

COAL COMBUSTION RESIDUALS (CCR) GROUNDWATER MONITORING AND CORRECTIVE ACTION ANNUAL REPORT

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JANUARY 30, 2020



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TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
1.1	Site Description and Regulatory Applicability	1
1.2	Annual Report Requirements.....	2
1.3	Professional Engineer Certification.....	3
2.0	GROUNDWATER MONITORING SYSTEM.....	4
2.1	Current Groundwater Monitoring System	4
2.2	Monitoring Well Installation	5
2.3	Monitoring Well Decommissioning.....	6
3.0	GROUNDWATER MONITORING DATA	7
3.1	Sample Requirements	7
3.2	Groundwater Elevation and Flow.....	8
3.3	Groundwater Sampling Results	9
4.0	DETECTION AND ASSESSMENT MONITORING	13
4.1	Detection Monitoring Program	13
4.2	Assessment Monitoring Program.....	13
5.0	ADDITIONAL INFORMATION	15
5.1	Alternative Monitoring Frequency.....	15
5.2	Demonstration of Invalid Statistically Significant Increase.....	15
5.3	Time Extension for Corrective Measures Assessment.....	16
6.0	CONCLUSION	17
6.1	Summary of Key Actions Completed	17
6.2	Key Activities for Upcoming Year.....	17

FIGURES:

Figure 1: Site Location Map

Figure 2: Facility Diagram

APPENDICES:

Appendix A: Potentiometric Surface Maps

Appendix B: Analytical Results and Chain-of-Custody Forms

Appendix C: Field Sampling Data

Appendix D: 2019 Groundwater Monitoring Summary

Appendix E: Corrective Measures Assessment Extension

Appendix F: Alternate Source Demonstration

1.0 INTRODUCTION

1.1 SITE DESCRIPTION AND REGULATORY APPLICABILITY

The Choctaw Generation Limited Partnership, LLLP (Choctaw Generation) is located near the City of Ackerman in Choctaw County, Mississippi. Choctaw Generation is in north central Mississippi on a 170-acre site. Choctaw Generation is bounded on the south by Pensacola Road, and is about ½ mile west of US Highway 9. Figure 1 shows the location of the site. Choctaw Generation operates a single unit electrical generation facility designed to generate electricity for dispatch to the Tennessee Valley Authority (TVA) electrical system. The primary boiler fuel is lignite coal. As a result of combusting lignite coal, ash is created and must be disposed or re-purposed. Choctaw Generation owns and operates an existing Ash Management Unit (AMU) for the placement and disposal of ash. The AMU (or CCR unit) is located in the northeastern portion of the property and consists of three (3) cells, as shown in Figure 2. The CCR unit encompasses approximately 64 acres of the Choctaw Generation site.

The site is currently regulated by the Mississippi Department of Environmental Quality (MDEQ) Solid Waste Regulations and Solid Waste Permit No. SW0100040462. The site is now also required to comply with the Groundwater Monitoring and Corrective Action requirements of 40 CFR Part 257, Subpart D – Standards for the Disposal of Coal Combustion Residuals (CCR) in Landfills and Surface Impoundments. As an existing CCR landfill, the site was required to be in compliance with the following groundwater monitoring requirements by October 17, 2017:

- ☐ Install a groundwater monitoring system as required by §257.91;
- ☐ Develop a groundwater sampling and analysis program to include selection of the statistical procedures to be used for evaluating groundwater monitoring data as required by §257.93;
- ☐ Initiate the detection monitoring program to include obtaining a minimum of eight (8) independent samples for each background and downgradient well as required by §257.94(b); and
- ☐ Evaluate groundwater monitoring data for statistically significant increases over background levels for the constituents listed in Appendix III of Subpart D as required by §257.94.

The Choctaw Generation groundwater monitoring system was completed in accordance with the groundwater monitoring performance standards of §257.91 by June 2016. The initial Choctaw Generation CCR unit groundwater monitoring system consisted of three (3) background or upgradient wells and eight (8) downgradient wells to ensure complete coverage of the CCR unit. A facility diagram showing the monitoring well locations is included as Figure 2. A Groundwater Monitoring Plan was developed in August 2016 in accordance with the groundwater sampling and analysis program requirements of §257.93. The Groundwater Monitoring Plan was updated in January 2019 to address an additional well installed at the site and is available in the Choctaw Generation Operating Record and CCR Web Site. Sampling of the

groundwater wells is conducted in accordance with the most current version of the Groundwater Monitoring Plan. Eight (8) independent samples were collected and analyzed prior to October 17, 2017, initiating the groundwater monitoring program at the site.

1.2 ANNUAL REPORT REQUIREMENTS

Choctaw Generation is required to prepare an annual groundwater monitoring and corrective action report (the Annual Report) no later than January 31, 2018, and annually thereafter, and place the report in the Operating Record. The Annual Report is also made available on the CCR Web Site within 30 days of filing the report in the Operating Record. The Annual Report must be maintained in the Operating Record and on the CCR Web Site for at least five (5) years.

Per §257.90(e), the Annual Report must document the status of the groundwater monitoring and corrective action program for the CCR unit, summarize key actions completed, describe any problems encountered, discuss actions to resolve the problems, and project key activities for the upcoming year. At a minimum, the Annual Report must contain the following information, to the extent available:

- ☐ 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;
- ☐ 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;
- ☐ In addition to all the monitoring data obtained under §§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;
- ☐ 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 over background levels); and
- ☐ Other information required to be included in the annual report as specified in §§257.90 through 257.98.

To comply with the requirements above, a map of the CCR unit and all upgradient and downgradient monitoring wells that are part of the groundwater monitoring system are shown on Figure 2. A discussion of the current monitoring well system and any monitoring wells installed or decommissioned is provided in Section 2.0. A summary of the monitoring data obtained during the annual reporting period is provided in Section 3.0. Section 4.0 contains a narrative discussion of the status and any transition between monitoring programs (i.e., detection monitoring versus assessment monitoring) and the reason such monitoring

program is in place. Section 5.0 presents additional information required by §§257.90 through 257.98 to be included in the Annual Report and which is not already addressed in the prior sections. Finally, Section 6.0 summarized actions completed during the reporting year and projects key activities planning for the following reporting year.

1.3 PROFESSIONAL ENGINEER CERTIFICATION

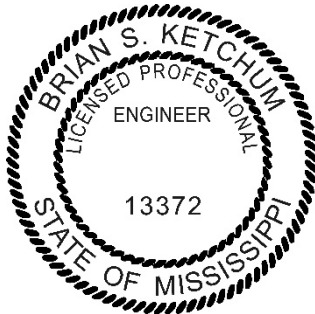
The undersigned Registered Professional Engineer is familiar with the requirements of 40 CFR Part 257, Subpart D and certifies that the Groundwater Monitoring and Corrective Action Annual Report was prepared under his/her direct supervision, in accordance with the requirements of 40 CFR 257.90 through 257.98. The undersigned Registered Professional Engineer certifies under penalty of the law that all information and statements provided in this report (including attachments), based on information and belief formed after reasonable inquiry, are true, accurate, and complete.



1/30/2020

Brian S. Ketchum, PE
Registration Number: 13372
State of Mississippi

Date Signed



(Seal)

2.0 GROUNDWATER MONITORING SYSTEM

2.1 CURRENT GROUNDWATER MONITORING SYSTEM

The owner or operator of a CCR unit must install a groundwater monitoring system that consists of a sufficient number of wells, installed at appropriate locations and depths, to yield groundwater samples from the uppermost aquifer. The system should accurately represent the quality of background groundwater that has not been affected by leakage from a CCR unit (i.e., upgradient wells). In addition, the system should accurately represent the quality of groundwater passing the waste boundary of the CCR unit (i.e., downgradient wells). The downgradient wells should be installed at the waste boundary to ensure detection of groundwater contamination in the uppermost aquifer. The number, spacing, and depths of groundwater monitoring wells within the system were determined based upon site-specific technical information that included an assessment of items such as:

- ☐ Aquifer thickness and groundwater flow direction; and
- ☐ Saturated and unsaturated geologic units and fill materials overlying the uppermost aquifer, materials comprising the uppermost aquifer, and materials comprising the confining unit defining the lower boundary of the uppermost aquifer, including, but not limited to, thicknesses, stratigraphy, lithology, hydraulic conductivities, porosities and effective porosities.

The groundwater monitoring system must include a minimum number of monitoring wells necessary to meet the performance standards and information specified above. The direction of groundwater flow through the CCR unit is to the north-northwest, which has been consistently determined through ongoing solid waste permit groundwater monitoring events. The locations for the monitoring wells were based upon the known direction of groundwater movement. The monitoring wells screen the uppermost laterally continuous aquifer below the base of ash fill. The base of ash fill is at an approximate elevation of 480 feet mean sea level (msl). The zone is screened and monitored at an approximate elevation of 470 feet msl, but varies across the site and through the unit.

The system must contain a minimum of at least one (1) upgradient and three (3) downgradient monitoring wells. The initial Choctaw Generation CCR unit groundwater monitoring system consisted of three (3) background or upgradient wells and eight (8) downgradient wells to ensure complete coverage of the CCR unit, which consists of three (3) ash disposal cells covering approximately 64 acres. An additional downgradient well was added in August 2018 and three more downgradient wells were installed in May 2019, as discussed further in Section 2.2. Additionally, one downgradient well (MW-16) was replaced in May 2019 by MW-17 due to subsidence of the surface soils, which compromised the well integrity. A map showing the monitoring well locations is included as Figure 2, and a summary of the current wells is included as Table 2-1 below. Monitoring wells were installed according to the guidelines established in the 1994 USEPA Region IV RCRA Subtitle D Training Manual (SDTM, 1994), or other generally accepted guidelines,

and are believed to meet the requirements of 40 CFR Part 257, Subpart D. For more detailed procedures related to the installation of the current groundwater monitoring system, refer to the CCR Groundwater Monitoring Plan available in the facility Operating Record and CCR Web Site.

Table 2-1: Groundwater Monitoring Wells

Well No.	Background or Down-gradient	Elevation* (ft)	Well Depth (ft)	Well Dia. (inches)
CCR-2	Downgradient	542.50	84.50	4
CCR-3	Downgradient	504.78	53.00	4
CCR-4	Downgradient	505.68	53.00	4
CCR-5	Downgradient	470.46	34.55	4
CCR-6	Downgradient	475.05	41.05	4
CCR-7	Downgradient	527.10	63.05	4
CCR-8	Downgradient	505.65	85.00	4
MW-7	Background (Upgradient)	571.76	56.92	4
MW-9	Downgradient	480.04	21.74	4
MW-12	Downgradient	474.19	19.09	4
MW-13	Background (Upgradient)	584.48	106.00	4
MW-14	Background (Upgradient)	593.84	60.97	4
MW-15	Downgradient	488.10	22.74	4
MW-17 (MW-16 Replacement)	Downgradient	483.85	18.75	4
OW-2	Downgradient	489.40	27.05	4

*Elevations were re-surveyed on November 14, 2019. Updated elevations will be used to determine groundwater elevation in subsequent monitoring events.

Sections 2.2 and 2.3 discuss changes to the groundwater monitoring system that took place during the reporting period.

2.2 MONITORING WELL INSTALLATION

Three (3) new monitoring wells were installed during the week of May 13-17, 2019, and identified as CCR-6, CCR-7, and CCR-8. These wells were installed downgradient from the CCR unit on the property of the Mississippi Lignite Mining Company in the direction of potential contaminant migration and in response to corrective measure requirements. CCR-6, CCR-7, and CCR-8 wells were installed to help assess the nature and extent of potential groundwater contamination as a result of elevated concentrations of Appendix III and Appendix IV parameters in CCR-5, the downgradient facility boundary well installed in 2018.

Due to soil subsidence in the vicinity of downgradient well MW-16, likely due to abnormally heavy rainfall, the integrity of the well casing was compromised. Therefore, a replacement well, MW-17, was drilled on May 14, 2019 in a nearby location and MW-16 was plugged on May 20, 2019 using the guidelines and technique addressed in Section 2.3.

MDEQ was notified of the groundwater installation project on June 14, 2019 using a State Well Report. A Soil Boring Log and a Monitoring Well Schematic for each of the groundwater monitoring wells (i.e., CCR-6, CCR-7, CCR-8, and MW-17) installed during the project, were included with the State Well Report. These were the only wells installed during the 2019 period.

2.3 MONITORING WELL DECOMMISSIONING

Monitoring wells must be maintained and appropriately cased in a manner that maintains the integrity of the monitoring well borehole throughout the life of the monitoring program. As noted in Section 2.2, the integrity of downgradient well MW-16 was compromised and the well was plugged in accordance with the Mississippi water well plugging guidelines. The well was decommissioned on May 20, 2019 using a Water Well Plugging/Decommissioning Form to document the monitoring well plug and abandonment project. The decommissioning procedure included removing the eight-foot casing, leaving the screen in place, and filling the borehole from eighteen (18) feet to the surface with a neat cement slurry. A free-fall technique was utilized along with periodic tamping to ensure a proper seal. MDEQ was then notified on June 14, 2019 of the decommissioning event along with the Water Well Plugging/Decommissioning Form. MW-16 was the only well decommissioned during the 2019 period.

3.0 GROUNDWATER MONITORING DATA

3.1 SAMPLING REQUIREMENTS

The monitoring well samples collected for laboratory analysis along with the duplicate samples and field blanks were submitted to Micro-Methods Laboratories in Ocean Springs, Mississippi. Sampling was conducted in accordance with the CCR Groundwater Monitoring Plan. The samples were analyzed for constituents listed in Appendix III and/or Appendix IV of 40 CFR 257, Subpart D (depending on the type of monitoring event) as listed in Tables 3-1 and 3-2 below. Metals were analyzed as total recoverable metals from unfiltered samples.

Table 3-1: Appendix III Constituents

40 CFR 257, Subpart D, Appendix III – Constituents for Background and Subsequent Detection and Assessment Monitoring					
Parameter	Analytical Method	Container		Preservative	Holding Time
Boron	200.7	P	500mL	NA	6 months
Calcium	200.7	P	500mL	NA	6 months
Chloride	4500-Cl-B	P	1000mL	NA	28 days
Fluoride	4500-F-D	P	1000mL	NA	28 days
pH	Measured and monitored in the field.				
Sulfate	4110B	P	1000mL	NA	28 days
TDS	2540C	P	1000mL	NA	7 days

Table 3-2: Appendix IV Constituents

40 CFR 257, Subpart D, Appendix IV – Constituents for Background and Assessment Monitoring					
Parameter	Analytical Method	Container		Preservative	Holding Time
Antimony	200.8	P	500mL	NA	6 months
Arsenic	200.8	P	500mL	NA	6 months
Barium	200.8	P	500mL	NA	6 months
Beryllium	200.8	P	500mL	NA	6 months
Cadmium	200.8	P	500mL	NA	6 months
Chromium	200.8	P	500mL	NA	6 months
Cobalt	200.8	P	500mL	NA	6 months
Fluoride	4500-F-C	P	1000mL	NA	28 days
Lead	200.8	P	500mL	NA	6 months
Lithium	200.7	P	500mL	NA	6 months
Mercury	245.1	P	500mL	NA	28 days
Molybdenum	200.8	P	500mL	NA	6 months
Selenium	200.8	P	500mL	NA	6 months

40 CFR 257, Subpart D, Appendix IV – Constituents for Background and Assessment Monitoring					
Parameter	Analytical Method	Container		Preservative	Holding Time
Thallium	200.8	P	500mL	NA	6 months
Radium 226/228	901.1	P	1000mL	NA	NA

T = Teflon, P = Plastic, G = Glass, NA = Not Applicable

3.2 GROUNDWATER ELEVATION AND FLOW

Groundwater elevation is measured in each monitoring well immediately prior to purging each time groundwater is sampled. Table 3-3 provides a summary of the groundwater elevation recorded for each well during each of the monitoring events. A potentiometric surface map was developed for each monitoring event based on the measured static water levels and the top-of-case (TOC) elevations. Also, the rate of groundwater flow is determined for each event and the direction of flow is summarized in the table and provided on the potentiometric surface maps included in Appendix A. Groundwater flow velocity (v) is estimated using the hydraulic conductivity (K) of the groundwater zone, the effective porosity (η_e), and the hydraulic gradient (dh/dl). The groundwater flow velocity in feet/year is estimated using the following

equation:
$$v = \frac{K}{\eta_e} \left(\frac{dh}{dl} \right).$$

Conductivity and porosity are dependent on the soil type in the saturated zone. Based on boring logs, the soils in the screened saturated zone are predominantly silt, clay, and silty-clay units. These Clayey Wilcox sediments were investigated and found to have hydraulic conductivities generally less than 1.0×10^{-6} cm/sec, and in many cases 1.0×10^{-8} cm/sec or less, as noted in the Special/Industrial Waste Permit Application prepared by Malcolm Pirnie (March 1998). As a conservative measure of groundwater flow the highest permeability measured at site of 2.0×10^{-5} cm/sec has been used. An effective porosity of 0.44 was used based on a mix of silty clay and clay of varying plasticity found in the saturated zone. The hydraulic gradient is determined for each monitoring event using the difference in groundwater elevations at upgradient monitoring well, MW-14, and downgradient monitoring well, MW-15, which are approximately 3,025 feet apart.

As noted in Table 3-3 and from the potentiometric surface maps (provided in Appendix A), groundwater in the vicinity of the CCR unit flows north-northwest. Also, as noted during the background sampling period, groundwater elevation changed very little in each monitoring well sampled during the 2019 reporting period, indicating that seasonal variability does not significantly impact groundwater at the site. Groundwater flow is relatively slow due to the low hydraulic conductivity of the soils and was calculated to be 1.3 feet per year based on the 2019 data. This is consistent with the flows calculated for previous monitoring events, as shown in Table 3-3.

3.3 GROUNDWATER SAMPLING RESULTS

The analytical results from the collected samples, the chain-of-custody, and the laboratory quality assurance and quality control (QA/QC) information are provided in Appendix B. In addition to the groundwater samples taken from each of the monitoring wells, a duplicate sample and field blank were collected and analyzed for the required constituents. Temperature, pH, conductivity, turbidity, purge volume, and elapsed purge time were monitored while purging each well. The field data collected while purging and sampling each well using the low stress purging and sampling methodology is included in Appendix C. The data includes monitored field parameters (pH, temperature, turbidity, conductivity), water levels, well depth, drawdown, purge rate, purge volume, and purge time.

The summary of results for sampling conducted during the reporting year is available in Appendix D. For those constituents not detected during a given monitoring event, the value is indicated as “less than” (or <) the minimum reporting level (MRL). Results from the upgradient wells were used to establish the background groundwater quality for each constituent, which is the interwell prediction limit determined using the approved statistical procedures. Because statistically significant increases (SSI) of constituents were verified during the initial detection monitoring event in 2018, GWPS were established per the requirements of §257.95(d)(2) for Appendix IV constituents and are compared to current and future sampling results.

A semiannual assessment monitoring event was conducted on March 19-20, 2019. During this event, all Appendix III constituents and those Appendix IV constituents detected during monitoring conducted May 15-16, 2018, were analyzed. During this sampling event, MW-16 was unable to be sampled due to compromise of the well's integrity discussed in Sections 2.2 and 2.3. The following Appendix IV constituents exceeded the GWPS at the well locations noted below for this monitoring event:

- Beryllium: MW-9
- Cobalt: CCR-5, MW-9, MW-12, and MW-15
- Lithium: CCR-3 and MW-9

The annual monitoring for all Appendix IV constituents, required by §257.95(b), was conducted May 29-30, 2019. Based on these results, the following Appendix IV constituents will be monitored during the next two semiannual assessment monitoring events:

- Arsenic
- Barium
- Beryllium
- Cadmium
- Chromium
- Cobalt
- Fluoride

- Lead
- Lithium
- Molybdenum
- Selenium
- Radium 226 and 228 combined

Additionally, the results from this annual event were compared to the GWPS. The following Appendix IV constituents exceeded the GWPS at the well locations noted below for this monitoring event:

- Cobalt: CCR-3, CCR-5, CCR-7, MW-9, MW-12, MW-15, and MW-17
- Lithium: CCR-3 and MW-9
- Molybdenum: CCR-8

The next semiannual assessment monitoring event was conducted on September 10-11, 2019. The following Appendix IV constituents exceeded the GWPS at the well locations noted below for this monitoring event:

- Cobalt: CCR-5, MW-9, MW-12, MW-15, and MW-17
- Lithium: CCR-3, CCR-8, and MW-9

After the annual monitoring event for all Appendix IV constituents, selenium and molybdenum were added to the list of constituents to be monitored during the subsequent semiannual assessment monitoring events. Although antimony was not detected in the 2019 annual monitoring event, this Appendix IV constituent will still be monitored during the semiannual events since it was detected in the initial assessment monitoring event. Antimony was not detected in any of the monitoring events during the 2019 period. Chromium was only detected in CCR-8, one of the wells on the mine property. The detection did not exceed the GWPS, and the constituent was not detected in any of the upgradient or downgradient wells. Arsenic was detected for the first time in CCR-5 and CCR-8. The detected concentrations were an order of magnitude below the GWPS, and the location of these wells, the property boundary and the mine property respectively, suggest that arsenic is not a result of site operations. Barium is naturally occurring and has been detected in all monitoring wells, both upgradient and downgradient. However, the results have generally been at least an order of magnitude lower than the GWPS and have shown decreasing trends in most wells. Cadmium was detected in MW-9 during all three (3) 2019 assessment monitoring events. This constituent has not been detected in any other well, and the detected levels in MW-9 are below the GWPS, which are only 5 parts per billion (ppb). Although fluoride was not detected in any of the upgradient wells during the 2019 period, it has previously been detected in one of the three upgradient wells as well as most downgradient wells. Therefore, there may be sources of naturally occurring fluoride in the area. Concentrations of fluoride in both upgradient and downgradient wells are approximately an order of magnitude below the GWPS, with trends varying across the wells. Lead was detected in two (2) monitoring wells, CCR-5 and MW-9, at the

minimum detection level and the concentrations were an order of magnitude below the GWPS. Concentrations in these wells dropped below the detection limit after the first two monitoring events in 2019. Selenium was detected during one (1) monitoring event in one property boundary well, CCR-5, and two (2) wells on the mine property, CCR-7 and CCR-8. The concentrations were an order of magnitude below the GWPS and dropped below the detection limit by the second semiannual monitoring event.

Cobalt exceeded the GWPS during the 2019 assessment monitoring events in seven (7) downgradient wells, including CCR-3, CCR-5, CCR-7, MW-9, MW-12, MW-15 and the recently installed replacement well MW-17. Cobalt has been prevalent in these wells, including the background sampling. Lithium exceeded the GWPS in two (2) wells, CCR-3 and MW-9, during the three (3) 2019 assessment monitoring events, and in one (1) well, CCR-8, during the second semiannual assessment monitoring event in September. The concentrations of lithium in CCR-3 and MW-9 declined over the 2019 period. Lithium was also detected in OW-2 during the September monitoring event but the detection level was below both the prediction limit and the GWPS for this constituent. Beryllium exceeded the GWPS, which is only 5 ppb, for the first time in MW-9 in the first semiannual monitoring event of 2019. The beryllium concentration in MW-9 dropped below the GWPS for the subsequent monitoring events and has not been verified or detected in any other well during any monitoring event. Molybdenum exceeded the GWPS for the first time in CCR-8 in the annual monitoring event. The concentration dropped below the GWPS for the subsequent monitoring events and has not been verified or detected in any other well during any monitoring event.

Table 3-3: Groundwater Elevation (feet) and Flow Rate (feet/yr)

Date	CCR-2	CCR-3	CCR-4	CCR-5	CCR-6	CCR-7	CCR-8	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	MW-17	OW-2	Flow Rate	Flow Direction
Background Monitoring																		
7/26-27/16	488.60	473.59	478.46					538.60	471.49	466.92	499.10	564.91	477.50	480.26		476.80	1.4	NNW
8/22-23/16	488.63	473.33	478.41					538.03	471.74	466.97	498.85	563.94	477.19	480.49		476.50	1.3	NNW
9/12-13/16	488.22	472.96	478.36					538.02	470.97	466.09	498.82	563.12	476.74	480.15		476.20	1.3	NNW
10/17-18/16	488.05	472.69	478.61					537.93	471.17	465.56	498.48	560.56	476.19	479.24		476.00	1.3	NNW
11/9-10/16	487.69	472.41	478.16					537.52	471.32	465.45	497.83	559.08	475.78	479.10		475.50	1.3	NNW
11/28-29/16	487.55	472.38	478.17					536.13	471.47	465.97	497.60	560.51	476.16	479.61		475.64	1.3	NNW
2/8-9/17	488.17	474.06	478.95					537.95	473.34	471.27	498.21	563.49	478.87	481.70		477.60	1.3	NNW
3/29-30/17	488.36	474.82	478.81					537.74	472.44	470.17	498.58	565.88	478.83	486.60		477.40	1.4	NNW
Detection Monitoring																		
2/6-7/18	489.83	475.11	478.84					537.58	473.60	471.47	499.40	562.15	478.92	481.87		477.49	1.3	NNW
Assessment Monitoring																		
5/15-16/18	489.73	476.19	478.98					538.66	472.82	468.07	501.08	566.41	478.93	481.36		478.19	1.4	NNW
9/10-11/18	488.34	473.95	478.28	460.73				537.84	472.98	468.60	499.16	562.19	477.16	480.72		476.59	1.3	NNW
3/19-20/19 ⁽¹⁾	491.92	479.69	481.38	463.41				538.06	482.28	470.24	521.24	565.69	480.70	NS		478.80	1.3	NNW
5/29-30/19 ⁽¹⁾	491.62	478.76	480.84	462.75	459.91	487.14	462.79	538.47	471.56	466.67	521.42	565.63	480.20	NS	478.65	478.98	1.3	NNW
9/10-11/19 ⁽¹⁾	491.28	479.91	480.43	462.02	458.71	487.01	462.04	538.35	470.61	466.33	521.15	565.16	478.83	NS	477.73	477.57	1.3	NNW

(1) TOC elevations were resurveyed on November 14, 2019 and groundwater elevations were revised using the correct TOC elevations.

4.0 DETECTION AND ASSESSMENT MONITORING

Choctaw Generation is currently subject to the Assessment Monitoring Program requirements of §257.95, and groundwater monitoring as required by this program are discussed in Section 3.0. A description of both the Detection Monitoring Program and Assessment Monitoring Program is provided below and reflects changes occurring during the previous calendar year.

4.1 DETECTION MONITORING PROGRAM

For existing CCR landfills, including the Choctaw Generation AMU, a minimum of eight (8) independent samples from each background and downgradient well must be collected and analyzed for the constituents listed in Appendix III and Appendix IV of 40 CFR 257, Subpart D by no later than October 17, 2017. These constituents are listed in Tables 3-1 and 3-2. After the eight (8) initial sampling events are completed to develop background data, the detection monitoring must be performed on a semiannual basis during the active life of the CCR unit and the post-closure period unless assessment monitoring is triggered.

In accordance with the requirements of the Detection Monitoring Program in §257.94(b), one (1) sample from each background (or upgradient) and downgradient well was analyzed for the seven (7) parameters in Appendix III on February 6-7, 2018. An evaluation of these results indicated statistically significant increases (SSI) above the prediction limits established during background monitoring for the following parameters: chloride, fluoride, sulfate, and TDS. Therefore, the requirements of the Assessment Monitoring Program were triggered.

4.2 ASSESSMENT MONITORING PROGRAM

Due to SSI exceedances determined during the initial detection monitoring event of February 6-7, 2018, Choctaw Generation triggered the Assessment Monitoring Program under §257.95. Choctaw Generation conducted the first semiannual assessment monitoring event on September 10-11, 2018 and the subsequent semiannual assessment monitoring event on March 19-20, 2019 for all Appendix III constituents and those Appendix IV constituents previously detected during the annual Appendix IV monitoring event. The annual monitoring for all Appendix IV constituents was conducted again on May 29-30, 2019. Based on the sampling results, 12 Appendix IV constituents were detected, adding selenium and molybdenum to the Appendix IV constituents to be monitored during semiannual assessment monitoring events. The next semiannual assessment monitoring event was conducted on September 10-11, 2019. This event included sampling for all Appendix III constituents and those Appendix IV constituents detected during the 2019 annual monitoring event.

If the concentrations of all constituents listed in Appendix III and Appendix IV are shown to be at or below background concentrations for two consecutive monitoring events, Choctaw Generation may return to

detection monitoring. If the concentration of any Appendix III or IV constituent is above the background values, but all concentrations are below the GWPS, Choctaw Generation must continue assessment monitoring. If one or more Appendix IV constituent is detected at a SSL above the GWPS in any monitoring event, Choctaw Generation must implement correction actions. GWPS for all constituents detected during the initial and subsequent assessment monitoring were established per the procedures in §257.95(h). The Appendix III and Appendix IV results from the sampling conducted during the reporting period, the background concentrations (or “prediction limits”) established under §257.94(b), and the GWPS established under §257.95(d)(2) are included as Appendix D of the Annual Report.

Due to a statistically significant increase (SSI) of Appendix IV constituents above the GWPS, Choctaw Generation initiated an assessment of corrective measures on January 30, 2019. The Assessment of Corrective Measures (ACM) Report was completed on June 29, 2019 after a 60-day extension as discussed in Section 5.3. The ACM identified five (5) potential corrective measures and analyzed the effectiveness of each by using the criteria set forth in §257.96(c). The evaluated corrective measures are those deemed potentially feasible at the site to be considered during the selection of the final remedy.

After review of the monitoring analytical data from the 2019 period, trends in groundwater concentration led to the prospect that the detection of lithium, cobalt, beryllium, and molybdenum at a SSL above the GWPS was a result of an alternate source rather than a potential release of the CCR unit or associated AMU basin. As discussed in Section 5.2, An Alternate Source Demonstration (ASD) was then successfully completed on December 17, 2019, providing an evidential conclusion that the SSLs were indeed a result of an alternate source. Due to the successful ASD, Choctaw Generation immediately ceased and discontinued corrective measure activities and has continued in assessment monitoring.

5.0 ADDITIONAL INFORMATION

5.1 ALTERNATIVE MONITORING FREQUENCY

Based on the availability of groundwater, an alternative monitoring frequency may be proposed under both the detection monitoring program and the assessment monitoring program per §§257.94(d) and 257.95(c), respectively. In lieu of semiannual sampling, sampling may be conducted less frequently but no less than annually. Choctaw Generation must obtain a certification from a qualified professional engineer stating that the demonstration for an alternative groundwater sampling and analysis frequency meets the requirements of §§257.94(d) or 257.95(c). Choctaw Generation must include the demonstration providing the basis for the alternative monitoring frequency and the certification by a qualified professional engineer in the Annual Report. *With this Annual Report, Choctaw Generation is not making an alternative monitoring frequency demonstration.*

5.2 DEMONSTRATION OF INVALID STATISTICALLY SIGNIFICANT INCREASE

Within 90 days of finding that any of the Appendix III or IV constituents have been detected at a statistically significant level, Choctaw Generation may demonstrate that a source other than the CCR unit caused the contamination or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. Such demonstration is allowed by both the detection monitoring program and assessment monitoring program per §257.94(e)(2) and §257.95(g)(3), respectively. Any such demonstration must be supported by a report that includes the factual or evidentiary basis for any conclusions and must be certified to be accurate by a qualified professional engineer. If a successful demonstration is made, Choctaw Generation must continue monitoring in accordance with the detection or assessment monitoring program, as applicable. Choctaw Generation must also include the demonstration in the Annual Report, as well as the certification by a qualified professional engineer. *With this Annual Report, Choctaw Generation is demonstrating at this time that lithium and cobalt detected at a SSL above the GWPS resulted from an alternate source.* Sampling to evaluate the composition of the natural soil at the site was conducted on October 29, 2019 which included drilling soil borings in three (3) locations at the Choctaw Generation site. The samples were collected at a variety of depths ranging from four (4) to twenty (20) feet to capture the natural, differing geologies in the soil and material near and within the monitored aquifer. Based on review of the analytical results along with the findings outlined in the ASD report, there is an evidential conclusion that the elevated concentrations of lithium and cobalt above each respective GWPS are a result of natural variation in the groundwater quality as a result of the aquifer material rather than a potential release from the CCR unit. Additionally, the beryllium and molybdenum exceedances were not confirmed or verified upon resampling events; therefore, beryllium and molybdenum are not believed to have exceeded the GWPS. The ASD along with the certification by a qualified professional engineer is included in Appendix F of the Annual Report. As a result of the successful ASD, Choctaw Generation will cease corrective measure activities and continue in assessment monitoring.

5.3 TIME EXTENSION FOR CORRECTIVE MEASURES ASSESSMENT

An assessment of corrective measures must be completed within 90 days of finding any Appendix IV constituent has been detected at a statistically significant level exceeding the GWPS. A demonstration of need for up to an additional 60 days to complete this assessment may be made as a result of site-specific conditions or circumstances. Certification from a qualified professional engineer attesting that this demonstration is accurate must be provided, and both the demonstration and certification must be included in the Annual Report. With this Annual Report, Choctaw Generation is including the demonstration of need dated February 28, 2019, and subsequent certification by a qualified profession engineer that the 60-day extension was warranted. This documentation is included as Appendix E to the Annual Report.

The assessment of corrective measures was initiated timely and prior to the completion of the ASD. Due to the results of the ASD, corrective measures were discontinued and assessment monitoring has continued.

6.0 CONCLUSION

6.1 SUMMARY OF KEY ACTIONS COMPLETED

During the reporting period, two semiannual assessment monitoring events were conducted, revealing continued exceedances of the GWPS for cobalt and lithium. Additionally, the GWPS for beryllium was exceeded in one (1) instance at one (1) well and the GWPS for molybdenum was exceeded in one (1) instance at one (1) well. Since groundwater contamination was confirmed at the facility boundary well, CCR-5, three additional monitoring wells were installed on the Mississippi Lignite Mine's property to delineate the nature and extent of the potential contamination. Subsequent annual monitoring for Appendix IV constituents was conducted, which resulted in the addition of selenium and molybdenum to the Appendix IV constituents monitored during the semiannual assessment events.

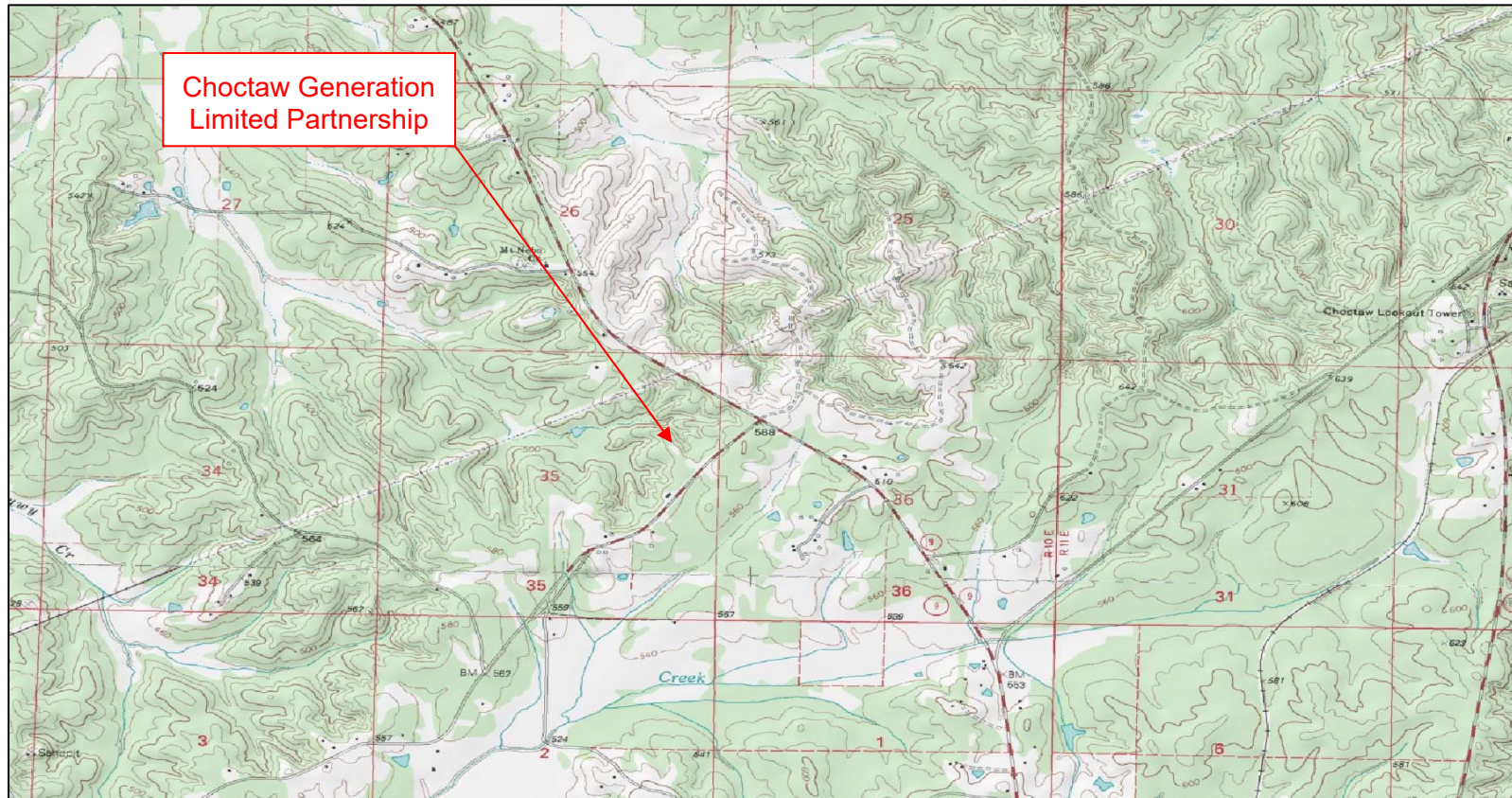
In response to Appendix IV constituents detected at SSL exceeding the GWPS, Choctaw Generation initiated an assessment of corrective measures on January 30, 2019. The ACM was completed on June 29, 2019, after a 60-day extension was granted. Due to evidence that detections of lithium and cobalt at a SSL above the GWPS are a result of an alternate source along with evidence that beryllium and molybdenum are not believed to have exceeded the GWPS, an ASD was developed and deemed a successful demonstration on December 17, 2019. Due to the successful ASD, corrective measure activities will immediately cease, and assessment monitoring was continued.

6.2 KEY ACTIVITIES FOR UPCOMING YEAR

During calendar year 2020, Choctaw Generation anticipates conducting at least two (2) semiannual monitoring events and an annual Appendix IV monitoring event in accordance with the assessment monitoring program as outlined by §257.95(g). If any constituent, other than those addressed by the ASD, is detected at a SSL above the GWPS, an additional ASD will be developed or corrective measures will be initiated to address the constituents of concern.

FIGURE 1

SITE LOCATION MAP



Legend:

Source:
Digital-Topo-maps.com

Drawn By: JTB	Checked By: BSK
Date: 8/11/2016	Scale: 1:24,000
Project No.:	Drawing No: N/A
Choctaw Generation Limited Partnership 2391 Pensacola Road Ackerman, Mississippi	

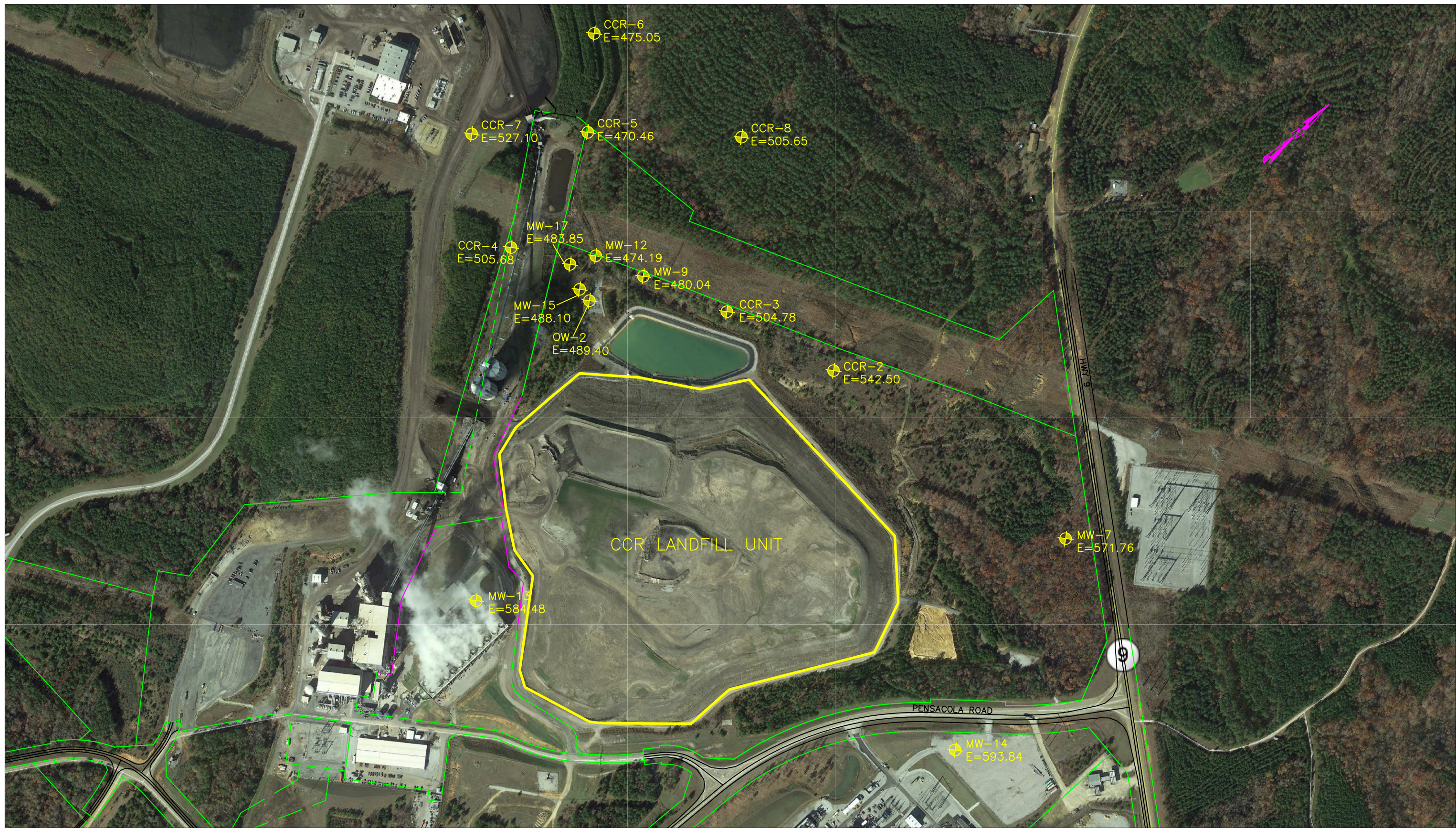


P.O. Box 356
Sherman, Mississippi 38869
(662) 840-5945

Figure 1: Site Location Map

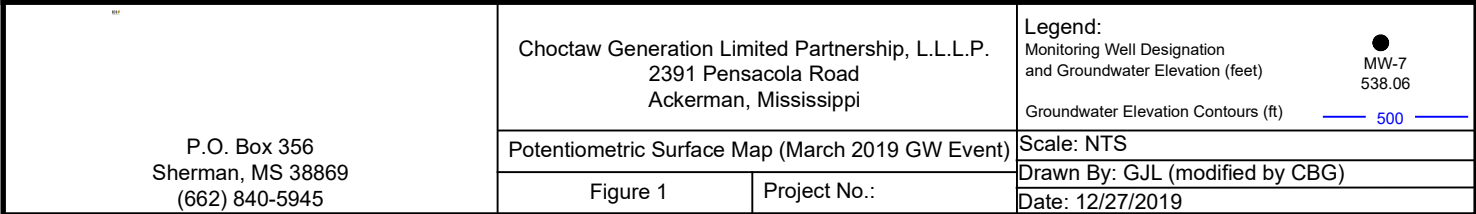
FIGURE 2

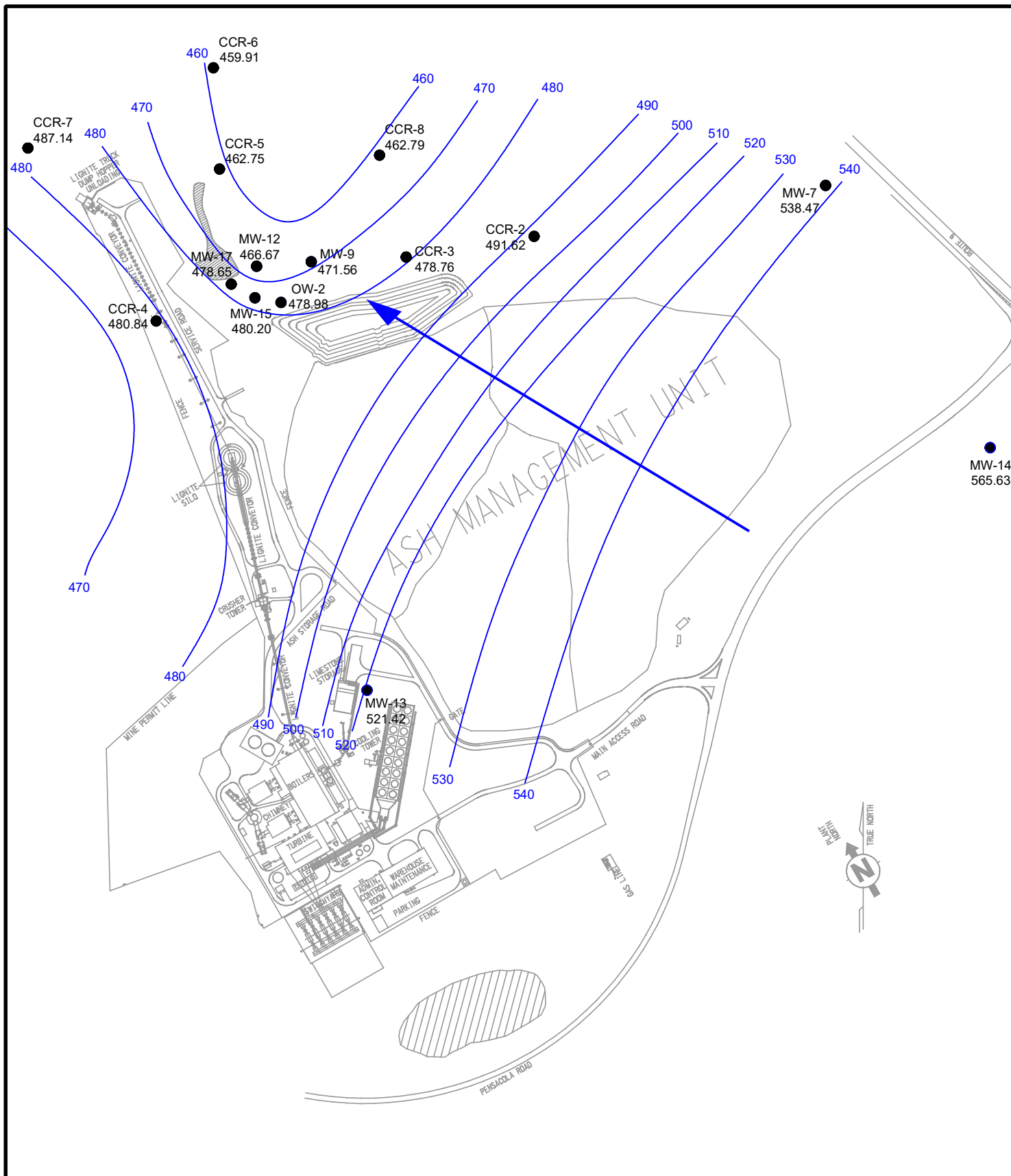
FACILITY DIAGRAM



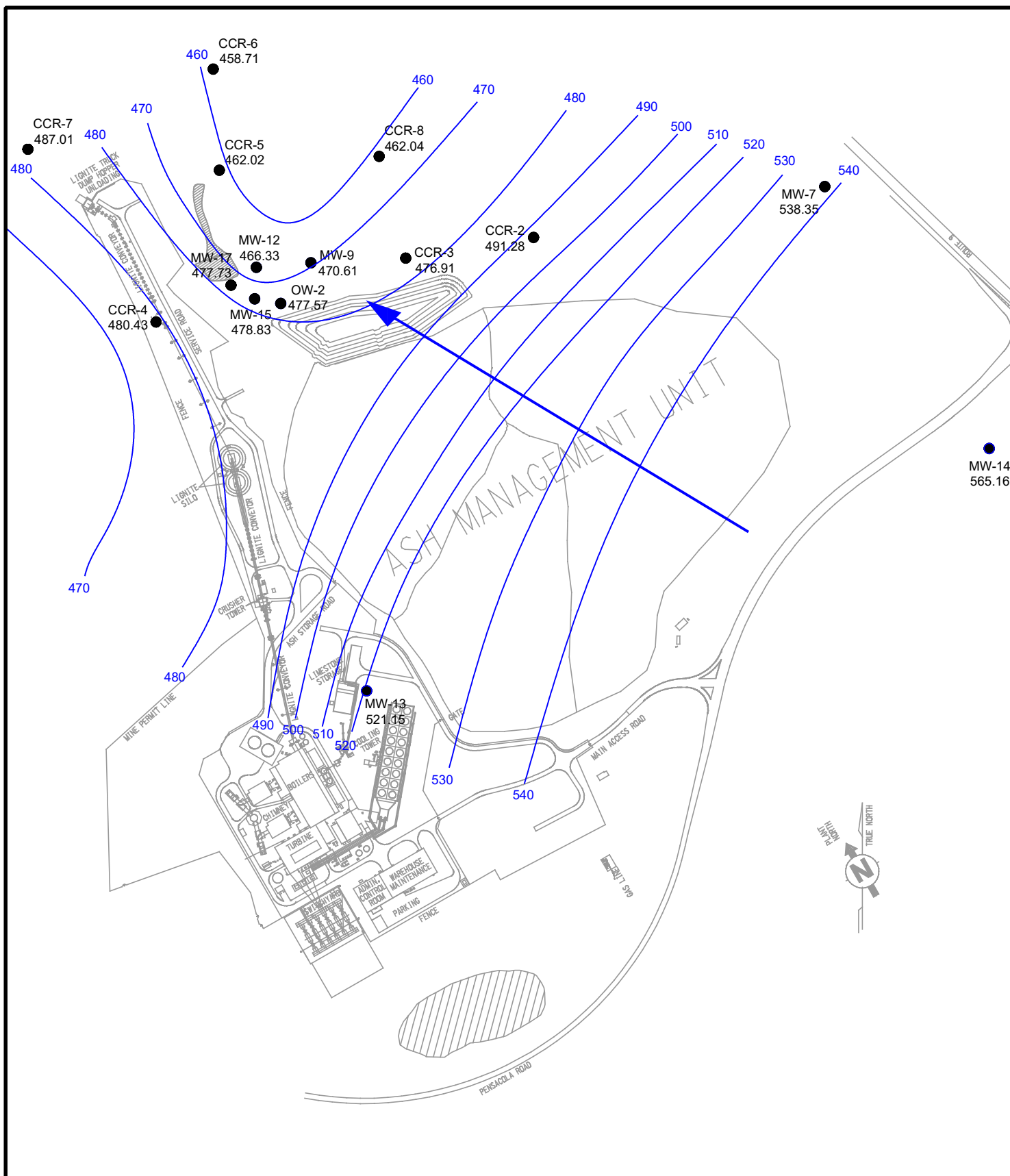
APPENDIX A

POTENTIOMETRIC SURFACE MAPS





<p>P.O. Box 356 Sherman, MS 38869 (662) 840-5945</p>	<p>Choctaw Generation Limited Partnership, L.L.L.P. 2391 Pensacola Road Ackerman, Mississippi</p>		<p>Legend: Monitoring Well Designation and Groundwater Elevation (feet)</p> <p>Groundwater Elevation Contours (ft)</p>
	<p>Potentiometric Surface Map (May 2019 GW Event)</p>		<p>Scale: NTS</p>
	<p>Figure 1</p>	<p>Project No.:</p>	<p>Drawn By: GJL (modified by CBG)</p>
			<p>Date: 12/27/2019</p>



P.O. Box 356 Sherman, MS 38869 (662) 840-5945	Choctaw Generation Limited Partnership, L.L.L.P. 2391 Pensacola Road Ackerman, Mississippi		Legend: Monitoring Well Designation and Groundwater Elevation (feet)
	Potentiometric Surface Map (September 2019 GW Event)		MW-7 538.35
	Figure 1	Project No.:	Groundwater Elevation Contours (ft) 500
	Scale: NTS		Scale: NTS Drawn By: GJL (modified by CBG) Date: 12/27/2019

APPENDIX B

ANALYTICAL RESULTS AND CHAIN-OF-CUSTODY FORMS



Mailing Address:
PO Box 1410
Ocean Springs, MS
39566-1410

6500 Sunplex Drive
Ocean Springs, MS 39564
228.875.6420 Phone
228.875.6423 Fax

April 12, 2019

Jim Ward

Work Order # : 1903401

Red Hills Power Plant
2391 Pensacola Rd.
Ackerman, MS 39735
RE: Red Hills CCR

Purchase Order #:

Enclosed are Micro-Methods Laboratory, Inc. results of analyses performed on samples received 03/21/2019 07:59. If you have any questions concerning this report, please feel free to contact the office.



Harry P. Howell

President
Micro-Methods Laboratory, Inc.



DISCLAIMER

The results only relate to the items or the sample and/or samples received by the laboratory. This report shall not be reproduced except in full, without the approval of the laboratory. All NELAP certified test methods performed meet the requirements of NELAC 2009 Standards. Any variances and/or deviations specific to this analytical report are referenced in the lab report using qualifiers and detailed explanations found in the case narrative.

Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 04/12/2019 11:14

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date/Time Sampled	Sampled by	Date/Time Received
MW-9	1903401-01	Water	03/19/2019 12:12	Kirk Shelton	03/21/2019 07:59
OW-2	1903401-02	Water	03/19/2019 09:24	Kirk Shelton	03/21/2019 07:59
MW-13	1903401-03	Water	03/20/2019 11:39	Kirk Shelton	03/21/2019 07:59
MW-7	1903401-04	Water	03/20/2019 11:45	Kirk Shelton	03/21/2019 07:59
MW-14	1903401-05	Water	03/20/2019 15:26	Kirk Shelton	03/21/2019 07:59
Field Blank	1903401-06	Water	03/20/2019 15:05	Kirk Shelton	03/21/2019 07:59
Duplicate	1903401-07	Water	03/19/2019 00:00	Kirk Shelton	03/21/2019 07:59
MW-12	1903401-08	Water	03/19/2019 10:40	Kirk Shelton	03/21/2019 07:59
MW-15	1903401-09	Water	03/20/2019 09:45	Kirk Shelton	03/21/2019 07:59
CCR-2	1903401-10	Water	03/19/2019 16:08	Kirk Shelton	03/21/2019 07:59
CCR-3	1903401-11	Water	03/19/2019 15:12	Kirk Shelton	03/21/2019 07:59
CCR-4	1903401-12	Water	03/20/2019 08:58	Kirk Shelton	03/21/2019 07:59
CCR-5	1903401-13	Water	03/20/2019 10:20	Kirk Shelton	03/21/2019 07:59

Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 04/12/2019 11:14

Sample Receipt Conditions

Date/Time Received: 3/21/2019 7:59:00AM

Received by: Sarah E. Tomek

Date/Time Logged: 3/21/2019 9:22:00AM

 Cooler ID: **#1124**

<i>Custody Seals</i>	Yes
<i>Containers Intact</i>	Yes
<i>COC/Labels Agree</i>	Yes
<i>Labels Complete</i>	Yes
<i>COC Complete</i>	Yes

 Cooler ID: **#1136**

<i>Custody Seals</i>	Yes
<i>Containers Intact</i>	Yes
<i>COC/Labels Agree</i>	Yes
<i>Labels Complete</i>	Yes
<i>COC Complete</i>	Yes

 Cooler ID: **#301**

<i>Custody Seals</i>	Yes
<i>Containers Intact</i>	Yes
<i>COC/Labels Agree</i>	Yes
<i>Labels Complete</i>	Yes
<i>COC Complete</i>	Yes

Shipped by: Fed Ex

Submitted by: Kirk Shelton

Logged by: Sarah E. Tomek

 Receipt Temperature: 0.4 °C

<i>Received on Ice</i>	Yes
<i>No Ice, Short Trip</i>	No
<i>Obvious Contamination</i>	No
<i>Rush to meet HT</i>	No

 Receipt Temperature: 1.0 °C

<i>Received on Ice</i>	Yes
<i>No Ice, Short Trip</i>	No
<i>Obvious Contamination</i>	No
<i>Rush to meet HT</i>	No

 Receipt Temperature: 2.2 °C

<i>Received on Ice</i>	Yes
<i>No Ice, Short Trip</i>	No
<i>Obvious Contamination</i>	No
<i>Rush to meet HT</i>	No



6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Red Hills Power Plant
2391 Pensacola Rd.
Ackerman MS, 39735

Project: Red Hills CCR
Project Number: Red Hills
Project Manager: Jim Ward

Reported:
04/12/2019 11:14

CASE NARRATIVE SUMMARY

All reported results are within Micro-Methods Laboratory, Inc. defined laboratory quality control objectives unless detailed in narrative summary or identified as qualifications. NOTE: All results listed on this report are calculated on a wet weight basis (as received by the laboratory) unless otherwise noted in the analysis qualification sections.

Summary Comments:

See attached radiological analysis from Sub-Contract Laboratory

Fluoride-SM 4500-F D-2011

Qualifiers:

M1 MS/MSD Recovery limit exceeded.

Fluoride

9C21022-MS1

Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 04/12/2019 11:14

MW-9
1903401-01 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Classical Chemistry Parameters

Chloride	617	25.0	mg/L	50.0	9C26028	DLW	03/25/2019 09:43	03/25/2019 13:57	SM 4110B 2011	
Sulfate as SO ₄	138	20.0	"	4.0	"	DLW	"	03/25/2019 13:39	"	
Fluoride	0.34	0.22	"	1.0	9C21018	DLW	03/21/2019 11:30	03/21/2019 12:55	SM 4500-F D-2011	
Total Dissolved Solids	1340	1	"	"	9C26048	DLW	03/22/2019 15:55	03/25/2019 16:15	SM 2540 C-2011	

Metals by EPA 200 Series Methods ICP-AES

Barium	0.240	0.010	mg/L	1.0	9C28006	ADB	03/28/2019 09:00	03/28/2019 12:48	EPA 200.7 Rev 4.4	
Boron	ND	0.050	"	"	"	ADB	"	"	"	
Calcium	105	0.200	"	2.0	"	ADB	"	03/28/2019 14:57	"	
Lithium	0.121	0.050	"	1.0	"	ADB	"	03/28/2019 12:48	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9C27030	ADB	03/27/2019 09:25	03/28/2019 12:31	EPA 200.8 Rev 5.4	
Beryllium [He]	0.00547	0.00100	"	"	"	ADB	"	"	"	
Cadmium [HHe]	0.00137	0.00100	"	"	"	ADB	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cobalt [He]	0.0288	0.00100	"	"	"	ADB	"	"	"	
Lead [He]	0.00105	0.00100	"	"	"	ADB	"	"	"	

Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 04/12/2019 11:14

OW-2
1903401-02 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
Classical Chemistry Parameters										
Chloride	38.3	2.00	mg/L	4.0	9C26028	DLW	03/25/2019 09:43	03/25/2019 14:14	SM 4110B 2011	
Sulfate as SO₄	118	20.0	"	"	"	DLW	"	"	"	
Fluoride	0.54	0.22	"	1.0	9C21018	DLW	03/21/2019 11:30	03/21/2019 12:55	SM 4500-F D-2011	
Total Dissolved Solids	330	1	"	"	9C26048	DLW	03/22/2019 15:55	03/25/2019 16:15	SM 2540 C-2011	
Metals by EPA 200 Series Methods ICP-AES										
Barium	0.105	0.010	mg/L	1.0	9C28006	ADB	03/28/2019 09:00	03/28/2019 14:35	EPA 200.7 Rev 4.4	
Boron	ND	0.050	"	"	"	ADB	"	"	"	
Calcium	37.2	0.100	"	"	"	ADB	"	"	"	
Lithium	ND	0.050	"	"	"	ADB	"	"	"	
Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]										
Antimony [HHe]	ND	0.00500	mg/L	1.0	9C27030	ADB	03/27/2019 09:25	03/28/2019 12:53	EPA 200.8 Rev 5.4	
Beryllium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cobalt [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	"	"	

Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 04/12/2019 11:14

MW-13
1903401-03 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Classical Chemistry Parameters

Chloride	3.84	0.500	mg/L	1.0	9C26028	DLW	03/25/2019 09:43	03/25/2019 14:34	SM 4110B 2011	
Sulfate as SO₄	7.54	5.00	"	"	"	DLW	"	"	"	
Fluoride	0.29	0.22	"	"	9C21018	DLW	03/21/2019 11:30	03/21/2019 12:55	SM 4500-F D-2011	
Total Dissolved Solids	146	1	"	"	9C26048	DLW	03/22/2019 15:55	03/25/2019 16:15	SM 2540 C-2011	

Metals by EPA 200 Series Methods ICP-AES

Barium	0.071	0.010	mg/L	1.0	9C28006	ADB	03/28/2019 09:00	03/28/2019 13:11	EPA 200.7 Rev 4.4	
Boron	ND	0.050	"	"	"	ADB	"	"	"	
Calcium	69.1	0.100	"	"	"	ADB	"	"	"	
Lithium	ND	0.050	"	"	"	ADB	"	"	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9C27030	ADB	03/27/2019 09:25	03/28/2019 13:00	EPA 200.8 Rev 5.4	
Beryllium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cobalt [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	"	"	

Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
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 Reported:
 04/12/2019 11:14

MW-7
1903401-04 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
---------	--------	-----	-------	-----	-------	---------	--------------------------	--------------------------	--------	------------

Classical Chemistry Parameters

Chloride	2.93	0.500	mg/L	1.0	9C26028	DLW	03/25/2019 09:43	03/25/2019 14:52	SM 4110B 2011	
Sulfate as SO ₄	42.5	10.0	"	2.0	"	DLW	"	03/25/2019 15:10	"	
Fluoride	ND	0.22	"	1.0	9C21018	DLW	03/21/2019 11:30	03/21/2019 12:55	SM 4500-F D-2011	
Total Dissolved Solids	229	1	"	"	9C26048	DLW	03/22/2019 15:55	03/25/2019 16:15	SM 2540 C-2011	

Metals by EPA 200 Series Methods ICP-AES

Barium	0.102	0.010	mg/L	1.0	9C28006	ADB	03/28/2019 09:00	03/28/2019 13:16	EPA 200.7 Rev 4.4	
Boron	0.286	0.050	"	"	"	ADB	"	"	"	
Calcium	114	0.200	"	2.0	"	ADB	"	03/28/2019 15:04	"	
Lithium	ND	0.050	"	1.0	"	ADB	"	03/28/2019 13:16	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9C27030	ADB	03/27/2019 09:25	03/28/2019 13:08	EPA 200.8 Rev 5.4	
Beryllium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cobalt [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	"	"	

Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 04/12/2019 11:14

MW-14
1903401-05 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
Classical Chemistry Parameters										
Chloride	19.8	0.500	mg/L	1.0	9C26028	DLW	03/25/2019 09:43	03/25/2019 20:02	SM 4110B 2011	
Sulfate as SO₄	14.6	5.00	"	"	"	DLW	"	"	"	
Fluoride	ND	0.22	"	"	9C21018	DLW	03/21/2019 11:30	03/21/2019 12:55	SM 4500-F D-2011	
Total Dissolved Solids	90	1	"	"	9C26048	DLW	03/22/2019 15:55	03/25/2019 16:15	SM 2540 C-2011	
Metals by EPA 200 Series Methods ICP-AES										
Barium	0.014	0.010	mg/L	1.0	9C28006	ADB	03/28/2019 09:00	03/28/2019 13:22	EPA 200.7 Rev 4.4	
Boron	ND	0.050	"	"	"	ADB	"	"	"	
Calcium	0.662	0.100	"	"	"	ADB	"	"	"	
Lithium	ND	0.050	"	"	"	ADB	"	"	"	
Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]										
Antimony [HHe]	ND	0.00500	mg/L	1.0	9C27030	ADB	03/27/2019 09:25	03/28/2019 13:16	EPA 200.8 Rev 5.4	
Beryllium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cobalt [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	"	"	

Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 04/12/2019 11:14

Field Blank
1903401-06 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Classical Chemistry Parameters

Chloride	2.38	0.500	mg/L	1.0	9C26028	DLW	03/25/2019 09:43	03/25/2019 20:19	SM 4110B 2011	
Sulfate as SO ₄	ND	5.00	"	"	"	DLW	"	"	"	
Fluoride	0.27	0.22	"	"	9C21018	DLW	03/21/2019 11:30	03/21/2019 12:55	SM 4500-F D-2011	
Total Dissolved Solids	53	1	"	"	9C26048	DLW	03/22/2019 15:55	03/25/2019 16:15	SM 2540 C-2011	

Metals by EPA 200 Series Methods ICP-AES

Barium	ND	0.010	mg/L	1.0	9C28006	ADB	03/28/2019 09:00	03/28/2019 13:27	EPA 200.7 Rev 4.4	
Boron	ND	0.050	"	"	"	ADB	"	"	"	
Calcium	2.68	0.100	"	"	"	ADB	"	"	"	
Lithium	ND	0.050	"	"	"	ADB	"	"	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9C27030	ADB	03/27/2019 09:25	03/28/2019 13:23	EPA 200.8 Rev 5.4	
Beryllium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cobalt [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	"	"	

Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 04/12/2019 11:14

Duplicate
1903401-07 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Classical Chemistry Parameters

Chloride	19.8	0.500	mg/L	1.0	9C26028	DLW	03/25/2019 09:43	03/25/2019 20:37	SM 4110B 2011	
Sulfate as SO₄	14.5	5.00	"	"	"	DLW	"	"	"	
Fluoride	ND	0.22	"	"	9C21018	DLW	03/21/2019 11:30	03/21/2019 12:55	SM 4500-F D-2011	
Total Dissolved Solids	86	1	"	"	9C26048	DLW	03/22/2019 15:55	03/25/2019 16:15	SM 2540 C-2011	

Metals by EPA 200 Series Methods ICP-AES

Barium	0.013	0.010	mg/L	1.0	9C28006	ADB	03/28/2019 09:00	03/28/2019 13:33	EPA 200.7 Rev 4.4	
Boron	ND	0.050	"	"	"	ADB	"	"	"	
Calcium	0.636	0.100	"	"	"	ADB	"	"	"	
Lithium	ND	0.050	"	"	"	ADB	"	"	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9C27030	ADB	03/27/2019 09:25	03/28/2019 13:31	EPA 200.8 Rev 5.4	
Beryllium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cobalt [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	"	"	

Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 04/12/2019 11:14

MW-12
1903401-08 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
Classical Chemistry Parameters										
Chloride	75.7	2.00	mg/L	4.0	9C26028	DLW	03/25/2019 09:43	03/25/2019 21:13	SM 4110B 2011	
Sulfate as SO4	69.7	20.0	"	"	"	DLW	"	"	"	
Fluoride	ND	0.22	"	1.0	9C21018	DLW	03/21/2019 11:30	03/21/2019 12:55	SM 4500-F D-2011	
Total Dissolved Solids	262	1	"	"	9C26048	DLW	03/22/2019 15:55	03/25/2019 16:15	SM 2540 C-2011	
Metals by EPA 200 Series Methods ICP-AES										
Barium	0.303	0.010	mg/L	1.0	9C28006	ADB	03/28/2019 09:00	03/28/2019 13:38	EPA 200.7 Rev 4.4	
Boron	ND	0.050	"	"	"	ADB	"	"	"	
Calcium	37.2	0.100	"	"	"	ADB	"	"	"	
Lithium	ND	0.050	"	"	"	ADB	"	"	"	
Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]										
Antimony [HHe]	ND	0.00500	mg/L	1.0	9C27030	ADB	03/27/2019 09:25	03/28/2019 13:39	EPA 200.8 Rev 5.4	
Beryllium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cobalt [He]	0.0208	0.00100	"	"	"	ADB	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	"	"	

Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 04/12/2019 11:14

MW-15
1903401-09 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Classical Chemistry Parameters

Chloride	15.4	0.500	mg/L	1.0	9C26028	DLW	03/25/2019 09:43	03/25/2019 21:31	SM 4110B 2011	
Sulfate as SO4	76.9	20.0	"	4.0	"	DLW	"	03/25/2019 21:49	"	
Fluoride	0.27	0.22	"	1.0	9C21022	DLW	03/21/2019 14:00	03/21/2019 14:45	SM 4500-F D-2011	
Total Dissolved Solids	304	1	"	"	9C26048	DLW	03/22/2019 15:55	03/25/2019 16:15	SM 2540 C-2011	

Metals by EPA 200 Series Methods ICP-AES

Barium	0.212	0.010	mg/L	1.0	9C28006	ADB	03/28/2019 09:00	03/28/2019 13:44	EPA 200.7 Rev 4.4	
Boron	ND	0.050	"	"	"	ADB	"	"	"	
Calcium	34.1	0.100	"	"	"	ADB	"	"	"	
Lithium	ND	0.050	"	"	"	ADB	"	"	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9C27030	ADB	03/27/2019 09:25	03/28/2019 14:09	EPA 200.8 Rev 5.4	
Beryllium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cobalt [He]	0.0103	0.00100	"	"	"	ADB	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	"	"	

Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 04/12/2019 11:14

CCR-2
1903401-10 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
Classical Chemistry Parameters										
Chloride	2.58	0.500	mg/L	1.0	9C26028	DLW	03/25/2019 09:43	03/25/2019 22:07	SM 4110B 2011	
Sulfate as SO₄	11.3	5.00	"	"	"	DLW	"	"	"	
Fluoride	ND	0.22	"	"	9C21022	DLW	03/21/2019 14:00	03/21/2019 14:45	SM 4500-F D-2011	
Total Dissolved Solids	77	1	"	"	9C26048	DLW	03/22/2019 15:55	03/25/2019 16:15	SM 2540 C-2011	
Metals by EPA 200 Series Methods ICP-AES										
Barium	0.103	0.010	mg/L	1.0	9C28006	ADB	03/28/2019 09:00	03/28/2019 13:56	EPA 200.7 Rev 4.4	
Boron	ND	0.050	"	"	"	ADB	"	"	"	
Calcium	13.9	0.100	"	"	"	ADB	"	"	"	
Lithium	ND	0.050	"	"	"	ADB	"	"	"	
Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]										
Antimony [HHe]	ND	0.00500	mg/L	1.0	9C27030	ADB	03/27/2019 09:25	03/28/2019 14:17	EPA 200.8 Rev 5.4	
Beryllium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cobalt [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	"	"	

Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 04/12/2019 11:14

CCR-3
1903401-11 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Classical Chemistry Parameters

Chloride	5.16	0.500	mg/L	1.0	9C26028	DLW	03/26/2019 09:43	03/26/2019 14:31	SM 4110B 2011	
Sulfate as SO ₄	283	100	"	20.0	"	DLW	"	03/26/2019 14:49	"	
Fluoride	0.48	0.22	"	1.0	9C21022	DLW	03/21/2019 14:00	03/21/2019 14:45	SM 4500-F D-2011	
Total Dissolved Solids	463	1	"	"	9C26048	DLW	03/22/2019 15:55	03/25/2019 16:15	SM 2540 C-2011	

Metals by EPA 200 Series Methods ICP-AES

Barium	0.090	0.010	mg/L	1.0	9C28006	ADB	03/28/2019 09:00	03/28/2019 14:02	EPA 200.7 Rev 4.4	
Boron	ND	0.050	"	"	"	ADB	"	"	"	
Calcium	56.0	0.100	"	"	"	ADB	"	"	"	
Lithium	0.117	0.050	"	"	"	ADB	"	"	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9C27030	ADB	03/27/2019 09:25	03/28/2019 14:24	EPA 200.8 Rev 5.4	
Beryllium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cobalt [He]	0.00493	0.00100	"	"	"	ADB	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	"	"	

Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 04/12/2019 11:14

CCR-4
1903401-12 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
Classical Chemistry Parameters										
Chloride	9.21	0.500	mg/L	1.0	9C26028	DLW	03/26/2019 09:43	03/26/2019 15:07	SM 4110B 2011	
Sulfate as SO4	29.9	5.00	"	"	"	DLW	"	"	"	
Fluoride	ND	0.22	"	"	9C21022	DLW	03/21/2019 14:00	03/21/2019 14:45	SM 4500-F D-2011	
Total Dissolved Solids	200	1	"	"	9C26048	DLW	03/22/2019 15:55	03/25/2019 16:15	SM 2540 C-2011	
Metals by EPA 200 Series Methods ICP-AES										
Barium	0.157	0.010	mg/L	1.0	9C28006	ADB	03/28/2019 09:00	03/28/2019 14:18	EPA 200.7 Rev 4.4	
Boron	ND	0.050	"	"	"	ADB	"	"	"	
Calcium	27.3	0.100	"	"	"	ADB	"	"	"	
Lithium	ND	0.050	"	"	"	ADB	"	"	"	
Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]										
Antimony [HHe]	ND	0.00500	mg/L	1.0	9C27030	ADB	03/27/2019 09:25	03/28/2019 14:46	EPA 200.8 Rev 5.4	
Beryllium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cobalt [He]	0.00422	0.00100	"	"	"	ADB	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	"	"	

Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
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 Reported:
 04/12/2019 11:14

CCR-5
1903401-13 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Classical Chemistry Parameters

Chloride	9.17	0.500	mg/L	1.0	9C26028	DLW	03/26/2019 09:43	03/26/2019 15:45	SM 4110B 2011	
Sulfate as SO ₄	1400	250	"	50.0	"	DLW	"	03/26/2019 15:25	"	
Fluoride	0.70	0.22	"	1.0	9C21022	DLW	03/21/2019 14:00	03/21/2019 14:45	SM 4500-F D-2011	
Total Dissolved Solids	1985	1	"	"	9C26048	DLW	03/22/2019 15:55	03/25/2019 16:15	SM 2540 C-2011	

Metals by EPA 200 Series Methods ICP-AES

Barium	0.028	0.010	mg/L	1.0	9C28006	ADB	03/28/2019 09:00	03/28/2019 14:24	EPA 200.7 Rev 4.4	
Boron	0.058	0.050	"	"	"	ADB	"	"	"	
Calcium	245	0.500	"	5.0	"	ADB	"	03/28/2019 15:07	"	
Lithium	ND	0.050	"	1.0	"	ADB	"	03/28/2019 14:24	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9C27030	ADB	03/27/2019 09:25	03/28/2019 14:54	EPA 200.8 Rev 5.4	
Beryllium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cobalt [He]	0.0465	0.00100	"	"	"	ADB	"	"	"	
Lead [He]	0.00125	0.00100	"	"	"	ADB	"	"	"	

Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 04/12/2019 11:14

Classical Chemistry Parameters - Quality Control

Analyte	Analyzed	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifiers
Batch 9C21018 - Default Prep GenChem											
Blank (9C21018-BLK1)											
Fluoride	3/21/19 12:55	ND	0.22	mg/L							
LCS (9C21018-BS1)											
Fluoride	3/21/19 12:55	0.77	0.22	mg/L	0.800		96.7	75-125			
LCS Dup (9C21018-BSD1)											
Fluoride	3/21/19 12:55	0.76	0.22	mg/L	0.800		95.1	75-125	1.71	30	
Duplicate (9C21018-DUP1)											
Source: 1903401-01											
Fluoride	3/21/19 12:55	0.37	0.22	mg/L		0.34			5.91	35	
Matrix Spike (9C21018-MS1)											
Source: 1903401-01											
Fluoride	3/21/19 12:55	1.07	0.22	mg/L	0.800	0.34	91.3	70-130			
Matrix Spike Dup (9C21018-MSD1)											
Source: 1903401-01											
Fluoride	3/21/19 12:55	1.03	0.22	mg/L	0.800	0.34	85.1	70-130	4.74	30	
Batch 9C21022 - Default Prep GenChem											
Blank (9C21022-BLK1)											
Fluoride	3/21/19 14:45	ND	0.22	mg/L							
LCS (9C21022-BS1)											
Fluoride	3/21/19 14:45	0.88	0.22	mg/L	0.800		109	75-125			
LCS Dup (9C21022-BSD1)											
Fluoride	3/21/19 14:45	0.85	0.22	mg/L	0.800		106	75-125	3.34	30	

Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 04/12/2019 11:14

Classical Chemistry Parameters - Quality Control

Analyte	Analyzed	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifiers
Batch 9C21022 - Default Prep GenChem											
Duplicate (9C21022-DUP1)			Source: 1903402-04								
Fluoride	3/21/19 14:45	0.41	0.22	mg/L		0.46			10.2	35	
Matrix Spike (9C21022-MS1)			Source: 1903402-04								
Fluoride	3/21/19 14:45	1.56	0.22	mg/L	0.800	0.46	137	70-130			M1
Matrix Spike Dup (9C21022-MSD1)			Source: 1903402-04								
Fluoride	3/21/19 14:45	1.44	0.22	mg/L	0.800	0.46	122	70-130	8.04	30	
Batch 9C26028 - Default Prep GenChem											
Blank (9C26028-BLK1)											
Chloride	3/25/19 12:40	ND	0.500	mg/L							
Sulfate as SO4	3/25/19 12:40	ND	5.00	"							
Blank (9C26028-BLK2)											
Chloride	3/26/19 12:23	ND	0.500	mg/L							
Sulfate as SO4	3/26/19 12:23	ND	5.00	"							
Blank (9C26028-BLK3)											
Chloride	3/27/19 12:00	ND	0.500	mg/L							
LCS (9C26028-BS1)											
Chloride	3/25/19 11:45	2.95	0.500	mg/L	3.00		98.3	85.4-110			
Sulfate as SO4	3/25/19 11:45	14.3	5.00	"	15.0		95.3	83.3-120			
LCS (9C26028-BS2)											
Chloride	3/26/19 10:52	3.00	0.500	mg/L	3.00		100	85.4-110			
Sulfate as SO4	3/26/19 10:52	15.2	5.00	"	15.0		101	83.3-120			

Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 04/12/2019 11:14

Classical Chemistry Parameters - Quality Control

Analyte	Analyzed	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifiers
Batch 9C26028 - Default Prep GenChem											
LCS (9C26028-BS3)											
Chloride	3/27/19 10:50	3.13	0.500	mg/L	3.00		104	85.4-110			
LCS Dup (9C26028-BSD1)											
Chloride	3/25/19 12:57	2.94	0.500	mg/L	3.00		98.1	85.4-110	0.238	20	
Sulfate as SO ₄	3/25/19 12:57	14.5	5.00	"	15.0		96.4	83.3-120	1.22	20	
LCS Dup (9C26028-BSD2)											
Chloride	3/26/19 11:26	3.11	0.500	mg/L	3.00		104	85.4-110	3.53	20	
Sulfate as SO ₄	3/26/19 11:26	15.1	5.00	"	15.0		101	83.3-120	0.476	20	
LCS Dup (9C26028-BSD3)											
Chloride	3/27/19 11:21	3.12	0.500	mg/L	3.00		104	85.4-110	0.288	20	
Duplicate (9C26028-DUP1) Source: 1903401-03											
Chloride	3/27/19 12:51	3.92	0.500	mg/L		3.84			2.14	20	
Sulfate as SO ₄	3/25/19 19:08	7.60	5.00	"		7.54			0.845	20	
Matrix Spike (9C26028-MS1) Source: 1903401-03											
Chloride	3/25/19 19:26	43.4	2.00	mg/L	40.0	3.84	98.8	79-119			
Sulfate as SO ₄	3/25/19 19:26	45.5	20.0	"	40.0	7.54	94.9	43.5-124			
Matrix Spike Dup (9C26028-MSD1) Source: 1903401-03											
Chloride	3/25/19 19:44	43.5	2.00	mg/L	40.0	3.84	99.2	79-119	0.341	20	
Sulfate as SO ₄	3/25/19 19:44	45.9	20.0	"	40.0	7.54	96.0	43.5-124	0.954	20	
Batch 9C26048 - Default Prep GenChem											
Blank (9C26048-BLK1)											
Total Dissolved Solids	3/25/19 16:15	ND	1	mg/L							



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Red Hills Power Plant
2391 Pensacola Rd.
Ackerman MS, 39735

Project: Red Hills CCR
Project Number: Red Hills
Project Manager: Jim Ward

Reported:
04/12/2019 11:14

Classical Chemistry Parameters - Quality Control

Analyte	Analyzed	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifiers
Batch 9C26048 - Default Prep GenChem											
LCS (9C26048-BS1)											
Total Dissolved Solids	3/25/19 16:15	94	1	mg/L	104		90.4	82.2-100			
LCS Dup (9C26048-BSD1)											
Total Dissolved Solids	3/25/19 16:15	90	1	mg/L	104		86.5	82.2-100	4.35	15	
Duplicate (9C26048-DUP1) Source: 1903401-01											
Total Dissolved Solids	3/25/19 16:15	1344	1	mg/L		1340			0.298	5	
Duplicate (9C26048-DUP2) Source: 1903402-04											
Total Dissolved Solids	3/25/19 16:15	569	1	mg/L		561			1.42	5	

Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 04/12/2019 11:14

Metals by EPA 200 Series Methods ICP-AES - Quality Control

Analyte	Analyzed	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifiers
Batch 9C28006 - EPA 200.2 DCN 1017 Rev 8											
Blank (9C28006-BLK1)											
Barium	3/28/19 12:43	ND	0.010	mg/L							
Boron	3/28/19 12:43	ND	0.050	"							
Calcium	3/28/19 12:43	ND	0.100	"							
Lithium	3/28/19 12:43	ND	0.050	"							
LCS (9C28006-BS1)											
Barium	3/28/19 12:39	0.421	0.010	mg/L	0.400		105	85-115			
Boron	3/28/19 12:39	0.398	0.050	"	0.400		99.6	85-115			
Calcium	3/28/19 12:39	0.391	0.100	"	0.400		97.7	85-115			
Lithium	3/28/19 12:39	0.408	0.050	"	0.400		102	85-115			
LCS Dup (9C28006-BSD1)											
Barium	3/28/19 12:36	0.421	0.010	mg/L	0.400		105	85-115	0.115	20	
Boron	3/28/19 12:36	0.389	0.050	"	0.400		97.3	85-115	2.34	20	
Calcium	3/28/19 12:36	0.400	0.100	"	0.400		100	85-115	2.41	20	
Lithium	3/28/19 12:36	0.403	0.050	"	0.400		101	85-115	1.11	20	
Duplicate (9C28006-DUP1) Source: 1903401-01											
Calcium	3/28/19 15:02	105	0.200	mg/L		105			0.288	20	
Duplicate (9C28006-DUP2) Source: 1903401-11											
Calcium	3/28/19 14:07	55.4	0.100	mg/L		56.0			0.955	20	
Matrix Spike (9C28006-MS1) Source: 1903401-01											
Barium	3/28/19 12:54	0.633	0.010	mg/L	0.400	0.240	98.3	70-130			
Boron	3/28/19 12:54	0.381	0.050	"	0.400	0.007	93.4	70-130			
Lithium	3/28/19 12:54	0.505	0.050	"	0.400	0.121	96.1	70-130			

Red Hills Power Plant
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 Reported:
 04/12/2019 11:14

Metals by EPA 200 Series Methods ICP-AES - Quality Control

Analyte	Analyzed	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifiers
Batch 9C28006 - EPA 200.2 DCN 1017 Rev 8											
Matrix Spike (9C28006-MS2)			Source: 1903401-11								
Barium	3/28/19 14:07	0.497	0.010	mg/L	0.400	0.090	102	70-130			
Boron	3/28/19 14:07	0.409	0.050	"	0.400	0.017	98.1	70-130			
Lithium	3/28/19 14:07	0.514	0.050	"	0.400	0.117	99.4	70-130			
Matrix Spike Dup (9C28006-MSD1)			Source: 1903401-01								
Barium	3/28/19 12:59	0.625	0.010	mg/L	0.400	0.240	96.4	70-130	1.22	20	
Boron	3/28/19 12:59	0.376	0.050	"	0.400	0.007	92.1	70-130	1.41	20	
Lithium	3/28/19 12:59	0.505	0.050	"	0.400	0.121	96.2	70-130	0.0753	20	
Matrix Spike Dup (9C28006-MSD2)			Source: 1903401-11								
Barium	3/28/19 14:13	0.477	0.010	mg/L	0.400	0.090	96.8	70-130	4.14	20	
Boron	3/28/19 14:13	0.408	0.050	"	0.400	0.017	97.7	70-130	0.366	20	
Lithium	3/28/19 14:13	0.492	0.050	"	0.400	0.117	93.8	70-130	4.44	20	

Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 04/12/2019 11:14

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode] - Quality Control

Analyte	Analyzed	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifiers
Batch 9C27030 - EPA 200.2 DCN 1017 Rev 8											
Blank (9C27030-BLK1)											
Antimony [HHe]	3/28/19 12:08	ND	0.00200	mg/L							
Beryllium [He]	3/28/19 12:08	ND	0.00100	"							
Cadmium [HHe]	3/28/19 12:08	ND	0.00100	"							
Chromium [He]	3/28/19 12:08	ND	0.00100	"							
Cobalt [He]	3/28/19 12:08	ND	0.00100	"							
Lead [He]	3/28/19 12:08	ND	0.00100	"							
LCS (9C27030-BS1)											
Antimony [HHe]	3/28/19 12:16	0.096	0.00200	mg/L	0.100		96.3	85-115			
Beryllium [He]	3/28/19 12:16	0.107	0.00100	"	0.100		107	85-115			
Cadmium [HHe]	3/28/19 12:16	0.093	0.00100	"	0.100		92.8	85-115			
Chromium [He]	3/28/19 12:16	0.098	0.00100	"	0.100		98.3	85-115			
Cobalt [He]	3/28/19 12:16	0.109	0.00100	"	0.100		109	85-115			
Lead [He]	3/28/19 12:16	0.104	0.00100	"	0.100		104	85-115			
LCS Dup (9C27030-BSD1)											
Antimony [HHe]	3/28/19 12:23	0.096	0.00200	mg/L	0.100		95.7	85-115	0.594	20	
Beryllium [He]	3/28/19 12:23	0.105	0.00100	"	0.100		105	85-115	1.54	20	
Cadmium [HHe]	3/28/19 12:23	0.092	0.00100	"	0.100		91.6	85-115	1.24	20	
Chromium [He]	3/28/19 12:23	0.098	0.00100	"	0.100		97.6	85-115	0.783	20	
Cobalt [He]	3/28/19 12:23	0.107	0.00100	"	0.100		107	85-115	1.40	20	
Lead [He]	3/28/19 12:23	0.103	0.00100	"	0.100		103	85-115	0.356	20	
Matrix Spike (9C27030-MS1)											
Source: 1903401-01											
Antimony [HHe]	3/28/19 12:38	0.100	0.00200	mg/L	0.100	ND	99.7	70-130			
Beryllium [He]	3/28/19 12:38	0.109	0.00100	"	0.100	0.005	103	70-130			
Cadmium [HHe]	3/28/19 12:38	0.090	0.00100	"	0.100	0.001	88.4	70-130			
Chromium [He]	3/28/19 12:38	0.094	0.00100	"	0.100	0.0002	93.5	70-130			
Cobalt [He]	3/28/19 12:38	0.130	0.00100	"	0.100	0.029	101	70-130			
Lead [He]	3/28/19 12:38	0.104	0.00100	"	0.100	0.001	103	70-130			

Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

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 Project Number: Red Hills
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 Reported:
 04/12/2019 11:14

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode] - Quality Control

Analyte	Analyzed	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifiers
Batch 9C27030 - EPA 200.2 DCN 1017 Rev 8											
Matrix Spike (9C27030-MS2)			Source: 1903401-11								
Antimony [HHe]	3/28/19 14:32	0.098	0.00200	mg/L	0.100	ND	97.9	70-130			
Beryllium [He]	3/28/19 14:32	0.102	0.00100	"	0.100	0.0002	102	70-130			
Cadmium [HHe]	3/28/19 14:32	0.090	0.00100	"	0.100	ND	90.1	70-130			
Chromium [He]	3/28/19 14:32	0.097	0.00100	"	0.100	0.0002	96.8	70-130			
Cobalt [He]	3/28/19 14:32	0.113	0.00100	"	0.100	0.005	108	70-130			
Lead [He]	3/28/19 14:32	0.100	0.00100	"	0.100	ND	100	70-130			
Matrix Spike Dup (9C27030-MSD1)			Source: 1903401-01								
Antimony [HHe]	3/28/19 12:46	0.104	0.00200	mg/L	0.100	ND	104	70-130	3.98	20	
Beryllium [He]	3/28/19 12:46	0.107	0.00100	"	0.100	0.005	102	70-130	0.945	20	
Cadmium [HHe]	3/28/19 12:46	0.093	0.00100	"	0.100	0.001	91.9	70-130	3.74	20	
Chromium [He]	3/28/19 12:46	0.093	0.00100	"	0.100	0.0002	92.9	70-130	0.681	20	
Cobalt [He]	3/28/19 12:46	0.129	0.00100	"	0.100	0.029	100	70-130	0.214	20	
Lead [He]	3/28/19 12:46	0.103	0.00100	"	0.100	0.001	102	70-130	0.972	20	
Matrix Spike Dup (9C27030-MSD2)			Source: 1903401-11								
Antimony [HHe]	3/28/19 14:39	0.097	0.00200	mg/L	0.100	ND	96.9	70-130	1.05	20	
Beryllium [He]	3/28/19 14:39	0.102	0.00100	"	0.100	0.0002	102	70-130	0.0724	20	
Cadmium [HHe]	3/28/19 14:39	0.089	0.00100	"	0.100	ND	88.8	70-130	1.43	20	
Chromium [He]	3/28/19 14:39	0.096	0.00100	"	0.100	0.0002	95.8	70-130	1.03	20	
Cobalt [He]	3/28/19 14:39	0.113	0.00100	"	0.100	0.005	108	70-130	0.0891	20	
Lead [He]	3/28/19 14:39	0.099	0.00100	"	0.100	ND	99.5	70-130	0.561	20	

Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 04/12/2019 11:14

Certified Analyses Included in this Report

Analyte	Certification Code
---------	--------------------

EPA 200.7 Rev 4.4 in Water

Aluminum	C01,C02
Antimony	C01,C02
Arsenic	C01,C02
Barium	C01,C02
Beryllium	C01,C02
Boron	C01,C02
Cadmium	C01,C02
Calcium	C01,C02
Chromium	C01,C02
Cobalt	C01,C02
Copper	C01,C02
Iron	C01,C02
Lead	C01,C02
Magnesium	C01,C02
Manganese	C01,C02
Molybdenum	C01,C02
Nickel	C01,C02
Potassium	C01,C02
Selenium	C01,C02
Silver	C01,C02
Sodium	C01,C02
Strontium	C01,C02
Thallium	C01,C02
Vanadium	C01,C02
Zinc	C01,C02

EPA 200.8 Rev 5.4 in Water

Aluminum [He]	C01,C02
Antimony [HHe]	C01,C02
Antimony [NG]	C01,C02
Arsenic [HHe]	C01,C02
Arsenic [NG]	C01,C02
Barium [He]	C01,C02
Beryllium [He]	C01,C02
Boron [NG]	C01,C02
Cadmium [HHe]	C01,C02
Cadmium [NG]	C01,C02
Chromium [He]	C01,C02
Cobalt [He]	C01,C02
Copper [He]	C01,C02
Copper [NG]	C01,C02
Iron [He]	C01,C02

Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
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 Reported:
 04/12/2019 11:14

Lead [He]	C01,C02
Lead [NG]	C01,C02
Manganese [He]	C01,C02
Molybdenum [He]	C01,C02
Nickel [He]	C01,C02
Selenium [HHe]	C01,C02
Selenium [NG]	C01,C02
Silver [He]	C01,C02
Silver [NG]	C01,C02
Strontium [He]	C01,C02
Thallium [He]	C01,C02
Vanadium [He]	C01,C02
Zinc [He]	C01,C02
Antimony [He]	C01,C02

SM 2540 C-2011 in Water

Total Dissolved Solids	C01,C02
------------------------	---------

SM 4110B 2011 in Water

Chloride	C01,C02
Sulfate as SO ₄	C01,C02
Nitrate as N	C01,C02

****Only compounds included in this list are associated with accredited analyses****

Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 04/12/2019 11:14

Laboratory Accreditations/Certifications

Code	Description	Number	Expires
C01	LA Environmental Lab Accreditation Program	01960	06/30/2019
C02	The NELAC Institute (NELAP)	TNI01397	06/30/2019
C03	Ms Dept of Health (Drinking Water Microbiology)	MS00021	12/31/2019
C04	Ms Dept of Health (Drinking Water Chemistry)	MS00021	12/31/2019
C05	Ms DEQ Lead Firm Certification	PBF-00000028	03/24/2020
C06	MsDEQ Asbestos Inspector : C.D. Bingham	ABI-00001348	02/21/2020
C07	MsDEQ Air Monitor : C.D. Bingham	AM-011572	03/07/2020
C08	MsDEQ Asbestos Inspector: C. W. Meins	ABI-00001821	09/06/2019
C09	MsDEQ Air Monitor : C.W. Meins	AM-011189	03/07/2020
C12			
C14	MsDEQ Lead Paint Inspector : C.D. Bingham	PBI-00003690	02/22/2020
C15	MsDEQ Lead Paint Inspector : C.W. Meins	PBI-00001740	02/22/2020

Report Definitions

TNC	Too Numerous To Count
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the minimum reporting limit
NR	Not Reported
RPD	Relative Percent Difference
ICV	Initial Calibration Verification
CCV	Continuing Calibration Verification Standard
SSV	Secondary Source Verification Standard
LCS	Lab Control Spike - Lab matrix prepared with known concentration of analyte/s of interest analyzed by method.
MS	Matrix Spike - Sample prepared with known concentration of analyte/s of interest analyzed by method.
MSD	Matrix Spike Duplicate - Duplicate sample prepared with known concentration of analyte/s of interest analyzed by method.
MRL	Minimum Reporting Limit
%REC	Percentage Recovery of known concentration added to matrix
Batch	Group of samples prepared for analysis not to exceed 20 samples.
Matrix	Material containing analyte/s of interest
Surrogate	Analyte added to sample to determine extraction efficiency of method.

Red Hills Power Plant
2391 Pensacola Rd.
Ackerman MS, 39735Project: Red Hills CCR
Project Number: Red Hills
Project Manager: Jim Ward**Reported:**
04/12/2019 11:14**Analyst Initials Key**

<u>FullName</u>	<u>Initials</u>
Alyssa D Bennett	ADB
Barbara K. McMillan	BKM
Charles L Vorhoff	CLV
Dortha L. Wells	DLW
Harry P. Howell	HPH
Sarah E. Tomek	SET
Teresa Meins	TKM
Tina Tomek	TPT

PO Box 1410, Ocean Springs, MS 39566-1410
(228) 875-6420 FAX (228) 875-6423
www.micromethodslab.com

Chain of Custody Record

Lab ID# MS00021
LELAP ID # 01960
TNI ID # TNI01397

Print Form

M-M Lab
WO #

1903401 1/2

Company Name: **Red Hills Power Plant**

Address: **2391 Pensacola Rd.**

City: **Ackerman** State: **MS** Zip: **39735**

Phone: **662-387-5758**

Fax:

Project Manager:

Jim Ward

Purchase Order #:

SCSRDH6883

Email Address:

Sampler Name Printed:

Kirk Shelton / BSC

Sampler Name Signed:

Preservative:

List Analyses Requested

Project Name: **Red Hills CCR**

Project #:

Sample Identification

Sampling Date/Time

Matrix Code

of Containers

Grab (G) or Composite (C)

TDS

Chloride, Fluoride, Sulfate

Antimony

Boron, Barium, Beryllium

Cadmium, Chromium

Lead, Calcium, Cobalt

Lithium

Total Radium 226 & 228

Matrix:

W = Water
DW = Drinking Water
S = Solid
SO = Soil
SE = Sediment
L = Liquid
A = Air
O = Oil
SL = Sludge

Preservation:

1 = H2SO4
2 = H3PO4
3 = NaOH
4 = ZnCl2/HNO3
5 = ZnCl2/HNO3 & NaOH
6 = HNO3
7 = Na2S2O3
8 = HCl
9 = NaHSO4

Received on Ice? Y N Thermometer # Cooler #

Receipt Temp Corrected (°C)

Date & Time

By:

Sample Blank Cooler

Printed Name

Signature

Company

Date

Time

Relinquished by

Relinquished by

Relinquished by

Received by

Received by

Notes:

All Temps are Corrected Values

Call 662 840 5445 or 662 397 6555 if there are any questions,

Physical Address: 6500 Sunplex Drive, Ocean Springs MS 39564

DCN# F316 Rev #5

PO Box 1410, Ocean Springs, MS 39566-1410
(228) 875-6420 FAX (228) 875-6423
www.micromethodslab.com

Chain of Custody Record

Lab ID# MS00021
LELAP ID # 01960
TNI ID # TNI01397

M-M Lab
WO #

1903401 2/2

Print Form

Company Name: Red Hills Power Plant						Project Manager: Jim Ward					
Address: 2391 Pensacola Rd.						Purchase Order #: SCSRDH6883					
City: Ackerman State: MS Zip: 39735						Email Address:					
Phone: 662-387-5758						Sampler Name Printed: KICK STATION / BS Hailey					
Fax:						Sampler Name Signed: [Signature]					
Project Name: Red Hills CCR						List Analyses Requested					
Project #:						Preservative					
Sample Identification						# of Containers					
						Grab (G) or Composite (C)					
						TDS					
						Chloride, Fluoride, Sulfate					
						Antimony					
						Barium Boron Beryllium					
						Cadmium Chromium					
						Lead Calcium Cobalt					
						Lithium					
						Total Radium 226 & 228					
CCR-3						4					
CCR-4						4					
CCR-5						4					
Received on Ice? Y N Thermometer#						Receipt Temp Corrected(°C)					
Date & Time						Cooler # Sample Blank Cooler					
Relinquished by						Printed Name Signature Company Date Time					
Relinquished by						Foster Schmitt M A Foster ECSI Inc 03/24/1905					
Relinquished by						Foster Schmitt M A Foster ECSI Inc 03/24/1905					
Relinquished by						Foster Schmitt M A Foster ECSI Inc 03/24/1905					
Received by						Notes:					
Physical Address: 6500 Sunplex Drive, Ocean Springs MS 39564						Turn Around Time & Reporting Our normal turn around time is 10 working days. <input checked="" type="checkbox"/> Normal Next Day* requests must be prior approved. Other* QC Level: Level 1 <input type="checkbox"/> Level 2 <input type="checkbox"/> Level 3 <input type="checkbox"/>					

Micro-Methods	Micro-Methods Laboratory Log-In Checklist	DCN: F207
Issue Date: 11-22-17		Date Revised: 11-22-17
		Revision: 5

Client Red Hills WO 1903401 Shipped By FedEx 8
 Date/Time Received 3/21/19 0759 Unpacked/Checked By _____

Cooler ID	Ice Present Yes/No	Temperature (Corrected)	Thermometer ID	Custody Sealed Yes/No	Custody Seal Intact Yes/No
#301	yes	2.2°C	T#4	yes	yes
#1124	✓	0.4°C	✓	✓	✓
#1136	✓	1.0°C	✓	✓	✓

If not iced, were samples received within one hour of collection? Yes ___ No ___ N/A ☒
 Temperature Blank Used Yes ☒ No ___ If not, temperature taken from cooler ___ or bottle ___
 Multi Cooler shipment: ID of samples in coolers that exceed 6°C _____

Custody Seals on Bottles Present Yes ___ No ☒
 Containers Intact Yes ☒ No ___
 Proper Containers for Requested Analysis Yes ☒ No ___

Correct Preservation Used for All Samples Yes ☒ No ___
 Adequate Sample for Analysis Requested Yes ☒ No ___

Volatile Vials Headspace Greater than 6mm in Diameter Yes ___ No ___ N/A ☒

Chain of Custody Form Included Yes ☒ No ___
 Chain of Custody Form Complete Yes ☒ No ___
 Chain of Custody Form Properly Relinquished Yes ☒ No ___
 Field Sheets/Special Instructions Included Yes ___ No ☒ N/A ☒
 Samples Missing on COC or From Cooler Yes ___ No ☒
 Sample Container Labels Match COC Yes ☒ No ___

Samples Received Within Holding Time Yes ☒ No ___
 Dept. Manager Notified of Rush/Short Holding Times Yes ___ No ___ N/A ☒

Does work order meet Micro Methods sample acceptance criteria Yes ☒ No ___
 Note: Samples that do not meet acceptance criteria must be documented in the Sample Rejection Log.

Client Contacted _____ Contacted By _____ Date/Time _____

Client Instructions: Cancel Work Order _____
 Proceed with Work Order _____ (Data will be qualified)

Comments: _____

April 11, 2019

Harry Howell
Micro Methods Laboratory, Inc.
P. O. Box 1410
Ocean Springs, MS 39566

RE: Project: 1903401
Pace Project No.: 2099351

Dear Harry Howell:

Enclosed are the analytical results for sample(s) received by the laboratory on March 25, 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,



Karen Brown
karen.brown@pacelabs.com
(504)469-0333
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

CERTIFICATIONS

Project: 1903401

Pace Project No.: 2099351

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

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

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 1903401

Pace Project No.: 2099351

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2099351001	1903401-01	Water	03/19/19 12:12	03/25/19 10:20
2099351002	1903401-02	Water	03/19/19 09:24	03/25/19 10:20
2099351003	1903401-03	Water	03/20/19 11:39	03/25/19 10:20
2099351004	1903401-04	Water	03/20/19 11:45	03/25/19 10:20
2099351005	1903401-05	Water	03/20/19 15:26	03/25/19 10:20
2099351006	1903401-06	Water	03/20/19 15:05	03/25/19 10:20
2099351007	1903401-07	Water	03/19/19 00:00	03/25/19 10:20
2099351008	1903401-08	Water	03/19/19 10:40	03/25/19 10:20
2099351009	1903401-09	Water	03/20/19 09:45	03/25/19 10:20
2099351010	1903401-10	Water	03/19/19 16:08	03/25/19 10:20
2099351011	1903401-11	Water	03/19/19 15:12	03/25/19 10:20
2099351012	1903401-12	Water	03/20/19 08:58	03/25/19 10:20
2099351013	1903401-13	Water	03/20/19 10:20	03/25/19 10:20

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 1903401

Pace Project No.: 2099351

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2099351001	1903401-01	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
2099351002	1903401-02	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
2099351003	1903401-03	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
2099351004	1903401-04	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
2099351005	1903401-05	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
2099351006	1903401-06	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
2099351007	1903401-07	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
2099351008	1903401-08	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
2099351009	1903401-09	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
2099351010	1903401-10	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
2099351011	1903401-11	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
2099351012	1903401-12	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
2099351013	1903401-13	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 1903401

Pace Project No.: 2099351

Method: EPA 903.1

Description: 903.1 Radium 226

Client: Micro Methods Laboratory, Inc.

Date: April 11, 2019

General Information:

13 samples were analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 1903401

Pace Project No.: 2099351

Method: EPA 904.0

Description: 904.0 Radium 228

Client: Micro Methods Laboratory, Inc.

Date: April 11, 2019

General Information:

13 samples were analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1903401

Pace Project No.: 2099351

Sample: 1903401-01 **Lab ID: 2099351001** Collected: 03/19/19 12:12 Received: 03/25/19 10:20 Matrix: Water

PWS: Site ID: Sample Type:

Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	1.22 ± 0.691 (0.731) C:NA T:85%	pCi/L	04/05/19 10:15	13982-63-3	
Radium-228	EPA 904.0	1.30 ± 0.510 (0.816) C:75% T:85%	pCi/L	04/10/19 12:23	15262-20-1	

Sample: 1903401-02 **Lab ID: 2099351002** Collected: 03/19/19 09:24 Received: 03/25/19 10:20 Matrix: Water

PWS: Site ID: Sample Type:

Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.404 ± 0.537 (0.862) C:NA T:91%	pCi/L	04/05/19 10:15	13982-63-3	
Radium-228	EPA 904.0	-0.0990 ± 0.372 (0.887) C:74% T:72%	pCi/L	04/10/19 12:23	15262-20-1	

Sample: 1903401-03 **Lab ID: 2099351003** Collected: 03/20/19 11:39 Received: 03/25/19 10:20 Matrix: Water

PWS: Site ID: Sample Type:

Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.149 ± 0.474 (0.873) C:NA T:91%	pCi/L	04/05/19 10:31	13982-63-3	
Radium-228	EPA 904.0	0.341 ± 0.375 (0.784) C:75% T:83%	pCi/L	04/10/19 12:24	15262-20-1	

Sample: 1903401-04 **Lab ID: 2099351004** Collected: 03/20/19 11:45 Received: 03/25/19 10:20 Matrix: Water

PWS: Site ID: Sample Type:

Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.231 ± 0.304 (0.475) C:NA T:104%	pCi/L	04/05/19 10:31	13982-63-3	
Radium-228	EPA 904.0	0.0141 ± 0.353 (0.816) C:78% T:79%	pCi/L	04/10/19 12:24	15262-20-1	

Sample: 1903401-05 **Lab ID: 2099351005** Collected: 03/20/19 15:26 Received: 03/25/19 10:20 Matrix: Water

PWS: Site ID: Sample Type:

Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	-0.104 ± 0.319 (0.747) C:NA T:94%	pCi/L	04/05/19 10:31	13982-63-3	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1903401

Pace Project No.: 2099351

Sample: 1903401-05 **Lab ID: 2099351005** Collected: 03/20/19 15:26 Received: 03/25/19 10:20 Matrix: Water

PWS: Site ID: Sample Type:

Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-228	EPA 904.0	0.179 ± 0.333 (0.731) C:77% T:86%	pCi/L	04/10/19 12:25	15262-20-1	

Sample: 1903401-06 **Lab ID: 2099351006** Collected: 03/20/19 15:05 Received: 03/25/19 10:20 Matrix: Water

PWS: Site ID: Sample Type:

Comments: • 1L arrive opened and spilled.
• 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	1.24 ± 0.925 (1.05) C:NA T:82%	pCi/L	04/05/19 10:31	13982-63-3	
Radium-228	EPA 904.0	0.280 ± 0.398 (0.856) C:78% T:90%	pCi/L	04/10/19 12:24	15262-20-1	

Sample: 1903401-07 **Lab ID: 2099351007** Collected: 03/19/19 00:00 Received: 03/25/19 10:20 Matrix: Water

PWS: Site ID: Sample Type:

Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.179 ± 0.307 (0.499) C:NA T:100%	pCi/L	04/05/19 10:15	13982-63-3	
Radium-228	EPA 904.0	0.372 ± 0.378 (0.783) C:74% T:84%	pCi/L	04/10/19 12:23	15262-20-1	

Sample: 1903401-08 **Lab ID: 2099351008** Collected: 03/19/19 10:40 Received: 03/25/19 10:20 Matrix: Water

PWS: Site ID: Sample Type:

Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.795 ± 0.531 (0.625) C:NA T:99%	pCi/L	04/05/19 10:15	13982-63-3	
Radium-228	EPA 904.0	1.01 ± 0.439 (0.711) C:78% T:78%	pCi/L	04/10/19 12:23	15262-20-1	

Sample: 1903401-09 **Lab ID: 2099351009** Collected: 03/20/19 09:45 Received: 03/25/19 10:20 Matrix: Water

PWS: Site ID: Sample Type:

Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	1.11 ± 0.596 (0.215) C:NA T:84%	pCi/L	04/05/19 10:15	13982-63-3	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1903401

Pace Project No.: 2099351

Sample: 1903401-09		Lab ID: 2099351009	Collected: 03/20/19 09:45	Received: 03/25/19 10:20	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-228	EPA 904.0	1.08 ± 0.453 (0.737) C:74% T:86%	pCi/L	04/10/19 12:23	15262-20-1	

Sample: 1903401-10		Lab ID: 2099351010	Collected: 03/19/19 16:08	Received: 03/25/19 10:20	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.							
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.373 ± 0.432 (0.660) C:NA T:93%		pCi/L	04/05/19 10:15	13982-63-3	
Radium-228	EPA 904.0	0.831 ± 0.421 (0.741) C:77% T:80%		pCi/L	04/10/19 12:23	15262-20-1	

Sample: 1903401-11		Lab ID: 2099351011	Collected: 03/19/19 15:12	Received: 03/25/19 10:20	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.747 ± 0.705 (1.05) C:NA T:98%	pCi/L	04/05/19 10:15	13982-63-3	
Radium-228	EPA 904.0	1.83 ± 0.597 (0.831) C:75% T:83%	pCi/L	04/10/19 12:23	15262-20-1	

Sample: 1903401-12		Lab ID: 2099351012	Collected: 03/20/19 08:58	Received: 03/25/19 10:20	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.							
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.730 ± 0.513 (0.623) C:NA T:97%		pCi/L	04/05/19 10:15	13982-63-3	
Radium-228	EPA 904.0	0.473 ± 0.388 (0.778) C:75% T:84%		pCi/L	04/10/19 12:23	15262-20-1	

Sample: 1903401-13		Lab ID: 2099351013	Collected: 03/20/19 10:20	Received: 03/25/19 10:20	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.							
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.199 ± 0.318 (0.180) C:NA T:93%		pCi/L	04/05/19 10:31	13982-63-3	
Radium-228	EPA 904.0	0.553 ± 0.386 (0.744) C:70% T:84%		pCi/L	04/10/19 12:23	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 1903401

Pace Project No.: 2099351

QC Batch: 335753

Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1

Analysis Description: 903.1 Radium-226

Associated Lab Samples: 2099351001, 2099351002, 2099351003, 2099351004, 2099351005, 2099351006, 2099351007, 2099351008, 2099351009, 2099351010, 2099351011, 2099351012, 2099351013

METHOD BLANK: 1633697

Matrix: Water

Associated Lab Samples: 2099351001, 2099351002, 2099351003, 2099351004, 2099351005, 2099351006, 2099351007, 2099351008, 2099351009, 2099351010, 2099351011, 2099351012, 2099351013

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.198 ± 0.420 (0.755) C:NA T:95%	pCi/L	04/05/19 09:42	

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: 1903401

Pace Project No.: 2099351

QC Batch:	335761	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
Associated Lab Samples:	2099351001, 2099351002, 2099351003, 2099351004, 2099351005, 2099351006, 2099351007, 2099351008, 2099351009, 2099351010, 2099351011, 2099351012, 2099351013		

METHOD BLANK:	1633716	Matrix:	Water
Associated Lab Samples:	2099351001, 2099351002, 2099351003, 2099351004, 2099351005, 2099351006, 2099351007, 2099351008, 2099351009, 2099351010, 2099351011, 2099351012, 2099351013		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.643 ± 0.388 (0.721) C:77% T:82%	pCi/L	04/10/19 12:25	

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QUALIFIERS

Project: 1903401

Pace Project No.: 2099351

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: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval).

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(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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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 1903401

Pace Project No.: 2099351

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2099351001	1903401-01	EPA 903.1	335753		
2099351002	1903401-02	EPA 903.1	335753		
2099351003	1903401-03	EPA 903.1	335753		
2099351004	1903401-04	EPA 903.1	335753		
2099351005	1903401-05	EPA 903.1	335753		
2099351006	1903401-06	EPA 903.1	335753		
2099351007	1903401-07	EPA 903.1	335753		
2099351008	1903401-08	EPA 903.1	335753		
2099351009	1903401-09	EPA 903.1	335753		
2099351010	1903401-10	EPA 903.1	335753		
2099351011	1903401-11	EPA 903.1	335753		
2099351012	1903401-12	EPA 903.1	335753		
2099351013	1903401-13	EPA 903.1	335753		
2099351001	1903401-01	EPA 904.0	335761		
2099351002	1903401-02	EPA 904.0	335761		
2099351003	1903401-03	EPA 904.0	335761		
2099351004	1903401-04	EPA 904.0	335761		
2099351005	1903401-05	EPA 904.0	335761		
2099351006	1903401-06	EPA 904.0	335761		
2099351007	1903401-07	EPA 904.0	335761		
2099351008	1903401-08	EPA 904.0	335761		
2099351009	1903401-09	EPA 904.0	335761		
2099351010	1903401-10	EPA 904.0	335761		
2099351011	1903401-11	EPA 904.0	335761		
2099351012	1903401-12	EPA 904.0	335761		
2099351013	1903401-13	EPA 904.0	335761		

REPORT OF LABORATORY ANALYSIS

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SUBCONTRACT ORDER

Sending Laboratory:

Micro-Methods Laboratory, Inc.
6500 Sunplex Drive
Ocean Springs, MS 39564
Phone: 228.875.6420
Fax: 228.875.6423

Project Manager: Teresa Meins

Subcontracted Laboratory:

Pace Analytical
1000 Riverbend Blvd. Suite F
St. Rose, LA 70087
Phone: -
Fax: -

WO#: 2099351



Work Order: 1903401

Analysis	Due	Expires	Comments
----------	-----	---------	----------

Sample ID: 1903401-01 *Water* **Sampled: 03/19/2019 12:12** **Sample Name: MW-9**

Radium, Total 226 & 228 by 901.1 03/29/2019 04/16/2019 12:12

Containers Supplied:

1000mL Plastic (C) 1000mL Plastic (D)

Sample ID: 1903401-02 *Water* **Sampled: 03/19/2019 09:24** **Sample Name: OW-2**

Radium, Total 226 & 228 by 901.1 03/29/2019 04/16/2019 09:24

Containers Supplied:

1000mL Plastic (C) 1000mL Plastic (D)

Sample ID: 1903401-03 *Water* **Sampled: 03/20/2019 11:39** **Sample Name: MW-13**

Radium, Total 226 & 228 by 901.1 03/29/2019 04/17/2019 11:39

Containers Supplied:

1000mL Plastic (C) 1000mL Plastic (D)

Sample ID: 1903401-04 *Water* **Sampled: 03/20/2019 11:45** **Sample Name: MW-7**

Radium, Total 226 & 228 by 901.1 03/29/2019 04/17/2019 11:45

Containers Supplied:

1000mL Plastic (C) 1000mL Plastic (D)

Sample ID: 1903401-05 *Water* **Sampled: 03/20/2019 15:26** **Sample Name: MW-14**

Radium, Total 226 & 228 by 901.1 03/29/2019 04/17/2019 15:26

Containers Supplied:

1000mL Plastic (C) 1000mL Plastic (D)

Sample ID: 1903401-06 *Water* **Sampled: 03/20/2019 15:05** **Sample Name: Field Blank**

Radium, Total 226 & 228 by 901.1 03/29/2019 04/17/2019 15:05

Containers Supplied:

1000mL Plastic (C) 1000mL Plastic (D)

Sample ID: 1903401-07 *Water* **Sampled: 03/19/2019 00:00** **Sample Name: Duplicate**

Released By

Date

Received By

Date

Released By

Date

Received By

Date



**SUBCONTRACT
ORDER**
(Continued)

Work Order: 1903401 (Continued)

Analysis	Due	Expires	Comments
Sample ID: 1903401-07 Water Sampled: 03/19/2019 00:00 Sample Name: Duplicate			
Radium, Total 226 & 228 by 901.1	03/29/2019	04/16/2019 00:00	
Containers Supplied:			
1000mL Plastic (C)	1000mL Plastic (D)		
Sample ID: 1903401-08 Water Sampled: 03/19/2019 10:40 Sample Name: MW-12			
Radium, Total 226 & 228 by 901.1	03/29/2019	04/16/2019 10:40	
Containers Supplied:			
1000mL Plastic (C)	1000mL Plastic (D)		
Sample ID: 1903401-09 Water Sampled: 03/20/2019 09:45 Sample Name: MW-15			
Radium, Total 226 & 228 by 901.1	03/29/2019	04/17/2019 09:45	
Containers Supplied:			
1000mL Plastic (C)	1000mL Plastic (D)		
Sample ID: 1903401-10 Water Sampled: 03/19/2019 16:08 Sample Name: CCR-2			
Radium, Total 226 & 228 by 901.1	03/29/2019	04/16/2019 16:08	
Containers Supplied:			
1000mL Plastic (C)	1000mL Plastic (D)		
Sample ID: 1903401-11 Water Sampled: 03/19/2019 15:12 Sample Name: CCR-3			
Radium, Total 226 & 228 by 901.1	03/29/2019	04/16/2019 15:12	
Containers Supplied:			
1000mL Plastic (C)	1000mL Plastic (D)		
Sample ID: 1903401-12 Water Sampled: 03/20/2019 08:58 Sample Name: CCR-4			
Radium, Total 226 & 228 by 901.1	03/29/2019	04/17/2019 08:58	
Containers Supplied:			
1000mL Plastic (C)	1000mL Plastic (D)		
Sample ID: 1903401-13 Water Sampled: 03/20/2019 10:20 Sample Name: CCR-5			
Radium, Total 226 & 228 by 901.1	03/29/2019	04/17/2019 10:20	
Containers Supplied:			
1000mL Plastic (C)	1000mL Plastic (D)		

Released By Smah Jemel Date 3/22/19 1630
Released By VPS Date 3/25/19

Received By VPS Date 3/22/19 1630
Received By Michelle Pace Date 3-25-19 1020
Date Amk



Sample Condition Upon Rec

1000 Riverbend Blvd., Suite F
St. Rose, LA 70087

Project

WO#: 2099351

PM: KHB

Due Date: 04/16/19

CLIENT: 20-MICRO

Courier: ☐ Pace Courier ☐ Hired Courier ☐ Fed X ☒ UPS ☐ DHL

☐ USPS ☐ Customer ☐ Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact: ☒ Yes ☐ No

Thermometer
Used:

- ☐ Therm Fisher IR 5
☐ Therm Fisher IR 6
☐ Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining
contents: 3-25-19

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	1	
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2	
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3	
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4	
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	5	
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6	
Sufficient Volume:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7	
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8	
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	9	
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10	
All containers received within manufacture's precautionary and/or expiration dates.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	11	
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12	
All containers preservation checked found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	13	If No, was preservative added? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If added record lot no.: HNO3 _____ H2SO4 _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14	un preserved
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15	

Client Notification/ Resolution:

Person Contacted: _____

Date/Time: _____

Comments/ Resolution: _____



Mailing Address:
PO Box 1410
Ocean Springs, MS
39566-1410

6500 Sunplex Drive
Ocean Springs, MS 39564
228.875.6420 Phone
228.875.6423 Fax

July 03, 2019

Jim Ward

Work Order # : 1905573

Red Hills Power Plant
2391 Pensacola Rd.
Ackerman, MS 39735
RE: Red Hills CCR

Purchase Order #: RDH10815

Enclosed are Micro-Methods Laboratory, Inc. results of analyses performed on samples received 05/31/2019 08:00. If you have any questions concerning this report, please feel free to contact the office.



Harry P. Howell

President
Micro-Methods Laboratory, Inc.



DISCLAIMER

The results only relate to the items or the sample and/or samples received by the laboratory. This report shall not be reproduced except in full, without the approval of the laboratory. All NELAP certified test methods performed meet the requirements of NELAC 2009 Standards. Any variances and/or deviations specific to this analytical report are referenced in the lab report using qualifiers and detailed explanations found in the case narrative.

Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 07/03/2019 12:43

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date/Time Sampled	Sampled by	Date/Time Received
MW-9	1905573-01	Water	05/29/2019 12:34	Kirk Shelton	05/31/2019 08:00
MW-17	1905573-02	Water	05/29/2019 09:07	Kirk Shelton	05/31/2019 08:00
OW-2	1905573-03	Water	05/29/2019 11:54	Kirk Shelton	05/31/2019 08:00
MW-13	1905573-04	Water	05/30/2019 10:30	Kirk Shelton	05/31/2019 08:00
MW-7	1905573-05	Water	05/30/2019 07:50	Kirk Shelton	05/31/2019 08:00
MW-14	1905573-06	Water	05/30/2019 08:45	Kirk Shelton	05/31/2019 08:00
Field Blank	1905573-07	Water	05/30/2019 00:00	Kirk Shelton	05/31/2019 08:00
Duplicate	1905573-08	Water	05/30/2019 09:50	Kirk Shelton	05/31/2019 08:00
MW-12	1905573-09	Water	05/29/2019 10:15	Kirk Shelton	05/31/2019 08:00
MW-15	1905573-10	Water	05/29/2019 11:10	Kirk Shelton	05/31/2019 08:00
CCR-2	1905573-11	Water	05/29/2019 15:45	Kirk Shelton	05/31/2019 08:00
CCR-3	1905573-12	Water	05/29/2019 14:47	Kirk Shelton	05/31/2019 08:00
CCR-4	1905573-13	Water	05/30/2019 08:52	Kirk Shelton	05/31/2019 08:00
CCR-5	1905573-14	Water	05/30/2019 09:35	Kirk Shelton	05/31/2019 08:00
CCR-6	1905573-15	Water	05/29/2019 10:45	Kirk Shelton	05/31/2019 08:00
CCR-7	1905573-16	Water	05/29/2019 12:35	Kirk Shelton	05/31/2019 08:00
CCR-8	1905573-17	Water	05/29/2019 15:35	Kirk Shelton	05/31/2019 08:00

Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 07/03/2019 12:43

Sample Receipt Conditions

Date/Time Received: 5/31/2019 8:00:00AM

Received by: Teresa Meins

Date/Time Logged: 5/31/2019 8:25:00AM

 Cooler ID: **#301**

<i>Custody Seals</i>	Yes
<i>Containers Intact</i>	Yes
<i>COC/Labels Agree</i>	Yes
<i>Labels Complete</i>	Yes
<i>COC Complete</i>	Yes

Shipped by: Fed Ex

Submitted by: Kirk Shelton

Logged by: Teresa Meins

 Receipt Temperature: 0.6 °C

<i>Received on Ice</i>	Yes
<i>No Ice, Short Trip</i>	No
<i>Obvious Contamination</i>	No
<i>Rush to meet HT</i>	No

 Cooler ID: **#400**

<i>Custody Seals</i>	Yes
<i>Containers Intact</i>	Yes
<i>COC/Labels Agree</i>	Yes
<i>Labels Complete</i>	Yes
<i>COC Complete</i>	Yes

 Receipt Temperature: 1.3 °C

<i>Received on Ice</i>	Yes
<i>No Ice, Short Trip</i>	No
<i>Obvious Contamination</i>	No
<i>Rush to meet HT</i>	No

 Cooler ID: **#PNMJ**

<i>Custody Seals</i>	Yes
<i>Containers Intact</i>	Yes
<i>COC/Labels Agree</i>	Yes
<i>Labels Complete</i>	Yes
<i>COC Complete</i>	Yes

 Receipt Temperature: -0.1 °C

<i>Received on Ice</i>	Yes
<i>No Ice, Short Trip</i>	No
<i>Obvious Contamination</i>	No
<i>Rush to meet HT</i>	No

 Cooler ID: **New #381**

<i>Custody Seals</i>	Yes
<i>Containers Intact</i>	Yes
<i>COC/Labels Agree</i>	Yes
<i>Labels Complete</i>	Yes
<i>COC Complete</i>	Yes

 Receipt Temperature: 0.2 °C

<i>Received on Ice</i>	Yes
<i>No Ice, Short Trip</i>	No
<i>Obvious Contamination</i>	No
<i>Rush to meet HT</i>	No



6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Red Hills Power Plant
2391 Pensacola Rd.
Ackerman MS, 39735

Project: Red Hills CCR
Project Number: Red Hills
Project Manager: Jim Ward

Reported:
07/03/2019 12:43

CASE NARRATIVE SUMMARY

All reported results are within Micro-Methods Laboratory, Inc. defined laboratory quality control objectives unless detailed in narrative summary or identified as qualifications. NOTE: All results listed on this report are calculated on a wet weight basis (as received by the laboratory) unless otherwise noted in the analysis qualification sections.

Summary Comments:

See attached radiological results from Sub-Contract Laboratory

Qualifiers: *No Data Qualification*

Analyte & Samples(s) Qualified: *None*

Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 07/03/2019 12:43

MW-9
1905573-01 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Classical Chemistry Parameters

Fluoride	ND	0.50	mg/L	1.0	9E31012	DLW	06/03/2019 12:15	06/03/2019 15:33	SM 4500-F C 2011	
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Metals by EPA 200 Series Methods ICP-AES

Barium	0.248	0.010	mg/L	1.0	9F03026	ADB	06/03/2019 10:00	06/07/2019 12:32	EPA 200.7 Rev 4.4	
Lithium	0.113	0.050	"	"	"	ADB	"	"	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9F03027	ADB	"	06/04/2019 13:01	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.00200	"	"	"	ADB	"	"	"	
Beryllium [He]	0.00376	0.00100	"	"	"	ADB	"	"	"	
Cadmium [HHe]	0.00149	0.00100	"	"	"	ADB	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cobalt [He]	0.0257	0.00100	"	"	"	ADB	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Molybdenum [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Selenium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Thallium [He]	ND	0.00100	"	"	"	ADB	"	"	"	

Mercury by EPA 200 Series Methods CVAAS

Mercury	ND	0.002	mg/L	1.0	9F04025	CLV	06/04/2019 10:30	06/04/2019 15:06	EPA 245.1 Rev 3.0	
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Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 07/03/2019 12:43

MW-17
1905573-02 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Classical Chemistry Parameters

Fluoride	ND	0.50	mg/L	1.0	9E31012	DLW	06/03/2019 12:15	06/03/2019 15:33	SM 4500-F C 2011	
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Metals by EPA 200 Series Methods ICP-AES

Barium	0.127	0.010	mg/L	1.0	9F03026	ADB	06/03/2019 10:00	06/07/2019 12:35	EPA 200.7 Rev 4.4	
Lithium	ND	0.050	"	"	"	ADB	"	"	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9F03027	ADB	"	06/04/2019 13:09	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.00200	"	"	"	ADB	"	"	"	
Beryllium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cobalt [He]	0.0169	0.00100	"	"	"	ADB	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Molybdenum [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Selenium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Thallium [He]	ND	0.00100	"	"	"	ADB	"	"	"	

Mercury by EPA 200 Series Methods CVAAS

Mercury	ND	0.002	mg/L	1.0	9F04025	CLV	06/04/2019 10:30	06/04/2019 15:06	EPA 245.1 Rev 3.0	
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Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 07/03/2019 12:43

OW-2
1905573-03 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Classical Chemistry Parameters

Fluoride	ND	0.50	mg/L	1.0	9E31012	DLW	06/03/2019 12:15	06/03/2019 15:33	SM 4500-F C 2011	
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Metals by EPA 200 Series Methods ICP-AES

Barium	0.124	0.010	mg/L	1.0	9F03026	ADB	06/03/2019 10:00	06/07/2019 12:45	EPA 200.7 Rev 4.4	
Lithium	ND	0.050	"	"	"	ADB	"	"	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9F03027	ADB	"	06/04/2019 13:31	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.00200	"	"	"	ADB	"	"	"	
Beryllium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cobalt [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Molybdenum [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Selenium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Thallium [He]	ND	0.00100	"	"	"	ADB	"	"	"	

Mercury by EPA 200 Series Methods CVAAS

Mercury	ND	0.002	mg/L	1.0	9F04025	CLV	06/04/2019 10:30	06/04/2019 15:06	EPA 245.1 Rev 3.0	
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Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 07/03/2019 12:43

MW-13
1905573-04 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Classical Chemistry Parameters

Fluoride	ND	0.50	mg/L	1.0	9E31012	DLW	06/03/2019 12:15	06/03/2019 15:33	SM 4500-F C 2011	
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Metals by EPA 200 Series Methods ICP-AES

Barium	0.152	0.010	mg/L	1.0	9F03026	ADB	06/03/2019 10:00	06/07/2019 12:48	EPA 200.7 Rev 4.4	
Lithium	ND	0.050	"	"	"	ADB	"	"	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9F03027	ADB	"	06/04/2019 13:38	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.00200	"	"	"	ADB	"	"	"	
Beryllium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cobalt [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Molybdenum [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Selenium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Thallium [He]	ND	0.00100	"	"	"	ADB	"	"	"	

Mercury by EPA 200 Series Methods CVAAS

Mercury	ND	0.002	mg/L	1.0	9F04025	CLV	06/04/2019 10:30	06/04/2019 15:06	EPA 245.1 Rev 3.0	
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Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 07/03/2019 12:43

MW-7
1905573-05 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Classical Chemistry Parameters

Fluoride	ND	0.50	mg/L	1.0	9E31012	DLW	06/03/2019 12:15	06/03/2019 15:33	SM 4500-F C 2011	
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Metals by EPA 200 Series Methods ICP-AES

Barium	0.089	0.010	mg/L	1.0	9F03026	ADB	06/03/2019 10:00	06/07/2019 12:51	EPA 200.7 Rev 4.4	
Lithium	ND	0.050	"	"	"	ADB	"	"	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9F03027	ADB	"	06/04/2019 13:46	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.00200	"	"	"	ADB	"	"	"	
Beryllium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cobalt [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Molybdenum [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Selenium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Thallium [He]	ND	0.00100	"	"	"	ADB	"	"	"	

Mercury by EPA 200 Series Methods CVAAS

Mercury	ND	0.002	mg/L	1.0	9F04025	CLV	06/04/2019 10:30	06/04/2019 15:06	EPA 245.1 Rev 3.0	
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Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 07/03/2019 12:43

MW-14
1905573-06 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Classical Chemistry Parameters

Fluoride	ND	0.50	mg/L	1.0	9E31012	DLW	06/03/2019 12:15	06/03/2019 15:33	SM 4500-F C 2011	
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Metals by EPA 200 Series Methods ICP-AES

Barium	0.013	0.010	mg/L	1.0	9F03026	ADB	06/03/2019 10:00	06/07/2019 12:54	EPA 200.7 Rev 4.4	
Lithium	ND	0.050	"	"	"	ADB	"	"	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9F03027	ADB	"	06/04/2019 13:53	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.00200	"	"	"	ADB	"	"	"	
Beryllium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cobalt [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Molybdenum [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Selenium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Thallium [He]	ND	0.00100	"	"	"	ADB	"	"	"	

Mercury by EPA 200 Series Methods CVAAS

Mercury	ND	0.002	mg/L	1.0	9F04025	CLV	06/04/2019 10:30	06/04/2019 15:06	EPA 245.1 Rev 3.0	
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Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 07/03/2019 12:43

Field Blank
1905573-07 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Classical Chemistry Parameters

Fluoride	ND	0.50	mg/L	1.0	9E31012	DLW	06/03/2019 12:15	06/03/2019 15:33	SM 4500-F C 2011	
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Metals by EPA 200 Series Methods ICP-AES

Barium	ND	0.010	mg/L	1.0	9F03026	ADB	06/03/2019 10:00	06/07/2019 12:57	EPA 200.7 Rev 4.4	
Lithium	ND	0.050	"	"	"	ADB	"	"	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9F03027	ADB	"	06/04/2019 14:01	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.00200	"	"	"	ADB	"	"	"	
Beryllium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cobalt [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Molybdenum [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Selenium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Thallium [He]	ND	0.00100	"	"	"	ADB	"	"	"	

Mercury by EPA 200 Series Methods CVAAS

Mercury	ND	0.002	mg/L	1.0	9F04025	CLV	06/04/2019 10:30	06/04/2019 15:06	EPA 245.1 Rev 3.0	
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Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 07/03/2019 12:43

Duplicate

1905573-08 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Classical Chemistry Parameters

Fluoride	ND	0.50	mg/L	1.0	9E31012	DLW	06/03/2019 12:15	06/03/2019 15:33	SM 4500-F C 2011	
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Metals by EPA 200 Series Methods ICP-AES

Barium	0.013	0.010	mg/L	1.0	9F03026	ADB	06/03/2019 10:00	06/07/2019 13:00	EPA 200.7 Rev 4.4	
Lithium	ND	0.050	"	"	"	ADB	"	"	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9F03027	ADB	"	06/04/2019 14:09	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.00200	"	"	"	ADB	"	"	"	
Beryllium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cobalt [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Molybdenum [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Selenium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Thallium [He]	ND	0.00100	"	"	"	ADB	"	"	"	

Mercury by EPA 200 Series Methods CVAAS

Mercury	ND	0.002	mg/L	1.0	9F04025	CLV	06/04/2019 10:30	06/04/2019 15:06	EPA 245.1 Rev 3.0	
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Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 07/03/2019 12:43

MW-12
1905573-09 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Classical Chemistry Parameters

Fluoride	ND	0.50	mg/L	1.0	9E31012	DLW	06/03/2019 12:15	06/03/2019 15:33	SM 4500-F C 2011	
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Metals by EPA 200 Series Methods ICP-AES

Barium	0.271	0.010	mg/L	1.0	9F03026	ADB	06/03/2019 10:00	06/07/2019 13:24	EPA 200.7 Rev 4.4	
Lithium	ND	0.050	"	"	"	ADB	"	"	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9F03027	ADB	"	06/04/2019 14:32	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.00200	"	"	"	ADB	"	"	"	
Beryllium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cobalt [He]	0.0183	0.00100	"	"	"	ADB	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Molybdenum [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Selenium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Thallium [He]	ND	0.00100	"	"	"	ADB	"	"	"	

Mercury by EPA 200 Series Methods CVAAS

Mercury	ND	0.002	mg/L	1.0	9F04025	CLV	06/04/2019 10:30	06/04/2019 15:06	EPA 245.1 Rev 3.0	
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Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 07/03/2019 12:43

MW-15
1905573-10 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Classical Chemistry Parameters

Fluoride	ND	0.50	mg/L	1.0	9E31012	DLW	06/03/2019 12:15	06/03/2019 15:33	SM 4500-F C 2011	
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Metals by EPA 200 Series Methods ICP-AES

Barium	0.219	0.010	mg/L	1.0	9F03026	ADB	06/03/2019 10:00	06/07/2019 13:27	EPA 200.7 Rev 4.4	
Lithium	ND	0.050	"	"	"	ADB	"	"	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9F03027	ADB	"	06/04/2019 14:39	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.00200	"	"	"	ADB	"	"	"	
Beryllium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cobalt [He]	0.0102	0.00100	"	"	"	ADB	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Molybdenum [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Selenium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Thallium [He]	ND	0.00100	"	"	"	ADB	"	"	"	

Mercury by EPA 200 Series Methods CVAAS

Mercury	ND	0.002	mg/L	1.0	9F04025	CLV	06/04/2019 10:30	06/04/2019 15:06	EPA 245.1 Rev 3.0	
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Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 07/03/2019 12:43

CCR-2
1905573-11 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Classical Chemistry Parameters

Fluoride	ND	0.50	mg/L	1.0	9E31012	DLW	06/03/2019 12:15	06/03/2019 15:46	SM 4500-F C 2011	
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Metals by EPA 200 Series Methods ICP-AES

Barium	0.103	0.010	mg/L	1.0	9F03026	ADB	06/03/2019 10:00	06/07/2019 13:30	EPA 200.7 Rev 4.4	
Lithium	ND	0.050	"	"	"	ADB	"	"	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9F03027	ADB	"	06/04/2019 14:47	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.00200	"	"	"	ADB	"	"	"	
Beryllium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cobalt [He]	0.00414	0.00100	"	"	"	ADB	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Molybdenum [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Selenium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Thallium [He]	ND	0.00100	"	"	"	ADB	"	"	"	

Mercury by EPA 200 Series Methods CVAAS

Mercury	ND	0.002	mg/L	1.0	9F04025	CLV	06/04/2019 10:30	06/04/2019 15:06	EPA 245.1 Rev 3.0	
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Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 07/03/2019 12:43

CCR-3
1905573-12 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Classical Chemistry Parameters

Fluoride	ND	0.50	mg/L	1.0	9E31012	DLW	06/03/2019 12:15	06/03/2019 15:46	SM 4500-F C 2011	
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Metals by EPA 200 Series Methods ICP-AES

Barium	0.080	0.010	mg/L	1.0	9F03026	ADB	06/03/2019 10:00	06/07/2019 13:33	EPA 200.7 Rev 4.4	
Lithium	0.107	0.050	"	"	"	ADB	"	"	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9F03027	ADB	"	06/04/2019 14:54	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.00200	"	"	"	ADB	"	"	"	
Beryllium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cobalt [He]	0.00726	0.00100	"	"	"	ADB	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Molybdenum [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Selenium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Thallium [He]	ND	0.00100	"	"	"	ADB	"	"	"	

Mercury by EPA 200 Series Methods CVAAS

Mercury	ND	0.002	mg/L	1.0	9F04025	CLV	06/04/2019 10:30	06/04/2019 15:06	EPA 245.1 Rev 3.0	
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Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 07/03/2019 12:43

CCR-4
1905573-13 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Classical Chemistry Parameters

Fluoride	ND	0.50	mg/L	1.0	9E31012	DLW	06/03/2019 12:15	06/03/2019 15:46	SM 4500-F C 2011	
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Metals by EPA 200 Series Methods ICP-AES

Barium	0.160	0.010	mg/L	1.0	9F03026	ADB	06/03/2019 10:00	06/07/2019 13:37	EPA 200.7 Rev 4.4	
Lithium	ND	0.050	"	"	"	ADB	"	"	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9F03027	ADB	"	06/04/2019 15:02	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.00200	"	"	"	ADB	"	"	"	
Beryllium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cobalt [He]	0.00321	0.00100	"	"	"	ADB	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Molybdenum [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Selenium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Thallium [He]	ND	0.00100	"	"	"	ADB	"	"	"	

Mercury by EPA 200 Series Methods CVAAS

Mercury	ND	0.002	mg/L	1.0	9F04025	CLV	06/04/2019 10:30	06/04/2019 15:06	EPA 245.1 Rev 3.0	
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Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 07/03/2019 12:43

CCR-5
1905573-14 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Classical Chemistry Parameters

Fluoride	ND	0.50	mg/L	1.0	9E31012	DLW	06/03/2019 12:15	06/03/2019 15:46	SM 4500-F C 2011	
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Metals by EPA 200 Series Methods ICP-AES

Barium	0.027	0.010	mg/L	1.0	9F03026	ADB	06/03/2019 10:00	06/07/2019 13:40	EPA 200.7 Rev 4.4	
Lithium	ND	0.050	"	"	"	ADB	"	"	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9F03027	ADB	"	06/04/2019 15:10	EPA 200.8 Rev 5.4	
Arsenic [HHe]	0.00348	0.00200	"	"	"	ADB	"	"	"	
Beryllium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cobalt [He]	0.0499	0.00100	"	"	"	ADB	"	"	"	
Lead [He]	0.00137	0.00100	"	"	"	ADB	"	"	"	
Molybdenum [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Selenium [HHe]	0.00154	0.00100	"	"	"	ADB	"	"	"	
Thallium [He]	ND	0.00100	"	"	"	ADB	"	"	"	

Mercury by EPA 200 Series Methods CVAAS

Mercury	ND	0.002	mg/L	1.0	9F04025	CLV	06/04/2019 10:30	06/04/2019 15:06	EPA 245.1 Rev 3.0	
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Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 07/03/2019 12:43

CCR-6
1905573-15 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Classical Chemistry Parameters

Fluoride	ND	0.50	mg/L	1.0	9E31012	DLW	06/03/2019 12:15	06/03/2019 15:46	SM 4500-F C 2011	
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Metals by EPA 200 Series Methods ICP-AES

Barium	0.176	0.010	mg/L	1.0	9F03026	ADB	06/03/2019 10:00	06/07/2019 13:43	EPA 200.7 Rev 4.4	
Lithium	ND	0.050	"	"	"	ADB	"	"	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9F03027	ADB	"	06/04/2019 15:17	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.00200	"	"	"	ADB	"	"	"	
Beryllium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cobalt [He]	0.00189	0.00100	"	"	"	ADB	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Molybdenum [He]	0.00435	0.00100	"	"	"	ADB	"	"	"	
Selenium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Thallium [He]	ND	0.00100	"	"	"	ADB	"	"	"	

Mercury by EPA 200 Series Methods CVAAS

Mercury	ND	0.002	mg/L	1.0	9F04025	CLV	06/04/2019 10:30	06/04/2019 15:06	EPA 245.1 Rev 3.0	
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Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 07/03/2019 12:43

CCR-7
1905573-16 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
Classical Chemistry Parameters										
Fluoride	ND	0.50	mg/L	1.0	9E31012	DLW	06/03/2019 12:15	06/03/2019 15:46	SM 4500-F C 2011	
Metals by EPA 200 Series Methods ICP-AES										
Barium	0.173	0.010	mg/L	1.0	9F03026	ADB	06/03/2019 10:00	06/07/2019 13:46	EPA 200.7 Rev 4.4	
Lithium	ND	0.050	"	"	"	ADB	"	"	"	
Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]										
Antimony [HHe]	ND	0.00500	mg/L	1.0	9F03027	ADB	"	06/04/2019 15:25	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.00200	"	"	"	ADB	"	"	"	
Beryllium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cobalt [He]	0.0190	0.00100	"	"	"	ADB	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Molybdenum [He]	0.00255	0.00100	"	"	"	ADB	"	"	"	
Selenium [HHe]	0.00106	0.00100	"	"	"	ADB	"	"	"	
Thallium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Mercury by EPA 200 Series Methods CVAAS										
Mercury	ND	0.002	mg/L	1.0	9F04025	CLV	06/04/2019 10:30	06/04/2019 15:06	EPA 245.1 Rev 3.0	

Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 07/03/2019 12:43

CCR-8
1905573-17 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
Classical Chemistry Parameters										
Fluoride	1.24	0.50	mg/L	1.0	9E31012	DLW	06/03/2019 12:15	06/03/2019 15:46	SM 4500-F C 2011	
Metals by EPA 200 Series Methods ICP-AES										
Barium	0.127	0.010	mg/L	1.0	9F03026	ADB	06/03/2019 10:00	06/07/2019 13:49	EPA 200.7 Rev 4.4	
Lithium	ND	0.050	"	"	"	ADB	"	"	"	
Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]										
Antimony [HHe]	ND	0.00500	mg/L	1.0	9F03027	ADB	"	06/04/2019 15:32	EPA 200.8 Rev 5.4	
Arsenic [HHe]	0.00428	0.00200	"	"	"	ADB	"	"	"	
Beryllium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Chromium [He]	0.00309	0.00100	"	"	"	ADB	"	"	"	
Cobalt [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Molybdenum [He]	0.333	0.00100	"	"	"	ADB	"	"	"	
Selenium [HHe]	0.00737	0.00100	"	"	"	ADB	"	"	"	
Thallium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Mercury by EPA 200 Series Methods CVAAS										
Mercury	ND	0.002	mg/L	1.0	9F04025	CLV	06/04/2019 10:30	06/04/2019 15:06	EPA 245.1 Rev 3.0	

Red Hills Power Plant
 2391 Pensacola Rd.
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 Project: Red Hills CCR
 Project Number: Red Hills
 Project Manager: Jim Ward

 Reported:
 07/03/2019 12:43

Classical Chemistry Parameters - Quality Control

Analyte	Analyzed	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifiers
Batch 9E31012 - Default Prep GenChem											
Blank (9E31012-BLK1)											
Fluoride	6/3/19 15:33	ND	1.00	mg/L							
Blank (9E31012-BLK2)											
Fluoride	6/3/19 15:46	ND	1.00	mg/L							
LCS (9E31012-BS1)											
Fluoride	6/3/19 15:33	1.97		mg/L	2.00		98.5	75-125			
LCS (9E31012-BS2)											
Fluoride	6/3/19 15:46	1.97		mg/L	2.00		98.5	75-125			
LCS Dup (9E31012-BSD1)											
Fluoride	6/3/19 15:33	2.02		mg/L	2.00		101	75-125	2.51	30	
LCS Dup (9E31012-BSD2)											
Fluoride	6/3/19 15:46	1.98		mg/L	2.00		99.0	75-125	0.506	30	
Duplicate (9E31012-DUP1) Source: 1905573-01											
Fluoride	6/3/19 15:33	ND	1.00	mg/L		ND				35	
Duplicate (9E31012-DUP2) Source: 1905573-16											
Fluoride	6/3/19 15:46	ND	1.00	mg/L		ND				35	
Matrix Spike (9E31012-MS1) Source: 1905573-01											
Fluoride	6/3/19 15:33	3.25	1.00	mg/L	3.00	ND	108	70-130			
Matrix Spike (9E31012-MS2) Source: 1905573-16											
Fluoride	6/3/19 15:46	3.08	1.00	mg/L	3.00	ND	103	70-130			



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Reported:
07/03/2019 12:43

Classical Chemistry Parameters - Quality Control

Analyte	Analyzed	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifiers
Batch 9E31012 - Default Prep GenChem											
Matrix Spike Dup (9E31012-MSD1)			Source: 1905573-01								
Fluoride	6/3/19 15:33	3.27	1.00	mg/L	3.00	ND	109	70-130	0.613	30	
Matrix Spike Dup (9E31012-MSD2)			Source: 1905573-16								
Fluoride	6/3/19 15:46	3.13	1.00	mg/L	3.00	ND	104	70-130	1.61	30	

Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

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 Reported:
 07/03/2019 12:43

Metals by EPA 200 Series Methods ICP-AES - Quality Control

Analyte	Analyzed	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifiers
Batch 9F03026 - EPA 200.2 DCN 1017 Rev 8											
Blank (9F03026-BLK1)											
Barium	6/7/19 12:23	ND	0.010	mg/L							
Lithium	6/7/19 12:23	ND	0.050	"							
LCS (9F03026-BS1)											
Barium	6/7/19 12:26	0.172	0.010	mg/L	0.200		85.9	85-115			
Lithium	6/7/19 12:26	0.216	0.050	"	0.200		108	85-115			
LCS Dup (9F03026-BSD1)											
Barium	6/7/19 12:29	0.175	0.010	mg/L	0.200		87.4	85-115	1.71	20	
Lithium	6/7/19 12:29	0.207	0.050	"	0.200		103	85-115	4.26	20	
Matrix Spike (9F03026-MS1) Source: 1905573-02											
Barium	6/7/19 12:38	0.292	0.010	mg/L	0.200	0.127	82.3	70-130			
Lithium	6/7/19 12:38	0.245	0.050	"	0.200	0.038	103	70-130			
Matrix Spike (9F03026-MS2) Source: 1905573-17											
Barium	6/7/19 13:52	0.281	0.010	mg/L	0.200	0.127	76.6	70-130			
Lithium	6/7/19 13:52	0.250	0.050	"	0.200	0.048	101	70-130			
Matrix Spike Dup (9F03026-MSD1) Source: 1905573-02											
Barium	6/7/19 12:41	0.288	0.010	mg/L	0.200	0.127	80.3	70-130	1.36	20	
Lithium	6/7/19 12:41	0.243	0.050	"	0.200	0.038	102	70-130	0.874	20	
Matrix Spike Dup (9F03026-MSD2) Source: 1905573-17											
Barium	6/7/19 13:55	0.276	0.010	mg/L	0.200	0.127	74.5	70-130	1.51	20	
Lithium	6/7/19 13:55	0.241	0.050	"	0.200	0.048	96.7	70-130	3.58	20	

Red Hills Power Plant
 2391 Pensacola Rd.
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 Project: Red Hills CCR
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 Reported:
 07/03/2019 12:43

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode] - Quality Control

Analyte	Analyzed	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifiers
Batch 9F03027 - EPA 200.2 DCN 1017 Rev 8											
Blank (9F03027-BLK1)											
Antimony [HHe]	6/4/19 12:39	ND	0.00200	mg/L							
Arsenic [HHe]	6/4/19 12:39	ND	0.00200	"							
Beryllium [He]	6/4/19 12:39	ND	0.00100	"							
Cadmium [HHe]	6/4/19 12:39	ND	0.00100	"							
Chromium [He]	6/4/19 12:39	ND	0.00100	"							
Cobalt [He]	6/4/19 12:39	ND	0.00100	"							
Lead [He]	6/4/19 12:39	ND	0.00100	"							
Molybdenum [He]	6/4/19 12:39	ND	0.00100	"							
Selenium [HHe]	6/4/19 12:39	ND	0.00100	"							
Thallium [He]	6/4/19 12:39	ND	0.00100	"							
LCS (9F03027-BS1)											
Antimony [HHe]	6/4/19 12:47	0.103	0.00200	mg/L	0.100		103	85-115			
Arsenic [HHe]	6/4/19 12:47	0.105	0.00200	"	0.100		105	85-115			
Beryllium [He]	6/4/19 12:47	0.105	0.00100	"	0.100		105	85-115			
Cadmium [HHe]	6/4/19 12:47	0.103	0.00100	"	0.100		103	85-115			
Chromium [He]	6/4/19 12:47	0.107	0.00100	"	0.100		107	85-115			
Cobalt [He]	6/4/19 12:47	0.106	0.00100	"	0.100		106	85-115			
Lead [He]	6/4/19 12:47	0.104	0.00100	"	0.100		104	85-115			
Molybdenum [He]	6/4/19 12:47	0.104	0.00100	"	0.100		104	85-115			
Selenium [HHe]	6/4/19 12:47	0.107	0.00100	"	0.100		107	85-115			
Thallium [He]	6/4/19 12:47	0.102	0.00100	"	0.100		102	85-115			
LCS Dup (9F03027-BSD1)											
Antimony [HHe]	6/4/19 12:54	0.101	0.00200	mg/L	0.100		101	85-115	1.64	20	
Arsenic [HHe]	6/4/19 12:54	0.102	0.00200	"	0.100		102	85-115	3.73	20	
Beryllium [He]	6/4/19 12:54	0.106	0.00100	"	0.100		106	85-115	1.13	20	
Cadmium [HHe]	6/4/19 12:54	0.100	0.00100	"	0.100		99.6	85-115	2.86	20	
Chromium [He]	6/4/19 12:54	0.113	0.00100	"	0.100		113	85-115	5.30	20	
Cobalt [He]	6/4/19 12:54	0.110	0.00100	"	0.100		110	85-115	3.62	20	
Lead [He]	6/4/19 12:54	0.106	0.00100	"	0.100		106	85-115	1.31	20	
Molybdenum [He]	6/4/19 12:54	0.107	0.00100	"	0.100		107	85-115	2.99	20	
Selenium [HHe]	6/4/19 12:54	0.097	0.00100	"	0.100		96.7	85-115	9.73	20	
Thallium [He]	6/4/19 12:54	0.103	0.00100	"	0.100		103	85-115	0.944	20	

Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
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 Project Manager: Jim Ward

 Reported:
 07/03/2019 12:43

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode] - Quality Control

Analyte	Analyzed	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifiers
Batch 9F03027 - EPA 200.2 DCN 1017 Rev 8											
Matrix Spike (9F03027-MS1)			Source: 1905573-02								
Antimony [HHe]	6/4/19 13:16	0.108	0.00200	mg/L	0.100	ND	108	70-130			
Arsenic [HHe]	6/4/19 13:16	0.106	0.00200	"	0.100	0.0007	106	70-130			
Beryllium [He]	6/4/19 13:16	0.105	0.00100	"	0.100	ND	105	70-130			
Cadmium [HHe]	6/4/19 13:16	0.101	0.00100	"	0.100	0.0002	101	70-130			
Chromium [He]	6/4/19 13:16	0.109	0.00100	"	0.100	0.0001	109	70-130			
Cobalt [He]	6/4/19 13:16	0.124	0.00100	"	0.100	0.017	107	70-130			
Lead [He]	6/4/19 13:16	0.115	0.00100	"	0.100	0.0002	115	70-130			
Molybdenum [He]	6/4/19 13:16	0.118	0.00100	"	0.100	0.0009	117	70-130			
Selenium [HHe]	6/4/19 13:16	0.101	0.00100	"	0.100	0.0002	101	70-130			
Thallium [He]	6/4/19 13:16	0.109	0.00100	"	0.100	0.00008	109	70-130			
Matrix Spike (9F03027-MS2)			Source: 1905573-17								
Antimony [HHe]	6/4/19 15:40	0.101	0.00200	mg/L	0.100	0.0005	100	70-130			
Arsenic [HHe]	6/4/19 15:40	0.105	0.00200	"	0.100	0.004	101	70-130			
Beryllium [He]	6/4/19 15:40	0.088	0.00100	"	0.100	ND	88.2	70-130			
Cadmium [HHe]	6/4/19 15:40	0.090	0.00100	"	0.100	0.00007	89.4	70-130			
Chromium [He]	6/4/19 15:40	0.099	0.00100	"	0.100	0.003	95.5	70-130			
Cobalt [He]	6/4/19 15:40	0.090	0.00100	"	0.100	0.0003	89.7	70-130			
Lead [He]	6/4/19 15:40	0.106	0.00100	"	0.100	0.0001	106	70-130			
Molybdenum [He]	6/4/19 15:40	0.427	0.00100	"	0.100	0.333	93.3	70-130			
Selenium [HHe]	6/4/19 15:40	0.105	0.00100	"	0.100	0.007	97.2	70-130			
Thallium [He]	6/4/19 15:40	0.103	0.00100	"	0.100	ND	103	70-130			
Matrix Spike Dup (9F03027-MSD1)			Source: 1905573-02								
Antimony [HHe]	6/4/19 13:24	0.102	0.00200	mg/L	0.100	ND	102	70-130	5.44	20	
Arsenic [HHe]	6/4/19 13:24	0.102	0.00200	"	0.100	0.0007	101	70-130	4.02	20	
Beryllium [He]	6/4/19 13:24	0.097	0.00100	"	0.100	ND	96.8	70-130	7.75	20	
Cadmium [HHe]	6/4/19 13:24	0.097	0.00100	"	0.100	0.0002	96.4	70-130	4.74	20	
Chromium [He]	6/4/19 13:24	0.102	0.00100	"	0.100	0.0001	102	70-130	6.67	20	
Cobalt [He]	6/4/19 13:24	0.118	0.00100	"	0.100	0.017	101	70-130	5.10	20	
Lead [He]	6/4/19 13:24	0.103	0.00100	"	0.100	0.0002	103	70-130	10.8	20	
Molybdenum [He]	6/4/19 13:24	0.112	0.00100	"	0.100	0.0009	111	70-130	5.85	20	
Selenium [HHe]	6/4/19 13:24	0.098	0.00100	"	0.100	0.0002	98.2	70-130	2.30	20	
Thallium [He]	6/4/19 13:24	0.102	0.00100	"	0.100	0.00008	102	70-130	6.01	20	

Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
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 Reported:
 07/03/2019 12:43

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode] - Quality Control

Analyte	Analyzed	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifiers
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Batch 9F03027 - EPA 200.2 DCN 1017 Rev 8

Matrix Spike Dup (9F03027-MSD2)

Source: 1905573-17

Antimony [HHe]	6/4/19 15:47	0.103	0.00200	mg/L	0.100	0.0005	102	70-130	1.64	20	
Arsenic [HHe]	6/4/19 15:47	0.108	0.00200	"	0.100	0.004	104	70-130	3.13	20	
Beryllium [He]	6/4/19 15:47	0.089	0.00100	"	0.100	ND	88.8	70-130	0.661	20	
Cadmium [HHe]	6/4/19 15:47	0.090	0.00100	"	0.100	0.00007	90.1	70-130	0.770	20	
Chromium [He]	6/4/19 15:47	0.101	0.00100	"	0.100	0.003	97.8	70-130	2.31	20	
Cobalt [He]	6/4/19 15:47	0.091	0.00100	"	0.100	0.0003	91.1	70-130	1.62	20	
Lead [He]	6/4/19 15:47	0.109	0.00100	"	0.100	0.0001	109	70-130	2.39	20	
Molybdenum [He]	6/4/19 15:47	0.447	0.00100	"	0.100	0.333	113	70-130	4.57	20	
Selenium [HHe]	6/4/19 15:47	0.106	0.00100	"	0.100	0.007	98.6	70-130	1.32	20	
Thallium [He]	6/4/19 15:47	0.106	0.00100	"	0.100	ND	106	70-130	3.04	20	



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Reported:
07/03/2019 12:43

Mercury by EPA 200 Series Methods CVAAS - Quality Control

Analyte	Analyzed	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifiers
Batch 9F04025 - EPA 245.1 DCN 1017 Rev 8											
Blank (9F04025-BLK1)											
Mercury	6/4/19 15:06	ND	0.002	mg/L							
LCS (9F04025-BS1)											
Mercury	6/4/19 15:06	0.005	0.002	mg/L	0.00500		108	85-115			
LCS Dup (9F04025-BSD1)											
Mercury	6/4/19 15:06	0.005	0.002	mg/L	0.00500		106	85-115	1.87	20	
Matrix Spike (9F04025-MS1) Source: 1905573-02											
Mercury	6/4/19 15:06	0.005	0.002	mg/L	0.00500	ND	106	70-130			
Matrix Spike (9F04025-MS2) Source: 1905573-17											
Mercury	6/4/19 15:06	0.004	0.002	mg/L	0.00500	ND	88.0	70-130			
Matrix Spike Dup (9F04025-MSD1) Source: 1905573-02											
Mercury	6/4/19 15:06	0.005	0.002	mg/L	0.00500	ND	104	70-130	1.90	20	
Matrix Spike Dup (9F04025-MSD2) Source: 1905573-17											
Mercury	6/4/19 15:06	0.004	0.002	mg/L	0.00500	ND	78.0	70-130	12.0	20	

Red Hills Power Plant
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 Ackerman MS, 39735

 Project: Red Hills CCR
 Project Number: Red Hills
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 Reported:
 07/03/2019 12:43

Certified Analyses Included in this Report

Analyte	Certification Code
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EPA 200.7 Rev 4.4 in Water

Aluminum	C01,C02
Antimony	C01,C02
Arsenic	C01,C02
Barium	C01,C02
Beryllium	C01,C02
Boron	C01,C02
Cadmium	C01,C02
Calcium	C01,C02
Chromium	C01,C02
Cobalt	C01,C02
Copper	C01,C02
Iron	C01,C02
Lead	C01,C02
Magnesium	C01,C02
Manganese	C01,C02
Molybdenum	C01,C02
Nickel	C01,C02
Potassium	C01,C02
Selenium	C01,C02
Silver	C01,C02
Sodium	C01,C02
Strontium	C01,C02
Thallium	C01,C02
Vanadium	C01,C02
Zinc	C01,C02

EPA 200.8 Rev 5.4 in Water

Aluminum [He]	C01,C02
Antimony [HHe]	C01,C02
Antimony [NG]	C01,C02
Arsenic [HHe]	C01,C02
Arsenic [NG]	C01,C02
Barium [He]	C01,C02
Beryllium [He]	C01,C02
Boron [NG]	C01,C02
Cadmium [HHe]	C01,C02
Cadmium [NG]	C01,C02
Chromium [He]	C01,C02
Cobalt [He]	C01,C02
Copper [He]	C01,C02
Copper [NG]	C01,C02
Iron [He]	C01,C02

Red Hills Power Plant
2391 Pensacola Rd.
Ackerman MS, 39735Project: Red Hills CCR
Project Number: Red Hills
Project Manager: Jim Ward**Reported:**
07/03/2019 12:43

Lead [He]	C01,C02
Lead [NG]	C01,C02
Manganese [He]	C01,C02
Molybdenum [He]	C01,C02
Nickel [He]	C01,C02
Selenium [HHe]	C01,C02
Selenium [NG]	C01,C02
Silver [He]	C01,C02
Silver [NG]	C01,C02
Strontium [He]	C01,C02
Thallium [He]	C01,C02
Vanadium [He]	C01,C02
Zinc [He]	C01,C02
Antimony [He]	C01,C02

EPA 245.1 Rev 3.0 in Water

Mercury	C01,C02
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****Only compounds included in this list are associated with accredited analyses****

Red Hills Power Plant
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Red Hills CCR
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 Reported:
 07/03/2019 12:43

Laboratory Accreditations/Certifications

Code	Description	Number	Expires
C01	LA Environmental Lab Accreditation Program	01960	06/30/2019
C02	The NELAC Institute (NELAP)	TNI01397	06/30/2019
C03	Ms Dept of Health (Drinking Water Microbiology)	MS00021	12/31/2019
C04	Ms Dept of Health (Drinking Water Chemistry)	MS00021	12/31/2019
C05	Ms DEQ Lead Firm Certification	PBF-00000028	03/24/2020
C06	MsDEQ Asbestos Inspector : C.D. Bingham	ABI-00001348	02/21/2020
C07	MsDEQ Air Monitor : C.D. Bingham	AM-011572	03/07/2020
C08	MsDEQ Asbestos Inspector: C. W. Meins	ABI-00001821	09/06/2019
C09	MsDEQ Air Monitor : C.W. Meins	AM-011189	03/07/2020
C12			
C14	MsDEQ Lead Paint Inspector : C.D. Bingham	PBI-00003690	02/22/2020
C15	MsDEQ Lead Paint Inspector : C.W. Meins	PBI-00001740	02/22/2020

Report Definitions

TNC	Too Numerous To Count
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the minimum reporting limit
NR	Not Reported
RPD	Relative Percent Difference
ICV	Initial Calibration Verification
CCV	Continuing Calibration Verification Standard
SSV	Secondary Source Verification Standard
LCS	Lab Control Spike - Lab matrix prepared with known concentration of analyte/s of interest analyzed by method.
MS	Matrix Spike - Sample prepared with known concentration of analyte/s of interest analyzed by method.
MSD	Matrix Spike Duplicate - Duplicate sample prepared with known concentration of analyte/s of interest analyzed by method.
MRL	Minimum Reporting Limit
%REC	Percentage Recovery of known concentration added to matrix
Batch	Group of samples prepared for analysis not to exceed 20 samples.
Matrix	Material containing analyte/s of interest
Surrogate	Analyte added to sample to determine extraction efficiency of method.



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Project Number: Red Hills
Project Manager: Jim Ward

Reported:
07/03/2019 12:43

Analyst Initials Key

<u>FullName</u>	<u>Initials</u>
Alyssa D Bennett	ADB
Barbara K. McMillan	BKM
Charles L Vorhoff	CLV
Dortha L. Wells	DLW
Harry P. Howell	HPH
Teresa Meins	TKM
Tina Tomek	TPT



PO Box 1410, Ocean Springs, MS 39566-1410
(228) 875-6420 FAX (228) 875-6423

www.micromethodslab.com

Lab ID# MS00021
LELAP ID # 01960
TNIID # TNI01397

Chain of Custody Record

Print Form

M-M Lab
WO #

1905573

Company Name: Red Hills Power Plant		Project Manager: Jim Ward	
Address: 2391 Pensacola Rd.		Purchase Order #: SCSRDH6883	
City: Ackerman	State: MS	Zip: 39735	Email Address:
Phone: 662-387-5758		Sampler Name Printed: <i>Kirk Shelton</i>	
Fax:		Sampler Name Signed: <i>Kirk Shelton</i>	
List Analyses Requested			
Project Name: Red Hills CCR	Preservative	Fluoride	Antimony, Arsenic
Project #:	Grab (G) or Composite (C)	Barium, Beryllium	Cadmium (Electrode)
Sample Identification	Sampling Date/Time	Matrix Code	Lead, Mercury, Cobalt
MM-9	5/24/19 12:34	W	Lithium, Thallium
MM-17	5/24/19 09:57	W	Molybdenum, Selenium
OW-2	5/24/19 11:54	W	Total Radium 226 & 228
MM-13	5/30/19 10:38	W	
MM-7	5/30/19 7:58	W	
MM-14	5/30/19 8:45	W	
Field Blank	5/30/19	W	
Duplicate	5/30/19 9:50	W	
MM-12	5/24/19 10:15	W	
MM-15	5/24/19 11:10	W	
CCR-2	5/29/19 15:45	W	
Received on Ice? Y N Thermometer#		Cooler #	Receipt Temp Corrected(°C)
Date & Time	By:	Sample	Blank
Relinquished by	Printed Name	Signature	Company
Received by	<i>Kirk Shelton</i>	<i>W. A. Duke</i>	<i>ELC, Inc</i>
Relinquished by	<i>Teresa Meier</i>	<i>Quinn Meier</i>	<i>PA 11 5-31-19</i>
Received by			
Relinquished by			
Received by			
Relinquished by			
Received by			

Turn Around Time & Reporting			
Our normal turn around time is 10 working days			
<input checked="" type="checkbox"/> Normal	<input type="checkbox"/> *All rush order requests must be prior approved.	<input type="checkbox"/> Phone	<input type="checkbox"/> Mail
<input type="checkbox"/> Next Day*		<input type="checkbox"/> Fax	<input type="checkbox"/> Email
<input type="checkbox"/> 2nd Day*			
<input type="checkbox"/> Other*			
QC Level: Level 1 <input type="checkbox"/>	Level 2 <input type="checkbox"/>	Level 3 <input type="checkbox"/>	
Field Testing			
ID#	ID#	ID#	ID#
Field Test	Field Test	Field Test	Field Test
Matrix:			
W = Water			
DW = Drinking Water			
S = Solid			
SO = Soil			
SE = Sediment			
L = Liquid			
A = Air			
O = Oil			
SL = Sludge			
Preservation:			
1 = H2SO4			
2 = H3PO4			
3 = NaOH			
4 = ZnCAH1006			
5 = ZnCAH1006 & NaOH			
6 = HNO3			
7 = Na2S2O3			
8 = HCl			
9 = NaHSO4			
All Temps are Corrected Values			
Notes: <i>For Coolers for this event.</i>			



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Chain of Custody Record

Lab ID# MS00021
LELAP ID # 01960
TNID # TN101397

M-M Lab
WO #

1905573

Print Form

Company Name: Red Hills Power Plant		Project Manager: Jim Ward																
Address: 2391 Pensacola Rd.		Purchase Order #: SCSRDH6883																
City: Ackerman	State: MS	Zip: 39735	Email Address:															
Phone: 662-387-5758		Sampler Name Printed: <i>Kirk Skilton</i>																
Fax:		Sampler Name Signed: <i>Kirk Skilton</i>																
Project Name: Red Hills CCR		List Analyses Requested																
Project #:	Sample Identification	Sampling Date/Time	Matrix Code	# of Containers	Preservative:	Grab (G) or Composite (C)	Flouride						Total Radium 226 & 228					
							Antimony, Arsenic	Barium, Beryllium	Cadmium, Chromium	Lead, Mercury, Cobalt	Lithium, Thallium	Molybdenum, Selenium						
	CCR-3	5/20/17 14:47	W	4														
	CCR-4	5/20/17 8:52	W	4														
	CCR-5	5/20/17 9:35	W	4														
	CCR-6	5/20/17 10:45	W	4														
	CCR-7	5/20/17 12:35	W	4														
	CCR-8	5/22/17 15:35	W	4														
Received on Ice? Y N Thermometer #		Cooler #		Receipt Temp Corrected (°C)		Sample		Blank		Cooler		Notes:		Turn Around Time & Reporting Our normal turn around time is 10 working days. *All rush order requests must be prior approved. Normal <input checked="" type="checkbox"/> Next Day* <input type="checkbox"/> 2nd Day* <input type="checkbox"/> Other* <input type="checkbox"/> Phone _____ Mail _____ Fax _____ Email _____ QC Level: Level 1 <input type="checkbox"/> Level 2 <input type="checkbox"/> Level 3 <input type="checkbox"/>				
Date & Time		By:		Sample		Blank		Cooler		Notes:		Field Testing						
Relinquished by		Printed Name		Signature		Company		Date		Time		Field Test		ID#	ID#	ID#	ID#	Matrix:
Received by		<i>Kirk Skilton</i>		<i>Jim Ward</i>		<i>ECST Inc</i>		<i>5/30/17</i>		<i>1700</i>		Field Test						W = Water DW = Drinking Water S = Solid SO = Soil SE = Sediment L = Liquid A = Air O = Oil SL = Sludge
Relinquished by		<i>Teresa Meiers</i>		<i>Jim Ward</i>		<i>MM</i>		<i>5/31/17</i>		<i>0800</i>		Field Test						Preservation: 1 = H2SO4 2 = H3PO4 3 = NaOH 4 = ZnCAH1006 5 = ZnCAH1006 & NaOH 6 = HNO3 7 = Na2S2O3 8 = HCl 9 = NaHSO4
Received by												Field Test						
Relinquished by												Field Test						
Received by												Field Test						
Relinquished by												Field Test						
Received by												Field Test						

DCN# F316 Rev #5

Physical Address: 6500 Sunplex Drive, Ocean Springs MS 39564

Pg. 1092

Micro-Methods	Micro-Methods Laboratory Log-In Checklist	DCN: F207
Issue Date: 11-22-17		Date Revised: 11-22-17
		Revision: 5

Client Red Hills WO 1905573 Shipped By Fedex
 Date/Time Received 5-31-19 @ 0800 Unpacked/Checked By mm/fo

Cooler ID	Ice Present Yes/No	Temperature (Corrected)	Thermometer ID	Custody Sealed Yes/No	Custody Seal Intact Yes/No
#301	Y	0.6	4	Y	Y
#381	Y	0.2	4	Y	Y
#400	Y	1.3	4	Y	Y
#PNMJ	Y	-0.1	4	Y	Y

If not iced, were samples received within one hour of collection? Yes ___ No ___ N/A ___
 Temperature Blank Used Yes ☒ No ___ If not, temperature taken from cooler ___ or bottle ___
 Multi Cooler shipment: ID of samples in coolers that exceed 6°C _____

Custody Seals on Bottles Present Yes ☒ No ___
 Containers Intact Yes ☒ No ___
 Proper Containers for Requested Analysis Yes ☒ No ___

Correct Preservation Used for All Samples Yes ☒ No ___
 Adequate Sample for Analysis Requested Yes ☒ No ___

Volatile Vials Headspace Greater than 6mm in Diameter Yes ___ No ___ N/A ☒

Chain of Custody Form Included Yes ☒ No ___
 Chain of Custody Form Complete Yes ☒ No ___
 Chain of Custody Form Properly Relinquished Yes ☒ No ___
 Field Sheets/Special Instructions Included Yes ___ No ___ N/A ☒
 Samples Missing on COC or From Cooler Yes ___ No ☒
 Sample Container Labels Match COC Yes ☒ No ___

Samples Received Within Holding Time Yes ☒ No ___
 Dept. Manager Notified of Rush/Short Holding Times Yes ___ No ___ N/A ___

Does work order meet Micro Methods sample acceptance criteria Yes ___ No ___
 Note: Samples that do not meet acceptance criteria must be documented in the Sample Rejection Log.

Client Contacted _____ Contacted By _____ Date/Time _____
 Client Instructions: Cancel Work Order _____
 Proceed with Work Order _____ (Data will be qualified)

Comments: _____

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July 02, 2019

Harry Howell
Micro Methods Laboratory, Inc.
P. O. Box 1410
Ocean Springs, MS 39566

RE: Project: 1905573
Pace Project No.: 20106885

Dear Harry Howell:

Enclosed are the analytical results for sample(s) received by the laboratory on June 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,



Karen Brown
karen.brown@pacelabs.com
(504)469-0333
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 1905573
Pace Project No.: 20106885

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

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 1905573
Pace Project No.: 20106885

Lab ID	Sample ID	Matrix	Date Collected	Date Received
20106885001	1905573-01	Water	05/29/19 12:34	06/04/19 10:50
20106885002	1905573-02	Water	05/29/19 09:07	06/04/19 10:50
20106885003	1905573-03	Water	05/29/19 11:54	06/04/19 10:50
20106885004	1905573-04	Water	05/30/19 10:30	06/04/19 10:50
20106885005	1905573-05	Water	05/30/19 07:50	06/04/19 10:50
20106885006	1905573-06	Water	05/30/19 08:45	06/04/19 10:50
20106885007	1905573-07	Water	05/30/19 00:00	06/04/19 10:50
20106885008	1905573-08	Water	05/30/19 09:50	06/04/19 10:50
20106885009	1905573-09	Water	05/29/19 10:15	06/04/19 10:50
20106885010	1905573-10	Water	05/29/19 11:10	06/04/19 10:50
20106885011	1905573-11	Water	05/29/19 15:45	06/04/19 10:50
20106885012	1905573-12	Water	05/29/19 14:47	06/04/19 10:50
20106885013	1905573-13	Water	05/30/19 08:52	06/04/19 10:50
20106885014	1905573-14	Water	05/30/19 09:35	06/04/19 10:50
20106885015	1905573-15	Water	05/29/19 10:45	06/04/19 10:50
20106885016	1905573-16	Water	05/29/19 12:35	06/04/19 10:50
20106885017	1905573-17	Water	05/29/19 15:35	06/04/19 10:50

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 1905573
Pace Project No.: 20106885

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
20106885001	1905573-01	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
20106885002	1905573-02	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
20106885003	1905573-03	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
20106885004	1905573-04	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
20106885005	1905573-05	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
20106885006	1905573-06	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
20106885007	1905573-07	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
20106885008	1905573-08	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
20106885009	1905573-09	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
20106885010	1905573-10	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
20106885011	1905573-11	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
20106885012	1905573-12	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
20106885013	1905573-13	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
20106885014	1905573-14	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
20106885015	1905573-15	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
20106885016	1905573-16	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
20106885017	1905573-17	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 1905573
Pace Project No.: 20106885

Method: EPA 903.1
Description: 903.1 Radium 226
Client: Micro Methods
Date: July 02, 2019

General Information:

17 samples were analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 1905573
Pace Project No.: 20106885

Method: EPA 904.0
Description: 904.0 Radium 228
Client: Micro Methods
Date: July 02, 2019

General Information:

17 samples were analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1905573

Pace Project No.: 20106885

Sample: 1905573-01		Lab ID: 20106885001	Collected: 05/29/19 12:34	Received: 06/04/19 10:50	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	1.34 ± 0.652 (0.697) C:NA T:95%	pCi/L	06/26/19 14:40	13982-63-3	
Radium-228	EPA 904.0	1.39 ± 0.649 (1.12) C:67% T:73%	pCi/L	06/20/19 16:11	15262-20-1	

Sample: 1905573-02		Lab ID: 20106885002	Collected: 05/29/19 09:07	Received: 06/04/19 10:50	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.							
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.527 ± 0.413 (0.485) C:NA T:85%		pCi/L	06/26/19 14:40	13982-63-3	
Radium-228	EPA 904.0	1.39 ± 0.550 (0.865) C:76% T:81%		pCi/L	06/20/19 16:11	15262-20-1	

Sample: 1905573-03		Lab ID: 20106885003	Collected: 05/29/19 11:54	Received: 06/04/19 10:50	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.							
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.787 ± 0.522 (0.609) C:NA T:80%		pCi/L	06/26/19 14:40	13982-63-3	
Radium-228	EPA 904.0	0.187 ± 0.445 (0.989) C:75% T:74%		pCi/L	06/20/19 16:11	15262-20-1	

Sample: 1905573-04		Lab ID: 20106885004	Collected: 05/30/19 10:30	Received: 06/04/19 10:50	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.898 ± 0.596 (0.785) C:NA T:85%	pCi/L	06/26/19 14:40	13982-63-3	
Radium-228	EPA 904.0	1.12 ± 0.478 (0.780) C:79% T:85%	pCi/L	06/20/19 16:11	15262-20-1	

Sample: 1905573-05		Lab ID: 20106885005	Collected: 05/30/19 07:50	Received: 06/04/19 10:50	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.							
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.117 ± 0.324 (0.628)		pCi/L	06/26/19 14:40	13982-63-3	
		C:NA T:88%					

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1905573
Pace Project No.: 20106885

Sample: 1905573-05		Lab ID: 20106885005	Collected: 05/30/19 07:50	Received: 06/04/19 10:50	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.							
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-228	EPA 904.0	0.379 ± 0.424 (0.888) C:79% T:75%		pCi/L	06/20/19 16:11	15262-20-1	

Sample: 1905573-06		Lab ID: 20106885006	Collected: 05/30/19 08:45	Received: 06/04/19 10:50	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.							
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.504 ± 0.431 (0.585) C:NA T:83%		pCi/L	06/26/19 14:40	13982-63-3	
Radium-228	EPA 904.0	0.309 ± 0.442 (0.952) C:76% T:76%		pCi/L	06/20/19 16:11	15262-20-1	

Sample: 1905573-07		Lab ID: 20106885007	Collected: 05/30/19 00:00	Received: 06/04/19 10:50	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.							
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	1.07 ± 0.570 (0.493) C:NA T:79%		pCi/L	06/26/19 14:40	13982-63-3	
Radium-228	EPA 904.0	1.14 ± 0.672 (1.25) C:79% T:79%		pCi/L	06/20/19 19:39	15262-20-1	

Sample: 1905573-08		Lab ID: 20106885008	Collected: 05/30/19 09:50	Received: 06/04/19 10:50	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.							
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.875 ± 0.501 (0.460) C:NA T:84%		pCi/L	06/26/19 14:53	13982-63-3	
Radium-228	EPA 904.0	1.19 ± 0.735 (1.38) C:79% T:70%		pCi/L	06/20/19 19:40	15262-20-1	

Sample: 1905573-09		Lab ID: 20106885009	Collected: 05/29/19 10:15	Received: 06/04/19 10:50	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.716 ± 0.445 (0.439) C:NA T:87%	pCi/L	06/26/19 14:53	13982-63-3	
Radium-228	EPA 904.0	1.83 ± 0.770 (1.25) C:81% T:77%	pCi/L	06/20/19 19:40	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1905573

Pace Project No.: 20106885

Sample: 1905573-10 **Lab ID: 20106885010** Collected: 05/29/19 11:10 Received: 06/04/19 10:50 Matrix: Water

PWS: Site ID: Sample Type:

Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.662 ± 0.492 (0.648) C:NA T:83%	pCi/L	06/26/19 14:53	13982-63-3	
Radium-228	EPA 904.0	1.57 ± 0.733 (1.25) C:78% T:77%	pCi/L	06/20/19 19:40	15262-20-1	

Sample: 1905573-11 **Lab ID: 20106885011** Collected: 05/29/19 15:45 Received: 06/04/19 10:50 Matrix: Water

PWS: Site ID: Sample Type:

Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.342 ± 0.553 (0.963) C:NA T:78%	pCi/L	06/26/19 14:53	13982-63-3	
Radium-228	EPA 904.0	0.536 ± 0.532 (1.10) C:78% T:80%	pCi/L	06/20/19 18:23	15262-20-1	

Sample: 1905573-12 **Lab ID: 20106885012** Collected: 05/29/19 14:47 Received: 06/04/19 10:50 Matrix: Water

PWS: Site ID: Sample Type:

Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.905 ± 0.629 (0.847) C:NA T:84%	pCi/L	06/26/19 14:53	13982-63-3	
Radium-228	EPA 904.0	2.42 ± 0.765 (0.981) C:80% T:80%	pCi/L	06/20/19 18:23	15262-20-1	

Sample: 1905573-13 **Lab ID: 20106885013** Collected: 05/30/19 08:52 Received: 06/04/19 10:50 Matrix: Water

PWS: Site ID: Sample Type:

Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.646 ± 0.402 (0.396) C:NA T:91%	pCi/L	06/26/19 14:53	13982-63-3	
Radium-228	EPA 904.0	1.02 ± 0.836 (1.70) C:76% T:79%	pCi/L	06/20/19 19:56	15262-20-1	

Sample: 1905573-14 **Lab ID: 20106885014** Collected: 05/30/19 09:35 Received: 06/04/19 10:50 Matrix: Water

PWS: Site ID: Sample Type:

Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	1.07 ± 0.540 (0.182) C:NA T:82%	pCi/L	06/26/19 14:53	13982-63-3	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1905573
Pace Project No.: 20106885

Sample: 1905573-14		Lab ID: 20106885014	Collected: 05/30/19 09:35	Received: 06/04/19 10:50	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.							
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-228	EPA 904.0	1.47 ± 0.874 (1.66) C:77% T:78%		pCi/L	06/20/19 19:56	15262-20-1	

Sample: 1905573-15		Lab ID: 20106885015	Collected: 05/29/19 10:45	Received: 06/04/19 10:50	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.399 ± 0.679 (1.20) C:NA T:51%	pCi/L	06/26/19 14:53	13982-63-3	
Radium-228	EPA 904.0	1.31 ± 0.869 (1.69) C:75% T:72%	pCi/L	06/20/19 19:56	15262-20-1	

Sample: 1905573-16		Lab ID: 20106885016	Collected: 05/29/19 12:35	Received: 06/04/19 10:50	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.							
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.661 ± 0.519 (0.722) C:NA T:86%		pCi/L	06/26/19 15:07	13982-63-3	
Radium-228	EPA 904.0	0.980 ± 0.787 (1.59) C:76% T:79%		pCi/L	06/20/19 19:56	15262-20-1	

Sample: 1905573-17		Lab ID: 20106885017	Collected: 05/29/19 15:35	Received: 06/04/19 10:50	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	1.59 ± 0.713 (0.616) C:NA T:82%	pCi/L	06/26/19 15:07	13982-63-3	
Radium-228	EPA 904.0	-0.870 ± 0.779 (1.91) C:77% T:72%	pCi/L	06/20/19 19:56	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 1905573

Pace Project No.: 20106885

QC Batch:	347172	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
Associated Lab Samples:	20106885001, 20106885002, 20106885003, 20106885004, 20106885005, 20106885006, 20106885007, 20106885008, 20106885009, 20106885010, 20106885011, 20106885012, 20106885013, 20106885014, 20106885015, 20106885016, 20106885017		

METHOD BLANK:	1688509	Matrix:	Water
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Associated Lab Samples: 20106885001, 20106885002, 20106885003, 20106885004, 20106885005, 20106885006, 20106885007, 20106885008, 20106885009, 20106885010, 20106885011, 20106885012, 20106885013, 20106885014, 20106885015, 20106885016, 20106885017

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.914 ± 0.453 (0.792) C:77% T:83%	pCi/L	06/20/19 16:11	

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: 1905573
Pace Project No.: 20106885

QC Batch:	347402	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
Associated Lab Samples:	20106885001, 20106885002, 20106885003, 20106885004, 20106885005, 20106885006, 20106885007, 20106885008, 20106885009, 20106885010, 20106885011, 20106885012, 20106885013, 20106885014, 20106885015, 20106885016, 20106885017		

METHOD BLANK:	1689537	Matrix:	Water
Associated Lab Samples:	20106885001, 20106885002, 20106885003, 20106885004, 20106885005, 20106885006, 20106885007, 20106885008, 20106885009, 20106885010, 20106885011, 20106885012, 20106885013, 20106885014, 20106885015, 20106885016, 20106885017		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.342 ± 0.355 (0.529) C:NA T:69%	pCi/L	06/26/19 14:40	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 1905573
Pace Project No.: 20106885

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: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval).
Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)
(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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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 1905573

Pace Project No.: 20106885

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
20106885001	1905573-01	EPA 903.1	347402		
20106885002	1905573-02	EPA 903.1	347402		
20106885003	1905573-03	EPA 903.1	347402		
20106885004	1905573-04	EPA 903.1	347402		
20106885005	1905573-05	EPA 903.1	347402		
20106885006	1905573-06	EPA 903.1	347402		
20106885007	1905573-07	EPA 903.1	347402		
20106885008	1905573-08	EPA 903.1	347402		
20106885009	1905573-09	EPA 903.1	347402		
20106885010	1905573-10	EPA 903.1	347402		
20106885011	1905573-11	EPA 903.1	347402		
20106885012	1905573-12	EPA 903.1	347402		
20106885013	1905573-13	EPA 903.1	347402		
20106885014	1905573-14	EPA 903.1	347402		
20106885015	1905573-15	EPA 903.1	347402		
20106885016	1905573-16	EPA 903.1	347402		
20106885017	1905573-17	EPA 903.1	347402		
20106885001	1905573-01	EPA 904.0	347172		
20106885002	1905573-02	EPA 904.0	347172		
20106885003	1905573-03	EPA 904.0	347172		
20106885004	1905573-04	EPA 904.0	347172		
20106885005	1905573-05	EPA 904.0	347172		
20106885006	1905573-06	EPA 904.0	347172		
20106885007	1905573-07	EPA 904.0	347172		
20106885008	1905573-08	EPA 904.0	347172		
20106885009	1905573-09	EPA 904.0	347172		
20106885010	1905573-10	EPA 904.0	347172		
20106885011	1905573-11	EPA 904.0	347172		
20106885012	1905573-12	EPA 904.0	347172		
20106885013	1905573-13	EPA 904.0	347172		
20106885014	1905573-14	EPA 904.0	347172		
20106885015	1905573-15	EPA 904.0	347172		
20106885016	1905573-16	EPA 904.0	347172		
20106885017	1905573-17	EPA 904.0	347172		

REPORT OF LABORATORY ANALYSIS

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SUBCONTRACT ORDER
Micro-Methods Laboratory, Inc.
1905573

WO#: 20106885



SENDING LABORATORY:

Micro-Methods Laboratory, Inc.
6500 Sunplex Drive
Ocean Springs, MS 39564
Phone: 228.875.6420
Fax: 228.875.6423
Project Manager: Teresa Meins

RECEIVING LABORATORY:

Pace Analytical
1000 Riverbend Blvd. Suite F
St. Rose, LA 70087
Phone :-
Fax: -

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: 1905573-01	Water	Sampled:05/29/2019 12:34		SbBaBBeCdCrPbCaCoLi
Radium, Total 226 & 228 by 90106/10/2019 00:01 06/26/2019 12:34				
Containers Supplied:				
1000mL Plastic (C)	1000mL Plastic (D)			
Sample ID: 1905573-02	Water	Sampled:05/29/2019 09:07		SbBaBBeCdCrPbCaCoLi
Radium, Total 226 & 228 by 90106/10/2019 00:01 06/26/2019 09:07				
Containers Supplied:				
1000mL Plastic (C)	1000mL Plastic (D)			
Sample ID: 1905573-03	Water	Sampled:05/29/2019 11:54		SbBaBBeCdCrPbCaCoLi
Radium, Total 226 & 228 by 90106/10/2019 00:01 06/26/2019 11:54				
Containers Supplied:				
1000mL Plastic (C)	1000mL Plastic (D)			
Sample ID: 1905573-04	Water	Sampled:05/30/2019 10:30		SbBaBBeCdCrPbCaCoLi
Radium, Total 226 & 228 by 90106/10/2019 00:01 06/27/2019 10:30				
Containers Supplied:				
1000mL Plastic (C)	1000mL Plastic (D)			
Sample ID: 1905573-05	Water	Sampled:05/30/2019 07:50		SbBaBBeCdCrPbCaCoLi
Radium, Total 226 & 228 by 90106/10/2019 00:01 06/27/2019 07:50				
Containers Supplied:				
1000mL Plastic (C)	1000mL Plastic (D)			
Sample ID: 1905573-06	Water	Sampled:05/30/2019 08:45		SbBaBBeCdCrPbCaCoLi
Radium, Total 226 & 228 by 90106/10/2019 00:01 06/27/2019 08:45				
Containers Supplied:				
1000mL Plastic (C)	1000mL Plastic (D)			

Released By

Date

Received By

Date

Released By

Date

Received By

Date

Ambient

Teresa Meins 6/3/19 1429

UPS 6-4-19 1050 mill/pac 6-4-19 1050

2-Boxes for Delivery

SUBCONTRACT ORDER
Micro-Methods Laboratory, Inc.
1905573

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: 1905573-07	Water	Sampled:05/30/2019 00:00		SbBaBBeCdCrPbCaCoLi
Radium Total 226 & 228 by 90106/10/2019 00:01 06/27/2019 00:00				
Containers Supplied:				
1000mL Plastic (C)	1000mL Plastic (D)			
Sample ID: 1905573-08	Water	Sampled:05/30/2019 09:50		SbBaBBeCdCrPbCaCoLi
Radium Total 226 & 228 by 90106/10/2019 00:01 06/27/2019 09:50				
Containers Supplied:				
1000mL Plastic (C)	1000mL Plastic (D)			
Sample ID: 1905573-09	Water	Sampled:05/29/2019 10:15		SbBaBBeCdCrPbCaCoLi
Radium Total 226 & 228 by 90106/10/2019 00:01 06/26/2019 10:15				
Containers Supplied:				
1000mL Plastic (C)	1000mL Plastic (D)			
Sample ID: 1905573-10	Water	Sampled:05/29/2019 11:10		SbBaBBeCdCrPbCaCoLi
Radium Total 226 & 228 by 90106/10/2019 00:01 06/26/2019 11:10				
Containers Supplied:				
1000mL Plastic (C)	1000mL Plastic (D)			
Sample ID: 1905573-11	Water	Sampled:05/29/2019 15:45		SbBaBBeCdCrPbCaCoLi
Radium Total 226 & 228 by 90106/10/2019 00:01 06/26/2019 15:45				
Containers Supplied:				
1000mL Plastic (C)	1000mL Plastic (D)			
Sample ID: 1905573-12	Water	Sampled:05/29/2019 14:47		SbBaBBeCdCrPbCaCoLi
Radium Total 226 & 228 by 90106/10/2019 00:01 06/26/2019 14:47				
Containers Supplied:				
1000mL Plastic (C)	1000mL Plastic (D)			
Sample ID: 1905573-13	Water	Sampled:05/30/2019 08:52		SbBaBBeCdCrPbCaCoLi
Radium Total 226 & 228 by 90106/10/2019 00:01 06/27/2019 08:52				
Containers Supplied:				
1000mL Plastic (C)	1000mL Plastic (D)			
Sample ID: 1905573-14	Water	Sampled:05/30/2019 09:35		SbBaBBeCdCrPbCaCoLi
Radium Total 226 & 228 by 90106/10/2019 00:01 06/27/2019 09:35				
Containers Supplied:				
1000mL Plastic (C)	1000mL Plastic (D)			

Released By

Date

Received By

Date

Released By

Date

Received By

Date

ambient

Deena Meier 6/3/19 1429

UPS

6-4-19

1050

2melt/Pae

6-4-19

1050

2 boxes for delivery

SUBCONTRACT ORDER
Micro-Methods Laboratory, Inc.
1905573

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: 1905573-15	Water	Sampled:05/29/2019 10:45		SbBaBBeCdCrPbCaCoLi
Radium, Total 226 & 228 by 90106/10/2019 00:01 06/26/2019 10:45				
Containers Supplied:				
1000mL Plastic (C)	1000mL Plastic (D)			
Sample ID: 1905573-16	Water	Sampled:05/29/2019 12:35		SbBaBBeCdCrPbCaCoLi
Radium, Total 226 & 228 by 90106/10/2019 00:01 06/26/2019 12:35				
Containers Supplied:				
1000mL Plastic (C)	1000mL Plastic (D)			
Sample ID: 1905573-17	Water	Sampled:05/29/2019 15:35		SbBaBBeCdCrPbCaCoLi
Radium, Total 226 & 228 by 90106/10/2019 00:01 06/26/2019 15:35				
Containers Supplied:				
1000mL Plastic (C)	1000mL Plastic (D)			

Released By <i>Jenna Meino</i>	Date <i>6/3/19 1429</i>	Received By <i>2 mull, Pace</i>	Date <i>6-4-19 1050</i>
Released By <i>UPS</i>	Date <i>6-4-19 1050</i>	Received By <i>2 mull, Pace</i>	Date <i>6-4-19 1050</i>

2 Boxes for Delivery

ambient



1000 Riverbend Blvd., Suite F
St. Rose, LA 70087

Sample Condition Upon Receipt

WO#: 20106885

PM: KHB

Due Date: 06/26/19

CLIENT: 20-MICRO

Project

Courier: ☐ Pace Courier ☐ Hired Courier ☐ Fed X ☒ UPS ☐ DHL ☐ USPS ☐ Customer ☐ Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact: ☒ Yes ☐ No

Thermometer
Used:

- ☐ Therm Fisher IR 5
☐ Therm Fisher IR 6
☐ Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining
contents: [Signature]

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present??	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	1
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	5
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7 2-liters
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8
Filtrated vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10
All containers received within manufacture's precautionary and/or expiration dates.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	12 Unpreserved
All containers preservation checked found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	13 If No, was preservative added? <input type="checkbox"/> Yes <input type="checkbox"/> No If added record lot no.: HNO3 _____ H2SO4 _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15

Client Notification/ Resolution:

Person Contacted: _____

Date/Time: _____

Comments/ Resolution: _____



PO Box 1410, Ocean Springs, MS 39566-1410
(228) 875-6420 FAX (228) 875-6423

www.micromethodslab.com

Chain of Custody Record

Lab ID# MS00021
LELAP ID # 01960
TNI ID # TNI01397

Print Form

M-M Lab
WO #

Company Name: Red Hills Power Plant		Project Manager: Jim Ward	
Address: 2391 Pensacola Rd.		Purchase Order #: SCSRDH6883	
City: Ackerman	State: MS	Email Address:	
Phone: 662-387-5758	Zip: 39735	Sampler Name Printed: <i>Kirk Shelton</i>	
Fax:		Sampler Name Signed: <i>[Signature]</i>	
Project Name: Red Hills CCR		Turn Around Time & Reporting Our normal turn around time is 10 working days <input checked="" type="checkbox"/> Normal <input type="checkbox"/> Next Day* <input type="checkbox"/> 2nd Day* <input type="checkbox"/> Other* *All rush order requests must be prior approved.	
Project #:		QC Level: Level 1 <input type="checkbox"/> Level 2 <input type="checkbox"/> Level 3 <input type="checkbox"/>	
Sample Identification		Field Testing	
Sampling Date/Time		ID# Field Test ID# Field Test ID# Field Test	
Matrix Code		Matrix: W = Water DW = Drinking Water S = Solid SO = Soil SE = Sediment L = Liquid A = Air O = Oil SL = Sludge	
MW-9 5/29/19 12:34 W		Preservation: 1= H2SO4 2= H3PO4 3= NaOH 4= ZnC4H10O6 5= ZnC4H10O6 & NaOH 6= HNO3 7= Na2S2O3 8= HCl 9= NaHSO4	
MW-17 5/29/19 09:57 W			
OW-2 5/29/19 11:54 W			
MW-13 5/30/19 10:30 W			
MW-7 5/30/19 7:50 W			
MW-14 5/30/19 8:45 W			
Field Blank 5/30/19 9:50 W			
Duplicate 5/31/19 10:15 W			
MW-12 5/31/19 11:10 W			
MW-15 5/29/19 15:45 W			
CCR-2 5/29/19 15:45 W			
Received on Ice? Y N Thermometer# Cooler #		**All Temps are Corrected Values**	
Date & Time		By:	
Printed Name		Signature	
Relinquished by <i>Kirk Shelton</i>		Company <i>ECS, Inc</i> Date <i>5-30-19</i> Time <i>1700</i>	
Received by			
Relinquished by			
Received by			
Relinquished by			
Received by			
Notes: <i>Four Coolers for this event.</i>			

Physical Address: 6500 Sunplex Drive, Ocean Springs MS 39564

DCN# F316 Rev.#5



Mailing Address:
PO Box 1410
Ocean Springs, MS
39566-1410

6500 Sunplex Drive
Ocean Springs, MS 39564
228.875.6420 Phone
228.875.6423 Fax

October 04, 2019

Jim Ward

Work Order # : 1909216

Choctaw Generation LP
2391 Pensacola Rd.
Ackerman, MS 39735
RE: CGLP CCR

Purchase Order #: RDH11984

Enclosed are Micro-Methods Laboratory, Inc. results of analyses performed on samples received 09/12/2019 07:57. If you have any questions concerning this report, please feel free to contact the office.



Harry P. Howell
President
Micro-Methods Laboratory, Inc.



DISCLAIMER

The results only relate to the items or the sample and/or samples received by the laboratory. This report shall not be reproduced except in full, without the approval of the laboratory. All NELAP certified test methods performed meet the requirements of NELAC 2009 Standards. Any variances and/or deviations specific to this analytical report are referenced in the lab report using qualifiers and detailed explanations found in the case narrative.

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: CGLP CCR
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 10/04/2019 10:02

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date/Time Sampled	Sampled by	Date/Time Received
MW-9	1909216-01	Water	09/10/2019 11:45	Kirk Shelton	09/12/2019 07:57
MW-17	1909216-02	Water	09/10/2019 14:34	Kirk Shelton	09/12/2019 07:57
OW-2	1909216-03	Water	09/10/2019 15:57	Kirk Shelton	09/12/2019 07:57
MW-13	1909216-04	Water	09/10/2019 17:45	Kirk Shelton	09/12/2019 07:57
MW-7	1909216-05	Water	09/10/2019 18:08	Kirk Shelton	09/12/2019 07:57
MW-14	1909216-06	Water	09/11/2019 11:15	Kirk Shelton	09/12/2019 07:57
Field Blank	1909216-07	Water	09/11/2019 00:00	Kirk Shelton	09/12/2019 07:57
Duplicate	1909216-08	Water	09/11/2019 11:38	Kirk Shelton	09/12/2019 07:57
MW-12	1909216-09	Water	09/10/2019 12:53	Kirk Shelton	09/12/2019 07:57
MW-15	1909216-10	Water	09/10/2019 15:17	Kirk Shelton	09/12/2019 07:57
CCR-2	1909216-11	Water	09/11/2019 08:49	Kirk Shelton	09/12/2019 07:57
CCR-3	1909216-12	Water	09/11/2019 09:50	Kirk Shelton	09/12/2019 07:57
CCR-4	1909216-13	Water	09/10/2019 16:59	Kirk Shelton	09/12/2019 07:57
CCR-5	1909216-14	Water	09/10/2019 17:06	Kirk Shelton	09/12/2019 07:57
CCR-6	1909216-15	Water	09/11/2019 10:09	Kirk Shelton	09/12/2019 07:57
CCR-7	1909216-16	Water	09/11/2019 11:27	Kirk Shelton	09/12/2019 07:57
CCR-8	1909216-17	Water	09/10/2019 12:05	Kirk Shelton	09/12/2019 07:57

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: CGLP CCR
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 10/04/2019 10:02

Sample Receipt Conditions

Date/Time Received: 9/12/2019 7:57:00AM

Shipped by: Fed Ex

Received by: Sarah E. Tomek

Submitted by: Kirk Shelton

Date/Time Logged: 9/12/2019 9:23:00AM

Logged by: Sarah E. Tomek

Cooler ID: #1106

Receipt Temperature: -0.1 °C

<i>Cooler Custody Seals Present</i>	Yes
<i>Containers Intact</i>	Yes
<i>COC/Labels Agree</i>	Yes
<i>Labels Complete</i>	Yes
<i>COC Complete</i>	Yes
<i>Volatile Vial Headspace >6mm</i>	No
<i>Field Sheet/Instructions Included</i>	No
<i>Samples Documented in Rejection Log</i>	No
<i>Temp Taken From Temp Blank</i>	Yes
<i>Temp Taken From Sample Container</i>	No
<i>Temp Taken From Cooler</i>	No
<i>COC meets acceptance criteria</i>	Yes

<i>Received on Ice</i>	Yes
<i>No Ice, Short Trip</i>	No
<i>Obvious Contamination</i>	No
<i>Rush to meet HT</i>	No
<i>Received within HT</i>	Yes
<i>Proper Containers for Analysis</i>	Yes
<i>Correct Preservation</i>	Yes
<i>Adequate Sample for Analysis</i>	No
<i>Sample Custody Seals Present</i>	No
<i>Samples Missing from COC/Cooler</i>	No

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: CGLP CCR
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 10/04/2019 10:02

 Cooler ID: #1133

 Receipt Temperature: -0.1 °C

<i>Cooler Custody Seals Present</i>	Yes	<i>Received on Ice</i>	Yes
<i>Containers Intact</i>	Yes	<i>No Ice, Short Trip</i>	No
<i>COC/Labels Agree</i>	Yes	<i>Obvious Contamination</i>	No
<i>Labels Complete</i>	Yes	<i>Rush to meet HT</i>	No
<i>COC Complete</i>	Yes	<i>Received within HT</i>	Yes
<i>Volatile Vial Headspace >6mm</i>	No	<i>Proper Containers for Analysis</i>	Yes
<i>Field Sheet/Instructions Included</i>	No	<i>Correct Preservation</i>	Yes
<i>Samples Documented in Rejection Log</i>	No	<i>Adequate Sample for Analysis</i>	No
<i>Temp Taken From Temp Blank</i>	Yes	<i>Sample Custody Seals Present</i>	No
<i>Temp Taken From Sample Container</i>	No	<i>Samples Missing from COC/Cooler</i>	No
<i>Temp Taken From Cooler</i>	No		
<i>COC meets acceptance criteria</i>	Yes		

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: CGLP CCR
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 10/04/2019 10:02

 Cooler ID: #1135

 Receipt Temperature: 0.5 °C
Cooler Custody Seals Present

Yes

Received on Ice

Yes

Containers Intact

Yes

No Ice, Short Trip

No

COC/Labels Agree

Yes

Obvious Contamination

No

Labels Complete

Yes

Rush to meet HT

No

COC Complete

Yes

Received within HT

Yes

Volatile Vial Headspace >6mm

No

Proper Containers for Analysis

Yes

Field Sheet/Instructions Included

No

Correct Preservation

Yes

Samples Documented in Rejection Log

No

Adequate Sample for Analysis

No

Temp Taken From Temp Blank

Yes

Sample Custody Seals Present

No

Temp Taken From Sample Container

No

Samples Missing from COC/Cooler

No

Temp Taken From Cooler

No

COC meets acceptance criteria

Yes

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: CGLP CCR
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 10/04/2019 10:02

 Cooler ID: #1142

 Receipt Temperature: 0.0 °C

<i>Cooler Custody Seals Present</i>	Yes	<i>Received on Ice</i>	Yes
<i>Containers Intact</i>	Yes	<i>No Ice, Short Trip</i>	No
<i>COC/Labels Agree</i>	Yes	<i>Obvious Contamination</i>	No
<i>Labels Complete</i>	Yes	<i>Rush to meet HT</i>	No
<i>COC Complete</i>	Yes	<i>Received within HT</i>	Yes
<i>Volatile Vial Headspace >6mm</i>	No	<i>Proper Containers for Analysis</i>	Yes
<i>Field Sheet/Instructions Included</i>	No	<i>Correct Preservation</i>	Yes
<i>Samples Documented in Rejection Log</i>	No	<i>Adequate Sample for Analysis</i>	No
<i>Temp Taken From Temp Blank</i>	Yes	<i>Sample Custody Seals Present</i>	No
<i>Temp Taken From Sample Container</i>	No	<i>Samples Missing from COC/Cooler</i>	No
<i>Temp Taken From Cooler</i>	No		
<i>COC meets acceptance criteria</i>	Yes		

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: CGLP CCR
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 10/04/2019 10:02

 Cooler ID: client cooler

 Receipt Temperature: -0.4 °C
Cooler Custody Seals Present

Yes

Received on Ice

Yes

Containers Intact

Yes

No Ice, Short Trip

No

COC/Labels Agree

Yes

Obvious Contamination

No

Labels Complete

Yes

Rush to meet HT

No

COC Complete

Yes

Received within HT

Yes

Volatile Vial Headspace >6mm

No

Proper Containers for Analysis

Yes

Field Sheet/Instructions Included

No

Correct Preservation

Yes

Samples Documented in Rejection Log

No

Adequate Sample for Analysis

No

Temp Taken From Temp Blank

Yes

Sample Custody Seals Present

No

Temp Taken From Sample Container

No

Samples Missing from COC/Cooler

No

Temp Taken From Cooler

No

COC meets acceptance criteria

Yes

Choctaw Generation LP
2391 Pensacola Rd.
Ackerman MS, 39735Project: CGLP CCR
Project Number: [none]
Project Manager: Jim Ward**Reported:**
10/04/2019 10:02**CASE NARRATIVE SUMMARY**

All reported results are within Micro-Methods Laboratory, Inc. defined laboratory quality control objectives unless detailed in narrative summary or identified as qualifications. NOTE: All results listed on this report are calculated on a wet weight basis (as received by the laboratory) unless otherwise noted in the analysis qualification sections.

Summary Comments:

See attached Radiological results from Sub-Contract Laboratory.

Total Metals-EPA 200.8 Rev 5.4**Qualifiers:**

CC-01 CCV above acceptance limits. Results reported from this calibration were below the reporting limits.

Beryllium [He]

1909216-02[MW-17], 1909216-03[OW-2], 1909216-04[MW-13], 1909216-05[MW-7], 1909216-06[MW-14], 1909216-07[Field Blank], 1909216-08[Duplicate], 1909216-09[MW-12], 1909216-10[MW-15], 1909216-11[CCR-2], 1909216-12[CCR-3], 1909216-13[CCR-4], 1909216-15[CCR-6], 1909216-16[CCR-7], 1909216-17[CCR-8]

CC-03 CCV above acceptance limits. QC Results reported from this calibration within acceptance limits.

Beryllium [He]

9I16039-MS2, 9I16039-MSD2

QM-05 The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.

Selenium [HHe]

9I16039-MS2, 9I16039-MSD2

Anions-SM 4110B 2011**Qualifiers:**

M1 MS/MSD Recovery limit exceeded.

Sulfate as SO₄

9I13031-MS1, 9I13031-MSD1

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: CGLP CCR
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 10/04/2019 10:02

MW-9
1909216-01 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Classical Chemistry Parameters

Chloride	499	10.0	mg/L	20.0	9113031	DLW	09/12/2019 08:30	09/12/2019 11:27	SM 4110B 2011	
Sulfate as SO ₄	132	100	"	"	"	DLW	"	"	"	
Fluoride	0.39	0.22	"	1.0	9116032	DLW	09/16/2019 09:00	09/16/2019 11:37	SM 4500-F C 2011	
Total Dissolved Solids	1635	1	"	"	9113045	DLW	09/13/2019 15:30	09/16/2019 16:19	SM 2540 C-2011	

Metals by EPA 200 Series Methods ICP-AES

Barium	0.262	0.010	mg/L	1.0	9116040	ADB	09/16/2019 09:00	09/26/2019 14:51	EPA 200.7 Rev 4.4	
Boron	ND	0.050	"	"	"	ADB	"	"	"	
Calcium	83.1	0.100	"	"	"	ADB	"	"	"	
Lithium	0.100	0.040	"	"	"	ADB	"	"	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9116039	ADB	"	09/19/2019 20:38	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.00200	"	"	"	ADB	"	"	"	
Beryllium [He]	0.00250	0.00100	"	"	"	ADB	"	09/30/2019 15:57	"	
Cadmium [HHe]	0.00114	0.00100	"	"	"	ADB	"	09/19/2019 20:38	"	
Chromium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cobalt [He]	0.0167	0.00100	"	"	"	ADB	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Molybdenum [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Selenium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: CGLP CCR
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 10/04/2019 10:02

MW-17
1909216-02 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Classical Chemistry Parameters

Chloride	53.4	2.00	mg/L	4.0	9113031	DLW	09/12/2019 08:30	09/12/2019 11:45	SM 4110B 2011	
Sulfate as SO ₄	148	20.0	"	"	"	DLW	"	"	"	
Fluoride	0.34	0.22	"	1.0	9116032	DLW	09/16/2019 09:00	09/16/2019 11:37	SM 4500-F C 2011	
Total Dissolved Solids	461	1	"	"	9113045	DLW	09/13/2019 15:30	09/16/2019 16:19	SM 2540 C-2011	

Metals by EPA 200 Series Methods ICP-AES

Barium	0.127	0.010	mg/L	1.0	9116040	ADB	09/16/2019 09:00	09/26/2019 15:08	EPA 200.7 Rev 4.4	
Boron	ND	0.050	"	"	"	ADB	"	"	"	
Calcium	37.4	0.100	"	"	"	ADB	"	"	"	
Lithium	ND	0.040	"	"	"	ADB	"	"	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9116039	ADB	"	09/19/2019 21:02	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.00200	"	"	"	ADB	"	"	"	
Beryllium [He]	ND	0.00100	"	"	"	SCH	"	09/23/2019 17:50	"	CC-01
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	09/19/2019 21:02	"	
Chromium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cobalt [He]	0.0199	0.00100	"	"	"	ADB	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Molybdenum [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Selenium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: CGLP CCR
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 10/04/2019 10:02

OW-2
1909216-03 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Classical Chemistry Parameters

Chloride	39.6	2.00	mg/L	4.0	9113031	DLW	09/12/2019 08:30	09/12/2019 12:04	SM 4110B 2011	
Sulfate as SO ₄	124	20.0	"	"	"	DLW	"	"	"	
Fluoride	0.26	0.22	"	1.0	9116032	DLW	09/16/2019 09:00	09/16/2019 11:37	SM 4500-F C 2011	
Total Dissolved Solids	368	1	"	"	9113045	DLW	09/13/2019 15:30	09/16/2019 16:19	SM 2540 C-2011	

Metals by EPA 200 Series Methods ICP-AES

Barium	0.124	0.010	mg/L	1.0	9116040	ADB	09/16/2019 09:00	09/26/2019 15:13	EPA 200.7 Rev 4.4	
Boron	ND	0.050	"	"	"	ADB	"	"	"	
Calcium	38.0	0.100	"	"	"	ADB	"	"	"	
Lithium	0.042	0.040	"	"	"	ADB	"	"	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9116039	ADB	"	09/19/2019 21:10	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.00200	"	"	"	ADB	"	"	"	
Beryllium [He]	ND	0.00100	"	"	"	SCH	"	09/23/2019 17:58	"	CC-01
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	09/19/2019 21:10	"	
Chromium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cobalt [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Molybdenum [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Selenium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: CGLP CCR
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 10/04/2019 10:02

MW-13
1909216-04 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Classical Chemistry Parameters

Chloride	3.66	0.500	mg/L	1.0	9113031	DLW	09/12/2019 08:30	09/12/2019 12:22	SM 4110B 2011	
Sulfate as SO₄	7.26	5.00	"	"	"	DLW	"	"	"	
Fluoride	ND	0.22	"	"	9116032	DLW	09/16/2019 09:00	09/16/2019 11:37	SM 4500-F C 2011	
Total Dissolved Solids	162	1	"	"	9113045	DLW	09/13/2019 15:30	09/16/2019 16:19	SM 2540 C-2011	

Metals by EPA 200 Series Methods ICP-AES

Barium	0.172	0.010	mg/L	1.0	9116040	ADB	09/16/2019 09:00	09/26/2019 15:19	EPA 200.7 Rev 4.4	
Boron	ND	0.050	"	"	"	ADB	"	"	"	
Calcium	20.1	0.100	"	"	"	ADB	"	"	"	
Lithium	ND	0.040	"	"	"	ADB	"	"	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9116039	ADB	"	09/19/2019 21:19	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.00200	"	"	"	ADB	"	"	"	
Beryllium [He]	ND	0.00100	"	"	"	SCH	"	09/23/2019 18:06	"	CC-01
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	09/19/2019 21:19	"	
Chromium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cobalt [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Molybdenum [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Selenium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: CGLP CCR
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 10/04/2019 10:02

MW-7
1909216-05 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Classical Chemistry Parameters

Chloride	5.10	1.00	mg/L	2.0	9113031	DLW	09/12/2019 08:30	09/12/2019 12:58	SM 4110B 2011	
Sulfate as SO4	41.7	10.0	"	"	"	DLW	"	"	"	
Fluoride	ND	0.22	"	1.0	9116032	DLW	09/16/2019 09:00	09/16/2019 11:37	SM 4500-F C 2011	
Total Dissolved Solids	220	1	"	"	9113045	DLW	09/13/2019 15:30	09/16/2019 16:19	SM 2540 C-2011	

Metals by EPA 200 Series Methods ICP-AES

Barium	0.095	0.010	mg/L	1.0	9116040	ADB	09/16/2019 09:00	09/26/2019 15:24	EPA 200.7 Rev 4.4	
Boron	ND	0.050	"	"	"	ADB	"	"	"	
Calcium	52.2	0.100	"	"	"	ADB	"	"	"	
Lithium	ND	0.040	"	"	"	ADB	"	"	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9116039	ADB	"	09/19/2019 21:27	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.00200	"	"	"	ADB	"	"	"	
Beryllium [He]	ND	0.00100	"	"	"	SCH	"	09/23/2019 18:15	"	CC-01
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	09/19/2019 21:27	"	
Chromium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cobalt [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Molybdenum [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Selenium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: CGLP CCR
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 10/04/2019 10:02

MW-14
1909216-06 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Classical Chemistry Parameters

Chloride	20.8	0.500	mg/L	1.0	9113031	DLW	09/12/2019 08:30	09/12/2019 13:15	SM 4110B 2011	
Sulfate as SO ₄	10.4	5.00	"	"	"	DLW	"	"	"	
Fluoride	ND	0.22	"	"	9116032	DLW	09/16/2019 09:00	09/16/2019 11:37	SM 4500-F C 2011	
Total Dissolved Solids	92	1	"	"	9113045	DLW	09/13/2019 15:30	09/16/2019 16:19	SM 2540 C-2011	

Metals by EPA 200 Series Methods ICP-AES

Barium	0.013	0.010	mg/L	1.0	9116040	ADB	09/16/2019 09:00	09/26/2019 15:30	EPA 200.7 Rev 4.4	
Boron	ND	0.050	"	"	"	ADB	"	"	"	
Calcium	0.664	0.100	"	"	"	ADB	"	"	"	
Lithium	ND	0.040	"	"	"	ADB	"	"	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9116039	ADB	"	09/19/2019 21:36	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.00200	"	"	"	ADB	"	"	"	
Beryllium [He]	ND	0.00100	"	"	"	SCH	"	09/23/2019 18:23	"	CC-01
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	09/19/2019 21:36	"	
Chromium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cobalt [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Molybdenum [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Selenium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: CGLP CCR
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 10/04/2019 10:02

Field Blank
1909216-07 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Classical Chemistry Parameters

Chloride	ND	0.500	mg/L	1.0	9113031	DLW	09/12/2019 08:30	09/12/2019 15:08	SM 4110B 2011	
Sulfate as SO ₄	ND	5.00	"	"	"	DLW	"	"	"	
Fluoride	ND	0.22	"	"	9116032	DLW	09/16/2019 09:00	09/16/2019 11:37	SM 4500-F C 2011	
Total Dissolved Solids	8	1	"	"	9113045	DLW	09/13/2019 15:30	09/16/2019 16:19	SM 2540 C-2011	

Metals by EPA 200 Series Methods ICP-AES

Barium	ND	0.010	mg/L	1.0	9116040	ADB	09/16/2019 09:00	09/26/2019 15:35	EPA 200.7 Rev 4.4	
Boron	ND	0.050	"	"	"	ADB	"	"	"	
Calcium	ND	0.100	"	"	"	ADB	"	"	"	
Lithium	ND	0.040	"	"	"	ADB	"	"	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9116039	ADB	"	09/19/2019 21:44	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.00200	"	"	"	ADB	"	"	"	
Beryllium [He]	ND	0.00100	"	"	"	SCH	"	09/23/2019 18:32	"	CC-01
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	09/19/2019 21:44	"	
Chromium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cobalt [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Molybdenum [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Selenium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: CGLP CCR
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 10/04/2019 10:02

Duplicate
1909216-08 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Classical Chemistry Parameters

Chloride	20.7	0.500	mg/L	1.0	9113031	DLW	09/12/2019 08:30	09/12/2019 15:26	SM 4110B 2011	
Sulfate as SO4	10.9	5.00	"	"	"	DLW	"	"	"	
Fluoride	ND	0.22	"	"	9116032	DLW	09/16/2019 09:00	09/16/2019 11:37	SM 4500-F C 2011	
Total Dissolved Solids	90	1	"	"	9113045	DLW	09/13/2019 15:30	09/16/2019 16:19	SM 2540 C-2011	

Metals by EPA 200 Series Methods ICP-AES

Barium	0.012	0.010	mg/L	1.0	9116040	ADB	09/16/2019 09:00	09/26/2019 15:41	EPA 200.7 Rev 4.4	
Boron	ND	0.050	"	"	"	ADB	"	"	"	
Calcium	0.618	0.100	"	"	"	ADB	"	"	"	
Lithium	ND	0.040	"	"	"	ADB	"	"	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9116039	ADB	"	09/19/2019 21:53	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.00200	"	"	"	ADB	"	"	"	
Beryllium [He]	ND	0.00100	"	"	"	SCH	"	09/23/2019 18:40	"	CC-01
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	09/19/2019 21:53	"	
Chromium [He]	ND	0.00100	"	"	"	SCH	"	09/23/2019 18:40	"	
Cobalt [He]	ND	0.00100	"	"	"	SCH	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	09/19/2019 21:53	"	
Molybdenum [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Selenium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: CGLP CCR
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 10/04/2019 10:02

MW-12
1909216-09 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Classical Chemistry Parameters

Chloride	37.3	0.500	mg/L	1.0	9113031	DLW	09/12/2019 08:30	09/12/2019 15:44	SM 4110B 2011	
Sulfate as SO4	31.4	5.00	"	"	"	DLW	"	"	"	
Fluoride	ND	0.22	"	"	9116032	DLW	09/16/2019 09:00	09/16/2019 11:37	SM 4500-F C 2011	
Total Dissolved Solids	258	1	"	"	9113045	DLW	09/13/2019 15:30	09/16/2019 16:19	SM 2540 C-2011	

Metals by EPA 200 Series Methods ICP-AES

Barium	0.202	0.010	mg/L	1.0	9116040	ADB	09/16/2019 09:00	09/26/2019 15:46	EPA 200.7 Rev 4.4	
Boron	ND	0.050	"	"	"	ADB	"	"	"	
Calcium	27.5	0.100	"	"	"	ADB	"	"	"	
Lithium	ND	0.040	"	"	"	ADB	"	"	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9116039	ADB	"	09/19/2019 22:01	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.00200	"	"	"	ADB	"	"	"	
Beryllium [He]	ND	0.00100	"	"	"	SCH	"	09/23/2019 18:49	"	CC-01
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	09/19/2019 22:01	"	
Chromium [He]	ND	0.00100	"	"	"	SCH	"	09/23/2019 18:49	"	
Cobalt [He]	0.00733	0.00100	"	"	"	SCH	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	09/19/2019 22:01	"	
Molybdenum [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Selenium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: CGLP CCR
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 10/04/2019 10:02

MW-15
1909216-10 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Classical Chemistry Parameters

Chloride	16.1	1.00	mg/L	2.0	9113031	DLW	09/12/2019 08:30	09/12/2019 16:09	SM 4110B 2011	
Sulfate as SO4	56.7	10.0	"	"	"	DLW	"	"	"	
Fluoride	ND	0.22	"	1.0	9116032	DLW	09/16/2019 09:00	09/16/2019 11:37	SM 4500-F C 2011	
Total Dissolved Solids	285	1	"	"	9113045	DLW	09/13/2019 15:30	09/16/2019 16:19	SM 2540 C-2011	

Metals by EPA 200 Series Methods ICP-AES

Barium	0.209	0.010	mg/L	1.0	9116040	ADB	09/16/2019 09:00	09/26/2019 16:04	EPA 200.7 Rev 4.4	
Boron	ND	0.050	"	"	"	ADB	"	"	"	
Calcium	31.3	0.100	"	"	"	ADB	"	"	"	
Lithium	ND	0.040	"	"	"	ADB	"	"	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9116039	ADB	"	09/19/2019 22:43	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.00200	"	"	"	ADB	"	"	"	
Beryllium [He]	ND	0.00100	"	"	"	SCH	"	09/23/2019 19:31	"	CC-01
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	09/19/2019 22:43	"	
Chromium [He]	ND	0.00100	"	"	"	SCH	"	09/23/2019 19:31	"	
Cobalt [He]	0.00958	0.00100	"	"	"	SCH	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	09/19/2019 22:43	"	
Molybdenum [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Selenium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: CGLP CCR
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 10/04/2019 10:02

CCR-2
1909216-11 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Classical Chemistry Parameters

Chloride	2.44	0.500	mg/L	1.0	9113031	DLW	09/12/2019 08:30	09/12/2019 16:27	SM 4110B 2011	
Sulfate as SO₄	11.0	5.00	"	"	"	DLW	"	"	"	
Fluoride	ND	0.22	"	"	9116032	DLW	09/16/2019 09:00	09/16/2019 11:41	SM 4500-F C 2011	
Total Dissolved Solids	120	1	"	"	9113045	DLW	09/13/2019 15:30	09/16/2019 16:19	SM 2540 C-2011	

Metals by EPA 200 Series Methods ICP-AES

Barium	0.088	0.010	mg/L	1.0	9116040	ADB	09/16/2019 09:00	09/26/2019 16:10	EPA 200.7 Rev 4.4	
Boron	ND	0.050	"	"	"	ADB	"	"	"	
Calcium	12.2	0.100	"	"	"	ADB	"	"	"	
Lithium	ND	0.040	"	"	"	ADB	"	"	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9116039	ADB	"	09/19/2019 22:52	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.00200	"	"	"	ADB	"	"	"	
Beryllium [He]	ND	0.00100	"	"	"	SCH	"	09/23/2019 19:40	"	CC-01
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	09/19/2019 22:52	"	
Chromium [He]	ND	0.00100	"	"	"	SCH	"	09/23/2019 19:40	"	
Cobalt [He]	ND	0.00100	"	"	"	SCH	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	09/19/2019 22:52	"	
Molybdenum [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Selenium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: CGLP CCR
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 10/04/2019 10:02

CCR-3
1909216-12 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Classical Chemistry Parameters

Chloride	5.56	0.500	mg/L	1.0	9I13031	DLW	09/12/2019 08:30	09/12/2019 20:02	SM 4110B 2011	
Sulfate as SO ₄	95.2	20.0	"	4.0	"	DLW	"	09/12/2019 16:45	"	
Fluoride	ND	0.22	"	1.0	9I16032	DLW	09/16/2019 09:00	09/16/2019 11:41	SM 4500-F C 2011	
Total Dissolved Solids	276	1	"	"	9I13045	DLW	09/13/2019 15:30	09/16/2019 16:19	SM 2540 C-2011	

Metals by EPA 200 Series Methods ICP-AES

Barium	0.060	0.010	mg/L	1.0	9I16040	ADB	09/16/2019 09:00	09/26/2019 16:15	EPA 200.7 Rev 4.4	
Boron	ND	0.050	"	"	"	ADB	"	"	"	
Calcium	29.0	0.100	"	"	"	ADB	"	"	"	
Lithium	0.061	0.040	"	"	"	ADB	"	"	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9I16039	ADB	"	09/19/2019 23:00	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.00200	"	"	"	ADB	"	"	"	
Beryllium [He]	ND	0.00100	"	"	"	SCH	"	09/23/2019 19:48	"	CC-01
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	09/19/2019 23:00	"	
Chromium [He]	ND	0.00100	"	"	"	SCH	"	09/23/2019 19:48	"	
Cobalt [He]	0.00144	0.00100	"	"	"	SCH	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	09/19/2019 23:00	"	
Molybdenum [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Selenium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: CGLP CCR
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 10/04/2019 10:02

CCR-4
1909216-13 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Classical Chemistry Parameters

Chloride	7.12	0.500	mg/L	1.0	9113031	DLW	09/12/2019 08:30	09/12/2019 17:03	SM 4110B 2011	
Sulfate as SO₄	23.5	5.00	"	"	"	DLW	"	"	"	
Fluoride	ND	0.22	"	"	9116032	DLW	09/16/2019 09:00	09/16/2019 11:41	SM 4500-F C 2011	
Total Dissolved Solids	197	1	"	"	9113045	DLW	09/13/2019 15:30	09/16/2019 16:19	SM 2540 C-2011	

Metals by EPA 200 Series Methods ICP-AES

Barium	0.157	0.010	mg/L	1.0	9116040	ADB	09/16/2019 09:00	09/26/2019 16:21	EPA 200.7 Rev 4.4	
Boron	ND	0.050	"	"	"	ADB	"	"	"	
Calcium	25.8	0.100	"	"	"	ADB	"	"	"	
Lithium	ND	0.040	"	"	"	ADB	"	"	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9116039	ADB	"	09/19/2019 23:08	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.00200	"	"	"	ADB	"	"	"	
Beryllium [He]	ND	0.00100	"	"	"	SCH	"	09/23/2019 19:57	"	CC-01
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	09/19/2019 23:08	"	
Chromium [He]	ND	0.00100	"	"	"	SCH	"	09/23/2019 19:57	"	
Cobalt [He]	0.00312	0.00100	"	"	"	SCH	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	09/19/2019 23:08	"	
Molybdenum [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Selenium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: CGLP CCR
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 10/04/2019 10:02

CCR-5
1909216-14 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Classical Chemistry Parameters

Chloride	8.64	0.500	mg/L	1.0	9113031	DLW	09/12/2019 08:30	09/12/2019 17:21	SM 4110B 2011	
Sulfate as SO ₄	1230	250	"	50.0	"	DLW	"	09/13/2019 10:33	"	
Fluoride	ND	0.22	"	1.0	9116032	DLW	09/16/2019 09:00	09/16/2019 11:41	SM 4500-F C 2011	
Total Dissolved Solids	1928	2	"	"	9113045	DLW	09/13/2019 15:30	09/16/2019 16:19	SM 2540 C-2011	

Metals by EPA 200 Series Methods ICP-AES

Barium	0.023	0.010	mg/L	1.0	9116040	ADB	09/16/2019 09:00	09/26/2019 16:26	EPA 200.7 Rev 4.4	
Boron	0.114	0.050	"	"	"	ADB	"	"	"	
Calcium	189	0.100	"	"	"	ADB	"	"	"	
Lithium	ND	0.040	"	"	"	ADB	"	"	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9116039	ADB	"	09/19/2019 23:17	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.00200	"	"	"	ADB	"	"	"	
Beryllium [He]	ND	0.00200	"	2.0	"	ADB	"	09/30/2019 16:22	"	
Cadmium [HHe]	ND	0.00100	"	1.0	"	ADB	"	09/19/2019 23:17	"	
Chromium [He]	ND	0.00200	"	2.0	"	ADB	"	09/30/2019 16:22	"	
Cobalt [He]	0.0460	0.00200	"	"	"	ADB	"	"	"	
Lead [He]	ND	0.00100	"	1.0	"	ADB	"	09/19/2019 23:17	"	
Molybdenum [He]	ND	0.00100	"	"	"	SCH	"	09/23/2019 20:05	"	
Selenium [HHe]	ND	0.00100	"	"	"	ADB	"	09/19/2019 23:17	"	

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: CGLP CCR
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 10/04/2019 10:02

CCR-6
1909216-15 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Classical Chemistry Parameters

Chloride	17.7	0.500	mg/L	1.0	9113031	DLW	09/12/2019 08:30	09/12/2019 17:39	SM 4110B 2011	
Sulfate as SO₄	16.2	5.00	"	"	"	DLW	"	"	"	
Fluoride	ND	0.22	"	"	9116032	DLW	09/16/2019 09:00	09/16/2019 11:41	SM 4500-F C 2011	
Total Dissolved Solids	254	1	"	"	9113045	DLW	09/13/2019 15:30	09/16/2019 16:19	SM 2540 C-2011	

Metals by EPA 200 Series Methods ICP-AES

Barium	0.196	0.010	mg/L	1.0	9116040	ADB	09/16/2019 09:00	09/26/2019 16:32	EPA 200.7 Rev 4.4	
Boron	0.081	0.050	"	"	"	ADB	"	"	"	
Calcium	30.3	0.100	"	"	"	ADB	"	"	"	
Lithium	ND	0.040	"	"	"	ADB	"	"	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9116039	ADB	"	09/19/2019 23:25	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.00200	"	"	"	ADB	"	"	"	
Beryllium [He]	ND	0.00100	"	"	"	SCH	"	09/23/2019 20:14	"	CC-01
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	09/19/2019 23:25	"	
Chromium [He]	ND	0.00100	"	"	"	SCH	"	09/23/2019 20:14	"	
Cobalt [He]	ND	0.00100	"	"	"	SCH	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	09/19/2019 23:25	"	
Molybdenum [He]	0.00101	0.00100	"	"	"	ADB	"	"	"	
Selenium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: CGLP CCR
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 10/04/2019 10:02

CCR-7
1909216-16 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Classical Chemistry Parameters

Chloride	11.0	0.500	mg/L	1.0	9113031	DLW	09/12/2019 08:30	09/12/2019 17:57	SM 4110B 2011	
Sulfate as SO ₄	15.1	5.00	"	"	"	DLW	"	"	"	
Fluoride	ND	0.22	"	"	9116032	DLW	09/16/2019 09:00	09/16/2019 11:41	SM 4500-F C 2011	
Total Dissolved Solids	220	1	"	"	9113045	DLW	09/13/2019 15:30	09/16/2019 16:19	SM 2540 C-2011	

Metals by EPA 200 Series Methods ICP-AES

Barium	0.175	0.010	mg/L	1.0	9116040	ADB	09/16/2019 09:00	09/26/2019 16:37	EPA 200.7 Rev 4.4	
Boron	0.050	0.050	"	"	"	ADB	"	"	"	
Calcium	28.4	0.100	"	"	"	ADB	"	"	"	
Lithium	ND	0.040	"	"	"	ADB	"	"	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9116039	ADB	"	09/19/2019 23:33	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.00200	"	"	"	ADB	"	"	"	
Beryllium [He]	ND	0.00100	"	"	"	SCH	"	09/23/2019 20:22	"	CC-01
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	09/19/2019 23:33	"	
Chromium [He]	ND	0.00100	"	"	"	SCH	"	09/23/2019 20:22	"	
Cobalt [He]	0.00530	0.00100	"	"	"	SCH	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	09/19/2019 23:33	"	
Molybdenum [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Selenium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: CGLP CCR
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 10/04/2019 10:02

CCR-8
1909216-17 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Classical Chemistry Parameters

Chloride	340	10.0	mg/L	20.0	9113031	DLW	09/12/2019 08:30	09/13/2019 10:51	SM 4110B 2011	
Sulfate as SO ₄	481	100	"	"	"	DLW	"	"	"	
Fluoride	0.49	0.22	"	1.0	9116032	DLW	09/16/2019 09:00	09/16/2019 11:41	SM 4500-F C 2011	
Total Dissolved Solids	1498	2	"	"	9113045	DLW	09/13/2019 15:30	09/16/2019 16:19	SM 2540 C-2011	

Metals by EPA 200 Series Methods ICP-AES

Barium	0.072	0.010	mg/L	1.0	9116040	ADB	09/16/2019 09:00	09/26/2019 16:43	EPA 200.7 Rev 4.4	
Boron	0.202	0.050	"	"	"	ADB	"	"	"	
Calcium	39.3	0.100	"	"	"	ADB	"	"	"	
Lithium	0.067	0.040	"	"	"	ADB	"	"	"	

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]

Antimony [HHe]	ND	0.00500	mg/L	1.0	9116039	ADB	"	09/19/2019 23:42	EPA 200.8 Rev 5.4	
Arsenic [HHe]	0.00359	0.00200	"	"	"	ADB	"	"	"	
Beryllium [He]	ND	0.00100	"	"	"	SCH	"	09/23/2019 20:31	"	CC-01
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	09/19/2019 23:42	"	
Chromium [He]	0.0188	0.00100	"	"	"	SCH	"	09/23/2019 20:31	"	
Cobalt [He]	ND	0.00100	"	"	"	SCH	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	09/19/2019 23:42	"	
Molybdenum [He]	0.0474	0.00100	"	"	"	ADB	"	"	"	
Selenium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: CGLP CCR
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 10/04/2019 10:02

Classical Chemistry Parameters - Quality Control

Analyte	Analyzed	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifiers
Batch 9I13031 - Default Prep GenChem											
Blank (9I13031-BLK1)											
Chloride	9/12/19 10:37	ND	0.500	mg/L							
Sulfate as SO4	9/12/19 10:37	ND	5.00	"							
Blank (9I13031-BLK2)											
Chloride	9/13/19 10:16	ND	0.500	mg/L							
Sulfate as SO4	9/13/19 10:16	ND	5.00	"							
LCS (9I13031-BS1)											
Chloride	9/12/19 10:01	2.91	0.500	mg/L	3.00		96.9	85.4-110			
Sulfate as SO4	9/12/19 10:01	14.5	5.00	"	15.0		96.4	83.3-120			
LCS (9I13031-BS2)											
Chloride	9/13/19 9:40	2.91	0.500	mg/L	3.00		97.0	85.4-110			
Sulfate as SO4	9/13/19 9:40	14.4	5.00	"	15.0		95.9	83.3-120			
LCS Dup (9I13031-BSD1)											
Chloride	9/12/19 10:19	2.92	0.500	mg/L	3.00		97.3	85.4-110	0.343	20	
Sulfate as SO4	9/12/19 10:19	14.4	5.00	"	15.0		96.2	83.3-120	0.118	20	
LCS Dup (9I13031-BSD2)											
Chloride	9/13/19 9:58	2.91	0.500	mg/L	3.00		96.9	85.4-110	0.0688	20	
Sulfate as SO4	9/13/19 9:58	14.4	5.00	"	15.0		95.8	83.3-120	0.104	20	
Duplicate (9I13031-DUP1)											
Source: 1909216-06											
Chloride	9/12/19 13:33	20.7	0.500	mg/L		20.8			0.294	20	
Sulfate as SO4	9/12/19 13:33	10.5	5.00	"		10.4			0.420	20	
Matrix Spike (9I13031-MS1)											
Source: 1909216-06											
Chloride	9/12/19 13:52	116	5.00	mg/L	100	20.8	95.1	79-119			
Sulfate as SO4	9/12/19 13:52	144	50.0	"	100	ND	144	43.5-124			M1



6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
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Choctaw Generation LP
2391 Pensacola Rd.
Ackerman MS, 39735

Project: CGLP CCR
Project Number: [none]
Project Manager: Jim Ward

Reported:
10/04/2019 10:02

Classical Chemistry Parameters - Quality Control

Analyte	Analyzed	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifiers
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Batch 9I13031 - Default Prep GenChem

Matrix Spike Dup (9I13031-MSD1)

Source: 1909216-06

Chloride	9/12/19 14:09	120	5.00	mg/L	100	20.8	98.8	79-119	3.08	20	
Sulfate as SO4	9/12/19 14:09	148	50.0	"	100	ND	148	43.5-124	2.79	20	M1

Batch 9I13045 - Default Prep GenChem

Blank (9I13045-BLK1)

Total Dissolved Solids	9/16/19 16:19	ND	1	mg/L							
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LCS (9I13045-BS1)

Total Dissolved Solids	9/16/19 16:19	94	1	mg/L	104		90.4	82.2-100			
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LCS Dup (9I13045-BSD1)

Total Dissolved Solids	9/16/19 16:19	94	1	mg/L	104		90.4	82.2-100	0.00	15	
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Duplicate (9I13045-DUP1)

Source: 1909216-01

Total Dissolved Solids	9/16/19 16:19	1631	1	mg/L		1635			0.245	5	
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Duplicate (9I13045-DUP2)

Source: 1909216-17

Total Dissolved Solids	9/16/19 16:19	1496	2	mg/L		1498			0.134	5	
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Batch 9I16032 - Default Prep GenChem

Blank (9I16032-BLK1)

Fluoride	9/16/19 11:37	ND	0.22	mg/L							
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LCS (9I16032-BS1)

Fluoride	9/16/19 11:37	2.05	0.22	mg/L	2.00		103	75-125			
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Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: CGLP CCR
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 10/04/2019 10:02

Classical Chemistry Parameters - Quality Control

Analyte	Analyzed	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifiers
Batch 9I16032 - Default Prep GenChem											
LCS Dup (9I16032-BSD1)											
Fluoride	9/16/19 11:37	2.06	0.22	mg/L	2.00		103	75-125	0.487	30	
Duplicate (9I16032-DUP1) Source: 1909216-01											
Fluoride	9/16/19 11:37	0.38	0.22	mg/L		0.39			0.519	35	
Duplicate (9I16032-DUP2) Source: 1909216-17											
Fluoride	9/16/19 11:41	0.50	0.22	mg/L		0.49			1.83	35	
Matrix Spike (9I16032-MS1) Source: 1909216-01											
Fluoride	9/16/19 11:37	3.38	0.22	mg/L	3.00	0.39	99.8	70-130			
Matrix Spike (9I16032-MS2) Source: 1909216-17											
Fluoride	9/16/19 11:41	3.42	0.22	mg/L	3.00	0.49	97.8	70-130			
Matrix Spike Dup (9I16032-MSD1) Source: 1909216-01											
Fluoride	9/16/19 11:37	3.41	0.22	mg/L	3.00	0.39	101	70-130	0.884	30	
Matrix Spike Dup (9I16032-MSD2) Source: 1909216-17											
Fluoride	9/16/19 11:41	3.47	0.22	mg/L	3.00	0.49	99.5	70-130	1.45	30	

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: CGLP CCR
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 10/04/2019 10:02

Metals by EPA 200 Series Methods ICP-AES - Quality Control

Analyte	Analyzed	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifiers
Batch 9116040 - EPA 200.2 DCN 1017 Rev 8											
Blank (9116040-BLK1)											
Barium	9/26/19 14:39	ND	0.010	mg/L							
Boron	9/26/19 14:39	ND	0.050	"							
Calcium	9/26/19 14:39	ND	0.100	"							
Lithium	9/26/19 14:39	ND	0.040	"							
LCS (9116040-BS1)											
Barium	9/26/19 14:42	0.214	0.010	mg/L	0.200		107	85-115			
Boron	9/26/19 14:42	0.210	0.050	"	0.200		105	85-115			
Calcium	9/26/19 14:42	0.215	0.100	"	0.200		107	85-115			
Lithium	9/26/19 14:42	0.218	0.040	"	0.200		109	85-115			
LCS Dup (9116040-BSD1)											
Barium	9/26/19 14:46	0.224	0.010	mg/L	0.200		112	85-115	4.58	20	
Boron	9/26/19 14:46	0.210	0.050	"	0.200		105	85-115	0.0668	20	
Calcium	9/26/19 14:46	0.225	0.100	"	0.200		112	85-115	4.46	20	
Lithium	9/26/19 14:46	0.220	0.040	"	0.200		110	85-115	0.869	20	
Duplicate (9116040-DUP1) Source: 1909216-01											
Calcium	9/26/19 14:57	81.4	0.100	mg/L		83.1			2.03	20	
Duplicate (9116040-DUP2) Source: 1909216-17											
Calcium	9/26/19 16:48	38.6	0.100	mg/L		39.3			1.84	20	
Matrix Spike (9116040-MS1) Source: 1909216-01											
Barium	9/26/19 14:57	0.462	0.010	mg/L	0.200	0.262	100	70-130			
Boron	9/26/19 14:57	0.217	0.050	"	0.200	0.014	101	70-130			
Lithium	9/26/19 14:57	0.301	0.040	"	0.200	0.100	100	70-130			

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: CGLP CCR
 Project Number: [none]
 Project Manager: Jim Ward

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 10/04/2019 10:02

Metals by EPA 200 Series Methods ICP-AES - Quality Control

Analyte	Analyzed	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifiers
Batch 9I16040 - EPA 200.2 DCN 1017 Rev 8											
Matrix Spike (9I16040-MS2)			Source: 1909216-17								
Barium	9/26/19 16:48	0.273	0.010	mg/L	0.200	0.072	100	70-130			
Boron	9/26/19 16:48	0.396	0.050	"	0.200	0.202	96.9	70-130			
Lithium	9/26/19 16:48	0.289	0.040	"	0.200	0.067	111	70-130			
Matrix Spike Dup (9I16040-MSD1)			Source: 1909216-01								
Barium	9/26/19 15:02	0.459	0.010	mg/L	0.200	0.262	98.8	70-130	0.599	20	
Boron	9/26/19 15:02	0.217	0.050	"	0.200	0.014	101	70-130	0.140	20	
Lithium	9/26/19 15:02	0.301	0.040	"	0.200	0.100	100	70-130	0.134	20	
Matrix Spike Dup (9I16040-MSD2)			Source: 1909216-17								
Barium	9/26/19 16:54	0.274	0.010	mg/L	0.200	0.072	101	70-130	0.463	20	
Boron	9/26/19 16:54	0.404	0.050	"	0.200	0.202	101	70-130	2.00	20	
Lithium	9/26/19 16:54	0.282	0.040	"	0.200	0.067	108	70-130	2.12	20	

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: CGLP CCR
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 Reported:
 10/04/2019 10:02

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode] - Quality Control

Analyte	Analyzed	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifiers
Batch 9116039 - EPA 200.2 DCN 1017 Rev 8											
Blank (9116039-BLK1)											
Antimony [HHe]	9/18/19 14:54	ND	0.00500	mg/L							
Arsenic [HHe]	9/18/19 14:54	ND	0.00200	"							
Beryllium [He]	9/18/19 14:54	ND	0.00100	"							
Cadmium [HHe]	9/18/19 14:54	ND	0.00100	"							
Chromium [He]	9/18/19 14:54	ND	0.00100	"							
Cobalt [He]	9/18/19 14:54	ND	0.00100	"							
Lead [He]	9/18/19 14:54	ND	0.00100	"							
Molybdenum [He]	9/18/19 14:54	ND	0.00100	"							
Selenium [HHe]	9/18/19 14:54	ND	0.00100	"							
LCS (9116039-BS1)											
Antimony [HHe]	9/18/19 15:02	0.101	0.00500	mg/L	0.100		101	85-115			
Arsenic [HHe]	9/18/19 15:02	0.100	0.00200	"	0.100		100	85-115			
Beryllium [He]	9/18/19 15:02	0.106	0.00100	"	0.100		106	85-115			
Cadmium [HHe]	9/18/19 15:02	0.099	0.00100	"	0.100		98.5	85-115			
Chromium [He]	9/18/19 15:02	0.098	0.00100	"	0.100		98.1	85-115			
Cobalt [He]	9/18/19 15:02	0.090	0.00100	"	0.100		90.4	85-115			
Lead [He]	9/18/19 15:02	0.096	0.00100	"	0.100		95.7	85-115			
Molybdenum [He]	9/18/19 15:02	0.098	0.00100	"	0.100		97.8	85-115			
Selenium [HHe]	9/18/19 15:02	0.099	0.00100	"	0.100		98.7	85-115			
LCS Dup (9116039-BSD1)											
Antimony [HHe]	9/18/19 15:11	0.102	0.00500	mg/L	0.100		102	85-115	1.10	20	
Arsenic [HHe]	9/18/19 15:11	0.100	0.00200	"	0.100		100	85-115	0.284	20	
Beryllium [He]	9/18/19 15:11	0.112	0.00100	"	0.100		112	85-115	5.12	20	
Cadmium [HHe]	9/18/19 15:11	0.099	0.00100	"	0.100		98.9	85-115	0.370	20	
Chromium [He]	9/18/19 15:11	0.104	0.00100	"	0.100		104	85-115	5.39	20	
Cobalt [He]	9/18/19 15:11	0.095	0.00100	"	0.100		95.0	85-115	4.99	20	
Lead [He]	9/18/19 15:11	0.103	0.00100	"	0.100		103	85-115	7.07	20	
Molybdenum [He]	9/18/19 15:11	0.104	0.00100	"	0.100		104	85-115	5.82	20	
Selenium [HHe]	9/18/19 15:11	0.101	0.00100	"	0.100		101	85-115	2.17	20	

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: CGLP CCR
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 10/04/2019 10:02

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode] - Quality Control

Analyte	Analyzed	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifiers
Batch 9116039 - EPA 200.2 DCN 1017 Rev 8											
Matrix Spike (9116039-MS1)				Source: 1909216-01							
Antimony [HHe]	9/19/19 20:46	0.100	0.00500	mg/L	0.100	ND	99.8	70-130			
Arsenic [HHe]	9/19/19 20:46	0.095	0.00200	"	0.100	0.0002	94.3	70-130			
Beryllium [He]	9/30/19 16:05	0.109	0.00100	"	0.100	0.003	107	70-130			
Cadmium [HHe]	9/19/19 20:46	0.088	0.00100	"	0.100	0.001	86.6	70-130			
Chromium [He]	9/19/19 20:46	0.098	0.00100	"	0.100	ND	97.6	70-130			
Cobalt [He]	9/19/19 20:46	0.119	0.00100	"	0.100	0.017	103	70-130			
Lead [He]	9/19/19 20:46	0.111	0.00100	"	0.100	0.0003	110	70-130			
Molybdenum [He]	9/19/19 20:46	0.114	0.00100	"	0.100	ND	114	70-130			
Selenium [HHe]	9/19/19 20:46	0.094	0.00100	"	0.100	0.0003	93.5	70-130			
Matrix Spike (9116039-MS2)				Source: 1909216-17							
Antimony [HHe]	9/19/19 23:50	0.098	0.00500	mg/L	0.100	ND	97.6	70-130			
Arsenic [HHe]	9/19/19 23:50	0.097	0.00200	"	0.100	0.004	93.7	70-130			
Beryllium [He]	9/23/19 20:39	0.102	0.00100	"	0.100	ND	102	70-130			CC-03
Cadmium [HHe]	9/19/19 23:50	0.081	0.00100	"	0.100	ND	81.2	70-130			
Chromium [He]	9/19/19 23:50	0.109	0.00100	"	0.100	0.019	90.6	70-130			
Cobalt [He]	9/19/19 23:50	0.099	0.00100	"	0.100	0.0002	98.6	70-130			
Lead [He]	9/19/19 23:50	0.102	0.00100	"	0.100	ND	102	70-130			
Molybdenum [He]	9/19/19 23:50	0.163	0.00100	"	0.100	0.047	115	70-130			
Selenium [HHe]	9/19/19 23:50	0.023	0.00100	"	0.100	0.0003	22.7	70-130			QM-05
Matrix Spike Dup (9116039-MSD1)				Source: 1909216-01							
Antimony [HHe]	9/19/19 20:54	0.096	0.00500	mg/L	0.100	ND	95.6	70-130	4.31	20	
Arsenic [HHe]	9/19/19 20:54	0.091	0.00200	"	0.100	0.0002	91.0	70-130	3.57	20	
Beryllium [He]	9/30/19 16:14	0.107	0.00100	"	0.100	0.003	105	70-130	1.97	20	
Cadmium [HHe]	9/19/19 20:54	0.084	0.00100	"	0.100	0.001	82.6	70-130	4.69	20	
Chromium [He]	9/19/19 20:54	0.093	0.00100	"	0.100	ND	93.3	70-130	4.46	20	
Cobalt [He]	9/19/19 20:54	0.113	0.00100	"	0.100	0.017	96.4	70-130	5.49	20	
Lead [He]	9/19/19 20:54	0.103	0.00100	"	0.100	0.0003	103	70-130	6.85	20	
Molybdenum [He]	9/19/19 20:54	0.105	0.00100	"	0.100	ND	105	70-130	8.51	20	
Selenium [HHe]	9/19/19 20:54	0.090	0.00100	"	0.100	0.0003	89.8	70-130	4.02	20	

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: CGLP CCR
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 10/04/2019 10:02

Metals by EPA 200 Series Methods ICP-MS [Analysis Mode] - Quality Control

Analyte	Analyzed	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifiers
Batch 9116039 - EPA 200.2 DCN 1017 Rev 8											
Matrix Spike Dup (9116039-MSD2)				Source: 1909216-17							
Antimony [HHe]	9/19/19 23:58	0.100	0.00500	mg/L	0.100	ND	100	70-130	2.50	20	
Arsenic [HHe]	9/19/19 23:58	0.099	0.00200	"	0.100	0.004	95.6	70-130	1.97	20	
Beryllium [He]	9/23/19 20:47	0.098	0.00100	"	0.100	ND	97.5	70-130	4.63	20	CC-03
Cadmium [HHe]	9/19/19 23:58	0.084	0.00100	"	0.100	ND	83.5	70-130	2.81	20	
Chromium [He]	9/19/19 23:58	0.113	0.00100	"	0.100	0.019	94.4	70-130	3.42	20	
Cobalt [He]	9/19/19 23:58	0.101	0.00100	"	0.100	0.0002	101	70-130	1.99	20	
Lead [He]	9/19/19 23:58	0.105	0.00100	"	0.100	ND	105	70-130	2.85	20	
Molybdenum [He]	9/19/19 23:58	0.172	0.00100	"	0.100	0.047	125	70-130	5.80	20	
Selenium [HHe]	9/19/19 23:58	0.024	0.00100	"	0.100	0.0003	23.9	70-130	5.02	20	QM-05

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: CGLP CCR
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 10/04/2019 10:02

Certified Analyses Included in this Report

Analyte	Certification Code
<i>EPA 200.7 Rev 4.4 in Water</i>	
Aluminum	C01,C02
Antimony	C01,C02
Arsenic	C01,C02
Barium	C01,C02
Beryllium	C01,C02
Boron	C01,C02
Cadmium	C01,C02
Calcium	C01,C02
Chromium	C01,C02
Cobalt	C01,C02
Copper	C01,C02
Iron	C01,C02
Lead	C01,C02
Magnesium	C01,C02
Manganese	C01,C02
Molybdenum	C01,C02
Nickel	C01,C02
Potassium	C01,C02
Selenium	C01,C02
Silver	C01,C02
Sodium	C01,C02
Strontium	C01,C02
Thallium	C01,C02
Vanadium	C01,C02
Zinc	C01,C02
Phosphorus	C01
<i>EPA 200.8 Rev 5.4 in Water</i>	
Aluminum [He]	C01,C02
Antimony [HHe]	C01,C02
Antimony [NG]	C01,C02
Arsenic [HHe]	C01,C02
Arsenic [NG]	C01,C02
Barium [He]	C01,C02
Beryllium [He]	C01,C02
Boron [NG]	C01,C02
Cadmium [HHe]	C01,C02
Cadmium [NG]	C01,C02
Chromium [He]	C01,C02
Cobalt [He]	C01,C02
Copper [He]	C01,C02
Copper [NG]	C01,C02

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: CGLP CCR
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 10/04/2019 10:02

Iron [He]	C01,C02
Lead [He]	C01,C02
Lead [NG]	C01,C02
Manganese [He]	C01,C02
Molybdenum [He]	C01,C02
Nickel [He]	C01,C02
Selenium [HHe]	C01,C02
Selenium [NG]	C01,C02
Silver [He]	C01,C02
Silver [NG]	C01,C02
Strontium [He]	C01,C02
Thallium [He]	C01,C02
Vanadium [He]	C01,C02
Zinc [He]	C01,C02
Antimony [He]	C01,C02

SM 2540 C-2011 in Water

Total Dissolved Solids	C01,C02
------------------------	---------

SM 4110B 2011 in Water

Chloride	C01,C02
Sulfate as SO ₄	C01,C02
Nitrate as N	C01,C02

****Only compounds included in this list are associated with accredited analyses****

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: CGLP CCR
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 10/04/2019 10:02

Laboratory Accreditations/Certifications

Code	Description	Number	Expires
C01	LA Environmental Lab Accreditation Program	01960	06/30/2020
C02	The NELAC Institute (NELAP)	TNI01397	06/30/2020
C03	Ms Dept of Health (Drinking Water Microbiology)	MS00021	12/31/2019
C04	Ms Dept of Health (Drinking Water Chemistry)	MS00021	12/31/2019
C05	Ms DEQ Lead Firm Certification	PBF-00000028	03/24/2020
C06	MsDEQ Asbestos Inspector : C.D. Bingham	ABI-00001348	02/21/2020
C07	MsDEQ Air Monitor : C.D. Bingham	AM-011572	03/07/2020
C08	MsDEQ Asbestos Inspector: C. W. Meins	ABI-00001821	09/06/2019
C09	MsDEQ Air Monitor : C.W. Meins	AM-011189	03/07/2020
C12			
C14	MsDEQ Lead Paint Inspector : C.D. Bingham	PBI-00003690	02/22/2020
C15	MsDEQ Lead Paint Inspector : C.W. Meins	PBI-00001740	02/22/2020

Report Definitions

TNC	Too Numerous To Count
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the minimum reporting limit
NR	Not Reported
RPD	Relative Percent Difference
ICV	Initial Calibration Verification
CCV	Continuing Calibration Verification Standard
SSV	Secondary Source Verification Standard
LCS	Lab Control Spike - Lab matrix prepared with known concentration of analyte/s of interest analyzed by method.
MS	Matrix Spike - Sample prepared with known concentration of analyte/s of interest analyzed by method.
MSD	Matrix Spike Duplicate - Duplicate sample prepared with known concentration of analyte/s of interest analyzed by method.
MRL	Minimum Reporting Limit
%REC	Percentage Recovery of known concentration added to matrix
Batch	Group of samples prepared for analysis not to exceed 20 samples.
Matrix	Material containing analyte/s of interest
Surrogate	Analyte added to sample to determine extraction efficiency of method.



6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Choctaw Generation LP
2391 Pensacola Rd.
Ackerman MS, 39735

Project: CGLP CCR
Project Number: [none]
Project Manager: Jim Ward

Reported:
10/04/2019 10:02

Analyst Initials Key

<u>FullName</u>	<u>Initials</u>
Alyssa D Bennett	ADB
Charles L Vorhoff	CLV
Dortha L. Wells	DLW
Sarah E. Tomek	SET
Samantha C. Hall	SCH
Teresa Meins	TKM
Tina Tomek	TPT



PO Box 1410, Ocean Springs, MS 39566-1410
(228) 875-6420 FAX (228) 875-6423
www.micromethodslab.com

Chain of Custody Record

Lab ID# MS00021
LEIAP ID # 01960
TNID # TN101397

pg 1 of 2

Print Form

M-M Lab
WO #

1909216

Company Name: Choctaw Generation Limited Partnership LLP		Project Manager: Jim Ward	
Address: 2391 Pensacola Rd.		Purchase Order #: RDH11984 SCORPH0883	
City: Ackerman State: MS Zip: 39735		Email Address:	
Phone: 662-387-5758		Sampler Name Printed: Kirk Shelton	
Fax:		Sampler Name Signed: Kirk Shelton	
Project Name: CGLP CCR		List Analyses Requested	
Project #:		Preservative:	
Sample Identification		Grab (G) or Composite (C)	
Sampling Date/Time		TDS	
Matrix Code		Chloride, Fluoride, Sulfate	
# of Containers		Antimony, Arsenic	
MW-9 9/10/19 11:45 W		Barium, Boron, Beryllium	
MW-17 9/10/19 14:34 W		Cadmium, Chromium	
OW-2 9/10/19 15:57 W		Lead, Calcium, Cobalt	
MW-13 9/10/19 17:45 W		Lithium	
MW-7 9/10/19 18:08 W		Molybdenum, Selenium	
MW-14 9/11/19 11:15 W		Total Radium 226 & 228	
Field Blank 9/11/19 W			
Duplicate 9/11/19 11:38 W			
MW-12 9/10/19 12:53 W			
MW-15 9/10/19 15:17 W			
CCR-2 9/11/19 8:49 W			
Received on Ice? Y N Thermometer# Cooler #		Receipt Temp Corrected (°C)	
Date & Time By:		Sample Blank Cooler	
Printed Name		Signature	
Relinquished by Kirk Shelton		ECG, Inc. 09/11/19 1530	
Received by FedEx			
Relinquished by			
Received by Sarah Thomas		MM 09/12/19 0751	
Relinquished by			
Received by			
Notes: Sampled over night FedEx			
Field Testing		Matrix:	
ID# Field Test ID# Field Test ID# Field Test ID# Field Test		W = Water	
		DW = Drinking Water	
		S = Solid	
		SO = Soil	
		SE = Sediment	
		L = Liquid	
		A = Air	
		O = Oil	
		SL = Sludge	
		Preservation:	
		1 = H2SO4	
		2 = H3PO4	
		3 = NaOH	
		4 = ZnCAH1006	
		5 = ZnCAH1006 & NaOH	
		6 = HNO3	
		7 = Na2S2O3	
		8 = HCl	
		9 = NaHSO4	
		Turn Around Time & Reporting	
		Our normal turn around time is 10 working days	
		Normal	
		Next Day* requests must be prior approved.	
		2nd Day*	
		Other*	
		Phone	
		Mail	
		Fax	
		Email	
		QC Level: Level 1 Level 2 Level 3	



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Chain of Custody Record

Lab ID# MS00021
LELAP ID # 01960
TNI ID # TNI01397

pg 2 of 2

M-Lab
WO #

1909216

Print Form

Company Name: Choctaw Generation Limited Partnership LLP

Project Manager:

Jim Ward

Address: 2391 Pensacola Rd.

Purchase Order #

RDH11984-9CSRDH6883

City: Ackerman State: MS Zip: 39735

Email Address:

Phone: 662-387-5758

Sampler Name Printed:

Fax:

Sampler Name Signed:

Karl Shepherd

CGLP CCR

Project Name:

Project #:

Sample Identification

Sampling Date/Time

Matrix Code

of Containers

Grab (G) or Composite (C)

TDS

Chloride, Fluoride, Sulfate

Antimony, Arsenic

Barium, Boron, Beryllium

Cadmium, Chromium

Lead, Calcium, Cobalt

Lithium

Molybdenum, Selenium

Total Radium 226 & 228

List Analyses Requested

QC Level: Level 1 ☐ Level 2 ☐ Level 3 ☐

Field Testing

ID# Field Test ID# Field Test ID# Field Test ID# Field Test

Matrix:

W = Water

DW = Drinking Water

S = Solid

SO = Soil

SE = Sediment

L = Liquid

A = Air

O = Oil

SL = Sludge

Preservation:

1 = H2SO4

2 = H3PO4

3 = NaOH

4 = ZnC4H10O6

5 = ZnCAH10O6 & NaOH

6 = HNO3

7 = Na2S2O3

8 = HCl

9 = NaHSO4

All Temps are Corrected Values

Notes:

Should burnish + O

Fe & F

Date & Time

By:

Cooler #

Receipt Temp Corrected (°C)

Sample Blank

Cooler

Printed Name

Signature

Company

Date

Time

Relinquished by

Received by

Relinquished by

Received by

Relinquished by

Received by

DCN# F316 Rev.#5

Physical Address: 6500 Sunplex Drive, Ocean Springs MS 39564

Micro-Methods	Micro-Methods Laboratory Log-In Checklist	DCN: F207
Issue Date: 11-22-17		Date Revised: 11-22-17
		Revision: 5

Client Chactaw Gen. WO 1909216 Shipped By FedEx
 Date/Time Received 9/12/19 0757 Unpacked/Checked By ST

Cooler ID	Ice Present Yes/No	Temperature (Corrected)	Thermometer ID	Custody Sealed Yes/No	Custody Seal Intact Yes/No
# 1142	yes	0.0°C	T#4	yes	yes
# 1106	yes	-0.1°C		yes	yes
# 1135	yes	0.5°C		yes	yes
# 1133	yes	-0.1°C		yes	yes
CLIENT	yes	-0.4°C		yes	yes

If not iced, were samples received within one hour of collection? Yes ___ No ___ N/A ☒
 Temperature Blank Used Yes ☒ No ___ If not, temperature taken from cooler ___ or bottle ___
 Multi Cooler shipment: ID of samples in coolers that exceed 6°C _____

Custody Seals on Bottles Present Yes ☒ No ___
 Containers Intact Yes ☒ No ___
 Proper Containers for Requested Analysis Yes ☒ No ___

Correct Preservation Used for All Samples Yes ☒ No ___
 Adequate Sample for Analysis Requested Yes ☒ No ___

Volatile Vials Headspace Greater than 6mm in Diameter Yes ___ No ___ N/A ☒

Chain of Custody Form Included Yes ☒ No ___
 Chain of Custody Form Complete Yes ☒ No ___
 Chain of Custody Form Properly Relinquished Yes ☒ No ___
 Field Sheets/Special Instructions Included Yes ___ No ___ N/A ☒
 Samples Missing on COC or From Cooler Yes ___ No ☒
 Sample Container Labels Match COC Yes ☒ No ___

Samples Received Within Holding Time Yes ☒ No ___
 Dept. Manager Notified of Rush/Short Holding Times Yes ___ No ___ N/A ☒

Does work order meet Micro Methods sample acceptance criteria Yes ☒ No ___
 Note: Samples that do not meet acceptance criteria must be documented in the Sample Rejection Log.

Client Contacted _____ Contacted By _____ Date/Time _____

Client Instructions: Cancel Work Order _____
 Proceed with Work Order _____ (Data will be qualified)

Comments: _____

October 03, 2019

Harry Howell
Micro Methods Laboratory, Inc.
P. O. Box 1410
Ocean Springs, MS 39566

RE: Project: 1909216
Pace Project No.: 20121720

Dear Harry Howell:

Enclosed are the analytical results for sample(s) received by the laboratory on September 16, 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,



Karen Brown
karen.brown@pacelabs.com
(504)469-0333
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
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CERTIFICATIONS

Project: 1909216
Pace Project No.: 20121720

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

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 1909216
Pace Project No.: 20121720

Lab ID	Sample ID	Matrix	Date Collected	Date Received
20121720001	1909216-01	Water	09/10/19 11:45	09/16/19 10:20
20121720002	1909216-02	Water	09/10/19 14:34	09/16/19 10:20
20121720003	1909216-03	Water	09/10/19 15:57	09/16/19 10:20
20121720004	1909216-04	Water	09/10/19 17:45	09/16/19 10:20
20121720005	1909216-05	Water	09/10/19 18:08	09/16/19 10:20
20121720006	1909216-06	Water	09/11/19 11:15	09/16/19 10:20
20121720007	1909216-07	Water	09/11/19 00:00	09/16/19 10:20
20121720008	1909216-08	Water	09/11/19 11:38	09/16/19 10:20
20121720009	1909216-09	Water	09/10/19 12:53	09/16/19 10:20
20121720010	1909216-10	Water	09/10/19 15:17	09/16/19 10:20
20121720011	1909216-11	Water	09/11/19 08:49	09/16/19 10:20
20121720012	1909216-12	Water	09/11/19 09:50	09/16/19 10:20
20121720013	1909216-13	Water	09/10/19 16:59	09/16/19 10:20
20121720014	1909216-14	Water	09/10/19 17:06	09/16/19 10:20
20121720015	1909216-15	Water	09/11/19 10:09	09/16/19 10:20
20121720016	1909216-16	Water	09/11/19 11:27	09/16/19 10:20
20121720017	1909216-17	Water	09/10/19 12:05	09/16/19 10:20

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 1909216
Pace Project No.: 20121720

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
20121720001	1909216-01	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
20121720002	1909216-02	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
20121720003	1909216-03	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
20121720004	1909216-04	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
20121720005	1909216-05	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
20121720006	1909216-06	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
20121720007	1909216-07	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
20121720008	1909216-08	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
20121720009	1909216-09	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
20121720010	1909216-10	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
20121720011	1909216-11	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
20121720012	1909216-12	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
20121720013	1909216-13	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
20121720014	1909216-14	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
20121720015	1909216-15	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
20121720016	1909216-16	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
20121720017	1909216-17	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 1909216
Pace Project No.: 20121720

Method: EPA 903.1
Description: 903.1 Radium 226
Client: Micro Methods
Date: October 03, 2019

General Information:

17 samples were analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 1909216
Pace Project No.: 20121720

Method: EPA 904.0
Description: 904.0 Radium 228
Client: Micro Methods
Date: October 03, 2019

General Information:

17 samples were analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1909216
Pace Project No.: 20121720

Sample: 1909216-01		Lab ID: 20121720001	Collected: 09/10/19 11:45	Received: 09/16/19 10:20	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.649 ± 0.715 (1.14) C:NA T:70%	pCi/L	10/01/19 14:48	13982-63-3	
Radium-228	EPA 904.0	0.241 ± 0.629 (1.41) C:64% T:77%	pCi/L	10/02/19 17:34	15262-20-1	

Sample: 1909216-02		Lab ID: 20121720002	Collected: 09/10/19 14:34	Received: 09/16/19 10:20	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.160 ± 0.667 (1.27) C:NA T:75%	pCi/L	10/01/19 14:48	13982-63-3	
Radium-228	EPA 904.0	1.12 ± 0.715 (1.36) C:67% T:74%	pCi/L	10/02/19 17:35	15262-20-1	

Sample: 1909216-03		Lab ID: 20121720003	Collected: 09/10/19 15:57	Received: 09/16/19 10:20	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.							
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.324 ± 0.503 (0.872) C:NA T:78%		pCi/L	10/01/19 14:48	13982-63-3	
Radium-228	EPA 904.0	0.357 ± 0.625 (1.36) C:62% T:77%		pCi/L	10/02/19 17:35	15262-20-1	

Sample: 1909216-04		Lab ID: 20121720004	Collected: 09/10/19 17:45	Received: 09/16/19 10:20	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	1.32 ± 0.807 (1.02) C:NA T:82%	pCi/L	10/01/19 15:01	13982-63-3	
Radium-228	EPA 904.0	0.829 ± 0.499 (0.936) C:70% T:84%	pCi/L	10/02/19 15:33	15262-20-1	

Sample: 1909216-05		Lab ID: 20121720005	Collected: 09/10/19 18:08	Received: 09/16/19 10:20	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.							
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	1.29 ± 0.632 (0.206)		pCi/L	10/01/19 15:01	13982-63-3	
		C:NA T:77%					

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1909216
Pace Project No.: 20121720

Sample: 1909216-05		Lab ID: 20121720005	Collected: 09/10/19 18:08	Received: 09/16/19 10:20	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.							
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-228	EPA 904.0	0.467 ± 0.589 (1.25) C:68% T:71%		pCi/L	10/02/19 17:41	15262-20-1	

Sample: 1909216-06		Lab ID: 20121720006	Collected: 09/11/19 11:15	Received: 09/16/19 10:20	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.							
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.582 ± 0.496 (0.697) C:NA T:81%		pCi/L	10/01/19 15:01	13982-63-3	
Radium-228	EPA 904.0	0.454 ± 0.455 (0.936) C:70% T:71%		pCi/L	10/02/19 15:32	15262-20-1	

Sample: 1909216-07		Lab ID: 20121720007	Collected: 09/11/19 00:00	Received: 09/16/19 10:20	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	-0.0698 ± 0.319 (0.648) C:NA T:82%	pCi/L	10/01/19 15:01	13982-63-3	
Radium-228	EPA 904.0	0.305 ± 0.871 (1.76) C:68% T:69%	pCi/L	10/02/19 19:21	15262-20-1	

Sample: 1909216-08		Lab ID: 20121720008	Collected: 09/11/19 11:38	Received: 09/16/19 10:20	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.							
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.154 ± 0.426 (0.827) C:NA T:80%		pCi/L	10/01/19 15:14	13982-63-3	
Radium-228	EPA 904.0	-0.730 ± 0.620 (1.54) C:68% T:77%		pCi/L	10/02/19 17:39	15262-20-1	

Sample: 1909216-09		Lab ID: 20121720009	Collected: 09/10/19 12:53	Received: 09/16/19 10:20	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.423 ± 0.440 (0.655) C:NA T:81%	pCi/L	10/01/19 14:48	13982-63-3	
Radium-228	EPA 904.0	1.64 ± 0.799 (1.37) C:62% T:72%	pCi/L	10/02/19 17:34	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1909216
Pace Project No.: 20121720

Sample: 1909216-10		Lab ID: 20121720010	Collected: 09/10/19 15:17	Received: 09/16/19 10:20	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.							
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.474 ± 0.728 (1.25) C:NA T:79%		pCi/L	10/01/19 14:48	13982-63-3	
Radium-228	EPA 904.0	0.799 ± 0.603 (1.18) C:65% T:81%		pCi/L	10/02/19 17:35	15262-20-1	

Sample: 1909216-11		Lab ID: 20121720011	Collected: 09/11/19 08:49	Received: 09/16/19 10:20	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.492 ± 0.603 (0.990) C:NA T:80%	pCi/L	10/01/19 15:01	13982-63-3	
Radium-228	EPA 904.0	1.62 ± 0.813 (1.41) C:71% T:72%	pCi/L	10/02/19 19:21	15262-20-1	

Sample: 1909216-12		Lab ID: 20121720012	Collected: 09/11/19 09:50	Received: 09/16/19 10:20	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.772 ± 0.465 (0.190) C:NA T:77%	pCi/L	10/01/19 15:01	13982-63-3	
Radium-228	EPA 904.0	0.423 ± 0.639 (1.26) C:69% T:88%	pCi/L	10/02/19 19:21	15262-20-1	

Sample: 1909216-13		Lab ID: 20121720013	Collected: 09/10/19 16:59	Received: 09/16/19 10:20	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.202 ± 0.546 (1.01) C:NA T:87%	pCi/L	10/01/19 14:48	13982-63-3	
Radium-228	EPA 904.0	0.246 ± 0.598 (1.33) C:69% T:81%	pCi/L	10/02/19 17:38	15262-20-1	

Sample: 1909216-14		Lab ID: 20121720014	Collected: 09/10/19 17:06	Received: 09/16/19 10:20	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.							
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.359 ± 0.330 (0.195)		pCi/L	10/01/19 15:01	13982-63-3	
		C:NA T:83%					

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1909216
Pace Project No.: 20121720

Sample: 1909216-14		Lab ID: 20121720014	Collected: 09/10/19 17:06	Received: 09/16/19 10:20	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.							
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-228	EPA 904.0	0.285 ± 0.538 (1.18) C:65% T:86%		pCi/L	10/02/19 17:39	15262-20-1	

Sample: 1909216-15		Lab ID: 20121720015	Collected: 09/11/19 10:09	Received: 09/16/19 10:20	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.							
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.817 ± 0.641 (0.892) C:NA T:81%		pCi/L	10/01/19 15:01	13982-63-3	
Radium-228	EPA 904.0	0.0211 ± 0.704 (1.44) C:74% T:79%		pCi/L	10/02/19 19:21	15262-20-1	

Sample: 1909216-16		Lab ID: 20121720016	Collected: 09/11/19 11:27	Received: 09/16/19 10:20	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.							
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.748 ± 0.645 (0.959) C:NA T:78%		pCi/L	10/01/19 15:14	13982-63-3	
Radium-228	EPA 904.0	0.663 ± 0.546 (1.09) C:74% T:80%		pCi/L	10/02/19 17:39	15262-20-1	

Sample: 1909216-17		Lab ID: 20121720017	Collected: 09/10/19 12:05	Received: 09/16/19 10:20	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.							
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.405 ± 0.421 (0.627) C:NA T:86%		pCi/L	10/01/19 14:48	13982-63-3	
Radium-228	EPA 904.0	0.981 ± 0.839 (1.69) C:64% T:72%		pCi/L	10/02/19 19:00	15262-20-1	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 1909216
Pace Project No.: 20121720

QC Batch:	362207	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
Associated Lab Samples:	20121720001, 20121720002, 20121720003, 20121720004, 20121720005, 20121720006, 20121720007, 20121720008, 20121720009, 20121720010, 20121720011, 20121720012, 20121720013, 20121720014, 20121720015, 20121720016, 20121720017		

METHOD BLANK:	1757404	Matrix:	Water
Associated Lab Samples:	20121720001, 20121720002, 20121720003, 20121720004, 20121720005, 20121720006, 20121720007, 20121720008, 20121720009, 20121720010, 20121720011, 20121720012, 20121720013, 20121720014, 20121720015, 20121720016, 20121720017		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	-0.282 ± 0.339 (0.869) C:69% T:81%	pCi/L	10/02/19 15:56	

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: 1909216
Pace Project No.: 20121720

QC Batch:	362206	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
Associated Lab Samples:	20121720001, 20121720002, 20121720003, 20121720004, 20121720005, 20121720006, 20121720007, 20121720008, 20121720009, 20121720010, 20121720011, 20121720012, 20121720013, 20121720014, 20121720015, 20121720016, 20121720017		

METHOD BLANK:	1757403	Matrix:	Water
Associated Lab Samples:	20121720001, 20121720002, 20121720003, 20121720004, 20121720005, 20121720006, 20121720007, 20121720008, 20121720009, 20121720010, 20121720011, 20121720012, 20121720013, 20121720014, 20121720015, 20121720016, 20121720017		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.0651 ± 0.297 (0.604) C:NA T:76%	pCi/L	10/01/19 14:48	

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QUALIFIERS

Project: 1909216
Pace Project No.: 20121720

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: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval).

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(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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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 1909216

Pace Project No.: 20121720

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
20121720001	1909216-01	EPA 903.1	362206		
20121720002	1909216-02	EPA 903.1	362206		
20121720003	1909216-03	EPA 903.1	362206		
20121720004	1909216-04	EPA 903.1	362206		
20121720005	1909216-05	EPA 903.1	362206		
20121720006	1909216-06	EPA 903.1	362206		
20121720007	1909216-07	EPA 903.1	362206		
20121720008	1909216-08	EPA 903.1	362206		
20121720009	1909216-09	EPA 903.1	362206		
20121720010	1909216-10	EPA 903.1	362206		
20121720011	1909216-11	EPA 903.1	362206		
20121720012	1909216-12	EPA 903.1	362206		
20121720013	1909216-13	EPA 903.1	362206		
20121720014	1909216-14	EPA 903.1	362206		
20121720015	1909216-15	EPA 903.1	362206		
20121720016	1909216-16	EPA 903.1	362206		
20121720017	1909216-17	EPA 903.1	362206		
20121720001	1909216-01	EPA 904.0	362207		
20121720002	1909216-02	EPA 904.0	362207		
20121720003	1909216-03	EPA 904.0	362207		
20121720004	1909216-04	EPA 904.0	362207		
20121720005	1909216-05	EPA 904.0	362207		
20121720006	1909216-06	EPA 904.0	362207		
20121720007	1909216-07	EPA 904.0	362207		
20121720008	1909216-08	EPA 904.0	362207		
20121720009	1909216-09	EPA 904.0	362207		
20121720010	1909216-10	EPA 904.0	362207		
20121720011	1909216-11	EPA 904.0	362207		
20121720012	1909216-12	EPA 904.0	362207		
20121720013	1909216-13	EPA 904.0	362207		
20121720014	1909216-14	EPA 904.0	362207		
20121720015	1909216-15	EPA 904.0	362207		
20121720016	1909216-16	EPA 904.0	362207		
20121720017	1909216-17	EPA 904.0	362207		

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MICRO-METHODS

LABORATORY, INC.

SUBCONTRACT ORDER

P-4613

Sending Laboratory:

Micro-Methods Laboratory, Inc.
6500 Sunplex Drive
Ocean Springs, MS 39564
Phone: 228.875.6420
Fax: 228.875.6423

Project Manager: Teresa Meins

Subcontracted Laboratory:

Pace Analytical
1000 Riverbend Blvd. Suite F
St. Rose, LA 70087
Phone: -
Fax: -

WO#: 20121720



20121720

Work Order: 1909216

**need standard 1711*

Analysis	Due	Expires	Comments
Sample ID: 1909216-01 Water Sampled: 09/10/2019 11:45 Sample Name: MW-9			
Radium, Total 226 & 228 by 901.1	09/20/2019	10/08/2019 11:45	
<i>Containers Supplied:</i>			
1000mL Plastic (A)	1000mL Plastic (B)		
Sample ID: 1909216-02 Water Sampled: 09/10/2019 14:34 Sample Name: MW-17			
Radium, Total 226 & 228 by 901.1	09/20/2019	10/08/2019 14:34	
<i>Containers Supplied:</i>			
1000mL Plastic (A)	1000mL Plastic (B)		
Sample ID: 1909216-03 Water Sampled: 09/10/2019 15:57 Sample Name: OW-2			
Radium, Total 226 & 228 by 901.1	09/20/2019	10/08/2019 15:57	
<i>Containers Supplied:</i>			
1000mL Plastic (A)	1000mL Plastic (B)		
Sample ID: 1909216-04 Water Sampled: 09/10/2019 17:45 Sample Name: MW-13			
Radium, Total 226 & 228 by 901.1	09/20/2019	10/08/2019 17:45	
<i>Containers Supplied:</i>			
1000mL Plastic (A)	1000mL Plastic (B)		
Sample ID: 1909216-05 Water Sampled: 09/10/2019 18:08 Sample Name: MW-7			
Radium, Total 226 & 228 by 901.1	09/20/2019	10/08/2019 18:08	
<i>Containers Supplied:</i>			
1000mL Plastic (A)	1000mL Plastic (B)		
Sample ID: 1909216-06 Water Sampled: 09/11/2019 11:15 Sample Name: MW-14			
Radium, Total 226 & 228 by 901.1	09/20/2019	10/09/2019 11:15	
<i>Containers Supplied:</i>			
1000mL Plastic (A)	1000mL Plastic (B)		
Sample ID: 1909216-07 Water Sampled: 09/11/2019 00:00 Sample Name: Field Blank			

Ambient

Released By

Date

Received By

Date

Released By

Date

Received By

Date

Work Order: 1909216 (Continued)

Analysis	Due	Expires	Comments
Sample ID: 1909216-07 <i>Water</i> Sampled: 09/11/2019 00:00 Sample Name: Field Blank			
Radium, Total 226 & 228 by 901.1	09/20/2019	10/09/2019 00:00	
<i>Containers Supplied:</i> 1000mL Plastic (A) 1000mL Plastic (B)			
Sample ID: 1909216-08 <i>Water</i> Sampled: 09/11/2019 11:38 Sample Name: Duplicate			
Radium, Total 226 & 228 by 901.1	09/20/2019	10/09/2019 11:38	
<i>Containers Supplied:</i> 1000mL Plastic (A) 1000mL Plastic (B)			
Sample ID: 1909216-09 <i>Water</i> Sampled: 09/10/2019 12:53 Sample Name: MW-12			
Radium, Total 226 & 228 by 901.1	09/20/2019	10/08/2019 12:53	
<i>Containers Supplied:</i> 1000mL Plastic (A) 1000mL Plastic (B)			
Sample ID: 1909216-10 <i>Water</i> Sampled: 09/10/2019 15:17 Sample Name: MW-15			
Radium, Total 226 & 228 by 901.1	09/20/2019	10/08/2019 15:17	
<i>Containers Supplied:</i> 1000mL Plastic (A) 1000mL Plastic (B)			
Sample ID: 1909216-11 <i>Water</i> Sampled: 09/11/2019 08:49 Sample Name: CCR-2			
Radium, Total 226 & 228 by 901.1	09/20/2019	10/09/2019 08:49	
<i>Containers Supplied:</i> 1000mL Plastic (A) 1000mL Plastic (B)			
Sample ID: 1909216-12 <i>Water</i> Sampled: 09/11/2019 09:50 Sample Name: CCR-3			
Radium, Total 226 & 228 by 901.1	09/20/2019	10/09/2019 09:50	
<i>Containers Supplied:</i> 1000mL Plastic (A) 1000mL Plastic (B)			
Sample ID: 1909216-13 <i>Water</i> Sampled: 09/10/2019 16:59 Sample Name: CCR-4			
Radium, Total 226 & 228 by 901.1	09/20/2019	10/08/2019 16:59	
<i>Containers Supplied:</i> 1000mL Plastic (A) 1000mL Plastic (B)			
Sample ID: 1909216-14 <i>Water</i> Sampled: 09/10/2019 17:06 Sample Name: CCR-5			
Radium, Total 226 & 228 by 901.1	09/20/2019	10/08/2019 17:06	
<i>Containers Supplied:</i> 1000mL Plastic (A) 1000mL Plastic (B)			




ambient

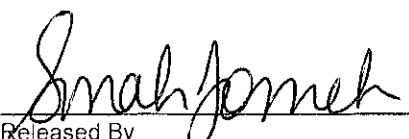
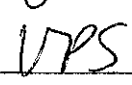
Smah Jones 9/13/19⁰ 1630
 Released By Date
VPS 9/16/19⁰ 1020
 Released By Date


VPS 9/13/19⁰ 1430
 Received By Date
gmil / Pac 9-16-19⁰ 1020
 Received By Date



Work Order: 1909216 (Continued)

Analysis	Due	Expires	Comments
Sample ID: 1909216-15 <i>Water</i> Sampled: 09/11/2019 10:09 Sample Name: CCR-6			
Radium, Total 226 & 228 by 901.1	 09/28/2019	10/09/2019 10:09	
<i>Containers Supplied:</i> 1000mL Plastic (A) 1000mL Plastic (B)			
Sample ID: 1909216-16 <i>Water</i> Sampled: 09/11/2019 11:27 Sample Name: CCR-7			
Radium, Total 226 & 228 by 901.1	 09/20/2019	10/09/2019 11:27	
<i>Containers Supplied:</i> 1000mL Plastic (A) 1000mL Plastic (B)			
Sample ID: 1909216-17 <i>Water</i> Sampled: 09/10/2019 12:05 Sample Name: CCR-8			
Radium, Total 226 & 228 by 901.1	 09/20/2019	10/08/2019 12:05	
<i>Containers Supplied:</i> 1000mL Plastic (A) 1000mL Plastic (B)			

 9/13/19⁰ 1630
Released By _____ Date _____
 9/16/19⁰
Released By _____ Date _____

 9/13/19⁰ 1630
Received By _____ Date _____

Received By _____ Date _____

WO#: 20121720

PM: KHB Due Date: 10/08/19
CLIENT: 20-MICRO



1000 Riverbend Blvd., Suite F
St. Rose, LA 70087

Sample Condition Upon Re

Proje

Courier: ☐ Pace Courier ☐ Hired Courier ☐ Fed X ☒ UPS ☐ DHL ☐ USPS ☐ Customer ☐ Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact: ☒ Yes ☐ No

Thermometer
Used:

- ☐ Therm Fisher IR 5
- ☐ Therm Fisher IR 6
- ☐ Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining
contents: 9-16-19

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?"	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	1
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	5
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	9
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12
All containers preservation checked found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15

Client Notification/ Resolution:

Person Contacted: _____

Date/Time: _____

Comments/ Resolution: _____

APPENDIX C

FIELD SAMPLING DATA

RED HILLS AMU MONITOR WELLS

Monitor Well: MW-7

Well Diameter: 4 inches

Date: 3/20/11

Water Column Height: 23.22 ft
(Measured Well Depth - Static Water Level)

Sampling Method: Pumped

TOC Elevation⁽¹⁾: 571.76 ft

Measured Well Depth: 56.92 ft

GW Elevation: 538.06 ft

Static Water Level: 33.70 ft

(TOC Elevation - Static Water Level)

Well Volume: 15.09 gal

Maximum Drawdown Depth 36.02 ft

(10% of WCH + SWL)

[illegible]

Sample Time: 11:45

Sample Analyzed for:

Appendix III (Boron, Calcium, Chloride, Fluoride, Sulfate, & TDS). pH measured in the field.

Appendix IV (Antimony, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, & Radium 226/228).

Total Drawdown (ft):

Drawdown/Water Column (%):

4.5

4.52%

FINAL DEPTH = 34.75 ft

Sampler Signature:

If possible, total drawdown will not exceed 0.33 ft.

If drawdown exceeds 10% of water column height, flow will be stopped and well allowed to recover.

Well Stabilization	
pH:	0.1 standard units
conductivity:	within 3%
temperature:	0.1 deg. C
turbidity:	<5 NTU or 10%

Well Casing Volumes (gal/ft)			
1" = 0.041	1 1/2" = 0.10	2" = 0.16	2 1/2" = 0.24
3" = 0.37	3 1/2" = 0.50	4" = 0.65	6" = 1.46
8" = 2.61	10" = 4.08	12" = 5.87	

(1) Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

RED HILLS AMU MONITOR WELLS

Monitor Well: MW-9

Well Diameter: 4 inches

Date: 3/19/19

Water Column Height: 13.98 ft
(Measured Well Depth - Static Water Level)

Sampling Method: Pumped

TOC Elevation⁽¹⁾: 480.04 ft

Measured Well Depth: 21.74 ft

GW Elevation: 472.28 ft

Static Water Level: 7.76 ft
(Depth to Water)

Well Volume: 9.09 gal
(Water Column Height x Well Casing Volume Factor)

Maximum Drawdown Depth 9.16 ft
(10% of WCH + SWL)

[illegible]

Sample Time: 12:12

Sample Analyzed for: Appendix III (Boron, Calcium, Chloride, Fluoride, Sulfate, & TDS), pH measured in the field.

Total Drawdown (ft): Appendix IV (Antimony, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, & Radium 226/228).

Total Drawdown (ft): 0.98

Drawdown/Meter = 7.01%

FINAL DEPTH = 8.74 ft

Drawdown/Water Column (%):

Sampler Signature:

If possible, total drawdown will not exceed 0.33 ft.

If drawdown exceeds 10% of water column height, flow will be stopped and well allowed to recover.

Well Stabilization	
pH:	0.1 standard units
conductivity:	within 3%
temperature:	0.1 deg. C
turbidity:	<5 NTU or 10%

Well Casing Volumes (gal/ft)			
1" = 0.041	1 1/2" = 0.10	2" = 0.16	2 1/2" = 0.24
3" = 0.37	3 1/2" = 0.50	4" = 0.65	6" = 1.46
8" = 2.61	10" = 4.08	12" = 5.87	

(1) Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

(1) Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

Monitor Well: MW-13

Date: 3/20/19

Water Column Height: 42.76 ft
(Measured Well Depth - Static Water Level)

TOC Elevation⁽¹⁾: 584.48 ft

GW Elevation: 521.24 ft

(TOC Elevation - Static Water Level)

Well Volume: 27.79 gal

(Water Column Height x Well Casing Volume Factor)

Sample Time: 11:39

Appendix III (Boron, Calcium, Chloride, Fluoride, Sulfate, & TDS). pH measured in the field.

Appendix IV (Antimony, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, & Radium 226/228)

2.16
5.05%

FINAL DEPTH = 65.4 ft

If possible, total drawdown will not exceed 0.33 ft.

If drawdown exceeds 10% of water column height, flow will be stopped and well allowed to recover.

Well Casing Volumes (gal/ft)			
1" = 0.041	1 1/2" = 0.10	2" = 0.16	2 1/2" = 0.24
3" = 0.37	3 1/2" = 0.50	4" = 0.65	6" = 1.46
8" = 2.61	10" = 4.08	12" = 5.87	

(1) Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

DUPLICATE
FIELD BLANK

(1) Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

(1) Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

RED HILLS AMU MONITOR WELLS

Monitor Well: OW-2

Well Diameter: 4 inches

Date: 3/19/19

Sampling Method: Pumped

Measured Well Depth: 27.05 ft

Static Water Level: 10.6 ft

(Depth to Water)

Maximum Drawdown Depth 12.25 ft
(10% of WCH + SWL)

Water Column Height: 16.45 ft
(Measured Well Depth - Static Water Level)

TOC Elevation⁽¹⁾: 489.40 ft

GW Elevation: 478.80 ft

(TOC Elevation - Static Water Level)

Well Volume: 10.69 gal
(Water Column Height x Well Casing Volume Factor)

Start Pump

Sample Time:

Sample Analyzed for:

Appendix III (Boron, Calcium, Chloride, Fluoride, Sulfate, & TDS). pH measured in the field.

Appendix IV (Antimony, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, & Radium 226/228).

Total Drawdown (ft):

Drawdown/Water Column (%):

Sampler Signature: _____

If possible, total drawdown will not exceed 0.33 ft.

If drawdown exceeds 10% of water column height, flow will be stopped and well allowed to recover.

Well Stabilization	
pH:	0.1 standard units
conductivity:	within 3%
temperature:	0.1 deg. C
turbidity:	<5 NTU or 10%

Well Casing Volumes (gal/ft)			
1" = 0.041	1 1/2" = 0.10	2" = 0.16	2 1/2" = 0.24
3" = 0.37	3 1/2" = 0.50	4" = 0.65	6" = 1.46
8" = 2.61	10" = 4.08	12" = 5.87	

(1) Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

FINAL DEPTH = 52.13 ft

Monitor Well: CCR-3

Date: 3/19/19

Water Column Height: 27.85 ft
(Measured Well Depth - Static Water Level)

TOC Elevation⁽¹⁾: 504.78 ft

GW Elevation: 479.63 ft

Well Volume: 18.10 gal
(Water Column Height x Well Casing Volume Factor)

Sample Time: 15:12

Appendix III (Boron, Calcium, Chloride, Fluoride, Sulfate, & TDS). pH measured in the field.

Appendix IV (Antimony, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, & Radium 226/228).

1.93
6.93%

Final Depth = 27.08 ft

If drawdown exceeds 10% of water column height, flow will be stopped and well allowed to recover.

Well Casing Volumes (gal/ft)			
1" = 0.041	1 1/2" = 0.10	2" = 0.16	2 1/2" = 0.24
3" = 0.37	3 1/2" = 0.50	4" = 0.65	6" = 1.46
8" = 2.61	10" = 4.08	12" = 5.87	

(1) Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

(1) Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

(1) Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

Monitor Well: MW-7

Date: 5/30/19

Well Volume: 15.36 gal
(Water Column Height x Well Casing Volume Factor)

Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Mercury, Molybdenum, Selenium, Thallium, Radium 226/228

Sampler Signature:

If drawdown exceeds 10% of water column height, flow will be stopped and well allowed to recover.

Well Casing Volumes (gal/ft)			
1" = 0.041	1 1/2" = 0.10	2" = 0.16	2 1/2" = 0.24
3" = 0.37	3 1/2" = 0.50	4" = 0.65	6" = 1.46
8" = 2.61	10" = 4.08	12" = 5.87	

(1) Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

Monitor Well: MW-9

Date: 5/29/19

Sampling Method: Pumped

Measured Well Depth: 21.74 ft

Static Water Level: 8.48 ft
(Depth to Water)

Maximum Drawdown Depth 9.81 ft
(10% of WCH + SWL)

Water Column Height: 13.26 ft
(Measured Well Depth - Static Water Level)

TOC Elevation⁽¹⁾: 480.04 ft

GW Elevation: 471.56 ft

(TOC Elevation - Static Water Level)

Well Volume: 8.62 gal
(Water Column Height x Well Casing Volume Factor)

Sample Time: 12:34

Sample Analyzed for:

Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Mercury, Molybdenum, Selenium,
Thallium, Radium 226/228

Total Drawdown (ft):

0.95
7.16%

Drawdown/Water Column (%):

FINAL DEPTH = 9.43 ft

Sampler Signature: _____

If possible, total drawdown will not exceed 0.33 ft.

If drawdown exceeds 10% of water column height, flow will be stopped and well allowed to recover.

Well Stabilization	
pH:	0.1 standard units
conductivity:	within 3%
temperature:	0.1 deg. C
turbidity:	<5 NTU or 10%

Well Casing Volumes (gal/ft)			
1" = 0.041	1 1/2" = 0.10	2" = 0.16	2 1/2" = 0.24
3" = 0.37	3 1/2" = 0.50	4" = 0.65	6" = 1.46
8" = 2.61	10" = 4.08	12" = 5.87	

(1) Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

(1) Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

Monitor Well: MW-13

Date: 9/30/19

Measured Well Depth: 106 ft

Static Water Level: 63.06 ft

(Depth to Water)

Maximum Drawdown Depth 67.35 ft

(10% of WCH + SWL)

Water Column Height: 42.94 ft

(Measured Well Depth - Static Water Level)

TOC Elevation⁽¹⁾: 584.48 ft

GW Elevation: $\frac{521.40}{521.42}$ ft

(TOC Elevation - Static Water Level)

Well Volume: 27.91 gal

(Water Column Height x Well Casing Volume Factor)

Start Pump

Sample Time: 10:30

Sample Analyzed for:

Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Mercury, Molybdenum, Selenium
Thallium, Radium 226/228

Total Drawdown (ft):

Drawdown/Water Column (%):

Sampler Signature:

If possible, total drawdown will not exceed 0.33 ft.

If drawdown exceeds 10% of water column height, flow will be stopped and well allowed to recover.

Well Stabilization	
pH:	0.1 standard units
conductivity:	within 3%
temperature:	0.1 deg. C
turbidity:	<5 NTU or 10%

Well Casing Volumes (gal/ft)			
1" = 0.041	1 1/2" = 0.10	2" = 0.16	2 1/2" = 0.24
3" = 0.37	3 1/2" = 0.50	4" = 0.65	
8" = 2.61	10" = 4.08	12" = 5.87	6" = 1.46

(1) Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

(1) Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

Monitor Well: MW-15

Date: 9/29/11

Maximum Drawdown Depth 9.38 ft
(10% of WCH + SWL)

Well Volume: 9.65 gal
(Water Column Height x Well Casing Volume Factor)

(1) Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

Monitor Well: MW-17

Date: 5/29/19

Sampling Method: Pumped

Measured Well Depth: 18.75 ft

Static Water Level: 5.2 ft
(Depth to Water)

Maximum Drawdown Depth 6.56 ft
(10% of WCH + SWL)

Water Column Height: 13.55 ft
(Measured Well Depth - Static Water Level)

TOC Elevation⁽¹⁾: 483.85 ft

GW Elevation: 478.65 ft

(TOC Elevation - Static Water Level)

Well Volume: 8.81 gal
(Water Column Height x Well Casing Volume Factor)

Sample Time: 9:07

Sample Analyzed for:

Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Mercury, Molybdenum, Selenium, Thallium, Radium 226/228

Total Drawdown (ft):

0.75

Drawdown/Water Column (%):

5.54%

FINAL DEPTH = 5.95 ft

Sampler Signature: _____

If possible, total drawdown will not exceed 0.33 ft.

If drawdown exceeds 10% of water column height, flow will be stopped and well allowed to recover.

Well Stabilization	
pH:	0.1 standard units
conductivity:	within 3%
temperature:	0.1 deg. C
turbidity:	<5 NTU or 10%

Well Casing Volumes (gal/ft)			
1" = 0.041	1 1/2" = 0.10	2" = 0.16	2 1/2" = 0.24
3" = 0.37	3 1/2" = 0.50	4" = 0.65	6" = 1.46
8" = 2.61	10" = 4.08	12" = 5.87	

(1) Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

Pump set @ 14

(1) Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

Monitor Well: CCR-2

Well Diameter: 4 inches

Date: 5/29/19

Sampling Method: Pumped

Measured Well Depth: 84.5 ft

Static Water Level: 50.88 ft
(Depth to Water)

Maximum Drawdown Depth 54.24 ft
(10% of WCH + SWL)

Water Column Height: 33.62 ft
(Measured Well Depth - Static Water Level)

TOC Elevation⁽¹⁾: 542.50 ft

GW Elevation: 491.62 ft

(TOC Elevation - Static Water Level)

Well Volume: 21.85 gal
(Water Column Height x Well Casing Volume Factor)

[illegible]

Sample Time: 15:45

Sample Analyzed for: Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Mercury, Molybdenum, Selenium, Thallium, Radium 226/228

Total Drawdown (ft): 1.43

Drawdown/Water Column (%): 4.25%

Sampler Signature:

If possible, total drawdown will not exceed 0.33 ft.

If drawdown exceeds 10% of water column height, flow will be stopped and well allowed to recover.

Well Stabilization	
pH:	0.1 standard units
conductivity:	within 3%
temperature:	0.1 deg. C
turbidity:	<5 NTU or 10%

Well Casing Volumes (gal/ft)			
1" = 0.041	1 1/2" = 0.10	2" = 0.16	2 1/2" = 0.24
3" = 0.37	3 1/2" = 0.50	4" = 0.65	6" = 1.46
8" = 2.61	10" = 4.08	12" = 5.87	

(1) Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

(1) Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

Monitor Well: CCR-4

Date: 5/30/19

Sampling Method: Pumped

Measured Well Depth: 53 ft

Static Water Level: 24.84 ft
(Depth to Water)

Maximum Drawdown Depth 27.66 ft
(10% of WCH + SWL)

Water Column Height: 28.16 ft
(Measured Well Depth - Static Water Level)

TOC Elevation⁽¹⁾: 505.68 ft

GW Elevation: 480.84 ft

(TOC Elevation - Static Water Level)

Well Volume: 18.30 gal
(Water Column Height x Well Casing Volume Factor)

[illegible]

Sample Time: 8:52

Sample Analyzed for: Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Mercury, Molybdenum, Selenium,
Thallium, Radium 226/228

Total Drawdown (ft):

Drawdown/Water Column (%):

Sampler Signature:

If possible, total drawdown will not exceed 0.33 ft.

If drawdown exceeds 10% of water column height, flow will be stopped and well allowed to recover.

Well Stabilization	
pH:	0.1 standard units
conductivity:	within 3%
temperature:	0.1 deg. C
turbidity:	<5 NTU or 10%

Well Casing Volumes (gal/ft)			
1" = 0.041	1 1/2" = 0.10	2" = 0.16	2 1/2" = 0.24
3" = 0.37	3 1/2" = 0.50	4" = 0.65	6" = 1.46
8" = 2.61	10" = 4.08	12" = 5.87	

FINAL DEPTH = 26.05 ft

(1) Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

Monitor Well: CCR-5

Date: 5/30/17

Measured Well Depth: 34.55 ft

Static Water Level: 7.71 ft

(Depth to Water)

Maximum Drawdown Depth 10.39 ft

(10% of WCH + SWL)

Water Column Height: 76.84 ft

(Measured Well Depth - Static Water Level)

TOC Elevation⁽¹⁾: 470.46 ft

GW Elevation: 462.75 ft

(TOC Elevation - Static Water Level)

Well Volume: 17.45 gal

(Water Column Height x Well Casing Volume Factor)

Sample Time: 9:35

Sample Analyzed for:

Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Mercury, Molybdenum, Selenium, Thallium, Radium 226/228

Total Drawdown (ft):

Drawdown/Water Column (%):

Sampler Signature:

If possible, total drawdown will not exceed 0.33 ft.

If drawdown exceeds 10% of water column height, flow will be stopped and well allowed to recover.

Well Stabilization	
pH:	0.1 standard units
conductivity:	within 3%
temperature:	0.1 deg. C
turbidity:	<5 NTU or 10%

Well Casing Volumes (gal/ft)			
1" = 0.041	1 1/2" = 0.10	2" = 0.16	2 1/2" = 0.24
3" = 0.37	3 1/2" = 0.50	4" = 0.65	6" = 1.46
8" = 2.61	10" = 4.08	12" = 5.87	

(1) Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

FIELD BLANK DONE
 @ THIS WELL

Monitor Well: CCR-6

Date: 5/29/19

Date:


(TOC Elevation - Static Water Level)
Well Volume: 16.84 gal
 (Water Column Height x Well Casing Volume Factor)

Sample Time: 10:45

Sample Analyzed for: Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Mercury, Molybdenum, Selenium, Thallium, Radium 226/228

Total Drawdown (ft): 2.45

Drawdown/Water Column (%): 9.45%

Sampler Signature: 

Pump Set at 37' Below Top of Casing

Well Stabilization	
pH:	0.1 standard units
conductivity:	within 3%
temperature:	0.1 deg. C
turbidity:	<5 NTU or 10%

Well Casing Volumes (gal/ft)			
1" = 0.041	1 1/2" = 0.10	2" = 0.16	2 1/2" = 0.24
3" = 0.37	3 1/2" = 0.50	4" = 0.65	6" = 1.46
8" = 2.61	10" = 4.08	12" = 5.87	

(1) Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

(1) Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

(1) Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

(1) Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

Monitor Well: MW-9

Well Diameter: 4 inches

Date: 9/10/11

Water Column Height: 12.31 ft
(Measured Well Depth - Static Water Level)

Sampling Method: Pumped

Measured Well Depth: 21.74 ft

Static Water Level: 9.45 ft

(Depth to Water)

Maximum Drawdown Depth 10.66 ft

(10% of WCH + SWL)

TOC Elevation⁽¹⁾: 480.04 ft

GW Elevation: 470.61 ft

(TOC Elevation - Static Water Level)

Well Volume: 8.00 gal

(Water Column Height x Well Casing Volume Factor)

[illegible]

Sample Time:

Sample Analyzed for:

Appendix III (Boron, Calcium, Chloride, Fluoride, Sulfate, & TDS); pH measured in the field. Appendix IV (Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Molybdenum, Selenium, & Radium 226/228).

Total Drawdown (ft):

0.68

5.52%

Drawdown/Water Column (%):

FINAL DEPTH = 10.11 ft

Sampler Signature:

If possible, total drawdown will not exceed 0.33 ft.

If drawdown exceeds 10% of water column height, flow will be stopped and well allowed to recover.

Well Stabilization	
pH:	0.1 standard units
conductivity:	within 3%
temperature:	0.1 deg. C
turbidity:	<5 NTU or 10%

Well Casing Volumes (gal/ft)			
1" = 0.041	1 1/2" = 0.10	2" = 0.16	2 1/2" = 0.24
3" = 0.37	3 1/2" = 0.50	4" = 0.65	6" = 1.46
8" = 2.61	10" = 4.08	12" = 5.87	

(1) Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

(1) Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019

Duplicate Sample Taken @ This Well.

Monitor Well: MW-15

Date: 1/10/14

(10% of WCH + SWL)

(Water Column Height x Well Casing Volume Factor)

(1) Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

Monitor Well: MW-17
Date: 9/10/19

Date: 9/10/19

Water Column Height: 12.63 ft
(Measured Well Depth - Static Water Level)

TOC Elevation⁽¹⁾: 483.85 ft


GW Elevation: 477.73 ft
(TOC Elevation - Static Water Level)

Well Volume: 8.21 gal
(Water Column Height x Well Casing Volume Factor)

Sample Time: 14:34

Sample Analyzed for: Appendix III (Boron, Calcium, Chloride, Fluoride, Sulfate, & TDS) pH measured in the field. Appendix IV (Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Molybdenum, Selenium, & Radium 226/228).

Total Drawdown (ft): 0.76

Sampler Signature: 

FINAL DEPTH = 6.87 ft

If drawdown exceeds 10% of water column height, flow will be stopped and well allowed to recover.

Well Casing Volumes (gal/ft)			
1" = 0.041	1 1/2" = 0.10	2" = 0.16	2 1/2" = 0.24
3" = 0.37	3 1/2" = 0.50	4" = 0.65	6" = 1.46
8" = 2.61	10" = 4.08	12" = 5.87	

(1) Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

FINAL DEPTH = 12.92 ft

Monitor Well: CCR-2

Date: 9/11/19

Water Column Height: 33.28 ft
(Measured Well Depth - Static Water Level)

TOC Elevation⁽¹⁾: 542.50 ft
GW Elevation: 491.20 ft
 (TOC Elevation - Static Water Level)
Well Volume: 21.63 gal
 (Water Column Height x Well Casing Volume Factor)

[illegible]

Sample Analyzed for: Appendix III (Boron, Calcium, Chloride, Fluoride, Sulfate, & TDS). pH measured in the field. Appendix IV (Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Molybdenum, Selenium, & Radium 226/228).

Total Drawdown (ft):	1.84
Drawdown/Water Column (%):	5.53%

FINAL DEPTH = 53.66 ft

If possible, total drawdown will not exceed 0.33 ft.

If drawdown exceeds 10% of water column height, flow will be stopped and well allowed to recover.

Well Stabilization	
pH:	0.1 standard units
conductivity:	within 3%
temperature:	0.1 deg. C
turbidity:	<5 NTU or 10%

Well Casing Volumes (gal/ft)			
1" = 0.041	1 1/2" = 0.10	2" = 0.16	2 1/2" = 0.24
3" = 0.37	3 1/2" = 0.50	4" = 0.65	6" = 1.46
8" = 2.61	10" = 4.08	12" = 5.87	

(1) Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

Field BLANK DONE @ THIS WOU

Monitor Well: CCR-3

Date: 9/11/19

Measured Well Depth: 53 ft

Static Water Level: 27.87 ft

(Depth to Water)

Maximum Drawdown Depth 30.38 ft

(10% of WCH + SWL)

Water Column Height: 25.13 ft

(Measured Well Depth - Static Water Level)

TOC Elevation⁽¹⁾: 504.78 ft

GW Elevation: 476.91 ft

(TOC Elevation - Static Water Level)

Well Volume: 16.33 gal

(Water Column Height x Well Casing Volume Factor)

Sample Time:

Sample Analyzed for:

Appendix III (Boron, Calcium, Chloride, Fluoride, Sulfate, & TDS). pH measured in the field. Appendix IV (Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Molybdenum, Selenium, & Radium 226/228).

Total Drawdown (ft):

Drawdown/Water Column (%):

Sampler Signature:

If possible, total drawdown will not exceed 0.33 ft.

If drawdown exceeds 10% of water column height, flow will be stopped and well allowed to recover.

Well Stabilization	
pH:	0.1 standard units
conductivity:	within 3%
temperature:	0.1 deg. C
turbidity:	<5 NTU or 10%

Well Casing Volumes (gal/ft)			
1" = 0.041	1 1/2" = 0.10	2" = 0.16	2 1/2" = 0.24
3" = 0.37	3 1/2" = 0.50	4" = 0.65	6" = 1.46
8" = 2.61	10" = 4.08	12" = 5.87	

(1) Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

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APPENDIX D

2019 GROUNDWATER MONITORING SUMMARY

Choctaw Generation CCR Groundwater Results for Calendar Year 2019

Detection and Assessment Monitoring Results:

	Detected
	Detected above Prediction Limit
	Detected above Prediction Limit and Groundwater Protection Standard (GWPS)

NS = Not Sampled

Antimony (Sb) Monitoring Results (mg/L)

Monitoring Well																
Date	CCR-2	CCR-3	CCR-4	CCR-5	CCR-6	CCR-7	CCR-8	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	MW-17	OW-2
	Down	Down	Down	Down/ Boundary	Mine Property	Mine Property	Mine Property	Up	Down	Down	Up	Up	Down	Down	MW16 Replacement Well/Down	Down
3/19-20/19	<0.005	<0.005	<0.005	<0.005				<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NS		<0.005
5/29-30/19	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NS	<0.005	<0.005
9/10-11/19	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NS	<0.005	<0.005
Prediction Limit = 0.002, GWPS = 0.006																

Arsenic (As) Monitoring Results (mg/L)

Monitoring Well																
Date	CCR-2	CCR-3	CCR-4	CCR-5	CCR-6	CCR-7	CCR-8	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	MW-17	OW-2
	Down	Down	Down	Down/ Boundary	Mine Property	Mine Property	Mine Property	Up	Down	Down	Up	Up	Down	Down	MW16 Replacement Well/Down	Down
3/19-20/19 ⁽²⁾	-	-	-	-				-	-	-	-	-	-	-		-
5/29-30/19	<0.002	<0.002	<0.002	0.00348	<0.002	<0.002	0.00428	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	NS	<0.002	<0.002
9/10-11/19	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.00359	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	NS	<0.002	<0.002
Prediction Limit = 0.002, GWPS = 0.010																

(1) Appendix IV constituent not required to be monitored during detection monitoring.

(2) Constituent not previously detected; therefore, not included in further assessment monitoring.

Barium (Ba) Monitoring Results (mg/L)

Monitoring Well																
Date	CCR-2	CCR-3	CCR-4	CCR-5	CCR-6	CCR-7	CCR-8	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	MW-17	OW-2
	Down	Down	Down	Down/ Boundary	Mine Property	Mine Property	Mine Property	Up	Down	Down	Up	Up	Down	Down	MW16 Replacement Well/Down	Down
3/19-20/19	0.103	0.090	0.157	0.028				0.102	0.240	0.303	0.071	0.014	0.212	NS		0.105
5/29-30/19	0.103	0.080	0.16	0.027	0.176	0.173	0.127	0.089	0.248	0.271	0.152	0.013	0.219	NS	0.127	0.124
9/10-11/19	0.088	0.060	0.157	0.023	0.196	0.175	0.072	0.095	0.262	0.202	0.172	0.013	0.209	NS	0.127	0.124
Prediction Limit = 0.2558, GWPS = 2																

Beryllium (Be) Monitoring Results (mg/L)

Monitoring Well																
Date	CCR-2	CCR-3	CCR-4	CCR-5	CCR-6	CCR-7	CCR-8	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	MW-17	OW-2
	Down	Down	Down	Down/ Boundary	Mine Property	Mine Property	Mine Property	Up	Down	Down	Up	Up	Down	Down	MW16 Replacement Well/Down	Down
3/19-20/19	<0.001	<0.001	<0.001	<0.001				<0.001	0.00547	<0.001	<0.001	<0.001	<0.001	NS		<0.001
5/29-30/19	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00376	<0.001	<0.001	<0.001	<0.001	NS	<0.001	<0.001
9/10-11/19	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0025	<0.001	<0.001	<0.001	<0.001	NS	<0.001	<0.001
Prediction Limit = 0.001, GWPS = 0.004																

Boron (B) Monitoring Results (mg/L)

Monitoring Well																
Date	CCR-2	CCR-3	CCR-4	CCR-5	CCR-6	CCR-7	CCR-8	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	MW-17	OW-2
	Down	Down	Down	Down/ Boundary	Mine Property	Mine Property	Mine Property	Up	Down	Down	Up	Up	Down	Down	MW16 Replacement Well/Down	Down
3/19-20/19	<0.050	<0.050	<0.050	0.058				0.286	<0.050	<0.050	<0.050	<0.050	<0.050	NS		<0.050
5/29-30/19 ⁽²⁾	-	-	-	-	-	-	-	-	-	-	-	-	-	NS	-	-
9/10-11/19	<0.050	<0.050	<0.050	0.114	0.081	0.05	0.202	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050		<0.050	<0.050
Prediction Limit = 0.050																

(1) Appendix III constituent not required to be monitored during initial assessment monitoring event.

(2) Appendix III constituent not required to be monitored during the annual assessment monitoring event.

Calcium (Ca) Monitoring Results (mg/L)

Monitoring Well																
Date	CCR-2	CCR-3	CCR-4	CCR-5	CCR-6	CCR-7	CCR-8	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	MW-17	OW-2
	Down	Down	Down	Down/ Boundary	Mine Property	Mine Property	Mine Property	Up	Down	Down	Up	Up	Down	Down	MW16 Replacement Well/Down	Down
Background Monitoring																
3/19-20/19	13.9	56.0	27.3	245				114	105	37.2	69.1	0.662	34.1	NS		37.2
5/29-30/19 ⁽²⁾	-	-	-	-	-	-	-	-	-	-	-	-	-	NS	-	-
9/10-11/19	12.2	29	25.8	189	30.3	28.4	39.3	52.2	83.1	27.5	20.1	0.664	31.3	NS	37.4	38
Prediction Limit = 85.8879																

(1) Appendix III constituent not required to be monitored during initial assessment monitoring event.

(2) Appendix III constituent not required to be monitored during the annual assessment monitoring event.

Monitoring Well																
Date	CCR-2	CCR-3	CCR-4	CCR-5	CCR-6	CCR-7	CCR-8	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	MW-17	OW-2
	Down	Down	Down	Down	Mine Property	Mine Property	Mine Property	Up	Down	Down	Up	Up	Down	Down	MW16 Replacement Well/Down	Down
3/19-20/19	<0.001	<0.001	<0.001	<0.001				<0.001	0.00137	<0.001	<0.001	<0.001	<0.001	NS		<0.001
5/29-30/19	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00149	<0.001	<0.001	<0.001	<0.001	NS	<0.001	<0.001
9/10-11/19	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00114	<0.001	<0.001	<0.001	<0.001	NS	<0.001	<0.001
Prediction Limit = 0.001, GWPS = 0.005																

Monitoring Well																
Date	CCR-2	CCR-3	CCR-4	CCR-5	CCR-6	CCR-7	CCR-8	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	MW-17	OW-2
	Down	Down	Down	Down/ Boundary	Mine Property	Mine Property	Mine Property	Up	Down	Down	Up	Up	Down	Down	MW16 Replacement Well/Down	Down
3/19-20/19	2.58	5.16	9.21	9.17				2.93	617	75.7	3.84	19.8	15.4	NS		38.3
5/29-30/19(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	NS	-	-
9/10-11/19	2.44	5.56	7.12	8.4	17.7	11	340	5.1	499	37.3	3.66	20.8	16.1	NS	53.4	39.6
Prediction Limit = 26.6034																

(2) Appendix III constituent not required to be monitored during the annual assessment monitoring event.

Monitoring Well																
Date	CCR-2	CCR-3	CCR-4	CCR-5	CCR-6	CCR-7	CCR-8	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	MW-17	OW-2
	Down	Down	Down	Down/ Boundary	Mine Property	Mine Property	Mine Property	Up	Down	Down	Up	Up	Down	Down	MW16 Replacement Well/Down	Down
3/19-20/19	<0.001	<0.001	<0.001	<0.001				<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NS		<0.001
5/29-30/19	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00309	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NS	<0.001	<0.001
9/10-11/19	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0188	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NS	<0.001	<0.001
Prediction Limit = 0.001, GWPS = 0.1																

Cobalt (Co) Monitoring Results (mg/L)

Monitoring Well																
Date	CCR-2	CCR-3	CCR-4	CCR-5	CCR-6	CCR-7	CCR-8	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	MW-17	OW-2
	Down	Down	Down	Down/ Boundary	Mine Property	Mine Property	Mine Property	Up	Down	Down	Up	Up	Down	Down	MW16 Replacement Well/Down	Down
3/19-20/19	<0.001	0.00493	0.00422	0.0465				<0.001	0.0288	0.0208	<0.001	<0.001	0.0103	NS		<0.001
5/29-30/19	0.00414	0.00726	0.00321	0.0499	0.00189	0.019	<0.001	<0.001	0.0257	0.0183	<0.001	<0.001	0.0102	NS	0.0169	<0.001
9/10-11/19	<0.001	0.00144	0.00312	0.046	<0.001	0.0053	<0.001	<0.001	0.0167	0.00733	<0.001	<0.001	0.00958	NS	0.0199	<0.001
Prediction Limit = 0.001, GWPS = 0.006																

Fluoride (F) Monitoring Results (mg/L)

Monitoring Well																
Date	CCR-2	CCR-3	CCR-4	CCR-5	CCR-6	CCR-7	CCR-8	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	MW-17	OW-2
	Down	Down	Down	Down/ Boundary	Mine Property	Mine Property	Mine Property	Up	Down	Down	Up	Up	Down	Down	MW16 Replacement Well/Down	Down
3/19-20/19	<0.22	0.48	<0.22	0.70				<0.22	0.34	<0.22	0.29	<0.22	0.27	NS		0.54
5/29-30/19 ⁽¹⁾	<0.22	0.25	<0.22	<0.22	0.25	0.25	1.24	<0.22	0.49	<0.22	<0.22	<0.22	<0.22	NS	0.37	0.27
9/10-11/19	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	0.49	<0.22	0.36	<0.22	<0.22	<0.22	<0.22	NS	0.34	0.26
Prediction Limit = 0.30, GWPS = 4.0																

(1) Results are estimates due to an unanticipated change in MRL from Micro-Methods Laboratory. The MRL was changed from 0.22 to 0.5.

Lead (Pb) Monitoring Results (mg/L)

Monitoring Well																
Date	CCR-2	CCR-3	CCR-4	CCR-5	CCR-6	CCR-7	CCR-8	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	MW-17	OW-2
	Down	Down	Down	Down/ Boundary	Mine Property	Mine Property	Mine Property	Up	Down	Down	Up	Up	Down	Down	MW16 Replacement Well/Down	Down
3/19-20/19	<0.001	<0.001	<0.001	0.00125				<0.001	0.00105	<0.001	<0.001	<0.001	<0.001	NS		<0.001
5/29-30/19	<0.001	<0.001	<0.001	0.00137	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NS	<0.001	<0.001
9/10-11/19	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NS	<0.001	<0.001
Prediction Limit = 0.001, GWPS = 0.015																

Lithium (Li) Monitoring Results (mg/L)

Monitoring Well																
Date	CCR-2	CCR-3	CCR-4	CCR-5	CCR-6	CCR-7	CCR-8	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	MW-17	OW-2
	Down	Down	Down	Down/ Boundary	Mine Property	Mine Property	Mine Property	Up	Down	Down	Up	Up	Down	Down	MW16 Replacement Well/Down	Down
3/19-20/19	<0.050	0.117	<0.050	<0.050				<0.050	0.121	<0.050	<0.050	<0.050	<0.050	NS		<0.050
5/29-30/19	<0.050	0.107	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.113	<0.050	<0.050	<0.050	<0.050	NS	<0.050	<0.050
9/10-11/19	<0.050	0.061	<0.050	<0.050	<0.050	<0.050	0.067	<0.050	0.1	<0.050	<0.050	<0.050	<0.050		<0.050	0.042
Prediction Limit = 0.050, GWPS = 0.050																

Mercury (Hg) Monitoring Results (mg/L)

Monitoring Well																
Date	CCR-2	CCR-3	CCR-4	CCR-5	CCR-6	CCR-7	CCR-8	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	MW-17	OW-2
	Down	Down	Down	Down/ Boundary	Mine Property	Mine Property	Mine Property	Up	Down	Down	Up	Up	Down	Down	MW16 Replacement Well/Down	Down
3/19-20/19 ⁽²⁾	-	-	-	-				-	-	-	-	-	-	-		-
5/29-30/19	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	NS	<0.002	<0.002
9/10-11/19 ⁽²⁾	-	-	-	-	-	-	-	-	-	-	-	-	-	NS	-	-
Prediction Limit = 0.002, GWPS = 0.002																

(1) Appendix IV constituent not required to be monitored during detection monitoring.

(2) Constituent not previously detected; therefore, not included in further assessment monitoring.

Molybdenum (Mo) Monitoring Results (mg/L)

Monitoring Well																
Date	CCR-2	CCR-3	CCR-4	CCR-5	CCR-6	CCR-7	CCR-8	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	MW-17	OW-2
	Down	Down	Down	Down/ Boundary	Mine Property	Mine Property	Mine Property	Up	Down	Down	Up	Up	Down	Down	MW16 Replacement Well/Down	Down
3/19-20/19 ⁽²⁾	-	-	-	-				-	-	-	-	-	-	-		-
5/29-30/19	<0.001	<0.001	<0.001	<0.001	0.00435	0.00255	0.333	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NS	<0.001	<0.001
9/10-11/19	<0.001	<0.001	<0.001	<0.001	0.00101	<0.001	0.0474	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NS	<0.001	<0.001
Prediction Limit = 0.001, GWPS = 0.100																

(1) Appendix IV constituent not required to be monitored during detection monitoring.

(2) Constituent not previously detected; therefore, not included in further assessment monitoring.

Selenium (Se) Monitoring Results (mg/L)

Monitoring Well																
Date	CCR-2	CCR-3	CCR-4	CCR-5	CCR-6	CCR-7	CCR-8	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	MW-17	OW-2
	Down	Down	Down	Down/ Boundary	Mine Property	Mine Property	Mine Property	Up	Down	Down	Up	Up	Down	Down	MW16 Replacement Well/Down	Down
3/19-20/19 ⁽²⁾	-	-	-	-				-	-	-	-	-	-	-		-
5/29-30/19	<0.001	<0.001	<0.001	0.00154	<0.001	0.00106	0.00737	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NS	<0.001	<0.001
9/10-11/19	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NS	<0.001	<0.001
Prediction Limit = 0.001, GWPS = 0.05																

(1) Appendix IV constituent not required to be monitored during detection monitoring.

(2) Constituent not previously detected; therefore, not included in further assessment monitoring.

Sulfate (SO₄) Monitoring Results (mg/L)

Monitoring Well																
Date	CCR-2	CCR-3	CCR-4	CCR-5	CCR-6	CCR-7	CCR-8	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	MW-17	OW-2
	Down	Down	Down	Down/ Boundary	Mine Property	Mine Property	Mine Property	Up	Down	Down	Up	Up	Down	Down	MW16 Replacement Well/Down	Down
3/19-20/19	11.3	283	29.9	1400				42.5	138	69.7	7.54	14.6	76.9	NS		118
5/29-30/19 ⁽²⁾	-	-	-	-	-	-	-	-	-	-	-	-	-	NS	-	-
9/10-11/19	11	95.2	29.9	1230	16.2	15.1	481	41.7	132	31.4	7.26	10.4	56.7	NS	148	124
Prediction Limit = 44.8102																

(1) Appendix III constituent not required to be monitored during initial assessment monitoring event.

(2) Appendix III constituent not required to be monitored during the annual assessment monitoring event.

Thallium (Tl) Monitoring Results (mg/L)

Monitoring Well																
Date	CCR-2	CCR-3	CCR-4	CCR-5	CCR-6	CCR-7	CCR-8	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	MW-17	OW-2
	Down	Down	Down	Down/ Boundary	Mine Property	Mine Property	Mine Property	Up	Down	Down	Up	Up	Down	Down	MW16 Replacement Well/Down	Down
3/19-20/19 ⁽²⁾	-	-	-	-				-	-	-	-	-	-	-		-
5/29-30/19	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NS	<0.001	<0.001
9/10-11/19 ⁽²⁾	-	-	-	-	-	-	-	-	-	-	-	-	-	NS	-	-
Prediction Limit = 0.001, GWPS = 0.002																

(1) Appendix IV constituent not required to be monitored during detection monitoring.

(2) Constituent not previously detected; therefore, not included in further assessment monitoring.

Total Dissolved Solids (TDS) Monitoring Results (mg/L)

Monitoring Well																
Date	CCR-2	CCR-3	CCR-4	CCR-5	CCR-6	CCR-7	CCR-8	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	MW-17	OW-2
	Down	Down	Down	Down/ Boundary	Mine Property	Mine Property	Mine Property	Up	Down	Down	Up	Up	Down	Down	MW16 Replacement Well/Down	Down
3/19-20/19	77	463	200	1985				229	1340	262	146	90	304	NS		330
5/29-30/19 ⁽²⁾	-	-	-	-	-	-	-	-	-	-	-	-	-	NS	-	-
9/10-11/19	120	276	197	1928	254	220	1498	220	1635	258	162	92	285	NS	461	368
Prediction Limit = 320.8384																

(1) Appendix III constituent not required to be monitored during initial assessment monitoring event.

(2) Appendix III constituent not required to be monitored during the annual assessment monitoring event.

pH Monitoring Results (S.U.)

Monitoring Results (2017)																
Monitoring Well																
Date	CCR-2	CCR-3	CCR-4	CCR-5	CCR-6	CCR-7	CCR-8	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	MW-17	OW-2
	Down	Down	Down	Down/ Boundary	Mine Property	Mine Property	Mine Property	Up	Down	Down	Up	Up	Down	Down	MW16 Replacement Well/Down	Down
3/19-20/19	7.04	6.42	6.64	5.97				6.94	4.15	5.48	7.16	5.23	6.31	NS		5.96
5/29-30/19	6.45	6.23	6.34	5.71	7.11	6.19	8.97	6.92	4.71	5.58	6.69	4.95	5.95	NS	5.75	5.58
9/10-11/19	6.45	6.42	6.89	6.04	7.10	6.13	8.86	6.94	5.56	6.64	7.16	4.67	6.48	NS	6.36	6.17
Prediction Limit = 3.77 – 9.97																

Radium 226 and 228 Combined (Ra) Monitoring Results (pCi/L) ⁽¹⁾

Radon-220 and 222 Combined (Rn) Monitoring Results (pCi/L)																
Monitoring Well																
Date	CCR-2	CCR-3	CCR-4	CCR-5	CCR-6	CCR-7	CCR-8	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	MW-17	OW-2
	Down	Down	Down	Down/ Boundary	Mine Property	Mine Property	Mine Property	Up	Down	Down	Up	Up	Down	Down	MW16 Replacement Well/Down	Down
Assessment Monitoring																
3/19-20/19	1.491	2.88	1.508	0.943				1.291	2.52	1.805	1.657	1.478	2.19	NS		1.749
5/29-30/19	2.063	3.325	2.346	2.73	2.89	2.312	3.5	1.516	2.73	2.546	2.018	1.537	2.232	NS	1.917	1.776
9/10-11/19	2.61	2.032	2.34	1.539	2.332	2.049	2.317	2.54	2.55	2.295	2.256	1.633	2.43	NS	2.63	2.232
Prediction Limit = X, GWPS = 5 pCi/L																

APPENDIX E

CORRECTIVE MEASURES ASSESSMENT EXTENSION

Choctaw Generation Limited Partnership, LLLP

4488 Onondaga Boulevard
Syracuse, NY 13219

Telephone (315) 448-2266
Fax (315) 448-0264

MEMORANDUM

To: Choctaw Generation Limited Partnership, LLLP – Red Hills Operation CCR Operating Record

From: Jim Ward, P.G. (Red Hills)

Re: Demonstration of Need for Additional Corrective Measures

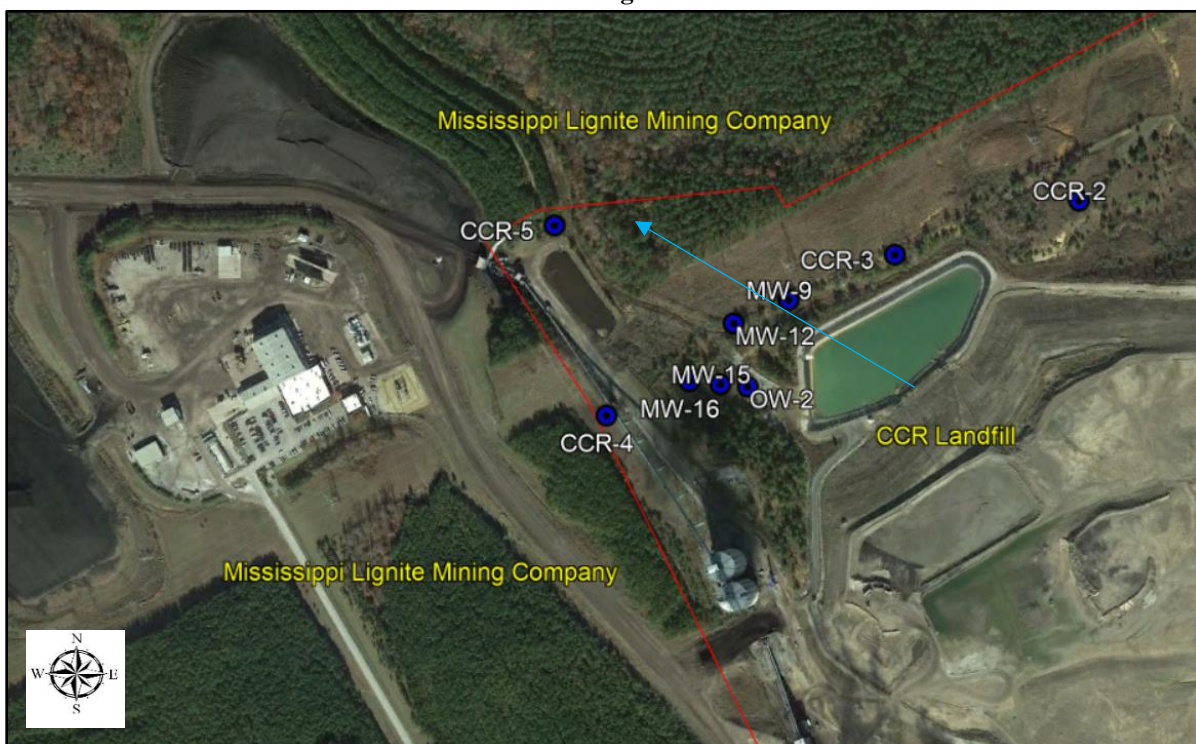
Date: February 28, 2019

In accordance with 40 CFR 257.96(a), Red Hills proposes to demonstrate that an additional 60 days is necessary to complete an assessment of corrective measures for the release to groundwater of cobalt and lithium exceeding the groundwater protection standards. Red Hills believes additional time is necessary to obtain actual site-specific data to determine the nature and extent of the release. The following information is provided to further substantiate the need for additional time.

1. Delineating the Extent of the Groundwater Plume

As shown in the site diagram below, the recently installed monitoring well, CCR-5, was installed at the far northwestern location close to the property boundary and in the direction of shallow groundwater flow. During the first sampling event for this well, conducted in September 2018, an exceedance of cobalt was measured, indicating the groundwater plume has migrated off-site to the adjacent property to the north and west. We have also detected cobalt in CCR-4 which is on the westerly property boundary. Therefore, additional wells need to be installed to the northwest and to the west to fully delineate and understand the extent of the groundwater plume. Red Hills needs permission from the adjacent property owners for access to the site for well installations.

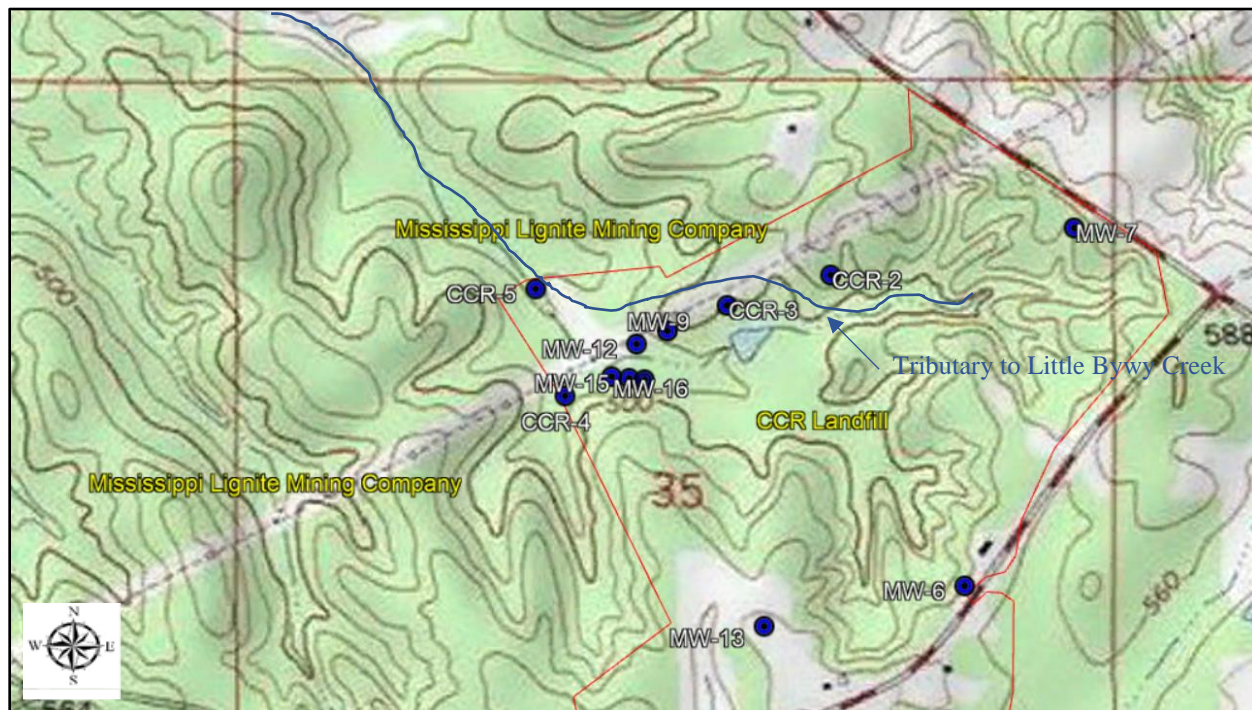
Site Diagram



2. Surface Water Monitoring

A tributary of Little Bywy Creek begins on the Red Hill property near Highway 9 and continues around the northern portion of the CCR Landfill, flowing northwest, adjacent to the Storm Water Basin near the coal conveyor and CCR-5, as show in the Site Diagram above and topographic map below. Because the depth to groundwater at CCR-5 and MW-9 is only a few feet below ground surface, it is possible that the shallow groundwater is interconnected with this tributary flowing through the site. Because the tributary leaves the Red Hills property near CCR-5, Red Hills needs permission from the adjacent property owner to access the tributary to obtain downstream surface water samples for comparison to sampling conducted on site.

Topographic Map



Red Hills believes that the information outlined above must be obtained to appropriately assess what corrective measures are needed to address exceedances of cobalt and lithium in the shallow groundwater. Since obtaining access and then drilling and conducting monitoring of new wells will minimally take a few months to accomplish (assuming access is granted by the Mine), the full 60-day extension allowed under 40 CFR 257.96(a) is needed.

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Established in 2002
www.envirocomp.net

March 1, 2019

Mr. Jim Ward, P.G.
Environmental Compliance
Red Hills Operation
2391 Pensacola Road
Ackerman, Mississippi 39735
jmward@southernco.com

Re: **Certification of 60-Day Extension to Corrective Measures Assessment**
Choctaw Generation Limited Partnership, LLLP – Red Hills Operation
Ackerman, Mississippi (Choctaw County)

Dear Mr. Ward:

Based on a review of the demonstration of need provided February 28, 2019 and personal knowledge of site conditions, Environmental Compliance & Safety, Inc. (ECS) agrees with your demonstration that a 60-day extension to the assessment of corrective measures is warranted. This extension is deemed necessary for the following reasons:

1. Groundwater contamination exceeding the groundwater protection standard for cobalt has been noted at the far northwestern property boundary, specifically in monitoring well CCR-5, necessitating the installation of off-site monitoring wells for which Red Hills must obtain approval from the adjacent landowner.
2. Monitoring of both the groundwater and surface water at locations owned by the adjacent landowner must be conducted in order to understand the nature and extent of groundwater contamination and possible hydrologic connections between shallow groundwater and surface water at downgradient locations.

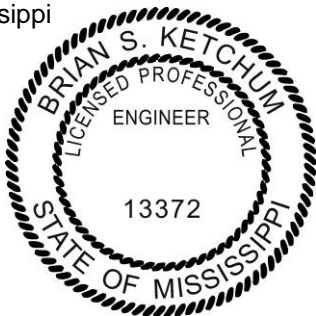
Because these additional investigations must take place to adequately assess corrective measures and since approval to conduct off-site monitoring on the adjacent landowner's property will require additional time to acquire, the undersigned Registered Professional Engineer certifies that based on information and belief formed after reasonable inquiry the demonstration of need under 40 CFR 257.96(a) for a 60-day extension to the assessment of corrective measures is warranted and accurate.



Brian Ketchum, PE
Registration Number: 13372
State of Mississippi

March 1, 2019

Date Signed



(Seal)

APPENDIX F

ALTERNATE SOURCE DEMONSTRATION

CCR ALTERNATE SOURCE DEMONSTRATION (ASD)

ASH MANAGEMENT UNIT (AMU)
Choctaw Generation Limited Partnership, LLLP
2391 Pensacola Road
Ackerman, MS 39735

December 17, 2019



ENVIRONMENTAL COMPLIANCE & SAFETY, INC.

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TABLE OF CONTENTS

	<u>Page</u>
1.0 ALTERNATE SOURCE DEMONSTRATION (ASD) CERTIFICATION.....	1
2.0 EXECUTIVE SUMMARY	2
3.0 SITE DESCRIPTION.....	3
3.1 Site Geology.....	3
3.2 Site Hydrogeology.....	3
4.0 GROUNDWATER MONITORING SYSTEM.....	5
4.1 Groundwater Monitoring Well Network	5
4.2 Constituents Detected at SSLs in Groundwater	5
5.0 ALTERNATE SOURCE DEMONSTRATION	7
5.1 Liner System	7
5.2 Constituents Naturally Occurring in Subsurface Soils	7
6.0 CONCLUSION	10
7.0 REFERENCES.....	11

FIGURES:

Figure 1:	Site Location Map
Figure 2:	CCR Monitoring Well Locations
Figure 3:	USGS Geochemical Map for Lithium
Figure 4:	USGS Geochemical Map for Cobalt

Tables:

Table 1:	CCR Groundwater Sampling Results (5/2018 – 9/2019)
Table 2:	ASD Soil Sampling Event Results
Table 3:	Groundwater pH Measurements – Downgradient Wells

APPENDICES:

Appendix A:	ASD Soil Sampling Field Notes
Appendix B:	ASD Soil Sample Analytical Results

1.0 ALTERNATE SOURCE DEMONSTRATION (ASD) CERTIFICATION

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 gathered and evaluated 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.



Signature

12/18/2019

Date

Rob Watson

Asset Manager

Name (Printed)

Title

PE-Choctaw, Inc.

Company

The Alternate Source Demonstration (ASD) was prepared for the Choctaw Generation Limited Partnership, LLLP (Choctaw Generation) Ash Management Unit (AMU) in accordance with requirements of the United States Environmental Protection Agency Coal Combustion Residual (CCR) Rule defined in 40 Code of Federal Regulations (CFR) §257, Subpart D. The ASD was developed under the direction of a licensed Professional Engineer to effectively satisfy the requirements of 40 CFR §257.95(g)(3). The information presented herein constitutes a true and accurate representation of the information, findings, and observations made during the investigation and preparation of the determination.



Brian S. Ketchum, P.E.
Principal, Senior Engineer
Environmental Compliance & Safety,
Inc.

12/17/2019

Date

State of Mississippi
Registration No. 13372
(Seal)



2.0 EXECUTIVE SUMMARY

This Alternate Source Demonstration (ASD) has been developed pursuant to Federal Regulations codified in 40 CFR Part 257 Subpart D to address lithium, cobalt, beryllium, and molybdenum detected at statistically significant levels (SSL) over each respective groundwater protection standard (GWPS) established per §257.95(h). In accordance with §257.95(g), Choctaw Generation prepared the proper notifications, installed additional monitoring wells and collected sampling results, notified adjacent landowners, and began initiating an assessment of corrective actions. An Assessment of Corrective Measures Report was completed on June 29, 2019.

After additional time to consider all sampling data, including the new monitoring wells, and to perform a subsurface soil sampling event, Choctaw Generation decided to pursue the option provided in §257.95(g)(3)(ii), where the site is allowed to demonstrate that a source other than the Ash Management Unit (AMU) caused an SSL in the groundwater. The purpose of this document is to satisfy the requirements defined by the regulations and demonstrate that an alternative source other than the CCR unit caused the exceedance of GWPS for the specified constituents. Beryllium and molybdenum were only measured above the GWPS on one (1) occasion and those results were not confirmed or verified upon resampling events. The exceedance for molybdenum occurred in a new well (CCR-8) during the initial monitoring event that took place immediately after drilling and installation of the well. The exceedance of beryllium occurred in well MW-9, which is the only time that beryllium has been measured above the GWPS. On this basis, beryllium and molybdenum have not been confirmed or verified at SSL above GWPS at this time.

Data outlined in this ASD demonstrates that lithium and cobalt are naturally occurring metals found in the subsurface soils and within the aquifer material at the site. Soil samples were collected at three (3) locations at various depths downgradient of the AMU. The samples collected are believed to be widely representative of the nature of the soil in the area, consisting of various geological material (including lignite seams). After review of the sampling data, the data illustrates that lithium and cobalt naturally occurring in the site's subsurface soils and aquifer materials are not believed to be caused by a release from the AMU (or CCR unit). Based on this demonstration, Choctaw Generation plans to immediately cease corrective measure activities and continue in assessment monitoring.

3.0 SITE DESCRIPTION

Choctaw Generation is located near the City of Ackerman in Choctaw County, Mississippi. Choctaw Generation is in north central Mississippi on a 170-acre site. Choctaw Generation is bounded on the south by Pensacola Road, and is about ½ mile west of US Highway 9. **Figure 1** shows the location of the site. Choctaw Generation operates a single unit electrical generation facility designed to generate electricity for dispatch to the Tennessee Valley Authority (TVA) electrical system. The primary boiler fuel is lignite coal. As a result of combusting lignite coal, ash is created and must be disposed or re-purposed. Choctaw Generation owns and operates an existing AMU for the placement and disposal of ash. The CCR unit is located in the northeastern portion of the property and currently consists of three (3) cells encompassing approximately 64 acres of the Choctaw Generation site.

3.1 Site Geology

The CCR unit is underlain by mixtures of clays, silts, silty sands, and lignite of the Tuscaloosa Formation. The clays are typically thicker and more continuous than the silts and sands. The lignite seams are also very correlative and are labeled alphabetically. The major seams underlying the site are the F through J seams, which are at approximately 400 to 550 feet mean sea level (msl). Some minor sands do exist, but these typically contain a considerable portion of fines. Due to the complexity presented by correlating the largely discontinuous interbedded clays, silts, and silty sand units, the geologic interpretation of the AMU was simplified using a combination of lithologic logs (constructed from samples in the field), geophysical logs, and geotechnical data. Correlatable lithologies derived from use of these tools include three basic units: (1) generally fine grained material, having interbedded clayey, fine sands with silts of low permeability (1.0 E-7 cm/sec to 9.0 E-9 cm/sec); (2) generally clayey silts, interbedded with silty fine sands with clay; and (3) lignite. The clays encountered under and around the CCR unit are light gray in color and are stiff-to-blocky in texture. Some minor sands occur, and these generally have a considerable portion of fines and are tan-to-gray in color.

3.2 Site Hydrogeology

Data indicates that there are two groundwater zones; the shallow or upper zone is a non-continuous perched water table zone, and the deeper water zone well below the base of the AMU. The hydrogeologic conditions for the AMU are based upon data collected during the installation of the 13 piezometers and monthly water level data collected from June 1997 through November 1997. The piezometers monitored localized permeable zones between the lignite seams. Reviews of hydrographs generated from the water level measurements indicate that the eight (8) piezometers monitored permeable zones between the G and H lignite seams which are not hydraulically connected. This permeable zone generally exists between 400 to 460 feet msl. The shallowest or upper groundwater zone is a perched water table zone that has been

eroded away on the north part of the AMU and is not continuous. This is evidenced by the four seeps or springs that were identified during construction of the AMU liner. This potentiometric surface was initially mapped using November 1997 water level data from piezometers screened in a silty zone between the G and H lignite seams. Groundwater flow direction is to the northwest which correlates with the regional groundwater flow direction. However, these surficial deposits do not contain groundwater that would be used as a drinking water source. The shallowest stratigraphic units containing groundwater used as a drinking water source is the Hatchetigbee Formation, about 100 feet below ground surface (bgs) and up to 170 feet thick, followed by the Tuscahoma Formation, about 300 feet bgs and up to 110 feet thick, both in the Wilcox Group.

4.0 GROUNDWATER MONITORING SYSTEM

4.1 Groundwater Monitoring Well Network

A certified groundwater monitoring system is in place that meets the requirements of 40 CFR 257 Subpart D. The groundwater monitoring system consists of a sufficient number of wells, installed at appropriate locations and depths, to yield groundwater samples from the uppermost aquifer. The system represents the quality of background groundwater that has not been affected by the CCR unit (i.e., upgradient wells) and the quality of groundwater passing under the CCR unit (i.e., downgradient wells). The downgradient wells were installed at the waste boundary and beyond to ensure detection of groundwater contamination in the uppermost aquifer. The number, spacing, and depths of groundwater monitoring wells within the system were determined based upon site-specific geological and hydrogeological information.

The direction of groundwater flow passes under the CCR unit to the north-northwest, which has been consistently determined through ongoing CCR and MDEQ Solid Waste Permit groundwater monitoring events. The locations for the monitoring wells were based upon the known direction of groundwater movement. The monitoring wells screen the uppermost laterally continuous aquifer below the base of the AMU, which is at an approximate elevation of 480 feet mean sea level (msl) but varies across the site.

The initial Choctaw Generation CCR unit groundwater monitoring system consisted of three (3) background or upgradient wells and eight (8) downgradient wells to ensure complete coverage of the CCR unit. An additional downgradient well was added in August 2018 and three (3) more downgradient wells were installed in May 2019. Additionally, one downgradient well (MW-16) was replaced in May 2019. A facility diagram showing the monitoring well locations is included as **Figure 2**. Monitoring wells were installed according to the guidelines established in the 1994 USEPA Region IV RCRA Subtitle D Training Manual (SDTM, 1994), or other generally accepted guidelines, and are believed to meet the requirements of 40 CFR Part 257, Subpart D.

4.2 Constituents Detected at SSLs in Groundwater

Lithium, cobalt, beryllium, and molybdenum have been detected at SSLs above the GWPS in groundwater at the Choctaw Generation facility. SSLs for each specified metal were detected in the following monitoring wells:

- ☐ Lithium concentrations have been detected at SSLs above the GWPS of 0.050 mg/L in CCR-3, CCR-8, and MW-9.
- ☐ Cobalt concentrations have been detected at SSLs above the GWPS of 0.006 mg/L in CCR-3, CCR-5, CCR-7, MW-9, MW-12, MW-15, MW-16 (before closure of the well), and MW-17.
- ☐ Beryllium was detected at a concentration above the GWPS of 0.004 mg/L in MW-9 in one (1) monitoring event at a concentration that was slightly above the GWPS (0.00547 mg/L). This

exceedance was not verified during the subsequent monitoring event and remains the only detection above the GWPS in any well for any monitoring event for beryllium.

- ❑ Molybdenum was detected at a concentration above the GWPS of 0.100 mg/L in CCR-8 during the initial monitoring event for that particular well. This exceedance was not verified and remains the only detection above the GWPS in any well for any monitoring event for molybdenum.

Beryllium and molybdenum were only measured above the GWPS on one (1) occasion and those results were not verified or confirmed upon resampling events. The exceedance for beryllium occurred during the March 2019 monitoring event in MW-9. As seen in **Table 3**, the corresponding pH for this well during the event was 4.15 standard units (S.U.). This acidic condition is capable of mobilizing the beryllium and could account for the single exceedance slightly above the GWPS. Additionally, the exceedance for molybdenum occurred in a new well (CCR-8) during the initial monitoring event that took place immediately after drilling and installation of the well. On this basis, beryllium and molybdenum have not been confirmed or verified at SSL above GWPS.

The concentrations of lithium and cobalt detected at SSLs occurred during assessment monitoring events from May 2018 to September 2019. Groundwater monitoring analytical results from all assessment monitoring events for these metals are provided in **Table 1**. After analyzing the results, the concentrations for each metal do not exhibit an increasing trend but appear to be rather stable.

5.0 ALTERNATE SOURCE DEMONSTRATION

This Alternate Source Demonstration (ASD) shows constituents (cobalt and lithium) detected at SSLs above the GWPS during previous assessment monitoring events are attributed to naturally occurring cobalt and lithium in the subsurface soils and aquifer material at the site. This is demonstrated by the following supportive evidence:

1. The CCR unit (AMU) and associated AMU Basin are lined.
2. The unit has gone through the state solid waste permitting process multiple times which included a comprehensive and conservative approach during the initial permit application process to ensure adequate safeguards were implemented during construction.
3. Lithium and cobalt are known to be naturally occurring in soils as seen by documented literature (see Figures 3-4).
4. Subsurface soils and aquifer materials sampled yielded lithium concentrations ranging from 3.31 to 21.8 milligrams per kilogram (mg/kg) and cobalt concentrations ranging from 4.40 to 16.4 mg/kg. These part per million (ppm) levels in the soil are more than capable of producing part per billion (ppb) levels in the groundwater.

5.1 Liner System

The CCR landfill was constructed in phases, or cells, with varying liner systems for each cell. Cell No. 1 was constructed with a HDPE flexible membrane and geosynthetic clay liners, Cell No. 2 with a HDPE flexible membrane and an 18-inch recompacted clay liner, and Cell No. 3 with an in-situ 12-inch clay liner. The leachate is gravity drained to a leachate pump station and pumped to the AMU Basin, both of which include a clay and 30-mil PVC geomembrane liner. The AMU Basin collects both leachate and storm water runoff that has contacted the landfill material.

5.2 Constituents Naturally Occurring in Subsurface Soils

On October 29, 2019, a sampling event was conducted at the Choctaw Generation site to evaluate the composition of the subsurface soils naturally occurring at the site. The sampling event consisted of utilizing a direct push subsurface sampling technique to advance borings to a variety of depths to sample soil and material near and within the monitored aquifer. Soil borings were drilled in three (3) locations to a termination depth of approximately twenty (20) feet below the surface. The locations were chosen to correlate with monitoring wells and areas that revealed the most consistent detections of cobalt and lithium above each respective GWPS. Although sample locations were limited by the topography at the site, the borings were advanced downgradient of the AMU in the near vicinity of the monitoring wells with the most consistent detections to provide a soil sample that was representative of the geology that the groundwater passes through. Soil borings were advanced near CCR-5, MW-9, and MW-17. A map showing the soil boring locations in respect to the monitoring wells is included in **Figure 2**. Three (3) samples were collected from each boring at varying depths and of varying soil types resulting in a total of nine (9) samples. The

samples were collected at depths ranging from six (6) to nineteen (19) feet to capture the differing geologies located at the site. A summary of the sample location, depth, and description of soil or material sampled, as well as the respective analytical results are provided in **Table 2**. The field notes, soil characteristics, and the laboratory analytical results from the subsurface sampling event are provided in **Appendix A** and **Appendix B**, respectively.

As seen in **Figure 3**, lithium is naturally present in the environment. Lithium is a monovalent cation, and classified as an alkali metal. This metal is the most weakly bonded of all alkali metals and therefore tends to behave conservatively, resisting adsorption to the soil and remaining in the groundwater (Deverel, Steven & Goldberg, Sabine & Fujii, Roger, 2011). The U.S. Geological Survey (USGS) conducted a geochemical and mineralogical survey of soils throughout the United States to determine the elemental concentrations of major and trace elements. The results of this study, published in *Geochemical and Mineralogical Maps for Soils of the Conterminous United States* (Smith, D. B., Cannon, W. F., Woodruff, L. G., Solano, F., & Ellefsen, K. J., 2014), implicate that lithium occurs naturally in the area surrounding the Choctaw Generation site at concentrations ranging from 14 to 21 mg/kg. The geochemical map for the distribution of lithium in the soil C horizon, correlating to the soil up to a depth of one (1) meter below the soil surface, is provided in **Figure 3**. Lithium was present in every sample collected during the soil sampling event at concentrations ranging from 3.31 to 21.8 mg/kg, consistent with the documented natural concentrations in the area. The highest concentrations were found in dark gray fat clay and gray clayey silt, which ranged in concentrations from 16.1 to 21.8 mg/kg. Additionally, two (2) lignite seams were encountered and consisted of lithium concentrations of 3.31 and 10.2 mg/kg. These are naturally occurring part per million (ppm) level concentrations that are detected throughout the site at all depths sampled. Lithium detected in the groundwater at SSLs above the GWPS occur only at part per billion (ppb) levels. The concentrations of lithium in the soil are up to three (3) orders of magnitude higher than the concentrations detected in the groundwater. The elevated concentration of the natural lithium in the soil combined with the conservative behavior of lithium in the environment allow for the generation of lithium concentrations in groundwater similar to the results observed in the monitoring wells at the site.

As seen in **Figure 4**, cobalt is naturally occurring in the environment, being the 33rd most abundant element in the earth's crust (Agency for Toxic Substances and Disease Registry (ATSDR), 2004). The behavior of cobalt in water is largely dependent on the pH. The adsorption of cobalt by soil decreases with decreasing pH, leading to increased concentrations of dissolved cobalt in acidic environments (ATSDR, 2004). The groundwater in the wells with exceedances in cobalt range in pH from 4.15 to 6.64 S.U., as shown in **Table 3**. This acidic natural environment can lead to higher cobalt concentrations due to decreased adsorption of cobalt in the soil. The soil samples collected at the site reveal that cobalt was detected in every location at concentrations ranging from 4.40 to 16.4 mg/kg with the highest in dark gray fat clay and lignite, which ranged in concentrations from 15.4 to 16.4 mg/kg. These concentrations in the natural aquifer material are

ppm levels similar to those of lithium, however, the cobalt concentrations in the soil are up to four (4) orders of magnitude higher than the concentrations detected in the groundwater. These high concentrations of cobalt in the soil combined with the acidic nature of the groundwater account for the prominent presence of cobalt detected at SSLs throughout the site.

6.0 CONCLUSION

The evaluation outlined in this report provides a demonstration that the source of lithium and cobalt detected at SSLs above each respective GWPS is attributed to the naturally occurring soils and aquifer material at the site. After evaluating the data, including the sampling results and mobility and natural behavior of these metals in the environment, it is concluded that lithium and cobalt concentrations detected at ppm-levels in the soil can produce ppb-levels in the groundwater comparable to the concentrations consistently observed in the wells at the site. The analysis also provides specific evidence for each particular metal that outlines the basis of each conclusion.

In addition, the beryllium and molybdenum exceedances were not confirmed or verified upon resampling events; therefore, beryllium and molybdenum are not believed to have exceeded the GWPS.

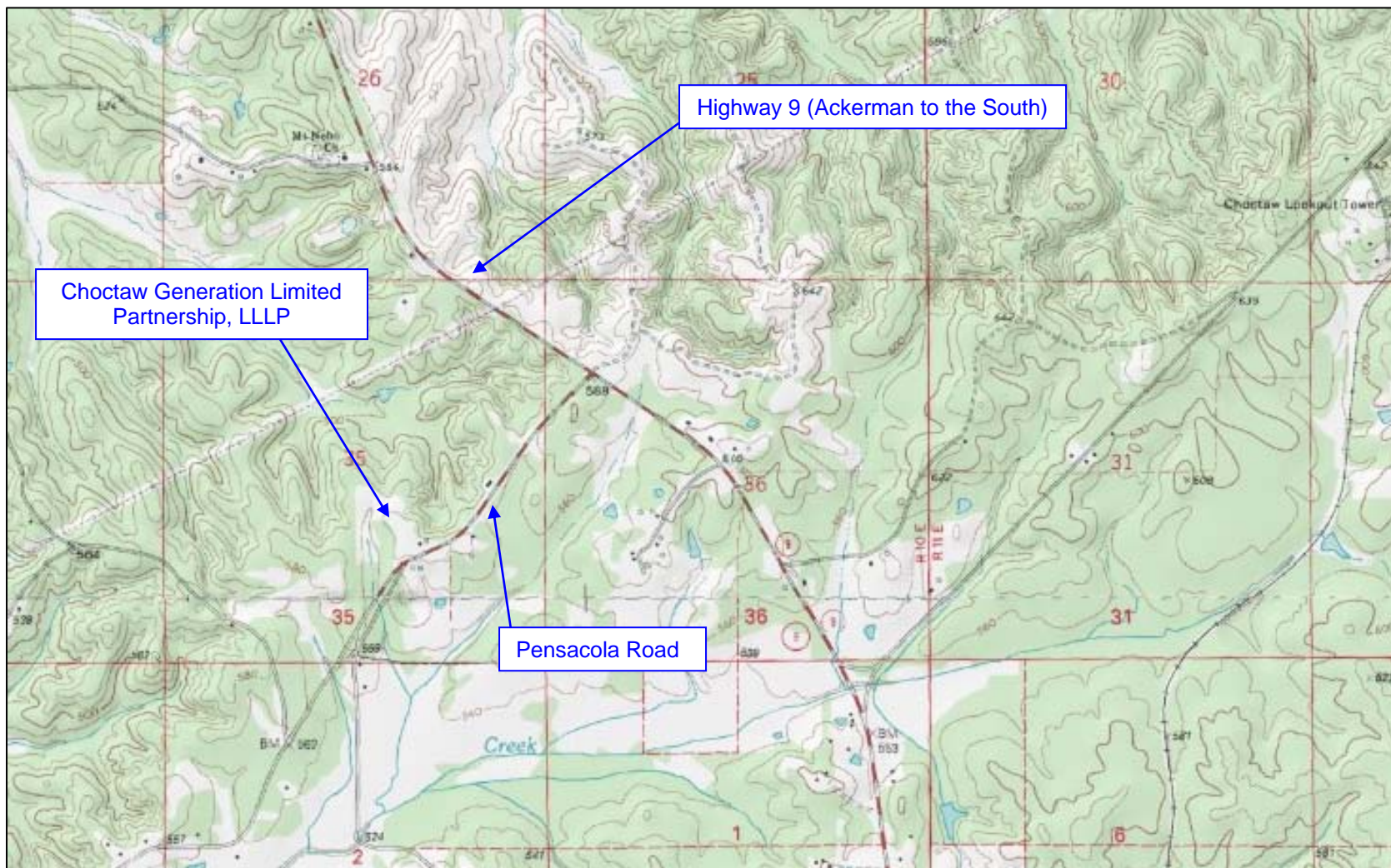
The data provided in this ASD illustrates that a source other than the CCR unit (AMU) causes the SSLs for lithium and cobalt pursuant to §257.95(g)(3)(ii). As a result, Choctaw Generation will immediately cease corrective measure activities and will continue in assessment monitoring.

7.0 REFERENCES

- Agency for Toxic Substances and Disease Registry (ATSDR). (2004). "Toxicological profile for cobalt." Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service
- Critical mineral resources of the United States—Economic and environmental geology and prospects for future supply. (2017). Professional Paper. doi: 10.3133/pp1802. chE.
- Deverel, Steven & Goldberg, Sabine & Fujii, Roger. (2011). Chemistry of Trace Elements in Soils and Groundwater. 10.1061/9780784411698.ch04.
- Smith, D. B., Cannon, W. F., Woodruff, L. G., Solano, F., & Ellefsen, K. J. (2014). Geochemical and mineralogical maps for soils of the conterminous United States. Open-File Report. doi: 10.3133/ofr20141082
- .

FIGURES

FIGURE 1
SITE LOCATION MAP



Source:
Mytopo.com

Legend:
N/A

Drawn By/Checked By: CBG

Date: 11/01/2019

Choctaw Generation Limited Partnership, LLLP
2391 Pensacola Road
Ackerman, Mississippi 39735

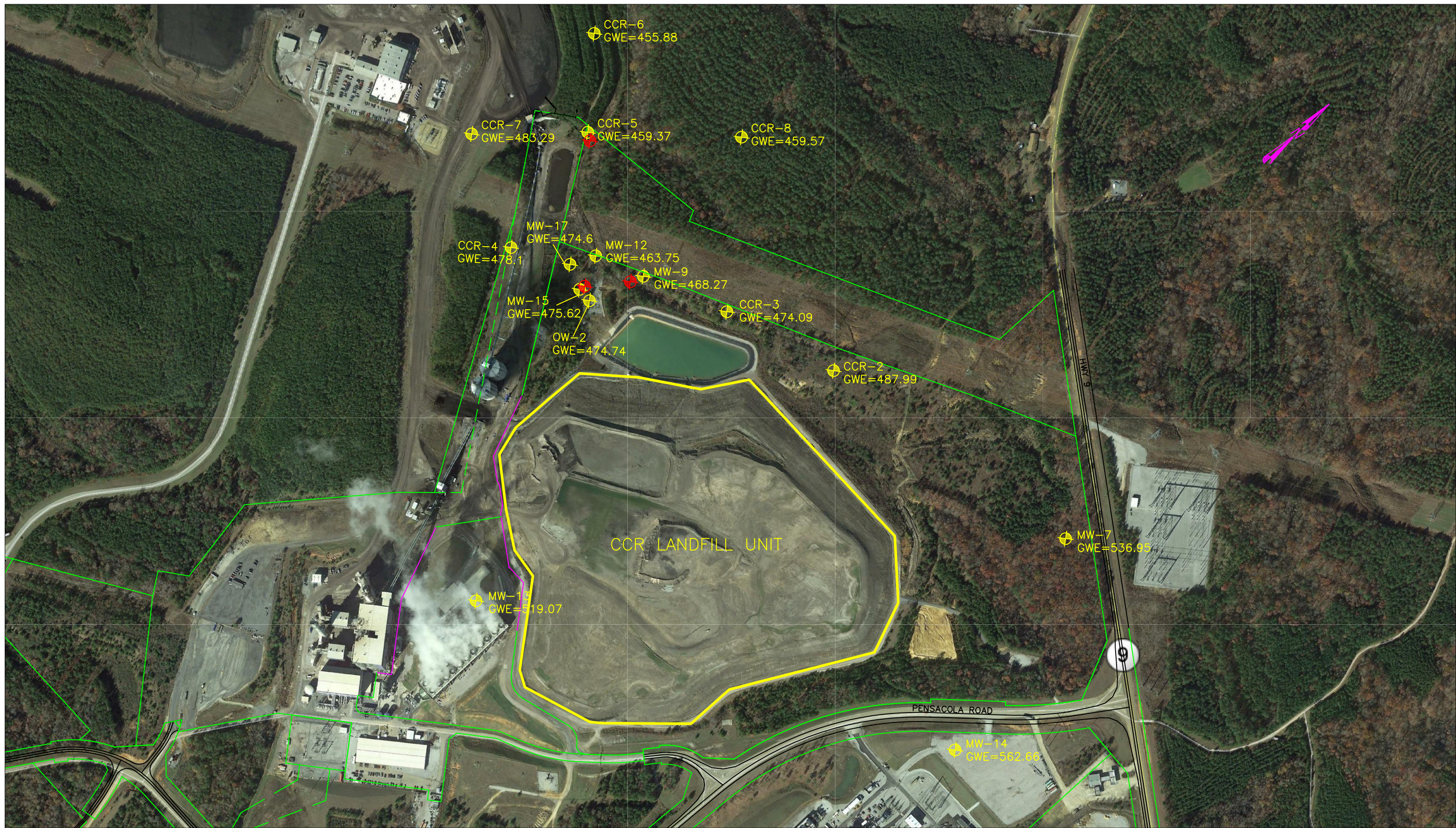
Figure 1: Site Location Map



P.O. Box 356
Sherman, Mississippi 38869
(662) 840-5945

FIGURE 2

CCR MONITORING WELL LOCATIONS



ECS
 ENVIRONMENTAL COMPLIANCE & SAFETY, INC.
 P.O. Box 356
 Sherman, MS 38869
 (662) 840-5945

Choctaw Generation Limited Partnership, L.L.P.
 2391 Pensacola Road
 Ackerman, Mississippi

CCR Monitoring Well Locations



Legend:
 Monitoring Well  Soil Boring 
 GWE= Ground Water Elevation (ft)
 Scale: Not Determined
 Drawn By: JTB Revised By: CBG
 Date: 8/27/2018 Date: 12/09/2019

FIGURE 3

USGS GEOCHEMICAL MAP FOR LITHIUM

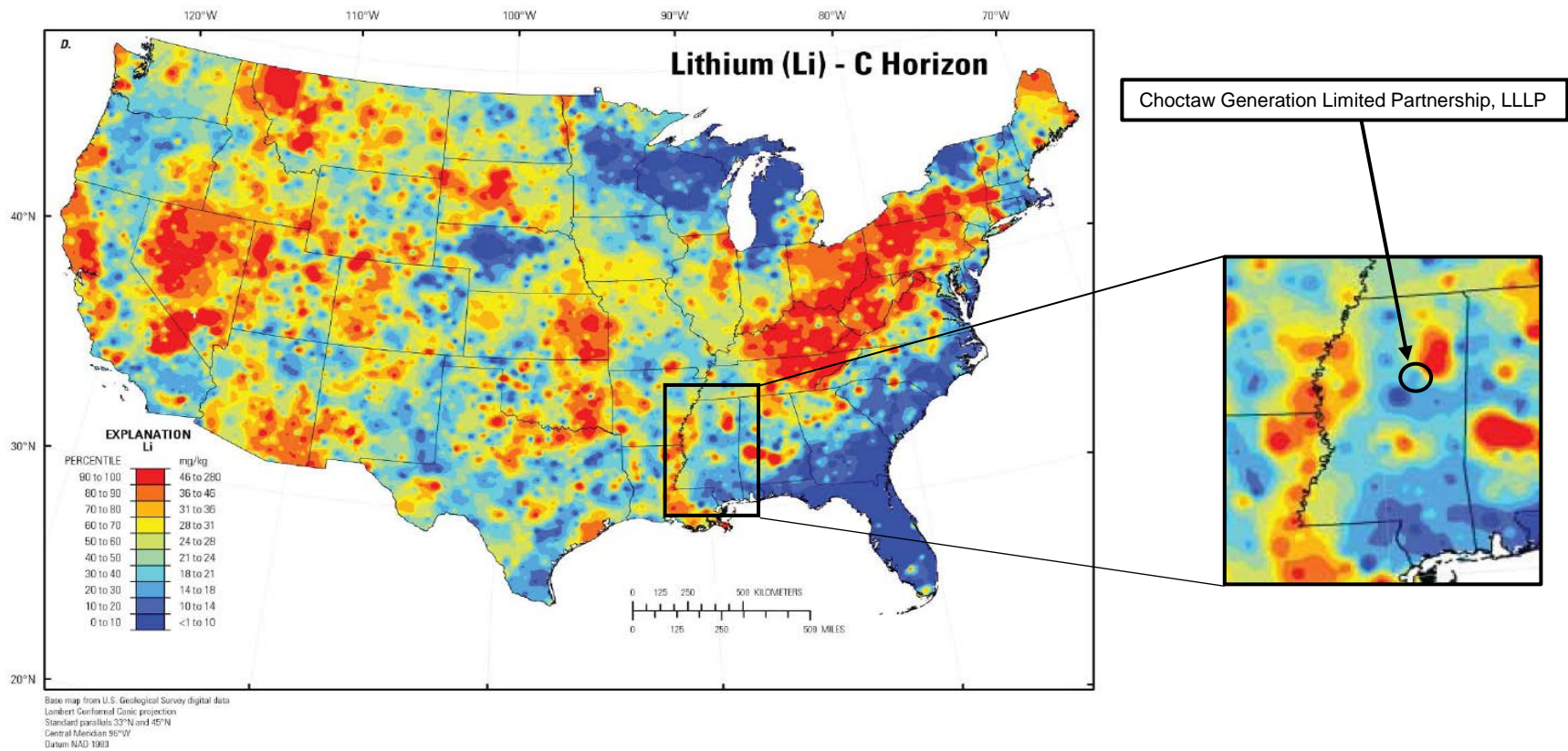


Figure 3. USGS Geochemical Map for Lithium

FIGURE 4

USGS GEOCHEMICAL MAP FOR COBALT

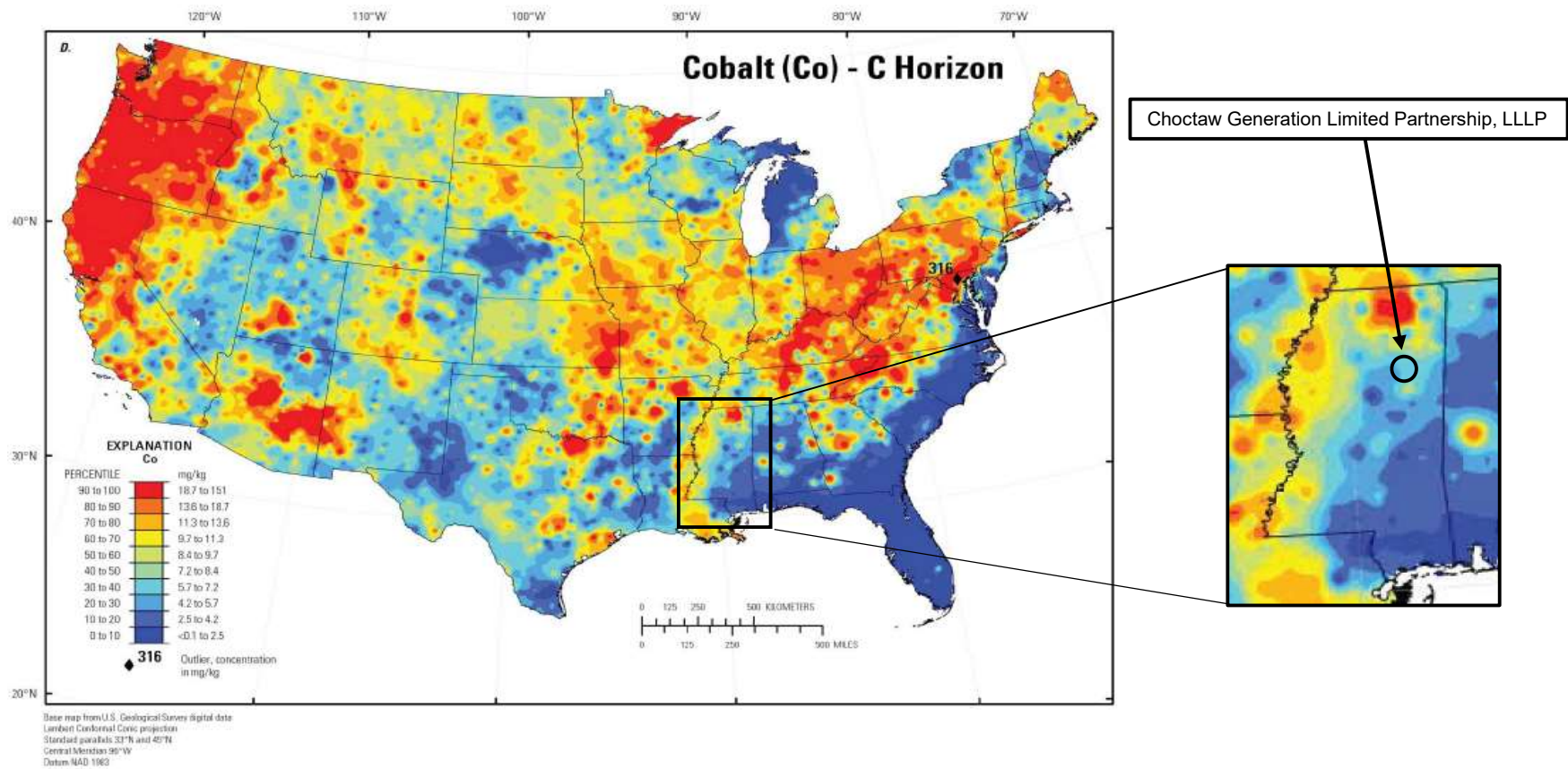


Figure 4. USGS Geochemical Map for Cobalt

TABLES

Table 1
CCR Groundwater Sampling Results (5/2018 – 9/2019)

Monitoring Well																
Sample Date	CCR-2	CCR-3	CCR-4	CCR-5	CCR-6	CCR-7	CCR-8	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	MW-17	OW-2
Lithium (Li) Monitoring Results (mg/L) – GWPS = 0.050																
5/2018	<0.050	0.108	<0.050					<0.050	0.09	<0.050	<0.050	<0.050	<0.050	<0.050		<0.050
9/2018	<0.050	0.058	<0.050	<0.050				<0.050	0.101	<0.050	<0.050	<0.050	<0.050	<0.050		<0.050
3/2019	<0.050	0.117	<0.050	<0.050				<0.050	0.121	<0.050	<0.050	<0.050	<0.050	NS		<0.050
5/2019	<0.050	0.107	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.113	<0.050	<0.050	<0.050	<0.050	NS	<0.050	<0.050
9/2019	<0.050	0.061	<0.050	<0.050	<0.050	<0.050	0.067	<0.050	0.1	<0.050	<0.050	<0.050	<0.050		<0.050	0.042
Cobalt (Co) Monitoring Results (mg/L) – GWPS = 0.006																
5/2018	0.001	<0.001	0.002					<0.001	0.017	0.017	<0.001	<0.001	0.009	0.008		<0.001
9/2018	<0.001	<0.001	0.00274	0.0368				<0.001	0.0176	0.00744	<0.001	<0.001	0.00932	0.00426		<0.001
3/2019	<0.001	0.00493	0.00422	0.0465				<0.001	0.0288	0.0208	<0.001	<0.001	0.0103	NS		<0.001
5/2019	0.00414	0.00726	0.00321	0.0499	0.00189	0.019	<0.001	<0.001	0.0257	0.0183	<0.001	<0.001	0.0102	NS	0.0169	<0.001
9/2019	<0.001	0.00144	0.00312	0.046	<0.001	0.0053	<0.001	<0.001	0.0167	0.00733	<0.001	<0.001	0.00958	NS	0.0199	<0.001
Beryllium (Be) Monitoring Results (mg/L) – GWPS = 0.004																
5/2018	<0.001	<0.001	<0.001					<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001
9/2018	<0.001	<0.001	<0.001	<0.001				<0.001	0.0027	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001
3/2019	<0.001	<0.001	<0.001	<0.001				<0.001	0.00547	<0.001	<0.001	<0.001	<0.001	NS		<0.001
5/2019	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00376	<0.001	<0.001	<0.001	<0.001	NS	<0.001	<0.001
9/2019	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0025	<0.001	<0.001	<0.001	<0.001	NS	<0.001	<0.001

Table 1
CCR Groundwater Sampling Results (5/2018 – 9/2019)

Monitoring Well																
Sample Date	CCR-2	CCR-3	CCR-4	CCR-5	CCR-6	CCR-7	CCR-8	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	MW-17	OW-2
Molybdenum (Mo) Monitoring Results (mg/L) – GWPS = 0.100																
5/2018	<0.001	<0.001	<0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001
9/2018	-	-	-	-				-	-	-	-	-	-	-		-
3/2019	-	-	-	-				-	-	-	-	-	-	-		-
5/2019	<0.001	<0.001	<0.001	<0.001	0.00435	0.00255	0.333	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NS	<0.001	<0.001
9/2019	<0.001	<0.001	<0.001	<0.001	0.00101	<0.001	0.0474	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NS	<0.001	<0.001

NS – Not Sampled

Green – Value is below prediction limit

Yellow – Value is above prediction limit but below GWPS

Orange – Value is above GWPS

Table 2
ASD Soil Sampling Event Results
October 29, 2019

Sample No. (Location)	Depth (ft bgs)	Description of Soil/Aquifer Materials	Lithium (mg/kg)	Cobalt (mg/kg)	Beryllium (mg/kg)	Molybdenum (mg/kg)
SB-CCR5 (near CCR-5)	7	Gray Tan Sand with Blocky Clay (wet)	6.15	8.30	ND	ND
	10	Tan Gray Clay with Silt	12.5	ND	ND	ND
	18	Lignite	3.31	11.4	3.52	ND
SB-MW9 (near MW-9)	10	Gray Brown Clayey Sand (Damp)	6.43	7.40	ND	ND
	14	Gray Brown Silty Sand (Wet)	4.89	ND	ND	ND
	18	Dark Gray Fat Clay	21.8	16.4	ND	ND
SB-MW17 (near MW-17)	6	Lignite	10.2	15.4	8.93	ND
	13	Gray Clayey Silt	13.0	11.0	ND	ND
	19	Gray Clayey Silt	16.1	10.6	ND	ND

bgs – below ground surface

Table 3
Groundwater pH Measurements – Downgradient Wells

pH Monitoring Results (S.U.)													
Monitoring Well													
Sample Date	CCR-2	CCR-3	CCR-4	CCR-5	CCR-6	CCR-7	CCR-8	MW-9	MW-12	MW-15	MW-16 (closed)	MW-17	OW-2
5/2018	5.85	6.52	6.55					5.65	6.25	6.33	6.2		6.38
9/2018	6.39	6.47	6.46	5.92				5.35	6.2	6.15	5.54		5.96
3/2019	7.04	6.42	6.64	5.97				4.15	5.48	6.31	NS		5.96
5/2019	6.45	6.23	6.34	5.71	7.11	6.19	8.97	4.71	5.58	5.95	NS	5.75	5.58
9/2019	6.45	6.42	6.89	6.04	7.10	6.13	8.86	5.56	6.64	6.48	NS	6.36	6.17

Orange – Exceedance above the cobalt GWPS.

Yellow – Concentration is above the prediction limit but below the cobalt GWPS.

White – Non-Detect.

NS – Not Sampled.

APPENDICES

APPENDIX A
SOIL SAMPLING FIELD NOTES

Boring No.: SB-CCR5

Date: 10/29/19

Description: Soil Sampling Event at Choctawhatchee
Ackerman MS

Latitude: _____

Longitude: _____

Soil Boring Methodology: Direct Push Geoprobe

Soil Boring Depth (e.g., 0-4 ft)	Soil Classification	PID Readings (ppm)
0-4	Gray silt with clay	
4-6	Brown sandy clay	
6-9	Gray Tan Sand with blocky clay (wet @ 7')	
9-11	Tan Gray Clay with silt	
11-12	Tan Gray Clay with sand	
12-15	Tan Gray Stiff Fat Clay	
15-16	Black Stiff Fat Clay	
16-18	Lignite	

Soil sample collection depth (ft): 7', 10', & 18'

Sample collection time: _____

Analytical testing and sample container type: _____

Groundwater encountered (yes/no): Yes depth (ft): 7'

Groundwater sample collected (yes/no): NO

Purge method: NA

Sample collection time: NA date: NA

Analytical testing and sample container type: NA

Comments: Refusal @ 18'

KLA JH

Boring No.: SB-MW9

Date: 10/29/19

Description: Soil Sampling Event at Choctaw Generation
Acikman MS

Latitude: _____

Longitude: _____

Soil Boring Methodology: Direct Push Geoprobe

Soil Boring Depth (e.g., 0-4 ft)	Soil Classification	PID Readings (ppm)
0-2	Orange Sandy Clay	
2-4	Brown Clay with Sand	
4-8	Brown Lean Clay with Sand	
8-12	Gray Brown Clayey Sand (Damp @ 10')	
12-14	Gray Brown Silty Sand (wet @ 14')	
14-17	Poorly Graded Sand with Silt	
17-20	Dark Gray Fat Clay	

Soil sample collection depth (ft): 10', 14', 18'

Sample collection time: _____

Analytical testing and sample container type: _____

Groundwater encountered (yes/no): Yes depth (ft): 14'

Groundwater sample collected (yes/no): NA

Purge method: NA

Sample collection time: NA date: NA

Analytical testing and sample container type: NA

Comments:

Fuller

Boring No.: SB-MW17

Date: 10/29/19

Description: Soil Sampling Event at Chertow Generation
Arlington MS

Latitude: _____

Longitude: _____

Soil Boring Methodology: Direct Push Geoprobe

Soil Boring Depth (e.g., 0-4 ft)	Soil Classification	PID Readings (ppm)
0-4	Orange Tan Lean Clay	
4-6	Lignite	
6-8	Gray Lean Clay	
8-10	Gray Lean Clay with silt	
10-12	Gray Silt	
12-13	Gray Clayey Silt	
13-14	Orange Tan Silt	
14-16	Gray Silt (Damp @ 16')	
16-20	Gray Clayey Silt (Wet @ 18')	

Soil sample collection depth (ft): 6', 13', 19'

Sample collection time: _____

Analytical testing and sample container type: _____

Groundwater encountered (yes/no): Yes depth (ft): 18'

Groundwater sample collected (yes/no): No

Purge method: NA

Sample collection time: NA date: NA

Analytical testing and sample container type: NA

Comments:

MA Sh

APPENDIX B

SOIL SAMPLE ANALYTICAL RESULT



Mailing Address:
PO Box 1410
Ocean Springs, MS
39566-1410

6500 Sunplex Drive
Ocean Springs, MS 39564
228.875.6420 Phone
228.875.6423 Fax

November 13, 2019

Jim Ward

Work Order # : 1910642

Choctaw Generation LP
2391 Pensacola Rd.
Ackerman, MS 39735
RE: Choctaw Gen Soil

Purchase Order #:

Enclosed are Micro-Methods Laboratory, Inc. results of analyses performed on samples received 10/31/2019 09:00. If you have any questions concerning this report, please feel free to contact the office.



Harry P. Howell
President
Micro-Methods Laboratory, Inc.



DISCLAIMER

The results only relate to the items or the sample and/or samples received by the laboratory. This report shall not be reproduced except in full, without the approval of the laboratory. All NELAP certified test methods performed meet the requirements of NELAC 2009 Standards. Any variances and/or deviations specific to this analytical report are referenced in the lab report using qualifiers and detailed explanations found in the case narrative.

Choctaw Generation LP
2391 Pensacola Rd.
Ackerman MS, 39735Project: Choctaw Gen Soil
Project Number: [none]
Project Manager: Jim WardReported:
11/13/2019 10:08

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date/Time Sampled	Sampled by	Date/Time Received
SBCCR5-18	1910642-01	Soil	10/29/2019 11:20	Kirk Shelton	10/31/2019 09:00
SBCCR5-10	1910642-02	Soil	10/29/2019 11:58	Kirk Shelton	10/31/2019 09:00
SBCCR5-7	1910642-03	Soil	10/29/2019 11:59	Kirk Shelton	10/31/2019 09:00
SBMW9-18	1910642-04	Soil	10/29/2019 13:36	Kirk Shelton	10/31/2019 09:00
SBMW9-14	1910642-05	Soil	10/29/2019 13:43	Kirk Shelton	10/31/2019 09:00
SBMW9-10	1910642-06	Soil	10/29/2019 13:45	Kirk Shelton	10/31/2019 09:00
SBMW17-6	1910642-07	Soil	10/29/2019 15:30	Kirk Shelton	10/31/2019 09:00
SBMW17-13	1910642-08	Soil	10/29/2019 15:31	Kirk Shelton	10/31/2019 09:00
SBMW17-19	1910642-09	Soil	10/29/2019 15:32	Kirk Shelton	10/31/2019 09:00

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Choctaw Gen Soil
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 11/13/2019 10:08

Sample Receipt Conditions

Date/Time Received: 10/31/2019 9:00:00AM

Shipped by: Fed Ex

Received by: Sarah E. Tomek

Submitted by: Kirk Shelton

Date/Time Logged: 10/31/2019 9:12:00AM

Logged by: Sarah E. Tomek

 Cooler ID: client cooler

 Receipt Temperature: 1.6 °C

<i>Cooler Custody Seals Present</i>	Yes
<i>Containers Intact</i>	Yes
<i>COC/Labels Agree</i>	Yes
<i>Labels Complete</i>	Yes
<i>COC Complete</i>	Yes
<i>Volatile Vial Headspace >6mm</i>	No
<i>Field Sheet/Instructions Included</i>	No
<i>Samples Rejected/Documented in Log</i>	No
<i>Temp Taken From Temp Blank</i>	No
<i>Temp Taken From Sample Container</i>	Yes
<i>Temp Taken From Cooler</i>	No
<i>COC meets acceptance criteria</i>	Yes

<i>Received on Ice but Not Frozen</i>	Yes
<i>No Ice, Short Trip</i>	No
<i>Obvious Contamination</i>	No
<i>Rush to meet HT</i>	No
<i>Received within HT</i>	Yes
<i>Proper Containers for Analysis</i>	Yes
<i>Correct Preservation</i>	Yes
<i>Adequate Sample for Analysis</i>	Yes
<i>Sample Custody Seals Present</i>	Yes
<i>Samples Missing from COC/Cooler</i>	No



6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Choctaw Generation LP
2391 Pensacola Rd.
Ackerman MS, 39735

Project: Choctaw Gen Soil
Project Number: [none]
Project Manager: Jim Ward

Reported:
11/13/2019 10:08

CASE NARRATIVE SUMMARY

All reported results are within Micro-Methods Laboratory, Inc. defined laboratory quality control objectives unless detailed in narrative summary or identified as qualifications. NOTE: All results listed on this report are calculated on a wet weight basis (as received by the laboratory) unless otherwise noted in the analysis qualification sections.

Summary Comments:

Comments- SCH @ 11/7/2019

The closing QC checks for Beryllium and Molybdenum did not meet the acceptance criteria. Preliminary results reported. A final report will be issued upon reanalysis of samples.

Qualifiers: *No Data Qualification*

Analyte & Samples(s) Qualified: *None*

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Choctaw Gen Soil
 Project Number: [none]
 Project Manager: Jim Ward

Reported:
 11/13/2019 10:08

SBCCR5-18
1910642-01 (Soil)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
---------	--------	-----	-------	-----	-------	---------	--------------------------	--------------------------	--------	------------

Metals by EPA 6000 Series Methods ICP-AES

Lithium	3.31	2.00	mg/kg dry wt.	1.0	9K04030	ADB	11/04/2019 09:00	11/04/2019 16:02	SW 6010C	
---------	------	------	------------------	-----	---------	-----	---------------------	---------------------	----------	--

Metals by EPA 6000 Series Methods ICP-MS [Analysis Mode]

Beryllium [He]	3.52	1.25	mg/kg dry wt.	5.0	9K06049	ADB	"	11/11/2019 14:08	SW 6020A	
Cobalt [He]	11.4	5.00	"	"	"	ADB	"	"	"	
Molybdenum [He]	ND	5.00	"	"	"	ADB	"	"	"	

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Choctaw Gen Soil
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 11/13/2019 10:08

SBCCR5-10
1910642-02 (Soil)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
---------	--------	-----	-------	-----	-------	---------	--------------------------	--------------------------	--------	------------

Metals by EPA 6000 Series Methods ICP-AES

Lithium	12.5	1.99	mg/kg dry wt.	1.0	9K04030	ADB	11/04/2019 09:00	11/04/2019 16:17	SW 6010C	
---------	------	------	------------------	-----	---------	-----	---------------------	---------------------	----------	--

Metals by EPA 6000 Series Methods ICP-MS [Analysis Mode]

Beryllium [He]	ND	1.25	mg/kg dry wt.	5.0	9K06049	ADB	"	11/11/2019 14:32	SW 6020A	
Cobalt [He]	ND	5.00	"	"	"	ADB	"	"	"	
Molybdenum [He]	ND	5.00	"	"	"	ADB	"	"	"	

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Choctaw Gen Soil
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 11/13/2019 10:08

SBCCR5-7
1910642-03 (Soil)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
---------	--------	-----	-------	-----	-------	---------	--------------------------	--------------------------	--------	------------

Metals by EPA 6000 Series Methods ICP-AES

Lithium	6.15	1.99	mg/kg dry wt.	1.0	9K04030	ADB	11/04/2019 09:00	11/04/2019 16:21	SW 6010C	
---------	------	------	------------------	-----	---------	-----	---------------------	---------------------	----------	--

Metals by EPA 6000 Series Methods ICP-MS [Analysis Mode]

Beryllium [He]	ND	1.25	mg/kg dry wt.	5.0	9K06049	ADB	"	11/11/2019 14:40	SW 6020A	
Cobalt [He]	8.30	5.00	"	"	"	ADB	"	"	"	
Molybdenum [He]	ND	5.00	"	"	"	ADB	"	"	"	



6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Choctaw Generation LP
2391 Pensacola Rd.
Ackerman MS, 39735

Project: Choctaw Gen Soil
Project Number: [none]
Project Manager: Jim Ward

Reported:
11/13/2019 10:08

SBMW9-18

1910642-04 (Soil)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
---------	--------	-----	-------	-----	-------	---------	--------------------------	--------------------------	--------	------------

Metals by EPA 6000 Series Methods ICP-AES

Lithium	21.8	2.00	mg/kg dry wt.	1.0	9K04030	ADB	11/04/2019 09:00	11/04/2019 16:26	SW 6010C	
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Metals by EPA 6000 Series Methods ICP-MS [Analysis Mode]

Beryllium [He]	ND	1.25	mg/kg dry wt.	5.0	9K06049	ADB	"	11/11/2019 14:48	SW 6020A	
Cobalt [He]	16.4	5.00	"	"	"	ADB	"	"	"	
Molybdenum [He]	ND	5.00	"	"	"	ADB	"	"	"	

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Choctaw Gen Soil
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 11/13/2019 10:08

SBMW9-14
1910642-05 (Soil)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Metals by EPA 6000 Series Methods ICP-AES

Lithium	4.89	1.99	mg/kg dry wt.	1.0	9K04030	ADB	11/04/2019 09:00	11/04/2019 16:31	SW 6010C	
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Metals by EPA 6000 Series Methods ICP-MS [Analysis Mode]

Beryllium [He]	ND	1.25	mg/kg dry wt.	5.0	9K06049	ADB	"	11/11/2019 15:05	SW 6020A	
Cobalt [He]	ND	5.00	"	"	"	ADB	"	"	"	
Molybdenum [He]	ND	5.00	"	"	"	ADB	"	"	"	

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Choctaw Gen Soil
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 11/13/2019 10:08

SBMW9-10
1910642-06 (Soil)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Metals by EPA 6000 Series Methods ICP-AES

Lithium	6.43	1.99	mg/kg dry wt.	1.0	9K04030	ADB	11/04/2019 09:00	11/04/2019 16:35	SW 6010C	
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Metals by EPA 6000 Series Methods ICP-MS [Analysis Mode]

Beryllium [He]	ND	1.25	mg/kg dry wt.	5.0	9K06049	ADB	"	11/11/2019 15:13	SW 6020A	
Cobalt [He]	7.40	5.00	"	"	"	ADB	"	"	"	
Molybdenum [He]	ND	5.00	"	"	"	ADB	"	"	"	

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Choctaw Gen Soil
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 11/13/2019 10:08

SBMW17-6
1910642-07 (Soil)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
Metals by EPA 6000 Series Methods ICP-AES										
Lithium	10.2	2.00	mg/kg dry wt.	1.0	9K04030	ADB	11/04/2019 09:00	11/04/2019 16:40	SW 6010C	
Metals by EPA 6000 Series Methods ICP-MS [Analysis Mode]										
Beryllium [He]	8.93	1.25	mg/kg dry wt.	20.0	9K06049	ADB	"	11/11/2019 22:34	SW 6020A	
Cobalt [He]	15.4	5.00	"	"	"	ADB	"	"	"	
Molybdenum [He]	ND	5.00	"	5.0	"	ADB	"	11/11/2019 15:22	"	

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Choctaw Gen Soil
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 11/13/2019 10:08

SBMW17-13
1910642-08 (Soil)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
Metals by EPA 6000 Series Methods ICP-AES										
Lithium	13.0	2.00	mg/kg dry wt.	1.0	9K04030	ADB	11/04/2019 09:00	11/04/2019 16:45	SW 6010C	
Metals by EPA 6000 Series Methods ICP-MS [Analysis Mode]										
Beryllium [He]	ND	1.25	mg/kg dry wt.	5.0	9K06049	ADB	"	11/11/2019 15:29	SW 6020A	
Cobalt [He]	11.0	5.00	"	"	"	ADB	"	"	"	
Molybdenum [He]	ND	5.00	"	"	"	ADB	"	"	"	

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Choctaw Gen Soil
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 11/13/2019 10:08

SBMW17-19
1910642-09 (Soil)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
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Metals by EPA 6000 Series Methods ICP-AES

Lithium	16.1	1.99	mg/kg dry wt.	1.0	9K04030	ADB	11/04/2019 09:00	11/04/2019 16:49	SW 6010C	
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Metals by EPA 6000 Series Methods ICP-MS [Analysis Mode]

Beryllium [He]	ND	1.25	mg/kg dry wt.	5.0	9K06049	ADB	"	11/11/2019 15:38	SW 6020A	
Cobalt [He]	10.6	5.00	"	"	"	ADB	"	"	"	
Molybdenum [He]	ND	5.00	"	"	"	ADB	"	"	"	

Choctaw Generation LP
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 Project: Choctaw Gen Soil
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 11/13/2019 10:08

Metals by EPA 6000 Series Methods ICP-AES - Quality Control

Analyte	Analyzed	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifiers
Batch 9K04030 - EPA 3050B DCN 1017 Rev 8											
Blank (9K04030-BLK1)											
Beryllium	11/4/19 15:50	ND	1.25	mg/kg dry wt.							
Cobalt	11/4/19 15:50	ND	5.00	"							
Lithium	11/4/19 15:50	ND	2.00	"							
Molybdenum	11/4/19 15:50	ND	5.00	"							
LCS (9K04030-BS1)											
Beryllium	11/4/19 15:54	23.4	1.25	mg/kg dry wt.	20.0		117	80-120			
Cobalt	11/4/19 15:54	22.2	5.00	"	20.0		111	80-120			
Lithium	11/4/19 15:54	22.0	2.00	"	20.0		110	80-120			
Molybdenum	11/4/19 15:54	20.1	5.00	"	20.0		100	80-120			
LCS Dup (9K04030-BSD1)											
Beryllium	11/4/19 15:57	22.6	1.25	mg/kg dry wt.	20.0		113	80-120	3.46	20	
Cobalt	11/4/19 15:57	20.7	5.00	"	20.0		104	80-120	6.59	20	
Lithium	11/4/19 15:57	21.3	2.00	"	20.0		107	80-120	2.95	20	
Molybdenum	11/4/19 15:57	19.2	5.00	"	20.0		95.9	80-120	4.71	20	
Matrix Spike (9K04030-MS1) Source: 1910642-01											
Beryllium	11/4/19 16:07	26.1	1.25	mg/kg dry wt.	20.0	4.65	108	75-125			
Cobalt	11/4/19 16:07	33.3	4.99	"	20.0	14.8	92.8	75-125			
Lithium	11/4/19 16:07	25.4	2.00	"	20.0	3.31	111	75-125			
Molybdenum	11/4/19 16:07	19.2	4.99	"	20.0	1.40	89.4	75-125			
Matrix Spike Dup (9K04030-MSD1) Source: 1910642-01											
Beryllium	11/4/19 16:12	25.2	1.25	mg/kg dry wt.	20.0	4.65	103	75-125	3.82	20	
Cobalt	11/4/19 16:12	32.8	5.00	"	20.0	14.8	90.1	75-125	1.58	20	
Lithium	11/4/19 16:12	25.1	2.00	"	20.0	3.31	109	75-125	1.03	20	
Molybdenum	11/4/19 16:12	18.4	5.00	"	20.0	1.40	84.9	75-125	4.63	20	

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Choctaw Gen Soil
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 11/13/2019 10:08

Metals by EPA 6000 Series Methods ICP-MS [Analysis Mode] - Quality Control

Analyte	Analyzed	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifiers
Batch 9K06049 - EPA 3050B DCN 1017 Rev 8											
Blank (9K06049-BLK1)											
Beryllium [He]	11/11/19 13:43	ND	1.25	mg/kg dry wt.							
Cobalt [He]	11/11/19 13:43	ND	5.00	"							
Molybdenum [He]	11/12/19 13:18	ND	5.00	"							
LCS (9K06049-BS1)											
Beryllium [He]	11/11/19 13:52	19.9	0.250	mg/kg dry wt.	20.0		99.7	80-120			
Cobalt [He]	11/11/19 13:52	20.4	0.250	"	20.0		102	80-120			
Molybdenum [He]	11/11/19 13:52	19.2	0.250	"	20.0		95.9	80-120			
LCS Dup (9K06049-BSD1)											
Beryllium [He]	11/11/19 14:00	21.7	0.250	mg/kg dry wt.	20.0		109	80-120	8.51	20	
Cobalt [He]	11/11/19 14:00	22.3	0.250	"	20.0		112	80-120	9.22	20	
Molybdenum [He]	11/11/19 14:00	21.2	0.250	"	20.0		106	80-120	9.80	20	
Matrix Spike (9K06049-MS1) Source: 1910642-01											
Beryllium [He]	11/12/19 12:29	21.4	0.499	mg/kg dry wt.	20.0	3.52	89.5	75-125			
Cobalt [He]	11/12/19 12:29	31.2	0.499	"	20.0	11.4	99.3	75-125			
Molybdenum [He]	11/11/19 14:16	21.6	0.250	"	20.0	3.30	91.8	75-125			
Matrix Spike Dup (9K06049-MSD1) Source: 1910642-01											
Beryllium [He]	11/12/19 12:37	20.8	0.500	mg/kg dry wt.	20.0	3.52	86.5	75-125	2.75	20	
Cobalt [He]	11/11/19 14:24	27.0	0.250	"	20.0	11.4	78.1	75-125	14.5	20	
Molybdenum [He]	11/11/19 14:24	22.4	0.250	"	20.0	3.30	95.7	75-125	3.61	20	

Choctaw Generation LP
2391 Pensacola Rd.
Ackerman MS, 39735Project: Choctaw Gen Soil
Project Number: [none]
Project Manager: Jim Ward**Reported:**
11/13/2019 10:08**Certified Analyses Included in this Report**

Analyte	Certification Code
<i>SW 6010C in Soil</i>	
Aluminum	C01,C02
Antimony	C01,C02
Arsenic	C01,C02
Barium	C01,C02
Beryllium	C01,C02
Boron	C01,C02
Cadmium	C01,C02
Calcium	C01,C02
Chromium	C01,C02
Cobalt	C01,C02
Copper	C01,C02
Iron	C01,C02
Lead	C01,C02
Magnesium	C01,C02
Manganese	C01,C02
Molybdenum	C01,C02
Nickel	C01,C02
Potassium	C01,C02
Selenium	C01,C02
Silver	C01,C02
Sodium	C01,C02
Strontium	C01,C02
Thallium	C01,C02
Tin	C01,C02
Titanium	C01,C02
Vanadium	C01,C02
Zinc	C01,C02

****Only compounds included in this list are associated with accredited analyses****

Choctaw Generation LP
 2391 Pensacola Rd.
 Ackerman MS, 39735

 Project: Choctaw Gen Soil
 Project Number: [none]
 Project Manager: Jim Ward

 Reported:
 11/13/2019 10:08

Laboratory Accreditations/Certifications

Code	Description	Number	Expires
C01	LA Environmental Lab Accreditation Program	01960	06/30/2020
C02	The NELAC Institute (NELAP)	TNI01397	06/30/2020
C03	Ms Dept of Health (Drinking Water Microbiology)	MS00021	12/31/2019
C04	Ms Dept of Health (Drinking Water Chemistry)	MS00021	12/31/2019
C05	Ms DEQ Lead Firm Certification	PBF-00000028	03/24/2020
C06	MsDEQ Asbestos Inspector : C.D. Bingham	ABI-00001348	02/21/2020
C07	MsDEQ Air Monitor : C.D. Bingham	AM-011572	03/07/2020
C08	MsDEQ Asbestos Inspector: C. W. Meins	ABI-00001821	09/04/2020
C09	MsDEQ Air Monitor : C.W. Meins	AM-011189	03/07/2020
C12			
C14	MsDEQ Lead Paint Inspector : C.D. Bingham	PBI-00003690	02/22/2020
C15	MsDEQ Lead Paint Inspector : C.W. Meins	PBI-00001740	02/22/2020

Report Definitions

TNC	Too Numerous To Count
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the minimum reporting limit
NR	Not Reported
RPD	Relative Percent Difference
ICV	Initial Calibration Verification
CCV	Continuing Calibration Verification Standard
SSV	Secondary Source Verification Standard
LCS	Lab Control Spike - Lab matrix prepared with known concentration of analyte/s of interest analyzed by method.
MS	Matrix Spike - Sample prepared with known concentration of analyte/s of interest analyzed by method.
MSD	Matrix Spike Duplicate - Duplicate sample prepared with known concentration of analyte/s of interest analyzed by method.
MRL	Minimum Reporting Limit
%REC	Percentage Recovery of known concentration added to matrix
Batch	Group of samples prepared for analysis not to exceed 20 samples.
Matrix	Material containing analyte/s of interest
Surrogate	Analyte added to sample to determine extraction efficiency of method.



6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Choctaw Generation LP
2391 Pensacola Rd.
Ackerman MS, 39735

Project: Choctaw Gen Soil
Project Number: [none]
Project Manager: Jim Ward

Reported:
11/13/2019 10:08

Analyst Initials Key

<u>FullName</u>	<u>Initials</u>
Alyssa D Bennett	ADB
Charles L Vorhoff	CLV
Sarah E. Tomek	SET
Teresa Meins	TKM
Tina Tomek	TPT



Chain of Custody Record

Print Form

PO Box 1410, Ocean Springs, MS 39566-1410
(228) 875-6420 FAX (228) 875-6423
www.micromethodslab.com

Lab ID# MS00021
LELAP ID # 01960
TNI ID # TNI01397

M-M Lab
WO #

1910042

Company Name:

Chetaw General & Limited Partnership

Project Manager:

Jim Ward

Turn Around Time & Reporting

Our normal turn around time is 10 working days

☒ Normal
☐ Next Day*
☐ 2nd Day*
☐ Other*
*All rush order requests must be prior approved.

Phone
Mail
Fax
Email

Address:

2391 Pensacola Rd.

Purchase Order #:

City:

Ackerman

State:

MS

Zip:

39735

Email Address:

Phone:

662-387-5750

Sampler Name Printed:

Kirk Shelton

Fax:

Sampler Name Signed:

List Analyses Requested

QC Level: Level 1 ☐ Level 2 ☐ Level 3 ☐

Field Testing

ID# ID# ID# ID# ID#

Field Test Field Test Field Test Field Test Field Test

Project Name:

Chetaw Gen. Soil

Matrix:

W = Water
DW = Drinking Water
S = Solid
SO = Soil
SE = Sediment
L = Liquid
A = Air
O = Oil
SL = Sludge

Project #:

Sample Identification

SBCC125-18

SBCC125-10

SBCC125-7

SBMM9-18

SBMM9-14

SBMM9-10

SBMM17-6

SBMM17-13

SBMM17-19