2019

ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

COAL COMBUSTION RESIDUALS (CCR) RULE

SEBREE GENERATING STATION
HENDERSON AND WEBSTER COUNTIES, KENTUCKY

Prepared for:



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Executive Summary

This 2019 Annual Groundwater Monitoring and Corrective Action Report for the Big Rivers Electrical Corporation was prepared to address the requirements of Code of Federal Regulations (CFR) 40 CFR 257.90(e) of the United States Environmental Protection Agency (USEPA) Coal Combustion Residuals (CCR) rule, which requires the contents listed below with the appropriate report section reference identified in **bold type** for the corresponding content:

(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, Figure 3** and **Figure 4)**;

(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 **(For monitoring wells installed in 2019 see Appendix A and Appendix B No monitoring wells were decommissioned in 2019)**;

(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 a statistically significant increase (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 assessment of corrective measures [ACMs]) **(no other information was developed or reported in 2019 as noted in Section 2)**.

1.0 INTRODUCTION

At the request of Big Rivers Electric Corporation (BREC), AECOM Technical Services, Inc. (AECOM) prepared this 2019 Annual Groundwater Monitoring and Corrective Action Report for the BREC Sebree Generating Station (Sebree Station), located in Henderson and Webster Counties, Kentucky. This report was prepared in accordance with Part 257.90, Sub-Part (e) of the United States Environmental Protection Agency (USEPA) Coal Combustion Residuals (CCR) Rule. The CCR Rule was established to regulate the disposal of CCR produced by electricity generating facilities (USEPA, 2015).

This report summarizes activities conducted in 2019 related to the CCR Rule groundwater monitoring program at the following CCR units:

- **GREEN STATION LANDFILL (Webster County)**
- **GREEN STATION SURFACE IMPOUNDMENT (Webster County)**
- **REID/HENDERSON MUNICIPAL POWER & LIGHT (HMP&L) SURFACE IMPOUNDMENT (Henderson County)**

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.

As stated in the previous 2016-2018 Annual Groundwater Monitoring and Corrective Action Reports, statistical results of the Baseline groundwater data indicate that the Green Landfill and Reid/HMP&L Surface Impoundment would require initiation of Assessment Monitoring under the CCR Rule, as most or all of the Appendix III constituents have statistically significant increases (SSIs) over background as noted below.

- Appendix III parameters calcium (Ca), chloride (Cl), sulfate (SO4), and total dissolved solids (TDS) at the Green Landfill
- All Appendix III parameters at the Reid/HMP&L Surface Impoundment

On February 5, 2018, BREC posted a formal notification that the Green Landfill and Reid/HMP&L Surface Impoundment would enter into Assessment Monitoring Programs, fulfilling the requirement of 40 Code of Federal Regulations (CFR) Section 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.

1.1 Site Description

BREC owns and operates Sebree Station, which is a coal-fired power generating facility located on the Green River northeast of Sebree, Kentucky. Sebree Station is composed of Green Station and Reid/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 (66 Megawatts [MW]) began commercial operation in 1966 and it will be converted from coal to natural gas in the future. The Reid Combustion Turbine (72 MW) was commercialized in 1976. HMP&L Station 2, Units 1 (167 MW) and 2 (168 MW) began commercial operation in 1973 and 1974 respectively. Both HMP&L units were retired as of February 1, 2019. Green Station Units 1 (242 MW) and 2 (242 MW) began commercial operation in 1979 and 1981, respectively.

Sebree Station is houses three (3) disposal units regulated under the CCR Rule; Green Landfill, Green Surface Impoundment, and the and Reid/HMP&L Surface Impoundment. Each unit is discussed in more detail below.

1.1.1 Green Landfill

The Green Landfill is located directly south of the Sebree Station, situated south of the Green Station CCR Surface Impoundment. The landfill began receiving CCR wastes in 1980. The current Green Landfill footprint is approximately 170 acres.

As stated in the published CCR monitoring well network certification for this unit (Associated Engineering Inc., June 2016), the original ground surface within the landfill footprint was irregular and the predominant 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.

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 and is used for the placement of CCR material. The immediate watershed that drains to the CCR unit, and in which the CCR unit is considered to be located, is unnamed and 54.13 acres in size. The unnamed watershed discharges from the CCR surface impoundment outflow structure are routed and monitored under a Kentucky Pollution Discharge Elimination System (KPDES) permit, to the Green River.

As stated in the CCR monitoring well network certification for this unit (Associated Engineering Inc., June 2016), 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 to Green River. Most of the central portion of the south dike was constructed on a subdued ridge.

1.1.3 Reid/HMP&L Surface Impoundment

The Reid/HMP&L Surface Impoundment is located directly northwest and adjacent of the Sebree Station. The Reid/HMP&L Surface Impoundment has been in place for more than 40 years and was formerly used for the placement of CCR material. The immediate watershed that drains to the CCR unit, and in which the CCR unit is considered to be located, is unnamed and 25.45 acres in size. The unnamed watershed discharges from the CCR impoundment outflow structure and is routed, under a KPDES permit, to the Green River.

As stated in the CCR monitoring well network certification for this unit (Associated Engineering Inc., June 2016), the Reid/HMP&L 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 west dike has the greatest height reaching approximately 42 feet. The original terrain on which the pond was constructed generally sloped toward the west.

1.2 Green Landfill Program Monitoring Well Systems

1.2.1 Green Landfill 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 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 site. MW-1 is located northwest of the landfill and is considered upgradient. 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 the **Figure 2**. Each well has a dedicated bladder pump and tubing system installed for 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 Sebree Generating Station 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 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 member 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 2019**.

1.2.2 Green Landfill Characterization Monitoring Wells

To address the requirements of 40 CFR Section 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**. A *Groundwater Characterization Report* (AECOM, September 12, 2019), included herein as **Appendix A**, was prepared to summarize the well installation process and testing results.

The Characterization monitoring well, located at a downgradient position east of the 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 Program Monitoring Well Systems

Prior to implementation of the CCR Rule three (3) 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 upgradient and three (3) downgradient monitoring wells. A upgradient monitoring well (MW-11) was installed adjacent to, and northwest of the impoundment. 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 Green Surface Impoundment. 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 sampling purposes.

The stratigraphic interval considered as the most prominent water transmitting zone within and adjacent to the Sebree Generating Station is material identified as the Upper Sandstone Member (Sebree sandstone) of the Carbondale Formation. The USGS Geologic Map of the Robards Quadrangle 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 member 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 2019**.

Due to the lack of SSLs for the unit, no Characterization monitoring wells are required for the Green Surface Impoundment.

1.4 Reid/HMP&L Surface Impoundment Program Monitoring Well Systems

1.4.1 Reid/HMP&L Surface Impoundment Operating Permit Monitoring Wells

As stated in the CCR monitoring well network certification, prior to implementation of the CCR Rule, five (5) temporary piezometers (P-13/P-13A, P-14 and P-15/P-15A) were installed adjacent to and (respectively) northwest, southeast and southwest of the Reid/HMP&L Surface Impoundment to determine general direction of groundwater movement. Measured static water levels, from the highest to lowest elevation were observed in P-13/13A (highest), P-14 and P-15/P-15A (lowest) resulting in a calculated hydraulic gradient or apparent direction of groundwater movement generally from east-northeast to west-southwest. This groundwater gradient characterization allowed precise placement of monitoring wells for the CCR unit, thereby justifying the placement of the minimum of one upgradient and three (3) downgradient monitoring wells. The upgradient monitoring well (MW-7) was installed adjacent to, and east-northeast of the impoundment. The downgradient monitoring wells (MW-8, MW-9 and MW-10) were installed adjacent to, and respectively; west, southwest and south-southwest of the impoundment. As-built specifics of each well installation are summarized on **Table 3** The locations of the groundwater monitoring wells are shown on **Figure 4** Each well has a dedicated bladder pump system and tubing installed for sampling purposes.

The stratigraphic interval considered as the most prominent water transmitting zone within and adjacent to the Sebree Generating Station is material identified as the Upper Sandstone Member (Sebree sandstone) of the Carbondale Formation. The USGS Geologic Map of the Robards Quadrangle 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 USEPA Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule groundwater monitoring requirements; this sequence, and in particular the member sandstone intervals, is considered to be the uppermost aquifer underlying the Reid/HMP&L 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 2019**.

1.4.2 Reid/HMP&L Surface Impoundment Characterization Monitoring Wells

To address the requirements of 40 CFR Section 257.95(g)(1), one (1) Characterization monitoring wells (MW-110) was installed in February 2019 to characterize groundwater at locations indicated on **Figure 4**. As-built specifics of each well installation are summarized on **Table 3**. A *Groundwater Characterization Report* (AECOM, November 18, 2019), included herein as **Appendix B**, was prepared to summarize the well installation process and testing results.

The Characterization monitoring well, located at a downgradient position southwest of the 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.

2.0 2019 ACTIVITIES SUMMARY

The following subsections describe the activities that were performed in 2019 for the three (3) CCR units noted above related to each of their corresponding CCR Groundwater Monitoring Networks.

2.1 Groundwater Sampling

During 2019, the following monitoring events were performed at Sebree Station:

- Green Landfill: 2 Assessment groundwater monitoring events and three (3) Characterization groundwater monitoring events;
- Green Surface Impoundment: 2 Detection groundwater monitoring events; and
- Reid/HMP&L: 2 Assessment groundwater monitoring events and 3 Characterization groundwater monitoring events.

The following tables summarize the dates of each sampling event and the wells included in the events for each CCR unit.

Green Landfill			
Event Type	Sampling Event	Dates	Wells Sampled
Characterization	1	March 29,2019	Characterization (Downgradient) MW-104
Characterization	2	April 10,2019	Characterization (Downgradient) MW-104
Assessment	First-Half 2019	April 22-23, 2019	Background (Upgradient) MW-1 Downgradient MW-2, MW-3A, MW-4. MW-5, MW-6
Assessment	Second-Half 2019	September 30-October 1, 2019	Background (Upgradient) MW-1 Downgradient MW-2, MW-3A, MW-4. MW-5, MW-6
Characterization	3	October 25,2019	Characterization (Downgradient) MW-104

Green Surface Impoundment			
Event Type	Sampling Event	Dates	Wells Sampled
Detection	First-Half 2019	April 28-29, 2019	Background (Upgradient) MW-11 Downgradient MW-12, MW-13, MW-14
Detection	Second-Half 2019	October 3-4, 2019	Background (Upgradient) MW-11 Downgradient MW-12, MW-13, MW-14

Reid/HMP&L Surface Impoundment			
Event Type	Sampling Event	Dates	Wells Sampled
Characterization	1	March 29,2019	Characterization (Downgradient) MW-110
Characterization	2	April 10,2019	Characterization (Downgradient) MW-110
Assessment	First-Half 2019	May 2, 2019	Background (Upgradient) MW-7 Downgradient MW-8, MW-9, MW-10
Assessment	Second-Half 2019	October 16-17, 2019	Background (Upgradient) MW-7 Downgradient MW-8, MW-9, MW-10
Characterization	3	October 24,2019	Characterization (Downgradient) MW-110

Monitoring wells were sampled following low flow sampling techniques developed and incorporated into current operating permits which are maintained within the operating record at Sebree Station.

Groundwater sampling activities were performed by BREC personnel with all collected samples submitted to either Eurofins Test America, Inc. (Test America) in Nashville, Tennessee, or Pace Analytical Laboratory (Pace) in Madisonville, Kentucky, for analyses. Groundwater samples collected at the Green Landfill and Reid/HMP&L Surface Impoundment during Assessment and Characterization Monitoring events were analyzed for Appendix III and Appendix IV parameters, in accordance with 40 CFR Section 257.95(d)(1). Groundwater samples collected at the Green Surface Impoundment for the Detection Monitoring Event were analyzed for Appendix III parameters only, in accordance with 40 CFR Section 257.94(a).

No filtration of samples was conducted in either the field or laboratory procedures. Laboratory analyses were performed in accordance with approved USEPA methods.

2.2 Assessment of Corrective Measures

On December 6, 2018, BREC posted formal notifications that the Green Landfill and Reid/HMP&L Surface Impoundment would initiate Assessment of Corrective Measures (ACM) per 40 CFR Section 257.95(g)(5), fulfilling the requirement of 40 CFR Section 257.107(h)(7). Subsequently, notices of ACM initiation dated January 14, 2019 were posted to BREC's publicly-accessible CCR reporting website.

In June 2010 BREC finalized ACMs for the Green Landfill and Reid/HMP&L Surface Impoundment to identify applicable remedial technologies to address impacts in groundwater pursuant to Tile 40 CFR Section 257.96. Reports summarizing the results of the Green Landfill ACM (AECOM, June 2019) and Reid/HMP&L Surface Impoundment ACM were completed and placed in the BREC operating record on June 13, 2019. The ACM reports were posted to BREC's publicly-accessible CCR reporting website on July 11, 2019.

An ACM was not required for the Green Surface Impoundment.

3.0 DATA EVALUATION

3.1 Groundwater Flows

Water level data collected from each unit during the 2019 monitoring events are summarized on **Table 4** (Green Landfill), **Table 5** (Green Surface Impoundment), and **Table 6** (Reid/HMP&L 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 units and support the following analysis.

GREEN LANDFILL

Overall groundwater flow beneath the footprint of the Green Landfill is to the east and southeast towards the Green River located and Groves Creek (see **Figure 5**).

GREEN SURFACE IMPOUNDMENT

Overall groundwater flow beneath the footprint of the Green Surface Impoundment is to the east-southeast towards the Green River which is located east of the impoundment (see **Figure 6**).

REID/HMP&L SURFACE IMPOUNDMENT

Overall groundwater flow beneath the footprint of the Reid/HMP&L Surface Impoundment is to the southwest towards an unnamed tributary to Groves Creek located west-southwest of the impoundment (see **Figure 7**).

3.2 Sampling Results

During 2019, the following monitoring events were performed at Sebree Station:

- Green Landfill: 2 Assessment groundwater monitoring events and 3 Characterization groundwater monitoring events;
- Green Surface Impoundment: 2 Detection groundwater monitoring events; and
- Reid/HMP&L: 2 Assessment groundwater monitoring events and 3 Characterization groundwater monitoring events.

Results from the Assessment and Characterization monitoring events are summarized on the tables included in **Appendix C, Appendix D, and Appendix E** for each unit. Complete analytical laboratory reports are included in **Appendix F, Appendix G, and Appendix H** for each unit.

3.3 Statistical Evaluation

As part of previous Assessment Monitoring performed at Sebree Station, background and downgradient wells for each unit were sampled for Appendix IV constituents in 2018. In accordance with 40 CFR Section 257.95, groundwater protection standards (GWPS) were established for detected Appendix IV constituents. The 2018 Assessment Monitoring results indicated the presence of Statistically Significant Level (SSL) above the GWPS in the following monitoring wells:

- Green Landfill: lithium in monitoring wells MW-3A, MW-4 , MW-5, and MW-6 (see **Appendix C**); and
- Reid/HMP&L: lithium in monitoring well MW-10 (see **Appendix E**).

In 2018, the Green Surface Impoundment was not subject to Assessment Monitoring and therefore no SSL determination was required.

In accordance with 40 CFR Section 257.93(f), 40 CFR Section 257.93(h), and 40 CFR Section 257.95(d)(2), AECOM conducted a statistical evaluation of the 2019 Assessment groundwater data as part of developing this summary report to determine any SSIs over baseline concentrations for the Appendix III and Appendix IV parameters and any SSLs over established GWPS for detected Appendix IV parameters. Summaries of the 2019 statistical evaluation conducted on the Appendix III and assessment Appendix IV parameters is provided as **Appendix I**, **Appendix J**, and **Appendix K** for each unit. The results of each unit-specific evaluation are discussed below.

Statistical methods were chosen in accordance with 40 CFR Section 257.93(f), while the rationale behind why each method was selected is outlined the Statistical Methods Certification Document prepared for each unit dated June 28, 2016.

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 background monitoring well. For the Green landfill, monitoring well MW-1 is designated as the background well because it is located upgradient, whereas monitoring wells MW-2, MW-3A, MW-4, MW-5, and MW-6 are designated as compliance wells because they are located downgradient.

The statistical analysis results indicate that Appendix III constituents have SSIs over background (see **Appendix I**; **Table I3**):

- MW-2: calcium, chloride, sulfate, and total dissolved solids (TDS);
- MW-3A: calcium, chloride, and TDS;
- MW-4: calcium, chloride, and TDS;
- MW-5: boron, chloride, and TDS; and
- MW-6: calcium, chloride, pH (LPL,) and TDS.

Boron, fluoride, and pH did not have any verified SSIs over background. For MW-6, pH had a verified SSI below the background lower prediction limit (LPL). Based on these results, Assessment Monitoring is required to continue at the Unit on a semi-annual basis.

The statistical analysis results also indicate that the following Appendix IV constituents have SSIs over background (see **Appendix I**; **Table I4**):

- MW-2: arsenic and barium;
- MW-3A: lithium;
- MW-4: lithium and mercury;
- MW-5: lithium; and
- MW-6: lithium.

These constituents 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 using all of the Baseline, Detection, and Assessment monitoring results collected to date. For a constituent to be present at a SSL over the GWPS, its LCL must be greater than the GWPS. **Attachment I**, **Table I5** provides a summary of the LCLs and GWPS for arsenic, barium, mercury and lithium for the monitoring wells

identified above. The results indicate that lithium at monitoring wells MW-3A, MW-4, MW-5 and MW-6 (yellow highlights) are present at SSLs above the GWPS. The LCLs for the remaining wells and constituents are equal to or less than the GWPS and thus are not considered SSLs. A summary of the statistical evaluation conducted on the Appendix III and Assessment Appendix IV parameters for the Green Landfill is provided as **Appendix I**.

On December 6, 2018, BREC posted a formal notification that lithium in Appendix IV has been detected at SSLs above the established GWPS as required by 40 CFR Part 257.107(h)(6).

3.3.1 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, whereas monitoring wells MW-12, MW-13, and MW-14 are designated as compliance wells because they are located downgradient.

The statistical analysis results indicate that none of the Appendix III constituents (boron, calcium, chloride, fluoride, pH, sulfate or total dissolved solids [TDS]) have verified SSIs over their background UPL (see **Table J2**). In addition, pH does not have a verified SSI below its LPL. Based on these results, Assessment Monitoring is not currently required at the Green Surface Impoundment.

A summary of the statistical evaluations conducted on the Detection Appendix III parameters for the Green Surface Impoundment is provided as **Appendix J**.

3.3.3 Reid/HMP&L Surface Impoundment Statistical Evaluation

The Reid/HMP&L Surface Impoundment 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 background monitoring well. For the Reid/HMP&L Surface Impoundment, monitoring well MW-7 is designated as the background well because it is located upgradient of the impoundment, whereas monitoring wells MW-8, MW-9, and MW-10 are designated as compliance wells because they are located downgradient of the impoundment.

The statistical analysis results indicate that Appendix III constituents have SSIs over background (see **Appendix K**; **Table K3**):

- MW-8: boron, calcium, chloride, fluoride, sulfate, and TDS;
- MW-9: calcium, chloride, and TDS; and
- MW-10: boron, chloride, fluoride, pH (UPL), sulfate, and TDS.

Based on these results, Assessment Monitoring is required to continue at the Unit on a semi-annual basis.

The statistical analysis results also indicate that the following Appendix IV constituents have SSIs over background (see **Appendix K**; **Table K4**):

- MW-8: fluoride, and lithium;
- MW-9: barium, lithium, and radium-226+228; and
- MW-10: fluoride and lithium.

These constituents 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 using all of the Baseline, Detection, and Assessment monitoring results collected to date. For a constituent to be present at a SSL over the GWPS, its LCL must be greater than the GWPS. **Attachment K**, **Table K5** provides a summary of the LCLs and GWPS for barium, fluoride, lithium, and radium for the monitoring wells identified above. The results indicate that lithium at monitoring wells MW-10 (yellow highlight) is the only Appendix IV constituent present at SSLs above the GWPS. The LCLs for the remaining wells and constituents are equal to or less than the GWPS and thus are not considered SSLs. A summary of the statistical evaluation conducted on the Appendix III and Assessment Appendix IV parameters for the Reid/HMP&L surface Impoundment is provided as **Appendix K**.

On December 6, 2018, BREC posted a formal notification that lithium in Appendix IV has been detected at SSLs above the established GWPS as required by 40 CFR Part 257.107(h)(6)."

3.4 Conclusions

Based upon the statistical evaluation of Appendix III and Appendix IV parameters collected during Assessment Monitoring at the Green Landfill and Reid/HMP&L Surface Impoundment, BREC is required to continue Assessment Monitoring in 2020.

Based upon the statistical evaluation of Appendix III parameters collected during the Detection Monitoring period at the Green Surface Impoundment, BREC is required to continue semi-annual Detection Monitoring in 2020.

4.0 2020 PLANNED ACTIVITIES

The following subsection summarizes the upcoming actions planned for 2020.

4.1 Groundwater Monitoring

Continued Semi-Annual Assessment Monitoring of all operating permit monitoring wells for the Green Landfill and the Reid/HMP&L Surface Impoundment are planned for 2020.

Other planned activities for 2020 include two semi-annual Detection Monitoring sampling events and subsequent statistical evaluations for the Green Surface Impoundment.

4.2 Remedy Selection

As required by 40 CFR Section 257.97, BREC is in the process of selecting a remedy for groundwater impacts at the Green Landfill and the Reid/HMP&L Surface Impoundment.

Currently BREC considers four (4) potential corrective action alternatives as viable options to address groundwater impacts at the Green Landfill, while 3 potential corrective action alternatives are considered as viable options to address groundwater impacts at the Reid/HMP&L Surface Impoundment. To evaluate each alternative, additional data collection will likely be required. BREC is currently evaluating data collection needs in the following areas to assist with remedy selection:

1) Nature and Extent of impact – groundwater trends, influence of non-groundwater remedies, etc.
2) Physical Characteristics – available data on the physical characteristics of the landfill and the groundwater environment
3) Performance Modeling – data needed to develop digital models demonstrating the effectiveness of potential alternatives
4) Engineering – feasibility, cost estimates, etc.

BREC is working to establish a comprehensive list of data collection needs to proceed forward with remedy evaluation and anticipates providing additional data in future semi-annual remedy selection progress reports.

In Fall 2019, BREC constructed a series of collection trenches around the perimeter of the Green Landfill to address non-groundwater releases. The 2020 groundwater monitoring program will assist in evaluating the success of the non-groundwater release remedies and provide relevant and important information to be considered in the final groundwater remedy selection.

5.0 REFERENCES

AECOM, June 2019. Assessment of Corrective Measures Under the CCR Rule, Green Station CCR Landfill, Webster County, Kentucky.

AECOM, June 2019. Assessment of Corrective Measures Under the CCR Rule, CCR Surface Impoundment; Reid/HMP&L Station, Webster County, Kentucky.

Associated Engineers, Inc., June 28, 2016. CCR Impoundment Groundwater Monitoring System and Statistical Methods Assessment and Certification, Green Station CCR Surface Impoundment.

Associated Engineers, Inc., June 28, 2016. CCR Landfill Groundwater Monitoring System and Statistical Methods Assessment and Certification, Green Station CCR Landfill.

Associated Engineers, Inc., June 28, 2016. CCR Impoundment Groundwater Monitoring System and Statistical Methods Assessment and Certification, Reid/HMPL Station CCR Surface Impoundment.

FMSM Engineers, July 1997. Monitoring Well Completion Report, Special Waste Landfill Facility, R.D. Green Station, Webster County, Kentucky.

United States Environmental Protection Agency, 2015. 40 CFR Parts 257.90 to 257.98, Coal Combustion Residuals Rule.

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	Size / Type	Filter Pack Interval		Screened Interval		Bottom of Boring
		Lat	Long	TOIC (feet, NAD27)	GS (feet, NAD27)	(feet, TOIC)	(ID / Material)	(feet, GS, NAD27)		(feet, GS, NAD27)		(feet, GS)
Program Monitoring Wells								Top	Bottom	Top	Bottom	
MW-1 (8002-9625)	U / B	37.3817	-87.3030	423.23	420.2	45.5	4 inch / PVC	389.9	377.7	387.7	377.7	45
MW-2 (8002-9630)	D	37.3815	-87.3005	392.37	389.9	50.3	4 inch / PVC	354.1	342.1	352.1	342.1	49
MW-3A (8003-6430)	D	37.3806	-87.3005	386.48	380.7	41.3	4 inch / PVC	357.2	344.5	355.2	345.2	36.2
MW-4 (8002-9628)	D	37.3744	-87.3004	391.33	388.8	33.1	4 inch / PVC	370.2	358.2	368.2	358.2	33
MW-5 (8002-9627)	D	37.3741	-87.3010	390.18	387.7	27.5	4 inch / PVC	374.7	362.7	372.7	362.7	26
MW-6 (8002-9626)	D	37.3745	-87.3027	388.17	385.7	45.5	4 inch / PVC	354.9	342.7	352.7	342.7	45
Characterization Well												
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	Size / Type	Filter Pack Interval		Screened Interval		Bottom of Boring
		Lat	Long	TOIC (feet, NAD27)	GS (feet, NAD27)	(feet, TOIC)	(ID / Material)	(feet, GS, NAD27)		(feet, GS, NAD27)		(feet, GS)
Program Monitoring Wells								Top	Bottom	Top	Bottom	
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

SUMMARY OF MONITORING WELL CONSTRUCTION, REID/HMPL SURFACE IMPOUNDMENT
CCR GROUNDWATER MONITORING PROGRAM

BIG RIVERS ELECTRIC CORPORATION - SEBREE STATION
REID/HMPL STATION SURFACE IMPOUNDMENT
WEBSTER COUNTY, KENTUCKY

Well No.		Location*		Reference Elevation*		Casing Length	Size / Type	Filter Pack Interval		Screened Interval		Bottom of Boring
		Lat	Long	TOIC (feet, NAD27)	GS (feet, NAD27)	(feet, TOIC)	(ID / Material)	(feet, GS, NAD27)		(feet, GS, NAD27)		(feet, GS)
								Top	Bottom	Top	Bottom	
Program Monitoring Wells												
MW-7 (8006-3934)	U / B	37.64931	-87.50306	444.43	441.80	75.5	2 inch / PVC	375.90	368.40	373.90	368.90	73.4
MW-8 (8006-3935)	D	37.64886	-87.50860	394.29	385.84	60.7	2 inch / PVC	340.64	331.64	338.64	333.64	54.2
MW-9 (8006-3936)	D	37.64730	-87.50717	395.40	392.85	47.6	2 inch / PVC	359.85	336.55	357.85	347.85	56.3
MW-10 (8006-3937)	D	37.64637	-87.50586	422.27	419.98	81.8	2 inch / PVC	352.48	339.98	350.48	340.48	80.0
Characterization Well												
MW-110 (8007-1138)	D / C	37.6477	-87.5105	388.7	382.14	65.56	2 inch / PVC	334.64	323.14	333.14	323.14	59.0

* Reference elevation of monitoring wells MW-7 through MW-10 surveyed by Associated Engineers, Inc., Madisonville, Kentucky, January 2015. Reference elevation of monitoring well MW-110 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 4

GROUNDWATER ELEVATIONS, GREEN LANDFILL - 2019

BIG RIVERS ELECTRIC CORPORATION - SEBREE STATION
GREEN STATION LANDFILL
WEBSTER COUNTY, KENTUCKY

	GROUNDWATER MONITORING WELL PROGRAM											
	MW-1		MW-2		MW-3A		MW-4		MW-5		MW-6	
Reference Elevation TOIC*(ft, NAD27)	Upgradient/Background 423.23		Downgradient 392.37		Downgradient 386.48		Downgradient 391.33		Downgradient 390.18		Downgradient 388.17	
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)	Depth to Water (ft) (feet)	GW Elevation (feet)	Depth to Water (ft) (feet)	GW Elevation (feet)
4/22/2019 - 4/23/2019	18.56	404.67	14.95	377.42	10.45	376.03	16.28	375.05	13.6	376.58	17.55	370.62
9/30/2019	20.25	402.98	22.25	370.12	16.9	369.58	25.22	366.11	15.2	374.98	21.43	366.74

*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
NM = Not measured

TABLE 5

GROUNDWATER ELEVATIONS, GREEN SURFACE IMPOUNDMENT - 2019
GREEN STATION SURFACE IMPOUNDMENT

BIG RIVERS ELECTRIC CORPORATION
SEBREE STATION
WEBSTER COUNTY, KENTUCKY

	GROUNDWATER MONITORING WELL PROGRAM							
	MW-11		MW-12		MW-13		MW-14	
Reference Elevation TOIC*(ft, NAD27)	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)
4/29/2019	9.13	392.19	21.78	373.76	18.21	376.39	18.18	372.53
10/3/2019	9.95	391.37	30.48	365.06	33.01	361.59	22.02	368.69

*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

TABLE 6

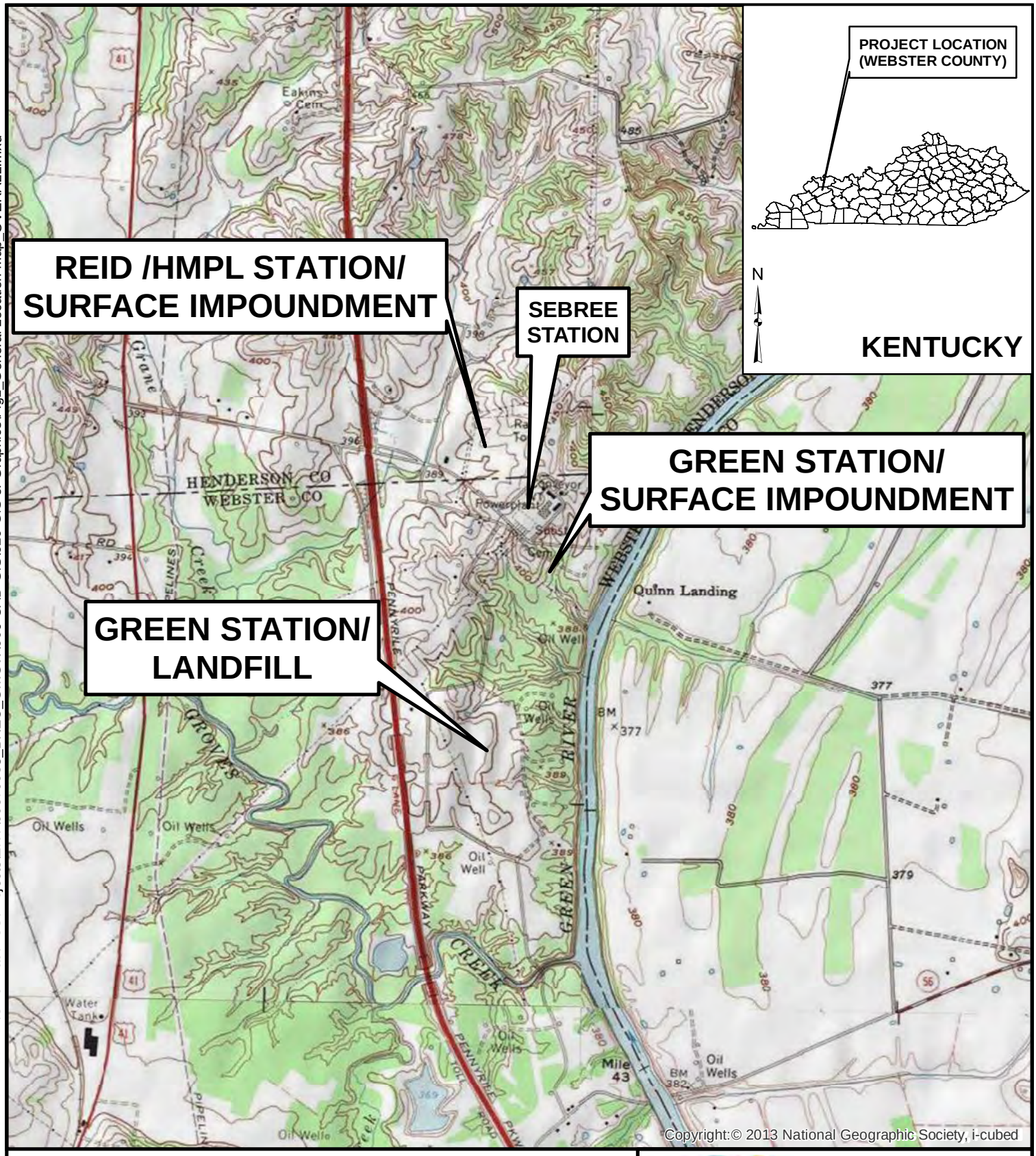
GROUNDWATER ELEVATIONS, REID/HMPL SURFACE IMPOUNDMENT - 2019
REID/HMP&L STATION SURFACE IMPOUNDMENT

BIG RIVERS ELECTRIC CORPORATION
SEBREE STATION
WEBSTER COUNTY, KENTUCKY

	GROUNDWATER MONITORING WELL PROGRAM							
	MW-7		MW-8		MW-9		MW-10	
Reference Elevation TOIC*(ft, NAD27)	Upgradient/Background 444.43		Downgradient 394.29		Downgradient 395.40		Downgradient 422.27	
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)
5/2/2019	15.50	428.93	2.54	391.75	4.44	390.96	30.83	391.44
10/16/2019	18.59	425.84	5.20	389.09	7.35	388.05	33.28	388.99

*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



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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

ROBARDS QUADRANGLE
DELAWARE QUADRANGLE
(FROM ARCGIS ONLINE Copyright:© 2011 National Geographic Society, i-cubed)

0 2,000 4,000 Feet

N

Big Rivers ELECTRIC CORPORATION

Sebree Station
Webster County, Kentucky

FIGURE 1
GENERAL LOCATION MAP

DATE: 1/8/2019	SCALE: 1IN = 2,000 FEET
CREATED BY: ALW	
JOB NO. 60579938	

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MW-1
MW-2
MW-3A
MW-104
MW-6
MW-5
MW-4
Green River
Groves Creek
bing
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Legend

- Property Line
- KAR Permit Area
- CCR Fill Area
- Downgradient CCR Monitoring Well
- Upgradient CCR Monitoring Well
- Characterization Well

0 400 800
Feet

N

Big Rivers Electric Corporation

Green Landfill
Webster County, Kentucky

FIGURE 2
WELL LOCATION MAP

DATE: 12/9/2019	SCALE: 1IN = 300 FEET
CREATED BY: ALW	
JOB NO. 60602364	



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Legend

- (Impoundment) Unit Boundary
- Property Line
- Downgradient CCR Monitoring Well
- Upgradient CCR Monitoring Well

0 200 400
Feet

N

Big Rivers Electric Corporation

Green Suface Impoundment
Webster County, Kentucky

FIGURE 3
CCR GROUNDWATER
MONITORING SYSTEM

DATE: 1/11/2019	SCALE: 1IN = 200 FEET
CREATED BY: ALW	
JOB NO. 60579938	



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Legend

- Unit Boundary
- Property Line
- Downgradient CCR Monitoring Well
- Upgradient CCR Monitoring Well
- Proposed Characterization Well

0 300 600

Feet

N

Big Rivers Electric Corporation

Reid/HMPL Surface Impoundment
Webster County, Kentucky

FIGURE 4
GROUNDWATER
MONITORING SYSTEM

DATE: 1/8/2019	SCALE: 1IN = 200 FEET
CREATED BY: ALW	
JOB NO. 60579939	

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MW-1
402.98

400

390

380

370

MW-2
370.12

MW-3A
369.58

MW-104
NM

MW-6
366.74

MW-5
374.98

MW-4
366.11

Green River
(Stable River Conditions)

Groves Creek

bing

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Legend

- Property Line
- KAR Permit Area
- CCR Fill Area
- Downgradient CCR Monitoring Well
- Upgradient CCR Monitoring Well
- Water Table Contour (Dashed where Inferred from Available Monitoring Data)
- Groundwater Flow Direction
- 366.11 Groundwater Elevation (Feet, MSL) Measured September 30 and October 1, 2019
- NM - not measured

0 400 800
Feet

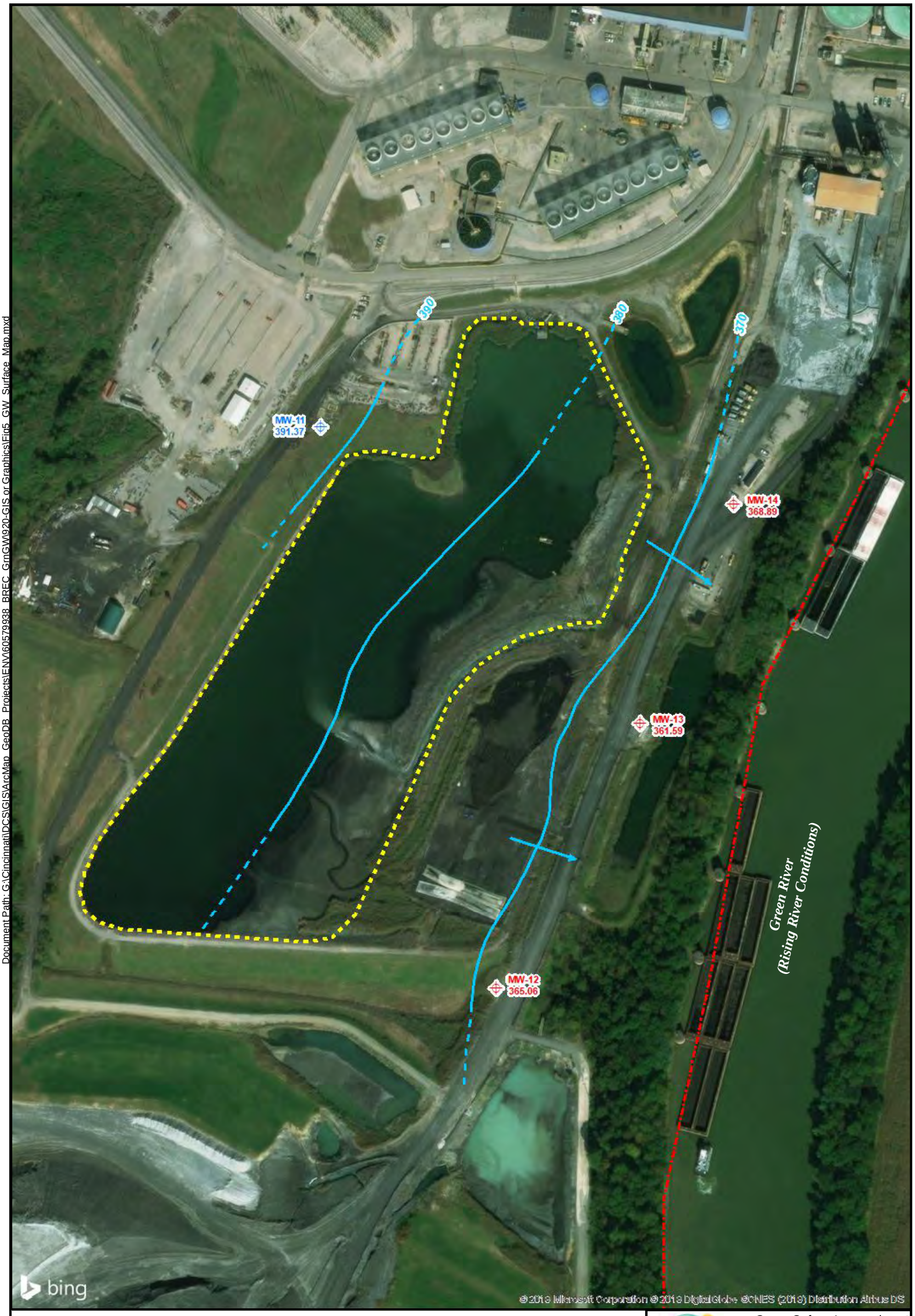
N

Big Rivers Electric Corporation

Green Station Landfill
Webster County, Kentucky

FIGURE 5
GROUNDWATER SURFACE MAP
SEPTEMBER 30 and OCTOBER 1, 2019

DATE: 11/7/2019	SCALE: 1IN = 400 FEET
CREATED BY: TMJ	
JOB NO. 60579938	



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Legend

- (Impoundment) Unit Boundary
- Property Line
- Downgradient CCR Monitoring Well
- Upgradient CCR Monitoring Well
- Water Table Contour (Inferred from Available Monitoring Data)
- Groundwater Flow Direction

391.37 Groundwater Elevation (Feet, MSL)
Measured October 3, 2019

0 200 400
Feet

N

Big Rivers Electric Corporation

Green Suface Impoundment
Webster County, Kentucky

FIGURE 6
GROUNDWATER SURFACE MAP
OCTOBER 2019

DATE: 12/11/2019	SCALE: 1IN = 200 FEET
CREATED BY: BAW	
JOB NO. 60579938	



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Legend

- Proposed Assessment Well
- Downgradient Monitoring Well
- Upgradient Monitoring Well
- Unit Boundary
- Property Line
- Water Table Contour (Inferred from Available Monitoring Data)
- Groundwater Flow Direction
- 389.09 Groundwater Elevation (Feet, MSL) Measured October 16, 2019

0 300 600
Feet

N

Big Rivers Electric Corporation

Reid/HMPL Surface Impoundment
Webster County, Kentucky

FIGURE 7
GROUNDWATER SURFACE MAP
OCTOBER 2019

DATE: 12/11/2019	SCALE: 1IN = 200 FEET
CREATED BY: BAW	
JOB NO. 60579939	

Appendix A

Green Landfill CCR Characterization Report

GROUNDWATER CHARACTERIZATION REPORT
CCR MONITORING PROGRAM

GREEN LANDFILL
SEBREE STATION
WEBSTER COUNTY, KENTUCKY

September 12, 2019

Prepared For:

Big Rivers Electric Corporation
Sebree Generating Station
9000 Highway 2096
Robards, KY 42452

Prepared by:

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Job Number: 60594108

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B. Kentucky Well Records
C. Groundwater Characterization Laboratory Analytical Data – March/April 2019
D. Aquifer Hydraulic Testing Output

1.0 INTRODUCTION

This Groundwater Characterization Report describes the activities implemented on behalf of Big Rivers Electric Cooperation (BREC) to address the requirements of the federal coal combustion residuals (CCR) rule under 40 CFR 257.95(g) at the Sebree Generating Station (Sebree Station) Green Landfill located near Sebree, Kentucky (the Site). The CCR rule citation requires that if one or more constituents in appendix IV of the rule are detected at statistically significant levels (SSLs) above the groundwater protection standard (GWPS), then the owner/operator must characterize the nature and extent of the release and any relevant site conditions that may affect the remedy ultimately selected.

The location of the Green Landfill is illustrated on **Figures 1 and 2**. The Green Landfill is a Kentucky permitted landfill (Permit No. SW11700007) that receives special wastes generated by burning coal from Sebree Station. The landfill began receiving CCR wastes in 1980. The current Green Landfill footprint is approximately 170 acres.

To address the characterization requirement, new monitoring well MW-104 was drilled and constructed at a downgradient, property boundary (as close as feasible) location between the Green Landfill and the Green River as described in the sections below.

2.0 FIELD ACTIVITIES

2.1 Staking and Utility Clearances

Prior to the start of drilling, the proposed location for the monitoring well was reviewed with BREC personnel during a field visit on February 18, 2019. The proposed location was staked on February 18, 2019. Utility clearance surveys were performed at the proposed location of MW-104 on February 19, 2019 by Blood Hound, Inc. of Brownsburg, Indiana under subcontract to AECOM.

The proposed location for monitoring well MW-104 was cleared using a hand auger to a minimum of 5 feet below ground surface (bgs) prior to the advancement of powered drill tooling to help avoid potential damage to potential undetected underground utilities. No conflicts with underground utilities were observed at this location, thereby allowing for borehole advancement to proceed.

2.2 Monitoring Well Installation Schedule

Drilling and well construction services were provided by Cascade Drilling, LP (Cascade) of Marietta, Ohio, under subcontract to AECOM. The following is a general timeline of drilling and well construction activities:

February 19	Set-up staging area and decontamination pad
February 19 - February 20	Drill boring and set monitoring well
February 22	Surface completion
February 22 - February 23	Well development activities
February 27	Monitoring well coordinates/elevation survey

2.3 Drilling and Logging Methods

Drilling and installation of the CCR Rule monitoring well at the Site was performed under the supervision of a Kentucky Certified Well Driller, (Mr. Dave Schrecengost of Cascade, License #0492053400). The borehole was advanced by rotosonic drilling methods using a 4-inch sampling core to obtain a profile of the encountered subsurface materials. Each run of the 4-inch core was successively overridden by a 6-inch temporary casing to allow core extraction. The 6-inch casing also provides a sufficiently large borehole to allow installation of 2-inch monitoring well, leaving a nominal 4-inch annular space required between the borehole and the well casing. Samples of the subsurface materials were collected at a minimum of 5-foot intervals and described by the onsite geologist using the terminology of the Unified Soil Classification System (USCS) for the unconsolidated materials. These observations are presented in the boring logs (**Appendix A**).

The borehole was advanced into bedrock to a depth sufficient enough to allow installation of the monitoring well within the uppermost groundwater bearing zone, which at MW-104 was within bedrock at 60 feet below ground surface.

2.4 Borehole Water Level Gauging

During drilling, the onsite geologist recorded observations of water appearing in the lithologic samples. Periodically, drilling operations were paused to allow recharge (inflow of groundwater) to be evaluated. The depth of the well was selected based on the following factors: observable water, water bearing zones within rock core (weathered zones, fracture seams, etc.), and the target elevation in reference to the baseline monitoring well network total depth and water level elevation.

2.5 Monitoring Well Construction

The installation and development of the characterization monitoring well is intended to meet the groundwater monitoring requirements of EPA's CCR Rule (40 CFR Part 257). One 2-inch inner diameter (ID) polyvinyl chloride (PVC) monitoring well with a 10-foot screen interval (0.010 slot) was installed during February of 2019. Well construction details are provided in the table below and are included on the boring log provided in **Appendix A**.

Well ID	Location	Installation Date	Well Depth feet (btoc)	Well Casing Diameter (inch)	Borehole Diameter (inch)
MW-104	Green Landfill (East)	2/22/2019	60.84	2	6
btoc = below top of casing					

Well construction was initiated after the borehole was advanced to the desired total depth. A 2-inch ID schedule 40 PVC well pipe and riser was positioned at the appropriate depth within the open borehole. Additional 2-inch ID schedule 40 PVC well pipe was obtained locally and secured using a rubber PVC flexible coupling to achieve necessary stickup length. Once the casing and well screen were in position, #5 sand filter pack material consisting of clean, rounded to well-rounded, insoluble particles of quartz silica composition was placed around the well screen to 2 feet above the top of the 10-foot screened interval.

Following placement of the sand filter pack, a 5-foot-thick interval of bentonite pellets was placed above the sand filter pack and hydrated to manufacturer recommendations to form the bentonite well seal. The borehole annulus above the bentonite seal was filled with bentonite grout slurry, to a height approximately 2 feet bgs. Potable water, obtained locally from the Sebree Station, was utilized as the hydration fluid for the bentonite seal and grout slurry.

The new monitoring well was completed above ground surface (ags) as detailed below.

Well ID	Location	Installation Date	Top of Casing Elevation	Ground Surface Elevation	Stick-up Height (feet)
MW-104	Green Landfill (East)	2/22/2019	395.13	392.47	2.66

The monitoring well was equipped with a locking steel casing, 4 by 4-foot concrete pad at a sufficient depth to protect against frost heave, and four surrounding bollard posts to protect against vehicle strikes in accordance with 401 Kentucky Administrative Regulations (KAR) 45:160 Section 3(4). The protective steel casing and bollard posts were painted with a high visibility paint designed to inhibit corrosion.

Upon completion of well installation, the drilling subcontractor gauged each new monitoring well and submitted Kentucky Monitoring Well Records (DEP 8043) to the Kentucky Environmental and Public Protection Cabinet, Division of Water (KEPPC/DOW), Groundwater Branch. A copy of the Uniform Kentucky Well Construction Records for MW-104 is provided as **Appendix B**.

2.6 Monitoring Well Development

Sufficient well development was critical to consistently achieving the low turbidity required for samples analyzed for total metals. Water within the well column was agitated (surged) by the raising and lowering of a Proactive Hurricane© submersible pump to help develop the well.

Well development was completed between February 22, 2019 and February 23, 2019. Development activities were continued until one of the following conditions was met:

1) a minimum of five times the volume of water lost to the formation during drilling was removed;

2) a minimum of five well volumes of groundwater was removed, calculated on the measured depth-to-water and total depth of the well at the time of development; or

3) until the water being pumped from the well was observed to be free of visible sediment.

Purge water resulting from development was containerized in a 275-gallon polyethylene intermediate bulk container and later discharged to the onsite surface impoundment.

2.7 Monitoring Well Survey

After the new well was completed, the location and elevation were surveyed on February 27, 2019 by James D. Cansler, a Kentucky-licensed Professional Surveyor with Associated Engineers, Inc. The elevation of the top of the inside (PVC) casing (north side) and ground surface were surveyed. Horizontal coordinates were established using the Kentucky State Plane Coordinate System, NAD 83, North Zone. Vertical elevation was measured to within +/- 0.01 ft. above mean sea level (amsl). Monitoring well survey data is summarized below and in **Table 1**.

Well ID	AKGWA Number	Well Diameter (inch)	Latitude	Longitude	Top of Casing (feet)	Total Depth (feet)	Screen Interval (feet)
MW-104	8007-1139	2	37.630519	87.500959	395.13	60	50-60

2.8 Equipment Decontamination

All downhole drilling equipment was decontaminated by the subcontractor prior to arrival at the station and onsite at a designated decontamination pad. Following borehole advancement, the downhole tooling was decontaminated with pressurized potable water to remove residual soil cuttings prior to use at another site/borehole location. All other equipment (pumps, water level indicators, etc.) was decontaminated using potable water and a mild laboratory-grade detergent (Alconox®) solution.

2.9 Characterization Groundwater Sampling

On March 29, 2019 and April 10, 2019, BREC conducted groundwater sampling activities at MW-104. An initial depth-to-water measurement was obtained from MW-104 using a water level indicator prior to purging. Following gauging and equipment set-up, low-flow purge groundwater samples procedures were initiated at MW-104. During low-flow sampling, dedicated tubing, a dedicated bladder pump, flow-through cell, and a water quality meter was utilized to purge each well. At no time during purging did the pumping rate exceed 0.3 Liters per minute. During purging, field parameters including dissolved oxygen (DO), pH, oxidation reduction potential (ORP), temperature, and electric conductivity were monitored and recorded approximately every three (3) minutes. Groundwater samples were collected during each sampling event after the field parameters stabilized for a minimum of three (3) consecutive readings. Samples collected from MW-104 during the groundwater characterization sampling events are summarized in **Table 2**.

Each groundwater sample was maintained under proper chain of custody protocols pending transportation to the laboratory. Groundwater samples were packaged on ice and shipped via overnight courier to Test America Laboratories in Nashville, Tennessee for analysis of the Federal CCR Rule Appendix III and IV parameters using United States Environmental Protection Agency (USEPA) methods. A copy of the chain-

of-custody for each shipment is included with the laboratory groundwater analytical data for MW-104 (along with data for Reid Surface Impoundment MW-110) included in **Appendix C**.

2.10 Aquifer Testing

Slug tests were performed on April 25, 2019 at monitoring wells MW-3A, MW-4, MW-6, and MW-104 to assess the hydraulic characteristics of the uppermost aquifer. The tests consisted of repeated deployments and retrievals of the slug (known volume) in and out of the water column. The aquifer responded slowly to the water level disruption at MW-104 and MW-3A, such that only one run of a slug-in test and one run of a slug-in/slug out test could be performed, respectively. The aquifer responded quickly to the water level disruption at MW-4 and MW-6, such that multiple runs of slug-in/slug-out tests could be performed. The duration of these tests was sufficient to provide a reasonable estimate of the hydraulic conductivity for each of the wells. Manual measurements were not recorded in order to avoid disturbing the water column and/or transducer. The times of each slug-in/slug-out deployment were recorded on field aquifer testing forms and electronic data was removed from the transducer and used for data evaluation.

Prior to starting each aquifer test, all dedicated bladder pumps were removed, and a pressure transducer was deployed within each monitoring well. Once stabilized, the groundwater elevation in each monitoring was recorded to document static conditions. Each transducer was programmed to start before deployment and set to record pressure at a rate of four times per second.

A combination of 2-inch diameter and 4-inch diameter monitoring wells were utilized during aquifer testing. At the 4-inch diameter wells locations (MW-3A, MW-4, and MW-6), a 1-gallon volume slug was quickly lowered into the water column and secured representing the addition of 1-gallon of water initiating the test. At the 2-inch diameter well (MW-104) the same methods were followed using a smaller slug measuring approximately 0.52-gallon volume. After waiting a fixed time to allow the water level to equilibrate to static conditions, the slug was rapidly withdrawn (representing the removal of the known slug volume). The retrieved slug was secured to hang roughly three feet above the top of water to minimize disturbance until the water level within the well had recovered to static. This procedure was repeated as conditions would allow for multiple dataset evaluations. Upon completion of testing at each well location, the equipment was removed from the well and decontaminated. A summary of the hydraulic testing conducted at the Site in April 2019 is provided in **Table 3**.

2.11 Aquifer Data Evaluation

Data from the slug tests performed at the Green Landfill were processed and analyzed using the AQTESOLV software package (Duffield, 2007), which provides type curve solutions corresponding to various conceptual models, each with their own hydrologic assumptions. Data was analyzed as single well slug tests using the recovery solution for a slug test in a confined aquifer (Bouwer-Rice, 1976). The analysis involves matching a curved line associated with the Bouwer-Rice equation to drawdown data collected after deploying/retrieving the slug from the water column.

Bouwer and Rice solution utilizes the following assumptions:

- Aquifer has infinite aerial extent
- Aquifer is homogeneous and of uniform thickness
- Aquifer potentiometric surface is initially horizontal
- Control well is fully or partially penetrating
- A volume of water, V, is injected or discharged instantaneously from the control well
- Aquifer is confined or unconfined

- Flow is steady

A summary of the hydraulic conductivity results is provided within **Table 3**. Reports from the AQTESOLV® aquifer test analyses are presented in **Appendix C**. The estimated hydraulic conductivity of the monitoring wells tested ranged from $2x10^{-5}$ to $3x10^{-3}$ centimeters per second (cm/sec).

3.0 SUMMARY AND FINDINGS

In total, one boring was advanced at the Site during February 2019 to install the characterization groundwater monitoring well in accordance with the Federal CCR Rule. The new monitoring well, located at a projected downgradient position east of the Green Landfill will assist in the characterization of the existence, quality, quantity, and areal extent of groundwater degradation, and the rate and direction of migration of CCR contaminants in the groundwater.

Groundwater level data collected during the 2018 and 2019 monitoring events are summarized on **Table 1**. The data collected on April 22, 2019, were used to construct a piezometric surface map to illustrate groundwater flow conditions for the uppermost aquifer (see **Figure 3**). Overall groundwater flow in the vicinity of the Green Landfill is typically southeast towards the Green River.

The Site lies in the Western Kentucky Coalfields section, characterized by rolling uplands underlain by coal-bearing bedrock of the Pennsylvanian Period. In the vicinity of the site, maximum topographic relief is on the order of 80 feet. The geologic quadrangle (Geologic map of the Robards quadrangle, Henderson and Webster Counties, Kentucky, 1973) for the Site vicinity published by the Kentucky Geological Survey (KGS) shows the surficial material to be unconsolidated loess representing the Pleistocene and Holocene geologic epoch. The loess consists of sandy and clayey silt. The unconsolidated surficial materials, which include silty and sandy clay units, are approximately 25 feet in thickness.

The unconsolidated materials are shown to be underlain by bedrock of the Upper Pennsylvanian Shelburn Formation (formerly identified as the Lisman Formation (Fairer, 1973)) and the Middle Pennsylvanian Carbondale Formation. At the base of the Shelburn Formation is the Providence Limestone Member, consisting of limestone and interbedded shale, but this unit is absent in much of the area due to erosional channeling. Due to its discontinuous character and the presence of interbedded shale, hydrologically significant karst features are not present in the Providence Limestone Member. The underlying Carbondale Formation consists of cyclic sequences of sandstones, shales, siltstones and coals. The Carbondale sediments were deposited in a fluvial-deltaic system. As a result of this depositional environment, the lithologic units of the Carbondale tend to be lenticular bodies rather than continuous sheet-like strata. Gradational and abrupt horizontal changes in lithology are often encountered.

Cross sections were prepared during development of the assessment of corrective measures in 2019 and have been included in this report. Cross section locations are shown on **Figure 2**. The individual cross sections are presented on **Figures 4, 5 and 6**. These sections illustrate the sequence of geologic materials present under the Green Landfill as evidenced by the currently available data.

For purposes of compliance with the CCR Rule groundwater monitoring requirements, the interbedded sandstone and shale of the Carbondale Formation is the uppermost aquifer underlying the Green Landfill. The uppermost aquifer is unconfined and first encountered at an elevation of approximately 401 ft. amsl at the northwest end of the landfill, and 367 ft. amsl at the southeast end of the landfill (AECOM, 2019). Flow direction beneath the Site is typically southeast towards the Green River.

Slug tests were performed on April 25, 2019 at monitoring wells MW-3A, MW-4, MW-6, and MW-104 to assess the hydraulic characteristics of the uppermost aquifer. The estimated hydraulic conductivity of the monitoring wells tested ranged from $2x10^{-5}$ to $3x10^{-3}$ centimeters per second (cm/sec).

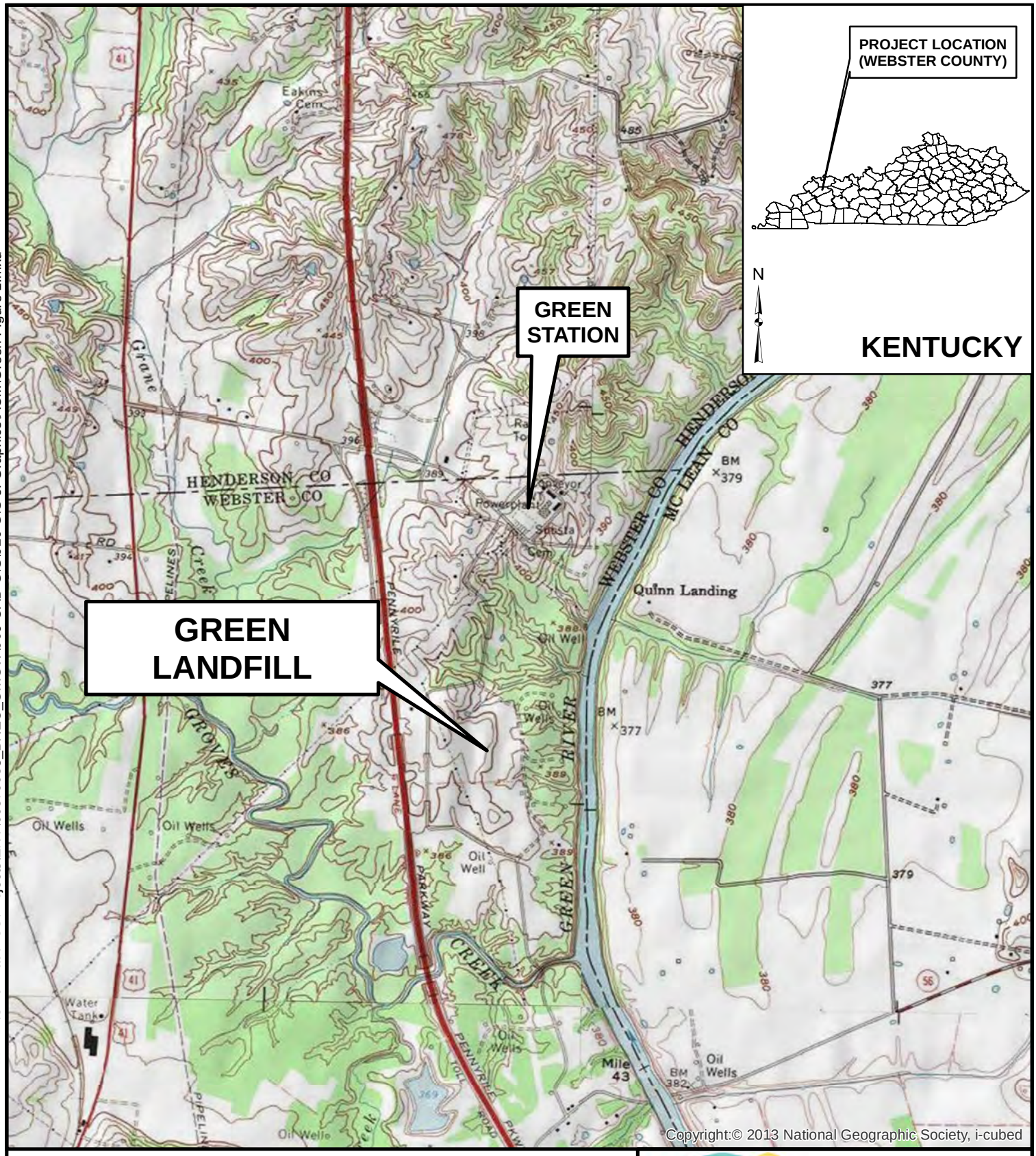
Although previous site-specific investigations have noted the presence of perched zones of saturation in the overlying unconsolidated materials, these discontinuous zones do not qualify as an uppermost aquifer under the CCR Rule because they do not produce usable quantities of groundwater.

On March 29, 2019 and April 10, 2019, BREC collected groundwater samples at MW-104 to acquire the required characterization groundwater data under the Federal CCR Rule. A summary of the groundwater

analytical results is presented in **Table 2**. Laboratory analytical reports for samples collected during both sampling events are included in **Appendix C**.

The analytical results for groundwater samples collected during the March 29, 2019 and April 10, 2019 sampling events indicated that all Appendix III and Appendix IV compounds were reported below the respective Primary Maximum Contaminant Levels (MCLs), where established. The results from both sampling events will assist with establishing the downgradient extent of groundwater impacts above MCLs at the Green Landfill.

Figures



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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

ROBARDS QUADRANGLE
DELAWARE QUADRANGLE
(FROM ARCGIS ONLINE Copyright:© 2011 National Geographic Society, i-cubed)

0 2,000 4,000 Feet

N

Big Rivers ELECTRIC CORPORATION

Green Station
Webster County, Kentucky

FIGURE 1
SITE LOCATION MAP

DATE: 4/30/2019	SCALE: 1IN = 2,000 FEET
CREATED BY: ALW	
JOB NO. 60602364	

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B

MW-1

A

MW-2

B'

Green River

MW-3A

MW-104

C

MW-6

MW-5

MW-4

C'

A'

Groves Creek

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend

- Property Line
- KAR Permit Area
- CCR Fill Area
- Downgradient CCR Monitoring Well
- Upgradient CCR Monitoring Well
- Characterization Well

A — A' Transect Line

0 400 800

Feet

N

Big Rivers Electric Corporation

Green Station
Webster County, Kentucky

FIGURE 2
WELL LOCATION MAP

DATE: 5/17/2019	SCALE: 1IN = 300 FEET
CREATED BY: ALW	
JOB NO. 60602364	

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MW-1
404.67

MW-2
377.42

MW-3A
376.03

MW-104
Not measured

MW-6
370.62

MW-5
376.58

MW-4
374.48

400

390

380

Green River
(Rising River Conditions)

Groves Creek

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend

- Property Line
- KAR Permit Area
- CCR Fill Area
- Downgradient CCR Monitoring Well
- Upgradient CCR Monitoring Well
- Water Table Contour (Dashed where Inferred from Available Monitoring Data)
- Groundwater Flow Direction
- 370.62 Groundwater Elevation (Feet, MSL) Measured April 22-23, 2019

0 400 800
Feet

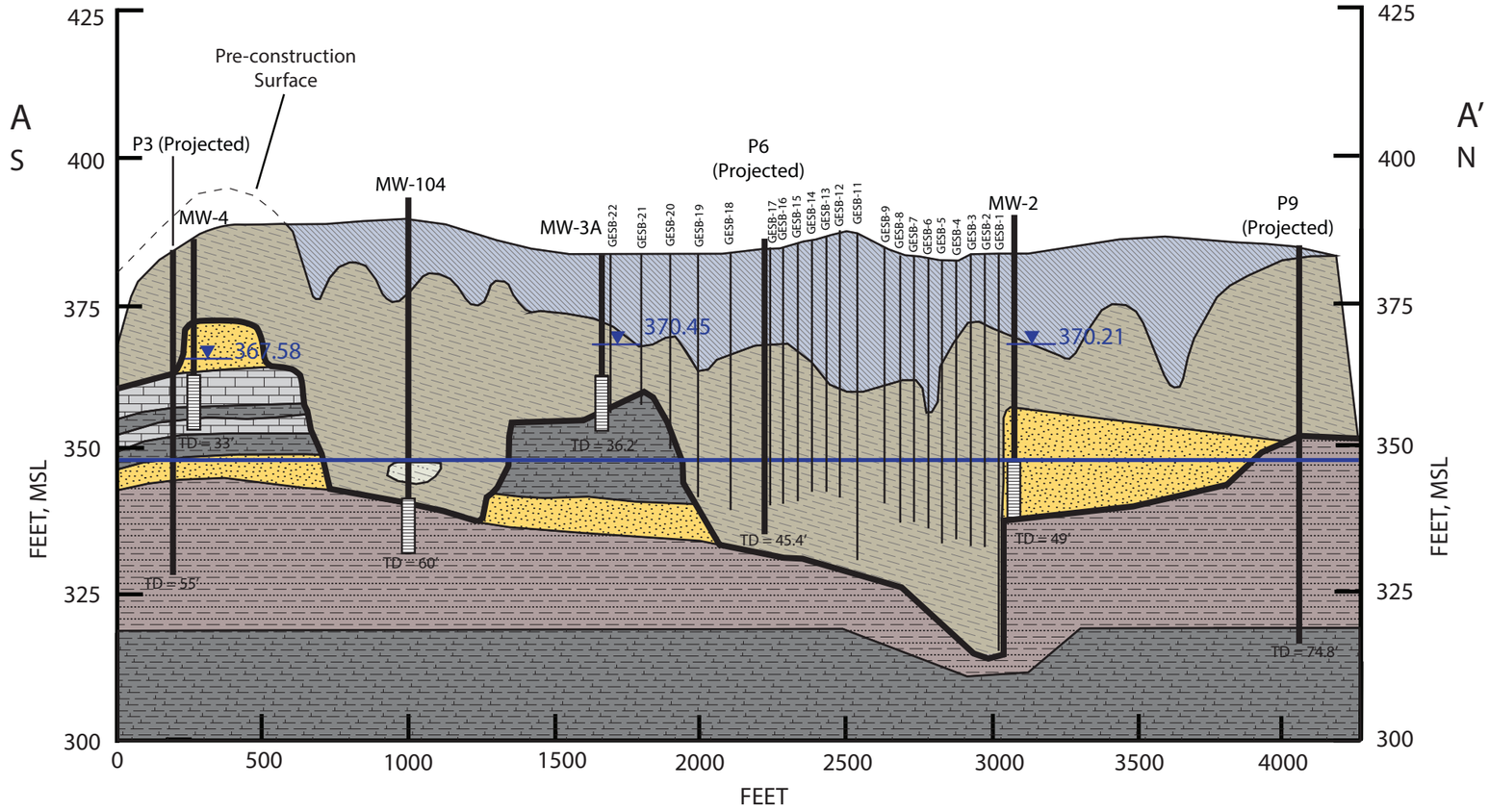
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Big Rivers Electric Corporation

Green Station Landfill
Webster County, Kentucky

FIGURE 3
GROUNDWATER SURFACE MAP
APRIL 2019

DATE: 04/22/2019	SCALE: 1IN = 400 FEET
CREATED BY: BAW	
JOB NO. 60579938	



LEGEND

UNCONSOLIDATED MATERIALS:

- Fill
- Silt
- Silty Clay
- Clayey Silt

BEDROCK LITHOLOGIES:

- Sandstone
- Shale
- Limestone
- Interbedded Sandstone and Shale

Potentiometric Surface September 28, 2018

Green River Elevation (348 ft)

MW-2
MONITORING WELL LOCATION ID
RISER
MONITORING WELL SCREEN
BACKFILL / COLLAPSE

25 feet
500 feet
(Vertical Exaggeration = 20x)



Big Rivers ELECTRIC CORPORATION

Green Station
Webster County, Kentucky

FIGURE 4
CROSS SECTION A - A'

DATE: 05/21/2019	SCALE: AS SHOWN
CREATED BY: MRH	
JOB NO. 60602365	

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B
W

B′
E

525
500
475
450
425
400
375
350
325
300

FEET, MSL

Fly Ash (Land Fill)

Pre-construction Surface

P7 (Projected)

MW-1

P8 (Projected)

P9 (Projected)

MW-2

401.01

370.21

TD = 45'

TD = 65.5'

TD = 35.5'

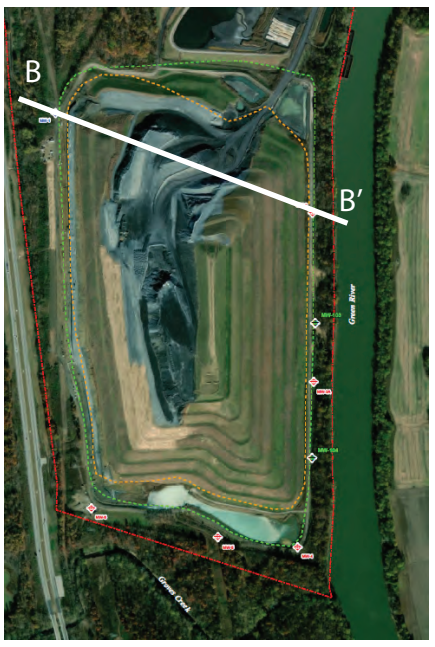
TD = 74.8'

TD = 49'

Green River

0
500
1000
1500
2000
2500
3000

FEET



MW-1
MONITORING WELL LOCATION ID

RISER

MONITORING WELL SCREEN

BACKFILL / COLLAPSE

Potentiometric Surface September 28, 2018

Green River Elevation (348 ft)

LEGEND

UNCONSOLIDATED MATERIALS:

Fill

Silty Clay

BEDROCK LITHOLOGIES:

Sandstone

Shale

Limestone

Interbedded Sandstone and Shale

25 feet

500 feet

(Vertical Exaggeration = 20x)

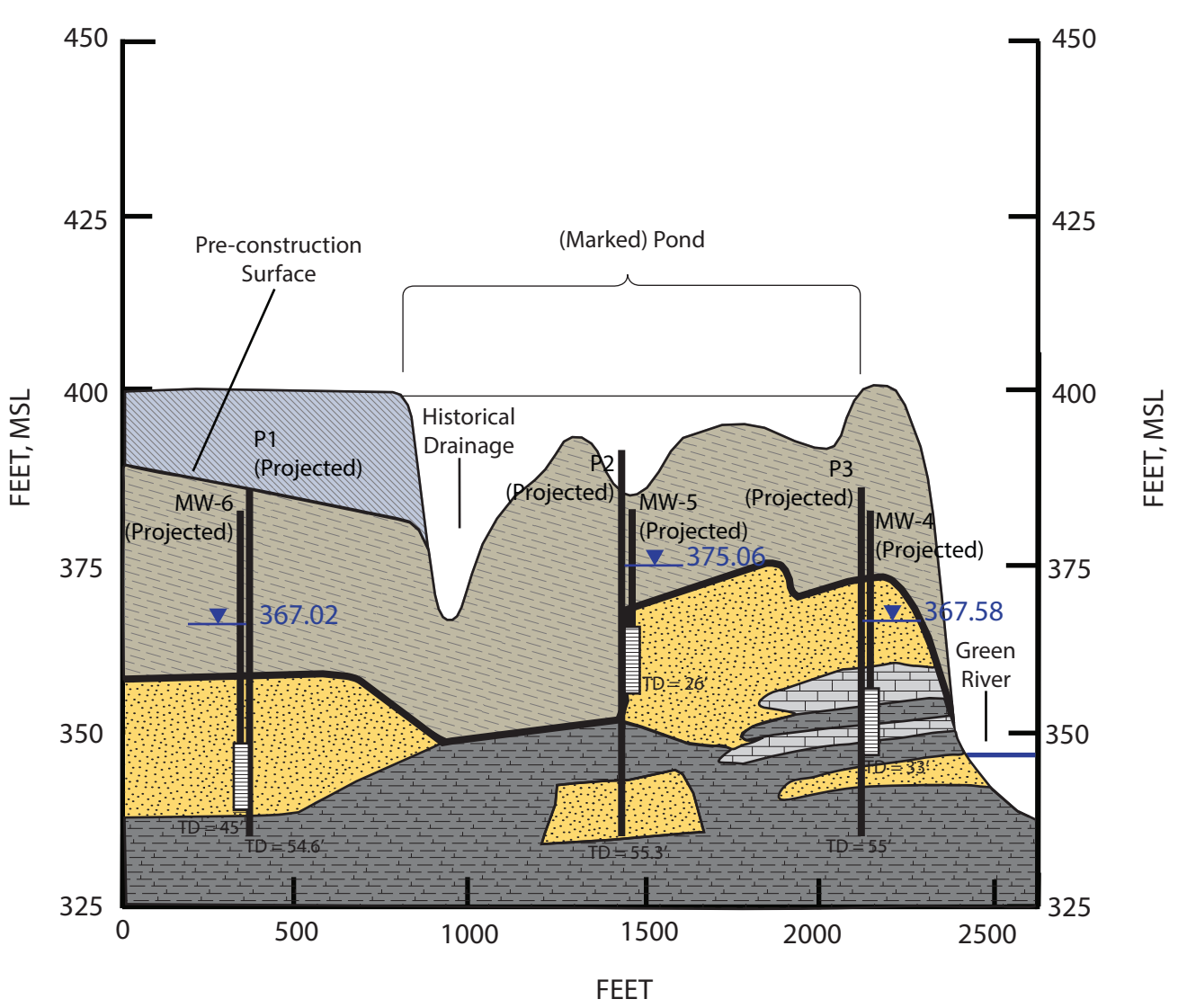
Big Rivers Electric Corporation

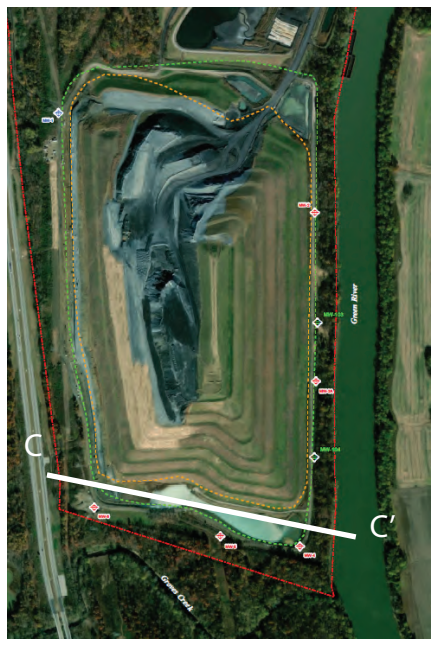
Green Station
Webster County, Kentucky

FIGURE 5
CROSS SECTION B - B'

DATE: 05/21/2019	SCALE: AS SHOWN
CREATED BY: MRH	
JOB NO. 60602365	

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LEGEND

UNCONSOLIDATED MATERIALS:

- Fill
- Silty Clay

BEDROCK LITHOLOGIES:

- Sandstone
- Shale
- Limestone

25 feet

500 feet

(Vertical Exaggeration = 20x)

MW-4

MONITORING WELL LOCATION ID

RISER

MONITORING WELL SCREEN

BACKFILL / COLLAPSE

Big Rivers Electric Corporation

Green Station
Webster County, Kentucky

FIGURE 6
CROSS SECTION C - C'

DATE: 05/21/2019	SCALE: AS SHOWN
CREATED BY: MRH	
JOB NO. 60602365	

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Tables

Table 1. Monitoring Well Network Groundwater Elevations

June 2018 through April 2019

Big Rivers Electric Corporation - Green Landfill

Webster County, Kentucky

	MW-1		MW-2		MW-3A		MW-4		MW-5		MW-6	
Reference Elevation	**Upgradient/Background**		**Downgradient**		**Downgradient**		**Downgradient**		**Downgradient**		**Downgradient**	
TOIC*(ft, NAD27)	**423.23**		**392.37**		**386.48**		**391.33**		**390.18**		**388.17**	
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)**	**Depth to Water (ft) (feet)**	**GW Elevation (feet)**	**Depth to Water (ft) (feet)**	**GW Elevation (feet)**
6/4/2018	20.02	403.21	20.06	372.31	16.18	370.3	24.13	367.2	14.07	376.11	19.96	368.21
7/10/2018	21.43	401.8	21.47	370.9	17.16	369.32	24.62	366.71	14.35	375.83	20.79	367.38
9/28/2018	22.22	401.01	22.16	370.21	16.03	370.45	23.75	367.58	15.12	375.06	21.15	367.02
4/22/2019	18.56	404.67	14.95	377.42	10.45	376.03	16.85	374.48	13.6	376.58	17.55	370.62

Notes:

*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; NM = Not measured

Table 2. MW-104 Characterization Groundwater Analytical Summary
March and April 2019
Big Rivers Electric Corporation - Green Landfill
Webster County, Kentucky

APPENDIX III CONSTITUENTS	GWPS	DATE			
		3/29/2019		4/10/2019	
Boron	NA	0.188	J,B	0.271	J,B
Calcium	NA	465	B	502	
Chloride	NA	1430		1430	B
Fluoride	4 mg/L	<1		0.323	J,B
Sulfate	NA	2870		2880	B
pH (SU)	NA	6.88		6.99	
Total Dissolved Solids	NA	6990		6690	
APPENDIX IV CONSTITUENTS					
Antimony	0.006 mg/L	0.000091	J,B	0.000119	J,B
Arsenic	0.01 mg/L	0.00221	J	0.00208	J
Barium	2 mg/L	0.0243	J	0.0216	J,B
Beryllium	0.004 mg/L	<0.002		<0.002	
Cadmium	0.005 mg/L	<0.001		<0.001	
Chromium	0.1 mg/L	0.00471	B	0.00360	
Cobalt	0.006 mg/L	0.00594	B	0.0052200	
Fluoride	4 mg/L	<1		0.323	J,B
Lead	0.015 mg/L	0.00105	J	0.000233	J
Lithium	0.040 mg/L	0.0281	J	0.0286	J
Mercury	0.002 mg/L	<0.2		<0.2	
Molybdenum	0.1 mg/L	0.00147	J	0.00104	J
Radium 226 (pCi/L)	5 pCi/L	0.766		<0.319	
Radium 228 (pCi/L)					
Selenium	0.05 mg/L	<0.01		<0.01	
Thallium	0.002 mg/L	<0.001		<0.001	

Notes:

*All results listed in milligrams per liter (mg/L) unless otherwise noted

GWPS = Groundwater Protection Standard

NA = Not available

pCi/L = picoCuries per Liter

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.

H = Sample was prepped or analyzed beyond the specified holding time

Table 3. Aquifer Hydraulic Testing Results Summary

April 25, 2019

Big Rivers Electric Corporation - Green Landfill

Webster County, Kentucky

Well ID	Well Diameter (inches)	Number of Tests	Hydraulic Conductivity (K)* (cm/sec)
MW-3A	4	2	2.37E-04
MW-4	4	4	4.84E-04
MW-6	4	6	2.66E-03
MW-104	2	2	2.25E-05

Notes:

*Aquifer model results averaged over multiple runs performed at each test well

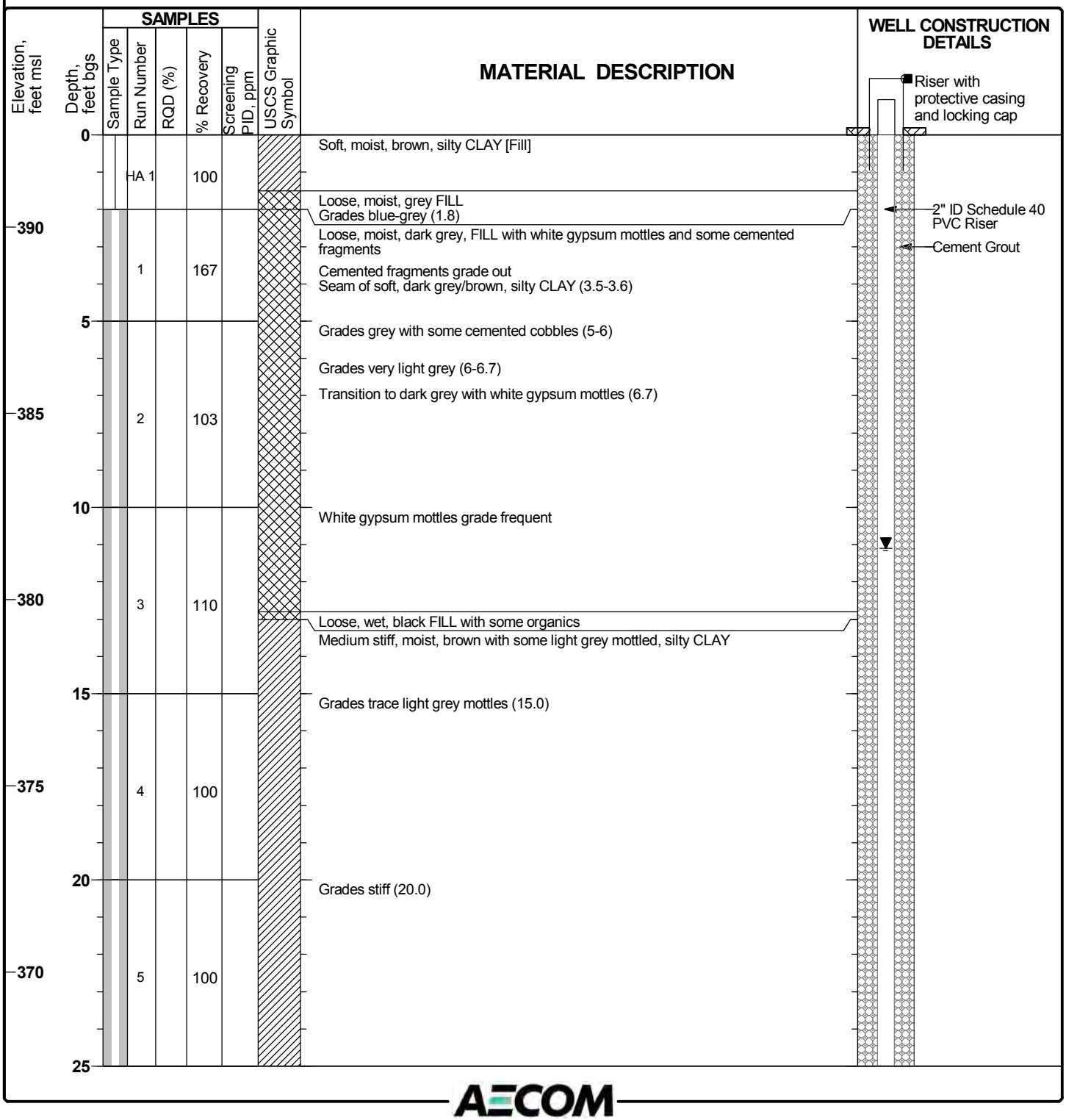
Appendix A
Boring Log and Well Construction Details

Client: Big Rivers Electric Corporation
Project: Sebree Station - Green Landfill
Site: Robards, KY
Project Number: 60594108

MW-104

Sheet 1 of 3

Date(s) Drilled and Installed	**2/19/19-2/20/19**	Logged By	**S. Lillard**	Reviewed By	**M. Wagner**
Drilling Method	**Rotosonic**	Drilling Contractor	**Cascade**	Total Depth of Borehole	**60.0 feet**
Sampling Method	**4" Sonic Sampler**	Water Level	**11.1 b.g.s. (measured 2/22/19)**	Top of Casing Elevation	**395.13 feet msl**
Size and Type of Well Casing	**2" PVC Schedule 40**	Screen Perforation	**0.010 inch slotted**	Ground Surface Elevation	**392.47 feet msl**
Seal or Backfill	**Bentonite/Cement Grout**	Coordinates	**N 4,164,939.61 E 455,797.24**	AKGWA #	**8007-1139**



BREC MW INSTALL 2019 FEB 2019 MW INSTALL.GPJ 3/27/19

AECOM

Client: Big Rivers Electric Corporation
Project: Sebree Station - Green Landfill
Site: Robards, KY
Project Number: 60594108

MW-104

Elevation, feet msl	Depth, feet bgs	SAMPLES: Sample Type	Run Number	RQD (%)	% Recovery	Screening PID, ppm	USCS Graphic Symbol	MATERIAL DESCRIPTION	WELL CONSTRUCTION DETAILS
	25							Grades medium stiff (25.0)	
365			6		100				
	30							Grades reddish brown (31.0)	
360			7		110				
								Trace light grey mottles and trace fine grey sandstone gravel fragments (34-35)	
	35							Grades soft (35.0)	
355			8		120				
	40							Grades grey (40.0)	
350			9		110			Loose, slightly moist, dark brown with light grey and reddish brown mottled, clayey SILT	
	45							Soft, slightly moist, brown silty CLAY	Bentonite Seal (Bentonite Chips)
345			10		112			Grades reddish brown (47.0)	
								Grades to a fine-grained sandy, silty clay (48.0)	Filter Pack Sand #5
	50								
								Grades dark brown (51.8)	2" ID Schedule 40 PVC 0.010" Slotted Screen
340			11		87			Heavily weathered, very soft, dry, light grey, silty, fine-grained SANDSTONE Grades brown with some dark grey lamina (52.5)	
								Grades light grey with frequent dark grey lamina	

BREC MW INSTALL 2019 FEB 2019 MW INSTALL.GPJ 3/27/19

AECOM

Client: Big Rivers Electric Corporation
Project: Sebree Station - Green Landfill
Site: Robards, KY
Project Number: 60594108

MW-104

Sheet 3 of 3

Elevation, feet msl	Depth, feet bgs	SAMPLES: Sample Type	SAMPLES: Run Number	SAMPLES: RQD (%)	SAMPLES: % Recovery	SAMPLES: Screening PID, ppm	USCS Graphic Symbol	MATERIAL DESCRIPTION	WELL CONSTRUCTION DETAILS
	55							Grades wet (54.9)	
								Loose, wet, brown to reddish brown, clayey, fine-grained SAND with interbedded sandstone	
								Grades greyish brown (56.0)	
335			12		100			Heavily weathered, soft, wet, light grey, fine-grained SANDSTONE	
	60							Soft, wet, grey CLAY with interbedded fine-grained sandstone (1-2" fragments)	
								End of boring at 60' bgs.	
330									
	65								
325									
	70								
320									
	75								
315									
	80								
310									

BREC MW INSTALL 2019 FEB 2019 MW INSTALL.GPJ 3/27/19

AECOM

Appendix B
Kentucky Well Records

UNIFORM KENTUCKY WELL CONSTRUCTION RECORD

Use this form to report installation of monitoring or water wells.

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

See instructions below.

One copy to owner and one copy to driller's files.

Owner Name(*)	Big Rivers Electric Corp				
Owner First Name(*)	NA	Owner Last Name(*)	NA		
Owner Address(*)	201 3rd Street				
Owner City(*)	Henderson	State(*)	Kentucky	Owner Zip(*)	42420
Owner Phone(*)	270-827-2561	Owner eMail			

Site Name(*)	Sebree Generating Station				
Site Address(*)	9000 Highway 2096				
Site City(*)	Robarbs	State(*)	Kentucky	Site Zip(*)	42452
Site Phone		Site eMail			
Well Latitude(*) DMS to DD Converter	37.630597	Well Longitude(*)	-87.500974	Method(*)	Handheld GPS - Not Differenti

Agency Interest (AI) Number		Facility Type & ID	
USGS Topo Map(*)	ROBARDS	County(*)	Webster
Surface elevation (ft)		Elevation determined by	
Physiographic Region(*)	Ohio River Alluvium	Well Use(*)	Monitoring well - ambient moi
Drilling Method(*)	Sonic	Well Status(*)	active
Wellhead(*)	Locking Cap	Well Condition(*)	Functioning properly

Casing / Open Borehole

	From depth (ft)(*)	To depth (ft)(*)	Borehole diameter (in)(*)	Casing diameter (in)(*)	Casing type(*)
Delete	0	50	6	2	PVC
Add New					

Screen

	From depth (ft)(*)(*)	To depth (ft)(*)(*)	Borehole diameter (in)(*)(*)	Screen diameter (in)(*)(*)	Screen Type(*)(*)	Screen slot size(*)(*)
Delete	50	60	6	2	PVC	.010
Add New						

Annulus fill and seal

	Section(*)	From depth (ft)(*)	To depth (ft)(*)	Material(*)
Delete	Grout	43	2	Mixture - bentonite & cement
Delete	Seal	48	43	Bentonite
Delete	Filter Pack	48	60.5	Sand
Add New				

Lithologic log

	From depth (ft)(*)	To depth (ft)(*)	Description(*)
Delete	0	1	Brn Silty Clay
Delete	1	13	Gray Fly Ash
Delete	13	40	Brn Silty Clay
Delete	40	42	Gray Silty Clay
Delete	42	45	Brn Clayey Silt
Delete	45	48	Brn Silty Clay
Delete	48	53	Brn Sandy Silty Clay
Delete	53	60.5	Gray Weathered Sandstone
Add New			

Site Map/ Sketch Map(*)	Choose File No file chosen
Well Diagram (monitoring well)	Choose File No file chosen
Coliform analysis (if applicable)	Choose File No file chosen
Signed variance (if applicable)	Choose File No file chosen
Other laboratory analysis report (if applicable)	Choose File No file chosen
Casing/ Screen Supplemental Info	Choose File No file chosen

Comments

Affirmation: I certify under penalty of law that this document 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.

Signature of certified driller & PIN(*)	Dave Schrecengost	Date Signed(*)	02/27/2019
Driller First Name(*)	Dave	Driller Last Name(*)	Schrecengost
Certification Number(*)	0492-0534-00	Certification Company(*)	Cascade Drilling

Kentucky Well ID (AKGWA) Number(*)	8007-1139
Owner Well ID	MW-104
Work Start Date(*)	02/19/2019
Work End Date(*)	02/20/2019
Total depth (ft)(*)	60
Depth to bedrock (ft)	53
Static water level (ft)	
SWL method(*)	Undetermined
Casing height above surface (in)	36

WATER WELLS ONLY

Estimated well yield	
Well Yield Method	
Well service (# of people served)	
Disinfectant amount	
Disinfectant type	
Pitless adapter installed	
Pump installed	
Depth to intake (ft)	

Appar**ent quality and odor:**

Appearance	
Odor Type	
Odor-Level	

Coliform Test

Coliform test type	
Coliform test results	or # colonies per 100 ml
Date Sampled	
Date Analyzed	

For Internal Staff Use Only

Date Received:	
Date Mapped:	
Mapped By:	

Save For Future Retrieval | Submit to DEP

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UNIFORM KENTUCKY WELL CONSTRUCTION RECORD

Use this form to report installation of monitoring or water wells.

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

See instructions below

One copy to owner and one copy to driller's files.

Owner Name(*)	Big Rivers Electric Corp
Owner First Name(*)	NA
Owner Last Name(*)	NA
Owner Address(*)	201 3rd Street
Owner City(*)	Henderson
State(*)	Kentucky
Owner Zip(*)	42420
Owner Phone(*)	270-827-2561
Owner eMail	

Site Name(*)	Sebree Generating Station
Site Address(*)	9000 Highway 2096
Site City(*)	Robards
State(*)	Kentucky
Site Zip(*)	42452
Site Phone	
Site eMail	
Well Latitude(*) DMS to DD Converter	37.630597
Well Longitude(*)	-87.500974
Method(*)	Handheld GPS - Not Differenti

Agency Interest (AI) Number		Facility Type & ID	
USGS Topo Map(*)	ROBARDS	County(*)	Webster
Surface elevation (ft)		Elevation determined by	
Physiographic Region(*)	Ohio River Alluvium	Well Use(*)	Monitoring well - ambient mo
Drilling Method(*)	Sonic	Well Status(*)	active
Wellhead(*)	Locking Cap	Well Condition(*)	Functioning properly

Casing / Open Borehole

	From depth (ft)(*)	To depth (ft)(*)	Borehole diameter (in)(*)	Casing diameter (in)(*)	Casing type(*)
Delete	0	50	6	2	PVC
Add New					

Screen

	From depth (ft)(*)(*)	To depth (ft)(*)(*)	Borehole diameter (in)(*)(*)	Screen diameter (in)(*)(*)	Screen Type(*)(*)	Screen slot size(*)(*)
Delete	50	60	6	2	PVC	.010
Add New						

Annulus fill and seal

	Section(*)	From depth (ft)(*)	To depth (ft)(*)	Material(*)
Delete	Grout	43	2	Mixture - bentonite & cement
Delete	Seal	48	43	Bentonite
Delete	Filter Pack	48	60.5	Sand
Add New				

Lithologic log

	From depth (ft)(*)	To depth (ft)(*)	Description(*)
Delete	0	1	Brn Silty Clay
Delete	1	13	Gray ~~Fly Ash~~ fill materia
Delete	13	40	Brn Silty Clay
Delete	40	42	Gray Silty Clay
Delete	42	45	Brn Clayey Silt
Delete	45	48	Brn Silty Clay
Delete	48	53	Brn Sandy Silty Clay
Delete	53	60.5	Gray Weathered Sandstone
Add New			

Site Map/Sketch Map(*)	Choose File No file chosen
Well Diagram (monitoring well)	Choose File No file chosen
Coliform analysis (if applicable)	Choose File No file chosen
Signed variance (if applicable)	Choose File No file chosen
Other laboratory analysis report (if applicable)	Choose File No file chosen
Casing/Screen Supplemental Info	Choose File No file chosen

Comments

Affirmation: I certify under penalty of law that this document 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.

Signature of certified driller & PIN(*)	Dave Schrecengost	Date Signed(*)	02/27/2019
Driller First Name(*)	Dave	Driller Last Name(*)	Schrecengost
Certification Number(*)	0492-0534-00	Certification Company(*)	Cascade Drilling

Kentucky Well ID (AKGWA) Number(*)	8007-1139
Owner Well ID	MW-104
Work Start Date(*)	02/19/2019
Work End Date(*)	02/20/2019
Total depth (ft)(*)	60
Depth to bedrock (ft)	53
Static water level (ft)	
SWL method(*)	Undetermined
Casing height above surface (in)	36

WATER WELLS ONLY

Estimated well yield	
Well Yield Method	
Well service (# of people served)	
Disinfectant amount	
Disinfectant type	
Pitless adapter installed	
Pump installed	
Depth to intake (ft)	

Apparent quality and odor:

Appearance	
Odor Type	
Odor-Level	

Coliform Test

Coliform test type	
Coliform test results	or # colonies per 100 ml
Date Sampled	
Date Analyzed	

For Internal Staff Use Only

Date Received:	
Date Mapped:	
Mapped By:	

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Appendix C
Groundwater Characterization Laboratory Analytical Data
March/April 2019

eurofins | Environment Testing TestAmerica



ANALYTICAL REPORT

Eurofins TestAmerica, Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Tel: (615)726-0177

Laboratory Job ID: 490-171184-1
Laboratory Sample Delivery Group: Sebree Station
Client Project/Site: Sebree Station - New CCR Wells

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

Attn: Greg Dick

Roxanne Cisneros

Authorized for release by:
5/8/2019 9:51:41 AM

Roxanne Cisneros, Senior Project Manager
(615)301-5761
roxanne.cisneros@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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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Sample Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-171184-1	MW-104	Water	03/29/19 12:03	03/30/19 09:00
490-171184-2	MW-110	Water	03/29/19 09:35	03/30/19 09:00
490-171184-3	DUPE	Water	03/29/19 09:46	03/30/19 09:00
490-171184-4	FIELD BLANK	Water	03/29/19 12:27	03/30/19 09:00

Job ID: 490-171184-1

Laboratory: Eurofins TestAmerica, Nashville

Narrative

Job Narrative
490-171184-1

Comments
No additional comments.

Receipt
The samples were received on 3/30/2019 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.0º C and 3.6º C.

HPLC/IC
Method(s) 9056A: Due to the high concentration of Sulfate, the matrix spike / matrix spike duplicate (MS/MSD) for analytical batch 490-584786 could not be evaluated for accuracy and precision. The associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) met acceptance criteria.

Method(s) 9056A: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for 490-584786 were within the acceptance limits for chloride . However, the sample results exceeded the calibration curve limits. (490-171184-B-2 MS) and (490-171184-B-2 MSD)

Method(s) 9056A: The continuing calibration blank (CCB) contained chloride above the method detection limit (MDL). However, the result was less than the reporting limit (RL). The results have been reported. (CCB 490-584786/23)

Method(s) 9056A: The following samples were diluted due to the nature of the sample matrix: MW-104 (490-171184-1), MW-110 (490-171184-2) and DUPE (490-171184-3). Elevated reporting limits (RLs) are provided.

Method(s) 9056A: Due to the nature of the sample matrix, a matrix spike / matrix spike duplicate (MS/MSD) was not analyzed with 490-585062. However, the laboratory control sample / laboratory control sample duplicate (LCS/LCSD) recoveries were within the acceptance limits. (LCS 490-585062/4) and (LCSD 490-585062/5)

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

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

Narrative

Job Narrative
490-171184-2

Comments
No additional comments.

Receipt
The samples were received on 3/30/2019 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.0º C and 3.6º C.

RAD
Method(s) 903.0, 9315: Ra-226 Prep Batch 160-423611: 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-104 (490-171184-1),

Job ID: 490-171184-1 (Continued)

Laboratory: Eurofins TestAmerica, Nashville (Continued)

MW-110 (490-171184-2), DUPE (490-171184-3), FIELD BLANK (490-171184-4), (LCS 160-423611/1-A), (MB 160-423611/24-A), (400-168077-A-20-A) and (400-168077-B-20-A DU)

Method(s) 904.0: Radium-228 Prep Batch 160-423832: The following sample did not meet the requested limit (RL) due to the reduced sample volume attributed to the presence of matrix interferences (see prep NCM 164958). The data have been reported with this narrative. DUPE (490-171184-3)

Method(s) 904.0, 9320: Radium-228 Prep Batch 160-423832: 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-104 (490-171184-1), MW-110 (490-171184-2), DUPE (490-171184-3), FIELD BLANK (490-171184-4), (LCS 160-423832/1-A), (MB 160-423832/24-A), (400-168077-A-20-B) and (400-168077-B-20-B DU)

Method(s) PrecSep_0: Radium-228 Prep Batch 160-423832: The following samples were reduced due to heavy discoloration from sedimentation: MW-104 (490-171184-1), MW-110 (490-171184-2) and DUPE (490-171184-3)

Method(s) PrecSep-21: Radium-226 Prep Batch 160-423611: The following samples were reduced due to heavy discoloration due to sedimentation: MW-104 (490-171184-1), MW-110 (490-171184-2) and DUPE (490-171184-3)

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

Qualifiers

HPLC/IC

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.
E	Result exceeded calibration range.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
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
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.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

Client Sample ID: MW-104

Date Collected: 03/29/19 12:03
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-1

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**1430**		300	20.0	mg/L			04/02/19 14:03	100
Fluoride	ND		1.00	0.0100	mg/L			04/01/19 11:43	1
Sulfate	**2870**		500	3.00	mg/L			04/02/19 14:03	100

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.0281**	**J**	0.0500	0.00959	mg/L		04/03/19 11:21	04/04/19 09:05	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.0000910**	**J B**	0.00200	0.0000213	mg/L		04/04/19 13:20	04/05/19 13:17	1
Arsenic	**0.00221**	**J**	0.00500	0.000118	mg/L		04/04/19 13:20	04/05/19 13:17	1
Barium	**0.0243**	**J**	0.200	0.000270	mg/L		04/04/19 13:20	04/05/19 13:17	1
Beryllium	ND		0.00200	0.000102	mg/L		04/04/19 13:20	04/05/19 13:17	1
Boron	**0.188**	**J B**	1.00	0.00339	mg/L		04/04/19 13:20	04/05/19 13:17	1
Cadmium	ND		0.00100	0.000152	mg/L		04/04/19 13:20	04/05/19 13:17	1
Calcium	**465**	**B**	1.00	0.0412	mg/L		04/04/19 13:20	04/05/19 13:17	1
Chromium	**0.00471**	**B**	0.00300	0.000339	mg/L		04/04/19 13:20	04/05/19 13:17	1
Cobalt	**0.00594**	**B**	0.00500	0.0000218	mg/L		04/04/19 13:20	04/05/19 13:17	1
Iron	**3.22**		0.0500	0.0141	mg/L		04/04/19 13:20	04/05/19 13:17	1
Lead	**0.00105**	**J**	0.00500	0.0000675	mg/L		04/04/19 13:20	04/05/19 13:17	1
Magnesium	**521**		1.00	0.0827	mg/L		04/04/19 13:20	04/05/19 13:17	1
Molybdenum	**0.00147**	**J**	0.0100	0.000873	mg/L		04/04/19 13:20	04/05/19 13:17	1
Potassium	**1650**		1000	147	ug/L		04/04/19 13:20	04/05/19 13:17	1
Selenium	ND		0.0100	0.000348	mg/L		04/04/19 13:20	04/05/19 13:17	1
Sodium	**824**		1.00	0.251	mg/L		04/04/19 13:20	04/05/19 13:17	1
Thallium	ND		0.00100	0.0000360	mg/L		04/04/19 13:20	04/05/19 13:17	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		04/03/19 14:38	04/05/19 12:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**6.88**		0.100	0.100	SU			04/03/19 15:52	1
Temperature	**20.9**		0.100	0.100	Degrees C			04/03/19 15:52	1
Specific Conductance (25C)	**8790**		10.0	10.0	umhos/cm			04/03/19 20:44	1
Bicarbonate Alkalinity as CaCO3	**664**		10.0	5.00	mg/L			04/05/19 19:51	1
Carbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 19:51	1
Alkalinity	**664**		10.0	5.00	mg/L			04/05/19 19:51	1
Total Dissolved Solids	**6990**		100	28.0	mg/L			04/02/19 10:30	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	**0.139**		0.0913	0.0922	1.00	0.121	pCi/L	04/14/19 16:48	05/07/19 13:21	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*84.7*		*40 - 110*	*04/14/19 16:48*	*05/07/19 13:21*	*1*

Client Sample ID: MW-104

Date Collected: 03/29/19 12:03
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-1

Matrix: Water

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.627		0.365	0.370	1.00	0.553	pCi/L	04/14/19 16:48	04/25/19 08:14	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*84.7*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:14*	*1*
Y Carrier	*87.1*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:14*	*1*

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	0.766		0.376	0.381	5.00	0.553	pCi/L		05/08/19 07:28	1

Client Sample ID: MW-110

Date Collected: 03/29/19 09:35
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-2

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**26.0**		6.00	0.400	mg/L			04/02/19 14:36	2
Fluoride	**0.279**	**J**	1.00	0.0100	mg/L			04/01/19 11:59	1
Sulfate	**563**		250	1.50	mg/L			04/02/19 14:52	50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.0299**	**J**	0.0500	0.00959	mg/L		04/03/19 11:21	04/04/19 09:11	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.000240**	**J B**	0.00200	0.0000213	mg/L		04/04/19 13:20	04/05/19 13:20	1
Arsenic	**0.00534**		0.00500	0.000118	mg/L		04/04/19 13:20	04/05/19 13:20	1
Barium	**0.118**	**J**	0.200	0.000270	mg/L		04/04/19 13:20	04/05/19 13:20	1
Beryllium	**0.000716**	**J**	0.00200	0.000102	mg/L		04/04/19 13:20	04/05/19 13:20	1
Boron	**0.484**	**J B**	1.00	0.00339	mg/L		04/04/19 13:20	04/05/19 13:20	1
Cadmium	ND		0.00100	0.000152	mg/L		04/04/19 13:20	04/05/19 13:20	1
Calcium	**176**	**B**	1.00	0.0412	mg/L		04/04/19 13:20	04/05/19 13:20	1
Chromium	**0.0180**	**B**	0.00300	0.000339	mg/L		04/04/19 13:20	04/05/19 13:20	1
Cobalt	**0.00911**	**B**	0.00500	0.0000218	mg/L		04/04/19 13:20	04/05/19 13:20	1
Iron	**19.5**		0.0500	0.0141	mg/L		04/04/19 13:20	04/05/19 13:20	1
Lead	**0.00661**		0.00500	0.0000675	mg/L		04/04/19 13:20	04/05/19 13:20	1
Magnesium	**56.8**		1.00	0.0827	mg/L		04/04/19 13:20	04/05/19 13:20	1
Molybdenum	**0.00153**	**J**	0.0100	0.000873	mg/L		04/04/19 13:20	04/05/19 13:20	1
Potassium	**4070**		1000	147	ug/L		04/04/19 13:20	04/05/19 13:20	1
Selenium	ND		0.0100	0.000348	mg/L		04/04/19 13:20	04/05/19 13:20	1
Sodium	**96.3**		1.00	0.251	mg/L		04/04/19 13:20	04/05/19 13:20	1
Thallium	**0.000112**	**J**	0.00100	0.0000360	mg/L		04/04/19 13:20	04/05/19 13:20	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		04/03/19 14:38	04/05/19 12:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.25**		0.100	0.100	SU			04/03/19 15:52	1
Temperature	**20.7**		0.100	0.100	Degrees C			04/03/19 15:52	1
Specific Conductance (25C)	**1570**		10.0	10.0	umhos/cm			04/03/19 20:44	1
Bicarbonate Alkalinity as CaCO3	**266**		10.0	5.00	mg/L			04/05/19 19:58	1
Carbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 19:58	1
Alkalinity	**266**		10.0	5.00	mg/L			04/05/19 19:58	1
Total Dissolved Solids	**1170**		50.0	14.0	mg/L			04/02/19 10:30	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	**0.688**		0.230	0.238	1.00	0.200	pCi/L	04/14/19 16:48	05/07/19 13:21	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*72.6*		*40 - 110*	*04/14/19 16:48*	*05/07/19 13:21*	*1*

Client Sample ID: MW-110

Date Collected: 03/29/19 09:35
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-2

Matrix: Water

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.15		0.621	0.630	1.00	0.927	pCi/L	04/14/19 16:48	04/25/19 08:14	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*72.6*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:14*	*1*
Y Carrier	*90.5*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:14*	*1*

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	1.84		0.662	0.673	5.00	0.927	pCi/L		05/08/19 07:28	1

Client Sample ID: DUPE

Date Collected: 03/29/19 09:46
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-3

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	25.2		6.00	0.400	mg/L			04/02/19 15:09	2
Fluoride	0.283	J	1.00	0.0100	mg/L			04/01/19 12:49	1
Sulfate	552		250	1.50	mg/L			04/02/19 15:26	50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0260	J	0.0500	0.00959	mg/L		04/03/19 11:21	04/04/19 09:16	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.000193	J B	0.00200	0.0000213	mg/L		04/04/19 13:20	04/05/19 13:24	1
Arsenic	0.00393	J	0.00500	0.000118	mg/L		04/04/19 13:20	04/05/19 13:24	1
Barium	0.114	J	0.200	0.000270	mg/L		04/04/19 13:20	04/05/19 13:24	1
Beryllium	0.000572	J	0.00200	0.000102	mg/L		04/04/19 13:20	04/05/19 13:24	1
Boron	0.490	J B	1.00	0.00339	mg/L		04/04/19 13:20	04/05/19 13:24	1
Cadmium	ND		0.00100	0.000152	mg/L		04/04/19 13:20	04/05/19 13:24	1
Calcium	178	B	1.00	0.0412	mg/L		04/04/19 13:20	04/05/19 13:24	1
Chromium	0.0148	B	0.00300	0.000339	mg/L		04/04/19 13:20	04/05/19 13:24	1
Cobalt	0.00631	B	0.00500	0.0000218	mg/L		04/04/19 13:20	04/05/19 13:24	1
Iron	15.2		0.0500	0.0141	mg/L		04/04/19 13:20	04/05/19 13:24	1
Lead	0.00561		0.00500	0.0000675	mg/L		04/04/19 13:20	04/05/19 13:24	1
Magnesium	56.8		1.00	0.0827	mg/L		04/04/19 13:20	04/05/19 13:24	1
Molybdenum	0.00136	J	0.0100	0.000873	mg/L		04/04/19 13:20	04/05/19 13:24	1
Potassium	3910		1000	147	ug/L		04/04/19 13:20	04/05/19 13:24	1
Selenium	ND		0.0100	0.000348	mg/L		04/04/19 13:20	04/05/19 13:24	1
Sodium	98.5		1.00	0.251	mg/L		04/04/19 13:20	04/05/19 13:24	1
Thallium	0.0000770	J	0.00100	0.0000360	mg/L		04/04/19 13:20	04/05/19 13:24	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		04/03/19 14:38	04/05/19 12:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.39		0.100	0.100	SU			04/03/19 15:52	1
Temperature	20.7		0.100	0.100	Degrees C			04/03/19 15:52	1
Specific Conductance (25C)	1570		10.0	10.0	umhos/cm			04/03/19 20:44	1
Bicarbonate Alkalinity as CaCO3	289		10.0	5.00	mg/L			04/05/19 20:05	1
Carbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 20:05	1
Alkalinity	289		10.0	5.00	mg/L			04/05/19 20:05	1
Total Dissolved Solids	1170		50.0	14.0	mg/L			04/02/19 10:30	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	0.776		0.242	0.252	1.00	0.171	pCi/L	04/14/19 16:48	05/07/19 13:21	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*68.4*		*40 - 110*	*04/14/19 16:48*	*05/07/19 13:21*	*1*

Client Sample ID: DUPE

Date Collected: 03/29/19 09:46
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-3

Matrix: Water

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.474	U G	0.617	0.619	1.00	1.03	pCi/L	04/14/19 16:48	04/25/19 08:14	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*68.4*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:14*	*1*
Y Carrier	*89.7*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:14*	*1*

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	**1.25**		0.663	0.668	5.00	1.03	pCi/L		05/08/19 07:28	1

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Client Sample ID: FIELD BLANK

Date Collected: 03/29/19 12:27
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-4

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	0.200	mg/L			04/01/19 13:39	1
Fluoride	ND		1.00	0.0100	mg/L			04/01/19 13:39	1
Sulfate	ND		5.00	0.0300	mg/L			04/01/19 13:39	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.0500	0.00959	mg/L		04/03/19 11:21	04/04/19 09:21	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.000131**	**J B**	0.00200	0.0000213	mg/L		04/04/19 13:20	04/05/19 13:27	1
Arsenic	**0.000496**	**J**	0.00500	0.000118	mg/L		04/04/19 13:20	04/05/19 13:27	1
Barium	ND		0.200	0.000270	mg/L		04/04/19 13:20	04/05/19 13:27	1
Beryllium	ND		0.00200	0.000102	mg/L		04/04/19 13:20	04/05/19 13:27	1
Boron	**0.0231**	**J B**	1.00	0.00339	mg/L		04/04/19 13:20	04/05/19 13:27	1
Cadmium	ND		0.00100	0.000152	mg/L		04/04/19 13:20	04/05/19 13:27	1
Calcium	**0.0702**	**J B**	1.00	0.0412	mg/L		04/04/19 13:20	04/05/19 13:27	1
Chromium	**0.00274**	**J B**	0.00300	0.000339	mg/L		04/04/19 13:20	04/05/19 13:27	1
Cobalt	ND		0.00500	0.0000218	mg/L		04/04/19 13:20	04/05/19 13:27	1
Iron	ND		0.0500	0.0141	mg/L		04/04/19 13:20	04/05/19 13:27	1
Lead	ND		0.00500	0.0000675	mg/L		04/04/19 13:20	04/05/19 13:27	1
Magnesium	ND		1.00	0.0827	mg/L		04/04/19 13:20	04/05/19 13:27	1
Molybdenum	ND		0.0100	0.000873	mg/L		04/04/19 13:20	04/05/19 13:27	1
Potassium	ND		1000	147	ug/L		04/04/19 13:20	04/05/19 13:27	1
Selenium	ND		0.0100	0.000348	mg/L		04/04/19 13:20	04/05/19 13:27	1
Sodium	ND		1.00	0.251	mg/L		04/04/19 13:20	04/05/19 13:27	1
Thallium	ND		0.00100	0.0000360	mg/L		04/04/19 13:20	04/05/19 13:27	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		04/03/19 14:38	04/05/19 12:59	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**5.88**		0.100	0.100	SU			04/03/19 15:52	1
Temperature	**20.9**		0.100	0.100	Degrees C			04/03/19 15:52	1
Specific Conductance (25C)	ND		10.0	10.0	umhos/cm			04/03/19 20:45	1
Bicarbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 20:10	1
Carbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 20:10	1
Alkalinity	ND		10.0	5.00	mg/L			04/05/19 20:10	1
Total Dissolved Solids	**10.0**	**J**	25.0	7.00	mg/L			04/02/19 10:30	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	0.00457	U	0.0361	0.0361	1.00	0.0761	pCi/L	04/14/19 16:48	05/07/19 13:22	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.0*		*40 - 110*	*04/14/19 16:48*	*05/07/19 13:22*	*1*

Client Sample ID: FIELD BLANK

Date Collected: 03/29/19 12:27
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-4

Matrix: Water

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.134	U	0.200	0.201	1.00	0.336	pCi/L	04/14/19 16:48	04/25/19 08:14	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.0*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:14*	*1*
Y Carrier	*90.8*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:14*	*1*

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	0.138	U	0.203	0.204	5.00	0.336	pCi/L		05/08/19 07:28	1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 490-584786/3
Matrix: Water
Analysis Batch: 584786

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	0.200	mg/L			04/01/19 08:44	1
Fluoride	ND		1.00	0.0100	mg/L			04/01/19 08:44	1
Sulfate	ND		5.00	0.0300	mg/L			04/01/19 08:44	1

Lab Sample ID: LCS 490-584786/4
Matrix: Water
Analysis Batch: 584786

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.238		mg/L		92	80 - 120
Fluoride	1.00	0.9862	J	mg/L		99	80 - 120
Sulfate	10.0	9.515		mg/L		95	80 - 120

Lab Sample ID: LCSD 490-584786/5
Matrix: Water
Analysis Batch: 584786

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.205		mg/L		92	80 - 120	0	20
Fluoride	1.00	0.9820	J	mg/L		98	80 - 120	0	20
Sulfate	10.0	9.584		mg/L		96	80 - 120	1	20

Lab Sample ID: 490-171184-2 MS
Matrix: Water
Analysis Batch: 584786

Client Sample ID: MW-110
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	26.8	E	10.0	38.44	E	mg/L		116	80 - 120
Fluoride	0.279	J	1.00	1.339		mg/L		106	80 - 120
Sulfate	791	E	10.0	796.0	E 4	mg/L		50	80 - 120

Lab Sample ID: 490-171184-2 MSD
Matrix: Water
Analysis Batch: 584786

Client Sample ID: MW-110
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	26.8	E	10.0	38.70	E	mg/L		118	80 - 120	1	20
Fluoride	0.279	J	1.00	1.373		mg/L		109	80 - 120	2	20
Sulfate	791	E	10.0	796.1	E 4	mg/L		51	80 - 120	0	20

Lab Sample ID: MB 490-585062/3
Matrix: Water
Analysis Batch: 585062

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	0.200	mg/L			04/02/19 12:56	1
Fluoride	ND		1.00	0.0100	mg/L			04/02/19 12:56	1
Sulfate	ND		5.00	0.0300	mg/L			04/02/19 12:56	1

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 490-585062/4
Matrix: Water
Analysis Batch: 585062

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			10.0	9.308		mg/L		93	80 - 120		
Fluoride			1.00	1.020		mg/L		102	80 - 120		
Sulfate			10.0	9.831		mg/L		98	80 - 120		

Lab Sample ID: LCSD 490-585062/5
Matrix: Water
Analysis Batch: 585062

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			10.0	9.310		mg/L		93	80 - 120	0	20
Fluoride			1.00	1.029		mg/L		103	80 - 120	1	20
Sulfate			10.0	9.853		mg/L		98	80 - 120	0	20

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 180-274722/1-A
Matrix: Water
Analysis Batch: 274816

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 274722

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.0500	0.00959	mg/L		04/03/19 11:21	04/04/19 07:41	1

Lab Sample ID: LCS 180-274722/2-A
Matrix: Water
Analysis Batch: 274816

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 274722

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Lithium			1.00	0.9781		mg/L		98	80 - 120		

Lab Sample ID: 180-88255-C-3-D MSD
Matrix: Water
Analysis Batch: 274816

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 274722

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lithium	ND		1.00	0.9822		mg/L		98	75 - 125	0	20

Lab Sample ID: 180-88255-D-3-E MS
Matrix: Water
Analysis Batch: 274816

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 274722

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Lithium	ND		1.00	0.9852		mg/L		99	75 - 125		

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 180-274861/1-A
Matrix: Water
Analysis Batch: 275004

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 274861

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00005200	J	0.00200	0.0000213	mg/L		04/04/19 13:20	04/05/19 11:56	1
Arsenic	ND		0.00500	0.000118	mg/L		04/04/19 13:20	04/05/19 11:56	1
Barium	ND		0.200	0.000270	mg/L		04/04/19 13:20	04/05/19 11:56	1
Beryllium	ND		0.00200	0.000102	mg/L		04/04/19 13:20	04/05/19 11:56	1
Boron	0.006373	J	1.00	0.00339	mg/L		04/04/19 13:20	04/05/19 11:56	1
Cadmium	ND		0.00100	0.000152	mg/L		04/04/19 13:20	04/05/19 11:56	1
Calcium	0.05960	J	1.00	0.0412	mg/L		04/04/19 13:20	04/05/19 11:56	1
Chromium	0.0003860	J	0.00300	0.000339	mg/L		04/04/19 13:20	04/05/19 11:56	1
Cobalt	0.00002600	J	0.00500	0.0000218	mg/L		04/04/19 13:20	04/05/19 11:56	1
Iron	ND		0.0500	0.0141	mg/L		04/04/19 13:20	04/05/19 11:56	1
Lead	ND		0.00500	0.0000675	mg/L		04/04/19 13:20	04/05/19 11:56	1
Magnesium	ND		1.00	0.0827	mg/L		04/04/19 13:20	04/05/19 11:56	1
Molybdenum	ND		0.0100	0.000873	mg/L		04/04/19 13:20	04/05/19 11:56	1
Potassium	ND		1000	147	ug/L		04/04/19 13:20	04/05/19 11:56	1
Selenium	ND		0.0100	0.000348	mg/L		04/04/19 13:20	04/05/19 11:56	1
Sodium	ND		1.00	0.251	mg/L		04/04/19 13:20	04/05/19 11:56	1
Thallium	ND		0.00100	0.0000360	mg/L		04/04/19 13:20	04/05/19 11:56	1

Lab Sample ID: LCS 180-274861/2-A
Matrix: Water
Analysis Batch: 275004

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 274861

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.500	0.4849		mg/L		97	80 - 120
Arsenic	0.0400	0.03953		mg/L		99	80 - 120
Barium	2.00	1.928		mg/L		96	80 - 120
Beryllium	0.0500	0.05212		mg/L		104	80 - 120
Boron	1.00	0.9972	J	mg/L		100	80 - 120
Cadmium	0.0500	0.05024		mg/L		100	80 - 120
Calcium	50.0	48.40		mg/L		97	80 - 120
Chromium	0.200	0.2007		mg/L		100	80 - 120
Cobalt	0.500	0.4952		mg/L		99	80 - 120
Iron	11.0	10.61		mg/L		96	80 - 120
Lead	0.0200	0.01871		mg/L		94	80 - 120
Magnesium	50.0	48.08		mg/L		96	80 - 120
Molybdenum	1.00	0.9281		mg/L		93	80 - 120
Potassium	50000	47700		ug/L		95	80 - 120
Selenium	0.0100	0.01014		mg/L		101	80 - 120
Sodium	50.0	50.18		mg/L		100	80 - 120
Thallium	0.0500	0.05062		mg/L		101	80 - 120

Lab Sample ID: 180-88068-D-12-G MS
Matrix: Water
Analysis Batch: 275004

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 274861

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	0.000265	J	0.0200	0.01955		mg/L		96	75 - 125

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

Lab Sample ID: 180-88068-D-12-H MSD
Matrix: Water
Analysis Batch: 275004

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 274861

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	0.000265	J	0.0200	0.01972		mg/L		97	75 - 125	1	20

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-274765/1-A
Matrix: Water
Analysis Batch: 274975

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 274765

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		04/03/19 14:38	04/05/19 12:35	1

Lab Sample ID: LCS 180-274765/2-A
Matrix: Water
Analysis Batch: 274975

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 274765

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	2.50	2.327		ug/L		93	80 - 120

Lab Sample ID: 180-88333-D-4-E MS
Matrix: Water
Analysis Batch: 274975

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 274765

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		1.00	0.9220		ug/L		92	75 - 125

Lab Sample ID: 180-88333-D-4-F MSD
Matrix: Water
Analysis Batch: 274975

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 274765

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		1.00	0.9290		ug/L		93	75 - 125	1	20

Method: 9040C - pH

Lab Sample ID: LCS 490-585481/1
Matrix: Water
Analysis Batch: 585481

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.010		SU		100	98 - 103

Lab Sample ID: 490-171184-1 DU
Matrix: Water
Analysis Batch: 585481

Client Sample ID: MW-104
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	6.88		6.880		SU		0	20
Temperature	20.9		20.90		Degrees C		0	20

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 490-586311/5
Matrix: Water
Analysis Batch: 586311

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 19:05	1
Carbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 19:05	1
Alkalinity	ND		10.0	5.00	mg/L			04/05/19 19:05	1

Lab Sample ID: LCS 490-586311/6
Matrix: Water
Analysis Batch: 586311

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Alkalinity			100	92.55		mg/L		93	90 - 110		

Lab Sample ID: LCSD 490-586311/27
Matrix: Water
Analysis Batch: 586311

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity			100	94.04		mg/L		94	90 - 110	2	20

Lab Sample ID: LCSD 490-586311/29
Matrix: Water
Analysis Batch: 586311

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity			100	95.36		mg/L		95	90 - 110	3	20

Lab Sample ID: 490-171227-A-1 DU
Matrix: Water
Analysis Batch: 586311

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Bicarbonate Alkalinity as CaCO3	181			179.3		mg/L				0.8	20
Carbonate Alkalinity as CaCO3	ND			ND		mg/L				NC	20
Alkalinity	181			179.3		mg/L				0.8	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 490-584789/1
Matrix: Water
Analysis Batch: 584789

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		25.0	7.00	mg/L			04/02/19 10:30	1

Lab Sample ID: LCS 490-584789/2
Matrix: Water
Analysis Batch: 584789

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			100	108.0		mg/L		108	90 - 110		

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: 490-171046-M-1 DU
Matrix: Water
Analysis Batch: 584789

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	251			256.0		mg/L				2	20

Lab Sample ID: 490-171184-1 DU
Matrix: Water
Analysis Batch: 584789

Client Sample ID: MW-104
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	6990			6900		mg/L				1	20

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-423611/24-A
Matrix: Water
Analysis Batch: 427653

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 423611

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.06299	U	0.0535	0.0538	1.00	0.0761	pCi/L	04/14/19 16:48	05/07/19 13:22	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.6*		*40 - 110*	*04/14/19 16:48*	*05/07/19 13:22*	*1*

Lab Sample ID: LCS 160-423611/1-A
Matrix: Water
Analysis Batch: 427429

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 423611

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.4	10.04		1.05	1.00	0.0858	pCi/L	88	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*90.0*		*40 - 110*

Lab Sample ID: 400-168077-B-20-A DU
Matrix: Water
Analysis Batch: 427429

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 423611

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Radium-226	0.263			0.2137		0.0923	1.00	0.0946	pCi/L			0.25	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Ba Carrier	*85.5*		*40 - 110*

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-423832/24-A
Matrix: Water
Analysis Batch: 425516

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 423832

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.3565	U	0.235	0.237	1.00	0.361	pCi/L	04/14/19 16:48	04/25/19 08:15	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.6*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:15*	*1*
Y Carrier	*89.7*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:15*	*1*

Lab Sample ID: LCS 160-423832/1-A
Matrix: Water
Analysis Batch: 425517

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 423832

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.27	10.51		1.20	1.00	0.391	pCi/L	113	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*90.0*		*40 - 110*
Y Carrier	*87.5*		*40 - 110*

Lab Sample ID: 400-168077-B-20-B DU
Matrix: Water
Analysis Batch: 425517

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 423832

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Radium-228	0.577			0.4291		0.277	1.00	0.422	pCi/L			0.27	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Ba Carrier	*85.5*		*40 - 110*
Y Carrier	*85.6*		*40 - 110*

HPLC/IC

Analysis Batch: 584786

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	9056A	
490-171184-2	MW-110	Total/NA	Water	9056A	
490-171184-3	DUPE	Total/NA	Water	9056A	
490-171184-4	FIELD BLANK	Total/NA	Water	9056A	
MB 490-584786/3	Method Blank	Total/NA	Water	9056A	
LCS 490-584786/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-584786/5	Lab Control Sample Dup	Total/NA	Water	9056A	
490-171184-2 MS	MW-110	Total/NA	Water	9056A	
490-171184-2 MSD	MW-110	Total/NA	Water	9056A	

Analysis Batch: 585062

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	9056A	
490-171184-2	MW-110	Total/NA	Water	9056A	
490-171184-2	MW-110	Total/NA	Water	9056A	
490-171184-3	DUPE	Total/NA	Water	9056A	
490-171184-3	DUPE	Total/NA	Water	9056A	
MB 490-585062/3	Method Blank	Total/NA	Water	9056A	
LCS 490-585062/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-585062/5	Lab Control Sample Dup	Total/NA	Water	9056A	

Metals

Filtration Batch: 273938

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-88068-D-12-G MS	Matrix Spike	Dissolved	Water	FILTRATION	
180-88068-D-12-H MSD	Matrix Spike Duplicate	Dissolved	Water	FILTRATION	

Prep Batch: 274722

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total Recoverable	Water	3005A	
490-171184-2	MW-110	Total Recoverable	Water	3005A	
490-171184-3	DUPE	Total Recoverable	Water	3005A	
490-171184-4	FIELD BLANK	Total Recoverable	Water	3005A	
MB 180-274722/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-274722/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-88255-C-3-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	3005A	
180-88255-D-3-E MS	Matrix Spike	Total Recoverable	Water	3005A	

Prep Batch: 274765

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	7470A	
490-171184-2	MW-110	Total/NA	Water	7470A	
490-171184-3	DUPE	Total/NA	Water	7470A	
490-171184-4	FIELD BLANK	Total/NA	Water	7470A	
MB 180-274765/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-274765/2-A	Lab Control Sample	Total/NA	Water	7470A	
180-88333-D-4-E MS	Matrix Spike	Dissolved	Water	7470A	
180-88333-D-4-F MSD	Matrix Spike Duplicate	Dissolved	Water	7470A	

Metals

Analysis Batch: 274816

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total Recoverable	Water	6010C	274722
490-171184-2	MW-110	Total Recoverable	Water	6010C	274722
490-171184-3	DUPE	Total Recoverable	Water	6010C	274722
490-171184-4	FIELD BLANK	Total Recoverable	Water	6010C	274722
MB 180-274722/1-A	Method Blank	Total Recoverable	Water	6010C	274722
LCS 180-274722/2-A	Lab Control Sample	Total Recoverable	Water	6010C	274722
180-88255-C-3-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	6010C	274722
180-88255-D-3-E MS	Matrix Spike	Total Recoverable	Water	6010C	274722

Prep Batch: 274861

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total Recoverable	Water	3005A	
490-171184-2	MW-110	Total Recoverable	Water	3005A	
490-171184-3	DUPE	Total Recoverable	Water	3005A	
490-171184-4	FIELD BLANK	Total Recoverable	Water	3005A	
MB 180-274861/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-274861/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-88068-D-12-G MS	Matrix Spike	Dissolved	Water	3005A	273938
180-88068-D-12-H MSD	Matrix Spike Duplicate	Dissolved	Water	3005A	273938

Analysis Batch: 274975

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	EPA 7470A	274765
490-171184-2	MW-110	Total/NA	Water	EPA 7470A	274765
490-171184-3	DUPE	Total/NA	Water	EPA 7470A	274765
490-171184-4	FIELD BLANK	Total/NA	Water	EPA 7470A	274765
MB 180-274765/1-A	Method Blank	Total/NA	Water	EPA 7470A	274765
LCS 180-274765/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	274765
180-88333-D-4-E MS	Matrix Spike	Dissolved	Water	EPA 7470A	274765
180-88333-D-4-F MSD	Matrix Spike Duplicate	Dissolved	Water	EPA 7470A	274765

Analysis Batch: 275004

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total Recoverable	Water	6020A	274861
490-171184-2	MW-110	Total Recoverable	Water	6020A	274861
490-171184-3	DUPE	Total Recoverable	Water	6020A	274861
490-171184-4	FIELD BLANK	Total Recoverable	Water	6020A	274861
MB 180-274861/1-A	Method Blank	Total Recoverable	Water	6020A	274861
LCS 180-274861/2-A	Lab Control Sample	Total Recoverable	Water	6020A	274861
180-88068-D-12-G MS	Matrix Spike	Dissolved	Water	6020A	274861
180-88068-D-12-H MSD	Matrix Spike Duplicate	Dissolved	Water	6020A	274861

General Chemistry

Analysis Batch: 584789

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	SM 2540C	
490-171184-2	MW-110	Total/NA	Water	SM 2540C	
490-171184-3	DUPE	Total/NA	Water	SM 2540C	
490-171184-4	FIELD BLANK	Total/NA	Water	SM 2540C	
MB 490-584789/1	Method Blank	Total/NA	Water	SM 2540C	

General Chemistry (Continued)

Analysis Batch: 584789 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 490-584789/2	Lab Control Sample	Total/NA	Water	SM 2540C	
490-171046-M-1 DU	Duplicate	Total/NA	Water	SM 2540C	
490-171184-1 DU	MW-104	Total/NA	Water	SM 2540C	

Analysis Batch: 585481

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	9040C	
490-171184-2	MW-110	Total/NA	Water	9040C	
490-171184-3	DUPE	Total/NA	Water	9040C	
490-171184-4	FIELD BLANK	Total/NA	Water	9040C	
LCS 490-585481/1	Lab Control Sample	Total/NA	Water	9040C	
490-171184-1 DU	MW-104	Total/NA	Water	9040C	

Analysis Batch: 585534

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	9050A	
490-171184-2	MW-110	Total/NA	Water	9050A	
490-171184-3	DUPE	Total/NA	Water	9050A	
490-171184-4	FIELD BLANK	Total/NA	Water	9050A	
LCS 490-585534/3	Lab Control Sample	Total/NA	Water	9050A	

Analysis Batch: 586311

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	SM 2320B	
490-171184-2	MW-110	Total/NA	Water	SM 2320B	
490-171184-3	DUPE	Total/NA	Water	SM 2320B	
490-171184-4	FIELD BLANK	Total/NA	Water	SM 2320B	
MB 490-586311/5	Method Blank	Total/NA	Water	SM 2320B	
LCS 490-586311/6	Lab Control Sample	Total/NA	Water	SM 2320B	
LCSD 490-586311/27	Lab Control Sample Dup	Total/NA	Water	SM 2320B	
LCSD 490-586311/29	Lab Control Sample Dup	Total/NA	Water	SM 2320B	
490-171227-A-1 DU	Duplicate	Total/NA	Water	SM 2320B	

Rad

Prep Batch: 423611

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	PrecSep-21	
490-171184-2	MW-110	Total/NA	Water	PrecSep-21	
490-171184-3	DUPE	Total/NA	Water	PrecSep-21	
490-171184-4	FIELD BLANK	Total/NA	Water	PrecSep-21	
MB 160-423611/24-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-423611/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
400-168077-B-20-A DU	Duplicate	Total/NA	Water	PrecSep-21	

Prep Batch: 423832

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	PrecSep_0	
490-171184-2	MW-110	Total/NA	Water	PrecSep_0	
490-171184-3	DUPE	Total/NA	Water	PrecSep_0	
490-171184-4	FIELD BLANK	Total/NA	Water	PrecSep_0	

Rad (Continued)

Prep Batch: 423832 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 160-423832/24-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-423832/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
400-168077-B-20-B DU	Duplicate	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Client Sample ID: MW-104

Date Collected: 03/29/19 12:03
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			584786	04/01/19 11:43	SW1	TAL NSH
Total/NA	Analysis	9056A		100			585062	04/02/19 14:03	SW1	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	274722	04/03/19 11:21	NAM	TAL PIT
Total Recoverable	Analysis	6010C		1			274816	04/04/19 09:05	RJG	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	274861	04/04/19 13:20	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			275004	04/05/19 13:17	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	274765	04/03/19 14:38	KAK	TAL PIT
Total/NA	Analysis	EPA 7470A		1			274975	04/05/19 12:54	KAK	TAL PIT
Total/NA	Analysis	9040C		1			585481	04/03/19 15:52	MXX	TAL NSH
Total/NA	Analysis	9050A		1			585534	04/03/19 20:44	VRP	TAL NSH
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	586311	04/05/19 19:51	MSP	TAL NSH
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	584789	04/02/19 10:30	BMC	TAL NSH
Total/NA	Prep	PrecSep-21			750.14 mL	1.0 g	423611	04/14/19 16:48	MMO	TAL SL
Total/NA	Analysis	903.0		1			427653	05/07/19 13:21	CDR	TAL SL
Total/NA	Prep	PrecSep_0			750.14 mL	1.0 g	423832	04/14/19 16:48	MMO	TAL SL
Total/NA	Analysis	904.0		1	1.0 mL	1.0 mL	425516	04/25/19 08:14	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			427672	05/08/19 07:28	SMP	TAL SL

Client Sample ID: MW-110

Date Collected: 03/29/19 09:35
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			584786	04/01/19 11:59	SW1	TAL NSH
Total/NA	Analysis	9056A		2			585062	04/02/19 14:36	SW1	TAL NSH
Total/NA	Analysis	9056A		50			585062	04/02/19 14:52	SW1	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	274722	04/03/19 11:21	NAM	TAL PIT
Total Recoverable	Analysis	6010C		1			274816	04/04/19 09:11	RJG	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	274861	04/04/19 13:20	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			275004	04/05/19 13:20	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	274765	04/03/19 14:38	KAK	TAL PIT
Total/NA	Analysis	EPA 7470A		1			274975	04/05/19 12:55	KAK	TAL PIT
Total/NA	Analysis	9040C		1			585481	04/03/19 15:52	MXX	TAL NSH
Total/NA	Analysis	9050A		1			585534	04/03/19 20:44	VRP	TAL NSH
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	586311	04/05/19 19:58	MSP	TAL NSH
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	584789	04/02/19 10:30	BMC	TAL NSH
Total/NA	Prep	PrecSep-21			500.14 mL	1.0 g	423611	04/14/19 16:48	MMO	TAL SL
Total/NA	Analysis	903.0		1			427653	05/07/19 13:21	CDR	TAL SL
Total/NA	Prep	PrecSep_0			500.14 mL	1.0 g	423832	04/14/19 16:48	MMO	TAL SL
Total/NA	Analysis	904.0		1	1.0 mL	1.0 mL	425516	04/25/19 08:14	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			427672	05/08/19 07:28	SMP	TAL SL

Lab Chronicle

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Client Sample ID: DUPE

Date Collected: 03/29/19 09:46
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			584786	04/01/19 12:49	SW1	TAL NSH
Total/NA	Analysis	9056A		2			585062	04/02/19 15:09	SW1	TAL NSH
Total/NA	Analysis	9056A		50			585062	04/02/19 15:26	SW1	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	274722	04/03/19 11:21	NAM	TAL PIT
Total Recoverable	Analysis	6010C		1			274816	04/04/19 09:16	RJG	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	274861	04/04/19 13:20	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			275004	04/05/19 13:24	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	274765	04/03/19 14:38	KAK	TAL PIT
Total/NA	Analysis	EPA 7470A		1			274975	04/05/19 12:58	KAK	TAL PIT
Total/NA	Analysis	9040C		1			585481	04/03/19 15:52	MXX	TAL NSH
Total/NA	Analysis	9050A		1			585534	04/03/19 20:44	VRP	TAL NSH
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	586311	04/05/19 20:05	MSP	TAL NSH
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	584789	04/02/19 10:30	BMC	TAL NSH
Total/NA	Prep	PrecSep-21			500.02 mL	1.0 g	423611	04/14/19 16:48	MMO	TAL SL
Total/NA	Analysis	903.0		1			427653	05/07/19 13:21	CDR	TAL SL
Total/NA	Prep	PrecSep_0			500.02 mL	1.0 g	423832	04/14/19 16:48	MMO	TAL SL
Total/NA	Analysis	904.0		1	1.0 mL	1.0 mL	425516	04/25/19 08:14	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			427672	05/08/19 07:28	SMP	TAL SL

Client Sample ID: FIELD BLANK

Date Collected: 03/29/19 12:27
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			584786	04/01/19 13:39	SW1	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	274722	04/03/19 11:21	NAM	TAL PIT
Total Recoverable	Analysis	6010C		1			274816	04/04/19 09:21	RJG	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	274861	04/04/19 13:20	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			275004	04/05/19 13:27	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	274765	04/03/19 14:38	KAK	TAL PIT
Total/NA	Analysis	EPA 7470A		1			274975	04/05/19 12:59	KAK	TAL PIT
Total/NA	Analysis	9040C		1			585481	04/03/19 15:52	MXX	TAL NSH
Total/NA	Analysis	9050A		1			585534	04/03/19 20:45	VRP	TAL NSH
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	586311	04/05/19 20:10	MSP	TAL NSH
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	584789	04/02/19 10:30	BMC	TAL NSH
Total/NA	Prep	PrecSep-21			1000.00 mL	1.0 g	423611	04/14/19 16:48	MMO	TAL SL
Total/NA	Analysis	903.0		1			427653	05/07/19 13:22	CDR	TAL SL
Total/NA	Prep	PrecSep_0			1000.00 mL	1.0 g	423832	04/14/19 16:48	MMO	TAL SL
Total/NA	Analysis	904.0		1	1.0 mL	1.0 mL	425516	04/25/19 08:14	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			427672	05/08/19 07:28	SMP	TAL SL

Lab Chronicle

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Laboratory References:

TAL NSH = Eurofins TestAmerica, Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

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

Method Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	TAL NSH
6010C	Metals (ICP)	SW846	TAL PIT
6020A	Metals (ICP/MS)	SW846	TAL PIT
EPA 7470A	Mercury (CVAA)	SW846	TAL PIT
9040C	pH	SW846	TAL NSH
9050A	Specific Conductance	SW846	TAL NSH
SM 2320B	Alkalinity	SM	TAL NSH
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL NSH
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT
7470A	Preparation, Mercury	SW846	TAL PIT

Protocol References:

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.

Laboratory References:

TAL NSH = Eurofins TestAmerica, Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

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

Accreditation/Certification Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Laboratory: Eurofins TestAmerica, Nashville

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Kentucky (UST)	State Program	4	19	06-30-19

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
9040C		Water	pH
9040C		Water	Temperature
9050A		Water	Specific Conductance (25C)
9056A		Water	Chloride
9056A		Water	Fluoride
9056A		Water	Sulfate
SM 2320B		Water	Alkalinity
SM 2320B		Water	Bicarbonate Alkalinity as CaCO3
SM 2320B		Water	Carbonate Alkalinity as CaCO3
SM 2540C		Water	Total Dissolved Solids

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-19
California	State Program	9	2891	04-30-19 *
Connecticut	State Program	1	PH-0688	09-30-20
Florida	NELAP	4	E871008	06-30-19
Illinois	NELAP	5	200005	06-30-19
Kansas	NELAP	7	E-10350	01-31-20
Louisiana	NELAP	6	04041	06-30-19
Nevada	State Program	9	PA00164	07-31-19
New Hampshire	NELAP	1	2030	04-04-19 *
New Jersey	NELAP	2	PA005	06-30-19
New York	NELAP	2	11182	03-31-20
North Carolina (WW/SW)	State Program	4	434	12-31-19
Oregon	NELAP	10	PA-2151	01-28-19 *
Pennsylvania	NELAP	3	02-00416	04-30-19
South Carolina	State Program	4	89014	04-30-19 *
Texas	NELAP	6	T104704528-15-2	03-31-20
US Fish & Wildlife	Federal		LE94312A-1	07-31-19
USDA	Federal		P330-16-00211	06-26-19
Utah	NELAP	8	PA001462015-4	05-31-19 *
Virginia	NELAP	3	460189	09-14-19
West Virginia DEP	State Program	3	142	01-31-20
Wisconsin	State Program	5	998027800	08-31-19

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

Accreditation/Certification Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	MO00054	06-30-19
ANAB	DoD		L2305	04-06-22
Arizona	State Program	9	AZ0813	12-08-19
California	State Program	9	2886	06-30-19 *
Connecticut	State Program	1	PH-0241	03-31-21
Florida	NELAP	4	E87689	06-30-19 *
Hawaii	State Program	9	NA	06-30-19
Illinois	NELAP	5	200023	11-30-19
Iowa	State Program	7	373	12-01-20
Kansas	NELAP	7	E-10236	10-31-19
Kentucky (DW)	State Program	4	KY90125	12-31-19
Louisiana	NELAP	6	04080	06-30-19
Louisiana (DW)	NELAP	6	LA011	12-31-19
Maryland	State Program	3	310	09-30-19
Michigan	State Program	5	9005	06-30-19
Missouri	State Program	7	780	06-30-19
Nevada	State Program	9	MO000542018-1	07-31-19
New Jersey	NELAP	2	MO002	06-30-19 *
New York	NELAP	2	11616	03-31-20
North Dakota	State Program	8	R207	06-30-19 *
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-19
Pennsylvania	NELAP	3	68-00540	02-28-20
South Carolina	State Program	4	85002001	06-30-19
Texas	NELAP	6	T104704193-18-13	07-31-19
US Fish & Wildlife	Federal		058448	07-31-19
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542018-10	07-31-19
Virginia	NELAP	3	460230	06-14-19 *
Washington	State Program	10	C592	08-30-19
West Virginia DEP	State Program	3	381	08-31-19

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

490-171184 Chain of Custody

Cooler Received/Opened On 3/30/2019 @ 9:00

Time Samples Removed From Cooler 11:43 Time Samples Placed In Storage 11:49 (2 Hour Window)

1. Tracking # 0191 (last 4 digits, FedEx) Courier: Fedex

IR Gun ID 31470366 pH Strip Lot NA Chlorine Strip Lot NA

2. Temperature of rep. sample or temp blank when opened: 2.0 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...(NA)

4. Were custody seals on outside of cooler? (YES)...NO...NA

If yes, how many and where: 2 Front

5. Were the seals intact, signed, and dated correctly? (YES)...NO...NA

6. Were custody papers inside cooler? (YES)...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) ACE

7. Were custody seals on containers: YES (NO) and Intact YES...NO...(NA)

Were these signed and dated correctly? YES...NO...(NA)

8. Packing mat'l used? (Bubblewrap) Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: (Ice) Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? (YES)...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? (YES)...NO...NA

12. Did all container labels and tags agree with custody papers? (YES)...NO...NA

13a. Were VOA vials received? YES...(NO)...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...(NA)

● ⬅ Larger than this.

14. Was there a Trip Blank in this cooler? YES...(NO)...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) ACE

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...(NA)

b. Did the bottle labels indicate that the correct preservatives were used (YES)...NO...NA

16. Was residual chlorine present? YES...NO...(NA)

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) AE

17. Were custody papers properly filled out (ink, signed, etc)? (YES)...NO...NA

18. Did you sign the custody papers in the appropriate place? (YES)...NO...NA

19. Were correct containers used for the analysis requested? (YES)...NO...NA

20. Was sufficient amount of sample sent in each container? (YES)...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) ACE

I certify that I attached a label with the unique LIMS number to each container (intial) ACE

21. Were there Non-Conformance issues at login? YES...(NO) Was a NCM generated? YES...(NO)...#_____

BIS = Broken in shipment

TestAmerica Nashville
2960 Foster Creighton Drive

Nashville, TN 37204-3719
phone 615.726.0177 fax 615.726.3404

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other:

Client Contact: Greg Dick	**Project Manager: Mark Bertram**	**Site Contact: Greg Dick**	**Date: 3/29/2019**
Company: Big Rivers Electric Corporation	**Tel/Fax: (270) 844-5708**	**Lab Contact: Roxanne Cisneros**	**Carrier: ~~N/A~~ FedEx**
Address: 9000 Highway 2096	**Analysis Turnaround Time**		
City/State/Zip: Robards, KY 42452	☐ CALENDAR DAYS ☐ WORKING DAYS		
(270) 844-5736 Phone	TAT if different from Below _____		
(xxx) xxx-xxxx FAX	☑ 2 weeks		
Project Name: Sebree Station - New CCR Wells	☐ 1 week		
Site: Sebree Station	☐ 2 days		
P O #: Purchase Order-see DOCs	☐ 1 day		

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	903.0, 904.0	6010C, 6020A, 7470A	9056A_ORGFM_28D, 9040C, 9060A, 2320B	2540C_Calcd-TDS
MW-104	3/29/19	1203	G	Water	5	N	N	x	x	x	x
MW-110	3/29/19	935	G	Water	5	N	N	x	x	x	x
DUPE	3/29/19	946	G	Water	5	N	N	x	x	x	x
FIELD BLANK	3/29/19	1227	G	Water	5	N	N	x	x	x	x
								4	4	7	7

COC No: 490-97948-27514.1
1 of 1 COCs
Sampler: Greg Dick
For Lab Use Only:
Walk-in Client:
Lab Sampling:
Job / SDG No.:

Sample Specific Notes:
Refer to attached constituent list for analysis

Loc: 490
171184

Preservation Used: 1= Ice, 2= HCl; 3= H_2SO_4; 4=HNO_3; 5=NaOH; 6= Other, 7= None

Possible Hazard Identification:
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.
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown

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: Standard TAT; See attached constituent list for analysis.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: 2.0 Corr'd: _____ | Therm ID No.: _____

Relinquished by: Greg Dick	Company: BREC	Date/Time: 3/29/19 1600	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: TA-NSH	Date/Time: 3/30/19 9:00

Form No. CA-C-WI-002, Rev. 4.9, dated 2/2/2016

Page 33 of 41

5/8/2019

3/29/2019

Loc: 490
171184

Constituent List:

40 C.F.R. 257 Appendix III
Boron
Calcium
Fluoride
pH
Sulfate
Total Dissolved Solids (TDS)

Mary Rick
BREC
3/29/2019
1600

40 C.F.R. 257 Appendix IV
Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium
Cobalt
Fluoride
Lead
Lithium
Mercury
Molybdenum
Selenium
Thallium
Radium 226 & 228 combined

Additional Parameters
Carbonate Alkalinity
Bicarbonate Alkalinity
Alkalinity
Iron
Magnesium
Potassium
Sodium

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

490-171184 Chain of Custody

Cooler Received/Opened On 3/30/2019 @ 9:00

Time Samples Removed From Cooler 11:43 Time Samples Placed In Storage 11:49 (2 Hour Window)

1. Tracking # 0191 (last 4 digits, FedEx) Courier: Fedex

IR Gun ID 31470366 pH Strip Lot NA Chlorine Strip Lot NA

2. Temperature of rep. sample or temp blank when opened: 2.0 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 2 Front

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) ACG

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

● ⬅ Larger than this.

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) ACG

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) ACG

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) ACG

I certify that I attached a label with the unique LIMS number to each container (intial) ACG

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#_____

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 8/23/17

Loc: 490
171184

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

Cooler Received/Opened On 03-30-2019 @ 09:00

Time Samples Removed From Cooler 12:35 Time Samples Placed In Storage 12:37 (2 Hour Window)

1. Tracking # 0206 (last 4 digits, FedEx) Courier: FedEx

IR Gun ID 31470368 pH Strip Lot [illegible] Chlorine Strip Lot [illegible]

2. Temperature of rep. sample or temp blank when opened: 2.6 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES NO NA

If yes, how many and where: 1 (front)

5. Were the seals intact, signed, and dated correctly? YES NO NA

6. Were custody papers inside cooler? YES NO NA

I certify that I opened the cooler and answered questions 1-6 (intial) KA

7. Were custody seals on containers: YES NO and Intact YES NO NA

Were these signed and dated correctly? YES NO NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES NO NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES NO NA

12. Did all container labels and tags agree with custody papers? YES NO NA

13a. Were VOA vials received? YES NO NA

b. Was there any observable headspace present in any VOA vial? YES NO NA

Larger than this.

14. Was there a Trip Blank in this cooler? YES NO NA If multiple coolers, sequence #

I certify that I unloaded the cooler and answered questions 7-14 (intial) AK

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES NO NA

b. Did the bottle labels indicate that the correct preservatives were used YES NO NA

16. Was residual chlorine present? YES NO NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) AK

17. Were custody papers properly filled out (ink, signed, etc)? YES NO NA

18. Did you sign the custody papers in the appropriate place? YES NO NA

19. Were correct containers used for the analysis requested? YES NO NA

20. Was sufficient amount of sample sent in each container? YES NO NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) AK

I certify that I attached a label with the unique LIMS number to each container (intial) AK

21. Were there Non-Conformance issues at login? YES NO Was a NCM generated? YES NO #

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 8/23/17

TestAmerica Nashville
2960 Foster Creighton Drive

Nashville, TN 37204-3719
phone 615.726.0177 fax 615.726.3404

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other:

TestAmerica Laboratories, Inc.

Client Contact: Greg Dick	Project Manager: Mark Bertram	Site Contact: Greg Dick	Date: 3/29/2019
Company: Big Rivers Electric Corporation	Tel/Fax: (270) 844-5708	Lab Contact: Roxanne Cisneros	Carrier: ~~N/A~~ FedEx
Address: 9000 Highway 2096	Analysis Turnaround Time		
City/State/Zip: Robards, KY 42452	☐ CALENDAR DAYS ☐ WORKING DAYS		
(270) 844-5736 Phone	TAT if different from Below _____		
(xxx) xxx-xxxx FAX	☑ 2 weeks		
Project Name: Sebree Station - New CCR Wells	☐ 1 week		
Site: Sebree Station	☐ 2 days		
P O #: Purchase Order-see DOCs	☐ 1 day		

COC No: 490-97948-27514.1
1 of 1 COCs
Sampler: Greg Dick
For Lab Use Only:
Walk-in Client:
Lab Sampling:
Job / SDG No.:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	903.0, 904.0	6010C, 6020A, 7470A	90556A_ORGFM_28D, 9040C, 9060A, 2320B	2540C_Calcd-TDS	Sample Specific Notes:
MW-104	3/29/19	1203	G	Water	5	N	N	x	x	x	x	Refer to attached constituent list for analysis
MW-110	3/29/19	935	G	Water	5	N	N	x	x	x	x	
DUPE	3/29/19	946	G	Water	5	N	N	x	x	x	x	
FIELD BLANK	3/29/19	1227	G	Water	5	N	N	x	x	x	x	
												Loc: 490 171184

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other, 7= None _____ — 4 4 7 7

Possible Hazard Identification:
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.
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown

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: Standard TAT; See attached constituent list for analysis.

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd: 2.0 Corr'd: _____		Therm ID No.: _____
Relinquished by: Greg Dick	Company: BREC	Date/Time: 3/29/19 1600	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: TA-NAS	Date/Time: 3/30/19 9:00

Form No. CA-C-WI-002, Rev. 4.9, dated 2/2/2016

5/8/2019

3/29/2019

Loc: 490
171184

Constituent List:

40 C.F.R. 257 Appendix III
Boron
Calcium
Fluoride
pH
Sulfate
Total Dissolved Solids (TDS)

Mary Rick
BREC
3/29/2019
1600

40 C.F.R. 257 Appendix IV
Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium
Cobalt
Fluoride
Lead
Lithium
Mercury
Molybdenum
Selenium
Thallium
Radium 226 & 228 combined

Additional Parameters
Carbonate Alkalinity
Bicarbonate Alkalinity
Alkalinity
Iron
Magnesium
Potassium
Sodium

TestAmerica Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Phone (615) 726-0177 Fax (615) 726-3404

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Cisneros, Roxanne	Carrier Tracking No(s):	COC No: 490-87963.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: roxanne.cisneros@testamericainc.com	State of Origin: Kentucky	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 490-171184-2
Address: 13715 Rider Trail North, ,	Due Date Requested: 4/29/2019			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Sebree Station - New CCR Wells	Project #: 49010431			
Site: Big Rivers CCR	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
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
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	903.0/PrecSep_21 Standard Target List	904.0/PrecSep_0 Standard Target List	Ra226Ra228_GFPC	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-104 (490-171184-1)	3/29/19	12:03 Eastern		Water			X	X	X	2	run once - upload data twice
MW-110 (490-171184-2)	3/29/19	09:35 Eastern		Water			X	X	X	2	run once - upload data twice
DUPE (490-171184-3)	3/29/19	09:46 Eastern		Water			X	X	X	2	run once - upload data twice
FIELD BLANK (490-171184-4)	3/29/19	12:27 Eastern		Water			X	X	X	2	run once - upload data twice

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *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:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	4-1-19 @ 1430	TAN-AS	[signature]	4/2/19 09:20	TA-STL
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Big Rivers Electric Corporation

Job Number: 490-171184-2
SDG Number: Sebree Station

Login Number: 171184
List Number: 3
Creator: Hellm, Michael

List Source: Eurofins TestAmerica, St. Louis
List Creation: 04/02/19 04:42 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.	N/A	
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	20.0
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").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
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 Carrier (40-110)
400-168077-B-20-A DU	Duplicate	85.5
490-171184-1	MW-104	84.7
490-171184-2	MW-110	72.6
490-171184-3	DUPE	68.4
490-171184-4	FIELD BLANK	95.0
LCS 160-423611/1-A	Lab Control Sample	90.0
MB 160-423611/24-A	Method Blank	92.6

Tracer/Carrier Legend

Ba Carrier = 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 Carrier (40-110)	Y Carrier (40-110)
400-168077-B-20-B DU	Duplicate	85.5	85.6
490-171184-1	MW-104	84.7	87.1
490-171184-2	MW-110	72.6	90.5
490-171184-3	DUPE	68.4	89.7
490-171184-4	FIELD BLANK	95.0	90.8
LCS 160-423832/1-A	Lab Control Sample	90.0	87.5
MB 160-423832/24-A	Method Blank	92.6	89.7

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

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ANALYTICAL REPORT

Eurofins TestAmerica, Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Tel: (615)726-0177

Laboratory Job ID: 490-172010-1
Laboratory Sample Delivery Group: Sebree Station
Client Project/Site: Sebree Station, New CCR Wells Rd 2
Revision: 1

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

Attn: Mark Bertram

Roxanne Cisneros

Authorized for release by:
7/19/2019 5:01:12 PM

Roxanne Cisneros, Senior Project Manager
(615)301-5761
roxanne.cisneros@testamericainc.com

LINKS

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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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Sample Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
490-172010-1	MW-104	Water	04/10/19 14:43	04/12/19 09:55	
490-172010-2	MW-110	Water	04/10/19 12:59	04/12/19 09:55	
490-172010-3	DUPE	Water	04/10/19 15:10	04/12/19 09:55	
490-172010-4	FIELD BLANK	Water	04/10/19 15:39	04/12/19 09:55	

Job ID: 490-172010-1

Laboratory: Eurofins TestAmerica, Nashville

Narrative

Job Narrative
490-172010-1

Comments
No additional comments.

Receipt
The samples were received on 4/12/2019 9:55 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were -0.6º C and 0.7º C.

HPLC/IC
Method(s) 9056A: The concentration of Chloride in the Matrix Spike/Matrix Spike Duplicate (MS/MSD) exceeded the calibration curve range. (490-171999-H-13 MS)

Method(s) 9056A: The method blank for analytical batch 490-587889 contained Chloride above the reporting limit (RL). Associated sample(s) were not re-extracted and/or re-analyzed because results were greater than 10X the value found in the method blank.

Method(s) 9056A: The concentration of Chloride and Sulfate in the Matrix Spike/Matrix Spike Duplicate (MS/MSD) exceeded the calibration curve range. (490-172007-E-1 MS) and (490-172007-E-1 MSD)

Method(s) 9056A: The following samples were diluted due to the nature of the sample matrix: MW-104 (490-172010-1), MW-110 (490-172010-2) and DUPE (490-172010-3). Elevated reporting limits (RLs) are provided.

Method(s) 9056A: The method blank for analytical batch 490-588578 contained Fluoride above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and_or re-analysis of samples was not performed.

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

Metals
Method(s) 6020A: The serial dilution performed for the following sample associated with batch 180-276092 was outside control limits for boron: MW-104 (490-172010-1)

Method(s) 7470A: Closing CRA was high, but all samples are non-detect. MW-104 (490-172010-1), MW-110 (490-172010-2), DUPE (490-172010-3), (LCS 180-276833/2-A), (MB 180-276833/1-A), (490-172010-A-3-F MS) and (490-172010-A-3-G MSD)

Method(s) 245.1, 7470A: The continuing calibration verification (CCV) associated with batch 180-277078 recovered above the upper control limit for mercury. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method(s) 245.1, 7470A: The low level continuing calibration verification (CCVL) associated with batch 180-277078 recovered above the upper control limit for mercury. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method(s) 7470A: The laboratory control sample (LCS) for preparation batch 180-276826 and analytical batch 180-277078 recovered outside control limits for mercury. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

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

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

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

Job ID: 490-172010-1 (Continued)

Laboratory: Eurofins TestAmerica, Nashville (Continued)

Narrative

Job Narrative
490-172010-2

Comments
No additional comments.

Receipt
The samples were received on 4/12/2019 9:55 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were -0.6º C and 0.7º C.

RAD
Method 903.0: Radium-226 Prep Batch 160-429619
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.
FIELD BLANK (490-172010-4), (LCS 160-429619/1-A) and (MB 160-429619/23-A)

Method 903.0: Ra-226 Prep Batch 160-428674

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-104 (490-172010-1), MW-110 (490-172010-2), DUPE (490-172010-3), (LCS 160-428674/1-A) and (MB 160-428674/24-A)

Method 904.0: Ra-228 Prep Batch 160-429638

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.
FIELD BLANK (490-172010-4), (LCS 160-429638/1-A) and (MB 160-429638/23-A)

Method 904.0: Radium-228 Prep Batch 160-428727

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-104 (490-172010-1), MW-110 (490-172010-2), DUPE (490-172010-3), (LCS 160-428727/1-A) and (MB 160-428727/24-A)

Method PrecSep_0: Radium 228 prep batch 160-428727

The following samples were prepared at a reduced aliquot: MW-110 (490-172010-2). Samples 490-172007-1, 490-172007-2, 490-172007-3, 490-172007-5 and 490-172010-2 were reduced due to sediment and brown discoloration. Sample 240-110687-11 was reduced due to limited volume.

Method PrecSep_0: FIELD BLANK (490-172010-4)

Method PrecSep-21: Radium 226 prep batch 160-428674

The following samples were prepared at a reduced aliquot: MW-110 (490-172010-2). Samples 490-172007-1, 490-172007-2, 490-172007-3, 490-172007-5 and 490-172010-2 were reduced due to sediment and brown discoloration. Sample 240-110687-11 was reduced due to limited volume.

Job ID: 490-172010-1 (Continued)

Laboratory: Eurofins TestAmerica, Nashville (Continued)

Method PrecSep-21: FIELD BLANK (490-172010-4)

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

Qualifiers

HPLC/IC

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.
B	Compound was found in the blank and sample.
E	Result exceeded calibration range.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.
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.
B	Compound was found in the blank and sample.
F1	MS and/or MSD Recovery is outside acceptance limits.
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
F3	Duplicate RPD exceeds the control limit

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

Client Sample ID: MW-104

Date Collected: 04/10/19 14:43
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-1

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1430	B	300	20.0	mg/L			04/13/19 19:35	100
Fluoride	0.323	J B	10.0	0.100	mg/L			04/13/19 19:19	10
Sulfate	2880	B	500	3.00	mg/L			04/13/19 19:35	100

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0286	J	0.0500	0.00959	mg/L		04/16/19 11:19	04/22/19 16:39	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.000119	J B	0.00200	0.0000213	mg/L		04/16/19 11:17	04/17/19 10:53	1
Arsenic	0.00208	J	0.00500	0.000118	mg/L		04/16/19 11:17	04/17/19 10:53	1
Barium	0.0216	J B	0.200	0.000270	mg/L		04/16/19 11:17	04/17/19 10:53	1
Beryllium	ND		0.00200	0.000102	mg/L		04/16/19 11:17	04/17/19 10:53	1
Boron	0.271	J B	1.00	0.00339	mg/L		04/16/19 11:17	04/17/19 10:53	1
Cadmium	ND		0.00100	0.000152	mg/L		04/16/19 11:17	04/17/19 10:53	1
Calcium	502		1.00	0.0412	mg/L		04/16/19 11:17	04/17/19 10:53	1
Chromium	0.00360		0.00300	0.000339	mg/L		04/16/19 11:17	04/17/19 10:53	1
Cobalt	0.00522		0.00500	0.0000218	mg/L		04/16/19 11:17	04/17/19 10:53	1
Lead	0.000233	J	0.00500	0.0000675	mg/L		04/16/19 11:17	04/17/19 10:53	1
Molybdenum	0.00104	J	0.0100	0.000873	mg/L		04/16/19 11:17	04/17/19 10:53	1
Potassium	1660		1000	147	ug/L		04/16/19 11:17	04/17/19 10:53	1
Selenium	ND		0.0100	0.000348	mg/L		04/16/19 11:17	04/17/19 10:53	1
Thallium	ND		0.00100	0.0000360	mg/L		04/16/19 11:17	04/17/19 10:53	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^	0.200	0.101	ug/L		04/25/19 17:02	04/26/19 13:28	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.99		0.100	0.100	SU			04/18/19 18:32	1
Temperature	22.8		0.100	0.100	Degrees C			04/18/19 18:32	1
Specific Conductance (25C)	8570		10.0	10.0	umhos/cm			04/13/19 10:38	1
Alkalinity	696		10.0	5.00	mg/L			04/13/19 13:33	1
Total Dissolved Solids	6690		250	70.0	mg/L			04/15/19 16:11	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	0.0585	U	0.0573	0.0576	1.00	0.0869	pCi/L	05/16/19 12:11	07/09/19 18:10	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.4*		*40 - 110*	*05/16/19 12:11*	*07/09/19 18:10*	*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	0.261	U	0.228	0.229	1.00	0.365	pCi/L	05/16/19 16:00	07/02/19 15:07	1

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Client Sample ID: MW-104
Date Collected: 04/10/19 14:43
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-1
Matrix: Water

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	99.4		40 - 110	05/16/19 16:00	07/02/19 15:07	1
Y Carrier	82.6		40 - 110	05/16/19 16:00	07/02/19 15:07	1

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	0.319	U	0.235	0.236	5.00	0.365	pCi/L		07/15/19 08:48	1

Client Sample ID: MW-110

Date Collected: 04/10/19 12:59
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-2

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	30.4	B	6.00	0.400	mg/L			04/13/19 20:09	2
Fluoride	0.255	J B	1.00	0.0100	mg/L			04/13/19 02:38	1
Sulfate	596	B	250	1.50	mg/L			04/13/19 20:25	50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0303	J	0.0500	0.00959	mg/L		04/16/19 11:19	04/22/19 16:45	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.000204	J B	0.00200	0.0000213	mg/L		04/16/19 11:17	04/17/19 11:16	1
Arsenic	0.00238	J	0.00500	0.000118	mg/L		04/16/19 11:17	04/17/19 11:16	1
Barium	0.107	J B	0.200	0.000270	mg/L		04/16/19 11:17	04/17/19 11:16	1
Beryllium	0.000314	J	0.00200	0.000102	mg/L		04/16/19 11:17	04/17/19 11:16	1
Boron	0.496	J B	1.00	0.00339	mg/L		04/16/19 11:17	04/17/19 11:16	1
Cadmium	ND		0.00100	0.000152	mg/L		04/16/19 11:17	04/17/19 11:16	1
Calcium	178		1.00	0.0412	mg/L		04/16/19 11:17	04/17/19 11:16	1
Chromium	0.0115		0.00300	0.000339	mg/L		04/16/19 11:17	04/17/19 11:16	1
Cobalt	0.00384	J	0.00500	0.0000218	mg/L		04/16/19 11:17	04/17/19 11:16	1
Lead	0.00399	J	0.00500	0.0000675	mg/L		04/16/19 11:17	04/17/19 11:16	1
Molybdenum	0.00120	J	0.0100	0.000873	mg/L		04/16/19 11:17	04/17/19 11:16	1
Potassium	2930		1000	147	ug/L		04/16/19 11:17	04/17/19 11:16	1
Selenium	ND		0.0100	0.000348	mg/L		04/16/19 11:17	04/17/19 11:16	1
Thallium	0.0000640	J	0.00100	0.0000360	mg/L		04/16/19 11:17	04/17/19 11:16	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^	0.200	0.101	ug/L		04/25/19 17:02	04/26/19 13:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.50		0.100	0.100	SU			04/18/19 18:32	1
Temperature	22.8		0.100	0.100	Degrees C			04/18/19 18:32	1
Specific Conductance (25C)	1570		10.0	10.0	umhos/cm			04/13/19 10:38	1
Alkalinity	270		10.0	5.00	mg/L			04/13/19 13:40	1
Total Dissolved Solids	1200		25.0	7.00	mg/L			04/15/19 16:11	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	0.812		0.283	0.292	1.00	0.287	pCi/L	05/16/19 12:11	07/09/19 18:10	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*76.0*		*40 - 110*	*05/16/19 12:11*	*07/09/19 18:10*	*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	1.11		0.591	0.600	1.00	0.861	pCi/L	05/16/19 16:00	07/02/19 15:07	1

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Client Sample ID: MW-110
Date Collected: 04/10/19 12:59
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-2
Matrix: Water

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	76.0		40 - 110	05/16/19 16:00	07/02/19 15:07	1
Y Carrier	78.1		40 - 110	05/16/19 16:00	07/02/19 15:07	1

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	1.93		0.655	0.667	5.00	0.861	pCi/L		07/15/19 08:48	1

Client Sample ID: DUPE

Date Collected: 04/10/19 15:10
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-3

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1380	B	300	20.0	mg/L			04/13/19 22:54	100
Fluoride	1.19	J B	100	1.00	mg/L			04/13/19 22:54	100
Sulfate	2880	B	500	3.00	mg/L			04/13/19 22:54	100

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0313	J	0.0500	0.00959	mg/L		04/16/19 11:19	04/22/19 16:07	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.000107	J B	0.00200	0.0000213	mg/L		04/16/19 11:17	04/17/19 11:19	1
Arsenic	0.00192	J	0.00500	0.000118	mg/L		04/16/19 11:17	04/17/19 11:19	1
Barium	0.0201	J B	0.200	0.000270	mg/L		04/16/19 11:17	04/17/19 11:19	1
Beryllium	ND		0.00200	0.000102	mg/L		04/16/19 11:17	04/17/19 11:19	1
Boron	0.200	J B	1.00	0.00339	mg/L		04/16/19 11:17	04/17/19 11:19	1
Cadmium	ND		0.00100	0.000152	mg/L		04/16/19 11:17	04/17/19 11:19	1
Calcium	486		1.00	0.0412	mg/L		04/16/19 11:17	04/17/19 11:19	1
Chromium	0.00355		0.00300	0.000339	mg/L		04/16/19 11:17	04/17/19 11:19	1
Cobalt	0.00536		0.00500	0.0000218	mg/L		04/16/19 11:17	04/17/19 11:19	1
Lead	0.000126	J	0.00500	0.0000675	mg/L		04/16/19 11:17	04/17/19 11:19	1
Molybdenum	0.000921	J	0.0100	0.000873	mg/L		04/16/19 11:17	04/17/19 11:19	1
Potassium	1430		1000	147	ug/L		04/16/19 11:17	04/17/19 11:19	1
Selenium	ND		0.0100	0.000348	mg/L		04/16/19 11:17	04/17/19 11:19	1
Thallium	ND		0.00100	0.0000360	mg/L		04/16/19 11:17	04/17/19 11:19	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^	0.200	0.101	ug/L		04/25/19 17:02	04/26/19 13:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.98		0.100	0.100	SU			04/18/19 18:32	1
Temperature	22.8		0.100	0.100	Degrees C			04/18/19 18:32	1
Specific Conductance (25C)	8630		10.0	10.0	umhos/cm			04/13/19 10:38	1
Alkalinity	686		10.0	5.00	mg/L			04/13/19 13:47	1
Total Dissolved Solids	6810		250	70.0	mg/L			04/15/19 16:11	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	0.0714	U	0.0775	0.0778	1.00	0.124	pCi/L	05/16/19 12:11	07/09/19 18:10	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*96.0*		*40 - 110*	*05/16/19 12:11*	*07/09/19 18:10*	*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	0.404	U	0.304	0.306	1.00	0.480	pCi/L	05/16/19 16:00	07/02/19 15:07	1

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Client Sample ID: DUPE
Date Collected: 04/10/19 15:10
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-3
Matrix: Water

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	96.0		40 - 110	05/16/19 16:00	07/02/19 15:07	1
Y Carrier	76.6		40 - 110	05/16/19 16:00	07/02/19 15:07	1

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	0.475	U	0.314	0.316	5.00	0.480	pCi/L		07/15/19 08:48	1

Client Sample ID: FIELD BLANK

Date Collected: 04/10/19 15:39
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-4

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	0.200	mg/L			04/17/19 15:20	1
Fluoride	ND		1.00	0.0100	mg/L			04/13/19 03:12	1
Sulfate	**0.334**	**J B**	5.00	0.0300	mg/L			04/13/19 03:12	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.0500	0.00959	mg/L		04/16/19 11:19	04/22/19 16:51	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.000192**	**J B**	0.00200	0.0000213	mg/L		04/16/19 11:17	04/17/19 11:23	1
Arsenic	**0.000904**	**J**	0.00500	0.000118	mg/L		04/16/19 11:17	04/17/19 11:23	1
Barium	**0.000424**	**J B**	0.200	0.000270	mg/L		04/16/19 11:17	04/17/19 11:23	1
Beryllium	ND		0.00200	0.000102	mg/L		04/16/19 11:17	04/17/19 11:23	1
Boron	**0.0368**	**J B**	1.00	0.00339	mg/L		04/16/19 11:17	04/17/19 11:23	1
Cadmium	ND		0.00100	0.000152	mg/L		04/16/19 11:17	04/17/19 11:23	1
Calcium	**0.174**	**J**	1.00	0.0412	mg/L		04/16/19 11:17	04/17/19 11:23	1
Chromium	**0.00427**		0.00300	0.000339	mg/L		04/16/19 11:17	04/17/19 11:23	1
Cobalt	ND		0.00500	0.0000218	mg/L		04/16/19 11:17	04/17/19 11:23	1
Lead	ND		0.00500	0.0000675	mg/L		04/16/19 11:17	04/17/19 11:23	1
Molybdenum	ND		0.0100	0.000873	mg/L		04/16/19 11:17	04/17/19 11:23	1
Potassium	ND		1000	147	ug/L		04/16/19 11:17	04/17/19 11:23	1
Selenium	ND		0.0100	0.000348	mg/L		04/16/19 11:17	04/17/19 11:23	1
Thallium	ND		0.00100	0.0000360	mg/L		04/16/19 11:17	04/17/19 11:23	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	* ^	0.200	0.101	ug/L		04/25/19 16:08	04/29/19 09:08	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**5.97**		0.100	0.100	SU			04/18/19 18:32	1
Temperature	**22.8**		0.100	0.100	Degrees C			04/18/19 18:32	1
Specific Conductance (25C)	ND		10.0	10.0	umhos/cm			04/13/19 10:38	1
Alkalinity	ND		10.0	5.00	mg/L			04/13/19 13:53	1
Total Dissolved Solids	ND		25.0	7.00	mg/L			04/15/19 16:11	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	-0.0151	U	0.168	0.168	1.00	0.376	pCi/L	05/23/19 10:11	07/01/19 20:40	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*70.9*		*40 - 110*	*05/23/19 10:11*	*07/01/19 20:40*	*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	0.0164	U	0.247	0.247	1.00	0.438	pCi/L	05/23/19 11:48	07/01/19 14:34	1

Client Sample ID: FIELD BLANK

Date Collected: 04/10/19 15:39
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-4

Matrix: Water

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*70.9*		*40 - 110*	*05/23/19 11:48*	*07/01/19 14:34*	*1*
Y Carrier	*101*		*40 - 110*	*05/23/19 11:48*	*07/01/19 14:34*	*1*

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	0.00135	U	0.299	0.299	5.00	0.438	pCi/L		07/15/19 08:48	1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 490-587889/3
Matrix: Water
Analysis Batch: 587889

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.105	J	3.00	0.200	mg/L			04/12/19 21:40	1
Fluoride	0.02290	J	1.00	0.0100	mg/L			04/12/19 21:40	1
Sulfate	0.3257	J	5.00	0.0300	mg/L			04/12/19 21:40	1

Lab Sample ID: LCS 490-587889/4
Matrix: Water
Analysis Batch: 587889

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.869		mg/L		99	80 - 120
Fluoride	1.00	1.008		mg/L		101	80 - 120
Sulfate	10.0	9.795		mg/L		98	80 - 120

Lab Sample ID: LCSD 490-587889/5
Matrix: Water
Analysis Batch: 587889

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.885		mg/L		99	80 - 120	0	20
Fluoride	1.00	0.9934	J	mg/L		99	80 - 120	1	20
Sulfate	10.0	9.703		mg/L		97	80 - 120	1	20

Lab Sample ID: 490-171999-H-13 MS
Matrix: Water
Analysis Batch: 587889

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	52.9	E B ^	10.0	63.34	E 4	mg/L		104	80 - 120
Fluoride	0.508	J B	1.00	1.415		mg/L		91	80 - 120
Sulfate	28.9	B	10.0	38.93		mg/L		100	80 - 120

Lab Sample ID: 490-171999-H-13 MSD
Matrix: Water
Analysis Batch: 587889

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	52.9	E B ^	10.0	64.49	E 4	mg/L		115	80 - 120	2	20
Fluoride	0.508	J B	1.00	1.502		mg/L		99	80 - 120	6	20
Sulfate	28.9	B	10.0	39.96		mg/L		110	80 - 120	3	20

Lab Sample ID: MB 490-587927/3
Matrix: Water
Analysis Batch: 587927

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.8259	J	3.00	0.200	mg/L			04/13/19 13:23	1
Fluoride	0.02208	J	1.00	0.0100	mg/L			04/13/19 13:23	1
Sulfate	0.4767	J	5.00	0.0300	mg/L			04/13/19 13:23	1

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 490-587927/4
Matrix: Water
Analysis Batch: 587927

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			10.0	8.999		mg/L		90	80 - 120		
Fluoride			1.00	0.9571	J	mg/L		96	80 - 120		
Sulfate			10.0	9.244		mg/L		92	80 - 120		

Lab Sample ID: LCSD 490-587927/5
Matrix: Water
Analysis Batch: 587927

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			10.0	8.982		mg/L		90	80 - 120	0	20
Fluoride			1.00	0.9754	J	mg/L		97	80 - 120	2	20
Sulfate			10.0	9.261		mg/L		92	80 - 120	0	20

Lab Sample ID: 490-172007-E-1 MS
Matrix: Water
Analysis Batch: 587927

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	114	E B	10.0	126.5	E 4	mg/L		122	80 - 120		
Fluoride	0.533	J B	1.00	1.483		mg/L		95	80 - 120		
Sulfate	1590	E B	10.0	2744	E 4	mg/L		11509	80 - 120		

Lab Sample ID: 490-172007-E-1 MSD
Matrix: Water
Analysis Batch: 587927

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	114	E B	10.0	125.2	E 4	mg/L		110	80 - 120	1	20
Fluoride	0.533	J B	1.00	1.396		mg/L		86	80 - 120	6	20
Sulfate	1590	E B	10.0	2759	E 4	mg/L		11657	80 - 120	1	20

Lab Sample ID: MB 490-587930/3
Matrix: Water
Analysis Batch: 587930

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.7587	J	3.00	0.200	mg/L			04/13/19 22:05	1
Fluoride	0.01835	J	1.00	0.0100	mg/L			04/13/19 22:05	1
Sulfate	0.6184	J	5.00	0.0300	mg/L			04/13/19 22:05	1

Lab Sample ID: LCS 490-587930/4
Matrix: Water
Analysis Batch: 587930

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			10.0	9.193		mg/L		92	80 - 120		
Fluoride			1.00	0.9693	J	mg/L		97	80 - 120		
Sulfate			10.0	9.411		mg/L		94	80 - 120		

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 490-587930/5
Matrix: Water
Analysis Batch: 587930

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			10.0	9.238		mg/L		92	80 - 120	0	20
Fluoride			1.00	0.9712	J	mg/L		97	80 - 120	0	20
Sulfate			10.0	9.413		mg/L		94	80 - 120	0	20

Lab Sample ID: MB 490-588578/3
Matrix: Water
Analysis Batch: 588578

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	0.200	mg/L			04/17/19 11:53	1
Fluoride	ND		1.00	0.0100	mg/L			04/17/19 11:53	1
Sulfate	ND		5.00	0.0300	mg/L			04/17/19 11:53	1

Lab Sample ID: LCS 490-588578/4
Matrix: Water
Analysis Batch: 588578

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			10.0	9.491		mg/L		95	80 - 120		
Fluoride			1.00	1.055		mg/L		105	80 - 120		
Sulfate			10.0	10.11		mg/L		101	80 - 120		

Lab Sample ID: LCSD 490-588578/5
Matrix: Water
Analysis Batch: 588578

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			10.0	9.503		mg/L		95	80 - 120	0	20
Fluoride			1.00	1.051		mg/L		105	80 - 120	0	20
Sulfate			10.0	10.13		mg/L		101	80 - 120	0	20

Lab Sample ID: 490-172010-4 MS
Matrix: Water
Analysis Batch: 588578

Client Sample ID: FIELD BLANK
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	ND		10.0	10.53		mg/L		105	80 - 120		
Fluoride	ND		1.00	1.150		mg/L		115	80 - 120		
Sulfate	0.222	J	10.0	10.63		mg/L		104	80 - 120		

Lab Sample ID: 490-172010-4 MSD
Matrix: Water
Analysis Batch: 588578

Client Sample ID: FIELD BLANK
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	ND		10.0	11.16		mg/L		112	80 - 120	6	20
Fluoride	ND		1.00	1.165		mg/L		116	80 - 120	1	20
Sulfate	0.222	J	10.0	11.57		mg/L		113	80 - 120	8	20

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 180-275853/1-A
Matrix: Water
Analysis Batch: 276485

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 275853

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.0500	0.00959	mg/L		04/16/19 11:19	04/22/19 15:56	1

Lab Sample ID: LCS 180-275853/2-A
Matrix: Water
Analysis Batch: 276485

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 275853

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	1.00	1.006		mg/L		101	80 - 120

Lab Sample ID: 490-172010-3 MS
Matrix: Water
Analysis Batch: 276485

Client Sample ID: DUPE
Prep Type: Total Recoverable
Prep Batch: 275853

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	0.0313	J	1.00	1.065		mg/L		103	75 - 125

Lab Sample ID: 490-172010-3 MSD
Matrix: Water
Analysis Batch: 276485

Client Sample ID: DUPE
Prep Type: Total Recoverable
Prep Batch: 275853

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lithium	0.0313	J	1.00	1.090		mg/L		106	75 - 125	2	20

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 180-275852/1-A
Matrix: Water
Analysis Batch: 276092

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 275852

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00002800	J	0.00200	0.0000213	mg/L		04/16/19 11:17	04/17/19 11:54	1
Arsenic	ND		0.00500	0.000118	mg/L		04/16/19 11:17	04/17/19 11:54	1
Barium	0.0007190	J	0.200	0.000270	mg/L		04/16/19 11:17	04/17/19 11:54	1
Beryllium	ND		0.00200	0.000102	mg/L		04/16/19 11:17	04/17/19 11:54	1
Boron	0.02478	J	1.00	0.00339	mg/L		04/16/19 11:17	04/17/19 11:54	1
Cadmium	ND		0.00100	0.000152	mg/L		04/16/19 11:17	04/17/19 11:54	1
Calcium	ND		1.00	0.0412	mg/L		04/16/19 11:17	04/17/19 11:54	1
Chromium	ND		0.00300	0.000339	mg/L		04/16/19 11:17	04/17/19 11:54	1
Cobalt	ND		0.00500	0.0000218	mg/L		04/16/19 11:17	04/17/19 11:54	1
Lead	ND		0.00500	0.0000675	mg/L		04/16/19 11:17	04/17/19 11:54	1
Molybdenum	ND		0.0100	0.000873	mg/L		04/16/19 11:17	04/17/19 11:54	1
Potassium	ND		1000	147	ug/L		04/16/19 11:17	04/17/19 11:54	1
Selenium	ND		0.0100	0.000348	mg/L		04/16/19 11:17	04/17/19 11:54	1
Thallium	ND		0.00100	0.0000360	mg/L		04/16/19 11:17	04/17/19 11:54	1

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

Lab Sample ID: LCS 180-275852/2-A
Matrix: Water
Analysis Batch: 276092

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 275852

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.500	0.5151		mg/L		103	80 - 120
Arsenic	0.0400	0.03629		mg/L		91	80 - 120
Barium	2.00	2.120		mg/L		106	80 - 120
Beryllium	0.0500	0.05131		mg/L		103	80 - 120
Boron	1.00	1.006		mg/L		101	80 - 120
Cadmium	0.0500	0.05263		mg/L		105	80 - 120
Calcium	50.0	50.60		mg/L		101	80 - 120
Chromium	0.200	0.2148		mg/L		107	80 - 120
Cobalt	0.500	0.4481		mg/L		90	80 - 120
Lead	0.0200	0.02088		mg/L		104	80 - 120
Molybdenum	1.00	0.9910		mg/L		99	80 - 120
Potassium	50000	48340		ug/L		97	80 - 120
Selenium	0.0100	0.01029		mg/L		103	80 - 120
Thallium	0.0500	0.05310		mg/L		106	80 - 120

Lab Sample ID: 490-172010-1 MS
Matrix: Water
Analysis Batch: 276092

Client Sample ID: MW-104
Prep Type: Total Recoverable
Prep Batch: 275852

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.000119	J B	0.500	0.5292		mg/L		106	75 - 125
Arsenic	0.00208	J	0.0400	0.03945		mg/L		93	75 - 125
Barium	0.0216	J B	2.00	2.197		mg/L		109	75 - 125
Beryllium	ND		0.0500	0.05176		mg/L		104	75 - 125
Boron	0.271	J B	1.00	1.297		mg/L		103	75 - 125
Cadmium	ND		0.0500	0.05279		mg/L		106	75 - 125
Calcium	502		50.0	557.9	4	mg/L		111	75 - 125
Chromium	0.00360		0.200	0.2213		mg/L		109	75 - 125
Cobalt	0.00522		0.500	0.4645		mg/L		92	75 - 125
Lead	0.000233	J	0.0200	0.02146		mg/L		106	75 - 125
Molybdenum	0.00104	J	1.00	1.043		mg/L		104	75 - 125
Potassium	1660		50000	48970		ug/L		95	75 - 125
Selenium	ND		0.0100	0.01059		mg/L		106	75 - 125
Thallium	ND		0.0500	0.05541		mg/L		111	75 - 125

Lab Sample ID: 490-172010-1 MSD
Matrix: Water
Analysis Batch: 276092

Client Sample ID: MW-104
Prep Type: Total Recoverable
Prep Batch: 275852

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	0.000119	J B	0.500	0.5401		mg/L		108	75 - 125	2	20
Arsenic	0.00208	J	0.0400	0.03954		mg/L		94	75 - 125	0	20
Barium	0.0216	J B	2.00	2.231		mg/L		110	75 - 125	2	20
Beryllium	ND		0.0500	0.05116		mg/L		102	75 - 125	1	20
Boron	0.271	J B	1.00	1.238		mg/L		97	75 - 125	5	20
Cadmium	ND		0.0500	0.05362		mg/L		107	75 - 125	2	20
Calcium	502		50.0	566.9	4	mg/L		129	75 - 125	2	20
Chromium	0.00360		0.200	0.2201		mg/L		108	75 - 125	1	20
Cobalt	0.00522		0.500	0.4630		mg/L		92	75 - 125	0	20

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

Lab Sample ID: 490-172010-1 MSD — **Client Sample ID: MW-104**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 276092 — **Prep Batch: 275852**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	0.000233	J	0.0200	0.02185		mg/L		108	75 - 125	2	20
Molybdenum	0.00104	J	1.00	1.061		mg/L		106	75 - 125	2	20
Potassium	1660		50000	50080		ug/L		97	75 - 125	2	20
Selenium	ND		0.0100	0.01045		mg/L		105	75 - 125	1	20
Thallium	ND		0.0500	0.05523		mg/L		110	75 - 125	0	20

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-276826/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 277078 — **Prep Batch: 276826**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^	0.200	0.101	ug/L		04/25/19 16:08	04/29/19 09:06	1

Lab Sample ID: LCS 180-276826/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 277078 — **Prep Batch: 276826**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	2.50	3.726	* ^	ug/L		149	80 - 120

Lab Sample ID: 180-88983-B-1-C MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 277078 — **Prep Batch: 276826**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND	* ^ F1	1.00	1.386	F1 ^	ug/L		139	75 - 125

Lab Sample ID: 180-88983-B-1-D MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 277078 — **Prep Batch: 276826**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND	* ^ F1	1.00	1.504	F1 ^	ug/L		150	75 - 125	8	20

Lab Sample ID: MB 180-276833/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 276941 — **Prep Batch: 276833**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^	0.200	0.101	ug/L		04/25/19 17:02	04/26/19 13:03	1

Lab Sample ID: LCS 180-276833/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 276941 — **Prep Batch: 276833**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	2.50	2.494	^	ug/L		100	80 - 120

Method: EPA 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: 490-172010-3 MS
Matrix: Water
Analysis Batch: 276941

Client Sample ID: DUPE
Prep Type: Total/NA
Prep Batch: 276833

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND	^	1.00	0.8720	^	ug/L		87	75 - 125

Lab Sample ID: 490-172010-3 MSD
Matrix: Water
Analysis Batch: 276941

Client Sample ID: DUPE
Prep Type: Total/NA
Prep Batch: 276833

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND	^	1.00	0.8200	^	ug/L		82	75 - 125	6	20

Method: 9040C - pH

Lab Sample ID: LCS 490-589003/1
Matrix: Water
Analysis Batch: 589003

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.040		SU		101	98 - 103

Lab Sample ID: 490-171598-A-10 DU
Matrix: Water
Analysis Batch: 589003

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	6.94		6.940		SU		0	20
Temperature	23.0		23.00		Degrees C		0	20

Method: 9050A - Specific Conductance

Lab Sample ID: 490-172007-E-1 DU
Matrix: Water
Analysis Batch: 588267

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Specific Conductance (25C)	3700		3680		umhos/cm		0.5	10

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 490-587963/11
Matrix: Water
Analysis Batch: 587963

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	ND		10.0	5.00	mg/L			04/13/19 11:27	1

Lab Sample ID: LCS 490-587963/12
Matrix: Water
Analysis Batch: 587963

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	100	97.71		mg/L		98	90 - 110

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: LCSD 490-587963/34
Matrix: Water
Analysis Batch: 587963

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity			100	96.97		mg/L		97	90 - 110	1	20

Lab Sample ID: 490-171998-I-1 DU
Matrix: Water
Analysis Batch: 587963

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Alkalinity	124			125.6		mg/L				2	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 490-588164/1
Matrix: Water
Analysis Batch: 588164

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		25.0	7.00	mg/L			04/15/19 16:11	1

Lab Sample ID: LCS 490-588164/2
Matrix: Water
Analysis Batch: 588164

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			100	95.00		mg/L		95	90 - 110		

Lab Sample ID: 490-172007-E-2 DU
Matrix: Water
Analysis Batch: 588164

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	5480			5456		mg/L				0.5	20

Lab Sample ID: 490-172074-C-1 DU
Matrix: Water
Analysis Batch: 588164

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	21000			28200	F3	mg/L				29	20

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-428674/24-A
Matrix: Water
Analysis Batch: 434299

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 428674

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.007828	U	0.0450	0.0450	1.00	0.0994	pCi/L	05/16/19 12:11	07/09/19 18:11	1

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

Lab Sample ID: MB 160-428674/24-A
Matrix: Water
Analysis Batch: 434299

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 428674

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	106		40 - 110	05/16/19 12:11	07/09/19 18:11	1

Lab Sample ID: LCS 160-428674/1-A
Matrix: Water
Analysis Batch: 434753

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 428674

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.4	8.580		0.907	1.00	0.0856	pCi/L	76	75 - 125		

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	104		40 - 110

Lab Sample ID: 480-151762-A-5-D MSD
Matrix: Water
Analysis Batch: 434299

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 428674

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	0.0134	U	11.3	10.56		1.11	1.00	0.124	pCi/L	93	75 - 138	0.42	1

Carrier	MSD %Yield	MSD Qualifier	Limits
Ba Carrier	96.9		40 - 110

Lab Sample ID: 480-151762-B-5-A MS
Matrix: Water
Analysis Batch: 434299

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 428674

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226	0.0134	U	11.3	9.669		1.03	1.00	0.118	pCi/L	85	75 - 138		

Carrier	MS %Yield	MS Qualifier	Limits
Ba Carrier	97.7		40 - 110

Lab Sample ID: MB 160-429619/23-A
Matrix: Water
Analysis Batch: 433445

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 429619

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.02230	U	0.188	0.188	1.00	0.393	pCi/L	05/23/19 10:11	07/02/19 05:58	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	68.9		40 - 110	05/23/19 10:11	07/02/19 05:58	1

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

Lab Sample ID: LCS 160-429619/1-A
Matrix: Water
Analysis Batch: 433323

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 429619

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.4	8.859		1.40	1.00	0.530	pCi/L	78	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*60.7*		*40 - 110*

Lab Sample ID: 240-110911-I-1-A DU
Matrix: Water
Analysis Batch: 433323

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 429619

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Radium-226	0.176	U		0.4939		0.320	1.00	0.411	pCi/L			0.57	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Ba Carrier	*55.1*		*40 - 110*

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-428727/24-A
Matrix: Water
Analysis Batch: 433445

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 428727

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.3310	U	0.287	0.289	1.00	0.462	pCi/L	05/16/19 16:00	07/02/19 15:09	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*106*		*40 - 110*	*05/16/19 16:00*	*07/02/19 15:09*	*1*
Y Carrier	*81.1*		*40 - 110*	*05/16/19 16:00*	*07/02/19 15:09*	*1*

Lab Sample ID: LCS 160-428727/1-A
Matrix: Water
Analysis Batch: 433410

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 428727

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.06	9.118		1.08	1.00	0.414	pCi/L	101	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*104*		*40 - 110*
Y Carrier	*71.4*		*40 - 110*

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

Lab Sample ID: 480-151762-A-5-C MSD
Matrix: Water
Analysis Batch: 433410

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 428727

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	0.109	U	9.06	10.10		1.18	1.00	0.419	pCi/L	110	45 - 150	0.1	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Ba Carrier	*96.9*		*40 - 110*
Y Carrier	*74.8*		*40 - 110*

Lab Sample ID: 480-151762-B-5-B MS
Matrix: Water
Analysis Batch: 433410

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 428727

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228	0.109	U	9.06	9.876		1.13	1.00	0.345	pCi/L	108	45 - 150		

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Ba Carrier	*97.7*		*40 - 110*
Y Carrier	*80.4*		*40 - 110*

Lab Sample ID: MB 160-429638/23-A
Matrix: Water
Analysis Batch: 433323

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 429638

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.2343	U	0.325	0.326	1.00	0.614	pCi/L	05/23/19 11:48	07/01/19 14:41	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*68.9*		*40 - 110*	*05/23/19 11:48*	*07/01/19 14:41*	*1*
Y Carrier	*82.6*		*40 - 110*	*05/23/19 11:48*	*07/01/19 14:41*	*1*

Lab Sample ID: LCS 160-429638/1-A
Matrix: Water
Analysis Batch: 433226

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 429638

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.06	10.48		1.38	1.00	0.770	pCi/L	116	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*60.7*		*40 - 110*
Y Carrier	*73.3*		*40 - 110*

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

Lab Sample ID: 240-110911-I-1-B DU
Matrix: Water
Analysis Batch: 433226

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 429638

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Radium-228	0.00343	U		0.06999	U	0.424	1.00	0.748	pCi/L			0.09	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Ba Carrier	*55.1*		*40 - 110*
Y Carrier	*73.6*		*40 - 110*

HPLC/IC

Analysis Batch: 587889

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-2	MW-110	Total/NA	Water	9056A	
490-172010-4	FIELD BLANK	Total/NA	Water	9056A	
MB 490-587889/3	Method Blank	Total/NA	Water	9056A	
LCS 490-587889/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-587889/5	Lab Control Sample Dup	Total/NA	Water	9056A	
490-171999-H-13 MS	Matrix Spike	Total/NA	Water	9056A	
490-171999-H-13 MSD	Matrix Spike Duplicate	Total/NA	Water	9056A	

Analysis Batch: 587927

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	9056A	
490-172010-1	MW-104	Total/NA	Water	9056A	
490-172010-2	MW-110	Total/NA	Water	9056A	
490-172010-2	MW-110	Total/NA	Water	9056A	
MB 490-587927/3	Method Blank	Total/NA	Water	9056A	
LCS 490-587927/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-587927/5	Lab Control Sample Dup	Total/NA	Water	9056A	
490-172007-E-1 MS	Matrix Spike	Total/NA	Water	9056A	
490-172007-E-1 MSD	Matrix Spike Duplicate	Total/NA	Water	9056A	

Analysis Batch: 587930

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-3	DUPE	Total/NA	Water	9056A	
MB 490-587930/3	Method Blank	Total/NA	Water	9056A	
LCS 490-587930/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-587930/5	Lab Control Sample Dup	Total/NA	Water	9056A	

Analysis Batch: 588578

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-4	FIELD BLANK	Total/NA	Water	9056A	
MB 490-588578/3	Method Blank	Total/NA	Water	9056A	
LCS 490-588578/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-588578/5	Lab Control Sample Dup	Total/NA	Water	9056A	
490-172010-4 MS	FIELD BLANK	Total/NA	Water	9056A	
490-172010-4 MSD	FIELD BLANK	Total/NA	Water	9056A	

Metals

Prep Batch: 275852

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total Recoverable	Water	3005A	
490-172010-2	MW-110	Total Recoverable	Water	3005A	
490-172010-3	DUPE	Total Recoverable	Water	3005A	
490-172010-4	FIELD BLANK	Total Recoverable	Water	3005A	
MB 180-275852/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-275852/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
490-172010-1 MS	MW-104	Total Recoverable	Water	3005A	
490-172010-1 MSD	MW-104	Total Recoverable	Water	3005A	

Metals

Prep Batch: 275853

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total Recoverable	Water	3005A	
490-172010-2	MW-110	Total Recoverable	Water	3005A	
490-172010-3	DUPE	Total Recoverable	Water	3005A	
490-172010-4	FIELD BLANK	Total Recoverable	Water	3005A	
MB 180-275853/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-275853/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
490-172010-3 MS	DUPE	Total Recoverable	Water	3005A	
490-172010-3 MSD	DUPE	Total Recoverable	Water	3005A	

Analysis Batch: 276092

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total Recoverable	Water	6020A	275852
490-172010-2	MW-110	Total Recoverable	Water	6020A	275852
490-172010-3	DUPE	Total Recoverable	Water	6020A	275852
490-172010-4	FIELD BLANK	Total Recoverable	Water	6020A	275852
MB 180-275852/1-A	Method Blank	Total Recoverable	Water	6020A	275852
LCS 180-275852/2-A	Lab Control Sample	Total Recoverable	Water	6020A	275852
490-172010-1 MS	MW-104	Total Recoverable	Water	6020A	275852
490-172010-1 MSD	MW-104	Total Recoverable	Water	6020A	275852

Analysis Batch: 276485

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total Recoverable	Water	6010C	275853
490-172010-2	MW-110	Total Recoverable	Water	6010C	275853
490-172010-3	DUPE	Total Recoverable	Water	6010C	275853
490-172010-4	FIELD BLANK	Total Recoverable	Water	6010C	275853
MB 180-275853/1-A	Method Blank	Total Recoverable	Water	6010C	275853
LCS 180-275853/2-A	Lab Control Sample	Total Recoverable	Water	6010C	275853
490-172010-3 MS	DUPE	Total Recoverable	Water	6010C	275853
490-172010-3 MSD	DUPE	Total Recoverable	Water	6010C	275853

Prep Batch: 276826

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-4	FIELD BLANK	Total/NA	Water	7470A	
MB 180-276826/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-276826/2-A	Lab Control Sample	Total/NA	Water	7470A	
180-88983-B-1-C MS	Matrix Spike	Total/NA	Water	7470A	
180-88983-B-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	

Prep Batch: 276833

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	7470A	
490-172010-2	MW-110	Total/NA	Water	7470A	
490-172010-3	DUPE	Total/NA	Water	7470A	
MB 180-276833/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-276833/2-A	Lab Control Sample	Total/NA	Water	7470A	
490-172010-3 MS	DUPE	Total/NA	Water	7470A	
490-172010-3 MSD	DUPE	Total/NA	Water	7470A	

Metals

Analysis Batch: 276941

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	EPA 7470A	276833
490-172010-2	MW-110	Total/NA	Water	EPA 7470A	276833
490-172010-3	DUPE	Total/NA	Water	EPA 7470A	276833
MB 180-276833/1-A	Method Blank	Total/NA	Water	EPA 7470A	276833
LCS 180-276833/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	276833
490-172010-3 MS	DUPE	Total/NA	Water	EPA 7470A	276833
490-172010-3 MSD	DUPE	Total/NA	Water	EPA 7470A	276833

Analysis Batch: 277078

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-4	FIELD BLANK	Total/NA	Water	EPA 7470A	276826
MB 180-276826/1-A	Method Blank	Total/NA	Water	EPA 7470A	276826
LCS 180-276826/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	276826
180-88983-B-1-C MS	Matrix Spike	Total/NA	Water	EPA 7470A	276826
180-88983-B-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	EPA 7470A	276826

General Chemistry

Analysis Batch: 587963

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	SM 2320B	
490-172010-2	MW-110	Total/NA	Water	SM 2320B	
490-172010-3	DUPE	Total/NA	Water	SM 2320B	
490-172010-4	FIELD BLANK	Total/NA	Water	SM 2320B	
MB 490-587963/11	Method Blank	Total/NA	Water	SM 2320B	
LCS 490-587963/12	Lab Control Sample	Total/NA	Water	SM 2320B	
LCSD 490-587963/34	Lab Control Sample Dup	Total/NA	Water	SM 2320B	
490-171998-I-1 DU	Duplicate	Total/NA	Water	SM 2320B	

Analysis Batch: 588164

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	SM 2540C	
490-172010-2	MW-110	Total/NA	Water	SM 2540C	
490-172010-3	DUPE	Total/NA	Water	SM 2540C	
490-172010-4	FIELD BLANK	Total/NA	Water	SM 2540C	
MB 490-588164/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 490-588164/2	Lab Control Sample	Total/NA	Water	SM 2540C	
490-172007-E-2 DU	Duplicate	Total/NA	Water	SM 2540C	
490-172074-C-1 DU	Duplicate	Total/NA	Water	SM 2540C	

Analysis Batch: 588267

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	9050A	
490-172010-2	MW-110	Total/NA	Water	9050A	
490-172010-3	DUPE	Total/NA	Water	9050A	
490-172010-4	FIELD BLANK	Total/NA	Water	9050A	
LCS 490-588267/3	Lab Control Sample	Total/NA	Water	9050A	
490-172007-E-1 DU	Duplicate	Total/NA	Water	9050A	

QC Association Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

General Chemistry

Analysis Batch: 589003

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	9040C	
490-172010-2	MW-110	Total/NA	Water	9040C	
490-172010-3	DUPE	Total/NA	Water	9040C	
490-172010-4	FIELD BLANK	Total/NA	Water	9040C	
LCS 490-589003/1	Lab Control Sample	Total/NA	Water	9040C	
490-171598-A-10 DU	Duplicate	Total/NA	Water	9040C	

Rad

Prep Batch: 428674

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	PrecSep-21	
490-172010-2	MW-110	Total/NA	Water	PrecSep-21	
490-172010-3	DUPE	Total/NA	Water	PrecSep-21	
MB 160-428674/24-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-428674/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
480-151762-A-5-D MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep-21	
480-151762-B-5-A MS	Matrix Spike	Total/NA	Water	PrecSep-21	

Prep Batch: 428727

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	PrecSep_0	
490-172010-2	MW-110	Total/NA	Water	PrecSep_0	
490-172010-3	DUPE	Total/NA	Water	PrecSep_0	
MB 160-428727/24-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-428727/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
480-151762-A-5-C MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep_0	
480-151762-B-5-B MS	Matrix Spike	Total/NA	Water	PrecSep_0	

Prep Batch: 429619

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-4	FIELD BLANK	Total/NA	Water	PrecSep-21	
MB 160-429619/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-429619/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
240-110911-I-1-A DU	Duplicate	Total/NA	Water	PrecSep-21	

Prep Batch: 429638

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-4	FIELD BLANK	Total/NA	Water	PrecSep_0	
MB 160-429638/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-429638/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
240-110911-I-1-B DU	Duplicate	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Client Sample ID: MW-104

Date Collected: 04/10/19 14:43
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		10			587927	04/13/19 19:19	SOO	
Total/NA	Analysis	9056A		100			587927	04/13/19 19:35	SOO	
Total Recoverable	Prep	3005A			50 mL	50 mL	275853	04/16/19 11:19	NAM	
Total Recoverable	Analysis	6010C		1			276485	04/22/19 16:39	RJG	
Total Recoverable	Prep	3005A			50 mL	50 mL	275852	04/16/19 11:17	NAM	
Total Recoverable	Analysis	6020A		1			276092	04/17/19 10:53	RSK	
Total/NA	Prep	7470A			50 mL	50 mL	276833	04/25/19 17:02	KAK	
Total/NA	Analysis	EPA 7470A		1			276941	04/26/19 13:28	KAK	
Total/NA	Analysis	9040C		1			589003	04/18/19 18:32	MXX	
Total/NA	Analysis	9050A		1			588267	04/13/19 10:38	MSP	
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	587963	04/13/19 13:33	MSP	
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	588164	04/15/19 16:11	BMC	
Total/NA	Prep	PrecSep-21			1000.37 mL	1.0 g	428674	05/16/19 12:11	ORM	TAL SL
Total/NA	Analysis	903.0		1	1.0 mL	1.0 mL	434299	07/09/19 18:10	CDR	TAL SL
Total/NA	Prep	PrecSep_0			1000.37 mL	1.0 g	428727	05/16/19 16:00	ORM	TAL SL
Total/NA	Analysis	904.0		1			433407	07/02/19 15:07	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			434813	07/15/19 08:48	SMP	TAL SL

Client Sample ID: MW-110

Date Collected: 04/10/19 12:59
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1	10 mL	1.0 mL	587889	04/13/19 02:38	SOO	
Total/NA	Analysis	9056A		2			587927	04/13/19 20:09	SOO	
Total/NA	Analysis	9056A		50			587927	04/13/19 20:25	SOO	
Total Recoverable	Prep	3005A			50 mL	50 mL	275853	04/16/19 11:19	NAM	
Total Recoverable	Analysis	6010C		1			276485	04/22/19 16:45	RJG	
Total Recoverable	Prep	3005A			50 mL	50 mL	275852	04/16/19 11:17	NAM	
Total Recoverable	Analysis	6020A		1			276092	04/17/19 11:16	RSK	
Total/NA	Prep	7470A			50 mL	50 mL	276833	04/25/19 17:02	KAK	
Total/NA	Analysis	EPA 7470A		1			276941	04/26/19 13:29	KAK	
Total/NA	Analysis	9040C		1			589003	04/18/19 18:32	MXX	
Total/NA	Analysis	9050A		1			588267	04/13/19 10:38	MSP	
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	587963	04/13/19 13:40	MSP	
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	588164	04/15/19 16:11	BMC	
Total/NA	Prep	PrecSep-21			500.46 mL	1.0 g	428674	05/16/19 12:11	ORM	TAL SL
Total/NA	Analysis	903.0		1	1.0 mL	1.0 mL	434299	07/09/19 18:10	CDR	TAL SL
Total/NA	Prep	PrecSep_0			500.46 mL	1.0 g	428727	05/16/19 16:00	ORM	TAL SL
Total/NA	Analysis	904.0		1			433407	07/02/19 15:07	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			434813	07/15/19 08:48	SMP	TAL SL

Lab Chronicle

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Client Sample ID: DUPE

Date Collected: 04/10/19 15:10
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		100			587930	04/13/19 22:54	SOO	
Total Recoverable	Prep	3005A			50 mL	50 mL	275853	04/16/19 11:19	NAM	
Total Recoverable	Analysis	6010C		1			276485	04/22/19 16:07	RJG	
Total Recoverable	Prep	3005A			50 mL	50 mL	275852	04/16/19 11:17	NAM	
Total Recoverable	Analysis	6020A		1			276092	04/17/19 11:19	RSK	
Total/NA	Prep	7470A			50 mL	50 mL	276833	04/25/19 17:02	KAK	
Total/NA	Analysis	EPA 7470A		1			276941	04/26/19 13:30	KAK	
Total/NA	Analysis	9040C		1			589003	04/18/19 18:32	MXX	
Total/NA	Analysis	9050A		1			588267	04/13/19 10:38	MSP	
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	587963	04/13/19 13:47	MSP	
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	588164	04/15/19 16:11	BMC	
Total/NA	Prep	PrecSep-21			1000.53 mL	1.0 g	428674	05/16/19 12:11	ORM	TAL SL
Total/NA	Analysis	903.0		1	1.0 mL	1.0 mL	434299	07/09/19 18:10	CDR	TAL SL
Total/NA	Prep	PrecSep_0			1000.53 mL	1.0 g	428727	05/16/19 16:00	ORM	TAL SL
Total/NA	Analysis	904.0		1			433407	07/02/19 15:07	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			434813	07/15/19 08:48	SMP	TAL SL

Client Sample ID: FIELD BLANK

Date Collected: 04/10/19 15:39
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1	10 mL	1.0 mL	587889	04/13/19 03:12	SOO	
Total/NA	Analysis	9056A		1	10 mL	1.0 mL	588578	04/17/19 15:20	T1C	
Total Recoverable	Prep	3005A			50 mL	50 mL	275853	04/16/19 11:19	NAM	
Total Recoverable	Analysis	6010C		1			276485	04/22/19 16:51	RJG	
Total Recoverable	Prep	3005A			50 mL	50 mL	275852	04/16/19 11:17	NAM	
Total Recoverable	Analysis	6020A		1			276092	04/17/19 11:23	RSK	
Total/NA	Prep	7470A			50 mL	50 mL	276826	04/25/19 16:08	KAK	
Total/NA	Analysis	EPA 7470A		1			277078	04/29/19 09:08	RJR	
Total/NA	Analysis	9040C		1			589003	04/18/19 18:32	MXX	
Total/NA	Analysis	9050A		1			588267	04/13/19 10:38	MSP	
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	587963	04/13/19 13:53	MSP	
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	588164	04/15/19 16:11	BMC	
Total/NA	Prep	PrecSep-21			1000.44 mL	1.0 g	429619	05/23/19 10:11	ORM	TAL SL
Total/NA	Analysis	903.0		1	1.0 mL	1.0 mL	433323	07/01/19 20:40	CDR	TAL SL
Total/NA	Prep	PrecSep_0			1000.44 mL	1.0 g	429638	05/23/19 11:48	ORM	TAL SL
Total/NA	Analysis	904.0		1			433226	07/01/19 14:34	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			434813	07/15/19 08:48	SMP	TAL SL

Laboratory References:

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Method Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	
6010C	Metals (ICP)	SW846	
6020A	Metals (ICP/MS)	SW846	
EPA 7470A	Mercury (CVAA)	SW846	
9040C	pH	SW846	
9050A	Specific Conductance	SW846	
SM 2320B	Alkalinity	SM	
SM 2540C	Solids, Total Dissolved (TDS)	SM	
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	
7470A	Preparation, Mercury	SW846	

Protocol References:

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.

Laboratory References:

= , , ,

Accreditation/Certification Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Laboratory: Eurofins TestAmerica, Nashville

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Kentucky (UST)	State Program	4	19	06-30-19

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
9040C		Water	pH
9040C		Water	Temperature
9050A		Water	Specific Conductance (25C)
9056A		Water	Chloride
9056A		Water	Fluoride
9056A		Water	Sulfate
SM 2320B		Water	Alkalinity
SM 2540C		Water	Total Dissolved Solids

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-19
California	State Program	9	2891	04-30-19 *
Connecticut	State Program	1	PH-0688	09-30-20
Florida	NELAP	4	E871008	06-30-19
Illinois	NELAP	5	200005	06-30-19
Kansas	NELAP	7	E-10350	01-31-20
Louisiana	NELAP	6	04041	06-30-19
Nevada	State Program	9	PA00164	07-31-19
New Hampshire	NELAP	1	2030	04-04-20
New Jersey	NELAP	2	PA005	06-30-19
New York	NELAP	2	11182	03-31-20
North Carolina (WW/SW)	State Program	4	434	12-31-19
Oregon	NELAP	10	PA-2151	02-06-20
Pennsylvania	NELAP	3	02-00416	04-30-19
South Carolina	State Program	4	89014	04-30-19 *
Texas	NELAP	6	T104704528-15-2	03-31-20
US Fish & Wildlife	Federal		LE94312A-1	07-31-19
USDA	Federal		P330-16-00211	06-26-19
Utah	NELAP	8	PA001462015-4	05-31-19 *
Virginia	NELAP	3	460189	09-14-19
West Virginia DEP	State Program	3	142	01-31-20
Wisconsin	State Program	5	998027800	08-31-19

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

Accreditation/Certification Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP		L2305	04-06-22
ANAB	DoD		L2305	04-06-22
ANAB	DOE		L2305.01	04-06-22
Arizona	State		AZ0813	12-08-19
Arizona	State Program	9	AZ0813	12-08-19
California	State Program	9	2886	06-30-19 *
Connecticut	State Program	1	PH-0241	03-31-21
Florida	NELAP	4	E87689	06-30-20
Florida	NELAP		E87689	06-30-20
Illinois	NELAP	5	200023	11-30-19
Iowa	State Program	7	373	12-01-20
Kansas	NELAP	7	E-10236	10-31-19
Kentucky (DW)	State Program	4	KY90125	12-31-19
Louisiana	NELAP	6	04080	06-30-20
Louisiana (DW)	NELAP	6	LA011	12-31-19
Maryland	State Program	3	310	09-30-19 *
Missouri	State Program	7	780	06-30-19 *
Nevada	State Program	9	MO000542018-1	07-31-19 *
New Jersey	NELAP	2	MO002	06-30-20
New York	NELAP	2	11616	03-31-20
New York	NELAP		11616	04-01-20
North Dakota	State Program	8	R207	06-30-19 *
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State		9997	08-31-19
Oklahoma	State Program	6	9997	08-31-19 *
Pennsylvania	NELAP	3	68-00540	02-28-20
Pennsylvania	NELAP		68-00540	02-28-20
South Carolina	State Program	4	85002001	06-30-19 *
Texas	NELAP	6	T104704193-18-13	07-31-19 *
Texas	NELAP		T104704193-19-13	07-31-20
US Fish & Wildlife	Federal		058448	07-31-19
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542018-10	07-31-19 *
Virginia	NELAP	3	460230	06-14-20
Washington	State Program	10	C592	08-30-19
West Virginia DEP	State Program	3	381	08-31-19

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

490-172010 Chain of Custody

Cooler Received/Opened On 4/12/2019 @ 9:55

Time Samples Removed From Cooler 14:22 Time Samples Placed In Storage 14:32 (2 Hour Window)

1. Tracking # 1128 (last 4 digits, FedEx) Courier: Fedex

IR Gun ID 31470366 pH Strip Lot NA Chlorine Strip Lot NA

2. Temperature of rep. sample or temp blank when opened: 0.7 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 2 Front

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) ACE

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

Larger than this.

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) ACE

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) ACE

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) ACE

I certify that I attached a label with the unique LIMS number to each container (intial) ACE

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#_____

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 8/23/17

Loc: 490
172010

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

Cooler Received/Opened On 4/12/2019 @ 0955

Time Samples Removed From Cooler 14:22 Time Samples Placed In Storage 14:32 (2 Hour Window)

1. Tracking # 1636 (last 4 digits, FedEx) Courier: FedEx

IR Gun ID 17960353 pH Strip Lot NA Chlorine Strip Lot NA

2. Temperature of rep. sample or temp blank when opened: 0.1 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 1 (Front)

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) AC

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

● ⬅ Larger than this.

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) ACE

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) ACE

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) ACE

I certify that I attached a label with the unique LIMS number to each container (intial) ACE

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#_____

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 8/23/17

Chain of Custody Record 299402

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other:

Client Contact	Project Manager: Mark Bertram	Site Contact: Greg Dick	Date: 4/11/2019	COC No: 299402
Company Name: Big Rivers Electric Corp.	Tel/Fax: (270) 844-5708	Lab Contact: Roxanne Cisneros	Carrier: FedEx	1 of 1 COCs
Address: 9000 Highway 2096	Analysis Turnaround Time			Sampler:
City/State/Zip: Robards, KY 42452	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: (270) 844-5736	TAT if different from Below _____			Walk-in Client:
Fax:	☑ 2 weeks			Lab Sampling:
Project Name: Sebree Station, New CCR Wells Rd 2	☐ 1 week			
Site: Sebree Station	☐ 2 days			Job / SDG No.:
P O # 249349	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	903.0, 904.0	6010C, 6020A, 7470A	9056A-DRGFM-28D, 9040C, 9065A 2320B	2540C-Calc-TDS	Sample Specific Notes:
MW-104	4/10/19	1443	G	Water	5	N	N	X	X	X	X	
MW-110	4/10/19	1259	G	Water	5	N	N	X	X	X	X	
DUPE	4/10/19	1510	G	Water	5	N	N	X	X	X	X	
FIELD BLANK	4/10/19	1539	G	Water	5	N	N	X	X	X	X	
												Loc: 490 172010

Greg Dick

Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4=HNO3, 5=NaOH, 6= Other — 4 4 1 1

Possible Hazard Identification:
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.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown

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: See attached constituent list for analysis

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: 0.7 Corr'd: _____ | Therm ID No.: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Greg Dick	BREC	4/11/2019 1555			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: TA-MAS	Date/Time: 4/12/19 9:55

4/11/2019

Constituent List:

40 C.F.R. 257 Appendix III
Boron
Calcium
Fluoride
pH
Sulfate
Total Dissolved Solids (TDS)

40 C.F.R. 257 Appendix IV
Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium
Cobalt
Fluoride
Lead
Lithium
Mercury
Molybdenum
Selenium
Thallium
Radium 226 & 228 combined

Additional Parameters
Carbonate Alkalinity
Bicarbonate Alkalinity
Alkalinity
Iron
Magnesium
Potassium
Sodium

Greg Dick
BREC
4/11/2019
1555

Loc: 490
172010

Eurofins TestAmerica, Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Phone (615) 726-0177 Fax (615) 726-3404

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Cisneros, Roxanne	Carrier Tracking No(s):	COC No: 490-88697.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: roxanne.cisneros@testamericainc.com	State of Origin: Kentucky	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Kentucky (UST)		Job #: 490-172010-1
Address: 301 Alpha Drive, RIDC Park,	Due Date Requested: 4/24/2019			
City: Pittsburgh	TAT Requested (days):			
State, Zip: PA, 15238				
Phone: 412-963-7058(Tel) 412-963-2468(Fax)	PO #:			
Email:	WO #:			
Project Name: Sebree Station, New CCR Wells Rd 2	Project #: 49010431			
Site: Big Rivers CCR	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
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
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C/3005A (MOD) Lithium	6020A/3005A (MOD) ICP/MS Metals	7470A/7470A_Prep Mercury	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-104 (490-172010-1)	4/10/19	14:43 Eastern		Water			X	X	X	1	Metals - run once, upload together.
MW-110 (490-172010-2)	4/10/19	12:59 Eastern		Water			X	X	X	1	Metals - run once, upload together.
DUPE (490-172010-3)	4/10/19	15:10 Eastern		Water			X	X	X	1	Metals - run once, upload together.
FIELD BLANK (490-172010-4)	4/10/19	15:39 Eastern		Water			X	X	X	1	Metals - run once, upload together.

490-172010 Chain of Custody

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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

Empty Kit Relinquished by:	Date: MON 4/12/19	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		4.12.19@1615	TALS		4-13-19	
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 930	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

Eurofins TestAmerica, Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Phone (615) 726-0177 Fax (615) 726-3404

nut 2EE

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Cisneros, Roxanne	Carrier Tracking No(s):	COC No: 490-88697.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: roxanne.cisneros@testamericainc.com	State of Origin: Kentucky	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Kentucky (UST)		Job #: 490-172010-1
Address: 301 Alpha Drive, RIDC Park,	Due Date Requested: 4/24/2019			
City: Pittsburgh	TAT Requested (days):			
State, Zip: PA, 15238				
Phone: 412-963-7058(Tel) 412-963-2468(Fax)	PO #:			
Email:	WO #:			
Project Name: Sebree Station, New CCR Wells Rd 2	Project #: 49010431			
Site: Big Rivers CCR	SSOW#:			

Analysis Requested

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, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C/3005A (MOD) Lithium	6020A/3005A (MOD) ICP/MS Metals	7470A/7470A_Prep Mercury	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-104 (490-172010-1)	4/10/19	14:43 Eastern		Water			X	X	X	1	Metals - run once, upload together.
MW-110 (490-172010-2)	4/10/19	12:59 Eastern		Water			X	X	X	1	Metals - run once, upload together.
DUPE (490-172010-3)	4/10/19	15:10 Eastern		Water			X	X	X	1	Metals - run once, upload together.
FIELD BLANK (490-172010-4)	4/10/19	15:39 Eastern		Water			X	X	X	1	Metals - run once, upload together.

490-172010 Chain of Custody

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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

Empty Kit Relinquished by:	Date: [illegible] 4/12/19	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	4.12.19 @ 1615	TAMS	P Watson	4-13-19 930	FAPIT
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Big Rivers Electric Corporation

Job Number: 490-172010-1
SDG Number: Sebree Station

Login Number: 172010
List Number: 2
Creator: Watson, Debbie

List Source: Eurofins TestAmerica, Pittsburgh
List Creation: 04/13/19 01:27 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?	False	
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	

Tracer/Carrier Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
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 Carrier (40-110)
240-110911-I-1-A DU	Duplicate	55.1
480-151762-A-5-D MSD	Matrix Spike Duplicate	96.9
480-151762-B-5-A MS	Matrix Spike	97.7
490-172010-1	MW-104	99.4
490-172010-2	MW-110	76.0
490-172010-3	DUPE	96.0
490-172010-4	FIELD BLANK	70.9
LCS 160-428674/1-A	Lab Control Sample	104
LCS 160-429619/1-A	Lab Control Sample	60.7
MB 160-428674/24-A	Method Blank	106
MB 160-429619/23-A	Method Blank	68.9

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

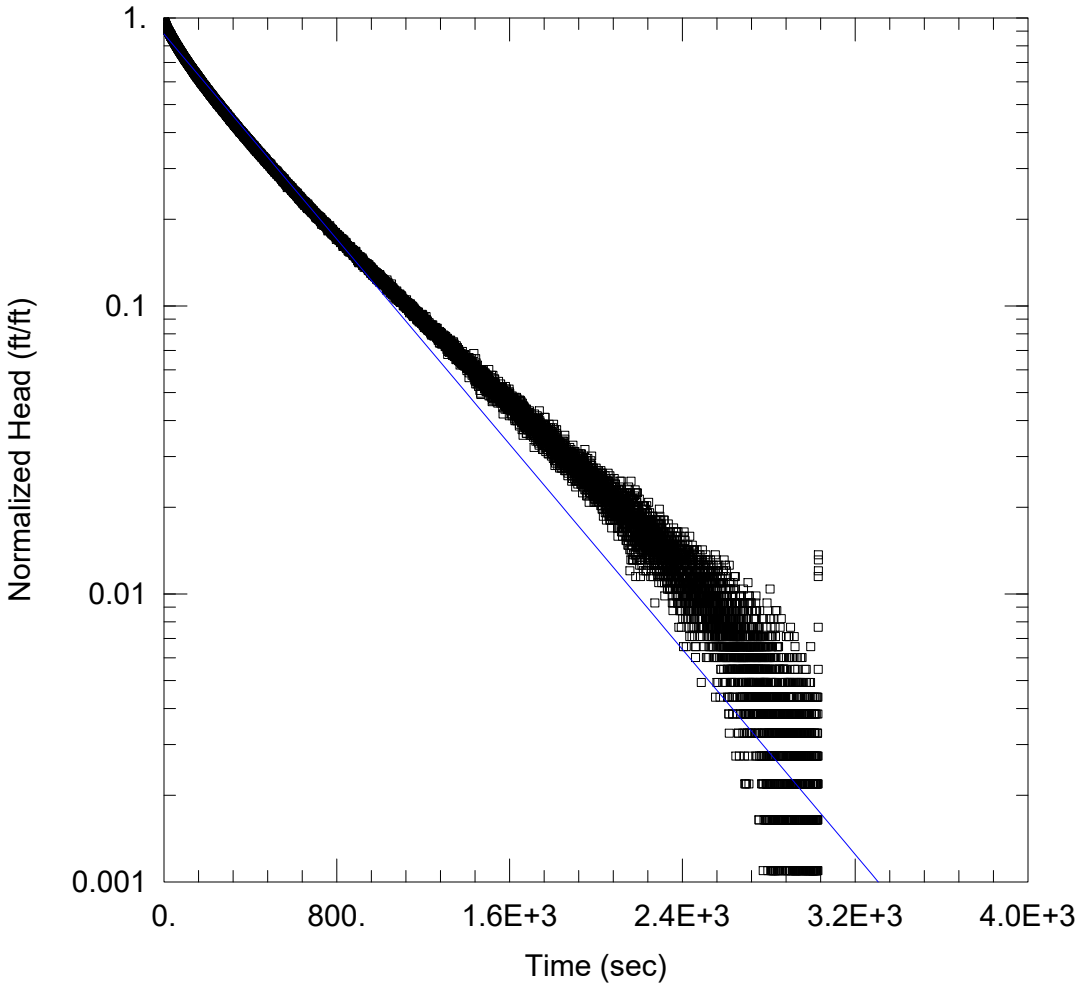
Matrix: Water — **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	Y Carrier (40-110)
240-110911-I-1-B DU	Duplicate	55.1	73.6
480-151762-A-5-C MSD	Matrix Spike Duplicate	96.9	74.8
480-151762-B-5-B MS	Matrix Spike	97.7	80.4
490-172010-1	MW-104	99.4	82.6
490-172010-2	MW-110	76.0	78.1
490-172010-3	DUPE	96.0	76.6
490-172010-4	FIELD BLANK	70.9	101
LCS 160-428727/1-A	Lab Control Sample	104	71.4
LCS 160-429638/1-A	Lab Control Sample	60.7	73.3
MB 160-428727/24-A	Method Blank	106	81.1
MB 160-429638/23-A	Method Blank	68.9	82.6

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

Appendix D
Aquifer Hydraulic Testing Output



WELL TEST ANALYSIS

Data Set: C:\Users\marjory.fure\Desktop\Big Rivers Slug Tests\Green\MW-3A\MW-3A_R1.aqt
Date: 05/01/19 Time: 15:19:59

PROJECT INFORMATION

Company: AECOM
Client: Big Rivers
Project: Sebree Station Green Landfill
Location: Robards, Kentucky
Test Date: 4/25/2019

AQUIFER DATA

Saturated Thickness: 19.5 ft Anisotropy Ratio (Kz/Kr): 1.

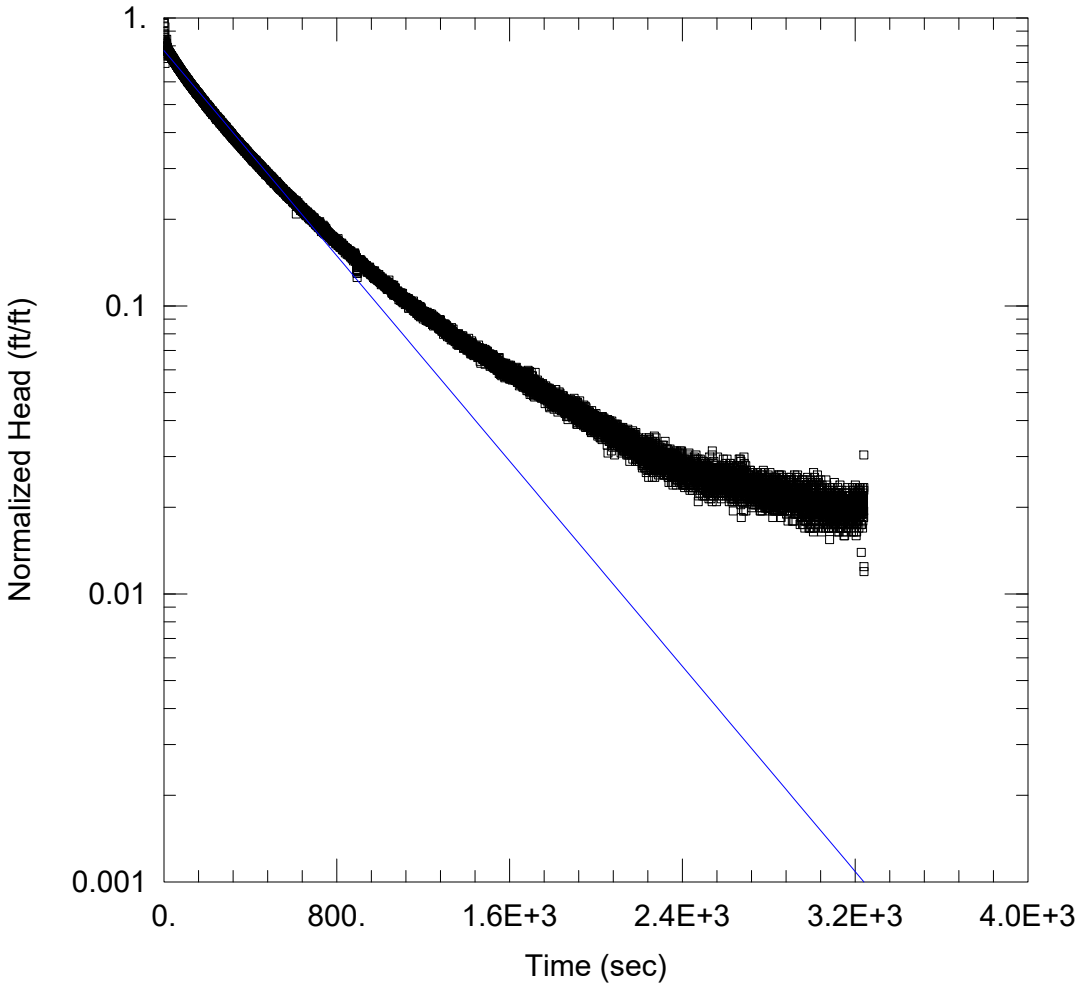
WELL DATA (MW-3A)

Initial Displacement: 1.828 ft
Total Well Penetration Depth: 18.84 ft
Casing Radius: 0.1667 ft
Static Water Column Height: 30.75 ft
Screen Length: 10. ft
Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice

K = 0.0002367 cm/sec y0 = 1.607 ft



WELL TEST ANALYSIS

Data Set: C:\Users\marjory.fure\Desktop\Big Rivers Slug Tests\Green\MW-3A\MW-3A_F1.aqt
Date: 05/01/19 Time: 15:20:19

PROJECT INFORMATION

Company: AECOM
Client: Big Rivers
Project: Sebree Station Green Landfill
Location: Robards, Kentucky
Test Date: 4/25/2019

AQUIFER DATA

Saturated Thickness: 19.5 ft Anisotropy Ratio (Kz/Kr): 1.

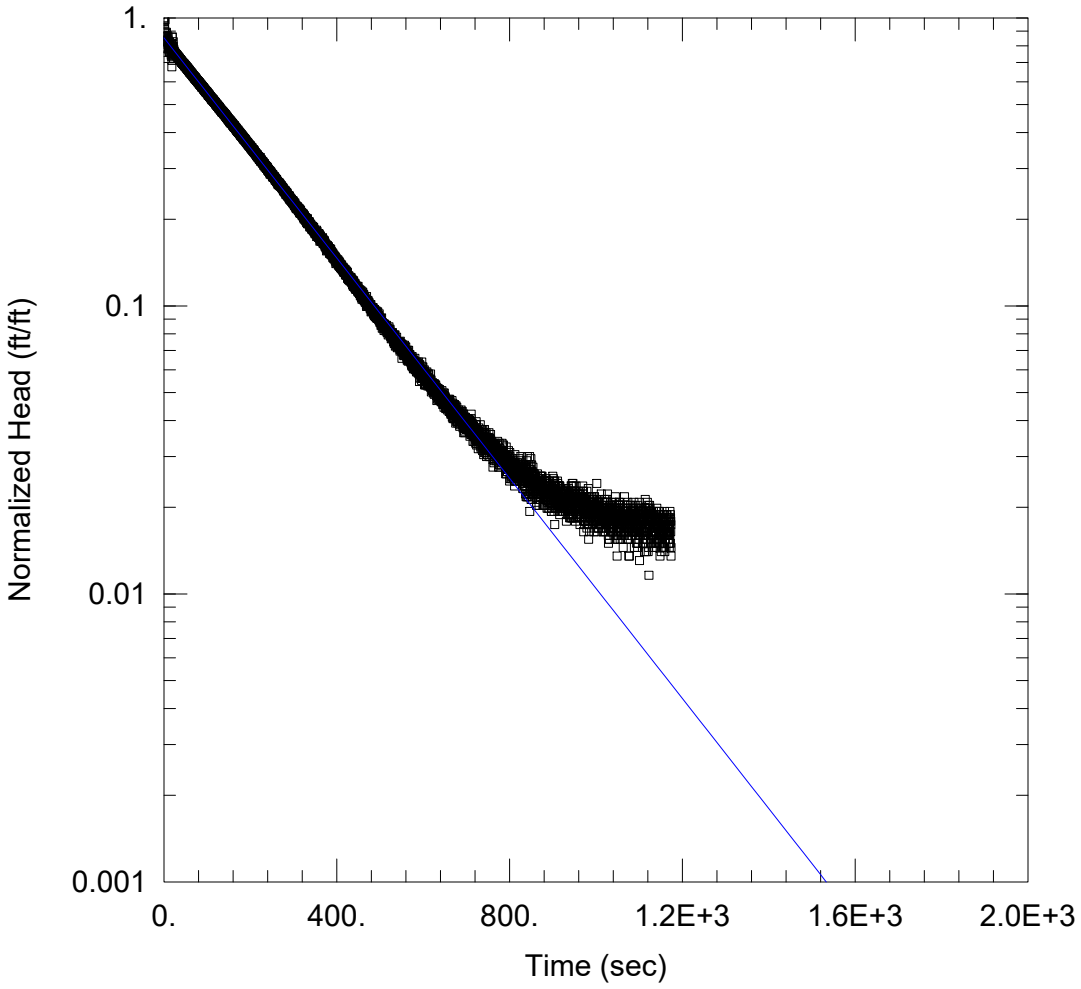
WELL DATA (MW-3A)

Initial Displacement: -2.009 ft
Total Well Penetration Depth: 18.84 ft
Casing Radius: 0.1667 ft
Static Water Column Height: 30.75 ft
Screen Length: 10. ft
Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice

K = 0.0002369 cm/sec y0 = -1.548 ft



WELL TEST ANALYSIS

Data Set: C:\Users\marjory.fure\Desktop\Big Rivers Slug Tests\Green\MW-4\MW-4_F1.aqt
Date: 05/02/19 Time: 14:24:11

PROJECT INFORMATION

Company: AECOM
Client: Big Rivers
Project: Sebree Station Green Landfill
Location: Robards, Kentucky
Test Date: 4/25/2019

AQUIFER DATA

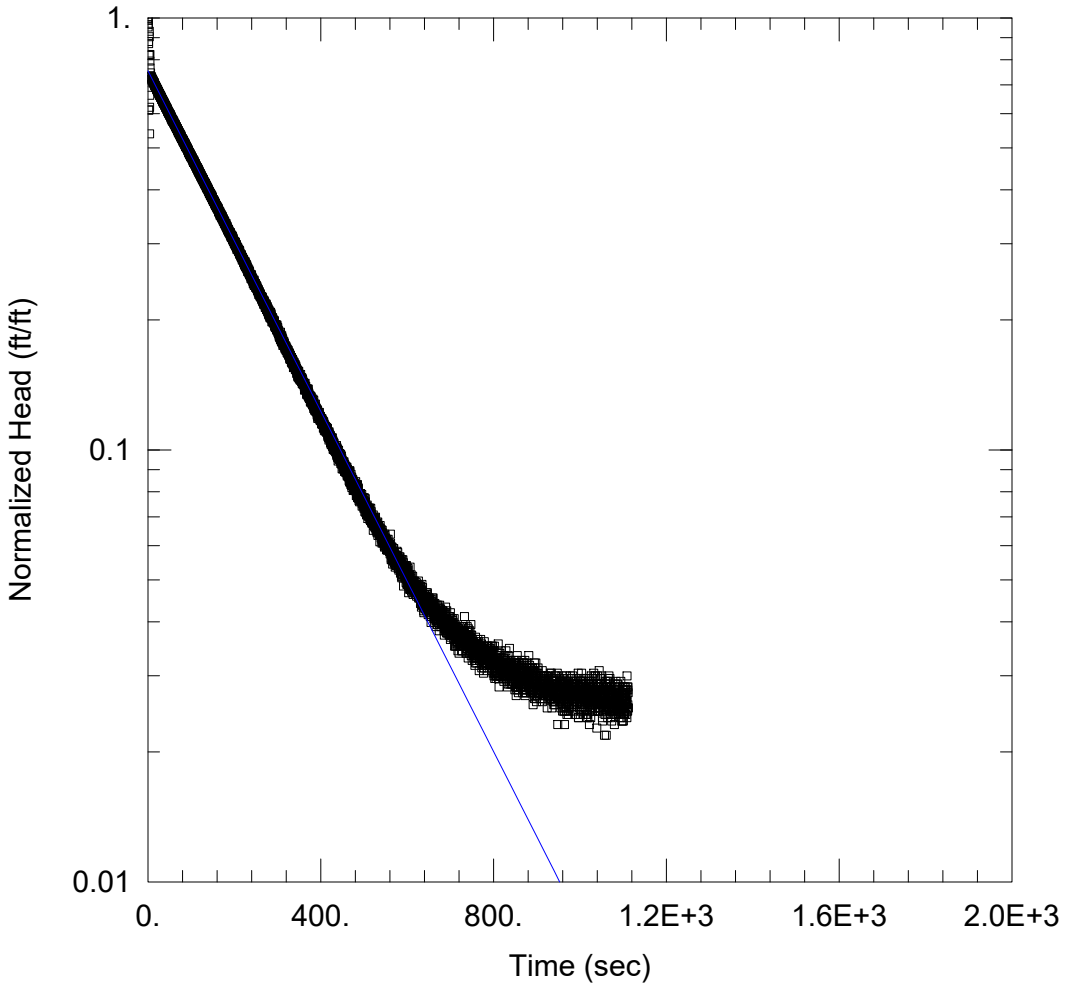
Saturated Thickness: 19.5 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-4)

Initial Displacement: -2.068 ft
Total Well Penetration Depth: 15.45 ft
Casing Radius: 0.1667 ft
Static Water Column Height: 17.04 ft
Screen Length: 10. ft
Well Radius: 0.3646 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.0004507 cm/sec
y0 = -1.763 ft



WELL TEST ANALYSIS

Data Set: C:\Users\marjory.fure\Desktop\Big Rivers Slug Tests\Green\MW-4\MW-4_F2.aqt
Date: 05/02/19 Time: 14:24:00

PROJECT INFORMATION

Company: AECOM
Client: Big Rivers
Project: Sebree Station Green Landfill
Location: Robards, Kentucky
Test Date: 4/25/2019

AQUIFER DATA

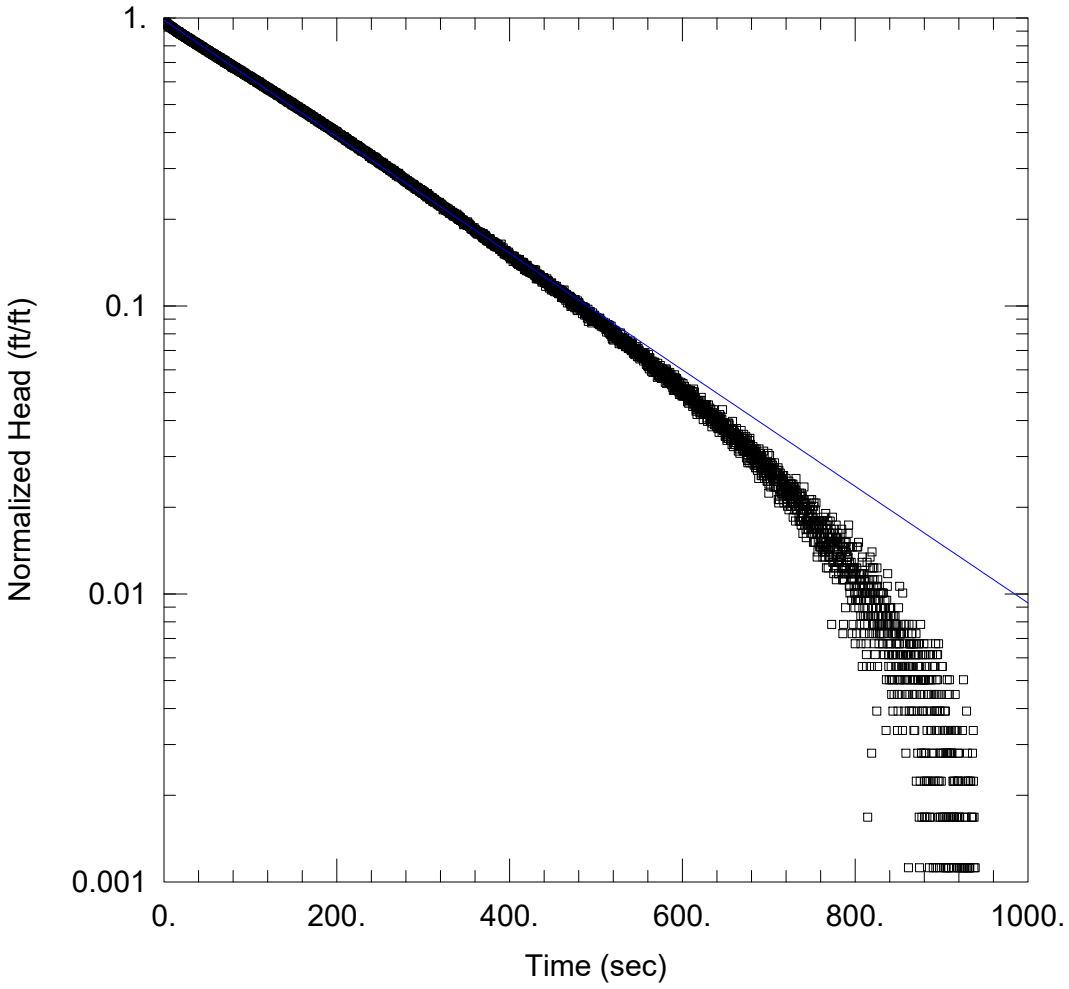
Saturated Thickness: 19.5 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-4)

Initial Displacement: -2.334 ft
Total Well Penetration Depth: 15.45 ft
Casing Radius: 0.1667 ft
Static Water Column Height: 17.05 ft
Screen Length: 10. ft
Well Radius: 0.3646 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.0004644 cm/sec
y0 = -1.76 ft



WELL TEST ANALYSIS

Data Set: C:\Users\marjory.fure\Desktop\Big Rivers Slug Tests\Green\MW-4\MW-4_R1.aqt
Date: 05/02/19 Time: 14:23:10

PROJECT INFORMATION

Company: AECOM
Client: Big Rivers
Project: Sebree Station Green Landfill
Location: Robards, Kentucky
Test Date: 4/25/2019

AQUIFER DATA

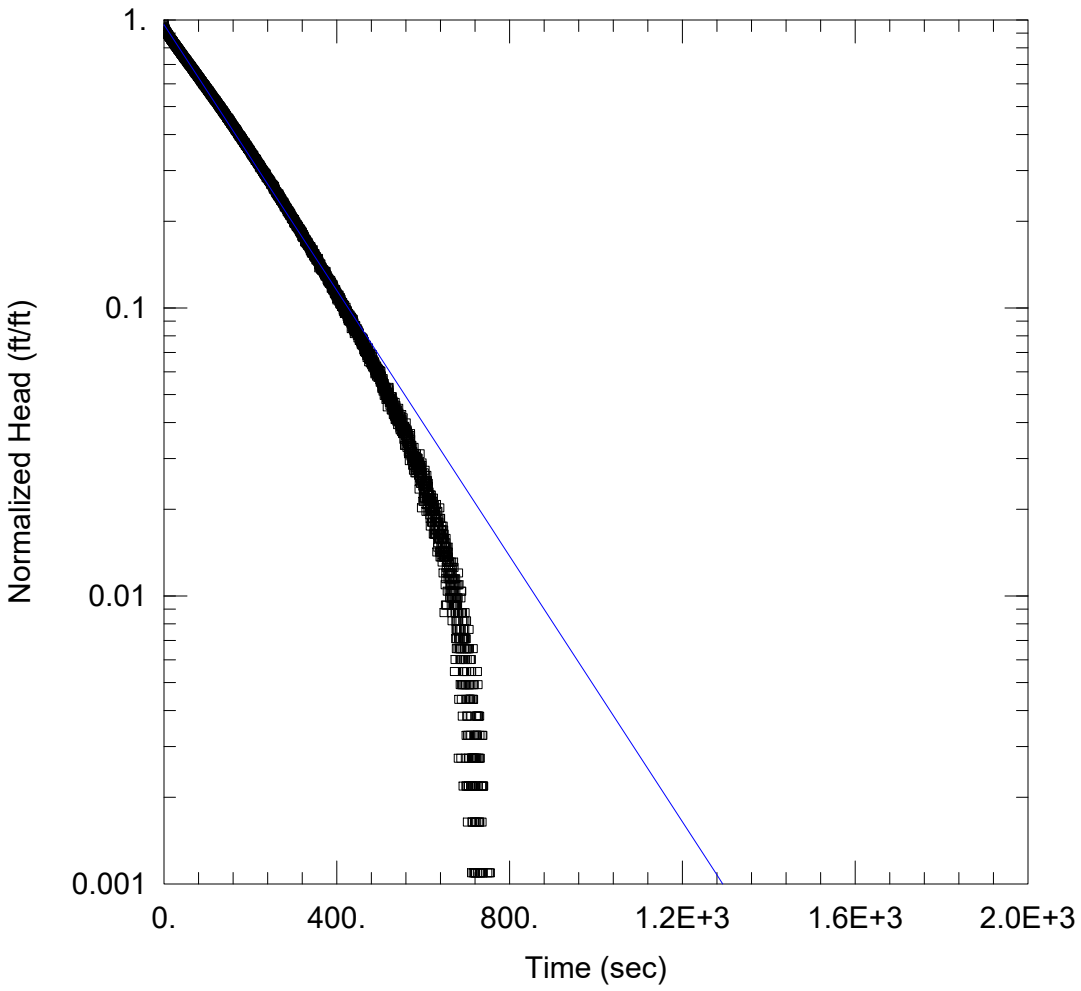
Saturated Thickness: 19.5 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-4)

Initial Displacement: 1.787 ft
Total Well Penetration Depth: 15.45 ft
Casing Radius: 0.1667 ft
Static Water Column Height: 17.05 ft
Screen Length: 10. ft
Well Radius: 0.3646 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.0004771 cm/sec
y0 = 1.755 ft



WELL TEST ANALYSIS

Data Set: C:\Users\marjory.fure\Desktop\Big Rivers Slug Tests\Green\MW-4\MW-4_R2.aqt
Date: 05/02/19 Time: 14:24:35

PROJECT INFORMATION

Company: AECOM
Client: Big Rivers
Project: Sebree Station Green Landfill
Location: Robards, Kentucky
Test Date: 4/25/2019

AQUIFER DATA

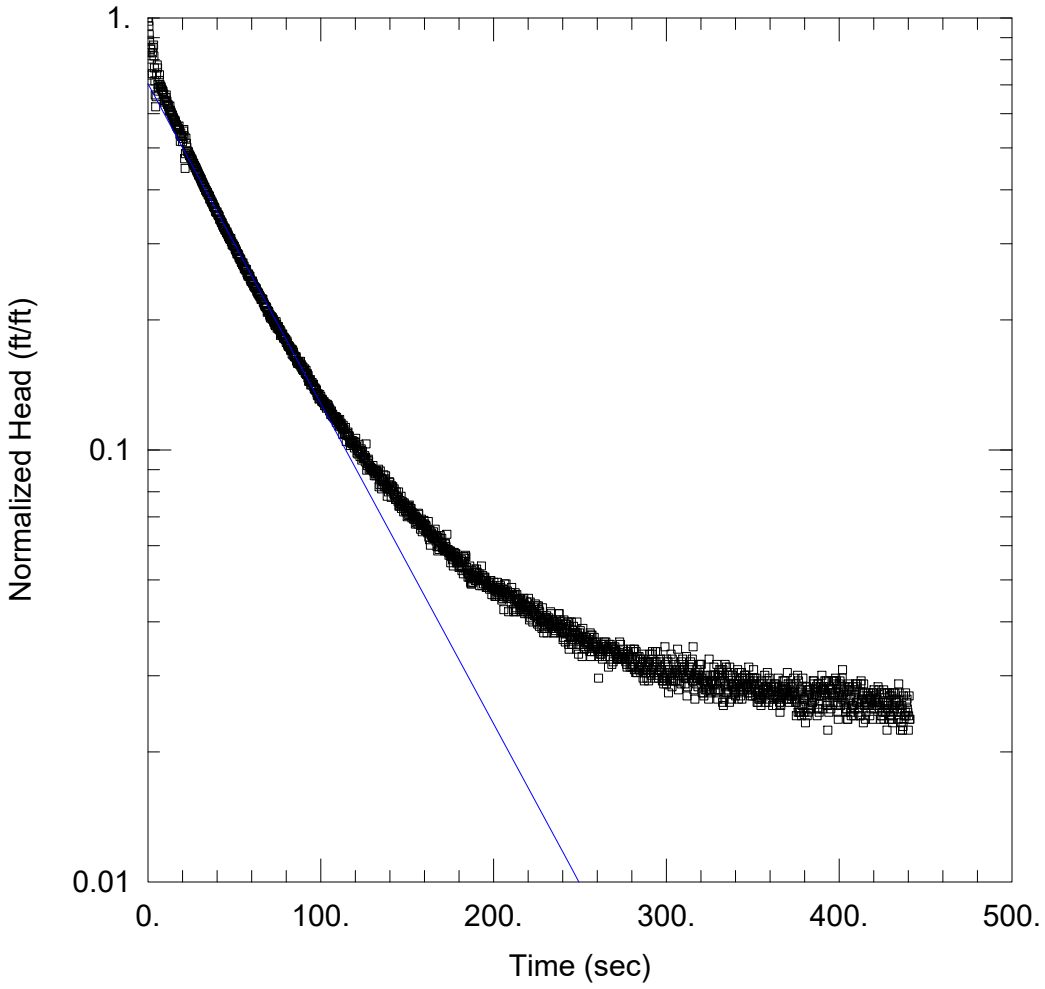
Saturated Thickness: 19.5 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-4)

Initial Displacement: 1.83 ft Static Water Column Height: 17.1 ft
Total Well Penetration Depth: 15.45 ft Screen Length: 10. ft
Casing Radius: 0.1667 ft Well Radius: 0.3646 ft

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice
K = 0.0005438 cm/sec y0 = 1.762 ft



WELL TEST ANALYSIS

Data Set: C:\Users\marjory.fure\Desktop\Big Rivers Slug Tests\Green\MW-6\MW-6_F1.aqt
Date: 05/02/19 Time: 14:19:55

PROJECT INFORMATION

Company: AECOM
Client: Big Rivers
Project: Sebree Station Green Landfill
Location: Robards, Kentucky
Test Date: 4/25/2019

AQUIFER DATA

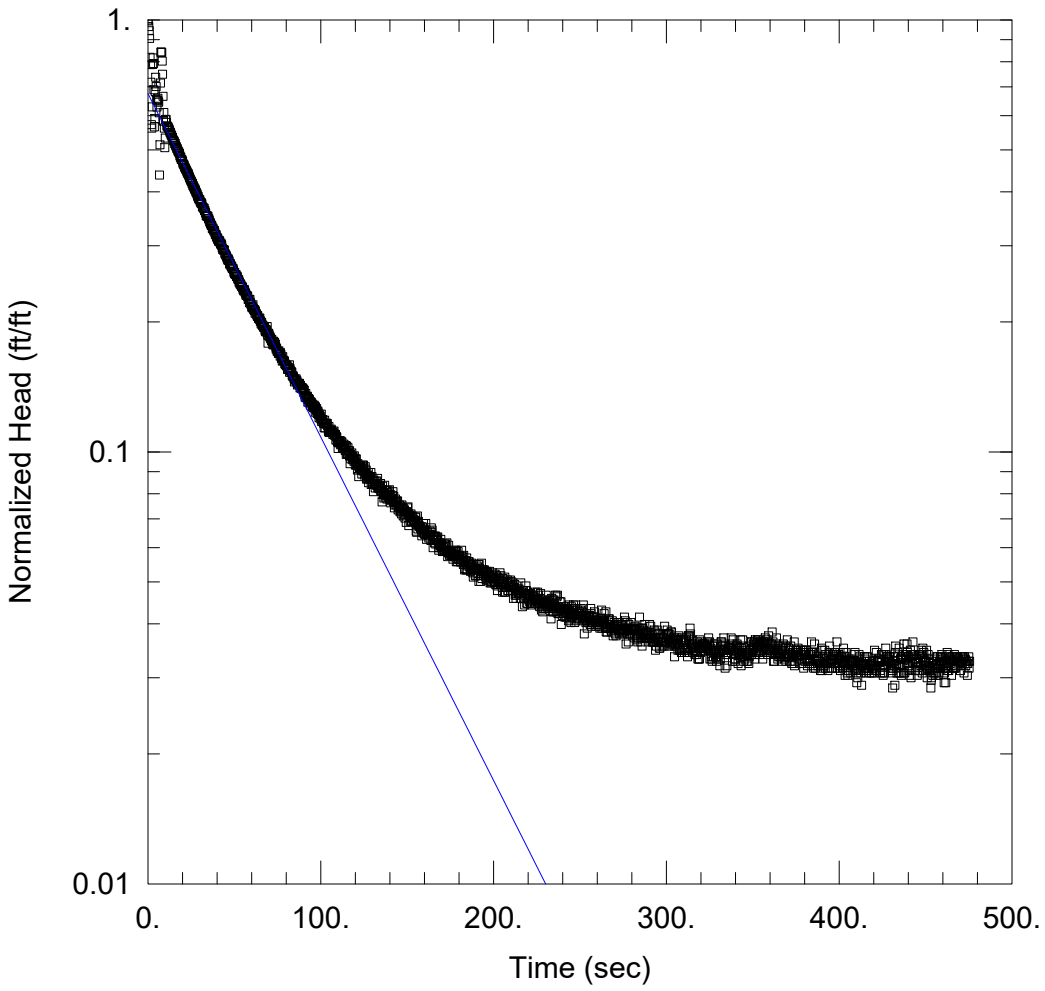
Saturated Thickness: 19.5 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-6)

Initial Displacement: -2.227 ft
Total Well Penetration Depth: 24.2 ft
Casing Radius: 0.1667 ft
Static Water Column Height: 26.2 ft
Screen Length: 10. ft
Well Radius: 0.3646 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.002181 cm/sec
y0 = -1.567 ft



WELL TEST ANALYSIS

Data Set: C:\Users\marjory.fure\Desktop\Big Rivers Slug Tests\Green\MW-6\MW-6_F2.aqt
Date: 05/02/19 Time: 14:19:48

PROJECT INFORMATION

Company: AECOM
Client: Big Rivers
Project: Sebree Station Green Landfill
Location: Robards, Kentucky
Test Date: 4/25/2019

AQUIFER DATA

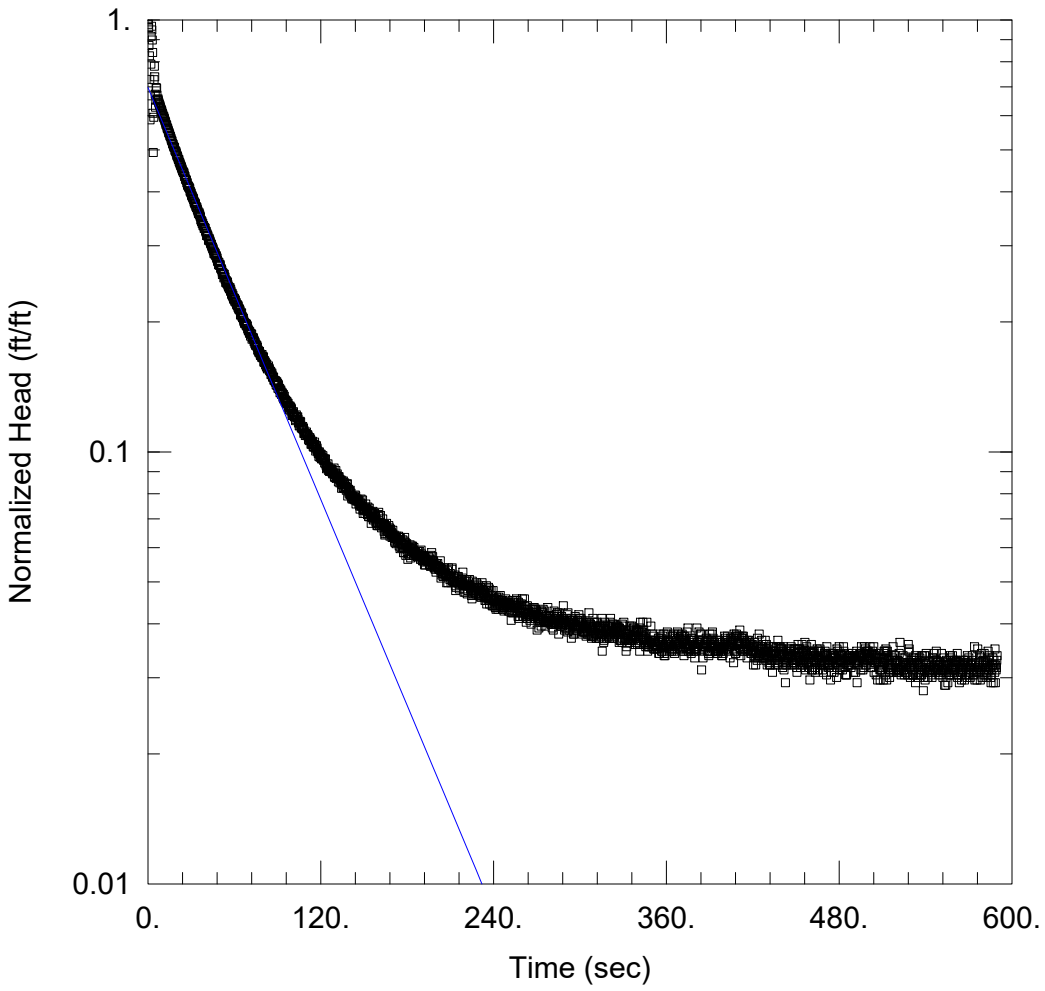
Saturated Thickness: 19.5 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-6)

Initial Displacement: -2.533 ft
Total Well Penetration Depth: 24.2 ft
Casing Radius: 0.1667 ft
Static Water Column Height: 26.85 ft
Screen Length: 10. ft
Well Radius: 0.3646 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.002341 cm/sec
y0 = -1.71 ft



WELL TEST ANALYSIS

Data Set: C:\Users\marjory.fure\Desktop\Big Rivers Slug Tests\Green\MW-6\MW-6_F3.aqt
Date: 05/02/19 Time: 14:18:03

PROJECT INFORMATION

Company: AECOM
Client: Big Rivers
Project: Sebree Station Green Landfill
Location: Robards, Kentucky
Test Date: 4/25/2019

AQUIFER DATA

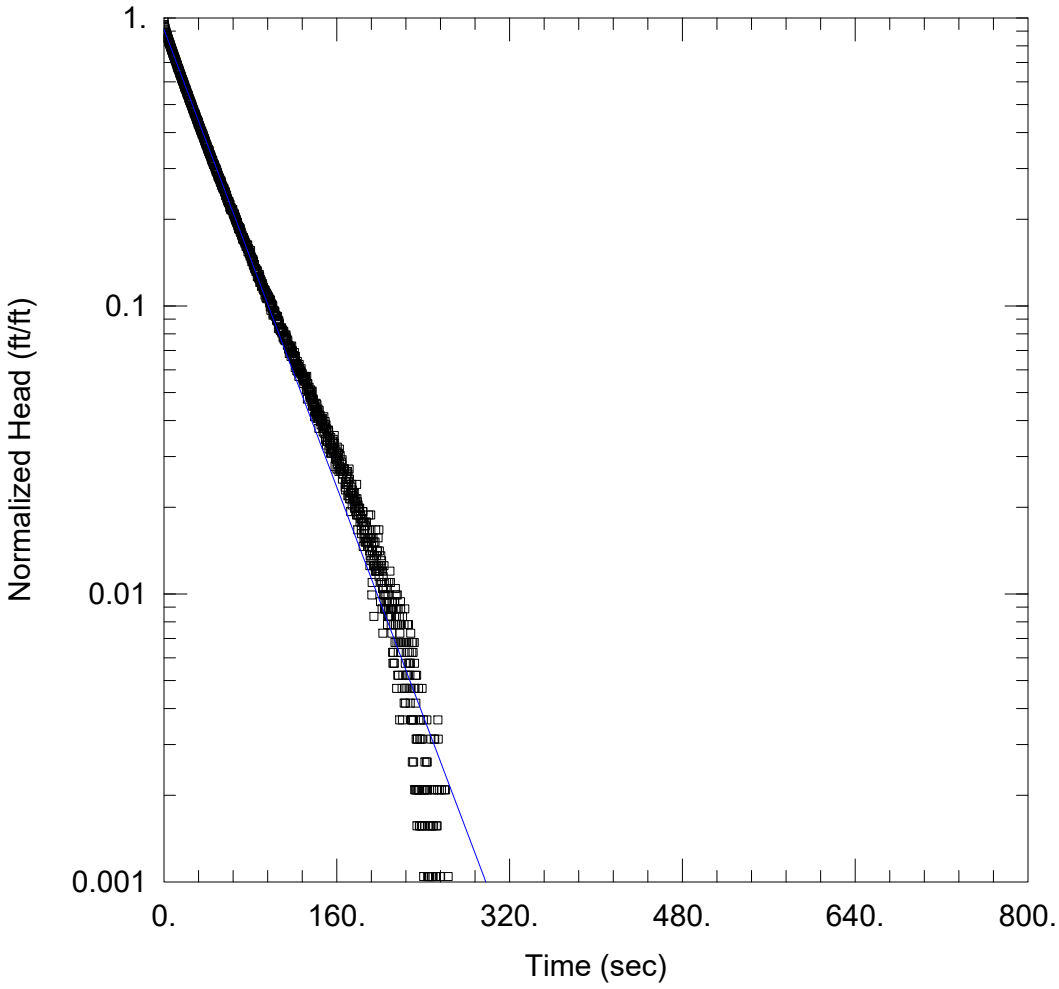
Saturated Thickness: 19.5 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-6)

Initial Displacement: -2.429 ft
Total Well Penetration Depth: 24.2 ft
Casing Radius: 0.1667 ft
Static Water Column Height: 26.86 ft
Screen Length: 10. ft
Well Radius: 0.3646 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.00234 cm/sec
y0 = -1.694 ft



WELL TEST ANALYSIS

Data Set: C:\Users\marjory.fure\Desktop\Big Rivers Slug Tests\Green\MW-6\MW-6_R1.aqt
Date: 05/02/19 Time: 14:19:19

PROJECT INFORMATION

Company: AECOM
Client: Big Rivers
Project: Sebree Station Green Landfill
Location: Robards, Kentucky
Test Date: 4/25/2019

AQUIFER DATA

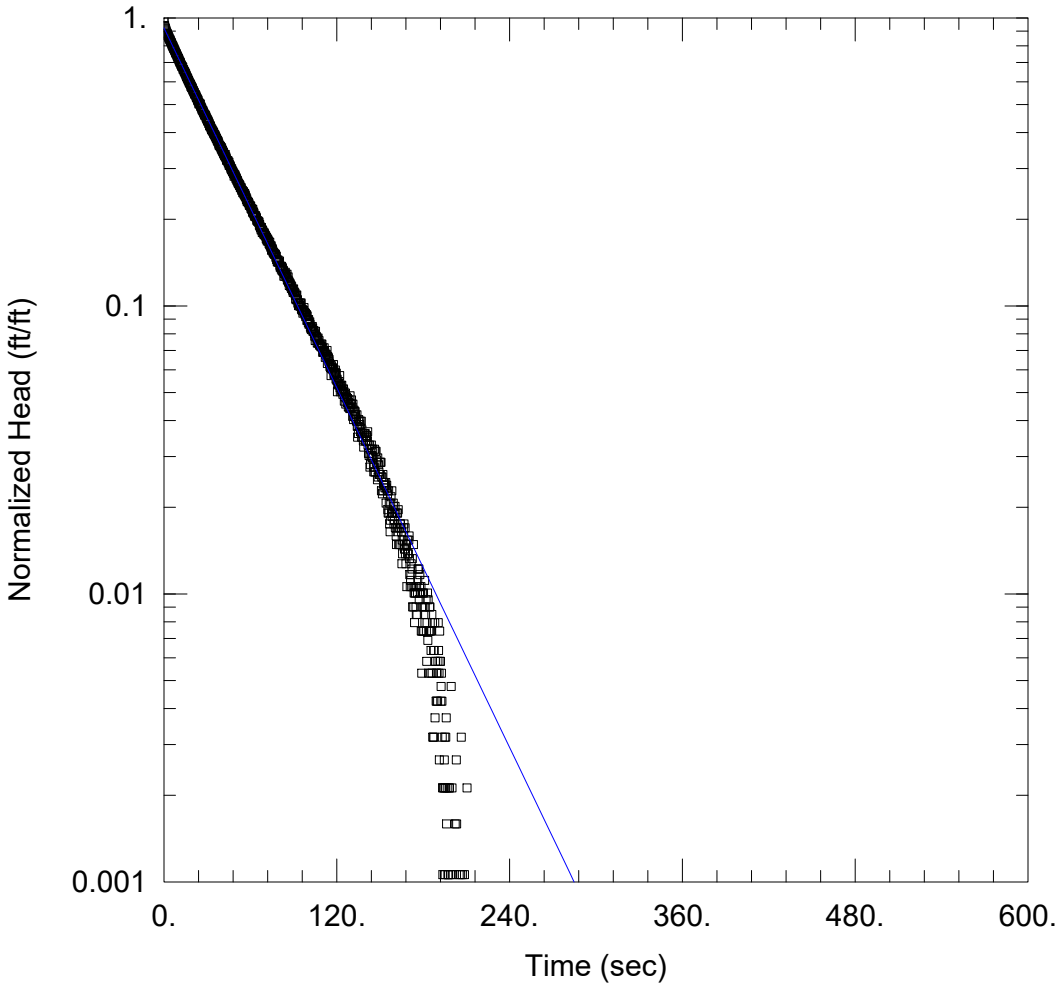
Saturated Thickness: 19.5 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-6)

Initial Displacement: 1.916 ft
Total Well Penetration Depth: 24.2 ft
Casing Radius: 0.1667 ft
Static Water Column Height: 26.87 ft
Screen Length: 10. ft
Well Radius: 0.3646 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.002924 cm/sec
y0 = 1.747 ft



WELL TEST ANALYSIS

Data Set: C:\Users\marjory.fure\Desktop\Big Rivers Slug Tests\Green\MW-6\MW-6_R2.aqt
Date: 05/02/19 Time: 14:19:12

PROJECT INFORMATION

Company: AECOM
Client: Big Rivers
Project: Sebree Station Green Landfill
Location: Robards, Kentucky
Test Date: 4/25/2019

AQUIFER DATA

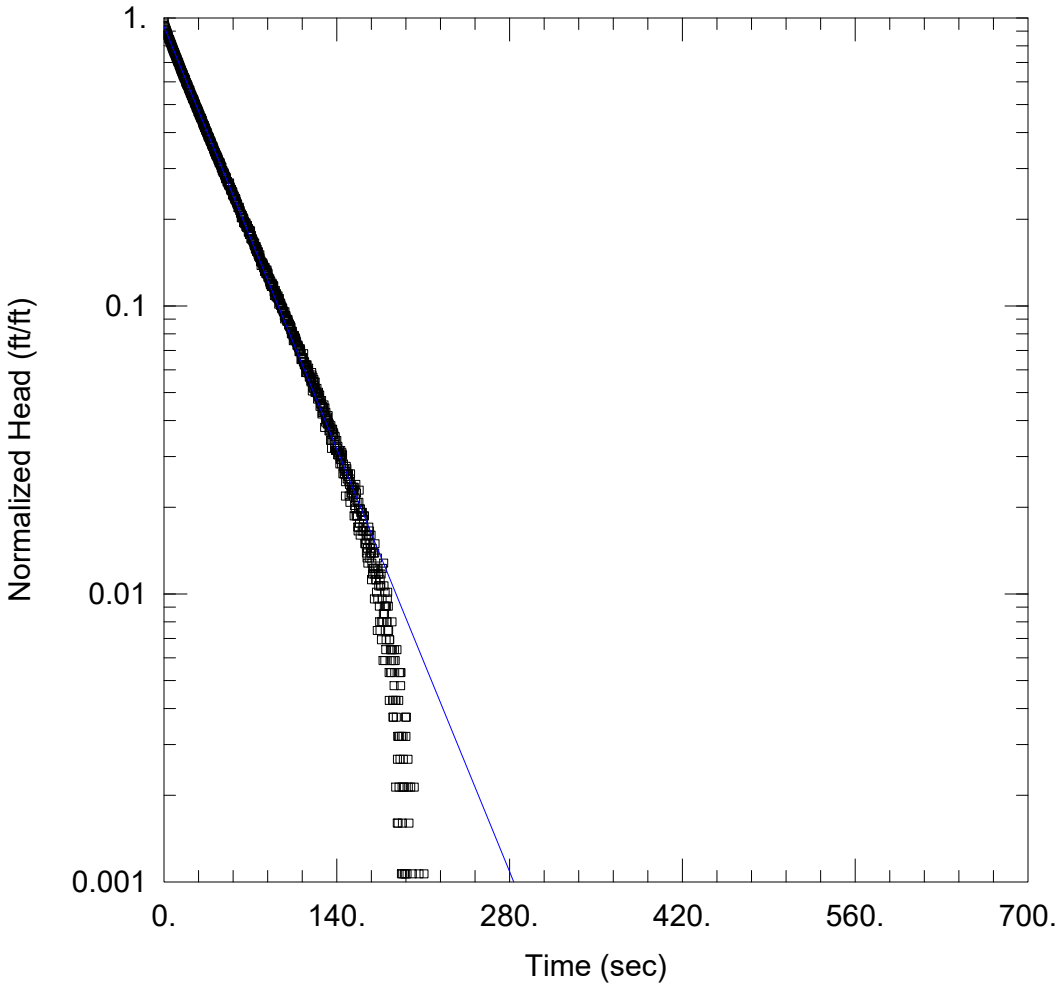
Saturated Thickness: 19.5 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-6)

Initial Displacement: 1.886 ft Static Water Column Height: 26.9 ft
Total Well Penetration Depth: 24.2 ft Screen Length: 10. ft
Casing Radius: 0.1667 ft Well Radius: 0.3646 ft

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice
K = 0.003065 cm/sec y0 = 1.74 ft



WELL TEST ANALYSIS

Data Set: C:\Users\marjory.fure\Desktop\Big Rivers Slug Tests\Green\MW-6\MW-6_R3.aqt
Date: 05/02/19 Time: 14:17:52

PROJECT INFORMATION

Company: AECOM
Client: Big Rivers
Project: Sebree Station Green Landfill
Location: Robards, Kentucky
Test Date: 4/25/2019

AQUIFER DATA

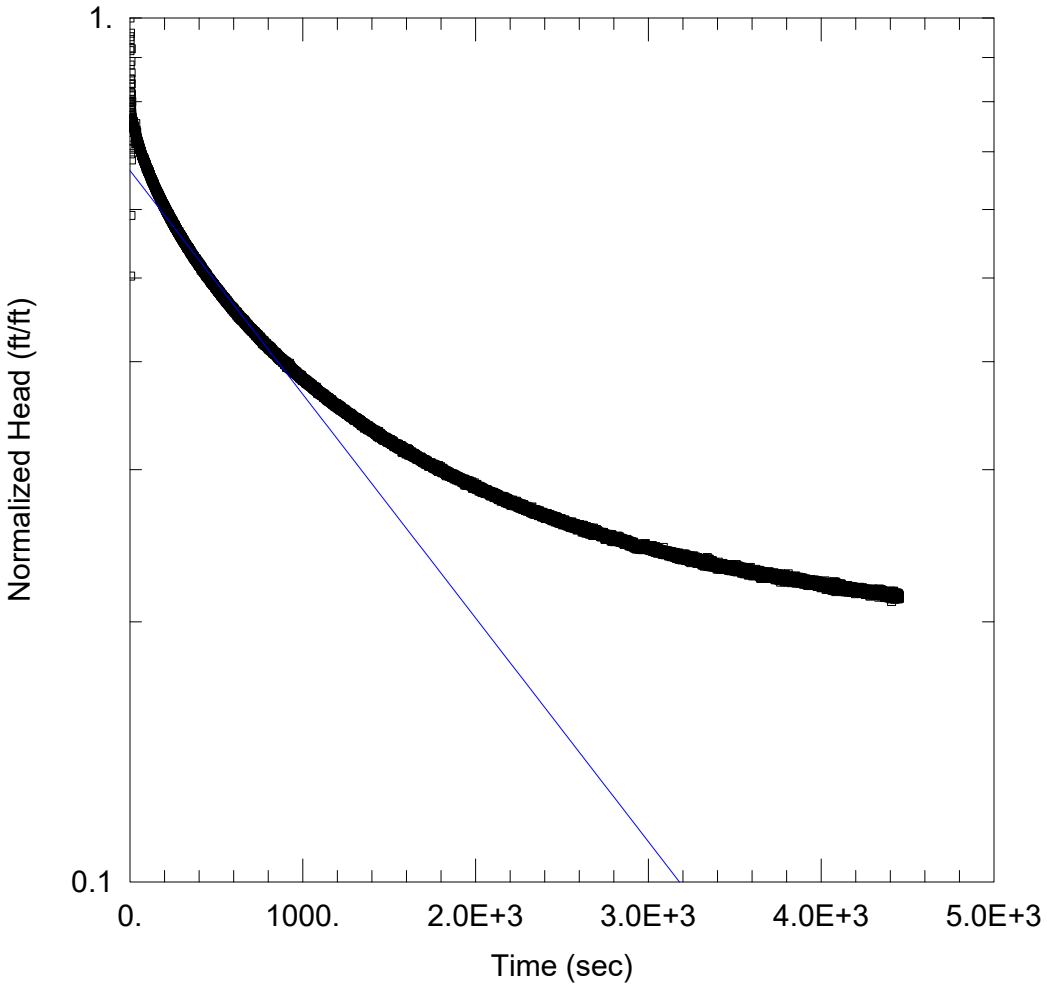
Saturated Thickness: 19.5 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-6)

Initial Displacement: 1.875 ft
Total Well Penetration Depth: 24.2 ft
Casing Radius: 0.1667 ft
Static Water Column Height: 16.11 ft
Screen Length: 10. ft
Well Radius: 0.3646 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.003086 cm/sec
y0 = 1.751 ft



WELL TEST ANALYSIS

Data Set: C:\Users\marjory.fure\Desktop\Big Rivers Slug Tests\Green\MW-104\MW-104_F1.aqt
Date: 05/01/19 Time: 14:23:48

PROJECT INFORMATION

Company: AECOM
Client: Big Rivers
Project: Sebree Station Green Landfill
Location: Robards, Kentucky
Test Date: 4/25/2019

AQUIFER DATA

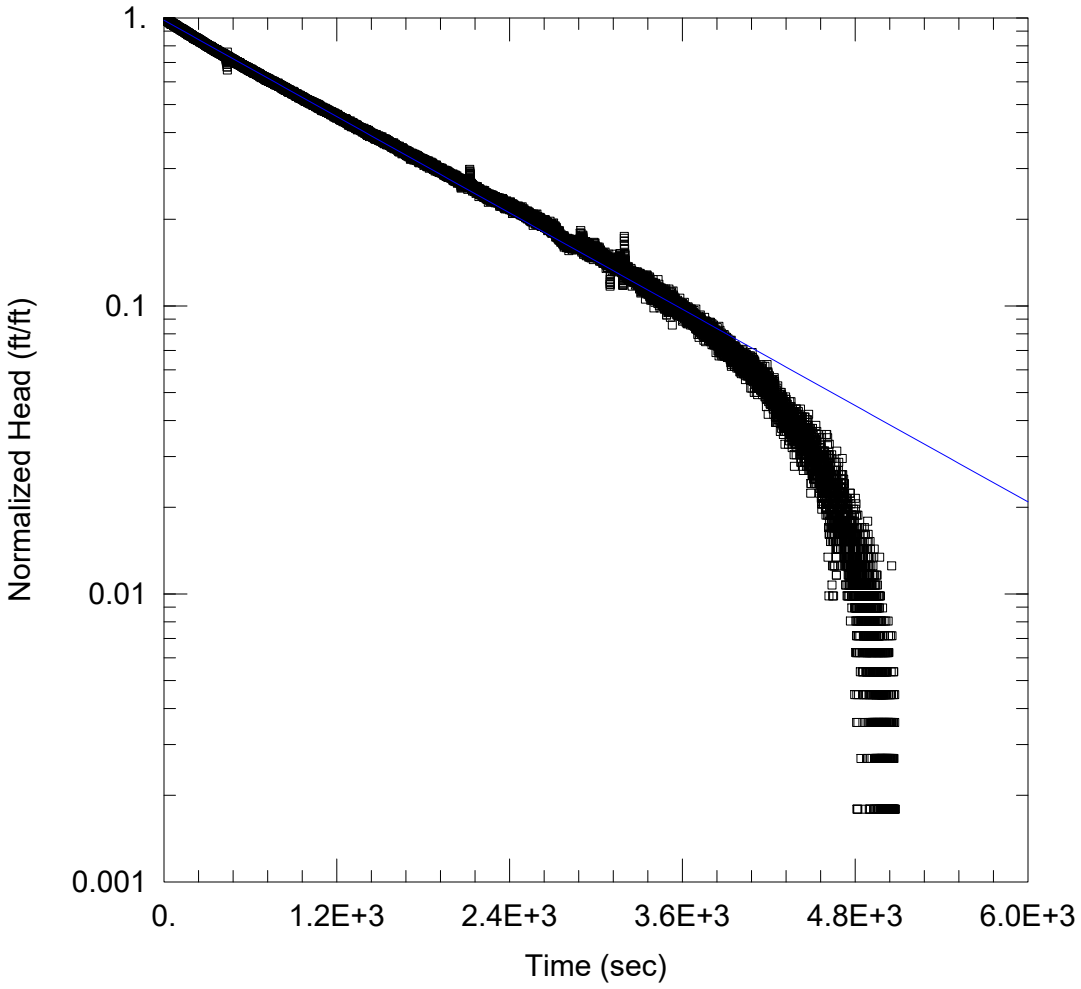
Saturated Thickness: 7.5 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-104)

Initial Displacement: -4.031 ft
Total Well Penetration Depth: 7.5 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 43.43 ft
Screen Length: 7.5 ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 2.162E-5 cm/sec
y0 = -2.684 ft



WELL TEST ANALYSIS

Data Set: C:\Users\marjory.fure\Desktop\Big Rivers Slug Tests\Green\MW-104\MW-104_R0.aqt
Date: 05/01/19 Time: 14:25:05

PROJECT INFORMATION

Company: AECOM
Client: Big Rivers
Project: Sebree Station Green Landfill
Location: Robards, Kentucky
Test Date: 4/25/2019

AQUIFER DATA

Saturated Thickness: 7.5 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-104)

Initial Displacement: 1.118 ft
Total Well Penetration Depth: 7.5 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 43.65 ft
Screen Length: 7.5 ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 2.328E-5 cm/sec
y0 = 1.097 ft

Appendix B

Reid/HMP&L Surface Impoundment CCR Characterization Report

GROUNDWATER CHARACTERIZATION REPORT
CCR MONITORING PROGRAM

REID/HMP&L SURFACE IMPOUNDMENT
SEBREE STATION
WEBSTER COUNTY, KENTUCKY

November 18, 2019

Prepared For:

Big Rivers Electric Corporation
Sebree Generating Station
9000 Highway 2096
Robards, KY 42452

Prepared by:

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Phone: (513) 651-3440
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Job Number: 60594107

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B. Kentucky Well Records
C. Groundwater Characterization Laboratory Analytical Data – March/April 2019
D. Aquifer Hydraulic Testing Output

1.0 INTRODUCTION

This Groundwater Characterization Report describes activities implemented on behalf of Big Rivers Electric Cooperation (BREC) to address the requirements of the federal coal combustion residuals (CCR) rule under 40 CFR 257.95(g) at the Reid Henderson Municipal Power & Light (Reid/HMP&L) CCR Surface Impoundment (Reid/HMP&L Surface Impoundment) at the Sebree Generating Station (Sebree Station), located near Sebree, Kentucky (the Site). The CCR rule citation requires that if one or more constituents in appendix IV of the rule are detected at statistically significant levels (SSLs) above the groundwater protection standard (GWPS), then the owner/operator must characterize the nature and extent of the release and any relevant site conditions that may affect the remedy ultimately selected.

The location of the Reid/HMPL Surface Impoundment is illustrated on **Figures 1 and 2.** The Reid/HMP&L Surface Impoundment has been in place for more than 40 years and is used for the placement of CCR material; currently slurried bottom ash. The immediate watershed that drains to the CCR unit, and in which the CCR unit is considered to be located, is unnamed and 25.45 acres in size. The unnamed watershed discharges from the CCR impoundment outflow structure and is routed, under a KPDES permit, to the Green River.

To address the characterization requirement, new monitoring well MW-110 was drilled and constructed at a downgradient, property boundary (as close as feasible) location from the Reid/HMP&L Surface Impoundment as described in the sections below.

2.0 FIELD ACTIVITIES

2.1 Staking and Utility Clearances

Prior to the start of drilling, the proposed location for the monitoring well was reviewed with BREC personnel during a field visit on February 18, 2019. The proposed location was staked on February 18, 2019. Utility clearance surveys were performed at the proposed location of MW-110 on February 19, 2019 by Blood Hound, Inc. of Brownsburg, Indiana under subcontract to AECOM. On February 20, 2019, AECOM consulted and met with representatives of Texas Gas Transmission to ensure the boring location was outside of a natural gas pipeline in the area.

The proposed location for monitoring well MW-110 was cleared using a hand auger to a minimum of 5 feet below ground surface (bgs) prior to the advancement of powered drill tooling to help avoid potential damage to potential undetected underground utilities. No conflicts with underground utilities were observed at this location, thereby allowing for borehole advancement to proceed.

2.2 Monitoring Well Installation Schedule

Drilling and well construction services were provided by Cascade Drilling, LP (Cascade) of Marietta, Ohio, under subcontract to AECOM. The following is a general timeline of drilling and well construction activities:

February 19	Set-up staging area and decontamination pad
February 20 - February 22	Drill boring and set monitoring well
February 22 - February 24	Surface completion and well development activities
February 27	Monitoring well coordinates/elevation survey

2.3 Drilling and Logging Methods

Drilling and installation of the CCR Rule monitoring well at the Site was performed under the supervision of a Kentucky Certified Well Driller, (Mr. Dave Schrecengost of Cascade, License #0492053400). The borehole was advanced by rotosonic drilling methods using a 4-inch sampling core to obtain a profile of the encountered subsurface materials. Each run of the 4-inch core was successively overridden by a 6-inch temporary casing to allow core extraction. The 6-inch casing also provides a sufficiently large borehole to allow installation of the 2-inch monitoring well, leaving a nominal 4-inch annular space required between the borehole and the well casing. Samples of the subsurface materials were collected at a minimum of 5-foot intervals and described by the onsite geologist using the terminology of the United Soil Classification System (USCS) for the unconsolidated materials. These observations are presented in the boring logs (**Appendix A**).

The borehole was advanced into bedrock to a depth sufficient to allow installation of the monitoring well within the uppermost groundwater zone, which at MW-110 was within bedrock at 59 feet below ground surface.

2.4 Borehole Water Level Gauging

During drilling, the onsite geologist recorded observations of water appearing in the lithological samples. Periodically, drilling operations were paused to allow recharge (inflow of groundwater) to be evaluated. The depth of the well was selected based on the following factors: observable water, water bearing zones within rock core (weathered zones, fracture seams, etc.), and the target elevation in reference to the baseline monitoring well network total depth and water level elevation.

2.5 Monitoring Well Construction

The installation and development of the characterization monitoring well is intended to meet the groundwater monitoring requirements of EPA's CCR Rule (40 CFR Part 257). One 2-inch inner diameter (ID) polyvinyl chloride (PVC) monitoring well with a 10-foot screen interval (0.010 slot) was installed during February of 2019. Well construction details are provided in the table below and are included on the boring log provided in **Appendix A**.

Well ID	Location	Installation Date	Well Depth feet (btoc)	Well Casing Diameter (inch)	Borehole Diameter (inch)
MW-110	Reid/HMPL Surface Impoundment (West)	2/24/2019	65.14	2	6
btoc = below top of casing					

Well construction was initiated after the borehole was advanced to the desired total depth. A 2-inch ID schedule 40 PVC well pipe and riser was positioned at the appropriate depth within the open borehole. Additional 2-inch ID schedule 40 PVC well pipe was obtained locally and secured using a rubber PVC flexible coupling to achieve necessary stickup length. Once the casing and well casing were in position, #5 sand filter pack material consisting of clean, rounded to well-rounded, insoluble particles of quartz silica composition was placed around the well screen to 1.5 feet above the top of the 10-foot screened interval.

Following placement of the sand filter pack, a 5.5-foot-thick interval of bentonite pellets was placed above the sand filter pack and hydrated to manufacturer recommendations to form the bentonite well seal. The borehole annulus above the bentonite seal was filled with bentonite grout slurry, to a height approximately 2 feet bgs. Potable water, obtained locally from the Sebree Station, was utilized as the hydration fluid for the bentonite seal and grout slurry.

The new monitoring well was completed above ground surface (ags) as detailed below.

Well ID	Location	Installation Date	Top of Casing Elevation	Ground Surface Elevation	Stick-up Height (feet)
MW-110	Reid/HMPL Surface Impoundment (West)	2/24/2019	388.7	382.14	6.56

The monitoring well was equipped with a locking steel casing, 4 by 4-foot concrete pad at a sufficient depth to protect against frost heave, and four surrounding bollard posts to protect against vehicle strikes in accordance with 401 Kentucky Administrative Regulations (KAR) 45:160 Section 3(4). Due to observed artesian conditions of the well, the stick-up height was set to 6.56 feet ags to allow static water level to stabilize without filling the interior PVC top riser. The protective steel casing and bollard posts were painted with a high visibility paint designed to inhibit corrosion.

Upon completion of well installation, the drilling subcontractor gauged the new monitoring well and submitted a Kentucky Monitoring Well Record (DEP 8043) to the Kentucky Environmental and Public Protection Cabinet, Division of Water (KEPPC/DOW), Groundwater Branch. A copy of the Uniform Kentucky Well Construction Records for MW-110 are provided as **Appendix B**.

2.6 Monitoring Well Development

Sufficient well development is critical to consistently achieving the low turbidity required for samples analyzed for total metals. Water within the well column was agitated (surged) by the raising and lowering of a Proactive Hurricane© submersible pump to help develop the well.

Well development was completed on February 23, 2019. Development activities were continued until one of the following conditions was met:

1) a minimum of five times the volume of water lost to the formation during drilling was removed;

2) a minimum of five well volumes of groundwater was removed, calculated on the measured depth-to-water and total depth of the well at the time of development; or

3) until the water being pumped from the well was observed to be free of visible sediment.

At MW-110, the well was developed until 10 well volumes of water had been purged. Purge water resulting from development was containerized in a 275-gallon polyethylene intermediate bulk container and later discharged to the surface impoundment.

2.7 Monitoring Well Survey

After the new well was completed, the location and elevation were surveyed on February 27, 2019 by James D. Cansler, a Kentucky-licensed Professional Surveyor with Associated Engineers, Inc. The elevation of the top of the inside (PVC) casing (north side) and ground surface were surveyed. Horizontal coordinates were established using the Kentucky State Plane Coordinate System, NAD 83, North Zone. Vertical elevation was measured to within +/- 0.01 ft. above mean sea level (amsl). Monitoring well survey data is summarized below and in **Table 1.**

Well ID	AKGWA Number	Well Diameter (inch)	Latitude	Longitude	Top Of Casing (feet)	Total Depth (feet)	Screen Interval (feet)
MW-110	8007-1138	2	37.647689	87.510488	388.7	59	49-59

2.8 Equipment Decontamination

All downhole drilling equipment was decontaminated by the subcontractor prior to arrival at the station and onsite at a designated decontamination pad. Following borehole advancement, the downhole tooling was decontaminated with pressurized potable water to remove residual soil cuttings prior to use at another site/ borehole location. All other equipment (pumps, water level indicators, etc.) was decontaminated using potable water and a mild laboratory-grade detergent (Alconox®) solution.

2.9 Characterization Groundwater Sampling

On March 29, 2019 and April 10, 2019, BREC conducted groundwater sampling activities at MW-110. An initial depth-to-water measurement was obtained from MW-110 using a water level indicator prior to purging. Following gauging and equipment set-up, low-flow purge groundwater samples procedures were initiated at MW-110. During low-flow sampling, dedicated tubing, a dedicated bladder pump, flow-through cell, and a water quality meter were utilized. At no time during purging did the pumping rate exceed 0.35 liters per minute. During purging, field parameters including dissolved oxygen (DO), pH, oxidation reduction

potential (ORP), temperature, and electric conductivity were monitored and recorded approximately every three (3) minutes. Groundwater samples were collected during each sampling event after the field parameters stabilized for a minimum of three (3) consecutive readings.

Each groundwater sample was maintained under proper chain of custody protocols pending transportation to the laboratory. Groundwater samples were packaged on ice and shipped via overnight courier to Test America Laboratories in Nashville, Tennessee for analysis of the Federal CCR Rule Appendix III and IV parameters using United States Environmental Protection Agency (USEPA) methods. A copy of the chain-of-custody for each shipment is included with the laboratory groundwater analytical data for MW-110 (along with data for Green Landfill MW-104) included in **Appendix C.** Analytical results for samples collected from MW-110 during the groundwater characterization sampling events are summarized in **Table 2**.

2.10 Aquifer Testing

Slug tests were performed between April 24, 2019 and April 25, 2019 at monitoring wells MW-10 and MW-110 to assess the hydraulic characteristics of the uppermost aquifer. The tests consisted of repeated deployments and retrievals of the slug (known volume) in and out of the water column. The aquifer responded slowly to the water level disruption at MW-10, such that only one run of a slug-in test could be performed. The aquifer responded quickly to the water level disruption at MW-110, such that multiple runs of slug-in/slug-out tests could be performed. The duration of these tests was sufficient to provide a reasonable estimate of the hydraulic conductivity for each of the wells. The time of each slug-in/slug-out deployment was recorded on field aquifer testing forms and electronic data was downloaded from the transducer and used for data evaluation.

Prior to starting each aquifer test, all dedicated bladder pumps were removed, and a pressure transducer was deployed within each monitoring well. Once stabilized, the groundwater elevation in each monitoring well was recorded to document static conditions. Each transducer was programmed to start before deployment of the slug. Pressure was recorded four times per second at MW-110. Due to the slow recovery at MW-10, pressure was recorded at a logarithmic frequency starting at four times per second until it reached once per minute, at which point it recorded at a linear frequency once per minute.

A combination of 2-inch diameter and 4-inch diameter monitoring wells were utilized during aquifer testing. At the 4-inch diameter well (MW-10), an approximately 0.52-gallon slug was quickly lowered into the water column and secured, representing the addition of 0.52 gallons of volume to the column. At the 2-inch diameter well (MW-110), the same methods were followed using a smaller slug measuring approximately 0.17-gallon volume, in order to avoid water level rise above the top of casing. After waiting to allow the water level to equilibrate to static conditions, the slug was rapidly withdrawn (representing the removal of the known slug volume). The retrieved slug was secured to hang roughly three feet above the top of water to minimize disturbance until the water level within the well had recovered to static. This procedure was repeated as conditions would allow for multiple dataset evaluations. Upon completion of testing at each well location, the equipment was removed from the well and decontaminated.

2.11 Aquifer Data Evaluation

Data from the slug tests performed at the Reid/HMPL Surface Impoundment were processed and analyzed using the AQTESOLV® software package (Duffield, 2007), which provides type curve solutions corresponding to various conceptual models, each with their own hydrologic assumptions. Data was analyzed as single well slug tests using the recovery solution for a slug test in a confined aquifer (Bouwer-Rice, 1976). The analysis involves matching a curved line associated with the Bouwer-Rice equation to drawdown data collected after deploying/retrieving the slug from the water column.

Bouwer and Rice solution utilizes the following assumptions:

- Aquifer has infinite aerial extent
- Aquifer is homogeneous and of uniform thickness
- Aquifer potentiometric surface is initially horizontal
- Control well is fully or partially penetrating
- A volume of water, V, is injected or discharged instantaneously from the control well
- Aquifer is confined or unconfined
- Flow is steady

A summary of the hydraulic conductivity results is listed within **Table 3**. Reports from the AQTESOLV® aquifer test analyses are presented in **Appendix C**. The estimated hydraulic conductivity of the monitoring wells tested ranged from 3×10^{-6} to 0.5×10^{-4} centimeters per second (cm/sec).

3.0 SUMMARY AND FINDINGS

In total, one boring was advanced at the Site during February 2019 to install the characterization groundwater monitoring well in accordance with the Federal CCR Rule. The new monitoring well, located at a downgradient position west of the Reid/HMP&L Surface Impoundment will assist in the characterization of the existence, quality, quantity, areal extent of groundwater degradation, and the rate and direction of migration of CCR contaminants in the groundwater.

Groundwater level data collected during the 2018 and 2019 monitoring events are summarized on **Table 1**. The data collected on April 22, 2019 were used to construct a piezometric surface map to illustrate groundwater flow conditions for the uppermost aquifer (see **Figure 3**). Overall groundwater flow in the vicinity of the Reid/HMP&L Surface Impoundment is to the southwest towards an unnamed tributary to Groves Creek located west/southwest of the impoundment.

The Site lies in the Western Kentucky Coalfields section, characterized by rolling uplands underlain by coal-bearing bedrock of the Pennsylvanian Period. In the vicinity of the site, maximum topographic relief is on the order of 80 feet. The geologic quadrangle for the Site vicinity published by the Kentucky Geological Survey (KGS) (Geologic map of the Robards quadrangle, Henderson and Webster Counties, Kentucky, 1973) shows the surficial material to be unconsolidated loess representing the Pleistocene and Holocene geologic epochs. As much as 25 feet of silty and sandy clay is found on site.

The unconsolidated materials are shown to be underlain by bedrock of the Upper Pennsylvanian Shelburn Formation (formerly identified as the Lisman Formation [Fairer, 1973]) and the Middle Pennsylvanian Carbondale Formation. At the base of the Shelburn Formation is the Providence Limestone Member, consisting of limestone and interbedded shale, but this unit is absent in much of the area due to erosional channeling. Due to its discontinuous character and the presence of interbedded shale, hydrologically significant karst features are not present in the Providence Limestone Member. The underlying Carbondale Formation consists of cyclic sequences of sandstones, shales, siltstones and coals. The Carbondale sediments were deposited in a fluvial-deltaic system. As a result of this depositional environment, the lithologic units of the Carbondale tend to be lenticular bodies rather than continuous sheet-like strata. Gradational and abrupt horizontal changes in lithology are often encountered.

Cross sections were prepared during development of the assessment of corrective measures in 2019 and have been included in this report. Cross section locations are shown on **Figure 2**. The individual cross sections are presented on **Figures 4** and **5**. These sections illustrate the sequence of geologic materials present under the Reid/HMPL Station Surface Impoundment as evidenced by the currently available data.

For purposes of compliance with the CCR Rule groundwater monitoring requirements, the interbedded sandstone and shale of the Carbondale Formation is considered to be the uppermost aquifer underlying the Reid/HMPL Station Surface Impoundment. The uppermost aquifer is confined and first encountered at an elevation of approximately 413.4 ft. amsl at the northeast end (at MW-7), and 341.6 ft. amsl at the west end of the Surface Impoundment (at MW-8).

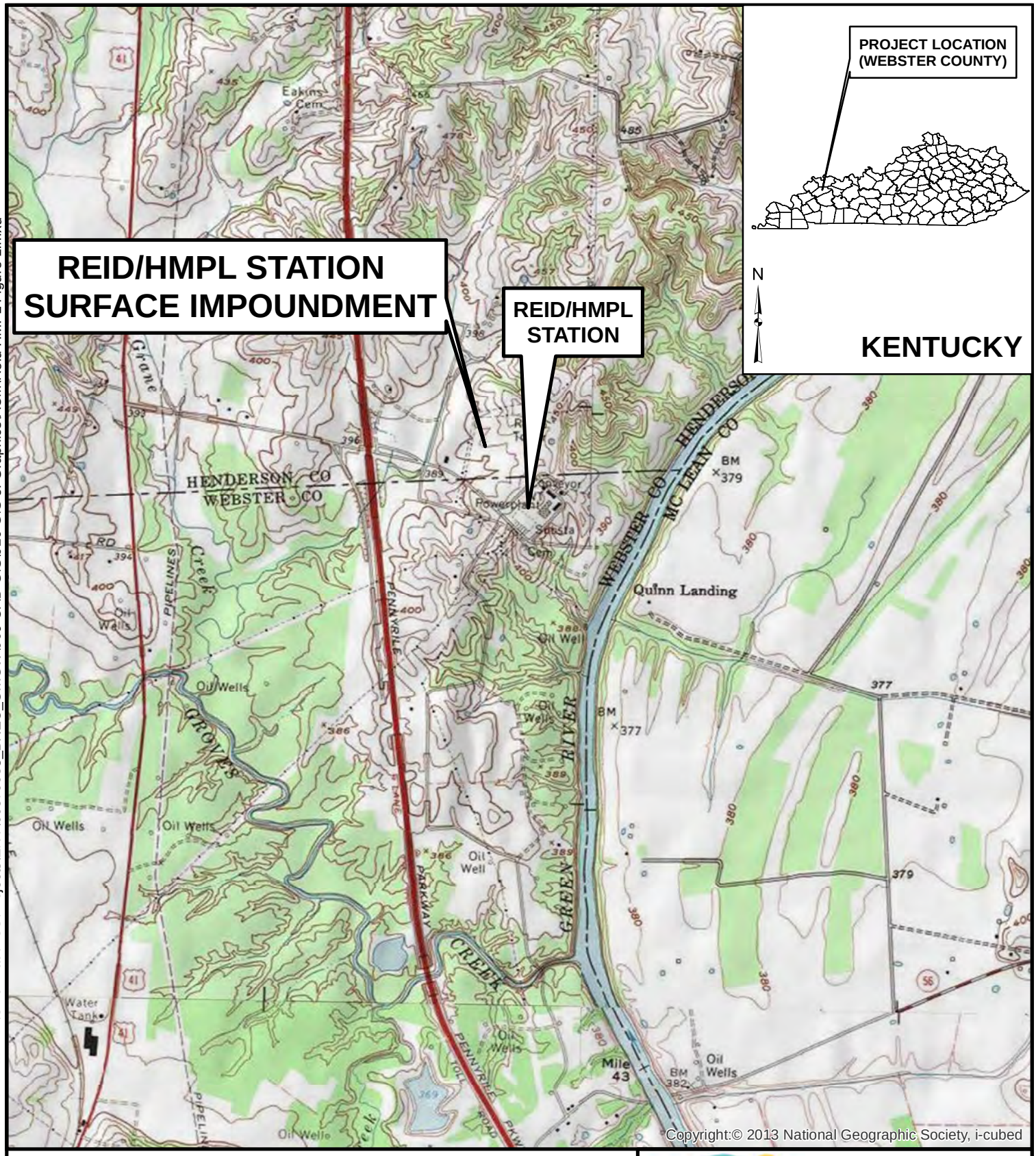
Slug tests were performed between April 24, 2019 and April 25, 2019 at monitoring wells MW-10, and MW-110 to assess the hydraulic characteristics of the uppermost aquifer. The estimated hydraulic conductivity of the monitoring wells tested ranged from $3x10^{-6}$ to $5x10^{-4}$ centimeters per second (cm/sec).

Although previous site-specific investigations have noted the presence of perched zones of saturation in the overlying unconsolidated materials, these discontinuous zones do not qualify as an uppermost aquifer under the CCR Rule because they do not produce usable quantities of groundwater.

On March 29, 2019 and April 10, 2019, BREC collected groundwater samples at MW-110 to acquire the required characterization groundwater data under the Federal CCR Rule. A summary of the groundwater analytical results is presented in **Table 2**. Laboratory analytical reports for samples collected during both sampling events are included in **Appendix C**.

The analytical results for groundwater samples collected during the March 29, 2019 and April 10, 2019 sampling events indicated that all Appendix III and Appendix IV compounds were reported below the respective groundwater protection standards (GWPS), where established, except for cobalt during the March sampling event (0.00911 mg/L), which slightly exceeded the GWPS of 0.006 mg/L. However, laboratory analysis reported that the cobalt was found in the blank and in the sample, indicating possible laboratory error. The results from both sampling events will assist with establishing the downgradient extent of groundwater impacts above GWPSs at the Reid/HMP&L Surface Impoundment.

Figures



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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

ROBARDS QUADRANGLE
DELAWARE QUADRANGLE
(FROM ARCGIS ONLINE Copyright:© 2011 National Geographic Society, i-cubed)

0 2,000 4,000 Feet

N

Big Rivers ELECTRIC CORPORATION

Reid/HMPL Station
Webster County, Kentucky

FIGURE 1
SITE LOCATION MAP

DATE: 4/30/2019	SCALE: 1IN = 2,000 FEET
CREATED BY: ALW	
JOB NO. 60602365	



Legend

- Unit Boundary
- Property Line
- Downgradient CCR Monitoring Well
- Upgradient CCR Monitoring Well
- Proposed Characterization Well

A — A' Transect Line

0 300 600
Feet

N

Big Rivers Electric Corporation

Reid/HMPL Station
Webster County, Kentucky

FIGURE 2
WELL LOCATION MAP

DATE: 5/16/2019	SCALE: 1IN = 200 FEET
CREATED BY: ALW	
JOB NO. 60602365	



* MW-110 Not Measured

Legend

Downgradient Monitoring Well

Upgradient Monitoring Well

Groundwater Flow Direction

391.71 Groundwater Elevation (Feet, MSL) Measured 04/04/2019

Water Table Contour (Dashed Where Inferred)

* MW-110 Measured 04/10/2019

0 200 400

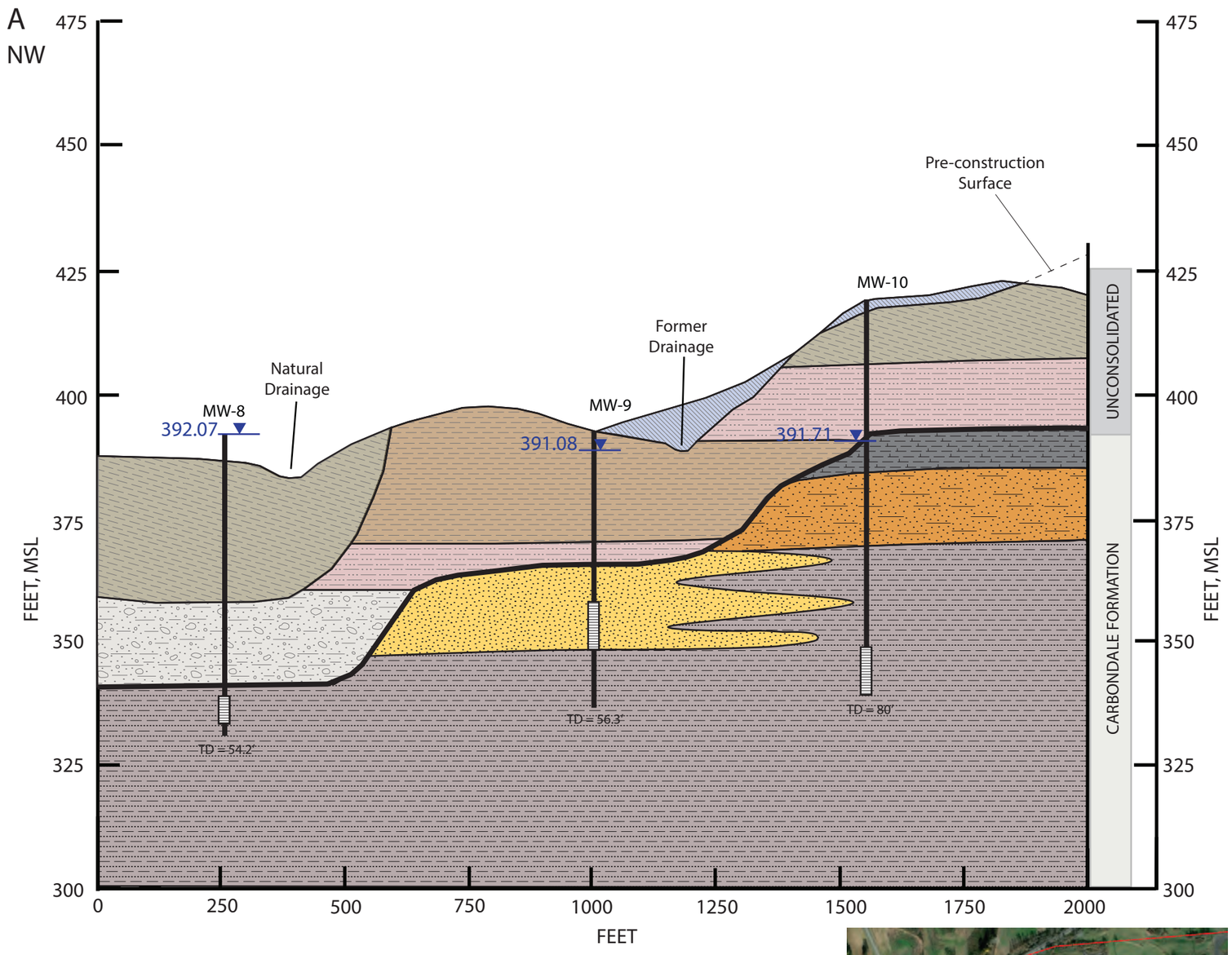
Feet

N

Reid/HMPL Surface Impoundment
Webster County, Kentucky

FIGURE 3
GROUNDWATER SURFACE MAP
APRIL 2019

DATE: 8/23/2019	SCALE: 1IN = 200 FEET
CREATED BY: DAS	
JOB NO. 60594107	



LEGEND

UNCONSOLIDATED MATERIALS:

- Fill
- Silty Clay
- Sandy Clay
- Clay
- Silty Clay with Gravel

BEDROCK LITHOLOGIES:

- Shale
- Shaley Sandstone
- Sandstone
- Interbedded Sandstone and Shale

Potentiometric Surface April 2019

MW-8 — MONITORING WELL LOCATION ID

RISER

MONITORING WELL SCREEN

BACKFILL / COLLAPSE

25 feet

250 feet

(Vertical Exaggeration = 10x)



Big Rivers ELECTRIC CORPORATION

FIGURE 4
CROSS SECTION A - A'

DATE:11/18/2019	SCALE: 1IN = 25 x 250 FEET
CREATED BY:MRH	
JOB NO. 60602365	

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B
W

B′
NE

FEET, MSL

475
450
425
400
375
350
325
300

0 250 500 750 1000 1250 1500 1750 2000 2250 2500 2750 3000

FEET

Pre-construction Surface

Pond

Secondary Pond

Former Drainage

MW-110
386.19

MW-9
391.08

MW-7
429.19

TD = 59'

TD = 56.3'

TD = 73.4'

UNCONSOLIDATED

SHELBURN FORMATION

CARBONDALE FORMATION

LEGEND

UNCONSOLIDATED MATERIALS:

- Fill
- Silty Sand
- Silt
- Clay
- Silty Clay
- Sandy Clay

BEDROCK LITHOLOGIES:

- Sandstone
- Shale
- Interbedded Sandstone and Shale

Potentiometric Surface April 2019

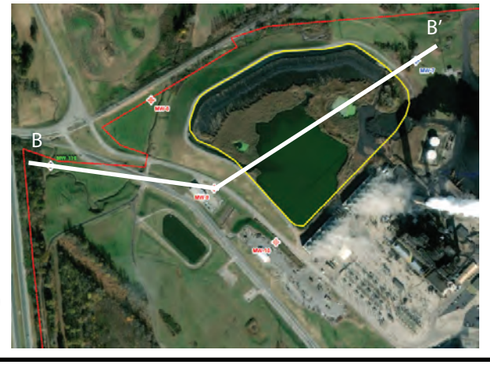
MW-9
MONITORING WELL LOCATION ID

RISER

MONITORING WELL SCREEN

BACKFILL / COLLAPSE

25 feet
250 feet
(Vertical Exaggeration = 10x)



Big Rivers ELECTRIC CORPORATION

FIGURE 5
CROSS SECTION B - B′

DATE:11/18/2019	SCALE: 1IN = 25 x 250 FEET
CREATED BY:MRH	
JOB NO. 60602365	

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Tables

Table 1. Monitoring Well Network Groundwater Elevations
April 2018 through April 2019
Big Rivers Electric Corporation - Reid/HMPL Surface Impoundment

	MW-7		MW-8		MW-9		MW-10		MW-110	
Reference Elevation TOIC*(ft, NAD27)	**Upgradient/Background 444.43**		**Downgradient 394.29**		**Downgradient 395.40**		**Downgradient 422.27**		**Downgradient 388.70**	
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)**	**Depth to Water (ft) (feet)**	**GW Elevation (feet)**
4/6/2018	15.46	428.97	1.96	392.33	4.35	391.05	30.46	391.81	NM	NM
6/29/2018	16.57	427.86	3.04	391.25	5.59	389.81	31.70	390.57	NM	NM
9/26/2018	17.93	426.5	4.42	389.87	6.50	388.9	32.61	389.66	NM	NM
3/29/2019	NM	NM	NM	NM	NM	NM	NM	NM	2.54	386.16
4/4/2019	15.24	429.19	2.22	392.07	4.32	391.08	30.56	391.71	NM	NM
4/10/2019	NM	NM	NM	NM	NM	NM	NM	NM	2.51	386.19

Notes:
*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; NM = Not measured

Table 2. MW-110 Characterization Groundwater Analytical Summary
March and April 2019
Big Rivers Electric Corporation - Reid/HMPL Surface Impoundment
Webster County, Kentucky

APPENDIX III CONSTITUENTS	GWPS	DATE			
		3/29/2019		4/10/2019	
Boron	NA	0.484	J,B	0.496	J,B
Calcium	NA	176	B	178	
Chloride	NA	26		30.4	B
Fluoride	4 mg/L	0.279	J	0.255	J,B
Sulfate	NA	563		596	B
pH (SU)	NA	7.25		7.50	
Total Dissolved Solids	NA	1170		1200	
APPENDIX IV CONSTITUENTS					
Antimony	0.006 mg/L	0.00024	J,B	0.000204	J,B
Arsenic	0.01 mg/L	0.00534		0.00238	J,B
Barium	2 mg/L	0.118	J	0.107	J,B
Beryllium	0.004 mg/L	0.000716	J	0.000314	J
Cadmium	0.005 mg/L	<0.001		<0.001	
Chromium	0.1 mg/L	0.0180	B	0.0115	
Cobalt	0.006 mg/L	0.00911	B	0.00384	J
Fluoride	4 mg/L	0.279	J	0.255	J,B
Lead	0.015 mg/L	0.00661		0.00399	J
Lithium	0.040 mg/L	0.0299	J	0.0303	J
Mercury	0.002 mg/L	<0.2		<0.2	^
Molybdenum	0.1 mg/L	0.00153	J	0.0012	J
Radium 226 (pCi/L)	5 pCi/L	1.84		1.93	
Radium 228 (pCi/L)					
Selenium	0.05 mg/L	<0.01		<0.01	
Thallium	0.002 mg/L	0.000112	J	0.000064	J

Notes:

*All results listed in milligrams per liter (mg/L) unless otherwise noted

GWPS = Groundwater Protection Standard

NA = Not available

pCi/L = picoCuries per Liter

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.

^ = ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits

Table 3. Aquifer Hydraulic Testing Results Summary
April 24-25, 2019
Big Rivers Electric Corporation - Reid/HMPL Surface Impoundment
Webster County, Kentucky

Well ID	Well Diameter (inches)	Number of Tests	Hydraulic Conductivity (K)* (cm/sec)
MW-10	4	1	3.36E-06
MW-110	2	4	5.20E-04

Notes:
*Aquifer model results averaged over multiple runs performed at each test well

Appendix A
Boring and Well Construction Details

Client: Big Rivers Electric Corporation
Project: Sebree Station - Reid/HMPL Landfill
Site: Robards, KY
Project Number: 60594107

MW-110

Sheet 1 of 3

Date(s) Drilled and Installed	**2/20/19-2/21/19**	Logged By	**S. Lillard**	Reviewed By	**M. Wagner**
Drilling Method	**Rotosonic**	Drilling Contractor	**Cascade**	Total Depth of Borehole	**59.0 feet**
Sampling Method	**4" Sonic Sampler**	Water Level	**-4.51 b.g.s. (measured 2/24/19)**	Top of Casing Elevation	**388.70 feet msl**
Size and Type of Well Casing	**2" PVC Schedule 40**	Screen Perforation	**0.010 inch slotted**	Ground Surface Elevation	**382.14 feet msl**
Seal or Backfill	**Bentonite/Cement Grout**	Coordinates	**N 4,166,849.09 E 454,966.80**	AKGWA #	**8007-1138**

Elevation, feet msl	Depth, feet bgs	SAMPLES: Sample Type	Run Number	RQD (%)	% Recovery	Screening PID, ppm	USCS Graphic Symbol	MATERIAL DESCRIPTION
	0							Very loose, moist, brown SILT
380			HA 1		100			Grades with some clay (2.0) Grades wet (2.5)
								Soft, wet, brown, silty CLAY
	5							Medium stiff, wet, brown with some reddish brown and light grey mottled, silty CLAY
375			1		92			Grades soft (8.5)
	10							Stiff, wet, reddish brown with brown and light grey mottled, silty CLAY
370			2		105			Trace fine chert nodule (12.5) Brown mottles grade out (13.0)
	15							
365			3		115			Medium stiff, wet, brown with light grey mottled, silty CLAY
	20							Soft, wet, light grey CLAY
360			4		120			Soft, wet, light grey, fine-grained sandy CLAY Loose, wet, light grey, clayey, fine-grained SAND Soft, wet, grey, fine-grained sandy CLAY Soft, wet, grey CLAY
	25							Soft, wet, grey, fine-grained sandy CLAY

WELL CONSTRUCTION DETAILS

- Riser with protective casing and locking cap
- 2" ID Schedule 40 PVC Riser
- Cement Grout

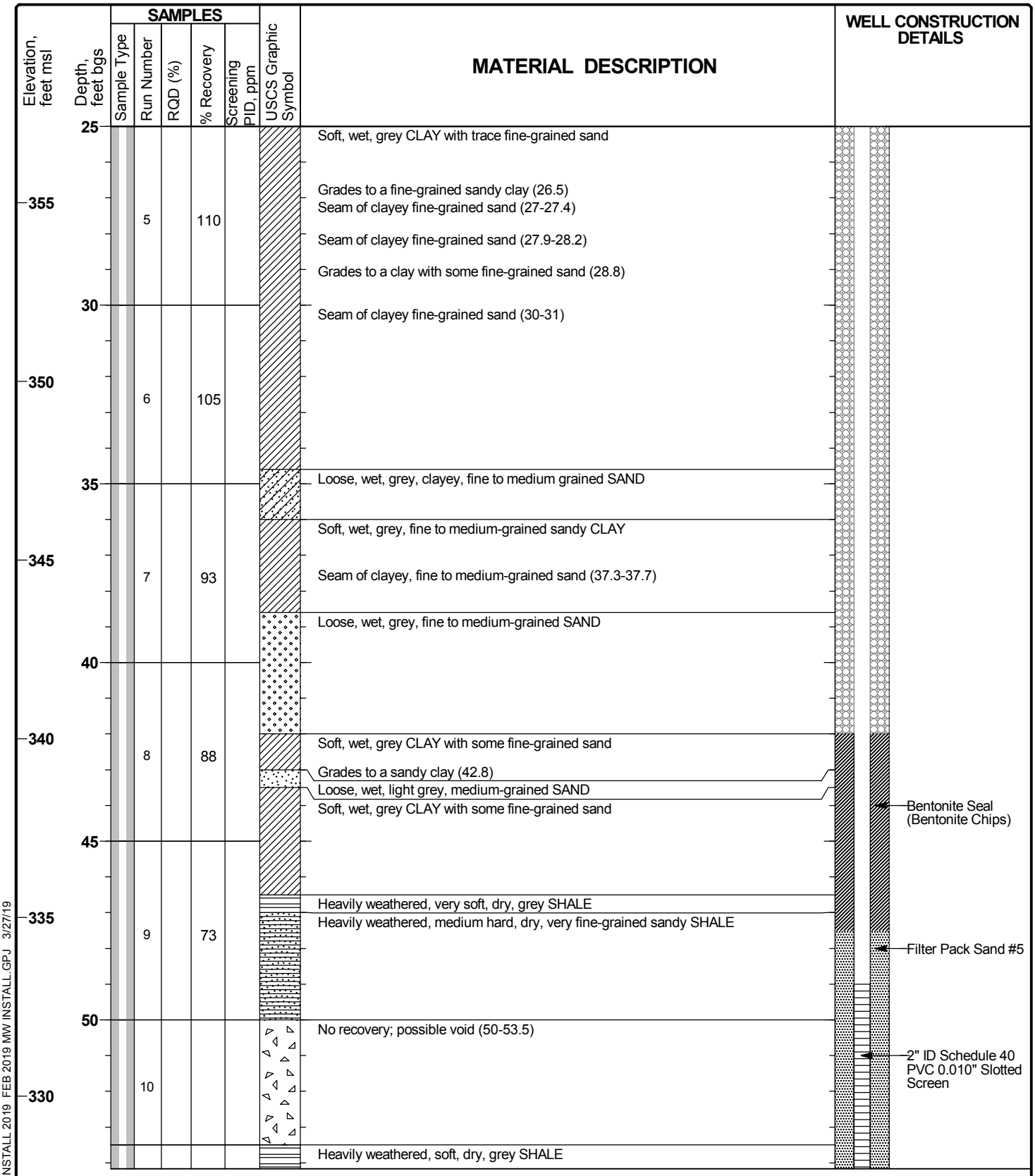
BREC MW INSTALL 2019 FEB 2019 MW INSTALL.GPJ 3/27/19

AECOM

Client: Big Rivers Electric Corporation
Project: Sebree Station - Reid/HMPL Landfill
Site: Robards, KY
Project Number: 60594107

MW-110

Sheet 2 of 3



BREC MW INSTALL 2019 FEB 2019 MW INSTALL.GPJ 3/27/19

AECOM

Client: Big Rivers Electric Corporation
Project: Sebree Station - Reid/HMPL Landfill
Site: Robards, KY
Project Number: 60594107

MW-110

Sheet 3 of 3

Elevation, feet msl	Depth, feet bgs	SAMPLES: Sample Type	SAMPLES: Run Number	SAMPLES: RQD (%)	SAMPLES: % Recovery	SAMPLES: Screening PID, ppm	USCS Graphic Symbol	MATERIAL DESCRIPTION	WELL CONSTRUCTION DETAILS
325	55		11		100			Grades wet (55.5)	
								End of boring at 59' bgs.	
320	60								
315	65								
310	70								
305	75								
300	80								

BREC MW INSTALL 2019 FEB 2019 MW INSTALL.GPJ 3/27/19

AECOM

Appendix B
Kentucky Well Records

UNIFORM KENTUCKY WELL CONSTRUCTION RECORD

Use this form to report installation of monitoring or water wells.

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

See instructions below.

One copy to owner and one copy to driller's files.

Owner Name(*)	Big Rivers Electric Corp				
Owner First Name(*)	NA	Owner Last Name(*)	NA		
Owner Address(*)	201 3rd Street				
Owner City(*)	Henderson	State(*)	Kentucky	Owner Zip(*)	42420
Owner Phone(*)	270-827-2561	Owner eMail			

Site Name(*)	Sebree Generating Station				
Site Address(*)	9000 Highway 2096				
Site City(*)	Robarbs	State(*)	Kentucky	Site Zip(*)	42452
Site Phone		Site eMail			
Well Latitude(*) DMS to DD Converter	37.647795	Well Longitude(*)	-87.510411	Method(*)	Handheld GPS - Not Differenti

Agency Interest (AI) Number		Facility Type & ID	
USGS Topo Map(*)	ROBARDS	County(*)	Webster
Surface elevation (ft)		Elevation determined by	
Physiographic Region(*)	Ohio River Alluvium	Well Use(*)	Monitoring well - ambient moi
Drilling Method(*)	Sonic	Well Status(*)	active
Wellhead(*)	Locking Cap	Well Condition(*)	Functioning properly

Casing / Open Borehole

	From depth (ft)(*)	To depth (ft)(*)	Borehole diameter (in)(*)	Casing diameter (in)(*)	Casing type(*)
Delete	0	49	6	2	PVC
Add New					

Screen

	From depth (ft)(*)(*)	To depth (ft)(*)(*)	Borehole diameter (in)(*)(*)	Screen diameter (in)(*)(*)	Screen Type(*)(*)	Screen slot size(*)(*)
Delete	49	59	6	2	PVC	.010
Add New						

Annulus fill and seal

	Section(*)	From depth (ft)(*)	To depth (ft)(*)	Material(*)
Delete	Grout	42	2	Mixture - bentonite & cement
Delete	Seal	47.5	42	Bentonite
Delete	Filter Pack	47.5	59.5	Sand
Add New				

Lithologic log

	From depth (ft)(*)	To depth (ft)(*)	Description(*)
Delete	0	3	Brn Silt
Delete	3	20	Brn Silty Clay
Delete	20	22	Gray Clay
Delete	22	38.5	Gray Clayey Sand
Delete	38.5	42	Gray Sand
Delete	42	45	Gray Clay
Delete	45	46.5	Gray Sandy Clay
Delete	46.5	50	Gray Weathered Shale
Delete	50	53.5	Void
Delete	53.5	59.5	Gray Shale
Add New			

Site Map/ Sketch Map(*)	Choose File No file chosen
Well Diagram (monitoring well)	Choose File No file chosen
Coliform analysis (if applicable)	Choose File No file chosen
Signed variance (if applicable)	Choose File No file chosen
Other laboratory analysis report (if applicable)	Choose File No file chosen
Casing/ Screen Supplemental Info	Choose File No file chosen

Comments	

Affirmation: I certify under penalty of law that this document 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.

Signature of certified driller & PIN(*)	Dave Schrecengost	Date Signed(*)	02/27/2019
Driller First Name(*)	Dave	Driller Last Name(*)	Schrecengost
Certification Number(*)	0492-0534-00	Certification Company(*)	Cascade Drilling

Kentucky Well ID (AKGWA) Number(*)	8007-1138
Owner Well ID	MW-110
Work Start Date(*)	02/20/2019
Work End Date(*)	02/21/2019
Total depth (ft)(*)	59.5
Depth to bedrock (ft)	46.5
Static water level (ft)	
SWL method(*)	Undetermined
Casing height above surface (in)	66

WATER WELLS ONLY

Estimated well yield	
Well Yield Method	
Well service (# of people served)	
Disinfectant amount	
Disinfectant type	
Pitless adapter installed	
Pump installed	
Depth to intake (ft)	

Appar ent quality and odor:

Appearance	
Odor Type	
Odor-Level	

Coliform Test

Coliform test type	
Coliform test results	or # colonies per 100 ml
Date Sampled	
Date Analyzed	

For Internal Staff Use Only

Date Received:	
Date Mapped:	
Mapped By:	

Save For Future Retrieval | Submit to DEP

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Appendix C
Groundwater Characterization Laboratory Analytical Data
March/April 2019

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ANALYTICAL REPORT

Eurofins TestAmerica, Nashville
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Laboratory Job ID: 490-171184-1
Laboratory Sample Delivery Group: Sebree Station
Client Project/Site: Sebree Station - New CCR Wells

For:
Big Rivers Electric Corporation
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Attn: Greg Dick

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Authorized for release by:
5/8/2019 9:51:41 AM

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

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Sample Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-171184-1	MW-104	Water	03/29/19 12:03	03/30/19 09:00
490-171184-2	MW-110	Water	03/29/19 09:35	03/30/19 09:00
490-171184-3	DUPE	Water	03/29/19 09:46	03/30/19 09:00
490-171184-4	FIELD BLANK	Water	03/29/19 12:27	03/30/19 09:00

Job ID: 490-171184-1

Laboratory: Eurofins TestAmerica, Nashville

Narrative

Job Narrative
490-171184-1

Comments
No additional comments.

Receipt
The samples were received on 3/30/2019 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.0º C and 3.6º C.

HPLC/IC
Method(s) 9056A: Due to the high concentration of Sulfate, the matrix spike / matrix spike duplicate (MS/MSD) for analytical batch 490-584786 could not be evaluated for accuracy and precision. The associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) met acceptance criteria.

Method(s) 9056A: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for 490-584786 were within the acceptance limits for chloride . However, the sample results exceeded the calibration curve limits. (490-171184-B-2 MS) and (490-171184-B-2 MSD)

Method(s) 9056A: The continuing calibration blank (CCB) contained chloride above the method detection limit (MDL). However, the result was less than the reporting limit (RL). The results have been reported. (CCB 490-584786/23)

Method(s) 9056A: The following samples were diluted due to the nature of the sample matrix: MW-104 (490-171184-1), MW-110 (490-171184-2) and DUPE (490-171184-3). Elevated reporting limits (RLs) are provided.

Method(s) 9056A: Due to the nature of the sample matrix, a matrix spike / matrix spike duplicate (MS/MSD) was not analyzed with 490-585062. However, the laboratory control sample / laboratory control sample duplicate (LCS/LCSD) recoveries were within the acceptance limits. (LCS 490-585062/4) and (LCSD 490-585062/5)

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

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

Narrative

Job Narrative
490-171184-2

Comments
No additional comments.

Receipt
The samples were received on 3/30/2019 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.0º C and 3.6º C.

RAD
Method(s) 903.0, 9315: Ra-226 Prep Batch 160-423611: 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-104 (490-171184-1),

Job ID: 490-171184-1 (Continued)

Laboratory: Eurofins TestAmerica, Nashville (Continued)

MW-110 (490-171184-2), DUPE (490-171184-3), FIELD BLANK (490-171184-4), (LCS 160-423611/1-A), (MB 160-423611/24-A), (400-168077-A-20-A) and (400-168077-B-20-A DU)

Method(s) 904.0: Radium-228 Prep Batch 160-423832: The following sample did not meet the requested limit (RL) due to the reduced sample volume attributed to the presence of matrix interferences (see prep NCM 164958). The data have been reported with this narrative. DUPE (490-171184-3)

Method(s) 904.0, 9320: Radium-228 Prep Batch 160-423832: 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-104 (490-171184-1), MW-110 (490-171184-2), DUPE (490-171184-3), FIELD BLANK (490-171184-4), (LCS 160-423832/1-A), (MB 160-423832/24-A), (400-168077-A-20-B) and (400-168077-B-20-B DU)

Method(s) PrecSep_0: Radium-228 Prep Batch 160-423832: The following samples were reduced due to heavy discoloration from sedimentation: MW-104 (490-171184-1), MW-110 (490-171184-2) and DUPE (490-171184-3)

Method(s) PrecSep-21: Radium-226 Prep Batch 160-423611: The following samples were reduced due to heavy discoloration due to sedimentation: MW-104 (490-171184-1), MW-110 (490-171184-2) and DUPE (490-171184-3)

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

Qualifiers

HPLC/IC

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.
E	Result exceeded calibration range.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
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
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.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

Client Sample ID: MW-104

Date Collected: 03/29/19 12:03
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-1

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**1430**		300	20.0	mg/L			04/02/19 14:03	100
Fluoride	ND		1.00	0.0100	mg/L			04/01/19 11:43	1
Sulfate	**2870**		500	3.00	mg/L			04/02/19 14:03	100

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.0281**	**J**	0.0500	0.00959	mg/L		04/03/19 11:21	04/04/19 09:05	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.0000910**	**J B**	0.00200	0.0000213	mg/L		04/04/19 13:20	04/05/19 13:17	1
Arsenic	**0.00221**	**J**	0.00500	0.000118	mg/L		04/04/19 13:20	04/05/19 13:17	1
Barium	**0.0243**	**J**	0.200	0.000270	mg/L		04/04/19 13:20	04/05/19 13:17	1
Beryllium	ND		0.00200	0.000102	mg/L		04/04/19 13:20	04/05/19 13:17	1
Boron	**0.188**	**J B**	1.00	0.00339	mg/L		04/04/19 13:20	04/05/19 13:17	1
Cadmium	ND		0.00100	0.000152	mg/L		04/04/19 13:20	04/05/19 13:17	1
Calcium	**465**	**B**	1.00	0.0412	mg/L		04/04/19 13:20	04/05/19 13:17	1
Chromium	**0.00471**	**B**	0.00300	0.000339	mg/L		04/04/19 13:20	04/05/19 13:17	1
Cobalt	**0.00594**	**B**	0.00500	0.0000218	mg/L		04/04/19 13:20	04/05/19 13:17	1
Iron	**3.22**		0.0500	0.0141	mg/L		04/04/19 13:20	04/05/19 13:17	1
Lead	**0.00105**	**J**	0.00500	0.0000675	mg/L		04/04/19 13:20	04/05/19 13:17	1
Magnesium	**521**		1.00	0.0827	mg/L		04/04/19 13:20	04/05/19 13:17	1
Molybdenum	**0.00147**	**J**	0.0100	0.000873	mg/L		04/04/19 13:20	04/05/19 13:17	1
Potassium	**1650**		1000	147	ug/L		04/04/19 13:20	04/05/19 13:17	1
Selenium	ND		0.0100	0.000348	mg/L		04/04/19 13:20	04/05/19 13:17	1
Sodium	**824**		1.00	0.251	mg/L		04/04/19 13:20	04/05/19 13:17	1
Thallium	ND		0.00100	0.0000360	mg/L		04/04/19 13:20	04/05/19 13:17	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		04/03/19 14:38	04/05/19 12:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**6.88**		0.100	0.100	SU			04/03/19 15:52	1
Temperature	**20.9**		0.100	0.100	Degrees C			04/03/19 15:52	1
Specific Conductance (25C)	**8790**		10.0	10.0	umhos/cm			04/03/19 20:44	1
Bicarbonate Alkalinity as CaCO3	**664**		10.0	5.00	mg/L			04/05/19 19:51	1
Carbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 19:51	1
Alkalinity	**664**		10.0	5.00	mg/L			04/05/19 19:51	1
Total Dissolved Solids	**6990**		100	28.0	mg/L			04/02/19 10:30	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	**0.139**		0.0913	0.0922	1.00	0.121	pCi/L	04/14/19 16:48	05/07/19 13:21	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*84.7*		*40 - 110*	*04/14/19 16:48*	*05/07/19 13:21*	*1*

Client Sample ID: MW-104

Date Collected: 03/29/19 12:03
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-1

Matrix: Water

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.627		0.365	0.370	1.00	0.553	pCi/L	04/14/19 16:48	04/25/19 08:14	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*84.7*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:14*	*1*
Y Carrier	*87.1*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:14*	*1*

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	0.766		0.376	0.381	5.00	0.553	pCi/L		05/08/19 07:28	1

Client Sample ID: MW-110

Date Collected: 03/29/19 09:35
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-2

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**26.0**		6.00	0.400	mg/L			04/02/19 14:36	2
Fluoride	**0.279**	**J**	1.00	0.0100	mg/L			04/01/19 11:59	1
Sulfate	**563**		250	1.50	mg/L			04/02/19 14:52	50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.0299**	**J**	0.0500	0.00959	mg/L		04/03/19 11:21	04/04/19 09:11	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.000240**	**J B**	0.00200	0.0000213	mg/L		04/04/19 13:20	04/05/19 13:20	1
Arsenic	**0.00534**		0.00500	0.000118	mg/L		04/04/19 13:20	04/05/19 13:20	1
Barium	**0.118**	**J**	0.200	0.000270	mg/L		04/04/19 13:20	04/05/19 13:20	1
Beryllium	**0.000716**	**J**	0.00200	0.000102	mg/L		04/04/19 13:20	04/05/19 13:20	1
Boron	**0.484**	**J B**	1.00	0.00339	mg/L		04/04/19 13:20	04/05/19 13:20	1
Cadmium	ND		0.00100	0.000152	mg/L		04/04/19 13:20	04/05/19 13:20	1
Calcium	**176**	**B**	1.00	0.0412	mg/L		04/04/19 13:20	04/05/19 13:20	1
Chromium	**0.0180**	**B**	0.00300	0.000339	mg/L		04/04/19 13:20	04/05/19 13:20	1
Cobalt	**0.00911**	**B**	0.00500	0.0000218	mg/L		04/04/19 13:20	04/05/19 13:20	1
Iron	**19.5**		0.0500	0.0141	mg/L		04/04/19 13:20	04/05/19 13:20	1
Lead	**0.00661**		0.00500	0.0000675	mg/L		04/04/19 13:20	04/05/19 13:20	1
Magnesium	**56.8**		1.00	0.0827	mg/L		04/04/19 13:20	04/05/19 13:20	1
Molybdenum	**0.00153**	**J**	0.0100	0.000873	mg/L		04/04/19 13:20	04/05/19 13:20	1
Potassium	**4070**		1000	147	ug/L		04/04/19 13:20	04/05/19 13:20	1
Selenium	ND		0.0100	0.000348	mg/L		04/04/19 13:20	04/05/19 13:20	1
Sodium	**96.3**		1.00	0.251	mg/L		04/04/19 13:20	04/05/19 13:20	1
Thallium	**0.000112**	**J**	0.00100	0.0000360	mg/L		04/04/19 13:20	04/05/19 13:20	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		04/03/19 14:38	04/05/19 12:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.25**		0.100	0.100	SU			04/03/19 15:52	1
Temperature	**20.7**		0.100	0.100	Degrees C			04/03/19 15:52	1
Specific Conductance (25C)	**1570**		10.0	10.0	umhos/cm			04/03/19 20:44	1
Bicarbonate Alkalinity as CaCO3	**266**		10.0	5.00	mg/L			04/05/19 19:58	1
Carbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 19:58	1
Alkalinity	**266**		10.0	5.00	mg/L			04/05/19 19:58	1
Total Dissolved Solids	**1170**		50.0	14.0	mg/L			04/02/19 10:30	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	**0.688**		0.230	0.238	1.00	0.200	pCi/L	04/14/19 16:48	05/07/19 13:21	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*72.6*		*40 - 110*	*04/14/19 16:48*	*05/07/19 13:21*	*1*

Client Sample ID: MW-110

Date Collected: 03/29/19 09:35
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-2

Matrix: Water

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.15		0.621	0.630	1.00	0.927	pCi/L	04/14/19 16:48	04/25/19 08:14	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*72.6*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:14*	*1*
Y Carrier	*90.5*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:14*	*1*

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	1.84		0.662	0.673	5.00	0.927	pCi/L		05/08/19 07:28	1

Client Sample ID: DUPE

Date Collected: 03/29/19 09:46
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-3

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	25.2		6.00	0.400	mg/L			04/02/19 15:09	2
Fluoride	0.283	J	1.00	0.0100	mg/L			04/01/19 12:49	1
Sulfate	552		250	1.50	mg/L			04/02/19 15:26	50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0260	J	0.0500	0.00959	mg/L		04/03/19 11:21	04/04/19 09:16	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.000193	J B	0.00200	0.0000213	mg/L		04/04/19 13:20	04/05/19 13:24	1
Arsenic	0.00393	J	0.00500	0.000118	mg/L		04/04/19 13:20	04/05/19 13:24	1
Barium	0.114	J	0.200	0.000270	mg/L		04/04/19 13:20	04/05/19 13:24	1
Beryllium	0.000572	J	0.00200	0.000102	mg/L		04/04/19 13:20	04/05/19 13:24	1
Boron	0.490	J B	1.00	0.00339	mg/L		04/04/19 13:20	04/05/19 13:24	1
Cadmium	ND		0.00100	0.000152	mg/L		04/04/19 13:20	04/05/19 13:24	1
Calcium	178	B	1.00	0.0412	mg/L		04/04/19 13:20	04/05/19 13:24	1
Chromium	0.0148	B	0.00300	0.000339	mg/L		04/04/19 13:20	04/05/19 13:24	1
Cobalt	0.00631	B	0.00500	0.0000218	mg/L		04/04/19 13:20	04/05/19 13:24	1
Iron	15.2		0.0500	0.0141	mg/L		04/04/19 13:20	04/05/19 13:24	1
Lead	0.00561		0.00500	0.0000675	mg/L		04/04/19 13:20	04/05/19 13:24	1
Magnesium	56.8		1.00	0.0827	mg/L		04/04/19 13:20	04/05/19 13:24	1
Molybdenum	0.00136	J	0.0100	0.000873	mg/L		04/04/19 13:20	04/05/19 13:24	1
Potassium	3910		1000	147	ug/L		04/04/19 13:20	04/05/19 13:24	1
Selenium	ND		0.0100	0.000348	mg/L		04/04/19 13:20	04/05/19 13:24	1
Sodium	98.5		1.00	0.251	mg/L		04/04/19 13:20	04/05/19 13:24	1
Thallium	0.0000770	J	0.00100	0.0000360	mg/L		04/04/19 13:20	04/05/19 13:24	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		04/03/19 14:38	04/05/19 12:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.39		0.100	0.100	SU			04/03/19 15:52	1
Temperature	20.7		0.100	0.100	Degrees C			04/03/19 15:52	1
Specific Conductance (25C)	1570		10.0	10.0	umhos/cm			04/03/19 20:44	1
Bicarbonate Alkalinity as CaCO3	289		10.0	5.00	mg/L			04/05/19 20:05	1
Carbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 20:05	1
Alkalinity	289		10.0	5.00	mg/L			04/05/19 20:05	1
Total Dissolved Solids	1170		50.0	14.0	mg/L			04/02/19 10:30	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	0.776		0.242	0.252	1.00	0.171	pCi/L	04/14/19 16:48	05/07/19 13:21	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*68.4*		*40 - 110*	*04/14/19 16:48*	*05/07/19 13:21*	*1*

Client Sample ID: DUPE

Date Collected: 03/29/19 09:46
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-3

Matrix: Water

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.474	U G	0.617	0.619	1.00	1.03	pCi/L	04/14/19 16:48	04/25/19 08:14	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*68.4*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:14*	*1*
Y Carrier	*89.7*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:14*	*1*

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	**1.25**		0.663	0.668	5.00	1.03	pCi/L		05/08/19 07:28	1

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Client Sample ID: FIELD BLANK

Date Collected: 03/29/19 12:27
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-4

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	0.200	mg/L			04/01/19 13:39	1
Fluoride	ND		1.00	0.0100	mg/L			04/01/19 13:39	1
Sulfate	ND		5.00	0.0300	mg/L			04/01/19 13:39	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.0500	0.00959	mg/L		04/03/19 11:21	04/04/19 09:21	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.000131**	**J B**	0.00200	0.0000213	mg/L		04/04/19 13:20	04/05/19 13:27	1
Arsenic	**0.000496**	**J**	0.00500	0.000118	mg/L		04/04/19 13:20	04/05/19 13:27	1
Barium	ND		0.200	0.000270	mg/L		04/04/19 13:20	04/05/19 13:27	1
Beryllium	ND		0.00200	0.000102	mg/L		04/04/19 13:20	04/05/19 13:27	1
Boron	**0.0231**	**J B**	1.00	0.00339	mg/L		04/04/19 13:20	04/05/19 13:27	1
Cadmium	ND		0.00100	0.000152	mg/L		04/04/19 13:20	04/05/19 13:27	1
Calcium	**0.0702**	**J B**	1.00	0.0412	mg/L		04/04/19 13:20	04/05/19 13:27	1
Chromium	**0.00274**	**J B**	0.00300	0.000339	mg/L		04/04/19 13:20	04/05/19 13:27	1
Cobalt	ND		0.00500	0.0000218	mg/L		04/04/19 13:20	04/05/19 13:27	1
Iron	ND		0.0500	0.0141	mg/L		04/04/19 13:20	04/05/19 13:27	1
Lead	ND		0.00500	0.0000675	mg/L		04/04/19 13:20	04/05/19 13:27	1
Magnesium	ND		1.00	0.0827	mg/L		04/04/19 13:20	04/05/19 13:27	1
Molybdenum	ND		0.0100	0.000873	mg/L		04/04/19 13:20	04/05/19 13:27	1
Potassium	ND		1000	147	ug/L		04/04/19 13:20	04/05/19 13:27	1
Selenium	ND		0.0100	0.000348	mg/L		04/04/19 13:20	04/05/19 13:27	1
Sodium	ND		1.00	0.251	mg/L		04/04/19 13:20	04/05/19 13:27	1
Thallium	ND		0.00100	0.0000360	mg/L		04/04/19 13:20	04/05/19 13:27	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		04/03/19 14:38	04/05/19 12:59	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**5.88**		0.100	0.100	SU			04/03/19 15:52	1
Temperature	**20.9**		0.100	0.100	Degrees C			04/03/19 15:52	1
Specific Conductance (25C)	ND		10.0	10.0	umhos/cm			04/03/19 20:45	1
Bicarbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 20:10	1
Carbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 20:10	1
Alkalinity	ND		10.0	5.00	mg/L			04/05/19 20:10	1
Total Dissolved Solids	**10.0**	**J**	25.0	7.00	mg/L			04/02/19 10:30	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	0.00457	U	0.0361	0.0361	1.00	0.0761	pCi/L	04/14/19 16:48	05/07/19 13:22	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.0*		*40 - 110*	*04/14/19 16:48*	*05/07/19 13:22*	*1*

Client Sample ID: FIELD BLANK

Date Collected: 03/29/19 12:27
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-4

Matrix: Water

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.134	U	0.200	0.201	1.00	0.336	pCi/L	04/14/19 16:48	04/25/19 08:14	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.0*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:14*	*1*
Y Carrier	*90.8*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:14*	*1*

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	0.138	U	0.203	0.204	5.00	0.336	pCi/L		05/08/19 07:28	1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 490-584786/3
Matrix: Water
Analysis Batch: 584786

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	0.200	mg/L			04/01/19 08:44	1
Fluoride	ND		1.00	0.0100	mg/L			04/01/19 08:44	1
Sulfate	ND		5.00	0.0300	mg/L			04/01/19 08:44	1

Lab Sample ID: LCS 490-584786/4
Matrix: Water
Analysis Batch: 584786

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.238		mg/L		92	80 - 120
Fluoride	1.00	0.9862	J	mg/L		99	80 - 120
Sulfate	10.0	9.515		mg/L		95	80 - 120

Lab Sample ID: LCSD 490-584786/5
Matrix: Water
Analysis Batch: 584786

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.205		mg/L		92	80 - 120	0	20
Fluoride	1.00	0.9820	J	mg/L		98	80 - 120	0	20
Sulfate	10.0	9.584		mg/L		96	80 - 120	1	20

Lab Sample ID: 490-171184-2 MS
Matrix: Water
Analysis Batch: 584786

Client Sample ID: MW-110
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	26.8	E	10.0	38.44	E	mg/L		116	80 - 120
Fluoride	0.279	J	1.00	1.339		mg/L		106	80 - 120
Sulfate	791	E	10.0	796.0	E 4	mg/L		50	80 - 120

Lab Sample ID: 490-171184-2 MSD
Matrix: Water
Analysis Batch: 584786

Client Sample ID: MW-110
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	26.8	E	10.0	38.70	E	mg/L		118	80 - 120	1	20
Fluoride	0.279	J	1.00	1.373		mg/L		109	80 - 120	2	20
Sulfate	791	E	10.0	796.1	E 4	mg/L		51	80 - 120	0	20

Lab Sample ID: MB 490-585062/3
Matrix: Water
Analysis Batch: 585062

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	0.200	mg/L			04/02/19 12:56	1
Fluoride	ND		1.00	0.0100	mg/L			04/02/19 12:56	1
Sulfate	ND		5.00	0.0300	mg/L			04/02/19 12:56	1

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 490-585062/4
Matrix: Water
Analysis Batch: 585062

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			10.0	9.308		mg/L		93	80 - 120		
Fluoride			1.00	1.020		mg/L		102	80 - 120		
Sulfate			10.0	9.831		mg/L		98	80 - 120		

Lab Sample ID: LCSD 490-585062/5
Matrix: Water
Analysis Batch: 585062

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			10.0	9.310		mg/L		93	80 - 120	0	20
Fluoride			1.00	1.029		mg/L		103	80 - 120	1	20
Sulfate			10.0	9.853		mg/L		98	80 - 120	0	20

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 180-274722/1-A
Matrix: Water
Analysis Batch: 274816

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 274722

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.0500	0.00959	mg/L		04/03/19 11:21	04/04/19 07:41	1

Lab Sample ID: LCS 180-274722/2-A
Matrix: Water
Analysis Batch: 274816

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 274722

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Lithium			1.00	0.9781		mg/L		98	80 - 120		

Lab Sample ID: 180-88255-C-3-D MSD
Matrix: Water
Analysis Batch: 274816

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 274722

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lithium	ND		1.00	0.9822		mg/L		98	75 - 125	0	20

Lab Sample ID: 180-88255-D-3-E MS
Matrix: Water
Analysis Batch: 274816

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 274722

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Lithium	ND		1.00	0.9852		mg/L		99	75 - 125		

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 180-274861/1-A
Matrix: Water
Analysis Batch: 275004

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 274861

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00005200	J	0.00200	0.0000213	mg/L		04/04/19 13:20	04/05/19 11:56	1
Arsenic	ND		0.00500	0.000118	mg/L		04/04/19 13:20	04/05/19 11:56	1
Barium	ND		0.200	0.000270	mg/L		04/04/19 13:20	04/05/19 11:56	1
Beryllium	ND		0.00200	0.000102	mg/L		04/04/19 13:20	04/05/19 11:56	1
Boron	0.006373	J	1.00	0.00339	mg/L		04/04/19 13:20	04/05/19 11:56	1
Cadmium	ND		0.00100	0.000152	mg/L		04/04/19 13:20	04/05/19 11:56	1
Calcium	0.05960	J	1.00	0.0412	mg/L		04/04/19 13:20	04/05/19 11:56	1
Chromium	0.0003860	J	0.00300	0.000339	mg/L		04/04/19 13:20	04/05/19 11:56	1
Cobalt	0.00002600	J	0.00500	0.0000218	mg/L		04/04/19 13:20	04/05/19 11:56	1
Iron	ND		0.0500	0.0141	mg/L		04/04/19 13:20	04/05/19 11:56	1
Lead	ND		0.00500	0.0000675	mg/L		04/04/19 13:20	04/05/19 11:56	1
Magnesium	ND		1.00	0.0827	mg/L		04/04/19 13:20	04/05/19 11:56	1
Molybdenum	ND		0.0100	0.000873	mg/L		04/04/19 13:20	04/05/19 11:56	1
Potassium	ND		1000	147	ug/L		04/04/19 13:20	04/05/19 11:56	1
Selenium	ND		0.0100	0.000348	mg/L		04/04/19 13:20	04/05/19 11:56	1
Sodium	ND		1.00	0.251	mg/L		04/04/19 13:20	04/05/19 11:56	1
Thallium	ND		0.00100	0.0000360	mg/L		04/04/19 13:20	04/05/19 11:56	1

Lab Sample ID: LCS 180-274861/2-A
Matrix: Water
Analysis Batch: 275004

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 274861

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.500	0.4849		mg/L		97	80 - 120
Arsenic	0.0400	0.03953		mg/L		99	80 - 120
Barium	2.00	1.928		mg/L		96	80 - 120
Beryllium	0.0500	0.05212		mg/L		104	80 - 120
Boron	1.00	0.9972	J	mg/L		100	80 - 120
Cadmium	0.0500	0.05024		mg/L		100	80 - 120
Calcium	50.0	48.40		mg/L		97	80 - 120
Chromium	0.200	0.2007		mg/L		100	80 - 120
Cobalt	0.500	0.4952		mg/L		99	80 - 120
Iron	11.0	10.61		mg/L		96	80 - 120
Lead	0.0200	0.01871		mg/L		94	80 - 120
Magnesium	50.0	48.08		mg/L		96	80 - 120
Molybdenum	1.00	0.9281		mg/L		93	80 - 120
Potassium	50000	47700		ug/L		95	80 - 120
Selenium	0.0100	0.01014		mg/L		101	80 - 120
Sodium	50.0	50.18		mg/L		100	80 - 120
Thallium	0.0500	0.05062		mg/L		101	80 - 120

Lab Sample ID: 180-88068-D-12-G MS
Matrix: Water
Analysis Batch: 275004

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 274861

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	0.000265	J	0.0200	0.01955		mg/L		96	75 - 125

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

Lab Sample ID: 180-88068-D-12-H MSD
Matrix: Water
Analysis Batch: 275004

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 274861

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	0.000265	J	0.0200	0.01972		mg/L		97	75 - 125	1	20

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-274765/1-A
Matrix: Water
Analysis Batch: 274975

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 274765

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		04/03/19 14:38	04/05/19 12:35	1

Lab Sample ID: LCS 180-274765/2-A
Matrix: Water
Analysis Batch: 274975

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 274765

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	2.50	2.327		ug/L		93	80 - 120

Lab Sample ID: 180-88333-D-4-E MS
Matrix: Water
Analysis Batch: 274975

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 274765

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		1.00	0.9220		ug/L		92	75 - 125

Lab Sample ID: 180-88333-D-4-F MSD
Matrix: Water
Analysis Batch: 274975

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 274765

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		1.00	0.9290		ug/L		93	75 - 125	1	20

Method: 9040C - pH

Lab Sample ID: LCS 490-585481/1
Matrix: Water
Analysis Batch: 585481

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.010		SU		100	98 - 103

Lab Sample ID: 490-171184-1 DU
Matrix: Water
Analysis Batch: 585481

Client Sample ID: MW-104
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	6.88		6.880		SU		0	20
Temperature	20.9		20.90		Degrees C		0	20

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 490-586311/5
Matrix: Water
Analysis Batch: 586311

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 19:05	1
Carbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 19:05	1
Alkalinity	ND		10.0	5.00	mg/L			04/05/19 19:05	1

Lab Sample ID: LCS 490-586311/6
Matrix: Water
Analysis Batch: 586311

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Alkalinity			100	92.55		mg/L		93	90 - 110		

Lab Sample ID: LCSD 490-586311/27
Matrix: Water
Analysis Batch: 586311

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity			100	94.04		mg/L		94	90 - 110	2	20

Lab Sample ID: LCSD 490-586311/29
Matrix: Water
Analysis Batch: 586311

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity			100	95.36		mg/L		95	90 - 110	3	20

Lab Sample ID: 490-171227-A-1 DU
Matrix: Water
Analysis Batch: 586311

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Bicarbonate Alkalinity as CaCO3	181			179.3		mg/L				0.8	20
Carbonate Alkalinity as CaCO3	ND			ND		mg/L				NC	20
Alkalinity	181			179.3		mg/L				0.8	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 490-584789/1
Matrix: Water
Analysis Batch: 584789

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		25.0	7.00	mg/L			04/02/19 10:30	1

Lab Sample ID: LCS 490-584789/2
Matrix: Water
Analysis Batch: 584789

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			100	108.0		mg/L		108	90 - 110		

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: 490-171046-M-1 DU
Matrix: Water
Analysis Batch: 584789

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	251			256.0		mg/L				2	20

Lab Sample ID: 490-171184-1 DU
Matrix: Water
Analysis Batch: 584789

Client Sample ID: MW-104
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	6990			6900		mg/L				1	20

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-423611/24-A
Matrix: Water
Analysis Batch: 427653

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 423611

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.06299	U	0.0535	0.0538	1.00	0.0761	pCi/L	04/14/19 16:48	05/07/19 13:22	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.6*		*40 - 110*	*04/14/19 16:48*	*05/07/19 13:22*	*1*

Lab Sample ID: LCS 160-423611/1-A
Matrix: Water
Analysis Batch: 427429

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 423611

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.4	10.04		1.05	1.00	0.0858	pCi/L	88	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*90.0*		*40 - 110*

Lab Sample ID: 400-168077-B-20-A DU
Matrix: Water
Analysis Batch: 427429

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 423611

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Radium-226	0.263			0.2137		0.0923	1.00	0.0946	pCi/L			0.25	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Ba Carrier	*85.5*		*40 - 110*

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-423832/24-A
Matrix: Water
Analysis Batch: 425516

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 423832

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.3565	U	0.235	0.237	1.00	0.361	pCi/L	04/14/19 16:48	04/25/19 08:15	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.6*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:15*	*1*
Y Carrier	*89.7*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:15*	*1*

Lab Sample ID: LCS 160-423832/1-A
Matrix: Water
Analysis Batch: 425517

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 423832

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.27	10.51		1.20	1.00	0.391	pCi/L	113	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*90.0*		*40 - 110*
Y Carrier	*87.5*		*40 - 110*

Lab Sample ID: 400-168077-B-20-B DU
Matrix: Water
Analysis Batch: 425517

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 423832

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Radium-228	0.577			0.4291		0.277	1.00	0.422	pCi/L			0.27	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Ba Carrier	*85.5*		*40 - 110*
Y Carrier	*85.6*		*40 - 110*

HPLC/IC

Analysis Batch: 584786

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	9056A	
490-171184-2	MW-110	Total/NA	Water	9056A	
490-171184-3	DUPE	Total/NA	Water	9056A	
490-171184-4	FIELD BLANK	Total/NA	Water	9056A	
MB 490-584786/3	Method Blank	Total/NA	Water	9056A	
LCS 490-584786/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-584786/5	Lab Control Sample Dup	Total/NA	Water	9056A	
490-171184-2 MS	MW-110	Total/NA	Water	9056A	
490-171184-2 MSD	MW-110	Total/NA	Water	9056A	

Analysis Batch: 585062

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	9056A	
490-171184-2	MW-110	Total/NA	Water	9056A	
490-171184-2	MW-110	Total/NA	Water	9056A	
490-171184-3	DUPE	Total/NA	Water	9056A	
490-171184-3	DUPE	Total/NA	Water	9056A	
MB 490-585062/3	Method Blank	Total/NA	Water	9056A	
LCS 490-585062/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-585062/5	Lab Control Sample Dup	Total/NA	Water	9056A	

Metals

Filtration Batch: 273938

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-88068-D-12-G MS	Matrix Spike	Dissolved	Water	FILTRATION	
180-88068-D-12-H MSD	Matrix Spike Duplicate	Dissolved	Water	FILTRATION	

Prep Batch: 274722

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total Recoverable	Water	3005A	
490-171184-2	MW-110	Total Recoverable	Water	3005A	
490-171184-3	DUPE	Total Recoverable	Water	3005A	
490-171184-4	FIELD BLANK	Total Recoverable	Water	3005A	
MB 180-274722/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-274722/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-88255-C-3-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	3005A	
180-88255-D-3-E MS	Matrix Spike	Total Recoverable	Water	3005A	

Prep Batch: 274765

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	7470A	
490-171184-2	MW-110	Total/NA	Water	7470A	
490-171184-3	DUPE	Total/NA	Water	7470A	
490-171184-4	FIELD BLANK	Total/NA	Water	7470A	
MB 180-274765/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-274765/2-A	Lab Control Sample	Total/NA	Water	7470A	
180-88333-D-4-E MS	Matrix Spike	Dissolved	Water	7470A	
180-88333-D-4-F MSD	Matrix Spike Duplicate	Dissolved	Water	7470A	

Metals

Analysis Batch: 274816

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total Recoverable	Water	6010C	274722
490-171184-2	MW-110	Total Recoverable	Water	6010C	274722
490-171184-3	DUPE	Total Recoverable	Water	6010C	274722
490-171184-4	FIELD BLANK	Total Recoverable	Water	6010C	274722
MB 180-274722/1-A	Method Blank	Total Recoverable	Water	6010C	274722
LCS 180-274722/2-A	Lab Control Sample	Total Recoverable	Water	6010C	274722
180-88255-C-3-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	6010C	274722
180-88255-D-3-E MS	Matrix Spike	Total Recoverable	Water	6010C	274722

Prep Batch: 274861

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total Recoverable	Water	3005A	
490-171184-2	MW-110	Total Recoverable	Water	3005A	
490-171184-3	DUPE	Total Recoverable	Water	3005A	
490-171184-4	FIELD BLANK	Total Recoverable	Water	3005A	
MB 180-274861/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-274861/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-88068-D-12-G MS	Matrix Spike	Dissolved	Water	3005A	273938
180-88068-D-12-H MSD	Matrix Spike Duplicate	Dissolved	Water	3005A	273938

Analysis Batch: 274975

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	EPA 7470A	274765
490-171184-2	MW-110	Total/NA	Water	EPA 7470A	274765
490-171184-3	DUPE	Total/NA	Water	EPA 7470A	274765
490-171184-4	FIELD BLANK	Total/NA	Water	EPA 7470A	274765
MB 180-274765/1-A	Method Blank	Total/NA	Water	EPA 7470A	274765
LCS 180-274765/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	274765
180-88333-D-4-E MS	Matrix Spike	Dissolved	Water	EPA 7470A	274765
180-88333-D-4-F MSD	Matrix Spike Duplicate	Dissolved	Water	EPA 7470A	274765

Analysis Batch: 275004

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total Recoverable	Water	6020A	274861
490-171184-2	MW-110	Total Recoverable	Water	6020A	274861
490-171184-3	DUPE	Total Recoverable	Water	6020A	274861
490-171184-4	FIELD BLANK	Total Recoverable	Water	6020A	274861
MB 180-274861/1-A	Method Blank	Total Recoverable	Water	6020A	274861
LCS 180-274861/2-A	Lab Control Sample	Total Recoverable	Water	6020A	274861
180-88068-D-12-G MS	Matrix Spike	Dissolved	Water	6020A	274861
180-88068-D-12-H MSD	Matrix Spike Duplicate	Dissolved	Water	6020A	274861

General Chemistry

Analysis Batch: 584789

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	SM 2540C	
490-171184-2	MW-110	Total/NA	Water	SM 2540C	
490-171184-3	DUPE	Total/NA	Water	SM 2540C	
490-171184-4	FIELD BLANK	Total/NA	Water	SM 2540C	
MB 490-584789/1	Method Blank	Total/NA	Water	SM 2540C	

General Chemistry (Continued)

Analysis Batch: 584789 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 490-584789/2	Lab Control Sample	Total/NA	Water	SM 2540C	
490-171046-M-1 DU	Duplicate	Total/NA	Water	SM 2540C	
490-171184-1 DU	MW-104	Total/NA	Water	SM 2540C	

Analysis Batch: 585481

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	9040C	
490-171184-2	MW-110	Total/NA	Water	9040C	
490-171184-3	DUPE	Total/NA	Water	9040C	
490-171184-4	FIELD BLANK	Total/NA	Water	9040C	
LCS 490-585481/1	Lab Control Sample	Total/NA	Water	9040C	
490-171184-1 DU	MW-104	Total/NA	Water	9040C	

Analysis Batch: 585534

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	9050A	
490-171184-2	MW-110	Total/NA	Water	9050A	
490-171184-3	DUPE	Total/NA	Water	9050A	
490-171184-4	FIELD BLANK	Total/NA	Water	9050A	
LCS 490-585534/3	Lab Control Sample	Total/NA	Water	9050A	

Analysis Batch: 586311

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	SM 2320B	
490-171184-2	MW-110	Total/NA	Water	SM 2320B	
490-171184-3	DUPE	Total/NA	Water	SM 2320B	
490-171184-4	FIELD BLANK	Total/NA	Water	SM 2320B	
MB 490-586311/5	Method Blank	Total/NA	Water	SM 2320B	
LCS 490-586311/6	Lab Control Sample	Total/NA	Water	SM 2320B	
LCSD 490-586311/27	Lab Control Sample Dup	Total/NA	Water	SM 2320B	
LCSD 490-586311/29	Lab Control Sample Dup	Total/NA	Water	SM 2320B	
490-171227-A-1 DU	Duplicate	Total/NA	Water	SM 2320B	

Rad

Prep Batch: 423611

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	PrecSep-21	
490-171184-2	MW-110	Total/NA	Water	PrecSep-21	
490-171184-3	DUPE	Total/NA	Water	PrecSep-21	
490-171184-4	FIELD BLANK	Total/NA	Water	PrecSep-21	
MB 160-423611/24-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-423611/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
400-168077-B-20-A DU	Duplicate	Total/NA	Water	PrecSep-21	

Prep Batch: 423832

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	PrecSep_0	
490-171184-2	MW-110	Total/NA	Water	PrecSep_0	
490-171184-3	DUPE	Total/NA	Water	PrecSep_0	
490-171184-4	FIELD BLANK	Total/NA	Water	PrecSep_0	

Rad (Continued)

Prep Batch: 423832 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 160-423832/24-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-423832/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
400-168077-B-20-B DU	Duplicate	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Client Sample ID: MW-104

Date Collected: 03/29/19 12:03
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			584786	04/01/19 11:43	SW1	TAL NSH
Total/NA	Analysis	9056A		100			585062	04/02/19 14:03	SW1	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	274722	04/03/19 11:21	NAM	TAL PIT
Total Recoverable	Analysis	6010C		1			274816	04/04/19 09:05	RJG	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	274861	04/04/19 13:20	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			275004	04/05/19 13:17	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	274765	04/03/19 14:38	KAK	TAL PIT
Total/NA	Analysis	EPA 7470A		1			274975	04/05/19 12:54	KAK	TAL PIT
Total/NA	Analysis	9040C		1			585481	04/03/19 15:52	MXX	TAL NSH
Total/NA	Analysis	9050A		1			585534	04/03/19 20:44	VRP	TAL NSH
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	586311	04/05/19 19:51	MSP	TAL NSH
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	584789	04/02/19 10:30	BMC	TAL NSH
Total/NA	Prep	PrecSep-21			750.14 mL	1.0 g	423611	04/14/19 16:48	MMO	TAL SL
Total/NA	Analysis	903.0		1			427653	05/07/19 13:21	CDR	TAL SL
Total/NA	Prep	PrecSep_0			750.14 mL	1.0 g	423832	04/14/19 16:48	MMO	TAL SL
Total/NA	Analysis	904.0		1	1.0 mL	1.0 mL	425516	04/25/19 08:14	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			427672	05/08/19 07:28	SMP	TAL SL

Client Sample ID: MW-110

Date Collected: 03/29/19 09:35
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			584786	04/01/19 11:59	SW1	TAL NSH
Total/NA	Analysis	9056A		2			585062	04/02/19 14:36	SW1	TAL NSH
Total/NA	Analysis	9056A		50			585062	04/02/19 14:52	SW1	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	274722	04/03/19 11:21	NAM	TAL PIT
Total Recoverable	Analysis	6010C		1			274816	04/04/19 09:11	RJG	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	274861	04/04/19 13:20	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			275004	04/05/19 13:20	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	274765	04/03/19 14:38	KAK	TAL PIT
Total/NA	Analysis	EPA 7470A		1			274975	04/05/19 12:55	KAK	TAL PIT
Total/NA	Analysis	9040C		1			585481	04/03/19 15:52	MXX	TAL NSH
Total/NA	Analysis	9050A		1			585534	04/03/19 20:44	VRP	TAL NSH
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	586311	04/05/19 19:58	MSP	TAL NSH
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	584789	04/02/19 10:30	BMC	TAL NSH
Total/NA	Prep	PrecSep-21			500.14 mL	1.0 g	423611	04/14/19 16:48	MMO	TAL SL
Total/NA	Analysis	903.0		1			427653	05/07/19 13:21	CDR	TAL SL
Total/NA	Prep	PrecSep_0			500.14 mL	1.0 g	423832	04/14/19 16:48	MMO	TAL SL
Total/NA	Analysis	904.0		1	1.0 mL	1.0 mL	425516	04/25/19 08:14	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			427672	05/08/19 07:28	SMP	TAL SL

Lab Chronicle

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Client Sample ID: DUPE

Date Collected: 03/29/19 09:46
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			584786	04/01/19 12:49	SW1	TAL NSH
Total/NA	Analysis	9056A		2			585062	04/02/19 15:09	SW1	TAL NSH
Total/NA	Analysis	9056A		50			585062	04/02/19 15:26	SW1	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	274722	04/03/19 11:21	NAM	TAL PIT
Total Recoverable	Analysis	6010C		1			274816	04/04/19 09:16	RJG	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	274861	04/04/19 13:20	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			275004	04/05/19 13:24	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	274765	04/03/19 14:38	KAK	TAL PIT
Total/NA	Analysis	EPA 7470A		1			274975	04/05/19 12:58	KAK	TAL PIT
Total/NA	Analysis	9040C		1			585481	04/03/19 15:52	MXX	TAL NSH
Total/NA	Analysis	9050A		1			585534	04/03/19 20:44	VRP	TAL NSH
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	586311	04/05/19 20:05	MSP	TAL NSH
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	584789	04/02/19 10:30	BMC	TAL NSH
Total/NA	Prep	PrecSep-21			500.02 mL	1.0 g	423611	04/14/19 16:48	MMO	TAL SL
Total/NA	Analysis	903.0		1			427653	05/07/19 13:21	CDR	TAL SL
Total/NA	Prep	PrecSep_0			500.02 mL	1.0 g	423832	04/14/19 16:48	MMO	TAL SL
Total/NA	Analysis	904.0		1	1.0 mL	1.0 mL	425516	04/25/19 08:14	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			427672	05/08/19 07:28	SMP	TAL SL

Client Sample ID: FIELD BLANK

Date Collected: 03/29/19 12:27
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			584786	04/01/19 13:39	SW1	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	274722	04/03/19 11:21	NAM	TAL PIT
Total Recoverable	Analysis	6010C		1			274816	04/04/19 09:21	RJG	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	274861	04/04/19 13:20	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			275004	04/05/19 13:27	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	274765	04/03/19 14:38	KAK	TAL PIT
Total/NA	Analysis	EPA 7470A		1			274975	04/05/19 12:59	KAK	TAL PIT
Total/NA	Analysis	9040C		1			585481	04/03/19 15:52	MXX	TAL NSH
Total/NA	Analysis	9050A		1			585534	04/03/19 20:45	VRP	TAL NSH
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	586311	04/05/19 20:10	MSP	TAL NSH
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	584789	04/02/19 10:30	BMC	TAL NSH
Total/NA	Prep	PrecSep-21			1000.00 mL	1.0 g	423611	04/14/19 16:48	MMO	TAL SL
Total/NA	Analysis	903.0		1			427653	05/07/19 13:22	CDR	TAL SL
Total/NA	Prep	PrecSep_0			1000.00 mL	1.0 g	423832	04/14/19 16:48	MMO	TAL SL
Total/NA	Analysis	904.0		1	1.0 mL	1.0 mL	425516	04/25/19 08:14	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			427672	05/08/19 07:28	SMP	TAL SL

Lab Chronicle

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Laboratory References:

TAL NSH = Eurofins TestAmerica, Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

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

Method Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	TAL NSH
6010C	Metals (ICP)	SW846	TAL PIT
6020A	Metals (ICP/MS)	SW846	TAL PIT
EPA 7470A	Mercury (CVAA)	SW846	TAL PIT
9040C	pH	SW846	TAL NSH
9050A	Specific Conductance	SW846	TAL NSH
SM 2320B	Alkalinity	SM	TAL NSH
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL NSH
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT
7470A	Preparation, Mercury	SW846	TAL PIT

Protocol References:

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.

Laboratory References:

TAL NSH = Eurofins TestAmerica, Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

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

Accreditation/Certification Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Laboratory: Eurofins TestAmerica, Nashville

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Kentucky (UST)	State Program	4	19	06-30-19

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
9040C		Water	pH
9040C		Water	Temperature
9050A		Water	Specific Conductance (25C)
9056A		Water	Chloride
9056A		Water	Fluoride
9056A		Water	Sulfate
SM 2320B		Water	Alkalinity
SM 2320B		Water	Bicarbonate Alkalinity as CaCO3
SM 2320B		Water	Carbonate Alkalinity as CaCO3
SM 2540C		Water	Total Dissolved Solids

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-19
California	State Program	9	2891	04-30-19 *
Connecticut	State Program	1	PH-0688	09-30-20
Florida	NELAP	4	E871008	06-30-19
Illinois	NELAP	5	200005	06-30-19
Kansas	NELAP	7	E-10350	01-31-20
Louisiana	NELAP	6	04041	06-30-19
Nevada	State Program	9	PA00164	07-31-19
New Hampshire	NELAP	1	2030	04-04-19 *
New Jersey	NELAP	2	PA005	06-30-19
New York	NELAP	2	11182	03-31-20
North Carolina (WW/SW)	State Program	4	434	12-31-19
Oregon	NELAP	10	PA-2151	01-28-19 *
Pennsylvania	NELAP	3	02-00416	04-30-19
South Carolina	State Program	4	89014	04-30-19 *
Texas	NELAP	6	T104704528-15-2	03-31-20
US Fish & Wildlife	Federal		LE94312A-1	07-31-19
USDA	Federal		P330-16-00211	06-26-19
Utah	NELAP	8	PA001462015-4	05-31-19 *
Virginia	NELAP	3	460189	09-14-19
West Virginia DEP	State Program	3	142	01-31-20
Wisconsin	State Program	5	998027800	08-31-19

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

Accreditation/Certification Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	MO00054	06-30-19
ANAB	DoD		L2305	04-06-22
Arizona	State Program	9	AZ0813	12-08-19
California	State Program	9	2886	06-30-19 *
Connecticut	State Program	1	PH-0241	03-31-21
Florida	NELAP	4	E87689	06-30-19 *
Hawaii	State Program	9	NA	06-30-19
Illinois	NELAP	5	200023	11-30-19
Iowa	State Program	7	373	12-01-20
Kansas	NELAP	7	E-10236	10-31-19
Kentucky (DW)	State Program	4	KY90125	12-31-19
Louisiana	NELAP	6	04080	06-30-19
Louisiana (DW)	NELAP	6	LA011	12-31-19
Maryland	State Program	3	310	09-30-19
Michigan	State Program	5	9005	06-30-19
Missouri	State Program	7	780	06-30-19
Nevada	State Program	9	MO000542018-1	07-31-19
New Jersey	NELAP	2	MO002	06-30-19 *
New York	NELAP	2	11616	03-31-20
North Dakota	State Program	8	R207	06-30-19 *
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-19
Pennsylvania	NELAP	3	68-00540	02-28-20
South Carolina	State Program	4	85002001	06-30-19
Texas	NELAP	6	T104704193-18-13	07-31-19
US Fish & Wildlife	Federal		058448	07-31-19
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542018-10	07-31-19
Virginia	NELAP	3	460230	06-14-19 *
Washington	State Program	10	C592	08-30-19
West Virginia DEP	State Program	3	381	08-31-19

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

490-171184 Chain of Custody

Cooler Received/Opened On 3/30/2019 @ 9:00

Time Samples Removed From Cooler 11:43 Time Samples Placed In Storage 11:49 (2 Hour Window)

1. Tracking # 0191 (last 4 digits, FedEx) Courier: Fedex

IR Gun ID 31470366 pH Strip Lot NA Chlorine Strip Lot NA

2. Temperature of rep. sample or temp blank when opened: 2.0 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...(NA)

4. Were custody seals on outside of cooler? (YES)...NO...NA

If yes, how many and where: 2 Front

5. Were the seals intact, signed, and dated correctly? (YES)...NO...NA

6. Were custody papers inside cooler? (YES)...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) ACE

7. Were custody seals on containers: YES (NO) and Intact YES...NO...(NA)

Were these signed and dated correctly? YES...NO...(NA)

8. Packing mat'l used? (Bubblewrap) Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: (Ice) Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? (YES)...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? (YES)...NO...NA

12. Did all container labels and tags agree with custody papers? (YES)...NO...NA

13a. Were VOA vials received? YES...(NO)...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...(NA)

● ⬅ Larger than this.

14. Was there a Trip Blank in this cooler? YES...(NO)...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) ACE

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...(NA)

b. Did the bottle labels indicate that the correct preservatives were used (YES)...NO...NA

16. Was residual chlorine present? YES...NO...(NA)

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) AE

17. Were custody papers properly filled out (ink, signed, etc)? (YES)...NO...NA

18. Did you sign the custody papers in the appropriate place? (YES)...NO...NA

19. Were correct containers used for the analysis requested? (YES)...NO...NA

20. Was sufficient amount of sample sent in each container? (YES)...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) ACE

I certify that I attached a label with the unique LIMS number to each container (intial) ACE

21. Were there Non-Conformance issues at login? YES...(NO) Was a NCM generated? YES...(NO)...#_____

BIS = Broken in shipment

TestAmerica Nashville
2960 Foster Creighton Drive

Nashville, TN 37204-3719
phone 615.726.0177 fax 615.726.3404

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other:

Client Contact: Greg Dick	**Project Manager: Mark Bertram**	**Site Contact: Greg Dick**	**Date: 3/29/2019**
Company: Big Rivers Electric Corporation	**Tel/Fax: (270) 844-5708**	**Lab Contact: Roxanne Cisneros**	**Carrier: ~~N/A~~ FedEx**
Address: 9000 Highway 2096	**Analysis Turnaround Time**		
City/State/Zip: Robards, KY 42452	☐ CALENDAR DAYS ☐ WORKING DAYS		
(270) 844-5736 Phone	TAT if different from Below _____		
(xxx) xxx-xxxx FAX	☑ 2 weeks		
Project Name: Sebree Station - New CCR Wells	☐ 1 week		
Site: Sebree Station	☐ 2 days		
P O #: Purchase Order-see DOCs	☐ 1 day		

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	903.0, 904.0	6010C, 6020A, 7470A	9056A_ORGFM_28D, 9040C, 9060A, 2320B	2540C_Calcd-TDS
MW-104	3/29/19	1203	G	Water	5	N	N	x	x	x	x
MW-110	3/29/19	935	G	Water	5	N	N	x	x	x	x
DUPE	3/29/19	946	G	Water	5	N	N	x	x	x	x
FIELD BLANK	3/29/19	1227	G	Water	5	N	N	x	x	x	x
								4	4	7	7

COC No: 490-97948-27514.1
1 of 1 COCs
Sampler: Greg Dick
For Lab Use Only:
Walk-in Client:
Lab Sampling:
Job / SDG No.:

Sample Specific Notes:
Refer to attached constituent list for analysis

Loc: 490
171184

Preservation Used: 1= Ice, 2= HCl; 3= H_2SO_4; 4=HNO_3; 5=NaOH; 6= Other, 7= None

Possible Hazard Identification:
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.
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown

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: Standard TAT; See attached constituent list for analysis.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: 2.0 Corr'd: _____ | Therm ID No.: _____

Relinquished by: Greg Dick	Company: BREC	Date/Time: 3/29/19 1600	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: TA-NSH	Date/Time: 3/30/19 9:00

Form No. CA-C-WI-002, Rev. 4.9, dated 2/2/2016

Page 33 of 41

5/8/2019

3/29/2019

Loc: 490
171184

Constituent List:

40 C.F.R. 257 Appendix III
Boron
Calcium
Fluoride
pH
Sulfate
Total Dissolved Solids (TDS)

Mary Rick
BREC
3/29/2019
1600

40 C.F.R. 257 Appendix IV
Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium
Cobalt
Fluoride
Lead
Lithium
Mercury
Molybdenum
Selenium
Thallium
Radium 226 & 228 combined

Additional Parameters
Carbonate Alkalinity
Bicarbonate Alkalinity
Alkalinity
Iron
Magnesium
Potassium
Sodium

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

490-171184 Chain of Custody

Cooler Received/Opened On 3/30/2019 @ 9:00

Time Samples Removed From Cooler 11:43 Time Samples Placed In Storage 11:49 (2 Hour Window)

1. Tracking # 0191 (last 4 digits, FedEx) Courier: Fedex

IR Gun ID 31470366 pH Strip Lot NA Chlorine Strip Lot NA

2. Temperature of rep. sample or temp blank when opened: 2.0 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 2 Front

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) ACG

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

● ⬅ Larger than this.

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) ACG

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) ACG

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) ACG

I certify that I attached a label with the unique LIMS number to each container (intial) ACG

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#_____

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 8/23/17

Loc: 490
171184

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

Cooler Received/Opened On 03-30-2019 @ 09:00

Time Samples Removed From Cooler 12:35 Time Samples Placed In Storage 12:37 (2 Hour Window)

1. Tracking # 0206 (last 4 digits, FedEx) Courier: FedEx

IR Gun ID 31470368 pH Strip Lot [illegible] Chlorine Strip Lot [illegible]

2. Temperature of rep. sample or temp blank when opened: 2.6 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES NO NA

If yes, how many and where: 1 (front)

5. Were the seals intact, signed, and dated correctly? YES NO NA

6. Were custody papers inside cooler? YES NO NA

I certify that I opened the cooler and answered questions 1-6 (intial) KA

7. Were custody seals on containers: YES NO and Intact YES NO NA

Were these signed and dated correctly? YES NO NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES NO NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES NO NA

12. Did all container labels and tags agree with custody papers? YES NO NA

13a. Were VOA vials received? YES NO NA

b. Was there any observable headspace present in any VOA vial? YES NO NA

Larger than this.

14. Was there a Trip Blank in this cooler? YES NO NA If multiple coolers, sequence #

I certify that I unloaded the cooler and answered questions 7-14 (intial) AK

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES NO NA

b. Did the bottle labels indicate that the correct preservatives were used YES NO NA

16. Was residual chlorine present? YES NO NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) AK

17. Were custody papers properly filled out (ink, signed, etc)? YES NO NA

18. Did you sign the custody papers in the appropriate place? YES NO NA

19. Were correct containers used for the analysis requested? YES NO NA

20. Was sufficient amount of sample sent in each container? YES NO NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) AK

I certify that I attached a label with the unique LIMS number to each container (intial) AK

21. Were there Non-Conformance issues at login? YES NO Was a NCM generated? YES NO #

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 8/23/17

TestAmerica Nashville
2960 Foster Creighton Drive

Nashville, TN 37204-3719
phone 615.726.0177 fax 615.726.3404

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other:

TestAmerica Laboratories, Inc.

Client Contact: Greg Dick	Project Manager: Mark Bertram	Site Contact: Greg Dick	Date: 3/29/2019
Company: Big Rivers Electric Corporation	Tel/Fax: (270) 844-5708	Lab Contact: Roxanne Cisneros	Carrier: ~~N/A~~ FedEx
Address: 9000 Highway 2096	Analysis Turnaround Time		
City/State/Zip: Robards, KY 42452	☐ CALENDAR DAYS ☐ WORKING DAYS		
(270) 844-5736 Phone	TAT if different from Below _____		
(xxx) xxx-xxxx FAX	☑ 2 weeks		
Project Name: Sebree Station - New CCR Wells	☐ 1 week		
Site: Sebree Station	☐ 2 days		
P O #: Purchase Order-see DOCs	☐ 1 day		

COC No: 490-97948-27514.1
1 of 1 COCs
Sampler: Greg Dick
For Lab Use Only:
Walk-in Client:
Lab Sampling:
Job / SDG No.:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	903.0, 904.0	6010C, 6020A, 7470A	90556A_ORGFM_28D, 9040C, 9060A, 2320B	2540C_Calcd-TDS	Sample Specific Notes:
MW-104	3/29/19	1203	G	Water	5	N	N	x	x	x	x	Refer to attached constituent list for analysis
MW-110	3/29/19	935	G	Water	5	N	N	x	x	x	x	
DUPE	3/29/19	946	G	Water	5	N	N	x	x	x	x	
FIELD BLANK	3/29/19	1227	G	Water	5	N	N	x	x	x	x	
												Loc: 490 171184

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other, 7= None _____ — 4 4 7 7

Possible Hazard Identification:
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.
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown

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: Standard TAT; See attached constituent list for analysis.

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd: 2.0 Corr'd: _____		Therm ID No.: _____
Relinquished by: Greg Dick	Company: BREC	Date/Time: 3/29/19 1600	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: TA-NAS	Date/Time: 3/30/19 9:00

Form No. CA-C-WI-002, Rev. 4.9, dated 2/2/2016

5/8/2019

3/29/2019

Loc: 490
171184

Constituent List:

40 C.F.R. 257 Appendix III
Boron
Calcium
Fluoride
pH
Sulfate
Total Dissolved Solids (TDS)

Mary Rick
BREC
3/29/2019
1600

40 C.F.R. 257 Appendix IV
Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium
Cobalt
Fluoride
Lead
Lithium
Mercury
Molybdenum
Selenium
Thallium
Radium 226 & 228 combined

Additional Parameters
Carbonate Alkalinity
Bicarbonate Alkalinity
Alkalinity
Iron
Magnesium
Potassium
Sodium

TestAmerica Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Phone (615) 726-0177 Fax (615) 726-3404

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Cisneros, Roxanne	Carrier Tracking No(s):	COC No: 490-87963.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: roxanne.cisneros@testamericainc.com	State of Origin: Kentucky	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 490-171184-2
Address: 13715 Rider Trail North, ,	Due Date Requested: 4/29/2019			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Sebree Station - New CCR Wells	Project #: 49010431			
Site: Big Rivers CCR	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
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
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	903.0/PrecSep_21 Standard Target List	904.0/PrecSep_0 Standard Target List	Ra226Ra228_GFPC	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-104 (490-171184-1)	3/29/19	12:03 Eastern		Water			X	X	X	2	run once - upload data twice
MW-110 (490-171184-2)	3/29/19	09:35 Eastern		Water			X	X	X	2	run once - upload data twice
DUPE (490-171184-3)	3/29/19	09:46 Eastern		Water			X	X	X	2	run once - upload data twice
FIELD BLANK (490-171184-4)	3/29/19	12:27 Eastern		Water			X	X	X	2	run once - upload data twice

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *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:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	4-1-19 @ 1430	TAN-AS	[signature]	4/2/19 09:20	TA-STL
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Big Rivers Electric Corporation

Job Number: 490-171184-2
SDG Number: Sebree Station

Login Number: 171184
List Number: 3
Creator: Hellm, Michael

List Source: Eurofins TestAmerica, St. Louis
List Creation: 04/02/19 04:42 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.	N/A	
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	20.0
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").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
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 Carrier (40-110)
400-168077-B-20-A DU	Duplicate	85.5
490-171184-1	MW-104	84.7
490-171184-2	MW-110	72.6
490-171184-3	DUPE	68.4
490-171184-4	FIELD BLANK	95.0
LCS 160-423611/1-A	Lab Control Sample	90.0
MB 160-423611/24-A	Method Blank	92.6

Tracer/Carrier Legend

Ba Carrier = 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 Carrier (40-110)	Y Carrier (40-110)
400-168077-B-20-B DU	Duplicate	85.5	85.6
490-171184-1	MW-104	84.7	87.1
490-171184-2	MW-110	72.6	90.5
490-171184-3	DUPE	68.4	89.7
490-171184-4	FIELD BLANK	95.0	90.8
LCS 160-423832/1-A	Lab Control Sample	90.0	87.5
MB 160-423832/24-A	Method Blank	92.6	89.7

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

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ANALYTICAL REPORT

Eurofins TestAmerica, Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Tel: (615)726-0177

Laboratory Job ID: 490-172010-1
Laboratory Sample Delivery Group: Sebree Station
Client Project/Site: Sebree Station, New CCR Wells Rd 2
Revision: 1

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

Attn: Mark Bertram

Roxanne Cisneros

Authorized for release by:
7/19/2019 5:01:12 PM

Roxanne Cisneros, Senior Project Manager
(615)301-5761
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LINKS

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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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Sample Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
490-172010-1	MW-104	Water	04/10/19 14:43	04/12/19 09:55	
490-172010-2	MW-110	Water	04/10/19 12:59	04/12/19 09:55	
490-172010-3	DUPE	Water	04/10/19 15:10	04/12/19 09:55	
490-172010-4	FIELD BLANK	Water	04/10/19 15:39	04/12/19 09:55	

Job ID: 490-172010-1

Laboratory: Eurofins TestAmerica, Nashville

Narrative

Job Narrative
490-172010-1

Comments
No additional comments.

Receipt
The samples were received on 4/12/2019 9:55 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were -0.6º C and 0.7º C.

HPLC/IC
Method(s) 9056A: The concentration of Chloride in the Matrix Spike/Matrix Spike Duplicate (MS/MSD) exceeded the calibration curve range. (490-171999-H-13 MS)

Method(s) 9056A: The method blank for analytical batch 490-587889 contained Chloride above the reporting limit (RL). Associated sample(s) were not re-extracted and/or re-analyzed because results were greater than 10X the value found in the method blank.

Method(s) 9056A: The concentration of Chloride and Sulfate in the Matrix Spike/Matrix Spike Duplicate (MS/MSD) exceeded the calibration curve range. (490-172007-E-1 MS) and (490-172007-E-1 MSD)

Method(s) 9056A: The following samples were diluted due to the nature of the sample matrix: MW-104 (490-172010-1), MW-110 (490-172010-2) and DUPE (490-172010-3). Elevated reporting limits (RLs) are provided.

Method(s) 9056A: The method blank for analytical batch 490-588578 contained Fluoride above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and_or re-analysis of samples was not performed.

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

Metals
Method(s) 6020A: The serial dilution performed for the following sample associated with batch 180-276092 was outside control limits for boron: MW-104 (490-172010-1)

Method(s) 7470A: Closing CRA was high, but all samples are non-detect. MW-104 (490-172010-1), MW-110 (490-172010-2), DUPE (490-172010-3), (LCS 180-276833/2-A), (MB 180-276833/1-A), (490-172010-A-3-F MS) and (490-172010-A-3-G MSD)

Method(s) 245.1, 7470A: The continuing calibration verification (CCV) associated with batch 180-277078 recovered above the upper control limit for mercury. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method(s) 245.1, 7470A: The low level continuing calibration verification (CCVL) associated with batch 180-277078 recovered above the upper control limit for mercury. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method(s) 7470A: The laboratory control sample (LCS) for preparation batch 180-276826 and analytical batch 180-277078 recovered outside control limits for mercury. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

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

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

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

Job ID: 490-172010-1 (Continued)

Laboratory: Eurofins TestAmerica, Nashville (Continued)

Narrative

Job Narrative
490-172010-2

Comments
No additional comments.

Receipt
The samples were received on 4/12/2019 9:55 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were -0.6º C and 0.7º C.

RAD
Method 903.0: Radium-226 Prep Batch 160-429619
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.
FIELD BLANK (490-172010-4), (LCS 160-429619/1-A) and (MB 160-429619/23-A)

Method 903.0: Ra-226 Prep Batch 160-428674

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-104 (490-172010-1), MW-110 (490-172010-2), DUPE (490-172010-3), (LCS 160-428674/1-A) and (MB 160-428674/24-A)

Method 904.0: Ra-228 Prep Batch 160-429638

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.
FIELD BLANK (490-172010-4), (LCS 160-429638/1-A) and (MB 160-429638/23-A)

Method 904.0: Radium-228 Prep Batch 160-428727

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-104 (490-172010-1), MW-110 (490-172010-2), DUPE (490-172010-3), (LCS 160-428727/1-A) and (MB 160-428727/24-A)

Method PrecSep_0: Radium 228 prep batch 160-428727

The following samples were prepared at a reduced aliquot: MW-110 (490-172010-2). Samples 490-172007-1, 490-172007-2, 490-172007-3, 490-172007-5 and 490-172010-2 were reduced due to sediment and brown discoloration. Sample 240-110687-11 was reduced due to limited volume.

Method PrecSep_0: FIELD BLANK (490-172010-4)

Method PrecSep-21: Radium 226 prep batch 160-428674

The following samples were prepared at a reduced aliquot: MW-110 (490-172010-2). Samples 490-172007-1, 490-172007-2, 490-172007-3, 490-172007-5 and 490-172010-2 were reduced due to sediment and brown discoloration. Sample 240-110687-11 was reduced due to limited volume.

Job ID: 490-172010-1 (Continued)

Laboratory: Eurofins TestAmerica, Nashville (Continued)

Method PrecSep-21: FIELD BLANK (490-172010-4)

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

Qualifiers

HPLC/IC

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.
B	Compound was found in the blank and sample.
E	Result exceeded calibration range.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.
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.
B	Compound was found in the blank and sample.
F1	MS and/or MSD Recovery is outside acceptance limits.
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
F3	Duplicate RPD exceeds the control limit

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

Client Sample ID: MW-104

Date Collected: 04/10/19 14:43
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-1

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1430	B	300	20.0	mg/L			04/13/19 19:35	100
Fluoride	0.323	J B	10.0	0.100	mg/L			04/13/19 19:19	10
Sulfate	2880	B	500	3.00	mg/L			04/13/19 19:35	100

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0286	J	0.0500	0.00959	mg/L		04/16/19 11:19	04/22/19 16:39	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.000119	J B	0.00200	0.0000213	mg/L		04/16/19 11:17	04/17/19 10:53	1
Arsenic	0.00208	J	0.00500	0.000118	mg/L		04/16/19 11:17	04/17/19 10:53	1
Barium	0.0216	J B	0.200	0.000270	mg/L		04/16/19 11:17	04/17/19 10:53	1
Beryllium	ND		0.00200	0.000102	mg/L		04/16/19 11:17	04/17/19 10:53	1
Boron	0.271	J B	1.00	0.00339	mg/L		04/16/19 11:17	04/17/19 10:53	1
Cadmium	ND		0.00100	0.000152	mg/L		04/16/19 11:17	04/17/19 10:53	1
Calcium	502		1.00	0.0412	mg/L		04/16/19 11:17	04/17/19 10:53	1
Chromium	0.00360		0.00300	0.000339	mg/L		04/16/19 11:17	04/17/19 10:53	1
Cobalt	0.00522		0.00500	0.0000218	mg/L		04/16/19 11:17	04/17/19 10:53	1
Lead	0.000233	J	0.00500	0.0000675	mg/L		04/16/19 11:17	04/17/19 10:53	1
Molybdenum	0.00104	J	0.0100	0.000873	mg/L		04/16/19 11:17	04/17/19 10:53	1
Potassium	1660		1000	147	ug/L		04/16/19 11:17	04/17/19 10:53	1
Selenium	ND		0.0100	0.000348	mg/L		04/16/19 11:17	04/17/19 10:53	1
Thallium	ND		0.00100	0.0000360	mg/L		04/16/19 11:17	04/17/19 10:53	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^	0.200	0.101	ug/L		04/25/19 17:02	04/26/19 13:28	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.99		0.100	0.100	SU			04/18/19 18:32	1
Temperature	22.8		0.100	0.100	Degrees C			04/18/19 18:32	1
Specific Conductance (25C)	8570		10.0	10.0	umhos/cm			04/13/19 10:38	1
Alkalinity	696		10.0	5.00	mg/L			04/13/19 13:33	1
Total Dissolved Solids	6690		250	70.0	mg/L			04/15/19 16:11	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	0.0585	U	0.0573	0.0576	1.00	0.0869	pCi/L	05/16/19 12:11	07/09/19 18:10	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.4*		*40 - 110*	*05/16/19 12:11*	*07/09/19 18:10*	*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	0.261	U	0.228	0.229	1.00	0.365	pCi/L	05/16/19 16:00	07/02/19 15:07	1

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Client Sample ID: MW-104
Date Collected: 04/10/19 14:43
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-1
Matrix: Water

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	99.4		40 - 110	05/16/19 16:00	07/02/19 15:07	1
Y Carrier	82.6		40 - 110	05/16/19 16:00	07/02/19 15:07	1

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	0.319	U	0.235	0.236	5.00	0.365	pCi/L		07/15/19 08:48	1

Client Sample ID: MW-110

Date Collected: 04/10/19 12:59
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-2

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	30.4	B	6.00	0.400	mg/L			04/13/19 20:09	2
Fluoride	0.255	J B	1.00	0.0100	mg/L			04/13/19 02:38	1
Sulfate	596	B	250	1.50	mg/L			04/13/19 20:25	50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0303	J	0.0500	0.00959	mg/L		04/16/19 11:19	04/22/19 16:45	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.000204	J B	0.00200	0.0000213	mg/L		04/16/19 11:17	04/17/19 11:16	1
Arsenic	0.00238	J	0.00500	0.000118	mg/L		04/16/19 11:17	04/17/19 11:16	1
Barium	0.107	J B	0.200	0.000270	mg/L		04/16/19 11:17	04/17/19 11:16	1
Beryllium	0.000314	J	0.00200	0.000102	mg/L		04/16/19 11:17	04/17/19 11:16	1
Boron	0.496	J B	1.00	0.00339	mg/L		04/16/19 11:17	04/17/19 11:16	1
Cadmium	ND		0.00100	0.000152	mg/L		04/16/19 11:17	04/17/19 11:16	1
Calcium	178		1.00	0.0412	mg/L		04/16/19 11:17	04/17/19 11:16	1
Chromium	0.0115		0.00300	0.000339	mg/L		04/16/19 11:17	04/17/19 11:16	1
Cobalt	0.00384	J	0.00500	0.0000218	mg/L		04/16/19 11:17	04/17/19 11:16	1
Lead	0.00399	J	0.00500	0.0000675	mg/L		04/16/19 11:17	04/17/19 11:16	1
Molybdenum	0.00120	J	0.0100	0.000873	mg/L		04/16/19 11:17	04/17/19 11:16	1
Potassium	2930		1000	147	ug/L		04/16/19 11:17	04/17/19 11:16	1
Selenium	ND		0.0100	0.000348	mg/L		04/16/19 11:17	04/17/19 11:16	1
Thallium	0.0000640	J	0.00100	0.0000360	mg/L		04/16/19 11:17	04/17/19 11:16	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^	0.200	0.101	ug/L		04/25/19 17:02	04/26/19 13:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.50		0.100	0.100	SU			04/18/19 18:32	1
Temperature	22.8		0.100	0.100	Degrees C			04/18/19 18:32	1
Specific Conductance (25C)	1570		10.0	10.0	umhos/cm			04/13/19 10:38	1
Alkalinity	270		10.0	5.00	mg/L			04/13/19 13:40	1
Total Dissolved Solids	1200		25.0	7.00	mg/L			04/15/19 16:11	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	0.812		0.283	0.292	1.00	0.287	pCi/L	05/16/19 12:11	07/09/19 18:10	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*76.0*		*40 - 110*	*05/16/19 12:11*	*07/09/19 18:10*	*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	1.11		0.591	0.600	1.00	0.861	pCi/L	05/16/19 16:00	07/02/19 15:07	1

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Client Sample ID: MW-110
Date Collected: 04/10/19 12:59
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-2
Matrix: Water

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	76.0		40 - 110	05/16/19 16:00	07/02/19 15:07	1
Y Carrier	78.1		40 - 110	05/16/19 16:00	07/02/19 15:07	1

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	1.93		0.655	0.667	5.00	0.861	pCi/L		07/15/19 08:48	1

Client Sample ID: DUPE

Date Collected: 04/10/19 15:10
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-3

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1380	B	300	20.0	mg/L			04/13/19 22:54	100
Fluoride	1.19	J B	100	1.00	mg/L			04/13/19 22:54	100
Sulfate	2880	B	500	3.00	mg/L			04/13/19 22:54	100

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0313	J	0.0500	0.00959	mg/L		04/16/19 11:19	04/22/19 16:07	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.000107	J B	0.00200	0.0000213	mg/L		04/16/19 11:17	04/17/19 11:19	1
Arsenic	0.00192	J	0.00500	0.000118	mg/L		04/16/19 11:17	04/17/19 11:19	1
Barium	0.0201	J B	0.200	0.000270	mg/L		04/16/19 11:17	04/17/19 11:19	1
Beryllium	ND		0.00200	0.000102	mg/L		04/16/19 11:17	04/17/19 11:19	1
Boron	0.200	J B	1.00	0.00339	mg/L		04/16/19 11:17	04/17/19 11:19	1
Cadmium	ND		0.00100	0.000152	mg/L		04/16/19 11:17	04/17/19 11:19	1
Calcium	486		1.00	0.0412	mg/L		04/16/19 11:17	04/17/19 11:19	1
Chromium	0.00355		0.00300	0.000339	mg/L		04/16/19 11:17	04/17/19 11:19	1
Cobalt	0.00536		0.00500	0.0000218	mg/L		04/16/19 11:17	04/17/19 11:19	1
Lead	0.000126	J	0.00500	0.0000675	mg/L		04/16/19 11:17	04/17/19 11:19	1
Molybdenum	0.000921	J	0.0100	0.000873	mg/L		04/16/19 11:17	04/17/19 11:19	1
Potassium	1430		1000	147	ug/L		04/16/19 11:17	04/17/19 11:19	1
Selenium	ND		0.0100	0.000348	mg/L		04/16/19 11:17	04/17/19 11:19	1
Thallium	ND		0.00100	0.0000360	mg/L		04/16/19 11:17	04/17/19 11:19	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^	0.200	0.101	ug/L		04/25/19 17:02	04/26/19 13:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.98		0.100	0.100	SU			04/18/19 18:32	1
Temperature	22.8		0.100	0.100	Degrees C			04/18/19 18:32	1
Specific Conductance (25C)	8630		10.0	10.0	umhos/cm			04/13/19 10:38	1
Alkalinity	686		10.0	5.00	mg/L			04/13/19 13:47	1
Total Dissolved Solids	6810		250	70.0	mg/L			04/15/19 16:11	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	0.0714	U	0.0775	0.0778	1.00	0.124	pCi/L	05/16/19 12:11	07/09/19 18:10	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*96.0*		*40 - 110*	*05/16/19 12:11*	*07/09/19 18:10*	*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	0.404	U	0.304	0.306	1.00	0.480	pCi/L	05/16/19 16:00	07/02/19 15:07	1

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Client Sample ID: DUPE
Date Collected: 04/10/19 15:10
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-3
Matrix: Water

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	96.0		40 - 110	05/16/19 16:00	07/02/19 15:07	1
Y Carrier	76.6		40 - 110	05/16/19 16:00	07/02/19 15:07	1

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	0.475	U	0.314	0.316	5.00	0.480	pCi/L		07/15/19 08:48	1

Client Sample ID: FIELD BLANK

Date Collected: 04/10/19 15:39
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-4

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	0.200	mg/L			04/17/19 15:20	1
Fluoride	ND		1.00	0.0100	mg/L			04/13/19 03:12	1
Sulfate	**0.334**	**J B**	5.00	0.0300	mg/L			04/13/19 03:12	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.0500	0.00959	mg/L		04/16/19 11:19	04/22/19 16:51	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.000192**	**J B**	0.00200	0.0000213	mg/L		04/16/19 11:17	04/17/19 11:23	1
Arsenic	**0.000904**	**J**	0.00500	0.000118	mg/L		04/16/19 11:17	04/17/19 11:23	1
Barium	**0.000424**	**J B**	0.200	0.000270	mg/L		04/16/19 11:17	04/17/19 11:23	1
Beryllium	ND		0.00200	0.000102	mg/L		04/16/19 11:17	04/17/19 11:23	1
Boron	**0.0368**	**J B**	1.00	0.00339	mg/L		04/16/19 11:17	04/17/19 11:23	1
Cadmium	ND		0.00100	0.000152	mg/L		04/16/19 11:17	04/17/19 11:23	1
Calcium	**0.174**	**J**	1.00	0.0412	mg/L		04/16/19 11:17	04/17/19 11:23	1
Chromium	**0.00427**		0.00300	0.000339	mg/L		04/16/19 11:17	04/17/19 11:23	1
Cobalt	ND		0.00500	0.0000218	mg/L		04/16/19 11:17	04/17/19 11:23	1
Lead	ND		0.00500	0.0000675	mg/L		04/16/19 11:17	04/17/19 11:23	1
Molybdenum	ND		0.0100	0.000873	mg/L		04/16/19 11:17	04/17/19 11:23	1
Potassium	ND		1000	147	ug/L		04/16/19 11:17	04/17/19 11:23	1
Selenium	ND		0.0100	0.000348	mg/L		04/16/19 11:17	04/17/19 11:23	1
Thallium	ND		0.00100	0.0000360	mg/L		04/16/19 11:17	04/17/19 11:23	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	* ^	0.200	0.101	ug/L		04/25/19 16:08	04/29/19 09:08	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**5.97**		0.100	0.100	SU			04/18/19 18:32	1
Temperature	**22.8**		0.100	0.100	Degrees C			04/18/19 18:32	1
Specific Conductance (25C)	ND		10.0	10.0	umhos/cm			04/13/19 10:38	1
Alkalinity	ND		10.0	5.00	mg/L			04/13/19 13:53	1
Total Dissolved Solids	ND		25.0	7.00	mg/L			04/15/19 16:11	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	-0.0151	U	0.168	0.168	1.00	0.376	pCi/L	05/23/19 10:11	07/01/19 20:40	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*70.9*		*40 - 110*	*05/23/19 10:11*	*07/01/19 20:40*	*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	0.0164	U	0.247	0.247	1.00	0.438	pCi/L	05/23/19 11:48	07/01/19 14:34	1

Client Sample ID: FIELD BLANK

Date Collected: 04/10/19 15:39
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-4

Matrix: Water

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*70.9*		*40 - 110*	*05/23/19 11:48*	*07/01/19 14:34*	*1*
Y Carrier	*101*		*40 - 110*	*05/23/19 11:48*	*07/01/19 14:34*	*1*

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	0.00135	U	0.299	0.299	5.00	0.438	pCi/L		07/15/19 08:48	1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 490-587889/3
Matrix: Water
Analysis Batch: 587889

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.105	J	3.00	0.200	mg/L			04/12/19 21:40	1
Fluoride	0.02290	J	1.00	0.0100	mg/L			04/12/19 21:40	1
Sulfate	0.3257	J	5.00	0.0300	mg/L			04/12/19 21:40	1

Lab Sample ID: LCS 490-587889/4
Matrix: Water
Analysis Batch: 587889

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.869		mg/L		99	80 - 120
Fluoride	1.00	1.008		mg/L		101	80 - 120
Sulfate	10.0	9.795		mg/L		98	80 - 120

Lab Sample ID: LCSD 490-587889/5
Matrix: Water
Analysis Batch: 587889

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.885		mg/L		99	80 - 120	0	20
Fluoride	1.00	0.9934	J	mg/L		99	80 - 120	1	20
Sulfate	10.0	9.703		mg/L		97	80 - 120	1	20

Lab Sample ID: 490-171999-H-13 MS
Matrix: Water
Analysis Batch: 587889

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	52.9	E B ^	10.0	63.34	E 4	mg/L		104	80 - 120
Fluoride	0.508	J B	1.00	1.415		mg/L		91	80 - 120
Sulfate	28.9	B	10.0	38.93		mg/L		100	80 - 120

Lab Sample ID: 490-171999-H-13 MSD
Matrix: Water
Analysis Batch: 587889

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	52.9	E B ^	10.0	64.49	E 4	mg/L		115	80 - 120	2	20
Fluoride	0.508	J B	1.00	1.502		mg/L		99	80 - 120	6	20
Sulfate	28.9	B	10.0	39.96		mg/L		110	80 - 120	3	20

Lab Sample ID: MB 490-587927/3
Matrix: Water
Analysis Batch: 587927

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.8259	J	3.00	0.200	mg/L			04/13/19 13:23	1
Fluoride	0.02208	J	1.00	0.0100	mg/L			04/13/19 13:23	1
Sulfate	0.4767	J	5.00	0.0300	mg/L			04/13/19 13:23	1

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 490-587927/4
Matrix: Water
Analysis Batch: 587927

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			10.0	8.999		mg/L		90	80 - 120		
Fluoride			1.00	0.9571	J	mg/L		96	80 - 120		
Sulfate			10.0	9.244		mg/L		92	80 - 120		

Lab Sample ID: LCSD 490-587927/5
Matrix: Water
Analysis Batch: 587927

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			10.0	8.982		mg/L		90	80 - 120	0	20
Fluoride			1.00	0.9754	J	mg/L		97	80 - 120	2	20
Sulfate			10.0	9.261		mg/L		92	80 - 120	0	20

Lab Sample ID: 490-172007-E-1 MS
Matrix: Water
Analysis Batch: 587927

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	114	E B	10.0	126.5	E 4	mg/L		122	80 - 120		
Fluoride	0.533	J B	1.00	1.483		mg/L		95	80 - 120		
Sulfate	1590	E B	10.0	2744	E 4	mg/L		11509	80 - 120		

Lab Sample ID: 490-172007-E-1 MSD
Matrix: Water
Analysis Batch: 587927

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	114	E B	10.0	125.2	E 4	mg/L		110	80 - 120	1	20
Fluoride	0.533	J B	1.00	1.396		mg/L		86	80 - 120	6	20
Sulfate	1590	E B	10.0	2759	E 4	mg/L		11657	80 - 120	1	20

Lab Sample ID: MB 490-587930/3
Matrix: Water
Analysis Batch: 587930

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.7587	J	3.00	0.200	mg/L			04/13/19 22:05	1
Fluoride	0.01835	J	1.00	0.0100	mg/L			04/13/19 22:05	1
Sulfate	0.6184	J	5.00	0.0300	mg/L			04/13/19 22:05	1

Lab Sample ID: LCS 490-587930/4
Matrix: Water
Analysis Batch: 587930

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			10.0	9.193		mg/L		92	80 - 120		
Fluoride			1.00	0.9693	J	mg/L		97	80 - 120		
Sulfate			10.0	9.411		mg/L		94	80 - 120		

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 490-587930/5
Matrix: Water
Analysis Batch: 587930

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			10.0	9.238		mg/L		92	80 - 120	0	20
Fluoride			1.00	0.9712	J	mg/L		97	80 - 120	0	20
Sulfate			10.0	9.413		mg/L		94	80 - 120	0	20

Lab Sample ID: MB 490-588578/3
Matrix: Water
Analysis Batch: 588578

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	0.200	mg/L			04/17/19 11:53	1
Fluoride	ND		1.00	0.0100	mg/L			04/17/19 11:53	1
Sulfate	ND		5.00	0.0300	mg/L			04/17/19 11:53	1

Lab Sample ID: LCS 490-588578/4
Matrix: Water
Analysis Batch: 588578

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			10.0	9.491		mg/L		95	80 - 120		
Fluoride			1.00	1.055		mg/L		105	80 - 120		
Sulfate			10.0	10.11		mg/L		101	80 - 120		

Lab Sample ID: LCSD 490-588578/5
Matrix: Water
Analysis Batch: 588578

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			10.0	9.503		mg/L		95	80 - 120	0	20
Fluoride			1.00	1.051		mg/L		105	80 - 120	0	20
Sulfate			10.0	10.13		mg/L		101	80 - 120	0	20

Lab Sample ID: 490-172010-4 MS
Matrix: Water
Analysis Batch: 588578

Client Sample ID: FIELD BLANK
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	ND		10.0	10.53		mg/L		105	80 - 120		
Fluoride	ND		1.00	1.150		mg/L		115	80 - 120		
Sulfate	0.222	J	10.0	10.63		mg/L		104	80 - 120		

Lab Sample ID: 490-172010-4 MSD
Matrix: Water
Analysis Batch: 588578

Client Sample ID: FIELD BLANK
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	ND		10.0	11.16		mg/L		112	80 - 120	6	20
Fluoride	ND		1.00	1.165		mg/L		116	80 - 120	1	20
Sulfate	0.222	J	10.0	11.57		mg/L		113	80 - 120	8	20

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 180-275853/1-A
Matrix: Water
Analysis Batch: 276485

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 275853

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.0500	0.00959	mg/L		04/16/19 11:19	04/22/19 15:56	1

Lab Sample ID: LCS 180-275853/2-A
Matrix: Water
Analysis Batch: 276485

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 275853

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	1.00	1.006		mg/L		101	80 - 120

Lab Sample ID: 490-172010-3 MS
Matrix: Water
Analysis Batch: 276485

Client Sample ID: DUPE
Prep Type: Total Recoverable
Prep Batch: 275853

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	0.0313	J	1.00	1.065		mg/L		103	75 - 125

Lab Sample ID: 490-172010-3 MSD
Matrix: Water
Analysis Batch: 276485

Client Sample ID: DUPE
Prep Type: Total Recoverable
Prep Batch: 275853

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lithium	0.0313	J	1.00	1.090		mg/L		106	75 - 125	2	20

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 180-275852/1-A
Matrix: Water
Analysis Batch: 276092

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 275852

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00002800	J	0.00200	0.0000213	mg/L		04/16/19 11:17	04/17/19 11:54	1
Arsenic	ND		0.00500	0.000118	mg/L		04/16/19 11:17	04/17/19 11:54	1
Barium	0.0007190	J	0.200	0.000270	mg/L		04/16/19 11:17	04/17/19 11:54	1
Beryllium	ND		0.00200	0.000102	mg/L		04/16/19 11:17	04/17/19 11:54	1
Boron	0.02478	J	1.00	0.00339	mg/L		04/16/19 11:17	04/17/19 11:54	1
Cadmium	ND		0.00100	0.000152	mg/L		04/16/19 11:17	04/17/19 11:54	1
Calcium	ND		1.00	0.0412	mg/L		04/16/19 11:17	04/17/19 11:54	1
Chromium	ND		0.00300	0.000339	mg/L		04/16/19 11:17	04/17/19 11:54	1
Cobalt	ND		0.00500	0.0000218	mg/L		04/16/19 11:17	04/17/19 11:54	1
Lead	ND		0.00500	0.0000675	mg/L		04/16/19 11:17	04/17/19 11:54	1
Molybdenum	ND		0.0100	0.000873	mg/L		04/16/19 11:17	04/17/19 11:54	1
Potassium	ND		1000	147	ug/L		04/16/19 11:17	04/17/19 11:54	1
Selenium	ND		0.0100	0.000348	mg/L		04/16/19 11:17	04/17/19 11:54	1
Thallium	ND		0.00100	0.0000360	mg/L		04/16/19 11:17	04/17/19 11:54	1

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

Lab Sample ID: LCS 180-275852/2-A
Matrix: Water
Analysis Batch: 276092

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 275852

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.500	0.5151		mg/L		103	80 - 120
Arsenic	0.0400	0.03629		mg/L		91	80 - 120
Barium	2.00	2.120		mg/L		106	80 - 120
Beryllium	0.0500	0.05131		mg/L		103	80 - 120
Boron	1.00	1.006		mg/L		101	80 - 120
Cadmium	0.0500	0.05263		mg/L		105	80 - 120
Calcium	50.0	50.60		mg/L		101	80 - 120
Chromium	0.200	0.2148		mg/L		107	80 - 120
Cobalt	0.500	0.4481		mg/L		90	80 - 120
Lead	0.0200	0.02088		mg/L		104	80 - 120
Molybdenum	1.00	0.9910		mg/L		99	80 - 120
Potassium	50000	48340		ug/L		97	80 - 120
Selenium	0.0100	0.01029		mg/L		103	80 - 120
Thallium	0.0500	0.05310		mg/L		106	80 - 120

Lab Sample ID: 490-172010-1 MS
Matrix: Water
Analysis Batch: 276092

Client Sample ID: MW-104
Prep Type: Total Recoverable
Prep Batch: 275852

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.000119	J B	0.500	0.5292		mg/L		106	75 - 125
Arsenic	0.00208	J	0.0400	0.03945		mg/L		93	75 - 125
Barium	0.0216	J B	2.00	2.197		mg/L		109	75 - 125
Beryllium	ND		0.0500	0.05176		mg/L		104	75 - 125
Boron	0.271	J B	1.00	1.297		mg/L		103	75 - 125
Cadmium	ND		0.0500	0.05279		mg/L		106	75 - 125
Calcium	502		50.0	557.9	4	mg/L		111	75 - 125
Chromium	0.00360		0.200	0.2213		mg/L		109	75 - 125
Cobalt	0.00522		0.500	0.4645		mg/L		92	75 - 125
Lead	0.000233	J	0.0200	0.02146		mg/L		106	75 - 125
Molybdenum	0.00104	J	1.00	1.043		mg/L		104	75 - 125
Potassium	1660		50000	48970		ug/L		95	75 - 125
Selenium	ND		0.0100	0.01059		mg/L		106	75 - 125
Thallium	ND		0.0500	0.05541		mg/L		111	75 - 125

Lab Sample ID: 490-172010-1 MSD
Matrix: Water
Analysis Batch: 276092

Client Sample ID: MW-104
Prep Type: Total Recoverable
Prep Batch: 275852

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	0.000119	J B	0.500	0.5401		mg/L		108	75 - 125	2	20
Arsenic	0.00208	J	0.0400	0.03954		mg/L		94	75 - 125	0	20
Barium	0.0216	J B	2.00	2.231		mg/L		110	75 - 125	2	20
Beryllium	ND		0.0500	0.05116		mg/L		102	75 - 125	1	20
Boron	0.271	J B	1.00	1.238		mg/L		97	75 - 125	5	20
Cadmium	ND		0.0500	0.05362		mg/L		107	75 - 125	2	20
Calcium	502		50.0	566.9	4	mg/L		129	75 - 125	2	20
Chromium	0.00360		0.200	0.2201		mg/L		108	75 - 125	1	20
Cobalt	0.00522		0.500	0.4630		mg/L		92	75 - 125	0	20

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

Lab Sample ID: 490-172010-1 MSD — **Client Sample ID: MW-104**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 276092 — **Prep Batch: 275852**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	0.000233	J	0.0200	0.02185		mg/L		108	75 - 125	2	20
Molybdenum	0.00104	J	1.00	1.061		mg/L		106	75 - 125	2	20
Potassium	1660		50000	50080		ug/L		97	75 - 125	2	20
Selenium	ND		0.0100	0.01045		mg/L		105	75 - 125	1	20
Thallium	ND		0.0500	0.05523		mg/L		110	75 - 125	0	20

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-276826/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 277078 — **Prep Batch: 276826**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^	0.200	0.101	ug/L		04/25/19 16:08	04/29/19 09:06	1

Lab Sample ID: LCS 180-276826/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 277078 — **Prep Batch: 276826**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	2.50	3.726	* ^	ug/L		149	80 - 120

Lab Sample ID: 180-88983-B-1-C MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 277078 — **Prep Batch: 276826**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND	* ^ F1	1.00	1.386	F1 ^	ug/L		139	75 - 125

Lab Sample ID: 180-88983-B-1-D MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 277078 — **Prep Batch: 276826**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND	* ^ F1	1.00	1.504	F1 ^	ug/L		150	75 - 125	8	20

Lab Sample ID: MB 180-276833/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 276941 — **Prep Batch: 276833**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^	0.200	0.101	ug/L		04/25/19 17:02	04/26/19 13:03	1

Lab Sample ID: LCS 180-276833/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 276941 — **Prep Batch: 276833**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	2.50	2.494	^	ug/L		100	80 - 120

Method: EPA 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: 490-172010-3 MS
Matrix: Water
Analysis Batch: 276941

Client Sample ID: DUPE
Prep Type: Total/NA
Prep Batch: 276833

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND	^	1.00	0.8720	^	ug/L		87	75 - 125

Lab Sample ID: 490-172010-3 MSD
Matrix: Water
Analysis Batch: 276941

Client Sample ID: DUPE
Prep Type: Total/NA
Prep Batch: 276833

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND	^	1.00	0.8200	^	ug/L		82	75 - 125	6	20

Method: 9040C - pH

Lab Sample ID: LCS 490-589003/1
Matrix: Water
Analysis Batch: 589003

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.040		SU		101	98 - 103

Lab Sample ID: 490-171598-A-10 DU
Matrix: Water
Analysis Batch: 589003

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	6.94		6.940		SU		0	20
Temperature	23.0		23.00		Degrees C		0	20

Method: 9050A - Specific Conductance

Lab Sample ID: 490-172007-E-1 DU
Matrix: Water
Analysis Batch: 588267

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Specific Conductance (25C)	3700		3680		umhos/cm		0.5	10

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 490-587963/11
Matrix: Water
Analysis Batch: 587963

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	ND		10.0	5.00	mg/L			04/13/19 11:27	1

Lab Sample ID: LCS 490-587963/12
Matrix: Water
Analysis Batch: 587963

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	100	97.71		mg/L		98	90 - 110

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: LCSD 490-587963/34
Matrix: Water
Analysis Batch: 587963

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity			100	96.97		mg/L		97	90 - 110	1	20

Lab Sample ID: 490-171998-I-1 DU
Matrix: Water
Analysis Batch: 587963

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Alkalinity	124			125.6		mg/L				2	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 490-588164/1
Matrix: Water
Analysis Batch: 588164

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		25.0	7.00	mg/L			04/15/19 16:11	1

Lab Sample ID: LCS 490-588164/2
Matrix: Water
Analysis Batch: 588164

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			100	95.00		mg/L		95	90 - 110		

Lab Sample ID: 490-172007-E-2 DU
Matrix: Water
Analysis Batch: 588164

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	5480			5456		mg/L				0.5	20

Lab Sample ID: 490-172074-C-1 DU
Matrix: Water
Analysis Batch: 588164

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	21000			28200	F3	mg/L				29	20

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-428674/24-A
Matrix: Water
Analysis Batch: 434299

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 428674

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.007828	U	0.0450	0.0450	1.00	0.0994	pCi/L	05/16/19 12:11	07/09/19 18:11	1

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

Lab Sample ID: MB 160-428674/24-A
Matrix: Water
Analysis Batch: 434299

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 428674

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	106		40 - 110	05/16/19 12:11	07/09/19 18:11	1

Lab Sample ID: LCS 160-428674/1-A
Matrix: Water
Analysis Batch: 434753

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 428674

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.4	8.580		0.907	1.00	0.0856	pCi/L	76	75 - 125		

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	104		40 - 110

Lab Sample ID: 480-151762-A-5-D MSD
Matrix: Water
Analysis Batch: 434299

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 428674

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	0.0134	U	11.3	10.56		1.11	1.00	0.124	pCi/L	93	75 - 138	0.42	1

Carrier	MSD %Yield	MSD Qualifier	Limits
Ba Carrier	96.9		40 - 110

Lab Sample ID: 480-151762-B-5-A MS
Matrix: Water
Analysis Batch: 434299

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 428674

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226	0.0134	U	11.3	9.669		1.03	1.00	0.118	pCi/L	85	75 - 138		

Carrier	MS %Yield	MS Qualifier	Limits
Ba Carrier	97.7		40 - 110

Lab Sample ID: MB 160-429619/23-A
Matrix: Water
Analysis Batch: 433445

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 429619

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.02230	U	0.188	0.188	1.00	0.393	pCi/L	05/23/19 10:11	07/02/19 05:58	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	68.9		40 - 110	05/23/19 10:11	07/02/19 05:58	1

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

Lab Sample ID: LCS 160-429619/1-A
Matrix: Water
Analysis Batch: 433323

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 429619

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.4	8.859		1.40	1.00	0.530	pCi/L	78	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*60.7*		*40 - 110*

Lab Sample ID: 240-110911-I-1-A DU
Matrix: Water
Analysis Batch: 433323

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 429619

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Radium-226	0.176	U		0.4939		0.320	1.00	0.411	pCi/L			0.57	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Ba Carrier	*55.1*		*40 - 110*

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-428727/24-A
Matrix: Water
Analysis Batch: 433445

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 428727

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.3310	U	0.287	0.289	1.00	0.462	pCi/L	05/16/19 16:00	07/02/19 15:09	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*106*		*40 - 110*	*05/16/19 16:00*	*07/02/19 15:09*	*1*
Y Carrier	*81.1*		*40 - 110*	*05/16/19 16:00*	*07/02/19 15:09*	*1*

Lab Sample ID: LCS 160-428727/1-A
Matrix: Water
Analysis Batch: 433410

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 428727

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.06	9.118		1.08	1.00	0.414	pCi/L	101	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*104*		*40 - 110*
Y Carrier	*71.4*		*40 - 110*

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

Lab Sample ID: 480-151762-A-5-C MSD
Matrix: Water
Analysis Batch: 433410

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 428727

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	0.109	U	9.06	10.10		1.18	1.00	0.419	pCi/L	110	45 - 150	0.1	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Ba Carrier	*96.9*		*40 - 110*
Y Carrier	*74.8*		*40 - 110*

Lab Sample ID: 480-151762-B-5-B MS
Matrix: Water
Analysis Batch: 433410

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 428727

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228	0.109	U	9.06	9.876		1.13	1.00	0.345	pCi/L	108	45 - 150		

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Ba Carrier	*97.7*		*40 - 110*
Y Carrier	*80.4*		*40 - 110*

Lab Sample ID: MB 160-429638/23-A
Matrix: Water
Analysis Batch: 433323

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 429638

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.2343	U	0.325	0.326	1.00	0.614	pCi/L	05/23/19 11:48	07/01/19 14:41	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*68.9*		*40 - 110*	*05/23/19 11:48*	*07/01/19 14:41*	*1*
Y Carrier	*82.6*		*40 - 110*	*05/23/19 11:48*	*07/01/19 14:41*	*1*

Lab Sample ID: LCS 160-429638/1-A
Matrix: Water
Analysis Batch: 433226

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 429638

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.06	10.48		1.38	1.00	0.770	pCi/L	116	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*60.7*		*40 - 110*
Y Carrier	*73.3*		*40 - 110*

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

Lab Sample ID: 240-110911-I-1-B DU
Matrix: Water
Analysis Batch: 433226

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 429638

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Radium-228	0.00343	U		0.06999	U	0.424	1.00	0.748	pCi/L			0.09	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Ba Carrier	*55.1*		*40 - 110*
Y Carrier	*73.6*		*40 - 110*

HPLC/IC

Analysis Batch: 587889

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-2	MW-110	Total/NA	Water	9056A	
490-172010-4	FIELD BLANK	Total/NA	Water	9056A	
MB 490-587889/3	Method Blank	Total/NA	Water	9056A	
LCS 490-587889/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-587889/5	Lab Control Sample Dup	Total/NA	Water	9056A	
490-171999-H-13 MS	Matrix Spike	Total/NA	Water	9056A	
490-171999-H-13 MSD	Matrix Spike Duplicate	Total/NA	Water	9056A	

Analysis Batch: 587927

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	9056A	
490-172010-1	MW-104	Total/NA	Water	9056A	
490-172010-2	MW-110	Total/NA	Water	9056A	
490-172010-2	MW-110	Total/NA	Water	9056A	
MB 490-587927/3	Method Blank	Total/NA	Water	9056A	
LCS 490-587927/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-587927/5	Lab Control Sample Dup	Total/NA	Water	9056A	
490-172007-E-1 MS	Matrix Spike	Total/NA	Water	9056A	
490-172007-E-1 MSD	Matrix Spike Duplicate	Total/NA	Water	9056A	

Analysis Batch: 587930

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-3	DUPE	Total/NA	Water	9056A	
MB 490-587930/3	Method Blank	Total/NA	Water	9056A	
LCS 490-587930/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-587930/5	Lab Control Sample Dup	Total/NA	Water	9056A	

Analysis Batch: 588578

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-4	FIELD BLANK	Total/NA	Water	9056A	
MB 490-588578/3	Method Blank	Total/NA	Water	9056A	
LCS 490-588578/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-588578/5	Lab Control Sample Dup	Total/NA	Water	9056A	
490-172010-4 MS	FIELD BLANK	Total/NA	Water	9056A	
490-172010-4 MSD	FIELD BLANK	Total/NA	Water	9056A	

Metals

Prep Batch: 275852

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total Recoverable	Water	3005A	
490-172010-2	MW-110	Total Recoverable	Water	3005A	
490-172010-3	DUPE	Total Recoverable	Water	3005A	
490-172010-4	FIELD BLANK	Total Recoverable	Water	3005A	
MB 180-275852/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-275852/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
490-172010-1 MS	MW-104	Total Recoverable	Water	3005A	
490-172010-1 MSD	MW-104	Total Recoverable	Water	3005A	

Metals

Prep Batch: 275853

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total Recoverable	Water	3005A	
490-172010-2	MW-110	Total Recoverable	Water	3005A	
490-172010-3	DUPE	Total Recoverable	Water	3005A	
490-172010-4	FIELD BLANK	Total Recoverable	Water	3005A	
MB 180-275853/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-275853/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
490-172010-3 MS	DUPE	Total Recoverable	Water	3005A	
490-172010-3 MSD	DUPE	Total Recoverable	Water	3005A	

Analysis Batch: 276092

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total Recoverable	Water	6020A	275852
490-172010-2	MW-110	Total Recoverable	Water	6020A	275852
490-172010-3	DUPE	Total Recoverable	Water	6020A	275852
490-172010-4	FIELD BLANK	Total Recoverable	Water	6020A	275852
MB 180-275852/1-A	Method Blank	Total Recoverable	Water	6020A	275852
LCS 180-275852/2-A	Lab Control Sample	Total Recoverable	Water	6020A	275852
490-172010-1 MS	MW-104	Total Recoverable	Water	6020A	275852
490-172010-1 MSD	MW-104	Total Recoverable	Water	6020A	275852

Analysis Batch: 276485

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total Recoverable	Water	6010C	275853
490-172010-2	MW-110	Total Recoverable	Water	6010C	275853
490-172010-3	DUPE	Total Recoverable	Water	6010C	275853
490-172010-4	FIELD BLANK	Total Recoverable	Water	6010C	275853
MB 180-275853/1-A	Method Blank	Total Recoverable	Water	6010C	275853
LCS 180-275853/2-A	Lab Control Sample	Total Recoverable	Water	6010C	275853
490-172010-3 MS	DUPE	Total Recoverable	Water	6010C	275853
490-172010-3 MSD	DUPE	Total Recoverable	Water	6010C	275853

Prep Batch: 276826

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-4	FIELD BLANK	Total/NA	Water	7470A	
MB 180-276826/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-276826/2-A	Lab Control Sample	Total/NA	Water	7470A	
180-88983-B-1-C MS	Matrix Spike	Total/NA	Water	7470A	
180-88983-B-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	

Prep Batch: 276833

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	7470A	
490-172010-2	MW-110	Total/NA	Water	7470A	
490-172010-3	DUPE	Total/NA	Water	7470A	
MB 180-276833/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-276833/2-A	Lab Control Sample	Total/NA	Water	7470A	
490-172010-3 MS	DUPE	Total/NA	Water	7470A	
490-172010-3 MSD	DUPE	Total/NA	Water	7470A	

Metals

Analysis Batch: 276941

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	EPA 7470A	276833
490-172010-2	MW-110	Total/NA	Water	EPA 7470A	276833
490-172010-3	DUPE	Total/NA	Water	EPA 7470A	276833
MB 180-276833/1-A	Method Blank	Total/NA	Water	EPA 7470A	276833
LCS 180-276833/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	276833
490-172010-3 MS	DUPE	Total/NA	Water	EPA 7470A	276833
490-172010-3 MSD	DUPE	Total/NA	Water	EPA 7470A	276833

Analysis Batch: 277078

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-4	FIELD BLANK	Total/NA	Water	EPA 7470A	276826
MB 180-276826/1-A	Method Blank	Total/NA	Water	EPA 7470A	276826
LCS 180-276826/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	276826
180-88983-B-1-C MS	Matrix Spike	Total/NA	Water	EPA 7470A	276826
180-88983-B-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	EPA 7470A	276826

General Chemistry

Analysis Batch: 587963

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	SM 2320B	
490-172010-2	MW-110	Total/NA	Water	SM 2320B	
490-172010-3	DUPE	Total/NA	Water	SM 2320B	
490-172010-4	FIELD BLANK	Total/NA	Water	SM 2320B	
MB 490-587963/11	Method Blank	Total/NA	Water	SM 2320B	
LCS 490-587963/12	Lab Control Sample	Total/NA	Water	SM 2320B	
LCSD 490-587963/34	Lab Control Sample Dup	Total/NA	Water	SM 2320B	
490-171998-I-1 DU	Duplicate	Total/NA	Water	SM 2320B	

Analysis Batch: 588164

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	SM 2540C	
490-172010-2	MW-110	Total/NA	Water	SM 2540C	
490-172010-3	DUPE	Total/NA	Water	SM 2540C	
490-172010-4	FIELD BLANK	Total/NA	Water	SM 2540C	
MB 490-588164/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 490-588164/2	Lab Control Sample	Total/NA	Water	SM 2540C	
490-172007-E-2 DU	Duplicate	Total/NA	Water	SM 2540C	
490-172074-C-1 DU	Duplicate	Total/NA	Water	SM 2540C	

Analysis Batch: 588267

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	9050A	
490-172010-2	MW-110	Total/NA	Water	9050A	
490-172010-3	DUPE	Total/NA	Water	9050A	
490-172010-4	FIELD BLANK	Total/NA	Water	9050A	
LCS 490-588267/3	Lab Control Sample	Total/NA	Water	9050A	
490-172007-E-1 DU	Duplicate	Total/NA	Water	9050A	

QC Association Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

General Chemistry

Analysis Batch: 589003

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	9040C	
490-172010-2	MW-110	Total/NA	Water	9040C	
490-172010-3	DUPE	Total/NA	Water	9040C	
490-172010-4	FIELD BLANK	Total/NA	Water	9040C	
LCS 490-589003/1	Lab Control Sample	Total/NA	Water	9040C	
490-171598-A-10 DU	Duplicate	Total/NA	Water	9040C	

Rad

Prep Batch: 428674

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	PrecSep-21	
490-172010-2	MW-110	Total/NA	Water	PrecSep-21	
490-172010-3	DUPE	Total/NA	Water	PrecSep-21	
MB 160-428674/24-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-428674/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
480-151762-A-5-D MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep-21	
480-151762-B-5-A MS	Matrix Spike	Total/NA	Water	PrecSep-21	

Prep Batch: 428727

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	PrecSep_0	
490-172010-2	MW-110	Total/NA	Water	PrecSep_0	
490-172010-3	DUPE	Total/NA	Water	PrecSep_0	
MB 160-428727/24-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-428727/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
480-151762-A-5-C MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep_0	
480-151762-B-5-B MS	Matrix Spike	Total/NA	Water	PrecSep_0	

Prep Batch: 429619

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-4	FIELD BLANK	Total/NA	Water	PrecSep-21	
MB 160-429619/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-429619/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
240-110911-I-1-A DU	Duplicate	Total/NA	Water	PrecSep-21	

Prep Batch: 429638

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-4	FIELD BLANK	Total/NA	Water	PrecSep_0	
MB 160-429638/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-429638/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
240-110911-I-1-B DU	Duplicate	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Client Sample ID: MW-104

Date Collected: 04/10/19 14:43
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		10			587927	04/13/19 19:19	SOO	
Total/NA	Analysis	9056A		100			587927	04/13/19 19:35	SOO	
Total Recoverable	Prep	3005A			50 mL	50 mL	275853	04/16/19 11:19	NAM	
Total Recoverable	Analysis	6010C		1			276485	04/22/19 16:39	RJG	
Total Recoverable	Prep	3005A			50 mL	50 mL	275852	04/16/19 11:17	NAM	
Total Recoverable	Analysis	6020A		1			276092	04/17/19 10:53	RSK	
Total/NA	Prep	7470A			50 mL	50 mL	276833	04/25/19 17:02	KAK	
Total/NA	Analysis	EPA 7470A		1			276941	04/26/19 13:28	KAK	
Total/NA	Analysis	9040C		1			589003	04/18/19 18:32	MXX	
Total/NA	Analysis	9050A		1			588267	04/13/19 10:38	MSP	
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	587963	04/13/19 13:33	MSP	
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	588164	04/15/19 16:11	BMC	
Total/NA	Prep	PrecSep-21			1000.37 mL	1.0 g	428674	05/16/19 12:11	ORM	TAL SL
Total/NA	Analysis	903.0		1	1.0 mL	1.0 mL	434299	07/09/19 18:10	CDR	TAL SL
Total/NA	Prep	PrecSep_0			1000.37 mL	1.0 g	428727	05/16/19 16:00	ORM	TAL SL
Total/NA	Analysis	904.0		1			433407	07/02/19 15:07	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			434813	07/15/19 08:48	SMP	TAL SL

Client Sample ID: MW-110

Date Collected: 04/10/19 12:59
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1	10 mL	1.0 mL	587889	04/13/19 02:38	SOO	
Total/NA	Analysis	9056A		2			587927	04/13/19 20:09	SOO	
Total/NA	Analysis	9056A		50			587927	04/13/19 20:25	SOO	
Total Recoverable	Prep	3005A			50 mL	50 mL	275853	04/16/19 11:19	NAM	
Total Recoverable	Analysis	6010C		1			276485	04/22/19 16:45	RJG	
Total Recoverable	Prep	3005A			50 mL	50 mL	275852	04/16/19 11:17	NAM	
Total Recoverable	Analysis	6020A		1			276092	04/17/19 11:16	RSK	
Total/NA	Prep	7470A			50 mL	50 mL	276833	04/25/19 17:02	KAK	
Total/NA	Analysis	EPA 7470A		1			276941	04/26/19 13:29	KAK	
Total/NA	Analysis	9040C		1			589003	04/18/19 18:32	MXX	
Total/NA	Analysis	9050A		1			588267	04/13/19 10:38	MSP	
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	587963	04/13/19 13:40	MSP	
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	588164	04/15/19 16:11	BMC	
Total/NA	Prep	PrecSep-21			500.46 mL	1.0 g	428674	05/16/19 12:11	ORM	TAL SL
Total/NA	Analysis	903.0		1	1.0 mL	1.0 mL	434299	07/09/19 18:10	CDR	TAL SL
Total/NA	Prep	PrecSep_0			500.46 mL	1.0 g	428727	05/16/19 16:00	ORM	TAL SL
Total/NA	Analysis	904.0		1			433407	07/02/19 15:07	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			434813	07/15/19 08:48	SMP	TAL SL

Lab Chronicle

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Client Sample ID: DUPE

Date Collected: 04/10/19 15:10
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		100			587930	04/13/19 22:54	SOO	
Total Recoverable	Prep	3005A			50 mL	50 mL	275853	04/16/19 11:19	NAM	
Total Recoverable	Analysis	6010C		1			276485	04/22/19 16:07	RJG	
Total Recoverable	Prep	3005A			50 mL	50 mL	275852	04/16/19 11:17	NAM	
Total Recoverable	Analysis	6020A		1			276092	04/17/19 11:19	RSK	
Total/NA	Prep	7470A			50 mL	50 mL	276833	04/25/19 17:02	KAK	
Total/NA	Analysis	EPA 7470A		1			276941	04/26/19 13:30	KAK	
Total/NA	Analysis	9040C		1			589003	04/18/19 18:32	MXX	
Total/NA	Analysis	9050A		1			588267	04/13/19 10:38	MSP	
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	587963	04/13/19 13:47	MSP	
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	588164	04/15/19 16:11	BMC	
Total/NA	Prep	PrecSep-21			1000.53 mL	1.0 g	428674	05/16/19 12:11	ORM	TAL SL
Total/NA	Analysis	903.0		1	1.0 mL	1.0 mL	434299	07/09/19 18:10	CDR	TAL SL
Total/NA	Prep	PrecSep_0			1000.53 mL	1.0 g	428727	05/16/19 16:00	ORM	TAL SL
Total/NA	Analysis	904.0		1			433407	07/02/19 15:07	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			434813	07/15/19 08:48	SMP	TAL SL

Client Sample ID: FIELD BLANK

Date Collected: 04/10/19 15:39
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1	10 mL	1.0 mL	587889	04/13/19 03:12	SOO	
Total/NA	Analysis	9056A		1	10 mL	1.0 mL	588578	04/17/19 15:20	T1C	
Total Recoverable	Prep	3005A			50 mL	50 mL	275853	04/16/19 11:19	NAM	
Total Recoverable	Analysis	6010C		1			276485	04/22/19 16:51	RJG	
Total Recoverable	Prep	3005A			50 mL	50 mL	275852	04/16/19 11:17	NAM	
Total Recoverable	Analysis	6020A		1			276092	04/17/19 11:23	RSK	
Total/NA	Prep	7470A			50 mL	50 mL	276826	04/25/19 16:08	KAK	
Total/NA	Analysis	EPA 7470A		1			277078	04/29/19 09:08	RJR	
Total/NA	Analysis	9040C		1			589003	04/18/19 18:32	MXX	
Total/NA	Analysis	9050A		1			588267	04/13/19 10:38	MSP	
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	587963	04/13/19 13:53	MSP	
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	588164	04/15/19 16:11	BMC	
Total/NA	Prep	PrecSep-21			1000.44 mL	1.0 g	429619	05/23/19 10:11	ORM	TAL SL
Total/NA	Analysis	903.0		1	1.0 mL	1.0 mL	433323	07/01/19 20:40	CDR	TAL SL
Total/NA	Prep	PrecSep_0			1000.44 mL	1.0 g	429638	05/23/19 11:48	ORM	TAL SL
Total/NA	Analysis	904.0		1			433226	07/01/19 14:34	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			434813	07/15/19 08:48	SMP	TAL SL

Laboratory References:

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Method Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	
6010C	Metals (ICP)	SW846	
6020A	Metals (ICP/MS)	SW846	
EPA 7470A	Mercury (CVAA)	SW846	
9040C	pH	SW846	
9050A	Specific Conductance	SW846	
SM 2320B	Alkalinity	SM	
SM 2540C	Solids, Total Dissolved (TDS)	SM	
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	
7470A	Preparation, Mercury	SW846	

Protocol References:

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.

Laboratory References:

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Accreditation/Certification Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Laboratory: Eurofins TestAmerica, Nashville

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Kentucky (UST)	State Program	4	19	06-30-19

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
9040C		Water	pH
9040C		Water	Temperature
9050A		Water	Specific Conductance (25C)
9056A		Water	Chloride
9056A		Water	Fluoride
9056A		Water	Sulfate
SM 2320B		Water	Alkalinity
SM 2540C		Water	Total Dissolved Solids

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-19
California	State Program	9	2891	04-30-19 *
Connecticut	State Program	1	PH-0688	09-30-20
Florida	NELAP	4	E871008	06-30-19
Illinois	NELAP	5	200005	06-30-19
Kansas	NELAP	7	E-10350	01-31-20
Louisiana	NELAP	6	04041	06-30-19
Nevada	State Program	9	PA00164	07-31-19
New Hampshire	NELAP	1	2030	04-04-20
New Jersey	NELAP	2	PA005	06-30-19
New York	NELAP	2	11182	03-31-20
North Carolina (WW/SW)	State Program	4	434	12-31-19
Oregon	NELAP	10	PA-2151	02-06-20
Pennsylvania	NELAP	3	02-00416	04-30-19
South Carolina	State Program	4	89014	04-30-19 *
Texas	NELAP	6	T104704528-15-2	03-31-20
US Fish & Wildlife	Federal		LE94312A-1	07-31-19
USDA	Federal		P330-16-00211	06-26-19
Utah	NELAP	8	PA001462015-4	05-31-19 *
Virginia	NELAP	3	460189	09-14-19
West Virginia DEP	State Program	3	142	01-31-20
Wisconsin	State Program	5	998027800	08-31-19

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

Accreditation/Certification Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP		L2305	04-06-22
ANAB	DoD		L2305	04-06-22
ANAB	DOE		L2305.01	04-06-22
Arizona	State		AZ0813	12-08-19
Arizona	State Program	9	AZ0813	12-08-19
California	State Program	9	2886	06-30-19 *
Connecticut	State Program	1	PH-0241	03-31-21
Florida	NELAP	4	E87689	06-30-20
Florida	NELAP		E87689	06-30-20
Illinois	NELAP	5	200023	11-30-19
Iowa	State Program	7	373	12-01-20
Kansas	NELAP	7	E-10236	10-31-19
Kentucky (DW)	State Program	4	KY90125	12-31-19
Louisiana	NELAP	6	04080	06-30-20
Louisiana (DW)	NELAP	6	LA011	12-31-19
Maryland	State Program	3	310	09-30-19 *
Missouri	State Program	7	780	06-30-19 *
Nevada	State Program	9	MO000542018-1	07-31-19 *
New Jersey	NELAP	2	MO002	06-30-20
New York	NELAP	2	11616	03-31-20
New York	NELAP		11616	04-01-20
North Dakota	State Program	8	R207	06-30-19 *
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State		9997	08-31-19
Oklahoma	State Program	6	9997	08-31-19 *
Pennsylvania	NELAP	3	68-00540	02-28-20
Pennsylvania	NELAP		68-00540	02-28-20
South Carolina	State Program	4	85002001	06-30-19 *
Texas	NELAP	6	T104704193-18-13	07-31-19 *
Texas	NELAP		T104704193-19-13	07-31-20
US Fish & Wildlife	Federal		058448	07-31-19
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542018-10	07-31-19 *
Virginia	NELAP	3	460230	06-14-20
Washington	State Program	10	C592	08-30-19
West Virginia DEP	State Program	3	381	08-31-19

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

490-172010 Chain of Custody

Cooler Received/Opened On 4/12/2019 @ 9:55

Time Samples Removed From Cooler 14:22 Time Samples Placed In Storage 14:32 (2 Hour Window)

1. Tracking # 1128 (last 4 digits, FedEx) Courier: Fedex

IR Gun ID 31470366 pH Strip Lot NA Chlorine Strip Lot NA

2. Temperature of rep. sample or temp blank when opened: 0.7 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 2 Front

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) ACE

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

Larger than this.

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) ACE

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) ACE

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) ACE

I certify that I attached a label with the unique LIMS number to each container (intial) ACE

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#_____

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 8/23/17

Loc: 490
172010

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

Cooler Received/Opened On 4/12/2019 @ 0955

Time Samples Removed From Cooler 14:22 Time Samples Placed In Storage 14:32 (2 Hour Window)

1. Tracking # 1636 (last 4 digits, FedEx) Courier: FedEx

IR Gun ID 17960353 pH Strip Lot NA Chlorine Strip Lot NA

2. Temperature of rep. sample or temp blank when opened: 0.1 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 1 (Front)

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) AC

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

● ⬅ Larger than this.

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) ACE

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) ACE

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) ACE

I certify that I attached a label with the unique LIMS number to each container (intial) ACE

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#_____

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 8/23/17

Chain of Custody Record 299402

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other:

Client Contact	Project Manager: Mark Bertram	Site Contact: Greg Dick	Date: 4/11/2019	COC No: 299402
Company Name: Big Rivers Electric Corp.	Tel/Fax: (270) 844-5708	Lab Contact: Roxanne Cisneros	Carrier: FedEx	1 of 1 COCs
Address: 9000 Highway 2096	Analysis Turnaround Time			Sampler:
City/State/Zip: Robards, KY 42452	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: (270) 844-5736	TAT if different from Below _____			Walk-in Client:
Fax:	☑ 2 weeks			Lab Sampling:
Project Name: Sebree Station, New CCR Wells Rd 2	☐ 1 week			
Site: Sebree Station	☐ 2 days			Job / SDG No.:
P O # 249349	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	903.0, 904.0	6010C, 6020A, 7470A	9056A-DRGFM-28D, 9040C, 9065A 2320B	2540C-Calc-TDS	Sample Specific Notes:
MW-104	4/10/19	1443	G	Water	5	N	N	X	X	X	X	
MW-110	4/10/19	1259	G	Water	5	N	N	X	X	X	X	
DUPE	4/10/19	1510	G	Water	5	N	N	X	X	X	X	
FIELD BLANK	4/10/19	1539	G	Water	5	N	N	X	X	X	X	
												Loc: 490 172010

Greg Dick

Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4=HNO3, 5=NaOH, 6= Other — 4 4 1 1

Possible Hazard Identification:
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.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown

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: See attached constituent list for analysis

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: 0.7 Corr'd: _____ | Therm ID No.: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Greg Dick	BREC	4/11/2019 1555			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: TA-MAS	Date/Time: 4/12/19 9:55

4/11/2019

Constituent List:

40 C.F.R. 257 Appendix III
Boron
Calcium
Fluoride
pH
Sulfate
Total Dissolved Solids (TDS)

40 C.F.R. 257 Appendix IV
Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium
Cobalt
Fluoride
Lead
Lithium
Mercury
Molybdenum
Selenium
Thallium
Radium 226 & 228 combined

Additional Parameters
Carbonate Alkalinity
Bicarbonate Alkalinity
Alkalinity
Iron
Magnesium
Potassium
Sodium

Greg Dick
BREC
4/11/2019
1555

Loc: 490
172010

Eurofins TestAmerica, Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Phone (615) 726-0177 Fax (615) 726-3404

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Cisneros, Roxanne	Carrier Tracking No(s):	COC No: 490-88697.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: roxanne.cisneros@testamericainc.com	State of Origin: Kentucky	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Kentucky (UST)		Job #: 490-172010-1
Address: 301 Alpha Drive, RIDC Park,	Due Date Requested: 4/24/2019			
City: Pittsburgh	TAT Requested (days):			
State, Zip: PA, 15238				
Phone: 412-963-7058(Tel) 412-963-2468(Fax)	PO #:			
Email:	WO #:			
Project Name: Sebree Station, New CCR Wells Rd 2	Project #: 49010431			
Site: Big Rivers CCR	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
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
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C/3005A (MOD) Lithium	6020A/3005A (MOD) ICP/MS Metals	7470A/7470A_Prep Mercury	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-104 (490-172010-1)	4/10/19	14:43 Eastern		Water			X	X	X	1	Metals - run once, upload together.
MW-110 (490-172010-2)	4/10/19	12:59 Eastern		Water			X	X	X	1	Metals - run once, upload together.
DUPE (490-172010-3)	4/10/19	15:10 Eastern		Water			X	X	X	1	Metals - run once, upload together.
FIELD BLANK (490-172010-4)	4/10/19	15:39 Eastern		Water			X	X	X	1	Metals - run once, upload together.

490-172010 Chain of Custody

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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

Empty Kit Relinquished by:	Date: MON 4/12/19	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		4.12.19@1615	TALS		4-13-19	
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 930	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

Eurofins TestAmerica, Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Phone (615) 726-0177 Fax (615) 726-3404

nut 2EE

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Cisneros, Roxanne	Carrier Tracking No(s):	COC No: 490-88697.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: roxanne.cisneros@testamericainc.com	State of Origin: Kentucky	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Kentucky (UST)		Job #: 490-172010-1
Address: 301 Alpha Drive, RIDC Park,	Due Date Requested: 4/24/2019			
City: Pittsburgh	TAT Requested (days):			
State, Zip: PA, 15238				
Phone: 412-963-7058(Tel) 412-963-2468(Fax)	PO #:			
Email:	WO #:			
Project Name: Sebree Station, New CCR Wells Rd 2	Project #: 49010431			
Site: Big Rivers CCR	SSOW#:			

Analysis Requested

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, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C/3005A (MOD) Lithium	6020A/3005A (MOD) ICP/MS Metals	7470A/7470A_Prep Mercury	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-104 (490-172010-1)	4/10/19	14:43 Eastern		Water			X	X	X	1	Metals - run once, upload together.
MW-110 (490-172010-2)	4/10/19	12:59 Eastern		Water			X	X	X	1	Metals - run once, upload together.
DUPE (490-172010-3)	4/10/19	15:10 Eastern		Water			X	X	X	1	Metals - run once, upload together.
FIELD BLANK (490-172010-4)	4/10/19	15:39 Eastern		Water			X	X	X	1	Metals - run once, upload together.

490-172010 Chain of Custody

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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

Empty Kit Relinquished by:	Date: [illegible] 4/12/19	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	4.12.19 @ 1615	TAMS	P Watson	4-13-19 930	FAPIT
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Big Rivers Electric Corporation

Job Number: 490-172010-1
SDG Number: Sebree Station

Login Number: 172010
List Number: 2
Creator: Watson, Debbie

List Source: Eurofins TestAmerica, Pittsburgh
List Creation: 04/13/19 01:27 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?	False	
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	

Tracer/Carrier Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
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 Carrier (40-110)
240-110911-I-1-A DU	Duplicate	55.1
480-151762-A-5-D MSD	Matrix Spike Duplicate	96.9
480-151762-B-5-A MS	Matrix Spike	97.7
490-172010-1	MW-104	99.4
490-172010-2	MW-110	76.0
490-172010-3	DUPE	96.0
490-172010-4	FIELD BLANK	70.9
LCS 160-428674/1-A	Lab Control Sample	104
LCS 160-429619/1-A	Lab Control Sample	60.7
MB 160-428674/24-A	Method Blank	106
MB 160-429619/23-A	Method Blank	68.9

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

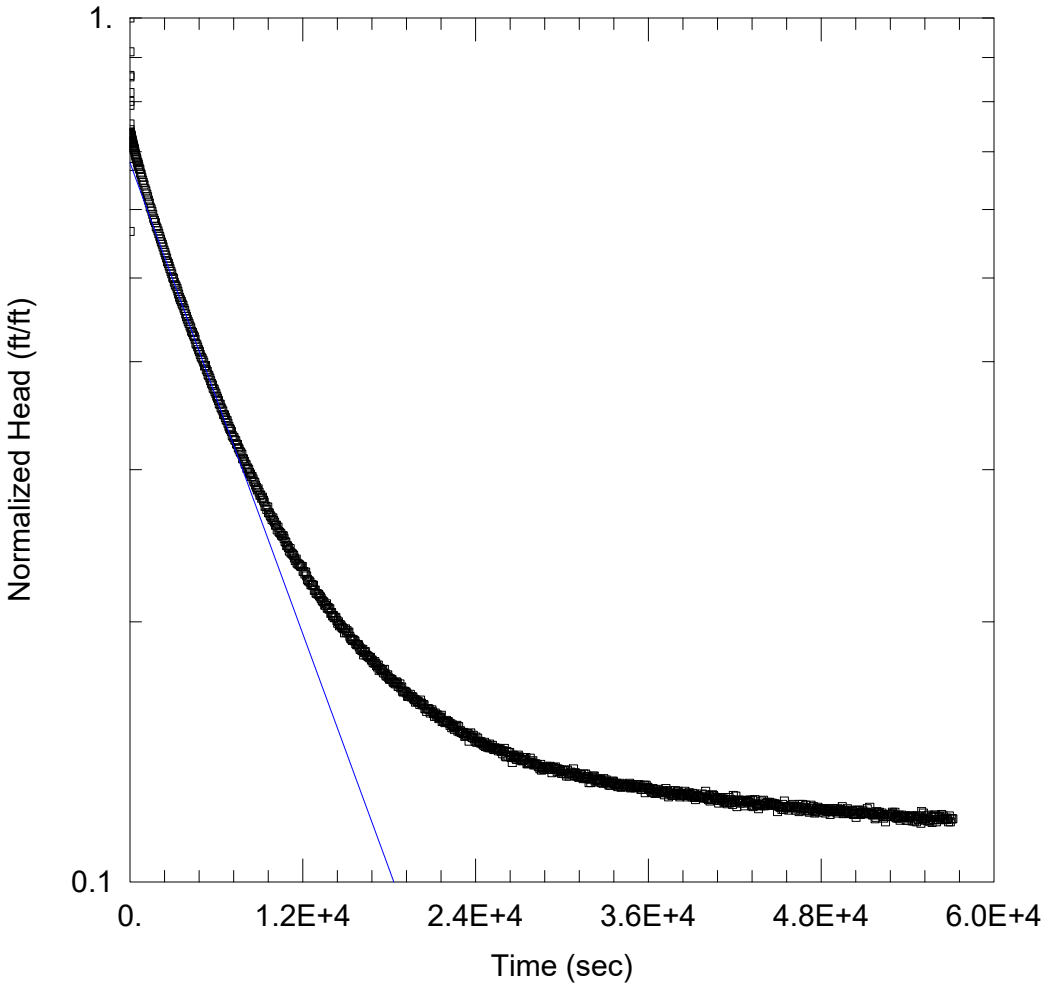
Matrix: Water — **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	Y Carrier (40-110)
240-110911-I-1-B DU	Duplicate	55.1	73.6
480-151762-A-5-C MSD	Matrix Spike Duplicate	96.9	74.8
480-151762-B-5-B MS	Matrix Spike	97.7	80.4
490-172010-1	MW-104	99.4	82.6
490-172010-2	MW-110	76.0	78.1
490-172010-3	DUPE	96.0	76.6
490-172010-4	FIELD BLANK	70.9	101
LCS 160-428727/1-A	Lab Control Sample	104	71.4
LCS 160-429638/1-A	Lab Control Sample	60.7	73.3
MB 160-428727/24-A	Method Blank	106	81.1
MB 160-429638/23-A	Method Blank	68.9	82.6

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

Appendix D
Aquifer Hydraulic Testing Output



WELL TEST ANALYSIS

Data Set: C:\Users\marjory.fure\Desktop\Big Rivers Slug Tests\Reid\Output MW-10\MW-10.aqt
Date: 05/02/19 Time: 16:52:31

PROJECT INFORMATION

Company: AECOM
Client: Big Rivers
Project: Sebree Station Green Landfill
Location: Robards, Kentucky
Test Date: 4/25/2019

AQUIFER DATA

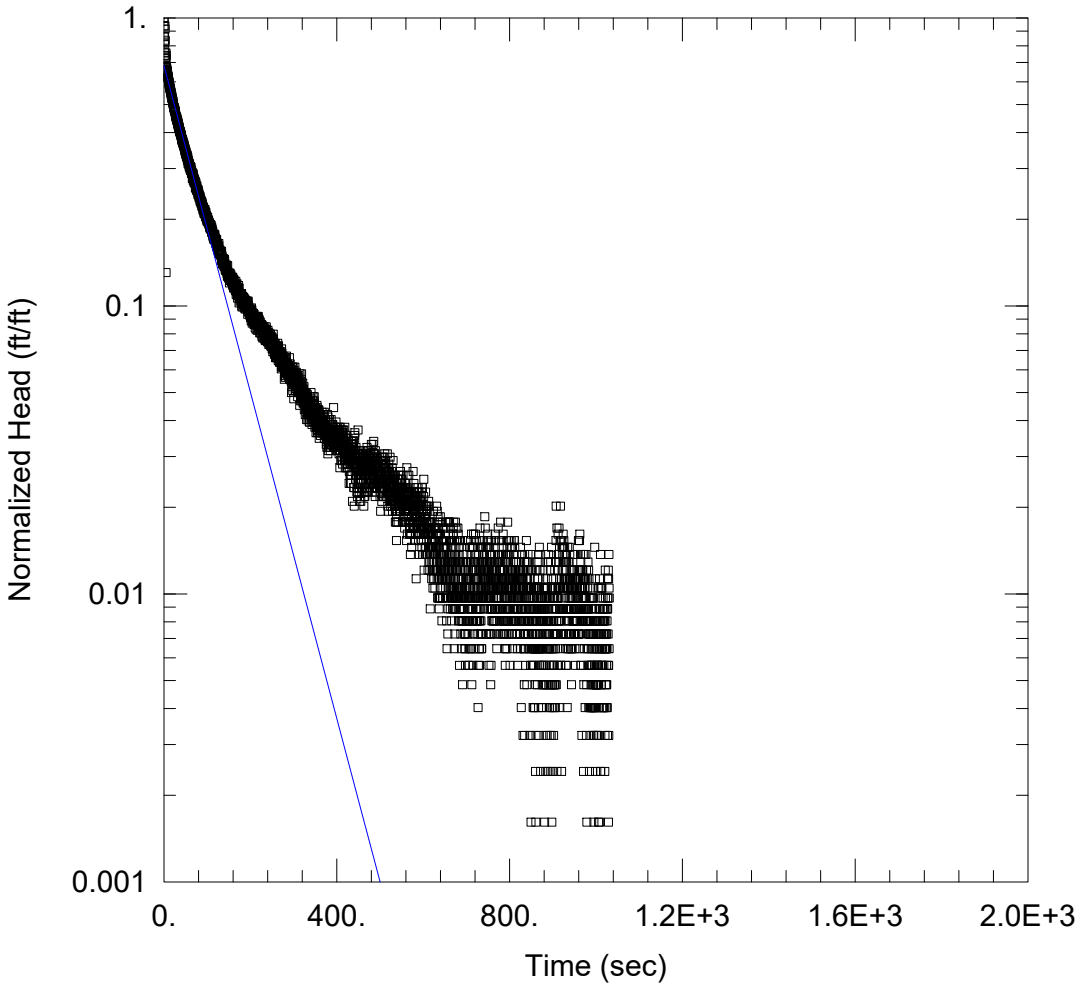
Saturated Thickness: 53. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-10)

Initial Displacement: -4.336 ft
Total Well Penetration Depth: 44. ft
Casing Radius: 0.08333 ft
Static Water Column Height: 53.32 ft
Screen Length: 10. ft
Well Radius: 0.2708 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 3.361E-6 cm/sec
y0 = -2.947 ft



WELL TEST ANALYSIS

Data Set: C:\Users\marjory.fure\Desktop\Big Rivers Slug Tests\Reid\Output MW-110\MW-110_F1.aqt
Date: 05/02/19 Time: 16:44:37

PROJECT INFORMATION

Company: AECOM
Client: Big Rivers
Project: Sebree Station Green Landfill
Location: Robards, Kentucky
Test Date: 4/25/2019

AQUIFER DATA

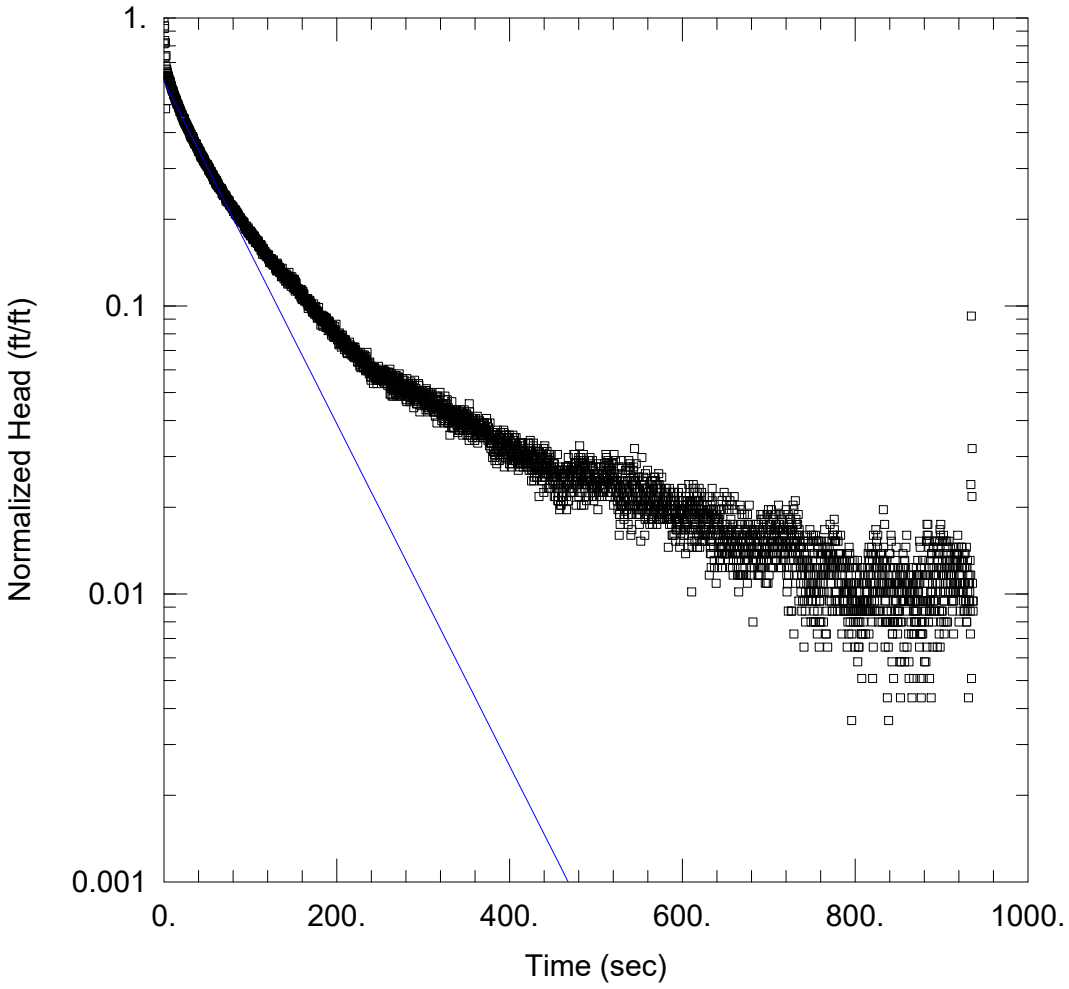
Saturated Thickness: 64.23 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-110)

Initial Displacement: -1.24 ft
Total Well Penetration Depth: 64. ft
Casing Radius: 0.08333 ft
Static Water Column Height: 64.23 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.0005182 cm/sec
y0 = -0.8459 ft



WELL TEST ANALYSIS

Data Set: C:\Users\marjory.fure\Desktop\Big Rivers Slug Tests\Reid\Output MW-110\MW-110_F2.aqt
Date: 05/02/19 Time: 16:45:09

PROJECT INFORMATION

Company: AECOM
Client: Big Rivers
Project: Sebree Station Green Landfill
Location: Robards, Kentucky
Test Date: 4/25/2019

AQUIFER DATA

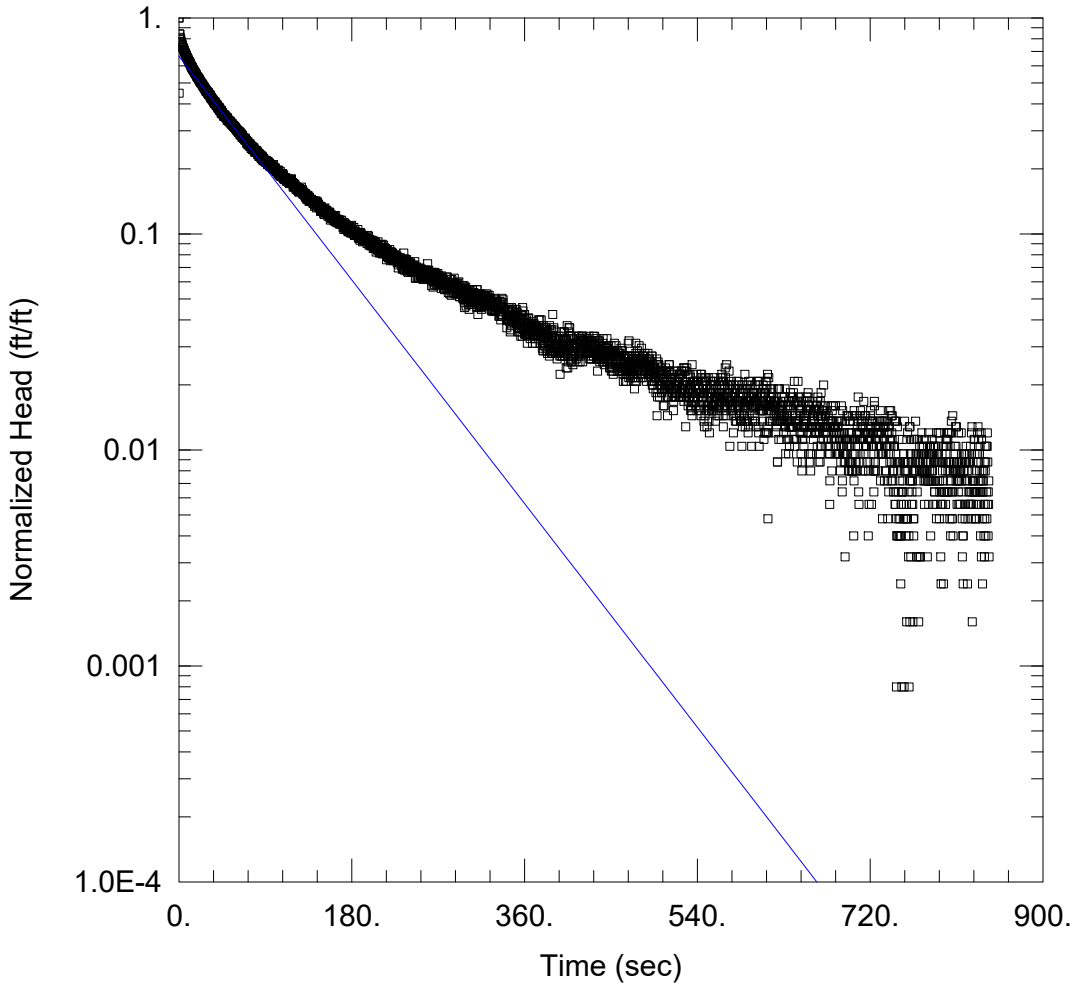
Saturated Thickness: 64.23 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-110)

Initial Displacement: -1.377 ft
Total Well Penetration Depth: 64. ft
Casing Radius: 0.08333 ft
Static Water Column Height: 64.23 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.0005431 cm/sec
y0 = -0.8266 ft



WELL TEST ANALYSIS

Data Set: C:\Users\marjory.fure\Desktop\Big Rivers Slug Tests\Reid\Output MW-110\MW-110_R1.aqt
Date: 05/02/19 Time: 16:44:52

PROJECT INFORMATION

Company: AECOM
Client: Big Rivers
Project: Sebree Station Green Landfill
Location: Robards, Kentucky
Test Date: 4/25/2019

AQUIFER DATA

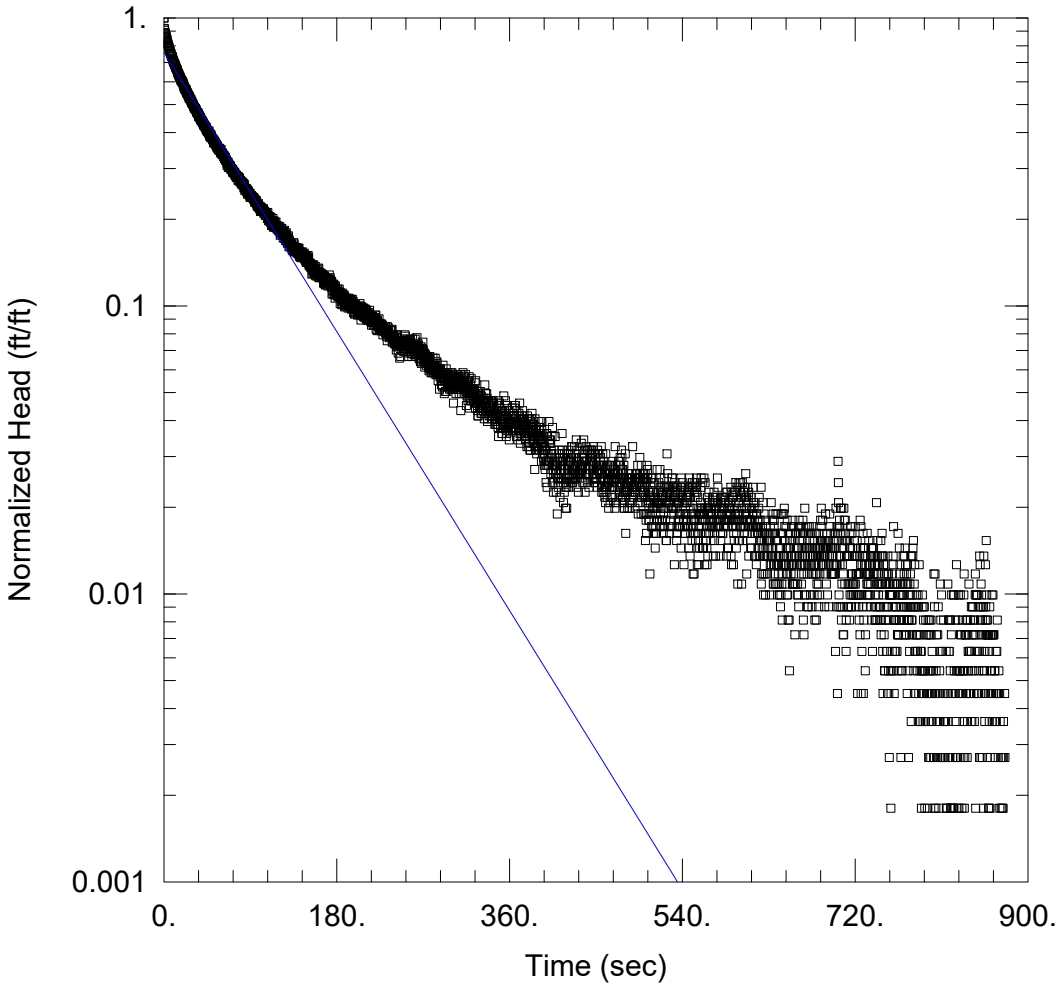
Saturated Thickness: 64.23 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-110)

Initial Displacement: 1.251 ft
Total Well Penetration Depth: 64. ft
Casing Radius: 0.08333 ft
Static Water Column Height: 64.23 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.0005261 cm/sec
y0 = 0.8309 ft



WELL TEST ANALYSIS

Data Set: C:\Users\marjory.fure\Desktop\Big Rivers Slug Tests\Reid\Output MW-110\MW-110_R2.aqt
Date: 05/02/19 Time: 16:43:52

PROJECT INFORMATION

Company: AECOM
Client: Big Rivers
Project: Sebree Station Green Landfill
Location: Robards, Kentucky
Test Date: 4/25/2019

AQUIFER DATA

Saturated Thickness: 64.23 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-110)

Initial Displacement: 1.109 ft
Total Well Penetration Depth: 64. ft
Casing Radius: 0.08333 ft
Static Water Column Height: 64.24 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.0004924 cm/sec
y0 = 0.8412 ft

Appendix C

Green Landfill Analytical Summary Tables

GREEN LANDFILL ANALYTICAL SUMMARY TABLES

GREEN LANDFILL - CCR ANALYTICAL SUMMARY
MW-1

APPENDIX III CONSTITUENTS	Detection Limit	GWPS	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		9/28/2018		4/22/2019		9/30/2019	
			Baseline Events																		Assessment		Re-Sampling		Assessment					
Boron	0.08		1.67		1.49		2.25		1.70		1.71	J	1.68		1.85	B	1.79		1.92				1.41		1.94	B	1.73	B	1.68	D2 M4
Calcium	0.5		29.1		31.8	B	33.0		30.9		20.8		28.1		27.1		29.9	B	26.4				26.5		28.5	B	32.1		29.1	D2
Chloride	3		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	6.17	B	6.41	B F1	7.5	
Fluoride	1		ND	J	ND	JB	ND	J	ND	JB	ND	J F1	ND	JB	ND	J F1	ND	J	ND	J F1			ND	J	ND	JB	0.521	J	0.6	
Sulfate	5		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		22.5	B	35.1	B F1	19	
pH (SU)	0.10		7.39		7.24		7.57		7.19		7.63		7.54		7.45		7.48		7.63				7.08		8.43		7.87		7.79	H3
Total Dissolved Solids	10		598		588		585		585		605		630		614		627		636				585		616		568	B	444	H1
APPENDIX IV CONSTITUENTS																														
Antimony	0.002	0.006 mg/L	ND		ND	J	ND	B	ND		ND		ND	JB	0.00297	B	ND	JB			ND	JB	ND	J	NA		0.000254	JB	ND	M1 V1 U
Arsenic	0.005	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	ND	JB	0.00167	JB	0.0005	V1 J
Barium	0.2	2 mg/L	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J F1	ND	J			ND	JB	ND	J	ND	J	0.0862	J	0.091	D2
Beryllium	0.002	0.004 mg/L	ND		ND		ND		ND		ND		ND		ND		ND				ND		ND		NA		0.000533	J	ND	D2 U
Cadmium	0.001	0.005 mg/L	ND		ND		ND		ND		ND		ND		ND		ND				ND		ND		NA		0.000299	J	ND	VI U
Chromimum	0.003	0.1 mg/L	ND		ND	J	ND		ND		ND		ND		ND		ND	J			ND	JB	ND		NA		0.00354	B	ND	U
Cobalt	0.005	0.006 mg/L	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J			ND	JB	ND	J	NA		0.000571	J	ND	U
Fluoride	1	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	ND	JB	0.521	J	0.6	
Lead	0.005	0.015 mg/L	ND	J	ND	J	ND	J	ND		ND		ND		ND		ND	J			ND		ND	J	NA		0.000279	J	ND	V1 U
Lithium	0.05	0.040 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	0.0279	J	0.0295	J	ND	D2 M3 U
Mercury	0.0002	0.002 mg/L	ND		ND		ND		ND		ND		ND		ND		ND				ND		ND		ND		ND		ND	V1 U
Molybdenum	0.01	0.1 mg/L	ND		ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND				ND	J	ND	J	NA		0.00105	J	ND	U
Radium 226	1	5 pCi/L	1.05		1.02		0.676		1.02		0.694		0.666		0.491		0.601				1.92		0.882		0.905		0.689		0.782	
Radium 228																													0.733	
Selenium	0.01	0.05 mg/L	ND		ND		ND		ND		ND		ND		ND	J	ND				ND		ND		NA		0.00105	J	ND	U
Thallium	0.001	0.002 mg/L	ND		ND	J	ND		ND	J	ND		ND		ND	J	ND				ND		ND		NA		0.000498	J	0.0001	V1 J

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pCi/L = picoCuries per Liter
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.
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-2

APPENDIX III CONSTITUENTS	Detection Limit	GWPS	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		9/28/2018		4/23/2019		10/1/2019	
			Baseline Events																		Assessment		Re-Sampling		Assessment			
Boron	0.08		ND	J	ND	J	ND	J	ND	J	ND	JB	ND	J	0.113	JB	ND	JB	ND	J			ND	J	0.0630	JB	0.101	JB	ND	D2 U
Calcium	0.5		119		116	B	140		140	B	126		152		154		121		150				155		165	B	156		166	D1
Chloride	3		126	B	125	B	129	B	133		142	B	129	B	145	B	136	B	129	B			154	B	159	B	144		108	D
Fluoride	1		ND	J	ND		ND	J	ND	JB F1	ND	J	ND	JB	ND	JB	ND	JB F1	ND	J			ND	J	ND	JB	0.193	J	0.3	
Sulfate	5		80.0		84.5	J	85.5	J	90.1		89.8		83.2		92.0	JB	90.8		88.6	JB			107		108	B	105		79.0	D
pH (SU)	0.10		6.81		6.59		6.7		6.78		7.12		7.04		6.77		6.69		6.86		6.64		6.40		7.02		7.15		7.39	H3
Total Dissolved Solids	10		764		780		830		880		862		918		913		818		970				884		937		918	B	930	H1
APPENDIX IV CONSTITUENTS																														
Antimony	0.002	0.006 mg/L	ND		ND	J	ND	JB	ND	JB	ND		ND	JB	ND	B	ND	JB			ND	JB	ND	J	NA		0.0000670	JB	ND	V1 U
Arsenic	0.005	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		0.0211	B	0.00738	B	0.0129	D2
Barium	0.2	2 mg/L	ND	J	ND	J	0.280		0.319		0.347		0.332		0.308		ND	J			0.369		0.323		0.367		0.362		0.380	D2
Beryllium	0.002	0.004 mg/L	ND		ND		ND		ND		ND		ND		ND		ND				ND		ND		NA		0.000281	J	ND	D2 U
Cadmium	0.001	0.005 mg/L	ND	J	ND		ND		ND		ND		ND		ND		ND				ND		ND		NA		ND		ND	V1 U
Chromimum	0.003	0.1 mg/L	ND		ND	J	ND		ND		ND		ND		ND		ND				ND	JB	ND		NA		0.00122	JB	ND	D2 U
Cobalt	0.005	0.006 mg/L	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	JB	ND	J			ND	JB	ND	J	NA		0.00382	J	ND	D2 U
Fluoride	1	4 mg/L	ND	J	ND		ND	J	ND	JB F1	ND	J	ND	JB	ND	JB	ND	JB F1			ND	J	ND	J	ND	JB	0.193	J	0.3	
Lead	0.005	0.015 mg/L	ND		ND		ND		ND		ND		ND		ND		ND				ND		ND	J	NA		ND		ND	V1 U
Lithium	0.05	0.040 mg/L	ND	J	ND		ND		ND		ND	J	ND	J	ND	JB	ND				ND		ND		ND		ND		ND	D2 VI U
Mercury	0.0002	0.002 mg/L	ND		ND		ND		ND		ND		ND		ND		ND				ND		ND		ND		ND		ND	V1 U
Molybdenum	0.01	0.1 mg/L	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	JB	ND	JB			ND	J	ND	J	NA		0.00210	J	0.003	J
Radium 226	1	5 pCi/L	0.533		ND		0.46		ND		0.856		0.73		0.968		0.537				1.18		0.733		0.803		0.391		0.136	
Radium 228																													0.834	
Selenium	0.01	0.05 mg/L	ND		ND		ND		ND	JB	ND		ND		ND	JB	ND				ND		ND		NA		ND		ND	U
Thallium	0.001	0.002 mg/L	ND		ND	J	ND		ND		ND		ND		ND		ND				ND		ND		NA		0.0000800	J	ND	V1 U

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H1 = Sample analysis performed pasts holding time
H3 = Sample received and analyzed past holding time
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-3A

APPENDIX III CONSTITUENTS	Detection Limit	GWPS	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	9/28/2018	4/23/2019	10/1/2019
			Baseline Events									Assessment	Re-Sampling		Assessment	
Boron	0.08		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	0.257 JB	0.259 JB	ND D2 U
Calcium	0.5		431	322 B	362	365 B	327	420	421	438 B	408		469	447 B	411	490 D1
Chloride	3		2630 HB	3070	2150 B	2150 B	2220 B	2120 B	1790 B	2270 B	1870 B		2180 B	2040 B	1850	4570 D
Fluoride	1		ND J	ND J	ND J	ND JB	ND J	ND JB	ND	3.16	ND J		ND J	ND JB	0.387 J	0.4
Sulfate	5		1330	1330	1190	1660	1080	1030 B	942	1130	1030 B		1010	1130 B	1080	1680 D
pH (SU)	0.10		6.92	6.86	6.95	6.75	7.17	7.11	6.81	6.9	6.95	6.84	6.55	7.98	7.23	7.33 H3
Total Dissolved Solids	10		4440	5010	4170	4450	4270	5170	5010	5020	5300		4540	4940	4250 B	6900 H1
APPENDIX IV CONSTITUENTS																
Antimony	0.002	0.006 mg/L	ND	ND J	ND JB	ND JB	ND	ND JB	ND JB	ND JB		ND JB	ND	NA	0.000102 JB	ND V1 U
Arsenic	0.005	0.01 mg/L	ND	ND J	ND J	ND J	ND J	ND J	ND J	ND JB		ND JB	ND J	ND JB	0.000575 JB	ND D2 U
Barium	0.2	2 mg/L	ND J	ND J	ND J	ND J	ND J	ND J	ND J	ND J		ND J	ND J	ND J	0.0474 J	0.051 D2 U
Beryllium	0.002	0.004 mg/L	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	NA	0.000199 J	ND D2 U
Cadmium	0.001	0.005 mg/L	ND J	ND J	ND	ND	ND J	ND J	ND	ND		ND J	ND J	NA	0.000164 J	ND V1 U
Chromimum	0.003	0.1 mg/L	ND	ND J	ND	ND	ND	ND	ND	ND J		ND JB	ND	NA	0.00168 JB	ND D2 U
Cobalt	0.005	0.006 mg/L	ND	ND J	ND J	ND J	ND J	ND J	ND J	ND J		ND JB	ND J	NA	0.000243 J	0.008
Fluoride	1	4 mg/L	ND J	ND J	ND J	ND JB	ND J	ND JB	ND	3.16		ND J	ND J	ND JB	0.387 J	0.4
Lead	0.005	0.015 mg/L	ND J	ND	ND	ND	ND	ND	ND J	ND J		ND	ND J	NA	0.000137 J	ND V1 U
Lithium	0.05	0.040 mg/L	0.669	0.516	0.648	0.677	0.689	0.746	0.767	0.762		0.699	0.790	0.766	0.678	0.79 D1
Mercury	0.0002	0.002 mg/L	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND V1 U
Molybdenum	0.01	0.1 mg/L	ND	ND J	ND	ND	ND	ND	ND	ND		ND	ND	NA	ND	ND D2 U
Radium 226	1	5 pCi/L	1.38	0.386	0.472	1.15	1.15	0.923	1.53	1.03		1.18	1.43	1.21	0.641	0.139
Radium 228																0.734
Selenium	0.01	0.05 mg/L	ND	ND	ND J	ND JB	ND	ND	ND	ND		ND J	ND	NA	0.00103 J	ND D2 U
Thallium	0.001	0.002 mg/L	ND	ND J	ND	ND	ND	ND	ND	ND J		ND	ND	NA	0.000860 J	ND V1 U

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D2 = Sample required dilution due to matrix interference
H1 = Sample analysis performed pasts holding time
H3 = Sample received and analyzed past holding time
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	Detection Limit	GWPS	DATE																					
			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		9/28/2018		4/22/2019		10/1/2019	
			Baseline Events																		Assessment		Re-Sampling		Assessment					
Boron	0.08		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	1.33	B	1.25	B	1.75	D2
Calcium	0.5		660		386	B	464		558		591		774		743		739		828				822		722	B	730		690	D1
Chloride	3		1450	B	939	B	952	B	1000	B	1420	B	1320	B	1360	B	1880	B	1730	B			1430	B	1310	B	1510		1910	D
Fluoride	1		ND	J	ND		ND	J	ND	JB	ND	J	1.06	B	ND		ND	JB	ND	J			ND	J	ND	JB	0.102	J	0.2	
Sulfate	5		1830		1640		1420		1420	B	1620		1430	B	1600	B	2020		1590	B			1460		1400	B	1440		2490	D
pH (SU)	0.10		6.36		6.83		7.08		6.61		7.28		7.1		6.84		6.64		6.93		6.86		6.58		8.06		7.26		7.36	H3
Total Dissolved Solids	10		3700		4250		3440		3250		4420		4550		4890		4700	H	6220				4880		5170		4840	B	4820	H1
APPENDIX IV CONSTITUENTS																														
Antimony	0.002	0.006 mg/L	ND		ND	J	ND	JB	ND		ND		ND	JB	ND	JB	ND	JB			ND	JB	ND		NA		0.0000360	JB	ND	V1 U
Arsenic	0.005	0.01 mg/L	ND		ND	J	ND	J	ND		ND	J	ND	J	ND	J	ND	JB			ND	JB	ND	J	ND	JB	0.000445	JB	ND	D2 U
Barium	0.2	2 mg/L	ND	J	ND	J	ND	J	ND	JB	ND	J	ND	J	ND	J	ND	JB			ND	J	ND	J	ND	J	0.0308	JB	0.029	D2 J
Beryllium	0.002	0.004 mg/L	ND		ND		ND		ND		ND		ND		ND		ND				ND		ND		NA		ND		ND	D2 U
Cadmium	0.001	0.005 mg/L	ND	J	ND		ND		ND		ND		ND		ND		ND				ND		ND		NA		ND		ND	V1 U
Chromimum	0.003	0.1 mg/L	ND		ND	J	ND		ND		ND		ND		ND		ND				ND	JB	ND		NA		0.00110	JB	ND	D2 U
Cobalt	0.005	0.006 mg/L	ND		ND	J	ND		ND		ND		ND		ND		ND				ND	JB	ND	J	NA		0.000415	J	ND	U
Fluoride	1	4 mg/L	ND		ND		ND	J	ND	JB	ND	J	ND	B	ND		ND	JB			ND	J	ND	J	ND	JB	0.102	J	0.2	
Lead	0.005	0.015 mg/L	ND	J	ND	J	ND		ND		ND		ND		ND		ND				ND		ND	J	NA		ND		ND	V1 U
Lithium	0.05	0.040 mg/L	1.39		0.838		1.13		1.25		1.35		1.59		1.77		1.66				1.81		1.91		1.81		1.73		ND	D2 V1 U
Mercury	0.0002	0.002 mg/L	0.00027		0.000224		ND	J	0.000248		0.000302		0.000717		0.000825		0.000485				0.000824		0.000832		0.000680		0.000825		0.0004	V1 J
Molybdenum	0.01	0.1 mg/L	ND	J	ND	J	ND		ND		ND	J	ND		ND		ND				ND		ND		NA		ND		ND	D2 U
Radium 226	1	5 pCi/L	1.26		0.592		ND		0.536		1.22		1.43		1.94		1.19				1.62		2.00		1.51		1.66		0.451	
Radium 228																													0.804	
Selenium	0.01	0.05 mg/L	ND	J	ND	J	ND	J	ND		ND	J	ND		ND		ND	J			ND	J	ND		NA		0.00211	J	ND	U
Thallium	0.001	0.002 mg/L	ND		ND		ND		ND	J	ND		ND		ND		ND				ND		ND		NA		0.0000410	J	ND	V1 U

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H1 = Sample analysis performed pasts holding time
H3 = Sample received and analyzed past holding time
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-5

APPENDIX III CONSTITUENTS	Detection Limit	GWPS	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		9/28/2018		4/22/2019		9/30/2019	
			Baseline Events																		Assessment		Re-Sampling		Assessment					
Boron	0.08		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	0.263	JB	0.271	JB	ND	D2 U
Calcium	0.5		452		189	B	374		399		335		464		423		407	B	383				469		441	B	446		476	D1
Chloride	3		1630	B	521		688	B	755	B	734	B	722	B	945	B	779	B	608	B			941	B	1140	B	931		1500	D
Fluoride	1		ND	J	ND		ND	J	ND		ND	J	ND	JB	ND		3.69		ND	J			ND	J	ND	JB	0.128	J	0.2	
Sulfate	5		1760	HB	876		1780		1740	B	1880		1760	B	2060	B	1920		1600	B			1800		1890	B	1800		2990	D
pH (SU)	0.10		6.76		6.74		6.99		6.61		7.14		7.44		6.87		7.13		7.06		6.88		6.40		7.99		7.15		7.41	H3
Total Dissolved Solids	10		4210		1660		3470		3610		3680		4250		4130		4120		4390				4100		4540		4360	B	5320	H1
APPENDIX IV CONSTITUENTS																														
Antimony	0.002	0.006 mg/L	ND		ND	J	ND	JB	ND		ND		ND	JB	ND	JB	ND	JB			ND	JB	ND		NA		0.0000700	JB	ND	V1 U
Arsenic	0.005	0.01 mg/L	ND		ND	J	ND	JB	ND	J	ND	J	ND	J	ND	J	ND	JB			ND	JB	ND	J	ND	JB	0.000424	JB	ND	D2 U
Barium	0.2	2 mg/L	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J			ND	J	ND	J	ND	J	0.0167	J	0.016	D2 J
Beryllium	0.002	0.004 mg/L	ND		ND		ND	J	ND		ND		ND		ND		ND				ND		ND		NA		ND		ND	D2 U
Cadmium	0.001	0.005 mg/L	ND	J	ND		ND		ND		ND		ND		ND		ND				ND		ND		NA		ND		ND	V1 U
Chromimum	0.003	0.1 mg/L	ND		ND	J	ND		ND		ND	J	ND	J	ND		ND	J			0.00363	B	ND		NA		0.00159	JB	0.0033	
Cobalt	0.005	0.006 mg/L	ND		ND	J	ND	J	ND	J	ND		ND	J	ND		ND	J			ND	JB	ND	J	NA		0.000288	J	ND	U
Fluoride	1	4 mg/L	ND	J	ND		ND	J	ND		ND	J	ND		ND		3.69				ND	J	ND	J	ND	JB	0.128	J	0.2	
Lead	0.005	0.015 mg/L	ND	J	ND	J	ND		ND		ND		ND		ND		ND				ND	J	ND	J	NA		0.0000860	J	ND	V1 U
Lithium	0.05	0.040 mg/L	0.521		0.136		0.305		0.325		0.368		0.415		0.405		0.353				0.459		0.481		0.425		0.434		0.40	D1
Mercury	0.0002	0.002 mg/L	ND		ND		ND		ND		ND		ND		0.00351		ND				ND		ND		ND		ND		ND	V1 U
Molybdenum	0.01	0.1 mg/L	ND		ND	J	ND		ND		ND		ND		ND		ND				ND		ND		NA		ND		ND	D2 U
Radium 226	1	5 pCi/L	1.16		0.736		0.959		0.957		0.765		0.888		1.54		0.773				0.862		1.42		1.37		0.945		0.368	
Radium 228																													0.730	
Selenium	0.01	0.05 mg/L	ND		ND		ND		ND		ND	J	ND	J	ND		ND				ND	J	ND		NA		0.000624	J	ND	U
Thallium	0.001	0.002 mg/L	ND		ND		ND	J	ND	J	ND		ND	J	ND		ND	J			ND	J	ND		NA		0.0000890	J	ND	V1 U

*All results listed in milligrams per liter (mg/L) unless otherwise noted by the Maximum Contaminant Level (MCL)
GWPS = Groundwater Protection Standard
NA = Not Analyzed
ND = Not Detected at or above Method Detection Limit
pCi/L = picoCuries per Liter
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.
H = Sample was prepped or analyzed beyond the specified holding time
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
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	Detection Limit	GWPS	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		9/28/2018		4/22/2019		9/30/2019	
			Baseline Events																		Assessment		Re-Sampling				Assessment			
Boron	0.08		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	0.196	JB	0.194	JB	ND	D2 U
Calcium	0.5		467		374	B	373		400		320		415		365		382	B	376				386		356	B	421		431	D1
Chloride	3		167	B	149	B	136	JB	150	B	125	B	129	B	128	B	123	B	138	B			147	B	142	B	142		230	D
Fluoride	1		ND	J	ND	J	ND	J	ND	JB	ND	J	ND	JB	ND		ND	J	ND	J			ND	J	ND	JB	0.409	J	0.5	
Sulfate	5		2250	HB	3340		2550		2610	B	2700		2600	B	2820	B	2490		2700	B			2120		2420		2200		3830	D
pH (SU)	0.10		6.66		6.65		6.96		6.6		6.92		6.97		6.76		6.95		6.86				6.50		7.94		6.86		7.15	H3
Total Dissolved Solids	10		4060		4280		4350		4470		4720		4700		4830		4890		4910				4500		4820		4780	B	4830	H1
APPENDIX IV CONSTITUENTS																														
Antimony	0.002	0.006 mg/L	ND		ND	J	ND	JB	ND		ND		ND	JB	ND	JB	ND	JB			ND	JB	ND		NA		0.0000920	JB	ND	V1 U
Arsenic	0.005	0.01 mg/L	ND		ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	JB			ND	JB	ND	J	ND	JB	0.000722	JB	ND	V1 U
Barium	0.2	2 mg/L	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J			ND	J	ND	J	ND	J	0.0128	J	0.010	D2 J
Beryllium	0.002	0.004 mg/L	ND		ND		ND		ND		ND		ND		ND		ND				ND		ND		NA		ND		ND	D2 U
Cadmium	0.001	0.005 mg/L	ND		ND		ND		ND		ND		ND		ND		ND				ND		ND		NA		ND		ND	V1 U
Chromimum	0.003	0.1 mg/L	ND		ND	J	ND		ND		ND		ND		ND		ND	J			ND	JB	ND		NA		0.00196	JB	ND	U
Cobalt	0.005	0.006 mg/L	ND		ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J			ND	JB	ND	J	NA		0.000276	J	ND	U
Fluoride	1	4 mg/L	ND	J	ND	J	ND	J	ND	JB	ND	J	ND	JB	ND		ND	J			ND	J	ND	J	ND	JB	0.409	J	0.5	
Lead	0.005	0.015 mg/L	ND	J	ND	J	ND		ND		ND		ND		ND		ND				ND		ND	J	NA		ND		ND	V1 U
Lithium	0.05	0.040 mg/L	0.0475	J	0.0527		0.0555		0.0524		0.0607		0.0724		0.0589		0.0554				0.0650		0.0592		0.0558		0.0633		0.05	D2 V1 J
Mercury	0.0002	0.002 mg/L	ND		ND		ND		ND		ND		ND		ND		ND				ND		ND		ND		ND		ND	V1 U
Molybdenum	0.01	0.1 mg/L	ND	J	ND	J	ND	J	ND	B	ND	J	ND	J	ND	J	ND	J			ND	J	ND	J	NA		0.000972	J	ND	D2 U
Radium 226	1	5 pCi/L	0.741		0.386		ND		0.751		ND		ND		0.462		ND				0.392		0.532		ND	U	0.450		0.548	
Radium 228																													0.698	
Selenium	0.01	0.05 mg/L	ND		ND		ND		ND		ND		ND		ND		ND				ND	J	ND		NA		0.00110	J	ND	U
Thallium	0.001	0.002 mg/L	ND		ND	J	ND		ND		ND		ND		ND		ND				ND		ND		NA		0.0000610	J	ND	V1 U

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GWPS = Groundwater Protection Standard
NA = Not Analyzed
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H1 = Sample analysis performed pasts holding time
H3 = Sample received and analyzed past holding time
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	Detection Limit	GWPS	DATE					
			3/29/2019		4/10/2019		10/25/2019	
			Characterization					
Boron	0.08		0.1880	JB	0.2710	JB	ND	D2, U
Calcium	0.5		465	B	502		505	D1
Chloride	3		1430		1430	B	1610	D
Fluoride	1		ND		0.3230	JB	0.4	
Sulfate	5		2870		2880	B	2440	D
pH (Field Measurement)	0.10		6.88		6.99		6.86	
Total Dissolved Solids	10		6990		6690		7330	
APPENDIX IV CONSTITUENTS								
Antimony	0.002	0.006 mg/L	0.0001	JB	0.0001	JB	ND	U
Arsenic	0.005	0.01 mg/L	0.0022	J	0.0021	J	0.0039	
Barium	0.2	2 mg/L	0.0243	J	0.0216	JB	0.030	
Beryllium	0.002	0.004 mg/L	ND		ND		ND	U
Cadmium	0.001	0.005 mg/L	ND		ND		0.0004	J
Chromium	0.003	0.1 mg/L	0.0047	B	0.0036		0.0066	
Cobalt	0.005	0.006 mg/L	0.0059	B	0.0052		0.011	
Fluoride	1	4 mg/L	ND		0.3230	JB	0.4	
Lead	0.005	0.015 mg/L	0.0011	J	0.0002	J	0.003	
Lithium	0.05	0.040 mg/L	0.0281	J	0.0286	J	0.02	
Mercury	0.0002	0.002 mg/L	ND		ND	^	ND	U
Molybdenum	0.01	0.1 mg/L	0.0015	J	0.0010	J	0.005	J
Radium 226	1	5 pCi/L	0.7760		0.3190	U	0.126	
Radium 228							1.52	
Selenium	0.01	0.05 mg/L	ND		ND		ND	U
Thallium	0.001	0.002 mg/L	ND		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
pCi/L = picoCuries per Liter
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.
D1 = Sample required dilution due to high concentration of target analyte
D2 = Sample required dilution due to matrix interference
U = Target analyte was analyzed for, but was below detection limit

Appendix D

Green Surface Impoundment Analytical Summary Tables

GREEN SURFACE IMPOUNDMENT ANALYTICAL SUMMARY TABLES

GREEN SURFACE IMPOUNDMENT - ANALYTICAL SUMMARY
MW-11

APPENDIX III CONSTITUENTS	Detection Limit	GWPS	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		9/27/2018		4/29/2019		10/3/2019	
			Baseline Events																		Detection					
Boron	0.08	NA	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		0.671	B	0.717		ND	D2, M2. M4, U
Calcium	0.5	NA	371		378	B	243		291		276		326	B	321		299		315	B	317		312		345		318	D1, M1
Chloride	3	NA	1070	B	1740	B	1880	B	2000	B	1880	B	1910	B	2360	B	1520	B	1940	B	1860	B	2000	B	1900		3900	D
Fluoride	1	4 mg/L	ND	J	ND	J	ND	JB^	ND		ND	JB	ND	JB	ND		ND	JB	ND	J F1	ND	J	ND	J	0.227	J	0.2	
Sulfate	5	NA	1170		1400		1150		1150	B	1060		1010	B	1410		797	J	1050	B	1020	B	1080	B	949	B	971	
pH (Field Measurement)	0.10	NA	7.23		7.24		7.29		7.22		7.20		7.04		6.89		6.88		6.86		7.18		6.70		7.11		6.86	
Total Dissolved Solids	10	NA	3920	H	4610		4840		4490		4930		4830		5100		4880		5080		5070		5020		4890	B	682	
APPENDIX IV CONSTIUENTS																												
Antimony	0.002	0.006 mg/L	ND		ND	JB	ND	JB	ND		ND	JB	ND	JB	ND	JB	ND	JB										
Arsenic	0.005	0.01 mg/L	ND	J	ND		ND		ND	J	ND	J	ND	JB	ND	J	ND	JB										
Barium	0.2	2 mg/L	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J										
Beryllium	0.002	0.004 mg/L	ND		ND		ND		ND		ND		ND		ND		ND											
Cadmium	0.001	0.005 mg/L	ND		ND		ND		ND		ND		ND		ND		ND											
Chromimum	0.003	0.1 mg/L	ND		ND	J	ND		ND		ND		ND		ND		ND	J										
Cobalt	0.005	0.006 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	1	4 mg/L	ND	J	ND	J	ND	J	ND		ND	J	ND	J	ND		ND	JB							0.227	J	0.2	
Lead	0.005	0.015 mg/L	ND		ND	JB	ND		ND		ND		ND		ND	J	ND											
Lithium	0.05	0.040 mg/L	0.0365	J	0.0685		0.0651		0.0544		0.0591		0.0545		0.0615		0.0596											
Mercury	0.0002	0.002 mg/L	ND		ND		ND		ND		ND		ND		ND		ND											
Molybdenum	0.01	0.1 mg/L	0.0163		ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND											
Radium 226 Radium 228	1	5 pCi/L	1.35		0.975		1.61		1.86		1.66		2.18		2.69		2.08											
Selenium	0.01	0.05 mg/L	ND		ND	J	ND	J	ND		ND	J	ND	JB	ND		ND	J										
Thallium	0.001	0.002 mg/L	ND	J	ND		ND		ND		ND		ND	J	ND	J	ND											

*All results listed in milligrams per liter (mg/L) unless otherwise noted by the Maximum Contaminant Level (MCL)
GWPS = Groundwater Protection Standard
NA = Not Analyzed
ND = Not Detected at or above Method Detection Limit
pCi/L = picoCuries per Liter
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.
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

GREEN SURFACE IMPOUNDMENT - ANALYTICAL SUMMARY
MW-12

APPENDIX III CONSTITUENTS	Detection Limit	GWPS	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	9/27/2018	4/29/2019	10/4/2019
			Baseline Events										Detection			
Boron	0.08	NA	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	0.335 B	0.290	ND D2, U
Calcium	0.5	NA	68.6	95.1 B	81.0	99.4	87.7	90.9 B	88.5	94.5	92 B	345	93.5	96.4	93.1	92.0 D2
Chloride	3	NA	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	15.5 B	15.1	14.0
Fluoride	1	4 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	ND J	0.428 J	0.4
Sulfate	5	NA	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	14.3	11.9 B	11
pH (Field Measurement)	0.10	NA	7.85	7.4	7.52	7.33	7.65	5.02	6.56	7.07	7.07	7.11	7.34	6.84	7.36	7.07
Total Dissolved Solids	10	NA	472	745	726	677	679	676	674	758	641	4890 B	649	595	618 B	546
APPENDIX IV CONSTIUENTS																
Antimony	0.002	0.006 mg/L	0.00204	ND UB	ND UB	ND	ND UB	ND UB	ND UB	ND UB						
Arsenic	0.005	0.01 mg/L	0.00596	0.00566	ND J	ND J	ND J	ND JB	ND J	ND JB						
Barium	0.2	2 mg/L	ND J	ND J	ND J	ND J	ND J	ND JB	ND J	ND J						
Beryllium	0.002	0.004 mg/L	ND	ND	ND	ND	ND	ND	ND	ND						
Cadmium	0.001	0.005 mg/L	ND	ND	ND	ND	ND	ND	ND	ND						
Chromimum	0.003	0.1 mg/L	ND J	ND J	ND	ND	ND	ND	ND	ND J						
Cobalt	0.005	0.006 mg/L	ND	ND J	ND J	ND J	ND J	ND JB	ND J	ND J						
Fluoride	1	4 mg/L	ND J	ND J	ND J	ND JB	ND J	ND JB	ND J	ND JB		0.227 J			0.428 J	0.4
Lead	0.005	0.015 mg/L	ND J	ND JB	ND	ND	ND	ND	ND J	ND J						
Lithium	0.05	0.040 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	0.0002	0.002 mg/L	ND	ND	ND	ND	ND	ND	ND	ND						
Molybdenum	0.01	0.1 mg/L	0.0769	0.0234	0.0141	0.0123	0.0100	ND JB	ND J	ND J						
Radium 226 Radium 228	1	5 pCi/L	0.842	ND	ND	0.954	0.361	0.556	0.566	ND						
Selenium	0.01	0.05 mg/L	ND J	ND	ND	ND	ND	ND JB	ND	ND						
Thallium	0.001	0.002 mg/L	ND	ND	ND	ND	ND	ND JB	ND	ND						

*All results listed in milligrams per liter (mg/L) unless otherwise noted by the Maximum Contaminant Level (MCL)
GWPS = Groundwater Protection Standard
NA = Not Analyzed
ND = Not Detected at or above Method Detection Limit
pCi/L = picoCuries per Liter
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
D2 = Sample required dilution due to matrix interference

GREEN SURFACE IMPOUNDMENT - ANALYTICAL SUMMARY
MW-13

APPENDIX III CONSTITUENTS	Detection Limit	GWPS	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	9/27/2018	4/29/2019	10/4/2019								
			Baseline Events										Detection											
Boron	0.08	NA	ND B	ND J	ND JB	ND J	ND JB	ND JB	ND JB	ND J	ND J	0.717	ND J	0.0565 JB	0.0392 J	ND	D2, U							
Calcium	0.5	NA	93.0	95.1 B	85.1	94.5	82.8	90.2 B	92.3	94.3	92.2 B	345	94.3	95.6	95.1	87.4	D2							
Chloride	3	NA	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	21.0	26.6 B	24.4	24.6								
Fluoride	1	4 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	ND J	0.271 J	0.2								
Sulfate	5	NA	118	118	106	104 B	96.2	98.1 J	96.6	88.0	96.4 B	949 B	87.6 B	109 B	98.6 B	41								
pH (Field Measurement)	0.10	NA	6.78	6.9	6.97	6.86	7.22	8.25	6.48	6.64	6.62	7.11	7.03	6.54	6.94	6.75								
Total Dissolved Solids	10	NA	699	721	684	704	678	714	702	727	695	4890 B	673	697	711 B	586								
APPENDIX IV CONSTIUENTS																								
Antimony	0.002	0.006 mg/L	ND	ND JB	ND JB	ND	ND JB	ND JB	ND JB	ND JB														
Arsenic	0.005	0.01 mg/L	ND J	ND J	ND J	ND J	ND J	ND JB	ND J	ND JB														
Barium	0.2	2 mg/L	ND J	ND J	ND J	ND J	ND J	ND J	ND J	ND J														
Beryllium	0.002	0.004 mg/L	ND	ND	ND	ND	ND	ND	ND	ND														
Cadmium	0.001	0.005 mg/L	ND	ND	ND	ND	ND	ND	ND	ND														
Chromimum	0.003	0.1 mg/L	ND	ND J	ND	ND	ND	ND	ND	ND J														
Cobalt	0.005	0.006 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	1	4 mg/L	ND J	ND J	ND J	ND JB	ND J	ND JB	ND J	ND JB		0.227 J			0.271 J	0.2								
Lead	0.005	0.015 mg/L	ND J	ND JB	ND	ND	ND	ND	ND	ND														
Lithium	0.05	0.040 mg/L	0.00929 J	0.0104 J	0.0123 J	0.0104 J	0.0113 J	ND	0.0111 J	ND														
Mercury	0.0002	0.002 mg/L	ND	ND	ND	ND	ND	ND	ND	ND														
Molybdenum	0.01	0.1 mg/L	ND J	ND J	ND J	ND J	ND J	ND J	ND J	ND J														
Radium 226 Radium 228	1	5 pCi/L	ND	ND	ND	ND	ND	0.164	0.47	0.749														
Selenium	0.01	0.05 mg/L	ND	ND	ND J	ND	ND	ND	ND	ND														
Thallium	0.001	0.002 mg/L	ND	ND	ND	ND	ND	ND	ND	ND														

*All results listed in milligrams per liter (mg/L) unless otherwise noted by the Maximum Contaminant Level (MCL)
GWPS = Groundwater Protection Standard
NA = Not Analyzed
ND = Not Detected at or above Method Detection Limit
pCi/L = picoCuries per Liter
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
D2 = Sample required dilution due to matrix interference

GREEN SURFACE IMPOUNDMENT - ANALYTICAL SUMMARY
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APPENDIX III CONSTITUENTS	Detection Limit	GWPS	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	9/27/2018	4/28/2019	4/29/2019	10/3/2019
			Baseline Events									Detection				
Boron	0.08	NA	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	0.232 B	0.717	0.206	ND D2, U
Calcium	0.5	NA	194	194 B	171	193	183	193 B	193	187	194 B	189	200	345	206	194 D1
Chloride	3	NA	161 B	184 B	185 B	193 B	191 B	185 B	212 B	230 B	199 B	198 B	189 B	1900	165	262 D
Fluoride	1	4 mg/L	ND J	ND J	ND J	ND UB	ND J	ND UB	ND UB	ND UB	ND J	ND	ND J	0.227 J	0.342 J	0.3
Sulfate	5	NA	188	219	216	215 B	221	197 B	179	198 J	185	222 B	231 B	949 B	222 B	871 D
pH (Field Measurement)	0.10	NA	6.63	6.35	7.43	7.34	7.78	5.23	7.33	7.13	7.32	7.26	6.57	7.11	7.05	6.77
Total Dissolved Solids	10	NA	1080	1130	1140	1130	1150	1170	1150	1240	1170	1180	1100	4890 B	1180 B	1120 H2
APPENDIX IV CONSTIUENTS																
Antimony	0.002	0.006 mg/L	ND	ND UB	ND UB	ND	ND UB	ND UB	ND UB	ND UB						
Arsenic	0.005	0.01 mg/L	ND J	ND J	ND J	ND J	ND J	ND UB	ND J	ND UB						
Barium	0.2	2 mg/L	ND J	ND J	ND J	ND J	ND J	ND J	ND J	ND J						
Beryllium	0.002	0.004 mg/L	ND	ND	ND	ND	ND	ND	ND	ND						
Cadmium	0.001	0.005 mg/L	ND	ND	ND	ND	ND	ND	ND	ND						
Chromimum	0.003	0.1 mg/L	ND	ND	ND	ND	ND	ND	ND	ND J						
Cobalt	0.005	0.006 mg/L	ND	ND J	ND J	ND J	ND J	ND J	ND J	ND J						
Fluoride	1	4 mg/L	ND J	ND J	ND J	ND UB	ND	ND UB	ND J	ND UB				0.227 J	0.342 J	0.3
Lead	0.005	0.015 mg/L	ND	ND UB	ND	ND	ND	ND	ND	ND J						
Lithium	0.05	0.040 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	0.0002	0.002 mg/L	ND	ND	ND	ND	ND	ND	ND	ND						
Molybdenum	0.01	0.1 mg/L	ND J	ND J	ND	ND	ND	ND	ND	ND						
Radium 226 Radium 228	1	5 pCi/L	1.54	1.42	1.86	1.55	1.31	2.17	2.85	1.8						
Selenium	0.01	0.05 mg/L	ND	ND	ND	ND	ND	ND	ND	ND						
Thallium	0.001	0.002 mg/L	ND	ND	ND	ND	ND	ND	ND	ND						

*All results listed in milligrams per liter (mg/L) unless otherwise noted by the Maximum Contaminant Level (MCL)
GWPS = Groundwater Protection Standard
NA = Not Analyzed
ND = Not Detected at or above Method Detection Limit
pCi/L = picoCuries per Liter
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

Appendix E

Reid/HMP&L Surface Impoundment Analytical Summary Tables

REID/HMP&L SURFACE IMPOUNDMENT
ANALYTICAL SUMMARY TABLES

REID/HMPL SURFACE IMPOUNDMENT - ANALYTICAL SUMMARY
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APPENDIX III CONSTITUENTS	Detection 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	
			Baseline Events																		Assessment		Re-Sample		Assessment					
Boron	0.08	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, M4, U
Calcium	0.5	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
Chloride	3	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	
Fluoride	1	4 mg/L	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	
Sulfate	5	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	
pH (Field Measurement)	0.10	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	
Total Dissolved Solids	10	NA	233		243		243		250		253		291		290		267		278				295		263		271		228	
APPENDIX IV CONSTIUENTS																														
Antimony	0.002	0.006 mg/L	ND		ND	JB	ND	JB	ND	J	ND		ND		ND	JB	ND	JB			ND	JB	ND	JB	NA		0.0000760	JB	ND	U
Arsenic	0.005	0.01 mg/L	ND		ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J			ND	JB	ND	JB	NA		0.00116	J	0.0014	
Barium	0.2	2 mg/L	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J			ND	J	ND	J	ND	J	0.0824	J	0.062	
Beryllium	0.002	0.004 mg/L	ND		ND		ND		ND		ND		ND		ND		ND				ND		NA		NA		ND		ND	U
Cadmium	0.001	0.005 mg/L	ND		ND		ND		ND		ND		ND		ND		ND				ND		NA		NA		ND		ND	U
Chromimum	0.003	0.1 mg/L	ND		ND		ND		ND		ND		ND		ND		ND				ND	JB	ND	JB	NA		0.00136	J	ND	U
Cobalt	0.005	0.006 mg/L	ND	J	ND	J	ND	J	ND	J	ND	J	ND	JB	ND	J	ND	J			ND	J	ND	J	NA		0.000158	J	ND	U
Fluoride	1	4 mg/L	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	
Lead	0.005	0.015 mg/L	ND	J	ND	JB	ND		ND	J	ND		ND		ND		ND				ND		ND		NA		0.0000730	J	ND	U
Lithium	0.05	0.040 mg/L	ND	J	ND		ND		ND		ND	J	ND		ND		ND				ND		ND		ND		ND		0.008	J
Mercury	0.0002	0.002 mg/L	ND		ND		ND		ND		ND		ND		0.000135		ND				ND		NA		NA		ND		ND	U
Molybdenum	0.01	0.1 mg/L	0.0109		0.0185		0.0136		0.0118		0.0127		ND	J	ND	J	ND	J			ND	J	ND	J	ND	J	0.00442	J	0.01	
Radium 226	1	5 pCi/L	0.865		0.685		0.473		ND		0.921		0.662		0.795		0.642				0.650		1.15		0.730		0.698		0.652	
Radium 228																													-0.208	
Selenium	0.01	0.05 mg/L	ND		ND		ND		ND	J	ND		ND		ND		ND				ND		NA		NA		ND		ND	U
Thallium	0.001	0.002 mg/L	ND		ND	J	ND	J	ND		ND		ND		ND		ND				ND		NA		NA		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
NA = Not Analyzed
ND = Not Detected at or above Method Detection Limit
pCi/L = picoCuries per Liter
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.
D2 = Sample required dilution due to matrix interference
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

REID/HMPL SURFACE IMPOUNDMENT - ANALYTICAL SUMMARY
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| APPENDIX III CONSTITUENTS | Detection Limit | GWPS | DATE | | |

REID/HMPL SURFACE IMPOUNDMENT - ANALYTICAL SUMMARY
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APPENDIX III CONSTITUENTS	Detection 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
			Baseline Events										Assessment	Re-Sample		Assessment	
Boron	0.08	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
Calcium	0.5	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
Chloride	3	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
Fluoride	1	4 mg/L	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
Sulfate	5	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
pH (Field Measurement)	0.10	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
Total Dissolved Solids	10	NA	363	389	403	409	465	435	303	308	316	271		399	293		392
APPENDIX IV CONSTIUENTS																	
Antimony	0.002	0.006 mg/L	ND	ND JB	ND JB	ND J	ND	ND JB	ND JB	ND JB		0.0000760 B	ND JB	ND JB	NA	0.000192 JB	ND U
Arsenic	0.005	0.01 mg/L	ND	ND J	ND J	ND J	ND J	ND J	ND J	ND		0.00116 J	ND JB	ND JB	NA	0.000563 J	ND U
Barium	0.2	2 mg/L	1.1	1.03	0.889	0.635	0.827	0.833	0.253	0.227		0.0824 J	0.967	0.777	0.288	1.03	0.763
Beryllium	0.002	0.004 mg/L	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	NA	NA	ND	ND U
Cadmium	0.001	0.005 mg/L	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	NA	NA	ND	ND U
Chromimum	0.003	0.1 mg/L	ND	ND	ND	ND	ND	ND	ND	ND		0.00136 J	ND JB	ND JB	NA	0.00316	ND U
Cobalt	0.005	0.006 mg/L	ND	ND J	ND J	ND J	ND	ND	ND	ND		0.000158 J	ND JB	ND J	NA	0.0000550 J	ND U
Fluoride	1	4 mg/L	ND J	ND J	ND J	ND J	ND JB	ND J	ND J	ND J		0.255 J	ND JB	ND J	ND J	0.223 J	0.2
Lead	0.005	0.015 mg/L	ND	ND JB	ND	ND J	ND	ND	ND	ND		0.0000730 J	ND	ND	NA	0.0000760 J	ND U
Lithium	0.05	0.040 mg/L	0.0120 J	0.0105 J	0.0102 J	0.0119 J	0.0179 J	0.0136 J	ND	ND		ND	0.0108 JB	0.0112 J	ND	0.0141 J	0.009 J
Mercury	0.0002	0.002 mg/L	ND	ND	ND	ND	ND	ND	ND JB	ND J		ND	ND	NA	NA	ND	ND U
Molybdenum	0.01	0.1 mg/L	ND	ND	ND	ND	ND	ND	ND	ND		0.00442 J	ND	ND	ND	ND	ND U
Radium 226	1	5 pCi/L	2.87	2.84	2.91	1.38	2.11	2.53	1.28	1.26		0.698	2.04	1.93	1.23	2.32	1.09
Radium 228																	1.23
Selenium	0.01	0.05 mg/L	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	NA	NA	ND	ND U
Thallium	0.001	0.002 mg/L	ND	ND J	ND	ND	ND	ND	ND	ND		ND	ND	NA	NA	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
NA = Not Analyzed
ND = Not Detected at or above Method Detection Limit
pCi/L = picoCuries per Liter
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.
D2 = Sample required dilution due to matrix interference
U = Target analyte was analyzed for, but was below detection limit

REID/HMPL SURFACE IMPOUNDMENT - ANALYTICAL SUMMARY
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APPENDIX III CONSTITUENTS	Detection 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	
			Baseline Events																				Assessment		Re-Sample		Assessment			
Boron	0.08	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
Calcium	0.5	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
Chloride	3	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	
Fluoride	1	4 mg/L	ND	J	ND	J	ND	J	ND	J	ND		ND	J	ND	J	ND	J	ND	J	0.255	J			ND	J	ND	J	0.570	J	0.6	
Sulfate	5	NA	208	HB	135		144		152		145		168		177	B	226	B	147		16.8	B			129		138	B	114	B	80	D
pH (Field Measurement)	0.10	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	
Total Dissolved Solids	10	NA	644		532		558		602		679		763		758		763		728		271				721		673		642		568	
APPENDIX IV CONSTIUENTS																																
Antimony	0.002	0.006 mg/L	ND		ND	JB	ND	JB	ND	J	ND		ND	JB	ND	JB	ND	JB			0.0000760	B	ND	JB	ND	JB	NA		0.0000580	JB	ND	U
Arsenic	0.005	0.01 mg/L	ND	J	ND	J	ND	J	ND	J	ND	JB	ND	J	ND	JB	ND	J			0.00116	J	ND	JB	ND	JB	NA		0.00254	J	0.0022	
Barium	0.2	2 mg/L	ND	J	ND	J	ND	J	ND	J	ND	JB	ND	J	ND	JB	ND	J			0.0824	J	ND	J	ND	J	ND	J	0.100	J	0.077	
Beryllium	0.002	0.004 mg/L	ND		ND		ND		ND		ND		ND		ND		ND				ND		ND		NA		NA		ND		ND	U
Cadmium	0.001	0.005 mg/L	ND		ND		ND		ND		ND		ND		ND		ND				ND		ND		NA		NA		ND		ND	U
Chromimum	0.003	0.1 mg/L	ND	J	ND	J	ND	J	ND		ND	J	ND	J	ND	JB	ND				0.00136	J	ND	JB	ND	JB	NA		0.00299	J	0.0006	J
Cobalt	0.005	0.006 mg/L	ND		ND	J	ND	J	ND	J	ND	J	ND	J	ND	JB	ND	J			0.000158	J	ND	J	ND	J	NA		0.000685	J	ND	U
Fluoride	1	4 mg/L	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J	ND	J			0.255	J	ND	J	ND	J	ND	J	0.570	J	0.6	
Lead	0.005	0.015 mg/L	ND		ND	JB	ND		ND	J	ND	J	ND	J	ND		ND				0.0000730	J	ND	J	ND		NA		0.000671	J	ND	U
Lithium	0.05	0.040 mg/L	0.339		0.199		0.219		0.0736		0.481		0.607		0.204		0.345				ND		0.694		0.630		0.570		0.574		0.51	
Mercury	0.0002	0.002 mg/L	ND		ND		ND		ND		ND		ND		ND	JB	ND				ND		ND		NA		NA		ND		0.0002	J
Molybdenum	0.01	0.1 mg/L	0.0170	J	0.0171		0.0141		ND	J	0.0119		ND	J	ND	J	ND	J			0.00442	J	ND	J	ND	J	ND	J	0.00797	J	0.007	J
Radium 226	1	5 pCi/L	0.612		ND		0.715		ND		0.422		0.287		0.619		0.391				0.698		0.512		0.683		0.704		0.205	U	0.458	
Radium 228																															0.379	
Selenium	0.01	0.05 mg/L	ND		ND		ND		ND	J	ND		ND		ND		ND				ND		ND		NA		NA		ND		ND	U
Thallium	0.001	0.002 mg/L	ND		ND	J	ND		ND		ND		ND		ND		ND				ND		ND		NA		NA		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
NA = Not Analyzed
ND = Not Detected at or above Method Detection Limit
pCi/L = picoCuries per Liter
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.
H = Sample was prepped or analyzed beyond the specified holding time.
D2 = Sample required dilution due to matrix interference
U = Target analyte was analyzed for, but was below detection limit

REID/HMPL SURFACE IMPOUNDMENT - CCR ANALYTICAL SUMMARY
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APPENDIX III CONSTITUENTS	Detection Limit	GWPS	DATE					
			3/29/2019		4/10/2019		10/24/2019	
			Characterization					
Boron	0.08		0.484	JB	0.496	JB	ND	D2, U
Calcium	0.5		176	B	178		204	D1
Chloride	3		26.0		30.4	B	30.0	
Fluoride	1		0.279	J	0.255	JB	0.3	
Sulfate	5		563		596	B	568	D M1
pH (Field Measurement)	0.10		7.25		7.50		6.84	
Total Dissolved Solids	10		1170		1200		1270	
APPENDIX IV CONSTITUENTS								
Antimony	0.002	0.006 mg/L	0.000240	JB	0.000204	JB	ND	U
Arsenic	0.005	0.01 mg/L	0.00534		0.00238	J	ND	U
Barium	0.2	2 mg/L	0.118	J	0.107	JB	0.065	
Beryllium	0.002	0.004 mg/L	0.000716	J	0.000314	J	ND	U
Cadmium	0.001	0.005 mg/L	ND		ND		ND	U
Chromium	0.003	0.1 mg/L	0.0180	B	0.0115		0.0010	J
Cobalt	0.005	0.006 mg/L	0.00911	B	0.00384	J	ND	U
Fluoride	1	4 mg/L	0.279	J	0.255	JB	0.3	
Lead	0.005	0.015 mg/L	0.00661		0.00399	J	ND	U
Lithium	0.05	0.040 mg/L	0.0299	J	0.0303	J	0.02	
Mercury	0.0002	0.002 mg/L	ND		ND	^	ND	U
Molybdenum	0.01	0.1 mg/L	0.00153	J	0.00120	J	ND	U
Radium 226	1	5 pCi/L	1.84		1.93		0.195	
Radium 228							0.727	
Selenium	0.01	0.05 mg/L	ND		ND		ND	U
Thallium	0.001	0.002 mg/L	0.000112	J	0.0000640	J	ND	U

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GWPS = Groundwater Protection Standard
ND = Not Detected at or above Method Detection Limit
pCi/L = picoCuries per Liter
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.
D1 = Sample required dilution due to high concentration of target analyte
D2 = Sample required dilution due to matrix interference
U = Target analyte was analyzed for, but was below detection limit

Appendix F

Green Landfill Analytical Laboratory Reports

GREEN LANDFILL
ANALYTICAL LABORATORY REPORTS

eurofins | Environment Testing TestAmerica



ANALYTICAL REPORT

Eurofins TestAmerica, Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Tel: (615)726-0177

Laboratory Job ID: 490-171184-1
Laboratory Sample Delivery Group: Sebree Station
Client Project/Site: Sebree Station - New CCR Wells

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

Attn: Greg Dick

Roxanne Cisneros

Authorized for release by:
4/8/2019 12:00:20 PM

Roxanne Cisneros, Senior Project Manager
(615)301-5761
roxanne.cisneros@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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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Sample Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-171184-1	MW-104	Water	03/29/19 12:03	03/30/19 09:00
490-171184-2	MW-110	Water	03/29/19 09:35	03/30/19 09:00
490-171184-3	DUPE	Water	03/29/19 09:46	03/30/19 09:00
490-171184-4	FIELD BLANK	Water	03/29/19 12:27	03/30/19 09:00

Job ID: 490-171184-1

Laboratory: Eurofins TestAmerica, Nashville

Narrative

Job Narrative
490-171184-1

Comments
No additional comments.

Receipt
The samples were received on 3/30/2019 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.0º C and 3.6º C.

HPLC/IC
Method(s) 9056A: Due to the high concentration of Sulfate, the matrix spike / matrix spike duplicate (MS/MSD) for analytical batch 490-584786 could not be evaluated for accuracy and precision. The associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) met acceptance criteria.

Method(s) 9056A: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for 490-584786 were within the acceptance limits for chloride . However, the sample results exceeded the calibration curve limits. (490-171184-B-2 MS) and (490-171184-B-2 MSD)

Method(s) 9056A: The continuing calibration blank (CCB) contained chloride above the method detection limit (MDL). However, the result was less than the reporting limit (RL). The results have been reported. (CCB 490-584786/23)

Method(s) 9056A: The following samples were diluted due to the nature of the sample matrix: MW-104 (490-171184-1), MW-110 (490-171184-2) and DUPE (490-171184-3). Elevated reporting limits (RLs) are provided.

Method(s) 9056A: Due to the nature of the sample matrix, a matrix spike / matrix spike duplicate (MS/MSD) was not analyzed with 490-585062. However, the laboratory control sample / laboratory control sample duplicate (LCS/LCSD) recoveries were within the acceptance limits. (LCS 490-585062/4) and (LCSD 490-585062/5)

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

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

Definitions/Glossary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Qualifiers

HPLC/IC

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.
E	Result exceeded calibration range.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
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.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

Client Sample ID: MW-104

Date Collected: 03/29/19 12:03
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-1

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1430		300	20.0	mg/L			04/02/19 14:03	100
Fluoride	ND		1.00	0.0100	mg/L			04/01/19 11:43	1
Sulfate	2870		500	3.00	mg/L			04/02/19 14:03	100

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0281	J	0.0500	0.00959	mg/L		04/03/19 11:21	04/04/19 09:05	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0000910	J B	0.00200	0.0000213	mg/L		04/04/19 13:20	04/05/19 13:17	1
Arsenic	0.00221	J	0.00500	0.000118	mg/L		04/04/19 13:20	04/05/19 13:17	1
Barium	0.0243	J	0.200	0.000270	mg/L		04/04/19 13:20	04/05/19 13:17	1
Beryllium	ND		0.00200	0.000102	mg/L		04/04/19 13:20	04/05/19 13:17	1
Boron	0.188	J B	1.00	0.00339	mg/L		04/04/19 13:20	04/05/19 13:17	1
Cadmium	ND		0.00100	0.000152	mg/L		04/04/19 13:20	04/05/19 13:17	1
Calcium	465	B	1.00	0.0412	mg/L		04/04/19 13:20	04/05/19 13:17	1
Chromium	0.00471	B	0.00300	0.000339	mg/L		04/04/19 13:20	04/05/19 13:17	1
Cobalt	0.00594	B	0.00500	0.0000218	mg/L		04/04/19 13:20	04/05/19 13:17	1
Iron	3.22		0.0500	0.0141	mg/L		04/04/19 13:20	04/05/19 13:17	1
Lead	0.00105	J	0.00500	0.0000675	mg/L		04/04/19 13:20	04/05/19 13:17	1
Magnesium	521		1.00	0.0827	mg/L		04/04/19 13:20	04/05/19 13:17	1
Molybdenum	0.00147	J	0.0100	0.000873	mg/L		04/04/19 13:20	04/05/19 13:17	1
Potassium	1650		1000	147	ug/L		04/04/19 13:20	04/05/19 13:17	1
Selenium	ND		0.0100	0.000348	mg/L		04/04/19 13:20	04/05/19 13:17	1
Sodium	824		1.00	0.251	mg/L		04/04/19 13:20	04/05/19 13:17	1
Thallium	ND		0.00100	0.0000360	mg/L		04/04/19 13:20	04/05/19 13:17	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		04/03/19 14:38	04/05/19 12:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.88		0.100	0.100	SU			04/03/19 15:52	1
Temperature	20.9		0.100	0.100	Degrees C			04/03/19 15:52	1
Specific Conductance (25C)	8790		10.0	10.0	umhos/cm			04/03/19 20:44	1
Bicarbonate Alkalinity as CaCO3	664		10.0	5.00	mg/L			04/05/19 19:51	1
Carbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 19:51	1
Alkalinity	664		10.0	5.00	mg/L			04/05/19 19:51	1
Total Dissolved Solids	6990		100	28.0	mg/L			04/02/19 10:30	1

Client Sample ID: MW-110

Date Collected: 03/29/19 09:35
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-2

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	26.0		6.00	0.400	mg/L			04/02/19 14:36	2
Fluoride	0.279	J	1.00	0.0100	mg/L			04/01/19 11:59	1
Sulfate	563		250	1.50	mg/L			04/02/19 14:52	50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0299	J	0.0500	0.00959	mg/L		04/03/19 11:21	04/04/19 09:11	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.000240	J B	0.00200	0.0000213	mg/L		04/04/19 13:20	04/05/19 13:20	1
Arsenic	0.00534		0.00500	0.000118	mg/L		04/04/19 13:20	04/05/19 13:20	1
Barium	0.118	J	0.200	0.000270	mg/L		04/04/19 13:20	04/05/19 13:20	1
Beryllium	0.000716	J	0.00200	0.000102	mg/L		04/04/19 13:20	04/05/19 13:20	1
Boron	0.484	J B	1.00	0.00339	mg/L		04/04/19 13:20	04/05/19 13:20	1
Cadmium	ND		0.00100	0.000152	mg/L		04/04/19 13:20	04/05/19 13:20	1
Calcium	176	B	1.00	0.0412	mg/L		04/04/19 13:20	04/05/19 13:20	1
Chromium	0.0180	B	0.00300	0.000339	mg/L		04/04/19 13:20	04/05/19 13:20	1
Cobalt	0.00911	B	0.00500	0.0000218	mg/L		04/04/19 13:20	04/05/19 13:20	1
Iron	19.5		0.0500	0.0141	mg/L		04/04/19 13:20	04/05/19 13:20	1
Lead	0.00661		0.00500	0.0000675	mg/L		04/04/19 13:20	04/05/19 13:20	1
Magnesium	56.8		1.00	0.0827	mg/L		04/04/19 13:20	04/05/19 13:20	1
Molybdenum	0.00153	J	0.0100	0.000873	mg/L		04/04/19 13:20	04/05/19 13:20	1
Potassium	4070		1000	147	ug/L		04/04/19 13:20	04/05/19 13:20	1
Selenium	ND		0.0100	0.000348	mg/L		04/04/19 13:20	04/05/19 13:20	1
Sodium	96.3		1.00	0.251	mg/L		04/04/19 13:20	04/05/19 13:20	1
Thallium	0.000112	J	0.00100	0.0000360	mg/L		04/04/19 13:20	04/05/19 13:20	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		04/03/19 14:38	04/05/19 12:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.25		0.100	0.100	SU			04/03/19 15:52	1
Temperature	20.7		0.100	0.100	Degrees C			04/03/19 15:52	1
Specific Conductance (25C)	1570		10.0	10.0	umhos/cm			04/03/19 20:44	1
Bicarbonate Alkalinity as CaCO3	266		10.0	5.00	mg/L			04/05/19 19:58	1
Carbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 19:58	1
Alkalinity	266		10.0	5.00	mg/L			04/05/19 19:58	1
Total Dissolved Solids	1170		50.0	14.0	mg/L			04/02/19 10:30	1

Client Sample ID: DUPE

Date Collected: 03/29/19 09:46
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-3

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	25.2		6.00	0.400	mg/L			04/02/19 15:09	2
Fluoride	0.283	J	1.00	0.0100	mg/L			04/01/19 12:49	1
Sulfate	552		250	1.50	mg/L			04/02/19 15:26	50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0260	J	0.0500	0.00959	mg/L		04/03/19 11:21	04/04/19 09:16	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.000193	J B	0.00200	0.0000213	mg/L		04/04/19 13:20	04/05/19 13:24	1
Arsenic	0.00393	J	0.00500	0.000118	mg/L		04/04/19 13:20	04/05/19 13:24	1
Barium	0.114	J	0.200	0.000270	mg/L		04/04/19 13:20	04/05/19 13:24	1
Beryllium	0.000572	J	0.00200	0.000102	mg/L		04/04/19 13:20	04/05/19 13:24	1
Boron	0.490	J B	1.00	0.00339	mg/L		04/04/19 13:20	04/05/19 13:24	1
Cadmium	ND		0.00100	0.000152	mg/L		04/04/19 13:20	04/05/19 13:24	1
Calcium	178	B	1.00	0.0412	mg/L		04/04/19 13:20	04/05/19 13:24	1
Chromium	0.0148	B	0.00300	0.000339	mg/L		04/04/19 13:20	04/05/19 13:24	1
Cobalt	0.00631	B	0.00500	0.0000218	mg/L		04/04/19 13:20	04/05/19 13:24	1
Iron	15.2		0.0500	0.0141	mg/L		04/04/19 13:20	04/05/19 13:24	1
Lead	0.00561		0.00500	0.0000675	mg/L		04/04/19 13:20	04/05/19 13:24	1
Magnesium	56.8		1.00	0.0827	mg/L		04/04/19 13:20	04/05/19 13:24	1
Molybdenum	0.00136	J	0.0100	0.000873	mg/L		04/04/19 13:20	04/05/19 13:24	1
Potassium	3910		1000	147	ug/L		04/04/19 13:20	04/05/19 13:24	1
Selenium	ND		0.0100	0.000348	mg/L		04/04/19 13:20	04/05/19 13:24	1
Sodium	98.5		1.00	0.251	mg/L		04/04/19 13:20	04/05/19 13:24	1
Thallium	0.0000770	J	0.00100	0.0000360	mg/L		04/04/19 13:20	04/05/19 13:24	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		04/03/19 14:38	04/05/19 12:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.39		0.100	0.100	SU			04/03/19 15:52	1
Temperature	20.7		0.100	0.100	Degrees C			04/03/19 15:52	1
Specific Conductance (25C)	1570		10.0	10.0	umhos/cm			04/03/19 20:44	1
Bicarbonate Alkalinity as CaCO3	289		10.0	5.00	mg/L			04/05/19 20:05	1
Carbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 20:05	1
Alkalinity	289		10.0	5.00	mg/L			04/05/19 20:05	1
Total Dissolved Solids	1170		50.0	14.0	mg/L			04/02/19 10:30	1

Client Sample ID: FIELD BLANK

Date Collected: 03/29/19 12:27
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-4

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	0.200	mg/L			04/01/19 13:39	1
Fluoride	ND		1.00	0.0100	mg/L			04/01/19 13:39	1
Sulfate	ND		5.00	0.0300	mg/L			04/01/19 13:39	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.0500	0.00959	mg/L		04/03/19 11:21	04/04/19 09:21	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.000131**	**J B**	0.00200	0.0000213	mg/L		04/04/19 13:20	04/05/19 13:27	1
Arsenic	**0.000496**	**J**	0.00500	0.000118	mg/L		04/04/19 13:20	04/05/19 13:27	1
Barium	ND		0.200	0.000270	mg/L		04/04/19 13:20	04/05/19 13:27	1
Beryllium	ND		0.00200	0.000102	mg/L		04/04/19 13:20	04/05/19 13:27	1
Boron	**0.0231**	**J B**	1.00	0.00339	mg/L		04/04/19 13:20	04/05/19 13:27	1
Cadmium	ND		0.00100	0.000152	mg/L		04/04/19 13:20	04/05/19 13:27	1
Calcium	**0.0702**	**J B**	1.00	0.0412	mg/L		04/04/19 13:20	04/05/19 13:27	1
Chromium	**0.00274**	**J B**	0.00300	0.000339	mg/L		04/04/19 13:20	04/05/19 13:27	1
Cobalt	ND		0.00500	0.0000218	mg/L		04/04/19 13:20	04/05/19 13:27	1
Iron	ND		0.0500	0.0141	mg/L		04/04/19 13:20	04/05/19 13:27	1
Lead	ND		0.00500	0.0000675	mg/L		04/04/19 13:20	04/05/19 13:27	1
Magnesium	ND		1.00	0.0827	mg/L		04/04/19 13:20	04/05/19 13:27	1
Molybdenum	ND		0.0100	0.000873	mg/L		04/04/19 13:20	04/05/19 13:27	1
Potassium	ND		1000	147	ug/L		04/04/19 13:20	04/05/19 13:27	1
Selenium	ND		0.0100	0.000348	mg/L		04/04/19 13:20	04/05/19 13:27	1
Sodium	ND		1.00	0.251	mg/L		04/04/19 13:20	04/05/19 13:27	1
Thallium	ND		0.00100	0.0000360	mg/L		04/04/19 13:20	04/05/19 13:27	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		04/03/19 14:38	04/05/19 12:59	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**5.88**		0.100	0.100	SU			04/03/19 15:52	1
Temperature	**20.9**		0.100	0.100	Degrees C			04/03/19 15:52	1
Specific Conductance (25C)	ND		10.0	10.0	umhos/cm			04/03/19 20:45	1
Bicarbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 20:10	1
Carbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 20:10	1
Alkalinity	ND		10.0	5.00	mg/L			04/05/19 20:10	1
Total Dissolved Solids	**10.0**	**J**	25.0	7.00	mg/L			04/02/19 10:30	1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 490-584786/3
Matrix: Water
Analysis Batch: 584786

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	0.200	mg/L			04/01/19 08:44	1
Fluoride	ND		1.00	0.0100	mg/L			04/01/19 08:44	1
Sulfate	ND		5.00	0.0300	mg/L			04/01/19 08:44	1

Lab Sample ID: LCS 490-584786/4
Matrix: Water
Analysis Batch: 584786

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.238		mg/L		92	80 - 120
Fluoride	1.00	0.9862	J	mg/L		99	80 - 120
Sulfate	10.0	9.515		mg/L		95	80 - 120

Lab Sample ID: LCSD 490-584786/5
Matrix: Water
Analysis Batch: 584786

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.205		mg/L		92	80 - 120	0	20
Fluoride	1.00	0.9820	J	mg/L		98	80 - 120	0	20
Sulfate	10.0	9.584		mg/L		96	80 - 120	1	20

Lab Sample ID: 490-171184-2 MS
Matrix: Water
Analysis Batch: 584786

Client Sample ID: MW-110
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	26.8	E	10.0	38.44	E	mg/L		116	80 - 120
Fluoride	0.279	J	1.00	1.339		mg/L		106	80 - 120
Sulfate	791	E	10.0	796.0	E 4	mg/L		50	80 - 120

Lab Sample ID: 490-171184-2 MSD
Matrix: Water
Analysis Batch: 584786

Client Sample ID: MW-110
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	26.8	E	10.0	38.70	E	mg/L		118	80 - 120	1	20
Fluoride	0.279	J	1.00	1.373		mg/L		109	80 - 120	2	20
Sulfate	791	E	10.0	796.1	E 4	mg/L		51	80 - 120	0	20

Lab Sample ID: MB 490-585062/3
Matrix: Water
Analysis Batch: 585062

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	0.200	mg/L			04/02/19 12:56	1
Fluoride	ND		1.00	0.0100	mg/L			04/02/19 12:56	1
Sulfate	ND		5.00	0.0300	mg/L			04/02/19 12:56	1

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 490-585062/4
Matrix: Water
Analysis Batch: 585062

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			10.0	9.308		mg/L		93	80 - 120		
Fluoride			1.00	1.020		mg/L		102	80 - 120		
Sulfate			10.0	9.831		mg/L		98	80 - 120		

Lab Sample ID: LCSD 490-585062/5
Matrix: Water
Analysis Batch: 585062

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			10.0	9.310		mg/L		93	80 - 120	0	20
Fluoride			1.00	1.029		mg/L		103	80 - 120	1	20
Sulfate			10.0	9.853		mg/L		98	80 - 120	0	20

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 180-274722/1-A
Matrix: Water
Analysis Batch: 274816

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 274722

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.0500	0.00959	mg/L		04/03/19 11:21	04/04/19 07:41	1

Lab Sample ID: LCS 180-274722/2-A
Matrix: Water
Analysis Batch: 274816

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 274722

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Lithium			1.00	0.9781		mg/L		98	80 - 120		

Lab Sample ID: 180-88255-C-3-D MSD
Matrix: Water
Analysis Batch: 274816

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 274722

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lithium	ND		1.00	0.9822		mg/L		98	75 - 125	0	20

Lab Sample ID: 180-88255-D-3-E MS
Matrix: Water
Analysis Batch: 274816

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 274722

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Lithium	ND		1.00	0.9852		mg/L		99	75 - 125		

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 180-274861/1-A
Matrix: Water
Analysis Batch: 275004

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 274861

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00005200	J	0.00200	0.0000213	mg/L		04/04/19 13:20	04/05/19 11:56	1
Arsenic	ND		0.00500	0.000118	mg/L		04/04/19 13:20	04/05/19 11:56	1
Barium	ND		0.200	0.000270	mg/L		04/04/19 13:20	04/05/19 11:56	1
Beryllium	ND		0.00200	0.000102	mg/L		04/04/19 13:20	04/05/19 11:56	1
Boron	0.006373	J	1.00	0.00339	mg/L		04/04/19 13:20	04/05/19 11:56	1
Cadmium	ND		0.00100	0.000152	mg/L		04/04/19 13:20	04/05/19 11:56	1
Calcium	0.05960	J	1.00	0.0412	mg/L		04/04/19 13:20	04/05/19 11:56	1
Chromium	0.0003860	J	0.00300	0.000339	mg/L		04/04/19 13:20	04/05/19 11:56	1
Cobalt	0.00002600	J	0.00500	0.0000218	mg/L		04/04/19 13:20	04/05/19 11:56	1
Iron	ND		0.0500	0.0141	mg/L		04/04/19 13:20	04/05/19 11:56	1
Lead	ND		0.00500	0.0000675	mg/L		04/04/19 13:20	04/05/19 11:56	1
Magnesium	ND		1.00	0.0827	mg/L		04/04/19 13:20	04/05/19 11:56	1
Molybdenum	ND		0.0100	0.000873	mg/L		04/04/19 13:20	04/05/19 11:56	1
Potassium	ND		1000	147	ug/L		04/04/19 13:20	04/05/19 11:56	1
Selenium	ND		0.0100	0.000348	mg/L		04/04/19 13:20	04/05/19 11:56	1
Sodium	ND		1.00	0.251	mg/L		04/04/19 13:20	04/05/19 11:56	1
Thallium	ND		0.00100	0.0000360	mg/L		04/04/19 13:20	04/05/19 11:56	1

Lab Sample ID: LCS 180-274861/2-A
Matrix: Water
Analysis Batch: 275004

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 274861

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.500	0.4849		mg/L		97	80 - 120
Arsenic	0.0400	0.03953		mg/L		99	80 - 120
Barium	2.00	1.928		mg/L		96	80 - 120
Beryllium	0.0500	0.05212		mg/L		104	80 - 120
Boron	1.00	0.9972	J	mg/L		100	80 - 120
Cadmium	0.0500	0.05024		mg/L		100	80 - 120
Calcium	50.0	48.40		mg/L		97	80 - 120
Chromium	0.200	0.2007		mg/L		100	80 - 120
Cobalt	0.500	0.4952		mg/L		99	80 - 120
Iron	11.0	10.61		mg/L		96	80 - 120
Lead	0.0200	0.01871		mg/L		94	80 - 120
Magnesium	50.0	48.08		mg/L		96	80 - 120
Molybdenum	1.00	0.9281		mg/L		93	80 - 120
Potassium	50000	47700		ug/L		95	80 - 120
Selenium	0.0100	0.01014		mg/L		101	80 - 120
Sodium	50.0	50.18		mg/L		100	80 - 120
Thallium	0.0500	0.05062		mg/L		101	80 - 120

Lab Sample ID: 180-88068-D-12-G MS
Matrix: Water
Analysis Batch: 275004

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 274861

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	0.000265	J	0.0200	0.01955		mg/L		96	75 - 125

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

Lab Sample ID: 180-88068-D-12-H MSD
Matrix: Water
Analysis Batch: 275004

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 274861

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	0.000265	J	0.0200	0.01972		mg/L		97	75 - 125	1	20

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-274765/1-A
Matrix: Water
Analysis Batch: 274975

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 274765

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		04/03/19 14:38	04/05/19 12:35	1

Lab Sample ID: LCS 180-274765/2-A
Matrix: Water
Analysis Batch: 274975

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 274765

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	2.50	2.327		ug/L		93	80 - 120

Lab Sample ID: 180-88333-D-4-E MS
Matrix: Water
Analysis Batch: 274975

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 274765

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		1.00	0.9220		ug/L		92	75 - 125

Lab Sample ID: 180-88333-D-4-F MSD
Matrix: Water
Analysis Batch: 274975

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 274765

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		1.00	0.9290		ug/L		93	75 - 125	1	20

Method: 9040C - pH

Lab Sample ID: LCS 490-585481/1
Matrix: Water
Analysis Batch: 585481

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.010		SU		100	98 - 103

Lab Sample ID: 490-171184-1 DU
Matrix: Water
Analysis Batch: 585481

Client Sample ID: MW-104
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	6.88		6.880		SU		0	20
Temperature	20.9		20.90		Degrees C		0	20

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 490-586311/5
Matrix: Water
Analysis Batch: 586311

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 19:05	1
Carbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 19:05	1
Alkalinity	ND		10.0	5.00	mg/L			04/05/19 19:05	1

Lab Sample ID: LCS 490-586311/6
Matrix: Water
Analysis Batch: 586311

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	100	92.55		mg/L		93	90 - 110

Lab Sample ID: LCSD 490-586311/27
Matrix: Water
Analysis Batch: 586311

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity	100	94.04		mg/L		94	90 - 110	2	20

Lab Sample ID: LCSD 490-586311/29
Matrix: Water
Analysis Batch: 586311

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity	100	95.36		mg/L		95	90 - 110	3	20

Lab Sample ID: 490-171227-A-1 DU
Matrix: Water
Analysis Batch: 586311

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Bicarbonate Alkalinity as CaCO3	181		179.3		mg/L		0.8	20
Carbonate Alkalinity as CaCO3	ND		ND		mg/L		NC	20
Alkalinity	181		179.3		mg/L		0.8	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 490-584789/1
Matrix: Water
Analysis Batch: 584789

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		25.0	7.00	mg/L			04/02/19 10:30	1

Lab Sample ID: LCS 490-584789/2
Matrix: Water
Analysis Batch: 584789

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	100	108.0		mg/L		108	90 - 110

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: 490-171046-M-1 DU
Matrix: Water
Analysis Batch: 584789

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	251			256.0		mg/L				2	20

Lab Sample ID: 490-171184-1 DU
Matrix: Water
Analysis Batch: 584789

Client Sample ID: MW-104
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	6990			6900		mg/L				1	20

HPLC/IC

Analysis Batch: 584786

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	9056A	
490-171184-2	MW-110	Total/NA	Water	9056A	
490-171184-3	DUPE	Total/NA	Water	9056A	
490-171184-4	FIELD BLANK	Total/NA	Water	9056A	
MB 490-584786/3	Method Blank	Total/NA	Water	9056A	
LCS 490-584786/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-584786/5	Lab Control Sample Dup	Total/NA	Water	9056A	
490-171184-2 MS	MW-110	Total/NA	Water	9056A	
490-171184-2 MSD	MW-110	Total/NA	Water	9056A	

Analysis Batch: 585062

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	9056A	
490-171184-2	MW-110	Total/NA	Water	9056A	
490-171184-2	MW-110	Total/NA	Water	9056A	
490-171184-3	DUPE	Total/NA	Water	9056A	
490-171184-3	DUPE	Total/NA	Water	9056A	
MB 490-585062/3	Method Blank	Total/NA	Water	9056A	
LCS 490-585062/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-585062/5	Lab Control Sample Dup	Total/NA	Water	9056A	

Metals

Filtration Batch: 273938

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-88068-D-12-G MS	Matrix Spike	Dissolved	Water	FILTRATION	
180-88068-D-12-H MSD	Matrix Spike Duplicate	Dissolved	Water	FILTRATION	

Prep Batch: 274722

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total Recoverable	Water	3005A	
490-171184-2	MW-110	Total Recoverable	Water	3005A	
490-171184-3	DUPE	Total Recoverable	Water	3005A	
490-171184-4	FIELD BLANK	Total Recoverable	Water	3005A	
MB 180-274722/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-274722/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-88255-C-3-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	3005A	
180-88255-D-3-E MS	Matrix Spike	Total Recoverable	Water	3005A	

Prep Batch: 274765

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	7470A	
490-171184-2	MW-110	Total/NA	Water	7470A	
490-171184-3	DUPE	Total/NA	Water	7470A	
490-171184-4	FIELD BLANK	Total/NA	Water	7470A	
MB 180-274765/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-274765/2-A	Lab Control Sample	Total/NA	Water	7470A	
180-88333-D-4-E MS	Matrix Spike	Dissolved	Water	7470A	
180-88333-D-4-F MSD	Matrix Spike Duplicate	Dissolved	Water	7470A	

Metals

Analysis Batch: 274816

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total Recoverable	Water	6010C	274722
490-171184-2	MW-110	Total Recoverable	Water	6010C	274722
490-171184-3	DUPE	Total Recoverable	Water	6010C	274722
490-171184-4	FIELD BLANK	Total Recoverable	Water	6010C	274722
MB 180-274722/1-A	Method Blank	Total Recoverable	Water	6010C	274722
LCS 180-274722/2-A	Lab Control Sample	Total Recoverable	Water	6010C	274722
180-88255-C-3-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	6010C	274722
180-88255-D-3-E MS	Matrix Spike	Total Recoverable	Water	6010C	274722

Prep Batch: 274861

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total Recoverable	Water	3005A	
490-171184-2	MW-110	Total Recoverable	Water	3005A	
490-171184-3	DUPE	Total Recoverable	Water	3005A	
490-171184-4	FIELD BLANK	Total Recoverable	Water	3005A	
MB 180-274861/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-274861/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-88068-D-12-G MS	Matrix Spike	Dissolved	Water	3005A	273938
180-88068-D-12-H MSD	Matrix Spike Duplicate	Dissolved	Water	3005A	273938

Analysis Batch: 274975

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	EPA 7470A	274765
490-171184-2	MW-110	Total/NA	Water	EPA 7470A	274765
490-171184-3	DUPE	Total/NA	Water	EPA 7470A	274765
490-171184-4	FIELD BLANK	Total/NA	Water	EPA 7470A	274765
MB 180-274765/1-A	Method Blank	Total/NA	Water	EPA 7470A	274765
LCS 180-274765/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	274765
180-88333-D-4-E MS	Matrix Spike	Dissolved	Water	EPA 7470A	274765
180-88333-D-4-F MSD	Matrix Spike Duplicate	Dissolved	Water	EPA 7470A	274765

Analysis Batch: 275004

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total Recoverable	Water	6020A	274861
490-171184-2	MW-110	Total Recoverable	Water	6020A	274861
490-171184-3	DUPE	Total Recoverable	Water	6020A	274861
490-171184-4	FIELD BLANK	Total Recoverable	Water	6020A	274861
MB 180-274861/1-A	Method Blank	Total Recoverable	Water	6020A	274861
LCS 180-274861/2-A	Lab Control Sample	Total Recoverable	Water	6020A	274861
180-88068-D-12-G MS	Matrix Spike	Dissolved	Water	6020A	274861
180-88068-D-12-H MSD	Matrix Spike Duplicate	Dissolved	Water	6020A	274861

General Chemistry

Analysis Batch: 584789

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	SM 2540C	
490-171184-2	MW-110	Total/NA	Water	SM 2540C	
490-171184-3	DUPE	Total/NA	Water	SM 2540C	
490-171184-4	FIELD BLANK	Total/NA	Water	SM 2540C	
MB 490-584789/1	Method Blank	Total/NA	Water	SM 2540C	

General Chemistry (Continued)

Analysis Batch: 584789 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 490-584789/2	Lab Control Sample	Total/NA	Water	SM 2540C	
490-171046-M-1 DU	Duplicate	Total/NA	Water	SM 2540C	
490-171184-1 DU	MW-104	Total/NA	Water	SM 2540C	

Analysis Batch: 585481

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	9040C	
490-171184-2	MW-110	Total/NA	Water	9040C	
490-171184-3	DUPE	Total/NA	Water	9040C	
490-171184-4	FIELD BLANK	Total/NA	Water	9040C	
LCS 490-585481/1	Lab Control Sample	Total/NA	Water	9040C	
490-171184-1 DU	MW-104	Total/NA	Water	9040C	

Analysis Batch: 585534

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	9050A	
490-171184-2	MW-110	Total/NA	Water	9050A	
490-171184-3	DUPE	Total/NA	Water	9050A	
490-171184-4	FIELD BLANK	Total/NA	Water	9050A	
LCS 490-585534/3	Lab Control Sample	Total/NA	Water	9050A	

Analysis Batch: 586311

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	SM 2320B	
490-171184-2	MW-110	Total/NA	Water	SM 2320B	
490-171184-3	DUPE	Total/NA	Water	SM 2320B	
490-171184-4	FIELD BLANK	Total/NA	Water	SM 2320B	
MB 490-586311/5	Method Blank	Total/NA	Water	SM 2320B	
LCS 490-586311/6	Lab Control Sample	Total/NA	Water	SM 2320B	
LCSD 490-586311/27	Lab Control Sample Dup	Total/NA	Water	SM 2320B	
LCSD 490-586311/29	Lab Control Sample Dup	Total/NA	Water	SM 2320B	
490-171227-A-1 DU	Duplicate	Total/NA	Water	SM 2320B	

Lab Chronicle

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Client Sample ID: MW-104

Date Collected: 03/29/19 12:03
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			584786	04/01/19 11:43	SW1	TAL NSH
Total/NA	Analysis	9056A		100			585062	04/02/19 14:03	SW1	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	274722	04/03/19 11:21	NAM	TAL PIT
Total Recoverable	Analysis	6010C		1			274816	04/04/19 09:05	RJG	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	274861	04/04/19 13:20	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			275004	04/05/19 13:17	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	274765	04/03/19 14:38	KAK	TAL PIT
Total/NA	Analysis	EPA 7470A		1			274975	04/05/19 12:54	KAK	TAL PIT
Total/NA	Analysis	9040C		1			585481	04/03/19 15:52	MXX	TAL NSH
Total/NA	Analysis	9050A		1			585534	04/03/19 20:44	VRP	TAL NSH
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	586311	04/05/19 19:51	MSP	TAL NSH
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	584789	04/02/19 10:30	BMC	TAL NSH

Client Sample ID: MW-110

Date Collected: 03/29/19 09:35
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			584786	04/01/19 11:59	SW1	TAL NSH
Total/NA	Analysis	9056A		2			585062	04/02/19 14:36	SW1	TAL NSH
Total/NA	Analysis	9056A		50			585062	04/02/19 14:52	SW1	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	274722	04/03/19 11:21	NAM	TAL PIT
Total Recoverable	Analysis	6010C		1			274816	04/04/19 09:11	RJG	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	274861	04/04/19 13:20	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			275004	04/05/19 13:20	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	274765	04/03/19 14:38	KAK	TAL PIT
Total/NA	Analysis	EPA 7470A		1			274975	04/05/19 12:55	KAK	TAL PIT
Total/NA	Analysis	9040C		1			585481	04/03/19 15:52	MXX	TAL NSH
Total/NA	Analysis	9050A		1			585534	04/03/19 20:44	VRP	TAL NSH
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	586311	04/05/19 19:58	MSP	TAL NSH
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	584789	04/02/19 10:30	BMC	TAL NSH

Client Sample ID: DUPE

Date Collected: 03/29/19 09:46
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			584786	04/01/19 12:49	SW1	TAL NSH
Total/NA	Analysis	9056A		2			585062	04/02/19 15:09	SW1	TAL NSH
Total/NA	Analysis	9056A		50			585062	04/02/19 15:26	SW1	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	274722	04/03/19 11:21	NAM	TAL PIT
Total Recoverable	Analysis	6010C		1			274816	04/04/19 09:16	RJG	TAL PIT

Lab Chronicle

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Client Sample ID: DUPE
Date Collected: 03/29/19 09:46
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-3
Matrix: Water

Total Recoverable	Analysis	6020A	1			275004	04/05/19 13:24	RSK	TAL PIT
Total/NA	Prep	7470A		50 mL	50 mL	274765	04/03/19 14:38	KAK	TAL PIT
Total/NA	Analysis	EPA 7470A	1			274975	04/05/19 12:58	KAK	TAL PIT
Total/NA	Analysis	9040C	1			585481	04/03/19 15:52	MXX	TAL NSH
Total/NA	Analysis	9050A	1			585534	04/03/19 20:44	VRP	TAL NSH
Total/NA	Analysis	SM 2320B	1	35 mL	35 mL	586311	04/05/19 20:05	MSP	TAL NSH
Total/NA	Analysis	SM 2540C	1	50 mL	100 mL	584789	04/02/19 10:30	BMC	TAL NSH

Client Sample ID: FIELD BLANK
Date Collected: 03/29/19 12:27
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			584786	04/01/19 13:39	SW1	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	274722	04/03/19 11:21	NAM	TAL PIT
Total Recoverable	Analysis	6010C		1			274816	04/04/19 09:21	RJG	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	274861	04/04/19 13:20	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			275004	04/05/19 13:27	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	274765	04/03/19 14:38	KAK	TAL PIT
Total/NA	Analysis	EPA 7470A		1			274975	04/05/19 12:59	KAK	TAL PIT
Total/NA	Analysis	9040C		1			585481	04/03/19 15:52	MXX	TAL NSH
Total/NA	Analysis	9050A		1			585534	04/03/19 20:45	VRP	TAL NSH
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	586311	04/05/19 20:10	MSP	TAL NSH
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	584789	04/02/19 10:30	BMC	TAL NSH

Laboratory References:

TAL NSH = Eurofins TestAmerica, Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

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

Method Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	TAL NSH
6010C	Metals (ICP)	SW846	TAL PIT
6020A	Metals (ICP/MS)	SW846	TAL PIT
EPA 7470A	Mercury (CVAA)	SW846	TAL PIT
9040C	pH	SW846	TAL NSH
9050A	Specific Conductance	SW846	TAL NSH
SM 2320B	Alkalinity	SM	TAL NSH
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL NSH
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT
7470A	Preparation, Mercury	SW846	TAL PIT

Protocol References:

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.

Laboratory References:

TAL NSH = Eurofins TestAmerica, Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

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

Accreditation/Certification Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Laboratory: Eurofins TestAmerica, Nashville

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Kentucky (UST)	State Program	4	19	06-30-19

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
9040C		Water	pH
9040C		Water	Temperature
9050A		Water	Specific Conductance (25C)
9056A		Water	Chloride
9056A		Water	Fluoride
9056A		Water	Sulfate
SM 2320B		Water	Alkalinity
SM 2320B		Water	Bicarbonate Alkalinity as CaCO3
SM 2320B		Water	Carbonate Alkalinity as CaCO3
SM 2540C		Water	Total Dissolved Solids

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-19
California	State Program	9	2891	04-30-19 *
Connecticut	State Program	1	PH-0688	09-30-20
Florida	NELAP	4	E871008	06-30-19
Illinois	NELAP	5	200005	06-30-19
Kansas	NELAP	7	E-10350	01-31-20
Louisiana	NELAP	6	04041	06-30-19
Nevada	State Program	9	PA00164	07-31-19
New Hampshire	NELAP	1	2030	04-04-19 *
New Jersey	NELAP	2	PA005	06-30-19
New York	NELAP	2	11182	03-31-20
North Carolina (WW/SW)	State Program	4	434	12-31-19
Oregon	NELAP	10	PA-2151	01-28-19 *
Pennsylvania	NELAP	3	02-00416	04-30-19
South Carolina	State Program	4	89014	04-30-19 *
Texas	NELAP	6	T104704528-15-2	03-31-20
US Fish & Wildlife	Federal		LE94312A-1	07-31-19
USDA	Federal		P330-16-00211	06-26-19
Utah	NELAP	8	PA001462015-4	05-31-19 *
Virginia	NELAP	3	460189	09-14-19
West Virginia DEP	State Program	3	142	01-31-20
Wisconsin	State Program	5	998027800	08-31-19

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

490-171184 Chain of Custody

Cooler Received/Opened On 3/30/2019 @ 9:00

Time Samples Removed From Cooler 11:43 Time Samples Placed In Storage 11:49 (2 Hour Window)

1. Tracking # 0191 (last 4 digits, FedEx) Courier: Fedex

IR Gun ID 31470366 pH Strip Lot NA Chlorine Strip Lot NA

2. Temperature of rep. sample or temp blank when opened: 2.0 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...(NA)

4. Were custody seals on outside of cooler? (YES)...NO...NA

If yes, how many and where: 2 Front

5. Were the seals intact, signed, and dated correctly? (YES)...NO...NA

6. Were custody papers inside cooler? (YES)...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) ACE

7. Were custody seals on containers: YES (NO) and Intact YES...NO...(NA)

Were these signed and dated correctly? YES...NO...(NA)

8. Packing mat'l used? (Bubblewrap) Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: (Ice) Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? (YES)...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? (YES)...NO...NA

12. Did all container labels and tags agree with custody papers? (YES)...NO...NA

13a. Were VOA vials received? YES...(NO)...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...(NA)

● ⬅ Larger than this.

14. Was there a Trip Blank in this cooler? YES...(NO)...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) ACE

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...(NA)

b. Did the bottle labels indicate that the correct preservatives were used (YES)...NO...NA

16. Was residual chlorine present? YES...NO...(NA)

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) AE

17. Were custody papers properly filled out (ink, signed, etc)? (YES)...NO...NA

18. Did you sign the custody papers in the appropriate place? (YES)...NO...NA

19. Were correct containers used for the analysis requested? (YES)...NO...NA

20. Was sufficient amount of sample sent in each container? (YES)...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) ACE

I certify that I attached a label with the unique LIMS number to each container (intial) ACE

21. Were there Non-Conformance issues at login? YES...(NO) Was a NCM generated? YES...(NO)...#_____

BIS = Broken in shipment

TestAmerica Nashville
2960 Foster Creighton Drive

Nashville, TN 37204-3719
phone 615.726.0177 fax 615.726.3404

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other:

Client Contact: Greg Dick	**Project Manager: Mark Bertram**	**Site Contact: Greg Dick**	**Date: 3/29/2019**
Company: Big Rivers Electric Corporation	**Tel/Fax: (270) 844-5708**	**Lab Contact: Roxanne Cisneros**	**Carrier: ~~N/A~~ FedEx**
Address: 9000 Highway 2096	**Analysis Turnaround Time**		
City/State/Zip: Robards, KY 42452	☐ CALENDAR DAYS ☐ WORKING DAYS		
(270) 844-5736 Phone	TAT if different from Below _____		
(xxx) xxx-xxxx FAX	☑ 2 weeks		
Project Name: Sebree Station - New CCR Wells	☐ 1 week		
Site: Sebree Station	☐ 2 days		
P O #: Purchase Order-see DOCs	☐ 1 day		

COC No: 490-97948-27514.1
___1___ of ___1___ COCs
Sampler: Greg Dick
For Lab Use Only:
Walk-in Client:
Lab Sampling:
Job / SDG No.:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	903.0, 904.0	6010C, 6020A, 7470A	9056A_ORGFM_28D, 9040C, 9060A, 2320B	2540C_Calcd-TDS	Sample Specific Notes:
MW-104	3/29/19	1203	G	Water	5	N	N	x	x	x	x	Refer to attached constituent list for analysis
MW-110	3/29/19	935	G	Water	5	N	N	x	x	x	x	
DUPE	3/29/19	946	G	Water	5	N	N	x	x	x	x	
FIELD BLANK	3/29/19	1227	G	Water	5	N	N	x	x	x	x	
												Loc: 490 171184
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other, 7= None _____								4	4	7	7	

Possible Hazard Identification:
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.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown

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: Standard TAT; See attached constituent list for analysis.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: 2.0 Corr'd: _____ | Therm ID No.: _____

Relinquished by: Greg Dick	Company: BREC	Date/Time: 3/29/19 1600	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: TA-NSH	Date/Time: 3/30/19 9:00

Form No. CA-C-WI-002, Rev. 4.9, dated 2/2/2016

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4/8/2019

3/29/2019

Loc: 490
171184

Constituent List:

40 C.F.R. 257 Appendix III
Boron
Calcium
Fluoride
pH
Sulfate
Total Dissolved Solids (TDS)

Mary Rick
BREC
3/29/2019
1600

40 C.F.R. 257 Appendix IV
Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium
Cobalt
Fluoride
Lead
Lithium
Mercury
Molybdenum
Selenium
Thallium
Radium 226 & 228 combined

Additional Parameters
Carbonate Alkalinity
Bicarbonate Alkalinity
Alkalinity
Iron
Magnesium
Potassium
Sodium

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

490-171184 Chain of Custody

Cooler Received/Opened On 3/30/2019 @ 9:00

Time Samples Removed From Cooler 11:43 Time Samples Placed In Storage 11:49 (2 Hour Window)

1. Tracking # 0191 (last 4 digits, FedEx) Courier: Fedex

IR Gun ID 31470366 pH Strip Lot NA Chlorine Strip Lot NA

2. Temperature of rep. sample or temp blank when opened: 2.0 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 2 Front

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) ACG

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

● ⬅ Larger than this.

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) ACG

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) AG

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) ACG

I certify that I attached a label with the unique LIMS number to each container (intial) ACG

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#_____

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 8/23/17

Loc: 490
171184

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

Cooler Received/Opened On 03-30-2019 @ 09:00

Time Samples Removed From Cooler 12:35 Time Samples Placed In Storage 12:37 (2 Hour Window)

1. Tracking # 0206 (last 4 digits, FedEx) Courier: FedEx

IR Gun ID 31470368 pH Strip Lot MP Chlorine Strip Lot MB

2. Temperature of rep. sample or temp blank when opened: 2.6 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES NO NA

If yes, how many and where: 1 (front)

5. Were the seals intact, signed, and dated correctly? YES NO NA

6. Were custody papers inside cooler? YES NO NA

I certify that I opened the cooler and answered questions 1-6 (intial) KA

7. Were custody seals on containers: YES NO and Intact YES NO NA

Were these signed and dated correctly? YES NO NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES NO NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES NO NA

12. Did all container labels and tags agree with custody papers? YES NO NA

13a. Were VOA vials received? YES NO NA

b. Was there any observable headspace present in any VOA vial? YES NO NA

● ← Larger than this.

14. Was there a Trip Blank in this cooler? YES NO NA If multiple coolers, sequence #

I certify that I unloaded the cooler and answered questions 7-14 (intial) AK

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES NO NA

b. Did the bottle labels indicate that the correct preservatives were used YES NO NA

16. Was residual chlorine present? YES NO NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) AK

17. Were custody papers properly filled out (ink, signed, etc)? YES NO NA

18. Did you sign the custody papers in the appropriate place? YES NO NA

19. Were correct containers used for the analysis requested? YES NO NA

20. Was sufficient amount of sample sent in each container? YES NO NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) AK

I certify that I attached a label with the unique LIMS number to each container (intial) AK

21. Were there Non-Conformance issues at login? YES NO Was a NCM generated? YES NO #

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 8/23/17

4/8/2019

TestAmerica Nashville
2960 Foster Creighton Drive

Nashville, TN 37204-3719
phone 615.726.0177 fax 615.726.3404

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☐DW ☐NPDES ☐RCRA ☑Other:

Client Contact: Greg Dick	Project Manager: Mark Bertram	Site Contact: Greg Dick	Date: 3/29/2019
Company: Big Rivers Electric Corporation	Tel/Fax: (270) 844-5708	Lab Contact: Roxanne Cisneros	Carrier: ~~N/A~~ FedEx
Address: 9000 Highway 2096	Analysis Turnaround Time		COC No: 490-97948-27514.1
City/State/Zip: Robards, KY 42452	☐ CALENDAR DAYS ☐ WORKING DAYS		1 of 1 COCs
(270) 844-5736 Phone	TAT if different from Below _____		Sampler: Greg Dick
(xxx) xxx-xxxx FAX	☑ 2 weeks		For Lab Use Only:
Project Name: Sebree Station - New CCR Wells	☐ 1 week		Walk-in Client:
Site: Sebree Station	☐ 2 days		Lab Sampling:
P O #: Purchase Order-see DOCs	☐ 1 day		Job / SDG No.:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	903.0, 904.0	6010C, 6020A, 7470A	90556A_ORGFM_28D, 9040C, 9060A, 2320B	2540C_Calcd-TDS	Sample Specific Notes:
MW-104	3/29/19	1203	G	Water	5	N	N	x	x	x	x	Refer to attached constituent list for analysis
MW-110	3/29/19	935	G	Water	5	N	N	x	x	x	x	
DUPE	3/29/19	946	G	Water	5	N	N	x	x	x	x	
FIELD BLANK	3/29/19	1227	G	Water	5	N	N	x	x	x	x	
												Loc: 490 171184

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other, 7= None _____ — 4 4 7 7

Possible Hazard Identification:
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.
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown

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: Standard TAT; See attached constituent list for analysis.

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd: 2.0	Corr'd: _____	Therm ID No.: _____
Relinquished by: Greg Dick	Company: BREC	Date/Time: 3/29/19 1600	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: TA-NAS	Date/Time: 3/30/19 9:00

Form No. CA-C-WI-002, Rev. 4.9, dated 2/2/2016

4/8/2019

Loc: 490
171184

3/29/2019

Constituent List:

40 C.F.R. 257 Appendix III
Boron
Calcium
Fluoride
pH
Sulfate
Total Dissolved Solids (TDS)

Mary Rick
BREC
3/29/2019
1600

40 C.F.R. 257 Appendix IV
Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium
Cobalt
Fluoride
Lead
Lithium
Mercury
Molybdenum
Selenium
Thallium
Radium 226 & 228 combined

Additional Parameters
Carbonate Alkalinity
Bicarbonate Alkalinity
Alkalinity
Iron
Magnesium
Potassium
Sodium

TestAmerica Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Phone (615) 726-0177 Fax (615) 726-3404

Not 7CC

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Cisneros, Roxanne	Carrier Tracking No(s):	COC No: 490-87960.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: roxanne.cisneros@testamericainc.com	State of Origin: Kentucky	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Kentucky (UST)		Job #: 490-171184-1
Address: 301 Alpha Drive, RIDC Park,	Due Date Requested: 4/11/2019			
City: Pittsburgh	TAT Requested (days):			
State, Zip: PA, 15238				
Phone: 412-963-7058(Tel) 412-963-2468(Fax)	PO #:			
Email:	WO #:			
Project Name: Sebree Station - New CCR Wells	Project #: 49010431			
Site: Big Rivers CCR	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
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
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C/3005A (MOD) Lithium	6020A/3005A (MOD) ICP/MS Metals	7470A/7470A_Prep Mercury	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-104 (490-171184-1)	3/29/19	12:03 Eastern		Water			X	X	X	1	Metals - run once, upload together.
MW-110 (490-171184-2)	3/29/19	09:35 Eastern		Water			X	X	X	1	Metals - run once, upload together.
DUPE (490-171184-3)	3/29/19	09:46 Eastern		Water			X	X	X	1	Metals - run once, upload together.
FIELD BLANK (490-171184-4)	3/29/19	12:27 Eastern		Water			X	X	X	1	Metals - run once, upload together.

490-171184 Chain of Custody

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ 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:

	Date/Time	Company	Received by:	Date/Time	Company
Relinquished by:	4.1.19 1430	TANAS			
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 4-2-19 850	Company TAPI
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Big Rivers Electric Corporation

Job Number: 490-171184-1
SDG Number: Sebree Station

Login Number: 171184
List Number: 2
Creator: Watson, Debbie

List Source: Eurofins TestAmerica, Pittsburgh
List Creation: 04/02/19 02:08 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?	False	
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	

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ANALYTICAL REPORT

Eurofins TestAmerica, Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Tel: (615)726-0177

Laboratory Job ID: 490-171184-1
Laboratory Sample Delivery Group: Sebree Station
Client Project/Site: Sebree Station - New CCR Wells

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

Attn: Greg Dick

Roxanne Cisneros

Authorized for release by:
5/8/2019 9:51:41 AM

Roxanne Cisneros, Senior Project Manager
(615)301-5761
roxanne.cisneros@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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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Sample Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-171184-1	MW-104	Water	03/29/19 12:03	03/30/19 09:00
490-171184-2	MW-110	Water	03/29/19 09:35	03/30/19 09:00
490-171184-3	DUPE	Water	03/29/19 09:46	03/30/19 09:00
490-171184-4	FIELD BLANK	Water	03/29/19 12:27	03/30/19 09:00

Job ID: 490-171184-1

Laboratory: Eurofins TestAmerica, Nashville

Narrative

Job Narrative
490-171184-1

Comments
No additional comments.

Receipt
The samples were received on 3/30/2019 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.0º C and 3.6º C.

HPLC/IC
Method(s) 9056A: Due to the high concentration of Sulfate, the matrix spike / matrix spike duplicate (MS/MSD) for analytical batch 490-584786 could not be evaluated for accuracy and precision. The associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) met acceptance criteria.

Method(s) 9056A: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for 490-584786 were within the acceptance limits for chloride . However, the sample results exceeded the calibration curve limits. (490-171184-B-2 MS) and (490-171184-B-2 MSD)

Method(s) 9056A: The continuing calibration blank (CCB) contained chloride above the method detection limit (MDL). However, the result was less than the reporting limit (RL). The results have been reported. (CCB 490-584786/23)

Method(s) 9056A: The following samples were diluted due to the nature of the sample matrix: MW-104 (490-171184-1), MW-110 (490-171184-2) and DUPE (490-171184-3). Elevated reporting limits (RLs) are provided.

Method(s) 9056A: Due to the nature of the sample matrix, a matrix spike / matrix spike duplicate (MS/MSD) was not analyzed with 490-585062. However, the laboratory control sample / laboratory control sample duplicate (LCS/LCSD) recoveries were within the acceptance limits. (LCS 490-585062/4) and (LCSD 490-585062/5)

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

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

Narrative

Job Narrative
490-171184-2

Comments
No additional comments.

Receipt
The samples were received on 3/30/2019 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.0º C and 3.6º C.

RAD
Method(s) 903.0, 9315: Ra-226 Prep Batch 160-423611: 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-104 (490-171184-1),

Job ID: 490-171184-1 (Continued)

Laboratory: Eurofins TestAmerica, Nashville (Continued)

MW-110 (490-171184-2), DUPE (490-171184-3), FIELD BLANK (490-171184-4), (LCS 160-423611/1-A), (MB 160-423611/24-A), (400-168077-A-20-A) and (400-168077-B-20-A DU)

Method(s) 904.0: Radium-228 Prep Batch 160-423832: The following sample did not meet the requested limit (RL) due to the reduced sample volume attributed to the presence of matrix interferences (see prep NCM 164958). The data have been reported with this narrative. DUPE (490-171184-3)

Method(s) 904.0, 9320: Radium-228 Prep Batch 160-423832: 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-104 (490-171184-1), MW-110 (490-171184-2), DUPE (490-171184-3), FIELD BLANK (490-171184-4), (LCS 160-423832/1-A), (MB 160-423832/24-A), (400-168077-A-20-B) and (400-168077-B-20-B DU)

Method(s) PrecSep_0: Radium-228 Prep Batch 160-423832: The following samples were reduced due to heavy discoloration from sedimentation: MW-104 (490-171184-1), MW-110 (490-171184-2) and DUPE (490-171184-3)

Method(s) PrecSep-21: Radium-226 Prep Batch 160-423611: The following samples were reduced due to heavy discoloration due to sedimentation: MW-104 (490-171184-1), MW-110 (490-171184-2) and DUPE (490-171184-3)

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

Qualifiers

HPLC/IC

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.
E	Result exceeded calibration range.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
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
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.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

Client Sample ID: MW-104

Date Collected: 03/29/19 12:03
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-1

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**1430**		300	20.0	mg/L			04/02/19 14:03	100
Fluoride	ND		1.00	0.0100	mg/L			04/01/19 11:43	1
Sulfate	**2870**		500	3.00	mg/L			04/02/19 14:03	100

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.0281**	**J**	0.0500	0.00959	mg/L		04/03/19 11:21	04/04/19 09:05	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.0000910**	**J B**	0.00200	0.0000213	mg/L		04/04/19 13:20	04/05/19 13:17	1
Arsenic	**0.00221**	**J**	0.00500	0.000118	mg/L		04/04/19 13:20	04/05/19 13:17	1
Barium	**0.0243**	**J**	0.200	0.000270	mg/L		04/04/19 13:20	04/05/19 13:17	1
Beryllium	ND		0.00200	0.000102	mg/L		04/04/19 13:20	04/05/19 13:17	1
Boron	**0.188**	**J B**	1.00	0.00339	mg/L		04/04/19 13:20	04/05/19 13:17	1
Cadmium	ND		0.00100	0.000152	mg/L		04/04/19 13:20	04/05/19 13:17	1
Calcium	**465**	**B**	1.00	0.0412	mg/L		04/04/19 13:20	04/05/19 13:17	1
Chromium	**0.00471**	**B**	0.00300	0.000339	mg/L		04/04/19 13:20	04/05/19 13:17	1
Cobalt	**0.00594**	**B**	0.00500	0.0000218	mg/L		04/04/19 13:20	04/05/19 13:17	1
Iron	**3.22**		0.0500	0.0141	mg/L		04/04/19 13:20	04/05/19 13:17	1
Lead	**0.00105**	**J**	0.00500	0.0000675	mg/L		04/04/19 13:20	04/05/19 13:17	1
Magnesium	**521**		1.00	0.0827	mg/L		04/04/19 13:20	04/05/19 13:17	1
Molybdenum	**0.00147**	**J**	0.0100	0.000873	mg/L		04/04/19 13:20	04/05/19 13:17	1
Potassium	**1650**		1000	147	ug/L		04/04/19 13:20	04/05/19 13:17	1
Selenium	ND		0.0100	0.000348	mg/L		04/04/19 13:20	04/05/19 13:17	1
Sodium	**824**		1.00	0.251	mg/L		04/04/19 13:20	04/05/19 13:17	1
Thallium	ND		0.00100	0.0000360	mg/L		04/04/19 13:20	04/05/19 13:17	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		04/03/19 14:38	04/05/19 12:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**6.88**		0.100	0.100	SU			04/03/19 15:52	1
Temperature	**20.9**		0.100	0.100	Degrees C			04/03/19 15:52	1
Specific Conductance (25C)	**8790**		10.0	10.0	umhos/cm			04/03/19 20:44	1
Bicarbonate Alkalinity as CaCO3	**664**		10.0	5.00	mg/L			04/05/19 19:51	1
Carbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 19:51	1
Alkalinity	**664**		10.0	5.00	mg/L			04/05/19 19:51	1
Total Dissolved Solids	**6990**		100	28.0	mg/L			04/02/19 10:30	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	**0.139**		0.0913	0.0922	1.00	0.121	pCi/L	04/14/19 16:48	05/07/19 13:21	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*84.7*		*40 - 110*	*04/14/19 16:48*	*05/07/19 13:21*	*1*

Client Sample ID: MW-104

Date Collected: 03/29/19 12:03
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-1

Matrix: Water

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.627		0.365	0.370	1.00	0.553	pCi/L	04/14/19 16:48	04/25/19 08:14	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*84.7*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:14*	*1*
Y Carrier	*87.1*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:14*	*1*

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	0.766		0.376	0.381	5.00	0.553	pCi/L		05/08/19 07:28	1

Client Sample Results

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Client Sample ID: MW-110

Date Collected: 03/29/19 09:35
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-2

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	26.0		6.00	0.400	mg/L			04/02/19 14:36	2
Fluoride	0.279	J	1.00	0.0100	mg/L			04/01/19 11:59	1
Sulfate	563		250	1.50	mg/L			04/02/19 14:52	50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0299	J	0.0500	0.00959	mg/L		04/03/19 11:21	04/04/19 09:11	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.000240	J B	0.00200	0.0000213	mg/L		04/04/19 13:20	04/05/19 13:20	1
Arsenic	0.00534		0.00500	0.000118	mg/L		04/04/19 13:20	04/05/19 13:20	1
Barium	0.118	J	0.200	0.000270	mg/L		04/04/19 13:20	04/05/19 13:20	1
Beryllium	0.000716	J	0.00200	0.000102	mg/L		04/04/19 13:20	04/05/19 13:20	1
Boron	0.484	J B	1.00	0.00339	mg/L		04/04/19 13:20	04/05/19 13:20	1
Cadmium	ND		0.00100	0.000152	mg/L		04/04/19 13:20	04/05/19 13:20	1
Calcium	176	B	1.00	0.0412	mg/L		04/04/19 13:20	04/05/19 13:20	1
Chromium	0.0180	B	0.00300	0.000339	mg/L		04/04/19 13:20	04/05/19 13:20	1
Cobalt	0.00911	B	0.00500	0.0000218	mg/L		04/04/19 13:20	04/05/19 13:20	1
Iron	19.5		0.0500	0.0141	mg/L		04/04/19 13:20	04/05/19 13:20	1
Lead	0.00661		0.00500	0.0000675	mg/L		04/04/19 13:20	04/05/19 13:20	1
Magnesium	56.8		1.00	0.0827	mg/L		04/04/19 13:20	04/05/19 13:20	1
Molybdenum	0.00153	J	0.0100	0.000873	mg/L		04/04/19 13:20	04/05/19 13:20	1
Potassium	4070		1000	147	ug/L		04/04/19 13:20	04/05/19 13:20	1
Selenium	ND		0.0100	0.000348	mg/L		04/04/19 13:20	04/05/19 13:20	1
Sodium	96.3		1.00	0.251	mg/L		04/04/19 13:20	04/05/19 13:20	1
Thallium	0.000112	J	0.00100	0.0000360	mg/L		04/04/19 13:20	04/05/19 13:20	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		04/03/19 14:38	04/05/19 12:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.25		0.100	0.100	SU			04/03/19 15:52	1
Temperature	20.7		0.100	0.100	Degrees C			04/03/19 15:52	1
Specific Conductance (25C)	1570		10.0	10.0	umhos/cm			04/03/19 20:44	1
Bicarbonate Alkalinity as CaCO3	266		10.0	5.00	mg/L			04/05/19 19:58	1
Carbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 19:58	1
Alkalinity	266		10.0	5.00	mg/L			04/05/19 19:58	1
Total Dissolved Solids	1170		50.0	14.0	mg/L			04/02/19 10:30	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	0.688		0.230	0.238	1.00	0.200	pCi/L	04/14/19 16:48	05/07/19 13:21	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*72.6*		*40 - 110*	*04/14/19 16:48*	*05/07/19 13:21*	*1*

Client Sample ID: MW-110

Date Collected: 03/29/19 09:35
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-2

Matrix: Water

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.15		0.621	0.630	1.00	0.927	pCi/L	04/14/19 16:48	04/25/19 08:14	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*72.6*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:14*	*1*
Y Carrier	*90.5*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:14*	*1*

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	1.84		0.662	0.673	5.00	0.927	pCi/L		05/08/19 07:28	1

Client Sample ID: DUPE

Date Collected: 03/29/19 09:46
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-3

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	25.2		6.00	0.400	mg/L			04/02/19 15:09	2
Fluoride	0.283	J	1.00	0.0100	mg/L			04/01/19 12:49	1
Sulfate	552		250	1.50	mg/L			04/02/19 15:26	50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0260	J	0.0500	0.00959	mg/L		04/03/19 11:21	04/04/19 09:16	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.000193	J B	0.00200	0.0000213	mg/L		04/04/19 13:20	04/05/19 13:24	1
Arsenic	0.00393	J	0.00500	0.000118	mg/L		04/04/19 13:20	04/05/19 13:24	1
Barium	0.114	J	0.200	0.000270	mg/L		04/04/19 13:20	04/05/19 13:24	1
Beryllium	0.000572	J	0.00200	0.000102	mg/L		04/04/19 13:20	04/05/19 13:24	1
Boron	0.490	J B	1.00	0.00339	mg/L		04/04/19 13:20	04/05/19 13:24	1
Cadmium	ND		0.00100	0.000152	mg/L		04/04/19 13:20	04/05/19 13:24	1
Calcium	178	B	1.00	0.0412	mg/L		04/04/19 13:20	04/05/19 13:24	1
Chromium	0.0148	B	0.00300	0.000339	mg/L		04/04/19 13:20	04/05/19 13:24	1
Cobalt	0.00631	B	0.00500	0.0000218	mg/L		04/04/19 13:20	04/05/19 13:24	1
Iron	15.2		0.0500	0.0141	mg/L		04/04/19 13:20	04/05/19 13:24	1
Lead	0.00561		0.00500	0.0000675	mg/L		04/04/19 13:20	04/05/19 13:24	1
Magnesium	56.8		1.00	0.0827	mg/L		04/04/19 13:20	04/05/19 13:24	1
Molybdenum	0.00136	J	0.0100	0.000873	mg/L		04/04/19 13:20	04/05/19 13:24	1
Potassium	3910		1000	147	ug/L		04/04/19 13:20	04/05/19 13:24	1
Selenium	ND		0.0100	0.000348	mg/L		04/04/19 13:20	04/05/19 13:24	1
Sodium	98.5		1.00	0.251	mg/L		04/04/19 13:20	04/05/19 13:24	1
Thallium	0.0000770	J	0.00100	0.0000360	mg/L		04/04/19 13:20	04/05/19 13:24	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		04/03/19 14:38	04/05/19 12:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.39		0.100	0.100	SU			04/03/19 15:52	1
Temperature	20.7		0.100	0.100	Degrees C			04/03/19 15:52	1
Specific Conductance (25C)	1570		10.0	10.0	umhos/cm			04/03/19 20:44	1
Bicarbonate Alkalinity as CaCO3	289		10.0	5.00	mg/L			04/05/19 20:05	1
Carbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 20:05	1
Alkalinity	289		10.0	5.00	mg/L			04/05/19 20:05	1
Total Dissolved Solids	1170		50.0	14.0	mg/L			04/02/19 10:30	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	0.776		0.242	0.252	1.00	0.171	pCi/L	04/14/19 16:48	05/07/19 13:21	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*68.4*		*40 - 110*	*04/14/19 16:48*	*05/07/19 13:21*	*1*

Client Sample ID: DUPE

Date Collected: 03/29/19 09:46
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-3

Matrix: Water

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.474	U G	0.617	0.619	1.00	1.03	pCi/L	04/14/19 16:48	04/25/19 08:14	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*68.4*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:14*	*1*
Y Carrier	*89.7*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:14*	*1*

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	**1.25**		0.663	0.668	5.00	1.03	pCi/L		05/08/19 07:28	1

Client Sample ID: FIELD BLANK

Date Collected: 03/29/19 12:27
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-4

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	0.200	mg/L			04/01/19 13:39	1
Fluoride	ND		1.00	0.0100	mg/L			04/01/19 13:39	1
Sulfate	ND		5.00	0.0300	mg/L			04/01/19 13:39	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.0500	0.00959	mg/L		04/03/19 11:21	04/04/19 09:21	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.000131**	**J B**	0.00200	0.0000213	mg/L		04/04/19 13:20	04/05/19 13:27	1
Arsenic	**0.000496**	**J**	0.00500	0.000118	mg/L		04/04/19 13:20	04/05/19 13:27	1
Barium	ND		0.200	0.000270	mg/L		04/04/19 13:20	04/05/19 13:27	1
Beryllium	ND		0.00200	0.000102	mg/L		04/04/19 13:20	04/05/19 13:27	1
Boron	**0.0231**	**J B**	1.00	0.00339	mg/L		04/04/19 13:20	04/05/19 13:27	1
Cadmium	ND		0.00100	0.000152	mg/L		04/04/19 13:20	04/05/19 13:27	1
Calcium	**0.0702**	**J B**	1.00	0.0412	mg/L		04/04/19 13:20	04/05/19 13:27	1
Chromium	**0.00274**	**J B**	0.00300	0.000339	mg/L		04/04/19 13:20	04/05/19 13:27	1
Cobalt	ND		0.00500	0.0000218	mg/L		04/04/19 13:20	04/05/19 13:27	1
Iron	ND		0.0500	0.0141	mg/L		04/04/19 13:20	04/05/19 13:27	1
Lead	ND		0.00500	0.0000675	mg/L		04/04/19 13:20	04/05/19 13:27	1
Magnesium	ND		1.00	0.0827	mg/L		04/04/19 13:20	04/05/19 13:27	1
Molybdenum	ND		0.0100	0.000873	mg/L		04/04/19 13:20	04/05/19 13:27	1
Potassium	ND		1000	147	ug/L		04/04/19 13:20	04/05/19 13:27	1
Selenium	ND		0.0100	0.000348	mg/L		04/04/19 13:20	04/05/19 13:27	1
Sodium	ND		1.00	0.251	mg/L		04/04/19 13:20	04/05/19 13:27	1
Thallium	ND		0.00100	0.0000360	mg/L		04/04/19 13:20	04/05/19 13:27	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		04/03/19 14:38	04/05/19 12:59	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**5.88**		0.100	0.100	SU			04/03/19 15:52	1
Temperature	**20.9**		0.100	0.100	Degrees C			04/03/19 15:52	1
Specific Conductance (25C)	ND		10.0	10.0	umhos/cm			04/03/19 20:45	1
Bicarbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 20:10	1
Carbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 20:10	1
Alkalinity	ND		10.0	5.00	mg/L			04/05/19 20:10	1
Total Dissolved Solids	**10.0**	**J**	25.0	7.00	mg/L			04/02/19 10:30	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	0.00457	U	0.0361	0.0361	1.00	0.0761	pCi/L	04/14/19 16:48	05/07/19 13:22	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.0*		*40 - 110*	*04/14/19 16:48*	*05/07/19 13:22*	*1*

Client Sample ID: FIELD BLANK

Date Collected: 03/29/19 12:27
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-4

Matrix: Water

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.134	U	0.200	0.201	1.00	0.336	pCi/L	04/14/19 16:48	04/25/19 08:14	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.0*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:14*	*1*
Y Carrier	*90.8*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:14*	*1*

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	0.138	U	0.203	0.204	5.00	0.336	pCi/L		05/08/19 07:28	1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 490-584786/3
Matrix: Water
Analysis Batch: 584786

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	0.200	mg/L			04/01/19 08:44	1
Fluoride	ND		1.00	0.0100	mg/L			04/01/19 08:44	1
Sulfate	ND		5.00	0.0300	mg/L			04/01/19 08:44	1

Lab Sample ID: LCS 490-584786/4
Matrix: Water
Analysis Batch: 584786

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.238		mg/L		92	80 - 120
Fluoride	1.00	0.9862	J	mg/L		99	80 - 120
Sulfate	10.0	9.515		mg/L		95	80 - 120

Lab Sample ID: LCSD 490-584786/5
Matrix: Water
Analysis Batch: 584786

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.205		mg/L		92	80 - 120	0	20
Fluoride	1.00	0.9820	J	mg/L		98	80 - 120	0	20
Sulfate	10.0	9.584		mg/L		96	80 - 120	1	20

Lab Sample ID: 490-171184-2 MS
Matrix: Water
Analysis Batch: 584786

Client Sample ID: MW-110
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	26.8	E	10.0	38.44	E	mg/L		116	80 - 120
Fluoride	0.279	J	1.00	1.339		mg/L		106	80 - 120
Sulfate	791	E	10.0	796.0	E 4	mg/L		50	80 - 120

Lab Sample ID: 490-171184-2 MSD
Matrix: Water
Analysis Batch: 584786

Client Sample ID: MW-110
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	26.8	E	10.0	38.70	E	mg/L		118	80 - 120	1	20
Fluoride	0.279	J	1.00	1.373		mg/L		109	80 - 120	2	20
Sulfate	791	E	10.0	796.1	E 4	mg/L		51	80 - 120	0	20

Lab Sample ID: MB 490-585062/3
Matrix: Water
Analysis Batch: 585062

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	0.200	mg/L			04/02/19 12:56	1
Fluoride	ND		1.00	0.0100	mg/L			04/02/19 12:56	1
Sulfate	ND		5.00	0.0300	mg/L			04/02/19 12:56	1

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 490-585062/4
Matrix: Water
Analysis Batch: 585062

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			10.0	9.308		mg/L		93	80 - 120		
Fluoride			1.00	1.020		mg/L		102	80 - 120		
Sulfate			10.0	9.831		mg/L		98	80 - 120		

Lab Sample ID: LCSD 490-585062/5
Matrix: Water
Analysis Batch: 585062

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			10.0	9.310		mg/L		93	80 - 120	0	20
Fluoride			1.00	1.029		mg/L		103	80 - 120	1	20
Sulfate			10.0	9.853		mg/L		98	80 - 120	0	20

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 180-274722/1-A
Matrix: Water
Analysis Batch: 274816

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 274722

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.0500	0.00959	mg/L		04/03/19 11:21	04/04/19 07:41	1

Lab Sample ID: LCS 180-274722/2-A
Matrix: Water
Analysis Batch: 274816

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 274722

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Lithium			1.00	0.9781		mg/L		98	80 - 120		

Lab Sample ID: 180-88255-C-3-D MSD
Matrix: Water
Analysis Batch: 274816

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 274722

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lithium	ND		1.00	0.9822		mg/L		98	75 - 125	0	20

Lab Sample ID: 180-88255-D-3-E MS
Matrix: Water
Analysis Batch: 274816

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 274722

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Lithium	ND		1.00	0.9852		mg/L		99	75 - 125		

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 180-274861/1-A
Matrix: Water
Analysis Batch: 275004

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 274861

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00005200	J	0.00200	0.0000213	mg/L		04/04/19 13:20	04/05/19 11:56	1
Arsenic	ND		0.00500	0.000118	mg/L		04/04/19 13:20	04/05/19 11:56	1
Barium	ND		0.200	0.000270	mg/L		04/04/19 13:20	04/05/19 11:56	1
Beryllium	ND		0.00200	0.000102	mg/L		04/04/19 13:20	04/05/19 11:56	1
Boron	0.006373	J	1.00	0.00339	mg/L		04/04/19 13:20	04/05/19 11:56	1
Cadmium	ND		0.00100	0.000152	mg/L		04/04/19 13:20	04/05/19 11:56	1
Calcium	0.05960	J	1.00	0.0412	mg/L		04/04/19 13:20	04/05/19 11:56	1
Chromium	0.0003860	J	0.00300	0.000339	mg/L		04/04/19 13:20	04/05/19 11:56	1
Cobalt	0.00002600	J	0.00500	0.0000218	mg/L		04/04/19 13:20	04/05/19 11:56	1
Iron	ND		0.0500	0.0141	mg/L		04/04/19 13:20	04/05/19 11:56	1
Lead	ND		0.00500	0.0000675	mg/L		04/04/19 13:20	04/05/19 11:56	1
Magnesium	ND		1.00	0.0827	mg/L		04/04/19 13:20	04/05/19 11:56	1
Molybdenum	ND		0.0100	0.000873	mg/L		04/04/19 13:20	04/05/19 11:56	1
Potassium	ND		1000	147	ug/L		04/04/19 13:20	04/05/19 11:56	1
Selenium	ND		0.0100	0.000348	mg/L		04/04/19 13:20	04/05/19 11:56	1
Sodium	ND		1.00	0.251	mg/L		04/04/19 13:20	04/05/19 11:56	1
Thallium	ND		0.00100	0.0000360	mg/L		04/04/19 13:20	04/05/19 11:56	1

Lab Sample ID: LCS 180-274861/2-A
Matrix: Water
Analysis Batch: 275004

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 274861

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.500	0.4849		mg/L		97	80 - 120
Arsenic	0.0400	0.03953		mg/L		99	80 - 120
Barium	2.00	1.928		mg/L		96	80 - 120
Beryllium	0.0500	0.05212		mg/L		104	80 - 120
Boron	1.00	0.9972	J	mg/L		100	80 - 120
Cadmium	0.0500	0.05024		mg/L		100	80 - 120
Calcium	50.0	48.40		mg/L		97	80 - 120
Chromium	0.200	0.2007		mg/L		100	80 - 120
Cobalt	0.500	0.4952		mg/L		99	80 - 120
Iron	11.0	10.61		mg/L		96	80 - 120
Lead	0.0200	0.01871		mg/L		94	80 - 120
Magnesium	50.0	48.08		mg/L		96	80 - 120
Molybdenum	1.00	0.9281		mg/L		93	80 - 120
Potassium	50000	47700		ug/L		95	80 - 120
Selenium	0.0100	0.01014		mg/L		101	80 - 120
Sodium	50.0	50.18		mg/L		100	80 - 120
Thallium	0.0500	0.05062		mg/L		101	80 - 120

Lab Sample ID: 180-88068-D-12-G MS
Matrix: Water
Analysis Batch: 275004

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 274861

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	0.000265	J	0.0200	0.01955		mg/L		96	75 - 125

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

Lab Sample ID: 180-88068-D-12-H MSD
Matrix: Water
Analysis Batch: 275004

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 274861

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	0.000265	J	0.0200	0.01972		mg/L		97	75 - 125	1	20

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-274765/1-A
Matrix: Water
Analysis Batch: 274975

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 274765

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		04/03/19 14:38	04/05/19 12:35	1

Lab Sample ID: LCS 180-274765/2-A
Matrix: Water
Analysis Batch: 274975

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 274765

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	2.50	2.327		ug/L		93	80 - 120

Lab Sample ID: 180-88333-D-4-E MS
Matrix: Water
Analysis Batch: 274975

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 274765

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		1.00	0.9220		ug/L		92	75 - 125

Lab Sample ID: 180-88333-D-4-F MSD
Matrix: Water
Analysis Batch: 274975

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 274765

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		1.00	0.9290		ug/L		93	75 - 125	1	20

Method: 9040C - pH

Lab Sample ID: LCS 490-585481/1
Matrix: Water
Analysis Batch: 585481

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.010		SU		100	98 - 103

Lab Sample ID: 490-171184-1 DU
Matrix: Water
Analysis Batch: 585481

Client Sample ID: MW-104
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	6.88		6.880		SU		0	20
Temperature	20.9		20.90		Degrees C		0	20

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 490-586311/5
Matrix: Water
Analysis Batch: 586311

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 19:05	1
Carbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 19:05	1
Alkalinity	ND		10.0	5.00	mg/L			04/05/19 19:05	1

Lab Sample ID: LCS 490-586311/6
Matrix: Water
Analysis Batch: 586311

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Alkalinity			100	92.55		mg/L		93	90 - 110		

Lab Sample ID: LCSD 490-586311/27
Matrix: Water
Analysis Batch: 586311

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity			100	94.04		mg/L		94	90 - 110	2	20

Lab Sample ID: LCSD 490-586311/29
Matrix: Water
Analysis Batch: 586311

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity			100	95.36		mg/L		95	90 - 110	3	20

Lab Sample ID: 490-171227-A-1 DU
Matrix: Water
Analysis Batch: 586311

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Bicarbonate Alkalinity as CaCO3	181			179.3		mg/L				0.8	20
Carbonate Alkalinity as CaCO3	ND			ND		mg/L				NC	20
Alkalinity	181			179.3		mg/L				0.8	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 490-584789/1
Matrix: Water
Analysis Batch: 584789

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		25.0	7.00	mg/L			04/02/19 10:30	1

Lab Sample ID: LCS 490-584789/2
Matrix: Water
Analysis Batch: 584789

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			100	108.0		mg/L		108	90 - 110		

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: 490-171046-M-1 DU
Matrix: Water
Analysis Batch: 584789

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	251			256.0		mg/L				2	20

Lab Sample ID: 490-171184-1 DU
Matrix: Water
Analysis Batch: 584789

Client Sample ID: MW-104
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	6990			6900		mg/L				1	20

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-423611/24-A
Matrix: Water
Analysis Batch: 427653

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 423611

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.06299	U	0.0535	0.0538	1.00	0.0761	pCi/L	04/14/19 16:48	05/07/19 13:22	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.6*		*40 - 110*	*04/14/19 16:48*	*05/07/19 13:22*	*1*

Lab Sample ID: LCS 160-423611/1-A
Matrix: Water
Analysis Batch: 427429

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 423611

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.4	10.04		1.05	1.00	0.0858	pCi/L	88	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*90.0*		*40 - 110*

Lab Sample ID: 400-168077-B-20-A DU
Matrix: Water
Analysis Batch: 427429

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 423611

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Radium-226	0.263			0.2137		0.0923	1.00	0.0946	pCi/L			0.25	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Ba Carrier	*85.5*		*40 - 110*

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-423832/24-A
Matrix: Water
Analysis Batch: 425516

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 423832

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.3565	U	0.235	0.237	1.00	0.361	pCi/L	04/14/19 16:48	04/25/19 08:15	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.6*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:15*	*1*
Y Carrier	*89.7*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:15*	*1*

Lab Sample ID: LCS 160-423832/1-A
Matrix: Water
Analysis Batch: 425517

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 423832

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.27	10.51		1.20	1.00	0.391	pCi/L	113	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*90.0*		*40 - 110*
Y Carrier	*87.5*		*40 - 110*

Lab Sample ID: 400-168077-B-20-B DU
Matrix: Water
Analysis Batch: 425517

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 423832

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Radium-228	0.577			0.4291		0.277	1.00	0.422	pCi/L			0.27	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Ba Carrier	*85.5*		*40 - 110*
Y Carrier	*85.6*		*40 - 110*

HPLC/IC

Analysis Batch: 584786

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	9056A	
490-171184-2	MW-110	Total/NA	Water	9056A	
490-171184-3	DUPE	Total/NA	Water	9056A	
490-171184-4	FIELD BLANK	Total/NA	Water	9056A	
MB 490-584786/3	Method Blank	Total/NA	Water	9056A	
LCS 490-584786/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-584786/5	Lab Control Sample Dup	Total/NA	Water	9056A	
490-171184-2 MS	MW-110	Total/NA	Water	9056A	
490-171184-2 MSD	MW-110	Total/NA	Water	9056A	

Analysis Batch: 585062

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	9056A	
490-171184-2	MW-110	Total/NA	Water	9056A	
490-171184-2	MW-110	Total/NA	Water	9056A	
490-171184-3	DUPE	Total/NA	Water	9056A	
490-171184-3	DUPE	Total/NA	Water	9056A	
MB 490-585062/3	Method Blank	Total/NA	Water	9056A	
LCS 490-585062/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-585062/5	Lab Control Sample Dup	Total/NA	Water	9056A	

Metals

Filtration Batch: 273938

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-88068-D-12-G MS	Matrix Spike	Dissolved	Water	FILTRATION	
180-88068-D-12-H MSD	Matrix Spike Duplicate	Dissolved	Water	FILTRATION	

Prep Batch: 274722

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total Recoverable	Water	3005A	
490-171184-2	MW-110	Total Recoverable	Water	3005A	
490-171184-3	DUPE	Total Recoverable	Water	3005A	
490-171184-4	FIELD BLANK	Total Recoverable	Water	3005A	
MB 180-274722/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-274722/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-88255-C-3-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	3005A	
180-88255-D-3-E MS	Matrix Spike	Total Recoverable	Water	3005A	

Prep Batch: 274765

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	7470A	
490-171184-2	MW-110	Total/NA	Water	7470A	
490-171184-3	DUPE	Total/NA	Water	7470A	
490-171184-4	FIELD BLANK	Total/NA	Water	7470A	
MB 180-274765/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-274765/2-A	Lab Control Sample	Total/NA	Water	7470A	
180-88333-D-4-E MS	Matrix Spike	Dissolved	Water	7470A	
180-88333-D-4-F MSD	Matrix Spike Duplicate	Dissolved	Water	7470A	

Metals

Analysis Batch: 274816

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total Recoverable	Water	6010C	274722
490-171184-2	MW-110	Total Recoverable	Water	6010C	274722
490-171184-3	DUPE	Total Recoverable	Water	6010C	274722
490-171184-4	FIELD BLANK	Total Recoverable	Water	6010C	274722
MB 180-274722/1-A	Method Blank	Total Recoverable	Water	6010C	274722
LCS 180-274722/2-A	Lab Control Sample	Total Recoverable	Water	6010C	274722
180-88255-C-3-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	6010C	274722
180-88255-D-3-E MS	Matrix Spike	Total Recoverable	Water	6010C	274722

Prep Batch: 274861

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total Recoverable	Water	3005A	
490-171184-2	MW-110	Total Recoverable	Water	3005A	
490-171184-3	DUPE	Total Recoverable	Water	3005A	
490-171184-4	FIELD BLANK	Total Recoverable	Water	3005A	
MB 180-274861/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-274861/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-88068-D-12-G MS	Matrix Spike	Dissolved	Water	3005A	273938
180-88068-D-12-H MSD	Matrix Spike Duplicate	Dissolved	Water	3005A	273938

Analysis Batch: 274975

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	EPA 7470A	274765
490-171184-2	MW-110	Total/NA	Water	EPA 7470A	274765
490-171184-3	DUPE	Total/NA	Water	EPA 7470A	274765
490-171184-4	FIELD BLANK	Total/NA	Water	EPA 7470A	274765
MB 180-274765/1-A	Method Blank	Total/NA	Water	EPA 7470A	274765
LCS 180-274765/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	274765
180-88333-D-4-E MS	Matrix Spike	Dissolved	Water	EPA 7470A	274765
180-88333-D-4-F MSD	Matrix Spike Duplicate	Dissolved	Water	EPA 7470A	274765

Analysis Batch: 275004

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total Recoverable	Water	6020A	274861
490-171184-2	MW-110	Total Recoverable	Water	6020A	274861
490-171184-3	DUPE	Total Recoverable	Water	6020A	274861
490-171184-4	FIELD BLANK	Total Recoverable	Water	6020A	274861
MB 180-274861/1-A	Method Blank	Total Recoverable	Water	6020A	274861
LCS 180-274861/2-A	Lab Control Sample	Total Recoverable	Water	6020A	274861
180-88068-D-12-G MS	Matrix Spike	Dissolved	Water	6020A	274861
180-88068-D-12-H MSD	Matrix Spike Duplicate	Dissolved	Water	6020A	274861

General Chemistry

Analysis Batch: 584789

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	SM 2540C	
490-171184-2	MW-110	Total/NA	Water	SM 2540C	
490-171184-3	DUPE	Total/NA	Water	SM 2540C	
490-171184-4	FIELD BLANK	Total/NA	Water	SM 2540C	
MB 490-584789/1	Method Blank	Total/NA	Water	SM 2540C	

General Chemistry (Continued)

Analysis Batch: 584789 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 490-584789/2	Lab Control Sample	Total/NA	Water	SM 2540C	
490-171046-M-1 DU	Duplicate	Total/NA	Water	SM 2540C	
490-171184-1 DU	MW-104	Total/NA	Water	SM 2540C	

Analysis Batch: 585481

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	9040C	
490-171184-2	MW-110	Total/NA	Water	9040C	
490-171184-3	DUPE	Total/NA	Water	9040C	
490-171184-4	FIELD BLANK	Total/NA	Water	9040C	
LCS 490-585481/1	Lab Control Sample	Total/NA	Water	9040C	
490-171184-1 DU	MW-104	Total/NA	Water	9040C	

Analysis Batch: 585534

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	9050A	
490-171184-2	MW-110	Total/NA	Water	9050A	
490-171184-3	DUPE	Total/NA	Water	9050A	
490-171184-4	FIELD BLANK	Total/NA	Water	9050A	
LCS 490-585534/3	Lab Control Sample	Total/NA	Water	9050A	

Analysis Batch: 586311

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	SM 2320B	
490-171184-2	MW-110	Total/NA	Water	SM 2320B	
490-171184-3	DUPE	Total/NA	Water	SM 2320B	
490-171184-4	FIELD BLANK	Total/NA	Water	SM 2320B	
MB 490-586311/5	Method Blank	Total/NA	Water	SM 2320B	
LCS 490-586311/6	Lab Control Sample	Total/NA	Water	SM 2320B	
LCSD 490-586311/27	Lab Control Sample Dup	Total/NA	Water	SM 2320B	
LCSD 490-586311/29	Lab Control Sample Dup	Total/NA	Water	SM 2320B	
490-171227-A-1 DU	Duplicate	Total/NA	Water	SM 2320B	

Rad

Prep Batch: 423611

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	PrecSep-21	
490-171184-2	MW-110	Total/NA	Water	PrecSep-21	
490-171184-3	DUPE	Total/NA	Water	PrecSep-21	
490-171184-4	FIELD BLANK	Total/NA	Water	PrecSep-21	
MB 160-423611/24-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-423611/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
400-168077-B-20-A DU	Duplicate	Total/NA	Water	PrecSep-21	

Prep Batch: 423832

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	PrecSep_0	
490-171184-2	MW-110	Total/NA	Water	PrecSep_0	
490-171184-3	DUPE	Total/NA	Water	PrecSep_0	
490-171184-4	FIELD BLANK	Total/NA	Water	PrecSep_0	

Rad (Continued)

Prep Batch: 423832 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 160-423832/24-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-423832/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
400-168077-B-20-B DU	Duplicate	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Client Sample ID: MW-104

Date Collected: 03/29/19 12:03
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			584786	04/01/19 11:43	SW1	TAL NSH
Total/NA	Analysis	9056A		100			585062	04/02/19 14:03	SW1	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	274722	04/03/19 11:21	NAM	TAL PIT
Total Recoverable	Analysis	6010C		1			274816	04/04/19 09:05	RJG	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	274861	04/04/19 13:20	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			275004	04/05/19 13:17	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	274765	04/03/19 14:38	KAK	TAL PIT
Total/NA	Analysis	EPA 7470A		1			274975	04/05/19 12:54	KAK	TAL PIT
Total/NA	Analysis	9040C		1			585481	04/03/19 15:52	MXX	TAL NSH
Total/NA	Analysis	9050A		1			585534	04/03/19 20:44	VRP	TAL NSH
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	586311	04/05/19 19:51	MSP	TAL NSH
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	584789	04/02/19 10:30	BMC	TAL NSH
Total/NA	Prep	PrecSep-21			750.14 mL	1.0 g	423611	04/14/19 16:48	MMO	TAL SL
Total/NA	Analysis	903.0		1			427653	05/07/19 13:21	CDR	TAL SL
Total/NA	Prep	PrecSep_0			750.14 mL	1.0 g	423832	04/14/19 16:48	MMO	TAL SL
Total/NA	Analysis	904.0		1	1.0 mL	1.0 mL	425516	04/25/19 08:14	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			427672	05/08/19 07:28	SMP	TAL SL

Client Sample ID: MW-110

Date Collected: 03/29/19 09:35
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			584786	04/01/19 11:59	SW1	TAL NSH
Total/NA	Analysis	9056A		2			585062	04/02/19 14:36	SW1	TAL NSH
Total/NA	Analysis	9056A		50			585062	04/02/19 14:52	SW1	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	274722	04/03/19 11:21	NAM	TAL PIT
Total Recoverable	Analysis	6010C		1			274816	04/04/19 09:11	RJG	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	274861	04/04/19 13:20	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			275004	04/05/19 13:20	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	274765	04/03/19 14:38	KAK	TAL PIT
Total/NA	Analysis	EPA 7470A		1			274975	04/05/19 12:55	KAK	TAL PIT
Total/NA	Analysis	9040C		1			585481	04/03/19 15:52	MXX	TAL NSH
Total/NA	Analysis	9050A		1			585534	04/03/19 20:44	VRP	TAL NSH
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	586311	04/05/19 19:58	MSP	TAL NSH
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	584789	04/02/19 10:30	BMC	TAL NSH
Total/NA	Prep	PrecSep-21			500.14 mL	1.0 g	423611	04/14/19 16:48	MMO	TAL SL
Total/NA	Analysis	903.0		1			427653	05/07/19 13:21	CDR	TAL SL
Total/NA	Prep	PrecSep_0			500.14 mL	1.0 g	423832	04/14/19 16:48	MMO	TAL SL
Total/NA	Analysis	904.0		1	1.0 mL	1.0 mL	425516	04/25/19 08:14	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			427672	05/08/19 07:28	SMP	TAL SL

Lab Chronicle

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Client Sample ID: DUPE

Date Collected: 03/29/19 09:46
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			584786	04/01/19 12:49	SW1	TAL NSH
Total/NA	Analysis	9056A		2			585062	04/02/19 15:09	SW1	TAL NSH
Total/NA	Analysis	9056A		50			585062	04/02/19 15:26	SW1	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	274722	04/03/19 11:21	NAM	TAL PIT
Total Recoverable	Analysis	6010C		1			274816	04/04/19 09:16	RJG	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	274861	04/04/19 13:20	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			275004	04/05/19 13:24	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	274765	04/03/19 14:38	KAK	TAL PIT
Total/NA	Analysis	EPA 7470A		1			274975	04/05/19 12:58	KAK	TAL PIT
Total/NA	Analysis	9040C		1			585481	04/03/19 15:52	MXX	TAL NSH
Total/NA	Analysis	9050A		1			585534	04/03/19 20:44	VRP	TAL NSH
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	586311	04/05/19 20:05	MSP	TAL NSH
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	584789	04/02/19 10:30	BMC	TAL NSH
Total/NA	Prep	PrecSep-21			500.02 mL	1.0 g	423611	04/14/19 16:48	MMO	TAL SL
Total/NA	Analysis	903.0		1			427653	05/07/19 13:21	CDR	TAL SL
Total/NA	Prep	PrecSep_0			500.02 mL	1.0 g	423832	04/14/19 16:48	MMO	TAL SL
Total/NA	Analysis	904.0		1	1.0 mL	1.0 mL	425516	04/25/19 08:14	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			427672	05/08/19 07:28	SMP	TAL SL

Client Sample ID: FIELD BLANK

Date Collected: 03/29/19 12:27
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			584786	04/01/19 13:39	SW1	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	274722	04/03/19 11:21	NAM	TAL PIT
Total Recoverable	Analysis	6010C		1			274816	04/04/19 09:21	RJG	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	274861	04/04/19 13:20	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			275004	04/05/19 13:27	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	274765	04/03/19 14:38	KAK	TAL PIT
Total/NA	Analysis	EPA 7470A		1			274975	04/05/19 12:59	KAK	TAL PIT
Total/NA	Analysis	9040C		1			585481	04/03/19 15:52	MXX	TAL NSH
Total/NA	Analysis	9050A		1			585534	04/03/19 20:45	VRP	TAL NSH
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	586311	04/05/19 20:10	MSP	TAL NSH
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	584789	04/02/19 10:30	BMC	TAL NSH
Total/NA	Prep	PrecSep-21			1000.00 mL	1.0 g	423611	04/14/19 16:48	MMO	TAL SL
Total/NA	Analysis	903.0		1			427653	05/07/19 13:22	CDR	TAL SL
Total/NA	Prep	PrecSep_0			1000.00 mL	1.0 g	423832	04/14/19 16:48	MMO	TAL SL
Total/NA	Analysis	904.0		1	1.0 mL	1.0 mL	425516	04/25/19 08:14	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			427672	05/08/19 07:28	SMP	TAL SL

Lab Chronicle

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Laboratory References:

TAL NSH = Eurofins TestAmerica, Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

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

Method Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	TAL NSH
6010C	Metals (ICP)	SW846	TAL PIT
6020A	Metals (ICP/MS)	SW846	TAL PIT
EPA 7470A	Mercury (CVAA)	SW846	TAL PIT
9040C	pH	SW846	TAL NSH
9050A	Specific Conductance	SW846	TAL NSH
SM 2320B	Alkalinity	SM	TAL NSH
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL NSH
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT
7470A	Preparation, Mercury	SW846	TAL PIT

Protocol References:

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.

Laboratory References:

TAL NSH = Eurofins TestAmerica, Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

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

Accreditation/Certification Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Laboratory: Eurofins TestAmerica, Nashville

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Kentucky (UST)	State Program	4	19	06-30-19

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
9040C		Water	pH
9040C		Water	Temperature
9050A		Water	Specific Conductance (25C)
9056A		Water	Chloride
9056A		Water	Fluoride
9056A		Water	Sulfate
SM 2320B		Water	Alkalinity
SM 2320B		Water	Bicarbonate Alkalinity as CaCO3
SM 2320B		Water	Carbonate Alkalinity as CaCO3
SM 2540C		Water	Total Dissolved Solids

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-19
California	State Program	9	2891	04-30-19 *
Connecticut	State Program	1	PH-0688	09-30-20
Florida	NELAP	4	E871008	06-30-19
Illinois	NELAP	5	200005	06-30-19
Kansas	NELAP	7	E-10350	01-31-20
Louisiana	NELAP	6	04041	06-30-19
Nevada	State Program	9	PA00164	07-31-19
New Hampshire	NELAP	1	2030	04-04-19 *
New Jersey	NELAP	2	PA005	06-30-19
New York	NELAP	2	11182	03-31-20
North Carolina (WW/SW)	State Program	4	434	12-31-19
Oregon	NELAP	10	PA-2151	01-28-19 *
Pennsylvania	NELAP	3	02-00416	04-30-19
South Carolina	State Program	4	89014	04-30-19 *
Texas	NELAP	6	T104704528-15-2	03-31-20
US Fish & Wildlife	Federal		LE94312A-1	07-31-19
USDA	Federal		P330-16-00211	06-26-19
Utah	NELAP	8	PA001462015-4	05-31-19 *
Virginia	NELAP	3	460189	09-14-19
West Virginia DEP	State Program	3	142	01-31-20
Wisconsin	State Program	5	998027800	08-31-19

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

Accreditation/Certification Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	MO00054	06-30-19
ANAB	DoD		L2305	04-06-22
Arizona	State Program	9	AZ0813	12-08-19
California	State Program	9	2886	06-30-19 *
Connecticut	State Program	1	PH-0241	03-31-21
Florida	NELAP	4	E87689	06-30-19 *
Hawaii	State Program	9	NA	06-30-19
Illinois	NELAP	5	200023	11-30-19
Iowa	State Program	7	373	12-01-20
Kansas	NELAP	7	E-10236	10-31-19
Kentucky (DW)	State Program	4	KY90125	12-31-19
Louisiana	NELAP	6	04080	06-30-19
Louisiana (DW)	NELAP	6	LA011	12-31-19
Maryland	State Program	3	310	09-30-19
Michigan	State Program	5	9005	06-30-19
Missouri	State Program	7	780	06-30-19
Nevada	State Program	9	MO000542018-1	07-31-19
New Jersey	NELAP	2	MO002	06-30-19 *
New York	NELAP	2	11616	03-31-20
North Dakota	State Program	8	R207	06-30-19 *
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-19
Pennsylvania	NELAP	3	68-00540	02-28-20
South Carolina	State Program	4	85002001	06-30-19
Texas	NELAP	6	T104704193-18-13	07-31-19
US Fish & Wildlife	Federal		058448	07-31-19
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542018-10	07-31-19
Virginia	NELAP	3	460230	06-14-19 *
Washington	State Program	10	C592	08-30-19
West Virginia DEP	State Program	3	381	08-31-19

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

490-171184 Chain of Custody

Cooler Received/Opened On 3/30/2019 @ 9:00

Time Samples Removed From Cooler 11:43 Time Samples Placed In Storage 11:49 (2 Hour Window)

1. Tracking # 0191 (last 4 digits, FedEx) Courier: Fedex

IR Gun ID 31470366 pH Strip Lot NA Chlorine Strip Lot NA

2. Temperature of rep. sample or temp blank when opened: 2.0 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...(NA)

4. Were custody seals on outside of cooler? (YES)...NO...NA

If yes, how many and where: 2 Front

5. Were the seals intact, signed, and dated correctly? (YES)...NO...NA

6. Were custody papers inside cooler? (YES)...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) ACE

7. Were custody seals on containers: YES (NO) and Intact YES...NO...(NA)

Were these signed and dated correctly? YES...NO...(NA)

8. Packing mat'l used? (Bubblewrap) Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: (Ice) Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? (YES)...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? (YES)...NO...NA

12. Did all container labels and tags agree with custody papers? (YES)...NO...NA

13a. Were VOA vials received? YES...(NO)...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...(NA)

● ⬅ Larger than this.

14. Was there a Trip Blank in this cooler? YES...(NO)...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) ACE

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...(NA)

b. Did the bottle labels indicate that the correct preservatives were used (YES)...NO...NA

16. Was residual chlorine present? YES...NO...(NA)

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) AE

17. Were custody papers properly filled out (ink, signed, etc)? (YES)...NO...NA

18. Did you sign the custody papers in the appropriate place? (YES)...NO...NA

19. Were correct containers used for the analysis requested? (YES)...NO...NA

20. Was sufficient amount of sample sent in each container? (YES)...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) ACE

I certify that I attached a label with the unique LIMS number to each container (intial) ACE

21. Were there Non-Conformance issues at login? YES...(NO) Was a NCM generated? YES...(NO)...#_____

BIS = Broken in shipment

TestAmerica Nashville
2960 Foster Creighton Drive

Nashville, TN 37204-3719
phone 615.726.0177 fax 615.726.3404

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other:

Client Contact: Greg Dick	**Project Manager: Mark Bertram**	**Site Contact: Greg Dick**	**Date: 3/29/2019**
Company: Big Rivers Electric Corporation	**Tel/Fax: (270) 844-5708**	**Lab Contact: Roxanne Cisneros**	**Carrier: ~~N/A~~ FedEx**
Address: 9000 Highway 2096	**Analysis Turnaround Time**		
City/State/Zip: Robards, KY 42452	☐ CALENDAR DAYS ☐ WORKING DAYS		
(270) 844-5736 Phone	TAT if different from Below _____		
(xxx) xxx-xxxx FAX	☑ 2 weeks		
Project Name: Sebree Station - New CCR Wells	☐ 1 week		
Site: Sebree Station	☐ 2 days		
P O #: Purchase Order-see DOCs	☐ 1 day		

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	903.0, 904.0	6010C, 6020A, 7470A	9056A_ORGFM_28D, 9040C, 9060A, 2320B	2540C_Calcd-TDS
MW-104	3/29/19	1203	G	Water	5	N	N	x	x	x	x
MW-110	3/29/19	935	G	Water	5	N	N	x	x	x	x
DUPE	3/29/19	946	G	Water	5	N	N	x	x	x	x
FIELD BLANK	3/29/19	1227	G	Water	5	N	N	x	x	x	x
								4	4	7	7

COC No: 490-97948-27514.1
1 of 1 COCs
Sampler: Greg Dick
For Lab Use Only:
Walk-in Client:
Lab Sampling:
Job / SDG No.:

Sample Specific Notes:
Refer to attached constituent list for analysis

Loc: 490
171184

Preservation Used: 1= Ice, 2= HCl; 3= H_2SO_4; 4=HNO_3; 5=NaOH; 6= Other, 7= None

Possible Hazard Identification:
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.
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown

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: Standard TAT; See attached constituent list for analysis.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: 2.0 Corr'd: _____ | Therm ID No.: _____

Relinquished by: Greg Dick	Company: BREC	Date/Time: 3/29/19 1600	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: TA-NSH	Date/Time: 3/30/19 9:00

Form No. CA-C-WI-002, Rev. 4.9, dated 2/2/2016

Page 33 of 41

5/8/2019

3/29/2019

Loc: 490
171184

Constituent List:

40 C.F.R. 257 Appendix III
Boron
Calcium
Fluoride
pH
Sulfate
Total Dissolved Solids (TDS)

Mary Rick
BREC
3/29/2019
1600

40 C.F.R. 257 Appendix IV
Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium
Cobalt
Fluoride
Lead
Lithium
Mercury
Molybdenum
Selenium
Thallium
Radium 226 & 228 combined

Additional Parameters
Carbonate Alkalinity
Bicarbonate Alkalinity
Alkalinity
Iron
Magnesium
Potassium
Sodium

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

490-171184 Chain of Custody

Cooler Received/Opened On 3/30/2019 @ 9:00

Time Samples Removed From Cooler 11:43 Time Samples Placed In Storage 11:49 (2 Hour Window)

1. Tracking # 0191 (last 4 digits, FedEx) Courier: Fedex

IR Gun ID 31470366 pH Strip Lot NA Chlorine Strip Lot NA

2. Temperature of rep. sample or temp blank when opened: 2.0 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 2 Front

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) ACG

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

● ⬅ Larger than this.

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) ACG

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) ACG

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) ACG

I certify that I attached a label with the unique LIMS number to each container (intial) ACG

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#_____

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 8/23/17

Loc: 490
171184

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

Cooler Received/Opened On 03-30-2019 @ 09:00

Time Samples Removed From Cooler 12:35 Time Samples Placed In Storage 12:37 (2 Hour Window)

1. Tracking # 0206 (last 4 digits, FedEx) Courier: FedEx

IR Gun ID 31470368 pH Strip Lot [illegible] Chlorine Strip Lot [illegible]

2. Temperature of rep. sample or temp blank when opened: 2.6 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES NO NA

If yes, how many and where: 1 (front)

5. Were the seals intact, signed, and dated correctly? YES NO NA

6. Were custody papers inside cooler? YES NO NA

I certify that I opened the cooler and answered questions 1-6 (intial) KA

7. Were custody seals on containers: YES NO and Intact YES NO NA

Were these signed and dated correctly? YES NO NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES NO NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES NO NA

12. Did all container labels and tags agree with custody papers? YES NO NA

13a. Were VOA vials received? YES NO NA

b. Was there any observable headspace present in any VOA vial? YES NO NA

Larger than this.

14. Was there a Trip Blank in this cooler? YES NO NA If multiple coolers, sequence #

I certify that I unloaded the cooler and answered questions 7-14 (intial) AK

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES NO NA

b. Did the bottle labels indicate that the correct preservatives were used YES NO NA

16. Was residual chlorine present? YES NO NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) AK

17. Were custody papers properly filled out (ink, signed, etc)? YES NO NA

18. Did you sign the custody papers in the appropriate place? YES NO NA

19. Were correct containers used for the analysis requested? YES NO NA

20. Was sufficient amount of sample sent in each container? YES NO NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) AK

I certify that I attached a label with the unique LIMS number to each container (intial) AK

21. Were there Non-Conformance issues at login? YES NO Was a NCM generated? YES NO #

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 8/23/17

TestAmerica Nashville
2960 Foster Creighton Drive

Nashville, TN 37204-3719
phone 615.726.0177 fax 615.726.3404

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other:

TestAmerica Laboratories, Inc.

Client Contact: Greg Dick	Project Manager: Mark Bertram	Site Contact: Greg Dick	Date: 3/29/2019
Company: Big Rivers Electric Corporation	Tel/Fax: (270) 844-5708	Lab Contact: Roxanne Cisneros	Carrier: ~~N/A~~ FedEx
Address: 9000 Highway 2096	Analysis Turnaround Time		
City/State/Zip: Robards, KY 42452	☐ CALENDAR DAYS ☐ WORKING DAYS		
(270) 844-5736 Phone	TAT if different from Below _____		
(xxx) xxx-xxxx FAX	☑ 2 weeks		
Project Name: Sebree Station - New CCR Wells	☐ 1 week		
Site: Sebree Station	☐ 2 days		
P O #: Purchase Order-see DOCs	☐ 1 day		

COC No: 490-97948-27514.1
1 of 1 COCs
Sampler: Greg Dick
For Lab Use Only:
Walk-in Client:
Lab Sampling:
Job / SDG No.:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	903.0, 904.0	6010C, 6020A, 7470A	90556A_ORGFM_28D, 9040C, 9060A, 2320B	2540C_Calcd-TDS	Sample Specific Notes:
MW-104	3/29/19	1203	G	Water	5	N	N	x	x	x	x	Refer to attached constituent list for analysis
MW-110	3/29/19	935	G	Water	5	N	N	x	x	x	x	
DUPE	3/29/19	946	G	Water	5	N	N	x	x	x	x	
FIELD BLANK	3/29/19	1227	G	Water	5	N	N	x	x	x	x	
												Loc: 490 171184

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other, 7= None _____ — 4 4 7 7

Possible Hazard Identification:
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.
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown

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: Standard TAT; See attached constituent list for analysis.

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd: 2.0 Corr'd: _____		Therm ID No.: _____
Relinquished by: Greg Dick	Company: BREC	Date/Time: 3/29/19 1600	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: TA-NAS	Date/Time: 3/30/19 9:00

Form No. CA-C-WI-002, Rev. 4.9, dated 2/2/2016

5/8/2019

3/29/2019

Loc: 490
171184

Constituent List:

40 C.F.R. 257 Appendix III
Boron
Calcium
Fluoride
pH
Sulfate
Total Dissolved Solids (TDS)

Mary Rick
BREC
3/29/2019
1600

40 C.F.R. 257 Appendix IV
Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium
Cobalt
Fluoride
Lead
Lithium
Mercury
Molybdenum
Selenium
Thallium
Radium 226 & 228 combined

Additional Parameters
Carbonate Alkalinity
Bicarbonate Alkalinity
Alkalinity
Iron
Magnesium
Potassium
Sodium

TestAmerica Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Phone (615) 726-0177 Fax (615) 726-3404

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Cisneros, Roxanne	Carrier Tracking No(s):	COC No: 490-87963.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: roxanne.cisneros@testamericainc.com	State of Origin: Kentucky	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 490-171184-2
Address: 13715 Rider Trail North, ,	Due Date Requested: 4/29/2019			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Sebree Station - New CCR Wells	Project #: 49010431			
Site: Big Rivers CCR	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
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
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	903.0/PrecSep_21 Standard Target List	904.0/PrecSep_0 Standard Target List	Ra226Ra228_GFPC	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-104 (490-171184-1)	3/29/19	12:03 Eastern		Water			X	X	X	2	run once - upload data twice
MW-110 (490-171184-2)	3/29/19	09:35 Eastern		Water			X	X	X	2	run once - upload data twice
DUPE (490-171184-3)	3/29/19	09:46 Eastern		Water			X	X	X	2	run once - upload data twice
FIELD BLANK (490-171184-4)	3/29/19	12:27 Eastern		Water			X	X	X	2	run once - upload data twice

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *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:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	4-1-19 @ 1430	TAN-AS	[signature]	4/2/19 09:20	TA-STL
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Big Rivers Electric Corporation

Job Number: 490-171184-2
SDG Number: Sebree Station

Login Number: 171184
List Number: 3
Creator: Hellm, Michael

List Source: Eurofins TestAmerica, St. Louis
List Creation: 04/02/19 04:42 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.	N/A	
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	20.0
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").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
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 Carrier (40-110)
400-168077-B-20-A DU	Duplicate	85.5
490-171184-1	MW-104	84.7
490-171184-2	MW-110	72.6
490-171184-3	DUPE	68.4
490-171184-4	FIELD BLANK	95.0
LCS 160-423611/1-A	Lab Control Sample	90.0
MB 160-423611/24-A	Method Blank	92.6

Tracer/Carrier Legend

Ba Carrier = 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 Carrier (40-110)	Y Carrier (40-110)
400-168077-B-20-B DU	Duplicate	85.5	85.6
490-171184-1	MW-104	84.7	87.1
490-171184-2	MW-110	72.6	90.5
490-171184-3	DUPE	68.4	89.7
490-171184-4	FIELD BLANK	95.0	90.8
LCS 160-423832/1-A	Lab Control Sample	90.0	87.5
MB 160-423832/24-A	Method Blank	92.6	89.7

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

eurofins | Environment Testing TestAmerica



ANALYTICAL REPORT

Eurofins TestAmerica, Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Tel: (615)726-0177

Laboratory Job ID: 490-172010-1
Laboratory Sample Delivery Group: Sebree Station
Client Project/Site: Sebree Station, New CCR Wells Rd 2

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

Attn: Mark Bertram

Roxanne Cisneros

Authorized for release by:
4/30/2019 10:49:54 AM

Roxanne Cisneros, Senior Project Manager
(615)301-5761
roxanne.cisneros@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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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Sample Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-172010-1	MW-104	Water	04/10/19 14:43	04/12/19 09:55
490-172010-2	MW-110	Water	04/10/19 12:59	04/12/19 09:55
490-172010-3	DUPE	Water	04/10/19 15:10	04/12/19 09:55
490-172010-4	FIELD BLANK	Water	04/10/19 15:39	04/12/19 09:55

Job ID: 490-172010-1

Laboratory: Eurofins TestAmerica, Nashville

Narrative

Job Narrative
490-172010-1

Comments
No additional comments.

Receipt
The samples were received on 4/12/2019 9:55 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were -0.6º C and 0.7º C.

HPLC/IC
Method(s) 9056A: The concentration of Chloride in the Matrix Spike/Matrix Spike Duplicate (MS/MSD) exceeded the calibration curve range. (490-171999-H-13 MS)

Method(s) 9056A: The method blank for analytical batch 490-587889 contained Chloride above the reporting limit (RL). Associated sample(s) were not re-extracted and/or re-analyzed because results were greater than 10X the value found in the method blank.

Method(s) 9056A: The concentration of Chloride and Sulfate in the Matrix Spike/Matrix Spike Duplicate (MS/MSD) exceeded the calibration curve range. (490-172007-E-1 MS) and (490-172007-E-1 MSD)

Method(s) 9056A: The following samples were diluted due to the nature of the sample matrix: MW-104 (490-172010-1), MW-110 (490-172010-2) and DUPE (490-172010-3). Elevated reporting limits (RLs) are provided.

Method(s) 9056A: The method blank for analytical batch 490-588578 contained Fluoride above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and_or re-analysis of samples was not performed.

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

Metals
Method(s) 6020A: The serial dilution performed for the following sample associated with batch 180-276092 was outside control limits for boron: MW-104 (490-172010-1)

Method(s) 7470A: Closing CRA was high, but all samples are non-detect. MW-104 (490-172010-1), MW-110 (490-172010-2), DUPE (490-172010-3), (LCS 180-276833/2-A), (MB 180-276833/1-A), (490-172010-A-3-F MS) and (490-172010-A-3-G MSD)

Method(s) 245.1, 7470A: The continuing calibration verification (CCV) associated with batch 180-277078 recovered above the upper control limit for mercury. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method(s) 245.1, 7470A: The low level continuing calibration verification (CCVL) associated with batch 180-277078 recovered above the upper control limit for mercury. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method(s) 7470A: The laboratory control sample (LCS) for preparation batch 180-276826 and analytical batch 180-277078 recovered outside control limits for mercury. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

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

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

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

Definitions/Glossary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Qualifiers

HPLC/IC

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.
B	Compound was found in the blank and sample.
E	Result exceeded calibration range.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.
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.
B	Compound was found in the blank and sample.
F1	MS and/or MSD Recovery is outside acceptance limits.
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
F3	Duplicate RPD exceeds the control limit

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

Client Sample ID: MW-104

Date Collected: 04/10/19 14:43
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-1

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1430	B	300	20.0	mg/L			04/13/19 19:35	100
Fluoride	0.323	J B	10.0	0.100	mg/L			04/13/19 19:19	10
Sulfate	2880	B	500	3.00	mg/L			04/13/19 19:35	100

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0286	J	0.0500	0.00959	mg/L		04/16/19 11:19	04/22/19 16:39	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.000119	J B	0.00200	0.0000213	mg/L		04/16/19 11:17	04/17/19 10:53	1
Arsenic	0.00208	J	0.00500	0.000118	mg/L		04/16/19 11:17	04/17/19 10:53	1
Barium	0.0216	J B	0.200	0.000270	mg/L		04/16/19 11:17	04/17/19 10:53	1
Beryllium	ND		0.00200	0.000102	mg/L		04/16/19 11:17	04/17/19 10:53	1
Boron	0.271	J B	1.00	0.00339	mg/L		04/16/19 11:17	04/17/19 10:53	1
Cadmium	ND		0.00100	0.000152	mg/L		04/16/19 11:17	04/17/19 10:53	1
Calcium	502		1.00	0.0412	mg/L		04/16/19 11:17	04/17/19 10:53	1
Chromium	0.00360		0.00300	0.000339	mg/L		04/16/19 11:17	04/17/19 10:53	1
Cobalt	0.00522		0.00500	0.0000218	mg/L		04/16/19 11:17	04/17/19 10:53	1
Lead	0.000233	J	0.00500	0.0000675	mg/L		04/16/19 11:17	04/17/19 10:53	1
Molybdenum	0.00104	J	0.0100	0.000873	mg/L		04/16/19 11:17	04/17/19 10:53	1
Potassium	1660		1000	147	ug/L		04/16/19 11:17	04/17/19 10:53	1
Selenium	ND		0.0100	0.000348	mg/L		04/16/19 11:17	04/17/19 10:53	1
Thallium	ND		0.00100	0.0000360	mg/L		04/16/19 11:17	04/17/19 10:53	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^	0.200	0.101	ug/L		04/25/19 17:02	04/26/19 13:28	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.99		0.100	0.100	SU			04/18/19 18:32	1
Temperature	22.8		0.100	0.100	Degrees C			04/18/19 18:32	1
Specific Conductance (25C)	8570		10.0	10.0	umhos/cm			04/13/19 10:38	1
Alkalinity	696		10.0	5.00	mg/L			04/13/19 13:33	1
Total Dissolved Solids	6690		250	70.0	mg/L			04/15/19 16:11	1

Client Sample ID: MW-110

Date Collected: 04/10/19 12:59
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-2

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	30.4	B	6.00	0.400	mg/L			04/13/19 20:09	2
Fluoride	0.255	J B	1.00	0.0100	mg/L			04/13/19 02:38	1
Sulfate	596	B	250	1.50	mg/L			04/13/19 20:25	50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0303	J	0.0500	0.00959	mg/L		04/16/19 11:19	04/22/19 16:45	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.000204	J B	0.00200	0.0000213	mg/L		04/16/19 11:17	04/17/19 11:16	1
Arsenic	0.00238	J	0.00500	0.000118	mg/L		04/16/19 11:17	04/17/19 11:16	1
Barium	0.107	J B	0.200	0.000270	mg/L		04/16/19 11:17	04/17/19 11:16	1
Beryllium	0.000314	J	0.00200	0.000102	mg/L		04/16/19 11:17	04/17/19 11:16	1
Boron	0.496	J B	1.00	0.00339	mg/L		04/16/19 11:17	04/17/19 11:16	1
Cadmium	ND		0.00100	0.000152	mg/L		04/16/19 11:17	04/17/19 11:16	1
Calcium	178		1.00	0.0412	mg/L		04/16/19 11:17	04/17/19 11:16	1
Chromium	0.0115		0.00300	0.000339	mg/L		04/16/19 11:17	04/17/19 11:16	1
Cobalt	0.00384	J	0.00500	0.0000218	mg/L		04/16/19 11:17	04/17/19 11:16	1
Lead	0.00399	J	0.00500	0.0000675	mg/L		04/16/19 11:17	04/17/19 11:16	1
Molybdenum	0.00120	J	0.0100	0.000873	mg/L		04/16/19 11:17	04/17/19 11:16	1
Potassium	2930		1000	147	ug/L		04/16/19 11:17	04/17/19 11:16	1
Selenium	ND		0.0100	0.000348	mg/L		04/16/19 11:17	04/17/19 11:16	1
Thallium	0.0000640	J	0.00100	0.0000360	mg/L		04/16/19 11:17	04/17/19 11:16	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^	0.200	0.101	ug/L		04/25/19 17:02	04/26/19 13:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.50		0.100	0.100	SU			04/18/19 18:32	1
Temperature	22.8		0.100	0.100	Degrees C			04/18/19 18:32	1
Specific Conductance (25C)	1570		10.0	10.0	umhos/cm			04/13/19 10:38	1
Alkalinity	270		10.0	5.00	mg/L			04/13/19 13:40	1
Total Dissolved Solids	1200		25.0	7.00	mg/L			04/15/19 16:11	1

Client Sample ID: DUPE

Date Collected: 04/10/19 15:10
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-3

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1380	B	300	20.0	mg/L			04/13/19 22:54	100
Fluoride	1.19	J B	100	1.00	mg/L			04/13/19 22:54	100
Sulfate	2880	B	500	3.00	mg/L			04/13/19 22:54	100

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0313	J	0.0500	0.00959	mg/L		04/16/19 11:19	04/22/19 16:07	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.000107	J B	0.00200	0.0000213	mg/L		04/16/19 11:17	04/17/19 11:19	1
Arsenic	0.00192	J	0.00500	0.000118	mg/L		04/16/19 11:17	04/17/19 11:19	1
Barium	0.0201	J B	0.200	0.000270	mg/L		04/16/19 11:17	04/17/19 11:19	1
Beryllium	ND		0.00200	0.000102	mg/L		04/16/19 11:17	04/17/19 11:19	1
Boron	0.200	J B	1.00	0.00339	mg/L		04/16/19 11:17	04/17/19 11:19	1
Cadmium	ND		0.00100	0.000152	mg/L		04/16/19 11:17	04/17/19 11:19	1
Calcium	486		1.00	0.0412	mg/L		04/16/19 11:17	04/17/19 11:19	1
Chromium	0.00355		0.00300	0.000339	mg/L		04/16/19 11:17	04/17/19 11:19	1
Cobalt	0.00536		0.00500	0.0000218	mg/L		04/16/19 11:17	04/17/19 11:19	1
Lead	0.000126	J	0.00500	0.0000675	mg/L		04/16/19 11:17	04/17/19 11:19	1
Molybdenum	0.000921	J	0.0100	0.000873	mg/L		04/16/19 11:17	04/17/19 11:19	1
Potassium	1430		1000	147	ug/L		04/16/19 11:17	04/17/19 11:19	1
Selenium	ND		0.0100	0.000348	mg/L		04/16/19 11:17	04/17/19 11:19	1
Thallium	ND		0.00100	0.0000360	mg/L		04/16/19 11:17	04/17/19 11:19	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^	0.200	0.101	ug/L		04/25/19 17:02	04/26/19 13:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.98		0.100	0.100	SU			04/18/19 18:32	1
Temperature	22.8		0.100	0.100	Degrees C			04/18/19 18:32	1
Specific Conductance (25C)	8630		10.0	10.0	umhos/cm			04/13/19 10:38	1
Alkalinity	686		10.0	5.00	mg/L			04/13/19 13:47	1
Total Dissolved Solids	6810		250	70.0	mg/L			04/15/19 16:11	1

Client Sample ID: FIELD BLANK

Lab Sample ID: 490-172010-4

Date Collected: 04/10/19 15:39
Matrix: Water
Date Received: 04/12/19 09:55

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	0.200	mg/L			04/17/19 15:20	1
Fluoride	ND		1.00	0.0100	mg/L			04/13/19 03:12	1
Sulfate	**0.334**	**J B**	5.00	0.0300	mg/L			04/13/19 03:12	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.0500	0.00959	mg/L		04/16/19 11:19	04/22/19 16:51	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.000192**	**J B**	0.00200	0.0000213	mg/L		04/16/19 11:17	04/17/19 11:23	1
Arsenic	**0.000904**	**J**	0.00500	0.000118	mg/L		04/16/19 11:17	04/17/19 11:23	1
Barium	**0.000424**	**J B**	0.200	0.000270	mg/L		04/16/19 11:17	04/17/19 11:23	1
Beryllium	ND		0.00200	0.000102	mg/L		04/16/19 11:17	04/17/19 11:23	1
Boron	**0.0368**	**J B**	1.00	0.00339	mg/L		04/16/19 11:17	04/17/19 11:23	1
Cadmium	ND		0.00100	0.000152	mg/L		04/16/19 11:17	04/17/19 11:23	1
Calcium	**0.174**	**J**	1.00	0.0412	mg/L		04/16/19 11:17	04/17/19 11:23	1
Chromium	**0.00427**		0.00300	0.000339	mg/L		04/16/19 11:17	04/17/19 11:23	1
Cobalt	ND		0.00500	0.0000218	mg/L		04/16/19 11:17	04/17/19 11:23	1
Lead	ND		0.00500	0.0000675	mg/L		04/16/19 11:17	04/17/19 11:23	1
Molybdenum	ND		0.0100	0.000873	mg/L		04/16/19 11:17	04/17/19 11:23	1
Potassium	ND		1000	147	ug/L		04/16/19 11:17	04/17/19 11:23	1
Selenium	ND		0.0100	0.000348	mg/L		04/16/19 11:17	04/17/19 11:23	1
Thallium	ND		0.00100	0.0000360	mg/L		04/16/19 11:17	04/17/19 11:23	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	* ^	0.200	0.101	ug/L		04/25/19 16:08	04/29/19 09:08	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**5.97**		0.100	0.100	SU			04/18/19 18:32	1
Temperature	**22.8**		0.100	0.100	Degrees C			04/18/19 18:32	1
Specific Conductance (25C)	ND		10.0	10.0	umhos/cm			04/13/19 10:38	1
Alkalinity	ND		10.0	5.00	mg/L			04/13/19 13:53	1
Total Dissolved Solids	ND		25.0	7.00	mg/L			04/15/19 16:11	1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 490-587889/3
Matrix: Water
Analysis Batch: 587889

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.105	J	3.00	0.200	mg/L			04/12/19 21:40	1
Fluoride	0.02290	J	1.00	0.0100	mg/L			04/12/19 21:40	1
Sulfate	0.3257	J	5.00	0.0300	mg/L			04/12/19 21:40	1

Lab Sample ID: LCS 490-587889/4
Matrix: Water
Analysis Batch: 587889

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.869		mg/L		99	80 - 120
Fluoride	1.00	1.008		mg/L		101	80 - 120
Sulfate	10.0	9.795		mg/L		98	80 - 120

Lab Sample ID: LCSD 490-587889/5
Matrix: Water
Analysis Batch: 587889

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.885		mg/L		99	80 - 120	0	20
Fluoride	1.00	0.9934	J	mg/L		99	80 - 120	1	20
Sulfate	10.0	9.703		mg/L		97	80 - 120	1	20

Lab Sample ID: 490-171999-H-13 MS
Matrix: Water
Analysis Batch: 587889

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	52.9	E B ^	10.0	63.34	E 4	mg/L		104	80 - 120
Fluoride	0.508	J B	1.00	1.415		mg/L		91	80 - 120
Sulfate	28.9	B	10.0	38.93		mg/L		100	80 - 120

Lab Sample ID: 490-171999-H-13 MSD
Matrix: Water
Analysis Batch: 587889

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	52.9	E B ^	10.0	64.49	E 4	mg/L		115	80 - 120	2	20
Fluoride	0.508	J B	1.00	1.502		mg/L		99	80 - 120	6	20
Sulfate	28.9	B	10.0	39.96		mg/L		110	80 - 120	3	20

Lab Sample ID: MB 490-587927/3
Matrix: Water
Analysis Batch: 587927

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.8259	J	3.00	0.200	mg/L			04/13/19 13:23	1
Fluoride	0.02208	J	1.00	0.0100	mg/L			04/13/19 13:23	1
Sulfate	0.4767	J	5.00	0.0300	mg/L			04/13/19 13:23	1

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 490-587927/4
Matrix: Water
Analysis Batch: 587927

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			10.0	8.999		mg/L		90	80 - 120		
Fluoride			1.00	0.9571	J	mg/L		96	80 - 120		
Sulfate			10.0	9.244		mg/L		92	80 - 120		

Lab Sample ID: LCSD 490-587927/5
Matrix: Water
Analysis Batch: 587927

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			10.0	8.982		mg/L		90	80 - 120	0	20
Fluoride			1.00	0.9754	J	mg/L		97	80 - 120	2	20
Sulfate			10.0	9.261		mg/L		92	80 - 120	0	20

Lab Sample ID: 490-172007-E-1 MS
Matrix: Water
Analysis Batch: 587927

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	114	E B	10.0	126.5	E 4	mg/L		122	80 - 120		
Fluoride	0.533	J B	1.00	1.483		mg/L		95	80 - 120		
Sulfate	1590	E B	10.0	2744	E 4	mg/L		11509	80 - 120		

Lab Sample ID: 490-172007-E-1 MSD
Matrix: Water
Analysis Batch: 587927

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	114	E B	10.0	125.2	E 4	mg/L		110	80 - 120	1	20
Fluoride	0.533	J B	1.00	1.396		mg/L		86	80 - 120	6	20
Sulfate	1590	E B	10.0	2759	E 4	mg/L		11657	80 - 120	1	20

Lab Sample ID: MB 490-587930/3
Matrix: Water
Analysis Batch: 587930

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.7587	J	3.00	0.200	mg/L			04/13/19 22:05	1
Fluoride	0.01835	J	1.00	0.0100	mg/L			04/13/19 22:05	1
Sulfate	0.6184	J	5.00	0.0300	mg/L			04/13/19 22:05	1

Lab Sample ID: LCS 490-587930/4
Matrix: Water
Analysis Batch: 587930

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			10.0	9.193		mg/L		92	80 - 120		
Fluoride			1.00	0.9693	J	mg/L		97	80 - 120		
Sulfate			10.0	9.411		mg/L		94	80 - 120		

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 490-587930/5
Matrix: Water
Analysis Batch: 587930

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			10.0	9.238		mg/L		92	80 - 120	0	20
Fluoride			1.00	0.9712	J	mg/L		97	80 - 120	0	20
Sulfate			10.0	9.413		mg/L		94	80 - 120	0	20

Lab Sample ID: MB 490-588578/3
Matrix: Water
Analysis Batch: 588578

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	0.200	mg/L			04/17/19 11:53	1
Fluoride	ND		1.00	0.0100	mg/L			04/17/19 11:53	1
Sulfate	ND		5.00	0.0300	mg/L			04/17/19 11:53	1

Lab Sample ID: LCS 490-588578/4
Matrix: Water
Analysis Batch: 588578

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			10.0	9.491		mg/L		95	80 - 120		
Fluoride			1.00	1.055		mg/L		105	80 - 120		
Sulfate			10.0	10.11		mg/L		101	80 - 120		

Lab Sample ID: LCSD 490-588578/5
Matrix: Water
Analysis Batch: 588578

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			10.0	9.503		mg/L		95	80 - 120	0	20
Fluoride			1.00	1.051		mg/L		105	80 - 120	0	20
Sulfate			10.0	10.13		mg/L		101	80 - 120	0	20

Lab Sample ID: 490-172010-4 MS
Matrix: Water
Analysis Batch: 588578

Client Sample ID: FIELD BLANK
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	ND		10.0	10.53		mg/L		105	80 - 120		
Fluoride	ND		1.00	1.150		mg/L		115	80 - 120		
Sulfate	0.222	J	10.0	10.63		mg/L		104	80 - 120		

Lab Sample ID: 490-172010-4 MSD
Matrix: Water
Analysis Batch: 588578

Client Sample ID: FIELD BLANK
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	ND		10.0	11.16		mg/L		112	80 - 120	6	20
Fluoride	ND		1.00	1.165		mg/L		116	80 - 120	1	20
Sulfate	0.222	J	10.0	11.57		mg/L		113	80 - 120	8	20

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 180-275853/1-A
Matrix: Water
Analysis Batch: 276485

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 275853

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.0500	0.00959	mg/L		04/16/19 11:19	04/22/19 15:56	1

Lab Sample ID: LCS 180-275853/2-A
Matrix: Water
Analysis Batch: 276485

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 275853

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	1.00	1.006		mg/L		101	80 - 120

Lab Sample ID: 490-172010-3 MS
Matrix: Water
Analysis Batch: 276485

Client Sample ID: DUPE
Prep Type: Total Recoverable
Prep Batch: 275853

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	0.0313	J	1.00	1.065		mg/L		103	75 - 125

Lab Sample ID: 490-172010-3 MSD
Matrix: Water
Analysis Batch: 276485

Client Sample ID: DUPE
Prep Type: Total Recoverable
Prep Batch: 275853

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lithium	0.0313	J	1.00	1.090		mg/L		106	75 - 125	2	20

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 180-275852/1-A
Matrix: Water
Analysis Batch: 276092

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 275852

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00002800	J	0.00200	0.0000213	mg/L		04/16/19 11:17	04/17/19 11:54	1
Arsenic	ND		0.00500	0.000118	mg/L		04/16/19 11:17	04/17/19 11:54	1
Barium	0.0007190	J	0.200	0.000270	mg/L		04/16/19 11:17	04/17/19 11:54	1
Beryllium	ND		0.00200	0.000102	mg/L		04/16/19 11:17	04/17/19 11:54	1
Boron	0.02478	J	1.00	0.00339	mg/L		04/16/19 11:17	04/17/19 11:54	1
Cadmium	ND		0.00100	0.000152	mg/L		04/16/19 11:17	04/17/19 11:54	1
Calcium	ND		1.00	0.0412	mg/L		04/16/19 11:17	04/17/19 11:54	1
Chromium	ND		0.00300	0.000339	mg/L		04/16/19 11:17	04/17/19 11:54	1
Cobalt	ND		0.00500	0.0000218	mg/L		04/16/19 11:17	04/17/19 11:54	1
Lead	ND		0.00500	0.0000675	mg/L		04/16/19 11:17	04/17/19 11:54	1
Molybdenum	ND		0.0100	0.000873	mg/L		04/16/19 11:17	04/17/19 11:54	1
Potassium	ND		1000	147	ug/L		04/16/19 11:17	04/17/19 11:54	1
Selenium	ND		0.0100	0.000348	mg/L		04/16/19 11:17	04/17/19 11:54	1
Thallium	ND		0.00100	0.0000360	mg/L		04/16/19 11:17	04/17/19 11:54	1

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

Lab Sample ID: LCS 180-275852/2-A
Matrix: Water
Analysis Batch: 276092

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 275852

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.500	0.5151		mg/L		103	80 - 120
Arsenic	0.0400	0.03629		mg/L		91	80 - 120
Barium	2.00	2.120		mg/L		106	80 - 120
Beryllium	0.0500	0.05131		mg/L		103	80 - 120
Boron	1.00	1.006		mg/L		101	80 - 120
Cadmium	0.0500	0.05263		mg/L		105	80 - 120
Calcium	50.0	50.60		mg/L		101	80 - 120
Chromium	0.200	0.2148		mg/L		107	80 - 120
Cobalt	0.500	0.4481		mg/L		90	80 - 120
Lead	0.0200	0.02088		mg/L		104	80 - 120
Molybdenum	1.00	0.9910		mg/L		99	80 - 120
Potassium	50000	48340		ug/L		97	80 - 120
Selenium	0.0100	0.01029		mg/L		103	80 - 120
Thallium	0.0500	0.05310		mg/L		106	80 - 120

Lab Sample ID: 490-172010-1 MS
Matrix: Water
Analysis Batch: 276092

Client Sample ID: MW-104
Prep Type: Total Recoverable
Prep Batch: 275852

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.000119	J B	0.500	0.5292		mg/L		106	75 - 125
Arsenic	0.00208	J	0.0400	0.03945		mg/L		93	75 - 125
Barium	0.0216	J B	2.00	2.197		mg/L		109	75 - 125
Beryllium	ND		0.0500	0.05176		mg/L		104	75 - 125
Boron	0.271	J B	1.00	1.297		mg/L		103	75 - 125
Cadmium	ND		0.0500	0.05279		mg/L		106	75 - 125
Calcium	502		50.0	557.9	4	mg/L		111	75 - 125
Chromium	0.00360		0.200	0.2213		mg/L		109	75 - 125
Cobalt	0.00522		0.500	0.4645		mg/L		92	75 - 125
Lead	0.000233	J	0.0200	0.02146		mg/L		106	75 - 125
Molybdenum	0.00104	J	1.00	1.043		mg/L		104	75 - 125
Potassium	1660		50000	48970		ug/L		95	75 - 125
Selenium	ND		0.0100	0.01059		mg/L		106	75 - 125
Thallium	ND		0.0500	0.05541		mg/L		111	75 - 125

Lab Sample ID: 490-172010-1 MSD
Matrix: Water
Analysis Batch: 276092

Client Sample ID: MW-104
Prep Type: Total Recoverable
Prep Batch: 275852

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	0.000119	J B	0.500	0.5401		mg/L		108	75 - 125	2	20
Arsenic	0.00208	J	0.0400	0.03954		mg/L		94	75 - 125	0	20
Barium	0.0216	J B	2.00	2.231		mg/L		110	75 - 125	2	20
Beryllium	ND		0.0500	0.05116		mg/L		102	75 - 125	1	20
Boron	0.271	J B	1.00	1.238		mg/L		97	75 - 125	5	20
Cadmium	ND		0.0500	0.05362		mg/L		107	75 - 125	2	20
Calcium	502		50.0	566.9	4	mg/L		129	75 - 125	2	20
Chromium	0.00360		0.200	0.2201		mg/L		108	75 - 125	1	20
Cobalt	0.00522		0.500	0.4630		mg/L		92	75 - 125	0	20

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

Lab Sample ID: 490-172010-1 MSD — **Client Sample ID: MW-104**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 276092 — **Prep Batch: 275852**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	0.000233	J	0.0200	0.02185		mg/L		108	75 - 125	2	20
Molybdenum	0.00104	J	1.00	1.061		mg/L		106	75 - 125	2	20
Potassium	1660		50000	50080		ug/L		97	75 - 125	2	20
Selenium	ND		0.0100	0.01045		mg/L		105	75 - 125	1	20
Thallium	ND		0.0500	0.05523		mg/L		110	75 - 125	0	20

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-276826/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 277078 — **Prep Batch: 276826**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^	0.200	0.101	ug/L		04/25/19 16:08	04/29/19 09:06	1

Lab Sample ID: LCS 180-276826/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 277078 — **Prep Batch: 276826**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	2.50	3.726	* ^	ug/L		149	80 - 120

Lab Sample ID: 180-88983-B-1-C MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 277078 — **Prep Batch: 276826**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND	* ^ F1	1.00	1.386	F1 ^	ug/L		139	75 - 125

Lab Sample ID: 180-88983-B-1-D MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 277078 — **Prep Batch: 276826**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND	* ^ F1	1.00	1.504	F1 ^	ug/L		150	75 - 125	8	20

Lab Sample ID: MB 180-276833/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 276941 — **Prep Batch: 276833**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^	0.200	0.101	ug/L		04/25/19 17:02	04/26/19 13:03	1

Lab Sample ID: LCS 180-276833/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 276941 — **Prep Batch: 276833**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	2.50	2.494	^	ug/L		100	80 - 120

Method: EPA 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: 490-172010-3 MS
Matrix: Water
Analysis Batch: 276941

Client Sample ID: DUPE
Prep Type: Total/NA
Prep Batch: 276833

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND	^	1.00	0.8720	^	ug/L		87	75 - 125

Lab Sample ID: 490-172010-3 MSD
Matrix: Water
Analysis Batch: 276941

Client Sample ID: DUPE
Prep Type: Total/NA
Prep Batch: 276833

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND	^	1.00	0.8200	^	ug/L		82	75 - 125	6	20

Method: 9040C - pH

Lab Sample ID: LCS 490-589003/1
Matrix: Water
Analysis Batch: 589003

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.040		SU		101	98 - 103

Lab Sample ID: 490-171598-A-10 DU
Matrix: Water
Analysis Batch: 589003

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	6.94		6.940		SU		0	20
Temperature	23.0		23.00		Degrees C		0	20

Method: 9050A - Specific Conductance

Lab Sample ID: 490-172007-E-1 DU
Matrix: Water
Analysis Batch: 588267

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Specific Conductance (25C)	3700		3680		umhos/cm		0.5	10

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 490-587963/11
Matrix: Water
Analysis Batch: 587963

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	ND		10.0	5.00	mg/L			04/13/19 11:27	1

Lab Sample ID: LCS 490-587963/12
Matrix: Water
Analysis Batch: 587963

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	100	97.71		mg/L		98	90 - 110

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: LCSD 490-587963/34
Matrix: Water
Analysis Batch: 587963

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity			100	96.97		mg/L		97	90 - 110	1	20

Lab Sample ID: 490-171998-I-1 DU
Matrix: Water
Analysis Batch: 587963

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Alkalinity	124			125.6		mg/L				2	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 490-588164/1
Matrix: Water
Analysis Batch: 588164

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		25.0	7.00	mg/L			04/15/19 16:11	1

Lab Sample ID: LCS 490-588164/2
Matrix: Water
Analysis Batch: 588164

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			100	95.00		mg/L		95	90 - 110		

Lab Sample ID: 490-172007-E-2 DU
Matrix: Water
Analysis Batch: 588164

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	5480			5456		mg/L				0.5	20

Lab Sample ID: 490-172074-C-1 DU
Matrix: Water
Analysis Batch: 588164

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	21000			28200	F3	mg/L				29	20

HPLC/IC

Analysis Batch: 587889

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-2	MW-110	Total/NA	Water	9056A	
490-172010-4	FIELD BLANK	Total/NA	Water	9056A	
MB 490-587889/3	Method Blank	Total/NA	Water	9056A	
LCS 490-587889/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-587889/5	Lab Control Sample Dup	Total/NA	Water	9056A	
490-171999-H-13 MS	Matrix Spike	Total/NA	Water	9056A	
490-171999-H-13 MSD	Matrix Spike Duplicate	Total/NA	Water	9056A	

Analysis Batch: 587927

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	9056A	
490-172010-1	MW-104	Total/NA	Water	9056A	
490-172010-2	MW-110	Total/NA	Water	9056A	
490-172010-2	MW-110	Total/NA	Water	9056A	
MB 490-587927/3	Method Blank	Total/NA	Water	9056A	
LCS 490-587927/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-587927/5	Lab Control Sample Dup	Total/NA	Water	9056A	
490-172007-E-1 MS	Matrix Spike	Total/NA	Water	9056A	
490-172007-E-1 MSD	Matrix Spike Duplicate	Total/NA	Water	9056A	

Analysis Batch: 587930

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-3	DUPE	Total/NA	Water	9056A	
MB 490-587930/3	Method Blank	Total/NA	Water	9056A	
LCS 490-587930/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-587930/5	Lab Control Sample Dup	Total/NA	Water	9056A	

Analysis Batch: 588578

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-4	FIELD BLANK	Total/NA	Water	9056A	
MB 490-588578/3	Method Blank	Total/NA	Water	9056A	
LCS 490-588578/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-588578/5	Lab Control Sample Dup	Total/NA	Water	9056A	
490-172010-4 MS	FIELD BLANK	Total/NA	Water	9056A	
490-172010-4 MSD	FIELD BLANK	Total/NA	Water	9056A	

Metals

Prep Batch: 275852

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total Recoverable	Water	3005A	
490-172010-2	MW-110	Total Recoverable	Water	3005A	
490-172010-3	DUPE	Total Recoverable	Water	3005A	
490-172010-4	FIELD BLANK	Total Recoverable	Water	3005A	
MB 180-275852/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-275852/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
490-172010-1 MS	MW-104	Total Recoverable	Water	3005A	
490-172010-1 MSD	MW-104	Total Recoverable	Water	3005A	

QC Association Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Metals

Prep Batch: 275853

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total Recoverable	Water	3005A	
490-172010-2	MW-110	Total Recoverable	Water	3005A	
490-172010-3	DUPE	Total Recoverable	Water	3005A	
490-172010-4	FIELD BLANK	Total Recoverable	Water	3005A	
MB 180-275853/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-275853/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
490-172010-3 MS	DUPE	Total Recoverable	Water	3005A	
490-172010-3 MSD	DUPE	Total Recoverable	Water	3005A	

Analysis Batch: 276092

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total Recoverable	Water	6020A	275852
490-172010-2	MW-110	Total Recoverable	Water	6020A	275852
490-172010-3	DUPE	Total Recoverable	Water	6020A	275852
490-172010-4	FIELD BLANK	Total Recoverable	Water	6020A	275852
MB 180-275852/1-A	Method Blank	Total Recoverable	Water	6020A	275852
LCS 180-275852/2-A	Lab Control Sample	Total Recoverable	Water	6020A	275852
490-172010-1 MS	MW-104	Total Recoverable	Water	6020A	275852
490-172010-1 MSD	MW-104	Total Recoverable	Water	6020A	275852

Analysis Batch: 276485

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total Recoverable	Water	6010C	275853
490-172010-2	MW-110	Total Recoverable	Water	6010C	275853
490-172010-3	DUPE	Total Recoverable	Water	6010C	275853
490-172010-4	FIELD BLANK	Total Recoverable	Water	6010C	275853
MB 180-275853/1-A	Method Blank	Total Recoverable	Water	6010C	275853
LCS 180-275853/2-A	Lab Control Sample	Total Recoverable	Water	6010C	275853
490-172010-3 MS	DUPE	Total Recoverable	Water	6010C	275853
490-172010-3 MSD	DUPE	Total Recoverable	Water	6010C	275853

Prep Batch: 276826

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-4	FIELD BLANK	Total/NA	Water	7470A	
MB 180-276826/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-276826/2-A	Lab Control Sample	Total/NA	Water	7470A	
180-88983-B-1-C MS	Matrix Spike	Total/NA	Water	7470A	
180-88983-B-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	

Prep Batch: 276833

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	7470A	
490-172010-2	MW-110	Total/NA	Water	7470A	
490-172010-3	DUPE	Total/NA	Water	7470A	
MB 180-276833/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-276833/2-A	Lab Control Sample	Total/NA	Water	7470A	
490-172010-3 MS	DUPE	Total/NA	Water	7470A	
490-172010-3 MSD	DUPE	Total/NA	Water	7470A	

Metals

Analysis Batch: 276941

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	EPA 7470A	276833
490-172010-2	MW-110	Total/NA	Water	EPA 7470A	276833
490-172010-3	DUPE	Total/NA	Water	EPA 7470A	276833
MB 180-276833/1-A	Method Blank	Total/NA	Water	EPA 7470A	276833
LCS 180-276833/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	276833
490-172010-3 MS	DUPE	Total/NA	Water	EPA 7470A	276833
490-172010-3 MSD	DUPE	Total/NA	Water	EPA 7470A	276833

Analysis Batch: 277078

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-4	FIELD BLANK	Total/NA	Water	EPA 7470A	276826
MB 180-276826/1-A	Method Blank	Total/NA	Water	EPA 7470A	276826
LCS 180-276826/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	276826
180-88983-B-1-C MS	Matrix Spike	Total/NA	Water	EPA 7470A	276826
180-88983-B-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	EPA 7470A	276826

General Chemistry

Analysis Batch: 587963

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	SM 2320B	
490-172010-2	MW-110	Total/NA	Water	SM 2320B	
490-172010-3	DUPE	Total/NA	Water	SM 2320B	
490-172010-4	FIELD BLANK	Total/NA	Water	SM 2320B	
MB 490-587963/11	Method Blank	Total/NA	Water	SM 2320B	
LCS 490-587963/12	Lab Control Sample	Total/NA	Water	SM 2320B	
LCSD 490-587963/34	Lab Control Sample Dup	Total/NA	Water	SM 2320B	
490-171998-I-1 DU	Duplicate	Total/NA	Water	SM 2320B	

Analysis Batch: 588164

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	SM 2540C	
490-172010-2	MW-110	Total/NA	Water	SM 2540C	
490-172010-3	DUPE	Total/NA	Water	SM 2540C	
490-172010-4	FIELD BLANK	Total/NA	Water	SM 2540C	
MB 490-588164/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 490-588164/2	Lab Control Sample	Total/NA	Water	SM 2540C	
490-172007-E-2 DU	Duplicate	Total/NA	Water	SM 2540C	
490-172074-C-1 DU	Duplicate	Total/NA	Water	SM 2540C	

Analysis Batch: 588267

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	9050A	
490-172010-2	MW-110	Total/NA	Water	9050A	
490-172010-3	DUPE	Total/NA	Water	9050A	
490-172010-4	FIELD BLANK	Total/NA	Water	9050A	
LCS 490-588267/3	Lab Control Sample	Total/NA	Water	9050A	
490-172007-E-1 DU	Duplicate	Total/NA	Water	9050A	

QC Association Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

General Chemistry

Analysis Batch: 589003

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	9040C	
490-172010-2	MW-110	Total/NA	Water	9040C	
490-172010-3	DUPE	Total/NA	Water	9040C	
490-172010-4	FIELD BLANK	Total/NA	Water	9040C	
LCS 490-589003/1	Lab Control Sample	Total/NA	Water	9040C	
490-171598-A-10 DU	Duplicate	Total/NA	Water	9040C	

Lab Chronicle

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Client Sample ID: MW-104

Date Collected: 04/10/19 14:43
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		10			587927	04/13/19 19:19	SOO	TAL NSH
Total/NA	Analysis	9056A		100			587927	04/13/19 19:35	SOO	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	275853	04/16/19 11:19	NAM	TAL PIT
Total Recoverable	Analysis	6010C		1			276485	04/22/19 16:39	RJG	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	275852	04/16/19 11:17	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			276092	04/17/19 10:53	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	276833	04/25/19 17:02	KAK	TAL PIT
Total/NA	Analysis	EPA 7470A		1			276941	04/26/19 13:28	KAK	TAL PIT
Total/NA	Analysis	9040C		1			589003	04/18/19 18:32	MXX	TAL NSH
Total/NA	Analysis	9050A		1			588267	04/13/19 10:38	MSP	TAL NSH
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	587963	04/13/19 13:33	MSP	TAL NSH
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	588164	04/15/19 16:11	BMC	TAL NSH

Client Sample ID: MW-110

Date Collected: 04/10/19 12:59
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1	10 mL	1.0 mL	587889	04/13/19 02:38	SOO	TAL NSH
Total/NA	Analysis	9056A		2			587927	04/13/19 20:09	SOO	TAL NSH
Total/NA	Analysis	9056A		50			587927	04/13/19 20:25	SOO	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	275853	04/16/19 11:19	NAM	TAL PIT
Total Recoverable	Analysis	6010C		1			276485	04/22/19 16:45	RJG	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	275852	04/16/19 11:17	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			276092	04/17/19 11:16	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	276833	04/25/19 17:02	KAK	TAL PIT
Total/NA	Analysis	EPA 7470A		1			276941	04/26/19 13:29	KAK	TAL PIT
Total/NA	Analysis	9040C		1			589003	04/18/19 18:32	MXX	TAL NSH
Total/NA	Analysis	9050A		1			588267	04/13/19 10:38	MSP	TAL NSH
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	587963	04/13/19 13:40	MSP	TAL NSH
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	588164	04/15/19 16:11	BMC	TAL NSH

Client Sample ID: DUPE

Date Collected: 04/10/19 15:10
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		100			587930	04/13/19 22:54	SOO	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	275853	04/16/19 11:19	NAM	TAL PIT
Total Recoverable	Analysis	6010C		1			276485	04/22/19 16:07	RJG	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	275852	04/16/19 11:17	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			276092	04/17/19 11:19	RSK	TAL PIT

Lab Chronicle

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Client Sample ID: DUPE

Date Collected: 04/10/19 15:10
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7470A			50 mL	50 mL	276833	04/25/19 17:02	KAK	TAL PIT
Total/NA	Analysis	EPA 7470A		1			276941	04/26/19 13:30	KAK	TAL PIT
Total/NA	Analysis	9040C		1			589003	04/18/19 18:32	MXX	TAL NSH
Total/NA	Analysis	9050A		1			588267	04/13/19 10:38	MSP	TAL NSH
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	587963	04/13/19 13:47	MSP	TAL NSH
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	588164	04/15/19 16:11	BMC	TAL NSH

Client Sample ID: FIELD BLANK

Date Collected: 04/10/19 15:39
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1	10 mL	1.0 mL	587889	04/13/19 03:12	SOO	TAL NSH
Total/NA	Analysis	9056A		1	10 mL	1.0 mL	588578	04/17/19 15:20	T1C	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	275853	04/16/19 11:19	NAM	TAL PIT
Total Recoverable	Analysis	6010C		1			276485	04/22/19 16:51	RJG	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	275852	04/16/19 11:17	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			276092	04/17/19 11:23	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	276826	04/25/19 16:08	KAK	TAL PIT
Total/NA	Analysis	EPA 7470A		1			277078	04/29/19 09:08	RJR	TAL PIT
Total/NA	Analysis	9040C		1			589003	04/18/19 18:32	MXX	TAL NSH
Total/NA	Analysis	9050A		1			588267	04/13/19 10:38	MSP	TAL NSH
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	587963	04/13/19 13:53	MSP	TAL NSH
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	588164	04/15/19 16:11	BMC	TAL NSH

Laboratory References:

TAL NSH = Eurofins TestAmerica, Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177
TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Method Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	TAL NSH
6010C	Metals (ICP)	SW846	TAL PIT
6020A	Metals (ICP/MS)	SW846	TAL PIT
EPA 7470A	Mercury (CVAA)	SW846	TAL PIT
9040C	pH	SW846	TAL NSH
9050A	Specific Conductance	SW846	TAL NSH
SM 2320B	Alkalinity	SM	TAL NSH
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL NSH
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT
7470A	Preparation, Mercury	SW846	TAL PIT

Protocol References:

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.

Laboratory References:

TAL NSH = Eurofins TestAmerica, Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

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

Accreditation/Certification Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Laboratory: Eurofins TestAmerica, Nashville

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Kentucky (UST)	State Program	4	19	06-30-19

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
9040C		Water	pH
9040C		Water	Temperature
9050A		Water	Specific Conductance (25C)
9056A		Water	Chloride
9056A		Water	Fluoride
9056A		Water	Sulfate
SM 2320B		Water	Alkalinity
SM 2540C		Water	Total Dissolved Solids

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-19
California	State Program	9	2891	04-30-19 *
Connecticut	State Program	1	PH-0688	09-30-20
Florida	NELAP	4	E871008	06-30-19
Illinois	NELAP	5	200005	06-30-19
Kansas	NELAP	7	E-10350	01-31-20
Louisiana	NELAP	6	04041	06-30-19
Nevada	State Program	9	PA00164	07-31-19
New Hampshire	NELAP	1	2030	04-04-20
New Jersey	NELAP	2	PA005	06-30-19
New York	NELAP	2	11182	03-31-20
North Carolina (WW/SW)	State Program	4	434	12-31-19
Oregon	NELAP	10	PA-2151	02-06-20
Pennsylvania	NELAP	3	02-00416	04-30-19
South Carolina	State Program	4	89014	04-30-19 *
Texas	NELAP	6	T104704528-15-2	03-31-20
US Fish & Wildlife	Federal		LE94312A-1	07-31-19
USDA	Federal		P330-16-00211	06-26-19
Utah	NELAP	8	PA001462015-4	05-31-19 *
Virginia	NELAP	3	460189	09-14-19
West Virginia DEP	State Program	3	142	01-31-20
Wisconsin	State Program	5	998027800	08-31-19

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

490-172010 Chain of Custody

Cooler Received/Opened On 4/12/2019 @ 9:55

Time Samples Removed From Cooler 14:22 Time Samples Placed In Storage 14:32 (2 Hour Window)

1. Tracking # 1128 (last 4 digits, FedEx) Courier: Fedex

IR Gun ID 31470366 pH Strip Lot NA Chlorine Strip Lot NA

2. Temperature of rep. sample or temp blank when opened: 0.7 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 2 Front

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) ACE

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

Larger than this.

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) ACE

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) ACE

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) ACE

I certify that I attached a label with the unique LIMS number to each container (intial) ACE

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#_____

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 8/23/17

Loc: 490
172010

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

Cooler Received/Opened On 4/12/2019 @ 0955

Time Samples Removed From Cooler 14:22 Time Samples Placed In Storage 14:32 (2 Hour Window)

1. Tracking # 1636 (last 4 digits, FedEx) Courier: FedEx

IR Gun ID 17960353 pH Strip Lot NA Chlorine Strip Lot NA

2. Temperature of rep. sample or temp blank when opened: 0.1 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 1 (Front)

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) 2d

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

● ⬅ Larger than this.

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) ACE

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) ACE

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) ACE

I certify that I attached a label with the unique LIMS number to each container (intial) ACE

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#_____

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 8/23/17

Chain of Custody Record 299402

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other:

Client Contact	Project Manager: Mark Bertram	Site Contact: Greg Dick	Date: 4/11/2019	COC No: 299402
Company Name: Big Rivers Electric Corp.	Tel/Fax: (270) 844-5708	Lab Contact: Roxanne Cisneros	Carrier: FedEx	1 of 1 COCs
Address: 9000 Highway 2096	Analysis Turnaround Time			Sampler:
City/State/Zip: Robards, KY 42452	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: (270) 844-5736	TAT if different from Below _____			Walk-in Client:
Fax:	☑ 2 weeks			Lab Sampling:
Project Name: Sebree Station, New CCR Wells Rd 2	☐ 1 week			
Site: Sebree Station	☐ 2 days			Job / SDG No.:
P O # 249349	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	903.0, 904.0	6010C, 602DA, 7470A	9056A-DRGFM-28D, 9040C, 9065A 2320B	2540C-Calc-TDS	Sample Specific Notes:
MW-104	4/10/19	1443	G	Water	5	N	N	X	X	X	X	
MW-110	4/10/19	1259	G	Water	5	N	N	X	X	X	X	
DUPE	4/10/19	1510	G	Water	5	N	N	X	X	X	X	
FIELD BLANK	4/10/19	1539	G	Water	5	N	N	X	X	X	X	
												Loc: 490 172010

Greg Dick

Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4=HNO3, 5=NaOH, 6= Other — 4 4 1 1

Possible Hazard Identification:
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.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown

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: See attached constituent list for analysis

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: 0.7 Corr'd: _____ | Therm ID No.: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Greg Dick	BREC	4/11/2019 1555			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: TA-MAS	Date/Time: 4/12/19 9:55

Page 28 of 32

4/30/2019

4/11/2019

Constituent List:

40 C.F.R. 257 Appendix III
Boron
Calcium
Fluoride
pH
Sulfate
Total Dissolved Solids (TDS)

Greg Dick
BREC
4/11/2019
1555

40 C.F.R. 257 Appendix IV
Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium
Cobalt
Fluoride
Lead
Lithium
Mercury
Molybdenum
Selenium
Thallium
Radium 226 & 228 combined

Loc: 490
172010

Additional Parameters
Carbonate Alkalinity
Bicarbonate Alkalinity
Alkalinity
Iron
Magnesium
Potassium
Sodium

Eurofins TestAmerica, Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Phone (615) 726-0177 Fax (615) 726-3404

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Cisneros, Roxanne	Carrier Tracking No(s):	COC No: 490-88697.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: roxanne.cisneros@testamericainc.com	State of Origin: Kentucky	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Kentucky (UST)		Job #: 490-172010-1
Address: 301 Alpha Drive, RIDC Park,	Due Date Requested: 4/24/2019			
City: Pittsburgh	TAT Requested (days):			
State, Zip: PA, 15238				
Phone: 412-963-7058(Tel) 412-963-2468(Fax)	PO #:			
Email:	WO #:			
Project Name: Sebree Station, New CCR Wells Rd 2	Project #: 49010431			
Site: Big Rivers CCR	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
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
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C/3005A (MOD) Lithium	6020A/3005A (MOD) ICP/MS Metals	7470A/7470A_Prep Mercury	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-104 (490-172010-1)	4/10/19	14:43 Eastern		Water			X	X	X	1	Metals - run once, upload together.
MW-110 (490-172010-2)	4/10/19	12:59 Eastern		Water			X	X	X	1	Metals - run once, upload together.
DUPE (490-172010-3)	4/10/19	15:10 Eastern		Water			X	X	X	1	Metals - run once, upload together.
FIELD BLANK (490-172010-4)	4/10/19	15:39 Eastern		Water			X	X	X	1	Metals - run once, upload together.

490-172010 Chain of Custody

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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

Empty Kit Relinquished by:	Date: MON 4/22/19	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	4.12.19@1615	TALS	Watson	4-13-19	TAPit
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 930	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

Eurofins TestAmerica, Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Phone (615) 726-0177 Fax (615) 726-3404

nut 2EE

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Cisneros, Roxanne	Carrier Tracking No(s):	COC No: 490-88697.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: roxanne.cisneros@testamericainc.com	State of Origin: Kentucky	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Kentucky (UST)		Job #: 490-172010-1
Address: 301 Alpha Drive, RIDC Park,	Due Date Requested: 4/24/2019			
City: Pittsburgh	TAT Requested (days):			
State, Zip: PA, 15238				
Phone: 412-963-7058(Tel) 412-963-2468(Fax)	PO #:			
Email:	WO #:			
Project Name: Sebree Station, New CCR Wells Rd 2	Project #: 49010431			
Site: Big Rivers CCR	SSOW#:			

Analysis Requested

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, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C/3005A (MOD) Lithium	6020A/3005A (MOD) ICP/MS Metals	7470A/7470A_Prep Mercury	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-104 (490-172010-1)	4/10/19	14:43 Eastern		Water			X	X	X	1	Metals - run once, upload together.
MW-110 (490-172010-2)	4/10/19	12:59 Eastern		Water			X	X	X	1	Metals - run once, upload together.
DUPE (490-172010-3)	4/10/19	15:10 Eastern		Water			X	X	X	1	Metals - run once, upload together.
FIELD BLANK (490-172010-4)	4/10/19	15:39 Eastern		Water			X	X	X	1	Metals - run once, upload together.

490-172010 Chain of Custody

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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

Empty Kit Relinquished by:	Date: [illegible] 4/12/19	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	4.12.19 @ 1615	TAMS	P Watson	4-13-19	FAPIT
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 930	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Big Rivers Electric Corporation

Job Number: 490-172010-1
SDG Number: Sebree Station

Login Number: 172010
List Number: 2
Creator: Watson, Debbie

List Source: Eurofins TestAmerica, Pittsburgh
List Creation: 04/13/19 01:27 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?	False	
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	

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ANALYTICAL REPORT

Eurofins TestAmerica, Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Tel: (615)726-0177

Laboratory Job ID: 490-172010-1
Laboratory Sample Delivery Group: Sebree Station
Client Project/Site: Sebree Station, New CCR Wells Rd 2
Revision: 1

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

Attn: Mark Bertram

Roxanne Cisneros

Authorized for release by:
7/19/2019 5:01:12 PM

Roxanne Cisneros, Senior Project Manager
(615)301-5761
roxanne.cisneros@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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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Sample Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
490-172010-1	MW-104	Water	04/10/19 14:43	04/12/19 09:55	
490-172010-2	MW-110	Water	04/10/19 12:59	04/12/19 09:55	
490-172010-3	DUPE	Water	04/10/19 15:10	04/12/19 09:55	
490-172010-4	FIELD BLANK	Water	04/10/19 15:39	04/12/19 09:55	

Job ID: 490-172010-1

Laboratory: Eurofins TestAmerica, Nashville

Narrative

Job Narrative
490-172010-1

Comments
No additional comments.

Receipt
The samples were received on 4/12/2019 9:55 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were -0.6º C and 0.7º C.

HPLC/IC
Method(s) 9056A: The concentration of Chloride in the Matrix Spike/Matrix Spike Duplicate (MS/MSD) exceeded the calibration curve range. (490-171999-H-13 MS)

Method(s) 9056A: The method blank for analytical batch 490-587889 contained Chloride above the reporting limit (RL). Associated sample(s) were not re-extracted and/or re-analyzed because results were greater than 10X the value found in the method blank.

Method(s) 9056A: The concentration of Chloride and Sulfate in the Matrix Spike/Matrix Spike Duplicate (MS/MSD) exceeded the calibration curve range. (490-172007-E-1 MS) and (490-172007-E-1 MSD)

Method(s) 9056A: The following samples were diluted due to the nature of the sample matrix: MW-104 (490-172010-1), MW-110 (490-172010-2) and DUPE (490-172010-3). Elevated reporting limits (RLs) are provided.

Method(s) 9056A: The method blank for analytical batch 490-588578 contained Fluoride above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and_or re-analysis of samples was not performed.

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

Metals
Method(s) 6020A: The serial dilution performed for the following sample associated with batch 180-276092 was outside control limits for boron: MW-104 (490-172010-1)

Method(s) 7470A: Closing CRA was high, but all samples are non-detect. MW-104 (490-172010-1), MW-110 (490-172010-2), DUPE (490-172010-3), (LCS 180-276833/2-A), (MB 180-276833/1-A), (490-172010-A-3-F MS) and (490-172010-A-3-G MSD)

Method(s) 245.1, 7470A: The continuing calibration verification (CCV) associated with batch 180-277078 recovered above the upper control limit for mercury. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method(s) 245.1, 7470A: The low level continuing calibration verification (CCVL) associated with batch 180-277078 recovered above the upper control limit for mercury. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method(s) 7470A: The laboratory control sample (LCS) for preparation batch 180-276826 and analytical batch 180-277078 recovered outside control limits for mercury. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

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

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

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

Job ID: 490-172010-1 (Continued)

Laboratory: Eurofins TestAmerica, Nashville (Continued)

Narrative

Job Narrative
490-172010-2

Comments
No additional comments.

Receipt
The samples were received on 4/12/2019 9:55 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were -0.6º C and 0.7º C.

RAD
Method 903.0: Radium-226 Prep Batch 160-429619
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.
FIELD BLANK (490-172010-4), (LCS 160-429619/1-A) and (MB 160-429619/23-A)

Method 903.0: Ra-226 Prep Batch 160-428674

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-104 (490-172010-1), MW-110 (490-172010-2), DUPE (490-172010-3), (LCS 160-428674/1-A) and (MB 160-428674/24-A)

Method 904.0: Ra-228 Prep Batch 160-429638

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.
FIELD BLANK (490-172010-4), (LCS 160-429638/1-A) and (MB 160-429638/23-A)

Method 904.0: Radium-228 Prep Batch 160-428727

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-104 (490-172010-1), MW-110 (490-172010-2), DUPE (490-172010-3), (LCS 160-428727/1-A) and (MB 160-428727/24-A)

Method PrecSep_0: Radium 228 prep batch 160-428727

The following samples were prepared at a reduced aliquot: MW-110 (490-172010-2). Samples 490-172007-1, 490-172007-2, 490-172007-3, 490-172007-5 and 490-172010-2 were reduced due to sediment and brown discoloration. Sample 240-110687-11 was reduced due to limited volume.

Method PrecSep_0: FIELD BLANK (490-172010-4)

Method PrecSep-21: Radium 226 prep batch 160-428674

The following samples were prepared at a reduced aliquot: MW-110 (490-172010-2). Samples 490-172007-1, 490-172007-2, 490-172007-3, 490-172007-5 and 490-172010-2 were reduced due to sediment and brown discoloration. Sample 240-110687-11 was reduced due to limited volume.

Job ID: 490-172010-1 (Continued)

Laboratory: Eurofins TestAmerica, Nashville (Continued)

Method PrecSep-21: FIELD BLANK (490-172010-4)

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

Qualifiers

HPLC/IC

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.
B	Compound was found in the blank and sample.
E	Result exceeded calibration range.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.
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.
B	Compound was found in the blank and sample.
F1	MS and/or MSD Recovery is outside acceptance limits.
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
F3	Duplicate RPD exceeds the control limit

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

Client Sample ID: MW-104

Date Collected: 04/10/19 14:43
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-1

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1430	B	300	20.0	mg/L			04/13/19 19:35	100
Fluoride	0.323	J B	10.0	0.100	mg/L			04/13/19 19:19	10
Sulfate	2880	B	500	3.00	mg/L			04/13/19 19:35	100

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0286	J	0.0500	0.00959	mg/L		04/16/19 11:19	04/22/19 16:39	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.000119	J B	0.00200	0.0000213	mg/L		04/16/19 11:17	04/17/19 10:53	1
Arsenic	0.00208	J	0.00500	0.000118	mg/L		04/16/19 11:17	04/17/19 10:53	1
Barium	0.0216	J B	0.200	0.000270	mg/L		04/16/19 11:17	04/17/19 10:53	1
Beryllium	ND		0.00200	0.000102	mg/L		04/16/19 11:17	04/17/19 10:53	1
Boron	0.271	J B	1.00	0.00339	mg/L		04/16/19 11:17	04/17/19 10:53	1
Cadmium	ND		0.00100	0.000152	mg/L		04/16/19 11:17	04/17/19 10:53	1
Calcium	502		1.00	0.0412	mg/L		04/16/19 11:17	04/17/19 10:53	1
Chromium	0.00360		0.00300	0.000339	mg/L		04/16/19 11:17	04/17/19 10:53	1
Cobalt	0.00522		0.00500	0.0000218	mg/L		04/16/19 11:17	04/17/19 10:53	1
Lead	0.000233	J	0.00500	0.0000675	mg/L		04/16/19 11:17	04/17/19 10:53	1
Molybdenum	0.00104	J	0.0100	0.000873	mg/L		04/16/19 11:17	04/17/19 10:53	1
Potassium	1660		1000	147	ug/L		04/16/19 11:17	04/17/19 10:53	1
Selenium	ND		0.0100	0.000348	mg/L		04/16/19 11:17	04/17/19 10:53	1
Thallium	ND		0.00100	0.0000360	mg/L		04/16/19 11:17	04/17/19 10:53	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^	0.200	0.101	ug/L		04/25/19 17:02	04/26/19 13:28	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.99		0.100	0.100	SU			04/18/19 18:32	1
Temperature	22.8		0.100	0.100	Degrees C			04/18/19 18:32	1
Specific Conductance (25C)	8570		10.0	10.0	umhos/cm			04/13/19 10:38	1
Alkalinity	696		10.0	5.00	mg/L			04/13/19 13:33	1
Total Dissolved Solids	6690		250	70.0	mg/L			04/15/19 16:11	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	0.0585	U	0.0573	0.0576	1.00	0.0869	pCi/L	05/16/19 12:11	07/09/19 18:10	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.4*		*40 - 110*	*05/16/19 12:11*	*07/09/19 18:10*	*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	0.261	U	0.228	0.229	1.00	0.365	pCi/L	05/16/19 16:00	07/02/19 15:07	1

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Client Sample ID: MW-104
Date Collected: 04/10/19 14:43
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-1
Matrix: Water

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	99.4		40 - 110	05/16/19 16:00	07/02/19 15:07	1
Y Carrier	82.6		40 - 110	05/16/19 16:00	07/02/19 15:07	1

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	0.319	U	0.235	0.236	5.00	0.365	pCi/L		07/15/19 08:48	1

Client Sample ID: MW-110

Date Collected: 04/10/19 12:59
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-2

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	30.4	B	6.00	0.400	mg/L			04/13/19 20:09	2
Fluoride	0.255	J B	1.00	0.0100	mg/L			04/13/19 02:38	1
Sulfate	596	B	250	1.50	mg/L			04/13/19 20:25	50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0303	J	0.0500	0.00959	mg/L		04/16/19 11:19	04/22/19 16:45	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.000204	J B	0.00200	0.0000213	mg/L		04/16/19 11:17	04/17/19 11:16	1
Arsenic	0.00238	J	0.00500	0.000118	mg/L		04/16/19 11:17	04/17/19 11:16	1
Barium	0.107	J B	0.200	0.000270	mg/L		04/16/19 11:17	04/17/19 11:16	1
Beryllium	0.000314	J	0.00200	0.000102	mg/L		04/16/19 11:17	04/17/19 11:16	1
Boron	0.496	J B	1.00	0.00339	mg/L		04/16/19 11:17	04/17/19 11:16	1
Cadmium	ND		0.00100	0.000152	mg/L		04/16/19 11:17	04/17/19 11:16	1
Calcium	178		1.00	0.0412	mg/L		04/16/19 11:17	04/17/19 11:16	1
Chromium	0.0115		0.00300	0.000339	mg/L		04/16/19 11:17	04/17/19 11:16	1
Cobalt	0.00384	J	0.00500	0.0000218	mg/L		04/16/19 11:17	04/17/19 11:16	1
Lead	0.00399	J	0.00500	0.0000675	mg/L		04/16/19 11:17	04/17/19 11:16	1
Molybdenum	0.00120	J	0.0100	0.000873	mg/L		04/16/19 11:17	04/17/19 11:16	1
Potassium	2930		1000	147	ug/L		04/16/19 11:17	04/17/19 11:16	1
Selenium	ND		0.0100	0.000348	mg/L		04/16/19 11:17	04/17/19 11:16	1
Thallium	0.0000640	J	0.00100	0.0000360	mg/L		04/16/19 11:17	04/17/19 11:16	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^	0.200	0.101	ug/L		04/25/19 17:02	04/26/19 13:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.50		0.100	0.100	SU			04/18/19 18:32	1
Temperature	22.8		0.100	0.100	Degrees C			04/18/19 18:32	1
Specific Conductance (25C)	1570		10.0	10.0	umhos/cm			04/13/19 10:38	1
Alkalinity	270		10.0	5.00	mg/L			04/13/19 13:40	1
Total Dissolved Solids	1200		25.0	7.00	mg/L			04/15/19 16:11	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	0.812		0.283	0.292	1.00	0.287	pCi/L	05/16/19 12:11	07/09/19 18:10	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*76.0*		*40 - 110*	*05/16/19 12:11*	*07/09/19 18:10*	*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	1.11		0.591	0.600	1.00	0.861	pCi/L	05/16/19 16:00	07/02/19 15:07	1

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Client Sample ID: MW-110
Date Collected: 04/10/19 12:59
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-2
Matrix: Water

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	76.0		40 - 110	05/16/19 16:00	07/02/19 15:07	1
Y Carrier	78.1		40 - 110	05/16/19 16:00	07/02/19 15:07	1

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	1.93		0.655	0.667	5.00	0.861	pCi/L		07/15/19 08:48	1

Client Sample ID: DUPE

Date Collected: 04/10/19 15:10
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-3

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1380	B	300	20.0	mg/L			04/13/19 22:54	100
Fluoride	1.19	J B	100	1.00	mg/L			04/13/19 22:54	100
Sulfate	2880	B	500	3.00	mg/L			04/13/19 22:54	100

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0313	J	0.0500	0.00959	mg/L		04/16/19 11:19	04/22/19 16:07	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.000107	J B	0.00200	0.0000213	mg/L		04/16/19 11:17	04/17/19 11:19	1
Arsenic	0.00192	J	0.00500	0.000118	mg/L		04/16/19 11:17	04/17/19 11:19	1
Barium	0.0201	J B	0.200	0.000270	mg/L		04/16/19 11:17	04/17/19 11:19	1
Beryllium	ND		0.00200	0.000102	mg/L		04/16/19 11:17	04/17/19 11:19	1
Boron	0.200	J B	1.00	0.00339	mg/L		04/16/19 11:17	04/17/19 11:19	1
Cadmium	ND		0.00100	0.000152	mg/L		04/16/19 11:17	04/17/19 11:19	1
Calcium	486		1.00	0.0412	mg/L		04/16/19 11:17	04/17/19 11:19	1
Chromium	0.00355		0.00300	0.000339	mg/L		04/16/19 11:17	04/17/19 11:19	1
Cobalt	0.00536		0.00500	0.0000218	mg/L		04/16/19 11:17	04/17/19 11:19	1
Lead	0.000126	J	0.00500	0.0000675	mg/L		04/16/19 11:17	04/17/19 11:19	1
Molybdenum	0.000921	J	0.0100	0.000873	mg/L		04/16/19 11:17	04/17/19 11:19	1
Potassium	1430		1000	147	ug/L		04/16/19 11:17	04/17/19 11:19	1
Selenium	ND		0.0100	0.000348	mg/L		04/16/19 11:17	04/17/19 11:19	1
Thallium	ND		0.00100	0.0000360	mg/L		04/16/19 11:17	04/17/19 11:19	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^	0.200	0.101	ug/L		04/25/19 17:02	04/26/19 13:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.98		0.100	0.100	SU			04/18/19 18:32	1
Temperature	22.8		0.100	0.100	Degrees C			04/18/19 18:32	1
Specific Conductance (25C)	8630		10.0	10.0	umhos/cm			04/13/19 10:38	1
Alkalinity	686		10.0	5.00	mg/L			04/13/19 13:47	1
Total Dissolved Solids	6810		250	70.0	mg/L			04/15/19 16:11	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	0.0714	U	0.0775	0.0778	1.00	0.124	pCi/L	05/16/19 12:11	07/09/19 18:10	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*96.0*		*40 - 110*	*05/16/19 12:11*	*07/09/19 18:10*	*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	0.404	U	0.304	0.306	1.00	0.480	pCi/L	05/16/19 16:00	07/02/19 15:07	1

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Client Sample ID: DUPE
Date Collected: 04/10/19 15:10
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-3
Matrix: Water

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	96.0		40 - 110	05/16/19 16:00	07/02/19 15:07	1
Y Carrier	76.6		40 - 110	05/16/19 16:00	07/02/19 15:07	1

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	0.475	U	0.314	0.316	5.00	0.480	pCi/L		07/15/19 08:48	1

Client Sample ID: FIELD BLANK

Date Collected: 04/10/19 15:39
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-4

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	0.200	mg/L			04/17/19 15:20	1
Fluoride	ND		1.00	0.0100	mg/L			04/13/19 03:12	1
Sulfate	**0.334**	**J B**	5.00	0.0300	mg/L			04/13/19 03:12	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.0500	0.00959	mg/L		04/16/19 11:19	04/22/19 16:51	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.000192**	**J B**	0.00200	0.0000213	mg/L		04/16/19 11:17	04/17/19 11:23	1
Arsenic	**0.000904**	**J**	0.00500	0.000118	mg/L		04/16/19 11:17	04/17/19 11:23	1
Barium	**0.000424**	**J B**	0.200	0.000270	mg/L		04/16/19 11:17	04/17/19 11:23	1
Beryllium	ND		0.00200	0.000102	mg/L		04/16/19 11:17	04/17/19 11:23	1
Boron	**0.0368**	**J B**	1.00	0.00339	mg/L		04/16/19 11:17	04/17/19 11:23	1
Cadmium	ND		0.00100	0.000152	mg/L		04/16/19 11:17	04/17/19 11:23	1
Calcium	**0.174**	**J**	1.00	0.0412	mg/L		04/16/19 11:17	04/17/19 11:23	1
Chromium	**0.00427**		0.00300	0.000339	mg/L		04/16/19 11:17	04/17/19 11:23	1
Cobalt	ND		0.00500	0.0000218	mg/L		04/16/19 11:17	04/17/19 11:23	1
Lead	ND		0.00500	0.0000675	mg/L		04/16/19 11:17	04/17/19 11:23	1
Molybdenum	ND		0.0100	0.000873	mg/L		04/16/19 11:17	04/17/19 11:23	1
Potassium	ND		1000	147	ug/L		04/16/19 11:17	04/17/19 11:23	1
Selenium	ND		0.0100	0.000348	mg/L		04/16/19 11:17	04/17/19 11:23	1
Thallium	ND		0.00100	0.0000360	mg/L		04/16/19 11:17	04/17/19 11:23	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	* ^	0.200	0.101	ug/L		04/25/19 16:08	04/29/19 09:08	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**5.97**		0.100	0.100	SU			04/18/19 18:32	1
Temperature	**22.8**		0.100	0.100	Degrees C			04/18/19 18:32	1
Specific Conductance (25C)	ND		10.0	10.0	umhos/cm			04/13/19 10:38	1
Alkalinity	ND		10.0	5.00	mg/L			04/13/19 13:53	1
Total Dissolved Solids	ND		25.0	7.00	mg/L			04/15/19 16:11	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	-0.0151	U	0.168	0.168	1.00	0.376	pCi/L	05/23/19 10:11	07/01/19 20:40	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*70.9*		*40 - 110*	*05/23/19 10:11*	*07/01/19 20:40*	*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	0.0164	U	0.247	0.247	1.00	0.438	pCi/L	05/23/19 11:48	07/01/19 14:34	1

Client Sample ID: FIELD BLANK

Date Collected: 04/10/19 15:39
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-4

Matrix: Water

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*70.9*		*40 - 110*	*05/23/19 11:48*	*07/01/19 14:34*	*1*
Y Carrier	*101*		*40 - 110*	*05/23/19 11:48*	*07/01/19 14:34*	*1*

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	0.00135	U	0.299	0.299	5.00	0.438	pCi/L		07/15/19 08:48	1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 490-587889/3
Matrix: Water
Analysis Batch: 587889

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.105	J	3.00	0.200	mg/L			04/12/19 21:40	1
Fluoride	0.02290	J	1.00	0.0100	mg/L			04/12/19 21:40	1
Sulfate	0.3257	J	5.00	0.0300	mg/L			04/12/19 21:40	1

Lab Sample ID: LCS 490-587889/4
Matrix: Water
Analysis Batch: 587889

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.869		mg/L		99	80 - 120
Fluoride	1.00	1.008		mg/L		101	80 - 120
Sulfate	10.0	9.795		mg/L		98	80 - 120

Lab Sample ID: LCSD 490-587889/5
Matrix: Water
Analysis Batch: 587889

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.885		mg/L		99	80 - 120	0	20
Fluoride	1.00	0.9934	J	mg/L		99	80 - 120	1	20
Sulfate	10.0	9.703		mg/L		97	80 - 120	1	20

Lab Sample ID: 490-171999-H-13 MS
Matrix: Water
Analysis Batch: 587889

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	52.9	E B ^	10.0	63.34	E 4	mg/L		104	80 - 120
Fluoride	0.508	J B	1.00	1.415		mg/L		91	80 - 120
Sulfate	28.9	B	10.0	38.93		mg/L		100	80 - 120

Lab Sample ID: 490-171999-H-13 MSD
Matrix: Water
Analysis Batch: 587889

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	52.9	E B ^	10.0	64.49	E 4	mg/L		115	80 - 120	2	20
Fluoride	0.508	J B	1.00	1.502		mg/L		99	80 - 120	6	20
Sulfate	28.9	B	10.0	39.96		mg/L		110	80 - 120	3	20

Lab Sample ID: MB 490-587927/3
Matrix: Water
Analysis Batch: 587927

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.8259	J	3.00	0.200	mg/L			04/13/19 13:23	1
Fluoride	0.02208	J	1.00	0.0100	mg/L			04/13/19 13:23	1
Sulfate	0.4767	J	5.00	0.0300	mg/L			04/13/19 13:23	1

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 490-587927/4
Matrix: Water
Analysis Batch: 587927

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			10.0	8.999		mg/L		90	80 - 120		
Fluoride			1.00	0.9571	J	mg/L		96	80 - 120		
Sulfate			10.0	9.244		mg/L		92	80 - 120		

Lab Sample ID: LCSD 490-587927/5
Matrix: Water
Analysis Batch: 587927

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			10.0	8.982		mg/L		90	80 - 120	0	20
Fluoride			1.00	0.9754	J	mg/L		97	80 - 120	2	20
Sulfate			10.0	9.261		mg/L		92	80 - 120	0	20

Lab Sample ID: 490-172007-E-1 MS
Matrix: Water
Analysis Batch: 587927

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	114	E B	10.0	126.5	E 4	mg/L		122	80 - 120		
Fluoride	0.533	J B	1.00	1.483		mg/L		95	80 - 120		
Sulfate	1590	E B	10.0	2744	E 4	mg/L		11509	80 - 120		

Lab Sample ID: 490-172007-E-1 MSD
Matrix: Water
Analysis Batch: 587927

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	114	E B	10.0	125.2	E 4	mg/L		110	80 - 120	1	20
Fluoride	0.533	J B	1.00	1.396		mg/L		86	80 - 120	6	20
Sulfate	1590	E B	10.0	2759	E 4	mg/L		11657	80 - 120	1	20

Lab Sample ID: MB 490-587930/3
Matrix: Water
Analysis Batch: 587930

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.7587	J	3.00	0.200	mg/L			04/13/19 22:05	1
Fluoride	0.01835	J	1.00	0.0100	mg/L			04/13/19 22:05	1
Sulfate	0.6184	J	5.00	0.0300	mg/L			04/13/19 22:05	1

Lab Sample ID: LCS 490-587930/4
Matrix: Water
Analysis Batch: 587930

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			10.0	9.193		mg/L		92	80 - 120		
Fluoride			1.00	0.9693	J	mg/L		97	80 - 120		
Sulfate			10.0	9.411		mg/L		94	80 - 120		

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 490-587930/5
Matrix: Water
Analysis Batch: 587930

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			10.0	9.238		mg/L		92	80 - 120	0	20
Fluoride			1.00	0.9712	J	mg/L		97	80 - 120	0	20
Sulfate			10.0	9.413		mg/L		94	80 - 120	0	20

Lab Sample ID: MB 490-588578/3
Matrix: Water
Analysis Batch: 588578

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	0.200	mg/L			04/17/19 11:53	1
Fluoride	ND		1.00	0.0100	mg/L			04/17/19 11:53	1
Sulfate	ND		5.00	0.0300	mg/L			04/17/19 11:53	1

Lab Sample ID: LCS 490-588578/4
Matrix: Water
Analysis Batch: 588578

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			10.0	9.491		mg/L		95	80 - 120		
Fluoride			1.00	1.055		mg/L		105	80 - 120		
Sulfate			10.0	10.11		mg/L		101	80 - 120		

Lab Sample ID: LCSD 490-588578/5
Matrix: Water
Analysis Batch: 588578

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			10.0	9.503		mg/L		95	80 - 120	0	20
Fluoride			1.00	1.051		mg/L		105	80 - 120	0	20
Sulfate			10.0	10.13		mg/L		101	80 - 120	0	20

Lab Sample ID: 490-172010-4 MS
Matrix: Water
Analysis Batch: 588578

Client Sample ID: FIELD BLANK
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	ND		10.0	10.53		mg/L		105	80 - 120		
Fluoride	ND		1.00	1.150		mg/L		115	80 - 120		
Sulfate	0.222	J	10.0	10.63		mg/L		104	80 - 120		

Lab Sample ID: 490-172010-4 MSD
Matrix: Water
Analysis Batch: 588578

Client Sample ID: FIELD BLANK
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	ND		10.0	11.16		mg/L		112	80 - 120	6	20
Fluoride	ND		1.00	1.165		mg/L		116	80 - 120	1	20
Sulfate	0.222	J	10.0	11.57		mg/L		113	80 - 120	8	20

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 180-275853/1-A
Matrix: Water
Analysis Batch: 276485

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 275853

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.0500	0.00959	mg/L		04/16/19 11:19	04/22/19 15:56	1

Lab Sample ID: LCS 180-275853/2-A
Matrix: Water
Analysis Batch: 276485

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 275853

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	1.00	1.006		mg/L		101	80 - 120

Lab Sample ID: 490-172010-3 MS
Matrix: Water
Analysis Batch: 276485

Client Sample ID: DUPE
Prep Type: Total Recoverable
Prep Batch: 275853

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	0.0313	J	1.00	1.065		mg/L		103	75 - 125

Lab Sample ID: 490-172010-3 MSD
Matrix: Water
Analysis Batch: 276485

Client Sample ID: DUPE
Prep Type: Total Recoverable
Prep Batch: 275853

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lithium	0.0313	J	1.00	1.090		mg/L		106	75 - 125	2	20

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 180-275852/1-A
Matrix: Water
Analysis Batch: 276092

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 275852

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00002800	J	0.00200	0.0000213	mg/L		04/16/19 11:17	04/17/19 11:54	1
Arsenic	ND		0.00500	0.000118	mg/L		04/16/19 11:17	04/17/19 11:54	1
Barium	0.0007190	J	0.200	0.000270	mg/L		04/16/19 11:17	04/17/19 11:54	1
Beryllium	ND		0.00200	0.000102	mg/L		04/16/19 11:17	04/17/19 11:54	1
Boron	0.02478	J	1.00	0.00339	mg/L		04/16/19 11:17	04/17/19 11:54	1
Cadmium	ND		0.00100	0.000152	mg/L		04/16/19 11:17	04/17/19 11:54	1
Calcium	ND		1.00	0.0412	mg/L		04/16/19 11:17	04/17/19 11:54	1
Chromium	ND		0.00300	0.000339	mg/L		04/16/19 11:17	04/17/19 11:54	1
Cobalt	ND		0.00500	0.0000218	mg/L		04/16/19 11:17	04/17/19 11:54	1
Lead	ND		0.00500	0.0000675	mg/L		04/16/19 11:17	04/17/19 11:54	1
Molybdenum	ND		0.0100	0.000873	mg/L		04/16/19 11:17	04/17/19 11:54	1
Potassium	ND		1000	147	ug/L		04/16/19 11:17	04/17/19 11:54	1
Selenium	ND		0.0100	0.000348	mg/L		04/16/19 11:17	04/17/19 11:54	1
Thallium	ND		0.00100	0.0000360	mg/L		04/16/19 11:17	04/17/19 11:54	1

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

Lab Sample ID: LCS 180-275852/2-A
Matrix: Water
Analysis Batch: 276092

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 275852

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.500	0.5151		mg/L		103	80 - 120
Arsenic	0.0400	0.03629		mg/L		91	80 - 120
Barium	2.00	2.120		mg/L		106	80 - 120
Beryllium	0.0500	0.05131		mg/L		103	80 - 120
Boron	1.00	1.006		mg/L		101	80 - 120
Cadmium	0.0500	0.05263		mg/L		105	80 - 120
Calcium	50.0	50.60		mg/L		101	80 - 120
Chromium	0.200	0.2148		mg/L		107	80 - 120
Cobalt	0.500	0.4481		mg/L		90	80 - 120
Lead	0.0200	0.02088		mg/L		104	80 - 120
Molybdenum	1.00	0.9910		mg/L		99	80 - 120
Potassium	50000	48340		ug/L		97	80 - 120
Selenium	0.0100	0.01029		mg/L		103	80 - 120
Thallium	0.0500	0.05310		mg/L		106	80 - 120

Lab Sample ID: 490-172010-1 MS
Matrix: Water
Analysis Batch: 276092

Client Sample ID: MW-104
Prep Type: Total Recoverable
Prep Batch: 275852

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.000119	J B	0.500	0.5292		mg/L		106	75 - 125
Arsenic	0.00208	J	0.0400	0.03945		mg/L		93	75 - 125
Barium	0.0216	J B	2.00	2.197		mg/L		109	75 - 125
Beryllium	ND		0.0500	0.05176		mg/L		104	75 - 125
Boron	0.271	J B	1.00	1.297		mg/L		103	75 - 125
Cadmium	ND		0.0500	0.05279		mg/L		106	75 - 125
Calcium	502		50.0	557.9	4	mg/L		111	75 - 125
Chromium	0.00360		0.200	0.2213		mg/L		109	75 - 125
Cobalt	0.00522		0.500	0.4645		mg/L		92	75 - 125
Lead	0.000233	J	0.0200	0.02146		mg/L		106	75 - 125
Molybdenum	0.00104	J	1.00	1.043		mg/L		104	75 - 125
Potassium	1660		50000	48970		ug/L		95	75 - 125
Selenium	ND		0.0100	0.01059		mg/L		106	75 - 125
Thallium	ND		0.0500	0.05541		mg/L		111	75 - 125

Lab Sample ID: 490-172010-1 MSD
Matrix: Water
Analysis Batch: 276092

Client Sample ID: MW-104
Prep Type: Total Recoverable
Prep Batch: 275852

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	0.000119	J B	0.500	0.5401		mg/L		108	75 - 125	2	20
Arsenic	0.00208	J	0.0400	0.03954		mg/L		94	75 - 125	0	20
Barium	0.0216	J B	2.00	2.231		mg/L		110	75 - 125	2	20
Beryllium	ND		0.0500	0.05116		mg/L		102	75 - 125	1	20
Boron	0.271	J B	1.00	1.238		mg/L		97	75 - 125	5	20
Cadmium	ND		0.0500	0.05362		mg/L		107	75 - 125	2	20
Calcium	502		50.0	566.9	4	mg/L		129	75 - 125	2	20
Chromium	0.00360		0.200	0.2201		mg/L		108	75 - 125	1	20
Cobalt	0.00522		0.500	0.4630		mg/L		92	75 - 125	0	20

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

Lab Sample ID: 490-172010-1 MSD — **Client Sample ID: MW-104**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 276092 — **Prep Batch: 275852**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	0.000233	J	0.0200	0.02185		mg/L		108	75 - 125	2	20
Molybdenum	0.00104	J	1.00	1.061		mg/L		106	75 - 125	2	20
Potassium	1660		50000	50080		ug/L		97	75 - 125	2	20
Selenium	ND		0.0100	0.01045		mg/L		105	75 - 125	1	20
Thallium	ND		0.0500	0.05523		mg/L		110	75 - 125	0	20

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-276826/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 277078 — **Prep Batch: 276826**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^	0.200	0.101	ug/L		04/25/19 16:08	04/29/19 09:06	1

Lab Sample ID: LCS 180-276826/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 277078 — **Prep Batch: 276826**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	2.50	3.726	* ^	ug/L		149	80 - 120

Lab Sample ID: 180-88983-B-1-C MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 277078 — **Prep Batch: 276826**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND	* ^ F1	1.00	1.386	F1 ^	ug/L		139	75 - 125

Lab Sample ID: 180-88983-B-1-D MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 277078 — **Prep Batch: 276826**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND	* ^ F1	1.00	1.504	F1 ^	ug/L		150	75 - 125	8	20

Lab Sample ID: MB 180-276833/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 276941 — **Prep Batch: 276833**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^	0.200	0.101	ug/L		04/25/19 17:02	04/26/19 13:03	1

Lab Sample ID: LCS 180-276833/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 276941 — **Prep Batch: 276833**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	2.50	2.494	^	ug/L		100	80 - 120

Method: EPA 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: 490-172010-3 MS
Matrix: Water
Analysis Batch: 276941

Client Sample ID: DUPE
Prep Type: Total/NA
Prep Batch: 276833

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND	^	1.00	0.8720	^	ug/L		87	75 - 125

Lab Sample ID: 490-172010-3 MSD
Matrix: Water
Analysis Batch: 276941

Client Sample ID: DUPE
Prep Type: Total/NA
Prep Batch: 276833

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND	^	1.00	0.8200	^	ug/L		82	75 - 125	6	20

Method: 9040C - pH

Lab Sample ID: LCS 490-589003/1
Matrix: Water
Analysis Batch: 589003

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.040		SU		101	98 - 103

Lab Sample ID: 490-171598-A-10 DU
Matrix: Water
Analysis Batch: 589003

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	6.94		6.940		SU		0	20
Temperature	23.0		23.00		Degrees C		0	20

Method: 9050A - Specific Conductance

Lab Sample ID: 490-172007-E-1 DU
Matrix: Water
Analysis Batch: 588267

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Specific Conductance (25C)	3700		3680		umhos/cm		0.5	10

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 490-587963/11
Matrix: Water
Analysis Batch: 587963

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	ND		10.0	5.00	mg/L			04/13/19 11:27	1

Lab Sample ID: LCS 490-587963/12
Matrix: Water
Analysis Batch: 587963

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	100	97.71		mg/L		98	90 - 110

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: LCSD 490-587963/34
Matrix: Water
Analysis Batch: 587963

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity			100	96.97		mg/L		97	90 - 110	1	20

Lab Sample ID: 490-171998-I-1 DU
Matrix: Water
Analysis Batch: 587963

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Alkalinity	124			125.6		mg/L				2	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 490-588164/1
Matrix: Water
Analysis Batch: 588164

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		25.0	7.00	mg/L			04/15/19 16:11	1

Lab Sample ID: LCS 490-588164/2
Matrix: Water
Analysis Batch: 588164

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			100	95.00		mg/L		95	90 - 110		

Lab Sample ID: 490-172007-E-2 DU
Matrix: Water
Analysis Batch: 588164

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	5480			5456		mg/L				0.5	20

Lab Sample ID: 490-172074-C-1 DU
Matrix: Water
Analysis Batch: 588164

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	21000			28200	F3	mg/L				29	20

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-428674/24-A
Matrix: Water
Analysis Batch: 434299

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 428674

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.007828	U	0.0450	0.0450	1.00	0.0994	pCi/L	05/16/19 12:11	07/09/19 18:11	1

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

Lab Sample ID: MB 160-428674/24-A
Matrix: Water
Analysis Batch: 434299

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 428674

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	106		40 - 110	05/16/19 12:11	07/09/19 18:11	1

Lab Sample ID: LCS 160-428674/1-A
Matrix: Water
Analysis Batch: 434753

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 428674

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.4	8.580		0.907	1.00	0.0856	pCi/L	76	75 - 125		

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	104		40 - 110

Lab Sample ID: 480-151762-A-5-D MSD
Matrix: Water
Analysis Batch: 434299

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 428674

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	0.0134	U	11.3	10.56		1.11	1.00	0.124	pCi/L	93	75 - 138	0.42	1

Carrier	MSD %Yield	MSD Qualifier	Limits
Ba Carrier	96.9		40 - 110

Lab Sample ID: 480-151762-B-5-A MS
Matrix: Water
Analysis Batch: 434299

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 428674

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226	0.0134	U	11.3	9.669		1.03	1.00	0.118	pCi/L	85	75 - 138		

Carrier	MS %Yield	MS Qualifier	Limits
Ba Carrier	97.7		40 - 110

Lab Sample ID: MB 160-429619/23-A
Matrix: Water
Analysis Batch: 433445

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 429619

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.02230	U	0.188	0.188	1.00	0.393	pCi/L	05/23/19 10:11	07/02/19 05:58	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	68.9		40 - 110	05/23/19 10:11	07/02/19 05:58	1

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

Lab Sample ID: LCS 160-429619/1-A
Matrix: Water
Analysis Batch: 433323

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 429619

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.4	8.859		1.40	1.00	0.530	pCi/L	78	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*60.7*		*40 - 110*

Lab Sample ID: 240-110911-I-1-A DU
Matrix: Water
Analysis Batch: 433323

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 429619

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Radium-226	0.176	U		0.4939		0.320	1.00	0.411	pCi/L			0.57	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Ba Carrier	*55.1*		*40 - 110*

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-428727/24-A
Matrix: Water
Analysis Batch: 433445

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 428727

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.3310	U	0.287	0.289	1.00	0.462	pCi/L	05/16/19 16:00	07/02/19 15:09	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*106*		*40 - 110*	*05/16/19 16:00*	*07/02/19 15:09*	*1*
Y Carrier	*81.1*		*40 - 110*	*05/16/19 16:00*	*07/02/19 15:09*	*1*

Lab Sample ID: LCS 160-428727/1-A
Matrix: Water
Analysis Batch: 433410

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 428727

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.06	9.118		1.08	1.00	0.414	pCi/L	101	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*104*		*40 - 110*
Y Carrier	*71.4*		*40 - 110*

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

Lab Sample ID: 480-151762-A-5-C MSD
Matrix: Water
Analysis Batch: 433410

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 428727

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	0.109	U	9.06	10.10		1.18	1.00	0.419	pCi/L	110	45 - 150	0.1	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Ba Carrier	*96.9*		*40 - 110*
Y Carrier	*74.8*		*40 - 110*

Lab Sample ID: 480-151762-B-5-B MS
Matrix: Water
Analysis Batch: 433410

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 428727

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228	0.109	U	9.06	9.876		1.13	1.00	0.345	pCi/L	108	45 - 150		

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Ba Carrier	*97.7*		*40 - 110*
Y Carrier	*80.4*		*40 - 110*

Lab Sample ID: MB 160-429638/23-A
Matrix: Water
Analysis Batch: 433323

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 429638

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.2343	U	0.325	0.326	1.00	0.614	pCi/L	05/23/19 11:48	07/01/19 14:41	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*68.9*		*40 - 110*	*05/23/19 11:48*	*07/01/19 14:41*	*1*
Y Carrier	*82.6*		*40 - 110*	*05/23/19 11:48*	*07/01/19 14:41*	*1*

Lab Sample ID: LCS 160-429638/1-A
Matrix: Water
Analysis Batch: 433226

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 429638

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.06	10.48		1.38	1.00	0.770	pCi/L	116	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*60.7*		*40 - 110*
Y Carrier	*73.3*		*40 - 110*

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

Lab Sample ID: 240-110911-I-1-B DU
Matrix: Water
Analysis Batch: 433226

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 429638

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Radium-228	0.00343	U		0.06999	U	0.424	1.00	0.748	pCi/L			0.09	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Ba Carrier	*55.1*		*40 - 110*
Y Carrier	*73.6*		*40 - 110*

HPLC/IC

Analysis Batch: 587889

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-2	MW-110	Total/NA	Water	9056A	
490-172010-4	FIELD BLANK	Total/NA	Water	9056A	
MB 490-587889/3	Method Blank	Total/NA	Water	9056A	
LCS 490-587889/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-587889/5	Lab Control Sample Dup	Total/NA	Water	9056A	
490-171999-H-13 MS	Matrix Spike	Total/NA	Water	9056A	
490-171999-H-13 MSD	Matrix Spike Duplicate	Total/NA	Water	9056A	

Analysis Batch: 587927

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	9056A	
490-172010-1	MW-104	Total/NA	Water	9056A	
490-172010-2	MW-110	Total/NA	Water	9056A	
490-172010-2	MW-110	Total/NA	Water	9056A	
MB 490-587927/3	Method Blank	Total/NA	Water	9056A	
LCS 490-587927/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-587927/5	Lab Control Sample Dup	Total/NA	Water	9056A	
490-172007-E-1 MS	Matrix Spike	Total/NA	Water	9056A	
490-172007-E-1 MSD	Matrix Spike Duplicate	Total/NA	Water	9056A	

Analysis Batch: 587930

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-3	DUPE	Total/NA	Water	9056A	
MB 490-587930/3	Method Blank	Total/NA	Water	9056A	
LCS 490-587930/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-587930/5	Lab Control Sample Dup	Total/NA	Water	9056A	

Analysis Batch: 588578

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-4	FIELD BLANK	Total/NA	Water	9056A	
MB 490-588578/3	Method Blank	Total/NA	Water	9056A	
LCS 490-588578/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-588578/5	Lab Control Sample Dup	Total/NA	Water	9056A	
490-172010-4 MS	FIELD BLANK	Total/NA	Water	9056A	
490-172010-4 MSD	FIELD BLANK	Total/NA	Water	9056A	

Metals

Prep Batch: 275852

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total Recoverable	Water	3005A	
490-172010-2	MW-110	Total Recoverable	Water	3005A	
490-172010-3	DUPE	Total Recoverable	Water	3005A	
490-172010-4	FIELD BLANK	Total Recoverable	Water	3005A	
MB 180-275852/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-275852/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
490-172010-1 MS	MW-104	Total Recoverable	Water	3005A	
490-172010-1 MSD	MW-104	Total Recoverable	Water	3005A	

Metals

Prep Batch: 275853

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total Recoverable	Water	3005A	
490-172010-2	MW-110	Total Recoverable	Water	3005A	
490-172010-3	DUPE	Total Recoverable	Water	3005A	
490-172010-4	FIELD BLANK	Total Recoverable	Water	3005A	
MB 180-275853/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-275853/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
490-172010-3 MS	DUPE	Total Recoverable	Water	3005A	
490-172010-3 MSD	DUPE	Total Recoverable	Water	3005A	

Analysis Batch: 276092

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total Recoverable	Water	6020A	275852
490-172010-2	MW-110	Total Recoverable	Water	6020A	275852
490-172010-3	DUPE	Total Recoverable	Water	6020A	275852
490-172010-4	FIELD BLANK	Total Recoverable	Water	6020A	275852
MB 180-275852/1-A	Method Blank	Total Recoverable	Water	6020A	275852
LCS 180-275852/2-A	Lab Control Sample	Total Recoverable	Water	6020A	275852
490-172010-1 MS	MW-104	Total Recoverable	Water	6020A	275852
490-172010-1 MSD	MW-104	Total Recoverable	Water	6020A	275852

Analysis Batch: 276485

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total Recoverable	Water	6010C	275853
490-172010-2	MW-110	Total Recoverable	Water	6010C	275853
490-172010-3	DUPE	Total Recoverable	Water	6010C	275853
490-172010-4	FIELD BLANK	Total Recoverable	Water	6010C	275853
MB 180-275853/1-A	Method Blank	Total Recoverable	Water	6010C	275853
LCS 180-275853/2-A	Lab Control Sample	Total Recoverable	Water	6010C	275853
490-172010-3 MS	DUPE	Total Recoverable	Water	6010C	275853
490-172010-3 MSD	DUPE	Total Recoverable	Water	6010C	275853

Prep Batch: 276826

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-4	FIELD BLANK	Total/NA	Water	7470A	
MB 180-276826/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-276826/2-A	Lab Control Sample	Total/NA	Water	7470A	
180-88983-B-1-C MS	Matrix Spike	Total/NA	Water	7470A	
180-88983-B-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	

Prep Batch: 276833

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	7470A	
490-172010-2	MW-110	Total/NA	Water	7470A	
490-172010-3	DUPE	Total/NA	Water	7470A	
MB 180-276833/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-276833/2-A	Lab Control Sample	Total/NA	Water	7470A	
490-172010-3 MS	DUPE	Total/NA	Water	7470A	
490-172010-3 MSD	DUPE	Total/NA	Water	7470A	

Metals

Analysis Batch: 276941

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	EPA 7470A	276833
490-172010-2	MW-110	Total/NA	Water	EPA 7470A	276833
490-172010-3	DUPE	Total/NA	Water	EPA 7470A	276833
MB 180-276833/1-A	Method Blank	Total/NA	Water	EPA 7470A	276833
LCS 180-276833/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	276833
490-172010-3 MS	DUPE	Total/NA	Water	EPA 7470A	276833
490-172010-3 MSD	DUPE	Total/NA	Water	EPA 7470A	276833

Analysis Batch: 277078

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-4	FIELD BLANK	Total/NA	Water	EPA 7470A	276826
MB 180-276826/1-A	Method Blank	Total/NA	Water	EPA 7470A	276826
LCS 180-276826/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	276826
180-88983-B-1-C MS	Matrix Spike	Total/NA	Water	EPA 7470A	276826
180-88983-B-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	EPA 7470A	276826

General Chemistry

Analysis Batch: 587963

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	SM 2320B	
490-172010-2	MW-110	Total/NA	Water	SM 2320B	
490-172010-3	DUPE	Total/NA	Water	SM 2320B	
490-172010-4	FIELD BLANK	Total/NA	Water	SM 2320B	
MB 490-587963/11	Method Blank	Total/NA	Water	SM 2320B	
LCS 490-587963/12	Lab Control Sample	Total/NA	Water	SM 2320B	
LCSD 490-587963/34	Lab Control Sample Dup	Total/NA	Water	SM 2320B	
490-171998-I-1 DU	Duplicate	Total/NA	Water	SM 2320B	

Analysis Batch: 588164

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	SM 2540C	
490-172010-2	MW-110	Total/NA	Water	SM 2540C	
490-172010-3	DUPE	Total/NA	Water	SM 2540C	
490-172010-4	FIELD BLANK	Total/NA	Water	SM 2540C	
MB 490-588164/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 490-588164/2	Lab Control Sample	Total/NA	Water	SM 2540C	
490-172007-E-2 DU	Duplicate	Total/NA	Water	SM 2540C	
490-172074-C-1 DU	Duplicate	Total/NA	Water	SM 2540C	

Analysis Batch: 588267

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	9050A	
490-172010-2	MW-110	Total/NA	Water	9050A	
490-172010-3	DUPE	Total/NA	Water	9050A	
490-172010-4	FIELD BLANK	Total/NA	Water	9050A	
LCS 490-588267/3	Lab Control Sample	Total/NA	Water	9050A	
490-172007-E-1 DU	Duplicate	Total/NA	Water	9050A	

QC Association Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

General Chemistry

Analysis Batch: 589003

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	9040C	
490-172010-2	MW-110	Total/NA	Water	9040C	
490-172010-3	DUPE	Total/NA	Water	9040C	
490-172010-4	FIELD BLANK	Total/NA	Water	9040C	
LCS 490-589003/1	Lab Control Sample	Total/NA	Water	9040C	
490-171598-A-10 DU	Duplicate	Total/NA	Water	9040C	

Rad

Prep Batch: 428674

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	PrecSep-21	
490-172010-2	MW-110	Total/NA	Water	PrecSep-21	
490-172010-3	DUPE	Total/NA	Water	PrecSep-21	
MB 160-428674/24-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-428674/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
480-151762-A-5-D MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep-21	
480-151762-B-5-A MS	Matrix Spike	Total/NA	Water	PrecSep-21	

Prep Batch: 428727

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	PrecSep_0	
490-172010-2	MW-110	Total/NA	Water	PrecSep_0	
490-172010-3	DUPE	Total/NA	Water	PrecSep_0	
MB 160-428727/24-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-428727/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
480-151762-A-5-C MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep_0	
480-151762-B-5-B MS	Matrix Spike	Total/NA	Water	PrecSep_0	

Prep Batch: 429619

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-4	FIELD BLANK	Total/NA	Water	PrecSep-21	
MB 160-429619/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-429619/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
240-110911-I-1-A DU	Duplicate	Total/NA	Water	PrecSep-21	

Prep Batch: 429638

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-4	FIELD BLANK	Total/NA	Water	PrecSep_0	
MB 160-429638/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-429638/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
240-110911-I-1-B DU	Duplicate	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Client Sample ID: MW-104

Date Collected: 04/10/19 14:43
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		10			587927	04/13/19 19:19	SOO	
Total/NA	Analysis	9056A		100			587927	04/13/19 19:35	SOO	
Total Recoverable	Prep	3005A			50 mL	50 mL	275853	04/16/19 11:19	NAM	
Total Recoverable	Analysis	6010C		1			276485	04/22/19 16:39	RJG	
Total Recoverable	Prep	3005A			50 mL	50 mL	275852	04/16/19 11:17	NAM	
Total Recoverable	Analysis	6020A		1			276092	04/17/19 10:53	RSK	
Total/NA	Prep	7470A			50 mL	50 mL	276833	04/25/19 17:02	KAK	
Total/NA	Analysis	EPA 7470A		1			276941	04/26/19 13:28	KAK	
Total/NA	Analysis	9040C		1			589003	04/18/19 18:32	MXX	
Total/NA	Analysis	9050A		1			588267	04/13/19 10:38	MSP	
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	587963	04/13/19 13:33	MSP	
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	588164	04/15/19 16:11	BMC	
Total/NA	Prep	PrecSep-21			1000.37 mL	1.0 g	428674	05/16/19 12:11	ORM	TAL SL
Total/NA	Analysis	903.0		1	1.0 mL	1.0 mL	434299	07/09/19 18:10	CDR	TAL SL
Total/NA	Prep	PrecSep_0			1000.37 mL	1.0 g	428727	05/16/19 16:00	ORM	TAL SL
Total/NA	Analysis	904.0		1			433407	07/02/19 15:07	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			434813	07/15/19 08:48	SMP	TAL SL

Client Sample ID: MW-110

Date Collected: 04/10/19 12:59
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1	10 mL	1.0 mL	587889	04/13/19 02:38	SOO	
Total/NA	Analysis	9056A		2			587927	04/13/19 20:09	SOO	
Total/NA	Analysis	9056A		50			587927	04/13/19 20:25	SOO	
Total Recoverable	Prep	3005A			50 mL	50 mL	275853	04/16/19 11:19	NAM	
Total Recoverable	Analysis	6010C		1			276485	04/22/19 16:45	RJG	
Total Recoverable	Prep	3005A			50 mL	50 mL	275852	04/16/19 11:17	NAM	
Total Recoverable	Analysis	6020A		1			276092	04/17/19 11:16	RSK	
Total/NA	Prep	7470A			50 mL	50 mL	276833	04/25/19 17:02	KAK	
Total/NA	Analysis	EPA 7470A		1			276941	04/26/19 13:29	KAK	
Total/NA	Analysis	9040C		1			589003	04/18/19 18:32	MXX	
Total/NA	Analysis	9050A		1			588267	04/13/19 10:38	MSP	
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	587963	04/13/19 13:40	MSP	
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	588164	04/15/19 16:11	BMC	
Total/NA	Prep	PrecSep-21			500.46 mL	1.0 g	428674	05/16/19 12:11	ORM	TAL SL
Total/NA	Analysis	903.0		1	1.0 mL	1.0 mL	434299	07/09/19 18:10	CDR	TAL SL
Total/NA	Prep	PrecSep_0			500.46 mL	1.0 g	428727	05/16/19 16:00	ORM	TAL SL
Total/NA	Analysis	904.0		1			433407	07/02/19 15:07	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			434813	07/15/19 08:48	SMP	TAL SL

Lab Chronicle

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Client Sample ID: DUPE

Date Collected: 04/10/19 15:10
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		100			587930	04/13/19 22:54	SOO	
Total Recoverable	Prep	3005A			50 mL	50 mL	275853	04/16/19 11:19	NAM	
Total Recoverable	Analysis	6010C		1			276485	04/22/19 16:07	RJG	
Total Recoverable	Prep	3005A			50 mL	50 mL	275852	04/16/19 11:17	NAM	
Total Recoverable	Analysis	6020A		1			276092	04/17/19 11:19	RSK	
Total/NA	Prep	7470A			50 mL	50 mL	276833	04/25/19 17:02	KAK	
Total/NA	Analysis	EPA 7470A		1			276941	04/26/19 13:30	KAK	
Total/NA	Analysis	9040C		1			589003	04/18/19 18:32	MXX	
Total/NA	Analysis	9050A		1			588267	04/13/19 10:38	MSP	
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	587963	04/13/19 13:47	MSP	
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	588164	04/15/19 16:11	BMC	
Total/NA	Prep	PrecSep-21			1000.53 mL	1.0 g	428674	05/16/19 12:11	ORM	TAL SL
Total/NA	Analysis	903.0		1	1.0 mL	1.0 mL	434299	07/09/19 18:10	CDR	TAL SL
Total/NA	Prep	PrecSep_0			1000.53 mL	1.0 g	428727	05/16/19 16:00	ORM	TAL SL
Total/NA	Analysis	904.0		1			433407	07/02/19 15:07	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			434813	07/15/19 08:48	SMP	TAL SL

Client Sample ID: FIELD BLANK

Date Collected: 04/10/19 15:39
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1	10 mL	1.0 mL	587889	04/13/19 03:12	SOO	
Total/NA	Analysis	9056A		1	10 mL	1.0 mL	588578	04/17/19 15:20	T1C	
Total Recoverable	Prep	3005A			50 mL	50 mL	275853	04/16/19 11:19	NAM	
Total Recoverable	Analysis	6010C		1			276485	04/22/19 16:51	RJG	
Total Recoverable	Prep	3005A			50 mL	50 mL	275852	04/16/19 11:17	NAM	
Total Recoverable	Analysis	6020A		1			276092	04/17/19 11:23	RSK	
Total/NA	Prep	7470A			50 mL	50 mL	276826	04/25/19 16:08	KAK	
Total/NA	Analysis	EPA 7470A		1			277078	04/29/19 09:08	RJR	
Total/NA	Analysis	9040C		1			589003	04/18/19 18:32	MXX	
Total/NA	Analysis	9050A		1			588267	04/13/19 10:38	MSP	
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	587963	04/13/19 13:53	MSP	
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	588164	04/15/19 16:11	BMC	
Total/NA	Prep	PrecSep-21			1000.44 mL	1.0 g	429619	05/23/19 10:11	ORM	TAL SL
Total/NA	Analysis	903.0		1	1.0 mL	1.0 mL	433323	07/01/19 20:40	CDR	TAL SL
Total/NA	Prep	PrecSep_0			1000.44 mL	1.0 g	429638	05/23/19 11:48	ORM	TAL SL
Total/NA	Analysis	904.0		1			433226	07/01/19 14:34	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			434813	07/15/19 08:48	SMP	TAL SL

Laboratory References:

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Method Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	
6010C	Metals (ICP)	SW846	
6020A	Metals (ICP/MS)	SW846	
EPA 7470A	Mercury (CVAA)	SW846	
9040C	pH	SW846	
9050A	Specific Conductance	SW846	
SM 2320B	Alkalinity	SM	
SM 2540C	Solids, Total Dissolved (TDS)	SM	
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	
7470A	Preparation, Mercury	SW846	

Protocol References:

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.

Laboratory References:

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Accreditation/Certification Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Laboratory: Eurofins TestAmerica, Nashville

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Kentucky (UST)	State Program	4	19	06-30-19

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
9040C		Water	pH
9040C		Water	Temperature
9050A		Water	Specific Conductance (25C)
9056A		Water	Chloride
9056A		Water	Fluoride
9056A		Water	Sulfate
SM 2320B		Water	Alkalinity
SM 2540C		Water	Total Dissolved Solids

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-19
California	State Program	9	2891	04-30-19 *
Connecticut	State Program	1	PH-0688	09-30-20
Florida	NELAP	4	E871008	06-30-19
Illinois	NELAP	5	200005	06-30-19
Kansas	NELAP	7	E-10350	01-31-20
Louisiana	NELAP	6	04041	06-30-19
Nevada	State Program	9	PA00164	07-31-19
New Hampshire	NELAP	1	2030	04-04-20
New Jersey	NELAP	2	PA005	06-30-19
New York	NELAP	2	11182	03-31-20
North Carolina (WW/SW)	State Program	4	434	12-31-19
Oregon	NELAP	10	PA-2151	02-06-20
Pennsylvania	NELAP	3	02-00416	04-30-19
South Carolina	State Program	4	89014	04-30-19 *
Texas	NELAP	6	T104704528-15-2	03-31-20
US Fish & Wildlife	Federal		LE94312A-1	07-31-19
USDA	Federal		P330-16-00211	06-26-19
Utah	NELAP	8	PA001462015-4	05-31-19 *
Virginia	NELAP	3	460189	09-14-19
West Virginia DEP	State Program	3	142	01-31-20
Wisconsin	State Program	5	998027800	08-31-19

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

Accreditation/Certification Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP		L2305	04-06-22
ANAB	DoD		L2305	04-06-22
ANAB	DOE		L2305.01	04-06-22
Arizona	State		AZ0813	12-08-19
Arizona	State Program	9	AZ0813	12-08-19
California	State Program	9	2886	06-30-19 *
Connecticut	State Program	1	PH-0241	03-31-21
Florida	NELAP	4	E87689	06-30-20
Florida	NELAP		E87689	06-30-20
Illinois	NELAP	5	200023	11-30-19
Iowa	State Program	7	373	12-01-20
Kansas	NELAP	7	E-10236	10-31-19
Kentucky (DW)	State Program	4	KY90125	12-31-19
Louisiana	NELAP	6	04080	06-30-20
Louisiana (DW)	NELAP	6	LA011	12-31-19
Maryland	State Program	3	310	09-30-19 *
Missouri	State Program	7	780	06-30-19 *
Nevada	State Program	9	MO000542018-1	07-31-19 *
New Jersey	NELAP	2	MO002	06-30-20
New York	NELAP	2	11616	03-31-20
New York	NELAP		11616	04-01-20
North Dakota	State Program	8	R207	06-30-19 *
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State		9997	08-31-19
Oklahoma	State Program	6	9997	08-31-19 *
Pennsylvania	NELAP	3	68-00540	02-28-20
Pennsylvania	NELAP		68-00540	02-28-20
South Carolina	State Program	4	85002001	06-30-19 *
Texas	NELAP	6	T104704193-18-13	07-31-19 *
Texas	NELAP		T104704193-19-13	07-31-20
US Fish & Wildlife	Federal		058448	07-31-19
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542018-10	07-31-19 *
Virginia	NELAP	3	460230	06-14-20
Washington	State Program	10	C592	08-30-19
West Virginia DEP	State Program	3	381	08-31-19

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

490-172010 Chain of Custody

Cooler Received/Opened On 4/12/2019 @ 9:55

Time Samples Removed From Cooler 14:22 Time Samples Placed In Storage 14:32 (2 Hour Window)

1. Tracking # 1128 (last 4 digits, FedEx) Courier: Fedex

IR Gun ID 31470366 pH Strip Lot NA Chlorine Strip Lot NA

2. Temperature of rep. sample or temp blank when opened: 0.7 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 2 Front

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) ACE

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

Larger than this.

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) ACE

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) ACE

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) ACE

I certify that I attached a label with the unique LIMS number to each container (intial) ACE

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#_____

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 8/23/17

Loc: 490
172010

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

Cooler Received/Opened On 4/12/2019 @ 0955

Time Samples Removed From Cooler 14:22 Time Samples Placed In Storage 14:32 (2 Hour Window)

1. Tracking # 1636 (last 4 digits, FedEx) Courier: FedEx

IR Gun ID 17960353 pH Strip Lot NA Chlorine Strip Lot NA

2. Temperature of rep. sample or temp blank when opened: 0.1 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 1 (Front)

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) AC

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

● ⬅ Larger than this.

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) ACE

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) ACE

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) ACE

I certify that I attached a label with the unique LIMS number to each container (intial) ACE

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#_____

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 8/23/17

Chain of Custody Record 299402

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other:

Client Contact	Project Manager: Mark Bertram	Site Contact: Greg Dick	Date: 4/11/2019	COC No: 299402
Company Name: Big Rivers Electric Corp.	Tel/Fax: (270) 844-5708	Lab Contact: Roxanne Cisneros	Carrier: FedEx	1 of 1 COCs
Address: 9000 Highway 2096	Analysis Turnaround Time			Sampler:
City/State/Zip: Robards, KY 42452	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: (270) 844-5736	TAT if different from Below _____			Walk-in Client:
Fax:	☑ 2 weeks			Lab Sampling:
Project Name: Sebree Station, New CCR Wells Rd 2	☐ 1 week			
Site: Sebree Station	☐ 2 days			Job / SDG No.:
P O # 249349	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	903.0, 904.0	6010C, 6020A, 7470A	9056A-DRGFM-28D, 9040C, 9065A 2320B	2540C-Calc-TDS	Sample Specific Notes:
MW-104	4/10/19	1443	G	Water	5	N	N	X	X	X	X	
MW-110	4/10/19	1259	G	Water	5	N	N	X	X	X	X	
DUPE	4/10/19	1510	G	Water	5	N	N	X	X	X	X	
FIELD BLANK	4/10/19	1539	G	Water	5	N	N	X	X	X	X	
												Loc: 490 172010

Greg Dick

Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4=HNO3, 5=NaOH, 6= Other — 4 4 1 1

Possible Hazard Identification:
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.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown

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: See attached constituent list for analysis

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: 0.7 Corr'd: _____ | Therm ID No.: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Greg Dick	BREC	4/11/2019 1555			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: TA-MAS	Date/Time: 4/12/19 9:55

4/11/2019

Constituent List:

40 C.F.R. 257 Appendix III
Boron
Calcium
Fluoride
pH
Sulfate
Total Dissolved Solids (TDS)

40 C.F.R. 257 Appendix IV
Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium
Cobalt
Fluoride
Lead
Lithium
Mercury
Molybdenum
Selenium
Thallium
Radium 226 & 228 combined

Additional Parameters
Carbonate Alkalinity
Bicarbonate Alkalinity
Alkalinity
Iron
Magnesium
Potassium
Sodium

Greg Dick
BREC
4/11/2019
1555

Loc: 490
172010

Eurofins TestAmerica, Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Phone (615) 726-0177 Fax (615) 726-3404

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Cisneros, Roxanne	Carrier Tracking No(s):	COC No: 490-88697.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: roxanne.cisneros@testamericainc.com	State of Origin: Kentucky	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Kentucky (UST)		Job #: 490-172010-1
Address: 301 Alpha Drive, RIDC Park,	Due Date Requested: 4/24/2019			
City: Pittsburgh	TAT Requested (days):			
State, Zip: PA, 15238				
Phone: 412-963-7058(Tel) 412-963-2468(Fax)	PO #:			
Email:	WO #:			
Project Name: Sebree Station, New CCR Wells Rd 2	Project #: 49010431			
Site: Big Rivers CCR	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
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
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C/3005A (MOD) Lithium	6020A/3005A (MOD) ICP/MS Metals	7470A/7470A_Prep Mercury	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-104 (490-172010-1)	4/10/19	14:43 Eastern		Water			X	X	X	1	Metals - run once, upload together.
MW-110 (490-172010-2)	4/10/19	12:59 Eastern		Water			X	X	X	1	Metals - run once, upload together.
DUPE (490-172010-3)	4/10/19	15:10 Eastern		Water			X	X	X	1	Metals - run once, upload together.
FIELD BLANK (490-172010-4)	4/10/19	15:39 Eastern		Water			X	X	X	1	Metals - run once, upload together.

490-172010 Chain of Custody

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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

Empty Kit Relinquished by:	Date: MON 4/12/19	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		4.12.19@1615	TALS		4-13-19	
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 930	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

Eurofins TestAmerica, Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Phone (615) 726-0177 Fax (615) 726-3404

nut 2EE

Chain of Custody Record

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Client Information (Sub Contract Lab)	Sampler:	Lab PM: Cisneros, Roxanne	Carrier Tracking No(s):	COC No: 490-88697.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: roxanne.cisneros@testamericainc.com	State of Origin: Kentucky	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Kentucky (UST)		Job #: 490-172010-1
Address: 301 Alpha Drive, RIDC Park,	Due Date Requested: 4/24/2019			
City: Pittsburgh	TAT Requested (days):			
State, Zip: PA, 15238				
Phone: 412-963-7058(Tel) 412-963-2468(Fax)	PO #:			
Email:	WO #:			
Project Name: Sebree Station, New CCR Wells Rd 2	Project #: 49010431			
Site: Big Rivers CCR	SSOW#:			

Analysis Requested

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, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C/3005A (MOD) Lithium	6020A/3005A (MOD) ICP/MS Metals	7470A/7470A_Prep Mercury	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-104 (490-172010-1)	4/10/19	14:43 Eastern		Water			X	X	X	1	Metals - run once, upload together.
MW-110 (490-172010-2)	4/10/19	12:59 Eastern		Water			X	X	X	1	Metals - run once, upload together.
DUPE (490-172010-3)	4/10/19	15:10 Eastern		Water			X	X	X	1	Metals - run once, upload together.
FIELD BLANK (490-172010-4)	4/10/19	15:39 Eastern		Water			X	X	X	1	Metals - run once, upload together.

490-172010 Chain of Custody

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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

Empty Kit Relinquished by:	Date: [illegible] 4/12/19	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	4.12.19 @ 1615	TAMS	P Watson	4-13-19 930	FAPIT
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Big Rivers Electric Corporation

Job Number: 490-172010-1
SDG Number: Sebree Station

Login Number: 172010
List Number: 2
Creator: Watson, Debbie

List Source: Eurofins TestAmerica, Pittsburgh
List Creation: 04/13/19 01:27 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?	False	
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	

Tracer/Carrier Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
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 Carrier (40-110)
240-110911-I-1-A DU	Duplicate	55.1
480-151762-A-5-D MSD	Matrix Spike Duplicate	96.9
480-151762-B-5-A MS	Matrix Spike	97.7
490-172010-1	MW-104	99.4
490-172010-2	MW-110	76.0
490-172010-3	DUPE	96.0
490-172010-4	FIELD BLANK	70.9
LCS 160-428674/1-A	Lab Control Sample	104
LCS 160-429619/1-A	Lab Control Sample	60.7
MB 160-428674/24-A	Method Blank	106
MB 160-429619/23-A	Method Blank	68.9

Tracer/Carrier Legend

Ba Carrier = 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 Carrier (40-110)	Y Carrier (40-110)
240-110911-I-1-B DU	Duplicate	55.1	73.6
480-151762-A-5-C MSD	Matrix Spike Duplicate	96.9	74.8
480-151762-B-5-B MS	Matrix Spike	97.7	80.4
490-172010-1	MW-104	99.4	82.6
490-172010-2	MW-110	76.0	78.1
490-172010-3	DUPE	96.0	76.6
490-172010-4	FIELD BLANK	70.9	101
LCS 160-428727/1-A	Lab Control Sample	104	71.4
LCS 160-429638/1-A	Lab Control Sample	60.7	73.3
MB 160-428727/24-A	Method Blank	106	81.1
MB 160-429638/23-A	Method Blank	68.9	82.6

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

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ANALYTICAL REPORT

Eurofins TestAmerica, Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Tel: (615)726-0177

Laboratory Job ID: 490-172689-1
Laboratory SDG: Sebree Station, Green Landfill (GL)
Client Project/Site: CCR
Sampling Event: Big Rivers CCR/SemiAnnual GW

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

Attn: Mark Bertram

Roxanne Cisneros

Authorized for release by:
8/22/2019 1:28:12 PM

Roxanne Cisneros, Senior Project Manager
(615)301-5761
roxanne.cisneros@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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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Sample Summary

Client: Big Rivers Electric Corporation
Project/Site: CCR

Job ID: 490-172689-1
SDG: Sebree Station, Green Landfill (GL)

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
490-172689-1	MW-1	Water	04/22/19 09:59	04/25/19 09:00	
490-172689-2	MW-2	Water	04/23/19 10:44	04/25/19 09:00	
490-172689-3	MW-3A	Water	04/23/19 08:37	04/25/19 09:00	
490-172689-4	MW-4	Water	04/22/19 15:38	04/25/19 09:00	
490-172689-5	MW-5	Water	04/22/19 12:18	04/25/19 09:00	
490-172689-6	MW-6	Water	04/22/19 11:11	04/25/19 09:00	
490-172689-7	FIELD BLANK	Water	04/23/19 13:18	04/25/19 09:00	
490-172689-8	DUPE	Water	04/23/19 10:44	04/25/19 09:00	

Job ID: 490-172689-1

Laboratory: Eurofins TestAmerica, Nashville

Narrative

Job Narrative
490-172689-1

Comments
No additional comments.

Receipt
The samples were received on 4/25/2019 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 4 coolers at receipt time were 0.3º C, 0.6º C, 0.9º C and 2.0º C.

HPLC/IC
Method(s) 9056A: The method blank for analytical batch 490-591784 contained Chloride and Sulfate above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and_or re-analysis of samples was not performed.

Method(s) 9056A: The method blank for analytical batch 490-591784 contained Sulfate above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and_or re-analysis of samples was not performed.

Method(s) 9056A: Due to the high concentration of Sulfate, the matrix spike / matrix spike duplicate (MS/MSD) for analytical batch 490-591784 could not be evaluated for accuracy and precision. The associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) met acceptance criteria.

Method(s) 9056A: The method blank for analytical batch 490-591942 contained Chloride above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and re-analysis of samples was not performed.

Method(s) 9056A: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 490-591942 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method(s) 9056A: The following samples were diluted due to the nature of the sample matrix: MW-2 (490-172689-2), MW-3A (490-172689-3), MW-4 (490-172689-4), MW-5 (490-172689-5), MW-6 (490-172689-6) and DUPE (490-172689-8). Elevated reporting limits (RLs) are provided.

Method(s) 9056A: The matrix spike duplicate (MSD) recoveries for analytical batch 490-592241 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method(s) 9056A: The method blank for analytical batch 490-592241 contained Chloride above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and re-analysis of samples was not performed.

Method(s) 9056A: The matrix spike / matrix spike duplicate (MS) recoveries for 490-592241 were within the acceptance limits for Chloride and Sulfate. However, the sample results exceeded the calibration curve limits. (490-173124-L-1 MS)

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(s) SM 2540C: The method blank for analytical batch 490-587266 contained Filterable Residue (180 C) above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

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

Job ID: 490-172689-1 (Continued)

Laboratory: Eurofins TestAmerica, Nashville (Continued)

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

Narrative

Job Narrative
490-172689-2

Comments
No additional comments.

Receipt
The samples were received on 4/25/2019 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 4 coolers at receipt time were 0.3º C, 0.6º C, 0.9º C and 2.0º C.

RAD
Method(s) 903.0: Ra-226 Prep Batch 160-429878: 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-4 (490-172689-4), MW-5 (490-172689-5), MW-6 (490-172689-6), FIELD BLANK (490-172689-7), DUPE (490-172689-8), (LCS 160-429878/1-A), (LCSD 160-429878/2-A) and (MB 160-429878/23-A)

Method(s) 903.0: Ra-226 Prep Batch 160-430067: The following samples have an RER (replicate error ratio) result outside of the acceptance criteria of 1 (1.33) for Ra-226. Duplicate precision is demonstrated by acceptable relative percent difference (RPD), within the limit of 40% (27%). The data have been reported with this narrative. MW-1 (490-172689-1), MW-2 (490-172689-2), MW-3A (490-172689-3), (LCS 160-430067/1-A), (LCSD 160-430067/2-A) and (MB 160-430067/23-A)

Method(s) 903.0: Ra-226 Prep Batch 160-430067: 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-1 (490-172689-1), MW-2 (490-172689-2), MW-3A (490-172689-3), (LCS 160-430067/1-A), (LCSD 160-430067/2-A) and (MB 160-430067/23-A)

Method(s) 904.0: Ra-228 Prep Batch 160-429948: 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-5 (490-172689-5), MW-6 (490-172689-6), DUPE (490-172689-8), (LCS 160-429948/1-A), (LCSD 160-429948/2-A) and (MB 160-429948/23-A)

Method(s) 904.0: Ra-228 Prep Batch 160-430129: 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-1 (490-172689-1), MW-2 (490-172689-2), MW-3A (490-172689-3), (LCS 160-430129/1-A), (LCSD 160-430129/2-A) and (MB 160-430129/23-A)

Method(s) 904.0: Ra-228 Prep Batch 160-429948: 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-4 (490-172689-4) and FIELD BLANK (490-172689-7)

Method(s) PrecSep_0: Radium 228 Prep Batch 160-430129: Insufficient sample volume was available to perform a sample duplicate (DUP) for the following samples: MW-1 (490-172689-1), MW-2 (490-172689-2) and MW-3A (490-172689-3). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method(s) PrecSep-21: Radium 226 Prep Batch 160-429878: Insufficient sample volume was available to perform a sample duplicate

Job ID: 490-172689-1 (Continued)

Laboratory: Eurofins TestAmerica, Nashville (Continued)

(DUP) for the following samples: MW-4 (490-172689-4), MW-5 (490-172689-5), MW-6 (490-172689-6), FIELD BLANK (490-172689-7) and DUPE (490-172689-8). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

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

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
E	Result exceeded calibration range.
F1	MS and/or MSD Recovery is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
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.
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
*	RPD of the LCS and LCSD exceeds the control limits
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

Client Sample ID: MW-1

Date Collected: 04/22/19 09:59
Date Received: 04/25/19 09:00

Lab Sample ID: 490-172689-1

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	6.41	B F1	3.00	0.200	mg/L			04/30/19 15:43	1
Fluoride	0.521	J	1.00	0.0100	mg/L			04/30/19 15:43	1
Sulfate	35.1	B F1	5.00	0.0300	mg/L			04/30/19 15:43	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0295	J	0.0500	0.00959	mg/L		05/01/19 11:58	05/02/19 16:28	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.000254	J B	0.00200	0.0000213	mg/L		05/01/19 11:57	05/04/19 11:42	1
Arsenic	0.00167	J B	0.00500	0.000118	mg/L		05/01/19 11:57	05/04/19 11:42	1
Barium	0.0862	J	0.200	0.000270	mg/L		05/01/19 11:57	05/04/19 11:42	1
Beryllium	0.000533	J	0.00200	0.000102	mg/L		05/01/19 11:57	05/04/19 11:42	1
Boron	1.73	B	1.00	0.00339	mg/L		05/01/19 11:57	05/04/19 11:42	1
Cadmium	0.000299	J	0.00100	0.000152	mg/L		05/01/19 11:57	05/04/19 11:42	1
Calcium	32.1		1.00	0.0412	mg/L		05/01/19 11:57	05/04/19 11:42	1
Chromium	0.00354	B	0.00300	0.000339	mg/L		05/01/19 11:57	05/04/19 11:42	1
Cobalt	0.000571	J	0.00500	0.0000218	mg/L		05/01/19 11:57	05/04/19 11:42	1
Lead	0.000279	J	0.00500	0.0000675	mg/L		05/01/19 11:57	05/04/19 11:42	1
Molybdenum	0.00105	J	0.0100	0.000873	mg/L		05/01/19 11:57	05/04/19 11:42	1
Potassium	3820		1000	147	ug/L		05/01/19 11:57	05/04/19 11:42	1
Selenium	0.00105	J	0.0100	0.000348	mg/L		05/01/19 11:57	05/04/19 11:42	1
Thallium	0.000498	J	0.00100	0.0000360	mg/L		05/01/19 11:57	05/04/19 11:42	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000100	mg/L		05/02/19 20:46	05/04/19 15:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.87		0.100	0.100	SU			04/27/19 15:08	1
Temperature	21.5		0.100	0.100	Degrees C			04/27/19 15:08	1
Total Dissolved Solids	568	B	25.0	7.00	mg/L			04/25/19 17:00	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	0.253		0.0895	0.0923	1.00	0.0870	pCi/L	05/28/19 15:33	07/30/19 15:31	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.1*		*40 - 110*	*05/28/19 15:33*	*07/30/19 15:31*	*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	0.436		0.256	0.259	1.00	0.388	pCi/L	05/29/19 10:55	07/11/19 12:58	1

Client: Big Rivers Electric Corporation
Project/Site: CCR

Job ID: 490-172689-1
SDG: Sebree Station, Green Landfill (GL)

Client Sample ID: MW-1
Date Collected: 04/22/19 09:59
Date Received: 04/25/19 09:00

Lab Sample ID: 490-172689-1
Matrix: Water

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.1*		*40 - 110*	*05/29/19 10:55*	*07/11/19 12:58*	*1*
Y Carrier	*87.5*		*40 - 110*	*05/29/19 10:55*	*07/11/19 12:58*	*1*

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	**0.689**		0.271	0.275	5.00	0.388	pCi/L		08/01/19 08:45	1

Client Sample ID: MW-2

Date Collected: 04/23/19 10:44
Date Received: 04/25/19 09:00

Lab Sample ID: 490-172689-2

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	144		30.0	2.00	mg/L			05/01/19 14:28	10
Fluoride	0.193	J	1.00	0.0100	mg/L			04/30/19 16:33	1
Sulfate	105		50.0	0.300	mg/L			05/01/19 14:28	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.0500	0.00959	mg/L		05/01/19 11:58	05/02/19 16:34	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0000670	J B	0.00200	0.0000213	mg/L		05/01/19 11:57	05/04/19 11:59	1
Arsenic	0.00738	B	0.00500	0.000118	mg/L		05/01/19 11:57	05/04/19 11:59	1
Barium	0.362		0.200	0.000270	mg/L		05/01/19 11:57	05/04/19 11:59	1
Beryllium	0.000281	J	0.00200	0.000102	mg/L		05/01/19 11:57	05/04/19 11:59	1
Boron	0.101	J B	1.00	0.00339	mg/L		05/01/19 11:57	05/04/19 11:59	1
Cadmium	ND		0.00100	0.000152	mg/L		05/01/19 11:57	05/04/19 11:59	1
Calcium	156		1.00	0.0412	mg/L		05/01/19 11:57	05/04/19 11:59	1
Chromium	0.00122	J B	0.00300	0.000339	mg/L		05/01/19 11:57	05/04/19 11:59	1
Cobalt	0.00382	J	0.00500	0.0000218	mg/L		05/01/19 11:57	05/04/19 11:59	1
Lead	ND		0.00500	0.0000675	mg/L		05/01/19 11:57	05/04/19 11:59	1
Molybdenum	0.00210	J	0.0100	0.000873	mg/L		05/01/19 11:57	05/04/19 11:59	1
Potassium	1760		1000	147	ug/L		05/01/19 11:57	05/04/19 11:59	1
Selenium	ND		0.0100	0.000348	mg/L		05/01/19 11:57	05/04/19 11:59	1
Thallium	0.0000800	J	0.00100	0.0000360	mg/L		05/01/19 11:57	05/04/19 11:59	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000100	mg/L		05/02/19 20:46	05/04/19 15:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.15		0.100	0.100	SU			04/27/19 15:08	1
Temperature	21.5		0.100	0.100	Degrees C			04/27/19 15:08	1
Total Dissolved Solids	918	B	25.0	7.00	mg/L			04/25/19 17:00	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	0.323		0.111	0.114	1.00	0.109	pCi/L	05/28/19 15:33	07/30/19 15:33	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.1*		*40 - 110*	*05/28/19 15:33*	*07/30/19 15:33*	*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	0.0680	U	0.207	0.207	1.00	0.358	pCi/L	05/29/19 10:55	07/11/19 12:58	1

Client Sample ID: MW-2

Date Collected: 04/23/19 10:44
Date Received: 04/25/19 09:00

Lab Sample ID: 490-172689-2

Matrix: Water

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	94.1		40 - 110	05/29/19 10:55	07/11/19 12:58	1
Y Carrier	94.2		40 - 110	05/29/19 10:55	07/11/19 12:58	1

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	0.391		0.235	0.236	5.00	0.358	pCi/L		08/01/19 08:45	1

Client Sample ID: MW-3A

Date Collected: 04/23/19 08:37
Date Received: 04/25/19 09:00

Lab Sample ID: 490-172689-3

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1850		600	40.0	mg/L			05/02/19 16:32	200
Fluoride	0.387	J	5.00	0.0500	mg/L			05/01/19 14:44	5
Sulfate	1080		500	3.00	mg/L			05/01/19 15:01	100

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.678		0.0500	0.00959	mg/L		05/01/19 11:58	05/02/19 17:05	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.000102	J B	0.00200	0.0000213	mg/L		05/01/19 11:57	05/04/19 12:03	1
Arsenic	0.000575	J B	0.00500	0.000118	mg/L		05/01/19 11:57	05/04/19 12:03	1
Barium	0.0474	J	0.200	0.000270	mg/L		05/01/19 11:57	05/04/19 12:03	1
Beryllium	0.000199	J	0.00200	0.000102	mg/L		05/01/19 11:57	05/04/19 12:03	1
Boron	0.259	J B	1.00	0.00339	mg/L		05/01/19 11:57	05/04/19 12:03	1
Cadmium	0.000164	J	0.00100	0.000152	mg/L		05/01/19 11:57	05/04/19 12:03	1
Calcium	411		1.00	0.0412	mg/L		05/01/19 11:57	05/04/19 12:03	1
Chromium	0.00168	J B	0.00300	0.000339	mg/L		05/01/19 11:57	05/04/19 12:03	1
Cobalt	0.000243	J	0.00500	0.0000218	mg/L		05/01/19 11:57	05/04/19 12:03	1
Lead	0.000137	J	0.00500	0.0000675	mg/L		05/01/19 11:57	05/04/19 12:03	1
Molybdenum	ND		0.0100	0.000873	mg/L		05/01/19 11:57	05/04/19 12:03	1
Potassium	7230		1000	147	ug/L		05/01/19 11:57	05/04/19 12:03	1
Selenium	0.00103	J	0.0100	0.000348	mg/L		05/01/19 11:57	05/04/19 12:03	1
Thallium	0.0000860	J	0.00100	0.0000360	mg/L		05/01/19 11:57	05/04/19 12:03	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000100	mg/L		05/02/19 20:46	05/04/19 15:47	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.23		0.100	0.100	SU			04/27/19 15:08	1
Temperature	21.5		0.100	0.100	Degrees C			04/27/19 15:08	1
Total Dissolved Solids	4250	B	250	70.0	mg/L			04/25/19 17:00	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	0.366		0.101	0.106	1.00	0.0722	pCi/L	05/28/19 15:33	07/30/19 15:32	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*96.9*		*40 - 110*	*05/28/19 15:33*	*07/30/19 15:32*	*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	0.275	U	0.204	0.206	1.00	0.319	pCi/L	05/29/19 10:55	07/11/19 12:58	1

Client: Big Rivers Electric Corporation
Project/Site: CCR

Job ID: 490-172689-1
SDG: Sebree Station, Green Landfill (GL)

Client Sample ID: MW-3A
Date Collected: 04/23/19 08:37
Date Received: 04/25/19 09:00

Lab Sample ID: 490-172689-3
Matrix: Water

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	96.9		40 - 110	05/29/19 10:55	07/11/19 12:58	1
Y Carrier	93.1		40 - 110	05/29/19 10:55	07/11/19 12:58	1

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	0.641		0.228	0.232	5.00	0.319	pCi/L		08/01/19 08:45	1

Client Sample ID: MW-4

Date Collected: 04/22/19 15:38
Date Received: 04/25/19 09:00

Lab Sample ID: 490-172689-4

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1510		300	20.0	mg/L			05/01/19 15:51	100
Fluoride	0.102	J	5.00	0.0500	mg/L			05/01/19 15:34	5
Sulfate	1440		500	3.00	mg/L			05/01/19 15:51	100

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	1.73		0.0500	0.00959	mg/L		05/01/19 11:58	05/02/19 17:11	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0000360	J B	0.00200	0.0000213	mg/L		05/01/19 11:57	05/04/19 12:06	1
Arsenic	0.000445	J B	0.00500	0.000118	mg/L		05/01/19 11:57	05/04/19 12:06	1
Barium	0.0308	J	0.200	0.000270	mg/L		05/01/19 11:57	05/04/19 12:06	1
Beryllium	ND		0.00200	0.000102	mg/L		05/01/19 11:57	05/04/19 12:06	1
Boron	1.25	B	1.00	0.00339	mg/L		05/01/19 11:57	05/04/19 12:06	1
Cadmium	ND		0.00100	0.000152	mg/L		05/01/19 11:57	05/04/19 12:06	1
Calcium	730		1.00	0.0412	mg/L		05/01/19 11:57	05/04/19 12:06	1
Chromium	0.00110	J B	0.00300	0.000339	mg/L		05/01/19 11:57	05/04/19 12:06	1
Cobalt	0.000415	J	0.00500	0.0000218	mg/L		05/01/19 11:57	05/04/19 12:06	1
Lead	ND		0.00500	0.0000675	mg/L		05/01/19 11:57	05/04/19 12:06	1
Molybdenum	ND		0.0100	0.000873	mg/L		05/01/19 11:57	05/04/19 12:06	1
Potassium	170000		1000	147	ug/L		05/01/19 11:57	05/04/19 12:06	1
Selenium	0.00211	J	0.0100	0.000348	mg/L		05/01/19 11:57	05/04/19 12:06	1
Thallium	0.0000410	J	0.00100	0.0000360	mg/L		05/01/19 11:57	05/04/19 12:06	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000825		0.000200	0.000100	mg/L		05/02/19 20:46	05/04/19 15:45	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.26		0.100	0.100	SU			04/27/19 15:08	1
Temperature	21.5		0.100	0.100	Degrees C			04/27/19 15:08	1
Total Dissolved Solids	4840	B	100	28.0	mg/L			04/25/19 17:00	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	0.328		0.108	0.112	1.00	0.0961	pCi/L	05/28/19 11:47	07/18/19 20:27	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.1*		*40 - 110*	*05/28/19 11:47*	*07/18/19 20:27*	*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	1.33		0.458	0.474	1.00	0.639	pCi/L	05/28/19 14:25	07/09/19 12:09	1

Client Sample ID: MW-4

Date Collected: 04/22/19 15:38
Date Received: 04/25/19 09:00

Lab Sample ID: 490-172689-4

Matrix: Water

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	92.1		40 - 110	05/28/19 14:25	07/09/19 12:09	1
Y Carrier	66.5		40 - 110	05/28/19 14:25	07/09/19 12:09	1

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	1.66		0.471	0.487	5.00	0.639	pCi/L		07/19/19 08:12	1

Client Sample ID: MW-5

Date Collected: 04/22/19 12:18
Date Received: 04/25/19 09:00

Lab Sample ID: 490-172689-5

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	931		300	20.0	mg/L			05/01/19 16:41	100
Fluoride	0.128	J	5.00	0.0500	mg/L			05/01/19 16:24	5
Sulfate	1800		500	3.00	mg/L			05/01/19 16:41	100

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.434		0.0500	0.00959	mg/L		05/01/19 11:58	05/02/19 17:16	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0000700	J B	0.00200	0.0000213	mg/L		05/01/19 11:57	05/04/19 12:09	1
Arsenic	0.000424	J B	0.00500	0.000118	mg/L		05/01/19 11:57	05/04/19 12:09	1
Barium	0.0167	J	0.200	0.000270	mg/L		05/01/19 11:57	05/04/19 12:09	1
Beryllium	ND		0.00200	0.000102	mg/L		05/01/19 11:57	05/04/19 12:09	1
Boron	0.271	J B	1.00	0.00339	mg/L		05/01/19 11:57	05/04/19 12:09	1
Cadmium	ND		0.00100	0.000152	mg/L		05/01/19 11:57	05/04/19 12:09	1
Calcium	446		1.00	0.0412	mg/L		05/01/19 11:57	05/04/19 12:09	1
Chromium	0.00159	J B	0.00300	0.000339	mg/L		05/01/19 11:57	05/04/19 12:09	1
Cobalt	0.000288	J	0.00500	0.0000218	mg/L		05/01/19 11:57	05/04/19 12:09	1
Lead	0.0000860	J	0.00500	0.0000675	mg/L		05/01/19 11:57	05/04/19 12:09	1
Molybdenum	ND		0.0100	0.000873	mg/L		05/01/19 11:57	05/04/19 12:09	1
Potassium	15700		1000	147	ug/L		05/01/19 11:57	05/04/19 12:09	1
Selenium	0.000624	J	0.0100	0.000348	mg/L		05/01/19 11:57	05/04/19 12:09	1
Thallium	0.0000890	J	0.00100	0.0000360	mg/L		05/01/19 11:57	05/04/19 12:09	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000100	mg/L		05/02/19 20:46	05/04/19 15:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.15		0.100	0.100	SU			04/27/19 15:08	1
Temperature	21.5		0.100	0.100	Degrees C			04/27/19 15:08	1
Total Dissolved Solids	4360	B	100	28.0	mg/L			04/25/19 17:00	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	0.197		0.0874	0.0892	1.00	0.0919	pCi/L	05/28/19 11:47	07/18/19 20:27	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.0*		*40 - 110*	*05/28/19 11:47*	*07/18/19 20:27*	*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	0.748		0.375	0.381	1.00	0.558	pCi/L	05/28/19 14:25	07/09/19 12:09	1

Client: Big Rivers Electric Corporation
Project/Site: CCR

Job ID: 490-172689-1
SDG: Sebree Station, Green Landfill (GL)

Client Sample ID: MW-5
Date Collected: 04/22/19 12:18
Date Received: 04/25/19 09:00

Lab Sample ID: 490-172689-5
Matrix: Water

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.0*		*40 - 110*	*05/28/19 14:25*	*07/09/19 12:09*	*1*
Y Carrier	*76.3*		*40 - 110*	*05/28/19 14:25*	*07/09/19 12:09*	*1*

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	**0.945**		0.385	0.391	5.00	0.558	pCi/L		07/19/19 08:12	1

Client Sample ID: MW-6

Date Collected: 04/22/19 11:11
Date Received: 04/25/19 09:00

Lab Sample ID: 490-172689-6

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	142		30.0	2.00	mg/L			05/01/19 17:47	10
Fluoride	0.409	J	10.0	0.100	mg/L			05/01/19 17:47	10
Sulfate	2200		1000	6.00	mg/L			05/01/19 18:03	200

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0633		0.0500	0.00959	mg/L		05/01/19 11:58	05/02/19 17:22	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0000920	J B	0.00200	0.0000213	mg/L		05/01/19 11:57	05/04/19 12:20	1
Arsenic	0.000722	J B	0.00500	0.000118	mg/L		05/01/19 11:57	05/04/19 12:20	1
Barium	0.0128	J	0.200	0.000270	mg/L		05/01/19 11:57	05/04/19 12:20	1
Beryllium	ND		0.00200	0.000102	mg/L		05/01/19 11:57	05/04/19 12:20	1
Boron	0.194	J B	1.00	0.00339	mg/L		05/01/19 11:57	05/04/19 12:20	1
Cadmium	ND		0.00100	0.000152	mg/L		05/01/19 11:57	05/04/19 12:20	1
Calcium	421		1.00	0.0412	mg/L		05/01/19 11:57	05/04/19 12:20	1
Chromium	0.00196	J B	0.00300	0.000339	mg/L		05/01/19 11:57	05/04/19 12:20	1
Cobalt	0.000276	J	0.00500	0.0000218	mg/L		05/01/19 11:57	05/04/19 12:20	1
Lead	ND		0.00500	0.0000675	mg/L		05/01/19 11:57	05/04/19 12:20	1
Molybdenum	0.000972	J	0.0100	0.000873	mg/L		05/01/19 11:57	05/04/19 12:20	1
Potassium	3970		1000	147	ug/L		05/01/19 11:57	05/04/19 12:20	1
Selenium	0.00110	J	0.0100	0.000348	mg/L		05/01/19 11:57	05/04/19 12:20	1
Thallium	0.0000610	J	0.00100	0.0000360	mg/L		05/01/19 11:57	05/04/19 12:20	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000100	mg/L		05/02/19 20:46	05/04/19 15:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.86		0.100	0.100	SU			04/27/19 15:08	1
Temperature	21.6		0.100	0.100	Degrees C			04/27/19 15:08	1
Total Dissolved Solids	4780	B	100	28.0	mg/L			04/25/19 17:00	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	0.108	U	0.0841	0.0847	1.00	0.122	pCi/L	05/28/19 11:47	07/18/19 20:28	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.9*		*40 - 110*	*05/28/19 11:47*	*07/18/19 20:28*	*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	0.341	U	0.249	0.251	1.00	0.388	pCi/L	05/28/19 14:25	07/09/19 12:09	1

Client: Big Rivers Electric Corporation
Project/Site: CCR

Job ID: 490-172689-1
SDG: Sebree Station, Green Landfill (GL)

Client Sample ID: MW-6
Date Collected: 04/22/19 11:11
Date Received: 04/25/19 09:00

Lab Sample ID: 490-172689-6
Matrix: Water

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	94.9		40 - 110	05/28/19 14:25	07/09/19 12:09	1
Y Carrier	81.9		40 - 110	05/28/19 14:25	07/09/19 12:09	1

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	0.450		0.263	0.265	5.00	0.388	pCi/L		07/19/19 08:12	1

Client Sample ID: FIELD BLANK

Date Collected: 04/23/19 13:18
Date Received: 04/25/19 09:00

Lab Sample ID: 490-172689-7

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**0.254**	**J**	3.00	0.200	mg/L			05/01/19 18:20	1
Fluoride	ND	F1	1.00	0.0100	mg/L			05/01/19 18:20	1
Sulfate	**10.6**	**F1**	5.00	0.0300	mg/L			05/01/19 18:20	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.0500	0.00959	mg/L		05/01/19 11:58	05/02/19 17:27	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.0000490**	**J B**	0.00200	0.0000213	mg/L		05/01/19 11:57	05/04/19 12:23	1
Arsenic	**0.000439**	**J B**	0.00500	0.000118	mg/L		05/01/19 11:57	05/04/19 12:23	1
Barium	ND		0.200	0.000270	mg/L		05/01/19 11:57	05/04/19 12:23	1
Beryllium	ND		0.00200	0.000102	mg/L		05/01/19 11:57	05/04/19 12:23	1
Boron	**0.0199**	**J B**	1.00	0.00339	mg/L		05/01/19 11:57	05/04/19 12:23	1
Cadmium	ND		0.00100	0.000152	mg/L		05/01/19 11:57	05/04/19 12:23	1
Calcium	**0.0483**	**J**	1.00	0.0412	mg/L		05/01/19 11:57	05/04/19 12:23	1
Chromium	**0.00196**	**J B**	0.00300	0.000339	mg/L		05/01/19 11:57	05/04/19 12:23	1
Cobalt	ND		0.00500	0.0000218	mg/L		05/01/19 11:57	05/04/19 12:23	1
Lead	**0.000164**	**J**	0.00500	0.0000675	mg/L		05/01/19 11:57	05/04/19 12:23	1
Molybdenum	ND		0.0100	0.000873	mg/L		05/01/19 11:57	05/04/19 12:23	1
Potassium	ND		1000	147	ug/L		05/01/19 11:57	05/04/19 12:23	1
Selenium	ND		0.0100	0.000348	mg/L		05/01/19 11:57	05/04/19 12:23	1
Thallium	ND		0.00100	0.0000360	mg/L		05/01/19 11:57	05/04/19 12:23	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000100	mg/L		05/02/19 20:46	05/04/19 15:37	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**4.09**		0.100	0.100	SU			04/27/19 15:08	1
Temperature	**21.7**		0.100	0.100	Degrees C			04/27/19 15:08	1
Total Dissolved Solids	ND		25.0	7.00	mg/L			04/25/19 17:00	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	-0.0150	U	0.0528	0.0528	1.00	0.119	pCi/L	05/28/19 11:47	07/18/19 20:28	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.1*		*40 - 110*	*05/28/19 11:47*	*07/18/19 20:28*	*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	0.186	U	0.265	0.266	1.00	0.444	pCi/L	05/28/19 14:25	07/09/19 11:47	1

Client: Big Rivers Electric Corporation
Project/Site: CCR

Job ID: 490-172689-1
SDG: Sebree Station, Green Landfill (GL)

Client Sample ID: FIELD BLANK
Date Collected: 04/23/19 13:18
Date Received: 04/25/19 09:00

Lab Sample ID: 490-172689-7
Matrix: Water

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	94.1		40 - 110	05/28/19 14:25	07/09/19 11:47	1
Y Carrier	78.9		40 - 110	05/28/19 14:25	07/09/19 11:47	1

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	0.171	U	0.270	0.271	5.00	0.444	pCi/L		07/19/19 08:12	1

Client Sample ID: DUPE

Date Collected: 04/23/19 10:44
Date Received: 04/25/19 09:00

Lab Sample ID: 490-172689-8

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	138		30.0	2.00	mg/L			05/01/19 19:10	10
Fluoride	0.203	J	1.00	0.0100	mg/L			04/30/19 18:12	1
Sulfate	101		50.0	0.300	mg/L			05/01/19 19:10	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.0500	0.00959	mg/L		05/01/19 11:58	05/02/19 17:33	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0000510	J B	0.00200	0.0000213	mg/L		05/01/19 11:57	05/04/19 12:26	1
Arsenic	0.00837	B	0.00500	0.000118	mg/L		05/01/19 11:57	05/04/19 12:26	1
Barium	0.261		0.200	0.000270	mg/L		05/01/19 11:57	05/04/19 12:26	1
Beryllium	ND		0.00200	0.000102	mg/L		05/01/19 11:57	05/04/19 12:26	1
Boron	0.0588	J B	1.00	0.00339	mg/L		05/01/19 11:57	05/04/19 12:26	1
Cadmium	ND		0.00100	0.000152	mg/L		05/01/19 11:57	05/04/19 12:26	1
Calcium	150		1.00	0.0412	mg/L		05/01/19 11:57	05/04/19 12:26	1
Chromium	0.00208	J B	0.00300	0.000339	mg/L		05/01/19 11:57	05/04/19 12:26	1
Cobalt	0.00141	J	0.00500	0.0000218	mg/L		05/01/19 11:57	05/04/19 12:26	1
Lead	ND		0.00500	0.0000675	mg/L		05/01/19 11:57	05/04/19 12:26	1
Molybdenum	0.00244	J	0.0100	0.000873	mg/L		05/01/19 11:57	05/04/19 12:26	1
Potassium	1900		1000	147	ug/L		05/01/19 11:57	05/04/19 12:26	1
Selenium	ND		0.0100	0.000348	mg/L		05/01/19 11:57	05/04/19 12:26	1
Thallium	ND		0.00100	0.0000360	mg/L		05/01/19 11:57	05/04/19 12:26	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000100	mg/L		05/02/19 20:46	05/04/19 15:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.46		0.100	0.100	SU			04/27/19 15:08	1
Temperature	21.8		0.100	0.100	Degrees C			04/27/19 15:08	1
Total Dissolved Solids	883	B	25.0	7.00	mg/L			04/25/19 17:00	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	0.169		0.0895	0.0908	1.00	0.109	pCi/L	05/28/19 11:47	07/18/19 20:28	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.5*		*40 - 110*	*05/28/19 11:47*	*07/18/19 20:28*	*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	0.296	0.297	1.00	0.485	pCi/L	05/28/19 14:25	07/09/19 11:47	1

Client: Big Rivers Electric Corporation
Project/Site: CCR

Job ID: 490-172689-1
SDG: Sebree Station, Green Landfill (GL)

Client Sample ID: DUPE
Date Collected: 04/23/19 10:44
Date Received: 04/25/19 09:00

Lab Sample ID: 490-172689-8
Matrix: Water

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	95.5		40 - 110	05/28/19 14:25	07/09/19 11:47	1
Y Carrier	74.0		40 - 110	05/28/19 14:25	07/09/19 11:47	1

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	0.435	U	0.309	0.311	5.00	0.485	pCi/L		07/19/19 08:12	1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 490-591784/3
Matrix: Water
Analysis Batch: 591784

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.2738	J	3.00	0.200	mg/L			04/30/19 14:53	1
Fluoride	ND		1.00	0.0100	mg/L			04/30/19 14:53	1
Sulfate	0.2107	J	5.00	0.0300	mg/L			04/30/19 14:53	1

Lab Sample ID: LCS 490-591784/4
Matrix: Water
Analysis Batch: 591784

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.347		mg/L		93	80 - 120
Fluoride	1.00	0.9990	J	mg/L		100	80 - 120
Sulfate	10.0	9.661		mg/L		96	80 - 120

Lab Sample ID: LCSD 490-591784/5
Matrix: Water
Analysis Batch: 591784

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.486		mg/L		95	80 - 120	1	20
Fluoride	1.00	0.9947	J	mg/L		99	80 - 120	0	20
Sulfate	10.0	9.677		mg/L		97	80 - 120	0	20

Lab Sample ID: 490-172689-1 MS
Matrix: Water
Analysis Batch: 591784

Client Sample ID: MW-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	6.41	B F1	10.0	19.44	F1	mg/L		130	80 - 120
Fluoride	0.521	J	1.00	1.657		mg/L		114	80 - 120
Sulfate	35.1	B F1	10.0	49.52	E F1	mg/L		144	80 - 120

Lab Sample ID: 490-172689-1 MSD
Matrix: Water
Analysis Batch: 591784

Client Sample ID: MW-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	6.41	B F1	10.0	16.87		mg/L		104	80 - 120	14	20
Fluoride	0.521	J	1.00	1.484		mg/L		96	80 - 120	11	20
Sulfate	35.1	B F1	10.0	46.89	E	mg/L		118	80 - 120	5	20

Lab Sample ID: MB 490-591942/3
Matrix: Water
Analysis Batch: 591942

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	0.200	mg/L			05/01/19 13:38	1
Fluoride	ND		1.00	0.0100	mg/L			05/01/19 13:38	1
Sulfate	ND		5.00	0.0300	mg/L			05/01/19 13:38	1

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 490-591942/4
Matrix: Water
Analysis Batch: 591942

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			10.0	9.170		mg/L		92	80 - 120		
Fluoride			1.00	0.9040	J	mg/L		90	80 - 120		
Sulfate			10.0	9.511		mg/L		95	80 - 120		

Lab Sample ID: LCSD 490-591942/5
Matrix: Water
Analysis Batch: 591942

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			10.0	9.156		mg/L		91	80 - 120	0	20
Fluoride			1.00	0.8870	J	mg/L		89	80 - 120	2	20
Sulfate			10.0	9.504		mg/L		95	80 - 120	0	20

Lab Sample ID: 490-172689-7 MS
Matrix: Water
Analysis Batch: 591942

Client Sample ID: FIELD BLANK
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	0.254	J	10.0	9.808		mg/L		95	80 - 120		
Fluoride	ND	F1	1.00	1.599	F1	mg/L		160	80 - 120		
Sulfate	10.6	F1	10.0	23.77	F1	mg/L		131	80 - 120		

Lab Sample ID: 490-172689-7 MSD
Matrix: Water
Analysis Batch: 591942

Client Sample ID: FIELD BLANK
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	0.254	J	10.0	9.878		mg/L		96	80 - 120	1	20
Fluoride	ND	F1	1.00	1.651	F1	mg/L		165	80 - 120	3	20
Sulfate	10.6	F1	10.0	24.56	F1	mg/L		139	80 - 120	3	20

Lab Sample ID: MB 490-592241/3
Matrix: Water
Analysis Batch: 592241

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	0.200	mg/L			05/02/19 10:50	1
Fluoride	ND		1.00	0.0100	mg/L			05/02/19 10:50	1
Sulfate	ND		5.00	0.0300	mg/L			05/02/19 10:50	1

Lab Sample ID: LCS 490-592241/4
Matrix: Water
Analysis Batch: 592241

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			10.0	9.317		mg/L		93	80 - 120		
Fluoride			1.00	0.9037	J	mg/L		90	80 - 120		
Sulfate			10.0	9.631		mg/L		96	80 - 120		

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 490-592241/5
Matrix: Water
Analysis Batch: 592241

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			10.0	9.439		mg/L		94	80 - 120	1	20
Fluoride			1.00	0.9807	J	mg/L		98	80 - 120	8	20
Sulfate			10.0	9.685		mg/L		97	80 - 120	1	20

Lab Sample ID: 490-173124-L-1 MS
Matrix: Water
Analysis Batch: 592241

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	12.5	F1	10.0	23.08	E	mg/L		106	80 - 120		
Fluoride	0.0266	J	1.00	0.8709	J	mg/L		84	80 - 120		
Sulfate	34.6	F1	10.0	45.84	E	mg/L		112	80 - 120		

Lab Sample ID: 490-173124-L-1 MSD
Matrix: Water
Analysis Batch: 592241

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	12.5	F1	10.0	24.75	E F1	mg/L		122	80 - 120	7	20
Fluoride	0.0266	J	1.00	1.013		mg/L		99	80 - 120	15	20
Sulfate	34.6	F1	10.0	47.41	E F1	mg/L		128	80 - 120	3	20

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 180-277414/1-A
Matrix: Water
Analysis Batch: 277655

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 277414

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.0500	0.00959	mg/L		05/01/19 11:58	05/02/19 16:18	1

Lab Sample ID: LCS 180-277414/2-A
Matrix: Water
Analysis Batch: 277655

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 277414

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Lithium			0.500	0.5014		mg/L		100	80 - 120		

Lab Sample ID: 490-172689-2 MS
Matrix: Water
Analysis Batch: 277655

Client Sample ID: MW-2
Prep Type: Total Recoverable
Prep Batch: 277414

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Lithium	ND		0.500	0.5003		mg/L		100	75 - 125		

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 490-172689-2 MSD
Matrix: Water
Analysis Batch: 277655

Client Sample ID: MW-2
Prep Type: Total Recoverable
Prep Batch: 277414

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lithium	ND		0.500	0.5056		mg/L		101	75 - 125	1	20

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 180-277413/1-A
Matrix: Water
Analysis Batch: 277762

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 277413

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00002500	J	0.00200	0.0000213	mg/L		05/01/19 11:57	05/04/19 11:25	1
Arsenic	0.0001510	J	0.00500	0.000118	mg/L		05/01/19 11:57	05/04/19 11:25	1
Barium	ND		0.200	0.000270	mg/L		05/01/19 11:57	05/04/19 11:25	1
Beryllium	ND		0.00200	0.000102	mg/L		05/01/19 11:57	05/04/19 11:25	1
Boron	0.009308	J	1.00	0.00339	mg/L		05/01/19 11:57	05/04/19 11:25	1
Cadmium	ND		0.00100	0.000152	mg/L		05/01/19 11:57	05/04/19 11:25	1
Calcium	ND		1.00	0.0412	mg/L		05/01/19 11:57	05/04/19 11:25	1
Chromium	0.0008190	J	0.00300	0.000339	mg/L		05/01/19 11:57	05/04/19 11:25	1
Cobalt	ND		0.00500	0.0000218	mg/L		05/01/19 11:57	05/04/19 11:25	1
Lead	ND		0.00500	0.0000675	mg/L		05/01/19 11:57	05/04/19 11:25	1
Molybdenum	ND		0.0100	0.000873	mg/L		05/01/19 11:57	05/04/19 11:25	1
Potassium	ND		1000	147	ug/L		05/01/19 11:57	05/04/19 11:25	1
Selenium	ND		0.0100	0.000348	mg/L		05/01/19 11:57	05/04/19 11:25	1
Thallium	ND		0.00100	0.0000360	mg/L		05/01/19 11:57	05/04/19 11:25	1

Lab Sample ID: LCS 180-277413/2-A
Matrix: Water
Analysis Batch: 277762

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 277413

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.500	0.5334		mg/L		107	80 - 120
Arsenic	2.00	1.932		mg/L		97	80 - 120
Barium	2.00	2.139		mg/L		107	80 - 120
Beryllium	1.00	1.144		mg/L		114	80 - 120
Boron	2.50	2.622		mg/L		105	80 - 120
Cadmium	1.00	1.093		mg/L		109	80 - 120
Calcium	50.0	52.51		mg/L		105	80 - 120
Chromium	1.00	1.077		mg/L		108	80 - 120
Cobalt	1.00	0.9526		mg/L		95	80 - 120
Lead	1.00	1.070		mg/L		107	80 - 120
Molybdenum	1.00	1.010		mg/L		101	80 - 120
Potassium	50000	49460		ug/L		99	80 - 120
Selenium	2.00	2.353		mg/L		118	80 - 120
Thallium	2.00	2.052		mg/L		103	80 - 120

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

Lab Sample ID: 490-172689-1 MS
Matrix: Water
Analysis Batch: 277762

Client Sample ID: MW-1
Prep Type: Total Recoverable
Prep Batch: 277413

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.000254	J B	0.500	0.5374		mg/L		107	75 - 125
Arsenic	0.00167	J B	2.00	1.942		mg/L		97	75 - 125
Barium	0.0862	J	2.00	2.231		mg/L		107	75 - 125
Beryllium	0.000533	J	1.00	1.123		mg/L		112	75 - 125
Boron	1.73	B	2.50	4.270		mg/L		102	75 - 125
Cadmium	0.000299	J	1.00	1.093		mg/L		109	75 - 125
Calcium	32.1		50.0	85.92		mg/L		108	75 - 125
Chromium	0.00354	B	1.00	1.086		mg/L		108	75 - 125
Cobalt	0.000571	J	1.00	0.9326		mg/L		93	75 - 125
Lead	0.000279	J	1.00	1.064		mg/L		106	75 - 125
Molybdenum	0.00105	J	1.00	1.035		mg/L		103	75 - 125
Potassium	3820		50000	52990		ug/L		98	75 - 125
Selenium	0.00105	J	2.00	2.498		mg/L		125	75 - 125
Thallium	0.000498	J	2.00	2.041		mg/L		102	75 - 125

Lab Sample ID: 490-172689-1 MSD
Matrix: Water
Analysis Batch: 277762

Client Sample ID: MW-1
Prep Type: Total Recoverable
Prep Batch: 277413

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	0.000254	J B	0.500	0.5449		mg/L		109	75 - 125	1	20
Arsenic	0.00167	J B	2.00	2.020		mg/L		101	75 - 125	4	20
Barium	0.0862	J	2.00	2.274		mg/L		109	75 - 125	2	20
Beryllium	0.000533	J	1.00	1.135		mg/L		113	75 - 125	1	20
Boron	1.73	B	2.50	4.293		mg/L		102	75 - 125	1	20
Cadmium	0.000299	J	1.00	1.098		mg/L		110	75 - 125	0	20
Calcium	32.1		50.0	87.84		mg/L		111	75 - 125	2	20
Chromium	0.00354	B	1.00	1.099		mg/L		110	75 - 125	1	20
Cobalt	0.000571	J	1.00	0.9719		mg/L		97	75 - 125	4	20
Lead	0.000279	J	1.00	1.080		mg/L		108	75 - 125	2	20
Molybdenum	0.00105	J	1.00	1.039		mg/L		104	75 - 125	0	20
Potassium	3820		50000	53790		ug/L		100	75 - 125	2	20
Selenium	0.00105	J	2.00	2.424		mg/L		121	75 - 125	3	20
Thallium	0.000498	J	2.00	2.067		mg/L		103	75 - 125	1	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 490-592358/1-A
Matrix: Water
Analysis Batch: 592696

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 592358

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000100	mg/L		05/02/19 20:46	05/04/19 15:19	1

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

Lab Sample ID: LCS 490-592358/2-A
Matrix: Water
Analysis Batch: 592696

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 592358

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury			0.00100	0.0008705		mg/L		87	80 - 120		

Lab Sample ID: 490-172689-8 MS
Matrix: Water
Analysis Batch: 592696

Client Sample ID: DUPE
Prep Type: Total/NA
Prep Batch: 592358

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury	ND		0.00100	0.001087		mg/L		109	75 - 125		

Lab Sample ID: 490-172689-8 MSD
Matrix: Water
Analysis Batch: 592696

Client Sample ID: DUPE
Prep Type: Total/NA
Prep Batch: 592358

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		0.00100	0.001049		mg/L		105	75 - 125	4	20

Method: 9040C - pH

Lab Sample ID: LCS 490-591078/1
Matrix: Water
Analysis Batch: 591078

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
pH			7.00	7.020		SU		100	98 - 103		

Lab Sample ID: 490-172689-1 DU
Matrix: Water
Analysis Batch: 591078

Client Sample ID: MW-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	7.87			7.900		SU				0.4	20
Temperature	21.5			21.50		Degrees C				0	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 490-587266/1
Matrix: Water
Analysis Batch: 587266

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	9.000	J	25.0	7.00	mg/L			04/25/19 17:00	1

Lab Sample ID: LCS 490-587266/2
Matrix: Water
Analysis Batch: 587266

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			100	104.0		mg/L		104	90 - 110		

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: 490-172659-J-1 DU
Matrix: Water
Analysis Batch: 587266

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	122	B		107.0		mg/L				13	20

Lab Sample ID: 490-172683-B-2 DU
Matrix: Water
Analysis Batch: 587266

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	3900	B		3832		mg/L				2	20

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-429878/23-A
Matrix: Water
Analysis Batch: 435485

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 429878

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.02259	U	0.0486	0.0487	1.00	0.116	pCi/L	05/28/19 11:47	07/18/19 22:10	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*97.5*		*40 - 110*	*05/28/19 11:47*	*07/18/19 22:10*	*1*

Lab Sample ID: LCS 160-429878/1-A
Matrix: Water
Analysis Batch: 435291

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 429878

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.4	10.06		1.05	1.00	0.110	pCi/L	89	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*98.3*		*40 - 110*

Lab Sample ID: LCSD 160-429878/2-A
Matrix: Water
Analysis Batch: 435291

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 429878

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226			11.4	10.56		1.09	1.00	0.0935	pCi/L	93	75 - 125	0.23	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*96.0*		*40 - 110*

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

Lab Sample ID: MB 160-430067/23-A
Matrix: Water
Analysis Batch: 437023

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 430067

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.01737	U	0.0422	0.0422	1.00	0.0950	pCi/L	05/28/19 15:33	07/30/19 15:32	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*105*		*40 - 110*	*05/28/19 15:33*	*07/30/19 15:32*	*1*

Lab Sample ID: LCS 160-430067/1-A
Matrix: Water
Analysis Batch: 437023

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 430067

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.4	10.02		1.03	1.00	0.0782	pCi/L	88	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*101*		*40 - 110*

Lab Sample ID: LCSD 160-430067/2-A
Matrix: Water
Analysis Batch: 437243

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 430067

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226			11.4	13.19	*	1.35	1.00	0.0989	pCi/L	116	75 - 125	1.33	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*100*		*40 - 110*

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-429948/23-A
Matrix: Water
Analysis Batch: 434306

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 429948

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1751	U	0.263	0.263	1.00	0.441	pCi/L	05/28/19 14:25	07/09/19 11:57	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*97.5*		*40 - 110*	*05/28/19 14:25*	*07/09/19 11:57*	*1*
Y Carrier	*81.1*		*40 - 110*	*05/28/19 14:25*	*07/09/19 11:57*	*1*

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

Lab Sample ID: LCS 160-429948/1-A
Matrix: Water
Analysis Batch: 434299

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 429948

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.04	9.919		1.19	1.00	0.446	pCi/L	110	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*98.3*		*40 - 110*
Y Carrier	*72.9*		*40 - 110*

Lab Sample ID: LCSD 160-429948/2-A
Matrix: Water
Analysis Batch: 434299

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 429948

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			9.04	8.936		1.13	1.00	0.599	pCi/L	99	75 - 125	0.42	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*96.0*		*40 - 110*
Y Carrier	*70.7*		*40 - 110*

Lab Sample ID: MB 160-430129/23-A
Matrix: Water
Analysis Batch: 434633

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 430129

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.02418	U	0.194	0.194	1.00	0.350	pCi/L	05/29/19 10:55	07/11/19 12:58	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*105*		*40 - 110*	*05/29/19 10:55*	*07/11/19 12:58*	*1*
Y Carrier	*86.4*		*40 - 110*	*05/29/19 10:55*	*07/11/19 12:58*	*1*

Lab Sample ID: LCS 160-430129/1-A
Matrix: Water
Analysis Batch: 434526

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 430129

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.04	9.801		1.12	1.00	0.396	pCi/L	108	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*101*		*40 - 110*
Y Carrier	*79.6*		*40 - 110*

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

Lab Sample ID: LCSD 160-430129/2-A
Matrix: Water
Analysis Batch: 434526

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 430129

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			9.04	8.654		0.997	1.00	0.331	pCi/L	96	75 - 125	0.54	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*100*		*40 - 110*
Y Carrier	*87.5*		*40 - 110*

HPLC/IC

Analysis Batch: 591784

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172689-1	MW-1	Total/NA	Water	9056A	
490-172689-2	MW-2	Total/NA	Water	9056A	
490-172689-8	DUPE	Total/NA	Water	9056A	
MB 490-591784/3	Method Blank	Total/NA	Water	9056A	
LCS 490-591784/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-591784/5	Lab Control Sample Dup	Total/NA	Water	9056A	
490-172689-1 MS	MW-1	Total/NA	Water	9056A	
490-172689-1 MSD	MW-1	Total/NA	Water	9056A	

Analysis Batch: 591942

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172689-2	MW-2	Total/NA	Water	9056A	
490-172689-3	MW-3A	Total/NA	Water	9056A	
490-172689-3	MW-3A	Total/NA	Water	9056A	
490-172689-4	MW-4	Total/NA	Water	9056A	
490-172689-4	MW-4	Total/NA	Water	9056A	
490-172689-5	MW-5	Total/NA	Water	9056A	
490-172689-5	MW-5	Total/NA	Water	9056A	
490-172689-6	MW-6	Total/NA	Water	9056A	
490-172689-6	MW-6	Total/NA	Water	9056A	
490-172689-7	FIELD BLANK	Total/NA	Water	9056A	
490-172689-8	DUPE	Total/NA	Water	9056A	
MB 490-591942/3	Method Blank	Total/NA	Water	9056A	
LCS 490-591942/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-591942/5	Lab Control Sample Dup	Total/NA	Water	9056A	
490-172689-7 MS	FIELD BLANK	Total/NA	Water	9056A	
490-172689-7 MSD	FIELD BLANK	Total/NA	Water	9056A	

Analysis Batch: 592241

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172689-3	MW-3A	Total/NA	Water	9056A	
MB 490-592241/3	Method Blank	Total/NA	Water	9056A	
LCS 490-592241/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-592241/5	Lab Control Sample Dup	Total/NA	Water	9056A	
490-173124-L-1 MS	Matrix Spike	Total/NA	Water	9056A	
490-173124-L-1 MSD	Matrix Spike Duplicate	Total/NA	Water	9056A	

Metals

Prep Batch: 277413

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172689-1	MW-1	Total Recoverable	Water	3005A	
490-172689-2	MW-2	Total Recoverable	Water	3005A	
490-172689-3	MW-3A	Total Recoverable	Water	3005A	
490-172689-4	MW-4	Total Recoverable	Water	3005A	
490-172689-5	MW-5	Total Recoverable	Water	3005A	
490-172689-6	MW-6	Total Recoverable	Water	3005A	
490-172689-7	FIELD BLANK	Total Recoverable	Water	3005A	
490-172689-8	DUPE	Total Recoverable	Water	3005A	
MB 180-277413/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-277413/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Metals (Continued)

Prep Batch: 277413 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172689-1 MS	MW-1	Total Recoverable	Water	3005A	
490-172689-1 MSD	MW-1	Total Recoverable	Water	3005A	

Prep Batch: 277414

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172689-1	MW-1	Total Recoverable	Water	3005A	
490-172689-2	MW-2	Total Recoverable	Water	3005A	
490-172689-3	MW-3A	Total Recoverable	Water	3005A	
490-172689-4	MW-4	Total Recoverable	Water	3005A	
490-172689-5	MW-5	Total Recoverable	Water	3005A	
490-172689-6	MW-6	Total Recoverable	Water	3005A	
490-172689-7	FIELD BLANK	Total Recoverable	Water	3005A	
490-172689-8	DUPE	Total Recoverable	Water	3005A	
MB 180-277414/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-277414/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
490-172689-2 MS	MW-2	Total Recoverable	Water	3005A	
490-172689-2 MSD	MW-2	Total Recoverable	Water	3005A	

Analysis Batch: 277655

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172689-1	MW-1	Total Recoverable	Water	6010C	277414
490-172689-2	MW-2	Total Recoverable	Water	6010C	277414
490-172689-3	MW-3A	Total Recoverable	Water	6010C	277414
490-172689-4	MW-4	Total Recoverable	Water	6010C	277414
490-172689-5	MW-5	Total Recoverable	Water	6010C	277414
490-172689-6	MW-6	Total Recoverable	Water	6010C	277414
490-172689-7	FIELD BLANK	Total Recoverable	Water	6010C	277414
490-172689-8	DUPE	Total Recoverable	Water	6010C	277414
MB 180-277414/1-A	Method Blank	Total Recoverable	Water	6010C	277414
LCS 180-277414/2-A	Lab Control Sample	Total Recoverable	Water	6010C	277414
490-172689-2 MS	MW-2	Total Recoverable	Water	6010C	277414
490-172689-2 MSD	MW-2	Total Recoverable	Water	6010C	277414

Analysis Batch: 277762

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172689-1	MW-1	Total Recoverable	Water	6020A	277413
490-172689-2	MW-2	Total Recoverable	Water	6020A	277413
490-172689-3	MW-3A	Total Recoverable	Water	6020A	277413
490-172689-4	MW-4	Total Recoverable	Water	6020A	277413
490-172689-5	MW-5	Total Recoverable	Water	6020A	277413
490-172689-6	MW-6	Total Recoverable	Water	6020A	277413
490-172689-7	FIELD BLANK	Total Recoverable	Water	6020A	277413
490-172689-8	DUPE	Total Recoverable	Water	6020A	277413
MB 180-277413/1-A	Method Blank	Total Recoverable	Water	6020A	277413
LCS 180-277413/2-A	Lab Control Sample	Total Recoverable	Water	6020A	277413
490-172689-1 MS	MW-1	Total Recoverable	Water	6020A	277413
490-172689-1 MSD	MW-1	Total Recoverable	Water	6020A	277413

Prep Batch: 592358

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172689-1	MW-1	Total/NA	Water	7470A	

Metals (Continued)

Prep Batch: 592358 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172689-2	MW-2	Total/NA	Water	7470A	
490-172689-3	MW-3A	Total/NA	Water	7470A	
490-172689-4	MW-4	Total/NA	Water	7470A	
490-172689-5	MW-5	Total/NA	Water	7470A	
490-172689-6	MW-6	Total/NA	Water	7470A	
490-172689-7	FIELD BLANK	Total/NA	Water	7470A	
490-172689-8	DUPE	Total/NA	Water	7470A	
MB 490-592358/1-A	Method Blank	Total/NA	Water	7470A	
LCS 490-592358/2-A	Lab Control Sample	Total/NA	Water	7470A	
490-172689-8 MS	DUPE	Total/NA	Water	7470A	
490-172689-8 MSD	DUPE	Total/NA	Water	7470A	

Analysis Batch: 592696

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172689-1	MW-1	Total/NA	Water	7470A	592358
490-172689-2	MW-2	Total/NA	Water	7470A	592358
490-172689-3	MW-3A	Total/NA	Water	7470A	592358
490-172689-4	MW-4	Total/NA	Water	7470A	592358
490-172689-5	MW-5	Total/NA	Water	7470A	592358
490-172689-6	MW-6	Total/NA	Water	7470A	592358
490-172689-7	FIELD BLANK	Total/NA	Water	7470A	592358
490-172689-8	DUPE	Total/NA	Water	7470A	592358
MB 490-592358/1-A	Method Blank	Total/NA	Water	7470A	592358
LCS 490-592358/2-A	Lab Control Sample	Total/NA	Water	7470A	592358
490-172689-8 MS	DUPE	Total/NA	Water	7470A	592358
490-172689-8 MSD	DUPE	Total/NA	Water	7470A	592358

General Chemistry

Analysis Batch: 587266

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172689-1	MW-1	Total/NA	Water	SM 2540C	
490-172689-2	MW-2	Total/NA	Water	SM 2540C	
490-172689-3	MW-3A	Total/NA	Water	SM 2540C	
490-172689-4	MW-4	Total/NA	Water	SM 2540C	
490-172689-5	MW-5	Total/NA	Water	SM 2540C	
490-172689-6	MW-6	Total/NA	Water	SM 2540C	
490-172689-7	FIELD BLANK	Total/NA	Water	SM 2540C	
490-172689-8	DUPE	Total/NA	Water	SM 2540C	
MB 490-587266/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 490-587266/2	Lab Control Sample	Total/NA	Water	SM 2540C	
490-172659-J-1 DU	Duplicate	Total/NA	Water	SM 2540C	
490-172683-B-2 DU	Duplicate	Total/NA	Water	SM 2540C	

Analysis Batch: 591078

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172689-1	MW-1	Total/NA	Water	9040C	
490-172689-2	MW-2	Total/NA	Water	9040C	
490-172689-3	MW-3A	Total/NA	Water	9040C	
490-172689-4	MW-4	Total/NA	Water	9040C	
490-172689-5	MW-5	Total/NA	Water	9040C	

General Chemistry (Continued)

Analysis Batch: 591078 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172689-6	MW-6	Total/NA	Water	9040C	
490-172689-7	FIELD BLANK	Total/NA	Water	9040C	
490-172689-8	DUPE	Total/NA	Water	9040C	
LCS 490-591078/1	Lab Control Sample	Total/NA	Water	9040C	
490-172689-1 DU	MW-1	Total/NA	Water	9040C	

Rad

Prep Batch: 429878

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172689-4	MW-4	Total/NA	Water	PrecSep-21	
490-172689-5	MW-5	Total/NA	Water	PrecSep-21	
490-172689-6	MW-6	Total/NA	Water	PrecSep-21	
490-172689-7	FIELD BLANK	Total/NA	Water	PrecSep-21	
490-172689-8	DUPE	Total/NA	Water	PrecSep-21	
MB 160-429878/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-429878/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-429878/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 429948

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172689-4	MW-4	Total/NA	Water	PrecSep_0	
490-172689-5	MW-5	Total/NA	Water	PrecSep_0	
490-172689-6	MW-6	Total/NA	Water	PrecSep_0	
490-172689-7	FIELD BLANK	Total/NA	Water	PrecSep_0	
490-172689-8	DUPE	Total/NA	Water	PrecSep_0	
MB 160-429948/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-429948/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-429948/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Prep Batch: 430067

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172689-1	MW-1	Total/NA	Water	PrecSep-21	
490-172689-2	MW-2	Total/NA	Water	PrecSep-21	
490-172689-3	MW-3A	Total/NA	Water	PrecSep-21	
MB 160-430067/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-430067/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-430067/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 430129

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172689-1	MW-1	Total/NA	Water	PrecSep_0	
490-172689-2	MW-2	Total/NA	Water	PrecSep_0	
490-172689-3	MW-3A	Total/NA	Water	PrecSep_0	
MB 160-430129/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-430129/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-430129/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: Big Rivers Electric Corporation
Project/Site: CCR

Job ID: 490-172689-1
SDG: Sebree Station, Green Landfill (GL)

Client Sample ID: MW-1
Date Collected: 04/22/19 09:59
Date Received: 04/25/19 09:00

Lab Sample ID: 490-172689-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			591784	04/30/19 15:43	T1C	
Total Recoverable	Prep	3005A			50 mL	50 mL	277414	05/01/19 11:58	NAM	
Total Recoverable	Analysis	6010C		1			277655	05/02/19 16:28	RJG	
Total Recoverable	Prep	3005A			50 mL	50 mL	277413	05/01/19 11:57	NAM	
Total Recoverable	Analysis	6020A		1			277762	05/04/19 11:42	WTR	
Total/NA	Prep	7470A			30 mL	30 mL	592358	05/02/19 20:46	EHS	
Total/NA	Analysis	7470A		1			592696	05/04/19 15:58	EHS	
Total/NA	Analysis	9040C		1			591078	04/27/19 15:08	MXX	
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	587266	04/25/19 17:00	BMC	
Total/NA	Prep	PrecSep-21			1000.47 mL	1.0 g	430067	05/28/19 15:33	ORM	TAL SL
Total/NA	Analysis	903.0		1	1.0 mL	1.0 mL	437022	07/30/19 15:31	CDR	TAL SL
Total/NA	Prep	PrecSep_0			1000.47 mL	1.0 g	430129	05/29/19 10:55	ORM	TAL SL
Total/NA	Analysis	904.0		1	1.0 mL	1.0 mL	434633	07/11/19 12:58	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			437451	08/01/19 08:45	SMP	TAL SL

Client Sample ID: MW-2
Date Collected: 04/23/19 10:44
Date Received: 04/25/19 09:00

Lab Sample ID: 490-172689-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			591784	04/30/19 16:33	T1C	
Total/NA	Analysis	9056A		10			591942	05/01/19 14:28	SW1	
Total Recoverable	Prep	3005A			50 mL	50 mL	277414	05/01/19 11:58	NAM	
Total Recoverable	Analysis	6010C		1			277655	05/02/19 16:34	RJG	
Total Recoverable	Prep	3005A			50 mL	50 mL	277413	05/01/19 11:57	NAM	
Total Recoverable	Analysis	6020A		1			277762	05/04/19 11:59	WTR	
Total/NA	Prep	7470A			30 mL	30 mL	592358	05/02/19 20:46	EHS	
Total/NA	Analysis	7470A		1			592696	05/04/19 15:50	EHS	
Total/NA	Analysis	9040C		1			591078	04/27/19 15:08	MXX	
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	587266	04/25/19 17:00	BMC	
Total/NA	Prep	PrecSep-21			1000.56 mL	1.0 g	430067	05/28/19 15:33	ORM	TAL SL
Total/NA	Analysis	903.0		1	1.0 mL	1.0 mL	437024	07/30/19 15:33	CDR	TAL SL
Total/NA	Prep	PrecSep_0			1000.56 mL	1.0 g	430129	05/29/19 10:55	ORM	TAL SL
Total/NA	Analysis	904.0		1	1.0 mL	1.0 mL	434633	07/11/19 12:58	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			437451	08/01/19 08:45	SMP	TAL SL

Client Sample ID: MW-3A
Date Collected: 04/23/19 08:37
Date Received: 04/25/19 09:00

Lab Sample ID: 490-172689-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5			591942	05/01/19 14:44	SW1	
Total/NA	Analysis	9056A		100			591942	05/01/19 15:01	SW1	
Total/NA	Analysis	9056A		200			592241	05/02/19 16:32	SW1	

Client Sample ID: MW-3A
Date Collected: 04/23/19 08:37
Date Received: 04/25/19 09:00

Lab Sample ID: 490-172689-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	277414	05/01/19 11:58	NAM	
Total Recoverable	Analysis	6010C		1			277655	05/02/19 17:05	RJG	
Total Recoverable	Prep	3005A			50 mL	50 mL	277413	05/01/19 11:57	NAM	
Total Recoverable	Analysis	6020A		1			277762	05/04/19 12:03	WTR	
Total/NA	Prep	7470A			30 mL	30 mL	592358	05/02/19 20:46	EHS	
Total/NA	Analysis	7470A		1			592696	05/04/19 15:47	EHS	
Total/NA	Analysis	9040C		1			591078	04/27/19 15:08	MXX	
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	587266	04/25/19 17:00	BMC	
Total/NA	Prep	PrecSep-21			1000.38 mL	1.0 g	430067	05/28/19 15:33	ORM	TAL SL
Total/NA	Analysis	903.0		1	1.0 mL	1.0 mL	437023	07/30/19 15:32	CDR	TAL SL
Total/NA	Prep	PrecSep_0			1000.38 mL	1.0 g	430129	05/29/19 10:55	ORM	TAL SL
Total/NA	Analysis	904.0		1	1.0 mL	1.0 mL	434633	07/11/19 12:58	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			437451	08/01/19 08:45	SMP	TAL SL

Client Sample ID: MW-4
Date Collected: 04/22/19 15:38
Date Received: 04/25/19 09:00

Lab Sample ID: 490-172689-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5			591942	05/01/19 15:34	SW1	
Total/NA	Analysis	9056A		100			591942	05/01/19 15:51	SW1	
Total Recoverable	Prep	3005A			50 mL	50 mL	277414	05/01/19 11:58	NAM	
Total Recoverable	Analysis	6010C		1			277655	05/02/19 17:11	RJG	
Total Recoverable	Prep	3005A			50 mL	50 mL	277413	05/01/19 11:57	NAM	
Total Recoverable	Analysis	6020A		1			277762	05/04/19 12:06	WTR	
Total/NA	Prep	7470A			30 mL	30 mL	592358	05/02/19 20:46	EHS	
Total/NA	Analysis	7470A		1			592696	05/04/19 15:45	EHS	
Total/NA	Analysis	9040C		1			591078	04/27/19 15:08	MXX	
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	587266	04/25/19 17:00	BMC	
Total/NA	Prep	PrecSep-21			1000.14 mL	1.0 g	429878	05/28/19 11:47	ORM	TAL SL
Total/NA	Analysis	903.0		1			435485	07/18/19 20:27	CDR	TAL SL
Total/NA	Prep	PrecSep_0			1000.14 mL	1.0 g	429948	05/28/19 14:25	ORM	TAL SL
Total/NA	Analysis	904.0		1			434299	07/09/19 12:09	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			435566	07/19/19 08:12	SMP	TAL SL

Client Sample ID: MW-5
Date Collected: 04/22/19 12:18
Date Received: 04/25/19 09:00

Lab Sample ID: 490-172689-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5			591942	05/01/19 16:24	SW1	
Total/NA	Analysis	9056A		100			591942	05/01/19 16:41	SW1	
Total Recoverable	Prep	3005A			50 mL	50 mL	277414	05/01/19 11:58	NAM	
Total Recoverable	Analysis	6010C		1			277655	05/02/19 17:16	RJG	

Lab Chronicle

Client: Big Rivers Electric Corporation
Project/Site: CCR

Job ID: 490-172689-1
SDG: Sebree Station, Green Landfill (GL)

Client Sample ID: MW-5
Date Collected: 04/22/19 12:18
Date Received: 04/25/19 09:00

Lab Sample ID: 490-172689-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	277413	05/01/19 11:57	NAM	
Total Recoverable	Analysis	6020A		1			277762	05/04/19 12:09	WTR	
Total/NA	Prep	7470A			30 mL	30 mL	592358	05/02/19 20:46	EHS	
Total/NA	Analysis	7470A		1			592696	05/04/19 15:42	EHS	
Total/NA	Analysis	9040C		1			591078	04/27/19 15:08	MXX	
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	587266	04/25/19 17:00	BMC	
Total/NA	Prep	PrecSep-21			1000.61 mL	1.0 g	429878	05/28/19 11:47	ORM	TAL SL
Total/NA	Analysis	903.0		1			435485	07/18/19 20:27	CDR	TAL SL
Total/NA	Prep	PrecSep_0			1000.61 mL	1.0 g	429948	05/28/19 14:25	ORM	TAL SL
Total/NA	Analysis	904.0		1			434299	07/09/19 12:09	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			435566	07/19/19 08:12	SMP	TAL SL

Client Sample ID: MW-6
Date Collected: 04/22/19 11:11
Date Received: 04/25/19 09:00

Lab Sample ID: 490-172689-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		10			591942	05/01/19 17:47	SW1	
Total/NA	Analysis	9056A		200			591942	05/01/19 18:03	SW1	
Total Recoverable	Prep	3005A			50 mL	50 mL	277414	05/01/19 11:58	NAM	
Total Recoverable	Analysis	6010C		1			277655	05/02/19 17:22	RJG	
Total Recoverable	Prep	3005A			50 mL	50 mL	277413	05/01/19 11:57	NAM	
Total Recoverable	Analysis	6020A		1			277762	05/04/19 12:20	WTR	
Total/NA	Prep	7470A			30 mL	30 mL	592358	05/02/19 20:46	EHS	
Total/NA	Analysis	7470A		1			592696	05/04/19 15:39	EHS	
Total/NA	Analysis	9040C		1			591078	04/27/19 15:08	MXX	
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	587266	04/25/19 17:00	BMC	
Total/NA	Prep	PrecSep-21			1000.55 mL	1.0 g	429878	05/28/19 11:47	ORM	TAL SL
Total/NA	Analysis	903.0		1			435485	07/18/19 20:28	CDR	TAL SL
Total/NA	Prep	PrecSep_0			1000.55 mL	1.0 g	429948	05/28/19 14:25	ORM	TAL SL
Total/NA	Analysis	904.0		1			434299	07/09/19 12:09	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			435566	07/19/19 08:12	SMP	TAL SL

Client Sample ID: FIELD BLANK
Date Collected: 04/23/19 13:18
Date Received: 04/25/19 09:00

Lab Sample ID: 490-172689-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			591942	05/01/19 18:20	SW1	
Total Recoverable	Prep	3005A			50 mL	50 mL	277414	05/01/19 11:58	NAM	
Total Recoverable	Analysis	6010C		1			277655	05/02/19 17:27	RJG	
Total Recoverable	Prep	3005A			50 mL	50 mL	277413	05/01/19 11:57	NAM	
Total Recoverable	Analysis	6020A		1			277762	05/04/19 12:23	WTR	

Lab Chronicle

Client: Big Rivers Electric Corporation
Project/Site: CCR

Job ID: 490-172689-1
SDG: Sebree Station, Green Landfill (GL)

Client Sample ID: FIELD BLANK

Lab Sample ID: 490-172689-7

Date Collected: 04/23/19 13:18
Matrix: Water
Date Received: 04/25/19 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7470A			30 mL	30 mL	592358	05/02/19 20:46	EHS	
Total/NA	Analysis	7470A		1			592696	05/04/19 15:37	EHS	
Total/NA	Analysis	9040C		1			591078	04/27/19 15:08	MXX	
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	587266	04/25/19 17:00	BMC	
Total/NA	Prep	PrecSep-21			999.98 mL	1.0 g	429878	05/28/19 11:47	ORM	TAL SL
Total/NA	Analysis	903.0		1			435485	07/18/19 20:28	CDR	TAL SL
Total/NA	Prep	PrecSep_0			999.98 mL	1.0 g	429948	05/28/19 14:25	ORM	TAL SL
Total/NA	Analysis	904.0		1			434300	07/09/19 11:47	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			435566	07/19/19 08:12	SMP	TAL SL

Client Sample ID: DUPE

Lab Sample ID: 490-172689-8

Date Collected: 04/23/19 10:44
Matrix: Water
Date Received: 04/25/19 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			591784	04/30/19 18:12	T1C	
Total/NA	Analysis	9056A		10			591942	05/01/19 19:10	SW1	
Total Recoverable	Prep	3005A			50 mL	50 mL	277414	05/01/19 11:58	NAM	
Total Recoverable	Analysis	6010C		1			277655	05/02/19 17:33	RJG	
Total Recoverable	Prep	3005A			50 mL	50 mL	277413	05/01/19 11:57	NAM	
Total Recoverable	Analysis	6020A		1			277762	05/04/19 12:26	WTR	
Total/NA	Prep	7470A			30 mL	30 mL	592358	05/02/19 20:46	EHS	
Total/NA	Analysis	7470A		1			592696	05/04/19 15:29	EHS	
Total/NA	Analysis	9040C		1			591078	04/27/19 15:08	MXX	
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	587266	04/25/19 17:00	BMC	
Total/NA	Prep	PrecSep-21			1000.37 mL	1.0 g	429878	05/28/19 11:47	ORM	TAL SL
Total/NA	Analysis	903.0		1			435485	07/18/19 20:28	CDR	TAL SL
Total/NA	Prep	PrecSep_0			1000.37 mL	1.0 g	429948	05/28/19 14:25	ORM	TAL SL
Total/NA	Analysis	904.0		1			434300	07/09/19 11:47	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			435566	07/19/19 08:12	SMP	TAL SL

Laboratory References:

= , , ,

Method Summary

Client: Big Rivers Electric Corporation
Project/Site: CCR

Job ID: 490-172689-1
SDG: Sebree Station, Green Landfill (GL)

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	
6010C	Metals (ICP)	SW846	
6020A	Metals (ICP/MS)	SW846	
7470A	Mercury (CVAA)	SW846	
9040C	pH	SW846	
SM 2540C	Solids, Total Dissolved (TDS)	SM	
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	
7470A	Preparation, Mercury	SW846	

Protocol References:

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.

Laboratory References:

= , , ,

Accreditation/Certification Summary

Client: Big Rivers Electric Corporation
Project/Site: CCR

Job ID: 490-172689-1
SDG: Sebree Station, Green Landfill (GL)

Laboratory: Eurofins TestAmerica, Nashville

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

Authority	Program	Identification Number	Expiration Date
Kentucky (UST)	State Program	19	06-30-19

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
9040C		Water	pH
9040C		Water	Temperature
9056A		Water	Chloride
9056A		Water	Fluoride
9056A		Water	Sulfate
SM 2540C		Water	Total Dissolved Solids

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State Program	88-0690	06-27-19
California	State Program	2891	04-30-20
Connecticut	State Program	PH-0688	09-30-20
Florida	NELAP	E871008	06-30-19
Illinois	NELAP	200005	06-30-19
Kansas	NELAP	E-10350	01-31-20
Louisiana	NELAP	04041	06-30-19
Nevada	State Program	PA00164	07-31-19
New Hampshire	NELAP	2030	04-04-20
New Jersey	NELAP	PA005	06-30-19
New York	NELAP	11182	03-31-20
North Carolina (WW/SW)	State Program	434	12-31-19
Oregon	NELAP	PA-2151	02-06-20
Pennsylvania	NELAP	02-00416	04-30-20
South Carolina	State Program	89014	04-30-19 *
Texas	NELAP	T104704528-15-2	03-31-20
US Fish & Wildlife	Federal	LE94312A-1	07-31-19
USDA	Federal	P330-16-00211	06-26-19
Utah	NELAP	PA001462015-4	05-31-19 *
Virginia	NELAP	460189	09-14-19
West Virginia DEP	State Program	142	01-31-20
Wisconsin	State Program	998027800	08-31-19

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

Accreditation/Certification Summary

Client: Big Rivers Electric Corporation
Project/Site: CCR

Job ID: 490-172689-1
SDG: Sebree Station, Green Landfill (GL)

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	DoD	L2305	04-06-22
ANAB	DOE	L2305.01	04-06-22
Arizona	State	AZ0813	12-08-19
Arizona	State Program	AZ0813	12-08-19
California	State	2886	06-30-20
California	State Program	2886	06-30-20
Connecticut	State	PH-0241	03-31-21
Connecticut	State Program	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-20
Florida	NELAP	E87689	06-30-20
Hawaii	State Program	NA	06-30-20
Illinois	NELAP	200023	11-30-19
Illinois	NELAP	004553	11-30-19
Iowa	State Program	373	12-01-20
Kansas	NELAP	E-10236	10-31-19
Kentucky (DW)	State	KY90125	12-31-19
Kentucky (DW)	State Program	KY90125	12-31-19
Louisiana	NELAP	04080	06-30-20
Louisiana (DW)	NELAP	LA011	12-31-19
Louisiana (DW)	State	LA011	12-31-19
Maryland	State	310	09-30-20
Maryland	State Program	310	09-30-20
Michigan	State Program	9005	06-30-20
Missouri	State	780	06-30-22
Missouri	State Program	780	06-30-20
Nevada	State	MO000542020-1	07-31-20
New Jersey	NELAP	MO002	06-30-20
New Jersey	NELAP	MO002	06-30-20
New York	NELAP	11616	03-31-20
New York	NELAP	11616	04-01-20
North Dakota	State	R-207	06-30-20
North Dakota	State Program	R207	06-30-20
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-19
Oklahoma	State Program	9997	08-31-19 *
Pennsylvania	NELAP	68-00540	02-28-20
Pennsylvania	NELAP	68-00540	02-28-20
South Carolina	State Program	85002001	06-30-20
Texas	NELAP	T104704193-19-14	07-31-20
Texas	NELAP	T104704193-19-13	07-31-20
US Fish & Wildlife	Federal	058448	07-31-20
USDA	Federal	P330-17-0028	02-02-20
Utah	NELAP	MO000542019-11	07-31-20
Virginia	NELAP	460230	06-14-20
Virginia	NELAP	10310	06-14-20
Washington	State Program	C592	08-30-19
West Virginia DEP	State Program	381	08-31-19 *

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

490-172689-01 Chain of Custody

Cooler Received/Opened On 4/25/2019@ 900

Time Samples Removed From Cooler 14:53 Time Samples Placed In Storage 15:04 (2 Hour Window)

1. Tracking # 3633 (last 4 digits, FedEx) Courier:

IR Gun ID_31470368 pH Strip Lot HC869997 Chlorine Strip Lot 1011184

2. Temperature of rep. sample or temp blank when opened: 0.3 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 1 front

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) CH

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

Larger than this.

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #

I certify that I unloaded the cooler and answered questions 7-14 (intial) ACE

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) ACE

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) ACE

I certify that I attached a label with the unique LIMS number to each container (intial) ACE

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#

BIS = Broken in shipment

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

Loc: 490
172689

COOLER RECEIPT FORM

Cooler Received/Opened On 04-25-2019 @ 09:00

Time Samples Removed From Cooler 14:53 Time Samples Placed In Storage 15:04 (2 Hour Window)

1. Tracking # 3857 (last 4 digits, FedEx) Courier: FedEx

IR Gun ID 17960358 pH Strip Lot HC869997 Chlorine Strip Lot 10111814

2. Temperature of rep. sample or temp blank when opened: 0.9 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 1 (front)

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) KB

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

Larger than this.

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #

I certify that I unloaded the cooler and answered questions 7-14 (intial) ACE

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA ACE 4/25/19

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) ACE

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) ACE

I certify that I attached a label with the unique LIMS number to each container (intial) ACE

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#

BIS = Broken in shipment

Loc: 490
172689

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

Cooler Received/Opened On 4/25/2019@ 900

Time Samples Removed From Cooler 14:53 Time Samples Placed In Storage 15:04 (2 Hour Window)

1. Tracking # 1599 (last 4 digits, FedEx) Courier:

IR Gun ID_31470368 pH Strip Lot HC569997 Chlorine Strip Lot 1011/8H

2. Temperature of rep. sample or temp blank when opened: 2.0 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 1 front

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) EA

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

● ⬅ Larger than this.

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial)

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) ACE

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) ACE

I certify that I attached a label with the unique LIMS number to each container (intial) ACE

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#_____

BIS = Broken in shipment

Loc: 490
172689

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

Cooler Received/Opened On 4/25/2019 @ 9:00

Time Samples Removed From Cooler 14:53 Time Samples Placed In Storage 15:04 (2 Hour Window)

1. Tracking # 1117 (last 4 digits, FedEx) Courier: Fedex

IR Gun ID 31470366 pH Strip Lot HC869967 Chlorine Strip Lot 0111SH

2. Temperature of rep. sample or temp blank when opened: 0.6 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 1 Front

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) ACE

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

Larger than this.

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) ACE

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) ACE

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) ACE

I certify that I attached a label with the unique LIMS number to each container (intial) ACE

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#_____

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 8/23/17

Eurofins TestAmerica, Nashville
2960 Foster Creighton Drive

Nashville, TN 37204-3719
phone 615.726.0177 fax 615.726.3404

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Regulatory Program: ☐DW ☐NPDES ☐RCRA ☑Other:

TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

Client Contact	Project Manager: Mark Bertram	Site Contact: Phillip Hill	Date: 4/24/2019	COC No: 490-99063-24273.2
Big Rivers Electric Corporation	Email: mark.bertram@bigrivers.com	Lab Contact: Roxanne Cisneros	Carrier: FedEx	__1__ of __1__ COCs
9000 Highway 2096	Tel/Fax: (270) 844-5708			Sampler: Phillip Hill
Robards, KY 42452	Analysis Turnaround Time			For Lab Use Only:
Phone: (270) 844-5565	☐ CALENDAR DAYS ☐ WORKING DAYS			Walk-in Client:
FAX	TAT if different from Below _____			Lab Sampling:
Project Name: CCR GL - 1st Semi Annual 2019	☑ 2 weeks			Job / SDG No.:
Site: Sebree Station, Green Landfill (GL)	☐ 1 week			
P O # 249349	☐ 2 days			
	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	903.0, 904.0	6010C, 6020A, 7470A	9040C, 9056A_ORGFM_28D	2540C_Calcd-TDS	Sample Specific Notes:
MW-1	4/22/19	959	G	Water	6	N	N	x	x	x	x	
MW-2	4/23/19	1044	G	Water	6	N	N	x	x	x	x	
MW-3A	4/23/19	837	G	Water	6	N	N	x	x	x	x	sample bottles labeled as MW-3 are same as MW-3A
MW-4	4/22/19	1538	G	Water	6	N	N	x	x	x	x	
MW-5	4/22/19	1218	G	Water	6	N	N	x	x	x	x	
MW-6	4/22/19	1111	G	Water	6	N	N	x	x	x	x	
FIELD BLANK	4/23/19	1318	G	Water	6	N	N	x	x	x	x	
DUPE	4/23/19	1044	G	Water	6	N	N	x	x	x	x	
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____								4	4	1	1	

Loc: 490
172689

Possible Hazard Identification:
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.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown

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: Standard TAT; Run samples per protocol/methodology prescribed in 40 C.F.R. § 257. See attached constituent list for analysis.

4.6°C / 2.0°C 2.8°/0.6°

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd: 2.3°/0.4°	Corr'd: _____	Therm ID No.: _____
Relinquished by:	Company: BREC	Date/Time: 4-24-19 1400	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: TA-NSH	Date/Time: 4/25/19 9:00

Form No. CA-C-WI-002, Rev. 4.23, dated 4/16/2019

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9/27/2019

4/24/2019

Loc: 490
172689

Green Landfill:

401 KAR 45:160 (Kentucky Semi-Annual) Constituent List:
Antimony, Total
Arsenic, Total
Barium, Total
Beryllium, Total
Boron
Cadmium, Total
Calcium, Total
Chemical Oxygen Demand
Chloride
Chromium, Total
Cobalt, Total
Copper, Total
Fluoride, Total
Iron, Total
Lead, Total
Lithium, Total
Mercury, Total
Molybdenum, Total
pH
Selenium, Total
Sodium, Total
Specific Conductance
Sulfate, Total
Thallium, Total
Temperature
Total Organic Carbon
Total Dissolved Solids
Radium 226 & 228 combined, Total

4/24/2019

Green Landfill 40 CFR 257 Constituent List:

Loc: 490
172689

Appendix III to Part 257
Boron
Calcium
Chloride
Fluoride
pH
Sulfate
Total Dissolved Solids (TDS)

Appendix IV to Part 257
Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium
Cobalt
Fluoride
Lead
Lithium
Mercury
Molybdenum
Selenium
Thallium
Radium 226 & 228 combined


TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
ORIGIN ID:RNCA (615) 726-0177
SHIPPING MGR
EUROFINS TESTAMERICA
2960 FOSTER CREIGHTON
NASHVILLE, TN 37204
UNITED STATES US
SHI
ACTI
CAD:
SAPR19
0 LB MAN
/CAFE3211
BILL
IENT
TO SHIPPING/RECEIVING
TESTAMERICA LABORATORIES,
301 ALPHA DRIVE
RIDC PARK
PITTSBURGH PA 15238
(412) 963-7058
REF: S490-99516
PO: YES
FedEx Express
SATURDAY 12:00P
PRIORITY OVERNIGHT
TRK# 0201 4820 8844 7237
XO AGCA
15238
PIT
PA-US
Uncorrected temp 15.9 °C
Thermometer ID 10
No Ice
CF 0
Initials JB
PT-WI-SR-001 effective 11/8/18
FedEx Saturday Delivery
151967 REV 7/08 RRD
490-172689 Wybill

Eurofins TestAmerica, Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Phone (615) 726-0177 Fax (615) 726-3404

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Cisneros, Roxanne	Carrier Tracking No(s):	COC No: 490-89471.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: roxanne.cisneros@testamericainc.com	State of Origin: Kentucky	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Kentucky (UST)		Job #: 490-172689-2
Address: 13715 Rider Trail North, ,	Due Date Requested: 5/23/2019			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: CCR	Project #: 49010431			
Site: Big Rivers CCR	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCl	M - Hexane
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
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Ra226Ra228_GFPC	903.0/PrecSep_21 Standard Target List	904.0/PrecSep_0 Standard Target List	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-1 (490-172689-1)	4/22/19	09:59 Eastern		Water			X	X	X	2	run once - upload data twice
MW-2 (490-172689-2)	4/23/19	10:44 Eastern		Water			X	X	X	2	run once - upload data twice
MW-3A (490-172689-3)	4/23/19	08:37 Eastern		Water			X	X	X	2	run once - upload data twice
MW-4 (490-172689-4)	4/22/19	15:38 Eastern		Water			X	X	X	2	run once - upload data twice
MW-5 (490-172689-5)	4/22/19	12:18 Eastern		Water			X	X	X	2	run once - upload data twice
MW-6 (490-172689-6)	4/22/19	11:11 Eastern		Water			X	X	X	2	run once - upload data twice
FIELD BLANK (490-172689-7)	4/23/19	13:18 Eastern		Water			X	X	X	2	run once - upload data twice
DUPE (490-172689-8)	4/23/19	10:44 Eastern		Water			X	X	X	2	run once - upload data twice

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *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:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Billy Barnes	4-26-19 1300	TAT	Michael Hunt	4-27-19 08:25	TAST
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

Eurofins TestAmerica, Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Phone (615) 726-0177 Fax (615) 726-3404

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Cisneros, Roxanne	Carrier Tracking No(s):	COC No: 490-89471.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: roxanne.cisneros@testamericainc.com	State of Origin: Kentucky	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Kentucky (UST)		Job #: 490-172689-4
Address: 13715 Rider Trail North, ,	Due Date Requested: 5/23/2019			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: 1st Semi Annual 2019	Project #: 49010431			
Site: Big Rivers CCR	SSOW#:			

Analysis Requested

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, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	903.0/PrecSep_21 Standard Target List	904.0/PrecSep_0 Standard Target List	Ra226Ra228_GFPC	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-1 (490-172689-1)	4/22/19	09:59 Eastern		Water			X	X	X	2	run once - upload data twice
MW-2 (490-172689-2)	4/23/19	10:44 Eastern		Water			X	X	X	2	run once - upload data twice
MW-3A (490-172689-3)	4/23/19	08:37 Eastern		Water			X	X	X	2	run once - upload data twice
MW-4 (490-172689-4)	4/22/19	15:38 Eastern		Water			X	X	X	2	run once - upload data twice
MW-5 (490-172689-5)	4/22/19	12:18 Eastern		Water			X	X	X	2	run once - upload data twice
MW-6 (490-172689-6)	4/22/19	11:11 Eastern		Water			X	X	X	2	run once - upload data twice
FIELD BLANK (490-172689-7)	4/23/19	13:18 Eastern		Water			X	X	X	2	run once - upload data twice
DUPE (490-172689-8)	4/23/19	10:44 Eastern		Water			X	X	X	2	run once - upload data twice

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *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: Billy Barnes	Date/Time: 4-26-19 1300	Company TAN	Received by: Michael Thurn
Relinquished by:	Date/Time:	Company	Received by:
Relinquished by:	Date/Time:	Company	Received by:

Date/Time: 4-27-19 08:25	Company TA SIZ
Date/Time:	Company
Date/Time:	Company

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

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Big Rivers Electric Corporation

Job Number: 490-172689-2
SDG Number: Sebree Station, Green Landfill (GL)

Login Number: 172689
List Number: 3
Creator: Hellm, Michael

List Source: Eurofins TestAmerica, St. Louis
List Creation: 05/01/19 02:22 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.	N/A	
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	18.0
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").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: Big Rivers Electric Corporation
Project/Site: CCR

Job ID: 490-172689-1
SDG: Sebree Station, Green Landfill (GL)

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)
490-172689-1	MW-1	90.1
490-172689-2	MW-2	94.1
490-172689-3	MW-3A	96.9
490-172689-4	MW-4	92.1
490-172689-5	MW-5	87.0
490-172689-6	MW-6	94.9
490-172689-7	FIELD BLANK	94.1
490-172689-8	DUPE	95.5
LCS 160-429878/1-A	Lab Control Sample	98.3
LCS 160-430067/1-A	Lab Control Sample	101
LCSD 160-429878/2-A	Lab Control Sample Dup	96.0
LCSD 160-430067/2-A	Lab Control Sample Dup	100
MB 160-429878/23-A	Method Blank	97.5
MB 160-430067/23-A	Method Blank	105

Tracer/Carrier Legend

Ba Carrier = 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 Carrier (40-110)	Y Carrier (40-110)
490-172689-1	MW-1	90.1	87.5
490-172689-2	MW-2	94.1	94.2
490-172689-3	MW-3A	96.9	93.1
490-172689-4	MW-4	92.1	66.5
490-172689-5	MW-5	87.0	76.3
490-172689-6	MW-6	94.9	81.9
490-172689-7	FIELD BLANK	94.1	78.9
490-172689-8	DUPE	95.5	74.0
LCS 160-429948/1-A	Lab Control Sample	98.3	72.9
LCS 160-430129/1-A	Lab Control Sample	101	79.6
LCSD 160-429948/2-A	Lab Control Sample Dup	96.0	70.7
LCSD 160-430129/2-A	Lab Control Sample Dup	100	87.5
MB 160-429948/23-A	Method Blank	97.5	81.1
MB 160-430129/23-A	Method Blank	105	86.4

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

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Certificate of Analysis
9093427

Chad Phillips
Big Rivers Electric Corporation Reid/Green Station
PO Box 24
Henderson KY, 42419

Customer ID: 44-102032
Report Printed: 10/28/2019 16:26

Project Name:	Green Landfill Semiannual Groundwater	Workorder:	9093427

Dear Chad Phillips

Enclosed are the analytical results for samples received at one of our laboratories on 10/02/2019 15:34.

McCoy & McCoy Laboratories, Inc. is a commercial laboratory accredited by various state and national authorities, including Indiana, Kentucky, Tennessee, and Virginia's National Environmental Laboratory Accreditation Program (NELAP). With the NELAP accreditation, applicable test results are certified to meet the requirements of the National Environmental Laboratory Accreditation Program.

If you have any questions concerning this report please contact the individual listed below.

Please visit our website at www.mccoylabs.com for a listing of the NELAP accreditations and Scope of Work, as well as, links to other scientific organizations.

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ACCREDITED IN ACCORDANCE WITH nelac
#460210
Madisonville

Rob Whittington, Project Manager

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

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SAMPLE SUMMARY

Lab ID	Client Sample ID/Alias	Matrix	Date Collected	Date Received	Sampled By
9093427-01	MW1/	Groundwater	09/30/2019 10:56	10/02/2019 15:34	Phillip Hill
9093427-02	MW6/	Groundwater	09/30/2019 12:25	10/02/2019 15:34	Phillip Hill
9093427-03	MW3A/	Groundwater	10/01/2019 13:20	10/02/2019 15:34	Phillip Hill
9093427-04	MW4/	Groundwater	10/01/2019 08:40	10/02/2019 15:34	Phillip Hill
9093427-05	MW5/	Groundwater	09/30/2019 13:55	10/02/2019 15:34	Phillip Hill
9093427-06	MW2/	Groundwater	10/01/2019 14:55	10/02/2019 15:34	Phillip Hill
9093427-07	DUPLICATE/	Groundwater	09/30/2019 14:15	10/02/2019 15:34	Phillip Hill
9093427-08	FIELD BLANK/	Water	10/01/2019 14:55	10/02/2019 15:34	Phillip Hill

LabNumber	Measurement	Value
9093427-01	Field Conductance	0.884
	Field pH	7.28
	Field Temp (C)	18.91
9093427-02	Field Conductance	5.10
	Field pH	6.46
	Field Temp (C)	20.60
9093427-03	Field Conductance	8.96
	Field pH	6.59
	Field Temp (C)	17.34
9093427-04	Field Conductance	6.23
	Field pH	6.52
	Field Temp (C)	16.70
9093427-05	Field Conductance	6.22
	Field pH	6.49
	Field Temp (C)	17.10
9093427-06	Field Conductance	1.72
	Field pH	6.62
	Field Temp (C)	19.16
9093427-07	Field Conductance	6.22
	Field pH	6.49
	Field Temp (C)	17.10

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ANALYTICAL RESULTS

Lab Sample ID: **9093427-01**
Description: **MW1**

Sample Collection Date Time: 09/30/2019 10:56
Sample Received Date Time: 10/02/2019 15:34

Metals by SW846 6000 Series Methods

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	M1, V1, U	mg/L	0.005	0.002	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:03	DMH
Arsenic	**0.0005**	V1, J	mg/L	0.0010	0.0004	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:03	DMH
Barium	**0.091**	D2	mg/L	0.040	0.010	SW846-6020 A	10/04/2019 11:42	10/09/2019 14:22	DMH
Beryllium	ND	D2, U	mg/L	0.0200	0.0100	SW846-6020 A	10/04/2019 11:42	10/09/2019 14:22	DMH
Boron	**1.68**	D2, M4	mg/L	1.00	1.00	SW846 6010 B	10/04/2019 11:42	10/08/2019 17:18	AKB
Cadmium	ND	V1, U	mg/L	0.0010	0.0001	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:03	DMH
Calcium	**29.1**	D2	mg/L	4.00	1.30	SW846 6010 B	10/04/2019 11:42	10/08/2019 17:18	AKB
Chromium	ND	U	mg/L	0.0020	0.0006	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:03	DMH
Cobalt	ND	U	mg/L	0.004	0.004	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:03	DMH
Copper	ND	U	mg/L	0.003	0.001	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:03	DMH
Iron	ND	D2, L2, U	mg/L	1.00	0.500	SW846 6010 B	10/04/2019 11:42	10/08/2019 17:18	AKB
Lead	ND	V1, U	mg/L	0.002	0.0005	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:03	DMH
Lithium	ND	D2, M3, U	mg/L	0.20	0.05	SW846-6020 A	10/04/2019 11:42	10/09/2019 14:22	DMH
Mercury	ND	V1, U	mg/L	0.0005	0.0002	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:03	DMH
Molybdenum	ND	U	mg/L	0.01	0.002	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:03	DMH
Selenium	ND	U	mg/L	0.003	0.001	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:03	DMH
Sodium	**193**	M1, D1	mg/L	26.0	10.0	SW846 6010 B	10/04/2019 11:42	10/08/2019 17:21	AKB
Thallium	**0.0001**	V1, J	mg/L	0.0020	0.0001	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:03	DMH

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chemical Oxygen Demand	**7**		mg/L	5	5	HACH 8000	10/03/2019 17:21	10/03/2019 17:21	HMF
Specific Conductance (Lab)	**888**		umhos/cm	1	1	2510 B-2011	10/07/2019 14:39	10/07/2019 14:39	TLB
pH (Lab)	**7.79**	H3	Std. Units	0.10	0.10	4500-H+ B-2000	10/08/2019 12:56	10/08/2019 12:56	HMF
Total Dissolved Solids	**444**	H1	mg/L	50	50	2540 C-2011	10/16/2019 14:12	10/17/2019 15:00	MAG
Total Organic Carbon	**0.8**		mg/L	0.5		5310 C-2011	10/07/2019 18:56	10/07/2019 18:56	TLB

Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	0.00	_Sub	pCi/L			EPA 903.1	10/28/2019 15:37	10/28/2019 15:38	RCW
Radium-228	0.00	_Sub	pCi/L			EPA 904.0	10/28/2019 15:37	10/28/2019 15:38	RCW

Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	**7.5**		mg/L	2.0	1.3	SW846 9056	10/17/2019 15:30	10/17/2019 15:30	CSC
Fluoride	**0.6**		mg/L	0.2	0.1	SW846 9056	10/17/2019 15:30	10/17/2019 15:30	CSC
Sulfate	**19**		mg/L	1	0.5	SW846 9056	10/17/2019 15:30	10/17/2019 15:30	CSC

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ANALYTICAL RESULTS

Lab Sample ID: **9093427-02**
Description: **MW6**

Sample Collection Date Time: 09/30/2019 12:25
Sample Received Date Time: 10/02/2019 15:34

Metals by SW846 6000 Series Methods

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	V1, U	mg/L	0.005	0.002	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:07	DMH
Arsenic	ND	V1, U	mg/L	0.0010	0.0004	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:07	DMH
Barium	**0.010**	D2, J	mg/L	0.040	0.010	SW846-6020 A	10/04/2019 11:42	10/09/2019 14:41	DMH
Beryllium	ND	D2, U	mg/L	0.0200	0.0100	SW846-6020 A	10/04/2019 11:42	10/09/2019 14:41	DMH
Boron	ND	D2, U	mg/L	1.00	1.00	SW846 6010 B	10/04/2019 11:42	10/08/2019 17:25	AKB
Cadmium	ND	V1, U	mg/L	0.0010	0.0001	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:07	DMH
Calcium	**431**	D1	mg/L	40.0	13.0	SW846 6010 B	10/04/2019 11:42	10/08/2019 17:28	AKB
Chromium	ND	U	mg/L	0.0020	0.0006	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:07	DMH
Cobalt	ND	U	mg/L	0.004	0.004	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:07	DMH
Copper	ND	U	mg/L	0.003	0.001	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:07	DMH
Iron	ND	D2, L2, U	mg/L	1.00	0.500	SW846 6010 B	10/04/2019 11:42	10/08/2019 17:25	AKB
Lead	ND	V1, U	mg/L	0.002	0.0005	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:07	DMH
Lithium	**0.05**	D2, V1, J	mg/L	0.20	0.05	SW846-6020 A	10/04/2019 11:42	10/09/2019 14:41	DMH
Mercury	ND	V1, U	mg/L	0.0005	0.0002	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:07	DMH
Molybdenum	ND	D2, U	mg/L	0.10	0.02	SW846-6020 A	10/04/2019 11:42	10/09/2019 14:41	DMH
Selenium	ND	U	mg/L	0.003	0.001	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:07	DMH
Sodium	**420**	D1	mg/L	26.0	10.0	SW846 6010 B	10/04/2019 11:42	10/08/2019 17:28	AKB
Thallium	ND	V1, U	mg/L	0.0020	0.0001	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:07	DMH

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chemical Oxygen Demand	**25**		mg/L	5	5	HACH 8000	10/03/2019 17:21	10/03/2019 17:21	HMF
Specific Conductance (Lab)	**4620**		umhos/cm	1	1	2510 B-2011	10/07/2019 14:40	10/07/2019 14:40	TLB
pH (Lab)	**7.15**	H3	Std. Units	0.10	0.10	4500-H+ B-2000	10/08/2019 12:57	10/08/2019 12:57	HMF
Total Dissolved Solids	**4830**	H1	mg/L	50	50	2540 C-2011	10/16/2019 14:16	10/17/2019 15:00	MAG
Total Organic Carbon	**1.8**		mg/L	0.5		5310 C-2011	10/07/2019 19:18	10/07/2019 19:18	TLB

Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	0.00	_Sub	pCi/L			EPA 903.1	10/28/2019 15:37	10/28/2019 15:38	RCW
Radium-228	0.00	_Sub	pCi/L			EPA 904.0	10/28/2019 15:37	10/28/2019 15:38	RCW

Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	**230**	D	mg/L	100	64.0	SW846 9056	10/17/2019 16:03	10/17/2019 16:03	CSC
Fluoride	**0.5**		mg/L	0.2	0.1	SW846 9056	10/17/2019 16:03	10/17/2019 16:03	CSC
Sulfate	**3830**	D	mg/L	100	50	SW846 9056	10/23/2019 17:22	10/23/2019 17:22	CSC

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ANALYTICAL RESULTS

Lab Sample ID: **9093427-03**
Description: **MW3A**

Sample Collection Date Time: 10/01/2019 13:20
Sample Received Date Time: 10/02/2019 15:34

Metals by SW846 6000 Series Methods

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	V1, U	mg/L	0.005	0.002	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:11	DMH
Arsenic	ND	D2, U	mg/L	0.0100	0.0040	SW846-6020 A	10/04/2019 11:42	10/09/2019 14:45	DMH
Barium	**0.051**	D2	mg/L	0.040	0.010	SW846-6020 A	10/04/2019 11:42	10/09/2019 14:45	DMH
Beryllium	ND	D2, U	mg/L	0.0200	0.0100	SW846-6020 A	10/04/2019 11:42	10/09/2019 14:45	DMH
Boron	ND	D2, U	mg/L	1.00	1.00	SW846 6010 B	10/04/2019 11:42	10/08/2019 17:40	AKB
Cadmium	ND	V1, U	mg/L	0.0010	0.0001	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:11	DMH
Calcium	**490**	D1	mg/L	40.0	13.0	SW846 6010 B	10/04/2019 11:42	10/08/2019 17:43	AKB
Chromium	ND	D2, U	mg/L	0.0200	0.0060	SW846-6020 A	10/04/2019 11:42	10/09/2019 14:45	DMH
Cobalt	**0.008**		mg/L	0.004	0.004	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:11	DMH
Copper	ND	D2, U	mg/L	0.030	0.010	SW846-6020 A	10/04/2019 11:42	10/09/2019 14:45	DMH
Iron	ND	D2, L2, U	mg/L	1.00	0.500	SW846 6010 B	10/04/2019 11:42	10/08/2019 17:40	AKB
Lead	ND	V1, U	mg/L	0.002	0.0005	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:11	DMH
Lithium	**0.79**	D1	mg/L	0.20	0.05	SW846-6020 A	10/04/2019 11:42	10/10/2019 13:56	AKB
Mercury	ND	V1, U	mg/L	0.0005	0.0002	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:11	DMH
Molybdenum	ND	D2, U	mg/L	0.10	0.02	SW846-6020 A	10/04/2019 11:42	10/09/2019 14:45	DMH
Selenium	ND	D2, U	mg/L	0.030	0.010	SW846-6020 A	10/04/2019 11:42	10/09/2019 14:45	DMH
Sodium	**329**	D1	mg/L	26.0	10.0	SW846 6010 B	10/04/2019 11:42	10/09/2019 13:49	AKB
Thallium	ND	V1, U	mg/L	0.0020	0.0001	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:11	DMH

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chemical Oxygen Demand	**326**		mg/L	5	5	HACH 8000	10/03/2019 17:23	10/03/2019 17:23	HMF
Specific Conductance (Lab)	**7570**		umhos/cm	1	1	2510 B-2011	10/07/2019 14:41	10/07/2019 14:41	TLB
pH (Lab)	**7.33**	H3	Std. Units	0.10	0.10	4500-H+ B-2000	10/08/2019 12:58	10/08/2019 12:58	HMF
Total Dissolved Solids	**6900**	H1	mg/L	50	50	2540 C-2011	10/16/2019 14:20	10/17/2019 15:00	MAG
Total Organic Carbon	ND	U	mg/L	0.5		5310 C-2011	10/19/2019 13:50	10/19/2019 13:50	HMF

Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	0.00	_Sub	pCi/L			EPA 903.1	10/28/2019 15:37	10/28/2019 15:38	RCW
Radium-228	0.00	_Sub	pCi/L			EPA 904.0	10/28/2019 15:37	10/28/2019 15:38	RCW

Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	**4570**	D	mg/L	200	128	SW846 9056	10/17/2019 16:52	10/17/2019 16:52	CSC
Fluoride	**0.4**		mg/L	0.2	0.1	SW846 9056	10/17/2019 16:36	10/17/2019 16:36	CSC
Sulfate	**1680**	D	mg/L	50	25	SW846 9056	10/17/2019 16:36	10/17/2019 16:36	CSC

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ANALYTICAL RESULTS

Lab Sample ID: **9093427-04**
Description: **MW4**

Sample Collection Date Time: 10/01/2019 08:40
Sample Received Date Time: 10/02/2019 15:34

Metals by SW846 6000 Series Methods

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	V1, U	mg/L	0.005	0.002	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:15	DMH
Arsenic	ND	D2, U	mg/L	0.0100	0.0040	SW846-6020 A	10/04/2019 11:42	10/09/2019 14:49	DMH
Barium	**0.029**	D2, J	mg/L	0.040	0.010	SW846-6020 A	10/04/2019 11:42	10/09/2019 14:49	DMH
Beryllium	ND	D2, U	mg/L	0.0200	0.0100	SW846-6020 A	10/04/2019 11:42	10/09/2019 14:49	DMH
Boron	**1.75**	D2	mg/L	1.00	1.00	SW846 6010 B	10/04/2019 11:42	10/08/2019 17:47	AKB
Cadmium	ND	V1, U	mg/L	0.0010	0.0001	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:15	DMH
Calcium	**690**	D1	mg/L	40.0	13.0	SW846 6010 B	10/04/2019 11:42	10/08/2019 17:50	AKB
Chromium	ND	D2, U	mg/L	0.0200	0.0060	SW846-6020 A	10/04/2019 11:42	10/09/2019 14:49	DMH
Cobalt	ND	U	mg/L	0.004	0.004	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:15	DMH
Copper	ND	D2, U	mg/L	0.030	0.010	SW846-6020 A	10/04/2019 11:42	10/09/2019 14:49	DMH
Iron	ND	D2, L2, U	mg/L	1.00	0.500	SW846 6010 B	10/04/2019 11:42	10/08/2019 17:47	AKB
Lead	ND	V1, U	mg/L	0.002	0.0005	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:15	DMH
Lithium	ND	D2, V1, U	mg/L	0.20	0.05	SW846-6020 A	10/04/2019 11:42	10/09/2019 14:49	DMH
Mercury	**0.0004**	V1, J	mg/L	0.0005	0.0002	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:15	DMH
Molybdenum	ND	D2, U	mg/L	0.10	0.02	SW846-6020 A	10/04/2019 11:42	10/09/2019 14:49	DMH
Selenium	ND	U	mg/L	0.003	0.001	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:15	DMH
Sodium	**255**	D1	mg/L	26.0	10.0	SW846 6010 B	10/04/2019 11:42	10/09/2019 13:52	AKB
Thallium	ND	V1, U	mg/L	0.0020	0.0001	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:15	DMH

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chemical Oxygen Demand	**592**		mg/L	5	5	HACH 8000	10/03/2019 17:23	10/03/2019 17:23	HMF
Specific Conductance (Lab)	**5220**		umhos/cm	1	1	2510 B-2011	10/07/2019 14:42	10/07/2019 14:42	TLB
pH (Lab)	**7.36**	H3	Std. Units	0.10	0.10	4500-H+ B-2000	10/08/2019 12:59	10/08/2019 12:59	HMF
Total Dissolved Solids	**4820**	H1	mg/L	50	50	2540 C-2011	10/16/2019 14:24	10/17/2019 15:00	MAG
Total Organic Carbon	**0.5**		mg/L	0.5		5310 C-2011	10/07/2019 20:02	10/07/2019 20:02	TLB

Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	0.00	_Sub	pCi/L			EPA 903.1	10/28/2019 15:37	10/28/2019 15:38	RCW
Radium-228	0.00	_Sub	pCi/L			EPA 904.0	10/28/2019 15:37	10/28/2019 15:38	RCW

Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	**1910**	D	mg/L	100	64.0	SW846 9056	10/17/2019 17:25	10/17/2019 17:25	CSC
Fluoride	**0.2**		mg/L	0.2	0.1	SW846 9056	10/17/2019 17:09	10/17/2019 17:09	CSC
Sulfate	**2490**	D	mg/L	50	25	SW846 9056	10/17/2019 17:09	10/17/2019 17:09	CSC

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ANALYTICAL RESULTS

Lab Sample ID: **9093427-05**
Description: **MW5**

Sample Collection Date Time: 09/30/2019 13:55
Sample Received Date Time: 10/02/2019 15:34

Metals by SW846 6000 Series Methods

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	V1, U	mg/L	0.005	0.002	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:19	DMH
Arsenic	ND	D2, U	mg/L	0.0100	0.0040	SW846-6020 A	10/04/2019 11:42	10/09/2019 14:53	DMH
Barium	**0.016**	D2, J	mg/L	0.040	0.010	SW846-6020 A	10/04/2019 11:42	10/09/2019 14:53	DMH
Beryllium	ND	D2, U	mg/L	0.0200	0.0100	SW846-6020 A	10/04/2019 11:42	10/09/2019 14:53	DMH
Boron	ND	D2, U	mg/L	1.00	1.00	SW846 6010 B	10/04/2019 11:42	10/08/2019 17:53	AKB
Cadmium	ND	V1, U	mg/L	0.0010	0.0001	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:19	DMH
Calcium	**476**	D1	mg/L	40.0	13.0	SW846 6010 B	10/04/2019 11:42	10/08/2019 17:56	AKB
Chromium	**0.0033**		mg/L	0.0020	0.0006	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:19	DMH
Cobalt	ND	U	mg/L	0.004	0.004	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:19	DMH
Copper	ND	U	mg/L	0.003	0.001	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:19	DMH
Iron	ND	D2, L2, U	mg/L	1.00	0.500	SW846 6010 B	10/04/2019 11:42	10/08/2019 17:53	AKB
Lead	ND	V1, U	mg/L	0.002	0.0005	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:19	DMH
Lithium	**0.40**	D1	mg/L	0.20	0.05	SW846-6020 A	10/04/2019 11:42	10/10/2019 14:00	AKB
Mercury	ND	V1, U	mg/L	0.0005	0.0002	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:19	DMH
Molybdenum	ND	D2, U	mg/L	0.10	0.02	SW846-6020 A	10/04/2019 11:42	10/09/2019 14:53	DMH
Selenium	ND	U	mg/L	0.003	0.001	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:19	DMH
Sodium	**213**	D1	mg/L	26.0	10.0	SW846 6010 B	10/04/2019 11:42	10/09/2019 13:55	AKB
Thallium	ND	V1, U	mg/L	0.0020	0.0001	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:19	DMH

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chemical Oxygen Demand	**78**		mg/L	5	5	HACH 8000	10/03/2019 17:34	10/03/2019 17:34	HMF
Specific Conductance (Lab)	**5400**		umhos/cm	1	1	2510 B-2011	10/07/2019 14:43	10/07/2019 14:43	TLB
pH (Lab)	**7.41**	H3	Std. Units	0.10	0.10	4500-H+ B-2000	10/08/2019 13:00	10/08/2019 13:00	HMF
Total Dissolved Solids	**5320**	H1	mg/L	50	50	2540 C-2011	10/16/2019 14:28	10/17/2019 15:00	MAG
Total Organic Carbon	**0.5**		mg/L	0.5		5310 C-2011	10/07/2019 20:23	10/07/2019 20:23	TLB

Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	0.00	_Sub	pCi/L			EPA 903.1	10/28/2019 15:37	10/28/2019 15:38	RCW
Radium-228	0.00	_Sub	pCi/L			EPA 904.0	10/28/2019 15:37	10/28/2019 15:38	RCW

Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	**1500**	D	mg/L	100	64.0	SW846 9056	10/17/2019 17:58	10/17/2019 17:58	CSC
Fluoride	**0.2**		mg/L	0.2	0.1	SW846 9056	10/17/2019 17:41	10/17/2019 17:41	CSC
Sulfate	**2990**	D	mg/L	100	50	SW846 9056	10/17/2019 17:41	10/17/2019 17:41	CSC

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ANALYTICAL RESULTS

Lab Sample ID: **9093427-06**
Description: **MW2**

Sample Collection Date Time: 10/01/2019 14:55
Sample Received Date Time: 10/02/2019 15:34

Metals by SW846 6000 Series Methods

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	V1, U	mg/L	0.005	0.002	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:38	DMH
Arsenic	**0.0129**	D2	mg/L	0.0100	0.0040	SW846-6020 A	10/04/2019 11:42	10/09/2019 14:57	DMH
Barium	**0.380**	D2	mg/L	0.040	0.010	SW846-6020 A	10/04/2019 11:42	10/09/2019 14:57	DMH
Beryllium	ND	D2, U	mg/L	0.0200	0.0100	SW846-6020 A	10/04/2019 11:42	10/09/2019 14:57	DMH
Boron	ND	D2, U	mg/L	1.00	1.00	SW846 6010 B	10/04/2019 11:42	10/08/2019 17:59	AKB
Cadmium	ND	V1, U	mg/L	0.0010	0.0001	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:38	DMH
Calcium	**166**	D1	mg/L	40.0	13.0	SW846 6010 B	10/04/2019 11:42	10/08/2019 18:02	AKB
Chromium	ND	D2, U	mg/L	0.0200	0.0060	SW846-6020 A	10/04/2019 11:42	10/09/2019 14:57	DMH
Cobalt	ND	D2, U	mg/L	0.040	0.040	SW846-6020 A	10/04/2019 11:42	10/09/2019 14:57	DMH
Copper	ND	D2, U	mg/L	0.030	0.010	SW846-6020 A	10/04/2019 11:42	10/09/2019 14:57	DMH
Iron	**7.22**	D2	mg/L	1.00	0.500	SW846 6010 B	10/04/2019 11:42	10/09/2019 14:08	AKB
Lead	ND	V1, U	mg/L	0.002	0.0005	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:38	DMH
Lithium	ND	D2, V1, U	mg/L	0.20	0.05	SW846-6020 A	10/04/2019 11:42	10/09/2019 14:57	DMH
Mercury	ND	V1, U	mg/L	0.0005	0.0002	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:38	DMH
Molybdenum	**0.003**	J	mg/L	0.01	0.002	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:38	DMH
Selenium	ND	U	mg/L	0.003	0.001	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:38	DMH
Sodium	**57.0**	D2	mg/L	2.60	1.00	SW846 6010 B	10/04/2019 11:42	10/09/2019 14:08	AKB
Thallium	ND	V1, U	mg/L	0.0020	0.0001	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:38	DMH

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chemical Oxygen Demand	**17**		mg/L	5	5	HACH 8000	10/03/2019 17:23	10/03/2019 17:23	HMF
Specific Conductance (Lab)	**1460**		umhos/cm	1	1	2510 B-2011	10/07/2019 14:44	10/07/2019 14:44	TLB
pH (Lab)	**7.39**	H3	Std. Units	0.10	0.10	4500-H+ B-2000	10/08/2019 13:01	10/08/2019 13:01	HMF
Total Dissolved Solids	**930**	H1	mg/L	50	50	2540 C-2011	10/16/2019 14:32	10/17/2019 15:00	MAG
Total Organic Carbon	**0.9**		mg/L	0.5		5310 C-2011	10/07/2019 20:45	10/07/2019 20:45	TLB

Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	0.00	_Sub	pCi/L			EPA 903.1	10/28/2019 15:37	10/28/2019 15:38	RCW
Radium-228	0.00	_Sub	pCi/L			EPA 904.0	10/28/2019 15:37	10/28/2019 15:38	RCW

Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	**108**	D	mg/L	100	64.0	SW846 9056	10/17/2019 18:47	10/17/2019 18:47	CSC
Fluoride	**0.3**		mg/L	0.2	0.1	SW846 9056	10/17/2019 18:47	10/17/2019 18:47	CSC
Sulfate	**79**	D	mg/L	50	25	SW846 9056	10/17/2019 18:47	10/17/2019 18:47	CSC

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ANALYTICAL RESULTS

Lab Sample ID: **9093427-07**
Description: **DUPLICATE**

Sample Collection Date Time: 09/30/2019 14:15
Sample Received Date Time: 10/02/2019 15:34

Metals by SW846 6000 Series Methods

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	V1, U	mg/L	0.005	0.002	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:42	DMH
Arsenic	ND	D2, U	mg/L	0.0100	0.0040	SW846-6020 A	10/04/2019 11:42	10/09/2019 15:01	DMH
Barium	**0.016**	D2, J	mg/L	0.040	0.010	SW846-6020 A	10/04/2019 11:42	10/09/2019 15:01	DMH
Beryllium	ND	D2, U	mg/L	0.0200	0.0100	SW846-6020 A	10/04/2019 11:42	10/09/2019 15:01	DMH
Boron	ND	D2, U	mg/L	1.00	1.00	SW846 6010 B	10/04/2019 11:42	10/08/2019 18:06	AKB
Cadmium	ND	V1, U	mg/L	0.0010	0.0001	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:42	DMH
Calcium	**465**	D1	mg/L	40.0	13.0	SW846 6010 B	10/04/2019 11:42	10/08/2019 18:18	AKB
Chromium	ND	D2, U	mg/L	0.0200	0.0060	SW846-6020 A	10/04/2019 11:42	10/09/2019 15:01	DMH
Cobalt	ND	D2, U	mg/L	0.040	0.040	SW846-6020 A	10/04/2019 11:42	10/09/2019 15:01	DMH
Copper	ND	D2, U	mg/L	0.030	0.010	SW846-6020 A	10/04/2019 11:42	10/09/2019 15:01	DMH
Iron	ND	D2, L2, U	mg/L	1.00	0.500	SW846 6010 B	10/04/2019 11:42	10/08/2019 18:06	AKB
Lead	ND	V1, U	mg/L	0.002	0.0005	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:42	DMH
Lithium	**0.39**	D1	mg/L	0.20	0.05	SW846-6020 A	10/04/2019 11:42	10/10/2019 14:03	AKB
Mercury	ND	V1, U	mg/L	0.0005	0.0002	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:42	DMH
Molybdenum	ND	U	mg/L	0.01	0.002	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:42	DMH
Selenium	ND	U	mg/L	0.003	0.001	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:42	DMH
Sodium	**209**	D1	mg/L	26.0	10.0	SW846 6010 B	10/04/2019 11:42	10/09/2019 14:11	AKB
Thallium	ND	V1, U	mg/L	0.0020	0.0001	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:42	DMH

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chemical Oxygen Demand	**284**		mg/L	5	5	HACH 8000	10/03/2019 17:23	10/03/2019 17:23	HMF
Specific Conductance (Lab)	**5190**		umhos/cm	1	1	2510 B-2011	10/07/2019 14:45	10/07/2019 14:45	TLB
pH (Lab)	**7.45**	H3	Std. Units	0.10	0.10	4500-H+ B-2000	10/08/2019 13:02	10/08/2019 13:02	HMF
Total Dissolved Solids	**5260**	H1	mg/L	50	50	2540 C-2011	10/16/2019 14:36	10/17/2019 15:00	MAG
Total Organic Carbon	**0.5**		mg/L	0.5		5310 C-2011	10/07/2019 21:06	10/07/2019 21:06	TLB

Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	0.00	_Sub	pCi/L			EPA 903.1	10/28/2019 15:37	10/28/2019 15:38	RCW
Radium-228	0.00	_Sub	pCi/L			EPA 904.0	10/28/2019 15:37	10/28/2019 15:38	RCW

Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	**958**	D	mg/L	100	64.0	SW846 9056	10/17/2019 19:37	10/17/2019 19:37	CSC
Fluoride	**0.2**		mg/L	0.2	0.1	SW846 9056	10/17/2019 19:20	10/17/2019 19:20	CSC
Sulfate	**2310**	D	mg/L	50	25	SW846 9056	10/17/2019 19:20	10/17/2019 19:20	CSC

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ANALYTICAL RESULTS

Lab Sample ID: **9093427-08**
Description: **FIELD BLANK**

Sample Collection Date Time: 10/01/2019 14:55
Sample Received Date Time: 10/02/2019 15:34

Metals by SW846 6000 Series Methods

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	V1, U	mg/L	0.005	0.002	SW846-6020 A	10/04/2019 11:42	10/09/2019 15:04	DMH
Arsenic	ND	U	mg/L	0.0010	0.0004	SW846-6020 A	10/04/2019 11:42	10/09/2019 15:04	DMH
Barium	ND	U	mg/L	0.004	0.001	SW846-6020 A	10/04/2019 11:42	10/09/2019 15:04	DMH
Beryllium	ND	U	mg/L	0.0020	0.0010	SW846-6020 A	10/04/2019 11:42	10/09/2019 15:04	DMH
Boron	ND	U	mg/L	0.10	0.10	SW846 6010 B	10/04/2019 11:42	10/08/2019 18:21	AKB
Cadmium	ND	V1, U	mg/L	0.0010	0.0001	SW846-6020 A	10/04/2019 11:42	10/09/2019 15:04	DMH
Calcium	ND	U	mg/L	0.40	0.13	SW846 6010 B	10/04/2019 11:42	10/08/2019 18:21	AKB
Chromium	ND	U	mg/L	0.0020	0.0006	SW846-6020 A	10/04/2019 11:42	10/09/2019 15:04	DMH
Cobalt	ND	U	mg/L	0.004	0.004	SW846-6020 A	10/04/2019 11:42	10/09/2019 15:04	DMH
Copper	ND	U	mg/L	0.003	0.001	SW846-6020 A	10/04/2019 11:42	10/09/2019 15:04	DMH
Iron	ND	L2, U	mg/L	0.100	0.050	SW846 6010 B	10/04/2019 11:42	10/08/2019 18:21	AKB
Lead	ND	V1, U	mg/L	0.002	0.0005	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:46	DMH
Lithium	ND	V1, U	mg/L	0.02	0.005	SW846-6020 A	10/04/2019 11:42	10/09/2019 15:04	DMH
Mercury	ND	U	mg/L	0.0005	0.0002	SW846-6020 A	10/04/2019 11:42	10/09/2019 15:04	DMH
Molybdenum	ND	U	mg/L	0.01	0.002	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:46	DMH
Selenium	ND	U	mg/L	0.003	0.001	SW846-6020 A	10/04/2019 11:42	10/08/2019 17:46	DMH
Sodium	ND	V1, U	mg/L	0.26	0.10	SW846 6010 B	10/04/2019 11:42	10/08/2019 18:21	AKB
Thallium	**0.0003**	V1, J	mg/L	0.0020	0.0001	SW846-6020 A	10/04/2019 11:42	10/09/2019 15:04	DMH

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chemical Oxygen Demand	ND	U	mg/L	5	5	HACH 8000	10/03/2019 17:24	10/03/2019 17:24	HMF
Specific Conductance (Lab)	**2**		umhos/cm	1	1	2510 B-2011	10/07/2019 14:46	10/07/2019 14:46	TLB
pH (Lab)	**7.01**	H3	Std. Units	0.10	0.10	4500-H+ B-2000	10/08/2019 13:03	10/08/2019 13:03	HMF
Total Dissolved Solids	ND	H1, U	mg/L	25	25	2540 C-2011	10/25/2019 14:24	10/28/2019 14:06	MAG
Total Organic Carbon	ND	U	mg/L	0.5		5310 C-2011	10/07/2019 21:28	10/07/2019 21:28	TLB

Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	0.00	_Sub	pCi/L			EPA 903.1	10/28/2019 15:37	10/28/2019 15:38	RCW
Radium-228	0.00	_Sub	pCi/L			EPA 904.0	10/28/2019 15:37	10/28/2019 15:38	RCW

Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	ND	M1, U	mg/L	2.0	1.3	SW846 9056	10/17/2019 19:53	10/17/2019 19:53	CSC
Fluoride	ND	M1, U	mg/L	0.2	0.1	SW846 9056	10/17/2019 19:53	10/17/2019 19:53	CSC
Sulfate	ND	D, M1, U	mg/L	50	25	SW846 9056	10/17/2019 20:09	10/17/2019 20:09	CSC

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Notes for work order 9093427

- Samples collected by MMLI personnel are done so in accordance with procedures set forth in MMLI field services SOPs.
- Results contained in this report are only representative of the samples received.
- MMLI 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.
H1	Sample analysis performed past holding time.
H3	Sample received and analyzed past holding time.
J	Estimated value.
L2	The associated blank spike recovery was below method acceptance limits.
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.
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.

Standard Quallifiers/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

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Certified Analyses included in this Report

Analyte	Certifications
2510 B-2011 in Water	
Specific Conductance (Lab)	KY Drinking Water Mdv (00030)
2540 C-2011 in Water	
Total Dissolved Solids	KY Drinking Water Mdv (00030)
4500-H+ B-2000 in Water	
pH (Lab)	KY Drinking Water Mdv (00030) TN Drinking Water (02819)
5310 C-2011 in Water	
Total Organic Carbon	KY Drinking Water Mdv (00030)
HACH 8000 in Water	
Chemical Oxygen Demand	KY Wastewater Mdv (00030)
SW846 6010 B in Water	

Sample Acceptance Checklist for Work Order 9093427

Shipped By: Client

Temperature: 2.10° Celcius

Condition	
Check if Custody Seals are Present/Intact	☐
Check if Custody Signatures are Present	☑
Check if Collector Signature Present	☑
Check if bottles are intact	☑
Check if bottles are correct	☑
Check if bottles have sufficient volume	☑
Check if samples received on ice	☑
Check if VOA headspace is acceptable	☐
Check if samples received in holding time.	☑
Check if samples are preserved properly	☑

McCoy & McCoy Laboratories, Inc.
A PACE Analytical Laboratory
P.O. Box 907
Madisonville, KY 42431

Chain of Custody

Scheduled for: 09/23/2019

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#: 252828-12
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 _____ End Time _____ Temp (oC) _____

Effluent: Start Date _____ Start time _____ End Date _____ End Time _____ Temp (oC) _____

MMLI USE ONLY Workorder # 9093427 Sample ID#	*required information* Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
9093427-01 A	9/30/19	1056	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 : ✓				
9093427-01 B	9/30/19	1056	Plastic 1L	1	MW1	g / c	pH (Lab) Conductivity (Lab) TDS Sulfate 9056 Chloride 9056 Fluoride 9056
9093427-01 C	9/30/19	1056	Plastic 500mL pH<2 w/H2SO4	1	MW1	g / c	COD TOC
			Preservation Check: pH : ✓				
9093427-01 D	9/30/19	1056	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1	MW1	g / c	Radium 226 (sub)
			Preservation Check: pH : ✓				
9093427-01 E	9/30/19	1056	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW1	g / c	Radium 228 (sub)
			Preservation Check: pH : ✓				

Preservation Check Performed by: AL

Field data collected by: Phillip Hill Date (mm/dd/yy) 9/30/19 Time (24 hr) 1056

pH 7.28 Cond (umhos) 0.884mS Res Cl (mg/L) _____ Tot Cl (mg/L) _____ Free Cl (mg/L) _____

Temp (oC) 18.91 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)
	2.1°c	10/2/19	1534

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Chain of Custody

Scheduled for: 09/23/2019

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#: 252828-12
Quote# _____

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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) _____

MMLI USE ONLY ***required information***
Workorder # 9093427

Sample ID#	Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
9093427-01 F	9/30/19	1056	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub) **Preservation Check: pH :** J	1	MW1	g / c	Radium 228 (sub)
9093427-01 G	9/30/19	1056	AG 250mL pH<2 w/H2SO4 **Preservation Check: pH :** J	1	MW1	g / c	TOC
9093427-02 A	9/30/19	1225	Plastic 500mL pH<2 w/HNO3 **Preservation Check: pH :** J	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
9093427-02 B	9/30/19	1225	Plastic 1L	1	MW6	g / c	pH (Lab) Conductivity (Lab) TDS Sulfate 9056 Chloride 9056 Fluoride 9056
9093427-02 C	9/30/19	1225	Plastic 500mL pH<2 w/H2SO4 **Preservation Check: pH :** J	1	MW6	g / c	COD TOC

Preservation Check Performed by: AL

Field data collected by: Phillip Hill Date (mm/dd/yy) 9/30/19 Time (24 hr) 1225

MW6 pH 6.46 Cond (~~umhos~~) 5.10mS Res Cl (mg/L) _____ Tot Cl (mg/L) _____ Free Cl (mg/L) _____

Temp (oC) 20.60 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)
		10/2/19	1534

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Chain of Custody

Scheduled for: 09/23/2019

Client: Big Rivers Electric Corporation
Reid/Green Station

Project: Green Landfill Semiannual Groundwater

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Chad Phillips
PO Box 24
Henderson, KY 42419

Phone: (270) 844-6000
PWS ID#:
State: KY

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Henderson, KY 42419

PO#: 252828-12
Quote# _____

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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) _____

MMLI USE ONLY **Workorder # 9093427**

Sample ID#	Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
9093427-02 D	9/30/19	1225	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub) **Preservation Check: pH :** ✓	1	MW6	g / c	Radium 226 (sub)
9093427-02 E	9/30/19	1225	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub) **Preservation Check: pH :** ✓	1	MW6	g / c	Radium 228 (sub)
9093427-02 F	9/30/19	1225	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub) **Preservation Check: pH :** ✓	1	MW6	g / c	Radium 228 (sub)
9093427-02 G	9/30/19	1225	AG 250mL pH<2 w/H2SO4 **Preservation Check: pH :** ✓	1	MW6	g / c	TOC
9093427-03 A	10/1/19	1320	Plastic 500mL pH<2 w/HNO3 **Preservation Check: pH :** ____	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 Performed by: AV

MW6
Field data collected by: Phillip Hill Date (mm/dd/yy) 9/30/19 Time (24 hr) 1225

pH 6.46 Cond (~~umhos~~) 5.10 mS Res Cl (mg/L) _____ Tot Cl (mg/L) _____ Free Cl (mg/L) _____

Temp (oC) 20.60 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)
		10/2/19	1534

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Chain of Custody

Scheduled for: 09/23/2019

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Project: Green Landfill Semiannual Groundwater

Report To:
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Chad Phillips
PO Box 24
Henderson, KY 42419
Phone: (270) 844-6000
PWS ID#:
State: KY

Invoice To:
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Chad Phillips
PO Box 24
Henderson, KY 42419
PO#: 2528828-12
Quote# _____

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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) _____

MMLI USE ONLY Workorder # 9093427 Sample ID#	*required information* Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
9093427-03 B	10/1/19	1320	Plastic 1L	1	MW3A	g / c	pH (Lab) Conductivity (Lab) TDS Sulfate 9056 Chloride 9056 Fluoride 9056
9093427-03 C	10/1/19	1320	Plastic 500mL pH<2 w/H2SO4 Preservation Check: pH : ✓	1	MW3A	g / c	COD TOC
9093427-03 D	10/1/19	1320	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub) Preservation Check: pH : ✓	1	MW3A	g / c	Radium 226 (sub)
9093427-03 E	10/1/19	1320	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub) Preservation Check: pH : ✓	1	MW3A	g / c	Radium 228 (sub)
9093427-03 F	10/1/19	1320	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub) Preservation Check: pH : ✓	1	MW3A	g / c	Radium 228 (sub)
9093427-03 G	10/1/19	1320	AG 250mL pH<2 w/H2SO4 Preservation Check: pH : ✓	1	MW3A	g / c	TOC

Preservation Check Performed by: AL

Field data collected by: Philip Hill Date (mm/dd/yy) 10/1/19 Time (24 hr) 1320

MW3A pH 6.59 Cond ~~(umho)~~ 8.96mS Res Cl (mg/L) _____ Tot Cl (mg/L) _____ Free Cl (mg/L) _____

Temp (oC) 17.34 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)
		10/2/19	1534

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Madisonville, KY 42431

Chain of Custody

Scheduled for: 09/23/2019

Client: Big Rivers Electric Corporation Reid/Green Station

Project: Green Landfill Semiannual Groundwater

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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#: 252828-12
Quote# _____

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Collected by (Signature): D. Mott
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) _____

MMLI USE ONLY ***required information***

Workorder # 9093427

Sample ID#	Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
9093427-04 A	10/1/19	840	Plastic 500mL pH<2 w/HNO3	1	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
			Preservation Check: pH : J				
9093427-04 B	10/1/19	840	Plastic 1L	1	MW4	g / c	pH (Lab) Conductivity (Lab) TDS Sulfate 9056 Chloride 9056 Fluoride 9056
9093427-04 C	10/1/19	840	Plastic 500mL pH<2 w/H2SO4	1	MW4	g / c	COD TOC
			Preservation Check: pH : J				
9093427-04 D	10/1/19	840	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1	MW4	g / c	Radium 226 (sub)
			Preservation Check: pH : J				
9093427-04 E	10/1/19	840	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW4	g / c	Radium 228 (sub)
			Preservation Check: pH : J				

Preservation Check Performed by: AL

Field data collected by: Phillip Hill Date (mm/dd/yy) 10/1/19 Time (24 hr) 840

MW4
pH 6.52 Cond (~~umho~~) 6.23mS Res Cl (mg/L) _____ Tot Cl (mg/L) _____ Free Cl (mg/L) _____

Temp (oC) 16.70 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)
D. Mott		10/2/19	1534

☐ **MMLI - Check here if trip charge applied to associated COC**

Printed: 9/24/2019 9:08:08AM

McCoy & McCoy Laboratories, Inc.
A PACE Analytical Laboratory
P.O. Box 907
Madisonville, KY 42431

Chain of Custody

Scheduled for: 09/23/2019

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#: 252828-12
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 _____ End Time _____ Temp (oC) _____

Effluent: Start Date _____ Start time _____ End Date _____ End Time _____ Temp (oC) _____

MMLI USE ONLY Workorder # 9093427 Sample ID#	*required information* Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
9093427-04 F	10/1/19	840	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub) Preservation Check: pH : J	1	MW4	g / c	Radium 228 (sub)
9093427-04 G	10/1/19	840	AG 250mL pH<2 w/H2SO4 Preservation Check: pH : J	1	MW4	g / c	TOC
9093427-05 A	9/30/19	1355	Plastic 500mL pH<2 w/HNO3 Preservation Check: pH : J	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
9093427-05 B	9/30/19	1355	Plastic 1L	1	MW5	g / c	pH (Lab) Conductivity (Lab) TDS Sulfate 9056 Chloride 9056 Fluoride 9056
9093427-05 C	9/30/19	1355	Plastic 500mL pH<2 w/H2SO4 Preservation Check: pH : J	1	MW5	g / c	COD TOC

Preservation Check Performed by: AL

Field data collected by: Phillip Hill Date (mm/dd/yy) 9/30/19 Time (24 hr) 1355

MW5
pH 6.49 Cond (~~umhos~~) 6.22mS Res Cl (mg/L) _____ Tot Cl (mg/L) _____ Free Cl (mg/L) _____

Temp (oC) 17.10 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)
		10/2/19	1534

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A PACE Analytical Laboratory
P.O. Box 907
Madisonville, KY 42431

Chain of Custody

Scheduled for: 09/23/2019

Client: Big Rivers Electric Corporation
Reid/Green Station

Project: Green Landfill Semiannual Groundwater

Report To:
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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#: 252828-12
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 _____ End Time _____ Temp (oC) _____

Effluent: Start Date _____ Start time _____ End Date _____ End Time _____ Temp (oC) _____

MMLI USE ONLY ***required information***
Workorder # 9093427

Sample ID#	Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
9093427-05 D	9/30/19	1355	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub) **Preservation Check: pH :** ✓	1	MW5	g / c	Radium 226 (sub)
9093427-05 E	9/30/19	1355	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub) **Preservation Check: pH :** ✓	1	MW5	g / c	Radium 228 (sub)
9093427-05 F	9/30/19	1355	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub) **Preservation Check: pH :** ✓	1	MW5	g / c	Radium 228 (sub)
9093427-05 G	9/30/19	1355	AG 250mL pH<2 w/H2SO4 **Preservation Check: pH :** ✓	1	MW5	g / c	TOC
9093427-06 A	10/1/19	1455	Plastic 500mL pH<2 w/HNO3 **Preservation Check: pH :** ____	1	MW62	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: AL

Field data collected by: Phillip Hill Date (mm/dd/yy) 9/30/19 Time (24 hr) 1355

pH (MW5) 6.49 Cond (~~umhos~~) 6.22 mS Res Cl (mg/L) _____ Tot Cl (mg/L) _____ Free Cl (mg/L) _____

Temp (oC) 17.10 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)
		10/2/19	1534

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A PACE Analytical Laboratory
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Madisonville, KY 42431

Chain of Custody

Scheduled for: 09/23/2019

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Project: Green Landfill Semiannual Groundwater

Report To:
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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#: 252828-12
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 _____ End Time _____ Temp (oC) _____

Effluent: Start Date _____ Start time _____ End Date _____ End Time _____ Temp (oC) _____

MMLI USE ONLY ***required information***
Workorder # 9093427

Sample ID#	Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
9093427-06 B	10/1/19	1455	Plastic 1L	1	MW#2	g / c	pH (Lab) Conductivity (Lab) TDS Sulfate 9056 Chloride 9056 Fluoride 9056
9093427-06 C	10/1/19	1455	Plastic 500mL pH<2 w/H2SO4 Preservation Check: pH : ✓	1	MW#2	g / c	COD TOC
9093427-06 D	10/1/19	1455	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub) Preservation Check: pH : ✓	1	MW#2	g / c	Radium 226 (sub)
9093427-06 E	10/1/19	1455	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub) Preservation Check: pH : ✓	1	MW#2	g / c	Radium 228 (sub)
9093427-06 F	10/1/19	1455	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub) Preservation Check: pH : ✓	1	MW#2	g / c	Radium 228 (sub)
9093427-06 G	10/1/19	1455	AG 250mL pH<2 w/H2SO4 Preservation Check: pH : ✓	1	MW#2	g / c	TOC

Preservation Check Performed by: AV

Field data collected by: Phillip Hill Date (mm/dd/yy) 10/1/19 Time (24 hr) 1455

MW2
pH 6.62 Cond (~~umho~~) 1.72mS Res Cl (mg/L) _____ Tot Cl (mg/L) _____ Free Cl (mg/L) _____

Temp (oC) 19.16 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)
		10/2/19	1534

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McCoy & McCoy Laboratories, Inc.
A PACE Analytical Laboratory
P.O. Box 907
Madisonville, KY 42431

Chain of Custody

Scheduled for: 09/23/2019

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#: 252828-12
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 _____ End Time _____ Temp (oC) _____

Effluent: Start Date _____ Start time _____ End Date _____ End Time _____ Temp (oC) _____

MMLI USE ONLY **Workorder # 9093427**

Sample ID#	*required information* Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
9093427-07 A	9/30/19	1415	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 : ✓				
9093427-07 B	9/30/19	1415	Plastic 1L	1	DUPLICATE	g / c	pH (Lab) Conductivity (Lab) TDS Sulfate 9056 Chloride 9056 Fluoride 9056
9093427-07 C	9/30/19	1415	Plastic 500mL pH<2 w/H2SO4	1	DUPLICATE	g / c	COD TOC
			Preservation Check: pH : ✓				
9093427-07 D	9/30/19	1415	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1	DUPLICATE	g / c	Radium 226 (sub)
			Preservation Check: pH : ✓				
9093427-07 E	9/30/19	1415	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	DUPLICATE	g / c	Radium 228 (sub)
			Preservation Check: pH : ✓				

Preservation Check Performed by: AL

Field data collected by: Phillip Hill Date (mm/dd/yy) 9/30/19 Time (24 hr) 1415

pH Dup. 6.49 Cond ~~(umho)~~ 6.22mS Res Cl (mg/L) _____ Tot Cl (mg/L) _____ Free Cl (mg/L) _____

Temp (oC) 17.10 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)
		10/2/19	1534

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Madisonville, KY 42431

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Scheduled for: 09/23/2019

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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#: 252828-12
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 _____ End Time _____ Temp (oC) _____

Effluent: Start Date _____ Start time _____ End Date _____ End Time _____ Temp (oC) _____

MMLI USE ONLY Workorder # 9093427 Sample ID#	*required information* Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
9093427-07 F	9/30/19	1415	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub) Preservation Check: pH : ✓	1	DUPLICATE	g / c	Radium 228 (sub)
9093427-07 G	9/30/19	1415	AG 250mL pH<2 w/H2SO4 Preservation Check: pH : ✓	1	DUPLICATE	g / c	TOC
9093427-08 A	10/1/19	1520	Plastic 500mL pH<2 w/HNO3 Preservation Check: pH : ✓	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
9093427-08 B	10/1/19	1520	Plastic 1L	1	FIELD BLANK	g / c	pH (Lab) Conductivity (Lab) TDS Sulfate 9056 Chloride 9056 Fluoride 9056
9093427-08 C	10/1/19	1520	Plastic 500mL pH<2 w/H2SO4 Preservation Check: pH : ✓	1	FIELD BLANK	g / c	COD TOC

Preservation Check Performed by: AN

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)
		10/2/19	1534

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A PACE Analytical Laboratory
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Madisonville, KY 42431

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Scheduled for: 09/23/2019

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Chad Phillips
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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#: 252828-12
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 _____ End Time _____ Temp (oC) _____

Effluent: Start Date _____ Start time _____ End Date _____ End Time _____ Temp (oC) _____

MMLI USE ONLY ***required information***
Workorder # 9093427

Sample ID#	Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
9093427-08 D	10/1/19	1455	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub) **Preservation Check: pH :** ✓	1	FIELD BLANK	g / c	Radium 226 (sub)
9093427-08 E	10/1/19	1455	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub) **Preservation Check: pH :** ✓	1	FIELD BLANK	g / c	Radium 228 (sub)
9093427-08 F	10/1/19	1453	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub) **Preservation Check: pH :** ✓	1	FIELD BLANK	g / c	Radium 228 (sub)
9093427-08 G	10/1/19	1455	AG 250mL pH<2 w/H2SO4 **Preservation Check: pH :** ✓	1	FIELD BLANK	g / c	TOC
~~9093427-08 A~~			~~Plastic 500ml pH<2 w/HNO3~~ **Preservation Check: pH :** ____		~~MW-104~~	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 Antimony Tot 6020 Lead Tot 6020 Lithium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Selenium Tot 6020~~

Preservation Check Performed by: _____

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)
		10/2/19	1534

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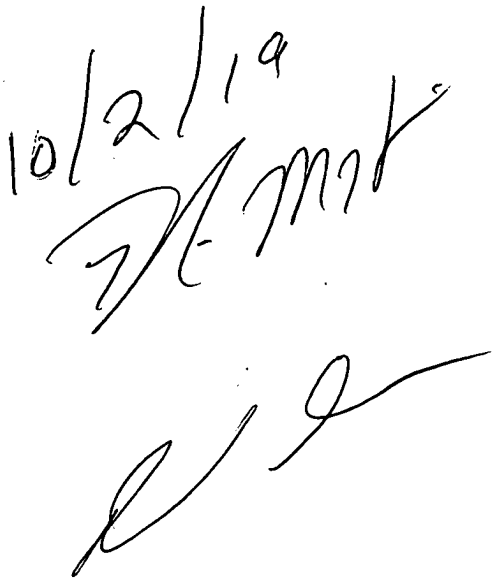
Printed: 9/24/2019 9:08:08AM

10-2-2019

Green Landfill 40 CFR 257 Constituent List:

Appendix III to Part 257
Boron
Calcium
Chloride
Fluoride
pH
Sulfate
Total Dissolved Solids (TDS)

Appendix IV to Part 257
Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium
Cobalt
Fluoride
Lead
Lithium
Mercury
Molybdenum
Selenium
Thallium
Radium 226 & 228 combined



10-2-2019

Green Landfill:

401 KAR 45:160 (Kentucky Semi-Annual) Constituent List:

Antimony, Total
Arsenic, Total
Barium, Total
Beryllium, Total
Boron
Cadmium, Total
Calcium, Total
Chemical Oxygen Demand
Chloride
Chromium, Total
Cobalt, Total
Copper, Total
Fluoride, Total
Iron, Total
Lead, Total
Lithium, Total
Mercury, Total
Molybdenum, Total
pH
Selenium, Total
Sodium, Total
Specific Conductance
Sulfate, Total
Thallium, Total
Temperature
Total Organic Carbon
Total Dissolved Solids
Radium 226 & 228 combined, Total

10/2/19

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

October 25, 2019

Archie Fugate
Pace Analytical Madisonville
825 Industrial Rd
Madisonville, KY 42431

RE: Project: 9093427
Pace Project No.: 30328059

Dear Archie Fugate:
Enclosed are the analytical results for sample(s) received by the laboratory on October 04, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carin A. Ferris

Carin Ferris
carin.ferris@pacelabs.com
724-850-5615
Project Manager

Enclosures

cc: Angela Deal, Pace Analytical Madisonville
Doug Wolfe, Pace Analytical Madisonville

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Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

CERTIFICATIONS

Project: 9093427
Pace Project No.: 30328059

Pennsylvania Certification IDs

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 #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

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Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

SAMPLE SUMMARY

Project: 9093427
Pace Project No.: 30328059

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30328059001	**9093427-01**	Drinking Water	09/30/19 10:56	10/04/19 09:30
30328059002	**9093427-02**	Drinking Water	09/30/19 12:25	10/04/19 09:30
30328059003	**9093427-03**	Drinking Water	10/01/19 13:20	10/04/19 09:30
30328059004	**9093427-04**	Drinking Water	10/01/19 08:40	10/04/19 09:30
30328059005	**9093427-05**	Drinking Water	09/30/19 13:55	10/04/19 09:30
30328059006	**9093427-06**	Drinking Water	10/01/19 14:55	10/04/19 09:30
30328059007	**9093427-07**	Drinking Water	09/30/19 14:15	10/04/19 09:30
30328059008	**9093427-08**	Drinking Water	10/01/19 15:20	10/04/19 09:30

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Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

SAMPLE ANALYTE COUNT

Project: 9093427
Pace Project No.: 30328059

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30328059001	**9093427-01**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30328059002	**9093427-02**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30328059003	**9093427-03**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30328059004	**9093427-04**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30328059005	**9093427-05**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30328059006	**9093427-06**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30328059007	**9093427-07**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30328059008	**9093427-08**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA

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1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 9093427
Pace Project No.: 30328059

Sample: 9093427-01 **Lab ID: 30328059001** Collected: 09/30/19 10:56 Received: 10/04/19 09:30 Matrix: Drinking Water
PWS: Site ID: Sample Type:

Comments: • Sample collection dates and times were not present on the sample containers.
• 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.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.0555 ± 0.392 (0.782) C:NA T:78%**	pCi/L	10/22/19 13:59	13982-63-3	
Radium-228	EPA 904.0	**0.131 ± 0.328 (0.733) C:80% T:85%**	pCi/L	10/17/19 10:50	15262-20-1	

Sample: 9093427-02 **Lab ID: 30328059002** Collected: 09/30/19 12:25 Received: 10/04/19 09:30 Matrix: Drinking Water
PWS: Site ID: Sample Type:

Comments: • Sample collection dates and times were not present on the sample containers.
• 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.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.100 ± 0.139 (0.136) C:NA T:90%**	pCi/L	10/22/19 13:59	13982-63-3	
Radium-228	EPA 904.0	**0.141 ± 0.372 (0.834) C:76% T:83%**	pCi/L	10/17/19 10:50	15262-20-1	

Sample: 9093427-03 **Lab ID: 30328059003** Collected: 10/01/19 13:20 Received: 10/04/19 09:30 Matrix: Drinking Water
PWS: Site ID: Sample Type:

Comments: • Sample collection dates and times were not present on the sample containers.
• 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.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**1.28 ± 0.501 (0.139) C:NA T:90%**	pCi/L	10/22/19 13:59	13982-63-3	
Radium-228	EPA 904.0	**0.365 ± 0.350 (0.734) C:80% T:87%**	pCi/L	10/17/19 10:50	15262-20-1	

Sample: 9093427-04 **Lab ID: 30328059004** Collected: 10/01/19 08:40 Received: 10/04/19 09:30 Matrix: Drinking Water
PWS: Site ID: Sample Type:

Comments: • Sample collection dates and times were not present on the sample containers.
• 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.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.874 ± 0.446 (0.451) C:NA T:86%**	pCi/L	10/22/19 13:59	13982-63-3	
Radium-228	EPA 904.0	**1.09 ± 0.440 (0.804) C:74% T:88%**	pCi/L	10/17/19 10:51	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 9093427
Pace Project No.: 30328059

Sample: 9093427-05 **Lab ID: 30328059005** Collected: 09/30/19 13:55 Received: 10/04/19 09:30 Matrix: Drinking Water
PWS: Site ID: Sample Type:

Comments: • Sample collection dates and times were not present on the sample containers.
• 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.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.300 ± 0.277 (0.368) C:NA T:86%**	pCi/L	10/22/19 13:59	13982-63-3	
Radium-228	EPA 904.0	**0.956 ± 0.402 (0.730) C:78% T:83%**	pCi/L	10/17/19 10:51	15262-20-1	

Sample: 9093427-06 **Lab ID: 30328059006** Collected: 10/01/19 14:55 Received: 10/04/19 09:30 Matrix: Drinking Water
PWS: Site ID: Sample Type:

Comments: • Sample collection dates and times were not present on the sample containers.
• 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.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.459 ± 0.387 (0.548) C:NA T:92%**	pCi/L	10/22/19 13:59	13982-63-3	
Radium-228	EPA 904.0	**0.662 ± 0.363 (0.698) C:78% T:84%**	pCi/L	10/17/19 10:51	15262-20-1	

Sample: 9093427-07 **Lab ID: 30328059007** Collected: 09/30/19 14:15 Received: 10/04/19 09:30 Matrix: Drinking Water
PWS: Site ID: Sample Type:

Comments: • Sample collection dates and times were not present on the sample containers.
• 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.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.482 ± 0.400 (0.578) C:NA T:91%**	pCi/L	10/22/19 13:59	13982-63-3	
Radium-228	EPA 904.0	**0.724 ± 0.368 (0.697) C:77% T:85%**	pCi/L	10/17/19 10:51	15262-20-1	

Sample: 9093427-08 **Lab ID: 30328059008** Collected: 10/01/19 15:20 Received: 10/04/19 09:30 Matrix: Drinking Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.167 ± 0.189 (0.151) C:NA T:79%**	pCi/L	10/22/19 14:13	13982-63-3	
Radium-228	EPA 904.0	**0.473 ± 0.468 (0.988) C:77% T:75%**	pCi/L	10/17/19 10:51	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 9093427
Pace Project No.: 30328059

QC Batch: 365007 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 30328059001, 30328059002, 30328059003, 30328059004, 30328059005, 30328059006, 30328059007, 30328059008

METHOD BLANK: 1770540 Matrix: Water
Associated Lab Samples: 30328059001, 30328059002, 30328059003, 30328059004, 30328059005, 30328059006, 30328059007, 30328059008

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.000 ± 0.217 (0.487) C:NA T:77%	pCi/L	10/22/19 13:59	

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: 9093427
Pace Project No.: 30328059

QC Batch: 365428 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 30328059001, 30328059002, 30328059003, 30328059004, 30328059005, 30328059006, 30328059007, 30328059008

METHOD BLANK: 1772404 Matrix: Water
Associated Lab Samples: 30328059001, 30328059002, 30328059003, 30328059004, 30328059005, 30328059006, 30328059007, 30328059008

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.449 ± 0.395 (0.797) C:76% T:77%	pCi/L	10/17/19 10:53	

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.

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Greensburg, PA 15601
(724)850-5600

QUALIFIERS

Project: 9093427
Pace Project No.: 30328059

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.

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.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

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Chain of Custody

Pace Analytical
www.pacelabs.com

Workorder: 9093427 Workorder Name: Big Rivers Electric Owner Received Date: 10/2/2019 Results Requested By: E-mail

Report To	Subcontract To
McCoy & McCoy Laboratoies P. O. Box 907 Madisonville, KY 42431 Phone: (270) 821 - 7375 rob@mccoylabs.com	Pace Analytical Greensburg 1638 Rosey Town Rd Suite 2,3,4 Greensburg PA 15601 Phone: (724) 850-5615

WO# : 30328059

30328059

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preservatives: HNO3						Radium 226	Radium 228							LAB USE ONLY
1																				
2	9093427-01	Grab	9/30/19 1056	IR44-McCoy	DW	X						X	X							CE1
3	9093427-02	Grab	9/30/19 1225			X						X	X							CE2
4	9093427-03	Grab	10/1/19 1320			X						X	X							CE3
5	9093427-04	Grab	10/1/19 0840			X						X	X							CE4
6	9093427-05	Grab	9/30/19 1355			X						X	X							CE5
7	9093427-06	Grab	10/1/19 1455			X						X	X							CE6
8	9093427-07	Grab	9/30/19 1415			X						X	X							CE7
9	9093427-08	Grab	10/1/19 1520			X						X	X							CE8
10																				

Transfers	Released By	Date/Time	Received By	Date/Time	Comments
1	Joe Gray	10/3/2019		10-4-19 9:30	
2		14:00			
3					

Cooler Temperature on Receipt 2.5 °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.

SUBCONTRACT ORDER

McCoy & McCoy Laboratories, Inc.

9093427

SENDING LABORATORY:

McCoy & McCoy Laboratories, Inc.
PO BOX 907
Madisonville, KY 42431
Phone: (270) 821-7375
Fax: 844-270-7904
Project Manager: Rob Whittington

303280 59

RECEIVING LABORATORY:

Pace Analytical Services LLC Greensburg PA
1638 Rosey Town Rd Suite 2,3,4
Greensburg, PA 15601
Phone: (724) 850-5615
Fax:

Please return shipping cooler to return address on shipping label.

Analysis		Expires	Laboratory ID	Comments
Sample ID: 9093427-01	**Water**	**Sampled:09/30/2019 10:56**	**Specific Method**	
Radium 228 (sub)		03/28/2020 10:56	EPA 904.0	
Radium 226 (sub)		03/28/2020 10:56	EPA 903.1	
Sample ID: 9093427-02	**Water**	**Sampled:09/30/2019 12:25**	**Specific Method**	
Radium 226 (sub)		03/28/2020 12:25	EPA 903.1	
Radium 228 (sub)		03/28/2020 12:25	EPA 904.0	
Sample ID: 9093427-03	**Water**	**Sampled:10/01/2019 13:20**	**Specific Method**	
Radium 226 (sub)		03/29/2020 13:20	EPA 903.1	
Radium 228 (sub)		03/29/2020 13:20	EPA 904.0	
Sample ID: 9093427-04	**Water**	**Sampled:10/01/2019 08:40**	**Specific Method**	
Radium 228 (sub)		03/29/2020 08:40	EPA 904.0	
Radium 226 (sub)		03/29/2020 08:40	EPA 903.1	
Sample ID: 9093427-05	**Water**	**Sampled:09/30/2019 13:55**	**Specific Method**	
Radium 228 (sub)		03/28/2020 13:55	EPA 904.0	
Radium 226 (sub)		03/28/2020 13:55	EPA 903.1	
Sample ID: 9093427-06	**Water**	**Sampled:10/01/2019 14:55**	**Specific Method**	
Radium 226 (sub)		03/29/2020 14:55	EPA 903.1	
Radium 228 (sub)		03/29/2020 14:55	EPA 904.0	
Sample ID: 9093427-07	**Water**	**Sampled:09/30/2019 14:15**	**Specific Method**	
Radium 226 (sub)		03/28/2020 14:15	EPA 903.1	
Radium 228 (sub)		03/28/2020 14:15	EPA 904.0	

Released By	Date	Received By	Date
	10-3-19		10-4-19 9:30
Released By	Date	Received By	Date

SUBCONTRACT ORDER

McCoy & McCoy Laboratories, Inc.

9093427

Analysis		Expires	Laboratory ID	Comments
Sample ID: 9093427-08	**Water**	**Sampled:10/01/2019 15:20**	**Specific Method**	
Radium 228 (sub)		03/29/2020 15:20	EPA 904.0	
Radium 226 (sub)		03/29/2020 15:20	EPA 903.1	

#_30328059

Released By	Date	Received By	Date
	10-3-19		10-4-19 9:30
Released By	Date	Received By	Date

Pittsburgh Lab Sample Condition Upon Receipt

Pace Analytical

Client Name: McCoy & McCoy

Project # 30328059

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Label DLC

LIMS Login VM

Tracking #: 1107 3585 7982

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Thermometer Used 9 Type of Ice: (Wet) Blue None

Cooler Temperature Observed Temp 2.5 °C Correction Factor: 0 °C Final Temp: 2.5 °C

Temp should be above freezing to 6°C

pH paper Lot# 160358 Date and Initials of person examining contents: DLC 10-4-19

Comments:	Yes	No	N/A	
Chain of Custody Present:	✓			1.
Chain of Custody Filled Out:	✓			2.
Chain of Custody Relinquished:	✓			3.
Sampler Name & Signature on COC:		✓		4.
Sample Labels match COC: -Includes date/time/ID Matrix: NW		✓		5. No time/date on all samples
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 sample field filtered			✓	13.
Organic Samples checked for dechlorination:			✓	14.
Filtered volume received for Dissolved tests			✓	15.
All containers have been checked for preservation. exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix	✓			16. added 2.5mL NMy to all samples
All containers meet method preservation requirements.		✓		Initial when completed DLC Date/time of preservation 10-4-19 17:52
				Lot # of added preservative DL19-1062
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: DLC Date: 10-4-19

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.

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Lexington, KY 859.299.7775
Paducah, KY 270.444.6547

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Certificate of Analysis
9104094

Chad Phillips
Big Rivers Electric Corporation Reid/Green Station
PO Box 24
Henderson KY, 42419

Customer ID: 44-102032
Report Printed: 11/22/2019 16:37

Project Name:	Green Landfill Semiannual Groundwater	Workorder:	9104094

Dear Chad Phillips

Enclosed are the analytical results for samples received at one of our laboratories on 10/25/2019 15:00.

McCoy & McCoy Laboratories, Inc. is a commercial laboratory accredited by various state and national authorities, including Indiana, Kentucky, Tennessee, and Virginia's National Environmental Laboratory Accreditation Program (NELAP). With the NELAP accreditation, applicable test results are certified to meet the requirements of the National Environmental Laboratory Accreditation Program.

If you have any questions concerning this report please contact the individual listed below.

Please visit our website at www.mccoylabs.com for a listing of the NELAP accreditations and Scope of Work, as well as, links to other scientific organizations.

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ACCREDITED IN ACCORDANCE WITH nelac
#460210
Madisonville

Rob Whittington, Project Manager

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

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SAMPLE SUMMARY

Lab ID	Client Sample ID/Alias	Matrix	Date Collected	Date Received	Sampled By
9104094-01	MW-104/	Groundwater	10/25/2019 13:20	10/25/2019 15:00	Phillip Hill

LabNumber	Measurement	Value
9104094-01	Field Conductance	9410
	Field pH	6.86
	Field Temp (C)	16.06

Work Order Comments:

Total Radium 1.65 +/- 0.847 pCi/L

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Farmersburg, IN 812.696.5076
Lexington, KY 859.299.7775
Paducah, KY 270.444.6547

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ANALYTICAL RESULTS

Lab Sample ID: **9104094-01**
Description: **MW-104**

Sample Collection Date Time: 10/25/2019 13:20
Sample Received Date Time: 10/25/2019 15:00

Metals by SW846 6000 Series Methods

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	U	mg/L	0.005	0.002	SW846-6020 A	10/28/2019 13:53	10/31/2019 12:42	DMH
Arsenic	**0.0039**		mg/L	0.0010	0.0004	SW846-6020 A	10/28/2019 13:53	10/31/2019 12:42	DMH
Barium	**0.030**		mg/L	0.004	0.001	SW846-6020 A	10/28/2019 13:53	10/31/2019 12:42	DMH
Beryllium	ND	U	mg/L	0.0020	0.0010	SW846-6020 A	10/28/2019 13:53	10/31/2019 12:42	DMH
Boron	ND	D2, U	mg/L	1.00	1.00	SW846 6010 B	10/28/2019 13:53	10/31/2019 14:58	AKB
Cadmium	**0.0004**	J	mg/L	0.0010	0.0001	SW846-6020 A	10/28/2019 13:53	10/31/2019 12:42	DMH
Calcium	**505**	D1	mg/L	40.0	13.0	SW846 6010 B	10/28/2019 13:53	10/31/2019 15:01	AKB
Chromium	**0.0066**		mg/L	0.0020	0.0006	SW846-6020 A	10/28/2019 13:53	10/31/2019 12:42	DMH
Cobalt	**0.011**		mg/L	0.004	0.004	SW846-6020 A	10/28/2019 13:53	10/31/2019 12:42	DMH
Copper	**0.004**		mg/L	0.003	0.001	SW846-6020 A	10/28/2019 13:53	10/31/2019 12:42	DMH
Iron	**4.99**	D2	mg/L	1.00	0.500	SW846 6010 B	10/28/2019 13:53	10/31/2019 14:58	AKB
Lead	**0.003**		mg/L	0.002	0.0005	SW846-6020 A	10/28/2019 13:53	10/31/2019 12:42	DMH
Lithium	**0.02**		mg/L	0.02	0.005	SW846-6020 A	10/28/2019 13:53	10/31/2019 12:42	DMH
Mercury	ND	U	mg/L	0.0005	0.0002	SW846-6020 A	10/28/2019 13:53	10/31/2019 12:42	DMH
Molybdenum	**0.005**	J	mg/L	0.01	0.002	SW846-6020 A	10/28/2019 13:53	10/31/2019 12:42	DMH
Selenium	ND	U	mg/L	0.003	0.001	SW846-6020 A	10/28/2019 13:53	10/31/2019 12:42	DMH
Sodium	**834**	D1	mg/L	26.0	10.0	SW846 6010 B	10/28/2019 13:53	10/31/2019 15:01	AKB
Thallium	ND	U	mg/L	0.0020	0.0001	SW846-6020 A	10/28/2019 13:53	10/31/2019 12:42	DMH

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chemical Oxygen Demand	**106**		mg/L	5	5	HACH 8000	11/16/2019 08:06	11/16/2019 09:40	HMF
Specific Conductance (Lab)	**7740**		umhos/cm	1	1	2510 B-2011	11/04/2019 16:36	11/04/2019 16:36	HMF
pH (Lab)	**7.03**	H3	Std. Units	0.10	0.10	4500-H+ B-2000	10/28/2019 15:06	10/28/2019 15:06	HMF
Total Dissolved Solids	**7330**		mg/L	50	50	2540 C-2011	10/29/2019 15:08	10/30/2019 14:32	MAG
Total Organic Carbon	ND	D, U	mg/L	5.0		5310 C-2011	11/07/2019 13:50	11/12/2019 17:21	HMF

Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	**0.126**	_Sub	pCi/L			EPA 903.1	11/20/2019 13:38	11/20/2019 13:39	RCW
Radium-228	**1.52**	_Sub	pCi/L			EPA 904.0	11/20/2019 13:38	11/20/2019 13:39	RCW

Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	**1610**	D	mg/L	100	64.0	SW846 9056	11/01/2019 00:58	11/01/2019 00:58	CSC
Fluoride	**0.4**		mg/L	0.2	0.1	SW846 9056	11/01/2019 00:58	11/01/2019 00:58	CSC
Sulfate	**2440**	D	mg/L	50	25	SW846 9056	11/01/2019 00:58	11/01/2019 00:58	CSC

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A Pace Analytical Laboratory

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270.821.7375
www.mccoylabs.com

Pikeville, KY 606.432.3104
Farmersburg, IN 812.696.5076
Lexington, KY 859.299.7775
Paducah, KY 270.444.6547

Notes for work order 9104094

- Samples collected by MMLI personnel are done so in accordance with procedures set forth in MMLI field services SOPs.
- Results contained in this report are only representative of the samples received.
- MMLI 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.
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).
Y1	Sample RPD exceeded the method control limit.

Standard Quallifiers/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

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Lexington, KY 859.299.7775
Paducah, KY 270.444.6547

"Providing Tomorrow's Analytical Capabilities Today"

Certified Analyses included in this Report

Analyte	Certifications
2510 B-2011 in Water	
Specific Conductance (Lab)	KY Drinking Water Mdv (00030)
2540 C-2011 in Water	
Total Dissolved Solids	KY Drinking Water Mdv (00030)
4500-H+ B-2000 in Water	
pH (Lab)	KY Drinking Water Mdv (00030) TN Drinking Water (02819)
5310 C-2011 in Water	
Total Organic Carbon	KY Drinking Water Mdv (00030)
HACH 8000 in Water	
Chemical Oxygen Demand	KY Wastewater Mdv (00030)
SW846 6010 B in Water	

Sample Acceptance Checklist for Work Order 9104094

Shipped By: Client

Temperature: 1.90° Celcius

Condition	
Check if Custody Seals are Present/Intact	☐
Check if Custody Signatures are Present	☑
Check if Collector Signature Present	☑
Check if bottles are intact	☑
Check if bottles are correct	☑
Check if bottles have sufficient volume	☑
Check if samples received on ice	☑
Check if VOA headspace is acceptable	☐
Check if samples received in holding time.	☑
Check if samples are preserved properly	☑

McCoy & McCoy Laboratories, Inc.
A PACE Analytical Laboratory
P.O. Box 907
Madisonville, KY 42431

Chain of Custody

Scheduled for: 09/23/2019

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 Statior
Chad Phillips
PO Box 24
Henderson, KY 42419
PO#: 252828-16
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 _____ End Time _____ Temp (oC) _____

Effluent: Start Date _____ Start time _____ End Date _____ End Time _____ Temp (oC) _____

MMLI USE ONLY Workorder # 9093427 Sample ID#	*required information* Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
9093427-09 B	10/25/19	1320	Plastic 1L	1	MW-104	g / c	pH (Lab) TDS Sulfate 9056 Chloride 9056 Fluoride 9056
9093427-09 C	10/25/19	1320	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub) Preservation Check: pH : J	1	MW-104	g / c	Radium 226 (sub)
9093427-09 D	10/25/19	1320	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub) Preservation Check: pH : J	1	MW-104	g / c	Radium 228 (sub)
9093427-09 E	10/25/19	1320	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub) Preservation Check: pH : J	1	MW-104	g / c	Radium 228 (sub)
9093427-09 A	10/25/19	1320	Plastic 500mL pH<2 w/HNO3 Preservation Check: pH : J	1	MW-104	g / c	Beryllium Tot 6020 Cadmium 6020 Calcium Tot 6010B Bar 6020 Chromium Tot 6020 C 6020 Arsenic Tot 6020 Bor 6010B Antimony Tot 6020 6020 Lithium Tot 6020 Me 6020 Molybdenum Tot 60 Selenium Tot 6020

9104094

Preservation Check Performed by: AM

Field data collected by: Phillip Hill Date (mm/dd/yy) 10/25/19 Time (24 hr) 1320

pH 6.86 Cond ~~mS/cm~~ µS/cm 9.41 Res Cl (mg/L) _____ Tot Cl (mg/L) _____ Free Cl (mg/L) ___

Temp (oC) 16.06 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)

☐ MMLI - Check here if trip charge applied to associated COC

Printed: 9/24/2019 9:08:08AM

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

November 20, 2019

Rob Whittington
Pace Analytical Madisonville
825 Industrial Rd
Madisonville, KY 42431

RE: Project: 9104094
Pace Project No.: 30332990

Dear Rob Whittington:
Enclosed are the analytical results for sample(s) received by the laboratory on October 31, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carin A. Ferris

Carin Ferris
carin.ferris@pacelabs.com
724-850-5615
Project Manager

Enclosures

cc: Doug Wolfe, Pace Analytical Madisonville

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Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

CERTIFICATIONS

Project: 9104094
Pace Project No.: 30332990

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 #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

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Greensburg, PA 15601
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SAMPLE SUMMARY

Project: 9104094
Pace Project No.: 30332990

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30332990001	**9104094-01**	Water	10/25/19 13:20	10/31/19 09:20

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SAMPLE ANALYTE COUNT

Project: 9104094
Pace Project No.: 30332990

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30332990001	**9104094-01**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 9104094
Pace Project No.: 30332990

Sample: 9104094-01 **Lab ID: 30332990001** Collected: 10/25/19 13:20 Received: 10/31/19 09:20 Matrix: Water
PWS: Site ID: Sample Type:

Comments:
- Sample collection dates and times were not present on the sample containers.
- 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
Radium-226	EPA 903.1	**0.126 ± 0.348 (0.676) C:NA T:94%**	pCi/L	11/19/19 11:38	13982-63-3	
Radium-228	EPA 904.0	**1.52 ± 0.499 (0.627) C:77% T:88%**	pCi/L	11/18/19 16:32	15262-20-1	
Total Radium	Total Radium Calculation	**1.65 ± 0.847 (1.30)**	pCi/L	11/20/19 10:31	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 9104094
Pace Project No.: 30332990

QC Batch: 369296 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 30332990001

METHOD BLANK: 1791661 Matrix: Water
Associated Lab Samples: 30332990001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.762 ± 0.392 (0.681) C:76% T:86%	pCi/L	11/18/19 12:54	

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: 9104094
Pace Project No.: 30332990

QC Batch: 369295 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 30332990001

METHOD BLANK: 1791660 Matrix: Water
Associated Lab Samples: 30332990001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.153 ± 0.361 (0.668) C:NA T:95%	pCi/L	11/19/19 11:02	

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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Greensburg, PA 15601
(724)850-5600

QUALIFIERS

Project: 9104094
Pace Project No.: 30332990

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.

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.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

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Chain of Custody

Pace Analytical
www.pacelabs.com

Workorder: 9104094 Workorder Name: Big Rivers Electric Owner Received Date: 10/25/2019 Results Requested By: E-mail

Report To	Subcontract To	Requested Analysis
McCoy & McCoy Laboratoies P. O. Box 907 Madisonville, KY 42431 Phone: (270) 821 - 7375 rob@mccoylabs.com	Pace Analytical Greensburg 1638 Rosey Town Rd Suite 2,3,4 Greensburg PA 15601 Phone: (724) 850-5615	

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers HNO3	Radium 226	Radium 228	LAB USE ONLY
1									
2	9104094-01	Grab	10/25/19 1320	IR44-McCoy	Water	X	X	X	CC1
3									
4									
5									
6									
7									
8									
9									
10									

WO# : 30332990
30332990

Transfers	Released By	Date/Time	Received By	Date/Time	Comments
1	Joe Gray	10/30/2019		10-31-19 9:20	
2		14:00			
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.

SUBCONTRACT ORDER

McCoy & McCoy Laboratories, Inc.

9104094

SENDING LABORATORY:

McCoy & McCoy Laboratories, Inc.
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:

Please return shipping cooler to return address on shipping label.

Analysis		Expires	Laboratory ID	Comments
Sample ID: 9104094-01	**Water**	**Sampled: 10/25/2019 13:20**	**Specific Method**	
Radium 228 (sub)		04/22/2020 13:20	EPA 904.0	
Radium 226 (sub)		04/22/2020 13:20	EPA 903.1	

#30332990

Released By	Date	Received By	Date
Released By	Date	Received By	Date

Pittsburgh Lab Sample Condition Upon Receipt

Pace Analytical

Client Name: McCoy & McCoy Project #: #30332990

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Label: DK
LIMS Login: DK

Tracking #: 6374 5579 0341

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Thermometer Used: 9 Type of Ice: (Wet) Blue None

Cooler Temperature Observed Temp: 2.1 °C Correction Factor: 0 °C Final Temp: 2.1 °C

Temp should be above freezing to 6°C

pH paper Lot#: 10104281 Date and Initials of person examining contents: DK 10-31-19

Comments:	Yes	No	N/A	
Chain of Custody Present:	✓			1.
Chain of Custody Filled Out:	✓			2.
Chain of Custody Relinquished:	✓			3.
Sampler Name & Signature on COC:		✓		4.
Sample Labels match COC: -Includes date/time/ID Matrix: WT		✓		5. No time/date on all samples
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 sample field filtered			✓	13.
Organic Samples checked for dechlorination:			✓	14.
Filtered volume received for Dissolved tests			✓	15.
All containers have been checked for preservation. exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix	✓			16. added 2.5 mL HNO3 to all samples
All containers meet method preservation requirements.		✓		Initial when completed: DK Date/time of preservation: 10-31-19 20:54 Lot # of added preservative: DLI9-1062
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: DK Date: 10-31-19

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.

Appendix G

Green Surface Impoundment Analytical Laboratory Reports

GREEN SURFACE IMPOUNDMENT
ANALYTICAL LABORATORY REPORTS

eurofins | Environment Testing TestAmerica



ANALYTICAL REPORT

Eurofins TestAmerica, Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Tel: (615)726-0177

Laboratory Job ID: 490-173153-1
Laboratory SDG: Sebree Station, Green Landfill
Client Project/Site: Green Ash Pond, 1st Semi-Annual 2019
Sampling Event: Big Rivers CCR/SemiAnnual GW

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

Attn: Greg Dick

Roxanne Cisneros

Authorized for release by:
5/14/2019 10:55:20 AM

Roxanne Cisneros, Senior Project Manager
(615)301-5761
roxanne.cisneros@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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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Sample Summary

Client: Big Rivers Electric Corporation
Project/Site: Green Ash Pond, 1st Semi-Annual 2019

Job ID: 490-173153-1
SDG: Sebree Station, Green Landfill

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-173153-1	MW-11	Ground Water	04/29/19 09:58	05/02/19 09:30
490-173153-2	MW-12	Ground Water	04/29/19 15:10	05/02/19 09:30
490-173153-3	MW-13	Ground Water	04/29/19 12:50	05/02/19 09:30
490-173153-4	MW-14	Ground Water	04/29/19 11:45	05/02/19 09:30
490-173153-5	FIELD BLANK	Ground Water	04/29/19 15:25	05/02/19 09:30
490-173153-6	DUPE	Ground Water	04/29/19 10:15	05/02/19 09:30

Job ID: 490-173153-1

Laboratory: Eurofins TestAmerica, Nashville

Narrative

Job Narrative
490-173153-1

Comments
No additional comments.

Receipt
The samples were received on 5/2/2019 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.6º C.

HPLC/IC
Method(s) 9056A: The method blank for analytical batch 490-592520 contained Sulfate above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and_or re-analysis of samples was not performed.

Method(s) 9056A: The method blank for analytical batch 490-592520 contained Sulfate and Chloride above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and_or re-analysis of samples was not performed.

Method(s) 9056A: Due to the high concentration of Chloride and Sulfate, the matrix spike / matrix spike duplicate (MS/MSD) for analytical batch 490-592520 could not be evaluated for accuracy and precision. The associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) met acceptance criteria.

Method(s) 9056A: The following samples were diluted due to the nature of the sample matrix: MW-11 (490-173153-1), MW-13 (490-173153-3), MW-14 (490-173153-4) and DUPE (490-173153-6). 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.

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

General Chemistry
Method(s) SM 2540C: The method blank for analytical batch 490-591865 contained Total Dissolved Solids above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

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

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

Definitions/Glossary

Client: Big Rivers Electric Corporation
Project/Site: Green Ash Pond, 1st Semi-Annual 2019

Job ID: 490-173153-1
SDG: Sebree Station, Green Landfill

Qualifiers

HPLC/IC

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.
B	Compound was found in the blank and sample.
E	Result exceeded calibration range.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

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
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

Client Sample Results

Client: Big Rivers Electric Corporation
Project/Site: Green Ash Pond, 1st Semi-Annual 2019

Job ID: 490-173153-1
SDG: Sebree Station, Green Landfill

Client Sample ID: MW-11

Date Collected: 04/29/19 09:58
Date Received: 05/02/19 09:30

Lab Sample ID: 490-173153-1

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1900		150	10.0	mg/L			05/13/19 12:26	50
Fluoride	0.227	J	1.00	0.0100	mg/L			05/03/19 14:01	1
Sulfate	949	B	250	1.50	mg/L			05/13/19 12:26	50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.717		0.0800	0.0303	mg/L		05/07/19 11:49	05/09/19 17:02	1
Calcium	345		0.500	0.116	mg/L		05/07/19 11:49	05/09/19 17:02	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.11		0.100	0.100	SU			05/07/19 11:49	1
Temperature	22.3		0.100	0.100	Degrees C			05/07/19 11:49	1
Total Dissolved Solids	4890	B	100	28.0	mg/L			05/06/19 13:05	1

Client Sample Results

Client: Big Rivers Electric Corporation
Project/Site: Green Ash Pond, 1st Semi-Annual 2019

Job ID: 490-173153-1
SDG: Sebree Station, Green Landfill

Client Sample ID: MW-12

Date Collected: 04/29/19 15:10
Date Received: 05/02/19 09:30

Lab Sample ID: 490-173153-2

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	15.1		3.00	0.200	mg/L			05/03/19 14:36	1
Fluoride	0.428	J	1.00	0.0100	mg/L			05/03/19 14:36	1
Sulfate	11.9	B	5.00	0.0300	mg/L			05/03/19 14:36	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.290		0.0800	0.0303	mg/L		05/07/19 11:49	05/09/19 17:13	1
Calcium	93.1		0.500	0.116	mg/L		05/07/19 11:49	05/09/19 17:13	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.36		0.100	0.100	SU			05/07/19 11:49	1
Temperature	22.3		0.100	0.100	Degrees C			05/07/19 11:49	1
Total Dissolved Solids	618	B	25.0	7.00	mg/L			05/06/19 13:05	1

Client Sample Results

Client: Big Rivers Electric Corporation
Project/Site: Green Ash Pond, 1st Semi-Annual 2019

Job ID: 490-173153-1
SDG: Sebree Station, Green Landfill

Client Sample ID: MW-13

Date Collected: 04/29/19 12:50
Date Received: 05/02/19 09:30

Lab Sample ID: 490-173153-3

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	24.4		3.00	0.200	mg/L			05/03/19 14:47	1
Fluoride	0.271	J	1.00	0.0100	mg/L			05/03/19 14:47	1
Sulfate	98.6	B	25.0	0.150	mg/L			05/13/19 12:49	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.0392	J	0.0800	0.0303	mg/L		05/07/19 11:49	05/09/19 17:16	1
Calcium	95.1		0.500	0.116	mg/L		05/07/19 11:49	05/09/19 17:16	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.94		0.100	0.100	SU			05/07/19 11:49	1
Temperature	22.4		0.100	0.100	Degrees C			05/07/19 11:49	1
Total Dissolved Solids	711	B	25.0	7.00	mg/L			05/06/19 13:05	1

Client Sample Results

Client: Big Rivers Electric Corporation
Project/Site: Green Ash Pond, 1st Semi-Annual 2019

Job ID: 490-173153-1
SDG: Sebree Station, Green Landfill

Client Sample ID: MW-14

Date Collected: 04/29/19 11:45
Date Received: 05/02/19 09:30

Lab Sample ID: 490-173153-4

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	165		30.0	2.00	mg/L			05/13/19 13:01	10
Fluoride	0.342	J	1.00	0.0100	mg/L			05/03/19 14:59	1
Sulfate	222	B	50.0	0.300	mg/L			05/13/19 13:01	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.206		0.0800	0.0303	mg/L		05/07/19 11:49	05/09/19 17:19	1
Calcium	206		0.500	0.116	mg/L		05/07/19 11:49	05/09/19 17:19	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.05		0.100	0.100	SU			05/07/19 11:49	1
Temperature	22.5		0.100	0.100	Degrees C			05/07/19 11:49	1
Total Dissolved Solids	1180	B	25.0	7.00	mg/L			05/06/19 13:05	1

Client Sample Results

Client: Big Rivers Electric Corporation
Project/Site: Green Ash Pond, 1st Semi-Annual 2019

Job ID: 490-173153-1
SDG: Sebree Station, Green Landfill

Client Sample ID: FIELD BLANK

Date Collected: 04/29/19 15:25
Date Received: 05/02/19 09:30

Lab Sample ID: 490-173153-5

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	0.200	mg/L			05/03/19 15:11	1
Fluoride	**0.0185**	**J**	1.00	0.0100	mg/L			05/03/19 15:11	1
Sulfate	**0.176**	**J B**	5.00	0.0300	mg/L			05/03/19 15:11	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.0800	0.0303	mg/L		05/07/19 11:49	05/09/19 17:23	1
Calcium	ND		0.500	0.116	mg/L		05/07/19 11:49	05/09/19 17:23	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.70**		0.100	0.100	SU			05/07/19 11:49	1
Temperature	**22.6**		0.100	0.100	Degrees C			05/07/19 11:49	1
Total Dissolved Solids	ND		25.0	7.00	mg/L			05/06/19 13:05	1

Client Sample Results

Client: Big Rivers Electric Corporation
Project/Site: Green Ash Pond, 1st Semi-Annual 2019

Job ID: 490-173153-1
SDG: Sebree Station, Green Landfill

Client Sample ID: DUPE

Date Collected: 04/29/19 10:15
Date Received: 05/02/19 09:30

Lab Sample ID: 490-173153-6

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1900		150	10.0	mg/L			05/13/19 13:12	50
Fluoride	0.222	J	1.00	0.0100	mg/L			05/03/19 15:22	1
Sulfate	913	B	250	1.50	mg/L			05/13/19 13:12	50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.686		0.0800	0.0303	mg/L		05/07/19 11:49	05/09/19 17:26	1
Calcium	341		0.500	0.116	mg/L		05/07/19 11:49	05/09/19 17:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.09		0.100	0.100	SU			05/07/19 11:49	1
Temperature	22.6		0.100	0.100	Degrees C			05/07/19 11:49	1
Total Dissolved Solids	4880	B	100	28.0	mg/L			05/06/19 13:05	1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 490-592520/3
Matrix: Water
Analysis Batch: 592520

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	0.200	mg/L			05/03/19 13:26	1
Fluoride	ND		1.00	0.0100	mg/L			05/03/19 13:26	1
Sulfate	0.1897	J	5.00	0.0300	mg/L			05/03/19 13:26	1

Lab Sample ID: LCS 490-592520/4
Matrix: Water
Analysis Batch: 592520

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.908		mg/L		99	80 - 120
Fluoride	1.00	0.9266	J	mg/L		93	80 - 120
Sulfate	10.0	9.369		mg/L		94	80 - 120

Lab Sample ID: LCSD 490-592520/5
Matrix: Water
Analysis Batch: 592520

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.750		mg/L		97	80 - 120	2	20
Fluoride	1.00	0.9336	J	mg/L		93	80 - 120	1	20
Sulfate	10.0	9.372		mg/L		94	80 - 120	0	20

Lab Sample ID: 490-173153-1 MS
Matrix: Ground Water
Analysis Batch: 592520

Client Sample ID: MW-11
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	399	E	10.0	399.1	E 4	mg/L		-2	80 - 120
Fluoride	0.227	J	1.00	1.149		mg/L		92	80 - 120
Sulfate	391	E B	10.0	389.3	E 4	mg/L		-12	80 - 120

Lab Sample ID: 490-173153-1 MSD
Matrix: Ground Water
Analysis Batch: 592520

Client Sample ID: MW-11
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	399	E	10.0	399.8	E 4	mg/L		5	80 - 120	0	20
Fluoride	0.227	J	1.00	1.137		mg/L		91	80 - 120	1	20
Sulfate	391	E B	10.0	389.6	E 4	mg/L		-9	80 - 120	0	20

Lab Sample ID: MB 490-594555/3
Matrix: Water
Analysis Batch: 594555

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	0.200	mg/L			05/13/19 11:51	1
Sulfate	0.1487	J	5.00	0.0300	mg/L			05/13/19 11:51	1

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 490-594555/4
Matrix: Water
Analysis Batch: 594555

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.479		mg/L		95	80 - 120
Sulfate	10.0	9.333		mg/L		93	80 - 120

Lab Sample ID: LCSD 490-594555/5
Matrix: Water
Analysis Batch: 594555

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.483		mg/L		95	80 - 120	0	20
Sulfate	10.0	9.492		mg/L		95	80 - 120	2	20

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 180-277991/1-A
Matrix: Water
Analysis Batch: 278337

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 277991

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.0800	0.0303	mg/L		05/07/19 11:49	05/09/19 16:18	1
Calcium	ND		0.500	0.116	mg/L		05/07/19 11:49	05/09/19 16:18	1

Lab Sample ID: LCS 180-277991/2-A
Matrix: Water
Analysis Batch: 278337

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 277991

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1.25	1.182		mg/L		95	80 - 120
Calcium	25.0	26.64		mg/L		107	80 - 120

Lab Sample ID: 180-89666-B-1-B MS
Matrix: Water
Analysis Batch: 278337

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 277991

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	ND		1.25	1.256		mg/L		100	75 - 125
Calcium	1.33		25.0	27.97		mg/L		107	75 - 125

Lab Sample ID: 180-89666-B-1-C MSD
Matrix: Water
Analysis Batch: 278337

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 277991

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron	ND		1.25	1.259		mg/L		101	75 - 125	0	20
Calcium	1.33		25.0	27.19		mg/L		103	75 - 125	3	20

Method: 9040C - pH

Lab Sample ID: LCS 490-593132/1
Matrix: Water
Analysis Batch: 593132

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
pH			7.00	7.070		SU		101	98 - 103		

Lab Sample ID: 490-173053-D-13 DU
Matrix: Water
Analysis Batch: 593132

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	7.25			7.250		SU				0	20
Temperature	22.2			22.20		Degrees C				0	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: LB 490-592563/1-A
Matrix: Water
Analysis Batch: 591865

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

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		25.0	7.00	mg/L			05/06/19 13:05	1

Lab Sample ID: MB 490-591865/1
Matrix: Water
Analysis Batch: 591865

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	8.000	J	25.0	7.00	mg/L			05/06/19 13:05	1

Lab Sample ID: LCS 490-591865/2
Matrix: Water
Analysis Batch: 591865

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			100	110.0		mg/L		110	90 - 110		

Lab Sample ID: 490-173153-6 DU
Matrix: Ground Water
Analysis Batch: 591865

Client Sample ID: DUPE
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	4880	B		4892		mg/L				0.3	20

Lab Sample ID: 440-239500-A-8-I DU
Matrix: Water
Analysis Batch: 591865

Client Sample ID: Duplicate
Prep Type: ASTM Leach

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	88.0	B		103.0		mg/L				16	20

HPLC/IC

Analysis Batch: 592520

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-173153-1	MW-11	Total/NA	Ground Water	9056A	
490-173153-2	MW-12	Total/NA	Ground Water	9056A	
490-173153-3	MW-13	Total/NA	Ground Water	9056A	
490-173153-4	MW-14	Total/NA	Ground Water	9056A	
490-173153-5	FIELD BLANK	Total/NA	Ground Water	9056A	
490-173153-6	DUPE	Total/NA	Ground Water	9056A	
MB 490-592520/3	Method Blank	Total/NA	Water	9056A	
LCS 490-592520/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-592520/5	Lab Control Sample Dup	Total/NA	Water	9056A	
490-173153-1 MS	MW-11	Total/NA	Ground Water	9056A	
490-173153-1 MSD	MW-11	Total/NA	Ground Water	9056A	

Analysis Batch: 594555

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-173153-1	MW-11	Total/NA	Ground Water	9056A	
490-173153-3	MW-13	Total/NA	Ground Water	9056A	
490-173153-4	MW-14	Total/NA	Ground Water	9056A	
490-173153-6	DUPE	Total/NA	Ground Water	9056A	
MB 490-594555/3	Method Blank	Total/NA	Water	9056A	
LCS 490-594555/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-594555/5	Lab Control Sample Dup	Total/NA	Water	9056A	

Metals

Prep Batch: 277991

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-173153-1	MW-11	Total Recoverable	Ground Water	3005A	
490-173153-2	MW-12	Total Recoverable	Ground Water	3005A	
490-173153-3	MW-13	Total Recoverable	Ground Water	3005A	
490-173153-4	MW-14	Total Recoverable	Ground Water	3005A	
490-173153-5	FIELD BLANK	Total Recoverable	Ground Water	3005A	
490-173153-6	DUPE	Total Recoverable	Ground Water	3005A	
MB 180-277991/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-277991/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-89666-B-1-B MS	Matrix Spike	Total Recoverable	Water	3005A	
180-89666-B-1-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	3005A	

Analysis Batch: 278337

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-173153-1	MW-11	Total Recoverable	Ground Water	6020A	277991
490-173153-2	MW-12	Total Recoverable	Ground Water	6020A	277991
490-173153-3	MW-13	Total Recoverable	Ground Water	6020A	277991
490-173153-4	MW-14	Total Recoverable	Ground Water	6020A	277991
490-173153-5	FIELD BLANK	Total Recoverable	Ground Water	6020A	277991
490-173153-6	DUPE	Total Recoverable	Ground Water	6020A	277991
MB 180-277991/1-A	Method Blank	Total Recoverable	Water	6020A	277991
LCS 180-277991/2-A	Lab Control Sample	Total Recoverable	Water	6020A	277991
180-89666-B-1-B MS	Matrix Spike	Total Recoverable	Water	6020A	277991
180-89666-B-1-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	6020A	277991

QC Association Summary

Client: Big Rivers Electric Corporation
Project/Site: Green Ash Pond, 1st Semi-Annual 2019

Job ID: 490-173153-1
SDG: Sebree Station, Green Landfill

General Chemistry

Analysis Batch: 591865

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-173153-1	MW-11	Total/NA	Ground Water	SM 2540C	
490-173153-2	MW-12	Total/NA	Ground Water	SM 2540C	
490-173153-3	MW-13	Total/NA	Ground Water	SM 2540C	
490-173153-4	MW-14	Total/NA	Ground Water	SM 2540C	
490-173153-5	FIELD BLANK	Total/NA	Ground Water	SM 2540C	
490-173153-6	DUPE	Total/NA	Ground Water	SM 2540C	
LB 490-592563/1-A	Method Blank	Total/NA	Water	SM 2540C	592563
MB 490-591865/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 490-591865/2	Lab Control Sample	Total/NA	Water	SM 2540C	
440-239500-A-8-I DU	Duplicate	ASTM Leach	Water	SM 2540C	592563
490-173153-6 DU	DUPE	Total/NA	Ground Water	SM 2540C	

Leach Batch: 592563

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LB 490-592563/1-A	Method Blank	Total/NA	Water	D3987-85	
440-239500-A-8-I DU	Duplicate	ASTM Leach	Water	D3987-85	

Analysis Batch: 593132

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-173153-1	MW-11	Total/NA	Ground Water	9040C	
490-173153-2	MW-12	Total/NA	Ground Water	9040C	
490-173153-3	MW-13	Total/NA	Ground Water	9040C	
490-173153-4	MW-14	Total/NA	Ground Water	9040C	
490-173153-5	FIELD BLANK	Total/NA	Ground Water	9040C	
490-173153-6	DUPE	Total/NA	Ground Water	9040C	
LCS 490-593132/1	Lab Control Sample	Total/NA	Water	9040C	
490-173053-D-13 DU	Duplicate	Total/NA	Water	9040C	

Lab Chronicle

Client: Big Rivers Electric Corporation
Project/Site: Green Ash Pond, 1st Semi-Annual 2019

Job ID: 490-173153-1
SDG: Sebree Station, Green Landfill

Client Sample ID: MW-11
Date Collected: 04/29/19 09:58
Date Received: 05/02/19 09:30

Lab Sample ID: 490-173153-1
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			592520	05/03/19 14:01	T1C	TAL NSH
Total/NA	Analysis	9056A		50			594555	05/13/19 12:26	JHS	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	277991	05/07/19 11:49	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			278337	05/09/19 17:02	RSK	TAL PIT
Total/NA	Analysis	9040C		1			593132	05/07/19 11:49	MXX	TAL NSH
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	591865	05/06/19 13:05	BMC	TAL NSH

Client Sample ID: MW-12
Date Collected: 04/29/19 15:10
Date Received: 05/02/19 09:30

Lab Sample ID: 490-173153-2
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			592520	05/03/19 14:36	T1C	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	277991	05/07/19 11:49	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			278337	05/09/19 17:13	RSK	TAL PIT
Total/NA	Analysis	9040C		1			593132	05/07/19 11:49	MXX	TAL NSH
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	591865	05/06/19 13:05	BMC	TAL NSH

Client Sample ID: MW-13
Date Collected: 04/29/19 12:50
Date Received: 05/02/19 09:30

Lab Sample ID: 490-173153-3
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			592520	05/03/19 14:47	T1C	TAL NSH
Total/NA	Analysis	9056A		5			594555	05/13/19 12:49	JHS	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	277991	05/07/19 11:49	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			278337	05/09/19 17:16	RSK	TAL PIT
Total/NA	Analysis	9040C		1			593132	05/07/19 11:49	MXX	TAL NSH
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	591865	05/06/19 13:05	BMC	TAL NSH

Client Sample ID: MW-14
Date Collected: 04/29/19 11:45
Date Received: 05/02/19 09:30

Lab Sample ID: 490-173153-4
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			592520	05/03/19 14:59	T1C	TAL NSH
Total/NA	Analysis	9056A		10			594555	05/13/19 13:01	JHS	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	277991	05/07/19 11:49	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			278337	05/09/19 17:19	RSK	TAL PIT
Total/NA	Analysis	9040C		1			593132	05/07/19 11:49	MXX	TAL NSH
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	591865	05/06/19 13:05	BMC	TAL NSH

Lab Chronicle

Client: Big Rivers Electric Corporation
Project/Site: Green Ash Pond, 1st Semi-Annual 2019

Job ID: 490-173153-1
SDG: Sebree Station, Green Landfill

Client Sample ID: FIELD BLANK

Date Collected: 04/29/19 15:25
Date Received: 05/02/19 09:30

Lab Sample ID: 490-173153-5

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			592520	05/03/19 15:11	T1C	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	277991	05/07/19 11:49	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			278337	05/09/19 17:23	RSK	TAL PIT
Total/NA	Analysis	9040C		1			593132	05/07/19 11:49	MXX	TAL NSH
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	591865	05/06/19 13:05	BMC	TAL NSH

Client Sample ID: DUPE

Date Collected: 04/29/19 10:15
Date Received: 05/02/19 09:30

Lab Sample ID: 490-173153-6

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			592520	05/03/19 15:22	T1C	TAL NSH
Total/NA	Analysis	9056A		50			594555	05/13/19 13:12	JHS	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	277991	05/07/19 11:49	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			278337	05/09/19 17:26	RSK	TAL PIT
Total/NA	Analysis	9040C		1			593132	05/07/19 11:49	MXX	TAL NSH
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	591865	05/06/19 13:05	BMC	TAL NSH

Laboratory References:

TAL NSH = Eurofins TestAmerica, Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177
TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Method Summary

Client: Big Rivers Electric Corporation
Project/Site: Green Ash Pond, 1st Semi-Annual 2019

Job ID: 490-173153-1
SDG: Sebree Station, Green Landfill

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	TAL NSH
6020A	Metals (ICP/MS)	SW846	TAL PIT
9040C	pH	SW846	TAL NSH
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL NSH
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT

Protocol References:

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.

Laboratory References:

TAL NSH = Eurofins TestAmerica, Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

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

Accreditation/Certification Summary

Client: Big Rivers Electric Corporation
Job ID: 490-173153-1
Project/Site: Green Ash Pond, 1st Semi-Annual 2019
SDG: Sebree Station, Green Landfill

Laboratory: Eurofins TestAmerica, Nashville

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Kentucky (UST)	State Program	4	19	06-30-19

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
9040C		Ground Water	pH
9040C		Ground Water	Temperature
9056A		Ground Water	Chloride
9056A		Ground Water	Fluoride
9056A		Ground Water	Sulfate
SM 2540C		Ground Water	Total Dissolved Solids

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-19
California	State Program	9	2891	04-30-20
Connecticut	State Program	1	PH-0688	09-30-20
Florida	NELAP	4	E871008	06-30-19
Illinois	NELAP	5	200005	06-30-19
Kansas	NELAP	7	E-10350	01-31-20
Louisiana	NELAP	6	04041	06-30-19
Nevada	State Program	9	PA00164	07-31-19
New Hampshire	NELAP	1	2030	04-04-20
New Jersey	NELAP	2	PA005	06-30-19
New York	NELAP	2	11182	03-31-20
North Carolina (WW/SW)	State Program	4	434	12-31-19
Oregon	NELAP	10	PA-2151	02-06-20
Pennsylvania	NELAP	3	02-00416	04-30-20
South Carolina	State Program	4	89014	04-30-19 *
Texas	NELAP	6	T104704528-15-2	03-31-20
US Fish & Wildlife	Federal		LE94312A-1	07-31-19
USDA	Federal		P330-16-00211	06-26-19
Utah	NELAP	8	PA001462015-4	05-31-19 *
Virginia	NELAP	3	460189	09-14-19
West Virginia DEP	State Program	3	142	01-31-20
Wisconsin	State Program	5	998027800	08-31-19

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

490-173153 Chain of Custody

Cooler Received/Opened On 5/2/2019 @ 9:30

Time Samples Removed From Cooler 1509 Time Samples Placed In Storage 1525 (2 Hour Window)

1. Tracking # 8275 (last 4 digits, FedEx) Courier: Fedex

IR Gun ID 31470366 pH Strip Lot NA Chlorine Strip Lot NA

2. Temperature of rep. sample or temp blank when opened: 1.6 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...(NA)

4. Were custody seals on outside of cooler? (YES)...NO...NA

If yes, how many and where: 1 Front

5. Were the seals intact, signed, and dated correctly? (YES)...NO...NA

6. Were custody papers inside cooler? (YES)...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) AG

7. Were custody seals on containers: YES (NO) and Intact YES...NO...(NA)

Were these signed and dated correctly? YES...NO...(NA)

8. Packing mat'l used? (Bubblewrap) Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: (Ice) Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? (YES)...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? (YES)...NO...NA

12. Did all container labels and tags agree with custody papers? (YES)...NO...NA

13a. Were VOA vials received? YES...(NO)...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...(NA)

● ⬅ Larger than this.

14. Was there a Trip Blank in this cooler? YES...(NO)...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) GH

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...(NA)

b. Did the bottle labels indicate that the correct preservatives were used (YES)...NO...NA

16. Was residual chlorine present? YES...NO...(NA)

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) GH

17. Were custody papers properly filled out (ink, signed, etc)? (YES)...NO...NA

18. Did you sign the custody papers in the appropriate place? (YES)...NO...NA

19. Were correct containers used for the analysis requested? (YES)...NO...NA

20. Was sufficient amount of sample sent in each container? (YES)...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) GH

I certify that I attached a label with the unique LIMS number to each container (intial) GH

21. Were there Non-Conformance issues at login? YES...(NO) Was a NCM generated? YES...(NO)...#_____

BIS = Broken in shipment

Eurofins TestAmerica, Nashville
2960 Foster Creighton Drive

Nashville, TN 37204-3719
phone 615.726.0177 fax 615.726.3404

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Regulatory Program: ☐DW ☐NPDES ☐RCRA ☑Other:

TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

Client Contact	Project Manager: Mark Bertram	Site Contact: Phillip Hill	Date: 5/01/2019	COC No: 490-99276-24277.1
Big Rivers Electric Corporation	Email: mark.bertram@bigrivers.com	Lab Contact: Roxanne Cisneros	Carrier: FedEx	__1__ of __1__ COCs
9000 Highway 2096	Tel/Fax: (270) 844-5708			Sampler: Phillip Hill
Robards, KY 42452	**Analysis Turnaround Time**			**For Lab Use Only:**
Phone: (270) 844-5708	☐ CALENDAR DAYS ☐ WORKING DAYS			Walk-in Client:
FAX	TAT if different from Below _____			Lab Sampling:
Project Name: Green Ash Pond, 1st Semi-Annual 2019	☑ 2 weeks			
Site: Sebree Station, Green Landfill	☐ 1 week			Job / SDG No.:
P O # 249349	☐ 2 days			
	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	6020A - ICP/MS Boron, Calcium	9040C, 9056A_ORGFM_28D	2540C_Calcd - Total Dissolved Solids	Sample Specific Notes:
MW-11	4/29/19	958	G	Water	3	N	N	x	x	x	
MW-12	4/29/19	1510	G	Water	3	N	N	x	x	x	
MW-13	4/29/19	1250	G	Water	3	N	N	x	x	x	
MW-14	4/29/19	1145	G	Water	3	N	N	x	x	x	Loc: 490 173153
FIELD BLANK	4/29/19	1525	G	Water	3	N	N	x	x	x	
DUPE	4/29/19	1015	G	Water	3	N	N	x	x	x	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
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.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown

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: Standard TAT; Run samples per protoco/methedology prescribed in 40 C. F. R. part 57. See attached constituent list for analysis.

4.6°C / 2.0°C

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd:_____ Corr'd:_____		Therm ID No.:_____
Relinquished by: Phillip Hill	Company: BREC	Date/Time: 5-1-19 1550	Received by:	Company: TA-NAS	Date/Time: 5-2-19 0930
Relinquished by:	Company:	Date/Time:	Received by: 1.6°C	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.23, dated 4/16/2019

5/14/2019

Green Impoundment – 4-30-2019

Loc: 490
173153

40 CFR PART 257 Constituent List:

Appendix III to part 257

Boron

Calcium

Chloride

Fluoride

pH

Sulfate

Total Dissolved Solids (TDS)

Eurofins TestAmerica, Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Phone (615) 726-0177 Fax (615) 726-3404

MW SBB

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Cisneros, Roxanne	Carrier Tracking No(s):	COC No: 490-89810.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: roxanne.cisneros@testamericainc.com	State of Origin: Kentucky	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Kentucky (UST)		Job #: 490-173153-1
Address: 301 Alpha Drive, RIDC Park,	Due Date Requested: 5/14/2019			
City: Pittsburgh	TAT Requested (days):			
State, Zip: PA, 15238				
Phone: 412-963-7058(Tel) 412-963-2468(Fax)	PO #:			
Email:	WO #:			
Project Name: Green Ash Pond, 1st Semi-Annual 2019	Project #: 49010431			
Site: Big Rivers CCR	SSOW#:			

Analysis Requested

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, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020A/3005A (MOD) Boron & Calcium	Total Number of containers	Special
			Preservation Code:						
MW-11 (490-173153-1)	4/29/19	09:58 Central		Water			X	1	
MW-12 (490-173153-2)	4/29/19	15:10 Central		Water			X	1	
MW-13 (490-173153-3)	4/29/19	12:50 Central		Water			X	1	
MW-14 (490-173153-4)	4/29/19	11:45 Central		Water			X	1	
FIELD BLANK (490-173153-5)	4/29/19	15:25 Central		Water			X	1	
DUPE (490-173153-6)	4/29/19	10:15 Central		Water			X	1	

490-173153 Chain of Custody

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *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:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	5-3-19@0925	TANAS	DWatson	5-4-19 915	TAPIT
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Big Rivers Electric Corporation

Job Number: 490-173153-1
SDG Number: Sebree Station, Green Landfill

Login Number: 173153
List Number: 2
Creator: Watson, Debbie

List Source: Eurofins TestAmerica, Pittsburgh
List Creation: 05/04/19 11:21 AM

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	

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"Providing Tomorrow's Analytical Capabilities Today"

Certificate of Analysis
9093430

Chad Phillips
Big Rivers Electric Corporation Reid/Green Station
PO Box 24
Henderson KY, 42419

Customer ID: 44-102032
Report Printed: 10/28/2019 14:41

Project Name:	Green Surface Impoundment	Workorder:	9093430

Dear Chad Phillips

Enclosed are the analytical results for samples received at one of our laboratories on 10/04/2019 14:10.

McCoy & McCoy Laboratories, Inc. is a commercial laboratory accredited by various state and national authorities, including Indiana, Kentucky, Tennessee, and Virginia's National Environmental Laboratory Accreditation Program (NELAP). With the NELAP accreditation, applicable test results are certified to meet the requirements of the National Environmental Laboratory Accreditation Program.

If you have any questions concerning this report please contact the individual listed below.

Please visit our website at www.mccoylabs.com for a listing of the NELAP accreditations and Scope of Work, as well as, links to other scientific organizations.

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ACCREDITED IN ACCORDANCE WITH nelac
#460210
Madisonville

Rob Whittington, Project Manager

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

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SAMPLE SUMMARY

Lab ID	Client Sample ID/Alias	Matrix	Date Collected	Date Received	Sampled By
9093430-01	MW11/	Groundwater	10/03/2019 09:25	10/04/2019 14:10	Phillip Hill
9093430-02	MW12/	Groundwater	10/04/2019 11:55	10/04/2019 14:10	Phillip Hill
9093430-03	MW13/	Groundwater	10/04/2019 10:45	10/04/2019 14:10	Phillip Hill
9093430-04	MW14/	Groundwater	10/03/2019 11:10	10/04/2019 14:10	Phillip Hill
9093430-05	DUPLICATE/	Groundwater	10/04/2019 10:55	10/04/2019 14:10	Phillip Hill
9093430-06	FIELD BLANK/	Water	10/04/2019 12:10	10/04/2019 14:10	Phillip Hill

LabNumber	Measurement	Value
9093430-01	Field Conductance	8090
	Field pH	6.86
	Field Temp (C)	19.29
9093430-02	Field Conductance	927
	Field pH	7.07
	Field Temp (C)	21.09
9093430-03	Field Conductance	1170
	Field pH	6.75
	Field Temp (C)	20.94
9093430-04	Field Conductance	1790
	Field pH	6.77
	Field Temp (C)	18.04

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ANALYTICAL RESULTS

Lab Sample ID: **9093430-01**
Description: **MW11**

Sample Collection Date Time: 10/03/2019 09:25
Sample Received Date Time: 10/04/2019 14:10

Metals by SW846 6000 Series Methods

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Boron	ND	D2, M2, M4, U	mg/L	1.00	1.00	SW846 6010 B	10/07/2019 11:40	10/08/2019 15:30	AKB
Calcium	**318**	D1, M1	mg/L	40.0	13.0	SW846 6010 B	10/07/2019 11:40	10/08/2019 15:34	AKB

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
pH (Lab)	**7.50**	H3	Std. Units	0.10	0.10	4500-H+ B-2000	10/08/2019 13:04	10/08/2019 13:04	HMF
Total Dissolved Solids	**682**		mg/L	50	50	2540 C-2011	10/05/2019 14:02	10/07/2019 11:18	MAG

Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	**3900**	D	mg/L	200	128	SW846 9056	10/18/2019 12:58	10/18/2019 12:58	CSC
Fluoride	**0.2**		mg/L	0.2	0.1	SW846 9056	10/11/2019 12:15	10/11/2019 12:15	CSC
Sulfate	**971**	D	mg/L	100	50	SW846 9056	10/14/2019 17:12	10/14/2019 17:12	CSC

ANALYTICAL RESULTS

Lab Sample ID: **9093430-02**
Description: **MW12**

Sample Collection Date Time: 10/04/2019 11:55
Sample Received Date Time: 10/04/2019 14:10

Metals by SW846 6000 Series Methods

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Boron	ND	D2, U	mg/L	1.00	1.00	SW846 6010 B	10/07/2019 11:40	10/08/2019 15:46	AKB
Calcium	**92.0**	D2	mg/L	4.00	1.30	SW846 6010 B	10/07/2019 11:40	10/08/2019 15:46	AKB

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
pH (Lab)	**7.79**	H3	Std. Units	0.10	0.10	4500-H+ B-2000	10/08/2019 13:05	10/08/2019 13:05	HMF
Total Dissolved Solids	**546**		mg/L	50	50	2540 C-2011	10/05/2019 14:06	10/07/2019 11:18	MAG

Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	**14.0**		mg/L	2.0	1.3	SW846 9056	10/11/2019 12:31	10/11/2019 12:31	CSC
Fluoride	**0.4**		mg/L	0.2	0.1	SW846 9056	10/11/2019 12:31	10/11/2019 12:31	CSC
Sulfate	**11**		mg/L	1	0.5	SW846 9056	10/11/2019 12:31	10/11/2019 12:31	CSC

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ANALYTICAL RESULTS

Lab Sample ID: **9093430-03**
Description: **MW13**

Sample Collection Date Time: 10/04/2019 10:45
Sample Received Date Time: 10/04/2019 14:10

Metals by SW846 6000 Series Methods

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Boron	ND	D2, U	mg/L	1.00	1.00	SW846 6010 B	10/07/2019 11:40	10/08/2019 15:53	AKB
Calcium	**87.4**	D2	mg/L	4.00	1.30	SW846 6010 B	10/07/2019 11:40	10/08/2019 15:53	AKB

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
pH (Lab)	**7.29**	H3	Std. Units	0.10	0.10	4500-H+ B-2000	10/08/2019 13:08	10/08/2019 13:08	HMF
Total Dissolved Solids	**586**		mg/L	50	50	2540 C-2011	10/05/2019 14:10	10/07/2019 11:18	MAG

Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	**24.6**		mg/L	2.0	1.3	SW846 9056	10/11/2019 12:48	10/11/2019 12:48	CSC
Fluoride	**0.2**		mg/L	0.2	0.1	SW846 9056	10/11/2019 12:48	10/11/2019 12:48	CSC
Sulfate	**41**		mg/L	1	0.5	SW846 9056	10/11/2019 12:48	10/11/2019 12:48	CSC

ANALYTICAL RESULTS

Lab Sample ID: **9093430-04**
Description: **MW14**

Sample Collection Date Time: 10/03/2019 11:10
Sample Received Date Time: 10/04/2019 14:10

Metals by SW846 6000 Series Methods

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Boron	ND	D2, U	mg/L	1.00	1.00	SW846 6010 B	10/07/2019 11:40	10/08/2019 15:59	AKB
Calcium	**194**	D1	mg/L	40.0	13.0	SW846 6010 B	10/07/2019 11:40	10/08/2019 16:02	AKB

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
pH (Lab)	**7.35**	H3	Std. Units	0.10	0.10	4500-H+ B-2000	10/08/2019 13:09	10/08/2019 13:09	HMF
Total Dissolved Solids	**1120**	H2	mg/L	25	25	2540 C-2011	10/24/2019 12:00	10/25/2019 13:08	MAG

Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	**262**	D	mg/L	40.0	25.6	SW846 9056	10/18/2019 13:14	10/18/2019 13:14	CSC
Fluoride	**0.3**		mg/L	0.2	0.1	SW846 9056	10/11/2019 13:04	10/11/2019 13:04	CSC
Sulfate	**871**	D	mg/L	50	25	SW846 9056	10/14/2019 17:29	10/14/2019 17:29	CSC

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ANALYTICAL RESULTS

Lab Sample ID: **9093430-05**
Description: **DUPLICATE**

Sample Collection Date Time: 10/04/2019 10:55
Sample Received Date Time: 10/04/2019 14:10

Metals by SW846 6000 Series Methods

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Boron	ND	D2, U	mg/L	1.00	1.00	SW846 6010 B	10/07/2019 11:40	10/08/2019 16:05	AKB
Calcium	**85.6**	D2	mg/L	4.00	1.30	SW846 6010 B	10/07/2019 11:40	10/08/2019 16:05	AKB

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
pH (Lab)	**7.28**	H3	Std. Units	0.10	0.10	4500-H+ B-2000	10/08/2019 13:10	10/08/2019 13:10	HMF
Total Dissolved Solids	**580**		mg/L	50	50	2540 C-2011	10/05/2019 14:18	10/07/2019 11:18	MAG

Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	**24.6**		mg/L	2.0	1.3	SW846 9056	10/11/2019 13:20	10/11/2019 13:20	CSC
Fluoride	**0.2**		mg/L	0.2	0.1	SW846 9056	10/11/2019 13:20	10/11/2019 13:20	CSC
Sulfate	**41**		mg/L	1	0.5	SW846 9056	10/11/2019 13:20	10/11/2019 13:20	CSC

ANALYTICAL RESULTS

Lab Sample ID: **9093430-06**
Description: **FIELD BLANK**

Sample Collection Date Time: 10/04/2019 12:10
Sample Received Date Time: 10/04/2019 14:10

Metals by SW846 6000 Series Methods

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Boron	ND	U	mg/L	0.10	0.10	SW846 6010 B	10/07/2019 11:40	10/08/2019 16:12	AKB
Calcium	ND	U	mg/L	0.40	0.13	SW846 6010 B	10/07/2019 11:40	10/08/2019 16:12	AKB

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
pH (Lab)	**7.20**	H3	Std. Units	0.10	0.10	4500-H+ B-2000	10/08/2019 13:11	10/08/2019 13:11	HMF
Total Dissolved Solids	ND	U	mg/L	50	50	2540 C-2011	10/05/2019 14:22	10/07/2019 11:18	MAG

Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	ND	U	mg/L	2.0	1.3	SW846 9056	10/11/2019 13:37	10/11/2019 13:37	CSC
Fluoride	ND	U	mg/L	0.2	0.1	SW846 9056	10/11/2019 13:37	10/11/2019 13:37	CSC
Sulfate	ND	U	mg/L	1	0.5	SW846 9056	10/11/2019 13:37	10/11/2019 13:37	CSC

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Notes for work order 9093430

- Samples collected by MMLI personnel are done so in accordance with procedures set forth in MMLI field services SOPs.
- Results contained in this report are only representative of the samples received.
- MMLI 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.
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.
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).

Standard Quallifiers/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

Certified Analyses included in this Report

Analyte	Certifications
2540 C-2011 in Water	
Total Dissolved Solids	KY Drinking Water Mdv (00030)
4500-H+ B-2000 in Water	
pH (Lab)	KY Drinking Water Mdv (00030) TN Drinking Water (02819)
SW846 6010 B in Water	

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Sample Acceptance Checklist for Work Order 9093430

Shipped By: Client

Temperature: 1.40° Celcius

Condition	
Check if Custody Seals are Present/Intact	☐
Check if Custody Signatures are Present	☑
Check if Collector Signature Present	☑
Check if bottles are intact	☑
Check if bottles are correct	☑
Check if bottles have sufficient volume	☑
Check if samples received on ice	☑
Check if VOA headspace is acceptable	☐
Check if samples received in holding time.	☑
Check if samples are preserved properly	☑

McCoy & McCoy Laboratories, Inc.
A PACE Analytical Laboratory
P.O. Box 907
Madisonville, KY 42431

Chain of Custody

Scheduled for: 09/23/2019

Client: Big Rivers Electric Corporation Reid/Green Station

Project: Green Surface Impoundment

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#: 252828-13
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 _____ End Time _____ Temp (oC) _____

Effluent: Start Date _____ Start time _____ End Date _____ End Time _____ Temp (oC) _____

MMLI USE ONLY Workorder # 9093430 Sample ID#	*required information* Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
9093430-01 A	10/3/19	925	Plastic 500mL pH<2 w/HNO3 Preservation Check: pH : ✓	1	MW11	g / c	Calcium Tot 6010B Boron Tot 6010B
9093430-01 B	10/3/19	925	Plastic 1L	1	MW11	g / c	TDS Sulfate 9056 pH (Lab) Fluoride 9056 Chloride 9056
9093430-02 A	10/4/19	1155	Plastic 500mL pH<2 w/HNO3 Preservation Check: pH : ✓	1	MW12	g / c	Calcium Tot 6010B Boron Tot 6010B
9093430-02 B	10/4/19	1155	Plastic 1L	1	MW12	g / c	TDS Sulfate 9056 pH (Lab) Fluoride 9056 Chloride 9056
9093430-03 A	10/4/19	1045	Plastic 500mL pH<2 w/HNO3 Preservation Check: pH : ✓	1	MW13	g / c	Calcium Tot 6010B Boron Tot 6010B
9093430-03 B	10/4/19	1045	Plastic 1L	1	MW13	g / c	TDS Sulfate 9056 pH (Lab) Fluoride 9056 Chloride 9056
9093430-04 A	10/3/19	1110	Plastic 500mL pH<2 w/HNO3 Preservation Check: pH : ✓	1	MW14	g / c	Calcium Tot 6010B Boron Tot 6010B
9093430-04 B	10/3/19	1110	Plastic 1L	1	MW14	g / c	TDS Sulfate 9056 pH (Lab) Fluoride 9056 Chloride 9056

Preservation Check Performed by: JDG

Field data collected by: Phillip Hill 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)
	1.40c	10-4-19	1410

☐ **MMLI - Check here if trip charge applied to associated COC**

Printed: 9/23/2019 1:12:45PM

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A PACE Analytical Laboratory
P.O. Box 907
Madisonville, KY 42431

Chain of Custody

Scheduled for: 09/23/2019

Client: Big Rivers Electric Corporation Reid/Green Station

Project: Green Surface Impoundment

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#: 252828-13
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 _____ End Time _____ Temp (oC) _____

Effluent: Start Date _____ Start time _____ End Date _____ End Time _____ Temp (oC) _____

MMLI USE ONLY Workorder # 9093430 Sample ID#	*required information* Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
9093430-05 A	10/4/19	1055	Plastic 500mL pH<2 w/HNO3 Preservation Check: pH : ✓	1	DUPLICATE	g / c	Calcium Tot 6010B Boron Tot 6010B
9093430-05 B	10/4/19	1055	Plastic 1L	1	DUPLICATE	g / c	TDS Sulfate 9056 pH (Lab) Fluoride 9056 Chloride 9056
9093430-06 A	10/4/19	1210	Plastic 500mL pH<2 w/HNO3 Preservation Check: pH : ✓	1	FIELD BLANK	g / c	Calcium Tot 6010B Boron Tot 6010B
9093430-06 B	10/4/19	1210	Plastic 1L	1	FIELD BLANK	g / c	TDS Sulfate 9056 pH (Lab) Fluoride 9056 Chloride 9056

mw 11 - 19.29 °C, 8.09 mS/cm, 6.86 ph
mw 12 - 21.09 °C, 0.927 mS/cm, 7.07 ph
mw 13 - 20.94 °C, 1.17 mS/cm, 6.75 ph
mw 14 - 18.04 °C, 1.79 mS/cm, 6.77 ph

Preservation Check Performed by: JDC

Field data collected by: Phillip Hill 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)
[signature]	[signature]	10-4-19	1410

☐ MMLI - Check here if trip charge applied to associated COC

Printed: 9/23/2019 1:12:45PM

Appendix H

Reid/HMP&L Surface Impoundment Analytical Laboratory Reports

REID/HMP&L SURFACE IMPOUNDMENT
ANALYTICAL LABORATORY REPORTS

eurofins | Environment Testing TestAmerica



ANALYTICAL REPORT

Eurofins TestAmerica, Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Tel: (615)726-0177

Laboratory Job ID: 490-171184-1
Laboratory Sample Delivery Group: Sebree Station
Client Project/Site: Sebree Station - New CCR Wells

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

Attn: Greg Dick

Roxanne Cisneros

Authorized for release by:
4/8/2019 12:00:20 PM

Roxanne Cisneros, Senior Project Manager
(615)301-5761
roxanne.cisneros@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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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Sample Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-171184-1	MW-104	Water	03/29/19 12:03	03/30/19 09:00
490-171184-2	MW-110	Water	03/29/19 09:35	03/30/19 09:00
490-171184-3	DUPE	Water	03/29/19 09:46	03/30/19 09:00
490-171184-4	FIELD BLANK	Water	03/29/19 12:27	03/30/19 09:00

Job ID: 490-171184-1

Laboratory: Eurofins TestAmerica, Nashville

Narrative

Job Narrative
490-171184-1

Comments
No additional comments.

Receipt
The samples were received on 3/30/2019 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.0º C and 3.6º C.

HPLC/IC
Method(s) 9056A: Due to the high concentration of Sulfate, the matrix spike / matrix spike duplicate (MS/MSD) for analytical batch 490-584786 could not be evaluated for accuracy and precision. The associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) met acceptance criteria.

Method(s) 9056A: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for 490-584786 were within the acceptance limits for chloride . However, the sample results exceeded the calibration curve limits. (490-171184-B-2 MS) and (490-171184-B-2 MSD)

Method(s) 9056A: The continuing calibration blank (CCB) contained chloride above the method detection limit (MDL). However, the result was less than the reporting limit (RL). The results have been reported. (CCB 490-584786/23)

Method(s) 9056A: The following samples were diluted due to the nature of the sample matrix: MW-104 (490-171184-1), MW-110 (490-171184-2) and DUPE (490-171184-3). Elevated reporting limits (RLs) are provided.

Method(s) 9056A: Due to the nature of the sample matrix, a matrix spike / matrix spike duplicate (MS/MSD) was not analyzed with 490-585062. However, the laboratory control sample / laboratory control sample duplicate (LCS/LCSD) recoveries were within the acceptance limits. (LCS 490-585062/4) and (LCSD 490-585062/5)

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

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

Definitions/Glossary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Qualifiers

HPLC/IC

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.
E	Result exceeded calibration range.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
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.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

Client Sample ID: MW-104

Date Collected: 03/29/19 12:03
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-1

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1430		300	20.0	mg/L			04/02/19 14:03	100
Fluoride	ND		1.00	0.0100	mg/L			04/01/19 11:43	1
Sulfate	2870		500	3.00	mg/L			04/02/19 14:03	100

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0281	J	0.0500	0.00959	mg/L		04/03/19 11:21	04/04/19 09:05	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0000910	J B	0.00200	0.0000213	mg/L		04/04/19 13:20	04/05/19 13:17	1
Arsenic	0.00221	J	0.00500	0.000118	mg/L		04/04/19 13:20	04/05/19 13:17	1
Barium	0.0243	J	0.200	0.000270	mg/L		04/04/19 13:20	04/05/19 13:17	1
Beryllium	ND		0.00200	0.000102	mg/L		04/04/19 13:20	04/05/19 13:17	1
Boron	0.188	J B	1.00	0.00339	mg/L		04/04/19 13:20	04/05/19 13:17	1
Cadmium	ND		0.00100	0.000152	mg/L		04/04/19 13:20	04/05/19 13:17	1
Calcium	465	B	1.00	0.0412	mg/L		04/04/19 13:20	04/05/19 13:17	1
Chromium	0.00471	B	0.00300	0.000339	mg/L		04/04/19 13:20	04/05/19 13:17	1
Cobalt	0.00594	B	0.00500	0.0000218	mg/L		04/04/19 13:20	04/05/19 13:17	1
Iron	3.22		0.0500	0.0141	mg/L		04/04/19 13:20	04/05/19 13:17	1
Lead	0.00105	J	0.00500	0.0000675	mg/L		04/04/19 13:20	04/05/19 13:17	1
Magnesium	521		1.00	0.0827	mg/L		04/04/19 13:20	04/05/19 13:17	1
Molybdenum	0.00147	J	0.0100	0.000873	mg/L		04/04/19 13:20	04/05/19 13:17	1
Potassium	1650		1000	147	ug/L		04/04/19 13:20	04/05/19 13:17	1
Selenium	ND		0.0100	0.000348	mg/L		04/04/19 13:20	04/05/19 13:17	1
Sodium	824		1.00	0.251	mg/L		04/04/19 13:20	04/05/19 13:17	1
Thallium	ND		0.00100	0.0000360	mg/L		04/04/19 13:20	04/05/19 13:17	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		04/03/19 14:38	04/05/19 12:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.88		0.100	0.100	SU			04/03/19 15:52	1
Temperature	20.9		0.100	0.100	Degrees C			04/03/19 15:52	1
Specific Conductance (25C)	8790		10.0	10.0	umhos/cm			04/03/19 20:44	1
Bicarbonate Alkalinity as CaCO3	664		10.0	5.00	mg/L			04/05/19 19:51	1
Carbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 19:51	1
Alkalinity	664		10.0	5.00	mg/L			04/05/19 19:51	1
Total Dissolved Solids	6990		100	28.0	mg/L			04/02/19 10:30	1

Client Sample ID: MW-110

Date Collected: 03/29/19 09:35
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-2

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	26.0		6.00	0.400	mg/L			04/02/19 14:36	2
Fluoride	0.279	J	1.00	0.0100	mg/L			04/01/19 11:59	1
Sulfate	563		250	1.50	mg/L			04/02/19 14:52	50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0299	J	0.0500	0.00959	mg/L		04/03/19 11:21	04/04/19 09:11	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.000240	J B	0.00200	0.0000213	mg/L		04/04/19 13:20	04/05/19 13:20	1
Arsenic	0.00534		0.00500	0.000118	mg/L		04/04/19 13:20	04/05/19 13:20	1
Barium	0.118	J	0.200	0.000270	mg/L		04/04/19 13:20	04/05/19 13:20	1
Beryllium	0.000716	J	0.00200	0.000102	mg/L		04/04/19 13:20	04/05/19 13:20	1
Boron	0.484	J B	1.00	0.00339	mg/L		04/04/19 13:20	04/05/19 13:20	1
Cadmium	ND		0.00100	0.000152	mg/L		04/04/19 13:20	04/05/19 13:20	1
Calcium	176	B	1.00	0.0412	mg/L		04/04/19 13:20	04/05/19 13:20	1
Chromium	0.0180	B	0.00300	0.000339	mg/L		04/04/19 13:20	04/05/19 13:20	1
Cobalt	0.00911	B	0.00500	0.0000218	mg/L		04/04/19 13:20	04/05/19 13:20	1
Iron	19.5		0.0500	0.0141	mg/L		04/04/19 13:20	04/05/19 13:20	1
Lead	0.00661		0.00500	0.0000675	mg/L		04/04/19 13:20	04/05/19 13:20	1
Magnesium	56.8		1.00	0.0827	mg/L		04/04/19 13:20	04/05/19 13:20	1
Molybdenum	0.00153	J	0.0100	0.000873	mg/L		04/04/19 13:20	04/05/19 13:20	1
Potassium	4070		1000	147	ug/L		04/04/19 13:20	04/05/19 13:20	1
Selenium	ND		0.0100	0.000348	mg/L		04/04/19 13:20	04/05/19 13:20	1
Sodium	96.3		1.00	0.251	mg/L		04/04/19 13:20	04/05/19 13:20	1
Thallium	0.000112	J	0.00100	0.0000360	mg/L		04/04/19 13:20	04/05/19 13:20	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		04/03/19 14:38	04/05/19 12:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.25		0.100	0.100	SU			04/03/19 15:52	1
Temperature	20.7		0.100	0.100	Degrees C			04/03/19 15:52	1
Specific Conductance (25C)	1570		10.0	10.0	umhos/cm			04/03/19 20:44	1
Bicarbonate Alkalinity as CaCO3	266		10.0	5.00	mg/L			04/05/19 19:58	1
Carbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 19:58	1
Alkalinity	266		10.0	5.00	mg/L			04/05/19 19:58	1
Total Dissolved Solids	1170		50.0	14.0	mg/L			04/02/19 10:30	1

Client Sample ID: DUPE

Date Collected: 03/29/19 09:46
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-3

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	25.2		6.00	0.400	mg/L			04/02/19 15:09	2
Fluoride	0.283	J	1.00	0.0100	mg/L			04/01/19 12:49	1
Sulfate	552		250	1.50	mg/L			04/02/19 15:26	50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0260	J	0.0500	0.00959	mg/L		04/03/19 11:21	04/04/19 09:16	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.000193	J B	0.00200	0.0000213	mg/L		04/04/19 13:20	04/05/19 13:24	1
Arsenic	0.00393	J	0.00500	0.000118	mg/L		04/04/19 13:20	04/05/19 13:24	1
Barium	0.114	J	0.200	0.000270	mg/L		04/04/19 13:20	04/05/19 13:24	1
Beryllium	0.000572	J	0.00200	0.000102	mg/L		04/04/19 13:20	04/05/19 13:24	1
Boron	0.490	J B	1.00	0.00339	mg/L		04/04/19 13:20	04/05/19 13:24	1
Cadmium	ND		0.00100	0.000152	mg/L		04/04/19 13:20	04/05/19 13:24	1
Calcium	178	B	1.00	0.0412	mg/L		04/04/19 13:20	04/05/19 13:24	1
Chromium	0.0148	B	0.00300	0.000339	mg/L		04/04/19 13:20	04/05/19 13:24	1
Cobalt	0.00631	B	0.00500	0.0000218	mg/L		04/04/19 13:20	04/05/19 13:24	1
Iron	15.2		0.0500	0.0141	mg/L		04/04/19 13:20	04/05/19 13:24	1
Lead	0.00561		0.00500	0.0000675	mg/L		04/04/19 13:20	04/05/19 13:24	1
Magnesium	56.8		1.00	0.0827	mg/L		04/04/19 13:20	04/05/19 13:24	1
Molybdenum	0.00136	J	0.0100	0.000873	mg/L		04/04/19 13:20	04/05/19 13:24	1
Potassium	3910		1000	147	ug/L		04/04/19 13:20	04/05/19 13:24	1
Selenium	ND		0.0100	0.000348	mg/L		04/04/19 13:20	04/05/19 13:24	1
Sodium	98.5		1.00	0.251	mg/L		04/04/19 13:20	04/05/19 13:24	1
Thallium	0.0000770	J	0.00100	0.0000360	mg/L		04/04/19 13:20	04/05/19 13:24	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		04/03/19 14:38	04/05/19 12:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.39		0.100	0.100	SU			04/03/19 15:52	1
Temperature	20.7		0.100	0.100	Degrees C			04/03/19 15:52	1
Specific Conductance (25C)	1570		10.0	10.0	umhos/cm			04/03/19 20:44	1
Bicarbonate Alkalinity as CaCO3	289		10.0	5.00	mg/L			04/05/19 20:05	1
Carbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 20:05	1
Alkalinity	289		10.0	5.00	mg/L			04/05/19 20:05	1
Total Dissolved Solids	1170		50.0	14.0	mg/L			04/02/19 10:30	1

Client Sample ID: FIELD BLANK

Date Collected: 03/29/19 12:27
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-4

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	0.200	mg/L			04/01/19 13:39	1
Fluoride	ND		1.00	0.0100	mg/L			04/01/19 13:39	1
Sulfate	ND		5.00	0.0300	mg/L			04/01/19 13:39	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.0500	0.00959	mg/L		04/03/19 11:21	04/04/19 09:21	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.000131**	**J B**	0.00200	0.0000213	mg/L		04/04/19 13:20	04/05/19 13:27	1
Arsenic	**0.000496**	**J**	0.00500	0.000118	mg/L		04/04/19 13:20	04/05/19 13:27	1
Barium	ND		0.200	0.000270	mg/L		04/04/19 13:20	04/05/19 13:27	1
Beryllium	ND		0.00200	0.000102	mg/L		04/04/19 13:20	04/05/19 13:27	1
Boron	**0.0231**	**J B**	1.00	0.00339	mg/L		04/04/19 13:20	04/05/19 13:27	1
Cadmium	ND		0.00100	0.000152	mg/L		04/04/19 13:20	04/05/19 13:27	1
Calcium	**0.0702**	**J B**	1.00	0.0412	mg/L		04/04/19 13:20	04/05/19 13:27	1
Chromium	**0.00274**	**J B**	0.00300	0.000339	mg/L		04/04/19 13:20	04/05/19 13:27	1
Cobalt	ND		0.00500	0.0000218	mg/L		04/04/19 13:20	04/05/19 13:27	1
Iron	ND		0.0500	0.0141	mg/L		04/04/19 13:20	04/05/19 13:27	1
Lead	ND		0.00500	0.0000675	mg/L		04/04/19 13:20	04/05/19 13:27	1
Magnesium	ND		1.00	0.0827	mg/L		04/04/19 13:20	04/05/19 13:27	1
Molybdenum	ND		0.0100	0.000873	mg/L		04/04/19 13:20	04/05/19 13:27	1
Potassium	ND		1000	147	ug/L		04/04/19 13:20	04/05/19 13:27	1
Selenium	ND		0.0100	0.000348	mg/L		04/04/19 13:20	04/05/19 13:27	1
Sodium	ND		1.00	0.251	mg/L		04/04/19 13:20	04/05/19 13:27	1
Thallium	ND		0.00100	0.0000360	mg/L		04/04/19 13:20	04/05/19 13:27	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		04/03/19 14:38	04/05/19 12:59	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**5.88**		0.100	0.100	SU			04/03/19 15:52	1
Temperature	**20.9**		0.100	0.100	Degrees C			04/03/19 15:52	1
Specific Conductance (25C)	ND		10.0	10.0	umhos/cm			04/03/19 20:45	1
Bicarbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 20:10	1
Carbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 20:10	1
Alkalinity	ND		10.0	5.00	mg/L			04/05/19 20:10	1
Total Dissolved Solids	**10.0**	**J**	25.0	7.00	mg/L			04/02/19 10:30	1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 490-584786/3
Matrix: Water
Analysis Batch: 584786

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	0.200	mg/L			04/01/19 08:44	1
Fluoride	ND		1.00	0.0100	mg/L			04/01/19 08:44	1
Sulfate	ND		5.00	0.0300	mg/L			04/01/19 08:44	1

Lab Sample ID: LCS 490-584786/4
Matrix: Water
Analysis Batch: 584786

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.238		mg/L		92	80 - 120
Fluoride	1.00	0.9862	J	mg/L		99	80 - 120
Sulfate	10.0	9.515		mg/L		95	80 - 120

Lab Sample ID: LCSD 490-584786/5
Matrix: Water
Analysis Batch: 584786

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.205		mg/L		92	80 - 120	0	20
Fluoride	1.00	0.9820	J	mg/L		98	80 - 120	0	20
Sulfate	10.0	9.584		mg/L		96	80 - 120	1	20

Lab Sample ID: 490-171184-2 MS
Matrix: Water
Analysis Batch: 584786

Client Sample ID: MW-110
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	26.8	E	10.0	38.44	E	mg/L		116	80 - 120
Fluoride	0.279	J	1.00	1.339		mg/L		106	80 - 120
Sulfate	791	E	10.0	796.0	E 4	mg/L		50	80 - 120

Lab Sample ID: 490-171184-2 MSD
Matrix: Water
Analysis Batch: 584786

Client Sample ID: MW-110
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	26.8	E	10.0	38.70	E	mg/L		118	80 - 120	1	20
Fluoride	0.279	J	1.00	1.373		mg/L		109	80 - 120	2	20
Sulfate	791	E	10.0	796.1	E 4	mg/L		51	80 - 120	0	20

Lab Sample ID: MB 490-585062/3
Matrix: Water
Analysis Batch: 585062

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	0.200	mg/L			04/02/19 12:56	1
Fluoride	ND		1.00	0.0100	mg/L			04/02/19 12:56	1
Sulfate	ND		5.00	0.0300	mg/L			04/02/19 12:56	1

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 490-585062/4
Matrix: Water
Analysis Batch: 585062

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			10.0	9.308		mg/L		93	80 - 120		
Fluoride			1.00	1.020		mg/L		102	80 - 120		
Sulfate			10.0	9.831		mg/L		98	80 - 120		

Lab Sample ID: LCSD 490-585062/5
Matrix: Water
Analysis Batch: 585062

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			10.0	9.310		mg/L		93	80 - 120	0	20
Fluoride			1.00	1.029		mg/L		103	80 - 120	1	20
Sulfate			10.0	9.853		mg/L		98	80 - 120	0	20

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 180-274722/1-A
Matrix: Water
Analysis Batch: 274816

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 274722

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.0500	0.00959	mg/L		04/03/19 11:21	04/04/19 07:41	1

Lab Sample ID: LCS 180-274722/2-A
Matrix: Water
Analysis Batch: 274816

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 274722

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Lithium			1.00	0.9781		mg/L		98	80 - 120		

Lab Sample ID: 180-88255-C-3-D MSD
Matrix: Water
Analysis Batch: 274816

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 274722

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lithium	ND		1.00	0.9822		mg/L		98	75 - 125	0	20

Lab Sample ID: 180-88255-D-3-E MS
Matrix: Water
Analysis Batch: 274816

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 274722

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Lithium	ND		1.00	0.9852		mg/L		99	75 - 125		

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 180-274861/1-A
Matrix: Water
Analysis Batch: 275004

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 274861

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00005200	J	0.00200	0.0000213	mg/L		04/04/19 13:20	04/05/19 11:56	1
Arsenic	ND		0.00500	0.000118	mg/L		04/04/19 13:20	04/05/19 11:56	1
Barium	ND		0.200	0.000270	mg/L		04/04/19 13:20	04/05/19 11:56	1
Beryllium	ND		0.00200	0.000102	mg/L		04/04/19 13:20	04/05/19 11:56	1
Boron	0.006373	J	1.00	0.00339	mg/L		04/04/19 13:20	04/05/19 11:56	1
Cadmium	ND		0.00100	0.000152	mg/L		04/04/19 13:20	04/05/19 11:56	1
Calcium	0.05960	J	1.00	0.0412	mg/L		04/04/19 13:20	04/05/19 11:56	1
Chromium	0.0003860	J	0.00300	0.000339	mg/L		04/04/19 13:20	04/05/19 11:56	1
Cobalt	0.00002600	J	0.00500	0.0000218	mg/L		04/04/19 13:20	04/05/19 11:56	1
Iron	ND		0.0500	0.0141	mg/L		04/04/19 13:20	04/05/19 11:56	1
Lead	ND		0.00500	0.0000675	mg/L		04/04/19 13:20	04/05/19 11:56	1
Magnesium	ND		1.00	0.0827	mg/L		04/04/19 13:20	04/05/19 11:56	1
Molybdenum	ND		0.0100	0.000873	mg/L		04/04/19 13:20	04/05/19 11:56	1
Potassium	ND		1000	147	ug/L		04/04/19 13:20	04/05/19 11:56	1
Selenium	ND		0.0100	0.000348	mg/L		04/04/19 13:20	04/05/19 11:56	1
Sodium	ND		1.00	0.251	mg/L		04/04/19 13:20	04/05/19 11:56	1
Thallium	ND		0.00100	0.0000360	mg/L		04/04/19 13:20	04/05/19 11:56	1

Lab Sample ID: LCS 180-274861/2-A
Matrix: Water
Analysis Batch: 275004

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 274861

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.500	0.4849		mg/L		97	80 - 120
Arsenic	0.0400	0.03953		mg/L		99	80 - 120
Barium	2.00	1.928		mg/L		96	80 - 120
Beryllium	0.0500	0.05212		mg/L		104	80 - 120
Boron	1.00	0.9972	J	mg/L		100	80 - 120
Cadmium	0.0500	0.05024		mg/L		100	80 - 120
Calcium	50.0	48.40		mg/L		97	80 - 120
Chromium	0.200	0.2007		mg/L		100	80 - 120
Cobalt	0.500	0.4952		mg/L		99	80 - 120
Iron	11.0	10.61		mg/L		96	80 - 120
Lead	0.0200	0.01871		mg/L		94	80 - 120
Magnesium	50.0	48.08		mg/L		96	80 - 120
Molybdenum	1.00	0.9281		mg/L		93	80 - 120
Potassium	50000	47700		ug/L		95	80 - 120
Selenium	0.0100	0.01014		mg/L		101	80 - 120
Sodium	50.0	50.18		mg/L		100	80 - 120
Thallium	0.0500	0.05062		mg/L		101	80 - 120

Lab Sample ID: 180-88068-D-12-G MS
Matrix: Water
Analysis Batch: 275004

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 274861

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	0.000265	J	0.0200	0.01955		mg/L		96	75 - 125

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

Lab Sample ID: 180-88068-D-12-H MSD
Matrix: Water
Analysis Batch: 275004

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 274861

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	0.000265	J	0.0200	0.01972		mg/L		97	75 - 125	1	20

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-274765/1-A
Matrix: Water
Analysis Batch: 274975

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 274765

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		04/03/19 14:38	04/05/19 12:35	1

Lab Sample ID: LCS 180-274765/2-A
Matrix: Water
Analysis Batch: 274975

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 274765

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	2.50	2.327		ug/L		93	80 - 120

Lab Sample ID: 180-88333-D-4-E MS
Matrix: Water
Analysis Batch: 274975

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 274765

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		1.00	0.9220		ug/L		92	75 - 125

Lab Sample ID: 180-88333-D-4-F MSD
Matrix: Water
Analysis Batch: 274975

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 274765

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		1.00	0.9290		ug/L		93	75 - 125	1	20

Method: 9040C - pH

Lab Sample ID: LCS 490-585481/1
Matrix: Water
Analysis Batch: 585481

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.010		SU		100	98 - 103

Lab Sample ID: 490-171184-1 DU
Matrix: Water
Analysis Batch: 585481

Client Sample ID: MW-104
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	6.88		6.880		SU		0	20
Temperature	20.9		20.90		Degrees C		0	20

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 490-586311/5
Matrix: Water
Analysis Batch: 586311

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 19:05	1
Carbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 19:05	1
Alkalinity	ND		10.0	5.00	mg/L			04/05/19 19:05	1

Lab Sample ID: LCS 490-586311/6
Matrix: Water
Analysis Batch: 586311

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	100	92.55		mg/L		93	90 - 110

Lab Sample ID: LCSD 490-586311/27
Matrix: Water
Analysis Batch: 586311

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity	100	94.04		mg/L		94	90 - 110	2	20

Lab Sample ID: LCSD 490-586311/29
Matrix: Water
Analysis Batch: 586311

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity	100	95.36		mg/L		95	90 - 110	3	20

Lab Sample ID: 490-171227-A-1 DU
Matrix: Water
Analysis Batch: 586311

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Bicarbonate Alkalinity as CaCO3	181		179.3		mg/L		0.8	20
Carbonate Alkalinity as CaCO3	ND		ND		mg/L		NC	20
Alkalinity	181		179.3		mg/L		0.8	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 490-584789/1
Matrix: Water
Analysis Batch: 584789

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		25.0	7.00	mg/L			04/02/19 10:30	1

Lab Sample ID: LCS 490-584789/2
Matrix: Water
Analysis Batch: 584789

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	100	108.0		mg/L		108	90 - 110

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: 490-171046-M-1 DU
Matrix: Water
Analysis Batch: 584789

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	251			256.0		mg/L				2	20

Lab Sample ID: 490-171184-1 DU
Matrix: Water
Analysis Batch: 584789

Client Sample ID: MW-104
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	6990			6900		mg/L				1	20

HPLC/IC

Analysis Batch: 584786

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	9056A	
490-171184-2	MW-110	Total/NA	Water	9056A	
490-171184-3	DUPE	Total/NA	Water	9056A	
490-171184-4	FIELD BLANK	Total/NA	Water	9056A	
MB 490-584786/3	Method Blank	Total/NA	Water	9056A	
LCS 490-584786/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-584786/5	Lab Control Sample Dup	Total/NA	Water	9056A	
490-171184-2 MS	MW-110	Total/NA	Water	9056A	
490-171184-2 MSD	MW-110	Total/NA	Water	9056A	

Analysis Batch: 585062

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	9056A	
490-171184-2	MW-110	Total/NA	Water	9056A	
490-171184-2	MW-110	Total/NA	Water	9056A	
490-171184-3	DUPE	Total/NA	Water	9056A	
490-171184-3	DUPE	Total/NA	Water	9056A	
MB 490-585062/3	Method Blank	Total/NA	Water	9056A	
LCS 490-585062/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-585062/5	Lab Control Sample Dup	Total/NA	Water	9056A	

Metals

Filtration Batch: 273938

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-88068-D-12-G MS	Matrix Spike	Dissolved	Water	FILTRATION	
180-88068-D-12-H MSD	Matrix Spike Duplicate	Dissolved	Water	FILTRATION	

Prep Batch: 274722

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total Recoverable	Water	3005A	
490-171184-2	MW-110	Total Recoverable	Water	3005A	
490-171184-3	DUPE	Total Recoverable	Water	3005A	
490-171184-4	FIELD BLANK	Total Recoverable	Water	3005A	
MB 180-274722/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-274722/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-88255-C-3-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	3005A	
180-88255-D-3-E MS	Matrix Spike	Total Recoverable	Water	3005A	

Prep Batch: 274765

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	7470A	
490-171184-2	MW-110	Total/NA	Water	7470A	
490-171184-3	DUPE	Total/NA	Water	7470A	
490-171184-4	FIELD BLANK	Total/NA	Water	7470A	
MB 180-274765/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-274765/2-A	Lab Control Sample	Total/NA	Water	7470A	
180-88333-D-4-E MS	Matrix Spike	Dissolved	Water	7470A	
180-88333-D-4-F MSD	Matrix Spike Duplicate	Dissolved	Water	7470A	

Metals

Analysis Batch: 274816

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total Recoverable	Water	6010C	274722
490-171184-2	MW-110	Total Recoverable	Water	6010C	274722
490-171184-3	DUPE	Total Recoverable	Water	6010C	274722
490-171184-4	FIELD BLANK	Total Recoverable	Water	6010C	274722
MB 180-274722/1-A	Method Blank	Total Recoverable	Water	6010C	274722
LCS 180-274722/2-A	Lab Control Sample	Total Recoverable	Water	6010C	274722
180-88255-C-3-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	6010C	274722
180-88255-D-3-E MS	Matrix Spike	Total Recoverable	Water	6010C	274722

Prep Batch: 274861

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total Recoverable	Water	3005A	
490-171184-2	MW-110	Total Recoverable	Water	3005A	
490-171184-3	DUPE	Total Recoverable	Water	3005A	
490-171184-4	FIELD BLANK	Total Recoverable	Water	3005A	
MB 180-274861/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-274861/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-88068-D-12-G MS	Matrix Spike	Dissolved	Water	3005A	273938
180-88068-D-12-H MSD	Matrix Spike Duplicate	Dissolved	Water	3005A	273938

Analysis Batch: 274975

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	EPA 7470A	274765
490-171184-2	MW-110	Total/NA	Water	EPA 7470A	274765
490-171184-3	DUPE	Total/NA	Water	EPA 7470A	274765
490-171184-4	FIELD BLANK	Total/NA	Water	EPA 7470A	274765
MB 180-274765/1-A	Method Blank	Total/NA	Water	EPA 7470A	274765
LCS 180-274765/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	274765
180-88333-D-4-E MS	Matrix Spike	Dissolved	Water	EPA 7470A	274765
180-88333-D-4-F MSD	Matrix Spike Duplicate	Dissolved	Water	EPA 7470A	274765

Analysis Batch: 275004

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total Recoverable	Water	6020A	274861
490-171184-2	MW-110	Total Recoverable	Water	6020A	274861
490-171184-3	DUPE	Total Recoverable	Water	6020A	274861
490-171184-4	FIELD BLANK	Total Recoverable	Water	6020A	274861
MB 180-274861/1-A	Method Blank	Total Recoverable	Water	6020A	274861
LCS 180-274861/2-A	Lab Control Sample	Total Recoverable	Water	6020A	274861
180-88068-D-12-G MS	Matrix Spike	Dissolved	Water	6020A	274861
180-88068-D-12-H MSD	Matrix Spike Duplicate	Dissolved	Water	6020A	274861

General Chemistry

Analysis Batch: 584789

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	SM 2540C	
490-171184-2	MW-110	Total/NA	Water	SM 2540C	
490-171184-3	DUPE	Total/NA	Water	SM 2540C	
490-171184-4	FIELD BLANK	Total/NA	Water	SM 2540C	
MB 490-584789/1	Method Blank	Total/NA	Water	SM 2540C	

General Chemistry (Continued)

Analysis Batch: 584789 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 490-584789/2	Lab Control Sample	Total/NA	Water	SM 2540C	
490-171046-M-1 DU	Duplicate	Total/NA	Water	SM 2540C	
490-171184-1 DU	MW-104	Total/NA	Water	SM 2540C	

Analysis Batch: 585481

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	9040C	
490-171184-2	MW-110	Total/NA	Water	9040C	
490-171184-3	DUPE	Total/NA	Water	9040C	
490-171184-4	FIELD BLANK	Total/NA	Water	9040C	
LCS 490-585481/1	Lab Control Sample	Total/NA	Water	9040C	
490-171184-1 DU	MW-104	Total/NA	Water	9040C	

Analysis Batch: 585534

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	9050A	
490-171184-2	MW-110	Total/NA	Water	9050A	
490-171184-3	DUPE	Total/NA	Water	9050A	
490-171184-4	FIELD BLANK	Total/NA	Water	9050A	
LCS 490-585534/3	Lab Control Sample	Total/NA	Water	9050A	

Analysis Batch: 586311

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	SM 2320B	
490-171184-2	MW-110	Total/NA	Water	SM 2320B	
490-171184-3	DUPE	Total/NA	Water	SM 2320B	
490-171184-4	FIELD BLANK	Total/NA	Water	SM 2320B	
MB 490-586311/5	Method Blank	Total/NA	Water	SM 2320B	
LCS 490-586311/6	Lab Control Sample	Total/NA	Water	SM 2320B	
LCSD 490-586311/27	Lab Control Sample Dup	Total/NA	Water	SM 2320B	
LCSD 490-586311/29	Lab Control Sample Dup	Total/NA	Water	SM 2320B	
490-171227-A-1 DU	Duplicate	Total/NA	Water	SM 2320B	

Lab Chronicle

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Client Sample ID: MW-104

Date Collected: 03/29/19 12:03
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			584786	04/01/19 11:43	SW1	TAL NSH
Total/NA	Analysis	9056A		100			585062	04/02/19 14:03	SW1	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	274722	04/03/19 11:21	NAM	TAL PIT
Total Recoverable	Analysis	6010C		1			274816	04/04/19 09:05	RJG	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	274861	04/04/19 13:20	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			275004	04/05/19 13:17	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	274765	04/03/19 14:38	KAK	TAL PIT
Total/NA	Analysis	EPA 7470A		1			274975	04/05/19 12:54	KAK	TAL PIT
Total/NA	Analysis	9040C		1			585481	04/03/19 15:52	MXX	TAL NSH
Total/NA	Analysis	9050A		1			585534	04/03/19 20:44	VRP	TAL NSH
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	586311	04/05/19 19:51	MSP	TAL NSH
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	584789	04/02/19 10:30	BMC	TAL NSH

Client Sample ID: MW-110

Date Collected: 03/29/19 09:35
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			584786	04/01/19 11:59	SW1	TAL NSH
Total/NA	Analysis	9056A		2			585062	04/02/19 14:36	SW1	TAL NSH
Total/NA	Analysis	9056A		50			585062	04/02/19 14:52	SW1	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	274722	04/03/19 11:21	NAM	TAL PIT
Total Recoverable	Analysis	6010C		1			274816	04/04/19 09:11	RJG	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	274861	04/04/19 13:20	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			275004	04/05/19 13:20	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	274765	04/03/19 14:38	KAK	TAL PIT
Total/NA	Analysis	EPA 7470A		1			274975	04/05/19 12:55	KAK	TAL PIT
Total/NA	Analysis	9040C		1			585481	04/03/19 15:52	MXX	TAL NSH
Total/NA	Analysis	9050A		1			585534	04/03/19 20:44	VRP	TAL NSH
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	586311	04/05/19 19:58	MSP	TAL NSH
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	584789	04/02/19 10:30	BMC	TAL NSH

Client Sample ID: DUPE

Date Collected: 03/29/19 09:46
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			584786	04/01/19 12:49	SW1	TAL NSH
Total/NA	Analysis	9056A		2			585062	04/02/19 15:09	SW1	TAL NSH
Total/NA	Analysis	9056A		50			585062	04/02/19 15:26	SW1	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	274722	04/03/19 11:21	NAM	TAL PIT
Total Recoverable	Analysis	6010C		1			274816	04/04/19 09:16	RJG	TAL PIT

Lab Chronicle

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Client Sample ID: DUPE
Date Collected: 03/29/19 09:46
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-3
Matrix: Water

Total Recoverable	Analysis	6020A	1			275004	04/05/19 13:24	RSK	TAL PIT
Total/NA	Prep	7470A		50 mL	50 mL	274765	04/03/19 14:38	KAK	TAL PIT
Total/NA	Analysis	EPA 7470A	1			274975	04/05/19 12:58	KAK	TAL PIT
Total/NA	Analysis	9040C	1			585481	04/03/19 15:52	MXX	TAL NSH
Total/NA	Analysis	9050A	1			585534	04/03/19 20:44	VRP	TAL NSH
Total/NA	Analysis	SM 2320B	1	35 mL	35 mL	586311	04/05/19 20:05	MSP	TAL NSH
Total/NA	Analysis	SM 2540C	1	50 mL	100 mL	584789	04/02/19 10:30	BMC	TAL NSH

Client Sample ID: FIELD BLANK
Date Collected: 03/29/19 12:27
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			584786	04/01/19 13:39	SW1	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	274722	04/03/19 11:21	NAM	TAL PIT
Total Recoverable	Analysis	6010C		1			274816	04/04/19 09:21	RJG	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	274861	04/04/19 13:20	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			275004	04/05/19 13:27	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	274765	04/03/19 14:38	KAK	TAL PIT
Total/NA	Analysis	EPA 7470A		1			274975	04/05/19 12:59	KAK	TAL PIT
Total/NA	Analysis	9040C		1			585481	04/03/19 15:52	MXX	TAL NSH
Total/NA	Analysis	9050A		1			585534	04/03/19 20:45	VRP	TAL NSH
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	586311	04/05/19 20:10	MSP	TAL NSH
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	584789	04/02/19 10:30	BMC	TAL NSH

Laboratory References:

TAL NSH = Eurofins TestAmerica, Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

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

Method Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	TAL NSH
6010C	Metals (ICP)	SW846	TAL PIT
6020A	Metals (ICP/MS)	SW846	TAL PIT
EPA 7470A	Mercury (CVAA)	SW846	TAL PIT
9040C	pH	SW846	TAL NSH
9050A	Specific Conductance	SW846	TAL NSH
SM 2320B	Alkalinity	SM	TAL NSH
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL NSH
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT
7470A	Preparation, Mercury	SW846	TAL PIT

Protocol References:

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.

Laboratory References:

TAL NSH = Eurofins TestAmerica, Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

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

Accreditation/Certification Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Laboratory: Eurofins TestAmerica, Nashville

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Kentucky (UST)	State Program	4	19	06-30-19

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
9040C		Water	pH
9040C		Water	Temperature
9050A		Water	Specific Conductance (25C)
9056A		Water	Chloride
9056A		Water	Fluoride
9056A		Water	Sulfate
SM 2320B		Water	Alkalinity
SM 2320B		Water	Bicarbonate Alkalinity as CaCO3
SM 2320B		Water	Carbonate Alkalinity as CaCO3
SM 2540C		Water	Total Dissolved Solids

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-19
California	State Program	9	2891	04-30-19 *
Connecticut	State Program	1	PH-0688	09-30-20
Florida	NELAP	4	E871008	06-30-19
Illinois	NELAP	5	200005	06-30-19
Kansas	NELAP	7	E-10350	01-31-20
Louisiana	NELAP	6	04041	06-30-19
Nevada	State Program	9	PA00164	07-31-19
New Hampshire	NELAP	1	2030	04-04-19 *
New Jersey	NELAP	2	PA005	06-30-19
New York	NELAP	2	11182	03-31-20
North Carolina (WW/SW)	State Program	4	434	12-31-19
Oregon	NELAP	10	PA-2151	01-28-19 *
Pennsylvania	NELAP	3	02-00416	04-30-19
South Carolina	State Program	4	89014	04-30-19 *
Texas	NELAP	6	T104704528-15-2	03-31-20
US Fish & Wildlife	Federal		LE94312A-1	07-31-19
USDA	Federal		P330-16-00211	06-26-19
Utah	NELAP	8	PA001462015-4	05-31-19 *
Virginia	NELAP	3	460189	09-14-19
West Virginia DEP	State Program	3	142	01-31-20
Wisconsin	State Program	5	998027800	08-31-19

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

490-171184 Chain of Custody

Cooler Received/Opened On 3/30/2019 @ 9:00

Time Samples Removed From Cooler 11:43 Time Samples Placed In Storage 11:49 (2 Hour Window)

1. Tracking # 0191 (last 4 digits, FedEx) Courier: Fedex

IR Gun ID 31470366 pH Strip Lot NA Chlorine Strip Lot NA

2. Temperature of rep. sample or temp blank when opened: 2.0 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...(NA)

4. Were custody seals on outside of cooler? (YES)...NO...NA

If yes, how many and where: 2 Front

5. Were the seals intact, signed, and dated correctly? (YES)...NO...NA

6. Were custody papers inside cooler? (YES)...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) ACE

7. Were custody seals on containers: YES (NO) and Intact YES...NO...(NA)

Were these signed and dated correctly? YES...NO...(NA)

8. Packing mat'l used? (Bubblewrap) Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: (Ice) Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? (YES)...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? (YES)...NO...NA

12. Did all container labels and tags agree with custody papers? (YES)...NO...NA

13a. Were VOA vials received? YES...(NO)...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...(NA)

● ⬅ Larger than this.

14. Was there a Trip Blank in this cooler? YES...(NO)...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) ACE

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...(NA)

b. Did the bottle labels indicate that the correct preservatives were used (YES)...NO...NA

16. Was residual chlorine present? YES...NO...(NA)

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) AE

17. Were custody papers properly filled out (ink, signed, etc)? (YES)...NO...NA

18. Did you sign the custody papers in the appropriate place? (YES)...NO...NA

19. Were correct containers used for the analysis requested? (YES)...NO...NA

20. Was sufficient amount of sample sent in each container? (YES)...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) ACE

I certify that I attached a label with the unique LIMS number to each container (intial) ACE

21. Were there Non-Conformance issues at login? YES...(NO) Was a NCM generated? YES...(NO)...#_____

BIS = Broken in shipment

TestAmerica Nashville
2960 Foster Creighton Drive

Nashville, TN 37204-3719
phone 615.726.0177 fax 615.726.3404

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other:

Client Contact: Greg Dick	**Project Manager: Mark Bertram**	**Site Contact: Greg Dick**	**Date: 3/29/2019**
Company: Big Rivers Electric Corporation	**Tel/Fax: (270) 844-5708**	**Lab Contact: Roxanne Cisneros**	**Carrier: ~~N/A~~ FedEx**
Address: 9000 Highway 2096	**Analysis Turnaround Time**		
City/State/Zip: Robards, KY 42452	☐ CALENDAR DAYS ☐ WORKING DAYS		
(270) 844-5736 Phone	TAT if different from Below _____		
(xxx) xxx-xxxx FAX	☑ 2 weeks		
Project Name: Sebree Station - New CCR Wells	☐ 1 week		
Site: Sebree Station	☐ 2 days		
P O #: Purchase Order-see DOCs	☐ 1 day		

COC No: 490-97948-27514.1
___1___ of ___1___ COCs
Sampler: Greg Dick
For Lab Use Only:
Walk-in Client:
Lab Sampling:
Job / SDG No.:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	903.0, 904.0	6010C, 6020A, 7470A	9056A_ORGFM_28D, 9040C, 9060A, 2320B	2540C_Calcd-TDS	Sample Specific Notes:
MW-104	3/29/19	1203	G	Water	5	N	N	x	x	x	x	Refer to attached constituent list for analysis
MW-110	3/29/19	935	G	Water	5	N	N	x	x	x	x	
DUPE	3/29/19	946	G	Water	5	N	N	x	x	x	x	
FIELD BLANK	3/29/19	1227	G	Water	5	N	N	x	x	x	x	
												Loc: 490 171184
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other, 7= None _____								4	4	7	7	

Possible Hazard Identification:
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.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown

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: Standard TAT; See attached constituent list for analysis.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: 2.0 Corr'd: _____ | Therm ID No.: _____

Relinquished by: Greg Dick	Company: BREC	Date/Time: 3/29/19 1600	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: TA-NSH	Date/Time: 3/30/19 9:00

Form No. CA-C-WI-002, Rev. 4.9, dated 2/2/2016

Page 24 of 31

4/8/2019

3/29/2019

Loc: 490
171184

Constituent List:

40 C.F.R. 257 Appendix III
Boron
Calcium
Fluoride
pH
Sulfate
Total Dissolved Solids (TDS)

Mary Rick
BREC
3/29/2019
1600

40 C.F.R. 257 Appendix IV
Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium
Cobalt
Fluoride
Lead
Lithium
Mercury
Molybdenum
Selenium
Thallium
Radium 226 & 228 combined

Additional Parameters
Carbonate Alkalinity
Bicarbonate Alkalinity
Alkalinity
Iron
Magnesium
Potassium
Sodium

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

490-171184 Chain of Custody

Cooler Received/Opened On 3/30/2019 @ 9:00

Time Samples Removed From Cooler 11:43 Time Samples Placed In Storage 11:49 (2 Hour Window)

1. Tracking # 0191 (last 4 digits, FedEx) Courier: Fedex

IR Gun ID 31470366 pH Strip Lot NA Chlorine Strip Lot NA

2. Temperature of rep. sample or temp blank when opened: 2.0 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 2 Front

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) ACG

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

● ⬅ Larger than this.

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) ACG

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) AG

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) ACG

I certify that I attached a label with the unique LIMS number to each container (intial) ACG

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#_____

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 8/23/17

Loc: 490
171184

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

Cooler Received/Opened On 03-30-2019 @ 09:00

Time Samples Removed From Cooler 12:35 Time Samples Placed In Storage 12:37 (2 Hour Window)

1. Tracking # 0206 (last 4 digits, FedEx) Courier: FedEx

IR Gun ID 31470368 pH Strip Lot MP Chlorine Strip Lot MB

2. Temperature of rep. sample or temp blank when opened: 2.6 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES NO NA

If yes, how many and where: 1 (front)

5. Were the seals intact, signed, and dated correctly? YES NO NA

6. Were custody papers inside cooler? YES NO NA

I certify that I opened the cooler and answered questions 1-6 (intial) KA

7. Were custody seals on containers: YES NO and Intact YES NO NA

Were these signed and dated correctly? YES NO NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES NO NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES NO NA

12. Did all container labels and tags agree with custody papers? YES NO NA

13a. Were VOA vials received? YES NO NA

b. Was there any observable headspace present in any VOA vial? YES NO NA

● ← Larger than this.

14. Was there a Trip Blank in this cooler? YES NO NA If multiple coolers, sequence #

I certify that I unloaded the cooler and answered questions 7-14 (intial) AK

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES NO NA

b. Did the bottle labels indicate that the correct preservatives were used YES NO NA

16. Was residual chlorine present? YES NO NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) AK

17. Were custody papers properly filled out (ink, signed, etc)? YES NO NA

18. Did you sign the custody papers in the appropriate place? YES NO NA

19. Were correct containers used for the analysis requested? YES NO NA

20. Was sufficient amount of sample sent in each container? YES NO NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) AK

I certify that I attached a label with the unique LIMS number to each container (intial) AK

21. Were there Non-Conformance issues at login? YES NO Was a NCM generated? YES NO #

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 8/23/17

4/8/2019

TestAmerica Nashville
2960 Foster Creighton Drive

Nashville, TN 37204-3719
phone 615.726.0177 fax 615.726.3404

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☐DW ☐NPDES ☐RCRA ☑Other:

Client Contact: Greg Dick	Project Manager: Mark Bertram	Site Contact: Greg Dick	Date: 3/29/2019
Company: Big Rivers Electric Corporation	Tel/Fax: (270) 844-5708	Lab Contact: Roxanne Cisneros	Carrier: ~~N/A~~ FedEx
Address: 9000 Highway 2096	Analysis Turnaround Time		COC No: 490-97948-27514.1
City/State/Zip: Robards, KY 42452	☐ CALENDAR DAYS ☐ WORKING DAYS		1 of 1 COCs
(270) 844-5736 Phone	TAT if different from Below _____		Sampler: Greg Dick
(xxx) xxx-xxxx FAX	☑ 2 weeks		For Lab Use Only:
Project Name: Sebree Station - New CCR Wells	☐ 1 week		Walk-in Client:
Site: Sebree Station	☐ 2 days		Lab Sampling:
P O #: Purchase Order-see DOCs	☐ 1 day		Job / SDG No.:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	903.0, 904.0	6010C, 6020A, 7470A	90556A_ORGFM_28D, 9040C, 9060A, 2320B	2540C_Calcd-TDS	Sample Specific Notes:
MW-104	3/29/19	1203	G	Water	5	N	N	x	x	x	x	Refer to attached constituent list for analysis
MW-110	3/29/19	935	G	Water	5	N	N	x	x	x	x	
DUPE	3/29/19	946	G	Water	5	N	N	x	x	x	x	
FIELD BLANK	3/29/19	1227	G	Water	5	N	N	x	x	x	x	
												Loc: 490 171184

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other, 7= None _____ — 4 4 7 7

Possible Hazard Identification:
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.
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown

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: Standard TAT; See attached constituent list for analysis.

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd: 2.0	Corr'd: _____	Therm ID No.: _____
Relinquished by: Greg Dick	Company: BREC	Date/Time: 3/29/19 1600	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: TA-NAS	Date/Time: 3/30/19 9:00

Form No. CA-C-WI-002, Rev. 4.9, dated 2/2/2016

4/8/2019

Loc: 490
171184

3/29/2019

Constituent List:

40 C.F.R. 257 Appendix III
Boron
Calcium
Fluoride
pH
Sulfate
Total Dissolved Solids (TDS)

Mary Rick
BREC
3/29/2019
1600

40 C.F.R. 257 Appendix IV
Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium
Cobalt
Fluoride
Lead
Lithium
Mercury
Molybdenum
Selenium
Thallium
Radium 226 & 228 combined

Additional Parameters
Carbonate Alkalinity
Bicarbonate Alkalinity
Alkalinity
Iron
Magnesium
Potassium
Sodium

TestAmerica Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Phone (615) 726-0177 Fax (615) 726-3404

Not 7CC

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Cisneros, Roxanne	Carrier Tracking No(s):	COC No: 490-87960.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: roxanne.cisneros@testamericainc.com	State of Origin: Kentucky	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Kentucky (UST)		Job #: 490-171184-1
Address: 301 Alpha Drive, RIDC Park,	Due Date Requested: 4/11/2019			
City: Pittsburgh	TAT Requested (days):			
State, Zip: PA, 15238				
Phone: 412-963-7058(Tel) 412-963-2468(Fax)	PO #:			
Email:	WO #:			
Project Name: Sebree Station - New CCR Wells	Project #: 49010431			
Site: Big Rivers CCR	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
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
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C/3005A (MOD) Lithium	6020A/3005A (MOD) ICP/MS Metals	7470A/7470A_Prep Mercury	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-104 (490-171184-1)	3/29/19	12:03 Eastern		Water			X	X	X	1	Metals - run once, upload together.
MW-110 (490-171184-2)	3/29/19	09:35 Eastern		Water			X	X	X	1	Metals - run once, upload together.
DUPE (490-171184-3)	3/29/19	09:46 Eastern		Water			X	X	X	1	Metals - run once, upload together.
FIELD BLANK (490-171184-4)	3/29/19	12:27 Eastern		Water			X	X	X	1	Metals - run once, upload together.

490-171184 Chain of Custody

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ 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:

	Date/Time	Company	Received by:	Date/Time	Company
Relinquished by:	4.1.19 1430	TANAS			
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 4-2-19 850	Company TAPI
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Big Rivers Electric Corporation

Job Number: 490-171184-1
SDG Number: Sebree Station

Login Number: 171184
List Number: 2
Creator: Watson, Debbie

List Source: Eurofins TestAmerica, Pittsburgh
List Creation: 04/02/19 02:08 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?	False	
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	

eurofins | Environment Testing TestAmerica



ANALYTICAL REPORT

Eurofins TestAmerica, Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Tel: (615)726-0177

Laboratory Job ID: 490-171184-1
Laboratory Sample Delivery Group: Sebree Station
Client Project/Site: Sebree Station - New CCR Wells

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

Attn: Greg Dick

Roxanne Cisneros

Authorized for release by:
5/8/2019 9:51:41 AM

Roxanne Cisneros, Senior Project Manager
(615)301-5761
roxanne.cisneros@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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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Sample Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-171184-1	MW-104	Water	03/29/19 12:03	03/30/19 09:00
490-171184-2	MW-110	Water	03/29/19 09:35	03/30/19 09:00
490-171184-3	DUPE	Water	03/29/19 09:46	03/30/19 09:00
490-171184-4	FIELD BLANK	Water	03/29/19 12:27	03/30/19 09:00

Job ID: 490-171184-1

Laboratory: Eurofins TestAmerica, Nashville

Narrative

Job Narrative
490-171184-1

Comments
No additional comments.

Receipt
The samples were received on 3/30/2019 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.0º C and 3.6º C.

HPLC/IC
Method(s) 9056A: Due to the high concentration of Sulfate, the matrix spike / matrix spike duplicate (MS/MSD) for analytical batch 490-584786 could not be evaluated for accuracy and precision. The associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) met acceptance criteria.

Method(s) 9056A: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for 490-584786 were within the acceptance limits for chloride . However, the sample results exceeded the calibration curve limits. (490-171184-B-2 MS) and (490-171184-B-2 MSD)

Method(s) 9056A: The continuing calibration blank (CCB) contained chloride above the method detection limit (MDL). However, the result was less than the reporting limit (RL). The results have been reported. (CCB 490-584786/23)

Method(s) 9056A: The following samples were diluted due to the nature of the sample matrix: MW-104 (490-171184-1), MW-110 (490-171184-2) and DUPE (490-171184-3). Elevated reporting limits (RLs) are provided.

Method(s) 9056A: Due to the nature of the sample matrix, a matrix spike / matrix spike duplicate (MS/MSD) was not analyzed with 490-585062. However, the laboratory control sample / laboratory control sample duplicate (LCS/LCSD) recoveries were within the acceptance limits. (LCS 490-585062/4) and (LCSD 490-585062/5)

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

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

Narrative

Job Narrative
490-171184-2

Comments
No additional comments.

Receipt
The samples were received on 3/30/2019 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.0º C and 3.6º C.

RAD
Method(s) 903.0, 9315: Ra-226 Prep Batch 160-423611: 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-104 (490-171184-1),

Job ID: 490-171184-1 (Continued)

Laboratory: Eurofins TestAmerica, Nashville (Continued)

MW-110 (490-171184-2), DUPE (490-171184-3), FIELD BLANK (490-171184-4), (LCS 160-423611/1-A), (MB 160-423611/24-A), (400-168077-A-20-A) and (400-168077-B-20-A DU)

Method(s) 904.0: Radium-228 Prep Batch 160-423832: The following sample did not meet the requested limit (RL) due to the reduced sample volume attributed to the presence of matrix interferences (see prep NCM 164958). The data have been reported with this narrative. DUPE (490-171184-3)

Method(s) 904.0, 9320: Radium-228 Prep Batch 160-423832: 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-104 (490-171184-1), MW-110 (490-171184-2), DUPE (490-171184-3), FIELD BLANK (490-171184-4), (LCS 160-423832/1-A), (MB 160-423832/24-A), (400-168077-A-20-B) and (400-168077-B-20-B DU)

Method(s) PrecSep_0: Radium-228 Prep Batch 160-423832: The following samples were reduced due to heavy discoloration from sedimentation: MW-104 (490-171184-1), MW-110 (490-171184-2) and DUPE (490-171184-3)

Method(s) PrecSep-21: Radium-226 Prep Batch 160-423611: The following samples were reduced due to heavy discoloration due to sedimentation: MW-104 (490-171184-1), MW-110 (490-171184-2) and DUPE (490-171184-3)

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

Qualifiers

HPLC/IC

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.
E	Result exceeded calibration range.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
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
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.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

Client Sample ID: MW-104

Date Collected: 03/29/19 12:03
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-1

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**1430**		300	20.0	mg/L			04/02/19 14:03	100
Fluoride	ND		1.00	0.0100	mg/L			04/01/19 11:43	1
Sulfate	**2870**		500	3.00	mg/L			04/02/19 14:03	100

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.0281**	**J**	0.0500	0.00959	mg/L		04/03/19 11:21	04/04/19 09:05	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.0000910**	**J B**	0.00200	0.0000213	mg/L		04/04/19 13:20	04/05/19 13:17	1
Arsenic	**0.00221**	**J**	0.00500	0.000118	mg/L		04/04/19 13:20	04/05/19 13:17	1
Barium	**0.0243**	**J**	0.200	0.000270	mg/L		04/04/19 13:20	04/05/19 13:17	1
Beryllium	ND		0.00200	0.000102	mg/L		04/04/19 13:20	04/05/19 13:17	1
Boron	**0.188**	**J B**	1.00	0.00339	mg/L		04/04/19 13:20	04/05/19 13:17	1
Cadmium	ND		0.00100	0.000152	mg/L		04/04/19 13:20	04/05/19 13:17	1
Calcium	**465**	**B**	1.00	0.0412	mg/L		04/04/19 13:20	04/05/19 13:17	1
Chromium	**0.00471**	**B**	0.00300	0.000339	mg/L		04/04/19 13:20	04/05/19 13:17	1
Cobalt	**0.00594**	**B**	0.00500	0.0000218	mg/L		04/04/19 13:20	04/05/19 13:17	1
Iron	**3.22**		0.0500	0.0141	mg/L		04/04/19 13:20	04/05/19 13:17	1
Lead	**0.00105**	**J**	0.00500	0.0000675	mg/L		04/04/19 13:20	04/05/19 13:17	1
Magnesium	**521**		1.00	0.0827	mg/L		04/04/19 13:20	04/05/19 13:17	1
Molybdenum	**0.00147**	**J**	0.0100	0.000873	mg/L		04/04/19 13:20	04/05/19 13:17	1
Potassium	**1650**		1000	147	ug/L		04/04/19 13:20	04/05/19 13:17	1
Selenium	ND		0.0100	0.000348	mg/L		04/04/19 13:20	04/05/19 13:17	1
Sodium	**824**		1.00	0.251	mg/L		04/04/19 13:20	04/05/19 13:17	1
Thallium	ND		0.00100	0.0000360	mg/L		04/04/19 13:20	04/05/19 13:17	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		04/03/19 14:38	04/05/19 12:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**6.88**		0.100	0.100	SU			04/03/19 15:52	1
Temperature	**20.9**		0.100	0.100	Degrees C			04/03/19 15:52	1
Specific Conductance (25C)	**8790**		10.0	10.0	umhos/cm			04/03/19 20:44	1
Bicarbonate Alkalinity as CaCO3	**664**		10.0	5.00	mg/L			04/05/19 19:51	1
Carbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 19:51	1
Alkalinity	**664**		10.0	5.00	mg/L			04/05/19 19:51	1
Total Dissolved Solids	**6990**		100	28.0	mg/L			04/02/19 10:30	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	**0.139**		0.0913	0.0922	1.00	0.121	pCi/L	04/14/19 16:48	05/07/19 13:21	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*84.7*		*40 - 110*	*04/14/19 16:48*	*05/07/19 13:21*	*1*

Client Sample ID: MW-104

Date Collected: 03/29/19 12:03
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-1

Matrix: Water

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.627		0.365	0.370	1.00	0.553	pCi/L	04/14/19 16:48	04/25/19 08:14	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*84.7*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:14*	*1*
Y Carrier	*87.1*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:14*	*1*

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	0.766		0.376	0.381	5.00	0.553	pCi/L		05/08/19 07:28	1

Client Sample Results

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Client Sample ID: MW-110

Date Collected: 03/29/19 09:35
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-2

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	26.0		6.00	0.400	mg/L			04/02/19 14:36	2
Fluoride	0.279	J	1.00	0.0100	mg/L			04/01/19 11:59	1
Sulfate	563		250	1.50	mg/L			04/02/19 14:52	50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0299	J	0.0500	0.00959	mg/L		04/03/19 11:21	04/04/19 09:11	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.000240	J B	0.00200	0.0000213	mg/L		04/04/19 13:20	04/05/19 13:20	1
Arsenic	0.00534		0.00500	0.000118	mg/L		04/04/19 13:20	04/05/19 13:20	1
Barium	0.118	J	0.200	0.000270	mg/L		04/04/19 13:20	04/05/19 13:20	1
Beryllium	0.000716	J	0.00200	0.000102	mg/L		04/04/19 13:20	04/05/19 13:20	1
Boron	0.484	J B	1.00	0.00339	mg/L		04/04/19 13:20	04/05/19 13:20	1
Cadmium	ND		0.00100	0.000152	mg/L		04/04/19 13:20	04/05/19 13:20	1
Calcium	176	B	1.00	0.0412	mg/L		04/04/19 13:20	04/05/19 13:20	1
Chromium	0.0180	B	0.00300	0.000339	mg/L		04/04/19 13:20	04/05/19 13:20	1
Cobalt	0.00911	B	0.00500	0.0000218	mg/L		04/04/19 13:20	04/05/19 13:20	1
Iron	19.5		0.0500	0.0141	mg/L		04/04/19 13:20	04/05/19 13:20	1
Lead	0.00661		0.00500	0.0000675	mg/L		04/04/19 13:20	04/05/19 13:20	1
Magnesium	56.8		1.00	0.0827	mg/L		04/04/19 13:20	04/05/19 13:20	1
Molybdenum	0.00153	J	0.0100	0.000873	mg/L		04/04/19 13:20	04/05/19 13:20	1
Potassium	4070		1000	147	ug/L		04/04/19 13:20	04/05/19 13:20	1
Selenium	ND		0.0100	0.000348	mg/L		04/04/19 13:20	04/05/19 13:20	1
Sodium	96.3		1.00	0.251	mg/L		04/04/19 13:20	04/05/19 13:20	1
Thallium	0.000112	J	0.00100	0.0000360	mg/L		04/04/19 13:20	04/05/19 13:20	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		04/03/19 14:38	04/05/19 12:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.25		0.100	0.100	SU			04/03/19 15:52	1
Temperature	20.7		0.100	0.100	Degrees C			04/03/19 15:52	1
Specific Conductance (25C)	1570		10.0	10.0	umhos/cm			04/03/19 20:44	1
Bicarbonate Alkalinity as CaCO3	266		10.0	5.00	mg/L			04/05/19 19:58	1
Carbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 19:58	1
Alkalinity	266		10.0	5.00	mg/L			04/05/19 19:58	1
Total Dissolved Solids	1170		50.0	14.0	mg/L			04/02/19 10:30	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	0.688		0.230	0.238	1.00	0.200	pCi/L	04/14/19 16:48	05/07/19 13:21	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*72.6*		*40 - 110*	*04/14/19 16:48*	*05/07/19 13:21*	*1*

Client Sample ID: MW-110

Date Collected: 03/29/19 09:35
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-2

Matrix: Water

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.15		0.621	0.630	1.00	0.927	pCi/L	04/14/19 16:48	04/25/19 08:14	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*72.6*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:14*	*1*
Y Carrier	*90.5*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:14*	*1*

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	1.84		0.662	0.673	5.00	0.927	pCi/L		05/08/19 07:28	1

Client Sample ID: DUPE

Date Collected: 03/29/19 09:46
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-3

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	25.2		6.00	0.400	mg/L			04/02/19 15:09	2
Fluoride	0.283	J	1.00	0.0100	mg/L			04/01/19 12:49	1
Sulfate	552		250	1.50	mg/L			04/02/19 15:26	50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0260	J	0.0500	0.00959	mg/L		04/03/19 11:21	04/04/19 09:16	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.000193	J B	0.00200	0.0000213	mg/L		04/04/19 13:20	04/05/19 13:24	1
Arsenic	0.00393	J	0.00500	0.000118	mg/L		04/04/19 13:20	04/05/19 13:24	1
Barium	0.114	J	0.200	0.000270	mg/L		04/04/19 13:20	04/05/19 13:24	1
Beryllium	0.000572	J	0.00200	0.000102	mg/L		04/04/19 13:20	04/05/19 13:24	1
Boron	0.490	J B	1.00	0.00339	mg/L		04/04/19 13:20	04/05/19 13:24	1
Cadmium	ND		0.00100	0.000152	mg/L		04/04/19 13:20	04/05/19 13:24	1
Calcium	178	B	1.00	0.0412	mg/L		04/04/19 13:20	04/05/19 13:24	1
Chromium	0.0148	B	0.00300	0.000339	mg/L		04/04/19 13:20	04/05/19 13:24	1
Cobalt	0.00631	B	0.00500	0.0000218	mg/L		04/04/19 13:20	04/05/19 13:24	1
Iron	15.2		0.0500	0.0141	mg/L		04/04/19 13:20	04/05/19 13:24	1
Lead	0.00561		0.00500	0.0000675	mg/L		04/04/19 13:20	04/05/19 13:24	1
Magnesium	56.8		1.00	0.0827	mg/L		04/04/19 13:20	04/05/19 13:24	1
Molybdenum	0.00136	J	0.0100	0.000873	mg/L		04/04/19 13:20	04/05/19 13:24	1
Potassium	3910		1000	147	ug/L		04/04/19 13:20	04/05/19 13:24	1
Selenium	ND		0.0100	0.000348	mg/L		04/04/19 13:20	04/05/19 13:24	1
Sodium	98.5		1.00	0.251	mg/L		04/04/19 13:20	04/05/19 13:24	1
Thallium	0.0000770	J	0.00100	0.0000360	mg/L		04/04/19 13:20	04/05/19 13:24	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		04/03/19 14:38	04/05/19 12:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.39		0.100	0.100	SU			04/03/19 15:52	1
Temperature	20.7		0.100	0.100	Degrees C			04/03/19 15:52	1
Specific Conductance (25C)	1570		10.0	10.0	umhos/cm			04/03/19 20:44	1
Bicarbonate Alkalinity as CaCO3	289		10.0	5.00	mg/L			04/05/19 20:05	1
Carbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 20:05	1
Alkalinity	289		10.0	5.00	mg/L			04/05/19 20:05	1
Total Dissolved Solids	1170		50.0	14.0	mg/L			04/02/19 10:30	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	0.776		0.242	0.252	1.00	0.171	pCi/L	04/14/19 16:48	05/07/19 13:21	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*68.4*		*40 - 110*	*04/14/19 16:48*	*05/07/19 13:21*	*1*

Client Sample ID: DUPE

Date Collected: 03/29/19 09:46
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-3

Matrix: Water

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.474	U G	0.617	0.619	1.00	1.03	pCi/L	04/14/19 16:48	04/25/19 08:14	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*68.4*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:14*	*1*
Y Carrier	*89.7*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:14*	*1*

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	**1.25**		0.663	0.668	5.00	1.03	pCi/L		05/08/19 07:28	1

Client Sample ID: FIELD BLANK

Date Collected: 03/29/19 12:27
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-4

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	0.200	mg/L			04/01/19 13:39	1
Fluoride	ND		1.00	0.0100	mg/L			04/01/19 13:39	1
Sulfate	ND		5.00	0.0300	mg/L			04/01/19 13:39	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.0500	0.00959	mg/L		04/03/19 11:21	04/04/19 09:21	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.000131**	**J B**	0.00200	0.0000213	mg/L		04/04/19 13:20	04/05/19 13:27	1
Arsenic	**0.000496**	**J**	0.00500	0.000118	mg/L		04/04/19 13:20	04/05/19 13:27	1
Barium	ND		0.200	0.000270	mg/L		04/04/19 13:20	04/05/19 13:27	1
Beryllium	ND		0.00200	0.000102	mg/L		04/04/19 13:20	04/05/19 13:27	1
Boron	**0.0231**	**J B**	1.00	0.00339	mg/L		04/04/19 13:20	04/05/19 13:27	1
Cadmium	ND		0.00100	0.000152	mg/L		04/04/19 13:20	04/05/19 13:27	1
Calcium	**0.0702**	**J B**	1.00	0.0412	mg/L		04/04/19 13:20	04/05/19 13:27	1
Chromium	**0.00274**	**J B**	0.00300	0.000339	mg/L		04/04/19 13:20	04/05/19 13:27	1
Cobalt	ND		0.00500	0.0000218	mg/L		04/04/19 13:20	04/05/19 13:27	1
Iron	ND		0.0500	0.0141	mg/L		04/04/19 13:20	04/05/19 13:27	1
Lead	ND		0.00500	0.0000675	mg/L		04/04/19 13:20	04/05/19 13:27	1
Magnesium	ND		1.00	0.0827	mg/L		04/04/19 13:20	04/05/19 13:27	1
Molybdenum	ND		0.0100	0.000873	mg/L		04/04/19 13:20	04/05/19 13:27	1
Potassium	ND		1000	147	ug/L		04/04/19 13:20	04/05/19 13:27	1
Selenium	ND		0.0100	0.000348	mg/L		04/04/19 13:20	04/05/19 13:27	1
Sodium	ND		1.00	0.251	mg/L		04/04/19 13:20	04/05/19 13:27	1
Thallium	ND		0.00100	0.0000360	mg/L		04/04/19 13:20	04/05/19 13:27	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		04/03/19 14:38	04/05/19 12:59	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**5.88**		0.100	0.100	SU			04/03/19 15:52	1
Temperature	**20.9**		0.100	0.100	Degrees C			04/03/19 15:52	1
Specific Conductance (25C)	ND		10.0	10.0	umhos/cm			04/03/19 20:45	1
Bicarbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 20:10	1
Carbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 20:10	1
Alkalinity	ND		10.0	5.00	mg/L			04/05/19 20:10	1
Total Dissolved Solids	**10.0**	**J**	25.0	7.00	mg/L			04/02/19 10:30	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	0.00457	U	0.0361	0.0361	1.00	0.0761	pCi/L	04/14/19 16:48	05/07/19 13:22	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.0*		*40 - 110*	*04/14/19 16:48*	*05/07/19 13:22*	*1*

Client Sample ID: FIELD BLANK

Date Collected: 03/29/19 12:27
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-4

Matrix: Water

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.134	U	0.200	0.201	1.00	0.336	pCi/L	04/14/19 16:48	04/25/19 08:14	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.0*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:14*	*1*
Y Carrier	*90.8*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:14*	*1*

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	0.138	U	0.203	0.204	5.00	0.336	pCi/L		05/08/19 07:28	1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 490-584786/3
Matrix: Water
Analysis Batch: 584786

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	0.200	mg/L			04/01/19 08:44	1
Fluoride	ND		1.00	0.0100	mg/L			04/01/19 08:44	1
Sulfate	ND		5.00	0.0300	mg/L			04/01/19 08:44	1

Lab Sample ID: LCS 490-584786/4
Matrix: Water
Analysis Batch: 584786

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.238		mg/L		92	80 - 120
Fluoride	1.00	0.9862	J	mg/L		99	80 - 120
Sulfate	10.0	9.515		mg/L		95	80 - 120

Lab Sample ID: LCSD 490-584786/5
Matrix: Water
Analysis Batch: 584786

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.205		mg/L		92	80 - 120	0	20
Fluoride	1.00	0.9820	J	mg/L		98	80 - 120	0	20
Sulfate	10.0	9.584		mg/L		96	80 - 120	1	20

Lab Sample ID: 490-171184-2 MS
Matrix: Water
Analysis Batch: 584786

Client Sample ID: MW-110
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	26.8	E	10.0	38.44	E	mg/L		116	80 - 120
Fluoride	0.279	J	1.00	1.339		mg/L		106	80 - 120
Sulfate	791	E	10.0	796.0	E 4	mg/L		50	80 - 120

Lab Sample ID: 490-171184-2 MSD
Matrix: Water
Analysis Batch: 584786

Client Sample ID: MW-110
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	26.8	E	10.0	38.70	E	mg/L		118	80 - 120	1	20
Fluoride	0.279	J	1.00	1.373		mg/L		109	80 - 120	2	20
Sulfate	791	E	10.0	796.1	E 4	mg/L		51	80 - 120	0	20

Lab Sample ID: MB 490-585062/3
Matrix: Water
Analysis Batch: 585062

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	0.200	mg/L			04/02/19 12:56	1
Fluoride	ND		1.00	0.0100	mg/L			04/02/19 12:56	1
Sulfate	ND		5.00	0.0300	mg/L			04/02/19 12:56	1

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 490-585062/4
Matrix: Water
Analysis Batch: 585062

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			10.0	9.308		mg/L		93	80 - 120		
Fluoride			1.00	1.020		mg/L		102	80 - 120		
Sulfate			10.0	9.831		mg/L		98	80 - 120		

Lab Sample ID: LCSD 490-585062/5
Matrix: Water
Analysis Batch: 585062

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			10.0	9.310		mg/L		93	80 - 120	0	20
Fluoride			1.00	1.029		mg/L		103	80 - 120	1	20
Sulfate			10.0	9.853		mg/L		98	80 - 120	0	20

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 180-274722/1-A
Matrix: Water
Analysis Batch: 274816

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 274722

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.0500	0.00959	mg/L		04/03/19 11:21	04/04/19 07:41	1

Lab Sample ID: LCS 180-274722/2-A
Matrix: Water
Analysis Batch: 274816

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 274722

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Lithium			1.00	0.9781		mg/L		98	80 - 120		

Lab Sample ID: 180-88255-C-3-D MSD
Matrix: Water
Analysis Batch: 274816

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 274722

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lithium	ND		1.00	0.9822		mg/L		98	75 - 125	0	20

Lab Sample ID: 180-88255-D-3-E MS
Matrix: Water
Analysis Batch: 274816

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 274722

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Lithium	ND		1.00	0.9852		mg/L		99	75 - 125		

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 180-274861/1-A
Matrix: Water
Analysis Batch: 275004

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 274861

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00005200	J	0.00200	0.0000213	mg/L		04/04/19 13:20	04/05/19 11:56	1
Arsenic	ND		0.00500	0.000118	mg/L		04/04/19 13:20	04/05/19 11:56	1
Barium	ND		0.200	0.000270	mg/L		04/04/19 13:20	04/05/19 11:56	1
Beryllium	ND		0.00200	0.000102	mg/L		04/04/19 13:20	04/05/19 11:56	1
Boron	0.006373	J	1.00	0.00339	mg/L		04/04/19 13:20	04/05/19 11:56	1
Cadmium	ND		0.00100	0.000152	mg/L		04/04/19 13:20	04/05/19 11:56	1
Calcium	0.05960	J	1.00	0.0412	mg/L		04/04/19 13:20	04/05/19 11:56	1
Chromium	0.0003860	J	0.00300	0.000339	mg/L		04/04/19 13:20	04/05/19 11:56	1
Cobalt	0.00002600	J	0.00500	0.0000218	mg/L		04/04/19 13:20	04/05/19 11:56	1
Iron	ND		0.0500	0.0141	mg/L		04/04/19 13:20	04/05/19 11:56	1
Lead	ND		0.00500	0.0000675	mg/L		04/04/19 13:20	04/05/19 11:56	1
Magnesium	ND		1.00	0.0827	mg/L		04/04/19 13:20	04/05/19 11:56	1
Molybdenum	ND		0.0100	0.000873	mg/L		04/04/19 13:20	04/05/19 11:56	1
Potassium	ND		1000	147	ug/L		04/04/19 13:20	04/05/19 11:56	1
Selenium	ND		0.0100	0.000348	mg/L		04/04/19 13:20	04/05/19 11:56	1
Sodium	ND		1.00	0.251	mg/L		04/04/19 13:20	04/05/19 11:56	1
Thallium	ND		0.00100	0.0000360	mg/L		04/04/19 13:20	04/05/19 11:56	1

Lab Sample ID: LCS 180-274861/2-A
Matrix: Water
Analysis Batch: 275004

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 274861

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.500	0.4849		mg/L		97	80 - 120
Arsenic	0.0400	0.03953		mg/L		99	80 - 120
Barium	2.00	1.928		mg/L		96	80 - 120
Beryllium	0.0500	0.05212		mg/L		104	80 - 120
Boron	1.00	0.9972	J	mg/L		100	80 - 120
Cadmium	0.0500	0.05024		mg/L		100	80 - 120
Calcium	50.0	48.40		mg/L		97	80 - 120
Chromium	0.200	0.2007		mg/L		100	80 - 120
Cobalt	0.500	0.4952		mg/L		99	80 - 120
Iron	11.0	10.61		mg/L		96	80 - 120
Lead	0.0200	0.01871		mg/L		94	80 - 120
Magnesium	50.0	48.08		mg/L		96	80 - 120
Molybdenum	1.00	0.9281		mg/L		93	80 - 120
Potassium	50000	47700		ug/L		95	80 - 120
Selenium	0.0100	0.01014		mg/L		101	80 - 120
Sodium	50.0	50.18		mg/L		100	80 - 120
Thallium	0.0500	0.05062		mg/L		101	80 - 120

Lab Sample ID: 180-88068-D-12-G MS
Matrix: Water
Analysis Batch: 275004

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 274861

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	0.000265	J	0.0200	0.01955		mg/L		96	75 - 125

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

Lab Sample ID: 180-88068-D-12-H MSD
Matrix: Water
Analysis Batch: 275004

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 274861

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	0.000265	J	0.0200	0.01972		mg/L		97	75 - 125	1	20

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-274765/1-A
Matrix: Water
Analysis Batch: 274975

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 274765

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		04/03/19 14:38	04/05/19 12:35	1

Lab Sample ID: LCS 180-274765/2-A
Matrix: Water
Analysis Batch: 274975

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 274765

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	2.50	2.327		ug/L		93	80 - 120

Lab Sample ID: 180-88333-D-4-E MS
Matrix: Water
Analysis Batch: 274975

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 274765

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		1.00	0.9220		ug/L		92	75 - 125

Lab Sample ID: 180-88333-D-4-F MSD
Matrix: Water
Analysis Batch: 274975

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 274765

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		1.00	0.9290		ug/L		93	75 - 125	1	20

Method: 9040C - pH

Lab Sample ID: LCS 490-585481/1
Matrix: Water
Analysis Batch: 585481

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.010		SU		100	98 - 103

Lab Sample ID: 490-171184-1 DU
Matrix: Water
Analysis Batch: 585481

Client Sample ID: MW-104
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	6.88		6.880		SU		0	20
Temperature	20.9		20.90		Degrees C		0	20

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 490-586311/5
Matrix: Water
Analysis Batch: 586311

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 19:05	1
Carbonate Alkalinity as CaCO3	ND		10.0	5.00	mg/L			04/05/19 19:05	1
Alkalinity	ND		10.0	5.00	mg/L			04/05/19 19:05	1

Lab Sample ID: LCS 490-586311/6
Matrix: Water
Analysis Batch: 586311

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Alkalinity			100	92.55		mg/L		93	90 - 110		

Lab Sample ID: LCSD 490-586311/27
Matrix: Water
Analysis Batch: 586311

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity			100	94.04		mg/L		94	90 - 110	2	20

Lab Sample ID: LCSD 490-586311/29
Matrix: Water
Analysis Batch: 586311

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity			100	95.36		mg/L		95	90 - 110	3	20

Lab Sample ID: 490-171227-A-1 DU
Matrix: Water
Analysis Batch: 586311

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Bicarbonate Alkalinity as CaCO3	181			179.3		mg/L				0.8	20
Carbonate Alkalinity as CaCO3	ND			ND		mg/L				NC	20
Alkalinity	181			179.3		mg/L				0.8	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 490-584789/1
Matrix: Water
Analysis Batch: 584789

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		25.0	7.00	mg/L			04/02/19 10:30	1

Lab Sample ID: LCS 490-584789/2
Matrix: Water
Analysis Batch: 584789

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			100	108.0		mg/L		108	90 - 110		

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: 490-171046-M-1 DU
Matrix: Water
Analysis Batch: 584789

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	251			256.0		mg/L				2	20

Lab Sample ID: 490-171184-1 DU
Matrix: Water
Analysis Batch: 584789

Client Sample ID: MW-104
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	6990			6900		mg/L				1	20

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-423611/24-A
Matrix: Water
Analysis Batch: 427653

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 423611

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.06299	U	0.0535	0.0538	1.00	0.0761	pCi/L	04/14/19 16:48	05/07/19 13:22	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.6*		*40 - 110*	*04/14/19 16:48*	*05/07/19 13:22*	*1*

Lab Sample ID: LCS 160-423611/1-A
Matrix: Water
Analysis Batch: 427429

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 423611

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.4	10.04		1.05	1.00	0.0858	pCi/L	88	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*90.0*		*40 - 110*

Lab Sample ID: 400-168077-B-20-A DU
Matrix: Water
Analysis Batch: 427429

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 423611

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Radium-226	0.263			0.2137		0.0923	1.00	0.0946	pCi/L			0.25	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Ba Carrier	*85.5*		*40 - 110*

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-423832/24-A
Matrix: Water
Analysis Batch: 425516

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 423832

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.3565	U	0.235	0.237	1.00	0.361	pCi/L	04/14/19 16:48	04/25/19 08:15	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.6*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:15*	*1*
Y Carrier	*89.7*		*40 - 110*	*04/14/19 16:48*	*04/25/19 08:15*	*1*

Lab Sample ID: LCS 160-423832/1-A
Matrix: Water
Analysis Batch: 425517

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 423832

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.27	10.51		1.20	1.00	0.391	pCi/L	113	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*90.0*		*40 - 110*
Y Carrier	*87.5*		*40 - 110*

Lab Sample ID: 400-168077-B-20-B DU
Matrix: Water
Analysis Batch: 425517

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 423832

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Radium-228	0.577			0.4291		0.277	1.00	0.422	pCi/L			0.27	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Ba Carrier	*85.5*		*40 - 110*
Y Carrier	*85.6*		*40 - 110*

HPLC/IC

Analysis Batch: 584786

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	9056A	
490-171184-2	MW-110	Total/NA	Water	9056A	
490-171184-3	DUPE	Total/NA	Water	9056A	
490-171184-4	FIELD BLANK	Total/NA	Water	9056A	
MB 490-584786/3	Method Blank	Total/NA	Water	9056A	
LCS 490-584786/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-584786/5	Lab Control Sample Dup	Total/NA	Water	9056A	
490-171184-2 MS	MW-110	Total/NA	Water	9056A	
490-171184-2 MSD	MW-110	Total/NA	Water	9056A	

Analysis Batch: 585062

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	9056A	
490-171184-2	MW-110	Total/NA	Water	9056A	
490-171184-2	MW-110	Total/NA	Water	9056A	
490-171184-3	DUPE	Total/NA	Water	9056A	
490-171184-3	DUPE	Total/NA	Water	9056A	
MB 490-585062/3	Method Blank	Total/NA	Water	9056A	
LCS 490-585062/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-585062/5	Lab Control Sample Dup	Total/NA	Water	9056A	

Metals

Filtration Batch: 273938

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-88068-D-12-G MS	Matrix Spike	Dissolved	Water	FILTRATION	
180-88068-D-12-H MSD	Matrix Spike Duplicate	Dissolved	Water	FILTRATION	

Prep Batch: 274722

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total Recoverable	Water	3005A	
490-171184-2	MW-110	Total Recoverable	Water	3005A	
490-171184-3	DUPE	Total Recoverable	Water	3005A	
490-171184-4	FIELD BLANK	Total Recoverable	Water	3005A	
MB 180-274722/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-274722/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-88255-C-3-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	3005A	
180-88255-D-3-E MS	Matrix Spike	Total Recoverable	Water	3005A	

Prep Batch: 274765

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	7470A	
490-171184-2	MW-110	Total/NA	Water	7470A	
490-171184-3	DUPE	Total/NA	Water	7470A	
490-171184-4	FIELD BLANK	Total/NA	Water	7470A	
MB 180-274765/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-274765/2-A	Lab Control Sample	Total/NA	Water	7470A	
180-88333-D-4-E MS	Matrix Spike	Dissolved	Water	7470A	
180-88333-D-4-F MSD	Matrix Spike Duplicate	Dissolved	Water	7470A	

Metals

Analysis Batch: 274816

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total Recoverable	Water	6010C	274722
490-171184-2	MW-110	Total Recoverable	Water	6010C	274722
490-171184-3	DUPE	Total Recoverable	Water	6010C	274722
490-171184-4	FIELD BLANK	Total Recoverable	Water	6010C	274722
MB 180-274722/1-A	Method Blank	Total Recoverable	Water	6010C	274722
LCS 180-274722/2-A	Lab Control Sample	Total Recoverable	Water	6010C	274722
180-88255-C-3-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	6010C	274722
180-88255-D-3-E MS	Matrix Spike	Total Recoverable	Water	6010C	274722

Prep Batch: 274861

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total Recoverable	Water	3005A	
490-171184-2	MW-110	Total Recoverable	Water	3005A	
490-171184-3	DUPE	Total Recoverable	Water	3005A	
490-171184-4	FIELD BLANK	Total Recoverable	Water	3005A	
MB 180-274861/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-274861/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-88068-D-12-G MS	Matrix Spike	Dissolved	Water	3005A	273938
180-88068-D-12-H MSD	Matrix Spike Duplicate	Dissolved	Water	3005A	273938

Analysis Batch: 274975

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	EPA 7470A	274765
490-171184-2	MW-110	Total/NA	Water	EPA 7470A	274765
490-171184-3	DUPE	Total/NA	Water	EPA 7470A	274765
490-171184-4	FIELD BLANK	Total/NA	Water	EPA 7470A	274765
MB 180-274765/1-A	Method Blank	Total/NA	Water	EPA 7470A	274765
LCS 180-274765/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	274765
180-88333-D-4-E MS	Matrix Spike	Dissolved	Water	EPA 7470A	274765
180-88333-D-4-F MSD	Matrix Spike Duplicate	Dissolved	Water	EPA 7470A	274765

Analysis Batch: 275004

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total Recoverable	Water	6020A	274861
490-171184-2	MW-110	Total Recoverable	Water	6020A	274861
490-171184-3	DUPE	Total Recoverable	Water	6020A	274861
490-171184-4	FIELD BLANK	Total Recoverable	Water	6020A	274861
MB 180-274861/1-A	Method Blank	Total Recoverable	Water	6020A	274861
LCS 180-274861/2-A	Lab Control Sample	Total Recoverable	Water	6020A	274861
180-88068-D-12-G MS	Matrix Spike	Dissolved	Water	6020A	274861
180-88068-D-12-H MSD	Matrix Spike Duplicate	Dissolved	Water	6020A	274861

General Chemistry

Analysis Batch: 584789

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	SM 2540C	
490-171184-2	MW-110	Total/NA	Water	SM 2540C	
490-171184-3	DUPE	Total/NA	Water	SM 2540C	
490-171184-4	FIELD BLANK	Total/NA	Water	SM 2540C	
MB 490-584789/1	Method Blank	Total/NA	Water	SM 2540C	

General Chemistry (Continued)

Analysis Batch: 584789 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 490-584789/2	Lab Control Sample	Total/NA	Water	SM 2540C	
490-171046-M-1 DU	Duplicate	Total/NA	Water	SM 2540C	
490-171184-1 DU	MW-104	Total/NA	Water	SM 2540C	

Analysis Batch: 585481

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	9040C	
490-171184-2	MW-110	Total/NA	Water	9040C	
490-171184-3	DUPE	Total/NA	Water	9040C	
490-171184-4	FIELD BLANK	Total/NA	Water	9040C	
LCS 490-585481/1	Lab Control Sample	Total/NA	Water	9040C	
490-171184-1 DU	MW-104	Total/NA	Water	9040C	

Analysis Batch: 585534

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	9050A	
490-171184-2	MW-110	Total/NA	Water	9050A	
490-171184-3	DUPE	Total/NA	Water	9050A	
490-171184-4	FIELD BLANK	Total/NA	Water	9050A	
LCS 490-585534/3	Lab Control Sample	Total/NA	Water	9050A	

Analysis Batch: 586311

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	SM 2320B	
490-171184-2	MW-110	Total/NA	Water	SM 2320B	
490-171184-3	DUPE	Total/NA	Water	SM 2320B	
490-171184-4	FIELD BLANK	Total/NA	Water	SM 2320B	
MB 490-586311/5	Method Blank	Total/NA	Water	SM 2320B	
LCS 490-586311/6	Lab Control Sample	Total/NA	Water	SM 2320B	
LCSD 490-586311/27	Lab Control Sample Dup	Total/NA	Water	SM 2320B	
LCSD 490-586311/29	Lab Control Sample Dup	Total/NA	Water	SM 2320B	
490-171227-A-1 DU	Duplicate	Total/NA	Water	SM 2320B	

Rad

Prep Batch: 423611

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	PrecSep-21	
490-171184-2	MW-110	Total/NA	Water	PrecSep-21	
490-171184-3	DUPE	Total/NA	Water	PrecSep-21	
490-171184-4	FIELD BLANK	Total/NA	Water	PrecSep-21	
MB 160-423611/24-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-423611/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
400-168077-B-20-A DU	Duplicate	Total/NA	Water	PrecSep-21	

Prep Batch: 423832

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-171184-1	MW-104	Total/NA	Water	PrecSep_0	
490-171184-2	MW-110	Total/NA	Water	PrecSep_0	
490-171184-3	DUPE	Total/NA	Water	PrecSep_0	
490-171184-4	FIELD BLANK	Total/NA	Water	PrecSep_0	

Rad (Continued)

Prep Batch: 423832 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 160-423832/24-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-423832/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
400-168077-B-20-B DU	Duplicate	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Client Sample ID: MW-104

Date Collected: 03/29/19 12:03
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			584786	04/01/19 11:43	SW1	TAL NSH
Total/NA	Analysis	9056A		100			585062	04/02/19 14:03	SW1	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	274722	04/03/19 11:21	NAM	TAL PIT
Total Recoverable	Analysis	6010C		1			274816	04/04/19 09:05	RJG	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	274861	04/04/19 13:20	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			275004	04/05/19 13:17	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	274765	04/03/19 14:38	KAK	TAL PIT
Total/NA	Analysis	EPA 7470A		1			274975	04/05/19 12:54	KAK	TAL PIT
Total/NA	Analysis	9040C		1			585481	04/03/19 15:52	MXX	TAL NSH
Total/NA	Analysis	9050A		1			585534	04/03/19 20:44	VRP	TAL NSH
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	586311	04/05/19 19:51	MSP	TAL NSH
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	584789	04/02/19 10:30	BMC	TAL NSH
Total/NA	Prep	PrecSep-21			750.14 mL	1.0 g	423611	04/14/19 16:48	MMO	TAL SL
Total/NA	Analysis	903.0		1			427653	05/07/19 13:21	CDR	TAL SL
Total/NA	Prep	PrecSep_0			750.14 mL	1.0 g	423832	04/14/19 16:48	MMO	TAL SL
Total/NA	Analysis	904.0		1	1.0 mL	1.0 mL	425516	04/25/19 08:14	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			427672	05/08/19 07:28	SMP	TAL SL

Client Sample ID: MW-110

Date Collected: 03/29/19 09:35
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			584786	04/01/19 11:59	SW1	TAL NSH
Total/NA	Analysis	9056A		2			585062	04/02/19 14:36	SW1	TAL NSH
Total/NA	Analysis	9056A		50			585062	04/02/19 14:52	SW1	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	274722	04/03/19 11:21	NAM	TAL PIT
Total Recoverable	Analysis	6010C		1			274816	04/04/19 09:11	RJG	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	274861	04/04/19 13:20	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			275004	04/05/19 13:20	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	274765	04/03/19 14:38	KAK	TAL PIT
Total/NA	Analysis	EPA 7470A		1			274975	04/05/19 12:55	KAK	TAL PIT
Total/NA	Analysis	9040C		1			585481	04/03/19 15:52	MXX	TAL NSH
Total/NA	Analysis	9050A		1			585534	04/03/19 20:44	VRP	TAL NSH
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	586311	04/05/19 19:58	MSP	TAL NSH
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	584789	04/02/19 10:30	BMC	TAL NSH
Total/NA	Prep	PrecSep-21			500.14 mL	1.0 g	423611	04/14/19 16:48	MMO	TAL SL
Total/NA	Analysis	903.0		1			427653	05/07/19 13:21	CDR	TAL SL
Total/NA	Prep	PrecSep_0			500.14 mL	1.0 g	423832	04/14/19 16:48	MMO	TAL SL
Total/NA	Analysis	904.0		1	1.0 mL	1.0 mL	425516	04/25/19 08:14	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			427672	05/08/19 07:28	SMP	TAL SL

Lab Chronicle

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Client Sample ID: DUPE

Date Collected: 03/29/19 09:46
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			584786	04/01/19 12:49	SW1	TAL NSH
Total/NA	Analysis	9056A		2			585062	04/02/19 15:09	SW1	TAL NSH
Total/NA	Analysis	9056A		50			585062	04/02/19 15:26	SW1	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	274722	04/03/19 11:21	NAM	TAL PIT
Total Recoverable	Analysis	6010C		1			274816	04/04/19 09:16	RJG	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	274861	04/04/19 13:20	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			275004	04/05/19 13:24	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	274765	04/03/19 14:38	KAK	TAL PIT
Total/NA	Analysis	EPA 7470A		1			274975	04/05/19 12:58	KAK	TAL PIT
Total/NA	Analysis	9040C		1			585481	04/03/19 15:52	MXX	TAL NSH
Total/NA	Analysis	9050A		1			585534	04/03/19 20:44	VRP	TAL NSH
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	586311	04/05/19 20:05	MSP	TAL NSH
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	584789	04/02/19 10:30	BMC	TAL NSH
Total/NA	Prep	PrecSep-21			500.02 mL	1.0 g	423611	04/14/19 16:48	MMO	TAL SL
Total/NA	Analysis	903.0		1			427653	05/07/19 13:21	CDR	TAL SL
Total/NA	Prep	PrecSep_0			500.02 mL	1.0 g	423832	04/14/19 16:48	MMO	TAL SL
Total/NA	Analysis	904.0		1	1.0 mL	1.0 mL	425516	04/25/19 08:14	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			427672	05/08/19 07:28	SMP	TAL SL

Client Sample ID: FIELD BLANK

Date Collected: 03/29/19 12:27
Date Received: 03/30/19 09:00

Lab Sample ID: 490-171184-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			584786	04/01/19 13:39	SW1	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	274722	04/03/19 11:21	NAM	TAL PIT
Total Recoverable	Analysis	6010C		1			274816	04/04/19 09:21	RJG	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	274861	04/04/19 13:20	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			275004	04/05/19 13:27	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	274765	04/03/19 14:38	KAK	TAL PIT
Total/NA	Analysis	EPA 7470A		1			274975	04/05/19 12:59	KAK	TAL PIT
Total/NA	Analysis	9040C		1			585481	04/03/19 15:52	MXX	TAL NSH
Total/NA	Analysis	9050A		1			585534	04/03/19 20:45	VRP	TAL NSH
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	586311	04/05/19 20:10	MSP	TAL NSH
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	584789	04/02/19 10:30	BMC	TAL NSH
Total/NA	Prep	PrecSep-21			1000.00 mL	1.0 g	423611	04/14/19 16:48	MMO	TAL SL
Total/NA	Analysis	903.0		1			427653	05/07/19 13:22	CDR	TAL SL
Total/NA	Prep	PrecSep_0			1000.00 mL	1.0 g	423832	04/14/19 16:48	MMO	TAL SL
Total/NA	Analysis	904.0		1	1.0 mL	1.0 mL	425516	04/25/19 08:14	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			427672	05/08/19 07:28	SMP	TAL SL

Lab Chronicle

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Laboratory References:

TAL NSH = Eurofins TestAmerica, Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

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

Method Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	TAL NSH
6010C	Metals (ICP)	SW846	TAL PIT
6020A	Metals (ICP/MS)	SW846	TAL PIT
EPA 7470A	Mercury (CVAA)	SW846	TAL PIT
9040C	pH	SW846	TAL NSH
9050A	Specific Conductance	SW846	TAL NSH
SM 2320B	Alkalinity	SM	TAL NSH
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL NSH
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT
7470A	Preparation, Mercury	SW846	TAL PIT

Protocol References:

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.

Laboratory References:

TAL NSH = Eurofins TestAmerica, Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

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

Accreditation/Certification Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Laboratory: Eurofins TestAmerica, Nashville

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Kentucky (UST)	State Program	4	19	06-30-19

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
9040C		Water	pH
9040C		Water	Temperature
9050A		Water	Specific Conductance (25C)
9056A		Water	Chloride
9056A		Water	Fluoride
9056A		Water	Sulfate
SM 2320B		Water	Alkalinity
SM 2320B		Water	Bicarbonate Alkalinity as CaCO3
SM 2320B		Water	Carbonate Alkalinity as CaCO3
SM 2540C		Water	Total Dissolved Solids

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-19
California	State Program	9	2891	04-30-19 *
Connecticut	State Program	1	PH-0688	09-30-20
Florida	NELAP	4	E871008	06-30-19
Illinois	NELAP	5	200005	06-30-19
Kansas	NELAP	7	E-10350	01-31-20
Louisiana	NELAP	6	04041	06-30-19
Nevada	State Program	9	PA00164	07-31-19
New Hampshire	NELAP	1	2030	04-04-19 *
New Jersey	NELAP	2	PA005	06-30-19
New York	NELAP	2	11182	03-31-20
North Carolina (WW/SW)	State Program	4	434	12-31-19
Oregon	NELAP	10	PA-2151	01-28-19 *
Pennsylvania	NELAP	3	02-00416	04-30-19
South Carolina	State Program	4	89014	04-30-19 *
Texas	NELAP	6	T104704528-15-2	03-31-20
US Fish & Wildlife	Federal		LE94312A-1	07-31-19
USDA	Federal		P330-16-00211	06-26-19
Utah	NELAP	8	PA001462015-4	05-31-19 *
Virginia	NELAP	3	460189	09-14-19
West Virginia DEP	State Program	3	142	01-31-20
Wisconsin	State Program	5	998027800	08-31-19

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

Accreditation/Certification Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
SDG: Sebree Station

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	MO00054	06-30-19
ANAB	DoD		L2305	04-06-22
Arizona	State Program	9	AZ0813	12-08-19
California	State Program	9	2886	06-30-19 *
Connecticut	State Program	1	PH-0241	03-31-21
Florida	NELAP	4	E87689	06-30-19 *
Hawaii	State Program	9	NA	06-30-19
Illinois	NELAP	5	200023	11-30-19
Iowa	State Program	7	373	12-01-20
Kansas	NELAP	7	E-10236	10-31-19
Kentucky (DW)	State Program	4	KY90125	12-31-19
Louisiana	NELAP	6	04080	06-30-19
Louisiana (DW)	NELAP	6	LA011	12-31-19
Maryland	State Program	3	310	09-30-19
Michigan	State Program	5	9005	06-30-19
Missouri	State Program	7	780	06-30-19
Nevada	State Program	9	MO000542018-1	07-31-19
New Jersey	NELAP	2	MO002	06-30-19 *
New York	NELAP	2	11616	03-31-20
North Dakota	State Program	8	R207	06-30-19 *
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-19
Pennsylvania	NELAP	3	68-00540	02-28-20
South Carolina	State Program	4	85002001	06-30-19
Texas	NELAP	6	T104704193-18-13	07-31-19
US Fish & Wildlife	Federal		058448	07-31-19
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542018-10	07-31-19
Virginia	NELAP	3	460230	06-14-19 *
Washington	State Program	10	C592	08-30-19
West Virginia DEP	State Program	3	381	08-31-19

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

490-171184 Chain of Custody

Cooler Received/Opened On 3/30/2019 @ 9:00

Time Samples Removed From Cooler 11:43 Time Samples Placed In Storage 11:49 (2 Hour Window)

1. Tracking # 0191 (last 4 digits, FedEx) Courier: Fedex

IR Gun ID 31470366 pH Strip Lot NA Chlorine Strip Lot NA

2. Temperature of rep. sample or temp blank when opened: 2.0 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...(NA)

4. Were custody seals on outside of cooler? (YES)...NO...NA

If yes, how many and where: 2 Front

5. Were the seals intact, signed, and dated correctly? (YES)...NO...NA

6. Were custody papers inside cooler? (YES)...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) ACE

7. Were custody seals on containers: YES (NO) and Intact YES...NO...(NA)

Were these signed and dated correctly? YES...NO...(NA)

8. Packing mat'l used? (Bubblewrap) Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: (Ice) Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? (YES)...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? (YES)...NO...NA

12. Did all container labels and tags agree with custody papers? (YES)...NO...NA

13a. Were VOA vials received? YES...(NO)...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...(NA)

● ⬅ Larger than this.

14. Was there a Trip Blank in this cooler? YES...(NO)...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) ACE

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...(NA)

b. Did the bottle labels indicate that the correct preservatives were used (YES)...NO...NA

16. Was residual chlorine present? YES...NO...(NA)

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) AE

17. Were custody papers properly filled out (ink, signed, etc)? (YES)...NO...NA

18. Did you sign the custody papers in the appropriate place? (YES)...NO...NA

19. Were correct containers used for the analysis requested? (YES)...NO...NA

20. Was sufficient amount of sample sent in each container? (YES)...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) ACE

I certify that I attached a label with the unique LIMS number to each container (intial) ACE

21. Were there Non-Conformance issues at login? YES...(NO) Was a NCM generated? YES...(NO)...#_____

BIS = Broken in shipment

TestAmerica Nashville
2960 Foster Creighton Drive

Nashville, TN 37204-3719
phone 615.726.0177 fax 615.726.3404

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other:

Client Contact: Greg Dick	**Project Manager: Mark Bertram**	**Site Contact: Greg Dick**	**Date: 3/29/2019**
Company: Big Rivers Electric Corporation	**Tel/Fax: (270) 844-5708**	**Lab Contact: Roxanne Cisneros**	**Carrier: ~~N/A~~ FedEx**
Address: 9000 Highway 2096	**Analysis Turnaround Time**		
City/State/Zip: Robards, KY 42452	☐ CALENDAR DAYS ☐ WORKING DAYS		
(270) 844-5736 Phone	TAT if different from Below _____		
(xxx) xxx-xxxx FAX	☑ 2 weeks		
Project Name: Sebree Station - New CCR Wells	☐ 1 week		
Site: Sebree Station	☐ 2 days		
P O #: Purchase Order-see DOCs	☐ 1 day		

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	903.0, 904.0	6010C, 6020A, 7470A	9056A_ORGFM_28D, 9040C, 9060A, 2320B	2540C_Calcd-TDS
MW-104	3/29/19	1203	G	Water	5	N	N	x	x	x	x
MW-110	3/29/19	935	G	Water	5	N	N	x	x	x	x
DUPE	3/29/19	946	G	Water	5	N	N	x	x	x	x
FIELD BLANK	3/29/19	1227	G	Water	5	N	N	x	x	x	x
								4	4	7	7

COC No: 490-97948-27514.1
1 of 1 COCs
Sampler: Greg Dick
For Lab Use Only:
Walk-in Client:
Lab Sampling:
Job / SDG No.:

Sample Specific Notes:
Refer to attached constituent list for analysis

Loc: 490
171184

Preservation Used: 1= Ice, 2= HCl; 3= H_2SO_4; 4=HNO_3; 5=NaOH; 6= Other, 7= None

Possible Hazard Identification:
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.
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown

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: Standard TAT; See attached constituent list for analysis.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: 2.0 Corr'd: _____ | Therm ID No.: _____

Relinquished by: Greg Dick	Company: BREC	Date/Time: 3/29/19 1600	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: TA-NSH	Date/Time: 3/30/19 9:00

Form No. CA-C-WI-002, Rev. 4.9, dated 2/2/2016

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5/8/2019

3/29/2019

Loc: 490
171184

Constituent List:

40 C.F.R. 257 Appendix III
Boron
Calcium
Fluoride
pH
Sulfate
Total Dissolved Solids (TDS)

Mary Rick
BREC
3/29/2019
1600

40 C.F.R. 257 Appendix IV
Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium
Cobalt
Fluoride
Lead
Lithium
Mercury
Molybdenum
Selenium
Thallium
Radium 226 & 228 combined

Additional Parameters
Carbonate Alkalinity
Bicarbonate Alkalinity
Alkalinity
Iron
Magnesium
Potassium
Sodium

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

490-171184 Chain of Custody

Cooler Received/Opened On 3/30/2019 @ 9:00

Time Samples Removed From Cooler 11:43 Time Samples Placed In Storage 11:49 (2 Hour Window)

1. Tracking # 0191 (last 4 digits, FedEx) Courier: Fedex

IR Gun ID 31470366 pH Strip Lot NA Chlorine Strip Lot NA

2. Temperature of rep. sample or temp blank when opened: 2.0 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 2 Front

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) ACG

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

● ⬅ Larger than this.

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) ACG

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) ACG

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) ACG

I certify that I attached a label with the unique LIMS number to each container (intial) ACG

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#_____

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 8/23/17

Loc: 490
171184

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

Cooler Received/Opened On 03-30-2019 @ 09:00

Time Samples Removed From Cooler 12:35 Time Samples Placed In Storage 12:37 (2 Hour Window)

1. Tracking # 0206 (last 4 digits, FedEx) Courier: FedEx

IR Gun ID 31470368 pH Strip Lot [illegible] Chlorine Strip Lot [illegible]

2. Temperature of rep. sample or temp blank when opened: 2.6 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES NO NA

If yes, how many and where: 1 (front)

5. Were the seals intact, signed, and dated correctly? YES NO NA

6. Were custody papers inside cooler? YES NO NA

I certify that I opened the cooler and answered questions 1-6 (intial) KA

7. Were custody seals on containers: YES NO and Intact YES NO NA

Were these signed and dated correctly? YES NO NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES NO NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES NO NA

12. Did all container labels and tags agree with custody papers? YES NO NA

13a. Were VOA vials received? YES NO NA

b. Was there any observable headspace present in any VOA vial? YES NO NA

Larger than this.

14. Was there a Trip Blank in this cooler? YES NO NA If multiple coolers, sequence #

I certify that I unloaded the cooler and answered questions 7-14 (intial) AK

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES NO NA

b. Did the bottle labels indicate that the correct preservatives were used YES NO NA

16. Was residual chlorine present? YES NO NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) AK

17. Were custody papers properly filled out (ink, signed, etc)? YES NO NA

18. Did you sign the custody papers in the appropriate place? YES NO NA

19. Were correct containers used for the analysis requested? YES NO NA

20. Was sufficient amount of sample sent in each container? YES NO NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) AK

I certify that I attached a label with the unique LIMS number to each container (intial) AK

21. Were there Non-Conformance issues at login? YES NO Was a NCM generated? YES NO #

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 8/23/17

TestAmerica Nashville
2960 Foster Creighton Drive

Nashville, TN 37204-3719
phone 615.726.0177 fax 615.726.3404

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other:

TestAmerica Laboratories, Inc.

Client Contact: Greg Dick	Project Manager: Mark Bertram	Site Contact: Greg Dick	Date: 3/29/2019
Company: Big Rivers Electric Corporation	Tel/Fax: (270) 844-5708	Lab Contact: Roxanne Cisneros	Carrier: ~~N/A~~ FedEx
Address: 9000 Highway 2096	Analysis Turnaround Time		
City/State/Zip: Robards, KY 42452	☐ CALENDAR DAYS ☐ WORKING DAYS		
(270) 844-5736 Phone	TAT if different from Below _____		
(xxx) xxx-xxxx FAX	☑ 2 weeks		
Project Name: Sebree Station - New CCR Wells	☐ 1 week		
Site: Sebree Station	☐ 2 days		
P O #: Purchase Order-see DOCs	☐ 1 day		

COC No: 490-97948-27514.1
1 of 1 COCs
Sampler: Greg Dick
For Lab Use Only:
Walk-in Client:
Lab Sampling:
Job / SDG No.:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	903.0, 904.0	6010C, 6020A, 7470A	90556A_ORGFM_28D, 9040C, 9060A, 2320B	2540C_Calcd-TDS	Sample Specific Notes:
MW-104	3/29/19	1203	G	Water	5	N	N	x	x	x	x	Refer to attached constituent list for analysis
MW-110	3/29/19	935	G	Water	5	N	N	x	x	x	x	
DUPE	3/29/19	946	G	Water	5	N	N	x	x	x	x	
FIELD BLANK	3/29/19	1227	G	Water	5	N	N	x	x	x	x	
												Loc: 490 171184

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other, 7= None _____ — 4 4 7 7

Possible Hazard Identification:
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.
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown

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: Standard TAT; See attached constituent list for analysis.

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd: 2.0 Corr'd: _____		Therm ID No.: _____
Relinquished by: Greg Dick	Company: BREC	Date/Time: 3/29/19 1600	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: TA-NAS	Date/Time: 3/30/19 9:00

Form No. CA-C-WI-002, Rev. 4.9, dated 2/2/2016

5/8/2019

3/29/2019

Loc: 490
171184

Constituent List:

40 C.F.R. 257 Appendix III
Boron
Calcium
Fluoride
pH
Sulfate
Total Dissolved Solids (TDS)

Mary Rick
BREC
3/29/2019
1600

40 C.F.R. 257 Appendix IV
Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium
Cobalt
Fluoride
Lead
Lithium
Mercury
Molybdenum
Selenium
Thallium
Radium 226 & 228 combined

Additional Parameters
Carbonate Alkalinity
Bicarbonate Alkalinity
Alkalinity
Iron
Magnesium
Potassium
Sodium

TestAmerica Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Phone (615) 726-0177 Fax (615) 726-3404

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Cisneros, Roxanne	Carrier Tracking No(s):	COC No: 490-87963.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: roxanne.cisneros@testamericainc.com	State of Origin: Kentucky	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 490-171184-2
Address: 13715 Rider Trail North, ,	Due Date Requested: 4/29/2019			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Sebree Station - New CCR Wells	Project #: 49010431			
Site: Big Rivers CCR	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
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
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	903.0/PrecSep_21 Standard Target List	904.0/PrecSep_0 Standard Target List	Ra226Ra228_GFPC	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-104 (490-171184-1)	3/29/19	12:03 Eastern		Water			X	X	X	2	run once - upload data twice
MW-110 (490-171184-2)	3/29/19	09:35 Eastern		Water			X	X	X	2	run once - upload data twice
DUPE (490-171184-3)	3/29/19	09:46 Eastern		Water			X	X	X	2	run once - upload data twice
FIELD BLANK (490-171184-4)	3/29/19	12:27 Eastern		Water			X	X	X	2	run once - upload data twice

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *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:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	4-1-19 @ 1430	TAN-AS	[signature]	4/2/19 09:20	TA-STL
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Big Rivers Electric Corporation

Job Number: 490-171184-2
SDG Number: Sebree Station

Login Number: 171184
List Number: 3
Creator: Hellm, Michael

List Source: Eurofins TestAmerica, St. Louis
List Creation: 04/02/19 04:42 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.	N/A	
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	20.0
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").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station - New CCR Wells

Job ID: 490-171184-1
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 Carrier (40-110)
400-168077-B-20-A DU	Duplicate	85.5
490-171184-1	MW-104	84.7
490-171184-2	MW-110	72.6
490-171184-3	DUPE	68.4
490-171184-4	FIELD BLANK	95.0
LCS 160-423611/1-A	Lab Control Sample	90.0
MB 160-423611/24-A	Method Blank	92.6

Tracer/Carrier Legend

Ba Carrier = 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 Carrier (40-110)	Y Carrier (40-110)
400-168077-B-20-B DU	Duplicate	85.5	85.6
490-171184-1	MW-104	84.7	87.1
490-171184-2	MW-110	72.6	90.5
490-171184-3	DUPE	68.4	89.7
490-171184-4	FIELD BLANK	95.0	90.8
LCS 160-423832/1-A	Lab Control Sample	90.0	87.5
MB 160-423832/24-A	Method Blank	92.6	89.7

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

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ANALYTICAL REPORT

Eurofins TestAmerica, Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Tel: (615)726-0177

Laboratory Job ID: 490-172010-1
Laboratory Sample Delivery Group: Sebree Station
Client Project/Site: Sebree Station, New CCR Wells Rd 2

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

Attn: Mark Bertram

Roxanne Cisneros

Authorized for release by:
4/30/2019 10:49:54 AM

Roxanne Cisneros, Senior Project Manager
(615)301-5761
roxanne.cisneros@testamericainc.com

LINKS

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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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Sample Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-172010-1	MW-104	Water	04/10/19 14:43	04/12/19 09:55
490-172010-2	MW-110	Water	04/10/19 12:59	04/12/19 09:55
490-172010-3	DUPE	Water	04/10/19 15:10	04/12/19 09:55
490-172010-4	FIELD BLANK	Water	04/10/19 15:39	04/12/19 09:55

Job ID: 490-172010-1

Laboratory: Eurofins TestAmerica, Nashville

Narrative

Job Narrative
490-172010-1

Comments
No additional comments.

Receipt
The samples were received on 4/12/2019 9:55 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were -0.6º C and 0.7º C.

HPLC/IC
Method(s) 9056A: The concentration of Chloride in the Matrix Spike/Matrix Spike Duplicate (MS/MSD) exceeded the calibration curve range. (490-171999-H-13 MS)

Method(s) 9056A: The method blank for analytical batch 490-587889 contained Chloride above the reporting limit (RL). Associated sample(s) were not re-extracted and/or re-analyzed because results were greater than 10X the value found in the method blank.

Method(s) 9056A: The concentration of Chloride and Sulfate in the Matrix Spike/Matrix Spike Duplicate (MS/MSD) exceeded the calibration curve range. (490-172007-E-1 MS) and (490-172007-E-1 MSD)

Method(s) 9056A: The following samples were diluted due to the nature of the sample matrix: MW-104 (490-172010-1), MW-110 (490-172010-2) and DUPE (490-172010-3). Elevated reporting limits (RLs) are provided.

Method(s) 9056A: The method blank for analytical batch 490-588578 contained Fluoride above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and_or re-analysis of samples was not performed.

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

Metals
Method(s) 6020A: The serial dilution performed for the following sample associated with batch 180-276092 was outside control limits for boron: MW-104 (490-172010-1)

Method(s) 7470A: Closing CRA was high, but all samples are non-detect. MW-104 (490-172010-1), MW-110 (490-172010-2), DUPE (490-172010-3), (LCS 180-276833/2-A), (MB 180-276833/1-A), (490-172010-A-3-F MS) and (490-172010-A-3-G MSD)

Method(s) 245.1, 7470A: The continuing calibration verification (CCV) associated with batch 180-277078 recovered above the upper control limit for mercury. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method(s) 245.1, 7470A: The low level continuing calibration verification (CCVL) associated with batch 180-277078 recovered above the upper control limit for mercury. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method(s) 7470A: The laboratory control sample (LCS) for preparation batch 180-276826 and analytical batch 180-277078 recovered outside control limits for mercury. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

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

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

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

Definitions/Glossary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Qualifiers

HPLC/IC

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.
B	Compound was found in the blank and sample.
E	Result exceeded calibration range.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.
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.
B	Compound was found in the blank and sample.
F1	MS and/or MSD Recovery is outside acceptance limits.
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
F3	Duplicate RPD exceeds the control limit

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

Client Sample ID: MW-104

Date Collected: 04/10/19 14:43
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-1

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1430	B	300	20.0	mg/L			04/13/19 19:35	100
Fluoride	0.323	J B	10.0	0.100	mg/L			04/13/19 19:19	10
Sulfate	2880	B	500	3.00	mg/L			04/13/19 19:35	100

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0286	J	0.0500	0.00959	mg/L		04/16/19 11:19	04/22/19 16:39	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.000119	J B	0.00200	0.0000213	mg/L		04/16/19 11:17	04/17/19 10:53	1
Arsenic	0.00208	J	0.00500	0.000118	mg/L		04/16/19 11:17	04/17/19 10:53	1
Barium	0.0216	J B	0.200	0.000270	mg/L		04/16/19 11:17	04/17/19 10:53	1
Beryllium	ND		0.00200	0.000102	mg/L		04/16/19 11:17	04/17/19 10:53	1
Boron	0.271	J B	1.00	0.00339	mg/L		04/16/19 11:17	04/17/19 10:53	1
Cadmium	ND		0.00100	0.000152	mg/L		04/16/19 11:17	04/17/19 10:53	1
Calcium	502		1.00	0.0412	mg/L		04/16/19 11:17	04/17/19 10:53	1
Chromium	0.00360		0.00300	0.000339	mg/L		04/16/19 11:17	04/17/19 10:53	1
Cobalt	0.00522		0.00500	0.0000218	mg/L		04/16/19 11:17	04/17/19 10:53	1
Lead	0.000233	J	0.00500	0.0000675	mg/L		04/16/19 11:17	04/17/19 10:53	1
Molybdenum	0.00104	J	0.0100	0.000873	mg/L		04/16/19 11:17	04/17/19 10:53	1
Potassium	1660		1000	147	ug/L		04/16/19 11:17	04/17/19 10:53	1
Selenium	ND		0.0100	0.000348	mg/L		04/16/19 11:17	04/17/19 10:53	1
Thallium	ND		0.00100	0.0000360	mg/L		04/16/19 11:17	04/17/19 10:53	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^	0.200	0.101	ug/L		04/25/19 17:02	04/26/19 13:28	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.99		0.100	0.100	SU			04/18/19 18:32	1
Temperature	22.8		0.100	0.100	Degrees C			04/18/19 18:32	1
Specific Conductance (25C)	8570		10.0	10.0	umhos/cm			04/13/19 10:38	1
Alkalinity	696		10.0	5.00	mg/L			04/13/19 13:33	1
Total Dissolved Solids	6690		250	70.0	mg/L			04/15/19 16:11	1

Client Sample ID: MW-110

Date Collected: 04/10/19 12:59
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-2

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	30.4	B	6.00	0.400	mg/L			04/13/19 20:09	2
Fluoride	0.255	J B	1.00	0.0100	mg/L			04/13/19 02:38	1
Sulfate	596	B	250	1.50	mg/L			04/13/19 20:25	50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0303	J	0.0500	0.00959	mg/L		04/16/19 11:19	04/22/19 16:45	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.000204	J B	0.00200	0.0000213	mg/L		04/16/19 11:17	04/17/19 11:16	1
Arsenic	0.00238	J	0.00500	0.000118	mg/L		04/16/19 11:17	04/17/19 11:16	1
Barium	0.107	J B	0.200	0.000270	mg/L		04/16/19 11:17	04/17/19 11:16	1
Beryllium	0.000314	J	0.00200	0.000102	mg/L		04/16/19 11:17	04/17/19 11:16	1
Boron	0.496	J B	1.00	0.00339	mg/L		04/16/19 11:17	04/17/19 11:16	1
Cadmium	ND		0.00100	0.000152	mg/L		04/16/19 11:17	04/17/19 11:16	1
Calcium	178		1.00	0.0412	mg/L		04/16/19 11:17	04/17/19 11:16	1
Chromium	0.0115		0.00300	0.000339	mg/L		04/16/19 11:17	04/17/19 11:16	1
Cobalt	0.00384	J	0.00500	0.0000218	mg/L		04/16/19 11:17	04/17/19 11:16	1
Lead	0.00399	J	0.00500	0.0000675	mg/L		04/16/19 11:17	04/17/19 11:16	1
Molybdenum	0.00120	J	0.0100	0.000873	mg/L		04/16/19 11:17	04/17/19 11:16	1
Potassium	2930		1000	147	ug/L		04/16/19 11:17	04/17/19 11:16	1
Selenium	ND		0.0100	0.000348	mg/L		04/16/19 11:17	04/17/19 11:16	1
Thallium	0.0000640	J	0.00100	0.0000360	mg/L		04/16/19 11:17	04/17/19 11:16	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^	0.200	0.101	ug/L		04/25/19 17:02	04/26/19 13:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.50		0.100	0.100	SU			04/18/19 18:32	1
Temperature	22.8		0.100	0.100	Degrees C			04/18/19 18:32	1
Specific Conductance (25C)	1570		10.0	10.0	umhos/cm			04/13/19 10:38	1
Alkalinity	270		10.0	5.00	mg/L			04/13/19 13:40	1
Total Dissolved Solids	1200		25.0	7.00	mg/L			04/15/19 16:11	1

Client Sample ID: DUPE

Date Collected: 04/10/19 15:10
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-3

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1380	B	300	20.0	mg/L			04/13/19 22:54	100
Fluoride	1.19	J B	100	1.00	mg/L			04/13/19 22:54	100
Sulfate	2880	B	500	3.00	mg/L			04/13/19 22:54	100

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0313	J	0.0500	0.00959	mg/L		04/16/19 11:19	04/22/19 16:07	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.000107	J B	0.00200	0.0000213	mg/L		04/16/19 11:17	04/17/19 11:19	1
Arsenic	0.00192	J	0.00500	0.000118	mg/L		04/16/19 11:17	04/17/19 11:19	1
Barium	0.0201	J B	0.200	0.000270	mg/L		04/16/19 11:17	04/17/19 11:19	1
Beryllium	ND		0.00200	0.000102	mg/L		04/16/19 11:17	04/17/19 11:19	1
Boron	0.200	J B	1.00	0.00339	mg/L		04/16/19 11:17	04/17/19 11:19	1
Cadmium	ND		0.00100	0.000152	mg/L		04/16/19 11:17	04/17/19 11:19	1
Calcium	486		1.00	0.0412	mg/L		04/16/19 11:17	04/17/19 11:19	1
Chromium	0.00355		0.00300	0.000339	mg/L		04/16/19 11:17	04/17/19 11:19	1
Cobalt	0.00536		0.00500	0.0000218	mg/L		04/16/19 11:17	04/17/19 11:19	1
Lead	0.000126	J	0.00500	0.0000675	mg/L		04/16/19 11:17	04/17/19 11:19	1
Molybdenum	0.000921	J	0.0100	0.000873	mg/L		04/16/19 11:17	04/17/19 11:19	1
Potassium	1430		1000	147	ug/L		04/16/19 11:17	04/17/19 11:19	1
Selenium	ND		0.0100	0.000348	mg/L		04/16/19 11:17	04/17/19 11:19	1
Thallium	ND		0.00100	0.0000360	mg/L		04/16/19 11:17	04/17/19 11:19	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^	0.200	0.101	ug/L		04/25/19 17:02	04/26/19 13:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.98		0.100	0.100	SU			04/18/19 18:32	1
Temperature	22.8		0.100	0.100	Degrees C			04/18/19 18:32	1
Specific Conductance (25C)	8630		10.0	10.0	umhos/cm			04/13/19 10:38	1
Alkalinity	686		10.0	5.00	mg/L			04/13/19 13:47	1
Total Dissolved Solids	6810		250	70.0	mg/L			04/15/19 16:11	1

Client Sample ID: FIELD BLANK

Lab Sample ID: 490-172010-4

Date Collected: 04/10/19 15:39
Matrix: Water
Date Received: 04/12/19 09:55

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	0.200	mg/L			04/17/19 15:20	1
Fluoride	ND		1.00	0.0100	mg/L			04/13/19 03:12	1
Sulfate	**0.334**	**J B**	5.00	0.0300	mg/L			04/13/19 03:12	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.0500	0.00959	mg/L		04/16/19 11:19	04/22/19 16:51	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.000192**	**J B**	0.00200	0.0000213	mg/L		04/16/19 11:17	04/17/19 11:23	1
Arsenic	**0.000904**	**J**	0.00500	0.000118	mg/L		04/16/19 11:17	04/17/19 11:23	1
Barium	**0.000424**	**J B**	0.200	0.000270	mg/L		04/16/19 11:17	04/17/19 11:23	1
Beryllium	ND		0.00200	0.000102	mg/L		04/16/19 11:17	04/17/19 11:23	1
Boron	**0.0368**	**J B**	1.00	0.00339	mg/L		04/16/19 11:17	04/17/19 11:23	1
Cadmium	ND		0.00100	0.000152	mg/L		04/16/19 11:17	04/17/19 11:23	1
Calcium	**0.174**	**J**	1.00	0.0412	mg/L		04/16/19 11:17	04/17/19 11:23	1
Chromium	**0.00427**		0.00300	0.000339	mg/L		04/16/19 11:17	04/17/19 11:23	1
Cobalt	ND		0.00500	0.0000218	mg/L		04/16/19 11:17	04/17/19 11:23	1
Lead	ND		0.00500	0.0000675	mg/L		04/16/19 11:17	04/17/19 11:23	1
Molybdenum	ND		0.0100	0.000873	mg/L		04/16/19 11:17	04/17/19 11:23	1
Potassium	ND		1000	147	ug/L		04/16/19 11:17	04/17/19 11:23	1
Selenium	ND		0.0100	0.000348	mg/L		04/16/19 11:17	04/17/19 11:23	1
Thallium	ND		0.00100	0.0000360	mg/L		04/16/19 11:17	04/17/19 11:23	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	* ^	0.200	0.101	ug/L		04/25/19 16:08	04/29/19 09:08	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**5.97**		0.100	0.100	SU			04/18/19 18:32	1
Temperature	**22.8**		0.100	0.100	Degrees C			04/18/19 18:32	1
Specific Conductance (25C)	ND		10.0	10.0	umhos/cm			04/13/19 10:38	1
Alkalinity	ND		10.0	5.00	mg/L			04/13/19 13:53	1
Total Dissolved Solids	ND		25.0	7.00	mg/L			04/15/19 16:11	1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 490-587889/3
Matrix: Water
Analysis Batch: 587889

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.105	J	3.00	0.200	mg/L			04/12/19 21:40	1
Fluoride	0.02290	J	1.00	0.0100	mg/L			04/12/19 21:40	1
Sulfate	0.3257	J	5.00	0.0300	mg/L			04/12/19 21:40	1

Lab Sample ID: LCS 490-587889/4
Matrix: Water
Analysis Batch: 587889

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.869		mg/L		99	80 - 120
Fluoride	1.00	1.008		mg/L		101	80 - 120
Sulfate	10.0	9.795		mg/L		98	80 - 120

Lab Sample ID: LCSD 490-587889/5
Matrix: Water
Analysis Batch: 587889

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.885		mg/L		99	80 - 120	0	20
Fluoride	1.00	0.9934	J	mg/L		99	80 - 120	1	20
Sulfate	10.0	9.703		mg/L		97	80 - 120	1	20

Lab Sample ID: 490-171999-H-13 MS
Matrix: Water
Analysis Batch: 587889

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	52.9	E B ^	10.0	63.34	E 4	mg/L		104	80 - 120
Fluoride	0.508	J B	1.00	1.415		mg/L		91	80 - 120
Sulfate	28.9	B	10.0	38.93		mg/L		100	80 - 120

Lab Sample ID: 490-171999-H-13 MSD
Matrix: Water
Analysis Batch: 587889

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	52.9	E B ^	10.0	64.49	E 4	mg/L		115	80 - 120	2	20
Fluoride	0.508	J B	1.00	1.502		mg/L		99	80 - 120	6	20
Sulfate	28.9	B	10.0	39.96		mg/L		110	80 - 120	3	20

Lab Sample ID: MB 490-587927/3
Matrix: Water
Analysis Batch: 587927

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.8259	J	3.00	0.200	mg/L			04/13/19 13:23	1
Fluoride	0.02208	J	1.00	0.0100	mg/L			04/13/19 13:23	1
Sulfate	0.4767	J	5.00	0.0300	mg/L			04/13/19 13:23	1

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 490-587927/4
Matrix: Water
Analysis Batch: 587927

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			10.0	8.999		mg/L		90	80 - 120		
Fluoride			1.00	0.9571	J	mg/L		96	80 - 120		
Sulfate			10.0	9.244		mg/L		92	80 - 120		

Lab Sample ID: LCSD 490-587927/5
Matrix: Water
Analysis Batch: 587927

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			10.0	8.982		mg/L		90	80 - 120	0	20
Fluoride			1.00	0.9754	J	mg/L		97	80 - 120	2	20
Sulfate			10.0	9.261		mg/L		92	80 - 120	0	20

Lab Sample ID: 490-172007-E-1 MS
Matrix: Water
Analysis Batch: 587927

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	114	E B	10.0	126.5	E 4	mg/L		122	80 - 120		
Fluoride	0.533	J B	1.00	1.483		mg/L		95	80 - 120		
Sulfate	1590	E B	10.0	2744	E 4	mg/L		11509	80 - 120		

Lab Sample ID: 490-172007-E-1 MSD
Matrix: Water
Analysis Batch: 587927

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	114	E B	10.0	125.2	E 4	mg/L		110	80 - 120	1	20
Fluoride	0.533	J B	1.00	1.396		mg/L		86	80 - 120	6	20
Sulfate	1590	E B	10.0	2759	E 4	mg/L		11657	80 - 120	1	20

Lab Sample ID: MB 490-587930/3
Matrix: Water
Analysis Batch: 587930

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.7587	J	3.00	0.200	mg/L			04/13/19 22:05	1
Fluoride	0.01835	J	1.00	0.0100	mg/L			04/13/19 22:05	1
Sulfate	0.6184	J	5.00	0.0300	mg/L			04/13/19 22:05	1

Lab Sample ID: LCS 490-587930/4
Matrix: Water
Analysis Batch: 587930

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			10.0	9.193		mg/L		92	80 - 120		
Fluoride			1.00	0.9693	J	mg/L		97	80 - 120		
Sulfate			10.0	9.411		mg/L		94	80 - 120		

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 490-587930/5
Matrix: Water
Analysis Batch: 587930

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			10.0	9.238		mg/L		92	80 - 120	0	20
Fluoride			1.00	0.9712	J	mg/L		97	80 - 120	0	20
Sulfate			10.0	9.413		mg/L		94	80 - 120	0	20

Lab Sample ID: MB 490-588578/3
Matrix: Water
Analysis Batch: 588578

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	0.200	mg/L			04/17/19 11:53	1
Fluoride	ND		1.00	0.0100	mg/L			04/17/19 11:53	1
Sulfate	ND		5.00	0.0300	mg/L			04/17/19 11:53	1

Lab Sample ID: LCS 490-588578/4
Matrix: Water
Analysis Batch: 588578

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			10.0	9.491		mg/L		95	80 - 120		
Fluoride			1.00	1.055		mg/L		105	80 - 120		
Sulfate			10.0	10.11		mg/L		101	80 - 120		

Lab Sample ID: LCSD 490-588578/5
Matrix: Water
Analysis Batch: 588578

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			10.0	9.503		mg/L		95	80 - 120	0	20
Fluoride			1.00	1.051		mg/L		105	80 - 120	0	20
Sulfate			10.0	10.13		mg/L		101	80 - 120	0	20

Lab Sample ID: 490-172010-4 MS
Matrix: Water
Analysis Batch: 588578

Client Sample ID: FIELD BLANK
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	ND		10.0	10.53		mg/L		105	80 - 120		
Fluoride	ND		1.00	1.150		mg/L		115	80 - 120		
Sulfate	0.222	J	10.0	10.63		mg/L		104	80 - 120		

Lab Sample ID: 490-172010-4 MSD
Matrix: Water
Analysis Batch: 588578

Client Sample ID: FIELD BLANK
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	ND		10.0	11.16		mg/L		112	80 - 120	6	20
Fluoride	ND		1.00	1.165		mg/L		116	80 - 120	1	20
Sulfate	0.222	J	10.0	11.57		mg/L		113	80 - 120	8	20

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 180-275853/1-A
Matrix: Water
Analysis Batch: 276485

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 275853

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.0500	0.00959	mg/L		04/16/19 11:19	04/22/19 15:56	1

Lab Sample ID: LCS 180-275853/2-A
Matrix: Water
Analysis Batch: 276485

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 275853

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	1.00	1.006		mg/L		101	80 - 120

Lab Sample ID: 490-172010-3 MS
Matrix: Water
Analysis Batch: 276485

Client Sample ID: DUPE
Prep Type: Total Recoverable
Prep Batch: 275853

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	0.0313	J	1.00	1.065		mg/L		103	75 - 125

Lab Sample ID: 490-172010-3 MSD
Matrix: Water
Analysis Batch: 276485

Client Sample ID: DUPE
Prep Type: Total Recoverable
Prep Batch: 275853

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lithium	0.0313	J	1.00	1.090		mg/L		106	75 - 125	2	20

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 180-275852/1-A
Matrix: Water
Analysis Batch: 276092

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 275852

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00002800	J	0.00200	0.0000213	mg/L		04/16/19 11:17	04/17/19 11:54	1
Arsenic	ND		0.00500	0.000118	mg/L		04/16/19 11:17	04/17/19 11:54	1
Barium	0.0007190	J	0.200	0.000270	mg/L		04/16/19 11:17	04/17/19 11:54	1
Beryllium	ND		0.00200	0.000102	mg/L		04/16/19 11:17	04/17/19 11:54	1
Boron	0.02478	J	1.00	0.00339	mg/L		04/16/19 11:17	04/17/19 11:54	1
Cadmium	ND		0.00100	0.000152	mg/L		04/16/19 11:17	04/17/19 11:54	1
Calcium	ND		1.00	0.0412	mg/L		04/16/19 11:17	04/17/19 11:54	1
Chromium	ND		0.00300	0.000339	mg/L		04/16/19 11:17	04/17/19 11:54	1
Cobalt	ND		0.00500	0.0000218	mg/L		04/16/19 11:17	04/17/19 11:54	1
Lead	ND		0.00500	0.0000675	mg/L		04/16/19 11:17	04/17/19 11:54	1
Molybdenum	ND		0.0100	0.000873	mg/L		04/16/19 11:17	04/17/19 11:54	1
Potassium	ND		1000	147	ug/L		04/16/19 11:17	04/17/19 11:54	1
Selenium	ND		0.0100	0.000348	mg/L		04/16/19 11:17	04/17/19 11:54	1
Thallium	ND		0.00100	0.0000360	mg/L		04/16/19 11:17	04/17/19 11:54	1

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

Lab Sample ID: LCS 180-275852/2-A
Matrix: Water
Analysis Batch: 276092

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 275852

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.500	0.5151		mg/L		103	80 - 120
Arsenic	0.0400	0.03629		mg/L		91	80 - 120
Barium	2.00	2.120		mg/L		106	80 - 120
Beryllium	0.0500	0.05131		mg/L		103	80 - 120
Boron	1.00	1.006		mg/L		101	80 - 120
Cadmium	0.0500	0.05263		mg/L		105	80 - 120
Calcium	50.0	50.60		mg/L		101	80 - 120
Chromium	0.200	0.2148		mg/L		107	80 - 120
Cobalt	0.500	0.4481		mg/L		90	80 - 120
Lead	0.0200	0.02088		mg/L		104	80 - 120
Molybdenum	1.00	0.9910		mg/L		99	80 - 120
Potassium	50000	48340		ug/L		97	80 - 120
Selenium	0.0100	0.01029		mg/L		103	80 - 120
Thallium	0.0500	0.05310		mg/L		106	80 - 120

Lab Sample ID: 490-172010-1 MS
Matrix: Water
Analysis Batch: 276092

Client Sample ID: MW-104
Prep Type: Total Recoverable
Prep Batch: 275852

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.000119	J B	0.500	0.5292		mg/L		106	75 - 125
Arsenic	0.00208	J	0.0400	0.03945		mg/L		93	75 - 125
Barium	0.0216	J B	2.00	2.197		mg/L		109	75 - 125
Beryllium	ND		0.0500	0.05176		mg/L		104	75 - 125
Boron	0.271	J B	1.00	1.297		mg/L		103	75 - 125
Cadmium	ND		0.0500	0.05279		mg/L		106	75 - 125
Calcium	502		50.0	557.9	4	mg/L		111	75 - 125
Chromium	0.00360		0.200	0.2213		mg/L		109	75 - 125
Cobalt	0.00522		0.500	0.4645		mg/L		92	75 - 125
Lead	0.000233	J	0.0200	0.02146		mg/L		106	75 - 125
Molybdenum	0.00104	J	1.00	1.043		mg/L		104	75 - 125
Potassium	1660		50000	48970		ug/L		95	75 - 125
Selenium	ND		0.0100	0.01059		mg/L		106	75 - 125
Thallium	ND		0.0500	0.05541		mg/L		111	75 - 125

Lab Sample ID: 490-172010-1 MSD
Matrix: Water
Analysis Batch: 276092

Client Sample ID: MW-104
Prep Type: Total Recoverable
Prep Batch: 275852

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	0.000119	J B	0.500	0.5401		mg/L		108	75 - 125	2	20
Arsenic	0.00208	J	0.0400	0.03954		mg/L		94	75 - 125	0	20
Barium	0.0216	J B	2.00	2.231		mg/L		110	75 - 125	2	20
Beryllium	ND		0.0500	0.05116		mg/L		102	75 - 125	1	20
Boron	0.271	J B	1.00	1.238		mg/L		97	75 - 125	5	20
Cadmium	ND		0.0500	0.05362		mg/L		107	75 - 125	2	20
Calcium	502		50.0	566.9	4	mg/L		129	75 - 125	2	20
Chromium	0.00360		0.200	0.2201		mg/L		108	75 - 125	1	20
Cobalt	0.00522		0.500	0.4630		mg/L		92	75 - 125	0	20

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

Lab Sample ID: 490-172010-1 MSD — **Client Sample ID: MW-104**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 276092 — **Prep Batch: 275852**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	0.000233	J	0.0200	0.02185		mg/L		108	75 - 125	2	20
Molybdenum	0.00104	J	1.00	1.061		mg/L		106	75 - 125	2	20
Potassium	1660		50000	50080		ug/L		97	75 - 125	2	20
Selenium	ND		0.0100	0.01045		mg/L		105	75 - 125	1	20
Thallium	ND		0.0500	0.05523		mg/L		110	75 - 125	0	20

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-276826/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 277078 — **Prep Batch: 276826**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^	0.200	0.101	ug/L		04/25/19 16:08	04/29/19 09:06	1

Lab Sample ID: LCS 180-276826/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 277078 — **Prep Batch: 276826**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	2.50	3.726	* ^	ug/L		149	80 - 120

Lab Sample ID: 180-88983-B-1-C MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 277078 — **Prep Batch: 276826**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND	* ^ F1	1.00	1.386	F1 ^	ug/L		139	75 - 125

Lab Sample ID: 180-88983-B-1-D MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 277078 — **Prep Batch: 276826**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND	* ^ F1	1.00	1.504	F1 ^	ug/L		150	75 - 125	8	20

Lab Sample ID: MB 180-276833/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 276941 — **Prep Batch: 276833**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^	0.200	0.101	ug/L		04/25/19 17:02	04/26/19 13:03	1

Lab Sample ID: LCS 180-276833/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 276941 — **Prep Batch: 276833**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	2.50	2.494	^	ug/L		100	80 - 120

Method: EPA 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: 490-172010-3 MS
Matrix: Water
Analysis Batch: 276941

Client Sample ID: DUPE
Prep Type: Total/NA
Prep Batch: 276833

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND	^	1.00	0.8720	^	ug/L		87	75 - 125

Lab Sample ID: 490-172010-3 MSD
Matrix: Water
Analysis Batch: 276941

Client Sample ID: DUPE
Prep Type: Total/NA
Prep Batch: 276833

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND	^	1.00	0.8200	^	ug/L		82	75 - 125	6	20

Method: 9040C - pH

Lab Sample ID: LCS 490-589003/1
Matrix: Water
Analysis Batch: 589003

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.040		SU		101	98 - 103

Lab Sample ID: 490-171598-A-10 DU
Matrix: Water
Analysis Batch: 589003

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	6.94		6.940		SU		0	20
Temperature	23.0		23.00		Degrees C		0	20

Method: 9050A - Specific Conductance

Lab Sample ID: 490-172007-E-1 DU
Matrix: Water
Analysis Batch: 588267

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Specific Conductance (25C)	3700		3680		umhos/cm		0.5	10

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 490-587963/11
Matrix: Water
Analysis Batch: 587963

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	ND		10.0	5.00	mg/L			04/13/19 11:27	1

Lab Sample ID: LCS 490-587963/12
Matrix: Water
Analysis Batch: 587963

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	100	97.71		mg/L		98	90 - 110

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: LCSD 490-587963/34
Matrix: Water
Analysis Batch: 587963

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity			100	96.97		mg/L		97	90 - 110	1	20

Lab Sample ID: 490-171998-I-1 DU
Matrix: Water
Analysis Batch: 587963

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Alkalinity	124			125.6		mg/L				2	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 490-588164/1
Matrix: Water
Analysis Batch: 588164

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		25.0	7.00	mg/L			04/15/19 16:11	1

Lab Sample ID: LCS 490-588164/2
Matrix: Water
Analysis Batch: 588164

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			100	95.00		mg/L		95	90 - 110		

Lab Sample ID: 490-172007-E-2 DU
Matrix: Water
Analysis Batch: 588164

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	5480			5456		mg/L				0.5	20

Lab Sample ID: 490-172074-C-1 DU
Matrix: Water
Analysis Batch: 588164

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	21000			28200	F3	mg/L				29	20

HPLC/IC

Analysis Batch: 587889

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-2	MW-110	Total/NA	Water	9056A	
490-172010-4	FIELD BLANK	Total/NA	Water	9056A	
MB 490-587889/3	Method Blank	Total/NA	Water	9056A	
LCS 490-587889/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-587889/5	Lab Control Sample Dup	Total/NA	Water	9056A	
490-171999-H-13 MS	Matrix Spike	Total/NA	Water	9056A	
490-171999-H-13 MSD	Matrix Spike Duplicate	Total/NA	Water	9056A	

Analysis Batch: 587927

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	9056A	
490-172010-1	MW-104	Total/NA	Water	9056A	
490-172010-2	MW-110	Total/NA	Water	9056A	
490-172010-2	MW-110	Total/NA	Water	9056A	
MB 490-587927/3	Method Blank	Total/NA	Water	9056A	
LCS 490-587927/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-587927/5	Lab Control Sample Dup	Total/NA	Water	9056A	
490-172007-E-1 MS	Matrix Spike	Total/NA	Water	9056A	
490-172007-E-1 MSD	Matrix Spike Duplicate	Total/NA	Water	9056A	

Analysis Batch: 587930

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-3	DUPE	Total/NA	Water	9056A	
MB 490-587930/3	Method Blank	Total/NA	Water	9056A	
LCS 490-587930/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-587930/5	Lab Control Sample Dup	Total/NA	Water	9056A	

Analysis Batch: 588578

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-4	FIELD BLANK	Total/NA	Water	9056A	
MB 490-588578/3	Method Blank	Total/NA	Water	9056A	
LCS 490-588578/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-588578/5	Lab Control Sample Dup	Total/NA	Water	9056A	
490-172010-4 MS	FIELD BLANK	Total/NA	Water	9056A	
490-172010-4 MSD	FIELD BLANK	Total/NA	Water	9056A	

Metals

Prep Batch: 275852

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total Recoverable	Water	3005A	
490-172010-2	MW-110	Total Recoverable	Water	3005A	
490-172010-3	DUPE	Total Recoverable	Water	3005A	
490-172010-4	FIELD BLANK	Total Recoverable	Water	3005A	
MB 180-275852/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-275852/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
490-172010-1 MS	MW-104	Total Recoverable	Water	3005A	
490-172010-1 MSD	MW-104	Total Recoverable	Water	3005A	

QC Association Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Metals

Prep Batch: 275853

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total Recoverable	Water	3005A	
490-172010-2	MW-110	Total Recoverable	Water	3005A	
490-172010-3	DUPE	Total Recoverable	Water	3005A	
490-172010-4	FIELD BLANK	Total Recoverable	Water	3005A	
MB 180-275853/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-275853/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
490-172010-3 MS	DUPE	Total Recoverable	Water	3005A	
490-172010-3 MSD	DUPE	Total Recoverable	Water	3005A	

Analysis Batch: 276092

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total Recoverable	Water	6020A	275852
490-172010-2	MW-110	Total Recoverable	Water	6020A	275852
490-172010-3	DUPE	Total Recoverable	Water	6020A	275852
490-172010-4	FIELD BLANK	Total Recoverable	Water	6020A	275852
MB 180-275852/1-A	Method Blank	Total Recoverable	Water	6020A	275852
LCS 180-275852/2-A	Lab Control Sample	Total Recoverable	Water	6020A	275852
490-172010-1 MS	MW-104	Total Recoverable	Water	6020A	275852
490-172010-1 MSD	MW-104	Total Recoverable	Water	6020A	275852

Analysis Batch: 276485

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total Recoverable	Water	6010C	275853
490-172010-2	MW-110	Total Recoverable	Water	6010C	275853
490-172010-3	DUPE	Total Recoverable	Water	6010C	275853
490-172010-4	FIELD BLANK	Total Recoverable	Water	6010C	275853
MB 180-275853/1-A	Method Blank	Total Recoverable	Water	6010C	275853
LCS 180-275853/2-A	Lab Control Sample	Total Recoverable	Water	6010C	275853
490-172010-3 MS	DUPE	Total Recoverable	Water	6010C	275853
490-172010-3 MSD	DUPE	Total Recoverable	Water	6010C	275853

Prep Batch: 276826

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-4	FIELD BLANK	Total/NA	Water	7470A	
MB 180-276826/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-276826/2-A	Lab Control Sample	Total/NA	Water	7470A	
180-88983-B-1-C MS	Matrix Spike	Total/NA	Water	7470A	
180-88983-B-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	

Prep Batch: 276833

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	7470A	
490-172010-2	MW-110	Total/NA	Water	7470A	
490-172010-3	DUPE	Total/NA	Water	7470A	
MB 180-276833/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-276833/2-A	Lab Control Sample	Total/NA	Water	7470A	
490-172010-3 MS	DUPE	Total/NA	Water	7470A	
490-172010-3 MSD	DUPE	Total/NA	Water	7470A	

Metals

Analysis Batch: 276941

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	EPA 7470A	276833
490-172010-2	MW-110	Total/NA	Water	EPA 7470A	276833
490-172010-3	DUPE	Total/NA	Water	EPA 7470A	276833
MB 180-276833/1-A	Method Blank	Total/NA	Water	EPA 7470A	276833
LCS 180-276833/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	276833
490-172010-3 MS	DUPE	Total/NA	Water	EPA 7470A	276833
490-172010-3 MSD	DUPE	Total/NA	Water	EPA 7470A	276833

Analysis Batch: 277078

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-4	FIELD BLANK	Total/NA	Water	EPA 7470A	276826
MB 180-276826/1-A	Method Blank	Total/NA	Water	EPA 7470A	276826
LCS 180-276826/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	276826
180-88983-B-1-C MS	Matrix Spike	Total/NA	Water	EPA 7470A	276826
180-88983-B-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	EPA 7470A	276826

General Chemistry

Analysis Batch: 587963

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	SM 2320B	
490-172010-2	MW-110	Total/NA	Water	SM 2320B	
490-172010-3	DUPE	Total/NA	Water	SM 2320B	
490-172010-4	FIELD BLANK	Total/NA	Water	SM 2320B	
MB 490-587963/11	Method Blank	Total/NA	Water	SM 2320B	
LCS 490-587963/12	Lab Control Sample	Total/NA	Water	SM 2320B	
LCSD 490-587963/34	Lab Control Sample Dup	Total/NA	Water	SM 2320B	
490-171998-I-1 DU	Duplicate	Total/NA	Water	SM 2320B	

Analysis Batch: 588164

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	SM 2540C	
490-172010-2	MW-110	Total/NA	Water	SM 2540C	
490-172010-3	DUPE	Total/NA	Water	SM 2540C	
490-172010-4	FIELD BLANK	Total/NA	Water	SM 2540C	
MB 490-588164/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 490-588164/2	Lab Control Sample	Total/NA	Water	SM 2540C	
490-172007-E-2 DU	Duplicate	Total/NA	Water	SM 2540C	
490-172074-C-1 DU	Duplicate	Total/NA	Water	SM 2540C	

Analysis Batch: 588267

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	9050A	
490-172010-2	MW-110	Total/NA	Water	9050A	
490-172010-3	DUPE	Total/NA	Water	9050A	
490-172010-4	FIELD BLANK	Total/NA	Water	9050A	
LCS 490-588267/3	Lab Control Sample	Total/NA	Water	9050A	
490-172007-E-1 DU	Duplicate	Total/NA	Water	9050A	

QC Association Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

General Chemistry

Analysis Batch: 589003

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	9040C	
490-172010-2	MW-110	Total/NA	Water	9040C	
490-172010-3	DUPE	Total/NA	Water	9040C	
490-172010-4	FIELD BLANK	Total/NA	Water	9040C	
LCS 490-589003/1	Lab Control Sample	Total/NA	Water	9040C	
490-171598-A-10 DU	Duplicate	Total/NA	Water	9040C	

Lab Chronicle

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Client Sample ID: MW-104

Date Collected: 04/10/19 14:43
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		10			587927	04/13/19 19:19	SOO	TAL NSH
Total/NA	Analysis	9056A		100			587927	04/13/19 19:35	SOO	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	275853	04/16/19 11:19	NAM	TAL PIT
Total Recoverable	Analysis	6010C		1			276485	04/22/19 16:39	RJG	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	275852	04/16/19 11:17	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			276092	04/17/19 10:53	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	276833	04/25/19 17:02	KAK	TAL PIT
Total/NA	Analysis	EPA 7470A		1			276941	04/26/19 13:28	KAK	TAL PIT
Total/NA	Analysis	9040C		1			589003	04/18/19 18:32	MXX	TAL NSH
Total/NA	Analysis	9050A		1			588267	04/13/19 10:38	MSP	TAL NSH
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	587963	04/13/19 13:33	MSP	TAL NSH
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	588164	04/15/19 16:11	BMC	TAL NSH

Client Sample ID: MW-110

Date Collected: 04/10/19 12:59
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1	10 mL	1.0 mL	587889	04/13/19 02:38	SOO	TAL NSH
Total/NA	Analysis	9056A		2			587927	04/13/19 20:09	SOO	TAL NSH
Total/NA	Analysis	9056A		50			587927	04/13/19 20:25	SOO	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	275853	04/16/19 11:19	NAM	TAL PIT
Total Recoverable	Analysis	6010C		1			276485	04/22/19 16:45	RJG	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	275852	04/16/19 11:17	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			276092	04/17/19 11:16	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	276833	04/25/19 17:02	KAK	TAL PIT
Total/NA	Analysis	EPA 7470A		1			276941	04/26/19 13:29	KAK	TAL PIT
Total/NA	Analysis	9040C		1			589003	04/18/19 18:32	MXX	TAL NSH
Total/NA	Analysis	9050A		1			588267	04/13/19 10:38	MSP	TAL NSH
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	587963	04/13/19 13:40	MSP	TAL NSH
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	588164	04/15/19 16:11	BMC	TAL NSH

Client Sample ID: DUPE

Date Collected: 04/10/19 15:10
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		100			587930	04/13/19 22:54	SOO	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	275853	04/16/19 11:19	NAM	TAL PIT
Total Recoverable	Analysis	6010C		1			276485	04/22/19 16:07	RJG	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	275852	04/16/19 11:17	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			276092	04/17/19 11:19	RSK	TAL PIT

Lab Chronicle

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Client Sample ID: DUPE

Date Collected: 04/10/19 15:10
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7470A			50 mL	50 mL	276833	04/25/19 17:02	KAK	TAL PIT
Total/NA	Analysis	EPA 7470A		1			276941	04/26/19 13:30	KAK	TAL PIT
Total/NA	Analysis	9040C		1			589003	04/18/19 18:32	MXX	TAL NSH
Total/NA	Analysis	9050A		1			588267	04/13/19 10:38	MSP	TAL NSH
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	587963	04/13/19 13:47	MSP	TAL NSH
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	588164	04/15/19 16:11	BMC	TAL NSH

Client Sample ID: FIELD BLANK

Date Collected: 04/10/19 15:39
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1	10 mL	1.0 mL	587889	04/13/19 03:12	SOO	TAL NSH
Total/NA	Analysis	9056A		1	10 mL	1.0 mL	588578	04/17/19 15:20	T1C	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	275853	04/16/19 11:19	NAM	TAL PIT
Total Recoverable	Analysis	6010C		1			276485	04/22/19 16:51	RJG	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	275852	04/16/19 11:17	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			276092	04/17/19 11:23	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	276826	04/25/19 16:08	KAK	TAL PIT
Total/NA	Analysis	EPA 7470A		1			277078	04/29/19 09:08	RJR	TAL PIT
Total/NA	Analysis	9040C		1			589003	04/18/19 18:32	MXX	TAL NSH
Total/NA	Analysis	9050A		1			588267	04/13/19 10:38	MSP	TAL NSH
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	587963	04/13/19 13:53	MSP	TAL NSH
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	588164	04/15/19 16:11	BMC	TAL NSH

Laboratory References:

TAL NSH = Eurofins TestAmerica, Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177
TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Method Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	TAL NSH
6010C	Metals (ICP)	SW846	TAL PIT
6020A	Metals (ICP/MS)	SW846	TAL PIT
EPA 7470A	Mercury (CVAA)	SW846	TAL PIT
9040C	pH	SW846	TAL NSH
9050A	Specific Conductance	SW846	TAL NSH
SM 2320B	Alkalinity	SM	TAL NSH
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL NSH
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT
7470A	Preparation, Mercury	SW846	TAL PIT

Protocol References:

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.

Laboratory References:

TAL NSH = Eurofins TestAmerica, Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

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

Accreditation/Certification Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Laboratory: Eurofins TestAmerica, Nashville

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Kentucky (UST)	State Program	4	19	06-30-19

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
9040C		Water	pH
9040C		Water	Temperature
9050A		Water	Specific Conductance (25C)
9056A		Water	Chloride
9056A		Water	Fluoride
9056A		Water	Sulfate
SM 2320B		Water	Alkalinity
SM 2540C		Water	Total Dissolved Solids

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-19
California	State Program	9	2891	04-30-19 *
Connecticut	State Program	1	PH-0688	09-30-20
Florida	NELAP	4	E871008	06-30-19
Illinois	NELAP	5	200005	06-30-19
Kansas	NELAP	7	E-10350	01-31-20
Louisiana	NELAP	6	04041	06-30-19
Nevada	State Program	9	PA00164	07-31-19
New Hampshire	NELAP	1	2030	04-04-20
New Jersey	NELAP	2	PA005	06-30-19
New York	NELAP	2	11182	03-31-20
North Carolina (WW/SW)	State Program	4	434	12-31-19
Oregon	NELAP	10	PA-2151	02-06-20
Pennsylvania	NELAP	3	02-00416	04-30-19
South Carolina	State Program	4	89014	04-30-19 *
Texas	NELAP	6	T104704528-15-2	03-31-20
US Fish & Wildlife	Federal		LE94312A-1	07-31-19
USDA	Federal		P330-16-00211	06-26-19
Utah	NELAP	8	PA001462015-4	05-31-19 *
Virginia	NELAP	3	460189	09-14-19
West Virginia DEP	State Program	3	142	01-31-20
Wisconsin	State Program	5	998027800	08-31-19

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

490-172010 Chain of Custody

Cooler Received/Opened On 4/12/2019 @ 9:55

Time Samples Removed From Cooler 14:22 Time Samples Placed In Storage 14:32 (2 Hour Window)

1. Tracking # 1128 (last 4 digits, FedEx) Courier: Fedex

IR Gun ID 31470366 pH Strip Lot NA Chlorine Strip Lot NA

2. Temperature of rep. sample or temp blank when opened: 0.7 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 2 Front

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) ACE

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

Larger than this.

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) ACE

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) ACE

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) ACE

I certify that I attached a label with the unique LIMS number to each container (intial) ACE

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#_____

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 8/23/17

Loc: 490
172010

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

Cooler Received/Opened On 4/12/2019 @ 0955

Time Samples Removed From Cooler 14:22 Time Samples Placed In Storage 14:32 (2 Hour Window)

1. Tracking # 1636 (last 4 digits, FedEx) Courier: FedEx

IR Gun ID 17960353 pH Strip Lot NA Chlorine Strip Lot NA

2. Temperature of rep. sample or temp blank when opened: 0.1 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 1 (Front)

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) 2d

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

● ⬅ Larger than this.

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) ACE

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) ACE

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) ACE

I certify that I attached a label with the unique LIMS number to each container (intial) ACE

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#_____

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 8/23/17

Chain of Custody Record 299402

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other:

Client Contact	Project Manager: Mark Bertram	Site Contact: Greg Dick	Date: 4/11/2019	COC No: 299402
Company Name: Big Rivers Electric Corp.	Tel/Fax: (270) 844-5708	Lab Contact: Roxanne Cisneros	Carrier: FedEx	1 of 1 COCs
Address: 9000 Highway 2096	Analysis Turnaround Time			Sampler:
City/State/Zip: Robards, KY 42452	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: (270) 844-5736	TAT if different from Below _____			Walk-in Client:
Fax:	☑ 2 weeks			Lab Sampling:
Project Name: Sebree Station, New CCR Wells Rd 2	☐ 1 week			
Site: Sebree Station	☐ 2 days			Job / SDG No.:
P O # 249349	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	903.0, 904.0	6010C, 602DA, 7470A	9056A-DRGFM-28D, 9040C, 9065A 2320B	2540C-Calc-TDS	Sample Specific Notes:
MW-104	4/10/19	1443	G	Water	5	N	N	X	X	X	X	
MW-110	4/10/19	1259	G	Water	5	N	N	X	X	X	X	
DUPE	4/10/19	1510	G	Water	5	N	N	X	X	X	X	
FIELD BLANK	4/10/19	1539	G	Water	5	N	N	X	X	X	X	
												Loc: 490 172010

Greg Dick

Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4=HNO3, 5=NaOH, 6= Other — 4 4 1 1

Possible Hazard Identification:
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.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown

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: See attached constituent list for analysis

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: 0.7 Corr'd: _____ | Therm ID No.: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Greg Dick	BREC	4/11/2019 1555			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: TA-MAS	Date/Time: 4/12/19 9:55

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4/30/2019

4/11/2019

Constituent List:

40 C.F.R. 257 Appendix III
Boron
Calcium
Fluoride
pH
Sulfate
Total Dissolved Solids (TDS)

Greg Dick
BREC
4/11/2019
1555

40 C.F.R. 257 Appendix IV
Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium
Cobalt
Fluoride
Lead
Lithium
Mercury
Molybdenum
Selenium
Thallium
Radium 226 & 228 combined

Loc: 490
172010

Additional Parameters
Carbonate Alkalinity
Bicarbonate Alkalinity
Alkalinity
Iron
Magnesium
Potassium
Sodium

Eurofins TestAmerica, Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Phone (615) 726-0177 Fax (615) 726-3404

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Cisneros, Roxanne	Carrier Tracking No(s):	COC No: 490-88697.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: roxanne.cisneros@testamericainc.com	State of Origin: Kentucky	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Kentucky (UST)		Job #: 490-172010-1
Address: 301 Alpha Drive, RIDC Park,	Due Date Requested: 4/24/2019			
City: Pittsburgh	TAT Requested (days):			
State, Zip: PA, 15238				
Phone: 412-963-7058(Tel) 412-963-2468(Fax)	PO #:			
Email:	WO #:			
Project Name: Sebree Station, New CCR Wells Rd 2	Project #: 49010431			
Site: Big Rivers CCR	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
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
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C/3005A (MOD) Lithium	6020A/3005A (MOD) ICP/MS Metals	7470A/7470A_Prep Mercury	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-104 (490-172010-1)	4/10/19	14:43 Eastern		Water			X	X	X	1	Metals - run once, upload together.
MW-110 (490-172010-2)	4/10/19	12:59 Eastern		Water			X	X	X	1	Metals - run once, upload together.
DUPE (490-172010-3)	4/10/19	15:10 Eastern		Water			X	X	X	1	Metals - run once, upload together.
FIELD BLANK (490-172010-4)	4/10/19	15:39 Eastern		Water			X	X	X	1	Metals - run once, upload together.

490-172010 Chain of Custody

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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

Empty Kit Relinquished by:	Date: MON 4/22/19	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	4.12.19@1615	TALS	Watson	4-13-19	TAPit
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 930	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

Eurofins TestAmerica, Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Phone (615) 726-0177 Fax (615) 726-3404

nut 2EE

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Cisneros, Roxanne	Carrier Tracking No(s):	COC No: 490-88697.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: roxanne.cisneros@testamericainc.com	State of Origin: Kentucky	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Kentucky (UST)		Job #: 490-172010-1
Address: 301 Alpha Drive, RIDC Park,	Due Date Requested: 4/24/2019			
City: Pittsburgh	TAT Requested (days):			
State, Zip: PA, 15238				
Phone: 412-963-7058(Tel) 412-963-2468(Fax)	PO #:			
Email:	WO #:			
Project Name: Sebree Station, New CCR Wells Rd 2	Project #: 49010431			
Site: Big Rivers CCR	SSOW#:			

Analysis Requested

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, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C/3005A (MOD) Lithium	6020A/3005A (MOD) ICP/MS Metals	7470A/7470A_Prep Mercury	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-104 (490-172010-1)	4/10/19	14:43 Eastern		Water			X	X	X	1	Metals - run once, upload together.
MW-110 (490-172010-2)	4/10/19	12:59 Eastern		Water			X	X	X	1	Metals - run once, upload together.
DUPE (490-172010-3)	4/10/19	15:10 Eastern		Water			X	X	X	1	Metals - run once, upload together.
FIELD BLANK (490-172010-4)	4/10/19	15:39 Eastern		Water			X	X	X	1	Metals - run once, upload together.

490-172010 Chain of Custody

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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

Empty Kit Relinquished by:	Date: [illegible] 4/12/19	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	4.12.19 @ 1615	TAMS	P Watson	4-13-19	FAPIT
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 930	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Big Rivers Electric Corporation

Job Number: 490-172010-1
SDG Number: Sebree Station

Login Number: 172010
List Number: 2
Creator: Watson, Debbie

List Source: Eurofins TestAmerica, Pittsburgh
List Creation: 04/13/19 01:27 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?	False	
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	

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ANALYTICAL REPORT

Eurofins TestAmerica, Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Tel: (615)726-0177

Laboratory Job ID: 490-172010-1
Laboratory Sample Delivery Group: Sebree Station
Client Project/Site: Sebree Station, New CCR Wells Rd 2
Revision: 1

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

Attn: Mark Bertram

Roxanne Cisneros

Authorized for release by:
7/19/2019 5:01:12 PM

Roxanne Cisneros, Senior Project Manager
(615)301-5761
roxanne.cisneros@testamericainc.com

LINKS

Review your project results through TotalAccess

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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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Sample Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
490-172010-1	MW-104	Water	04/10/19 14:43	04/12/19 09:55	
490-172010-2	MW-110	Water	04/10/19 12:59	04/12/19 09:55	
490-172010-3	DUPE	Water	04/10/19 15:10	04/12/19 09:55	
490-172010-4	FIELD BLANK	Water	04/10/19 15:39	04/12/19 09:55	

Job ID: 490-172010-1

Laboratory: Eurofins TestAmerica, Nashville

Narrative

Job Narrative
490-172010-1

Comments
No additional comments.

Receipt
The samples were received on 4/12/2019 9:55 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were -0.6º C and 0.7º C.

HPLC/IC
Method(s) 9056A: The concentration of Chloride in the Matrix Spike/Matrix Spike Duplicate (MS/MSD) exceeded the calibration curve range. (490-171999-H-13 MS)

Method(s) 9056A: The method blank for analytical batch 490-587889 contained Chloride above the reporting limit (RL). Associated sample(s) were not re-extracted and/or re-analyzed because results were greater than 10X the value found in the method blank.

Method(s) 9056A: The concentration of Chloride and Sulfate in the Matrix Spike/Matrix Spike Duplicate (MS/MSD) exceeded the calibration curve range. (490-172007-E-1 MS) and (490-172007-E-1 MSD)

Method(s) 9056A: The following samples were diluted due to the nature of the sample matrix: MW-104 (490-172010-1), MW-110 (490-172010-2) and DUPE (490-172010-3). Elevated reporting limits (RLs) are provided.

Method(s) 9056A: The method blank for analytical batch 490-588578 contained Fluoride above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and_or re-analysis of samples was not performed.

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

Metals
Method(s) 6020A: The serial dilution performed for the following sample associated with batch 180-276092 was outside control limits for boron: MW-104 (490-172010-1)

Method(s) 7470A: Closing CRA was high, but all samples are non-detect. MW-104 (490-172010-1), MW-110 (490-172010-2), DUPE (490-172010-3), (LCS 180-276833/2-A), (MB 180-276833/1-A), (490-172010-A-3-F MS) and (490-172010-A-3-G MSD)

Method(s) 245.1, 7470A: The continuing calibration verification (CCV) associated with batch 180-277078 recovered above the upper control limit for mercury. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method(s) 245.1, 7470A: The low level continuing calibration verification (CCVL) associated with batch 180-277078 recovered above the upper control limit for mercury. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method(s) 7470A: The laboratory control sample (LCS) for preparation batch 180-276826 and analytical batch 180-277078 recovered outside control limits for mercury. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

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

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

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

Job ID: 490-172010-1 (Continued)

Laboratory: Eurofins TestAmerica, Nashville (Continued)

Narrative

Job Narrative
490-172010-2

Comments
No additional comments.

Receipt
The samples were received on 4/12/2019 9:55 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were -0.6º C and 0.7º C.

RAD
Method 903.0: Radium-226 Prep Batch 160-429619
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.
FIELD BLANK (490-172010-4), (LCS 160-429619/1-A) and (MB 160-429619/23-A)

Method 903.0: Ra-226 Prep Batch 160-428674

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-104 (490-172010-1), MW-110 (490-172010-2), DUPE (490-172010-3), (LCS 160-428674/1-A) and (MB 160-428674/24-A)

Method 904.0: Ra-228 Prep Batch 160-429638

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.
FIELD BLANK (490-172010-4), (LCS 160-429638/1-A) and (MB 160-429638/23-A)

Method 904.0: Radium-228 Prep Batch 160-428727

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-104 (490-172010-1), MW-110 (490-172010-2), DUPE (490-172010-3), (LCS 160-428727/1-A) and (MB 160-428727/24-A)

Method PrecSep_0: Radium 228 prep batch 160-428727

The following samples were prepared at a reduced aliquot: MW-110 (490-172010-2). Samples 490-172007-1, 490-172007-2, 490-172007-3, 490-172007-5 and 490-172010-2 were reduced due to sediment and brown discoloration. Sample 240-110687-11 was reduced due to limited volume.

Method PrecSep_0: FIELD BLANK (490-172010-4)

Method PrecSep-21: Radium 226 prep batch 160-428674

The following samples were prepared at a reduced aliquot: MW-110 (490-172010-2). Samples 490-172007-1, 490-172007-2, 490-172007-3, 490-172007-5 and 490-172010-2 were reduced due to sediment and brown discoloration. Sample 240-110687-11 was reduced due to limited volume.

Job ID: 490-172010-1 (Continued)

Laboratory: Eurofins TestAmerica, Nashville (Continued)

Method PrecSep-21: FIELD BLANK (490-172010-4)

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

Qualifiers

HPLC/IC

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.
B	Compound was found in the blank and sample.
E	Result exceeded calibration range.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.
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.
B	Compound was found in the blank and sample.
F1	MS and/or MSD Recovery is outside acceptance limits.
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
F3	Duplicate RPD exceeds the control limit

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

Client Sample ID: MW-104

Date Collected: 04/10/19 14:43
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-1

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1430	B	300	20.0	mg/L			04/13/19 19:35	100
Fluoride	0.323	J B	10.0	0.100	mg/L			04/13/19 19:19	10
Sulfate	2880	B	500	3.00	mg/L			04/13/19 19:35	100

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0286	J	0.0500	0.00959	mg/L		04/16/19 11:19	04/22/19 16:39	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.000119	J B	0.00200	0.0000213	mg/L		04/16/19 11:17	04/17/19 10:53	1
Arsenic	0.00208	J	0.00500	0.000118	mg/L		04/16/19 11:17	04/17/19 10:53	1
Barium	0.0216	J B	0.200	0.000270	mg/L		04/16/19 11:17	04/17/19 10:53	1
Beryllium	ND		0.00200	0.000102	mg/L		04/16/19 11:17	04/17/19 10:53	1
Boron	0.271	J B	1.00	0.00339	mg/L		04/16/19 11:17	04/17/19 10:53	1
Cadmium	ND		0.00100	0.000152	mg/L		04/16/19 11:17	04/17/19 10:53	1
Calcium	502		1.00	0.0412	mg/L		04/16/19 11:17	04/17/19 10:53	1
Chromium	0.00360		0.00300	0.000339	mg/L		04/16/19 11:17	04/17/19 10:53	1
Cobalt	0.00522		0.00500	0.0000218	mg/L		04/16/19 11:17	04/17/19 10:53	1
Lead	0.000233	J	0.00500	0.0000675	mg/L		04/16/19 11:17	04/17/19 10:53	1
Molybdenum	0.00104	J	0.0100	0.000873	mg/L		04/16/19 11:17	04/17/19 10:53	1
Potassium	1660		1000	147	ug/L		04/16/19 11:17	04/17/19 10:53	1
Selenium	ND		0.0100	0.000348	mg/L		04/16/19 11:17	04/17/19 10:53	1
Thallium	ND		0.00100	0.0000360	mg/L		04/16/19 11:17	04/17/19 10:53	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^	0.200	0.101	ug/L		04/25/19 17:02	04/26/19 13:28	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.99		0.100	0.100	SU			04/18/19 18:32	1
Temperature	22.8		0.100	0.100	Degrees C			04/18/19 18:32	1
Specific Conductance (25C)	8570		10.0	10.0	umhos/cm			04/13/19 10:38	1
Alkalinity	696		10.0	5.00	mg/L			04/13/19 13:33	1
Total Dissolved Solids	6690		250	70.0	mg/L			04/15/19 16:11	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	0.0585	U	0.0573	0.0576	1.00	0.0869	pCi/L	05/16/19 12:11	07/09/19 18:10	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.4*		*40 - 110*	*05/16/19 12:11*	*07/09/19 18:10*	*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	0.261	U	0.228	0.229	1.00	0.365	pCi/L	05/16/19 16:00	07/02/19 15:07	1

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Client Sample ID: MW-104
Date Collected: 04/10/19 14:43
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-1
Matrix: Water

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	99.4		40 - 110	05/16/19 16:00	07/02/19 15:07	1
Y Carrier	82.6		40 - 110	05/16/19 16:00	07/02/19 15:07	1

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	0.319	U	0.235	0.236	5.00	0.365	pCi/L		07/15/19 08:48	1

Client Sample ID: MW-110

Date Collected: 04/10/19 12:59
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-2

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	30.4	B	6.00	0.400	mg/L			04/13/19 20:09	2
Fluoride	0.255	J B	1.00	0.0100	mg/L			04/13/19 02:38	1
Sulfate	596	B	250	1.50	mg/L			04/13/19 20:25	50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0303	J	0.0500	0.00959	mg/L		04/16/19 11:19	04/22/19 16:45	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.000204	J B	0.00200	0.0000213	mg/L		04/16/19 11:17	04/17/19 11:16	1
Arsenic	0.00238	J	0.00500	0.000118	mg/L		04/16/19 11:17	04/17/19 11:16	1
Barium	0.107	J B	0.200	0.000270	mg/L		04/16/19 11:17	04/17/19 11:16	1
Beryllium	0.000314	J	0.00200	0.000102	mg/L		04/16/19 11:17	04/17/19 11:16	1
Boron	0.496	J B	1.00	0.00339	mg/L		04/16/19 11:17	04/17/19 11:16	1
Cadmium	ND		0.00100	0.000152	mg/L		04/16/19 11:17	04/17/19 11:16	1
Calcium	178		1.00	0.0412	mg/L		04/16/19 11:17	04/17/19 11:16	1
Chromium	0.0115		0.00300	0.000339	mg/L		04/16/19 11:17	04/17/19 11:16	1
Cobalt	0.00384	J	0.00500	0.0000218	mg/L		04/16/19 11:17	04/17/19 11:16	1
Lead	0.00399	J	0.00500	0.0000675	mg/L		04/16/19 11:17	04/17/19 11:16	1
Molybdenum	0.00120	J	0.0100	0.000873	mg/L		04/16/19 11:17	04/17/19 11:16	1
Potassium	2930		1000	147	ug/L		04/16/19 11:17	04/17/19 11:16	1
Selenium	ND		0.0100	0.000348	mg/L		04/16/19 11:17	04/17/19 11:16	1
Thallium	0.0000640	J	0.00100	0.0000360	mg/L		04/16/19 11:17	04/17/19 11:16	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^	0.200	0.101	ug/L		04/25/19 17:02	04/26/19 13:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.50		0.100	0.100	SU			04/18/19 18:32	1
Temperature	22.8		0.100	0.100	Degrees C			04/18/19 18:32	1
Specific Conductance (25C)	1570		10.0	10.0	umhos/cm			04/13/19 10:38	1
Alkalinity	270		10.0	5.00	mg/L			04/13/19 13:40	1
Total Dissolved Solids	1200		25.0	7.00	mg/L			04/15/19 16:11	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	0.812		0.283	0.292	1.00	0.287	pCi/L	05/16/19 12:11	07/09/19 18:10	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*76.0*		*40 - 110*	*05/16/19 12:11*	*07/09/19 18:10*	*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	1.11		0.591	0.600	1.00	0.861	pCi/L	05/16/19 16:00	07/02/19 15:07	1

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Client Sample ID: MW-110
Date Collected: 04/10/19 12:59
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-2
Matrix: Water

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	76.0		40 - 110	05/16/19 16:00	07/02/19 15:07	1
Y Carrier	78.1		40 - 110	05/16/19 16:00	07/02/19 15:07	1

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	1.93		0.655	0.667	5.00	0.861	pCi/L		07/15/19 08:48	1

Client Sample ID: DUPE

Date Collected: 04/10/19 15:10
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-3

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1380	B	300	20.0	mg/L			04/13/19 22:54	100
Fluoride	1.19	J B	100	1.00	mg/L			04/13/19 22:54	100
Sulfate	2880	B	500	3.00	mg/L			04/13/19 22:54	100

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0313	J	0.0500	0.00959	mg/L		04/16/19 11:19	04/22/19 16:07	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.000107	J B	0.00200	0.0000213	mg/L		04/16/19 11:17	04/17/19 11:19	1
Arsenic	0.00192	J	0.00500	0.000118	mg/L		04/16/19 11:17	04/17/19 11:19	1
Barium	0.0201	J B	0.200	0.000270	mg/L		04/16/19 11:17	04/17/19 11:19	1
Beryllium	ND		0.00200	0.000102	mg/L		04/16/19 11:17	04/17/19 11:19	1
Boron	0.200	J B	1.00	0.00339	mg/L		04/16/19 11:17	04/17/19 11:19	1
Cadmium	ND		0.00100	0.000152	mg/L		04/16/19 11:17	04/17/19 11:19	1
Calcium	486		1.00	0.0412	mg/L		04/16/19 11:17	04/17/19 11:19	1
Chromium	0.00355		0.00300	0.000339	mg/L		04/16/19 11:17	04/17/19 11:19	1
Cobalt	0.00536		0.00500	0.0000218	mg/L		04/16/19 11:17	04/17/19 11:19	1
Lead	0.000126	J	0.00500	0.0000675	mg/L		04/16/19 11:17	04/17/19 11:19	1
Molybdenum	0.000921	J	0.0100	0.000873	mg/L		04/16/19 11:17	04/17/19 11:19	1
Potassium	1430		1000	147	ug/L		04/16/19 11:17	04/17/19 11:19	1
Selenium	ND		0.0100	0.000348	mg/L		04/16/19 11:17	04/17/19 11:19	1
Thallium	ND		0.00100	0.0000360	mg/L		04/16/19 11:17	04/17/19 11:19	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^	0.200	0.101	ug/L		04/25/19 17:02	04/26/19 13:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.98		0.100	0.100	SU			04/18/19 18:32	1
Temperature	22.8		0.100	0.100	Degrees C			04/18/19 18:32	1
Specific Conductance (25C)	8630		10.0	10.0	umhos/cm			04/13/19 10:38	1
Alkalinity	686		10.0	5.00	mg/L			04/13/19 13:47	1
Total Dissolved Solids	6810		250	70.0	mg/L			04/15/19 16:11	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	0.0714	U	0.0775	0.0778	1.00	0.124	pCi/L	05/16/19 12:11	07/09/19 18:10	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*96.0*		*40 - 110*	*05/16/19 12:11*	*07/09/19 18:10*	*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	0.404	U	0.304	0.306	1.00	0.480	pCi/L	05/16/19 16:00	07/02/19 15:07	1

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Client Sample ID: DUPE
Date Collected: 04/10/19 15:10
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-3
Matrix: Water

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	96.0		40 - 110	05/16/19 16:00	07/02/19 15:07	1
Y Carrier	76.6		40 - 110	05/16/19 16:00	07/02/19 15:07	1

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	0.475	U	0.314	0.316	5.00	0.480	pCi/L		07/15/19 08:48	1

Client Sample ID: FIELD BLANK

Date Collected: 04/10/19 15:39
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-4

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	0.200	mg/L			04/17/19 15:20	1
Fluoride	ND		1.00	0.0100	mg/L			04/13/19 03:12	1
Sulfate	**0.334**	**J B**	5.00	0.0300	mg/L			04/13/19 03:12	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.0500	0.00959	mg/L		04/16/19 11:19	04/22/19 16:51	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.000192**	**J B**	0.00200	0.0000213	mg/L		04/16/19 11:17	04/17/19 11:23	1
Arsenic	**0.000904**	**J**	0.00500	0.000118	mg/L		04/16/19 11:17	04/17/19 11:23	1
Barium	**0.000424**	**J B**	0.200	0.000270	mg/L		04/16/19 11:17	04/17/19 11:23	1
Beryllium	ND		0.00200	0.000102	mg/L		04/16/19 11:17	04/17/19 11:23	1
Boron	**0.0368**	**J B**	1.00	0.00339	mg/L		04/16/19 11:17	04/17/19 11:23	1
Cadmium	ND		0.00100	0.000152	mg/L		04/16/19 11:17	04/17/19 11:23	1
Calcium	**0.174**	**J**	1.00	0.0412	mg/L		04/16/19 11:17	04/17/19 11:23	1
Chromium	**0.00427**		0.00300	0.000339	mg/L		04/16/19 11:17	04/17/19 11:23	1
Cobalt	ND		0.00500	0.0000218	mg/L		04/16/19 11:17	04/17/19 11:23	1
Lead	ND		0.00500	0.0000675	mg/L		04/16/19 11:17	04/17/19 11:23	1
Molybdenum	ND		0.0100	0.000873	mg/L		04/16/19 11:17	04/17/19 11:23	1
Potassium	ND		1000	147	ug/L		04/16/19 11:17	04/17/19 11:23	1
Selenium	ND		0.0100	0.000348	mg/L		04/16/19 11:17	04/17/19 11:23	1
Thallium	ND		0.00100	0.0000360	mg/L		04/16/19 11:17	04/17/19 11:23	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	* ^	0.200	0.101	ug/L		04/25/19 16:08	04/29/19 09:08	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**5.97**		0.100	0.100	SU			04/18/19 18:32	1
Temperature	**22.8**		0.100	0.100	Degrees C			04/18/19 18:32	1
Specific Conductance (25C)	ND		10.0	10.0	umhos/cm			04/13/19 10:38	1
Alkalinity	ND		10.0	5.00	mg/L			04/13/19 13:53	1
Total Dissolved Solids	ND		25.0	7.00	mg/L			04/15/19 16:11	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	-0.0151	U	0.168	0.168	1.00	0.376	pCi/L	05/23/19 10:11	07/01/19 20:40	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*70.9*		*40 - 110*	*05/23/19 10:11*	*07/01/19 20:40*	*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	0.0164	U	0.247	0.247	1.00	0.438	pCi/L	05/23/19 11:48	07/01/19 14:34	1

Client Sample ID: FIELD BLANK

Date Collected: 04/10/19 15:39
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-4

Matrix: Water

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*70.9*		*40 - 110*	*05/23/19 11:48*	*07/01/19 14:34*	*1*
Y Carrier	*101*		*40 - 110*	*05/23/19 11:48*	*07/01/19 14:34*	*1*

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	0.00135	U	0.299	0.299	5.00	0.438	pCi/L		07/15/19 08:48	1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 490-587889/3
Matrix: Water
Analysis Batch: 587889

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.105	J	3.00	0.200	mg/L			04/12/19 21:40	1
Fluoride	0.02290	J	1.00	0.0100	mg/L			04/12/19 21:40	1
Sulfate	0.3257	J	5.00	0.0300	mg/L			04/12/19 21:40	1

Lab Sample ID: LCS 490-587889/4
Matrix: Water
Analysis Batch: 587889

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.869		mg/L		99	80 - 120
Fluoride	1.00	1.008		mg/L		101	80 - 120
Sulfate	10.0	9.795		mg/L		98	80 - 120

Lab Sample ID: LCSD 490-587889/5
Matrix: Water
Analysis Batch: 587889

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.885		mg/L		99	80 - 120	0	20
Fluoride	1.00	0.9934	J	mg/L		99	80 - 120	1	20
Sulfate	10.0	9.703		mg/L		97	80 - 120	1	20

Lab Sample ID: 490-171999-H-13 MS
Matrix: Water
Analysis Batch: 587889

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	52.9	E B ^	10.0	63.34	E 4	mg/L		104	80 - 120
Fluoride	0.508	J B	1.00	1.415		mg/L		91	80 - 120
Sulfate	28.9	B	10.0	38.93		mg/L		100	80 - 120

Lab Sample ID: 490-171999-H-13 MSD
Matrix: Water
Analysis Batch: 587889

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	52.9	E B ^	10.0	64.49	E 4	mg/L		115	80 - 120	2	20
Fluoride	0.508	J B	1.00	1.502		mg/L		99	80 - 120	6	20
Sulfate	28.9	B	10.0	39.96		mg/L		110	80 - 120	3	20

Lab Sample ID: MB 490-587927/3
Matrix: Water
Analysis Batch: 587927

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.8259	J	3.00	0.200	mg/L			04/13/19 13:23	1
Fluoride	0.02208	J	1.00	0.0100	mg/L			04/13/19 13:23	1
Sulfate	0.4767	J	5.00	0.0300	mg/L			04/13/19 13:23	1

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 490-587927/4
Matrix: Water
Analysis Batch: 587927

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			10.0	8.999		mg/L		90	80 - 120		
Fluoride			1.00	0.9571	J	mg/L		96	80 - 120		
Sulfate			10.0	9.244		mg/L		92	80 - 120		

Lab Sample ID: LCSD 490-587927/5
Matrix: Water
Analysis Batch: 587927

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			10.0	8.982		mg/L		90	80 - 120	0	20
Fluoride			1.00	0.9754	J	mg/L		97	80 - 120	2	20
Sulfate			10.0	9.261		mg/L		92	80 - 120	0	20

Lab Sample ID: 490-172007-E-1 MS
Matrix: Water
Analysis Batch: 587927

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	114	E B	10.0	126.5	E 4	mg/L		122	80 - 120		
Fluoride	0.533	J B	1.00	1.483		mg/L		95	80 - 120		
Sulfate	1590	E B	10.0	2744	E 4	mg/L		11509	80 - 120		

Lab Sample ID: 490-172007-E-1 MSD
Matrix: Water
Analysis Batch: 587927

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	114	E B	10.0	125.2	E 4	mg/L		110	80 - 120	1	20
Fluoride	0.533	J B	1.00	1.396		mg/L		86	80 - 120	6	20
Sulfate	1590	E B	10.0	2759	E 4	mg/L		11657	80 - 120	1	20

Lab Sample ID: MB 490-587930/3
Matrix: Water
Analysis Batch: 587930

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.7587	J	3.00	0.200	mg/L			04/13/19 22:05	1
Fluoride	0.01835	J	1.00	0.0100	mg/L			04/13/19 22:05	1
Sulfate	0.6184	J	5.00	0.0300	mg/L			04/13/19 22:05	1

Lab Sample ID: LCS 490-587930/4
Matrix: Water
Analysis Batch: 587930

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			10.0	9.193		mg/L		92	80 - 120		
Fluoride			1.00	0.9693	J	mg/L		97	80 - 120		
Sulfate			10.0	9.411		mg/L		94	80 - 120		

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 490-587930/5
Matrix: Water
Analysis Batch: 587930

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			10.0	9.238		mg/L		92	80 - 120	0	20
Fluoride			1.00	0.9712	J	mg/L		97	80 - 120	0	20
Sulfate			10.0	9.413		mg/L		94	80 - 120	0	20

Lab Sample ID: MB 490-588578/3
Matrix: Water
Analysis Batch: 588578

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	0.200	mg/L			04/17/19 11:53	1
Fluoride	ND		1.00	0.0100	mg/L			04/17/19 11:53	1
Sulfate	ND		5.00	0.0300	mg/L			04/17/19 11:53	1

Lab Sample ID: LCS 490-588578/4
Matrix: Water
Analysis Batch: 588578

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			10.0	9.491		mg/L		95	80 - 120		
Fluoride			1.00	1.055		mg/L		105	80 - 120		
Sulfate			10.0	10.11		mg/L		101	80 - 120		

Lab Sample ID: LCSD 490-588578/5
Matrix: Water
Analysis Batch: 588578

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			10.0	9.503		mg/L		95	80 - 120	0	20
Fluoride			1.00	1.051		mg/L		105	80 - 120	0	20
Sulfate			10.0	10.13		mg/L		101	80 - 120	0	20

Lab Sample ID: 490-172010-4 MS
Matrix: Water
Analysis Batch: 588578

Client Sample ID: FIELD BLANK
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	ND		10.0	10.53		mg/L		105	80 - 120		
Fluoride	ND		1.00	1.150		mg/L		115	80 - 120		
Sulfate	0.222	J	10.0	10.63		mg/L		104	80 - 120		

Lab Sample ID: 490-172010-4 MSD
Matrix: Water
Analysis Batch: 588578

Client Sample ID: FIELD BLANK
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	ND		10.0	11.16		mg/L		112	80 - 120	6	20
Fluoride	ND		1.00	1.165		mg/L		116	80 - 120	1	20
Sulfate	0.222	J	10.0	11.57		mg/L		113	80 - 120	8	20

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 180-275853/1-A
Matrix: Water
Analysis Batch: 276485

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 275853

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.0500	0.00959	mg/L		04/16/19 11:19	04/22/19 15:56	1

Lab Sample ID: LCS 180-275853/2-A
Matrix: Water
Analysis Batch: 276485

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 275853

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	1.00	1.006		mg/L		101	80 - 120

Lab Sample ID: 490-172010-3 MS
Matrix: Water
Analysis Batch: 276485

Client Sample ID: DUPE
Prep Type: Total Recoverable
Prep Batch: 275853

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	0.0313	J	1.00	1.065		mg/L		103	75 - 125

Lab Sample ID: 490-172010-3 MSD
Matrix: Water
Analysis Batch: 276485

Client Sample ID: DUPE
Prep Type: Total Recoverable
Prep Batch: 275853

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lithium	0.0313	J	1.00	1.090		mg/L		106	75 - 125	2	20

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 180-275852/1-A
Matrix: Water
Analysis Batch: 276092

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 275852

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00002800	J	0.00200	0.0000213	mg/L		04/16/19 11:17	04/17/19 11:54	1
Arsenic	ND		0.00500	0.000118	mg/L		04/16/19 11:17	04/17/19 11:54	1
Barium	0.0007190	J	0.200	0.000270	mg/L		04/16/19 11:17	04/17/19 11:54	1
Beryllium	ND		0.00200	0.000102	mg/L		04/16/19 11:17	04/17/19 11:54	1
Boron	0.02478	J	1.00	0.00339	mg/L		04/16/19 11:17	04/17/19 11:54	1
Cadmium	ND		0.00100	0.000152	mg/L		04/16/19 11:17	04/17/19 11:54	1
Calcium	ND		1.00	0.0412	mg/L		04/16/19 11:17	04/17/19 11:54	1
Chromium	ND		0.00300	0.000339	mg/L		04/16/19 11:17	04/17/19 11:54	1
Cobalt	ND		0.00500	0.0000218	mg/L		04/16/19 11:17	04/17/19 11:54	1
Lead	ND		0.00500	0.0000675	mg/L		04/16/19 11:17	04/17/19 11:54	1
Molybdenum	ND		0.0100	0.000873	mg/L		04/16/19 11:17	04/17/19 11:54	1
Potassium	ND		1000	147	ug/L		04/16/19 11:17	04/17/19 11:54	1
Selenium	ND		0.0100	0.000348	mg/L		04/16/19 11:17	04/17/19 11:54	1
Thallium	ND		0.00100	0.0000360	mg/L		04/16/19 11:17	04/17/19 11:54	1

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

Lab Sample ID: LCS 180-275852/2-A
Matrix: Water
Analysis Batch: 276092

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 275852

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.500	0.5151		mg/L		103	80 - 120
Arsenic	0.0400	0.03629		mg/L		91	80 - 120
Barium	2.00	2.120		mg/L		106	80 - 120
Beryllium	0.0500	0.05131		mg/L		103	80 - 120
Boron	1.00	1.006		mg/L		101	80 - 120
Cadmium	0.0500	0.05263		mg/L		105	80 - 120
Calcium	50.0	50.60		mg/L		101	80 - 120
Chromium	0.200	0.2148		mg/L		107	80 - 120
Cobalt	0.500	0.4481		mg/L		90	80 - 120
Lead	0.0200	0.02088		mg/L		104	80 - 120
Molybdenum	1.00	0.9910		mg/L		99	80 - 120
Potassium	50000	48340		ug/L		97	80 - 120
Selenium	0.0100	0.01029		mg/L		103	80 - 120
Thallium	0.0500	0.05310		mg/L		106	80 - 120

Lab Sample ID: 490-172010-1 MS
Matrix: Water
Analysis Batch: 276092

Client Sample ID: MW-104
Prep Type: Total Recoverable
Prep Batch: 275852

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.000119	J B	0.500	0.5292		mg/L		106	75 - 125
Arsenic	0.00208	J	0.0400	0.03945		mg/L		93	75 - 125
Barium	0.0216	J B	2.00	2.197		mg/L		109	75 - 125
Beryllium	ND		0.0500	0.05176		mg/L		104	75 - 125
Boron	0.271	J B	1.00	1.297		mg/L		103	75 - 125
Cadmium	ND		0.0500	0.05279		mg/L		106	75 - 125
Calcium	502		50.0	557.9	4	mg/L		111	75 - 125
Chromium	0.00360		0.200	0.2213		mg/L		109	75 - 125
Cobalt	0.00522		0.500	0.4645		mg/L		92	75 - 125
Lead	0.000233	J	0.0200	0.02146		mg/L		106	75 - 125
Molybdenum	0.00104	J	1.00	1.043		mg/L		104	75 - 125
Potassium	1660		50000	48970		ug/L		95	75 - 125
Selenium	ND		0.0100	0.01059		mg/L		106	75 - 125
Thallium	ND		0.0500	0.05541		mg/L		111	75 - 125

Lab Sample ID: 490-172010-1 MSD
Matrix: Water
Analysis Batch: 276092

Client Sample ID: MW-104
Prep Type: Total Recoverable
Prep Batch: 275852

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	0.000119	J B	0.500	0.5401		mg/L		108	75 - 125	2	20
Arsenic	0.00208	J	0.0400	0.03954		mg/L		94	75 - 125	0	20
Barium	0.0216	J B	2.00	2.231		mg/L		110	75 - 125	2	20
Beryllium	ND		0.0500	0.05116		mg/L		102	75 - 125	1	20
Boron	0.271	J B	1.00	1.238		mg/L		97	75 - 125	5	20
Cadmium	ND		0.0500	0.05362		mg/L		107	75 - 125	2	20
Calcium	502		50.0	566.9	4	mg/L		129	75 - 125	2	20
Chromium	0.00360		0.200	0.2201		mg/L		108	75 - 125	1	20
Cobalt	0.00522		0.500	0.4630		mg/L		92	75 - 125	0	20

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

Lab Sample ID: 490-172010-1 MSD — **Client Sample ID: MW-104**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 276092 — **Prep Batch: 275852**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	0.000233	J	0.0200	0.02185		mg/L		108	75 - 125	2	20
Molybdenum	0.00104	J	1.00	1.061		mg/L		106	75 - 125	2	20
Potassium	1660		50000	50080		ug/L		97	75 - 125	2	20
Selenium	ND		0.0100	0.01045		mg/L		105	75 - 125	1	20
Thallium	ND		0.0500	0.05523		mg/L		110	75 - 125	0	20

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-276826/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 277078 — **Prep Batch: 276826**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^	0.200	0.101	ug/L		04/25/19 16:08	04/29/19 09:06	1

Lab Sample ID: LCS 180-276826/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 277078 — **Prep Batch: 276826**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	2.50	3.726	* ^	ug/L		149	80 - 120

Lab Sample ID: 180-88983-B-1-C MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 277078 — **Prep Batch: 276826**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND	* ^ F1	1.00	1.386	F1 ^	ug/L		139	75 - 125

Lab Sample ID: 180-88983-B-1-D MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 277078 — **Prep Batch: 276826**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND	* ^ F1	1.00	1.504	F1 ^	ug/L		150	75 - 125	8	20

Lab Sample ID: MB 180-276833/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 276941 — **Prep Batch: 276833**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^	0.200	0.101	ug/L		04/25/19 17:02	04/26/19 13:03	1

Lab Sample ID: LCS 180-276833/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 276941 — **Prep Batch: 276833**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	2.50	2.494	^	ug/L		100	80 - 120

Method: EPA 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: 490-172010-3 MS
Matrix: Water
Analysis Batch: 276941

Client Sample ID: DUPE
Prep Type: Total/NA
Prep Batch: 276833

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND	^	1.00	0.8720	^	ug/L		87	75 - 125

Lab Sample ID: 490-172010-3 MSD
Matrix: Water
Analysis Batch: 276941

Client Sample ID: DUPE
Prep Type: Total/NA
Prep Batch: 276833

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND	^	1.00	0.8200	^	ug/L		82	75 - 125	6	20

Method: 9040C - pH

Lab Sample ID: LCS 490-589003/1
Matrix: Water
Analysis Batch: 589003

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.040		SU		101	98 - 103

Lab Sample ID: 490-171598-A-10 DU
Matrix: Water
Analysis Batch: 589003

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	6.94		6.940		SU		0	20
Temperature	23.0		23.00		Degrees C		0	20

Method: 9050A - Specific Conductance

Lab Sample ID: 490-172007-E-1 DU
Matrix: Water
Analysis Batch: 588267

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Specific Conductance (25C)	3700		3680		umhos/cm		0.5	10

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 490-587963/11
Matrix: Water
Analysis Batch: 587963

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	ND		10.0	5.00	mg/L			04/13/19 11:27	1

Lab Sample ID: LCS 490-587963/12
Matrix: Water
Analysis Batch: 587963

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	100	97.71		mg/L		98	90 - 110

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: LCSD 490-587963/34
Matrix: Water
Analysis Batch: 587963

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity			100	96.97		mg/L		97	90 - 110	1	20

Lab Sample ID: 490-171998-I-1 DU
Matrix: Water
Analysis Batch: 587963

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Alkalinity	124			125.6		mg/L				2	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 490-588164/1
Matrix: Water
Analysis Batch: 588164

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		25.0	7.00	mg/L			04/15/19 16:11	1

Lab Sample ID: LCS 490-588164/2
Matrix: Water
Analysis Batch: 588164

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			100	95.00		mg/L		95	90 - 110		

Lab Sample ID: 490-172007-E-2 DU
Matrix: Water
Analysis Batch: 588164

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	5480			5456		mg/L				0.5	20

Lab Sample ID: 490-172074-C-1 DU
Matrix: Water
Analysis Batch: 588164

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	21000			28200	F3	mg/L				29	20

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-428674/24-A
Matrix: Water
Analysis Batch: 434299

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 428674

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.007828	U	0.0450	0.0450	1.00	0.0994	pCi/L	05/16/19 12:11	07/09/19 18:11	1

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

Lab Sample ID: MB 160-428674/24-A
Matrix: Water
Analysis Batch: 434299

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 428674

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	106		40 - 110	05/16/19 12:11	07/09/19 18:11	1

Lab Sample ID: LCS 160-428674/1-A
Matrix: Water
Analysis Batch: 434753

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 428674

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.4	8.580		0.907	1.00	0.0856	pCi/L	76	75 - 125		

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	104		40 - 110

Lab Sample ID: 480-151762-A-5-D MSD
Matrix: Water
Analysis Batch: 434299

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 428674

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	0.0134	U	11.3	10.56		1.11	1.00	0.124	pCi/L	93	75 - 138	0.42	1

Carrier	MSD %Yield	MSD Qualifier	Limits
Ba Carrier	96.9		40 - 110

Lab Sample ID: 480-151762-B-5-A MS
Matrix: Water
Analysis Batch: 434299

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 428674

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226	0.0134	U	11.3	9.669		1.03	1.00	0.118	pCi/L	85	75 - 138		

Carrier	MS %Yield	MS Qualifier	Limits
Ba Carrier	97.7		40 - 110

Lab Sample ID: MB 160-429619/23-A
Matrix: Water
Analysis Batch: 433445

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 429619

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.02230	U	0.188	0.188	1.00	0.393	pCi/L	05/23/19 10:11	07/02/19 05:58	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	68.9		40 - 110	05/23/19 10:11	07/02/19 05:58	1

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

Lab Sample ID: LCS 160-429619/1-A
Matrix: Water
Analysis Batch: 433323

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 429619

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.4	8.859		1.40	1.00	0.530	pCi/L	78	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*60.7*		*40 - 110*

Lab Sample ID: 240-110911-I-1-A DU
Matrix: Water
Analysis Batch: 433323

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 429619

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Radium-226	0.176	U		0.4939		0.320	1.00	0.411	pCi/L			0.57	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Ba Carrier	*55.1*		*40 - 110*

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-428727/24-A
Matrix: Water
Analysis Batch: 433445

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 428727

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.3310	U	0.287	0.289	1.00	0.462	pCi/L	05/16/19 16:00	07/02/19 15:09	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*106*		*40 - 110*	*05/16/19 16:00*	*07/02/19 15:09*	*1*
Y Carrier	*81.1*		*40 - 110*	*05/16/19 16:00*	*07/02/19 15:09*	*1*

Lab Sample ID: LCS 160-428727/1-A
Matrix: Water
Analysis Batch: 433410

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 428727

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.06	9.118		1.08	1.00	0.414	pCi/L	101	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*104*		*40 - 110*
Y Carrier	*71.4*		*40 - 110*

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

Lab Sample ID: 480-151762-A-5-C MSD
Matrix: Water
Analysis Batch: 433410

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 428727

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	0.109	U	9.06	10.10		1.18	1.00	0.419	pCi/L	110	45 - 150	0.1	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Ba Carrier	*96.9*		*40 - 110*
Y Carrier	*74.8*		*40 - 110*

Lab Sample ID: 480-151762-B-5-B MS
Matrix: Water
Analysis Batch: 433410

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 428727

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228	0.109	U	9.06	9.876		1.13	1.00	0.345	pCi/L	108	45 - 150		

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Ba Carrier	*97.7*		*40 - 110*
Y Carrier	*80.4*		*40 - 110*

Lab Sample ID: MB 160-429638/23-A
Matrix: Water
Analysis Batch: 433323

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 429638

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.2343	U	0.325	0.326	1.00	0.614	pCi/L	05/23/19 11:48	07/01/19 14:41	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*68.9*		*40 - 110*	*05/23/19 11:48*	*07/01/19 14:41*	*1*
Y Carrier	*82.6*		*40 - 110*	*05/23/19 11:48*	*07/01/19 14:41*	*1*

Lab Sample ID: LCS 160-429638/1-A
Matrix: Water
Analysis Batch: 433226

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 429638

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.06	10.48		1.38	1.00	0.770	pCi/L	116	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*60.7*		*40 - 110*
Y Carrier	*73.3*		*40 - 110*

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

Lab Sample ID: 240-110911-I-1-B DU
Matrix: Water
Analysis Batch: 433226

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 429638

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Radium-228	0.00343	U		0.06999	U	0.424	1.00	0.748	pCi/L			0.09	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Ba Carrier	*55.1*		*40 - 110*
Y Carrier	*73.6*		*40 - 110*

HPLC/IC

Analysis Batch: 587889

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-2	MW-110	Total/NA	Water	9056A	
490-172010-4	FIELD BLANK	Total/NA	Water	9056A	
MB 490-587889/3	Method Blank	Total/NA	Water	9056A	
LCS 490-587889/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-587889/5	Lab Control Sample Dup	Total/NA	Water	9056A	
490-171999-H-13 MS	Matrix Spike	Total/NA	Water	9056A	
490-171999-H-13 MSD	Matrix Spike Duplicate	Total/NA	Water	9056A	

Analysis Batch: 587927

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	9056A	
490-172010-1	MW-104	Total/NA	Water	9056A	
490-172010-2	MW-110	Total/NA	Water	9056A	
490-172010-2	MW-110	Total/NA	Water	9056A	
MB 490-587927/3	Method Blank	Total/NA	Water	9056A	
LCS 490-587927/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-587927/5	Lab Control Sample Dup	Total/NA	Water	9056A	
490-172007-E-1 MS	Matrix Spike	Total/NA	Water	9056A	
490-172007-E-1 MSD	Matrix Spike Duplicate	Total/NA	Water	9056A	

Analysis Batch: 587930

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-3	DUPE	Total/NA	Water	9056A	
MB 490-587930/3	Method Blank	Total/NA	Water	9056A	
LCS 490-587930/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-587930/5	Lab Control Sample Dup	Total/NA	Water	9056A	

Analysis Batch: 588578

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-4	FIELD BLANK	Total/NA	Water	9056A	
MB 490-588578/3	Method Blank	Total/NA	Water	9056A	
LCS 490-588578/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-588578/5	Lab Control Sample Dup	Total/NA	Water	9056A	
490-172010-4 MS	FIELD BLANK	Total/NA	Water	9056A	
490-172010-4 MSD	FIELD BLANK	Total/NA	Water	9056A	

Metals

Prep Batch: 275852

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total Recoverable	Water	3005A	
490-172010-2	MW-110	Total Recoverable	Water	3005A	
490-172010-3	DUPE	Total Recoverable	Water	3005A	
490-172010-4	FIELD BLANK	Total Recoverable	Water	3005A	
MB 180-275852/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-275852/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
490-172010-1 MS	MW-104	Total Recoverable	Water	3005A	
490-172010-1 MSD	MW-104	Total Recoverable	Water	3005A	

Metals

Prep Batch: 275853

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total Recoverable	Water	3005A	
490-172010-2	MW-110	Total Recoverable	Water	3005A	
490-172010-3	DUPE	Total Recoverable	Water	3005A	
490-172010-4	FIELD BLANK	Total Recoverable	Water	3005A	
MB 180-275853/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-275853/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
490-172010-3 MS	DUPE	Total Recoverable	Water	3005A	
490-172010-3 MSD	DUPE	Total Recoverable	Water	3005A	

Analysis Batch: 276092

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total Recoverable	Water	6020A	275852
490-172010-2	MW-110	Total Recoverable	Water	6020A	275852
490-172010-3	DUPE	Total Recoverable	Water	6020A	275852
490-172010-4	FIELD BLANK	Total Recoverable	Water	6020A	275852
MB 180-275852/1-A	Method Blank	Total Recoverable	Water	6020A	275852
LCS 180-275852/2-A	Lab Control Sample	Total Recoverable	Water	6020A	275852
490-172010-1 MS	MW-104	Total Recoverable	Water	6020A	275852
490-172010-1 MSD	MW-104	Total Recoverable	Water	6020A	275852

Analysis Batch: 276485

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total Recoverable	Water	6010C	275853
490-172010-2	MW-110	Total Recoverable	Water	6010C	275853
490-172010-3	DUPE	Total Recoverable	Water	6010C	275853
490-172010-4	FIELD BLANK	Total Recoverable	Water	6010C	275853
MB 180-275853/1-A	Method Blank	Total Recoverable	Water	6010C	275853
LCS 180-275853/2-A	Lab Control Sample	Total Recoverable	Water	6010C	275853
490-172010-3 MS	DUPE	Total Recoverable	Water	6010C	275853
490-172010-3 MSD	DUPE	Total Recoverable	Water	6010C	275853

Prep Batch: 276826

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-4	FIELD BLANK	Total/NA	Water	7470A	
MB 180-276826/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-276826/2-A	Lab Control Sample	Total/NA	Water	7470A	
180-88983-B-1-C MS	Matrix Spike	Total/NA	Water	7470A	
180-88983-B-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	

Prep Batch: 276833

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	7470A	
490-172010-2	MW-110	Total/NA	Water	7470A	
490-172010-3	DUPE	Total/NA	Water	7470A	
MB 180-276833/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-276833/2-A	Lab Control Sample	Total/NA	Water	7470A	
490-172010-3 MS	DUPE	Total/NA	Water	7470A	
490-172010-3 MSD	DUPE	Total/NA	Water	7470A	

Metals

Analysis Batch: 276941

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	EPA 7470A	276833
490-172010-2	MW-110	Total/NA	Water	EPA 7470A	276833
490-172010-3	DUPE	Total/NA	Water	EPA 7470A	276833
MB 180-276833/1-A	Method Blank	Total/NA	Water	EPA 7470A	276833
LCS 180-276833/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	276833
490-172010-3 MS	DUPE	Total/NA	Water	EPA 7470A	276833
490-172010-3 MSD	DUPE	Total/NA	Water	EPA 7470A	276833

Analysis Batch: 277078

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-4	FIELD BLANK	Total/NA	Water	EPA 7470A	276826
MB 180-276826/1-A	Method Blank	Total/NA	Water	EPA 7470A	276826
LCS 180-276826/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	276826
180-88983-B-1-C MS	Matrix Spike	Total/NA	Water	EPA 7470A	276826
180-88983-B-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	EPA 7470A	276826

General Chemistry

Analysis Batch: 587963

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	SM 2320B	
490-172010-2	MW-110	Total/NA	Water	SM 2320B	
490-172010-3	DUPE	Total/NA	Water	SM 2320B	
490-172010-4	FIELD BLANK	Total/NA	Water	SM 2320B	
MB 490-587963/11	Method Blank	Total/NA	Water	SM 2320B	
LCS 490-587963/12	Lab Control Sample	Total/NA	Water	SM 2320B	
LCSD 490-587963/34	Lab Control Sample Dup	Total/NA	Water	SM 2320B	
490-171998-I-1 DU	Duplicate	Total/NA	Water	SM 2320B	

Analysis Batch: 588164

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	SM 2540C	
490-172010-2	MW-110	Total/NA	Water	SM 2540C	
490-172010-3	DUPE	Total/NA	Water	SM 2540C	
490-172010-4	FIELD BLANK	Total/NA	Water	SM 2540C	
MB 490-588164/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 490-588164/2	Lab Control Sample	Total/NA	Water	SM 2540C	
490-172007-E-2 DU	Duplicate	Total/NA	Water	SM 2540C	
490-172074-C-1 DU	Duplicate	Total/NA	Water	SM 2540C	

Analysis Batch: 588267

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	9050A	
490-172010-2	MW-110	Total/NA	Water	9050A	
490-172010-3	DUPE	Total/NA	Water	9050A	
490-172010-4	FIELD BLANK	Total/NA	Water	9050A	
LCS 490-588267/3	Lab Control Sample	Total/NA	Water	9050A	
490-172007-E-1 DU	Duplicate	Total/NA	Water	9050A	

QC Association Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

General Chemistry

Analysis Batch: 589003

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	9040C	
490-172010-2	MW-110	Total/NA	Water	9040C	
490-172010-3	DUPE	Total/NA	Water	9040C	
490-172010-4	FIELD BLANK	Total/NA	Water	9040C	
LCS 490-589003/1	Lab Control Sample	Total/NA	Water	9040C	
490-171598-A-10 DU	Duplicate	Total/NA	Water	9040C	

Rad

Prep Batch: 428674

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	PrecSep-21	
490-172010-2	MW-110	Total/NA	Water	PrecSep-21	
490-172010-3	DUPE	Total/NA	Water	PrecSep-21	
MB 160-428674/24-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-428674/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
480-151762-A-5-D MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep-21	
480-151762-B-5-A MS	Matrix Spike	Total/NA	Water	PrecSep-21	

Prep Batch: 428727

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-1	MW-104	Total/NA	Water	PrecSep_0	
490-172010-2	MW-110	Total/NA	Water	PrecSep_0	
490-172010-3	DUPE	Total/NA	Water	PrecSep_0	
MB 160-428727/24-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-428727/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
480-151762-A-5-C MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep_0	
480-151762-B-5-B MS	Matrix Spike	Total/NA	Water	PrecSep_0	

Prep Batch: 429619

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-4	FIELD BLANK	Total/NA	Water	PrecSep-21	
MB 160-429619/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-429619/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
240-110911-I-1-A DU	Duplicate	Total/NA	Water	PrecSep-21	

Prep Batch: 429638

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-172010-4	FIELD BLANK	Total/NA	Water	PrecSep_0	
MB 160-429638/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-429638/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
240-110911-I-1-B DU	Duplicate	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Client Sample ID: MW-104

Date Collected: 04/10/19 14:43
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		10			587927	04/13/19 19:19	SOO	
Total/NA	Analysis	9056A		100			587927	04/13/19 19:35	SOO	
Total Recoverable	Prep	3005A			50 mL	50 mL	275853	04/16/19 11:19	NAM	
Total Recoverable	Analysis	6010C		1			276485	04/22/19 16:39	RJG	
Total Recoverable	Prep	3005A			50 mL	50 mL	275852	04/16/19 11:17	NAM	
Total Recoverable	Analysis	6020A		1			276092	04/17/19 10:53	RSK	
Total/NA	Prep	7470A			50 mL	50 mL	276833	04/25/19 17:02	KAK	
Total/NA	Analysis	EPA 7470A		1			276941	04/26/19 13:28	KAK	
Total/NA	Analysis	9040C		1			589003	04/18/19 18:32	MXX	
Total/NA	Analysis	9050A		1			588267	04/13/19 10:38	MSP	
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	587963	04/13/19 13:33	MSP	
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	588164	04/15/19 16:11	BMC	
Total/NA	Prep	PrecSep-21			1000.37 mL	1.0 g	428674	05/16/19 12:11	ORM	TAL SL
Total/NA	Analysis	903.0		1	1.0 mL	1.0 mL	434299	07/09/19 18:10	CDR	TAL SL
Total/NA	Prep	PrecSep_0			1000.37 mL	1.0 g	428727	05/16/19 16:00	ORM	TAL SL
Total/NA	Analysis	904.0		1			433407	07/02/19 15:07	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			434813	07/15/19 08:48	SMP	TAL SL

Client Sample ID: MW-110

Date Collected: 04/10/19 12:59
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1	10 mL	1.0 mL	587889	04/13/19 02:38	SOO	
Total/NA	Analysis	9056A		2			587927	04/13/19 20:09	SOO	
Total/NA	Analysis	9056A		50			587927	04/13/19 20:25	SOO	
Total Recoverable	Prep	3005A			50 mL	50 mL	275853	04/16/19 11:19	NAM	
Total Recoverable	Analysis	6010C		1			276485	04/22/19 16:45	RJG	
Total Recoverable	Prep	3005A			50 mL	50 mL	275852	04/16/19 11:17	NAM	
Total Recoverable	Analysis	6020A		1			276092	04/17/19 11:16	RSK	
Total/NA	Prep	7470A			50 mL	50 mL	276833	04/25/19 17:02	KAK	
Total/NA	Analysis	EPA 7470A		1			276941	04/26/19 13:29	KAK	
Total/NA	Analysis	9040C		1			589003	04/18/19 18:32	MXX	
Total/NA	Analysis	9050A		1			588267	04/13/19 10:38	MSP	
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	587963	04/13/19 13:40	MSP	
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	588164	04/15/19 16:11	BMC	
Total/NA	Prep	PrecSep-21			500.46 mL	1.0 g	428674	05/16/19 12:11	ORM	TAL SL
Total/NA	Analysis	903.0		1	1.0 mL	1.0 mL	434299	07/09/19 18:10	CDR	TAL SL
Total/NA	Prep	PrecSep_0			500.46 mL	1.0 g	428727	05/16/19 16:00	ORM	TAL SL
Total/NA	Analysis	904.0		1			433407	07/02/19 15:07	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			434813	07/15/19 08:48	SMP	TAL SL

Lab Chronicle

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Client Sample ID: DUPE

Date Collected: 04/10/19 15:10
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		100			587930	04/13/19 22:54	SOO	
Total Recoverable	Prep	3005A			50 mL	50 mL	275853	04/16/19 11:19	NAM	
Total Recoverable	Analysis	6010C		1			276485	04/22/19 16:07	RJG	
Total Recoverable	Prep	3005A			50 mL	50 mL	275852	04/16/19 11:17	NAM	
Total Recoverable	Analysis	6020A		1			276092	04/17/19 11:19	RSK	
Total/NA	Prep	7470A			50 mL	50 mL	276833	04/25/19 17:02	KAK	
Total/NA	Analysis	EPA 7470A		1			276941	04/26/19 13:30	KAK	
Total/NA	Analysis	9040C		1			589003	04/18/19 18:32	MXX	
Total/NA	Analysis	9050A		1			588267	04/13/19 10:38	MSP	
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	587963	04/13/19 13:47	MSP	
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	588164	04/15/19 16:11	BMC	
Total/NA	Prep	PrecSep-21			1000.53 mL	1.0 g	428674	05/16/19 12:11	ORM	TAL SL
Total/NA	Analysis	903.0		1	1.0 mL	1.0 mL	434299	07/09/19 18:10	CDR	TAL SL
Total/NA	Prep	PrecSep_0			1000.53 mL	1.0 g	428727	05/16/19 16:00	ORM	TAL SL
Total/NA	Analysis	904.0		1			433407	07/02/19 15:07	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			434813	07/15/19 08:48	SMP	TAL SL

Client Sample ID: FIELD BLANK

Date Collected: 04/10/19 15:39
Date Received: 04/12/19 09:55

Lab Sample ID: 490-172010-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1	10 mL	1.0 mL	587889	04/13/19 03:12	SOO	
Total/NA	Analysis	9056A		1	10 mL	1.0 mL	588578	04/17/19 15:20	T1C	
Total Recoverable	Prep	3005A			50 mL	50 mL	275853	04/16/19 11:19	NAM	
Total Recoverable	Analysis	6010C		1			276485	04/22/19 16:51	RJG	
Total Recoverable	Prep	3005A			50 mL	50 mL	275852	04/16/19 11:17	NAM	
Total Recoverable	Analysis	6020A		1			276092	04/17/19 11:23	RSK	
Total/NA	Prep	7470A			50 mL	50 mL	276826	04/25/19 16:08	KAK	
Total/NA	Analysis	EPA 7470A		1			277078	04/29/19 09:08	RJR	
Total/NA	Analysis	9040C		1			589003	04/18/19 18:32	MXX	
Total/NA	Analysis	9050A		1			588267	04/13/19 10:38	MSP	
Total/NA	Analysis	SM 2320B		1	35 mL	35 mL	587963	04/13/19 13:53	MSP	
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	588164	04/15/19 16:11	BMC	
Total/NA	Prep	PrecSep-21			1000.44 mL	1.0 g	429619	05/23/19 10:11	ORM	TAL SL
Total/NA	Analysis	903.0		1	1.0 mL	1.0 mL	433323	07/01/19 20:40	CDR	TAL SL
Total/NA	Prep	PrecSep_0			1000.44 mL	1.0 g	429638	05/23/19 11:48	ORM	TAL SL
Total/NA	Analysis	904.0		1			433226	07/01/19 14:34	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			434813	07/15/19 08:48	SMP	TAL SL

Laboratory References:

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Method Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	
6010C	Metals (ICP)	SW846	
6020A	Metals (ICP/MS)	SW846	
EPA 7470A	Mercury (CVAA)	SW846	
9040C	pH	SW846	
9050A	Specific Conductance	SW846	
SM 2320B	Alkalinity	SM	
SM 2540C	Solids, Total Dissolved (TDS)	SM	
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	
7470A	Preparation, Mercury	SW846	

Protocol References:

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.

Laboratory References:

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Accreditation/Certification Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Laboratory: Eurofins TestAmerica, Nashville

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Kentucky (UST)	State Program	4	19	06-30-19

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
9040C		Water	pH
9040C		Water	Temperature
9050A		Water	Specific Conductance (25C)
9056A		Water	Chloride
9056A		Water	Fluoride
9056A		Water	Sulfate
SM 2320B		Water	Alkalinity
SM 2540C		Water	Total Dissolved Solids

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-19
California	State Program	9	2891	04-30-19 *
Connecticut	State Program	1	PH-0688	09-30-20
Florida	NELAP	4	E871008	06-30-19
Illinois	NELAP	5	200005	06-30-19
Kansas	NELAP	7	E-10350	01-31-20
Louisiana	NELAP	6	04041	06-30-19
Nevada	State Program	9	PA00164	07-31-19
New Hampshire	NELAP	1	2030	04-04-20
New Jersey	NELAP	2	PA005	06-30-19
New York	NELAP	2	11182	03-31-20
North Carolina (WW/SW)	State Program	4	434	12-31-19
Oregon	NELAP	10	PA-2151	02-06-20
Pennsylvania	NELAP	3	02-00416	04-30-19
South Carolina	State Program	4	89014	04-30-19 *
Texas	NELAP	6	T104704528-15-2	03-31-20
US Fish & Wildlife	Federal		LE94312A-1	07-31-19
USDA	Federal		P330-16-00211	06-26-19
Utah	NELAP	8	PA001462015-4	05-31-19 *
Virginia	NELAP	3	460189	09-14-19
West Virginia DEP	State Program	3	142	01-31-20
Wisconsin	State Program	5	998027800	08-31-19

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

Accreditation/Certification Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
SDG: Sebree Station

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP		L2305	04-06-22
ANAB	DoD		L2305	04-06-22
ANAB	DOE		L2305.01	04-06-22
Arizona	State		AZ0813	12-08-19
Arizona	State Program	9	AZ0813	12-08-19
California	State Program	9	2886	06-30-19 *
Connecticut	State Program	1	PH-0241	03-31-21
Florida	NELAP	4	E87689	06-30-20
Florida	NELAP		E87689	06-30-20
Illinois	NELAP	5	200023	11-30-19
Iowa	State Program	7	373	12-01-20
Kansas	NELAP	7	E-10236	10-31-19
Kentucky (DW)	State Program	4	KY90125	12-31-19
Louisiana	NELAP	6	04080	06-30-20
Louisiana (DW)	NELAP	6	LA011	12-31-19
Maryland	State Program	3	310	09-30-19 *
Missouri	State Program	7	780	06-30-19 *
Nevada	State Program	9	MO000542018-1	07-31-19 *
New Jersey	NELAP	2	MO002	06-30-20
New York	NELAP	2	11616	03-31-20
New York	NELAP		11616	04-01-20
North Dakota	State Program	8	R207	06-30-19 *
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State		9997	08-31-19
Oklahoma	State Program	6	9997	08-31-19 *
Pennsylvania	NELAP	3	68-00540	02-28-20
Pennsylvania	NELAP		68-00540	02-28-20
South Carolina	State Program	4	85002001	06-30-19 *
Texas	NELAP	6	T104704193-18-13	07-31-19 *
Texas	NELAP		T104704193-19-13	07-31-20
US Fish & Wildlife	Federal		058448	07-31-19
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542018-10	07-31-19 *
Virginia	NELAP	3	460230	06-14-20
Washington	State Program	10	C592	08-30-19
West Virginia DEP	State Program	3	381	08-31-19

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

490-172010 Chain of Custody

Cooler Received/Opened On 4/12/2019 @ 9:55

Time Samples Removed From Cooler 14:22 Time Samples Placed In Storage 14:32 (2 Hour Window)

1. Tracking # 1128 (last 4 digits, FedEx) Courier: Fedex

IR Gun ID 31470366 pH Strip Lot NA Chlorine Strip Lot NA

2. Temperature of rep. sample or temp blank when opened: 0.7 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 2 Front

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) ACE

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

Larger than this.

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) ACE

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) ACE

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) ACE

I certify that I attached a label with the unique LIMS number to each container (intial) ACE

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#_____

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 8/23/17

Loc: 490
172010

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

Cooler Received/Opened On 4/12/2019 @ 0955

Time Samples Removed From Cooler 14:22 Time Samples Placed In Storage 14:32 (2 Hour Window)

1. Tracking # 1636 (last 4 digits, FedEx) Courier: FedEx

IR Gun ID 17960353 pH Strip Lot NA Chlorine Strip Lot NA

2. Temperature of rep. sample or temp blank when opened: 0.1 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 1 (Front)

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) AC

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

● ⬅ Larger than this.

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) ACE

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) ACE

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) ACE

I certify that I attached a label with the unique LIMS number to each container (intial) ACE

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#_____

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 8/23/17

Chain of Custody Record 299402

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other:

Client Contact	Project Manager: Mark Bertram	Site Contact: Greg Dick	Date: 4/11/2019	COC No: 299402
Company Name: Big Rivers Electric Corp.	Tel/Fax: (270) 844-5708	Lab Contact: Roxanne Cisneros	Carrier: FedEx	1 of 1 COCs
Address: 9000 Highway 2096	Analysis Turnaround Time			Sampler:
City/State/Zip: Robards, KY 42452	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: (270) 844-5736	TAT if different from Below _____			Walk-in Client:
Fax:	☑ 2 weeks			Lab Sampling:
Project Name: Sebree Station, New CCR Wells Rd 2	☐ 1 week			
Site: Sebree Station	☐ 2 days			Job / SDG No.:
P O # 249349	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	903.0, 904.0	6010C, 6020A, 7470A	9056A-DRGFM-28D, 9040C, 9065A 2320B	2540C-Calc-TDS	Sample Specific Notes:
MW-104	4/10/19	1443	G	Water	5	N	N	X	X	X	X	
MW-110	4/10/19	1259	G	Water	5	N	N	X	X	X	X	
DUPE	4/10/19	1510	G	Water	5	N	N	X	X	X	X	
FIELD BLANK	4/10/19	1539	G	Water	5	N	N	X	X	X	X	
												Loc: 490 172010

Greg Dick

Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4=HNO3, 5=NaOH, 6= Other — 4 4 1 1

Possible Hazard Identification:
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.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown

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: See attached constituent list for analysis

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: 0.7 Corr'd: _____ | Therm ID No.: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Greg Dick	BREC	4/11/2019 1555			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: TA-MAS	Date/Time: 4/12/19 9:55

4/11/2019

Constituent List:

40 C.F.R. 257 Appendix III
Boron
Calcium
Fluoride
pH
Sulfate
Total Dissolved Solids (TDS)

40 C.F.R. 257 Appendix IV
Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium
Cobalt
Fluoride
Lead
Lithium
Mercury
Molybdenum
Selenium
Thallium
Radium 226 & 228 combined

Additional Parameters
Carbonate Alkalinity
Bicarbonate Alkalinity
Alkalinity
Iron
Magnesium
Potassium
Sodium

Greg Dick
BREC
4/11/2019
1555

Loc: 490
172010

Eurofins TestAmerica, Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Phone (615) 726-0177 Fax (615) 726-3404

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Cisneros, Roxanne	Carrier Tracking No(s):	COC No: 490-88697.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: roxanne.cisneros@testamericainc.com	State of Origin: Kentucky	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Kentucky (UST)		Job #: 490-172010-1
Address: 301 Alpha Drive, RIDC Park,	Due Date Requested: 4/24/2019			
City: Pittsburgh	TAT Requested (days):			
State, Zip: PA, 15238				
Phone: 412-963-7058(Tel) 412-963-2468(Fax)	PO #:			
Email:	WO #:			
Project Name: Sebree Station, New CCR Wells Rd 2	Project #: 49010431			
Site: Big Rivers CCR	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
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
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C/3005A (MOD) Lithium	6020A/3005A (MOD) ICP/MS Metals	7470A/7470A_Prep Mercury	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-104 (490-172010-1)	4/10/19	14:43 Eastern		Water			X	X	X	1	Metals - run once, upload together.
MW-110 (490-172010-2)	4/10/19	12:59 Eastern		Water			X	X	X	1	Metals - run once, upload together.
DUPE (490-172010-3)	4/10/19	15:10 Eastern		Water			X	X	X	1	Metals - run once, upload together.
FIELD BLANK (490-172010-4)	4/10/19	15:39 Eastern		Water			X	X	X	1	Metals - run once, upload together.

490-172010 Chain of Custody

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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

Empty Kit Relinquished by:	Date: MON 4/12/19	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		4.12.19@1615	TALS		4-13-19	
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 930	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

Eurofins TestAmerica, Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Phone (615) 726-0177 Fax (615) 726-3404

nut 2EE

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Cisneros, Roxanne	Carrier Tracking No(s):	COC No: 490-88697.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: roxanne.cisneros@testamericainc.com	State of Origin: Kentucky	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Kentucky (UST)		Job #: 490-172010-1
Address: 301 Alpha Drive, RIDC Park,	Due Date Requested: 4/24/2019			
City: Pittsburgh	TAT Requested (days):			
State, Zip: PA, 15238				
Phone: 412-963-7058(Tel) 412-963-2468(Fax)	PO #:			
Email:	WO #:			
Project Name: Sebree Station, New CCR Wells Rd 2	Project #: 49010431			
Site: Big Rivers CCR	SSOW#:			

Analysis Requested

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, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C/3005A (MOD) Lithium	6020A/3005A (MOD) ICP/MS Metals	7470A/7470A_Prep Mercury	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-104 (490-172010-1)	4/10/19	14:43 Eastern		Water			X	X	X	1	Metals - run once, upload together.
MW-110 (490-172010-2)	4/10/19	12:59 Eastern		Water			X	X	X	1	Metals - run once, upload together.
DUPE (490-172010-3)	4/10/19	15:10 Eastern		Water			X	X	X	1	Metals - run once, upload together.
FIELD BLANK (490-172010-4)	4/10/19	15:39 Eastern		Water			X	X	X	1	Metals - run once, upload together.

490-172010 Chain of Custody

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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

Empty Kit Relinquished by:	Date: [illegible] 4/12/19	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	4.12.19 @ 1615	TAMS	P Watson	4-13-19 930	FAPIT
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Big Rivers Electric Corporation

Job Number: 490-172010-1
SDG Number: Sebree Station

Login Number: 172010
List Number: 2
Creator: Watson, Debbie

List Source: Eurofins TestAmerica, Pittsburgh
List Creation: 04/13/19 01:27 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?	False	
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	

Tracer/Carrier Summary

Client: Big Rivers Electric Corporation
Project/Site: Sebree Station, New CCR Wells Rd 2

Job ID: 490-172010-1
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 Carrier (40-110)
240-110911-I-1-A DU	Duplicate	55.1
480-151762-A-5-D MSD	Matrix Spike Duplicate	96.9
480-151762-B-5-A MS	Matrix Spike	97.7
490-172010-1	MW-104	99.4
490-172010-2	MW-110	76.0
490-172010-3	DUPE	96.0
490-172010-4	FIELD BLANK	70.9
LCS 160-428674/1-A	Lab Control Sample	104
LCS 160-429619/1-A	Lab Control Sample	60.7
MB 160-428674/24-A	Method Blank	106
MB 160-429619/23-A	Method Blank	68.9

Tracer/Carrier Legend

Ba Carrier = 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 Carrier (40-110)	Y Carrier (40-110)
240-110911-I-1-B DU	Duplicate	55.1	73.6
480-151762-A-5-C MSD	Matrix Spike Duplicate	96.9	74.8
480-151762-B-5-B MS	Matrix Spike	97.7	80.4
490-172010-1	MW-104	99.4	82.6
490-172010-2	MW-110	76.0	78.1
490-172010-3	DUPE	96.0	76.6
490-172010-4	FIELD BLANK	70.9	101
LCS 160-428727/1-A	Lab Control Sample	104	71.4
LCS 160-429638/1-A	Lab Control Sample	60.7	73.3
MB 160-428727/24-A	Method Blank	106	81.1
MB 160-429638/23-A	Method Blank	68.9	82.6

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

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ANALYTICAL REPORT

Eurofins TestAmerica, Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Tel: (615)726-0177

Laboratory Job ID: 490-173340-1
Laboratory SDG: Sebree Station, Green Landfill
Client Project/Site: Green Landfill, 1st Semi-Annual 2019

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

Attn: Phillip Hill

Roxanne Cisneros

Authorized for release by:
8/15/2019 12:37:18 PM

Roxanne Cisneros, Senior Project Manager
(615)301-5761
roxanne.cisneros@testamericainc.com

LINKS

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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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Sample Summary

Client: Big Rivers Electric Corporation
Project/Site: Green Landfill, 1st Semi-Annual 2019

Job ID: 490-173340-1
SDG: Sebree Station, Green Landfill

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
490-173340-1	MW-7	Water	05/02/19 09:00	05/04/19 09:30	
490-173340-2	MW-8	Water	05/02/19 10:55	05/04/19 09:30	
490-173340-3	MW-9	Water	05/02/19 13:05	05/04/19 09:30	
490-173340-4	MW-10	Water	05/02/19 15:00	05/04/19 09:30	
490-173340-5	Field Blank	Water	05/02/19 15:25	05/04/19 09:30	
490-173340-6	Dupe	Water	05/02/19 13:20	05/04/19 09:30	

Job ID: 490-173340-1

Laboratory: Eurofins TestAmerica, Nashville

Narrative

Job Narrative
490-173340-1

Comments
No additional comments.

Receipt
The samples were received on 5/4/2019 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 1.0º C and 5.0º C.

Receipt Exceptions
The following sample was listed on the Chain of Custody (COC); however, no sample was received: Field Blank (490-173340-5). We did not receive the 500mL plastic for this sample.

HPLC/IC
Method(s) 9056A: The method blank for analytical batch 490-593212 contained Sulfate above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and re-analysis of samples was not performed.

Method(s) 9056A: The method blank for analytical batch 490-594071 contained Sulfate above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and re-analysis of samples was not performed.

Method(s) 9056A: Due to the high concentration of Chloride, the matrix spike / matrix spike duplicate (MS/MSD) for analytical batch 490-594071 could not be evaluated for accuracy and precision. The associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) met acceptance criteria.

Method(s) 9056A: The following samples were diluted due to the nature of the sample matrix: MW-8 (490-173340-2) and MW-10 (490-173340-4). 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.

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

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

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

Narrative

Job Narrative
490-173340-2

Comments
No additional comments.

Receipt
The samples were received on 5/4/2019 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 1.0º C and 5.0º C.

Receipt Exceptions
The following sample was listed on the Chain of Custody (COC); however, no sample was received: Field Blank (490-173340-5). We did not receive the 500mL plastic for this sample.

RAD

Job ID: 490-173340-1 (Continued)

Laboratory: Eurofins TestAmerica, Nashville (Continued)

Method(s) 903.0, 9315: Ra-226 Prep Batch 160-430235
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-10 (490-173340-4), Field Blank (490-173340-5), Dupe (490-173340-6), (LCS 160-430235/1-A), (MB 160-430235/23-A)

Method(s) 903.0, 9315: Ra-226 Prep Batch 160-430237
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-7 (490-173340-1), MW-8 (490-173340-2), MW-9 (490-173340-3), (LCS 160-430237/1-A), (MB 160-430237/23-A)

Method(s) 904.0, 9320: Ra-228 Prep Batch 160-430261
The daily beta check on the day of count (7/19) of batches Laboratory Control Sample (LCS) was inadvertently missed. The check both the day of use before (7/18) and the day of use after (7/22) were within limits, demonstrating acceptable performance. In addition, the LCS exhibited acceptable spike recovery, which also demonstrates acceptable laboratory performance. The laboratory does not believe this excursion adversely affects the data. MW-7 (490-173340-1), MW-8 (490-173340-2), MW-9 (490-173340-3), (LCS 160-430261/1-A), (MB 160-430261/23-A)

Method(s) 904.0, 9320: Ra-228 Prep Batch 160-430261
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-7 (490-173340-1), MW-8 (490-173340-2), MW-9 (490-173340-3), (LCS 160-430261/1-A), (MB 160-430261/23-A)

Method(s) 904.0, 9320: Ra-228 Prep Batch 160-430397
The Ra-228 recovery in the LCS was slightly low (72) outside QC limits (75%-125%) indicating a potential slight low bias to the sample results. The barium recovery in the LCS (107%) and the Replicate Error Ratio (RER) were within limits demonstrating acceptable method performance. MW-10 (490-173340-4), Field Blank (490-173340-5), Dupe (490-173340-6), (LCS 160-430397/1-A), (MB 160-430397/23-A)

Method(s) 904.0, 9320: Ra-228 Prep Batch 160-430397
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-10 (490-173340-4), Field Blank (490-173340-5), Dupe (490-173340-6), (LCS 160-430397/1-A), (MB 160-430397/23-A)

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

Definitions/Glossary

Client: Big Rivers Electric Corporation
Project/Site: Green Landfill, 1st Semi-Annual 2019

Job ID: 490-173340-1
SDG: Sebree Station, Green Landfill

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

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.
B	Compound was found in the blank and sample.
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.
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

Client Sample ID: MW-7

Date Collected: 05/02/19 09:00
Date Received: 05/04/19 09:30

Lab Sample ID: 490-173340-1

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.94		3.00	0.200	mg/L			05/08/19 15:03	1
Fluoride	0.255	J	1.00	0.0100	mg/L			05/08/19 15:03	1
Sulfate	16.8	B	5.00	0.0300	mg/L			05/08/19 15:03	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.0500	0.00959	mg/L		05/08/19 13:14	05/10/19 13:51	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0000760	J B	0.00200	0.0000213	mg/L		05/08/19 13:15	05/09/19 15:57	1
Arsenic	0.00116	J	0.00500	0.000118	mg/L		05/08/19 13:15	05/09/19 15:57	1
Barium	0.0824	J	0.200	0.000270	mg/L		05/08/19 13:15	05/09/19 15:57	1
Beryllium	ND		0.00200	0.000102	mg/L		05/08/19 13:15	05/09/19 15:57	1
Boron	0.309	J B	1.00	0.00339	mg/L		05/08/19 13:15	05/09/19 15:57	1
Cadmium	ND		0.00100	0.000152	mg/L		05/08/19 13:15	05/09/19 15:57	1
Calcium	46.1		1.00	0.0412	mg/L		05/08/19 13:15	05/09/19 15:57	1
Chromium	0.00136	J	0.00300	0.000339	mg/L		05/08/19 13:15	05/09/19 15:57	1
Cobalt	0.000158	J	0.00500	0.0000218	mg/L		05/08/19 13:15	05/09/19 15:57	1
Lead	0.0000730	J	0.00500	0.0000675	mg/L		05/08/19 13:15	05/09/19 15:57	1
Molybdenum	0.00442	J	0.0100	0.000873	mg/L		05/08/19 13:15	05/09/19 15:57	1
Selenium	ND		0.0100	0.000348	mg/L		05/08/19 13:15	05/09/19 15:57	1
Thallium	ND		0.00100	0.0000360	mg/L		05/08/19 13:15	05/09/19 15:57	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		05/10/19 12:54	05/13/19 13:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.46		0.100	0.100	SU			05/08/19 12:18	1
Temperature	21.6		0.100	0.100	Degrees C			05/08/19 12:18	1
Total Dissolved Solids	271		25.0	7.00	mg/L			05/09/19 14:30	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	0.283		0.0971	0.100	1.00	0.0970	pCi/L	05/30/19 11:04	08/13/19 16:06	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.5*		*40 - 110*	*05/30/19 11:04*	*08/13/19 16:06*	*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	0.415		0.248	0.250	1.00	0.376	pCi/L	05/30/19 13:38	07/19/19 08:47	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.5*		*40 - 110*	*05/30/19 13:38*	*07/19/19 08:47*	*1*

Client Sample ID: MW-7

Date Collected: 05/02/19 09:00
Date Received: 05/04/19 09:30

Lab Sample ID: 490-173340-1

Matrix: Water

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Y Carrier	89.3		40 - 110	05/30/19 13:38	07/19/19 08:47	1

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	0.698		0.266	0.269	5.00	0.376	pCi/L		08/15/19 09:33	1

Client Sample ID: MW-8

Date Collected: 05/02/19 10:55
Date Received: 05/04/19 09:30

Lab Sample ID: 490-173340-2

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	57.2		6.00	0.400	mg/L			05/10/19 19:55	2
Fluoride	0.370	J	1.00	0.0100	mg/L			05/08/19 15:38	1
Sulfate	1220	B	250	1.50	mg/L			05/10/19 20:41	50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0370	J	0.0500	0.00959	mg/L		05/08/19 13:14	05/10/19 13:56	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.000205	J B	0.00200	0.0000213	mg/L		05/08/19 13:15	05/09/19 16:00	1
Arsenic	0.000438	J	0.00500	0.000118	mg/L		05/08/19 13:15	05/09/19 16:00	1
Barium	0.0188	J	0.200	0.000270	mg/L		05/08/19 13:15	05/09/19 16:00	1
Beryllium	ND		0.00200	0.000102	mg/L		05/08/19 13:15	05/09/19 16:00	1
Boron	1.41	B	1.00	0.00339	mg/L		05/08/19 13:15	05/09/19 16:00	1
Cadmium	ND		0.00100	0.000152	mg/L		05/08/19 13:15	05/09/19 16:00	1
Calcium	272		1.00	0.0412	mg/L		05/08/19 13:15	05/09/19 16:00	1
Chromium	0.00320		0.00300	0.000339	mg/L		05/08/19 13:15	05/09/19 16:00	1
Cobalt	0.000141	J	0.00500	0.0000218	mg/L		05/08/19 13:15	05/09/19 16:00	1
Lead	0.000104	J	0.00500	0.0000675	mg/L		05/08/19 13:15	05/09/19 16:00	1
Molybdenum	0.0146		0.0100	0.000873	mg/L		05/08/19 13:15	05/09/19 16:00	1
Selenium	0.000634	J	0.0100	0.000348	mg/L		05/08/19 13:15	05/09/19 16:00	1
Thallium	0.0000470	J	0.00100	0.0000360	mg/L		05/08/19 13:15	05/09/19 16:00	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		05/10/19 12:54	05/13/19 13:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.25		0.100	0.100	SU			05/08/19 12:18	1
Temperature	21.6		0.100	0.100	Degrees C			05/08/19 12:18	1
Total Dissolved Solids	2090		50.0	14.0	mg/L			05/09/19 14:30	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	0.260		0.0969	0.0996	1.00	0.107	pCi/L	05/30/19 11:04	08/13/19 16:03	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.7*		*40 - 110*	*05/30/19 11:04*	*08/13/19 16:03*	*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		0.301	0.320	1.00	0.366	pCi/L	05/30/19 13:38	07/19/19 08:47	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.7*		*40 - 110*	*05/30/19 13:38*	*07/19/19 08:47*	*1*

Client Sample ID: MW-8

Date Collected: 05/02/19 10:55
Date Received: 05/04/19 09:30

Lab Sample ID: 490-173340-2

Matrix: Water

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Y Carrier	89.3		40 - 110	05/30/19 13:38	07/19/19 08:47	1

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	1.43		0.316	0.335	5.00	0.366	pCi/L		08/15/19 09:33	1

Client Sample ID: MW-9

Date Collected: 05/02/19 13:05
Date Received: 05/04/19 09:30

Lab Sample ID: 490-173340-3

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	21.8		3.00	0.200	mg/L			05/08/19 15:50	1
Fluoride	0.223	J	1.00	0.0100	mg/L			05/08/19 15:50	1
Sulfate	0.223	J B	5.00	0.0300	mg/L			05/08/19 15:50	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0141	J	0.0500	0.00959	mg/L		05/08/19 13:14	05/10/19 14:34	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.000192	J B	0.00200	0.0000213	mg/L		05/08/19 13:15	05/09/19 16:04	1
Arsenic	0.000563	J	0.00500	0.000118	mg/L		05/08/19 13:15	05/09/19 16:04	1
Barium	1.03		0.200	0.000270	mg/L		05/08/19 13:15	05/09/19 16:04	1
Beryllium	ND		0.00200	0.000102	mg/L		05/08/19 13:15	05/09/19 16:04	1
Boron	0.307	J B	1.00	0.00339	mg/L		05/08/19 13:15	05/09/19 16:04	1
Cadmium	ND		0.00100	0.000152	mg/L		05/08/19 13:15	05/09/19 16:04	1
Calcium	68.6		1.00	0.0412	mg/L		05/08/19 13:15	05/09/19 16:04	1
Chromium	0.00316		0.00300	0.000339	mg/L		05/08/19 13:15	05/09/19 16:04	1
Cobalt	0.0000550	J	0.00500	0.0000218	mg/L		05/08/19 13:15	05/09/19 16:04	1
Lead	0.0000760	J	0.00500	0.0000675	mg/L		05/08/19 13:15	05/09/19 16:04	1
Molybdenum	ND		0.0100	0.000873	mg/L		05/08/19 13:15	05/09/19 16:04	1
Selenium	ND		0.0100	0.000348	mg/L		05/08/19 13:15	05/09/19 16:04	1
Thallium	ND		0.00100	0.0000360	mg/L		05/08/19 13:15	05/09/19 16:04	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		05/10/19 12:54	05/13/19 13:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.41		0.100	0.100	SU			05/08/19 12:18	1
Temperature	21.5		0.100	0.100	Degrees C			05/08/19 12:18	1
Total Dissolved Solids	355		25.0	7.00	mg/L			05/09/19 14:30	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	1.07		0.161	0.188	1.00	0.0948	pCi/L	05/30/19 11:04	08/13/19 16:03	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*103*		*40 - 110*	*05/30/19 11:04*	*08/13/19 16:03*	*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	1.25		0.273	0.296	1.00	0.297	pCi/L	05/30/19 13:38	07/19/19 08:47	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*103*		*40 - 110*	*05/30/19 13:38*	*07/19/19 08:47*	*1*

Client Sample ID: MW-9

Date Collected: 05/02/19 13:05
Date Received: 05/04/19 09:30

Lab Sample ID: 490-173340-3

Matrix: Water

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Y Carrier	85.6		40 - 110	05/30/19 13:38	07/19/19 08:47	1

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	2.32		0.317	0.351	5.00	0.297	pCi/L		08/15/19 09:33	1

Client Sample ID: MW-10

Date Collected: 05/02/19 15:00
Date Received: 05/04/19 09:30

Lab Sample ID: 490-173340-4

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	26.6		3.00	0.200	mg/L			05/08/19 16:01	1
Fluoride	0.570	J	1.00	0.0100	mg/L			05/08/19 16:01	1
Sulfate	114	B	25.0	0.150	mg/L			05/10/19 20:53	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.574		0.0500	0.00959	mg/L		05/08/19 13:14	05/10/19 14:39	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0000580	J B	0.00200	0.0000213	mg/L		05/08/19 13:15	05/09/19 16:07	1
Arsenic	0.00254	J	0.00500	0.000118	mg/L		05/08/19 13:15	05/09/19 16:07	1
Barium	0.100	J	0.200	0.000270	mg/L		05/08/19 13:15	05/09/19 16:07	1
Beryllium	ND		0.00200	0.000102	mg/L		05/08/19 13:15	05/09/19 16:07	1
Boron	0.498	J B	1.00	0.00339	mg/L		05/08/19 13:15	05/09/19 16:07	1
Cadmium	ND		0.00100	0.000152	mg/L		05/08/19 13:15	05/09/19 16:07	1
Calcium	19.5		1.00	0.0412	mg/L		05/08/19 13:15	05/09/19 16:07	1
Chromium	0.00299	J	0.00300	0.000339	mg/L		05/08/19 13:15	05/09/19 16:07	1
Cobalt	0.000685	J	0.00500	0.0000218	mg/L		05/08/19 13:15	05/09/19 16:07	1
Lead	0.000671	J	0.00500	0.0000675	mg/L		05/08/19 13:15	05/09/19 16:07	1
Molybdenum	0.00797	J	0.0100	0.000873	mg/L		05/08/19 13:15	05/09/19 16:07	1
Selenium	ND		0.0100	0.000348	mg/L		05/08/19 13:15	05/09/19 16:07	1
Thallium	ND		0.00100	0.0000360	mg/L		05/08/19 13:15	05/09/19 16:07	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		05/10/19 12:54	05/13/19 13:59	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	9.15		0.100	0.100	SU			05/08/19 12:18	1
Temperature	21.2		0.100	0.100	Degrees C			05/08/19 12:18	1
Total Dissolved Solids	642		25.0	7.00	mg/L			05/09/19 14:30	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	0.0718	U	0.0732	0.0735	1.00	0.116	pCi/L	05/30/19 10:35	08/13/19 21:08	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.3*		*40 - 110*	*05/30/19 10:35*	*08/13/19 21:08*	*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	0.133	U *	0.330	0.330	1.00	0.569	pCi/L	05/31/19 10:52	07/23/19 14:24	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.3*		*40 - 110*	*05/31/19 10:52*	*07/23/19 14:24*	*1*

Client Sample ID: MW-10

Date Collected: 05/02/19 15:00
Date Received: 05/04/19 09:30

Lab Sample ID: 490-173340-4

Matrix: Water

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Y Carrier	71.4		40 - 110	05/31/19 10:52	07/23/19 14:24	1

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	0.205	U	0.338	0.338	5.00	0.569	pCi/L		08/15/19 09:33	1

Client Sample ID: Field Blank

Date Collected: 05/02/19 15:25
Date Received: 05/04/19 09:30

Lab Sample ID: 490-173340-5

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	0.200	mg/L			05/08/19 16:13	1
Fluoride	ND		1.00	0.0100	mg/L			05/08/19 16:13	1
Sulfate	**0.182**	**J B**	5.00	0.0300	mg/L			05/08/19 16:13	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.0500	0.00959	mg/L		05/08/19 13:14	05/10/19 14:45	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.00200	0.0000213	mg/L		05/08/19 13:15	05/09/19 16:11	1
Arsenic	**0.000150**	**J**	0.00500	0.000118	mg/L		05/08/19 13:15	05/09/19 16:11	1
Barium	ND		0.200	0.000270	mg/L		05/08/19 13:15	05/09/19 16:11	1
Beryllium	ND		0.00200	0.000102	mg/L		05/08/19 13:15	05/09/19 16:11	1
Boron	**0.0185**	**J B**	1.00	0.00339	mg/L		05/08/19 13:15	05/09/19 16:11	1
Cadmium	ND		0.00100	0.000152	mg/L		05/08/19 13:15	05/09/19 16:11	1
Calcium	**0.0431**	**J**	1.00	0.0412	mg/L		05/08/19 13:15	05/09/19 16:11	1
Chromium	**0.00119**	**J**	0.00300	0.000339	mg/L		05/08/19 13:15	05/09/19 16:11	1
Cobalt	ND		0.00500	0.0000218	mg/L		05/08/19 13:15	05/09/19 16:11	1
Lead	**0.000346**	**J**	0.00500	0.0000675	mg/L		05/08/19 13:15	05/09/19 16:11	1
Molybdenum	ND		0.0100	0.000873	mg/L		05/08/19 13:15	05/09/19 16:11	1
Selenium	ND		0.0100	0.000348	mg/L		05/08/19 13:15	05/09/19 16:11	1
Thallium	ND		0.00100	0.0000360	mg/L		05/08/19 13:15	05/09/19 16:11	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		05/10/19 12:54	05/13/19 14:00	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**8.56**		0.100	0.100	SU			05/08/19 12:18	1
Temperature	**20.5**		0.100	0.100	Degrees C			05/08/19 12:18	1
Total Dissolved Solids	ND		25.0	7.00	mg/L			05/09/19 14:30	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	**1.17**		0.179	0.207	1.00	0.0927	pCi/L	05/30/19 10:35	08/13/19 21:08	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.4*		*40 - 110*	*05/30/19 10:35*	*08/13/19 21:08*	*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	**1.49**	*	0.375	0.399	1.00	0.447	pCi/L	05/31/19 10:52	07/23/19 14:24	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.4*		*40 - 110*	*05/31/19 10:52*	*07/23/19 14:24*	*1*

Client Sample ID: Field Blank

Date Collected: 05/02/19 15:25
Date Received: 05/04/19 09:30

Lab Sample ID: 490-173340-5

Matrix: Water

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Y Carrier	80.7		40 - 110	05/31/19 10:52	07/23/19 14:24	1

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	2.66		0.416	0.449	5.00	0.447	pCi/L		08/15/19 09:33	1

Client Sample ID: Dupe

Date Collected: 05/02/19 13:20
Date Received: 05/04/19 09:30

Lab Sample ID: 490-173340-6

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	21.6		3.00	0.200	mg/L			05/08/19 16:24	1
Fluoride	0.217	J	1.00	0.0100	mg/L			05/08/19 16:24	1
Sulfate	0.187	J B	5.00	0.0300	mg/L			05/08/19 16:24	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0119	J	0.0500	0.00959	mg/L		05/08/19 13:15	05/10/19 14:50	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0000320	J B	0.00200	0.0000213	mg/L		05/08/19 13:15	05/09/19 16:14	1
Arsenic	0.000261	J	0.00500	0.000118	mg/L		05/08/19 13:15	05/09/19 16:14	1
Barium	1.01		0.200	0.000270	mg/L		05/08/19 13:15	05/09/19 16:14	1
Beryllium	ND		0.00200	0.000102	mg/L		05/08/19 13:15	05/09/19 16:14	1
Boron	0.280	J B	1.00	0.00339	mg/L		05/08/19 13:15	05/09/19 16:14	1
Cadmium	ND		0.00100	0.000152	mg/L		05/08/19 13:15	05/09/19 16:14	1
Calcium	71.1		1.00	0.0412	mg/L		05/08/19 13:15	05/09/19 16:14	1
Chromium	0.00139	J	0.00300	0.000339	mg/L		05/08/19 13:15	05/09/19 16:14	1
Cobalt	0.0000380	J	0.00500	0.0000218	mg/L		05/08/19 13:15	05/09/19 16:14	1
Lead	ND		0.00500	0.0000675	mg/L		05/08/19 13:15	05/09/19 16:14	1
Molybdenum	ND		0.0100	0.000873	mg/L		05/08/19 13:15	05/09/19 16:14	1
Selenium	ND		0.0100	0.000348	mg/L		05/08/19 13:15	05/09/19 16:14	1
Thallium	ND		0.00100	0.0000360	mg/L		05/08/19 13:15	05/09/19 16:14	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		05/10/19 12:54	05/13/19 14:01	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.41		0.100	0.100	SU			05/08/19 12:18	1
Temperature	21.2		0.100	0.100	Degrees C			05/08/19 12:18	1
Total Dissolved Solids	356		25.0	7.00	mg/L			05/09/19 14:30	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	-0.0539	U	0.0287	0.0291	1.00	0.0955	pCi/L	05/30/19 10:35	08/13/19 21:08	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.4*		*40 - 110*	*05/30/19 10:35*	*08/13/19 21:08*	*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	-0.100	U *	0.296	0.297	1.00	0.552	pCi/L	05/31/19 10:52	07/23/19 14:24	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.4*		*40 - 110*	*05/31/19 10:52*	*07/23/19 14:24*	*1*

Client Sample ID: Dupe

Date Collected: 05/02/19 13:20
Date Received: 05/04/19 09:30

Lab Sample ID: 490-173340-6

Matrix: Water

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Y Carrier	*67.7*		*40 - 110*	*05/31/19 10:52*	*07/23/19 14:24*	*1*

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	-0.154	U	0.297	0.298	5.00	0.552	pCi/L		08/15/19 09:33	1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 490-593212/3
Matrix: Water
Analysis Batch: 593212

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	0.200	mg/L			05/08/19 14:29	1
Fluoride	ND		1.00	0.0100	mg/L			05/08/19 14:29	1
Sulfate	0.1565	J	5.00	0.0300	mg/L			05/08/19 14:29	1

Lab Sample ID: LCS 490-593212/4
Matrix: Water
Analysis Batch: 593212

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	10.13		mg/L		101	80 - 120
Fluoride	1.00	0.9885	J	mg/L		99	80 - 120
Sulfate	10.0	9.623		mg/L		96	80 - 120

Lab Sample ID: LCSD 490-593212/5
Matrix: Water
Analysis Batch: 593212

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	10.04		mg/L		100	80 - 120	1	20
Fluoride	1.00	1.019		mg/L		102	80 - 120	3	20
Sulfate	10.0	9.739		mg/L		97	80 - 120	1	20

Lab Sample ID: 490-173340-1 MS
Matrix: Water
Analysis Batch: 593212

Client Sample ID: MW-7
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	4.94		10.0	14.87		mg/L		99	80 - 120
Fluoride	0.255	J	1.00	1.235		mg/L		98	80 - 120
Sulfate	16.8	B	10.0	26.28		mg/L		94	80 - 120

Lab Sample ID: 490-173340-1 MSD
Matrix: Water
Analysis Batch: 593212

Client Sample ID: MW-7
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	4.94		10.0	15.43		mg/L		105	80 - 120	4	20
Fluoride	0.255	J	1.00	1.288		mg/L		103	80 - 120	4	20
Sulfate	16.8	B	10.0	26.88		mg/L		100	80 - 120	2	20

Lab Sample ID: MB 490-594071/3
Matrix: Water
Analysis Batch: 594071

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.00	0.200	mg/L			05/10/19 17:24	1
Fluoride	ND		1.00	0.0100	mg/L			05/10/19 17:24	1
Sulfate	0.1607	J	5.00	0.0300	mg/L			05/10/19 17:24	1

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 490-594071/5
Matrix: Water
Analysis Batch: 594071

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.762		mg/L		98	80 - 120
Fluoride	1.00	0.9631	J	mg/L		96	80 - 120
Sulfate	10.0	9.228		mg/L		92	80 - 120

Lab Sample ID: LCSD 490-594071/6
Matrix: Water
Analysis Batch: 594071

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.766		mg/L		98	80 - 120	0	20
Fluoride	1.00	0.9843	J	mg/L		98	80 - 120	2	20
Sulfate	10.0	9.275		mg/L		93	80 - 120	1	20

Lab Sample ID: 490-173666-G-4 MS
Matrix: Water
Analysis Batch: 594071

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	2.76		1.00	3.714		mg/L		95	80 - 120

Lab Sample ID: 490-173666-G-4 MSD
Matrix: Water
Analysis Batch: 594071

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	2.76		1.00	3.680		mg/L		92	80 - 120	1	20

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 180-278129/1-A
Matrix: Water
Analysis Batch: 278473

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 278129

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.0500	0.00959	mg/L		05/08/19 13:14	05/10/19 13:08	1

Lab Sample ID: LCS 180-278129/2-A
Matrix: Water
Analysis Batch: 278473

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 278129

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	0.500	0.5188		mg/L		104	80 - 120

Lab Sample ID: 490-173340-2 MS
Matrix: Water
Analysis Batch: 278473

Client Sample ID: MW-8
Prep Type: Total Recoverable
Prep Batch: 278129

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	0.0370	J	0.500	0.5534		mg/L		103	75 - 125

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 490-173340-2 MSD
Matrix: Water
Analysis Batch: 278473

Client Sample ID: MW-8
Prep Type: Total Recoverable
Prep Batch: 278129

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lithium	0.0370	J	0.500	0.5599		mg/L		105	75 - 125	1	20

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 180-278130/1-A
Matrix: Water
Analysis Batch: 278337

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 278130

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00004600	J	0.00200	0.0000213	mg/L		05/08/19 13:15	05/09/19 14:59	1
Arsenic	ND		0.00500	0.000118	mg/L		05/08/19 13:15	05/09/19 14:59	1
Barium	ND		0.200	0.000270	mg/L		05/08/19 13:15	05/09/19 14:59	1
Beryllium	ND		0.00200	0.000102	mg/L		05/08/19 13:15	05/09/19 14:59	1
Boron	0.01796	J	1.00	0.00339	mg/L		05/08/19 13:15	05/09/19 14:59	1
Cadmium	ND		0.00100	0.000152	mg/L		05/08/19 13:15	05/09/19 14:59	1
Calcium	ND		1.00	0.0412	mg/L		05/08/19 13:15	05/09/19 14:59	1
Chromium	ND		0.00300	0.000339	mg/L		05/08/19 13:15	05/09/19 14:59	1
Cobalt	ND		0.00500	0.0000218	mg/L		05/08/19 13:15	05/09/19 14:59	1
Lead	ND		0.00500	0.0000675	mg/L		05/08/19 13:15	05/09/19 14:59	1
Molybdenum	ND		0.0100	0.000873	mg/L		05/08/19 13:15	05/09/19 14:59	1
Selenium	ND		0.0100	0.000348	mg/L		05/08/19 13:15	05/09/19 14:59	1
Thallium	ND		0.00100	0.0000360	mg/L		05/08/19 13:15	05/09/19 14:59	1

Lab Sample ID: LCS 180-278130/2-A
Matrix: Water
Analysis Batch: 278337

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 278130

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.250	0.2921		mg/L		117	80 - 120
Arsenic	1.00	0.9656		mg/L		97	80 - 120
Barium	1.00	1.074		mg/L		107	80 - 120
Beryllium	0.500	0.5072		mg/L		101	80 - 120
Boron	1.25	1.143		mg/L		91	80 - 120
Cadmium	0.500	0.5372		mg/L		107	80 - 120
Calcium	25.0	27.89		mg/L		112	80 - 120
Chromium	0.500	0.5493		mg/L		110	80 - 120
Cobalt	0.500	0.4916		mg/L		98	80 - 120
Lead	0.500	0.5348		mg/L		107	80 - 120
Molybdenum	0.500	0.5295		mg/L		106	80 - 120
Selenium	1.00	1.053		mg/L		105	80 - 120
Thallium	1.00	1.048		mg/L		105	80 - 120

Lab Sample ID: 180-89721-C-4-C MS
Matrix: Water
Analysis Batch: 278337

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 278130

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.000164	J B	0.250	0.2932		mg/L		117	75 - 125
Arsenic	0.00177	J	1.00	0.9765		mg/L		97	75 - 125

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

Lab Sample ID: 180-89721-C-4-C MS
Matrix: Water
Analysis Batch: 278337

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 278130

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Barium	0.206		1.00	1.295		mg/L		109	75 - 125
Beryllium	ND		0.500	0.5263		mg/L		105	75 - 125
Boron	0.162	J B	1.25	1.304		mg/L		91	75 - 125
Cadmium	ND		0.500	0.5332		mg/L		107	75 - 125
Calcium	362		25.0	386.8	4	mg/L		99	75 - 125
Chromium	0.00230	J	0.500	0.5445		mg/L		108	75 - 125
Cobalt	0.00266	J	0.500	0.4874		mg/L		97	75 - 125
Lead	0.000137	J	0.500	0.5307		mg/L		106	75 - 125
Molybdenum	ND		0.500	0.5391		mg/L		108	75 - 125
Selenium	0.000624	J	1.00	1.039		mg/L		104	75 - 125
Thallium	0.0000550	J	1.00	1.036		mg/L		104	75 - 125

Lab Sample ID: 180-89721-C-4-D MSD
Matrix: Water
Analysis Batch: 278337

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 278130

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	0.000164	J B	0.250	0.2955		mg/L		118	75 - 125	1	20
Arsenic	0.00177	J	1.00	0.9556		mg/L		95	75 - 125	2	20
Barium	0.206		1.00	1.275		mg/L		107	75 - 125	2	20
Beryllium	ND		0.500	0.5251		mg/L		105	75 - 125	0	20
Boron	0.162	J B	1.25	1.290		mg/L		90	75 - 125	1	20
Cadmium	ND		0.500	0.5200		mg/L		104	75 - 125	3	20
Calcium	362		25.0	400.3	4	mg/L		153	75 - 125	3	20
Chromium	0.00230	J	0.500	0.5334		mg/L		106	75 - 125	2	20
Cobalt	0.00266	J	0.500	0.4796		mg/L		95	75 - 125	2	20
Lead	0.000137	J	0.500	0.5111		mg/L		102	75 - 125	4	20
Molybdenum	ND		0.500	0.5279		mg/L		106	75 - 125	2	20
Selenium	0.000624	J	1.00	1.031		mg/L		103	75 - 125	1	20
Thallium	0.0000550	J	1.00	1.007		mg/L		101	75 - 125	3	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-278394/1-A
Matrix: Water
Analysis Batch: 278534

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 278394

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200	0.101	ug/L		05/10/19 12:54	05/13/19 13:46	1

Lab Sample ID: LCS 180-278394/2-A
Matrix: Water
Analysis Batch: 278534

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 278394

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	2.50	2.336		ug/L		93	80 - 120

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

Lab Sample ID: 490-173340-1 MS
Matrix: Water
Analysis Batch: 278534

Client Sample ID: MW-7
Prep Type: Total/NA
Prep Batch: 278394

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		1.00	0.9640		ug/L		96	75 - 125

Lab Sample ID: 490-173340-1 MSD
Matrix: Water
Analysis Batch: 278534

Client Sample ID: MW-7
Prep Type: Total/NA
Prep Batch: 278394

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		1.00	0.9760		ug/L		98	75 - 125	1	20

Method: 9040C - pH

Lab Sample ID: LCS 490-593479/1
Matrix: Water
Analysis Batch: 593479

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH			7.00	7.060		SU		101	98 - 103

Lab Sample ID: 490-172965-E-1 DU
Matrix: Water
Analysis Batch: 593479

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	7.08			7.080		SU				0	20
Temperature	21.6			21.60		Degrees C				0	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 490-593708/1
Matrix: Water
Analysis Batch: 593708

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		25.0	7.00	mg/L			05/09/19 14:30	1

Lab Sample ID: LCS 490-593708/2
Matrix: Water
Analysis Batch: 593708

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			100	106.0		mg/L		106	90 - 110

Lab Sample ID: LCSD 490-593708/3
Matrix: Water
Analysis Batch: 593708

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Dissolved Solids			100	100.0		mg/L		100	90 - 110	6	20

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: 490-173340-2 DU
Matrix: Water
Analysis Batch: 593708

Client Sample ID: MW-8
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	2090		2060		mg/L		2	20

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-430235/23-A
Matrix: Water
Analysis Batch: 439426

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 430235

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.005455	U	0.0525	0.0525	1.00	0.107	pCi/L	05/30/19 10:35	08/13/19 23:00	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*98.9*		*40 - 110*	*05/30/19 10:35*	*08/13/19 23:00*	*1*

Lab Sample ID: LCS 160-430235/1-A
Matrix: Water
Analysis Batch: 439308

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 430235

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	11.4	8.579		0.902	1.00	0.103	pCi/L	76	75 - 125

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*95.2*		*40 - 110*

Lab Sample ID: 500-162824-C-1-A DU
Matrix: Water
Analysis Batch: 439426

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 430235

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-226	-0.0249	U	0.02744	U	0.0559	1.00	0.100	pCi/L	0.47	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Ba Carrier	*88.7*		*40 - 110*

Lab Sample ID: MB 160-430237/23-A
Matrix: Water
Analysis Batch: 439426

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 430237

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.03512	U	0.0577	0.0578	1.00	0.133	pCi/L	05/30/19 11:04	08/13/19 16:03	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.4*		*40 - 110*	*05/30/19 11:04*	*08/13/19 16:03*	*1*

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

Lab Sample ID: LCS 160-430237/1-A
Matrix: Water
Analysis Batch: 439308

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 430237

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			15.1	12.30		1.28	1.00	0.138	pCi/L	81	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*101*		*40 - 110*

Lab Sample ID: 400-169725-B-14-A DU
Matrix: Water
Analysis Batch: 439394

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 430237

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Radium-226	0.0670	U		0.06061	U	0.0785	1.00	0.131	pCi/L			0.04	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Ba Carrier	*98.6*		*40 - 110*

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-430261/23-A
Matrix: Water
Analysis Batch: 435709

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 430261

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.1134	U	0.251	0.251	1.00	0.469	pCi/L	05/30/19 13:38	07/19/19 08:47	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.4*		*40 - 110*	*05/30/19 13:38*	*07/19/19 08:47*	*1*
Y Carrier	*89.7*		*40 - 110*	*05/30/19 13:38*	*07/19/19 08:47*	*1*

Lab Sample ID: LCS 160-430261/1-A
Matrix: Water
Analysis Batch: 435708

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 430261

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			12.0	11.00		1.28	1.00	0.472	pCi/L	92	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*101*		*40 - 110*
Y Carrier	*90.1*		*40 - 110*

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

Lab Sample ID: 400-169725-B-14-B DU
Matrix: Water
Analysis Batch: 435708

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 430261

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Radium-228	0.356	U		0.04569	U	0.269	1.00	0.473	pCi/L			0.56	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Ba Carrier	*98.6*		*40 - 110*
Y Carrier	*89.7*		*40 - 110*

Lab Sample ID: MB 160-430397/23-A
Matrix: Water
Analysis Batch: 435974

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 430397

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.03968	U	0.302	0.302	1.00	0.553	pCi/L	05/31/19 10:52	07/23/19 14:34	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*98.9*		*40 - 110*	*05/31/19 10:52*	*07/23/19 14:34*	*1*
Y Carrier	*62.8*		*40 - 110*	*05/31/19 10:52*	*07/23/19 14:34*	*1*

Lab Sample ID: LCS 160-430397/1-A
Matrix: Water
Analysis Batch: 436112

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 430397

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.00	6.483	*	0.923	1.00	0.554	pCi/L	72	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*95.2*		*40 - 110*
Y Carrier	*65.8*		*40 - 110*

Lab Sample ID: 500-162824-C-1-B DU
Matrix: Water
Analysis Batch: 436112

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 430397

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Radium-228	0.000	U *		-0.07644	U *	0.300	1.00	0.550	pCi/L			0.11	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Ba Carrier	*88.7*		*40 - 110*
Y Carrier	*75.5*		*40 - 110*

Client: Big Rivers Electric Corporation
Project/Site: Green Landfill, 1st Semi-Annual 2019

Job ID: 490-173340-1
SDG: Sebree Station, Green Landfill

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Lab Sample ID: 400-169725-A-14 DU
Matrix: Water
Analysis Batch: 439615

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Combined Radium 226 + 228	0.423	U		0.1063	U	0.280	5.00	0.473	pCi/L			0.55	

HPLC/IC

Analysis Batch: 593212

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-173340-1	MW-7	Total/NA	Water	9056A	
490-173340-2	MW-8	Total/NA	Water	9056A	
490-173340-3	MW-9	Total/NA	Water	9056A	
490-173340-4	MW-10	Total/NA	Water	9056A	
490-173340-5	Field Blank	Total/NA	Water	9056A	
490-173340-6	Dupe	Total/NA	Water	9056A	
MB 490-593212/3	Method Blank	Total/NA	Water	9056A	
LCS 490-593212/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-593212/5	Lab Control Sample Dup	Total/NA	Water	9056A	
490-173340-1 MS	MW-7	Total/NA	Water	9056A	
490-173340-1 MSD	MW-7	Total/NA	Water	9056A	

Analysis Batch: 594071

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-173340-2	MW-8	Total/NA	Water	9056A	
490-173340-2	MW-8	Total/NA	Water	9056A	
490-173340-4	MW-10	Total/NA	Water	9056A	
MB 490-594071/3	Method Blank	Total/NA	Water	9056A	
LCS 490-594071/5	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-594071/6	Lab Control Sample Dup	Total/NA	Water	9056A	
490-173666-G-4 MS	Matrix Spike	Total/NA	Water	9056A	
490-173666-G-4 MSD	Matrix Spike Duplicate	Total/NA	Water	9056A	

Metals

Prep Batch: 278129

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-173340-1	MW-7	Total Recoverable	Water	3005A	
490-173340-2	MW-8	Total Recoverable	Water	3005A	
490-173340-3	MW-9	Total Recoverable	Water	3005A	
490-173340-4	MW-10	Total Recoverable	Water	3005A	
490-173340-5	Field Blank	Total Recoverable	Water	3005A	
490-173340-6	Dupe	Total Recoverable	Water	3005A	
MB 180-278129/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-278129/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
490-173340-2 MS	MW-8	Total Recoverable	Water	3005A	
490-173340-2 MSD	MW-8	Total Recoverable	Water	3005A	

Prep Batch: 278130

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-173340-1	MW-7	Total Recoverable	Water	3005A	
490-173340-2	MW-8	Total Recoverable	Water	3005A	
490-173340-3	MW-9	Total Recoverable	Water	3005A	
490-173340-4	MW-10	Total Recoverable	Water	3005A	
490-173340-5	Field Blank	Total Recoverable	Water	3005A	
490-173340-6	Dupe	Total Recoverable	Water	3005A	
MB 180-278130/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-278130/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-89721-C-4-C MS	Matrix Spike	Total Recoverable	Water	3005A	
180-89721-C-4-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	3005A	

Metals

Analysis Batch: 278337

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-173340-1	MW-7	Total Recoverable	Water	6020A	278130
490-173340-2	MW-8	Total Recoverable	Water	6020A	278130
490-173340-3	MW-9	Total Recoverable	Water	6020A	278130
490-173340-4	MW-10	Total Recoverable	Water	6020A	278130
490-173340-5	Field Blank	Total Recoverable	Water	6020A	278130
490-173340-6	Dupe	Total Recoverable	Water	6020A	278130
MB 180-278130/1-A	Method Blank	Total Recoverable	Water	6020A	278130
LCS 180-278130/2-A	Lab Control Sample	Total Recoverable	Water	6020A	278130
180-89721-C-4-C MS	Matrix Spike	Total Recoverable	Water	6020A	278130
180-89721-C-4-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	6020A	278130

Prep Batch: 278394

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-173340-1	MW-7	Total/NA	Water	7470A	
490-173340-2	MW-8	Total/NA	Water	7470A	
490-173340-3	MW-9	Total/NA	Water	7470A	
490-173340-4	MW-10	Total/NA	Water	7470A	
490-173340-5	Field Blank	Total/NA	Water	7470A	
490-173340-6	Dupe	Total/NA	Water	7470A	
MB 180-278394/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-278394/2-A	Lab Control Sample	Total/NA	Water	7470A	
490-173340-1 MS	MW-7	Total/NA	Water	7470A	
490-173340-1 MSD	MW-7	Total/NA	Water	7470A	

Analysis Batch: 278473

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-173340-1	MW-7	Total Recoverable	Water	6010C	278129
490-173340-2	MW-8	Total Recoverable	Water	6010C	278129
490-173340-3	MW-9	Total Recoverable	Water	6010C	278129
490-173340-4	MW-10	Total Recoverable	Water	6010C	278129
490-173340-5	Field Blank	Total Recoverable	Water	6010C	278129
490-173340-6	Dupe	Total Recoverable	Water	6010C	278129
MB 180-278129/1-A	Method Blank	Total Recoverable	Water	6010C	278129
LCS 180-278129/2-A	Lab Control Sample	Total Recoverable	Water	6010C	278129
490-173340-2 MS	MW-8	Total Recoverable	Water	6010C	278129
490-173340-2 MSD	MW-8	Total Recoverable	Water	6010C	278129

Analysis Batch: 278534

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-173340-1	MW-7	Total/NA	Water	7470A	278394
490-173340-2	MW-8	Total/NA	Water	7470A	278394
490-173340-3	MW-9	Total/NA	Water	7470A	278394
490-173340-4	MW-10	Total/NA	Water	7470A	278394
490-173340-5	Field Blank	Total/NA	Water	7470A	278394
490-173340-6	Dupe	Total/NA	Water	7470A	278394
MB 180-278394/1-A	Method Blank	Total/NA	Water	7470A	278394
LCS 180-278394/2-A	Lab Control Sample	Total/NA	Water	7470A	278394
490-173340-1 MS	MW-7	Total/NA	Water	7470A	278394
490-173340-1 MSD	MW-7	Total/NA	Water	7470A	278394

General Chemistry

Analysis Batch: 593479

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-173340-1	MW-7	Total/NA	Water	9040C	
490-173340-2	MW-8	Total/NA	Water	9040C	
490-173340-3	MW-9	Total/NA	Water	9040C	
490-173340-4	MW-10	Total/NA	Water	9040C	
490-173340-5	Field Blank	Total/NA	Water	9040C	
490-173340-6	Dupe	Total/NA	Water	9040C	
LCS 490-593479/1	Lab Control Sample	Total/NA	Water	9040C	
490-172965-E-1 DU	Duplicate	Total/NA	Water	9040C	

Analysis Batch: 593708

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-173340-1	MW-7	Total/NA	Water	SM 2540C	
490-173340-2	MW-8	Total/NA	Water	SM 2540C	
490-173340-3	MW-9	Total/NA	Water	SM 2540C	
490-173340-4	MW-10	Total/NA	Water	SM 2540C	
490-173340-5	Field Blank	Total/NA	Water	SM 2540C	
490-173340-6	Dupe	Total/NA	Water	SM 2540C	
MB 490-593708/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 490-593708/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 490-593708/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
490-173340-2 DU	MW-8	Total/NA	Water	SM 2540C	

Rad

Prep Batch: 430235

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-173340-4	MW-10	Total/NA	Water	PrecSep-21	
490-173340-5	Field Blank	Total/NA	Water	PrecSep-21	
490-173340-6	Dupe	Total/NA	Water	PrecSep-21	
MB 160-430235/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-430235/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
500-162824-C-1-A DU	Duplicate	Total/NA	Water	PrecSep-21	

Prep Batch: 430237

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-173340-1	MW-7	Total/NA	Water	PrecSep-21	
490-173340-2	MW-8	Total/NA	Water	PrecSep-21	
490-173340-3	MW-9	Total/NA	Water	PrecSep-21	
MB 160-430237/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-430237/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
400-169725-B-14-A DU	Duplicate	Total/NA	Water	PrecSep-21	

Prep Batch: 430261

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-173340-1	MW-7	Total/NA	Water	PrecSep_0	
490-173340-2	MW-8	Total/NA	Water	PrecSep_0	
490-173340-3	MW-9	Total/NA	Water	PrecSep_0	
MB 160-430261/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-430261/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
400-169725-B-14-B DU	Duplicate	Total/NA	Water	PrecSep_0	

QC Association Summary

Client: Big Rivers Electric Corporation
Project/Site: Green Landfill, 1st Semi-Annual 2019

Job ID: 490-173340-1
SDG: Sebree Station, Green Landfill

Rad

Prep Batch: 430397

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-173340-4	MW-10	Total/NA	Water	PrecSep_0	
490-173340-5	Field Blank	Total/NA	Water	PrecSep_0	
490-173340-6	Dupe	Total/NA	Water	PrecSep_0	
MB 160-430397/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-430397/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
500-162824-C-1-B DU	Duplicate	Total/NA	Water	PrecSep_0	

Client Sample ID: MW-7

Date Collected: 05/02/19 09:00
Date Received: 05/04/19 09:30

Lab Sample ID: 490-173340-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			593212	05/08/19 15:03	JHS	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	278129	05/08/19 13:14	NAM	TAL PIT
Total Recoverable	Analysis	6010C		1			278473	05/10/19 13:51	RJR	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	278130	05/08/19 13:15	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			278337	05/09/19 15:57	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	278394	05/10/19 12:54	RJR	TAL PIT
Total/NA	Analysis	7470A		1			278534	05/13/19 13:50	RJR	TAL PIT
Total/NA	Analysis	9040C		1			593479	05/08/19 12:18	MXX	TAL NSH
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	593708	05/09/19 14:30	BMC	TAL NSH
Total/NA	Prep	PrecSep-21			1000.12 mL	1.0 g	430237	05/30/19 11:04	ORM	TAL SL
Total/NA	Analysis	903.0		1			439308	08/13/19 16:06	CDR	TAL SL
Total/NA	Prep	PrecSep_0			1000.12 mL	1.0 g	430261	05/30/19 13:38	ORM	TAL SL
Total/NA	Analysis	904.0		1			435709	07/19/19 08:47	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			439615	08/15/19 09:33	SMP	TAL SL

Client Sample ID: MW-8

Date Collected: 05/02/19 10:55
Date Received: 05/04/19 09:30

Lab Sample ID: 490-173340-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			593212	05/08/19 15:38	JHS	TAL NSH
Total/NA	Analysis	9056A		2			594071	05/10/19 19:55	SW1	TAL NSH
Total/NA	Analysis	9056A		50			594071	05/10/19 20:41	SW1	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	278129	05/08/19 13:14	NAM	TAL PIT
Total Recoverable	Analysis	6010C		1			278473	05/10/19 13:56	RJR	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	278130	05/08/19 13:15	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			278337	05/09/19 16:00	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	278394	05/10/19 12:54	RJR	TAL PIT
Total/NA	Analysis	7470A		1			278534	05/13/19 13:57	RJR	TAL PIT
Total/NA	Analysis	9040C		1			593479	05/08/19 12:18	MXX	TAL NSH
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	593708	05/09/19 14:30	BMC	TAL NSH
Total/NA	Prep	PrecSep-21			1000.43 mL	1.0 g	430237	05/30/19 11:04	ORM	TAL SL
Total/NA	Analysis	903.0		1			439394	08/13/19 16:03	CDR	TAL SL
Total/NA	Prep	PrecSep_0			1000.43 mL	1.0 g	430261	05/30/19 13:38	ORM	TAL SL
Total/NA	Analysis	904.0		1			435709	07/19/19 08:47	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			439615	08/15/19 09:33	SMP	TAL SL

Client Sample ID: MW-9

Date Collected: 05/02/19 13:05
Date Received: 05/04/19 09:30

Lab Sample ID: 490-173340-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			593212	05/08/19 15:50	JHS	TAL NSH

Client Sample ID: MW-9

Date Collected: 05/02/19 13:05
Date Received: 05/04/19 09:30

Lab Sample ID: 490-173340-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	278129	05/08/19 13:14	NAM	TAL PIT
Total Recoverable	Analysis	6010C		1			278473	05/10/19 14:34	RJR	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	278130	05/08/19 13:15	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			278337	05/09/19 16:04	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	278394	05/10/19 12:54	RJR	TAL PIT
Total/NA	Analysis	7470A		1			278534	05/13/19 13:58	RJR	TAL PIT
Total/NA	Analysis	9040C		1			593479	05/08/19 12:18	MXX	TAL NSH
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	593708	05/09/19 14:30	BMC	TAL NSH
Total/NA	Prep	PrecSep-21			1000.57 mL	1.0 g	430237	05/30/19 11:04	ORM	TAL SL
Total/NA	Analysis	903.0		1	1.0 mL	1.0 mL	439394	08/13/19 16:03	CDR	TAL SL
Total/NA	Prep	PrecSep_0			1000.57 mL	1.0 g	430261	05/30/19 13:38	ORM	TAL SL
Total/NA	Analysis	904.0		1			435709	07/19/19 08:47	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			439615	08/15/19 09:33	SMP	TAL SL

Client Sample ID: MW-10

Date Collected: 05/02/19 15:00
Date Received: 05/04/19 09:30

Lab Sample ID: 490-173340-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			593212	05/08/19 16:01	JHS	TAL NSH
Total/NA	Analysis	9056A		5			594071	05/10/19 20:53	SW1	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	278129	05/08/19 13:14	NAM	TAL PIT
Total Recoverable	Analysis	6010C		1			278473	05/10/19 14:39	RJR	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	278130	05/08/19 13:15	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			278337	05/09/19 16:07	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	278394	05/10/19 12:54	RJR	TAL PIT
Total/NA	Analysis	7470A		1			278534	05/13/19 13:59	RJR	TAL PIT
Total/NA	Analysis	9040C		1			593479	05/08/19 12:18	MXX	TAL NSH
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	593708	05/09/19 14:30	BMC	TAL NSH
Total/NA	Prep	PrecSep-21			1000.02 mL	1.0 g	430235	05/30/19 10:35	ORM	TAL SL
Total/NA	Analysis	903.0		1	1.0 mL	1.0 mL	439308	08/13/19 21:08	CDR	TAL SL
Total/NA	Prep	PrecSep_0			1000.02 mL	1.0 g	430397	05/31/19 10:52	ORM	TAL SL
Total/NA	Analysis	904.0		1			436112	07/23/19 14:24	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			439615	08/15/19 09:33	SMP	TAL SL

Client Sample ID: Field Blank

Date Collected: 05/02/19 15:25
Date Received: 05/04/19 09:30

Lab Sample ID: 490-173340-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			593212	05/08/19 16:13	JHS	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	278129	05/08/19 13:14	NAM	TAL PIT
Total Recoverable	Analysis	6010C		1			278473	05/10/19 14:45	RJR	TAL PIT

Lab Chronicle

Client: Big Rivers Electric Corporation
Project/Site: Green Landfill, 1st Semi-Annual 2019

Job ID: 490-173340-1
SDG: Sebree Station, Green Landfill

Client Sample ID: Field Blank

Date Collected: 05/02/19 15:25
Date Received: 05/04/19 09:30

Lab Sample ID: 490-173340-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	278130	05/08/19 13:15	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			278337	05/09/19 16:11	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	278394	05/10/19 12:54	RJR	TAL PIT
Total/NA	Analysis	7470A		1			278534	05/13/19 14:00	RJR	TAL PIT
Total/NA	Analysis	9040C		1			593479	05/08/19 12:18	MXX	TAL NSH
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	593708	05/09/19 14:30	BMC	TAL NSH
Total/NA	Prep	PrecSep-21			1000.17 mL	1.0 g	430235	05/30/19 10:35	ORM	TAL SL
Total/NA	Analysis	903.0		1	1.0 mL	1.0 mL	439308	08/13/19 21:08	CDR	TAL SL
Total/NA	Prep	PrecSep_0			1000.17 mL	1.0 g	430397	05/31/19 10:52	ORM	TAL SL
Total/NA	Analysis	904.0		1			436112	07/23/19 14:24	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			439615	08/15/19 09:33	SMP	TAL SL

Client Sample ID: Dupe

Date Collected: 05/02/19 13:20
Date Received: 05/04/19 09:30

Lab Sample ID: 490-173340-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			593212	05/08/19 16:24	JHS	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	278129	05/08/19 13:15	NAM	TAL PIT
Total Recoverable	Analysis	6010C		1			278473	05/10/19 14:50	RJR	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	278130	05/08/19 13:15	NAM	TAL PIT
Total Recoverable	Analysis	6020A		1			278337	05/09/19 16:14	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	278394	05/10/19 12:54	RJR	TAL PIT
Total/NA	Analysis	7470A		1			278534	05/13/19 14:01	RJR	TAL PIT
Total/NA	Analysis	9040C		1			593479	05/08/19 12:18	MXX	TAL NSH
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	593708	05/09/19 14:30	BMC	TAL NSH
Total/NA	Prep	PrecSep-21			1000.48 mL	1.0 g	430235	05/30/19 10:35	ORM	TAL SL
Total/NA	Analysis	903.0		1			439308	08/13/19 21:08	CDR	TAL SL
Total/NA	Prep	PrecSep_0			1000.48 mL	1.0 g	430397	05/31/19 10:52	ORM	TAL SL
Total/NA	Analysis	904.0		1			436112	07/23/19 14:24	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			439615	08/15/19 09:33	SMP	TAL SL

Laboratory References:

TAL NSH = Eurofins TestAmerica, Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

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

Method Summary

Client: Big Rivers Electric Corporation
Project/Site: Green Landfill, 1st Semi-Annual 2019

Job ID: 490-173340-1
SDG: Sebree Station, Green Landfill

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	TAL NSH
6010C	Metals (ICP)	SW846	TAL PIT
6020A	Metals (ICP/MS)	SW846	TAL PIT
7470A	Mercury (CVAA)	SW846	TAL PIT
9040C	pH	SW846	TAL NSH
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL NSH
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT
7470A	Preparation, Mercury	SW846	TAL PIT

Protocol References:

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.

Laboratory References:

TAL NSH = Eurofins TestAmerica, Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

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

Accreditation/Certification Summary

Client: Big Rivers Electric Corporation
Job ID: 490-173340-1
Project/Site: Green Landfill, 1st Semi-Annual 2019
SDG: Sebree Station, Green Landfill

Laboratory: Eurofins TestAmerica, Nashville

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Kentucky (UST)	State Program	4	19	06-30-19

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
9040C		Water	pH
9040C		Water	Temperature
9056A		Water	Chloride
9056A		Water	Fluoride
9056A		Water	Sulfate
SM 2540C		Water	Total Dissolved Solids

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-19
California	State		2891	04-30-20
California	State Program	9	2891	04-30-20
Connecticut	State Program	1	PH-0688	09-30-20
Florida	NELAP	4	E871008	06-30-19
Florida	NELAP		E871008	06-30-19
Illinois	NELAP	5	200005	06-30-19
Illinois	NELAP		004375	06-30-19
Kansas	NELAP	7	E-10350	01-31-20
Kentucky (DW)	Kentucky UST	4	162013	04-30-20
Louisiana	NELAP	6	04041	06-30-19
Nevada	State		PA00164	07-31-19
Nevada	State Program	9	PA00164	07-31-19
New Hampshire	NELAP	1	2030	04-04-20
New Jersey	NELAP	2	PA005	06-30-19
New Jersey	NELAP		PA005	06-30-19 *
New York	NELAP	2	11182	03-31-20
New York	NELAP		11182	04-01-20
North Carolina (WW/SW)	State Program	4	434	12-31-19
Oregon	NELAP	10	PA-2151	02-06-20
Oregon	NELAP		PA-2151	02-06-20
Pennsylvania	NELAP	3	02-00416	04-30-20
Pennsylvania	NELAP		02-00416	06-04-19
South Carolina	State Program	4	89014	04-30-20
Texas	NELAP	6	T104704528-15-2	03-31-20
Texas	NELAP		T104704528	03-31-20
US Fish & Wildlife	Federal		LE94312A-1	07-31-19
US Fish & Wildlife	US Federal Programs		058448	07-31-20
USDA	Federal		P330-16-00211	06-26-19
USDA	US Federal Programs		P330-16-00211	06-26-19
Utah	NELAP	8	PA001462015-4	05-31-19 *
Virginia	NELAP	3	460189	09-14-19
Virginia	NELAP		10043	09-14-19
West Virginia DEP	State		142	01-31-20
West Virginia DEP	State Program	3	142	01-31-20

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

Accreditation/Certification Summary

Client: Big Rivers Electric Corporation
Job ID: 490-173340-1
Project/Site: Green Landfill, 1st Semi-Annual 2019
SDG: Sebree Station, Green Landfill

Laboratory: Eurofins TestAmerica, Pittsburgh (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Wisconsin	State		998027800	08-31-19
Wisconsin	State Program	5	998027800	08-31-19

Accreditation/Certification Summary

Client: Big Rivers Electric Corporation
Job ID: 490-173340-1
Project/Site: Green Landfill, 1st Semi-Annual 2019
SDG: Sebree Station, Green Landfill

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP		L2305	04-06-22
ANAB	DoD		L2305	04-06-22
ANAB	DOE		L2305.01	04-06-22
Arizona	State		AZ0813	12-08-19
Arizona	State Program	9	AZ0813	12-08-19
California	State		2886	06-30-20
California	State Program	9	2886	06-30-20
Connecticut	State Program	1	PH-0241	03-31-21
Florida	NELAP	4	E87689	06-30-20
Florida	NELAP		E87689	06-30-20
Hawaii	State Program	9	NA	06-30-20
Illinois	NELAP	5	200023	11-30-19
Illinois	NELAP		004553	11-30-19
Iowa	State Program	7	373	12-01-20
Kansas	NELAP	7	E-10236	10-31-19
Kentucky (DW)	State		KY90125	12-31-19
Kentucky (DW)	State Program	4	KY90125	12-31-19
Louisiana	NELAP	6	04080	06-30-20
Louisiana (DW)	NELAP	6	LA011	12-31-19
Louisiana (DW)	State		LA011	12-31-19
Maryland	State		310	09-30-20
Maryland	State Program	3	310	09-30-20
Michigan	State Program	5	9005	06-30-20
Missouri	State		780	06-30-22
Missouri	State Program	7	780	06-30-20
New Jersey	NELAP	2	MO002	06-30-20
New Jersey	NELAP		MO002	06-30-20
New York	NELAP	2	11616	03-31-20
New York	NELAP		11616	04-01-20
North Dakota	State Program	8	R207	06-30-20
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State		9997	08-31-19
Oklahoma	State Program	6	9997	08-31-19 *
Pennsylvania	NELAP	3	68-00540	02-28-20
Pennsylvania	NELAP		68-00540	02-28-20
South Carolina	State Program	4	85002001	06-30-20
Texas	NELAP	6	T104704193-19-14	07-31-20
Texas	NELAP		T104704193-19-13	07-31-20
US Fish & Wildlife	Federal		058448	07-31-20
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542019-11	07-31-20
Virginia	NELAP	3	460230	06-14-20
Virginia	NELAP		10310	06-14-20
Washington	State Program	10	C592	08-30-19
West Virginia DEP	State Program	3	381	08-31-19 *

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

490-173340 Chain of Custody

Cooler Received/Opened On 5/4/2019 @ 9:30

Time Samples Removed From Cooler 12:44 Time Samples Placed In Storage 1251 (2 Hour Window)

1. Tracking # 493182018301 (last 4 digits, FedEx) Courier: Fedex

IR Gun ID 31470366 pH Strip Lot NA Chlorine Strip Lot NA

2. Temperature of rep. sample or temp blank when opened: 5.0 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 1 Front

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) ACE

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

Larger than this.

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) ACE

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) ACE

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) ACE

I certify that I attached a label with the unique LIMS number to each container (intial) ACE

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#_____

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 8/23/17

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

Loc: 490
173340

COOLER RECEIPT FORM

Cooler Received/Opened On 5/4/2019 @ 0930

Time Samples Removed From Cooler 1244 Time Samples Placed In Storage 1251 (2 Hour Window)

1. Tracking # 8312 (last 4 digits, FedEx) Courier: FedEx

IR Gun ID 17960358 pH Strip Lot NA Chlorine Strip Lot NA

2. Temperature of rep. sample or temp blank when opened: 1.0 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: (Front)

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) AA

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

● ⬅ Larger than this.

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) ALE

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) ALE

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) ALE

I certify that I attached a label with the unique LIMS number to each container (intial) ALE

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#_____

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 8/23/17

Eurofins TestAmerica, Nashville
2960 Foster Creighton Drive

Nashville, TN 37204-3719
phone 615.726.0177 fax 615.726.3404

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other:

TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

Client Contact	Project Manager: Mark Bertram	Site Contact: Phillip Hill	Date: 5/3/2019	COC No: 490-99277-25057.1
Big Rivers Electric Corporation	Email: mark.bertram@bigrivers.com	Lab Contact: Roxanne Cisneros	Carrier: FedEx	__1__ of __1__ COCs
9000 Highway 2096	Tel/Fax: (270) 844-5708			Sampler: Phillip Hill
Robards, KY 42452	**Analysis Turnaround Time**			**For Lab Use Only:**
Phone: (270) 844-5708	☐ CALENDAR DAYS ☐ WORKING DAYS			Walk-in Client:
FAX	TAT if different from Below _____			Lab Sampling:
Project Name: Green Landfill, 1st Semi-Annual 2019	☑ 2 weeks			
Site: Sebree Station, Green Landfill	☐ 1 week			Job / SDG No.:
P O # 249348-4	☐ 2 days			
	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	903.0, 904.0	6010C, 6020A, 7470A	9040C, 9056A_ORGFM_28D	2540C_Calcd-TDS	Sample Specific Notes:
MW-7	5/2/19	900	G	Water	6	N	N	x	x	x	x	
MW-8	5/2/19	1055	G	Water	6	N	N	x	x	x	x	
MW-9	5/2/19	1305	G	Water	6	N	N	x	x	x	x	
MW-10	5/2/19	1500	G	Water	6	N	N	x	x	x	x	Loc: 490 173340
Field Blank	5/2/19	1525	G	Water	6	N	N	x	x	x	x	
Dupe	5/2/19	1320	G	Water	6	N	N	x	x	x	x	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
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.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown

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: See attached constituent list for analysis. Run samples per protocal/methodology prescribed in 40 CFR part 257, Appendix IV.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: 5.0/1.0 Corr'd: _____ | Therm ID No.: _____

Relinquished by: Phillip Hill	Company: BREC	Date/Time: 5/3/19 0930	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: TA-NAS	Date/Time: 5/4/19 9:30

Form No. CA-C-WI-002, Rev. 4.23, dated 4/16/2019

8/15/2019

Reid/HMP&L Ash Pond Constituent List:

Appendix III

Boron
Calcium
Chloride
Fluoride
pH
Sulfate
Total Dissolved Solids (TDS)



Loc: 490
173340

Appendix IV

Antimony
Arsenic
Barium
Chromium
Cobalt
Lead
Lithium
Molybdenum
Beryllium
Thallium
Cadmium
Mercury
Selenium
Radium 226 & 228 combined

Login Sample Receipt Checklist

Client: Big Rivers Electric Corporation

Job Number: 490-173340-2
SDG Number: Sebree Station, Green Landfill

Login Number: 173340
List Number: 3
Creator: Hellm, Michael

List Source: Eurofins TestAmerica, St. Louis
List Creation: 05/09/19 03:01 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.	N/A	
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	18.0
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").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: Big Rivers Electric Corporation
Project/Site: Green Landfill, 1st Semi-Annual 2019

Job ID: 490-173340-1
SDG: Sebree Station, Green Landfill

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water **Prep Type: Total/NA**

Lab Sample ID	Client Sample ID	Percent Yield (Acceptance Limits) Ba Carrier (40-110)
400-169725-B-14-A DU	Duplicate	98.6
490-173340-1	MW-7	91.5
490-173340-2	MW-8	90.7
490-173340-3	MW-9	103
490-173340-4	MW-10	87.3
490-173340-5	Field Blank	92.4
490-173340-6	Dupe	94.4
500-162824-C-1-A DU	Duplicate	88.7
LCS 160-430235/1-A	Lab Control Sample	95.2
LCS 160-430237/1-A	Lab Control Sample	101
MB 160-430235/23-A	Method Blank	98.9
MB 160-430237/23-A	Method Blank	99.4

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water **Prep Type: Total/NA**

Lab Sample ID	Client Sample ID	Percent Yield (Acceptance Limits) Ba Carrier (40-110)	Y Carrier (40-110)
400-169725-B-14-B DU	Duplicate	98.6	89.7
490-173340-1	MW-7	91.5	89.3
490-173340-2	MW-8	90.7	89.3
490-173340-3	MW-9	103	85.6
490-173340-4	MW-10	87.3	71.4
490-173340-5	Field Blank	92.4	80.7
490-173340-6	Dupe	94.4	67.7
500-162824-C-1-B DU	Duplicate	88.7	75.5
LCS 160-430261/1-A	Lab Control Sample	101	90.1
LCS 160-430397/1-A	Lab Control Sample	95.2	65.8
MB 160-430261/23-A	Method Blank	99.4	89.7
MB 160-430397/23-A	Method Blank	98.9	62.8

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

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Farmersburg, IN 812.696.5076
Lexington, KY 859.299.7775
Paducah, KY 270.444.6547

"Providing Tomorrow's Analytical Capabilities Today"

Certificate of Analysis
9093428

Chad Phillips
Big Rivers Electric Corporation Reid/Green Station
PO Box 24
Henderson KY, 42419

Customer ID: 44-102032
Report Printed: 11/21/2019 11:59

Project Name:	HMPL Surface Impoundment	Workorder:	9093428

Dear Chad Phillips

Enclosed are the analytical results for samples received at one of our laboratories on 10/17/2019 14:54.

McCoy & McCoy Laboratories, Inc. is a commercial laboratory accredited by various state and national authorities, including Indiana, Kentucky, Tennessee, and Virginia's National Environmental Laboratory Accreditation Program (NELAP). With the NELAP accreditation, applicable test results are certified to meet the requirements of the National Environmental Laboratory Accreditation Program.

If you have any questions concerning this report please contact the individual listed below.

Please visit our website at www.mccoylabs.com for a listing of the NELAP accreditations and Scope of Work, as well as, links to other scientific organizations.

This certificate of analysis may not be reproduced without the written consent of McCoy & McCoy Laboratories, Inc.

ACCREDITED IN ACCORDANCE WITH nelac
#460210
Madisonville

Rob Whittington, Project Manager

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

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Paducah, KY 270.444.6547

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SAMPLE SUMMARY

Lab ID	Client Sample ID/Alias	Matrix	Date Collected	Date Received	Sampled By
9093428-01	MW7/	Groundwater	10/16/2019 12:45	10/17/2019 14:54	Phillip Hill
9093428-02	MW8/	Groundwater	10/17/2019 09:45	10/17/2019 14:54	Phillip Hill
9093428-03	MW9/	Groundwater	10/17/2019 11:25	10/17/2019 14:54	Phillip Hill
9093428-04	MW10/	Groundwater	10/17/2019 12:10	10/17/2019 14:54	Phillip Hill
9093428-05	DUPLICATE/	Groundwater	10/16/2019 13:10	10/17/2019 14:54	Phillip Hill
9093428-06	FIELD BLANK/	Water	10/17/2019 12:40	10/17/2019 14:54	Phillip Hill

LabNumber	Measurement	Value
9093428-01	Field Conductance	0.421
	Field pH	7.07
	Field Temp (C)	17.61
9093428-02	Field Conductance	2.82
	Field pH	7.04
	Field Temp (C)	15.24
9093428-03	Field Conductance	0.606
	Field pH	7.22
	Field Temp (C)	18.29
9093428-04	Field Conductance	0.935
	Field pH	9.24
	Field Temp (C)	17.27
9093428-05	Field Conductance	0.421
	Field pH	7.07
	Field Temp (C)	17.61

Work Order Comments:

Well MW7 Total Radium 0.652 +/- 0.894 pCi/L
Well MW8 Total Radium 2.50 +/- 1.21 pCi/L
Well MW9 Total Radium 2.32 +/- 1.02 pCi/L
Well MW10 Total Radium 0.837 +/- 0.955 pCi/L
Duplicate Total Radium 0.686 +/- 0.717 pCi/L
Field Blank Total Radium 0.741 +/- 0.632 pCi/L

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Paducah, KY 270.444.6547

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ANALYTICAL RESULTS

Lab Sample ID: **9093428-01**
Description: **MW7**

Sample Collection Date Time: 10/16/2019 12:45
Sample Received Date Time: 10/17/2019 14:54

Metals by SW846 6000 Series Methods

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	U	mg/L	0.005	0.002	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:01	DMH
Arsenic	**0.0014**		mg/L	0.0010	0.0004	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:01	DMH
Barium	**0.062**		mg/L	0.004	0.001	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:01	DMH
Beryllium	ND	U	mg/L	0.0020	0.0010	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:01	DMH
Boron	ND	D2, M4, U	mg/L	1.00	1.00	SW846 6010 B	10/21/2019 11:20	10/22/2019 13:45	AKB
Cadmium	ND	U	mg/L	0.0010	0.0001	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:01	DMH
Calcium	**44.4**	D2	mg/L	4.00	1.30	SW846 6010 B	10/21/2019 11:20	10/22/2019 13:45	AKB
Chromium	ND	U	mg/L	0.0020	0.0006	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:01	DMH
Cobalt	ND	U	mg/L	0.004	0.004	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:01	DMH
Lead	ND	U	mg/L	0.002	0.0005	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:01	DMH
Lithium	**0.008**	J	mg/L	0.02	0.005	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:01	DMH
Mercury	ND	U	mg/L	0.0005	0.0002	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:01	DMH
Molybdenum	**0.01**		mg/L	0.01	0.002	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:01	DMH
Selenium	ND	U	mg/L	0.003	0.001	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:01	DMH
Thallium	ND	U	mg/L	0.0020	0.0001	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:01	DMH

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
pH (Lab)	**7.65**	H3	Std. Units	0.10	0.10	4500-H+ B-2000	10/22/2019 09:39	10/22/2019 09:39	HMF
Total Dissolved Solids	**228**		mg/L	50	50	2540 C-2011	10/21/2019 15:52	10/22/2019 15:29	MAG

Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	**0.652**	_Sub	pCi/L			EPA 903.1	11/20/2019 15:08	11/20/2019 15:09	RCW
Radium-228	**-0.208**	_Sub	pCi/L			EPA 904.0	11/20/2019 15:08	11/20/2019 15:09	RCW

Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	**4.7**		mg/L	2.0	1.3	SW846 9056	10/23/2019 02:49	10/23/2019 02:49	CSC
Fluoride	**0.3**		mg/L	0.2	0.1	SW846 9056	10/23/2019 02:49	10/23/2019 02:49	CSC
Sulfate	**19**		mg/L	1	0.5	SW846 9056	10/23/2019 02:49	10/23/2019 02:49	CSC

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ANALYTICAL RESULTS

Lab Sample ID: **9093428-02**
Description: **MW8**

Sample Collection Date Time: 10/17/2019 09:45
Sample Received Date Time: 10/17/2019 14:54

Metals by SW846 6000 Series Methods

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	U	mg/L	0.005	0.002	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:05	DMH
Arsenic	ND	U	mg/L	0.0010	0.0004	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:05	DMH
Barium	**0.016**		mg/L	0.004	0.001	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:05	DMH
Beryllium	ND	U	mg/L	0.0020	0.0010	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:05	DMH
Boron	**1.49**	D2	mg/L	1.00	1.00	SW846 6010 B	10/21/2019 11:20	10/22/2019 14:01	AKB
Cadmium	ND	U	mg/L	0.0010	0.0001	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:05	DMH
Calcium	**267**	D1	mg/L	40.0	13.0	SW846 6010 B	10/21/2019 11:20	10/22/2019 14:04	AKB
Chromium	ND	U	mg/L	0.0020	0.0006	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:05	DMH
Cobalt	ND	U	mg/L	0.004	0.004	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:05	DMH
Lead	ND	U	mg/L	0.002	0.0005	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:05	DMH
Lithium	**0.03**		mg/L	0.02	0.005	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:05	DMH
Mercury	ND	U	mg/L	0.0005	0.0002	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:05	DMH
Molybdenum	**0.01**		mg/L	0.01	0.002	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:05	DMH
Selenium	ND	U	mg/L	0.003	0.001	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:05	DMH
Thallium	ND	U	mg/L	0.0020	0.0001	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:05	DMH

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
pH (Lab)	**7.92**	H3	Std. Units	0.10	0.10	4500-H+ B-2000	10/22/2019 09:40	10/22/2019 09:40	HMF
Total Dissolved Solids	**2200**		mg/L	50	50	2540 C-2011	10/21/2019 15:56	10/22/2019 15:29	MAG

Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	**0.914**	_Sub	pCi/L			EPA 903.1	11/20/2019 15:08	11/20/2019 15:09	RCW
Radium-228	**1.59**	_Sub	pCi/L			EPA 904.0	11/20/2019 15:08	11/20/2019 15:09	RCW

Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	**49.5**		mg/L	2.0	1.3	SW846 9056	10/23/2019 03:30	10/23/2019 03:30	CSC
Fluoride	**0.4**		mg/L	0.2	0.1	SW846 9056	10/23/2019 03:30	10/23/2019 03:30	CSC
Sulfate	**1240**	D	mg/L	50	25	SW846 9056	10/23/2019 03:30	10/23/2019 03:30	CSC

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ANALYTICAL RESULTS

Lab Sample ID: **9093428-03**
Description: **MW9**

Sample Collection Date Time: 10/17/2019 11:25
Sample Received Date Time: 10/17/2019 14:54

Metals by SW846 6000 Series Methods

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	U	mg/L	0.005	0.002	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:09	DMH
Arsenic	ND	U	mg/L	0.0010	0.0004	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:09	DMH
Barium	**0.763**		mg/L	0.004	0.001	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:09	DMH
Beryllium	ND	U	mg/L	0.0020	0.0010	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:09	DMH
Boron	ND	D2, U	mg/L	1.00	1.00	SW846 6010 B	10/21/2019 11:20	10/22/2019 14:07	AKB
Cadmium	ND	U	mg/L	0.0010	0.0001	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:09	DMH
Calcium	**66.8**	D2	mg/L	4.00	1.30	SW846 6010 B	10/21/2019 11:20	10/22/2019 14:07	AKB
Chromium	ND	U	mg/L	0.0020	0.0006	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:09	DMH
Cobalt	ND	U	mg/L	0.004	0.004	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:09	DMH
Lead	ND	U	mg/L	0.002	0.0005	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:09	DMH
Lithium	**0.009**	J	mg/L	0.02	0.005	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:09	DMH
Mercury	ND	U	mg/L	0.0005	0.0002	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:09	DMH
Molybdenum	ND	U	mg/L	0.01	0.002	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:09	DMH
Selenium	ND	U	mg/L	0.003	0.001	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:09	DMH
Thallium	ND	U	mg/L	0.0020	0.0001	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:09	DMH

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
pH (Lab)	**7.67**	H3	Std. Units	0.10	0.10	4500-H+ B-2000	10/22/2019 09:41	10/22/2019 09:41	HMF
Total Dissolved Solids	**392**		mg/L	50	50	2540 C-2011	10/21/2019 16:00	10/22/2019 15:29	MAG

Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	**1.09**	_Sub	pCi/L			EPA 903.1	11/20/2019 15:08	11/20/2019 15:09	RCW
Radium-228	**1.23**	_Sub	pCi/L			EPA 904.0	11/20/2019 15:08	11/20/2019 15:09	RCW

Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	**17.6**		mg/L	2.0	1.3	SW846 9056	10/23/2019 04:11	10/23/2019 04:11	CSC
Fluoride	**0.2**		mg/L	0.2	0.1	SW846 9056	10/23/2019 04:11	10/23/2019 04:11	CSC
Sulfate	ND	U	mg/L	1	0.5	SW846 9056	10/23/2019 04:11	10/23/2019 04:11	CSC

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ANALYTICAL RESULTS

Lab Sample ID: **9093428-04**
Description: **MW10**

Sample Collection Date Time: 10/17/2019 12:10
Sample Received Date Time: 10/17/2019 14:54

Metals by SW846 6000 Series Methods

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	U	mg/L	0.005	0.002	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:24	DMH
Arsenic	**0.0022**		mg/L	0.0010	0.0004	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:24	DMH
Barium	**0.077**		mg/L	0.004	0.001	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:24	DMH
Beryllium	ND	U	mg/L	0.0020	0.0010	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:24	DMH
Boron	ND	D2, U	mg/L	1.00	1.00	SW846 6010 B	10/21/2019 11:20	10/22/2019 14:13	AKB
Cadmium	ND	U	mg/L	0.0010	0.0001	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:24	DMH
Calcium	**9.76**	D2	mg/L	4.00	1.30	SW846 6010 B	10/21/2019 11:20	10/22/2019 14:13	AKB
Chromium	**0.0006**	J	mg/L	0.0020	0.0006	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:24	DMH
Cobalt	ND	U	mg/L	0.004	0.004	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:24	DMH
Lead	ND	U	mg/L	0.002	0.0005	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:24	DMH
Lithium	**0.51**		mg/L	0.02	0.005	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:24	DMH
Mercury	**0.0002**	J	mg/L	0.0005	0.0002	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:24	DMH
Molybdenum	**0.007**	J	mg/L	0.01	0.002	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:24	DMH
Selenium	ND	U	mg/L	0.003	0.001	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:24	DMH
Thallium	ND	U	mg/L	0.0020	0.0001	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:24	DMH

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
pH (Lab)	**9.14**	H3	Std. Units	0.10	0.10	4500-H+ B-2000	10/22/2019 09:42	10/22/2019 09:42	HMF
Total Dissolved Solids	**568**		mg/L	50	50	2540 C-2011	10/21/2019 16:04	10/22/2019 15:29	MAG

Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	**0.458**	_Sub	pCi/L			EPA 903.1	11/20/2019 15:08	11/20/2019 15:09	RCW
Radium-228	**0.379**	_Sub	pCi/L			EPA 904.0	11/20/2019 15:08	11/20/2019 15:09	RCW

Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	**25.7**		mg/L	2.0	1.3	SW846 9056	10/23/2019 04:52	10/23/2019 04:52	CSC
Fluoride	**0.6**		mg/L	0.2	0.1	SW846 9056	10/23/2019 04:52	10/23/2019 04:52	CSC
Sulfate	**80**	D	mg/L	50	25	SW846 9056	10/23/2019 04:52	10/23/2019 04:52	CSC

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ANALYTICAL RESULTS

Lab Sample ID: **9093428-05**
Description: **DUPLICATE**

Sample Collection Date Time: 10/16/2019 13:10
Sample Received Date Time: 10/17/2019 14:54

Metals by SW846 6000 Series Methods

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	U	mg/L	0.005	0.002	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:28	DMH
Arsenic	**0.0014**		mg/L	0.0010	0.0004	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:28	DMH
Barium	**0.065**		mg/L	0.004	0.001	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:28	DMH
Beryllium	ND	U	mg/L	0.0020	0.0010	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:28	DMH
Boron	ND	D2, U	mg/L	1.00	1.00	SW846 6010 B	10/21/2019 11:20	10/22/2019 14:19	AKB
Cadmium	ND	U	mg/L	0.0010	0.0001	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:28	DMH
Calcium	**48.9**	D2	mg/L	4.00	1.30	SW846 6010 B	10/21/2019 11:20	10/22/2019 14:19	AKB
Chromium	ND	U	mg/L	0.0020	0.0006	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:28	DMH
Cobalt	ND	U	mg/L	0.004	0.004	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:28	DMH
Lead	ND	U	mg/L	0.002	0.0005	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:28	DMH
Lithium	**0.007**	J	mg/L	0.02	0.005	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:28	DMH
Mercury	ND	U	mg/L	0.0005	0.0002	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:28	DMH
Molybdenum	**0.009**	J	mg/L	0.01	0.002	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:28	DMH
Selenium	ND	U	mg/L	0.003	0.001	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:28	DMH
Thallium	ND	U	mg/L	0.0020	0.0001	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:28	DMH

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
pH (Lab)	**7.84**	H3	Std. Units	0.10	0.10	4500-H+ B-2000	10/22/2019 09:43	10/22/2019 09:43	HMF
Total Dissolved Solids	**226**		mg/L	50	50	2540 C-2011	10/21/2019 16:08	10/22/2019 15:29	MAG

Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	**0.257**	_Sub	pCi/L			EPA 903.1	11/20/2019 15:08	11/20/2019 15:09	RCW
Radium-228	**0.429**	_Sub	pCi/L			EPA 904.0	11/20/2019 15:08	11/20/2019 15:09	RCW

Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	**5.1**		mg/L	2.0	1.3	SW846 9056	10/23/2019 05:33	10/23/2019 05:33	CSC
Fluoride	**0.3**		mg/L	0.2	0.1	SW846 9056	10/23/2019 05:33	10/23/2019 05:33	CSC
Sulfate	**19**		mg/L	1	0.5	SW846 9056	10/23/2019 05:33	10/23/2019 05:33	CSC

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ANALYTICAL RESULTS

Lab Sample ID: **9093428-06**
Description: **FIELD BLANK**

Sample Collection Date Time: 10/17/2019 12:40
Sample Received Date Time: 10/17/2019 14:54

Metals by SW846 6000 Series Methods

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	U	mg/L	0.005	0.002	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:32	DMH
Arsenic	ND	U	mg/L	0.0010	0.0004	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:32	DMH
Barium	ND	U	mg/L	0.004	0.001	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:32	DMH
Beryllium	ND	U	mg/L	0.0020	0.0010	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:32	DMH
Boron	ND	U	mg/L	0.10	0.10	SW846 6010 B	10/21/2019 11:20	10/22/2019 14:26	AKB
Cadmium	ND	U	mg/L	0.0010	0.0001	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:32	DMH
Calcium	ND	U	mg/L	0.40	0.13	SW846 6010 B	10/21/2019 11:20	10/22/2019 14:26	AKB
Chromium	ND	U	mg/L	0.0020	0.0006	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:32	DMH
Cobalt	ND	U	mg/L	0.004	0.004	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:32	DMH
Lead	ND	U	mg/L	0.002	0.0005	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:32	DMH
Lithium	ND	U	mg/L	0.02	0.005	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:32	DMH
Mercury	ND	U	mg/L	0.0005	0.0002	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:32	DMH
Molybdenum	ND	U	mg/L	0.01	0.002	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:32	DMH
Selenium	ND	U	mg/L	0.003	0.001	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:32	DMH
Thallium	ND	U	mg/L	0.0020	0.0001	SW846-6020 A	10/21/2019 11:20	10/22/2019 20:32	DMH

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
pH (Lab)	**7.46**	H3	Std. Units	0.10	0.10	4500-H+ B-2000	10/22/2019 09:44	10/22/2019 09:44	HMF
Total Dissolved Solids	ND	U	mg/L	50	50	2540 C-2011	10/21/2019 16:12	10/22/2019 15:29	MAG

Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	**0.057**	_Sub	pCi/L			EPA 903.1	11/20/2019 15:08	11/20/2019 15:09	RCW
Radium-228	**0.684**	_Sub	pCi/L			EPA 904.0	11/20/2019 15:08	11/20/2019 15:09	RCW

Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	ND	U	mg/L	2.0	1.3	SW846 9056	10/23/2019 06:54	10/23/2019 06:54	CSC
Fluoride	**0.3**		mg/L	0.2	0.1	SW846 9056	10/23/2019 06:54	10/23/2019 06:54	CSC
Sulfate	ND	M1, U	mg/L	1	0.5	SW846 9056	10/23/2019 06:54	10/23/2019 06:54	CSC

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Notes for work order 9093428

- Samples collected by MMLI personnel are done so in accordance with procedures set forth in MMLI field services SOPs.
- Results contained in this report are only representative of the samples received.
- MMLI 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.
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).

Standard Quallifiers/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

Certified Analyses included in this Report

Analyte	Certifications
2540 C-2011 in Water	
Total Dissolved Solids	KY Drinking Water Mdv (00030)
4500-H+ B-2000 in Water	
pH (Lab)	KY Drinking Water Mdv (00030) TN Drinking Water (02819)
SW846 6010 B in Water	

McCOY & McCOY LABORATORIES, Inc.
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A Pace Analytical Laboratory

P.O. Box 907
Madisonville, KY 42431
270.821.7375
www.mccoylabs.com

Pikeville, KY 606.432.3104
Farmersburg, IN 812.696.5076
Lexington, KY 859.299.7775
Paducah, KY 270.444.6547

"Providing Tomorrow's Analytical Capabilities Today"

Sample Acceptance Checklist for Work Order 9093428

Shipped By: Client

Temperature: 2.70° Celcius

Condition	
Check if Custody Seals are Present/Intact	☐
Check if Custody Signatures are Present	☑
Check if Collector Signature Present	☑
Check if bottles are intact	☑
Check if bottles are correct	☑
Check if bottles have sufficient volume	☑
Check if samples received on ice	☑
Check if VOA headspace is acceptable	☐
Check if samples received in holding time.	☑
Check if samples are preserved properly	☑

McCoy & McCoy Laboratories, Inc.
A PACE Analytical Laboratory
P.O. Box 907
Madisonville, KY 42431

Chain of Custody

Scheduled for: 09/23/2019

Client: Big Rivers Electric Corporation Reid/Green Station

Project: HMPL Surface Impoundment

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#: 252828-15
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 _____ End Time _____ Temp (oC) _____

Effluent: Start Date _____ Start time _____ End Date _____ End Time _____ Temp (oC) _____

MMLI USE ONLY Workorder # 9093428 Sample ID#	*required information* Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
9093428-01 A	10/16/19	1245	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 Antimony Tot 6020 Lead Tot 6020 Thallium Tot 6020 Lithium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Selenium Tot 6020
			Preservation Check: pH : ____				
9093428-01 B	10/16/19	1245	Plastic 1L	1	MW7	g / c	Fluoride 9056 TDS Sulfate 9056 pH (Lab) Chloride 9056
9093428-01 C	10/16/19	1245	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1	MW7	g / c	Radium 226 (sub)
			Preservation Check: pH : ____				
9093428-01 D	10/16/19	1245	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW7	g / c	Radium 228 (sub)
			Preservation Check: pH : ____				
9093428-01 E	10/16/19	1245	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW7	g / c	Radium 228 (sub)
			Preservation Check: pH : ____				

27

Preservation Check Performed by: _____

Field data collected by: Phillip Hill Date (mm/dd/yy) 10/16/19 Time (24 hr) 1245

pH 7.07 Cond ~~mS/cm~~ 0.421 Res Cl (mg/L) _____ Tot Cl (mg/L) _____ Free Cl (mg/L) _____

Temp (oC) 17.61 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)
		10/17/19	1454

☐ **MMLI - Check here if trip charge applied to associated COC**

Printed: 9/24/2019 9:10:40AM

McCoy & McCoy Laboratories, Inc.
A PACE Analytical Laboratory
P.O. Box 907
Madisonville, KY 42431

Chain of Custody

Scheduled for: 09/23/2019

Client: Big Rivers Electric Corporation Reid/Green Station

Project: HMPL Surface Impoundment

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#: 252828-25
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 _____ End Time _____ Temp (oC) _____

Effluent: Start Date _____ Start time _____ End Date _____ End Time _____ Temp (oC) _____

MMLI USE ONLY Workorder # 9093428 Sample ID#	*required information* Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
9093428-02 A	10/17/19	945	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 Antimony Tot 6020 Lead Tot 6020 Thallium Tot 6020 Lithium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Selenium Tot 6020
			Preservation Check: pH : ____				
9093428-02 B	10/17/19	945	Plastic 1L	1	MW8	g / c	Fluoride 9056 TDS Sulfate 9056 pH (Lab) Chloride 9056
9093428-02 C	10/17/19	945	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1	MW8	g / c	Radium 226 (sub)
			Preservation Check: pH : ____				
9093428-02 D	10/17/19	945	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW8	g / c	Radium 228 (sub)
			Preservation Check: pH : ____				
9093428-02 E	10/17/19	945	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW8	g / c	Radium 228 (sub)
			Preservation Check: pH : ____				

Preservation Check Performed by: _____

Field data collected by: Phillip Hill Date (mm/dd/yy) 10/17/19 Time (24 hr) 945

pH 7.04 Cond (~~umho~~) mS/cm 2.82 Res Cl (mg/L) _____ Tot Cl (mg/L) _____ Free Cl (mg/L) _____

Temp (oC) 15.24 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)
		10/17/19	1452

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McCoy & McCoy Laboratories, Inc.
A PACE Analytical Laboratory
P.O. Box 907
Madisonville, KY 42431

Chain of Custody

Scheduled for: 09/23/2019

Client: Big Rivers Electric Corporation
Reid/Green Station

Project: HMPL Surface Impoundment

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#: 252828-15
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 _____ End Time _____ Temp (oC) _____

Effluent: Start Date _____ Start time _____ End Date _____ End Time _____ Temp (oC) _____

MMLI USE ONLY Workorder # 9093428 Sample ID#	*required information* Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
9093428-03 A	10/17/19	1125	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 Antimony Tot 6020 Lead Tot 6020 Thallium Tot 6020 Lithium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Selenium Tot 6020
			Preservation Check: pH : ____				
9093428-03 B	10/17/19	1125	Plastic 1L	1	MW9	g / c	Fluoride 9056 TDS Sulfate 9056 pH (Lab) Chloride 9056
9093428-03 C	10/17/19	1125	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1	MW9	g / c	Radium 226 (sub)
			Preservation Check: pH : ____				
9093428-03 D	10/17/19	1125	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW9	g / c	Radium 228 (sub)
			Preservation Check: pH : ____				
9093428-03 E	10/17/19	1125	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW9	g / c	Radium 228 (sub)
			Preservation Check: pH : ____				

Preservation Check Performed by: _____

Field data collected by: Phillip Hill Date (mm/dd/yy) 10/17/19 Time (24 hr) 1125

pH 7.22 Cond ~~(umhos)~~ mS/cm 0.606 Res Cl (mg/L) _____ Tot Cl (mg/L) _____ Free Cl (mg/L) _____

Temp (oC) 18.29 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)
	Mary Rogers	10/17/19	1454

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McCoy & McCoy Laboratories, Inc.
A PACE Analytical Laboratory
P.O. Box 907
Madisonville, KY 42431

Chain of Custody

Scheduled for: 09/23/2019

Client: Big Rivers Electric Corporation Reid/Green Station

Project: HMPL Surface Impoundment

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#: 252828-15
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 _____ End Time _____ Temp (oC) _____

Effluent: Start Date _____ Start time _____ End Date _____ End Time _____ Temp (oC) _____

MMLI USE ONLY Workorder # 9093428 Sample ID#	*required information* Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
9093428-04 A	10/17/19	1210	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 Antimony Tot 6020 Lead Tot 6020 Thallium Tot 6020 Lithium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Selenium Tot 6020
			Preservation Check: pH : ____				
9093428-04 B	10/17/19	1210	Plastic 1L	1	MW10	g / c	Fluoride 9056 TDS Sulfate 9056 pH (Lab) Chloride 9056
9093428-04 C	10/17/19	1210	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1	MW10	g / c	Radium 226 (sub)
			Preservation Check: pH : ____				
9093428-04 D	10/17/19	1210	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW10	g / c	Radium 228 (sub)
			Preservation Check: pH : ____				
9093428-04 E	10/17/19	1210	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW10	g / c	Radium 228 (sub)
			Preservation Check: pH : ____				

Preservation Check Performed by: _____

Field data collected by: Phillip Hill Date (mm/dd/yy) 10/17/19 Time (24 hr) 1210

pH 9.24 Cond ~~(umhos)~~ mS/cm 0.925 Res Cl (mg/L) _____ Tot Cl (mg/L) _____ Free Cl (mg/L) _____

Temp (oC) 17.27 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)
	Mary Rogers	10/17/19	1452

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McCoy & McCoy Laboratories, Inc.
A PACE Analytical Laboratory
P.O. Box 907
Madisonville, KY 42431

Chain of Custody

Scheduled for: 09/23/2019

Client: Big Rivers Electric Corporation
Reid/Green Station

Project: HMPL Surface Impoundment

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#: 252828-15
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 _____ End Time _____ Temp (oC) _____

Effluent: Start Date _____ Start time _____ End Date _____ End Time _____ Temp (oC) _____

MMLI USE ONLY Workorder # 9093428 Sample ID#	*required information* Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
9093428-05 A	10/16/19	1310	Plastic 500mL pH<2 w/HNO3	1	DUPLICATE	g / c	Arsenic Tot 6020 Barium Tot 6020 Beryllium Tot 6020 Boron Tot 6010B Cadmium Tot 6020 Calcium Tot 6010B Chromium Tot 6020 Antimony Tot 6020 Lead Tot 6020 Thallium Tot 6020 Lithium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Selenium Tot 6020
			Preservation Check: pH : ____				
9093428-05 B	10/16/19	1310	Plastic 1L	1	DUPLICATE	g / c	Fluoride 9056 TDS Sulfate 9056 pH (Lab) Chloride 9056
9093428-05 C	10/16/19	1310	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1	DUPLICATE	g / c	Radium 226 (sub)
			Preservation Check: pH : ____				
9093428-05 D	10/16/19	1310	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	DUPLICATE	g / c	Radium 228 (sub)
			Preservation Check: pH : ____				
9093428-05 E	10/16/19	1310	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	DUPLICATE	g / c	Radium 228 (sub)
			Preservation Check: pH : ____				

Preservation Check Performed by: _____

Field data collected by: Phillip Hsu Date (mm/dd/yy) 10/16/19 Time (24 hr) 1310

pH 7.07 Cond (~~mmhos~~ mS/cm) 0.421 Res Cl (mg/L) _____ Tot Cl (mg/L) _____ Free Cl (mg/L) _____

Temp (oC) 17.61 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)
		10/17/19	1452

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McCoy & McCoy Laboratories, Inc.
A PACE Analytical Laboratory
P.O. Box 907
Madisonville, KY 42431

Chain of Custody

Scheduled for: 09/23/2019

Client: Big Rivers Electric Corporation Reid/Green Station

Project: HMPL Surface Impoundment

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#: 252828-15
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 _____ End Time _____ Temp (oC) _____

Effluent: Start Date _____ Start time _____ End Date _____ End Time _____ Temp (oC) _____

MMLI USE ONLY Workorder # 9093428 Sample ID#	*required information* Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
9093428-06 A	10/17/19	1240	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 Antimony Tot 6020 Lead Tot 6020 Thallium Tot 6020 Lithium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Selenium Tot 6020
			Preservation Check: pH : ____				
9093428-06 B	10/17/19	1240	Plastic 1L	1	FIELD BLANK	g / c	Fluoride 9056 TDS Sulfate 9056 pH (Lab) Chloride 9056
9093428-06 C	10/17/19	1240	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1	FIELD BLANK	g / c	Radium 226 (sub)
			Preservation Check: pH : ____				
9093428-06 D	10/17/19	1240	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	FIELD BLANK	g / c	Radium 228 (sub)
			Preservation Check: pH : ____				
9093428-06 E	10/17/19	1240	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	FIELD BLANK	g / c	Radium 228 (sub)
			Preservation Check: pH : ____				

Preservation Check Performed by: _____

Field data collected by: Phillip Hill Date (mm/dd/yy) 10/17/19 Time (24 hr) 1240

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)
		10/17/19	1452

☐ MMLI - Check here if trip charge applied to associated COC

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Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

November 21, 2019

Rob Whittington
Pace Analytical Madisonville
825 Industrial Rd
Madisonville, KY 42431

RE: Project: 9093428-Revised Report
Pace Project No.: 30332992

Dear Rob Whittington:
Enclosed are the analytical results for sample(s) received by the laboratory on October 31, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Revision 1 - This report replaces the November 19, 2019 report. This project was revised on November 21, 2019 to correct the sample IDs and add the Total Radium Sum Calculation. (Greensburg, PA)

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carin A. Ferris

Carin Ferris
carin.ferris@pacelabs.com
724-850-5615
Project Manager

Enclosures

cc: Doug Wolfe, Pace Analytical Madisonville

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Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

CERTIFICATIONS

Project: 9093428-Revised Report
Pace Project No.: 30332992

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 #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

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Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

SAMPLE SUMMARY

Project: 9093428-Revised Report
Pace Project No.: 30332992

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30332992001	**9093428-01**	Water	10/16/19 12:45	10/31/19 09:20
30332992002	**9093428-02**	Water	10/17/19 09:45	10/31/19 09:20
30332992003	**9093428-03**	Water	10/17/19 11:25	10/31/19 09:20
30332992004	**9093428-04**	Water	10/17/19 12:10	10/31/19 09:20
30332992005	**9093428-05**	Water	10/16/19 13:10	10/31/19 09:20
30332992006	**9093428-06**	Water	10/17/19 12:40	10/31/19 09:20

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Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

SAMPLE ANALYTE COUNT

Project: 9093428-Revised Report
Pace Project No.: 30332992

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30332992001	**9093428-01**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30332992002	**9093428-02**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30332992003	**9093428-03**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30332992004	**9093428-04**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30332992005	**9093428-05**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30332992006	**9093428-06**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

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(724)850-5600

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 9093428-Revised Report
Pace Project No.: 30332992

Sample: 9093428-01 **Lab ID: 30332992001** Collected: 10/16/19 12:45 Received: 10/31/19 09:20 Matrix: Water
PWS: Site ID: Sample Type:
Comments: • Sample collection dates and times were not present on the sample containers.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.652 ± 0.425 (0.436) C:NA T:98%**	pCi/L	11/19/19 11:38	13982-63-3	
Radium-228	EPA 904.0	**-0.208 ± 0.469 (1.14) C:80% T:82%**	pCi/L	11/18/19 19:43	15262-20-1	
Total Radium	Total Radium Calculation	**0.652 ± 0.894 (1.58)**	pCi/L	11/21/19 09:41	7440-14-4	

Sample: 9093428-02 **Lab ID: 30332992002** Collected: 10/17/19 09:45 Received: 10/31/19 09:20 Matrix: Water
PWS: Site ID: Sample Type:
Comments: • Sample collection dates and times were not present on the sample containers.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.914 ± 0.578 (0.653) C:NA T:88%**	pCi/L	11/19/19 11:38	13982-63-3	
Radium-228	EPA 904.0	**1.59 ± 0.628 (0.996) C:79% T:85%**	pCi/L	11/18/19 17:54	15262-20-1	
Total Radium	Total Radium Calculation	**2.50 ± 1.21 (1.65)**	pCi/L	11/21/19 09:41	7440-14-4	

Sample: 9093428-03 **Lab ID: 30332992003** Collected: 10/17/19 11:25 Received: 10/31/19 09:20 Matrix: Water
PWS: Site ID: Sample Type:
Comments: • Sample collection dates and times were not present on the sample containers.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**1.09 ± 0.546 (0.446) C:NA T:97%**	pCi/L	11/19/19 11:38	13982-63-3	
Radium-228	EPA 904.0	**1.23 ± 0.470 (0.717) C:80% T:105%**	pCi/L	11/18/19 17:54	15262-20-1	
Total Radium	Total Radium Calculation	**2.32 ± 1.02 (1.16)**	pCi/L	11/21/19 09:41	7440-14-4	

Sample: 9093428-04 **Lab ID: 30332992004** Collected: 10/17/19 12:10 Received: 10/31/19 09:20 Matrix: Water
PWS: Site ID: Sample Type:
Comments: • Sample collection dates and times were not present on the sample containers.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.458 ± 0.562 (0.923) C:NA T:89%**	pCi/L	11/19/19 15:07	13982-63-3	
Radium-228	EPA 904.0	**0.379 ± 0.393 (0.821) C:85% T:85%**	pCi/L	11/18/19 14:29	15262-20-1	
Total Radium	Total Radium Calculation	**0.837 ± 0.955 (1.74)**	pCi/L	11/21/19 09:41	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 9093428-Revised Report
Pace Project No.: 30332992

Sample: 9093428-05 **Lab ID: 30332992005** Collected: 10/16/19 13:10 Received: 10/31/19 09:20 Matrix: Water
PWS: Site ID: Sample Type:

Comments: • Sample collection dates and times were not present on the sample containers.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.257 ± 0.336 (0.554) C:NA T:100%**	pCi/L	11/19/19 15:07	13982-63-3	
Radium-228	EPA 904.0	**0.429 ± 0.381 (0.780) C:86% T:95%**	pCi/L	11/18/19 14:29	15262-20-1	
Total Radium	Total Radium Calculation	**0.686 ± 0.717 (1.33)**	pCi/L	11/21/19 09:41	7440-14-4	

Sample: 9093428-06 **Lab ID: 30332992006** Collected: 10/17/19 12:40 Received: 10/31/19 09:20 Matrix: Water
PWS: Site ID: Sample Type:

Comments: • Sample collection dates and times were not present on the sample containers.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.0573 ± 0.261 (0.532) C:NA T:93%**	pCi/L	11/19/19 15:07	13982-63-3	
Radium-228	EPA 904.0	**0.684 ± 0.371 (0.669) C:88% T:86%**	pCi/L	11/18/19 11:20	15262-20-1	
Total Radium	Total Radium Calculation	**0.741 ± 0.632 (1.20)**	pCi/L	11/21/19 09:41	7440-14-4	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 9093428-Revised Report
Pace Project No.: 30332992

QC Batch: 369297 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 30332992004, 30332992005, 30332992006

METHOD BLANK: 1791664 Matrix: Water
Associated Lab Samples: 30332992004, 30332992005, 30332992006

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.0980 ± 0.236 (0.455) C:NA T:88%	pCi/L	11/19/19 14:46	

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.

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 9093428-Revised Report
Pace Project No.: 30332992

QC Batch: 369296 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 30332992001, 30332992002, 30332992003

METHOD BLANK: 1791661 Matrix: Water
Associated Lab Samples: 30332992001, 30332992002, 30332992003

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.762 ± 0.392 (0.681) C:76% T:86%	pCi/L	11/18/19 12:54	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 9093428-Revised Report
Pace Project No.: 30332992

QC Batch: 369298 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 30332992004, 30332992005

METHOD BLANK: 1791671 Matrix: Water
Associated Lab Samples: 30332992004, 30332992005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.447 ± 0.311 (0.604) C:86% T:99%	pCi/L	11/18/19 11:19	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 9093428-Revised Report
Pace Project No.: 30332992

QC Batch: 369295 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 30332992001, 30332992002, 30332992003

METHOD BLANK: 1791660 Matrix: Water
Associated Lab Samples: 30332992001, 30332992002, 30332992003

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.153 ± 0.361 (0.668) C:NA T:95%	pCi/L	11/19/19 11:02	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 9093428-Revised Report
Pace Project No.: 30332992

QC Batch: 369300 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 30332992006

METHOD BLANK: 1791675 Matrix: Water
Associated Lab Samples: 30332992006

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.255 ± 0.264 (0.546) C:92% T:94%	pCi/L	11/18/19 11:21	

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.

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Greensburg, PA 15601
(724)850-5600

QUALIFIERS

Project: 9093428-Revised Report
Pace Project No.: 30332992

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.

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.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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Chain of Custody

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Workorder: 9093428 Workorder Name: Big Rivers Electric Owner Received Date: 10/17/2019 Results Requested By: E-mail

Report To	Subcontract To	Requested Analyses
McCoy & McCoy Laboratoies P. O. Box 907 Madisonville, KY 42431 Phone: (270) 821 - 7375 rob@mccoylabs.com	Pace Analytical Greensburg 1638 Rosey Town Rd Suite 2,3,4 Greensburg PA 15601 Phone: (724) 850-5615	WO# : 30332992 30332992

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers: HNO3					Radium 226			Radium 228								LAB USE ONLY
1																						
2	9093428-01	Grab	10/16/19 1245	IR44-McCoy	Water	X					X			X								CC1
3	9093428-02		10/17/19 0945																			CC2
4	9093428-03		10/17/19 1125																			CC3
5	9093428-04		10/17/19 1210																			CC4
6	9093428-05		10/16/19 1310																			CC5
7	9093428-06		10/17/19 1240																			CC6
8																						
9																						
10																						

Transfers	Released By	Date/Time	Received By	Date/Time	Comments
1	Joe Gray	10/30/2019		10/31/19 9:20	
2		14:00			
3					

Cooler Temperature on Receipt 2.7 °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

#30332992

McCoy & McCoy Laboratories, Inc.

9093428

SENDING LABORATORY:

McCoy & McCoy Laboratories, Inc.
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:

Please return shipping cooler to return address on shipping label.

Analysis		Expires	Laboratory ID	Comments
Sample ID: 9093428-01	**Water**	**Sampled: 10/16/2019 12:45**	**Specific Method**	
Radium 228 (sub)		04/13/2020 12:45	EPA 904.0	
Radium 226 (sub)		04/13/2020 12:45	EPA 903.1	
Sample ID: 9093428-02	**Water**	**Sampled: 10/17/2019 09:45**	**Specific Method**	
Radium 228 (sub)		04/14/2020 09:45	EPA 904.0	
Radium 226 (sub)		04/14/2020 09:45	EPA 903.1	
Sample ID: 9093428-03	**Water**	**Sampled: 10/17/2019 11:25**	**Specific Method**	
Radium 228 (sub)		04/14/2020 11:25	EPA 904.0	
Radium 226 (sub)		04/14/2020 11:25	EPA 903.1	
Sample ID: 9093428-04	**Water**	**Sampled: 10/17/2019 12:10**	**Specific Method**	
Radium 228 (sub)		04/14/2020 12:10	EPA 904.0	
Radium 226 (sub)		04/14/2020 12:10	EPA 903.1	
Sample ID: 9093428-05	**Water**	**Sampled: 10/16/2019 13:10**	**Specific Method**	
Radium 228 (sub)		04/13/2020 13:10	EPA 904.0	
Radium 226 (sub)		04/13/2020 13:10	EPA 903.1	
Sample ID: 9093428-06	**Water**	**Sampled: 10/17/2019 12:40**	**Specific Method**	
Radium 228 (sub)		04/14/2020 12:40	EPA 904.0	
Radium 226 (sub)		04/14/2020 12:40	EPA 903.1	
~~Sample ID: 9093428-07~~	~~Water~~	~~Sampled: 10/17/2019 00:00~~	~~Specific Method~~	~~Samples not submitted~~
~~Radium 228 (sub)~~		~~04/14/2020 00:00~~	~~EPA 904.0~~	
~~Radium 226 (sub)~~		~~04/14/2020 00:00~~	~~EPA 903.1~~	

Released By	Date	Received By	Date
Released By	Date	Received By	Date

Pittsburgh Lab Sample Condition Upon Receipt

Pace Analytical

Client Name: McCay & McCay Project #30332992

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Label PM
LIMS Login VM

Tracking #: 6321 5579 0341

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Thermometer Used 9 Type of Ice: (Wet) Blue None

Cooler Temperature Observed Temp 2.4 °C Correction Factor: 0 °C Final Temp: 2.4 °C

Temp should be above freezing to 6°C

Comments:	Yes	No	N/A	pH paper Lot# 10194287 / Date and Initials of person examining contents: PM 10-31-19
Chain of Custody Present:	✓			1.
Chain of Custody Filled Out:	✓			2.
Chain of Custody Relinquished:	✓			3.
Sampler Name & Signature on COC:		✓		4.
Sample Labels match COC: -Includes date/time/ID Matrix: WT		✓		5. MN time/date
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 sample field filtered			✓	13.
Organic Samples checked for dechlorination:			✓	14.
Filtered volume received for Dissolved tests			✓	15.
All containers have been checked for preservation. exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix	✓			16. pH<2
All containers meet method preservation requirements.	✓			Initial when completed: PM Date/time of preservation Lot # of added preservative
Headspace in VOA Vials (>6mm):			✓	17.
Trip Blank Present: / Trip Blank Custody Seals Present	/	✓	/ ✓	18.
Rad Samples Screened < 0.5 mrem/hr	✓			Initial when completed: PM Date: 10-31-19

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.

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Lexington, KY 859.299.7775
Paducah, KY 270.444.6547

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Certificate of Analysis
9104095

Chad Phillips
Big Rivers Electric Corporation Reid/Green Station
PO Box 24
Henderson KY, 42419

Customer ID: 44-102032
Report Printed: 11/20/2019 13:58

Project Name:	HMPL Surface Impoundment	Workorder:	9104095

Dear Chad Phillips

Enclosed are the analytical results for samples received at one of our laboratories on 10/25/2019 15:00.

McCoy & McCoy Laboratories, Inc. is a commercial laboratory accredited by various state and national authorities, including Indiana, Kentucky, Tennessee, and Virginia's National Environmental Laboratory Accreditation Program (NELAP). With the NELAP accreditation, applicable test results are certified to meet the requirements of the National Environmental Laboratory Accreditation Program.

If you have any questions concerning this report please contact the individual listed below.

Please visit our website at www.mccoylabs.com for a listing of the NELAP accreditations and Scope of Work, as well as, links to other scientific organizations.

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ACCREDITED IN ACCORDANCE WITH nelac
#460210
Madisonville

Rob Whittington, Project Manager

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

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SAMPLE SUMMARY

Lab ID	Client Sample ID/Alias	Matrix	Date Collected	Date Received	Sampled By
9104095-01	MW-110/	Groundwater	10/24/2019 14:35	10/25/2019 15:00	Phillip Hill

LabNumber	Measurement	Value
9104095-01	Field Conductance	1850
	Field pH	6.84
	Field Temp (C)	18.69

Work Order Comments:

Total Radium 0.922 +/- 0.811 pCi/L

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Farmersburg, IN 812.696.5076
Lexington, KY 859.299.7775
Paducah, KY 270.444.6547

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ANALYTICAL RESULTS

Lab Sample ID: **9104095-01**
Description: **MW-110**

Sample Collection Date Time: 10/24/2019 14:35
Sample Received Date Time: 10/25/2019 15:00

Metals by SW846 6000 Series Methods

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	U	mg/L	0.005	0.002	SW846-6020 A	10/28/2019 13:53	10/31/2019 12:46	DMH
Arsenic	ND	U	mg/L	0.0010	0.0004	SW846-6020 A	10/28/2019 13:53	10/31/2019 12:46	DMH
Barium	**0.065**		mg/L	0.004	0.001	SW846-6020 A	10/28/2019 13:53	10/31/2019 12:46	DMH
Beryllium	ND	U	mg/L	0.0020	0.0010	SW846-6020 A	10/28/2019 13:53	10/31/2019 12:46	DMH
Boron	ND	D2, U	mg/L	1.00	1.00	SW846 6010 B	10/28/2019 13:53	10/31/2019 15:04	AKB
Cadmium	ND	U	mg/L	0.0010	0.0001	SW846-6020 A	10/28/2019 13:53	10/31/2019 12:46	DMH
Calcium	**204**	D1	mg/L	40.0	13.0	SW846 6010 B	10/28/2019 13:53	10/31/2019 15:08	AKB
Chromium	**0.0010**	J	mg/L	0.0020	0.0006	SW846-6020 A	10/28/2019 13:53	10/31/2019 12:46	DMH
Cobalt	ND	U	mg/L	0.004	0.004	SW846-6020 A	10/28/2019 13:53	10/31/2019 12:46	DMH
Lead	ND	U	mg/L	0.002	0.0005	SW846-6020 A	10/28/2019 13:53	10/31/2019 12:46	DMH
Lithium	**0.02**		mg/L	0.02	0.005	SW846-6020 A	10/28/2019 13:53	10/31/2019 12:46	DMH
Mercury	ND	U	mg/L	0.0005	0.0002	SW846-6020 A	10/28/2019 13:53	10/31/2019 12:46	DMH
Molybdenum	ND	U	mg/L	0.01	0.002	SW846-6020 A	10/28/2019 13:53	10/31/2019 12:46	DMH
Selenium	ND	U	mg/L	0.003	0.001	SW846-6020 A	10/28/2019 13:53	10/31/2019 12:46	DMH
Thallium	ND	U	mg/L	0.0020	0.0001	SW846-6020 A	10/28/2019 13:53	10/31/2019 12:46	DMH

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
pH (Lab)	**7.33**	H3	Std. Units	0.10	0.10	4500-H+ B-2000	10/28/2019 15:07	10/28/2019 15:07	HMF
Total Dissolved Solids	**1270**		mg/L	50	50	2540 C-2011	10/29/2019 15:12	10/30/2019 14:32	MAG

Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	**0.195**	_Sub	pCi/L			EPA 903.1	11/20/2019 13:48	11/20/2019 13:49	RCW
Radium-228	**0.727**	_Sub	pCi/L			EPA 904.0	11/20/2019 13:48	11/20/2019 13:49	RCW

Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	**30.0**		mg/L	2.0	1.3	SW846 9056	11/01/2019 01:39	11/01/2019 01:39	CSC
Fluoride	**0.3**		mg/L	0.2	0.1	SW846 9056	11/01/2019 01:39	11/01/2019 01:39	CSC
Sulfate	**568**	D, M1	mg/L	50	25	SW846 9056	11/01/2019 01:39	11/01/2019 01:39	CSC

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A Pace Analytical Laboratory

P.O. Box 907
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270.821.7375
www.mccoylabs.com

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Farmersburg, IN 812.696.5076
Lexington, KY 859.299.7775
Paducah, KY 270.444.6547

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Notes for work order 9104095

- Samples collected by MMLI personnel are done so in accordance with procedures set forth in MMLI field services SOPs.
- Results contained in this report are only representative of the samples received.
- MMLI 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.
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).

Standard Quallifiers/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

Certified Analyses included in this Report

Analyte	Certifications
2540 C-2011 in Water	
Total Dissolved Solids	KY Drinking Water Mdv (00030)
4500-H+ B-2000 in Water	
pH (Lab)	KY Drinking Water Mdv (00030) TN Drinking Water (02819)
SW846 6010 B in Water	

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Lexington, KY 859.299.7775
Paducah, KY 270.444.6547

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Sample Acceptance Checklist for Work Order 9104095

Shipped By: Client

Temperature: 1.90° Celcius

Condition	
Check if Custody Seals are Present/Intact	☐
Check if Custody Signatures are Present	☑
Check if Collector Signature Present	☑
Check if bottles are intact	☑
Check if bottles are correct	☑
Check if bottles have sufficient volume	☑
Check if samples received on ice	☑
Check if VOA headspace is acceptable	☐
Check if samples received in holding time.	☑
Check if samples are preserved properly	☑

McCoy & McCoy Laboratories, Inc.
A PACE Analytical Laboratory
P.O. Box 907
Madisonville, KY 42431

Chain of Custody

Scheduled for: 09/23/2019

Client: Big Rivers Electric Corporation Reid/Green Station

Project: HMPL Surface Impoundment

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#: 252828-16
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 _____ End Time _____ Temp (oC) _____

Effluent: Start Date _____ Start time _____ End Date _____ End Time _____ Temp (oC) _____

MMLI USE ONLY ***required information***

Workorder # 9093428

Sample ID#	Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
9093428-07 A	10/24/19	1435	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 Antimony Tot 6020 Lead Tot 6020 Thallium Tot 6020 Lithium Tot 6020 Mercury Tot 6020 Molybdenum Tot 6020 Selenium Tot 6020
			Preservation Check: pH : J				
9093428-07 B	10/24/19	1435	Plastic 1L	1	MW-110	g / c	Fluoride 9056 TDS Sulfate 9056 pH (Lab) Chloride 9056
9093428-07 C	10/24/19	1435	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1	MW-110	g / c	Radium 226 (sub)
			Preservation Check: pH : J				
9093428-07 D	10/24/19	1435	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW-110	g / c	Radium 228 (sub)
			Preservation Check: pH : J				
9093428-07 E	10/24/19	1435	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1	MW-110	g / c	Radium 228 (sub)
			Preservation Check: pH : J				

$104095

Preservation Check Performed by: AM

Field data collected by: Phillip Hill Date (mm/dd/yy) 10/24/19 Time (24 hr) 1435

pH 6.84 Cond (~~umho~~ mS/cm) 1.85 Res Cl (mg/L) _____ Tot Cl (mg/L) _____ Free Cl (mg/L) _____

Temp (oC) 18.69 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)
	Abby Burden	10/25/19	1500

☐ **MMLI - Check here if trip charge applied to associated COC**

Printed: 9/24/2019 9:10:40AM

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

November 20, 2019

Rob Whittington
Pace Analytical Madisonville
825 Industrial Rd
Madisonville, KY 42431

RE: Project: 9104095
Pace Project No.: 30332991

Dear Rob Whittington:
Enclosed are the analytical results for sample(s) received by the laboratory on October 31, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carin A. Ferris

Carin Ferris
carin.ferris@pacelabs.com
724-850-5615
Project Manager

Enclosures

cc: Doug Wolfe, Pace Analytical Madisonville

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Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

CERTIFICATIONS

Project: 9104095
Pace Project No.: 30332991

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 #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

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SAMPLE SUMMARY

Project: 9104095
Pace Project No.: 30332991

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30332991001	**9104095-01**	Water	10/25/19 14:35	10/31/19 09:20

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 9104095
Pace Project No.: 30332991

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30332991001	**9104095-01**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

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Greensburg, PA 15601
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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 9104095
Pace Project No.: 30332991

Sample: 9104095-01 **Lab ID: 30332991001** Collected: 10/25/19 14:35 Received: 10/31/19 09:20 Matrix: Water
PWS: Site ID: Sample Type:

Comments: • Sample collection dates and times were not present on the sample containers.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.195 ± 0.424 (0.782) C:NA T:97%**	pCi/L	11/19/19 11:38	13982-63-3	
Radium-228	EPA 904.0	**0.727 ± 0.387 (0.681) C:82% T:83%**	pCi/L	11/18/19 16:32	15262-20-1	
Total Radium	Total Radium Calculation	**0.922 ± 0.811 (1.46)**	pCi/L	11/20/19 10:31	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 9104095
Pace Project No.: 30332991

QC Batch: 369296 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 30332991001

METHOD BLANK: 1791661 Matrix: Water
Associated Lab Samples: 30332991001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.762 ± 0.392 (0.681) C:76% T:86%	pCi/L	11/18/19 12:54	

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: 9104095
Pace Project No.: 30332991

QC Batch: 369295 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 30332991001

METHOD BLANK: 1791660 Matrix: Water
Associated Lab Samples: 30332991001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.153 ± 0.361 (0.668) C:NA T:95%	pCi/L	11/19/19 11:02	

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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Greensburg, PA 15601
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QUALIFIERS

Project: 9104095
Pace Project No.: 30332991

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.

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.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

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Chain of Custody

Pace Analytical
www.pacelabs.com

Workorder: 9104095 Workorder Name: Big Rivers Electric Owner Received Date: 10/25/2019 Results Requested By: E-mail

Report To	Subcontract To	Requested Analysis

McCoy & McCoy Laboratoies
P. O. Box 907
Madisonville, KY 42431
Phone: (270) 821 - 7375
rob@mccoylabs.com

Pace Analytical Greensburg
1638 Rosey Town Rd Suite 2,3,4
Greensburg PA 15601
Phone: (724) 850-5615

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preservatives HNO3	Radium 226	Radium 228	LAB USE ONLY
1									
2	9104095-01	Grab	10/25/19 1435	IR44-McCoy	Water	X	X	X	001
3									
4									
5									
6									
7									
8									
9									
10									

WO# : 30332991
30332991

Transfers	Released By	Date/Time	Received By	Date/Time	Comments
1	Joe Gray	10/30/2019		10-31-19 9:20	
2		14:00			
3					

Cooler Temperature on Receipt 0.4 °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

McCoy & McCoy Laboratories, Inc.

9104095

SENDING LABORATORY:

McCoy & McCoy Laboratories, Inc.
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:

Please return shipping cooler to return address on shipping label.

Analysis		Expires	Laboratory ID	Comments
Sample ID: 9104095-01	**Water**	**Sampled: 10/24/2019 14:35**	**Specific Method**	
Radium 228 (sub)		04/21/2020 14:35	EPA 904.0	
Radium 226 (sub)		04/21/2020 14:35	EPA 903.1	

#30332991

Released By	Date	Received By	Date
Released By	Date	Received By	Date

Pittsburgh Lab Sample Condition Upon Receipt

#30332991

Pace Analytical

Client Name: McCoy & McCoy Project #

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other

Label NC

LIMS Login VM

Tracking #: 6321 5579 0341

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ no

Thermometer Used 9 Type of Ice: (Wet) Blue None

Cooler Temperature Observed Temp 0.4 °C Correction Factor: 0 °C Final Temp: 0.4 °C

Temp should be above freezing to 6°C

pH paper Lot# 10094281 Date and Initials of person examining contents: NC 10-31-19

Comments:	Yes	No	N/A	
Chain of Custody Present:	✓			1.
Chain of Custody Filled Out:	✓			2.
Chain of Custody Relinquished:	✓			3.
Sampler Name & Signature on COC:		✓		4.
Sample Labels match COC: -Includes date/time/ID Matrix: WT		✓		5. No time/date on all samples
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 sample field filtered			✓	13.
Organic Samples checked for dechlorination:			✓	14.
Filtered volume received for Dissolved tests			✓	15.
All containers have been checked for preservation. exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix	✓			16. pH<2
All containers meet method preservation requirements.	✓			Initial when completed: NC Date/time of preservation: Lot # of added preservative:
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: NC Date: 10-31-19

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.

Appendix I

Green Landfill Statistical Evaluations

1.0 GREEN LANDFILL STATISTICAL PROCEDURES AND RESULTS

The Appendix III and IV groundwater quality data for the Green Landfill were evaluated using an interwell approach that statistically compared constituent concentrations at downgradient compliance monitoring wells to those present at a background monitoring well. For the Green Landfill, monitoring well MW-1 is designated as the background well because it is located upgradient, whereas monitoring wells MW-2, MW-3A, MW-4, MW-5, and MW-6 are designated as compliance wells because they are located downgradient.

The statistical analyses were performed in accordance with the U.S. Environmental Protection Agency's Final CCR Rule 40 CFR Parts 257.93(f), 257.93(g), and 257.93(h) and the Groundwater Monitoring System and Statistical Methods Certification. Prediction limits (i.e., parametric or nonparametric) with 1 of 2 retesting were developed for each constituent based on the frequency of non-detect values and whether the background data for that constituent exhibited a normal, lognormal, or nonparametric distribution. For the statistical analysis, non-detect values were represented as one-half the detection limit. No outliers were identified in the background data. Analytical data from the background monitoring wells collected between March 2016 and October 2019 were used to develop an upper prediction limit (UPL) for the Appendix III and IV background data at 95 percent confidence. Data from the downgradient monitoring wells for the same time period were compared to the UPL to identify statistically significant increases (SSIs) over background. Mann-Kendall trend analysis was used to identify statistically significant increasing trends for constituents with SSIs. ProUCL Version 5.1 was used to store the data and run the statistical analyses. The results of the analyses, including the UPLs, are provided in **Tables I1** and **I2**.

The statistical analysis results indicate that Appendix III constituents calcium, chloride, sulfate, and total dissolved solids (TDS) at monitoring wells MW-2, MW-3A, MW-4, MW-5, and MW-6 have SSIs over background (**Table I3**) that were confirmed by subsequent sampling events. Boron, fluoride, and pH did not have any verified SSIs over background. pH at MW-6 had a verified SSI below the background lower prediction limit (LPL). Based on these results, assessment monitoring was conducted at the landfill. Statistical analysis of the April and October 2019 Appendix IV assessment monitoring results indicate that arsenic and barium at monitoring well MW-2, lithium at monitoring wells MW-3A, MW-4, MW-5, and MW-6, and mercury at monitoring well MW-4 have verified SSIs over background (**Table I4**).

The Appendix IV constituents with SSIs were further evaluated to determine whether they are present at statistically significant levels (SSLs) over the groundwater protection standards (GWPS) by calculating the lower confidence limit at 95% confidence (95LCL) for each well and constituent identified as a SSI using the baseline, detection, and assessment monitoring results collected to date. For a constituent to be present at a SSL over the GWPS, its 95LCL must be greater than the GWPS. **Table I5** provides a summary of the 95LCLs and GWPS for arsenic, barium, lithium, and mercury at monitoring wells MW-2, MW-3A, MW-4, MW-5, and MW-6. The results indicate that lithium at monitoring wells MW-3A, MW-4, MW-5, and MW-6 (yellow highlight) is present as a SSL above the GWPS. The LCLs for the remaining wells and constituents (arsenic, barium, and mercury) are less than the GWPS and thus are not considered SSLs.

Table I1. Well MW-1 Appendix III Constituents Background Upper Prediction Limits

Parameter (Units)	Number of Samples	Percent Non-detects	Normal or Lognormal Distribution?	Statistical Test	Background Limit
Boron (mg/L)	13	0	Yes/Yes	Parametric	2.122
Calcium (mg/L)	13	0	Yes/Yes	Parametric	35
Chloride (mg/L)	13	0	Yes/No	Parametric	9.3
Fluoride (mg/L)	13	0	No/No	Nonparametric	0.89
pH (std units)	13	0	Yes/Yes	Parametric	6.99/7.93
Sulfate (mg/L)	13	0	Yes/Yes	Parametric	33
TDS (mg/L)	13	0	No/No	Nonparametric	636

Note: pH has both a lower prediction limit (LPL) and upper prediction limit (UPL); all other constituents are represented as UPLs

Table I2. Well MW-1 Appendix IV Constituents Background Upper Prediction Limits

Parameter (Units)	Number of Samples	Percent Non-detects	Normal or Lognormal Distribution?	Statistical Test	Background Limit
Antimony (mg/L)	13	31	No/No	Nonparametric	0.003
Arsenic (mg/L)	12	0	No/No	Nonparametric	0.0026
Barium (mg/L)	12	0	Yes/Yes	Parametric	0.098
Beryllium (mg/L)	12	92	No/No	Nonparametric	0.002
Cadmium (mg/L)	12	92	No/No	Nonparametric	0.001
Chromium (mg/L)	12	62	Yes/Yes	Parametric	0.0024
Cobalt (mg/L)	12	8	Yes/Yes	Parametric	0.0014
Fluoride (mg/L)	13	0	No/No	Nonparametric	0.89
Lead (mg/L)	13	46	Yes/No	Parametric	0.0003
Lithium (mg/L)	12	8	Yes/Yes	Parametric	0.037
Mercury (mg/L)	13	100	No/No	Nonparametric	0.0002
Molybdenum (mg/L)	13	31	No/No	Nonparametric	0.01
Ra-226+228 (pCi/L)	12	0	No/Yes	Parametric	1.74
Selenium (mg/L)	12	85	No/No	Nonparametric	0.01
Thallium (mg/L)	13	61	No/No	Nonparametric	0.0006

Note: The UPL for constituents with 100 percent nondetects (Be, Cd, and Hg) is established as the maximum laboratory analytical reporting limit.

Table I3. Big Rivers Green Landfill Appendix III SSI Summary

Well	Location	B	Ca	Cl	F	pH (LPL/UPL)		SO4	TDS
MW-1	Upgradient	P	P	P	NP	P	P	P	NP
MW-2	Downgradient								
MW-3A	Downgradient								
MW-4	Downgradient								
MW-5	Downgradient								
MW-6	Downgradient								

Notes:

SSIs determined using interwell prediction limits; MW-8 is upgradient background well

P = parametric prediction limit; NP = nonparametric prediction limit

Less than or equal to background upper prediction limit (UPL) or greater than lower prediction limit (LPL) for pH

Statistically significant increase (SSI) over background UPL or below background LPL for pH

Table I4. Big Rivers Green Landfill Appendix IV SSI Summary

Well	Location	Sb	As	Ba	Be	Cd	Cr	Co	F	Pb	Li	Hg	Mo	Ra-226+228	Se	Tl
MW-1	Upgradient	NP	Np	P	NP	NP	P	P	NP	Pb	P	NP	NP	P	NP	NP
MW-2	Downgradient															
MW-3A	Downgradient															
MW-4	Downgradient															
MW-5	Downgradient															
MW-6	Downgradient															

Notes:

SSIs determined using interwell prediction limits; MW-8 is upgradient background well

P = parametric prediction limit; NP = nonparametric prediction limit

Less than or equal to background upper prediction limit (UPL) or greater than lower prediction limit (LPL) for pH

Statistically significant increase (SSI) over background UPL or below background LPL for pH

Table I5. Summary of LCLs and GWPS for Arsenic, Barium, Lithium, and Mercury

Well	Parameter	95%LCL (mg/L)	GWPS (mg/L)
MW-2	Arsenic	0.008	0.01
MW-2	Barium	0.25	2.0
MW-3A	Lithium	**0.65**	0.04
MW-3A	Mercury	0.0001	0.002
MW-4	Lithium	**1.04**	0.04
MW-5	Lithium	**0.32**	0.04
MW-6	Lithium	**0.055**	0.04

95%LCL = lower confidence limit at 95% confidence. Yellow highlighted results exhibit a statistically significant level (SSL) above the GWPS.

Appendix J

Green Surface Impoundment Statistical Evaluations

1.0 GREEN SURFACE IMPOUNDMENT STATISTICAL PROCEDURES AND RESULTS

The Appendix III detection monitoring data collected at the Big Rivers Green Surface Impoundment were statistically evaluated using an interwell 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, whereas monitoring wells MW-12, MW-13, and MW-14 are designated as compliance wells because they are located downgradient.

The statistical analyses were performed in accordance with the U.S. Environmental Protection Agency's Final CCR Rule 40 CFR Parts 257.93(f), 257.93(g), and 257.93(h) and the Groundwater Monitoring System and Statistical Methods Certification. Prediction limits (i.e., parametric or nonparametric) with a 1 of 2 retesting scheme were developed for each constituent based on the frequency of non-detect values and whether the background data for that constituent exhibited a normal, lognormal, or nonparametric distribution. For the statistical analysis, non-detect values were represented as one-half the detection limit. No outliers were identified in the background data.

Analytical data from the background monitoring wells collected between April 2016 and October 2019 were used to develop an upper prediction limit (UPL) for the Appendix III background data at 95 percent confidence. A lower prediction limit (LPL) was developed for pH as it is a two-sided parameter. Data from the downgradient monitoring wells for the same time period were compared to the UPL or LPL to identify statistically significant increases (SSIs) over or below the background UPL or LPL as appropriate. Mann-Kendall trend analysis was used to identify statistically significant increasing trends for constituents with SSIs. ProUCL Version 5.1 was used to store the data and run the statistical analyses. The results of the statistical analyses, including the UPLs, are provided in **Table J1**.

The statistical analysis results indicate that none of the Appendix III constituents (boron, calcium, chloride, fluoride, pH, sulfate or total dissolved solids [TDS]) have verified SSIs over their background UPL (**Table J2**). pH also does not have a verified SSI below its LPL. Based on these results, assessment monitoring is not currently required at the Green Surface Impoundment.

Table J1. Background Prediction Limits for Well MW-11

Parameter (Units)	Number of Samples	Percent Nondetects	Normal or Lognormal Distribution?	Statistical Test	Background Prediction Limit
Boron (mg/L)	13	8	Yes/Yes	Parametric	1.073
Calcium (mg/L)	13	0	Yes/Yes	Parametric	383
Chloride (mg/L)	13	0	No/No	Nonparametric	3,900
Fluoride (mg/L)	13	23	No/Yes	Parametric	0.94
pH (std units)	13	0	No/No	Nonparametric	6.86/8.44
Sulfate (mg/L)	13	0	Yes/Yes	Parametric	1,408
TDS (mg/L)	12	0	No/No	Nonparametric	5,100

Note: pH has both a lower and upper prediction limit (UPL); all other constituents only have an UPL.

Table J2. Big Rivers Green Surface Impoundment SSI Summary

Well	Location	B	Ca	Cl	F	pH (LPL/UPL)		SO4	TDS
MW-11	Upgradient	P	P	NP	P	NP	NP	P	NP
MW-12	Downgradient								
MW-13	Downgradient								
MW-14	Downgradient								

Notes:

SSIs determined using interwell prediction limits; MW-11 is upgradient background well

P = parametric prediction limit; NP = nonparametric prediction limit

Less than or equal to background upper prediction limit (UPL) or greater than lower prediction limit (LPL) for pH

Unverified statistically significant increase (SSI) over background UPL or below background LPL for pH

Verified SSI over background UPL or below background LPL for pH

Appendix K

Reid/HMP&L Surface Impoundment Statistical Evaluations

1.0 REID SURFACE IMPOUNDMENT STATISTICAL PROCEDURES AND RESULTS

The Appendix III and IV groundwater quality data at the Reid Surface Impoundment were evaluated using an interwell approach that statistically compared constituent concentrations at downgradient monitoring wells to those present at a background monitoring well. For the Reid Surface Impoundment, monitoring well MW-7 is designated as the background well because it is located upgradient of the impoundment, whereas monitoring wells MW-8, MW-9, and MW-10 are designated as compliance wells because they are located downgradient of the impoundment.

The statistical analyses were performed in accordance with the U.S. Environmental Protection Agency's Final CCR Rule 40 CFR Parts 257.93(f), 257.93(g), and 257.93(h) and the Groundwater Monitoring System and Statistical Methods Certification. Prediction limits (i.e., parametric or nonparametric) with 1 of 2 retesting were developed for each constituent based on the frequency of non-detect values and whether the background data for that constituent exhibited a normal, lognormal, or nonparametric distribution. For the statistical analysis, non-detect values were represented as one-half the detection limit. No outliers were identified in the background data. Analytical data from the background monitoring well collected between March 2016 and October 2019 were used to develop an upper prediction limit (UPL) for the Appendix III and IV background data at 95 percent confidence. Data from the downgradient monitoring wells for the same time period were compared to the UPL to identify statistically significant increases (SSIs) over background. Mann-Kendall trend analysis was used to identify statistically significant increasing trends for constituents with SSIs. ProUCL Version 5.1 was used to store the data and run the statistical analyses. The results of the statistical analyses, including the UPLs, are provided in **Tables K1** and **K2**.

The statistical analysis results indicate that Appendix III constituents boron, calcium, chloride, fluoride, sulfate, and total dissolved solids (TDS) at monitoring well MW-8; calcium, chloride, and TDS at monitoring well MW-9; and boron, chloride, fluoride, pH, sulfate, and TDS at monitoring well MW-10 have SSIs over background that were confirmed by subsequent sampling events (**Table K3**). Based on these results, assessment monitoring was conducted at the impoundment. Statistical analysis of the May and October 2019 Appendix IV assessment monitoring results indicate that fluoride and lithium at monitoring well MW-8, barium, lithium, and Ra-226+228 at monitoring well MW-9, and fluoride and lithium at monitoring well MW-10 have Appendix IV verified SSIs over background (**Table K4**).

The Appendix IV constituents with SSIs were further evaluated to determine whether they are present at statistically significant levels (SSLs) over the groundwater protection standards (GWPS) by calculating the lower confidence limit at 95% confidence (95LCL) for each well and constituent identified as a SSI using the baseline, detection, and assessment monitoring results collected to date. For a constituent to be present at a SSL over the GWPS, its 95LCL must be greater than the GWPS. Table 5 provides a summary of the 95LCLs and GWPS for barium, fluoride, lithium, and Ra-226+228 at monitoring wells MW-8, MW-9, and MW-10. The results indicate that lithium at monitoring well MW-10 (yellow highlight in **Table K5**) is the only Appendix IV constituent present at a SSL above the GWPS. The 95LCLs for the remaining wells and constituents are less than the GWPS and thus are not considered SSLs.

Table K1. Well MW-7 Appendix III Constituents Background Upper Prediction Limits

Parameter (Units)	Number of Samples	Percent Nondetects	Normal or Lognormal Distribution?	Statistical Test	Background Limit
Boron (mg/L)	12	8	Yes/Yes	Parametric	0.38
Calcium (mg/L)	12	0	Yes/Yes	Parametric	48
Chloride (mg/L)	12	0	Yes/Yes	Parametric	6.84
Fluoride (mg/L)	13	0	Yes/Yes	Parametric	0.36
pH (std units)	12	0	Yes/Yes	Parametric	6.85/7.83
Sulfate (mg/L)	12	0	Yes/Yes	Parametric	27
TDS (mg/L)	12	0	Yes/Yes	Parametric	306

Note: pH has both a lower prediction limit (LPL) and upper prediction limit (UPL); all other constituents are represented as UPLs

Table K2. Well MW-7 Appendix IV Constituents Background Upper Prediction Limits

Parameter (Units)	Number of Samples	Percent Nondetects	Normal or Lognormal Distribution?	Statistical Test	Background Limit
Antimony (mg/L)	12	33	Yes/Yes	Parametric	0.0008
Arsenic (mg/L)	12	8	Yes/No	Parametric	0.0027
Barium (mg/L)	12	0	Yes/Yes	Parametric	0.083
Beryllium (mg/L)	11	100	No/No	Nonparametric	0.002
Cadmium (mg/L)	11	100	No/No	Nonparametric	0.001
Chromium (mg/L)	12	75	No/No	Nonparametric	0.003
Cobalt (mg/L)	12	8	No/Yes	Parametric	0.0015
Fluoride (mg/L)	13	0	Yes/Yes	Parametric	0.36
Lead (mg/L)	12	58	No/No	Nonparametric	0.0006
Lithium (mg/L)	12	83	No/No	Nonparametric	0.05
Mercury (mg/L)	11	91	No/No	Nonparametric	0.0002
Molybdenum (mg/L)	12	0	Yes/Yes	Parametric	0.018
Ra-226+228 (pCi/L)	12	8	Yes/Yes	Parametric	1.36
Selenium (mg/L)	11	91	No/No	Nonparametric	0.01
Thallium (mg/L)	11	82	No/No	Nonparametric	0.001

Note: The UPL for constituents with 100 percent nondetects (beryllium and cadmium) is established as the maximum laboratory analytical reporting limit.

Table K3. Big Rivers Reid Surface Impoundment Appendix III SSI Summary

Well	Location	B	Ca	Cl	F	pH (LPL/UPL)		SO4	TDS
MW-7	Upgradient	P	P	P	P	P	P	P	P
MW-8	Downgradient								
MW-9	Downgradient								
MW-10	Downgradient								

Notes:

SSIs determined using interwell prediction limits; MW-8 is upgradient background well

P = parametric prediction limit; NP = nonparametric prediction limit

Less than or equal to background upper prediction limit (UPL) or greater than lower prediction limit (LPL) for pH

Statistically significant increase (SSI) over background UPL or below background LPL for pH

Table K4. Big Rivers Reid Surface Impoundment Appendix IV SSI Summary

Well	Location	Sb	As	Ba	Be	Cd	Cr	Co	F	Pb	Li	Hg	Mo	Ra-226+228	Se	Tl
MW-7	Upgradient	P	P	P	NP	NP	NP	P	P	NP	NP	NP	P	P	NP	NP
MW-8	Downgradient															
MW-9	Downgradient															
MW-10	Downgradient															

Notes:

SSIs determined using interwell prediction limits; MW-8 is upgradient background well

P = parametric prediction limit; NP = nonparametric prediction limit

Less than or equal to background upper prediction limit (UPL) or greater than lower prediction limit (LPL) for pH

Statistically significant increase (SSI) over background UPL or below background LPL for pH

Table K5. Summary of 95LCLs and GWPS for Barium, Fluoride, Lithium, and Ra-226+228 at Selected Wells

Well	Parameter	95%LCL (mg/L)	GWPS (mg/L)
MW-8	F	0.41	4.0
MW-8	Li	0.033	0.04
MW-9	Ba	0.60	2.0
MW-9	Li	0.01	0.04
MW-9	Ra	1.71	5.0
MW-10	F	0.47	4.0
MW-10	Li	**0.28**	0.04

95LCL = lower confidence limit at 95% confidence. Yellow highlighted result exhibits a statistically significant level (SSL) above the GWPS.