglund

From: Omkar Parab/Shauga Lawrence

Re: Quality Assurance/Quality Control (QA/QC) Review of Analytical Data  
Big Rivers Electric Company (BREC) - Sebree Station, Surface Impoundment Site,  
Webster County, Kentucky  
Project No. 153431

---

Groundwater samples were collected at the BREC Sebree Green Surface Impoundment Site in Webster County, Kentucky on April 21, 2022. The samples were analyzed by Pace Analytical Services of Madisonville, Kentucky (Pace Madisonville) for one or more of the following parameters:

Parameter	Analytical Method	Laboratory
Calcium	SW846 6010 B	Pace - Madisonville
Boron		
pH	4500-H+ B-2000	
Total Dissolved Solids (TDS)	2540 C-2011	
Anions chloride, fluoride, sulfate	SW846 9056	

The QA/QC results in association with the samples collected were examined for any method-specific requirements. Data qualifiers, when appropriate, were added to the data as recommended in United States Environmental Protection Agency's (USEPA's) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (NFGI, 2020). The QA/QC review results are discussed below, and qualifiers added during this review are summarized on Table 1.

1. Chain-of-Custody (COC) – The relinquished and received signatures, times, and dates were present on the COCs for all samples.
2. Requested Analyses Completed – All analyses were completed as requested.
3. Holding Times – The pH for all the samples was analyzed outside the 24-hour holding time, and therefore, these results were qualified as estimated (J). All the other samples/analyses were completed within their recommended holding time.
4. Sample Preservation – All samples were received by Pace-Madisonville slightly below the preservation temperature range of 4 degrees Celsius (°C) +/- 2°C. Since the samples were not in a frozen state, the requested analyses were completed.
5. Field Blank – Field blanks assess the potential for cross-contamination during the sample activities and/or transport. The following field blank detections were noted during this review:
  - TDS was detected in Field blank (Lab ID: 2033748-06). TDS was detected in samples MW12, MW13, DUPLICATE at detections were greater than the reporting limit (RL) but

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less than five times the blank concentration. As such, these samples were qualified as estimated potential high bias (J+) for TDS.

6. Method Blanks – Method blanks assess the potential for cross-contamination during the sample preparation and/or analyses.

No detections of target analytes were noted in the method blank.

7. Laboratory Control Samples (LCS) – The LCS contains a matrix similar to that of the sample that has been spiked with known concentrations of target analytes. The LCS is prepared and analyzed by the same method as the samples. As a measure of analytical accuracy, the results of the LCS are compared against the known analyte concentrations in the spike to determine percent recovery (REC). The purpose of the LCS is to determine the performance of the laboratory with respect to analyte recovery, independent of field sample matrix interference.

All LCS results were within QC limits.

8. Matrix Spike/Matrix Spike Duplicates (MS/MSD) – MS/MSDs are typically run for organic and inorganic analyses. A sample is split into three portions (original, MS and MSD), and a known amount of a target analyte is added (spiked) to two portions (MS and MSD) of the sample. The results of these two portions are compared with each other for reproducibility using the relative percent difference (RPD). They are also compared against the unspiked portion of the sample for REC of the spike. For one or more MS/MSDs, the lab could not calculate a REC and no result was reported. The following site-specific MS/MSD results were outside their respective control limits, and qualified as noted (see also Table 1 for all qualifications added).

- MS/MSD REC performed on sample FIELD BLANK (Lab ID 2033748-06):
  - The MS/MSD RPD for fluoride and sulfate were above the control limits. The parent sample was non-detect for the said analytes thus, no qualifiers were necessary.
- MS/MSD REC performed on sample MW11 (Lab ID 2033748-01):
  - The MS/MSD RECs for calcium and boron were above the control limits. In the noted spiked sample, the lab spike amounts were less than ¼ the respective concentration in the parent sample. Hence, MS/MSD results were inconclusive for these metals. The corresponding post digestive spike performed on this same sample also yielded the same inconclusive results due to not meeting the ¼ spiking criteria.

# Memorandum *(continued)*



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9. Laboratory Duplicates – Laboratory duplicates were performed to evaluate analytical precision between samples when an MS/MSD may not be appropriate. Only project-specific laboratory duplicates were compared and used for qualification.

All the site-specific laboratory duplicates were within QC limits.

10. Field Duplicate Results – Field duplicate results provide information on the ability to reproduce field results and account for error introduced from handling, shipping, storage, preparation, and analysis of field samples. There are no specific USEPA criteria for qualifying data from field duplicate results. Depending upon the sample concentration, one of the following criteria based upon NFGI is applicable:

- Is the compound detected in both portions?
- If the sample concentrations are greater than 5 times the detection limit, then the maximum allowable RPD is 20 percent for water samples.
- If the sample concentrations are less than 5 times the detection limit, then a sensitivity test is applied. For the sensitivity test, the sample concentrations must agree within  $\pm$  the lower detection limit for water samples.

The following field duplicate pair was included in this review, and detections are presented on Table 2:

- MW12 / DUPLICATE (collected 04/21/2022): Sulfate did not meet the duplication criteria since it yielded an elevated RPD. As such, the parent/duplicate pair was qualified as estimated (J) for these analytes.

11. Detection and Quantitation Limits – Dilutions were required to account for high concentrations of target analytes and/or matrix interferences in one or more samples. RLs were adjusted accordingly, and no data qualifiers were added based on these dilutions. Dilution factors were not reported, however, the diluted analyses were flagged “D” by the lab. This qualifier should be dropped during final reporting of the data.

12. Conclusion – The data were reviewed for achievement of any method-specified QA/QC criteria. Although several estimated qualifiers were added for various reasons, no data were rejected during this review. The data are valid for use, as qualified, in reporting the results of this groundwater monitoring event.

## Attachments

Table 1 – Data Qualifier Table

Table 2 – Field Duplicate Comparison – Detections Only

**Table 1**  
**Data Qualifier Table**  
**BREC Sebree Green Surface Impoundment - April 2022 Sampling Event**  
**Webster County, Kentucky**

Analytical Method	Analyte(s)	Sample Identification	Laboratory Number	Data Validation Qualifier	Reason(s) for Qualification
4500-H+ B-2000	pH	MW11	2033748-01	J	Holding time exceedance
2540 C-2011	Total dissolved solids	MW12	2033748-02	J+	Field blank detection
SW846 9056	Sulfate			J	Parent/Duplicate failed RPD test
4500-H+ B-2000	pH			J	Holding time exceedance
2540 C-2011	Total dissolved solids	MW13	2033748-03	J+	Field blank detection
4500-H+ B-2000	pH			J	Holding time exceedance
4500-H+ B-2000	pH	MW14	2033748-04	J	Holding time exceedance
2540 C-2011	Total dissolved solids	DUPLICATE Duplicate of MW12	2033748-05	J+	Field blank detection
SW846 9056	Sulfate			J	Parent/Duplicate failed RPD test
4500-H+ B-2000	pH			J	Holding time exceedance

**Notes:**

- J = Qualified as estimated during data review
- J+ = Qualified as estimated potential high bias during data review
- MW = Monitoring Well
- RPD = Relative Percent Difference

**Table 2**  
**Field Duplicate Comparison - Detections Only**  
**BREC Sebree Green Surface Impoundment - April 2022 Sampling Event**  
**Webster County, Kentucky**

Sample ID: Lab ID: Date Sampled:	MW12 2033748-02 4/21/2022	DUPLICATE 2033748-05 4/21/2022	Units	Meets QC
Boron	0.31	0.32	mg/L	Yes
Calcium	93.6	94.3	mg/L	Yes
Total Dissolved Solids	582 J+	608 J+	mg/L	Yes
Chloride	11.1	12.5	mg/L	Yes
Fluoride	0.4	0.4	mg/L	Yes
Sulfate	4 J	13 J	mg/L	No, RPD > QC
pH	7.17 J	7.17 J	std unit	Yes

**Notes:**

- ID - identification
- mg/L - milligrams per liter
- J = Qualified as estimated by lab or during data review
- J+ = Qualified as estimated potential high bias during data review
- MW = Monitoring Well
- QC = Quality Control
- RPD = Relative Percent Difference
- std unit = standard unit

# Memorandum



Date: January 25, 2023

To: Christopher Hoglund

From: Omkar Parab/Shauga Lawrence

Re: Quality Assurance/Quality Control (QA/QC) Review of Analytical Data  
Big Rivers Electric Company (BREC) - Sebree Station, Surface Impoundment Site,  
Webster County, Kentucky  
Project No. 153431

---

Groundwater samples were collected at the BREC Sebree Green Surface Impoundment Site in Webster County, Kentucky on October 1, 2022. The samples were analyzed by Pace Analytical Services of Madisonville, Kentucky (Pace Madisonville) for one or more of the following parameters:

Parameter	Analytical Method	Laboratory
Calcium	SW846 6010 B	Pace - Madisonville
Boron		
pH	4500-H+ B-2000	
Total Dissolved Solids (TDS)	2540 C-2011	
Anions chloride, fluoride, sulfate	SW846 9056	

The QA/QC results in association with the samples collected were examined for any method-specific requirements. Data qualifiers, when appropriate, were added to the data as recommended in United States Environmental Protection Agency's (USEPA's) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (NFGI, 2020). The QA/QC review results are discussed below, and qualifiers added during this review are summarized in Table 1.

1. Chain-of-Custody (COC) –The relinquished and received signatures, times, and dates were present on the COCs for all samples.
2. Requested Analyses Completed – All analyses were completed as requested.
3. Holding Times – The pH for all the samples was analyzed outside the 24-hour holding time, and therefore, these results were qualified as estimated (J). All the other samples/analyses were completed within their recommended holding time.
4. Sample Preservation – All samples were received by Pace-Madisonville within the preservation temperature range of 4 degrees Celsius (°C) +/- 2°C.
5. Field Blank – Field blanks assess the potential for cross-contamination during the sample activities and/or transport. The following field blank detections were noted during this review:
  - TDS was detected in Field blank (Lab ID: 2101585-06). TDS was detected in all the samples were greater than the reporting limit (RL) and greater than five times the blank concentration and no qualifiers were necessary.

# Memorandum *(continued)*



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6. Method Blanks – Method blanks assess the potential for cross-contamination during the sample preparation and/or analyses.

No detections of target analytes were noted in the method blank.

7. Laboratory Control Samples (LCS) – The LCS contains a matrix similar to that of the sample that has been spiked with known concentrations of target analytes. The LCS is prepared and analyzed by the same method as the samples. As a measure of analytical accuracy, the results of the LCS are compared against the known analyte concentrations in the spike to determine percent recovery (REC). The purpose of the LCS is to determine the performance of the laboratory with respect to analyte recovery, independent of field sample matrix interference.

All LCS results were within QC limits.

8. Matrix Spike/Matrix Spike Duplicates (MS/MSD) – MS/MSDs are typically run for organic and inorganic analyses. A sample is split into three portions (original, MS and MSD), and a known amount of a target analyte is added (spiked) to two portions (MS and MSD) of the sample. The results of these two portions are compared with each other for reproducibility using the relative percent difference (RPD). They are also compared against the unspiked portion of the sample for REC of the spike. For one or more MS/MSDs, the lab could not calculate a REC and no result was reported. The following site-specific MS/MSD results were outside their respective control limits, and qualified as noted (see also Table 1 for all qualifications added).

- MS/MSD REC performed on sample MW11 (Lab ID 2101585-01):
  - The MS/MSD REC for calcium was above the control limits. The lab spike was less than  $\frac{1}{4}$  the concentration of the parent sample for calcium, and MS/MSD result was inconclusive. The corresponding post digestive spike performed on this same sample also yielded the same inconclusive results due to not meeting the  $\frac{1}{4}$  spiking criteria.

9. Laboratory Duplicates – Laboratory duplicates were performed to evaluate analytical precision between samples when an MS/MSD may not be appropriate. Only project-specific laboratory duplicates were compared and used for qualification.

All the site-specific laboratory duplicates were within QC limits.

10. Field Duplicate Results – Field duplicate results provide information on the ability to reproduce field results and account for error introduced from handling, shipping, storage, preparation, and analysis of field samples. There are no specific USEPA criteria for qualifying data from field duplicate results. Depending upon the sample concentration, one of the following criteria based upon NFGI is applicable:

# Memorandum *(continued)*



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- Is the compound detected in both portions?
- If the sample concentrations are greater than 5 times the detection limit, then the maximum allowable RPD is 20 percent for water samples.
- If the sample concentrations are less than 5 times the detection limit, then a sensitivity test is applied. For the sensitivity test, the sample concentrations must agree within  $\pm$  the lower detection limit for water samples.

The following field duplicate pair was included in this review.

- MW13 // DUPLICATE: All field duplicate data were adequately replicated.
11. Detection and Quantitation Limits – Dilutions were required to account for high concentrations of target analytes and/or matrix interferences in one or more samples. RLs were adjusted accordingly, and no data qualifiers were added based on these dilutions.
  12. Conclusion – The data were reviewed for achievement of any method-specified QA/QC criteria. The data are valid for use, as qualified, in reporting the results of this groundwater monitoring event.

## Attachments

Table 1 – Data Qualifier Table

Table 2 – Field Duplicate Comparison – Detections Only

**Table 1**  
**Data Qualifier Table**  
**BREC Sebree Green Surface Impoundment - October 2022 Sampling Event**  
**Webster County, Kentucky**

Analytical Method	Analyte(s)	Sample Identification	Laboratory Number	Data Validation Qualifier	Reason(s) for Qualification
4500-H+ B-2000	pH	MW11	2101585-01	J	Holding time exceedance
		MW12	2101585-02		
		MW13	2101585-03		
		MW14	2101585-04		
		DUPLICATE	2101585-05		

**Notes:**

J = Qualified as estimated during data review  
 MW = Monitoring Well

**Table 2**  
**Field Duplicate Comparison - Detections Only**  
**BREC Sebree Green Surface Impoundment - October 2022 Sampling Event**  
**Webster County, Kentucky**

Sample ID: Lab ID: Date Sampled:	MW13 2101585-03 10/1/2022	DUPLICATE 2101585-05 10/1/2022	Units	Meets QC
Calcium	94.9	97.4	mg/L	Yes
Total Dissolved Solids	840	802	mg/L	Yes
Chloride	23.2	23	mg/L	Yes
Fluoride	0.2	0.2	mg/L	Yes
Sulfate	87	87	mg/L	Yes
pH	6.91 J	6.90 J	std unit	Yes

**Notes:**

ID - identification

J = Qualified as estimated by the lab or during data review

mg/L - milligram per liter

MW = Monitoring Well

QC = Quality Assurance/Quality Control

std unit = standard unit

## **APPENDIX I – GREEN LANDFILL STATISTICAL EVALUATIONS**



January 20, 2023

Mr. Mark Bertram  
Big Rivers Electric Corporation  
9000 Highway 2096  
Robards, KY 42452

Re: Statistical Evaluation of April 2022 Assessment Monitoring Groundwater Data  
Sebree Generating Station Green Landfill in Robards, Kentucky  
Agency Interest ID #: 4196

Dear Mr. Bertram:

This letter presents the results of the statistical evaluation of analytical data from the April 2022 assessment monitoring event performed at the Sebree Generating Station's Green Landfill in Webster County, Robards, Kentucky in accordance with the requirements of U.S. Environmental Protection Agency's *Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments (40 Code of Federal Regulations [CFR] Part 257, Subpart D)*. This letter also presents a comparison of the April 2022 sampling results to calculated groundwater protection standards (GWPSs). The GWPSs for the groundwater monitoring network were reviewed and updated as part of the statistical evaluation completed for the April 2022 sampling event and are presented on Table 1. These GWPSs will continue to be reviewed and updated as additional data are collected. A comparison of the April 2022 data to the updated GWPSs is presented on Table 2. The statistical evaluation presented herein was performed in accordance with the *Groundwater Monitoring System and Statistical Methods* document prepared by Associated Engineers, Inc. and dated June 28, 2016.

In April 2022, the Green Landfill groundwater monitoring well network was sampled for Appendix III and Appendix IV parameters per the requirements of 40 CFR §257.95(d)(1). Interwell prediction limit statistical analyses were performed for these well/constituent pairs and are discussed subsequently. GWPSs were also developed in accordance with 40 CFR §257.95(h) which describes a GWPS as the higher value between a determined background concentration for the CCR unit and the established maximum concentration limit (MCL) or the GWPS criteria for select Appendix IV parameters without an MCL presented in 40 CFR §257.95(h)(2). This letter presents the results of the statistical evaluation of the April 2022 assessment monitoring event for inclusion in the Sebree Generating Station Operating Record.

### **Statistical Evaluation of Green Landfill Compliance Monitoring Well Network Evaluation**

An interwell prediction limit evaluation was performed to compare the concentrations of Appendix III and Appendix IV parameters observed in April 2022 compliance (downgradient) monitoring wells MW-2, MW-3A, MW-4, MW-5, and MW-6 to calculated prediction limits (i.e., background limits) that were established using data collected from March of 2016 through April of 2022 from upgradient monitoring well MW-1. Certain Appendix III and Appendix IV

Mr. Mark Bertram  
Big Rivers Electric Corporation  
January 20, 2023  
Page 2

parameters were detected in April 2022 at concentrations with statistically significant increases (SSI) above the calculated background limits (equivalent to the MW-1 prediction limits), and a summary of the statistical evaluation is included in Attachment 1. This included the following well/constituent pairs for downgradient compliance monitoring wells with SSIs above calculated background limits:

Appendix III Parameters:

- Calcium (MW-2, MW-3A, MW-4, MW-5, and MW-6)
- Chloride (MW-2, MW-3A, MW-4, MW-5, and MW-6)
- Sulfate (MW-2, MW-3A, MW-4, MW-5, and MW-6)
- Total Dissolved Solids (TDS) (MW-2, MW-3A, MW-4, MW-5, and MW-6)

Appendix IV Parameters:

- Arsenic (MW-2)
- Barium (MW-2)
- Lithium (MW-3A, MW-4, MW-5, and MW-6)
- Molybdenum: (MW-2)
- Radium 226 + 228 (MW-5)
- Selenium (MW-4)

The Appendix IV constituents with SSIs (arsenic, barium, lithium, molybdenum, radium 226 + 228, and selenium) were further evaluated to determine whether they are present at statistically significant levels (SSLs) over the GWPS by calculating the lower confidence limit (LCL) at 95% confidence for each well and constituent using all the baseline, detection, and assessment monitoring results collected to date from each monitoring well. For a constituent to be present at an SSL over the GWPS, its LCL must be greater than the GWPS. The comparison of the calculated LCLs with the GWPSs for arsenic, barium, lithium, molybdenum, radium 226 + 228, and selenium at downgradient compliance monitoring wells MW-2, MW-3A, MW-4, MW-5, and MW-6 resulted in the following well/constituent pairs with SSLs above the GWPS:

- Arsenic (MW-2)
- Lithium (MW-3A, MW-4, MW-5, and MW-6)

The LCLs for the remaining well/constituent pairs for arsenic, barium, lithium, molybdenum, radium 226 + 228, and selenium are less than the GWPS and thus are not considered SSLs. Attachment 1 provides a summary of the calculated LCLs in comparison with the GWPSs.

Mr. Mark Bertram  
Big Rivers Electric Corporation  
January 20, 2023  
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Given that certain Appendix III and IV constituents were observed at the e Green Landfill groundwater monitoring network at concentrations above their respective calculated background limit and the LCL for certain Appendix IV constituents was greater than the corresponding GWPSs, these results do not warrant a transition to detection monitoring per the requirements of 40 CFR §257.95(f) and assessment monitoring will continue for the next semiannual monitoring event 2023.

Sincerely,

Burns & McDonnell Engineering Company, Inc.



Chris Hoglund, PG  
Project Manager

Attachments:

Table 1 – Summary of Groundwater Protection Standards

Table 2 – Summary of April 2022 Analytical Results

Attachment 1 – Sanitas™ Statistical Outputs

cc: Greg Dick, BREC Sebree Station

## **TABLES**

**Table 1**  
**Calculated Background and Groundwater Protection Standards for Groundwater**  
**Sebree Generating Station in Robards, Kentucky**

Detection Constituents (Appendix III)	Units	Background*	MCL	40 CFR §257.95(h)(2) Criteria	Groundwater Protection Standard
Boron	mg/L	2.218	--	--	--
Calcium	mg/L	36.31	--	--	--
pH (field)	SU	4.86 - 7.63	--	--	--
TDS	mg/L	696.6	--	--	--
Chloride	mg/L	13.9	--	--	--
Fluoride	mg/L	0.888	4	--	--
Sulfate	mg/L	48	--	--	--
Assessment Constituents (Appendix IV)	Units	Background*	MCL	40 CFR §257.95(h)(2) Criteria	Groundwater Protection Standard
Antimony	mg/L	0.00297	0.006	--	0.006
Arsenic	mg/L	0.004166	0.01	--	0.01
Barium	mg/L	0.1019	2	--	2
Beryllium	mg/L	0.000533	0.004	--	0.004
Cadmium	mg/L	0.000299	0.005	--	0.005
Chromium	mg/L	0.00354	0.1	--	0.1
Cobalt	mg/L	0.002	--	0.006	0.006
Fluoride	mg/L	0.888	4	--	4
Lead	mg/L	0.000279	--	0.015	0.015
Lithium	mg/L	0.03905	--	0.04	0.04
Mercury	mg/L	0.0002	0.002	--	0.002
Molybdenum	mg/L	0.002	--	0.1	0.1
Combined Radium 226 and 228**	pCi/L	2.625	5	--	5
Selenium	mg/L	0.00105	0.05	--	0.05
Thallium	mg/L	0.000498	0.002	--	0.002

**Notes:**

\*Background concentrations were determined utilizing interwell prediction limits (Attachment 1). Upgradient Monitoring Well MW-1 was used to calculate background concentrations. This included background data ranging from March 2016 through April 2022.

\*\*Combined radium is reported with an uncertainty range. However, this range cannot be incorporated into statistical calculations as it varies per result and is not a standard value. Therefore, to maintain consistency in reporting these results, the reported laboratory concentration was used for the statistical analyses.

mg/L - milligrams per Liter

pCi/L - picocuries per Liter

MCL - Maximum Contaminant Level

SU - standard units

**TABLE 2**  
**Green Landfill - April 2022 Analytical Summary**  
**Sebree Generating Station**

APPENDIX III CONSTITUENTS	2022 Calculated Background <sup>1</sup>	2022 GWPS	Units	MW-1		MW-2		MW-3A		MW-4		MW-5		MW-6		MW-104			
				4/20/2022		4/20/2022		4/20/2022		4/20/2022		4/20/2022		4/20/2022		4/22/2022			
				Background Well		Downgradient Compliance Well												Characterization	
				Detection Monitoring														Well	
Boron	2.218	--	mg/L	1.71	D1, M2	<0.10	U	0.28		0.87		0.26		0.2		0.25			
Calcium	36.31	--	mg/L	31	D1, M2	<b>190</b>	D1	<b>428</b>	D1	<b>534</b>	D1	<b>500</b>	D1	<b>451</b>	D1	<b>486</b>	D		
Chloride	13.9	--	mg/L	13.9		<b>159</b>	D	<b>1820</b>	D	<b>704</b>	D	<b>850</b>	D	<b>148</b>	D	<b>3080</b>	D		
Fluoride	0.888	4	mg/L	0.5		0.2		0.4		0.2		<0.2	U	0.3		0.4			
pH (Field Measurement)	4.86 - 7.63	--	s.u.	6.67		6.37		6.68		6.68		6.59		6.75		5.98			
Sulfate	48	--	mg/L	48		<b>128</b>	D	<b>752</b>	D	<b>1230</b>	D	<b>877</b>	D	<b>1570</b>	D	<b>1100</b>	D		
Total Dissolved Solids	696.6	--	mg/L	672		<b>1130</b>		<b>5220</b>		<b>5740</b>		<b>4900</b>		<b>4860</b>		<b>6500</b>			
<b>APPENDIX IV CONSTITUENTS</b>																			
Antimony	0.00297	0.006	mg/L	<0.005	U	<0.005	U	<0.005	U	<0.005	U	<0.005	U	<0.005	U	<0.005	U		
Arsenic	0.004166	0.01	mg/L	0.0004	J	<b>0.0331</b>	J	<0.001	U	<0.0010	U	<0.001	U	<0.0010	U	0.0015			
Barium	0.1019	2	mg/L	0.077		<b>0.348</b>	J	0.038		0.022		0.013		0.011		0.017			
Beryllium	0.000533	0.004	mg/L	<0.002	U	<0.0020	U	<0.0020	U	<0.0020	U	<0.002	U	<0.0020	V1, U	<0.002	U		
Cadmium	0.000299	0.005	mg/L	<0.001	U	<0.0010	U	0.0001	J	<0.0010	U	<0.001	U	<0.0010	U	<b>0.0004</b>	J		
Chromium	0.00354	0.1	mg/L	<0.002	U	<0.0020	U	<0.0020	U	0.0008	J	<0.002	U	<0.0020	U	0.001	J		
Cobalt	0.002	0.006	mg/L	<0.004	U	<0.004	U	<0.004	U	<0.004	U	<0.004	U	<0.004	U	<b>0.005</b>			
Fluoride	0.888	4	mg/L	0.5		0.2		0.4		0.2		<0.2	U	0.3		0.4			
Lead	0.000279	0.015	mg/L	<0.002	U	<0.002	U	<0.002	U	<0.002	U	<0.002	U	<0.002	U	<0.002	U		
Lithium	0.03905	0.04	mg/L	0.03		0.006	J	<b>0.65</b>		<b>0.79</b>		<b>0.39</b>		<b>0.05</b>		0.03			
Mercury	0.0002	0.0002	mg/L	0.0002	J	<0.0005	U	<0.0005	U	0.0002	J	<0.0005	U	<0.0005	U	<0.0005	U		
Molybdenum	0.002	0.1	mg/L	0.002	J	<b>0.003</b>	J	<0.01	U	0.002	J	<0.01	U	<0.01	U	<0.01	U		
Radium 226	2.625	5	pCi/L	2.36	J	1.27	J	1.46	J	2.55	J	<b>2.67</b>	J	0.404	J	0.71			
Radium 228																			
Selenium	0.00105	0.05	mg/L	<0.003	M1, U	<0.003	U	<0.003	U	<b>0.028</b>		<0.003	U	<0.003	U	<0.003	U		
Thallium	0.000498	0.002	mg/L	<0.002	U	<0.0020	U	<0.0020	U	<0.0020	U	<0.002	U	<0.0020	U	<0.002	U		

GWPS = Groundwater Protection Standard

mg/L = milligrams per liter

pCi/L = picoCuries per Liter

s.u. = standard units

J = Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value.

U = Target analyte was analyzed for, but was below detection limit

D = Results reported from dilution

D1 = Sample required dilution due to high concentration of target analysis

M1 = Matrix spike recovery was high; the method control sample recovery was acceptable

M2 = Matrix spike recovery was low; the method control sample recovery was acceptable

V1 = CCV recovery was above method acceptance limits. This target analyte not detected in the sample

**Bold** - Analyte detected above calculated background concentration.

Parameters were detected in wells located downgradient of the CCR Landfill at a concentration greater than the GWPS.

**ATTACHMENT 1 - SANITAS™ STATISTICAL OUTPUTS**

# Prediction Limit

Big Rivers Electric Corporation Client: BREC Data: Green LF All Data Printed 1/18/2023, 10:06 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Antimony (mg/L)	MW-2	0.00297	n/a	4/20/2022	0.001ND	No	17	52.94	n/a	0.05026	NP Inter (NDs)
Antimony (mg/L)	MW-3A	0.00297	n/a	4/20/2022	0.001ND	No	17	52.94	n/a	0.05026	NP Inter (NDs)
Antimony (mg/L)	MW-4	0.00297	n/a	4/20/2022	0.001ND	No	17	52.94	n/a	0.05026	NP Inter (NDs)
Antimony (mg/L)	MW-5	0.00297	n/a	4/20/2022	0.001ND	No	17	52.94	n/a	0.05026	NP Inter (NDs)
Antimony (mg/L)	MW-6	0.00297	n/a	4/20/2022	0.001ND	No	17	52.94	n/a	0.05026	NP Inter (NDs)
<b>Arsenic (mg/L)</b>	<b>MW-2</b>	<b>0.004166</b>	<b>n/a</b>	<b>4/20/2022</b>	<b>0.0331</b>	<b>Yes</b>	<b>18</b>	<b>11.11</b>	<b>ln(x)</b>	<b>0.01</b>	<b>Param Inter</b>
Arsenic (mg/L)	MW-3A	0.004166	n/a	4/20/2022	0.0002ND	No	18	11.11	ln(x)	0.01	Param Inter
Arsenic (mg/L)	MW-4	0.004166	n/a	4/20/2022	0.0002ND	No	18	11.11	ln(x)	0.01	Param Inter
Arsenic (mg/L)	MW-5	0.004166	n/a	4/20/2022	0.0002ND	No	18	11.11	ln(x)	0.01	Param Inter
Arsenic (mg/L)	MW-6	0.004166	n/a	4/20/2022	0.0002ND	No	18	11.11	ln(x)	0.01	Param Inter
<b>Barium (mg/L)</b>	<b>MW-2</b>	<b>0.1019</b>	<b>n/a</b>	<b>4/20/2022</b>	<b>0.348</b>	<b>Yes</b>	<b>18</b>	<b>0</b>	<b>No</b>	<b>0.01</b>	<b>Param Inter</b>
Barium (mg/L)	MW-3A	0.1019	n/a	4/20/2022	0.038	No	18	0	No	0.01	Param Inter
Barium (mg/L)	MW-4	0.1019	n/a	4/20/2022	0.022	No	18	0	No	0.01	Param Inter
Barium (mg/L)	MW-5	0.1019	n/a	4/20/2022	0.013	No	18	0	No	0.01	Param Inter
Barium (mg/L)	MW-6	0.1019	n/a	4/20/2022	0.011	No	18	0	No	0.01	Param Inter
Beryllium (mg/L)	MW-2	0.000533	n/a	4/20/2022	0.0005ND	No	17	94.12	n/a	0.05026	NP Inter (NDs)
Beryllium (mg/L)	MW-3A	0.000533	n/a	4/20/2022	0.0005ND	No	17	94.12	n/a	0.05026	NP Inter (NDs)
Beryllium (mg/L)	MW-4	0.000533	n/a	4/20/2022	0.0005ND	No	17	94.12	n/a	0.05026	NP Inter (NDs)
Beryllium (mg/L)	MW-5	0.000533	n/a	4/20/2022	0.0005ND	No	17	94.12	n/a	0.05026	NP Inter (NDs)
Beryllium (mg/L)	MW-6	0.000533	n/a	4/20/2022	0.0005ND	No	17	94.12	n/a	0.05026	NP Inter (NDs)
Boron (mg/L)	MW-2	2.218	n/a	4/20/2022	0.05ND	No	19	0	No	0.01	Param Inter
Boron (mg/L)	MW-3A	2.218	n/a	4/20/2022	0.28	No	19	0	No	0.01	Param Inter
Boron (mg/L)	MW-4	2.218	n/a	4/20/2022	0.87	No	19	0	No	0.01	Param Inter
Boron (mg/L)	MW-5	2.218	n/a	4/20/2022	0.26	No	19	0	No	0.01	Param Inter
Boron (mg/L)	MW-6	2.218	n/a	4/20/2022	0.2	No	19	0	No	0.01	Param Inter
Cadmium (mg/L)	MW-2	0.000299	n/a	4/20/2022	0.00005ND	No	17	88.24	n/a	0.05026	NP Inter (NDs)
Cadmium (mg/L)	MW-3A	0.000299	n/a	4/20/2022	0.0001	No	17	88.24	n/a	0.05026	NP Inter (NDs)
Cadmium (mg/L)	MW-4	0.000299	n/a	4/20/2022	0.00005ND	No	17	88.24	n/a	0.05026	NP Inter (NDs)
Cadmium (mg/L)	MW-5	0.000299	n/a	4/20/2022	0.00005ND	No	17	88.24	n/a	0.05026	NP Inter (NDs)
Cadmium (mg/L)	MW-6	0.000299	n/a	4/20/2022	0.00005ND	No	17	88.24	n/a	0.05026	NP Inter (NDs)
<b>Calcium (mg/L)</b>	<b>MW-2</b>	<b>36.31</b>	<b>n/a</b>	<b>4/20/2022</b>	<b>190</b>	<b>Yes</b>	<b>19</b>	<b>0</b>	<b>No</b>	<b>0.01</b>	<b>Param Inter</b>
<b>Calcium (mg/L)</b>	<b>MW-3A</b>	<b>36.31</b>	<b>n/a</b>	<b>4/20/2022</b>	<b>428</b>	<b>Yes</b>	<b>19</b>	<b>0</b>	<b>No</b>	<b>0.01</b>	<b>Param Inter</b>
<b>Calcium (mg/L)</b>	<b>MW-4</b>	<b>36.31</b>	<b>n/a</b>	<b>4/20/2022</b>	<b>534</b>	<b>Yes</b>	<b>19</b>	<b>0</b>	<b>No</b>	<b>0.01</b>	<b>Param Inter</b>
<b>Calcium (mg/L)</b>	<b>MW-5</b>	<b>36.31</b>	<b>n/a</b>	<b>4/20/2022</b>	<b>500</b>	<b>Yes</b>	<b>19</b>	<b>0</b>	<b>No</b>	<b>0.01</b>	<b>Param Inter</b>
<b>Calcium (mg/L)</b>	<b>MW-6</b>	<b>36.31</b>	<b>n/a</b>	<b>4/20/2022</b>	<b>451</b>	<b>Yes</b>	<b>19</b>	<b>0</b>	<b>No</b>	<b>0.01</b>	<b>Param Inter</b>
<b>Chloride (mg/L)</b>	<b>MW-2</b>	<b>13.9</b>	<b>n/a</b>	<b>4/20/2022</b>	<b>159</b>	<b>Yes</b>	<b>19</b>	<b>0</b>	<b>n/a</b>	<b>0.04565</b>	<b>NP Inter (normality)</b>
<b>Chloride (mg/L)</b>	<b>MW-3A</b>	<b>13.9</b>	<b>n/a</b>	<b>4/20/2022</b>	<b>1820</b>	<b>Yes</b>	<b>19</b>	<b>0</b>	<b>n/a</b>	<b>0.04565</b>	<b>NP Inter (normality)</b>
<b>Chloride (mg/L)</b>	<b>MW-4</b>	<b>13.9</b>	<b>n/a</b>	<b>4/20/2022</b>	<b>704</b>	<b>Yes</b>	<b>19</b>	<b>0</b>	<b>n/a</b>	<b>0.04565</b>	<b>NP Inter (normality)</b>
<b>Chloride (mg/L)</b>	<b>MW-5</b>	<b>13.9</b>	<b>n/a</b>	<b>4/20/2022</b>	<b>850</b>	<b>Yes</b>	<b>19</b>	<b>0</b>	<b>n/a</b>	<b>0.04565</b>	<b>NP Inter (normality)</b>
<b>Chloride (mg/L)</b>	<b>MW-6</b>	<b>13.9</b>	<b>n/a</b>	<b>4/20/2022</b>	<b>148</b>	<b>Yes</b>	<b>19</b>	<b>0</b>	<b>n/a</b>	<b>0.04565</b>	<b>NP Inter (normality)</b>
Chromium (mg/L)	MW-2	0.00354	n/a	4/20/2022	0.0003ND	No	17	70.59	n/a	0.05026	NP Inter (NDs)
Chromium (mg/L)	MW-3A	0.00354	n/a	4/20/2022	0	No	17	70.59	n/a	0.05026	NP Inter (NDs)
Chromium (mg/L)	MW-4	0.00354	n/a	4/20/2022	0.0008	No	17	70.59	n/a	0.05026	NP Inter (NDs)
Chromium (mg/L)	MW-5	0.00354	n/a	4/20/2022	0.0003ND	No	17	70.59	n/a	0.05026	NP Inter (NDs)
Chromium (mg/L)	MW-6	0.00354	n/a	4/20/2022	0.0003ND	No	17	70.59	n/a	0.05026	NP Inter (NDs)
Cobalt (mg/L)	MW-2	0.002	n/a	4/20/2022	0.002ND	No	17	35.29	n/a	0.05026	NP Inter (Cohens/xform)
Cobalt (mg/L)	MW-3A	0.002	n/a	4/20/2022	0.002ND	No	17	35.29	n/a	0.05026	NP Inter (Cohens/xform)
Cobalt (mg/L)	MW-4	0.002	n/a	4/20/2022	0.002ND	No	17	35.29	n/a	0.05026	NP Inter (Cohens/xform)
Cobalt (mg/L)	MW-5	0.002	n/a	4/20/2022	0.002ND	No	17	35.29	n/a	0.05026	NP Inter (Cohens/xform)
Cobalt (mg/L)	MW-6	0.002	n/a	4/20/2022	0.002ND	No	17	35.29	n/a	0.05026	NP Inter (Cohens/xform)

## Prediction Limit

Big Rivers Electric Corporation Client: BREC Data: Green LF All Data Printed 1/18/2023, 10:06 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Fluoride (mg/L)	MW-2	0.888	n/a	4/20/2022	0.2	No	19	0	n/a	0.04565	NP Inter (normality)
Fluoride (mg/L)	MW-3A	0.888	n/a	4/20/2022	0.4	No	19	0	n/a	0.04565	NP Inter (normality)
Fluoride (mg/L)	MW-4	0.888	n/a	4/20/2022	0.2	No	19	0	n/a	0.04565	NP Inter (normality)
Fluoride (mg/L)	MW-5	0.888	n/a	4/20/2022	0.1ND	No	19	0	n/a	0.04565	NP Inter (normality)
Fluoride (mg/L)	MW-6	0.888	n/a	4/20/2022	0.3	No	19	0	n/a	0.04565	NP Inter (normality)
Lead (mg/L)	MW-2	0.000279	n/a	4/20/2022	0.00025ND	No	17	64.71	n/a	0.05026	NP Inter (NDs)
Lead (mg/L)	MW-3A	0.000279	n/a	4/20/2022	0.00025ND	No	17	64.71	n/a	0.05026	NP Inter (NDs)
Lead (mg/L)	MW-4	0.000279	n/a	4/20/2022	0.00025ND	No	17	64.71	n/a	0.05026	NP Inter (NDs)
Lead (mg/L)	MW-5	0.000279	n/a	4/20/2022	0.00025ND	No	17	64.71	n/a	0.05026	NP Inter (NDs)
Lead (mg/L)	MW-6	0.000279	n/a	4/20/2022	0.00025ND	No	17	64.71	n/a	0.05026	NP Inter (NDs)
Lithium (mg/L)	MW-2	0.03905	n/a	4/20/2022	0.006	No	18	11.11	No	0.01	Param Inter
<b>Lithium (mg/L)</b>	<b>MW-3A</b>	<b>0.03905</b>	<b>n/a</b>	<b>4/20/2022</b>	<b>0.65</b>	<b>Yes</b>	<b>18</b>	<b>11.11</b>	<b>No</b>	<b>0.01</b>	<b>Param Inter</b>
<b>Lithium (mg/L)</b>	<b>MW-4</b>	<b>0.03905</b>	<b>n/a</b>	<b>4/20/2022</b>	<b>0.79</b>	<b>Yes</b>	<b>18</b>	<b>11.11</b>	<b>No</b>	<b>0.01</b>	<b>Param Inter</b>
<b>Lithium (mg/L)</b>	<b>MW-5</b>	<b>0.03905</b>	<b>n/a</b>	<b>4/20/2022</b>	<b>0.39</b>	<b>Yes</b>	<b>18</b>	<b>11.11</b>	<b>No</b>	<b>0.01</b>	<b>Param Inter</b>
<b>Lithium (mg/L)</b>	<b>MW-6</b>	<b>0.03905</b>	<b>n/a</b>	<b>4/20/2022</b>	<b>0.05</b>	<b>Yes</b>	<b>18</b>	<b>11.11</b>	<b>No</b>	<b>0.01</b>	<b>Param Inter</b>
Mercury (ug/L)	MW-2	0.2	n/a	4/20/2022	0.1ND	No	18	94.44	n/a	0.04784	NP Inter (NDs)
Mercury (ug/L)	MW-3A	0.2	n/a	4/20/2022	0.1ND	No	18	94.44	n/a	0.04784	NP Inter (NDs)
Mercury (ug/L)	MW-4	0.2	n/a	4/20/2022	0.2	No	18	94.44	n/a	0.04784	NP Inter (NDs)
Mercury (ug/L)	MW-5	0.2	n/a	4/20/2022	0.1ND	No	18	94.44	n/a	0.04784	NP Inter (NDs)
Mercury (ug/L)	MW-6	0.2	n/a	4/20/2022	0.1ND	No	18	94.44	n/a	0.04784	NP Inter (NDs)
<b>Molybdenum (mg/L)</b>	<b>MW-2</b>	<b>0.002</b>	<b>n/a</b>	<b>4/20/2022</b>	<b>0.003</b>	<b>Yes</b>	<b>17</b>	<b>41.18</b>	<b>n/a</b>	<b>0.05026</b>	<b>NP Inter (normality)</b>
Molybdenum (mg/L)	MW-3A	0.002	n/a	4/20/2022	0.001ND	No	17	41.18	n/a	0.05026	NP Inter (normality)
Molybdenum (mg/L)	MW-4	0.002	n/a	4/20/2022	0.002	No	17	41.18	n/a	0.05026	NP Inter (normality)
Molybdenum (mg/L)	MW-5	0.002	n/a	4/20/2022	0.001ND	No	17	41.18	n/a	0.05026	NP Inter (normality)
Molybdenum (mg/L)	MW-6	0.002	n/a	4/20/2022	0.001ND	No	17	41.18	n/a	0.05026	NP Inter (normality)
pH [Field] (SU)	MW-2	7.63	4.86	4/20/2022	6.37	No	19	0	n/a	0.0913	NP Inter (normality)
pH [Field] (SU)	MW-3A	7.63	4.86	4/20/2022	6.68	No	19	0	n/a	0.0913	NP Inter (normality)
pH [Field] (SU)	MW-4	7.63	4.86	4/20/2022	6.68	No	19	0	n/a	0.0913	NP Inter (normality)
pH [Field] (SU)	MW-5	7.63	4.86	4/20/2022	6.59	No	19	0	n/a	0.0913	NP Inter (normality)
pH [Field] (SU)	MW-6	7.63	4.86	4/20/2022	6.75	No	19	0	n/a	0.0913	NP Inter (normality)
Radium 226 + 228 (pCi/L)	MW-2	2.625	n/a	4/20/2022	1.27	No	17	0	x^(1/3)	0.01	Param Inter
Radium 226 + 228 (pCi/L)	MW-3A	2.625	n/a	4/20/2022	1.46	No	17	0	x^(1/3)	0.01	Param Inter
Radium 226 + 228 (pCi/L)	MW-4	2.625	n/a	4/20/2022	2.55	No	17	0	x^(1/3)	0.01	Param Inter
<b>Radium 226 + 228 (pCi/L)</b>	<b>MW-5</b>	<b>2.625</b>	<b>n/a</b>	<b>4/20/2022</b>	<b>2.67</b>	<b>Yes</b>	<b>17</b>	<b>0</b>	<b>x^(1/3)</b>	<b>0.01</b>	<b>Param Inter</b>
Radium 226 + 228 (pCi/L)	MW-6	2.625	n/a	4/20/2022	0.404	No	17	0	x^(1/3)	0.01	Param Inter
Selenium (mg/L)	MW-2	0.00105	n/a	4/20/2022	0.0005ND	No	17	88.24	n/a	0.05026	NP Inter (NDs)
Selenium (mg/L)	MW-3A	0.00105	n/a	4/20/2022	0.0005ND	No	17	88.24	n/a	0.05026	NP Inter (NDs)
<b>Selenium (mg/L)</b>	<b>MW-4</b>	<b>0.00105</b>	<b>n/a</b>	<b>4/20/2022</b>	<b>0.028</b>	<b>Yes</b>	<b>17</b>	<b>88.24</b>	<b>n/a</b>	<b>0.05026</b>	<b>NP Inter (NDs)</b>
Selenium (mg/L)	MW-5	0.00105	n/a	4/20/2022	0.0005ND	No	17	88.24	n/a	0.05026	NP Inter (NDs)
Selenium (mg/L)	MW-6	0.00105	n/a	4/20/2022	0.0005ND	No	17	88.24	n/a	0.05026	NP Inter (NDs)
<b>Sulfate (mg/L)</b>	<b>MW-2</b>	<b>48</b>	<b>n/a</b>	<b>4/20/2022</b>	<b>128</b>	<b>Yes</b>	<b>19</b>	<b>0</b>	<b>n/a</b>	<b>0.04565</b>	<b>NP Inter (normality)</b>
<b>Sulfate (mg/L)</b>	<b>MW-3A</b>	<b>48</b>	<b>n/a</b>	<b>4/20/2022</b>	<b>752</b>	<b>Yes</b>	<b>19</b>	<b>0</b>	<b>n/a</b>	<b>0.04565</b>	<b>NP Inter (normality)</b>
<b>Sulfate (mg/L)</b>	<b>MW-4</b>	<b>48</b>	<b>n/a</b>	<b>4/20/2022</b>	<b>1230</b>	<b>Yes</b>	<b>19</b>	<b>0</b>	<b>n/a</b>	<b>0.04565</b>	<b>NP Inter (normality)</b>
<b>Sulfate (mg/L)</b>	<b>MW-5</b>	<b>48</b>	<b>n/a</b>	<b>4/20/2022</b>	<b>877</b>	<b>Yes</b>	<b>19</b>	<b>0</b>	<b>n/a</b>	<b>0.04565</b>	<b>NP Inter (normality)</b>
<b>Sulfate (mg/L)</b>	<b>MW-6</b>	<b>48</b>	<b>n/a</b>	<b>4/20/2022</b>	<b>1570</b>	<b>Yes</b>	<b>19</b>	<b>0</b>	<b>n/a</b>	<b>0.04565</b>	<b>NP Inter (normality)</b>
Thallium (mg/L)	MW-2	0.000498	n/a	4/20/2022	0.00005ND	No	17	58.82	n/a	0.05026	NP Inter (NDs)
Thallium (mg/L)	MW-3A	0.000498	n/a	4/20/2022	0.00005ND	No	17	58.82	n/a	0.05026	NP Inter (NDs)
Thallium (mg/L)	MW-4	0.000498	n/a	4/20/2022	0.00005ND	No	17	58.82	n/a	0.05026	NP Inter (NDs)
Thallium (mg/L)	MW-5	0.000498	n/a	4/20/2022	0.00005ND	No	17	58.82	n/a	0.05026	NP Inter (NDs)
Thallium (mg/L)	MW-6	0.000498	n/a	4/20/2022	0.00005ND	No	17	58.82	n/a	0.05026	NP Inter (NDs)

# Prediction Limit

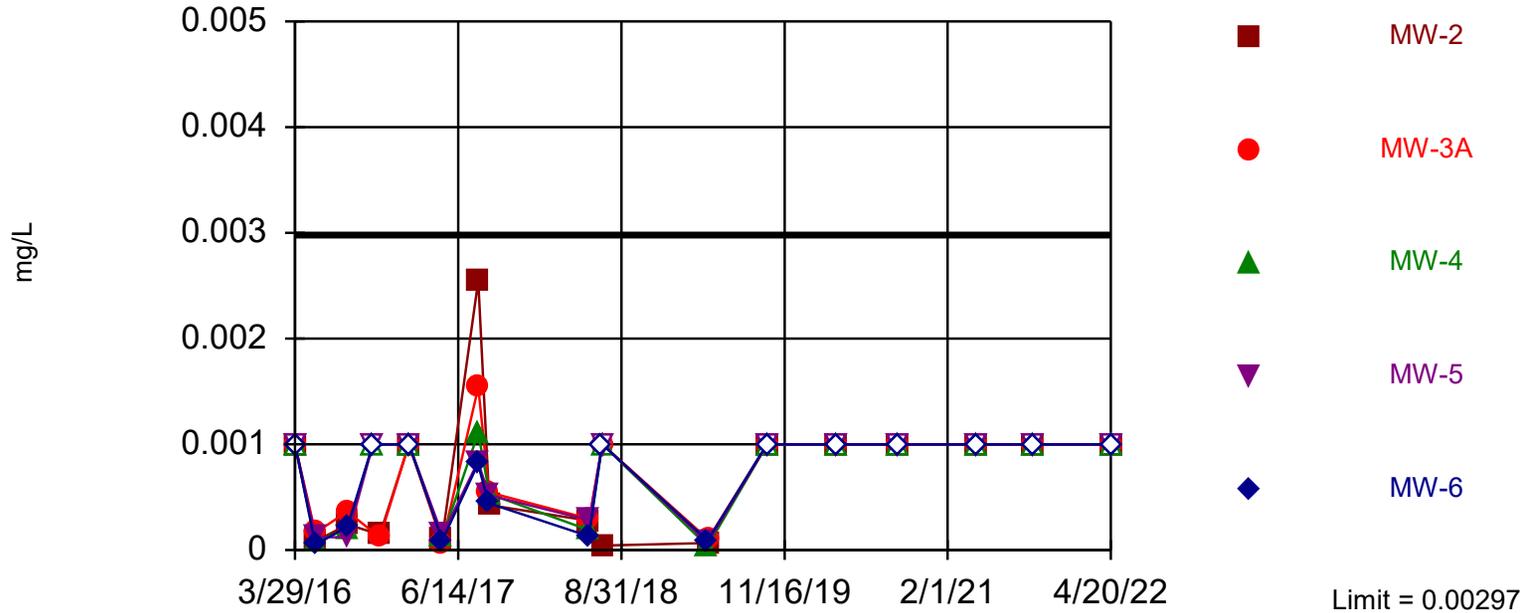
Big Rivers Electric Corporation Client: BREC Data: Green LF All Data Printed 1/18/2023, 10:06 AM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bg N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Total Dissolved Solids (mg/L)	MW-2	696.6	n/a	4/20/2022	1130	Yes	19	0	x^4	0.01	Param Inter
Total Dissolved Solids (mg/L)	MW-3A	696.6	n/a	4/20/2022	5220	Yes	19	0	x^4	0.01	Param Inter
Total Dissolved Solids (mg/L)	MW-4	696.6	n/a	4/20/2022	5740	Yes	19	0	x^4	0.01	Param Inter
Total Dissolved Solids (mg/L)	MW-5	696.6	n/a	4/20/2022	4900	Yes	19	0	x^4	0.01	Param Inter
Total Dissolved Solids (mg/L)	MW-6	696.6	n/a	4/20/2022	4860	Yes	19	0	x^4	0.01	Param Inter

Within Limit

### Prediction Limit

Interwell Non-parametric



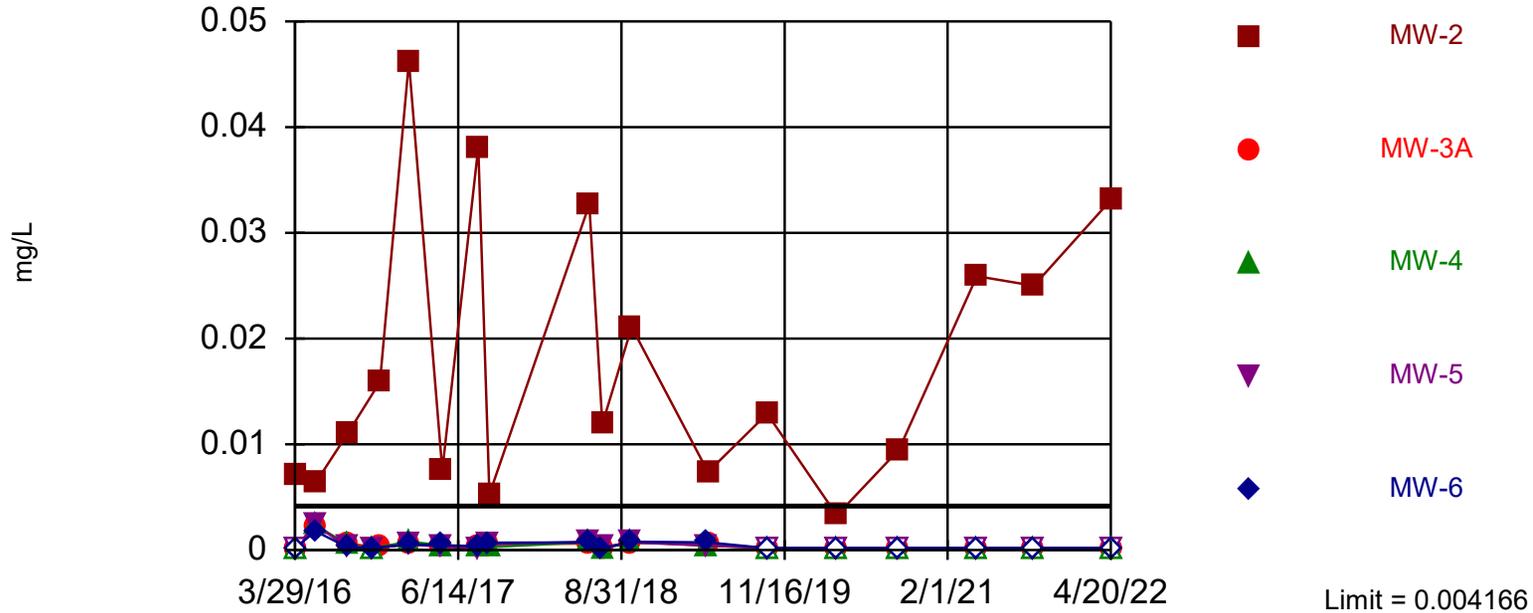
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 17 background values. 52.94% NDs. Report alpha = 0.2273. Individual comparison alpha = 0.05026. Most recent point for each compliance well compared to limit. Distribution was found to be non-normal after removal of suspect values, so outliers could not be identified. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Antimony Analysis Run 1/18/2023 10:06 AM  
Big Rivers Electric Corporation Client: BREC Data: Green LF All Data

Exceeds Limit: MW-2

## Prediction Limit

### Interwell Parametric

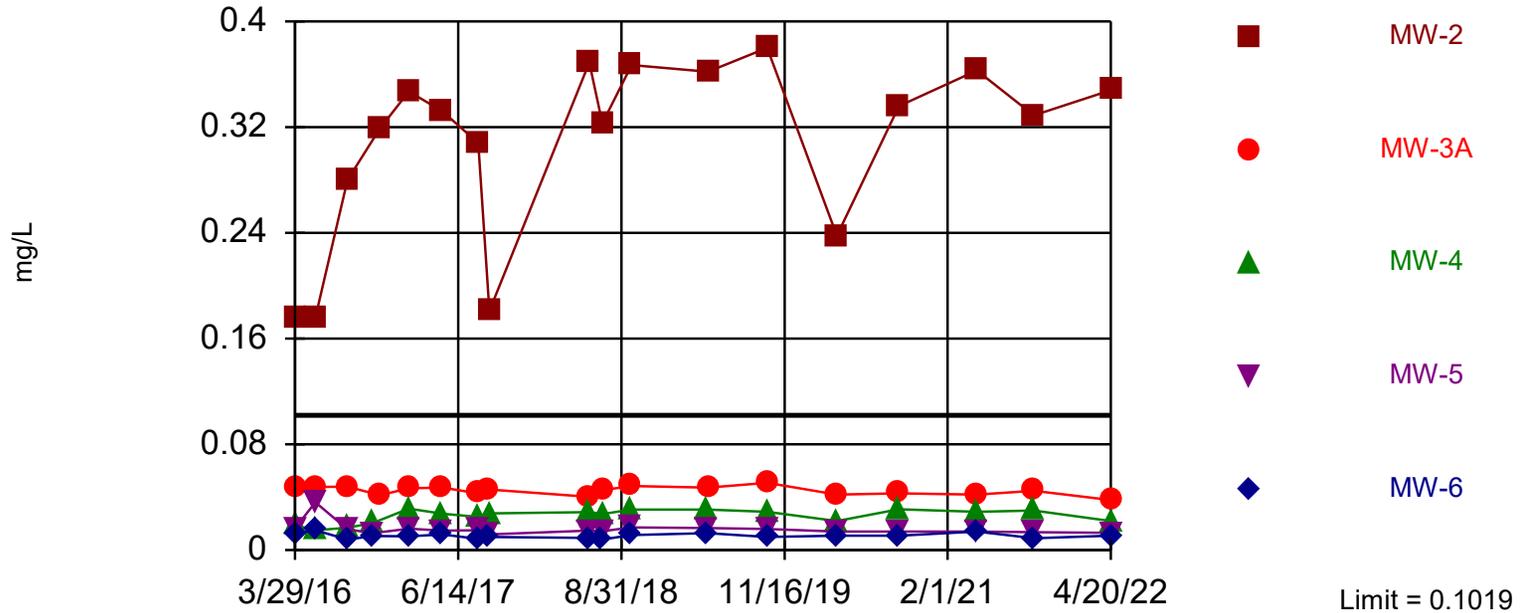


Background Data Summary (based on natural log transformation): Mean=-7.33, Std. Dev.=0.701, n=18, 11.11% NDs. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9134, critical = 0.897. Report alpha = 0.04901. Individual comparison alpha = 0.01. Most recent point for each compliance well compared to limit. EPA 1989 outlier screening was performed on the background data. No background outliers were found.

Exceeds Limit: MW-2

### Prediction Limit

Interwell Parametric



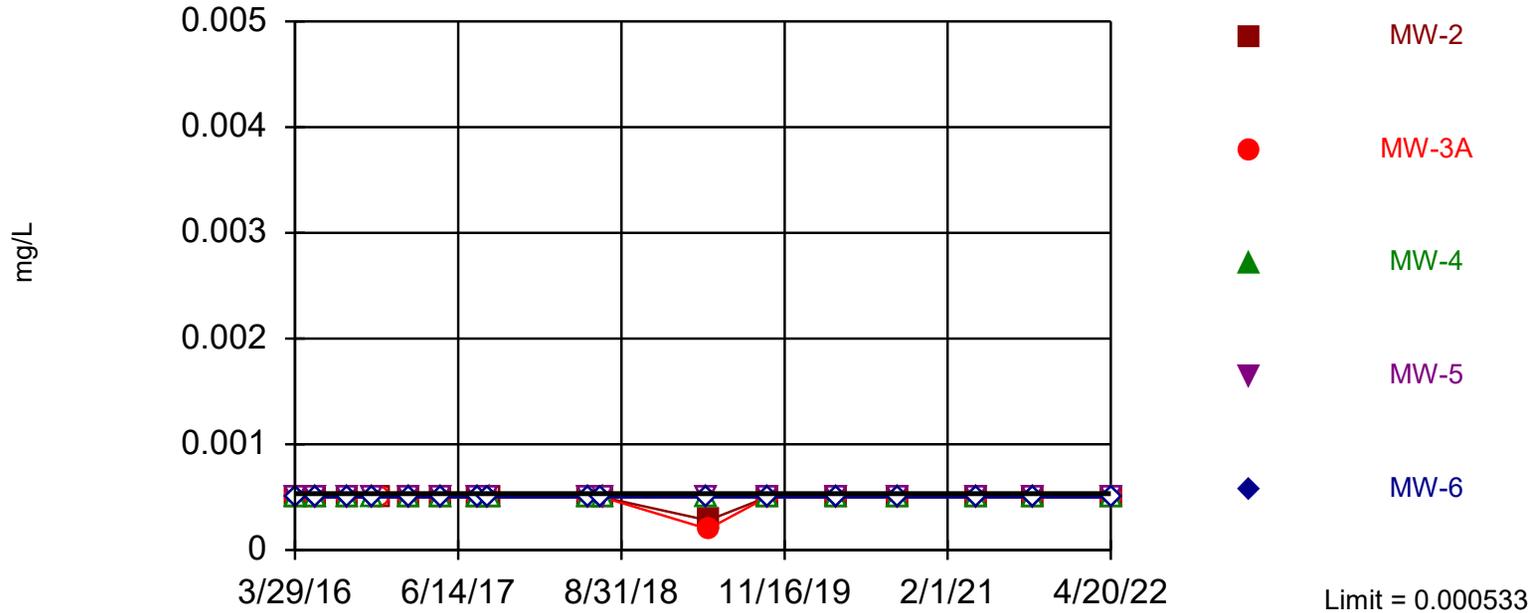
Background Data Summary: Mean=0.08161, Std. Dev.=0.007689, n=18. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9599, critical = 0.897. Report alpha = 0.04901. Individual comparison alpha = 0.01. Most recent point for each compliance well compared to limit. EPA 1989 outlier screening was performed on the background data. No background outliers were found.

Constituent: Barium Analysis Run 1/18/2023 10:06 AM  
Big Rivers Electric Corporation Client: BREC Data: Green LF All Data

Within Limit

### Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 17 background values. 94.12% NDs. Report alpha = 0.2273. Individual comparison alpha = 0.05026. Most recent point for each compliance well compared to limit. Distribution was found to be non-normal after removal of suspect values, so outliers could not be identified. Insufficient data to test for seasonality; data will not be deseasonalized.

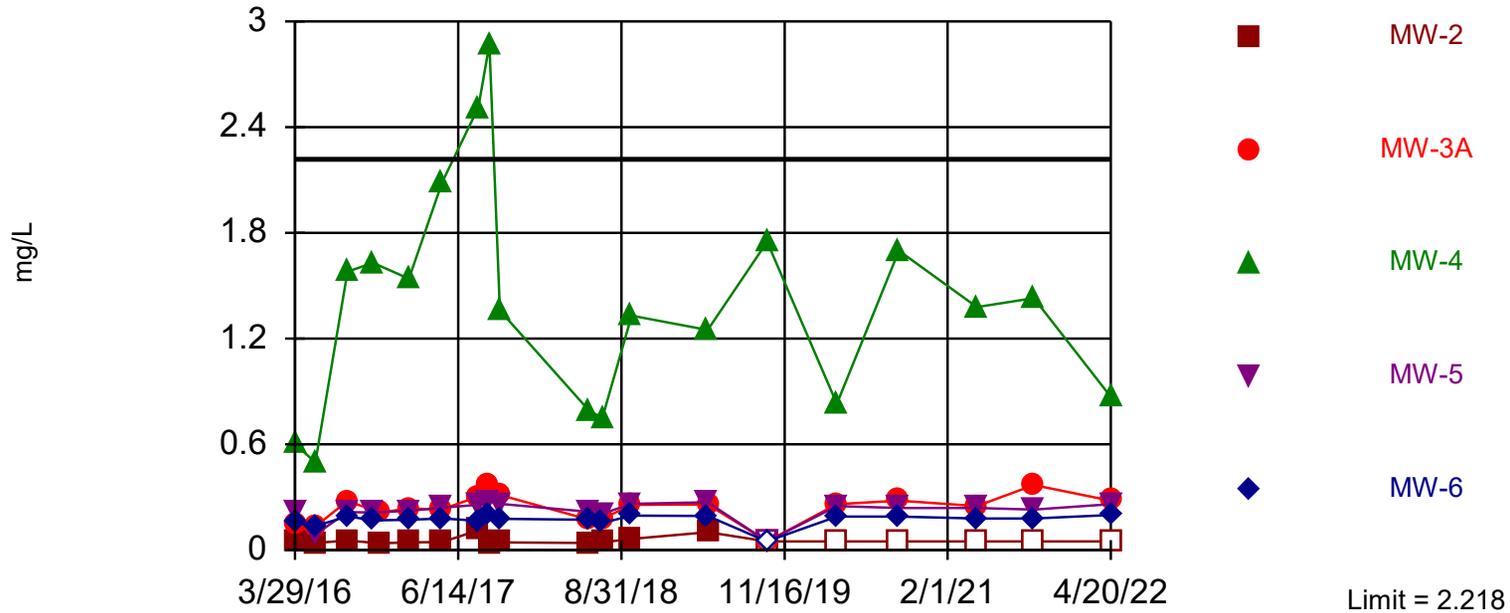
Constituent: Beryllium Analysis Run 1/18/2023 10:06 AM

Big Rivers Electric Corporation Client: BREC Data: Green LF All Data

Within Limit

## Prediction Limit

Interwell Parametric



Background Data Summary: Mean=1.727, Std. Dev.=0.1875, n=19. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9024, critical = 0.901. Report alpha = 0.04901. Individual comparison alpha = 0.01. Most recent point for each compliance well compared to limit. EPA 1989 outlier screening was performed on the background data. At least one background value was a statistical outlier but was below the user-set cutoff of 3 times the median. No background outliers were found.

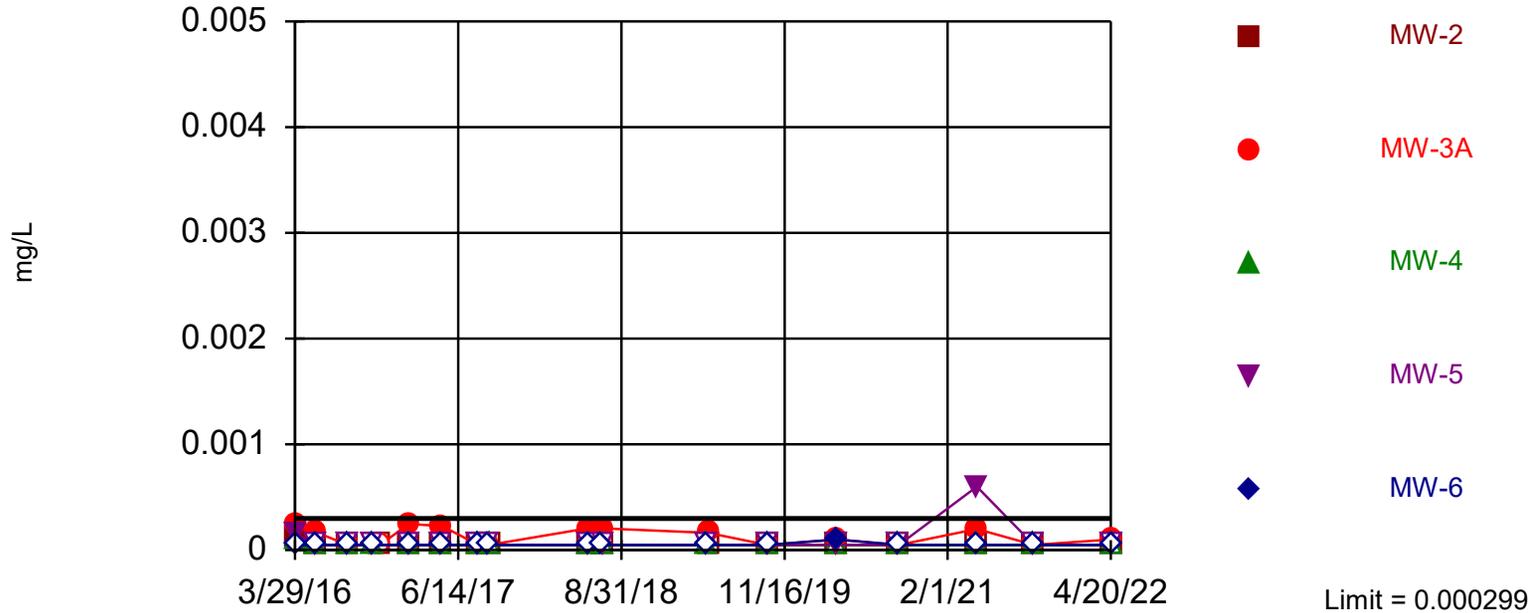
Constituent: Boron Analysis Run 1/18/2023 10:06 AM

Big Rivers Electric Corporation Client: BREC Data: Green LF All Data

Within Limit

### Prediction Limit

Interwell Non-parametric



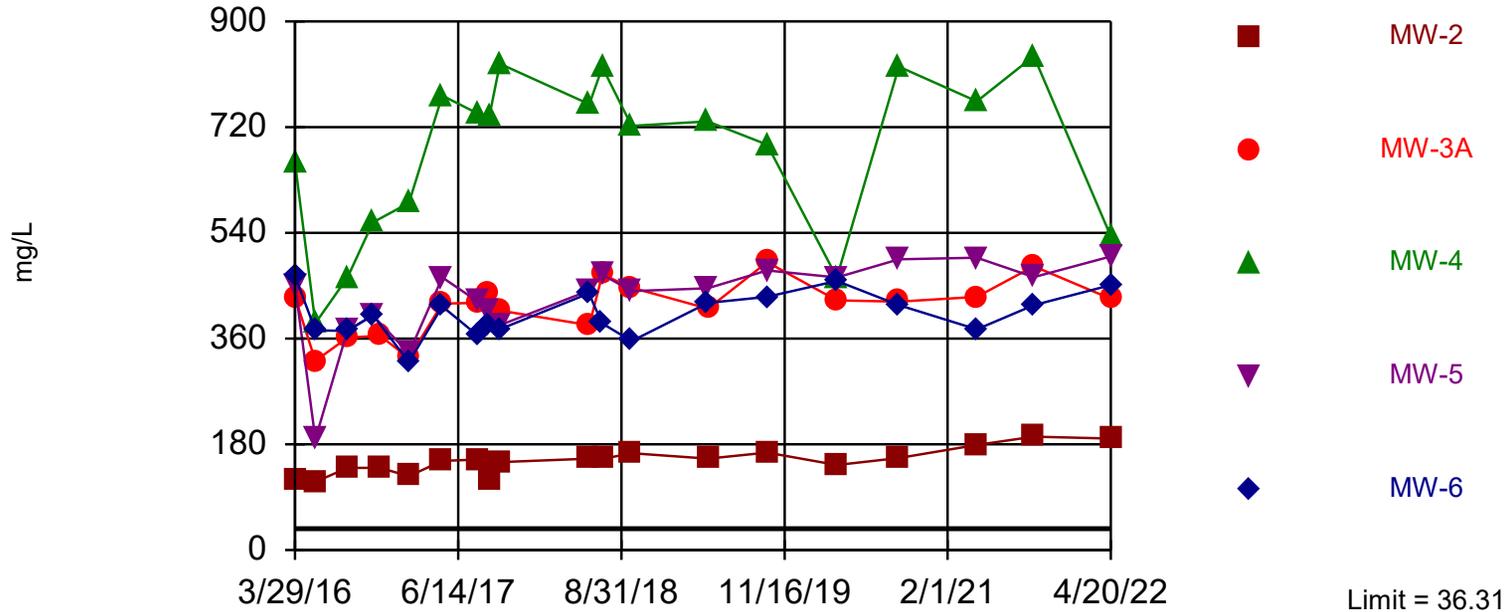
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 17 background values. 88.24% NDs. Report alpha = 0.2273. Individual comparison alpha = 0.05026. Most recent point for each compliance well compared to limit. After outlier removal distribution was non-normal, so outlier results were invalidated. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Cadmium Analysis Run 1/18/2023 10:06 AM

Big Rivers Electric Corporation Client: BREC Data: Green LF All Data

Exceeds Limit: MW-2, MW-3A, MW-4, MW-5, MW-6

### Prediction Limit Interwell Parametric

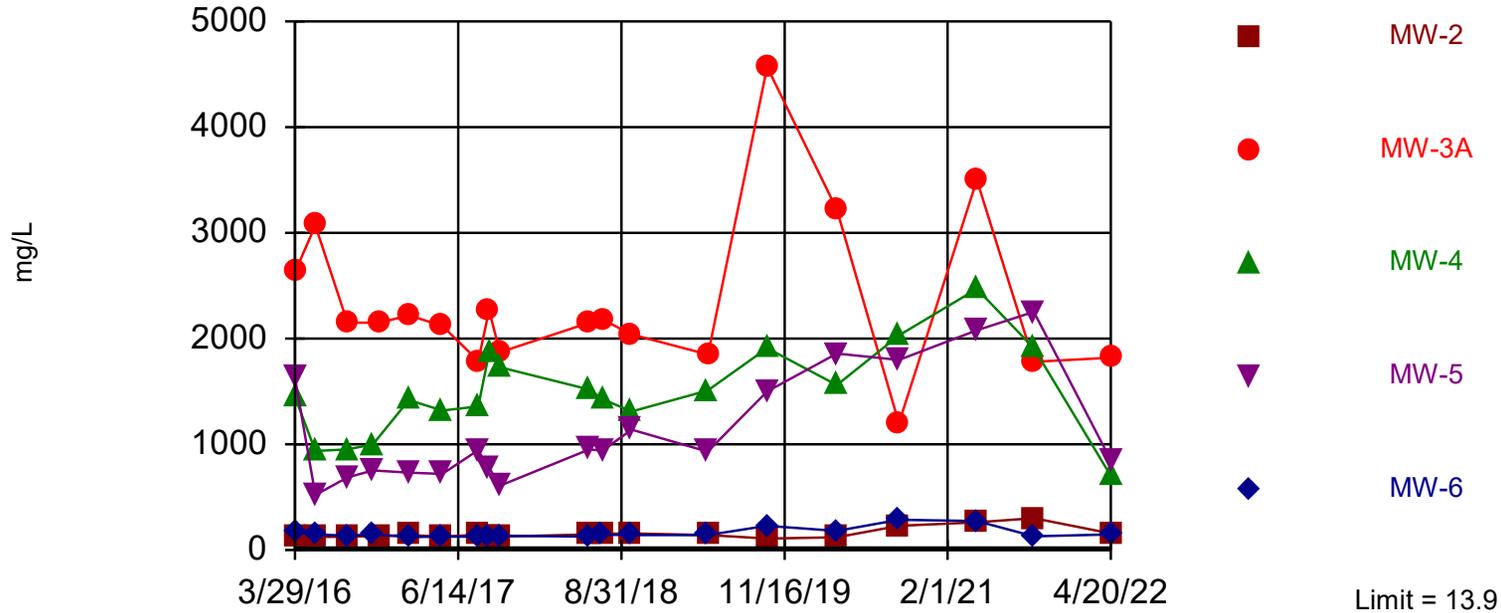


Background Data Summary: Mean=28.77, Std. Dev.=2.879, n=19. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9245, critical = 0.901. Report alpha = 0.04901. Individual comparison alpha = 0.01. Most recent point for each compliance well compared to limit. EPA 1989 outlier screening was performed on the background data. At least one background value was a statistical outlier but was below the user-set cutoff of 3 times the median. No background outliers were found.

Constituent: Calcium Analysis Run 1/18/2023 10:06 AM  
 Big Rivers Electric Corporation Client: BREC Data: Green LF All Data

Exceeds Limit: MW-2, MW-3A, MW-4, MW-5, MW-6

### Prediction Limit Interwell Non-parametric



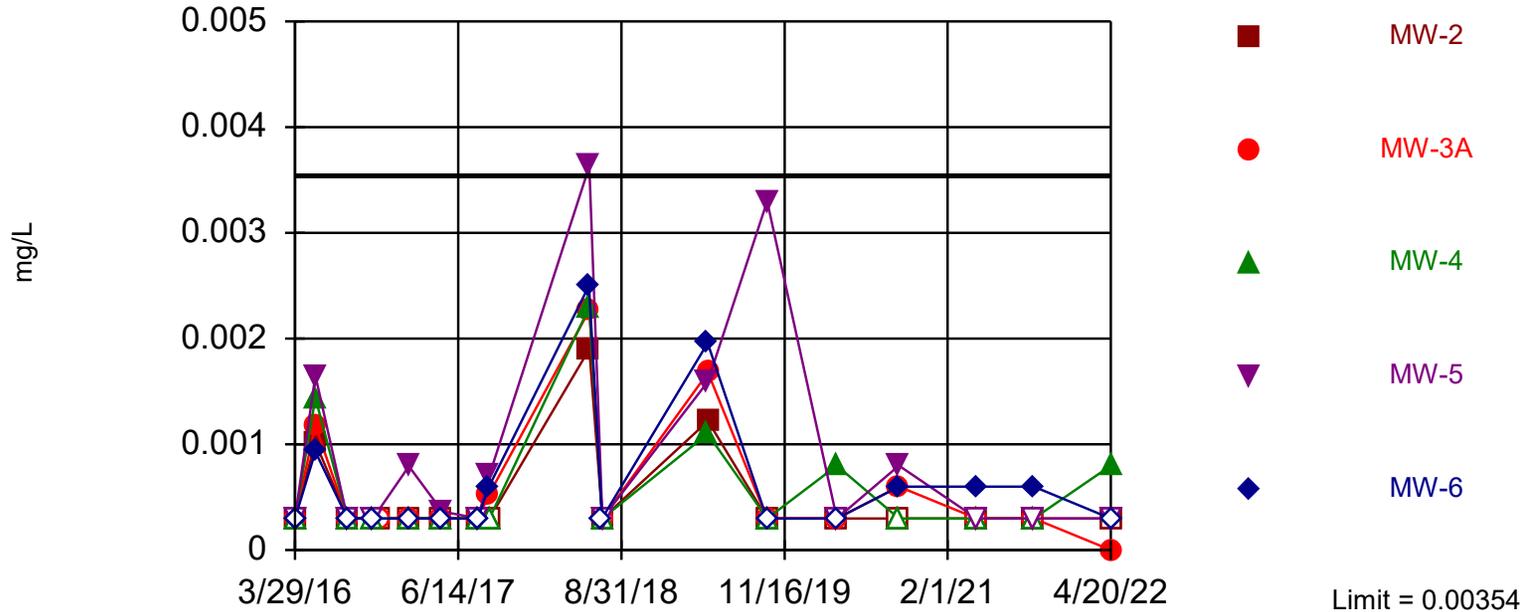
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.05 alpha level. Limit is highest of 19 background values. Report alpha = 0.2083. Individual comparison alpha = 0.04565. Most recent point for each compliance well compared to limit. After outlier removal distribution was non-normal, so outlier results were invalidated. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Chloride    Analysis Run 1/18/2023 10:06 AM  
Big Rivers Electric Corporation    Client: BREC    Data: Green LF All Data

Within Limit

### Prediction Limit

Interwell Non-parametric



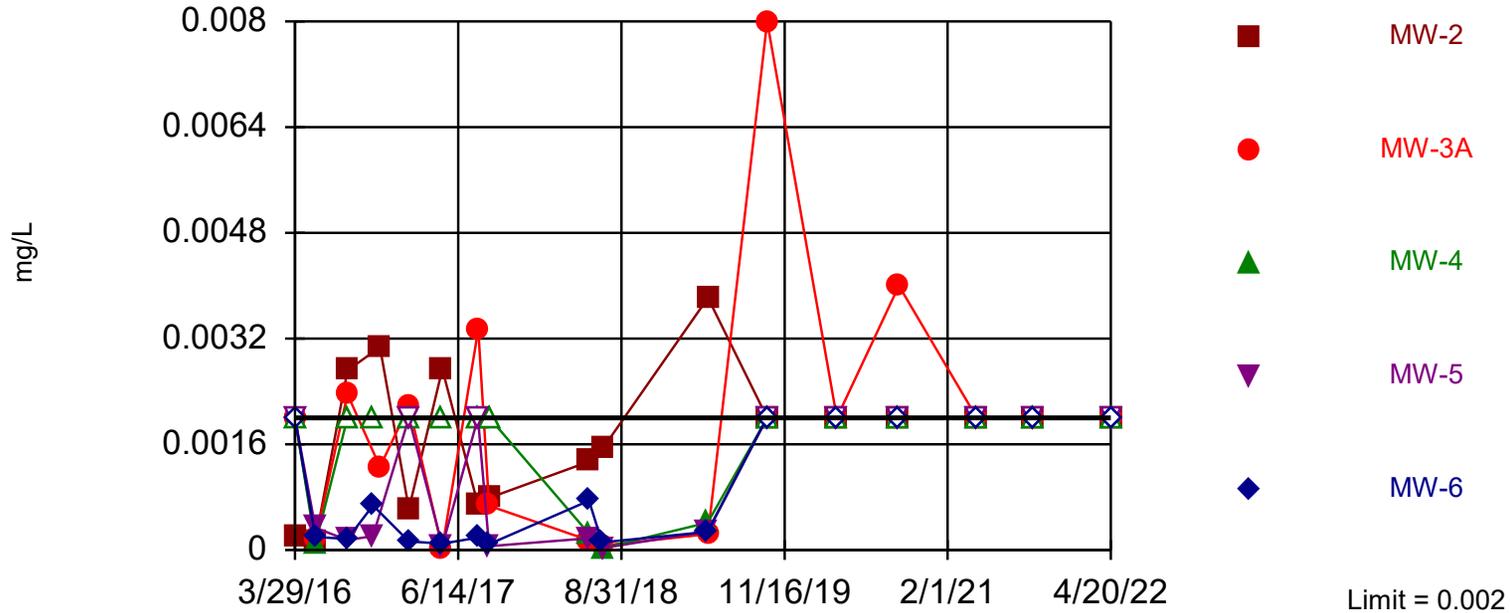
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 17 background values. 70.59% NDs. Report alpha = 0.2273. Individual comparison alpha = 0.05026. Most recent point for each compliance well compared to limit. After outlier removal distribution was non-normal, so outlier results were invalidated. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Chromium Analysis Run 1/18/2023 10:06 AM  
Big Rivers Electric Corporation Client: BREC Data: Green LF All Data

Within Limit

### Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the data required both a power transformation and Cohen's adjustment. Limit is highest of 17 background values. 35.29% NDs. Report alpha = 0.2273. Individual comparison alpha = 0.05026. Most recent point for each compliance well compared to limit. After outlier removal distribution was non-normal, so outlier results were invalidated. Insufficient data to test for seasonality; data will not be deseasonalized.

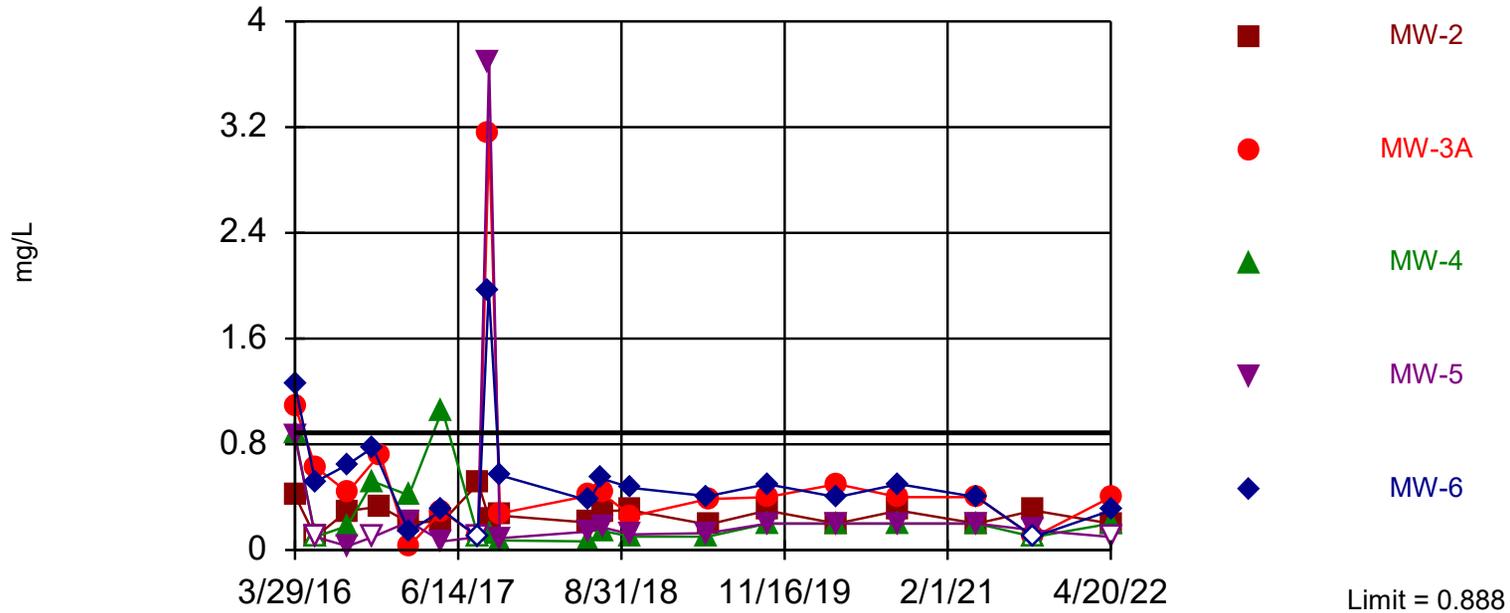
Constituent: Cobalt Analysis Run 1/18/2023 10:06 AM

Big Rivers Electric Corporation Client: BREC Data: Green LF All Data

Within Limit

### Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.05 alpha level. Limit is highest of 19 background values. Report alpha = 0.2083. Individual comparison alpha = 0.04565. Most recent point for each compliance well compared to limit. After outlier removal distribution was non-normal, so outlier results were invalidated. Insufficient data to test for seasonality; data will not be deseasonalized.

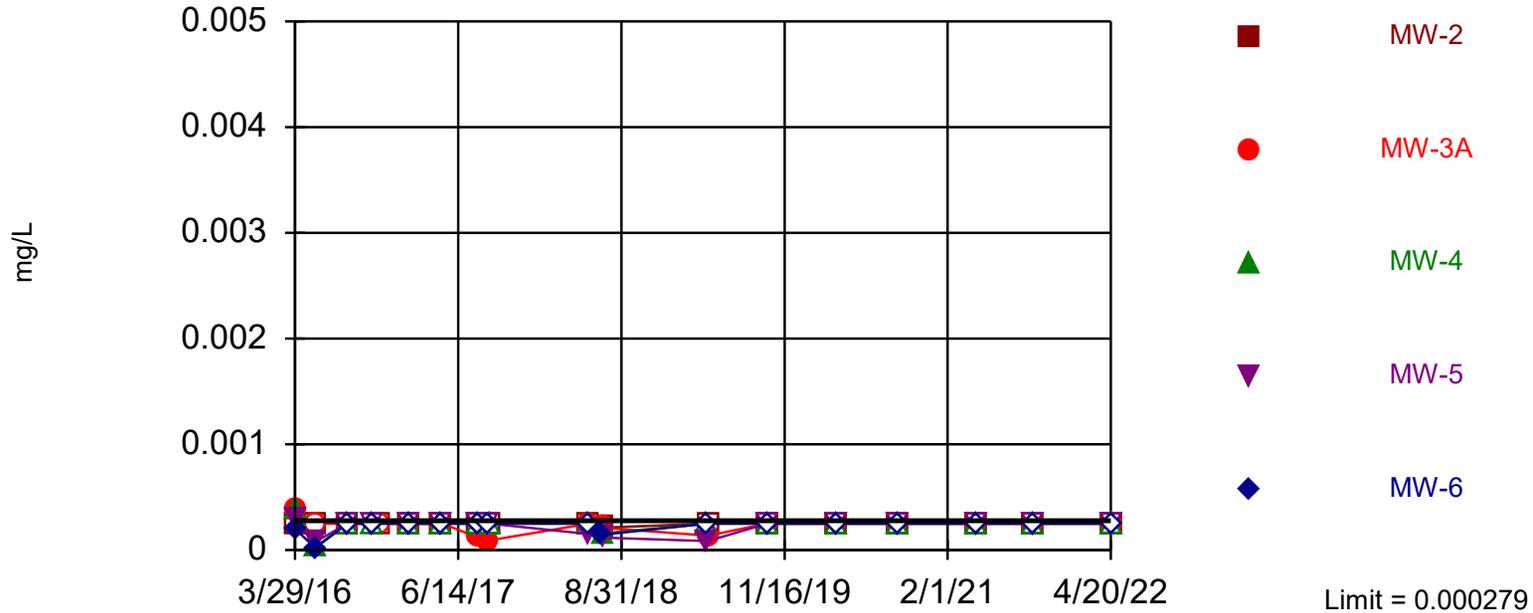
Constituent: Fluoride Analysis Run 1/18/2023 10:06 AM

Big Rivers Electric Corporation Client: BREC Data: Green LF All Data

Within Limit

### Prediction Limit

Interwell Non-parametric



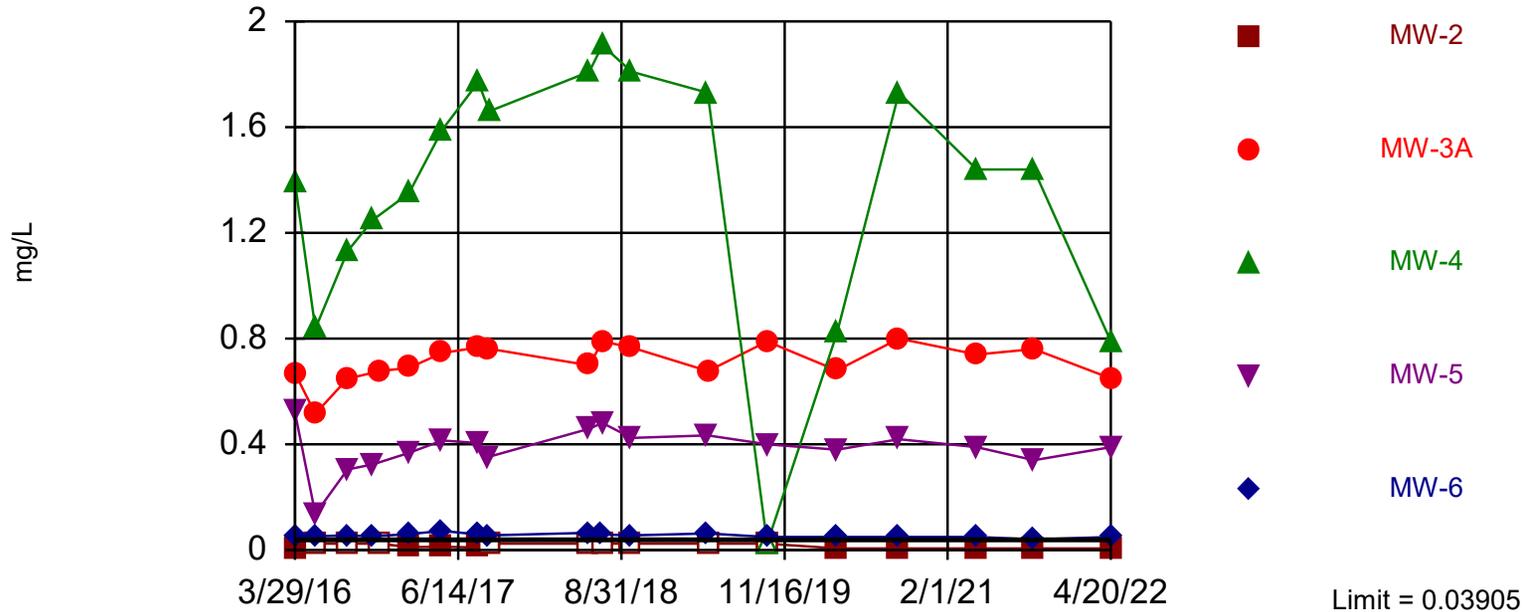
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 17 background values. 64.71% NDs. Report alpha = 0.2273. Individual comparison alpha = 0.05026. Most recent point for each compliance well compared to limit. After outlier removal distribution was non-normal, so outlier results were invalidated. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Lead Analysis Run 1/18/2023 10:06 AM

Big Rivers Electric Corporation Client: BREC Data: Green LF All Data

Exceeds Limit: MW-3A, MW-4, MW-5, MW-6

### Prediction Limit Interwell Parametric



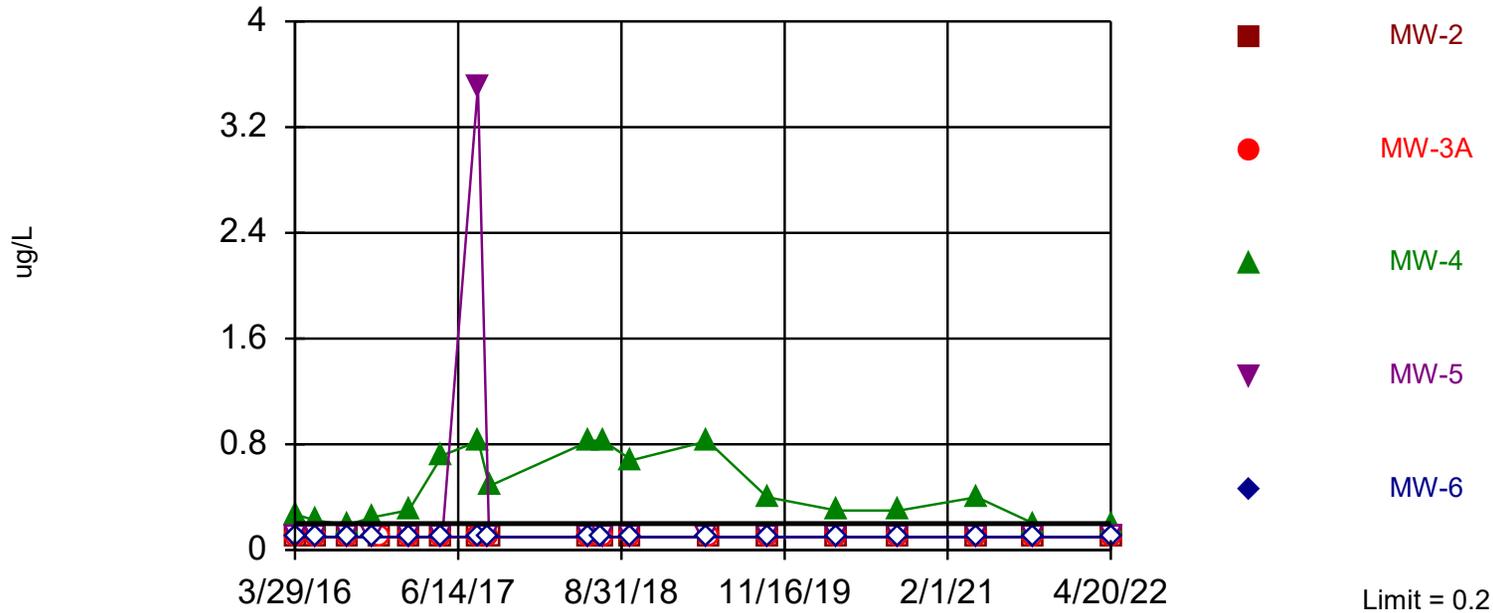
Background Data Summary: Mean=0.03044, Std. Dev.=0.003262, n=18, 11.11% NDs. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8987, critical = 0.897. Report alpha = 0.04901. Individual comparison alpha = 0.01. Most recent point for each compliance well compared to limit. EPA 1989 outlier screening was performed on the background data. At least one background value was a statistical outlier but was below the user-set cutoff of 3 times the median. No background outliers were found.

Constituent: Lithium Analysis Run 1/18/2023 10:06 AM  
Big Rivers Electric Corporation Client: BREC Data: Green LF All Data

Within Limit

### Prediction Limit

Interwell Non-parametric



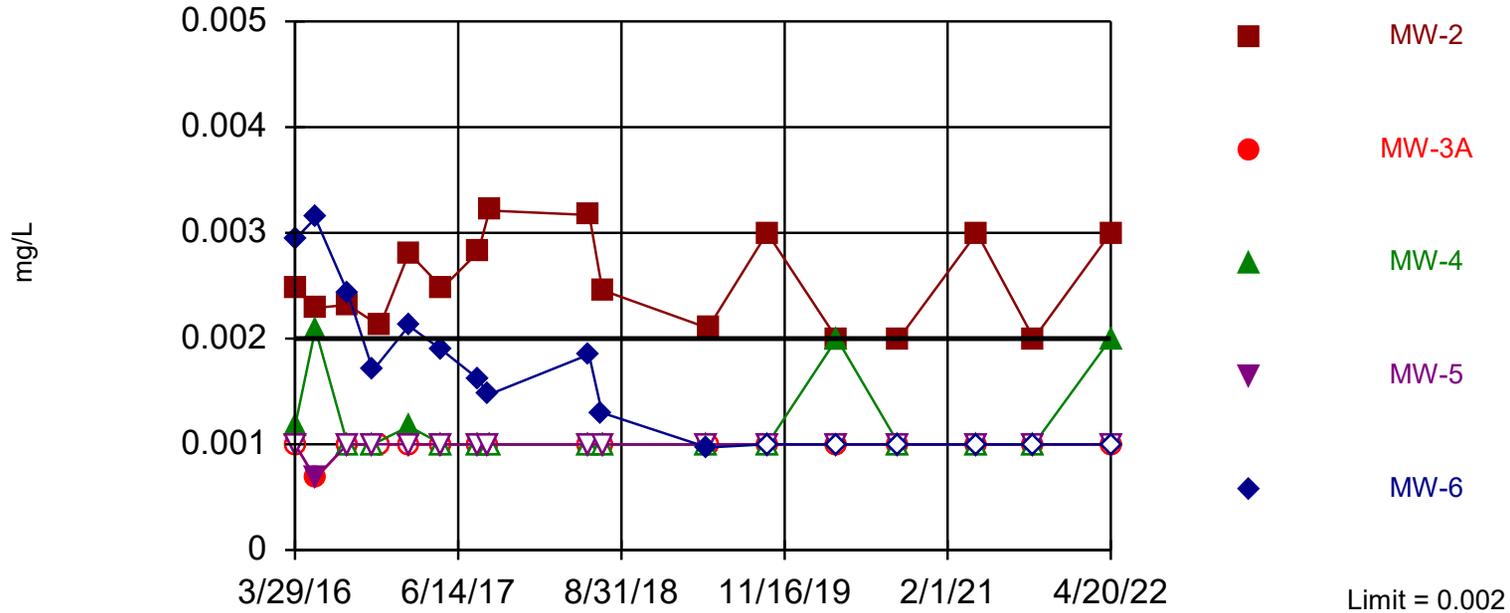
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 18 background values. 94.44% NDs. Report alpha = 0.2174. Individual comparison alpha = 0.04784. Most recent point for each compliance well compared to limit. Distribution was found to be non-normal after removal of suspect values, so outliers could not be identified. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Mercury Analysis Run 1/18/2023 10:06 AM  
Big Rivers Electric Corporation Client: BREC Data: Green LF All Data

Exceeds Limit: MW-2

## Prediction Limit

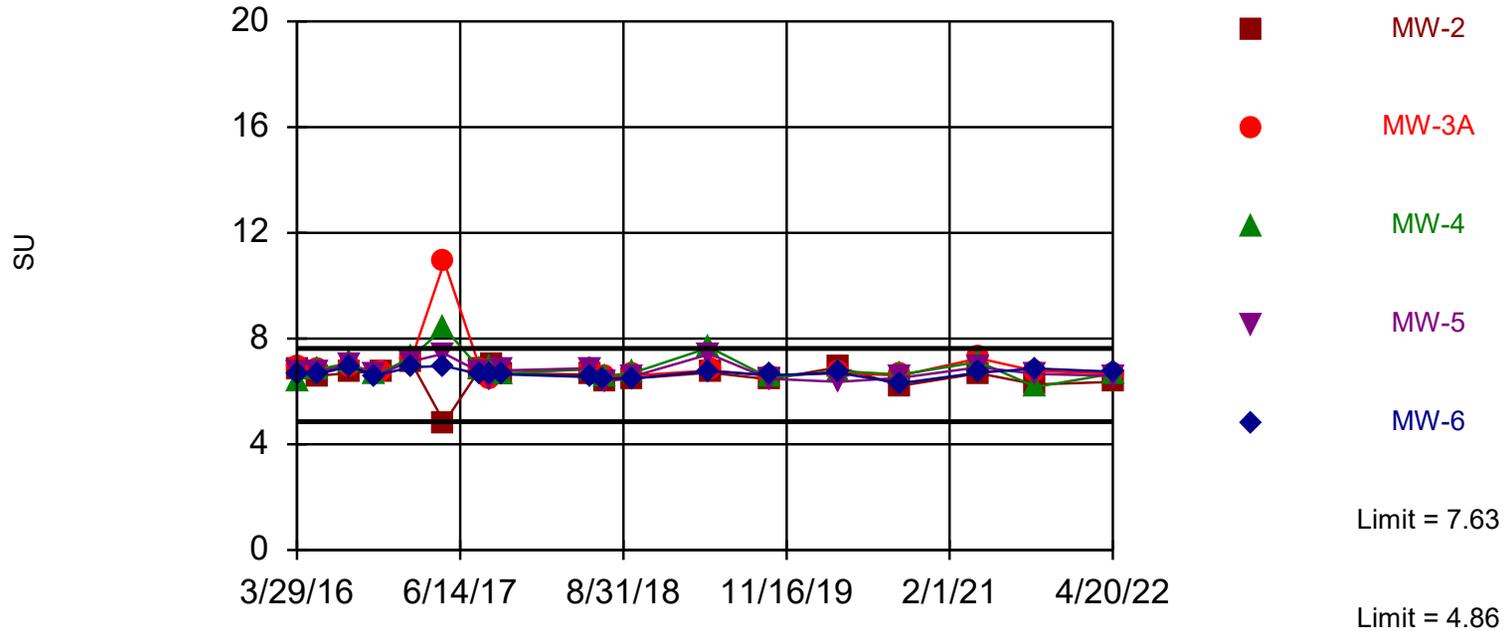
Interwell Non-parametric



Within Limits

## Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.05 alpha level. Limits are highest and lowest of 19 background values. Report alpha = 0.4167. Individual comparison alpha = 0.0913. Most recent point for each compliance well compared to limit. Distribution was found to be non-normal after removal of suspect values, so outliers could not be identified. Insufficient data to test for seasonality; data will not be deseasonalized.

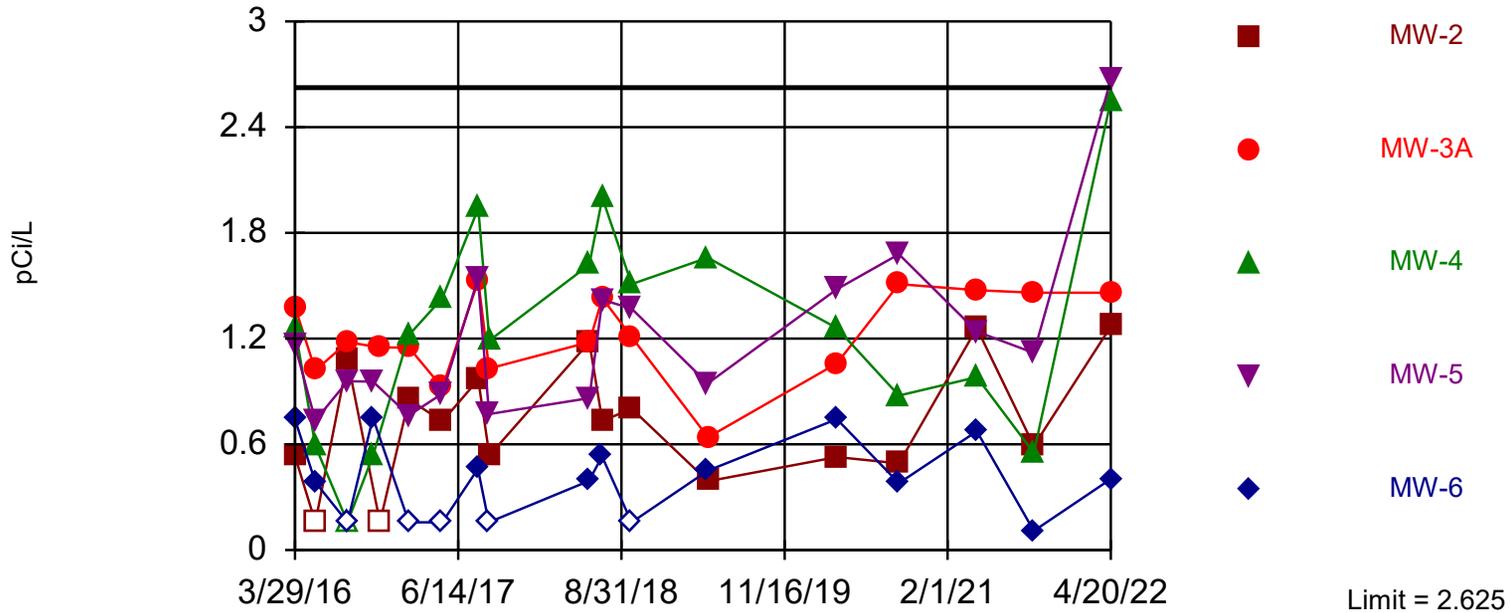
Constituent: pH [Field] Analysis Run 1/18/2023 10:06 AM

Big Rivers Electric Corporation Client: BREC Data: Green LF All Data

Exceeds Limit: MW-5

## Prediction Limit

### Interwell Parametric



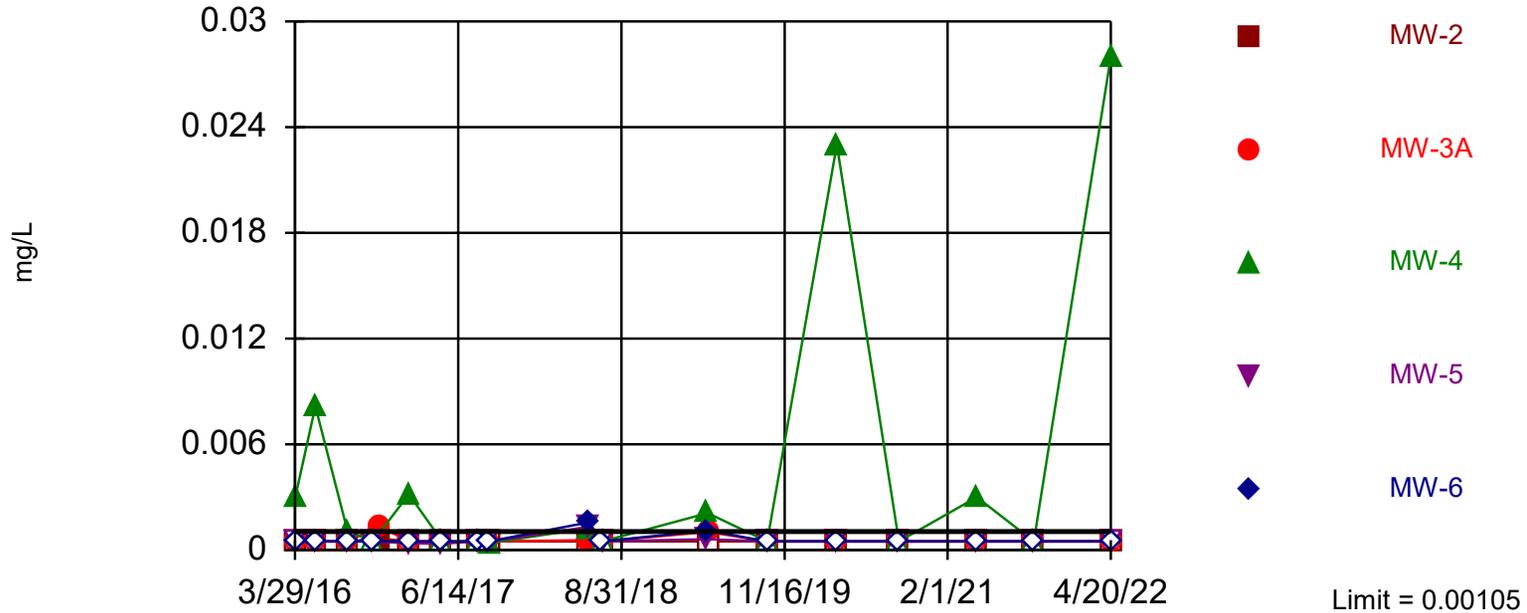
Background Data Summary (based on cube root transformation): Mean=0.961, Std. Dev.=0.1574, n=17. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9108, critical = 0.892. Report alpha = 0.04901. Individual comparison alpha = 0.01. Most recent point for each compliance well compared to limit. EPA 1989 outlier screening was performed on the background data. No background outliers were found.

Constituent: Radium 226 + 228 Analysis Run 1/18/2023 10:06 AM  
Big Rivers Electric Corporation Client: BREC Data: Green LF All Data

Exceeds Limit: MW-4

### Prediction Limit

Interwell Non-parametric



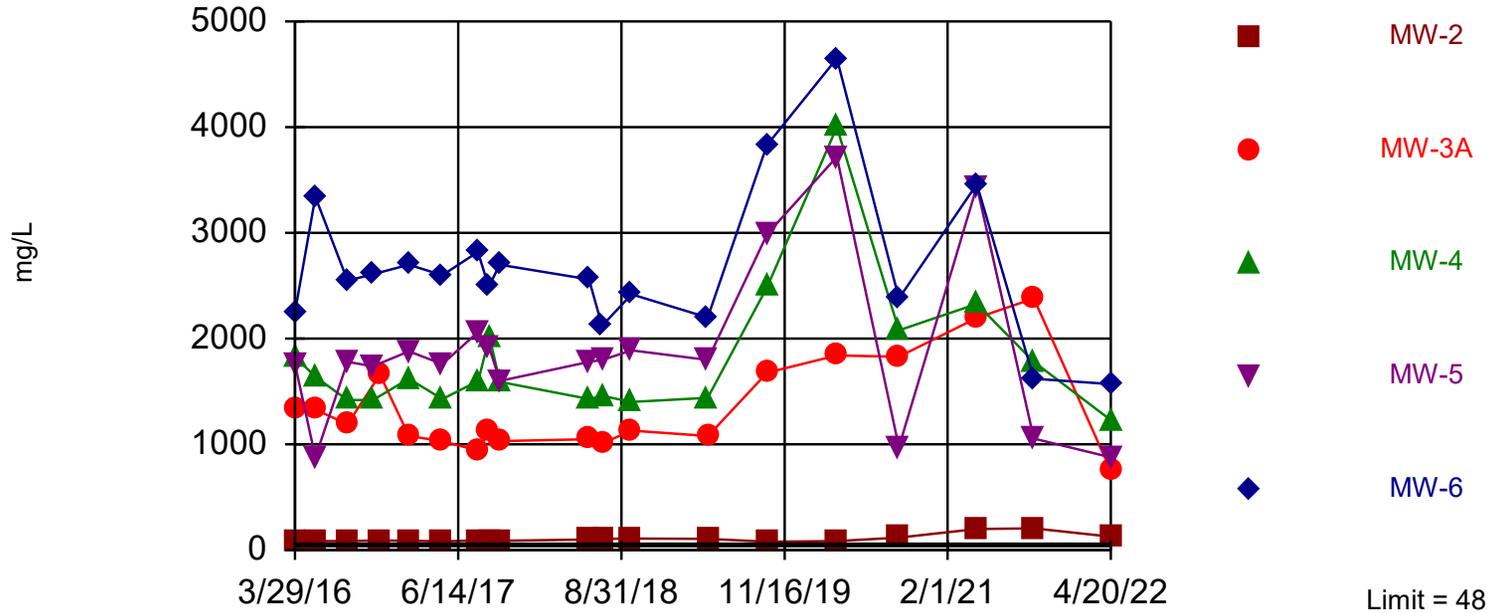
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 17 background values. 88.24% NDs. Report alpha = 0.2273. Individual comparison alpha = 0.05026. Most recent point for each compliance well compared to limit. Distribution was found to be non-normal after removal of suspect values, so outliers could not be identified. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Selenium Analysis Run 1/18/2023 10:06 AM

Big Rivers Electric Corporation Client: BREC Data: Green LF All Data

Exceeds Limit: MW-2, MW-3A, MW-4, MW-5, MW-6

### Prediction Limit Interwell Non-parametric



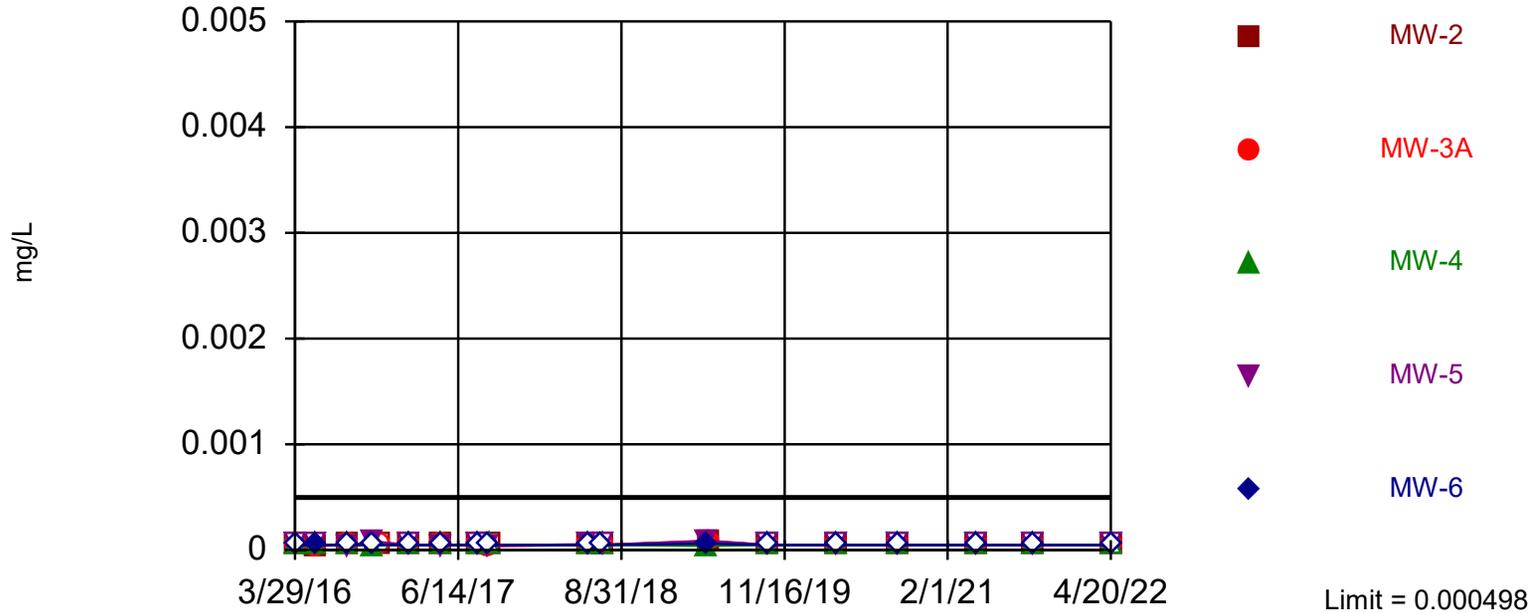
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.05 alpha level. Limit is highest of 19 background values. Report alpha = 0.2083. Individual comparison alpha = 0.04565. Most recent point for each compliance well compared to limit. Distribution was found to be non-normal after removal of suspect values, so outliers could not be identified. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Sulfate    Analysis Run 1/18/2023 10:06 AM  
Big Rivers Electric Corporation    Client: BREC    Data: Green LF All Data

Within Limit

### Prediction Limit

Interwell Non-parametric



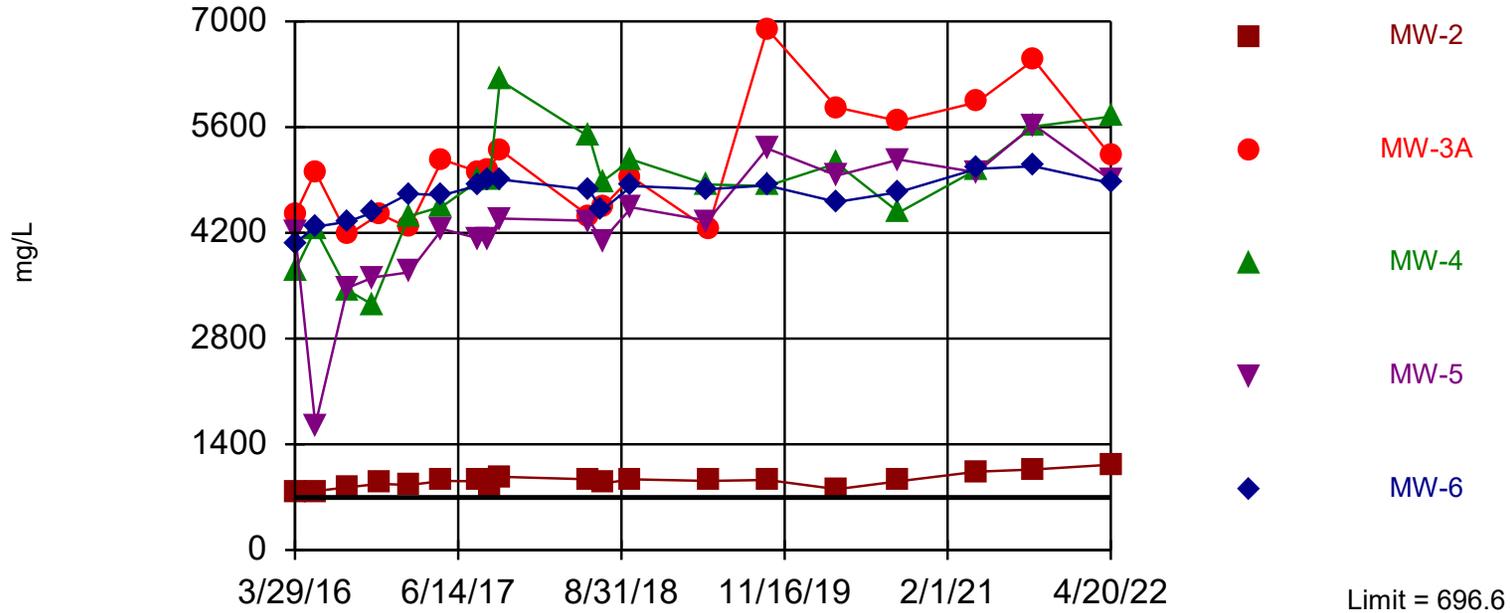
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 17 background values. 58.82% NDs. Report alpha = 0.2273. Individual comparison alpha = 0.05026. Most recent point for each compliance well compared to limit. After outlier removal distribution was non-normal, so outlier results were invalidated. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Thallium Analysis Run 1/18/2023 10:06 AM

Big Rivers Electric Corporation Client: BREC Data: Green LF All Data

Exceeds Limit: MW-2, MW-3A, MW-4, MW-5, MW-6

### Prediction Limit Interwell Parametric



Background Data Summary (based on  $x^4$  transformation): Mean= $1.2e11$ , Std. Dev.= $4.4e10$ ,  $n=19$ . Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @ $\alpha = 0.05$ , calculated = 0.9148, critical = 0.901. Report  $\alpha = 0.04901$ . Individual comparison  $\alpha = 0.01$ . Most recent point for each compliance well compared to limit. Distribution was found to be non-normal after removal of suspect values, so outliers could not be identified.

Constituent: Total Dissolved Solids Analysis Run 1/18/2023 10:06 AM  
Big Rivers Electric Corporation Client: BREC Data: Green LF All Data

# Confidence Interval

Big Rivers Electric Corporation Client: BREC Data: Green LF All Data Printed 1/18/2023, 10:47 AM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Arsenic (mg/L)	MW-1 (bg)	0.0008742	0.000492	0.01	No	18	11.11	ln(x)	0.05	Param.
<b>Arsenic (mg/L)</b>	<b>MW-2</b>	<b>0.0209</b>	<b>0.01122</b>	<b>0.01</b>	<b>Yes</b>	<b>18</b>	<b>0</b>	<b>sqrt(x)</b>	<b>0.05</b>	<b>Param.</b>
Arsenic (mg/L)	MW-3A	0.000575	0.0002	0.01	No	18	38.89	No	0.05	NP (normality)
Arsenic (mg/L)	MW-4	0.000498	0.0002	0.01	No	18	44.44	No	0.05	NP (normality)
Arsenic (mg/L)	MW-5	0.000519	0.0002	0.01	No	18	38.89	No	0.05	NP (normality)
Arsenic (mg/L)	MW-6	0.000692	0.0002	0.01	No	18	38.89	No	0.05	NP (normality)
Barium (mg/L)	MW-1 (bg)	0.08476	0.07846	2	No	18	0	No	0.05	Param.
Barium (mg/L)	MW-2	0.3405	0.2971	2	No	18	0	x^3	0.05	Param.
Barium (mg/L)	MW-3A	0.04647	0.04366	2	No	18	0	No	0.05	Param.
Barium (mg/L)	MW-4	0.02812	0.02422	2	No	18	0	x^2	0.05	Param.
Barium (mg/L)	MW-5	0.0162	0.014	2	No	18	0	No	0.05	NP (normality)
Barium (mg/L)	MW-6	0.01162	0.01001	2	No	18	0	No	0.05	Param.
Lithium (mg/L)	MW-1 (bg)	0.03178	0.02911	0.04	No	18	11.11	No	0.05	Param.
Lithium (mg/L)	MW-2	0.025	0.007	0.04	No	18	50	No	0.05	NP (normality)
<b>Lithium (mg/L)</b>	<b>MW-3A</b>	<b>0.7429</b>	<b>0.6879</b>	<b>0.04</b>	<b>Yes</b>	<b>18</b>	<b>0</b>	<b>x^2</b>	<b>0.05</b>	<b>Param.</b>
<b>Lithium (mg/L)</b>	<b>MW-4</b>	<b>1.588</b>	<b>1.276</b>	<b>0.04</b>	<b>Yes</b>	<b>18</b>	<b>5.556</b>	<b>x^2</b>	<b>0.05</b>	<b>Param.</b>
<b>Lithium (mg/L)</b>	<b>MW-5</b>	<b>0.4222</b>	<b>0.364</b>	<b>0.04</b>	<b>Yes</b>	<b>18</b>	<b>0</b>	<b>x^2</b>	<b>0.05</b>	<b>Param.</b>
<b>Lithium (mg/L)</b>	<b>MW-6</b>	<b>0.05801</b>	<b>0.05186</b>	<b>0.04</b>	<b>Yes</b>	<b>18</b>	<b>0</b>	<b>No</b>	<b>0.05</b>	<b>Param.</b>
Molybdenum (mg/L)	MW-1 (bg)	0.00135	0.001	0.1	No	17	41.18	No	0.05	NP (normality)
Molybdenum (mg/L)	MW-2	0.002728	0.002361	0.1	No	17	0	No	0.05	Param.
Molybdenum (mg/L)	MW-3A	0.001	0.000676	0.1	No	17	94.12	No	0.05	NP (NDs)
Molybdenum (mg/L)	MW-4	0.00117	0.001	0.1	No	17	70.59	No	0.05	NP (NDs)
Molybdenum (mg/L)	MW-5	0.001	0.000686	0.1	No	17	94.12	No	0.05	NP (NDs)
Molybdenum (mg/L)	MW-6	0.00189	0.001	0.1	No	17	35.29	No	0.05	NP (normality)
Radium 226 + 228 (pCi/L)	MW-1 (bg)	1.085	0.7153	5	No	17	0	x^(1/3)	0.05	Param.
Radium 226 + 228 (pCi/L)	MW-2	0.8707	0.5842	5	No	17	11.76	No	0.05	Param.
Radium 226 + 228 (pCi/L)	MW-3A	1.327	1.119	5	No	17	0	No	0.05	Param.
Radium 226 + 228 (pCi/L)	MW-4	1.515	1.008	5	No	17	5.882	No	0.05	Param.
Radium 226 + 228 (pCi/L)	MW-5	1.346	0.9947	5	No	17	0	x^(1/3)	0.05	Param.
Radium 226 + 228 (pCi/L)	MW-6	0.532	0.1575	5	No	17	29.41	No	0.05	NP (normality)
Selenium (mg/L)	MW-1 (bg)	0.000652	0.0005	0.05	No	17	88.24	No	0.05	NP (NDs)
Selenium (mg/L)	MW-2	0.0005	0.0005	0.05	No	17	88.24	No	0.05	NP (NDs)
Selenium (mg/L)	MW-3A	0.000501	0.0005	0.05	No	17	76.47	No	0.05	NP (NDs)
Selenium (mg/L)	MW-4	0.003	0.0005	0.05	No	17	41.18	No	0.05	NP (normality)
Selenium (mg/L)	MW-5	0.000624	0.000384	0.05	No	17	76.47	No	0.05	NP (NDs)
Selenium (mg/L)	MW-6	0.0011	0.0005	0.05	No	17	88.24	No	0.05	NP (NDs)

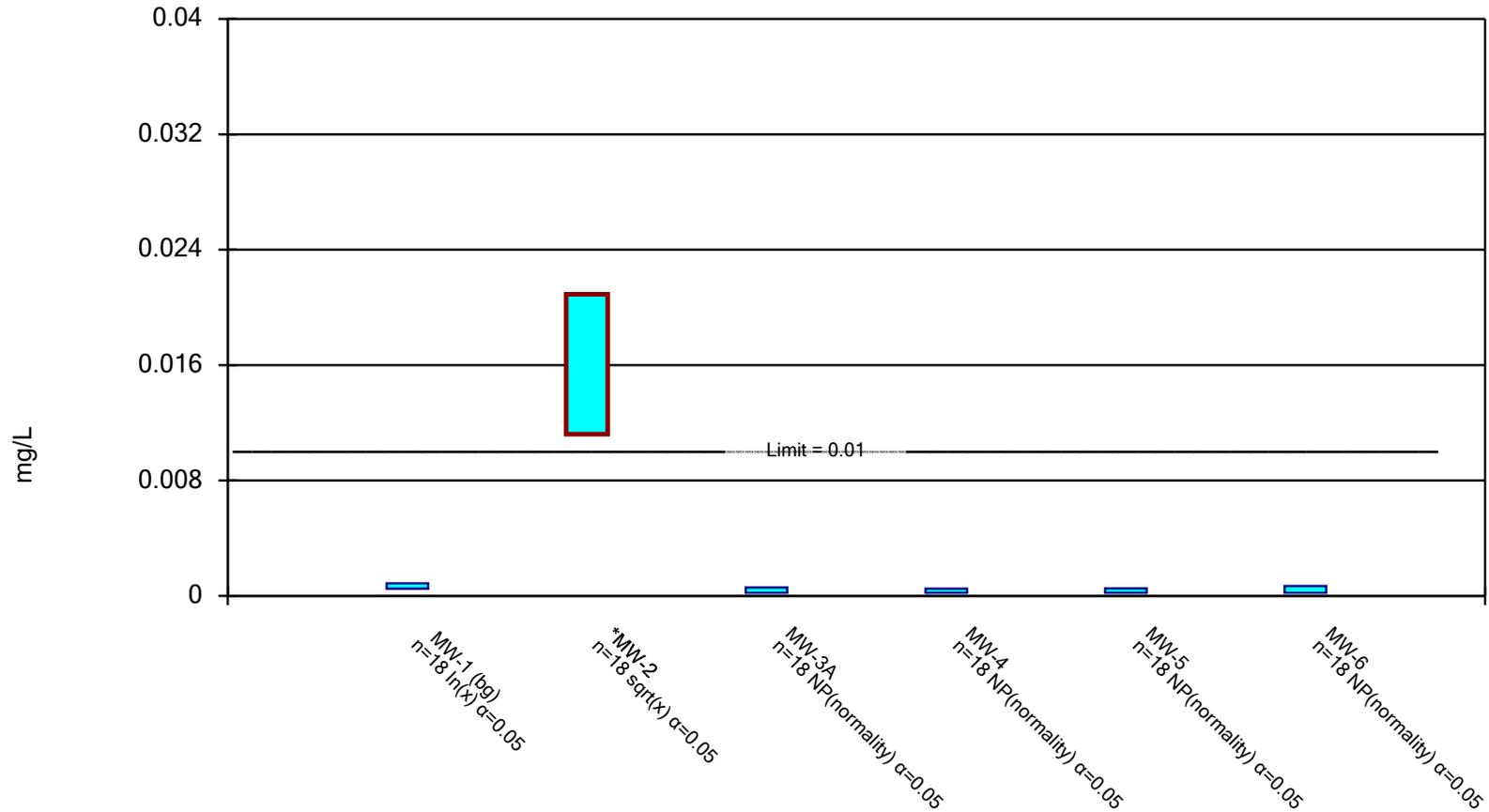
# Confidence Interval

Big Rivers Electric Corporation Client: BREC Data: Green LF All Data Printed 1/18/2023, 10:47 AM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Arsenic (mg/L)	MW-2	0.0209	0.01122	0.01	Yes	18	0	sqrt(x)	0.05	Param.
Lithium (mg/L)	MW-3A	0.7429	0.6879	0.04	Yes	18	0	x^2	0.05	Param.
Lithium (mg/L)	MW-4	1.588	1.276	0.04	Yes	18	5.556	x^2	0.05	Param.
Lithium (mg/L)	MW-5	0.4222	0.364	0.04	Yes	18	0	x^2	0.05	Param.
Lithium (mg/L)	MW-6	0.05801	0.05186	0.04	Yes	18	0	No	0.05	Param.

## Parametric and Non-Parametric (NP) Confidence Interval

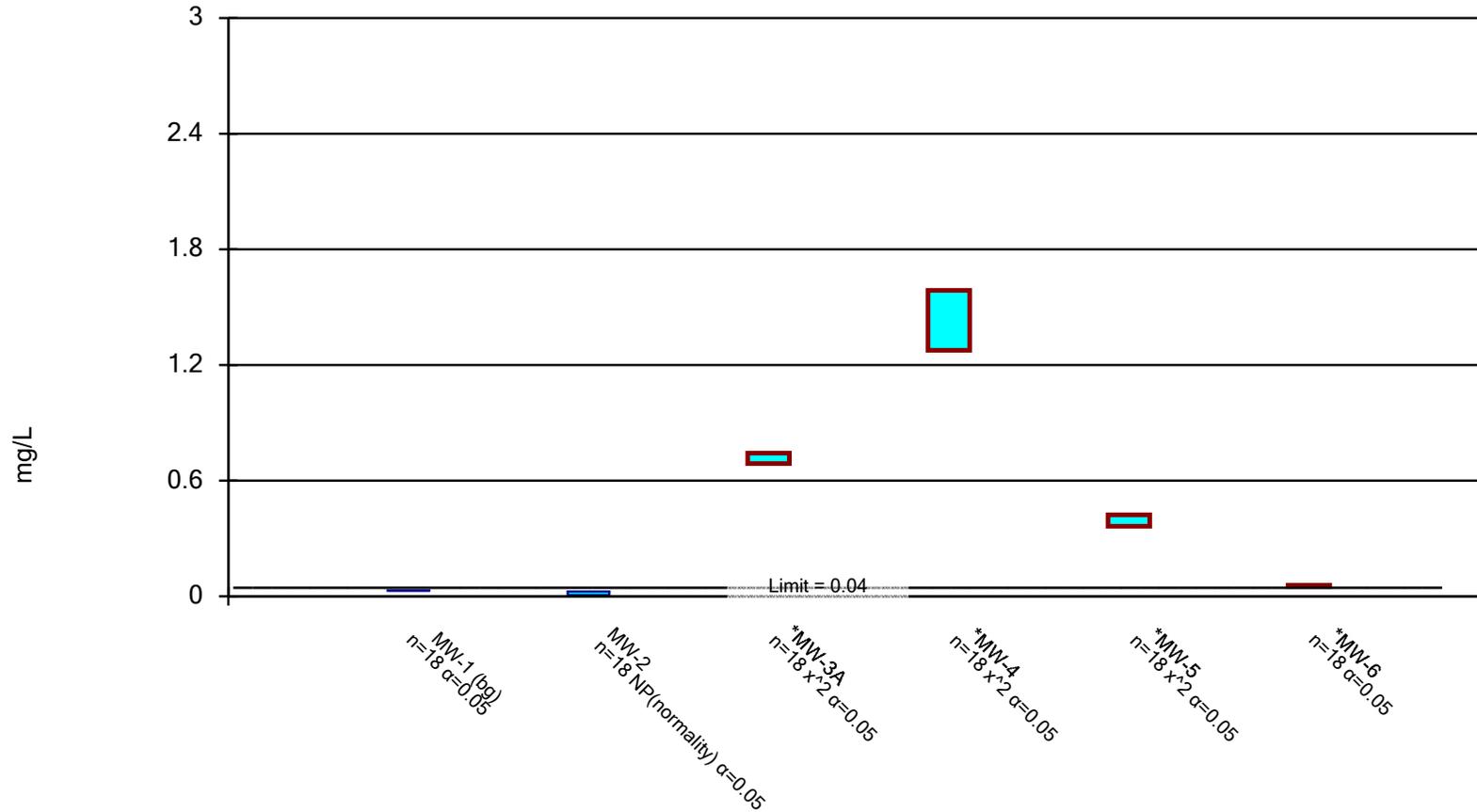
Compliance limit is exceeded.\* Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Arsenic Analysis Run 1/18/2023 10:47 AM  
Big Rivers Electric Corporation Client: BREC Data: Green LF All Data

## Parametric and Non-Parametric (NP) Confidence Interval

Compliance limit is exceeded.\* Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Lithium Analysis Run 1/18/2023 10:47 AM  
Big Rivers Electric Corporation Client: BREC Data: Green LF All Data



January 20, 2023

Mr. Mark Bertram  
Big Rivers Electric Corporation  
9000 Highway 2096  
Robards, KY 42452

Re: Statistical Evaluation of December 2022 Assessment Monitoring Groundwater Data  
Sebree Generating Station Green Landfill in Robards, Kentucky  
Agency Interest ID #: 4196

Dear Mr. Bertram:

This letter presents the results of the statistical evaluation of analytical data from the December 2022 assessment monitoring event performed at the Sebree Generating Station's Green Landfill in Webster County, Robards, Kentucky in accordance with the requirements of U.S. Environmental Protection Agency's *Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments (40 Code of Federal Regulations [CFR] Part 257, Subpart D)*. This letter also presents a comparison of the December 2022 sampling results to calculated groundwater protection standards (GWPSs). The GWPSs for the groundwater monitoring network were reviewed and updated as part of the statistical evaluation completed for the December 2022 sampling event and are presented on Table 1. These GWPSs will continue to be reviewed and updated as additional data are collected. A comparison of the December 2022 data to the updated GWPSs is presented on Table 2. The statistical evaluation presented herein was performed in accordance with the *Groundwater Monitoring System and Statistical Methods* document prepared by Associated Engineers, Inc. and dated June 28, 2016.

In December 2022, the Green Landfill groundwater monitoring well network was sampled for Appendix III and Appendix IV parameters per the requirements of 40 CFR §257.95(d)(1). Interwell prediction limit statistical analyses were performed for these well/constituent pairs and are discussed subsequently. GWPSs were also developed in accordance with 40 CFR §257.95(h) which describes a GWPS as the higher value between a determined background concentration for the CCR unit and the established maximum concentration limit (MCL) or the GWPS criteria for select Appendix IV parameters without an MCL presented in 40 CFR §257.95(h)(2). This letter presents the results of the statistical evaluation of the December 2022 assessment monitoring event for inclusion in the Sebree Generating Station Operating Record.

### **Statistical Evaluation of Sebree Green Landfill Compliance Monitoring Well Network Evaluation**

An interwell prediction limit evaluation was performed to compare the concentrations of Appendix III and Appendix IV parameters observed in December 2022 compliance (downgradient) monitoring wells MW-2, MW-3A, MW-4, MW-5, and MW-6 to calculated prediction limits (i.e., background limits) that were established using data collected from March

Mr. Mark Bertram  
Big Rivers Electric Corporation  
January 20, 2023  
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of 2016 through December of 2022 from upgradient monitoring well MW-1. Certain Appendix III and Appendix IV parameters were detected in December 2022 at concentrations with statistically significant increases (SSI) above the calculated background limits (equivalent to the MW-1 prediction limits), and a summary of the statistical evaluation is included in Attachment 1. This included the following well/constituent pairs for downgradient compliance monitoring wells with SSIs above calculated background limits:

Appendix III Parameters:

- Calcium (MW-2, MW-3A, MW-4, MW-5, and MW-6)
- Chloride (MW-2, MW-3A, MW-4, MW-5, and MW-6)
- Sulfate (MW-2, MW-3A, MW-4, MW-5, and MW-6)
- Total Dissolved Solids (TDS) (MW-2, MW-3A, MW-4, MW-5, and MW-6)

Appendix IV Parameters:

- Arsenic (MW-2)
- Barium (MW-2)
- Lithium (MW-3A, MW-4, MW-5, and MW-6)
- Mercury (MW-4)

Results of SSIs above background were generally consistent with the 2016 through April 2022 statistical results. The Appendix III SSIs for calcium, chloride, sulfate, and TDS continue to occur at downgradient compliance monitoring wells. The reported December 2022 SSI for mercury (MW-10) was not present in April 2022. All other above-noted Appendix IV SSIs for December 2022 were also present in the April 2022 statistical analysis. The reported April 2022 SSIs for molybdenum (MW-2), radium 226 + 228 (MW-5), and selenium (MW-4) were not present in this statistical analysis. Likewise,

The Appendix IV constituents with SSIs (arsenic, barium, lithium, and mercury) were further evaluated to determine whether they are present at statistically significant levels (SSLs) over the GWPS by calculating the lower confidence limit (LCL) at 95% confidence for each well and constituent using all the baseline, detection, and assessment monitoring results collected to date from each monitoring well. For a constituent to be present at an SSL over the GWPS, its LCL must be greater than the GWPS. The comparison of the calculated LCLs with the GWPSs for arsenic, barium, lithium, and mercury at downgradient compliance monitoring wells MW-2, MW-3A, MW-4, MW-5, and MW-6 resulted in the following well/constituent pairs with SSLs above the GWPS:

Mr. Mark Bertram  
Big Rivers Electric Corporation  
January 20, 2023  
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- Arsenic (MW-2)
- Lithium (MW-3A, MW-4, MW-5, and MW-6)

The LCLs for the remaining well/constituent pairs for arsenic, barium, lithium, and mercury are less than the GWPS and thus are not considered SSLs. Attachment 1 provides a summary of the calculated LCLs in comparison with the GWPSs. Results of SSLs above the GWPSs were consistent with the April 2022 results.

Given that certain Appendix III and IV constituents were observed at the Green Landfill groundwater monitoring network at concentrations above their respective calculated background limit and the LCL for certain Appendix IV constituents was greater than the corresponding GWPSs, these results do not warrant a transition to detection monitoring per the requirements of 40 CFR §257.95(f) and assessment monitoring will continue for the next semiannual monitoring event in 2023.

Sincerely,

Burns & McDonnell Engineering Company, Inc.



Chris Hoglund, PG  
Project Manager  
Attachments:

Table 1 – Summary of Groundwater Protection Standards  
Table 2 – Summary of December 2022 Analytical Results

Attachment 1 – Sanitas™ Statistical Outputs

cc: Greg Dick, BREC Sebree Station

## **TABLES**

**Table 1**  
**Calculated Background and Groundwater Protection Standards for Groundwater**  
**Sebree Generating Station in Robards, Kentucky**

Detection Constituents (Appendix III)	Units	Background*	MCL	40 CFR §257.95(h)(2) Criteria	Groundwater Protection Standard
Boron	mg/L	2.218	--	--	--
Calcium	mg/L	36.31	--	--	--
pH (field)	SU	4.86 - 7.63	--	--	--
TDS	mg/L	696.6	--	--	--
Chloride	mg/L	13.9	--	--	--
Fluoride	mg/L	0.888	4	--	--
Sulfate	mg/L	48	--	--	--
Assessment Constituents (Appendix IV)	Units	Background*	MCL	40 CFR §257.95(h)(2) Criteria	Groundwater Protection Standard
Antimony	mg/L	0.00297	0.006	--	0.006
Arsenic	mg/L	0.004166	0.01	--	0.01
Barium	mg/L	0.1019	2	--	2
Beryllium	mg/L	0.000533	0.004	--	0.004
Cadmium	mg/L	0.000299	0.005	--	0.005
Chromium	mg/L	0.00354	0.1	--	0.1
Cobalt	mg/L	0.002	--	0.006	0.006
Fluoride	mg/L	0.888	4	--	4
Lead	mg/L	0.000279	--	0.015	0.015
Lithium	mg/L	0.03905	--	0.04	0.04
Mercury	mg/L	0.0002	0.002	--	0.002
Molybdenum	mg/L	0.002	--	0.1	0.1
Combined Radium 226 and 228**	pCi/L	2.625	5	--	5
Selenium	mg/L	0.00105	0.05	--	0.05
Thallium	mg/L	0.000498	0.002	--	0.002

**Notes:**

\*Background concentrations were determined utilizing interwell prediction limits (Attachment 1). Upgradient Monitoring Well MW-1 was used to calculate background concentrations. This included background data ranging from March 2016 through April 2022.

\*\*Combined radium is reported with an uncertainty range. However, this range cannot be incorporated into statistical calculations as it varies per result and is not a standard value. Therefore, to maintain consistency in reporting these results, the reported laboratory concentration was used for the statistical analyses.

mg/L - milligrams per Liter

pCi/L - picocuries per Liter

MCL - Maximum Contaminant Level

SU - standard units

**TABLE 2**  
**Green Landfill - December 2022 Analytical Summary**  
**Sebree Generating Station**

APPENDIX III CONSTITUENTS	2022 Calculated Background <sup>1</sup>	2022 GWPS	Units	MW-1		MW-2		MW-3A		MW-4		MW-5		MW-6		MW-104			
				12/9/2022		12/10/2022		12/10/2022		12/10/2022		12/9/2022		12/9/2022		12/10/2022			
				Background Well		Downgradient Compliance Well												Characterization Well	
				Detection Monitoring															
Boron	2.21	--	mg/L	1.82	D2,M1	<1.0	D2,U	<1.0	D2,U	1.26	D2	<1.0	D2,V1,U	<1.0	D2,V1,U	0.26	D1		
Calcium	36.32	--	mg/L	31.2	D2,M2	<b>216</b>	D1	<b>553</b>	D1	<b>871</b>	D1	<b>561</b>	D1	<b>474</b>	D1	<b>536</b>	D1		
Chloride	13.9	--	mg/L	5.7		<b>233</b>	D	<b>2530</b>	D	<b>2270</b>	D	<b>1930</b>	D	<b>204</b>	D	<b>3450</b>	D,M2		
Fluoride	0.888	4	mg/L	0.6		0.2		0.4		0.2		0.2		0.5		0.4	M2,J		
pH (Field Measurement)	4.86 - 7.63	--	s.u.	7.62		6.92		6.99		7.05		6.94		6.88		6.91			
Sulfate	48	--	mg/L	30		<b>150</b>		<b>1720</b>	D	<b>2500</b>	D	<b>3080</b>	D	<b>3030</b>	D,J	<b>4480</b>	D,M2		
Total Dissolved Solids	694.3	--	mg/L	602		<b>1230</b>		<b>5350</b>		<b>3850</b>		<b>4630</b>	H2,J-	<b>4560</b>	H2,J-	<b>5810</b>			
<b>APPENDIX IV CONSTITUENTS</b>																			
Antimony	0.00297	0.006	mg/L	<0.005	U	<0.005	U	<0.005	U	<0.005	U	<0.005	U	<0.005	U	<0.005	U		
Arsenic	0.003961	0.01	mg/L	0.0008	J	<b>0.0501</b>		<0.001	U	<0.0010	U	<0.0010	U	<0.0010	U	0.001			
Barium	0.1015	2	mg/L	0.085		<b>0.351</b>		0.04		0.025		0.012		0.010		0.016			
Beryllium	0.000533	0.004	mg/L	<0.002	U	<0.0020	U	<0.0020	U	<0.0020	U	<0.002	U	<0.0020	U	<0.002	U		
Cadmium	0.000299	0.005	mg/L	<0.001	U	<0.0010	U	<0.0010	U	<0.0010	U	<0.001	U	<0.0010	U	<b>0.0015</b>			
Chromium	0.00354	0.1	mg/L	<0.002	U	<0.0020	U	<0.0020	U	0.0006	J	<0.002	U	<0.0020	U	0.0007	J		
Cobalt	0.002	0.006	mg/L	<0.004	U	<0.004	U	<0.004	U	<0.004	U	<0.004	U	<0.004	U	<b>0.004</b>			
Fluoride	0.888	4	mg/L	0.6		0.2		0.4		0.2		0.2		0.5		0.4	M2,J		
Lead	0.000279	0.015	mg/L	<0.002	U	<0.002	U	<0.002	U	<0.002	U	<0.002	U	<0.002	U	<0.002	U		
Lithium	0.03919	0.04	mg/L	0.03		0.006	J	<b>0.61</b>		<b>1.1</b>	D1	<b>0.33</b>		<b>0.04</b>		0.03			
Mercury	0.0002	0.0002	mg/L	<0.0005	U	<0.0005	U	<0.0005	U	<b>0.0007</b>		<0.0005	U	<0.0005	U	<0.0005	U		
Molybdenum	0.002	0.1	mg/L	<0.01	U	<b>0.003</b>	J	<0.01	U	<0.01	U	<0.01	U	<0.01	U	<0.01	U		
Radium 226	2.558	5	pCi/L	1.46	J	1.59	J	2.3	J	1.6	J	1.37	J	1.29	J	1.29			
Radium 228																			
Selenium	0.00105	0.05	mg/L	<0.003	U	<0.003	U	<0.003	U	<b>0.002</b>	J	<0.003	U	<0.003	U	<0.003	U		
Thallium	0.000498	0.002	mg/L	<0.002	U	<0.0020	U	<0.0020	U	<0.0020	U	<0.002	U	<0.0020	U	<0.002	U		

GWPS = Groundwater Protection Standard

mg/L = milligrams per liter

pCi/L = picoCuries per Liter

s.u. = standard units

J = Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value.

U = Target analyte was analyzed for, but was below detection limit

D = Results reported from dilution

D1 = Sample required dilution due to high concentration of target analysis

D2 = Sample required dilution due to matrix interference

H2 = Initial analysis within holding time. Reanalysis was past holding time.

M1 = Matrix spike recovery was high; the method control sample recovery was acceptable

M2 = Matrix spike recovery was low; the method control sample recovery was acceptable

V1 = CCV recovery was above method acceptance limits. This target analyte not detected in the sample

**Bold** - Analyte detected above calculated background concentration.

Parameters were detected in wells located downgradient of the CCR Landfill at a concentration greater than the GWPS.

**ATTACHMENT 1 - SANITAS™ STATISTICAL OUTPUTS**

# Prediction Limit

Big Rivers Electric Corporation Client: BREC Data: Green LF All Data Printed 1/19/2023, 9:59 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Antimony (mg/L)	MW-2	0.00297	n/a	12/10/2022	0.001ND	No	18	55.56	n/a	0.04784	NP Inter (NDs)
Antimony (mg/L)	MW-3A	0.00297	n/a	12/10/2022	0.001ND	No	18	55.56	n/a	0.04784	NP Inter (NDs)
Antimony (mg/L)	MW-4	0.00297	n/a	12/10/2022	0.001ND	No	18	55.56	n/a	0.04784	NP Inter (NDs)
Antimony (mg/L)	MW-5	0.00297	n/a	12/9/2022	0.001ND	No	18	55.56	n/a	0.04784	NP Inter (NDs)
Antimony (mg/L)	MW-6	0.00297	n/a	12/9/2022	0.001ND	No	18	55.56	n/a	0.04784	NP Inter (NDs)
<b>Arsenic (mg/L)</b>	<b>MW-2</b>	<b>0.003961</b>	<b>n/a</b>	<b>12/10/2022</b>	<b>0.0501</b>	<b>Yes</b>	<b>19</b>	<b>10.53</b>	<b>ln(x)</b>	<b>0.01</b>	<b>Param Inter</b>
Arsenic (mg/L)	MW-3A	0.003961	n/a	12/10/2022	0.0002ND	No	19	10.53	ln(x)	0.01	Param Inter
Arsenic (mg/L)	MW-4	0.003961	n/a	12/10/2022	0.0002ND	No	19	10.53	ln(x)	0.01	Param Inter
Arsenic (mg/L)	MW-5	0.003961	n/a	12/9/2022	0.0002ND	No	19	10.53	ln(x)	0.01	Param Inter
Arsenic (mg/L)	MW-6	0.003961	n/a	12/9/2022	0.0002ND	No	19	10.53	ln(x)	0.01	Param Inter
<b>Barium (mg/L)</b>	<b>MW-2</b>	<b>0.1015</b>	<b>n/a</b>	<b>12/10/2022</b>	<b>0.351</b>	<b>Yes</b>	<b>19</b>	<b>0</b>	<b>No</b>	<b>0.01</b>	<b>Param Inter</b>
Barium (mg/L)	MW-3A	0.1015	n/a	12/10/2022	0.04	No	19	0	No	0.01	Param Inter
Barium (mg/L)	MW-4	0.1015	n/a	12/10/2022	0.025	No	19	0	No	0.01	Param Inter
Barium (mg/L)	MW-5	0.1015	n/a	12/9/2022	0.012	No	19	0	No	0.01	Param Inter
Barium (mg/L)	MW-6	0.1015	n/a	12/9/2022	0.01	No	19	0	No	0.01	Param Inter
Beryllium (mg/L)	MW-2	0.000533	n/a	12/10/2022	0.0005ND	No	18	94.44	n/a	0.04784	NP Inter (NDs)
Beryllium (mg/L)	MW-3A	0.000533	n/a	12/10/2022	0.0005ND	No	18	94.44	n/a	0.04784	NP Inter (NDs)
Beryllium (mg/L)	MW-4	0.000533	n/a	12/10/2022	0.0005ND	No	18	94.44	n/a	0.04784	NP Inter (NDs)
Beryllium (mg/L)	MW-5	0.000533	n/a	12/9/2022	0.0005ND	No	18	94.44	n/a	0.04784	NP Inter (NDs)
Beryllium (mg/L)	MW-6	0.000533	n/a	12/9/2022	0.0005ND	No	18	94.44	n/a	0.04784	NP Inter (NDs)
Boron (mg/L)	MW-2	2.21	n/a	12/10/2022	0.5ND	No	20	0	No	0.01	Param Inter
Boron (mg/L)	MW-3A	2.21	n/a	12/10/2022	0.5ND	No	20	0	No	0.01	Param Inter
Boron (mg/L)	MW-4	2.21	n/a	12/10/2022	1.26	No	20	0	No	0.01	Param Inter
Boron (mg/L)	MW-5	2.21	n/a	12/9/2022	0.5ND	No	20	0	No	0.01	Param Inter
Boron (mg/L)	MW-6	2.21	n/a	12/9/2022	0.5ND	No	20	0	No	0.01	Param Inter
Cadmium (mg/L)	MW-2	0.000299	n/a	12/10/2022	0.00005ND	No	18	88.89	n/a	0.04784	NP Inter (NDs)
Cadmium (mg/L)	MW-3A	0.000299	n/a	12/10/2022	0.00005ND	No	18	88.89	n/a	0.04784	NP Inter (NDs)
Cadmium (mg/L)	MW-4	0.000299	n/a	12/10/2022	0.00005ND	No	18	88.89	n/a	0.04784	NP Inter (NDs)
Cadmium (mg/L)	MW-5	0.000299	n/a	12/9/2022	0.00005ND	No	18	88.89	n/a	0.04784	NP Inter (NDs)
Cadmium (mg/L)	MW-6	0.000299	n/a	12/9/2022	0.00005ND	No	18	88.89	n/a	0.04784	NP Inter (NDs)
<b>Calcium (mg/L)</b>	<b>MW-2</b>	<b>36.32</b>	<b>n/a</b>	<b>12/10/2022</b>	<b>216</b>	<b>Yes</b>	<b>20</b>	<b>0</b>	<b>No</b>	<b>0.01</b>	<b>Param Inter</b>
<b>Calcium (mg/L)</b>	<b>MW-3A</b>	<b>36.32</b>	<b>n/a</b>	<b>12/10/2022</b>	<b>553</b>	<b>Yes</b>	<b>20</b>	<b>0</b>	<b>No</b>	<b>0.01</b>	<b>Param Inter</b>
<b>Calcium (mg/L)</b>	<b>MW-4</b>	<b>36.32</b>	<b>n/a</b>	<b>12/10/2022</b>	<b>871</b>	<b>Yes</b>	<b>20</b>	<b>0</b>	<b>No</b>	<b>0.01</b>	<b>Param Inter</b>
<b>Calcium (mg/L)</b>	<b>MW-5</b>	<b>36.32</b>	<b>n/a</b>	<b>12/9/2022</b>	<b>561</b>	<b>Yes</b>	<b>20</b>	<b>0</b>	<b>No</b>	<b>0.01</b>	<b>Param Inter</b>
<b>Calcium (mg/L)</b>	<b>MW-6</b>	<b>36.32</b>	<b>n/a</b>	<b>12/9/2022</b>	<b>474</b>	<b>Yes</b>	<b>20</b>	<b>0</b>	<b>No</b>	<b>0.01</b>	<b>Param Inter</b>
<b>Chloride (mg/L)</b>	<b>MW-2</b>	<b>13.9</b>	<b>n/a</b>	<b>12/10/2022</b>	<b>233</b>	<b>Yes</b>	<b>20</b>	<b>0</b>	<b>n/a</b>	<b>0.04365</b>	<b>NP Inter (normality)</b>
<b>Chloride (mg/L)</b>	<b>MW-3A</b>	<b>13.9</b>	<b>n/a</b>	<b>12/10/2022</b>	<b>2530</b>	<b>Yes</b>	<b>20</b>	<b>0</b>	<b>n/a</b>	<b>0.04365</b>	<b>NP Inter (normality)</b>
<b>Chloride (mg/L)</b>	<b>MW-4</b>	<b>13.9</b>	<b>n/a</b>	<b>12/10/2022</b>	<b>2270</b>	<b>Yes</b>	<b>20</b>	<b>0</b>	<b>n/a</b>	<b>0.04365</b>	<b>NP Inter (normality)</b>
<b>Chloride (mg/L)</b>	<b>MW-5</b>	<b>13.9</b>	<b>n/a</b>	<b>12/9/2022</b>	<b>1930</b>	<b>Yes</b>	<b>20</b>	<b>0</b>	<b>n/a</b>	<b>0.04365</b>	<b>NP Inter (normality)</b>
<b>Chloride (mg/L)</b>	<b>MW-6</b>	<b>13.9</b>	<b>n/a</b>	<b>12/9/2022</b>	<b>204</b>	<b>Yes</b>	<b>20</b>	<b>0</b>	<b>n/a</b>	<b>0.04365</b>	<b>NP Inter (normality)</b>
Chromium (mg/L)	MW-2	0.00354	n/a	12/10/2022	0.0003ND	No	18	72.22	n/a	0.04784	NP Inter (NDs)
Chromium (mg/L)	MW-3A	0.00354	n/a	12/10/2022	0.0003ND	No	18	72.22	n/a	0.04784	NP Inter (NDs)
Chromium (mg/L)	MW-4	0.00354	n/a	12/10/2022	0.0006J	No	18	72.22	n/a	0.04784	NP Inter (NDs)
Chromium (mg/L)	MW-5	0.00354	n/a	12/9/2022	0.0003ND	No	18	72.22	n/a	0.04784	NP Inter (NDs)
Chromium (mg/L)	MW-6	0.00354	n/a	12/9/2022	0.0003ND	No	18	72.22	n/a	0.04784	NP Inter (NDs)
Cobalt (mg/L)	MW-2	0.002	n/a	12/10/2022	0.002ND	No	18	38.89	n/a	0.04784	NP Inter (normality)
Cobalt (mg/L)	MW-3A	0.002	n/a	12/10/2022	0.002ND	No	18	38.89	n/a	0.04784	NP Inter (normality)
Cobalt (mg/L)	MW-4	0.002	n/a	12/10/2022	0.002ND	No	18	38.89	n/a	0.04784	NP Inter (normality)
Cobalt (mg/L)	MW-5	0.002	n/a	12/9/2022	0.002ND	No	18	38.89	n/a	0.04784	NP Inter (normality)
Cobalt (mg/L)	MW-6	0.002	n/a	12/9/2022	0.002ND	No	18	38.89	n/a	0.04784	NP Inter (normality)

## Prediction Limit

Big Rivers Electric Corporation Client: BREC Data: Green LF All Data Printed 1/19/2023, 9:59 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Fluoride (mg/L)	MW-2	0.888	n/a	12/10/2022	0.2	No	20	0	n/a	0.04365	NP Inter (normality)
Fluoride (mg/L)	MW-3A	0.888	n/a	12/10/2022	0.4	No	20	0	n/a	0.04365	NP Inter (normality)
Fluoride (mg/L)	MW-4	0.888	n/a	12/10/2022	0.2	No	20	0	n/a	0.04365	NP Inter (normality)
Fluoride (mg/L)	MW-5	0.888	n/a	12/9/2022	0.2	No	20	0	n/a	0.04365	NP Inter (normality)
Fluoride (mg/L)	MW-6	0.888	n/a	12/9/2022	0.5	No	20	0	n/a	0.04365	NP Inter (normality)
Lead (mg/L)	MW-2	0.000279	n/a	12/10/2022	0.00025ND	No	18	66.67	n/a	0.04784	NP Inter (NDs)
Lead (mg/L)	MW-3A	0.000279	n/a	12/10/2022	0.00025ND	No	18	66.67	n/a	0.04784	NP Inter (NDs)
Lead (mg/L)	MW-4	0.000279	n/a	12/10/2022	0.00025ND	No	18	66.67	n/a	0.04784	NP Inter (NDs)
Lead (mg/L)	MW-5	0.000279	n/a	12/9/2022	0.00025ND	No	18	66.67	n/a	0.04784	NP Inter (NDs)
Lead (mg/L)	MW-6	0.000279	n/a	12/9/2022	0.00025ND	No	18	66.67	n/a	0.04784	NP Inter (NDs)
Lithium (mg/L)	MW-2	0.03919	n/a	12/10/2022	0.006J	No	19	10.53	x^(1/3)	0.01	Param Inter
<b>Lithium (mg/L)</b>	<b>MW-3A</b>	<b>0.03919</b>	<b>n/a</b>	<b>12/10/2022</b>	<b>0.61</b>	<b>Yes</b>	<b>19</b>	<b>10.53</b>	<b>x^(1/3)</b>	<b>0.01</b>	<b>Param Inter</b>
<b>Lithium (mg/L)</b>	<b>MW-4</b>	<b>0.03919</b>	<b>n/a</b>	<b>12/10/2022</b>	<b>1.1</b>	<b>Yes</b>	<b>19</b>	<b>10.53</b>	<b>x^(1/3)</b>	<b>0.01</b>	<b>Param Inter</b>
<b>Lithium (mg/L)</b>	<b>MW-5</b>	<b>0.03919</b>	<b>n/a</b>	<b>12/9/2022</b>	<b>0.33</b>	<b>Yes</b>	<b>19</b>	<b>10.53</b>	<b>x^(1/3)</b>	<b>0.01</b>	<b>Param Inter</b>
<b>Lithium (mg/L)</b>	<b>MW-6</b>	<b>0.03919</b>	<b>n/a</b>	<b>12/9/2022</b>	<b>0.04</b>	<b>Yes</b>	<b>19</b>	<b>10.53</b>	<b>x^(1/3)</b>	<b>0.01</b>	<b>Param Inter</b>
Mercury (ug/L)	MW-2	0.2	n/a	12/10/2022	0.1ND	No	19	94.74	n/a	0.04565	NP Inter (NDs)
Mercury (ug/L)	MW-3A	0.2	n/a	12/10/2022	0.1ND	No	19	94.74	n/a	0.04565	NP Inter (NDs)
<b>Mercury (ug/L)</b>	<b>MW-4</b>	<b>0.2</b>	<b>n/a</b>	<b>12/10/2022</b>	<b>0.7</b>	<b>Yes</b>	<b>19</b>	<b>94.74</b>	<b>n/a</b>	<b>0.04565</b>	<b>NP Inter (NDs)</b>
Mercury (ug/L)	MW-5	0.2	n/a	12/9/2022	0.1ND	No	19	94.74	n/a	0.04565	NP Inter (NDs)
Mercury (ug/L)	MW-6	0.2	n/a	12/9/2022	0.1ND	No	19	94.74	n/a	0.04565	NP Inter (NDs)
Molybdenum (mg/L)	MW-2	0.002	n/a	12/10/2022	0.003J	No	18	44.44	n/a	0.04784	NP Inter (normality)
Molybdenum (mg/L)	MW-3A	0.002	n/a	12/10/2022	0.001ND	No	18	44.44	n/a	0.04784	NP Inter (normality)
Molybdenum (mg/L)	MW-4	0.002	n/a	12/10/2022	0.001ND	No	18	44.44	n/a	0.04784	NP Inter (normality)
Molybdenum (mg/L)	MW-5	0.002	n/a	12/9/2022	0.001ND	No	18	44.44	n/a	0.04784	NP Inter (normality)
Molybdenum (mg/L)	MW-6	0.002	n/a	12/9/2022	0.001ND	No	18	44.44	n/a	0.04784	NP Inter (normality)
pH [Field] (SU)	MW-2	7.63	4.86	12/10/2022	6.92	No	20	0	n/a	0.0873	NP Inter (normality)
pH [Field] (SU)	MW-3A	7.63	4.86	12/10/2022	6.99	No	20	0	n/a	0.0873	NP Inter (normality)
pH [Field] (SU)	MW-4	7.63	4.86	12/10/2022	7.05	No	20	0	n/a	0.0873	NP Inter (normality)
pH [Field] (SU)	MW-5	7.63	4.86	12/9/2022	6.94	No	20	0	n/a	0.0873	NP Inter (normality)
pH [Field] (SU)	MW-6	7.63	4.86	12/9/2022	6.88	No	20	0	n/a	0.0873	NP Inter (normality)
Radium 226 + 228 (pCi/L)	MW-2	2.558	n/a	12/10/2022	1.59	No	18	0	sqrt(x)	0.01	Param Inter
Radium 226 + 228 (pCi/L)	MW-3A	2.558	n/a	12/10/2022	2.3	No	18	0	sqrt(x)	0.01	Param Inter
Radium 226 + 228 (pCi/L)	MW-4	2.558	n/a	12/10/2022	1.6	No	18	0	sqrt(x)	0.01	Param Inter
Radium 226 + 228 (pCi/L)	MW-5	2.558	n/a	12/9/2022	1.37	No	18	0	sqrt(x)	0.01	Param Inter
Radium 226 + 228 (pCi/L)	MW-6	2.558	n/a	12/9/2022	1.29	No	18	0	sqrt(x)	0.01	Param Inter
Selenium (mg/L)	MW-2	0.00105	n/a	12/10/2022	0.0005ND	No	18	88.89	n/a	0.04784	NP Inter (NDs)
Selenium (mg/L)	MW-3A	0.00105	n/a	12/10/2022	0.0005ND	No	18	88.89	n/a	0.04784	NP Inter (NDs)
Selenium (mg/L)	MW-4	0.00105	n/a	12/10/2022	0.002J	No	18	88.89	n/a	0.04784	NP Inter (NDs)
Selenium (mg/L)	MW-5	0.00105	n/a	12/9/2022	0.0005ND	No	18	88.89	n/a	0.04784	NP Inter (NDs)
Selenium (mg/L)	MW-6	0.00105	n/a	12/9/2022	0.0005ND	No	18	88.89	n/a	0.04784	NP Inter (NDs)
<b>Sulfate (mg/L)</b>	<b>MW-2</b>	<b>48</b>	<b>n/a</b>	<b>12/10/2022</b>	<b>150</b>	<b>Yes</b>	<b>20</b>	<b>0</b>	<b>n/a</b>	<b>0.04365</b>	<b>NP Inter (normality)</b>
<b>Sulfate (mg/L)</b>	<b>MW-3A</b>	<b>48</b>	<b>n/a</b>	<b>12/10/2022</b>	<b>1720</b>	<b>Yes</b>	<b>20</b>	<b>0</b>	<b>n/a</b>	<b>0.04365</b>	<b>NP Inter (normality)</b>
<b>Sulfate (mg/L)</b>	<b>MW-4</b>	<b>48</b>	<b>n/a</b>	<b>12/10/2022</b>	<b>2500</b>	<b>Yes</b>	<b>20</b>	<b>0</b>	<b>n/a</b>	<b>0.04365</b>	<b>NP Inter (normality)</b>
<b>Sulfate (mg/L)</b>	<b>MW-5</b>	<b>48</b>	<b>n/a</b>	<b>12/9/2022</b>	<b>3080</b>	<b>Yes</b>	<b>20</b>	<b>0</b>	<b>n/a</b>	<b>0.04365</b>	<b>NP Inter (normality)</b>
<b>Sulfate (mg/L)</b>	<b>MW-6</b>	<b>48</b>	<b>n/a</b>	<b>12/9/2022</b>	<b>3030</b>	<b>Yes</b>	<b>20</b>	<b>0</b>	<b>n/a</b>	<b>0.04365</b>	<b>NP Inter (normality)</b>
Thallium (mg/L)	MW-2	0.000498	n/a	12/10/2022	0.00005ND	No	18	61.11	n/a	0.04784	NP Inter (NDs)
Thallium (mg/L)	MW-3A	0.000498	n/a	12/10/2022	0.00005ND	No	18	61.11	n/a	0.04784	NP Inter (NDs)
Thallium (mg/L)	MW-4	0.000498	n/a	12/10/2022	0.00005ND	No	18	61.11	n/a	0.04784	NP Inter (NDs)
Thallium (mg/L)	MW-5	0.000498	n/a	12/9/2022	0.00005ND	No	18	61.11	n/a	0.04784	NP Inter (NDs)
Thallium (mg/L)	MW-6	0.000498	n/a	12/9/2022	0.00005ND	No	18	61.11	n/a	0.04784	NP Inter (NDs)

# Prediction Limit

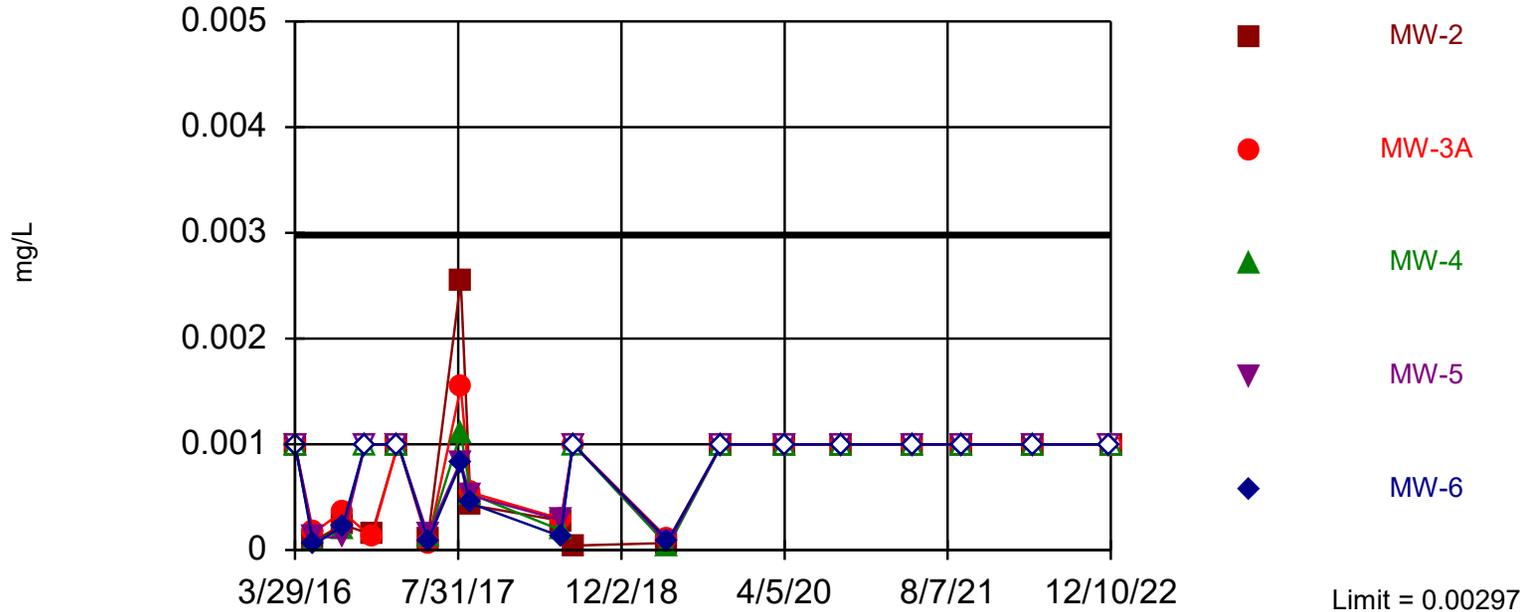
Big Rivers Electric Corporation Client: BREC Data: Green LF All Data Printed 1/19/2023, 9:59 AM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bg N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Total Dissolved Solids (mg/L)	MW-2	694.3	n/a	12/10/2022	1230	Yes	20	0	x^4	0.01	Param Inter
Total Dissolved Solids (mg/L)	MW-3A	694.3	n/a	12/10/2022	5350	Yes	20	0	x^4	0.01	Param Inter
Total Dissolved Solids (mg/L)	MW-4	694.3	n/a	12/10/2022	3850	Yes	20	0	x^4	0.01	Param Inter
Total Dissolved Solids (mg/L)	MW-5	694.3	n/a	12/9/2022	4630	Yes	20	0	x^4	0.01	Param Inter
Total Dissolved Solids (mg/L)	MW-6	694.3	n/a	12/9/2022	4560	Yes	20	0	x^4	0.01	Param Inter

Within Limit

### Prediction Limit

Interwell Non-parametric



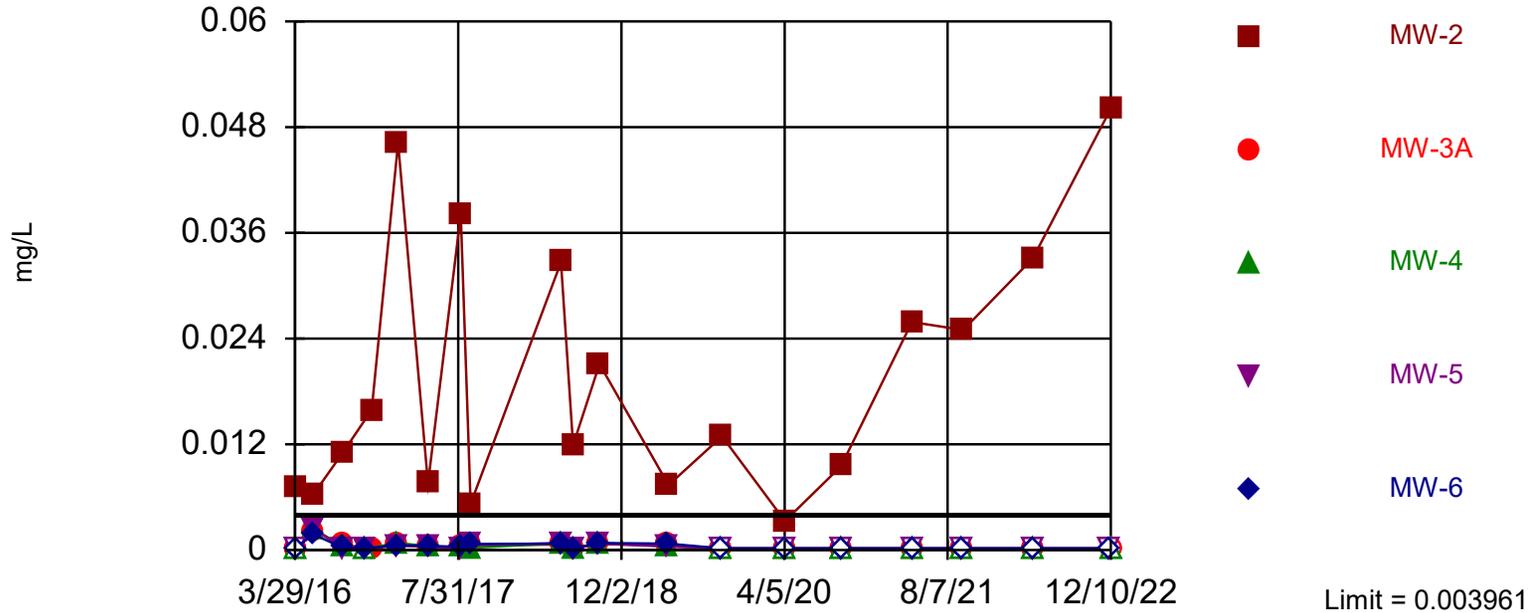
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 18 background values. 55.56% NDs. Report alpha = 0.2174. Individual comparison alpha = 0.04784. Most recent point for each compliance well compared to limit. Distribution was found to be non-normal after removal of suspect values, so outliers could not be identified. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Antimony Analysis Run 1/19/2023 9:58 AM  
Big Rivers Electric Corporation Client: BREC Data: Green LF All Data

Exceeds Limit: MW-2

## Prediction Limit

### Interwell Parametric



Background Data Summary (based on natural log transformation): Mean=-7.319, Std. Dev.=0.6828, n=19, 10.53% NDs. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9222, critical = 0.901. Report alpha = 0.04901. Individual comparison alpha = 0.01. Most recent point for each compliance well compared to limit. EPA 1989 outlier screening was performed on the background data. No background outliers were found.

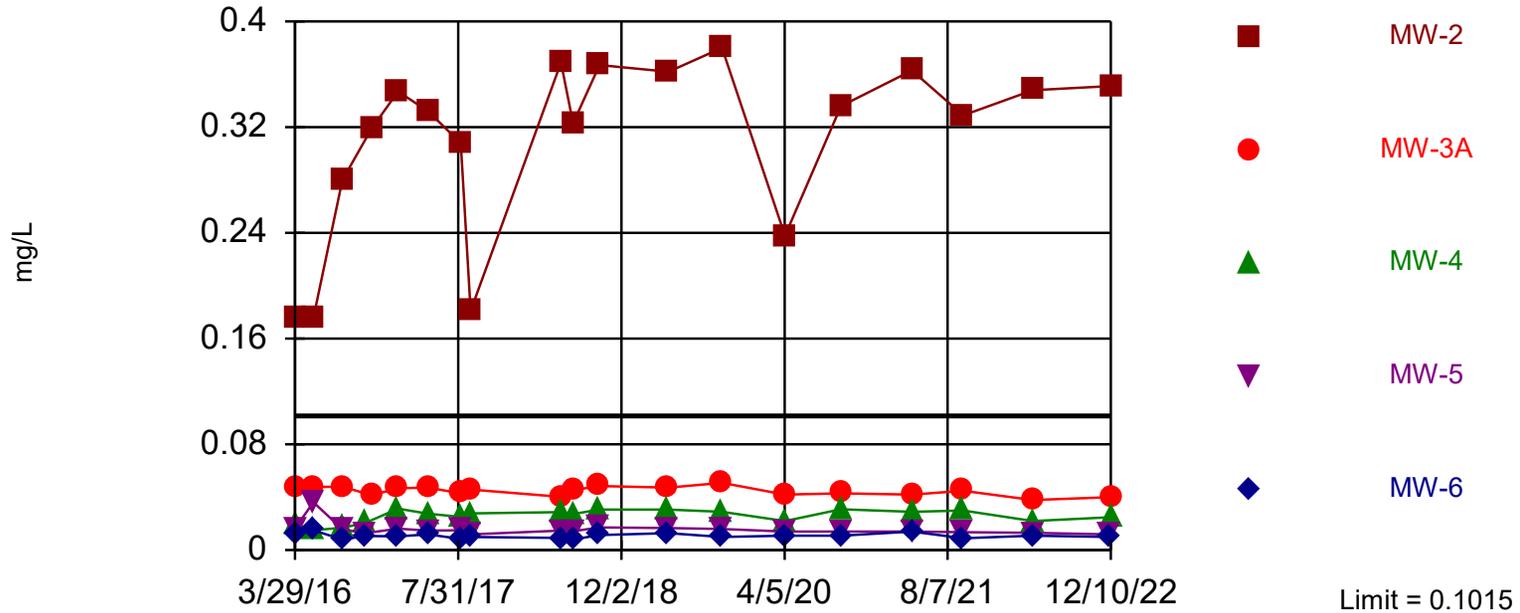
Constituent: Arsenic Analysis Run 1/19/2023 9:58 AM

Big Rivers Electric Corporation Client: BREC Data: Green LF All Data

Exceeds Limit: MW-2

### Prediction Limit

Interwell Parametric



Background Data Summary: Mean=0.08179, Std. Dev.=0.007513, n=19. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9711, critical = 0.901. Report alpha = 0.04901. Individual comparison alpha = 0.01. Most recent point for each compliance well compared to limit. EPA 1989 outlier screening was performed on the background data. No background outliers were found.

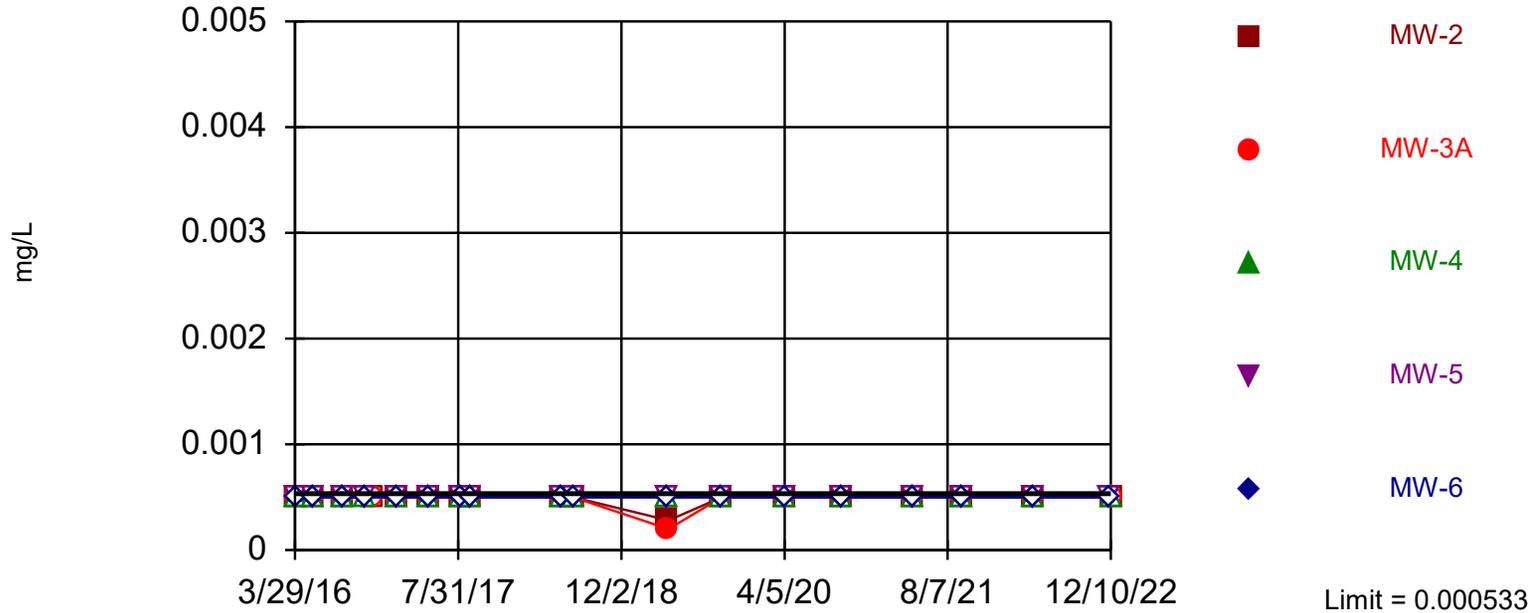
Constituent: Barium Analysis Run 1/19/2023 9:58 AM

Big Rivers Electric Corporation Client: BREC Data: Green LF All Data

Within Limit

### Prediction Limit

Interwell Non-parametric



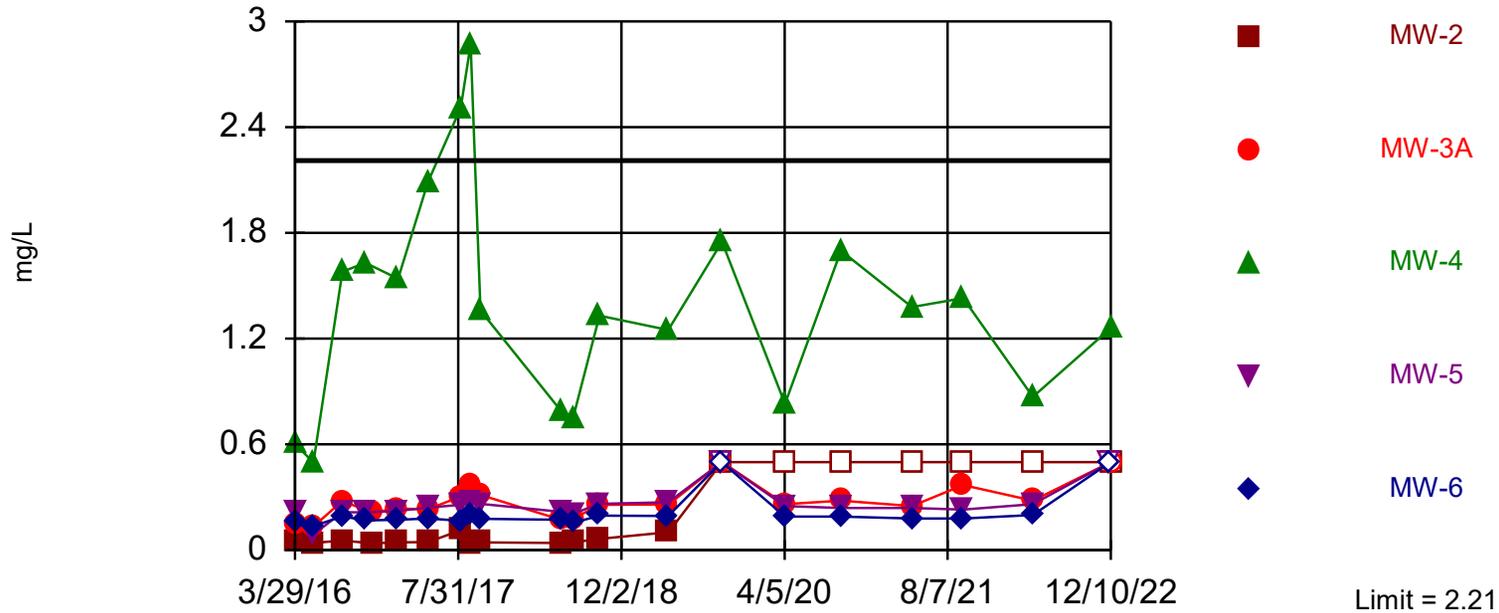
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 18 background values. 94.44% NDs. Report alpha = 0.2174. Individual comparison alpha = 0.04784. Most recent point for each compliance well compared to limit. Distribution was found to be non-normal after removal of suspect values, so outliers could not be identified. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Beryllium Analysis Run 1/19/2023 9:58 AM  
Big Rivers Electric Corporation Client: BREC Data: Green LF All Data

Within Limit

## Prediction Limit

Interwell Parametric



Background Data Summary: Mean=1.732, Std. Dev.=0.1836, n=20. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9091, critical = 0.905. Report alpha = 0.04901. Individual comparison alpha = 0.01. Most recent point for each compliance well compared to limit. EPA 1989 outlier screening was performed on the background data. At least one background value was a statistical outlier but was below the user-set cutoff of 3 times the median. No background outliers were found.

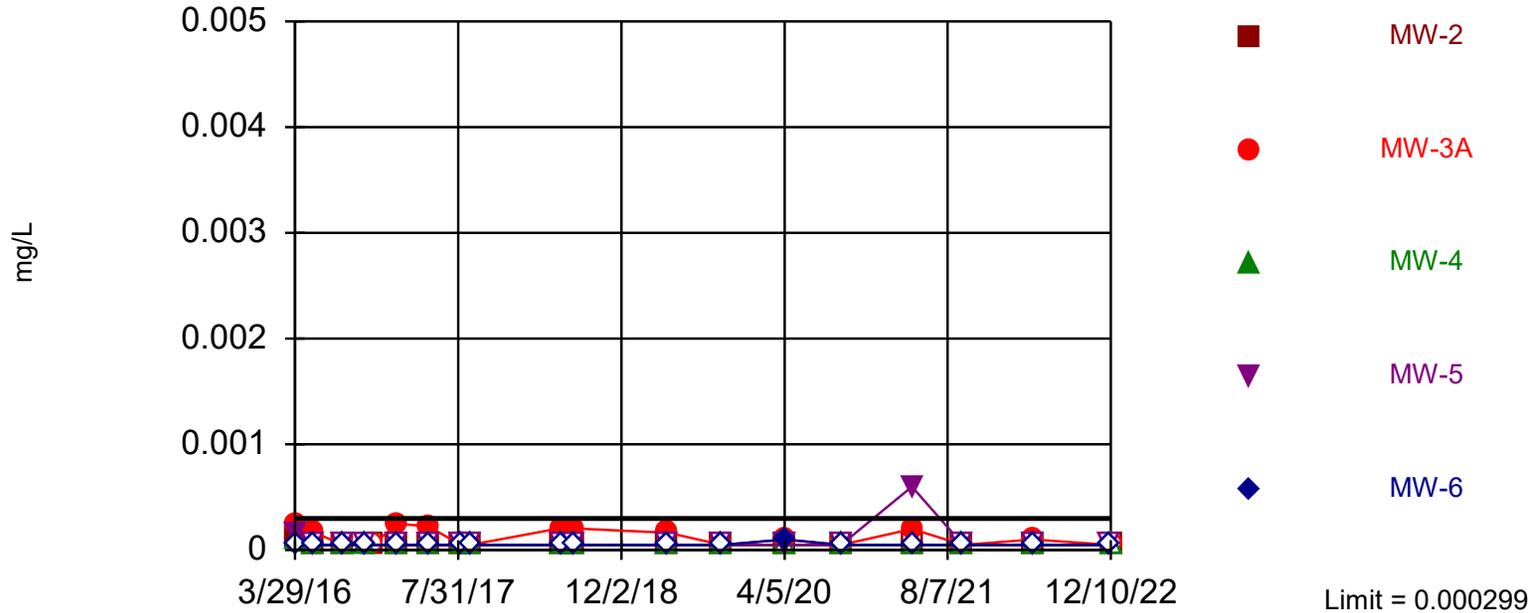
Constituent: Boron Analysis Run 1/19/2023 9:58 AM

Big Rivers Electric Corporation Client: BREC Data: Green LF All Data

Within Limit

### Prediction Limit

Interwell Non-parametric



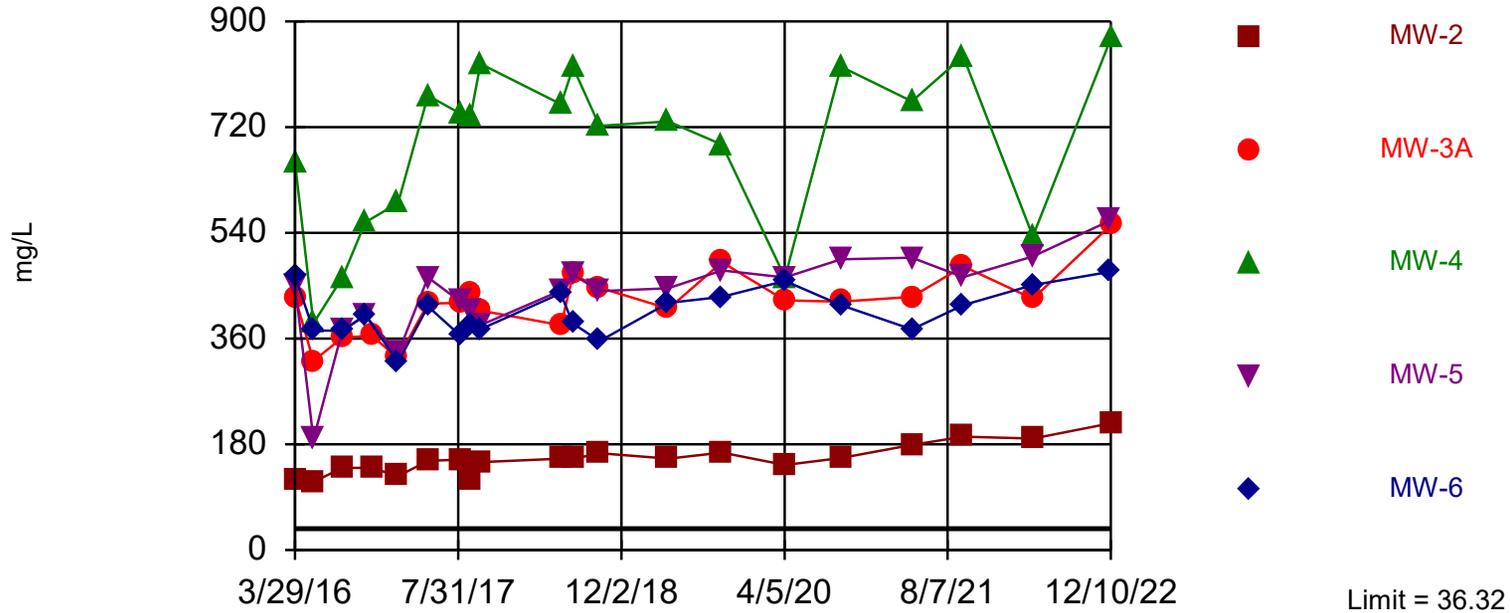
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 18 background values. 88.89% NDs. Report alpha = 0.2174. Individual comparison alpha = 0.04784. Most recent point for each compliance well compared to limit. After outlier removal distribution was non-normal, so outlier results were invalidated. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Cadmium Analysis Run 1/19/2023 9:58 AM

Big Rivers Electric Corporation Client: BREC Data: Green LF All Data

Exceeds Limit: MW-2, MW-3A, MW-4, MW-5, MW-6

### Prediction Limit Interwell Parametric

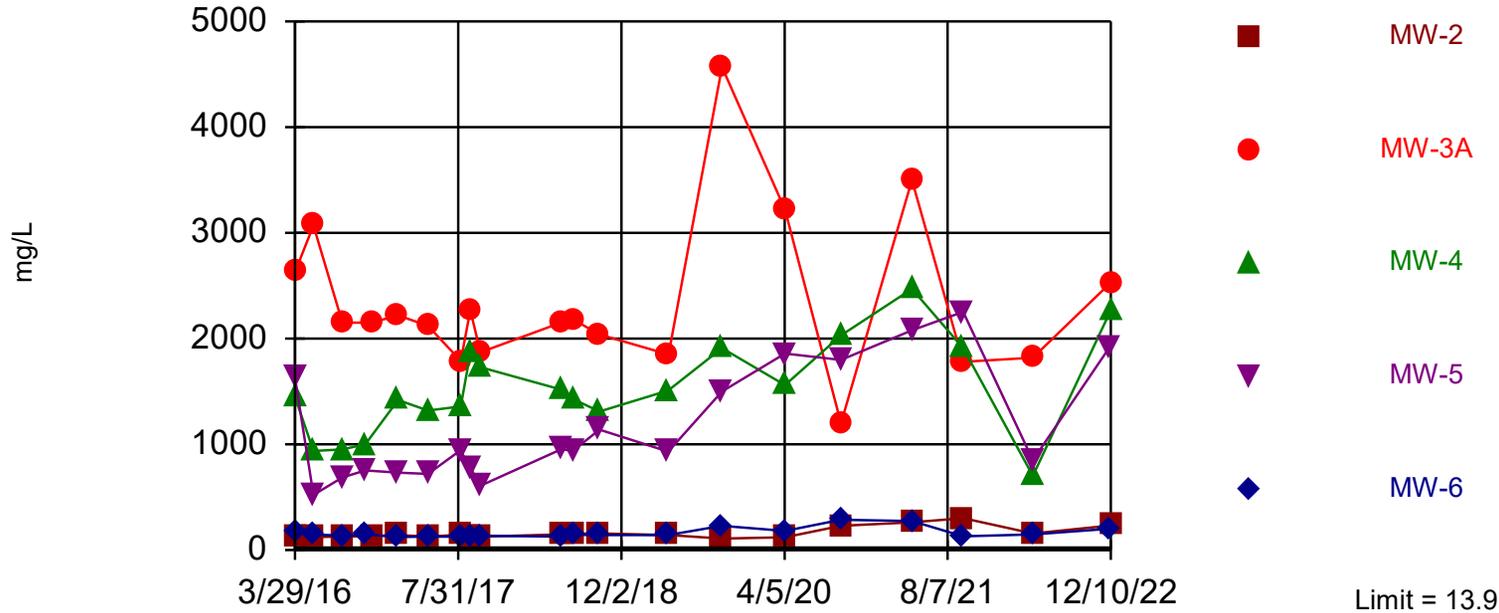


Background Data Summary: Mean=28.89, Std. Dev.=2.855, n=20. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9178, critical = 0.905. Report alpha = 0.04901. Individual comparison alpha = 0.01. Most recent point for each compliance well compared to limit. EPA 1989 outlier screening was performed on the background data. At least one background value was a statistical outlier but was below the user-set cutoff of 3 times the median. No background outliers were found.

Constituent: Calcium Analysis Run 1/19/2023 9:58 AM  
 Big Rivers Electric Corporation Client: BREC Data: Green LF All Data

Exceeds Limit: MW-2, MW-3A, MW-4, MW-5, MW-6

### Prediction Limit Interwell Non-parametric



Limit = 13.9

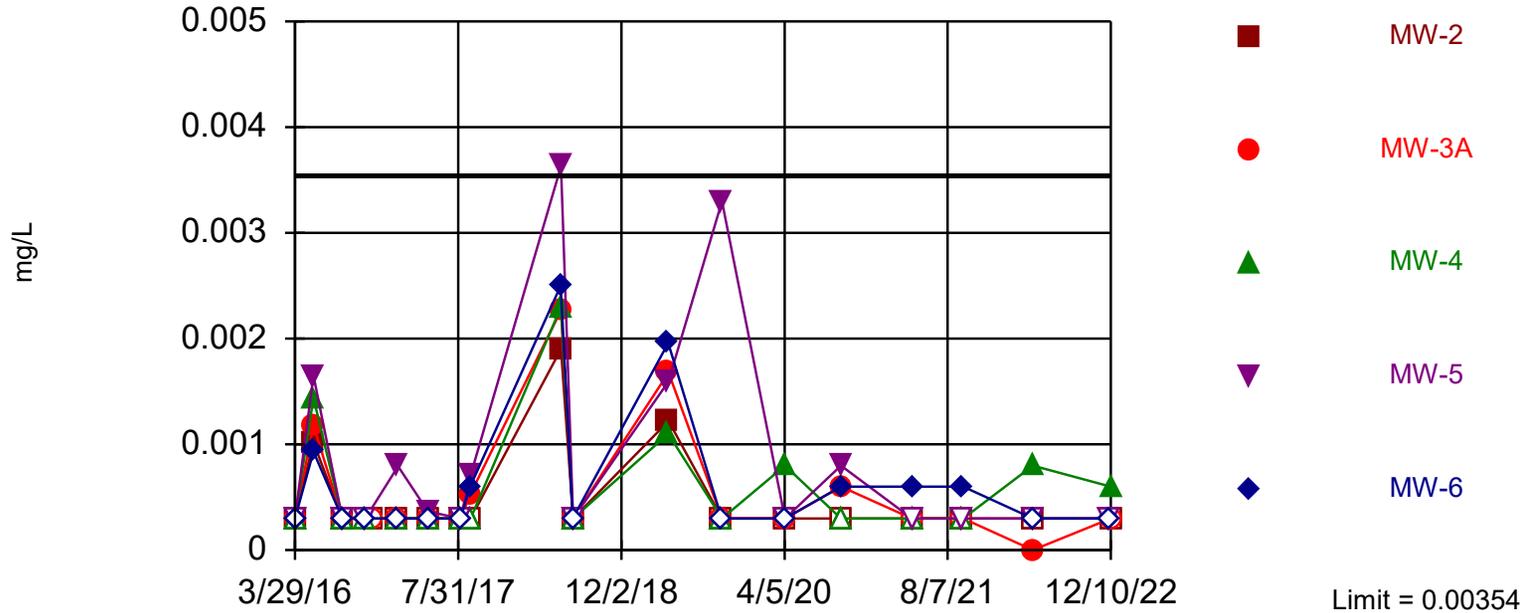
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.05 alpha level. Limit is highest of 20 background values. Report alpha = 0.2. Individual comparison alpha = 0.04365. Most recent point for each compliance well compared to limit. After outlier removal distribution was non-normal, so outlier results were invalidated. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Chloride Analysis Run 1/19/2023 9:58 AM  
 Big Rivers Electric Corporation Client: BREC Data: Green LF All Data

Within Limit

### Prediction Limit

Interwell Non-parametric



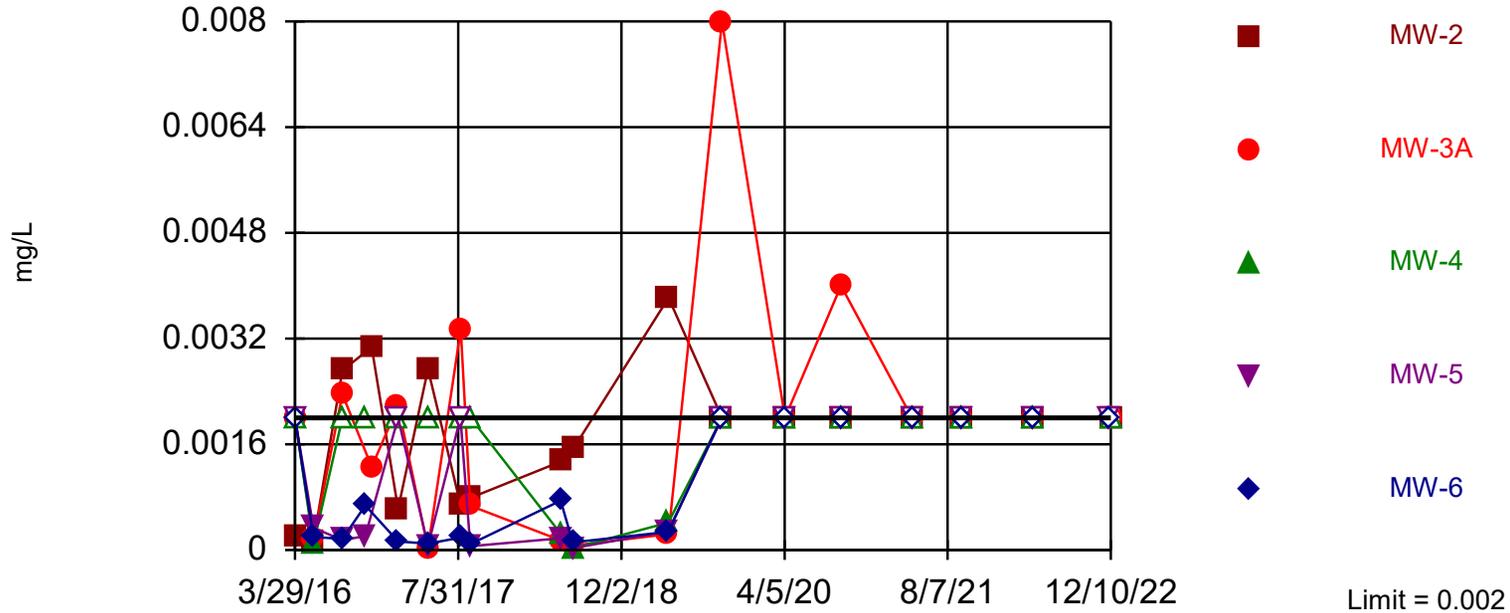
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 18 background values. 72.22% NDs. Report alpha = 0.2174. Individual comparison alpha = 0.04784. Most recent point for each compliance well compared to limit. After outlier removal distribution was non-normal, so outlier results were invalidated. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Chromium    Analysis Run 1/19/2023 9:58 AM  
Big Rivers Electric Corporation    Client: BREC    Data: Green LF All Data

Within Limit

### Prediction Limit

Interwell Non-parametric

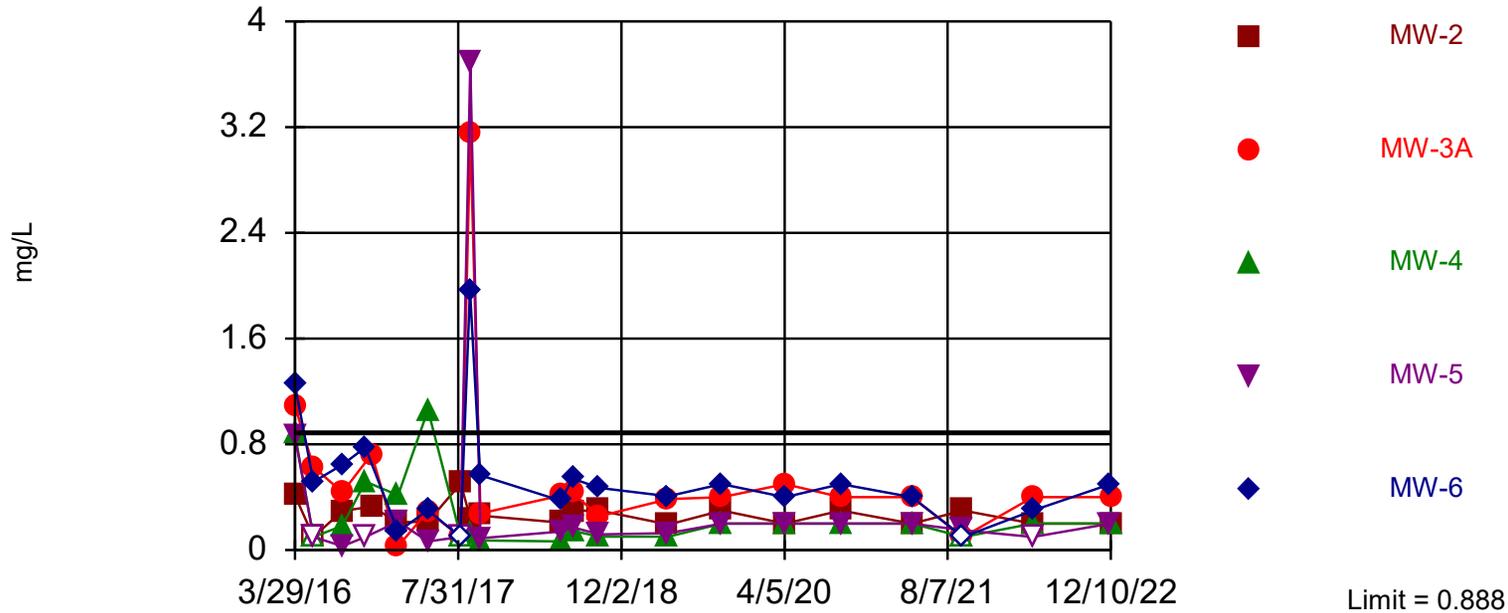


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.05 alpha level. Limit is highest of 18 background values. 38.89% NDs. Report alpha = 0.2174. Individual comparison alpha = 0.04784. Most recent point for each compliance well compared to limit. After outlier removal distribution was non-normal, so outlier results were invalidated. Insufficient data to test for seasonality; data will not be deseasonalized.

Within Limit

### Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.05 alpha level. Limit is highest of 20 background values. Report alpha = 0.2. Individual comparison alpha = 0.04365. Most recent point for each compliance well compared to limit. After outlier removal distribution was non-normal, so outlier results were invalidated. Insufficient data to test for seasonality; data will not be deseasonalized.

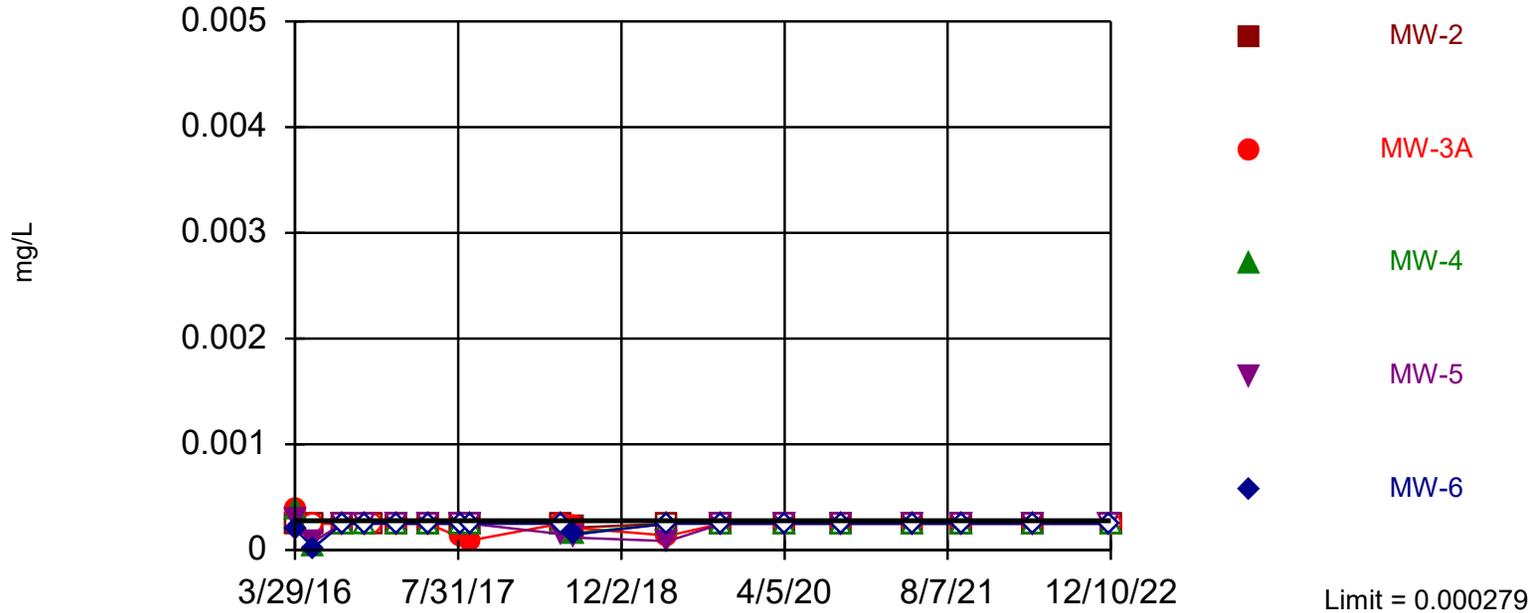
Constituent: Fluoride Analysis Run 1/19/2023 9:58 AM

Big Rivers Electric Corporation Client: BREC Data: Green LF All Data

Within Limit

### Prediction Limit

Interwell Non-parametric



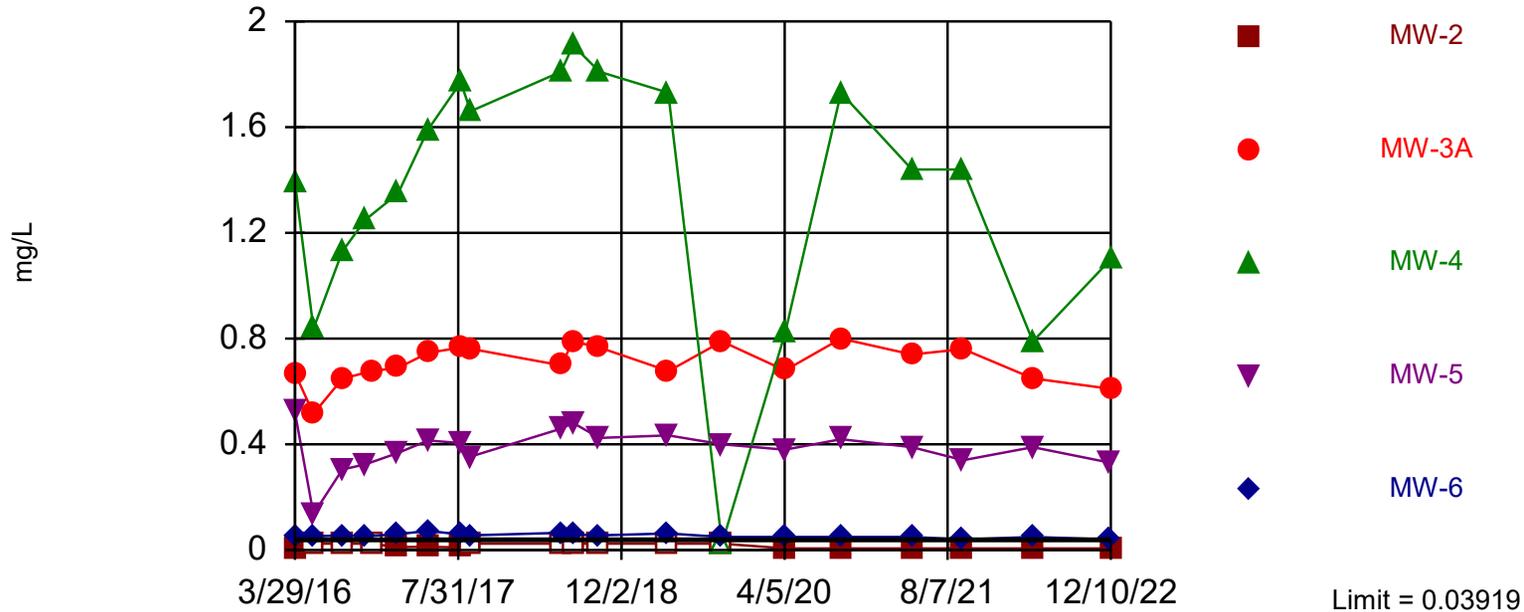
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 18 background values. 66.67% NDs. Report alpha = 0.2174. Individual comparison alpha = 0.04784. Most recent point for each compliance well compared to limit. After outlier removal distribution was non-normal, so outlier results were invalidated. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Lead Analysis Run 1/19/2023 9:58 AM

Big Rivers Electric Corporation Client: BREC Data: Green LF All Data

Exceeds Limit: MW-3A, MW-4, MW-5, MW-6

### Prediction Limit Interwell Parametric

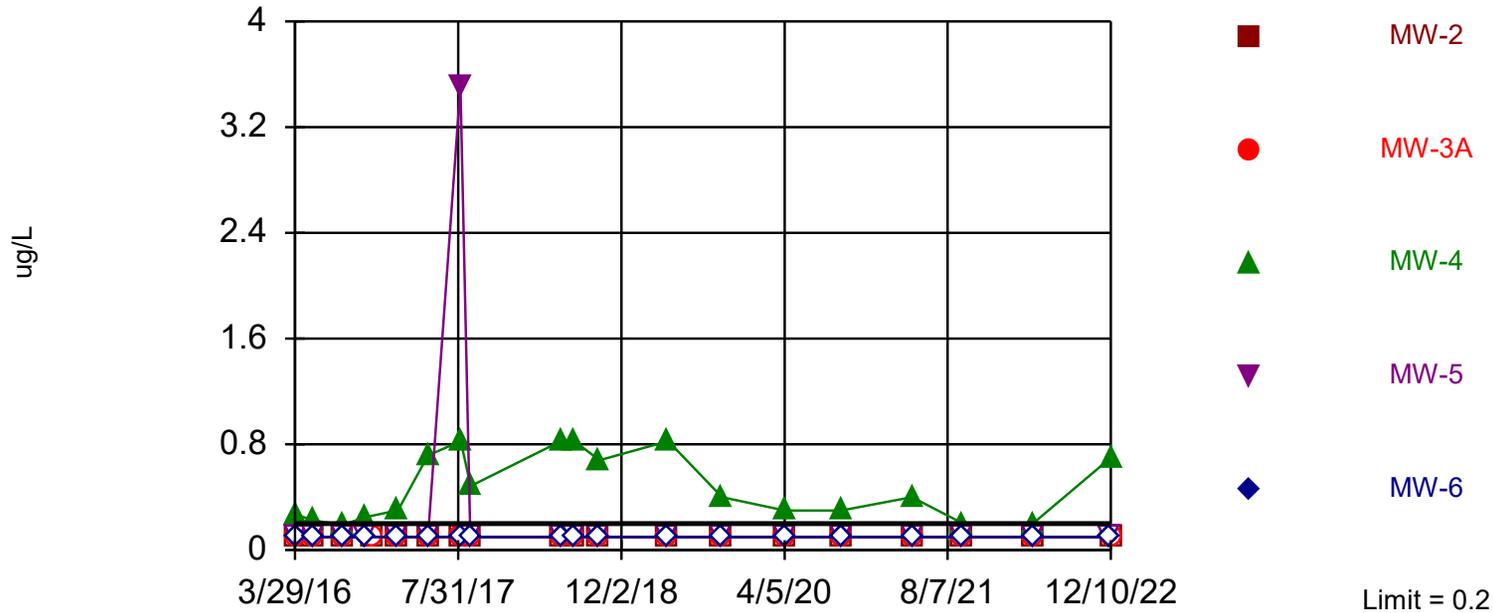


Background Data Summary (based on cube root transformation): Mean=0.3118, Std. Dev.=0.01064, n=19, 10.53% NDs. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9034, critical = 0.901. Report alpha = 0.04901. Individual comparison alpha = 0.01. Most recent point for each compliance well compared to limit. EPA 1989 outlier screening was performed on the background data. At least one background value was a statistical outlier but was below the user-set cutoff of 3 times the median. No background outliers were found.

Exceeds Limit: MW-4

## Prediction Limit

Interwell Non-parametric



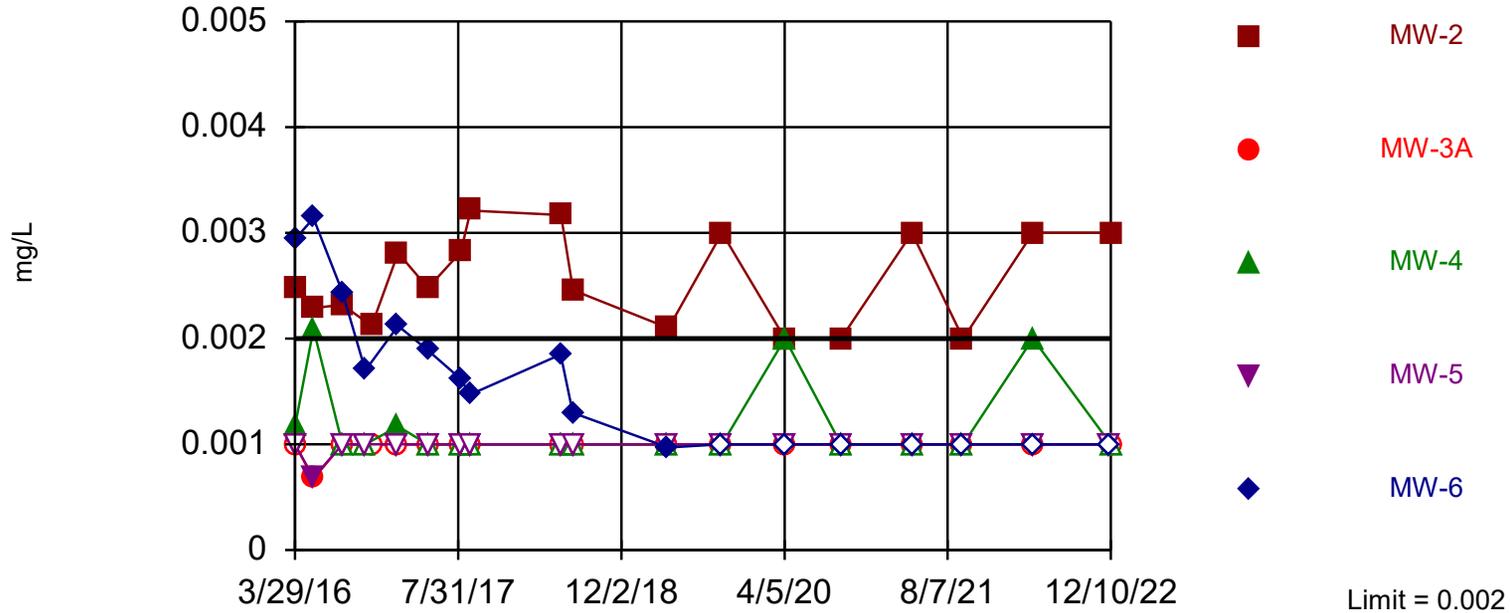
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 19 background values. 94.74% NDs. Report alpha = 0.2083. Individual comparison alpha = 0.04565. Most recent point for each compliance well compared to limit. Distribution was found to be non-normal after removal of suspect values, so outliers could not be identified. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Mercury Analysis Run 1/19/2023 9:58 AM  
Big Rivers Electric Corporation Client: BREC Data: Green LF All Data

Within Limit

### Prediction Limit

Interwell Non-parametric



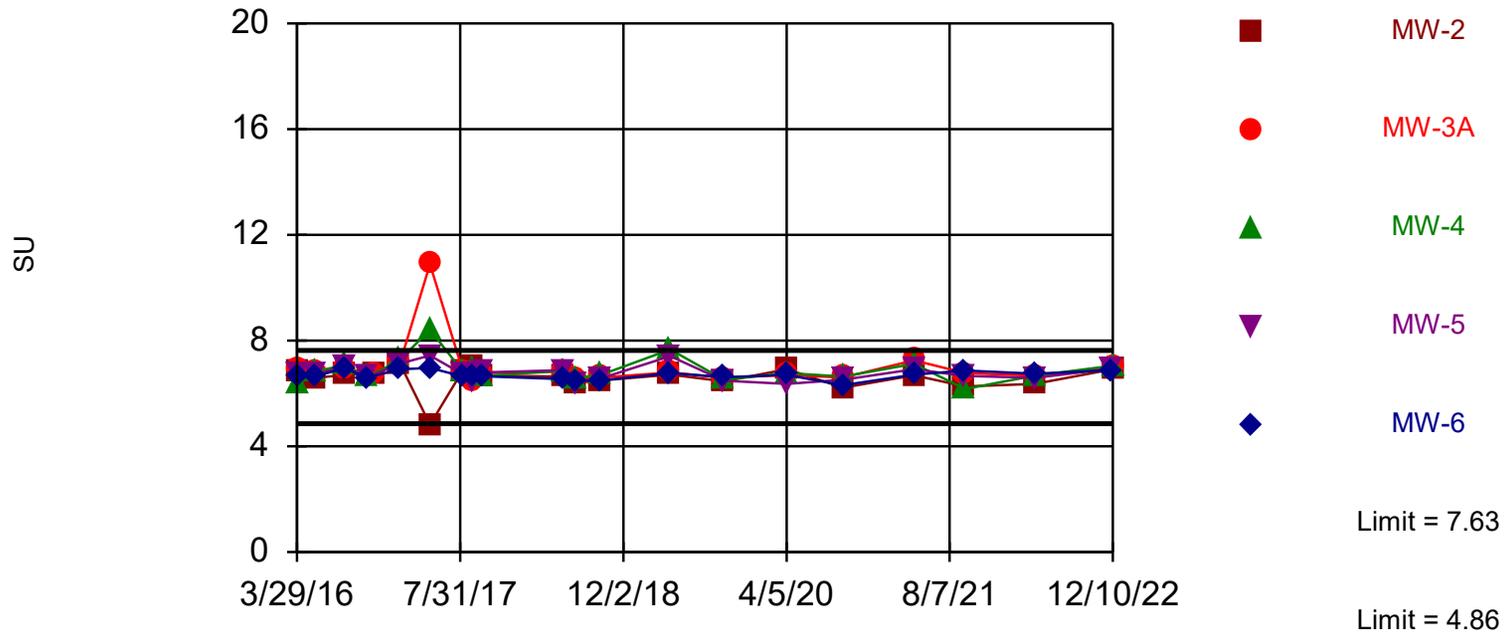
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.05 alpha level. Limit is highest of 18 background values. 44.44% NDs. Report alpha = 0.2174. Individual comparison alpha = 0.04784. Most recent point for each compliance well compared to limit. Distribution was found to be non-normal after removal of suspect values, so outliers could not be identified. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Molybdenum Analysis Run 1/19/2023 9:58 AM  
Big Rivers Electric Corporation Client: BREC Data: Green LF All Data

Within Limits

### Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.05 alpha level. Limits are highest and lowest of 20 background values. Report alpha = 0.4. Individual comparison alpha = 0.0873. Most recent point for each compliance well compared to limit. Distribution was found to be non-normal after removal of suspect values, so outliers could not be identified. Insufficient data to test for seasonality; data will not be deseasonalized.

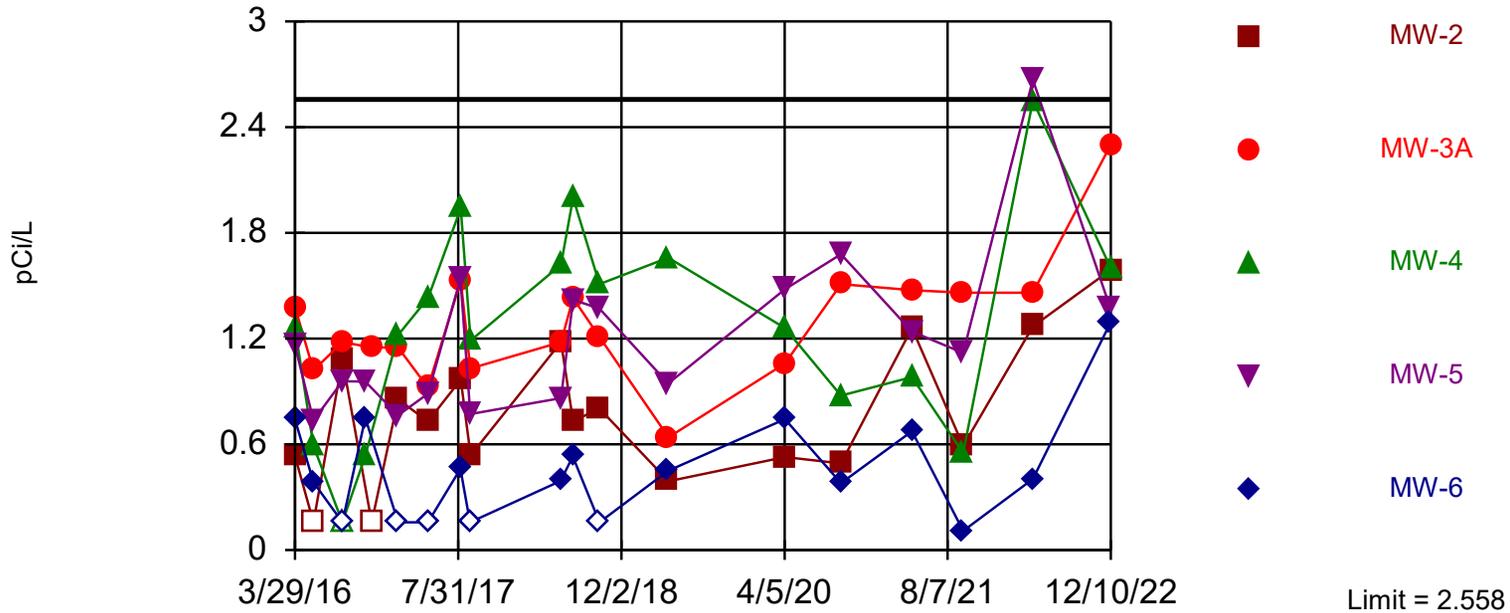
Constituent: pH [Field] Analysis Run 1/19/2023 9:58 AM

Big Rivers Electric Corporation Client: BREC Data: Green LF All Data

Within Limit

## Prediction Limit

Interwell Parametric



Background Data Summary (based on square root transformation): Mean=0.9651, Std. Dev.=0.2405, n=18. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9153, critical = 0.897. Report alpha = 0.04901. Individual comparison alpha = 0.01. Most recent point for each compliance well compared to limit. EPA 1989 outlier screening was performed on the background data. No background outliers were found.

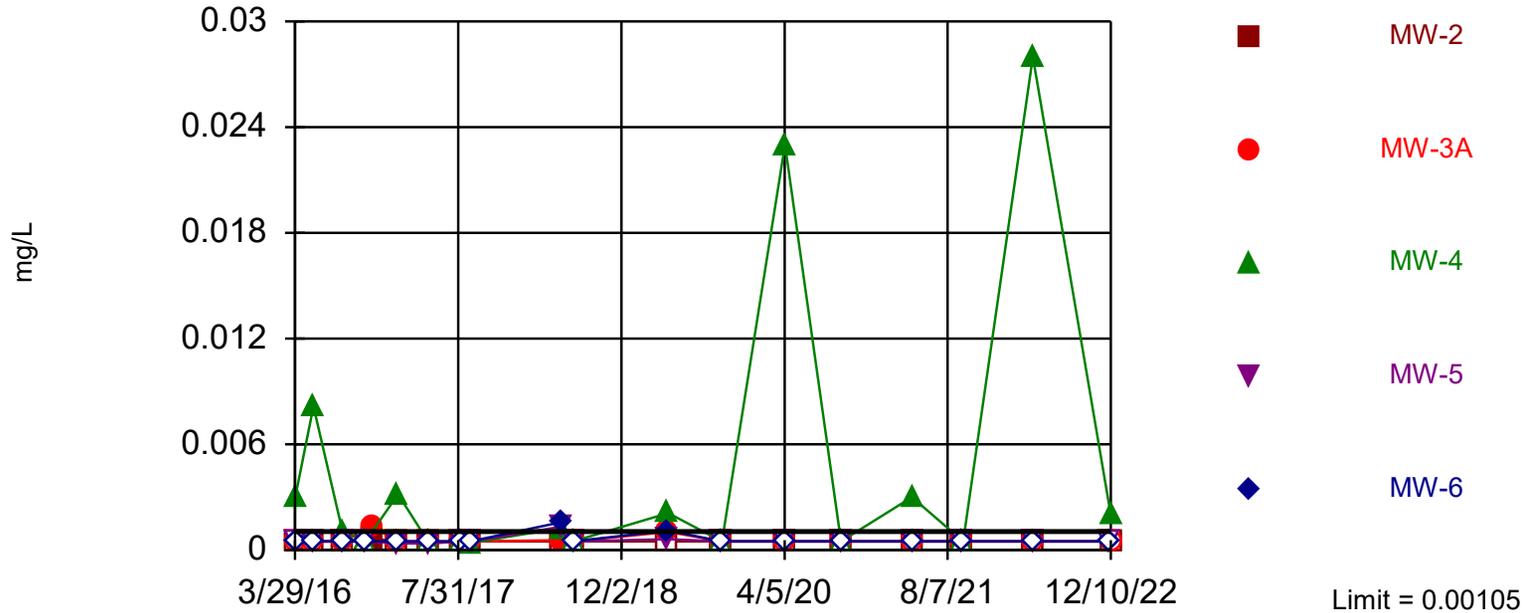
Constituent: Radium 226 + 228 Analysis Run 1/19/2023 9:58 AM

Big Rivers Electric Corporation Client: BREC Data: Green LF All Data

Within Limit

### Prediction Limit

Interwell Non-parametric

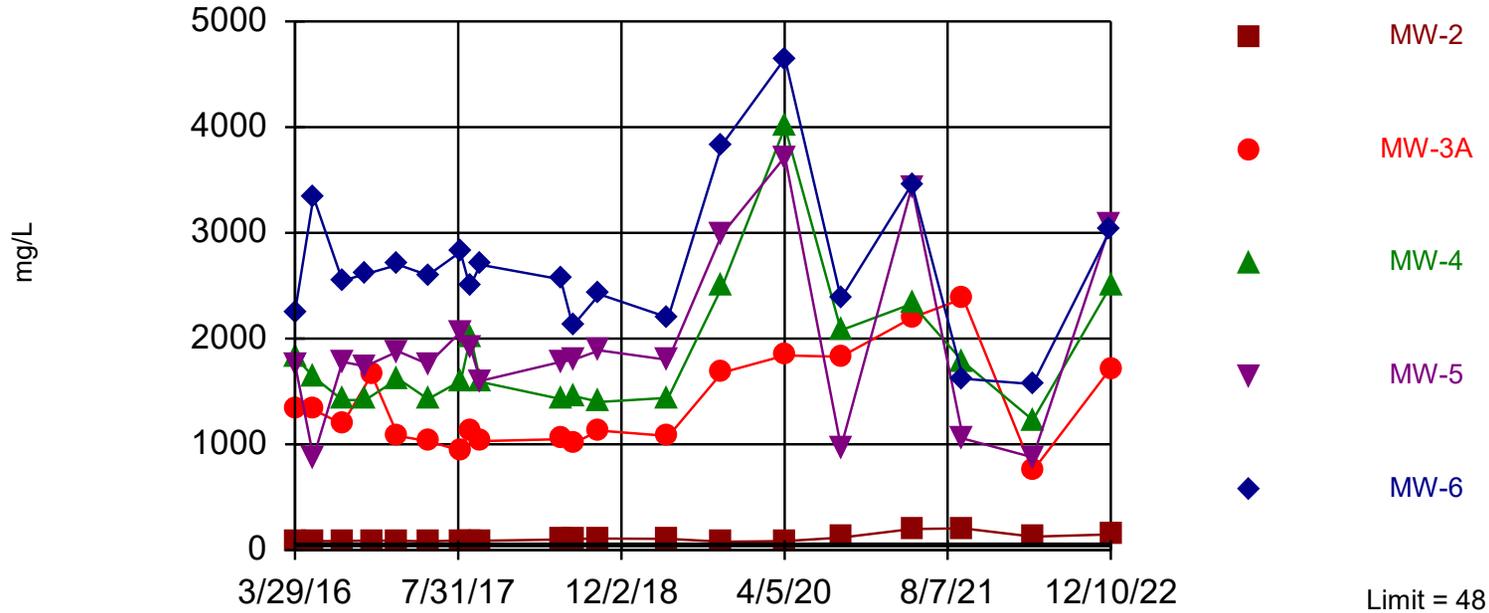


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 18 background values. 88.89% NDs. Report alpha = 0.2174. Individual comparison alpha = 0.04784. Most recent point for each compliance well compared to limit. Distribution was found to be non-normal after removal of suspect values, so outliers could not be identified. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Selenium Analysis Run 1/19/2023 9:58 AM  
Big Rivers Electric Corporation Client: BREC Data: Green LF All Data

Exceeds Limit: MW-2, MW-3A, MW-4, MW-5, MW-6

### Prediction Limit Interwell Non-parametric



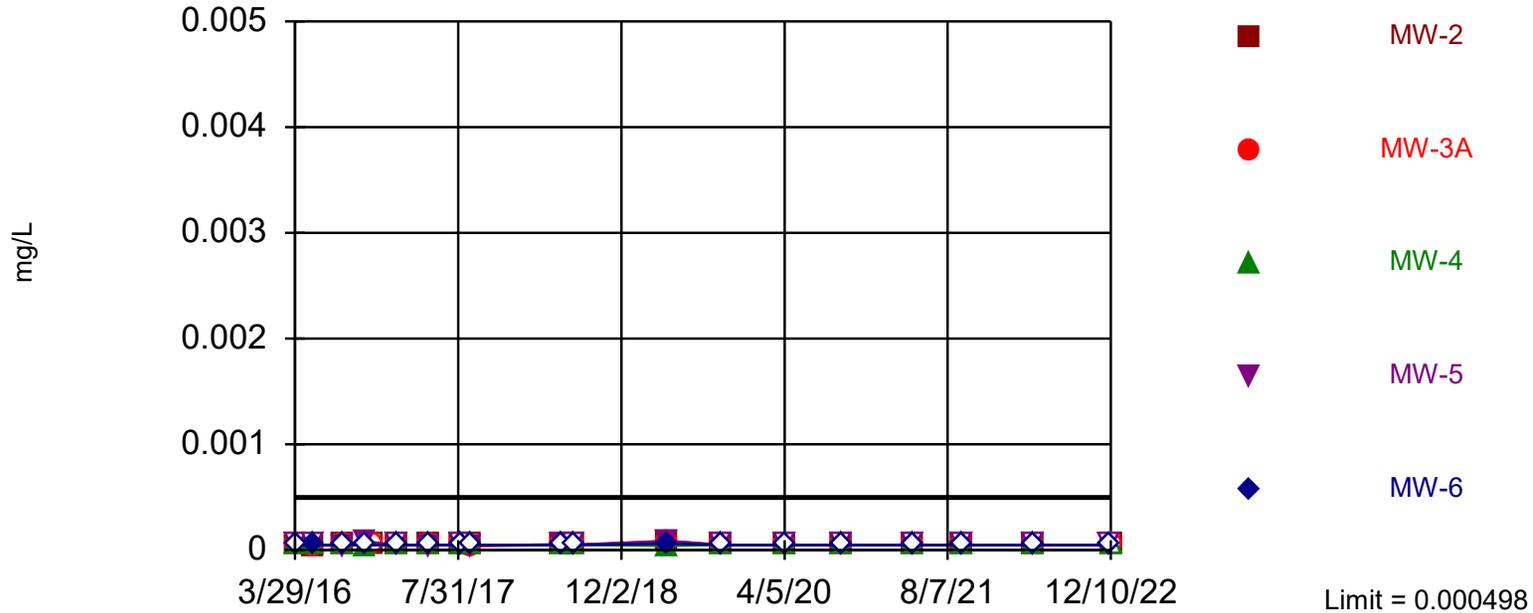
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.05 alpha level. Limit is highest of 20 background values. Report alpha = 0.2. Individual comparison alpha = 0.04365. Most recent point for each compliance well compared to limit. Distribution was found to be non-normal after removal of suspect values, so outliers could not be identified. Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Sulfate Analysis Run 1/19/2023 9:58 AM  
Big Rivers Electric Corporation Client: BREC Data: Green LF All Data

Within Limit

### Prediction Limit

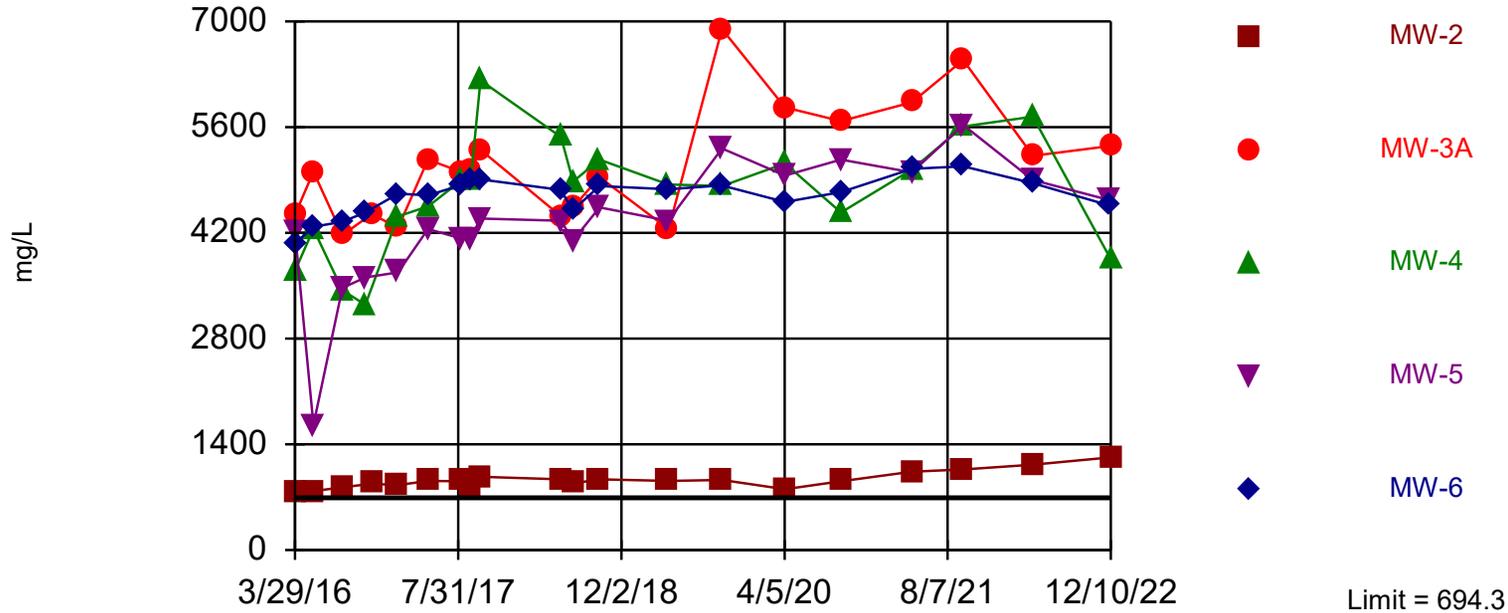
Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 18 background values. 61.11% NDs. Report alpha = 0.2174. Individual comparison alpha = 0.04784. Most recent point for each compliance well compared to limit. After outlier removal distribution was non-normal, so outlier results were invalidated. Insufficient data to test for seasonality; data will not be deseasonalized.

Exceeds Limit: MW-2, MW-3A, MW-4, MW-5, MW-6

### Prediction Limit Interwell Parametric



Background Data Summary (based on  $x^4$  transformation): Mean= $1.2e11$ , Std. Dev.= $4.3e10$ ,  $n=20$ . Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @ $\alpha = 0.05$ , calculated = 0.9088, critical = 0.905. Report  $\alpha = 0.04901$ . Individual comparison  $\alpha = 0.01$ . Most recent point for each compliance well compared to limit. Distribution was found to be non-normal after removal of suspect values, so outliers could not be identified.

Constituent: Total Dissolved Solids    Analysis Run 1/19/2023 9:58 AM  
 Big Rivers Electric Corporation    Client: BREC    Data: Green LF All Data

# Confidence Interval

Big Rivers Electric Corporation    Client: BREC    Data: Green LF All Data    Printed 1/20/2023, 7:44 AM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Arsenic (mg/L)	MW-1 (bg)	0.0008695	0.0005051	0.01	No	19	10.53	ln(x)	0.05	Param.
<b>Arsenic (mg/L)</b>	<b>MW-2</b>	<b>0.02273</b>	<b>0.01213</b>	<b>0.01</b>	<b>Yes</b>	<b>19</b>	<b>0</b>	<b>sqrt(x)</b>	<b>0.05</b>	<b>Param.</b>
Arsenic (mg/L)	MW-3A	0.000574	0.0002	0.01	No	19	42.11	No	0.05	NP (normality)
Arsenic (mg/L)	MW-4	0.000449	0.0002	0.01	No	19	47.37	No	0.05	NP (normality)
Arsenic (mg/L)	MW-5	0.000424	0.0002	0.01	No	19	42.11	No	0.05	NP (normality)
Arsenic (mg/L)	MW-6	0.000553	0.0002	0.01	No	19	42.11	No	0.05	NP (normality)
Barium (mg/L)	MW-1 (bg)	0.08478	0.0788	2	No	19	0	No	0.05	Param.
Barium (mg/L)	MW-2	0.3431	0.3066	2	No	19	0	x^4	0.05	Param.
Barium (mg/L)	MW-3A	0.0462	0.0434	2	No	19	0	No	0.05	Param.
Barium (mg/L)	MW-4	0.02796	0.02426	2	No	19	0	x^2	0.05	Param.
Barium (mg/L)	MW-5	0.016	0.0135	2	No	19	0	No	0.05	NP (normality)
Barium (mg/L)	MW-6	0.01153	0.01001	2	No	19	0	No	0.05	Param.
Lithium (mg/L)	MW-1 (bg)	0.03157	0.0291	0.04	No	19	10.53	x^(1/3)	0.05	Param.
Lithium (mg/L)	MW-2	0.025	0.007	0.04	No	19	47.37	No	0.05	NP (normality)
<b>Lithium (mg/L)</b>	<b>MW-3A</b>	<b>0.7361</b>	<b>0.6783</b>	<b>0.04</b>	<b>Yes</b>	<b>19</b>	<b>0</b>	<b>No</b>	<b>0.05</b>	<b>Param.</b>
<b>Lithium (mg/L)</b>	<b>MW-4</b>	<b>1.567</b>	<b>1.266</b>	<b>0.04</b>	<b>Yes</b>	<b>19</b>	<b>5.263</b>	<b>x^2</b>	<b>0.05</b>	<b>Param.</b>
<b>Lithium (mg/L)</b>	<b>MW-5</b>	<b>0.4182</b>	<b>0.3618</b>	<b>0.04</b>	<b>Yes</b>	<b>19</b>	<b>0</b>	<b>x^2</b>	<b>0.05</b>	<b>Param.</b>
<b>Lithium (mg/L)</b>	<b>MW-6</b>	<b>0.05735</b>	<b>0.05094</b>	<b>0.04</b>	<b>Yes</b>	<b>19</b>	<b>0</b>	<b>No</b>	<b>0.05</b>	<b>Param.</b>
Mercury (ug/L)	MW-1 (bg)	0.1	0.1	2	No	19	94.74	No	0.05	NP (NDs)
Mercury (ug/L)	MW-2	0.1	0.1	2	No	19	100	No	0.05	NP (NDs)
Mercury (ug/L)	MW-3A	0.1	0.1	2	No	19	100	No	0.05	NP (NDs)
Mercury (ug/L)	MW-4	0.7	0.27	2	No	19	0	No	0.05	NP (normality)
Mercury (ug/L)	MW-5	0.1	0.1	2	No	19	94.74	No	0.05	NP (NDs)
Mercury (ug/L)	MW-6	0.1	0.1	2	No	19	100	No	0.05	NP (NDs)

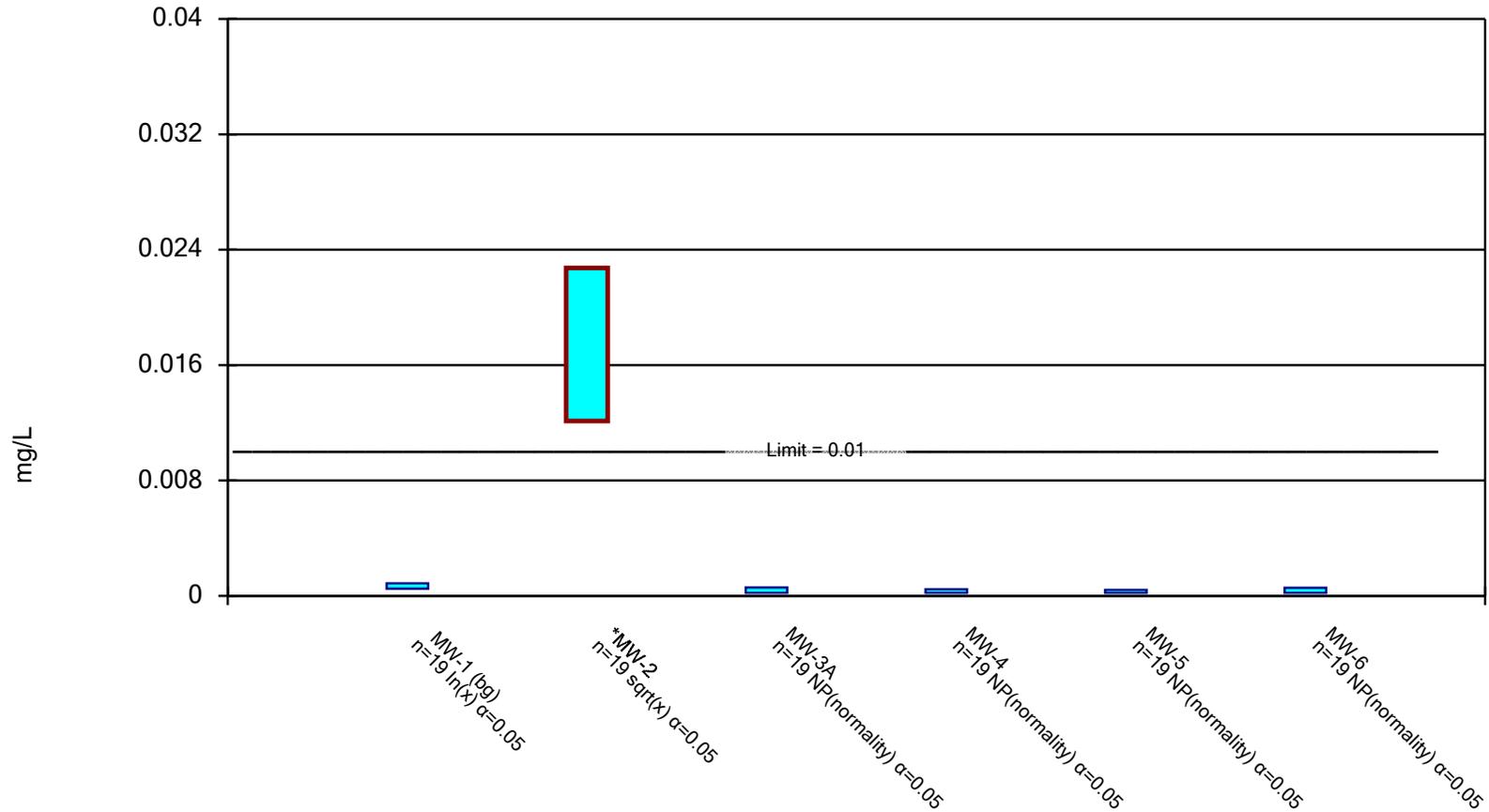
# Confidence Interval

Big Rivers Electric Corporation Client: BREC Data: Green LF All Data Printed 1/20/2023, 7:44 AM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Arsenic (mg/L)	MW-2	0.02273	0.01213	0.01	Yes	19	0	sqrt(x)	0.05	Param.
Lithium (mg/L)	MW-3A	0.7361	0.6783	0.04	Yes	19	0	No	0.05	Param.
Lithium (mg/L)	MW-4	1.567	1.266	0.04	Yes	19	5.263	x^2	0.05	Param.
Lithium (mg/L)	MW-5	0.4182	0.3618	0.04	Yes	19	0	x^2	0.05	Param.
Lithium (mg/L)	MW-6	0.05735	0.05094	0.04	Yes	19	0	No	0.05	Param.

## Parametric and Non-Parametric (NP) Confidence Interval

Compliance limit is exceeded.\* Normality Test: Shapiro Wilk, alpha based on n.

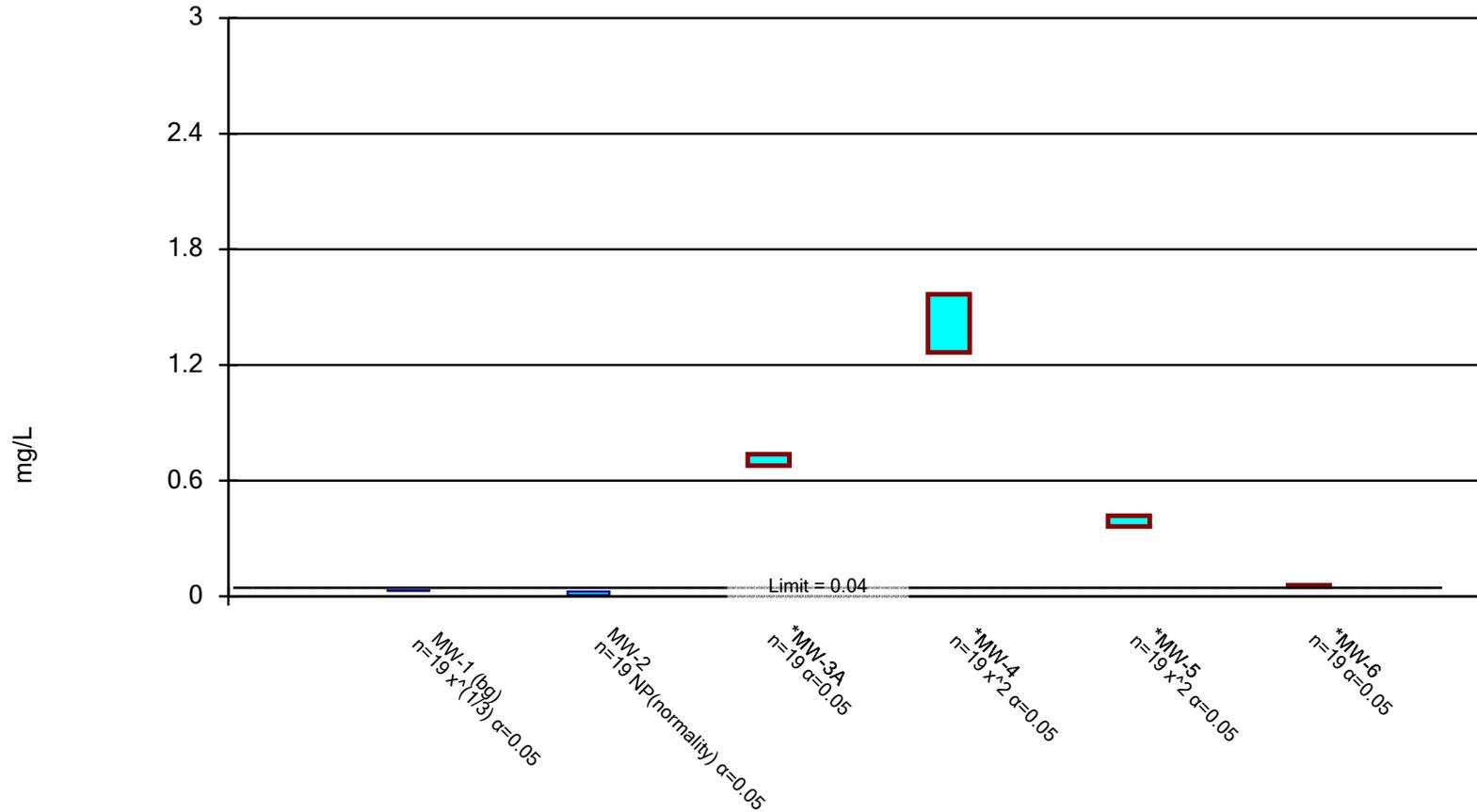


Constituent: Arsenic Analysis Run 1/20/2023 7:44 AM

Big Rivers Electric Corporation Client: BREC Data: Green LF All Data

## Parametric and Non-Parametric (NP) Confidence Interval

Compliance limit is exceeded.\* Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Lithium Analysis Run 1/20/2023 7:44 AM

Big Rivers Electric Corporation Client: BREC Data: Green LF All Data

**APPENDIX J – GREEN SURFACE IMPOUNDMENT  
STATISTICAL EVALUATIONS**



January 20, 2023

Mr. Mark Bertram  
Big Rivers Electric Corporation  
8000 Highway 2096  
Robards, KY 42452

Re: Statistical Evaluation of April 2022 Assessment Monitoring Groundwater Data  
Sebree Generating Station Green Surface Impoundment in Robards, Kentucky  
Agency Interest ID #: 4196

Dear Mr. Mizell:

This letter presents the results of the statistical evaluation of analytical data from the April 2022 detection monitoring event at the Sebree Generating Station's Green Surface Impoundment in Webster County, Robards, Kentucky in accordance with the requirements of U.S. Environmental Protection Agency's *Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments (40 Code of Federal Regulations [CFR] Part 257, Subpart D)*. No historical statistically significant increases (SSIs) for Appendix III parameters are on record for this CCR unit under the detection monitoring program, and therefore, the establishment of calculated groundwater protection standards were not required as a part of the statistical evaluation completed for previous sampling events. The statistical evaluation presented herein for the April 2022 sampling event was performed in accordance with the *Groundwater Monitoring System and Statistical Methods* document prepared by Associated Engineers, Inc. and dated June 28, 2016.

In April 2022, the Green Surface Impoundment groundwater monitoring well network was in detection monitoring and was sampled for Appendix III parameters per the requirements of 40 CFR §257.94(a). Interwell prediction limit statistical analyses were performed for these well/constituent pairs and are discussed subsequently. This letter presents the results of the statistical evaluation of the April 2022 detection monitoring event for inclusion in the Sebree Generating Station Operating Record.

### **Statistical Evaluation of Green Surface Impoundment Compliance Monitoring Well Network Evaluation**

An interwell prediction limit evaluation was performed to compare the concentrations of the Appendix III parameters observed in April 2022 compliance (downgradient) monitoring wells MW-12, MW-13, and MW-14 to calculated prediction limits (i.e., background limits) that were established using data collected from April of 2016 through April of 2022 from upgradient monitoring well MW-11. A comparison of the April 2022 data to the updated background limits is presented on Table 1. No Appendix III parameters were detected from downgradient compliance wells in April 2022 at concentrations above the calculated background limits (equivalent to the MW-11 prediction limits), and a summary of the statistical evaluation is

Mr. Mark Bertram  
Big Rivers Electric Corporation  
January 20, 2023  
Page 2

included in Attachment 1. These results are consistent with the previous 2018 through 2021 semi-annual statistical evaluations.

Given that none of the Appendix III constituents exhibited concentrations above their respective calculated background limit (i.e., no SSIs identified) at the Green Surface Impoundment groundwater monitoring network, further statistical evaluation was not required and the CCR unit will continue detection monitoring per the requirements of 40 CFR §257.94 for the next 2022 sampling event.

Sincerely,

Burns & McDonnell Engineering Company, Inc.



Chris Hوجلund, PG  
Project Manager

Attachments:

Table 1 – Summary of April 2022 Analytical Results

Attachment 1 – Sanitas™ Statistical Outputs

cc: Greg Dick, BREC Sebree Station

**TABLE**

**TABLE 1**  
**Green Surface Impoundment - April 2022 Analytical Summary**  
**Sebree Generating Station**

APPENDIX III CONSTITUENTS	2022 Calculated Background <sup>1</sup>	Units	MW-11		MW-12		MW-13		MW-14			
			4/21/2022		4/21/2022		4/21/2022		4/21/2022			
			Background Well		Downgradient Compliance Well							
			Detection Monitoring									
Boron	1.16	mg/L	0.84	M1	0.31		<0.10	U	0.16			
Calcium	404.8	mg/L	315	D1,M3	93.6	D1	91.4	D1	181	D,D1		
Chloride	4,046	mg/L	2900	D	11.1		25.3		159	D		
Fluoride	0.891	mg/L	0.2		0.4		0.2		0.3			
pH (Field Measurement)	6.33 - 7.59	s.u.	6.85		6.77		6.61		6.52			
Sulfate	2,010	mg/L	1710	D	4	J	93		286	D		
Total Dissolved Solids	5,419	mg/L	4760		582	J+	676	J+	1230			

**Notes:**

1. Background values calculated from upgradient MW-11 data from 2016 through April 2022.

U = Target analyte was analyzed for, but was below detection limit

D = Results reported from dilution

D1 = Sample required dilution due to high concentration of target analysis

M1 = Matrix spike recovery was high; the method control sample recovery was acceptable

M3 = The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.

**ATTACHMENT 1 - SANITAS™ STATISTICAL OUTPUTS**

# Prediction Limit

Big Rivers Electric Corporation Client: BREC Data: Green SI All Data Printed 1/19/2023, 1:08 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bg N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Boron (mg/L)	MW-12	1.16	n/a	4/21/2022	0.31	No	18	16.67	No	0.01	Param Inter
Boron (mg/L)	MW-13	1.16	n/a	4/21/2022	0.5ND	No	18	16.67	No	0.01	Param Inter
Boron (mg/L)	MW-14	1.16	n/a	4/21/2022	0.16	No	18	16.67	No	0.01	Param Inter
Calcium (mg/L)	MW-12	404.8	n/a	4/21/2022	93.6	No	18	0	No	0.01	Param Inter
Calcium (mg/L)	MW-13	404.8	n/a	4/21/2022	91.4	No	18	0	No	0.01	Param Inter
Calcium (mg/L)	MW-14	404.8	n/a	4/21/2022	181	No	18	0	No	0.01	Param Inter
Chloride (mg/L)	MW-12	4064	n/a	4/21/2022	11.1	No	18	0	sqrt(x)	0.01	Param Inter
Chloride (mg/L)	MW-13	4064	n/a	4/21/2022	25.3	No	18	0	sqrt(x)	0.01	Param Inter
Chloride (mg/L)	MW-14	4064	n/a	4/21/2022	159	No	18	0	sqrt(x)	0.01	Param Inter
Fluoride (mg/L)	MW-12	0.891	n/a	4/21/2022	0.4	No	18	11.11	n/a	0.05009	NP Inter (normality)
Fluoride (mg/L)	MW-13	0.891	n/a	4/21/2022	0.2	No	18	11.11	n/a	0.05009	NP Inter (normality)
Fluoride (mg/L)	MW-14	0.891	n/a	4/21/2022	0.3	No	18	11.11	n/a	0.05009	NP Inter (normality)
pH [Field] (SU)	MW-12	7.597	6.33	4/21/2022	6.77	No	18	0	No	0.005	Param Inter
pH [Field] (SU)	MW-13	7.597	6.33	4/21/2022	6.61	No	18	0	No	0.005	Param Inter
pH [Field] (SU)	MW-14	7.597	6.33	4/21/2022	6.52	No	18	0	No	0.005	Param Inter
Sulfate (mg/L)	MW-12	2010	n/a	4/21/2022	4	No	18	0	No	0.01	Param Inter
Sulfate (mg/L)	MW-13	2010	n/a	4/21/2022	93	No	18	0	No	0.01	Param Inter
Sulfate (mg/L)	MW-14	2010	n/a	4/21/2022	286	No	18	0	No	0.01	Param Inter
Total Dissolved Solids (mg/L)	MW-12	5419	n/a	4/21/2022	582	No	18	0	x^6	0.01	Param Inter
Total Dissolved Solids (mg/L)	MW-13	5419	n/a	4/21/2022	676	No	18	0	x^6	0.01	Param Inter
Total Dissolved Solids (mg/L)	MW-14	5419	n/a	4/21/2022	1230	No	18	0	x^6	0.01	Param Inter



January 20, 2023

Mr. Mark Bertram  
Big Rivers Electric Corporation  
8000 Highway 2096  
Robards, KY 42452

Re: Statistical Evaluation of October 2022 Assessment Monitoring Groundwater Data  
Sebree Generating Station Green Surface Impoundment in Robards, Kentucky  
Agency Interest ID #: 4196

Dear Mr. Bertram:

This letter presents the results of the statistical evaluation of analytical data from the October 2022 detection monitoring event at the Sebree Generating Station's Green Surface Impoundment in Webster County, Robards, Kentucky in accordance with the requirements of U.S. Environmental Protection Agency's *Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments (40 Code of Federal Regulations [CFR] Part 257, Subpart D)*. No historical statistically significant increases (SSIs) are on record for this CCR Unit under the detection monitoring program, and therefore, the establishment of calculated groundwater protection standards were not required as a part of the statistical evaluation completed for previous sampling events. The statistical evaluation presented herein for the October 2022 sampling event was performed in accordance with the *Groundwater Monitoring System and Statistical Methods* document prepared by Associated Engineers, Inc. and dated June 28, 2016.

In October 2022, the Green Surface Impoundment groundwater monitoring well network was sampled for Appendix III parameters per the requirements of 40 CFR §257.94(a). Interwell prediction limit statistical analyses were performed for these well/constituent pairs and are discussed subsequently. This letter presents the results of the statistical evaluation of the October 2022 detection monitoring event for inclusion in the Sebree Generating Station Operating Record.

### **Statistical Evaluation of Sebree Green Surface Impoundment Compliance Monitoring Well Network Evaluation**

An interwell prediction limit evaluation was performed to compare the concentrations of the Appendix III parameters observed in October 2022 compliance (downgradient) monitoring wells MW-12, MW-13, and MW-14 to calculated prediction limits (i.e., background limits) that were established using data collected from April of 2016 through October of 2022 from upgradient monitoring well MW-11. A comparison of the October 2022 data to the updated background limits is presented on Table 1. No Appendix III parameters were detected from downgradient compliance wells in October 2022 at concentrations above the calculated background limits (equivalent to the MW-11 prediction limits), and a summary of the statistical evaluation is

Mr. Mark Bertram  
Big Rivers Electric Corporation  
January 20, 2023  
Page 2

included in Attachment 1. These results are consistent with the previous 2018 through 2021 semi-annual statistical evaluations and the statistical evaluation for April 2022.

Given that none of the Appendix III constituents exhibited concentrations above their respective calculated background limit (i.e., no SSIs identified) at the Green Surface Impoundment groundwater monitoring network, further statistical evaluation was not required and the CCR unit will continue detection monitoring per the requirements of 40 CFR §257.94 for the next 2023 sampling event.

Sincerely,

Burns & McDonnell Engineering Company, Inc.



Chris Hoglund, PG  
Project Manager

Attachments:

Table 1 – Summary of October 2022 Analytical Results

Attachment 1 – Sanitas™ Statistical Outputs

cc: Greg Dick, BREC Wilson Station

**TABLE**

**TABLE 1**  
**Green Surface Impoundment - October 2022 Analytical Summary**  
**Sebree Generating Station**

APPENDIX III CONSTITUENTS	2022 Calculated Background <sup>1</sup>	Units	MW-11		MW-12		MW-13		MW-14			
			10/1/2022		10/1/2022		10/1/2022		10/1/2022			
			Background Well		Downgradient Compliance Well							
			Detection Monitoring									
Boron	1.146	mg/L	0.71	M2	0.27		<0.10	U	0.14			
Calcium	403.6	mg/L	339	D1,M3	87.2	D1	94.9	D1	200	D1		
Chloride	3,914	mg/L	2900	D	15.7		23.2		137	D		
Fluoride	0.891	mg/L	0.2		0.4		0.2		0.3			
pH (Field Measurement)	6.35 - 7.59	s.u.	7.13		7.30		6.88		6.99			
Sulfate	2,007	mg/L	1450	D	41		87		178			
Total Dissolved Solids	5,405	mg/L	4850		684		840		1060			

**Notes:**

1. Background values calculated from upgradient MW-11 data from 2016 through October 2022.

U = Target analyte was analyzed for, but was below detection limit

D = Results reported from dilution

D1 = Sample required dilution due to high concentration of target analysis

M2 = Matrix spike recovery was low; the method control sample recovery was acceptable method

control sample recovery was acceptable.

**ATTACHMENT 1 - SANITAS™ STATISTICAL OUTPUTS**

# Prediction Limit

Big Rivers Electric Corporation Client: BREC Data: Green SI All Data Printed 1/19/2023, 1:10 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bg N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Boron (mg/L)	MW-12	1.146	n/a	10/1/2022	0.27	No	19	15.79	No	0.01	Param Inter
Boron (mg/L)	MW-13	1.146	n/a	10/1/2022	0.5ND	No	19	15.79	No	0.01	Param Inter
Boron (mg/L)	MW-14	1.146	n/a	10/1/2022	0.14	No	19	15.79	No	0.01	Param Inter
Calcium (mg/L)	MW-12	403.6	n/a	10/1/2022	87.2	No	19	0	No	0.01	Param Inter
Calcium (mg/L)	MW-13	403.6	n/a	10/1/2022	94.9	No	19	0	No	0.01	Param Inter
Calcium (mg/L)	MW-14	403.6	n/a	10/1/2022	200	No	19	0	No	0.01	Param Inter
Chloride (mg/L)	MW-12	3914	n/a	10/1/2022	15.7	No	19	0	No	0.01	Param Inter
Chloride (mg/L)	MW-13	3914	n/a	10/1/2022	23.2	No	19	0	No	0.01	Param Inter
Chloride (mg/L)	MW-14	3914	n/a	10/1/2022	137	No	19	0	No	0.01	Param Inter
Fluoride (mg/L)	MW-12	0.891	n/a	10/1/2022	0.4	No	19	10.53	n/a	0.04769	NP Inter (normality)
Fluoride (mg/L)	MW-13	0.891	n/a	10/1/2022	0.2	No	19	10.53	n/a	0.04769	NP Inter (normality)
Fluoride (mg/L)	MW-14	0.891	n/a	10/1/2022	0.3	No	19	10.53	n/a	0.04769	NP Inter (normality)
pH [Field] (SU)	MW-12	7.593	6.351	10/1/2022	7.3	No	19	0	No	0.005	Param Inter
pH [Field] (SU)	MW-13	7.593	6.351	10/1/2022	6.88	No	19	0	No	0.005	Param Inter
pH [Field] (SU)	MW-14	7.593	6.351	10/1/2022	6.99	No	19	0	No	0.005	Param Inter
Sulfate (mg/L)	MW-12	2007	n/a	10/1/2022	41	No	19	0	No	0.01	Param Inter
Sulfate (mg/L)	MW-13	2007	n/a	10/1/2022	87	No	19	0	No	0.01	Param Inter
Sulfate (mg/L)	MW-14	2007	n/a	10/1/2022	178	No	19	0	No	0.01	Param Inter
Total Dissolved Solids (mg/L)	MW-12	5405	n/a	10/1/2022	684	No	19	0	x^6	0.01	Param Inter
Total Dissolved Solids (mg/L)	MW-13	5405	n/a	10/1/2022	840	No	19	0	x^6	0.01	Param Inter
Total Dissolved Solids (mg/L)	MW-14	5405	n/a	10/1/2022	1060	No	19	0	x^6	0.01	Param Inter



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